

11671981

BRACKET, ENGINE ACCESSORY

5/264.2

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
11673847	Bracket, mounting	5/963
2354383 11673848	Support, wiring, generator BRACKET, MOUNTING	5/964
11673850	Bus, CONDUCTOR CONDUCTOR	5/961
11673851	Bracket, mounting	5/956
11673852	Bracket, mounting	5/959
11673853	Bracket, mounting ENGINE ACCESSORY	5/955
11673854	Bracket, mounting ENGINE ACCESSORY	5/955
11673855	Bracket, mounting	5/957
11673856	Bus, CONDUCTOR CONDUCTOR	5/962
11682579	Hose, preformed	5/868
11682581	Tube assembly, metal	5/673
11682585	Boot, generator air	5/872
11682593	Fitting, lubrication	5/320
11682601	Spring, helical, compression	5/540-5/534
11682602	Plug assembly, sealing	5/824
11682606	Retainer, helical, compression spring	5/541-5/535
12314656 11682608	Link, solenoid CONNECTING LINK, RIGID	5/542 5/536
11682609	Bracket, mounting	5/738
11682610	Bracket, angle, lower ANGLE BRACKET	5/738.1
12314648 11682612	Lock, throttle control lever RETAINER, HELICAL, COMPRESSION SPRING	5/536-5/535
11682615	Bracket, mounting	5/912
11682624	Tube, bent, STEEL METALLIC	5/717 5/715
11682625	Elbow, turbosupercharger outlet FLANGE TO TUBE	5/634-5/636
11682629-1	Base assembly, turbosupercharger BRACKET, MOUNTING	5/629 5/634
11682645	Flywheel, engine	5/75
11682647	Tube assembly	5/731
11682658	Bracket, angle ANGLE BRACKET	5/501
11682683	Red assembly, control	5/546
11682701	Housing, mechanical drive	5/322
11682703	Housing, mechanical drive	5/322
11682722	Gear-slip clutch, generator drive SPUR	5/103
2354382 11682725	Support, wiring, generator BRACKET, MOUNTING	5/964
11682751	Tube assembly, metal	5/803
11682767	Shield bearing, replacement	5/518
11682768	Bracket, cooling fan	5/489
11683925	Valve, damper housing oil drain PLUG	5/300
11683926	Adapter, straight, tube to boss	5/299
11683930	Bolt, externally relieved body	5/135
11683934	Connecting rod, piston	5/140
11683935	Pin, piston	5/136
12354933 11683936	Plate, Shroud diesel engine	5/569 5/571
11683939	Cover, access	5/478
11683941	Cover, access	5/488
11683941-1	Cover, access	5/488
11683943	Piston, internal combustion engine	5/137
11683944	Shaft	5/231
11683945	Shaft, SHOULDERED	5/243

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
11683948	Nut, plain, hexagon	5/132
11683950	Cover	5/264
11683951	Cover assembly	5/242
11683952	Connector, fluid, pump	5/465
11683954	Support, oil cooler frame	5/484
11683955	Impeller	5/229
11683956	Impeller	5/230
11683957	Impeller	5/248
11683958	Impeller	5/244
11683959	Shaft	5/249
11683960	Shaft	5/233
11683963	Plate	5/221
11683964	Spacer, plate	5/886
11683968	Spacer assembly	5/232
11683969	Cover assembly	5/222
11683970	Eye, engine lifting BRACKET, ENGINE MOUNT	5/324
11683971	Housing assembly	5/251
11683972	Bearing half, sleeve	5/133
11683973	Screen	5/250
11683974	Plate, engine shroud filler BRACKET, ENGINE ACCESSORY	5/576 5/58
11683975	Tube assembly, metal	5/253
11683976	Plate, engine shroud filler BRACKET, ENGINE ACCESSORY	5/575 5/583
11683977	Shroud, diesel engine	5/600
59440 11683983	Shroud, engine	5/574 5/582
11683984	Cover, access	5/485
11683985	Cover, access	5/479
11683987	Manifold, engine exhaust	5/689
11683988	Manifold, engine exhaust	5/689
11683989	Manifold, engine exhaust	5/687
11683990	Manifold, engine exhaust	5/687
11683991	Pipe, exhaust	5/694
11683992	Pipe, exhaust	5/683
11683993	Pipe, exhaust	5/694
11683994	Pipe, exhaust	5/683
11683996	Oil pan, engine crankcase	5/268
11683997	Housing assembly	5/246
11683999	Adapter RETAINER, OIL SEAL	5/266
11684002	Bracket, double angle	5/265
11684003-1	Bracket, shroud ENGINE ACCESSORY	5/591
11684003-2	Bracket, shroud ENGINE ACCESSORY	5/590
11684004-1	Bracket, shroud ENGINE ACCESSORY	5/589
11684004-2	Bracket, shroud ENGINE ACCESSORY	5/588
11684006	Gage rod, liquid level	5/736
11684007	Adapter RETAINER, OIL SEAL	5/266
11684010	Bracket, filter, fluid	5/782
11684013	Cover, access	5/219
11684017	Cover, access	5/477
11684018	Tube, oil level gage rod FILLER NECK	5/735
11684008	BRACKET, MOUNTING	5/62.3
11684009	BRACKET, MOUNTING	5/62.3

LIST OF OIPs - Continued

<u>Part no.</u>	<u>Nomenclature</u>	<u>Page</u>
11684019 ✓	Plate, mounting	5/786
11684020 ✓	Bracket, eye, rotating shaft	5/516
11684022 ✓	Tube assembly, metal	5/787
11684023 ✓	Shaft, straight	5/506
11684024 ✓	Tube assembly, metal	5/664
11684026 ✓	Shroud, air deflection	5/572 5/580
11684028 ✓	Lever, fuel shutoff REMOTE CONTROL	5/507
11684032 ✓	Bracket, angle ANGLE BRACKET	5/503
11684033 ✓	Mounting assembly SLEEVE OIL PRESSURE REGULATOR VALVE	5/297
11684035 ✓	Screen, oil pan reserve	5/267
11684036 ✓	Baffle assembly DEFLECTOR, DIRT AND LIQUID	5/254
11684041 ✓	Frame, engine cooler support BRACKET, MOUNTING	5/486
11684042 ✓	Lock plate, nut and bolt WASHER, PLAT	5/241
11684043-1 ✓	Cover, fluid filter	5/286
11684044 ✓	Impeller	5/223
11684045 ✓	Impeller	5/224
11684046 ✓	Impeller	5/235
11684048 ✓	Frame, engine oil cooler support BRACKET, MOUNTING	5/482
11684049 ✓	Bracket, oil cooler screen support	5/466
11684050 ✓	Bracket, oil cooler screen support ENGINE ACCESSORY	5/462
11684051 ✓	Bracket, oil cooler screen support ENGINE ACCESSORY	5/467
11684052 ✓	Bracket, mounting	5/255
11684053 ✓	Retainer, oil filter element FILTER BODY, FILTER	5/301
11684055 ✓	Bracket, mounting FOR LOW VOLTAGE MODULE	5/929
11684057 ✓	Bracket, engine accessory generator	5/749
11684059 ✓	Support, bearing fan BRACKET, EYE, ROTATING SHAFT	5/400
11684060 ✓	Support, oil filter element BRACKET, FILTER MOUNTING	5/303
11684061 ✓	Adapter	5/270
11684062 ✓	Screen, oil pan scavenge inlet	5/272
11684063 ✓	Retainer C.I.P., RETAINING	5/412
11684064 ✓	Spring, helical, compression	5/414
11684065 ✓	Seat, helical & compression SPRING	5/413
11684066 ✓	Spring, helical, compression	5/302
11684070-1 ✓	Screen, transmission oil cooler	5/461
11684070-2 ✓	Screen, transmission oil cooler	5/456
11684077 ✓	Housing, CRANKSHAFT DAMPER and oil filter assembly MECHANICAL DRIVE	5/290
11684078 ✓	Nozzle assembly, lubricating	5/36
11684082-1 ✓	Bracket, transmission oil cooler screen MOUNTING	5/460
11684082-2 ✓	Bracket, transmission oil cooler screen MOUNTING	5/457
11684085 ✓	Screen, engine cooler	5/455
11684088 ✓	Shroud, diesel engine	5/566
11684089 ✓	Plate, shroud, diesel engine MOUNTING PLATE	5/577 5/585
11684091 ✓	Plug, machine thread	5/271
11684092 ✓	Shroud, air deflection	5/572 5/580
11684096 ✓	Filter, fluid RESERVE	5/675
11684097 ✓	Valve, check	5/662
11684098 ✓	Shroud, diesel engine	5/587
11684093	COVER, FLUID FILTER	5/286
11684077-1	HOUSING MECHANICAL DRIVE	5/290

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
11684099	Shroud, diesel engine	5/592
11684100 ✓	Bracket, angle <i>ANGLE BRACKET</i>	5/674
11684101 ✓	Bracket, solenoid	5/665
11684103	Cooler, fluid, transmission	5/458
11684104 ✓	Bearing, washer, thrust	5/226
11684108 ✓	Engine, block, diesel	5/29
11684126 ✓	Bracket, angle	5/785
11684127 ✓	Wiring harness	5/923
11684131 ✓	Rod, control <i>CONNECTING LINK, RIGID</i>	5/504
11684132 ✓	Cover, access	5/483
11684137-1 ✓	Bracket, mounting	5/635
11684137-2	Bracket, mounting	5/628
11684143 ✓	Bracket, double angle.	5/816
11684144 ✓	Bracket, double angle	5/815
11684145 ✓	Bracket, double angle	5/807
11684146 ✓	Bracket, double angle	5/804
11684147 ✓	Bracket, double angle	5/814
11684148 ✓	Bracket, angle	5/813
11684149	Cover, access	5/817
11684154 ✓	Strap, retaining	5/805
11684155 ✓	Strap, retaining	5/812
11684156 ✓	Strap, retaining	5/808
11684157 ✓	Fairlead half, tubular	5/809
11684158 ✓	Fairlead half, tubular	5/811
11684159 ✓	Fairlead half, tubular	5/806
11684160 ✓	Spacer, plate	5/810
11684162 ✓	Cradle <i>ASSEMBLY, GENERATOR</i>	5/748
11684172 ✓	Tube BY THE HEAD OF MAIN <i>ASSEMBLY, METAL, BRANCHED</i>	5/719 5/717
11684182	Bracket, mounting	5/628
11684184 ✓	Elbow, flange to hose	5/630
11684185-1 ✓	Pipe, exhaust	5/696
11684186 ✓	Tie rod, turbosupercharger <i>DRAG LINK - TIE ROD</i>	5/626 5/633
11684187-1 ✓	Pipe, exhaust	5/696
11684193 ✓	Pipe, exhaust	5/685
11684194 ✓	Pipe, exhaust	5/685
11684196	Bracket, mounting	5/635
11684197 ✓	Adapter, flywheel <i>HOUSING</i>	5/74
11684201 ✓	Shroud, diesel engine	5/566
11684203 ✓	Base assembly, turbosupercharger	5/629 5/634
11684208 ✓	Connector, multiple fluid, pressure line	5/821
11684213 ✓	Tube assembly, metal	5/673
11684215 ✓	Tube, bent, metallic	5/885
11684216 ✓	Tee, crankcase breather <i>FLANGE TO TUBE</i>	5/888
11684217 ✓	Cover, access <i>STRAP, RETAINING</i>	5/473 5/489
11684219 ✓	Cover, access <i>PLATE, MENDING</i>	5/478 5/489.2
11684220 ✓	Cover, access	5/477
11684221-1 ✓	Bracket, shroud <i>ENGINE ACCESSORY</i>	5/589
11684221-2 ✓	Bracket, shroud <i>ENGINE ACCESSORY</i>	5/588
11684222	Spacer	5/547
12354428	BRACKET, MOUNTING	5/628
11684195	TUBE, BENT, METALLIC xviii <i>Change 3</i>	5/718
12254295	SPACER, PLATE	5/812.1

12354418-1	BRACKET, EXHAUST MANIFOLD	5/698.2
12354418-2	BRACKET, EXHAUST MANIFOLD	5/698.2
12254369	POST, ELECTRICAL - MECHANICAL EQUIPMENT	5/955.1
12354419	CLAMP, U-BOLT	5/698.3
12254293.1	STRAP, RETAINING	5/807.1
12254293-2	STRAP, RETAINING	5/807.1
12254294	SPACER, PLATE	5/807.2

DMWR 9-2815-220

LIST OF OIPs - Continued

Part no.	Nomenclature	Page	
11684224	Bracket, lever, linkage	5/568	
11684225	Bracket, angle	5/544	
11684226	Tube, oil level gage rod <i>FILLER NECK</i>	5/735	
11684231	Tube, metal, preformed <i>BENT, METALLIC</i>	5/646 5/650	
12354433	11684234	Bracket, cooling fan	5/480
11684235	Strap, retaining	5/698	
11684236	Strap, retaining	5/693	
11684246	Cover, access	5/481	
11684250	Connecting link, rigid	5/510	
11684255	Tube assembly, metal	5/822	
11684256	Tube assembly, metal	5/825	
11684260	Filter, fuel-water separator	5/788	
11684261	Filter, fluid, pressure	5/783	
11684263	Housing	5/416	
11684264	Shroud, cooling, manifold	5/570	
11684265	Shroud, fan cooling	5/581 5/576	
11684266	Shroud, cooling engine	5/583 5/575	
11684267	Flyweight assembly	5/410	
11684276-1	Strap, retaining	5/958	
11684276-2	Strap, retaining	5/958	
11684294	Hose assembly, nonmetallic	5/769	
11684295	Bracket, filter, fluid	5/782	
12254202	Housing assembly, solenoid control	5/534 5/538	
12314647	12254204	Housing, solenoid control	5/539 5/534
12254205	Shaft, straight	5/537 5/540	
12254231	Valve bleeder, fuel filter <i>PLUG, VENT.</i>	5/772	
12254260	Plug, machine thread	5/287	
12254261	Spring, helical, compression	5/288	
12254292	Bracket, cooling fan <i>MOUNTING</i>	5/487	
12254331	Spring, helical, extension	5/502	
12254374	Bracket, mounting, Motor	5/964.1	
12254380	Connector, fluid pump	5/465	
12254389	Valve, control	5/788.9	
12254390	Spring	5/788.8	
12254391	Valve, sleeve	5/788.3	
12254392	Spring	5/788.4	
12254393	Valve body <i>(REWORK DWG)</i>	5/788.1	
12254393-1	Cover	5/788.5	
12254393-2	Plug	5/788.6	
12254393-3	Screw, adjusting	5/788.7	
12275712	Bracket, solenoid	5/848.8	
12275727	Shroud, diesel engine <i>GUARD, MECHANICAL DRIVE</i>	5/599	
12275746	Bracket, angle	5/978	
12275750	Gage rod, liquid level	5/736	
12275765	Coupling, half, shaft	5/907	
2275870	12275789	Housing, <i>MECHANICAL DRIVE</i>	5/908
12275793	Gearshaft, spur	5/73	
12254297	SPACER, PLATE	5/62.2	

12314659	HANDLE, BAIL	5/738.1A
12275712	BRACKET, SOLENOID	5/848.8
12275807	TUBE ASSEMBLY, METAL	5/848.8
444705	PLUG, PIPE	DMWR 9-2815-220 5/934
12214598	PLATE, TURBOCHARGER	5/602
12314649	CONNECTING LINK, RIGID	5/541
12354381	ANGLE BRACKET	5/633
<u>Part no.</u>	<u>Nomenclature</u>	<u>Page</u>

LIST OF OIPs - Continued

12275796	Cradle assembly, engine, starter BRACKET, ENGINE ACCESSORY	5/746
12275797	Cradle assembly, engine, generator BRACKET, MOUNTING	5/751
12275809	Bracket, angle ANGLE BRACKET	5/848.11
354367 12275811	Tube assembly, METAL	5/848.6
12275820	Cooler, fluid, transmission	5/458
12275822	Support bracket ANGLE BRACKET	5/848.36
12275823	Bracket, support, left rear ANGLE BRACKET	5/848.37
12275831	Tube, transmission breather BENT, METALLIC	5/848.34
12275842	Pressure switch, differential SWITCH, PRESSURE	5/848.17
12275844	Submergence check valve assembly, exhaust ejector	5/848.27
12275861	Clamp, loop	5/848.26
354347 12275870	Bracket, mounting DOUBLE ANGLE	5/848.16
12275879	Ejector, exhaust PIPE, EXHAUST	5/848.29
12275880	Tube, intermediate crankcase breather BENT, METALLIC	5/848.33
344592 12314292	Tube assembly	5/731
12314561	Bracket, support, right MOUNTING	5/848.35
12314564	Tube, BENT, METALLIC	5/848.25
12314565	Tube assembly, scavenge METAL	5/848.28
12314567	Ejector, exhaust PIPE, EXHAUST	5/848.29
12314568	Tube, BENT, METALLIC	5/848.25
12314569	Tube assembly, scavenge METAL	5/848.28
12314591	Bracket, double angle	5/732
12314626	Bracket, mounting ENGINE ACCESSORY	5/470.4
12314637	Clamp, loop	5/848.26
28M94	Cover	5/779
29M68	Body, fuel filter	5/780
75.4505 450750-45005	Clamp, hose	5/383
7025892 12354380	DAMPER, VIBRATION, ENGINE Damper, engine crankshaft	5/81
7062194	Valve, solenoid	5/663
7062196-1	Lead and conduit assembly, electrical	5/668
7062198	Ignition unit, manifold air heater	5/672
7320384	Plug, machine thread	5/163
7320393	Shaft, valve rocker STRAIGHT	5/165
7320394	Shaft, VALVE ROCKER STRAIGHT	5/164
7320400	Vane	5/405
7320408	Cover, access	5/168
7320420	Cover assembly	5/166
7320427	Spring, helical, compression	5/171
7320428	Spring, helical, compression	5/173
7320429	Spring, helical, compression	5/172
7320430	Shaft, shouldered	5/329
7320450	Tube, metallic	5/631
7320463	Plate, retaining, shaft	5/382
7320469	Tube assembly, metal	5/384
7320476	Bearings, cap	5/157
7320478	Gearshaft, bevel	5/378
502919	CLAMP, HOSE	5/383
12354412	BRACKET, COOLING FAN	5/489.1
12354413	BRACKET, COOLING FAN	5/489.1

CAP ASSEMBLY, BRACKETIVE, MUFFLER - EXHAUST PIPE

7323993
7323992

CONNECTOR, MULTIPLE FLUID, PRESSURE LINE
BOLT, FLUID, PASSAGE

5/820.1
5/818

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
7320480 ✓	Tube assembly, metal	5/386
7320485 ✓	Spring FLUID HOLDER HOLDER, SPRING	5/846 5/847
7324661 ✓	Connector, fluid pressure	5/819
7324900 ✓	Adapter, straight, tube to boss	5/298
12254278 7325555 ✓	Nozzle assembly, fuel NOZZEL ASSEMBLY, FLAME HEATER	5/670
7335556 ✓	Spark plug	5/669
7346573 ✓	Thermostat, flow control	5/459
7389566 ✓	Transmitter, temperature, electrical resistance	5/932
7413736 ✓	Bowl, sediment	5/778
7416363 ✓	Transmitter, pressure	5/936
7416621 ✓	Head, filter	5/777
7539838 ✓	Rotor, engine poppet VALVE	5/174.1
7539839 ✓	Retainer SEAT, HELICAL COMPRESSION SPRING	5/170
7744610 ✓	Lock, valve spring retainer	5/169
7744617 ✓	Seat, helical compression SPRING	5/183
7744798 ✓	Retainer LOCK VALVE SPRING RETAINER	5/184
7767321 ✓	Screw ADJUSTING ASSEMBLY ADJUSTING	5/185
7771274-1 ✓	Switch, thermostatic	5/933
39132.1 7983062 ✓	Adapter, tachometer drive ADAPTER SPEED METER-TACHOMETER DRIVE	5/326
8355883 ✓	Indicator, humidity plug	5/976
8537819-1 ✓	Thermostat, flow control	5/468
8376456 ✓	Valve, safety relief	5/975
8395471-1 ✓	Bearing, plain, rod end	5/508
8682451 ✓	Clamp, turbosupercharger STRAP, RETAINING	5/627 5/638
8682492 ✓	Deflector, air, engine cooling	5/596
8682539 ✓	Plug	5/372
8682540 ✓	Adapter, camshaft drive	5/328
8682553 ✓	Gearshaft, bevel	5/346
8682558 ✓	Tie rod, turbosupercharger DRAG LINK - TIE ROD	5/626 5/638
8682561 ✓	Cover, access	5/567 5/568
8682620 ✓	Deflector, air engine cooling Baffle, AIRFLOW, ENGINE	5/597
8682623 ✓	Shroud, cooling engine FAN, RADIATOR	5/573 5/579
8682626 ✓	Baffle, air flow, ENGINE	5/585 5/572
8682658 ✓	Housing, centrifugal fan	5/609
8682665 ✓	Pin	5/411
8682674 ✓	Spacer, sleeve	5/343
8682676 ✓	Lever, assembly, control REMOTE CONTROL	5/511
8682677 ✓	Lever, assembly, throttle REMOTE CONTROL	5/505
8682682 ✓	Mount, baffle air flow BRACKET, MOUNTING	5/613
8682684 ✓	Gearshaft, bevel	5/344
8682689 ✓	Gear, spur	5/98
8682691 ✓	Gear, spur	5/115
8682700 ✓	Deflector, air, engine cooling	5/593
8682701 ✓	Deflector, air, engine cooling	5/594
8682702 ✓	Strap, retaining COVER, ACCESS	5/595
2254218 8682729 ✓	Gearshaft, spur	5/407
8682730 ✓	Housing assembly	5/417
840053	CLAMP, HOSE	5/583
7320476	BEARING CAP	5/87

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
8682731 ✓	VALVE, REGULATING FLUID PRESSURE Housing, advance oil control valve	5/415
8682732 ✓	Ring, adjusting	5/409
✓ 8682734 12254249	Crankshaft, engine	5/85
8682737	Adapter, TRANSMISSION CASE <small>ASSEMBLY, CRANKCASE</small>	5/60
8682737-1 ✓	Adapter, TRANSMISSION CASE <small>ASSEMBLY, CRANKCASE</small>	5/61
8682748 ✓	Elbow, turbosupercharger outlet FLANGE TO TUBE	5/634 5/636
8682749 ✓	Elbow, flange to hose	5/630
8682750 ✓	Support assembly, turbosupercharger	5/633 5/635
8682751 ✓	Support, camshaft end cover <small>FLATE ASSEMBLY, CAMSHAFT</small>	5/325
8682753 ✓	Tube assembly, CYLINDER METAL	5/718 5/716
3544 38 8682756	Baffle, air flow CYLINDER AIR	5/578-5/581
3544 37 8682757	Baffle, air flow CYLINDER AIR	5/584 5/570
8682765 ✓	Cover, fan drive housing ACCESS	5/434
8682774 ✓	Washer, spring, tension	5/649 5/650.3
8682783 ✓	Control rod	5/519
8682785 ✓	Housing, engine coolant <small>SUPPORT, FAN, RADIATOR</small>	5/612
8682786-1 ✓	Shaft, straight	5/517
8682799 ✓	Flange, pipe	5/645 5/6
8682814 ✓	Gearshaft, spur	5/101
8682815 ✓	Spring, helical, compression	5/291
8682816 ✓	Adapter, straight flange to hose	5/327
8682817 ✓	Cover, access	5/315
✓ 8682820 172526	Gear, spur	5/76
8686981-1 ✓	Bearing, plain, rod end	5/508
8698689 ✓	Spacer, ring	5/642 5/646
8698690 ✓	Washer, spring, tension	5/643 5/647
8698764 ✓	Spacer, ring	5/650.4
8712323-2	Clamp, hose	5/733
761109 8717157	Cap, FILLER OPENING	5/728
8717161 ✓	Screw, externally relieved body	5/729
8724986 ✓	Bearing half, sleeve	5/44
8724987 ✓	Bearing half, sleeve	5/44
8724995 ✓	Bearing half, sleeve	5/40
8724996 ✓	Bearing half, sleeve	5/40
8725087 ✓	Gear, cluster 1 SPUR	5/288 5/228
8725096 ✓	Washer, thrust	5/227
8725099 ✓	Valve	5/237
8725101 ✓	Spring, helical, compression	5/238
8725113 ✓	Spring, helical, compression	5/239
8725115 ✓	Cap	5/240
8725141 ✓	Bearing cap	5/38
8725144 ✓	Housing assembly	5/27
8725181 ✓	Support	5/39
8725211 ✓	Cover, access	5/294
8725218 ✓	Plug, machine thread	5/292

LIST OF OIPs - Continued

Part no.	Nomenclature	Page
8725222 ✓	Plunger, relief valve	5/289
8725224 ✓	Stop, relief valve PLATE, VALVE STOP	5/293
8725225 ✓	Gear, bevel	5/316
8725226 ✓	Support, bearing fan BRACKET, EYE, ROTATING SHAFT	5/348
8725227 ✓	Support, fan drive gearshaft HOUSING, BEARING UNIT	5/350
8725229 ✓	Gearshaft, bevel	5/321
8725240 ✓	Spring, helical, compression	5/295
8725243 ✓	Housing, bearing unit	5/401
8725248 ✓	Gearshaft, bevel, spur MULTIPLE GEARS	5/402
8725253 ✓	Cover, access	5/319
8725254 ✓	Rod, engine, crankcase	5/35
8725275 ✓	Adapter, starter, engine BRACKET, MOUNTING	5/116
8725276 ✓	Plunger, regulator valve	5/296
8725281 ✓	Rocker arm, ^{ROCK} poppet valve	5/188
8725293 ✓	Rocker arm, ^{ROCK} poppet valve	5/186
8759089 ✓	Valve, check	5/827
8761016 ✓	Bracket, eye, rotating shaft	5/500
8761018 ✓	Bell crank	5/509
8761020 ✓	Shaft, straight	5/380
8761021 ✓	Tube assembly, metal	5/636 5/690
8761022 ✓	Cage, bearing engine HOUSING, BEARING UNIT	5/114
8761045 ✓	Manifold, intake MANIFOLD	5/640 5/694
8761050 ✓	Hub, engine cooling BODY	5/610
8761052 ✓	Tube, bent, steel METALLIC	5/720 5/718
8761059 ✓	Tube, bent, steel METALLIC	5/777 5/715
8761063 ✓	Housing	5/433
8761080 ✓	Plate, eye, engine lifting BRACKET, ENGINE ACCESSORY	5/59
8761082 ✓	Tube assembly, metal	5/632
8761085 ✓	Base, injection pump assembly EYE, ROTATING SHAFT	5/895
8761086 ✓	Base assembly, turbosupercharger	5/629 5/634
8761091 ✓	Bolt, fluid, passage	5/715 5/715
12354416 8761104 ✓	Shroud, camshaft drive	5/580 5/574
8761131 ✓	Tube assembly, metal	5/889
8761137 ✓	Flange, pipe	5/644 5/648
8761138 ✓	Flange, pipe	5/648 5/650
12354415 8761148 ✓	Shroud, camshaft drive	5/582 5/577
8761155-1 ✓	Base, fan drive housing assembly HOUSING, MECHANICAL DRIVE	5/349
8761156 ✓	Elbow, engine manifold FLANGE	5/629 5/643
8761157 ✓	Tube assembly, metal	5/647 5/650
8761158 ✓	Tube, metal, preformed BENT, METALLIC	5/637 5/641
8761159 ✓	Tube assembly, metal	5/638 5/641
8761160 ✓	Tube, metal, preformed BENT, METALLIC	5/646 5/65
8761164 ✓	Strap, retaining	5/598
8761190 ✓	Tube assembly, cylinder TUBE, BENT, METALLIC	5/707
8761192 ✓	Tube, bent, STEEL METALLIC	5/709
8761193 ✓	Tube assembly, oil drain	5/708
8761206 ✓	Base, accessory drive housing	5/370

LIST OF OIPs - Continued

<u>Part no.</u>	<u>Nomenclature</u>	<u>Page</u>
8761242 ✓	Fan assembly, engine IMPELLER, FAN, AXIAL	5/611
8761244 ✓	Washer, flat	5/399
8761260 ✓	Spring, helical, compression	5/439
8761269 ✓	Shroud, cooling ADAPTER, GENERATOR TO AIR INLET	5/579 5/573
8761270 ✓	Shroud, cylinder COOLING	5/586 5/578
8761280 ✓	Camshaft, engine	5/317
8761281 ✓	Camshaft, engine	5/317
8761287 ✓	Shaft, fan DRIVE SHOULDERED	5/385
8761390 ✓	Plate, retaining bearing	5/377
8761420 ✓	Washer, recessed	5/375
8761440 ✓	Shaft, idler gear SHOULDERED	5/102
8761449 ✓	Connector, multiple fluid, pressure line ELBOW, TUBE	5/856
8761472 ✓	Adapter, straight, flange to hose	5/884
8761491-3 ✓	Hose assembly, nonmetallic	5/857
8761502-2 ✓	Hose assembly, nonmetallic	5/858
8761507 ✓	Hose assembly, nonmetallic	5/855
8761510 ✓	HOSE assembly, nonmetallic	5/768.2
8761597	Elbow, flange to hose	5/712
8761598	Tube, oil pan	5/711
8761295	EYE, LEFT NG, ENGINE	5/62.1
8761490-2	HOSE, NONMETALLIC	5/631
12354423	BRACKET, MOUNTING	5/629
12354429-1	BRACKET, MOUNTING	5/629
12354430	BRACKET, MOUNTING	5/637
12354421	BRACKET, MOUNTING	5/637
12354429-2	BRACKET, MOUNTING	5/626
12354420	BRACKET, MOUNTING	5/626
12354422	BRACKET, MOUNTING	5/626
12354427	BRACKET, MOUNTING	5/627
12354426	SPACER	

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. General. These depot maintenance work requirements (DMWR) are for use by depot/contractor personnel. They apply to engine Models AVDS-1790-2C, figures 1-1 (1/1) and 1-3 (1/2), AVDS-1790-2CA, figures 1-3.1 (1/2.1) and 1-3.2 (1/2.1), AVDS-1790-2D, figures 1-2 (1/2) and 1-3 (1/2), AVDS-1790-2DA, figures 1-3.2 (1/2.1) and 1-3.3 (1/2.2), and AVDS-1790-2DR, figures 1-4 (1/3) and 1-5 (1/3) manufactured by Teledyne Continental Motors, General Products Division (TCM/GPD).

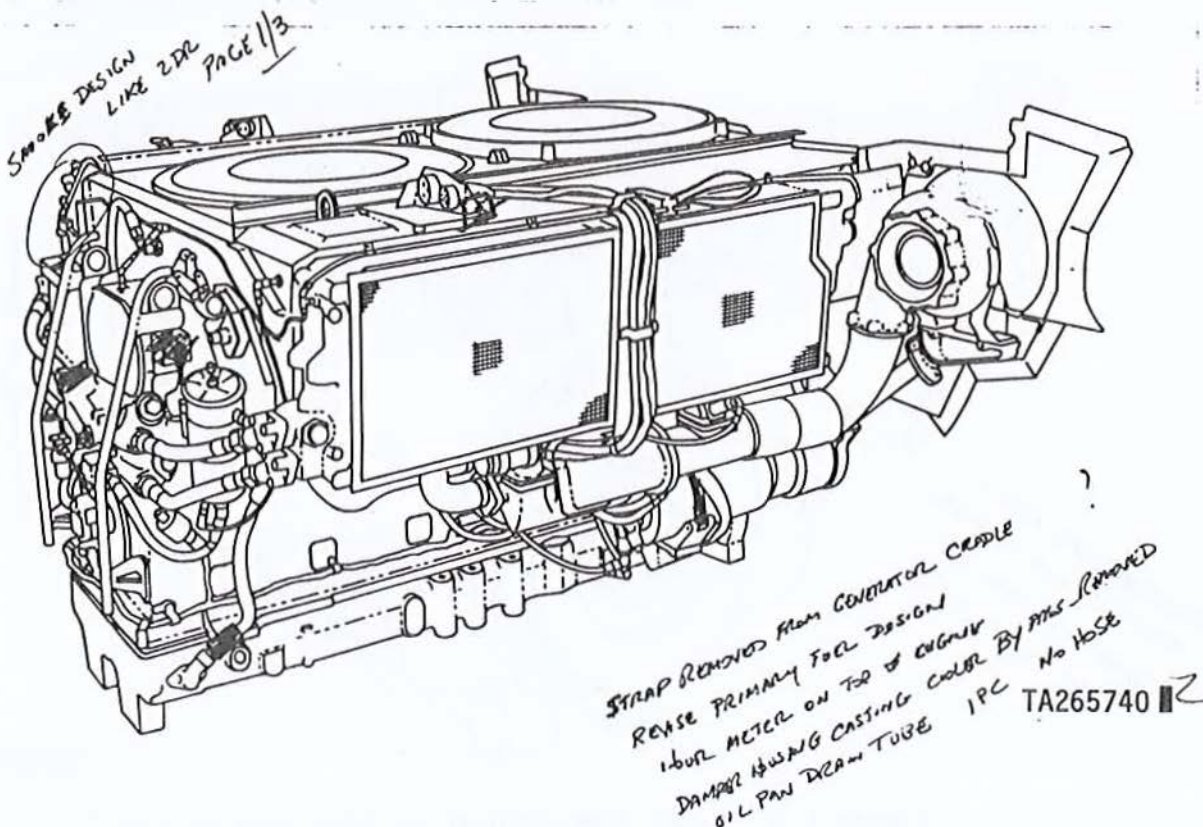
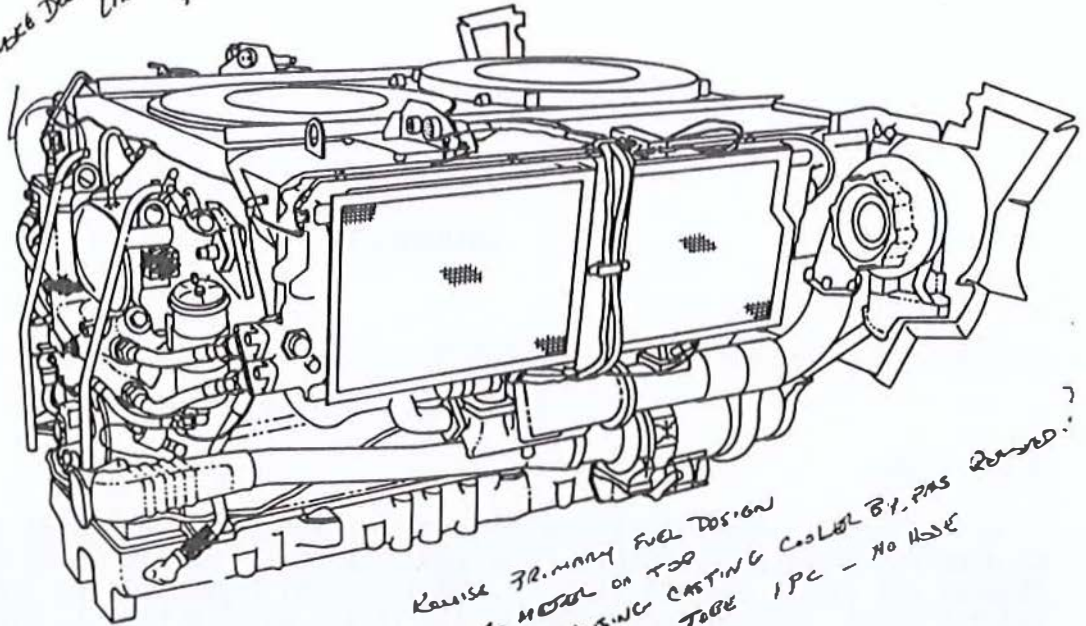


Figure 1-1. Model AVDS-1790-2C engine, right front view.

DMWR 9-2815-220

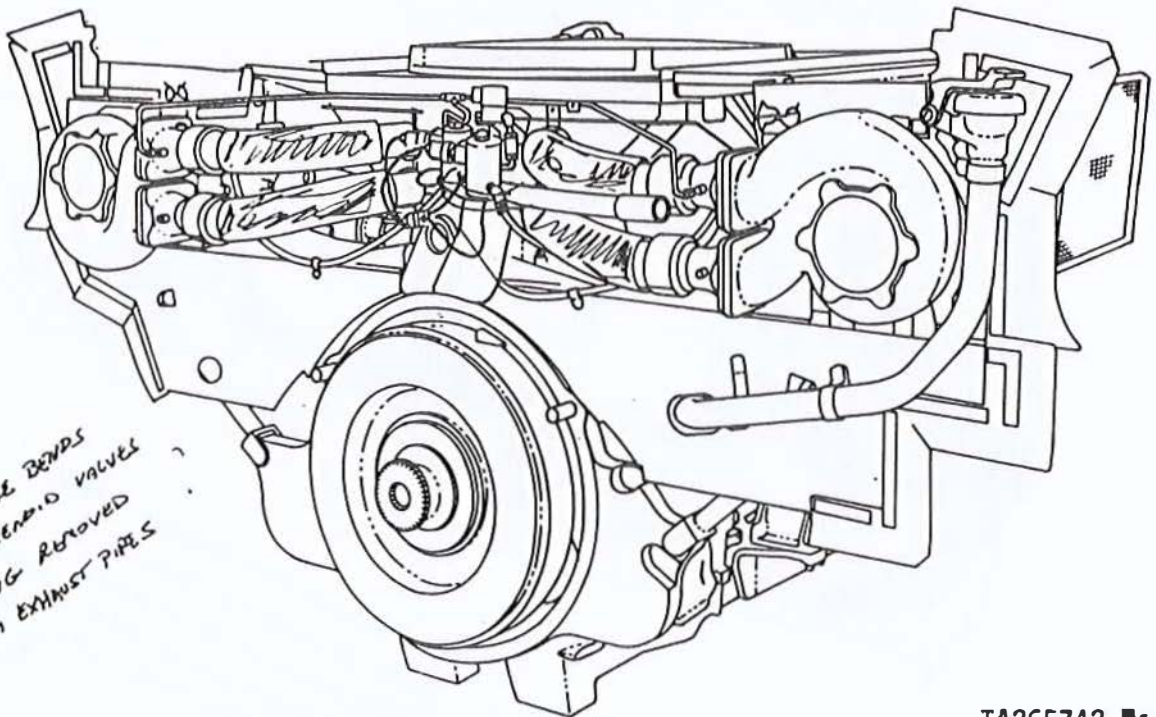
SMEE DESIGN
LINE 2DR
PAGE 1/3



RAISE PRIMARY FUEL DESIGN
MOVE MOTOR ON TOP
DAMPEN HOUSING CASTING COOLED BY PAS
OIL PAN DRAW TUBE 1PC - NO HOSE

TA265741

Figure 1-2. Model AVDS-1790-2D engine, right front view.



BLENDED TUBE BENDS
AROUND IDLE VALVE
SHEETING REMOVED
FROM EXHAUST PIPES

TA265742

Figure 1-3. Model AVDS-1790-2C or AVDS-1790-2D engine, left rear view.

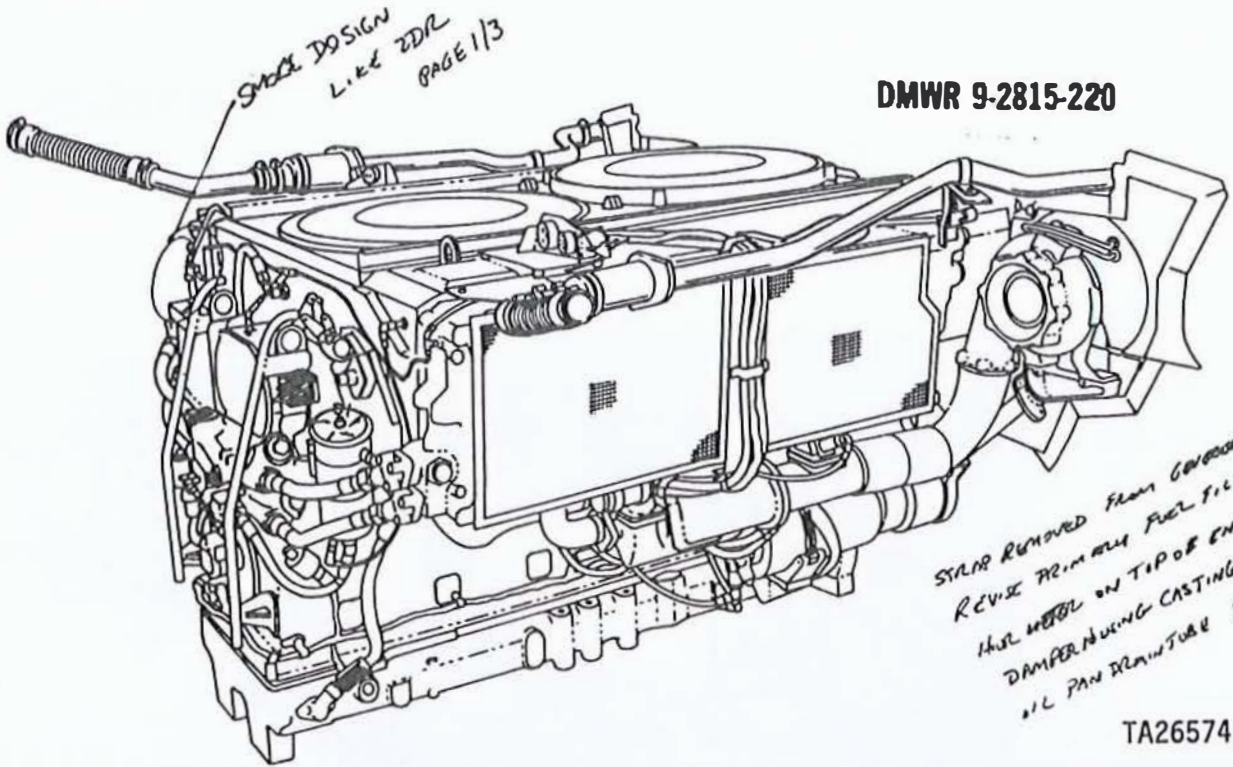


Figure 1-3.1. Model AVDS-1790-2CA engine, right front view.

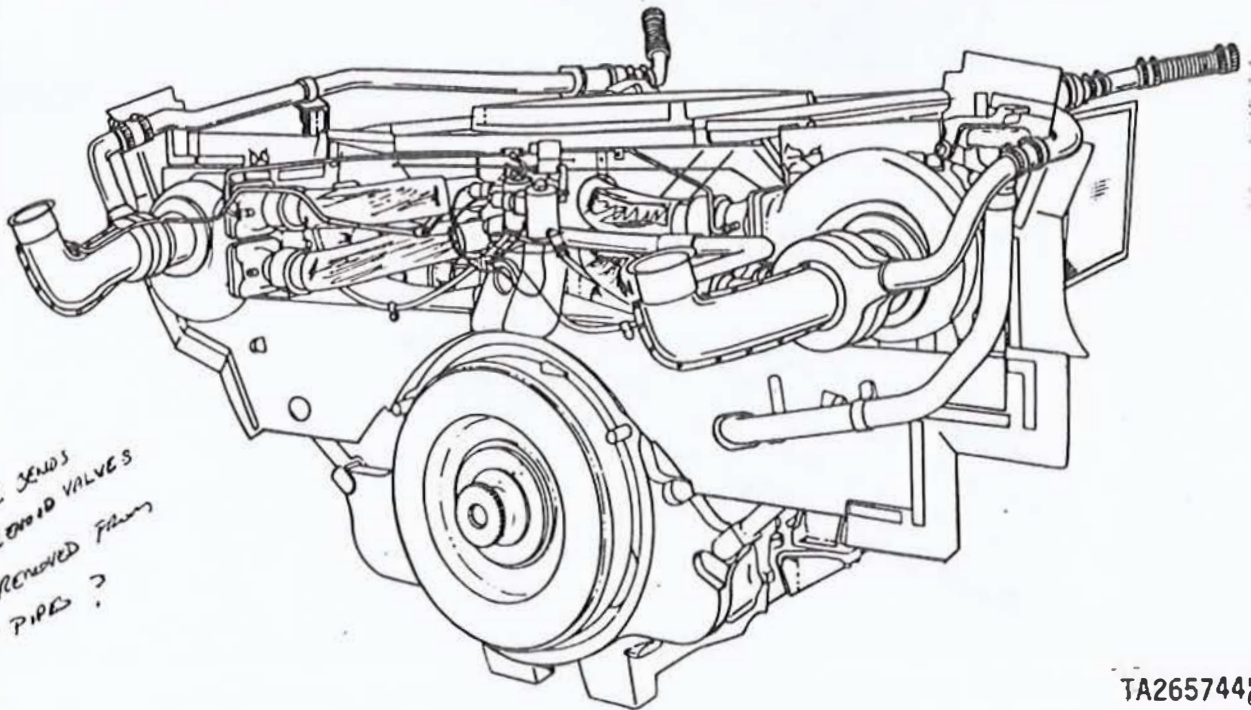
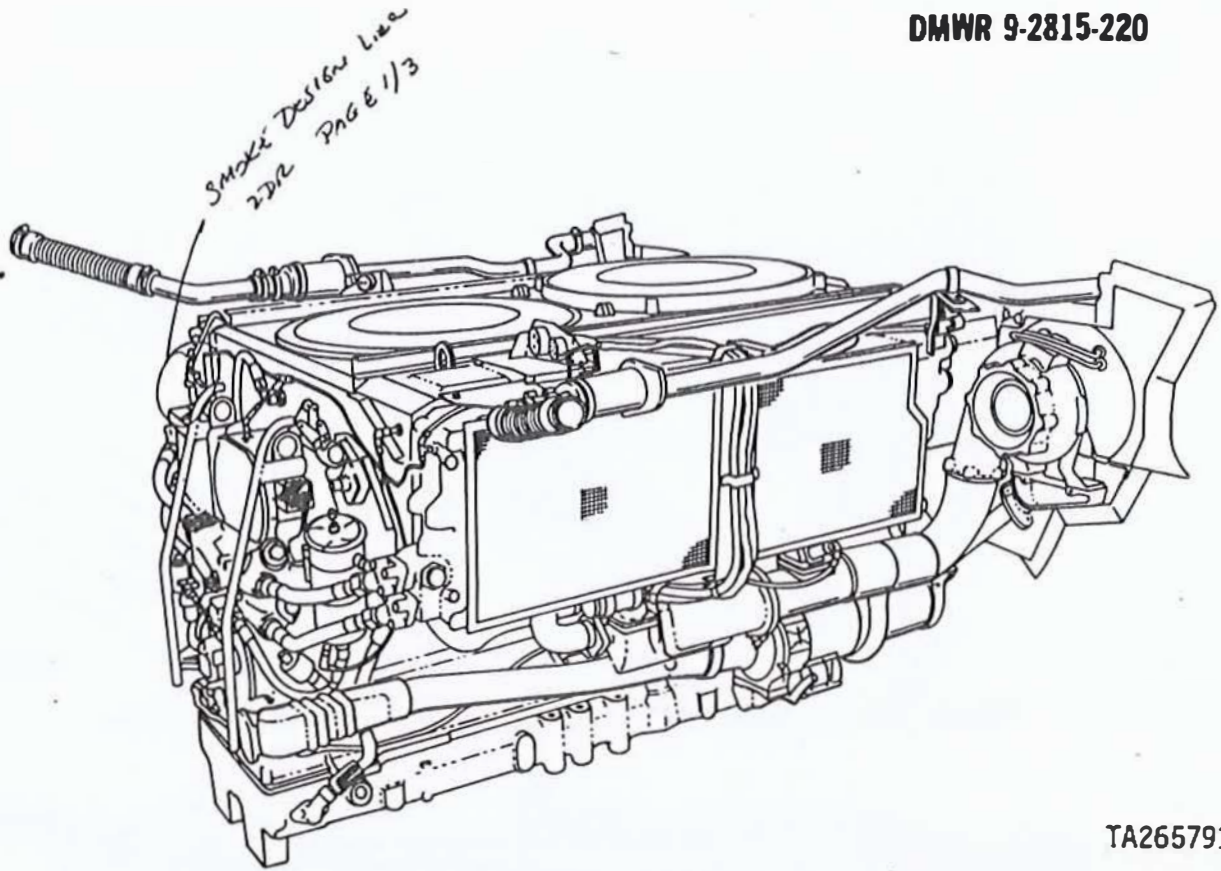


Figure 1-3.2. Model AVDS-1790-2CA or AVDS-1790-2DA engine, left rear view.

DMWR 9-2815-220



TA265791

Figure 1-3.3. Model AVDS-1790-2DA engine, right front view.

1 HOUR METER ON TOP OF ENGINE
REVISE DESIGN PRIMARY FILTER
OIL DRAIN TUBE 1 PC NO HOSE
BLOWER HOUSING CASTING COOLER BY PASS REMOVED??

ADD WIRING HARNESES
ADD TACHMETER DRIVE

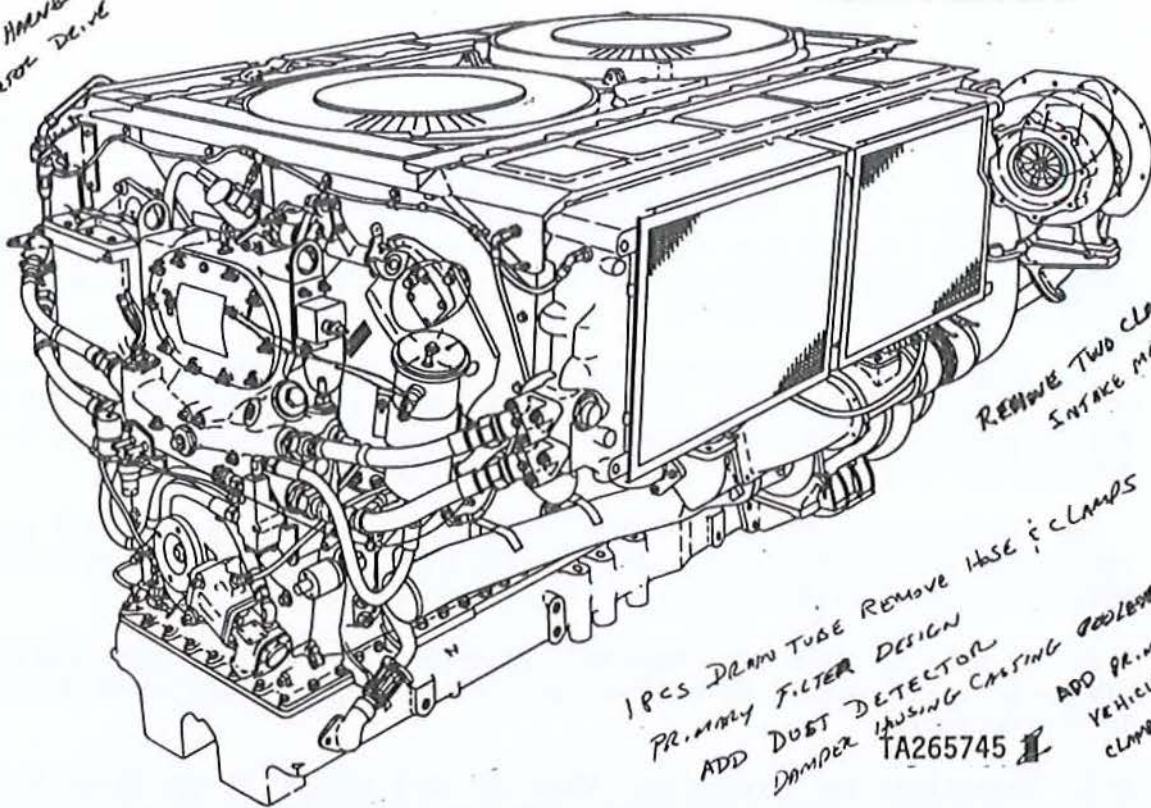


Figure 1-4. Model AVDS-1790-2DR engine, right front view.

ADD WIRING HARNESES
SPRING TYPE CLAMPS

SHIELDING REMOVED
FROM EXHAUST
PIPES

BREATHER
TUBE
BENTS AROUND
SOLENOIDS

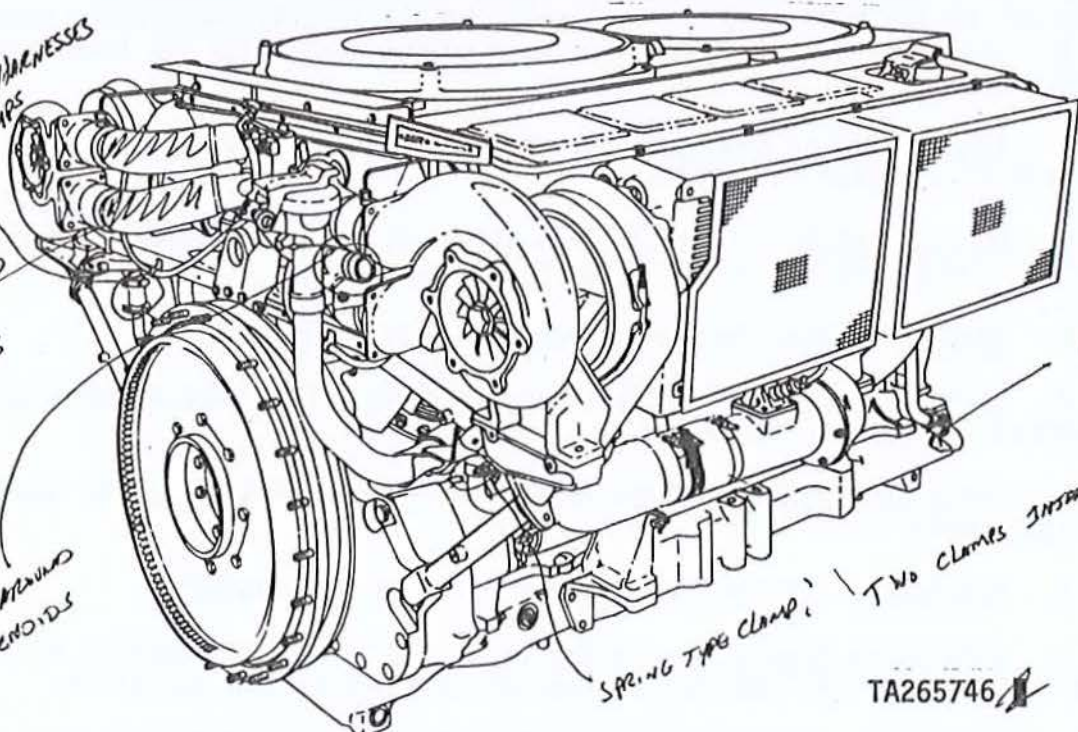


Figure 1-5. Model AVDS-1790-2DR engine, left rear view.

1-1. (Cont)

b. Overhaul Procedure. This Depot Maintenance Work Requirement (DMWR), and supporting documents, establish the procedures to be used by depot/contractor personnel to overhaul the engines noted above. Included are descriptions of and procedures for Technical Requirements, Preshop Analysis, Removal of Major Assemblies, Maintenance Overhaul and Repair, Final Assembly, Quality Assurance/Quality Control Requirements, and Preservation, Preservation Packaging, Packing, Marking and Shipping.

c. Wear Limits. Tolerances and wear limits established herein are the minimum acceptable. Parts, components, assemblies or subassemblies not meeting these requirements shall be condemned and disposed of as directed by an appropriate directive or by the supply provisions of the contract.

d. References. Appendix A contains a consolidated listing of all documents referenced in the DMWR text. The contents of this DMWR shall be followed if there is conflict with content of any referenced document.

1-2. Maintenance Forms and Records. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750 and in the contract.

1-3. Deviations and Exceptions. When any work segment as set forth in this depot maintenance work requirement cannot be accomplished, or can only be accomplished in a manner other than specified, for whatever reason, prior approval of the procuring activity shall be obtained by immediately submitting to the contracting officer/NMP a written notice containing the following information:

a. Identification Numbers. Serial number (if applicable), part number, and NSN of affected equipment.

b. Non-completion. Work elements which will not be completed or which will not be accomplished exactly as specified herein.

c. Reason. Reason for nonaccomplishment or deviation.

d. Corrective Action. Action taken to correct condition causing nonaccomplishment or need for deviation.

e. Parts Availability. Data relative to availability of parts required, if applicable.

f. Man-hours. Estimated man-hours required for completion.

g. Inspection Requisite. Instructions and inspection required to maintain the integrity of the end item because of such omission or deviation.

1-4 Definitions. To aid interpretation of the intent of the requirements of this DMWR, the phrases and terms peculiar to the equipment and its overhaul, used in preparing these requirements, are defined in the Glossary.

DMWR 9-2815-220

BLANK

FRAME

SECTION II. DESCRIPTION AND DATA

1-5. Description.

a. Location of Engine Components.

(1) Engine ends. The ends of the engine will be called the damper end or front and flywheel end or rear.

(2) Engine sides. As viewed from the front end toward the rear, the side to the right will be called the right side and the side to the left will be called the left side. Beginning at the front, the right bank of cylinders is numbered 1R through 6R and the left bank of cylinders is numbered 1L through 6L.

(3) Main bearing numbering. Starting from the front, the main bearings are numbered 1 through 7.

(4) Component numbering. The cylinders, pistons, connecting rods, and connecting rod bearings are numbered with their respective cylinder number locations.

b. General Description.

(1) Cylinders. The Model AVDS-1790-2C engine, figures 1-1 (1/1) and 1-3 (1/2), Model AVDS-1790-2CA engine, figures 1-3.1 (1/2.1) and 1-3.2 (1/2.1), Model AVDS-1790-2D engine, figures 1-2 (1/2) and 1-3 (1/2), Model AVDS-1790-2DA engine, figures 1-3.2 (1/2.1) and 1-3.3 (1/2.2) and Model AVDS-1790-2DR engine, figures 1-4 (1/3) and 1-5 (1/3) are 12-Cylinder, 90°, V-type, 4-Cycle, air-cooled, turbosupercharged, diesel engines. The cylinder assemblies are individually replaceable units, with overhead valves and valve rocker assemblies in the head. The cylinders are arranged in two banks of six cylinders each. Each bank of cylinders has an overhead camshaft arrangement to actuate the valves of each cylinder.

(2) Fuel system. The engines feature a fuel injection system and a turbosupercharged air induction system which obtains optimum engine performance. The fuel injection system has a fuel injection metering pump which supplies metered fuel to individual cylinders through fuel injector nozzles. The fuel supply pump assembly located at the front of the engine, draws fuel from the vehicle fuel tanks and delivers it to the fuel injection pump. A turbosupercharger assembly is located on each side of the engine at the rear. The turbosuperchargers are exhaust-gas driven and increase the air flow pressure entering the air intake manifolds.

(3) Fuel filtering system. The engines include an engine primary fuel filter and fuel/water separator type secondary fuel filter. Both filters have top mounted bleeder valves for removal of air from the fuel system. Water is removed automatically by a constant bleed orifice in the primary fuel filter and by an automatic water drain in the fuel/water separator secondary fuel filter.

(4) Engine generator. Two types of electrical generators are used depending on the engine model. The Models AVDS-1790-2C and AVDS-1790-2CA engines are

1-5. (Cont)

equipped with an oil cooled generator. The AVDS-1790-20, AVDS-1790-2DA, and AVDS-1790-2DR engines are equipped with an air cooled generator.

(a) Models AVDS-1790-2C and AVDS-1790-2CA engine generator. The Models AVDS-1790-2C and AVDS-1790-2CA engines are equipped with a 28 volt oil cooled dc generator capable of 650 ampere output over the engine's operating range. This generator develops an alternating current which is rectified within the unit to produce a direct current at the output terminals.

(b) Models AVDS-1790-2D, AVDS-1790-2DA, and AVDS-1790-2DR engine generator. The models AVDS-1790-20, AVDS-1790-2DA and AVDS-1790-2DR engines use a 28 volt air cooled dc generator capable of developing 300 ampere output. Cooling air is drawn from the crew compartment via an air intake tube by a blower mounted on the generator. The intake tube extends along the crankcase below the intake manifold on the right side of the engine. Exhaust air is conveyed from the generator by an air exhaust tube elbow connected to the rear of the engine shroud. Generator outlet air is exhausted through the engine's rear cooling fan vane.

(5) Engine Starter. The engines are equipped with a 24 volt solenoid operated starter. A low voltage sensing module is included to prevent starter ~~operation~~ ^{ACTIVATION} with improperly charged batteries.

(6) Engine lubrication system. Engine lubrication is provided by a force feed system consisting of four circuits. These are the scavenge circuit, the main or pressure oil circuit, the leveling circuit, and the make up circuit. Each circuit is operated independently by a single oil pump consisting of four separate sections.

(7) Engine crankcase breather system. The engine crankcase is vented by an enclosed breather system which is vented through the crankcase breather tube at the left turbosupercharger exhaust pipe.

(8) Engine manifold heater system. The engines are equipped with two intake manifold heaters that are installed between the intake manifold elbows and the turbosuperchargers. The heaters, when operated, preheat air entering the cylinders to facilitate cold weather starting and idle operations.

(9) Smoke generating system. The engine is equipped with a smoke generating system which can be used to spray vaporized diesel fuel, from the vehicle's fuel tanks, directly into the engine exhaust system. This creates a dense smoke screen to conceal the vehicle's location and movements.

c. Detailed Description.

(1) Crankcase. The crankcase is a one-piece aluminum casting with forged aluminum main bearing caps. The bearing caps function as an integral part of the crankcase. Each cap is secured on studs with four slotted nuts. Two thru bolts clamp the main bearing cap in the tunnel slot of the crankcase. With this type of crankcase and bearing cap construction, uniform load distribution in the bearing area is obtained making possible uniform distribution of combustion forces over the entire crankcase. *THE CRANKCASE IS SERVICEABLE FOR ALL AVDS-1790 ENGINES. THE CRANKCASE IS SUPPLIED WITHOUT 2 STUDS ITEM 4, 2 STUDS ITEM 4.1 (fig 5-13) AND 1 PLUG ITEM 16 (fig 5.4) BEING INSTALLED.*
Change 3 1/7

1-5. (Cont)

(2) Main bearings. The seven replaceable main bearings are steelbacked, split type, having copper-lead alloy bearing surfaces. The center main bearing is double-flanged with bearing material to control crankshaft end play and thrust.

(3) Crankshaft, flywheel, and damper. Details of the crankshaft, flywheel, and damper are shown in figure 1-6 (1/8). The key numbers in parentheses below refer to figure 1-6 (1/8) unless otherwise indicated.

(a) Crankshaft assembly. The crankshaft assembly (42) is a nitrided steel forging with seven main bearing journals and six crankpins. Each crankpin accommodates two opposing connecting rod assemblies (46). Flanges are provided on the crankshaft for mounting the flywheel (13) on the rear end and a torsional vibration damper (45) on the front end. The crankshaft and flywheel are both statically and dynamically balanced. The torsional vibration damper (45) is a precision viscous type and is replaceable only as an assembly.

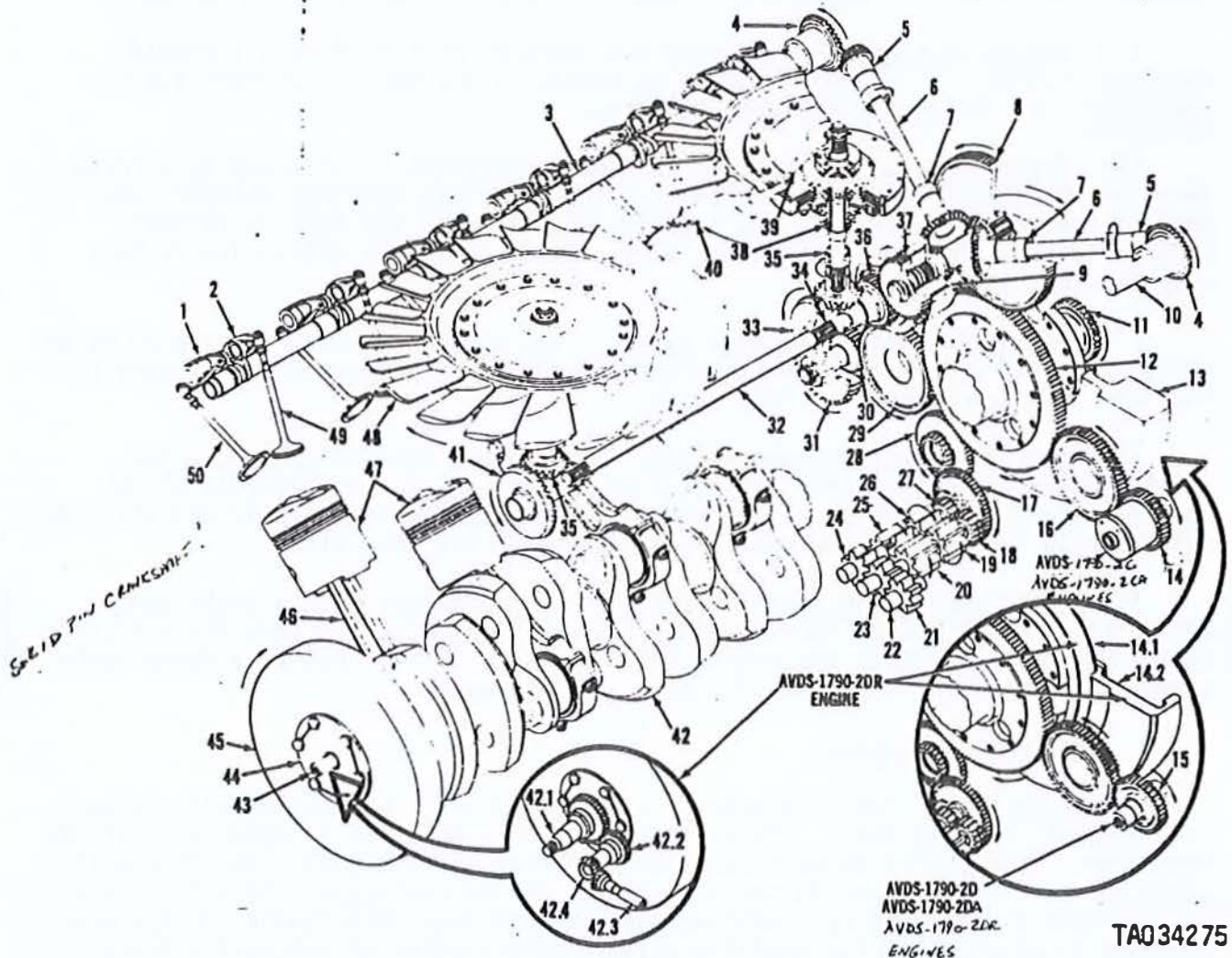


Figure 1-6. Engine major working parts (sheet 1 of 2).

Legend for fig. 1-6:

- | | | | |
|------|--|-------|---|
| 1. | Intake valve rocker arm assembly | 25. | Scavenge oil pump drive impeller |
| 2. | Exhaust valve rocker arm assembly | 26. | Pressure oil pump impeller drive shaft |
| 3. | Left camshaft assembly | 27. | Level control oil pump drive impeller |
| 4. | Camshaft driven gear | 28. | Oil pump drive gear |
| 5. | Camshaft drive gearshaft | 29. | Starter idler gear |
| 6. | Camshaft drive shaft | 30. | Starter driven gearshaft |
| 7. | Camshaft drive bevel gearshaft | 31. | Starter drive gear |
| 8. | Accessory drive gearshaft assembly | 32. | Front fan drive shaft |
| 9. | Fuel injection pump advance assembly | 33. | Fan drive bevel gearshaft |
| 10. | Right camshaft assembly | 34. | Rear fan drive shaft |
| 11. | Transmission accessory drive gearshaft | 35. | Fan driven gearshaft |
| 12. | Accessory drive gear | 36. | Fuel injection pump drive gearshaft |
| 13. | Flywheel (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20 and AVDS-1790-2DA) | 37. | Fuel injection pump driven shaft gear |
| 14. | Generator drive gearshaft (Model AVDS-1790-2C and AVDS-1790-2CA) | 38. | Fan drive clutch assembly |
| 14.1 | Flywheel adapter (Model AVDS-1790-2DR) | 39. | Cooling fan adapter |
| 14.2 | Flywheel (Model AVDS-1790-20R) | 40. | Rear cooling fan assembly |
| 15. | Generator drive gearshaft (Models AVDS-1790-20, AVDS-1790-20A and AVDS-1790-20R) | 41. | Fan drive bevel gearshaft |
| 16. | Generator idler gear | 42. | Crankshaft assembly |
| 17. | Oil pump driven gear | 42.1. | Power take-off gearshaft (Model AVDS-1790-2DR) |
| 18. | Level control oil pump driven impeller | 42.2. | Fuel pump drive gear (Model AVDS-1790-20R) |
| 19. | Pressure oil pump driven impeller | 42.3. | Fuel pump driven gear (Model AVDS-1790-2DR) |
| 20. | Scavenge oil pump driven impeller | 42.4. | Fuel pump drive idler gear (Model AVDS-1790-2DR) |
| 21. | Make up oil pump driven impeller | 43. | Fuel pump drive coupling (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20 and AVDS-1790-2DA) |
| 22. | Make up oil pump drive shaft | 44. | Fuel pump drive adapter (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20 and AVDS-1790-2DA) |
| 23. | Oil pump driven impeller shaft | 45. | Crankshaft torsional vibration damper |
| 24. | Make up oil pump drive impeller | 46. | Connecting rod assembly |
| | | 47. | Piston |
| | | 48. | Front cooling fan assembly |
| | | 49. | Exhaust valve |
| | | 50. | Intake valve |

Figure 1-6. Engine major working parts (sheet 2 of 2).

1-5. (Cont)

(b) Bearing journals. ~~All crankpin and main bearing journals are hollow to reduce weight.~~ Holes are drilled diagonally through each main bearing journal and extend through the crank cheek and crankpin to provide a direct passage for oil under pressure to the connecting rod and crankshaft main bearings.

(4) Connecting rods and bearings. The connecting rod assemblies (46, fig. 1-6) (1/8) are tapered I-beam section steel forgings. A bronze-lined, steel-backed, split bushing type bearing is pressed into the piston pin end of the rod. The replaceable precision connecting rod bearings are the steel-backed, split type having copper-lead alloy bearing surfaces.

(5) Pistons, pins, and rings. The pistons (47, fig. 1-6) (1/8) are aluminum castings, cam ground, and tapered to provide an accurate fit in the cylinders at operating temperatures. The piston dome is machined to the shape of a conical section (toroidal shape) so that it tapers into the open type combustion chamber. Each piston is fitted with four rings. The top ring groove is composed of a steel insert which is an integral part of the piston. The three remaining ring grooves are machined into the aluminum piston. The upper three rings are compression rings and the bottom ring is an oil-control ring. The heavy walled, tubular, steel piston pins are full-floating in the piston and the connecting rod. The piston pin is retained in the piston by retaining rings, one at each end of the piston pin, in the piston pin bore.

(6) Cylinders and valves. The key numbers in parentheses below refer to figure 1-6 (1/8) unless otherwise indicated.

(a) Cylinder assembly. Each cylinder assembly is an individually replaceable unit that consists of a barrel, cooling fin muff, and a cylinder head. The cylinder barrel, dome and intake and exhaust port liners are steel. The aluminum cylinder head cooling fins are cast to the steel dome. The cooling fins for the barrel are machined into an aluminum muff and shrunk onto the steel barrel. After the cylinder barrel fins are machined, the head and barrel are electron beam welded to form a single unit. Valve guides and seats are shrunk into place in the head. The cylinder barrel is "choked" at the head end to provide a straight bore under running conditions.

(b) Cylinder assembly mounting. A mounting flange is machined on the cylinder barrel near the base to provide an attachment of the cylinder to the crankcase. The cylinder assembly is secured to the crankcase with studs and nuts. An outer extension of the cylinder head encloses a recess or rocker box, which houses the valves, valve springs, and related parts. Rocker arm assemblies (1 and 2) are held in place by rocker shafts in the cylinder head valve rocker support cover.

(c) Camshaft bearing. A camshaft bearing surface is provided in each cylinder. The camshaft bearing is bored with the cylinder head valve rocker support cover in place; therefore, the covers are not interchangeable and each must remain as a part of a specific cylinder assembly. Each cylinder has replaceable camshaft bearings at the camshaft bore. Identifying numbers are used on cylinder and covers to prevent mismatching. Counterbores in the rocker box and rocker support covers accommodate the intercylinder rubber ~~seals~~ and the steel flanges which enclose the camshaft between the cylinders.

1-5. (Cont)

(d) Valves. The stem of the intake valve (50) and exhaust valve (49), for each cylinder, extends into the rocker box. Three nested springs, compressed between two retainers, and secured to the valve stem by two coneshaped locks, hold each valve to its seat. Each exhaust valve has a positive valve rotator which also serves as the lower spring retainer. Valve clearance adjusting screws with flat swivel pusher pads are mounted on one end of the valve rocker arms (1 and 2).

(e) Rocker arms. Forged steel valve rocker arms (1 and 2) with roller cam-followers are used. The rollers are hardened and honed to provide an extremely smooth and permanent contact surface. Hollow rocker arm shafts and drilled passages in the rocker arms convey oil to all moving parts.

(7) Camshafts. The key numbers in parentheses below refer to figure 1-6 (1/ 8) unless otherwise indicated.

(a) Camshaft assemblies. The left and right camshaft assemblies (3 and 10) are mounted, one on each bank, on the cylinders and operate the valve mechanism. The camshafts are hollow to provide oil passages for pressure lubrication to the valve parts and to permit deflection when the cylinders fire. Tubular molded rubber ^{HOSES} ~~SLEEVES~~ enclose the camshafts between cylinders.

(b) Camshaft drive. Each camshaft is driven by the accessory drive gear (12), accessory drive gearshaft assembly (8), camshaft drive bevel gearshaft (7), camshaft drive gearshaft (5), and camshaft driven gear (4) through an inclined quill type camshaft drive shaft (6). The drive shafts can be removed to permit separate rotation of the camshafts for engine timing. When camshafts are correctly positioned in relation to the crankshaft, the drive shafts have different number of splines on each end and this allows them to be inserted in the camshaft bevel gearshafts without disturbing relationship between camshafts and crankshaft.

(8) Lubrication system. Figure 1-7 ^(1/11) ~~(1/12)~~ ^{SHOWS ENGINE LUBRICATING SYSTEM AND} ~~is a flow diagram showing~~ ^{operational details of the lubrication system.}
~~FIGURE 1-7A (1/12) IS A FLOW DIAGRAM SHOWING ENGINE OIL FLOW CONTROL.~~

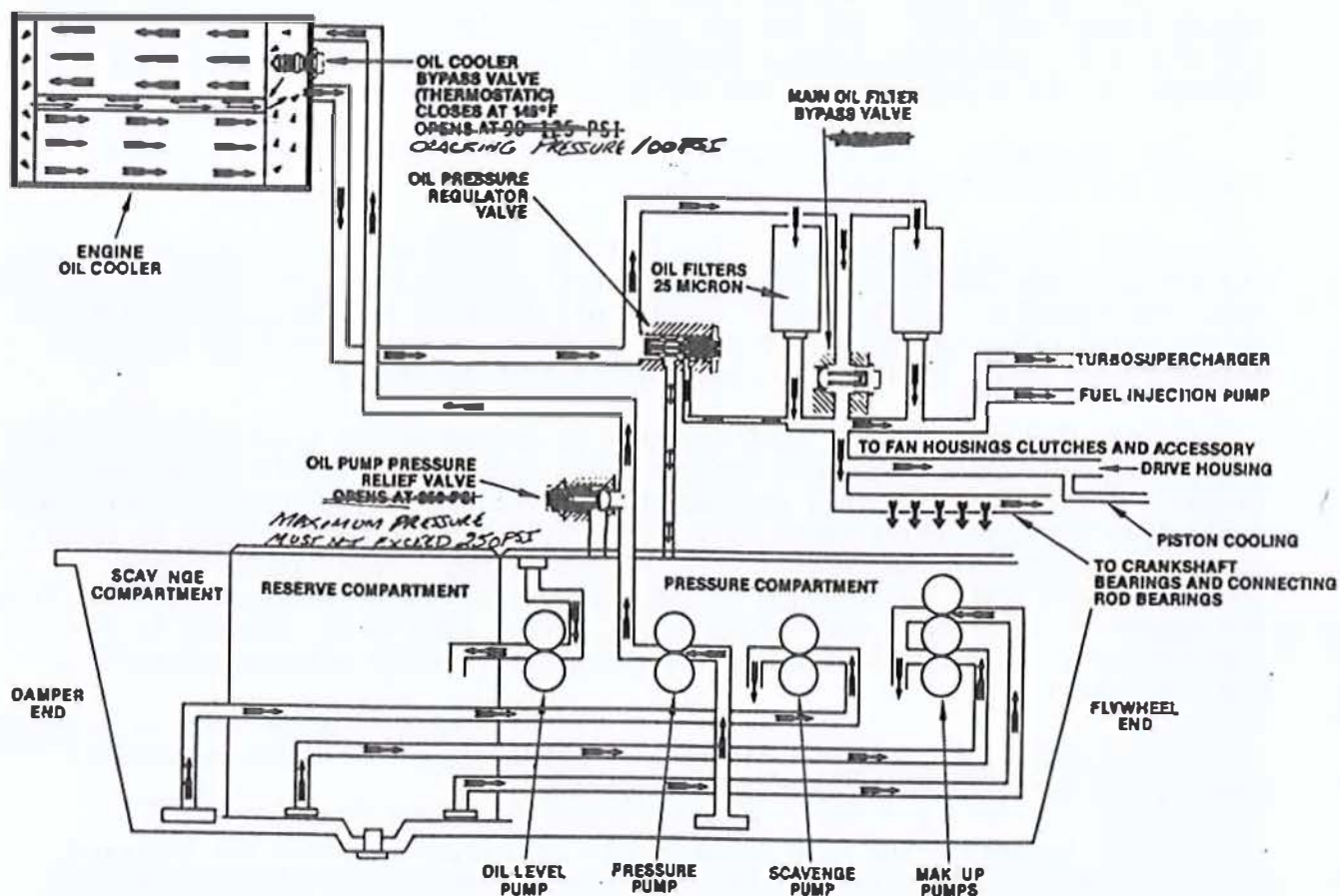
(a) General. The main pressure oil pump draws oil from the pressure oil pump compartment in the oil pan. This compartment is fed by the scavenge oil pump which picks up oil from the front end of the oil pan and by oil which drains into the pressure compartment from the cover of the pressure pump compartment and the reserve compartment. The pressurized oil is forced through the engine oil coolers and oil filter to the engine oil galleries, bearings, turbosuperchargers, fuel injection pump, and to the piston oil sprayer nozzles. These nozzles are located in the crankcase below each cylinder and provide a continuous oil spray to the pistons and cylinder walls. A pressure regulator valve, located on the right side of the crankshaft damper and oil filter housing, is influenced by the pressure in the main bearing oil gallery and returns the incoming excess unfiltered oil to the oil pan.

(b) Oil pan. The oil pan is a one-piece aluminum alloy casting divided into a pressure oil pump compartment, oil reserve compartment, and the sump compartment at the front of the pan. Cored passages from each of the compartments

Figure 1-7 on reverse side

1-5. (Cont)

terminate at a central outlet and permits draining all of the compartments from a single drainage point. A cored passage also permits draining the oil coolers and oil filter compartment directly without permitting any sludge to enter the oil pan. The oil pan is designed to maintain a constant oil level above the main pressure oil pump pickup tube in the pressure oil pump compartment during vehicle operation regardless of the angle at which the engine may be inclined.



1-7A.

Figure 1-7A. Engine oil flow control - flow diagram.

(c) Oil pump. The oil pump assembly consists of four sections combined into a single unit. The scavenge oil pump section of the unit picks up oil from the front end compartment of the oil pan and delivers it to the main pressure pump oil compartment. The main pressure oil pump section picks up oil from its respective compartment and supplies oil to the engine oil galleries, bearings, and to the piston oil sprayer nozzles. The level in the pressure pump compartment is maintained by a dual inlet leveling pump which returns any excess oil to the reserve compartment. Oil is pumped from the reserve compartment by two make up pumps in a single pump section. These pumps pick up oil from opposite corners of the reserve compartment and discharge it into the pressure pump

1-5. (Cont)

compartment. The dual pump design insures return of oil from the reserve compartment under all operating conditions, cold oil, slope operation, etc.

(d) Oil filters and control valves. The engine oil filters and the bypass valve are located in the crankshaft damper and oil filter housing at the front of the engine. All engine oil passes through the oil filters. The oil filter bypass valve opens at a differential pressure of 35.6 psi. The bypass valve permits oil to bypass the filters in the event that they become clogged.

(e) Oil sampling system. The oil sampling system consists of two toggle valves connected to the oil cooling system permitting easily accessible sampling of the engine and transmission oil to determine the need for oil changes. This permits a more precise method of determining the frequency of oil changes. On the models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA, there are two ^{DRAIN COCKS} ~~valves~~ mounted together on top of the right bank oil coolers, one ^{DRIVE COCK} ~~valve~~ for engine oil and one for transmission oil. Engine model AVDS-1790-2DR has ^{A SINGLE DRAIN COCK} ~~one valve~~ located ^{ON} ~~at~~ the filter housing cover on the front of the engine.

(9) Fuel system. The fuel systems used on the AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA engines are identical. Figure 1-8 (1/14.1) is a schematic diagram of the main fuel system used on these engines. The fuel system used on the AVDS-1790-2DR engine is similar except for the differences in the fuel supply pump assembly drive and routing of fuel injection pump overflow fuel. Figure 1-9 (1/15) is a schematic diagram of the main fuel system used on the AVDS-1790-2DR engine.

(a) Fuel supply pump assembly (AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA). The engine driven vane type fuel supply pump assembly is used to supply fuel under pressure to the fuel injection pump. The fuel pump is crankshaft driven by the fuel pump drive adapter (44, fig. 1-6) (1/8) and the drive coupling (43) located at the front of the engine.

(b) Fuel supply pump assembly (Model AVDS-1790-2DR). A right angle drive is provided on the drive housing for the vane type fuel supply pump assembly. The pump is similar to the one used on the other models except that it rotates counter-clockwise. The drive housing is lubricated with oil externally routed from the engine main oil gallery on the right side of the crankcase.

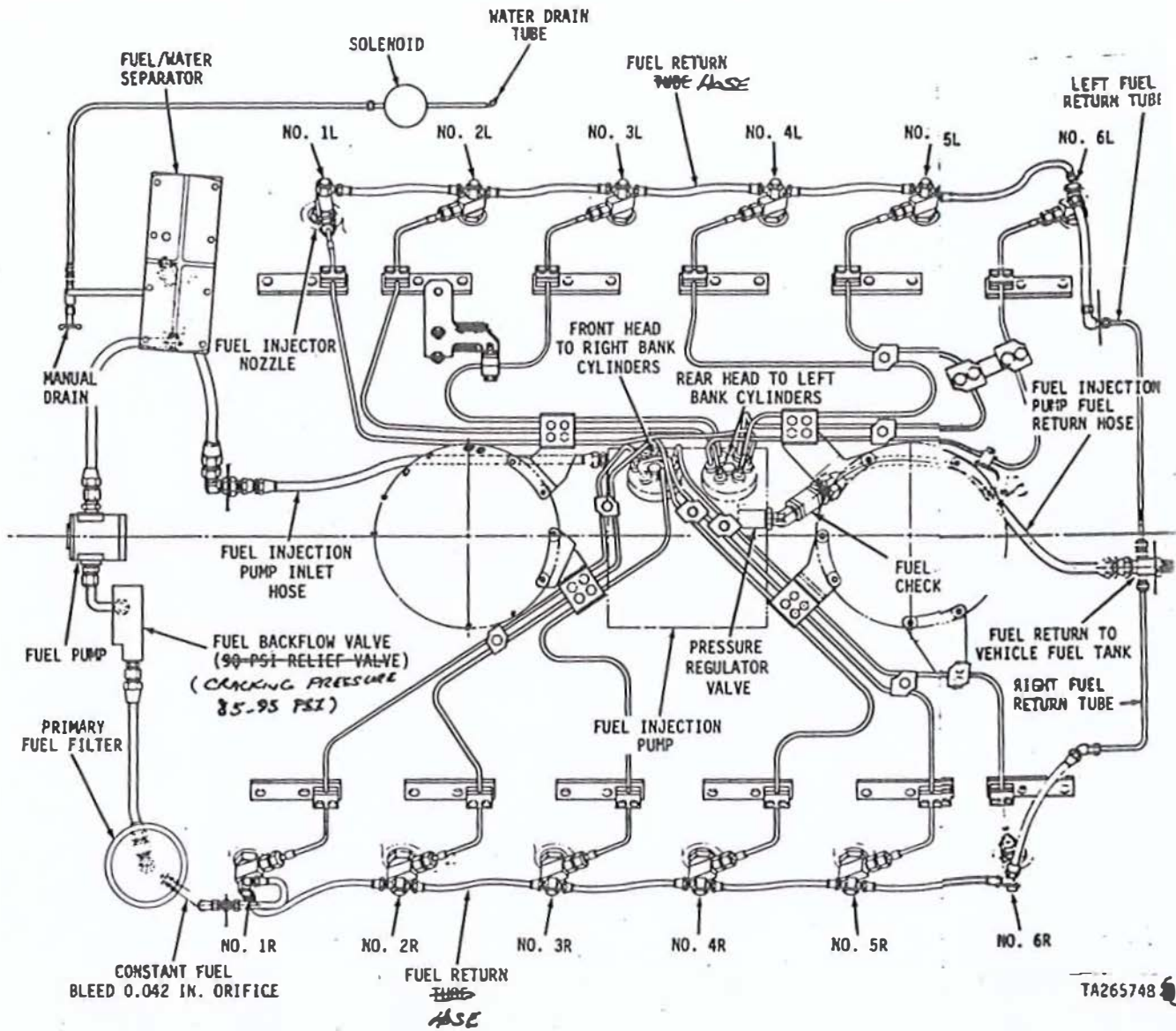
(c) Fuel injection metering pump. The fuel injection metering pump is located in the "V" of the engine between the fan drive housings, and supplies fuel under high pressure to each cylinder. The pump is driven at engine speed from the fan drive housing located at the rear of the engine. A fuel injector pump advance assembly (9, fig. 1-6) (1-8) is incorporated in the accessory drive housing to automatically provide a gradual degree advance of injection timing during the engine speed range from idle to ~~1800~~ ²⁰⁰⁰ rpm.

1-5. (Cont)

(d) Fuel injector nozzles and tubes. Twelve fuel injector nozzles (figs. 1-8 and 1-9) (1/14.4) and (1/15), one per cylinder, are used to inject fuel into the combustion chambers. Twelve fuel injector tubes of equal length carry the fuel from the fuel injection pump to the nozzles. The nozzles on each cylinder bank are interconnected by fuel return ~~lines~~ ^{lines} to provide a path for the return of excess fuel.

(e) Fuel purge system. A manually operated purge pump is provided in the vehicle operator's compartment and is used to clear the engine main fuel system and flame heater system of air, and fill them with fuel. Most of the purged air is removed through bleeder valves located in the top of the primary fuel filter and the fuel/water separator filter. The rest of the air is forced through the main fuel tubes into the fuel return lines and on to the vehicle fuel tanks. Water is removed from the system by a constant bleed orifice in the primary fuel filter and an automatic water drain in the fuel/water separator filter.

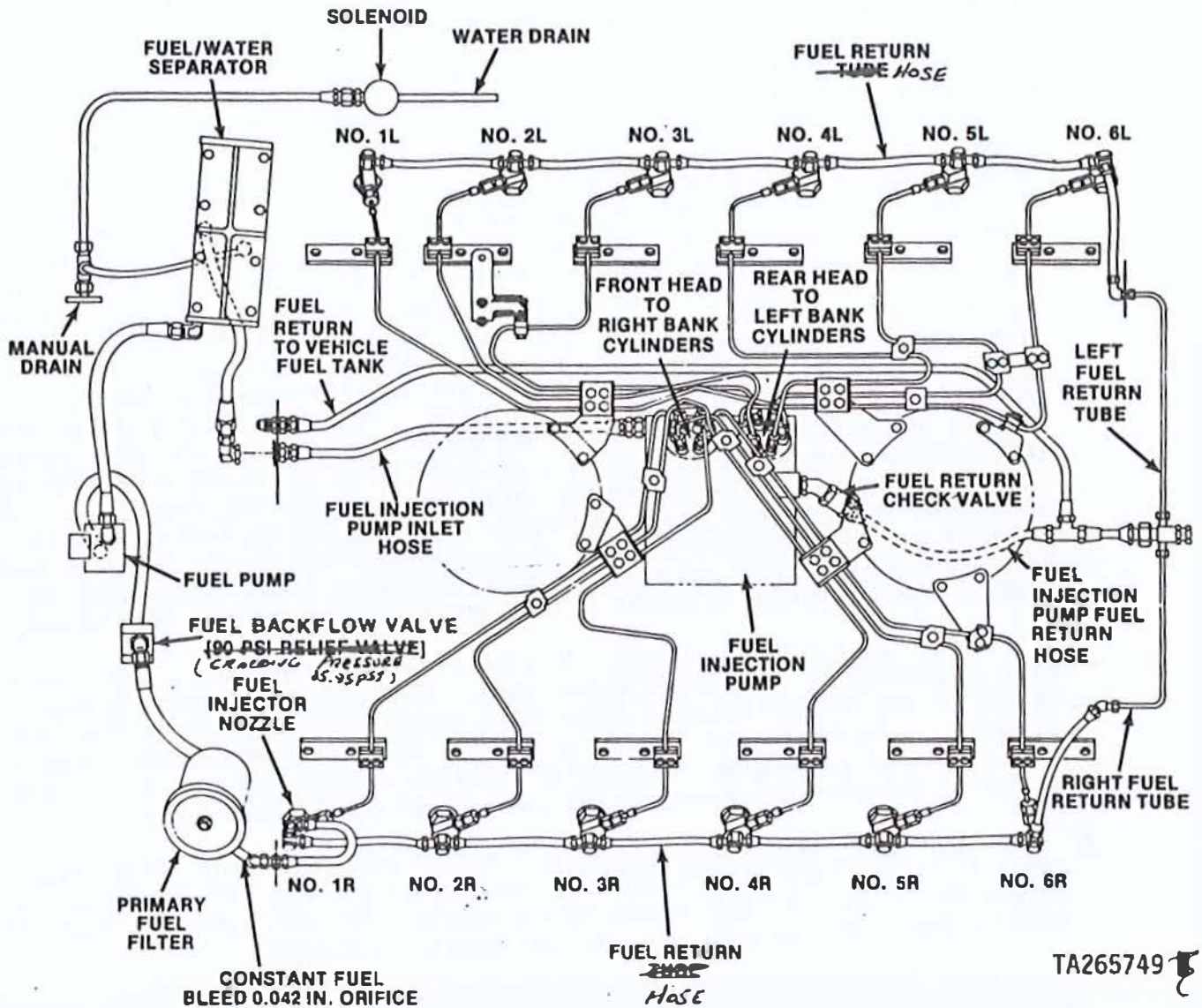
DMWR 9-2815-220



TA265748

Figure 1-8. Main fuel system - schematic diagram, Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA.

21



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Figure 1-9. Main fuel system - schematic diagram, Model AVDS-1790-2DR

1-5. (Cont)

(f) Fuel filters. The replaceable element type primary fuel filter is mounted on the right front of the engine and is equipped with a constant bleed orifice and drain line which constantly removes a metered amount of fuel and returns it to the main fuel tank through the fuel injector nozzle drain lines. This continuous drain, from the bottom of the filter, removes water in the free state that has been filtered from the fuel by the primary fuel filter element. The replaceable element fuel/water separator type filter is mounted on the left front of the engine. Fuel from the vehicle fuel tank passes through the primary filter before entering the engine fuel pump. The pump delivers fuel to the fuel/water separator filter and on to the fuel injection pump. Excess fuel provides pump cooling as it flows through the fuel injection pump hydraulic heads and is returned to the fuel tanks figures 1-8 and 1-9 (1/14.1) and (1/15). The fuel/water separator filter unit has three replaceable elements and contains a chamber for collecting water. The two outer elements are coalescer elements and will remove emulsified water that has passed through the primary filter. The center element is a fuel filter element. The water removed from the fuel is automatically drained from the filter housing. Two water sensing probes are located in the filter housing. When the water level reaches the upper probe, an electrical circuit is completed, a solenoid valve opens and allows the water to drain. The valve closes when the water level reaches the lower probe. A drain cock is installed so the fuel/water separator may be drained manually. The unit provides moisture-free and uncontaminated fuel to the injection pump. Both the primary filter and the fuel/water separator filter incorporate top mounted bleeder valves to assist in the removal of air from the fuel system.

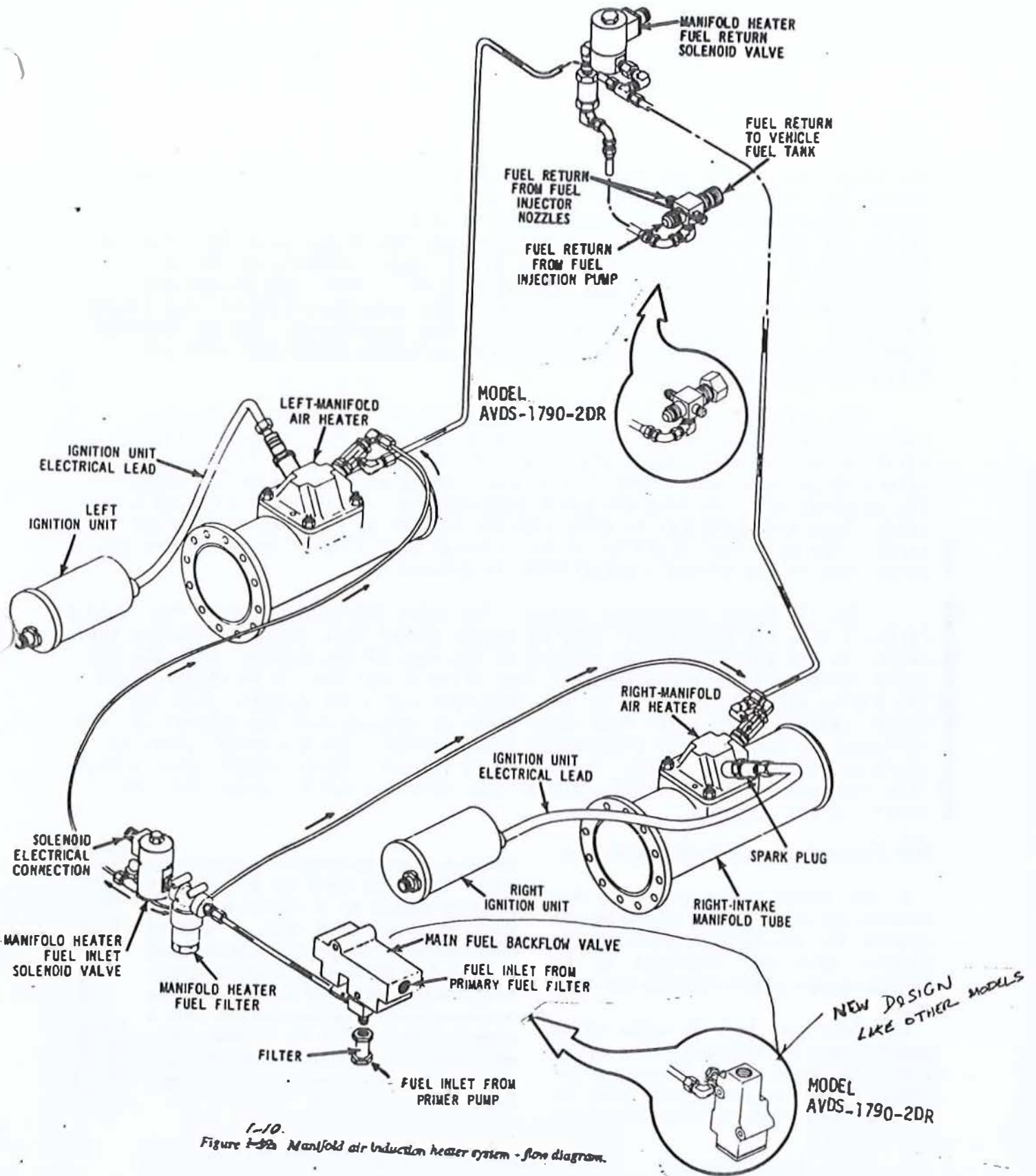
(g) Fuel cutoff solenoid. An electrically operated fuel cutoff solenoid is mounted in the fuel injection pump. The solenoid is normally open. A switch in the vehicle driver's compartment actuates the circuit to close the solenoid. Closing the solenoid cuts off fuel delivery from the fuel injection pump and stops the engine. A manually operated override shutoff is provided to permit stopping the engine in the event of an electrical failure.

(h) Fuel return backflow valve. A fuel return backflow valve (figs. 1-8 and 1-9) (1/14.1) and (1/15) is installed between the fuel injection pump fuel return outlet and the fuel return hose assembly. The valve prevents fuel flowing back to the injection pump when the fuel supply is closed.

(10) Manifold air induction and heater system. The manifold air induction and heater system is represented in flow diagram form in figure 1-10 (1/17).

(a) Turbosupercharger assemblies. Exhaust gas driven ^{TURBO}~~TURBO~~ supercharger assemblies, one for each bank of cylinders, are mounted on each side of the engine, at the rear. The turbosuperchargers increase the pressure of the intake air thereby delivering a higher density air to the cylinders as compared with a nonsupercharged engine. The higher density air, with a proper fuel flow, increases engine power.

(b) Intake manifold heater. The intake manifold, which distributes induction air to each bank of cylinders, is equipped with an electrically operated flame type intake manifold heater. The heater is provided as an aid for cold weather starting and cold weather operations. Operation of



1-10.
Figure 1-9a Manifold air induction heater system - flow diagram.

1-5. (Cont)

the heater switch (in the vehicle operator's compartment) energizes the manifold heater fuel solenoid valve, the heater ignition unit, and spark plug for each heater simultaneously. Fuel is hand pumped through the manifold heater fuel filter and fuel solenoid valve and sprayed into the intake manifold. The fuel is ignited by the spark plug and burns in the intake manifold as the engine is cranking, and the flame heats the incoming air. This flame-heated air and the products of combustion are fed directly into the cylinders with little heat loss. This results in an immediate engine response and assures complete combustion at low engine rpm and at no-load operating conditions with low ambient temperature.

(c) Solenoid valve. The manifold heater fuel inlet solenoid valve prevents fuel pumped by the fuel pump assembly from entering the air intake manifold heater unless the heater system is energized. A manifold heater fuel return check valve and solenoid valve are located at the rear of the engine. The solenoid valve is also energized (opened) when the ignition unit and heater spark plugs are energized to permit excess fuel to be returned to the fuel tanks. The main fuel backflow valve prevents back flow of the fuel when the purge pump in the driver's compartment is actuated.

(10.1) Smoke generating system. The smoke generating system, Fig. 1-10.1 (1/18.2) uses the engine fuel pump to supply diesel fuel, from the vehicle fuel tanks, to two solenoid valves mounted at the rear of the engine. When the solenoid valves are energized (opened) they allow diesel fuel to be sprayed into the engine exhaust system. The fuel vaporizes and exits together with the engine exhaust gases. The fuel vapor cools on contact with the ambient air and condenses to form a dense homogeneous smoke screen. The electrical power to energize the solenoid valves is supplied by the air cleaner blower motor circuit. This prevents accidental activation of the smoke generating system when the engine is not running.

(11)
1-18. Exhaust System and Turbosupercharger.

a. The exhaust system consists of four manifolds, one for each group of three adjacent cylinders. The two exhaust manifolds on each cylinder bank are connected to the turbosupercharger on their respective side of the engine.

b. Exhaust gases from the engine exhaust manifold enter the turbosuperchargers through ports in the turbine housing. Pressure and heat from the exhaust gases turn the turbine wheel. The gases leave the turbine housing through the exhaust

outlet and are expelled through the vehicle exhaust system. The turbine wheel and the compressor wheel are mounted on a common rotor shaft. When the turbine wheel spins, so does the compressor wheel. The spinning compressor wheel draws air from vehicle air filter into compressor cover. The air is compressed and blown out of the compressor cover through the outlet port, where it enters the intake manifold. The increased volume and density of the air that is delivered to the engine cylinders causes a corresponding increase in engine output power.

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(12) Cooling system. The key numbers in parentheses below refer to figure 1-6 (1/8) unless otherwise indicated.

1-5. (Cont)

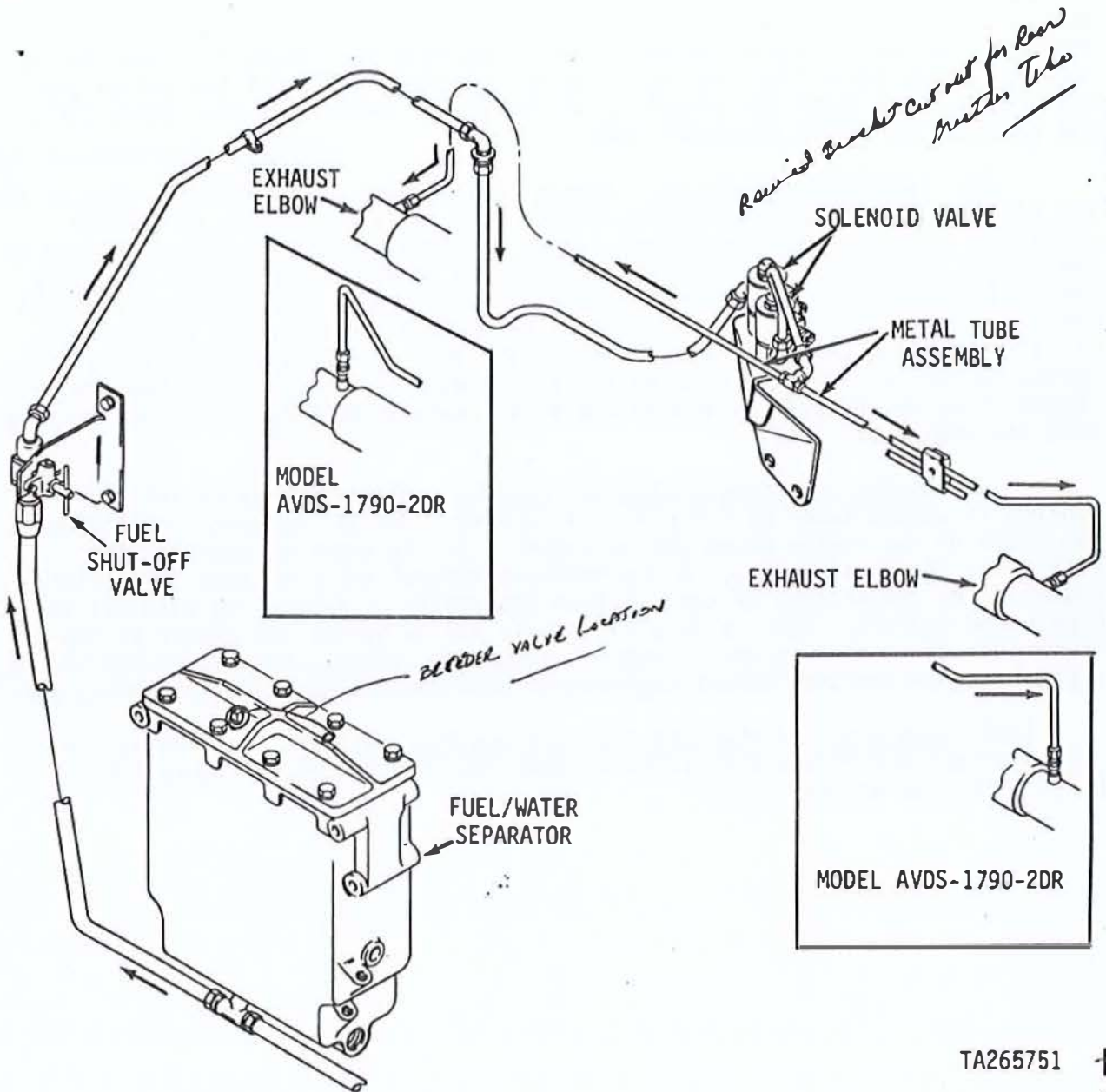
(a) Fans. The top of the engine is shrouded to house two cooling fans (48 and 40) which draw cool air from the underside of the engine, through the cylinder fins and discharge the hot air vertically from the top shroud. The fans are attached to adapters (39) and are mounted on shafts which are driven through a fan drive clutch assembly (38). The rear fan clutch is driven by the rear fan drive shaft (34), fan drive bevel gearshaft (33), and fan driven gearshaft (35). The front fan clutch is driven by the front fan drive shaft (32), and another fan driven gearshaft (35).

FAN DRIVE BEVEL GEARSHAFT (41)

(b) Fan drive and clutch. Figure 1-11 (1/19) is a sectional view of the fan clutch. The fan clutch is oil cooled. The fan clutch drive and driven disks are loaded by the centrifugal action of clutch balls and springs housed in the clutch assembly. The balls and springs are in the driven member and apply upward force to the clutch disks. The clutch oil enters the fan drive vertical shaft from the fan drive housing through an annular groove in the shaft. The oil flows through a central hole in the shaft to a distributor where it is dispersed to the ball bearings and to the clutch disks. The oil moves between the clutch disks by centrifugal action and drains back through the fan drive housing into the engine oil pan.

(c) Engine and transmission oil coolers. All transmission and engine oil cooling is accomplished by external oil coolers. The oil coolers are located on the sides of the engine above the cylinders. Air is drawn through the oil coolers by the cooling fans. A thermostatic control valve in each oil cooler controls the temperature of the oil from the cooler by permitting cold oil to bypass the coolers. This valve also permits oil to bypass the cooler in the event that the cooler becomes clogged. ~~Two toggle valves, located on top of the right bank oil coolers, permit sampling of both the engine and transmission oil.~~

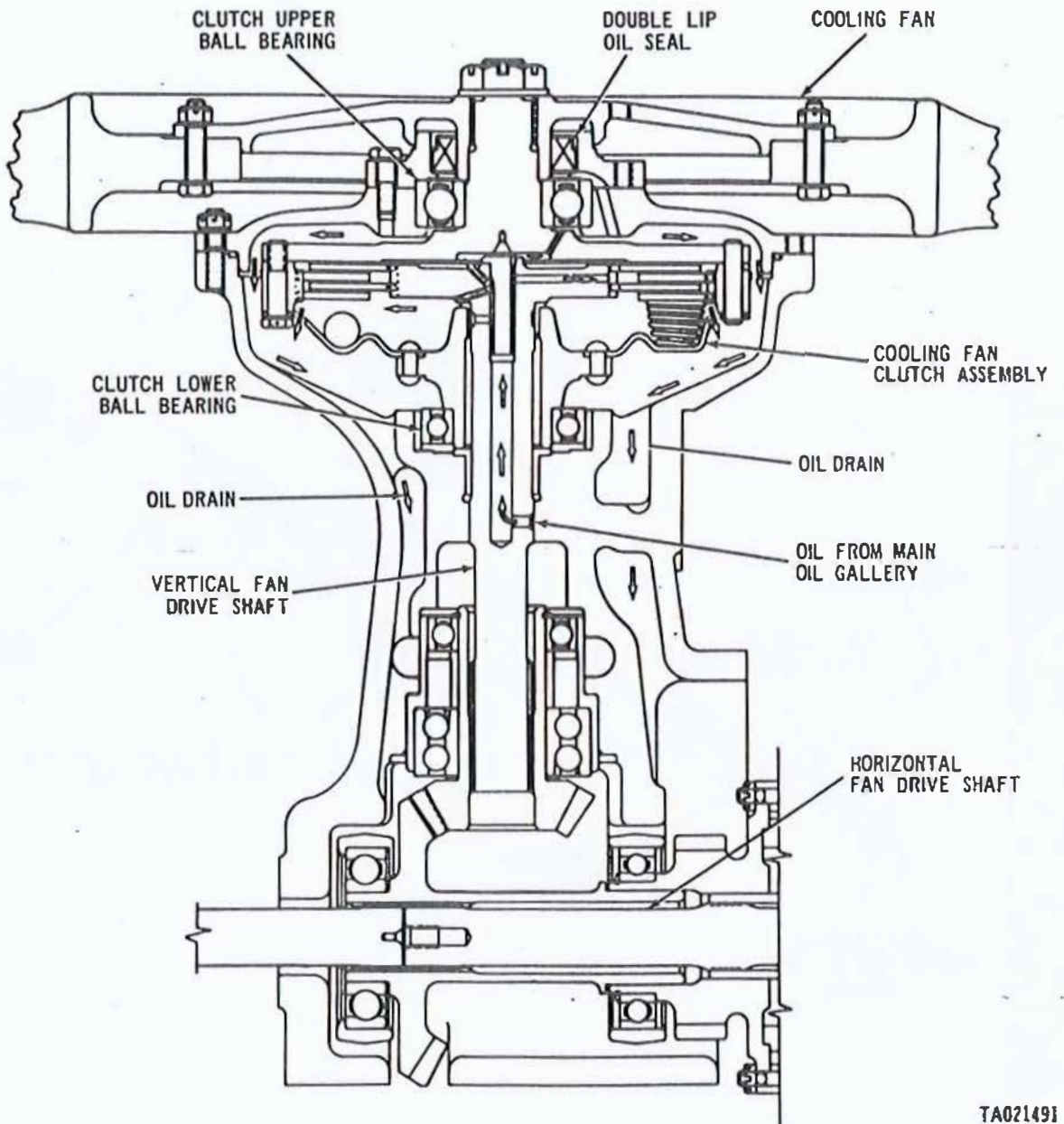
(13) Crankcase breather and fire extinguisher systems. The engine crankcase breather and fire extinguisher systems are illustrated in figure 1-12 (1/20) in flow diagram form.



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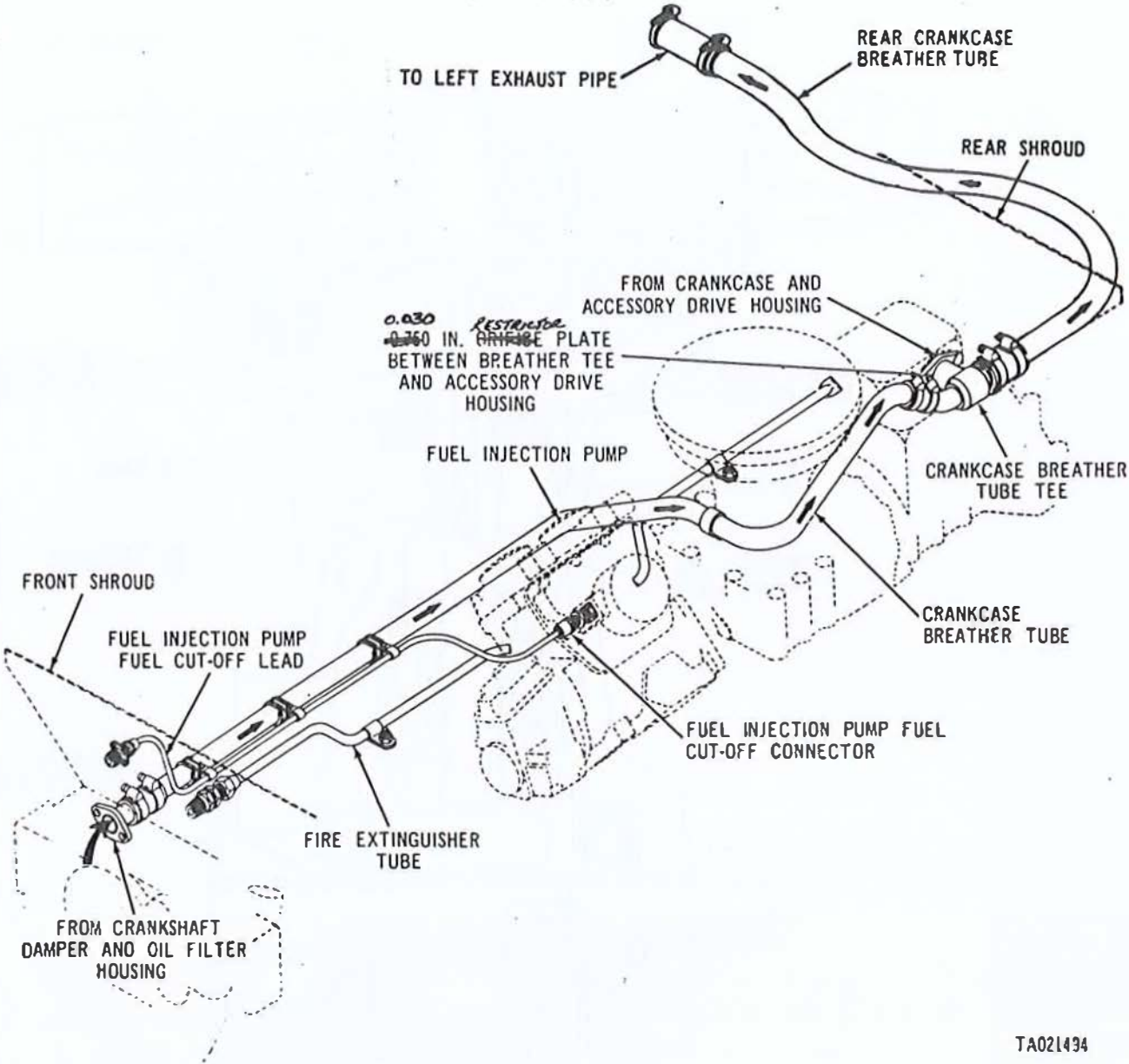
Figure 1-10.1. Smoke generating system.

DMWR 9-2815-220



TA021491

Figure 1-11. Mechanical cooling fan clutch - sectional view.



TA021494

Figure 1-12. Engine crankcase breather and fire extinguisher systems - flow diagram.

1-5. (Cont)

(a) Crankcase breather system. The engine crankcase breather system is completely enclosed which allows the engine to be submerged without entrance of water and permits the crankcase to be vented. The breather system is vented through the left turbosupercharger exhaust outlet into the vehicle exhaust system.

(b) Fire extinguisher system. The engine is equipped with a fire extinguisher tube located in the V. This tube is connected to the engine compartment fire extinguisher system. The tube has small holes drilled along the entire length to direct the carbon dioxide (CO₂) fire extinguisher fluid in predetermined directions around cylinders, fuel injection pump, and intercylinder components in case of fire.

(14) Transmitters and switches. The engines are equipped with an oil pressure gage transmitter, an oil temperature transmitter, a low oil pressure warning light switch, and a high engine oil temperature warning light switch. In addition to these, the AVDS-1790-2DR engine also is equipped with an auxiliary generator high oil pressure sending switch.

(a) ^{HIGH} Oil pressure gage transmitter. The electrical ^{HIGH} oil pressure gage transmitter is located to the front of the crankcase at the opening in the gallery line below the No. 1 right cylinder. This sealed transmitter consists of a threaded plate to which a diaphragm, a radially notched spring, and an overload guard plate are crimped. Electrical resistance in the transmitter varies directly as the oil pressure varies. The resulting variation in the current is transmitted to the electrical oil gage on the vehicle instrument panel.

(b) Low oil pressure warning light switch. The low oil pressure warning light switch is furnished with the engine and is located at the lower right side of the crankshaft damper and oil filter housing. The electrical contact points in this switch close when the oil pressure in the main oil gallery is below 11 ± 2 psi. The completion of the electrical circuit lights the low pressure warning lamp on the vehicle instrument panel.

(c) Oil temperature transmitter. The oil temperature gage transmitter is located at the upper right side of the crankshaft damper and oil filter housing above the oil pressure regulator valve.

(d) High engine oil temperature warning light switch. The oil temperature warning light switch is located in the oil passage above the ^{LOW} oil pressure warning light switch in the right side of the crankshaft damper and oil filter housing. The warning light sending switch, thermostatically controlled electrical contact points, close when oil temperature in the engine main oil passage reaches $245 \pm 5^\circ$. The completion of the electrical circuit lights the oil high temperature warning lamp on the vehicle instrument panel.

(e) Auxiliary generator high oil pressure sending switch (Model AVDS-1790-2DR only). The auxiliary generator high oil pressure sending switch is located at the right front of the crankcase in the tee that mounts the ^{HIGH} oil pressure gage transmitter. This switch prevents simultaneous operation of the main engine and auxiliary generating systems.

1-6. Tabulated Data.

a. General. Refer to TM9-2815-220-34 for tabulated data pertaining to general characteristics and performance of the engine assembly. Refer to TM 9-2910-212-34, TM 9-2910-213-34, ~~PTM 9-2920-252-34~~, ~~PTM 9-2920-224-34~~, TM 9-2920-232-34, ~~TM 9-2990-205-34~~ and ~~PTM 9-2990-206-34~~ for tabulated data pertaining to general characteristics and performance of the engine accessories.

b. Engine Tabulated Data. ~~34E P~~

Manufacturer Teledyne Continental Motors,
 General Products Division
 Type Diesel, Air-cooled, V-12
 Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D
 AVDS-1790-2DA and AVDS-1790-2DR

Dimensions, Model AVDS-1790-2C
 Length (To transmission adapter) 68.59 in.
 Width (Overall, shrouds installed) 88.74 in.
 Height (Overall, shrouds installed) 45.50 in.

Dimensions, Model AVDS-1790-2CA
 Length (To transmission adapter) 68.59 in.
 Width (Overall, shrouds installed) 88.74 in.
 Height (Overall, shrouds installed) 47.19 in.

Dimensions, Model AVDS-1790-2D
 Length (To transmission adapter) 70.60 in.
 Width (Overall, shrouds installed) 88.74 in.
 Height (Overall, shrouds installed) 45.50 in.

Dimensions, Model AVDS-1790-2DA
 Length (To transmission adapter) 70.60 in.
 Width (Overall, shrouds installed) 88.74 in.
 Height (Overall, shrouds installed) 47.19 in.

Dimensions, Model AVDS-1790-2DR
 Length (To transmission adapter) 72.19 in.
 Width 68.00 in.
 Height 43.70 in.

Displacement 1790 cu. in.

Weight, dry (with accessories)
 Model AVDS-1790-2C 4900 lb.
 Model AVDS-1790-2CA 4998 lb.
 Model AVDS-1790-2D 4800 lb.
 Model AVDS-1790-2DA 4898 lb.
 Model AVDS-1790-2DR 4925 lb.

Speed
 Governed, full load 2400 RPM
 Governed, no load 2660 RPM (max)
 Idle ~~700 RPM~~ 700-750 RPM
 Horsepower, gross 735 to 780 bhp at 2400 RPM
 Horsepower, net 627 to 672 bhp at 2400 RPM
 Torque, gross 1770 to 1842 lb-ft at 1800 RPM ✓
 Torque, net 1555 to 1627 lb-ft at 1800 RPM

1-6. (Cont)

Cylinder

Number 12
 Arrangement 90° upright "V"
 Numbering (from front)
 Left side 1L, 2L, 3L, 4L, 5L, 6L
 Right side 1R, 2R, 3R, 4R, 5R, 6R
 Firing order 1R, 2L, 5R, 4L, 3R, 1L,
 6R, 5L, 2R, 3L, 4R, 6L

Bore 5.750 in.

Pistons

Stroke 5.750 in.
 Compression Ratio 16:1
 Displacement 149.1 cu. in. per cyl.

Valves

Lift. 0.460 in
 Clearance (Cold Engine)
 Exhaust 0.025 in.
 Intake 0.010 in.

Fuel injection metering pump timing

Static setting with injection advance in full
 retarded position 26° BTC

Lubrication

Oil specifications

Above ~~60~~^{15/40} 60°F OE/HDO-50, MIL-L-~~46167~~²¹⁰⁴
 0°F AND ABOVE Alternate MIL-L-2104B
~~+32 to +90°F~~ OE/HDO-30, MIL-L-~~46167~~²¹⁰⁴
~~+15 to +90°F~~ ~~MIL-L-2104B~~
~~-10 to +40°F~~ OE/HDO-10, MIL-L-~~46167~~²¹⁰⁴
~~-15~~ Alternate MIL-L-2104B
 -65 to ~~0~~^{+90.5} +90.5°F ~~OE, MIL-L-10295 OEA, MIL-L-46167~~
 Normal oil temperature 180°F at 60°F ambient
 Maximum oil temperature
 (Out of cooler) 250°F

Oil Pressure (Crankcase main oil gallery)

700 RPM 15 psi (OE/HDO-30 oil at 180°F)
 2400 RPM 40 to 70 psi (OE/HDO-30 oil at 180°F)

Oil Pump Output (OE/HDO-30 oil at 180°F at 2800 pump RPM)

Pressure pump 70 gpm
 Scavenge pump 77 gpm

Oil Capacity (Approximate)

Dry engine 20.0 gallons
 Oil and filter change 17.0 gallons

Manifold heater (Cold weather starting and idle operation in cold weather)

Type flame type, spark ignition
 Spark plug (ignition) gap 0.094 in. to 0.114 in.
 Pump (hand operated from driver's
 compartment). 90 psi
 Spray nozzle flow 1.5 to 2.2 lbs/hr
 Fuel (type) same as engine fuel

1-6. (Cont)

Drive ratios and rotations (From front)

Camshafts 0.500:1 counterclockwise
Cooling fans 2.000:1 clockwise
Generator 3.200:1 clockwise
Starter 11.846:1 clockwise
Fuel injection metering pump . 1.000:1 clockwise

Fuel supply pump

Models AVDS-1790-2C, AVDS-1790-2CA,
AVDS-1790-2D and
AVDS-1790-2DA 1.000:1 clockwise
Model AVDS-1790-2DR 1.000:1 counterclockwise

Oil Pump 1.327:1 clockwise

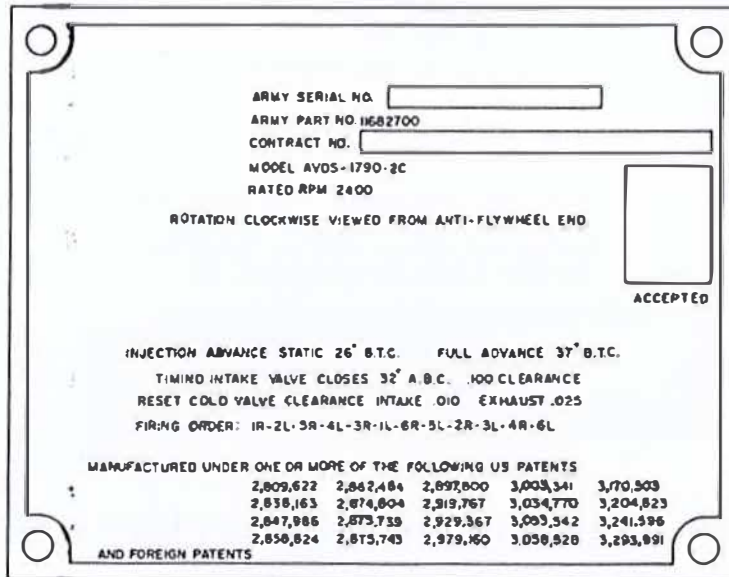
Tachometer drive

~~Models AVDS-1790-2C, AVDS-~~
~~1790-2CA, AVDS-1790-2D and~~
~~AVDS-1790-2DA 0.500:1 counterclockwise~~

1-7. Data Plates.

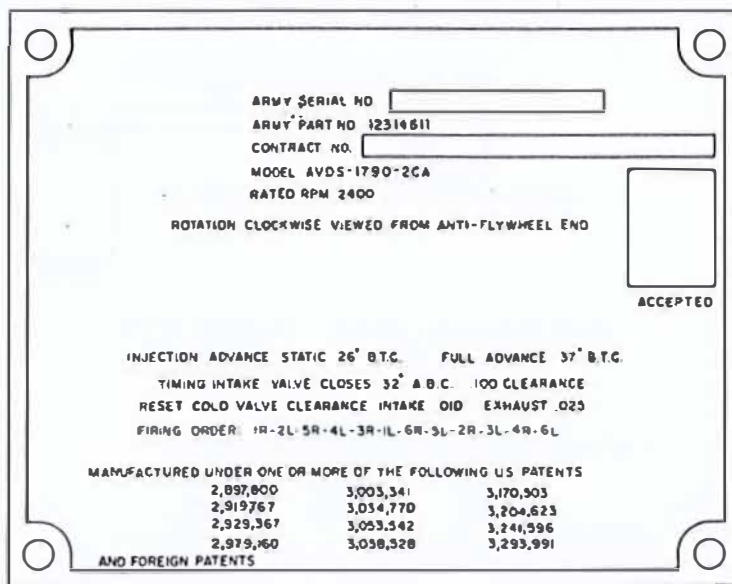
a. Equipment Data Plates. Data plates or identification markings are applied at the time of manufacture.

(1) Engine(s). The engine(s) identification plate, figures 1-13 (1/24.1), 1-13.1 (1/24.1), 1-14 (1/24.2), 1-14.1 (1/24.2) and 1-15 (1/25), is located on the right side of the crankcase below the No. 3R cylinder, and is secured with four drive screws and flat washers.



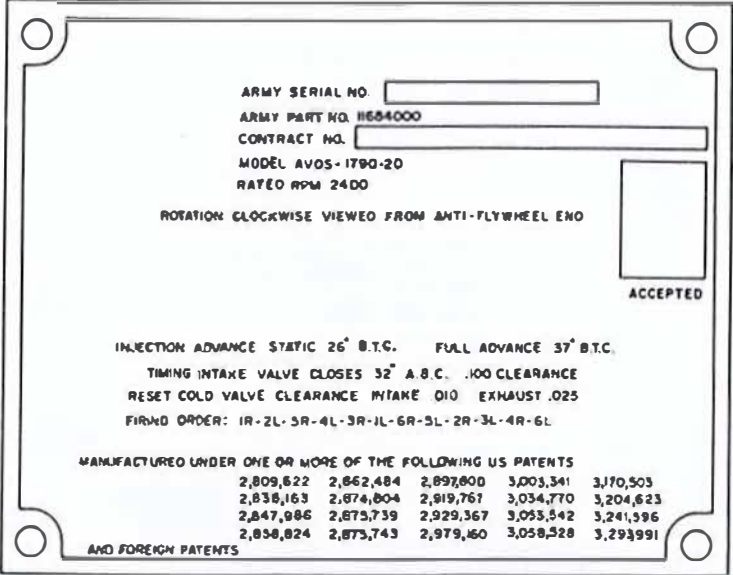
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Figure 1-13. Engine identification plate, Model AVDS-1790-2C.



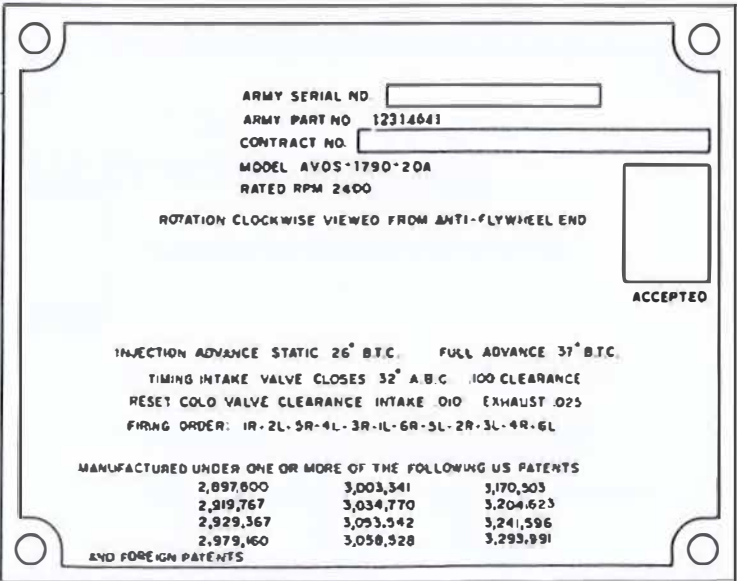
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Figure 1-13.1. Engine identification plate, Model AVDS-1790-2CA.



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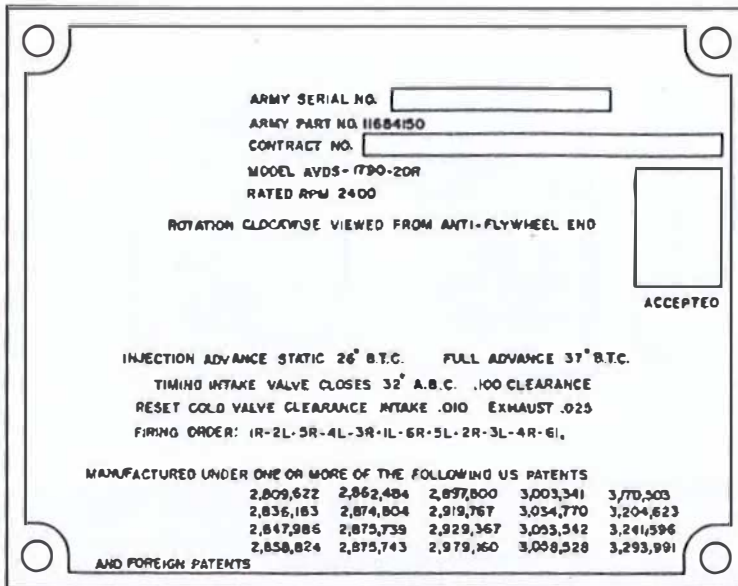
Figure 1-14. Engine identification plate, Model AVDS-1790-20..



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Figure 1-14.1. Engine identification plate, Model AVDS-1790-20A.

1-7.: (Cont)

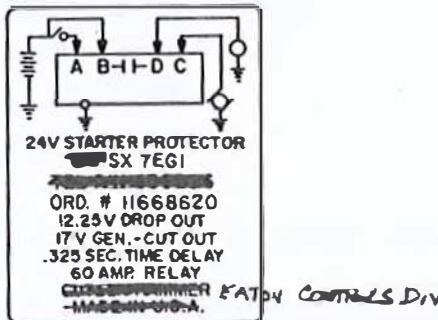
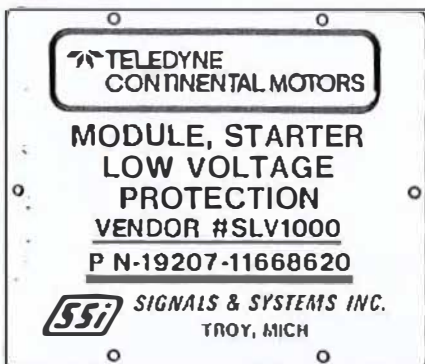


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Figure 1-15. Engine identification plate, Model AVDS-1790-2DR.

(2) Starter Relay Solenoid. ^{ONE VENDORS} The engine starter relay solenoid (low voltage protection module) identification PLATE, figure 1-16 (1/25), is ^{LOCATED ON} the front of the module and is secured with cement. The low voltage protection module is located on the left side of the crankcase, ahead of the starter (Model AVDS-1790-2DR).

(3) Fuel/Water Separator Control Assembly. The fuel/water separator control assembly identification plate, figure 1-17 (1/26), is located on the front of the control assembly and is secured with cement. The control assembly is located on the left side of the crankcase near the front of the engine.



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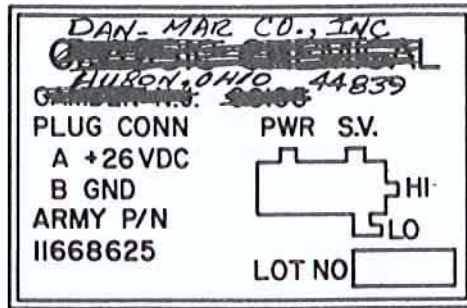
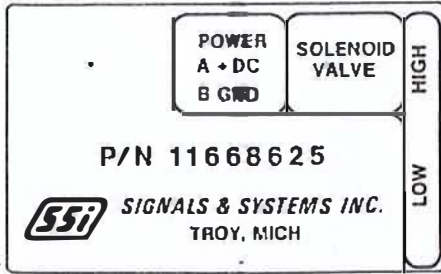
Figure 1-16. Starter relay solenoid (low voltage protection module) identification plate.

^{ANOTHER} ~~TELEDYNE~~ VENDORS IDENTIFICATION MARKING, fig 1-16 (1/25), IS ^{LOCATED} STAMPED ON THE FRONT COVER AND IS SECURED WITH DRIVE SCREWS AND WATER SEALED.

THE LOW VOLTAGE PROTECTION MODULE IS LOCATED ON TOP LEFT SIDE ATTACHED TO STARTER CABLE MOUNTING BRACKET

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1-7. (Cont)

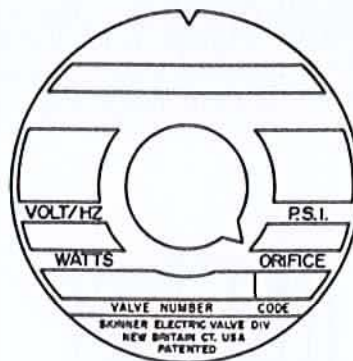


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Figure 1-17. Fuel/water separator control assembly identification plate.

(4) Solenoid Valve. The solenoid valve(s) identification plate, figure 1-18 (1/26), is located on the top of the valve and is secured with an acorn nut. The two manifold heater solenoid valves are located at the front and rear of the engine. The fuel/water solenoid control valve is located on the left side of the crankcase below the fuel/water separator control assembly.

THE ^{TWO} SMOKE GENERATING SOLENOID VALVES ARE LOCATED AT THE REAR OF THE ENGINE ON A BRACKET WHICH ATTACHES TO ^{THE} TRANSMISSION ADAPTER.



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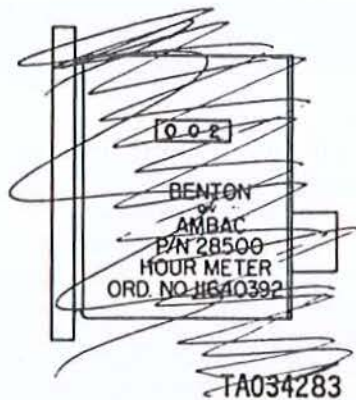
Figure 1-18. Solenoid valve identification plate.

(5) Time Totalizing Electrical Meter. The time totalizing electrical meter identification marking, figure 1-19 (1/27), is stamped on the top of the meter. The meter is located on the upper right side of the crankshaft damper and oil filter housing.

(5) (6) Crankshaft Damper. The crankshaft damper identification marking, figure 1-20 (1/27), is stamped on the front of the damper. The damper is mounted on the

1-7. (Cont)

front end of the crankshaft. Also stamped on the front of the damper is a warning marking shown in figure 1-21 (1/27).



~~Figure 1-19. Time totalizing electrical meter identification marking.~~

DAMPER:
HOUDAILLE VISCOUS DAMPER
H.I. PART NO. 703055-600
VISCOUS FLUID TO BE 600,000 CENTISTOKES

Figure 1-20. Crankshaft damper identification marking.

WARNING

THIS IS NOT A FLYWHEEL
DO NOT USE HAMMERS
DRIFTS OR PRYBARS
TO INSTALL OR REMOVE
FROM CRANKSHAFT

TA034285

Figure 1-21. Crankshaft damper warning marking.

(G) (A) Oil coolers. Two identification plate configurations are used for the oil coolers, figures 1-22 (1/28) and 1-23 (1/28). The identification plate

E 10002A	SER. NO. []
CONTRACT NO. []	
COOLER, ENGINE OIL	
DES. ACT 19207	MFG. 61228
PART NO. 11668989	
NSN 2930-01-024-6706	
NDM	
NIAGARA DEVELOPMENT & MFG CO.	
NIAGARA FALLS, N.Y. USA	
U.S.	

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1-7. (Cont)

is located on top of the oil cooler and secured by two ~~drive screws~~ ^{RIVETS}. Four oil coolers are installed on the engine, two along the upper right side and two along the upper left side.

GENERAL MOTORS CORPORATION	HARRISON	LOCKPORT, N.Y. U.S.A.
MODEL NO. []	PART NO. []	SERIAL NO. []
CUSTOMER NO. []	[]	

COOLER, ENGINE OIL	
MFR 78385	PN 10595A
CONTRACT NO. DAAE07-75-C-[]	
SERIAL NUMBER []	
NSN []	
DESIGN ACT 19207-11668989	
MANUFACTURED BY STEWART-WARNER CORPORATION	
South Wind DIVISION INDIANAPOLIS, INDIANA	

Figure 1-22. ^{ENGINE} Oil cooler identification plate ~~NAME~~

E 10001A	SER. NO. []
CONTRACT NO. []	
COOLER, TRANSMISSION OIL	
DES. ACT 19207	MFG. 61228
PART NO. 12275820	
NSN 2520-01-162-7035	
NDM	
NIAGARA DEVELOPMENT & MFG CO.	
NIAGARA FALLS, N.Y. USA	
U.S.	

COOLER, ENGINE OIL	
^{TRANSMISSION}	
MFR 78385	PN 10595A
CONTRACT NO. DAAE07-75-C-[]	
SERIAL NUMBER []	
NSN []	
DESIGN ACT 19207- 11668989	¹²²⁷⁵⁸²⁰
MANUFACTURED BY STEWART-WARNER CORPORATION	
South Wind DIVISION INDIANAPOLIS, INDIANA	

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Figure 1-23. ^{TRANSMISSION} Oil cooler identification plate ~~Stewart-Warner Corporation~~.

(7) (8) Engine shipping and storage container. The engine shipping and storage container identification plate, figure 1-24 (1/ 28), is located on the front of the container's upper section and is secured by four drive screws.

CONTAINER: SHIPPING, METAL, ENGINE		
CONTAINER SPECIFICATION [MIL-C-14200]		
CONTAINER CONTRACT NUMBER []		
CONTAINER FEDERAL STOCK NUMBER []		
CONTAINER WITH ENGINE IDENTIFICATION		
ENGINE MODEL NUMBER	ENGINE NSN	CONTAINER WITH ENGINE NSN
[]	[]	[]
[]	[]	[]
[]	[]	[]
U.S. GOVT. PROPERTY		

Figure 1-24. Engine shipping and storage container identification plate.

1-7. (Cont)

b. Overhaul Data Plates. Overhaul data plates (fig. 1-25) (1/29) will be stamped as necessary to maintain an up-to-date record of overhaul. Stamping or marking data plates shall be accomplished in accordance with TB ORD 1030.

NOTE

Data plates must be removed before stamping. New plates are prohibited, except as explained below.

(1) Replacement. When sufficient space is not available on the existing plate to add information, the plate shall be replaced and all pertinent data transferred to the new plate. Data shall not be stamped directly on any part, assembly, or item of equipment.

(2) Location. An overhaul data plate will be affixed adjacent to the manufacturer's equipment identification plate when overhaul is accomplished at a depot or other facility.

NOTE

Do not remove the manufacturer's equipment identification plate. It must always be available to record the original configuration of the equipment prior to any modification.

ARMY SERIAL NO.		<input type="text"/>				
ARMY PART NO.		<input type="text"/>				
MODEL AVOS 1790-2		<input type="text"/>				
	STD	010	020	030	040	
BORE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
O SIZE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
MAINS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
U SIZE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
RODS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
U SIZE	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
CONVERTED AT				DATE		
<input type="text"/>				<input type="text"/>		
MWO APPLIED				DATE		
<input type="text"/>				<input type="text"/>		
<input type="text"/>				<input type="text"/>		
<input type="text"/>				<input type="text"/>		
RATED RPM 2400 ROTATION CLOCKWISE VIEWED FROM ANTI-FLYWHEEL END. INJECTION ADVANCE STATIC 26° B.T.C. FULL ADVANCE 37° B.T.C. TIMING INTAKE VALVE CLOSURE 32° A.B.C. .100 CLEARANCE RESET COILOVALVE CLEARANCE INTAKE .020 EXHAUST .025 FIRING ORDER 1R 2L 5R 4L 3R 1L 6R 5L 2R 3L 4R 6L						

Figure 1-25. Typical engine overhaul data plate.

DAMWR 9-2815-220

1-7. (Cont)

(3) Overhaul plate entries. Prescribed entries will be stamped on the overhaul plate prior to installation. These entries are defined below.

(a) Engine serial number. Stamp the engine serial number in the space provided.

(b) Cylinder bore size. Stamp the size of the cylinder bores in the spaces provided, to indicate whether they are standard, 0.010, 0.020, 0.030, or 0.040 inch oversize.

(c) Main and connecting rod bearing size. Stamp the size of the main and connecting rod bearings in the spaces provided to indicate whether they are standard, 0.003, or 0.010 inch undersize.

(d) Overhaul location. Stamp the initials of the facility performing the overhaul in accordance with paragraph 2 of TB ORD 1030.

(e) Date. Stamp the date (month and year) of the overhaul in the space provided.

(f) MWO Number. DAMWO 9-2815-220-50

Section III. DIFFERENCES BETWEEN MODELS

1-8. General. This section describes the differences between the engine Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, AVDS-1790-2DA and AVDS-1790-2DR. All models are similar, and all use the same major components. The major components consist of the crankcase, crankshaft, cylinders, pistons, connecting rods, camshafts, damper housing, turbosuperchargers, starter, fuel injection pump, and fuel supply pump.

a. Model AVDS-1790-2C. This engine is equipped with a 28 volt, 650 ampere oil cooled dc generator.

b. Model AVDS-1790-2CA. This engine is similar to Model AVDS-1790-2C except that it is equipped with a clean air package consisting of the dust detector system and the dust ejector system. Unless specified as Model AVDS-1790-2CA, only, all references in this manual to the Model AVDS-1790-2C will apply to the Model AVDS-1790-2CA.

(1) Dust Detector System. The dust detector system provides dust detection capabilities for dust being ingested into the engine air induction system.

(2) Dust Ejector System. The dust ejector system provides dust ejection capabilities for dust being ingested into the vehicle air cleaner system.

c. Model AVDS-1790-2D. This engine is similar to Model AVDS-1790-2C except that it is equipped with a 28 volt, 300 ampere air cooled dc generator.

d. Model AVDS-1790-2DA. This engine is similar to Model AVDS-1790-2D except that it is equipped with a clean air package as described in b. above. Unless specified as Model AVDS-1790-2DA, only, all references in this manual to the Model AVDS-1790-2D will apply to the Model AVDS-1790-2DA.

e. Model AVDS-1790-2DR. This engine is similar to Model AVDS-1790-2D except that it has a power take-off mounted on the damper housing, and a solenoid controlled throttle linkage designed to hold a constant engine revolutions per minute for operation of the power take-off unit. The turbosuperchargers are located approximately 2.50 inches inboard which necessitated re-indexing the turbosupercharger outlets to accommodate the new location. This model is not equipped with engine installation guides. *THIS MODEL IS EQUIPPED WITH THE DUST DETECTOR SYSTEM.*

(1) Flywheel. The flywheel has an internal ring gear for driving the transmission and is mounted to the crankshaft through an adapter. The transmission adapter (housing) serves as a spacer for attaching the transmission to the engine.

(2) Overflow fuel. Fuel injection pump overflow fuel is routed back through the front engine shroud, and the fuel return tube cross at the rear of the engine is blocked.

DMWR 9-2815-220

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FRAME

CHAPTER 2
TECHNICAL REQUIREMENTS.

Section I. FACILITIES, TOOLS, AND TEST EQUIPMENT

2-1. Facilities.

a. General. The depot/contractor overhaul facility must have the capability of performing the overhaul operations associated with diesel engines to meet the requirements of this DMWR. This includes disassembly, cleaning, inspection, repair, reassembly, testing, preservation, packaging, marking and shipping.

b. Facilities. The facilities necessary to provide proficient overhaul procedures for these engines will include the following items:

(1) Hoist. A hoist capable of lifting a weight of three tons minimum.

(2) Work area. Sufficient floor space, work bench and storage area to handle parts and subassemblies throughout the overhaul program.

(3) Dynamometer. A water brake or electric dynamometer capable of absorbing 1000 horsepower minimum.

2-2. Tools and Equipment.

a. Standard Tools. Standard and commonly used tools and equipment having general application to diesel equipment are authorized for issue by Tables of Allowances and Tables of Organization and Equipment.

b. Mandatory Equipment. Possession of all items is not mandatory. It is the contractor's responsibility to choose tools and equipment which are adequate and appropriate to accomplish all job functions in a competent and efficient manner.

2-3. Special Tools and Equipment.

a. Special Tools Table. The special tools and equipment necessary to perform the operation described in this manual are listed in table 2-1 (2/2).

b. Special Tools Illustrations. Special tools are shown in figures 2-1 (2/7), 2-2 (2/8), 2-3 (2/10), and 2-4 (2/12).

TABLE 2-1. Special Tools and Equipment

Nomenclature	NSN or part no.	References	
		fig. no.	item no.
ADAPTER, ^{CRUCC ENGINE:} COMPRESSION Cylinder Test	4910-00-795-7961	2-4 (2/12)	26
ADAPTER, ^{PULLER:} MECHANICAL 1/2-20NF-2 to 1/2-13NC x 1-7/8 in. long	5120-00-837-5091	2-4 (2/12)	27
ALIGNMENT TOOL: Power Take-off Housing (Used on Model AVDS-1790-2DR, [unclear] engines)	5120-01-008-7273	2-3 (2/10)	22
ALIGNMENT TOOL: Power Take-off Housing (Used on Model AVDS-1790-2DR, early engines)	11684212	2-3 (2/10)	23
BLADE, THICKNESS GAGE: Intake Valve Clearance (0.010 in.)	5210-00-793-7898	2-4 (2/12)	18
BLADE, THICKNESS GAGE: Exhaust Valve Clearance (0.025 in.)	5210-00-793-7899	2-4 (2/12)	19
BLADE, THICKNESS GAGE: Intake Valve Timing Clearance (0.100 in.)	5210-00-793-7897	2-4 (2/12)	20
BOLT, EYE: 1-3/8 id x 2-1/2 od x 4-23/32 in. long, 5/8-11 Thread	5306-00-017-6143	2-4 (2/12)	25
BUSHING, REAMER, ^{PILOT:} Exhaust Valve Guide	⁵³⁶⁵ 5110-00-003-1010	2-3 (2/10)	12
BUSHING, REAMER; ^{PILOT:} Intake Valve Guide	⁵³⁶⁵ 5110-00-460-5831	2-3 (2/10)	11
COMPRESSOR, Piston Ring (Std.)	⁵¹²⁰ 4910-00-795-7956	2-4 (2/12)	1
COMPRESSOR, Piston Ring (0.010 and 0.020 in. oversize)	5120-01-005-3001	2-4 (2/12)	2
COMPRESSOR, Piston Ring (0.030 and 0.040 in. oversize)	5120-01-005-3000	2-4 (2/12)	3
CROWFOOT, ATTACHMENT, Fuel Injector Tube ^{SOCKET WRENCH:} ADAPTER AT NOZZLE END	5120-01-204-4969	2-4 ¹² (2/12)	11
^{WRENCH, OPEN END:} CROWFOOT, ATTACHMENT: Fuel Injector Nozzle ^{NOZZLE & HOLDER}	5120-01-039-2809	2-4 (2/12)	22


[Handwritten signature]

Table 2-1. Special Tools and Equipment - Continued

Nomenclature	NSN or part no.	References fig. i- no. n:
CUTTER, CARBON, NOZZLE: Fuel Injector Nozzle Seat	4910-00-795-7958	2-4 (2/12) 13
EXTRACTOR, SCREW THREAD ^{INSERT:} No. 10 thru 3/8 in.	5120-00-723-6833	2-3 (2/10) 9
EXTRACTOR, SCREW THREAD ^{INSERT:} 7/16 to 1 in.	5120-00-251-1527	2-3 (2/10) 8
TESTER, CYLINDER COMPRESSION GAGE ASSEMBLY: Compression Testing	4910-00-870-6283	2-2 (2/8) 11
GAGE, FAN ROTOR: Checking Erosion	5210 5210-d-079-1477 5215775	2-2 (2/8) 13
GAGE, ^{RING, PLAIN:} Piston Ring (Std. and 0.020 in. oversize)	5220-00-988-8774	2-2 (2/8) 6
GAGE, ^{RING, PLAIN:} Piston Ring (0.010 and 0.030 in. oversize)	5220-01-005-3003	2-2 (2/8) 7
GAGE, ^{RING, TAPER:} Piston Ring (checking piston top ring groove)	5220-01-084-1230	2-4 (2/12) 2
GAGE, ^{RING, PLAIN:} Piston Ring (Std. and 0.040 in. oversize)	5220-01-005-3002	2-2 (2/8) 8
TOOL, GENERATOR COUPLING: (USED ON GENERATOR COUPLING TOOL MODELS AVDS-179-2C AND AVDS-179-2CA)	5180-01-005-2995	2-4 (2/12) 8
HOLDING TOOL GENERATOR: (USED ON GENERATOR HOLDING TOOL MODELS AVDS-179-2C AND AVDS-179-2CA)	5120-01-005-2996	2-4 (2/12) 7
WRENCH, SPANNER: Power take-off coupling (used on Model AVDS-1790-2DR)	5120-01-043-5205	2-3 (2/10) 21
INSERTER, SCREW THREAD ^{INSERT:} 5/16-24 Thread	5120-00-797-2405	2-3 (2/10) 3
INSERTER, SCREW THREAD ^{INSERT:} 3/8-24 Thread	5120-00-710-7437	2-3 (2/10) 4
INSERTER, SCREW THREAD ^{INSERT:} 7/16-20 Thread	5120-00-797-2407	2-3 (2/10) 5
INSERTER, SCREW THREAD ^{INSERT:} 1/2-20 Thread	5120-00-672-8897	2-3 (2/10) 6
INSERTER, SCREW THREAD ^{INSERT:} 1/2-13 Thread	5120-00-861-1170	2-3 (2/10) 7

DMWR 9-2815-220

Table 2-1. Special Tools and Equipment - Continued

Nomenclature	NSN or part no.	References	
		fig. no.	item no.
LEVER 20110 LIFTER ASSEMBLY, VALVES ^{PRINCIPLE} Spring	5120-00-678-5285	2-2 (2/8)	5
PLIERS, RETAINING RING	5120-00-752-9755	2-4 (2/12)	21
PROTECTOR, CRANKCASE: Cylinder Mounting Pad	4910-00-795-7951	2-4 (2/12)	23
 PULLER, MECHANICAL: Fuel Injector Nozzle	5120-01-119-4172	2-3 (2/10)	20
PULLER, MECHANICAL: Camshaft drive shaft, 3/4-16UNF-2A, 6-1/2 in. long	5120-00-678-5282	2-3 (2/10)	10
PULLER, MECHANICAL ^{ASSY, SLIDE HAMMER:} Generator and Starter Idler Gear Shaft(s)	5120-00-310-4668	2-4 (2/12)	6
PULLER, MECHANICAL ^{GUIDE VALVE:} Exhaust Valve	5120-00- 428 ⁴⁴⁸ -0401	2-4 (2/12)	4
PULLER, MECHANICAL ^{GUIDE VALVE:} Intake Valve Guide	5120-00- 428 ⁴⁴⁸ -0400	2-4 (2/12)	5
PULLER, MECHANICAL: Threaded, 5/16-18UNC-2, 8-1/2 in. long, 2-3/4 in. Handle (3 required per operation)	5120-00-473-7222	2-4 (2/12)	16
REAMER, HAND: Roughing, Exhaust Valve Guide. Diameter tapers from 0.550 to 0.560 in., 13-3/4 in. long	5110-00-708-3696	2-3 (2-10)	19
REAMER, HAND: Finishing, Exhaust Valve Guide. Diameter tapers from 0.557 to 0.562 in., 13-3/4 in. long	5110-00-708-3697	2-3 (2/10)	18
REAMER, HAND: Roughing, Intake Valve Guide. Diameter tapers from 0.488 to 0.498 in., 13-3/4 in. long	5110-00-708-3698	2-3 (2/10)	17
REAMER, HAND: Finishing, Intake Valve Guide. Diameter tapers from 0.495 to 0.500 in., 13-3/4 in. long	5110-00-708-3699	2-3 (2/10)	16

DMWR 9-2815-220

Table 2-1. Special Tools and Equipment - Continued

Nomenclature	NSN or part no.	References	
		fig. no.	item no.
REMOVER AND REPLACER: Piston Ring	5120-00-494-1846	2-4 (2/12)	17
<i>TOOL KIT, VALVE SEAT RING INSERTER:</i> REPLACER, VALVE GUIDE: Intake	<i>5180</i> 5120-00-448-0402	2-3 (2/10)	14
REPLACER, VALVE GUIDE: Exhaust	5120-00-448-7993	2-3 (2/10)	13
RESETTING DEVICE, POWER ELECTRIC: Hour Meter	<i>6110</i> 5999-00-294-2332	2-2 (2/8)	9
SLING, CRANKSHAFT AND CONNECTING ROD	4910-00-795-7955	2-2 (2/8)	1
SLING, FAN DRIVE AND ADVANCE UNIT HOUSING	4910-00-795-7954	2-2 (2/8)	12
<i>SLING, ENGINE AND TRANSMISSION, MOTOR VEHICLE:</i> SLING, MULTIPLE LEG: Engine Lift- ing (Used on Models AVDS-1790-2C and AVDS-1790-2D), AVDS-1790-2D AND AVDS-1790-2DA) CA	4910-01-048-8706	2-1 (2/7)	3
SLING, MULTIPLE LEG: Engine Lift- ing (Used on Model AVDS-1790-2DR)	3940-00-622-7288	2-1 (2/7)	2
<i>BEAM HOISTING:</i>			
<i>SOCKET</i> SOCKET, WRENCH: Fuel Injector Nozzle, 1-3/8 in. nom. hex socket, 3/4 in. sq. drive, 2 in. long	5120-00-875-9556	2-4 (2/12)	10
<i>SLEEVE: FAN ROTOR HUB</i> SPACER, FAN ROTOR HUB SLEEVE	<i>5365</i> 4910-00-795-7952	2-4 (2/12)	28
<i>JACK, SCREW, HAND</i> SPREADING TOOL, CRANKCASE:	5120-00-575-7767	2-3 (2/10)	15
STAND, MAINTENANCE, <i>AUTOMOTIVE ENGINE</i> AND OVERHAUL	4910-00-856-4137	2-1 (2/7)	1
STAND, VALVE REMOVING AND INSTALLING <i>INSTALLING, CYLINDER ASSEMBLY</i>	4910-00-554-1317	2-2 (2/8)	10

Table 2-1. Special Tools and Equipment - Continued

Nomenclature	NSN or part no.	References	
		fig. no.	item no.
<i>ASSEMBLY:</i> STONE AND HOLDER, 887 , CYLINDER HONE, Composed of: 4 Stone and Holders (Grain Size 180) 4 Stone and Holders (Grain Size 150)	3460-00-689-3368 11662775-1 11662775-2	2-2 (2/8) 2-2 (2/8) 2-2 (2/8)	2 3 4
TESTER, DIESEL FUEL INJECTOR NOZZLE: TEST STAND, Fuel Injection Pump Advance Unit	4910-00-986-9873	2-1 (2/7)	4
<i>ASSEMBLY, METAL:</i> TUBE, ATTACHING NOZZLE Fuel Injector Nozzle Test	4710 4910-00-795-7953	2-4 (2/12)	14
WRENCH, BOX: Cylinder Hold-Down Nut, 1/2 in. drive, 5/8 in. double hex, 21-3/8 in. long	5120-00-475-5414	2-4 (2/12)	12
ADAPTER, TORQUE WRENCH: WRENCH, BOX: Cylinder Hold-Down Nuts	5120-00-466-5948	2-3 (2/10)	1
ADAPTER, TORQUE WRENCH: WRENCH, BOX: Cylinder Hold-Down Nuts	5120-01-018-8690	2-3 (2/10)	2
WRENCH, BOX ^{OPEN END COMBINATION:} Generator Mounting Nut	5120-00-789-4881	2-4 (2/12)	24
WRENCH, OPEN END: Starter Mount- ing Nut, 15/16 in. opening, offset handle, 10 in. long	5120-00-678-5288	2-4 (2/12)	9
WRENCH, SPLINED: Engine Turning, 3/4 in. drive with external spline, 2-1/2 in. long (used on MODELS AVDS-1790-22, AVDS-1792-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	5120-00-793-7895	2-4 (2/12)	15

2-4. Inspection and Test Equipment. Inspection and test equipment requirements are listed in table 2-2 (2/6.1) and described below.

a. Ferrous Material. Equipment necessary to perform magnetic particle inspection is required.

b. Nonferrous Material. Equipment necessary to perform dye penetrant inspection is required.

DMWR 9-2815-220

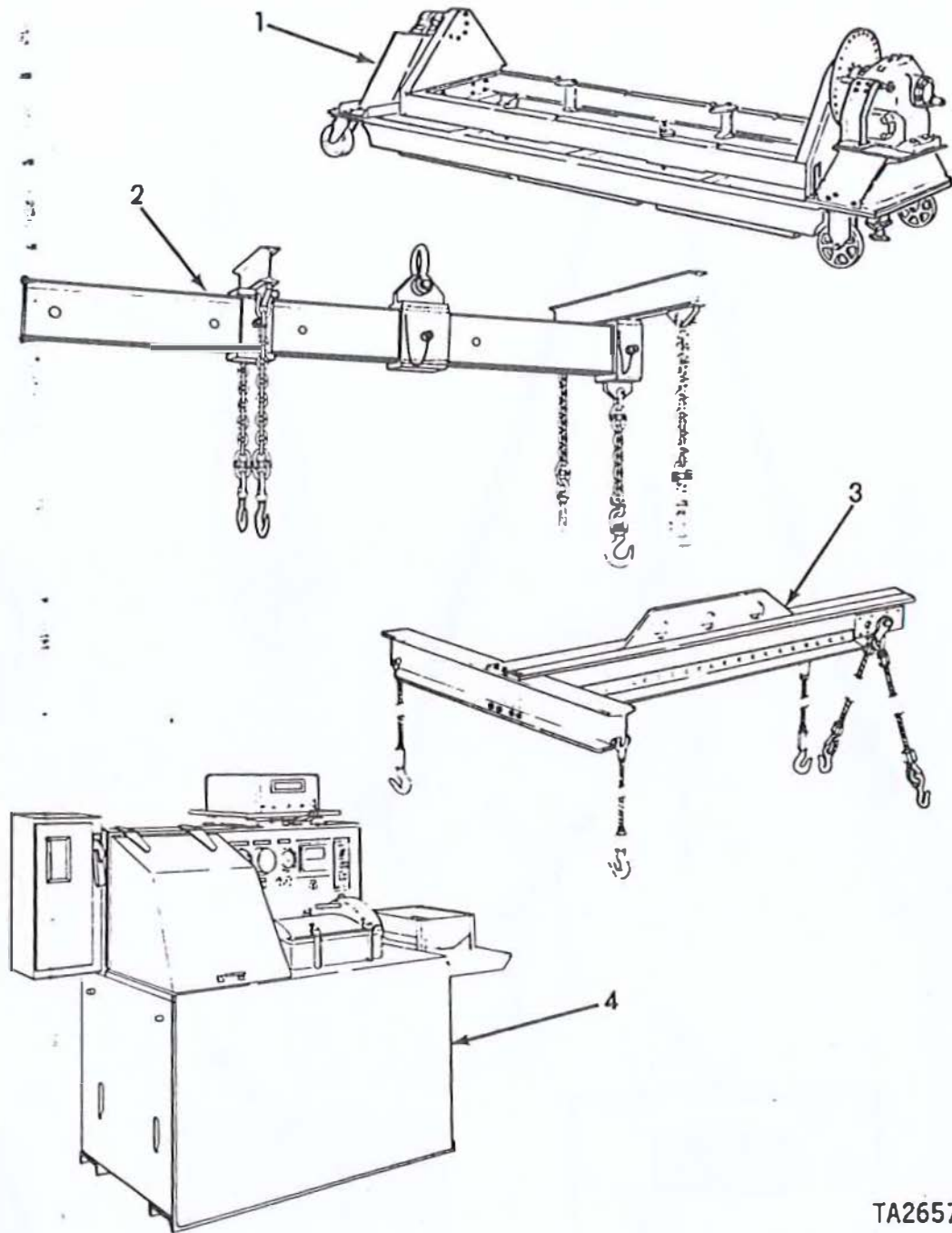
Table 2-2. Inspection and Test Equipment

Nomenclature	NSN or part no.	Reference paragraph of use
Magnetic particle inspection equipment Dye penetrant inspection equipment		

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DMWR 9-2815-220



1. Maintenance and overhaul stand
2. Engine lifting multiple leg sling (AVDS-1790-2DR)
3. Engine lifting multiple leg sling (AVDS-1790-2C, ~~and~~ AVDS-1790-~~2C~~ 2CA, AVDS-1790-2D and AVDS-1790-2E)
4. Fuel injection pump advance unit test stand

Figure 2-1. Special tools and equipment.

DMWR 9-2815-220

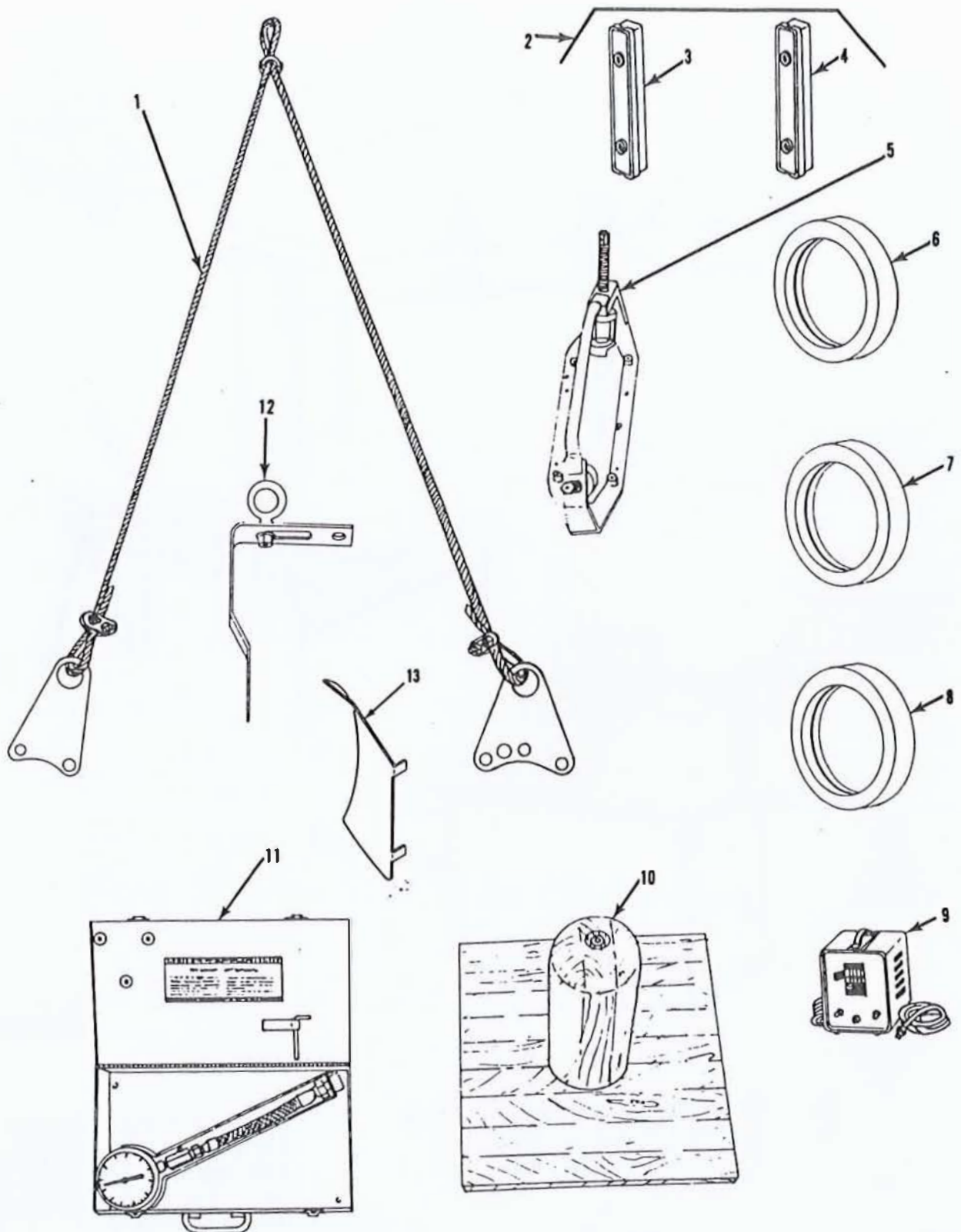


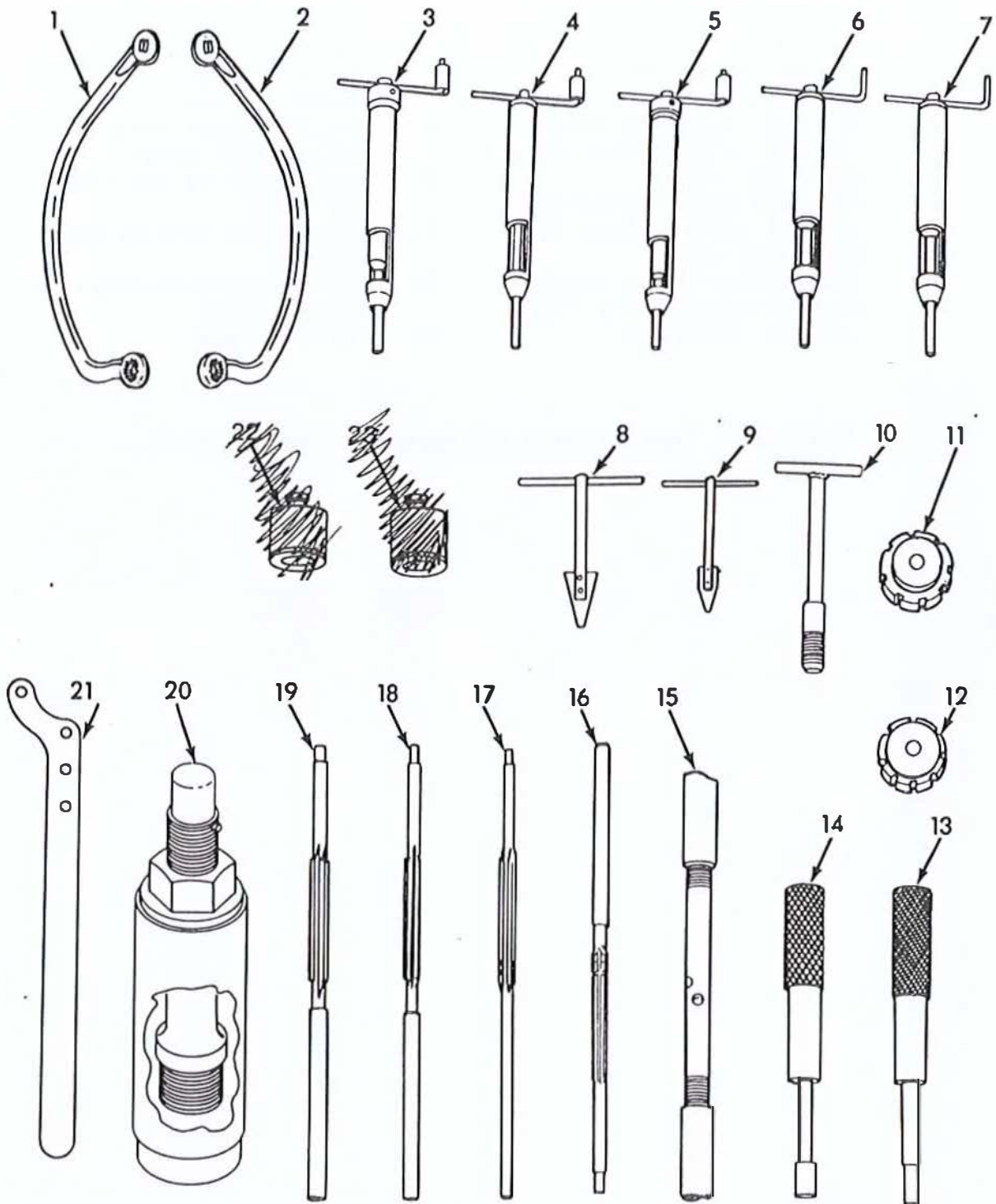
Figure 2-2. Special tools and equipment (sheet 1 of 2).

TA26575

Legend for fig. 2-2:

- | | | | |
|----|---|-----|---|
| 1. | Crankshaft and connecting rod sling | 7. | Piston ring gage (0.010 and 0.030 in. oversize) |
| 2. | Cylinder hone stone and holder set | 8. | Piston ring gage (std. and (0.040 in. oversize) |
| 3. | 180 grain stone and holder (part of cylinder hone stone and holder set) | 9. | Electric power resetting device (hour meter) |
| 4. | 150 grain stone and holder (part of cylinder hone stone and holder set) | 10. | Valve removing and inserting stand |
| 5. | Valve spring lifter assembly | 11. | Compression testing gage assembly |
| 6. | Piston ring gage (std. and 0.020 in. oversize) | 12. | Fan drive and advance unit housing sling |
| | | 13. | Fan rotor gage |

Figure 2-2. Special tools and equipment (sheet 2 of 2).



TA265755 ■

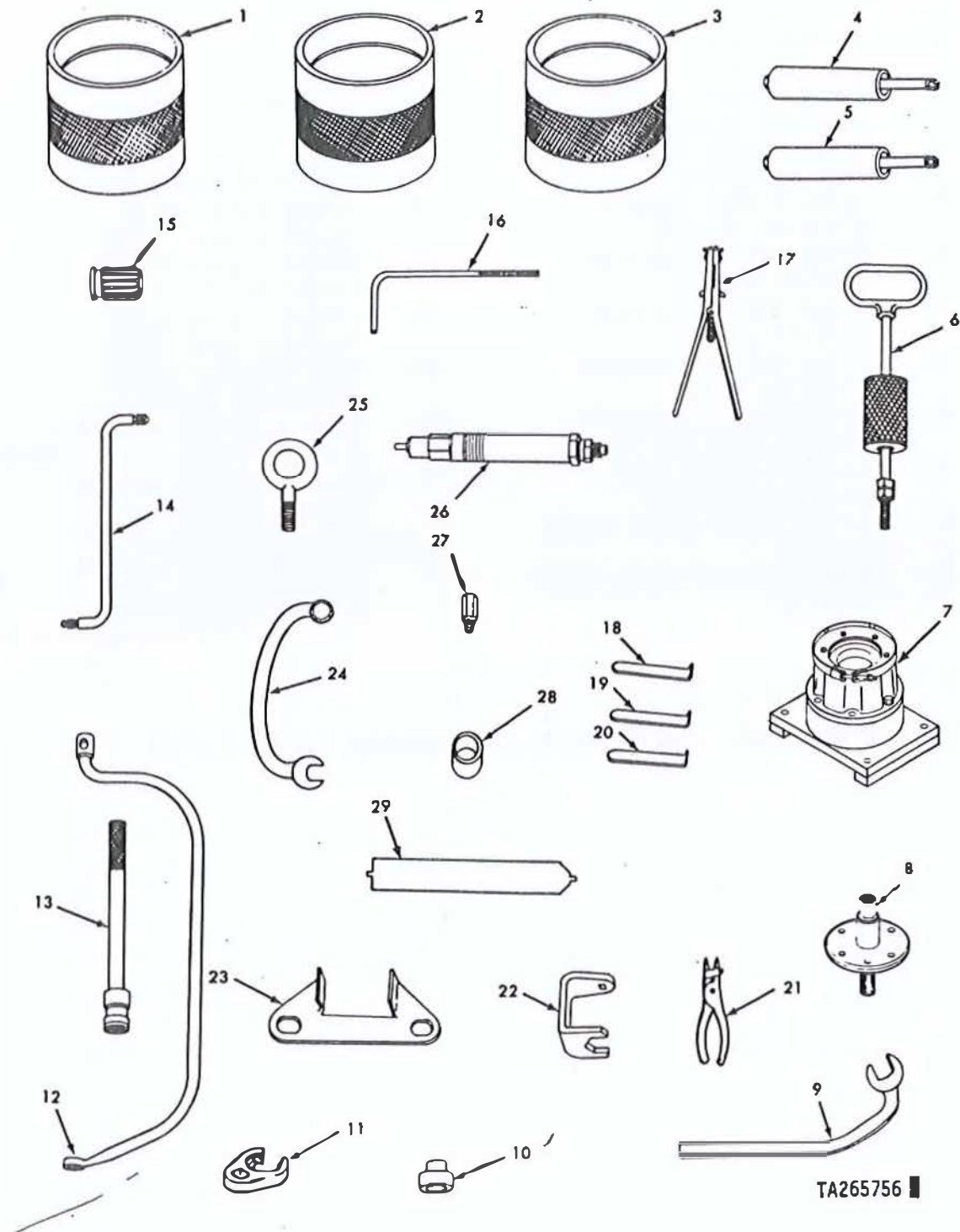
Figure 2-3. Special tools and equipment (sheet 1 of 2)

Legend for fig. 2-3:

- | | |
|--|---|
| 1. Cylinder hold-down nut
box wrench | 13. Exhaust valve guide
replacer |
| 2. Cylinder hold-down nut
box wrench | 14. Intake valve guide
replacer |
| 3. Screw thread inserter
(5/16-24 thread) | 15. Crankcase spreading
tool |
| 4. Screw thread inserter
(3/8-24 thread) | 16. Intake valve guide
finishing hand reamer |
| 5. Screw thread inserter
(7/16-20 thread) | 17. Intake valve guide
roughing hand reamer |
| 6. Screw thread inserter
(1/2-20 thread) | 18. Exhaust valve guide
finishing hand reamer |
| 7. Screw thread inserter
(1/2-13 thread) | 19. Exhaust valve guide
roughing hand reamer |
| 8. Screw thread extractor
(7/16 to 1 in.) | 20. Fuel injector nozzle
mechanical puller |
| 9. Screw thread extractor
(no. 10 thru 3/8 inc) | 21. Power take-off coupling
spanner wrench (AVDS-1790-2DR) |
| 10. Camshaft drive shaft
mechanical puller | 22. Power take-off housing
alignment tool, late
AVDS-1790-2DR engines |
| 11. Intake valve guide reamer
bushing | 23. Power take-off housing
alignment tool, early
AVDS-1790-2DR engines |
| 12. Exhaust valve guide reamer
bushing | |

Figure 2-3. Special tools and equipment (sheet 2 of 2)

DMWR 9-2815-220



TA265756

Figure 2-4. Special tools and equipment (sheet 1 of 2).

Legend for fig. 2-4:

- | | |
|--|--|
| 1. Piston ring compressor (std.) | 15. Engine turning splined wrench (AVDS-179a 2C, AVDS-179a 3C, AVDS-179a 2D AND AVDS-179a 2DA) |
| 2. Piston ring compressor (0.010 and 0.020 in. oversize) | 16. Threaded mechanical puller |
| 3. Piston ring compressor (0.030 and 0.040 in. oversize) | 17. Piston ring remover and replacer |
| 4. Exhaust valve guide mechanical puller | 18. Thickness gage blade (0.010 in.) |
| 5. Intake valve guide mechanical puller | 19. Thickness gage blade (0.025 in.) |
| 6. Idler gear shaft mechanical puller | 20. Thickness gage blade (0.100 in.) |
| 7. Generator holding tool (AVDS-179a 2C PWD) | 21. Retaining ring pliers |
| 8. Generator coupling tool (AVDS-179a 21A) | 22. Fuel injector nozzle attachment crowfoot |
| 9. Starter mounting nut open end wrench | 23. Cylinder mounting pad crankcase protector |
| 10. Fuel injector nozzle socket wrench | 24. Generator mounting nut box wrench |
| 11. Fuel injector tube nut attachment crowfoot | 25. Flywheel lifting eye bolt |
| 12. Cylinder hold-down nut box wrench | 26. Cylinder test compression adapter |
| 13. Fuel injector nozzle seat carbon cutter | 27. Mechanical adapter |
| 14. Fuel injector nozzle test attaching tube | 28. Fan rotor hub sleeve spacer |
| | 29. Piston ring groove gage |

AVDS-179a 2C AND AVDS-179a 2CA

Figure 2-4. Special tools and equipment (sheet 2 of 2).

DMWR 9-2815-220

2-5. Fabricated Tools and Equipment. The fabricated tools in tables 2-3 through 2-9, (2/15) through (2/25), may be fabricated locally if desired. These tools are of chief value when overhauling a large number of engines.

a. Ring Compressor. The ring compressor shown in table 2-3 (2/15) is used to compress the internal retaining spring of the fuel injection pump advance unit cover. Refer to TM 9-2815-220-34.

b. Lifting tool. The lifting tool shown in table 2-4 (2/16) is used for removal of the front fan drive housing and clutch assembly. Refer to TM 9-2815-220-34.

c. Valve Sleeve Remover. The valve sleeve remover shown in table 2-5 (2/17) is used to remove the oil pressure regulator valve sleeve. Refer to TM 9-2815-220-34.

d. Turning Tool. The turning tool shown in table 2-6 (2/18) is used to turn the AVDS-1790-2DR Engine when it is installed in the maintenance and overhaul stand. Refer to TM 9-2815-220-34.

e. Installing Tool. The installing tool shown in table 2-7 (2/19) is used to install connecting rod bushings. Refer to TM 9-2815-220-34.

f. Deleted.

g. Coupling Puller. The coupling puller shown in table 2-9 (2/25) is used for removing the drive shaft half and/or the injection pump half of the fuel injection pump flexible coupling. Refer to TM 9-2815-220-34.

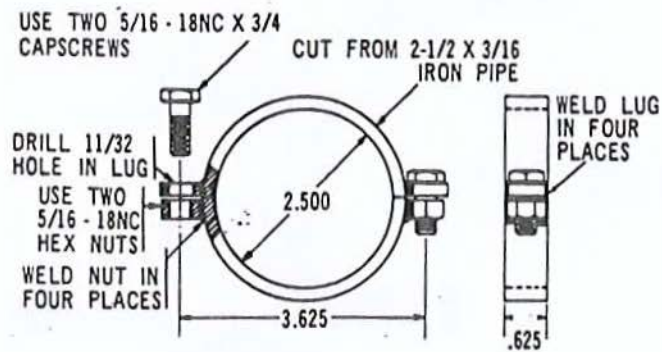
Table 2-3. Fabricated Tools and Equipment - Ring Compressor

Nomenclature	Reference or part no.	Material required
Ring compressor		Iron pipe

Fabrication Instructions:

See below.

Sketch or Diagram:



NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

Table 2-4. Fabricated Tools and Equipment - Lifting Tool

Nomenclature	Reference or part no.	Material required
Lifting tool		Low carbon steel

Fabrication Instructions:

See below.

Sketch or Diagram:

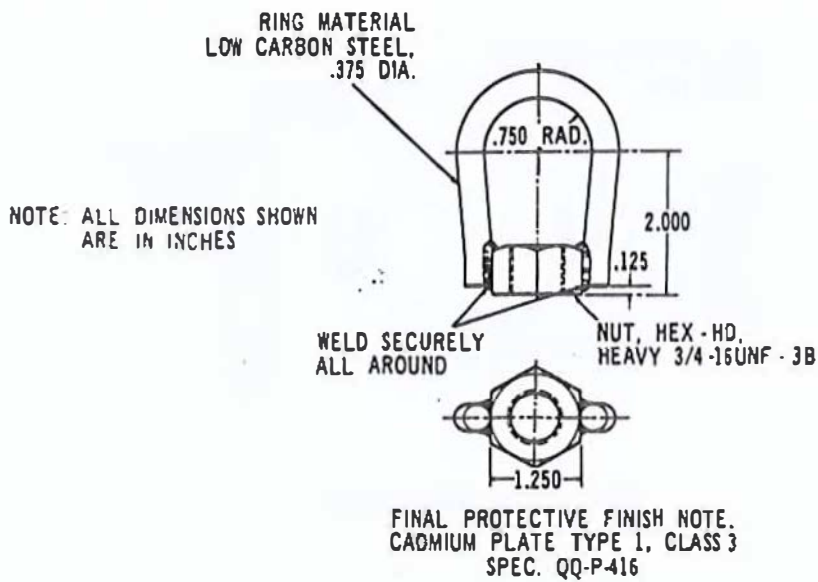


Table 2-5. Fabricated Tools and Equipment - Valve Sleeve Remover

Nomenclature	Reference or part no.	Material required
Valve sleeve remover		4140 alloy steel

Fabrication Instructions:

See below.

Sketch or Diagram:

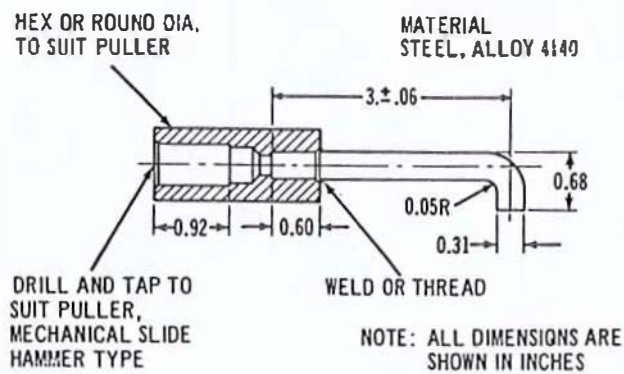


Table 2-6. Fabricated Tools and Equipment - Turning Tool

Nomenclature	Reference or part no.	Material required
Turning tool		1010 thru 1025 alloy steel

Fabrication Instructions:

See below.

Sketch or Diagram:

NOTE: ALL DIMENSIONS ARE SHOWN IN INCHES.

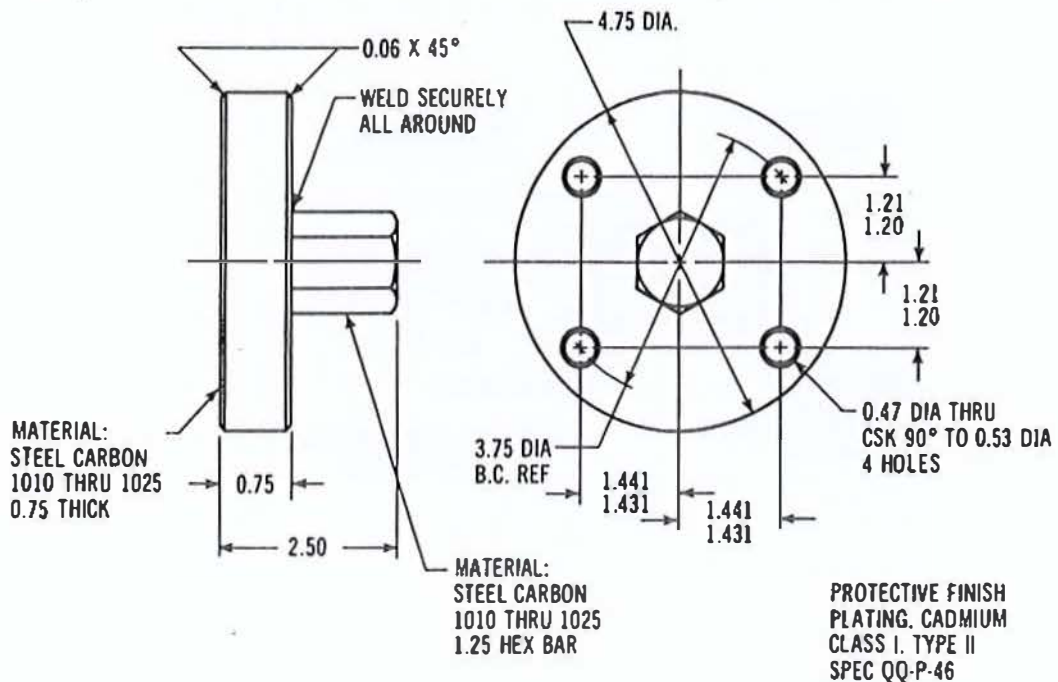


Table 2-7. Fabricated Tools and Equipment - Installing Tool

Nomenclature	Reference or part no.	Material required
Installing tool		See continuation sheets

Fabrication Instructions:

See below.

Sketch or Diagram:

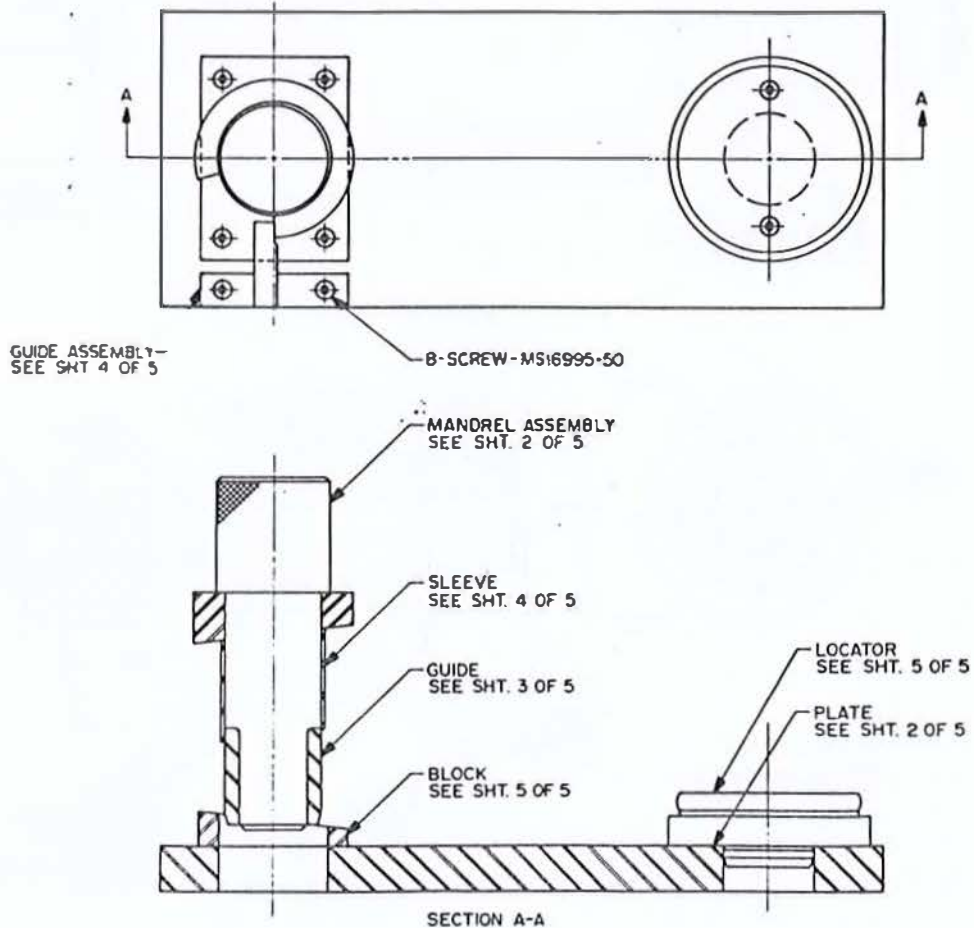


Table 2-7. Fabricated Tools and Equipment - Installing Tool - Continued

Nomenclature	Reference or part no.	Material required
Mandrel assembly and plate		See diagram below

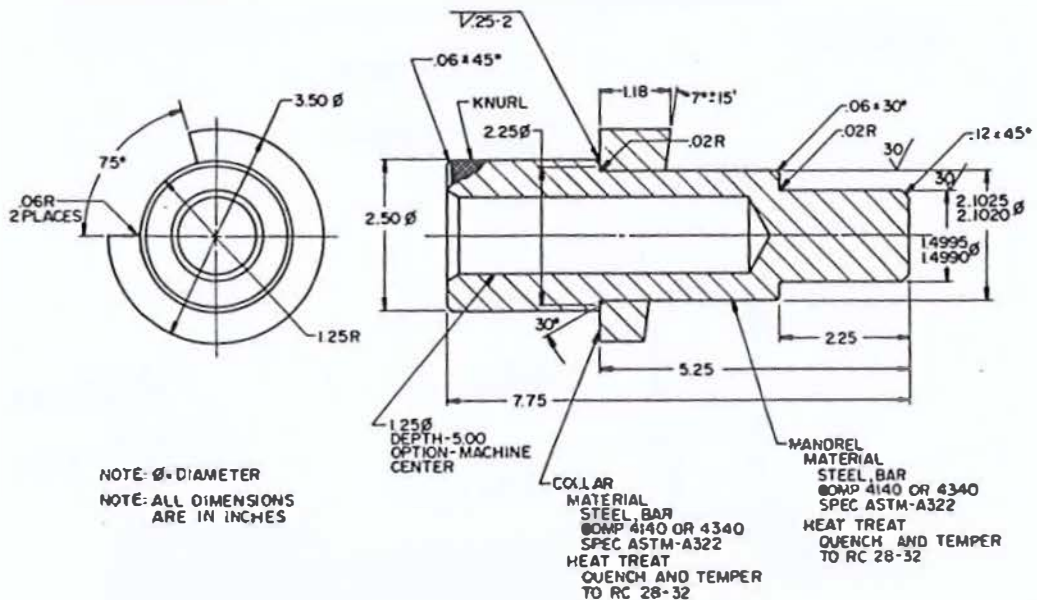
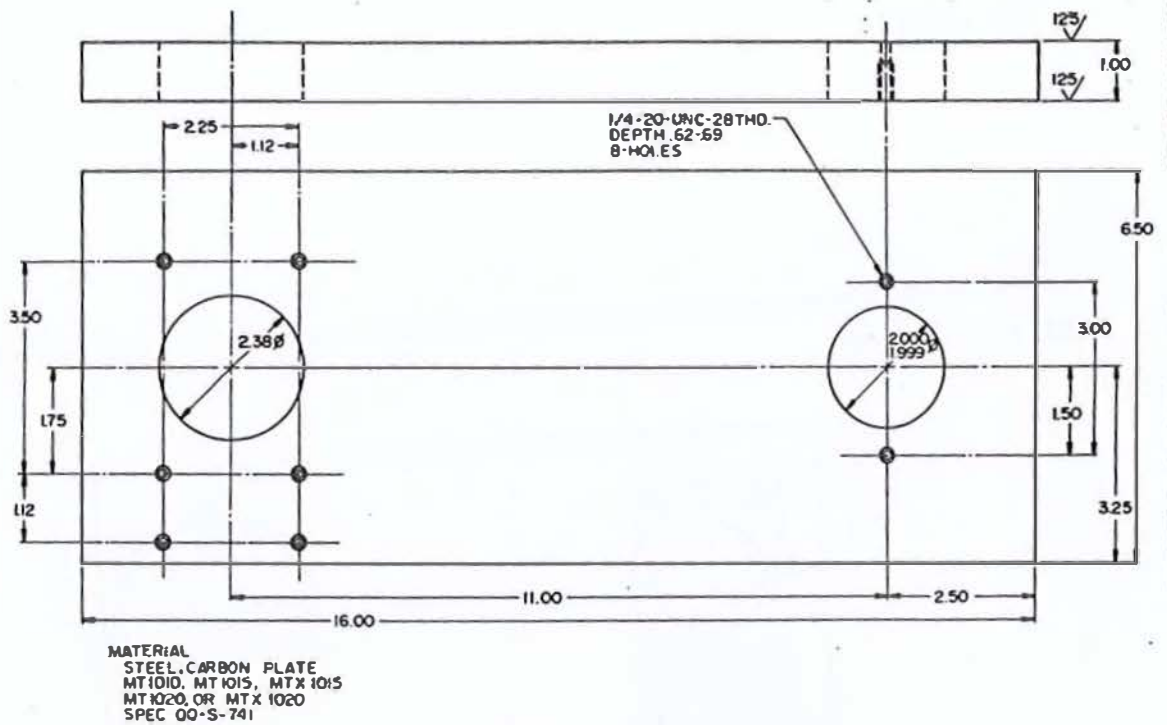


Table 2-7. Fabricated Tools and Equipment - Installing Tool - Continued

Nomenclature	Reference or part no.	Material required
Remover and installation guides		See diagram below

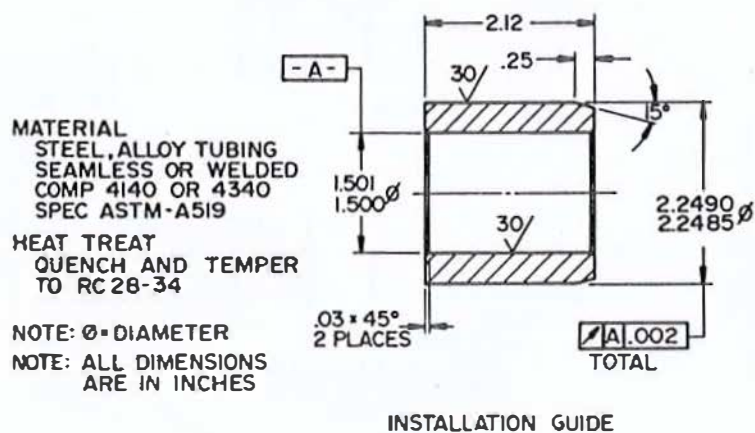
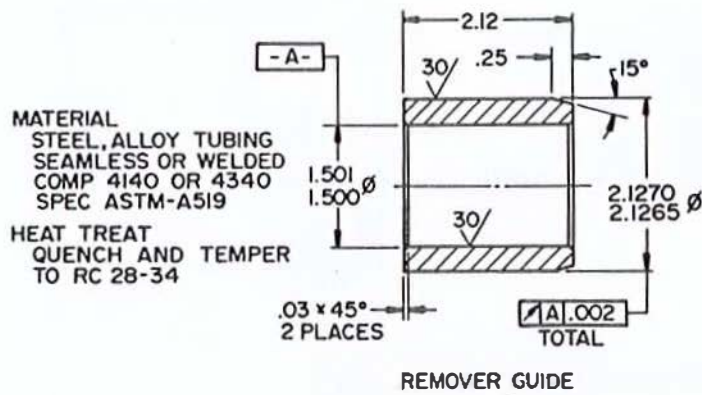


Table 2-7. Fabricated Tools and Equipment - Installing Tool - Continued

Nomenclature	Reference or part no.	Material required
Sleeve and guide		See diagram below

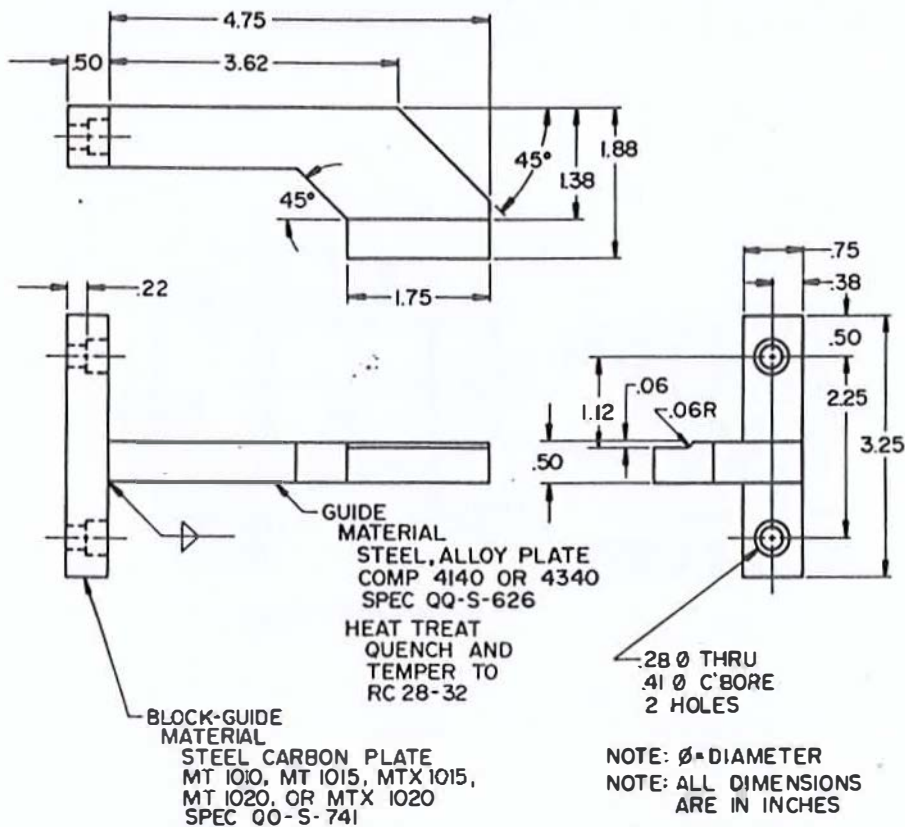
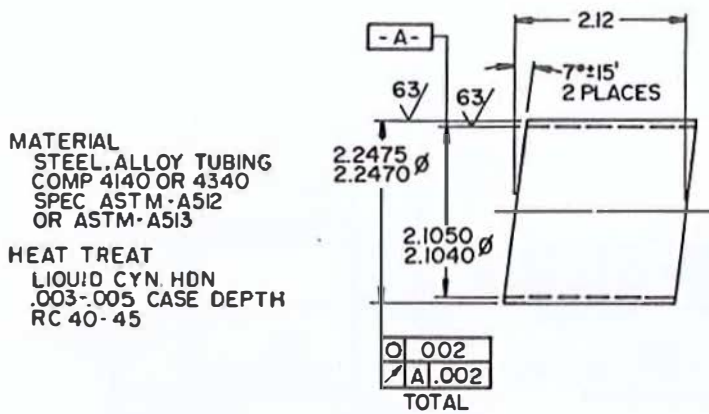


Table 2-7. Fabricated Tools and Equipment - Installing Tool - Continued

Nomenclature	Reference or part no.	Material required
Locator block		See diagram below

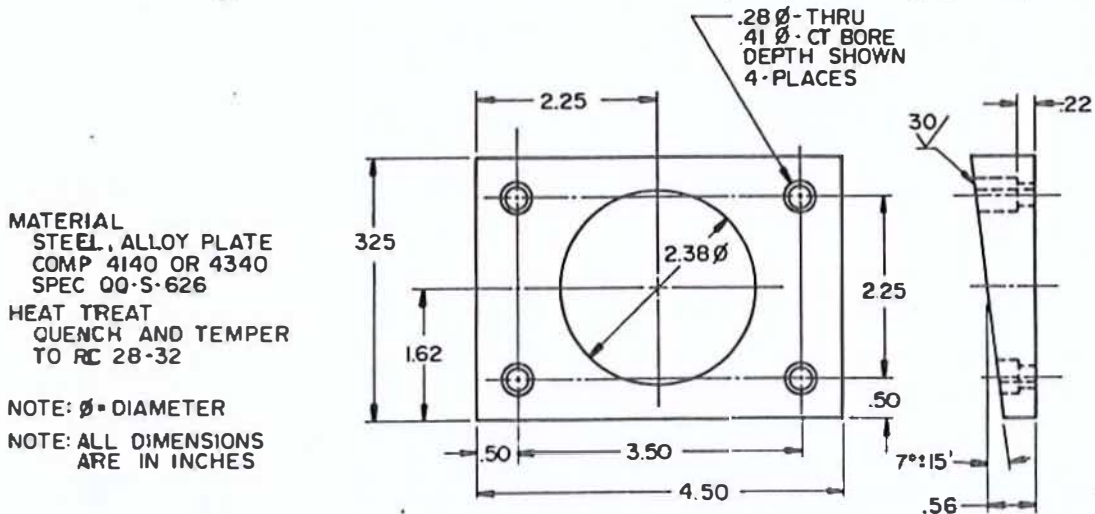
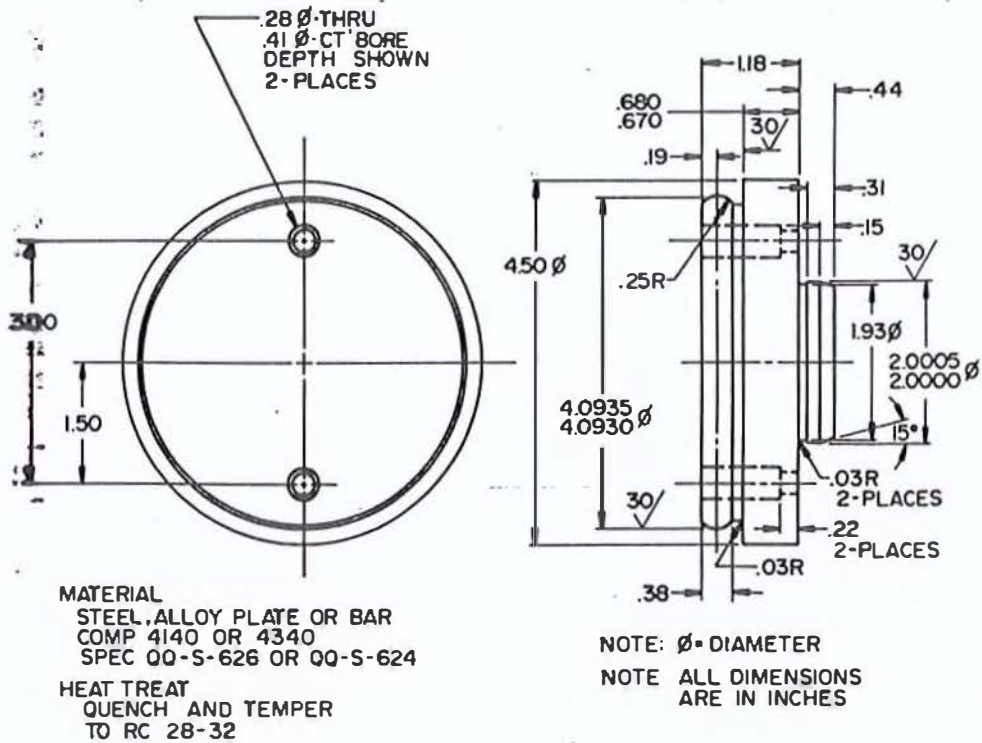


Table 2-8. Deleted.

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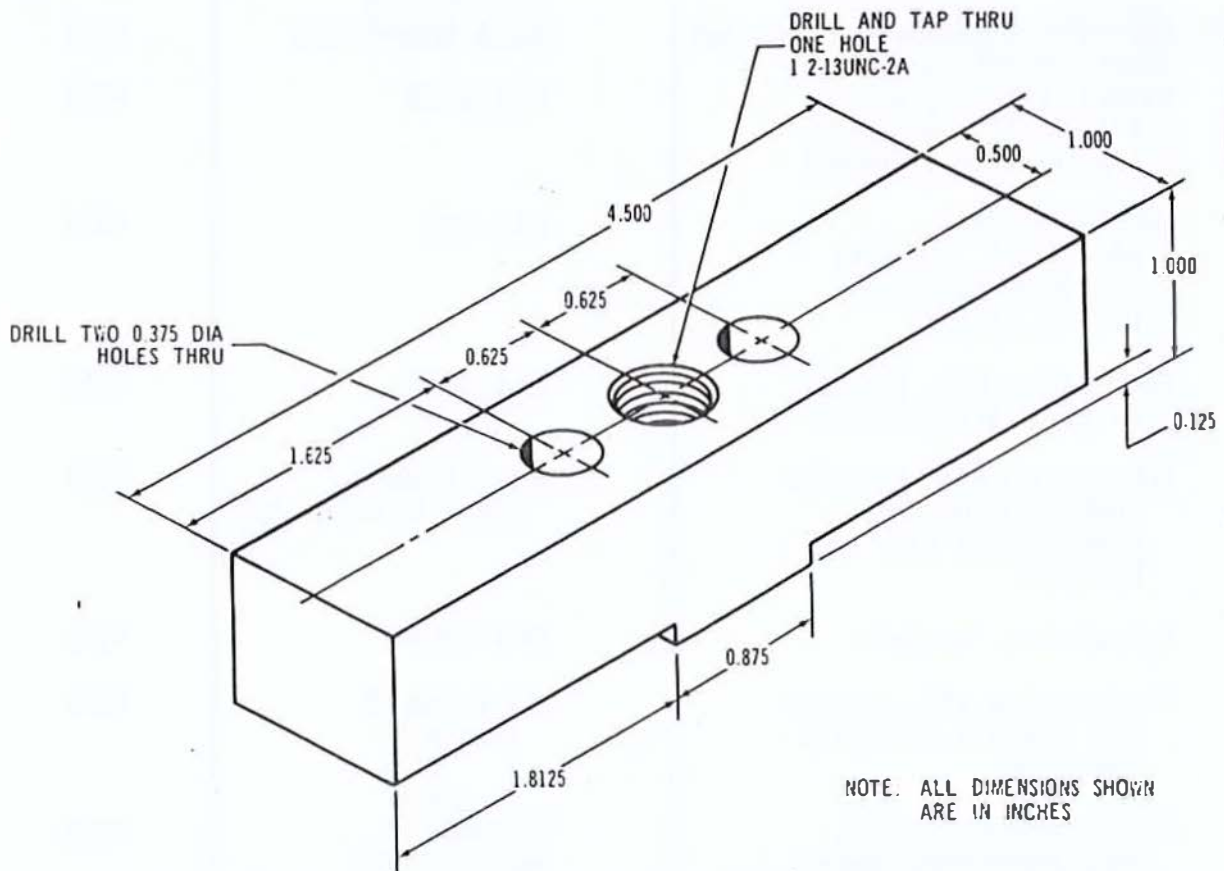
Table 2-9. Fabricated Tools and Equipment - Coupling Puller

Nomenclature	Reference or part no.	Material Required
Coupling puller		See diagram below

Fabrication Instructions:

See below

Sketch or Diagram:



MATERIAL
 4.1/2 X 1 X 1 CARBON TOOL STEEL
 ONE 1 2-13UNC-2A X 2 HEX-NC CAP SCREW
 TWO 5/16-13UNF-2A X 2 2 HEX-ND CAP SCREW

~~P.C. HFA~~

DMWR 9-2815-220

2-6. Bulk and Expendable Materials. Bulk and expendable materials listed in table 2-10 (2/26) are items of equipment and/or supply identified as:

- a. Consumed. Items which may be consumed in use.
- b. Identity. Items which lose their identity in an assembly.

Table 2-10. Bulk and Expendable Material

Item name	Specification or symbol	FSC
// Adhesive, Sealants, Silicone, RTV, general purpose (white)	MIL-A-46106	8040
SEALING // ARTISTEZE Compound P.D.E JOINT AND THREAD, LEAD FREE GENERAL PURPOSE	TT-S-1732 MIL-A-12352A (CE)	8030
Enamel, Alkyd, Gloss (black) (for exterior and interior surfaces)	TT-E-489H	8010
Insulation Tape, electrical, pressure sensitive adhesive, plastic (black)	HH-I-595	5970
Lubricating Oil, general purpose, preservative	VV-L-800C	9150
Lubricating Oil, internal combustion engine, preservative and break-in	MIL-L-21260 D (Type I, Grade 30)	9150
█ Petrolatum, Technical	VV-P-236A	9150
Preservative Oil, contact and volatile corrosion inhibited	MIL-L-46002B (Grade I)	9150
Primer Coating, Alkyd, wood and ferrous metal	664D TT-P-636 MIL-P-53030	8010
CORROSION-INHIBITING LEAD AND CHROMATE FREE, VOC-COMPLIANT	P-0-680 (Type II)	6850
✓ Solvent, Dry Cleaning	P.C. 111D MIL-S-12382	6850
CARBON REMOVING COMPOUND		
✓ Solvent, Carbon Removing		

DMWR 9-2815-220

2-7. ~~Mandatory~~ Replacement Parts.

a. Replacement Parts. The parts listed in table 2-11 (2/28) are those items considered ~~red~~ unserviceable after removal during disassembly. All cotter pins, self-locking ~~nuts~~, lockwashers, nonelectrical wire (locking), gaskets, and oil seals must be ~~rep~~ replaced, as well as other parts which are considered to be incapable of proper ~~per~~ performance until the next overhaul. Standard hardware items of negligible cost will ~~be~~ replaced (although not listed) to eliminate the necessity of a costly inspection procedure.

b. Oversize Parts. If table 2-11 (2/28) is to be used as a guide for requisitioning parts for an overhaul program, particular attention must be given to the ~~oversize~~ parts listed. Since piston rings are available in four oversizes, it is ~~impo~~ important to order only the sizes that the in-process inspection indicates will be ~~re~~ required for a particular engine.

c. Bulk Material. The bulk materials required for the overhaul of the engine(s) shall be ~~re~~quisitioned from the listing in table 2-10 (2/26).

d. Usable on Codes. Usable on codes are shown in the usable on code column. Uncoded parts are applicable to all engine models. Identification of the codes used in this publication are listed below.

CODE	USED ON
A	AVDS-1790-2C
B	AVDS-1790-2D
C	AVDS-1790-2DR only
D	AVDS-1790-2CA only
E	AVDS-1790-2DA only

2590-00-499-1782 11682595 (19207) LEAD, ELECTRICAL: GENERATOR GROUND B, C, E 1

5310-00-637-9541 110730 (16764) WASHER, LOCK: (PART OF KIT PART NO. 52436) - 4

WA01363 (73394) DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts

NSN	Part no.	Nomenclature	Usable on code	Qty
STANDARD REPLACEMENT PARTS				
2590-00-899-5298	11655457 (19207)	WIRING HARNESS, BRANCHED: transmission	-	1
2590-00-410-1152	11655450 (19207)	WIRING HARNESS: starter motor	-	1
2590-00-423-3622	11655454 (19207)	WIRING HARNESS: starter ground	-	1
2590-00-499-1782	11682595 (19207)	LEAD, ELECTRICAL: generator ground	B, C, E	1
2590-00-629-1268	8679577 (19207)	THREAD: seal, oil pan (14 feet) (part of set part no. 5704488)	-	1
2590-01-008-1440	11682595-1 (19207)	LEAD, ELECTRICAL: generator ground	A, D	2
2590-01-008-1441	11682595-2 (19207)	LEAD, ELECTRICAL: starter ground	A, D B, E	2 1
2815-00-394-9719	11684135 (19207)	SLEEVE, INTERCYLINDER CAMSHAFT: left and right bank	-	10
2815-00-410-1232	11682723 (19207)	LEAD, ELECTRICAL: generator	-	1
2815-00-410-1976	11655451 (19207)	LEAD ASSEMBLY, ELECTRICAL: generator	-	1
2815-00-679-4971	8725249 (19207)	LOCK, PLATE NUT BOLT: flywheel and gearshaft to crankshaft	-	3
2340 2815-00-808-2421	11602061 (19207)	FILTER ELEMENT, FLUID: FILTER, FLUID, PRESSURE: element water separator (fine)	-	1
4720 2815-00-896-6166	A3022A2 (53964) 10898794 (19207)	HOSE, AIR DUCT: camshaft drive shaft flange to accessory cam drive bevel gearshaft support, left bank and right bank (2) CRANKCASE BREATHING TUBE TO TEE ASSEMBLY, FLYWHEEL END (1) BREATHING TUBE TO EJECTOR	-	3
5365-00-576-9732	MS11625-1150 (96906)	RING, RETAINING: INSERTION PUMP DRIVEN GEARSHAFT	-	1
5310-00-239-5848	10865381	WASHER, KEY: ACCESSORY CAMSHAFT DRIVE BEVEL GEARSHAFT RETAINING PLUG	-	2

5330-00-165-1975 M83248/1-911 (41349) PACKING, PREFORMED: FUEL INJECTOR. NOZZLE ASSEMBLY TO RETAINER (PART OF SET PART NO. 5704488) 12

5330-00-167-5114 M83248/1-126 (81349) PACKING, PREFORMED: FUEL INJECTOR NOZZLE HOLDER DMWR 9-2815-220 12

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
2910-00-106-1981	C3062-8 (86988) WA23008 (75394)	PACKING, PREFORMED: RING, FUEL INJECTION COUPLING: (part of kit part no. 5704366)	-	2
2910-00-203-3322	17413737 (19207)	FILTER ELEMENT, FLUID PRESSURE frame heater fuel with spring	-	1
2910-00-930-5962	10951418 (19207)	PAD, TUBE CLAMP: smoke generator tube	-	8
2920-00-399-5303	11682726 (19207)	WIRING HARNESS, BRANCHED: engine electrical	-	1
2920-00-410-1137	11655456 (19207)	WIRING HARNESS, BRANCHED: engine electrical	-	1
2920-00-507-7779	11682724 (19207)	LEAD ASSEMBLY, ELECTRICAL: generator tower	-	1
2920-01-065-6631	12254376 (19207)	WIRING HARNESS ASSEMBLY, BRANCHED: engine electrical	-	1
2920-01-068-3385	12254378 (19207)	WIRING HARNESS ASSEMBLY, BRANCHED: engine electrical	-	1
	725-273 (19207)	CASKET: CRANKSHAFT OIL HOUSING (PART OF SET PART NO. 5704488)	-	1
4710-01-132-1422	7767337 (19207)	PLUG, PIPE	A, B, D, E C	3 4
5365-00-822-2136	MS 16625-328 (9624) MS 16625-128 (9624)	RING, RETAINING: GENERATOR IDLER GEAR	-	1
	8761081 (19207)	GASKET: GENERATOR RETAINER (PART OF SET PART NO. 5704488)	-	1
5365-00-828-7570	MS 16626-1112 (9624)	REPAIR RING, RETAINING: INTER FAN DRIVE SHAFT	-	1
	2761226	HOSE, NONMETALLIC: INTER FAN DRIVE SHAFT TUBE PLATE (FABRICATE FROM HOSE, NONMETALLIC, 8720-00-278-1112)	-	1

DMWR 9-2815-220

C3062-11
(86988)
WA 23906
(75304)

BOLT; (PART OF KIT PART NO. 570436L)

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Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
STANDARD REPLACEMENT PARTS - continued				
5365-10-804-2786	MS16625-1125 (96906)	RING, RETAINING; FLY WHEEL SHAFT WASHER, FLYWHEEL END	-	1
-	10882650 (19207)	SPRING; INJECTION ADVANCE VANE SEAL (PART OF KIT PART NO. 5702641)	-	8
-	1088249 (19207)	SEAL; INJECTION ADVANCE VANE (PART OF KIT PART NO. 5702641)	-	8
5330-00-166-0980	MS9388-012 (98906) MS8348-1-012 (81349)	PACKING, PREFORMED; ENGINE OIL COOLER VENT AND SAMPLING TEE (1) TRANSMISSION OIL COOLER ADAPTER (1) TRANSMISSION OIL COOLER PLUG, L.B. (1) OIL COOLER VENT ADAPTER, L.B. (1) (PART OF SET PART NO. 5704488)	ABDE	4
5330-00-166-0980	MS9388-012 (98906) MS8348-1-012 (81349)	PACKING, PREFORMED; TRANSMISSION OIL COOLER PLUG, L & R BANKS (2) OIL COOLER VENT ADAPTER, L & R BANKS (2) (PART OF SET PART NO. 5704488)	C	4
4720-00-177-6186	0898793-1 (19207)	HOSE, NONMETALLIC; crankcase breather tube to exhaust pipe, flywheel end		
4720-00-202-7457	MIL-H-6000 (81349)	HOSE, NONMETALLIC; 17.00 inches 4.00 in. id		
4720-00-278-1110	MIL-H-6000 (81349)	HOSE, NONMETALLIC; 3.50 inches 1.75 in. id		
4720-00-466-7468	MS52104C4 -0104 (96906)	HOSE ASSEMBLY, NONMETALLIC; fuel return, cylinder No. 5 left and right bank		2
4720-00-475-3435	MS52104C4 -0074 (96906)	HOSE ASSEMBLY, NONMETALLIC; inter-cylinder connecting, fuel return cylinder no. 1, 2, 3, and 4, right and left bank (8), cylinder no. 6 right bank fuel return tube to elbow (1)		9
5330-00-286-9942	10935398 (19207) 2600A-6223 (23688)	SEAL PLAN ENCASED; THRUSTLE CONTROL CROSS SHAFT BEARING (PART OF SET PART NO. 5704488)	C	1

	8395419-3 (1927)	TUBING, NONMETALLIC: FABRICATE FROM 4720-00-804-9249	-	1
4730-01-047-2605	11682596-1 (1927)	INSERT, TUBE FITTING	DMWR 9-2815-220.	4
4730-00-810-7039	MSS1818-1 (96906)	TEE, PIPE TO TUBE	-	1

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
4720-00-278-2826	7350206 (19207)	HOSE, RUBBER: intermediate cylinder head drain tubes (10), oil pan inlet drain tubes (4), turbosuper-charger oil drain tubes (4), (fabricate from hose, FABRICATE NONMETALLIC 4720-00-278-1113)	-	18 20
4720-00-803-7062	8761490-1 (19207)	HOSE, RUBBER: intake manifold tube to tube connector to turbosuper-charger outlet elbow, left and right (fabricate from hose, non-metallic, 4720-00-202-7457)	-	4
4720-00-896-6165	10898793 (19207)	HOSE, AIR DUCT: crankcase intermediate breather tube to breather tube tee (1), crankcase breather tube to intermediate tube, damper end (1)	-	2
4720-00-896-6166	10898794 (19207)	HOSE, AIR DUCT: crankcase breather tube to tee assembly, flywheel end (1), camshaft drive shaft flange (2)	-	3
		dust ejector system	D,E	1
4730-00-044-4689	7538990 401752 (02978) (28839) (1927)	PLUG, PIPE	-	16
4730-00-044-4705	444705 (21450)	PLUG, PIPE		3
4730-00-044-4715	444715 (21450) (34617) 733867 (19207)	PLUG, PIPE	-	4
4730-00-278-3380	555-8291 8666534-1 (19207)	PLUG, PIPE	-	7
4730-00-541-7749	122329PC93(10001) AN93052 (80044) (1927)	PLUG, PIPE	A,B,D,E C	14 12
4730-00-753-8997	378-2966 7538997 (19207)	PLUG, PIPE	A,B,D,E C	8 7
4730-00-776-7336	044-4699 7767336 (19207)	PLUG, PIPE	8 A,C,D B,E	8 6 7

C3062-5
(16988)
WA29909
(75399)

SPACER: (PART OF KIT PART NO. 5704366)

DMWR 9-2815-220

5975-00-985-6630

MS3367-3-0 STRAP, TIE DOWN ELECTRICAL COMPONENTS
(96906) SECURE LEAD AND WIRING HARNESS TO CYLINDER
OIL DRAIN TUBE (1) SECURE STARTER WIRING
HARNESS, FLYWHEEL END (5)

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
4730-00-776-7336	7767336 (19207)	PLUG, PIPE	BE	1
4730-00-930-2341	B666534-2 (19207)	PLUG, PIPE for oil transfer note	-	8
5310-00-159-6495	MS19070-051 (96906)	WASHER, KEY: oil pump drive gear	-	1
5310-00-209-2629	501868 (02978)	WASHER, KEY: fan drive bevel shaftgear	-	2
5310-00-678-5370	7323994 (19207)	WASHER, FLAT: fuel injection nozzle to fuel return connector and bolt, cylinder No. 1 through cylinder No. 6, left and right bank (part of set part no. 5704488)	-	24
5310-00-679-5685	B744055 (19207)	WASHER, FLAT: cylinder head oil drain tube connectors (PART OF SET PART NO. 5704488)	-	24
5310-00-861-1406	7748837 (19207)	WASHER, FLAT: fuel injector nozzle seal (part of set part no. 5704488)	-	12
5315-00-282-0341	8761412 (19207)	KEY, WOODRUFF: ignition pump coupling (part of kit part no. 5704366)	-	2
5325-00-184-9046	MS35489-975 C3030 (81348)(96906)	GROMMET, RUBBER: fuel return hose to shroud	-	1
5325-00-276-6089	MS35489-16 AN931-13 (88004) 96906	NONMETALLIC: GROMMET, RUBBER: turbosupercharger shroud plates	A, B, D, E	2
5325-00-290-1960	MS35489-27 (96906)	NONMETALLIC: GROMMET, RUBBER: transmission wiring harness through shroud	A, B, D, E	1
5325-00-432-4724	7527627 (19207)	GROMMET, RUBBER: generator cable	A, D	1
5330-00-199-5886	MS35769-35 (96906)	GASKET: DAMPER HOUSING OIL DRAIN VALVE ADAPTER (PART OF SET PART NO. 5704488)	-	1
5325-00-182-4707	10935447 (10707)	2/32 Change-3 GROMMET, NONMETALLIC: TRANSMISSION HOUSING TO MANIFOLD HEATER FUEL	A, B, D, E	2

5975-00-074-2072

MS3367-1-9
(96906)STRAP, TIEDOWN, ELECTRICAL COMPONENTS; SECURE C 9
WIRING HARNESS, DAMPER END (1) HARNESS TO
SMOKE CONDENSING TUBES, FLYWHEEL END (5) SECURE
WIRING HARNESS, FLYWHEEL END (2) SECURE WIRING
HARNESS TO STARTER CABLE (1)

5325-00-276-6096

MS36489-74
(96016)
ANS3189-13 (38044)G. GROMMET, NONMETALLIC; DMWR 9-2815-220
OIL COOLER
FRAME TO CYLINDER HEAD STUD

12

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Used on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
5325-01-014-2299	11882707 (19207)	GROMMET, RUBBER: oil cooler frame to cylinder head stud, left and right bank (12), turbosupercharger support bracket, left and right (2)		14
5330-00-023-7623	MS9134-01 (96906)	GASKET: tachometer drive cover, right bank (part of set part no. 5704488)		1
✓ 5330-00-078-4866	10935359 (19207)	PACKING, PREFORMED: fuel injector nozzle holder (part of set part no. 5704488)	-	12
✓ 5330-00-132-6954	MS9388-118 (96906) MS3248/1-118 (81349)	PACKING, PREFORMED: damper housing oil drain valve adaptor (part of set part no. 5704488)	-	1
5330-00-168-0980	M83248-1-012 (81349)	PACKING, PREFORMED: oil cooler adaptor	-	1
5330-00-171-6649	MS28775-223 (96906)	PACKING, PREFORMED: starter driven drive idler gearshaft to crankcase (1); generator driven drive idler gearshaft to crankcase (1) (part of set part no. 5704488)	-	2
✓ 5330-00-187-3615	MS28775-272 AN6230-50 (88044) (96906)	PACKING, PREFORMED: fan drive housing cover (part of set part no. 5704488)	-	2
5330-00-196-6714	AN901-20C (88044)	GASKET: oil pump inlet screen retainer (part of set part no. 5704488)	-	2
✓ 5330-00-248-3850	MS29513-116 (96906)	PACKING, PREFORMED: primary fuel filter spring retainer (part of kit part no. 5704487)	-	1
✓ 5330-00-256-8201	MS28775-238 (96906) AN6230-50 (88044) WA26581 (75892)	PACKING, PREFORMED: fuel injection pump coupling (part of kit part no. 5704366)	-	1
✓ 5330-00-265-1089	MS29513-125 (96906)	PACKING, PREFORMED: head to bowl, flame heater fuel filter assembly (part of set part no. 5704488)	-	1

8395419-4
(19207)

TUBING, NONMETALLIC: FABRICATE
FROM 4722 00-804-9249

DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS-- continued		
✓ 5330-00-269-2844	MS35769-47 (96906)	GASKET: oil cooler by-pass (1), oil filter by-pass. (1) (part of set part no. 5704488)	-	2
✓ 5330-00-285-9842	MS28778-10 (96906)	PACKING, PREFORMED: generator oil inlet elbow (1), fuel shut off valve adapter (2) (part of set part no. 5704488)	A,D	3
5330-00-290-8134	7045881 (19207)	PACKING WITH RETAINER: oil filter tube flange	-	3
✓ 5330-00-291-2830	500241 (21450)	SEAL, PLAIN, ENCASED: camshaft end cover plate, right bank (part of set part no. 5704488)	-	1
✓ 5330-00-292-7363	7416751 (19207)	PACKING, MATERIAL: crankshaft oil seal housing support to crankcase (part of set part no. 5704488)	-	2
✓ 5330-00-297-9990	MS28775-222 (96906)	PACKING, PREFORMED: tachometer drive adapter, right bank (PART OF OF SET PART NO. 5704488)	-	1
5330-00-298-8091	150190 (21450) (11583)	GASKET: manifold heater spark plug (part of set part no. 5704488)	-	2
✓ 5330-00-318-4127	8666738 (19207)	GASKET: generator mounting (PART OF SET PART NO. 5704488)	A,D	1
✓ 5330-00-404-4152	MS9388-120 (96906)	PACKING, PREFORMED: crankcase oil transfer tube (part of set part no. 5704488)	-	2
✓ 5330-00-410-9803	10935621 (19207)	GASKET: oil level indicator, to upper engine cover (part of set part no. 5704488)	-	1
5330-00-411-2513	8682754 (19207)	GASKET: transmission adapter (part of set part no. 5704488)	-	1
5330-00-438-1861	10912558 (19207)	GASKET: starter adapter to crank- case (part of set part no. 5704488)	-	1
5330-00-483-9490	11684039-4 (19207)	GASKET: oil pump to oil pan (scav- enge (part of set part no. 5704488)	-	1

5330-00-106-1981

C3062-8
(86988)
WA29908
(75394)

PACKING, PREFORMED: (PART OF KIT PART NO
5704366)

2

DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS-continued		
✓ 5330-00-486-0302	11684040 (19207)	GASKET: oil pan scavenge inlet screen (part of set part no. 5704488)	-	1
✓ 5330-00-486-0320	11684058 (19207)	RETAINER, PACKING: oil filter element (part of set part no. 5704488)	-	2
✓ 5330-00-486-0346	11684095 (19207)	GASKET: oil pan drain plug (part of set part no. 5704488)	-	1
✓ 5330-00-492-1774	11668614 (19207)	SEAL, PLAIN/ENCASED: starter driven shaftgear (part of set part no. 5704488)	-	1
✓ 5330-00-492-1776	11668628 (19207)	SEAL, PLAIN, ^{ENCASED:} ENCLOSED: generator drive shaft gear (part of set part no. 5704488)	B,C,E	1
5330-00-492-1777	11684075 (19207)	GASKET: oil pump leveling tube assembly to oil pump oil pan baffle (part of set part no. 5704488)	-	1
✓ 5330-00-492-1784	11684039-2 (19207)	GASKET: PLAIN oil pump to oil pan (reserve) (part of set part no. 5704488)	-	2
5330-00-493-2938	10912270 (19207)	GASKET: seal between upper and lower container sections		1
5330-00-498-6341	10935478 (19207)	RETAINER, PACKING: turbosupercharger support brace to tie rod left and right		4
5330-00-542-1586	MS28775-118 (96906)	PACKING, PREFORMED: fuel injector nozzle holder to retainer (12) (part of set part no. 5704488), damper housing drain valve adapter (1)		13
✓ 5330-00-576-9728 ^{S2}	MS28775-226 (96906)	PACKING, PREFORMED: accessory camshaft drive bevel shaftgear (part of set part no. 5704488)	-	2

5330-00-486-0372

11682694
(1927) 76680
7399-5 Change 3

SEAL, PLAIN: MANUAL FUEL SHUT-OFF CONTROL LEVER
2/35

2

4730-00-854-5837

MS 51815-1SS ELBOW, PIPE TO TUBE
(96906)

DMWR 9-2815-220

2

TABLE 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
✓ 5330-00-579-3156	MS28775-116 (96906)	PACKING, PREFORMED: injection pump base oil transfer tube to fuel injection metering pump (part of set part no. 5704488)	-	1
✓ 5330-00-166-1063	MS 9388-114 MS3248/1-114 (81349)	PACKING, PREFORMED: generator oil return hose (part of set part no. 5704488)	A,D	1
✓ 5330-00-579-6861	MS28775-236 (96906)	PACKING, PREFORMED: starter driven shaftgear bearing cage (part of set part no. 5704488)	-	1
✓ 5330-00-579-7918	MS28775-229 (96906)	PACKING, PREFORMED: camshaft drive bevel gearshaft adapter, left and right bank (part of set part no. 5704488)	-	2
✓ 5330-00-580-3846	01-160-4343 MS28775-325 (96906)	PACKING, PREFORMED: inter fan drive shaft tube forward and rear (part of set part no. 5704488)	-	2
✓ 5330-00-582-2133	M83461/1-325 MS28775-011 (96906)	PACKING, PREFORMED: camshaft drive bevel gearshaft adapter oil transfer tube, left and right bank (2), fan drive housing base to fan drive oil tube (1) (part of set part no. 5704488)	-	3
✓ 5330-00-582-2855	MS28775-113 (96906)	PACKING, PREFORMED: injection base assembly oil transfer tube to crankcase (part of set part no. 5704488)	-	1
✓ 5330-00-584-7186	01-123-3303 MS28775-331 (96906)	PACKING, PREFORMED: intake manifold tube to intake manifold cylinders No. 2 and No. 5 left and right (part of set part no. 5704488)	-	4
✓ 5330-00-585-6663	M83461/1-331 MS28775-110 (96906)	PACKING, PREFORMED: crankcase oil transfer tube to accessory drive housing (3), accessory drive housing oil transfer tube to accessory drive housing base (3), fan drive housing oil transfer tube to accessory drive housing base (1) (part of set part no. 5704488)	-	7

DMWR 9-2815-220

5330-01-031-6954

10935368
(19207)GASKET: SOLENOID MOUNTING (PART OF
SET PART NO. 5704488)

C

1

TABLE 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
✓ 5330-00-586-6071	10935397 (19207)	GASKET: solenoid housing cover (part of set part no. 5704488)	C	1
✓ 5330-00-599-0942	8717158 (19207) 550556 (63728)	PACKING, PREFORMED: oil filler tube cap (1), oil level indicator tube cap (1) (part of set part no. 5704488)	-	2
✓ 5330-00-599-2934	MS28775-112 (96906)	PACKING, PREFORMED: crankcase to fan drive base oil transfer tube, forward (part of set part no. 5704488)	-	1
✓ 5330-00-618-0800	MS28775-335 (96906)	PACKING, PREFORMED: intake manifold tube to intake manifold cylinder No. 1 and No. 6 left and right (part of set part no. 5704488)	-	4
✓ 5330-00-631-2098	7033684 (19207) 110 3-8 (25184)	PACKING WITH RETAINER: valve rocker support cover through valve rocker shaft (48) accessory drive hous- ing to base (2) (part of set part no. 5704488)	-	50
5330-00-678-3171	✓ 8725277 (19207)	GASKET: power take-off drive hous- ing (part of set part no. 5704488)	C	1
5330-00-678-3171	✓ 8725277 (19207)	GASKET: fuel pump adapter (part of set part no. 5704488)	A, B, D, E	1
5330-00-678-3216	8761547 (19207) 8761547 (63728)	GASKET: exhaust manifold to cylin- der head (12) exhaust manifold to exhaust elbow (4) (part of set part no. 5704488)	-	16
5330-00-678-3221	8725239 (19207)	GASKET: oil pressure regulator valve cover (part of set part no. 5704488)	-	1
5330-00-678-3225	8764948 (19207) 7234-S (01212)	SEAL, PLAIN: crankshaft oil (part of set part no. 5704488)	-	1
✓ 5330-00-678-3270	8682505 (19207)	GASKET: exhaust elbow to turbo- supercharger, left and right bank (part of set part no. 5704488)	-	4
5310-00-209-2629	7767350 (19207) 501868 (28839)	WASHER, KEY: FAN DRIVE BEVEL GEARSWAFT 2/37	-	2

2910-00-203-3322

10882777

7413737

810207
569807-02(9025)

10865122

TUBE ASSEMBLY: BACK FLOW VALVE TO MANIFOLD HEATER FILTER A, B, DE 1

FILTER ELEMENT, FLUID: FLAME HEATER FUEL WITH SPRING DMWR 9-2815-220

TUBE ASSEMBLY: BACK FLOW VALVE TO MANIFOLD HEATER FILTER C 1

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
5330-00-678-3313	8725296 ✓ (19207)	GASKET: valve adjusting cover (part of set part no. 5704488)	-	24
5330-00-678-4669	8682679 ✓ (19207)	GASKET: engine oil cooler 130 connector (part of set part no. 5704488)	-	4
5330-00-678-4676	7320459 ✓ (19207)	GASKET: turbosupercharger outlet elbow, left and right (part of set part no. 5704488)	-	2
5330-00-678-4681	8682797 ✓ (19207)	GASKET: intake manifold tube turbosupercharger left and right (part of set part no. 5704488)	-	2
5330-00-678-4695	MELG 14243 TYPE I (8249) 8682503 (19207)	GASKET: manifold air heater, left and right bank (part of set part no. 5704488)	-	2
5330-00-678-4734	8764982 (19207)	SEAL, PLAIN ENCASED: fuel injection pump driven gearshaft (part of set part no. 5704488)	-	1
5330-00-678-5386	8682770 (19207)	GASKET: crankcase breather tube tee to accessory drive housing (part of set part no. 5704488)	-	2
5330-00-678-5388	8682680 (19207)	GASKET: crankcase breather tube, damper end (part of set part no. 5704488)	-	1
5330-00-678-7101	7084278 (19207)	GASKET: starter mounting (part of set part no. 5704488)	-	1
5330-00-679-4961	8682523 (19207) 585094(63728)	GASKET: oil filler tube (1), oil level indicator tube (1) (part of set part no. 5704488)	-	2
5330-00-679-6482	8682772 (19207) 587195(63728)	GASKET: oil pan inlet drain flanges (part of set part no. 5704488)	-	4
5330-00-679-7062	8682800 ✓ (19207) 586944(63728)	GASKET: intake manifold tubes to cylinder head (part of set part no. 5704488)	-	12

5330-00-530-2772

7045881
(19207)

12Z 7021-2(1001)

PACKING WITH RETAINER: OIL FILLER TUBE FLANGE (PART OF SET PART NO. 5704488) 2/38

5975-00-074-2072

MS3367-1-9
(96906)

STRAP, TIE-DOWN ELECTRICAL CONNECTIONS:
TRANSMISSION HOUSING

E

7

DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
✓ 5330-00-679-7063	8698759 (19207) 529312 (63728)	GASKET: intake manifold elbow to intake manifold tubes cylinder No. 3 and No. 4, left and right (part of set part no. 5704488)	-	4
✓ 5330-00-679-7064	8682769 (19207)	GASKET: intake manifold elbow to intake manifold (part of set part no. 5704488)	-	2
✓ 5330-00-679-8054	8682564 (19207) 503486 (63728)	GASKET: camshaft gear housing cover, left and right bank (part of set part no. 5704488)	-	2
✓ 5330-00-679-8056	8761414 (19207) 583767 (63728)	GASKET: camshaft drive shaft flange, left and right bank (part of set part no. 5704488)	-	2
✓ 5330-00-679-8059	8682468 (19207) 586596 (63728)	GASKET: camshaft end cover plate, left and right bank (part of set part no. 5704488)	-	2
✓ 5330-00-741-5354	7415354 (19207)	GASKET: fuel pump mounting (part of set part no. 5704488)	-	1
5330-00-772-3892	AN4059-1 (88044) 7723892 (19207)	PACKING, PREFORMED: transmission case adapter to crankcase (part of set part no. 5704488)	C	1
5330-00-805-2966	MS28778-4 (96906)	PACKING, PREFORMED: low pressure switch adapter, inlet (part of set part no. 5704488)	C, D, E	2
166-0993 5330-00-864-7272	MS9388-017 (96906) M83248/1-017 (81349)	PACKING, PREFORMED: oil pump to oil pan pressure compartment baffle (part of set part no. 5704488)	-	1
167-5112 5330-00-882-1684	MS9388-123 (19207) M83248/1-123 (81349)	PACKING, PREFORMED: oil pump transfer tube to crankcase (part of set part no. 5704488)	-	2
166-8403 5330-00-882-9104	MS9388-212 (96906) M83248/1-212 (81349)	PACKING, PREFORMED: crankcase oil transfer tube (part of set part no. 5704488)	-	3
5330-00-883-7491	MS28778-5 (96906)	PACKING, PREFORMED: high air pressure switch adapter, outlet (part of set part no. 5704488)	C, D, E	2
5330-00-286-9942	10935399 (19207) 26031-7020 (73630) Change 3 2/39	SEAL, PLAIN ENCASED: SOLENOID CONTROL INNER HOUSING (PART OF SET PART NO. 5704488)	C	1

5330-00-248-3836

565608 (9000S) PACKING, PREFORMED: FILTER ELEMENT TO HEAD
MS2953.012 (96906)

1743117 (9100S) FILTER ELEMENT FLUID: FLAME HOOD

572610 (9020S) PACKING, PREFORMED: HEAD TO BOWL
MS2953.125 (96906)

5330-00-265-1089

DMWR 9-2815-220

9505-00-634-4736

561907 (9000S) WIRE, NON-ELECTRICAL: FILTER HOOD TO BOWL

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
✓ 5330-00-899-1504	10898933 (19207)	GASKET: engine lifting eye, damper end, left bank (part of set part no. 5704488)	-	1
✓ 5330-00-902-3189	10935537 (19207)	SEAL, PLAIN/ENCASED: fan drive vertical shaft (part of set part no. 5704488)	-	2
5330-00-954-2740	MS29561-256 (96906)	PACKING, PREFORMED: cylinder base (part of set part no. 5704488)	-	12
✓ 5330-00-954-6684	NAS1598-6Y (80205) NAS1523-6Y (80205)	PACKING WITH RETAINER: screw air bleed hole (part of kit part no. 5704486)	-	1
✓ 5330-00-990-4143	MS9068-230 (96906)	PACKING, PREFORMED: camshaft gear housing, left and right bank (part of set part no. 5704488)	-	2
✓ 5330-00-990-5194	MS29561-135 (96906) MS9241-135 (96906)	PACKING, PREFORMED: fuel pump drive bevel shaft gear ^{ADAPTER} to power take-off drive housing (part of set part no. 5704488)	C	1
5330-01-012-7417	MS51000- 1232 (96906) 473236 (01202)	SEAL, PLAIN ^{PLAIN ENCASED:} power take-off and fuel pump drive (part of set part no. 5704488)	C	1
✓ 5330-01-013-7132	MS9388-327 (96906) M83248/1-327 (81343)	PACKING, PREFORMED: oil level indicator tube (part of set part no. 5704488)	-	2
✓ 5330-01-037-0800	12254235 (19207)	GASKET: oil seal housing (part of set part no. 5704488) ^{T. COVER}	-	2
5330-01-053-2920	7403580-1 (19207)	GASKET: oil cooler line adapter to crankshaft damper and oil filter housing (part of set part no. 5704488)	-	4
✓ 5340-00-468-1596	11668623-1 (19207)	PLUG, EXPANSION: filter housing, core hole	-	1
5340-00-490-0872	8725236 (19207)	PLUG, EXPANSION: crankcase oil hole	-	5

GAT10337
(01843)

GASKET: INJECTOR NOZZLE SEAL (GRW)
(USE WITH SLEEVE SV 780843) (PART OF
SET PART No. 570488)

DMWR 9-2815-220

12

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
5340-00-512-4933	11682588 (19207)	PLUG, EXPANSION: piston cooling oil gallery		1
✓ 5340-00-678-3532	7320411 (19207)	MOUNT, RESILIENT: turbosupercharger support yoke bolt	-	2
✓ 5340-00-828-2830	MS9176-28 (96906) MS9380-17(96906)	PLUG, EXPANSION: damper and filter housing core hole	-	1
✓ 5340-01-014-7060	11668623-3 (19207)	PLUG, EXPANSION: oil pan core hole	-	2
✓ 5365-00-202-0194	MS16625-3212 (96906)	RING, RETAINING: piston pin retainer	-	24
5365-00-282-1619	MS16625-3354 (96906) MS16625-1354(96906)	RING, RETAINING: starter driven idler gear bearing	-	1
✓ 5365-00-558-8482	MS16627-1112 (96906)	RING, RETAINING: oil pan reserve intake screen	-	2
✓ 5365-00-663-1245	MS16632-1031 (96906)	RING, RETAINING: pin to fan drive clutch disk housing	-	2
✓ 5365-00-678-4257	8761413 (19207)	RING, RETAINING: advance unit cover	-	1
✓ 5365-00-682-1619	586365 (19207)	RING, RETAINING: injection pump drive gearshaft bearing	-	1
✓ 5365-00-740-3580	7403580 (19207)	SPACER, RING: engine oil cooler by-pass valve (2) transmission oil cooler by-pass valve (2) (part of set part no. 5704488)	-	4
✓ 5365-00-754-1083	MS16625-1137 (96906)	RING, RETAINING: camshaft drive bevel gearshaft plug, left and right bank (2), governor control lever support (2)	-	4
3110-00-227-3520	8393931 (19207)	THROTTLE CONTROL CROSS SHAFT BEARING throttle control cross shaft bearing (4)	A, B, D, E A, B, D, E	4 4
3120-01-024-9168	8686981-1 (19207)	THROTTLE CONTROL CROSS SHAFT BEARING throttle control cross shaft bearing (2)	C C	2 2

8357967-4
(1927)

HOSE, NONMETALLIC: FABRICATE FROM
4720-00-278-110

DMWR 9-2815-220

4720-00-177-6186

10898793-1
(1927)

HOSE, AIR DUCT: CRANKCASE BREATHING TUBE
TO EXHAUST PIPE, FLYWHEEL END

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
5365-00-801-2500	MS16625-1112 (96906)	RING, RETAINING: fuel pump drive shaft coupling	A, B, D, E	1
5365-00-803-7304	MS16624-1156 (96906)	RING, RETAINING: fan drive bevel shaftgear bearing (1), fan drive driven bevel gearshaft (2) ✓	-	3
5330-01-107-4956	M93461/1-000 AN123956 (88044)	PACKING, PREFORMED: fuel backflow control valve (part of kit part no. 5705053)	-	1
5330-01-107-3121	M93461/1-111 AN123956 (88044)	PACKING, PREFORMED: fuel backflow sleeve valve (part of kit part no. 5705053)	-	1
5330-01-207-6449	12354303 10864007 (19207)	GASKET: exhaust pipe to turbo- supercharger (PART OF SET PART No. 5704488)	D, E	2
4720-01-096-2429	10935282-2 (19207)	HOSE, AIR DUCT: NONMETALLIC. SCAVENGE TUBE TO EXHAUST	D, E	2
	11602062 ✓ (19207)	ELEMENT FILTER: water separator (part of kit part no. 5702738)	-	2
5330-01-102-4685	11610232 (19207)	PACKING, PREFORMED: water separator filter cover to body (part of kit part no. 5702738)	-	1
	11641744 (19207)	GASKET: primary fuel filter head to filter body head to filter body (part of kit part no. 5704487)	-	1
5330-01-123-2656	11641857 (19207)	GASKET: primary fuel filter head to filter body (part of kit part no. 5704487)	-	1
4330-01-161-5339	11668618 (19207)	FILTER ELEMENT, FLUID: ELEMENT primary fuel filter (part of kit part no. 5704487)	-	1
4330-00-000-0145	CF8E1D (9000) 11668619 (19207)	FILTER ELEMENT, FLUID: ELEMENT oil (part of kit part no. 5704486)	-	2
	11684037 ✓ (19207)	RUBBER STRIP: oil pan pressure compartment baffle, baffle to crankcase (fabricate from rubber sheet, cellular, 9320-00-576-4981)	-	2

530-00-678-5370

7323994

WASHER, FLAT: FUEL INJECTION NOZZLE TO FUEL
RETURN CONNECTOR AND BOLT (PART OF SET PART
NO. 5704488)
DMWR 9-2815-220

24

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
	11684038 (81349) (19207)	RUBBER STRIP: oil pan pressure compartment baffle, baffle to cover (fabricate from rubber sheet, cellular, 9320-00-576-4981) 01-014-8683	-	1
530-01-298-4850	11684047 (19207)	GASKET: oil filter cover (part of kit part no. 5704486)	-	1
	11684054 (19207)	GASKET: oil pan drain plug adapter (part of set part no. 5704488)	-	1
	11684079-1 (19207)	RUBBER STRIP: oil coolers to oil cooler support (fabricate from rubber sheet, cellular, 9320-00-576-4981) 009-0213	-	8
	11684079-2 (19207)	RUBBER STRIP: oil coolers to oil cooler support (fabricate from rubber sheet, cellular, 9320-00-576-4981) 009-0213	-	4
	11684079-3 (19207)	RUBBER STRIP: oil coolers to oil cooler support (fabricate from rubber sheet, cellular, 9320-00-576-4981) 009-0213	-	4
	12254395 (19207)	GASKET: fuel backflow valve cover (part of kit part no. 5705053)	-	1
	12275807 (19207)	TUBE ASSEMBLY, METAL: tee to exhaust manifold, right bank	A, B, D, E	1
	12275808 (19207)	TUBE ASSEMBLY, METAL: tee to exhaust manifold, left bank	A, B, D, F	1
	12275810 (19207)	TUBE ASSEMBLY, METAL: tee to exhaust manifold, left bank	C	1
	12275812 (19207)	TUBE ASSEMBLY, METAL: tee to exhaust manifold, right bank	C	1
5330-01-145-8290	12275824 (19207)	GASKET: ^{CAP ASSY MOUNTING} check valve to tube (PART OF SET PART NO. 5704488)	D, E	2

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		STANDARD REPLACEMENT PARTS - continued		
4720-01-146-1887	12275883 (19207)	HOSE, ^{NON METALLIC:} SCAVENGE TUBE TO CAP ASSY check valve to tube	D,E	2
4720-01-146-1888	12314574 (19207)	HOSE, ^{AIR DUCT:} SCAVENGE TUBE TO AIR CLEANER tube to air cleaner	D,E	2
		OVERSIZE PISTON RINGS		
	12354401	RING, PISTON: COMPRESSION (TOP) (STANDARD)	-	12
	11642030 (19207)	RING, PISTON: oil control (standard) (part of set part no. 5704475)	-	12
	12354401-1	(PART OF SET PART NO. 5705283)	-	12
	11642030-1 (19207)	RING, PISTON: oil control (0.010 oversize) (part of set part no. 5704476)	-	12
	12354401-2	(PART OF SET PART NO. 5705284)	-	12
	11642030-2 (19207)	RING, PISTON: oil control (0.020 oversize) (part of set part no. 5704477)	-	12
	12354401-3	(PART OF SET PART NO. 5705285)	-	12
	11642030-3 (19207)	RING, PISTON: oil control (0.030 oversize) (part of set part no. 5704478)	-	12
	12354401-4	(PART OF SET PART NO. 5705286)	-	12
	11642030-4 (19207)	RING, PISTON: oil control (0.040 oversize) (part of set part no. 5704479)	-	12
	12354401-5	(PART OF SET PART NO. 5705287)	-	12
	11668315 (19207)	RING, PISTON: oil control (standard) (part of set part no. 5704475 or 5705283)	-	12
	11668315-1 (19207)	RING, PISTON: oil control (0.010 oversize) (part of set part no. 5704476 or 5705284)	-	12
	11668315-2 (19207)	RING, PISTON: oil control (0.020 oversize) (part of set part no. 5704477 or 5705285)	-	12
	11668315-3 (19207)	RING, PISTON: oil control (0.030 oversize) (part of set part no. 5704478 or 5705286)	-	12
	11668315-4 (19207)	RING, PISTON: oil control (0.040 oversize) (part of set part no. 5704479 or 5705287)	-	12

DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		OVERSIZE PISTON RINGS - continued		
	11668316 (19207)	RING, PISTON: compression (standard) (part of set part no. 5704475) <i>OK 5705283</i>	-	24
	11668316-1 (19207)	RING, PISTON: compression (0.010 oversize) (part of set part no. 5704476) <i>OK 5705284</i>	-	24
	11668316-2 (19207)	RING, PISTON: compression (0.020 oversize) (part of set part no. 5704477) <i>OK 5705285</i>	-	24
	11668316-3 (19207)	RING, PISTON: compression (0.030 oversize) (part of set part no. 5704478) <i>OK 5705286</i>	-	24
	11668316-4 (19207)	RING, PISTON: compression (0.040 oversize) (part of set part no. 5704479) <i>OK 5705287</i>	-	24
	11668317 (19207)	RING, PISTON: compression (standard) (part of set part no. 5704475)	-	12
	11668317-1 (19207)	RING, PISTON: compression (0.010 oversize) (part of set part no. 5704476)	-	12
	11668317-2 (19207)	RING, PISTON: compression (0.020 oversize) (part of set part no. 5704477)	-	12
	11668317-3 (19207)	RING, PISTON: compression (0.030 oversize) (part of set part no. 5704478)	-	12
	11668317-4 (19207)	RING, PISTON: compression (0.040 oversize) (part of set part no. 5704479)	-	12
	11669026-1 (19207)	RING, PISTON: compression (standard) (part of set part no. 5704475)	-	24
	11669026-2 (19207)	RING, PISTON: compression (0.010 oversize) (part of set part no. 5704476)	-	24

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
		OVERSIZE PISTON RINGS - continued		
	11669026-3 (19207)	RING, PISTON: compression (0.020 oversize) (part of set part no. 5704477)	-	24
	11669026-4 (19207)	RING, PISTON: compression (0.030 oversize) (part of set part no. 5704478)	-	24
	11669026-5 (19207)	RING, PISTON: compression (0.040 oversize) (part of set part no. 5704479)	-	24
		BULK MATERIAL		
2590-00-629-1269	8679577 (19207)	THREAD: one spool, 730 yards		
4720 4710-00-804-9249	TD2-03420 NSN (83616)	NONMETALLIC; TUBING, PLASTIC : 0.125 in. od	-	
4710-00-806-4149	7017826 (19207)	TUBING, PLASTIC: 0.250 in. od		
4720-00-202-7457	MIL-H- 6000 (81349)	HOSE, NONMETALLIC: 1.00 in. id x 10 ft lg (MIL-H-6000)		
4720-00-278-1110	1631082 MIL-H- 6000 (5024) (81349)	HOSE, NONMETALLIC: 1.75 in. id x 10 ft lg (MIL-H-6000)	-	
4720-00-278-1112	MIL-H-162427H 6000 (81349) (23510)	HOSE, NONMETALLIC: 1.25 in. id x 10 ft lg (MIL-H-6000)	-	
4720-00-278-1113	MIL-H-1070784 6000 (81349) (12204)	NONMETALLIC; HOSE, RUBBER: 1.00 in. id x 10 ft lg (MIL-H-6000)	-	
01-014 8683 9320-00-575-4981	11678085-1 MIL-H- 6000 (19207) (81349)	RUBBER SHEET, CELLULAR: 36 ⁶⁰ in. x 36 in. x 0.25 in. thk	-	
355-6072 9525-00-802-3044	MS20995NC32 (96906)	WIRE, NONELECTRICAL: one spool, 1640 ft (MIL-W-1000)	-	

DMWR 9-2815-220

Table 2-11. Mandatory Replacement Parts - Continued

NSN	Part no.	Nomenclature	Usable on code	Qty
9525-00-990-7799	MS20995NC40 (96906)	BULK MATERIAL - continued WIRE, NONELECTRICAL: ONE SPOOL (234 ft PER ROUND) 1 POUND SPOOL	-	
9322-00-009-0213	116780852 (19227)	ROBBER SHEET, CELLULAR: 60 IN. X 36 IN. X 0.50 IN. THK	-	
5330-00-292-7363	7416751 (19207)	PACKING MATERIAL: BALL - APPROX 35 FT	-	
9505-00-684-4736	568997 (90005)	WIRE, NONELECTRICAL:	-	

Section II. STANDARDS

2-8. Quality of Material. The parts and material used for replacement, repair or modification shall meet all applicable equipment drawings and specifications to ensure conformation to the requirements of this DMWR.

2-9. Man-hour Standards.

a. General. It is not intended that the time allowances given be considered maximum, since conditions for performing the various operations will vary due to factors such as mechanical condition of parts and equipment, experience and ability of the personnel involved, availability of parts, tools, and maintenance equipment.

b. Models AVDS-1790-2C, and AVDS-1790-2D ^{AVDS-1790-2CA, AND AVDS-1790-2DA} Man-hour requirements for assembly line type overhaul have been estimated at ~~225.2~~ ^{231.7} man-hours. Table 2-12 shows an itemized list of direct labor man-hours only. Indirect hours must be estimated by the contracting facility. ^{START}

c. Model AVDS-1790-2DR. Man-hour requirements for assembly line type overhaul have been estimated at ~~234.2~~ ^{231.7} man-hours. Since engine Model AVDS-1790-2DR is similar to engine Models AVDS-1790-2C ~~and AVDS-1790-2D~~ ^{AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA,} ~~200~~ man-hours are required for parts common to all ~~three~~ ^{FIVE} engine models. An additional ~~eight~~ ^{5.5} man-hours are required to process components peculiar to engine Model AVDS-1790-2DR; refer to table 2-13 (2/49). ^{START}

Table 2-12. Man-hour Standards

Component	Removal and disassembly	Cleaning, inspection and overhaul	Assembly test and packaging
Remove engine from shipping container, place on transport buggy	3.0		
Drain, Cleaning and Preshop Analysis	5.2		
Remove engine accessories:			
- Electrical harness	1.5	1.3	3.7
- Starter module	.3	.5	.3
- Time totalizing meter	.1	.5	.1
- Sending units and switches	.4	.9	.4
- Automatic water drain control	.5	.7	.5
- Fuel pump	.2	Separate DMWR	.2
- Starter	.9	Separate DMWR	.8
- Generator	.9	Separate DMWR	1.5
- Turbosupercharger	1.5	Separate DMWR	2.0
Install engine on overhaul stand	.9		
		3.9	9.5

15.14

Table 2-12. Man-hour Standards - Continued

Component	Removal and disassembly	Cleaning, inspection and overhaul	Assembly, test and packaging
✓ Cooling fan vanes, upper covers and cooling fans	.6	2.3	1.1
✓ Cooling fan shroud and oil cooler vent line clamps	.3	.8	.6
✓ Installation guides	.2	.3	.3
✓ Oil cooler and support frames	1.1	3.1	2.3
✓ Upper cover frame support brackets, turbosuperchargers oil inlet hoses and transmission shroud	.3	.5	.6
✓ Manifold heater tubes, solenoids, check valve and filter	1.2	1.0	1.8
✓ Cylinder head oil drain lines, intake manifold assembly	1.1	3.7	2.4
✓ Primary fuel filter, throttle linkage cross shaft and brackets	.3	1.5	.8
✓ Fuel and water separator	.3	.9	.8
✓ Front and rear shrouds	.8	.9	1.2
✓ Cylinder head plates, oil filler tube and oil level indicator tube	.3	.5	.6
✓ Fuel injector tubes, supports and clamps	2.3	4.5	3.9
✓ Exhaust manifolds and elbows	1.2	2.0	1.5
✓ Fuel inlet and return hoses, fuel injection pump oil inlet hose, crankcase breather tube, electrical lead and turbosupercharger inlet hose	.5	.8	1.5
✓ Turbosupercharger base, supports and tie rods	.3	.8	.8

10.8

23.6

20.2

Table 2-12. Man-hour Standards - Continued

Component	Removal and disassembly	Cleaning, inspection and overhaul	Assembly, test and packaging
✓ Throttle control rods and levers	.3	1.9	.6
✓ Fuel injection pump	.3	Separate DMWR	.6
✓ Shrouds, cylinder deflectors and nozzle holder assemblies	1.5	1.8	2.3
✓ Camshafts	2.7	3.7	4.6
✓ Front fan drive housing with clutch assembly and mounting base and fuel injection pump mounting base	1.2	3.3	1.8
✓ Rear fan and accessory drive housing with clutch assembly and mounting base	1.2	3.5	2.0
✓ Injection advance unit	.7	2.8	1.3
✓ Oil pan and crankshaft damper and oil filter housing	1.1	3.7	2.1
✓ Cylinder air deflectors, cylinder assemblies, pistons and pins	5.0	14.4	6.5
✓ Oil pump	.5	2.3	1.2
✓ Fuel pump drive coupling adapter and crankshaft torsional vibration damper	.3	.9	.6
✓ Starter drive adapter, starter driven gear, and generator drive adapter	.5	1.5	1.2
✓ Flywheel, transmission adapter, crankshaft oil seal housing and accessory drive gear	1.0	2.1	3.1
✓ Crankshaft and connecting rod assemblies	1.6	8.2	3.6
✓ Piston oil nozzles, generator and starter idler gears	1.0	1.5	1.8

18.6

2/48

51.6

33.3

107.5

Table 2-12. Man-hour Standards - Continued

Component	Removal and disassembly	Cleaning, inspection and overhaul	Assembly, test and packaging
Crankcase assembly		8.5	
Engine test			24.00
Preservation and Packing			6.5
			*226.2

*Total man-hours (direct labor only)

12
239.0
103.5
54.6
28.8

Table 2-13. Man-hour Standards

Component	Removal and disassembly	Cleaning, inspection and overhaul	Assembly, test and packaging
Commonality with engine Models AVDS-1790-2C, and AVDS-1790-2D, and AVDS-1790-2DA, AVDS-1790-2CA,	45.1	87.6	93.8 98.5
Power take-off	.5	2.2	.9
Transmission throttle controls	.2	1.5	.8
Two-speed governor control	.1	1.2	.6
			*231.7

235.9

*Total man-hours (direct labor only)

2-10. Electromagnetic Compatibility Standards. There are no requirements for electromagnetic compatibility tests when government inspected and approved parts are used for overhaul.

2-11. Wear Limits, Fits, and Tolerances.

a. Wear Limits. Tolerances and wear limits contained in this DMWR are the minimum acceptable overhaul standards and must be adhered to by the contractor.

b. Inspection Requirements. Refer to Chapter 5, Section I (5/1), for detailed inspection requirements for wear limits, fits and tolerances.

2-12. Repair Parts. Refer to TM 9-2815-220-34P to identify repair parts.

DMWR 9-2815-220

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CHAPTER 3
PRESHOP ANALYSIS

3-1. General.

a. Purpose. The purpose of preshop analysis is to determine, prior to beginning overhaul activities, the extent of overhaul required to return the engine to a condition that will provide performance with the reliability of a new engine for 80 percent of the service life of a new engine. This preshop analysis will provide to the depot/contractor or the contracting officer's representative a general appraisal of the engine condition when it was received for overhaul. It is not the purpose of preshop analysis to provide the operation, maintenance, adjustment or troubleshooting and repair procedures for the engine.

b. Intent. The preshop analysis should indicate from operation and function of an assembly of the engine whether the assembly is functioning properly or whether further diagnostic testing is required. The major assemblies, judged from records and function to be recoverable for use, will be tagged with appropriate condition. An aid in determining this condition is the Overhaul Inspection Procedure.

(1) Overhaul Inspection Procedures (OIP's) are prepared for items and assemblies which are felt to have particular significance relative to the functional reliability, performance or safety of the engine as a whole. The very existence of an OIP automatically places emphasis on the importance of an item so covered. While the OIP is prepared as a quality assurance document, it is by no means limited in its usage to any particular group. Nor does its existence, in itself require the mandatory disassembly, cleaning, and inspection of the part for which it was prepared. It merely requires that the continued serviceability of that part be assured in some manner.

(2) For example, an OIP may cover an individual part of an assembly. If inspection of the assembly as a unit is sufficient to assure the continued serviceability of all of its parts, further disassembly is both unnecessary and wasteful. On the other hand, if inspection of the assembly indicates the need for diagnostic disassembly and/or repair, OIP's for the individual parts involved specify their requirements and will serve as the basis for determining their continued serviceability. Once the unit is reassembled, it is again subject to inspection in order to assure that the repair was adequately effected.

c. Extent of Evaluation. Since measurement of performance in many instances requires extensive preparation and use of elaborate test equipment, it is not practical from a cost and time standpoint to perform a complete evaluation of all assemblies in the engine. The only requirement in this case will be to note, on the assembly condition tag, the observed operational condition and any peculiar information that may be a help to overhaul personnel. The important point to clarify is that there is more than one form of inspection which can be used to assure the quality of an assembly as a whole and/or individual parts within that assembly. If this quality can be adequately assured without disassembly, in a manner which is not excessively expensive, then disassembly should not be applied for that purpose. However, where it has been previously determined that a 100 percent disassembly will be accomplished, a preshop analysis is not mandatory.

d. Inspection Upon Receipt. Inspect container upon receipt for any obvious shipping damage such as vandalism, humping, impact, natural elements, improper loading, etc. Notify carrier if it is apparent that shipping damage occurred. A general evaluation of the container should be recorded at this time which would indicate:

- (1) Extent of major deterioration or damage.
- (2) Listing of damaged or deteriorated components.
- (3) Listing of missing parts, components, or assemblies.

This record will be used to assist in preparing replacement and repair parts orders and to help evaluate whether the maintenance expenditure limit, usually 65% of the acquisition cost, would be exceeded or not during overhaul.

3-2. Overhaul Estimate. Preshop analysis includes preparing an estimate of the work and a list of parts required to perform maintenance to meet the necessary quality standards of this work requirement. Evaluate each defective item to determine the extent of repair, modification or replacement needed to make the item completely serviceable. Refer to TB 750-98-28 for maintenance expenditure limits. The overhaul activity shall submit a maintenance expenditure report before overhauling the item.

3-3. Unpacking Instructions.

a. Disassembling Container. Release air pressure through the pressure relief valve located in a recessed insert on the end of the container. Remove all nuts, lockwashers, and bolts securing the upper and lower container sections. Remove upper section of container and retain sealing gasket (providing it has not been mutilated and is still serviceable). Remove the seven bolts and lockwashers securing the engine to the transmission adapter support flange. ~~the~~ ^{the} Four nuts and lockwashers securing the engine mounting brackets to the mounting flanges on the engine support cross members. Remove all engine parts secured separately in the container.

(MODELS AVDS-1790-20, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA).
 3/2 REMOVE SEVEN NUTS AND LOCKWASHERS
 --- ONLY ENGINE REAR MOUNTING BRACKET (MODELS-1790-2DR).

b. Remove Engine. Remove the engine from the container and place on movable dolly before removing the mounting brackets secured to the oil pan. Remove six nuts, washers, and bolts and remove mounting brackets from the oil pan. Retain engine mounting brackets and all attaching hardware with container to assure availability of all parts when engine container is to be reused.

3-4. Preliminary Inspection.

a. Tags and Forms. Examine attached tags and forms, and all available correspondence pertaining to the engine to determine whether there are any known defects or missing components that may render the engine inoperable. The known origin of the engine (in vehicle) may assist in evaluation of its condition. Do not remove these tags. If tags are missing, the information they contained can possibly be obtained from the procuring activity. Check to determine if all TB's and MWO's have been accomplished, if applicable.

b. Diagnosis Verification. Inspect the engine to verify the diagnosis made while installed in the vehicle, and to uncover possible further defects. This inspection is important because it is often the only method of determining any malfunction without completely disassembling the engine.

c. Evaluation. Evaluate the engine to determine the extent of cleaning, repair, modification, or replacement needed to make the item completely serviceable. Evaluation instructions shall not require determination based on the opinion of individuals performing such evaluations.

3-5. Cleaning. Cleanliness is essential in all overhaul operations. Clean the exterior of the item thoroughly, removing all evidence of mud, dust, oil, and grease prior to diagnostic disassembly. Dirt and dust, even in minute quantities, are abrasive. Precision lapped surface of rotating parts must be protected from dust and dirt at all times. Be sure parts are cleaned as specified and be sure they are kept clean. Do not handle parts with greasy hands. Dusty and grimy clothing must not be worn.

3-6. Temporary Preservation.

a. Cleaning and Storing. During interim storage at the overhaul facility, parts which are subject to deterioration or corrosion shall be cleaned and preserved by methods which will protect against such damage. The storage area shall be so located as to insure that all parts will not be damaged or used in error.

b. Preservation. Preserve all parts except the following:

- (1) Painted surfaces.
- (2) Non-ferrous parts.
- (3) Cadmium, zinc, or tin plated parts.

DMWR 9-2815-220

c. Preservation Method. Coat parts requiring corrosion protection with lubricating oil VV-L-800. Apply the lubricant by dipping, brushing or spraying. Protect the coated parts from dust or other airborne particles by wrapping in kraft paper or polyethylene film.

DMWR 9-2815-220

CHAPTER 4
REMOVAL OF MAJOR ASSEMBLIES

4-1. General. Refer to TM 9-2815-220-34 for disassembly of the engine into subassemblies.

DMWR 9-2815-220

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CHAPTER 5
MAINTENANCE, OVERHAUL, AND REPAIR

Section I. GENERAL MAINTENANCE, OVERHAUL, AND REPAIR PROCEDURES

5-1. General.

a. General Procedures. The procedures for cleaning, inspection, repair, and assembly of many parts and components making up the engine subassemblies are similar. Therefore, to avoid repetition, procedures detailed in paragraphs 5-3 through 5-9 will be referenced throughout this chapter.

b. Specific Procedures. All cleaning, inspection, repair, and assembly procedures peculiar to a specific component will be covered in the section relating to that item.

5-2. Disassembly. Refer to TM 9-2815-220-34 for disassembly procedures.

5-3. Cleaning.

a. General. The presence of dirt or foreign material is a constant threat to satisfactory engine operation and maintenance. Care and effort are required in all cleaning operations. Maintain rigid cleaning standards during all phases of overhaul operations. The following general instructions apply to all cleaning operations.

- (1) Clean all parts before inspection, after repair, and before assembly.
- (2) Keep hands free of grease accumulation.
- (3) After cleaning, cover or wrap all parts.

b. Castings.

- (1) Remove sludge and gum deposits using a stiff brush.
- (2) Clean all surfaces with dry cleaning solvent (P-D-680, Type II). Repeat operation if surface is not free of scale or adhering material.

WARNING

Particles blown by compressed air are hazardous. Make certain air stream is directed away from user and that other persons are not exposed. Protect eyes and face with appropriate shields.

5-3. (Cont)

- (3) ~~Blow~~ out all tapped holes with compressed air.
- (4) ~~After~~ cleaning, dry casting with compressed air.

c. Oil Passages.

- (1) ~~Clean~~ passages with wire or probes to break up all sludge or gum deposits.
- (2) ~~Wash~~ passages by flushing with dry cleaning solvent, (P-D-680, Type II). Be sure passages are free from obstructions and remove any particles which might later become dislodged and contaminate the oil system.
- (3) ~~After~~ cleaning, dry passages with compressed air.

d. Electrical Cables and Flexible Hoses. Clean cables and flexible hoses with soap and water. Do not allow dry cleaning solvent to be in prolonged contact with the rubber components and flexible hoses to avoid making them unserviceable.

e. Ball and Needle Bearings.

(1) Bearings require special attention in cleaning and oiling. After removing surface dirt, oil or grease, the bearings, except the sealed, permanently lubricated type, should be placed in hot oil (about 150°F) to loosen congealed oil and grease. After cleaning, the bearings should be wrapped tightly in oiled or waxed paper until inspection and assembly. Do not immerse sealed type ball bearings in dry cleaning solvent or hot oil. Entrance of cleaning agent will destroy lubricants sealed in bearing at time of manufacture.

(2) Clean sealed ball bearings by wiping the exterior surfaces with a clean cloth moistened in dry cleaning solvent, (P-D-680, Type II). Do not use compressed air in cleaning or drying of ball or needle bearings. Damage to bearings will result from spinning of bearing by air blast.

(3) Refer to TM 9-214 for information on inspection, care, and maintenance of bearings.

f. Painted Parts. The reconditioning of painted parts should be a matter of good judgment. Parts that appear to be in good condition after cleaning, need not be stripped and repainted in their entirety, but should be cleaned and designated for touch up only. Parts that are rusted, or otherwise devoid of paint, must be stripped to bare metal. Rubber composition shroud seals must be removed and discarded before the parts can be stripped of paint.

5-4. Inspection.

a. General. The engines covered in this DMWR are precision built with tolerances fixed at extremely close limits. Key letters are used in the overhaul inspection procedures (OIP's) to locate points of measurement for overhaul limits. Each section following in this chapter includes OIP's for critical parts or components covered in the section. OIP references for such parts or components are included in the wear limits, fits, and tolerances table. Where an OIP is referenced in more than one section (e.g., the same part is used on several subassemblies),

5-4. (Cont)

the OIP is included only in the section where first referenced. To locate such OIP's, refer to the list of overhaul inspection procedures.

b. Wear Limits, Fits, and Tolerances. Each wear limits, fits, and tolerances table contains the maximum, minimum, and key dimensions of new or repair parts. The clearances will automatically be achieved if the mating parts are within the dimensional tolerances listed in the tables. In some cases, a part that is out of tolerance may be used provided the mating part is carefully selected, and when mated, is within the maximum clearance specified in the wear limits column. The wear limit indicates the point to which a part may be worn before replacement is required. In order to assure maximum service, all parts which have not worn beyond dimensions shown in the wear limits column, or are not damaged, will normally be approved for service

c. Symbols. Symbols employed in the wear limits, fits, and tolerance tables are identified as follows:

- * --- An asterisk in the wear limits column indicates that the part must be replaced when worn beyond the limits given in the sizes and fits of new parts column.
- L --- The letter L, following the tolerance dimensions given in the sizes and fits of new parts column and the wear limits column, indicates a loose fit (clearance).
- T --- The letter T, following the tolerance dimensions given in the sizes and fits of new parts column and the wear limits column, indicates a tight fit (interference).

d. Castings.

(1) Inspect all ferrous (cast iron, steel, etc.) castings for cracks using magnetic partical method. Inspect all nonferrous (aluminum) castings for cracks using dye penetrant method. Check particularly the areas adjacent to studs, pipe plugs, or threaded inserts and in sharp corners and fillets.

(2) Inspect machined surfaces of castings for nicks, burs, or raised metal. Mark damaged areas for repair.

(3) Check all mating flanges and mounting pads with a straight edge or surface plate for warpage. Inspect mating flanges and mounting pads for discoloration which may indicate persistant oil leakage.

(4) Inspect all tapped openings for stripped or damaged threads.

(5) Check all castings for conformance with the applicable OIP.

e. Ball and Needle Bearings. Refer to TM 9-214 for inspection of anti-friction bearings. Check all bearings for conformance to the applicable wear limits, fits, and tolerances table.

f. Studs. Inspect all studs for damaged or stripped threads, bent or loose condition, or for any signs of stretching.

5-4. (Cont)

g. Dowel Pins. Inspect dowel pins for looseness or damage. Mark loose pins for repair.

h. Gears and Shafts. The following general inspection instructions apply to gears and shafts.

NOTE

There are no established wear limits for gear teeth and splines. Good judgment is required to determine need for replacement.

- (1) Inspect all gears and shafts for cracks using ~~magnetic particle method~~ ^{APPROPRIATE OVERHAUL INSPECTION PROCEDURE (OIP)}.
- (2) Inspect all gear teeth and splines for wear, sharp fins, burs, and galled or pitted surfaces.
- (3) Inspect shaft and gear hub splines for damage, wear, and fit with splines on mating parts. Mating splines must match without binding or looseness.
- (4) Check all gears and shafts for conformance with the applicable overhaul inspection procedures.

i. Bushings, Liners, and Bushing-type Bearings. The following general instructions apply to bushings, liners, and bushing-type bearings.

- (1) Check all bushings, liners, and bushing-type bearings for secure fit in their respective casting or mating part, and for the evidence of heating, which may be indicated by discoloration of bushing or bearing surface.
- (2) Inspect for wear, burs, nicks, or out-of-round condition.
- (3) Check for dirt in lubrication holes or grooves. Holes and grooves must be clean and free from damage to insure proper lubrication.
- (4) Inspect thrust faces of bushing-type bearings for wear and by temporarily assembling mating parts and checking end play with a feeler gage inserted between the thrust faces.
- (5) Check for conformance to the applicable overhaul inspection procedures.

j. Screw Thread Inserts.

(1) Description. To permit higher stresses on studs and bolts that are set in aluminum castings, screw thread inserts of a stronger metal are installed into which the studs or bolts are threaded. The inserts are spiral steel coils having a right hand thread-shaped form on the inside and on the outside diameter of the coils. A bar or tang at the bottom end of the coil, which is engaged by an inserting tool, is used for threading the insert into the casting. Some inserts have a serrated tooth section at the top end of the coil to stake them in place in the castings. Other inserts have turns at the center of the coil in the form of

5-4. (Cont)

a hexagon. This provides a locking effect when the stud or bolt is threaded into the insert.

(2) Inspection. Inspect all screw thread inserts for secure fit in the casting and for galled or stripped threads.

k. Sheet Metal Parts. Straighten parts as necessary and check for broken welds, loose rivets, or weld nuts. If parts are cracked or torn, they must be repaired or replaced. Check shroud seals for hardness, tears, or other damage. Mark damaged seals for replacement if the part is otherwise serviceable.

5-5. Repair.

a. General. Most engine parts and components may be repaired as outlined below. Any repair procedures that are peculiar to a specific part or component is covered in the section or paragraph relating to that item. After repair, clean all parts thoroughly to prevent metal chips from repair operations or abrasives used in repair operations, from entering the working parts of the engine.

b. General Repair of Castings.

(1) Replace all castings when cracks have penetrated high stress areas such as fillets or webbing.

(2) Replace all castings which do not conform to tolerances specified in the appropriate overhaul inspection procedures.

(3) Replace all castings on which machined surfaces are burred or nicked to the point of impairing subsequent assembly or operation. Repair minor damage to machined surfaces with a fine mill file or crocus cloth dipped in dry cleaning solvent, (P-D-680, Type II).

(4) Replace all castings having flanges which are severely warped and cannot be repaired to provide a proper seating surface with its mating part. Repair minor warpage of mounting flanges and mounting pads by working surface across a sheet of crocus cloth held tightly on a surface plate or similar flat surface.

(5) Repair damaged pipe threads in tapped holes with a used tap.

NOTE

Pipe plug threads in castings must be in good condition to prevent oil leakage.

(6) Replace damaged screw threaded inserts. Refer to paragraph 5-6 (5/8).

c. Ball and Needle Bearings.

(1) Replace all galled, pitted, or damaged bearings.

5-5. (Cont)

(2) Replace all bearings which do not conform to tolerances specified in the appropriate wear limits, fits, and tolerances table.

(3) Refer to TM 9-214 for information on inspection, care and maintenance of anti-friction bearings.

d. Studs.

(1) General. Replace all bent or loose studs or studs showing signs of stretching. Repair minor thread damage with a thread chaser. Replace all studs having stripped or damaged threads. Remove and replace studs as outlined in (3) and (4) below.

(2) Stud Identification. Stud identification tables appear in the component repair sections of this chapter. Each table contains the appropriate information regarding stud setting heights, number required and reference figures for stud identification and location.




(3) Removal. Using a stud extractor, back studs out slowly to avoid heating and possible seizure. When studs are broken off too short to use extractor, drill stud and extract with a suitable remover. Short studs may also be removed by welding a piece of bar stock or a nut to stud and removing with a wrench.

(4) Replacement.

(a) Repair minor thread damage in tapped holes with a used tap.

(b) When threads are stripped or damaged, or when stud was removed from an aluminum casting for loose fit, always replace stud with next larger oversize. Markings and color code on removed stud indicates whether it is standard or oversize. Check marking and color as shown in (figure 5-1) (5/6) to be sure replacement is of next larger oversize.

(c) When tapped holes in castings cannot be fitted with oversize studs, or in cases of complete thread pullout, the holes in the casting can be fitted with screw thread inserts. Drill out threaded holes, tap hole for threaded insert. Install threaded insert (par. 5-6) (5/8) and appropriate standard size stud.

STUD	STANDARD	0.003 OVERSIZE	0.007 OVERSIZE
COLOR CODE	NONE	RED	BLUE
MARK			

TA034294

Figure 5-1. Standard and oversize stud identification.

5-5. (Cont)

NOTE

When the threads ^{5 8} on each end of the stud are a different size, the coarse thread end must enter the aluminum casting.

(d) Studs available for replacement as shown in (fig. 5-1) (5/6) are marked on the coarse thread end of stud.

(e) Apply a ^{LUBRICATE,} small amount of OE engine oil or GAA grease to threads before installing stud.

(f) Drive stud into tapped hole slowly to prevent heating. Drive to setting height given in component stud table.

e. Dowel Pins. Replace loose dowel pins. If original dowel pin was only slightly loose, install new pin using sealing compound, MIL-S-22473. In cases where the dowel pin hole is grossly out-of-round, it will be necessary to drill the hole oversize, fashion a bushing, and install a new dowel pin in the bushing.

f. Painted Parts. Retouch or paint parts as necessary to produce an acceptable protective finish. Retouch or repaint parts in their original color in accordance with procedures contained in TM 43-0139.

g. Gears and Shafts.

(1) Replace all cracked gears and shafts, and shafts that are bent or twisted.

(2) Replace all gears and shafts which do not conform to tolerances specified in the overhaul inspection procedures.

(3) Replace all gears and shafts having worn, galled, nicked, burred, or pitted teeth and splines. Remove any sharp fins and burs from splines with crocus cloth dipped in dry cleaning solvent (P-D-680, Type II).

(4) Replace all splined gears and shafts that are damaged to the point of impairing assembly or operation. Replace all gears and shafts having splines which do not match properly with mating splines.

h. Bushings, Liners, and Bushing-Type Bearings.

(1) General. When bushings, liners, and bushing-type bearings are damaged or worn beyond specified limits, generally the associated parts with which they are used must be replaced. Reference to (2) and (3), below, will be made in the repair section for the particular part when replacement of bushings, liners, and bushing-type bearings is required.

(2) Removal. When applicable, drill out retaining pins used to secure bushings, liners, and bushing-type bearings in castings and remove inserts.

5-5. (Cont)

(3) Installation.

(a) Align bushing, liner, or bushing-type bearing in casting or retaining cage. Press into place with a suitable pressing arbor.

(b) Select proper drill size for installation of bearing retaining pins. Drill through bearing and into casting or retaining cage to the proper depth so the pin will be flush with the bearing surface after installation. Drive retaining pin through bearing and into casting or retaining cage. Cut off any portion of the pin that extends above bearing.

(c) Ream or burnish bushing liner, or bushing-type bearing to size specified in appropriate wear limits, fits, and tolerances table.

(d) Clean repaired parts thoroughly before assembly or installation.

5-6. Replacement of Screw Thread Inserts.

a. General. Replace all screw thread inserts which do not fit securely in the casting or when casting threads are galled or stripped.

b. Replacement. Replace all unserviceable screw thread inserts in the same manner as outlined in (1) through (4) below. For instructional purposes screw thread inserts in the cylinder assembly will be replaced.

(1) Use a diamond-shaped punch to remove the staked, serrated-tooth type section of insert (fig. 5-2) (5/8) from the thread in cylinder casting.

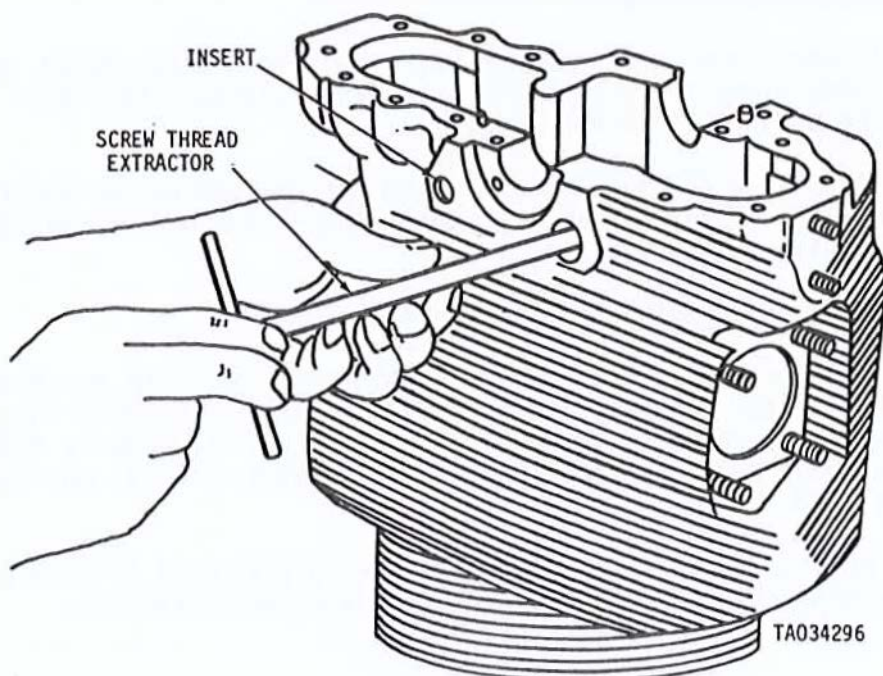



Figure 5-2. Removal of threaded insert using screw thread extractor.

5-6 (Cont)

(2) Install screw thread extractor  (fig. 2-3) (2/10) into insert. Remove insert by applying constant pressure while turning extractor counterclockwise until insert is removed.

NOTE

The special coil screw lock inserter tools listed in special tool table 2-1 must be used when installing the self-locking thread type inserts. These special inserters are further identified by painted areas marked either with a red handle or a red strip around the body.

(3) Thread new insert (fig. 5-3) (5/9) into the threaded guide of inserter (5, fig. 2-3) (2/10) by slowly turning the pilot until insert is flush with the end of the tool. Insert the pilot of the screw thread inserter into the threaded hole in cylinder with face of the inserter resting solidly against the casting as shown.

(4) Slowly turn handle of pilot clockwise until no further resistance is felt. The insert will then be flush with cylinder casting. Remove inserter and break off insert tang.

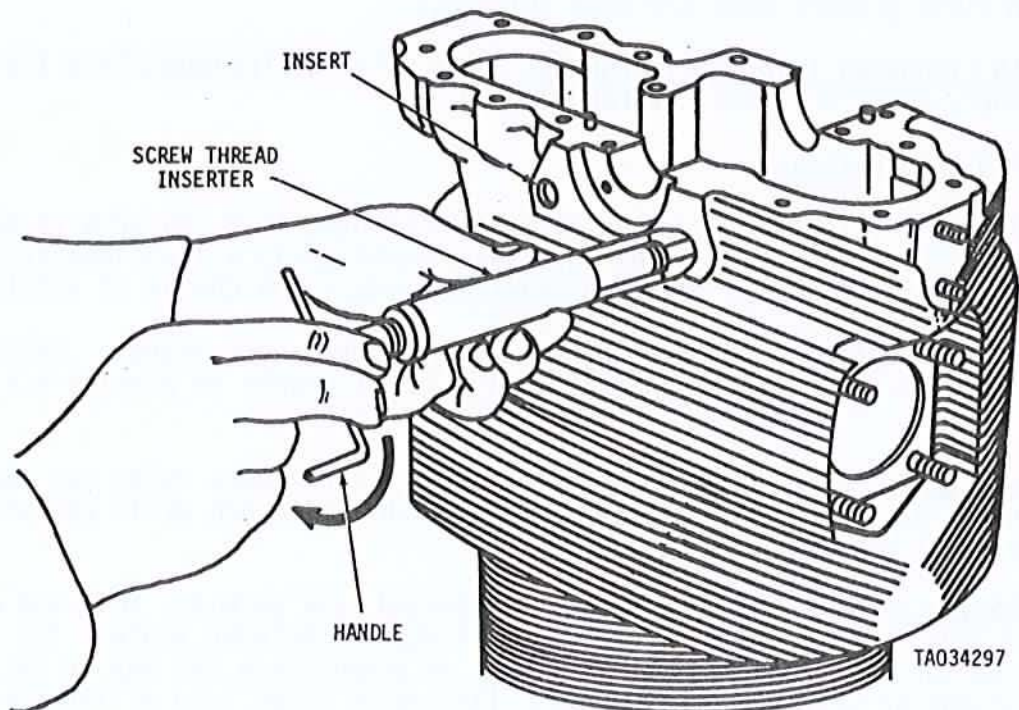


Figure 5-3. Installation of threaded insert in cylinder assembly using screw thread inserter.

5-7. Welding

NOTE

The information presented below is based on the applicable paragraphs in MIL-W-8604 and MIL-W-45205 and outline the requirements, equipment, and welding process used for repair of aluminum alloy castings.

a. Operator. Welding shall be performed by welding operators who have successfully met the requirements of MIL-I-5021, for Material Group IV (Aluminum Alloys). Operational: TM 9-237 (Nov. 1967). The base materials covered in this procedure ~~is~~ Type 355-T71 Federal Specification QQ-A-601 ^{MIL-STD-1595} or QQ-A-601 ⁵⁹⁴ AND TYPE 354-T61 SPECIFICATION ^{ASTM-B108} ARE

b. Equipment. An alternating current arc welding machine shall be used for heliarc welding. Class 4043, conforming to ~~QQ-A-506 or MIL-E-10053~~ welding rod, is compatible with the base material and shall be used for all welding repairs in this material group. All equipment shall be consistent with good standard welding practices, and be acceptable to the Government Inspector.

c. Processes.

AWS A5.10

(1) MIG (Metal Inert Gas) process. The MIG process is recommended when welding aluminum plate greater than 1/8 inch thickness.

(2) TIG (Tungsten Inert Gas) process. When welding aluminum plate 1/8 inch thick and under, the TIG process is recommended.

d. Casting preparation.

(1) Cleaning. All foreign material must be removed from the area to be welded prior to repair operations. The area shall be cleaned using a stainless steel wire brush, drill, burring tool, or approved chemical process, whichever is applicable.

(2) Cracks. Determine flow of cracks by using dye check method. Drill stop holes at crack ends with a 1/4 inch drill and mill out cracks to provide a V aperture.

(3) Fractures. Check area around the fracture for cracks using dye check. Drill stop holes at the ends of detected cracks with a 1/4 inch drill and mill out crack to provide a V aperture.

(4) Missing metal. If the size of the damaged area permits, mill out and chamfer that area to 30 degrees to provide a 60 degree included angle. The insert piece required for this area must be identical in composition and may be cut from scrapped castings or suitable sheet stock. Fit insert piece into milled area, so that 1/6 to 1/8-inch is maintained between insert and casting wall.

e. Preparation for welding. Precisely measure castings at appropriate locations to detect dimensional changes caused by welding repair. Record dimensions for checking after repair has been made to be sure that critical dimensions have been held.

f. Preheat prior to welding. Preheat castings as outlined in QQ-A-601 and MIL-W-8604. Preheat slowly in an oven or by other suitable method for two hours to MIL-STD-2219

5-7. (Cont)

approximately 350 degrees \pm 35 degrees F. Control heat process to avoid incipient melting, excessive grain growth, or other undesirable structural changes which might reduce the mechanical properties.

CAUTION

Oven preheating is required when welding large sections of a casting. A welding torch should only be used to preheat small sections (approximately 1 sq. in. area) Preheat should not exceed 350°F.

g. Welding.

(1) Cracks. The inert gas shielded arc welding process shall be used when making repairs on aluminum alloy. After casting has reached the prescribed pre-heat temperature, position the casting into the most advantageous welding position. Cover casting with asbestos blankets, except for area to be welded. Weld the outside milled groove with a good root weld. Apply fillet welds until groove is closed. Rotate casting and weld inside groove in the same manner if double V is used. Remove asbestos blankets and allow castings to cool progressively to room temperature.

(2) Fractured and missing metal. Following the procedure outlined in (1) above, place insert piece in opening, align and secure with clamps or tack weld in three or four places with one inch welds. Place a good root weld in groove and apply fillet welds until groove is closed. Rotate casting and weld inside groove in the same manner.

NOTE

The temperature of the casting surrounding the welded area should not exceed 295 degrees. If necessary, stop welding, cover casting with asbestos blanket and allow to cool to a satisfactory temperature then resume welding.

h. Final inspection and clean up. Repaired cracks and areas where metal has been replaced must be radiographically inspected and be equal to, or better than, reference standard 3, TACOM STD 113, Apr 69 (available from USTACOM DRSTA). All other areas shall be inspected by dye penetrant. Defects must be re-welded in accordance with above methods. Measure casting and compare dimensions taken before repair. Dimensional change will not exceed that as specified on applicable engineering drawing, except as noted. Check machined surfaces for warpage or other dimensional changes. Clean seams with a wire brush and remove weld beads and all sharp edges. X-ray entire repaired area. Remove excess flux with suitable material, rinse with clean water, dry, and anodize. Pressure test oil passages that have been repaired to 90 psi air; use soap solution to detect any leak.

5-8. Assembly.

a. General. Extreme care must be exercised in all assembly operations to insure

5-8. (Cont)

satisfactory engine performance. General rules for assembly are outlined below. Procedures for assembling the various components are covered in the paragraph relating to the specific component.

b. Precautionary Rules.

(1) Cleanliness is essential in all assembly operations. Dirt and dust, even in minute quantities, are abrasive. Parts must be cleaned as specified and kept clean. Wrap or cover parts and components when assembly procedures are not immediately completed.

(2) Coat all bearings, shafts, and all contact surfaces with oil (OE) to insure lubrication of parts during initial engine starting.

(3) Always use new gaskets and preformed packings when assembling engine.

(4) Use flat washers under all lockwashers, nuts, and bolts to protect aluminum surfaces.

(5) ~~Use~~ ^{SOME} bolts, capscrews, and nuts must be secured with lockwashers, tab washers, locking wire, or cotter pins, depending on method of locking specified.

(6) Whenever a locking method is not specified for bolts and capscrews, the mid-grip helical-coil threaded inserts into which the bolts or screws are threaded serves as the locking device.

(7) It is also important that all hardware be tightened to the specified torque. Refer to torque specifications, paragraph 5-9.

5-9. Torque Specifications.

a. Standard Torques for ^{NUTS} ~~Studs~~ and Bolts. Apply a light film of ~~OE engine oil~~ ^{LUBRICATE, OE ENGINE OIL} or ~~GAA grease~~ ^{OR GAA GREASE} to ~~studs~~ ^{NUTS}, bolts, capscrew threads, and contact face of nuts, bolt heads, and capscrews. Avoid excessive amounts of compound in blind tapped holes.

Size (dia in.)	Torque (lb-in.) (IN.-LBS.)
1/4	75-100
5/16	150-175
3/8	275-325
7/16	400-450
1/2	550-600
9/16	800-850

b. Special Torques for Studs and Bolts. Apply a light film of ~~OE engine oil~~ ^{LUBRICATE, OE ENGINE OIL} or ~~GAA grease~~ ^{OR GAA GREASE} to studs, bolts, capscrew threads, and contact face of nuts, bolt heads, and capscrews (except as noted). Avoid excessive amounts of lubricant in blind tapped holes.

Crankcase Tie-rod Stud	640 ^{IN. LBS.} lb-in.
Main Bearing Stud	450 ^{IN. LBS.} lb-in.

5-9. (Cont)

c. Crankcase Main Bearing Stud Nuts (Procedure):

- (1) Tighten all nuts to 500 ^{14. LBS.} ~~lb in.~~
- (2) Tighten all nuts to 700-825 ^{14. LBS.} ~~lb in.~~
- (3) Check stud stretch, it must be 0.019-0.022 in.
- (4) Tighten nuts as necessary to obtain proper stretch. Do not exceed 0.024 stretch when aligning locking wire holes.
- (5) All studs which exceed stretch limits at less than 700 ^{14.4-16.0 LBS} ~~pound-inches~~ must be replaced. All studs which exceed the stretch limits above 700 ~~pound-inches~~ must be loosened and resubjected to operations (1), (2), (3), and (4) above.

NOTE

Retorquing any singular stud is not allowable. The adjacent stud must also be loosened and retorqued in sequence.

Use NEW Torque chart (PAGE 5/13)

	Torque (lb-in.)
Camshaft drive inner gear plug	1300-1400
Connecting rod bolt nuts	1250-1300
Cylinder base nuts	640
Damper housing to crankcase	225
Damper mounting capscrew	1000
Fan adapter to fan capscrews	150
Fan adapter to fan housing shaft nut	600
Fan housing base to crankcase nuts and capscrews	275
Fan housing to fan housing base nuts	275
Flywheel mounting capscrews	1000
Fuel adapter fitting bolt to injector nozzle	300
Fuel injector nozzle and retainer nut	500
Fuel injection pump base capscrews	750
Fuel injection pump capscrews	600
Fuel injection drive coupling hub nut	900
Fuel return tube to adapter on injector nozzle holder	100
Fuel return tube to bulkhead tube cross fitting	175
Oil pan baffle capscrews	120-125
Oil pan mounting capscrews	175
Oil pan mounting nuts (no lubrication)	225 <i>slr</i>
Oil pump cluster gear shaft spanner nut	575-625
Oil pump drive gear nut	700-780
Oil pump to crankcase capscrews	275
Piston oiler nozzle to crankcase nut	125
Power take off drive adapter nut (Model AVDS-1790-2DR)	2880-3000

490-570

FUEL INJECTOR NOZZLES AND RETAINER WITH SPRING HOLDER TYPE

5/13

PTO DRIVE ADAPTER GEARCASE, COUPLER FLYWHEEL / FLYWHEEL ADAPTER ASSY (NOT MODEL NUM AVDS-1790-2DR)

IN. (model num, LUBRICATE GASKET FACE MODEL RETAINER THRODS WITH CSA LUBRICANT)

CONDITIONS

- Accessory drive GEAR TO CRANKSHAFT
- Accessory drive housing base nuts and cap screws
- Accessory drive housing to accessory drive housing base nuts
- All Type "E" hose clamps
- Camshaft bevel gear and cover
- Camshaft drive inner gear plug
- Connecting rod bolt nuts - alternately tighten to 100-150 ~~lb-ft~~, then to 600-650 ~~lb-ft~~, then to ~~lb-ft~~
- Cylinder base nuts (use OE-30 engine oil, Lubriplate or Polydraw 247-30)
- Cylinder head oil drain bolts
- Damper housing to Crankcase
- Damper mounting cap screws
- Fan adapter to fan cap screws
- Fan adapter to fan housing shaft nut
- Fan clutch slip torque
- Fan housing base to crankcase nuts and cap screws
- Fan housing cover AND INSECTOR TUBE BERRETS
- Fan housing to fan housing base nuts and cap screws
- Flared tube fitting tube nuts
- 1/4-inch tubing, steel
- 1/2-inch tubing, steel
- Flared hose fittings (LUBRICATE WITH OE-30 ENGINE OIL)
- No. 6 hose FINGER TIGHT APPROX 30 IN. LB FLATS WITH FINGER TIGHT (1-1/4)
- No. 8 hose " " " " " " " " (1)
- No. 16 hose " " " " " " " " (1)
- Flywheel mounting bolts AND TRANSMISSION ACCESSORY DRIVE GEAR (ALL MODELS, EXCEPT AVDS-1790-2DR)
- Fuel adapter fitting bolt to injector nozzle
- Fuel injector nozzle and retainer nut (LUBRICATE GASKET FACE & HOLDER RETAINER THRODS WITH CSA LUBRICANT)
- Fuel injector pump base cap screws
- Fuel injector pump cap screws
- Fuel injector drive coupling hub nut (USE MIL-G-81322 GREASE)
- Fuel injector tube clamps
- Fuel injector tube nuts to nozzle (WIPE DEP OF OE-30 ENGINE OIL OVER THREADS)
- Fuel injector tube nuts to pump head (WIPE DEP OF OE-30 ENGINE OIL OVER THREADS)
- Fuel injector tube support nuts
- Fuel return tube to adapter on injector nozzle holder (FINGER TIGHT APPROX 3) IN. LB FLATS FROM FINGER TIGHT (2)
- Ground straps and bus bar to generator at terminal "E" (MODELS AVDS-1790-2C AND AVDS-1790-2CA)
- Oil pan baffles cap screws
- Oil pan mounting cap screws
- Oil pan mounting nuts (no lubrication)
- Oil pump clutch gear shaft nut
- Oil pump drive gear nut
- Oil pump to crankcase
- Piston oil nozzle to crankcase
- Starter driven gearshaft nut
- Turbocharger oil inlet hose nipple
- Valve rocker adjusting screw lock nut
- Valve rocker cover bearing cap screws (4)
- Valve rocker cover cap screw (except for bearing cap screws)
- VALVE ROCKER ADJUSTING COVER
- LIFTING EYE TO TRANSMISSION ADAPTER
- DRIVER & P/F ADPT, PTO GEAR, PTO DRIFT TO CRANKSHAFT (MODEL AVDS-1790-2DR)

1300-1350
Torque Value IN. - LBS
400-450
275-300 275-300
275-300 275-300
30-40
275-325
1300-1400
1250-1300
850-900 840-860
275-300
225-250 225-250
1000
150
600
300-350
275
150-175
275
75-85
135-150
450-500 450-500
240-260 (215-230)
325-350 (275-300)
375-400 (325-350)
425-450 (375-400)
1300-1350
380-400
290-310
800
1775-1825
760
675-725
600-625
1000-1050
175-180
160-180
300
425
375
125
100-110
135-150
100-110
120-125
175
225
575-625
700-780
275-300 275-300
125-150 125-150
500-550 500-550
3400-3600 3400-3600
150-160
200-225
275-325
150-175
180-175
550-600
1200-1250

5-9. (Cont)

Starter driven gearshaft nut	1000
Turbosupercharger oil inlet hose nipple	150
Valve rocker adjusting screw lock nut	175
Valve rocker cover bearing capscrews (4)	275-325
Valve rocker cover capscrews (except for bearing capscrews)	100

NOTE

On assemblies subjected to wire or cotter pin hole alignment, set torque wrench to low limit and torque nut. To facilitate alignment it is permissible to tighten nut to first hole beyond ~~torque setting~~ THIS TORQUE.

d. Standard Pipe Plug Torques (Using Thread Lubricant). Coat pipe plug threads with ~~OE engine oil or GAA grease or equivalent~~ # 2 or # 510 PERMATEX.

Pipe thread size	Torque ^(IN. LBS) (LB. IN.)
1/8-27	60-80
1/4-18	125-145
3/8-18	185-215
1/2-14	250-280
3/4-14	305-345
1-11-1/2	500-1000

DMWR 9-2815-220

BLANK

FRAME

Section II. OVERHAUL OF CRANKCASE ASSEMBLY

5-10. General. This section covers the overhaul of the crankcase assembly and associated parts (fig. 5-4) (5/16). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are included with the inspection procedures, and stud identification information is included in the repair procedures.

5-11. Disassembly and Cleaning.

a. Disassembly. Remove all expansion plugs and pipe plugs to facilitate cleaning crankcase oil passages. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general instructions on cleaning the crankcase assembly and associated parts.

5-12. Inspection.

a. General Inspection. Inspect the crankcase assembly and associated parts according to the instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the crankcase assembly are listed in table 5-1 (5/17). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

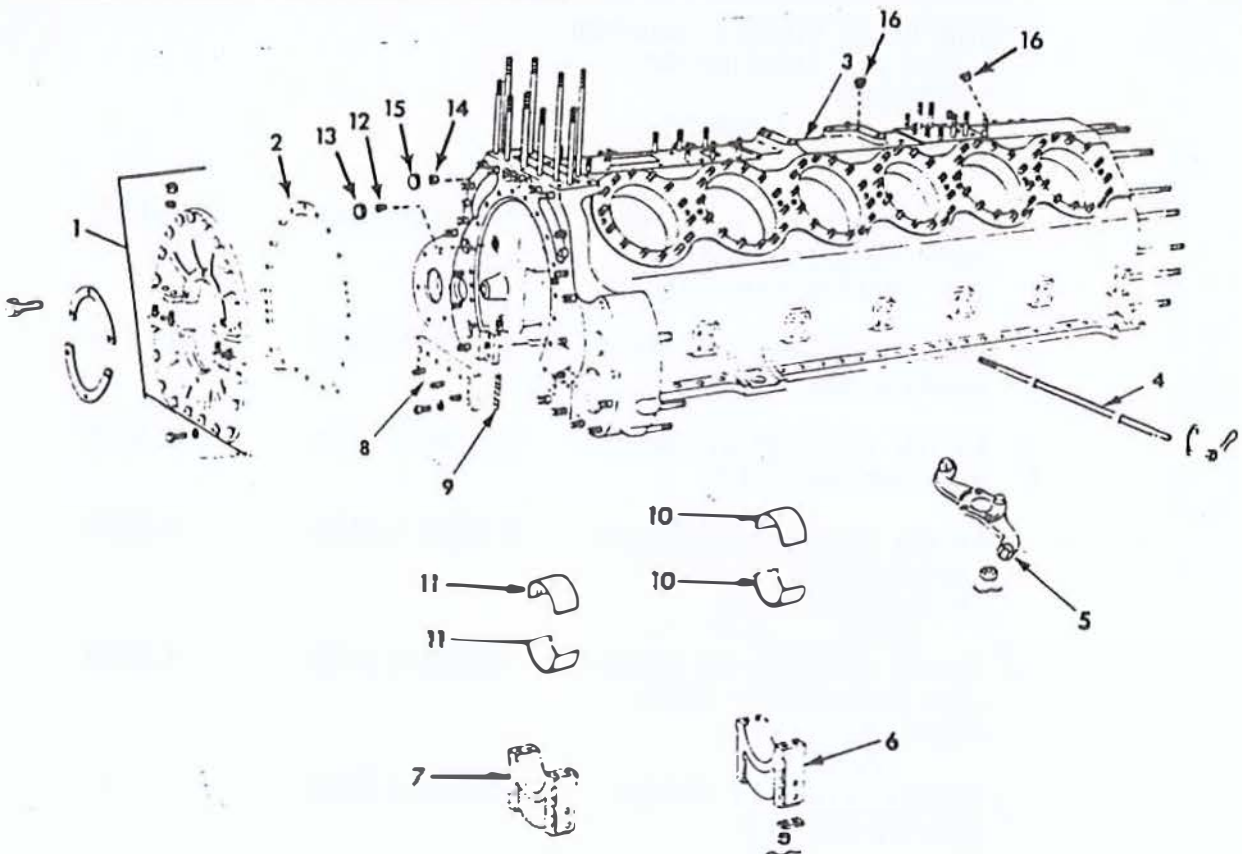


Figure 5-4. Crankcase assembly and associated parts.

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-4	1 (5 / 16)	HOUSING ASSEMBLY: crankshaft oil seal - part no. 8725144 Refer to OIP 8725144 (5/27)		
		✓ Inside diameter of oil seal bore	5.2490-5.2510	*
	2	GASKET: crankshaft oil housing - part no. 8725273		Replace
	3	ENGINE BLOCK, DIESEL: studded - part no. 11684108 11684108 11684108 Refer to OIP 11684108 (5 / 29)		
		✓ Inside diameter of gener- ator and starter drive gear bearing bore liners	2.8346-2.8353	2.8356
		✓ Inside diameter of starter bearing cage pilot	3.5000-3.5020	3.5030
		✓ Inside diameter of gener- ator adapter pilot	5.1250-5.1270	5.1280
		✓ Inside diameter of gener- ator and starter idler shaft pilot bores	1.1808-1.1818	1.1823
		✓ Inside diameter of gener- ator and starter idler shaft pilot bores ^{INNER}	1.8750-1.8770	1.8780
		✓ Outside width of thrust bearing surface ^{OUTER}	2.0240-2.0260	*
		✓ Inside diameter of main bearing bores at proper torque	4.7533-4.7538	*

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly - Continued

(FIT OF BEARING CAPS TO CRANKCASE, FROM SIZE TO SIZE, MUST BE 0.0005 TIGHT)

<u>References</u>	<u>Item</u>	<u>Item, point of measurement</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>No.</u>	<u>or inspection</u>		
5-4	3- (5/16) cont.	Width of main bearing cap slot in crankcase <i>(crankcase to cap fit must be from size to size, to .0005 tight)</i>	7.9990-8.0010	8.0020
	4	<i>TIE ROD,</i> ROD ENGINE, CRANKCASE: through - part no. 8725254 Refer to OIP 8725254 (5/35)		
		✓ Outside diameter	0.5915-0.5925	0.5910
	5	NOZZLE ASSEMBLY, LUBRICATING: piston oiler- part no. 11684078 Refer to OIP 11684078 (5/36)		
	6	BEARING CAP: crankshaft main thrust - part no. 7320476 Refer to OIP 7320476 (5/37)		
		✓ Length	7.9990-8.0010	7.9980
		Width	2 0.0240- 0 0.0260	*
		✓ Inside diameter of bore at proper torque	4.7533-4.7538	*
	7	BEARING CAP: crankshaft main - part no. 8725141 Refer to OIP 8725141 (5/38)		
		Length	7.9990-8.0010	7.9980
		Inside diameter of bore at proper torque	4.7533-4.7538	*
	8	SUPPORT: crankshaft oil seal housing- part no. 8725181 Refer to OIP 8725181 (5/39)		

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-4 (5/16) continued	8 -	Length	10.3750-10.3770	*
		Inside diameter of dowel holes	0.3750-0.3760	*
	9	PACKING, MATERIAL: crankshaft oil seal housing support to crankcase - part no. 7416751		Replace
	10	BEARING HALF, SLEEVE: crankshaft main thrust - part no. 8724996 (lower) part no. 8724995 (upper) Refer to OIP's 8724995 and 8724996 (5/40)		
		Thickness of main thrust bearing half at center:		
		Standard - part no. 8724995 and 8724996	0.2492-0.2499	*
		0.0030 undersize - part no. 8724995-1 and 8724996-1	0.2507-0.2514	*
		0.0100 undersize - part no. 8761330 and 8761331	0.2542-0.2549	*
		Thickness of main thrust bearing half 1/2 inch from ends;		
		Standard - part no. 8724995 and 8724996	0.2482-0.2492	*

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-4 (5/16) continued	10 - ✓	0.0030 undersize - part no. 872499 5 ⁵ -1 and 872499 6 ⁶ -1	0.2497-0.2509	*
	✓	0.0100 undersize - part no. 8761330 and 8761331	0.2532-0.2544	★
	✓	Inside width of main thrust bearing face	2.0300-2.0320	★
	✓	Outside width of main thrust bearing face	2.4860-2.4880	2.4840
		Inside diameter of main bearings assembled at proper torque:		
		Standard - ⁵ part no. 872499 5 ⁵ and 872499 6 ⁶	4.2545-4.2575	4.2585
		0.0030 undersize - part no. 8724995-1 and 8724996-1	4.2515-4.2545	4.2555
		0.0100 undersize - part no. 8761330 and 8761331	4.2445-4.2475	4.2485
	✓	Fit (oil clearance) of main bearings on journals	0.0040L-0.0080L	0.0100L
	✓	Fit of main thrust bearing over bearing cap and thrust bearing surface in crank- case	0.0040L-0.0080L	★
	✓	Fit (crankshaft end play) of thrust bearing in journal	0.0110L-0.0150L	0.0190L

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-4	11	BEARING HALF, SLEEVE: crankshaft main - part no. 8724987 (lower) part no. 8724986 (upper) Refer to OIP's 8724986 and 8724987 (5/44)		
(5/ 16)		Thickness of main bearing half at center:		
		Standard - part no. 8724986 and 8724987	0.2495 - 0.25065 0.2492 - 0.2499	*
		0.0030 undersize - part no. 8724986-1 and 8724987-1	0.25145 - 0.25215 0.2507 - 0.2514	*
		0.0100 undersize - part no. 8761328 and 8761329	0.25495 - 0.25565 0.2542 - 0.2549	*
		Thickness of main bearing half, 1/2 inch from ends		
		Standard - part no. 8724986 and 8724987	0.2495 - 0.25015 0.2482 - 0.2494	*
		0.0030 undersize - part no. 8724986-1 and 8724987-1	0.25045 - 0.25165 0.2497 - 0.2509	*
		0.0100 undersize - part no. 8761328 and 8761329	0.25395 - 0.25515 0.2532 - 0.2544	*
		Inside diameter of main bearing assembled at proper torque:		

Table 5-1. Wear Limits, Fits, and Tolerances for Crankcase Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-4 (5/16) continued	11	Standard - part no. 8724986 and 8724987	4.2545-4.2575 4.2538-4.2530 4.2520 - 4.2539	4.2585 4.2549
		0.0030 undersize - part no. 8724986-1 and 8724987-1	4.2575-4.2546 4.2490 - 4.2509	4.2555 4.2519
		0.0100 undersize - part no. 8761328 and 8761329	4.2445-4.2475 4.2420 - 4.2439	4.2485 4.2449
		Fit (oil clearance) of main bearings on journals	0.0015 - 0.0044 0.0040 - 0.0080	0.0054 0.0100

1 12 PLUG, PIPE
PART NO. 7538997
(MS27769C6) REPLACE

✓ 13 PLUG, EXPANSION
PART NO. 8725236 REPLACE

✓ 14 PLUG, PIPE
PART NO. 7767337 REPLACE

15 PLUG, EXPANSION
PART NO. 11682588
(MS9380.17) REPLACE

16 PLUG, PIPE
PART NO. 7767336
(444699.24617) REPLACE

5-12. (Cont)

b. Main Bearing Bore Inspection. The main bearing and main thrust bearing bores must be inspected without bearings installed and again with bearings installed if the bearings are to be reused. Main bearing caps must be installed in their original locations according to the following procedure:

- (1) Install crankcase on engine overhaul stand using a rope sling and secure with four bolts and flat washers.
- (2) Check main bearing cap stud torque using a torque wrench as shown in figure 5-5 (5/23). Torque on studs must be 450 pound-inches. Studs that do not tighten to specified torque must be removed for further inspection. Refer to paragraph 5-5, d (5/6) when replacing studs.

NOTE

Never tighten main bearing studs above recommended torque.

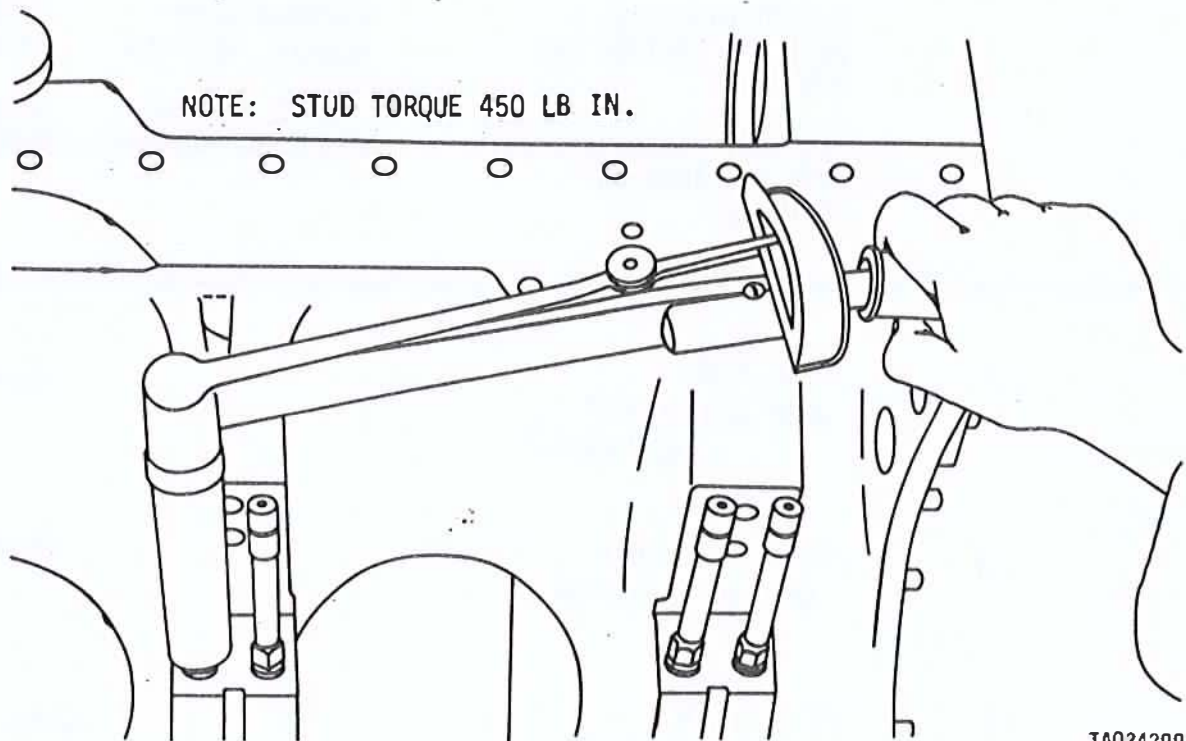


Figure 5-5. Checking torque of main bearing cap stud.

- (3) Apply a light coating of engine oil to the ends of the seven main bearing caps with sleeve bearing halves installed. Using crankcase spreading tool, install the bearing caps in their proper locations in

5-12. (Cont)

the crankcase, according to the location number stamped on the crankcase and cap. The side of the bearing cap marked "FLY END" must face the rear of the crankcase.

- (4) Apply a small amount of OE 30 engine oil, ^{LUBRIPLATE 130-AA OR GAA GREASE} ~~or GAA grease~~ to the threaded area of each main bearing cap stud. Install a plate washer on each pair of main bearing studs. Install a slotted nut on each main bearing stud but do not tighten nuts at this time.
- (5) Place a surface plate and dial indicator gage on crankcase flange with gage indicator resting on end of stud. Measure and record height of each stud. Torque tighten main bearing stud nuts to 500 pound-inches. Alternately tighten all four nuts on each main bearing to a torque of 700-825 pound-inches. Measure the height of each stud after final torque. The difference between the stud height before and after torque tightening indicates stud stretch. Normal stud stretch is 0.019 to 0.022 in. Apply additional torque to obtain a stud stretch of 0.019 to 0.022. Do not exceed 0.024. If any stud has stretched more than 0.024 in. at 700 pound-inches torque, it must be replaced. Refer to paragraph 5-5, d (5/6) when replacing studs.
- (6) Install the 14 engine crankcase rods in the holes provided through the crankcase and main bearing caps. Equalize the extension of the threaded portions of the rods on each side of the crankcase. Apply a small amount of OE 30 engine oil, ^{LUBRIPLATE 130-AA OR GAA GREASE} ~~or GAA grease~~ to the threaded portions of each rod. Install a plate washer and a 9/16 slotted nut on each end of the rods.

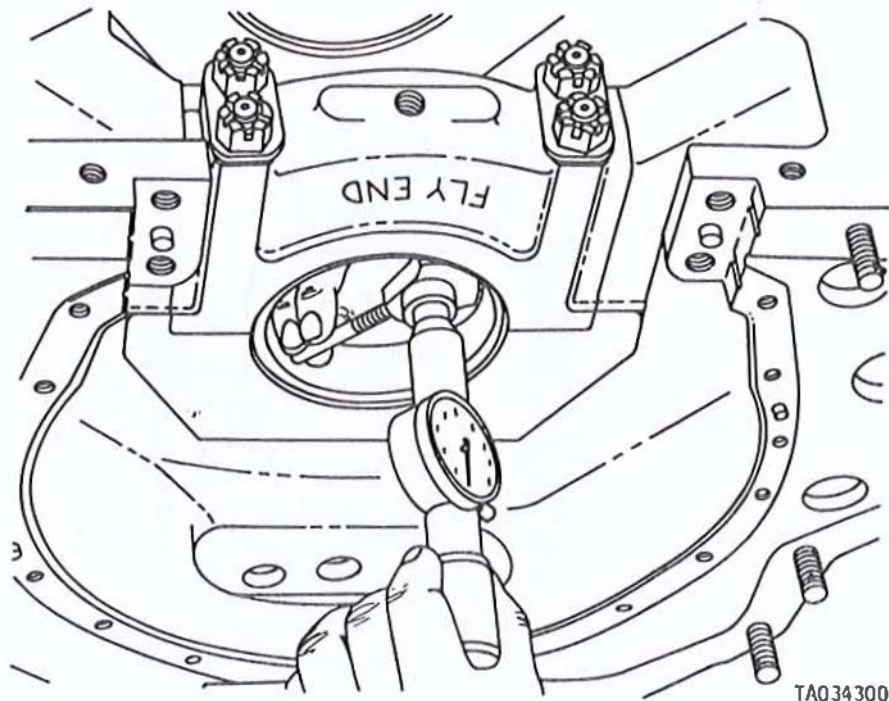


Figure 5-6. Checking inside diameter of main and main thrust bearings.

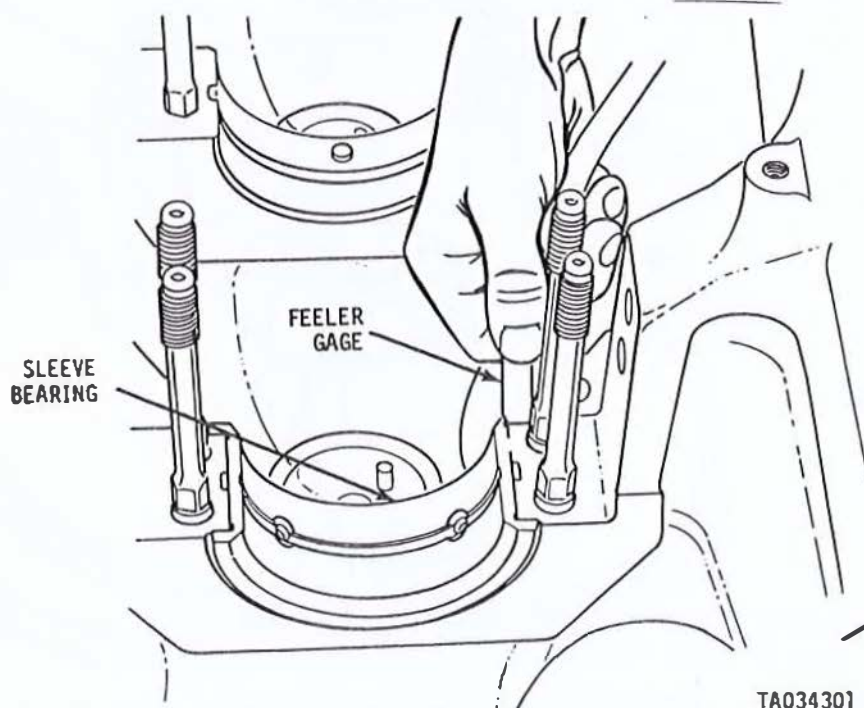
5-12. (Cont)

- (7) Starting at the main thrust bearing cap, with aid of an assistant to hold the nuts on the opposite side of crankcase, alternately tighten all main bearing cap engine crankcase rod nuts to 640 pound-inches torque.
- (8) Check the inside diameter of the main bearing caps and the main thrust bearing cap with a dial bore indicator as shown in figure 5-6 (5/6) against the limits specified in OIP's 8725141 (5/38) and 7320476 (5/37).
- (9) If bearings are to be reused, disassemble caps and install thrust and main bearing sleeve halves. Spread a thin coat of Prussian blue, MIL-P-30501, over steel backs of upper and lower main sleeve bearing halves to show the sleeve bearing contact surface with the main bearing bore in crankcase. Install bearings in their original location in crankcase and main bearing caps.

NOTE

Main bearing sleeve halves must be installed in their original location when they are to be reused. Use new bearings when a visual inspection indicates bearings are unserviceable.

- (10) Check clearance between upper bearing flange and crankcase. Install upper main thrust sleeve bearing into No. 4 main bearing seat of crankcase. Measure clearance between bearing flange and crankcase using feeler gage (fig. 5-7) (5/25). Clearance should be 0.004 to 0.008 inch.



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Figure 5-7. Checking clearance between bearing flange and crankcase.

5-12. (Cont)

- (11) Check clearance between the lower main thrust bearing flange and thrust bearing cap in the same manner as shown in figure 5-7 (5/25).
- (12) Repeat steps three (3) through seven (7) above.
- (13) Check the inside diameter of the main and thrust bearing bores with a dial bore indicator as shown in figure 5-6 (5/24) against the limits specified in table 5-1 (5/17). Replace bearings which do not meet these requirements. New bearings must also be dial bore checked. Remove the main bearing caps and bearing halves from the crankcase and check contact surfaces as indicated by Prussian transfer. Replace bearings that do not make 75 percent contact with crankcase bearing bores. Repeat dial bore check if new bearings are installed.

5-12.1 Reclamation. Use the procedures outlined below to reclaim the crankcase assembly and associated parts.

a. Crankshaft main bearing caps. Crankshaft main bearing caps (P/N's 7320476 and 8725141) can be reclaimed by metalspray according to the procedures outlined below. This procedure details the reclamation of two areas on the caps, the main bearing fit and the side mating faces (to block). Refer to OIP 7320476 (5/37) and OIP, 8725141 (5/38).

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

- (1) Degrease caps and bevel all sharp edges.
- (2) Wash areas to be coated using Metco solvent.
- (3) Mask cap bottom mating face before grit blasting and spraying the main bearing fit with .010 - .020 thick copper, brass or steel. Use Anti-Bond on steel masking material.

NOTE

It is not necessary to mask other areas of the cap in preparation for blasting or spraying of the side mating faces, provided the caps are sitting on the bottom mating faces. The side mating faces of many caps, placed next to each other, can be grit blasted and sprayed at the same time.

5-12.1 (Cont)

- (4) Grit blast areas to be sprayed using G25 angular steel grit, sprayed at 60 psi.
- (5) Preheat area to be sprayed to approximately 200°F using the 6P Thermospray gun.
- (6) Apply a metalspray coating with the 6P Thermospray gun using parameters packed with the material, giving special attention to the spray distance and maintaining the spray angle as close to 90° to the substrate surface as practical. Do not allow the part temperature to exceed 300°F. Interrupt spraying as required.
 - (a) When spraying main bearing fit area use Metco 445 Self-Bonding Aluminum Bronze Composite Powder (adhering to MIL-STD-1687). Allow extra .010 - .050 inch coating thickness for finishing.
 - (b) When spraying side mating surfaces use Metco 447 Self-Bonding Molybdenum-Nickel-Aluminum Composite Powder (adhering to MIL-STD-1687). Allow extra .010 inch coating thickness for finishing.
- (7) Seal Metco 445 coating while hot, to improve machining, using Metco 185 Sealer.
- (8) Finishing.
 - (a) Main bearing fit area (Metco 445). If block and cap are machined together, machining is done dry using feeds and speeds normally used for cast iron. If caps are machined individually, a milling machine is used. Use a 883 grade carboloy tool bit or equivalent square tool with 1/32 inch radius set at 45 degree angle to part. Keep tool sharp and machine at the following parameters:

Surface work speed	600 ft./min.
Traverse speed	.002" - .004" per revolution
Infeed	.010" per side, rough cut
	.005" per side, finish cut
 - (b) Side mating surfaces (Metco 447). Grind using a surface grinder with 46J or 46K silicon carbide wheel or hand file. Do not load wheel when roughing. Leave .002" - .003" after roughing for final grind. Dress wheel before grinding to finish size.

NOTE

Quality control will inspect finished part to insure adherence to this procedure.

- (9) All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.

DMWR 9-2815-220

b. Crankshaft main bearing saddle areas. Crankshaft main bearing saddle areas (P/N 11684108) can be reclaimed by metalspraying according to the procedures outlined below. Refer to OIP 11684108 (5/29).

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

- (1) Degrease block ensuring all grease, dirt, and rust is removed from saddle areas. Bevel all sharp edges.
- (2) Wash all areas to be metalsprayed using Metco Solvent.
- (3) Mask cap mating areas and areas between saddles with Thermospray Mask Material, .010" - .020" thick copper, brass, or sheet steel and Metco Anti-Bond.
- (4) Plug oil holes with graphite plugs and grit blast bearing saddle areas to be metalsprayed using G25 angular steel grit at 60 psi.
- (5) Preheat saddle area to approximately 200°F using 6P thermospray gun.
- (6) Apply Metco 445 Self-Bonding Aluminum Bronze Composite Powder (adhering to MIL-STD 1687) using Metco 6P Thermospray System. Undercutting is not necessary as material can be finished to a feather edge. Allow .010" - .050" for finishing.
 - (a) Spray angle should be as close to 90 degree to substrate surface as practical.
 - (b) Use parameters as packed with material, giving special attention to the spray distance.
 - (c) Block may be sprayed in vertical or horizontal position.
- (7) Seal coating while hot, using Metco 185 sealer to improve machining.
- (8) Machining is done dry with either line boring, line honing, or horizontal boring machines using feeds and speeds normally used for machining cast iron. Use 883 grade carboloy tool bit or equivalent square tool with 1/32 inch radius, set at 45 degree angle to part. Keep tool sharp and machine using the following parameters:

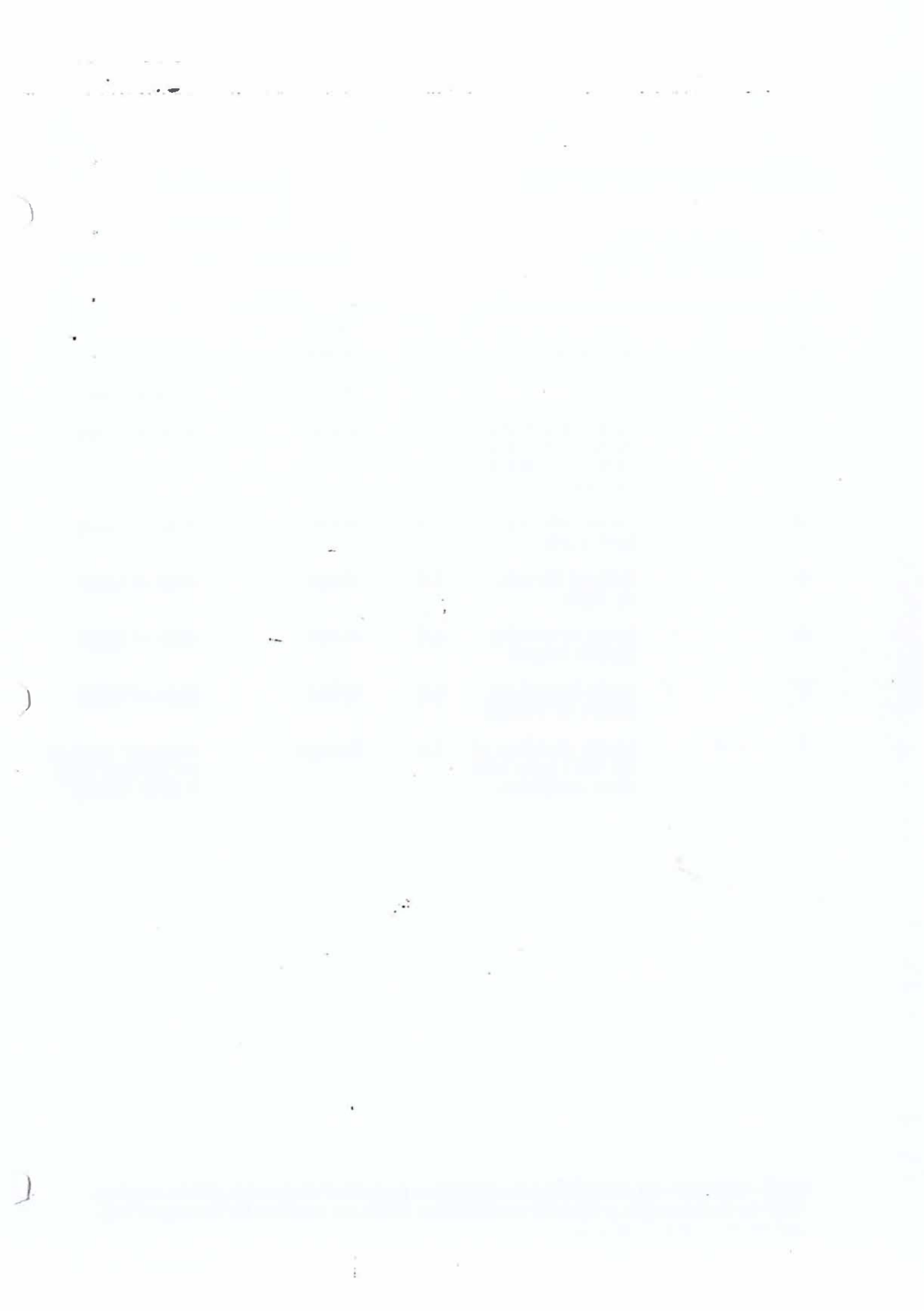
Surface work speed	600 ft/min
Traverse speed	.002" - .004" per revolution
Infeed	.010" per side, rough cut .005" per side, finish cut

DMWR 9-2815-220

NOTE

Quality control will inspect finished part to insure adherence to this procedure.

- (9) All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.



OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8725144

**ITEM: HOUSING ASSEMBLY:
crankshaft oil seal**

REFERENCE: Figure 5-4 (5/16)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Loose, missing or bent studs	2.5	Visual	None allowed
4	/	Damaged threads on studs	2.5	Visual	None allowed
5	✓	Loose or missing thread inserts	2.5	Visual	None allowed
6	✓	Loose or missing dowels (2 places)	2.5	Visual	None allowed
7	✓ A	Inside diameter of oil seal bore with parts assembled	1.0	Measure	Diameter must be no greater than 5.2510 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

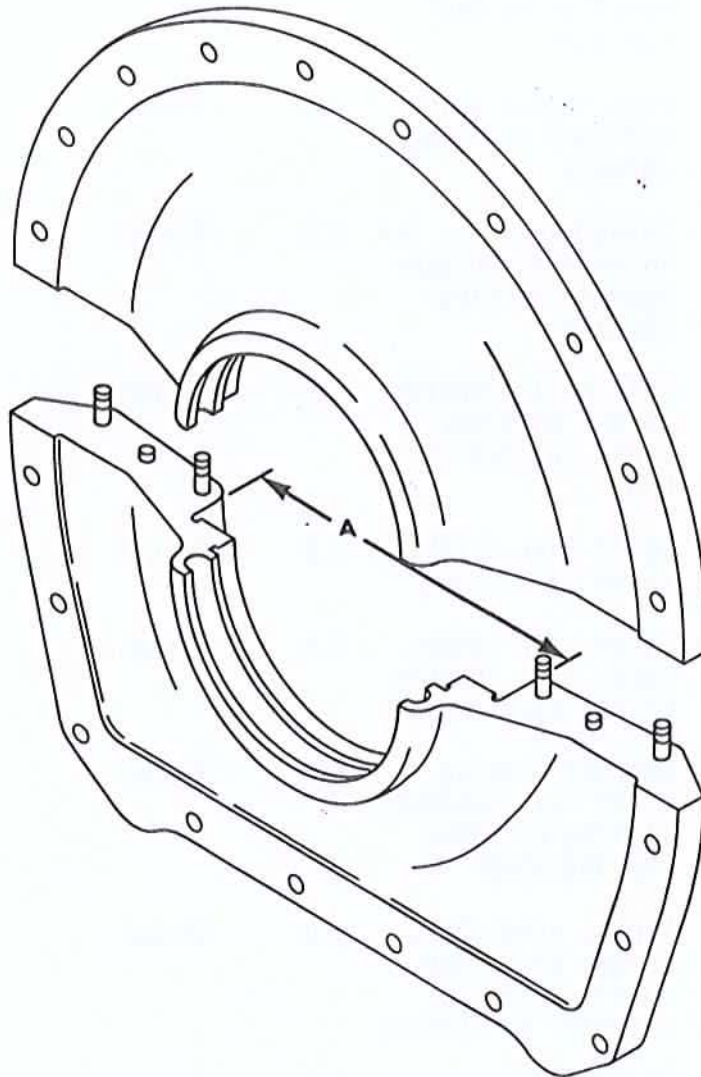
OIP 8725144

ITEM: HOUSING ASSEMBLY:
crankshaft oil seal - Continued

REFERENCE: Figure 5-4 (5/16)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684108

**ITEM: ENGINE, BLOCK, DIESEL:
studded**

REFERENCE: Figure 5-4 (5/16)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Pipe tapped holes, stripped or damaged threads	2.5	Visual	None allowed
4	/	Thread inserts, for looseness and damaged or missing threads	2.5	Visual	None allowed
5	/	Thin wall transfer tubes, missing, loose, nicked or bent	2.5	Visual	None allowed
6	/	Dowel pins, nicked, loose or missing	2.5	Visual	None allowed
7	/	Studs, for looseness, bent, broken or stripped threads	2.5	Visual	None allowed
8	A ✓	Starter bearing liner for looseness, missing or loose staking pin	2.5	Visual	None allowed
9	B ✓	Nicks, scratches, gouges or raised metal on inside diameter or surface	0.0	Visual	None allowed
10	C ✓	Inside diameter of starter drive gear bearing bore liner	1.0	Measure	Diameter must be no greater than 2.8356 inches

***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684108

**ITEM: ENGINE, BLOCK, DIESEL:
studded - Continued**

REFERENCE: Figure 5-4 (5/16)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
11	D /	Generator bearing liner for looseness, missing or loose staking pin	2.5	Visual	None allowed
12	E /	Nicks, scratches, gouges, or raised metal on inside diameter surface	0.0	Visual	None allowed
13	F /	Inside diameter of generator drive gear bearing bore liner	1.0	Measure	Diameter must be no greater than 2.8356 inches
14	G /	Inside diameter of starter pilot	1.0	Measure	Diameter must be no greater than 3.5030 inches
15	H /	Inside diameter of generator pilot	1.0	Measure	Diameter must be no greater than 5.1280 inches
16	J /	Inside diameter of generator idler shaft inner pilot bore	0.0	Measure	Diameter must be no greater than 1.1823 inches
17	K /	Inside diameter of generator idler shaft outer pilot bore	0.0	Measure	Diameter must be no greater than 1.8780 inches
18	L /	Inside diameter of starter idler shaft inner pilot bore	0.0	Measure	Diameter must be no greater than 1.1823 inches
19	M /	Inside diameter of starter idler shaft outer pilot bore	0.0	Measure	Diameter must be no greater than 1.8780 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ENGINE, BLOCK, DIESEL:
studded - Continued

OIP 11684108
REFERENCE: Figure 5-4 (5/16)
ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
20	N	✓ Outside width of thrust bearing surface	0.0	Measure	Width must not be less than 2.0240 inches
21	P	✓ Inside diameter of main bearing bores at proper torque	0.0	Measure	Diameter must be no greater than 4.7538 inches
22	R	✓ Width dimension of main bearing cap slot	0.0	Measure	Width must be no greater than 8.0020 inches
23	S	Depth dimension of idler gear thrust surface to rear of crankcase	0.0	Measure	Depth shall be no greater than 2.2910 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

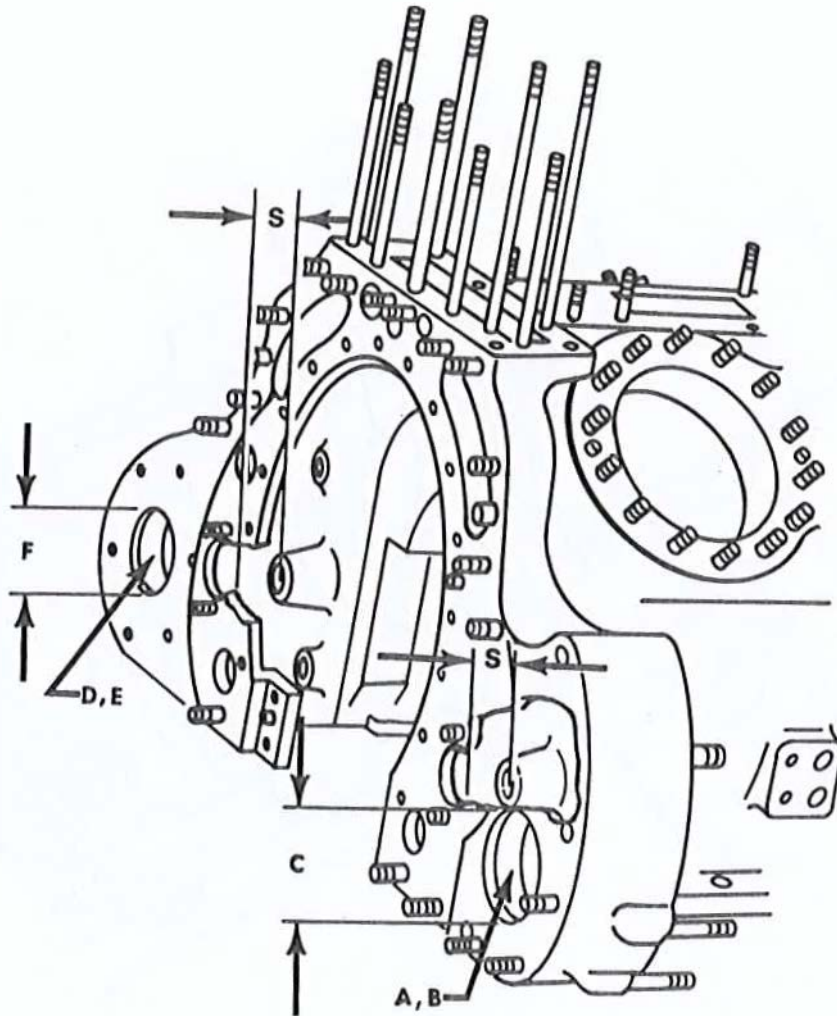
ITEM: ENGINE, BLOCK DIESEL:
studded - Continued

OIP 11684108

REFERENCE: Figure 5-4 (5/16)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

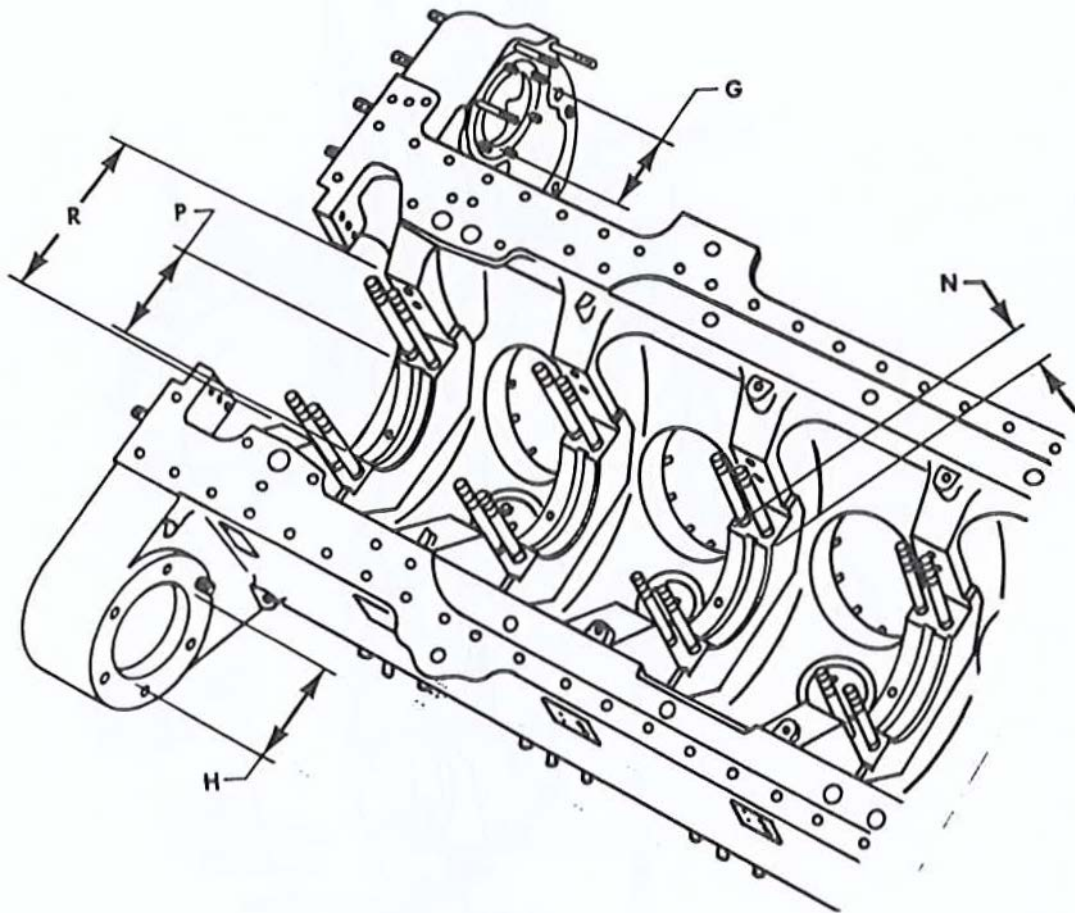
OIP 11684108

**ITEM: ENGINE, BLOCK, DIESEL:
studded - Continued**

REFERENCE: Figure 5-4 (5/16)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

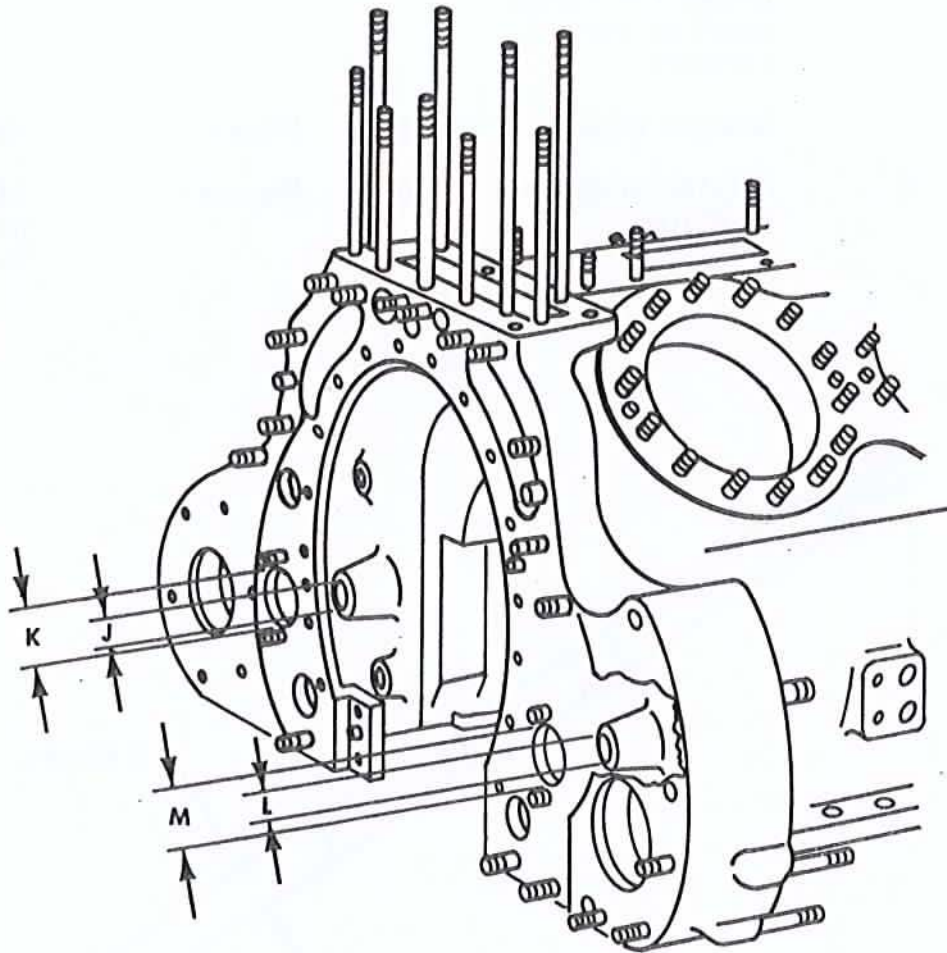
OIP 11684108

ITEM: ENGINE, BLOCK, DIESEL:
studded - Continued

REFERENCE: Figure 5-4 (5/16)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

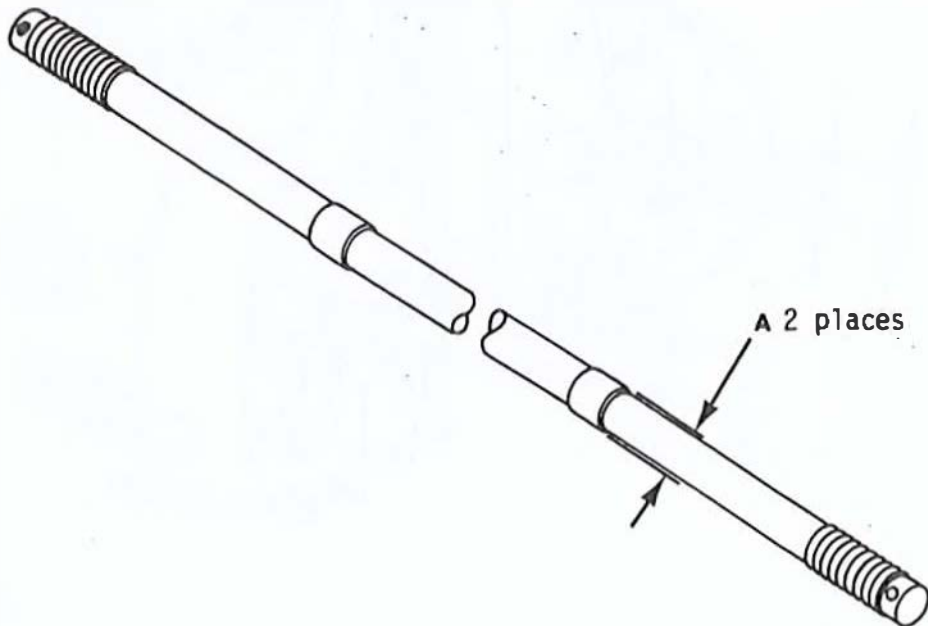
OIP 8725254

**ITEM: ROD, ENGINE, CRANKCASE:
through**

REFERENCE: Figure 5-4 (5/16)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Measur para graph Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4	A	Outside diameter (2 places)	1.0	Measure	Diameter must be no less than 0.5910 inch



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684078

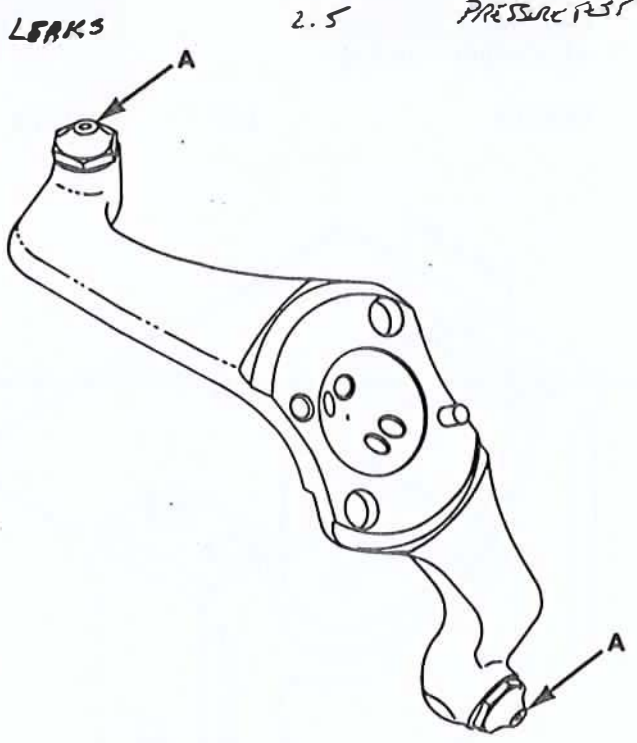
ITEM: NOZZLE ASSEMBLY, LUBRICATING:
piston oiler

REFERENCE: Figure 5-4 (5/16)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pin	2.5	Visual	Free of damage and securely in place
4	A	Damaged or plugged orifice	2.5	Visual	None allowed

5



*SHALL NOT LEAK
WHEN SUBJECTED TO
70 POUNDS INTERNAL
AIR PRESSURE AND
SUBMERGED IN WATER*

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320476

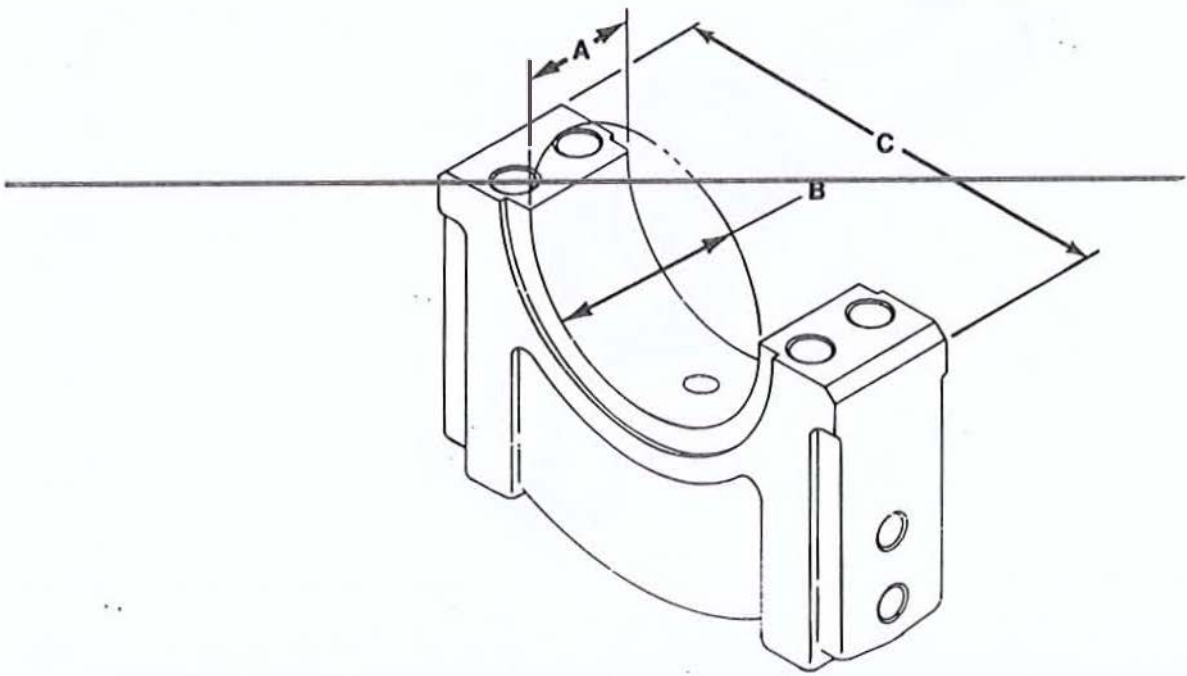
**ITEM: BEARING CAP:
Crankshaft main thrust**

REFERENCE: Figure 5-4 (5/16)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	/ A	Width	1.0	Measure	Width must not be less than 2.0240 inches
4	✓ B	Inside diameter of main bearing bores at proper torque		Measure at assembly	Diameter must be no greater than 4.7538 inches
5	C	Length	1.0	Measure	Length must not be less than 7.999 7.9980 inches

Handwritten signature and date: 8/16/00



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

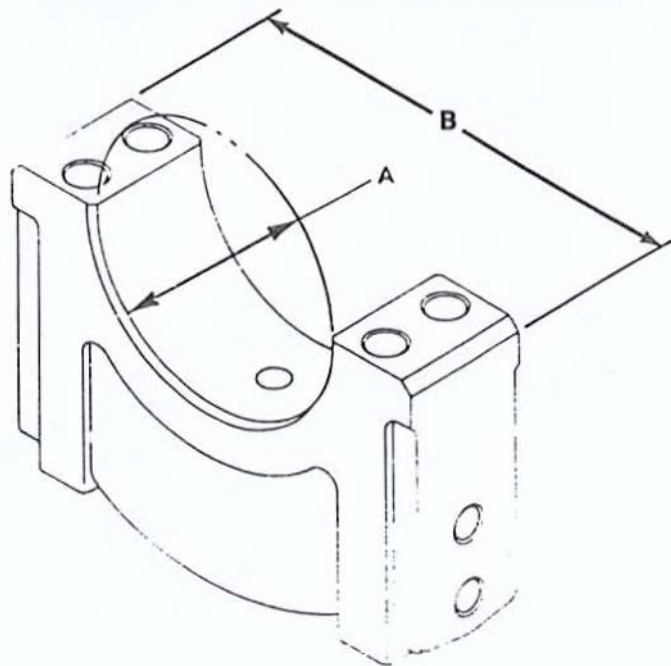
OIP 8725141

ITEM: BEARING CAP:
crankshaft main

REFERENCE: Figure 5-4 (5/16)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter of main bearing bores at proper torque	1.0	Measure at assembly	Diameter must be no greater than 4.7538 inches
4	B	Length	1.0	Measure	Length must not be less than 7.999 inches 7.9780



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8725181

ITEM: SUPPORT:
crankshaft oil seal housing

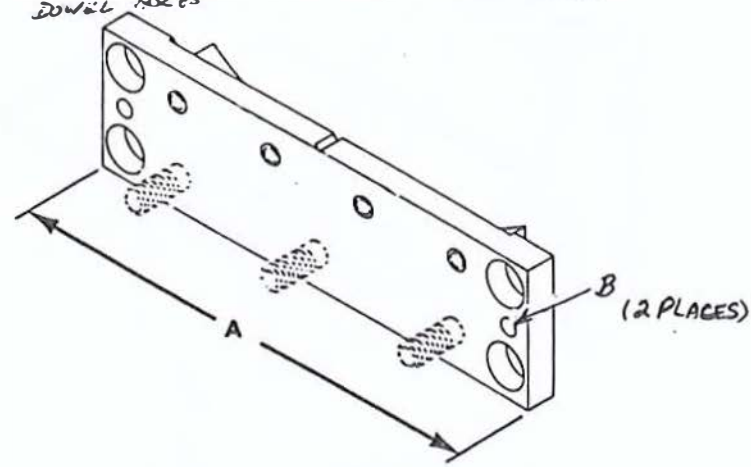
REFERENCE: Figure 5-4 (5/16)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Loose or missing thread inserts	2.5	Visual	None allowed
4		Loose or bent studs	2.5	Visual	None allowed
5		Stripped or damaged threads	2.5	Visual	None allowed
6	A	Length	1.0	Measure	Length must be no greater than 10.3770 inches

7	B	Inside diameter of dowel holes	1.0	Measure	Diameter must be no greater than 0.3760 inch
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INSIDE DIAMETER OF DOWEL HOLES 1.0 MEASURE DIAMETER MUST BE NO GREATER THAN 0.3760 INCH (IN ACCORDANCE WITH DRAWING 11684108)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BEARING HALF, SLEEVE:
crankshaft main thrust lower and upper

OIP 8724996 (lower)
8724995 (upper)

REFERENCE: Figure 5-4 (5/16)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	1.0	Visual	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Separation of bearing metal from backing	2.5	Visual	None allowed
4	/	Pitting, galling, scoring, discoloration of bearing surface	2.5	Visual	None allowed
5	A	Inside diameter of main thrust bearings at proper torque			
		Standard - part no. 8724996 (lower) part no. 8724995 (upper)	1.0	Measure	Diameter must be no greater than 4.2585 inches
		0.0030 undersize - part no. 8724996-1 and 8724995-1	1.0	Measure	Diameter must be no greater than 4.2555 inches
		0.0100 undersize - part no. 8761331 and 8761330	1.0	Measure	Diameter must be no greater than 4.2485 inches
6	B	Thickness of main thrust bearing half at center			

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BEARING HALF, SLEEVE:
 crankshaft main thrust lower and upper
 - Continued

OIP 8724996 (lower) ↑
 8724995 (upper) ↓

REFERENCE: Figure 5-4 (5/16)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
		Standard - part no. 8724996 (lower) part no. 8724995 (upper)	1.0	Measure	Dimension must be no less than 0.2492 inch
		0.0030 undersize - part no. 8724996-1 and 8724995-1	1.0	Measure	Dimension must be no less than 0.2507 inch
		0.0100 undersize - part no. 8761331 and 8761330	1.0	Measure	Dimension must be no less than 0.2542 inch
7	C	Thickness of main thrust bearing half, 1/2 inch from ends			
		Standard - part no. 8724995 and 8724996	1.0	Measure	Dimension must be no less than 0.2482 inch
		0.0030 undersize - part no. 8724995-1 and 8724996-1	1.0	Measure	Dimension must be no less than 0.2497 inch
		0.0100 undersize - part no. 8761330 and 8761331	1.0	Measure	Dimension must be no less than 0.2532 inch
8	D	Inside width of main thrust bearing face	1.0	Measure	Dimension must be no greater than 2.0320 inches
9	E	Outside width of main thrust bearing face	1.0	Measure	Dimension must be no less than 2.4840 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

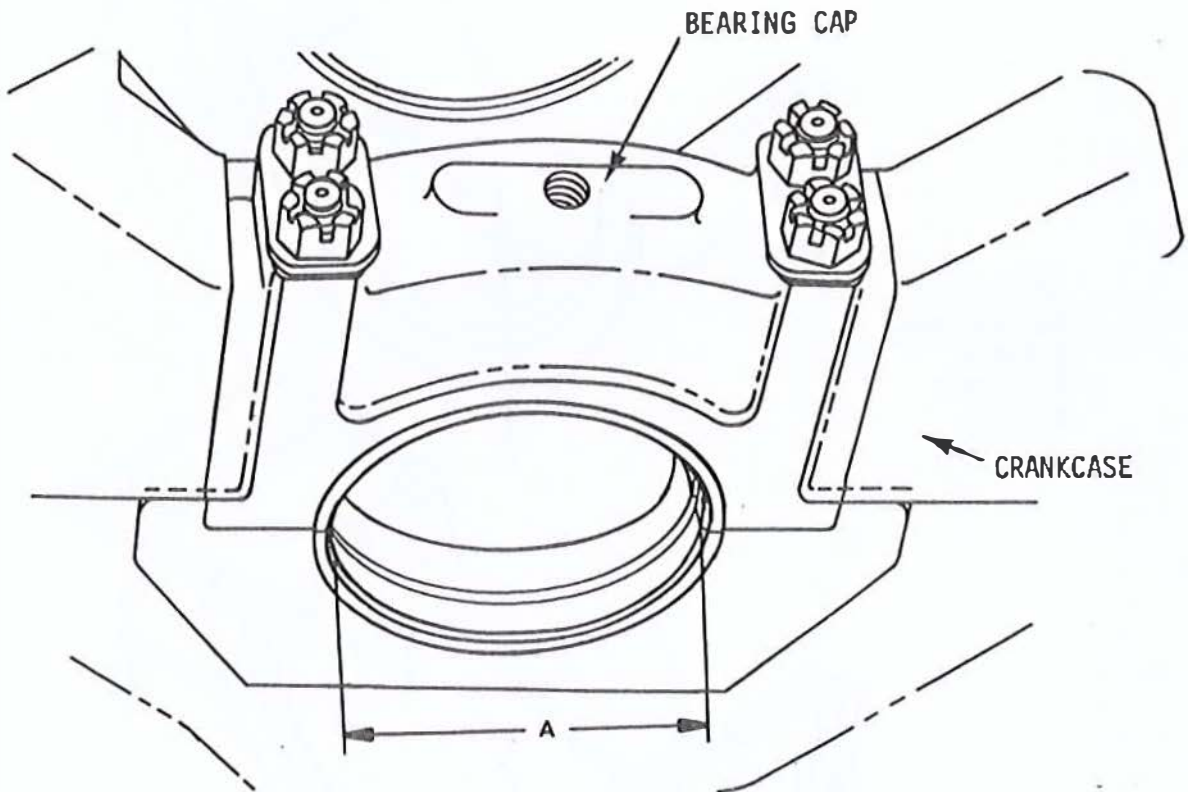
OIP (8724996 (lower) / 8724995 (upper))

ITEM: BEARING HALF, SLEEVE:
crankshaft main thrust lower and upper
- Continued

REFERENCE: Figure 5-4 (5/16)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

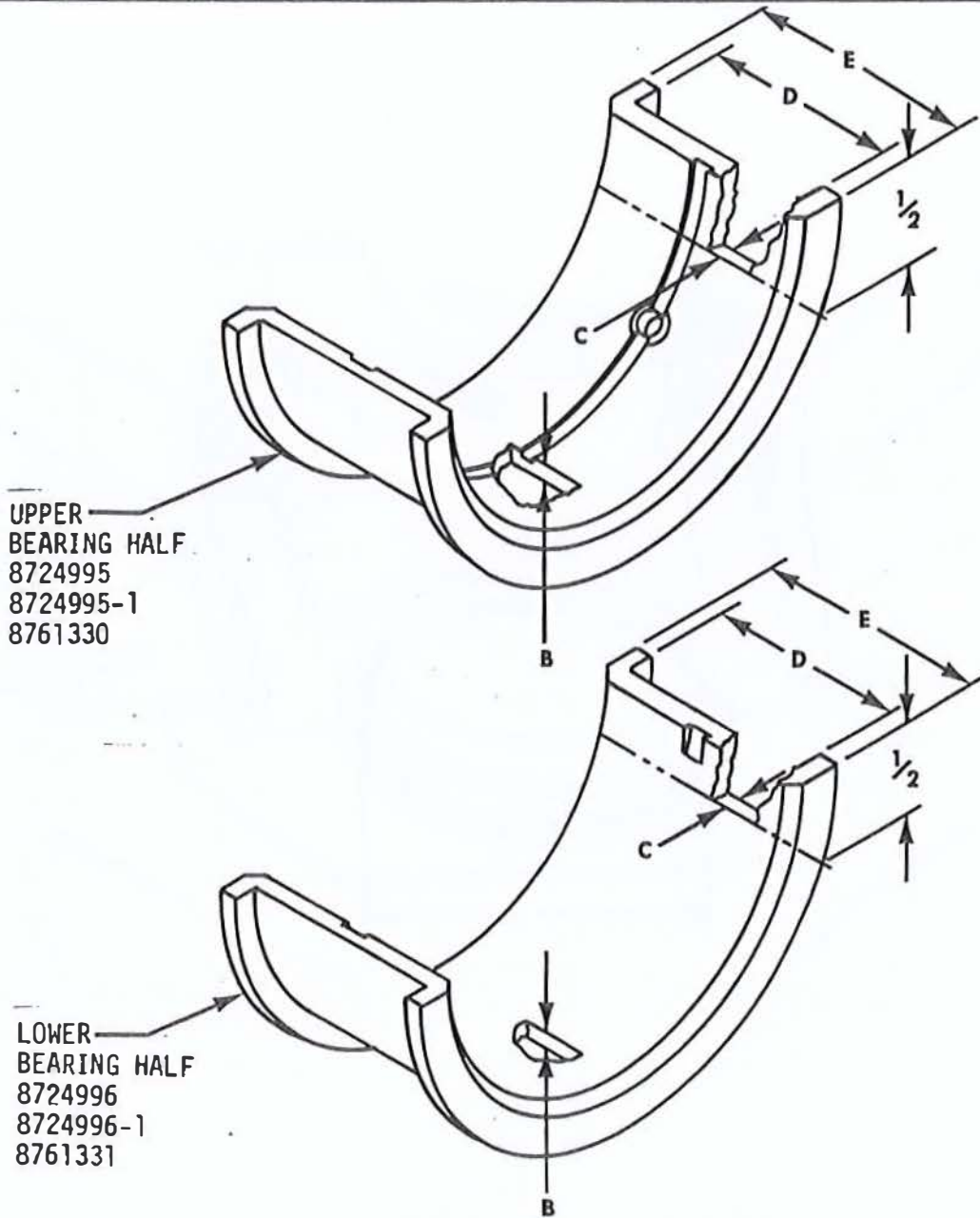
ITEM: BEARING HALF, SLEEVE:
crankshaft main thrust lower and upper
- Continue

OIP 8724996 (lower)
8724995 (upper)

REFERENCE: Figure 5-4 (5/16)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: B ARING HALF, SLEEVE;
crankshaft main lower and upper

OIP { 8724987 (lower) }
{ 8724986 (upper) }

REFERENCE: Figure 5-4 (5/16)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Separation of bearing metal from bearing	2.5	Visual	None allowed
4		Pitting, galling, scoring or discoloration of bearing surface			
5	A	Inside diameter of main bearing assembled at proper torque			
		Standard - part no. 8724987 and 8724986	1.0	Measure	Diameter must be no greater than 4.2585 inches 4.2549
		0.0030 undersize - part no. 8724987-1 and 8724986-1	1.0	Measure	Diameter must be no greater than 4.2555 inches 4.2519
		0.0100 undersize - part no. 8761329 and 8761328	1.0	Measure	Diameter must be no greater than 4.2485 inches 4.2449
6	B	Thickness of main bearing half at center			
		Standard - part no. 8724987 and 8724986	1.0	Measure	Dimension must be no less than 0.2492 inches 0.24995

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BEARING HALF, SLEEVE:
crankshaft main lower and upper
- Continued

OIP (8724987 (lower))
8724986 (upper))

REFERENCE: Figure 5-4 (5/16)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
		0.0030 undersize - part no. 8724987-1 and 8724986-1	1.0	Measure	Dimension must be no less than 0.2509 inch 0.25145
		0.0100 undersize - part no. 8761329 and 8761328	1.0	Measure	Dimension must be no less than 0.2542 inch 0.25495
7	C	Width of main bear- ing half, 1/2 inch from ends			
		Standard - part no. 8724986 and 8724987	1.0	Measure	Dimension must be no less than 0.2482 inch 0.24895
		0.0030 undersize - part no. 8724986-1 and 8724987-1	1.0	Measure	Dimension must be no less than 0.2497 inch 0.25045
		0.0100 undersize - part no. 8761328 and 8761329	1.0	Measure	Dimension must be no less than 0.2532 inch 0.25395

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

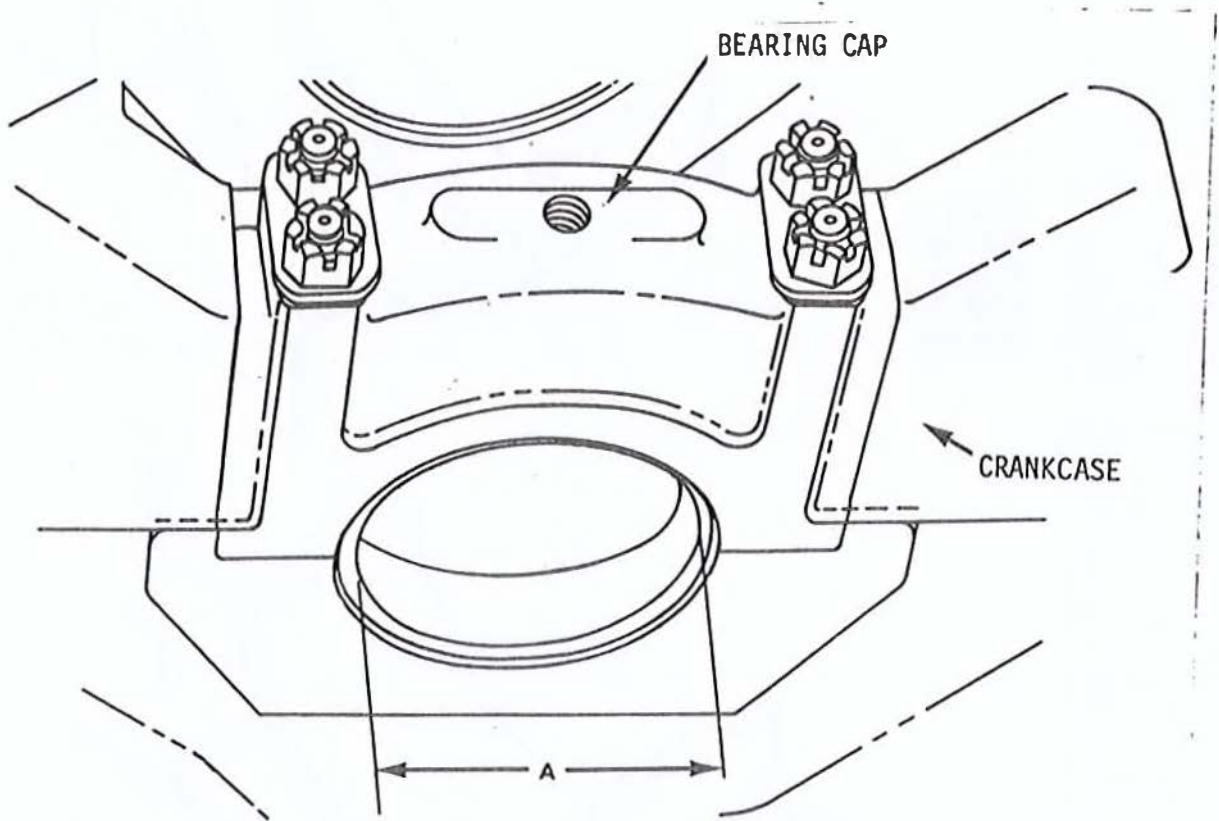
B ARING HALF, SLEEVE:
 ITEM: crankshaft main lower and upper
 - Continued

OIP 8724987 (lower)
 8724986 (upper)

REFERENCE: Figure 5-4 (5 / 16)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

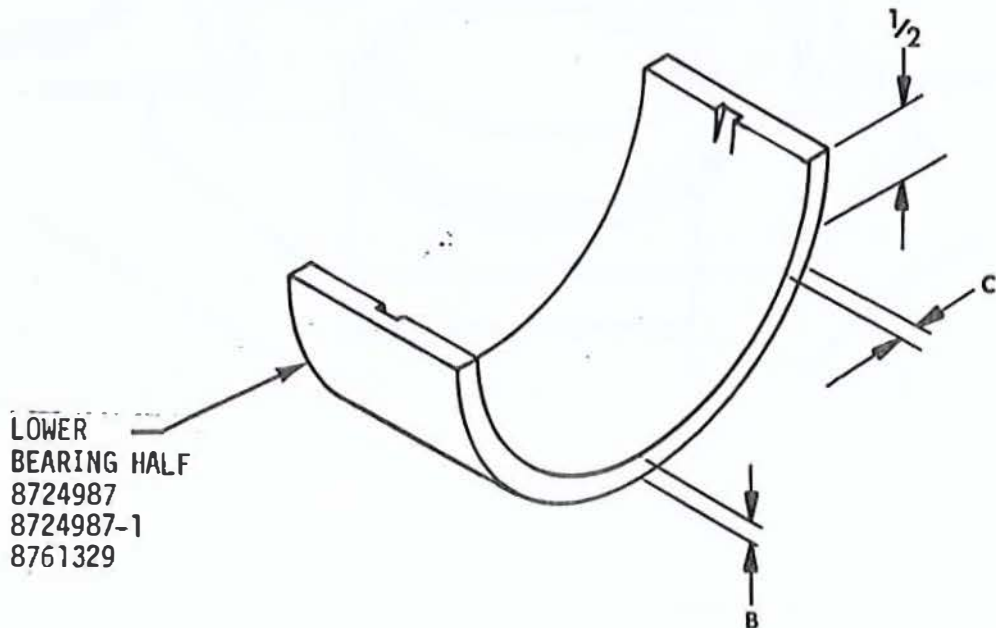
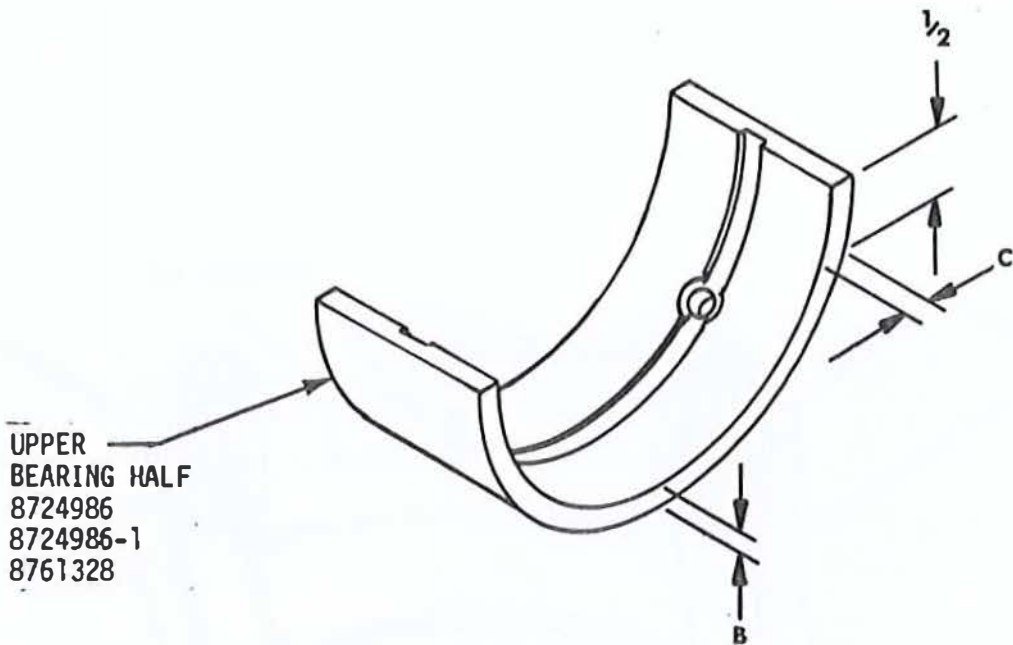
ITEM: BEARING HALF, SLEEVE:
crankshaft main lower and upper
- Continued

OIP (8724987 (lower)
8724986 (upper))

REFERENCE: Figure 5-4 (5/16)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

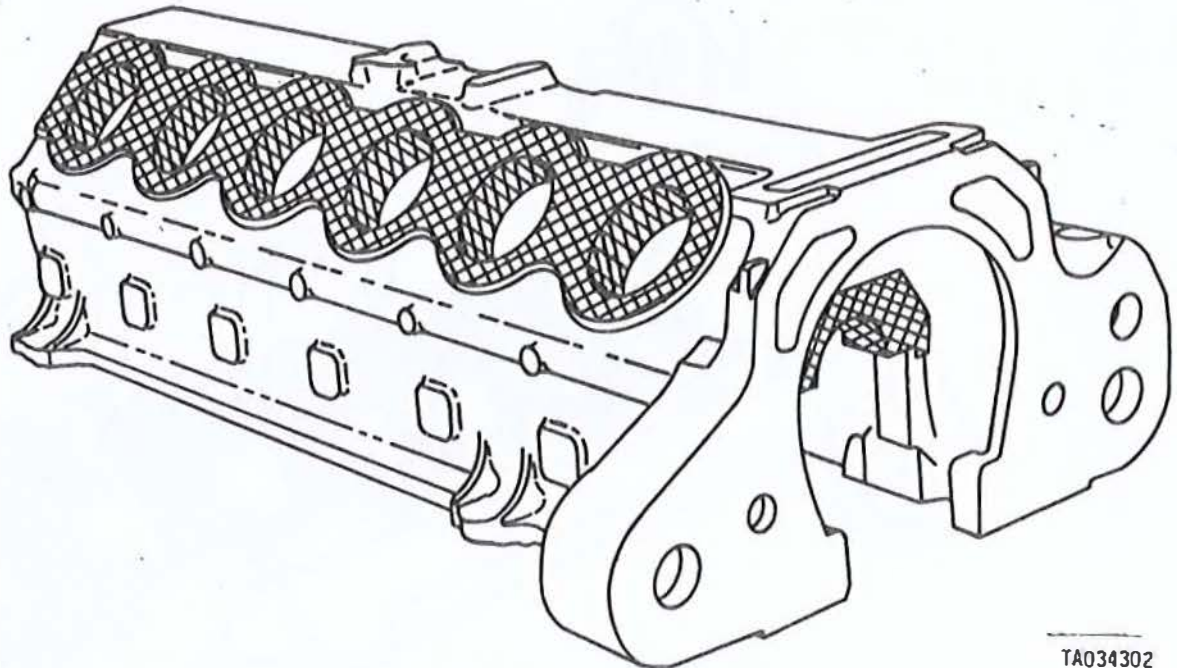
5-13. Repair and Assembly.

a. Repair.

(1) General repair. Refer to paragraph 5-5 (5/ 5) for general repair procedures.

(2) Repair by welding. Repair of crankcases by welding is permissible except in areas of high stress such as radii, webbing, and bosses. Refer to paragraph 5-7 (5/ 10) for general welding instructions of aluminum castings and (a) through (c) below for specific information on repair and welding of the crankcase.

(a) Crankcase welding. Repair of crankcases by welding is permissible except in the areas shown in figures 5-8 through 5-10 (5/48) through (5/49). Repair by blending of nicks, grooves or impact damage on the inside of the crankcase, on the underside of the cylinder deck machined surface, is permitted providing damage does not progress into restricted area. Welding is permitted in the fillet area adjacent to the side wall of the crankcase. Damaged cylinder stud holes may be repaired, but entire missing sections may not be replaced. Machined surface mounting bosses or pads which have been damaged by fretting, scoring, impact may also be repaired except those areas indicated in figures 5-8 through 5-10 (5/48) through (5/49). Weld surfaces must be restored to specified dimensions by machining.



TA034302

Figure 5-8. Typical crankcase highly stressed areas- 3/4 right rear view.

5-13. (Cont)

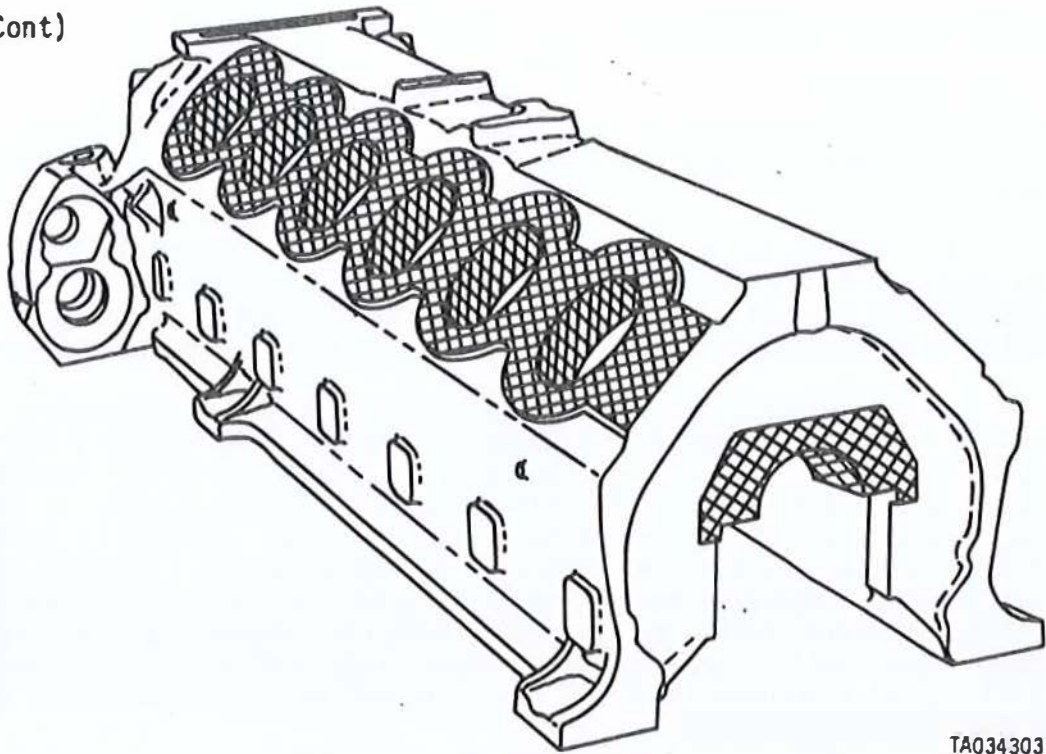


Figure 5-9. Crankcase highly stressed areas - 3/4 right front view.

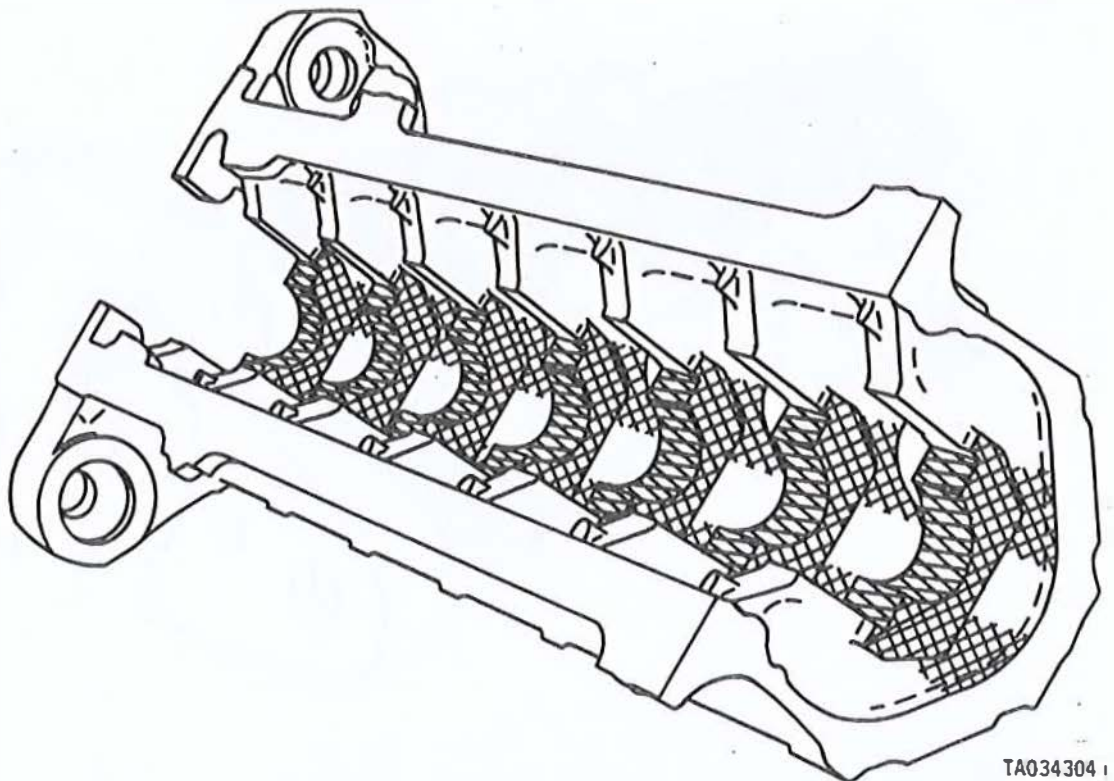


Figure 5-10. Crankcase highly stressed areas - bottom view.

5-13. (Cont)

(b) Dimensional changes. To detect dimensional changes caused by welding repair, precisely measure crankcase at several key positions depending upon the location of the repair. For repair to side walls, measure the positions outlined below. Letters in parentheses below refer to dimension identifications used in figure 5-11 (5/50) unless otherwise indicated.

1 Across the main bearing cap support web machined surfaces (B, fig. 5-11) (5/50).

2 Across the inside of the crankcase at the junction of the side wall and the oil pan rail (D).

3 From oil pan rail face to main bearing cap support face (C).

4 From cylinder mounting deck to crankshaft bearing support bore center-line using a suitable plug or bore in the crankcase bearing bore (A). This measurement shall be within 8.377-8.369 inches.

5 Oil pan rail shall be flat within 0.010 inch when all four corners are on the same plane.

(c) Other repair locations. For repair in other locations, measure in the appropriate locations to insure that critical dimensions are held. Record dimensions for future use.

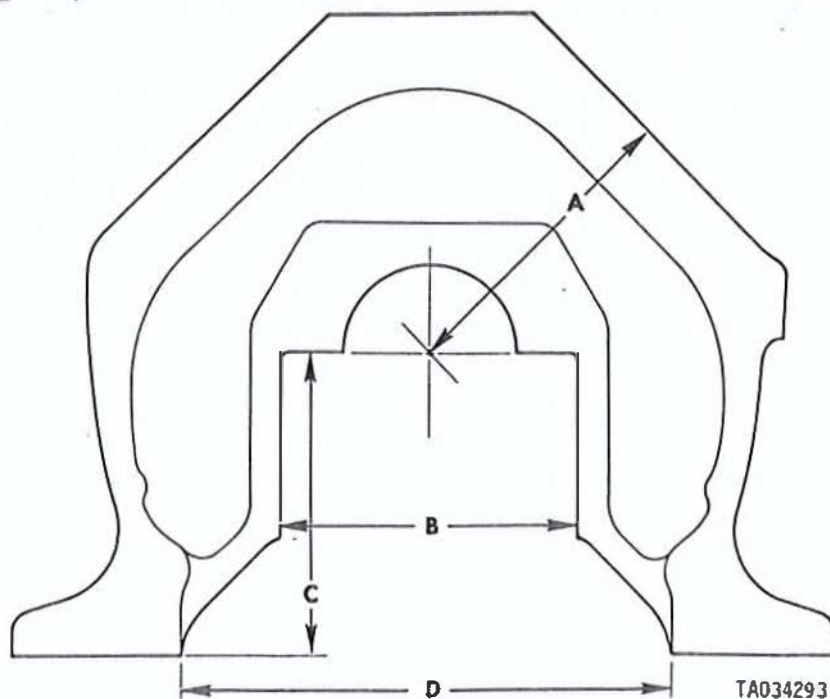


Figure 5-11. Points of measure for checking crankcase before and after welding repair.

5-13. (Cont)

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/ 11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

5-13. (Cont)

(3) Repair or replacement of damaged parts. Refer to paragraph 5-5 (5/5), table 5-2 (5/52) and figures 5-12 through 5-14 (5/53) through (5/54), when replacing crankcase studs. When replacing loose or broken cylinder to crankcase studs, replace all 14 studs in the cylinder mounting pattern. Screw thread inserts (paragraph 5-4, j) (5/4) may be installed if necessary. Do not install more than three (3) screw thread inserts in any one cylinder bolt circle. Do not install screw thread inserts in adjacent holes in the cylinder bolt circle.

Table 5-2. Crankcase Standard Stud Identification

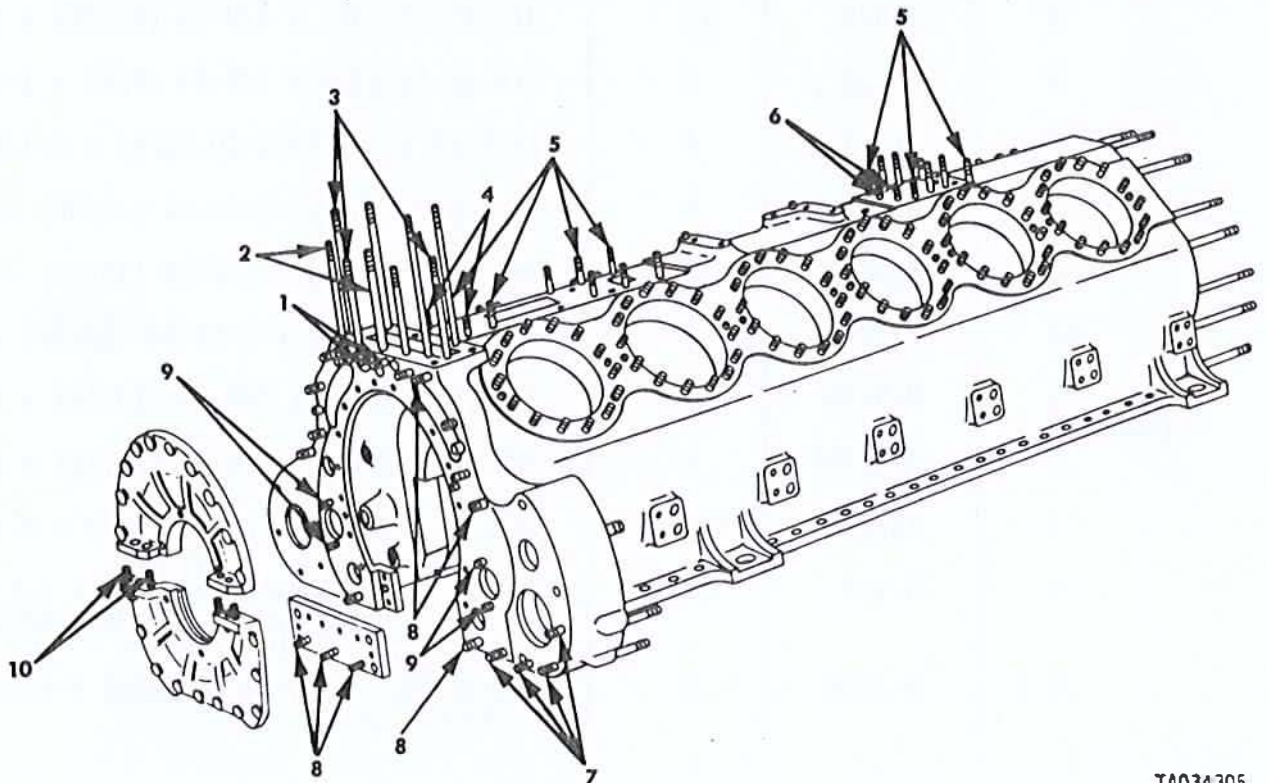
References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-12 (5/53)	1	6-1/4 5-7/64 ✓	2 ✓	3/8-16 (27/32) x 3/8-24 (7/8) x 1-3/4 ✓
	2	5-7/16 ✓	2 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 6-1/4 ✓
	3	6-1/8 ✓	3 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 6-7/8 ✓
	4	1-7/32	2 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 2 ✓
	5	1-5/8	12 ✓	3/8-16 (29/32) x 3/8-24 (11/16) x 2-1/4 ✓
	6	31/32 ✓	2 ✓	3/8-16 (27/32) x 3/8-24 (7/8) x 1-3/4 ✓
	7	1-11/32 ✓	4 ✓	7/16-14 (1) x 7/16-20 (3/4) x 2-1/4 ✓
	8	9/16 ✓	4 ✓	5/16-18 (19/32) x 5/16-24 (17/32) x 1-1/8 ✓
	9	2-3/32 1-1/8 ✓	15 ✓	1/2-13 (1-3/16) x 1/2-20 (15/16) x 2-1/4 ✓
	10	31/32 ✓	4 ✓	5/16-18 (^{3/4} 51/64) x 5/16-24 (^{47/64} 21/32) x 1-5/8 ✓
5-13 (5/54)	1	8-5/16 ✓	4 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 9-1/8 ✓
	2	2-29/64 ✓	4 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 3-1/4 ✓
	3	15/16 ✓	168 ✓	1/2-13 (63/64) x 1/2-20 (3/4) x 2-1/8 ✓
	4	5-1/2 ✓	*8 ✓	3/8-16 (^{15/16} 27) x 3/8-24 (^{1-1/8} 1-3/16) x 6-1/4 ✓ (AVDS-1790-2C, AVDS-1790-2D and AVDS-1790-2E) AVDS-1790-2CA, AVDS-1790-2CB
	4.1	5-1/16 ✓	2 ✓	3/8-16 (^{15/16} 27) x 3/8-24 (^{11/16} 21-3/16) x 5-7/8 ✓ (AVDS-1790-2DR)

*6 required on ^{MODEL} AVDS-1790-2DR ~~AVDS-1790-2D~~

5-13. (Cont)

Table 5-2. Crankcase Standard Stud Identification - Continued

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-13 (5/54)	5	5-1/4 ✓	4 ✓	3/8-16 (13/16) x 3/8-24 (15/16) x 6 ✓ 73424005
	6	5-1/16 ✓	2 ✓	3/8-16 (15/16) x 3/8-24 (11/16) x 5-7/8 ✓ 73424005
	7	4-19/32 ✓	1 ✓	5/8-11 (1-11/32) x 5/8-18 (29/32) x 5-1/2 ✓ 73424005
	8	2-1/2	4 ✓	3/8-16 (1) x 3/8-24 (3/4) (11/16) x 3-1/8 ✓ 73424005
	9	1/2	6 ✓	5/16-18 (1/2) x 5/16-24 (15/32) (1/16) x 1 ✓ 73424005
5-14 (5/54)	1	6-5/64 ✓	28 ✓	9/16-12 (1-3/8) x 9/16-18 (1-13/64) x 8-3/4 ✓ 73424005
	2	17/32 ✓	12 ✓	5/16-18 (19/32) x 5/16-24 (17/32) x 1-1/8 ✓ 73424005
	3	7/8 15/16	1 ✓	7/16-14 (1) x 7/16-20 (3/4) x 1-3/4 ✓ 73424005



TA034305

Figure 5-12. Crankcase studding - 3/4 left rear exploded view.

5-13. (Cont)

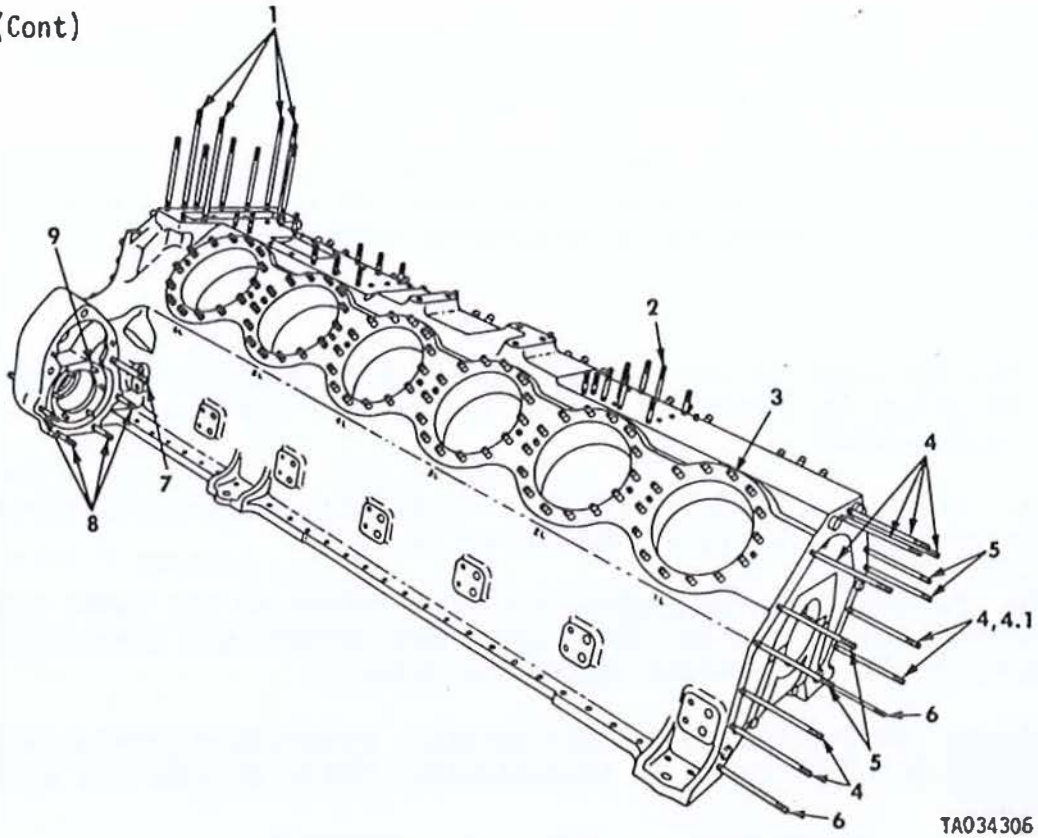


Figure 5-13. Crankcase studding - 3/4 left front view.

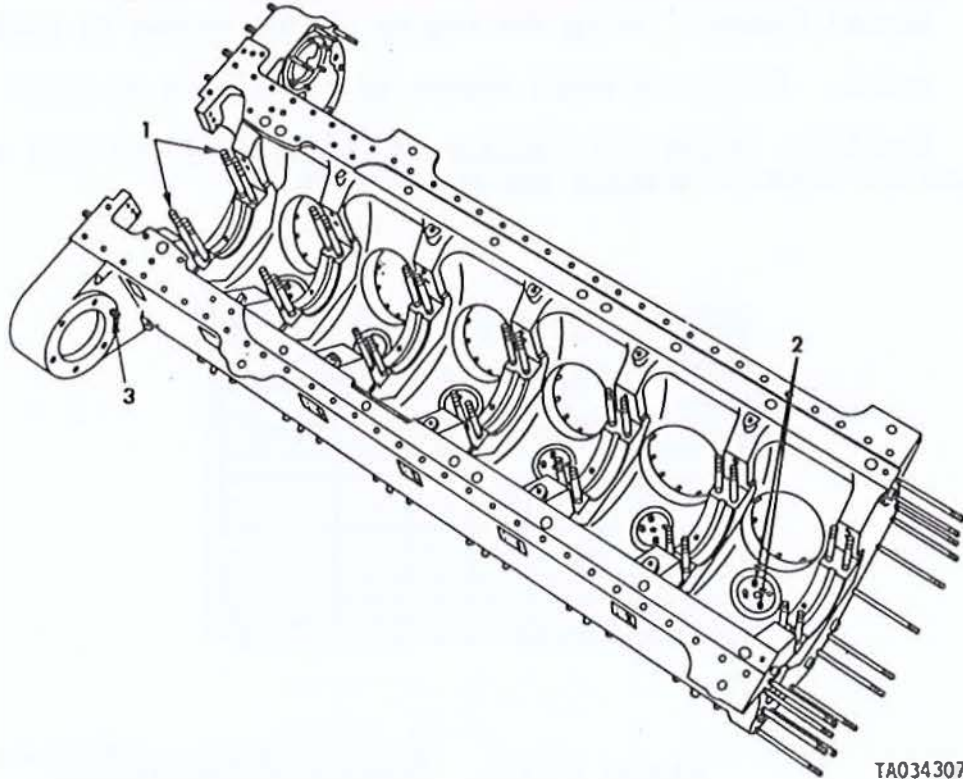


Figure 5-14. Crankcase studding - bottom view.

Section II.I, APPLICATION OF HISTORICAL DATA PLATE TO CRANKCASE ASSEMBLY

5-13.1. General. This section covers the application of the historical data plate to the crankcase assembly after repair/overhaul, in order to maintain a historical up-to-date record.

5-13.2. Application. After inspection of crankcase is complete, based on quality assurance acceptance, the historical data plate shall be stamped/marked in accordance with TB ORD 1030.

NOTE

Entries must be made on data plate before affixing to crankcase. If plate is already mounted, remove and make necessary entries, then remount.

a. Drilling. *DRILL FOUR .119-.127 DIA HOLES .25-.31 DEEP PER DRAWING SPECIFICATION*
~~Four holes shall be drilled into the crankcase in accordance with drawing specification 12354391.~~
11684087. (ADJACENT TO ENGINE HOME PLATE)

b. Placement. Affix historical data plate on the right side of the crankcase below the No. 3R cylinder and secure with four drive screws (MS21318-27) and ^{flat}washers (~~MS21305~~, (M96a-6)).

5-13.3. Historical data plate entries. Prescribed entries will be stamped on plate prior to installation. These entries are defined below.

- a. Data Manufactured. Stamp date of manufacturer of engine.
- b. Serial Number. Stamp the engine serial number in space provided.
- c. Model. Stamp the model number of the engine in space provided.
- d. Facility. Stamp the initials of the facility or unit who performed the repair/overhaul IAW TB ORD 1030.

DATA PLATE-HISTORICAL						
OVER-HAUL/REPAIR			ITEM NUMBER			
DATE MADE	SERIAL NO.		MODEL			
CYLINDER	ENGINE SIZE	TYPE OF ENGINE	MAKE	MODEL	ENGINE NO.	REMARKS

Remove all DIMENSIONS

Figure 5-14.1. *PLATE IDENTIFICATION: ENGINE HISTORICAL*
 Historical Data Plate.

Section III. OVERHAUL OF TRANSMISSION ADAPTER, *INSTALLATION GUIDES AND LIFTING EYES*

5-14. General. This section covers overhaul of the transmission adapter, and associated parts (figure 5-15) (5/57). Specific instructions for disassembly, cleaning, inspection, repair and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are included in the inspection procedures. Stud identification information is included in the repair procedures.

INSTALLATION GUIDES, LIFTING EYES

5-15. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a (5/1) for general instructions on cleaning the transmission adapter, and associated parts.

INSTALLATION GUIDES, LIFTING EYES

5-16. Inspection. Inspect the transmission adapter, and associated parts according to instructions in paragraph 5-4 (5/2) and OIP's included in this section. Wear limits, fits, and tolerances for the transmission adapter, and associated parts are listed in table 5-3 (5/58). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

INSTALLATION GUIDES, LIFTING EYES

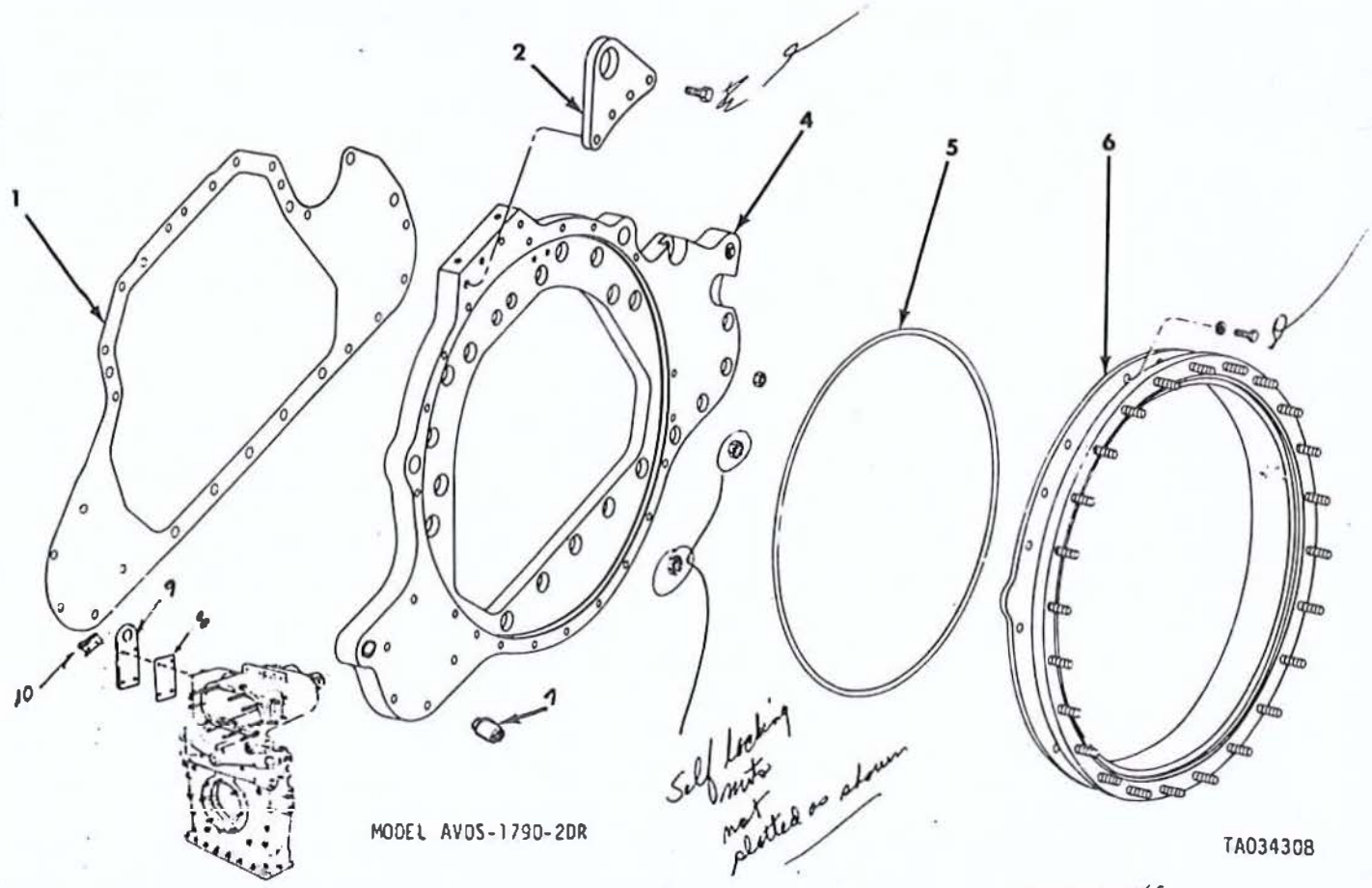
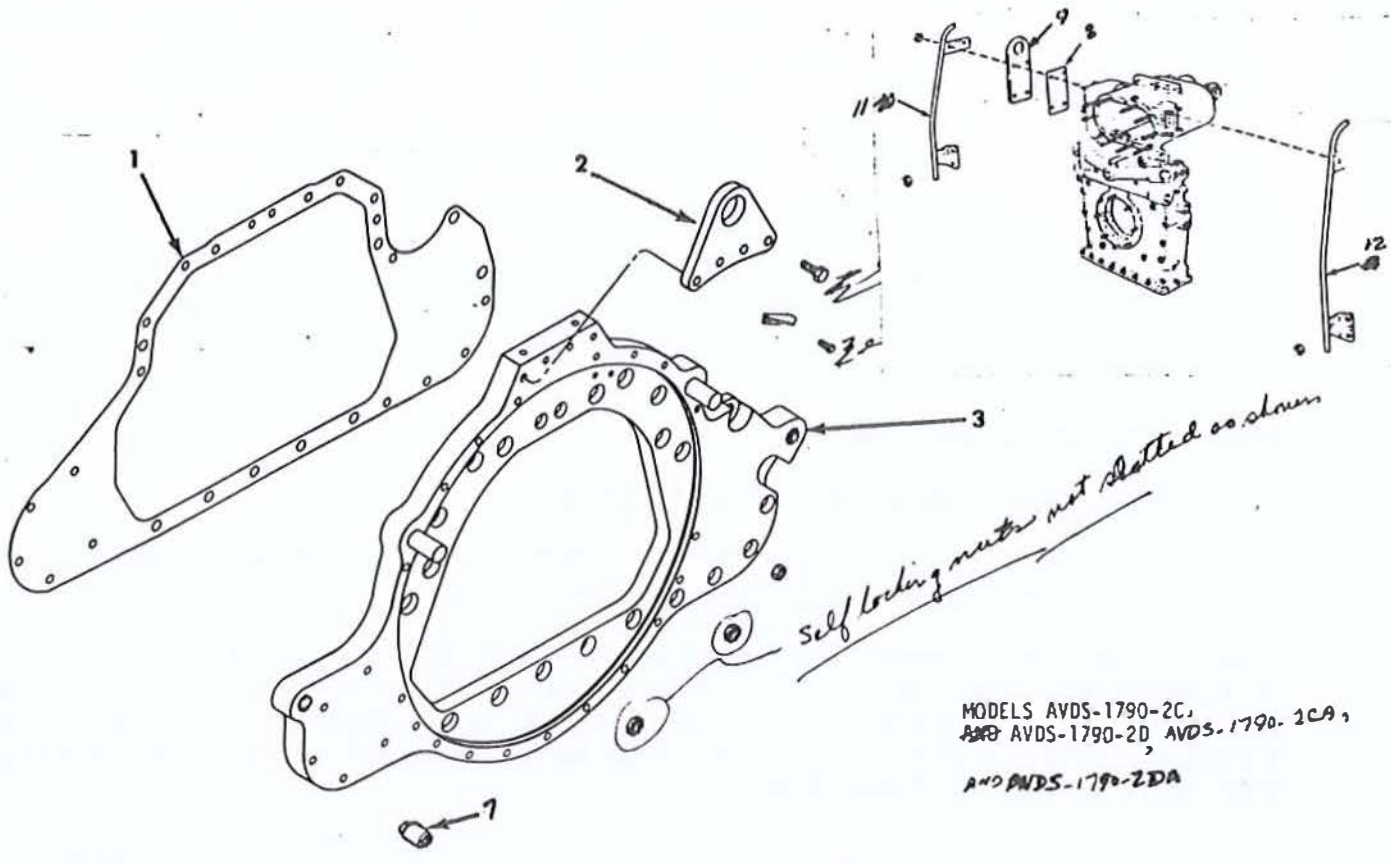


Figure 5-15. Transmission adapter, and associated parts.

Table 5-3. Wear Limits, Fits, and Tolerances for
Transmission Adapter, *INSTALLATION GUIDES AND LIFTING EYES*

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-15 (5 / 57)	1	GASKET: transmission adapter - part no. 8682754		Replace
	2	<i>BRACKET, ENGINE ACCESSORY:</i> PLATE, EYE, ENGINE LIFTING: flywheel end - <i>LIFTING</i> part no. 8761080 Refer to OIP 8761080 (5 / 59)		
	3	<i>ASSEMBLY, CRANKCASE -</i> ADAPTER, TRANSMISSION CASE (Models AVDS-1790-2C, AVDS-1790-2D <i>AVDS-1790-2CA,</i> <i>AND AVDS-1790-2DA</i>) part no. 8682737 Refer to OIP 8682737 (5 / 60)		
	4	<i>ASSEMBLY, CRANKCASE -</i> ADAPTER, TRANSMISSION CASE (Model AVDS-1790-2DR) - part no. 8682737-1 Refer to OIP 8682737-1 (5 / 61)		
	5	PACKING, PREFORMED: transmission case adapter TO ADAPTER part no. 7723892 (MODEL AVDS-1790-2DR)		Replace
	6	ADAPTER ASSEMBLY, TRANSMISSION <i>TRANSMISSION HOUSING -</i> CASE <i>SPACER:</i> part no. 10912362 (MODEL AVDS-1790-2DR) Refer to OIP 10912362 (5 / 62)		
	7	MOUNT, RESILIENT: TURBO SUPERCHARGER SUPPORT YUKL BOLT - PART NO. 7320411		REPLACE
	8	GASKET: ENGINE LIFTING EYE, DAMPER END, LEFT BANK - PART NO. 10898933		REPLACE
	9	EYE, LIFTING ENGINE DAMPER END, LEFT AND RIGHT BANKS - PART NO. 8761295 5/58 REFER TO OIP 8761295		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

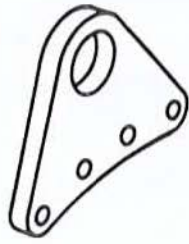
ITEM: *BRACKET, ENGINE ACCESSORY:
 PLATE, EYE, ENGINE LIFTING
 LIFTING, FLYWHEEL END*

OIP 8761080

REFERENCE: Figure 5-15 (5/ 57)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Fractured or broken lifting eye	2.5	Visual	None allowed
		<i>BASE METAL SAWING THROUGH PROTECTIVE FINISH</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8682737

ITEM: ADAPTER, ~~TRANSMISSION CASE~~ ^{ASSEMBLY, CRANKCASE}

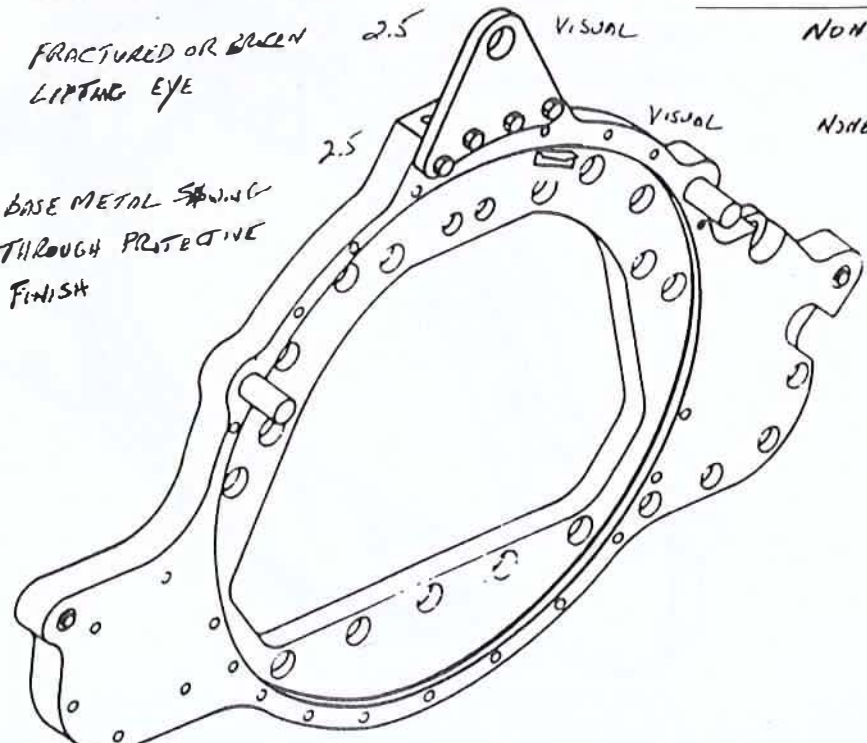
REFERENCE: Figure 5-15 (5/57)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Loose or missing dowels	2.5	Visual	None allowed
A		Resilient mounts for loose, damaged, or deteriorated condition	2.5	Visual	None allowed
B 4		Damaged threads	2.5	Visual	None allowed
B 5		Bent or broken pointer	2.5	Visual	None allowed

6 FRACTURED OR BLEN LIFTING EYE 2.5 VISUAL NONE ALLOWED

7 BASE METAL SPALLING THROUGH PROTECTIVE FINISH 2.5 VISUAL NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

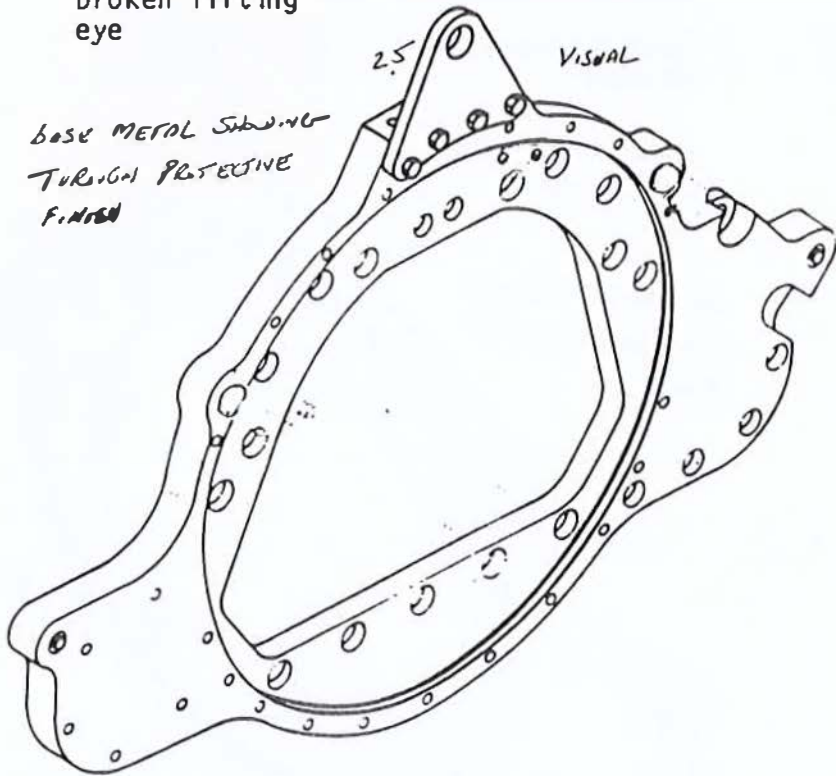
ITEM: ADAPTER, ~~TRANSMISSION CASE~~ ASSEMBLY, CRANKCASE

OIP 8682737-1

REFERENCE: Figure 5-15 (5/ 57)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
	31222	Resilient mounts for loose, damaged, or deteriorated condition	2.5	Visual	None allowed
	44 ³	Damaged threads	2.5	Visual	None allowed
	854	Fractured or broken lifting eye	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

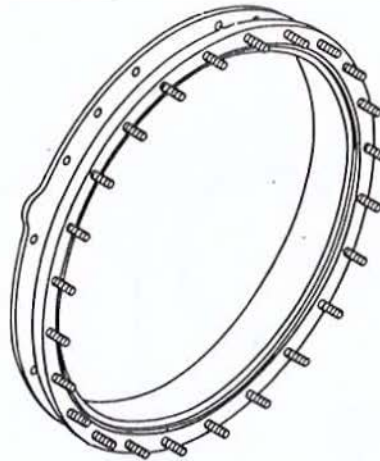
ITEM: *RING, SPACER:*
~~ADAPTER ASSEMBLY, TRANSMISSION CASE~~
 TRANSMISSION HOUSING

OIP 10912362

REFERENCE: Figure 5-15 (5/57)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Studs, loose, bent, or damaged threads	2.5	Visual	None allowed
		<i>SINSE N/A THE STUDS ARE THROUGH PROTECTIVE FINISH</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE:

DMTR 9-2815-220

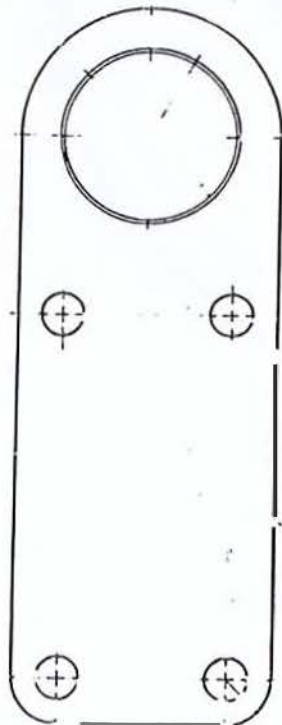
OIP 8761295

ITEM: EYE, LIFTING, ENGINE:
DAMPER END, LEFT AND RIGHT BANKS

REFERENCE: FIGURE 5-15 (5/57)

ITEM: 9

NO.	REF. LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BENT OR DEFORMED	2.5	VISUAL	NONE ALLOWED
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/62.1

OVERHAUL INSPECTION PROCEDURE:

DWR 9-2815-220

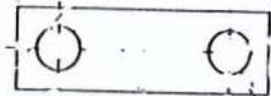
OIP 12254297

ITEM: SPACER, PLATE:
LIFTING EYE TO DAMAGED
MISSING, LEFT AND RIGHT BOWES

REFERENCE: FIGURE 5-15(5/37)

ITEM: 10

NO.	REF. LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		CRACKED, BENT OR BROKEN	0.0	VISUAL	NONE ALLOWED.
2		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

9-2815-220
 DMWR ~~7-11-110-220~~

ITEM: ~~GUIDE, ENGINE INSTALLATION~~
 BRACKET, MOUNTING:
 ENGINE INSTALLATION

OIP 11684008 - left BANK
 11684009 - right BANK
 REFERENCE: Figure 5-15 (5/57)
 ITEM: ~~11 AND 12~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks (including welds)	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/62.3 (5/62.4 BLANK)
 5/60-1 (5/60-2 BLANK)

5-17. Repair and Assembly.

a. Repair.

(1) General repair procedures. Refer to paragraph 5-5 (5/5).

(2) Replacement of resilient mounts. Transmission case adapter resilient mounts ~~are~~ replaced by pushing out the defective mount and pushing in a replacement. *ARE*

(3) Replacement of damaged studs. Refer to paragraph 5-5 d (5/6), table 5-4 (5/63), and figure 5-16 (5/63) when replacing transmission case adapter studs.

Table 5-4. Transmission Adapter Standard Stud Identification

References fig. item no. no.	Setting height	No. reqd.	Stud size and length
5-16 1 (5/63)	1.31 1.31 <i>1.5/16</i>	24	1/2-13 (3/4) x 1/2-20 (13/16) x 1-15/16

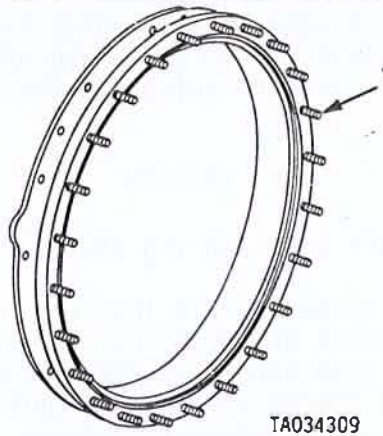


Figure 5-16. Transmission adapter standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section IV. OVERHAUL OF CRANKSHAFT AND ASSOCIATED PARTS

5-18. General. This section covers overhaul of the crankshaft and associated parts (fig. 5-17) (5/66). Specific instructions for disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are also included.

5-19. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3 a, b, and c (5/1) for general cleaning instructions for the crankshaft and associated parts.

5-20. Inspection. Inspect the crankshaft and associated parts according to instructions in paragraph 5-4 (5/2) and OIP's included in this section. Wear limits, fits, and tolerances for the crankshaft and associated parts are listed in table 5-5 (5/67). See paragraph 5-4, b and c (5/33) for explanation of wear limits, fits and tolerances.

5-20.1. Reclamation. Use the procedures outlined below to reclaim the crankshaft rear oil seal surface.

a. Inspect crankshaft rear oil seal surface (fig. 5-16.1) (5/64.1) for wear caused by the oil seal lip. If seal wear (groove) is 0.003 inch deep, or less, it can be repaired by blending (polishing) the groove and scoring the seal surface with 80 grit paper at a 45° angle, with the spiral (pattern) as shown in figure 5-16.2 (5/64.2).

CAUTION

Do not spin the crankshaft when scoring the rear oil seal surface.

b. If seal wear (groove) exceeds 0.003 inch depth on a side, it must be restored to serviceable condition before being reused. Grind the area shown in Figure 5-16.3 (5/64.3) to eliminate the wear groove. Restore the seal surface by applying hard chrome plate in the area show in Figure 5-16.3 (5/64.3) to a depth of 0.002 to 0.005 inch thick on a side after finish.

c. Grind the rear oil seal surface and polish to the dimensions shown in Figure 5-16.4 (5/65).

d. Score the rear oil seal surface with 80 grit paper as shown in Figure 5-16.2 (5/64.2).

5-20.1 (Cont)

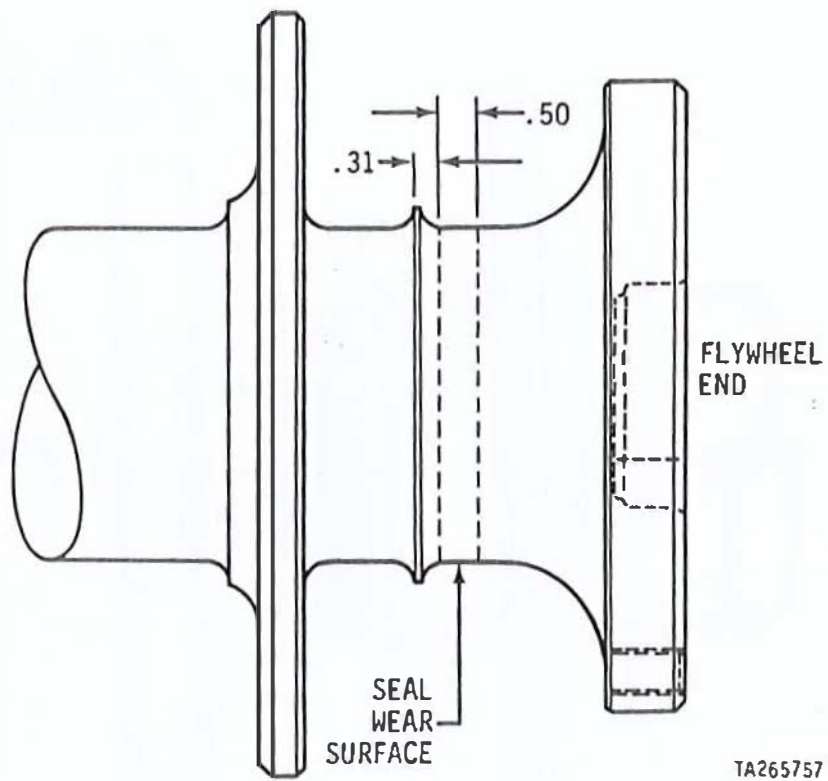


Figure 5-16.1. Rear oil seal wear surface on flywheel end of crankshaft.

5-20.1 (Cont)

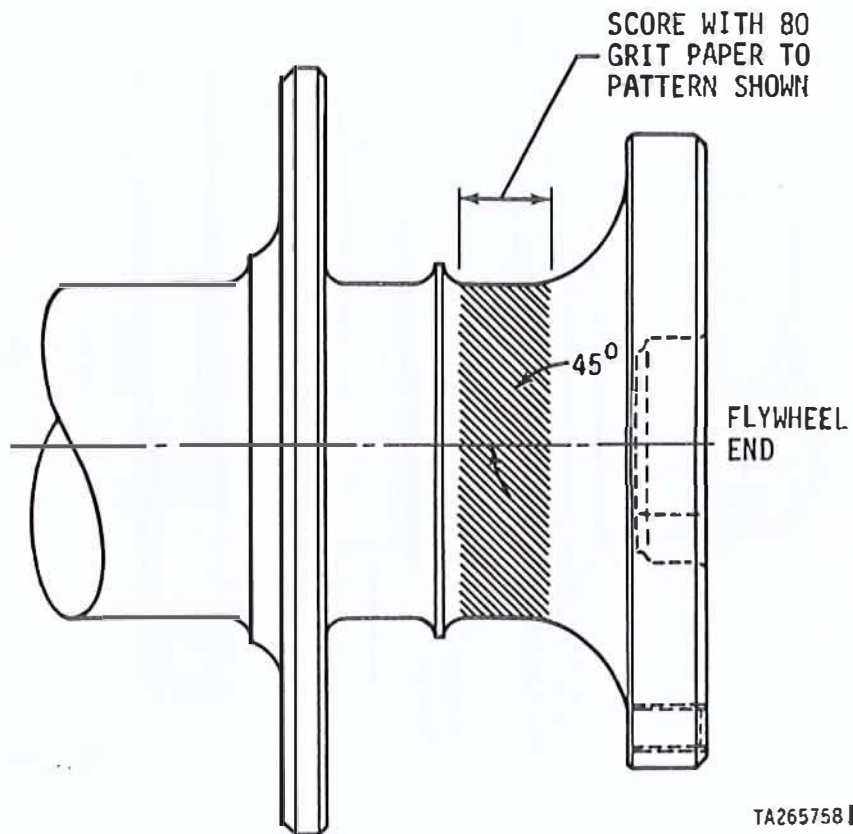


Figure 5-16.2. Rear oil seal wear surface on flywheel end of crankshaft.

5-20.1 (Cont)

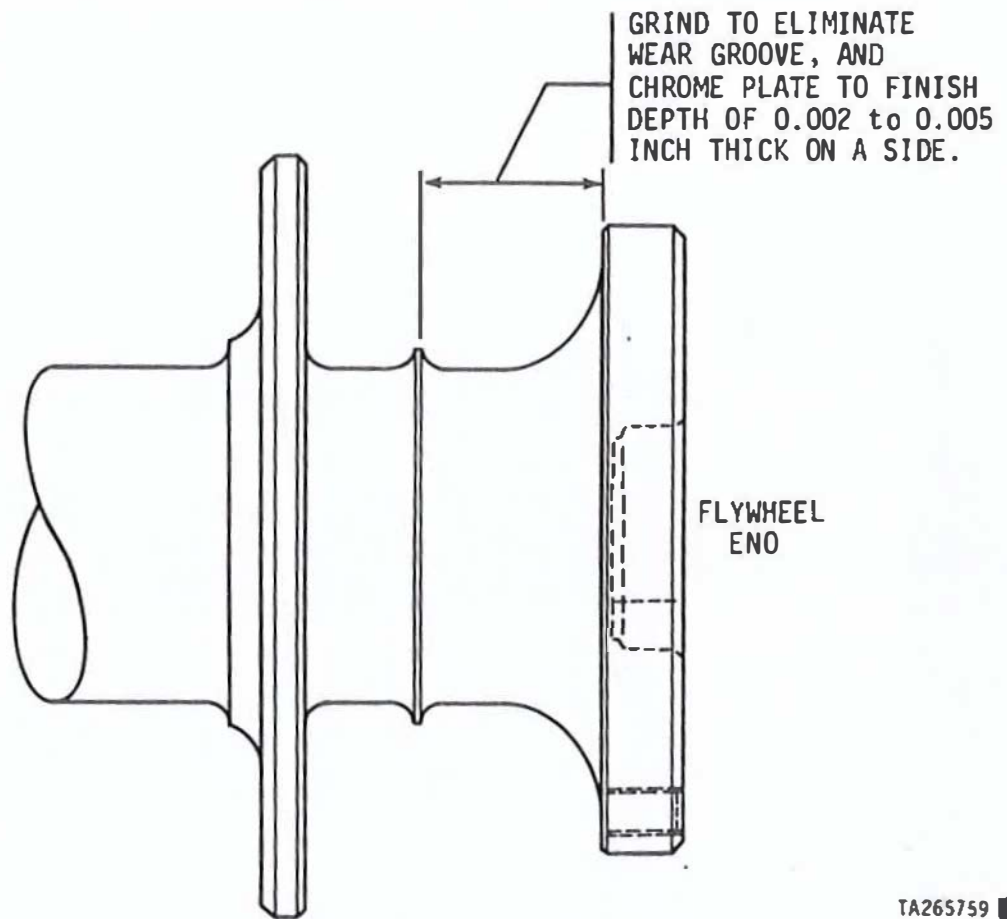


Figure 5-16.3. Crankshaft rear oil seal restoration area.



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Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts

References

<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
-----------------	-----------------	---	----------------------	-------------------

5-17 (5/66)	1	GEARSHAFT, SPUR: power take-off - (MODEL 114DS-1740-2DR) part no. 12275793 Refer to OIP 12275793 (5/73)	4.2198 4.2198	4.2198 4.2198
		✓ Outside diameter of pilot	4.2500-4.2510	4.2475
		✓ Outside diameter of sealing surface	1.6870-1.6890	1.6860
		✓ Dimension over 0.1125 diameter pins	3.1580-3.1630	3.1555
2		ADAPTER, FLYWHEEL ^{How SNG} engine - part no. 11684197 (MODEL 114DS-1742-2DR) Refer to OIP 11684197 (5/74)		
		✓ Inside diameter of dowel holes (2 places)	0.6262-0.6272	*
		✓ Outside diameter of pilot	10.8090-10.8100	10.8080
		✓ Inside diameter of pilot	8.0000-8.0010	8.0020
		Fit of adapter on crank shaft	0.0010L-0.0030L	0.0050L
3		FLYWHEEL, ENGINE - (MODEL 114DS-1742-2DR) part no. 11682645 Refer to OIP 11682645 (5/75)		
		✓ Inside diameter of pilot	10.8110-10.8120	10.8130
		✓ Outside diameter of pilot	7.7490-7.7500	7.7480
		✓ Dimension between 0.2880 diameter pins	19.2571-19.2684	19.2740
		Fit of flywheel on adapter	0.0010L-0.0030L	0.0050L

Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts - Continued

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-17 (5/66)	4	GEAR, SPUR: transmission accessory drive - part no. 8682920 8725260 Refer to OIP 8682920 8725260 (5/76) <i>(M. DELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2DA, AVDS-1790-2DA)</i>		4.4395
		✓ Dimension over 0.2250 diameter pins	4.4420-4.4470	4.4395
		✓ Dimension between 0.1636 diameter pins	1.2786-1.2826	1.2846
		Inside diameter of bore in bearing	1.3700-1.3900	1.4000
		Outside diameter of hub	2.8320-2.8330	2.8315
		Fit of transmission accessory drive gearshaft in crankshaft	0.0008-0.0040	0.0035
		✓ Inside diameter of dowel pin holes (2 places)	0.6262-0.6272	*
5		LOCK, PLATE NUT.BOLT: fly-wheel and gearshaft to crankshaft - part no. 8725249		Replace
6		SEAL, PLAIN: crankshaft oil - part no. 8764948 (7234-S-01212)		Replace
7		PLUG: crank pin bearing oil retaining - part no. 10865183 Refer to OIP 10865183 (5/78) <i>(USE W/ CRANKSHAFT 5682734)</i>		
8		RING, RETAINING: fuel pump drive shaft coupling - part no. MS16625-1112 <i>(M. DELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2DA, AVDS-1790-2DA)</i>		Replace

Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-17	9	BRACKET, ENGINE ACCESSORY: PLATE, CRANKSHAFT DAMPER: fuel pump coupling PLATE - (MODELS AVDS-1790-20, AVDS-1790-20A, AVDS-1790-20B AND AVDS-1790-20C) part no. 10882610 Refer to OIP 10882610 (5/79)		
		✓ Dimension between 0.0600 diameter pins	1.1028-1.1046	1.1055
	10	GEAR, SPUR: fuel pump drive - part no. 10882613 (MODELS AVDS-1790-20, AVDS-1790-20A, AVDS-1790-20B AND AVDS-1790-20C) Refer to OIP 10882613 (5/80)		
		✓ Dimension over 0.0800 diameter pins	1.2860-1.2876	1.2852
		✓ Dimension between 0.0600 diameter pins	0.3896-0.3914	0.3923
	11	DAMPENER, VIBRATION, ENGINE: DAMPER, ENGINE CRANKSHAFT vibration-torsional - CRANKSHAFT part no. 7025892 12354380 Refer to OIP 7025892 12354380 (5/81)		
		✓ Inside diameter of crankshaft pilot bore in damper	4.2515-4.2525	4.2535
		✓ Fit of damper on crankshaft hub	0.0005L-0.0035L	0.0060L
		✓ Inside diameter of dowel pin hole	0.5005-0.5015	*
	12	GEAR, SPUR: accessory drive - part no. 10898778 Refer to OIP 10898778 (5/82)		

Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-17 (5/66) continued	12 -	✓ Dimension over 0.2000 diameter pins	12.7240-12.7330	12.7185
		✓ Inside diameter of crankshaft pilot bore in accessory drive gear	9.7500-9.7520	9.7530
		✓ Fit of accessory drive gear on crankshaft	0.0000-0.0040L	0.0060L
13		FLYWHEEL, ENGINE - part no. 10912453 Refer to OIP 10912453 (5/83)	<i>(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2DA AND AVDS-1790-2DA)</i>	
		✓ Inside diameter of crankshaft pilot bore in flywheel	8.0000-8.0010	8.0020
		Fit of flywheel on crankshaft	0.0010L-0.0030L	0.0050L
		✓ Inside diameter of dowel pin holes in flywheel (2 places)	0.6262-0.6272	*
14		CRANKSHAFT, ENGINE - assembly - part no. 8682734 12254249 Refer to OIP 8682734 12254249 (5/85)		
		Maximum runout of journal nos. 2 4 and 6 and 6 with shaft mounted on no. 1 and no. 7 journals	0.0150 (TIR)	*
		Maximum runout of journal no. 4 with shaft mounted on no. 1 and no. 7 journals	0.0250 (TIR)	*
		MAXIMUM RUNOUT OF JOURNAL NOS. 3 AND 5 WITH SHAFT MOUNTED ON NO. 1 AND NO. 7 JOURNALS 5/70	0.0200 (TIR)	*

Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-17 (5/66) continued	14 - ✓	Maximum out-of-round of crankpins and journals	0.0010	*
	✓	Outside diameter of flywheel hub on crank- shaft	7.9980-7.9990	7.9970
	✓	Outside diameter of accessory drive gear mounting flange on crankshaft	9.7495 9.7480- 9.7500	9.7470
	✓	Inside width of main thrust crankshaft journal	2.4970-2.5010	2.5030
	✓	Outside diameter of main bearing journals on crank- shaft		
	✓	Standard	4.2495-4.2505	4.2485
		0.0030 undersize	4.2465-4.2475	4.2455
		0.0100 undersize	4.2395- 4.2385 4.2405	4.2385
	✓	Outside diameter of connect- ing rod journals on crank- shaft		
	✓	Standard	3.7495-3.7505	3.7485
		0.0030 undersize	3.7465-3.7475	3.7455
		0.0010 0.0100 undersize	3.7395-3.7405	3.7385
	✓	Inside width of connect- ing rod journal of crankshaft	3.1470-3.1510	3.1520

Table 5-5. Wear Limits, Fits, and Tolerances for Crankshaft and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-17 (5/ 66) continued	14 -	Outside diameter of damper hub on crankshaft	4.2490-4.2510	4.2475
		Outside diameter of dowel pin in crankshaft, fly- wheel end (2 places)		
		Standard	0.6255-0.6257	*
		0.0050 oversize - part no: 8717298	0.6305-0.6307	*
		0.0100 oversize, part no: 8717299	0.6355-0.6357	*

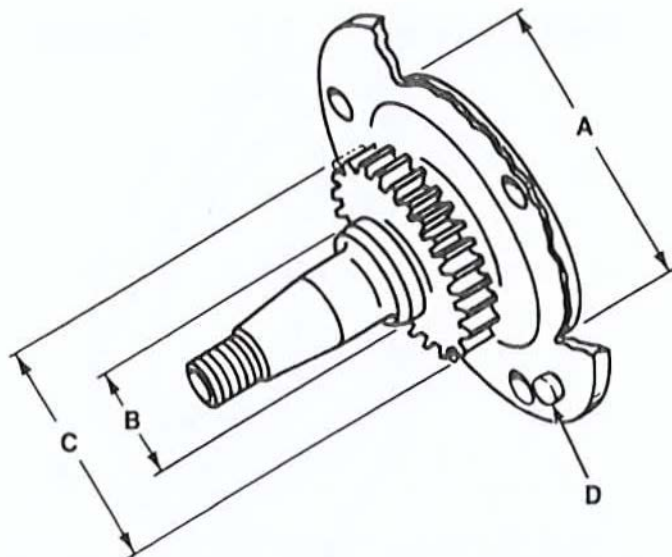
OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: GEARSHAFT, SPUR:
power take-off
(Model AVDS-1790-2DR only)

OIP 12275793
REFERENCE: Figure 5-17 (5/66)
ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Magnetic particle	None allowed
2	✓	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4	A	Outside diameter of pilot	1.0	Measure	Diameter must be no less than 4.2485 inches 4.2475
5	B	Outside diameter of sealing surface	1.0	Measure	Diameter must be no less than 1.6860 inches
6	C	Dimension over 0.1125 diameter pins	1.0	Measure	Diameter must be no less than 3.1555 inches
7	D	Loose pin	0.0		Pin must be tight



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

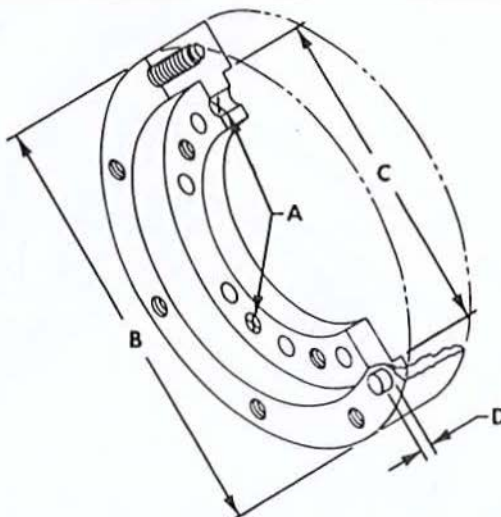
OIP 11684197

ITEM: ADAPTER, FLYWHEEL HOUSING
engine
(Model AVDS-1790-2DR only)

REFERENCE: Figure 5-17 (5/66)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Loose or missing dowel pin	2.5	Visual	None allowed
4	A	Inside diameter of dowel holes			
		Standard	1.0	Measure	Diameter must be no greater than 0.6272 inch
5	B	Outside diameter of pilot	1.0	Measure	Diameter must be no less than 10.8080 inches
6	C	Inside diameter of pilot	1.0	Measure	Diameter must be no greater than 8.0020 inches
7	D	Dowel pin height	1.0	Measure	Dimension to be 0.3600-0.3800 inch 0.3400 - 0.4000



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

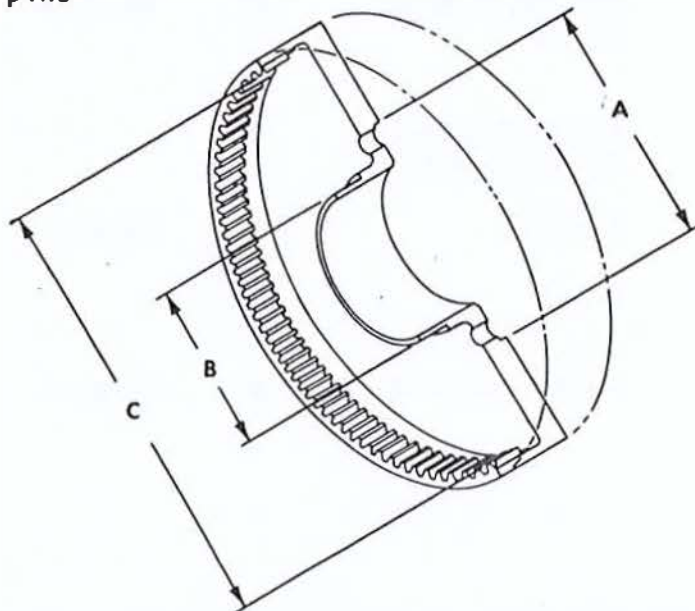
OIP 11682645

ITEM: FLYWHEEL, ENGINE:
(Model AV86-1700-2DR only)

REFERENCE: Figure 5-17 (5/66)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle VISUAL	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Inspect for chipped, broken, or missing gear teeth	2.5	Visual	None allowed
4	A	Inside diameter of pilot	1.0	Measure	Diameter must be no greater than 10.8130 inches
5	B	Outside diameter of pilot	1.0	Measure	Diameter must be no less than 7.7480 inches
6	C	Dimension between 0.2880 diameter pins	1.0	Measure	Diameter must be no greater than 19.2740 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ⁸⁷²⁵²⁶⁰
8682820 - X

ITEM: GEAR, SPUR:
transmission accessory drive ~~(Models
AVDS-1790-2C and AVDS-1790-2D only)~~

REFERENCE: Figure 5-17 (5/66)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces, chipped, broken, or missing teeth	2.5	Visual	None allowed
3	A	Dimension over 0.2250 diameter pins	1.0	Measure	Diameter must be no less than 1.4355 inches 1.4395
4	✓ B	Dimension between 0.1636 diameter pins	1.0	Measure	Diameter must be no greater than 1.2846 inches
5	C	Inside diameter of bore in bearing	1.0	Measure	Diameter must be no greater than 1.4000 inches
6	✓ D	Outside diameter of hub	1.0	Measure	Diameter must be no less than 2.8315 inches
7	E	Inside diameter of dowel pin holes			
		Standard	1.0	Measure	Diameter must be no greater than 0.6275 inch 0.6272
		0.0050 oversize	1.0	Measure	Diameter must be no greater than 0.6375 inch

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ⁵⁷²⁵²⁶⁰ 8682820

ITEM: GEAR, SPUR:
 transmission accessory drive (Models
 AVDS-1790-2C and AVDS-1790-2D only)

REFERENCE: Figure 5-17 (5/66)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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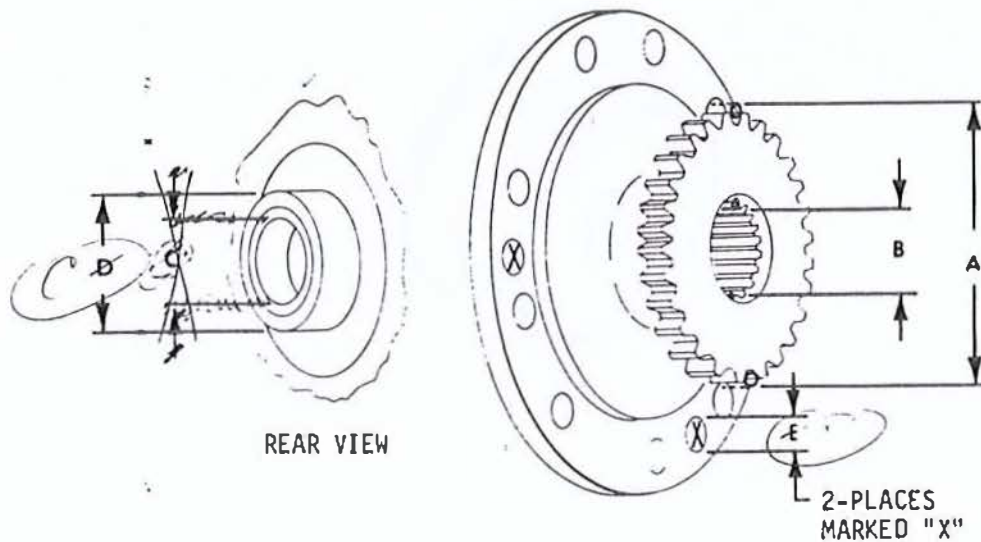
0.0100 oversize

1.0

Measure

Diameter must be no greater than 0.6375 inch

Handwritten note:
 Measure diameter of gear
 to the nearest 0.001 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

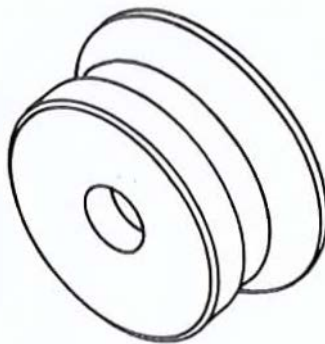
OIP 10865183

ITEM: PLUG:
 crank pin bearing oil retaining
 (USE W/C CRANKSHAFT S682734)

REFERENCE: Figure 5-17 (5/66)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Visual	None allowed
2	✓	Bent or deformed	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

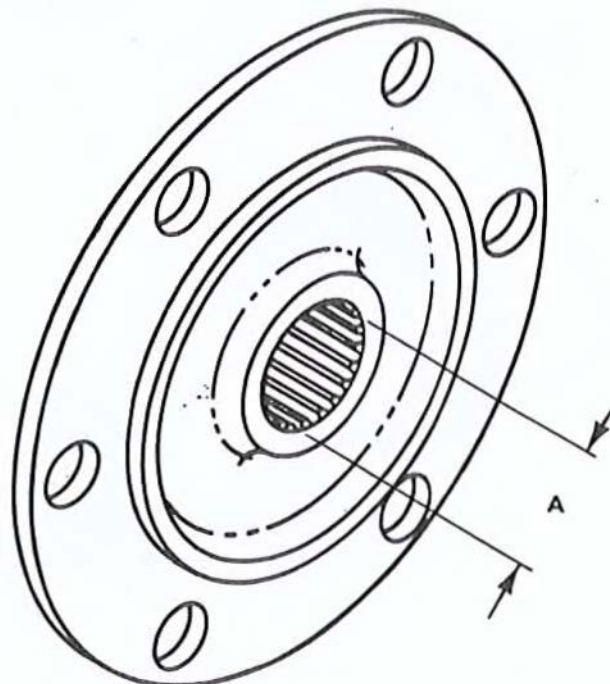
ITEM: ~~CRACKET. ENGINE ACCESSARY:~~
~~PLATE, CRANKSHAFT DAMPER:~~
 fuel pump coupling (Models ~~AVDS-~~
~~1790-2C and AVDS-1790-2D only~~)

OIP 10882610

REFERENCE: Figure 5-17 (5/66)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces, chipped, broken, or missing teeth	2.5	Visual	None allowed
3	A	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 1.1055 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

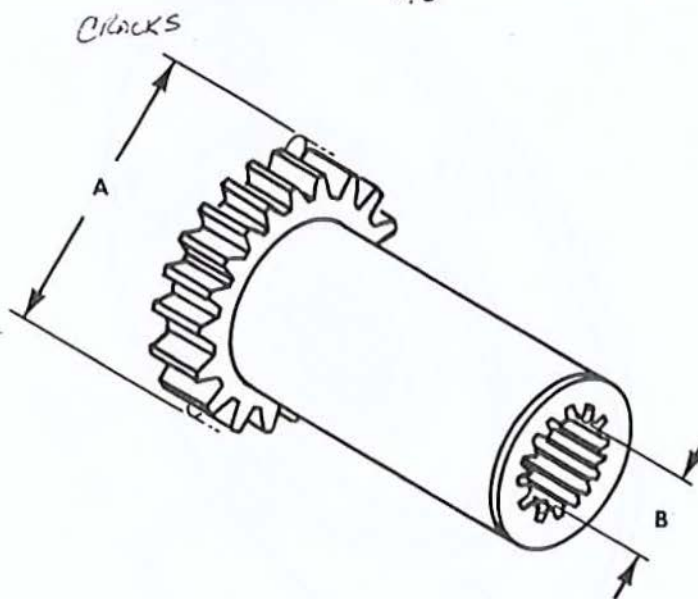
OIP 10882613

ITEM: GEAR, SPUR:
fuel pump drive (Models
AVDS-1790-20 and AVDS-1790-20 only)

REFERENCE: Figure 5-17 (5/66)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
2.1		Scratches, nicks, gouges, or raised metal on contact surfaces, chipped, broken or missing teeth	2.5	ANALYTIC VISUAL	None allowed
3.2	A	Dimension over 0.0800 diameter pins	1.0	Measure	Diameter must be no less than 1.2852 inches
3.3	B	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 0.3923 inch
			0.0	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

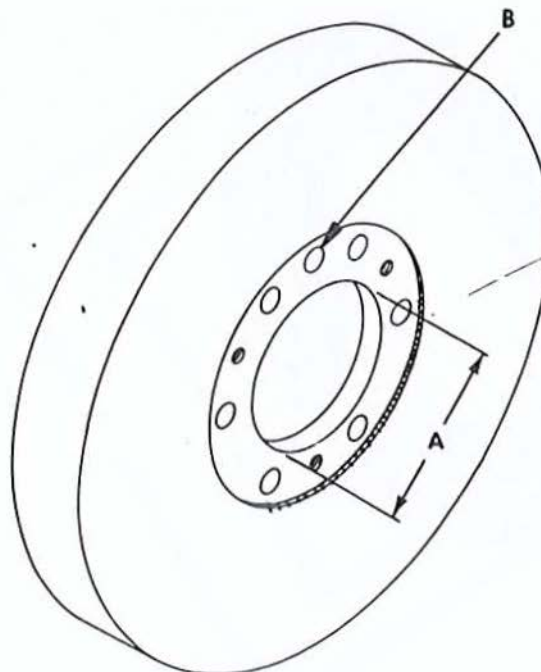
ITEM: ~~DAMPENER, VIBRATION, ENGINE:~~
~~DAMPER, ENGINE CRANKSHAFT:~~
 vibration torsional
 CRANKSHAFT

OIP ~~7025892~~
 12354380
 (5654225-63946)

REFERENCE: Figure 5-17 (5/66)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1 ✓		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
2 ✓		Dents or distortion of outer surfaces	1.0	Visual	None allowed
3 ✓	A	Inside diameter of pilot bore	1.0	Measure	Diameter must be no greater than 4.2535 inches
4 ✓	B	Inside diameter of dowel pin hole	1.0	Measure	Diameter must be no greater than 0.5015 inch



KNURL SURFACE
 FOR IDENTIFICATION
 25958

IMPROVED 600,000 CENTISTROKE DAMPER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

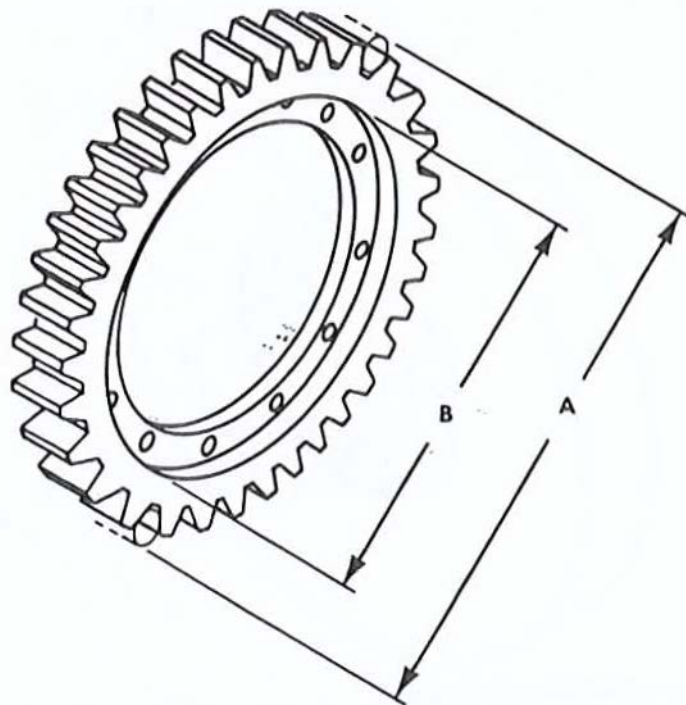
OIP 10898778

**ITEM: GEAR, SPUR:
accessory drive**

REFERENCE: Figure 5-17 (5/66)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces, chipped, broken, or missing teeth	2.5	Visual	None allowed
3	A	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 12.7185 inches
4	B	Inside diameter of pilot bore	1.0	Measure	Diameter must be no greater than 9.7530 inches



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTDN PROCEDURE

DMWR 9-2815-220

OIP 10912453

ITEM: FLYWHEEL ENGINE
 (Models AVDS-1790-2C
 and AVDS-1790-2D only)

REFERENCE: Figure 5-17 (5/66)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	^{VISUAL} Magnetic particle	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter of crankshaft pilot bore in flywheel	1.0	Measure	Diameter must be no greater than 8.0020 inches
4	B	Inside diameter of dowel pin holes (2 places)			
		Standard	1.0	Measure	Diameter must be no greater than 0.6272 inch
		0.0050 oversize	1.0	Measure	Diameter must be no greater than 0.6325 inch
		0.0100 oversize	1.0	Measure	Diameter must be no greater than 0.6375 inch
		0.0150 oversize	1.0	Measure	Diameter must be no greater than 0.6425 inch

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

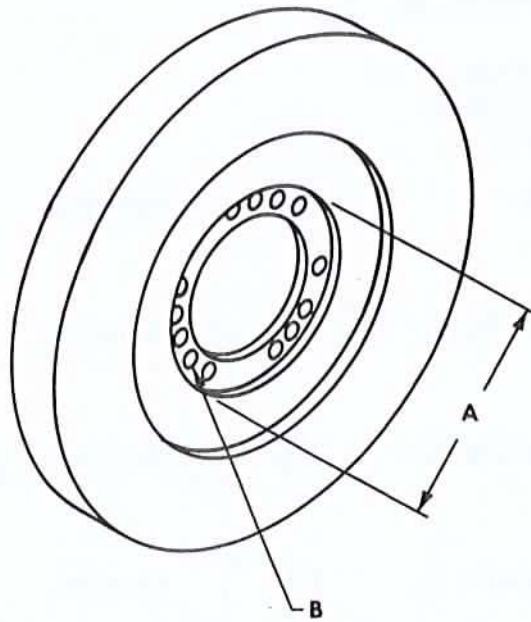
ITEM: FLYWHEEL
 (Model AVDS-1790-2C
 and AVDS-179A-2D only)

OIP 10912453

REFERENCE: Figure 5-17 (5/66)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ¹²²⁵⁴²⁴⁹ 8682734

ITEM: CRANKSHAFT, ENGINE ~~assembly~~

REFERENCE: Figure 5-17 (5/66)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed <i>IN ACCORDANCE WITH DRAWING 12254238</i>
2	/	Scratches, nicks, burs, grooves, gouges, raised metal, galling, scuffing, discoloration on contact surfaces or fillets	2.5	Visual	None allowed
3	/	Threads for damage	2.5	Visual	None allowed
4	/	Missing, damaged, loose dowels damaged dowel holes	2.5	Visual	None allowed
5	A /	Outside diameter of flywheel hub	1.0	Measure	Diameter must be no less than 7.9970 inches
6	B /	Outside diameter of accessory drive mounting flange	1.0	Measure	Diameter must be no less than 9.7470 inches
7	C ✓	Inside width of main thrust journal	1.0	Measure	Width must be no greater than 2.5030 inches
8	D /	Outside diameter of main journals			
	/	Standard	1.0	Measure	Diameter must be no less than 4.2485 inches
	/	0.0030 undersize	1.0	Measure	Diameter must be no less than 4.2455 inches
	/	0.0100 undersize	1.0	Measure	Diameter must be no less than 4.2385 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ¹²²⁵⁴²⁴⁹ 8682734

ITEM: CRANKSHAFT, ENGINE:
assembly - Continued

REFERENCE: Figure 5-17 (5/66)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
9 ✓		Maximum runout of journals no. 2, 4 and 6 with shaft mounted on no. 1 and no. 7 journals	1.0	Measure	Maximum runout must be within 0.0150 (TIR)
10 ✓		Maximum runout of journal no. 4 with shaft mounted on no. 1 and no. 7 journals	1.0	Measure	Maximum runout must be within 0.0250 (TIR)
11 ✓		Maximum out-of-round of crankpins and journals	1.0	Measure	Maximum out-of-round must be no greater than 0.0010 inch
12 ✓	E	Outside diameter of connecting rod journals	1.0	Measure	Diameter must be no less than 3.7485 inches
		Standard	1.0	Measure	Diameter must be no less than 3.7485 inches
		0.0030 undersize	1.0	Measure	Diameter must be no less than 3.7455 inches
		0.0100 undersize	1.0	Measure	Diameter must be no less than 3.7385 inches
13 ✓	F	Inside width of connecting rod journal	1.0	Measure	Diameter must be no greater than 3.1520 inches
14 ✓	G	Outside diameter of damper hub	1.0	Measure	Diameter must be no less than 4.2475 inches

10
 MAXIMUM RUNOUT OF 1.0 MEASURE
 JOURNALS NO. 3 AND 5 WITH
 SHAFT MOUNTED ON NO. 1 AND NO. 7 JOURNALS
 MAXIMUM RUNOUT
 MUST BE WITHIN
 0.0200 (TIR)

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

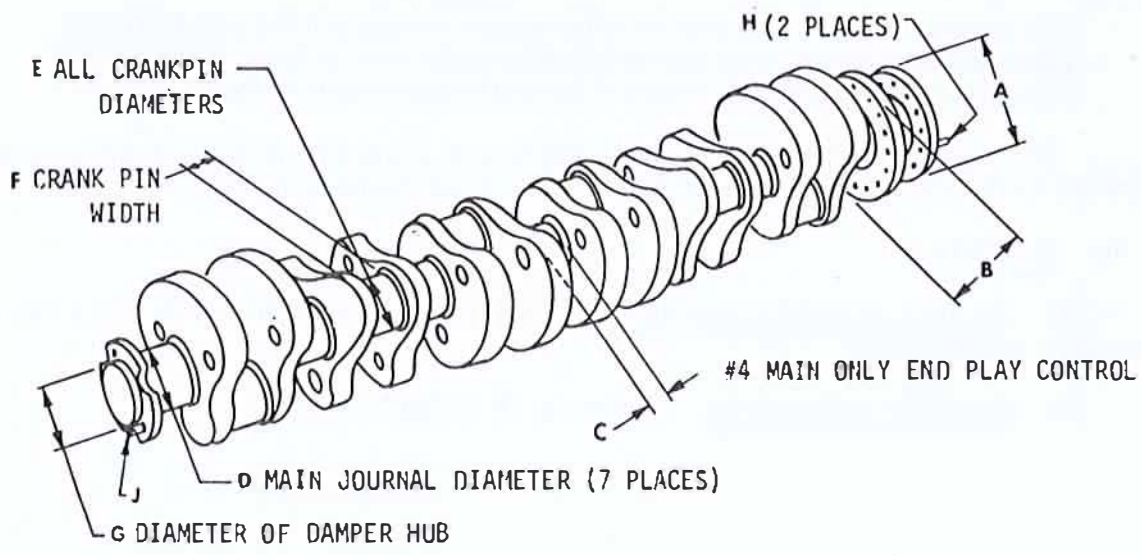
OIP ~~8682734~~ 12254249

ITEM: CRANKSHAFT, ENGINE:
assembly - Continued

REFERENCE: Figure 5-17 (5/66)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1514	H	Outside diameter of dowel pins, fly-wheel end (2 places)			
		Standard	1.0	Measure	Diameter must be no less than 0.6255 inch
		0.0050 oversize part no. 8717298	1.0	Measure	Diameter must be no less than 0.6305 inch
		0.0100 oversize part no. 8717299	1.0	Measure	Diameter must be no less than 0.6355 inch
		0.0150 oversize	1.0	Measure	Diameter must be no less than 0.6405 inch
151517	J	Outside diameter of dowel pin, damper end.	1.0	Measure	Diameter must be no less than 0.5001 inch



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5-21. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5). Replace crankshafts that are deeply scratched, nicked, burred, scuffed, or galled. Minor imperfections in the journals may be repaired by polishing with a crocus cloth dipped in dry cleaning solvent (P-D-680, Type II).

(2) Crankshaft assembly.

(a) Crankshaft. Crankshafts that are worn beyond standard wear limits specified in the overhaul standards (table 5-5) (5/71), or with journal or crank pin damage may be ground undersize to the limits listed in table 5-5 (5/71).

(b) Crank pins and journals. If any of the crank pins or journals are found unserviceable, it will be necessary to grind all crank pins or journals uniformly undersize to maintain the balance of the crankshaft. Extreme care must be taken when grinding to maintain the concentricity of the entire crankshaft and not to exceed a surface roughness of 12 micro inches. All radii on the crank pins and journals, affected by grinding undersize, must be re-established to original configuration. The crankshaft crank pins and journals must be inspected by magnetic particle, or similar method, for fractures and surface cracks after grinding.

(c) Dowel pins and straight pins. Replace dowel pins and straight pins in crankshaft flanges if pins do not fit securely in flange, are out-of-round, or if pins do not conform to limits specified in the OIP's. If applicable, grind pins (Crankshaft end) to standard size, thus eliminating the reaming of the crankshaft flange.

NOTE

The headless grooved dowel pins in the flywheel are available in 0.005 inch, 0.010 inch ~~and 0.015 inch~~ oversize. Grind the ~~crankshaft end of the~~ oversize dowel pins to standard size, no less than 0.6255 inch, instead of reaming the mounting flange holes.

(d) Crankshaft replacement. Replace a cracked crankshaft or a crankshaft showing evidence of wear due to bent or twisted connecting rods.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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Section V. OVERHAUL OF GENERATOR DRIVE ASSEMBLY

5-22. General. This section covers overhaul of the generator drive assembly (fig. 5-18) (5/91). Specific instructions for cleaning, inspection, and repair are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are included. Stud identification information is also included in the repair procedures.

5-23. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a and e (5/1) for general instructions on cleaning the generator drive assembly and associated parts.

5-24. Inspection.

a. General Inspection. Inspect the generator drive assembly and associated parts according to instructions in paragraph 5-4 (5/2) and OIP's included in this section. Wear limits, fits, and tolerances for the generator drive assembly are listed in table 5-6 (5/92). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits and tolerances.

b. Models AVDS-1790-2C ^{AND AVDS-1790-2CA} Gear-slip Clutch. ~~The~~ Models AVDS-1790-2C ^{AND AVDS-1790-2CA} gear slip clutch is inspected using the following procedure.

- (1) Place gear into bench fixture (fig. 5-19) (5/96). Then place adapter (fig. 5-19) (5/96) onto matching base and secure with two (2) washers and two (2) nuts.
- (2) Fasten plate (fig. 5-19) (5/96) to adapter using six (6) bolts.
- (3) Insert splined shaft (fig. 5-20) (5/96) into gear assembly and clamp using vee band clamp (fig. 5-19) (5/96) from the generator assembly.
- (4) Using ^{300 POUND-FEET} torque wrench as shown in figure 5-21 (5/97), check the slip torque for no excursion in either direction at 167 pounds-feet at ambient 75° F temperature.
- (5) Note deflection in degrees from zero to 167 pound-feet torque. If rotation is less than 8 degrees or greater than 17 degrees, the drive gear is defective and must be replaced.

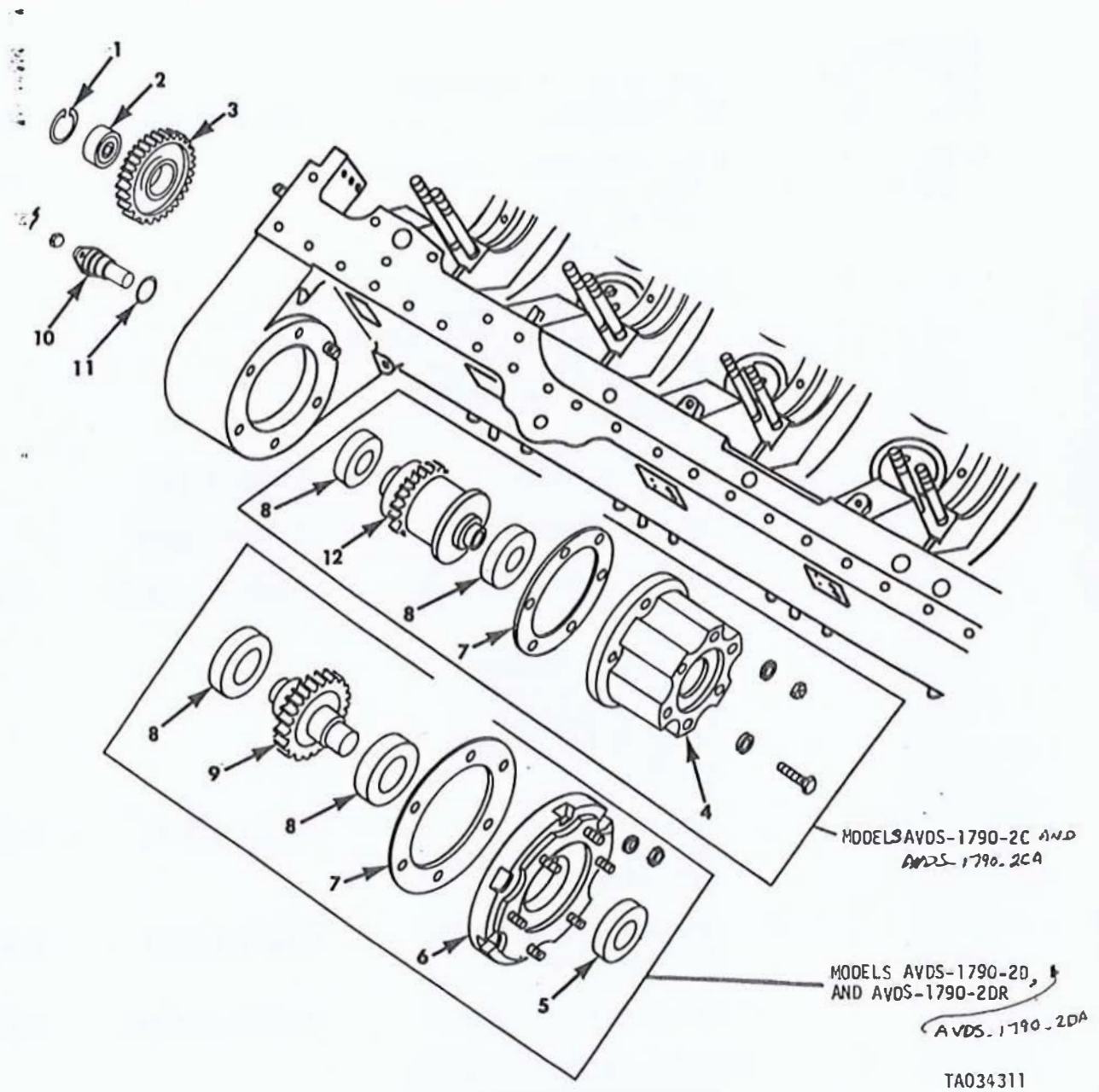


Figure 5-18. Generator drive assembly.

Item No. 1 - EXTREME DIFF IN PRICE PER PART MADE BETWEEN STEEL-CAD (1281)* ~~MS16625-3281~~ OVER ~~MS16625-1281~~ CHEAPER \$9.00 ~~each~~

Table 5-6. Wear Limits, Fits, and Tolerances for Generator Drive Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-18 (5/91)	1	RING, RETAINING: generator idler gear - part no. MS16625-3281 (MS16625-1281)		Replace
	2	BEARING, BALL ANNULAR: generator idler gear - part no. (5306W-2135) 714090 Refer to TM 9-214 for inspection and care of bearings		
	✓	Inside diameter	1.1807-1.1811	*
	✓	Outside diameter	2.8341-2.8346	*
		Fit of idler gearshaft in bearing	0.0001T-0.0007L	0.0009L
	3	GEAR, SPUR: generator driven drive idler - part no. 8682689 Refer to OIP 8682689 (5/98)		
	✓	Inside diameter of bearing bore in generator idler gear	2.8334-2.8346	2.8348
	✓	Dimensions over 0.2000 diameter pins	6.6150-6.6200	6.6125
	✓	Fit of bearing in gear	0.0005L-0.0012T	0.0007L
	4	HOUSING, MECHANICAL DRIVE: generator adapter - part no. 11642079 (MODELS AVDS. 1790-2C AND AVDS. 1790-2CA) Refer to OIP 11642079 (5/93)		
✓	Inside diameter of bearing bore	2.8346-2.8353	2.8356	

Table 5-6. Wear Limits, Fits, and Tolerances for Generator Drive Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-18 (5/91) continued	4 -	✓ Fit of bearing in adapter	0.0000-0.0012L	0.0015L
	5	SEAL, PLAIN/ ENCASED: generator drive SHAFT - part no. 11668628 (MODELS AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR)		Replace
	6	ADAPTER, GENERATOR part no. 10882773 (MODELS AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR) Refer to OIP 10882773 (5/100)		
		✓ Inside diameter of oil seal bore in adapter	2.2490-2.2510	*
		✓ Inside diameter of bear- ing bore in adapter	2.8346-2.8353	2.8356
		✓ Fit of bearing in adapter	0.0000-0.0012L	0.0015L
	7	GASKET: generator adapter - part no. 8761081		Replace
	8	BEARING, BALL, ANNULAR: generator drive DRIVEN GEAR SHAFT part no. 2007377 200080 Refer to TM 9-214 for (111X03502X0000-8398) inspection and care of bearings		
		✓ Inside diameter	1.3775-1.3780	*
		✓ Outside diameter	2.8341-2.8346	*
		✓ Fit of bearing in bore in crankcase	0.0000-0.0012L	0.0015L
	9	GEARSHAFT, SPUR: generator drive - part no. 8682814 (MODELS AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR) Refer to OIP 8682814 (5/101)		

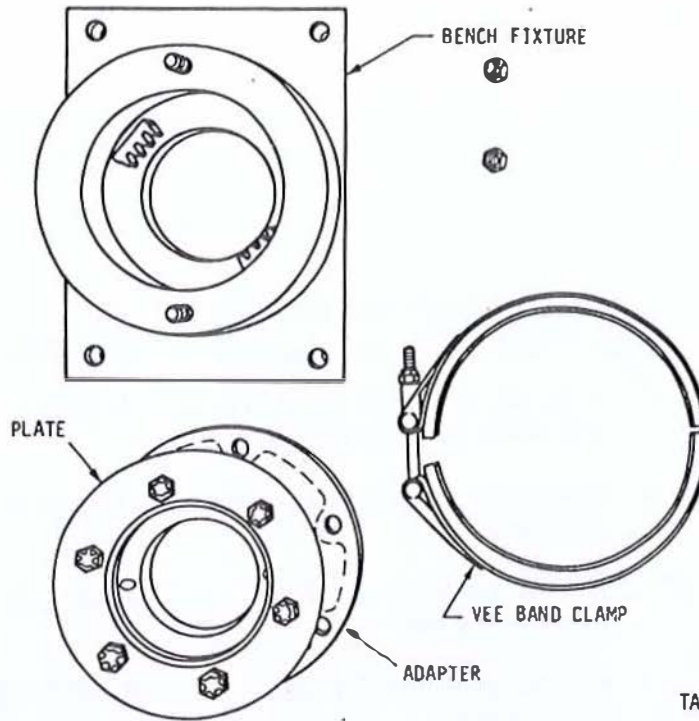
Table 5-6. Wear Limits, Fits, and Tolerances for Generator Drive Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit	
Fig. No.	Item No.				
5-18 (5/91) continued	9 -	✓ Outside diameter of bearing hubs on gearshaft	1.3781-1.3785	1.3779	
		✓ Dimension between 0.0900 diameter pins	0.6621-0.6665	0.6687	
		✓ Dimension over 0.2000 diameter pins	4.1670-4.1720	4.1645	
		✓ Fit of bearings on gearshaft hubs	0.0001T-0.0010T	0.0001L	
		10	SHAFT, SHOULDERED: SHAFT, IDLER GEAR: generator driven drive IDLER GEAR part no. 8761440 Refer to OIP 8761440 (5/102)		
		✓ Outside diameter of idler gearshaft	1.1804-1.1808	1.1802	
	✓ Fit of bearing on idler gearshaft	0.0001T-0.0007L	0.0009L		
11	PACKING, PREFORMED: generator driven drive idler gearshaft - part no. MS28775-223		Replace		
12	GEAR-SLIP CLUTCH, GENERATOR ^{SPUR:} DRIVE - part no. 11682722 Refer to OIP 11682722 (5/103)	GENERATOR DRIVE - (MODELS AVDS-1790-2C AW) AVDS-1790-2CA)			

Table 5-6. Wear Limits, Fits, and Tolerances for Generator Drive Assembly - Continued

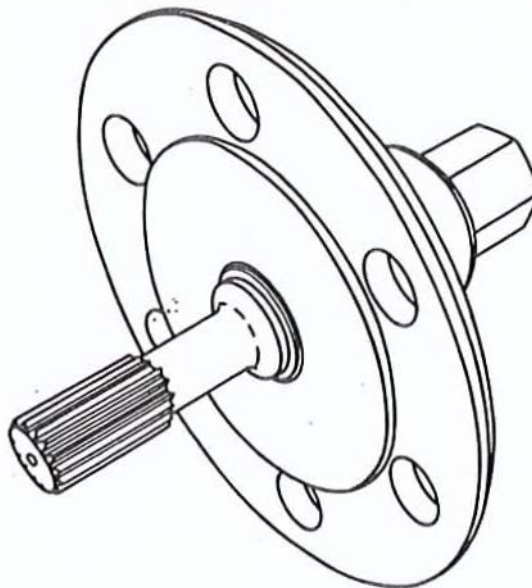
<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-18 (5/91) continued	12 -	✓ Outside diameter of bearing hubs on gearshaft	1.3781-1.3785	1.3779
		✓ Dimension between 0.0900 diameter pins	0.6621-0.6665	0.6687
		✓ Dimension over 0.2000 diameter pins	4.1670-4.1720	4.1645
		✓ Fit of bearings on gearshaft hubs	0.0001T-0.0010T	0.0001L

DMWR 9-2815-220



TA034313

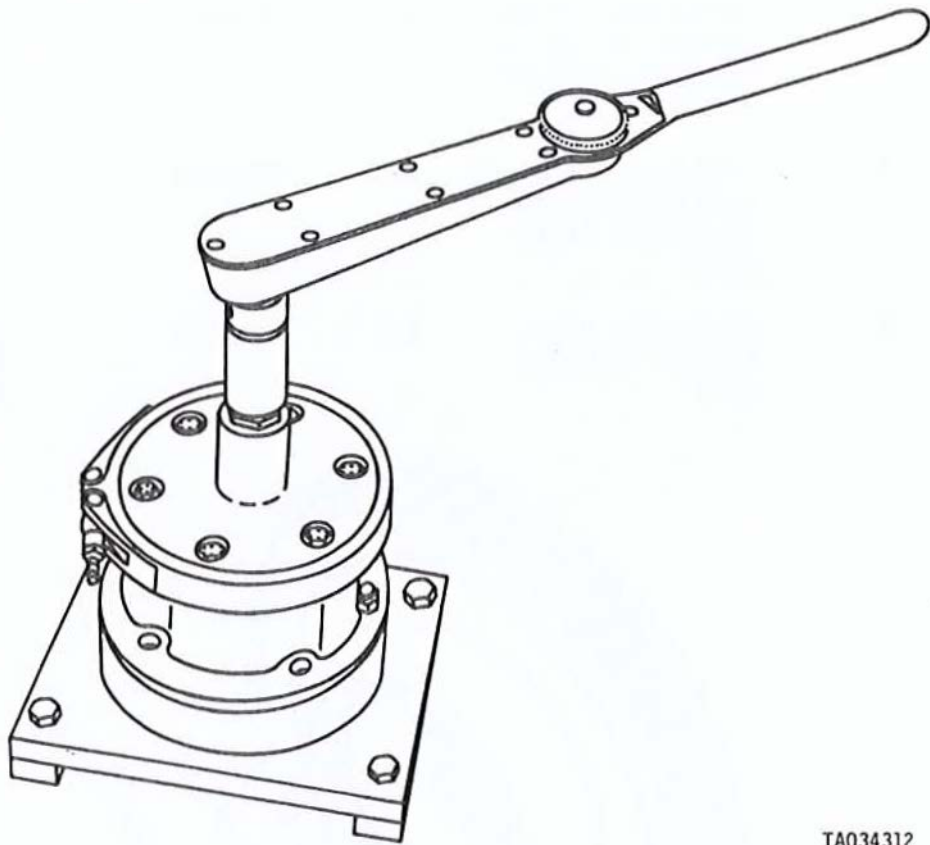
Figure 5-19. Torque checking fixture assembly-special parts.



TA034314

Figure 5-20. Splined shaft.

DMWR 9-2815-220



TA034312

Figure 5-21. Special fixture assembly-generator gear slip clutch torque checking.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

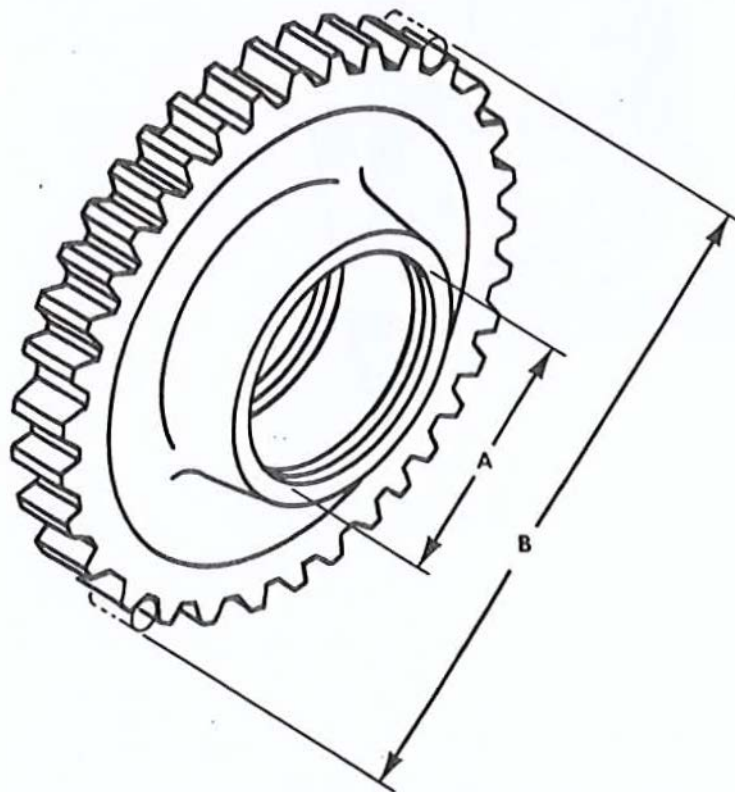
OIP 8682689

**ITEM: GEAR, SPUR:
generator driven drive idler**

REFERENCE: Figure 5-18 (5/91)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A /	Inside diameter of bearing bore in generator idler gear	1.0	Measure	Diameter must be no greater than 2.8348 inches
4	B /	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 6.6125 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

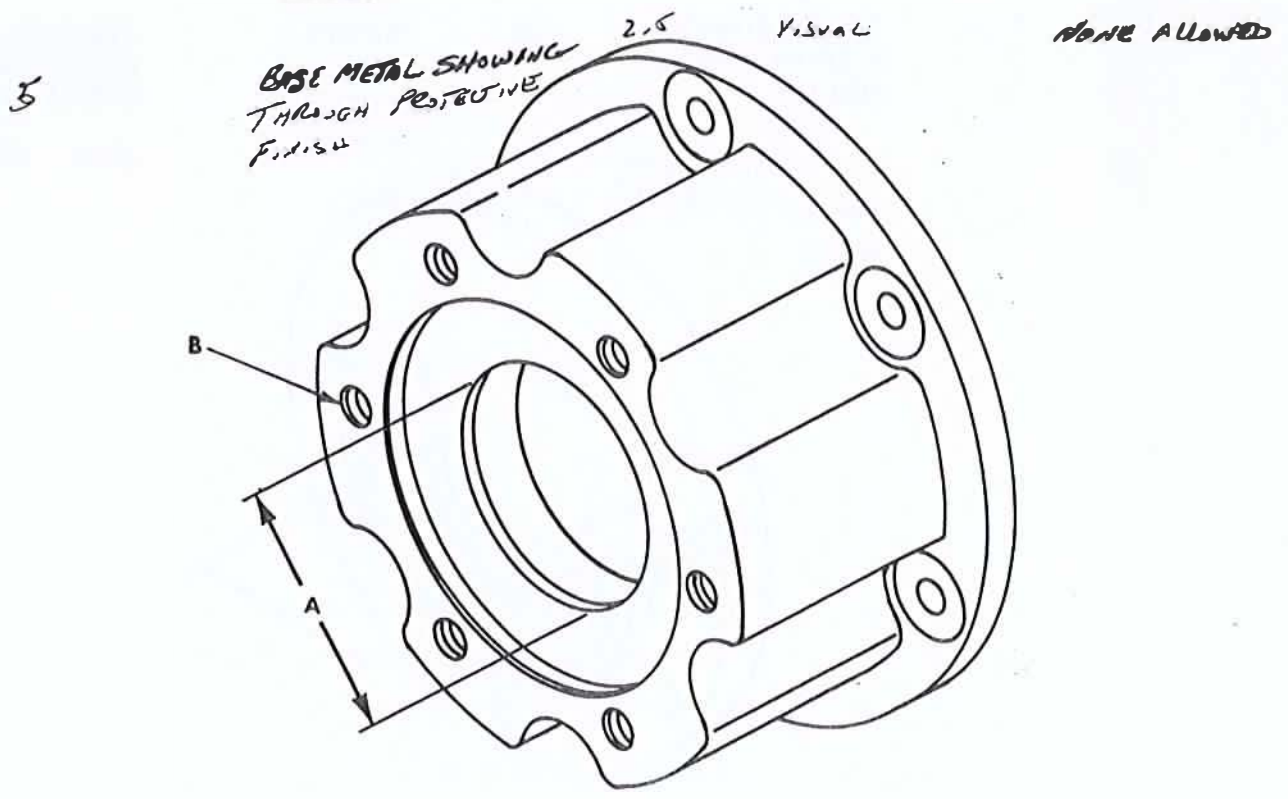
OIP 11642079

ITEM: HOUSING, MECHANICAL DRIVE:
generator adapter
~~HOUSING, MECHANICAL DRIVE~~

REFERENCE: Figure 5-18 (5/91)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	MAGNETIC VISUAL	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	/ A	Inside diameter of bearing bore	1.0	Measure	Diameter must be no greater than 2.8356 inches
4	/ B	Check for damaged threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ADAPTER, GENERATOR:
 (Models AVDS-1790-2D and
 AVDS-1790-2DR)

OIP 10882773

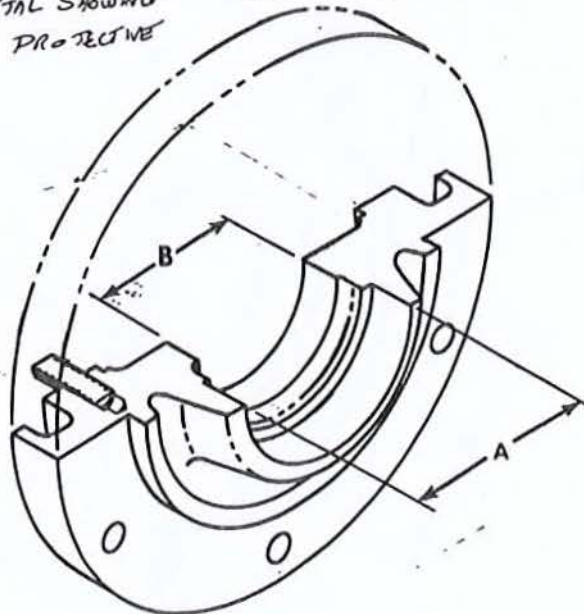
REFERENCE: Figure 5-18 (5/91)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Visual VISUAL	None allowed
2	✓	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓	Damaged or missing studs	2.5	Visual	None allowed
4	A ✓	Inside diameter of oil seal bore in adapter	1.0	Measure	Diameter must be no greater than 2.2510 inches
5	B ✓	Inside diameter of bearing bore in adapter	1.0	Measure	Diameter must be no greater than 2.8356 inches

6

BASE METAL SHOWING THROUGH PROTECTIVE FINISH 2.5 - VISUAL NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

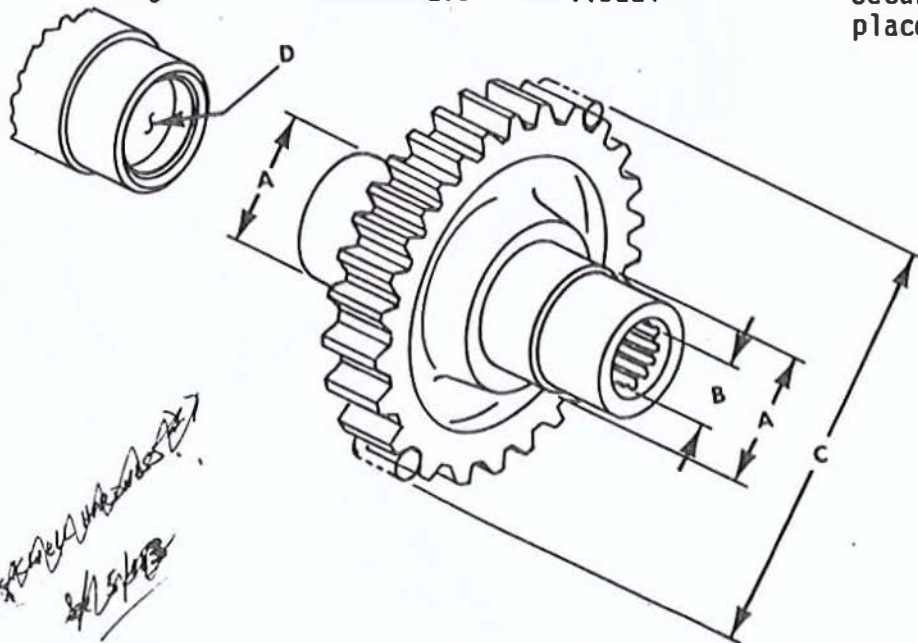
OIP 8682814

ITEM: GEARSHAFT, SPUR:
generator drive ~~1790-20 and 1790-20B~~
~~1790-20 and 1790-20B~~

REFERENCE: Figure 5-18 (5/91)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A ✓	Outside diameter of bearing hubs on gearshaft	1.0	Measure	Diameter must be no less than 1.3779 inches
4	B ✓	Dimension between 0.0900 diameter pins	1.0	Measure	Diameter must be no greater than 0.6687 inch
5	C ✓	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 4.1645 inches
6	D ✓	Plug	2.5	Visual	Securely in place



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

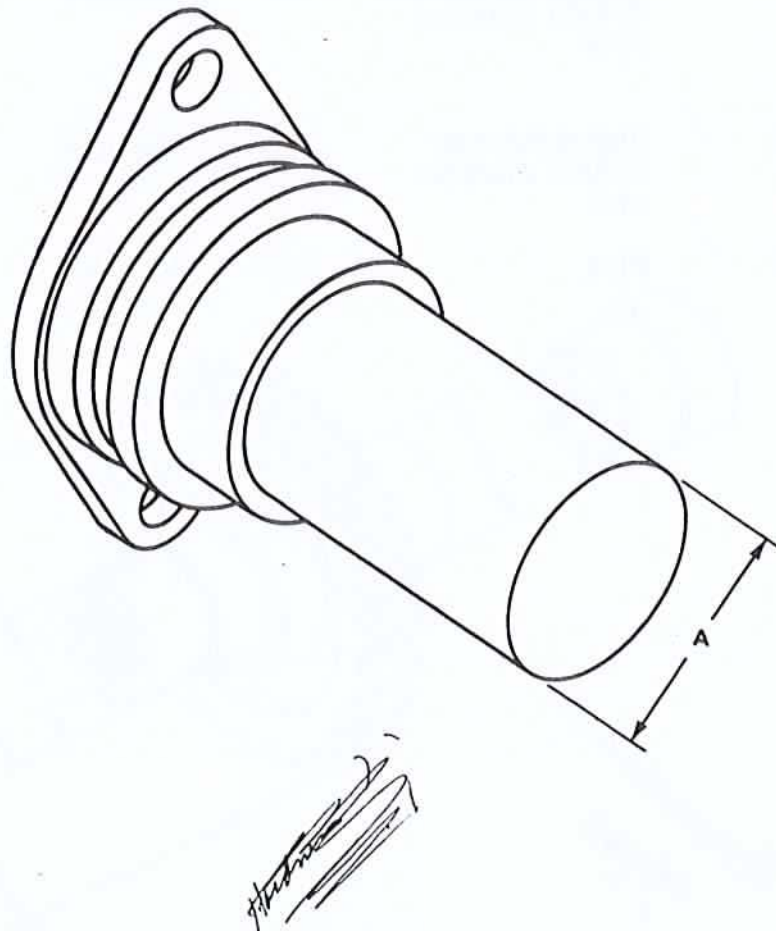
ITEM: ~~SHAFT IDLER GEAR~~
 SHAFT, SHOULDERED:
 generator driven drive ~~SHAFT~~ IDLER GEAR

OIP 8761440

REFERENCE: Figure 5-18 (5/91)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic Particle VISUAL	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ A	Outside diameter	1.0	Measure	Diameter must be no less than 1.1802 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: GEAR-SLIP CLUTCH, ^{SPUR:} ~~GENERATOR DRIVE~~
 (Mother ~~AVDS-7790-2G~~)
 GENERATOR DRIVE

OIP 11682722

REFERENCE: Figure 5-18 (5/91)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic Particle VISUAL	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A /	Outside diameter of bearing hubs on gear	1.0	Measure	Diameter must be no less than 1.3779 inches
4	B /	Dimension between 0.0900 diameter pins	1.0	Measure	Diameter must be no greater than 0.6687 inch
5	C /	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 4.1645 inches
6		Slip torque	1.0	Measure Refer to paragraph 5-24, b (5/90)	No excursion at 167 pound-feet of torque and ambient 75°F temperature
7		Deflection	1.0	Measure Refer to paragraph 5-24, b (5/90)	Must not be less than 8 degrees nor greater than 17 degrees at 167 pound-feet torque

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

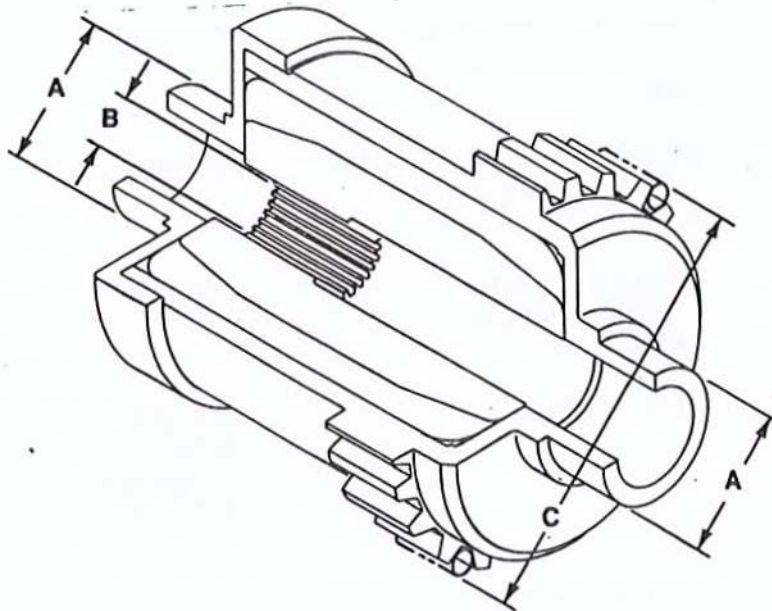
ITEM: GEAR-SLIP CLUTCH, ^{SPUR:} GENERATOR DRIVE
~~(GENERATOR DRIVE)~~
 GENERATOR DRIVE

OIP 11682722

REFERENCE: Figure 5-18 (5/91)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-25. Repair and Assembly.

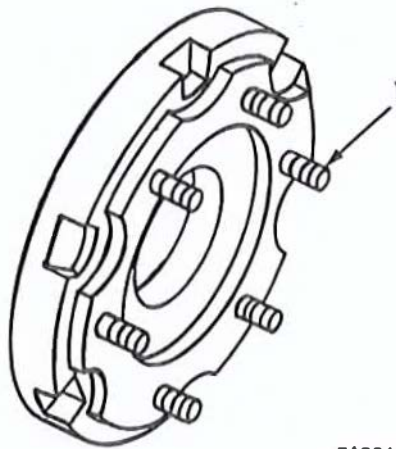
a. Repair

(1) General repair procedures. Refer to paragraph 5-5 (5/5) for general repair procedures.

(2) Replacement of damaged studs. Refer to paragraph 5-5, d (5/6), table 5-7 (5/104), and figure 5-22 (5/104) when replacing generator drive studs.

Table 5-7. Generator Drive Standard Stud Identification

References fig. no.	item no.	Setting height	No. reqd.	Stud size and length
5-22 (5/104)	1	7/8 /	6 /	3/8-16 (15/64) x 3/8-24 (5/8) x 23/32 1-13/32 (5/64)



TA034315

Figure 5-22. Generator drive standard stud identification.

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Population	100	100	100	100	100	100	100	100	100	100	100
...



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5-25. (Cont)

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

BLANK

FRAME

Section VI. OVERHAUL OF STARTER DRIVE ASSEMBLY

5-26. General. This section covers overhaul of the starter drive assembly (fig. 5-23) (5/107). Specific instructions on cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are also included.

5-27. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general instructions on cleaning the starter drive assembly.

5-28. Inspection. Inspect the starter drive assembly according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the starter drive assembly are listed in table 5-8 (5/108). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

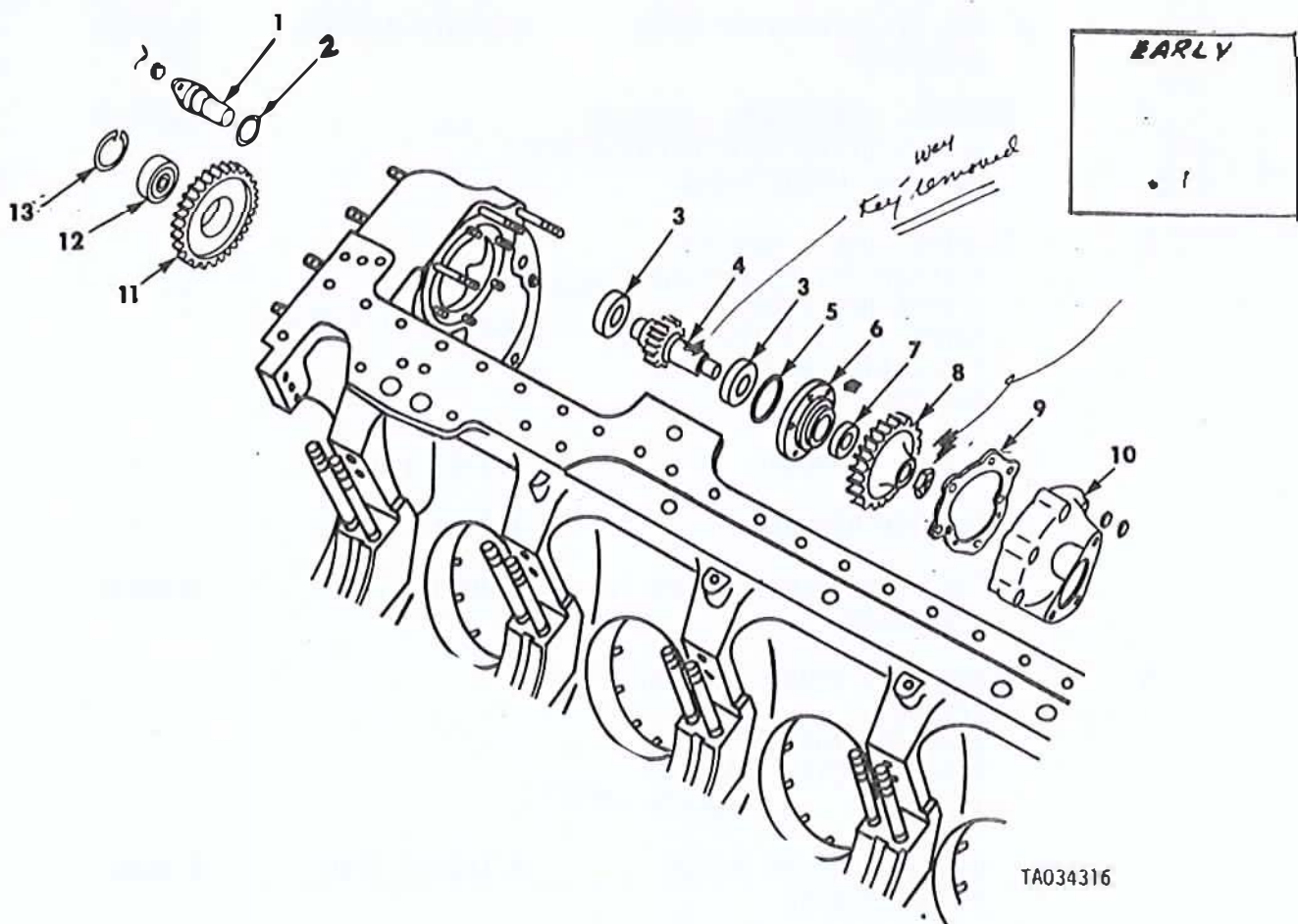


Figure 5-23. Starter drive assembly.

Table 5-8. ~~Wear~~ Limits, Fits, and Tolerances for Starter Drive Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-23	1	SHAFT, IDLER GEAR: ^{SHOULDERED:} starter driven drive - part no. 10898915 Refer to OIP 10898915 (5/111)		
(5/107)		✓ Shaft outside diameter	1.1804-1.1808	1.1802
		✓ Fit of bearing on idler gearshaft	0.0001T-0.0007L	0.0009L
	2	PACKING, PREFORMED: starter driven drive SHAFT TO CRANKCASE part no. MS28775-223		Replace
	3	BEARING, BALL, ANNULAR: starter driven shaftgear - part no. 700731 ⁷⁰⁰⁰⁸⁰ Refer to TM 9-214 for (111X03502X0000-81348) inspection and care of bearings		
		✓ Inside diameter	1.3775-1.3780	*
		✓ Outside diameter	2.8341-2.8346	*
		Fit of bearing in bore in crankcase	0.0000-0.0012L	0.0015L
	4	GEARSHAFT, SPUR: starter driven - part no. 10898779 Refer to OIP 10898779 (5/112) ⁽¹⁰⁸⁹⁸⁷⁷⁹⁻⁰²⁹⁷⁸⁾		
		✓ Dimension over 0.2000 diameter pins	3.1690-3.1740	3.1665
		✓ Outside diameter of bearing hubs on gearshaft	1.3781-1.3785	1.3779

Table 5-8. Wear Limits, Fits, and Tolerances for Starter Drive Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-23 (5/107) continued	4 -	✓ Outside diameter of seal surface	1.3700-1.3720	1.3690
		✓ Fit of bearing on gear- shaft hubs	0.0001T-0.0010T	0.0001L
	5	PACKING, PREFORMED: starter driven shaftgear BEARING CAGE - part no. MS28775-236		Replace
	6	HOUSING, BEARING UNIT. CAGE, BEARING ENGINE: starter driven GEARSHAFT - part no. 8761022 Refer to OIP 8761022 (5/114)		
		✓ Inside diameter of seal bore in cage	2.1240-2.1260	2.1270
		✓ Inside diameter of bear- ing bore in cage	2.8346-2.8353	2.8356
		✓ Fit of CAGE ^{BEARING IN CAGE} BEARING	0.0000-0.0012L	0.0015L
	7	SEAL, PLAIN, [✓] ENCASED: starter driven GEARSHAFT - part no. 11668614		Replace
	8	GEAR, SPUR: starter driven - part no. 8682691 Refer to OIP 8682691 (5/115)		
		✓ Dimension over 0.3000 diameter pins	5.8820-5.8870	5.8795
	9	GASKET: starter adapter - part no. 10912558		Replace

Table 5-8. Wear Limits, Fits, and Tolerances for Starter Drive Assembly - Continued

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-23 (5/107)	10	<i>BRACKET, MOUNTING:</i> ADAPTER, STARTER, ENGINE - part no. 8725275 <i>STARTER -</i> Refer to OIP 8725275 (5/116)		
	11	GEAR, SPUR: starter driven drive idler - part no. 10898777 Refer to OIP 10898777 (5/117)		
		✓ Inside diameter of bearing bore in idler gear	3.5419-3.5433	3.5440
		✓ Dimension over 0.2000 diameter pins	6.7280- 6.7224 ^{6.7340}	6.7250
		✓ Fit of bearing in gear	0.0006L-0.0014T	0.0013L
	12	BEARING, BALL, ANNULAR: starter driven drive idler - part no. (1406-08/62) ⁷⁰⁰⁵⁸⁰ Refer to TM 9-214 for inspection and care of bearings		
		✓ Inside diameter	1.1807-1.1811	*
		✓ Outside diameter	3.5427-3.5433	*
	13	RING, RETAINING: starter driven idler gear - part no. MS16625-3354 <i>(MS16625-1354)</i>		Replace

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

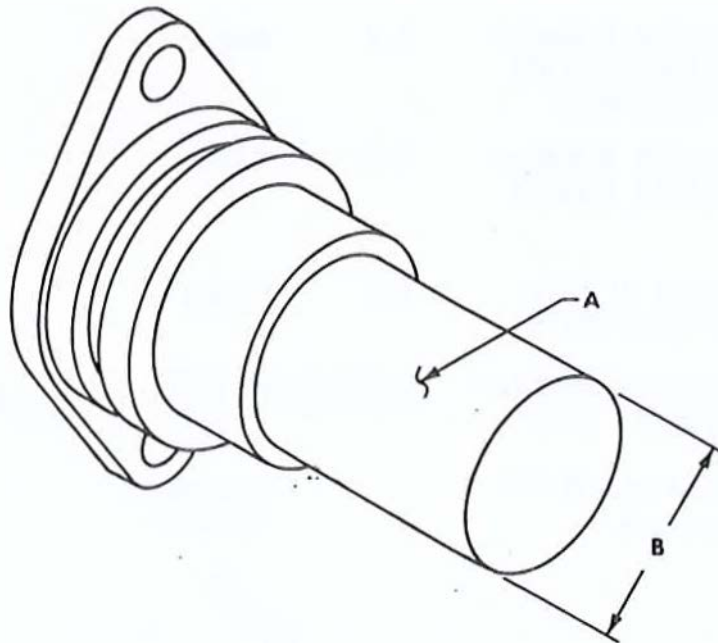
ITEM: ^{SHOULDERED:} SHAFT, ~~YOKER GEAR~~
starter driven drive

OIP 10898915

REFERENCE: Figure 5-23 (5/107)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual <i>VISUAL</i>	None allowed
2	A	Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3	B	Outside diameter	1.0	Measure	Diameter must be no less than 1.1802 inches



Handwritten signature

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10898779
(10898779-02978)

ITEM: GEARSHAFT, SPUR:
starter driven

REFERENCE: Figure 5-23 (5/107)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Magnetic particle	None allowed
2	✓	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓	Damaged threads	2.5	Visual	None allowed
4	✓ A	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 3.1665 inches
5	✓ B	Outside diameter of bearing hubs on gearshaft	1.0	Measure	Diameter must be no less than 1.3779 inches
6	✓ C	Outside diameter of seal surface	1.0	Measure	Diameter must be no less than 1.3690 inches
7	✓	Broken or chipped gear teeth	1.0	Visual	None allowed
8	✓	Worn or damaged keyway	1.0	Visual	None allowed
8	✓	CHECK AREA D FOR HARDNESS		HARDNESS TESTER	S8-62 ROCKWELL C

Handwritten notes and signatures:
 - *low depth of wear*
 - *check area D for hardness*
 - *check of part C31-42*
 - *S. K. [unclear]*

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

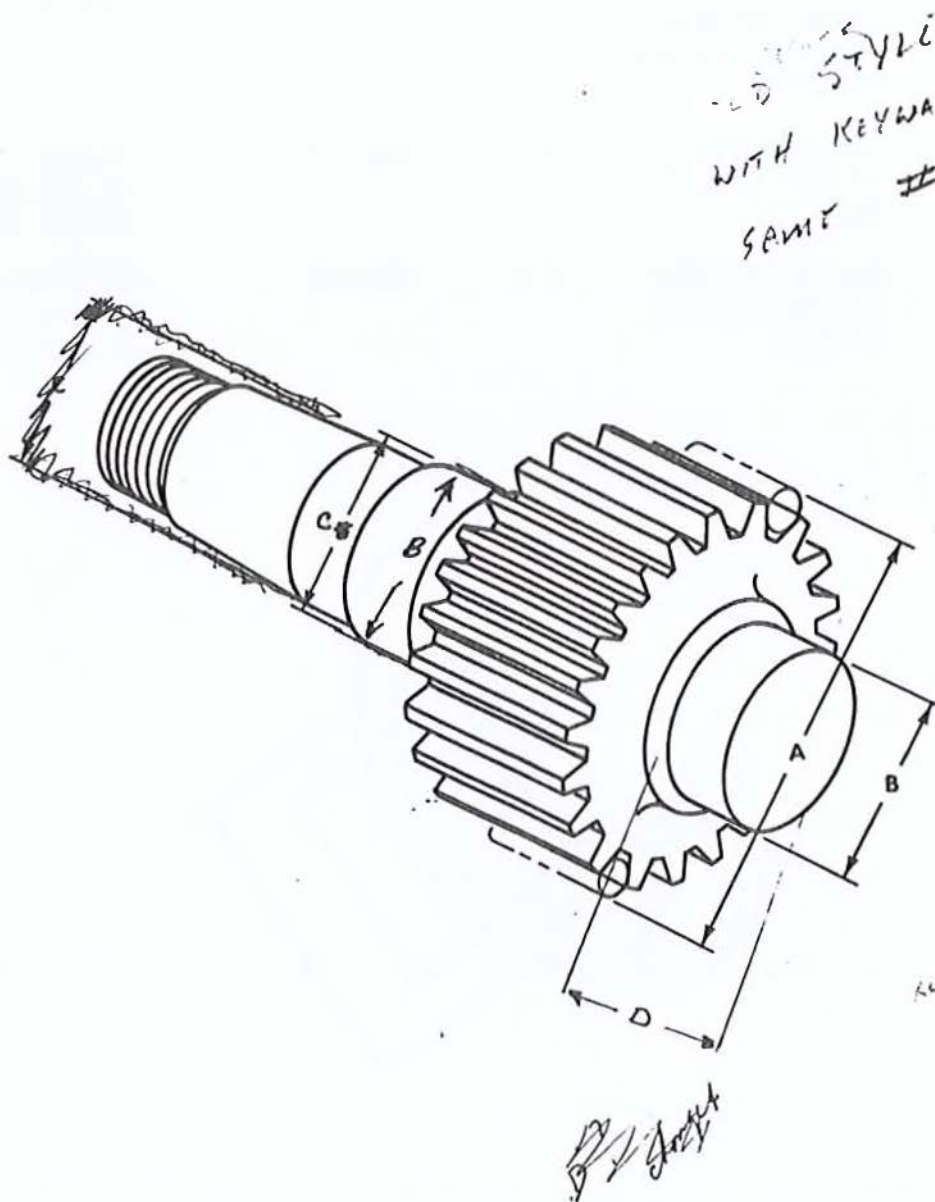
DMWR 9-2815-220

ITEM: GEARSHAFT, SPUR:
starter driven

OIP 10898779
(10898779-02978)
REFERENCE: Figure 5-23 (5 / 107)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

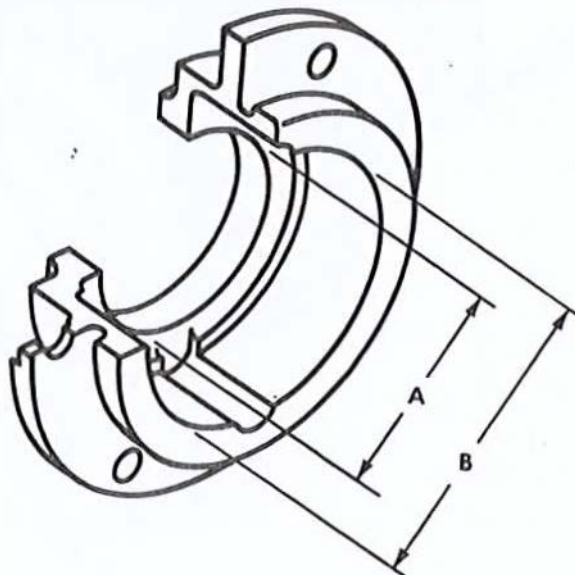
OIP 8761022

ITEM: ~~CAGE, BEARING ENGINE;~~
 HOUSING, BEARING UNIT:
 starter driven GEARSHAFT

REFERENCE: Figure 5-23 (5/107)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	A /	Inside diameter of seal bore in cage	1.0	Measure	Diameter must be no greater than 2.1270 inches
4	B /	Inside diameter of bearing bore in cage	1.0	Measure	Diameter must be no greater than 2.8356 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

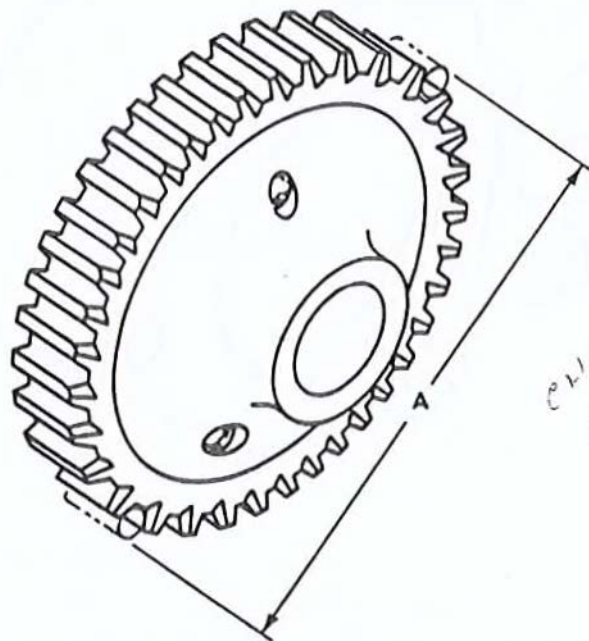
OIP 8682691

ITEM: GEAR, SPUR:
starter driven

REFERENCE: Figure 5-23 (5/107)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Broken or chipped gear teeth	1.0	Visual	None allowed
		Worn or damaged keyway	1.0	Visual	None allowed
4	A	Dimension over 0.3000 diameter	1.0	Measure	Diameter must be no less than 5.8795 inches



Key way removed

check old gear with keyway

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

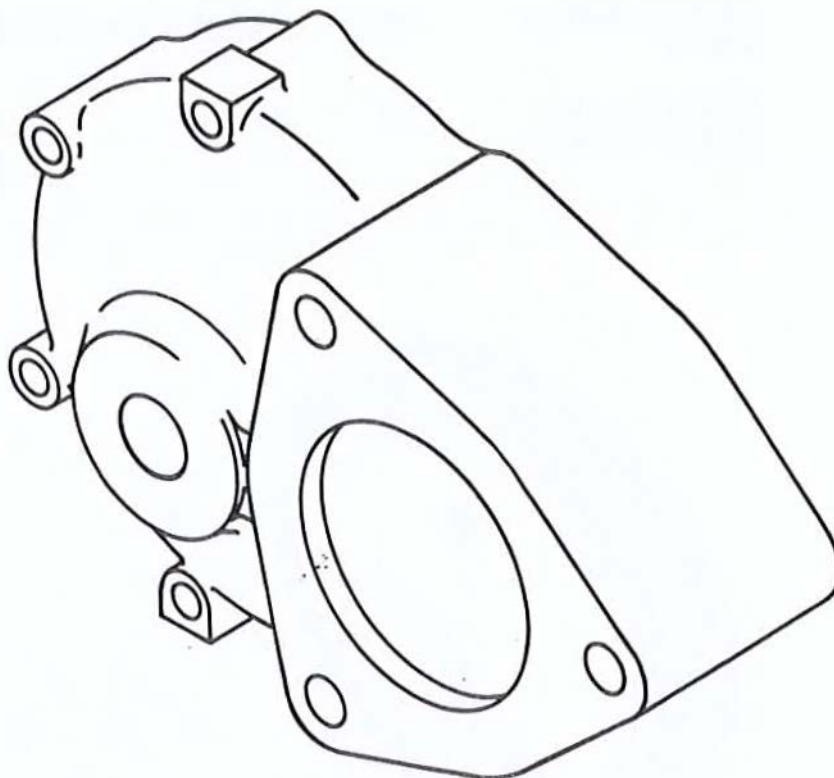
ITEM: *BRACKET, MOUNTING:*
~~ADAPTER, STARTER, ENGINE~~
STARTER

OIP 8725275

REFERENCE: Figure 5-23 (5/107)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

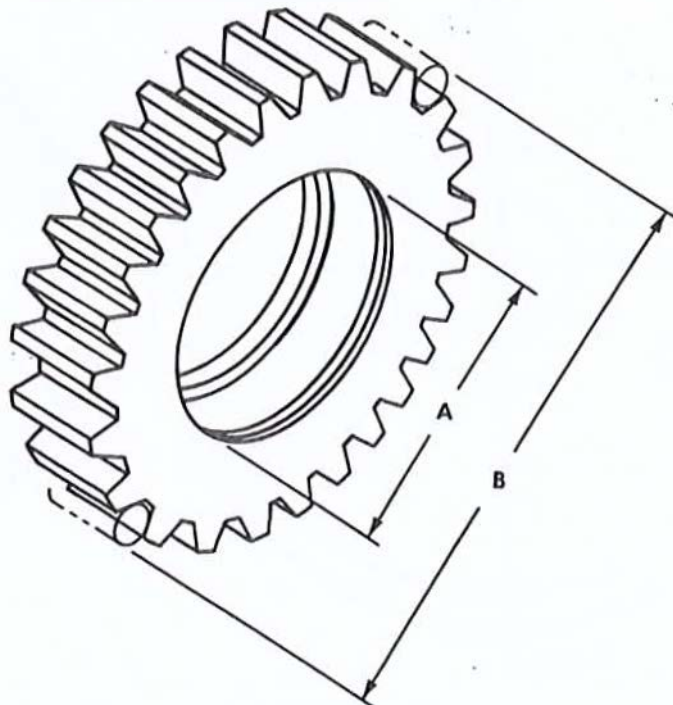
OIP 10898777

**ITEM: GEAR, SPUR:
starter driven drive idler**

REFERENCE: Figure 5-23 (5 / 107)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	/ A	Inside diameter of bearing bore in idler gear	1.0	Measure	Diameter must be no greater than 3.5440 inches
4	/ B	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 6.7250 inches
5	/	Chipped or broken gear teeth	1.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5-29. Repair and Assembly.

a. General Repair. Refer to paragraph 5-5 (5/ 5) for general repair instructions.

b. Starter Drive Gear Repair. Minor damage incurred to the leading edge of the starter drive gear may be repaired by regrinding the leading surface to dimensions as shown in figure 5-24 (5/118). Regrind gear tooth chamfer to original configuration after rework of starter drive leading face.

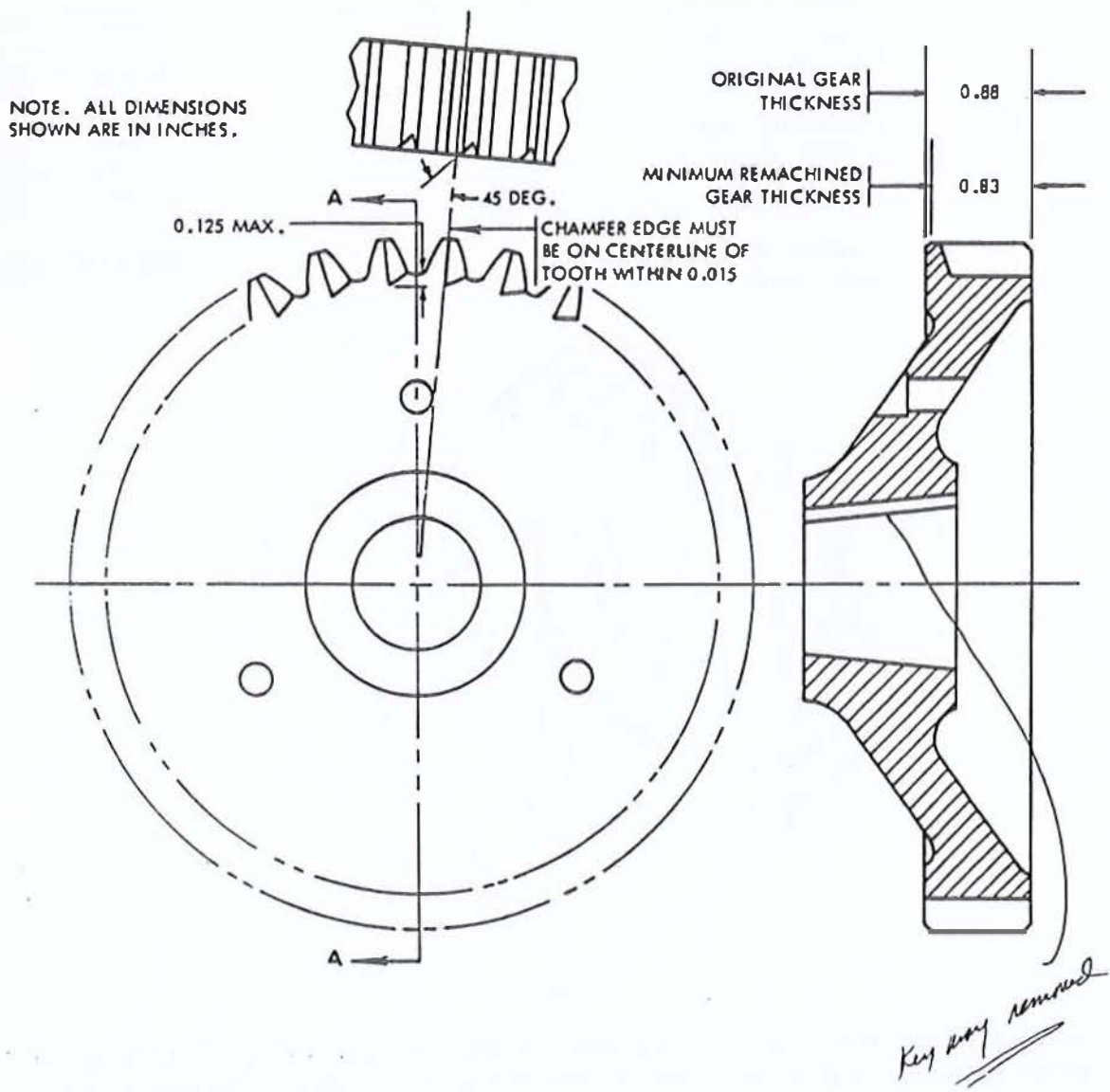


Figure 5-24. Starter drive gear - rework.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

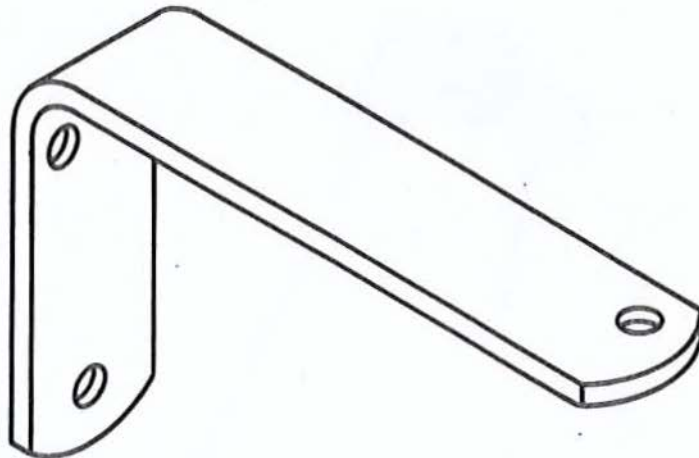
ITEM: ^{ANGLE BRACKET:}
~~BRACKET, ANGLE:~~
 manual fuel shutoff spring

OIP 11684032

REFERENCE: Figure 5-74 (5/493)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, gouges, or base metal exposed	0.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

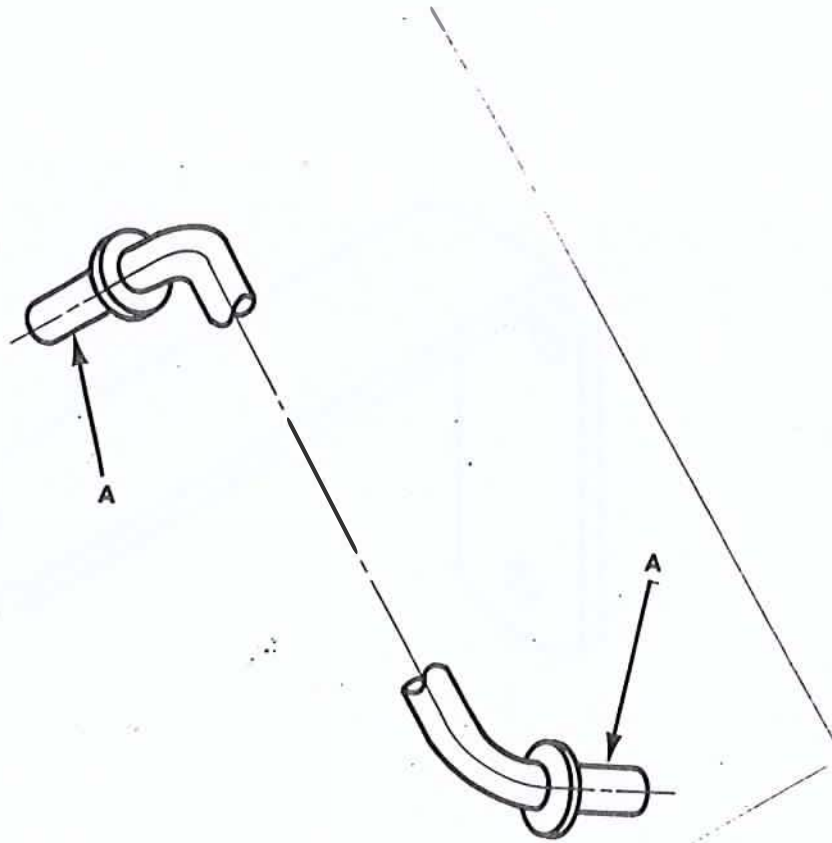
ITEM: *CONNECTING LINK RIGID.*
 ROD, CONTROL:
 manual fuel shutoff.

OIP 11684131

REFERENCE: Figure 5-74 (5/493)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks (including welds)	0.0	Visual	None allowed
2	A	Rod diameter outward from brazed collars.	0.0	Measure	Shall be no less than 0.2 ⁰⁰ / ₅ inch



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-29. (Cont)

c. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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Section VII. OVERHAUL OF PISTON AND CONNECTING ROD ASSEMBLY

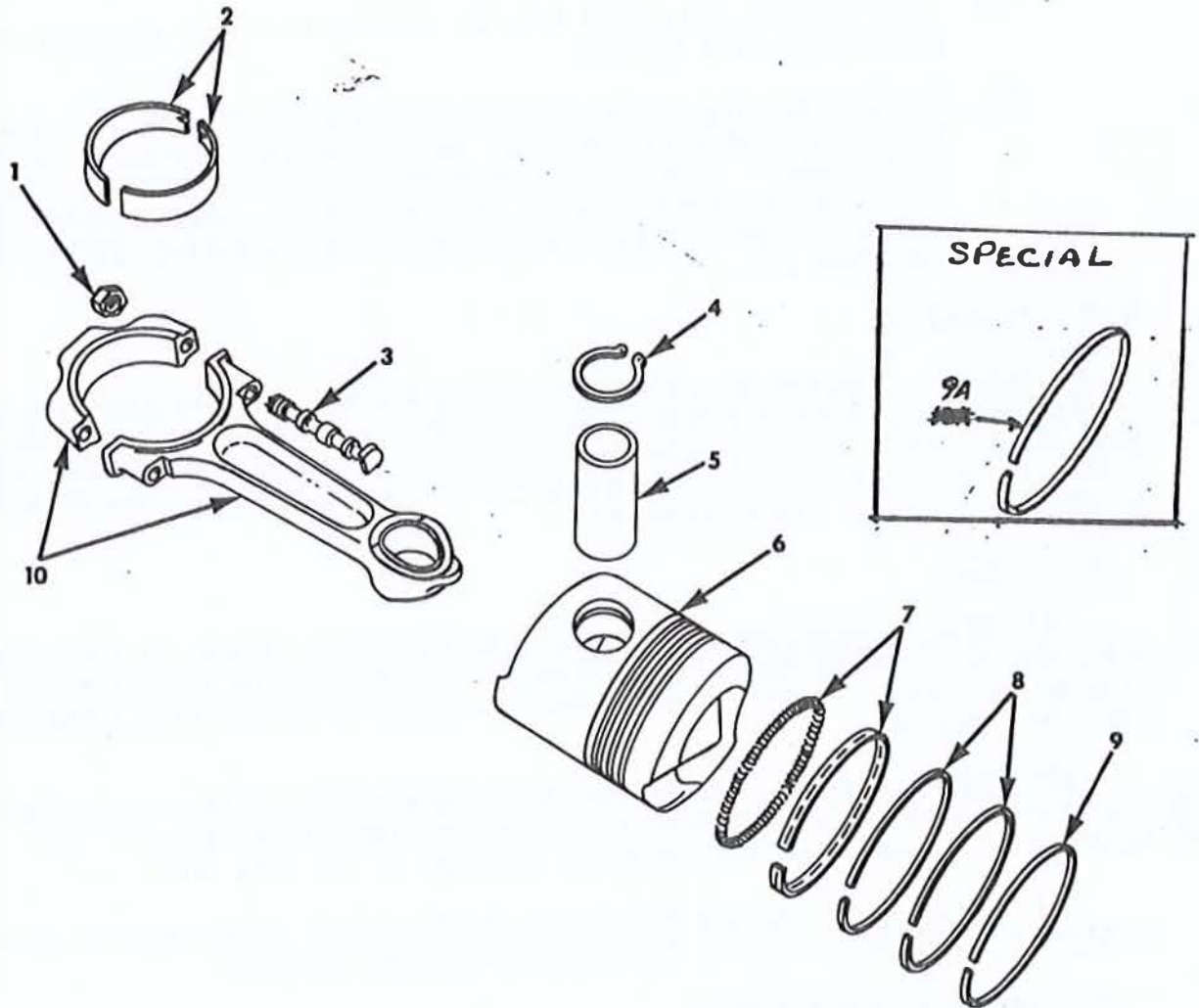
5-30. General. This section covers overhaul of the piston, connecting rod assembly, and associated parts (fig. 5-25) (5/121). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, and tolerances, and overhaul inspection procedures are also included.

5-31. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general instructions on cleaning the piston and connecting rod assembly.



TA034317

Figure 5-25. Piston and connecting rod assembly.

5-31. (Cont)

(2) Piston and piston pin.WARNING

Use goggles, rubber gloves, and rubber apron when cleaning parts in carbon removing compound. Provide adequate ventilation. Avoid inhalation of fumes and skin contact. If compound is splashed on skin, flush with fresh water and wash with alcohol. Alcohol containing 2 to 3 percent camphor is preferable.

- (a) Clean pistons and piston pins by soaking in carbon removing compound, MIL-S-12382 (Ord Type I).
- (b) Scrape remaining carbon deposits from piston ring grooves with a scraper or broken piston ring. Be careful not to scratch or gouge ring grooves. Clean oil drain holes and oil ring grooves in piston. Remove carbon from oil holes in ring grooves. Clean carbon from piston pins with crocus cloth dipped in dry cleaning solvent (P-D-680, Type II).

5-32. Inspection.

a. General. Inspect the piston and connecting rod assembly according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the piston and connecting rod assembly are listed in table 5-9 (5/125). See paragraph 5-4, b and c (5/ 3) for explanation of wear limits, fits and tolerances.

b. Piston.

(1) Piston inspection. Inspect piston for cracks, flaws, or distortion using dye penetrant method. Pay particular attention to the area along the top ring groove insert. Also inspect piston for damage or broken ring lands, nicks, burs, or scratches.

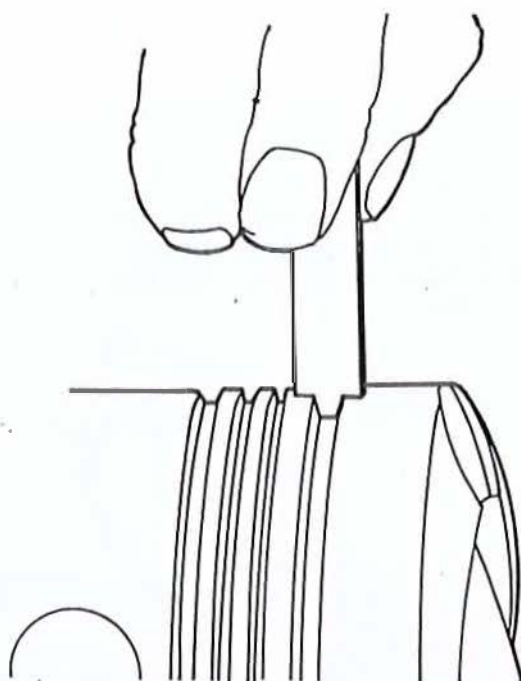
(2) Top ring groove. Check top ring groove of the piston using tapered piston ring gage (Fig. 2-4) (2/12) as shown in figure 5-26 (5/123). The shoulder of the gage must not touch the shoulder of the ring land.

(3) Piston pin. Inspect the piston pin for cracks using magnetic particle method. Also visually inspect for nicks and measure for wear.

c. Connecting Rod Assembly.

(1) Connecting rod bearing bore. Check rod bearing bore with a bore dial indicator.

5-32. (Cont)



TA034318

Figure 5-26. Checking piston top ring groove using tapered groove piston ring gage.

(2) Twisted or bent condition. Check rods for cracks by magnetic particle method and for twisted or bent condition. Under no circumstances should connecting rods be straightened. Destroy any rod found damaged to ensure it will not be reused in an engine.

(3) Piston pin sleeve bearing. Inspect piston pin sleeve bearing for pitting, galling, scoring, or discoloration. Mark damaged bearings for replacement.

(4) Connecting rod bearings.

(a) General. Separation of bearing metal, or signs of possible separation requires that the bearing be replaced. Fine scratches are not cause for rejection. Pitting or any other form of destruction to the bearing surface is cause for rejection. Replace bearings showing raised metal at edges of scratches. Minute pieces of metal and dirt particles embedded in bearing surfaces are not cause for rejection. Replace any questionable bearings.

NOTE

Do not attempt to remove metal or dirt particles. However, if a concentration of embedded particles affects five percent or more of the surface, replace the bearing.

5-32. (Cont)

(b) Inside diameter and contact. Apply a thin coating of Prussian blue, MIL-P-30501, to the backs of the connecting rod bearings and install in their respective connecting rods and caps according to their location markings (fig. 5-27) (5/124). Assemble rod and cap and torque tighten to 1250-1300 pound inches. Check bearing inside diameter using a dial bore indicator and for contact as shown by Prussian blue transfer. Replace any bearing that does not make at least 75 percent contact.

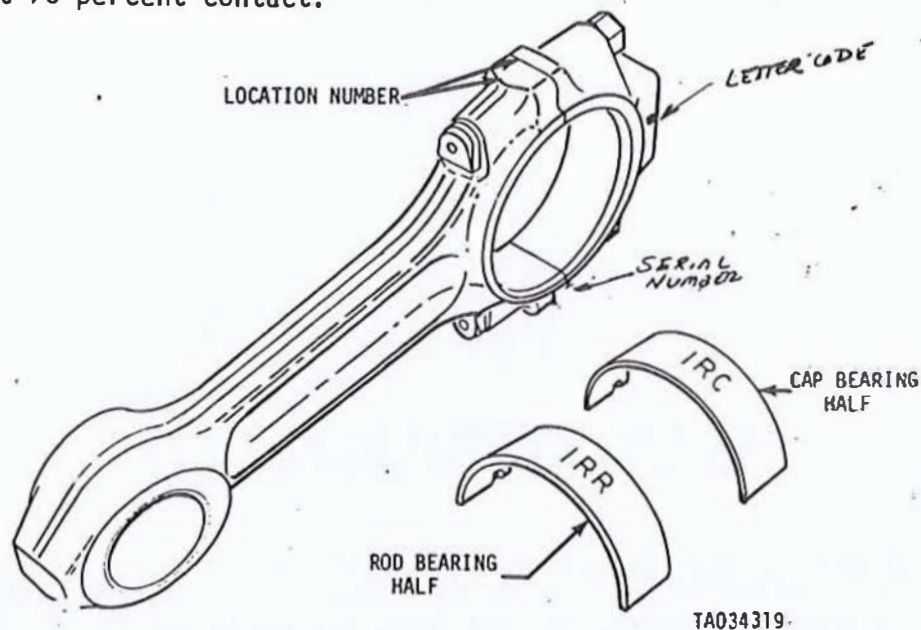


Figure 5-27. Connecting rod and bearing location number.

NOTE

FOR LOCATION IDENTIFICATION, CONNECTING RODS AND CAPS ARE STAMPED WITH LOCATION NUMBER (fig. 5-27) (5/124) ON THE SIDE OF ONE OF THE BOSSES, FOR EXAMPLE, '1R' WOULD IDENTIFY CONNECTING ROD AND CAP FOR NO. 1 CYLINDER ON THE RIGHT BANK. MARK THE BEARING WITH A GREASE PENCIL OR SUITABLE MARKER TO INDICATE THEIR LOCATIONS, FOR EXAMPLE THE CONNECTING ROD BEARING HALF FOR CYLINDER '1R' SHOULD BE MARKED '1RC'. IF CONNECTING ROD OR CAP MARKINGS ARE OBLITERATED, RESTAMP CONNECTING RODS AND CAPS SO THEY CAN BE INSTALLED IN THEIR ORIGINAL POSITIONS. IN ADDITION, THE CONNECTING ROD AND CAP, WHICH ARE A MATCHED ASSEMBLY ARE MARKED WITH IDENTIFYING SERIAL NUMBERS.

Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-25 (5/121)	1	NUT, PLAIN, HEXAGON: connecting rod cap bolt - part no. 11683948 Refer to OIP 11683948 (5/132)		
	2	BEARING HALF, SLEEVE: connecting rod - part no. 11683972 Refer to OIP 11683972 (5/133)		
		Inside diameter of bearing at proper torque tightness		
		Standard - part no. 11683972	3.7546-3.7568	3.7573
		0.0030 undersize - part no. 11683972-1	3.7516-3.7538	3.7543
		0.0100 undersize - part no. 11683972-2	3.7446-3.7468	3.7473
		Thickness of bearing at center		
		Standard - part no. 11683972	0.1703-0.1708	0.1698
		0.0030 undersize - part no. 11683972-1	0.1718-0.1723 0.1713-0.1718	0.1713 0.1708
		0.0100 undersize - part no. 11683972-2	0.1753-0.1758 0.1748-0.1753	0.1748 0.1743
		Thickness of bearings 3/8-inch from ends to be 0.0003 to 0.0006 less than thickness at center		

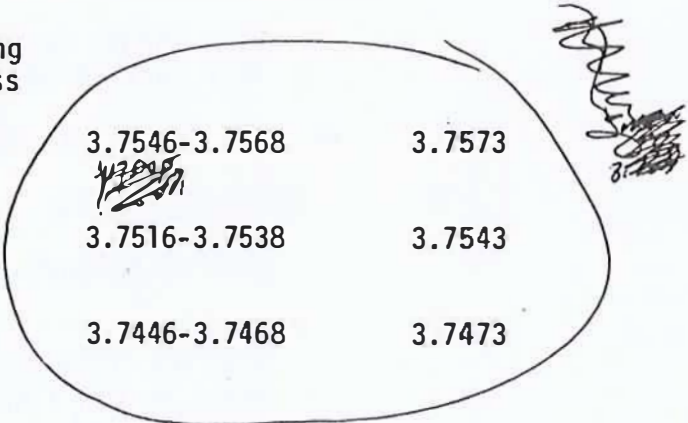


Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-25 (5/121) continued	2 - 3	✓ Oil clearance between bearing and journal	0.0041L-0.0073L	0.0088L
		BOLT, EXTERNALLY RELIEVED BODY: connecting rod cap - part no. 11683930 Refer to OIP 11683930 (5/135)		
		✓ Outside diameter of connecting rod bolt	0.6244-0.6246	*
		✓ Bolt length (bolt head contact surface to end of bolt)	4.3200-4.3400	*
		✓ Fit of bolt in rod and cap	0.0002L-0.0009L	*
	4	RING, RETAINING: piston pin retainer - part no MS16625-3212		Replace
	5	PIN, PISTON - part no. 11683935 Refer to OIP 11683935 (5/136)		
		Outside diameter of piston pin	2.1250-2.1252 ^{2.1253}	2.1248
		✓ Fit of pin in bearing	0.0023L-0.0027L	0.0032L
		✓ Fit of piston pin in piston	0.0016L-0.0020L	0.0032L
	6	PISTON, INTERNAL COMBUSTION ENGINE part no. 11683943 Refer to OIP 11683943 (5/137)		

Table 5-9. Wear Limits, Fits, and Tolerances for
Piston and Connecting Rod Assembly - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-25 (5/121) continued	6 -	Inside diameter of piston pin bore in piston	2.1268 2.1267-2.1270	2.1280
		Diameter of top groove in piston (measure over 0.11547 diameter pin)		
		Standard - part no. 11683943	5.7140-5.7240	5.7040
		0.0100 oversize-- part no. 11683943-1	5.7240-5.7340	5.7140
		0.0200 oversize - part no. 11683943-2	5.7340-5.7440	5.7240
		0.0300 oversize - part no. 11683943-3	5.7440-5.7540	5.7340
		0.0400 oversize - part no. 11683943-4	5.7540-5.7640	5.7440
		Inside width of top inter- mediate groove in piston	0.0990-0.1000	0.1035
		Inside width of lower in- termediate groove in piston	0.0980-0.0990	0.1025
		Inside width of oil con- trol ring groove in piston	0.1880-0.1890	0.1910



Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly - Continued

<u>References</u> <u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-25 (1/121) continued	6 -	0.0200 oversize - part no. 11683943-2	5.7490-5.7500	5.7470
		0.0300 oversize - part no. 11683943-3	5.7590-5.7600	5.7570
		0.0400 oversize - part no. 11683943-4	5.7690-5.7700	5.7670
		✓ Diameter of bottom of skirt 90 degrees to piston pin		
		✓ Standard - part no. 11683943	5.7410-5.7420	5.7380
		✓ 0.0100 oversize - part no. 11683943-1	5.7510-5.7520	5.7480
		✓ 0.0200 oversize - part no. 11683943-2	5.7610-5.7620	5.7580
		✓ 0.0300 oversize - part no. 11683943-3	5.7710-5.7720	5.7680
		✓ 0.0400 oversize - part no. 11683943-4	5.7810-5.7820	5.7780
		7		RING, PISTON, OIL CONTROL STANDARD - part nos. 11668315 11668315-1
		0.0100 oversize - part nos. 11668315-1 11668315-1		Replace
		0.0200 oversize - part nos. 11668315-2 11668315-2		Replace
		0.0300 oversize - part nos. 11668315-3 11668315-3		Replace

Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-25 (5/121) continued	7 -	0.0400 oversize - part nos. 11668315-4 11669026-4		Replace
		✓ Outside width of oil control ring	0.1855-0.1865	*
		✓ Gap clearance of oil control ring when fitted in gage	0.0200-0.0400	*
		✓ Clearance between oil con- trol ring and piston	0.0015L-0.0035L	0.0055L
	8	RING, PISTON, TOP AND LOWER INTERMEDIATE COMPRESSION STANDARD - part nos. 11668316 11669026-1		Replace
		0.0100 oversize - part nos. 11668316-1 11669026-2		Replace
		0.0200 oversize - part nos. 11668316-2 of 11669026-3		Replace
		0.0300 oversize - part nos. 11668316-3 of 11669026-4		Replace
		0.0400 oversize - part nos. 11668316-4 11669026-5		Replace
		✓ Outside width of lower in- termediate compression ring	0.0925-0.0935	*
		✓ Gap clearance of lower intermediate compression ring when fitted in gage	0.0300-0.0400	*
		✓ Side clearance between lower intermediate com- pression ring and piston	0.0045L-0.0065L	0.0100L

Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-25 (5/121) continued	8 -	✓ Outside width of top intermediate compression ring	0.0925-0.0935	*
		✓ Side clearance between top intermediate ring and piston	0.0055L-0.0075L	0.0110L
		✓ Gap clearance of top intermediate ring when fitted in gage	0.0300-0.0400	*
9		RING, PISTON, TOP COMPRESSION STANDARD - part no. 11668317		Replace
		0.0100 oversize - part no. 11668317-1		Replace
		0.0200 oversize - part no. 11668317-2		Replace
		0.0300 oversize - part no. 11668317-3		Replace
		0.0400 oversize - part no. 11668317-4		Replace
		✓ Gap clearance of top compression ring when fitted in gage	0.0400- 0.0500 ^{0.0550}	*
10		CONNECTING ROD, PISTON - part no. 11683934 Refer to OIP 11683934 (5/140)		
		✓ Inside diameter of connecting rod (crankshaft end) at proper torque tightness	4.0941-4.0946	*
		✓ Inside diameter of bolt hole in connecting rod and cap	0.6248-0.6253	*

Table 5-9. Wear Limits, Fits, and Tolerances for Piston and Connecting Rod Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-25	10 -	Inside diameter of bushing-type sleeve bearing	2.1274 2.1275 -2.1277	2.1280
(5/121)	continued		Outside width of connecting rod and cap	1.5670-1.5690
		Side clearance of (two) rods on crankshaft journal	0.0090L-0.0170L	0.0200L
		Allowable twist of connecting rods	None 0.005 per inch of connecting length (no straightening permitted)	
		Dimension between crankshaft bore and piston pin bore in connecting rod	10.9980-11.0020	*

11.0020/10.9980 DIM,
PARALLELISM OF SMALL
TO LARGE BORE WITHIN
0.0005 PER INCH OF LENGTH
(NO STRAIGHTENING
PERMITTED)

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

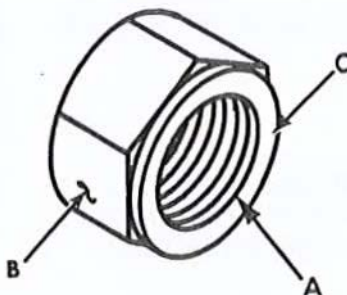
OIP 11683948

**ITEM: NUT, PLAIN, HEXAGON:
connecting rod cap bolt**

REFERENCE: Figure 5-25 (5/121)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2	A	Damaged threads	2.5	Visual	None allowed
3	B	Damaged hexagon head	2.5	Visual	None allowed
4	C	Damage to contact surface	2.5	Visual	None allowed



*CRITICAL ITEM
PART MUST BE CORROSION PROTECTED
WITH A LIGHT COAT OF CLEAN OIL*

***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683972

ITEM: BEARING HALF, SLEEVE:
connecting rod

REFERENCE: Figure 5-25 (5/121)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Visual	None allowed
2	✓	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓	Separation of bearing metal from backing	2.5	Visual	None allowed
4	✓	Pitting of bearing surface	2.5	Visual	None allowed
5	A	Thickness of bearing at center			
		Standard part no. 11683972	2.5	Measure	Thickness must be no less than 0.1698 inch
		0.0030 undersize part no. 11683972-1	2.5	Measure	Thickness must be no less than 0.1708 inch 0.1713
		0.0100 undersize part no. 11683972-2	2.5	Measure	Thickness must be no less than 0.1738 inch 0.1744
6	B	Thickness of bearings 3/8-inch from ends (to be 0.0003 to 0.0006 less than thickness at A)	2.5	Measure	
7	C	Inside diameter of bearing at proper torque tightness			

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683972

ITEM: BEARING HALF, SLEEVE:
connecting rod - Continued

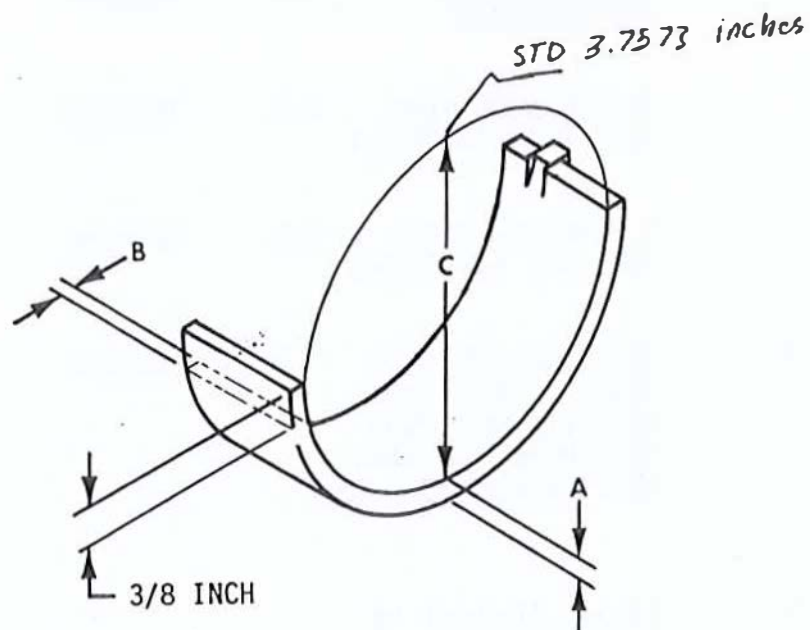
REFERENCE: Figure 5-25 (5/121)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
7	C	Standard part no. 11683972	2.5	Measure	Diameter must be no greater than <u>3.7573</u> inches
		0.0030 undersize part no. 11683972-1	2.5	Measure	Diameter must be no greater than <u>3.7543</u> inches
		0.0100 undersize part no. 11683972-2	2.5	Measure	Diameter must be no greater than <u>3.7473</u> inches

NOTE

Re-used connecting rod bearings must be installed in their original locations.



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

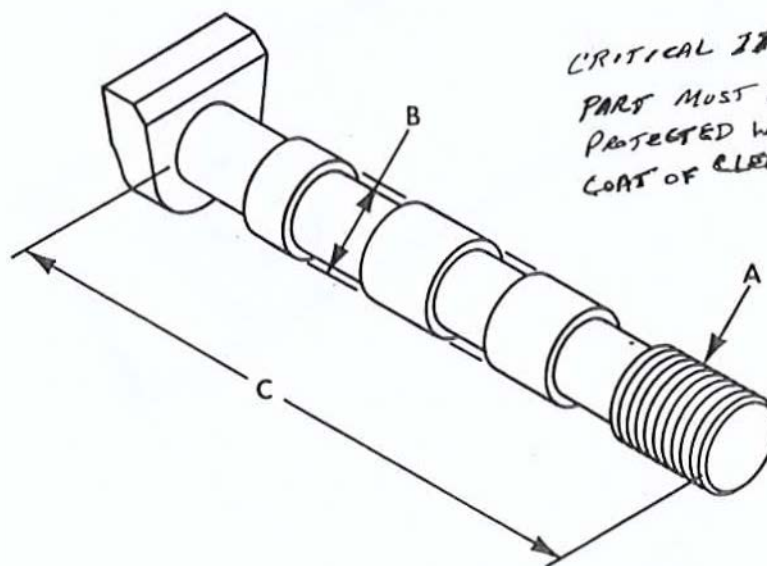
OIP 11683930

ITEM: BOLT, EXTERNALLY RELIEVED BODY:
connecting rod cap

REFERENCE: Figure 5-25 (5/121)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces and galled pilot diameters	2.5	Visual	None allowed
3	/ A	Damaged threads	2.5	Visual	None allowed
4	/ B	Outside diameter	1.0	Measure	Outside diameter must be no less than 0.6244 inch
5	/ C	Bolt length from bolt head contact surface	1.0	Measure	Length must be no greater than 4.3400 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

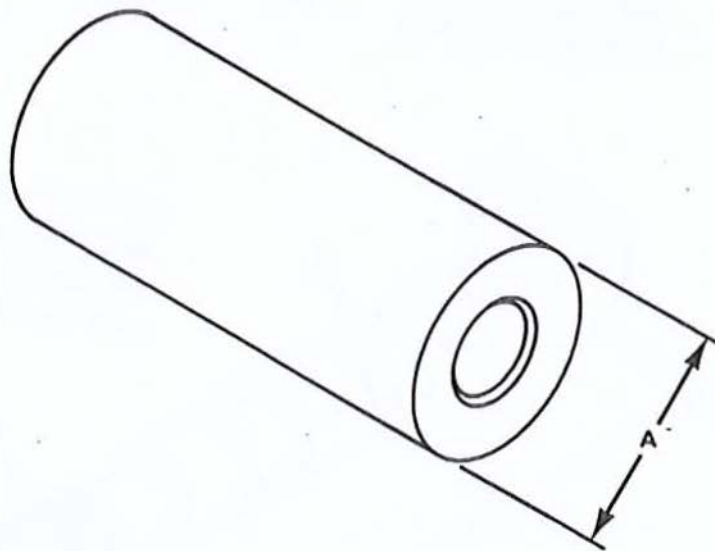
OIP 11683935

ITEM: PIN, PISTON

REFERENCE: Figure 5-25 (5/121)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 2.1248 inches



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683943

ITEM: PISTON, INTERNAL COMBUSTION ENGINE

REFERENCE: Figure 5-25 (5/121)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	** Diameter of top groove in piston (measured over 0.11547 diameter pins)			
		Standard part no. 11683943	2.5	Measure	Diameter must be no less than 5.7040 inches
		0.0100 oversize part no. 11683943-1	2.5	Measure	Diameter must be no less than 5.7140 inches
		0.0200 oversize part no. 11683943-2	2.5	Measure	Diameter must be no less than 5.7240 inches
		0.0300 oversize part no. 11683943-3	2.5	Measure	Diameter must be no less than 5.7340 inches
		0.0400 oversize part no. 11683943-4	2.5	Measure	Diameter must be no less than 5.7440 inches
4	B	Diameter at top of skirt 90 degrees to piston pin bore			
		Standard part no. 11683943	2.5	Measure	Diameter must be no less than 5.7270 inches



**Alternate method of measuring; Shoulders of piston ring groove gage (29, fig. 2-4) (2/12), must not touch shoulder of ring land.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683943

ITEM: PISTON, INTERNAL COMBUSTION ENGINE
- Continued

REFERENCE: Figure 5-25 (5/121)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
4	B	0.0100 0.100 oversize part no. 11683943-1	2.5	Measure	Diameter must be no less than 5.7370 inches
		0.0200 0.200 oversize part no. 11683943-2	2.5	Measure	Diameter must be no less than 5.7470 inches
		0.0300 0.300 oversize part no. 11683943-3	2.5	Measure	Diameter must be no less than 5.7570 inches
		0.0400 0.400 oversize part no. 11683943-4	2.5	Measure	Diameter must be no less than 5.7670 inches
8 4	B B	Diameter at bottom of skirt 90 degrees to piston pin			
		Standard part no. 11683943	2.5	Measure	Diameter must be no less than 5.7380 inches
		0.0100 oversize part no. 11683943-1	2.5	Measure	Diameter must be no less than 5.7480 inches
		0.0200 oversize part no. 11683943-2	2.5	Measure	Diameter must be no less than 5.7580 inches
		0.0300 oversize part no. 11683943-3	2.5	Measure	Diameter must be no less than 5.7680 inches
		0.0400 oversize part no. 11683943-4	2.5	Measure	Diameter must be no less than 5.7780 inches

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

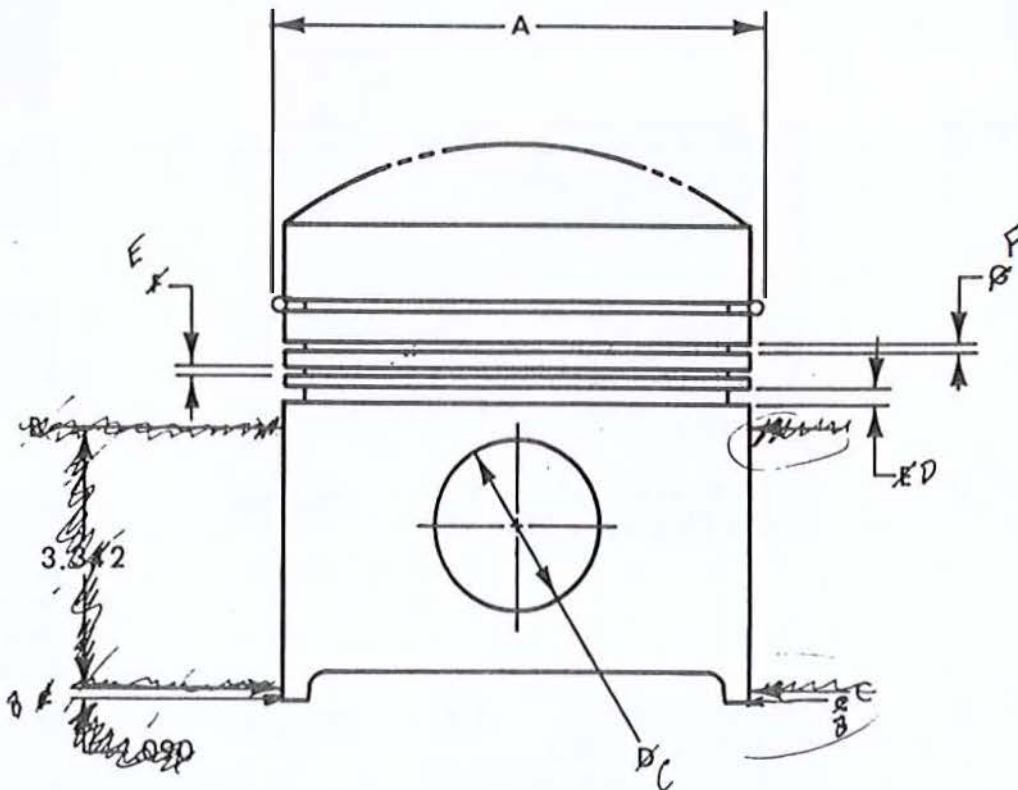
OIP 11683943

ITEM: PISTON, INTERNAL COMBUSTION ENGINE
- Continued

REFERENCE: Figure 5-25 (5/121)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
58	✓ DC	Inside diameter of piston pin bore in piston	2.5	Measure	Diameter must be no greater than 2.1280 inches
42	✓ ED	Inside width of oil control ring groove in piston	2.5	Measure	Inside width must be no greater than 0.1910 inch
78	✓ FE	Inside width of lower intermediate groove in piston	2.5	Measure	Inside width must be no greater than 0.1025 inch
35	✓ BF	Inside width of top intermediate groove in piston	2.5	Measure	Inside width must be no greater than 0.1035 inch



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OVERHAUL INSPECTION PROCEDURE

11.0020 / 10.9980 DIM, SMALL TO
 PARALLELISM OF LARGE BORE WITHIN 0.0005 PER INCH
 OF LENGTH (NO STRAIGHTENING PERMITTED)
 DMWR 9-2815-220
 OIP 11683934
 REFERENCE: Figure 5-25 (5/121)

ITEM: CONNECTING ROD, PISTON

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Allowable twist of connecting rods	1.0	Measure	0.0005 per inch of bearing length (no straightening permitted)
4	✓ A	Dimension between bore centers	1.0	Measure	Dimension must be no greater than 11.0020 inches and no less than 10.9980 inches
5	✓ B	Inside diameter of bushing-type sleeve bearing (piston pin end)	1.0	Measure	Diameter must be no greater than 2.1280 inches
6	✓ C	Inside diameter of connecting rod (crankshaft end) at proper torque tightness	1.0	Measure	Diameter must be no greater than 4.0946 inches
7	✓ D	Outside width of connecting rod <i>cap</i>	1.0	Measure	Outside width must be no greater than 1.5690 inches and no less than 1.5670 inches
8	✓ E	Inside diameter bolt hole in connecting rod and cap	1.0	Measure	Diameter must be no greater than 0.6253 inch

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683934

ITEM: CONNECTING ROD, PISTON
- Continued

REFERENCE: Figure 5-25 (5/121)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
9	/ F	Counterbore of bolt hole in connecting rod and cap	1.0	Measure	Diameter must be no greater than 0.6520 inch
NOTE					
Early connecting rods and caps were made to 0.6380-0.6450 diameter bolt hole counterbore and may be reamed to 0.6420-0.6520 diameter for ease of assembly					
10	/ G	Counterbore depth (rod)	1.0	Measure	Depth must be no less than 1.5400 inches and no greater than 1.6000 inches
11	/ H	Counterbore depth (cap)	1.0	Measure	Depth must be no less than 1.6100 inches and no greater than 1.6700 inches

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

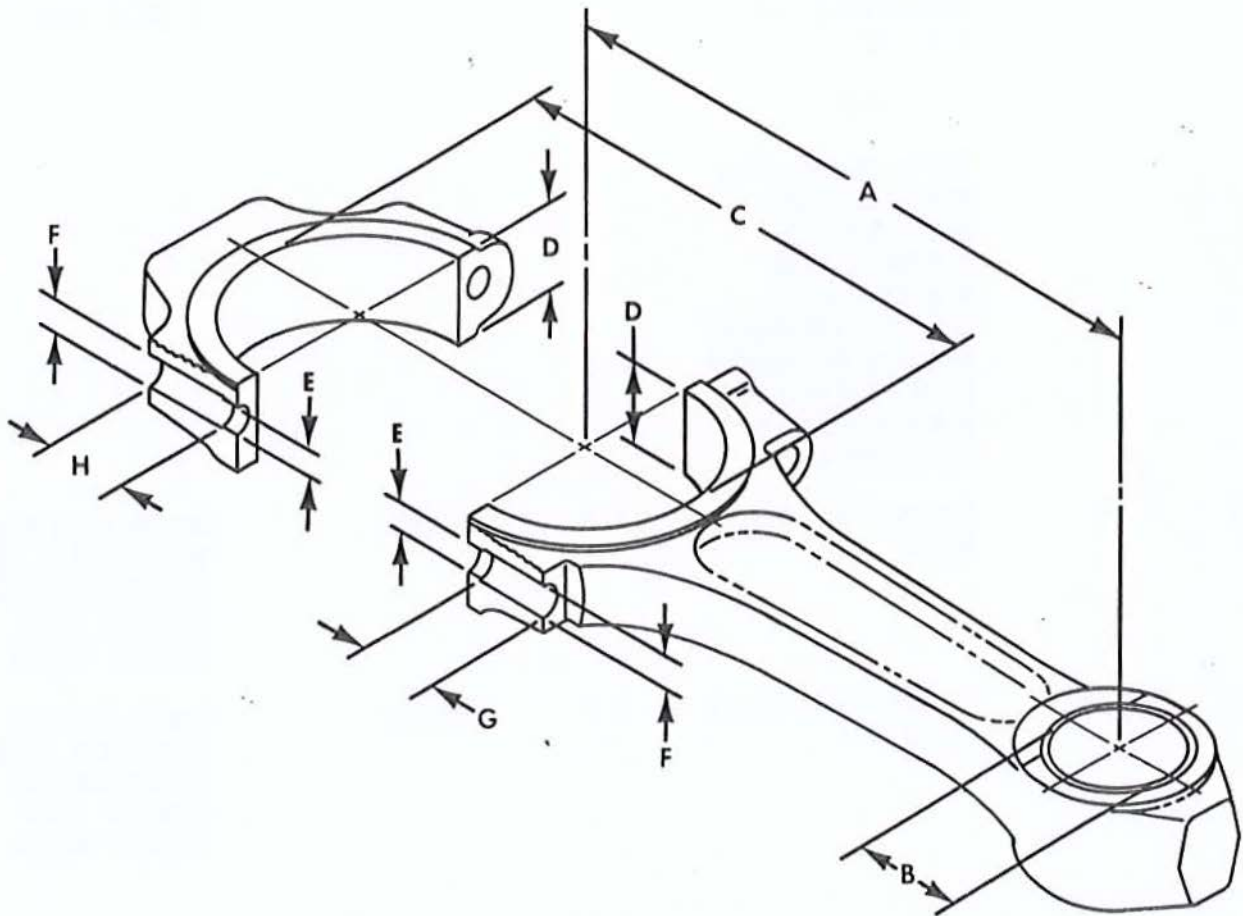
OIP 11683934

**ITEM: CONNECTING ROD, PISTON
- Continued**

REFERENCE: Figure 5-25 (5 / 21)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

DMWR 9-2815-220

5-33. Repair and Assembly.

a. Repair.

(1) General repair procedures. Refer to paragraph 5-5 (5/5) for general repair procedures.

(2) Piston.

(a) General. Remove minor nicks or scratches with crocus cloth dipped in dry cleaning solvent (P-D-680, Type II) and polish skirt.

(b) Replacement selection and application of weight code identification stamps. When replacing damaged or worn pistons it is important that all of the engine's pistons be of the same size (oversize) and same weight. Inspect the top of the piston for oversize identification stamp and weight identification code. Refer to Figure 5-27.1 (5/144) for oversize stamp and weight code location.

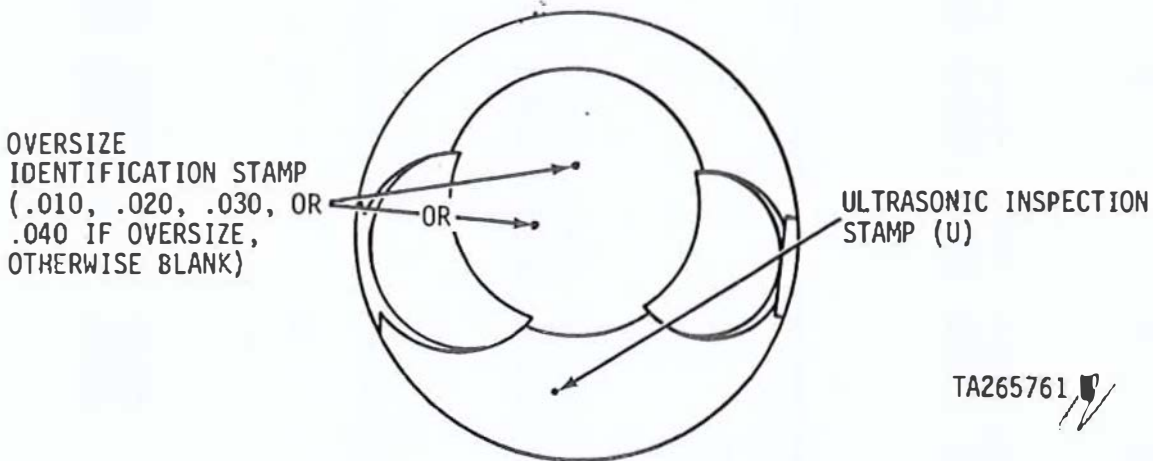
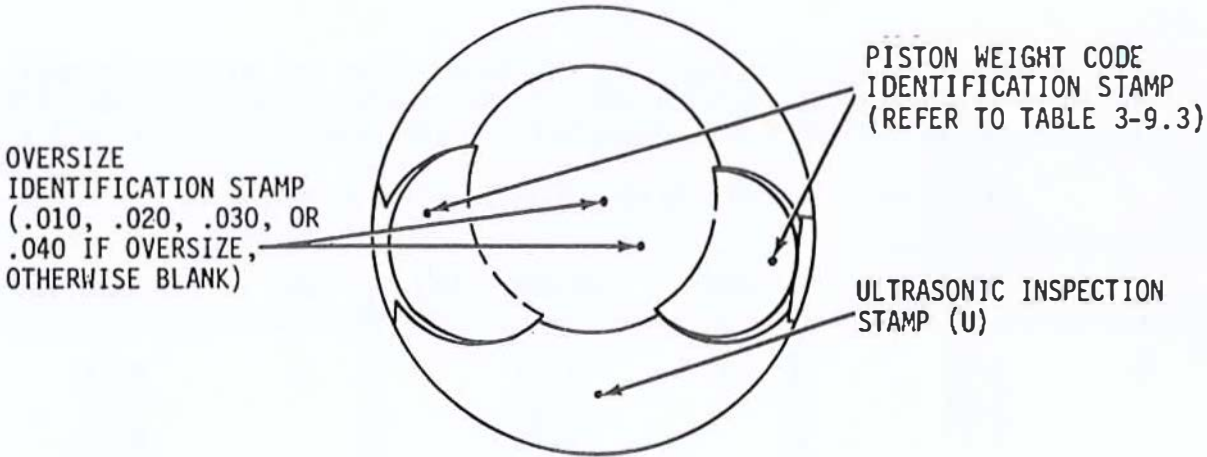
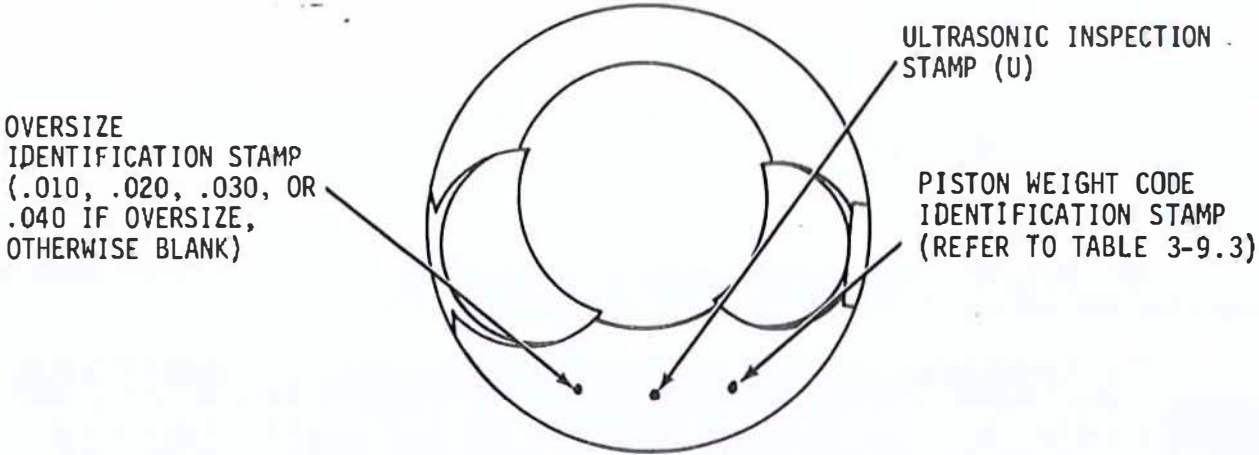
NOTE

If the weight code is missing or not legible, weigh the piston and metal stamp the weight identification code at the location shown in Figure 5-27.1 (5/144), using 0.25 inch high characters in accordance with Table 5-9.1 (5/143)

Table 5-9.1. Piston Weight Code Identification Chart

CODE	WEIGHT (LBS)	CODE	WEIGHT (LBS)	CODE	WEIGHT (LBS)
5	7.75	B	7.93	H	8.11
	7.76		7.94		8.12
	7.77		7.95		8.13
4	7.78	C	7.96	J	8.14
	7.79		7.97		8.15
	7.80		7.98		8.16
3	7.81	D	7.99	K	8.17
	7.82		8.00		8.18
	7.83		8.01		8.19
2	7.84	E	8.02	L	8.20
	7.85		8.03		8.21
	7.86		8.04		8.22
1	7.87	F	8.05	M	8.23
	7.88		8.06		8.24
	7.89		8.07		8.25
A	7.90	G	8.08		
	7.91		8.09		
	7.92		8.10		

DMWR 9-2815-220



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Figure 5-27.1. Stamp locations.

5-33. (Cont)

(3) Connecting rod assembly.

(a) General. Blend minor nicks and gouges on the I section of the rod. Hone fretting from large bore. Replace bolts that do not fit snugly in rod and cap or that have damaged threads, galled pilot diameters, or diameters not within limits. Also replace bolts that are cracked, scratched, or show any evidence of stretching.

(b) Piston pin sleeve bearing replacement. Replace worn or damaged piston pin sleeve bearing using installation tool (table 2-7) (2/19) as shown in figure 5-28 (5/144.1). Burnish to seat sleeve bearing prior to reaming to finished dimension. Line ream new bearing to size listed in table 5-9 (5/131). The dimension between the centerline of the small and large end bores (fig. 5-29) (5/144.2) must be maintained between 10.998 and 11.002 inches when line reaming new bearing.

Handwritten notes:
 5/144.1
 5/144.2

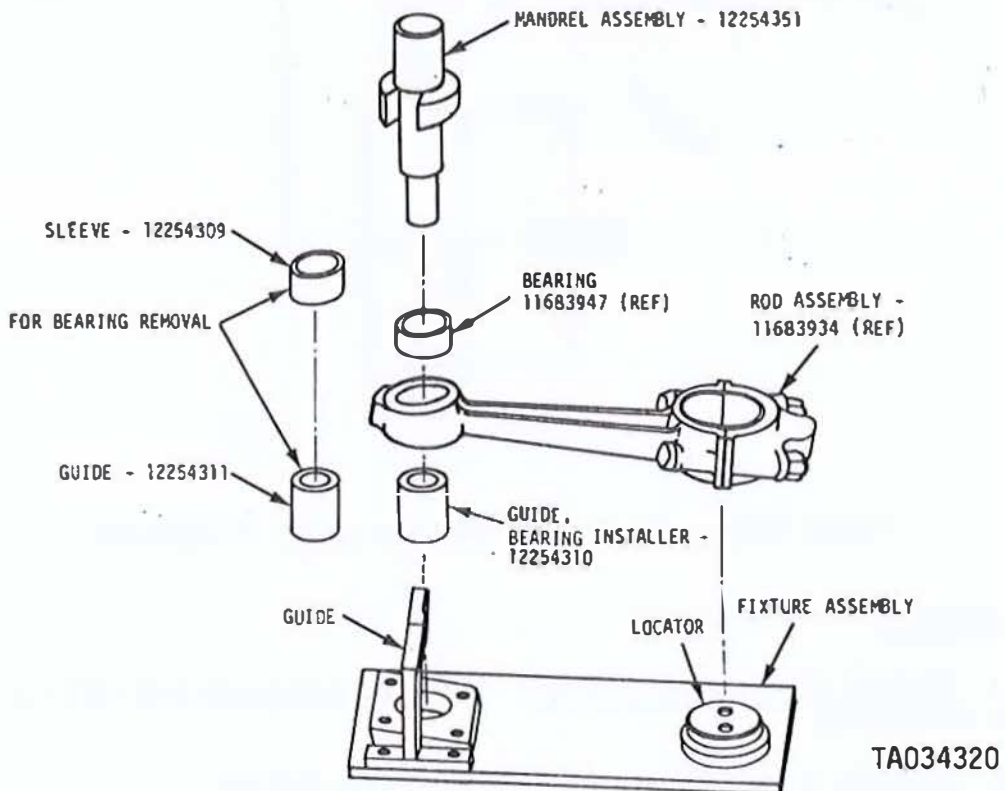


Figure 5-28. Fixture assembly - installing and removing connecting rod bushing.

5-33. (Cont)

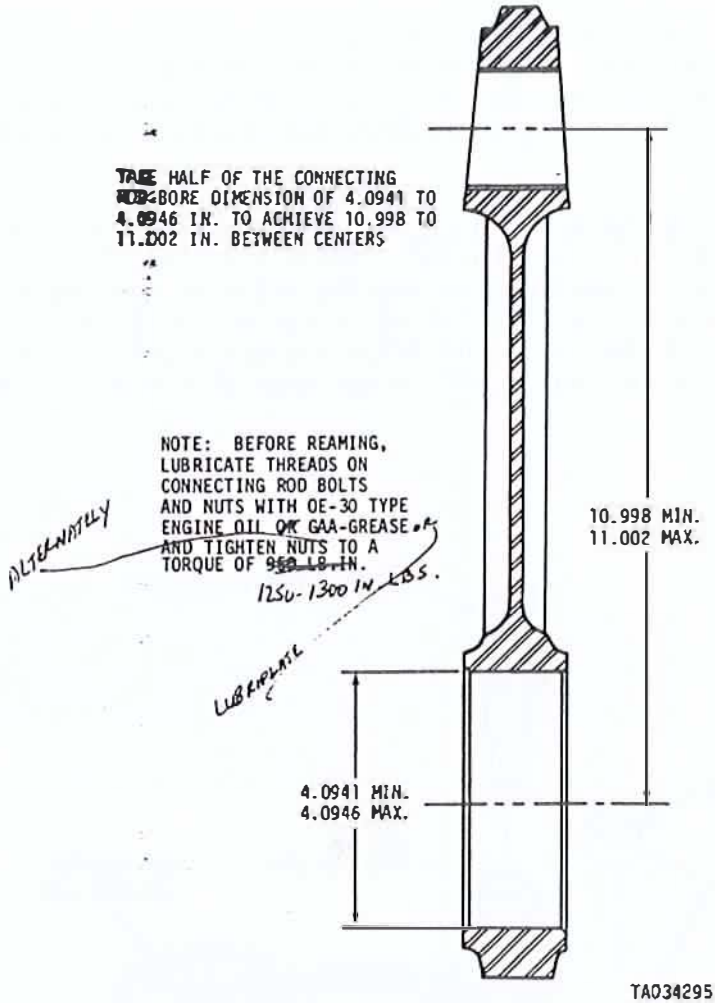


Figure 5-29. Connecting rod bore center dimensions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.



DMWR 9-2815-220

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Section VIII. OVERHAUL OF CYLINDER ASSEMBLY

5-34. General. This section covers overhaul of the cylinder assembly and associated parts (fig. 5-30) (5/147). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included, and stud identification information is included in the repair instructions.

5-35. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions on the cylinder assembly.

(2) Combustion chamber. Remove heavy carbon deposits from combustion chamber with a scraper or blunt tool that will not nick or scratch the surface. Remove only heavy carbon deposits; the surface need not be cleaned to a mirror finish.

(3) Fuel injector nozzle seat. Clean carbon from the fuel injector nozzle seat with the nozzle carbon cutter (13, fig. 2-4) (2/12) as shown in figure 5-31 (5/157).

(4) Valves. Clean carbon from valves with a wire brush.

5-36. Inspection.

a. General. Inspect the cylinder assembly and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the cylinder assembly are listed in table 5-10 (5/48). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Cylinder Assembly.

(1) Cylinder bore size. Standard and oversize cylinder assemblies are identified by the steel stamped part number located on the cooling fan shroud bracket mounting flange on the exhaust port side of the cylinder assembly (fig. 5-32) (5/157). Oversize cylinder assembly identification numbers are listed in table 5-11 (5/157).

(2) Cylinder bore measurement. Cylinder bores may taper slightly at the head end when at room temperature. The tapered section expands and is essentially straight at operating temperature. The procedure for measuring cylinder bore is as follows:

(a) With the cylinder at room temperature, take two cylinder bore measurements at points A through E (fig. 5-33) (5/153). Measure diameter

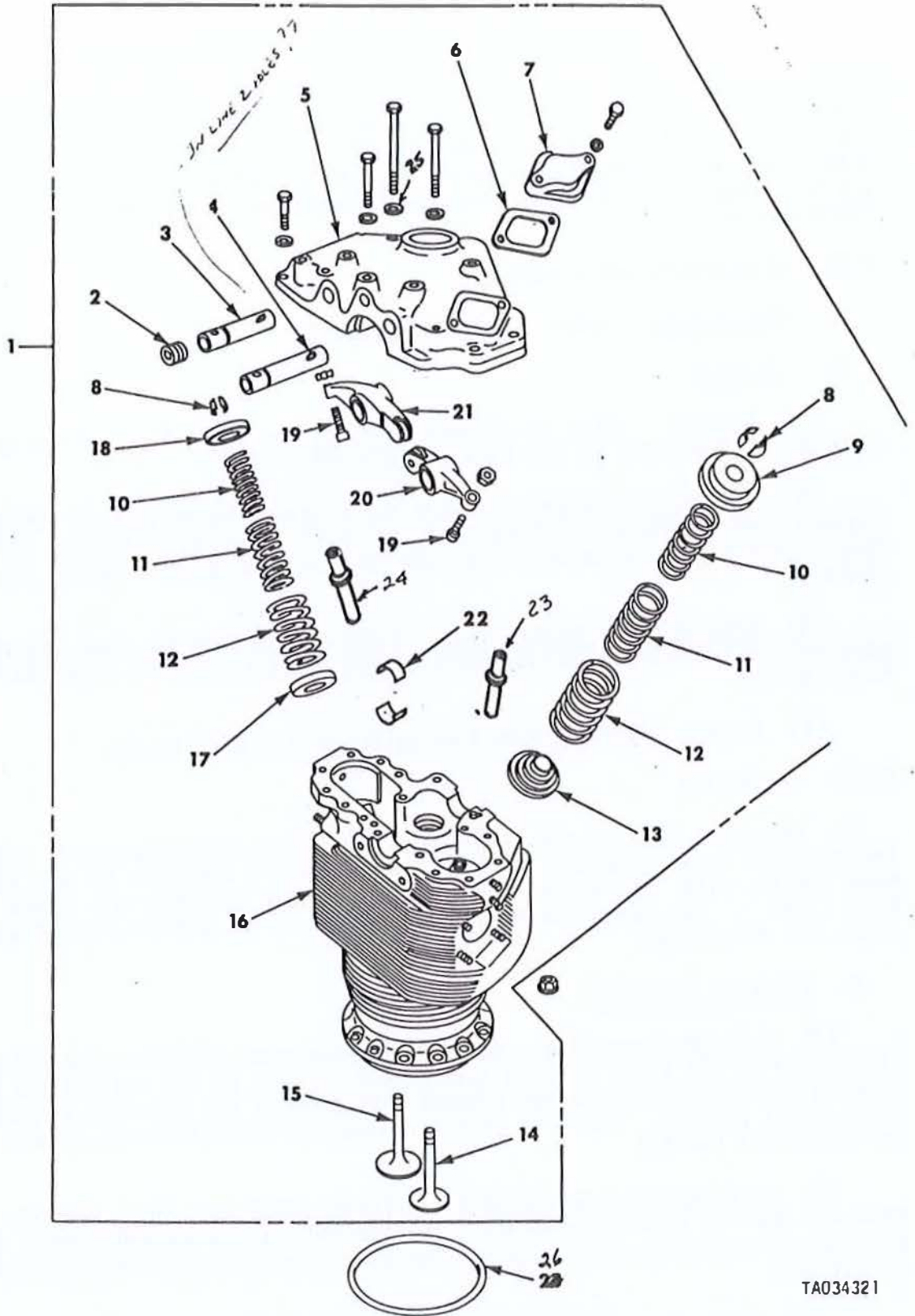


Figure 5-30. Cylinder assembly.

Table 5-10. Wear Limits, Fits, and Tolerances for Cylinder Assembly

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-30	1	CYLINDER HEAD, DIESEL ENGINE: - part no. 10951304		
	2	PLUG, MACHINE THREAD: valve rocker shaft hole - part no. 7320384 Refer to OIP 7320384 (5/163)		
	3	^{STRAIGHT:} SHAFT, VALVE ROCKER ARM, intake - part no. 7320394 Refer to OIP 7320394 (5/164)		
		Outside diameter of valve rocker arm shaft	0.7480-0.7485	0.7470
		Out of round ^{STRAIGHTNESS}	Must be circular and straight within 0.0010 0.0005 inch	*
	4	^{STRAIGHT:} SHAFT, VALVE ROCKER ARM, exhaust - part no. 7320393 Refer to OIP 7320393 (5/165)		
		Outside diameter of valve rocker arm shaft	0.7480-0.7485	0.7470
		Out of round ^{STRAIGHTNESS}	Must be circular and straight within 0.0010 0.0005 inch	*
	5	COVER ASSEMBLY: valve rocker support - part no. 7320420 Refer to OIP 7320420 (5/166)		
		Camshaft bearing bore diameter with cover assembled	1.4115-1.4125	*
		Inside diameter of camshaft bearing installed in cylinder head and cover to proper torque tightness	1.3115-1.3135	1.3140

*See Bearing 22
1.4115-1.4125
Refer to OIP 7320420*

Table 5-10. Wear Limits, Fits, and Tolerances for Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30 (5/47)	6	GASKET: valve adjusting cover - part no. 8725296		Replace
	7	COVER, ACCESS: valve adjusting - part no. 7320408 Refer to OIP 7320408 (5/168)		
/	8	LOCK, VALVE SPRING RETAINER: intake and exhaust - part no. 7744610 Refer to OIP 7744610 (5/169)		
		Width of center land	0.1230-0.1270	0.1230 *
/	9	<i>SEAT, HELICAL COMPRESSION SPRING:</i> RETAINER: exhaust valve SEAT, HELICAL COMPRESSION SPRING: EXHAUST - part no. 7539839 Refer to OIP 7539839 (5/170)		
	10	SPRING, HELICAL COMPRESSION: valve (inner)- part no. 7320427 Refer to OIP 7320427 (5/171)		
/		Approximate free length	3.11 inches ± 0.010	*
/		Load at 1.37 inches length	43.9 lbs ± 4.39 lbs	*
/		Load at 2.07 inches length	26.2 lbs ± 1.31 lbs	*

Table 5-10. Wear Limits, Fits, and Tolerances for
Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30 (5 / 147)	10	✓ Maximum solid height	1.28 inches	*
	11	SPRING, HELICAL, COMPRESSION: valve (intermediate) - part no. 7320429 Refer to OIP 7320429 (5/172)		
		✓ Approximate free length	3.48 inches ± 0.010	*
		✓ Load at 1.56 inches length	81.4 lbs ± 8.14 lbs	*
		✓ Load at 2.26 inches length	51.7 lbs ± 2.585 lbs	*
		✓ Maximum solid height	1.34 inches	*
	12	SPRING, HELICAL, COMPRESSION: valve (outer) - part no. 7320428 Refer to OIP 7320428 (5/173)		
		✓ Approximate free length	3.48 inches ± 0.010	*
		✓ Load at 1.56 inches length	134.2 lbs ± 13.42 lbs	*
		✓ Load at 2.26 inches length	85.4 lbs ± 4.27 lbs	*
		✓ Maximum solid height	1.47 inches	*
	13	ROTOR, ENGINE POPPET VALVE: exhaust valve - part no. 7539838 Refer to OIP 7539838 (5/174) - (5/174.1)		

Table 5-10. Wear Limits, Fits, and Tolerances for
Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30 (5/147)	14	VALVE, POPPET, ENGINE: exhaust - part no. 11610010 Refer to OIP 11610010 (5/175)		
		✓ Outside diameter of exhaust valve stem	0.5570-0.5580	0.5565
		✓ Fit of exhaust valve stem in guide	0.0035L-0.0055L	0.0070L 0.0090L
		✓ Angle of exhaust valve seat with valve stem	45°-00'-45°-15'	*
		✓ Width of locking groove	0.1560-0.1660	*
		✓ Length from seat gage line to end of stem	7.0100-7.0240	*
		✓ Gage diameter of seat angle	2.0870	*
	15	VALVE, POPPET, ENGINE: intake - part no. 10951239 Refer to OIP 10951239 (5/177)		
		✓ Outside diameter of intake valve stem	0.4975-0.4980	0.4970
		✓ Fit of intake valve stem in guide	0.0015L-0.0030L	0.0065L
		✓ Angle of intake valve seat with valve stem	74°-45'-75°-15'	*
		✓ Width of locking groove	0.1560-0.1660	*
		✓ Length from seat gage line to end of stem	6.3550-6.3690	*
		✓ Gage diameter of seat angle	2.4000	*

*Change of
 PARTS
 SHEETS
 APPROVED
 22-0-02*

DMWR 9-2815-220

Table 5-10. Wear Limits, Fits, and Tolerances for
 Cylinder Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-30 (5/147)	16	CYLINDER AND HEAD, ENGINE - part no. 10951221 - less cover Refer to OIP 10951221 - less cover (5/179)		
		✓ Inside diameter of exhaust valve guide	0.5615-0.5625 <i>44°-45' - 95°-00'</i>	0.5645 0.5635
		Exhaust valve insert seat angle	45°-30'	*
		Intake valve insert seat angle	74°-45' 75°-15' <i>74°-15' - 74°-45'</i>	* 50°
		✓ Inside diameter of intake valve guide	0.4995-0.5005	0.5000 0.5005 0.5025
		✓ Diameter of camshaft seal counterbore, with cover at proper torque tightness (both sides)	2.5000-2.5015	*
		✓ Camshaft bearing bore di- ameter with cover assem- bled and without bearing	1.4115-1.4125	*
		✓ Fit of piston in cylinder bore measured up 2.2500 inches from bottom of cylinder skirt, 90 degrees to piston pin	0.0075L-0.0115L	0.0215L
		✓ Maximum out-of-round of cylinder bore	0.0020	0.0030
		✓ Standard bore diameter A, B and C (see fig. 5-33) (5/158)	5.7510-5.7530	5.7600

Table 5-10. Wear Limits, Fits, and Tolerances for Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30	16 -	Standard bore diameter D (see fig. 5-33) (5/158)	5.7485-5.7530	5.7600
	(5/147)	Standard bore diameter E (see fig. 5-33) (5/158)	5.7470-5.7530	5.7600
	continued	0.0100 oversize bore di- ameter A, B and C (see fig. 5-33) (5/158)	5.7610-5.7630	5.7700
		0.0100 oversize bore di- ameter D (see fig. 5-33) (5/158)	5.7585-5.7630	5.7700
		0.0100 oversize bore di- ameter E (see fig. 5-33) (5/158)	5.7570-5.7630	5.7700
		0.0200 oversize bore di- ameter A, B and C (see fig. 5-33) (5/158)	5.7710-5.7730	5.7800
		0.0200 oversize bore di- ameter D (see fig. 5-33) (5/158)	5.7685-5.7730	5.7800
		0.0200 oversize bore di- ameter E (see fig. 5-33) (5/158)	5.7670-5.7730	5.7800
		0.0300 oversize bore di- ameter A, B and C (see fig. 5-33) (5/158)	5.7810-5.7830	5.7900
		0.0300 oversize bore di- ameter D (see fig. 5-33) (5/158)	5.7785-5.7830	5.7900
		0.0300 oversize bore di- ameter E (see fig. 5-33) (5/158)	5.7770-5.7830	5.7900

Table 5-10. Wear Limits, Fits, and Tolerances for
Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30	16-	✓ 0.0400 oversize bore di- ameter A, B and C (see fig. 5-33) (5/158)	5.7910-5.7930	5.8000
	(5/147) continued	0.0400 oversize bore di- ameter D (see fig. 5-33) (5/158)	5.7885-5.7930	5.8000
		0.0400 oversize bore di- ameter E (see fig. 5-33) (5/158)	5.7870-5.7930	5.8000
/	17	SEAT, HELICAL COMPRESSION ^{SPRING} : intake valve spring - part no. 7744617 Refer to OIP 7744617 (5/183)		
/	18	LOCK VALVE SPRING RETAINER: RETAINER: intake valve spring (upper) - INTAKE - part no. 7744798 Refer to OIP 7744798 7744798 (5/184)		
/	19	^{ASSEMBLY} SCREW, ADJUSTING: valve rocker - part no. 7767321 Refer to OIP 7767321 (5/185)		
		End play between pad socket and screw ball	0.0120 Maximum	*
	20	^{ENGINE} ROCKER ARM, POPPET VALVE: exhaust - part no. 8725293 Refer to OIP 8725293 (5/186)		
/		Inside diameter of sleeve bearing	0.7495-0.7505	0.7520

Table 5-10. Wear Limits, Fits, and Tolerances for
Cylinder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-30 (5/147) continued	20 -	✓ Fit of shaft in sleeve bearing	0.0010L-0.0025L	0.0050L
		✓ Side clearance between rocker covers and rocker arms	0.0060-0.0140	0.0200
		✓ Rocker roller radial clearance	0.0020L-0.0030L	0.0055L
		✓ Hub width	1.2380-1.2420	1.2370
	21	ROCKER ARM, ^{ENGINE} POPPET VALVE: intake - part no. 8725281 Refer to OIP 8725281 (5/188)		
		✓ Inside diameter of sleeve bearing	0.7495-0.7505	0.7520
		✓ Fit of shaft in sleeve bearing	0.0010L-0.0025L	0.0050L
		✓ Side clearance between rocker covers and rocker arms	0.0060-0.0140	0.0200
		✓ Rocker roller radial clearance	0.0020L-0.0030L	0.0055L
		✓ Width of hub	1.4880-1.4920	1.4870
	22	BEARING, HALF SLEEVE: camshaft - part no. 11668067 Refer to OIP 11668067 (5/190)		

Table 5-10. Wear Limits, Fits, and Tolerances for
Cylinder Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-30 (5/147) continued	22 -	Inside diameter of camshaft bearing installed in cylinder head and cover to proper torque tightness	1.3115-1.3135	1.3140
	26 23	PACKING, PREFORMED: cylinder base - part no. MS29561-256		Replace

23 VALVE STEM; EXHAUST
GUIDE, ~~STANDARD~~ ~~STANDARD~~ ~~STANDARD~~
PART NO. 8725004
(8725004-02978)

~~0.0050 OVERSIZE~~
~~PART NO. 8725175~~

0.0100 OVERSIZE -
PART NO. 8725179 (8725179-02978)

0.0200 OVERSIZE -
PART NO. 8725180

24 GUIDE, VALVE STEM: INTAKE
STANDARD ~~STANDARD~~
PART NO. 8725003
(8725003-02978)

~~0.0050 OVERSIZE~~
~~PART NO. 8725175~~

0.0100 OVERSIZE
PART NO. 8725176 (8725176-02978)

0.0200 OVERSIZE
PART NO. 8725177

25 PACKING WITH RETAINER -
PART NO. 7033684
(110 3-B-25184)

REPLACE

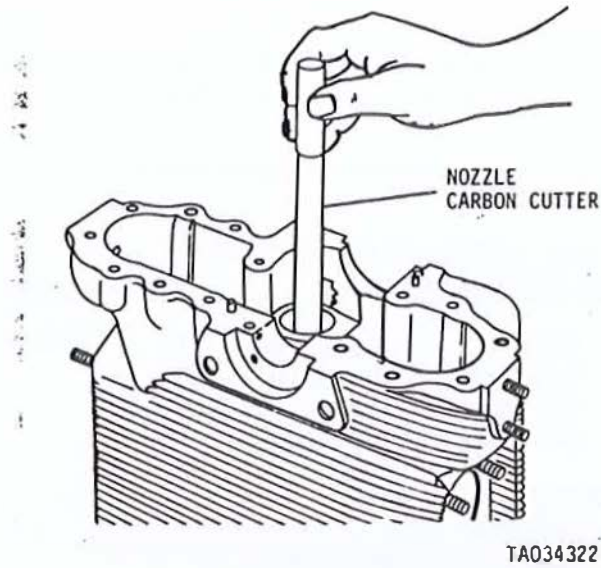


Figure 5-31. Cleaning carbon deposits from fuel injector nozzle seat.

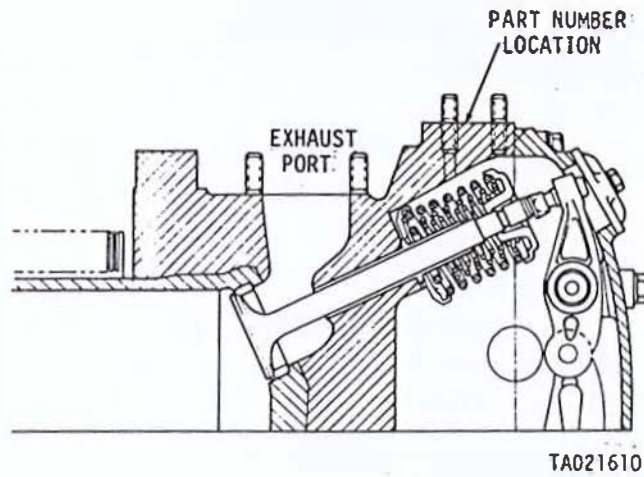


Figure 5-32. Cylinder assembly identification number location.

Table 5-11. Standard and Oversize Cylinder Identification Numbers

Part no.	Bore size	Bore diameter
10951304	Standard	5.751-5.753
10951304-1	0.010 oversize	5.761-5.763
10951304-2	0.020 oversize	5.771-5.773
10951304-3	0.030 oversize	5.781-5.783
10951304-4	0.040 oversize	5.791-5.793

*Valve guides
burning*

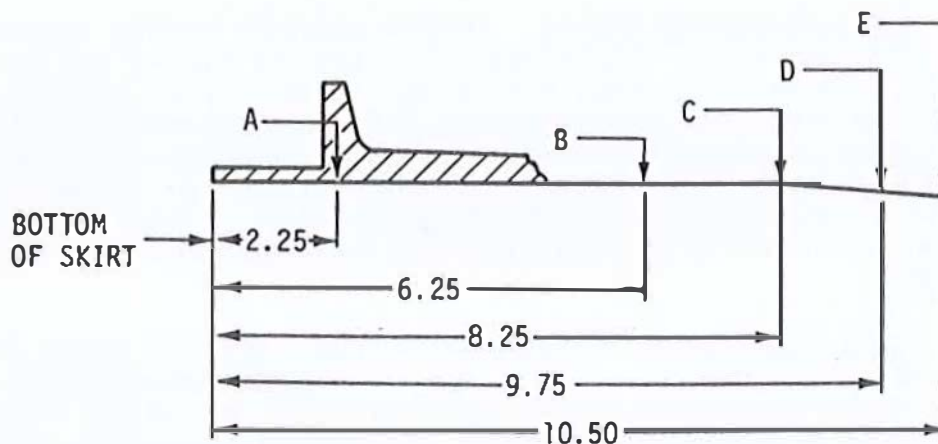
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5-36. (Cont)

approximately parallel to line of valves. Then take measurement 90 degrees to first measurement and average the measurements.

- (b) The head end measurement must not exceed the flange end average measurements.
- (c) Compare measurements taken 90 degrees apart. Each of two measurements must be within 0.003 inches of each other. If the difference exceeds 0.003 inches, the cylinder is out of round and must be marked for repair.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.



TA034323

Figure 5-33. Cylinder bore dimensions.

(3) Valve guides. Inspect the intake and exhaust valve guides for cracks, ~~galling, erosion, scuffing.~~ Also check for loose or burned guides and measure ~~EDD~~ ~~HEAD~~. ~~CHECK~~ ~~INSIDE~~ ~~DIAMETER~~ ~~OF~~ ~~VALVE~~ ~~GUIDE~~ ~~BORE~~ ~~IN~~ ~~CYLINDER~~ ~~HEAD~~.

(4) Valve seat inserts. Inspect inserts for pitted surfaces. If inserts are cracked, loose, or damaged beyond repair, the cylinder must be replaced. Check valve seat contact by lightly bluing face of a new valve with Prussian blue, MIL-P-30501 and placing valve into position on valve insert. Rotate valve one-half turn on insert and check valve seat for Prussian blue contact. Valve seat must show contact all around (360°), as indicated by Prussian blue transfer, to qualify as a serviceable insert. Inserts that do not show all around contact must be marked for repair.

(5) Fuel injector nozzle seat. Inspect the fuel injector nozzle seat for cracks, galling, erosion, scuffing, hard carbon, or burning.

5-36. (Cont)

(6) Screw thread inserts. Refer to paragraph 5-4, j (5/4) when inspecting cylinder head assembly screw thread inserts.

(7) Fins. Allowable missing fin area on the cylinder head is shown in figure 5-34 (5/160).

(8) Mounting flange and dowel holes. Inspect dowel holes in the mounting flange for wear, nicks, and burs. Also inspect for cracks in the mounting flange.

c. Valve Rocker Arm Covers and Associated Parts.

(1) Valve rocker arm cover. Inspect valve rocker support cover for cracks, particularly in area of rocker arm shaft plugs, using dye penetrant method. Check valve adjusting access cover for cracks, and for warpage.

(2) Camshaft bearing inserts. Inspect camshaft bearing inserts for pitting, galling, burs, and nicks. Fine scratches on bearing inserts are not cause for rejection. Pitting or any other form of destruction to the bearing surface is cause for rejection. ~~Spread a thin coat of Prussian blue over the backs of the bearing inserts and install in their original location on the cylinder assembly and rocker box cover.~~ Secure rocker box cover to cylinder assembly with four bolts and washers. Torque tighten to 275-325 pound-inches. Check the inside diameter of the bearing inserts with a dial bore indicator to limits specified in table 5-10 (5/156).

(3) Valve rocker arms. Inspect valve rocker arms for cracks using ~~under a strong light~~ MAGNETIC PARTICLE METHOD. Inspect the bushing-type bearing sleeves in the rocker arms for scoring and looseness. Measure inside diameter of the bearing sleeves. Replace bearing sleeves that do not meet limits. Inspect valve rocker arm rollers for scuff or score marks and looseness on hub. Rotate roller and check clearance between roller and hub by mounting rocker arm securely in a soft-jawed vise. Set a dial indicator against the contact surface of the roller and move roller through the extremes of its travel while checking the reading on the dial indicator. Limits should be 0.0055 in. maximum. Inspect adjusting screw for stripped or damaged threads by turning screw in and out of rocker arms. Screw must turn freely. Check swivel pad and adjusting screw for free rotation. Mark damaged parts for replacement.

(4) Valve rocker arm shafts. Check valve rocker arm shaft for cracks, ~~using magnetic particle method~~ Also check for scuffing, scores, and metal pickup or plugged oil passages. Measure outside diameter for wear.

d. Valves.

(1) Valve head. Inspect the intake and exhaust valves for cracks using MAGNETIC PARTICLE METHOD. Also inspect for evidence of pitting, imperfect seating, or warpage on valve head. Heavy discoloration, burning, erosion, or a heavy carbon deposit on the valve face indicates a warped valve. A light frosted appearance or minor discoloration on the valve does not indicate a warped or unserviceable valve.

1. CRITERIA:

- ✓ a. Total Fin Area (Projected): 1250 Square Inches
- ✓ b. Total Allowable Missing Fin Area: 6.25 Square Inches
(1250 x .5% = 6.25 Square Inches)
- ✓ c. Allowable Missing Fin Area in any Four (4) Square Inch Area: 1.56 Square Inches
(6.25 x 25% = 1.56 Square Inches)

2. VISUAL COMPARISON EXAMPLES

TOTAL ALLOWABLE AREA: 6.25 SQ. IN.
(1.00 x 6.25)

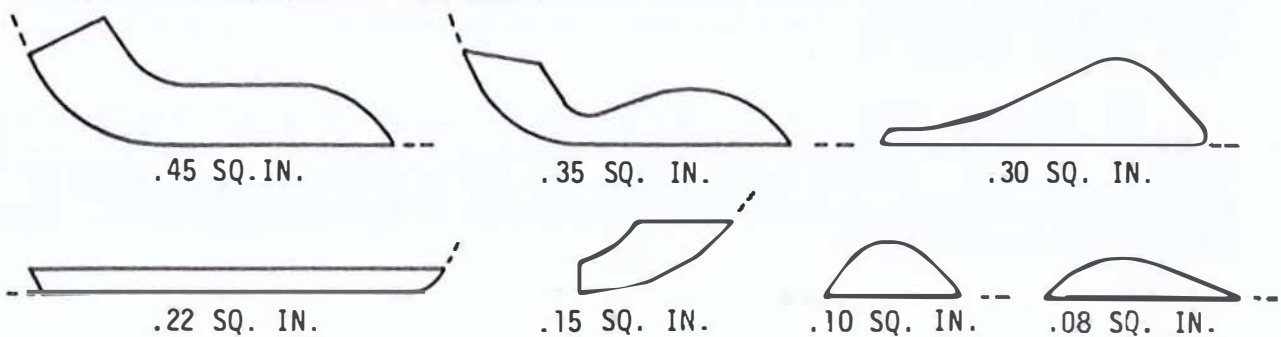
4.00 SQ. IN.
(2.0 x 2.0)

4.00 SQ. IN.
(1.5 x 2.66)

1.56 SQ. IN.
(1.25 x 1.25)

1.56 SQ. IN.
(.50 x 3.12)

TYPICAL ACTUAL MISSING FIN AREAS



TA034324

Figure 5-34. Allowable missing fin area on cylinder head.

5-36. (Cont)

(2) Valve stem. Inspect valve stem for cracks using ~~dry powder~~ ^{MAGNETIC PARTICLE} method. Do not mistake edge of chrome plating on stem for a crack. Also inspect the stems for pitting, scoring, or damaged tips. Measure valve stem outside diameter, seat angle, width of locking groove, length, and gage diameter for wear.

e. Valve Springs. Inspect the inner spring, intermediate spring, and outer spring for wear, cracks, ~~or~~ or other evidence of failure.

f. Valve Spring Retainers and Locks. Inspect valve spring retainers and locks for wear and cracks. Worn locks will have ridges on the top face.

g. Valve Rotors. Three different valve rotors have been used. All three are similar in appearance and all may be used, in sets or intermixed, as long as they pass inspection. Inspect valve rotors for wear or cracks. Replace worn or cracked rotors. Test all valve rotors, under load, to establish that rotation occurs when the load on the unit is cycled through the operating range. One valve rotor will rotate in only one direction and have a more rapid rate of rotation than either of the other two rotors. The other two rotors may rotate in either direction, however, the rate of rotation will be less than the rate of rotation for the rotor that rotates in one direction. Check rotation of valve rotors as shown in figure 5-35 (5/162) and described below. The key letters in parentheses below refer to figure 5-35 (5/162) unless otherwise indicated.

(1) Lubrication. Oil rotor by immersing entire rotor in container of clean engine oil (MIL-L-2104). Drain excessive oil.

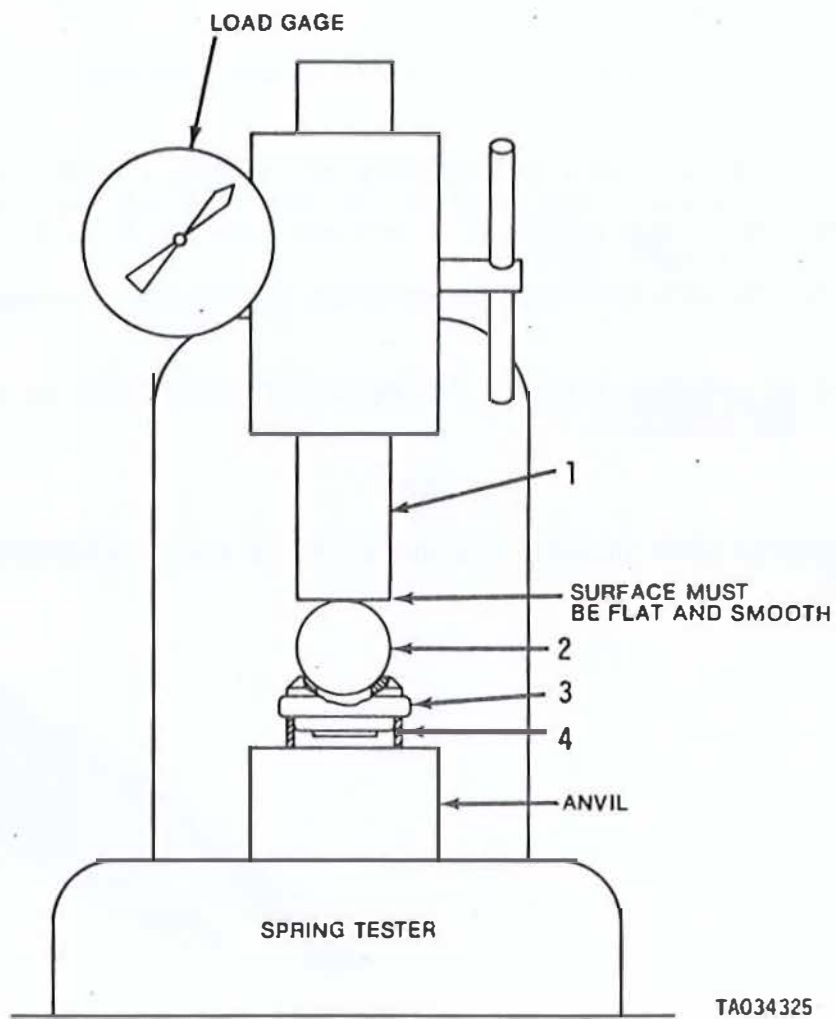
(2) Fabrication. Fabricate a short sleeve with an approximate outside diameter the same as the outer (large) valve spring, and an inside diameter no smaller than 1-1/4 inches

(3) Procurement. Procure a hardened steel ball with a minimum diameter of 3/4 inch.

(4) Instruction procedures. Place fabricated sleeve (4) on platform of spring tester. Place valve rotor (3) (valve spring seat side down) on sleeve. Place steel ball (2) on top of rotor. Surface of ram (1), that contacts ball, must be flat and smooth. Mark reference marks on inner and outer sections of rotor (chalk, crayon, etc.).

(5) Rotation check. Apply load of 150-225 pounds on rotor. Alternately increase and release pressure, in the 150-225 pound range, while observing marks to check rotation. Several strokes (25 - 30) may be required before there is recognizable rotation, as indicated by separation of the reference marks. Reject rotors that do not rotate.

5-36. (Cont)



TA034325

- 1. Ram
- 2. Steel Ball

- 3. Valve Rotor
- 4. Sleeve

Figure 5-35. Valve rotor rotation test.

DMWR 9-2815-220

5-36.1. Reclamation. Worn intake valves (part no. 10951239) can be reclaimed by arc welding according to the following procedure. Refer to OIP 10951239 (5/177).

a. Using a suitable valve grinding machine, undercut the valve face as necessary to eliminate the surface defects.

b. Attach the valve to a 12-inch aircraft welding turntable to obtain proper rotation while welding.

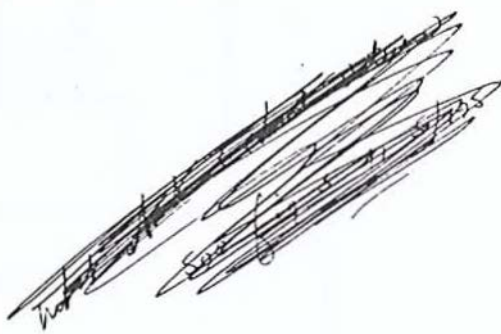
c. Using the semi-automatic gas tungsten arc welding process, weld the machined surfaces of the valve seat. Use standard 1/8 inch x 14 inch welding electrodes (NSN 3439-01-022-5848, ~~FSC# 57265~~ *CAGE 31505*) in accordance with MIL-R-17131 A and AWS 5.13.

d. Overbuild the weld sufficiently to allow for finish grinding of the welded surface.

e. Using valve grinding machine, finish grinding the valve to drawing specifications (DWG 10951239).

NOTE

Quality Control will inspect finished parts to ensure adherence to this procedure.



OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320384

ITEM: PLUG, MACHINE THREAD

REFERENCE: Figure 5-30 (5/147)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Damaged socket	0.0	Visual	None allowed
2		Check for damaged 7/8-20 lock thread	0.0	Visual	None allowed

3

BASE METAL SHOWING 2.5
THROUGH PROTECTIVE
F.W.S.H

V. SEAL

NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

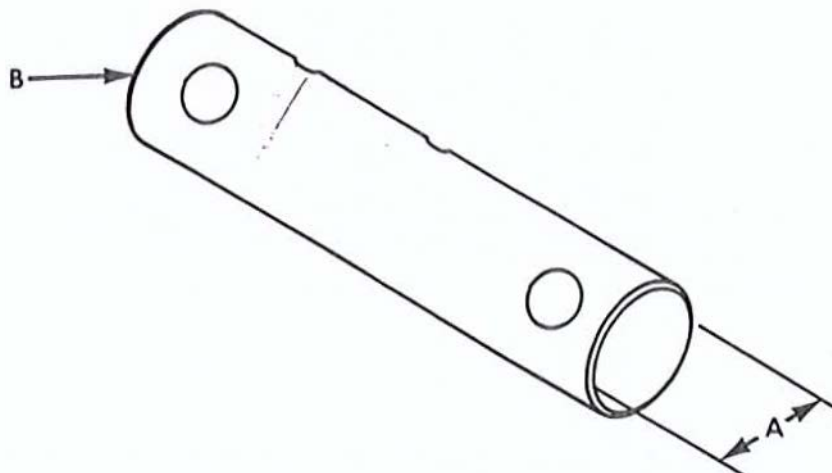
ITEM: ^{STRAIGHT:} SHAFT, VALVE ROCKER ARM, intake

OIP 7320394

REFERENCE: Figure 5-30 (5/147)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	METRIC FOR LEVEL VISUAL	None allowed
2		Scratches, nicks, gouges, scuff, metal pick-up or plugged oil passages	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.7470 inch
4	A	Outside diameter	1.0	Measure	Diameter ^{MUST} must be circular with- in 0.001 and straight within 0.001 TIR 0.0005
5	B	Check for damaged 1/4-28UNF-2B threads	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

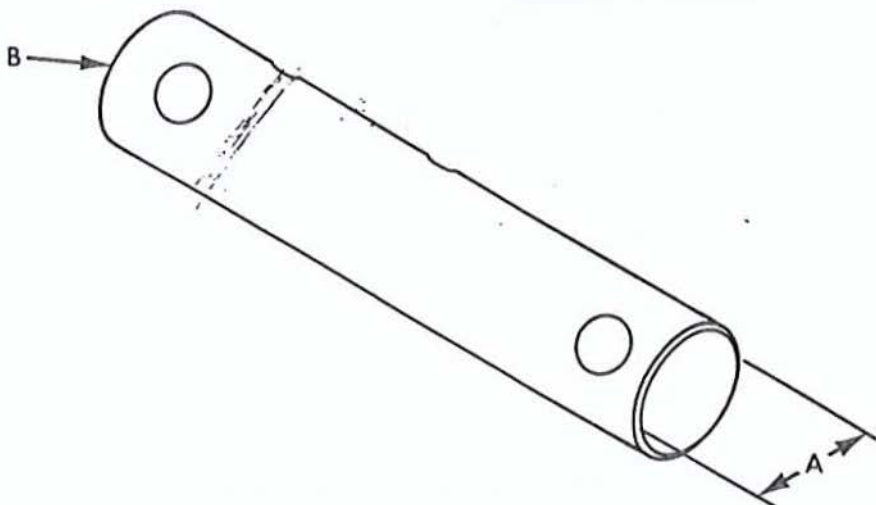
ITEM: ^{STRAIGHT:} SHAFT, VALVE ROCKER ARM,
exhaust

OIP 7320393

REFERENCE: Figure 5-30 (5/147)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic Particle VISUAL	None allowed
2		Scratches, nicks, gouges, scuff, metal pick-up or plugged oil passages	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.7470 inch
4	A	Outside diameter	1.0	Measure	Diameter must be circular within 0.001 and straight within 0.001 TIR 0.001 a.005
5	B	Check for damaged 1/4-28-UNF-28 threads	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320420

ITEM: COVER ASSEMBLY:
valve rocker support

REFERENCE: Figure 5-30 (5/147)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, galling, pitting, burs on camshaft insert surface and tang slots in cover	2.5	Visual	None allowed
3		Thread insert for looseness and damaged or missing threads	2.5	Visual	None allowed
4	A	Camshaft bearing bore diameter	1.0	Measure	Diameter must be no greater than 1.4125 inches
5	B	Inside diameter of camshaft bearing installed in cy- linder head and cover to proper torque tightness	1.0	Measure	Diameter must be no greater than 1.3140 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

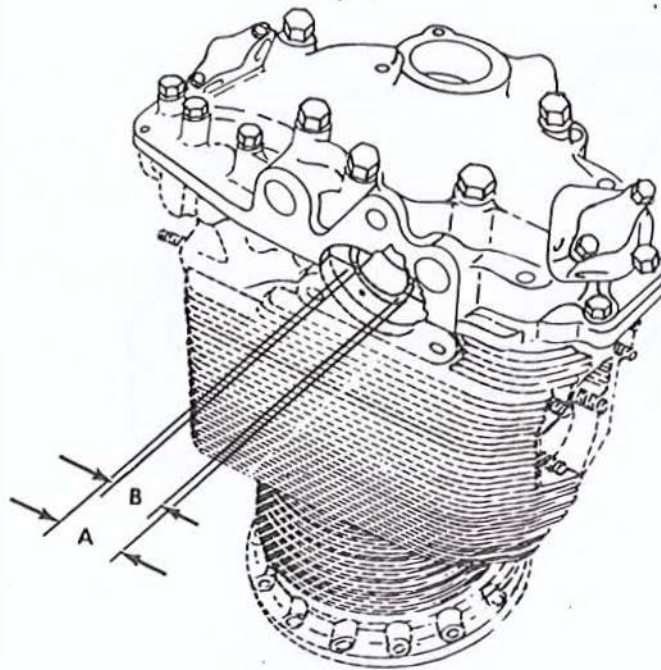
OIP 7320420

ITEM: COVER ASSEMBLY:
valve rocker support

REFERENCE: Figure 5-30 (5/147)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

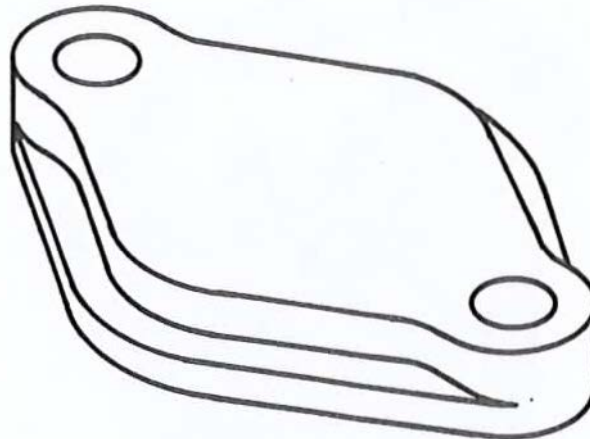
OIP 7320408

**ITEM: COVER, ACCESS:
valve adjusting**

REFERENCE: Figure 5-30 (5/147)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/	Scratches, nicks, gouges or raised metal on gasket surface	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

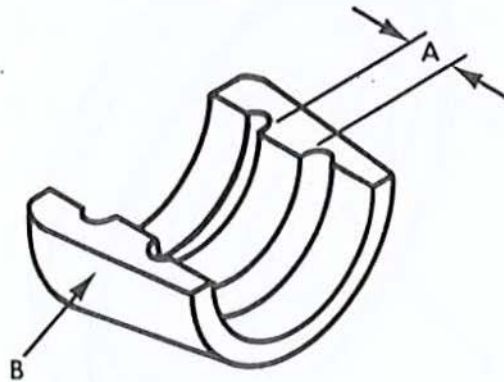
ITEM: LOCK VALVE SPRING RETAINER *201*

OIP 7744610
(300113-02978)

REFERENCE: Figure 5-30 (5/147)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	1.0	Visual	None allowed
3	✓ A	Worn center land	1.0	Measure	Dimension must be no less than 0.1230 inch
4	✓ B	Wear ridge	1.0	Visual	None allowed



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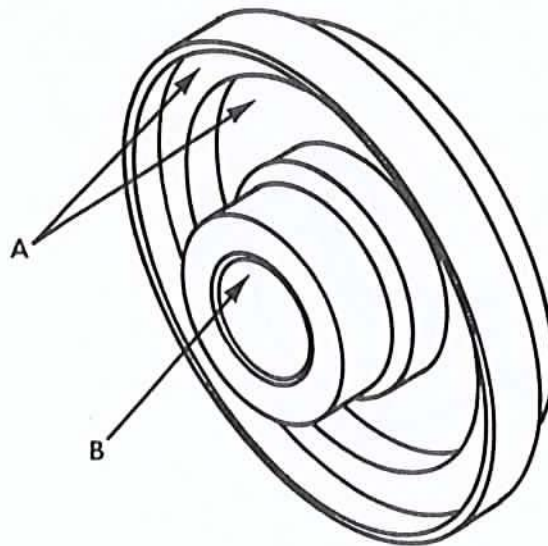
OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: *SEAT, HELICAL COMPRESSION SPRING:*
 RETAINER:
exhaust valve spring, upper
 EXHAUST

OIP 7539839
 (515368-02978)
 REFERENCE: Figure 5-30 (5/147)
 ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	<i>MAGNETIC VISUAL PARTICLE</i>	None allowed
2		Burs, gouges or raised metal on spring lands	1.0	Visual	None allowed
3	A	Spring seat wear	1.0	Visual	None allowed
4	B	Inspect taper for wear	1.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP: 7320427

ITEM: SPRING, HELICAL COMPRESSION:
valve (inner)

REFERENCE: Figure 5-30 (5/147)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	✓ A	Length with load of 43.9 lbs \pm 4.39 lbs	1.0	Measure	1.37 inches
3	✓ B	Length with load of 26.2 lbs \pm 1.31 lbs	1.0	Measure	2.07 inches
4	✓ C	Free length	2.5	Measure	Dimension must be no less than 3.1000 inches and no greater than 3.1200 inches
5	✓	Maximum solid	1.0	Measure	Dimension must be no greater than 1.2800 inches
6	✓	Straightness	0.0	Visual	Spring O.D. must pass freely (without snugness or forcing) thru 1.375 I.D. straight tube, same length as spring

NOTE
Spring must not take permanent set when compressed solid.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

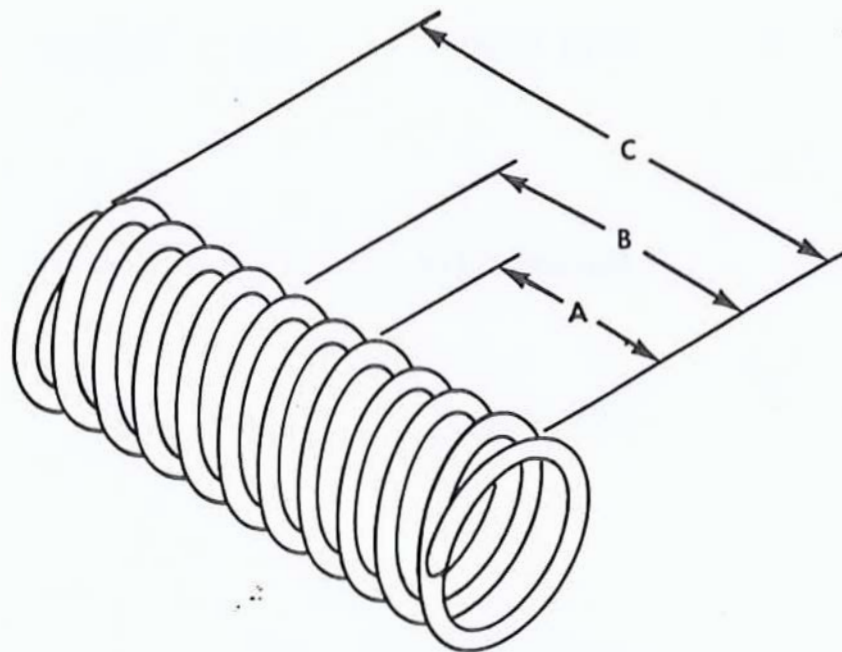
OIP 7320427

ITEM: SPRING, HELICAL COMPRESSION:
valve (inner)

REFERENCE: Figure 5-30 (5/147)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320429

ITEM: SPRING, HELICAL, COMPRESSION:
valve (intermediate)

REFERENCE: Figure 5-30 (5/147)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	✓ A	Length with load of 81.4 lbs \pm 8.14 lbs	1.0	Measure	1.56 inches
3	✓ B	Length with load of 51.7 lbs \pm 2.585 lbs	1.0	Measure	2.26 inches
4	✓ C	Free length	2.5	Measure	Dimension must be no less than 3.4700 inches and no greater than 3.4900 inches
5	✓	Maximum solid height	1.0	Measure	Dimension must be no greater than 1.3400 inches
6	✓	Straightness	0.0	Visual	Spring O.D. must pass freely (without snugness or forcing) thru 1.730 I.D. straight tube, same length as spring
7	✓	Straightness	0.0	Visual	Spring I.D. must pass freely (without snugness or forcing) on 1.366 diameter straight rod, same length as spring



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320429

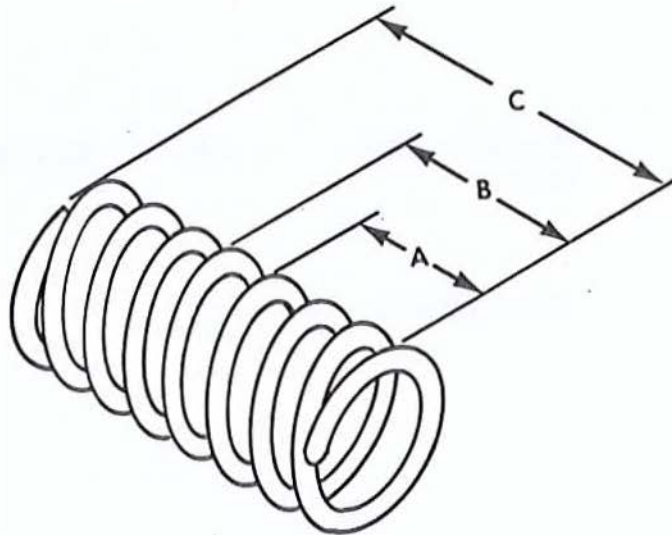
ITEM: SPRING, HELICAL, COMPRESSION:
valve (intermediate)

REFERENCE: Figure 5-30 (5/147)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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NOTE
Spring must not
take permanent
set when com-
pressed solid.



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320428

ITEM: SPRING, HELICAL, COMPRESSION:
valve (outer) ⁷

REFERENCE: Figure 5-30 (5/147)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Visual	None allowed
2	✓ A	Length with load of 134.2 lbs \pm 13.42 lbs	1.0	Measure	1.56 inches
3	✓ B	Length with load of 85.4 lbs \pm 4.27 lbs	1.0	Measure	2.26 inches
4	✓ C	Free length	2.5	Measure	Dimension must be no less than 3.4700 inches and no greater than 3.4900 inches
5	✓	Maximum solid height	1.0	Measure	Dimension must be no greater than 1.4700 inches
6	✓	Straightness	0.0	Visual	Spring O.D. must pass freely (without snugness or forcing) thru 2.172 I.D. straight tube, same length as spring
7	✓	Straightness	0.0	Visual	Spring I.D. must assemble freely (without snugness or forcing) on 1.721 diameter straight rod, same length as spring

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320428

ITEM: SPRING, HELICAL, COMPRESSION:
valve (outer)

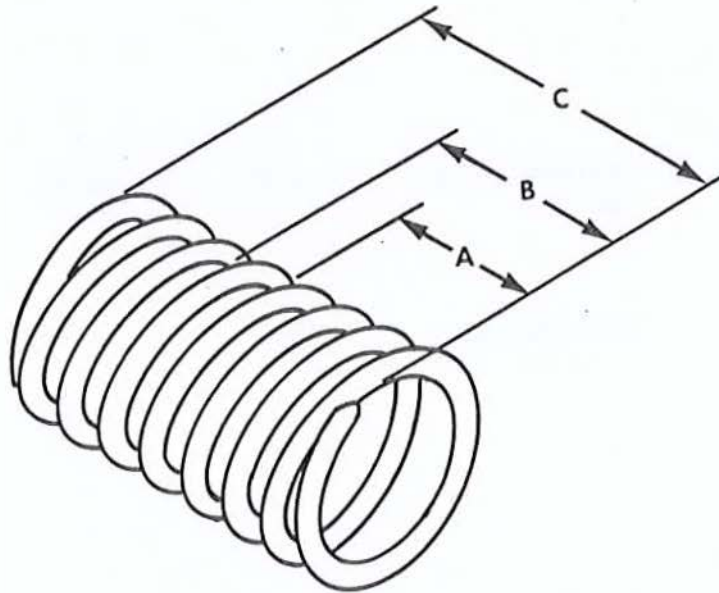
REFERENCE: Figure 5-30 (5/147)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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NOTE

Spring must not
take permanent
set when com-
pressed solid.



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

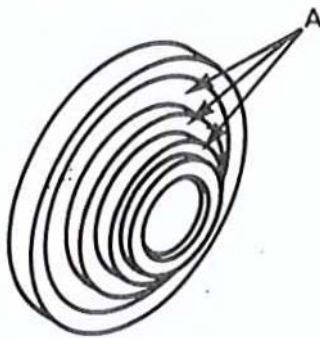
OIP - 7539838
(515462-02978)

ITEM: ROTOR, ENGINE POPPET VALVE:
exhaust valve

REFERENCE: Figure 5-30 (5/147)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Check for free rotation with no load	1.0	Manual	Nonrotation will be cause for rejection
3		Check for load rotation	1.0	Spring tester fig. 5-35 (5/162)	Nonrotation will be cause for rejection
4		Burs, gouges, grooves or raised metal on spring lands	1.0	Visual	None allowed
5	A	Spring seat wear	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11610010

ITEM: VALVE, POPPET, ENGINE:
exhaust

REFERENCE: Figure 5-30 (5/147)

ITEM: 14

NO.	REF LTR.	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		CRACKS	0.0	MAGNETIC PARTICLE	NONE ALLOWED
2		Scratches, nicks, gouges on contact surfaces. Pitting, imperfect seating, warping, heavy discoloration, burning, erosion and heavy carbon deposits on valve face	1.0	Visual	None allowed
3		Damaged locking grooves	2.5	Visual	None allowed
4	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.5565 inch
5	B	Seat angle	1.0	Measure	Angle must be no less than 45°-00' or no greater than 45°-15'
6	C	Width of locking groove	1.0	Measure	Dimension must be no greater than 0.1660
7	D	Length - gage line to end of stem	1.0	Measure	Dimension must be no greater than 7.0240 inches
8	E	Gage diameter	1.0	Measure	Diameter must be no less and no greater than 2.0870 inches gage diameter

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

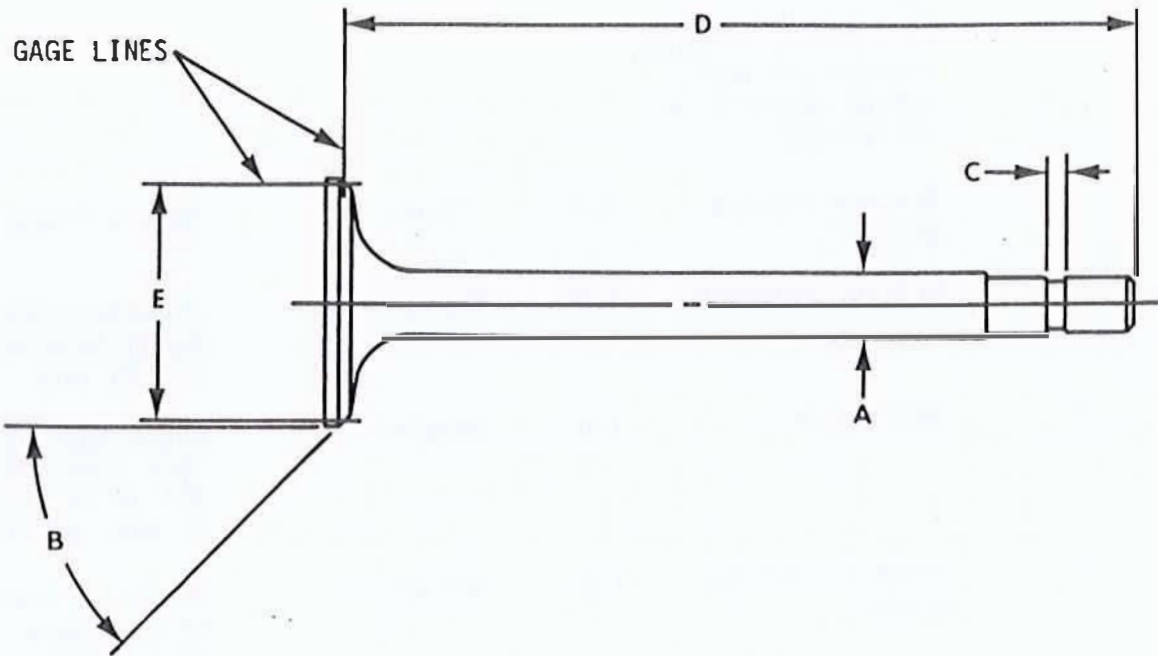
OIP 11610010

ITEM: VALVE, POPPET, ENGINE:
exhaust

REFERENCE: Figure 5-30 (5 /147)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10951239

ITEM: VALVE, POPPET, ENGINE:
intake

REFERENCE: Figure 5-30 (5/147)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		CRACKS	0.0	MAGNETIC PARTICLE	NONE ALLOWED
2		Scratches, nicks, gouges on contact surfaces. Pitting, imperfect seating, warping, heavy discoloration, burning, erosion and heavy carbon deposits on valve face	1.0	Visual	None allowed
3		Damaged locking grooves	2.5	Visual	None allowed
4	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.4970 inch
5	B	Seat angle	1.0	Measure	Angle must be no less than 74°-45' or no greater than 75°-15'
6	C	Width of locking groove	1.0	Measure	Dimension must be no greater than 0.1660
7	D	Length - gage line to end of stem	1.0	Measure	Dimension must be no greater than 6.3690 inches
8	E	Gage diameter	1.0	Measure	Diameter must be no less than and no greater than 2.4000 inches gage diameter

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

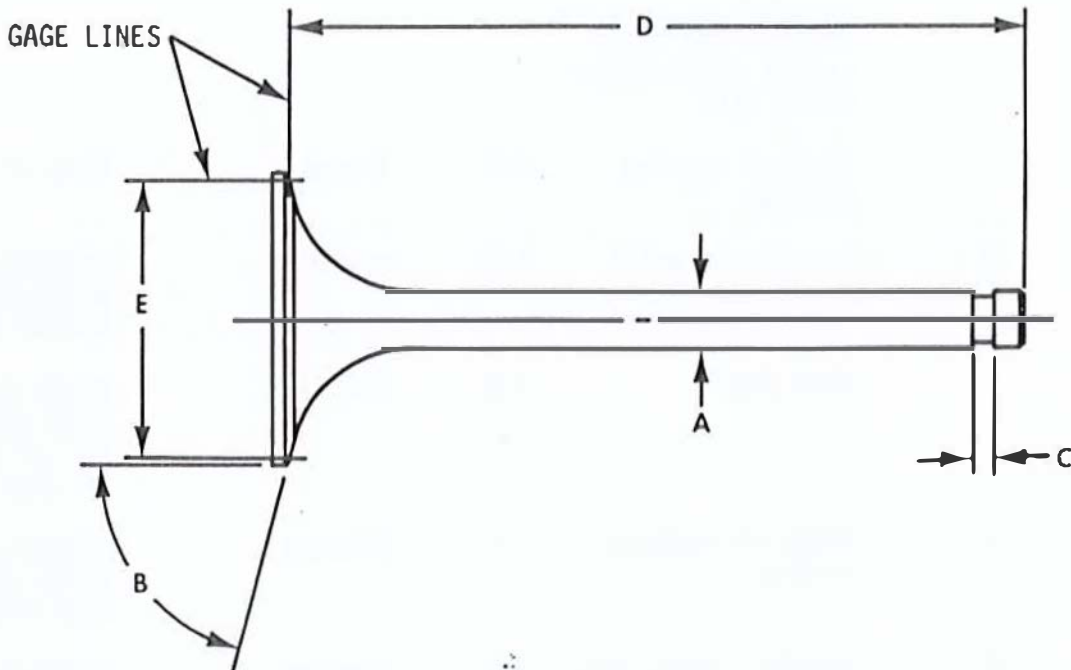
OIP 10951239

ITEM: VALVE, POPPET, ENGINE:
intake

REFERENCE: Figure 5-30 (5/147)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: CYLINDER AND HEAD, ENGINE

OIP 10951221 - less cover

REFERENCE: Figure 5-30 (5/147)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, burs on contact surfaces and tang slots in camshaft bores	2.5	Visual	None allowed
3		Missing fins (refer to fig. 5-34) (5/160)	0.0	Visual	Must not exceed 6.25 sq in. total. Also must not exceed 1.56 sq in. in any four sq in. area
4		Loose or missing inserts	2.5	Visual	None allowed
5		Loose, bent or cracked studs	2.5	Visual	None allowed
6		Loose or missing dowels (cover to head)	2.5	Visual	None allowed
7		Damaged threads	2.5	Visual	None allowed
8		Valve seat inserts - cracked, loose, burned, eroded, worn or pitted valve seat	2.5	Visual	None allowed
		Exhaust valve seat angle	1.0	Measure	Dimension must be no less than 45°-00' ^{44° 45'} or no greater than 45°-15' ^{45°-00'} 45°-00' ^{45°-15'} 45°-00' ^{45°-00'}

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: CYLINDER AND HEAD, ENGINE
- Continued

OIP 10951221 - less cover

REFERENCE: Figure 5-30 (5/147)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
		Intake valve insert seat angle	1.0	Measure	Dimension must be no less than 74°-45' ^{74°-15'} or no greater than 75°-45' ^{74°-45'}
9		Valve guides - loose, cracked, burned, galling, scuffing or eroded	2.5	Visual	None allowed
10		Dowel holes on cylinder base flange - inspect for nicks or burs	2.5	Visual	None allowed
11		Check cylinder bore for excessive deep scratches, scoring, ring ridge, metal pick-up and smooth or glazed bores on cylinder wall	2.5	Visual	None allowed
12	✓	Maximum out-of-round of cylinder bore	1.0	Measure	Dimension must be no greater than 0.0030 inch
13	A	Inside diameter of exhaust valve guide installed into cylinder head	1.0	Measure	Diameter must be no greater than 0.5635 ^{0.5643} inch
14	B	Inside diameter of intake valve guide installed into cylinder head	1.0	Measure	Diameter must be no greater than 0.5635 ^{0.5625} inch

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10951221 - less cover

ITEM: CYLINDER AND HEAD, ENGINE:
- Continued

REFERENCE: Figure 5-30 (5/147)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
15	C	Standard bore diameter from bottom of skirt to 10.50 inches	1.0	Measure	Diameter must be no greater than 5.7600 inches
	C	0.0100 oversize bore diameter from bottom of skirt to 10.50 inches	1.0	Measure	Diameter must be no greater than 5.7700 inches
	C	0.0200 oversize bore diameter from bottom of skirt to 10.50 inches	1.0	Measure	Diameter must be no greater than 5.7800 inches
	C	0.0300 oversize bore diameter from bottom of skirt to 10.50 inches	1.0	Measure	Diameter must be no greater than 5.7900 inches
	C	0.0400 oversize bore diameter from bottom of skirt to 10.50 inches	1.0	Measure	Diameter must be no greater than 5.8000 inches
16	D	Camshaft bearing bore diameter with cover assembled and without bearing	1.0	Measure	Diameter must be no greater than 1.4125 inches
17	E	Diameter of camshaft seal counter-bore bolted in place with cover (2 places)	1.0	Measure	Diameter must be no greater than 2.5015 inches

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: CYLINDER AND HEAD, ENGINE
- Continued

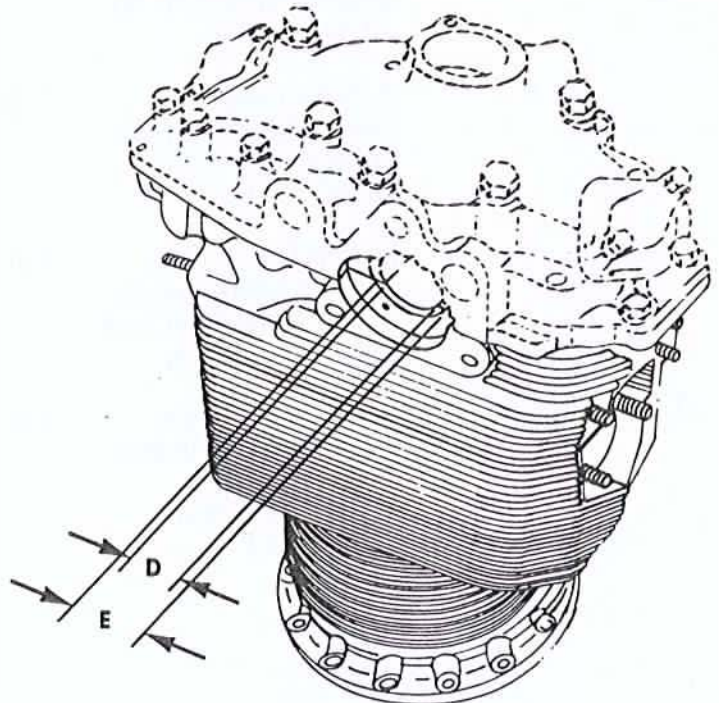
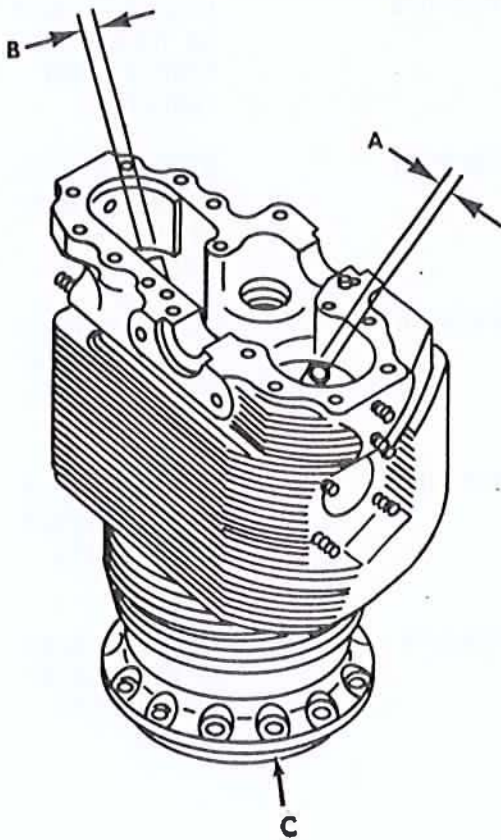
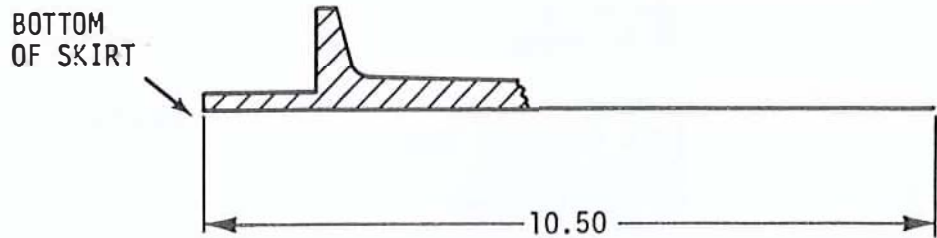
OIP 10951221 - less cover

REFERENCE: Figure 5-30 (5/147)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

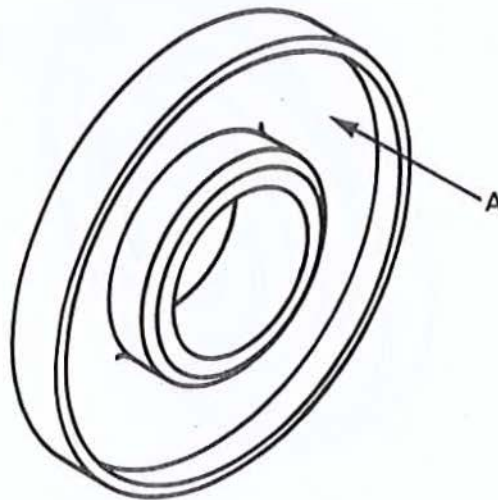
ITEM: SEAT, HELICAL COMPRESSION SPRING;
intake valve ~~spring~~

OIP 7744617

REFERENCE: ~~Figure 5-30 (5/147)~~ Figure 5-30 (5/147)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	MAGNETIC VISUAL PARTICLE	None allowed
2		Scratches, nicks, gouges, burs or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Spring seat wear	1.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

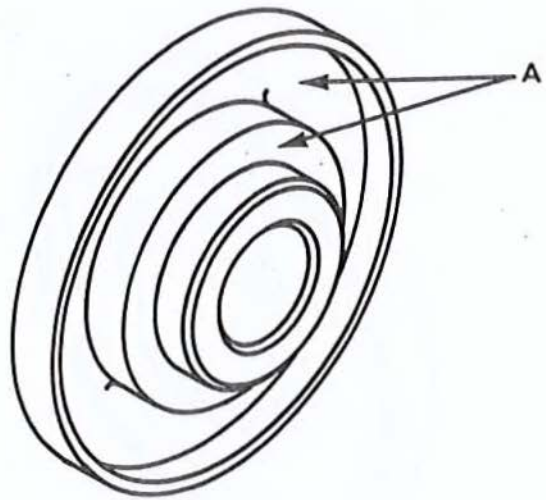
OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: *LOCK VALVE SPRING RETAINER:*
~~RETAINER:~~
~~intake valve spring (upper)~~
 INTAKE

OIP 7744798
 (302371-02978)
 REFERENCE: Figure 5-30 (5/147)
 ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual MAGNETIC PARTICLE	None allowed
2		Scratches, nicks, gouges, burs or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Spring seat wear	1.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

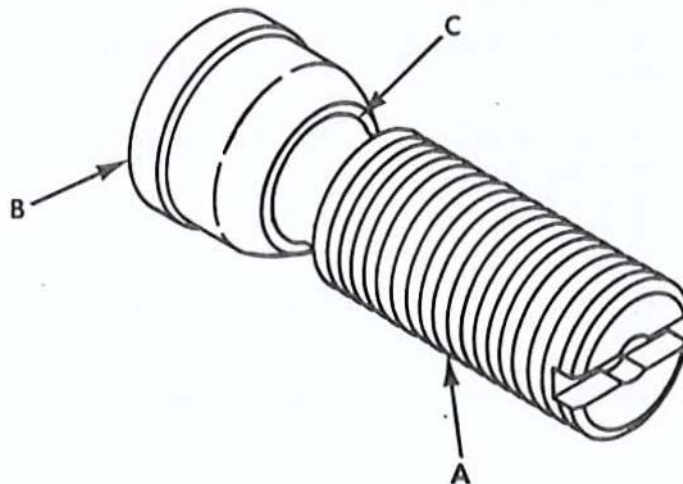
DMWR 9-2815-220

ITEM: SCREW ^{ASSEMBLY} ADJUSTING:
valve rocker

OIP 7767321
(7767321, 02978)
REFERENCE: Figure 5-30 (5/147)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks, gouges, raised metal on contact surface	2.5	Visual	None allowed
3	A	Check for stripped or damaged threads	1.0	Visual	None allowed
4	B	Check swivel pad and adjusting screw for free rotation	1.0	Visual	No binding allowed
5	C	Socket end play	1.0	Measure	0.0120 maximum inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ENGINE}ROCKER ARM, POPPET VALVE:
exhaust

OIP 8725293

REFERENCE: Figure 5-30 (5/147)

ITEM: 20

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual MAGNETIC PARTICLE	None allowed
2		Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3		Check bearing sleeve for looseness and scoring	1.0	Visual	None allowed
4	A	Check valve rocker arm rollers for scuff, score marks and looseness on hub. Roller must roll freely without binding and wobble. Also must not have flat spots or chipped areas	2.5	Visual	None allowed
5	/ B	Check for thread damage	2.5	Visual	None allowed
6	/ C	Inside diameter of bearing installed into rocker arm (2 places)	1.0	Measure	Diameter must be no greater than 0.7520 inch
7	/ D	Roller and locator pins must be tight	2.5	Visual	None allowed
8	/ E	Hub width	1.0	Measure	Dimension must be no less than 1.2370 inch
9	/	Side clearance between rocker cover and rocker arms	1.0	Measure	Side clearance must be no greater than 0.0200 inch

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

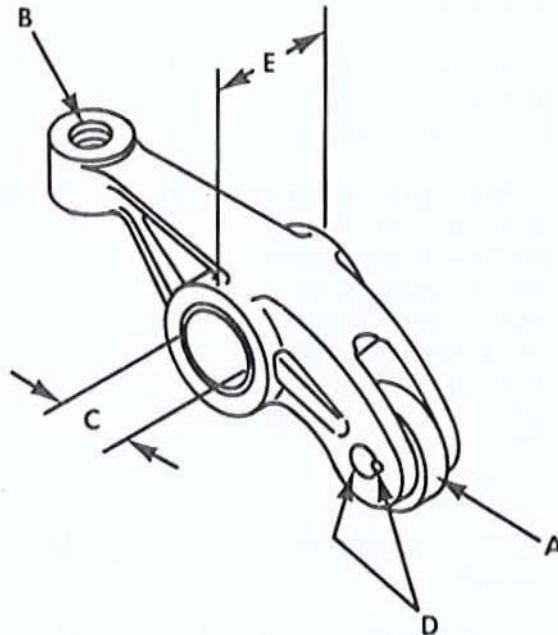
ITEM: ^{ENGINE} ROCKER ARM, POPPET VALVE:
exhaust

OIP 8725293

REFERENCE: Figure 5-30 (5/147)

ITEM: 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ENGINE} ROCKER ARM, POPPET VALVE:
intake

OIP 8725281

REFERENCE: Figure 5-30 (5/147)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3		Check bearing sleeve for looseness and scoring	1.0	Visual	None allowed
4	✓ A	Check valve rocker arm rollers for scuff, score marks and looseness on hub. Roller must roll freely without binding and wobble. Also must not have flat spots or chipped areas	2.5	Visual	None allowed
5	✓ B	Check for thread damage	2.5	Visual	None allowed
6	✓ C	Inside diameter of bearing installed into rocker arm (2 places)	1.0	Measure	Diameter must be no greater than 0.7520 inch
7	✓ D	ROCKER ARM Locator pins must be tight	2.5	Visual	None allowed
8	✓ E	Hub width	1.0	Measure	Dimension must be no less than 1.4870 inch
9	✓	Side clearance between rocker cover and rocker arms	1.0	Measure	Side clearance must be no greater than 0.0200 inch

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

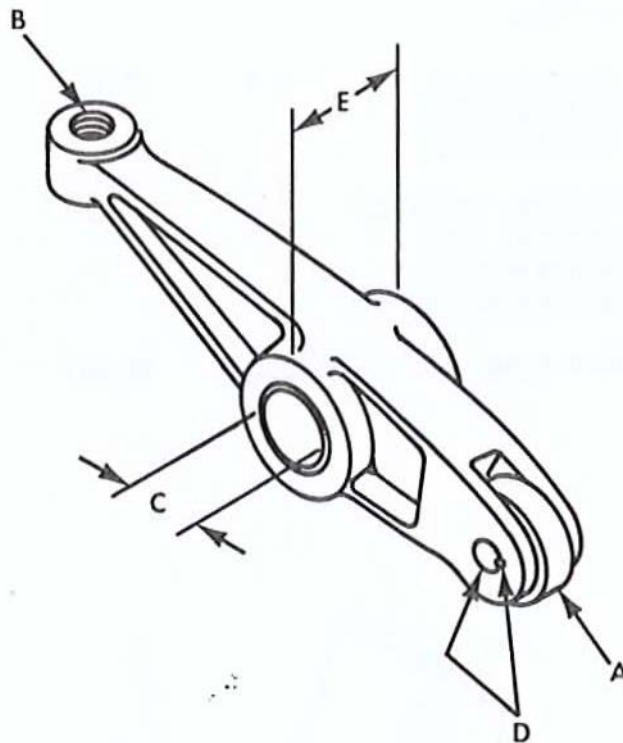
ITEM: ROCKER ARM, ^{ENGINE} POPPET VALVE:
intake

OIP 8725281

REFERENCE: Figure 5-30 (5/147)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

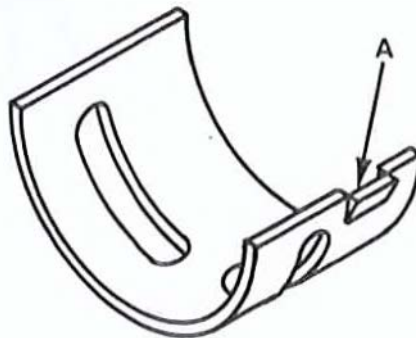
OIP 11668067

**ITEM: BEARING, HALF SLEEVE:
camshaft**

REFERENCE: Figure 5-30 (5/147)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3	/	Separation of bearing metal from backing	2.5	Visual	None allowed
4	/	Pitting, galling, scoring, discoloration of bearing surface	2.5	Visual	None allowed
5	A /	Worn tang	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5-37. Repair and Assembly.

a. General Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Cylinder Interior.

(1) Valve guide replacement. Replace any cracked, galled, eroded, or scuffed intake and exhaust valve guides, or guides that do not conform to limits using the following procedure.

NOTE

Intake and exhaust valve guides are removed from the cylinder in the same manner. The intake valve guide mechanical puller (5, fig. 2-4) (2/12) is used for intake valve guide removal and the exhaust valve guide mechanical puller (4, fig. 2-4) (2/12) is used for exhaust valve guide removal.

(a) Insert screw of mechanical puller through the valve guide and puller and install nut on the end of puller screw (fig. 5-36) (5/191). Preheat entire assembly in oven to 350 degrees F maximum before removing valve guide. Remove valve guide by tightening nut on the end of the puller screw.

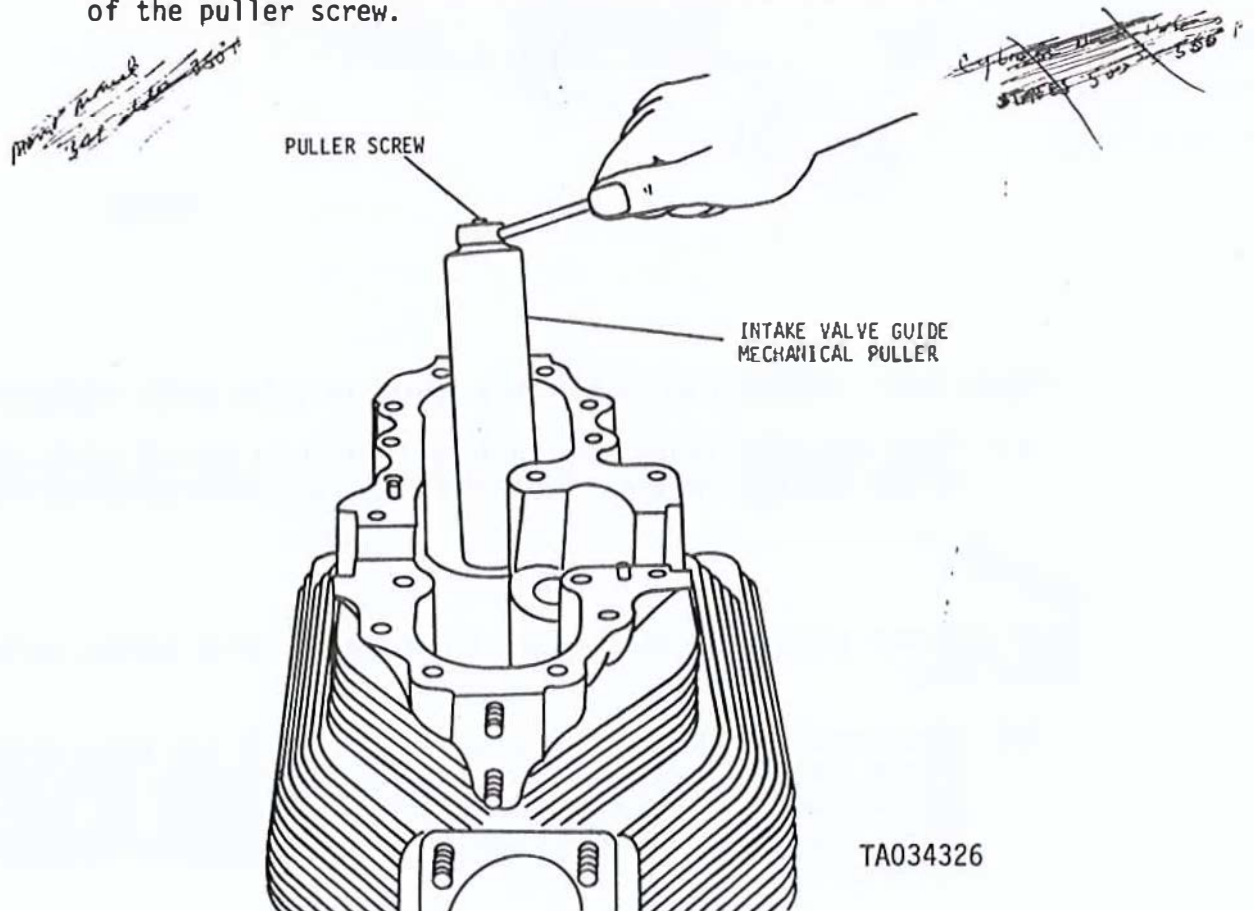


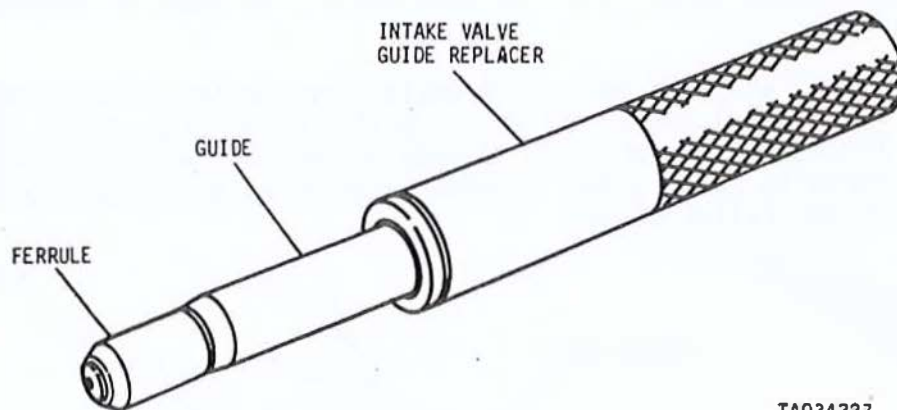
Figure 5-36. Removing intake valve guide using mechanical puller.

5-37. (Cont)

NOTE

Intake and exhaust valve guides are installed in the same manner. The intake valve guide replacer (13, fig. 2-3) (2/10) is used for intake valve guide replacement and the exhaust valve guide replacer (12, fig. 2-3) (2/10) is used for exhaust valve guide replacement.

(b) Remove ferrule (fig. 5-37) (5/192) from end of valve guide replacer.



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Figure 5-37. Positioning intake valve guide on valve guide replacer.

(c) Place new valve guide over replacer with short end of guide entering hollow replacer handle. Replace ferrule to retain guide on replacer.

NOTE

Heat cylinder assembly to 350 degrees F maximum and chill guides before installing.

(d) Place assembled valve guide (fig. 5-38) (5/193) and valve guide replacer into valve guide bore in cylinder. Carefully drive guide into cylinder until flange on guide is positioned against top face of guide bore. Then remove ferrule from replacer and withdraw replacer from valve guide.

5-37. (Cont)

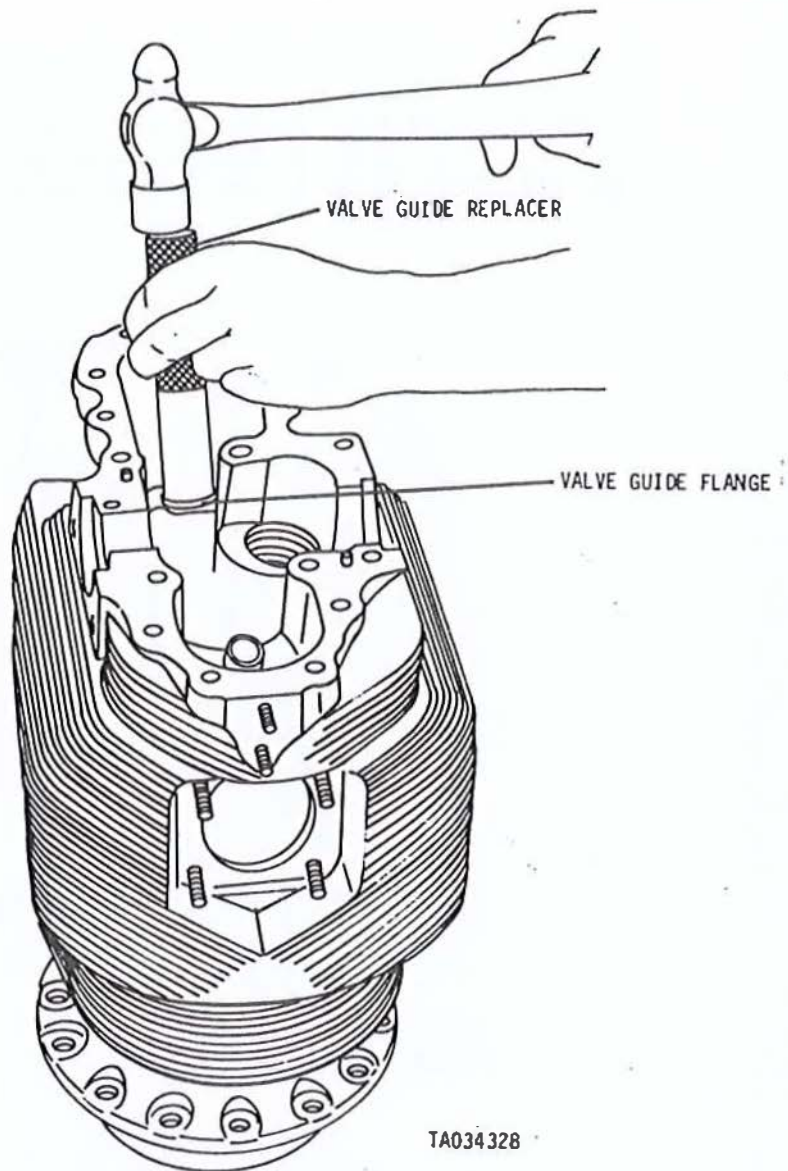


Figure 5-38. Installing intake valve guide using valve guide replacer.

NOTE

After new valve guides are installed, they must be reamed to specified size to assure proper valve stem clearance.

- (e) Install intake valve guide reamer bushing (10, fig. 2-3) (2/10) into intake valve seat as shown in figure 5-39 (5/194). Use intake valve guide roughing hand reamer (16, fig. 2-3) (2/10) to rough ream the intake valve guide and intake valve guide finishing hand

5-37. (Cont)

reamer (15, fig. 2-3) (2/10) to finish ream the intake valve guide as shown in figures 5-39 (5/194) and 5-40 (5/195). The exhaust valve guides are similarly reamed using exhaust valve guide reamer bushing (11, fig. 2-3) (2/10), exhaust valve guide roughing hand reamer (18, fig. 2-3) (2/10), and exhaust valve guide finishing hand reamer (17, fig. 2-3) (2/10).

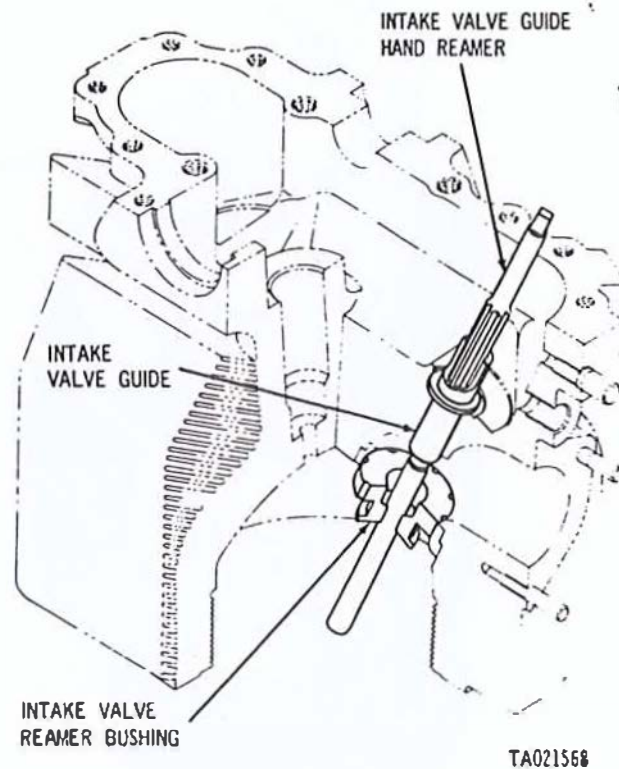


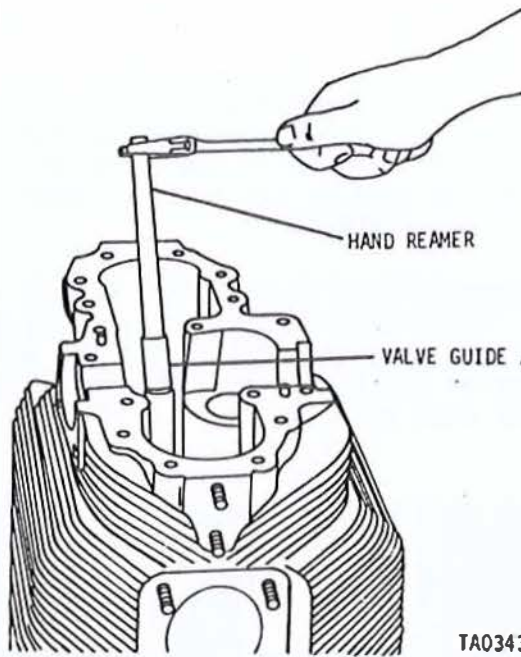
Figure 5-39. Intake valve guide hand reamer bushing positioning in cylinder head - sectional view

(2) Valve seats. Replace cylinder assembly when inserts are cracked, loose, or excessively worn. Grind seats which do not show all around (360°) contact with the valve face. Grind inserts (fig. 5-41) (5/195) as described below.

NOTE

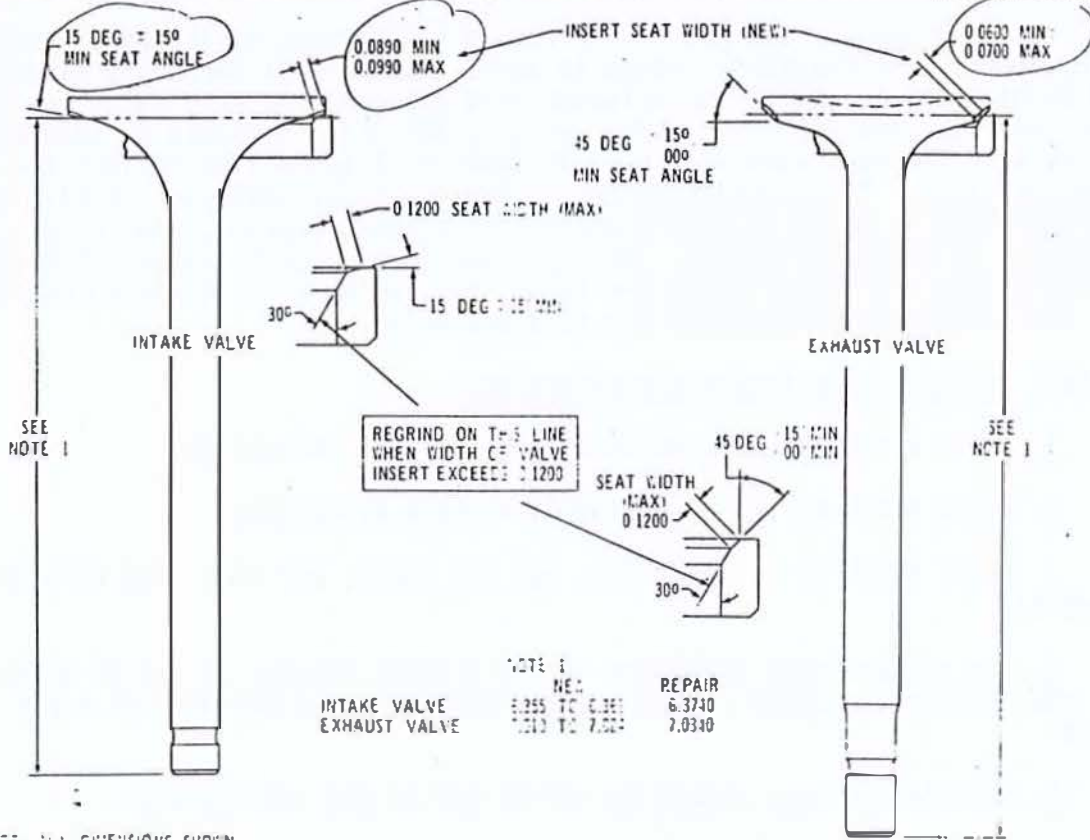
An orbital grinder is preferred when grinding valve seat inserts.

5-37. (Cont)



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Figure 5-40. Reaming intake valve guide, using hand reamer and reamer bushing.



NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

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Figure 5-41. Valve and valve seat insert grinding diagram.

5-37. (Cont)

(a) Seat dressing. A 45 degree angle stone must be used to grind the exhaust valve seat, and a 15 degree angle grinding stone must be used for the intake valve seats. Dress the seat on the insert with the stone using a valve seat grinding machine. After dressing the seat of the insert, inspect valve contact as described in paragraph 5-36, b (4) (5/158).

(b) Seat width. When 360 degree contact is obtained, narrow the seat on the insert to the width specified in figure 5-41 (5/195) by grinding the inner wall and exposed face of the insert to the angles specified. Keep valve seat area as near as possible to the center of the valve face. Valves should never seat at the top or bottom of the valve face area.

(3) Valves. Discard valves that have warped, cracked, pitted, or burned faces. Also discard valves having badly pitted, scored, or scratched stems or locking grooves. Reface slightly pitted or burned valves that do not have 360 degrees of contact to limits specified in figure 5-41 (5/195). Discard valves that cannot be refaced to these limits. Check valve length from seat contact to tip of stem after grinding, as shown in figure 5-41 (5/195). Discard valve if length is not within the limits specified.

(4) Cylinder bore. Cylinder bores should be reground to the next oversize according to oversize standards listed in table 5-10 (5/153) when bore dimensions are not within limits. After the cylinder bore has been reground oversize, the cylinder assembly identification number (fig. 5-32) (5/157) should be changed in accordance with the part numbers listed in table 5-11 (5/157) to reflect the reground bore size. The cylinder assembly should also be reground oversize when the cylinder bore is found to have excessive scratches, scoring, ring ridge, or when the bore is glazed or smooth. All cylinder bores must be honed after grinding and/or before new piston rings are installed. Cylinder bore honing specifications and recommended procedures are outlined below.

(a) Cylinder bore honing specifications.

- 1 Cross hatch angle to be 35⁵⁵ degrees off the horizontal.
- 2 Cross hatch to be cut uniformly in both directions.
- 3 Cross hatch to be clean-cut, but not sharp, and free from torn or folded metal.
- 4 The micro-finish roughness should average between 35 and 45 micro-inches, rms (root-mean-square deviation from the mean), as measured on a profilometer.
- 5 The plateau area should be 1/2 to 2/3 of the surface area.
- 6 The plateau should be free from burnished or glazed surfaces.
- 7 The surface must be free of embedded particles.

5-37. (Cont)

(b) Cylinder bore honing.

1 Honing stones (3 and 4, fig. 2-2) (2/8) are listed in table 2-1 (2/5). The stones are used alternately around the honing head.

2 The hone angle should be 35 ^{55 degrees} ~~degrees~~ to the horizontal. ~~40 degrees~~
~~Spindle~~ Spindle speed should be 77 rpm, with a vertical reciprocating rate of 43 cycles per minute.

3 The surface finish should be developed in two stages. Rough hone the entire length of the bore, using moderately heavy stone pressure, until the ring ridge is removed and the entire bore has a cross hatch pattern. Finish hone using the same stones, with very light pressure, for approximately five to eight strokes. This operation will remove rough edges and fragmented metal left from the rough hone operation.

NOTE

The ring ridge may be removed using short stones and a short stroking action prior to the full rough and finish hone cycle. Under no circumstances should short cycle strokes be performed after the full length strokes have been completed.

4 Honing oil should be principally kerosene with a sulphur based oil. Adequate filtration should be provided with both magnetic and paper filters recommended. A recommended mixture is 27-1/2 parts kerosene to 22-1/2 parts sulphur based oil.

5 After honing, the cylinder bore should be washed with soap and water at 160 degrees F, dried and a light coating of oil applied.

c. Cylinder Exterior.

(1) Cooling fins. Straighten bent fins as near as possible to their original spacing. Replace a cylinder assembly when more than one percent of barrel cooling fin area is broken. Also replace cylinder assembly if head fin is broken more than half the depth of the fin or more than two inches long. A cylinder assembly can be used if it has not more than three acceptable defects, or if no two of the defects are on adjacent fins. Repair damaged cylinder head fins as outlined below.

(a) Blending. Use a fine mill file to remove sharp corners on broken head fins. Avoid removing more metal than necessary to produce a smoothly blended edge on the damaged fin.

(b) Blended fin depth. The depth of any blended fin must not be less than 50 percent of its original depth. When blended fin is less than 50 percent of original depth, replace the cylinder assembly.

5-37. (Cont)

(2) Studs and inserts. Refer to paragraph 5-5, d (5/6), table 5-12 (5/198), and figure 5-42 (5/198) when replacing damaged, bent, or stripped cylinder assembly studs. Refer to paragraph 5-6 (5/8) when replacing damaged threaded inserts.

d. Valve Rocker Arm Cover and Associated Parts.

(1) Rocker arm cover welding. Repair of the rocker arm cover by welding is permissible in the areas shown in figure 5-43 (5/199). Refer to paragraph 5-7 (5/10) for general welding instructions.

Table 5-12. Cylinder Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-42 (5/198)	1	31/32 ✓	36	5/16-18 (13/16) x 5/16-24 (19/32) x 1-11/16 24/32
	2	1-3/32 ✓	12	7/16-14 (25/32) x 7/16-20 (1-1/64) x 1-27/32 24/32
	3	21/32 ✓	24	5/16-18 (11/16) x 5/16-24 (9/16) x 1-5/16 24/32
	4	31/32 ✓	48	3/8-16 (53/64) x 3/8-24 (7/8) x 1-3/4 ✓ 24/32

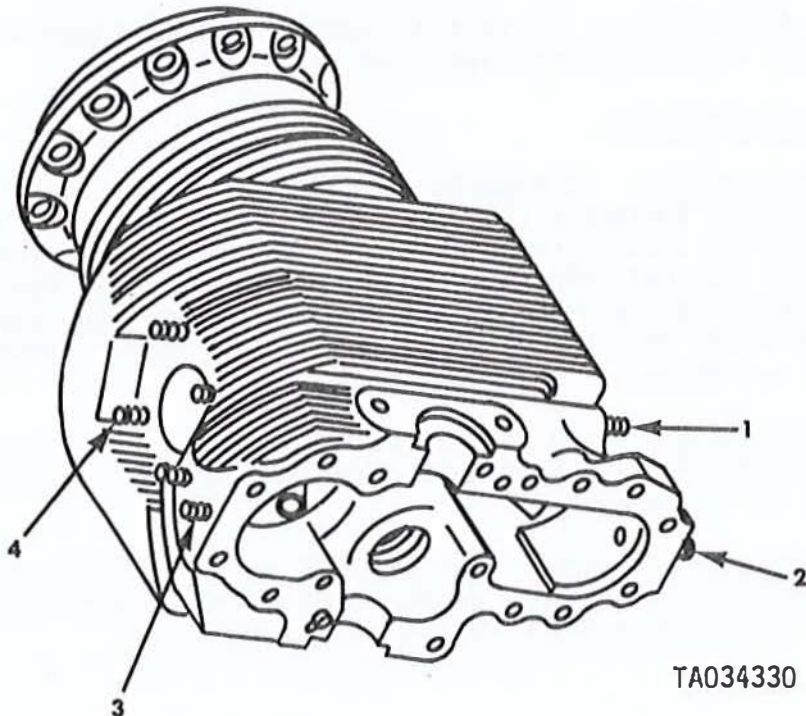


Figure 5-42. Cylinder standard stud identification.

5-37. (Cont)

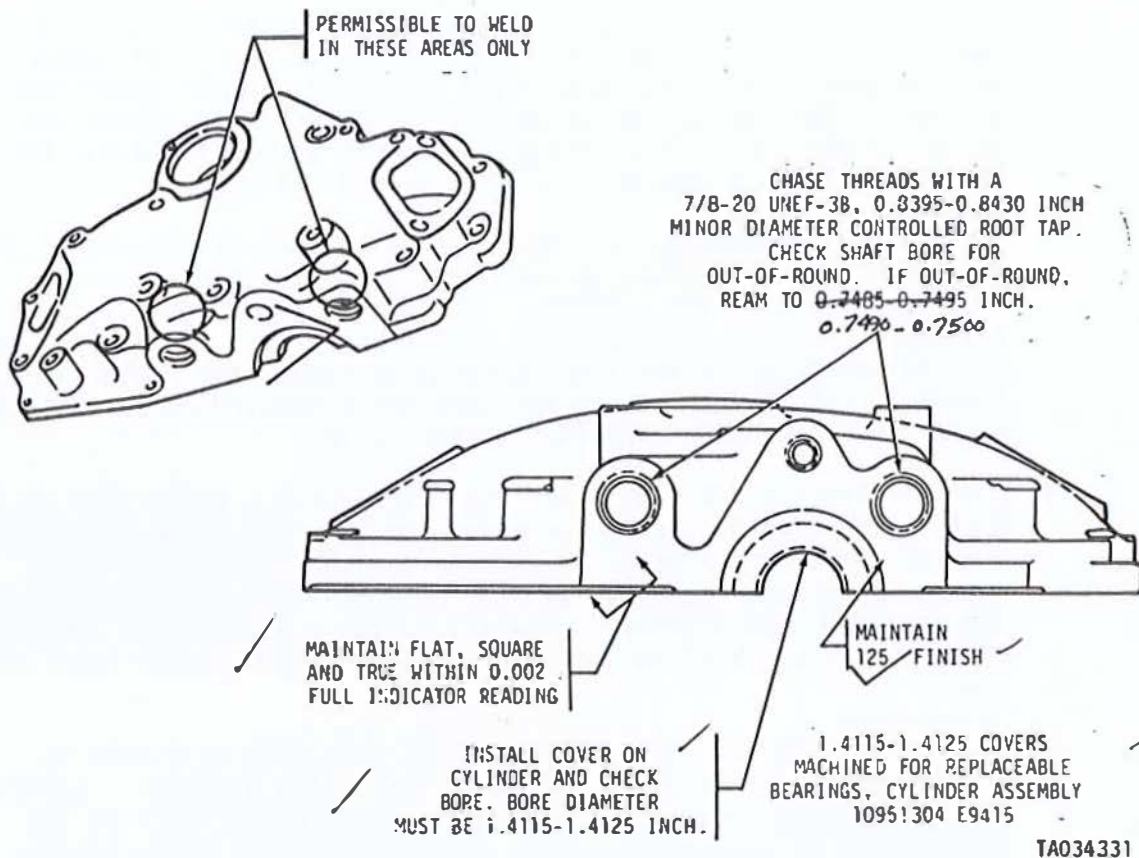


Figure 5-43. Rocker arm cover welding standards.

(2) Reclamation procedure for installing mismatched rocker covers on cylinders. Cylinders with nonreparable rocker covers may be reclaimed by hand fitting with rocker covers generated from disassembly of salvaged cylinders. Follow the procedures outlined below to hand fit covers to cylinders.

(a) Procedure for selecting covers.

- 1 Remove two dowel pins from rocker cover surface of cylinder.
- 2 Select a rocker cover that most nearly matches the camshaft bearing bore and cylinder width.
- 3 Lap mating surfaces of cylinder head and rocker cover with fine lapping compound, to provide a good oil tight contact face.

(b) Procedure for fitting rocker cover to cylinder.

5-37. (Cont)

- 1 Use a 1/4-inch drill to drill rocker cover dowel holes through from inside to outside of rocker cover.
- 2 Assemble rocker cover to cylinder and check camshaft bearing bore dimension. Dimension must be 1.4115 to 1.4125 inch. If camshaft bore is greater than the prescribed dimension, remove cover from cylinder. Machine mating surface of rocker cover to obtain the correct dimension. After obtaining correct camshaft bearing bore dimension, loosely assemble rocker cover to cylinder.
- 3 Install a plug machined to 1.4080 to 1.4100 inch diameter by 2.500 inch long in the camshaft bearing bore to align rocker cover to machine surface of the cylinder. Align the rocker cover to obtain a 6.2460 to 6.2540 inch parallel dimension between the rocker cover and cylinder head at the side mounting surfaces, and a dimension of 2.5000 to 2.5015 inch at the camshaft drive housing bore. Tighten rocker cover mounting capscrews to 100 lb-in.
- 4 Enlarge existing 1/4-inch dowel pin holes using a 19/64 inch drill. Drill holes through the rocker cover and 1/2 inch below the contact face of the cylinder head. Ream hole to 0.3090 to 0.3100 inch. Remove rocker cover and countersink dowel hole in cylinder head 90 degrees to 0.3400 diameter. Install 0.3125 x 0.6200 inch long dowel pins in cylinder head to a height of 0.1900 above rocker cover surface.
- 5 Ream dowel holes in rocker cover 0.3125 to 0.3135 to 0.3000 to 0.3600 depth. Countersink 90 degrees to 0.3400 diameter. Install 0.3125 x 0.3800 inch long dowel pin in outer end of each of the dowel holes in the rocker cover. Drive pin 0.0300 below surface. Peen outer end of hole to prevent loss of dowel pins.
- 6 Install rocker shafts in rocker cover and assemble to cylinder head using proper quantity of mounting capscrews. Torque the four valve rocker bearing capscrews to 275 to 325 lb-in. and the remaining capscrews to 100 lb-in. Line bore camshaft bearing bore to 1.4115 to 1.4125 inch diameter.

CAUTION

Extreme care must be taken to assure that metal is removed from the rocker cover only. Do not remove any stock from the cylinder head portion of the bore.

- 7 Bore the camshaft gear housing pilot diameter to 2.5000 to 2.5015 inch to a depth of 0.3400 inch on both sides of the cylinder head on the same center line as the camshaft bearing bore. Machine stock from the sides of the rocker cover and cylinder head to provide an uninterrupted flat surface between the two parts. The two sides must be parallel with a dimension of 6.2420 minimum for rework purposes.

5-37. (Cont)

8 Stamp the necessary match marks on both the cylinder and cover to indicate a matched assembly.

(3) Valve Rocker Arms.

(a) Bearing sleeves. Replace worn or damaged bushing - type valve rocker arm bearing sleeves using a suitable arbor press.

NOTE

Bearing sleeves must be flush to 0.0100 inch below surface at both ends of rocker arm. If split type bearing sleeve is used, the split of the bearing must not be in line with the oil hole.

(b) Adjusting screw. Replace the adjusting screw when threads are stripped, damaged, or when screw binds in the rocker arm. Also replace adjusting screw when swivel pad does not rotate freely on the screw.

e. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

(3) Valve leakage test. After assembly, test valves for leakage by filling the intake and exhaust ports with fluid and checking for leakage inside the cylinder bore. No leakage is allowed. Optional: after assembly, test valves for leakage by sealing skirt end of cylinder and nozzle opening, and applying 60 ± 5 psi air pressure to cylinder combustion chamber. With air source shut off, leakage rate from original pressure shall not exceed 14 psi in 15 seconds. If the leakage exceeds 14 psi, observe intake and exhaust ports to determine if leakage is from valve or hardseat. If leakage is from valve, reject, if leakage is from hardseat, accept up to 24 psi leakage in 15 seconds. ~~If both valves and hardseat leak, test with rubber coated valves. If leakage rate is above 10 psi in 15 seconds, reject.~~

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(A) PRESSURE TEST ROCKER CHAMBER IN ACCORDANCE WITH SPEC TCM/M60
PD62236 CLASS 2. NO LEAKAGE ALLOWED

DMWR 9-2815-220

SECTION IX. OVERHAUL OF OIL PUMP ASSEMBLY

5-38. General. This section covers overhaul of the oil pump assembly (figs. 5-44 and 5-45). (5/204) and 5/205). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions. Stud identification information is included with the repair instructions.

5-39. Disassembly and cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-40. Inspection. Inspect the oil pump assembly and related parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits and tolerances for the oil pump assembly are listed in table 5-13 (5/206). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

5-40.1. Reclamation. Use the procedures outlined below to reclaim components of the oil pump assembly.

NOTE

Quality Control will inspect finished parts to ensure adherence to procedures.

a. Pressure Oil Pump Housing (part no. 11683965). Repair cracks in the pump housing by arc welding. Refer to OIP 11683971 (5/521). Welding operators to be qualified per MIL-STO-1595.

(1) Thoroughly clean and degrease housing with trichloroethylene degreaser.

(2) Using a suitable hand grinder, grind all cracks in pump housing to a V-shape with an included angle of 60 degrees minimum with a one-eighth inch minimum radius at the root of the groove.

(3) Using a gas tungsten arc welding machine, weld all cracks in accordance with MIL-STD-45206E type B.

NOTE

When welding inside diameters of bearing and impeller bores, overbuild welds sufficiently to allow for remachining to original drawing tolerances.

(4) Using a suitable grinder, remachine welded housing surfaces and bore I.O.'s to drawing specifications (DWG 11683965).

(5) Inspect weld.

5-40.1 (Cont)

(a) Apply liquid penetrant and inspect weld per MIL-I-6866.

(b) Acceptance criteria is no linear indications due to weld cracking, crater cracking, lack of fusion, etc. No porosity exceeding one-eighth inch diameter for a single indication on the entire welded area, or more than three indications larger than 1/16 inch diameter on the entire welded area.

(6) Pressure test in accordance with TCM/M60 PD 62236, Class 6 (100psi).

b. Pressure Oil Pump Housing (part no. 11683965) and Scavenge Oil Pump Housing (part no. 11683946). Repair worn impeller bore surfaces by arc welding. Refer to OIP's 11683971 (5/251) and 11683997 (5/246). Welders to be qualified per MIL-STD-1595.

(1) Thoroughly clean and degrease housing with trichloroethylene degreaser.

(2) With a suitable grinder, machine a relief approximately 3/32 inch deep and 3/16 inch high around the circumference at the bottom of the housing as shown in figure 5-43.1 (5/202.2).

(3) Fabricate two flat fixture plates and drill to match the bolt patterns of the housing to be repaired. Attach the fixture plates to the housing using at least four thru-bolts (fig. 5/43.1) (5/202.2). This will minimize distortion of the housing and serve as a heat sink during welding. The plate over the impeller bores should be open.

(4) Using the gas tungsten arc welding process in accordance with MIL-W-8604 and MIL-W-45205, weld the impeller surfaces as described below:

(a) Deposit a stringer bead at the bottom of bore and up the side to the top.

(b) Repeat the process, alternating sides, until impeller surfaces are completely renewed. Ensure the welds overlap sufficiently to allow for remachining to drawing tolerances.

(5) Machine and polish impeller surfaces, using a suitable grinder, to drawing specifications (DWG 11683965 or 11683946).

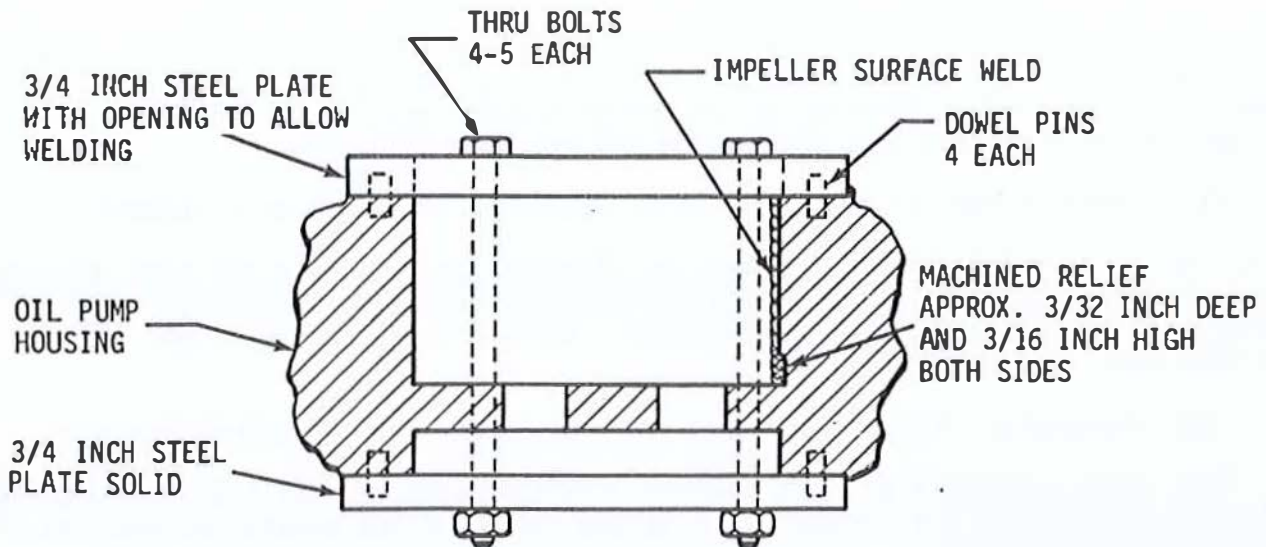
(6) Inspection.

(a) Apply liquid penetrant and inspect welded area per MIL-I-6866.

(b) Acceptance criteria - No linear indications due to weld cracking, crater cracking, lack of fusion, etc. No porosity exceeding 1/8 inch diameter for a single indication on the entire surface or more than three indications larger than 1/16 inch diameter on the entire surface.

(c) Oil Pump Impeller Drive Shaft (part no. 11683960). Reclaim worn spacer bearing surfaces by metalspray. Refer to OIP 11683960 (5/233).

5-40.1. (Cont)



NOTE: This drawing will apply to pressure housing part no. 11683965 and scavenger housing part no. 11683946.

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Figure 5-43.1. Arc welding oil pump housing impeller surfaces.

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

(1) Set shaft in external grinder and undercut 1.1315-1.1320 inch spacer bearing surfaces by approximately .005 inch to .0075 inch per side (fig. 5-43.2) (5/202.3).

(2) Thoroughly clean and degrease shaft with trichloroethylene degreaser.

(3) Prepare bearing surfaces in accordance with standard metalizing procedures as follows:

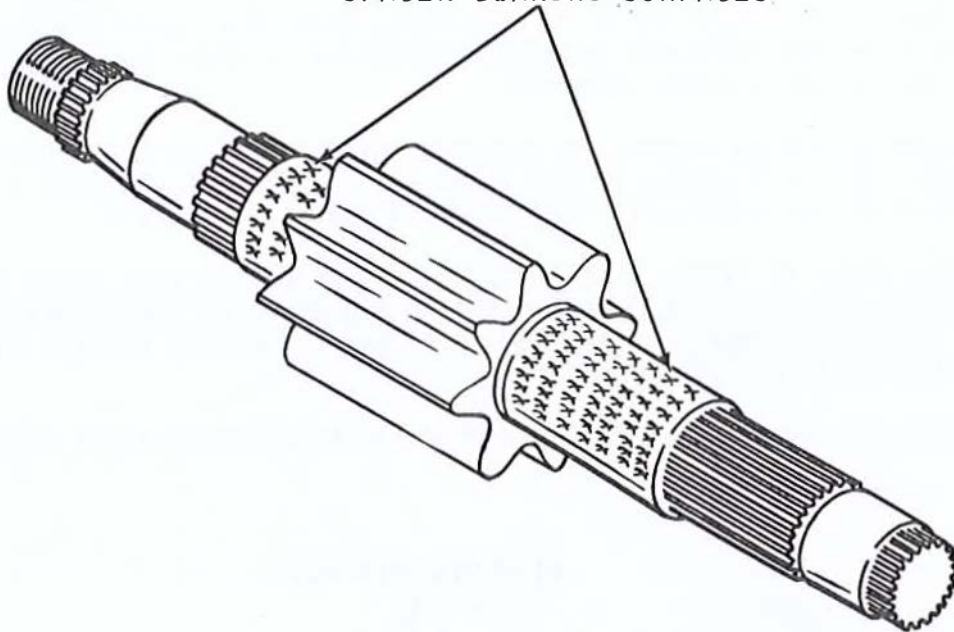
(a) Mask surfaces, not to be coated, with suitable grit blast masking material.

5-40.1. (Cont)

(b) Grit blast bearing surfaces with clean, oil free 25 mesh chilled iron grit.

(4) Remove grit blast masking material and remask with suitable thermospray or plasmaspray masking material.

SPACER BEARING SURFACES



TA265797 ■

Figure 5-43.2. Oil pump impeller drive shaft spacer bearing surfaces.

(5) Pre-heat shaft 150°F to 200°F with thermospray or plasmaspray gun.

(6) Using a Metco 6P Thermospray or 7MB Plasmaspray System in accordance with manufacturer's printed instructions, apply Metco 501 self-fusing molybdenum powder to a thickness of approximately .005 inch per side over the drawing finish dimension to allow for finish grinding.

(7) Using an external grinder with a 60 grit green silicon carbide wheel and water base with rust inhibitor, finish grind coated bearing surfaces to drawing specifications (DWG 11683960).

(8) All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.

NOTE

This item cannot be purchased separately.

5-40.1. (Cont)

d. Oil Pump Impeller Driven Shaft (part no. 11683945). Reclaim worn bearing surfaces by metalspray. Refer to OIP 11683945 (5/243).

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

(1) Place shaft in lathe. When using Metco 10E or 12E Wire Spray System, undercut bearing surfaces by .035 inch. When using Metco 6P Thermospray System, undercut the bearing surfaces as required to eliminate surface defects but not to exceed .035 inch (fig. 5-43.3) (5/202.4).

(2) Thoroughly clean and degrease shaft with trichloroethylene degreaser.

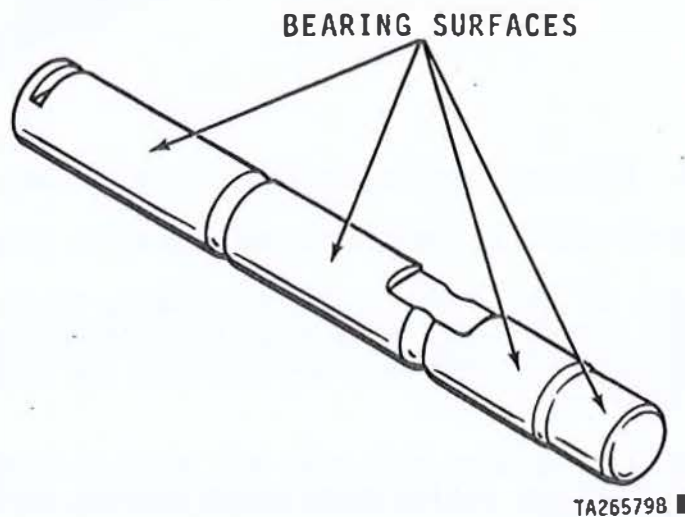


Figure 5-43.3. Oil pump impeller driven shaft bearing surfaces.

(3) Prepare surfaces to be coated in accordance with standard metalizing procedures as follows:

- (a) Mask surfaces, not to be coated, with suitable grit blast masking material.
- (b) Grit blast bearing surfaces with clean, oil free 25 mesh chilled iron grit.

DMWR 9-2815-220

5-40.1

(4) Remove grit blast masking material and remask with suitable metalspray masking material.

(5) Apply 1/8 inch TM spray bronze wire (wire spray system) or self-bonding aluminum bronze powder (thermospray system) to prepared surfaces in accordance with MIL-STD-1687. Coat thickness of approximately .010 inch over drawing finish dimension to allow for finish machining.

(6) Machine coated bearing surfaces to drawing specifications.

NOTE

All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.

DMWR 9-2815-220

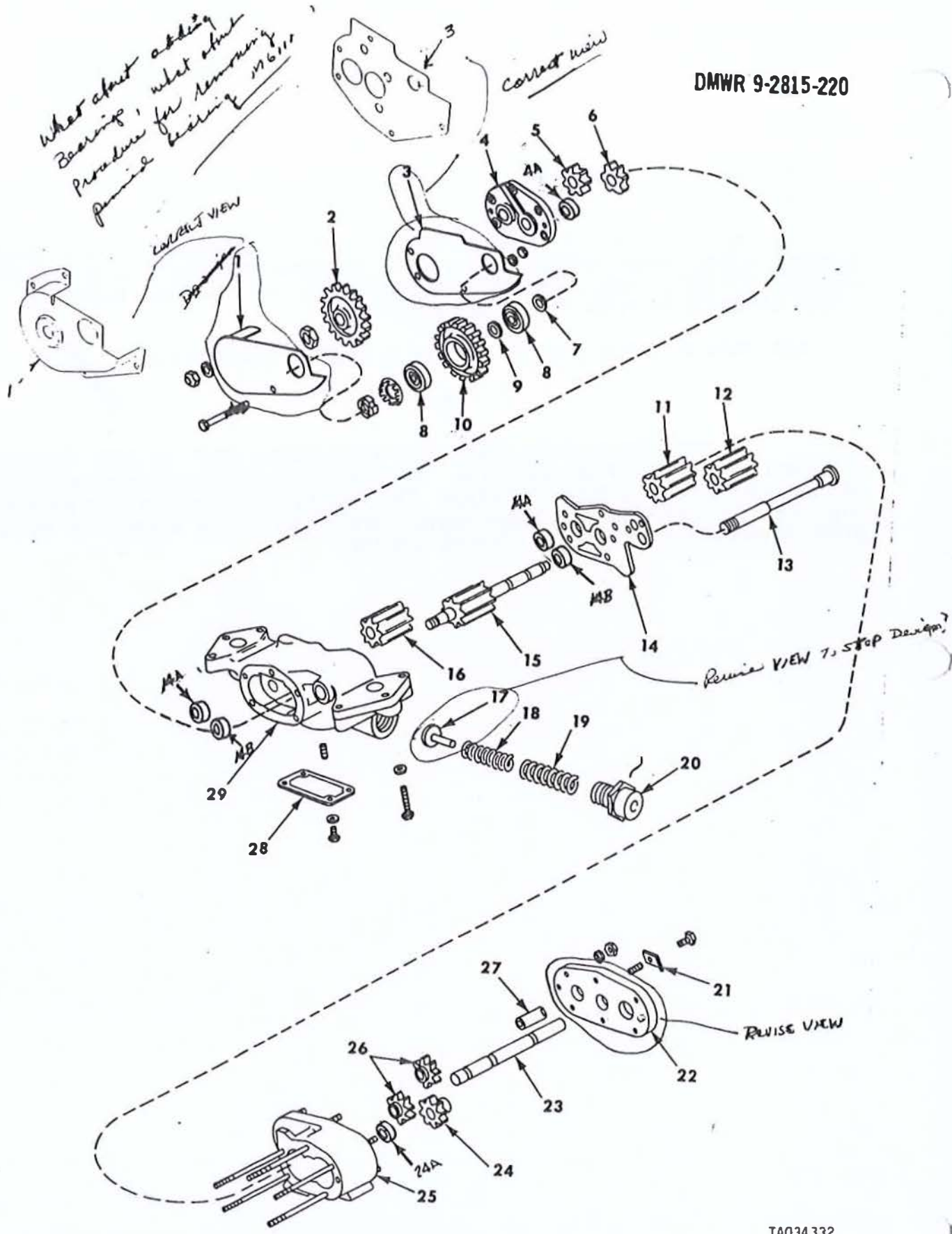
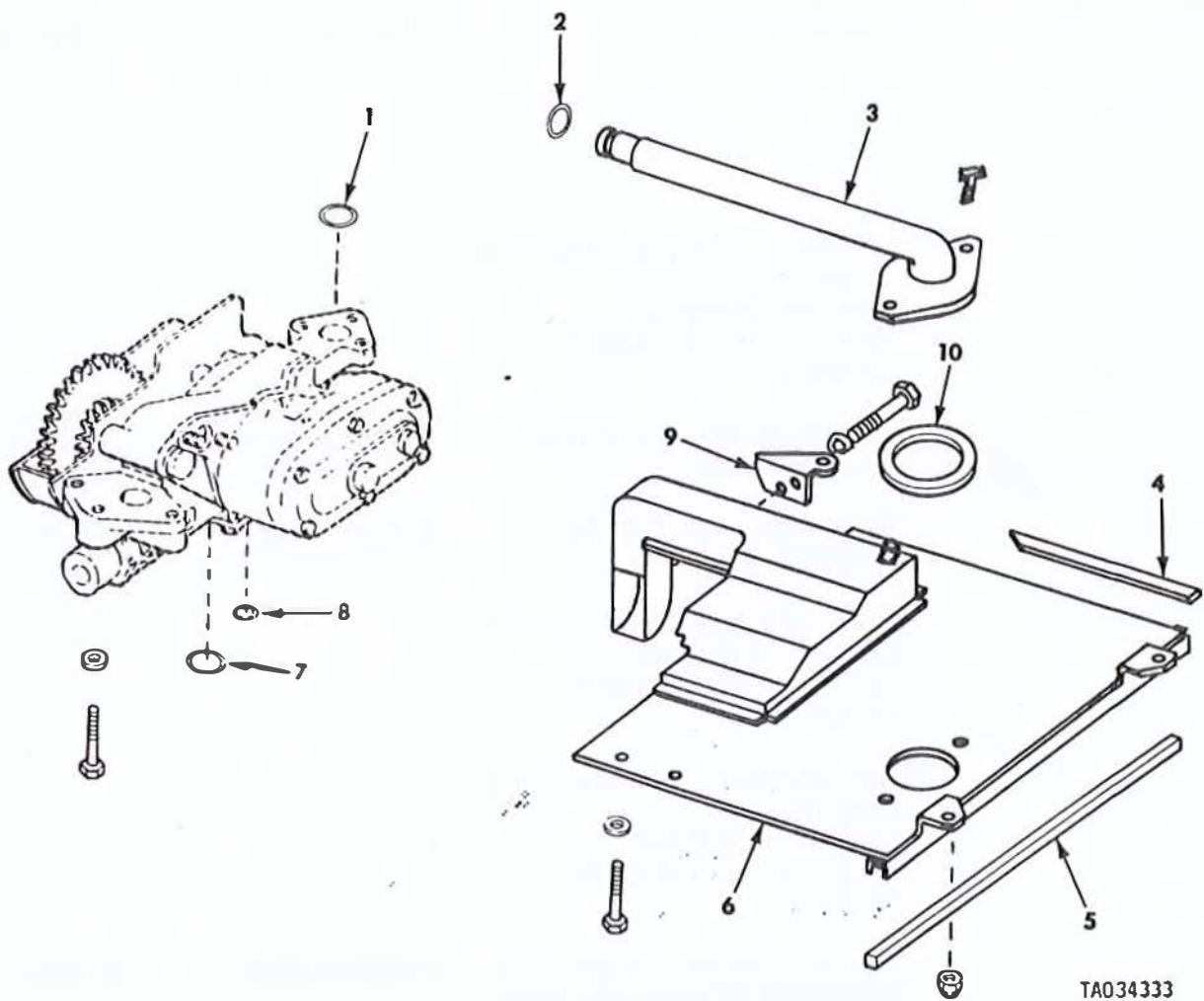


Figure 5-44. Oil pump.

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DMWR 9-2815-220



TA034333

Figure 5-45. Oil pressure compartment baffle, oil pump leveling tube and associated parts.

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204)	1	COVER ACCESS: oil pump gear - part no. 11684013 Refer to OIP 11684013 (5/219)		
	2	GEAR, SPUR: oil pump impeller drive - part no. 10898962 Refer to OIP 10898962 (5/220)		
		Dimension between 0.0450 diameter pins	0.7951-0.7969	0.7978
		Dimension over 0.2000 diameter pins	5.2800-5.2850	5.2775
	3	PLATE: oil pump gear cover - part no. 11683963 Refer to OIP 11683963 (5/221)		
4	✓	COVER ASSEMBLY: pressure oil pump housing - part no. 11683969 Refer to OIP 11683969 (5/222)		
		✓ Inside diameter of bearing installed in pressure pump end cover	0.9850-0.9860	0.9870
5	↘	IMPELLER: level oil pump driven - part no. 11684044 Refer to OIP 11684044 (5/223)		
		Inside diameter of level, pressure, scavenge and make-up pump driven impellers	0.9860-0.9865	0.9870

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-44 (5/204) continued	5 -	✓ Outside diameter of level, pressure, scavenge and make-up pump driven impellers	2.4774-2.4778	2.4790 2.4770
		✓ Length of impeller, level oil pump driven	0.8000-0.8010	0.7990
		✓ Dimension over 0.4500 diameter pins	✓ 2.6210-2.6260	2.6185
	6	IMPELLER: level oil pump drive - part no. 11684045 Refer to OIP 11684045 (5/224)		
		✓ Outside diameter of level, scavenge and make-up pump drive impellers	2.4794-2.4798	2.4790
		Length of impeller, level oil pump drive	0.7990-0.8000 0.8000-0.8010	0.7980 0.7990
		Dimension over 0.4500 diameter pins	2.6210-2.6260	2.6185
		Dimension between 0.0450 diameter pins	1.0153-1.0171	1.0190 1.0148
		✓ Inside diameter of oil level pump drive impeller	1.1325-1.1335	1.1340
	7	BEARING, WASHER, THRUST: oil pump drive gear - part no. 11684104 Refer to OIP 11684104 (5/226)		
		✓ Width of face	0.1480-0.1490	0.1470

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44	8	BEARING, BALL, ANNULAR: oil pump drive gear - part no. 700078 Refer to TM 9-214 for inspection and care of bearings		
	(5/204)			
		✓ Inside diameter of spur gear bearing	0.9839-0.9843	*
		✓ Outside diameter of drive spur gear	2.0467-2.0472	*
		✓ Fit of bearing in drive spur gear	0.0003L-0.0009T	0.0006L
	9	WASHER, THRUST: oil pump drive gear bearing - part no 8725096 Refer to OIP 8725096 (5/227)		
		✓ Width of face	0.1245-0.1255	0.1235
	10	GEAR CLUSTER: SMALL oil pump drive - part no. 8725087 Refer to OIP 8725087 (5/228)		
		✓ Inside diameter of large gear end of drive gear	2.0463-2.0470	2.0471
		✓ Inside diameter of small gear end of drive gear	2.0463-2.0470	2.0471
		✓ Dimension over 0.2000 di- ameter pins (large gear)	5.2800-5.2850	5.2775
		✓ Dimension over 0.2000 di- ameter pins (small gear)	2.9460-2.9510	2.9435

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204) continued	10 - ✓ 11	Fit of bearing (item 8) in drive spur gear (2 places)	0.0003L-0.0009T	0.0006L
	12	IMPELLER: scavenge oil pump driven - part no. 11683955 Refer to OIP 11683955 (5/229)		
		Inside diameter of level, pressure, scavenge and make-up pump driven impellers ✓	0.9860-0.9865	0.9870
		Outside diameter of level, pressure, scavenge and make-up pump driven impellers ✓	2.4774-2.4778	2.4772
		Length of pump driven impellers ✓	3.0410-3.0420	3.0405
		Dimension over 0.4500 diameter pins ✓	2.6210-2.6260	2.6185
	12	IMPELLER: scavenge oil pump drive - part no. 11683956 Refer to OIP 11683956 (5/230)		
		✓ Outside diameter of level, scavenge and make-up pump drive impellers	2.4794-2.4798	2.4790
		✓ Length of pump drive impellers	3.0410-3.0420	3.0405
		Dimension between 0.0450 diameter pins (spline)	1.0153-1.0171	1.0180

7
 1.0171
 1.0180
 1.0190
 1.0200
 1.0210
 1.0220
 1.0230
 1.0240
 1.0250
 1.0260
 1.0270
 1.0280
 1.0290
 1.0300

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204) continued	12 -	✓ Inside diameter of scavenge pump impeller	1.1325-1.1335	1.1340
		✓ Dimension over 0.4500 diameter pins (impeller)	2.6210-2.6260	2.6185
	13	SHAFT: oil pump drive gear - part no. 11683944 Refer to OIP 11683944 (5/231)		
		✓ Outside diameter of oil pump drive shaft (both ends)	0.9835-0.9840	0.9832
		✓ Fit of annular ball bearings on shaft (item 8) (2 places)	0.0008L-0.0001T	0.0010L
	14	SPACER ASSEMBLY: pressure and scavenge oil pump housing - part no. 11683968 Refer to OIP 11683968 (5/232)		
		✓ Inside diameter of driven bearing installed in pressure pump end cover	0.9843-0.9848	0.9853
		✓ Inside diameter of drive bearing installed in pressure pump end cover	1.1330-1.1340	1.1350
	15	SHAFT: oil pump impeller drive - part no. 11683960 Refer to OIP 11683960 (5/233)		
		✓ Outside diameter of bearing surfaces on pressure oil pump impeller drive shaft	0.9835-0.9840	0.9832

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-44	15 -	(make-up pump end and oil level pump end)		
(5/204)		✓ Outside diameter of impeller on oil pump impeller drive shaft	2.4814-2.4818	2.4812
continued		✓ Dimension over 0.0600 diameter pins (oil level pump end)	1.1509-1.1525	1.1501
		✓ Dimension over 0.0600 diameter pins (oil level pump end)	0.9306-0.9322	0.9298
		✓ Dimension over 0.0600 diameter pins (make-up pump end)	1.1509-1.1525	1.1501
		✓ Dimension over 0.0600 diameter pins (make-up pump end)	0.9306-0.9322	0.9298
		✓ Fit of shaft in cover assembly pressure oil pump housing bearing (oil level pump end)	0.0010L-0.0025L	0.0038L
		✓ Outside diameter of pressure pump and scavenge pump housing spacer bearing surfaces adjacent to impeller (2 places)	1.1315-1.1320	1.1312
		✓ Dimension over 0.4500 diameter pins of impeller	2.6210-2.6260	2.6185
		✓ Fit of impeller drive shaft in pressure housing bearing (oil level pump end)	0.0010L-0.0025L	0.0038L

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204) continued	15 -	/ Fit of impeller drive shaft in spacer bearing (make-up pump end)	0.0010L-0.0025L	0.0038L
		/ Fit of impeller drive shaft in scavenge pump housing bearing (make-up pump end)	0.0010L-0.0025L	0.0038L
		<i>NO MEASUREMENT</i> / Fit of impeller drive shaft in impeller (item 12)	0.0005L-0.0020L	0.0028L
		/ Length of impeller on pump shaft	2.4280-2.4290	2.4275
	✓ 16	IMPELLER: pressure oil pump driven - part no. 11684046 Refer to OIP 11684046 (5/235)		
		/ Inside diameter of level, pressure, scavenge, and make-up pump driven impellers	0.9860-0.9865	0.9870
		/ Dimension over 0.4500 diameter pins	2.6210-2.6260	2.6185
		/ Outside diameter of level, pressure, scavenge and make-up pump driven impellers	2.4774-2.4778	2.4770
		/ Length of impeller on pressure oil pump driven	2.4280-2.4290	2.4275
	17	/ VALVE: pressure relief oil pump - part no. 8725099 Refer to OIP 8725099 (5/237)		

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204)	18	SPRING, HELICAL, COMPRESSION: oil pump pressure relief valve (inner) - part no. 8725101 Refer to OIP 8725101 (5/238)		
		Spring helical compression (small)		
		Approximate free length ✓	4.27 inches ± 0.0100	*
		Load at 3.2200 inches ✓	100 lbs ± 5 lbs	*
		Maximum solid height ✓	2.9400 inches	*
	19	SPRING, HELICAL, COMPRESSION: oil pump pressure relief valve (outer) - part no. 8725113 Refer to OIP 8725113 (5/239)		
		Spring helical compression (small)		
		Approximate free length ✓	4.96 inches ± 0.0100	*
		Load at 3.2200 inches ✓	149 lbs ± 7.5 lbs	*
		Maximum solid height ✓	2.9000 inches	*
	20	CAP: oil pump pressure relief valve - part no. 8725115 Refer to OIP 8725115 (5/240)		

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204)	21	WASHER, FLAT; LOCK PLATE, NUT AND BOLT. oil pump impeller driven shaft - part no. 11684042 Refer to OIP 11684042 (5/241)		
	22	COVER ASSEMBLY: scavenge oil pump housing - part no. 11683951 Refer to OIP 11683951 (5/242)		
	23	SHAFT, ^{SHAFTED:} oil pump impeller driven - part no. 11683945 Refer to OIP 11683945 (5/243)		
		✓ Outside diameter of oil pump driven impeller shaft (4 places)	0.9834-0.9839	0.9829
		✓ Fit of driven impellers on shaft	0.0021L-0.0031L	0.0041L
	24	IMPELLER: reserve oil pump drive - part no. 11683958 Refer to OIP 11683958 (5/244)		
		✓ Outside diameter of level, scavenge and make-up pump drive impellers	2.4794-2.4798	2.4790
		✓ Inside diameter of reserve oil pump drive	0.9845-0.9855	0.9860
		✓ Width of drive impellers	0.2090-0.2100	0.2085

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-44 (5/204) continued	24 -	✓ Dimension over 0.4500 di- ameter pins (impeller)	2.6210-2.6260	2.6185
		✓ Dimension between 0.0450 diameter pins (spline)	0.7951-0.7969	0.7978
	25	HOUSING ASSEMBLY: scavenge oil pump - part no. 11683997 Refer to OIP 11683997 (5/246)		
		Inside diameter of level, pressure, scavenge and re- serve pump impeller bores (3 places)	2.4850- 2.4862 2.4900	2.4878 2.4908
		✓ Depth of impeller bores on (scavenge pump end of hous- ing)	3.0480-3.0500	3.0505
		Depth of impeller bores on (make-up pump end of hous- ing) (3 places)	0.2130- ²¹⁷⁰ 0.2150	0.2155 0.2175 ^{3/4}
		✓ Inside diameter of bearing installed in scavenge pump housing	0.9850-0.9860	0.9870
	26	IMPELLER: driven oil pump oil make-up - part no. 11683957 Refer to OIP 11683957 (5/248)		
		Inside diameter of level, pressure, scavenge and make-up pump driven im- pellers	0.9860-0.9865	0.9870

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-44 (5/204) continued	26 -	Outside diameter of level, pressure, scavenge and make-up pump driven impellers	2.4774-2.4778	2.4770
		Dimension over 0.4500 diameter pins	2.6210-2.6260	2.6185
		Width of driven impellers	0.2090-0.2100	0.2085
27		SHAFT: reserve oil pump impeller - part no. 11683959 Refer to OIP 11683959 (5/249)		
		Outside diameter of make-up oil pump driven impeller shaft	0.9834-0.9839	0.9829
		Fit of driven impeller on shaft (item 27)	0.0021L-0.0031L	0.0041L
28		SCREEN: pressure oil pump intake - part no. 11683973 Refer to OIP 11683973 (5/250)		
29		HOUSING ASSEMBLY: pressure oil pump - part no. 11683971 Refer to OIP 11683971 (5/251)		
		Inside diameter of drive shaft bearing installed in oil pressure pump housing	1.1330-1.1340	1.1350
		Inside diameter of driven shaft bearing installed in oil pressure pump housing	0.9843-0.9848	0.9853

Table 5-13.. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-44 (5/204)	29 -	Check valve contact to seat (part no. 8725135) using Prussian blue	90% minimum contact	*
		Inside diameter of level, pressure, scavenge and reserve pump impeller bores	2.4850- 2.4862 2.4900	2.4870 2.4908
		✓ Depth of impeller bores (level pump end)	0.8030-0.8050	0.8055
		✓ Depth of impeller bores (pressure pump end)	2.4320-2.4340	2.4345
		✓ Bore diameter of oil pump (transfer oil)	0.8120-0.8140	0.8145
		✓ Bore diameter of oil pump (drive gear shaft)	0.9850-0.9860	0.9870
		✓ Bore diameter of oil pump outlet (2 places)	1.1877-1.1887	1.1892
5-45 (5/205)	1	PACKING, PREFORMED: GASKET: oil pump tube assembly to oil pump oil pan baffle - part no. MS9388-123 (M83248/1.123-81349)		Replace
	2	PACKING, PREFORMED: oil pump to oil pan pressure compartment baffle - part no. MS9388-017 (M83248/1.017-81349)		Replace
	3	TUBE ASSEMBLY, METAL: leveling oil pump transfer - part no. 11683975 Refer to OIP 11683975 (5/253)		

Table 5-13. Wear Limits, Fits, and Tolerances for Oil Pump Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-45 (5/205)	4	RUBBER STRIP: oil pan pressure compartment baffle, baffle to crankcase - part no. 11684037		Replace
	5	RUBBER STRIP: oil pan pressure compartment baffle, baffle to cover - part no. 11684038		Replace
	6	DEFLECTOR, DIRT AND LIQUID: Baffle Assembly oil pan pressure compartment - part no. 11684036 Refer to OIP 11684036 (5/254)		
	7	GASKET: oil pump to oil pan (scavenge) - part no. 11684039-4		Replace
	8	GASKET: oil pump to oil pan (reserve) - part no. 11684039-2		Replace
	9	BRACKET, MOUNTING: baffle pressure compartment - part no. 11684052 Refer to OIP 11684052 (5/255)		
	10	GASKET: oil pump leveling tube assembly to oil pump oil pan baffle - part no. 11684075		Replace

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

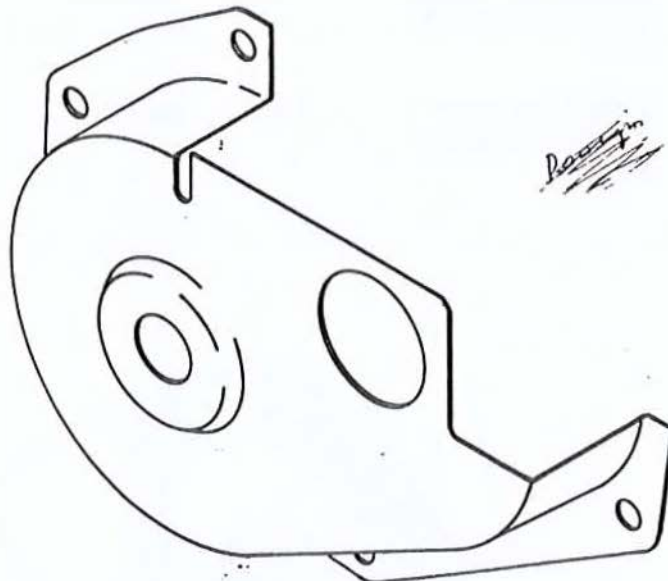
OIP 11684013

ITEM: COVER ACCESS: oil pump gear

REFERENCE: Figure 5-44 (5/204)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Bent flanges, warped, dents	0.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

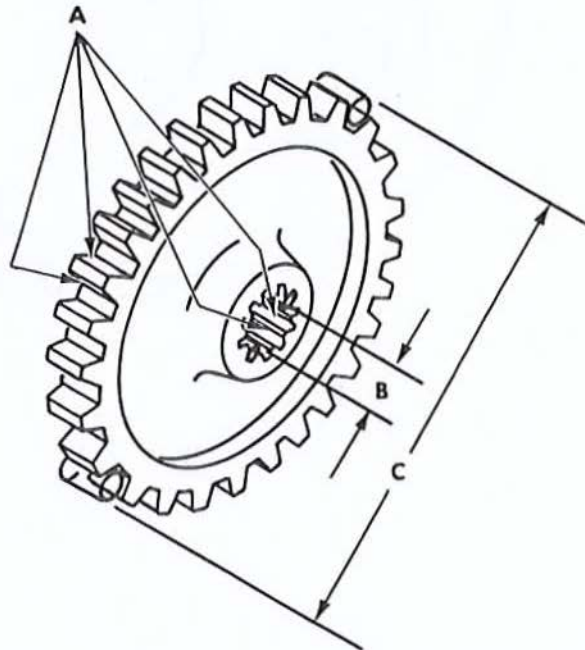
OIP 10898962

**ITEM: GEAR, SPUR:
oil pump impeller drive**

REFERENCE: Figure 5-44 (5/204)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2	A	Scratches, nicks, gouges, chipped teeth, raised metal on contact surfaces	2.5	Visual	None allowed
3	B	Dimension between 0.0450 diameter pins	1.0	Measure	<u>Diameter must be no greater than 0.7978 inch</u>
4	C	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 5.2775 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

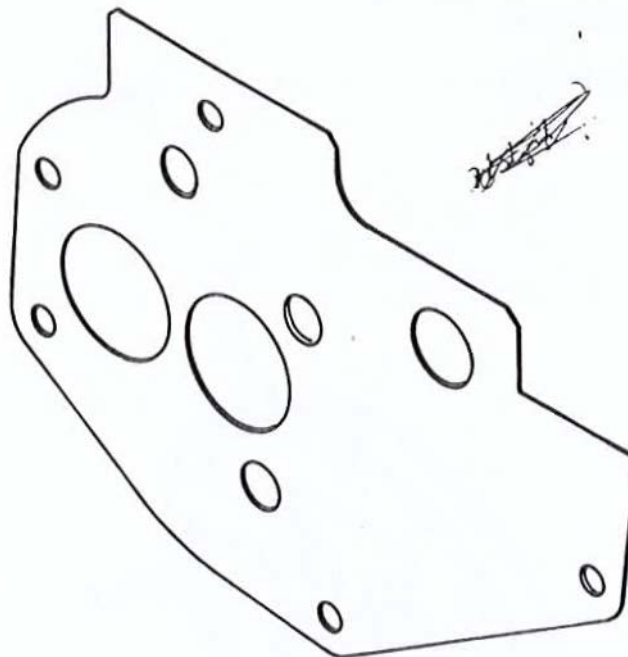
OIP 11683963

ITEM: PLATE: oil pump gear cover

REFERENCE: Figure 5-44 (5/204)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Warped and dents	0.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

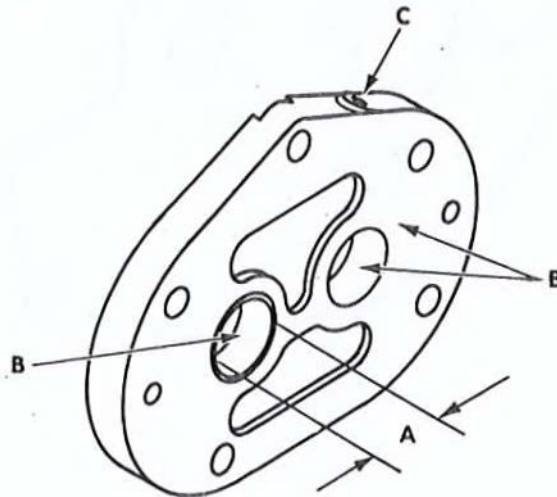
OIP 11683969

**ITEM: COVER ASSEMBLY:
pressure oil pump housing**

REFERENCE: Figure 5-44 (5/204)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Dye penetrant	None allowed
2	/ A	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch
3	✓ B	Scratches, nicks or gouges, raised metal on contact surfaces	2.5	Visual	None allowed
4	✓ C	Oil hole	2.5	Visual	Plugged and staked



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

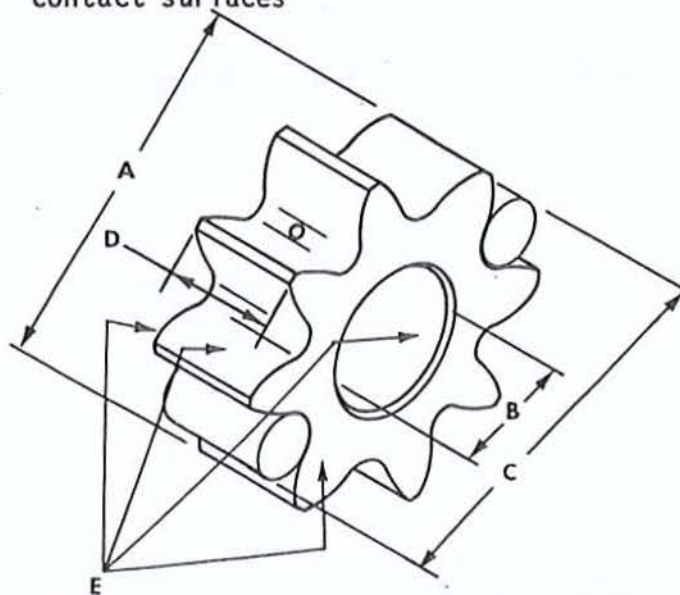
OIP 11684044

ITEM: IMPELLER: level oil
pump driven

REFERENCE: Figure 5-44 (5/204)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4790 inches 2.4770
3	/ B	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch
4	/ C	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	/ D	Gear length	1.0	Measure	Length to be no less than 0.7990 inch
6	/ E	Scratches, nicks gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684045

**ITEM: IMPELLER:
level oil pump drive**

REFERENCE: Figure 5-44 (5/204)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic VISUAL particle	None allowed
2	/	Scratches, nicks, gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed
3	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4790 inches
4	/ B	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	C	Dimension between 0.0450 diameter pins	1.0	Measure	Diameter must be no greater than 1.0144 inches 1.0180
6	D	Gear length	1.0	Measure	Dimension must be no less than 0.7980 inch 0.7980
7	/ E	Inside diameter	1.0	Measure	Diameter must be no greater than 1.1340 inches

***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

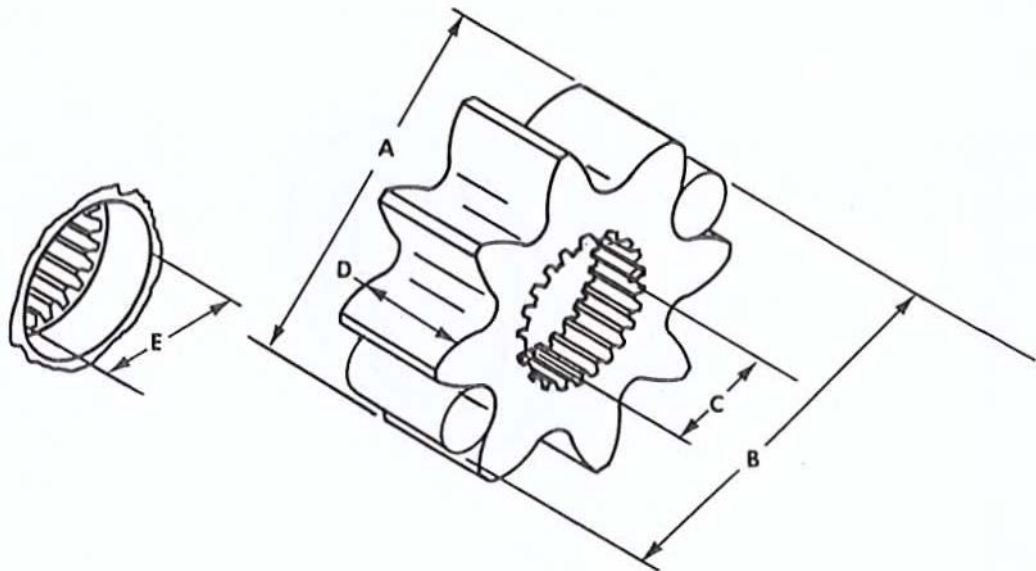
OIP 11684045

**ITEM: IMPELLER:
level oil pump drive - Continued**

REFERENCE: Figure 5-44 (5/204)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

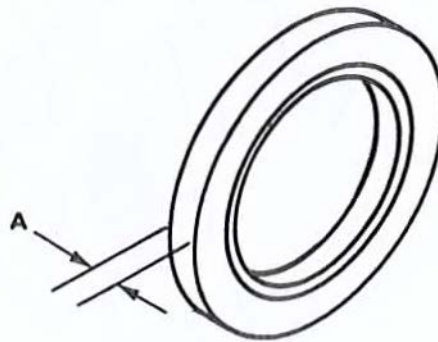
OIP 11684104

**ITEM: BEARING WASHER THRUST:
oil pump drive gear**

REFERENCE: Figure 5-44 (5/204)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Thickness	1.0	Measure	Dimension must be no less than 0.1470 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

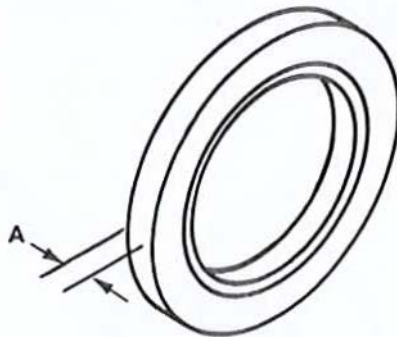
OIP 8725096

**ITEM: WASHER, THRUST:
oil pump drive gear bearing**

REFERENCE: Figure 5-44 (5/204)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	/ A	Thickness	1.0	Measure	Dimension must be no less than 0.1235 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

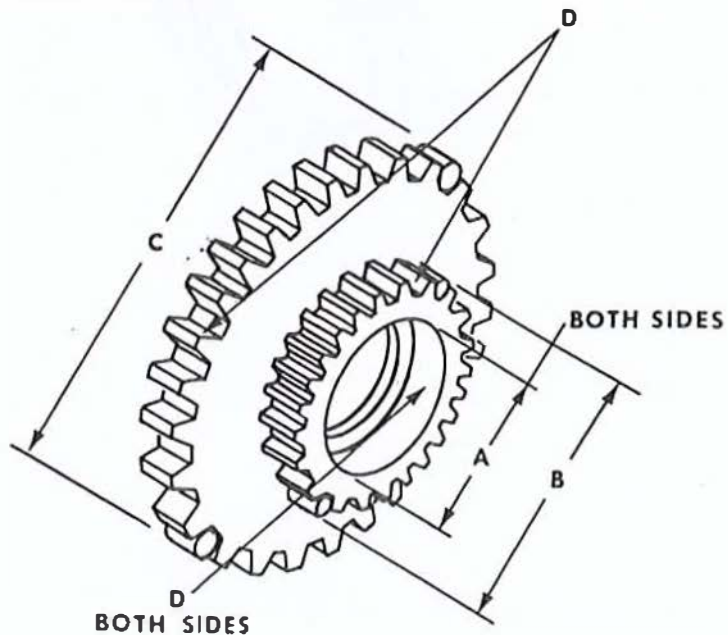
OIP 8725087

**ITEM: GEAR CLUSTER, ~~with~~
oil pump drive**

REFERENCE: Figure 5-44 (5/204)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	<i>Visual</i> Magnetic particle	None allowed
2	✓ A	Bearing bore	1.0	Measure	Diameter must be no greater than 2.0471 inches
3	✓ B	Dimension over 0.2000 diameter pins (small gear)	1.0	Measure	Diameter must be no less than 2.9435 inches
4	C	Dimension over 0.2000 diameter pins (large gear)	1.0	Measure	Diameter must be no less than 5.2775 inches
5	D	Scratches, nicks or gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

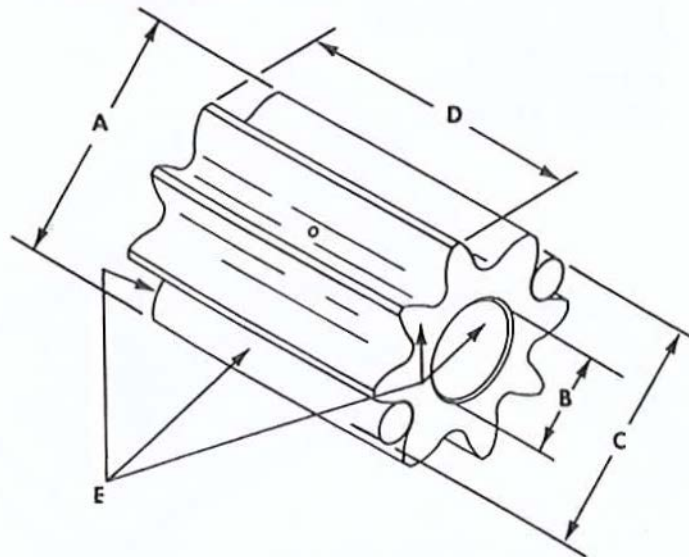
OIP 11683955

ITEM: IMPELLER: scavenge oil pump driven

REFERENCE: Figure 5-44 (5/204)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	<i>VISUAL Magnetic Dye Pen</i>	None allowed
2	✓ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4772 inches
3	✓ B	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch
4	✓ C	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	✓ D	Gear length	1.0	Measure	Dimension must be no less than 3.0405 inches
6	E	Scratches, nicks or gouges, chipped and broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

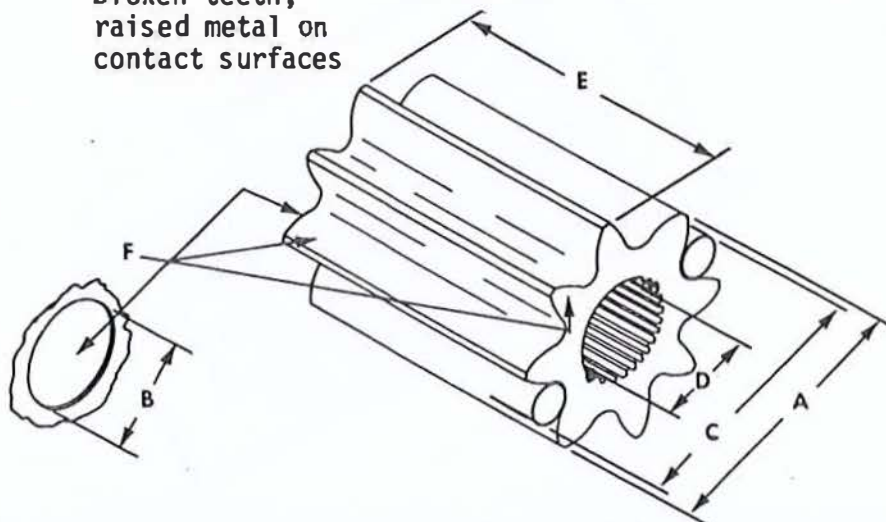
OIP 11683956

ITEM: IMPELLER: scavenge
oil pump drive

REFERENCE: Figure 5-44 (5/204)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnifying Glass Visual	None allowed
2	A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4790 inches
3	B	Inside diameter	1.0	Measure	Diameter must be no greater than 1.1340 inches
4	C	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	D	Dimension between 0.0450 diameter pins	1.0	Measure	Diameter must be no greater than 1.0180 inches
6	E	Gear length	1.0	Measure	Dimension must be no less than 3.0405 inches
7	F	Scratches, nicks or gouges, chipped and broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

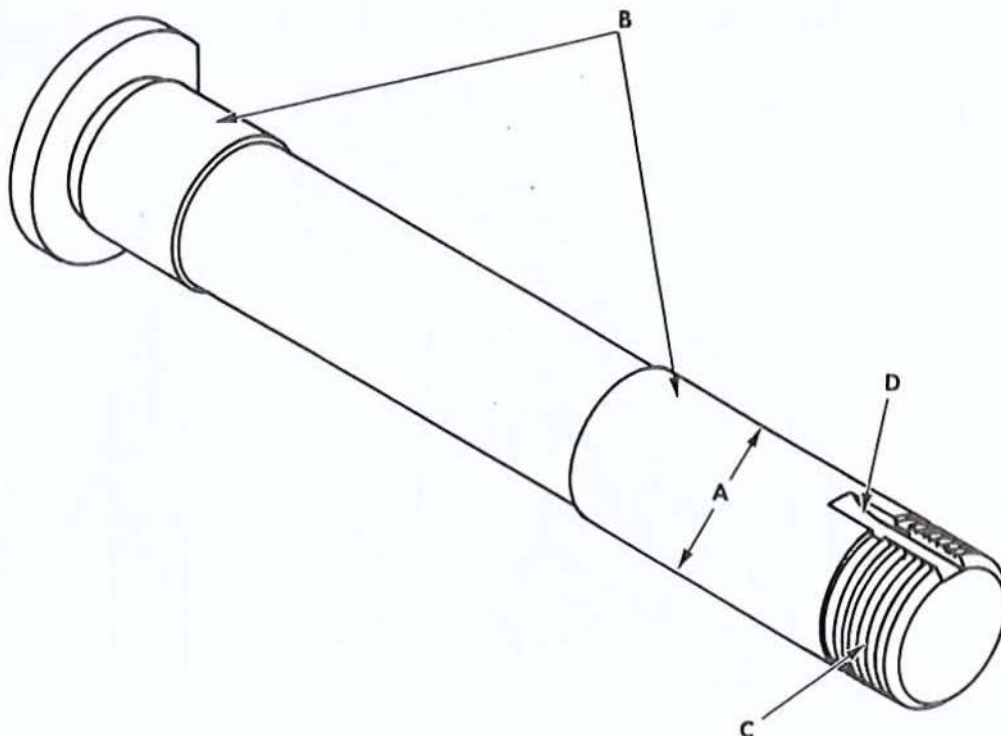
OIP 11683944

**ITEM: SHAFT:
oil pump drive gear**

REFERENCE: Figure 5-44 (5/204)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Manual particle <i>Visual</i>	None allowed
2	/ A	Outside diameter (2 places)	1.0	Measure	Diameter must be no less than 0.9832 inch
3	/ B	Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
4	/ C	Damaged threads	2.5	Visual	None allowed
5	/ D	Damaged key slot	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

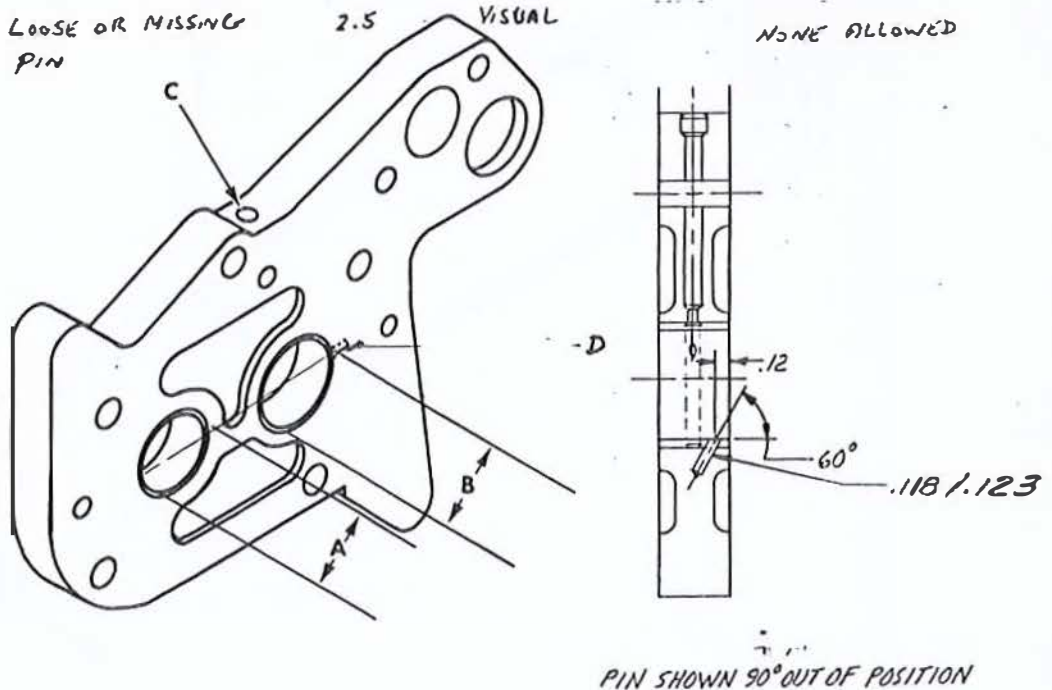
OIP 11683968

**ITEM: SPACER ASSEMBLY:
pressure and scavenge oil pump housing**

REFERENCE: Figure 5-44 (5/204)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Dye penetrant	None allowed
2	✓	Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ A	Inside diameter (driven) (installed in pressure pump end cover)	1.0	Measure	Diameter must be no greater than 0.9853 inch
4	✓ B	Inside diameter (drive) (installed in pressure pump end cover)	1.0	Measure	Diameter must be no greater than 1.1350 inches
5	✓ C	Oil hole	2.5	Visual	Plugged and staked
6	✓ D	LOOSE OR MISSING PIN	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683960

ITEM: SHAFT: oil pump
impeller drive

REFERENCE: Figure 5-44 (5/204)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle VISUAL	None allowed
2	/ A	Outside diameter	2.5	Measure	Diameter must be no less than 2.4812 inches
3	/ B	Outside diameter	2.5	Measure	Diameter must be no less than 1.1312 inches
4	/ C	Outside diameter	2.5	Measure	Diameter must be no less than 0.9832 inch
5	/ D	Dimension over 0.4500 diameter pins	2.5	Measure	Diameter must be no less than 2.6185 inches
6	/ E	Dimension over 0.0600 diameter pins	2.5	Measure	Diameter must be no less than 0.9298 inch
7	/ F	Dimension over 0.0600 diameter pins	2.5	Measure	Diameter must be no less than 1.1501 inches
8	/ G	Gear length	2.5	Measure	Dimension must be no less than 2.4275 inches
9	/ H	Threads (damaged)	2.5	Visual	None allowed
10	/ J	Scratches, nicks or gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

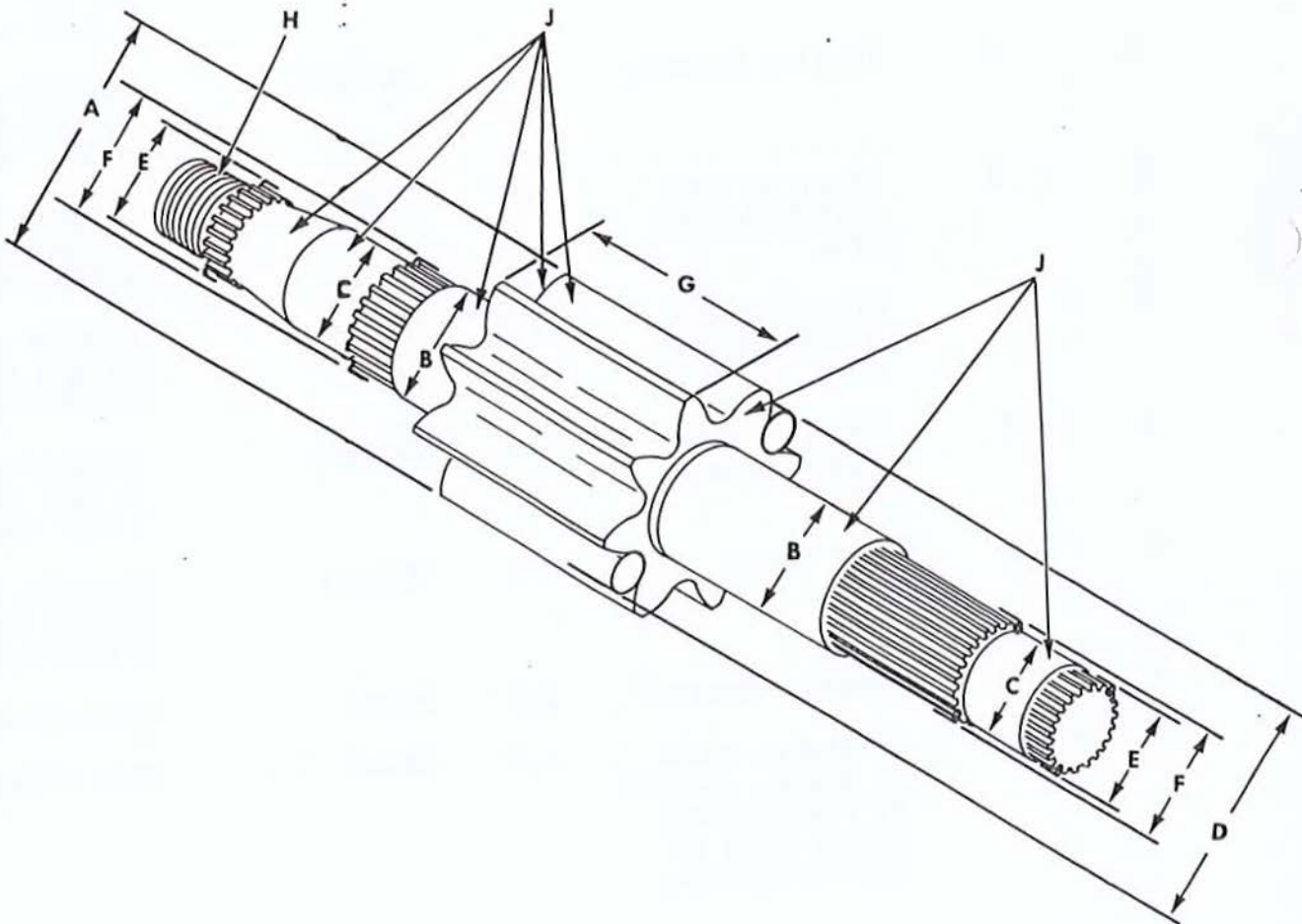
OIP 11683960

ITEM: SHAFT: oil pump
impeller drive - Continued

REFERENCE: Figure 5-44 (2/20)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684046

ITEM: IMPELLER:
pressure oil pump driven

REFERENCE: Figure 5-44 (5/204)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic Particle Visual	None allowed
2	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4770 inches
3	B	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch
4	C	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	/ D	Gear length	1.0	Measure	Dimension must be no less than 2.4275 inches
6	E	Scratches, nicks, gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

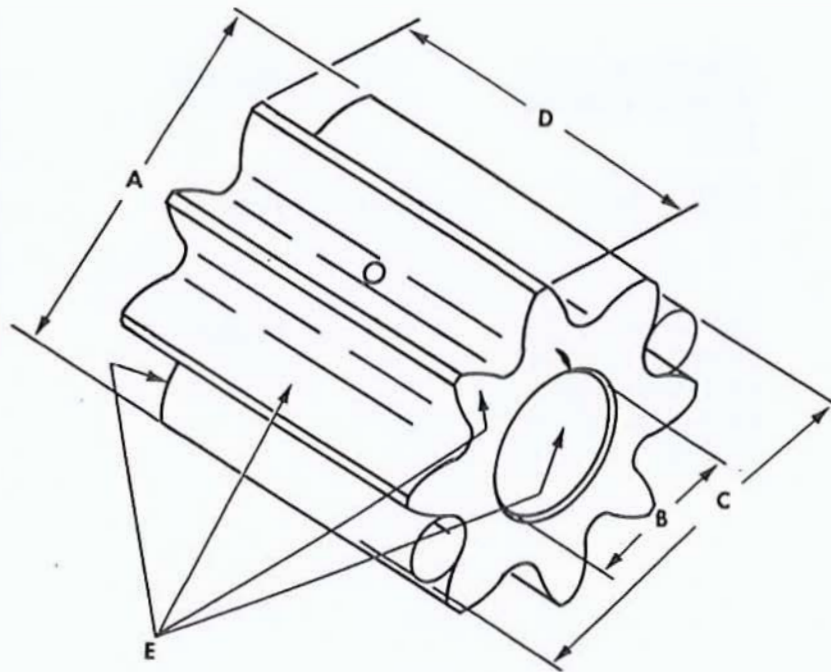
OIP 11684046

**ITEM: IMPELLER:
pressure oil pump driven**

REFERENCE: Figure 5-44 (5/204)

ITEM: 16

* NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

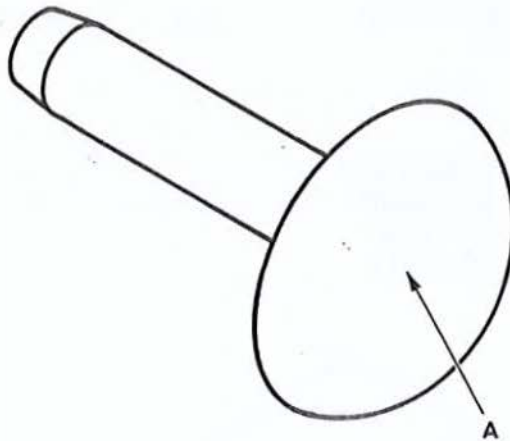
OIP 8725099

ITEM: VALVE: pressure relief
oil pump

REFERENCE: Figure: 5-44 (5/204)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A ✓	Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, HELICAL, COMPRESSION:
oil pump pressure relief valve (inner)

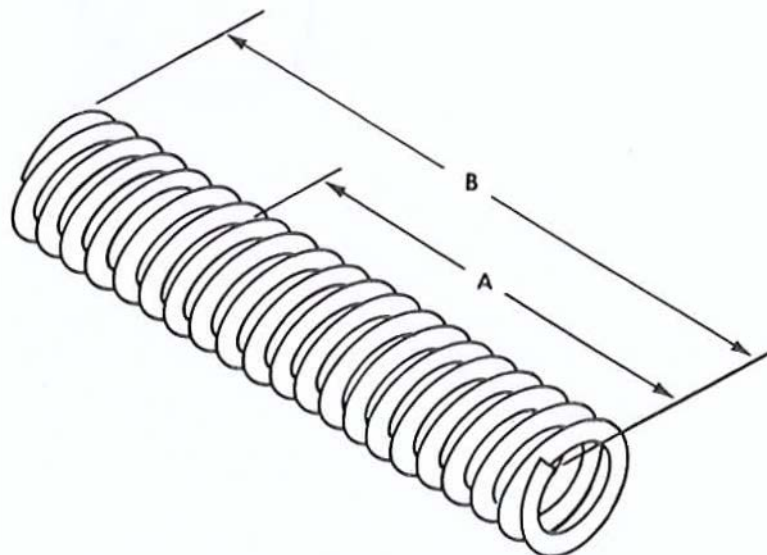
OIP 8725101
(563707-02978)
REFERENCE: Figure 5-44 (5/204)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks ✓	0.0	Visual	None allowed
2	A	Length with load of 100.0 lbs ± 5.0 lbs ✓	1.0	Measure	3.2200 inches
3	B	Free length ✓	2.5	Measure	Dimension must be no less than 4.2600 inches and no greater than 4.2800 inches
4		Maximum solid height ✓	1.0	Measure	Dimension must be no greater than 2.9400 inches

NOTE

Spring must not take permanent set when compressed solid



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, Helical, Compression:
oil pump pressure relief valve
(outer)

OIP 8725113
(8725113.02978)

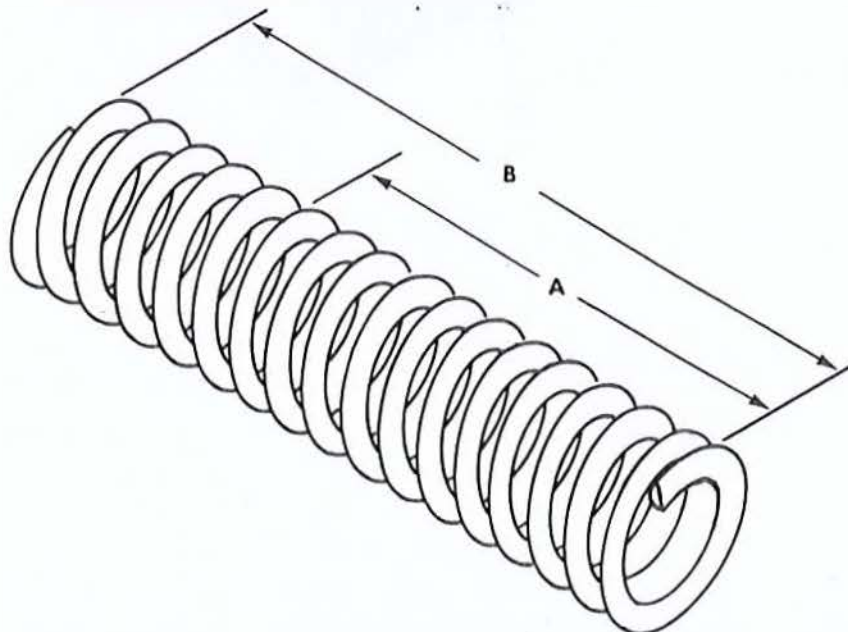
REFERENCE: Figure 5-44 (5/204)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Length with load of 149.0 lbs \pm 7.5 lbs	1.0	Measure	3.2200 inches
3	B	Free length	2.5	Measure	Dimension must be no less than 4.9500 inches and no greater than 4.9700 inches
4		Maximum solid height	1.0	Measure	Dimension must be no greater than 2.9000 inches

NOTE

Spring must not take permanent set when compressed solid



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

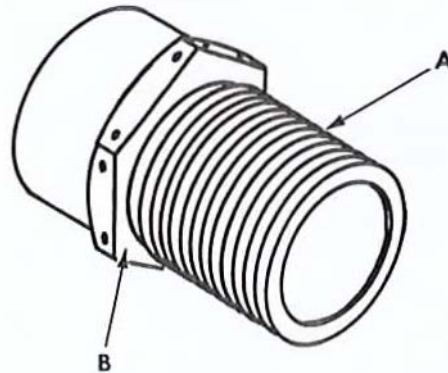
OIP 8725115

ITEM: CAP: oil pump pressure relief valve

REFERENCE: Figure 5-44 (5/204)

ITEM: 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	A /	Threads (damaged)	2.5	Visual	None allowed
2	B /	Surface to be free of raised metal	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

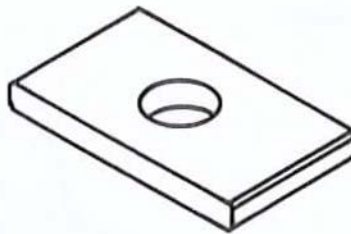
ITEM: ~~LOCK PLATE, NUT AND BOLT:~~
WASHER, FLAT:
 oil pump impeller driven shaft

OIP 11684042

REFERENCE: Figure 5-44 (5/204)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Check for bent lockplate <i>WASHER</i>	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

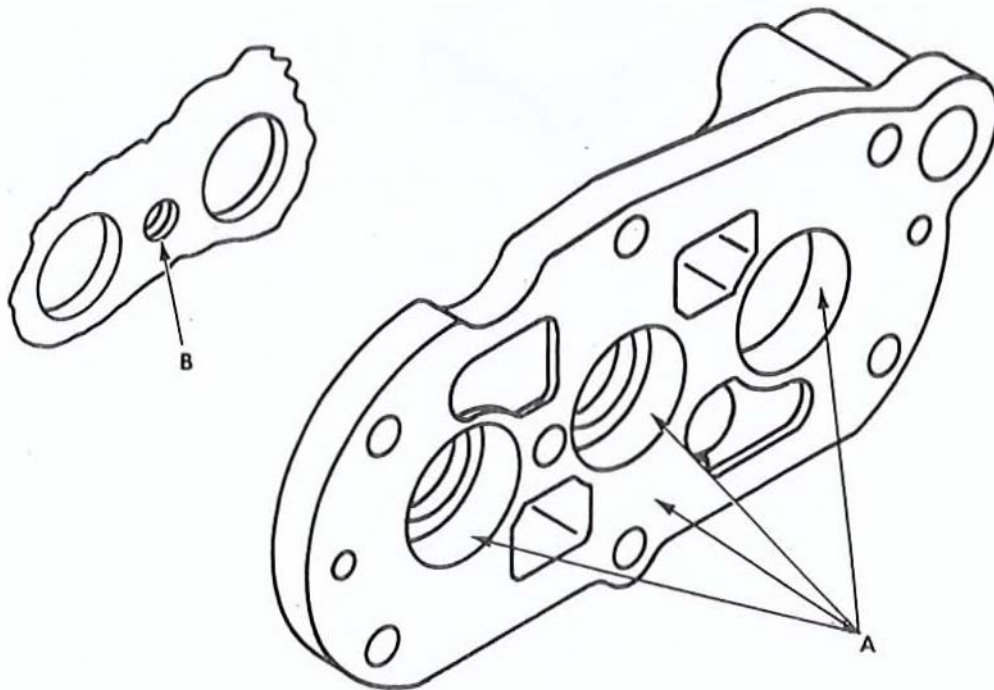
OIP 11683951

ITEM: COVER ASSEMBLY: scavenge
oil pump housing

REFERENCE: Figure 5-44 (5/204)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Dye penetrant	None allowed
2	✓ A	Scratches, nicks or gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ B	Damaged threads THREAD INSERT FOR LOOSENESS AND DAMAGED OR MISSING THREADS	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

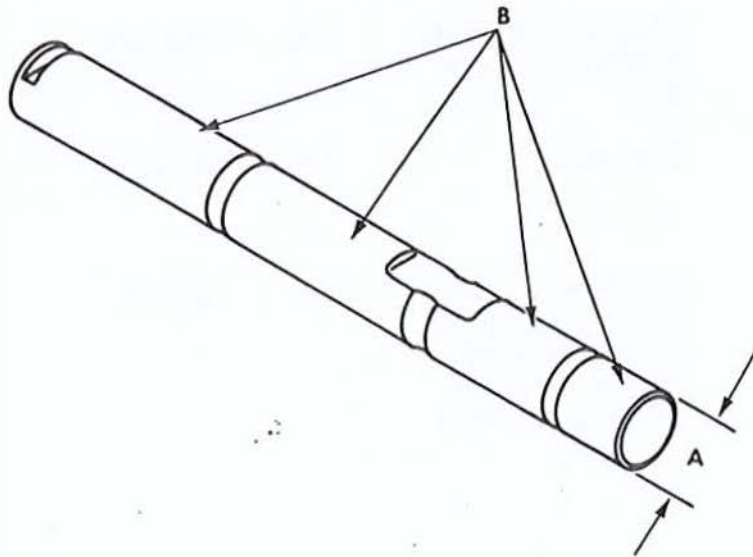
ITEM: SHAFT, ^{SHOULDERED:} oil pump impeller driven

OIP 11683945

REFERENCE: Figure 5-44 (5/204)

ITEM: 23

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2	/ A	Outside diameter (4 places)	1.0	Measure	Diameter must be no less than 0.9829 inch
3	/ B	Scratches, nicks, gouges, raised metal on contact surfaces (4 places)	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683958

**ITEM: IMPELLER:
reserve oil pump drive**

REFERENCE: Figure 5-44 (5/204)

ITEM: 24

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnifying glass <i>Visual</i>	None allowed
2	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4790 inches
3	/ B	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9860 inch
4	/ C	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
5	/ D	Dimension between 0.0450 diameter pins	1.0	Measure	Diameter must be no greater than 0.7978 inch
6	/ E	Gear width	1.0	Measure	Dimension must be no less than 0.2085 inch
7	/ F	Scratches, nicks, gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

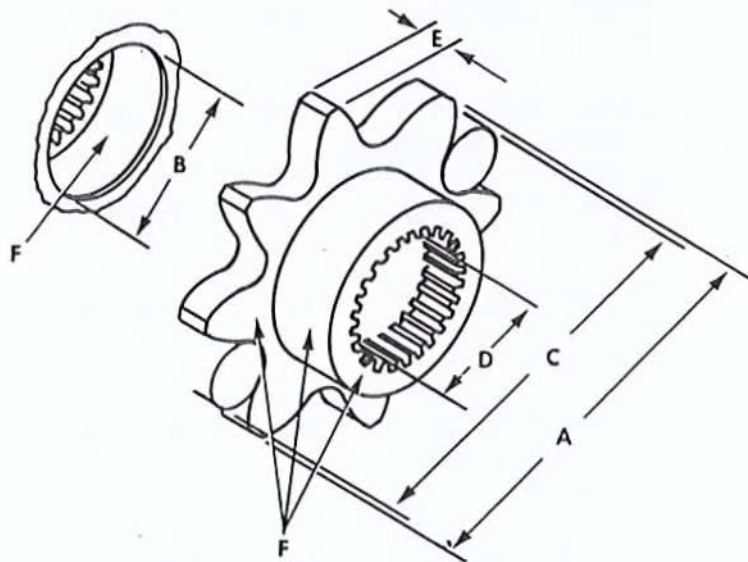
ITEM: IMPELLER:
reserve oil pump drive - Continued

OIP 11683958

REFERENCE: Figure 5-44 (5/204)

ITEM: 24

* NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683997

ITEM: HOUSING ASSEMBLY:
scavenge oil pump

REFERENCE: Figure 5-44 (5/204)

ITEM: 25

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3		Scratches, nicks or gouges on impeller bore on wall or bottom	2.5	Visual	None allowed
4		Loose, damaged or missing studs	2.5	Visual	None allowed
5		Loose, damaged or missing ADAPTER HEADLESS PINS	2.5	Visual	None allowed
6	✓ A	Loose or missing plug	2.5	Visual	Staked securely
7	✓ B	Inside diameter of bearing installed in housing	1.0	Measure	Diameter must be no greater than 0.9870 inch
8	C	Inside diameter of impeller bores (5 places)	1.0	Measure	Diameter must be no greater than 2.4870 inches
9	/ D	Depth of impeller bores (3 places)	1.0	Measure	Dimension must be no greater than 0.2155 inch 0.2175
10	/ E	Depth of impeller bores (2 places)	1.0	Measure	Dimension must be no greater than 3.0505 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

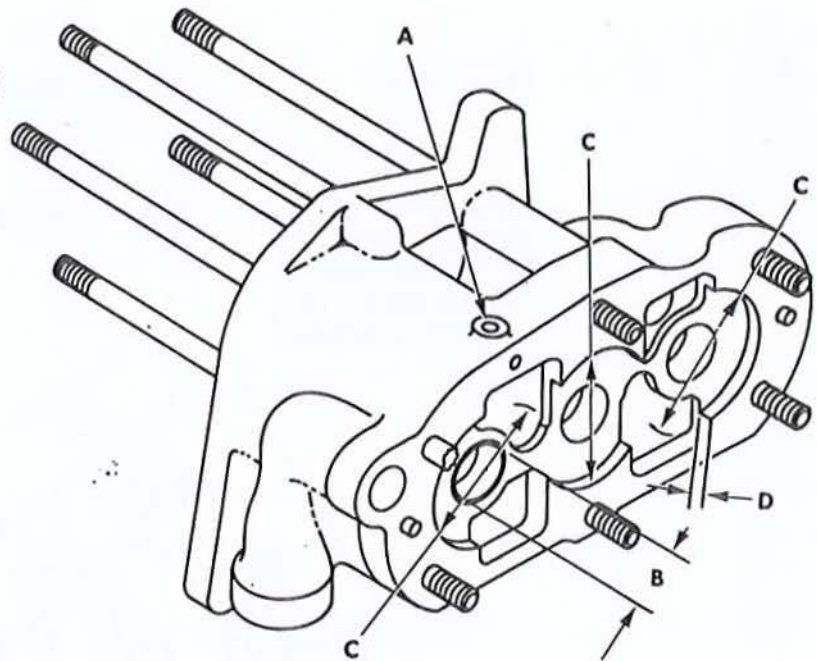
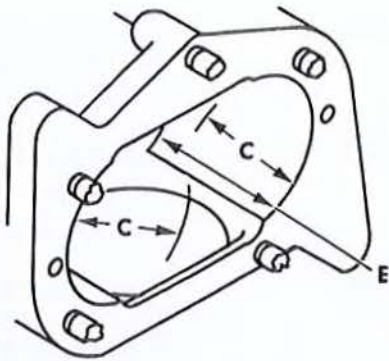
OIP 11683997

ITEM: HOUSING ASSEMBLY:
scavenge oil pump - Continued

REFERENCE: Figure 5-44 (5/204)

ITEM: 25

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

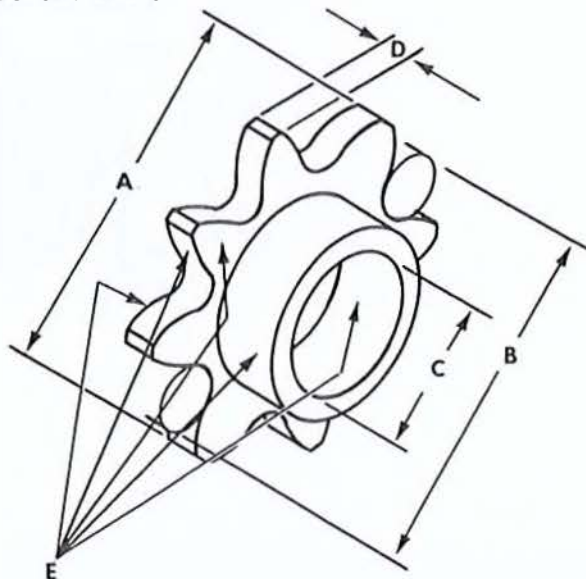
OIP 11683957

**ITEM: IMPELLER: driven oil pump
oil make-up**

REFERENCE: Figure 5-44 (5/204)

ITEM: 26

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Measure <i>Visual</i>	None allowed
2	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 2.4770 inches
3	/ B	Dimension over 0.4500 diameter pins	1.0	Measure	Diameter must be no less than 2.6185 inches
4	/ C	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch
5	/ D	Gear width	1.0	Measure	Dimension must be no less than 0.2085 inch
6	/ E	Scratches, nicks, gouges, chipped or broken teeth, raised metal on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

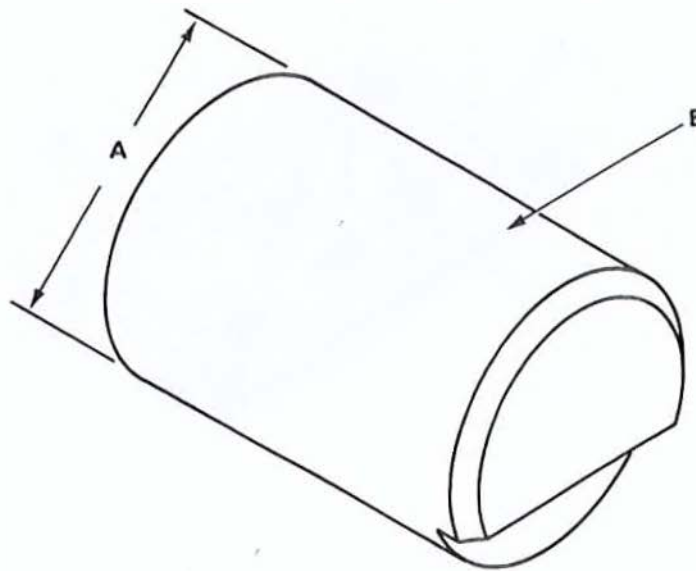
OIP 11683959

**ITEM: SHAFT: reserve oil pump
impeller**

REFERENCE: Figure 5-44 (5/204)

ITEM: 27

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.9829 inch
3	B	Scratches, nicks or gouges, raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

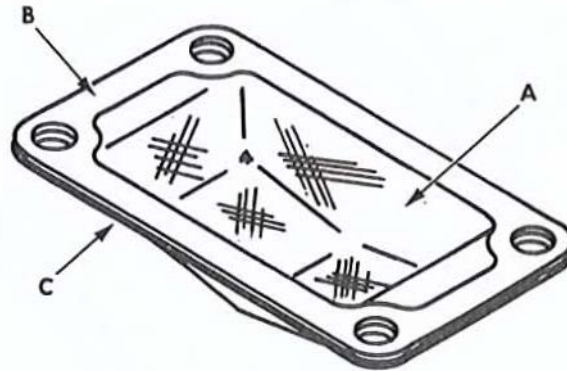
ITEM: SCREEN: pressure oil pump intake

OIP 11683973

REFERENCE: 5-44 (5/204)

ITEM: 28

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Damage screen	0.0	Visual	None allowed
3	B	Warp flange	1.0	Visual	None allowed
4	C	Check wire fabric for looseness at welds	1.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683971

ITEM: HOUSING ASSEMBLY:
pressure oil pump

REFERENCE: Figure 5-44 (5/204)

ITEM: 29

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, raised metal on contact surfaces	2.5	Visual	None allowed
3		Scratches, nicks or gouges in impeller bore wall or at bottom	2.5	Visual	None allowed
4		Loose or missing inserts	2.5	Visual	None allowed
5	A	Damaged threads	2.5	Visual	None allowed
6	B	Nicks, scratches, gouges to valve seat	2.5	Visual	None allowed
7	✓ C	Inside diameter	1.0	Measure	Diameter must be no greater than 0.9870 inch 0.9853
8	✓ D	Inside diameter	1.0	Measure	Diameter must be no greater than 1.1350 inches
9	✓ E	Inside diameter of impeller bores (4 places)	1.0	Measure	Diameter must be no greater than 2.4870 inches 2.4908
10	✓ F	Depth dimension (2 places)	1.0	Measure	Dimension must be no greater than 0.8055 inch
11	✓ G	Depth dimension (2 places)	1.0	Measure	Dimension must be no greater than 2.4345 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

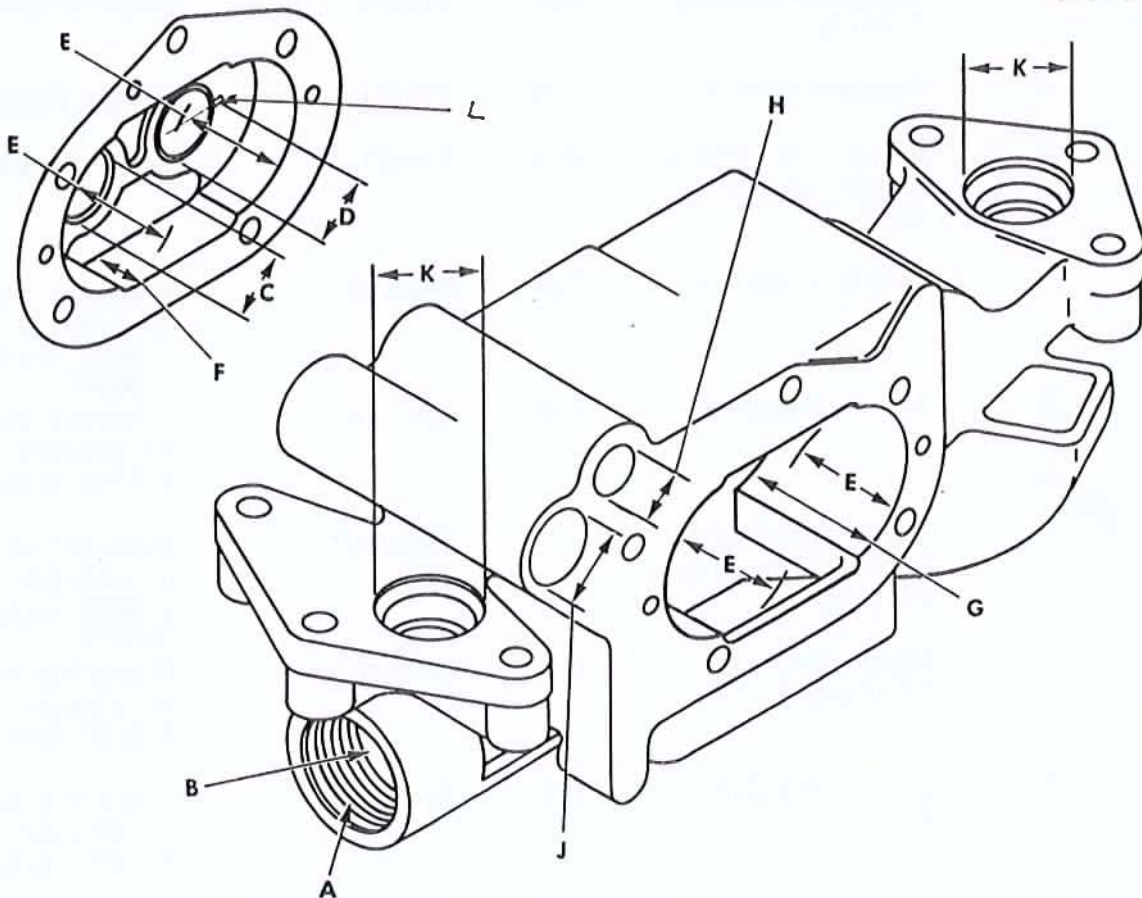
ITEM: HOUSING ASSEMBLY: pressure oil pump - Continued

OIP 11683971

REFERENCE: Figure 5-44 (5/204)

ITEM: 29

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
12	✓ H	Bore diameter	1.0	Measure	Diameter must be no greater than 0.8145 inch
13	✓ J	Bore diameter	1.0	Measure	Diameter must be no greater than 0.9970 inch
14	/ K	Bore diameter	1.0	Measure	Diameter must be no greater than 1.1892 inches
15	L	LOOSE OR MISSING P.H.	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

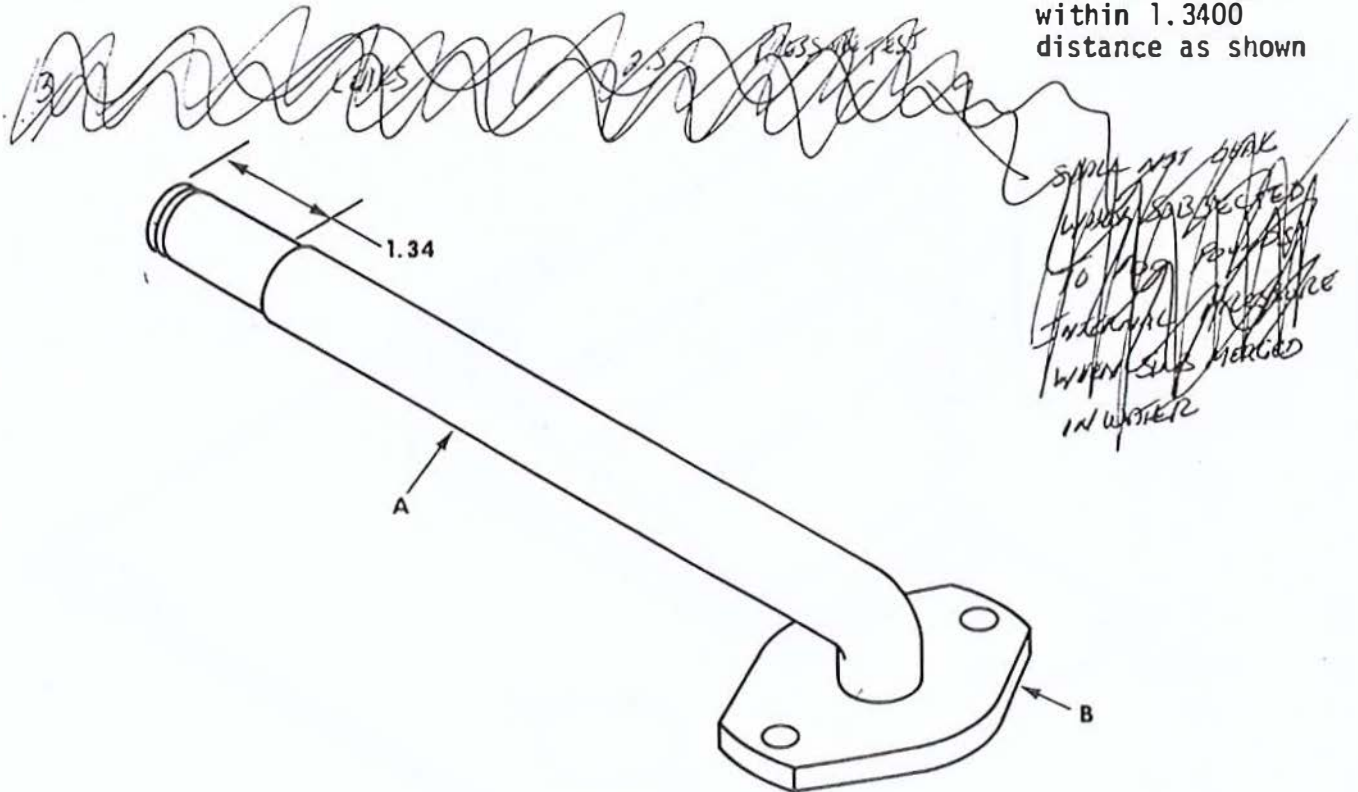
ITEM: TUBE ASSEMBLY, METAL:
leveling oil pump transfer

OIP 11683975

REFERENCE: Figure 5-45 (5/205)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange, tube and welds.	0.0	Visual Magnetic particle	None allowed
2	/ A	Bends in tube	1.0	Measure	Parallelism no greater than 0.0300 inch or no less than 0.0100 inch to flange B within 1.3400 distance as shown



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

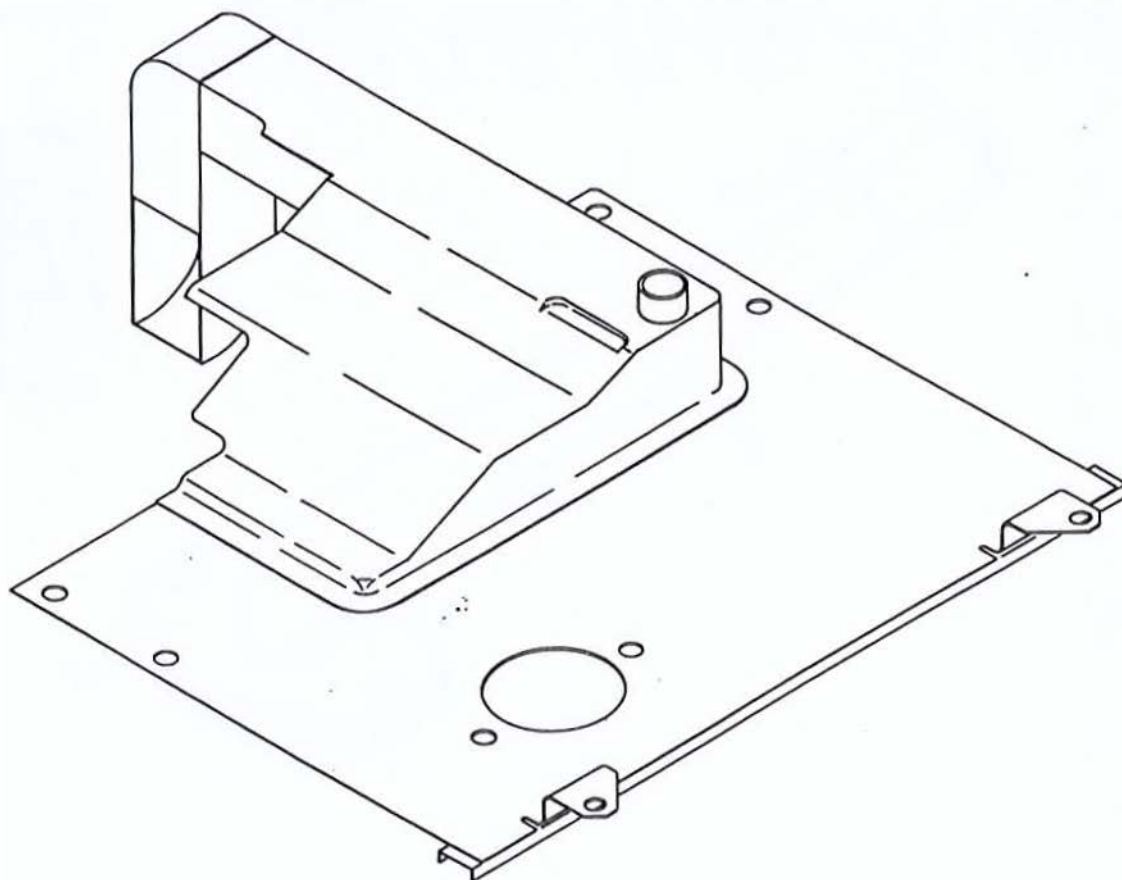
ITEM: ~~Baffle Assembly:~~
 DEFLECTOR, DIRT AND LIQUID:
 oil pan pressure compartment

OIP 11684036

REFERENCE: Figure 5-45 (5/205)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Cracks in welds	0.0	Visual	None allowed
3		Deformed (warped or bent flanges)	1.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

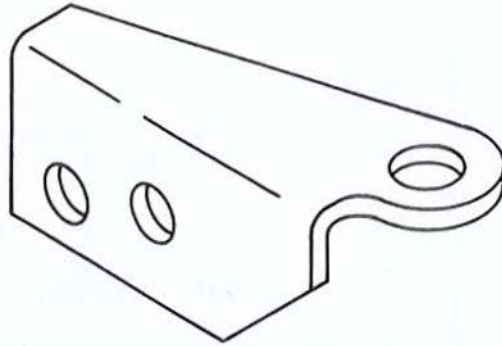
OIP 11684052

**ITEM: BRACKET, MOUNTING: baffle
pressure compartment**

REFERENCE: Figure 5-45 (5 /205)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Bent or distorted	1.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5-41. Repair and Assembly.

a. Repair.

(1) General repair procedures. Refer to paragraph 5-5 (5/5) for general repair procedures.

(2) Replacement of damaged studs. Refer to paragraph 5-5, d (5/6), table 5-14 (5/256), and figure 5-46 (5/256) when replacing oil pump assembly studs.

Table 5-14. Oil Pump Assembly Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-46 (5/256)	1	25/32 29/32	5	5/16-18(3/4) x 5/16-24(35/64) x 1-3/8
	2	2-3/32	1	5/16-18(^{9/16} 3/4) x 5/16-24(^{3/8} 9/16) x 2-9/16
	3	5-9/32 - 43/64	3	5/16-18(^{3/8} 2 1/32) x 5/16-24(39/64) x 5- ^{13/16} 27/16
	4	5- 27/16	2	5/16-18(11/16) x 5/16-24(3/4) x 6- ^{13/16} 13/4

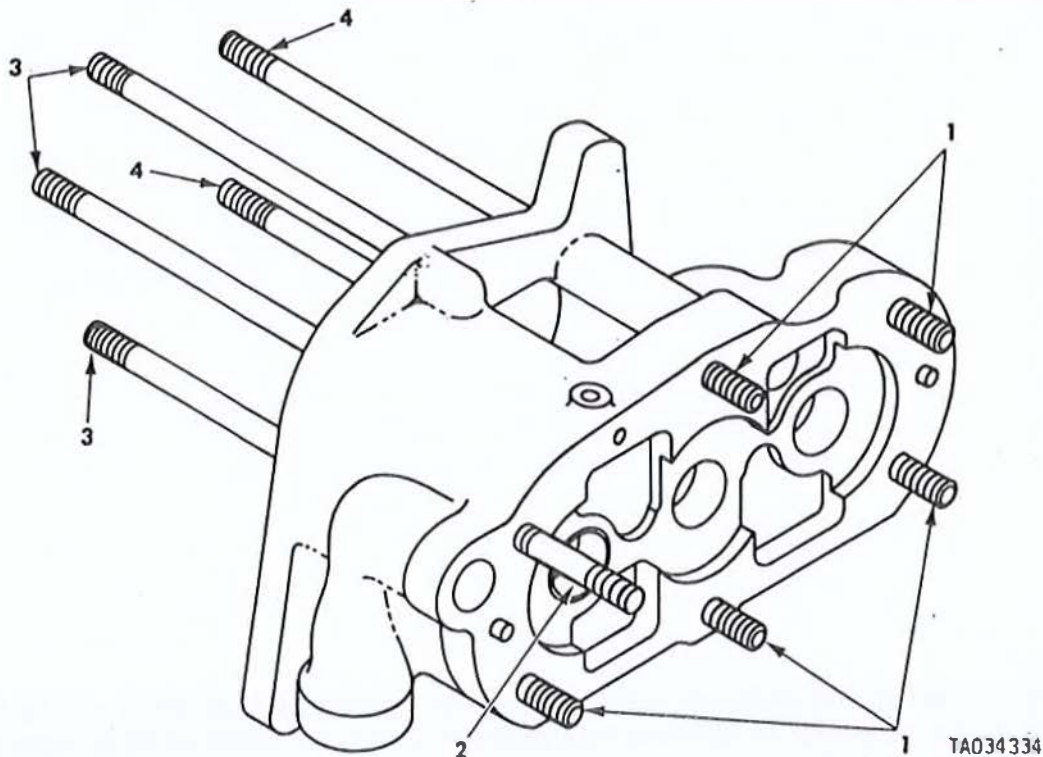


Figure 5-46. Oil pump assembly standard studding.

5-41. (Cont)

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

(3) Test. Test of the oil pump assembly requires a test bench as shown schematically in figure 5-47 (5/258). Performance test parameters of the oil pump assembly are listed in table 5-15 (5/257). Testing of the oil pump assembly is to be made using SAE 30 weight oil at a temperature between 170-180 degrees F. Also check the pressure pump pressure relief valve. Maximum pressure must not exceed 250 psi.

Table 5-15. Oil Pump Assembly Test Parameters

Pump speed rpm	Pump	Outlet pressure	*Flow rate GPM
2800 2800	Leveling	0 psi	13/minute MINIMUM
	Pressure	60 psi	40/minute MINIMUM
	Scavenge	0 psi	50/minute MINIMUM
	Reserve	0 psi	7/minute MINIMUM
1185	Leveling	0 psi	28/minute
	Pressure	60 psi	36/minute
	Scavenge	0 psi	107/minute
	Reserve	0 psi	15/minute

*Flow rates are specified with 5 in. Hg. maximum inlet restrictions.

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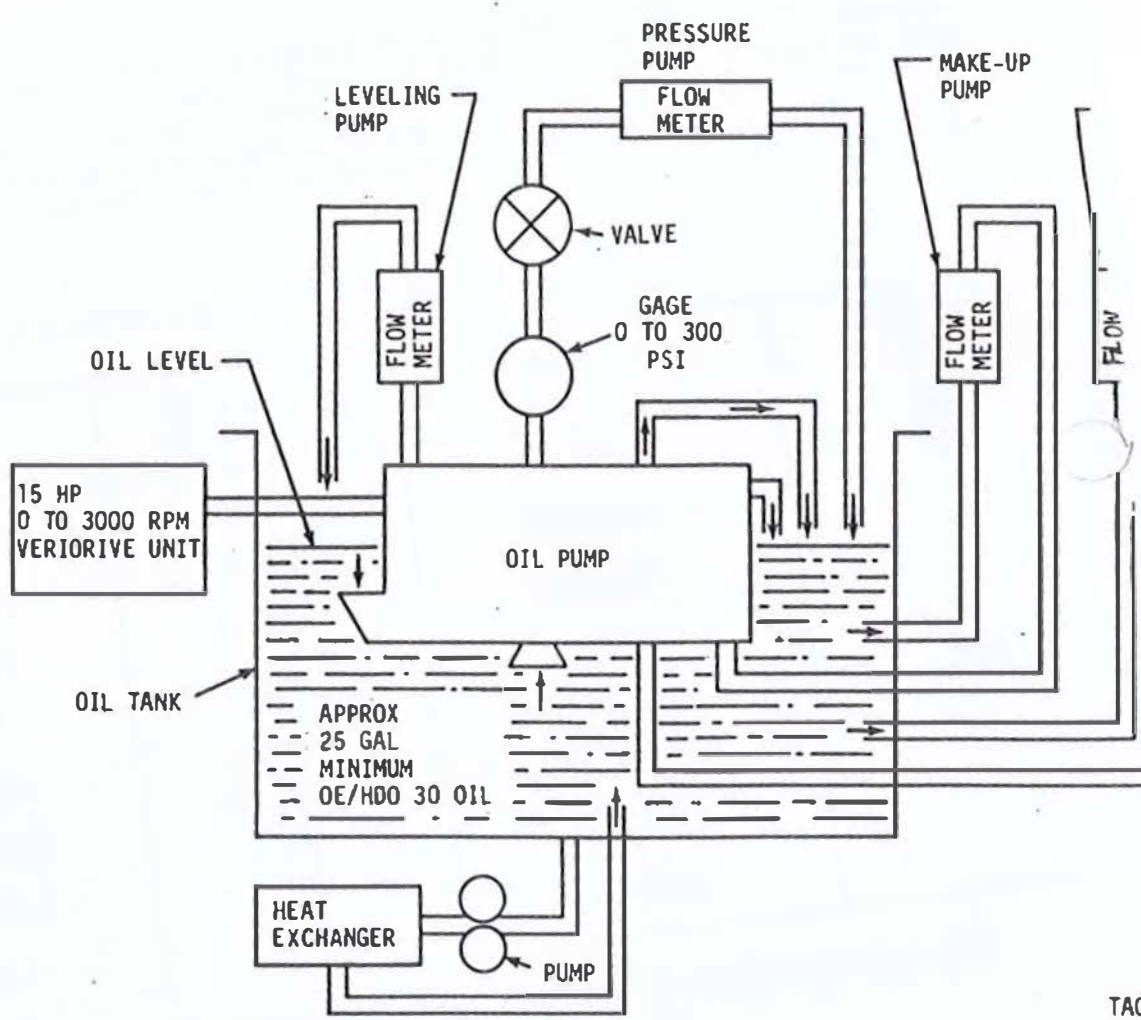


Figure 5-47. Oil pump assembly test setup - schematic diagram.

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Section X. OVERHAUL OF OIL PAN ASSEMBLY

5-42. **General.** This section covers overhaul of the oil pan assembly (fig.5-48) (5/261). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are included with inspection instructions. Stud identification information is included in the repair instructions.

5-43. **Disassembly and Cleaning.**

a. **Disassembly.** Refer to TM 9-2815-220-34.

b. **Cleaning.** Refer to paragraph 5-3, a, b, and c (5/1) for general instructions on cleaning the oil pan assembly and associated parts.

5-44. **Inspection.** Inspect the oil pan assembly and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the oil pan assembly are listed in table 6-16 (5/262). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

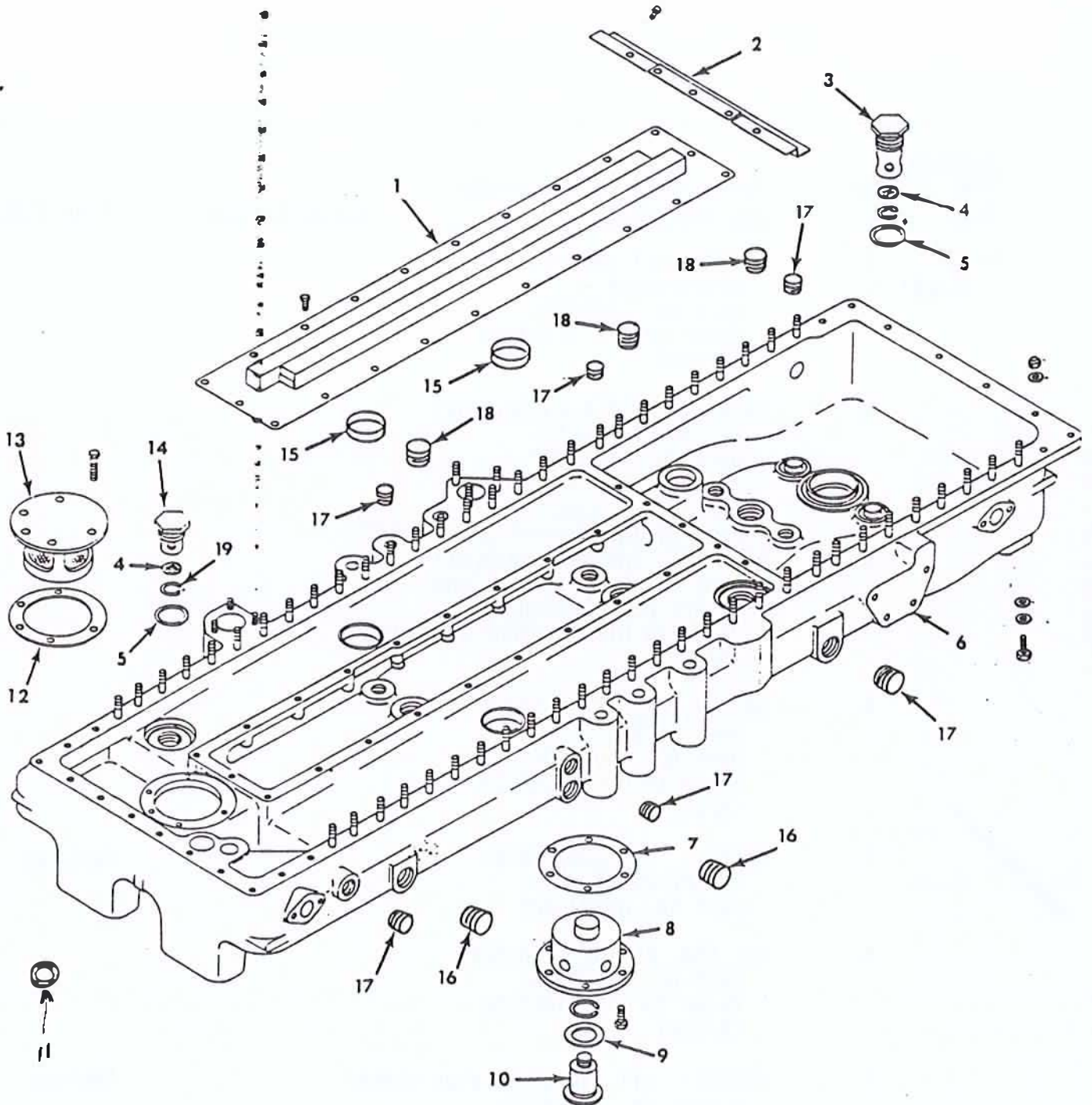


Figure 5-48. Oil pan assembly.

Table 5-16. Wear Limits, Fits, and Tolerances for Oil Pan Assembly

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-48 (5/261)	1	COVER: oil pan reserve compartment - part no. 11683950 Refer to OIP 11683950 (5/264)		
	2	BRACKET, DOUBLE ANGLE: oil pan baffle seal - part no. 11684002 Refer to OIP 11684002 (5/265)		
	3	ADAPTER: ^{RETAINER OIL SEAL} intake screen ^{INTAKE SCREEN} oil pump intake, flywheel end - part no. 11684007 Refer to OIP 11684007 AND 11683999 (5/266)		
	4	SCREEN, OIL PAN RESERVE: pump intake - part no. 11684035 Refer to OIP 11684035 (5/267)		
	5	GASKET: oil pump inlet screen retainer - part no. AN901-20C		Replace
	6	OIL PAN, ENGINE CRANKCASE part no. 11683996 Refer to OIP 11683996 (5/268)		
	7	GASKET: oil pan drain plug ^{A ADAPTER} - part no. 11684054		Replace
	8	ADAPTER: oil pan drain plug - part no. 11684061 Refer to OIP 11684061 (5/270)		

Table 5-16. Wear Limits, Fits, and Tolerances for Oil Pan Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-48	9	GASKET: oil pan drain plug - part no. 11684095		Replace
	10	PLUG, MACHINE THREAD: oil pan drain - part no. 11684091 Refer to OIP 11684091 (5/271)		
	11	PACKING, PREFORMED: oil transfer tube to crankcase - part no. MS9388-123 (MS93248//1-123)		Replace
	12	GASKET: oil pan scavenge inlet screen - part no. 11684040		Replace
	13	SCREEN, OIL PAN SCAVENGE INLET - part no. 11684062 Refer to OIP 11684062 (5/272)		
✓	14	ADAPTER, INTAKE SCREEN ^{ENTIRE SCREEN} RETAINER, OIL SEAL. oil pump intake, damper end - part no. 11683999 Refer to OIP 11683999 AND 11684007 (5/266)		

15 PLUG, EXPANSION - REPLACE
PART NO. 11668623-3

16 PLUG, PIPE - REPLACE
PART NO. ~~866534-1~~ 1332672
(444715-2467)

17 PLUG, PIPE - REPLACE
PART NO. 866534-1
(12Z329PC93-10001)

18 PLUG, PIPE - 5/263 REPLACE
PART NO. 866534-2

19 RING, RETAINING - REPLACE
PART NO. MS16627-1112

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683950

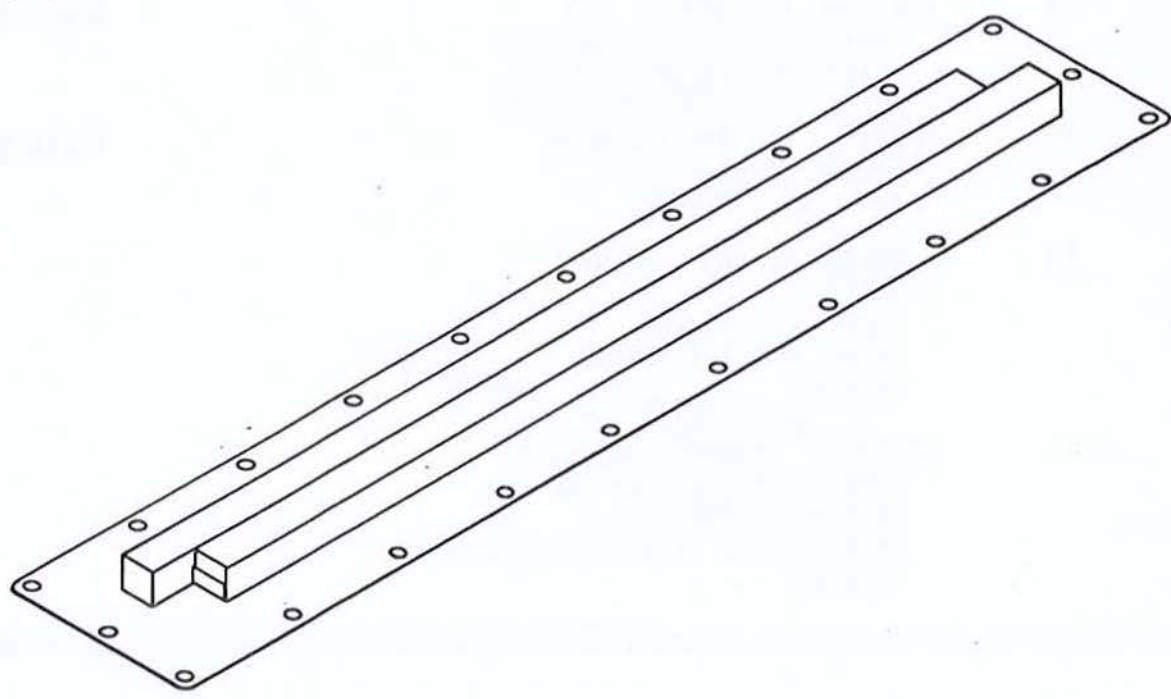
ITEM: COVER:
oil pan reserve compartment

REFERENCE: Figure 5-48 (5/261)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks <i>IN TUBES, PLATES, COVER AND WELDS</i> , 0.0		Visual	None allowed
2		Bent, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed

ALL SLOTTED WELDS 2.5 VISUAL NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

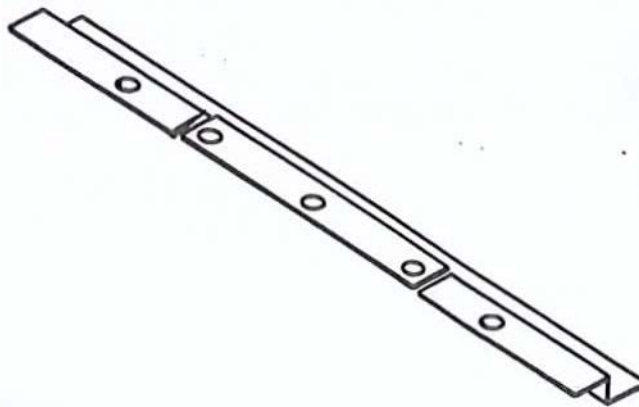
OIP 11684002

**ITEM: BRACKET, DOUBLE ANGLE:
oil pan baffle seal**

REFERENCE: Figure 5-48 (5/261)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Bent or dented	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{RETAINER OIL SEAL:}
~~ADAPTER~~
 intake screen oil pump intake, damper
 and flywheel end

OIP 11684007 and 11683999

REFERENCE: Figure 5-48 (5/261)

ITEM: 3 and 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged hex head	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SCREEN, OIL PAN RESERVE:
pump intake

OIP 11684035

REFERENCE: Figure 5-48 (5/261)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Bent or damaged screen	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: OIL PAN, ENGINE CRANKCASE

OIP 11683996

REFERENCE: Figure 5-48 (5/261)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Loose or missing thread inserts	2.5	Visual	None allowed
4		Loose, bent or missing studs	2.5	Visual	None allowed
5		Damaged threads on studs	2.5	Visual	None allowed
6		Damaged pipe threads	2.5	Visual	None allowed
7		Cracked, dented, bent, loose or missing oil transfer tubes (3 places)	2.5	Visual	None allowed
8		Cracked, loose, or missing expansion plugs (2 places)		Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815

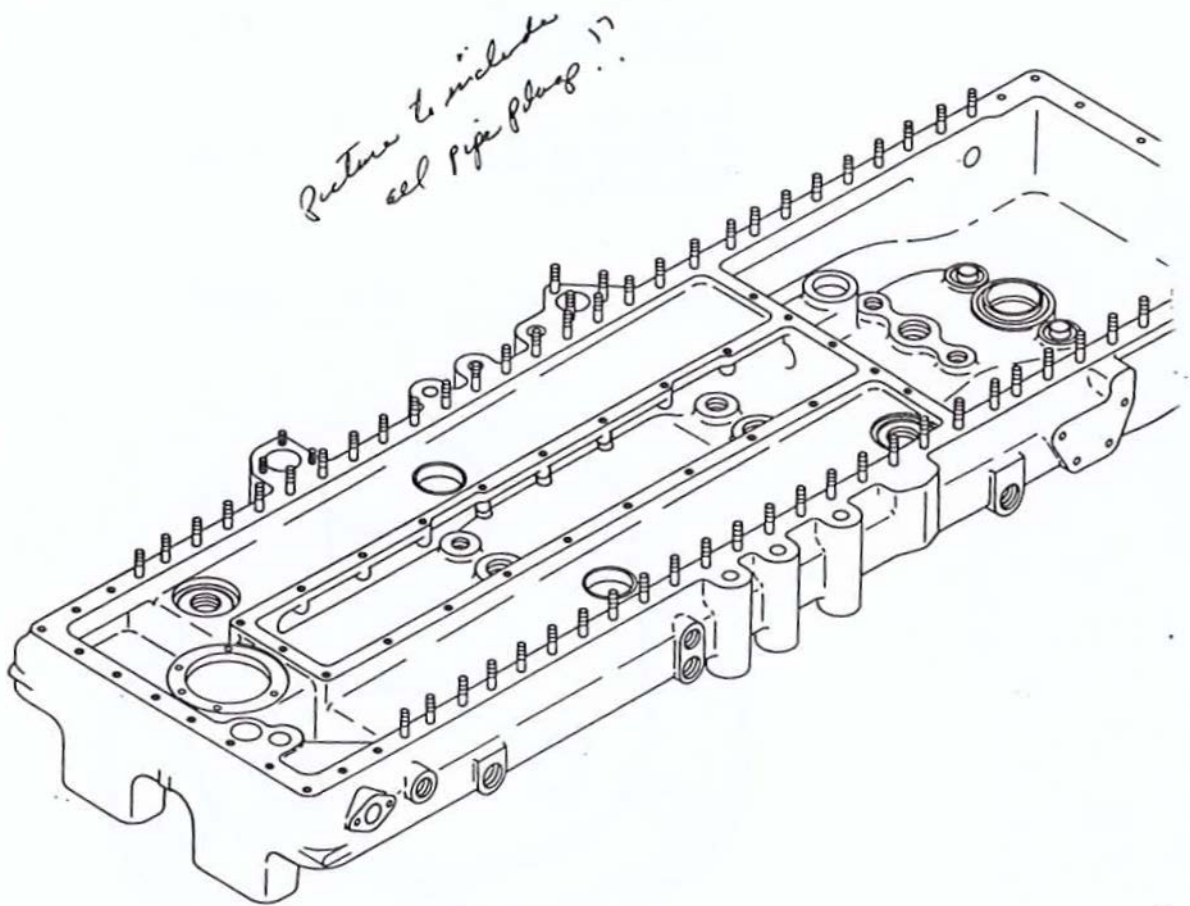
ITEM: OIL PAN, ENGINE CRANKCASE

OIP 11683
3916

REFERENCE: Figure

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	RE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

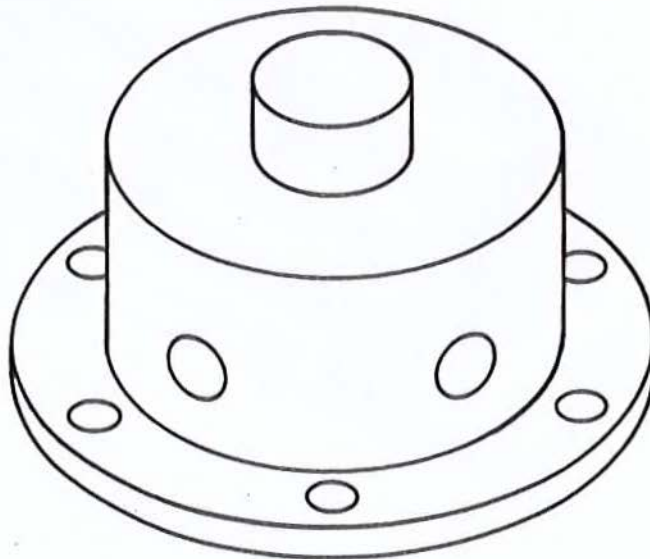
OIP 11684061

ITEM: ADAPTER:
oil pan drain plug

REFERENCE: Figure 5-48 (5/261)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
4		DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

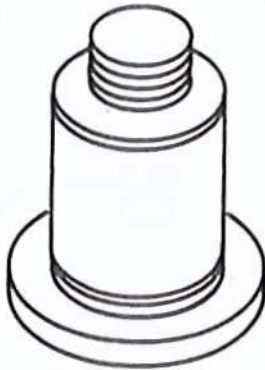
ITEM: PLUG, MACHINE THREAD:
oil pan drain

OIP 11684091

REFERENCE: Figure 5-48 (5/261)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.6	Visual	None allowed
3		Scratches, nicks or gouges on con- tact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

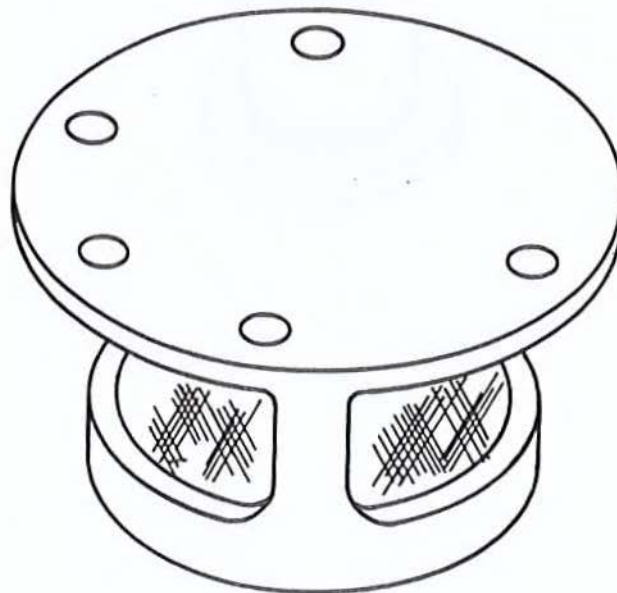
OIP 11684062

ITEM: SCREEN, OIL PAN SCAVENGE INLET

REFERENCE: Figure 5-48 (5/261)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Cracked or broken welds	2.5	Visual	None allowed
4		Damaged screen	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

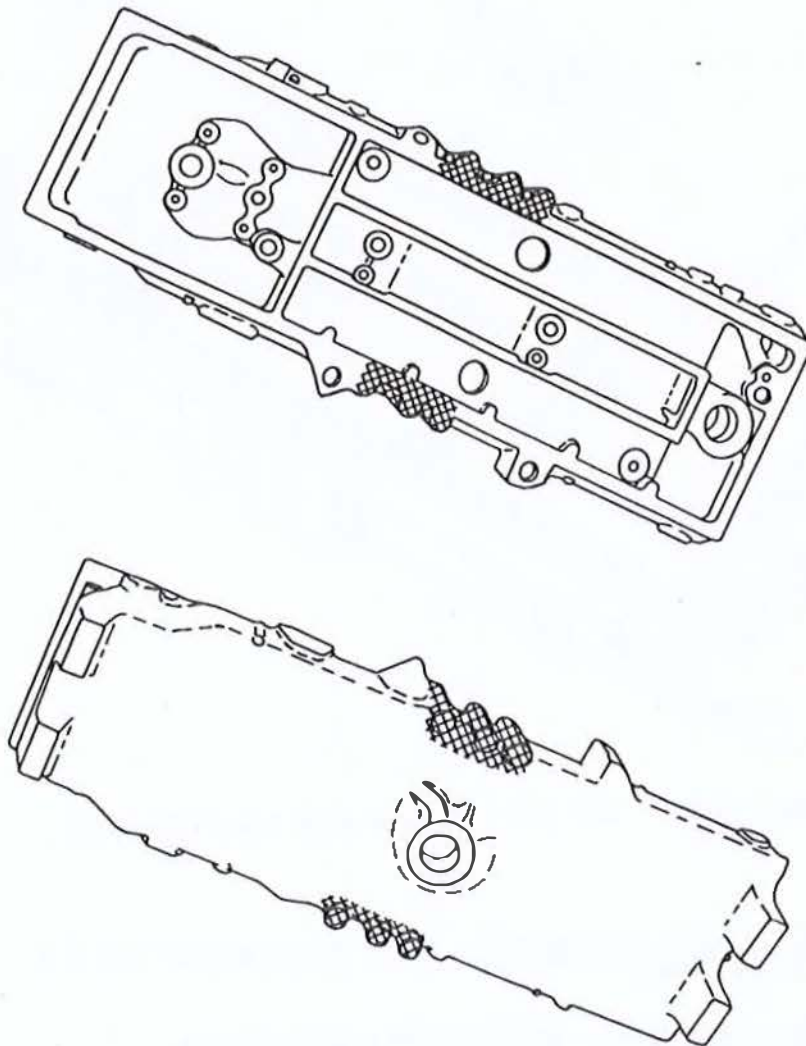
5-45. Repair and Assembly

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Repair by welding. Repair of the oil pan by welding is permissible except in areas shown in figure 5-49 (5/273). Repair by blending of nicks, grooves, or impact damage on the inside of the oil pan is permitted providing damage does not progress into restricted area. Weld surfaces must be restored to specific dimensions by machining. Refer to paragraph 5-7 (5/10) for general welding instructions.

(3) Replacement of studs and inserts. Refer to paragraph 5-5, d (5/6), table 5-17 (5/274), and figure 5-50 (5/274) when replacing damaged, bent, or stripped oil pan assembly studs. Refer to paragraph 5-6, b (5/8) when replacing damaged screw thread inserts.



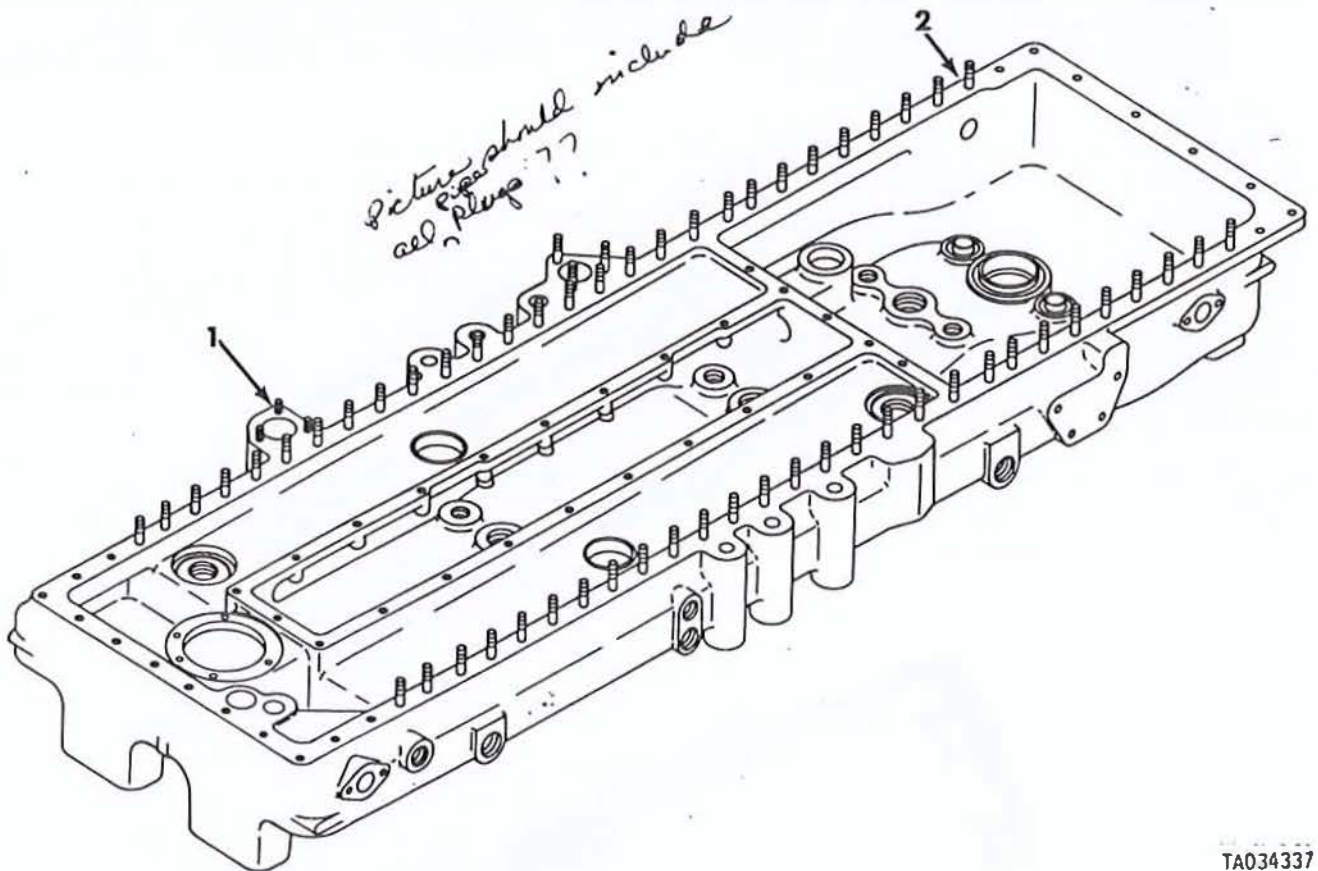
TA034336

Figure 5-49. Oil pan casting - highly stressed areas.

5-45. (Cont)

Table 5-17. Oil Pan Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-50 (5/274)	1	25/32	3	5/16-18 (3/4) x 5/16-24 (19/32) x 1-7/16
	2	1-11/32	56	3/8-16 (15/16) x 3/8-24 (13/16) x 2-3/32



TA034337

Figure 5-50. Oil pan standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (/) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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Section XI. OVERHAUL OF CRANKSHAFT DAMPER AND OIL FILTER HOUSING

5-46. General. This section covers overhaul of the crankshaft damper, oil filter assembly, and associated parts (figs. 5-51 and 5-52) (5/276) and (5/277). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) of individual components are included with inspection instructions. Stud identification information is included in the repair instructions.

5-47. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions. Insure all oil passages are clear and free of obstructions after cleaning.

5-48. Inspection. Inspect the crankshaft damper, oil filter housing, and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the crankshaft damper, oil filter housing, and associated parts are listed in table 5-18 (5/278). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

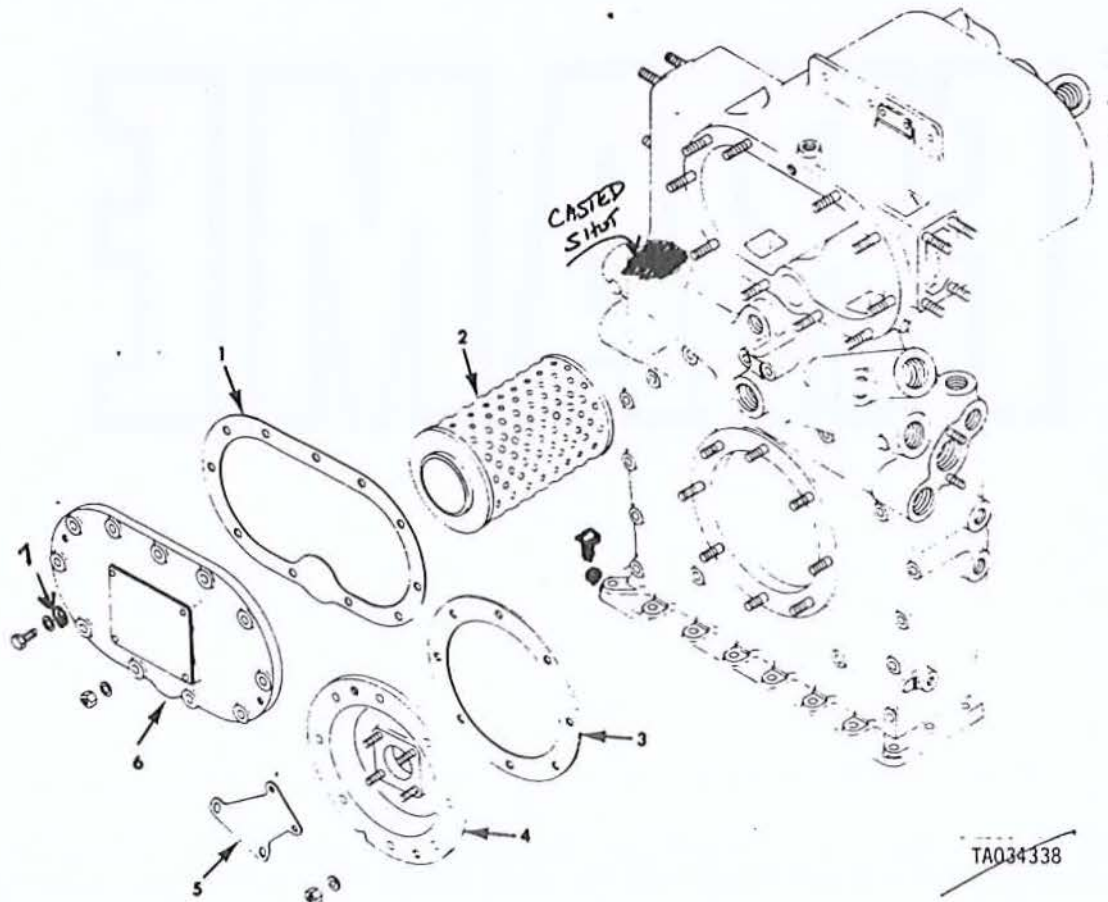


Figure 5-51. Crankshaft damper and oil filter housing.

DMWR 9-2815-220

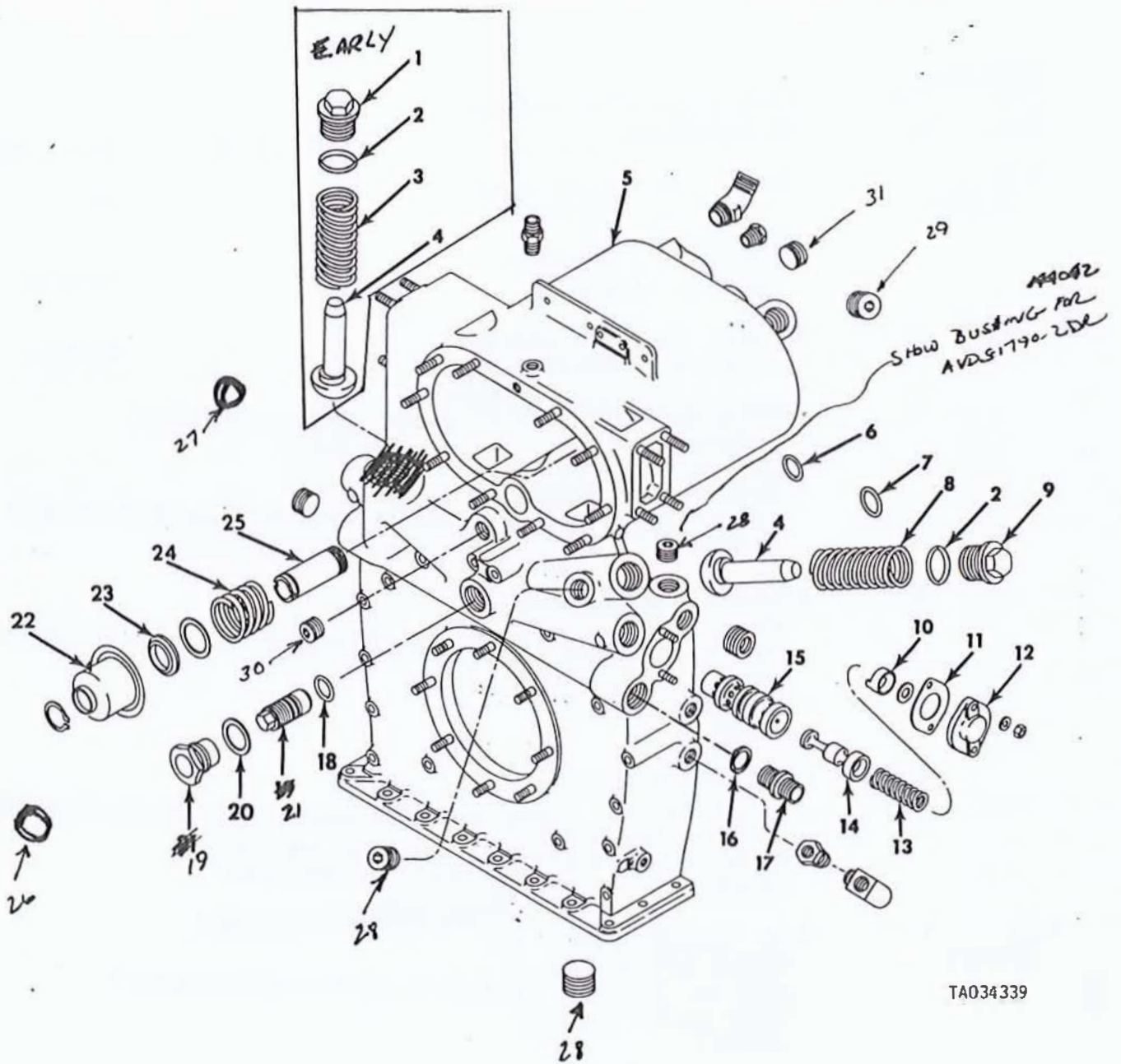


Figure 5-52. Crankshaft damper, oil filter housing, and associated parts.

Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-51 (5/276)	1	GASKET: oil filter cover - part no. 11684047		Replace
	2	FILTER ELEMENT, FLUID: ELEMENT: oil filter part no. 11668619		Replace
	3	GASKET: fuel pump adapter - part no. 8725277		Replace
	4	ADAPTER ASSEMBLY ^{FUEL PUMP} ADAPTER AND FLANGE ASSEMBLY: DAMP FUEL PUMP - part no. 10882611 Refer to OIP 10882611 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) (5/284)		
	5	^{MOUNTING:} BRACKET, DAMP DAMPER HOUSING check valve - part no. 10882766 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) Refer to OIP 10882766 (5/285)		
	6	COVER, FLUID FILTER: oil, front - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684043 (MODEL AVDS-1790-2DR-) Refer to OIP 11684043 PART NO. 11684043-1 11684043-1 AND 11684043-1 (5/286)		
5-52 (5/277)	1	PLUG, MACHINE THREAD: oil cooler by-pass valve - part no. 12254260 (HOUSING HAVING MACHINED BOSS ONLY) Refer to OIP 12254260 (5/287)		
	2	^{FILTER} GASKET: oil cooler by-pass valve AND OIL COOLER BY-PASS VALVE (EARLY) part no. MS35769-47		Replace

Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-52 (5/277) continued	3	SPRING, HELICAL, COMPRESSION: oil cooler by-pass valve - part no. 12254261 (HOUSING HAVING MACHINED BOSS ONLY) Refer to OIP 12254261 (5/288)		
		Approximate free length of spring	3.3800 ± 0.0100	*
		Load at 2.8380 inches length	178.2 lbs ± 9 lbs	*
		Maximum solid height	2.404 in.	*
	4	PLUNGER, RELIEF VALVE - part no. 8725222 Refer to OIP 8725222 (5/289)		
	5	MECHANICAL DRIVE - HOUSING ASSEMBLY, CRANKSHAFT DRIVE AND OIL FILTER part no. 11684077 (Models AVDS-1790-2C, and AVDS-1790-2D) <i>AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA</i> - part no. 11684077-1 (Model AVDS-1790-2DR) Refer to OIP 11684077 (5/290)		
	6	PACKING, PREFORMED: crank-case oil transfer tube - part no. MS9388-120 (M83248/1-120)		Replace
	7	PACKING, PREFORMED: crank-case oil transfer tube - part no. MS9388-212 (M83248/1-212)		Replace
	8	SPRING, HELICAL, COMPRESSION: oil filter by-pass valve - part no. 8682815 Refer to OIP 8682815 (5/291)		
		approximate free length of spring	4.2800 ± 0.0100	*

Change 3 5/279



Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-52 (5/277) continued	8 -	✓ Load at 2.8100 inches length	52.3 lbs ± 5 lbs	*
		✓ Maximum solid height	2.2610	*
	9	PLUG, MACHINE THREAD: oil filter by-pass valve - part no. 8725218 Refer to OIP 8725218 (5/292)		
	10	✓ STOP, RELIEF VALVE: oil <i>PLATE, VALVE STOP:</i> <i>PLUNGER OIL VALVE ENGINE</i> pressure regulator - part no. 8725224 Refer to OIP 8725224 (5/293)		
		✓ Outside diameter of stop	1.2440-1.2480	<u>1.2400</u>
	11	GASKET: oil pressure regulator valve cover - part no. 8725239		Replace
	12	COVER, ACCESS: oil pressure regulator valve - part no. 8725211 Refer to OIP 8725211 (5/294)		
	13	SPRING, HELICAL, COMPRESSION: oil pressure regulator valve - part no. 8725240 Refer to OIP 8725240 (5/295)		
		✓ Approximate free length of spring	2.8300 ± 0.0100	*
		✓ Load at 1.8250 inches length	29.3 lbs ± 3 lbs	*
		✓ Maximum solid height	1.2840	*

Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-52	14	PLUNGER, REGULATOR VALVE: oil pressure - part no. 8725276 Refer to OIP 8725276 (5/296)		
		Outside diameter of plunger (large)	1.1840-1.1850	1.1830 inches
		Outside diameter of plunger (small)	0.8095-0.8105	0.8085 inch
	15	HOUSING ASSEMBLY: OIP <i>SLEEVE, OIL PRESSURE REGULATOR VALVE & -</i> pressure regulator valve - part no. 11684033 Refer to OIP 11684033 (5/297)		
		Inside diameter of sleeve (large)	1.1840 - 1.1850 <i>1.1865 - 1.1885</i>	1.1855 <i>1.1890</i> inches
		Inside diameter of sleeve (small)	0.8095 - 0.8105 <i>0.8125 0.8135</i>	0.8110 <i>0.8140</i> inch
	16	GASKET: oil cooler line adapter to crankshaft damper and oil filter housing - part no. 7403580-1		Replace
	17	ADAPTER, STRAIGHT, TUBE TO BOSS: oil cooler line to crankshaft damper and oil filter housing - part no. 7324900 Refer to OIP 7324900 (5/298)		
	18	GASKET <i>PACKING, PREFORMED:</i> damper housing oil drain valve adapter - part no. MS35769-35 MS9388-118 (M83248/1-118)		Replace

Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-52 (5/277)	19	ADAPTER, STRAIGHT, TUBE TO BOSS: ST damper housing oil drain - part no. 11683926 11683926 Refer to OIP 11683926 11683926 (5/299)		
	20	GASKET: PACKING, PREFORMED: damper housing oil drain valve adapter - part no. MS35769-35 MS35769-35		Replace
	21	ADAPTER, STRAIGHT, TUBE TO BOSS: VALVE, DAMPER HOUSING OIL DRAIN - part no. 11683926 11683926 Refer to OIP 11683926 11683926 (5/300)	1.050-1.051	1.049
	22	FILTER BODY, FILTER RETAINER, OIL FILTER ELEMENT - part no. 11684053 Refer to OIP 11684053 (5/301)		
	23	RETAINER, PACKING: oil filter element - part no. 11684058		Replace
	24	SPRING, HELICAL, COMPRESSION: oil filter support, oil filter element - part no. 11684066 Refer to OIP 11684066 (5/302)		
		Approximate free length of spring	1.7800 inches ± 0.0100	*
		Load at 1.2500 inches length	100.0 lbs ± 10.0 lbs	*
		Maximum solid height	0.9050	*

Table 5-18. Wear Limits, Fits, and Tolerances for Crankshaft Damper and Oil Filter Housing - Continued

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-52 (5/277)	25	BRACKET, FILTER MOUNTING SUPPORT, OIL FILTER ELEMENT - part no. 11684060 Refer to OIP 11684060 (5/303)		
		Outside diameter of support	1.3050-1.3100	*
	26	PLUG, EXPANSION - PART NO. MS9176-28		REPLACE
	27	PLUG, EXPANSION - PART NO. 11668123-1		REPLACE
	28	PLUG, PIPE - PART NO. 7538997 (MS27769C6)		REPLACE
	29	PLUG, PIPE - PART NO. 7538672 (444715-2467)		REPLACE
	30	PLUG, PIPE - PART NO. 8666534-1 (122329PC93-10001)		REPLACE
	31	PLUG, PIPE - PART NO. 8666534-2		REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ADAPTER AND FLANGE ASSEMBLY:

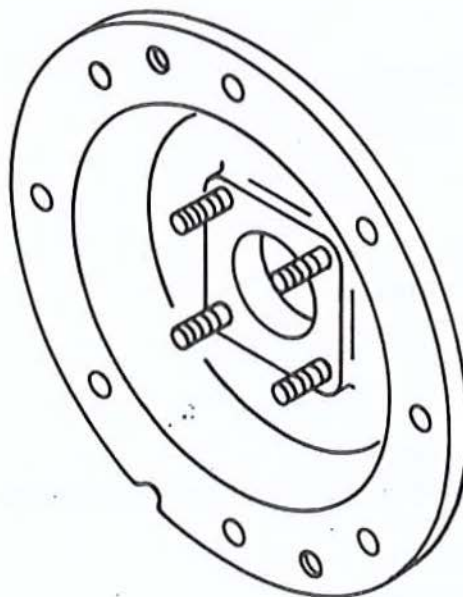
ITEM: ~~ADAPTER ASSEMBLY~~
~~FUEL PUMP~~ *FUEL PUMP*
~~AVDS 1790-2~~

OIP 10882611

REFERENCE: Figure 5-51 (5/276)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

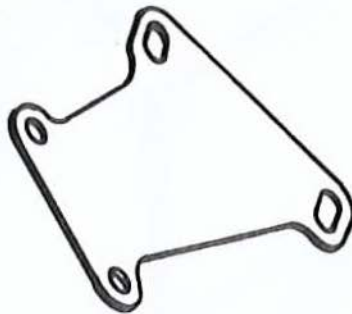
OIP 10882766

ITEM: ^{MOUNTING:}
~~BRACKET, DAMPER HOUSING~~
 check valve (Models ~~AVDS-1790-20~~
 and ~~AVDS-1790-2D~~)

REFERENCE: Figure 5-51 (5/276)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP

11684043

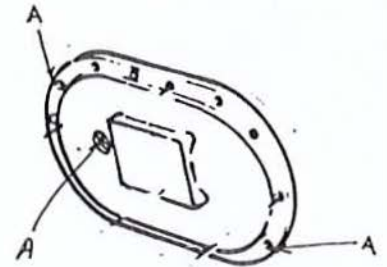
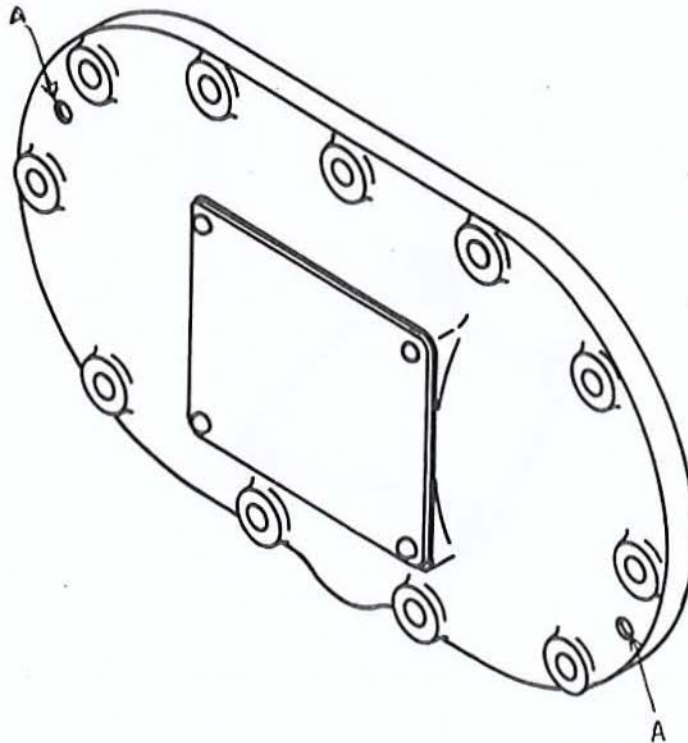
11684043

ITEM: COVER, FLUID FILTER:
oil, front

REFERENCE: Figure 5-51 (5/276)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3	A	DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED



(AVDS-1790-2DR ONLY)
11684043-1

NOTE

This casting may have a tapped oil hole which must be plugged with a 1/8 inch threaded pipe plug (part no. 7538996).

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254260

R

ITEM: PLUG, MACHINE THREAD:
oil cooler by-pass valve
(HOUSING HAVING MACHINED BOSS ONLY)

REFERENCE: Figure 5-52 (5/277)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTED PROCEDURE

DMWR 9-2815-220

OIP 12254261

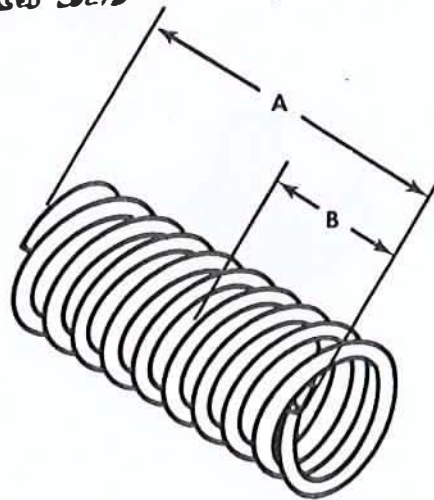
ITEM: SPRING, HELICAL, COMPRESSION:
oil cooler by-pass valve
(HOUSING HAVING MACHINED BSS ONLY)

REFERENCE: Figure 5-52 (5/277)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Approximate free length of spring	1.0	Measure	Dimension must be no less than 3.3700 inches and no greater than 3.3900 inches
3	B	Maximum solid height of spring	1.0	Measure	Dimensions must be no less than 2.4040 inches

NOTE
SPRING MUST NOT TAKE
PERMANENT SET WHEN
COMPRESSED SOLID



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: PLUNGER, RELIEF VALVE:
oil cooler by-pass valve, and
oil filter by-pass valve

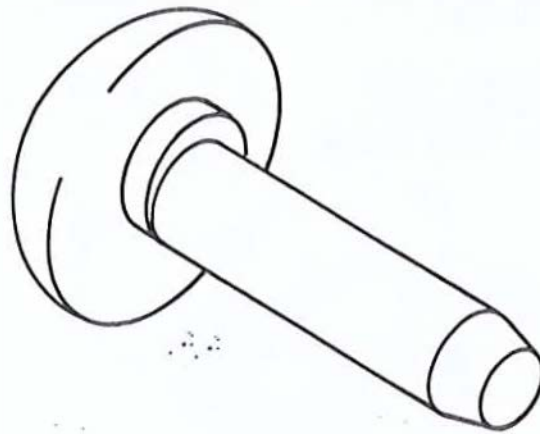
OIP 8725222

(8725222.02978)

REFERENCE: Figure 5-52 (5/277)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on con- tact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

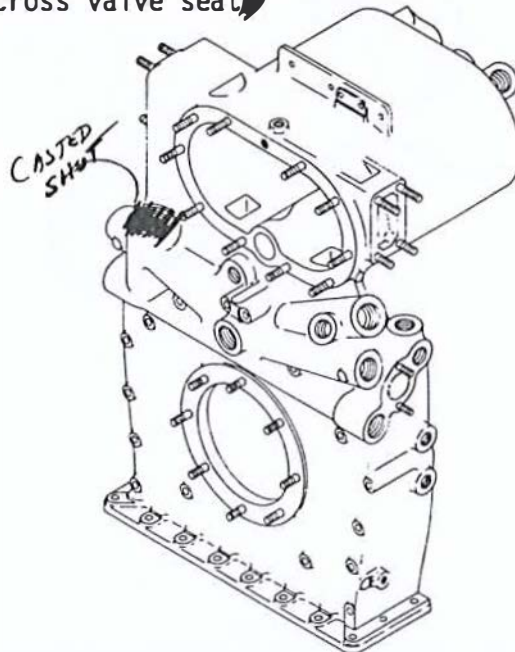
ITEM: HOUSING, ^{MECHANICAL DRIVE} CRANKSHAFT DAMPER AND OIL FILTER ASSEMBLY

OIP 11684077

REFERENCE: Figure 5-52 (5/277)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Fluorescent penetrant	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Damaged or missing studs	2.5	Visual	None allowed
4		Loose or damaged thread inserts	2.5	Visual	None allowed
5		Damaged pipe plug threads	2.5	Visual	None allowed
6		Valve seat loose in housing	2.5	Visual	None allowed
7		Scratches, nicks or gouges on or across valve seat	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

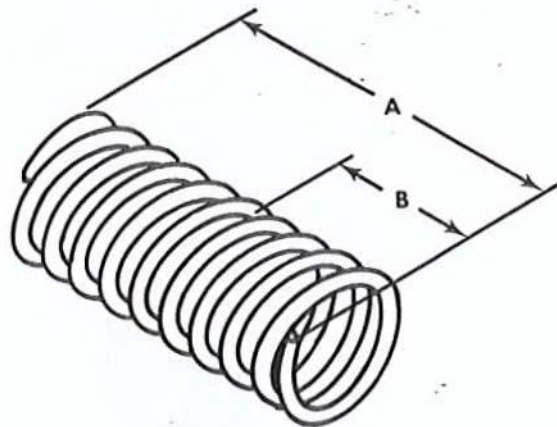
OIP 8682815

**ITEM: SPRING, HELICAL, COMPRESSION:
oil filter by-pass valve**

REFERENCE: Figure 5-52 (5/277)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Approximate free length of spring	1.0	Measure	Dimension must be no less than 4.2700 inches and no greater than 4.2900 inches
3	B	Maximum solid height of spring	1.0	Measure	Dimension must not be less than 2.2610 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8725218

ITEM: PLUG, MACHINE THREAD:
oil filter by-pass valve

REFERENCE: Figure 5-52 (5/277)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks or gouges on con- tact surfaces	2.5	Visual	None allowed
4		Base metal show- ing through pro- tective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

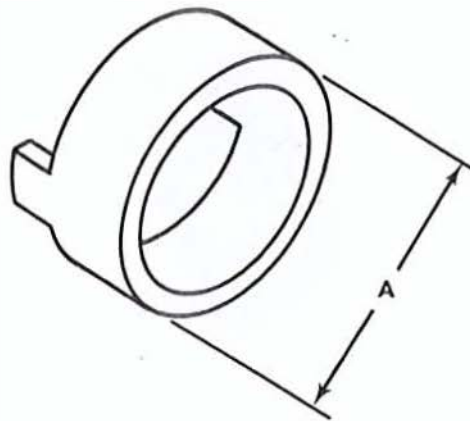
ITEM: ~~STOP, RELIEF VALVE~~
 PLATE, VALVE STOP;
 oil pressure regulator

OIP 8725224

REFERENCE: Figure 5-52 (5/277)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 1.2400 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: COVER, ACCESS:
oil pressure regulator valve

OIP 8725211

REFERENCE: Figure 5-52 (5/277)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Warped contact surface	2.5	Visual	Surface must be flat within 0.0030 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, HELICAL, COMPRESSION:
oil pressure regulator valve

OIP 8725240

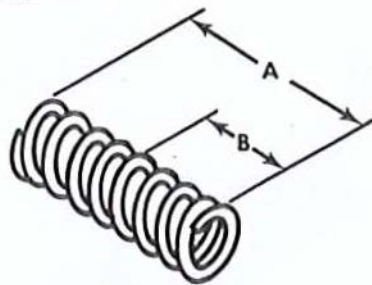
REFERENCE: Figure 5-52 (5/277)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Approximate free length of spring	1.0	Measure	Dimension must be no less than 2.8200 inches and no greater than 2.8400 inches
3	B	Maximum solid height of spring	1.0	Measure	Dimension must be no less than 1.2840 inches

NOTE

SPRING MUST NOT TAKE PERMANENT SET WHEN COMPRESSED SOLID



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

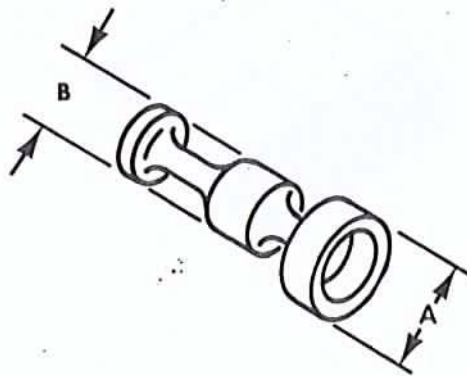
OIP 8725276

**ITEM: PLUNGER, REGULATOR VALVE:
oil pressure**

REFERENCE: Figure 5-52 (5/277)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	✓ A	Outside diameter of plunger (large)	1.0	Measure	Dimension must be no less than 1.1830 inches
3	✓ B	Outside diameter of plunger (small)	1.0	Measure	Dimension must be no less than 0.8085 inch
4		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

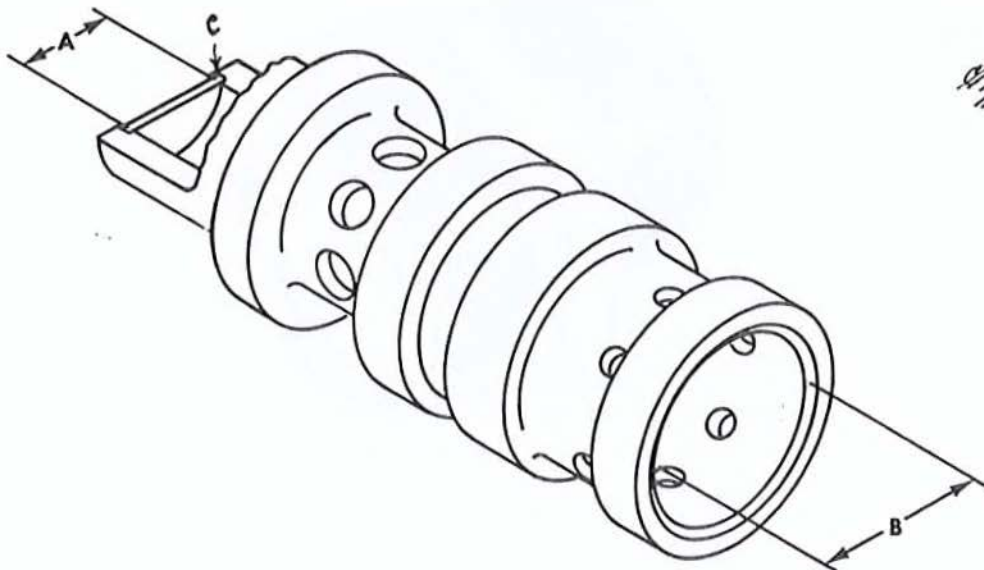
ITEM: *SLEEVE, OIL PRESSURE REGULATOR VALVE HOUSING ASSEMBLY:*
~~oil pressure regulator valve~~

OIP 11684033

REFERENCE: Figure 5-52 (5/277)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter of sleeve (small)	1.0	Measure	Dimension must be no greater than 0.9110 inch <i>0.9140</i> 22
4	B	Inside diameter of sleeve (large)	1.0	Measure	Dimension must be no greater than 1.1055 inches <i>1.1890</i> ?
5	C	Plug	2.5	Visual	Roll or spin securely



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

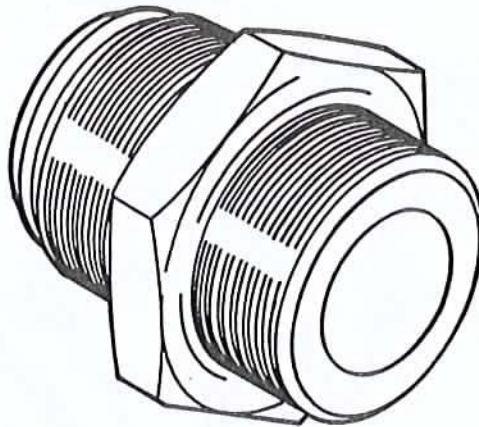
OIP 7324900

ITEM: ADAPTER, STRAIGHT, TUBE TO BOSS:
oil cooler line to crankshaft
damper and oil filter housing

REFERENCE: Figure 5-52 (5/277)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		BASE METAL SHOWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

*ADAPTER, STRAIGHT, TUBE TO BOSS:
NO LONGER USED*

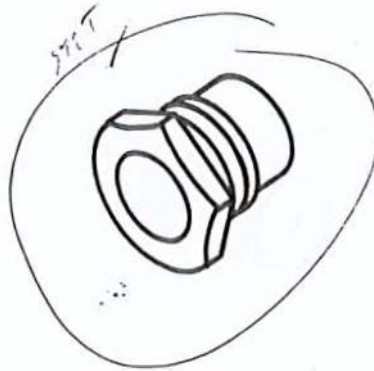
OIP 11683926

ITEM: ~~ADAPTER, STRAIGHT, TUBE TO BOSS:~~
damper housing oil drain

REFERENCE: Figure 5-52 (5/277)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	-	Cracks	0.0	Visual	None allowed
2	-	Damaged threads	2.5	Visual	None allowed
3	-	Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

VALVE, PLUG:
~~DAMPER STRAIGHT~~
 VALVE, DAMPER HOUSING OIL DRAIN
 DAMPER HOUSING OIL DRAIN

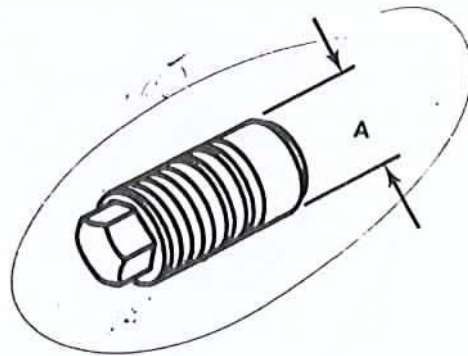
OIP 11683925

ITEM:

REFERENCE: Figure 5-52 (5/277)

ITEM: ~~21~~ 21

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4	A	Outside diameter of valve	1.0	Measure	Dimension must be no less than 1.0490 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: *FILTER BODY, FILTER*
~~RETAINER, OIL FILTER ELEMENT~~

OIP 11684053

REFERENCE: Figure 5-52 (5/277)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684066

ITEM: SPRING, HELICAL, COMPRESSION:
oil filter support, oil filter
element

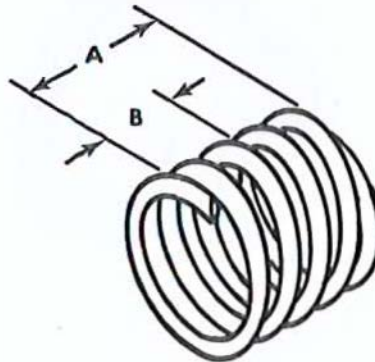
REFERENCE: Figure 5-52 (5/277)

ITEM: 24

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Approximate free length of spring	1.0	Measure	Dimension must not be less than 1.7700 inches and no greater than 1.7900 inches
3	B	Maximum solid height of spring	1.0	Measure	Dimension must not be less than 0.9050 inch

NOTE

SPRING MUST NOT TAKE PERMANENT SET WHEN COMPRESSED SOLID



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

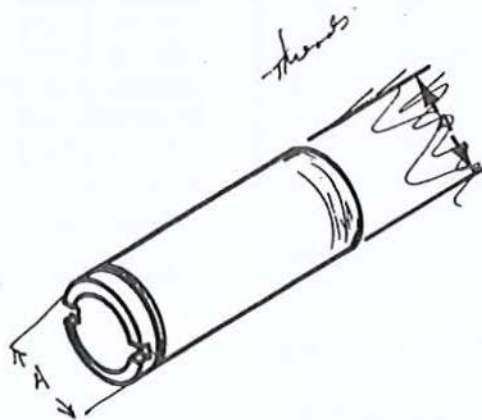
ITEM: ~~SUPPORT, OIL FILTER ELEMENT~~
BRACKET, FILTER MOUNTING

OIP 11684060

REFERENCE: Figure 5-52 (5/277)

ITEM: 25

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.6	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
4	A	Outside diameter	1.0	Measure	Dimension must be no less than 1.3050 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5-49. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Replacement of damaged studs. Refer to paragraph 5-5, d (5/6), table 5-19 (5/304), and figure 5-53 (5/304) when replacing damaged, bent, or stripped crankshaft damper or oil filter housing studs.

Table 5-19. Crankshaft Damper and Oil Filter Housing Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-53 (5/304)	1	1-1/4	24	3/8-16 (15/16) x 3/8-24 (13/16) x 1-15/16
	2	25/32 ✓	2	5/16-18 (11/16) x 5/16-24 (9/16) x 1-5/16
	3	1-7/16	2	3/8-16 (15/16) x 3/8-24 (13/16) x 2-3/32
	4	1-3/32	2	3/8-16 (27/32) x 3/8-24 (7/8) x 1-3/4
	5	1-13/32 ✓	10	3/8-16 (15/16) x 3/8-24 (13/16) x 2-3/32
	6	27/32 ✓	2	5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2
	7	1-3/16 ✓	2 ✓	3/8-16 (7/8) x 3/8-24 (15/16) x 1-3/4
	8	1-1/16 ✓	6	3/8-16 (7/8) x 3/8-24 (15/16) x 1-3/4
	9	13/16 43/64	1	3/8-16 (3/4) x 3/8-24 (9/16) x 1-13/32
	10	15/16 7/8	24	3/8-16 (13/16) x 3/8-24 (11/16) x 1-5/8
	11	7/8 15/16	4	5/16-18 (3/4) x 5/16-24 (9/32) x 1-1/2
	12	45-1/16 ✓	2	3/8-16 (7/8) x 3/8-24 (15/16) x 4-11/16

*Model AVDS-1790-2DR only

**Model AVDS-1790-2DR only NO. REQ. 4

~~***MODEL AVDS-1790-2DR~~

*** MODEL AVDS-1790-2DR ONLY NO. REQ 2

**** ALL MODELS EXCEPT AVDS-1790-2DR

3/8-16 (13/16) x 3/8-24 (11/16) x 1-5/8

5/16-18 (3/4) x 5/16-24 (9/32) x 1-1/2

49. (Cont)

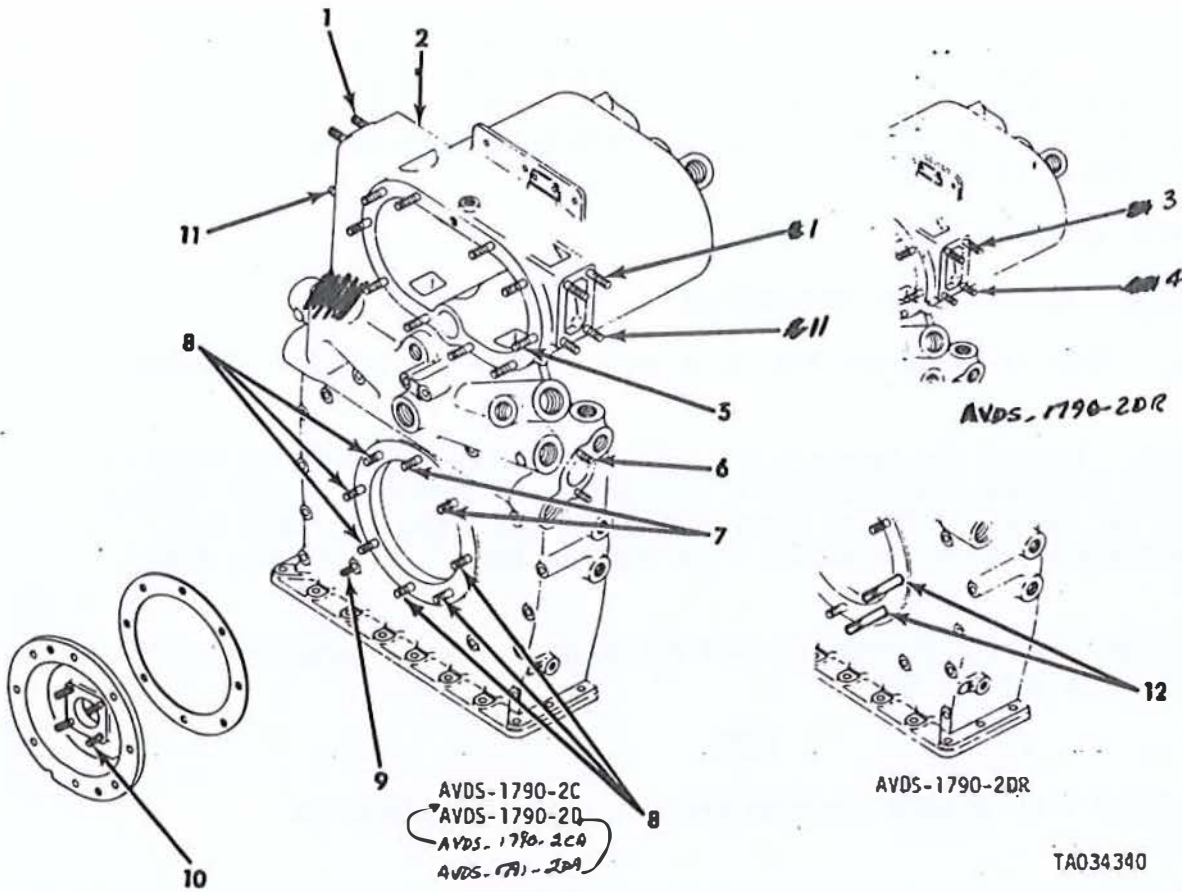


Figure 5-53. Crankshaft damper and oil filter housing standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

Section XII. OVERHAUL OF CAMSHAFT AND DRIVE ASSEMBLIES

5-50. General. This section covers overhaul of the right and left bank camshaft and drive assemblies (fig. 5-54) (5/308). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included in the inspection procedures. Stud identification information is included with the repair instructions.

5-51. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-52. Inspection. Inspect the camshaft and drive assemblies according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, tolerances for the camshaft and drive assemblies are listed in table 5-20 (5/309). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

5-52.1 Reclamation. Use the procedures outlined below to reclaim components of the camshaft and drive assemblies.

NOTE

Quality Control will inspect finished parts to ensure adherence to procedures.

a. Camshaft End Cover Bearing Plate (part no. 8682683). Reclaim worn throttle cross shaft bearing bore by metalspray. Refer to OIP 8682751 (5/325).

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

(1) Clean and degrease plate thoroughly with trichloroethylene degreaser.

(2) Place plate in lathe and undercut worn throttle cross shaft bearing bore by .040 inch minimum. This should clean up worn areas on the I.D. of the bore (fig. 5-53.1) (5/306.1).

(3) Prepare I.D. surface in accordance with standard metalizing procedures as follows:

(a) Mask areas, not to be coated, with suitable grit blast masking material.

5-52.1. (Cont)

(b) Grit blast bearing bore with clean, oil free G25 chilled iron grit.

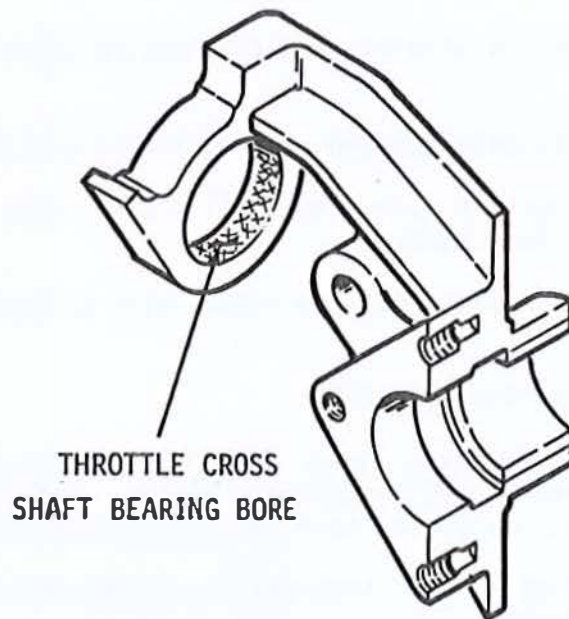
(c) Rough thread the I.D. surface.

(4) Remove grit blast masking material and remask with suitable metalspray masking material.

(5) Using Metco 10E or 12E Wire Spray System, apply a bond coat of Metco 405 nickel aluminide to the prepared surface.

(6) Apply top coat of Metco Spraysteel LS to obtain a .030 inch undersize bore dimension.

(7) After the plate has cooled naturally to room temperature, remove masking and machine bearing bore to drawing specifications.



TA265799 ■

Figure 5-53.1. Camshaft end cover bearing plate.

NOTE

All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.

5-52.1 (Cont)

b. Left Bank Camshaft Gear Housing (part no. 11682702). Reclaim 2.50 inch cam bore bearing surface by metalspray. Refer to OIP 11682701 (5/322).

NOTE

To demonstrate proficiency and attain certified status, an operator shall flame spray a test piece in accordance with this specification which shall be destructively and metallographically examined to assure bond integrity and coating soundness.

To maintain certified status, an operator must consistently produce acceptable repairs relative to the flame sprayed coating and pass a yearly destructive examination for bond and coating integrity.

- (1) Thoroughly clean and degrease housing using trichloroethylene degreaser.
- (2) Set housing in milling machine and undercut 2.50 inch cam bore bearing surface by .040 inch or as necessary to eliminate surface defects (fig. 5-53.2) (5/307).
- (3) Prepare bearing surface in accordance with standard metalizing procedure as follows:
 - (a) Mask areas, not to be metalsprayed, with suitable grit blast masking material.
 - (b) Grit blast bearing surface with clean, oil free 25 mesh chilled iron grit or cut an 18 thread lead .020 inch deep.
- (4) Remove grit blast masking material and remask with suitable thermospray or plasmaspray masking material.
- (5) Preheat housing to approximately 150°F.
- (6) Apply Metco 445 aluminum bronze powder (MIL-STD-1687) to the bearing surface using Metco 6P Thermospray or 7MB Plasmaspray System. Coat surfaces sufficiently to allow for remachining of the bore to drawing tolerances.
- (7) After housing has cooled to room temperature, remove masking and machine cam bore I.D. to 2.500 to 2.501 inches.

NOTE

All mounting surfaces repaired by this process shall be 100% inspected for coating integrity after machining. The coating shall show no bond separation at the coating to base metal interface. The coating shall be free from blistering, cracking, chipping, and frayed edges. There shall be no bleedout of oil or other contaminants through the finished coating.

5-52.1 (Cont)

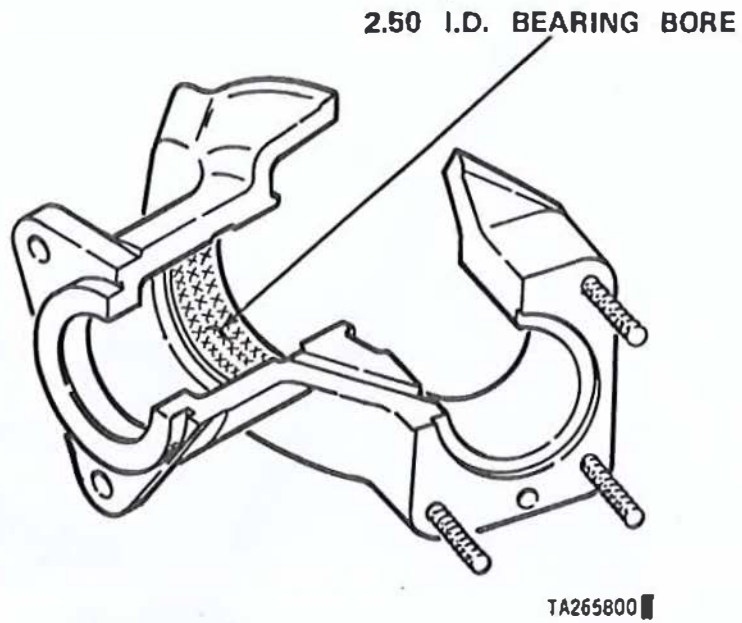
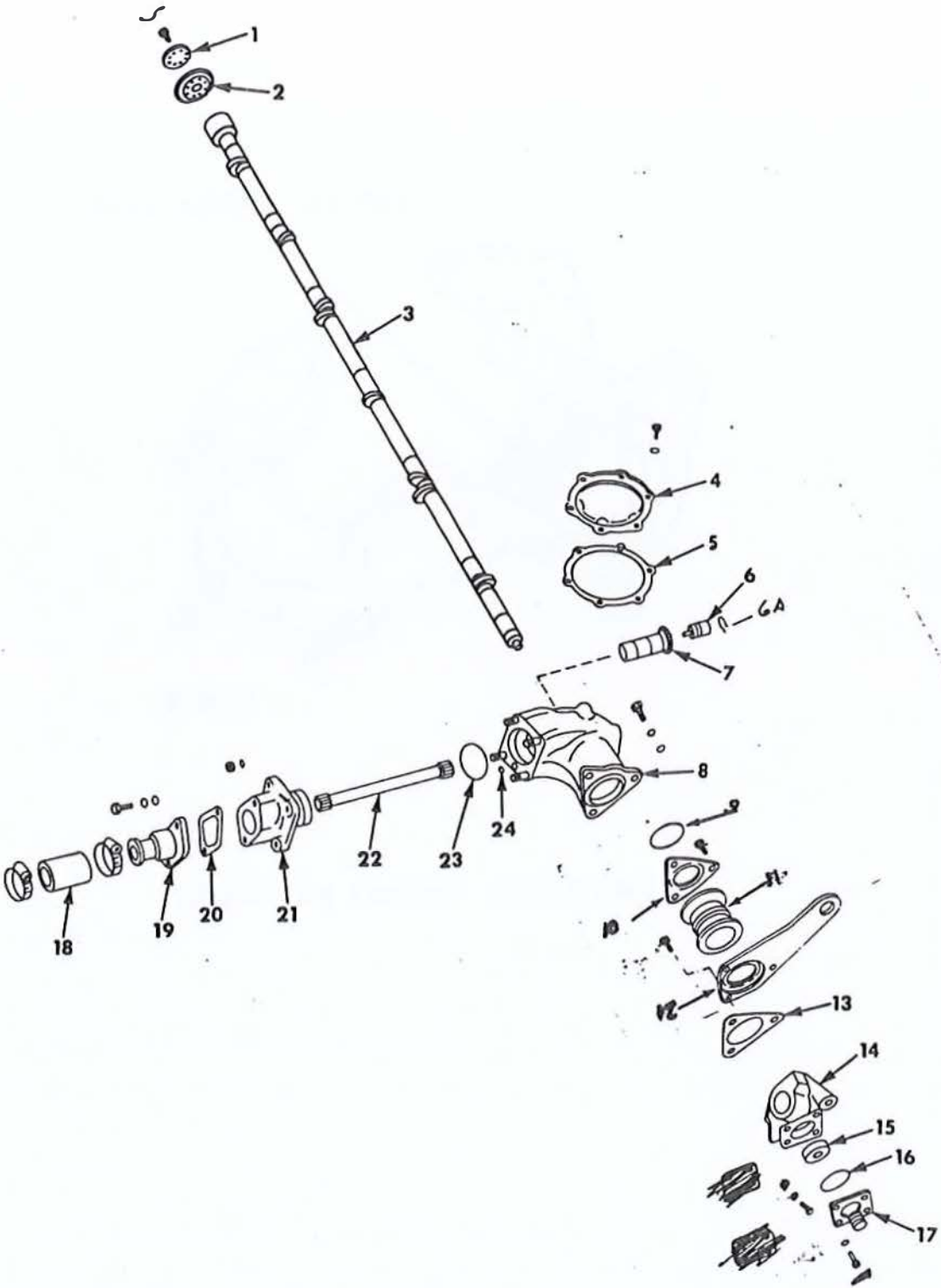


Figure 5-53.2. Canshaft gear housing.

4



TA034341

Figure 5-54. Camshaft and drive - right and left banks.

Table 5-20. Wear Limits, Fits, and Tolerances for Camshaft and Drive, Right and Left Banks

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-54 (5/308)	1	COVER, ACCESS: camshaft oil retainer - part no. 8682817 Refer to OIP 8682817 (5/315)		
	2	GEAR, BEVEL: camshaft driven - part no. 8725225 Refer to OIP 8725225 (5/316)		
	3	CAMSHAFT, ENGINE: right bank - part no. 8761281 (8761280) left bank - part no. 8761280 (8761280) Refer to OIP's 8761280 and 8761281 (5/317)		
		Camshaft lobe lift	0.417-0.423	0.414
		Camshaft lobe base circle diameter	1.3490-1.3410	1.3370
		Maximum out-of-round of camshaft journal (TIR)	0.0010	0.0020
		Maximum runout of intermediate journal when supported on end journals (TIR)	0.0020	0.0150
		Maximum runout of center journal when supported on end journals (TIR)	0.0020	0.0150
		^{7U} Journal diameter	1.3090-1.3100	1.3085
		Large journal diameter	2.4965-2.4975	2.4960
4	COVER, ACCESS: camshaft gear housing - part no. 8725253 Refer to OIP 8725253 (5/319)			

NOTE
BEVEL GEARS ARE PART OF A SET
AND ARE NOT TO BE
REPLACED SEPARATELY.

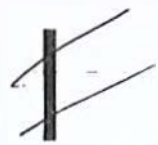


Table 5-20. Wear Limits, Fits, and Tolerances for Camshaft and Drive, Right and Left Banks - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-54 (5/308)	5	GASKET: camshaft gear housing cover - part no. 8682564 (583436- ^{63 728} 50940)		Replace
	6	FITTING, LUBRICATION: cam- shaft drive bevel gearshaft - part no. 11682593 Refer to OIP 11682593 (11682593-148567) (5/320)		
		✓ Outside diameter of fitting	1.2700-1.2705	1.2695
		✓ Fit of fitting in gear hub	0.0005L-0.0020L	0.0025L
		✓ Spherical diameter	0.6275-0.6280	0.6265
		✓ Fit of fitting in drive shaft (quill)	0.0012L-0.0025L	0.0035L
	7	GEARSHAFT BEVEL: camshaft drive - part no. 8725229 Refer to OIP 8725229 (5/321)		
		✓ Outside diameter of hub	1.6220-1.6230	1.6215
		✓ Dimension between 0.0600 diameter pins	1.1028-1.1046	1.1055
		✓ Inside diameter	1.2710-1.2720	1.2725
		✓ Fit of gear hub in adapter bore	0.0020L-0.0040L	0.0050L
	8	HOUSING, MECHANICAL DRIVE: camshaft gear assembly - part no. 11682703 - right bank part no. 11682701 - left bank Refer to OIP's 11682703 and 11682701 (5/322)		

NOTE
BEVEL GEAR MECH PART OF A
SET AND ARE NOT TO BE
REPLACED SEPARATELY.

Table 5-20. Wear Limits, Fits, and Tolerances for Camshaft and Drive, Right and Left Banks - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-54 (5/308) continued	8	✓ Inside diameter of cam bore in housing	2.5000-2.5010	2.5015
		7. Fit of camshaft journal in housing bore	0.0025L-0.0045L	0.0055L
		1. Inside diameter of adapter bore in housing	2.3763-2.3773	2.3778
		10. Fit of adapter in housing	0.0003L-0.0023L	0.0028L
		Length - 3 part no. 1168270 ³	3.7940-3.7980	3.7920
		Length - 1 part no. 1168270 ¹	3.1070-3.1110	3.1050
	9	PACKING, PREFORMED: camshaft gear housing - part no. MS9068-230		Replace
	10	FLANGE, CAMSHAFT, ENGINE: intercylinder, sleeve, right and left banks - part no. 10865283 Refer to OIP 10865283 (5/323)		
	11	SLEEVE, INTERCYLINDER CAM-SHAFT - part no. 11684135		Replace
	12	BRACKET, ENGINE MOUNT: FLANGE, ENGINE MOUNT No. 1 cylinder right and left banks - (Models AVDS-1790-2C, ^{AVDS-1790-2CA,} and AVDS-1790-20 ^{only} AND AVDS-1790-2DA) part no. 11683970 Refer to OIP 11683970 (5/324)		

Table 5-20. Wear Limits, Fits, and Tolerances for Camshaft and Drive, Right and Left Banks - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-54 (5/308)	13 ✓	GASKET: camshaft end cover plate - part no. 8682468 (58656-63728)		Replace
	14	PLATE ASSEMBLY, CAMSHAFT SUPPORT, CAMSHAFT END COVER: right bank - part no. 8682751 Refer to OIP 8682751 (5/325)		
		✓ Inside diameter of sleeve bearing - after being pressed into camshaft support	1.3120-1.3130	1.3140
		✓ Inside diameter of oil seal bore in camshaft end cover support	1.4990-1.5000	1.5005
		✓ Inside diameter of bearing bore in camshaft end cover support	1.4370-1.4380	1.4385
		✓ Throttle cross shaft bear- ing bore in camshaft end cover support	1.3755-1.3761	1.3763
	15	SEAL, PLAIN/ENCASED: cam- shaft end cover plate, right bank - part no. 500241		Replace
		Fit of oil seal in bore of end plate	0.0010T-0.0060T	
	16	PACKING, PREFORMED: tacho- meter drive adapter, right bank - MS 28775-22 and MS 28775-20 only part no. MS 28775-22		Replace

MS 3911

Table 5-20. Wear Limits, Fits, and Tolerances for Camshaft and Drive, Right and Left Banks - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-54 (5/308)	17	ADAPTER, BEVEL GEAR DRIVE ^{SPEEDOMETER-TACHOMETER DRIVE} , right bank - Model 15, MS 1730122 and MS 1730222 part no. 7989062 <i>MS 39132-1</i> Refer to OIP 7989062 <i>MS 37132-1</i> (5/326)		
	18	HOSE, AIR DUCT: flange adapter to gearshaft sup- port - part no. 10898794		Replace
	19	ADAPTER, STRAIGHT FLANGE TO HOSE: camshaft driveshaft - part no. 8682816 Refer to OIP 8682816 (5/327)		
	20	GASKET: camshaft drive- shaft flange - part no. 8761414 <i>(58327.328)</i>		Replace
	21	ADAPTER, CAMSHAFT DRIVE: bevel gearshaft - part no. 8682540 Refer to OIP 8682540 (5/328)		
		✓ Inside diameter	1.6250-1.6260	1.6270
		✓ Length of hub	1.4680-1.4700	1.4670
	22	SHAFT, SHOULDERED: cam- shaft drive - part no. 7320430 Refer to OIP 7320430 (5/329) <i>(MS 3911)</i>		
		✓ Dimension over 0.0800 diameter pins (28 teeth)	1.2860-1.2876	1.2852

Table 5-20. Wear Limits, Fits, and Tolerances for
Camshaft and Drive, Right and Left Banks - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-54 (5/308)		✓ Dimension over 0.0800 diameter pins (24 teeth)	1.1192-1.1208	1.1184
		✓ Bore at each end of shaft	0.6292-0.6300	0.6315
	23	PACKING, PREFORMED: bevel gearshaft adapter - part no. MS28775-229		Replace
	24	PACKING, PREFORMED: adap- ter oil transfer tube - part no. MS28775-011		Replace

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

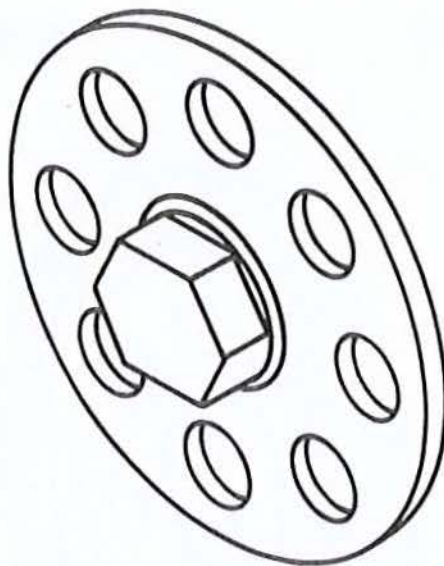
OIP 8682817

COVER, ACCESS:
ITEM: camshaft oil retainer

REFERENCE: Figure 5-54 (5/308)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnifying Glass VISUAL	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

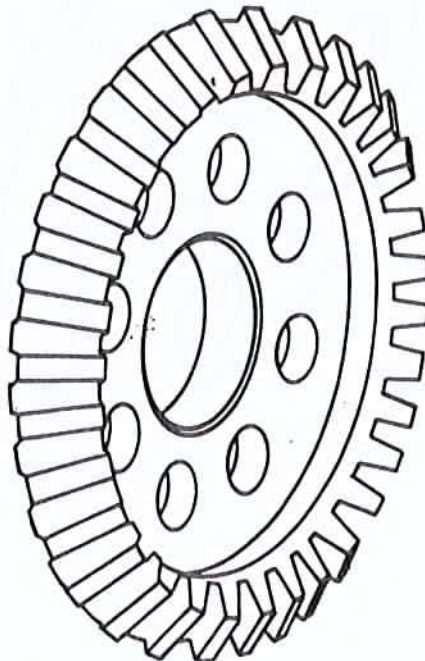
OIP 8725225

**ITEM: GEAR, BEVEL:
camshaft driven**

REFERENCE: Figure 5-54 (5/308)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic Particle <i>Visual</i>	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pitting	2.5	Visual	Not permitted over 1/4 width of tooth face
4		Chipped teeth	2.5	Visual	None allowed
5		Backlash	0.0	Measure	Dimension must be no greater than 0.010 <i>0.020</i> inch when assembled with mating gear



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220 (655527-02978)
 8761280 - left bank
 OIP 8761281 - right bank
 (587180-02978)
 REFERENCE: Figure 5-54 (5/308)

ITEM: CAMSHAFT, ENGINE;
 right and left banks

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Camshaft lobe lift		Measure	Lift to be no less than 0.4140 inch
4		Maximum out-of-round of camshaft journal (TIR)		Measure	TIR reading must be no greater than 0.0020 inch
5		Maximum runout of intermediate journals when supported on two adjacent journals (TIR)		Measure	Must align within 0.0020 TIR
6		Maximum runout of center journal when supported on end journals (TIR)		Measure	Must align within 0.0150 TIR
7	A	Journal diameter		Measure	Diameter must be no less than 1.3085 inches
8	B	Large diameter		Measure	Diameter must be no less than 2.4960 inches
9	C	Damaged threads		Visual	None allowed

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3

5/317

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

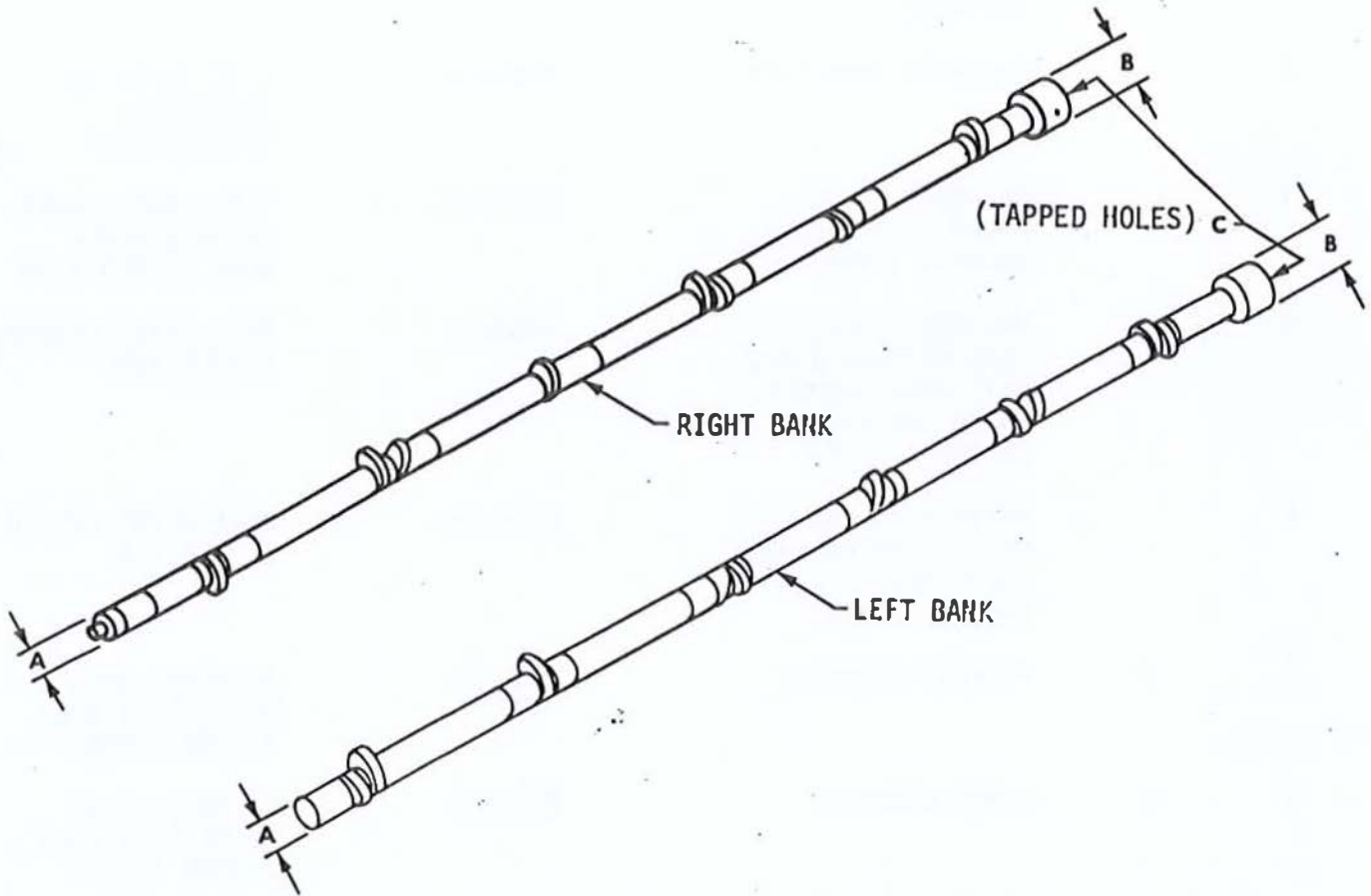
(655527-02978)
(587180-02978)

ITEM: CAMSHAFT, ENGINE:
right and left banks - Continued

OIP 8761280 - left bank
8761281 - right bank
REFERENCE: Figure 5-54 (5/308)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8725253

ITEM: COVER, ACCESS:
camshaft gear housing

REFERENCE: Figure 5-54 (5/308)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed

3

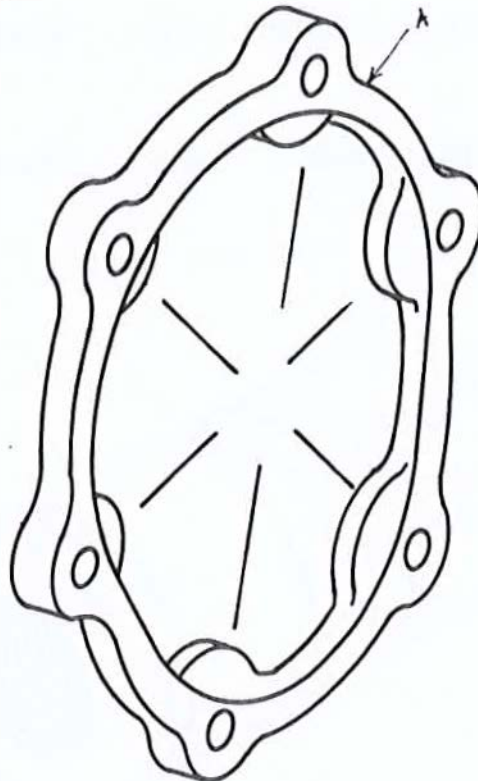
A

FLATNESS OF CONTACT SURFACE

2.5

MEASURE

FLATNESS MUST BE FLAT WITHIN 0.0030 INCH



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

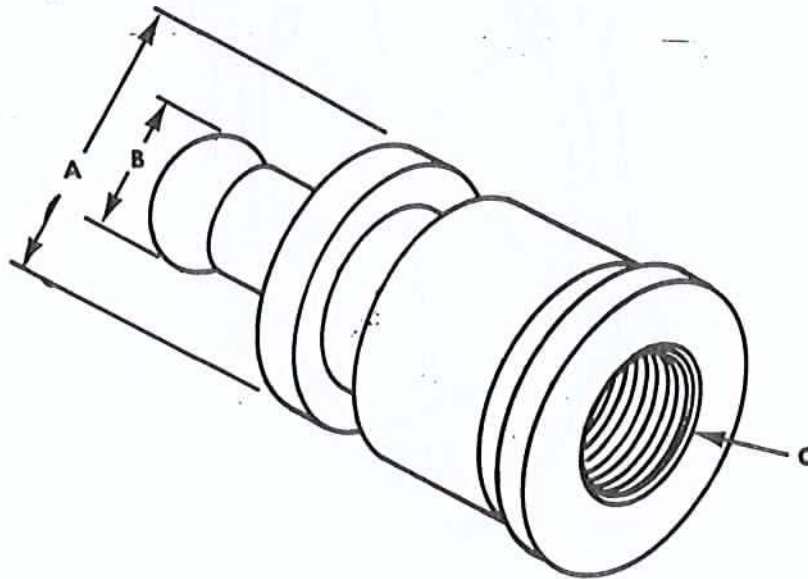
DMWR 9-2815-220

ITEM: FITTING. LUBRICATION:
camshaft drive bevel gearshaft

OIP 11682593
(11682593-10351)
REFERENCE: Figure 5-54 (5/308)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ A	Outside diameter	1.0	Measure	Diameter must be no less than 1.2695 inches
4	✓ B	Spherical diameter	1.0	Measure	Diameter must be no less than 0.6265 inch
5	✓ C	Damaged threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

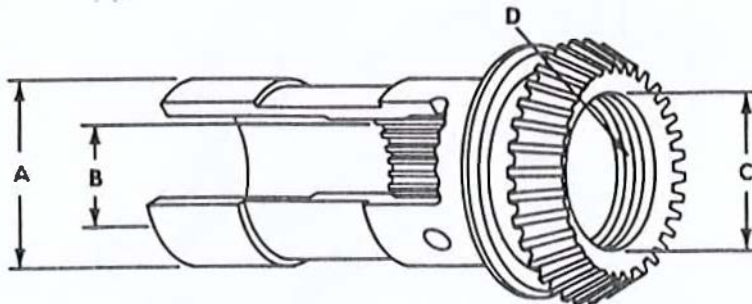
OIP 8725229

ITEM: GEARSHAFT, BEVEL:
camshaft drive

REFERENCE: Figure 5-54 (5/308)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual Hand Practice VISUAL	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pitting	2.5	Visual	Not permitted over more than 1/4 of tooth width
4	/ A	Outside diameter	1.0	Measure	Diameter must be no less than 1.6215 inches
5	/ B	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 1.1055 inches
6	/ C	Inside diameter	1.0	Measure	Diameter must be no greater than 1.2725 inches
7	/ D	Damaged retaining ring grooves	2.5	Visual	None allowed
8	✓	Backlash	0.0	Measure	Dimension must be no greater than 0.0140 ^{0.0120} inch when assembled with mating gear



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

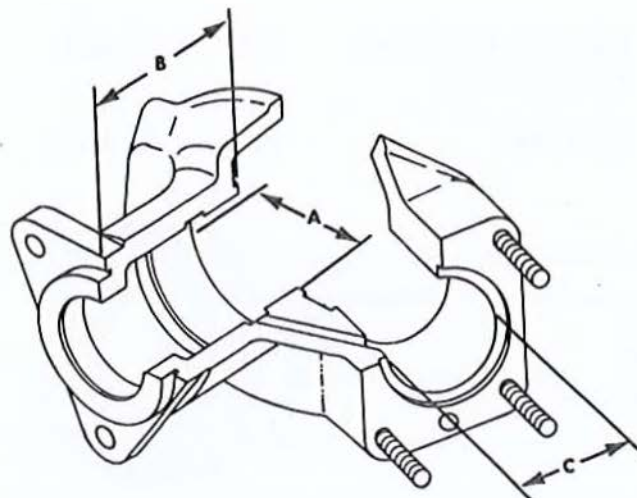
ITEM: HOUSING, MECHANICAL DRIVE:
camshaft gear assembly left and right banks

OIP 11682701 - left bank
11682703 - right bank

REFERENCE: Figure 5-54 (5/308)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Missing or damaged studs and threaded inserts	2.5	Visual	None allowed
4	/ A	Inside diameter	1.0	Measure	Diameter must be no greater than 2.5015 inches
5	/ B	Length	1.0	Measure	Length must be no less than 3.7920 inches for part no. 11682701 and 3.1050 inches for part no. 11682703
6	/ C	Inside diameter	1.0	Measure	Diameter must be no greater than 2.3778 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

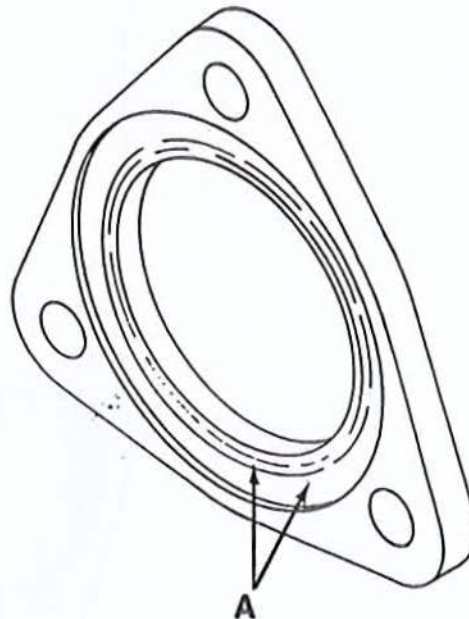
ITEM: FLANGE, CAMSHAFT, ENGINE:
intercylinder sleeve, right
and left banks

OIP 10865283

REFERENCE: Figure 5-54 (5/308)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Scratches, nicks, gouges, or raised metal on contact surfaces	0.0 2.5	Visual	None allowed
3		BASE METAL SHOWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

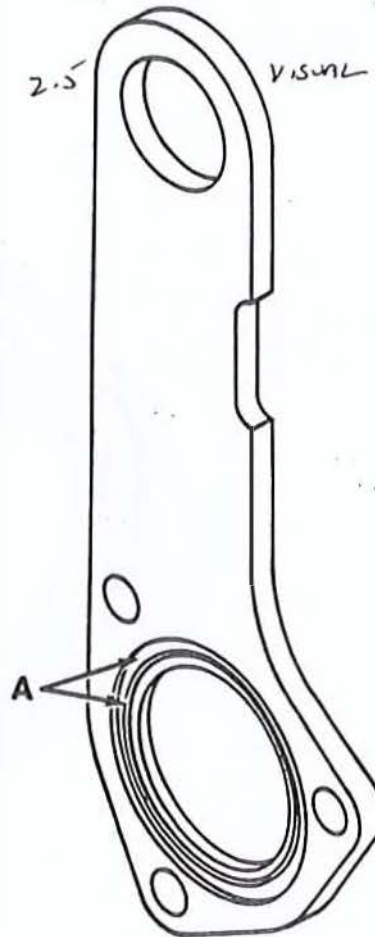
ITEM: ~~ENGINES~~ ^{BRACKET, ENGINE MOUNT:} ~~ENGINE LIFTING~~ No. 1
cylinder right and left
banks

OIP 11683970

REFERENCE: Figure 5-54 (5/308)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	SCRATCHES, NICKS, GOUGES OR RAISED METAL ON CONTACT SURFACES	2.5	VISUAL	NONE ALLOWED
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

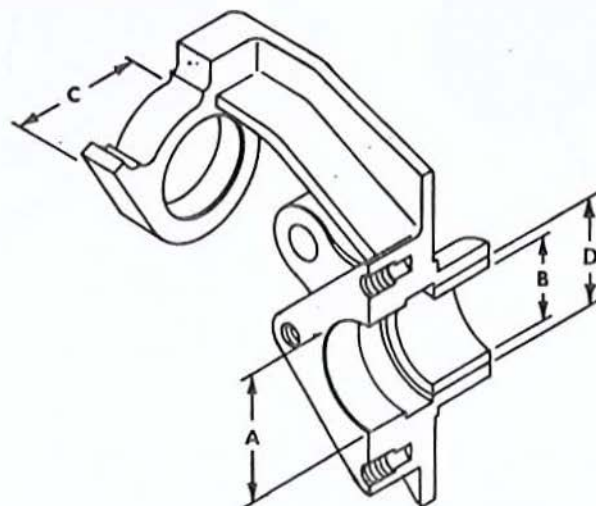
PLATE ASSEMBLY,
 ITEM: ~~SUPPORT, CAMSHAFT, *PLATE*~~
 right bank

OIP 8682751

REFERENCE: Figure 5-54 (5/308)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter of oil seal bore in camshaft end support	1.0	Measure	Diameter must be no greater than 1.5005 inches
4	B	Inside diameter of bearing bore in camshaft end cover support	1.0	Measure	Diameter must be no greater than 1.4385 inches
5	C	Throttle cross shaft bearing bore in camshaft end cover support	1.0	Measure	Diameter must be no greater than 1.3763 inches
6	D	Inside diameter of sleeve bearing - after being pressed into camshaft support	1.0	Measure	Diameter must be no less than 1.3140 inches.



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

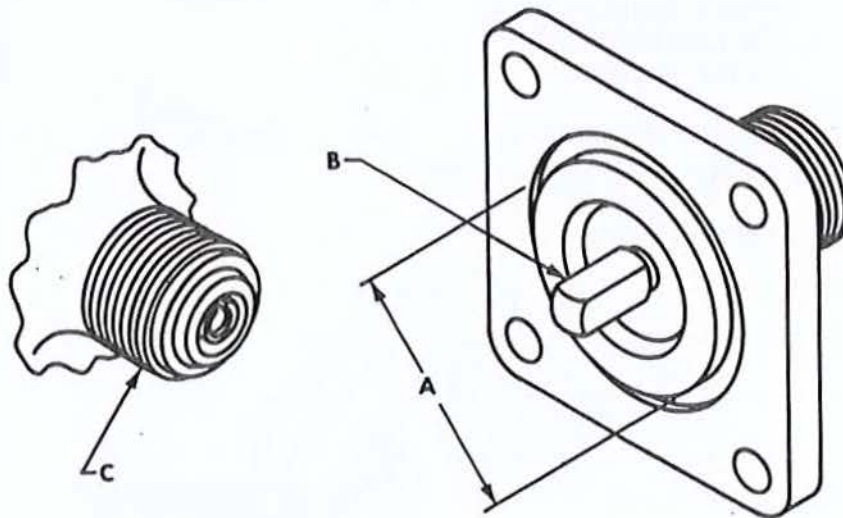
ITEM: *ADAPTER, SPEEDOMETER-TACHOMETER DRIVE:*
~~ADAPTER, TACHOMETER DRIVE~~
 right bank

OIP ~~7983062~~ MS39132

REFERENCE: Figure 5-54 (5/308)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Raised metal on 1.4980 diameter	0.0	Measure	Not to exceed 0.0020 inch 0.0030
3	B	Square tachometer drive shaft to be free running	2.5	Manual	Not free running - Replace
4	C	Damaged 7/8-18 ^{NS-2A} 12R thread	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

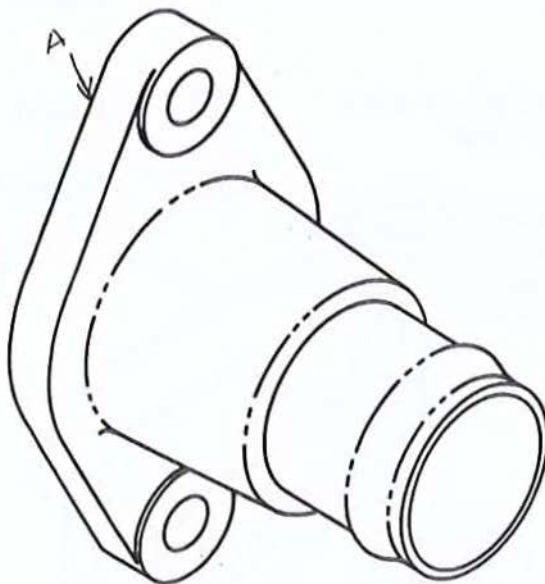
OIP 8682816

ITEM: ADAPTER, STRAIGHT FLANGE TO HOSE:
camshaft driveshaft

REFERENCE: Figure 5-54 (5/308)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	FLATNESS OF CONTACT SURFACE	2.5	MEASURE	SURFACE MUST BE FLAT WITHIN 0.0030 INCH



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

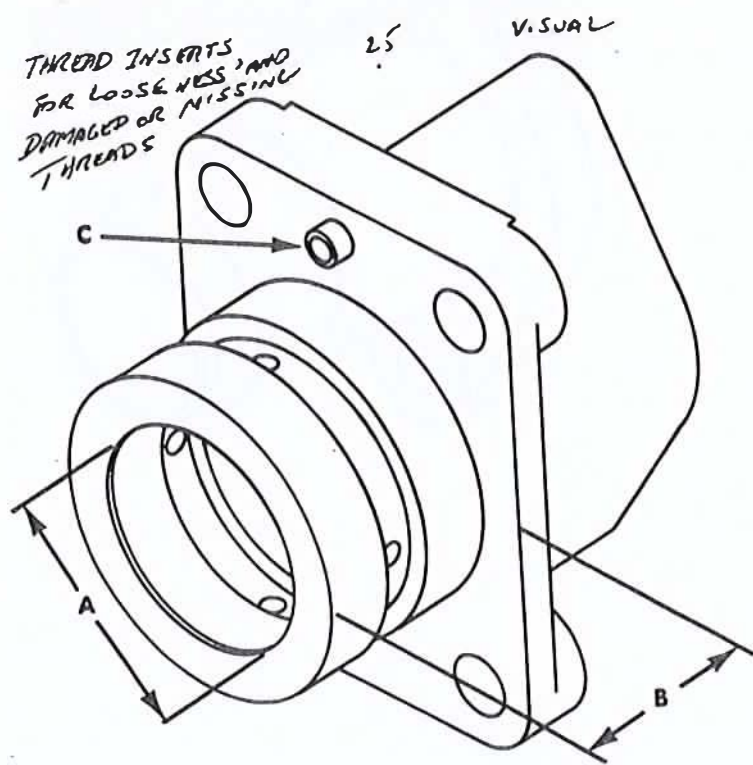
**ITEM: ADAPTER, CAMSHAFT DRIVE:
bevel gearshaft**

OIP 8682540

REFERENCE: Figure 5-54 (5/308)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 1.6270 inches
4	B	Length	1.0	Measure	Length must be no less than 1.4670 inches
5	C	Damaged or missing tube	2.5	Visual	None allowed
6					<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE

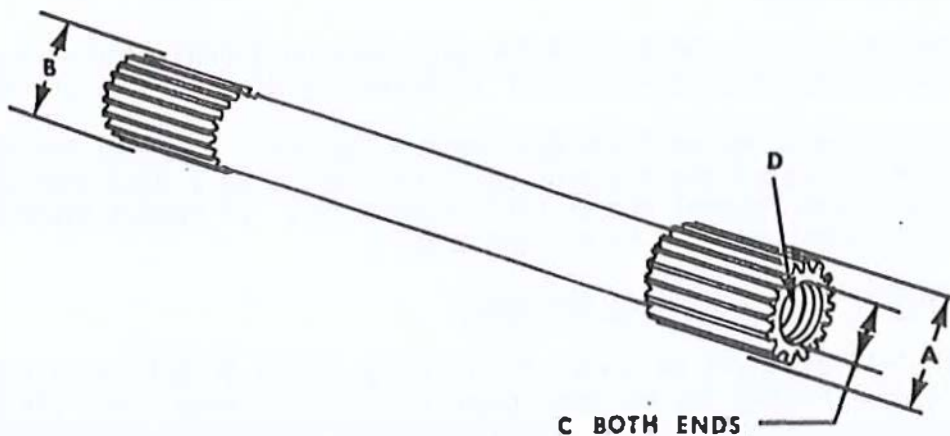
DMWR 9-2815-220

ITEM: SHAFT, SHOULDERED:
camshaft drive

OIP 7320430
(583294-02978)
REFERENCE: Figure 5-54 (5/308)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Magnetic particle	None allowed
2	/	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Dimension over 0.0800 diameter pins	1.0	Measure	Diameter must be no less than 1.2852 inches
4	/ B	Dimension over 0.0800 diameter pins	1.0	Measure	Diameter must be no less than 1.1184 inches
5	✓ C	Bore at each end of shaft	1.0	Measure	Diameter must be no greater than 0.6315 inch
6	/ D	Damaged threads	2.5	Visual	None allowed



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5-53. Repair and Assembly.

a. Repair

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Camshaft repair. Repair damaged threads in the gear hub with a used tap. Remove slight scuffing or scoring from camshaft lobes and bearings with a fine oil stone and polish with crocus cloth dipped in dry-cleaning solvent (P-D-680; Type II).

(3) Camshaft straightening.

(a) Checking camshaft bearing journal runout. Camshafts may be straightened if the runout of any one camshaft bearing surface (journal), when using a dial indicator, does not exceed 0.060 inch total indicator reading (TIR) when supported at the two adjacent bearing journals. Camshafts that exceed 0.060 inch runout between any two journals must be discarded. Maximum journal runout of straightened camshafts is 0.002 inch (TIR) when supported at the two adjacent journals. After straightening a camshaft, the maximum acceptable runout of the center bearing journal, when supported at the end journals, is 0.015 inch (TIR). Check camshaft bearing journal runout as follows:

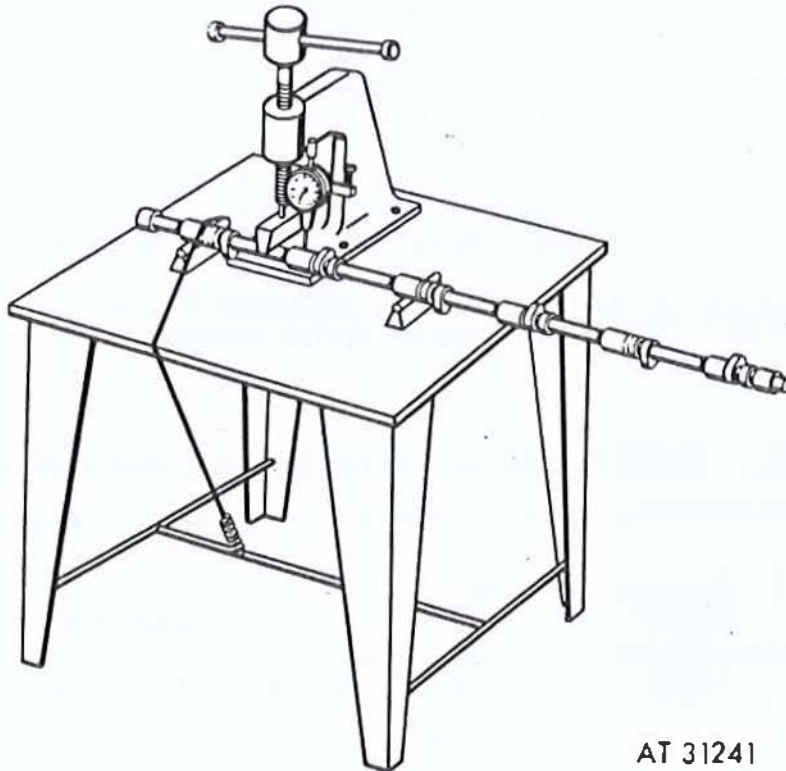
- 1 Support the camshaft at the two end journals in V blocks on a surface plate or other available centering device, such as a machine lathe.
- 2 Position a dial indicator at the center bearing journal and obtain a zero reading on the dial.
- 3 Rotate the camshaft and determine the maximum travel of the dial indicator needle. If travel (TIR) exceeds 0.015 inch the camshaft must be straightened.
- 4 Repeat steps 2 and 3 above for each bearing journal and mark position and dimension of maximum dial indicator reading at each journal.
- 5 Check runout of each camshaft bearing journal. Support the camshaft in V blocks at the adjacent journals, and using a dial indicator, check and record journal runout (TIR) dimensions. If runout exceeds 0.002 inch, camshaft must be straightened.

(b) Camshaft straightening procedure.

- 1 Install camshaft on truing device (fig. 5-55) (5/331) with bearing journal having the maximum runout (TIR) positioned under the pressing spindle. (The camshaft journals must be resting on the support blocks when rotating the camshaft to determine the runout.) Set dial on indicator to zero and rotate camshaft to determine location of runout (TIR) and record reading.

5-53. (Cont)

- 2 Turn camshaft until bearing journal marked to indicate the maximum runout (high side) is adjacent to the spindle (do not press on journals). Apply spindle pressure on the camshaft until dial indicator reads approximately one half of the TIR reading recorded in (a) above. Release pressure on camshaft and recheck runout by turning camshaft several revolutions.



AT 31241

Figure 5-55. Improved camshaft truing device.

NOTE

Pressing force required to straighten camshaft is a matter of judgement. It may be necessary to turn camshaft and apply pressing force several times in order to acquire the technique necessary to true the bearing journal.

- 3 Apply pressure as required until the journal is within the 0.002 maximum TIR.
- 4 Reposition camshaft on supports and true other bearing journals in a similar manner.

5-53. (Cont)

5 After truing all bearing journals, recheck camshafts as outlined in procedure (a) above. If readings do not meet dimensions specified, repeat truing operation.

(c) Inspection of camshaft after straightening.

1 Magnaflux each camshaft and inspect for cracks. Observe transition areas at bearing surfaces and at cam lobe bases. Camshafts with evidence of cracks must be discarded.

2 Inspect for damage to bearing journals. Minor nicks and scratches can be removed using crocus cloth.

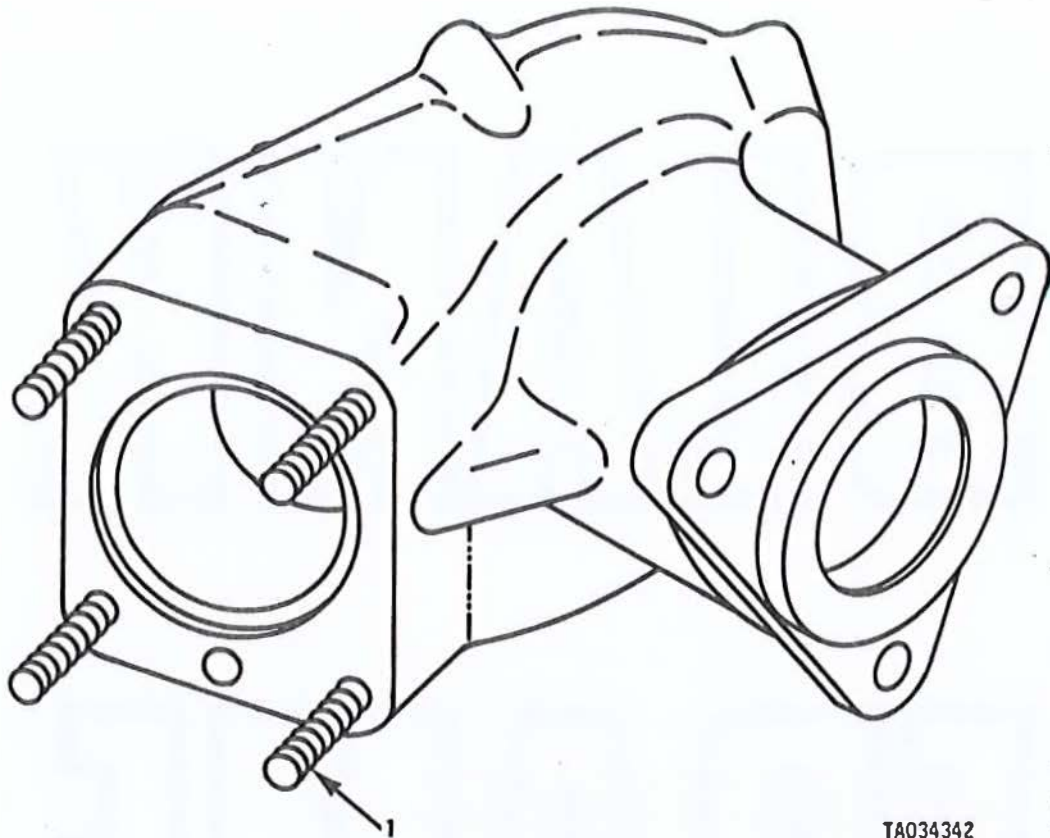
3 Check bearing journals for out-of-round to be certain area was not flattened during truing. Maximum acceptable out-of-round is 0.002 inch (TIR). Replace camshaft if this tolerance is exceeded.

(4) Replacement of studs. Refer to paragraph 5-5, d (5/6), table 5-21 (5/332), and figure 5-56 (5/332) when replacing damaged, bent, or stripped mechanical drive housing studs.

Table 5-21. Mechanical Drive Housing Standard Stud Identification

Reference Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-56 (5/332)	1	1-5/32	4 - right bank 4 - left bank	3/8-16 (15/16) x 3/8-24 (13/16) x 1-15/16

5-53. (Cont)



TA034342

Figure 5-56. Mechanical drive housing standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

BLANK

FRAME

Section XIII. OVERHAUL OF FRONT FAN DRIVE ASSEMBLY

5-54. General. This section covers overhaul of the front fan drive assembly (fig. 5-57) (5/335). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP) for individual components are included in the inspection instructions. Stud identification information is included with the repair instructions.

5-55. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-56. Inspection. Inspect the front fan drive assembly according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the camshaft and drive assemblies are listed in table 5-22 (5/336). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

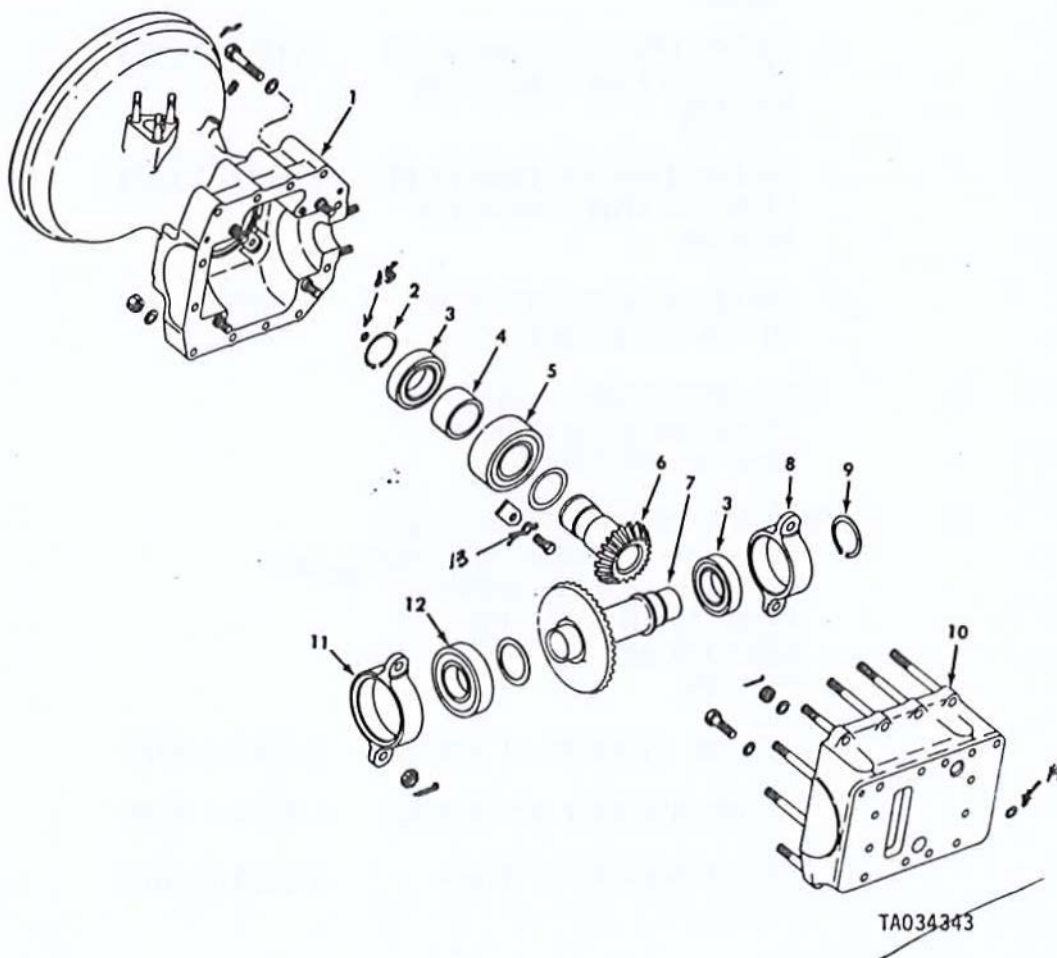


Figure 5-57. Front fan drive assembly.

Table 5-22. Wear Limits, Fits, and Tolerances for Front Fan Drive Assembly

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-57 (5/335)	1	<p><i>MECHANICAL DRIVE:</i> COOLING FAN DRIVE COOLING FAN, FORWARD - Assembly - forward part no. 10935541/1 (Models AVDS-1790-2C and AVDS-1790-20A) part no. 10935541/1 (Model AVDS-1790-20R) Refer to OIP 10935541/1 (5/341)</p>		
		✓ Inside diameter (large) of liner in front fan drive housing	3.1496-3.1503	3.1506
		✓ Inside diameter (small) of liner in front fan drive housing	2.6772-2.6779	2.6782
		✓ Inside diameter of liner in fan drive housing	2.9528-2.9535	2.9538
	2	✓ RING, RETAINING: fan drive driven bevel gearshaft - part no. MS16624-1156		Replace
	3	<p>✓ BEARING, BALL, ANNULAR: fan drive driven bevel gearshaft - part no. (9108K-2/335) ⁷⁰¹⁰²³ Refer to TM 9-214 for in- spection and care of bearings</p>		
		✓ Outside diameter of bearing	2.6767-2.6772	*
		✓ Inside diameter of bearing	1.5743-1.5748	*
		✓ Fit of bearing in liner	0.0000-0.0012L	0.0015L

Table 5-22. Wear Limits, Fits, and Tolerances for Front Fan Drive Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-57	✓ 4 (5/335)	SPACER, SLEEVE? <i>fan drive</i> driver level gearshaft bearing part no. 8682674 Refer to OIP 8682674 (5/343)		
	✓	Inside diameter of spacer	1.5800-1.5850	1.5950
	✓	Width of spacer	0.9980-1.0020	*
	✓	Fit of spacer on gearshaft	0.0047L-0.0101L	0.0203L
	✓ 5	BEARING, BALL, ANNULAR: fan drive driven bevel gear- shaft - part no. (5208-24335) <i>714056</i> Refer to TM 9-214 for in- spection and care of bearings		
	✓	Inside diameter of bearing	1.5743-1.5748	*
	✓	Outside diameter of bearing	3.1491-3.1496	*
	✓	Fit of bearing in liner	0.0000-0.0012L	0.0015L
	✓ 6	GEARSHAFT, BEVEL: fan driven - part no. 8682684 Refer to OIP 8682684 (5/344)		
	✓	Outside diameter of bearing surface on gearshaft	1.5749-1.5753	1.5747
		<i>Handwritten:</i> Fit of bearing (3, fig. 5-57) (5/335) on gearshaft	<i>Handwritten:</i> 0.0001L-0.0010L	<i>Handwritten:</i> 0.0004L

Table 5-22. Wear Limits, Fits, and Tolerances for Front Fan Drive Assembly - Continued

<u>References</u> <u>Fig.</u> <u>No.</u>	<u>Item</u> <u>No.</u>	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-57 (5/335) continued	6 - ✓	Fit of bearing (5, fig. 5-57) (5/335) on gearshaft	0.0001T-0.0010T	0.0001L
		Dimension between 0.0600 diameter pins	0.9757-0.9775	0.9784
NOTE				
Bevel gears are part of a set and are not to be replaced separately.				
	7	GEARSHAFT, BEVEL: fan drive - part no. 8682553 Refer to OIP 8682553 (5/346)		
		Outside diameter of bearing surface on gearshaft (both ends)	1.5749-1.5753	1.5747
		Fit of bearing (3, fig. 5-57) (5/335) on gearshaft	0.0001T-0.0010T	0.0001L
		Fit of bearing (12, fig. 5-57) (5/335) on gearshaft	0.0001T-0.0010T	0.0001L
		Dimension between 0.0720 diameter pins	1.0227-1.0245	1.0254

NOTE

Bevel gears are part of a set and are not to be replaced separately.

Table 5-22. Wear Limits, Fits, and Tolerances for Front Fan Drive Assembly - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-57 (5/335)	8	BRACKET, EYE, ROTATING SHAFT: SUPPORT, BEARING FAN: gear- shaft, rear - part no. 8725226 Refer to OIP 8725226 (5/348)		
		Inside diameter of bearing support	2.6771-2.6777	2.6780
		Fit of bearing (3, fig. 5-57) (5/335) in bearing support	0.0010L-0.0001T	0.0013L
	9	RING, RETAINING: fan drive driven bevel gearshaft - part no. MS16624-1156		Replace
	10	HOUSING, MECHANICAL DRIVE BASE, FAN DRIVE HOUSING ASSEMBLY: FORWARD FAN BASE, FORWARD - part no. 8761155-1 Refer to OIP 8761155-1 (5/349)		
	11	HOUSING, BEARING UNIT: SUPPORT, FAN DRIVE GEARSHAFT: FORWARD part no. 8725227 FAN DRIVE GEARSHAFT, FORWARD - Refer to OIP 8725227 (5/350)		
		Inside diameter of bearing support	3.1495-3.1501	3.1504
		Fit of bearing (12, fig. 5-57) (5/335) in bearing support	0.0010L-0.0001T	0.0013L
	12	BEARING, BALL, ANNULAR: fan drive bevel gearshaft, forward - part no. (208K- ⁷⁰⁰⁶⁸¹ 21335) Refer to TM 9-214 for in- spection and care of bearings		

Table 5-22. Wear Limits, Fits, and Tolerances for
Front Fan Drive Assembly - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-57 (5/335) continued	12 <i>a</i>	Outside diameter of bearing	3.1491-3.1496	*
		Inside diameter of bearing	1.5743-1.5748	*
		Fit of bearing (12, fig. 5-57) (5/335) on gearshaft	0.0001T-0.0010T	0.0001L
	13 <i>a</i>	WASHER, Key: PART NO. 7767350 (501868-28839)		REPLACE
	14	PACKING, PREFORMED: PART NO. MS28775-112		REPLACE
	15	PACKING, PREFORMED: PART NO. MS28775-011		REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: HOUSING, ~~COOLING FAN DRIVE ASSEMBLY:~~
~~FORWARD~~ *MECHANICAL DRIVE :*
COOLING FAN, FORWARD

OIP 10935541/1

REFERENCE: Figure 5-57 (5/335)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged, missing or loose studs, inserts, tubes, plugs and loose staked pins	2.5	Visual	None allowed
4		Check liners for secure fit, evidence of heating which may be indicated by discoloration and out-of-round condition	1.0	Visual	None allowed
5	A	Inside diameter	1.0	Measure	Diameter must be no greater than 3.1506 inches
6	B	Inside diameter	1.0	Measure	Diameter must be no greater than 2.6782 inches
7	C	Inside diameter	1.0	Measure	Diameter must be no greater than 2.9538 inches

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

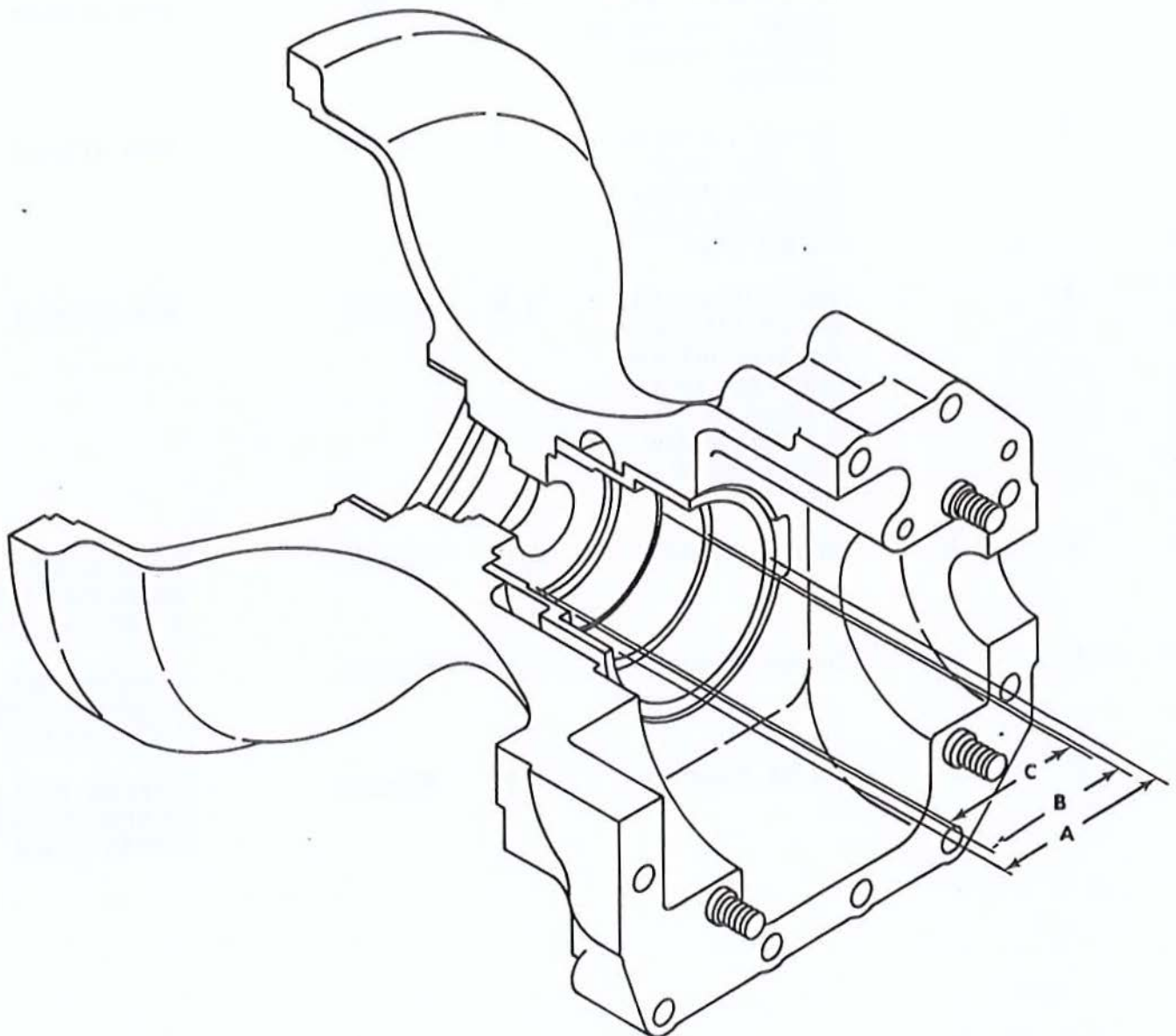
ITEM: HOUSING, ~~COOLING FAN DRIVE ASSEMBLY:~~
~~forward - Continued -~~
 COOLING FAN, FORWARD - CONTINUED

OIP 10935541

REFERENCE: Figure 5-57 (5/335)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

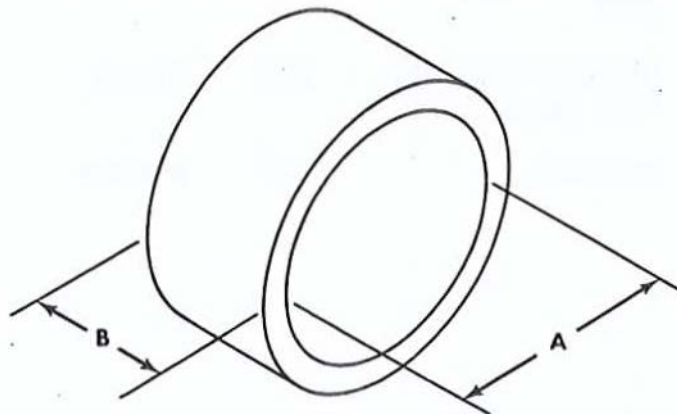
OIP 8682674

ITEM: SPACER, SLEEVE
fan drive driven bevel gearshaft bearing

REFERENCE: Figure 5-57 (5/335)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ A	Inside diameter	1.0	Measure	Diameter must be no greater than 1.5950 inches
4	✓ B	Width of spacer	1.0	Measure	Dimension must be no less than 0.9980 inch



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: GEARSHAFT, BEVEL:
fan driven

OIP 8682684

REFERENCE: Figure 5-57 (5/335)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle VISUAL	None allowed
2		Scratches, nicks, gouges, or sharp edges on contact surfaces	2.5	Visual	None allowed
3		Pitted or galled tooth surface	2.5	Visual	Not permitted over more than 1/4 of tooth width
4	✓ A	Outside diameter	1.0	Measure	Diameter must be no less than 1.5747 inches
5	✓ B	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 0.9784 inches
6	✓ C	Damaged retaining ring grooves	2.5	Visual	None allowed
7	✓	Backlash	0.0	Measure	Dimension must be no greater than 0.0120 inch when assembled with mating gear

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTOR PROCEDURE

DMWR 9-2815-220

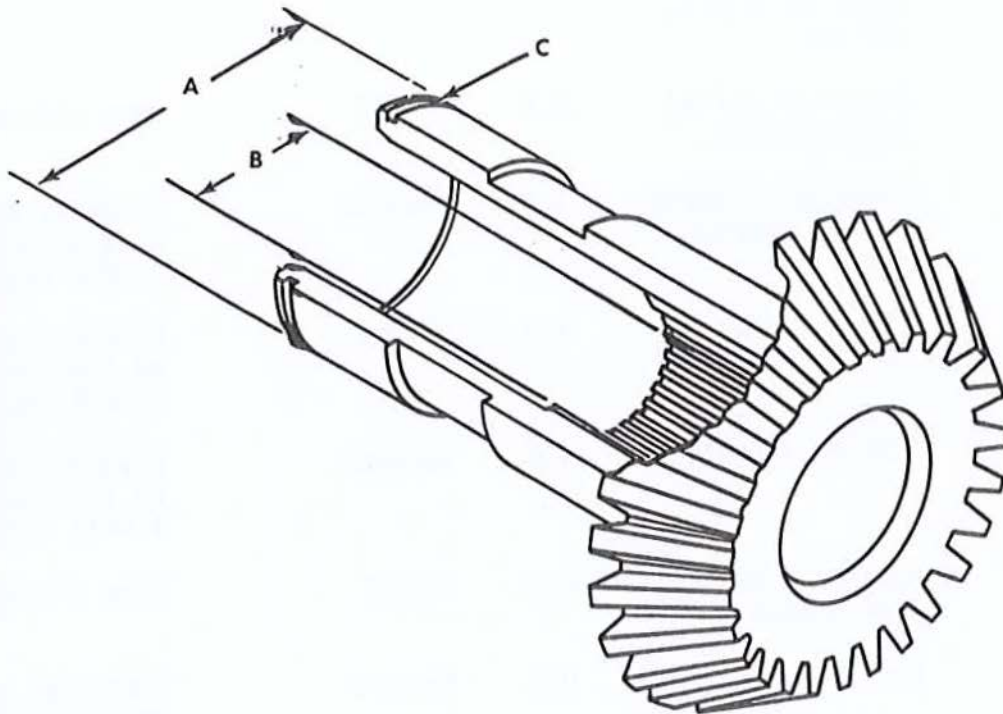
OIP 8682684

ITEM: GEARSHAFT BEVEL:
fan driven - Continued

REFERENCE: Figure 5-57 (5/335)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8682553

ITEM: GEARSHAFT, BEVEL:
fan drive

REFERENCE: Figure 5-57 (5/335)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle Visual	None allowed
2		Scratches, nicks, gouges, or sharp edges on contact surfaces	2.5	Visual	None allowed
3		Pitted or galled tooth surface	2.5	Visual	None allowed
4	A	Dimension between 0.0720 diameter pins	1.0	Measure	Diameter must be no greater than 1.0254 inches
5	B	Outside diameter	1.0	Measure	Diameter must be no less than 1.5747 inches
6	C	Outside diameter	1.0	Measure	Diameter must be no less than 1.5747 inches
7	D	Damaged retaining ring groove	2.5	Visual	None allowed
8		Backlash	0.0	Measure	Dimension must be no greater than 0.0120 inch when assembled with mating gear

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

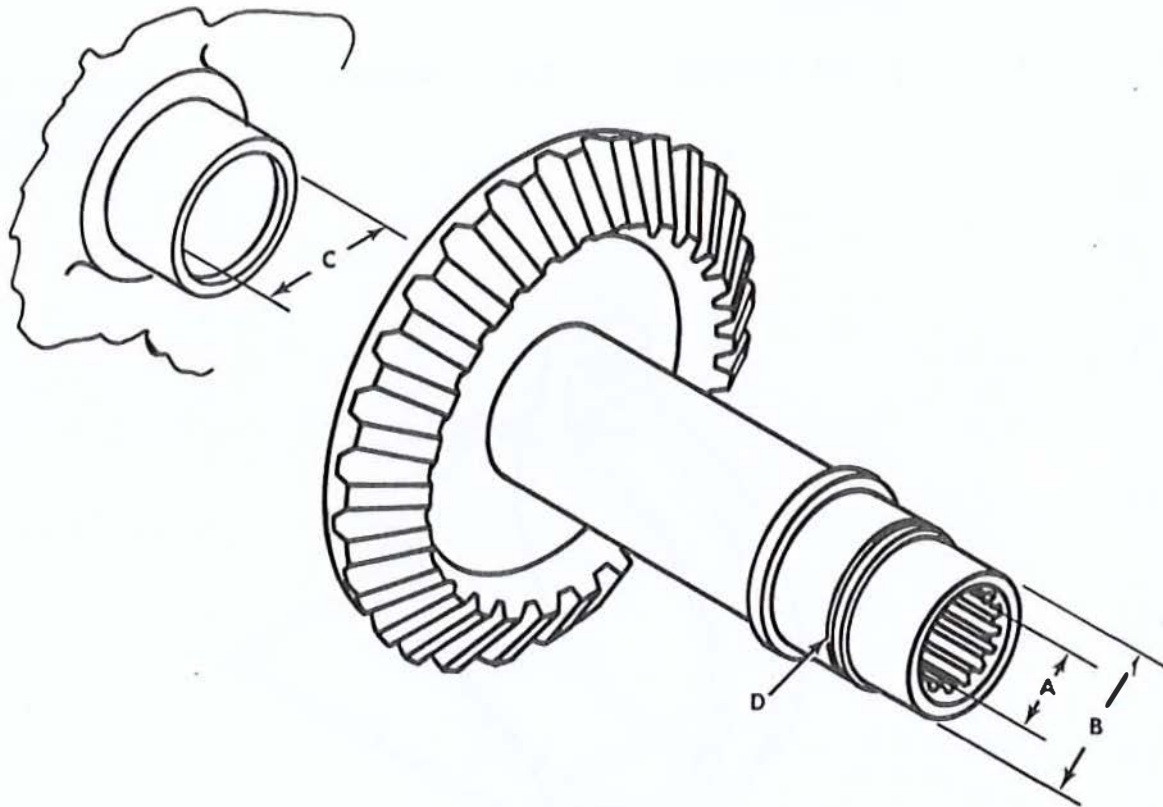
OIP 8682553

**ITEM: GEARSHAFT, BEVEL:
fan drive - Continued**

REFERENCE: Figure 5-57 (5/335)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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♦Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

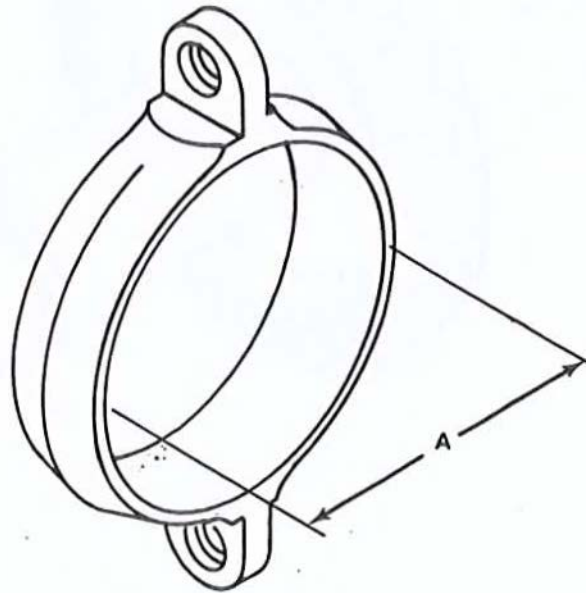
ITEM: *BRACKET, EYE, ROTATING SHFT.*
~~SUPPORT BEARING FAN:~~
 gearshaft, rear

OIP 8725226

REFERENCE: Figure 5-57 (5/335)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 2.6780 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTED PROCEDURE

DMWR 9-2815-220

*HOUSING, MECHANICAL DRIVE:
BASE, FAN DRIVE HOUSING ASSEMBLY:
FODWTF
FAN BASE, FORWARD*

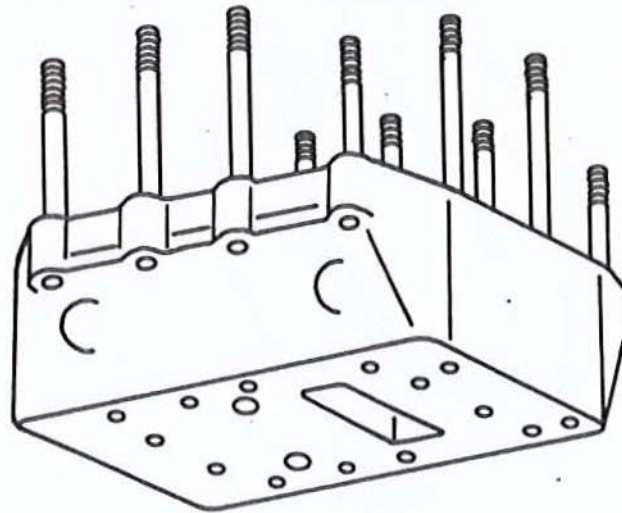
OIP 8761155-1

ITEM:

REFERENCE: Figure 5-57 (5/335)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged, loose or missing studs and inserts	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

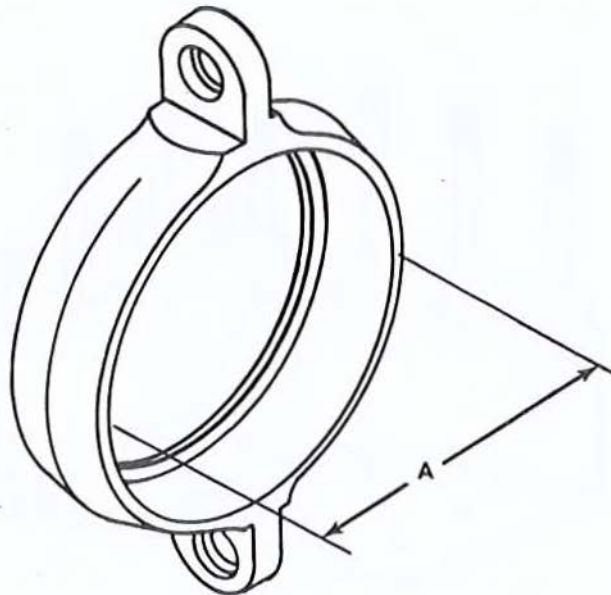
ITEM: ~~HOUSING, BEARING UNIT:~~
 SUPPORT, FAN DRIVE GEARSHAFT:
 forward
 FAN DRIVE GEARSHAFT, FORWARD/REAR

OIP 8725227

REFERENCE: Figure 5-57 (5/35)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 3.1504 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-57. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Replacement of fan driven gearshaft or fan driven bevel gearshaft. If either the fan driven gearshaft or fan driven bevel gearshaft require replacement, both must be replaced as they are a matched gear set and cannot be replaced individually.

(3) Replacement of studs and inserts. Refer to paragraph 5-5, d (5/6), table 5-23 (5/351), and figure 5-58 (5/351) when replacing damaged, bent, or stripped front fan drive assembly studs. Refer to paragraph 5-6 (5/8) when replacing damaged screw thread inserts.

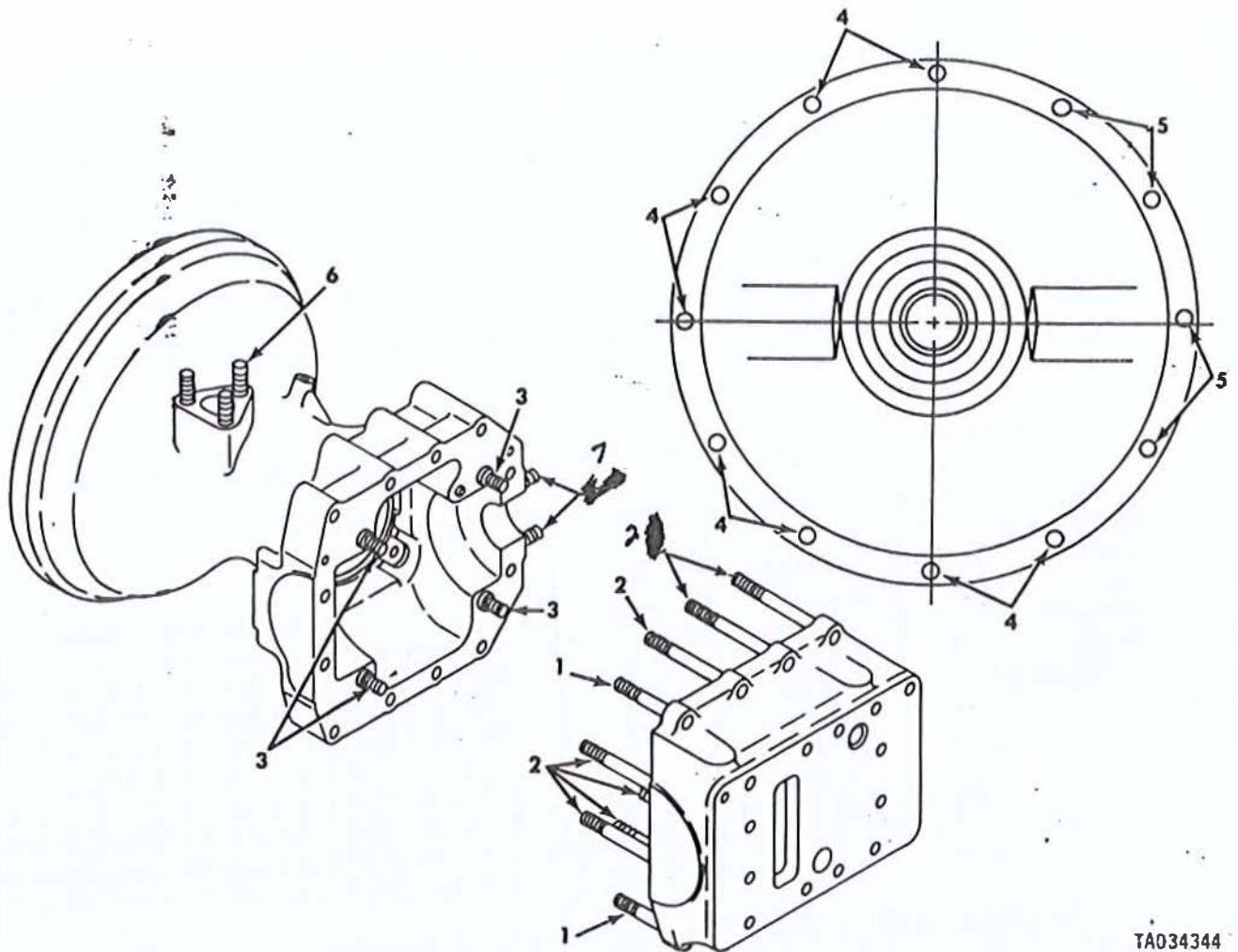
Table 5-23. Front Fan Drive Assembly Standard Stud Identification

Reference Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-58 (5/351)	1	2-1/16	2	3/8-16 (51/64) x 3/8-24 (7/8) x 2-25/32
	2	3-1/16	8	3/8-16 (51/64) x 3/8-24 (11/16) x 3-7/8
	3	3/4	4	3/8-16 (13/16) x 3/8-24 (3/4) x 1-7/8
	4	23/32 25/32	8	5/16-18 (3/4) x 5/16-24 (19/32) x 1-7/16
	5	29/32	4	5/16-18 (3/4) x 5/16-24 (19/32) x 1-3/8
	6	1/8	2	5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2
	7	1	2	5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2
	8	3-1/2	2	3/8-16 (27/32) x 3/8-24 (11/16) x 4-5/16

*On Model AVDS-1790-20R setting height is 1-41/64 and stud size is 5/16-18 (3/4) x 5/16-24 (3/4) x 2-5/16

6 7/8 3 5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2
 7 1 2 5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2
~~8 1 2 3/8-16 (51/64) x 3/8-24 (7/8) x 2-25/32~~
~~9 1 2 3/8-16 (51/64) x 3/8-24 (11/16) x 3-7/8~~
~~10 1 2 3/8-16 (13/16) x 3/8-24 (3/4) x 1-7/8~~
~~11 1 2 5/16-18 (3/4) x 5/16-24 (19/32) x 1-7/16~~
~~12 1 2 5/16-18 (3/4) x 5/16-24 (19/32) x 1-3/8~~
~~13 1 2 5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2~~
~~14 1 2 5/16-18 (3/4) x 5/16-24 (19/32) x 1-1/2~~
~~15 1 2 3/8-16 (27/32) x 3/8-24 (11/16) x 4-5/16~~

5-57. (Cont)



TA034344

Figure 5-58. Front fan drive assembly standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

BLANK

FRAME

Section XIV. OVERHAUL OF ACCESSORY DRIVE HOUSING AND
REAR FAN DRIVE ASSEMBLY

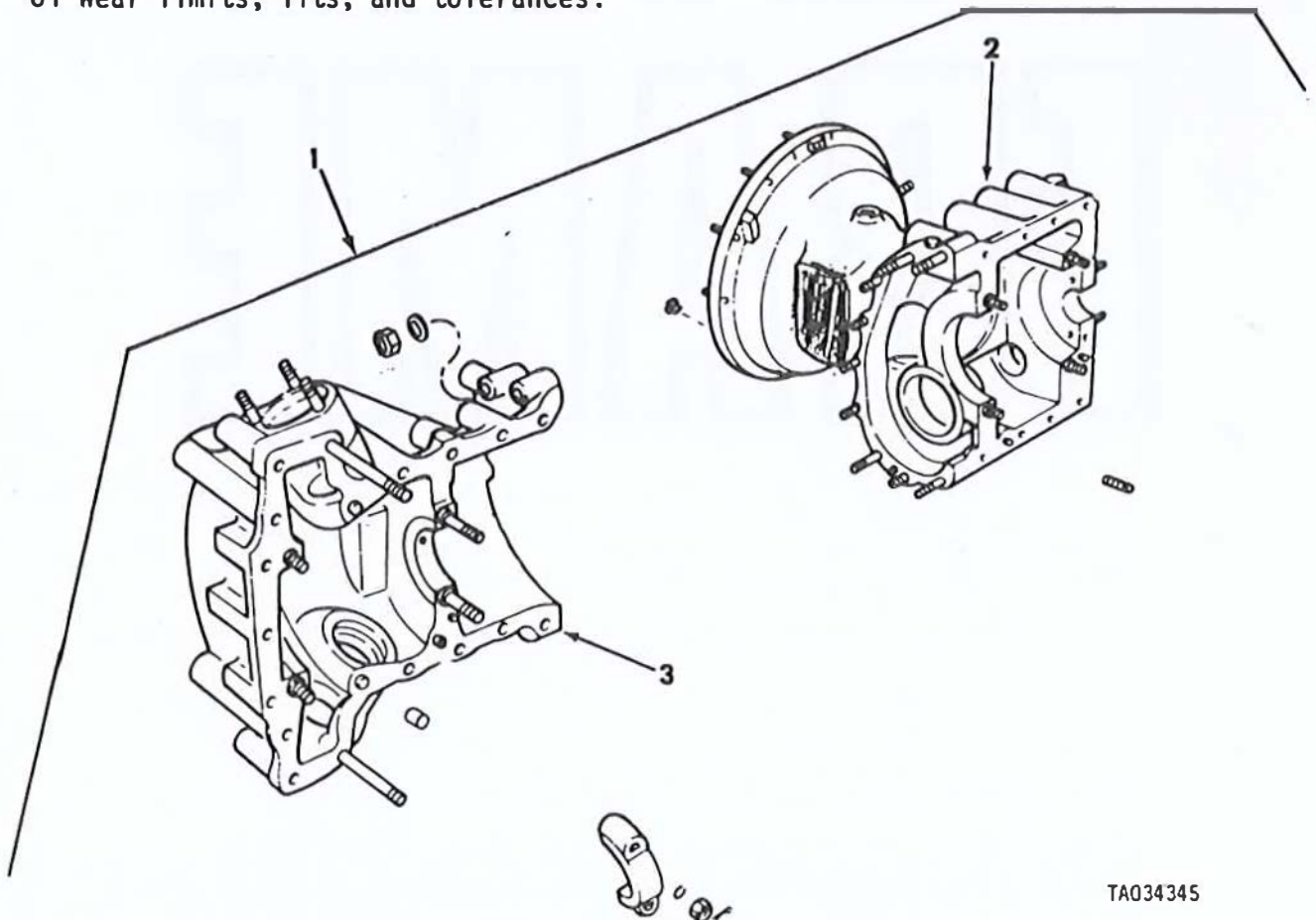
5-58. General. This section covers overhaul of the accessory drive housing and associated parts, and the rear fan drive assembly (figs. 5-59, 5-60, and 5-61), (5/354) through (5/356). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included in the inspection instructions. Stud identification information is included with the repair instructions.

5-59. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b and c (5/1) for general cleaning instructions.

5-60. Inspection. Inspect the accessory drive housing and associated parts, and the rear fan drive assembly according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the accessory drive housing and associated parts, and the rear fan drive assembly are listed in table 5-24 (5/357). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.



TA034345

Figure 5-59. Accessory drive housing.

DMWR 9-2815-220

5-60.1. Reclamation. Use the procedures outlined below to reclaim a worn accessory drive housing (part no. 11642121-1). Refer to OIP 11642121-1 (5/366).

a. Repair worn mating surfaces of the mechanical drive housing and rear fan housing by installing shims.

- (1) Remove studs and mill worn areas to a depth of 0.050 inches.
- (2) Install 0.060 inch thick aluminum shims cut to the shape of the milled areas.
- (3) To retain shims, drill holes 0.159 inch diameter and 0.100 inch deep, through shims.
- (4) Tap drilled holes 10-32 NF2 0.094 inch deep.
- (5) To position and retain the shims, use 3/16 inch diameter aluminum bar stock, cut to the required lengths and threaded 10-32 NF2. Screw threaded aluminum stock in tapped holes.
- (6) Install 3/8 inch diameter oversize studs. When fastening bearing supports with 3/8 inch nuts, use lubriplate and torque to 275 - 325 pound inches.

b. Repair a worn injection advance bore of the mechanical drive housing by installing an insert type bearing. Refer to figure 5-59.1 (5/354.2).

(1) With cap in place, machine the injection advance bore to 2.510 inches I.O.

(2) With cap removed, machine slots in bearing areas as shown in figure 5-59.2 (5/354.2).

(3) Upon assembly of the accessory drive housing, install a bearing (part no. 1851446)

Insert (NSN 3120-00-679-9260)

BAR STOCK SLEEVE BEARING

10861843

5-60.1. (Cont)

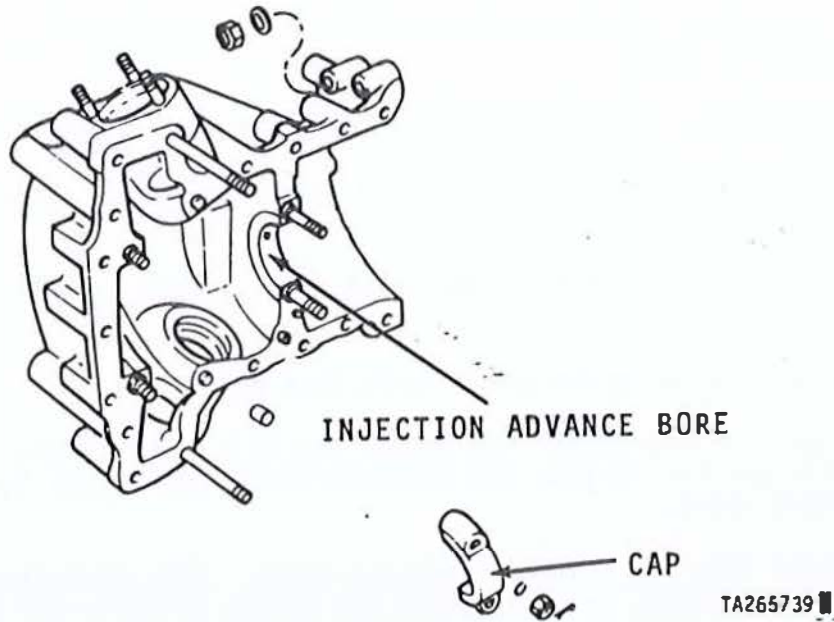


Figure 5-59.1. Mechanical Drive Housing

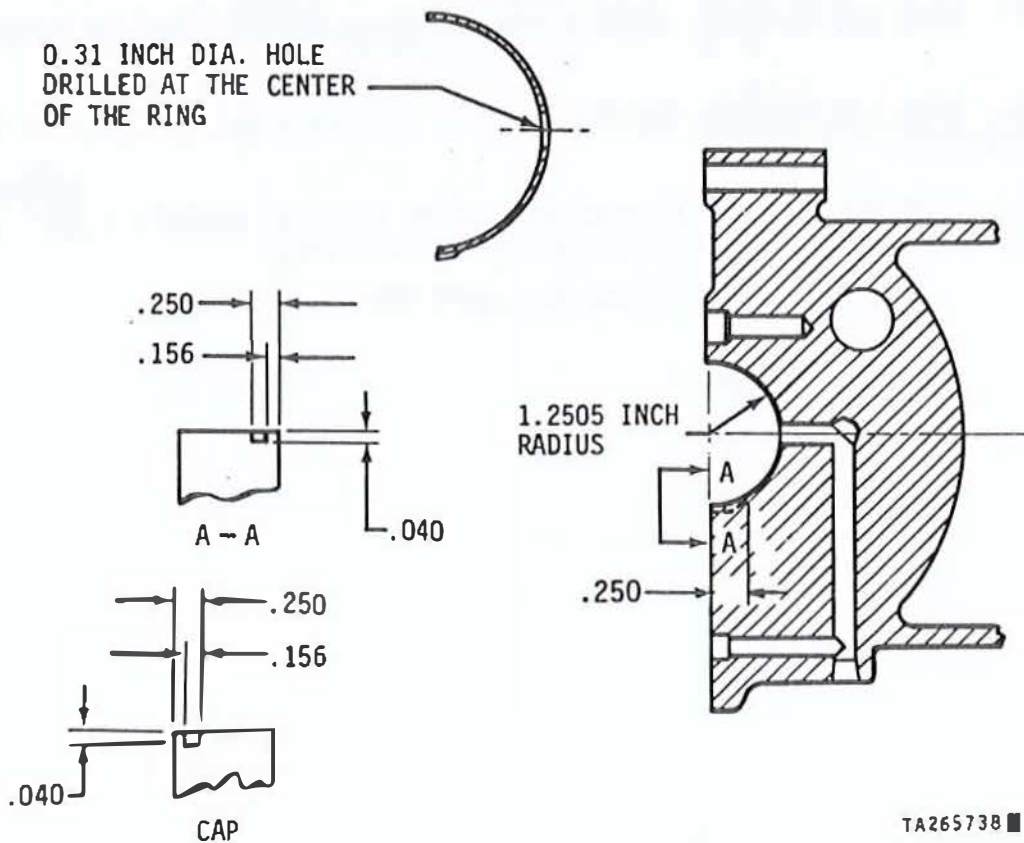
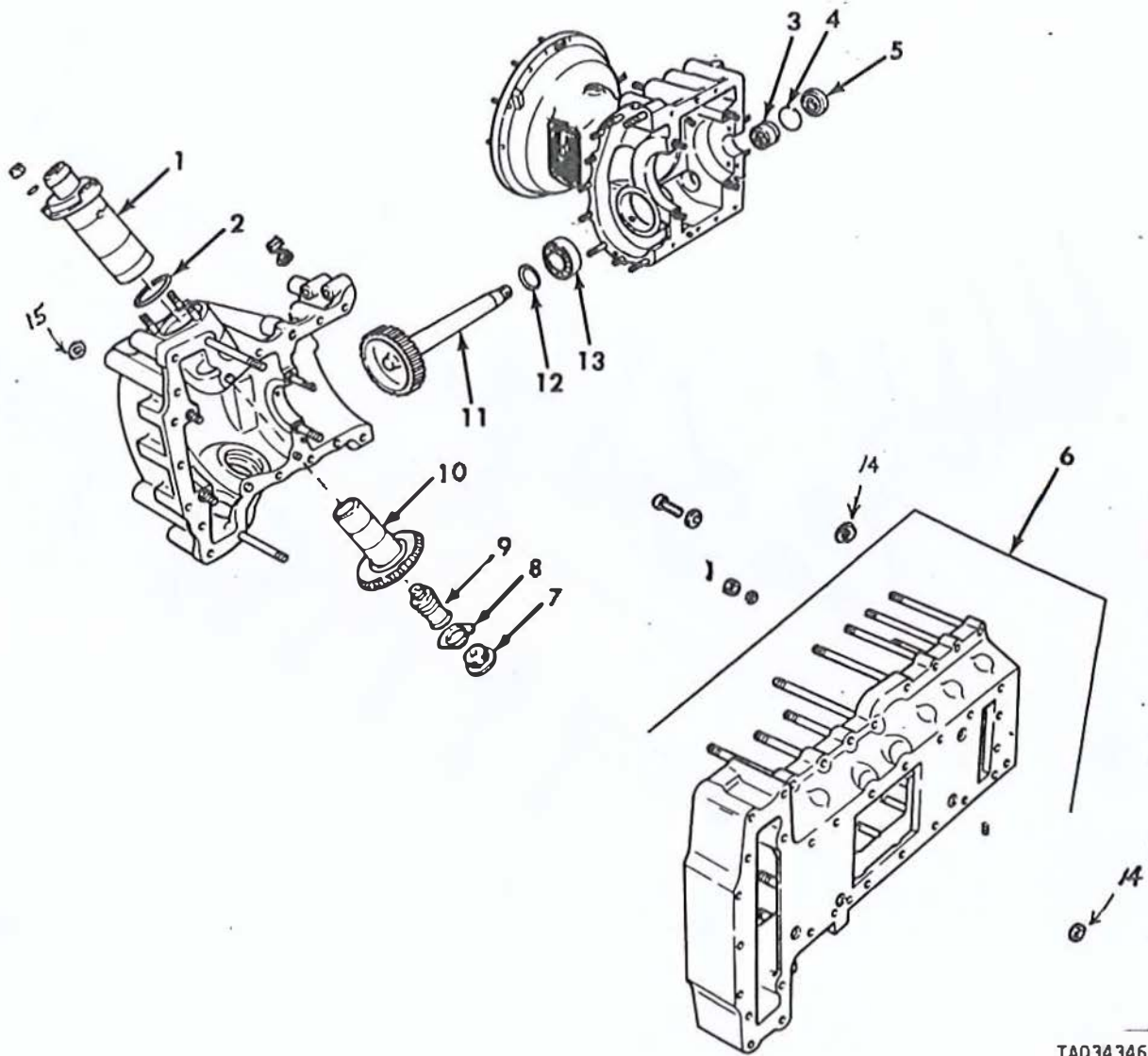
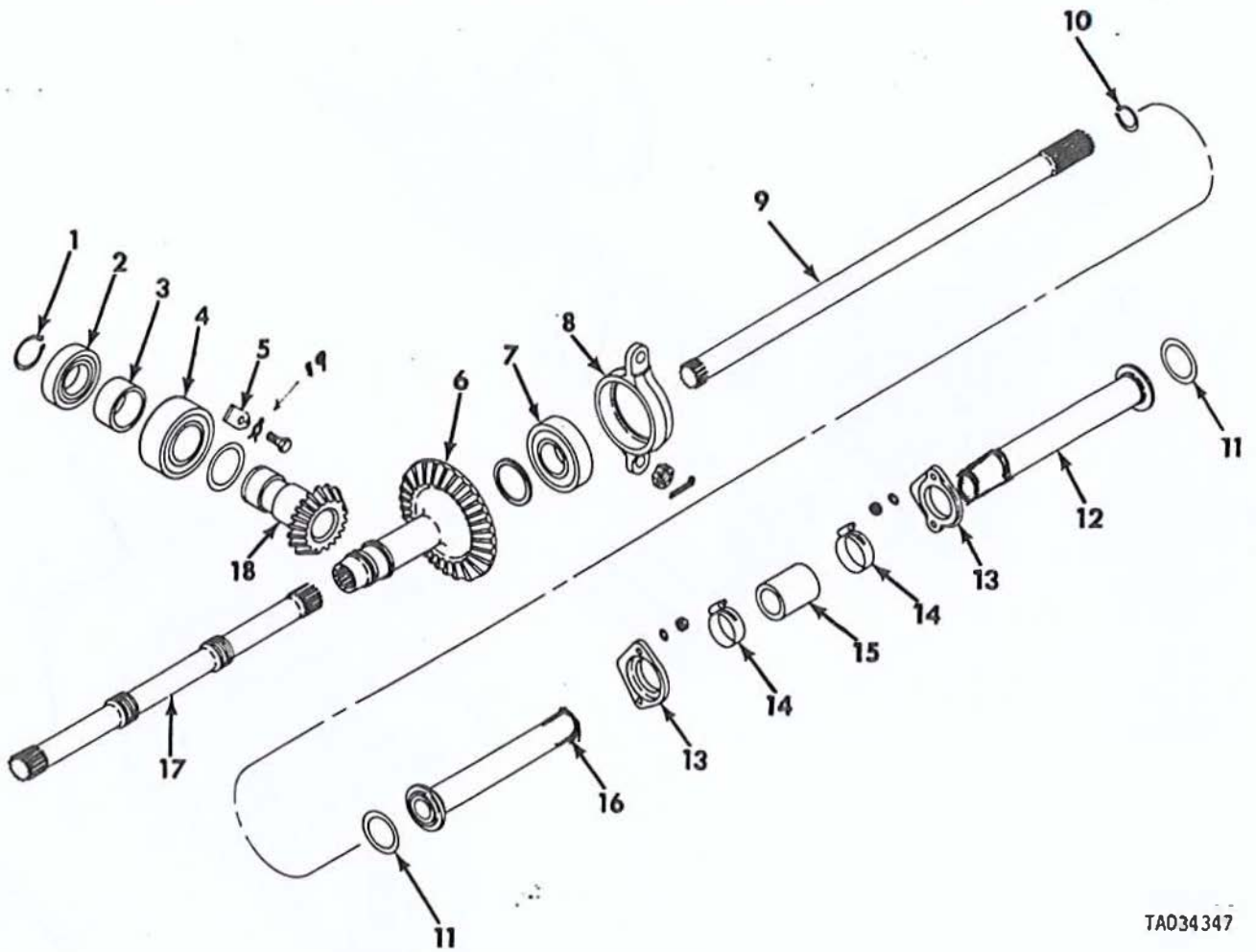


Figure 5-59.2. Machining Instructions for the Injection Advance Bore.



TA034346

Figure 5-60. Accessory drive housing associated parts.



TA034347

Figure 5-61. Rear fan drive assembly.

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-59 (5/354)	1	HOUSING ASSEMBLY, ACCESSORY DRIVE - part no. 11642121-1 Refer to OIP 11642121-1 (5/366)		
		✓ Inside diameter of bearing bore (lower large) in hous- ing	3.1496-3.1503	3.1506
		✓ Inside diameter of liner in housing (fuel injection pump driven gearshaft needle bearing bore - small)	1.4995-1.5002	1.5005
		✓ Inside diameter of bearing bore (lower small) in hous- ing	2.6772-2.6779	2.6782
		✓ Inside diameter of liner in housing (fuel injection pump gearshaft bearing bore - large)	2.4409-2.4416	2.4419
		✓ Fit of bearing (13, fig. 5-60) (5/355) in housing	0.0000-0.0012L	0.0015L
		✓ Inside diameter of bore in housing (injection pump driven gearshaft oil seal bore)	1.7500-1.7510	1.7515
		✓ Inside diameter of bearing bore (upper large) in hous- ing	2.9528-2.9535	2.9538
		✓ Inside diameter of injec- tion advance bore with cap installed on housing and nuts torqued to proper torque value	2.3770-2.3780	2.3790

Table 5-24. Wear Limits, Fits, and Tolerances for
Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-59 (5/354)	2	HOUSING: cooling fan drive rear - part no. 10935540		
	3	HOUSING, MECHANICAL DRIVE: accessory - part no. 11642123		
5-60 (5/355)	1	SUPPORT, ACCESSORY CAMSHAFT DRIVE BEVEL SHAFTGEAR - part no. 10865361 Refer to OIP 10865361 (5/369)		
		✓ Inside diameter of bore in inner support housing	1.5000-1.5010	1.5020
	2	PACKING, PREFORMED: acces- sory cam drive bevel gear- shaft - part no. MS28775-226		Replace
	3	BEARING, ROLLER, NEEDLE: injection pump driven gear- shaft - part no. 709460 Refer to TM 9-214 for inspection and care of bearings		
		✓ Outside diameter of needle bearing	1.4995-1.5000	*
		✓ Inside diameter of needle bearing	0.9995-1.0000	*
		✓ Fit of gearshaft (1), fig. 5-60) (5/355) in needle bearing	0.0005L-0.0005T	0.0007L
		✓ Fit of needle bearing in housing (2, fig. 5-59) (5/354)	0.0007L-0.0005T	0.0010L

Table 5-24. Wear Limits, Fits, and Tolerances for
Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-60 (5/355)	4	RING, RETAINING: injection pump driven gearshaft - part no. 8764982 MS16625.1150		Replace
	5	SEAL, PLAIN/ENCASED: injec- tion pump driven gearshaft - part no. 8764982		Replace
		Outside diameter of oil seal	1.7540-1.7580	*
		Fit of oil seal in housing (2, fig. 5-59) (5/354)	0.0030T-0.0080T	0.0020T
	6	BASE, ACCESSORY DRIVE HOUS- ING - part no. 8761206 Refer to OIP 8761206 (5/370)		
	7	PLUG: accessory camshaft drive bevel gearshaft retaining plug - part no. 10865382 Refer to OIP 10865382 (5/371)		
	8	WASHER, KEY: accessory camshaft drive - part no. 10865381		Replace
	9	PLUG: accessory cam drive bevel gearshaft - part no. 8682539 Refer to OIP 8682539 (5/372)		
		Spherical outside diameter of lower oil transfer plug	0.6275-0.6280	0.6265
		Outside diameter of lower oil transfer plug	1.1250-1.1255	1.1245 1.1250 <i>[Signature]</i>

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-60 (5/355) continued	9 - 10	✓ Fit of plug in gearshaft hub (10, fig. 5-60) (5/355) GEARSHAFT: accessory cam drive, bevel - part no. 10865383 Refer to OIP 10865383 (5/373)	0.0005L-0.0020L	.0025L
		✓ Inside diameter of hub in gearshaft	1.1260-1.1270	1.1275
		✓ Outside diameter of hub on gearshaft	1.4970-1.4980	1.4960
		✓ Dimension between 0.0600 diameter pins (spline end)	0.9361-0.9379	0.9388
		✓ Fit of gearshaft hub in support (1, fig. 5-60) (5/355)	0.0020L-0.0040L	0.0050L
	11	GEARSHAFT, SPUR: injection pump driven - part no. 11642122 Refer to OIP 11642122 (5/374)		
		✓ Outside diameter of needle bearing surface on gearshaft	0.9995-1.0000	0.9993
		✓ Outside diameter of bearing surface on fuel injection pump driven gearshaft	1.1814-1.1817	1.1813
		✓ Dimension over 0.2000 diameter pins	4.1690-4.1740	4.1665
	12	WASHER, RECESSED: injection pump driven gearshaft - part no. 8761420 Refer to OIP 8761420 (5/375)		

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-60 (5/355)	13	BEARING, BALL, ANNULAR: in- jection pump driven gear- shaft - part no. (8225120E) ⁷⁰⁰⁰⁷⁹ Refer to TM 9-214 for in- spection and care of bearings		
		Inside diameter of bearing	1.1807-1.1811	*
		Fit of bearing on gearshaft	0.0003T-0.0010T	0.0002T
		Outside diameter of bearing	2.4404-2.4409	*
5-61 (5/356)	1	RING, RETAINING: fan drive bevel shaftgear bearing - part no. MS16624-1156		Replace
	2	BEARING, BALL, ANNULAR: fan drive bevel shaftgear (rear bearing) - part no. (9108K-21335) ⁷⁰¹⁰²³ Refer to TM 9-214 for in- spection and care of bearings		
		Inside diameter of bearing	1.5743-1.5748	*
		Outside diameter of bearing	2.6767-2.6772	*
	3	SPACER, SLEEVE: fan drive driven bevel gearshaft bear- ing) - part no. 8682674 Refer to QIP 8682674 (5/376) (5/343)		
	4	BEARING, BALL, ANNULAR: fan drive bevel shaftgear (rear bearing) - part no. (5208-21335) ⁷¹⁴⁰⁵⁶ Refer to TM 9-214 for in- spection and care of bearings		

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

<u>References</u> <u>Fig.</u> <u>No.</u>	<u>Item</u> <u>No.</u>	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-61 (5/356) continued	4 - /	Inside diameter of bearing	1.5743-1.5748	*
	/	Outside diameter of bearing	3.1491-3.1496	*
	/	Fit of bearing in housing (2, fig. 5-59) (5/354)	0.0000-0.0012L	0.0015L
	5 /	PLATE, RETAINING BEARING: fan drive bevel shaftgear - part no. 8761390 Refer to OIP 8761390 (5/377)		
	6	GEARSHAFT, BEVEL: fan drive rear - part no. 7320478 Refer to OIP 7320478 (5/378)		
	✓	Outside diameter of bearing surface on gearshaft (spline end)	1.5749-1.5753	1.5747
	/	Outside diameter of gear- shaft (opposite of spline end)	1.6244-1.6248	1.6242
	/	Fit of gearshaft in drive gearshaft (15, fig. 5-63) (5/391)	0.0012L-0.0026L	0.0035L
	✓	Dimension between 0.0720 diameter pins	1.0227-1.0245	1.0254

NOTE

Bevel gears are part of a set and are not to be replaced separately.

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-61 (5/356)	7	BEARING, BALL, ANNULAR: fan drive bevel shaftgear, rear - part no. (208K-21335) Refer to TM 9-214 for inspection and care of bearings	700081	
		✓ Outside diameter of bearing	3.1491-3.1496	*
		✓ Inside diameter of bearing	1.5743-1.5748	*
		✓ Fit of bearing on gearshaft (6, fig. 5-61) (5/356)	0.0001T-0.0010T	0.0001L
	8	SUPPORT, FAN DRIVE GEARSHAFT FORWARD HOUSING, BEARING UNIT. part no. 8725227 FAN DRIVE GEARSHAFT, REAR - Refer to OIP 8725227 48-5711 (5/350)		
		✓ Inside diameter of bearing support clamp	3.1495-3.1501	3.1504
		✓ Fit of bearing (7, fig. 5-61) (5/356) in support	0.0010L-0.0001T	0.0013L
	9	✓ SHAFT, STRAIGHT: inter fan drive - part no. 8761020 Refer to OIP 8761020 (5/380)		
		✓ Dimension over 0.0960 diameter pins (splines - both ends)	1.2430-1.2453	1.2424
	10	RING, RETAINING: inter fan drive - part no. MS16626-1112		Replace
	11	PACKING, PREFORMED: inter fan drive shaft tube forward and rear - part no. MS28775-325 (MS34611229-5134)		Replace

Approved

Table 5-24. Wear Limits, Fits, and Tolerances for Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-61 (5/356)	12	TUBE ASSEMBLY, METAL: inter fan drive shaft forward <i>REAR</i> - part no. 7320469 7320480 Refer to OIP 7320469 7320480 (5/381)		
	13	PLATE, RETAINING, SHAFT: inter fan drive tube - part no. 7320463 Refer to OIP 7320463 (5/382)		
	14	CLAMP, HOSE inter fan driveshaft tube plate part no. 7320499 502919 Refer to OIP 7320499 502919 (0612596-00-83277) (5/383)		
	15	HOSE, RUBBER: inter fan driveshaft tube plate - part no. 8761226		Replace
	16	TUBE ASSEMBLY, METAL: inter fan driveshaft, rear <i>FORWARD</i> part no. 7320480 7320469 Refer to OIP 7320480 7320469 (5/384)		
	17	<i>SHOULDER:</i> SHAFT, FAN DRIVE, flywheel end - part no. 8761287 Refer to OIP 8761287 (5/385)		
		Seal diameter area (2 places)	1.2000-1.2020	1.1990
		Dimension over 0.0960 diameter pins	1.2430-1.2453	1.2424

Table ~~5-24~~. Wear Limits, Fits, and Tolerances for
Accessory Drive Housing and Rear Fan Drive Assemblies - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-61 (5/356)	18	GEARSHAFT, BEVEL: fan driven - part no. 8682684 Refer to OIP 8682684 5/386 (5/344)		
		Outside diameter of bearing surface on gearshaft	1.5749-1.5753	1.5747
		Fit of bearing (2, fig. 5-61) (5/356) on gearshaft	0.0001T-0.0010T	0.0001L
		Fit of bearing (4, fig. 5-61) (5/356) on gearshaft	0.0001T-0.0010T	0.0001L
		Dimension between 0.0600 diameter pins	0.9757-0.9775	0.9784

NOTE

Bevel gears are part of a
set and are not to be
replaced separately.

17

WASHER, Key
PART NO. 7767350
(501868-28839)

REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11642121-1

ITEM: HOUSING ASSEMBLY, ACCESSORY DRIVE

REFERENCE: Figure 5-59 (5/354)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Dye penetrant	None allowed
2	✓	Nicks, scratches, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	✓	Thread inserts, for looseness and damaged or missing threads	2.5	Visual	None allowed
4	✓	Dowel pins, nicked, loose or missing	2.5	Visual	None allowed
5	✓	Studs, for looseness, bent, broken or stripped threads	2.5	Visual	None allowed
6	✓	Liners for looseness, missing or loose staking pins	2.5	Visual	None allowed
7	✓	Pipe tapped holes, stripped or damaged threads	2.5	Visual	None allowed
8	✓	Thin wall transfer tubes, missing, loose, nicked or bent	2.5	Visual	None allowed
9	A ✓	Inside diameter of bearing bore (lower large) in housing	1.0	Measure	Diameter must be no greater than 3.1506 inches
10	B ✓	Inside diameter of liner in housing (fuel injection pump driven gear-shaft needle bearing bore - small)	1.0	Measure	Diameter must be no greater than 1.5005 inches

***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11642121-1

**ITEM: HOUSING ASSEMBLY, ACCESSORY DRIVE
- Continued**

REFERENCE: Figure 5-59 (5/354)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
11	✓ C	Inside diameter of bearing bore (small) in housing	1.0	Measure	Diameter must be no greater than 2.6782 inches
12	✓ D	Inside diameter of liner in housing (fuel injection pump gearshaft bearing bore - large)	1.0	Measure	Diameter must be no greater than 2.4419 inches
13	✓ E	Inside diameter of bore in housing (injection pump driven gearshaft oil seal bore)	1.0	Measure	Diameter must be no greater than 1.7515 inches
14	✓ F	Inside diameter of bearing bore (upper large) in housing	1.0	Measure	Diameter must be no greater than 2.9538 inches
15	✓ G	Inside diameter of injection advance bore with cap installed on housing and nuts torqued to proper torque value	1.0	Measure	Diameter must be no greater than 2.3790 inches

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

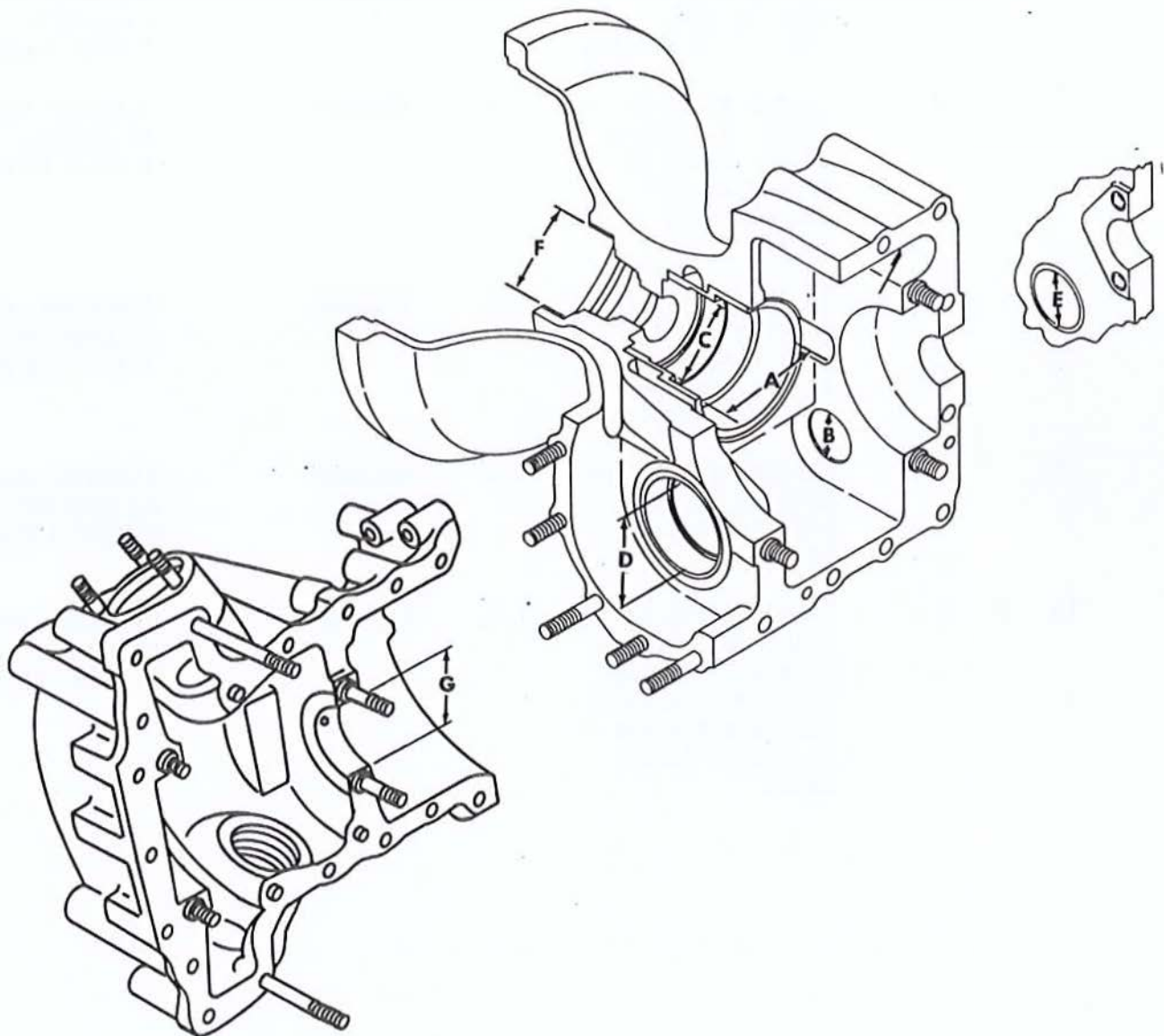
ITEM: HOUSING ASSEMBLY, ACCESSORY DRIVE
- Continued

OIP 11642121-1

REFERENCE: Figure 5-59 (5/354)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

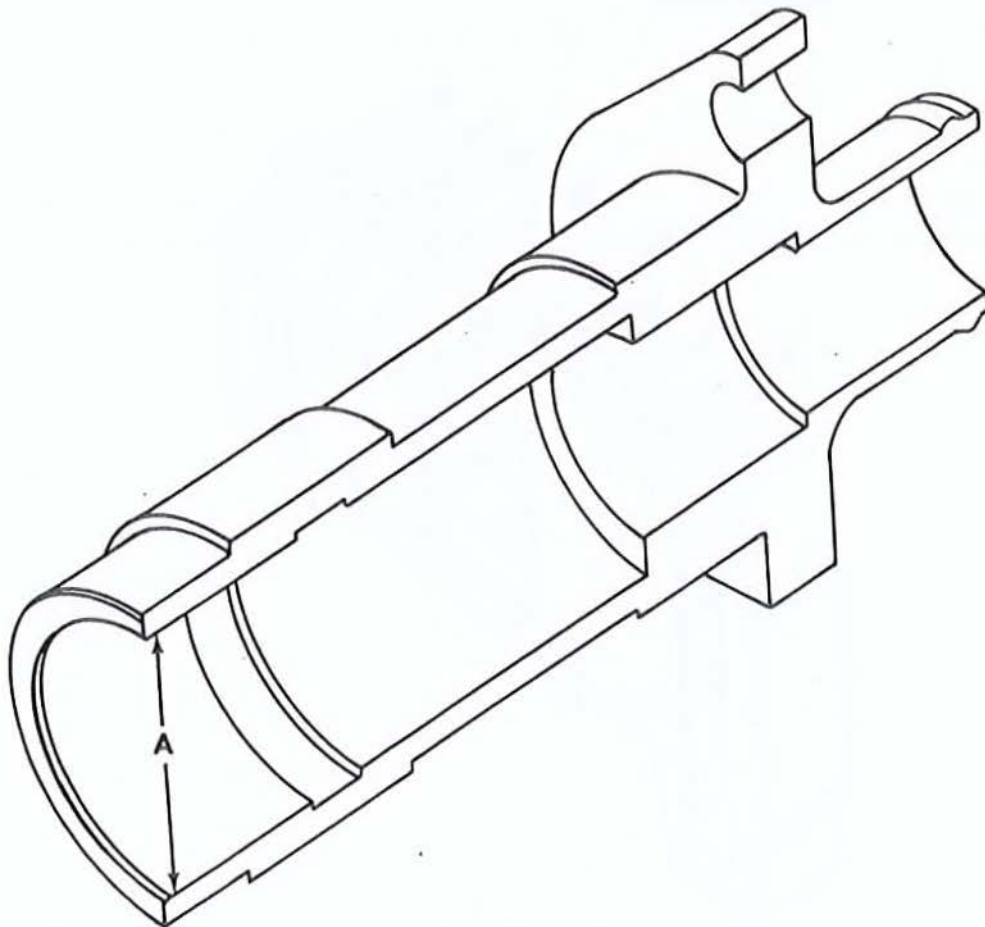
OIP 10865361

**ITEM: SUPPORT, ACCESSORY CAMSHAFT DRIVE
BEVEL SHAFTGEAR**

REFERENCE: Figure 5-60 (5/355)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
✓ 1		Cracks	0.0	Dye penetrant	None allowed
✓ 2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
✓ 3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 1.5020 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

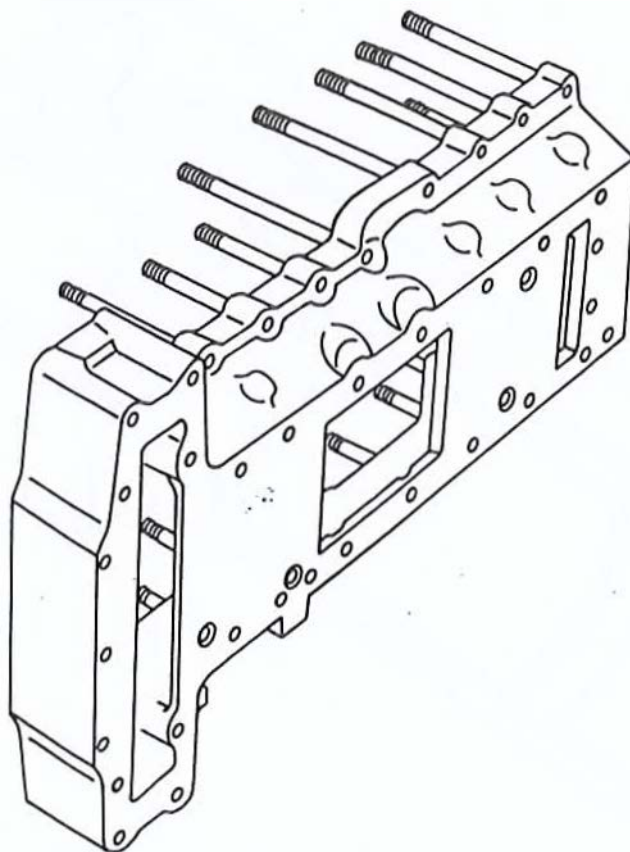
OIP 8761206

ITEM: BASE, ACCESSORY DRIVE HOUSING

REFERENCE: Figure 5-60 (5/355)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
/ 1		Cracks	0.0	Dye penetrant	None allowed
/ 2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
/ 3		Damaged, loose or missing studs, plugs and pipe tapped holes	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

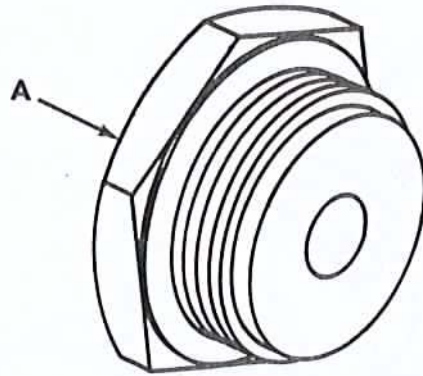
OIP 10865382

ITEM: PLUG:
accessory cam drive bevel gearshaft
retaining plug

REFERENCE: Figure 5-60 (5/355)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Damaged hexagon head	2.5	Visual	None allowed
3		Damaged 1-3/16- 18 NEF-2A thread	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

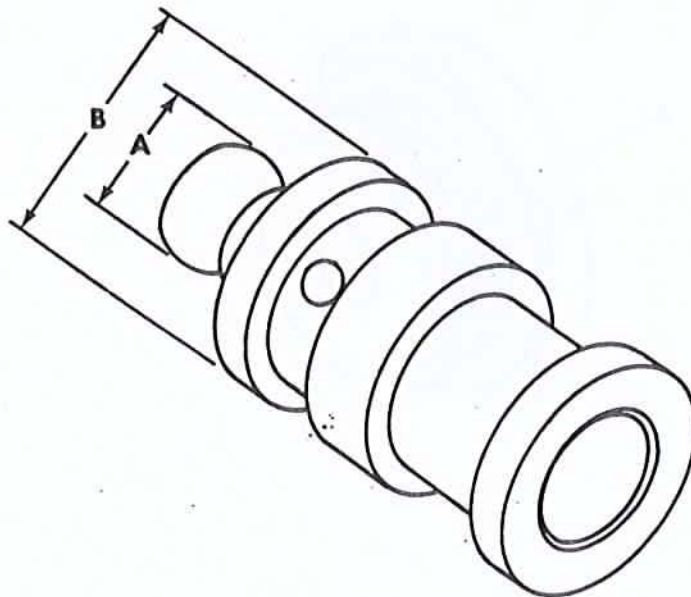
OIP 8682539

ITEM: PLUG:
accessory cam drive bevel gearshaft

REFERENCE: Figure 5-60 (5/355)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Spherical diameter	1.0	Measure	Diameter must be no less than 0.6265 inch
4	B	Outside diameter (2 places)	1.0	Measure	Diameter must be no less than 1.100 inches 1.1245



1.1245
W. F. F. E.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

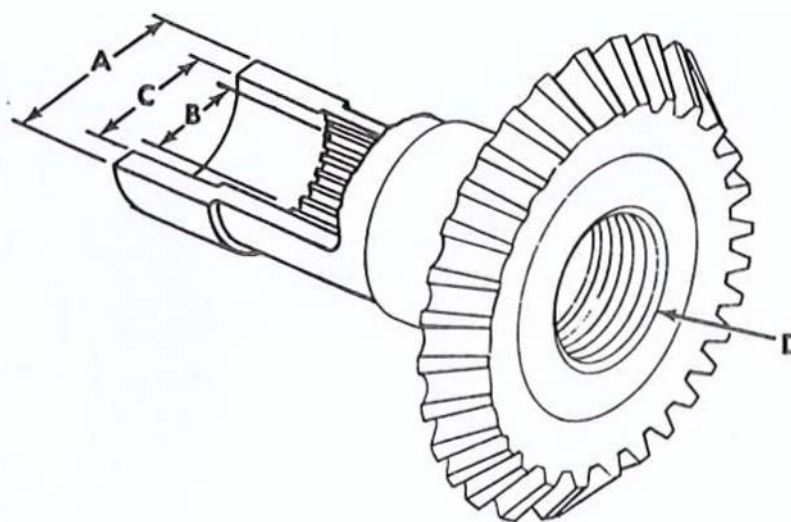
OIP 10865383

ITEM: GEARSHAFT:
accessory cam drive, bevel

REFERENCE: Figure 5-60 (5/355)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1 ✓		Cracks	0.0	<i>VISUAL</i> Magnetic particle	None allowed
2 ✓		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3 ✓	A	Outside diameter	1.0	Measure	Diameter must be no less than 1.4960 inches
4 ✓	B	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 0.9388 inch
5 ✓	C	Inside diameter	1.0	Measure	Diameter must be no greater than 1.1275 inches
6 ✓	D	Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

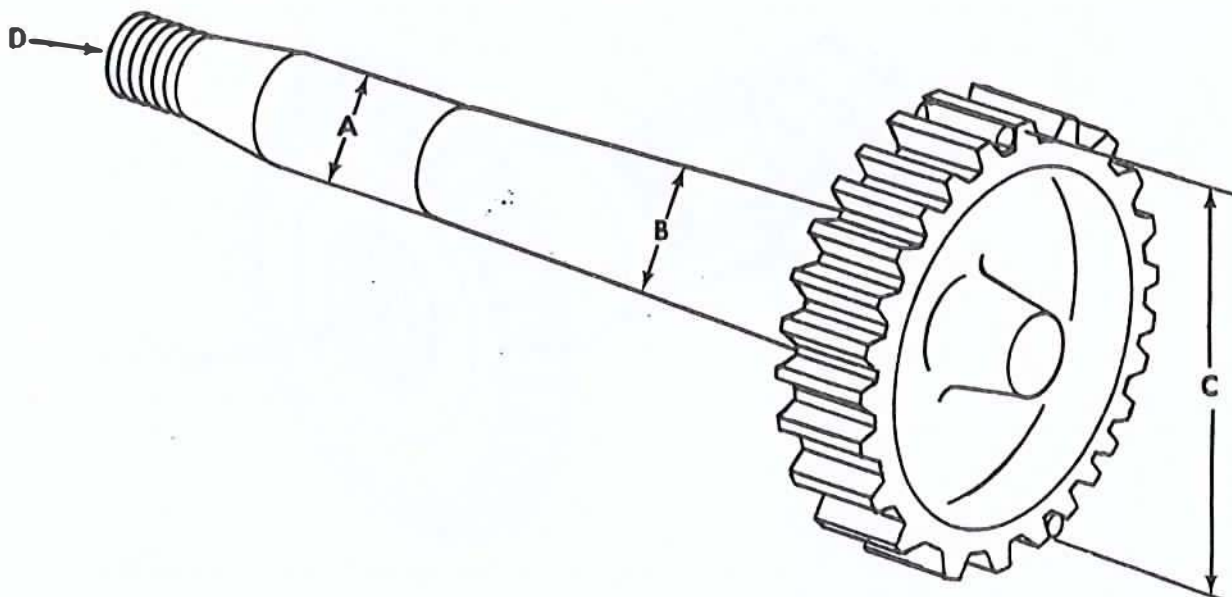
ITEM: GEARSHAFT, SPUR:
injection pump driven

OIP 11642122

REFERENCE: Figure 5-60 (5/355)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks ✓	0.0	Visual Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces ✓	2.5	Visual	None allowed
3	✓ A	Outside diameter	1.0	Measure	Diameter must be no less than 0.9993 inch
4	✓ B	Outside diameter	1.0	Measure	Diameter must be no less than 1.1813 inches
5	✓ C	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 4.1665 inches
6	✓ D	Threads (damaged)	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

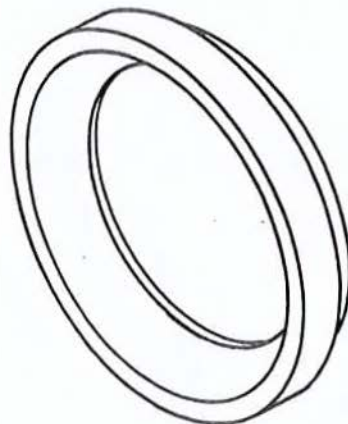
OIP 8761420

**ITEM: WASHER, RECESSED:
injection pump driven gearshaft**

REFERENCE: Figure 5-60 (5/355)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPACER, SLEEVE:
fan drive bevel shaftgear (rear bearing)

OIP 8682674

REFERENCE: Figure 5-61 (5/356)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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~~5/376~~

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

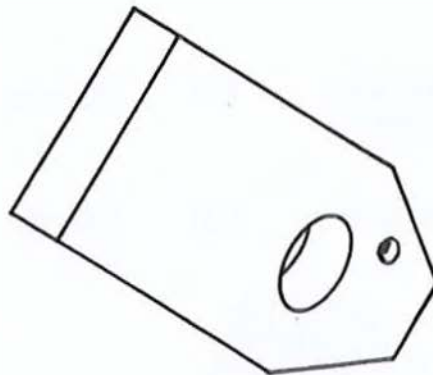
ITEM: PLATE, RETAINING BEARING:
fan drive bevel shaftgear

OIP 8761390

REFERENCE: Figure 5-61 (5/356)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	/	Cracks	0.0	Visual	None allowed
2	/	Bent or distorted	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

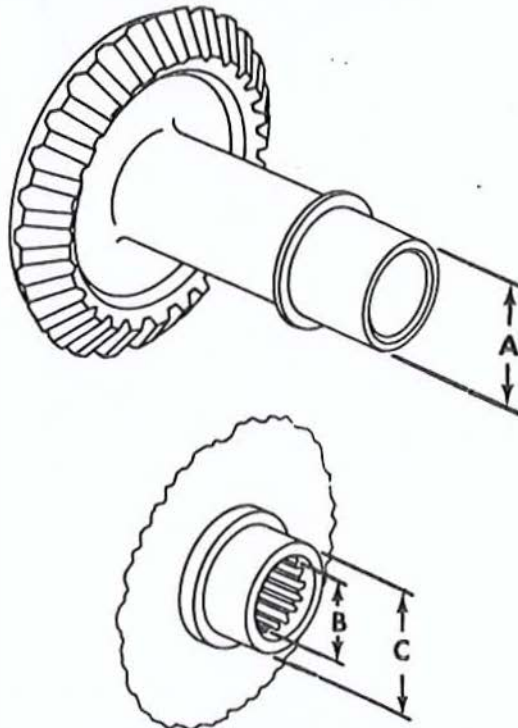
OIP 7320478

ITEM: GEARSHAFT, BEVEL:
fan drive rear

REFERENCE: Figure 5-61 (5/356)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	<i>VISUAL</i> Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 1.6242 inches
4	B	Dimension between 0.0720 diameter pins	1.0	Measure	Diameter must be no greater than 1.0254 inches
5	C	Outside diameter	1.0	Measure	Diameter must be no less than 1.5747 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

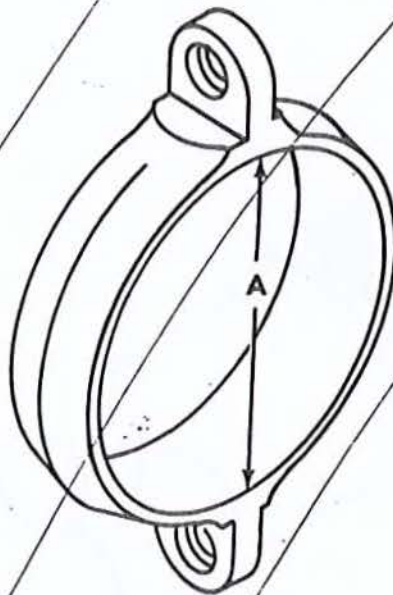
ITEM: SUPPORT, FAN DRIVE GEARSHAFT:
forward

OIP 8725227

REFERENCE: Figure 5-61 (5/356)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 3.1504 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

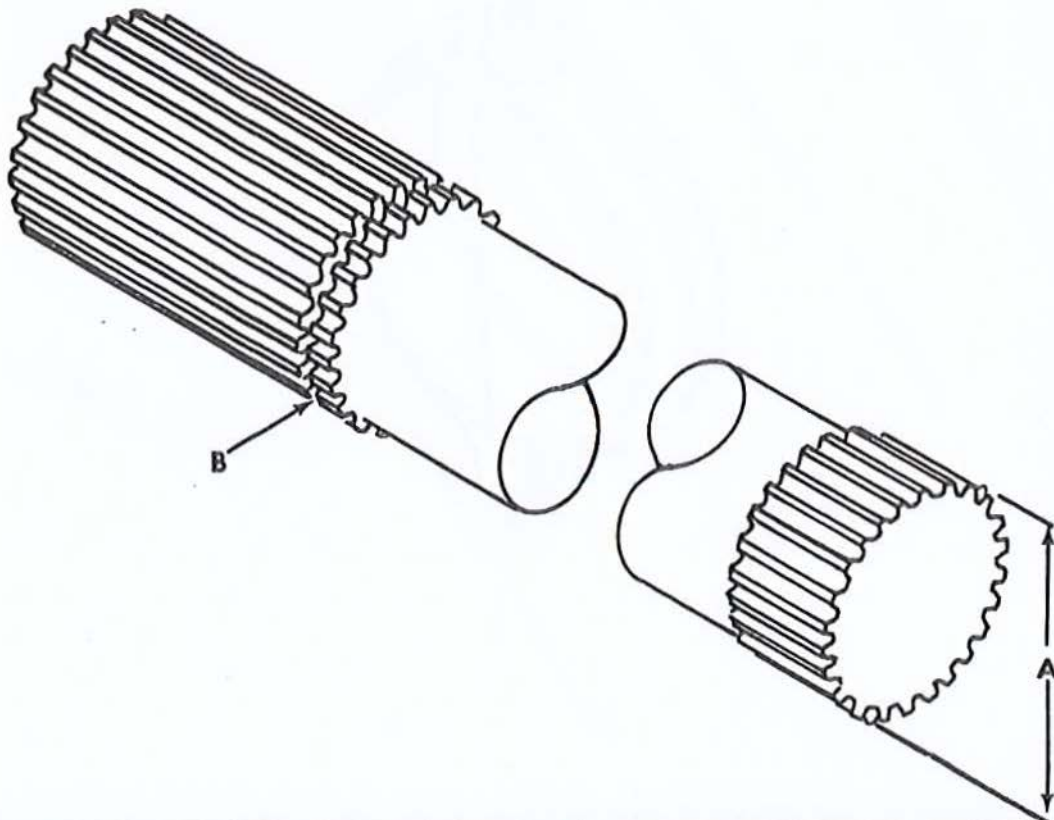
OIP 8761020

ITEM: SHAFT, STRAIGHT:
inter fan drive

REFERENCE: Figure 5-61 (5/356)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	✓	Cracks	0.0	Magnetic particle	None allowed
2	✓	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	✓ A	Dimension over 0.0960 diameter pins (spline - both ends)	1.0	Measure	Diameter must be no less than 1.2424 inches
4	✓ B	Damaged retaining ring groove	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

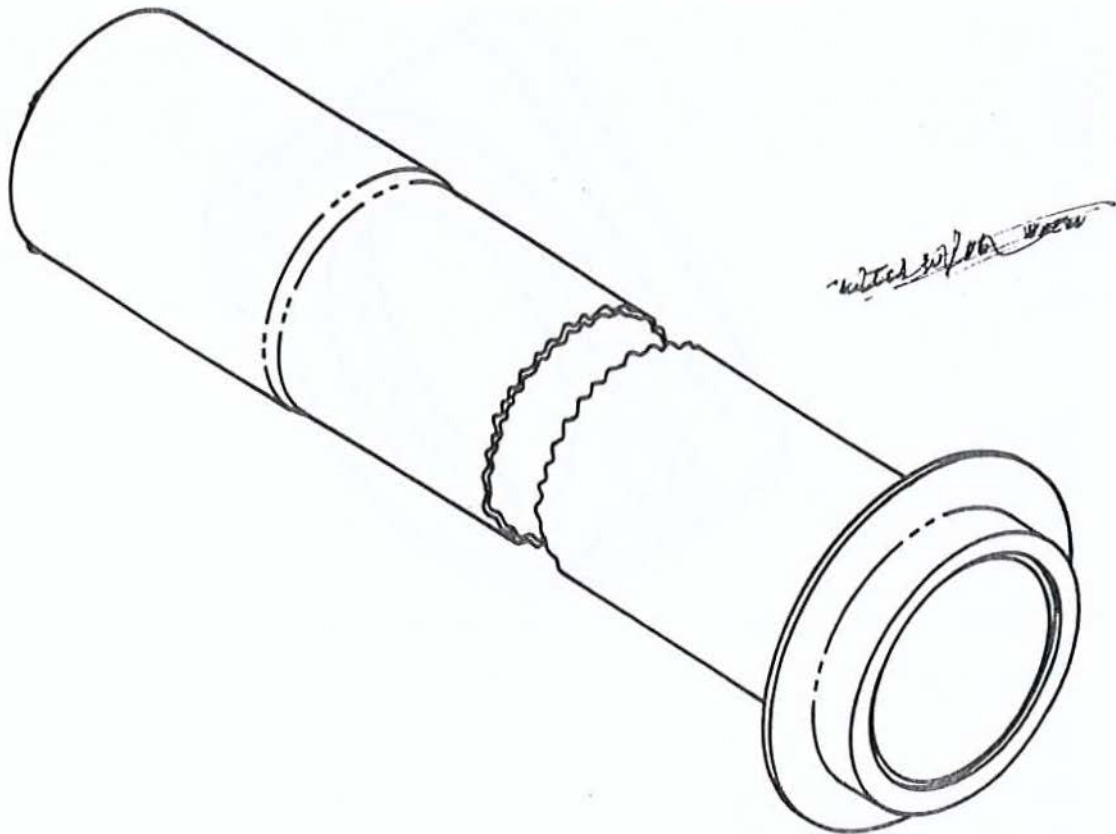
OIP ~~7320480~~ 7320480

ITEM: TUBE ASSEMBLY, METAL:
inter fan driveshaft,
forward star forward

REFERENCE: Figure 5-61 (5 B56)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Exposed base metal	2.5	Visual	None allowed
4		Check welds for cracks	0.0	Visual	None allowed
5		Bent or distorted tube and flange	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

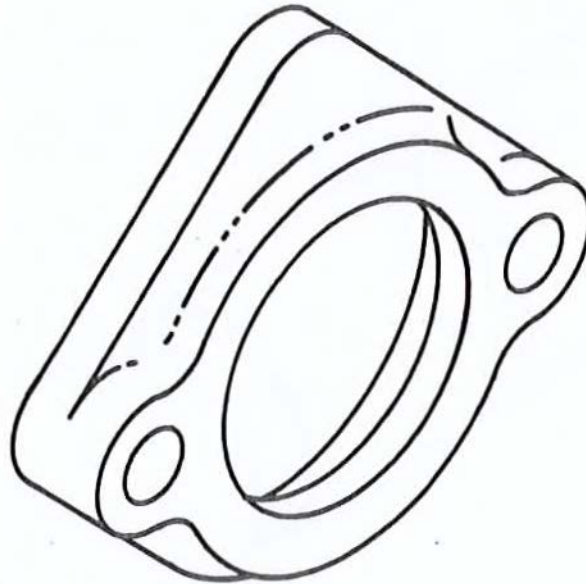
OIP 7320463

ITEM: PLATE, RETAINING, SHAFT:
inter fan drive tube

REFERENCE: Figure 5-61 (5/356)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

MAN NO FOR
OIP IS
MS35842

DMWR 9-2815-220

WV.C. 440

ITEM: CLAMP, HOSE
~~inter fan driveshaft tube plate hose~~

OIP ~~MS35842~~ MS35842 ~~7340453~~ 7340453
~~450-754-4500S (00624)~~ 450-754-4500S (00624)

REFERENCE: Figure 5-61 (5/356)

ITEM: 14 50799
0612696-00 (10279)

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Check for clamp screw for stripped condition which will not tighten down	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

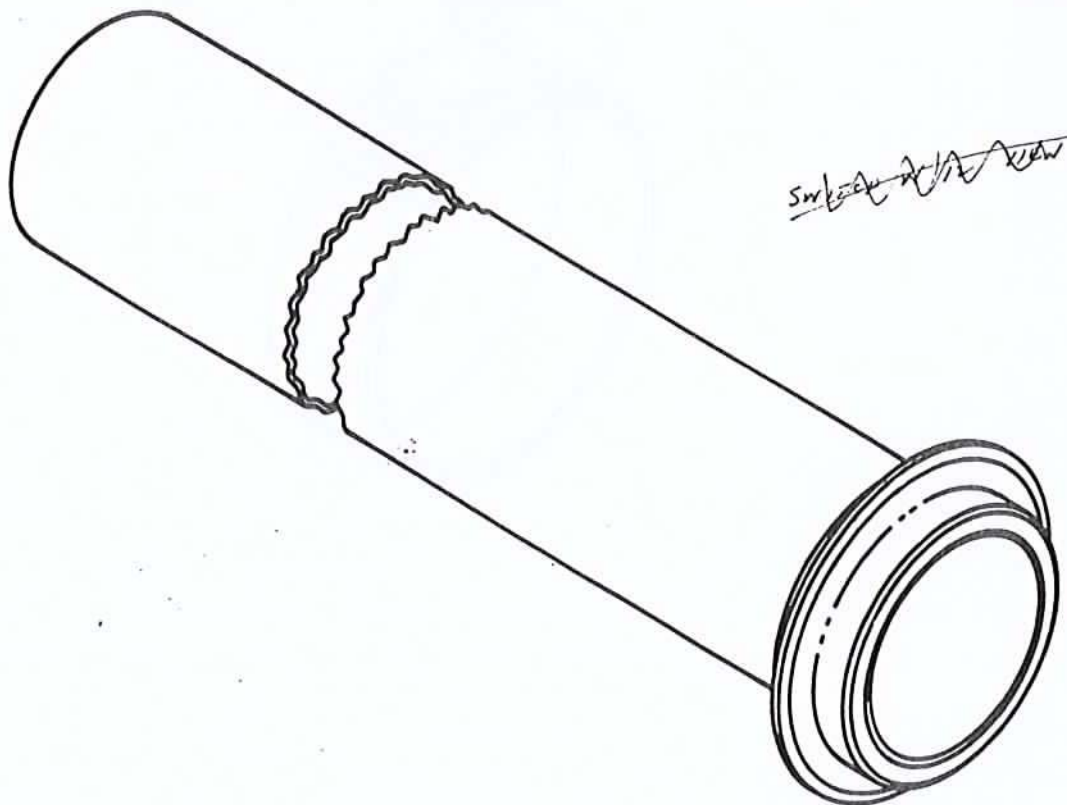
OIP. ~~7320480~~ 7320469

ITEM: TUBE ASSEMBLY, METAL: *Reel*
inter fan driveshaft, ~~YBA7~~ *HEA*

REFERENCE: Figure 5-61 (5/356)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Exposed base metal	2.5	Visual	None allowed
4		Check welds for cracks	0.0	Visual	None allowed
5		Bent or distorted tube and flange	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

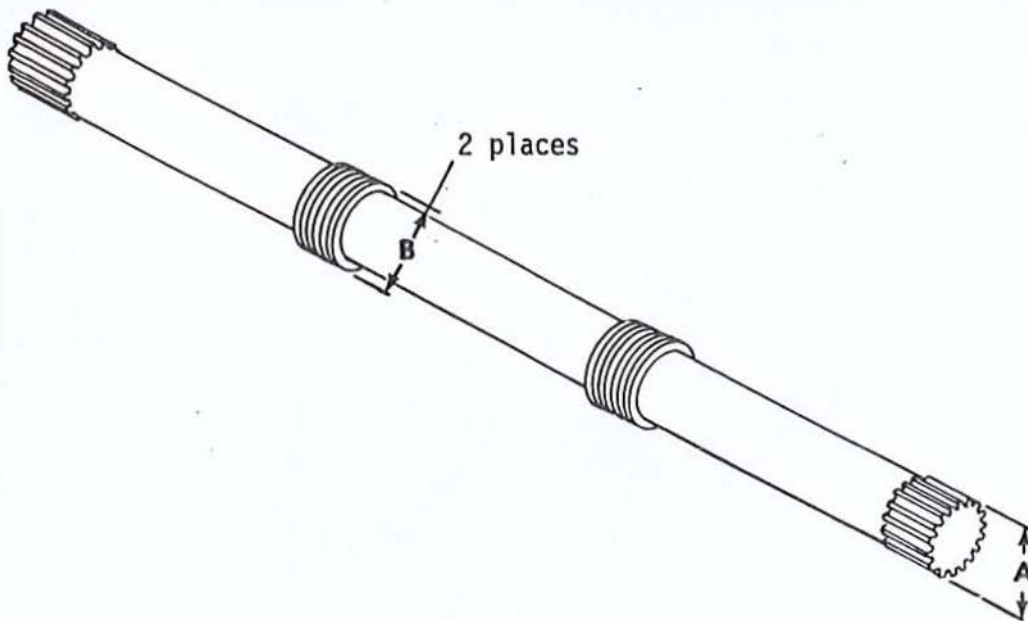
OIP 8761287

ITEM: SHAFT, FAN DRIVE:
flywheel end

REFERENCE: Figure 5-61 (5/356)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	MAGNETIC PARTICLE MAGNETIC PARTICLE	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Dimension over 0.0960 diameter pins	1.0	Measure	Diameter must be no less than 1.2424 inches
4	B	Seal diameter area (2 places)	1.0	Measure	Diameter must be no less than 1.1990 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2920-252

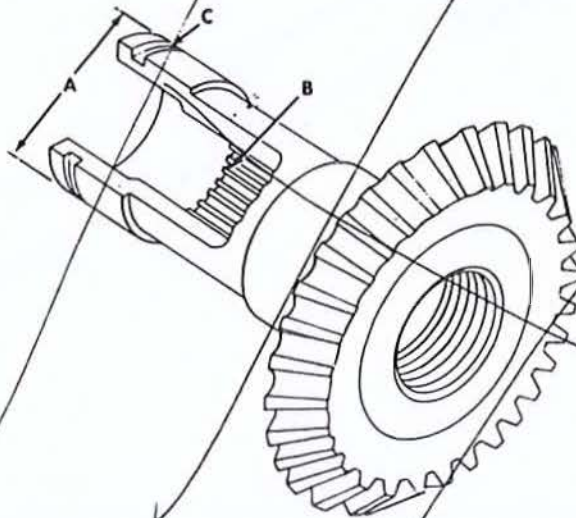
ITEM: GEARSHAFT, BEVEL:
fan driven

OIP 8682684

REFERENCE: Figure 5-61 (5/356)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks gouges, or sharp edges on contact surfaces	2.5	Visual	None allowed
3		Pitted or galled tooth surface	2.5	Visual	Not permitted over more than 1/4 of tooth width
4	A	Outside diameter	1.0	Measure	Diameter must be no less than 1.5747 inches
5	B	Dimension between 0.0600 diameter pins	1.0	Measure	Diameter must be no greater than 0.9784 inch
6	C	Damaged retaining ring groove	2.5	Visual	None allowed
7		Backlash	0.0	Measure	Dimension must be no greater than 0.0120 inch when assembled with mating gear



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5-61. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Replacement of studs and inserts. Refer to paragraph 5-5, d (5/6), table 5-25 (5/387), and figure 5-62 (5/387) when replacing damaged, bent or stripped rear fan drive assembly and accessory drive housing studs. Refer to paragraph 5-6 (5/8) when replacing damaged screw thread inserts.

Table 5-25. Rear Fan Drive and Accessory Drive Housing Standard Stud Identification

References Fig no.	Item no.	Setting height	No. reqd.	Stud size and length
5-62	1	5/8 ✓	1 ✓	5/16-18 (19/32) x 5/16-24 (17/32) x 1-1/8
(5/387)	2	1-11/16	4 ✓	5/16-18 (3/4) x 5/16-24 (23/32) x 2-5/16
	3	2-25/32 ✓	8 ✓	5/16-18 (3/4) x 5/16-24 (19/32) x 1- 9/16 ^{9/16}
	4	2-29/32 ✓	4 ✓	5/16-18 (3/4) x 5/16-24 (19/32) x 1- 3/4 ^{7/16}
	5	1-1/8 ✓	6 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 1-5/16
	6	49/64 ✓	6 ✓	3/8-16 (27/32) x 3/8-24 (7/8) x 1-3/4
	7	3-29/32	2 ✓	3/8-16 (15/16) x 3/8-24 (13/16) x 4-11/16
	8	1-25/32	2 ✓	3/8-16 (13/16) x 3/8-24 (27/32) x 2-15/16
	9	1 ✓	5 ✓	5/16-18 (3/4) x 5/16-24 (23/32) x 1-5/8
	10	3-1/2 ✓	2 ✓	3/8-16 (27/32) x 3/8-24 (11/16) x 4-5/16 ✓
	11	4-5/8 ✓	1 ✓	3/8-16 (51/64) x 3/8-24 (11/16) x 5-1/4 ✓
	12	2-9/16 ✓	4 ✓	3/8-16 (25/32) x 3/8-24 (7/8) x 3-5/16 ✓
	13	4-1/4 ✓	9 ✓	3/8-16 (51/64) x 3/8-24 (11/16) x 5 ✓
	14	5-1/4 ✓	2 ✓	3/8-16 (51/64) x 3/8-24 (11/16) x 6 ✓
	15	1 ✓	2 ✓	5/16 (3/4) x 5/16-24 (19/32) x 1-1/2 ✓

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

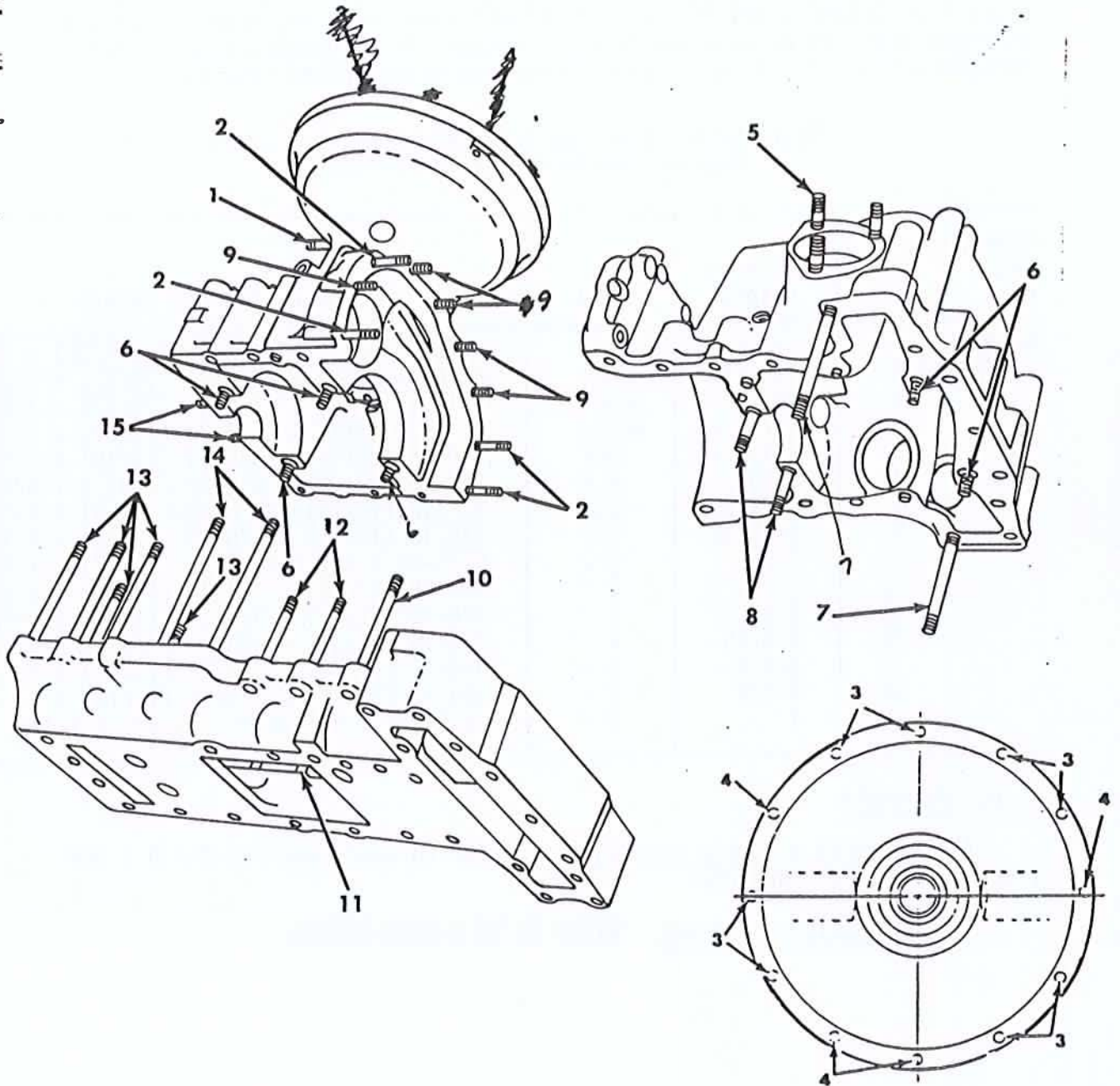


Figure 5-62. Rear fan drive and accessory drive housing standard stud identification.

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Section XV. OVERHAUL OF AUTOMATIC INJECTION ADVANCE ASSEMBLY.

5-62. General. This section covers overhaul of the automatic injection advance assembly (fig. 5-63) (5/391). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-63. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-64. Inspection. Inspect the automatic injection advance assembly according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the automatic injection advance assembly are listed in table 5-26 (5/392). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

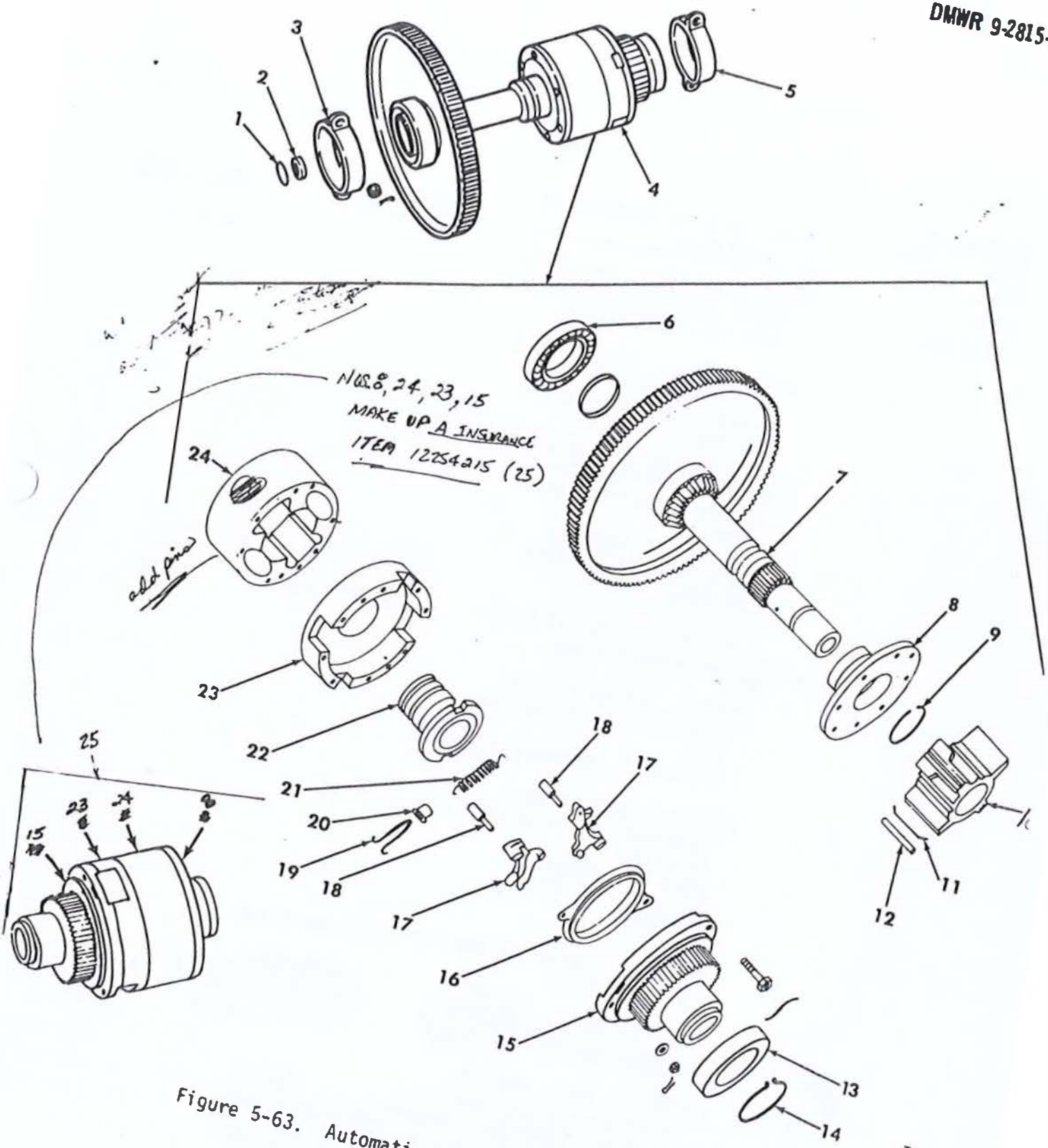


Figure 5-63. Automatic injection advance assembly.

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-63	1	RING, RETAINING: fan drive-shaft flywheel , flywheel end - part no. MS16625-1125		Replace
	2	WASHER, FLAT: flywheel end - part no. 8761244 Refer to OIP 8761244 (5/399)		
	3	SUPPORT, BEARING-FAN: <i>BACKET, EVE, ROTATING SHAFT:</i> accessory driven gear bearing - part no. 11684059 Refer to OIP 11684059 (5/400)		
		Inside diameter of bearing support clamp	3.5432-3.5440	3.5442
	4	CONTROL, AUTOMATIC, FUEL INJECTOR ADVANCE ASSEMBLY: - part no. 1168410A 122542/7		
	5	HOUSING, BEARING UNIT: injector driven shaft gear bearing - part no. 8725243 Refer to OIP 8725243 (5/401)		
		Inside diameter of bearing support clamp	^{3.} 3.1495-3.1501	3.1504
		Fit of bearing ^{IN SUPPLY} MS 3911 in support	0.0010L - 0.0001T 0.0010L - 0.0001T	0.0013L 0.0013L
	6	BEARING, BALL, ANNULAR: accessory driven gear - part no. 1797556 Refer to TM 9-214 for inspection and care of bearings	⁷⁰¹⁰⁷⁷	

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-63 (5/391) continued	5 - /	Inside diameter of bearing	2.1648-2.1654	*
	/	Fit of bearing in support (3, fig. 5-63) (5/391)	0.0013L-0.0001T	0.0015L
	/	Fit of bearing on gearshaft assembly hub (7, fig. 5-63) (5/391) (large gear end)	0.0001T-0.0012T	0.0001L
	/	Outside diameter of bearing	3.5427-3.5433	*
	7	<i>MULTIPLE GEARS:</i> GEARSHAFT, BEVEL, SPUR: accessory drive engine - part no. 8725248 Refer to OIP 8725248 (5/402)		
	/	Outside diameter of gearshaft (opposite end of bevel gear and large spur gear)	1.4996-1.5000	1.4994
	/	Outside diameter of bearing surface on gearshaft hub (large gear end)	2.1655-2.1660	2.1653
	/	Outside diameter of mating surface on gearshaft (in middle of shaft) <i>5-63</i> <i>(5/391)</i>	1.8115-1.8120	1.8110
	/	Fit of cover <i>(3, 4)</i> on gearshaft <i>(5/391)</i>	0.0005L-0.0015L	0.0020L
	/	Dimension over 0.1200 diameter pins (external spline)	1.8741-1.8757	1.8733
	/	Dimensions over 0.2000 diameter pins	10.9460-10.9550	10.9410
	/	Dimension between 0.0720 diameter pins (internal spline)	1.0227-1.0245	1.0254

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-63 (5/391)	8	COVER 8751413 : injection advance vane housing - part no. 10889712 Refer to OIP 10889712 (5/404)		
		✓ Outside diameter of hub on cover	2.3735-2.3745	2.3730
		✓ Fit of cover in bearing cap bore (with bearing cap in place)	0.0025L-0.0045L	0.0050L
		✓ Inside diameter of cover	1.8125-1.8130	1.8132
	9	RING, RETAINING: advance unit cover - part no. 8761413		Replace
	10	VANE: injection advance stationary - part no. 7320400 Refer to OIP 7320400 (5/405)		
		✓ Inside diameter of vane	1.873 ²⁵ 3 -1.8735	1.8737
		✓ Width of slot in vane	0.1020-0.1060	0.1070
		✓ Fit of seal in vane	0.0010L-0.0070L	0.0090L
		Dimension between 0.0900 diameter pins	1.5918-1.5935	1.5944
		Thickness of vane	2.1223-2.1232	2.1214
	11	SPRING: injection advance vane seal - part no. 10882650 Refer to OIP 10882650 (5/406)		REPLACE

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-63 (5/391)	12	SEAL: injection advance vane - part no. 10882649		Replace
	13	BEARING, BALL, ANNULAR: injection pump drive gear- shaft - part no. 7325368 ⁷⁰¹⁰²⁵ Refer to TM 9-214 for in- spection and care of bear- ings <i>(43161, 96105)</i>		
		✓ Inside diameter of bearing	1.9680-1.9685	*
		✓ Fit of bearing on spur gearshaft	0.0001T-0.0010T	0.0001L
	14	RING, RETAINING: injection pump drive gearshaft bear- ing - part no. 586365		Replace
	15	GEARSHAFT, SPUR: injection pump drive - part no. 8682729 ¹²²⁵⁴²¹⁸ Refer to OIP 8682729 ¹²²⁵⁴²¹⁸ (5/407)		
		✓ Outside diameter of bear- ing surface on spur gear- shaft	1.9686-1.9690	1.9684
		✓ Inside diameter of drive gearshaft gear	1.5015-1.5020	1.5025
		✓ Fit of driveshaft on gear- shaft assembly (7, fig. 5-63) (5/391)	0.0015L-0.0024L	0.0030L
		✓ Inside diameter of gear- shaft	1.6260-1.6270	1.6275
		✓ Fit of gearshaft (6, fig. 5-61) (5/356) in drive gearshaft	0.0012L-0.0026L	0.0035L

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-63 (5/391) continued	✓ 15- 16	Dimension over 0.2000 diameter pins	3.6170-3.6220	3.6145
	17	RING, ADJUSTING: injection advance flyweight - part no. 8682732 Refer to OIP 8682732 (5/409)		
	✓	FLYWEIGHT ASSEMBLY: injec- tion advance - part no. 11684267 Refer to OIP 11684267 (5/410)		
		Outside diameter of pin on flyweight	0.2500-0.2510 0.2495 - 0.2505	0.2490 0.2485
	✓	Inside diameter of fly- weight pin hole in fly- weight	0.3120-0.3130	0.3140
	18	PIN: injecton advance flyweight fulcrum - part no. 8682665 Refer to OIP 8682665 (5/411)		
	✓	Outside diameter of fly- weight pin	0.3110-0.3115	0.3105
	✓	Fit of flyweight pin in flyweight (17, fig. 5-63) (5/391)	0.0005L-0.0020L	*
	19	^{ALIP, RETAINING.} RETAINER, timing advance compression springs part no. 11684063 Refer to OIP 11684063 (5/412)		

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-63 (5/391)	20	SEAT, HELICAL ADVANCE ^{SPRING} COMPRESSION timing advance part no. 11684065 Refer to OIP 11684065 part no. 11684065 Refer to OIP 11684065 (5/413)		
	21	SPRING, HELICAL, COMPRESSION: timing advance - part no. 11684064 Refer to OIP 11684064 (5/414)		
		✓ Approximate free length	1.6300 inches ± 0.0050	*
		✓ Load at 1.0300 inches	12.3 lbs to 14.9 lbs	*
		✓ Maximum solid height	0.6510 inch	*
	22	VALVE, REGULATING, ADVANCE ^{FLUID PRESSURE} : HOUSING, ADVANCE OIL CON- TROL VALVE - OIL CONTROL ^{ADVANCE} part no. 8682731 Refer to OIP 8682731 (5/415)		
		✓ Inside diameter of oil control advance housing	1.5015-1.5020	1.5025
		✓ Fit of oil control advance housing on gearshaft assem- bly (7, fig. 5-63) (5/391)	0.0015L-0.0024L	0.0030L
		✓ Outside diameter of oil control advance valve (3 places)	1.8710-1.8715	1.8708
		✓ Fit of vane (10, fig. 5- 63) (5/391) on housing	0.0015L-0.0025L	0.0030L

Table 5-26. Wear Limits, Fits, and Tolerances for Automatic Injection Advance Assembly - Continued

<u>References</u> <u>Fig.</u> <u>No.</u>	<u>Item</u> <u>No.</u>	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-63 (5/391) continued	22 ✓	Width of slot in control valve	0.2510-0.2550	0.2570
	✓	Fit of pin (18, fig. 5-63) (5/391) in slot	0.0000-0.0050L	0.0070L
	23 ✓	HOUSING: injection advance flyweight - part no. 11684263 Refer to OIP 11684263 (5/416)		
	✓	Width of housing	1.2330-1.2370	1.2310
	24	HOUSING ASSEMBLY: injection advance vane - part no. 8682730 Refer to OIP 8682730 (5/417)		
		Width of housing	2.1233-2.1247	2.1223
		Diameter across outer seal surface	4.438- 4.442 ^{4.440}	4.447 ^{4.4490}
		Diameter across inner seal surface	2.685- 2.689 ^{2.6910}	2.694 ^{2.6960}
	25	HOUSING, MECHANICAL DRIVE: INJECTION ADVANCE - PART NO. 12254215		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

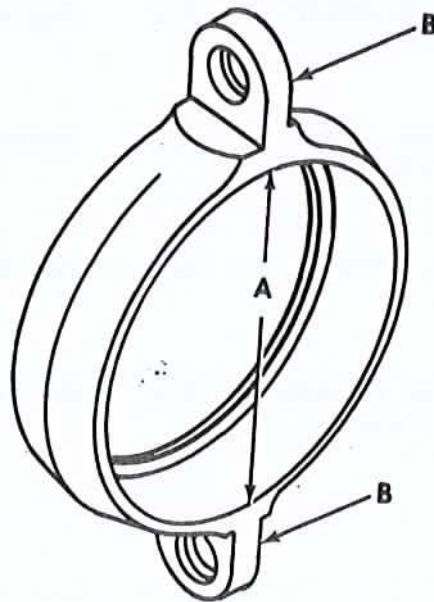
OIP 8725243

ITEM: HOUSING, BEARING UNIT:
injector driven shaftgear
bearing

REFERENCE: Figure 5-63 (5/391)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	<i>VISUAL</i> Magnetic Particle	None allowed
2	A	Bearing diameter	1.0	Measure	Diameter must be no greater than 3.1504 inches
3	B	Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ~~GEARSHAFT, BEVEL SPUR~~ ^{MULTIPLE GEARS:}
accessory drive engine

OIP 8725248

REFERENCE: Figure 5-63 (5/391)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
✓ 3	A	Outside diameter	2.5	Measure	Diameter must be no less than 1.4994 inches
✓ 4	B	Dimension over 0.1200 diameter pins	2.5	Measure	Diameter must be no less than 1.8733 inches
5	C	Outside diameter	2.5	Measure	Diameter must be no less than 1.8110 inches
✓ 6	D	Dimension over 0.2000 diameter pins	2.5	Measure	Diameter must be no less than 10.9410 inches
✓ 7	E	Outside diameter	2.5	Measure	Diameter must be no less than 2.1653 inches
✓ 8	F	Dimension between 0.0720 diameter pins	2.5	Measure	Diameter must be no greater than 1.0254 inches

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

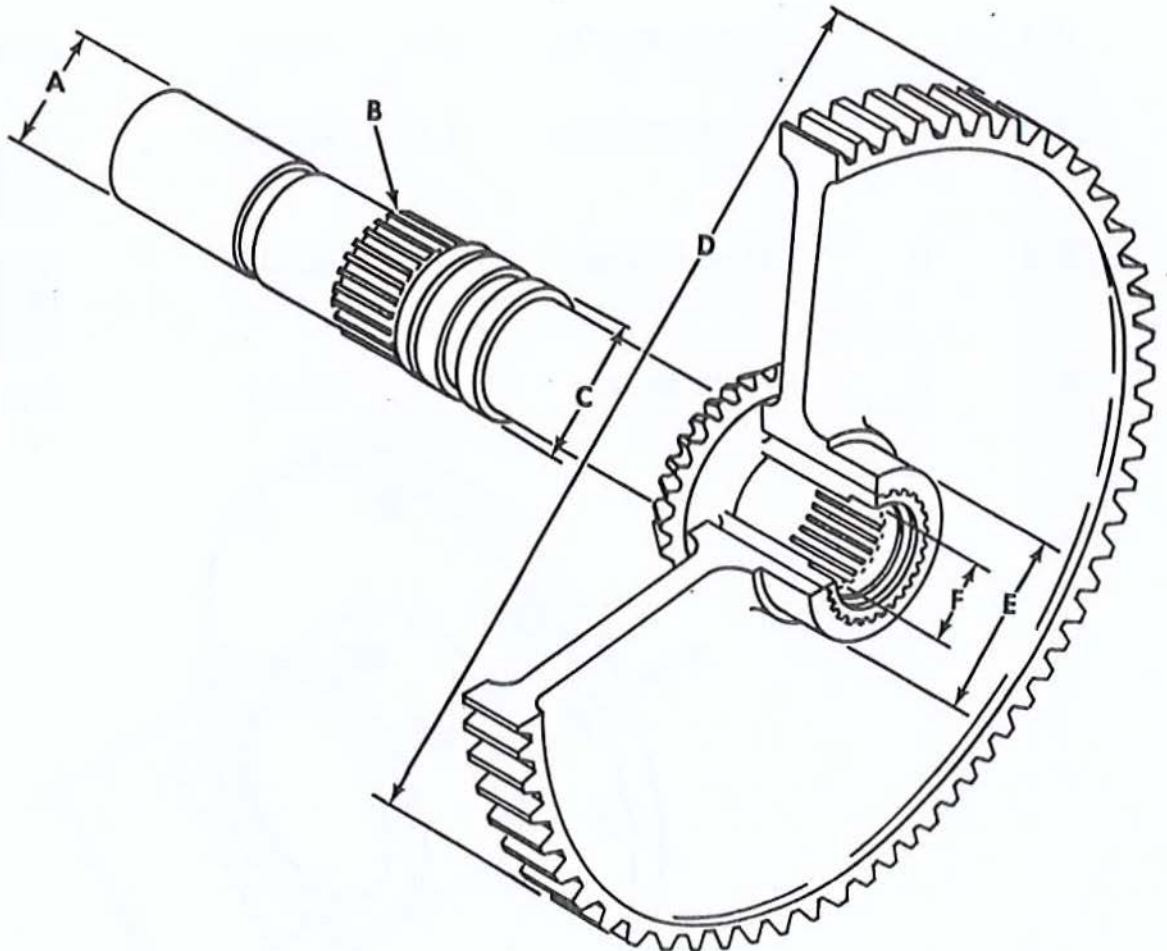
ITEM: ^{MULTIPLE GEARS:}
 GEARSHAFT, ~~BEVEL SPUR~~
 accessory drive engine

OIP 8725248

REFERENCE: Figure 5-63 (5/391)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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10889712

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10889712

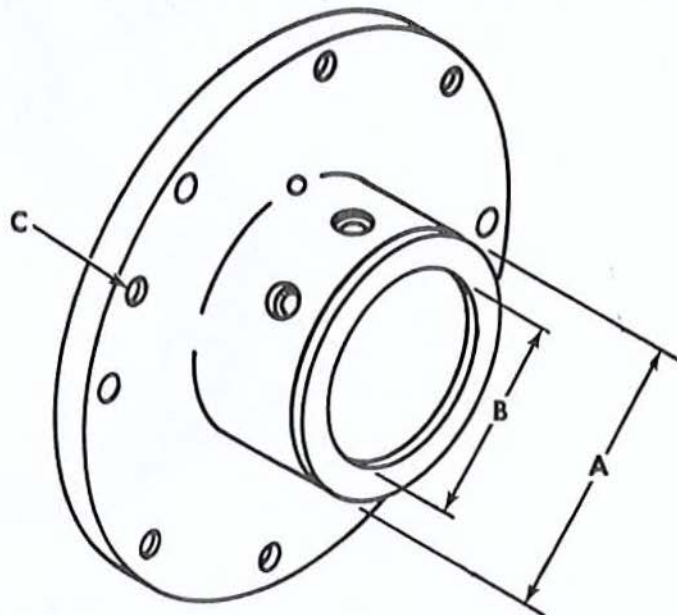
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ITEM: COVER: ~~ASSEMBLY~~
injection advance vane housing

REFERENCE: Figure 5-63 (5/391)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic Particle Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Loose or missing dowels	2.5	Visual	None allowed
4 3	A	Outside diameter of hub	1.0	Measure	Diameter must be no less than 2.3730 inches
5 4	B	Inside diameter	1.0	Measure	Diameter must be no greater than 1.8132 inches
6 5	C	Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320400

ITEM: VANE:
injection advance stationary

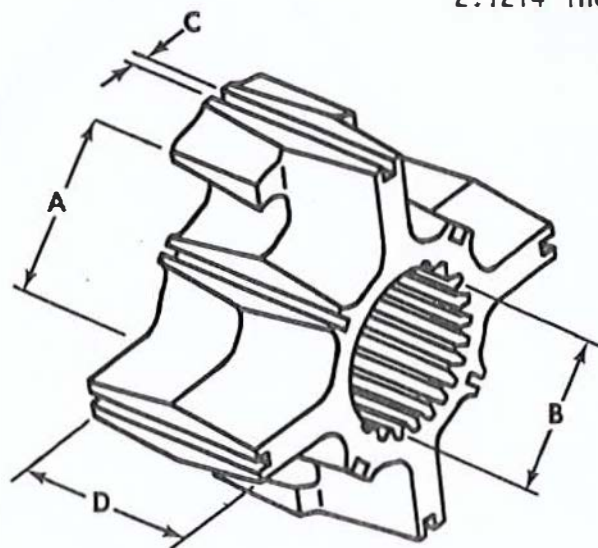
REFERENCE: Figure 5-63 (5/391)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual Magnetic PARTICLE	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
✓ 3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 1.8737 inches
✓ 4	B	Dimension between 0.0900 diameter pins	1.0	Measure	Diameter must be no greater than 1.5944 inches
✓ 5	C	Slot width	1.0	Measure	Dimension must be no greater than 0.1070 inch
* 6	D	Thickness	1.0	Measure	Dimension must be no less than 2.1214 inches

NOTE

(Check concurrently with 7320403 housing to provide 0.0010-0.0015 end clearance at assembly)



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10882650

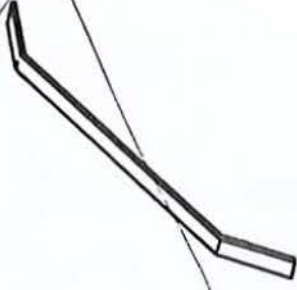
ITEM: SPRING:
injection advance vane seal

REFERENCE: Figure 5-63 (5/391)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Check for loss of tension and retaining of shape	2.5	Visual	None allowed

*BOTH SPRING AND SEAL
ARE PART OF KIT
AND SEALS ARE REPLACED*



BLANK

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8682729 ~~1239218~~

ITEM: GEARSHAFT, SPUR:
injection pump drive

REFERENCE: Figure 5-63 (5/391)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD ^{VISUAL}	REQUISITE
1		Cracks	0.0	Magnetic Particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 1.5025 inches
4	B	Inside diameter	1.0	Measure	Diameter must be no greater than 1.6275 inches
5	C	Dimension over 0.2000 diameter pins	1.0	Measure	Diameter must be no less than 3.6145 inches
6	D	Loose or missing pins		Visual	Securely in place
7	D	Outside diameter	2.5	Measure	Diameter must be no less than 1.9684 inches

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OVERHAUL INSPECTION PROCEDURE

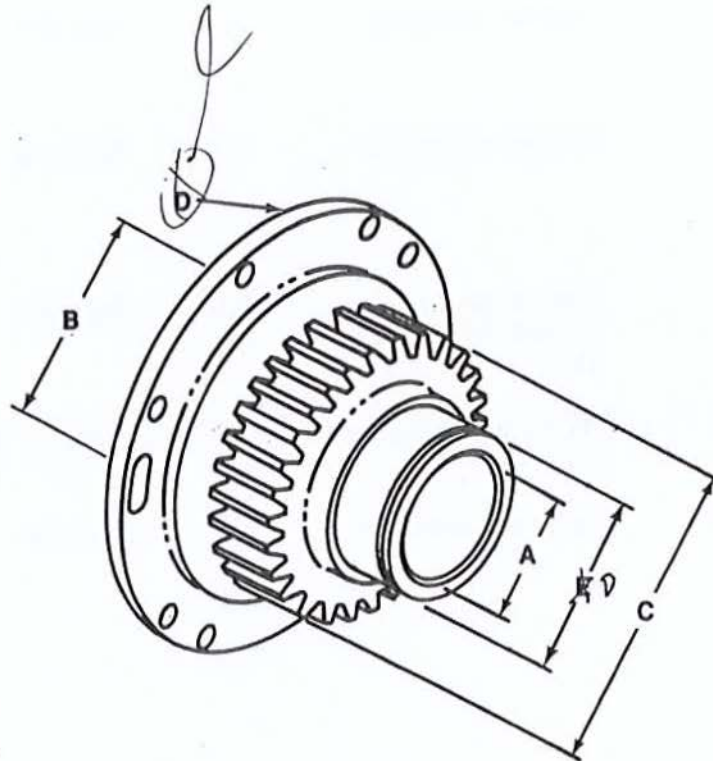
285-220
 DMWR 9-~~2820-050~~
 OIP 12254218
 8682729

ITEM: GEARSHAFT, SPUR:
 injection pump drive

REFERENCE: Figure 5-63 (5/391)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

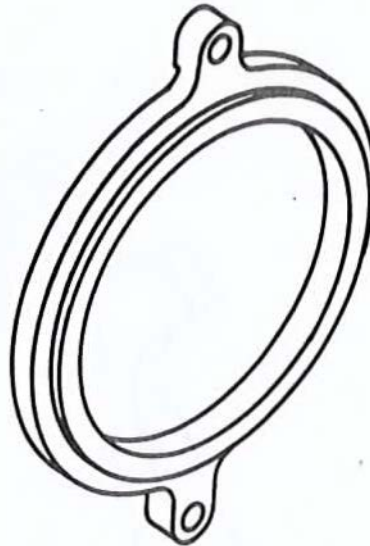
ITEM: RING, ADJUSTING:
injection advance flyweight

OIP 8682732

REFERENCE: Figure 5-63 (5/391)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

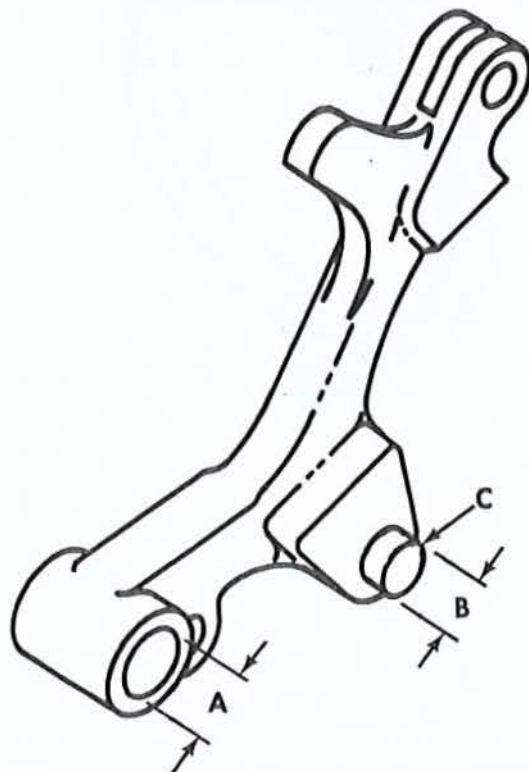
ITEM: FLYWEIGHT ASSEMBLY:
injection advance

OIP 11684267

REFERENCE: Figure 5-63 (5/391)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter	1.0	Measure	Diameter must be no greater than 0.3140 inch
4	B	Outside diameter	1.0	Measure	Diameter must be no less than 0.2490 inch <i>0.2485</i>
5	C	Pins	2.5	Visual	Securely in place



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

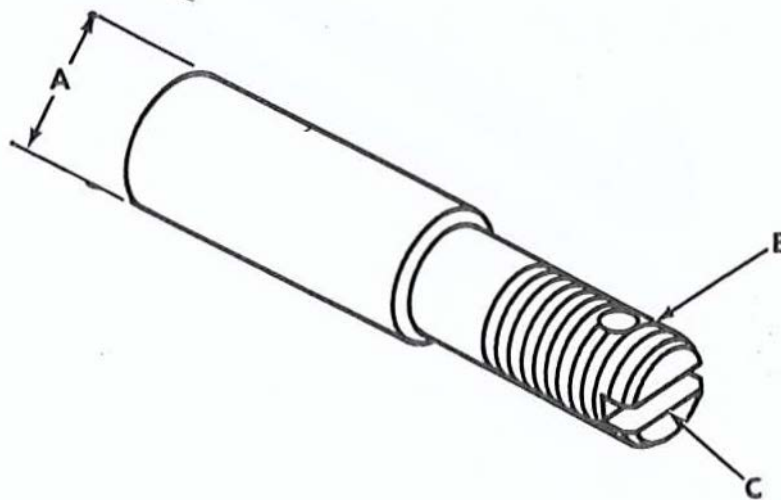
OIP 8682665

ITEM: PIN:
injection advance flyweight fulcrum

REFERENCE: Figure 5-63 (5/391)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.3105 inch
4	B	Damaged threads	2.5	Visual	None allowed
5	C	Damaged slot	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

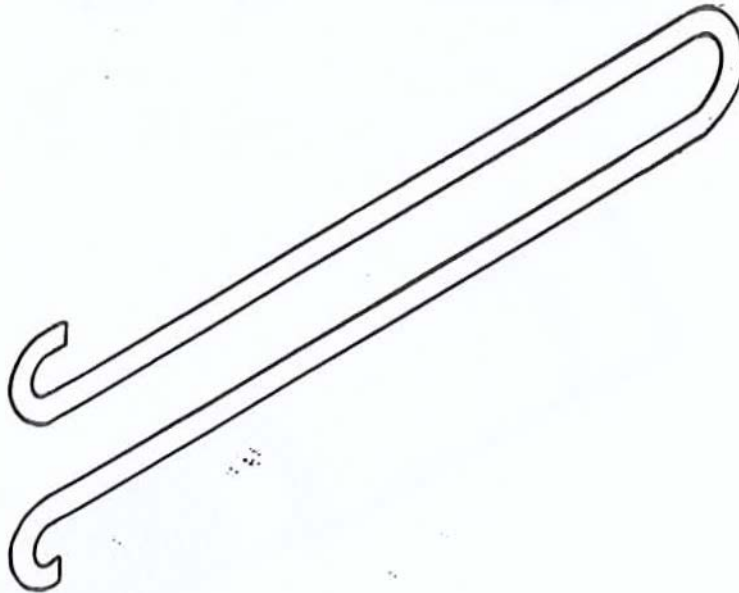
ITEM: ~~RETAINER~~ ^{CLIP, RETAINING:}
timing advance compression spring

OIP 11684063

REFERENCE: Figure 5-63 (5/391)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent, deformed or worn	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SEAT, HELICAL ~~SPRING~~ ^{COMPRESSION SPRING}:
timing advance ~~SPRING~~

OIP 11684065

REFERENCE: Figure 5-63 (5/391)

ITEM: 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Exposed base metal	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, HELICAL, COMPRESSION:
timing advance

OIP 11684064

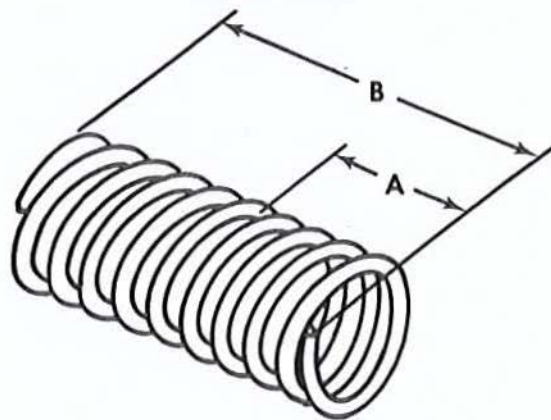
REFERENCE: Figure 5-63 (5 / 391)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	✓ A	Length with load of 13.6 lbs ± 1.3 lbs	1.0	Measure	1.0300 inches
3	✓ B	Free length	2.5	Measure	Dimension must be no less than 1.6250 inches and no greater than 1.6350 inches
4	✓	Maximum solid height	1.0	Measure	Dimension must be no greater than 0.6510 inch

NOTE

Spring must not take permanent set when compressed solid



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

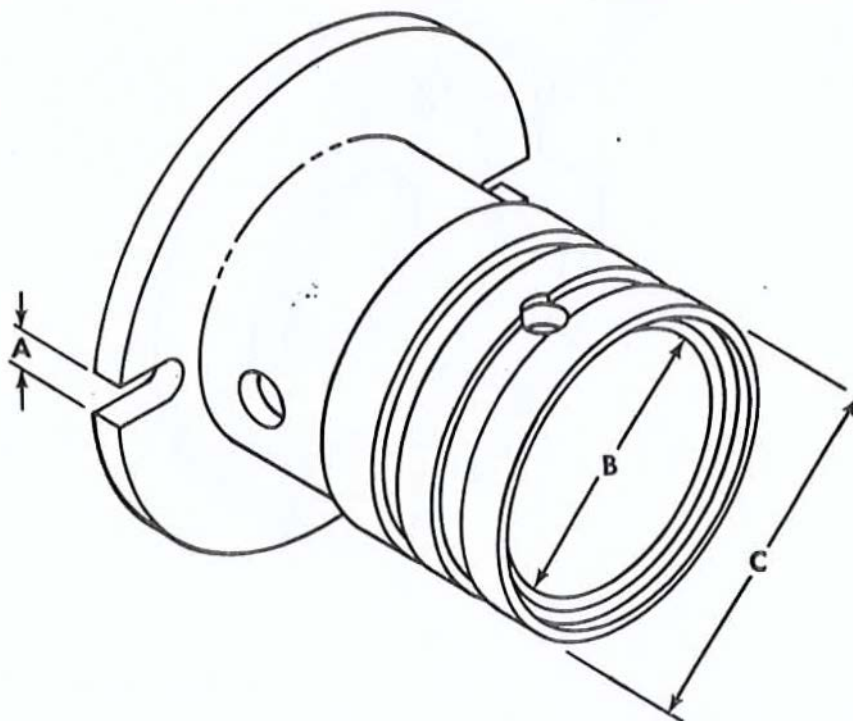
ITEM: VALVE, REGULATING, FLUID PRESSURE:
HOUSING, ADVANCE OIL CONTROL VALVE
OIL CONTROL ADVANCE

OIP 8682731

REFERENCE: Figure 5-63 (5/391)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Slot width	1.0	Measure	Dimension must be no greater than 0.2570 inch
4	B	Inside diameter	1.0	Measure	Diameter must be no greater than 1.5025 inches
5	C	Outside diameter (3 places)	1.0	Measure	Diameter must be no less than 1.8708 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

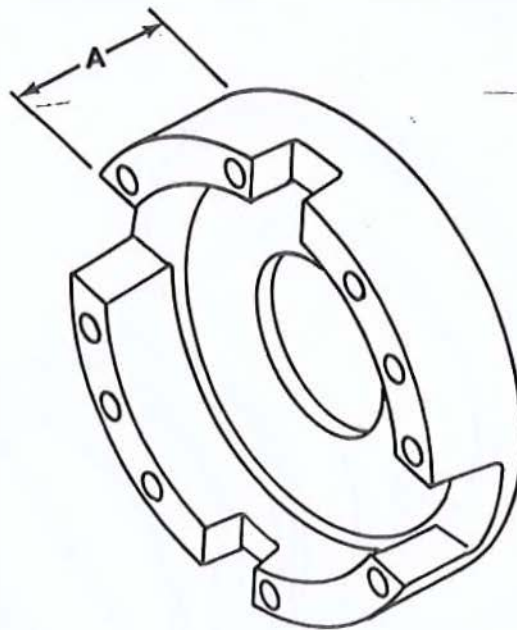
ITEM: HOUSING ~~FLYWEIGHT~~;
injection advance flyweight

OIP 11684263

REFERENCE: Figure 5-63 (5/391)

ITEM: 23

NO.	RDF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	MAGNETIC PARTICULATE VISUAL	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Width	1.0	Measure	Dimension must be no less than 1.2310 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

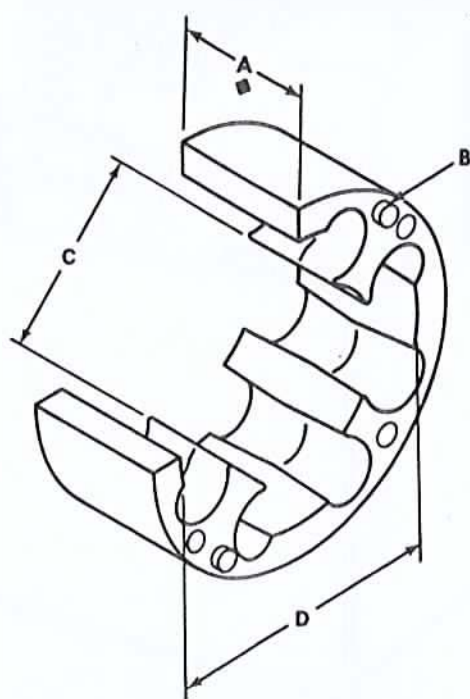
OIP 8682730

ITEM: HOUSING ASSEMBLY:
injection advance vane

REFERENCE: Figure 5-63 (5/391)

ITEM: 24

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Width (check concurrently with 7320400 vane to provide 0.0010-0.0015 end clearance at assembly)	1.0	Measure	Dimension must be no less than 2.1223 inches
4	B	<i>LOOSE OR MISSING PINS</i>	2.5	Visual	Securely in place
5	C	Diameter	1.0	Measure	No greater than 2.694 inches <i>2.6960</i>
6	D	Diameter	1.0	Measure	No greater than 4.499 inches <i>4.4490</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-65. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5).

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

(3) Test. After assembly, the automatic injection advance assembly must be tested as outlined below to assure optimum engine performance.

(a) Test fuel injection pump advance assembly using test stand assembly (fig. 5-64) (5/418). Testing will be accomplished prior to assembly of the engine rear fan and accessory drive housing assembly. The test stand is designed to check and bench test the advance characteristics of the fuel injection pump advance assembly, under conditions simulating engine operation over an operating range of 200 to 2600 rpm.

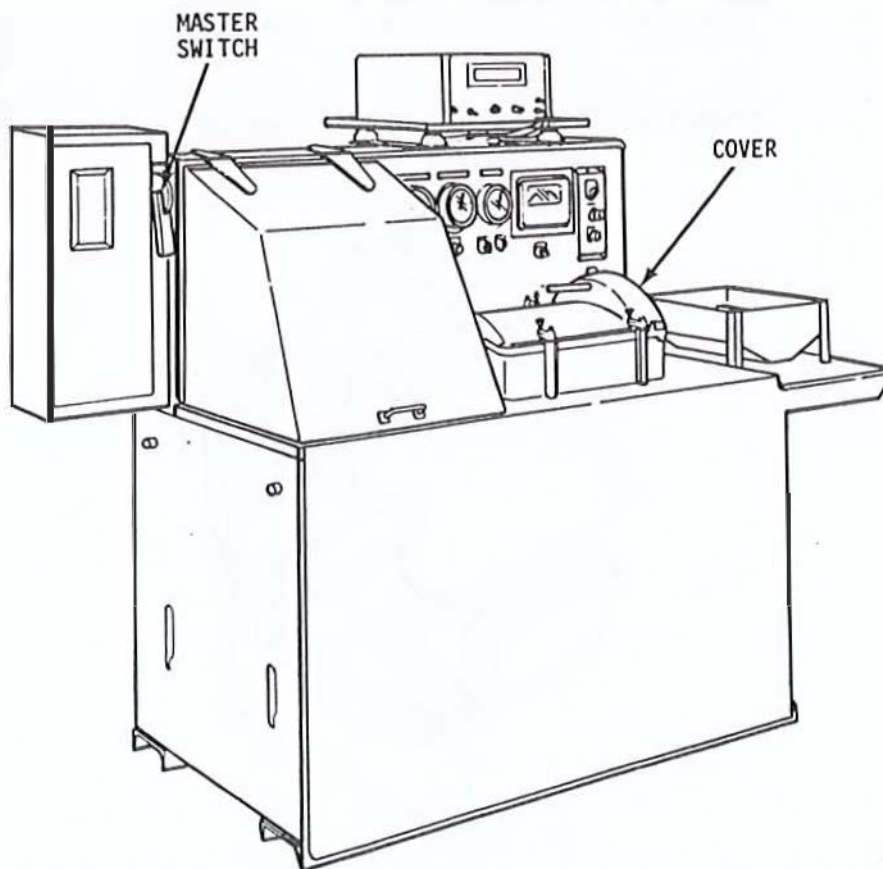
TA265762 

Figure 5-64. Test stand assembly.

5-65. (Cont)

- (b) Check fuel level and oil level gages (fig. 5-65) (5/419). Fill supply tank(s) if either gage indicates less than half full (use oil specification MIL-L-45199, Grade 30; or fuel, specification VV-L-800).

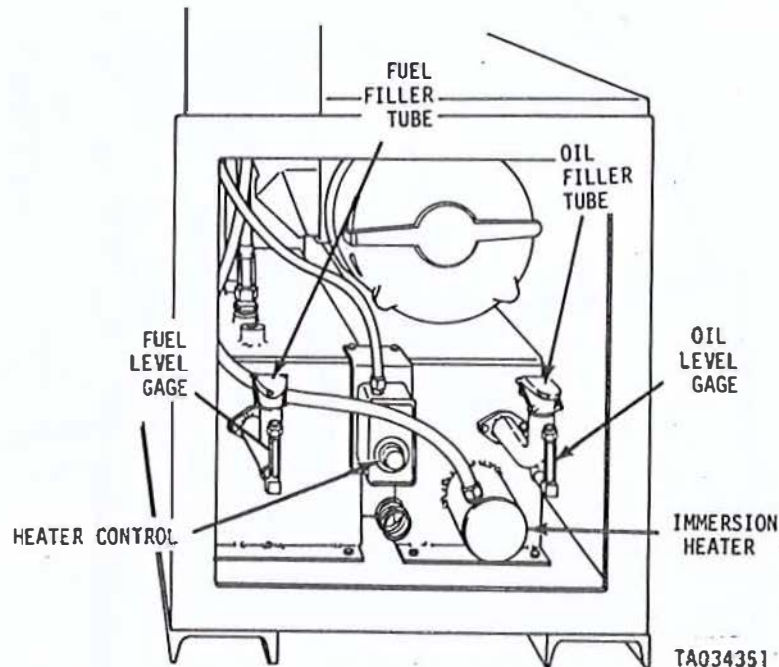
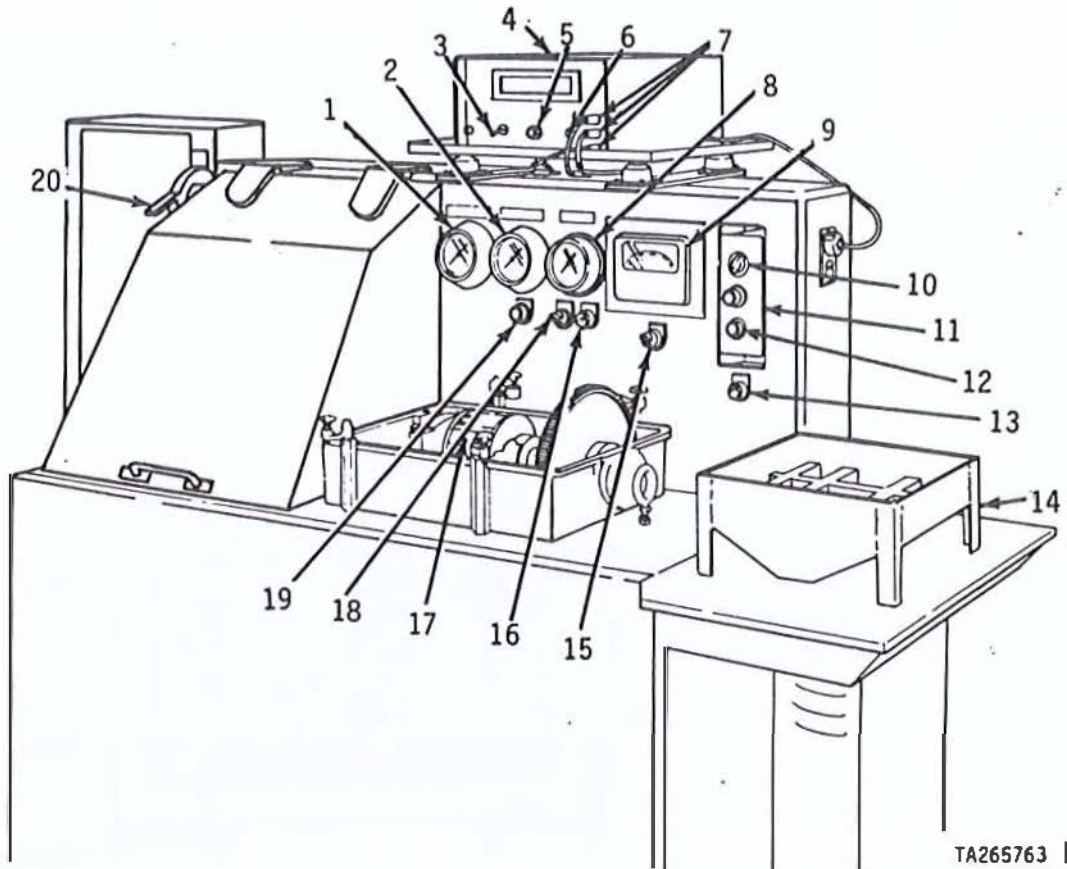


Figure 5-65. Test stand heater control and supply tanks.

- (c) Check to ensure that the master switch, oil heater switch, jog run (clutch engage) switch; and the motor switch are all OFF, and that the speed regulator control is at zero (0).
- (d) Turn master switch handle to ON. The power indicator light should be on. If power indicator light does not light, press the reset buttons. If light does not come on, investigate and correct the deficiency before starting.
- (e) Turn oil heater (thermostat) control (fig. 5-65) (5/419) to a setting of 200 degrees and turn oil heater switch, (18, fig. 5-66) (5/420) ON. The oil heater indicator lamp should light when the heater switch is turned on, and should go out when the oil reaches the selected oil temperature heater control setting (200 degrees).
- (f) Turn the electronic counter switch, (3, fig. 5-66) (5/420), ON. The electronic components in the counter will reach operating temperature by the time the test is begun.



- | | | | |
|-----|----------------------------------|-----|--------------------------------|
| 1. | Fuel pressure indicator gage | 11. | Jog run switch (clutch engage) |
| 2. | Oil pressure indicator gage | 12. | Stop switch (clutch disengage) |
| 3. | Electronic counter switch | 13. | Power indicator light |
| 4. | Electronic counter | 14. | Drain tank |
| 5. | Fuse | 15. | Motor switch |
| 6. | Reset button | 16. | Heat indicator light |
| 7. | Magnetic pickup cable | 17. | Fuel injector advance assembly |
| 8. | Oil temperature dial thermometer | 18. | Oil heater switch |
| 9. | Electronic tachometer | 19. | Oil drain push switch |
| 10. | Speed regulator control | 20. | Master switch |

Figure 5-66. Test stand and advance assembly with coupling guard and housing cover removed.

5-65. (Cont)

- (g) Loosen fasteners and remove fuel injection pump drive housing cover from top of test stand. Remove the two bearing caps (fig. 5-67) (5/421) and intermediate bearing support from the mounting fixture.

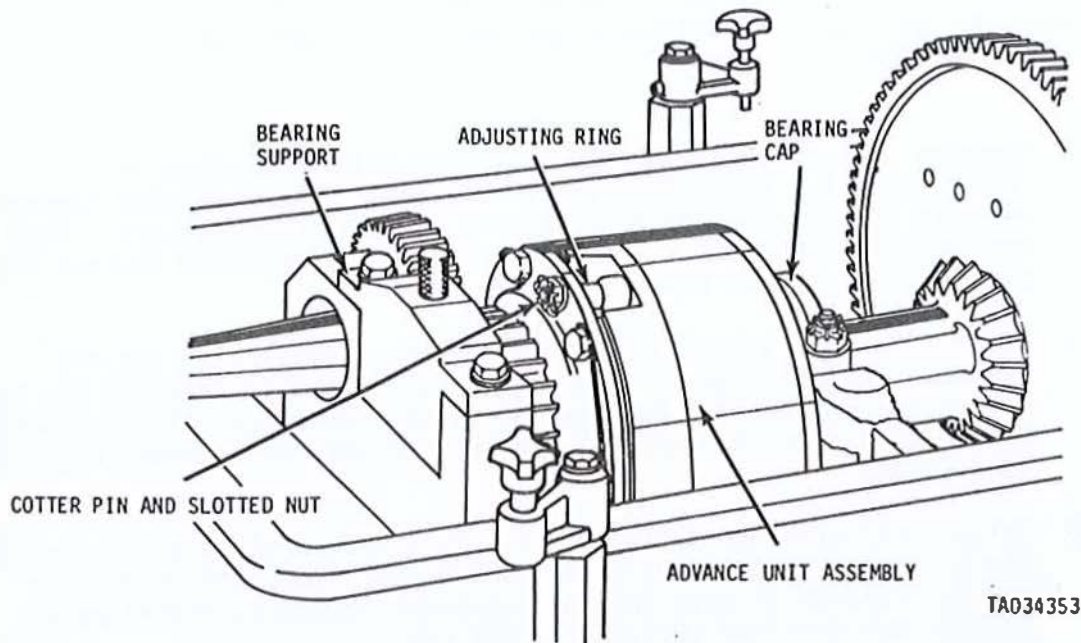


Figure 5-67. Fuel injection pump advance assembly mounting points.

- (h) Install retaining ring on test stand oil retaining shaft. Install short (stub) end of oil retaining shaft in driven (small) end of the advance assembly. Install support over bearing on large gear end of advance assembly and install advance assembly in bearing supports of mounting fixture and secure with hardware removed above. Install drive housing cover and secure with fasteners.

CAUTION

The fuel injection pump advance assembly drive housing cover must always be installed and secured before operating test stand.

- (hi) TURN MOTOR SWITCH (15, fig 5-64) (5/420) ON.
- (i) Push jog run (clutch engage) switch to engage eddy current clutch and turn speed regulator control to obtain advance assembly speed of 300 rpm on tachometer. Turn speed regulator control clockwise to increase rpm.
- (j) Observe oil and fuel pressure indicator gages (1 and 2, fig. 5-66) (5/420). These gages should register more than zero (0); however, maximum pressures will not be evident until a speed of 1400 rpm is obtained. A minimum oil pressure of 30 psi \pm 2 psi shall be obtained at speeds of 1400 RPM and above.

5-65. (Cont)

CAUTION

Turn master switch handle OFF if there is no indication of oil or fuel pressure on the gages. Investigate and correct the deficiency before starting the test.

- (k) Operate test stand at 300 rpm until the oil temperature dial thermometer (8) stabilizes at 200 degrees. It may require several minutes to warm the entire system to operating temperature. Note and record electronic counter (4) reading (illuminated decimal digits on the front of the counter panel).
- (l) Press oil drain push switch, located immediately below the oil pressure indicator gage. The gage should register zero (0) psi with the switch depressed. Observe the counter reading. If the counter has changed more than one (1) degree, the advance assembly requires adjustment.
- (m) Release oil pressure drain switch. Turn speed regulator control (10) clockwise to increase the speed to 600 rpm. Note and record the counter reading at each 200 rpm increment increase, beginning at 600 rpm and continue through to 2600 rpm.
- (n) Reduce speed to 600 rpm and recheck counter reading. If this reading does not check with the original reading repeat the test. Check the readings taken at each 200 rpm increase against similar points on the approved advance unit curve (fig. 5-68) (5/423). If the recorded advance readings fall within the prescribed limits on the curve, the test is complete. If the advance readings do not meet the curve limits, proceed with step (q) below.
- (o) Turn speed regulator control (10, fig. 5-66) (5/420) to zero (0), to reduce speed, and counter switch, motor switch, and master switch handle to the OFF position.

WARNING

Injection pump advance assembly will be hot following test. Operator should wear gloves when removing unit from test stand.

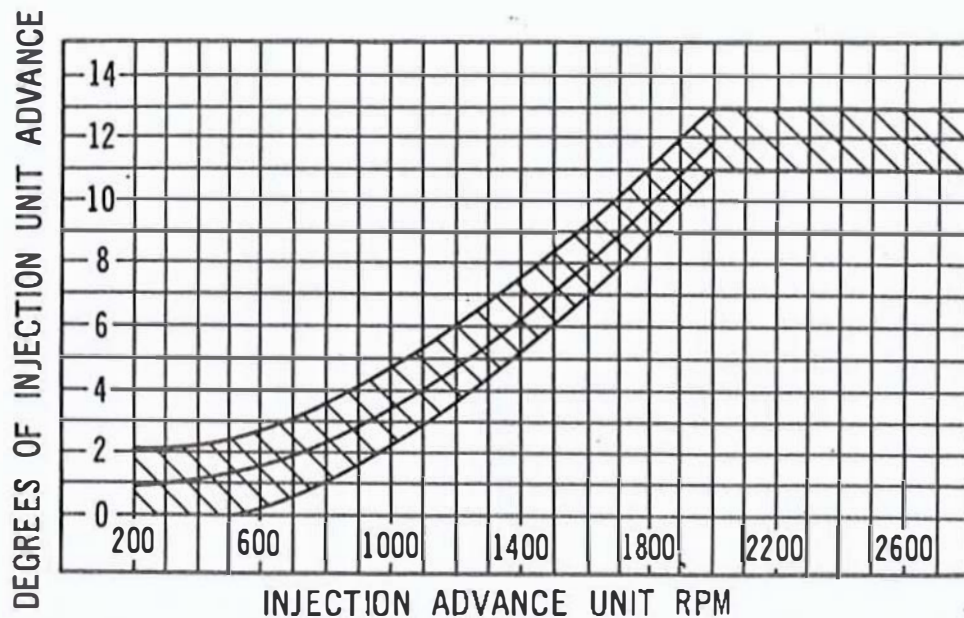
- (p) Loosen fasteners and remove cover. Remove bearing caps and remove unit from bench. Remove oil transfer shaft. Place injection advance assembly on oil drain tray with small gear end up to drain and cool. Place advance assembly in a clean dirt free container, preferably a polyethelene bag, for storage.
- (q) Repeat (i) through (n) above to check previous readings. If advance assembly fails to pass the test, it must be adjusted. Note whether advance assembly advances too soon or too late. Either condition can normally be corrected by rotating the advance flyweight adjusting ring (fig. 5-63) (5/391).

5-65. (Cont)

NOTE

The advance assembly should be retarded slightly if the advance varies more than 2 degrees at 300 rpm when the oil pressure drain button is depressed. This variance indicates the mechanical retard stop is not in phase with the hydraulic valve.

Push speed control stop switch to disengage eddy current clutch. Turn counter, motor, and motor starter off.



TA022013

Figure 5-68. Fuel injector advance unit performance curve.

- (r) Loosen fasteners and remove cover. Remove two cotter pins, and loosen the two slotted nuts enough to permit adjusting ring rotation (fig. 5-67) (5/421).

NOTE

Do not turn the adjusting ring more than 1/16 of an inch during any one adjustment.

- (s) Rotate the adjusting ring (fig. 5-67) (5/421) 1/16-inch toward the rear of the bench (retard position) if the advance assembly advanced too soon. Move the adjusting ring 1/16-inch in the opposite direction (advance position) toward operator, if the advance assembly advanced too late. Tighten the slotted nuts, install cover and repeat (c) through (n), above. When advance readings are within the prescribed

5-65. (Cont)

limits, the advance assembly may be removed from the bench as outlined in (p) above. Secure the adjusting ring slotted nuts with cotter pins.

NOTE

If the advance assembly cannot be properly adjusted as outlined above, the flyweight springs must be checked in accordance with the limits specified in table 5-26 (5/397).

BLANK

FRAME

Section XVI. OVERHAUL OF FAN DRIVE CLUTCH ASSEMBLY

5-66. General. This section covers overhaul of the fan drive clutch assembly (fig. 5-69) (5/427). The fan drive clutch assemblies used in both the front and rear cooling fans are identical. Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions. Stud identification information is included with the repair instructions.

5-67. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-68. Inspection. Inspect the fan drive clutch assembly according to instructions in paragraph 5-4 (5/ 2) and the OIP's included in this section. Wear limits, fits, and tolerances for the fan drive clutch assembly are listed in table 5-27 (5/428). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

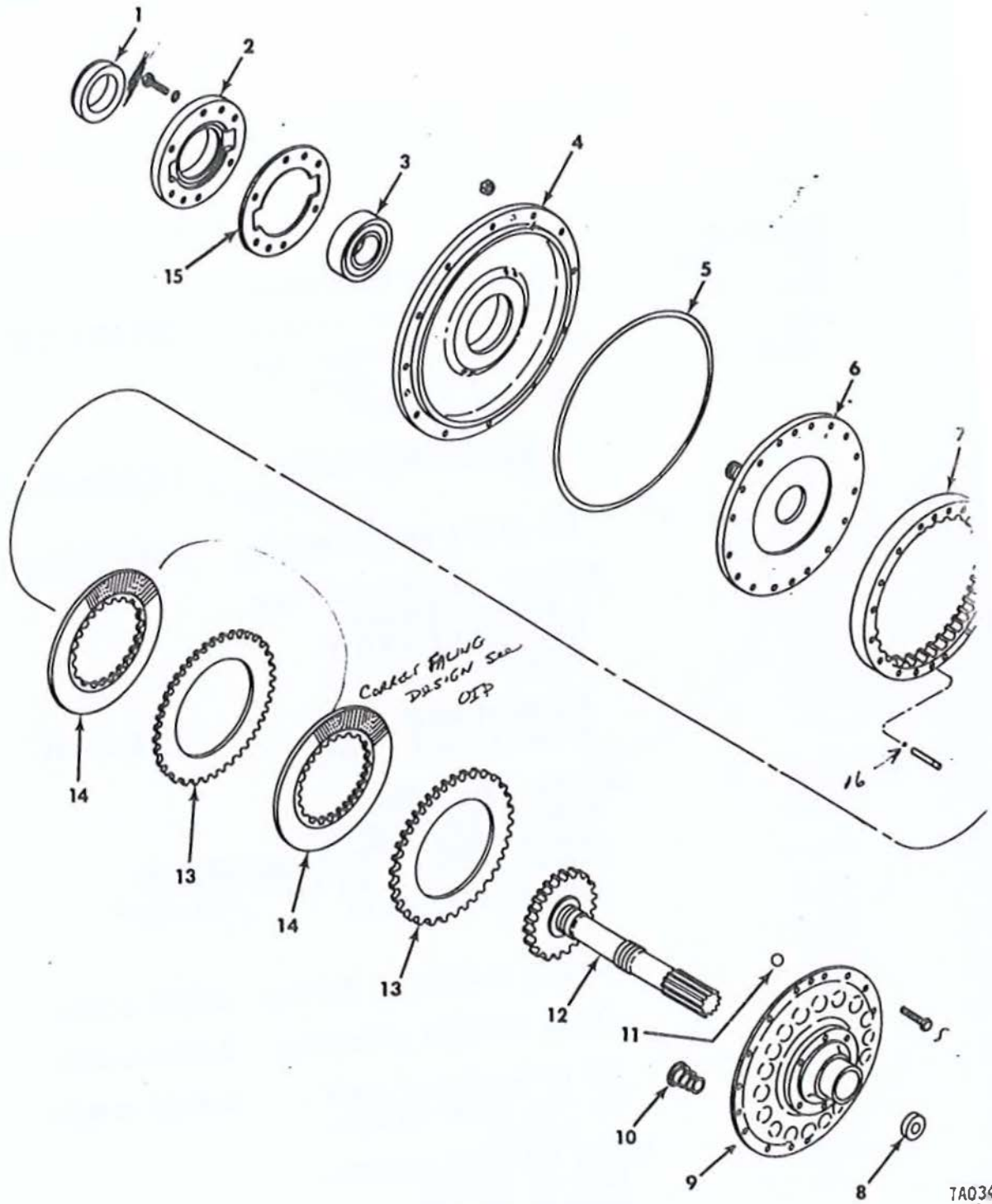


Figure 5-69. Fan drive clutch assembly and associated parts.

Table 5-27. Wear Limits, Fits, and Tolerances for Fan Drive Clutch Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-69	1	SEAL, PLAIN, ENCASED: fan drive vertical shaft - part no. 10935537		Replace
		Outside diameter of oil seal (5/427)	2.6250-2.6300	
		Fit of oil seal in housing (6, fig. 5-69) (5/427)	0.0020T-0.0080T	*
	2	HOUSING: fan drive oil seal - part no. 8761063 Refer to OIP 8761063 (5/433)		
		Inside diameter of fan drive oil seal housing	2.6220-2.6240	2.6250
	3	BEARING, BALL, ANNULAR: fan drive clutch flange - part no. 307 700336 (307-08162) Refer to TM 9-214 for inspection and care of bearings		
		Outside diameter of bearing	3.1491-3.1496	*
		Inside diameter of bearing	1.3775-1.3780	*
		Fit of bearing on shaft (6, fig. 5-69) (5/427)	0.0001T-0.0010T	0.0001L
	4	ACCESS: COVER, FAN DRIVE HOUSING - part no. 8682765 Refer to OIP 8682765 (5/434)		
		Inside diameter of bearing bore in fan drive housing cover	3.1496-3.1503	3.1506
		Fit of bearing (3, fig. 5-69) (5/427) in cover	0.0000-0.0012L	0.0015L

Table 5-27. Wear Limits, Fits, and Tolerances for Fan Drive Clutch Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-69 (5/427)	5	PACKING, PREFORMED: fan drive housing cover - part no. AN6230-50 <i>MS28715-272</i>		Replace
✓	6	FLANGE, FAN DRIVE CLUTCH - part no. 10951119 Refer to OIP 10951119 (5/435)		
		Outside diameter of bear- ing surface on clutch shaft	1.3781-1.3785	1.3779
		Dimension over 0.0800 diameter pins	1.2424-1.2440	1.2416
/	7	HOUSING ASSEMBLY: fan drive clutch disk - part no. 10951076 Refer to OIP 10951076 (5/436)		
		Dimension between 0.2400 diameter pins	7.0775-7.0828	7.0850
/	8	BEARING, BALL, ANNULAR: fan drive vertical shaft (outer) - part no. 9109K-21335 <i>701024 (9109K-21335)</i> Refer to TM 9-214 for in- <i>(9109K-21335)</i> spection and care of bear- ings		
		Outside diameter of bear- ing	2.9523-2.9528	*
		Inside diameter of bearing	1.7712-1.7717	*
		Fit of bearing on clutch hub (9, fig. 5-69) (5/427)	0.0001T-0.0010T	0.0001L

~~10951079-1~~
~~10951079~~

Table 5-27. Wear Limits, Fits, and Tolerances for
Fan Drive Clutch Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-69 (5/427) continued	8-	Fit of bearing in fan drive housing liner (1, fig. 5-57 or 2, fig. 5-59) (5/335) or (5/354)	0.000-0.0012L	0.0015L
	9	^{assembly} HUB, FAN DRIVE CLUTCH ASSEMBLY Hub - part no. 10951079 Refer to OIP 10951079 (5/437)		
		Outside diameter of bear- ing surface on clutch hub	1.7718-1.7722	1.7716
		Inside diameter of bearing	1.1470-1.1480	1.1490
		End play control	0.1140-0.1160 0.1210-0.1270	0.11 ⁹⁰ 60
	10	SPRING, HELICAL, COMPRES- SION: fan drive overload clutch - part no. 8761260 Refer to OIP 8761260 (5/439)		
		Approximate free length	1.19 inches	*
		Load at 0.8070 inch length	31 lbs to 39 lbs	*
		Maximum solid height	0.6070 inch	*
	11	BALL, BEARING: fan drive clutch - part no. 10951369 Refer to OIP 10951369 (5/440)		
		Spherical diameter of clutch balls	0.6240-0.6260 (spherical within 0.0002)	*

Table 5-27. Wear Limits, Fits, and Tolerances for Fan Drive Clutch Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-69 (5/427)	12	SHAFT ASSEMBLY: fan drive vertical - part no. 10951081 Refer to OIP 10951081 (5/441)		
		✓ Outside diameter of fan drive vertical shaft (gear end)	1.1450-1.1460	1.1440
		✓ Fit of shaft in hub bear- ing (9, fig. 5-69) (5/427)	0.0010L-0.0030L	0.0050L
		✓ Dimension over 0.0800 diameter pins (spline end)	1.1588-1.1601	1.1582
		✓ Dimension over 0.3200 diameter pins	4.4931-4.4984	4.4904
		✓ Pilot diameter in middle of shaft	1.1400-1.1410	1.1390
		✓ Dimension from distributor to shaft thrust shoulder	0.8220-0.8420	0.8120
	13	DISK, CLUTCH: driven fan - part no. 10951083 Refer to OIP 10951083 (5/443)		
		Dimension over 0.3200 diameter pins	7.8210-7.8310	7.8160
		Thickness of disk	0.1540-1.1580	0.1500
	14	DISK, CLUTCH: fan drive - part no. 10951084 Refer to OIP 10951084 (5/444)		

Table 5-27. Wear Limits, Fits, and Tolerances for Fan Drive Clutch Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-69 (5/427) continued	14 -	Dimension between diameter pins	3.7464-3.75 ⁶⁴ ₃₄	3.7570 3.76 ⁰⁰
		Thickness of disk	0.1860-0.1900	0.1880 ⁴
	15	GASKET: fan drive oil seal housing to cover - part no. 12254235		Replace
	16	RING, RETAINING: PIN TO FAN DRIVE CLUTCH DISK HOUSING - PART NO. MS16632.1031		REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

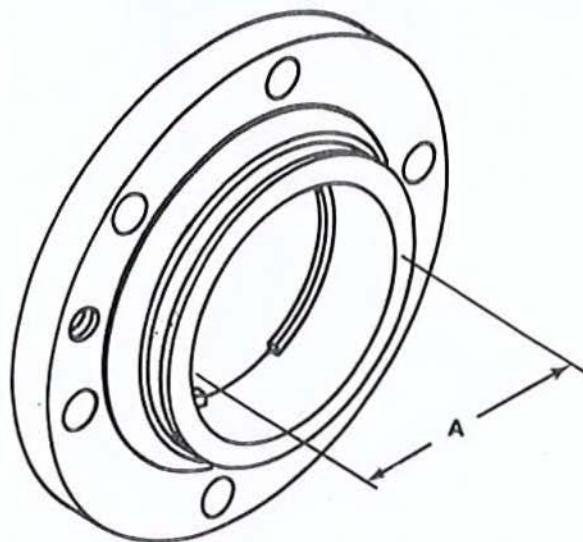
OIP 8761063

ITEM: HOUSING:
fan drive oil seal

REFERENCE: Figure 5-69 (5/427)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4	A	Inside diameter	1.0	Measure	Diameter must be no greater than 2.6250 inches



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

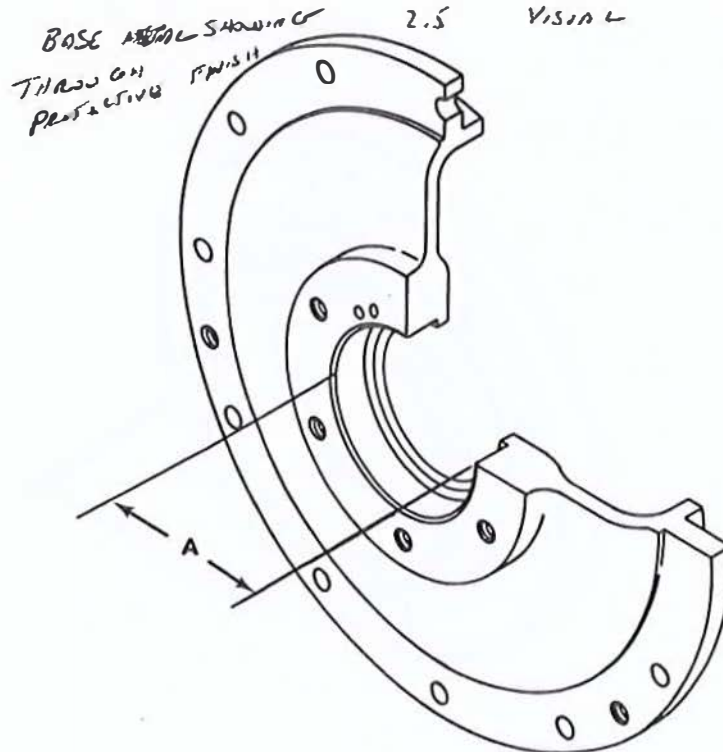
ITEM: ^{ACCESS:} COVER, FAN DRIVE HOUSING

OIP 8682765

REFERENCE: Figure 5-69 (5/427)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD ^{VISUAL}	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4	A	Inside diameter	1.0	Measure	Diameter must be no greater than 3.1506 inches
5			2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

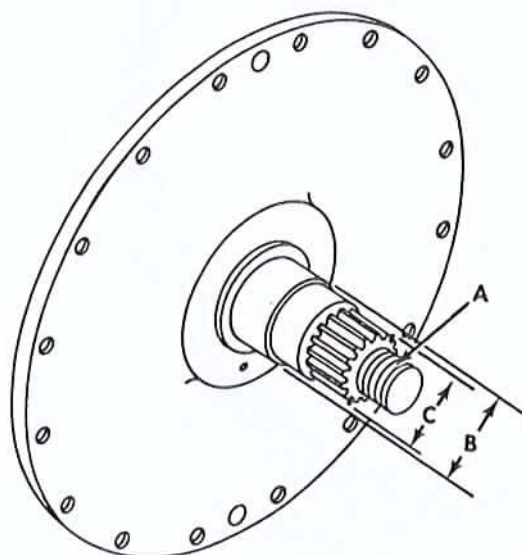
OIP 10951119

ITEM: FLANGE, FAN DRIVE CLUTCH

REFERENCE: Figure 5-69 (5/427)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle VISUAL	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	A	3/4-16 UNF-3A thread for damage	2.5	Visual	None allowed
4	B	Outside diameter	1.0	Measure	Diameter must be no less than 1.3779 inches
5	C	Dimension over 0.0800 diameter pins	1.0	Measure	Diameter must be no less than 1.2416 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

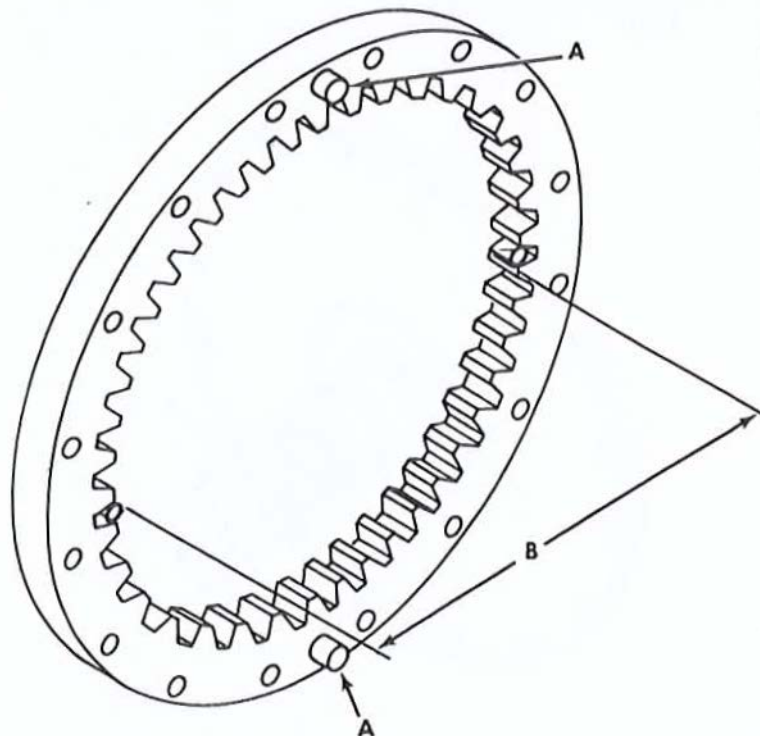
OIP 10951076

ITEM: HOUSING ASSEMBLY:
fan drive clutch disk

REFERENCE: Figure 5-69 (5/427)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE.
1		Cracks	0.0	Magnetic particle ^{Visual}	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Missing or loose dowel pins	2.5	Visual	None allowed
4	B	Dimension between 0.2400 diameter pins	1.0	Measure	Diameter must be no greater than 7.0850 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ASSEMBLY,} HUB FAN DRIVE CLUTCH ~~ASSEMBLY~~

OIP 10951079

REFERENCE: Figure 5-69 (5 A27)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3		Warped or pitted surfaces caused by ball wear	2.5	Visual	None allowed
4	A	Loose rivets	2.5	Visual	None allowed
5	B	Grooved or damaged spring seat	2.5	Visual	None allowed
6	C	Grooved or damaged ball ramp	2.5	Visual	None allowed
7	D	Inside diameter	1.0	Measure	Diameter must be no greater than 1.1490 inches
8	E	End play control	1.0	Measure	Dimension must be no less than 0.1180 inch 0.1190 ✓
9	F	Outside diameter	1.0	Measure	Diameter must be no less than 1.7716 inches

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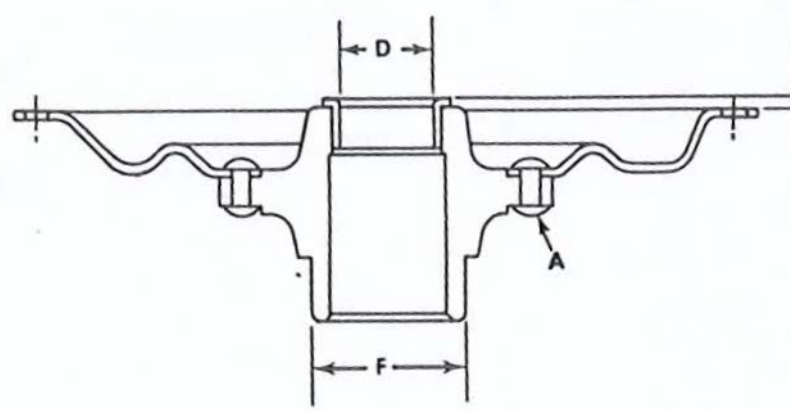
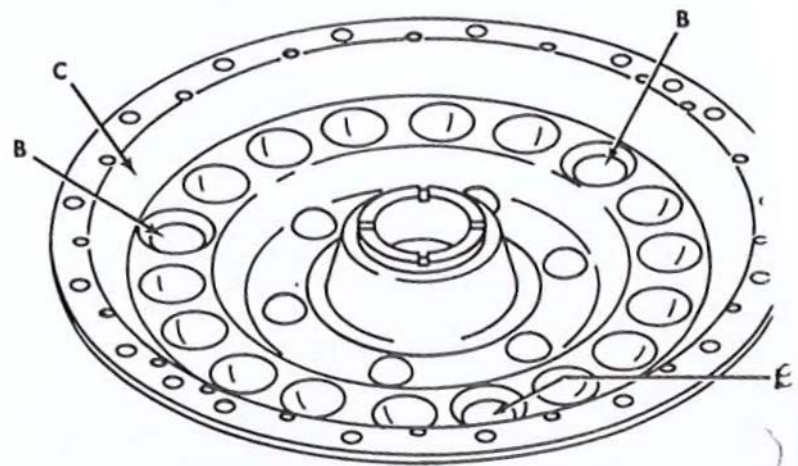
OVERHAUL INSPECTION PROCEDURE

ITEM: HUB FAN DRIVE CLUTCH ASSEMBLY
- Continued

10951079
FIGURE 5-69 (5/42) (UIP)
REFERENCE: i

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD
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*Used components and refinished parts recovered as products of disassembly will be inspected 100% by the contractor to determine serviceability. AQL's are specified for Go and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

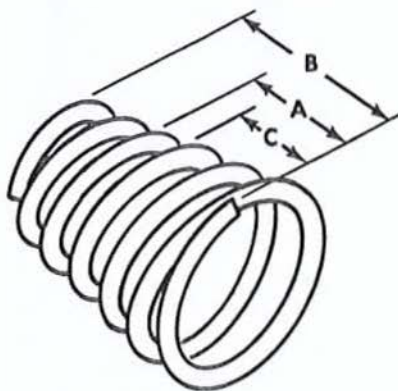
OIP 8761260

ITEM: SPRING, HELICAL, COMPRESSION:
fan drive ~~of 1020~~ clutch

REFERENCE: Figure 5-69 (5/427)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Check for weak, broken coils and distorted condition	2.5	Visual	None allowed
3	A	Length with load of 35.0 lbs ± 4.0 lbs	1.0	Measure	0.8070 inch length
4	B	Approximate free length	2.5	Measure	Dimension must be no less than 1.1800 inches and no greater than 1.2000 inches
5	C	Maximum solid height	2.5	Measure	Dimension must be no greater than 0.6070 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

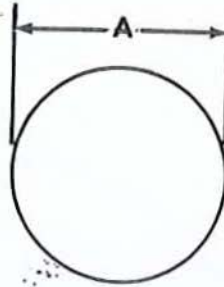
ITEM: BALL, BEARING:
fan drive clutch

OIP 10951369

REFERENCE: Figure 5-69 (5 /427)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Corrosion	2.5	Visual	None allowed
2		Flat spots	2.5	Visual	None allowed
3	A	Diameter	2.5	Measure	Must be no less than 0.6240 or greater than 0.6260 inch



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USATACOM DMWR 9-2815-220
VOLUME I

DEPOT MAINTENANCE
WORK REQUIREMENT
FOR

ENGINE WITH CONTAINER; TURBOSUPERCHARGED
DIESEL, FUEL INJECTION,
90-DEGREE "V" TYPE, AIR-COOLED
12 - CYLINDER, ASSEMBLY;

MODELS AVDS-1790-2C, 2815-00-410-1203, ~~2815-00-410-1203~~

AVDS-1790-2CA, 2815-01-149-¹³¹³~~1308~~, ~~2815-01-149-1308~~

AVDS-1790-2D, 2815-00-410-1204, ~~2815-00-410-1204~~

AVDS-1790-2DA, 2815-01-166-2051 ~~2815-01-166-2051~~

AND

AVDS-1790-2DR, 2815-00-124-5387 ~~2815-00-124-5387~~

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HEADQUARTERS
US ARMY TANK-AUTOMOTIVE COMMAND
WARREN, MICHIGAN 48397-5000

AUGUST 1977
000
-207

DEPOT MAINTENANCE
WORK REQUIREMENT
DMWR 9-2815-220

DMWR 9-2815-220

HEADQUARTERS

U.S. ARMY TANK-AUTOMOTIVE COMMAND
WARREN, MICHIGAN 48090

Depot Maintenance Work Requirement

FOR
ENGINE WITH CONTAINER: TURBOSUPERCHARGED,
DIESEL, FUEL INJECTION, 90-DEGREE "V" TYPE,
AIR-COOLED, 12-CYLINDER, ASSEMBLY:
MODELS AVDS-1790-2C, 2815-00-410-1203
AVDS-1790-2CA, 2815-01-149-1258 1313
AVDS-1790-2D, 2815-00-410-1204
AVDS-1790-2DA, 2815-01-166-2051
AND
AVDS-1790-2DR, 2815-00-124-5387

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MBC, Warren, MI 48397-5000. A reply will be furnished to you.

TABLE OF CONTENTS

	<u>Paragraph</u>	<u>Page</u>
LIST OF ILLUSTRATIONS		iv
LIST OF TABLES		ix
LIST OF OIP'S		xii
CHAPTER 1. INTRODUCTION		
Section I. General	1-1	1/1
II. Description and Data	1-5	1/6
III. Difference Between Models	1-8	1/31
CHAPTER 2. TECHNICAL REQUIREMENTS		
Section I. Facilities, Tools, and Test Equipment	2-1	2/1
II. Standards	2-8	2/46
CHAPTER 3. PRESHOP ANALYSIS	3-1	3/1
CHAPTER 4. REMOVAL OF MAJOR ASSEMBLIES	4-1	4/1
CHAPTER 5. MAINTENANCE, OVERHAUL, AND REPAIR		
Section 1. General Maintenance, Overhaul and Repair Procedures	5-1	5/1
II. Overhaul of Crankcase Assembly	5-10	5/16
III. Overhaul of Transmission Adapter, <i>INSTALLATION GUIDES AND LIFTING EYES</i>	5-14	5/56

TABLE OF CONTENTS - Continued

		<u>Paragraph</u>	<u>Page</u>
CHAPTER 3.	MAINTENANCE, OVERHAUL AND REPAIR -		
	Continued		
Section IV.	Overhaul of Crankshaft and Associated		
	Parts - - - - -	5-18	5/64 ✓
V.	Overhaul of Generator Drive Assembly - - - - -	5-22	5/90 ✓
VI.	Overhaul of Starter Drive Assembly - - - - -	5-26	5/107 ✓
VII.	Overhaul of Piston and Connecting Rod		
	Assembly - - - - -	5-30	5/121 ✓
VIII.	Overhaul of Cylinder Assembly - - - - -	5-34	5/146 ✓
IX.	Overhaul of Oil Pump Assembly - - - - -	5-38	5/202 ✓
X.	Overhaul of Oil Pan Assembly - - - - -	5-42	5/260 ✓
XI.	Overhaul of Crankshaft Damper and Oil		
	Filter Housing - - - - -	5-46	5/276 ✓
XII.	Overhaul of Camshaft and Drive Assemblies	5-50	5/306 ✓
XIII.	Overhaul of Front Fan Drive Assembly - - - - -	5-54	5/335 ✓
XIV.	Overhaul of Accessory Drive Housing and		
	Rear Fan Drive Assembly - - - - -	5-58	5/358 ✓
XV.	Overhaul of Automatic Injection Advance		
	Assembly - - - - -	5-62	5/390 ✓
XVI.	Overhaul of Fan Drive Clutch Assembly - - - - -	5-66	5/426 ✓
XVII.	Overhaul of Oil Coolers, Oil Cooler		
	Screens and Associated Parts - - - - -	5-70	5/440 ✓
XVII.1.	Overhaul of Oil Sampling System and		
	Associated Parts - - - - -	5-73.1	5/470.1
XVIII.	Overhaul of Oil Cooler Frames, Shroud,		
	and Associated Parts - - - - -	5-74	5/472 ✓
XIX.	Overhaul of Throttle Control and		
	Associated Parts, Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR	5-82	5/492 ✓
XX.	Overhaul of Throttle Control and		
	Associated Parts, Model AVDS-1790-2DR	5-82	5/522 ✓
XXI.	Overhaul of Engine Shrouds, Air Deflec-		
	tors, and Cooling Fans, Vanes, and		
	Housing - - - - -	5-86	5/553 ✓
XXII.	Overhaul of Intake Manifolds, Connecting		
	Tubes, Turbosupercharger Supports, and		
	Associated Parts - - - - -	5-90	5/616 ✓
XXIII.	Overhaul of Induction Heater System - - - - -	5-94	5/654 ✓
XXIV.	Overhaul of Exhaust Manifolds - - - - -	5-98	5/678 ✓
XXV.	Overhaul of Cylinder Oil Drain Tubes - - - - -	5-102	5/701 ✓
XXVI.	Overhaul of Oil Filler and Indicator		
	Tubes - - - - -	5-106	5/723 ✓
XXVII.	Overhaul of Engine Generator and Starter		
	Supports - - - - -	5-110	5/740 ✓
XXVIII.	Overhaul of Fuel Backflow Valve and Fuel		
	Filters - - - - -	5-114	5/755 ✓
XXIX.	Overhaul of Fuel Injection Tubes and		
	Fuel Return Tubes - - - - -	5-118	5/755 ✓

TABLE OF CONTENTS - Continued

		<u>Paragraph</u>	<u>Page</u>
CHAPTER 5.	MAINTENANCE, OVERHAUL AND REPAIR - Continued		
Section XXX.	Overhaul of Fuel Injector Nozzle - -	5-122	5/830 ✓
XXX.1.	Overhaul of Smoke Generating System - -	5-125.1	5/848.1 ✓
XXX.2	Overhaul of Dust Detector and Associated Parts - - - - -	5-125.5	5/848.13 ✓
XXX.3	Overhaul of Dust Ejector and Associated Parts - - - - -	5-125.9	5/848.20
XXXI.	Overhaul of Oil Hoses - Injection Pump, Turbosuperchargers, Oil Coolers, and Generator - - - - -	5-126	5/850 ✓
XXXII.	Overhaul of Generator Air Ducting - -	5-130	5/863 ✓
XXXIII.	Overhaul of Breather Tubes and Fire Extinguisher Tube - - - - -	5-134	5/880 ✓
XXXIV.	Overhaul of Fuel Injection Pump Drive Coupling - - - - -	5-138	5/892 ✓
XXXV.	Overhaul of Power Take-off Drive Assembly and Fuel Pump Drive, Model AVDS-1790-2DR	5-142	5/902 ✓
XXXVI.	Overhaul of Engine Electrical Components	5-146	5/918 ✓
XXXVII.	Overhaul of Wiring Harness Brackets, Straps, and Associated Parts - - - - -	5-150	5/938 ✓
XXXVIII.	Overhaul of Engine Shipping and Storage Container - - - - -	5-154	5/967 ✓
CHAPTER 6.	FINAL ASSEMBLY AND PERFORMANCE CHECK		
Section I.	Final Assembly - - - - -	6-1	6/1
II.	Final Performance Check - - - - -	6-4	6/3
CHAPTER 7.	QUALITY ASSURANCE REQUIREMENTS		
Section I.	General - - - - -	7-1	7/1
II.	Terms and Definitions - - - - -	7-3	7/2
III.	Inspection Equipment - - - - -	7-4	7/3
IV.	Certification - - - - -	7-5	7/4
V.	Quality Assurance Plan - - - - -	7-6	7/5
VI.	Inspection and Audits - - - - -	7-7	7/7
CHAPTER 8.	PRESERVATION, PACKAGING, PACKING, MARKING, AND SHIPPING		
Section I.	Preservation - - - - -	8-1	8/1
II.	Packaging, Packing, and Marking - - -	8-3	8/3
III.	Preparation for Storage or Shipment - -	8-6	8/8
APPENDIX A	REFERENCES		
Section I.	General - - - - -	A-1	A/1
II.	Technical and Reference Manuals - - -	A-4	A/2
APPENDIX B.	FINAL INSPECTION RECORDS	B-1	B/1
GLOSSARY			Glossary/1
INDEX			Index/1

LIST OF ILLUSTRATIONS

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1-1.	Model AVDS-1790-2C Engine, Right Front View	1/1
1-2.	Model AVDS-1790-2D Engine, Right Front View	1/2
1-3.	Model AVDS-1790-2C or AVDS-1790-2D Engine, Left Rear View	1/2
1-3.1.	Model AVDS-1790-2CA Engine, Right Front View	1/2.1
1-3.2.	Model AVDS-1790-2CA or AVDS-1790-2DA Engine, Left Rear View	1/2.1
1-3.3.	Model AVDS-1790-2DA Engine, Right Front View	1/2.2
1-4.	Model AVDS-1790-2DR Engine, Right Front View	1/3
1-5.	Model AVDS-1790-2DR Engine, Left Rear View	1/3
1-6.	Engine Major Working Parts	1/8
1-7A.	Engine Oil Flow Control - Flow Diagram	1/12
1-8.	Main Fuel System - Schematic Diagram, Model AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA	1/14.1
1-9.	Main Fuel System - Schematic Diagram, Model AVDS-1790-2DR	1/15
1-10.	Manifold Air Induction Heater System - Flow Diagram	1/17
1-10.1.	Smoke Generating System	1/18.2
1-11.	Mechanical Cooling Fan Clutch - Sectional View	1/19
1-12.	Engine Crankcase Breather and Fire Extinguisher Systems - Flow Diagram	1/20
1-13.	Engine Identification Plate, Model AVDS-1790-2C	1/24.1
1-13.1.	Engine Identification Plate, Model AVDS-1790-2C	1/24.1
1-14.	Engine Identification Plate, Model AVDS-1790-2D	1/24.2
1-14.1.	Engine Identification Plate, Model AVDS-1790-2DA	1/24.2
1-15.	Engine Identification Plate, Model AVDS-1790-2DR	1/25
1-16.	Starter Relay Solenoid (Low Voltage Protection Module) Identification Plate	1/25
1-17.	Fuel/Water Separator Control Assembly Identification Plate	1/26
1-18.	Solenoid Valve Identification Plate	1/26
1-19.	Time Totalizing Electrical Meter Identification Marking	1/27
1-20.	Crankshaft Damper Identification Marking	1/27
1-21.	Crankshaft Damper Warning Marking	1/27
1-22.	Oil Cooler Identification Plate - Hamilton	1/28
1-23.	Oil Cooler Identification Plate - Stewart Warner Corp.	1/28
1-24.	Engine Shipping and Storage Container Identification Plate	1/28
1-25.	Typical Engine Overhaul Data Plate	1/29
2-1.	Special Tools and Equipment	2/7
2-2.	Special Tools and Equipment	2/8
2-3.	Special Tools and Equipment	2/10
2-4.	Special Tools and Equipment	2/12
5-1.	Standard and Oversize Stud Identification	5/6
5-2.	Removal of Threaded Insert Using Screw Thread Extractor	5/8
5-3.	Installation of Threaded Insert in Cylinder Assembly Using Screw Thread Inserter	5/9
5-4. ✓	Crankcase Assembly and Associated Parts	5/16
5-5. ✓	Checking Torque of Main Bearing Cap Stud	5/23
5-6. ✓	Checking Inside Diameter of Main and Main Thrust Bearings	5/24
5-7. ✓	Checking Clearance Between Bearing Flange and Crankcase	5/25
5-8. ✓	Typical Crankcase Highly Stressed Areas - 3/4 Right Rear View	5/48
1-7.	ENGINE LUBRICATING SYSTEMS	5/11

LIST OF ILLUSTRATIONS - Continued

<u>Figure</u>	<u>Title</u>	<u>Page</u>
5-9.	Crankcase Highly Stressed Areas - 3/4 Right Front View	5/49
5-10.	Crankcase Highly Stressed Areas - Bottom View	5/49
5-11.	Points of Measure for Checking Crankcase Before and After Welding Repair	5/50
5-12.	Crankcase Studding - 3/4 Left Rear Exploded View	5/53
5-13.	Crankcase Studding - 3/4 Left Front View	5/54
5-14.	Crankcase Studding - Bottom View	5/54
5-15.	Transmission Adapter, ^{INSTALLATION GUIDES, LIFTING RYS} and Associated Parts	5/57
5-16.	Transmission Adapter Standard Stud Identification	5/63
5-16.1.	Rear Oil Seal Wear Surface on Flywheel End of Crankshaft	5/64.1
5-16.2.	Rear Oil Seal Wear Surface on Flywheel End of Crankshaft	5/64.2
5-16.3.	Crankshaft Rear Oil Seal Restoration Area	5/64.3
5-16.4.	Crankshaft Rear Oil Seal Surface Machining Dimensions	5/65
5-17.	Crankshaft and Associated Parts	5/66
5-18.	Generator Drive Assembly	5/91
5-19.	Torque Checking Fixture Assembly - Special Parts	5/96
5-20.	Splined Shaft	5/96
5-21.	Special Fixture Assembly - Generator Gear Slip Clutch Torque Checking	5/97
5-22.	Generator Drive Standard Stud Identification	5/104.1
5-23.	Starter Drive Assembly	5/107
5-24.	Starter Drive Gear - Rework	5/118
5-25.	Piston and Connecting Rod Assembly	5/121
5-26.	Checking Piston Top Ring Groove Using Tapered Groove Piston Ring Gage	5/123
5-27.	Connecting Rod and Bearing Location Number	5/124
5-27.1.	Stamp Locations	5/144
5-28.	Fixture Assembly - Installing and Removing Connecting Rod Bushing	5/144.1
5-29.	Connecting Rod Bore Center Dimensions	5/144.2
5-30.	Cylinder Assembly	5/147
5-31.	Cleaning Carbon Deposits From Fuel Injector Nozzle Seat	5/157
5-32.	Cylinder Assembly Identification Number Location	5/157
5-33.	Cylinder Bore Dimensions	5/158
5-34.	Allowable Missing Fin Area on Cylinder Head	5/160
5-35.	Valve Rotor Rotation Test	5/162
5-36.	Removing Intake Valve Guide Using Mechanical Puller	5/191
5-37.	Positioning Intake Valve Guide on Valve Guide Replacer	5/192
5-38.	Installing Intake Valve Guide Using Valve Guide Replacer	5/193
5-39.	Intake Valve Guide Hand Reamer Bushing Positioning in Cylinder Head - Sectional View	5/194
5-40.	Reaming Intake Valve Guide Using Hand Reamer and Reamer Bushing	5/195
5-41.	Valve and Valve Seat Insert Grinding Diagram	5/195
5-42.	Cylinder Standard Stud Identification	5/198
5-43.	Rocker Arm Cover Welding Standards	5/199
5-43.1.	Arc Welding Oil Pump Housing Impeller Surfaces	5/202.1, 2
5-43.2.	Oil Pump Impeller Drive Shaft Spacer Bearing Surfaces	5/202.2, 3

5-14.1 PLATE IDENTIFICATION

5-14.1 PLATE, IDENTIFICATION: ENGINE HISTORICAL
Change 3 v

5/55

LIST OF ILLUSTRATIONS - Continued

<u>Figure</u>	<u>Title</u>	<u>Page</u>
5-43.3. /	Oil Pump Impeller Driven Shaft Bearing Surfaces	5/202.4
5-44. /	Oil Pump	5/204
5-45. /	Oil Pressure Compartment Baffle, Oil Pump Leveling Tube and Associated Parts	5/205
5-46. /	Oil Pump Assembly Standard Studding	5/256
5-47. /	Oil Pump Assembly Test Setup - Schematic Diagram	5/258
5-48. /	Oil Pan Assembly	5/261
5-49. /	Oil Pan Casting - Highly Stressed Areas	5/273
5-50. /	Oil Pan Standard Stud Identification	5/274
5-51. /	Crankshaft Damper, and Oil Filter Housing	5/276
5-52. /	Crankshaft Damper, Oil Filter Housing, and Associated Parts	5/277
5-53. /	Crankshaft Damper and Oil Filter Housing Standard Stud Identification	5/305
5-53.1. /	Camshaft End Cover Bearing Plate	5/306.1
5-53.2. /	Camshaft Gear Housing	5/307
5-54. /	Camshaft and Drive - Right and Left Banks	5/308
5-55. /	Improvised Camshaft Truing Device	5/331
5-56. /	Mechanical Drive Housing Standard Stud Identification	5/333
5-57. /	Front Fan Drive Assembly	5/335
5-58. /	Front Fan Drive Assembly Standard Stud Identification	5/352
5-59. /	Accessory Drive Housing	5/354
5-59.1. /	Mechanical Drive Housing	5/354.2
5-59.2. /	Machining Instructions for the Injection Advance Bore	5/354.2
5-60. /	Accessory Drive Housing Associated Parts	5/355
5-61. /	Rear Fan Drive Assembly	5/356
5-62. /	Rear Fan Drive and Accessory Drive Housing Standard Stud Identification	5/388
5-63. /	Automatic Injection Advance Assembly	5/391
5-64. /	Test Stand Assembly	5/418
5-65. /	Test Stand Heater Control and Supply Tanks	5/419
5-66. /	Test Stand and Advance Assembly with Coupling Guard and Housing Cover Removed	5/420
5-67. /	Fuel Injection Pump Advance Assembly Mounting Points	5/421
5-68. /	Fuel Injector Advance Unit Performance Curve	5/423
5-69. /	Fan Drive Clutch Assembly and Associated Parts	5/427
5-70. /	Oil Coolers, Oil Cooler Screens, and Associated Parts	5/448
5-71. /	Oil Cooler Cleaning Equipment Setup - Schematic Diagram	5/449
5-72. /	Engine Oil Cooler Standard Stud Identification	5/469
5-72.1. /	Oil Sampling System Assembly	5/470.2
5-73. /	Oil Cooler Frames, Shrouds, and Associated Parts	5/473
5-74. /	Throttle Control, Models AVDS-1790-2C and AVDS-1790-2D	5/493
5-75. /	Throttle Control and Associated Parts, Model AVDS-1790-2DR	5/523
5-76. /	Rear Fuel Injection Pump Linkage, Model AVDS-1790-2DR	5/524
5-76.1. /	Testing Blade Erosion with Gage Superimposed on Fan Rotor Blade	5/553
5-77. /	Engine Shrouds	5/554
5-78. /	Cylinder Deflectors	5/554.2

AVDS-1790-2CA, AVDS-1790-2D, AVDS-1790-2DA and AVDS-1790-2DR

LIST OF ILLUSTRATIONS - Continued

Figure	Title	Page
5-79.	Cylinder Plates	5/555
5-80.	Turbosupercharger and Transmission Shrouds and Plates (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, and AVDS-1790-2DA AND AVDS-1790-2DR)	5/555
5-81.	Engine Cooling Fans, Vanes, and Housing	5/556
5-82.	Intake Manifolds and Associated Parts	5/617
5-83.	Intake Manifold and Associated Parts Standard Stud Identification	5/652
5-84.	Induction Heater System - Left Bank	5/655
5-85.	Induction Heater System - Right Bank	5/656
5-86.	Exhaust Manifolds and Associated Parts	5/679
5-87.	Cylinder Oil Drain Tubes and Associated Parts	5/702
5-88.	Oil Filler and Indicator Tubes	5/724
5-89.	Engine Generator and Starter Supports	5/741
5-90.	Deleted..	5/756 STJ
5-91.	Fuel Backflow Valve, Tubes and Hoses	5/756
5-92.	Primary Fuel Filter and Manifold Heater Fuel Filter Assemblies	5/757
5-93.	Water Separator and Fuel Filter	5/758
5-94.	Fuel Filters and Associated Parts	5/759
5-95.	Fuel Backflow Valve Flow Diagram	5/760
5-95.1.	Fuel Backflow Valve	5/760.1
5-95.2.	Rework of Backflow Housing	5/790
5-96.	Fuel Injector Lines, Clamps, and Associated Parts	5/792.1
5-97.	Fuel Injector and Nozzle Fuel Return Lines	5/793
5-98.	Comparison of Serviceable Sleeves - Injector Nozzle Tube Ends	5/794
5-99.	Fuel Injector Nozzle and Holder Assembly	5/831
5-100.	Fuel Injector Nozzle and Holder Assembly Spring Dimensions	5/832
5-101.	Fuel Injector Nozzle and Holder Assemblies - Sectional View	5/832
5-102.	Testing Fuel Injector Nozzle and Holder Assembly	5/834
5-102.1.	Modification Instructions for Retainer	5/848
5-102.2.	Smoke Generating System.	5/848.2
5-102.3.	Dust Detector and Associated Parts	5/848.14
5-102.4.	Dust Ejector and Associated Parts	5/848.21
5-103.	Injection Pump, Turbosupercharger, and Oil Cooler Oil Hoses	5/851
5-104.	Generator Oil Lines - Models AVDS-1790-2C AND AVDS-1790-2CA	5/851
5-105.	Generator Air Ducting - Models AVDS-1790-20, AVDS-1790-2DA AND AVDS-1790-2DR	5/864
5-106.	Crankcase Breather Tubes and Fire Extinguisher Tube	5/880
5-107.	Fuel Injection Pump Drive Coupling	5/892
5-108.	Power Take-off Drive Assembly and Fuel Pump Drive Model AVDS-1790-2DR	5/903
5-109.	Power Take-off Drive Assembly Housing Standard Stud Identification	5/915
5-110.	Engine Electrical Components	5/920
5-110.1	Conversion of Generator Wire Support Bracket P/N 11602725 to Bracket 11673848	5/939
5-111.	Transmission Wiring Harness Connectors and Terminals (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	5/940
5-112.	Starter Cables and Associated Parts (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DR)	5/941
5-95.3.	TEST FIXTURE FOR FUEL RETURN TUBES AND HOSES	5/791
5-100.	Change 3 vii RETAINER MODIFICATION INSTRUCTIONS PRIOR TO RELEASE OF NOZZLE AND HOLDER AKN 21254862G AND RNS 781003	5/832

LIST OF ILLUSTRATIONS - Continued

Figure	Title	Page
5-113. ✓	Generator Cables and Associated Parts, (Models AVDS-1790-2C and AVDS-1790-2CA)	5/942
5-114. ✓	Generator Cables, Blower Motor Harness, and Associated Parts, (Models AVDS-1790-20 and AVDS-1790-20A)	5/943
5-115. ✓	Engine Wiring Harness, Connectors, and Terminals, (Models AVDS-1790-2C and AVDS-1790-2CA)	5/944
5-116. ✓	Engine Wiring Harness, Connectors, and Terminals, (Models AVDS-1790-2D and AVDS-1790-20A)	5/945
5-117. ✓	Engine Wiring Harness BRACKET AND CLAMPS (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	5/946
5-118. ✓	Engine Shipping and Storage Container	5/968
6-1.	Wiring Schematic for AVDS-1790-2C and AVDS-1790-2CA Generator During Engine Test	6/5
6-2.	Wiring Schematic for AVDS-1790-20, AVDS-1790-2DA and AVDS-1790-2DR Generator During Engine Test	6/6
8-1.	Draining Intake Manifolds	8/2
5-112.1	STARTER WIRING HARNESES AND ASSOCIATED PARTS (MODEL AVDS-1790-2DR)	5/941.1
5-112.2	STARTER WIRING HARNESS AND ASSOCIATED PARTS (MODEL AVDS-1790-2DR)	5/941.3
5-114.1	GENERATOR ELECTRICAL LEAD AND ASSOCIATED PARTS (MODEL AVDS-1790-2DR)	5/941.1
5-116.1	ENGINE WIRING HARNESS CONNECTORS AND TERMINALS (MODEL AVDS-1790-2DR)	5/945.2
5-117.1	ENGINE WIRING HARNESS BRACKET AND CLAMPS (MODEL AVDS-1790-2DR)	5/948.1

CB14985
CB14984

HUB
HUB

5/898
5/897

LIST OF OIPs - Continued

CB14982
Part no.

SLEEVE

Nomenclature

5/899
Page

Part no.	Nomenclature	Page
10882610	BRACKET, ENGINE ACCESSORY Plate, crankshaft damper	5/79
10882611	Adapter ASSEMBLY AND FLANGE ASSEMBLY	5/284
10882613	Gear, spur	5/80
10882641	Lead, electrical	5/930
10882650	Spring	5/406
10882750	Bolt, U	5/750
10882764	Valve, fuel backflow	5/770
10882765	Bar, clamping, generator	5/744
10882766	Bracket, IMPELLER HOUSING MOUNTING	5/285
10882768	Tube assembly, metal	5/771
10882773	Adapter, generator	5/100
10882791	Tube ASSEMBLY , METAL	5/710
10882890	Tube, bent, metallic	5/885
10882940	Hose assembly, nonmetallic	5/826
10883080	Bolt, U	5/745
10883083	Tube ASSEMBLY , METAL, BRANCHED	5/716 5/714
10883740	Hose, generator AIR AIR DUCT	5/876
10883745	Boot, generator air	5/872
10883748	Elbow, FLANGE TO BOSS	5/877
10883940	Strap, retaining	5/869
10883941	Strap, retaining	5/870
10884033	Bracket, angle ANGLE BRACKET	5/875
10884034	Bracket, angle ANGLE BRACKET	5/874
10884037	Tube, assembly, generator BENT, METALLIC	5/873
10889711	Cover	5/404
10889714	Spring, helical, torsion	5/513
10889715	Washer, flat	5/512
10898756	Shroud, exhaust manifold	5/571
10898777	Gear, spur	5/117
10898778	Gear, spur	5/82
10898779	Gearshaft, spur	5/112
10898915	Shaft, idler gear SHOULDERED	5/111
10898962	Gear, spur	5/220
10898993	Adapter, fuel pump drive bevel shaftgear BRACKET, MOUNTING	5/910
10898994	Gear, spur	5/911
10898995	Gearshaft, bevel	5/909
10899002	Adapter, fuel pump bevel shaftgear BRACKET, MOUNTING	5/913
10899003	Gearshaft, bevel	5/914
10912270	Gasket	5/972
10912271	Container assembly	5/973
10912271	Container assembly	5/973
10912298	Container assembly	5/971
10912362	Adapter assembly, transmission case RING, SPACER	5/62
10912453	Flywheel, engine	5/83
10912481	Nozzle, fuel injector	5/842
10935396	Cover, access	5/533 5/53
10935400	Bracket, angle ANGLE BRACKET	5/538 5/51

LIST OF OIPs - Continued

<u>Part no.</u>	<u>Nomenclature</u>	<u>Page</u>
10935471 ✓	Pipe, exhaust MECHANICAL DRIVE	5/871
✓ 10935541/1	Housing, cooling fan drive assembly MECHANICAL DRIVE	5/341
10935614 ✓	Spring, helical, extension	5/730
10935619 ✓	Neck	5/737
10951061 ✓	Seat	5/844
10951076 ✓	Housing assembly	5/436
10951079 ✓	Hub, fan drive clutch assembly assembly	5/437
10951081 ✓	Shaft assembly	5/441
10951083 ✓	Disk, clutch	5/443
10951084 ✓	Disk, clutch	5/444
10951119 ✓	Flange MECHANICAL DRIVE	5/435
10951221 ✓	Cylinder and head, engine	5/179
10951230 ✓	Bracket, engine mount	5/980
10951231 ✓	Bracket, engine mount	5/979
10951239 ✓	Valve, poppet, engine	5/177
354417-10951358 ✓	Tube, bent, metallic	5/887
10951369 ✓	Ball, bearing	5/440
10951434 ✓	Bracket, fuel filter	5/781
11610010 ✓	Valve, poppet, engine	5/175
11630489-1	Clamp, hose	5/883
11640392 ✓	Meter, time totalizing MECHANICAL DRIVE	5/931
11641745 ✓	Head, fuel filter	5/773
11641746 ✓	Body assembly, fuel filter	5/776
11641867 ✓	Spring, helical, compression	5/775
11641868 ✓	Retainer, assembly fuel filter FILTER ELEMENT	5/774
11641919 ✓	Plate, transmission MOUNTING PLATE	5/605
11641923 ✓	Tube assembly	5/731
11641927 ✓	Tube assembly, metal	5/734
11641928 ✓	Bracket, double angle	5/732
11642079 ✓	Housing, mechanical drive	5/99
11642092-1 ✓	Heater, manifold air HOUSING, MANIFOLD HEATER	5/671
✓ 11642092-2	Heater, manifold air HOUSING, MANIFOLD HEATER	5/671
11642121-1 ✓	Housing assembly, accessory drive	5/366
11642122 ✓	Gearshaft, spur	5/374
11668067 ✓	Bearing, half sleeve	5/190
11668259 ✓	Solenoid, electrical	5/532
11668620 ✓	Relay solenoid, engine starter, electrical	5/927
11668621 ✓	Switch, pressure	5/934.1
11668625 ✓	Control assembly SEPARATOR, WATER, LIQUID FUEL	5/925
11668627 ✓	Valve, solenoid	5/848.87
11668627-1	Valve, 3 way solenoid	5/663
11668690 ✓	Valve, check	5/860
11668989 ✓	Cooler, oil, engine ASSEMBLY, FLUID COOLER	5/463
11669424 ✓	Valve, toggle COCK, DRAIN	5/470.8
11669685 ✓	Tee, PIPE TO TUBE	5/848.9
11669749 ✓	Valve, ball	5/848.10
11669771 ✓	Valve COCK, DRAIN	5/470.7

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SHAFT ASSEMBLY:
fan drive vertical

OIP 10951081

REFERENCE: Figure 5-69 (5/427)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Check for loose distributor plug	2.5	Visual	None allowed
4	B	Dimension over 0.3200 diameter pins	1.0	Measure	Diameter must be no less than 4.4904 inches
✓ 5	C	Dimension from distributor to shaft thrust shoulder (gear end)	1.0	Measure	Dimension must be no less than 0.8120 inch
6	D	Outside diameter	1.0	Measure	Diameter must be no less than 1.1440 inches
7	E	Outside diameter	1.0	Measure	Diameter must be no less than 1.1390 inches
8	F	Dimension over 0.0800 diameter pins (spline end)	1.0	Measure	Diameter must be no greater than 1.1582 inches

LESS

***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

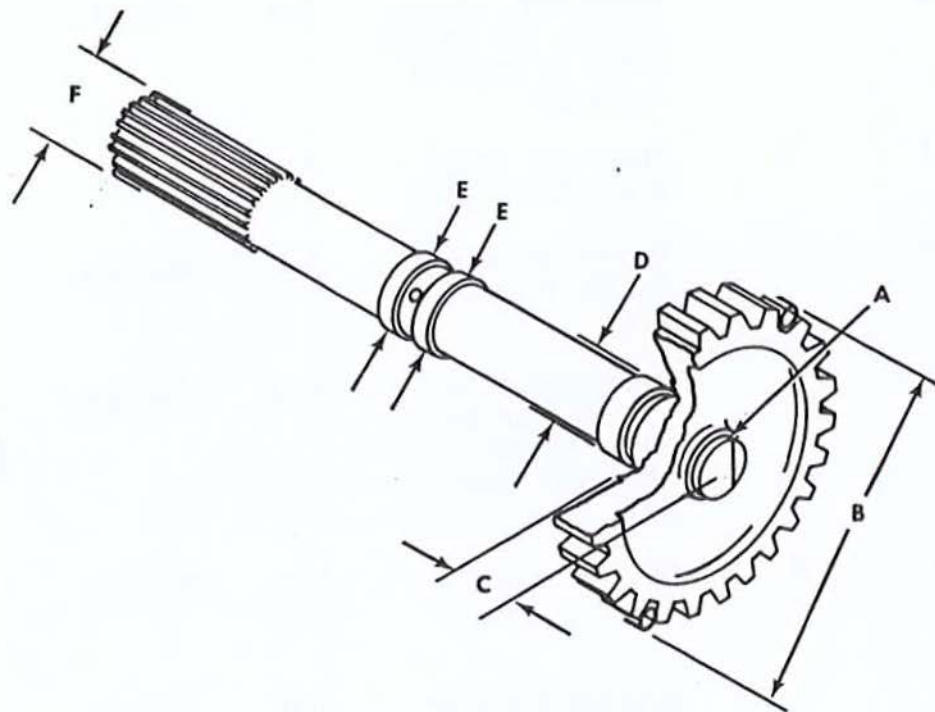
OIP 10951081

ITEM: SHAFT ASSEMBLY:
fan drive vertical - Continued

REFERENCE: Figure 5-69 (5/42)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

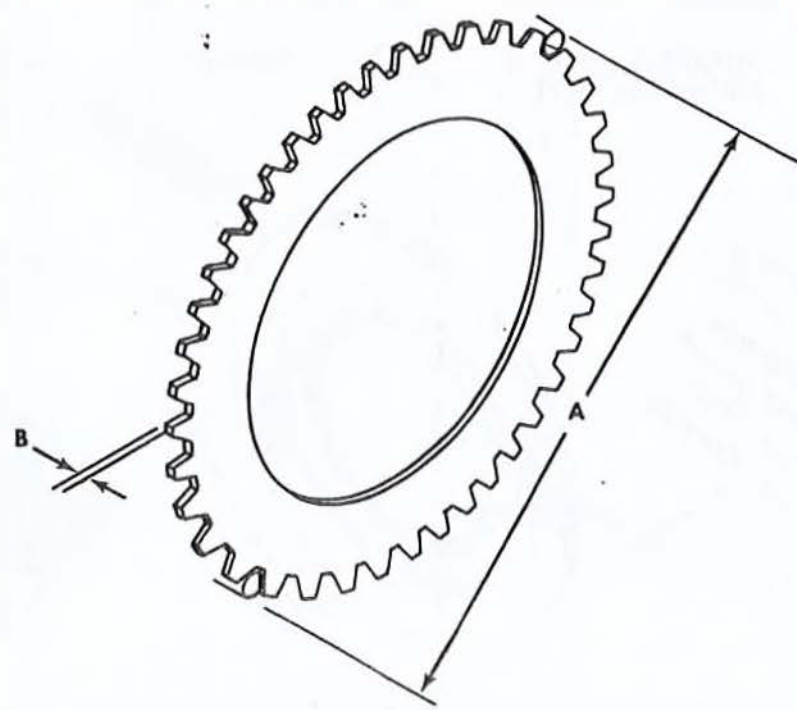
ITEM: DISK, CLUTCH:
driven fan

OIP 10951083

REFERENCE: Figure 5-69 (5/427)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Warp	2.5	Measure	None allowed
3		Wear and abrasive damage	2.5	Visual	None allowed
4		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
5		Discoloration	2.5	Visual	None allowed
6	A	Dimension over 0.3200 diameter pins	1.0	Measure	Diameter must be no less than 7.8160 inches
7	B	Thickness of disk	1.0	Measure	Dimension must be no less than 0.1500 inch



MUST BE FLAT WITHIN 0.0030 INCH WHEN PLACED ON A SURFACE 20 POUND LOAD UNIFORMLY APPLIED

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: DISK, CLUTCH:
fan drive

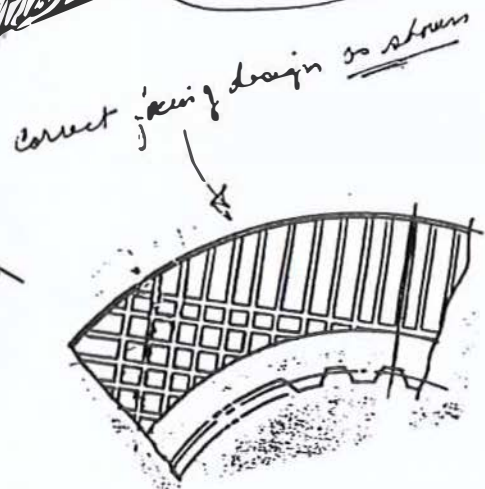
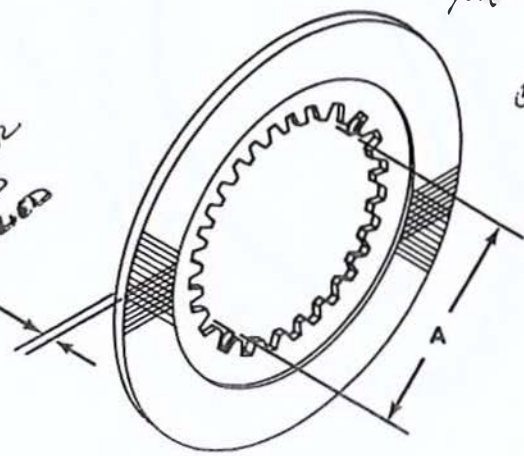
OIP 10951084

REFERENCE: Figure 5-69 (5/427)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Warp	2.5	Measure	None allowed
3		Discoloration and glazing of facing surfaces	2.5	Visual	None allowed
4		Separation of facing material from disk	2.5	Visual	None allowed
5		Scratches, nicks, gouges, and raised metal on contact surfaces	2.5	Visual	None allowed
6	A	Dimension between 0.2400 diameter pins	1.0	Measure	Diameter must be no greater than 3.7570 inches 3.7600
7	B	Thickness over facing material	1.0	Measure	Dimension must be no less than 0.1840 inch

MUST BE FLAT WITHIN 0.0040 INCH WHEN PLACED ON A SURFACE PLATE AND UNDER A 20 POUND LOAD UNIFORMLY APPLIED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-69. Repair and Assembly.

a. Repair.

- (1) General repair instructions. Refer to paragraph 5-5 (5 / 5).
- (2) Drive hub. Repair metal surfaces by polishing pitted areas smooth.

b. Assembly.

- (1) General assembly procedures. Refer to paragraph 5-8 (5 / 11) for general assembly procedures.
- (2) Assembly procedures. Refer to TM 9-2815-220-34.

BLANK

FRAME

Section XVII. ~~OVERHAUL~~ OF OIL COOLERS, OIL COOLER SCREENS,
AND ASSOCIATED PARTS

5-70. General. This section covers overhaul of the oil coolers, oil cooler screens, and associated parts (fig. 5-70) (5/448). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-71. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

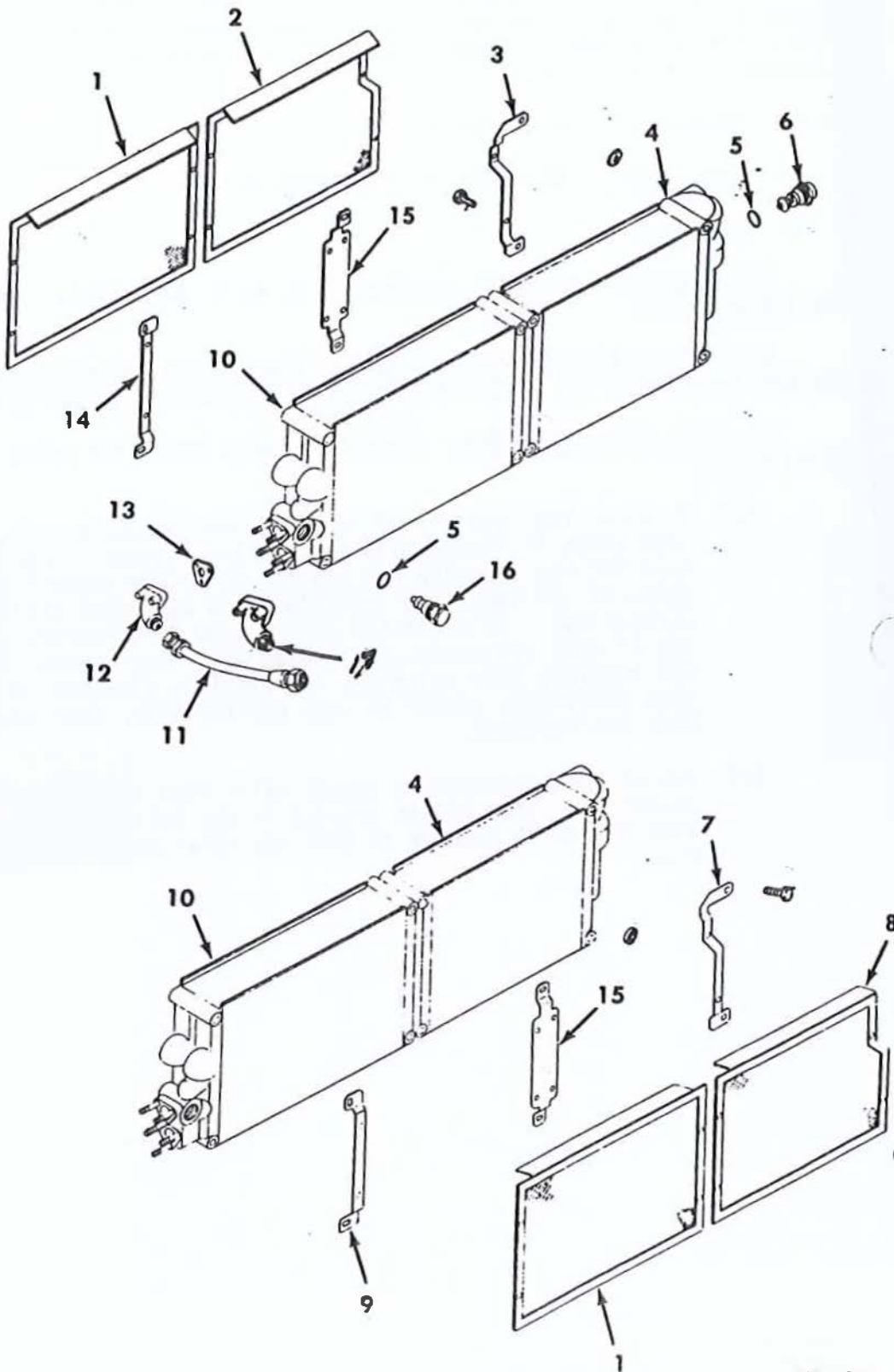
b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(2) Oil cooler external surfaces. Steam clean exterior surfaces of the oil coolers thoroughly and blow dry with compressed air at 15 psi pressure.

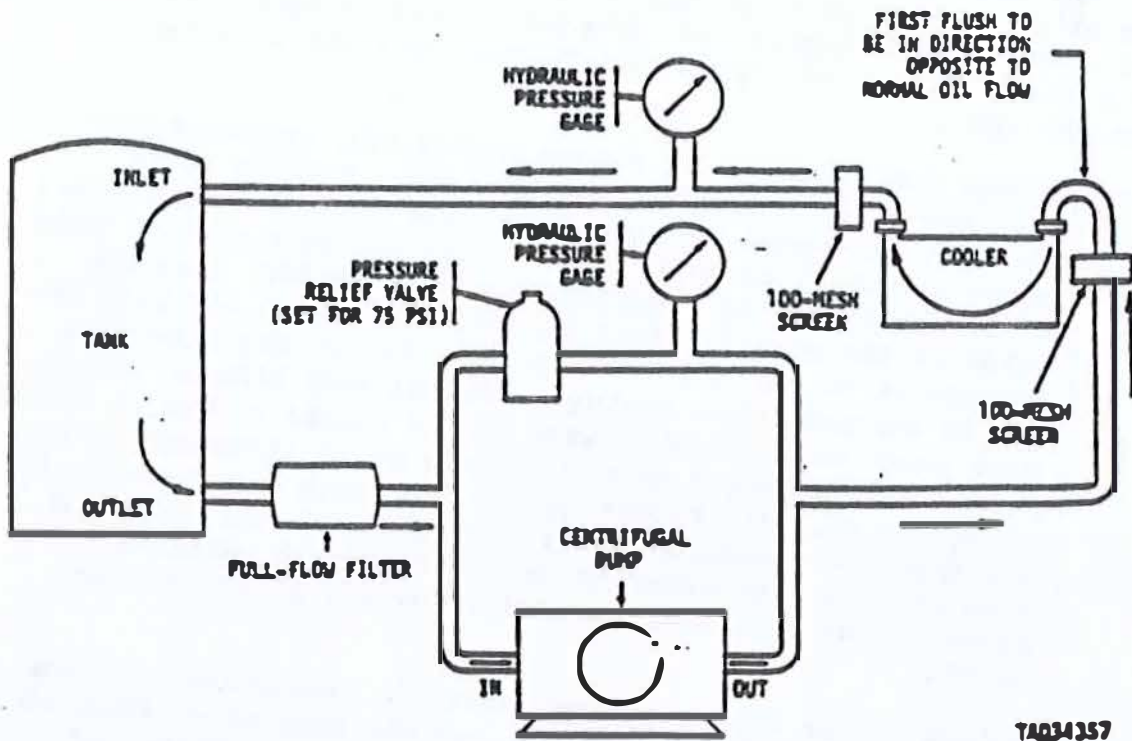
(3) Oil cooler interior. Clean oil cooler interiors using procedures outlined below.

- (a) To clean the interior of an oil cooler assembly core, the pump equipment shown in figure 5-71 (5/449) is required. Four solutions are used for the cleaning procedure. There are several possible arrangements of the equipment depending upon equipment availability and versatility. If provision can be made for flushing pump lines, one set of pump equipment can be used with four storage tanks to provide the required four solutions for rinsing, cleaning, and flushing. If such provisions cannot be made conveniently, four sets of pump equipment are required.
- (b) Remove the thermostatic bypass valve from the valve housing. Press a rubber plug into bypass opening in the valve housing. Reinstall valve into the valve housing so that the valve bears up against the rubber plug.



TA034356

Figure 5-70. Oil coolers, oil cooler screens, and associated parts.



TAD34357

Figure 5-71. Oil cooler cleaning equipment setup - schematic diagram.

(Cont)

WARNING

Cleaning solvents and solvent cleaning compounds are toxic and flammable and must be used only in a well ventilated room. Take adequate safe guards for fire prevention in work area. Use protective clothing and avoid contact of these solutions with the skin.

- (c) Clean core interior to remove engine oil, carbon deposits, gums, lead deposits, sludge, etc.. Connect steam cleaning equipment so that fluid flow will be held in reverse direction of normal flow. Pour one pint of gunk solvent, conforming to specification MIL-C-11090, into the inlet of the cooler. Flush cooler, with steam and mild detergent at 70 psi and 180 degrees F in reverse direction for 30 minutes. Once cooler is filled with liquid, administer short blast of air surge behind liquid stream at 100 psi to remove lodged debris (repeat three times during the 30 minute period). Reverse lines and flush 15 minutes in the opposite direction. Shut off detergent and flush for five minutes with water to remove detergent residual. Place cooler on stand, to drain, for two hours or overnight.
- (d) Flush cooler with a preservative oil consisting of three parts MIL-L-6082, Grade 1065, and one part MIL-C-6529, or, for systems employing MIL-L-7898 oil, preservative oil MIL-C-8188B, or equivalent, in preparation for shipment or storage. Connect cooler to pump equipment and flush in each direction for 10 minutes, checking the mesh screen after each flush to insure that no metal particles have appeared. After flushing operations, install plugs in inlet and outlet ports.
- (e) When the coolers have been cleaned, it will be necessary to resurface with chemical conversion per MIL-C-5541. Completely coat external core surfaces with zinc primer per TT-P-1757 color y, then spray ~~one~~ one coat.

5-72. Inspection.

- a. General. Inspect the oil coolers, oil cooler screens, and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits and tolerances for the oil coolers, oil cooler screens, and associated parts are listed in table 5-28 (5/452). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.
- b. Oil Cooler Assemblies. Inspect oil cooler assemblies for dented tubing or bent fins. Inspect gasket contact surfaces for burrs and raised metal. Seal all oil cooler openings. Pressure check coolers by pumping engine oil (OE), dry air, or nitrogen into coolers at 400 psi hydrostatic pressure. Oil coolers must hold 400 psi for ten minutes without loss of pressure. Then release pressure, drain, and flush with dry cleaning solvent (P-D-680, Type II). Identify leaking coolers for possible repair.
- c. Thermostatic Bypass Valves. Inspect engine and transmission oil cooler thermostatic by pass valves for stripped or damaged threads. Check valve operation by immersing valve in warm water. Using an accurate thermometer, gradually raise the water temperature to that marked on the valve cover. Valves marked 148 degrees F must travel 1/4-inch between 80 and 148 degrees F. Valves marked 185 degrees F must travel 1/4-inch between 110 and 185 degrees F. After checking valve operation, remove valve from water and clean with dry-cleaning solvent (P-D-680, Type II). Replace valve assemblies whose travel is less than 1/4 inch.
- d. Oil Cooler Hoses. Inspect oil cooler inlet and outlet hoses for breaks or abrasions in their woven shielding. Test hoses at 100 psi pressure. Replace any hoses failing the pressure test.
- e. Oil Cooler Screens. Inspect oil cooler screens for bent, cracked, or broken mounting brackets. Also check for torn or broken screening. Replace screens that are unserviceable.

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DMWR 9-2815-220

Table 5-28. Wear Limits, Fits, and Tolerances for Oil Coolers, Oil Cooler Screens, and Associated Parts

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-70 (5/448)	1	SCREEN, ENGINE ^{OIL} COOLER 617 - part no. 11684085 Refer to OIP 11684085 (5/455)		
	2	SCREEN, TRANSMISSION OIL COOLER: left bank - part no. 11684070-2 Refer to OIP 11684070-2 (5/456)		
	3	^{MOUNTING:} BRACKET, TRANSMISSION OIL COOLER SCREEN; left bank - part no. 11684082-2 Refer to OIP 11684082-2 (5/457)		
	4	COOLER, FLUID, TRANSMISSION - part no. 11684082-2 12275820 Refer to OIP 11684082-2 12275820 (5/458)		
	5	SPACER, RING: engine oil cooler bypass valve and transmission oil cooler bypass valve - part no. 7403580		Replace
	6	THERMOSTAT, FLOW CONTROL: transmission oil cooler - part no. 7346573 Refer to OIP 7346573 (5/459)		
	7	^{MOUNTING:} BRACKET, TRANSMISSION OIL COOLER SCREEN; right bank - part no. 11684082-1 Refer to OIP 11684082-1 (5/460)		

Table 5-28. Wear Limits, Fits, and Tolerances for Oil Coolers, Oil Cooler Screens, and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-70 (5/448)	8	SCREEN, TRANSMISSION OIL COOLER: right bank - part no. 11684070-1 Refer to OIP 11684070-1 (5/461)		
	9	<i>ENGINE ACCESSORY:</i> BRACKET, OIL COOLER SCREEN SUPPORT, right bank, damper end - part no. 11684050 Refer to OIP 11684050 (5/462)		
	10	<i>COOLER ASSEMBLY, FLUID COOLER -</i> COOLER, OIL, ENGINE - part no. 11668989 Refer to OIP 11668989 (5/463)		
	11	<i>NON METALLIC:</i> HOSE ASSEMBLY, PLASTIC: engine oil cooler - part no. 10865437 Refer to OIP 10865437 (5/464)		
	12	CONNECTOR, FLUID, PUMP: engine oil cooler - part no. 11683952 and 12254380 Refer to OIP 11683952 and 12254380 (5/465)		
	13	GASKET: engine oil cooler connector connector - part no. 8682679		Replace
	14	BRACKET, OIL COOLER SCREEN SUPPORT: left bank, damper end - part no. 11684049 Refer to OIP 11684049 (5/466)		

5/453

5/453

Table 5-28. Wear Limits, Fits, and Tolerances for
Oil Coolers, Oil Cooler Screens, and Associated Parts - Continued

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-70 (5/448)	15	BRACKET, OIL COOLER SCREEN BRACKET, ^{ENGINE ACCESSORY: OIL COOLER SCREEN} left and right bank, center - part no. 11684051 Refer to OIP 11684051 (5/467)		
	16	THERMOSTAT, FLOW CONTROL: engine oil cooler - part no. 8357819-1 Refer to OIP 8357819-1 (5/468)		
	17	ADAPTER, TUBETER FLANGE: STRAIGHT, FLANGE TO HOSE: ADAPTER, TUBETER FLANGE: ENGINE OIL COOLER, LOWER, LEFT BANK - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D ND , AVDS-1790-2DA) PART NO. 12254380 REFER TO OIP 1183952 AND 12254380 (5/465)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

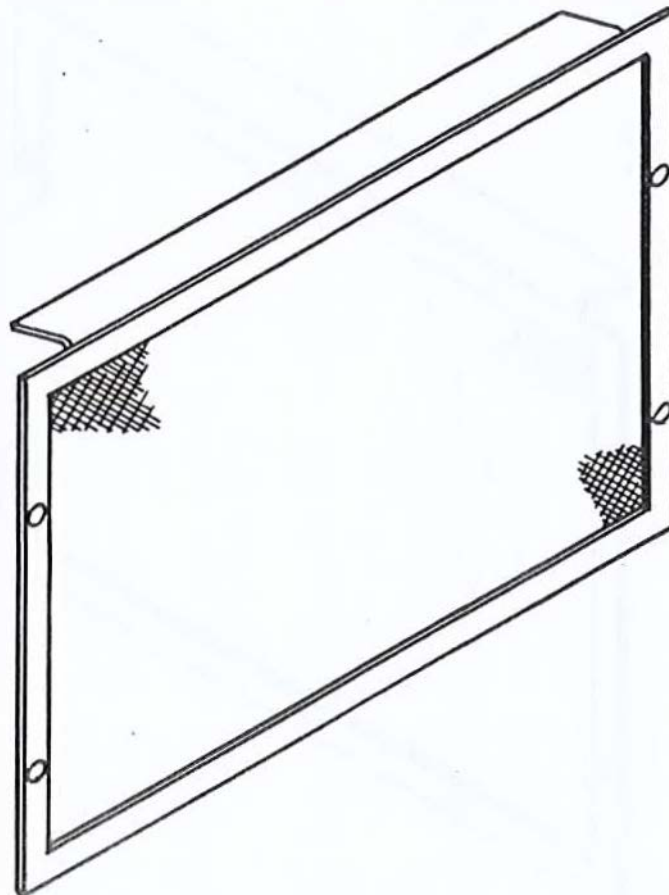
ITEM: SCREEN, ENGINE COOLERS
oil
oil

OIP 11684085

REFERENCE: Figure 5-70 (5/448)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose or missing rivets	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Damaged screen	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

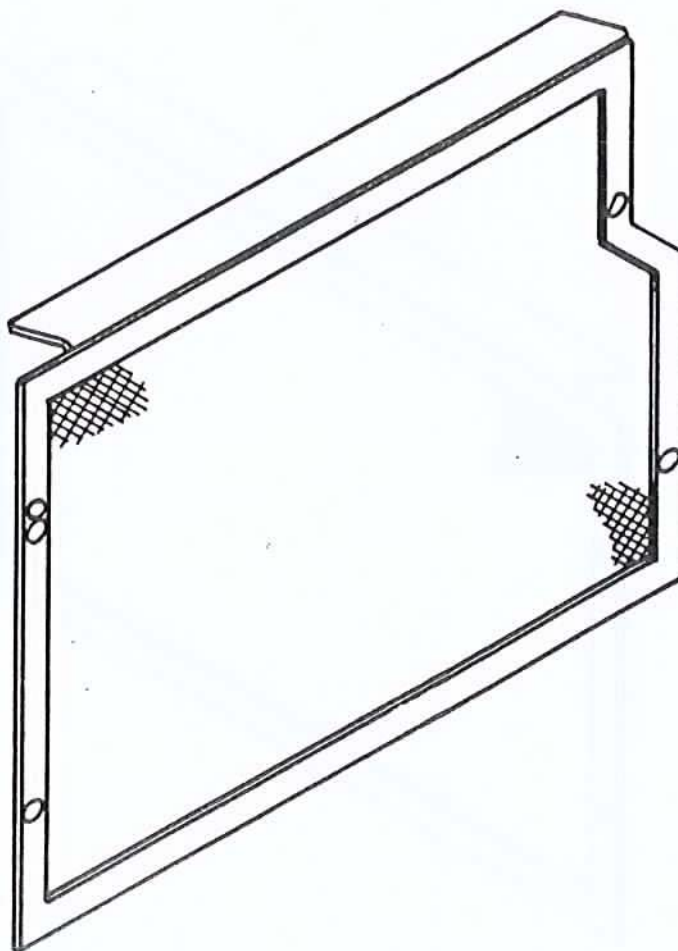
OIP 11684070-2

**ITEM: SCREEN, TRANSMISSION OIL COOLER:
left bank**

REFERENCE: Figure 5-70 (5 /448)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose or missing rivets	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Damaged screen	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{MOUNTING:} BRACKET, TRANSMISSION OIL COOLER SCREEN
left bank

OIP 11684082-2

REFERENCE: Figure 5-70 (5/448)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds <i>DAMAGED OR MISSING PLATE NUTS</i>	2.5	Visual	None allowed
4		Stripped or damaged threads	2.5	Visual	None allowed
54		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: COOLER, FLUID, TRANSMISSION

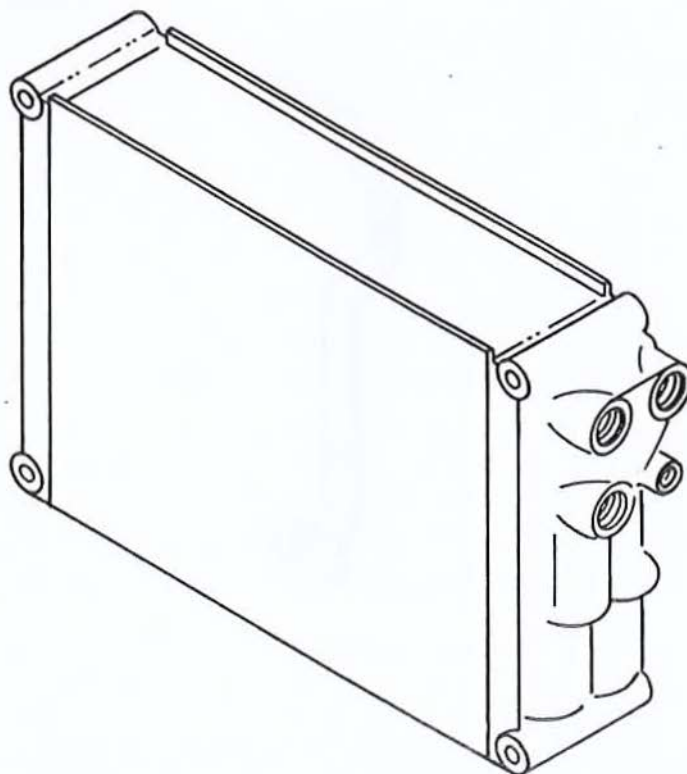
OIP *2180109 6/11*

12275820

REFERENCE: *(10596C (2385))*
Figure 5-70 (5/448)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye pene-trant	None allowed
2		Cracked welds	0.0	Dye pene-trant	None allowed
3		Leaks	0.0	Pressure	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Damaged fins	2.5	Visual	None allowed
6		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

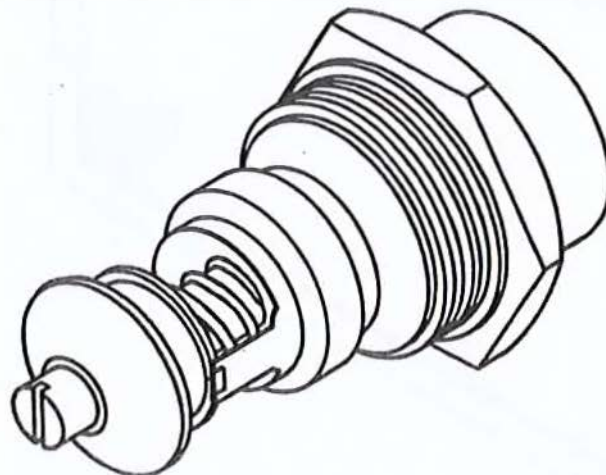
DMWR 9-2815-220

ITEM: THERMOSTAT, FLOW CONTROL:
transmission oil cooler

OIP 7346573
(VD-109106)(55193)
REFERENCE: Figure 5-70 (5/448)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	2.5	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Damaged hex heads	2.5	Visual	None allowed
4		Valve opening	0.0	Measure	0.2500 minimum valve opening between 110° and 185°F. Valve must be closed against seat at 183° to 187°F at zero PSI. Valve must hold minimum leakage up to 60 psi at 200°F. Valve must flow 35 GPM minimum at 120 PSI at 200°F.



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Change 3 57459 Jlet

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

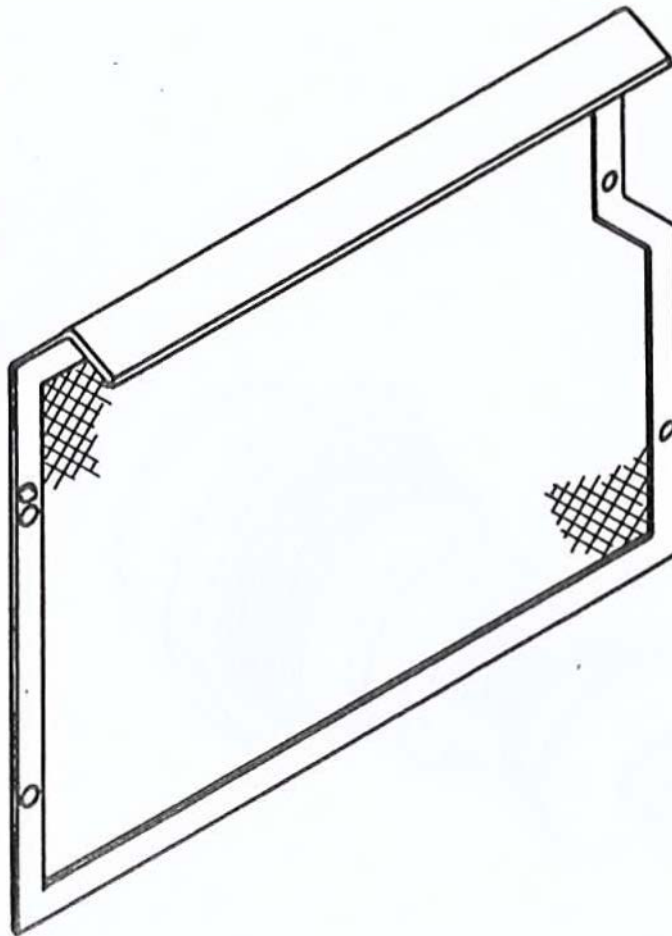
ITEM: SCREEN, TRANSMISSION OIL COOLER:
right bank

OIP 11684070-1

REFERENCE: Figure 5-70 (5/448)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose or missing rivets	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Damaged screen	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

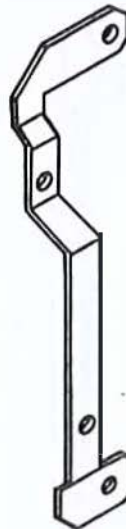
ITEM: ^{MOUNTING:} BRACKET, TRANSMISSION OIL COOLER SCREEN;
right bank

OIP 11684082-1

REFERENCE: Figure 5-70 (5 A48)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		<i>DAMAGED OR</i> Cracked welds <i>MISSING PLATE NUTS</i>	2.5	Visual	None allowed
4		Stripped or damaged threads	2.5	Visual	None allowed
54		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ENGINE ACCESSORY:} BRACKET, OIL COOLER SCREEN SUPPORT,
right bank, damper end

OIP 11684050

REFERENCE: Figure 5-70 (5/448)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds <i>DAMAGED OR MISSING PLATE NUTS</i>	2.5	Visual	None allowed
4		Stripped or damaged threads	2.5	Visual	None allowed
54		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

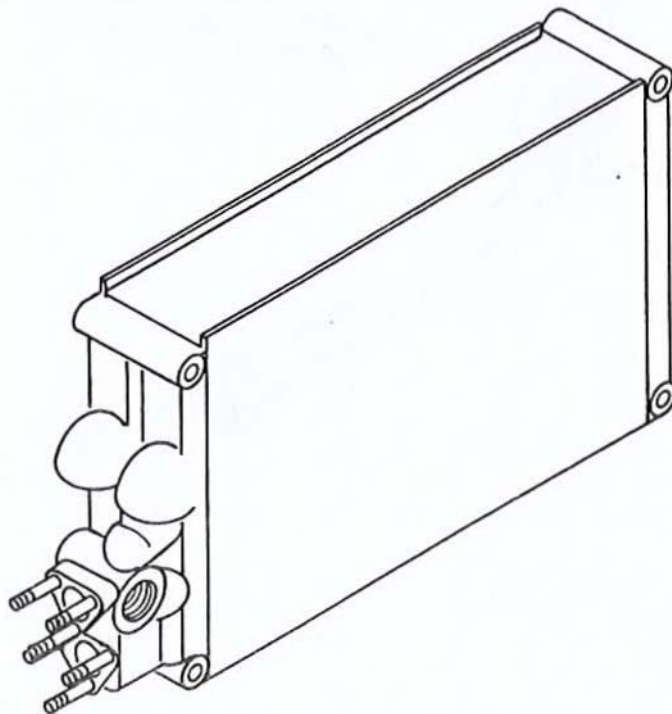
DMWR 9-2815-220

ITEM: *CORE ASSEMBLY, FLUID COOLER*
~~COOLER, OIL ENGINE~~

OIP 11668989
(REPLACEMENT) (10595A (23385))
 REFERENCE: Figure 5-70 (5/448)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Cracked welds	0.0	Dye penetrant	None allowed
3		Leaks	0.0	Pressure	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Damaged fins	2.5	Visual	None allowed
6		Damaged studs	2.5	Visual	None allowed
7		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

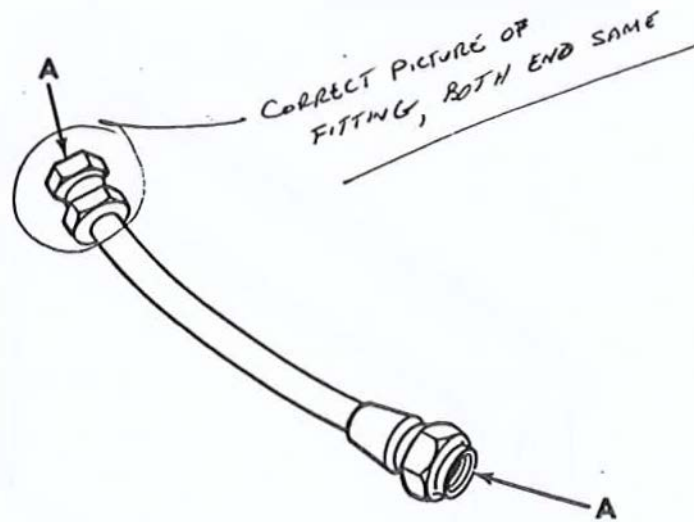
ITEM: HOSE ASSEMBLY, ~~PLASTIC~~ ^{NONMETALLIC}
engine oil cooler

OIP 10865437

REFERENCE: Figure 5-70 (5/448)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Breaks or abrasions in woven shielding	2.5	Visual	None allowed
2		Leaks	0.0	Pressure	None allowed
3		Damaged nut	2.5	Visual	None allowed
4		Base metal showing through protective finish on nut	2.5	Visual	None allowed
5	A	Cracked seat	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: CONNECTOR, FLUID, PUMP:
engine oil cooler

OIP ~~12254380~~ AND 11683952

REFERENCE: Figure 5-70 (5/448)

ITEM: 12 AND 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual Optical Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5	A	Damage to hose seat	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

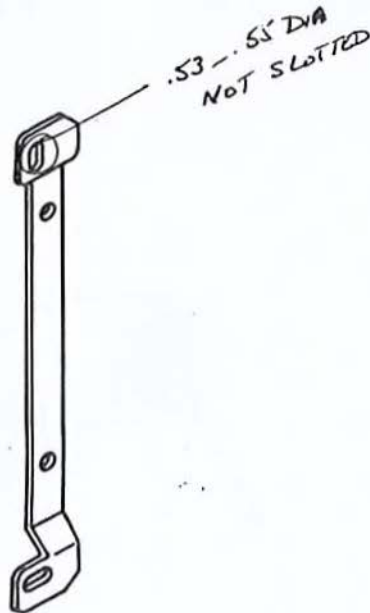
ITEM: BRACKET, OIL COOLER SCREEN SUPPORT:
left bank, damper end

OIP 11684049

REFERENCE: Figure 5-70 (5/448)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		<i>DAMAGED OR MISSING</i> Cracked welds <i>PLATE NUTS</i>	2.5	Visual	None allowed
4		Stripped or damaged threads	2.5	Visual	None allowed
54		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ENGINE ACCESSORY:} BRACKET, OIL COOLER SCREEN SUPPORT,
left and right bank, center

OIP 11684051

REFERENCE: Figure 5-70 (5/448)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds <i>DAMAGED OR MISSING PLATE NUTS</i>	2.5	Visual	None allowed
4		Stripped or damaged threads	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: THERMOSTAT, FLOW CONTROL:
engine oil cooler

OIP 8357819 -1

REFERENCE: Figure 5-70 (5/448)

ITEM: 16

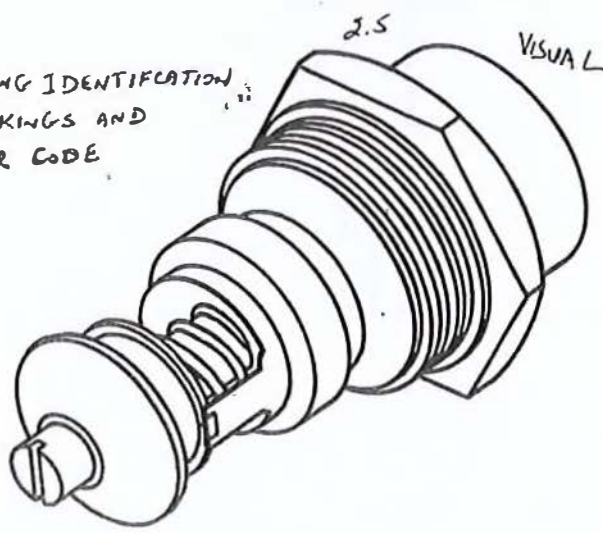
NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Damaged hex head	2.5	Visual	None allowed
4		Valve opening	0.0	Measure	0.2500 minimum valve opening between 90° and 150°F. Valve must be closed against seat at 148° to 152°F at zero PSI with oil temp at 160° cracking pressure 100 PSI minimum. Valve must flow 35 GPM minimum at 90-125 PSI with oil temperature at 160°F.

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5

MISSING IDENTIFICATION MARKINGS AND COLOR CODE



NONE ALLOWED

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5-73. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Repair of aluminum oil coolers. Refer to TB 9-2300-403-45 for the repair of the aluminum oil coolers.

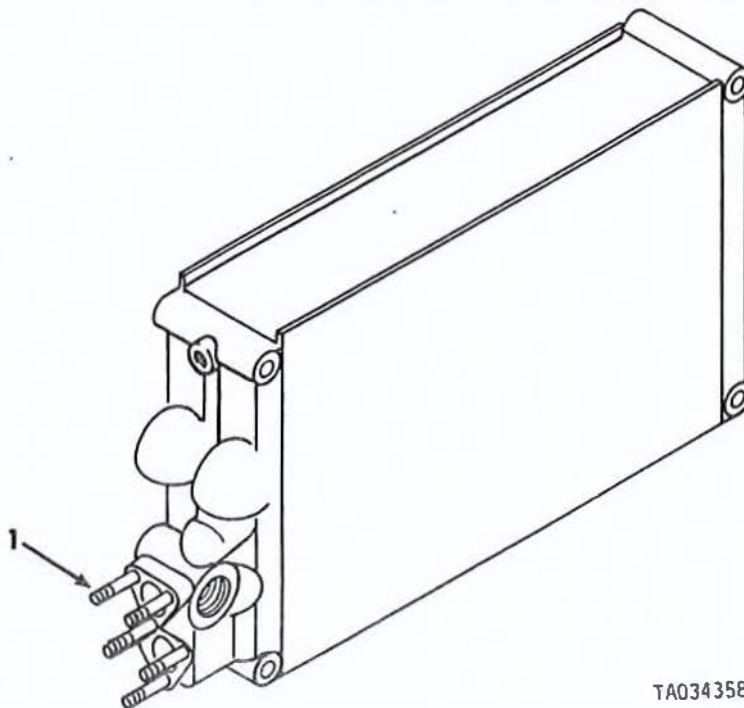
NOTE

Do not repair oil cooler leaks by soldering. Soldering is not an acceptable repair because of high operating temperatures and pressure.

(3) Replacement of studs. Refer to paragraph 5-5, d (5/6), table 5-29 (5/469), and figure 5-72 (5/469) when replacing damaged, bent, or stripped oil cooler studs.

Table 5-29. Engine Oil Cooler Standard Stud Identification.

Reference Fig No.	Item No.	Setting height	No. reqd.	Stud size and length
5-72 (5/469)	1	2	12	5/16-18 (13/16) x 5/16-24 (13/16) x 2-3/4



TA034358

Figure 5-72. Engine oil cooler standard stud identification.

5-73. (Cont)

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XVII.1. OVERHAUL OF OIL SAMPLING SYSTEM
AND ASSOCIATED PARTS

5-73.1. General. This section covers overhaul of the oil sampling system valves, hoses and associated parts (fig. 5-72.1) (5/470.2). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-73.2. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-73.3. Inspection. Inspect the oil sampling valves, hoses and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the oil sampling valves, hoses, and associated parts are listed in table 5-29.1 (5/470.3). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits and tolerances.

DMWR 9-2815-220

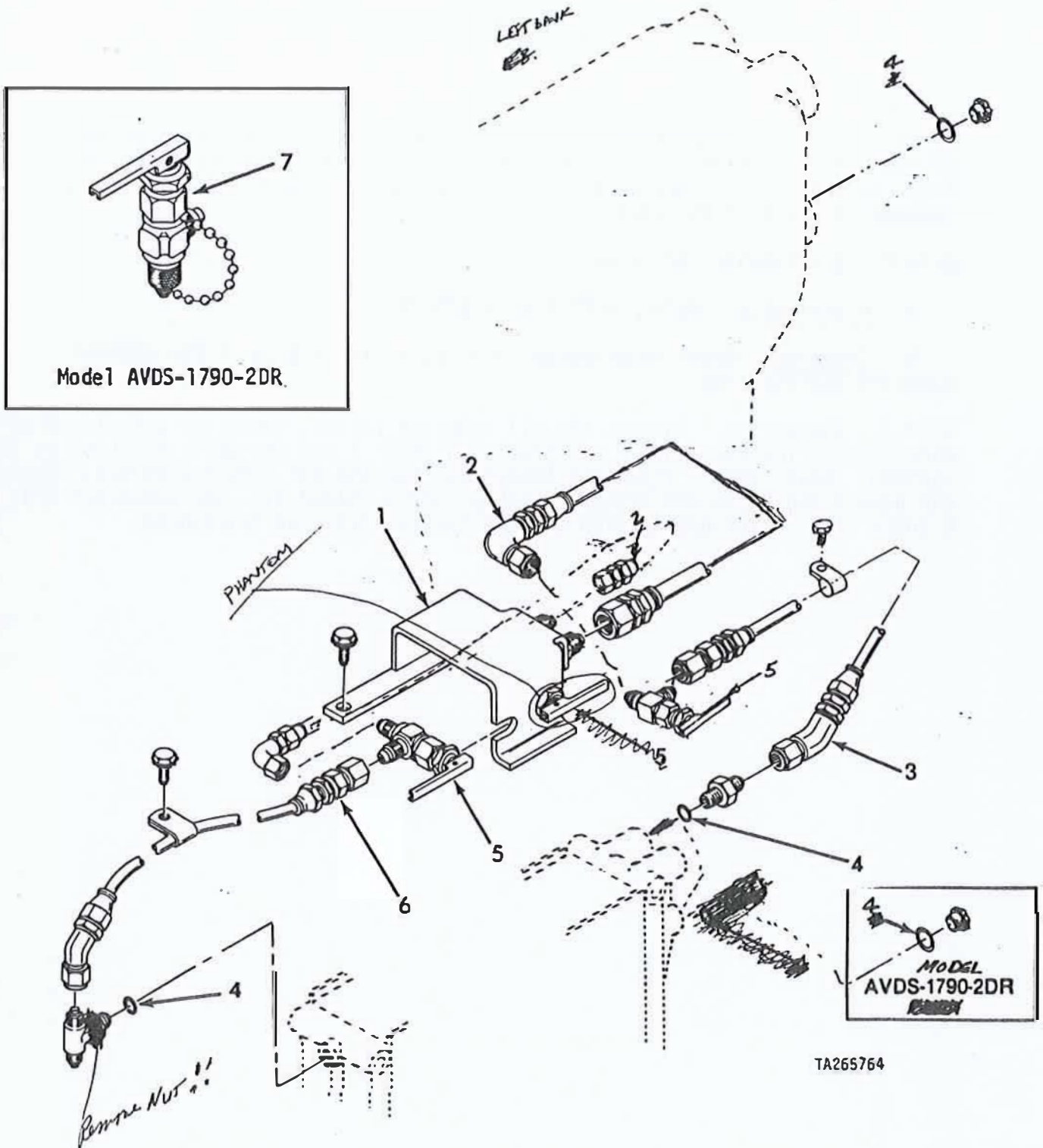


Figure 5-72.1. Oil sampling system assembly.

(MODELS AVDS. 1790-2C, AVDS. 1790-2CA, AVDS. 1790-2D
AND AVDS. 1790-2DA)

Table 5-29.1. Wear Limits, Fits, and Tolerances for Oil Sampling System Valves, Hoses and Associated Parts.

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-72.1	1 (5/470.2)	ENGINE ACCESSORY: BRACKET, MOUNTING OIL SAMPLING DRAIN COCK - part no. 12314626 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) Refer to OIP 12314626 (5/470.4)		
	2	HOSE ASSEMBLY, NONMETALLIC: oil sampling cocks to mounting ^{DRAIN} bracket - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, AVDS-1790-2DA) part no. AE360050E0270 MS 8005E310C Refer to OIP AE360050E0270 MS 8005 (5/666) (5/666)		
	3	HOSE ASSEMBLY, NONMETALLIC: transmission oil cooler, adapter to sampling ^{DRAIN} cock - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. AE360050E0270 MS 8005E270B Refer to OIP AE360050E0270 MS 8005 (5/666) (5/666)		
	4	PACKING, PREFORMED oil cooler, MS 9388-012 part no. (M83248-1-012)		Replace
	5	VALVE - ^{COCK DRAIN:} OIL SAMPLING - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11669771 Refer to OIP 11669771 (5/470.7)		
	6	HOSE ASSEMBLY, NONMETALLIC: engine oil cooler to ^{DRAIN} sampling cock - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. AE360050E0300 MS 8005E300B Refer to OIP AE360050E0300 MS 8005 (5/470.6) (5/666)		
	7	^{COCK DRAIN:} VALVE, TOGGLE: oil sampling - part no. 11669424 (Model AVDS-1790-2DR) Refer to OIP 11669424 (5/470.8)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

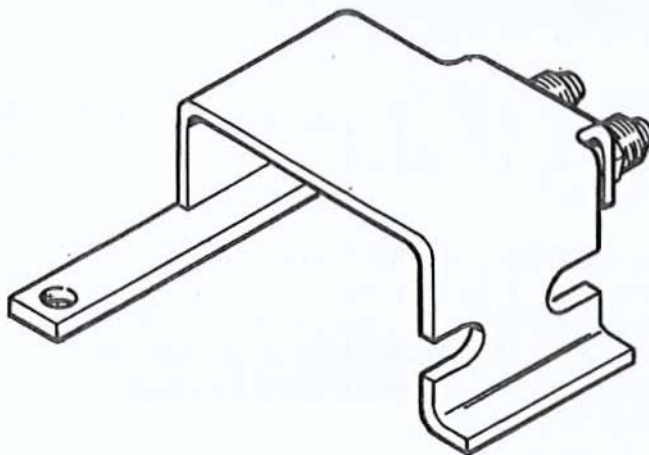
OIP 12314626

ITEM: BRACKET, ^{ENGINE ACCESSORY:} ~~MOUNTING~~
OIL SAMPLING DRAW COCK

REFERENCE: Figure 5-72.1 (5/470.2)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, Broken or bent	0.0	Visual	None allowed
2		Broken welds	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
5		Black paint missing from depressed letters and lines	2.5	Visual	None allowed
6		Base metal showing through protective finish	2.5	Visual	None allowed



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5/470.4

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(5/470.5 - 5/470.6 (Blank))

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: HOSE ASSEMBLY, NONMETALLIC

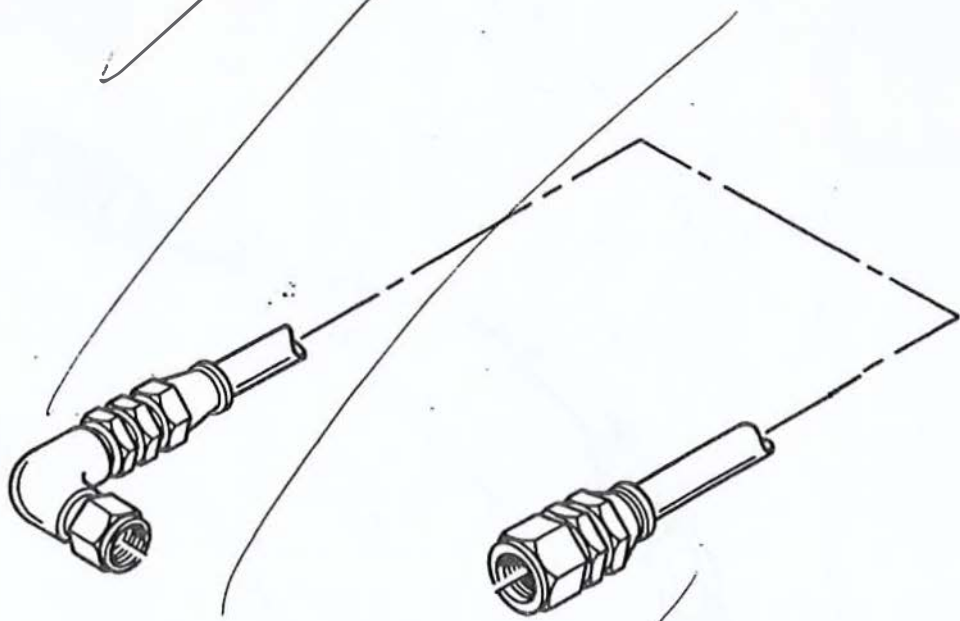
OIP AE3660120E0310

REFERENCE: Figure 5-72.1 (5/470.2)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 3000 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

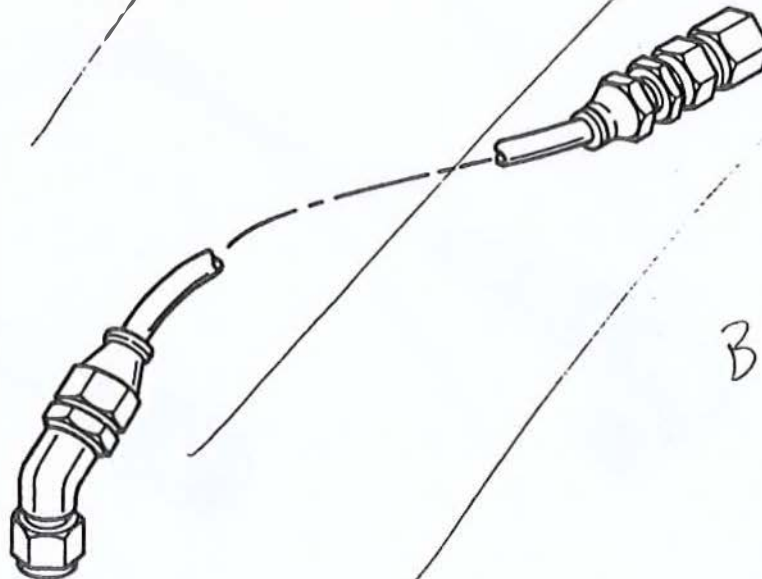
OIP AE3660060E0270
AE3660060E0300

ITEM: HOSE ASSEMBLY, NONMETALLIC

REFERENCE: Figure 5-72.1 (5/470.2)

ITEM: 3 and 6

NO.	REF LTR	CHARACTERISTIC	AQL	INSP. METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 3000 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

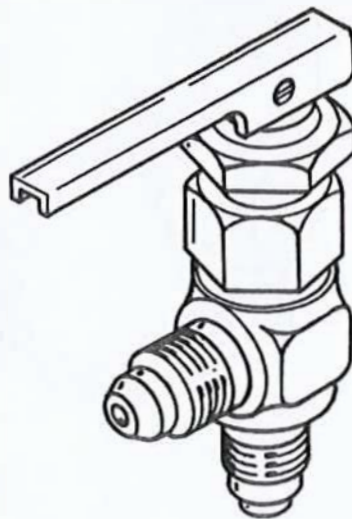
ITEM: *COCK, DRAW:*
VALVE
OIL SAMPLING

OIP 11669771

REFERENCE: Figure 5-72.1 (5/470.2)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
4		Functional test	1.0	Visual	Must flow freely in open position. Must not leak when closed with 70 psi applied at inlet.
5		<i>BASE METAL SHOWING THROUGH PROTECTIVE FINISH (HANDLE ONLY)</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

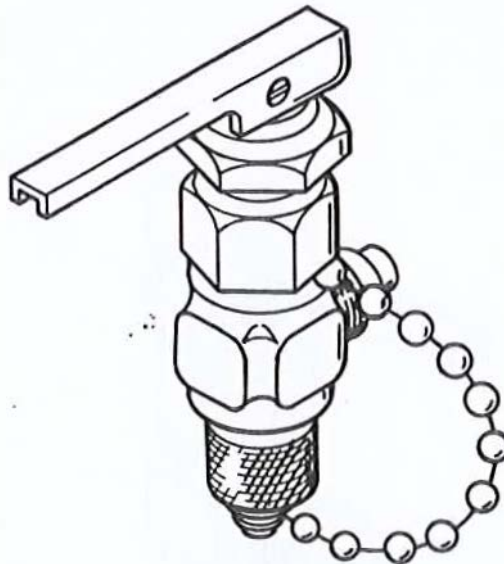
ITEM: *COCK, DRAW:*
~~VALVE TOGGLE~~
 oil sampling
~~(HANDLE) (HANDLE) (HANDLE)~~

OJP 11669424

REFERENCE: Figure 5-72.1 (5/470.2)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks or leaks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Plugged oil passages	0.0	Visual	None allowed
4		Broken chain or missing cap	2.5	Visual	None allowed
5		Lever secure on valve	0.0	Visual	None allowed
6		<i>BASE METAL SHOWING THROUGH PROTECTIVE FINISH (HANDLE ONLY)</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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DMWR 9-2815-220

5-73.4. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XVIII. OVERHAUL OF OIL COOLER FRAMES,
SHROUDS, AND ASSOCIATED PARTS

5-74. General. This section covers overhaul of the oil cooler frames, shrouds, and associated parts (fig. 5-73) (5/473). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-75. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-76. Inspection. Inspect the oil cooler frames, shrouds, and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the oil cooler frames, shrouds, and associated parts are listed in table 5-30 (5/474). See paragraph 5-4, b and c (5/ 3) for explanation of wear limits, fits, and tolerances.

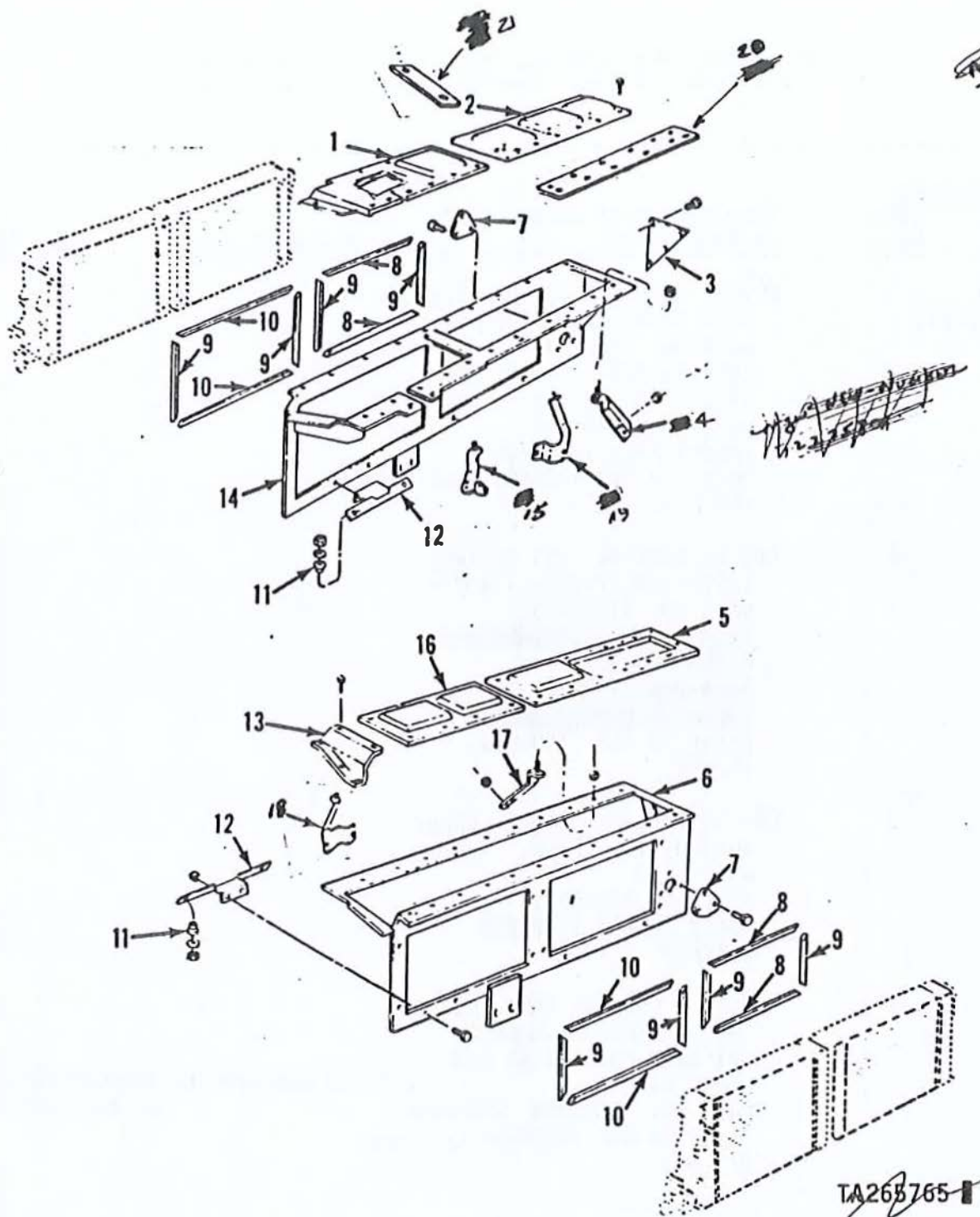


Figure 5-73. Oil cooler frames, shrouds, and associated parts.

Table 5-30. Wear Limits, Fits, and Tolerances for Oil Cooler Frames, Shrouds, and Associated Parts

References	Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
	5-73	1	COVER, ACCESS: engine upper, left bank, damper end - part no. 11684017 (Models AVDS-1790-2C, 2DA AVDS-1790-20 1 AND AVDS-1790-2DA) part no. 11684220 (Model AVDS-1790-2DR) Refer to OIP 11684017 AND 11684220 (5/477)		
		2	COVER, ACCESS: oil cooler, left bank, flywheel end - part no. 11683939 (part no. 11684219 (Model AVDS-1790-2DR)) Refer to OIP 11683939 (5/478)		
		3	COVER, ACCESS: engine upper shroud, left bank, flywheel end - part no. 11683985 Refer to OIP 11683985 (5/479)		
		4	BRACKET, COOLING FAN: cooling fan shroud support, cylinder no. 6 left and right bank - part no. 11684234 12354439 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) Refer to OIP 11684234 12354439 (5/480)		

Table 5-30. Wear Limits, Fits, and Tolerances for Oil Cooler Frames, Shrouds, and Associated Parts

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-73 (5/473)	12	SUPPORT, OIL COOLER FRAME: left and right bank - part no. 11683954 Refer to OIP 11683954 (5/484)		
	13	COVER, ACCESS: engine upper shroud, right bank, damper end - part no. 11683984 Refer to OIP 11683984 (5/485)		
	14	BRACKET, MOUNTING: FRAME, ENGINE COOLER SUPPORT: left bank - <i>ENGINE OIL COOLER SUPPORT, LEFT BANK -</i> part no. 11684041 Refer to OIP 11684041 (5/486)		
	15	BRACKET, COOLING FAN: <i>MOUNTING:</i> cooling fan shroud support, cylinder no. 4 ³ left bank - part no. 12254292 Refer to OIP 12254292 (5/487)		
	16	COVER, ACCESS: engine upper, right bank, damper end - part no. 11683941 <i>AVDS-1790-2CA,</i> (Models AVDS-1790-2C, and AVDS-1790-2D 2 <i>AND AVDS-1790-2DA</i>) part no. 11683941-1 (Model AVDS-1790-2DR) Refer to OIP 11683941 <i>AND 11683941-1</i> (5/488)		
	17	BRACKET, COOLING FAN; COOL- ing fan shroud support, COOL- cylinders 1, through 5 ^{1, 2, 3 AND 5} (RIGHT BANK) AND CYLINDER NOS. 1, 2 AND 5 and right bank -- (LEFT BANK) part no. 11682768 <i>(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND</i> Refer to OIP 11682768 <i>AVDS-1790-2DA)</i> (5/489)		

Table 5-30. Wear Limits, Fits, and Tolerances for Oil Cooler Frames, Shrouds, and Associated Parts

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-73 (5 / 473)	5	COVER, ACCESS: engine upper, right bank, flywheel end - part no. 11684246 (Models AWDS 1790-20 and AWDS 1790-20W) part no. 11684217 (Model AWDS 1790-20W) Refer to OIP 11684246 (5 / 481)		
	6	BRACKET, MOUNTING: FRAME, ENGINE OIL COOLER <i>ENGINE OIL COOLER SUPPORT, RIGHT BANK -</i> SUPPORT: right bank part no. 11684048 Refer to OIP 11684048 (5 / 482)		
	7	COVER, ACCESS: timing, oil cooler frame, left and right bank - part no. 11684132 Refer to OIP 11684132 (5 / 483)		
	8	RUBBER STRIP: oil coolers to oil cooler support - part no. 11684079-2		Replace
	9	RUBBER STRIP: oil coolers to oil cooler support - part no. 11684079-1		Replace
	10	RUBBER STRIP: oil coolers to oil cooler support - part no. 11684079-3		Replace
	11	GROMMET, RUBBER: <i>NONMETALLIC:</i> oil cooler frame to cylinder head stud - part no. MS35489-74 (AN93189-13)		Replace

OVERHAUL INSPECTION PROCEDURE

ADD

DMWR 9-2815-220

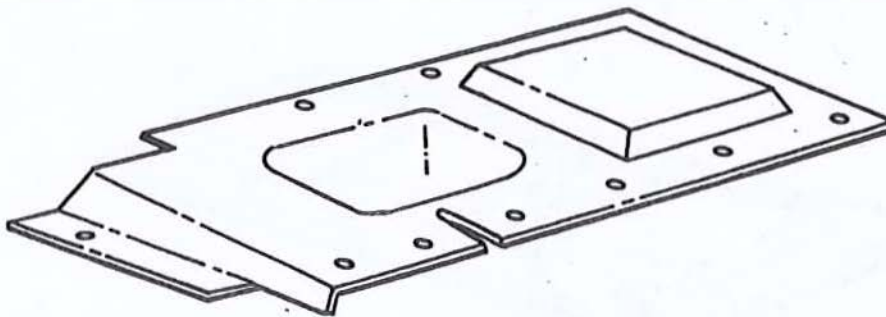
ITEM: COVER, ACCESS:
engine upper, left bank, damper end

OIP 11684017
11684220

REFERENCE: Figure 5-73 (5/473)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKED WELDS (11684220)	2.5	VISUAL	NONE ALLOWED



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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

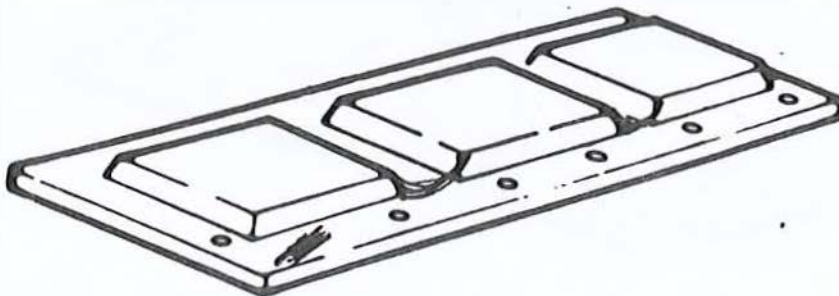
OIP 11683939

ITEM: COVER, ACCESS:
oil cooler left bank, flywheel end

REFERENCE: ~~11683939~~ Figure 5-73 (5/473)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

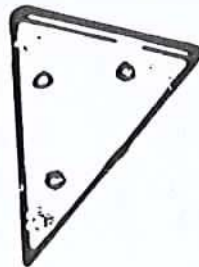
OIP 11683985

ITEM: COVER, ACCESS:
engine upper shroud, left bank, flywheel
end

REFERENCE: Figure 5-73 (5/473)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		DAMAGED OR MISSING PLATE NUTS	2.5	VISUAL	NONE ALLOWED



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HAUL INSPECTION PROCEDURE

9-2815-
DMWR ~~TECHNICAL~~ 220

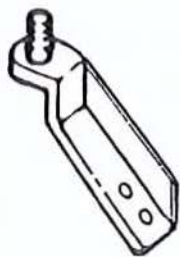
OIP ~~EGARIES-070~~
12354439

BRACKET, COOLING FAN:
cooling fan shroud support, cylinder
no. 6 left and right bank

REFERENCE: Figure 5-73 (5/473)

ITEM: 4

REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
	Cracks	0.0	Visual	None allowed
	Bent	2.5	Visual	None allowed
	Cracked welds	2.5	Visual	None allowed
	BASE METAL SHOWING Chipped or missing paint THROUGH PROTECTIVE FINISH	2.5	Visual	None allowed
	Damaged threads	2.5	Visual	None allowed



and components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Certification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

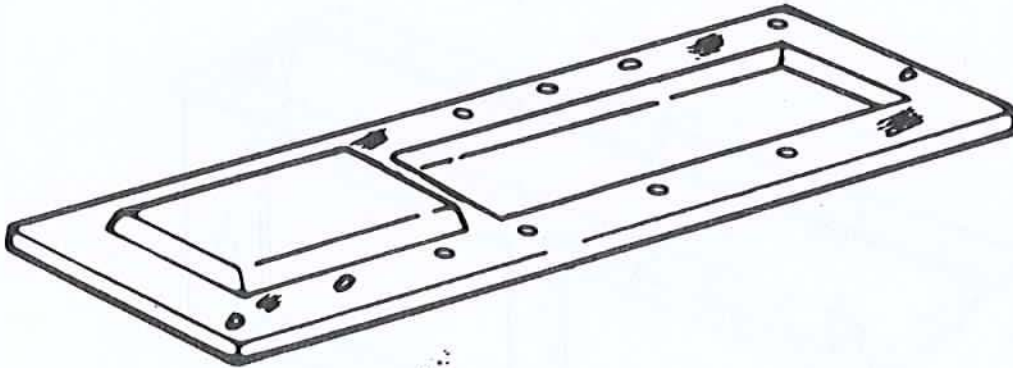
ITEM: COVER, ACCESS:
engine upper, right bank, flywheel end

OIP 11684246

REFERENCE: ~~11684246~~ Figure 5-73 (5/473)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		DAMAGED OR MISSING PLATE NUTS	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

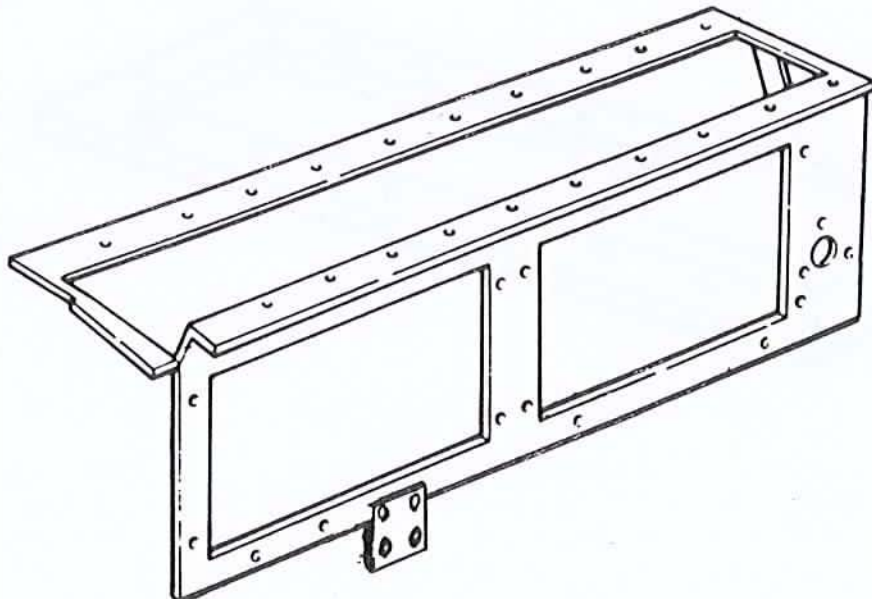
ITEM: ~~FRAME, ENGINE OIL COOLER SUPPORT~~
~~right bank~~
 BRACKET, MOUNTING:
 ENGINE OIL COOLER SUPPORT, RIGHT BANK

OIP 11684048

REFERENCE: Figure 5-73 (5/473)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed
6		DAMAGED OR MISSING PLATE NUTS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

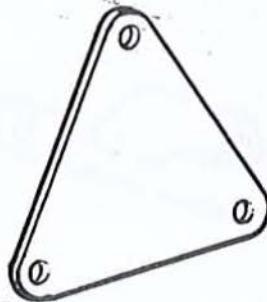
OIP 11684132

ITEM: COVER, ACCESS:
timing, oil cooler frame, left and right
bank

REFERENCE: Figure 5-73 (5/473)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^(5/73) SUPPORT, OIL COOLER FRAME:
left and right bank

OIP 11683954

REFERENCE: Figure 5-73 (5/473)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	drawoff	Cracks	0.0	Visual	None allowed
2	drawoff	Bent	2.5	Visual	None allowed
3	drawoff	Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

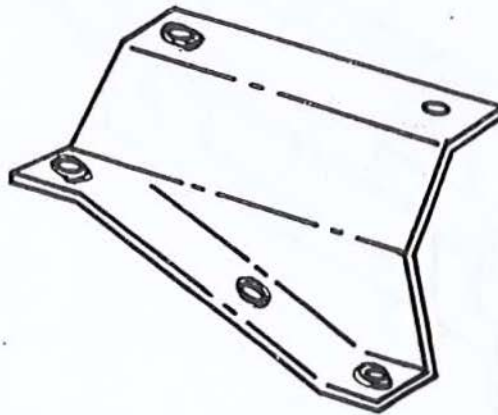
OIP 11683984

ITEM: COVER, ACCESS:
engine upper shroud, right bank,
damper end

REFERENCE: Figure 5-73 (5/473)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Cracked welds		Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

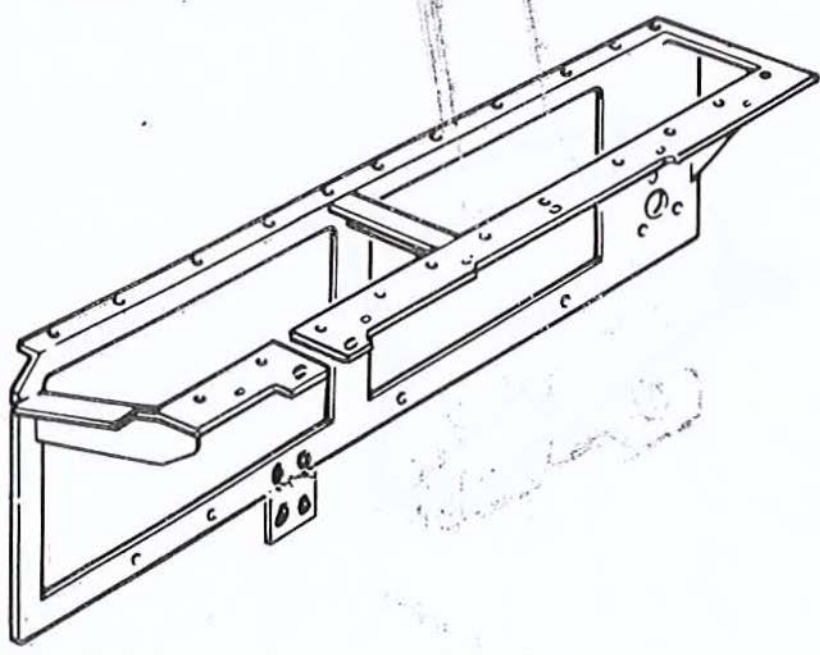
ITEM: *BRACKET, MOUNTING:
FRAME, ENGINE COOLER SUPPORT:
left bank
ENGINE OIL COOLER SUPPORT, LEFT BANK*

OIP 11684041

REFERENCE: Figure 5-73 (5/473)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed
6		<i>DAMAGED OR MISSING PLATE NUTS</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

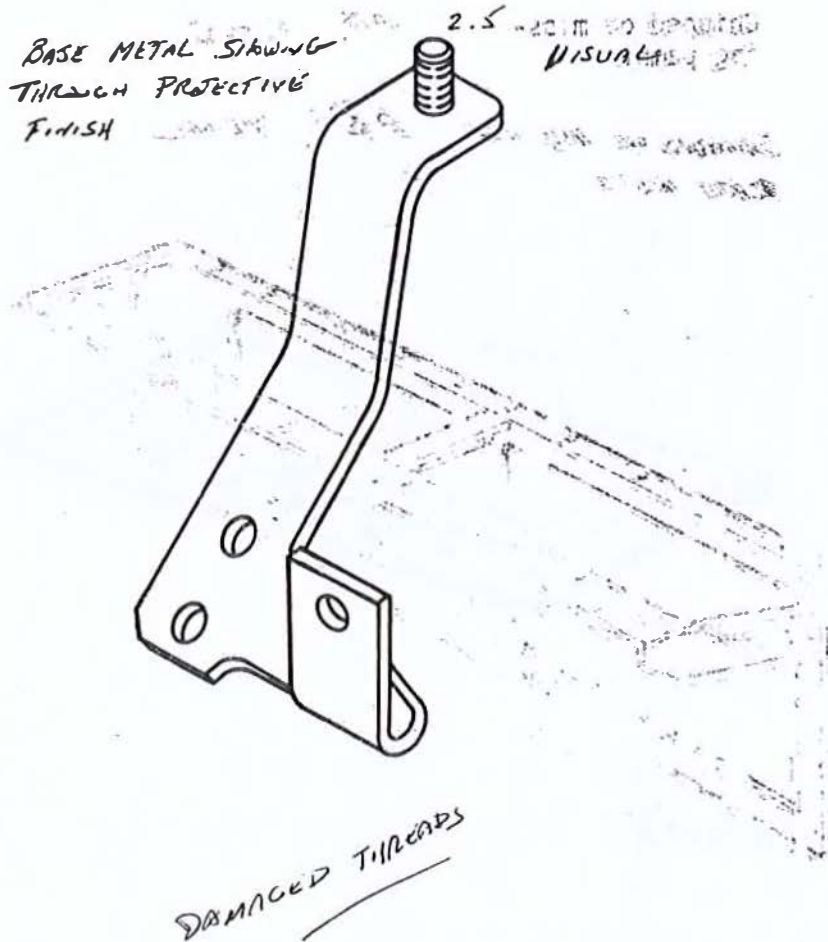
ITEM: BRACKET, ^{MOUNTING:} ~~COOLING FAN~~
cooling fan shroud support,
cylinder no. 4, left bank

OIP 12254292

REFERENCE: Figure 5-73 (5/473)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		CRACKED WELDS	2.5	VISUAL	NONE ALLOWED
4		BASE METAL SIKAWG THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

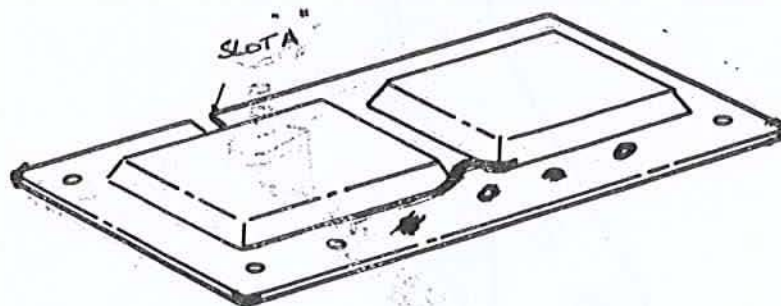
OIP 11683941

ITEM: COVER, ACCESS:
engine upper, right bank, damper end

REFERENCE: 11683941-1
Figure 5-73 (5/473)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



11683941 WITH SLOT A

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

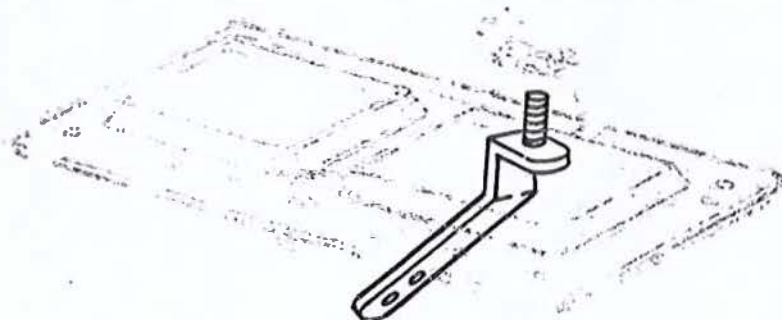
OIP 11682768

ITEM: BRACKET, COOLING FAN:
cooling fan shroud support, cylinders
~~1 through 5 left and right bank~~

REFERENCE: Figure 8-73 (57473)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5		Damaged threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

VERHAUL INSPECTION PROCEDURE

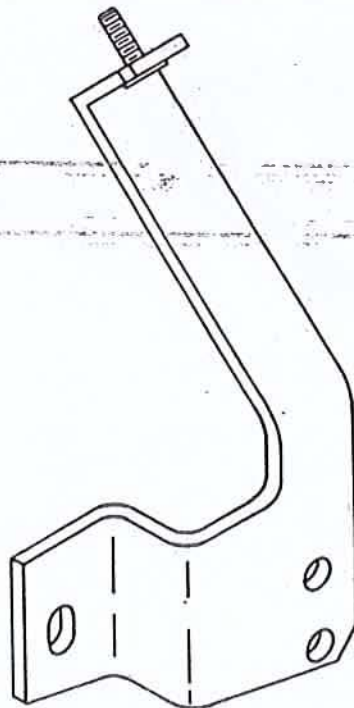
DMWR TCM1000-220

**BRACKET, COOLING FAN:
shroud support, cylinder no. 4**

OIP ~~699843~~ - right bank
~~699844~~ - left bank
12354412
12354413
REFERENCE: Figure 5-73 (5/473)

ITEM: 18 and 19

NO.	REF LTR	CHARACTERISTIC	AQL	INSPECTION METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Cracked welds	2.5	Visual	None allowed
4		<i>BASE METAL SHOWING</i> Chipped or missing paint <i>THROUGH PROTECTIVE FINISH</i>	2.5	Visual	None allowed
5		Damaged threads	2.5	Visual	None allowed



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE.

DMWR 9-2815-220

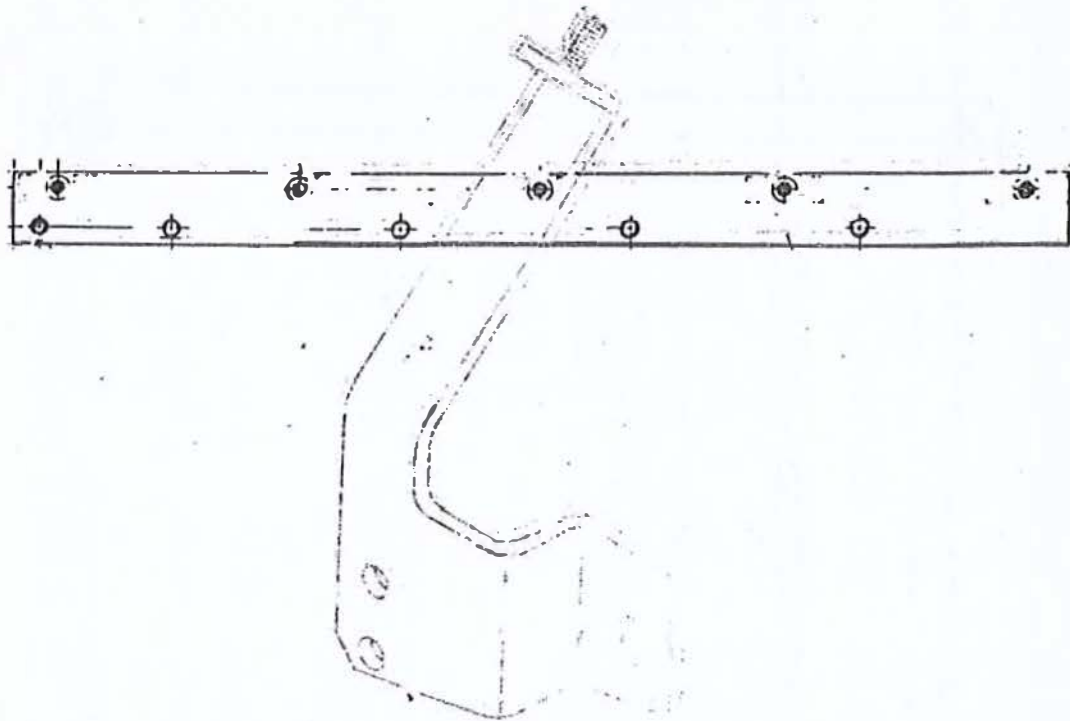
OIP 11684279

ITEM: ~~ADAPTOR~~ ~~ENTIRE COVER~~
 PLATE, MENDING
 ENGINE UPPER COVER, DAMPER END, LEFT BANK

REFERENCE: FIGURE 5-73 (5/473)

ITEM: 2000000000

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BENT	2.5	VISUAL	NONE ALLOWED
3		BASE METAL STRUCK THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED
4		DAMAGED OR MISSING PLATE NUTS	2.5	VISUAL	NONE ALLOWED



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5/489.2

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

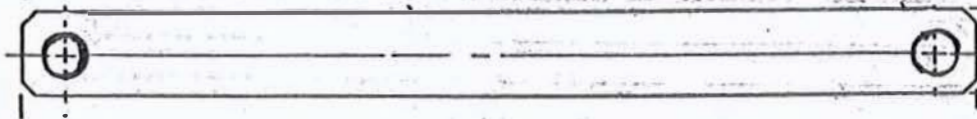
DMWR 9-2815-220

OIP 11684217

ITEM: STRAP, RETAINING:
ENGINE UPPER COVER,
DAMPEN END, LEFT BANK

REFERENCE: FIGURE 5-73 (5/473)
ITEM: 21

NO.	REF LTR	CHARACTERISTIC	AQL	INSPECTION METHOD	REQUISITE
1		CRACKS	0.5	VISUAL	NONE ALLOWED
2		BENT	2.5	VISUAL	NONE ALLOWED
		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/489.3 (5/489.4 Blank)
5/489.4 (5/489.5 Blank)

5-77. Repair and Assembly.

a. Repair.

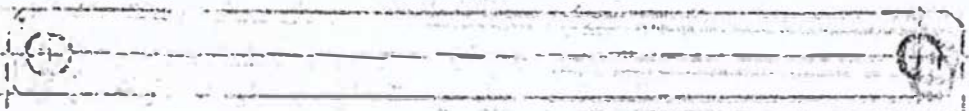
- (1) General repair instructions. Refer to paragraph 5-5 (5/5).
- (2) Repair of damaged parts. Refer to paragraph 5-7 (5/10) when repairing cracks by welding. Restore metal surfaces to their original dimensions by machining. Replace damaged plate nuts and all rubber seal strips. After repairing frames, shrouds, or associated parts, repaint as required. Refer to paragraph 5-5, f (5/7) for general painting instructions.

b. Assembly.

- (1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

- (2) Assembly procedures. Refer to TM 9-2815-220-34.

(2) ASSEMBLE ALL SEALS IN CHANNELS USING ADHESIVE SEALANT SILICONE-TYPE CRT. COLOR WHITE OR TRANSLUCENT PER SPEC MIL-A-46106.





Section XIX. OVERHAUL OF THROTTLE CONTROL AND ASSOCIATED PARTS,
MODELS AVDS-1790-2C ~~AND~~ AVDS-1790-2CA, AVDS-1790-2D,
AVDS-1790-2DA AND AVDS-1790-2DR

5-78. General. This section covers overhaul of the throttle control and associated parts, Models AVDS-1790-2C ~~and~~ AVDS-1790-2CA (fig. 5-74) (5/493). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-79. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

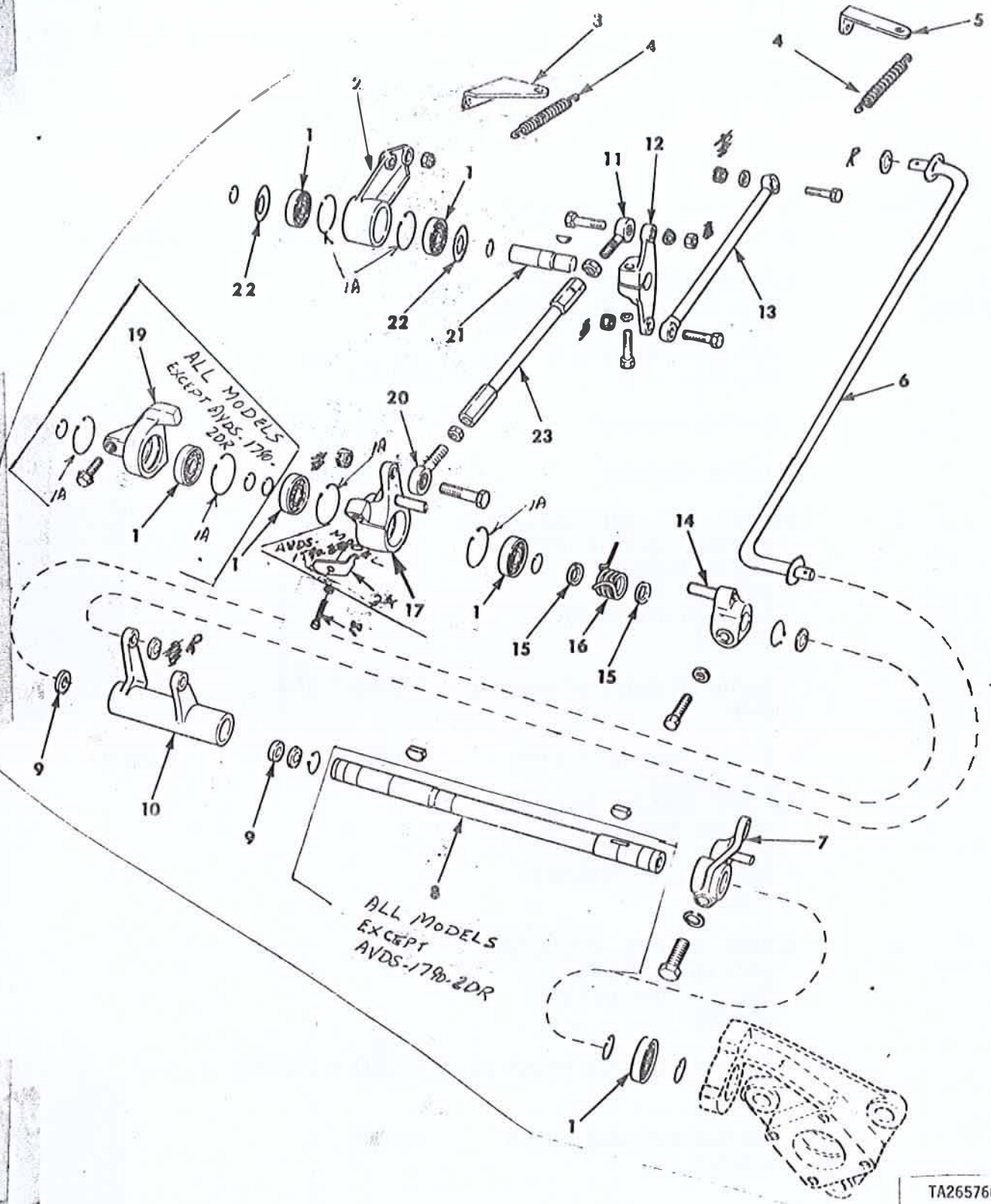
b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-80. Inspection. Inspect the throttle control and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the throttle control and associated parts are listed in table 5-31 (5/494). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR

NUTS, SELF-LOCKING
PIN, COLLAR (REMOVED)

DMWR 9-2815-220



TA265766

Figure 5-74. Throttle control, Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, AVDS-1790-2DA, AVDS-1790-2DR

Change 1 5/493

2.1

Table 5-31. Wear Limits, Fits, and Tolerances for Throttle Control and Associated Parts, Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, and AVDS-1790-2DA AND AVDS-1790-2DR

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-74 (5/493)	1	BEARING, BALL, ANNULAR - part no. 8383831 8393931 8393931 Refer to TM 9-214 for inspection and care of bearings		
		Outside diameter	1.3745-1.3750	*
		Inside diameter	0.6247-0.6250	*
	2	BRACKET, EYE, ROTATING SHAFT: governor control lever intermediate - part no. 8761016 Refer to OIP 8761016 (5/500)		
		Inside diameter of bearing bore	1.3750-1.3756	1.3759
		Fit of bearing in bore	0.0004L-0.0011L	0.0014L
	3	ANGLE BRACKET BRACKET, ANGLE: throttle control lever spring - part no. 11682658 Refer to OIP 11682658 (5/501)		
	4	SPRING, HELICAL, EXTENSION - part no. 12254331 Refer to OIP 12254331 (5/502)		
		Approximate free length of spring	2.4300 ± 0.0100	*
		Maximum extended length without set	4.7500	*

Table 5-31. Wear Limits, Fits, and Tolerances for
Throttle Control and Associated Parts, Models
AVOS-1790-2C ~~and~~ AVOS-1790-20 Continued

CA, AVPS1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-74 (5/493)	5	ANGLE BRACKET: BRACKET, ANGLE: manual fuel shutoff spring - part no. 11684032 Refer to OIP 11684032 (5/503)		
	6	CONNECTING LINK, RIGID: ROD, CONTROL: manual fuel shutoff - part no. 11684131 Refer to OIP 11684131 (5/504)		
		Diameter, outward from brazed collars	0.2700-0.2900	0.2600 ⁵
7		REMOTE CONTROL: LEVER, ASSEMBLY, THROTTLE: control vehicle - part no. 8682677 Refer to OIP 8682677 (5/505)		
		Control rod through diameter	0.2500-0.250 ⁵ ₇	0.2508
8		SHAFT, STRAIGHT: throttle control cross - part no. 11684023 (ALL MODELS, EXCEPT AVDS-1790-2DR) Refer to OIP 11684023 (5/506)		
		Outside diameter of throt- tle shaft near keyway	0.6249-0.6252	0.6247
		Outside diameter of throttle cross shaft away from keyway	0.6232-0.6252	0.6220
		Fit of bearing on support and cross shaft	0.0001L - 0.0005T ^{0.0015T}	0.0002L ^{0.0005L}
		Fit of shaft in sleeve bearing	0.0017L - 0.0038L 0.0018L - 0.0058L	0.0021L ^{0.0043L}

Table 5-31. Wear Limits, Fits, and Tolerances for Throttle Control and Associated Parts, Models AVDS-1790-2C and AVDS-1790-2D - Continued

7CA, AVDS-179A-2D, AVDS-1790-2DA AND AVDS-1790-2DA

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-74 (5/493)	9	SEAL, PLAIN: fuel shutoff manual control lever - part no. 11682694		Replace
	10	<i>REMOTE CONTROL:</i> LEVER, FUEL SHUTOFF: manual, FUEL SHUT. OFF -part no. 11684028 Refer to OIP 11684028 (5/507)		
		Inside diameter of sleeve bearing	0.6270-0.6290	0.6300
		Fit of shaft in sleeve bearing	0.0017L-0.0038L	0.0043L
		Inside diameter of seal bore - both ends	0.9360-0.9380	0.9390
	11	BEARING, PLAIN, ROD END: throttle control cross shaft to intermediate lever rod assembly - part no. 8395471-1 Refer to OIP 8395471-1 (5/508)		
		Clearance between ball and socket (parallel to thread shank)	0.0005L-0.0015L	0.0020L
		Inside diameter of bearing bore	0.3120-0.3150	0.3165
	12	<i>AXLE CRANK:</i> BELL CRANK: governor control intermediate - part no. 8761018 Refer to OIP 8761018 (5/509)		
		Connecting pin hole diameter	0.3125-0.3135	0.3145

Table 5-31. Wear Limits, Fits, and Tolerances for
Throttle Control and Associated Parts, Models
AVDS-1790-2C and AVDS-1790-2D - Continued

CA, AVDS-1790-2D, AVDS-1790-2DA AND
AVDS-1790-2DF

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-74	13 (5/493)	CONNECTING LINK, RIGID: intermediate control lever to governor control lever part no. 11684250 Refer to OIP 11684250 (5/510)		
		Bearing inside diameter	0.3120-0.3150	0.3165
		Clearance between ball and socket (parallel to shank)	0.0005L-0.0015L	0.0020L
14		^{REMOTE} ASSEMBLY LEVER, CONTROL: throttle shock spring actuating - part no. 8682676 Refer to OIP 8682676 (5/511)		
15		WASHER, FLAT: throttle con- trol spring - part no. 10889715 Refer to OIP 10889715 (5/512)		
16		SPRING, HELICAL, TORSION: throttle shock - part no. 10889714 12314650 Refer to OIP 10889714 12314650 (5/513)		
		Approximate free length	0.7500 + 0.0200	*
		Torque at installed position (15 ²⁵ degree of windup)	30 50.70 lb-in.	

Table 5-31. Wear Limits, Fits, and Tolerances for
Throttle Control and Associated Parts, Models
AVDS-1790-2C and AVDS-1790-2B - Continued

CA, AVDS-1790-2D, AVDS-1790-2DA AND
AVDS-1790-2DR

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-74	17 (5/493)	LEVER, REMOTE CONTROL: governor cross shaft - part no. 10865324 Refer to OIP 10865324 (5/514)		
		Inside diameter of bearing bore	1.3740-1.3746	1.3748
	18	SCREW, MACHINE: governor lever stop - part no. 10865321 Refer to OIP 10865321 (5/515)		
	19	BRACKET, EYE, ROTATING SHAFT: throttle control cross shaft - (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 11684020 Refer to OIP 11684020 (5/516)		
		Inside diameter of bearing bore	1.3740-1.3746	1.3478
		Fit of bearing in bore	0.0001L-0.0010T	0.0006L
	20	BEARING, PLAIN, ROD END: part no. 8686981-1 Refer to OIP 8686981-1 (5/508)		
		Bearing inside diameter	0.3120-0.3150	0.3165
		Clearance between ball and socket (parallel to thread shank)	0.0005L-0.0015L	0.0020L

Table 5-31. Wear Limits, Fits, and Tolerances for
Throttle Control and Associated Parts, Models
AVDS-1790-2C ~~and~~ AVDS-1790-2B - Continued

CA, AVDS-1790-2D, AVDS-1790-2DA AND
AVDS-1790-2DR

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-74 (5/493)	21	SHAFT, STRAIGHT: governor control lever bearing - part no. 8682786-1 Refer to OIP 8682786-1 (5/517)		
		Outside diameter of gover- nor control lever bearing shaft	0.6249-0.6252	0.6248
		Fit of bearing on gover- nor control lever bearing shaft	0.0001L-0.0015T	0.0005L
	22	SHIELD, BEARING, REPLACEMENT: governor control shaft - part no. 11682767 Refer to OIP 11682767 (5/518)		
	23	CONTROL ROD: governor throttle control cross shaft to intermediate lever rod assembly - part no. 8682783 Refer to OIP 8682783 (5/519)		
24		ANGLE BRACKET BRACKET ANGLE: CONTROL LEVER ACTUATING - (MODEL AVDS-1790-2DR) PART NO. 10935400 REFER TO OIP 10935400 (5/519.1)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

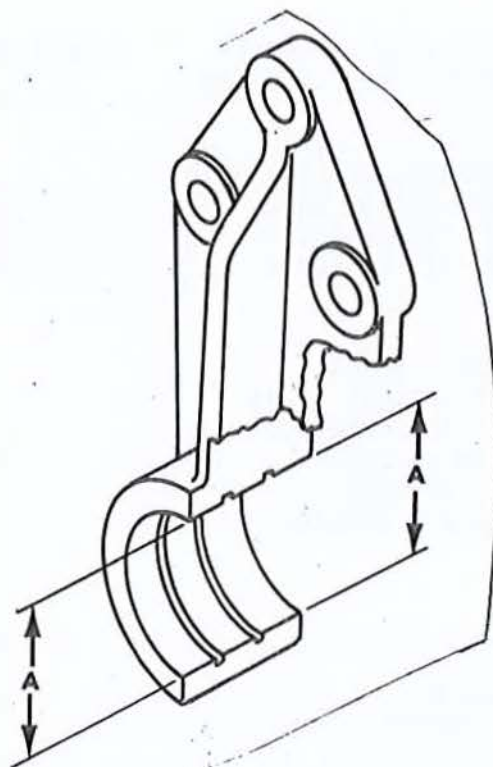
OIP 8761016

ITEM: BRACKET, EYE, ROTATING SHAFT:
governor control lever intermediate

REFERENCE: Figure 5-74 (5/493)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or exposed exterior base material <i>PROTECTIVE FINISH SHOWS DISCOLORATION</i>	2.5	Visual	None allowed
3	A	Inside diameter of bearing bores	2.5	Measure	Must be no greater than 1.3759 inches



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

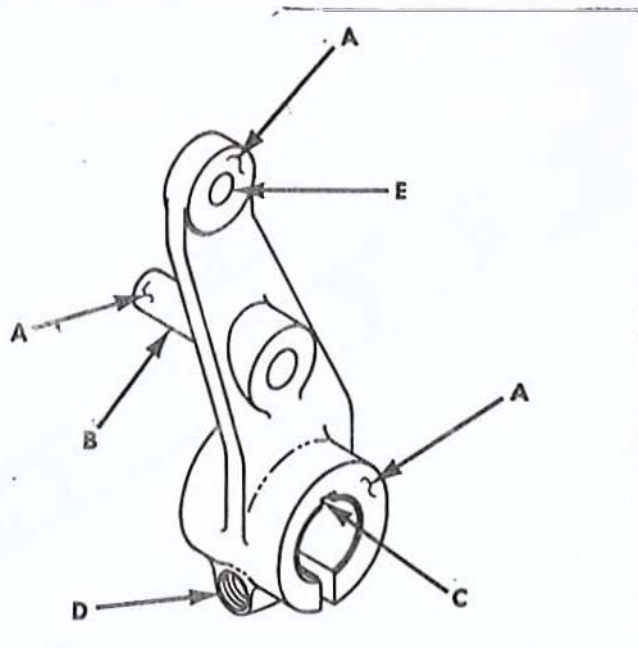
ITEM: ~~LEVER ASSEMBLY THROTTLE~~
REMOTE CONTROL
 control vehicle

OIP 8682677

REFERENCE: Figure 5-74 (5/493)

ITERA: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Scratches, nicks, or gouges on contact surfaces. Base metal must not be exposed on exterior surfaces	2.5	Visual	None allowed
3	B	Damaged or loose pin	2.5	Visual	None allowed
4	C	Damaged keyway	2.5	Visual	None allowed
5	D	Damaged thread	2.5	Visual	None allowed
6	E	Control rod through diameter	2.5	Measure	Shall be no greater than 0.2508 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

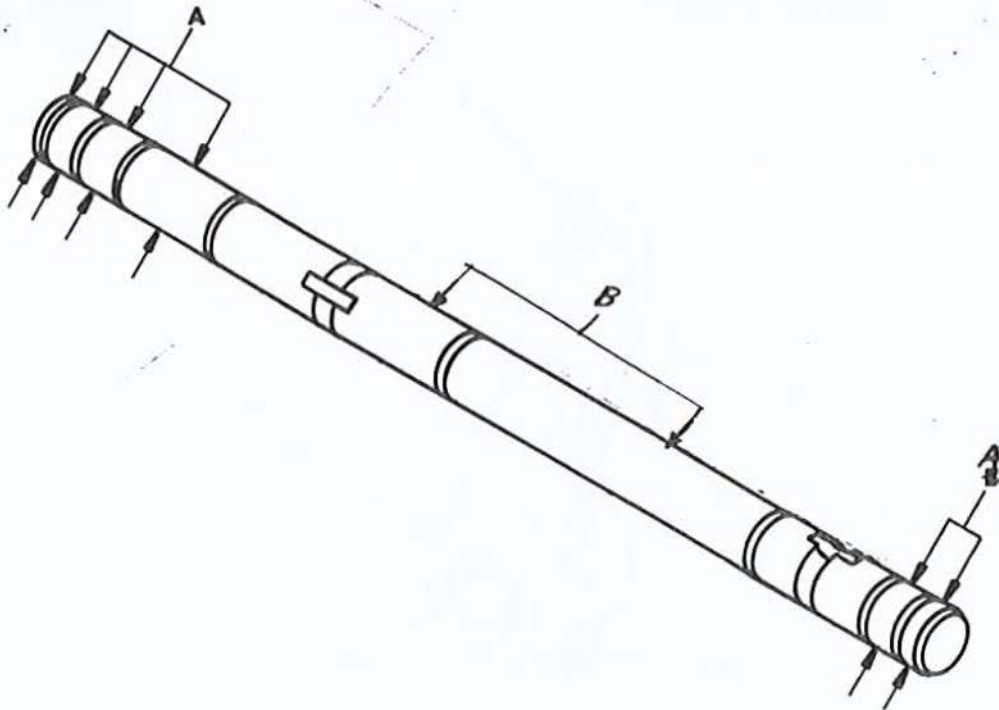
ITEM: SHAFT, STRAIGHT:
throttle control cross
ALL MARKS EXCEPT A AND B

OIP 11684023

REFERENCE: Figure 5-74 (5/493)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges	2.5	Visual	None allowed
3		Damaged keyways	2.5	Visual	None allowed
4	A	Outside diameter	2.5	Measure	No less than 0.6247 inch
5	B	Outside diameter	2.5	Measure	No less than 0.6220 inch



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

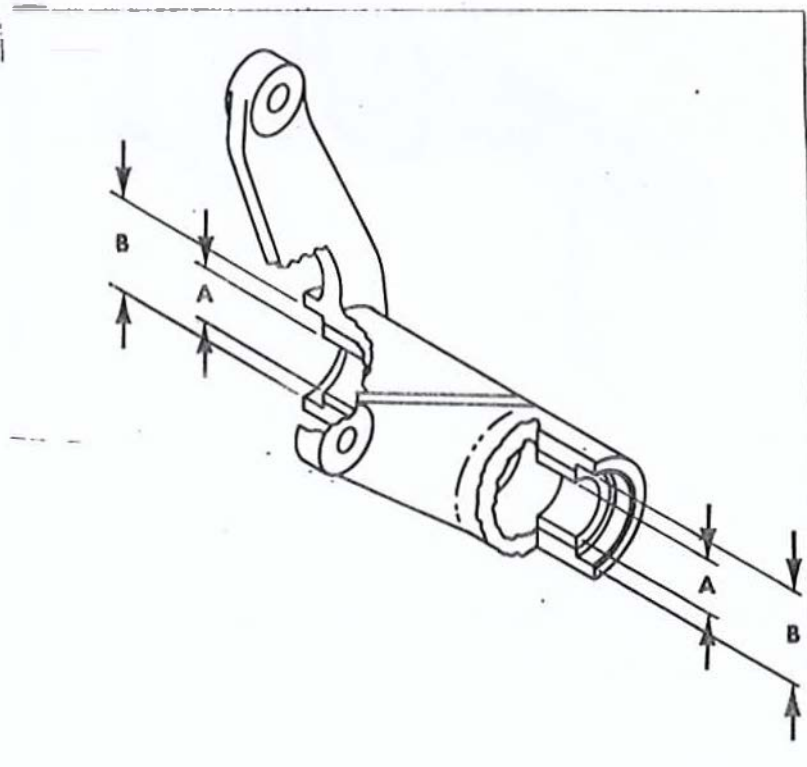
ITEM: LEVER, ^{REMOTE CONTROL:} FUEL SHUTOFF:
manual, FUEL SHUT-OFF

OIP 11684028

REFERENCE: Figure 5-74 (5/493)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		No base metal showing on protected surfaces	0.0	Visual	None allowed
4	A	Bearing inside diameter at both ends	1.0	Measure	Must be no greater than 0.6300 inch
5	B	Seal diameter at both ends	1.0	Measure	Must be no greater than 0.9390 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BEARING, PLAIN, ROD END

(13134)

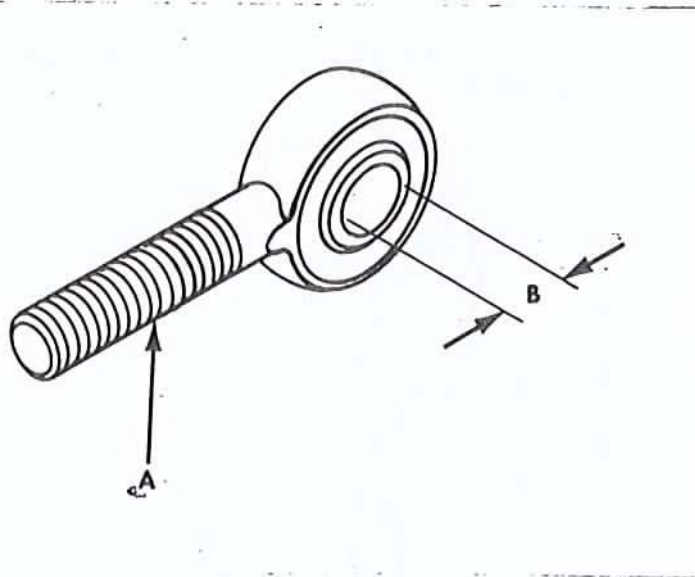
OIP 8395471-1 and 8686981-1

~~(HMSL50TPB)~~ ~~(HMS5CTPB)~~

REFERENCE: Figure 5-74 (5/493)

ITEM: 11 and 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	A	Damaged thread	2.5	Visual	None
2	B	Bearing inside diameter	1.0	Measure	No greater than 0.3165 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

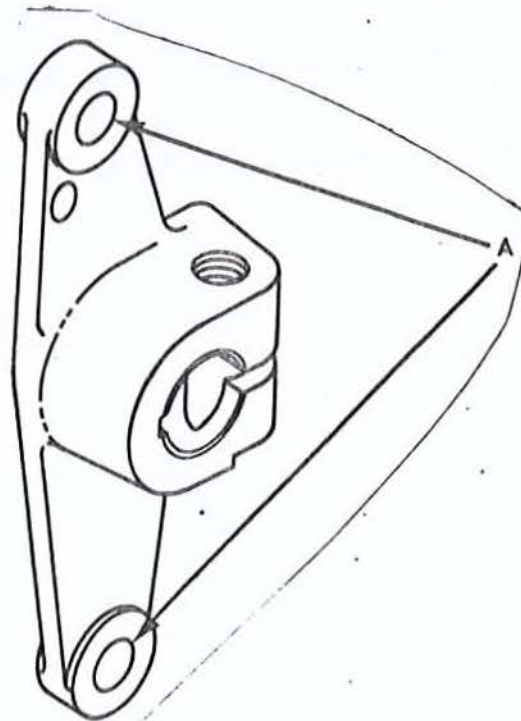
ITEM: BELL CRANK:
governor control, intermediate

OIP 8761018

REFERENCE: Figure 5-74 (5 A93)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		<i>PROTECTIVE FINISH SIDES</i> No base metal showing <i>DISCOLORATION</i>	0.0	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Damaged keyway	2.5	Visual	None allowed
6	A	Connecting pin hole diameter (2 places)	1.0	Measure	Must be no greater than 0.3145 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

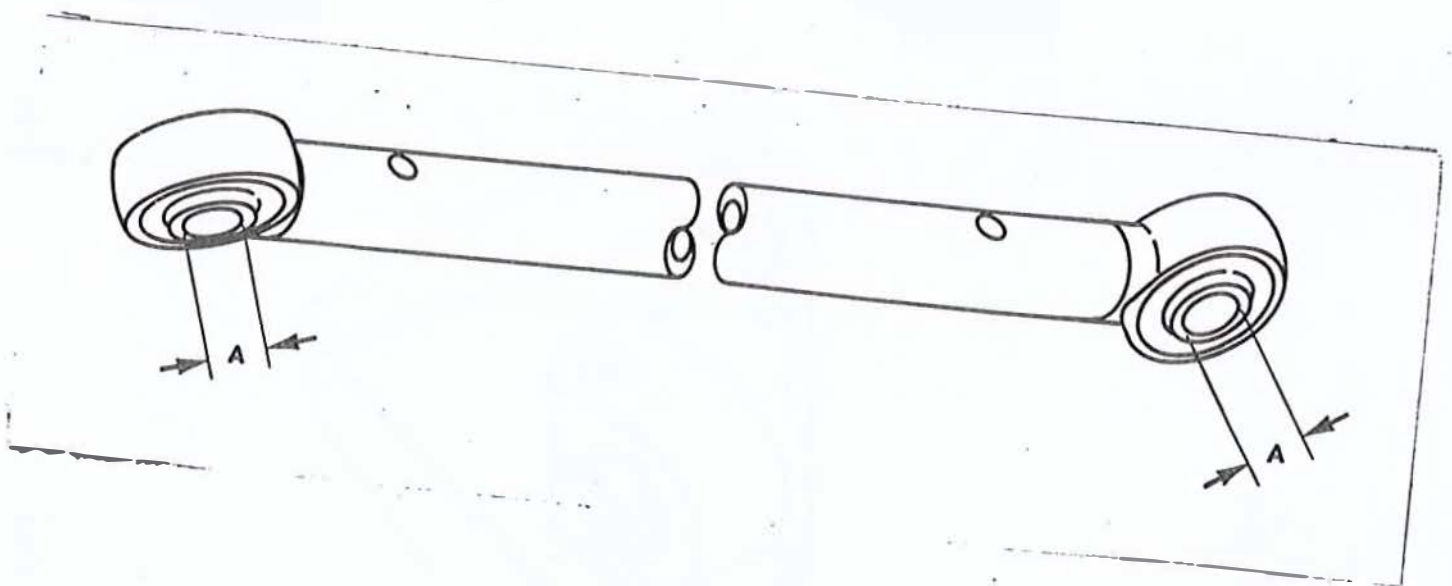
ITEM: CONNECTING LINK, RIGID:
intermediate control lever
to governor control lever

OIP 11684250

REFERENCE: Figure 5-74 (5 /493)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Bent or broken rod	2.5	Visual	None allowed
2		Loose rivets	2.5	Visual	None allowed
3	A	Bearing inside diameter	1.0	Measure	Shall be no greater than 0.3165-inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

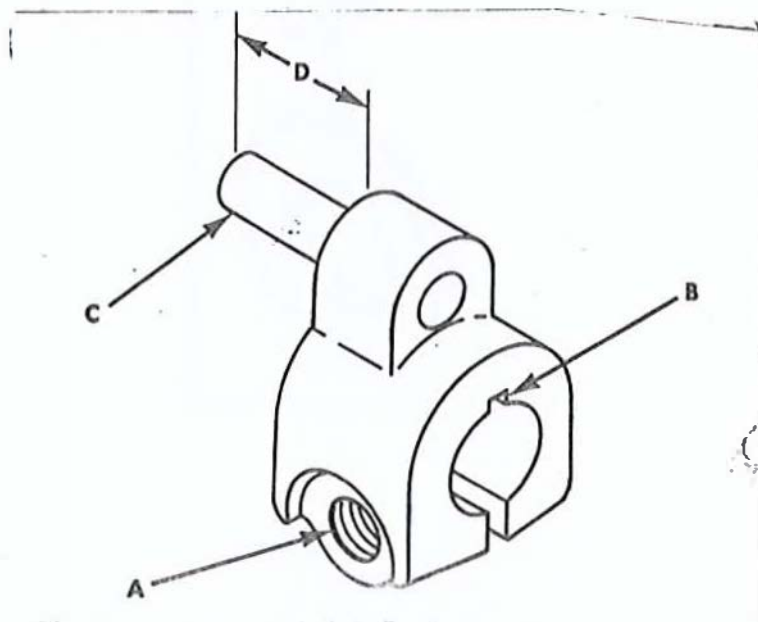
ITEM: LEVER, ^{REMOTE}~~ASSEMBLY~~ CONTROL:
throttle shock spring actuating

OIP 8682676

REFERENCE: Figure 5-74 (5/493)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		No base metal showing through protected surfaces	0.0	Visual	None allowed
4	A	Damaged threads	2.5	Visual	None allowed
5	B	Damaged keyway	2.5	Visual	None allowed
6	C	Loose or damaged dowel pin	2.5	Visual	None allowed
7	D	Pin projection	2.5	Measure	0.8800 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: WASHER, FLAT:
~~that have contact surfaces~~ *DL*

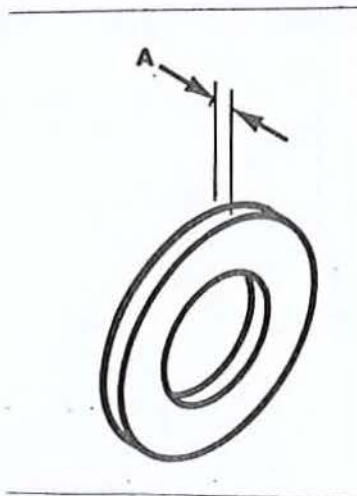
OIP 10889715

2220036 (1000)

REFERENCE: Figure 5-74 (5/493)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Check width	2.5	Measure	No less than 0.1000 inch
3		Nicks, burs, or raised metal on contact surfaces	2.5	Visual	None allowed
4		Warped, bent or gouges on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

9-2815-220
DMWR

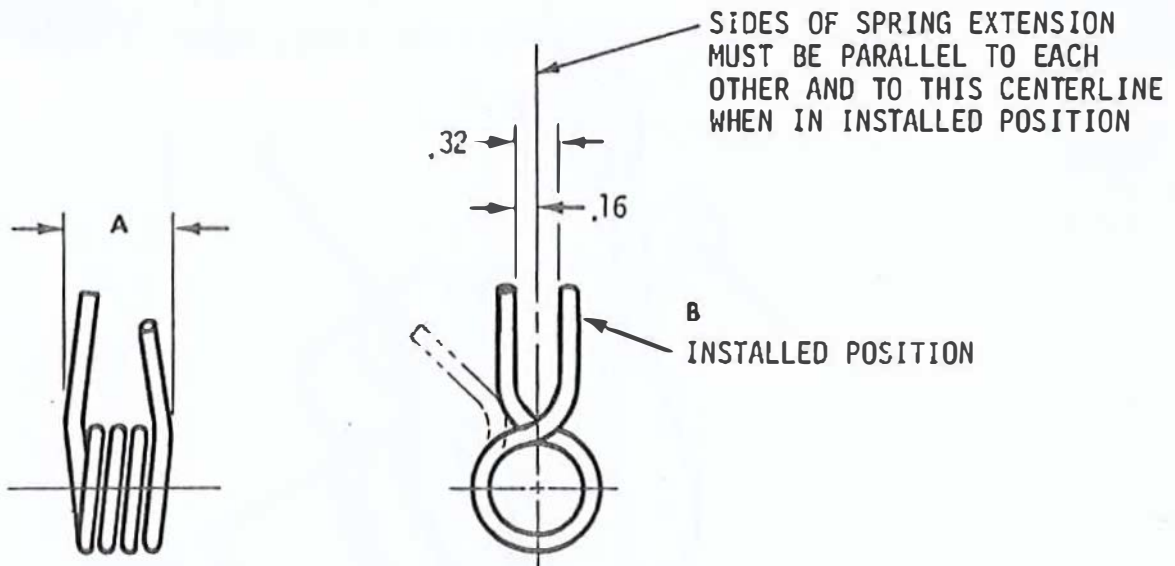
OIP 12314650

ITEM: SPRING, HELICAL, TORSION:
throttle shock

REFERENCE: Figure 5-74 (5/493)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Nicks, scratches, gouges or base metal showing through protective coating	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Can be no greater than 0.7600 inch ^{0.7700}
3	B	Torque at installed position	2.5	Measure	50-70 lb-in. at ²⁵ 18 of windup over shaft or diameter



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

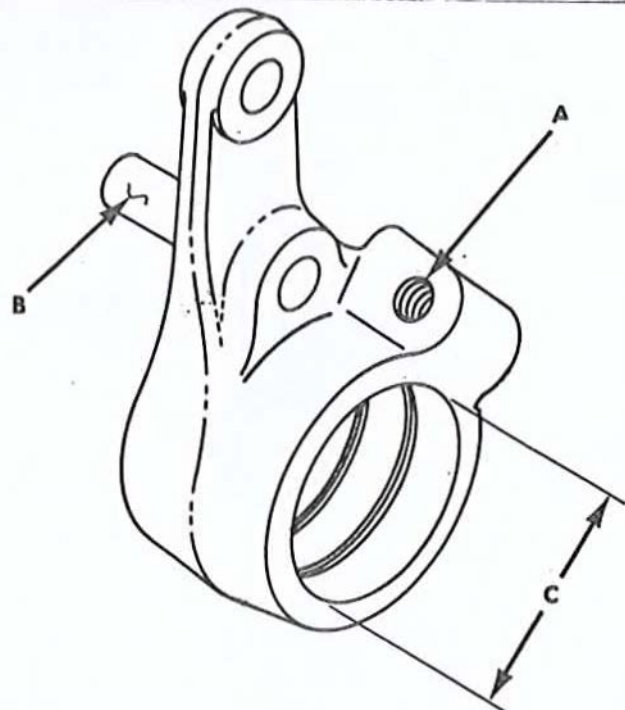
ITEM: LEVER, REMOTE CONTROL:
governor cross shaft

OIP 10865324

REFERENCE: Figure 5-74 (5/493)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, scratches or gouges on contact surfaces	0.0	Visual	None allowed
3	A	Damaged threads	2.5	Visual	None allowed
4		No base metal exposed on exterior surfaces	0.0	Visual	None allowed
5	B	Loose or missing pin	0.0	Visual	None allowed
6	C	Bearing bore	2.5	Measure	Must be no greater than 1.3748 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

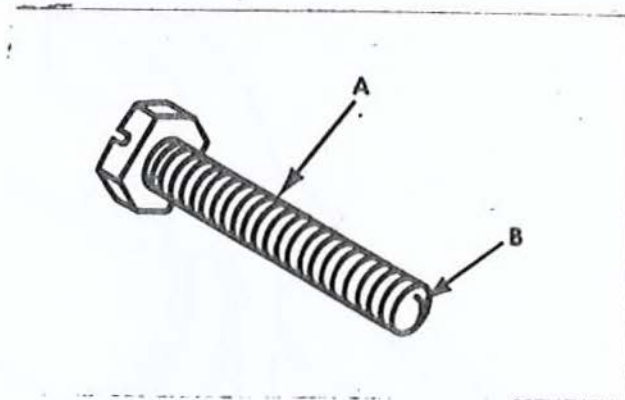
ITEM: SCREW, MACHINE:
governor lever stop

OIP 10865321

REFERENCE: Figure 5-74 (5/493)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1	A	Damaged threads	0.0	Visual	None allowed
2	B	No flat spots on spherical radius	0.0	Visual	None allowed
3		No base metal showing through protecting coating	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

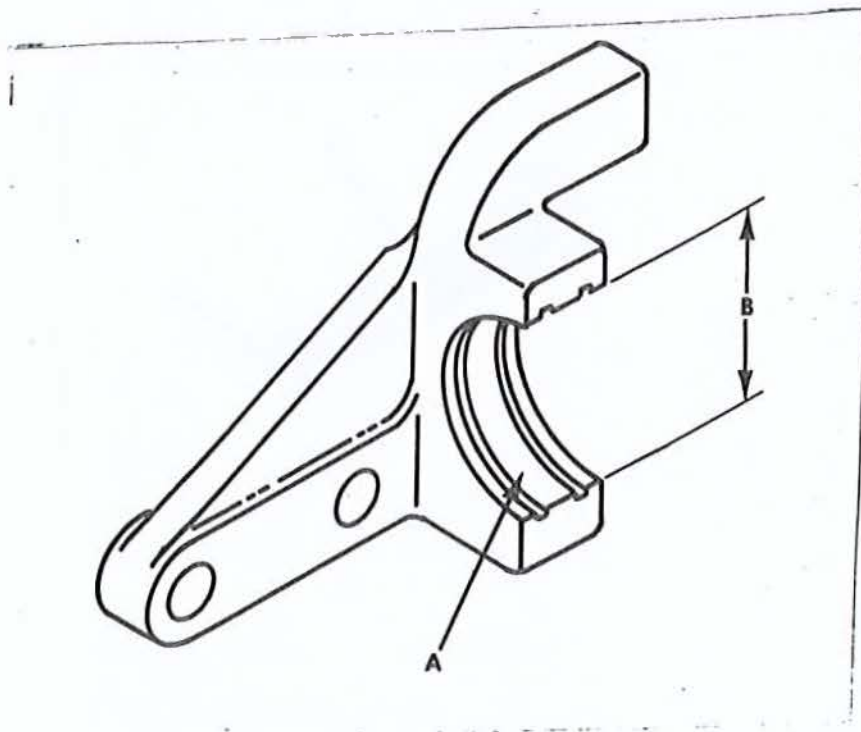
ITEM: BRACKET, EYE, ROTATING SHAFT:
throttle control cross shaft
(ALL MODELS, EXCEPT ANS-79A 2DR)

OIP 11684020

REFERENCE: Figure 5-74 (5/493)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		No base metal showing through protecting coating	0.0	Visual	None allowed
3	A	Scratches, nicks, or gouges on contact surfaces (bearing)	2.5	Visual	None allowed
4	B	Inside diameter of bearing bore	1.0	Measure	Can be no greater than 1.3748 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

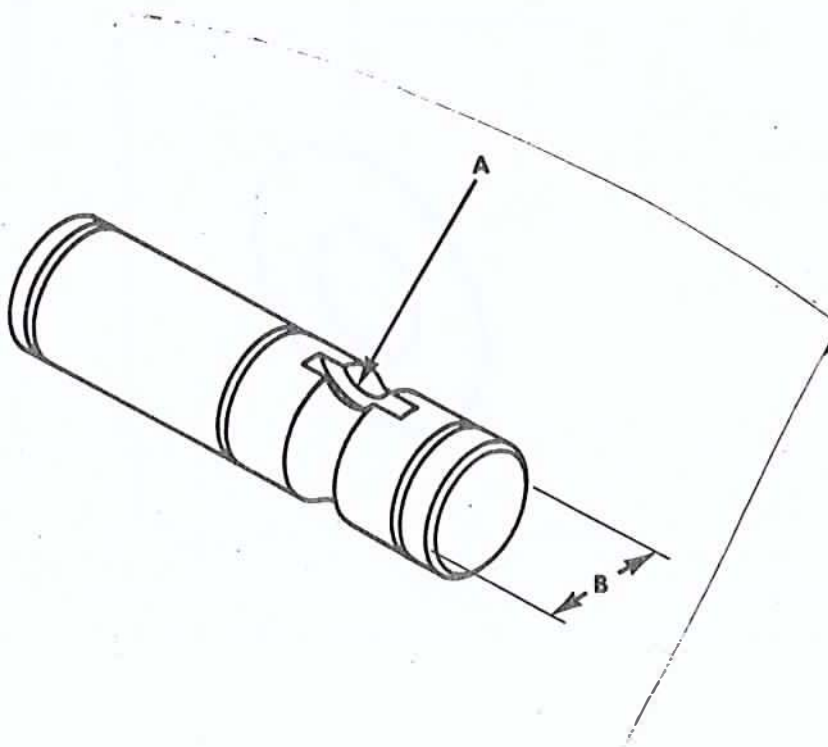
ITEM: SHAFT, STRAIGHT:
governor control lever bearing

OIP 8682786-1

REFERENCE: Figure 5-74 (5/493)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks or gouges on con- tact surfaces	0.0	Visual	None allowed
3	A	Damaged keyway	0.0	Visual	None allowed
4	B	Outside diameter	2.5	Measure	Must be no less than 0.6240 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

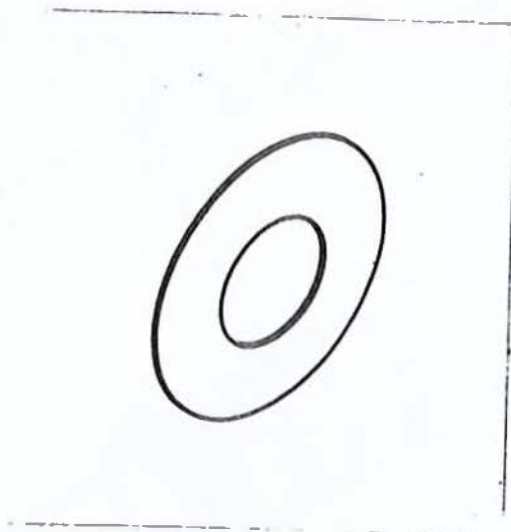
OIP 11682767

**ITEM: SHIELD BEARING, REPLACEMENT:
governor control shaft**

REFERENCE: Figure 5-74 (5/493)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks, burs, scratches, bent or deformed	0.0	Visual	None allowed
2		Base metal show- ing through pro- tective finish	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

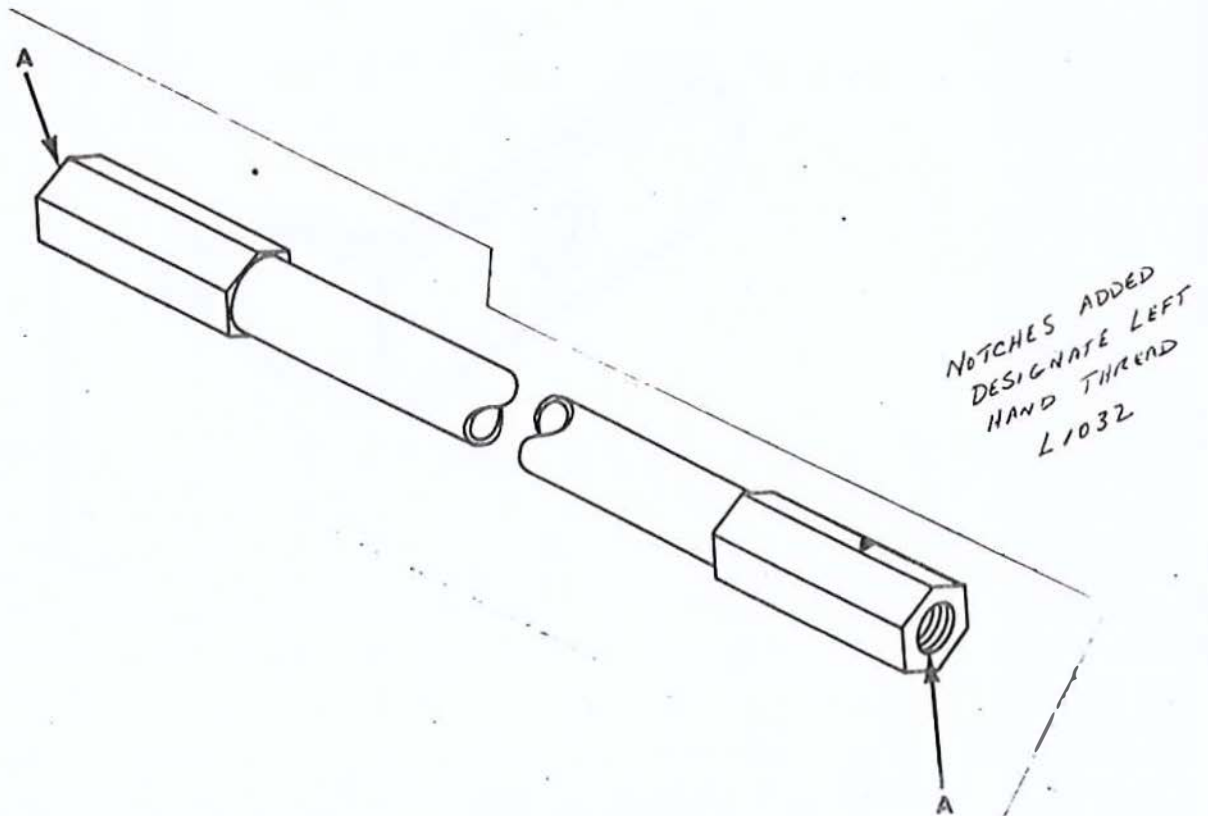
UIP 8682783

ITEM: CONTROL ROD:
governor throttle control cross
shaft to intermediate lever rod
assembly

REFERENCE: Figure 5-74 (5/493)

ITEM: 23

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal exposed through protecting coating	0.0	Visual	None allowed
3	A	Damaged threads	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

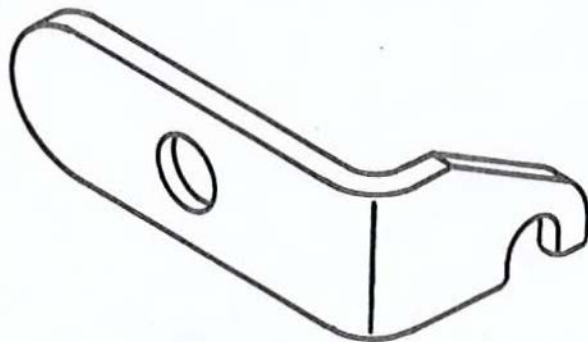
ITEM: *ANGLE BRACKET:*
BRACKET, ANGLE:
 control lever actuating
(MODEL AVDS-179A-2DR)

OIP 10935400

REFERENCE: Figure 5-~~26~~⁷⁴ (5/88)
 493

ITEM: ~~20~~ 24

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or base metal exposed	2.5	Visual	None allowed



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DMWR 9-2815-220

5/519.2

DMWR 9-2815-220

5-81. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/ 5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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FRAME

Section XX. OVERHAUL OF ^{SOLENOID} ~~THROTTLE~~ CONTROL AND ASSOCIATED PARTS,
MODEL AVDS-1790-2DR

5-82. General. This section covers overhaul of the ^{SOLENOID} ~~throttle~~ control and associated parts, Model AVDS-1790-2DR (figs. 5-75 ~~5-75~~), (5/523) ~~5-75~~. Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-83. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-84. Inspection. Inspect the ^{SOLENOID} ~~throttle~~ control and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the throttle control and associated parts are listed in table 5-32 (5/525). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

Step 10
add pins to Housing...

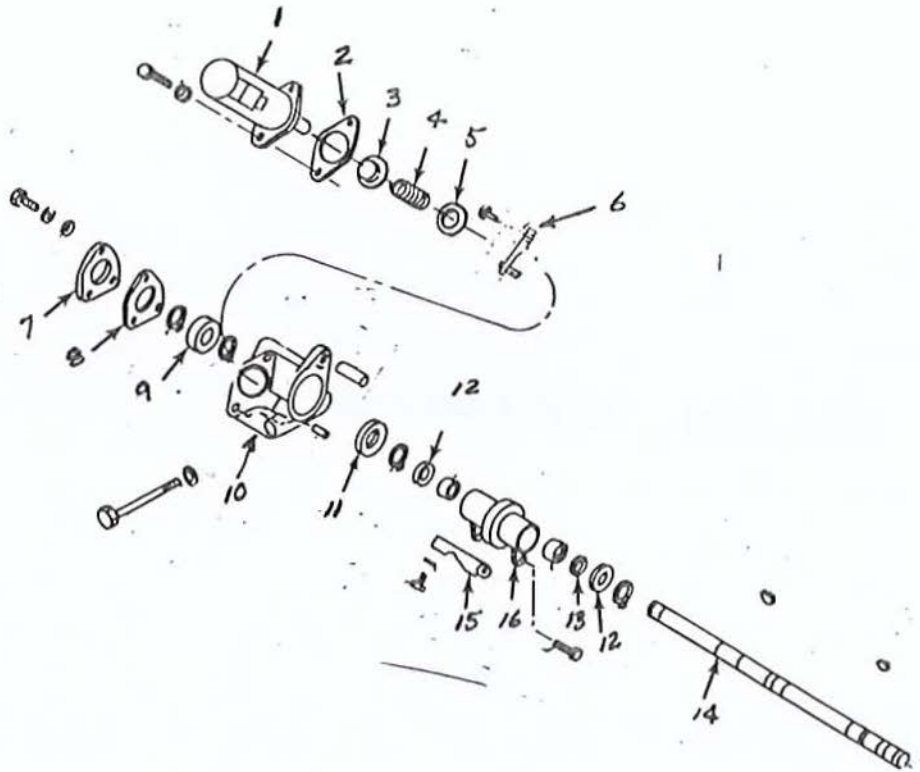


FIGURE 5-75. SOLENOID CONTROL AND ASSOCIATED PARTS,
MODEL AVDS-1790-2DR.

FIG 5-76 NOT APPLICABLE

Table 5-32. Wear Limits, Fits, and Tolerances for
~~Throttle~~ Control and Associated Parts, Model AVDS-1790-2DR
 SOLENOID

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-75 (5/523)	1	SOLENOID, ELECTRICAL - part no. 11668259 Refer to OIP 11668259 (5/532)		
	7	COVER, ACCESS: solenoid housing - part no. 10935396 Refer to OIP 10935396 (5/533) 57		
	8	GASKET: solenoid housing cover - part no. 10935397		Replace
	9	BEARING, BALL, ANNULAR - part no. 8393931 Refer to TM 9-214 for inspection and care of bearings		
		Outside diameter	1.3745-1.3750	*
		Inside diameter	0.6247-0.6250	*
	10	HOUSING ASSEMBLY, SOLENOID CONTROL: outer - part no. 12254202 Refer to OIP 12254202 (5/534) 538		
	11	SEAL, PLAIN, ENCASED: throttle control CROSS SHAFT BEARING part no. 10935398 26004-6223 (73680)		Replace
	12	WASHER, FLAT: throttle control lock ^{SOLENOID} CONTROL HOUSING part no. 10889715 Refer to OIP 10889715 (5/535) (5/512)		

Table 5-32. Wear Limits, Fits, and Tolerances for Throttle Control and Associated Parts, Model AVDS-1790-2DR - Continued
SOLENOID

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-75 (5/523)	83	RETAINER, HELICAL, COMPRESSION SPRING: LOCK, THROTTLE CONTROL LEVER - part no. 12314648 12314648 Refer to OIP 11682632 12314648 (5/536) 533		
		Shaft diameter	0.6200-0.6280	0.6240
	9	LEVER ASSEMBLY, CONTROL: throttle shock spring actuating - part no. 8682676 Refer to OIP 8682676 (5/577)		
	10/14	SHAFT, STRAIGHT: throttle control - part no. 12254205 Refer to OIP 12254205 (5/537) 540		
		Outside diameter	0.6249-0.6252	0.6247
		Outside diameter	0.6232-0.6252	0.6243 0.6280
		^{OUTSIDE DIAMETER} CONNECTING LINK, RIGID: -	0.6232-0.6252	0.6230 0.6230
	11/15	LEVER ASSEMBLY, THROTTLE: control vehicle - part no. 8682649 12314649 Refer to OIP 8682649 12314649 (5/535) 541		
		Control rod through diameter	0.2500-0.2505	0.2508
	12	SEAL, PLAIN: Fuel shutoff manual control lever - part no. 11682694		Replace
	13	LEVER, FUEL SHUTOFF: manual part no. 11684028 Refer to OIP 11684028 (5/507)		

~~SOLENOID~~ Table 5-32. Wear Limits, Fits, and Tolerances for ~~SOLENOID~~ Control and Associated Parts, Model AVDS-1790-2DR - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-75 (5/523) continued	13	Inside diameter of sleeve bearing	0.6270-0.6290	0.6300
		Fit of shaft in sleeve bearing	0.0017L-0.0038L	0.0043L
		Inside diameter of seal bore - both ends	0.9360-0.9380	0.9390
	14	ROD, CONTROL: manual fuel shutoff part no. 11684131 Refer to OIP 11684131 (5/504)		
		Diameter, outward from brazed collars	0.2700-0.2900	0.2600
	15	BRACKET, ANGLE: control lever actuating - part no. 10935400 Refer to OIP 10935400 (5/538)		
	16	HOUSING, SOLENOID CONTROL: inner - part no. 12314647 12314647 Refer to OIP 12314647 12314647 (5/542)		
	2	GASKET: solenoid mounting - part no. 10935368		Replace
	13 4	SPRING, HELICAL, COMPRESSION: solenoid actuating - part no. 11682601 10935368 11682601 Refer to OIP 11682601 10935368 11682601 (5/534)		
	12 5	RETAINER, HELICAL, COMPRESSION SPRING: solenoid actuating (LOWER) - part no. 11682606 Refer to OIP 11682606 (5/535)		

SOLENOID Table 5-32. Wear Limits, Fits, and Tolerances for ~~SOLENOID~~ Control and Associated Parts, Model AVDS-1790-2DR - Continued

References

<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-75 (5/523)	20 6	CONNECTING LINK, SOLENOID CONNECTING LINK, RIGID: - actuating - part no. 12314656 12314656 Refer to OIP 12314656 12314656 (5/542) 36		
	21	LEVER, REMOTE CONTROL: governor cross shaft -part no. 10865324 Refer to OIP 10865324 -(5/514)- Inside diameter of bearing bore	1.3740 1.3746	1.3748
	22 13	SEAL, PLAIN ^{NEW} solenoid control inner housing bearing - part no. 10935399 26031-7020 (7360)		Replace
5-76 (5/524)	1	SPRING, HELICAL, EXTENSION= part no. MS24586 C189 Refer to OIP MS24586 C189 (5/543)		
		Free length inside loop	2.7500	*
		Spring rate (pound-inch)	4.47 lbs-	
	2	BRACKET, ANGLE: throttle control spring - part no. 11684225 Refer to OIP 11684225 -(5/544)		
	3	BEARING, PLAIN, ROD END - part no. 8686981-1 Refer to OIP 8686981-1 -(5/545)		
		Bearing inside diameter	0.3120 0.3150	0.3165

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

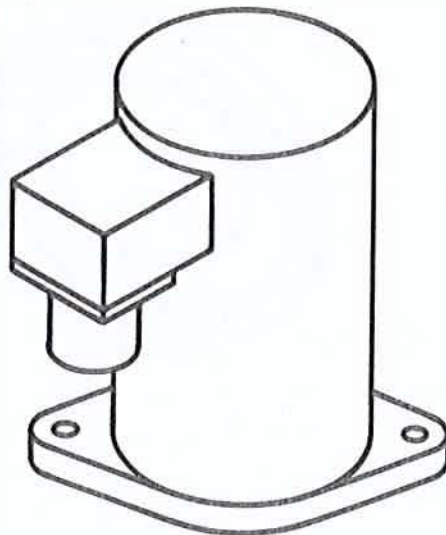
OIP 11668259

ITEM: SOLENOID, ELECTRICAL

REFERENCE: Figure 5-75 (5/523)

ITEM: 1

NO.	REF LD	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or damaged terminal	2.5	Visual	None allowed
3		Scratches, nicks or raised metal on contact surfaces	2.5	Visual	None allowed
4		Damage to outer housing	2.5	Visual	None allowed
5		Check solenoid for continuity	0.0	Voltage meter	Resistance - 12 OHMS min at 76°F Voltage = 18-30 V dc



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMNR 9-2815-220

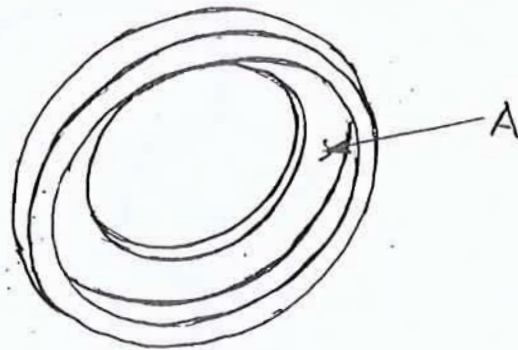
OIP 12314648

ITEM: RETAINER, HELICAL, COMPRESSION SPRING:

REFERENCE: FIGURE 5.75 (5/523)

ITEM: 3

NO.	REF. LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1.		CRACKS	0.0	VISUAL	NONE ALLOWED
2.	A	SPRING SEAT FREE OF RAISED METAL	2.5	VISUAL	NONE ALLOWED
3.		BASE METAL SHOWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, HELICAL, COMPRESSION:
solenoid actuating

OIP ~~XXXXXX~~ ~~XXXXXX~~ *let*

REFERENCE: Figure 5-75 (5/523)

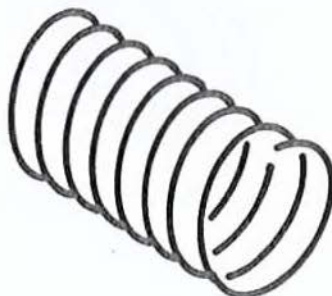
ITEM: ~~38~~ 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
<i>let</i> 1		Exposed base metal	2.5	Visual	None allowed
2		Free length	1.0	Measure	Must be no greater than 1.000 inches
3		Maximum solid height	1.0	Measure	Must be no less than 0.030 inch

NOTE

Spring must not take permanent set when compressed solid

let SPRING RATE 2.5 MEASURE 30,000 LBS/IN *let*



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11682606

ITEM: RETAINER, HELICAL, COMPRESSION SPRING:
solenoid actuating (LOWER)

REFERENCE: Figure 5-75 (5/523)

ITEM: ~~5~~ 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2,5	Visual	None allowed
3		Exposed base metal	2,5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

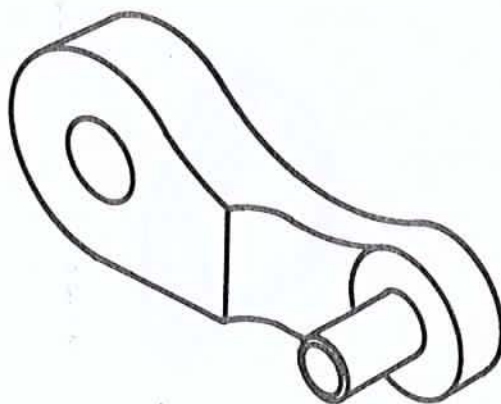
ITEM: ~~LINK, SOLENOID:~~
~~SOLENOID MOUNTING~~
 CONNECTING LINK, RIGID:

OIP ~~1502508~~ 12314656

REFERENCE: Figure 5-75 (5/523)

ITEM: ~~28~~ 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Exposed base metal	2.5	Visual	None allowed
2		Worn or damaged pin	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10935396

**ITEM: COVER, ACCESS:
solenoid housing**

REFERENCE: Figure 5-75 (5/523)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, burs, or raised metal	2.5	Visual	None allowed
3		Mating surface warp	2.5	Measure	Must be flat within 0.002 inch ^{.005}



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

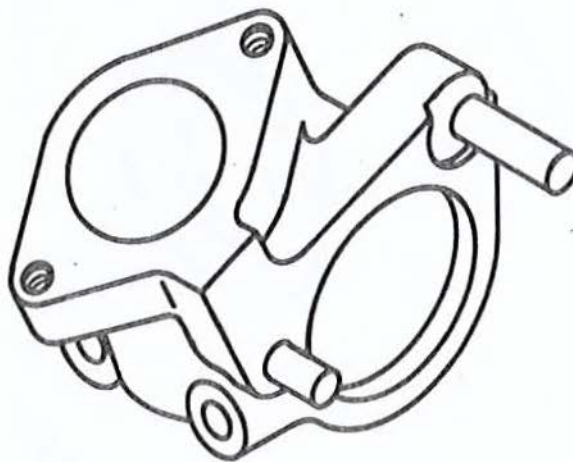
ITEM: HOUSING ASSEMBLY, SOLENOID CONTROL:
outer

OIP 12254202

REFERENCE: Figure 5-75 (5/523)

ITEM: ~~510~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, burs, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Stripped or damaged threads	2.5	Visual	None allowed
4		Missing or damaged pins	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

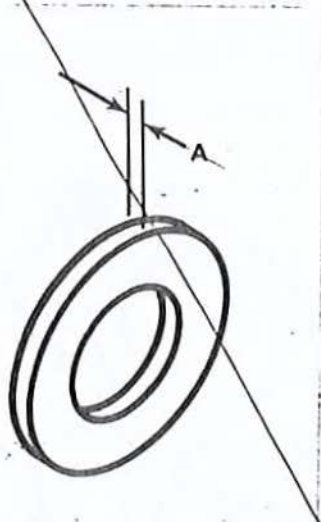
OIP 10889715

ITEM: WASHER, FLAT:
~~throttle control~~ ~~lock housing~~
 SOLENOID

REFERENCE: Figure 5-75 (5/523)

ITEM: ~~3~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, burs, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Warped, bent or gouges on contact surface	2.5	Visual	None allowed
4	A	Check width	2.5	Measure	No less than 0.1000 inch



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OIP SEE PAGE 5/512

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

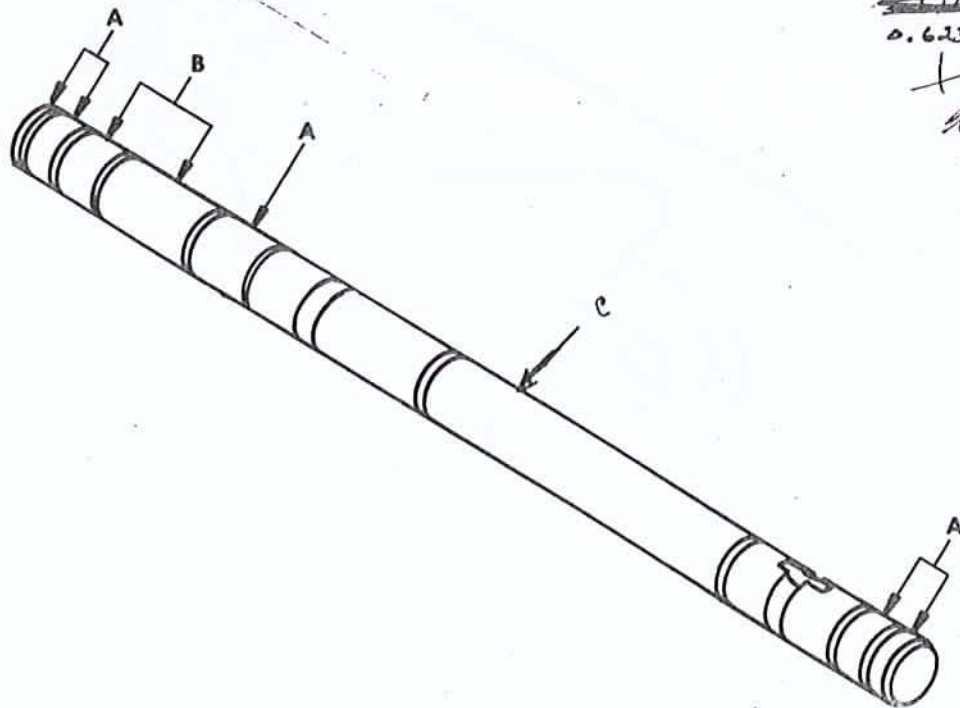
ITEM: SHAFT, STRAIGHT:
throttle control

OIP 12254205

REFERENCE: Figure 5-75 (5/523)

ITEM: 30 / 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Damaged keyway	2.5	Visual	None allowed
4	A	Outside diameter both ends	1.0	Measure	No less than <u>0.6247 inch</u>
5	B	Outside diameter	1.0	Measure	No less than 0.6228 inch
6	C	OUTSIDE DIAMETER	1.0	MEASURE	0.6243 No LESS THAN 0.6228 inch 0.6230



Handwritten signature and notes:
 Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.
 5/523

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE:

DMR 9-2815-220:

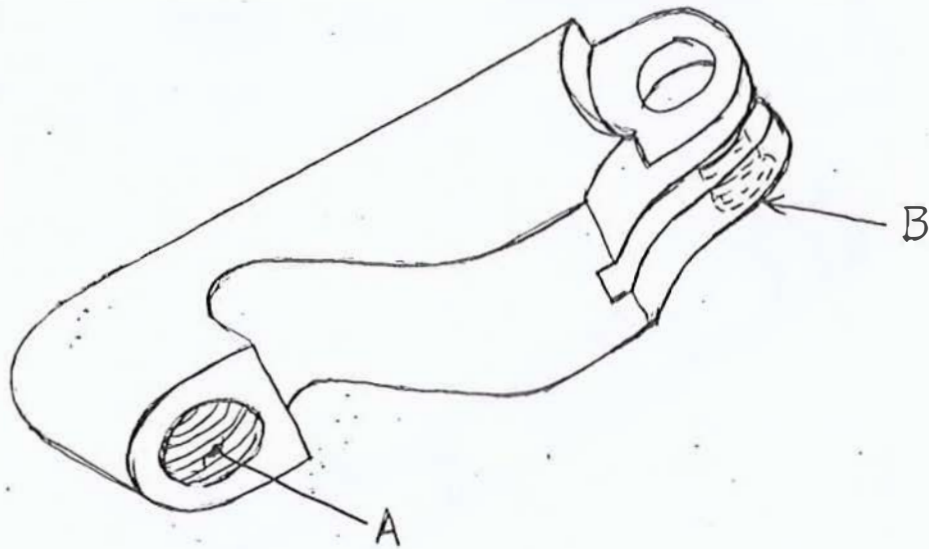
OIP 12314649

ITEM: *CONNECTING LINK, RIGID:*

REFERENCE: *FIGURE 5-75 (5/523)*

ITEM: *15*

NO.	REF. LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2	A & B	DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

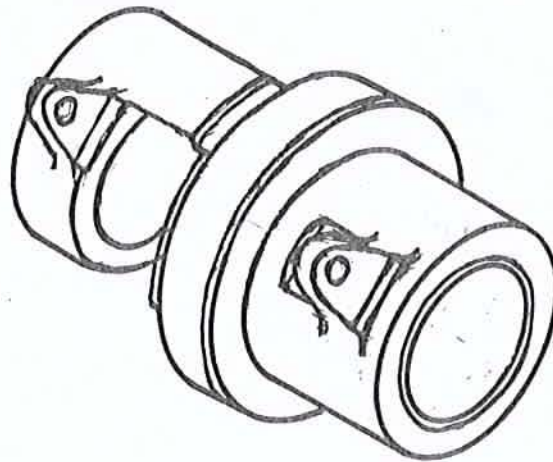
ITEM: HOUSING, SOLENOID CONTROL:
inner

U/P: ~~73254204~~ 123146 87

REFERENCE: Figure 5-75 (5/523)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

BLANK

5/543 - 5/547

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5/548

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5/549

5-85. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

BANK

5/551

BLANK

5/33.1

DMWR 9-2815-220

BLANK

FRAME

Section XXI. OVERHAUL OF ENGINE SHROUDS, AIR DEFLECTORS,
AND COOLING FANS, VANES, AND HOUSING

5-86. General. This section covers overhaul of the engine shrouds, cooling fans, vanes, and housing (figs. 5-77 through 5-81) (5/554 through 5/556). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-87. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-88. Inspection.

a. General. Inspect the engine shrouds, cooling fans, vanes, and housing according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the engine shrouds, cooling fans, vanes, and housing are listed in table 5-33 (5/557). See paragraph 5-4, b and c (5/ 3) for explanation of wear limits, fits, and tolerances.

b. Shrouds and Plates. Inspect engine and transmission shrouds and associated parts and cylinder deflectors and plates for damaged, bent, or cracked condition. Replace badly broken shrouds or plates.

c. Fans. Inspect cooling fans for cracks using dye penetrant method. A radial crack in the area of a bolt hole is sufficient cause for replacement of the fan. Replace cooling fans that have bent, broken, or warped blades or when bolt holes are elongated or show evidence of wear. Inspect fan blades using fan rotor gage, special tool 12275775 (Figure 2-2, 2/8). Align gage with trailing edge of fan blade, as shown in Figure 5-76.1. Replace fan when erosion of the leading edge of any blade becomes hidden by gage.

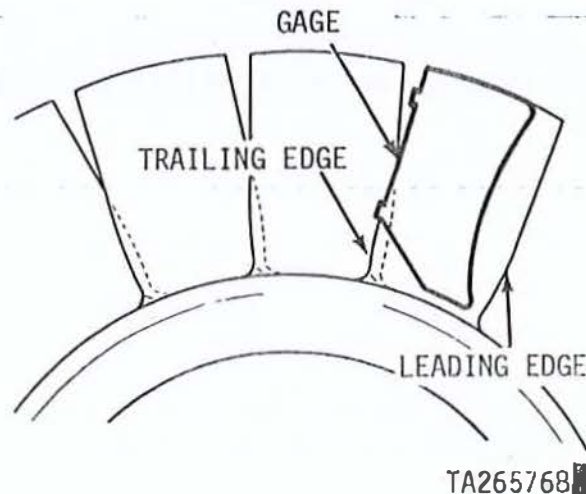


Figure 5-76.1. Testing blade erosion with gage superimposed on fan rotor blade

DMWR 9-2815-220

5-88.1. Reclamation. Engine cooling fans (part no. 8761242) with broken blades can be reclaimed by TIG welding using the procedure outlined below. Refer to OIP 8761242 (5/611).

NOTE

Only weld fan blades that are broken on the outer 2/3 of the blade (within 3.16 inches of the outer edge).

- a. Thoroughly clean the fan.
- b. Using the TIG welding process in accordance with MIL-STD-1595, weld the broken blades with a 1/16 or 3/32 x 36 x 4043 electrode.
- c. Using a suitable hand grinder, grind the welded areas to drawing specifications (DWG 8761242).
- d. Reinspect after welding to MIL-I-6866 with the following acceptance criteria:
 - (1) Linear indications exceeding 1/16 inch in length are not acceptable.
 - (2) Craters exceeding 1/8 inch in diameter and 1/8 inch in depth are not acceptable.
 - (3) Excessive porosity is not acceptable.
 - (4) Unacceptable indications may be blended out and rechecked - provided blueprint dimensions are maintained.
- e. X-ray the weld to ensure its quality and integrity.
- f. Rebalance the fan and spin test for one minute at 8000 RPM after rebalancing.

NOTE

Quality Control will inspect each finished part to ensure adherence to this procedure.

DMWR 9-2815-220

LEFT SIDE

RIGHT SIDE

DAMPER END

FLYWHEEL END

LEFT SIDE

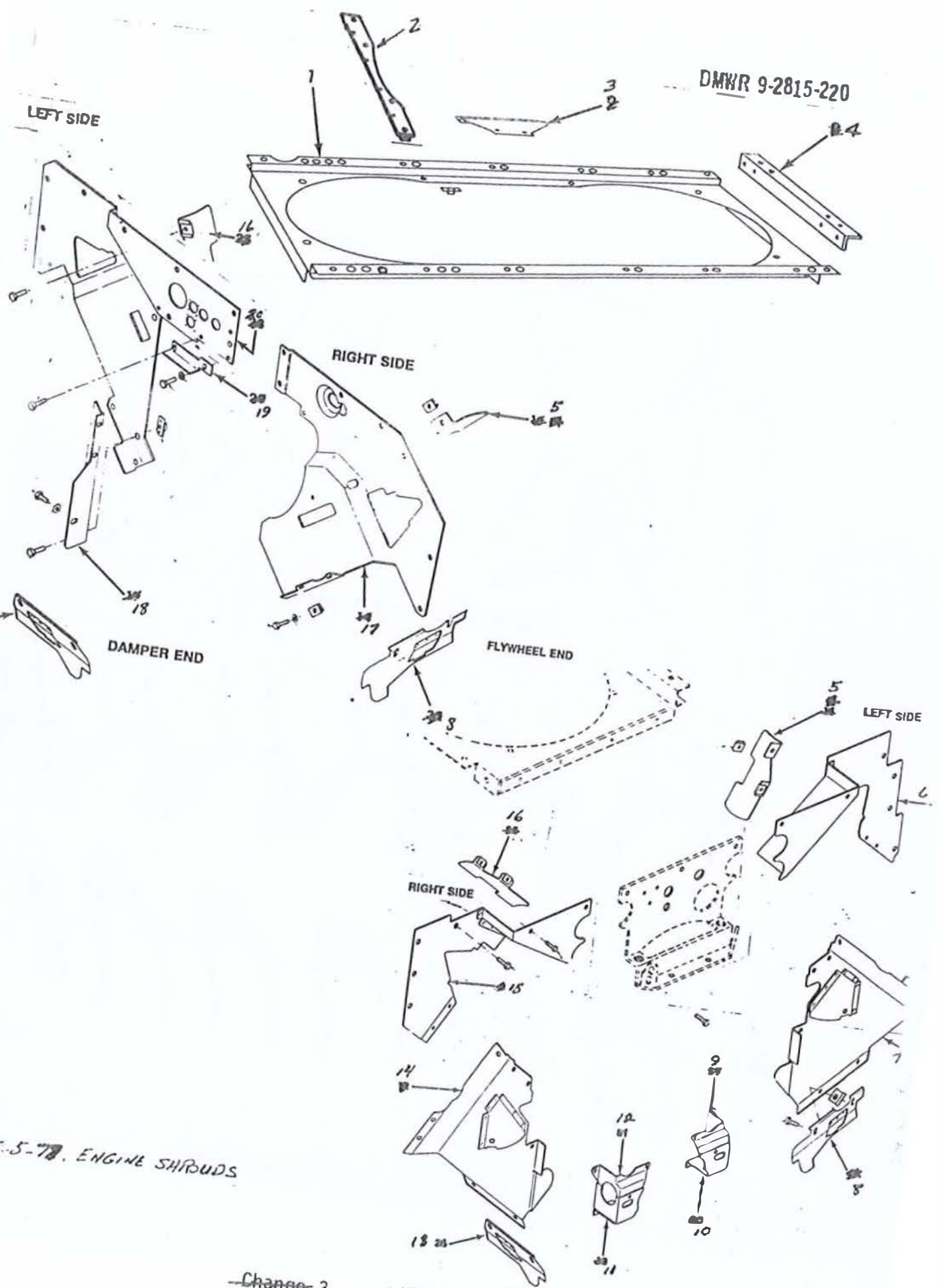
RIGHT SIDE

FIGURE 5-78. ENGINE SHROUDS

Change 3

5/554.1

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DMWR 9-2815-220

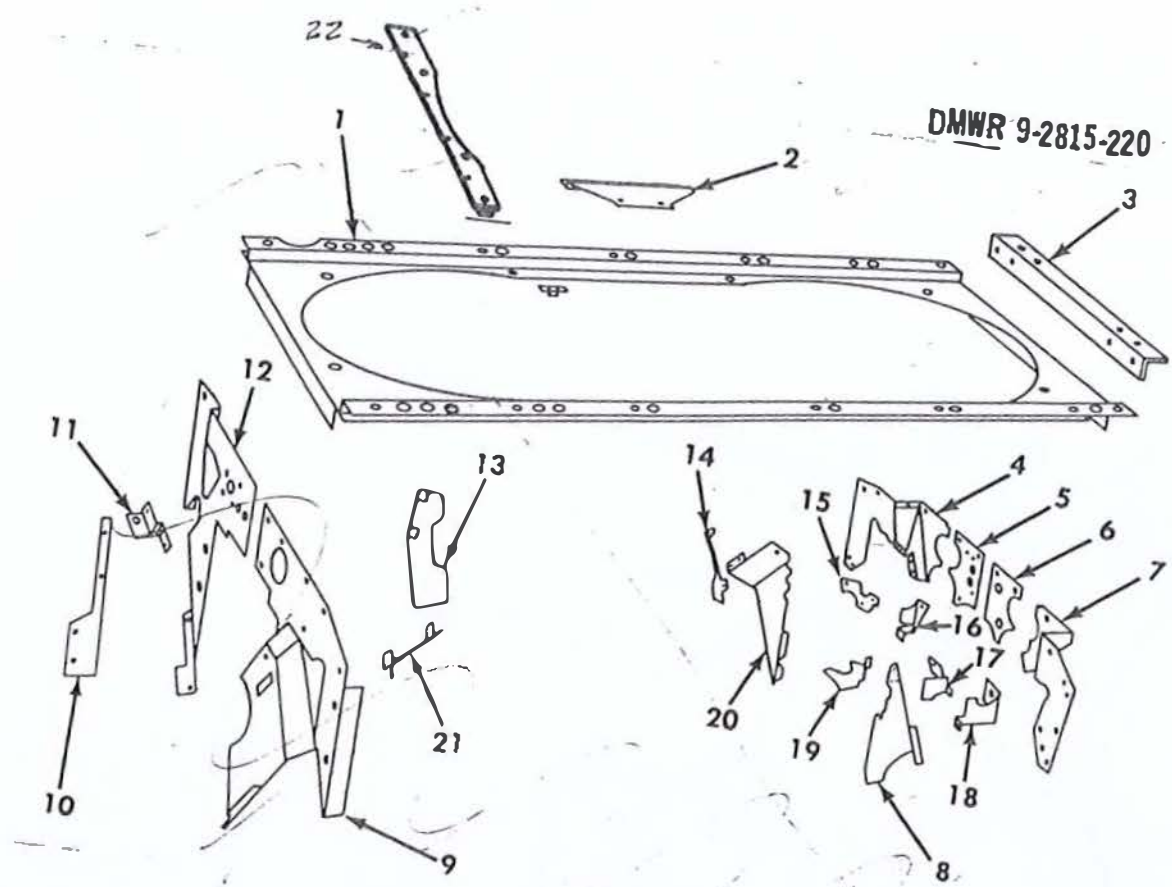
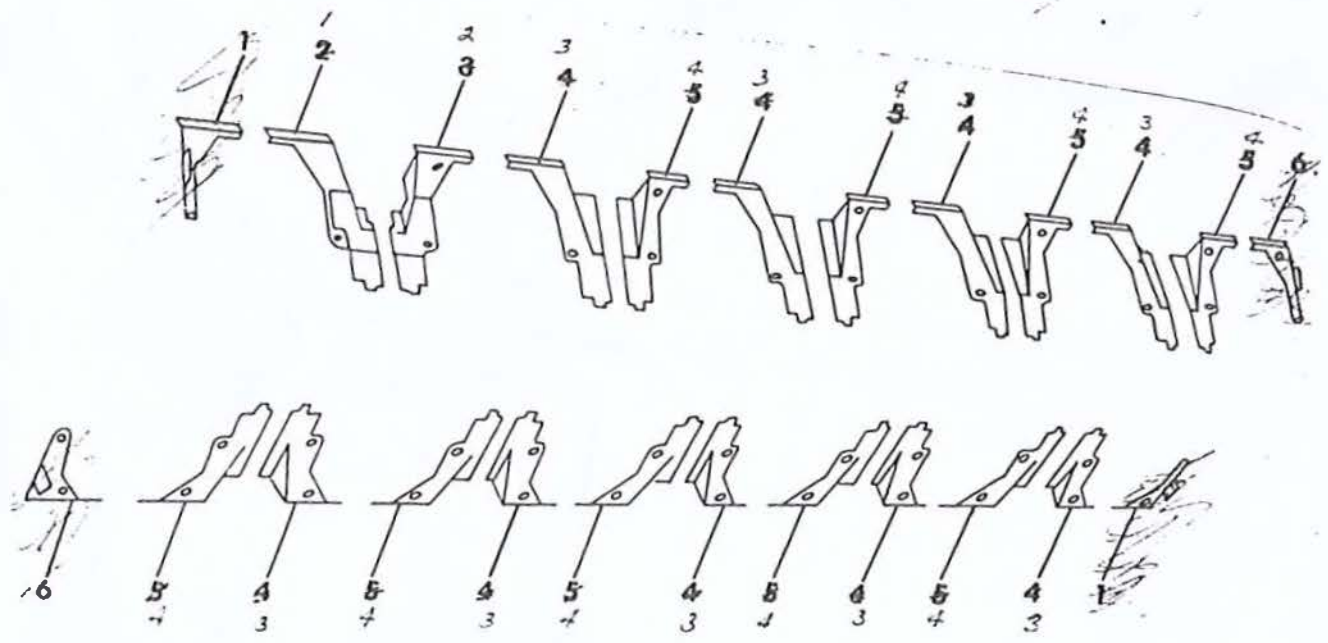


Figure 5-77. Engine shrouds.

IA034365



IA034366

Figure 5-78. Cylinder deflectors.

Change 3

5/5541

5/554.2 Frank

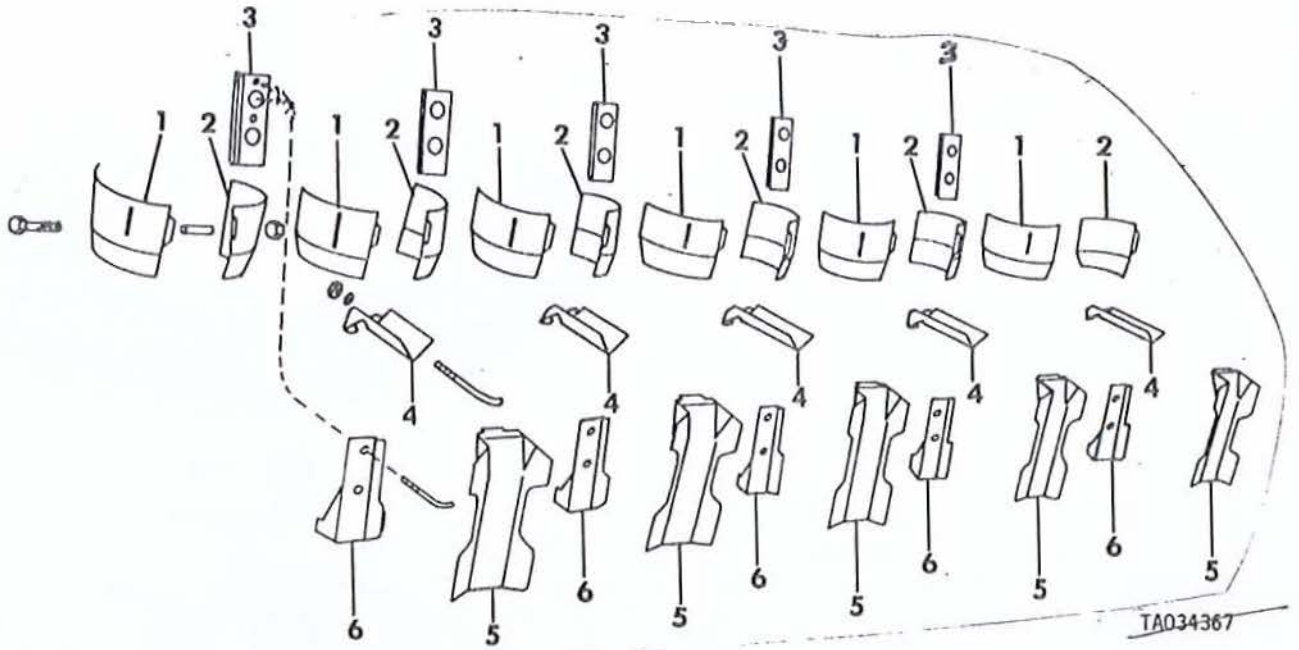


Figure 5-79. Cylinder plates.

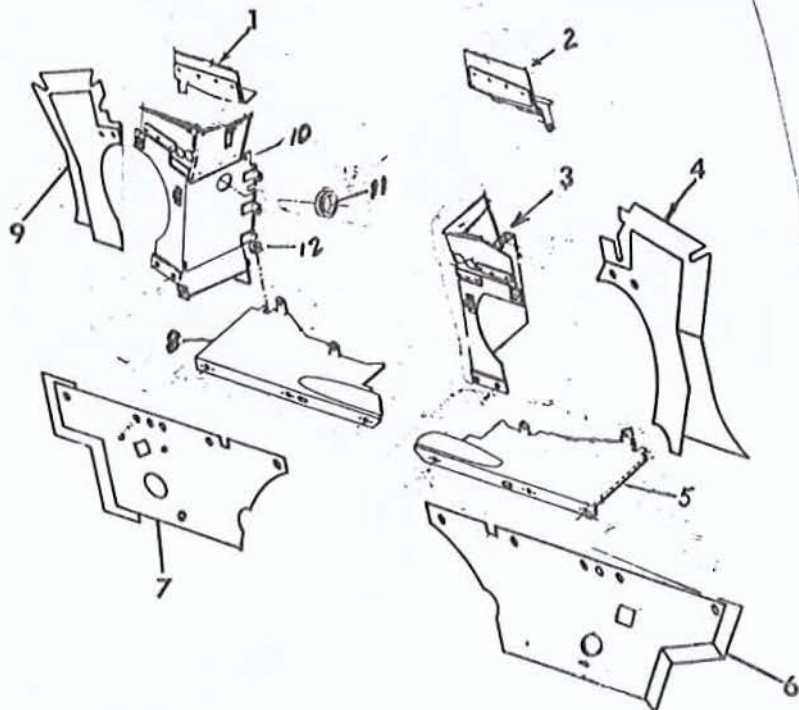


Figure 5-80. Turbosupercharger and transmission shrouds and plates.
 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, ~~AVDS-1790-2DA~~
 AND AVDS-1790-2DR)

DMWR 9-2815-220

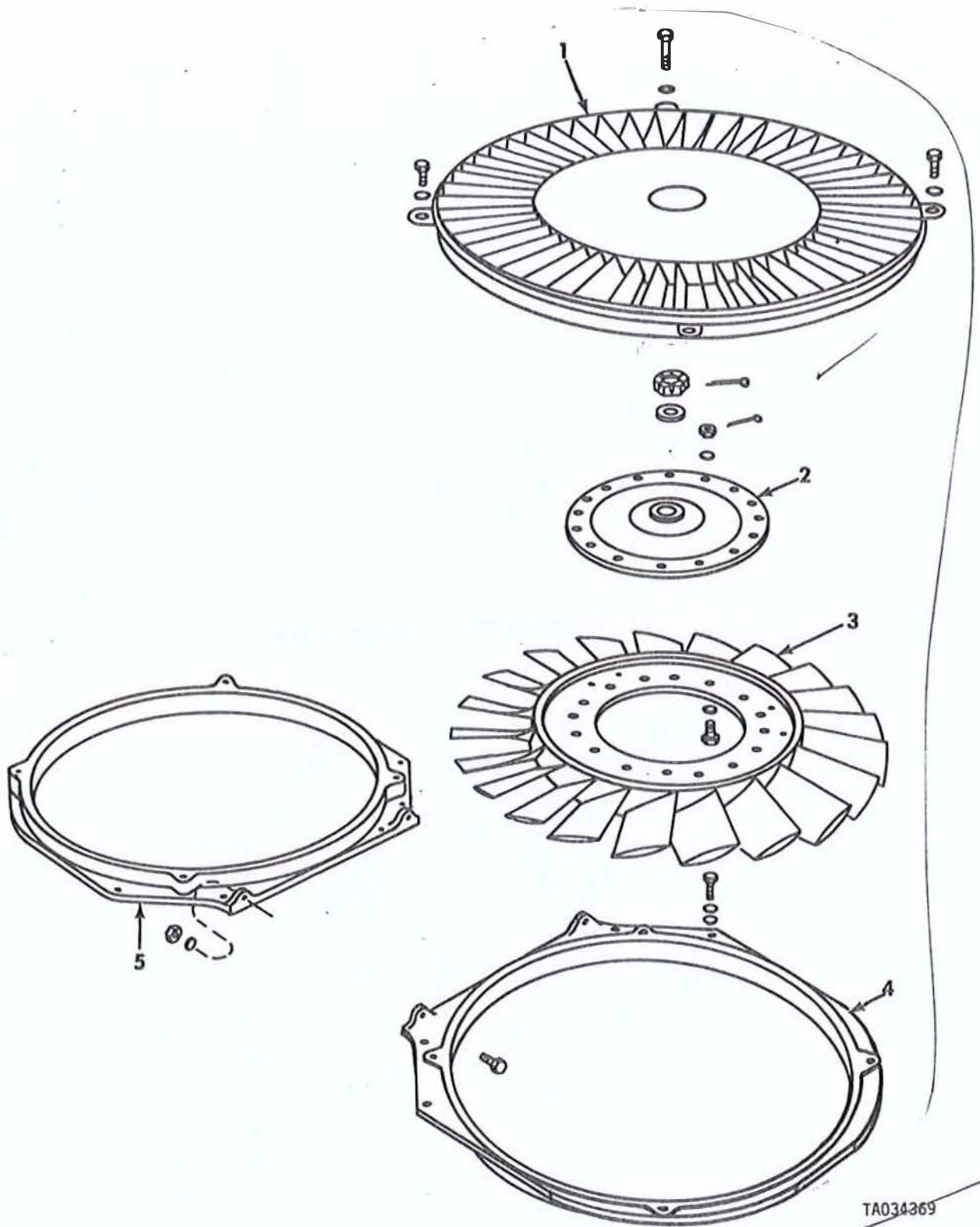


Figure 5-81. Engine cooling fans, vanes, and housing.

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing

References				
Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-77 (5/554.1)	1	SHROUD, DIESEL ENGINE: cooling fan - part no. 11684088 (Models AVDS-1790-2 and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA part no. 11684201 (Model AVDS-1790-2DR) Refer to OIP 11684088 AND 11684201 (5/566)		
	3 4	COVER ACCESS: cooling fan shroud - part no. 8682561 Refer to OIP 8682561 (5/567) (5/568)		
	4 4	BRACKET, LEVER, LINKAGE: transmission - part no. 11684224 (MODEL AVDS-1790-2DR) Refer to OIP 11684224 (5/568) (5/569)		
	A 6	MOUNTING PLATE: SHROUD, DIESEL ENGINE. SHROUD: FLYWHEEL END LEFT BANK - left bank, flywheel end, upper - part no. 11683936 - 12354433 Refer to OIP 11683936 12354433 (5/569) (5/571)		
	5	SHROUD, COOLING, MANIFOLD: exhaust, left bank - part no. 11684264 Refer to OIP 11684264 (5/570)		
	6	SHROUD, EXHAUST MANIFOLD: right bank - part no. 10898756 Refer to OIP 10898756 (5/571)		

Table 5-3 Wear Limits, Fits, and Tolerances for
Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-77 (5/554)	15	SHROUD, AIR DEFLECTION: right bank, flywheel end, upper - part no. 11684026 (Models AVDS-1790-2C AND AVDS-1790-2CA) part no. 11684092 (Models AVDS-1790-2D, and AVDS-1790-2DA AND AVDS-1790-2DR) Refer to OIP's 11684026 AND 11684092 (5/572)(5/580)		
	14	SHROUD, COOLING ENGINE: right bank, flywheel end, lower - part no. 8682623 Refer to OIP 8682623 (5/573)(5/579)		
	17	SHROUD, ENGINE: right bank, damper end - part no. 11683983 - 1235440 Refer to OIP 11683983, 1234440 (5/574)(5/582)		
	18	BRACKET, ENGINE ACCESSORY: PLATE, ENGINE SHROUD FILLER: side, damper end - part no. 11683976 Refer to OIP 11683976 (5/575)(5/583)		
	19	BRACKET, ENGINE ACCESSORY: PLATE, ENGINE SHROUD FILLER: top, damper end - part no. 11683974 Refer to OIP 11683974 (5/576)(5/584)		
	20	MOUNTING PLATE: PLATE, SHROUD, DIESEL ENGINE: left bank, damper end - part no. 11684089 Refer to OIP 11684089 (5/577)(5/585)		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-77	25 16	<i>CYLINDER AIR:</i> BAFFLE, 11A FROM <i>Generator</i> no. 1 left and no. 6 right - part no. 8602756 12354438 Refer to OIP 8602756 12354438 (5/578) (5/581)		
	8 8	<i>ADAPTER GENERATOR TO AIR DUCT:</i> SHROUD, COOLING: cylinder barrel no. 1 right and no. 6 left - part no. 8761269 Refer to OIP 8761269 (5/579) (5/573)		
	9 9	SHROUD, CAMSHAFT DRIVE: left bank, upper - part no. 8761104 12354416 Refer to OIP 8761104 12354416 (5/580) (5/574)		
	11 11	SHROUD, FAN COOLING: cam- shaft drive, left bank, lower - part no. 11684265 Refer to OIP 11684265 (5/581) (5/576)		
	12 12	SHROUD, CAMSHAFT DRIVE: right bank, upper - part no. 8767748 12354415 Refer to OIP 8767748 12354415 (5/582) (5/577)		
	18 18 10	SHROUD, COOLING, ENGINE: camshaft driveshaft, right bank, lower - part no. 11684266 Refer to OIP 11684266 (5/583) (5/575)		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-77 (5/554.)	5	<i>CYLINDER AIR:</i> BAFFLE, AIR FLOW, no. 1 no. 1 right, and no. 6 left - part no. 8682757-12354437 Refer to OIP 8682757-12354437 (5/584)(5/570)		
	207	<i>ENGINE:</i> BAFFLE, AIR FLOW, left bank, flywheel end, lower - part no. 8682626 Refer to OIP 8682626 (5/585)(5/572)		
	2113	<i>COOLING:</i> SHROUD, CYLINDER, no. 1 left and no. 6 right - part no. 8761270 Refer to OIP 8761270 (5/580)(5/598)		
5-78 (5/554.2)	*	SHROUD, DIESEL ENGINE: left bank, damper end, and right bank, flywheel end - part no. 11684098 Refer to OIP 11684098 (5/587)		
	21	<i>ENGINE ACCESSORY:</i> BRACKET, SHROUD cylinder head shut off level indicator right BANK - part no. 11684004-2 (Models AVDS-1790-2C, and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684221-2 (Model AVDS-1790-2DR) Refer to OIP's 11684004-2 AND 11684221-2 (5/588)		
		<i>BRACKET MOUNTING FAN</i> 11671485 (DAMPER END) PART NO. 11671485 (MODEL AVDS-1790-2DR) REFER TO OIP 11671485 (5/588)		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-78 (5/554)	2 2	BRACKET, SHROUD: ^{ENGINE ACCESSORY:} cylinder head shroud oil level indicator left BANK - part no. 11684004-1 (Models AVDS-1790-2C, and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684221-1 (Model AVDS-1790-2DR) Refer to OIP's 11684004-1 and 11684221-1 (5/589)		
	3	BRACKET, SHROUD: ^{BRACKET, ENGINE ACCESSORY:} cylinder head intermediate right BANK - part no. 11684003-2 Refer to OIP 11684003-2 (5/590)		
	4	BRACKET, SHROUD: ^{ENGINE ACCESSORY:} cylinder head intermediate left BANK part no. 11684003-1 Refer to OIP 11684003-1 (5/591)		
	6	SHROUD, DIESEL ENGINE: right bank, damper end, and left bank, flywheel end part no. 11684099 Refer to OIP 11684099 (5/592)		
5-79 (5/555)	1	DEFLECTOR, AIR: ^{FLOW:} ENGINE COOL- cylinder air left bank - part no. 8682700 Refer to OIP 8682700 (5/593)		
	2	DEFLECTOR, AIR: ^{FLOW:} ENGINE COOL- cylinder air right bank - part no. 8682701 Refer to OIP 8682701 (5/594)		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-79 (5/555)	3	COVER, ACCESS: STRAP, RETAINING: cylinder air deflector (outer) - part no. 8682702 Refer to OIP 8682702 (5/595)		
	4	DEFLECTOR, AIR ENGINE COOLING: baffle intercylinder air - part no. 8682492 Refer to OIP 8682492 (5/596)		
	5	BAFFLE, AIRFLOW, ENGINE: DEFLECTOR, AIR ENGINE COOLING: baffle intercylinder air - part no. 8682620 Refer to OIP 8682620 (5/597)		
	6	STRAP, RETAINING: cylinder air deflector (inner) - part no. 8761164 Refer to OIP 8761164 (5/598)		
5-80 (5/555)	1	GUARD, MECHANICAL DRIVE: SHROUD, DIESEL ENGINE: transmission, left bank upper - part no. 12275727 Refer to OIP 12275727 (5/599)		
	2	SHROUD, DIESEL ENGINE: transmission, right bank upper - (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 11683977 Refer to OIP 11683977 (5/600)		
	3	PLATE, SHROUD, TURBOSUPERCHARGER: TURBOSUPERCHARGER: TURBOCHARGER SHROUD: RIGHT BANK right bank, inner - (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 10865267 12354431 Refer to OIP 10865267 12354431 (5/601)		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-80 (5/555)	4	<p><i>TURBOCHARGER:</i> PLATE, ENGINE SHROUD: turbo- supercharger, right bank, outer - part no. 10865277 > (MODELS AVDS-1790-2C AND AVDS-1790-2D Refer to OIP's 10865277 PART NO. 12314598 (5/602) (MODELS AVDS-1790-2CA AND AVDS-1790-2DA) AND 12314598</p>		
	5	<p>SHROUD, COOLING ENGINE: transmission, right bank, lower - part no. 10865252 > (MODELS AVDS-1790-2^C AND AVDS-1790-2^{CA}) Refer to OIP's 10865252 10865252 ¹²³⁵⁴⁴³⁵ (MODELS AVDS-1790-2^D AND AVDS-1790-2^{DA}) (5/603) 12354435 PART NO. 12354434</p>		
	6	<p><i>MOUNTING PLATE:</i> PLATE, SHROUD: transmission right bank, intermediate - part no. 10865247 (ALL MODELS, EXCEPT AVDS-1790-2DR) Refer to OIP 10865247 (5/604) AND 1162794E 12354434</p>		
	7	<p><i>MOUNTING PLATE:</i> PLATE, TRANSMISSION: left bank, intermediate (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 11641919 Refer to OIP 11641919 (5/605)</p>		
	8	<p>SHROUD, COOLING ENGINE: transmission, left bank, lower - (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 10865250-12354434 Refer to OIP 10865250 12354434 (5/606)</p>		
	9	<p>SHROUD, AIR FLOW: turbo- supercharger left bank, outer - > (MODELS AVDS-1790-2C AND AVDS-1790-2D part no. 10865272 10865272 ¹²³¹⁴⁵⁹⁹ Refer to OIP's 10865272 (MODELS AVDS-1790-2CA AND AVDS 1790-2DA (5/607) PART NO. 12314599 12314599</p>		

Table 5-33. Wear Limits, Fits, and Tolerances for Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-80 (5/555)	10	SHROUD, PLATE TURBOSUPER-CHARGER: <i>ASSEMBLY, TURBOCHARGER:</i> left bank, inner - <i>(ALL MODELS, EXCEPT AVDS-1790-ZDR)</i> part no. 10858268 12354432 Refer to OIP 10858268 12354432 (5/608)		
5-81 (5/556)	1	HOUSING, CENTRIFUGAL FAN: engine cooling fan - part no. 8682658 Refer to OIP 8682658 (5/609)		
	2	<i>BODY:</i> HUB, ENGINE COOLING: fan rotor - part no. 8761050 Refer to OIP 8761050 (5/610)		
		Diameter of seal surface	1.6860-1.6890	1.6840
		Inside diameter of spline measured over 0.0600 inch diameter pins	1.0592-1.0610	1.0620
	3	IMPELLER, FAN, AXIAL: FAN ASSEMBLY, ENGINE: cooling part no. 8761242 Refer to OIP 8761242 (5/611)		
	4	SHROUD, FAN, RADIATOR: HOUSING, ENGINE COOLANT: damper end - part no. 8682785 Refer to OIP 8682785 (5/612)		
5-80	11	GROMMET, NONMETALLIC: -PART NO. MS35489-16		REPLACE
5-80	12	GROMMET, NONMETALLIC: -PART NO. 14935447		REPLACE

Table 5-33. Wear Limits, Fits, and Tolerances for
 Engine Shrouds, Air Deflectors, and Cooling Fans, Vanes, and Housing - Continued

<u>References</u>				
<u>Fig.</u> <u>No.</u>	<u>Item</u> <u>No.</u>	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-8T (5/556)	5	<i>BRACKET, MOUNTING:</i> MOUNT, BAFFLE AIR FLOW: flywheel end - part no. 8682682 Refer to OIP 8682682 (5/613)		

1684201 HOS. 00, CENTRIFUGAL FAN

OVERHAUL INSPECTION PROCEDURE

DMWR-9-2815-220

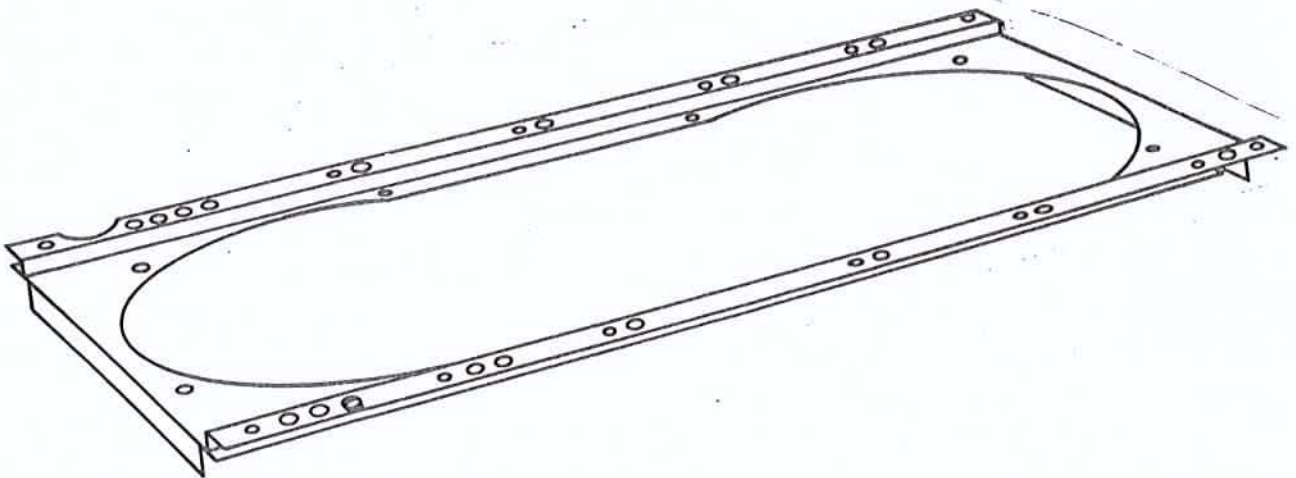
ITEM: SHROUD, DIESEL ENGINE:
cooling fan

OIP 11684088
11684201

REFERENCE: Figure 5-77 (5/554)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5		Cracked or broken welds	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMMR 9-2815-2202

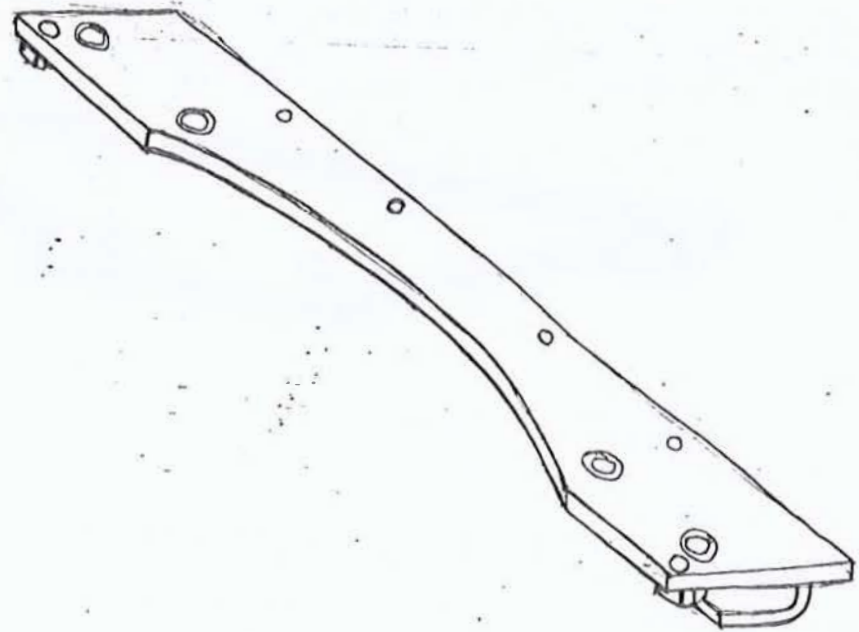
OIP 11671985

ITEM: BRACKET, MOUNTING:
FAN HOUSING, DAMPER END
(SYDDELANDELTA 1902DR)

REFERENCE: FIGURE 5-77 (5/5874)^{554.1}

ITEM: ~~44~~ 2

NO.	REF. LTR.	CHARACTERISTIC	AQL	INSP. METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BENT OR DAMAGED PLATES	2.5	VISUAL	NONE ALLOWED
3		MISSING NUTS OR DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED
4		BASE METAL SAWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

751567
~~44~~

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

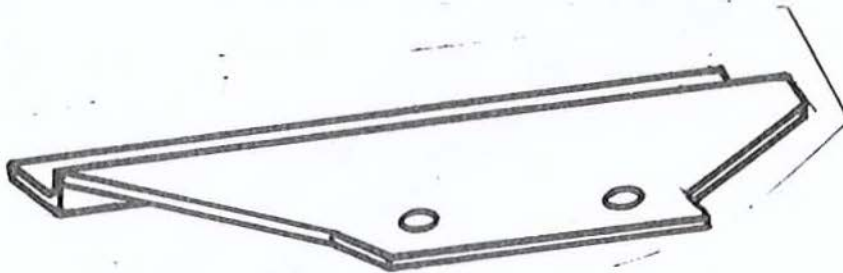
ITEM: COVER ACCESS:
cooling fan shroud

OIP 8682561

REFERENCE: Figure 5-77 (5/554)

ITEM: 23

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

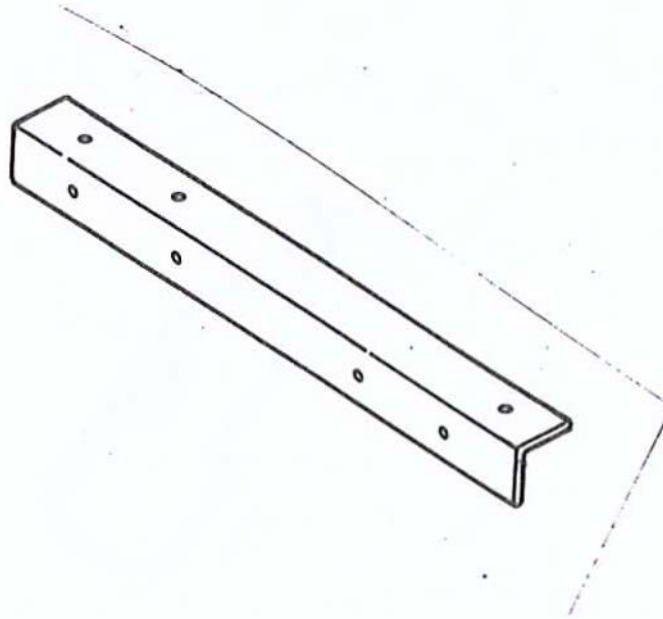
ITEM: BRACKET, LEVER, LINKAGE :
transmission
(MODEL AVDS-1790-208)

OIP 11684224

REFERENCE: Figure 5-77(5/554)

ITEM: *24*

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

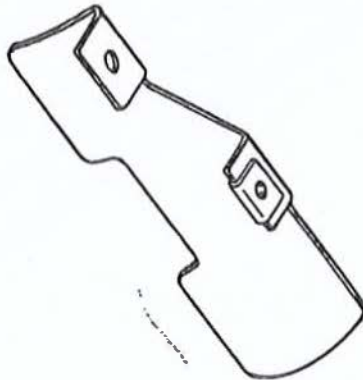
ITEM: ^{CYLINDER AIR:} BAFFLE, AIR FLOW:
~~no. 1~~ cylinder no. 1 right, and
 no. 6 left

OIP 8682757-1259437

REFERENCE: Figure 5-77 (5/554)

ITEM: 285

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ~~78833~~ 12354433

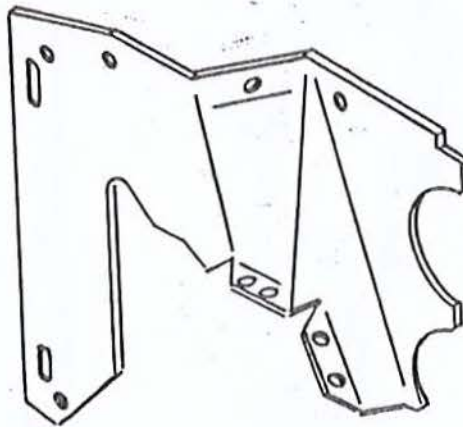
ITEM:

~~MOUNTING PLATE:
PERMANENT DIESEL ENGINE
LEFT BANK, FLYWHEEL END, UPPER~~
SHROUD: FLYWHEEL END LEFT BANK

REFERENCE: Figure 5-77 (5/554)

ITEM: # 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5a		CRACKED OR BROKEN WELDS	2.5	VISUAL	NOTE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

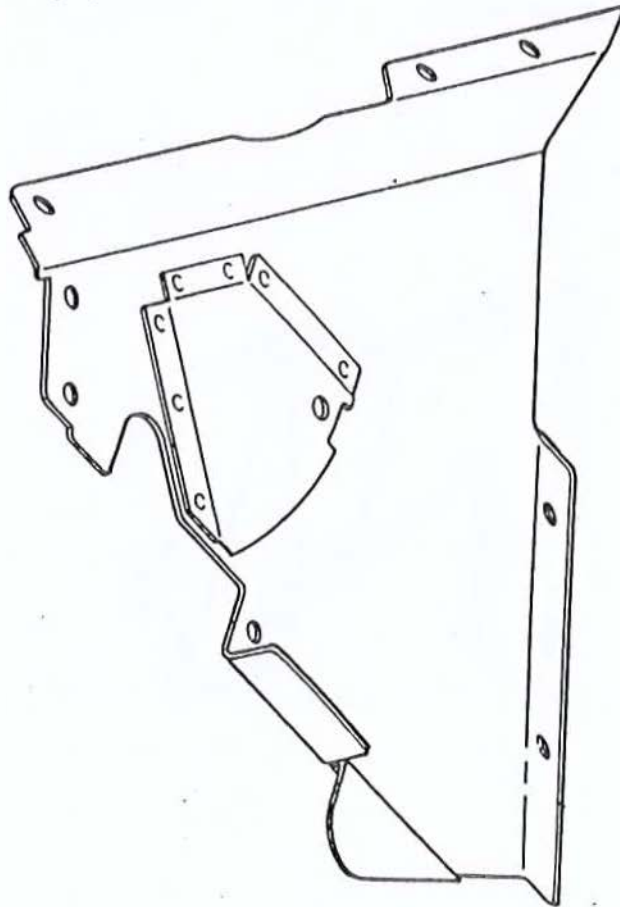
ITEM: BAFFLE, AIR FLOW₂, ENGINE:
left bank, flywheel end, lower

OIP 8682626

REFERENCE: Figure 5-77 (5/554)

ITEM: ~~20~~ 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Cracked or broken welds	2.5	Visual	None allowed



•Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

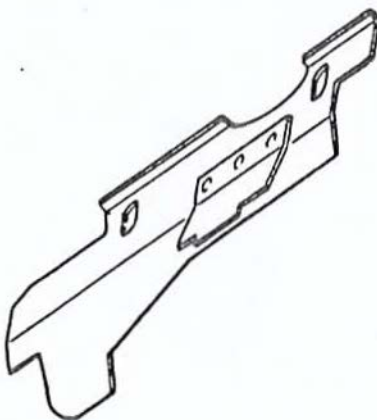
ITEM: *ADAPTER, GENERATOR TO AIR DUCT:*
~~SHROUD, COOLING:~~
 cylinder barrel no. 1 right
 and no. 6 left

OIP 8761269

REFERENCE: Figure 5-77 (5/554)

ITEM: ~~#~~ 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		<i>CRACKED OR BROKEN WELDS</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

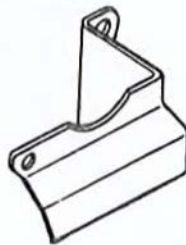
ITEM: SHROUD, CAMSHAFT DRIVE:
left bank, upper

OIP 8761104 123544/6

REFERENCE: Figure 5-77 (5/554)

ITEM: 489

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		SHROUD CHAMFERED OR BRACKET WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

574
5/580

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

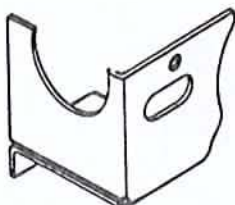
ITEM: ~~SHROUD~~, COOLING, ENGINE:
~~cam~~shaft driveshaft right bank, lower

OIP 11684266

REFERENCE: Figure 5-77 (5/554)

ITEM: ~~5/10~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

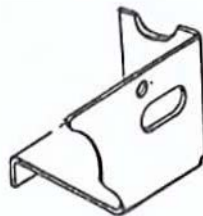
ITEM: SHROUD, FAN COOLING:
camshaft drive, left bank, lower

OIP 11684265

REFERENCE: Figure 5-77 (5/554)

ITEM: 16 //

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

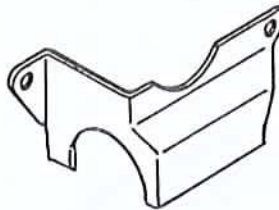
OIP ¹²³⁴⁵ ~~8761148~~

ITEM: SHROUD, CAMSHAFT DRIVE:
right bank, upper

REFERENCE: Figure 5-77 (5/554¹)

ITEM: 2712

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKS or BRACKEN WELDS	2.5	VISUAL	NONE ALLOWED



•Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/582
577

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

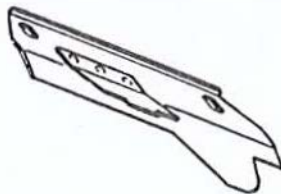
OIP 8761270

ITEM: SHROUD, CYLINDER & COOLING:
no. 1 left and no. 6 right

REFERENCE: Figure 5-77 (5/554)

ITEM: 273

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKED OR BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

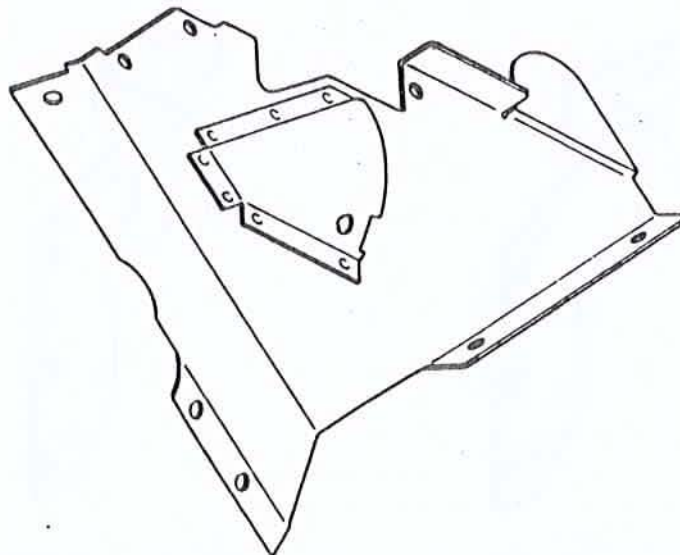
ITEM: ~~SHROUD, COOLING ENGINE~~
 FAN, RADIATOR:
 right bank, flywheel end, lower

OIP 8682623

REFERENCE: Figure 5-77 (5/554)

ITEM: 8/14

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	2	Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Cracked or broken welds	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

... 100% Monitor Part

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

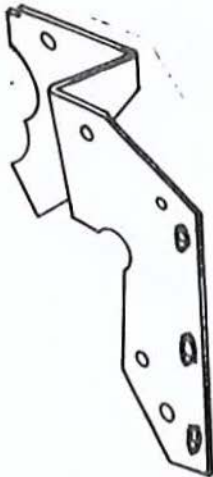
ITEM: SHROUD, AIR DEFLECTION:
right bank, flywheel end, upper

OIP 11684026
11684092

REFERENCE: Figure 5-77 (5/554)

ITEM: ~~15~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0,0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5		Cracked or broken welds	2.5	Visual	None allowed



(Models AVDS-1790-2C2
AND AVDS-1790-2CA)



(Models AVDS-1790-2D
AND AVDS-1790-2DR)

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

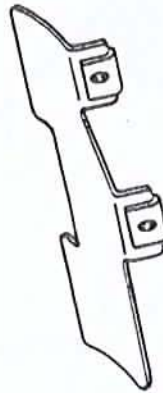
ITEM: ^{CYLINDER AIR:} BAFFLE, AIR-FLOW:
~~cylinder air,~~ no. 1 left
 and no. 6 right

OIP ~~8682756-123544-38~~

REFERENCE: Figure 5-77 (5/554)¹

ITEM: ~~38~~/6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

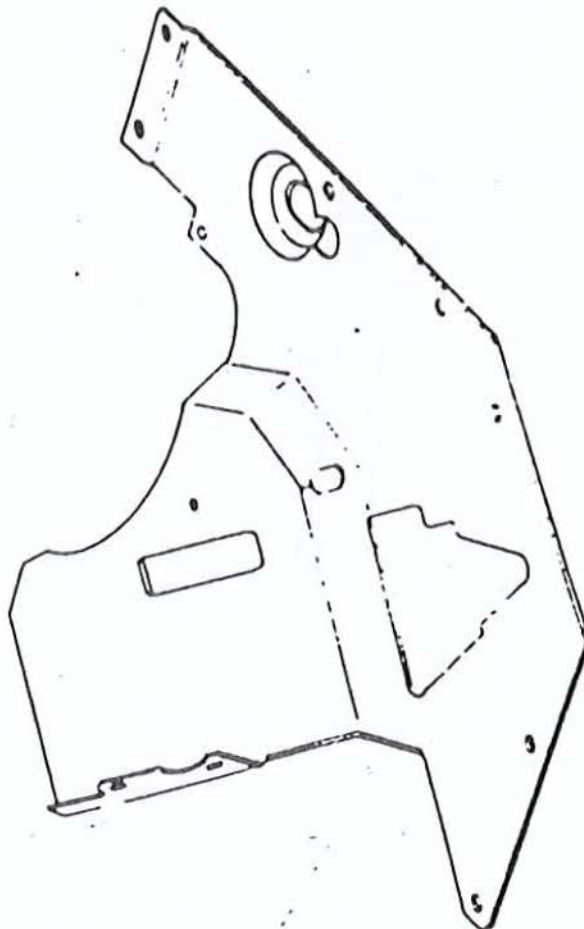
ITEM: SHROUD ~~PLATE~~ ^{SHROUD} ENGINE: ^{SHROUD}
right bank, damper end

OIP 11683983-12854440

REFERENCE: Figure 5-77 (5/554)¹

ITEM: 817

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4	3	Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ~~BRACKET, ENGINE ACCESSORY:~~
~~PLATE, ENGINE SHROUD FILLER:~~
 side, damper end

OIP 11683976

REFERENCE: Figure 5-77 (5/554.)

ITEM: ~~20~~ / 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent,	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

583
 5/575

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: *BRACKET, ENGINE ACCESSORY:*
~~PLATE, ENGINE SHROUD FILLER:~~
 top, damper end

OIP 11683974

REFERENCE: Figure 5-77 (5/554)

ITEM: *H 19*

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

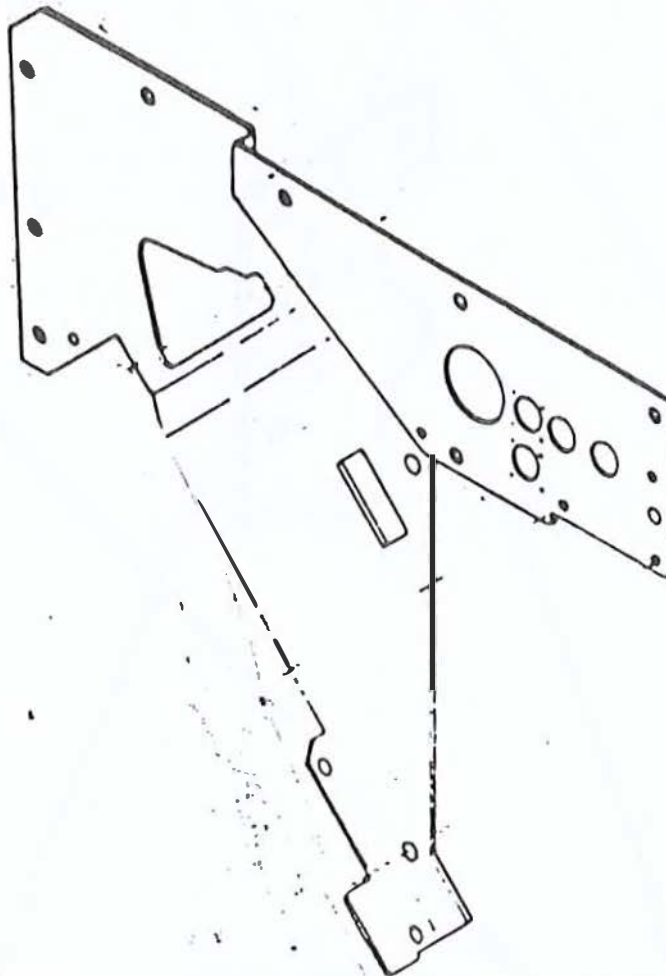
ITEM: ~~PLATE, SHROUD, DIESEL ENGINE:~~
^{Mounting Plate:}
 left bank, damper end

OIP 11684089

REFERENCE: Figure 5-77 (5/554)'

ITEM: 1270

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged or missing plate nuts	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5		Cracked or broken welds	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/585
5/577

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684264

ITEM: SHROUD, COOLING, MANIFOLD,
exhaust, left bank

REFERENCE: Figure 5-77 (5/554)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



BLANK

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/570

5/586

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SHROUD, EXHAUST MANIFOLD:
right bank

OIP 10898756

REFERENCE: Figure 5-77 (5/554)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	%AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



BLANK

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/571 5/587

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

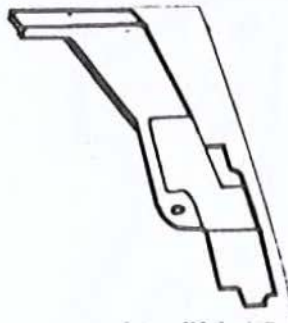
ITEM: BRACKET, ^{ENGINE ACCESSORY:} ~~BRACKET~~
 cylinder head, ~~shroud oil level~~
~~indicator~~ right BANK

OIP 11684004-2
 11684221-2

REFERENCE: Figure 5-78 (5/554)²

ITEM: 2 /

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKED OR BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

34221-1 SHROUD, ENGINE HEAD

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

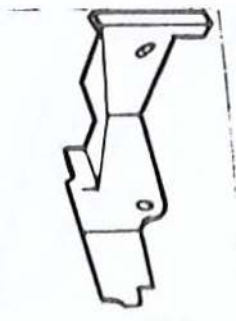
ITEM: BRACKET, ~~STRONG~~ ^{ENGINE ACCESSORY:}
cylinder head shroud-oil-level
indicator left BANK

OIP 11684004-1
11684221-1

REFERENCE: Figure 5-78 (5/554)Z

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKED OR BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

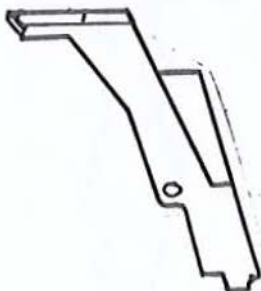
ITEM: BRACKET, ~~SHROUD~~ ^{ENGINE ACCESSORY:}
cylinder head, intermediate, right BANK

OIP 11684003-2

REFERENCE: Figure 5-78 (5/554)²

ITEM: 43

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		CRACKED OR BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

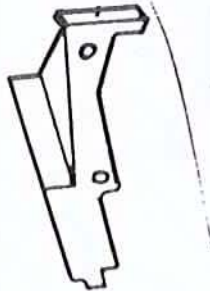
ITEM: BRACKET, ~~PARALLEL~~ ^{ENGINE ACCESSORY:}
cylinder head, intermediate, left BANK

OIP 11684003-1

REFERENCE: Figure 5-78 (5/554)2

ITEM: ~~3~~ 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		<i>CRACKED OR BROKEN WELDS</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SHROUD, DIESEL ENGINE:
left bank, damper end, ~~and~~ right bank,
flywheel end

OIP 11684098

REFERENCE: Figure 5-78 (5/554)

ITEM: ~~1~~ *22*

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed

*BASE METAL SHOWN
FRESHLY PREPARED
FINISH*

~~BLANK~~
~~BLANKS~~



~~CANCELLED~~
~~USED FOR~~
PAGE NO 5/587
OIP 11684098

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Typical

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684099

ITEM: SHROUD, DIESEL ENGINE:
right bank, damper end ~~assy~~ left bank,
flywheel end

REFERENCE: Figure 5-~~78~~⁷⁸ (5/554)

ITEM: *E 34*

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed

*BASE METAL SHADING
THIN PROTECTIVE
FINISH*

BLANK



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: DEFLECTOR, AIR ^{FLOW:} ~~ENGINE COOLING~~
cylinder air left bank

OIP 8682700

REFERENCE: Figure 5-79 (5/555)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: DEFLECTOR, AIR ^{FLOW:} ~~ENGINE COOLING~~
cylinder air right bank

OIP 8682701

REFERENCE: Figure 5-79 (5/555)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

COVER, ACCESS:
~~STRAP, REFERRING~~
ITEM: cylinder air deflector (outer)

OIP 8682702

REFERENCE: Figure 5-79 (5/555)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: DEFLECTOR, AIR ENGINE COOLING:
baffle intercyylinder air

OIP 8682492

REFERENCE: Figure 5-79 (5/555)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Cracked or broken welds	2.5	Visual	None allowed
3		Damaged or badly worn	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Bent	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ~~DEFLECTOR, AIR ENGINE COOLING:~~
~~intercylinder air~~
BAFFLE, AIRFLOW, ENGINE:

OIP 8682620

REFERENCE: Figure 5-79 (5/555)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Cracked or broken welds	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Bent	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761164

ITEM: STRAP, RETAINING:
cylinder air deflector (inner)

REFERENCE: Figure 5-79 (5/555)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Loose, missing or damaged nut	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

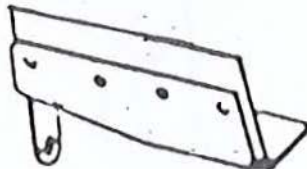
ITEM: ~~GUARD, MECHANICAL DRIVE SHROUD, DIESEL ENGINE:~~
transmission, left bank, upper

OIP 12275727

REFERENCE: Figure 5-80 (5/555)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

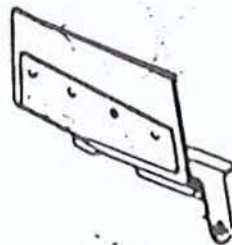
OIP 11683977

ITEM: SHROUD, DIESEL ENGINE:
transmission, right bank, upper
(ALL MODELS, EXCEPT AND SUPERVISOR)

REFERENCE: Figure 5-80 (5/555)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or miss- ing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or miss- ing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

9-2815-
DMWR ~~720-1000~~ 220

OIP 12354431
62DA131-0070

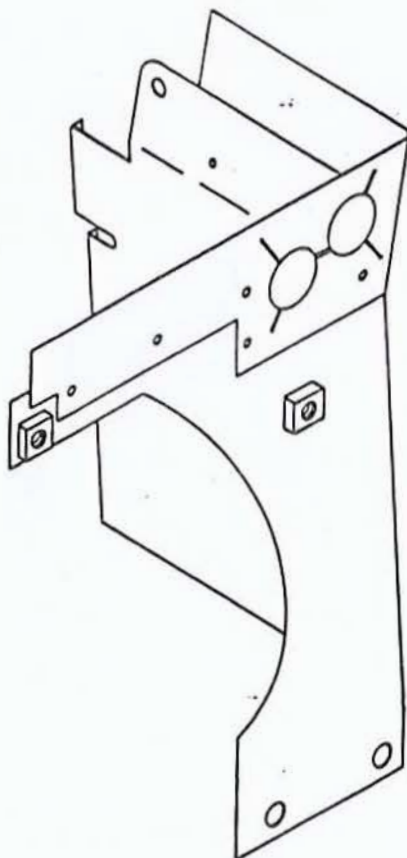
ITEM: ^{TURBOCHARGER SHROUD:}
PLATE, SHROUD, TURBOSUPERCHARGER+
right bank inner

REFERENCE: Figure 5-80 (5/5F)

ITEM: 3

CALL NOTES: ACCEPT 1/20/08

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or miss- ing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or miss- ing paint	2.5	Visual	None allowed
6		Loose or missing caged nuts	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

9-2815-
DMWR ~~720150~~ 220

OIP 12354431
62DA131-0070

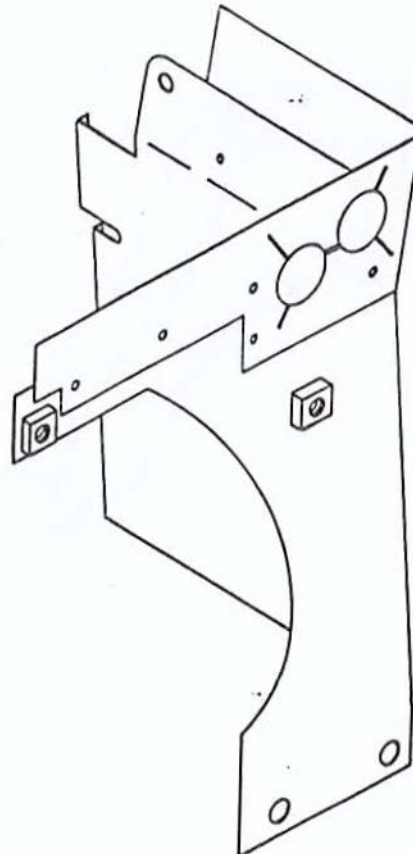
ITEM: *TURBOCHARGER SHROUD:*
PLATE, SHROUD, ~~TURBO~~SUPERCHARGER:
right bank inner

REFERENCE: Figure 5-80 (5/555)

ITEM: 3

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE DRAWINGS

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed
6		Loose or missing caged nuts	2.5	Visual	None allowed



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12314598 BRACKET, VEHICULAR COMPONENTS:

OVERHAUL INSPECTION PROCEDURE

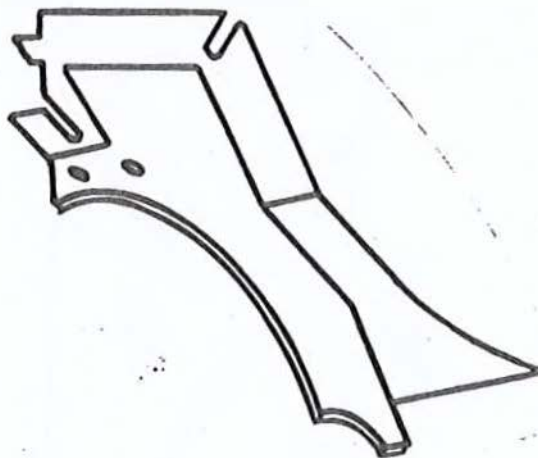
DMWR 9-2815-220

ITEM: ~~PLATE, ENGINE GROUP:~~ ^{TURBOCHARGER:}
~~turbosupercharger~~, right bank, outer

OIP 10865277
12314598
REFERENCE: Figure 5-80 (5/555)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

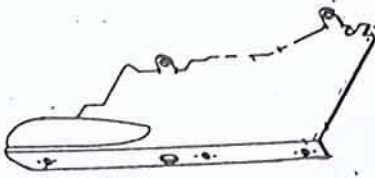
DMWR 9-2815-220

ITEM: SHROUD, COOLING ENGINE:
transmission, right bank, lower

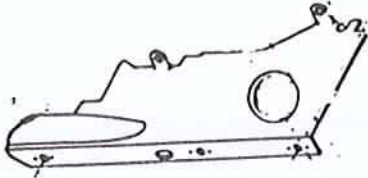
OIP ~~1085252~~ 12354435
~~12354432~~ 12354436
REFERENCE: Figure 5-80 (5/555)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Cracked or broken welds	2.5	Visual	None allowed
5		LOOSE OR MISSING PLATE NUTS	2.5	VISUAL	NONE ALLOWED



(MODELS AVDS-1790-2C AND AVDS-1790-2CA)



(MODELS AVDS-1790-2D AND AVDS-1790-2DA)

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

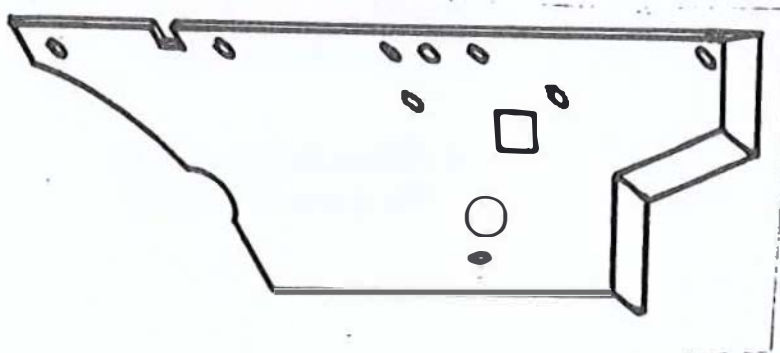
ITEM: *MOUNTING PLATE;*
~~PLATE, SHROUD~~
 transmission, right bank, intermediate
(ALL MODELS EXCEPT ANUSA 1790-2DR)

OIP 10865247

REFERENCE: Figure 5-80 (5/555)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

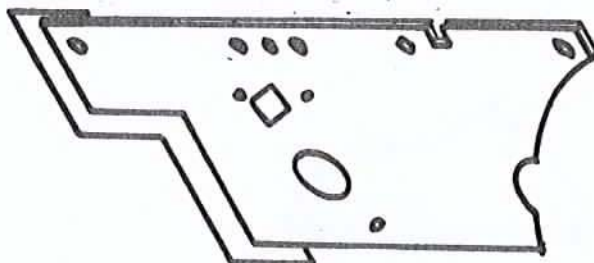
ITEM: ~~PLATE, TRANSMISSION:~~
MOUNTING PLATE;
 left bank, intermediate
(CALL MIDDLE EXCEPT RIVETS - 10/01/2001)

OIP 11641919

REFERENCE: Figure 5-80 (5/555)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ~~10865250~~
18354434

ITEM: SHROUD, COOLING, ENGINE:
transmission, left bank, lower

REFERENCE: Figure 5-80 (5/555)

NO DEFECTS ACCEPTED (AVIS-179-2008)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Chipped or missing paint	2.5	Visual	None allowed
4		Cracked or broken welds	2.5	Visual	None allowed
5		<i>LOOSE OR MISSING PLATE NUTS</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

1231 4599 SHROUD, SEGMENT, TURBINE, TURBINE ENGINE:

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

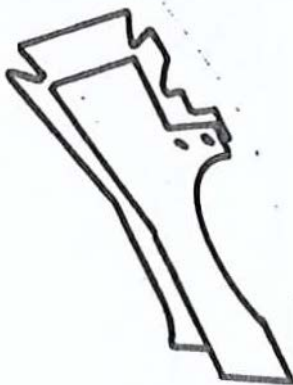
ITEM: SHROUD, AIR FLOW:
turbocharger left bank, outer

OIP 10865272
12314599

REFERENCE: Figure 5-80 (5/555)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or missing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or missing paint	2.5	Visual	None allowed
6		Loose or missing plate nuts	2.5	Visual	None allowed



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VERHAUL INSPECTION PROCEDURE

9-2815-
DMWR ~~10000000~~ 220

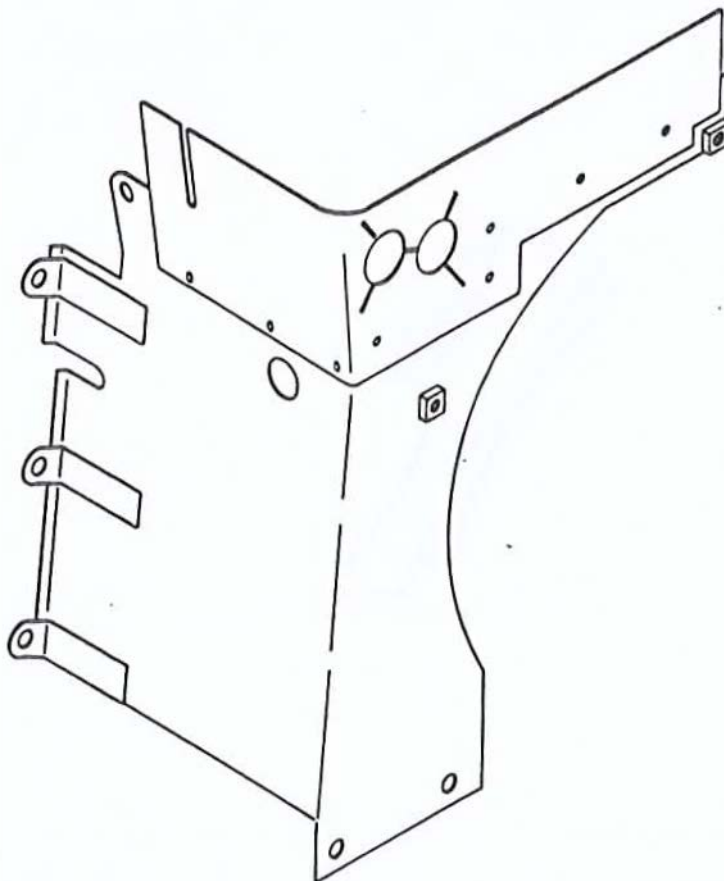
OIP ~~E20A121-0000~~
1254432

SHROUD ASSEMBLY, TURBOCHARGER:
left bank, inner.

REFERENCE: Figure 5-80 (5/555)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Loose or, miss- ing rivets	2.5	Visual	None allowed
4		Damaged seal	2.5	Visual	None allowed
5		Chipped or miss- ing paint	2.5	Visual	None allowed
6		Loose or miss- ing caged nuts	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

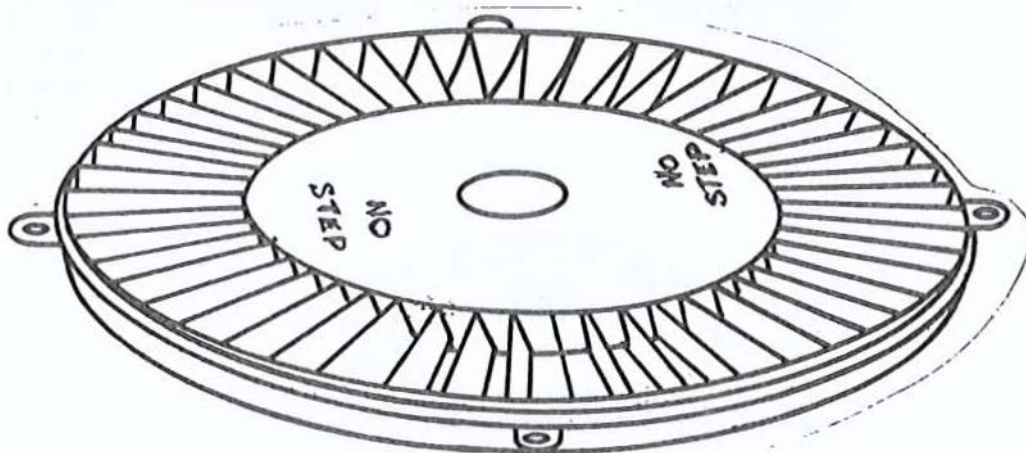
ITEM: HOUSING, CENTRIFUGAL FAN:
engine cooling fan

OIP 8682658

REFERENCE: Figure 5-81 (5/556)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent	2.5	Visual	None allowed
3		Damaged or badly worn	2.5	Visual	None allowed
4		Chipped or missing paint	2.5	Visual	None allowed
5		Cracked or broken welds	2.5	Visual	None allowed
6		<i>MISSING LETTERS NO STEP</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

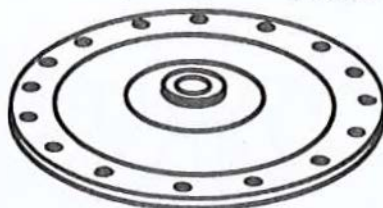
ITEM: ^{BODY:} HUB, ~~ENGINE COOLING:~~ fan rotor

OIP 8761050

REFERENCE: Figure 5-81 (5/556)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Broken or worn spline teeth	1.0	Measure	Must be no greater than 1.0620 inches between 0.6000 pins 0.0600
3		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		Seal area diameter	1.0	Measure	Must be no less than 1.6840 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

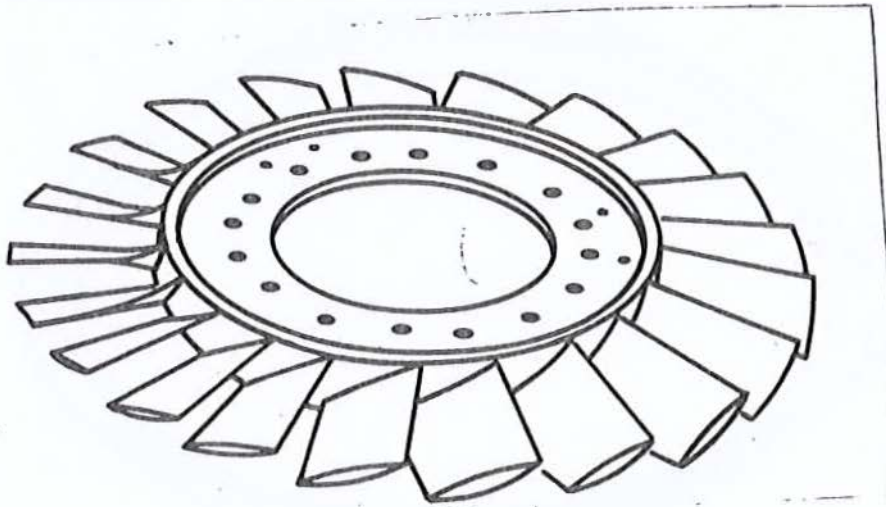
DMWR 9-2815-220

ITEM: ~~FAN ASSEMBLY, ENGINE:~~
cooling
IMPELLER, FAN, AXIAL!

OIP 8761242
554132 (42978)
REFERENCE: Figure 5-81 (5/556)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Bent blades	2.5	Visual	None allowed
3		Broken blades	2.5	Visual	None allowed
4		Warped blades	2.5	Visual	None allowed
5		Blade erosion	1.0	Visual	Leading edge of any blade must not be hidden by gage (fig. 5-76.1) (5/553)
6		Nicks or scratches on blades	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

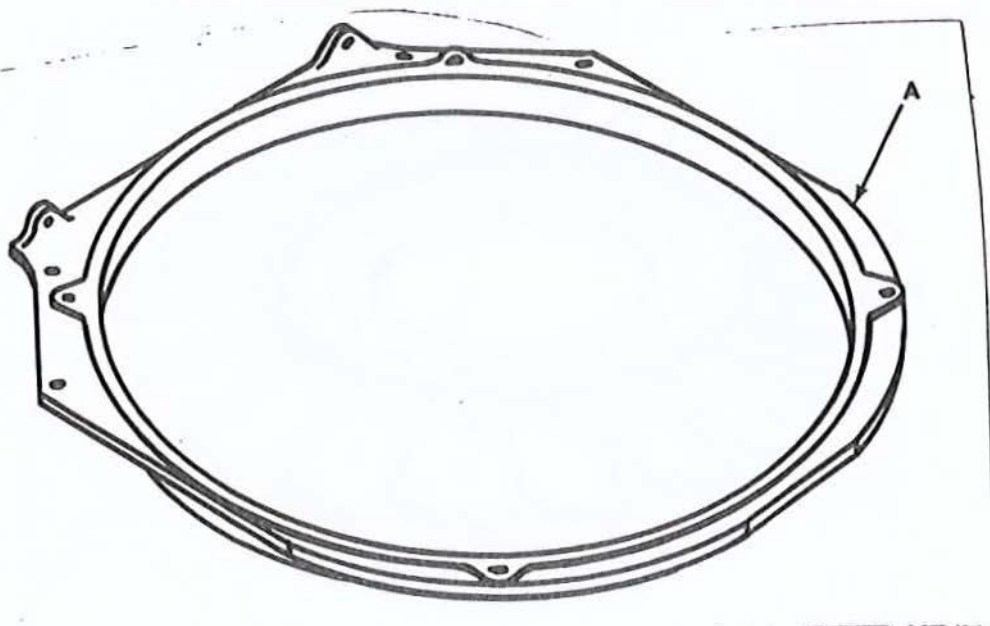
ITEM: ~~HOUSING, ENGINE COOLANT~~
 SHROUD, FAN, RADIATOR.
 damper end

OIP 8682785

REFERENCE: Figure 5-81 (5/556)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2	A	Warped or distorted housing	2.5	Visual	None allowed
3		Loose or damaged inserts	2.5	Visual	None allowed
4		Bent	2.5	Visual	None allowed
5		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

29.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

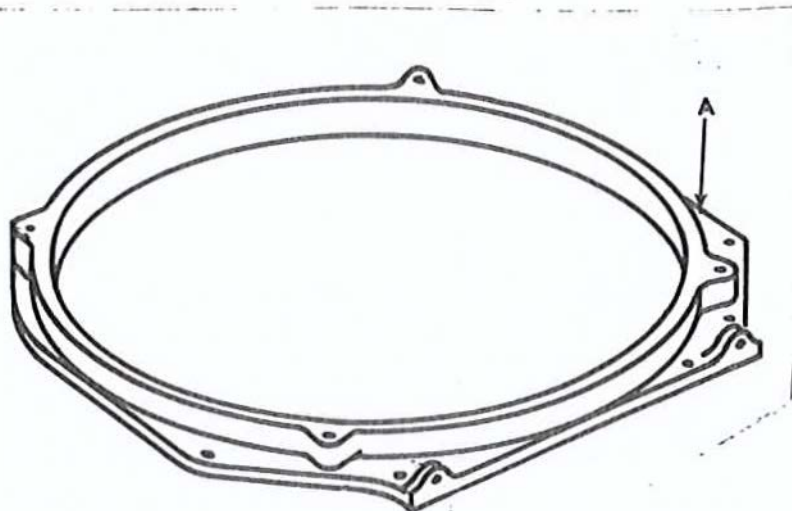
ITEM: ~~MOUNT, BAFFLE AIR FLOW:~~
BRACKET, MOUNTING:
 flywheel end

OIP 8682682

REFERENCE: Figure 5-81 (5/ 556)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2	A	Warped or distorted housing	2.5	Visual	None allowed
3		Loose or damaged inserts	2.5	Visual	None allowed
4		Bent	2.5	Visual	None allowed
5		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5-89. Repair and Assembly.

a. Repair.

- (1) General repair instructions. Refer to paragraph 5-5 (5/5).
- (2) Shrouds and plates. Straighten bent shrouds or plates as near original shape as possible. Replace missing or damaged plate nuts.
- (3) Fans. Repair scratches, nicks, and raised metal using a fine mill file.

NOTE

Care must be taken when using a file not to remove excessive amounts of metal since this will disturb the delicate balance of the fan.

b. Assembly.

- (1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.
- (2) Assembly procedures. Refer to TM 9-2815-220-34.

BLANK

FRAME

Hoses Section XXII. OVERHAUL OF INTAKE MANIFOLDS, CONNECTING ^{*Hoses*} TUBES, TURBOSUPERCHARGER SUPPORT, AND ASSOCIATED PARTS

5-90. General. This section covers overhaul of the intake manifolds, connecting tubes, turbosupercharger support, and associated parts (fig. 5-82) (5/617). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions. Stud identification information is included with the repair instructions.

5-91. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-92. Inspection. Inspect the intake manifolds, connecting ^{*Hoses*} tubes, turbosupercharger support, and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the intake manifolds, connecting tubes, turbosupercharger support, and associated parts are listed in table 5-34 (5/618). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

Hoses

DMWR 9-2815-220

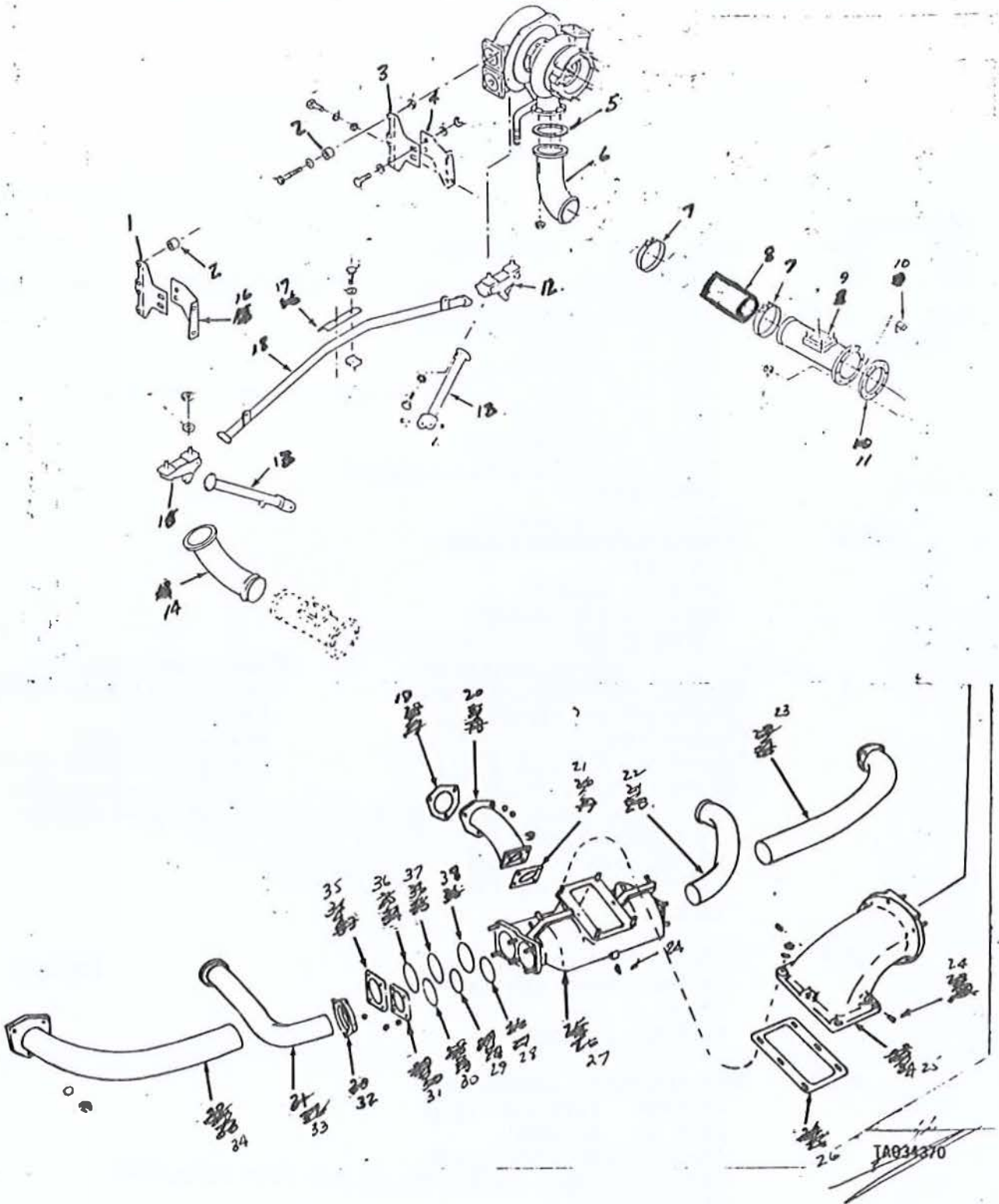


Figure 5-82. Intake manifolds and associated parts.

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Pipes, Turbosupercharger Support, and Associated Parts

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
----------	----------	--	---------------	------------

5-82
(5/617)

~~DRAG LINK - TIE ROD -~~
~~TIE ROD, TURBOSUPERCHARGER~~
 part no. 8682558
 (Models AVDS-1790-2C, ~~200~~
 AVDS-1790-2B1CA, AVDS-1790-2D AND AVDS-1790-2DA)
 part no. 11684186
 (Model AVDS-1790-2DR)
 Refer to OIPs 8682558 AND 11684186
 (5/626)(5/639)

17-2

~~STRAP, RETAINING:~~
~~CLAMP, TURBOSUPERCHARGER:~~
 tie rod -
 part no. 8682451
 Refer to OIP 8682451
 (5/627)(5/638)

3

~~BRACKET, MOUNTING:~~ ^{4/15/90 ACCESSORY:} Turbo-
~~supercharger support,~~
~~right bank -~~
 part no. 11684137-2
 (Models AVDS-1790-2C, ~~200~~
 AVDS-1790-2B1CA, AVDS-1790-2D AND AVDS-1790-2DA)
 part no. 11684182
 (Model AVDS-1790-2DR)
 Refer to OIPs 11684137-2 AND 11684182
 (5/628)

BRACKET MOUNTING:
 TURBO SUPERCHARGER SUPPORT,
 RIGHT BANK -
 PART NO. 12354428
 (MODELS AVDS-1790-2D AND AVDS-
 1790-2DA) OIP 12354428
 REFER TO OIP 12354428 (5/628)

45

GASKET: turbosupercharger
 outlet elbow, left and
 right -
 part no. 7320459

Replace

512

BASE ASSEMBLY, TURBOSUPER-
 CHARGER: left and right-
 part no. 8761086
 (Models AVDS-1790-2C, ~~200~~
 AVDS-1790-2B1CA, AVDS-1790-2D AND AVDS-1790-2DA)
 right bank -
 part no. 11684203
 (Model AVDS-1790-2DR) AND 11684203
 Refer to OIPs 8761086 AND 11684203
 (8/629)
 (5/634)
 (5/634)

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

References
 Fig. Item
 No. No.
 Item, point of measurement
 or inspection
 New part size
 Wear limit

5-82 6
 (5/617) ELBOW, FLANGE TO HOSE:
 turbosupercharger outlet,
 right bank -
 part no. 8682749
 (Models AVDS-1790-2C, ~~AVDS-1790-2DA~~, AVDS-1790-2D AND AVDS-1790-2DA)
 part no. 11684184
 (Model AVDS-1790-2DR)
 Refer to OIP 8682749 AND 11684184
 (5/630) ~~11684184 (5/630)~~

7 CLAMP, HOSE: intake mani-
 fold tube to ~~tube~~
~~tube~~ turbosupercharger
 outlet elbow, left and
 right -
 part no: ~~400~~ 7340053
 Refer to OIP ~~11684184~~ 7340053
 (5/383)

8 HOSE, ~~RUBBER~~ ^{NONMETALLIC} intake mani-
 fold tube ~~to tube~~ ~~connec-~~
~~to~~ turbosupercharger
 outlet elbow, left and
 right -
 part no. 8761490-²
 (5/631) REFER TO OIP 8761490-2

9 ~~TUBE, METALLIC: intake mani-~~
~~fold turbosupercharger~~
~~outlet elbow connector,~~
~~left and right -~~
~~part no. 7320458~~
~~Refer to OIP 7320458~~
~~(5/631)~~

9
 300 TUBE ASSEMBLY, METAL: in-
 take manifold turbosuper-
 charger, left and right -
 part no. 8761082
 Refer to OIP 8761082
 (5/632)

4 BRACKET, MOUNTING:
 TURBOSUPERCHARGER TO OIL COOLER
 FRAME, RIGHT BANK -
 PART NO. 12354423 (MODEL AVDS-
 1790-2DR)
 PART NO. 12354429
 (MODELS AVDS-1790-2C AND AVDS-1790-2D)
 PART NO. 12354430
 (MODELS AVDS-1790-2D AND AVDS-1790-2E)
 REFER TO OIP'S 12354423,
 12354429-1 AND 12354430
 (5/629)

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

References

Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-82	11	GASKET: intake manifold tube turbosupercharger, left and right - part no. 8682748 MILG14243 TYPE 1 (81349)		Replace
		SUPPORT ASSEMBLY, TURBOSUPERCHARGER - part no. 8682750 Refer to OIP 8682750 (5/633) (5/635)		
		FLANGE TO TUBE: ELBOW, TURBOSUPERCHARGER OUTLET: left bank - part no. 8682748 (Models AVDS-1790-2C, and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11682625 (Models AVDS-1790-2DR) Refer to OIP's 8682748 AND 11682625 and 11682625 (5/634) (5/636)		
		BRACKET, MOUNTING: BASE ASSEMBLY, TURBOSUPERCHARGER: left bank - part no. 11682629-1 (Model AVDS-1790-2DR) Refer to OIP's 11682629-1 11682629-1 (5/629) (5/634)	11682629-1	
		ENGINE ACCESSORY: BRACKET, MOUNTING: turbo supercharger support, left bank - part no. 11684137-1 (Models AVDS-1790-2C, and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684196 (Model AVDS-1790-2DR) Refer to OIP's 11684137-1 AND 11684196 and 11684196 (5/635)		
		ANGLE BRACKET: BRACKET, MOUNTING: 1 Condition LEAD TO INTAKE MANIFOLD FLANGE LEFT AND RIGHT - PART NO. 12354381 REFER TO OIP 12354381 (5/633)		

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

References				
Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-82 (5/617)	18	RETAINER, PACKING: turbo- supercharger support brace to tie rod, left and right - part no. 10935478		Replace
	19 17	GASKET: intake manifold tubes to cylinder head part no. 8692000 586944 (69728)		Replace
	18 18	TUBE ASSEMBLY, METAL: in- take manifold, cylinders no. 3 and no. 4, left and right bank - part no. 8761021 Refer to OIP 8761021 (51838) (5/640)		
	21 19	GASKET: intake manifold elbow to intake manifold tubes cylinder no. 3 and no. 4, left and right bank - part no. 8092759 529312 (63714)		Replace
	22 20	TUBE, METAL, PREFORMED: intake manifold cylinders no. 2 right and no. 5 left - part no. 8761158 Refer to OIP 8761158 (51637) (5/641)		
	23 21	TUBE ASSEMBLY, METAL: intake manifold cylinder no. 1 right and no. 6 left - part no. 8761159 Refer to OIP 8761159 (51638) (5/642)		

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-82 (5/617)	25 25	ELBOW, FLANGE: MANIFOLD, ELBOW: ELBOW, ENGINE MANIFOLD: intake, left and right bank - part no. 8761156 Refer to OIP 8761156 (881639) (5/643)		
	26	GASKET: intake manifold elbow to intake manifold - part no. 8682769		Replace
	27	MANIFOLD, INTAKE: ASSEMBLY assembly, left and right bank - part no. 8761045 Refer to OIP 8761045 (5/640) (5/644)		
		Inner diameter of small bore	2.3000-2.3200	2.3200
		Outer diameter of small bore	2.6200-2.6260	2.6260
		Inner diameter of large bore	2.8000-2.8200	2.8200
		Outer diameter of large bore	3.1200-3.1260	3.1260
	28 25	PACKING, PREFORMED: intake manifold tube to intake manifold cylinders no. 2 and no. 5, left and right bank - part no. MS28173433, MS28173434 MS3461/1-331 (81349)		Replace
	24	PLUG, PIPE: part no. 7538990 401752 (28339)		REPLACE

Table 5-34, Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting ^{Hoses} Tubes, Turbosupercharger Support, and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-82 (5/617)	28 29	SPACER, RING: intake manifold seal, small - part no. 8698689 Refer to OIP 8698689 (5/642) (5/646)		
	28 30	WASHER, SPRING/TENSION: intake manifold seal, small - part no. 8698690 Refer to OIP 8698690 (5/643) (5/647)		
5-82	28 31	FLANGE, PIPE: intake manifold small, cylinders no. 2 and no. 5, left and right bank - part no. 8761137 Refer to OIP 8761137 (5/644) (5/648)		
	28 32	FLANGE, PIPE: intake manifold tube to cylinders no. 2 and no. 5, left and right bank - part no. 8682799 Refer to OIP 8682799 (5/645) (5/649)		
	30 33	TUBE, METAL, PREFORMED: ^{BENT, METALLIC:} intake manifold cylinder no. 2 and no. 5, left and right bank - part no. 8761160 (Models AVDS-1790-2C, and AVDS-1790-2D, CA, AVDS-1790.2D AND AVDS-1790.2DA) part no. 11684231 ^{INTAKE MANIFOLD CYLINDER NO. 5, RIGHT BANK} (MODEL AVDS-1790.2DR) (MODEL AVDS-1790.2DR) Refer to OIP 8761160 AND 11684231 (5/646) (5/650)		

INTAKE MANIFOLD CYLINDER NO. 2 LEFT BANK (MODEL AVDS-1790.2DR)

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

Hoses

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-82 (5/617) continued <i>etc</i>		Outside diameter of tube at end (8761160)	2.2500-2.2 ⁷ 00	*
		OUTSIDE DIAMETER OF TUBE AT END (10604731)	2.2500-2.2600	*
	<i>34</i>	TUBE ASSEMBLY, METAL: intake manifold cylinder no. 1 left and no. 6 right - part no. 8761157 Refer to OIP 8761157 (5/647) (5/650) (5/650.1)		
		Outside diameter of tube at end	2.7500-2.7600	*
	<i>35</i>	FLANGE, PIPE: intake manifold large, cylinders no. 1 and no. 6, left and right bank - part no. 8761138 Refer to OIP 8761138 (5/649) (5/650) (5/650.2)		
<i>5</i> 82	<i>36</i>	WASHER, SPRING TENSION: intake manifold seal, large - part no. 8682774 <i>58642</i> Refer to OIP 8682774 (5/649) (5/650) (5/650.3)		
	<i>37</i>	SPACER, RING: intake manifold seal, large - part no. 8698764 Refer to OIP 8698764 (5/650) (5/651) (5/650.4)		

BRACKET, MOUNTING:

TURBO SUPERCHARGER SUPPORT
LEFT BANK - PART NO. 12354420
RIGHT BANK - PART NO. 12354422
(MODEL AVDS-1790-2DR)

LEFT AND RIGHT BANK - PART NO. 12354427
(MODELS AVDS1790-2C AND AVDS-1790-2CA)
5/624
LEFT BANK - PART NO. 12354427
(MODELS AVDS1790-2D AND AVDS1790-2DA)

REFER TO OIP'S 12354420, 12354422 AND 12354427

(5/624)
626

Table 5-34. Wear Limits, Fits, and Tolerances for Intake Manifolds, Connecting Tubes, Turbosupercharger Support, and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-82 (5/617)	36 38	PACKING, PREFORMED: intake manifold tube to intake manifold cylinder no. 1 and no. 6, left and right bank - part no. M829775-335 M83461/1-335 (81349)		Replace

36
BRACKET, ANGLE:
IGNITION LEAD TO INTAKE
MANIFOLD TUBE, LEFT AND
RIGHT BANK -
PART NO. 12354381
REFER TO OIP 12354381
(5/650.1)

37
PLUG PIPE:
- PART NO. ~~41111111~~
7538990 REPLACE

38
GROMMET, NONMETALLIC:
TURBOSUPERCHARGER SUPPORT
BRACKET
PART NO. AN931B9-13 REPLACE

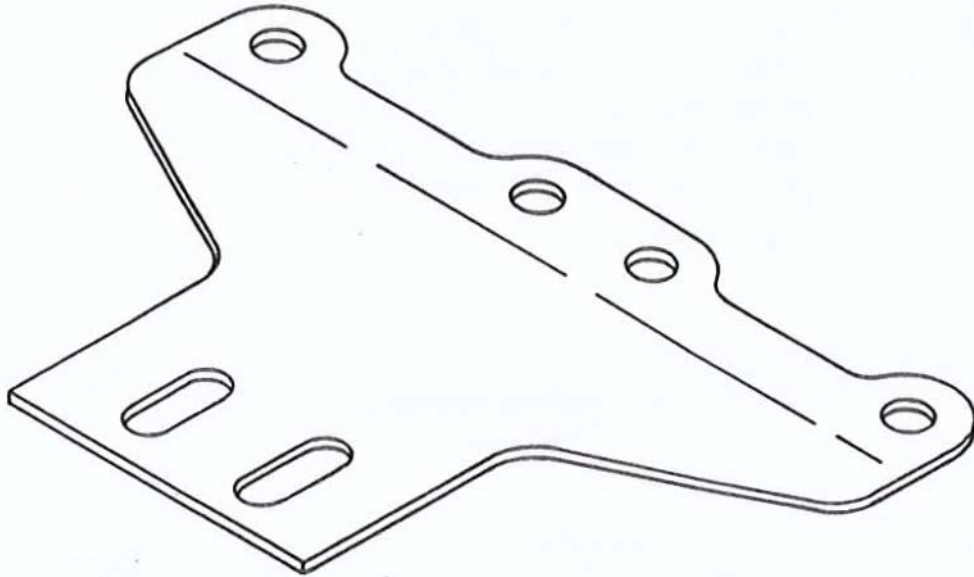
2
SPACER:
EXHAUST PIPE AND BRACKET
TO TURBOSUPERCHARGER
INNER, L & R -
(MODELS AVDS-1790-20, AVDS1790-2CA) (AVDS-1790-20 AND AVDS-1790-20A)
PART NO. 12354426
(REFER TO OIP 12354426)
(5/626)
627

OVERHAUL INSPECTION PROCEDURE

9-2815-
 DMWR ~~12354420~~ 220
 12354420
 OIP ~~E2BA131-002~~ (left bank)
~~E2BA131-006~~ (right bank)
 REFERENCE: ~~12354420~~ Figure 5-82 (5/617)
 ITEM: ~~1 AND 3~~
~~38 and 39~~
 12354420 (LEFT BANK)

ITEM: BRACKET, MOUNTING:
 turbosupercharger support.

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/65075
 5/626

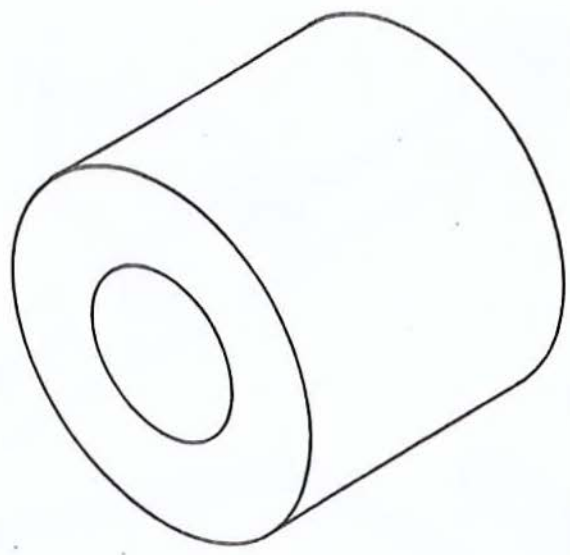
REHAUL INSPECTION PROCEDURE

DMWR 9-2815-
~~DMWR 9-2815-220~~
 12354426
 OIP ~~E2CA131-084~~

SPACER: *PPES*
 exhaust ~~bracket~~ and
 bracket to turbosupercharger (inner side) *(LFR)* ITEM: ~~1-B~~ *2*

REFERENCE: Figure 5-82 (5/617)

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, gouges, or raised metal on contract surfaces	2.5	Visual	None allowed



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

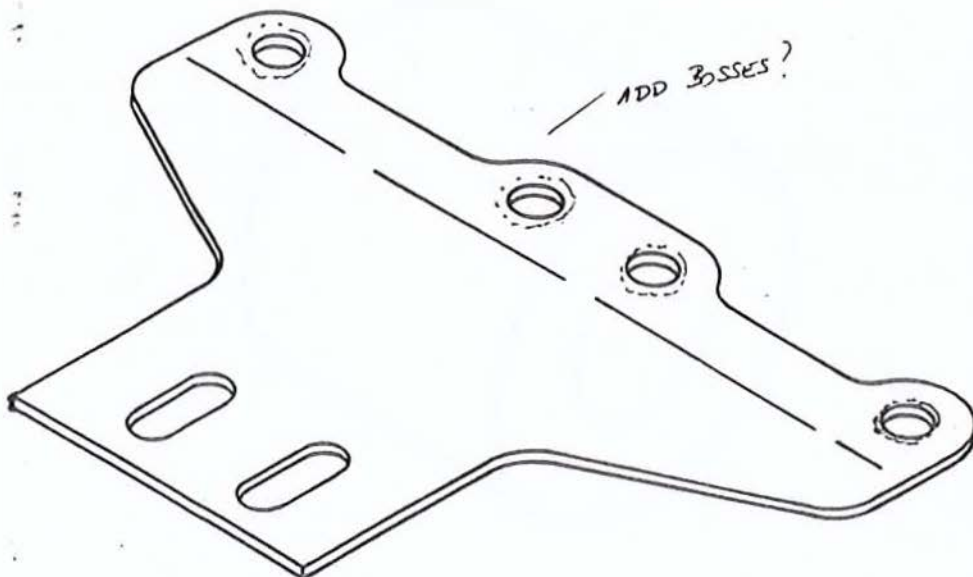
5/5602
5/10/27 5/627

OVERHAUL INSPECTION PROCEDURE

9-2815 -
 OMWR: ~~220~~
 12354428
 OIP: ~~E26A13-008 (left bank)~~
~~720A13-008 (right bank)~~
 REFERENCE: Figure 5-82 (5/617)
 ITEM: ~~38 and 39~~
 3

ITEM: BRACKET, MOUNTING:
 turbocharger support

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		CRACKED OR BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/628
 5/650.3

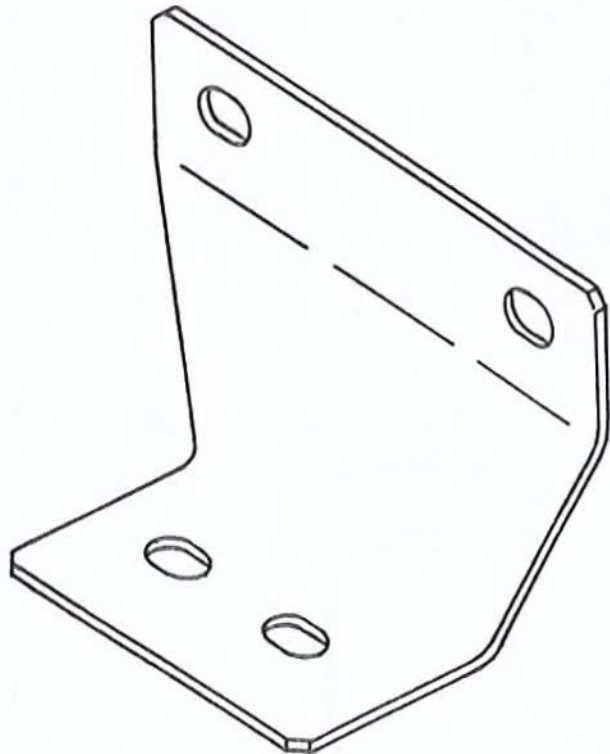
REHAUL INSPECTION PROCEDURE

DMWR TCM1000-220

4: **BRACKET, MOUNTING:**
 turbosupercharger to oil cooler
 frame, *RIGHT BANK*

OIP ~~E2DA131-003~~ ~~12354423~~ ~~U80111111~~
 E2DA131-008 ~~12354429-1~~ ~~12354430~~ ~~12354431~~ ~~12354432~~
REFERENCE: Figure 5-82 (5/617)
ITEM: ~~40-5341-4~~ **4**

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted condition	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

~~5/650.4~~
 5/629

OVERHAUL INSPECTION PROCEDURE

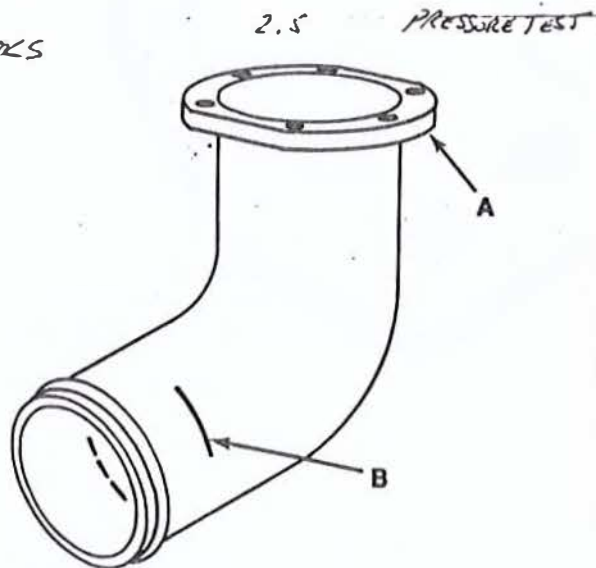
DMWR 9-2815-220

ITEM: ELBOW, FLANGE TO HOSE:
turbosupercharger outlet, right bank

OIP 8682749 and
11684184
REFERENCE: Figure 5-82 (5/617)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange, tube, or welds	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3	A	Warped flange	2.5	Measure	Must be flat within 0.0050 inch
4		Scratches, nicks, gouges, or raised metal on contact surface	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed
6	B	Alinement marks (two marks 180° apart)	2.5	Visual	Must be visible
7		LEAKS	2.5	PRESSURE TEST	



SHALL NOT LEAK
WHEN SUBJECTED
TO 25 PSIG POUNDS
INTERNAL AIR PRESSURE
AND SUBMERGED IN
WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

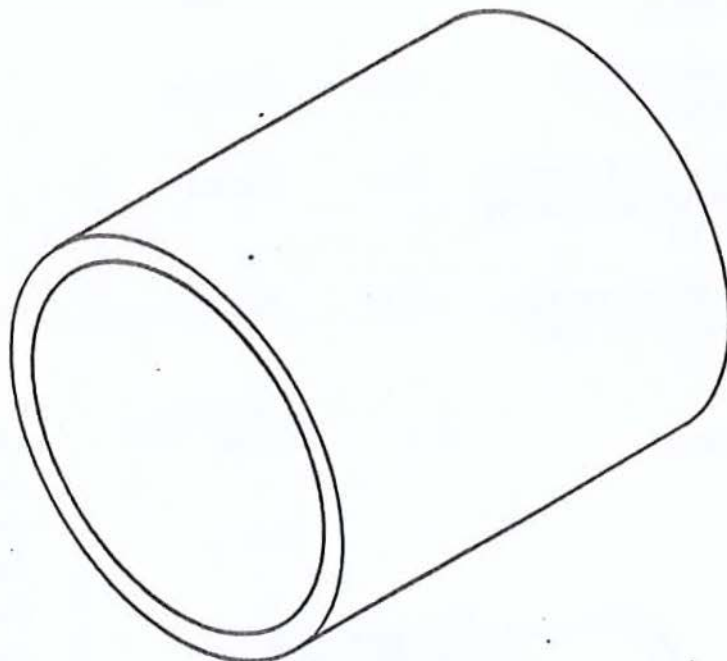
OIP 8761490-²/₃

ITEM: ^{NONMETALLIC:} Hose, ~~Rubber:~~
 Intake Manifold Tube ~~to~~
~~To~~ To Turbosupercharger
 Outlet Elbow, Left and Right

REFERENCE: FIGURE 5-82 (5/617)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		GRAINING CUTS, BREAKS	0.0	Visual	None Allowed
2		TOOTH Deteriorated ^{100%} OR PLY SEPARATION	2.5	Visual	None Allowed



[Handwritten signature]
 AMSTON
 100%

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761082

ITEM: TUBE ASSEMBLY, METAL:
intake manifold turbosupercharger,
left and right

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~38~~ 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks in tube, pad, flange or welds	0.0	Visual	None allowed
2		Loose, bent or missing studs	2.5	Visual	None allowed
3		Damaged threads on studs	2.5	Visual	None allowed
4	A	Warped pad or flange	2.5	Measure	Must be flat within 0.0030 inch 0.0050
5		Base metal showing through protective finish	2.5	Visual	None allowed
6	B	Alignment marks (two marks 180° apart)	2.5	Visual	Must be visible

3

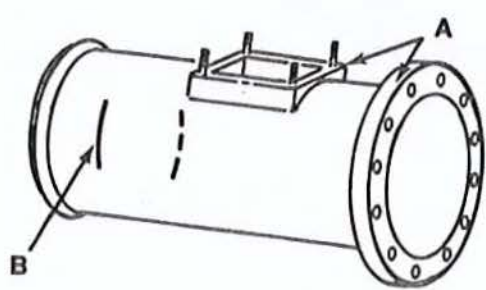
7

LEAKS

2.5

PRESSURE TEST
WATER TEST

SHALL NOT LEAK WHEN SUBJECTED TO 25 ~~THOUSAND~~ POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

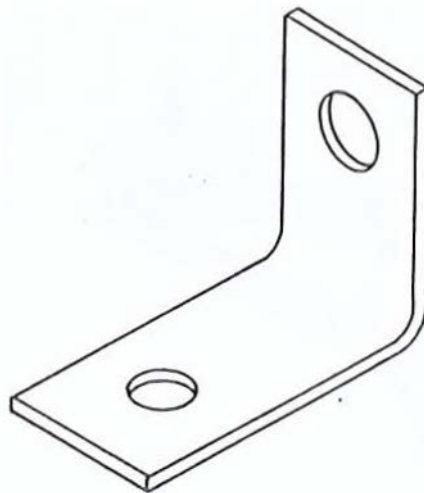
9-2815-
DMWR ~~2015-220~~ 220
OIP 12354381
E2CA100-007-1

ITEM: BRACKET, ANGLE;
ignition lead to intake manifold
flange left and right

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~36~~ / 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and relinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/633
~~5/650.1~~

11684203 - BRACKET, MOUNTING

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

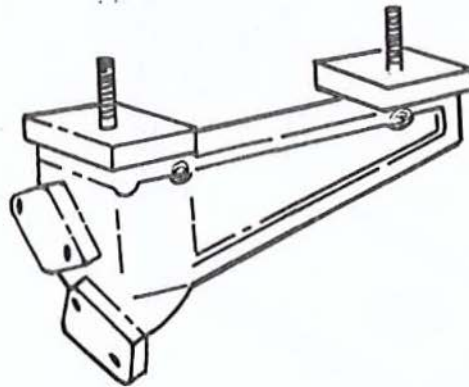
ITEM: BASE ASSEMBLY, TURBOSUPERCHARGER:
left and right

8761086 (LEFT AND RIGHT)
OIP ~~8761086~~ ~~11682629~~

REFERENCE: ~~11684203 (RIGHT BANK)~~
Figure 5-82 (5/617)

ITEM: ~~12~~ and ~~14~~ *15* ~~11682629-1~~ *11682629-1* LEFT AND RIGHT

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged studs	2.5	Visual	None allowed
5	12	<i>DAMAGED THREADS</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

634
5/829

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

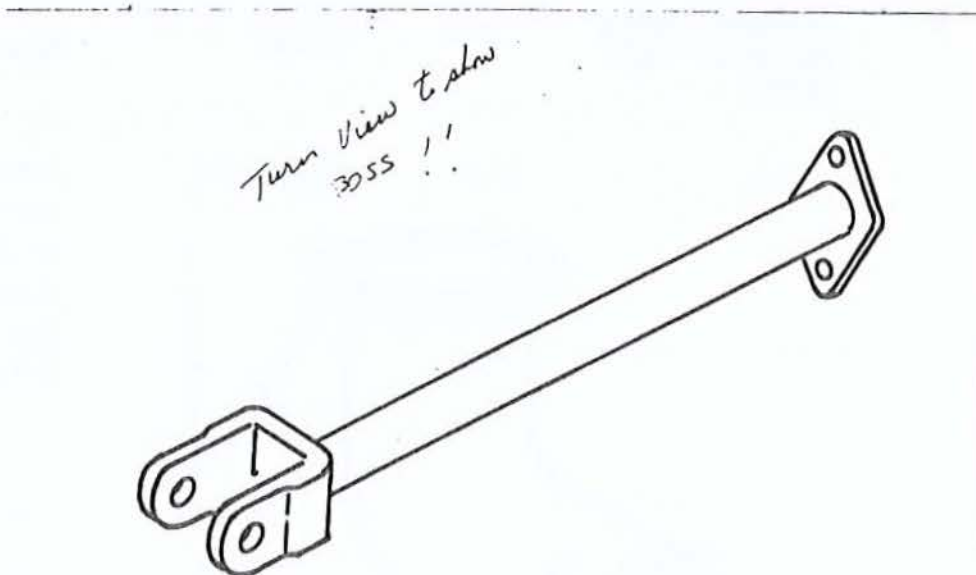
OIP 8682750

ITEM: SUPPORT ASSEMBLY,
Turbosupercharger

REFERENCE: Figure 5-82 (5/617)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in clevis, flange, boss, tube or welds	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Damaged thread	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

635
5/523

11682625 - ELBOW, FLANGE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ELBOW, ~~TURBOCHARGER OUTLET~~ ^{FLANGE TO TUBE}
left bank

OIP 8682748 and
11682625
REFERENCE: Figure 5-82 (5/617)

ITEM: 33/14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange, tube or welds	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3	A	Warped flange	2.5	Measure	Must be flat within 0.0030 0.0050 inch
4		Scratches, nicks, gouges or raised metal on contact surface	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed
6	B	Alignment marks (two marks 180° apart)	2.5	Visual	Must be visible

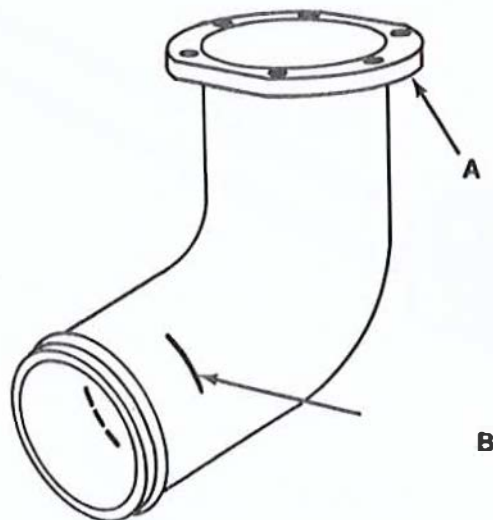


7

LEAKS

2.5

PRESSURE TEST



SHALL NOT LEAK
WHEN SUBJECTED
TO 25 ~~PSI~~ POUNDS
INTERNAL AIR PRESSURE
AND SUBMERGED IN
WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

5/636
5/634

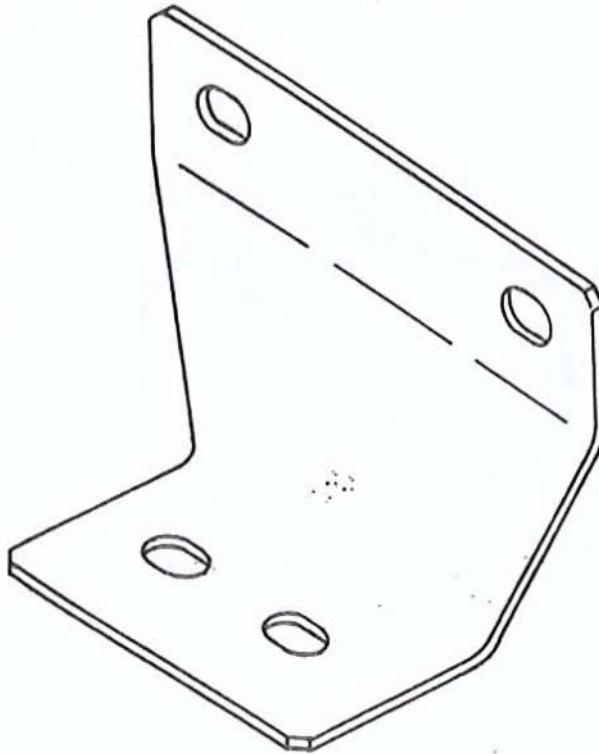
Change 3

REHAUL INSPECTION PROCEDURE

9-28/5-220
 DMWR ~~100100-220~~
 12354421
 OIP E2CA131-003-1 ~~left bank~~
 E2DA131-008 ~~right bank~~
 REFERENCE: 12354429-1
 Figure 5-82 (5/617)
 ITEM: 40 and 41 / 6
 12354429-2

4: BRACKET, MOUNTING:
 - turbosupercharger to oil cooler
 frame, *LEFT BANK*

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted condition	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/637
~~5/650.4~~

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

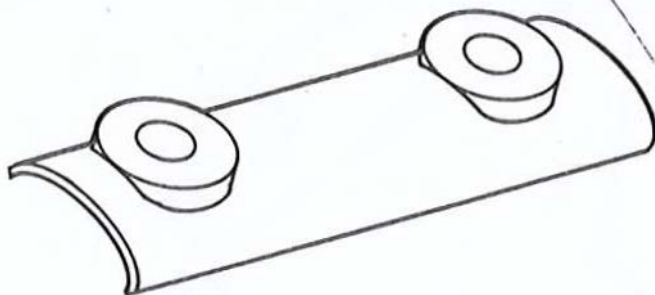
OIP 8682451

ITEM: *STRAP, RETAINING:*
~~CLAMP, TURBOSUPERCHARGER:~~
 tie rod

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~2~~ 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in clamp, boss or welds	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/638
 5/627

11684186 - TIE ROD, TURBOCHARGER

OVERHAUL INSPECTION PROCEDURE

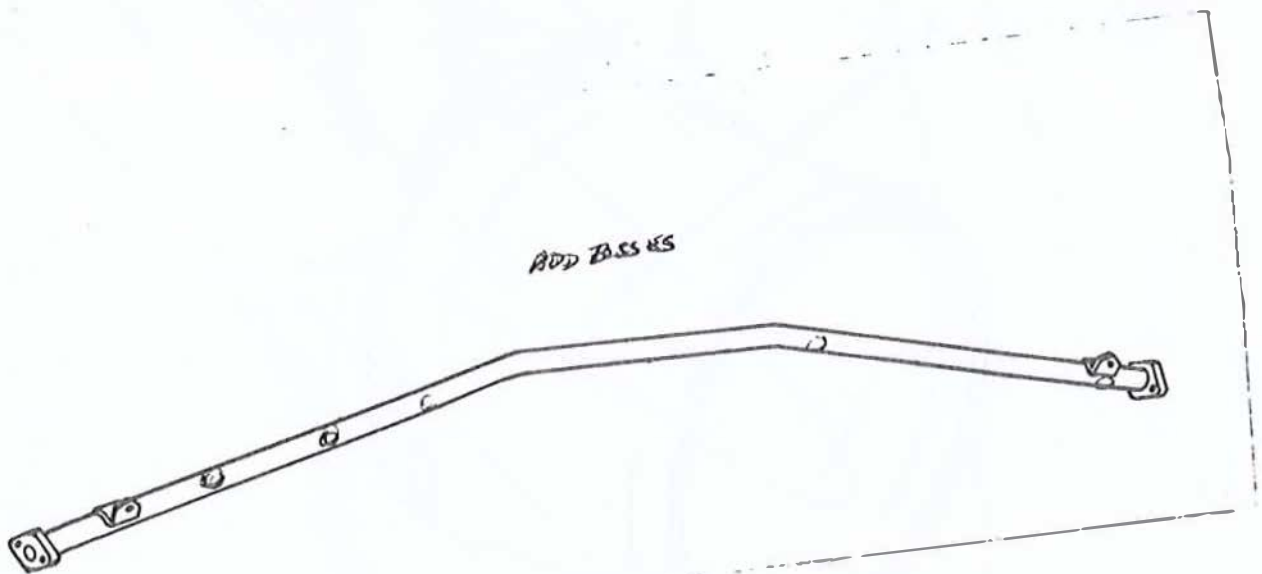
DMWR 9-2815-220

ITEM: DRAG LINK, TIE ROD
TIE ROD, TURBOSUPERCHARGER

OIP 8682558 and
11684186
REFERENCE: Figure 5-82 (5/617)

ITEM: 418

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks in tie rod, brackets, boss, flanges or welds	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on flange contact surfaces	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/639
5/626

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7320458

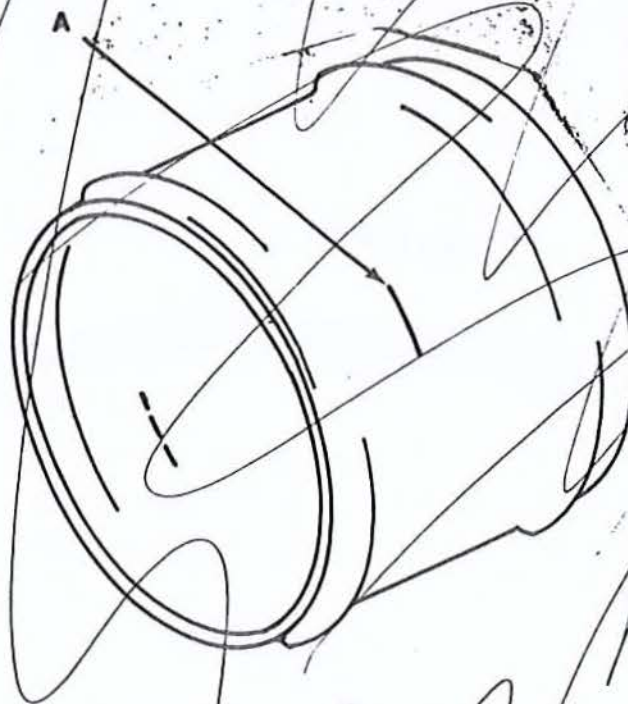
ITEM: TUBE, METALLIC:
intake manifold turbosupercharger
outlet elbow connector, left and right

REFERENCE: Figure 5-82 (5/617)

ITEM: 9

NO.	REF. LTR.	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4	A	Alinement marks (two marks 180° apart)	2.5	Visual	Must be visible

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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3 5/631

OVERHAUL INSPECTION PROCEDURE

DMWR/9-2815-220

ENGINE ACCESSORY

ITEM: BRACKET, MOUNTING
turbocharger support,
right bank

OIP 11684137-2 and
11684182

REFERENCE: Figure 5-82 (5/617)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP

11689132
~~11689132~~ and
~~11689132~~ 11684196

ITEM: ^{ENGINE ACCESSORY}
 BRACKET, ~~MOUNTING~~
 turbosupercharger support,
 left bank

REFERENCE: Figure 5-82 (5/617)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761021

ITEM: TUBE, ASSEMBLY, METAL:
intake manifold, cylinders no. 3
and no. 4, left and right bank

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~38~~ 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flanges, tube and welds	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3	A	Warped contact surfaces	1.0	Measure	Surfaces must be flat within 0.0020 inch
4		Base metal showing thru protective finish	2.5	Visual	None allowed

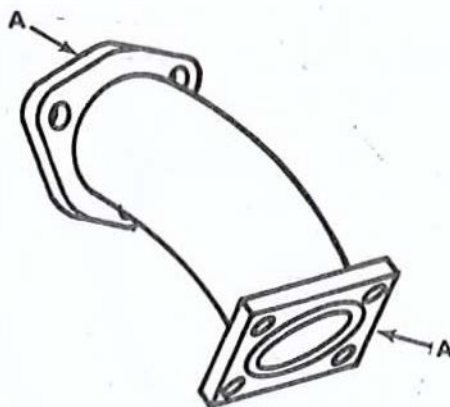
5

LEAKS

2.5

PRESSURE TEST

SHALL NOT LEAK
WHEN SUBJECTED
TO 25 ~~PSI~~ POUNDS
INTERNAL AIR PRESSURE
AND SUBMERGED IN
WATER



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/636
5/640

OVERHAUL INSPECTION PROCEDURE

2815-220
DMWR 9-~~22-22~~

ITEM: ^{BENT, METALLIC} TUBE, ~~METAL, PREFORMED~~
intake manifold cylinders
no. 2 right and no. 5 left

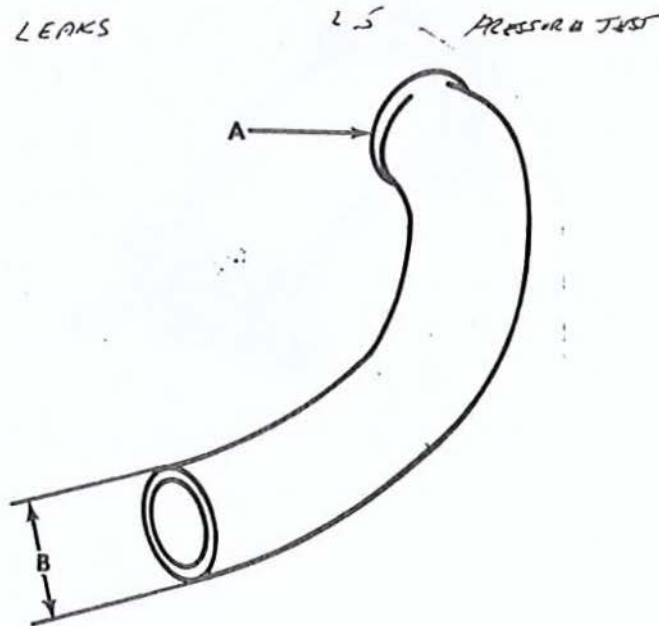
OIP 8761158

REFERENCE: Figure 5-82 (5,617)

ITEM: ~~20~~ 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube and tube flange	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Warped flange contact surface	1.0	Measure	Surface must be flat within 0.00 ^{±0} / ₆ inch
4		Base metal showing thru protective finish	2.5	Visual	None allowed
5	B	O ring seal surface	2.5	Measure	Must be no less than 2.2500 inches nor greater than 2.2 ⁰⁰⁰ / ₇ inches

6



SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER.

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

2815.220
DMWR 9-2815.220

OIP 8761159

ITEM: TUBE ASSEMBLY, METAL:
intake manifold cylinders no. 1
right and no. 6 left

REFERENCE: Figure ~~4-22~~ (5/617)
5.82

ITEM: ~~23~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange and tube	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Warped flange contact surface	1.0	Measure	Surfaces must be flat within 0.0003 inch 0.0060
4		Base metal showing thru protective finish	2.5	Visual	None allowed
5	B	O ring surface	2.5	Measure	Must be no less than 2.7500 inches nor greater than 2.7600 inches

6

LEAKS



SHALL NOT LEAK WHEN SUBJECTED TO 25 P.S.I. POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/642
5/638

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

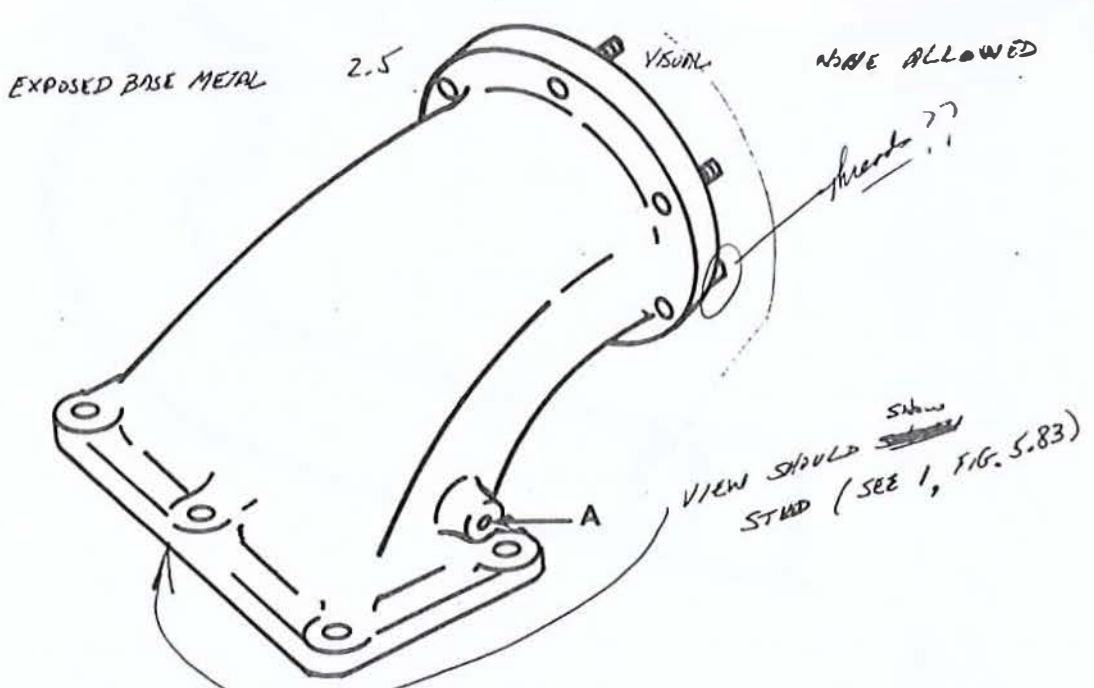
ITEM: ~~ELBOW, ENGINE MANIFOLD:~~
 ELBON, FLANGE:
~~ELBOW, ENGINE MANIFOLD:~~
 intake, left and right bank
 A MANIFOLD

OIP 8761156

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~25~~

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges to contact surfaces	2.5	Visual	None allowed
3	A	Damaged pipe threads	2.5	Visual	None allowed
4		Damaged threads (studs)	2.5	Visual	None allowed
5		Loose or bent studs	2.5	Visual	None allowed
6		LEAKS	2.5 NOTE	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTER. AIR PRESSURE AND AND SUBMERGED IN WATER
7		EXPOSED BASE METAL	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/643
5/639

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761045

ITEM: MANIFOLD, INTAKE: ~~ASSEMBLY~~
assembly, left and right bank

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~2A 27~~

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Loose or missing studs	2.5	Visual	None allowed
4		Bent studs	2.5	Visual	None allowed
5		Damaged thread	2.5	Visual	None allowed
6	A	Inside diameter (2 places)	1.0	Measure	Diameter must be no greater than 2.6260 inches
7	B	Inside diameter (2 places)	1.0	Measure	Diameter must be no greater than 2.3200 inches
8	C	Inside diameter (2 places)	1.0	Measure	Diameter must be no greater than 3.1260 inches
9	D	Inside diameter (2 places)	1.0	Measure	Diameter must be no greater than 2.8200 inches
10		EXPOSED BASE METAL	2.5	VISUAL	NONE ALLOWED
11		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 PSI POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/644
5/640

~~Change 3~~

OVERHAUL INSPECTION PROCEDURE

2815-220
 DMWR 9-28672

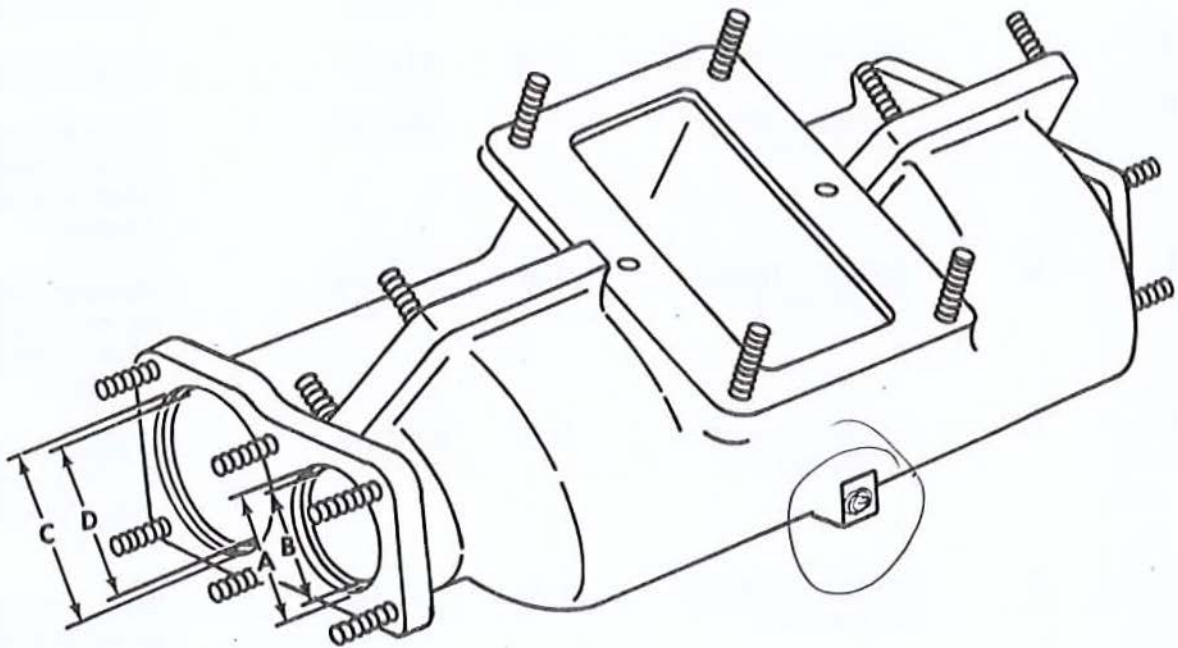
OIP 8761045

ITEM: MANIFOLD, INTAKE: ~~AER~~
 assembly, left and right bank

REFERENCE: Figure 5-82 (5/617)

ITEM: 227

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/LAS
 5/647

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8698689

ITEM: SPACER, RING:
intake manifold seal, small

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~26~~ 29

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3	A	BENT OR WARPED WARPED SURFACE	2.5	Visual MEASURE	None allowed MUST BE FLAT WITHIN 0.0050 INCH



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/646
5/642

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8698690

ITEM: WASHER, SPRING, TENSION:
intake manifold seal, small

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~30~~ 30

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or broken	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/647
~~5/643~~

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

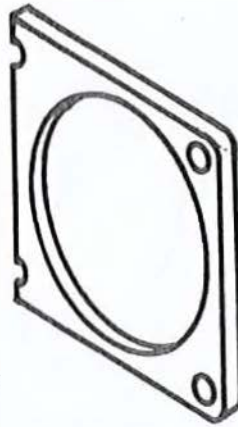
OIP 8761137

ITEM: FLANGE, PIPE:
intake manifold small, cylinders
no. 2 and no. 5 left and right bank

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~28~~ 31

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3		Bent or warped	2.5	Visual	None allowed
4		<i>BASE METAL SIMILAR THRU PROTECTIVE F. 4.34</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

*5/648
-5/644*

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8682799

ITEM: FLANGE, PIPE: intake manifold tube to cylinders no. 2 and no. 5 left and right bank

REFERENCE: Figure 5-82 (5/617)

ITEM: 29 32

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Bent or warped	2.5	Visual	None allowed
4		BASE METAL SHOWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5/649
5/645

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

~~TUBE, BENT, METALLIC.~~
~~TUBE, METAL, PREFORMED.~~

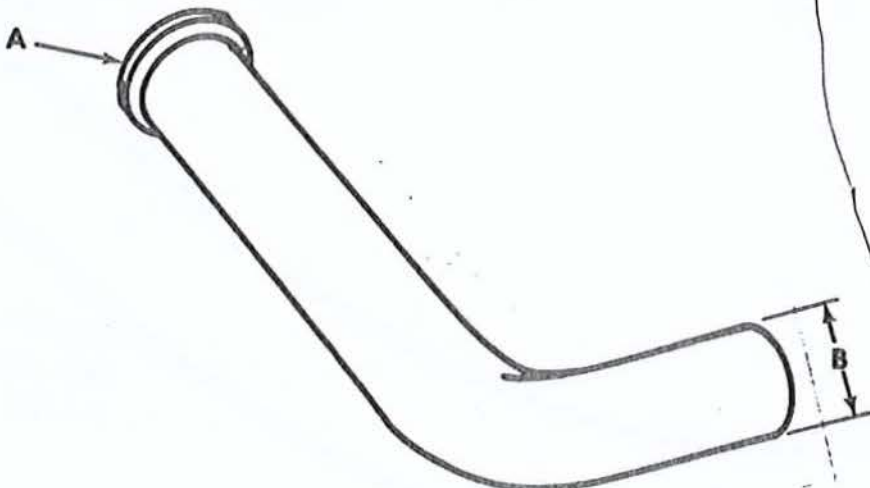
ITEM: intake manifold cylinders no. 2 and no. 5, left and right bank

OIP 8761160 and 11684231

REFERENCE: Figure 5-82 (5/617)

ITEM: 3833

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange and tube	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Warped contact surface	1.0	Measure	Surface must be flat within 0.0030 inch
4		Base metal showing thru protective finish	2.5	Visual	None allowed (8761160)
5	B	O ring seal diameter	2.5	Measure	Must be no greater than 2.2700 inches nor less than 2.2500 inches (8761160)



Must be no greater than ~~2.2700~~ 2.2700 inches nor less than 2.2500 inches (8761160)

MUST BE NO GREATER THAN 2.2600 INCHES NOR LESS THAN 2.2500 INCHES (11684231)

SURFACE MUST BE FLAT WITHIN 0.0030 INCH (11684231)

6		BASE METAL SHOWING THRU PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED
7		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INCH ² AIR PRESSURE AND SUBMERGED IN WATER

♦Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/650
5/646

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

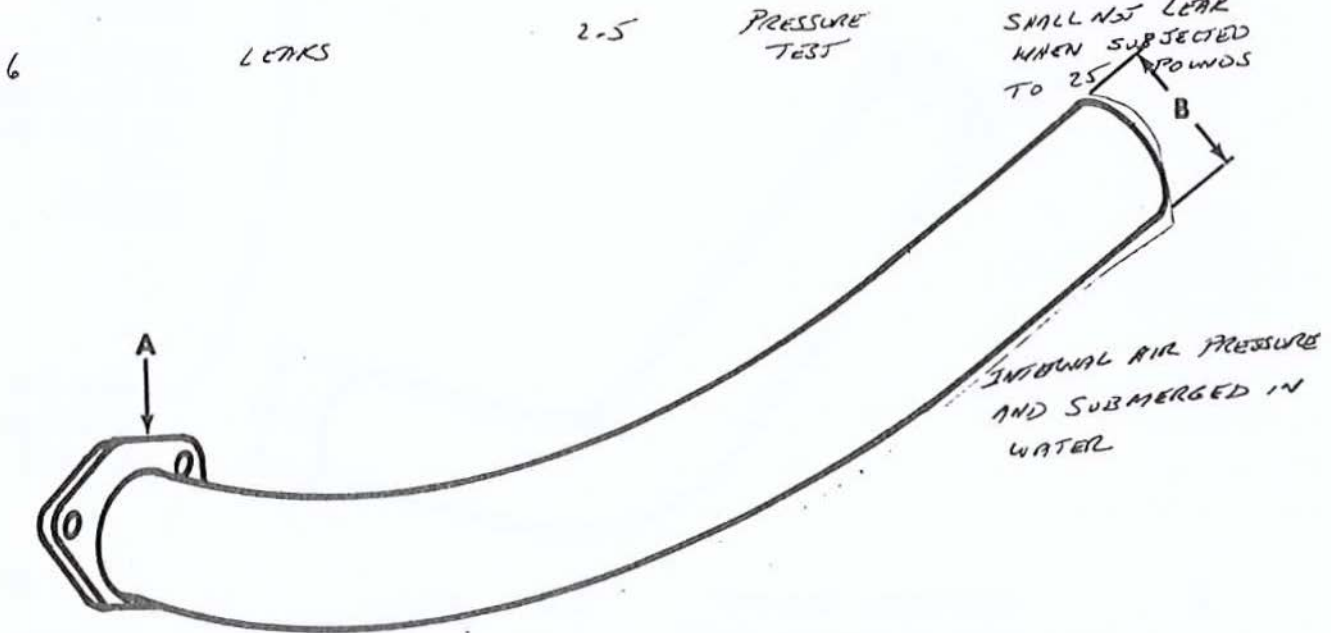
OIP 8761157

ITEM: TUBE, ASSEMBLY METAL:
intake manifold cylinder
no. 1 left and no. 6 right

REFERENCE: Figure 5-82 (5/617)

ITEM: 33 34

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in flange and tube	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Warped contact surface	1.0	Measure	Surface must be flat within 0.0050 0.0060 inch
4		Base metal showing thru protective finish	2.5	Visual	None allowed
5	B	O ring seal diameter	2.5	Measure	Must be no greater than 2.760 inches nor less than 2.750 inches



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/650.1
5/697

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

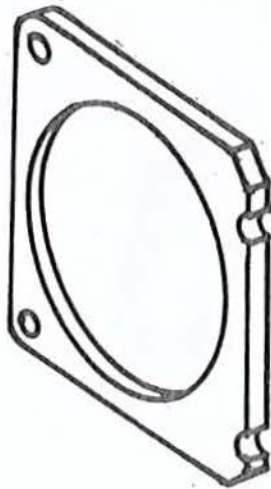
OIP 8761138

ITEM: FLANGE, PIPE:
intake manifold large, cylinders
no. 1 and no. 6, left and right

REFERENCE: Figure 5-82 (5/617)

ITEM: 323

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3		Bent or warped	2.5	Visual	None allowed
4		<i>BASE METAL THRU SHOWING THROUGH PROTECTIVE FINISH</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/650.2
5/648

OVERHAUL INSPECTION PROCEDURE

586967(02971)

DMWR 9-2815-220

OIP

[Handwritten signature]

ITEM: WASHER, SPRING, TENSION:
intake manifold seal, large

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~3936~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent, warped, or broken	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/650.3
~~5/649~~

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8698764

ITEM: SPACER, RING:
intake manifold seal, large

REFERENCE: Figure 5-82 (5/617)

ITEM: ~~2426~~ 37

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges to contact surfaces	2.5	Visual	None allowed
3	A	WARPED SURFACE Bent, warped	2.5	Visual MEASURE	None allowed MUST BE FLAT WITHIN 0.0050 INCH
4		METAL THRU BASE SHOWING PROTECTIVE PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/650.4
8/1560

5-93. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Replacement of studs. Refer to paragraph 5-5, d (5/6), table 5-35 (5/651), and figure 5-83 (5/651) when replacing damaged, bent, or stripped intake manifold studs.

Table 5-35. Intake Manifold and Associated Parts Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-83 (5/651)	1,5	1	12	5/16-18 ^(5/8) (3/4) x 5/16-24 ^(3/4) (23/32) x 1-5/8 ^{8.5}
	2, 3	25/32	12 ³⁶	5/16-18 (11/16) x 5/16-24 (9/16) x 1-5/8 ^{8.5}
	3	23/32	24	5/16-18 (11/16) x 5/16-24 (9/16) x 1-5/8
	4	13/16	16	5/16-18 ^(5/8) (9/16) x 5/16-24 ^(3/4) (11/16) x 1-3/8
	6	1-3/8	4	1/2-20 (7/8) x 1/2-20 (15/16) x 2-1/8
	7	13/16	8	5/16-24 ^(3/4) (25/32) x 5/16-24 (19/32) x 1-5/8 ^{1-7/16}

5-93. (Cont)

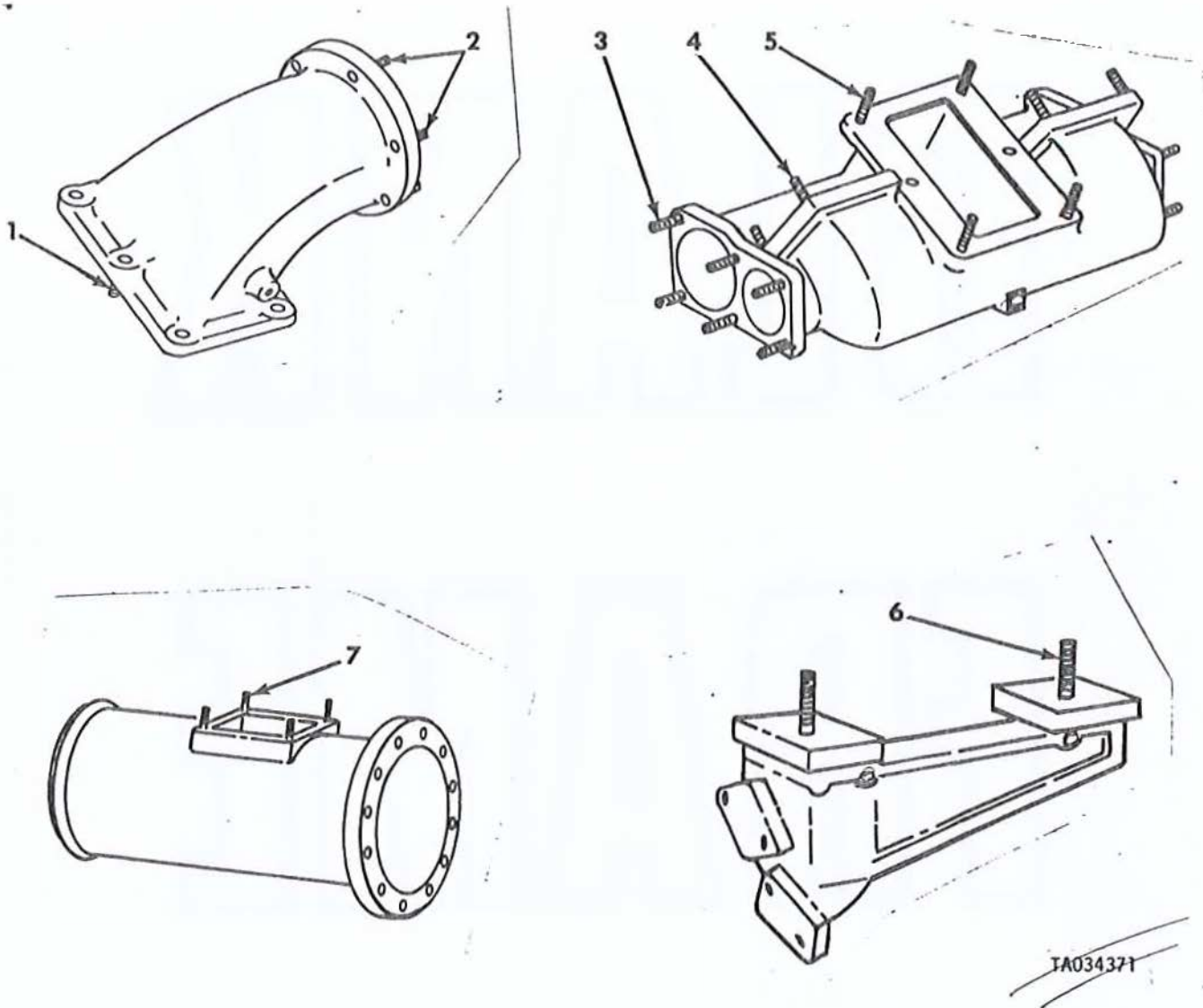


Figure 5-83. Intake manifold and associated parts standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

BLANK

FRAME

Section XXIII. OVERHAUL OF INDUCTION HEATER SYSTEM

5-94. General. This section covers overhaul of the induction heater system (figs. 5-84 and ~~5-85~~) (5/655) and (5/656). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-95. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

CAUTION

The valves contain rubber parts and should not be immersed in solvent.

(2) Solenoid valve. Plug inlet and outlet openings to prevent entrance of foreign material. Clean solenoid valves with a cloth moistened with dry-cleaning solvent (P-D-680, Type II).

(3) Filter, fluid, pressure. Clean the filter (14, fig. 5-85) (5/656) by reverse flowing with clean dry-cleaning solvent (P-D-680, Type II).

5-96. Inspection.

a. General. Inspect the induction heater system according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the induction heater system are listed in table 5-36 (5/657). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Solenoid Valves. Inspect solenoid valves for cracks and dents. Install suitable fittings, actuate the solenoid valve with 24 volt dc current, and pump fuel through the valve. Free fuel flow through the valve indicates the valve is functioning normally. Restricted fuel flow indicates a faulty electrical circuit or improper torque setting of acorn nut. Loosen acorn nut and torque nut to 50 pound inches. Recheck solenoid operation. If valve is still inoperative, replace valve. Test valve for leakage. Pump fuel through valve and close valve by turning off 24 volt dc current, valve must not leak at 100 psi.

150

DMWR 9-2815-220

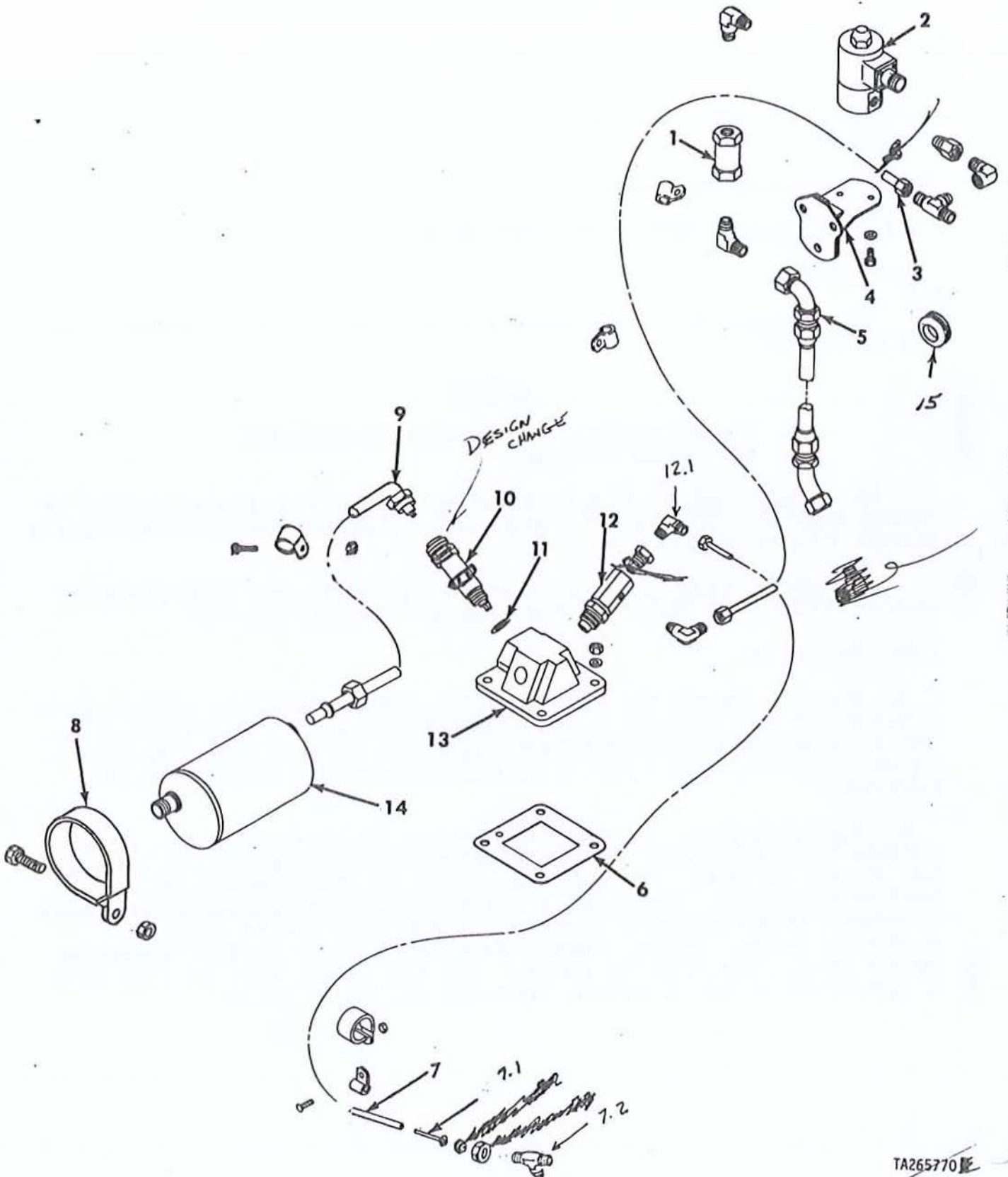
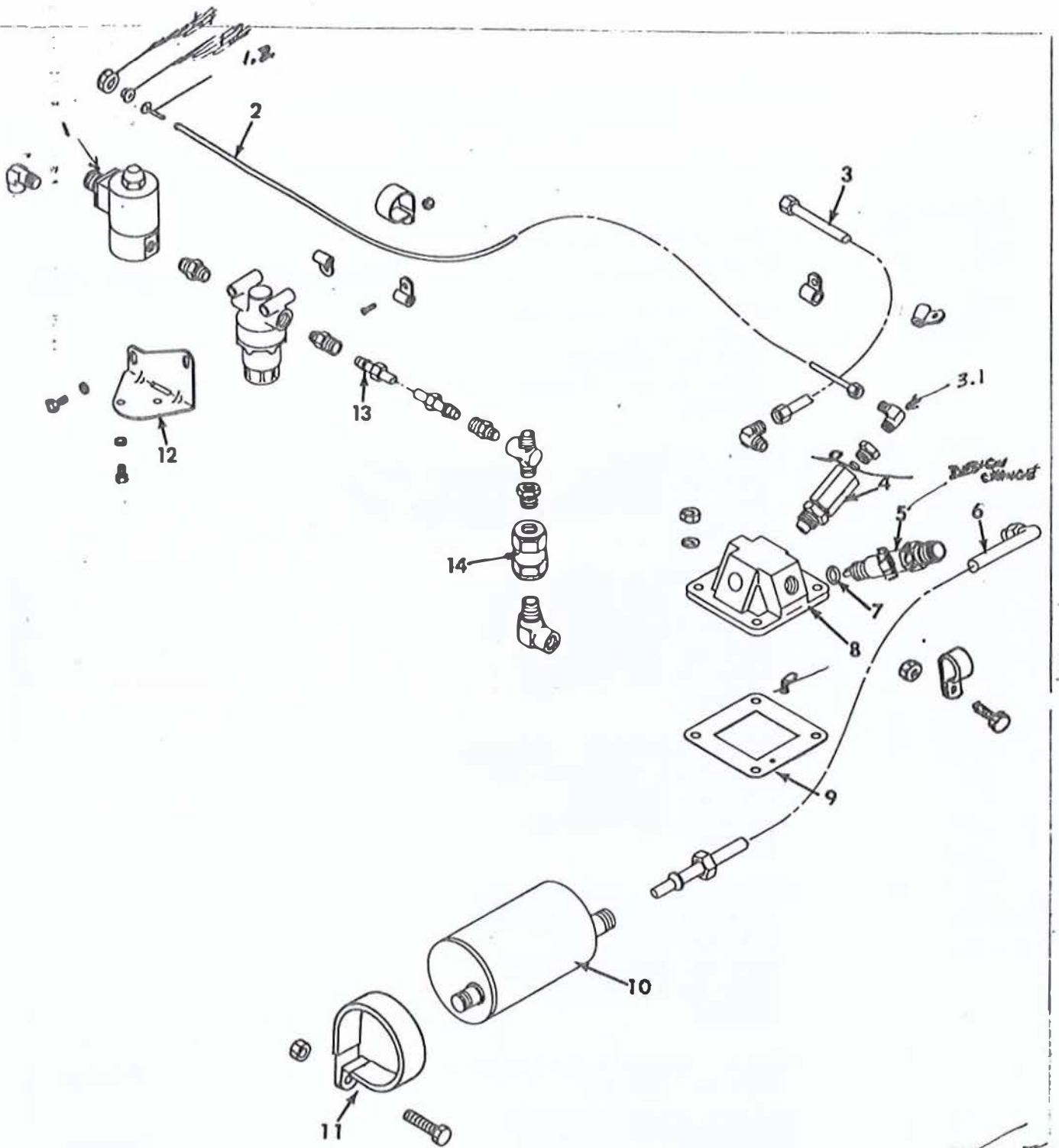


Figure 5-84. Induction heater system - left bank.

DMWR 9-2815-220



IA265771

Figure 5-85. Induction heater system - right bank.

Table 5-36. Wear Limits, Fits, and Tolerances for Induction Heater System

References				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-84	1	VALVE, CHECK: manifold heater return - part no. 11684097 Refer to OIP 11684097 (5/662)		
	2	VALVE, SOLENOID - part no. 7062194 <i>7062194</i> <i>Steel</i> Refer to OIP 7062194 <i>7062194</i> <i>Steel</i> (5/663)		
	3	TUBE ASSEMBLY, METAL: manifold air heater fuel return to solenoid valve part no. 11684024 Refer to OIP 11684024 (5/664)		
	4	BRACKET, SOLENOID: solenoid to shroud, flywheel end - part no. 11684101 Refer to OIP 11684101 (5/665)		
	5	HOSE ASSEMBLY, NONMETALLIC: solenoid valve outlet to bulkhead cross tee part no. MS8005E086E180 Refer to OIP MS8005 (5/666)		
	6	GASKET: manifold air heater - part no. 8682503		Replace
	7	TUBING, NONMETALLIC; TUBE ASSEMBLY, SOLENOID <i>Slender</i> valve tee, damper end to manifold heater nozzle - part no. 10000170 <i>8395419-3</i>		Replace
	7.1	INSERT, TUBE FITTING - PART NO. 11682596-1		REPLACE
	7.2	TEE, PIPE TO TUBE; SLEEVE, CLAMP, DUCT FITTING. PART NO. MS51818-1 PART NO. MS51818-1		REPLACE
		<i>MS51823-1</i> PART NO. MS51823-1		REPLACE

Table 5-36. Wear Limits, Fits, and Tolerances for Induction Heater System - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-84 (5/655)	8	CLAMP, LOOP: exciter ignition unit - part no. 10865374 Refer to OIP 10865374 (5/667)		
	9	LEAD AND CONDUIT ASSEMBLY, ELECTRICAL: ignition unit to manifold heater - part no. 7062196-1 Refer to OIP 7062196-1 (5/668)		
	10	SPARK PLUG: manifold heater - part no. 7335556 ED890 7335556 Refer to OIP 7335556 ED890 7335556 (5/669)		
	11	WASHER, FLAME HEATER: GASKET: manifold heater spark plug - part no. 150790 MS3591004 A676(11583)		Replace
	12	EL NOZZLE ASSEMBLY, FLAME FLAME HEATER: manifold manifold - part no. 7335556 12254278 Refer to OIP 7335556 12254278 (5/670)		
12.1	13	ELBOW, PIPE TO TUB: HEATER, MANIFOLD AIR HEATER part no. 11642092-1 Refer to OIP 11642092-1 (5/671)		REPLACE
	14	IGNITION UNIT, MANIFOLD AIR HEATER - part no. 7062198 109709125-1 Refer to OIP 7062198 109709125-1 (5/672)		
	15	GROMMET, NONMETALLIC - PART NO. MS35489-97S MS35489-97S		REPLACE

~~Service part no. is ED890~~

Table 5-36. Wear Limits, Fits, and Tolerances for Induction Heater System - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-85 (5/556)	1	VALVE, SOLENOID part no. 7062194 <i>V8321735 Stt</i> Refer to OIP 7062194 <i>V8321735 Stt</i> (5/663)		
	2	TUBING, NONMETALLIC, SOLENOID TUBE ASSEMBLY solenoid valve tee, damper end to manifold heater nozzle - part no. 7062194 <i>8395419-4</i>		Replace
	3	TUBE ASSEMBLY, METAL: manifold air heater fuel return to solenoid valve - part no. 11682581 (Models AVDS-1790-2C, AVDS-1790-2B CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684213 (Model AVDS-1790-2DR) Refer to OIP's 11682581 <i>AND 11684213</i> 11684213 (5/673)		
3.1		ELECU. PIPE TO TUBE - PART NO. MSS1815.55		REPLACE
	4	NOZZLE ASSEMBLY, RUBRA FLAME HEATER: manifold heater - part no. 7335555 <i>12254278</i> Refer to OIP 7335555 <i>12254278</i> (5/670)		
	5	SPARK PLUG: manifold heater part no. 7335556 <i>12254278 Stt</i> Refer to OIP 7335556 <i>Stt</i> (5/669)		
	6	LEAD AND CONDUIT ASSEMBLY, ELECTRICAL: ignition unit to manifold heater - part no. 7062196-1 Refer to OIP 7062196-1 (5/668)		
	1.1	<i>MUT. TUBE FITTING</i> PART NO. 075 516 23 1		REPLACE
	1.2	<i>SLEEVE COLLAR, TUBE FITTING</i> PART NO. MSS1825.1A 5/659		REPLACE
	1.3	INSERT TUBE FITTING -		REPLACE

Table 5-36. Wear Limits, Fits, and Tolerances for Induction Heater System - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-85 (5/656)	7	WASHER, FLARE GASKET: GASKET: manifold heater spark plug - part no. 18235910 <i>1696(1583)</i>		Replace
	8	HOUSING, MANIFOLD HEATER: HEATER, MANIFOLD AIR part no. 11642092-2 Refer to OIP 11642092-2 (5/671)		
	9	GASKET: manifold air heater part no. 8682503		Replace
	10	IGNITION UNIT, MANIFOLD AIR HEATER: part no. 7062198 <i>101209143</i> Refer to OIP 7062198 <i>101209143</i> (5/672)		
	11	CLAMP, LOOP: exciter igni- tion unit, part no. 10865374 Refer to OIP 10865374 (5/667)		
	12	ANGLE BRACKET: BRACKET, ANGLE: solenoid valve, damper end - part no. 11684100 Refer to OIP 11684100 (5/674)		
	13	TUBE ASSEMBLY: backflow valve to manifold heater filter - part no. 10882777 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA) part no. 10865122 (Model AVDS-1790-2DR)		Replace

Table 5-36. Wear Limits, Fits, and Tolerances for
Induction Heater System - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-85 (5/656)	14	FILTER, FLUID, PRESSURE backflow valve to purge pump- (ALL MODELS, EXCEPT AVDS-1790-2DR) part no. 11684096 Refer to OIP 11684096 (5/675)		

OVERHAUL INSPECTION PROCEDURE

OMWR 9-2815-220

OIP 11684097

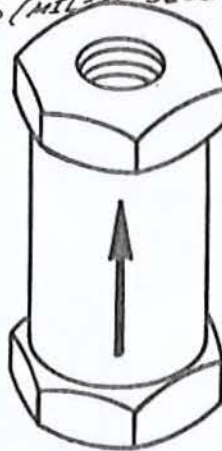
ITEM: VALVE, CHECK:
manifold heater return

REFERENCE: Figure 5-84 (5/655)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Function test - cracking pressure 50 PSI 2.00 PSI			
4		Leakage test - 200 PSI 3000 PSI ZERO PRESSURE TO MAX OPERATING PRESSURE - ZERO	1.0	Pressure test	None allowed
5-6		Arrow indicating flow direction	0.0 2.5	Visual	Must be visible and legible

RATED FLOW = 2.5 GPM,
HYDRAULIC FLUID PRESSURE
DROP 6 PSI AT 2.5 GPM USING
HYDRAULIC FLUID (MIL-H-5606)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220 7062194

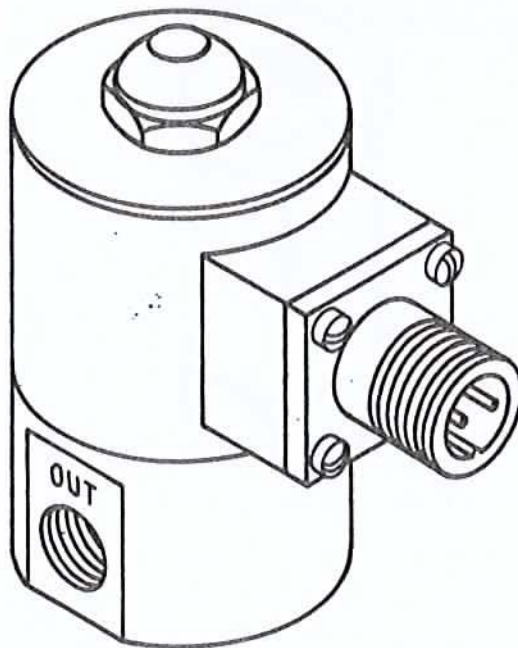
OIP ~~7062194~~ VSJ-21735 (8/19/78)

ITEM: VALVE, SOLENOID

REFERENCE: Figure 5-84 (5/655)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Connector threads for damage	2.5	Visual	None allowed
2		Pipe thread for damage	2.5	Visual	None allowed
3		Functional test with 24 V dc power supply	0.0	Audible	Must have audible click when activated
		Continuity	0.0	Measure	No opens allowed
		Leakage	0.0	Visual	Must not leak at 100 ¹⁵⁰ psi in forward direction with valve closed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

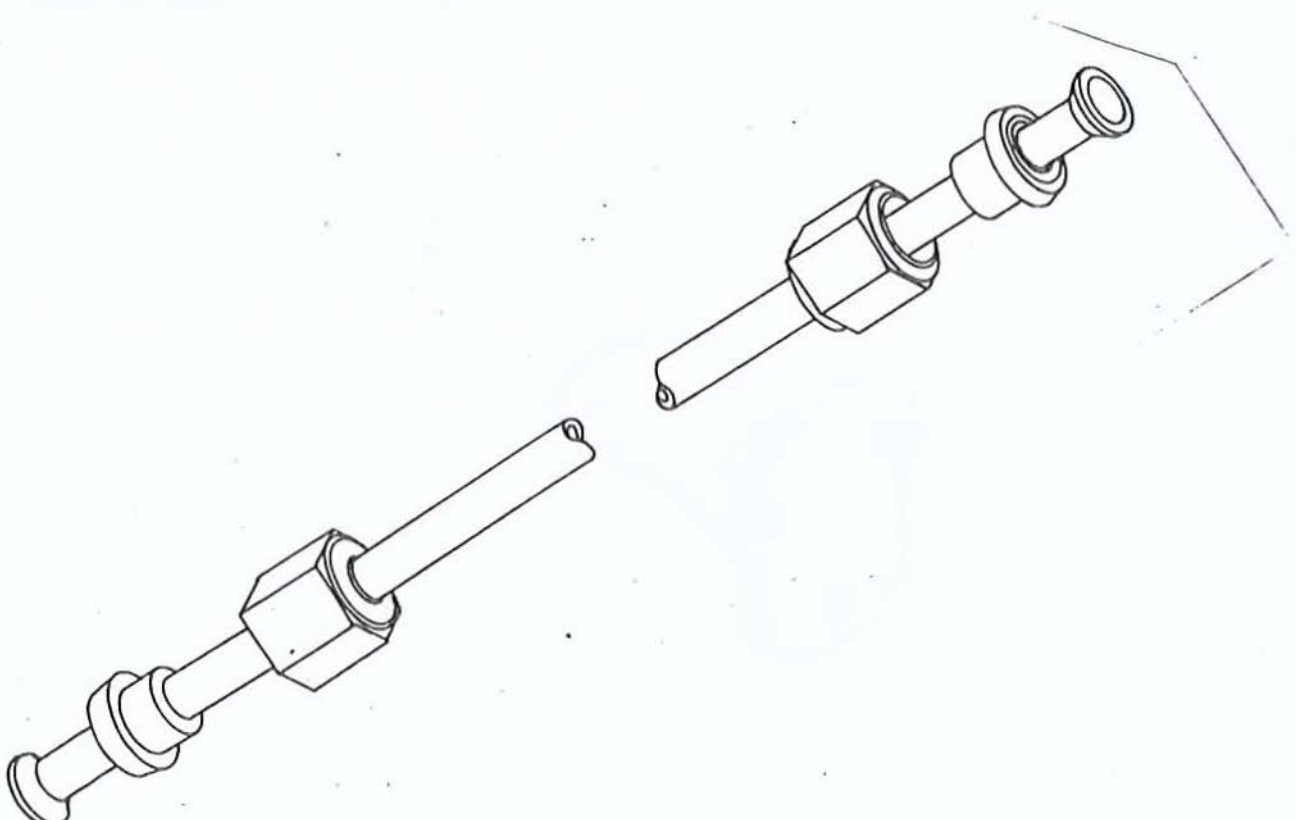
OIP 11684024

ITEM: TUBE ASSEMBLY, METAL:
manifold air heater fuel return to
solenoid valve, left bank

REFERENCE: Figure 5-84 (5/655)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent, or obstructed tube	0.0	Visual	None allowed
2		Damaged flared tube ends	1.0	Visual	None allowed
3		Damaged nut and sleeves	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

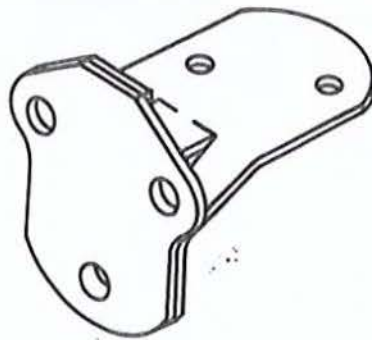
OIP 11684101

ITEM: BRACKET, SOLENOID: solenoid
to shroud, flywheel end

REFERENCE: Figure 5-84 (5/655)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Broken welds	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Bent or distorted	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP MS8005

ITEM: HOSE ASSEMBLY, NONMETALLIC

REFERENCE: Figure 5-84 (5/655)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 100 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

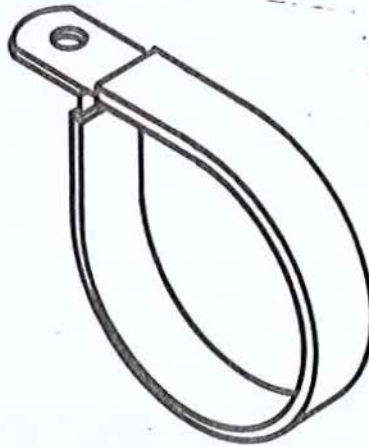
OIP 10865374

ITEM: CLAMP, LOOP:
exciter ignition unit

REFERENCE: Figure 5-84 (5/655)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, broken or bent clamp	0.0	Visual	None allowed
2		Torn or deteriorated rubber cushion	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

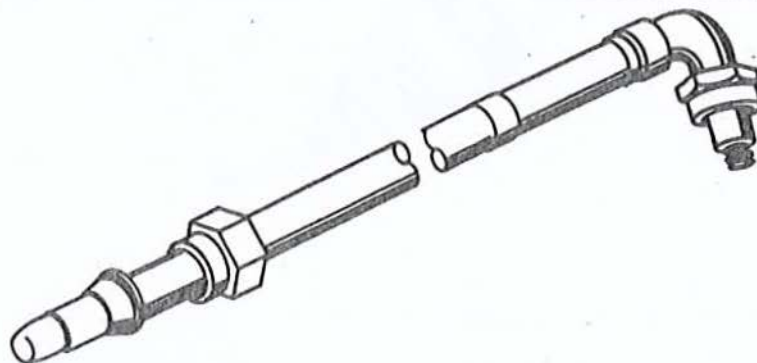
OIP 7062196-1

ITEM: LEAD AND CONDUIT ASSEMBLY, ELECTRICAL:
ignition unit to manifold heater

REFERENCE: Figure 5-84 (5/655)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Missing, damaged or brittle insulation	2.5	Visual	None allowed
3		Loose or missing terminals	2.5	Visual	None allowed
4		Broken soldered joints	2.5	Visual	None allowed
5		Missing label	2.5	Visual	None allowed
6		Insulation resistance	2.5	Resistance check with high voltage tester	Resistance between conductor and shielding not less than 500 MEGOHMS at 15 KV DC.
7		Damaged threads	2.5	Visual	None allowed
8		Function check. Connect to spark plug part no. 706556 and ignition unit part no. 7062198	0.0	Visual	Must show no indication of electrical leakage



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

7335556

OIP

~~7062196~~

ED

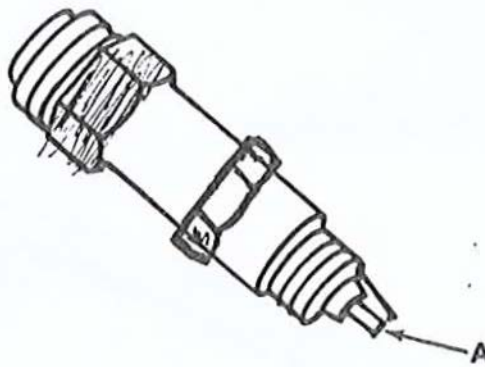
5020

ITEM: SPARK PLUG:
manifold heater

REFERENCE: Figure 5-84 (5/655)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Deteriorated electrodes	2.5	Visual	None allowed
4	A	Dimension (gap)	1.0	Measure	Must not be less than 0.0940 inch nor greater than 0.1140 inch
5		Functional check connect to lead part no. 7062196-1 and ignition unit part no. 7062198 <i>7062198</i>	0.0	Visual	Spark must gap when ignition unit is energized

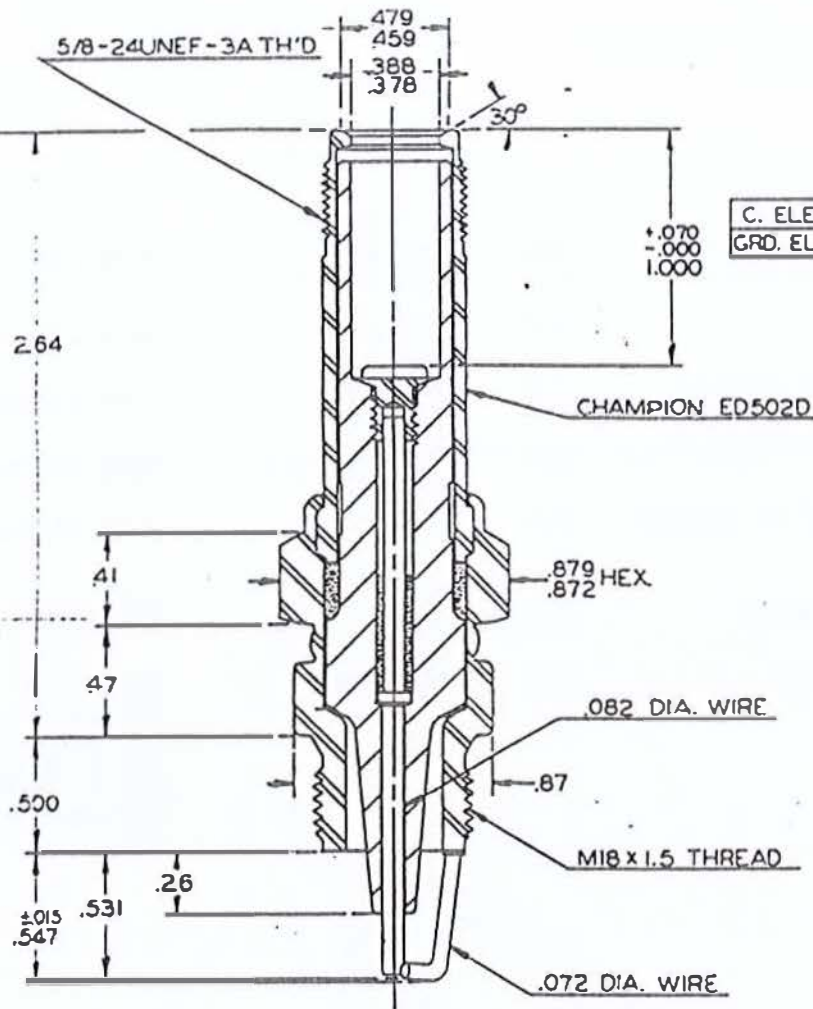


*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

012 (010-.013)
 013 (013-.018)
 019 (018-.022)
 025 (023-.028)

YOUR PART NUMBER
 USED FOR
 PRODUCTION
 SERVICE

TYPE No.



MAT'L	
C. ELECT.	Ni
GRD. ELECT.	Ni



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JUL 19 1990

				DO NOT SCALE DRAW	
				DESIGN	DATE
				GWK	2/1 2-6-90
				CHAMPION SPARK PLUG COMPANY	
				TOLSON, COO	
				ED502D (0070361)	
				SPARK PLUG ASSEMBLY	
REV	REVISION	DATE	BY		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

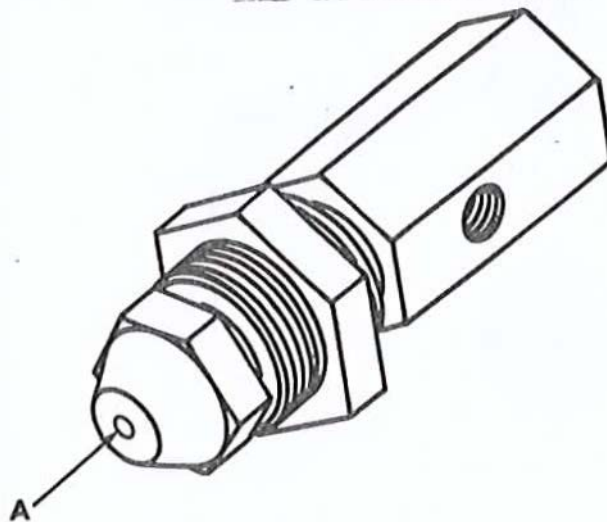
OIP ~~7335555~~ 12254278

ITEM: ~~NOZZLE~~ ^{EL} ASSEMBLY, ~~FUEL~~ ^{FLAME HEATER:} manifold ~~header~~

REFERENCE: Figure 5-84 (5/655)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Damaged filter	2.5	Visual	None allowed
4 3	A	Plugged or damaged nozzle	2.5	Visual	None allowed
4 4		Spray angle	2.5	Visual	75° ± 5°
5 5		Flow rate	2.5	Measure	29.0/32.0 cc/min. at 100 psig. using DF2 (VVF800) or equivalent



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

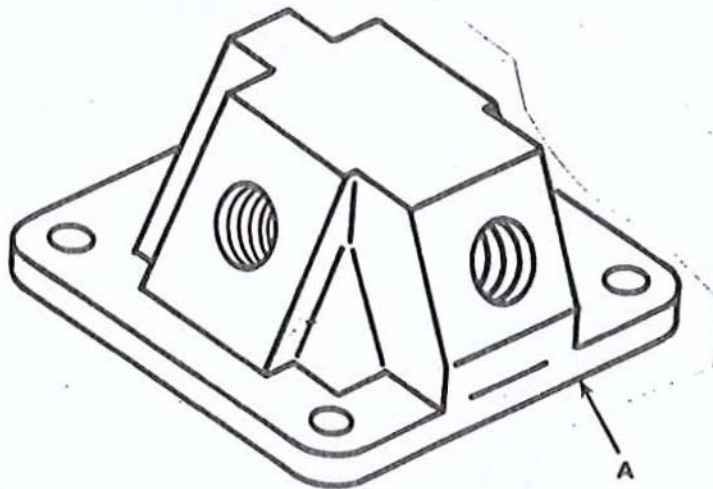
OIP 11642092-1
11642092-2

ITEM: HEATER, MANIFOLD AIR

REFERENCE: Figure 5-84 (5/655)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3		Damaged threads (3 places)	2.5	Visual	None allowed
4	A	Warped flange	1.0	Measure	Must be flat within 0.0020 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ~~7062196~~ ^{10-207125-1 (5950)} _{DET}

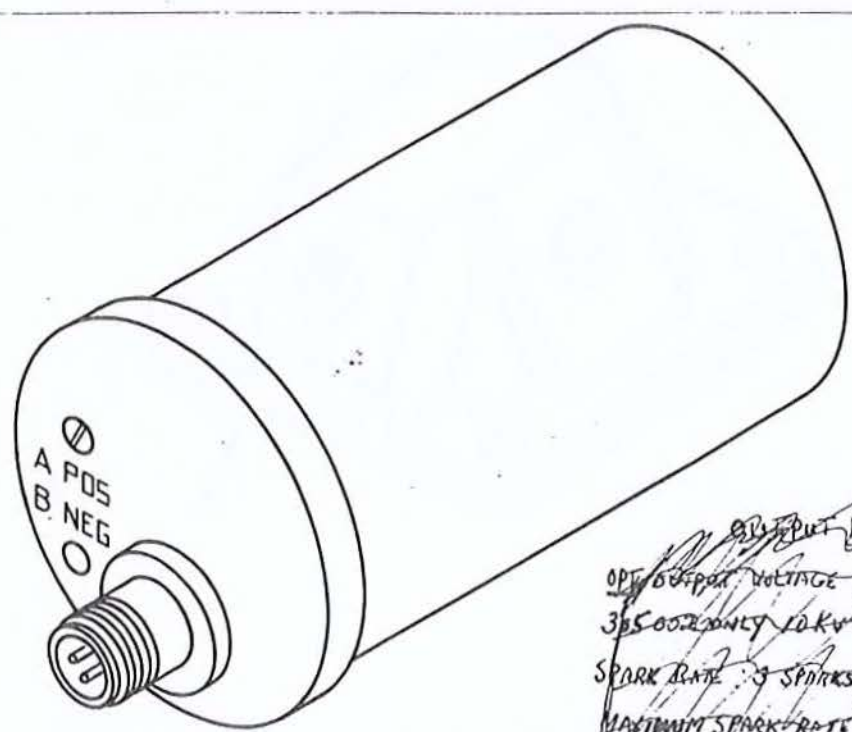
ITEM: IGNITION UNIT, MANIFOLD AIR HEATER

REFERENCE: Figure 5-84 (5/655)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks, dents, or other damage	2.5	Visual	None allowed
2		Threads for damage	2.5	Visual	None allowed
3		Function check connect to spark plug part no. 7062196 with lead part no. 7062196-1 energize with 10 volt D.C.	0.0	Visual	Must fire spark plug
4		Warning plate and name plate on ends of unit		Visual	Must be visible and legible.

DET
7062196



OUTPUT VOLTAGE: 1200V MIN.
OPT. OUTPUT VOLTAGE FOR L. WINGSTON
305002 ONLY 10KV MIN.
SPARK RATE: 3 SPARKS/SEC. MIN AT 30V DC
MAXIMUM SPARK RATE FOR L. WINGSTON
P/N 305002 AT 30V DC INPUT SPARKING
SHALL BE CONTINUOUS

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11682581
11684213

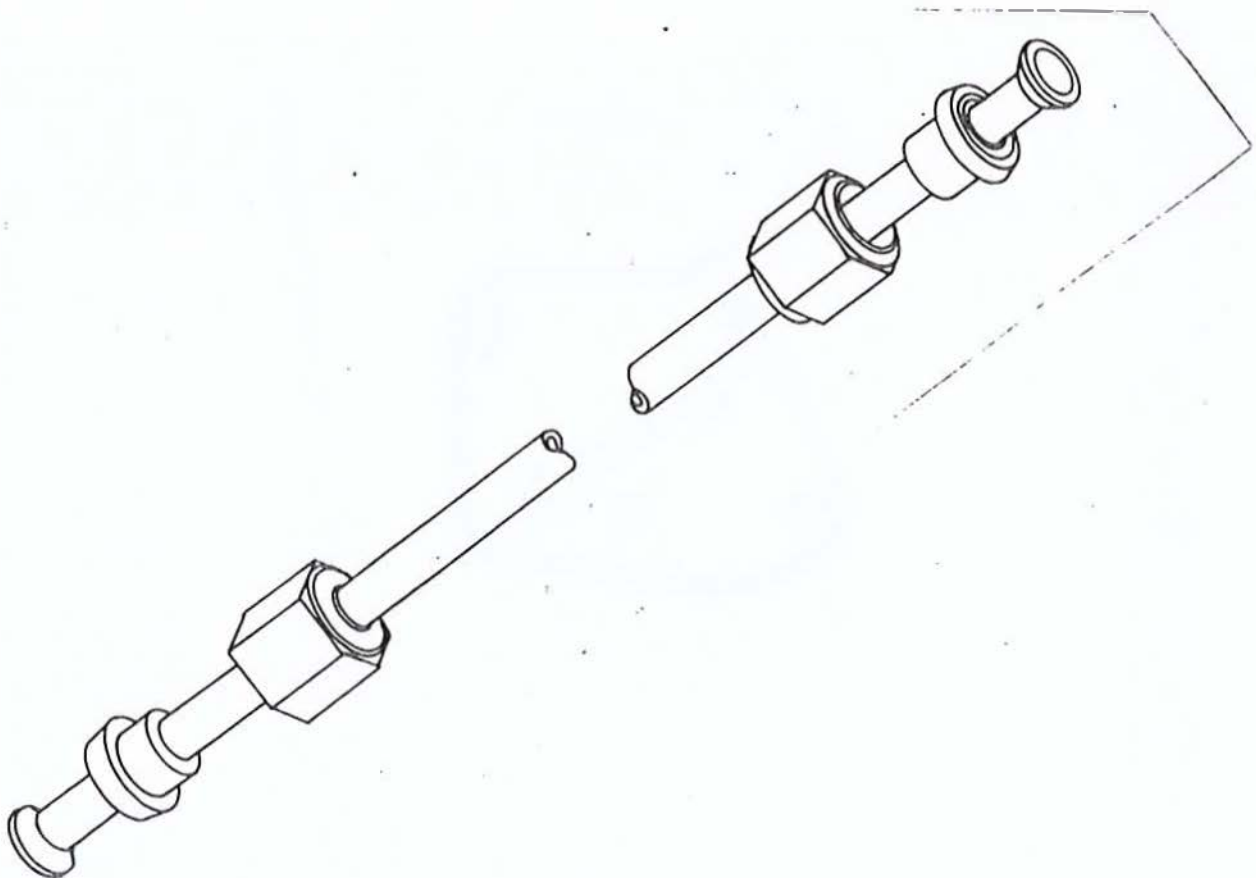


ITEM: TUBE ASSEMBLY, METAL:
manifold air heater fuel return to
solenoid valve

REFERENCE: Figure 5-85 (5/656)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent, or obstructed tube	0.0	Visual	None allowed
2		Damaged flared tube ends	1.0	Visual	None allowed
3		Damaged nut and sleeves	1.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

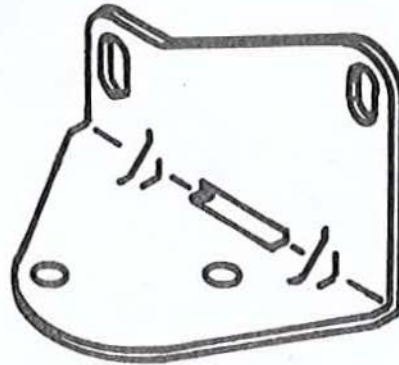
OIP 11684100

**ITEM: BRACKET, ANGLE:
solenoid valve, damper end**

REFERENCE: Figure 5-85 (5/656)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted condition	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684096

ITEM: FILTER, FLUID PRESSURE
check valve to purge pump

REFERENCE: Figure 5-85 (5/656)

ITEM: 14

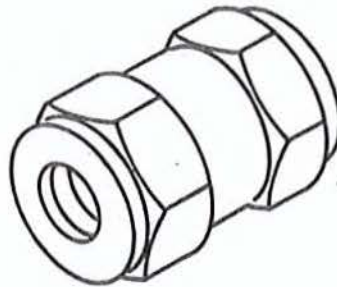
NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Damaged filter screen	2.5	Visual	None allowed
4		Filter screen and internal surfaces free from foreign material	2.5	Visual	None allowed

5

LEAKS

2.5

PRESSURE TEST



PART SHALL NOT LEAK WHEN SUBJECTED TO 50 PSI INTERNAL PRESSURE. TEST PART SUBMERGED IN WATER.

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-97. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/ 5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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Section XXIV. OVERHAUL OF EXHAUST MANIFOLDS

5-98. General. This section covers overhaul of the exhaust manifolds and associated parts (fig. 5-86) (5/679). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-99. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/ 1) for general cleaning instructions.

5-100. Inspection. Inspect the exhaust manifolds and associated parts according to instructions in paragraph 5-4 (5/ 2) and the OIP's included in this section. Wear limits, fits, and tolerances for the exhaust manifolds and associated parts are listed in table 5-37 (5/680). See paragraph 5-4, b and c (5/ 3) for explanation of wear limits, fits, and tolerances.

DMWR 9-2815-220

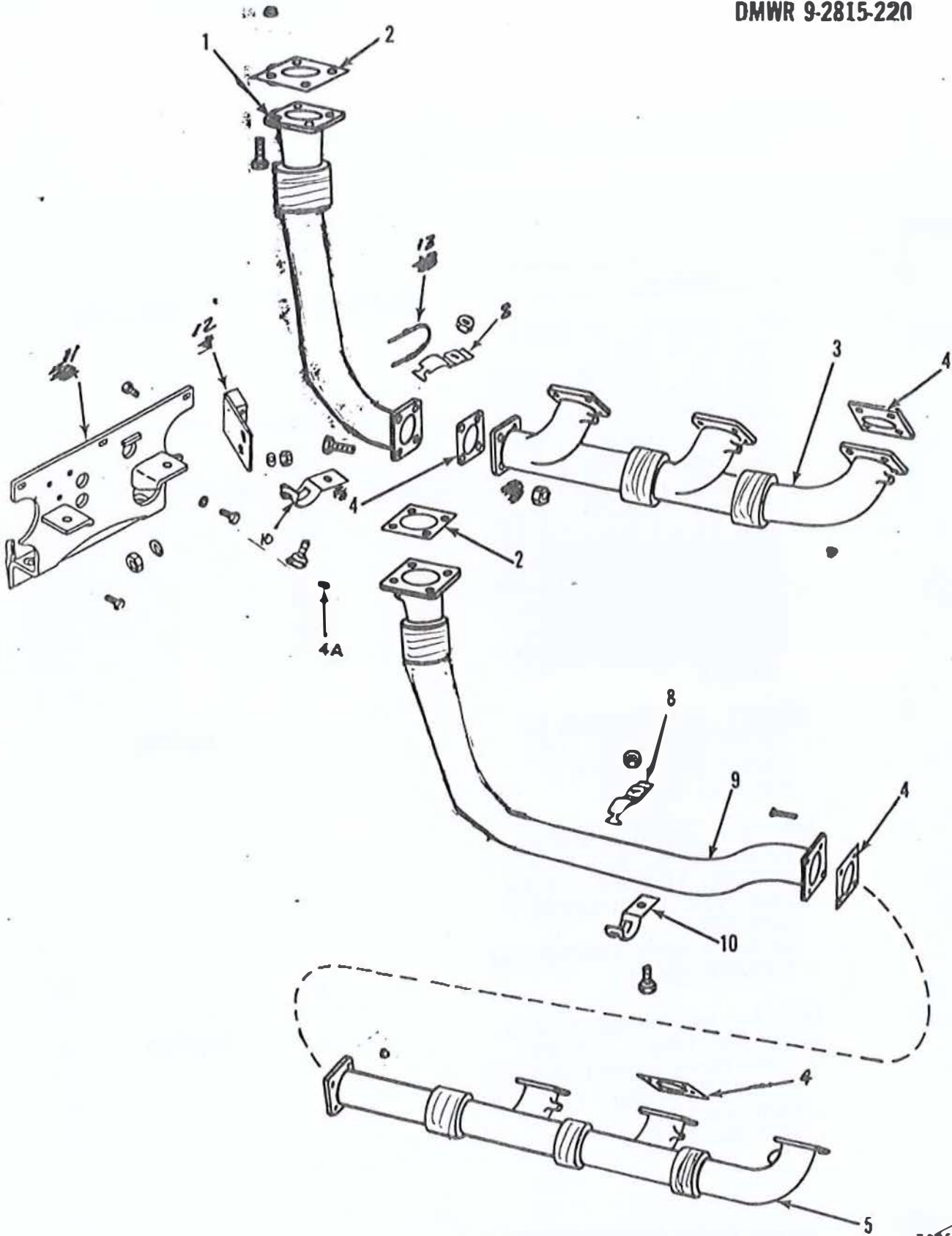


Figure 5-86. Exhaust manifolds and associated parts.

Change 3

5/679

311

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Table 5-37. Wear Limits, Fits, and Tolerances for Exhaust Manifold and Associated Parts

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-86 (5/679)	1	PIPE, EXHAUST: cylinders no. 4, 5, and 6 - part no. 11683994 - right bank (Models AVDS-1790-2C and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11683992 - left bank (Models AVDS-1790-2C and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684194 - right bank (Model AVDS-1790-2DR) part no. 11684193 - left bank (Model AVDS-1790-2DR) Refer to OIP's 11683994, 11683992, 11684194, and 11684193 (5/683) through (5/686)		
	2	GASKET: exhaust elbow to turbosupercharger, left bank and right bank - part no. 8682505		Replace
	3	MANIFOLD, ENGINE EXHAUST: cylinders no. 4, 5, and 6 - part no. 11683990 - right bank, part no. 11683989 - left bank Refer to OIP's 11683989 and 11683990 (5/687)		
	4	GASKET: exhaust manifold to cylinder head - left and right bank; exhaust manifold to exhaust elbow ^{pipe} - left and right bank - ^{pipe} part no. 8761547		Replace
4A		PLUG, PIPE, EXHAUST MANIFOLD AND PIPE BOSSES PART No. 8761494 MS27769S2 5/680		

Table 5-37. Wear Limits, Fits, and Tolerances for Exhaust Manifold and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-86 (5/679)	5	MANIFOLD, ENGINE EXHAUST: cylinders no. 1, 2, and 3 part no. 11683988 - right bank, part no. 11683987 - left bank Refer to OIP's 11683987 and 11683988 (5/689)		
	6	Deleted.		
	7	Deleted.		
	8	STRAP, RETAINING: exhaust manifold to cooling fan shroud support bracket, left and right bank - part no. 11684236 Refer to OIP 11684236 (5/693) <i>EXHAUST PIPE TO BRKT, CYL NO. 4, L & R</i> <i>EXHAUST PIPE TO COOLING FAN AND SUPPORT, R & L</i>		

Table 5-37. Wear Limits, Fits, and Tolerances for Exhaust Manifold and Associated Parts - Continued

References				
Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-86 (5/679)	9	PIPE, EXHAUST: cylinders no. 1, 2, and 3 - part no. 11683993 - right bank (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA) part no. 11683991 - left bank (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA) part no. 11684185-1 left bank (Model AVDS-1790-2DR) part no. 11684187-1 right bank (Model AVDS-1790-2DR) Refer to OIP's 11683993, 11683991, 11684185 and 11684187.1(5/694) through (5/697)		
	10	STRAP, RETAINING: exhaust manifold to cooling fan shroud support bracket, left and right bank part no. 11684235 Refer to OIP 11684235 (5/698)	EXHAUST PIPE TO BRKT, CYL NO. 4, L & R EXHAUST PIPE TO COOLING FAN SHROUD SUPPORT, L & R	
	11	SHROUD AND SUPPORT: EXHAUST MANIFOLD - PART NO. 12354412 REFER TO OIP 12354412 (5/698.1)		
	12	BRACKET, EXHAUST MANIFOLD CLAMP - PART NO. 12354418-1 - RIGHT BANK PART NO. 12354418-2 - LEFT BANK REFER TO OIP 12354418-1 AND 12354418-2 (5/698.2)		
	13	CLAMP, U-BOLT: EXHAUST MANIFOLD, CYLINDERS NO. 1, 5 & 6, L & R BANKS - PART NO. 12354419 REFER TO OIP 12354419 (5/698.3)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683994 - right bank
 11683992 - left bank

ITEM: PIPE, EXHAUST:
 cylinders no. 4, 5, and 6
 (Models AVDS-1790-2C and AVDS-1790-2D)

REFERENCE: Figure 5-86 (5/679)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25 PSI internal air pressure. Plug all openings	No leaks permissible
		NOTE Clamp or secure bellows before submerging underwater to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken or warped flanges	2.5	Visual	None allowed
6		Bent or deformed elbows and tubes	2.5	Visual	None allowed
7		Torn or deteriorated insulation sheath	2.5	Visual	None allowed
87	BA	Bent or broken bellows and BELLOWs	2.5	Visual	None allowed
88	B	Warped flange	1.0	Measure	Must be flat within 0.0050 inch 0.0050 0.100

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

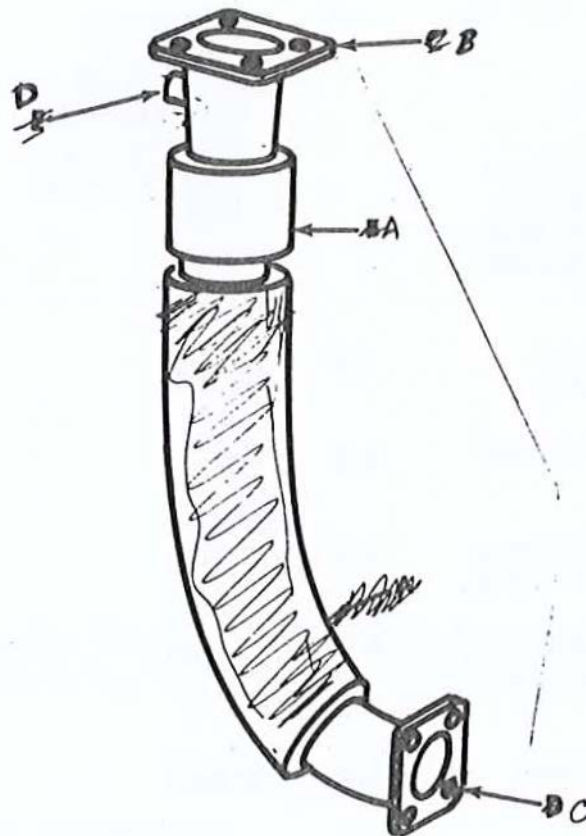
ITEM: PIPE, EXHAUST:
cylinders no. 4, 5, and 6
(Models ~~AVDS-1790-2C~~ and ~~AVDS-1790-2D~~)

OIP 11683994 - right bank
11683992 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
109	B C	Warped flange	1.0	Measure	Must be flat within 0.0050 inch 0.0100
110	D D	Damaged pipe threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: PIPE, EXHAUST:
cylinders no. 4, 5, and 6
(~~Model AVDS-1790-2DR~~)

11684194 - right bank
OIP 11684193 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25 PSI internal air pressure. Plug all openings	No leaks permissible
		NOTE Clamp or secure bellows before submerging underwater to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken or warped flanges	2.5	Visual	None allowed
6		Bent or deformed ELBOWS <i>ELBOWS OR TUBES</i>	2.5	Visual	None allowed
7	A	Bent or broken bellows <i>bellows</i>	2.5	Visual	None allowed
8	B	Warped flanges	1.0	Measure	Must be flat within 0.0050 inch <i>0.0100</i>

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

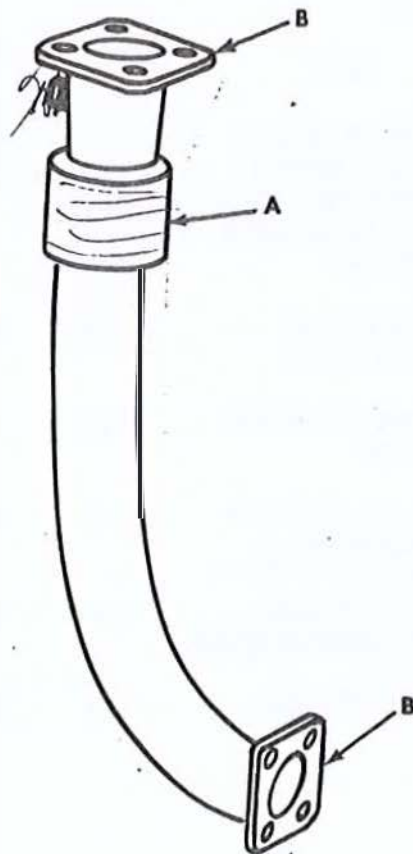
ITEM: PIPE, EXHAUST:
cylinders no. 4, 5, and 6
(Note) ~~AVOS 1720-202~~

OIP 11684194 - right bank
11684193 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: MANIFOLD, ~~ENGINE~~ EXHAUST:
cylinders no. 4, 5, and 6

OIP 11683990 - right bank
11683989 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25-30 PSI internal air pressure. Plug all openings	No leaks allowed
		NOTE Clamp or secure bellows before submerging underwater to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken or warped flanges (4 places)	2.5	Visual	None allowed
6		Bent or deformed elbows OR PIPES	2.5	Visual	None allowed
7	A	Bent or broken bellows	2.5	Visual	None allowed
8	B	Warped flanges- three in line	1.0	Measure	Must be flat within 0.0050 0.0100 inch
9	C	Warped flange	1.0	Measure	Must be flat within 0.0050 0.0100 inch

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

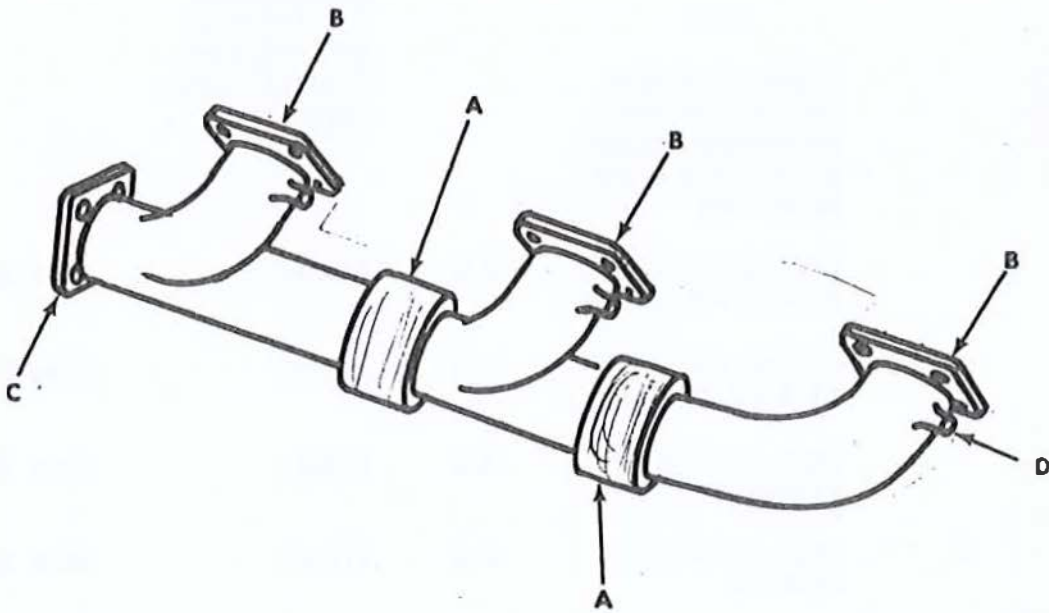
ITEM: MANIFOLD, ~~ENGINE~~ EXHAUST:
cylinders no. 4, 5 and 6
- continued

OIP 11683990 - right bank
11683989 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
10	D	Damaged pipe threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683988 - right bank
 OIP 11683987 - left bank

ITEM: MANIFOLD, ~~ENGINE~~ EXHAUST:
 cylinders no. 1, 2, and 3

REFERENCE: Figure 5-86 (5/679)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25 PSI PSI internal air pressure. Plug all openings	No leaks allowed
		NOTE Clamp or secure bellows before submerging underwater to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken MANIFOLD flanges (4 places)	2.5	Visual	None allowed
6		Bent or deformed MANIFOLD PIPES	2.5	Visual	None allowed
7	A	Bent or broken bellows	2.5	Visual	None allowed
8	B	Warped flanges - three in line	0.0	Measure	Must be flat within 0.0050 inch ⁰¹⁰⁰
9	C	Warped flange	0.0	Measure	Must be flat within 0.0050 inch ⁰¹⁰⁰

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

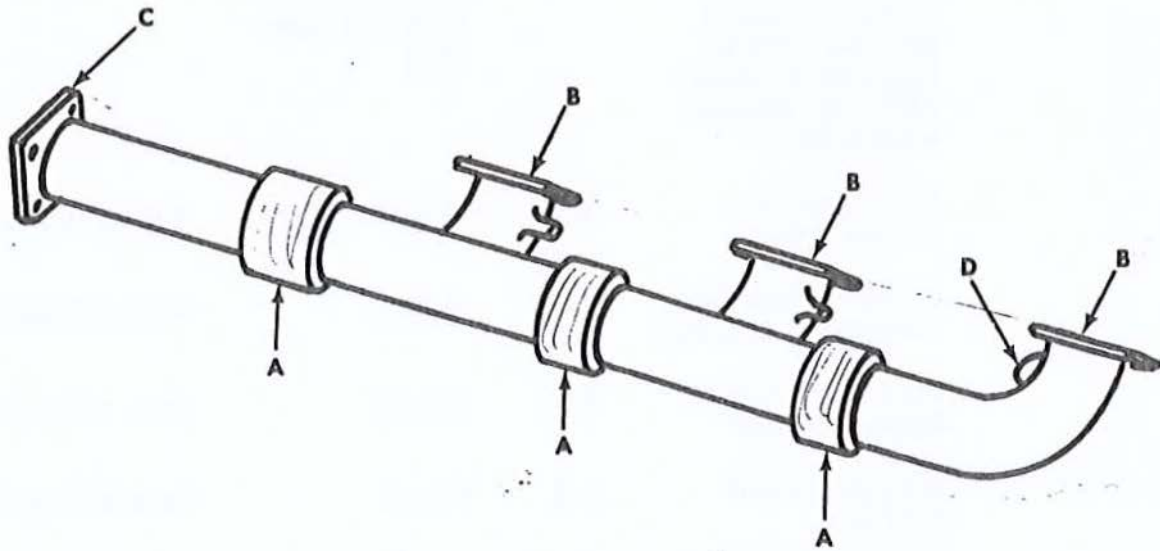
ITEM: MANIFOLD, ~~ENGINE~~ EXHAUST:
cylinders no. 1, 2, and 3
- Continued

OIP 11683988 - right bank
11683987 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
10	D	Damaged pipe threads	2.5	Visual	None allowed



•Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

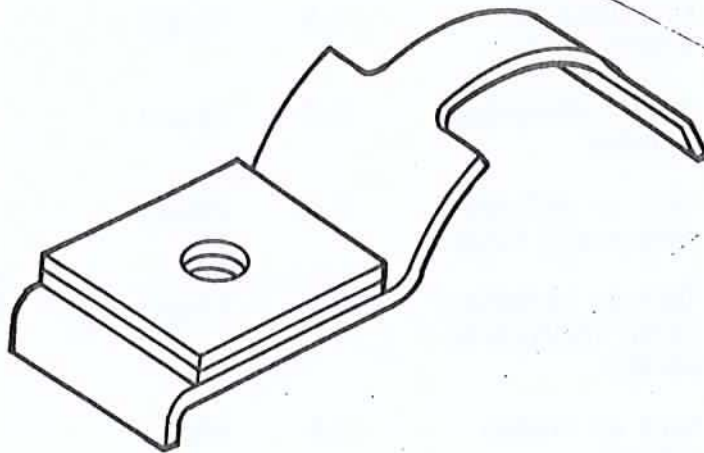
OIP 11684236

ITEM: STRAP, RETAINING:
~~exhaust manifold to cooling fan shroud~~
~~support bracket, left and right bank~~
 EXHAUST PIPE TO BRKT, CYL NO. 4, L&R
 EXHAUST PIPE TO COOLING FAN AND SUPPORT BRCT, L&R

REFERENCE: Figure 5-86 (5 /679)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or deformed	2.5	Visual	None allowed
4		Broken or fractured welds	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11683993 - right bank
 11683991 - left bank

ITEM: PIPE, EXHAUST:
 cylinders no. 1, 2, and 3
 left and right bank (Models
~~AVDS-1790-2C and AVDS-1790-2D~~)

REFERENCE: Figure 5-86 (5/679)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25 PSI internal air pressure. Plug all openings	No leaks permissible
		NOTE Clamp or secure bellows before applying pressure to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken or warped flanges	2.5	Visual	None allowed
6		Bent or deformed elbow and tubes	2.5	Visual	None allowed
7	A	Torn or deteriorated insulation sheath	2.5	Visual	None allowed
87	BA	Bent or broken bellows	2.5	Visual	None allowed
88	BB	Warped flange	1.0	Measure	Must be flat within 0.0050 inch 0.0100

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

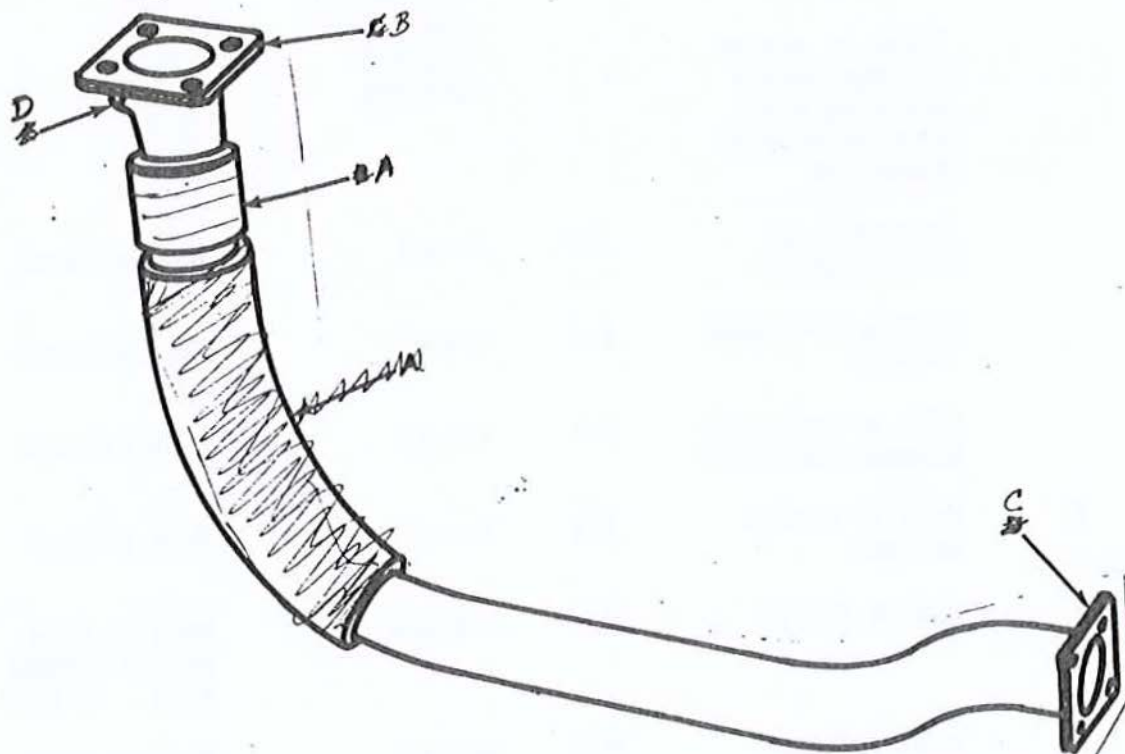
ITEM: PIPE, EXHAUST:
cylinders no. 1, 2, and 3
left and right bank (Models
AVDS-1790-2C and AVDS-1790-2D)

OIP 11683993 - right bank
11683991 - left bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
109	DC	Warped flange	2.5	Measure	Must be flat within 0.0050 0.0100 inch
110	ED	Damaged pipe thread	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684185-1 left bank
 11684187-1 right bank

ITEM: PIPE, EXHAUST:
 cylinders no. 1, 2, and 3
 left and right bank
 (Model AVBS 1780-20B)

REFERENCE: Figure 5-86 (5/679)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 25 PSI internal air pressure. Plug all openings	No leaks permissible
		NOTE Clamp or secure bellows before applying pressure to prevent expansion			
4		Fractured or broken welds	2.5	Visual	None allowed
5		Broken or warped flanges	2.5	Visual	None allowed
6		Bent or deformed aligned tubes	2.5	Visual	None allowed
7	A	Bent or broken bellows	2.5	Visual	None allowed
8	B	Warped flange	0.0	Measure	Must be flat within 0.0050 inch 0.0100
9	C	Warped flange	0.0	Measure	Must be flat within 0.0050 inch 0.0100
10	D	DAMAGED PIPE THREADS	2.5	VISUAL	NONE ALLOWED

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

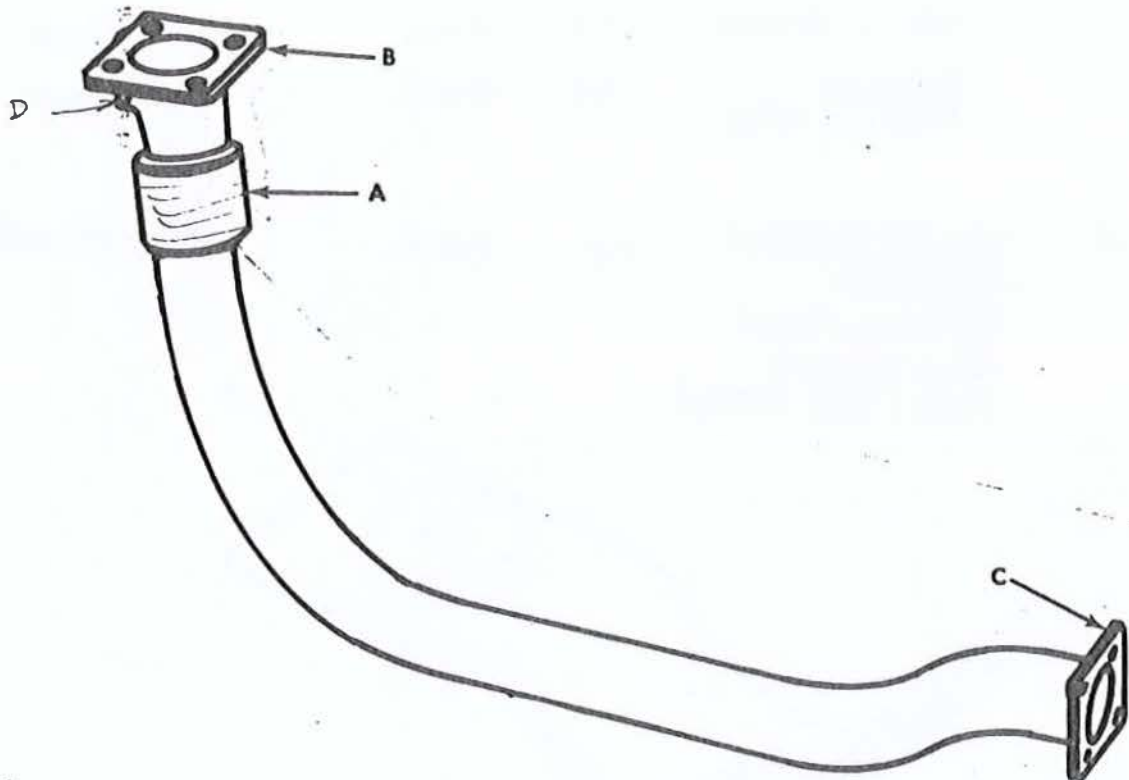
ITEM: **PIPE, EXHAUST:**
cylinders no. 1, 2, and 3
left and right bank
(Model AVDS-1790-2DR)

OIP 11684185-1 left bank
11684187-1 right bank

REFERENCE: Figure 5-86 (5/679)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: STRAP, RETAINING:
~~exhaust manifold to cooling fan shroud~~
~~support bracket, left and right bank,~~
 EXHAUST PIPE TO BRKT, CYL NO. 4, L & R
 EXHAUST PIPE TO COOLING FAN SHROUD & SUPPORT, L & R

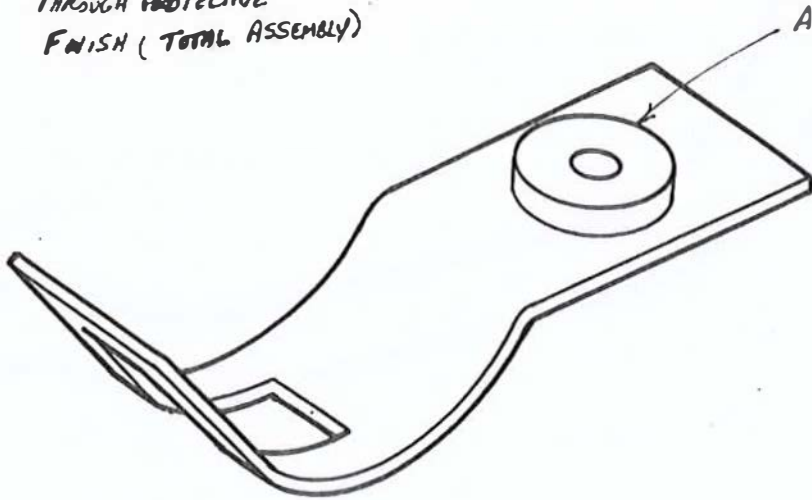
OIP 11684235

REFERENCE: Figure 5-86 (5/679)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or deformed	2.5	Visual	None allowed
4		Broken or fractured welds	2.5	Visual	None allowed

5. A WHEN BASE IS MADE OF CARBON STEEL
 BASE METAL SHOWING THROUGH PROTECTIVE FINISH (TOTAL ASSEMBLY) 2.5 VISUAL NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

9-2815
DMWR ~~10-1111~~-220

OIP ~~ESAB129-068~~ / 23544/4

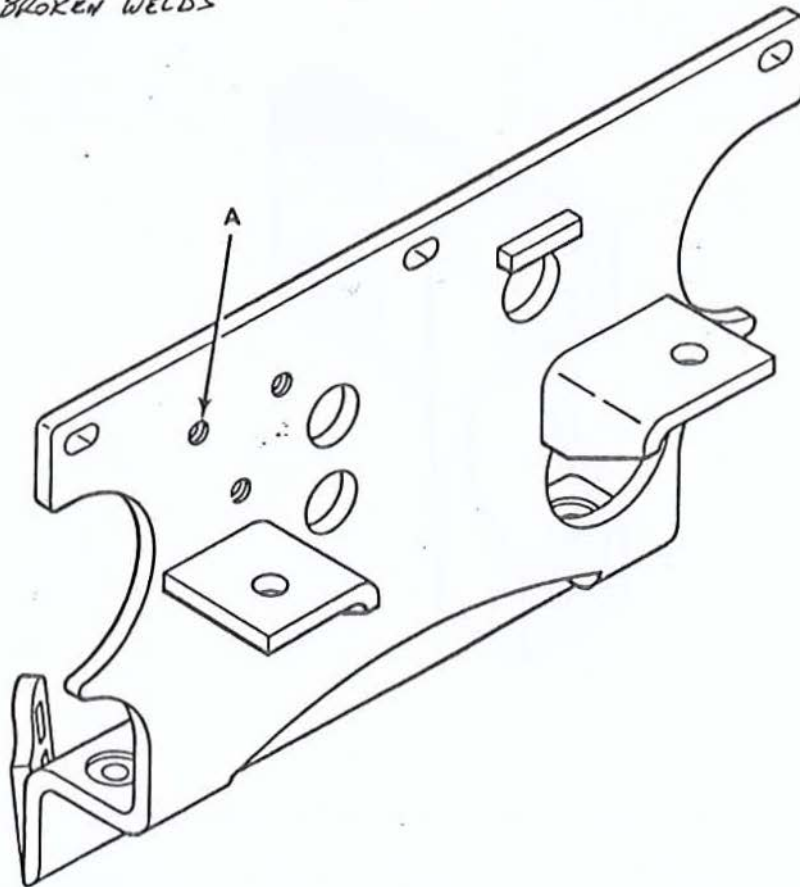
ITEM: SHROUD AND SUPPORT:
exhaust manifold

REFERENCE: Figure 5-86 (5/679)

ITEM: ~~28~~ 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Damaged threads (3 places)	0.0	Visual	None allowed
3		Bent or distorted condition	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed

5
BROKEN WELDS 2.5 VISUAL NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

HAUL INSPECTION PROCEDURE

9-2815
DMWR ~~TC-1100~~-220

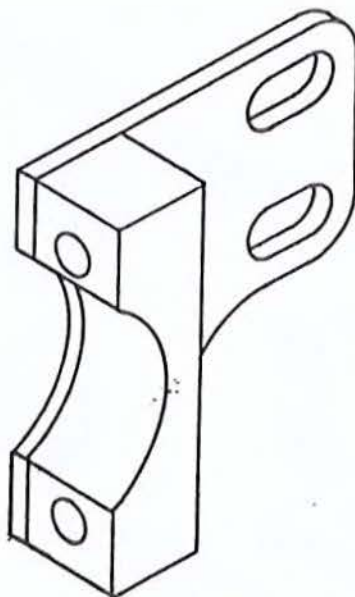
1235448-1
OIP E9AR108-028-1 - left bank
E9AR108-028-2 - right bank

BRACKET, EXHAUST MANIFOLD CLAMP

REFERENCE: Figure 5-86 (5/679)

ITEM: 312

REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
	Cracks	0.0	Visual	None allowed
	Bent or distorted condition	2.5	Visual	None allowed
	Base metal showing through protective finish	2.5	Visual	None allowed
	<i>BROKEN WELDS</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



3d components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Certification Inspection only.

5/698.2
5/684.2

OVERHAUL INSPECTION PROCEDURE

9-2815
DMWR ~~7-1161-10~~-220

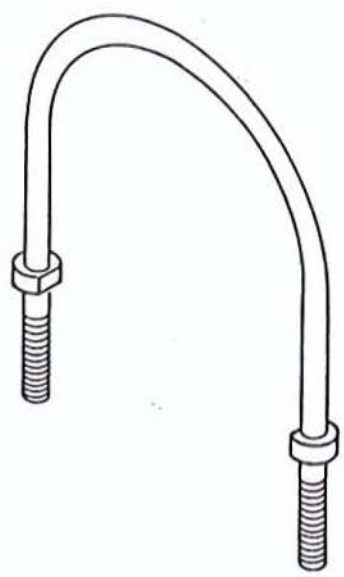
OIP ~~247108-029~~ 2354419

ITEM: CLAMP, U BOLT:
exhaust manifold, cylinders
no. 4, 5, and 6, left and right banks

REFERENCE: Figure 5-86 (5/679)

ITEM: ~~A~~ B

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	0.0	Visual	None allowed
3		Bent or deformed	2.5	Visual	None allowed
4		Base metal showing through protective finish.	2.5	Visual	None allowed
5		BROKEN WELDS	2.5	VISUAL	NONE ALLOWED



*Used components and relinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

DMWR 9-2815-220

5-101. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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Section XXV. OVERHAUL OF CYLINDER OIL DRAIN TUBES

5-102. ~~General~~. This section covers overhaul of the cylinder oil drain tubes and associated parts (fig. 5-87) (5/702). Specific instructions on disassembly, cleaning, ~~inspection~~, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also ~~included~~.

5-103. ~~Disassembly~~ and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-104. ~~Inspection~~. Inspect the cylinder oil drain tubes and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. ~~Wear~~ limits, fits, and tolerances for the cylinder oil drain tubes and associated parts are listed in table 5-38 (5/703). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

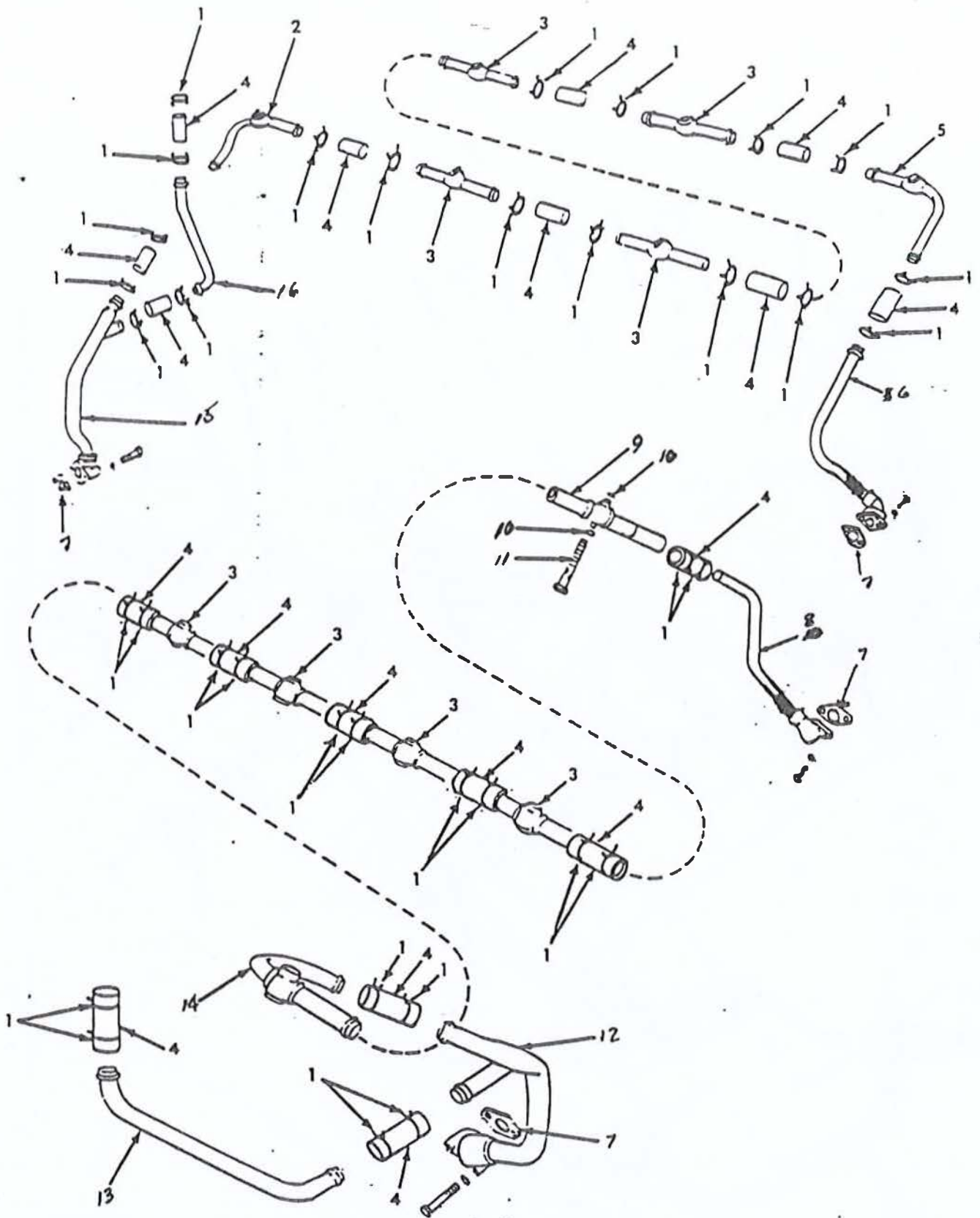


Figure 28. Cylinder head oil drain tubes and associated parts.
FIGURE 5-87.

DMWR 9-2815-220

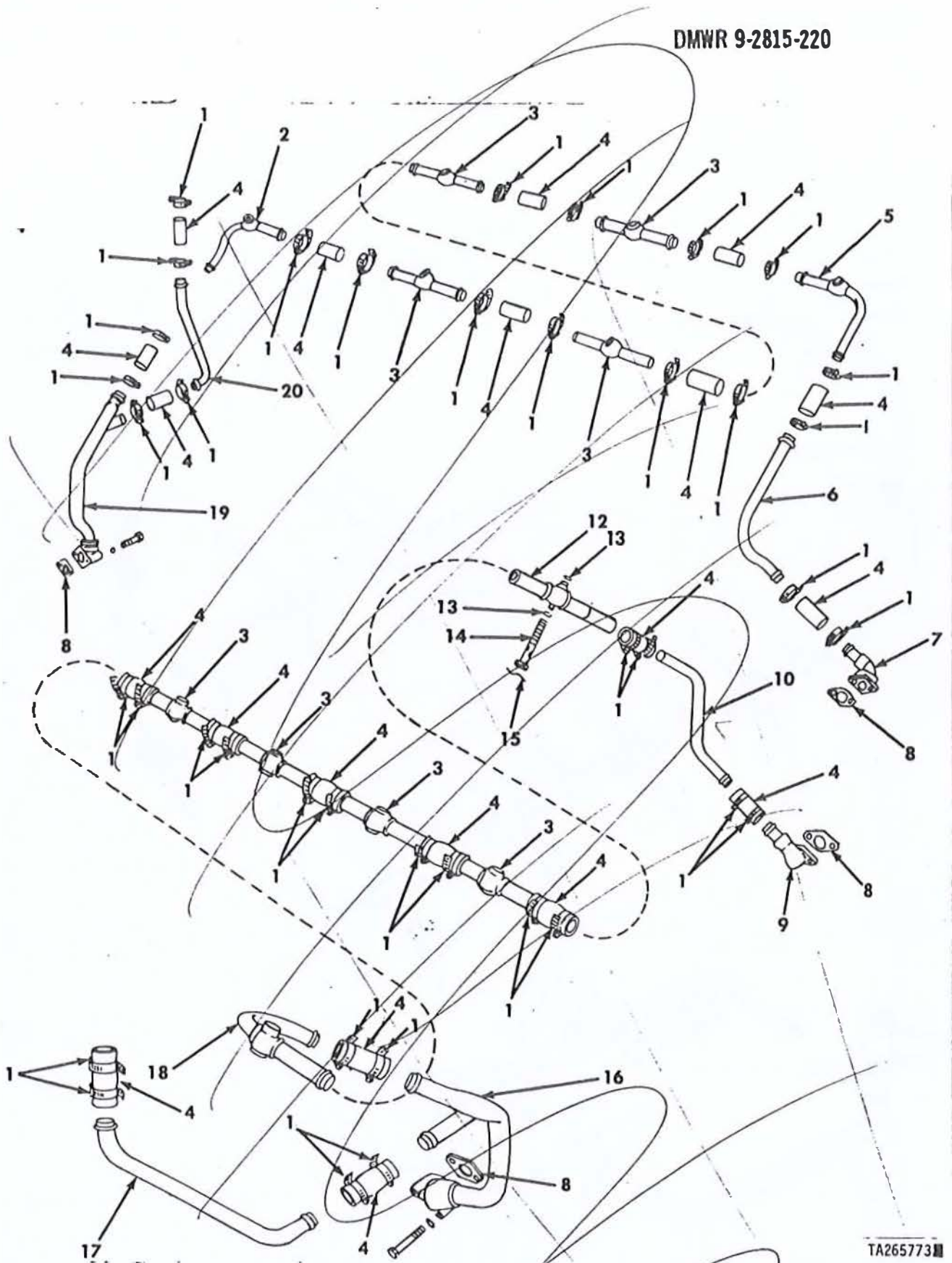


Figure 5-87. Cylinder oil drain tubes and associated parts.

TA265773

Table 5-38. Wear Limits, Fits, and Tolerances for
Cylinder Oil Drain Tubes

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-87 (5/702)	1	CLAMP, HOSE: intermediate cylinder head drain tube hose, oil pan inlet drain tube hose, and turbosuper- charger oil drain tube hose - part no. 14630499-1 SAE J536 TYE-22 (81343) Refer to OIP 14630499-1 SAE J536 TYE-22 (81343) (5/702) (5/706.i) (5/707)		
	2	TUBE BENT, METALLIC: TUBE ASSEMBLY, CYLINDER: cylinder head oil drain right bank, flywheel end - part no. 8761190 Refer to OIP 8761190 (5/707)		
	3	TUBE ASSEMBLY, OIL DRAIN: intermediate cylinders - part no. 8761193 Refer to OIP 8761193 (5/708)		
	4	HOSE, RUBBER ^{NONMETALLIC:} intermediate cylinder head drain tubes, oil pan inlet drain tubes, and turbosupercharger oil drain tubes - part no. 7350206 14630499-1		Replace
	5	TUBE, BENT, STEEL: ^{METALLIC:} cylinder head oil drain right bank, damper end - part no. 8761192 Refer to OIP 8761192 (5/709)		

Table 5-38. Wear Limits, Fits, and Tolerances for
Cylinder Oil Drain Tubes - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-87 (5/702)	6	ASSEMBLY, METAL: TUBE, BENT, METALLIC: intermediate oil pan drain, right bank, damper end - ✓ part no. 10882791-12354399 Refer to OIP 10882791/12354399 (5/710)		
	7	TUBE, OIL PAN: oil pan inlet drain, right bank, damper end - part no. 8761598 Refer to OIP 8761598 (5/711)		
	8	GASKET: oil pan inlet drain flanges - part no. 8682772 587195 (63728)		Replace
	9	ELBOW, FLANGE TO HOSE: oil pan inlet drain, left bank, damper end - part no. 8761597 Refer to OIP 8761597 (5/712)		
	10 8	ASSEMBLY, METAL: TUBE, BENT, METALLIC: inter- mediate oil pan drain, left bank, damper end - ✓ part no. 10865182-12354398 Refer to OIP 10865182/12354398 (5/713)(5/711)		
	11	Deleted		

Table 5-38. Wear Limits, Fits, and Tolerances for
Cylinder Oil Drain Tubes - Continued

<u>References</u>				
<u>Fig.</u>	<u>Item</u>	<u>Item, point of measurement</u>	<u>New part size</u>	<u>Wear limit</u>
<u>No.</u>	<u>No.</u>	<u>or inspection</u>		
5-87 (5/702)	12 9	TUBE ASSEMBLY, CYLINDER ^{METAL:} cylinder head oil drain, left bank, damper end - part no. 10865180 Refer to OIP 10865180 (5/711) (5/712)		
	13 10	WASHER, FLAT: cylinder head oil drain tube connectors - part no. 8744055 523557 (02978)		Replace
	14 11	BOLT, FLUID, PASSAGE: cylin- der head oil drain tube connectors - part no. 8761091 Refer to OIP 8761091 (5/715) (5/713)		
	15	WIRE, NONELECTRICAL: cylinder head oil drain tube connector - part no. MS20995NC40-12		Replace
	16 12	ASSEMBLY, METAL, BRANCHED TUBE & OIL PAN DRAIN: left bank, flywheel end - part no. 10883083 Refer to OIP 10883083 (5/716) (5/714)		
	17 13	BENT, METALLIC: TUBE BENT, STEEL: turbo- supercharger oil drain, intermediate, left bank - part no. 8761059 (Models AVDS-1790-2C, and AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11682624 (Model AVDS-1790-2DR) Refer to OIP 8761059 ¹¹⁶⁸²⁶²⁴ (5/717) (5/715)		

Table 5-38. Wear Limits, Fits, and Tolerances for
Cylinder Oil Drain Tubes - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-87 (5/702)	18/14	<p>METAL: TUBE ASSEMBLY, CYLINDER cylinder head oil drain, left bank, flywheel end - part no. 8682753 Refer to OIP 8682753 (5/718)(5/716)</p>		
	19/15	<p>ASSEMBLY, METAL BRANCHED: TUBE CYLINDER HEAD OIL ^{CYLINDER HEAD OIL DRAIN} DRAIN: right bank, fly- wheel end - part no. 11684172 (Model AVDS-1790-2C AND AVDS-1790-2CA) part no. 10865022 (Models AVDS-1790-2D, AND AVDS-1790-2DA AND AVDS-1790-2DR) Refer to OIP 11684172 AND 10865022 AND 11684172 (5/719)(5/717)</p>		
	20/16	<p>METALLIC: TUBE, BENT, STEEL: turbo- supercharger oil drain, intermediate, right bank - part no. 8761052 (Models AVDS-1790-2C, AND AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684195 (Model AVDS-1790-2DR) Refer to OIP 8761052 AND 11684195 (5/720)(5/718)</p>		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-22.0
 DMWR-TCM1000-220

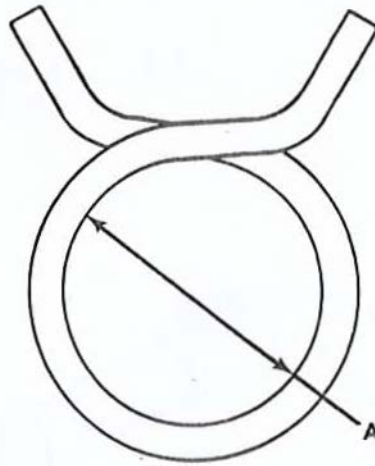
OIP ~~E2CA109-009~~
 SAE J536 TYPE-22 (81343)

ITEM: CLAMP, HOSE

REFERENCE: Figure 5-87 (5/702)

ITEM: 1 272857 (72582)

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Broken, bent cracked or deep nicks	0.0	Visual	None allowed
2	A	Not go clamp diameter	2.5	Plug gage	1.250 not-go gage dia.



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

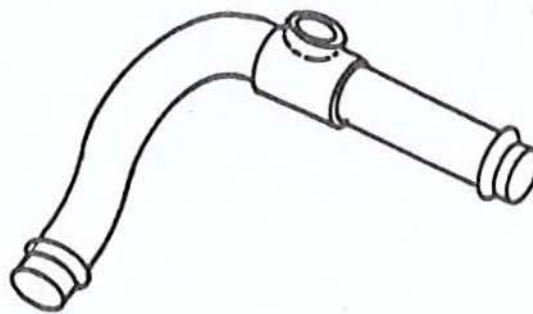
OIP 8761190

ITEM: ~~TUBE ASSEMBLY, CYLINDER:~~
TUBE, BENT, METALLIC:
 cylinder head oil drain
 right bank, flywheel end

REFERENCE: Figure 5-87 (5/702)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks in tubes, connector and welds	0.0	Visual	None allowed
2		Bent and distorted tube <i>OR TUBES</i>	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
5		Leaks	2.5	Pressure Test	Shall not leak when subjected to 25 pounds internal pressure when submerged in water.



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

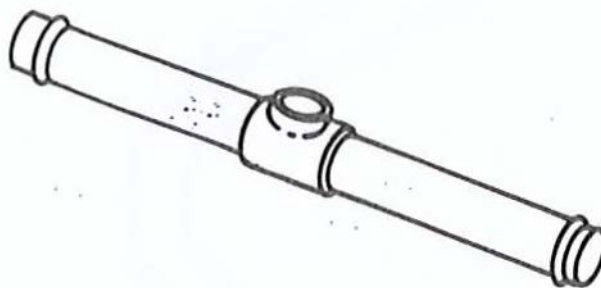
OIP 8761193

**ITEM: ~~TUBE~~ ASSEMBLY, OIL DRAIN:
intermediate cylinders**

REFERENCE: Figure 5-87 (5/702)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes connector and welds	0.0	Visual	None allowed
2		Bent and distorted tubes <i>OR TUBES</i>	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
5		Leaks	2.5	Pressure test	Shall not leak when subjected to 25 pounds internal pressure when sub- merged in water



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

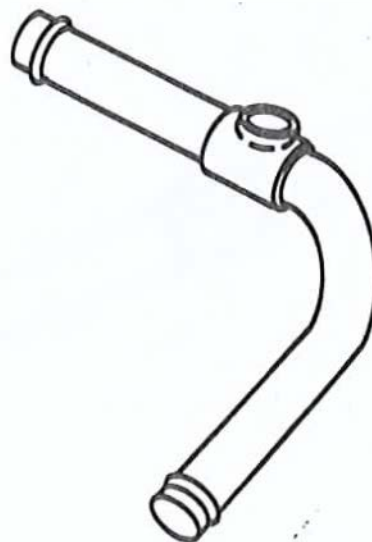
OIP 8761192

ITEM: TUBE, BENT, ^{METALLIC:} STEEL:
cylinder head oil drain
right bank, damper end

REFERENCE: Figure 5-87 (5/702)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes, connector and welds	0.0	Visual	None allowed
2		Bent and distorted tubes ^{OR TUBES}	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
5		Leaks	2.5	Pressure Test	Shall not leak when subjected to 25 pounds internal pressure when submerged in water



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

OVERHAUL INSPECTION PROCEDURE

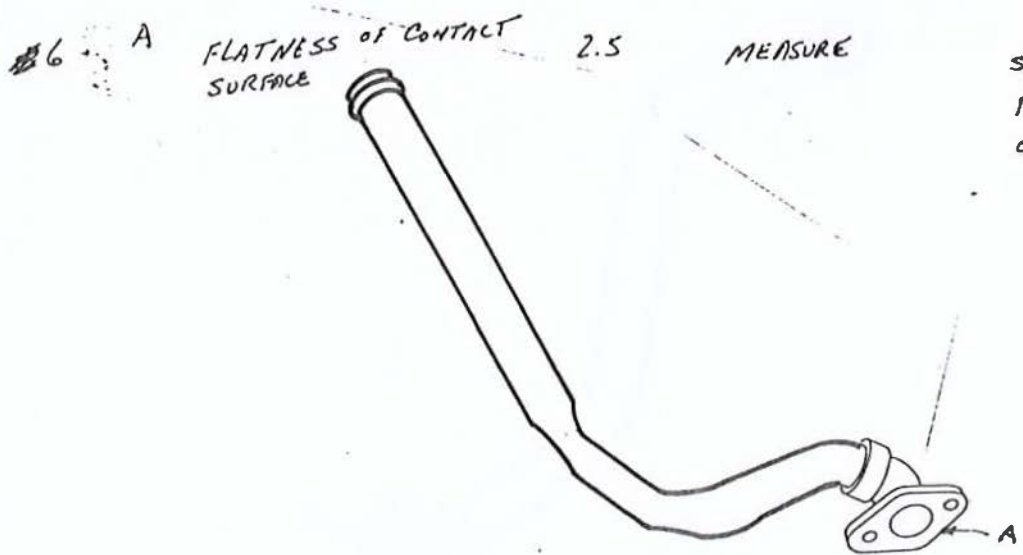
DMWR 9-2815-220
 12354399
 OIP 10882791

ITEM: ~~ASSEMBLY, METAL:~~
 TUBE, BENT, METALLIC:
 intermediate oil pan drain,
 right bank, damper end

REFERENCE: Figure 5-87 (5/702)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in TUBE, FLANGE OR WELDS	0.0	Visual	None allowed
2		Bent and distorted tubes	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		SCRATCHES, NICKS, GOUGES OR RAISED METAL ON CONTACT SURFACES	2.5	VISUAL	NONE ALLOWED
4.5		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER
6	A	FLATNESS OF CONTACT SURFACE	2.5	MEASURE	SURFACE MUST BE FLAT WITHIN 0.0040 INCH



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ^{ASSEMBLY, METAL:} ~~TUBE~~ BENT, METALLIC: ~~INTERNAL~~ oil pan drain, left bank, damper end

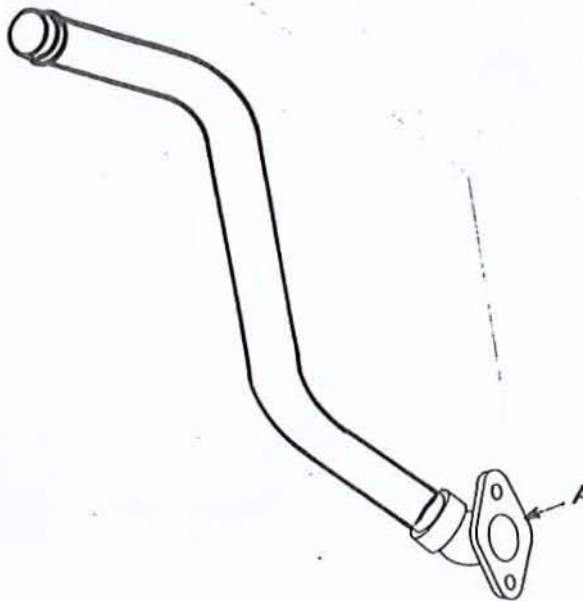
OIP ~~10865782~~ 12354398

REFERENCE: Figure 5-87 (5/702)

ITEM: ~~108~~ 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent and distorted tube	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed

4		SCRATCHES, NICKS, GONGES OR RAISED METAL ON CONTACT SURFACES	2.5	VISUAL	NONE ALLOWED
---	--	--	-----	--------	--------------



5		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER
6		FLATNESS OF CONTACT SURFACE	2.5	MEASURE	SURFACE MUST BE FLAT WITHIN 0.0040 INCH

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

711
5/773

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

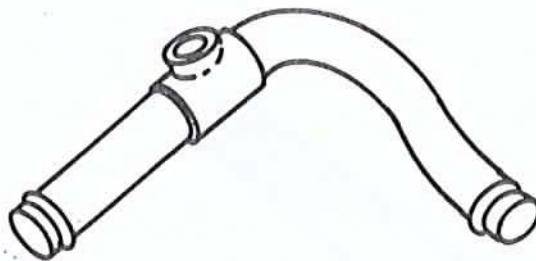
ITEM: TUBE ASSEMBLY, ^{METAL:} ~~CYLINDER~~
 cylinder head oil drain,
 left bank, damper end

OIP 10865180

REFERENCE: Figure 5-87 (5/702)

ITEM: ~~28~~ 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes, connector and welds	0.0	Visual	None allowed
2		Bent and distorted tube <i>OR TUBES</i>	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
5		Leaks	2.5	Pressure Test	Shall not leak when subjected to 25 pounds internal pressure when submerged in water



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

712
5/24

CHANGE B

OVERHAUL INSPECTION PROCEDURE

OMWR 9-2815-220

OIP 8761091

ITEM: BOLT, FLUID, PASSAGE:
cylinder head oil drain
tube connector

REFERENCE: Figure 5-87 (5/702)

ITEM: 1A //

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Nicks, gouges, and raised metal	2.5	Visual	None allowed
4		Bent shank	1.0	Measure	Squareness of shank to head contact face no greater than ± 2 degrees
5		Base metal showing through protective finish	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5/713
8/215

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10883083

ITEM: *ASSEMBLY, METAL, BRANCHED:*
 TUBE ~~W/OLD PAN DRAIN~~
 left bank, damper end

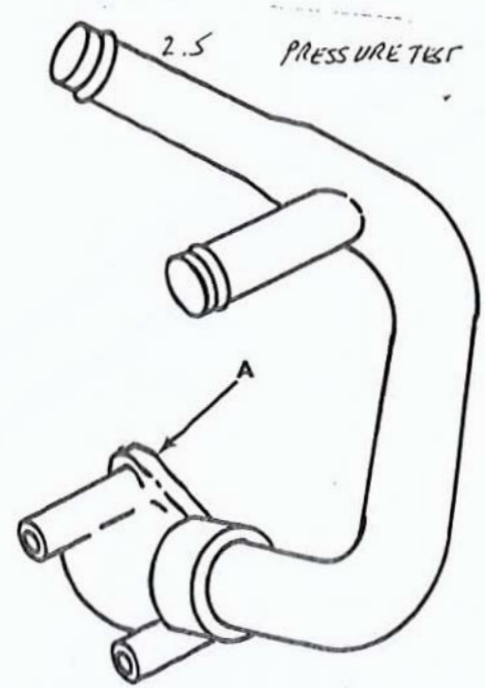
REFERENCE: Figure 5-87 (5/702)

ITEM: ~~26~~ 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, flange, and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or distorted tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		Damaged threads	2.5	Visual	None allowed
6	A	Flatness of contact surface	2.5	Measure	Surface must be flat within 0.0050 inch 4

7

LEAKS



SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

5/71A
5/716

OVERHAUL INSPECTION PROCEDURE

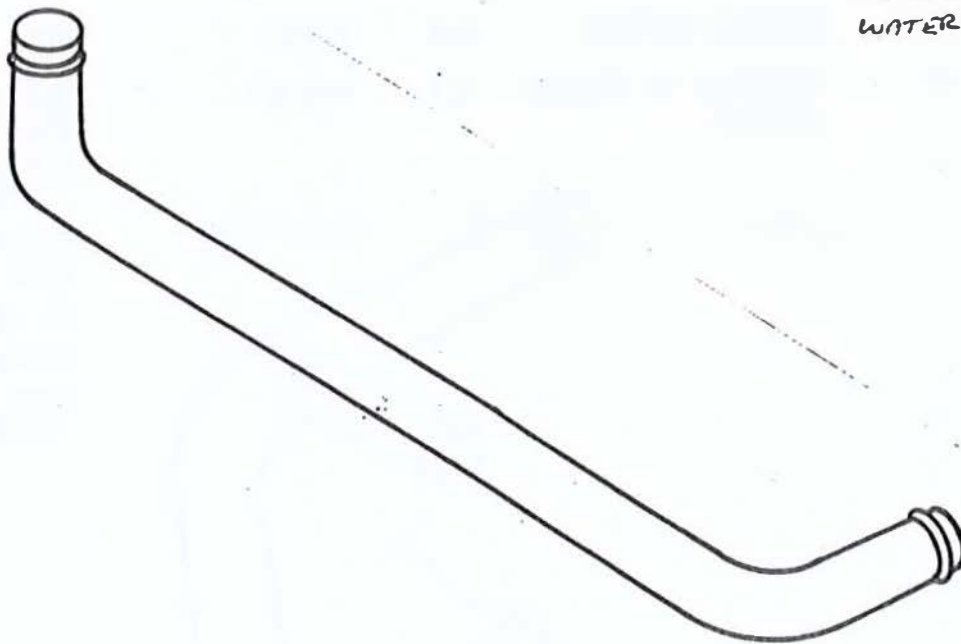
DMWR 9-2815-220

ITEM: ^{METALLIC:}
TUBE, BENT, ~~STEEL~~:
turbocharger oil drain,
intermediate, left bank

OIP 8761059
11682624
REFERENCE: Figure 5-87 (5/702)
ITEM: ~~2~~ 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent and distorted tube	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed

4
LEAKS
2.5
PRESSURE TEST
SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

5/715
SJT

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

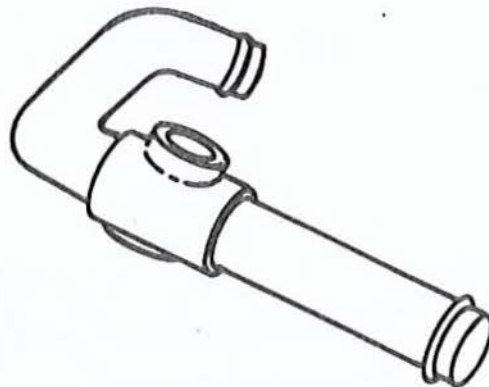
OIP 8682753

ITEM: ^{METAL} TUBE ASSEMBLY, ~~CYLINDER~~:
~~Cylinder head oil drain,~~
 left bank, flywheel end

REFERENCE: Figure 5-87 (5/702)

ITEM: ~~28~~ 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes, connector, and welds	0.0	Visual	None allowed
2		Bent and distorted tubes OR TUBES	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
5		Leaks	2.5	Pressure Test	Shall not leak when subjected to 25 pounds internal pressure when submerged in water



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/716
 5/218

Storage 3

11684172
~~10865022~~ - TUBE ASSEMBLY, METAL, BRANCHED

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

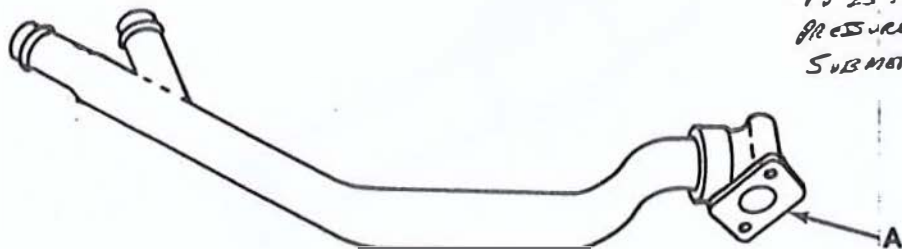
ITEM: TUBE ASSEMBLY, METAL, BRANCHED
 TUBE, CYLINDER HEAD OIL DRAIN:
 right bank, flywheel end
 CYLINDER HEAD OIL DRAIN,

OIP 10865022
 11684172

REFERENCE: Figure 5-87 (5/702)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, flange, and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or distorted tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		Damaged threads (11684172)	2.5	Visual	None allowed
6	A	Flatness of contact surface	2.5	Measure	Surface must be flat within 0.0010 inch
7		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/17 [Handwritten signature]

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: TUBE, BENT, ~~STEEL~~ ^{METALLIC:}
 turbosupercharger oil drain,
 intermediate, right bank

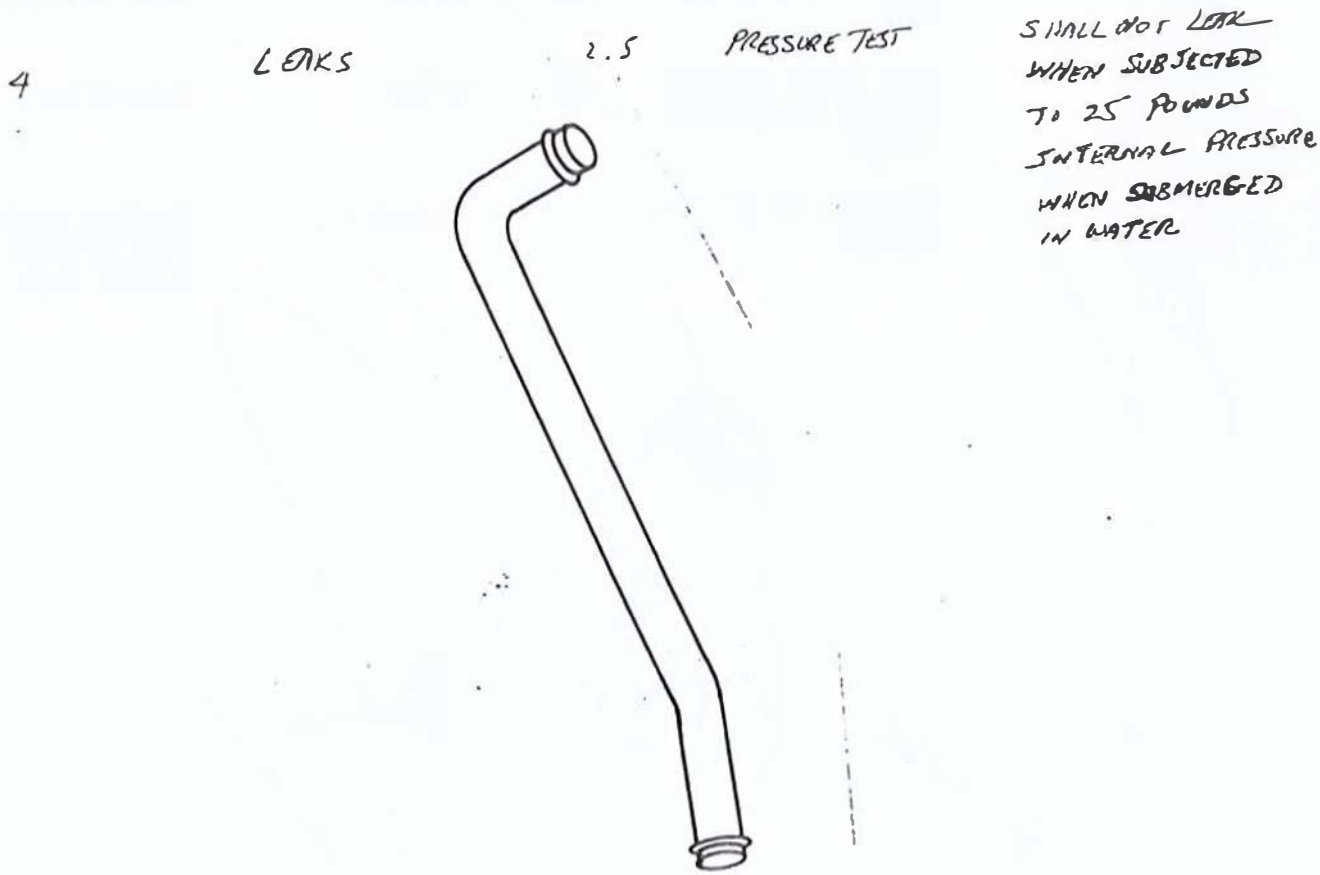
OIP 8761052

11689195

REFERENCE: Figure 5-87 (5/702)

ITEM: 20 1/2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted tube	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/718
 5/720

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761598

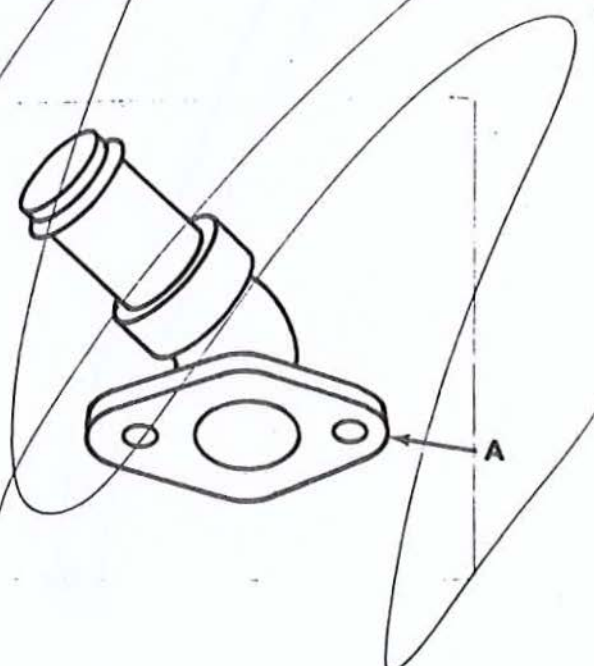
ITEM: TUBE, OIL PAN:
oil pan inlet drain
right bank, damper end

REFERENCE: Figure 5-87 (5/702)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, flange and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or distorted tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5	A	Flatness of contact surface	2.5	Measure	Surface must be flat within 0.0050 inch

BLANK



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

5/7/9
5/7TT

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

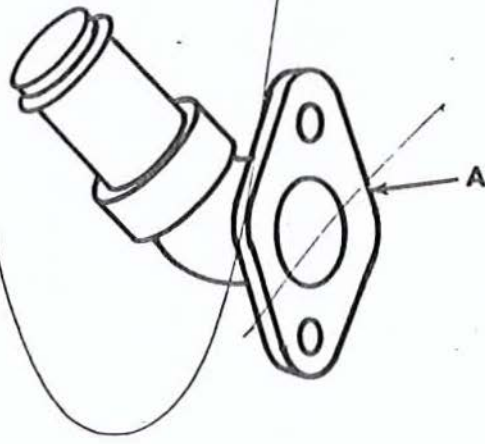
OIP 8761597

ITEM: ELBOW, FLANGE TO HOSE:
oil pan inlet drain,
left bank, damper end

REFERENCE: Figure 5-87 (5/702)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, flange, and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or distorted tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5	A	Flatness of contact surface	2.5	Measure	Surface must be flat within 0.0050 inch



BLANK

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/720
5/712

5-105. Repair and Assembly.

a. Repair. Refer to paragraph 5-5. (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

BLANK

FRAME

Section XXVI. OVERHAUL OF OIL FILLER AND INDICATOR TUBES

5-106. General. This section covers overhaul of the oil filler and indicator tubes (fig. 5-88) (5/724). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-107. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/ 1) for general cleaning instructions.

5-108. Inspection. Inspect the oil filler and indicator tubes according to instructions in paragraph 5-4 (5/ 2) and the OIP's included in this section. Wear limits, fits, and tolerances for the oil filler and indicator tubes are listed in table 5-39 (5/725). See paragraph 5-4, b and c (5/ 3) for explanation of wear limits, fits, and tolerances.

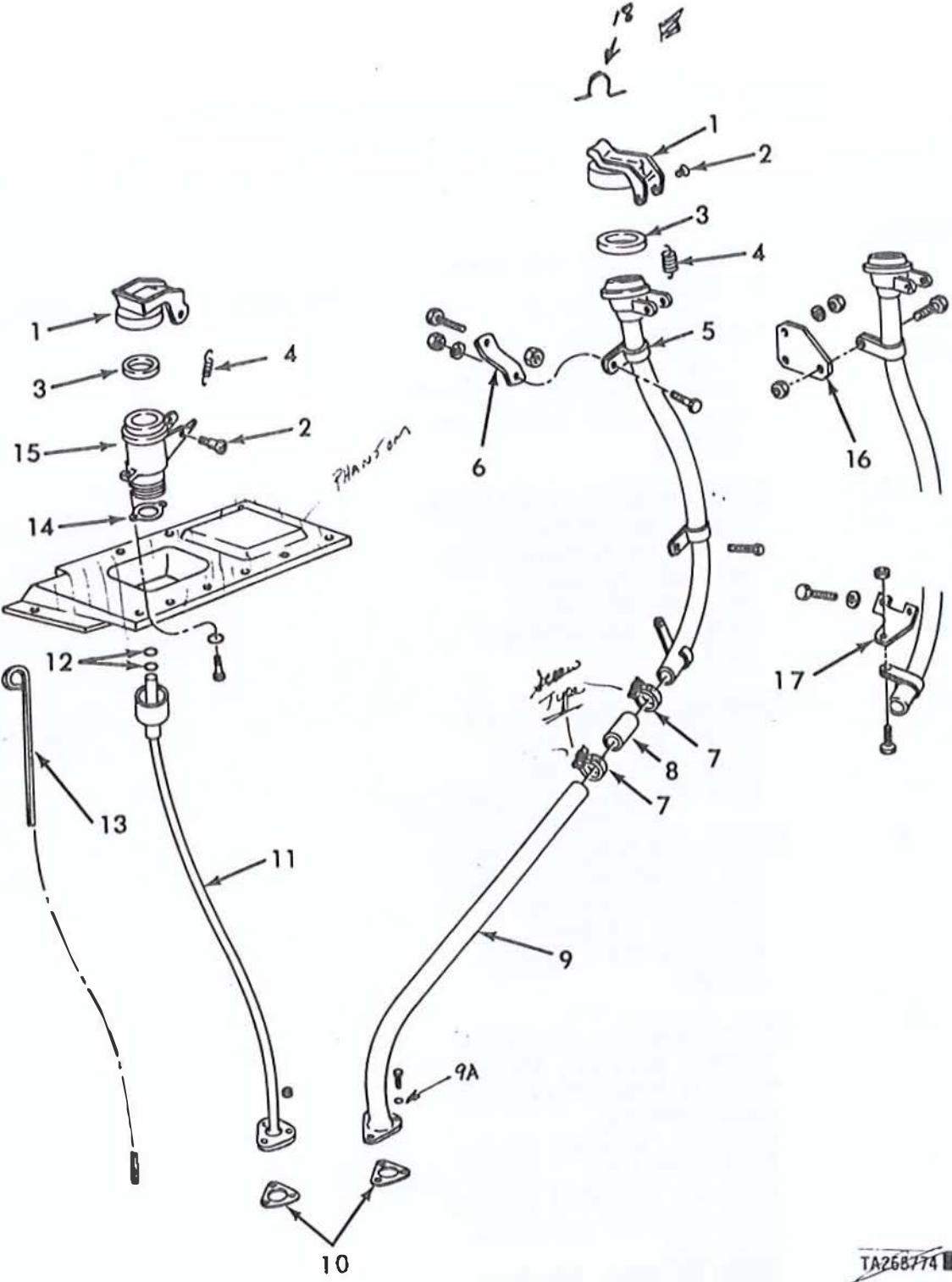


Figure 5-88. Oil filler and indicator tubes.

Table 5-39. Wear Limits, Fits, and Tolerances for
Oil Filler and Indicator Tubes

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-88 (5/724)	1	<i>FILLER OPENING:</i> CAP, oil filler and oil level indicator tube - part no. 8717157 8761109 Refer to OIP 8717157 8761109 (5/728)		
	2	SCREW, EXTERNALLY RELIEVED BODY: oil filler and oil level indicator cap assembly to tube - part no. 8717161 Refer to OIP 8717161 (5/729)		
	3	PACKING, PREFORMED: oil filler and oil level indicator tube cap - part no. 8717158 (5/728) 550556 (5/728) (63728)		Replace
	4	SPRING, HELICAL, EXTENSION: oil filler and oil level indicator tube cap - part no. 10935614 Refer to OIP 10935614 (5/730)		
	5	TUBE ASSEMBLY: oil filler upper - part no. 11641923 (Models AVDS-1790-2C and AVDS-1790-2D) part no. 11682647 (Model AVDS-1790-2DR) 1234692 part no. 12314292 (Models AVDS-1790-2CA and AVDS- 1790-2DA) Refer to OIP's 11641923, 11682647 and 12314292 (5/731) 12314592		

Table 5-39. Wear Limits, Fits, and Tolerances for
Oil Filler and Indicator Tubes - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-88 (5/724)	6	BRACKET, DOUBLE ANGLE: oil filler tube support - part no. 11641928 ✓ (Models AVOS-1790-2C and AVOS-1790-20) part no. 12314591 and 12314591 (Model AVDS- 1790-2CA and AVDS- 1790-2DA) Refer to OIP's 11641928 or 12314591. (5/732)		
	7	CLAMP, HOSE: upper filler tube to lower filler tube - part no. 8712023 MS35842-13 Refer to OIP 8712023 MS35842 (5/733) (5/383)		
	8	^{NONMETALLIC} HOSE, RUBBER: oil filler upper tube to lower tube - part no. 8357967-4		Replace
	9	TUBE ASSEMBLY, METAL: oil filler lower - part no. 11641927 Refer to OIP 11641927 (5/734)		
	10	GASKET: oil filler tube, and oil level indicator tube - part no. 8682523 (6/726) 585094 (8/734)		Replace
	11	^{FILLER NECK} TUBE, OIL LEVEL GAGE ROD, part no. 11684018 (Models AVDS-1790-2C and AVDS- 1790-2D) part no. 11684226 (Model AVDS-1790-2DR) Refer to OIP's 11684018 ✓ and 11684226, (5/735)		
	9A	PACKING WITH RETAINER, OIL FILLER TUBE - PART NO. 7045881 1279021-2 (1000)	5/726	REPLACE Change 3

Table 5-39. Wear Limits, Fits, and Tolerances for Oil Filler and Indicator Tubes - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-88 (5/724)	12	PACKING, PREFORMED: Oil level indicator tube - part no. MS9388-327 <i>M83248/1-327(81347)</i>		Replace
	13	GAGE ROD, LIQUID LEVEL: oil level indicator - part no. 11684006 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20 and AVDS-1790-2DA) part no. 12275750 (Model AVDS-1790-2DR) Refer to OIP 11684006 and 12275750. (5/736)		
	14	GASKET: oil level indicator neck to upper engine cover - part no. 10935621		Replace
	15	NECK: oil level indicator tube - part no. 10935619 Refer to OIP 10935619 (5/737)		
	16	BRACKET, MOUNTING; UPPER oil filler tube support (<i>UPPER</i>) part no. 11682609 (Model AVDS-1790-2DR) Refer to OIP 11682609 (5/738)		
	17	ANGLE BRACKET: BRACKET, MOUNTING; LOWER: oil filler tube support (<i>LOWER</i>) part no. 11682610 (Model AVDS-1790-2DR) Refer to OIP 11682610 (5/738.1)		

18
HANDLE, BAIL: OIL FILLER CAP - PART NO. 12314659 (MODELS AVDS-1790-2CA AND AVDS-1790-2DA) REFER TO OIP 12314659
Change 3 5/727 (5/738.1A)
(5/738.1A)

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP ~~8217757~~ 8761109

ITEM: CAP, FILLER OPENING:
oil filler and oil level indicator tube

REFERENCE: Figure 5-88 (5/724)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in cap or lever	0.0	Visual	None allowed
2		Torn, broken or hardened seals	0.0	Visual	None allowed
3		Worn, bent or extremely loose rivet	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SCREW, EXTERNALLY RELIEVED BODY:
oil filler and oil level indicator
cap assembly to tube

OIP 8717161

550559 (62978)

REFERENCE: Figure 5-88 (5/724)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges and raised metal on contact surfaces	2.5	Visual	None allowed
3	A	Shank diameter	1.0	Measure	Must be no less than 0.4970 inch
4		Damaged thread	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

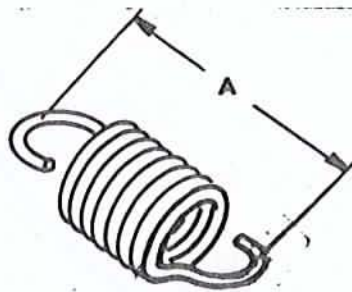
OIP 10935614

ITEM: SPRING, HELICAL, EXTENSION:
oil filler and oil level indicator
tube cap

REFERENCE: Figure 5-88 (5/724)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Dimension must be no greater than 2.500 inch
3		Load at 3.486 inch inside hooks	2.5	Measure	No less than 62.5 pounds
4		Spring rate	2.5	Measure	64.5 pounds per inch
5		Broken hook ends	2.5	Visual	None allowed
6		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

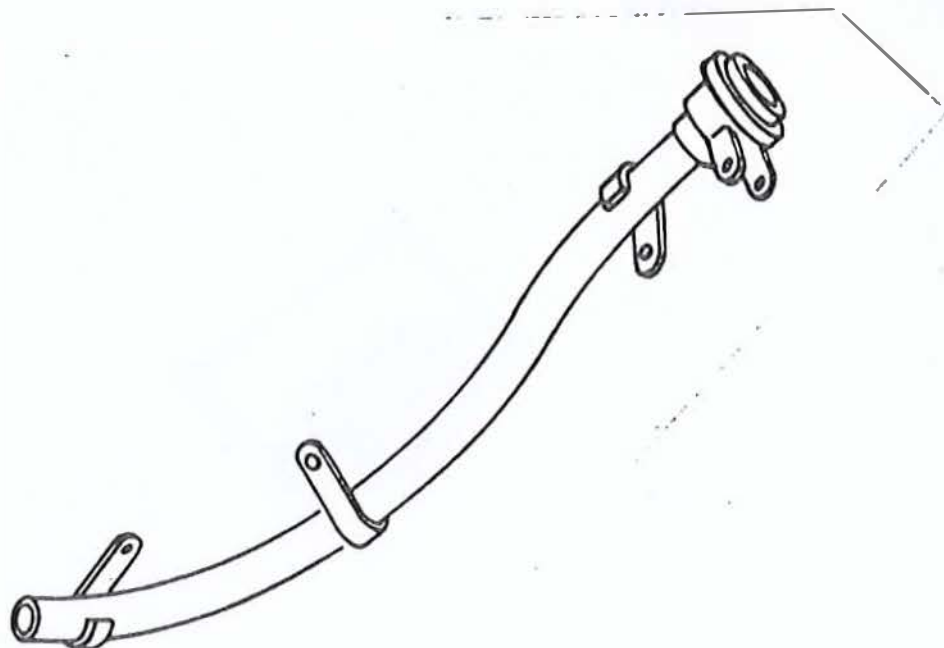
ITEM: TUBE ASSEMBLY:
oil filler upper

OIP 11641923, ¹²³⁴⁵⁹²
11682647 and ~~12214292~~

REFERENCE: Figure 5-88 (5/724)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, neck, clamps, bracket and welds	0.0	Visual	None allowed
2		Bent and dis- torted tube	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Base metal show- ing through pro- tective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

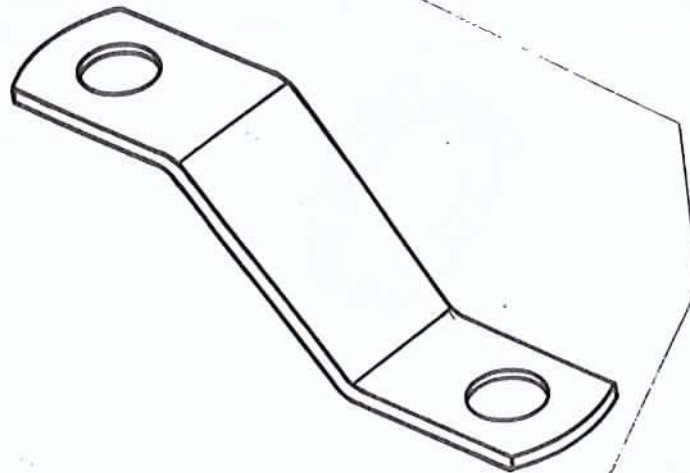
OIP 11641928,
and 12314591

ITEM: BRACKET, DOUBLE ANGLE:
oil filler tube support

REFERENCE: Figure 5-88(5/724)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8712323-3

ITEM: CLAMP, HOSE:
upper filler tube to lower filler tube

REFERENCE: Figure 5-88 (5/724)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Nicks, burs, or scratches	2.5	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

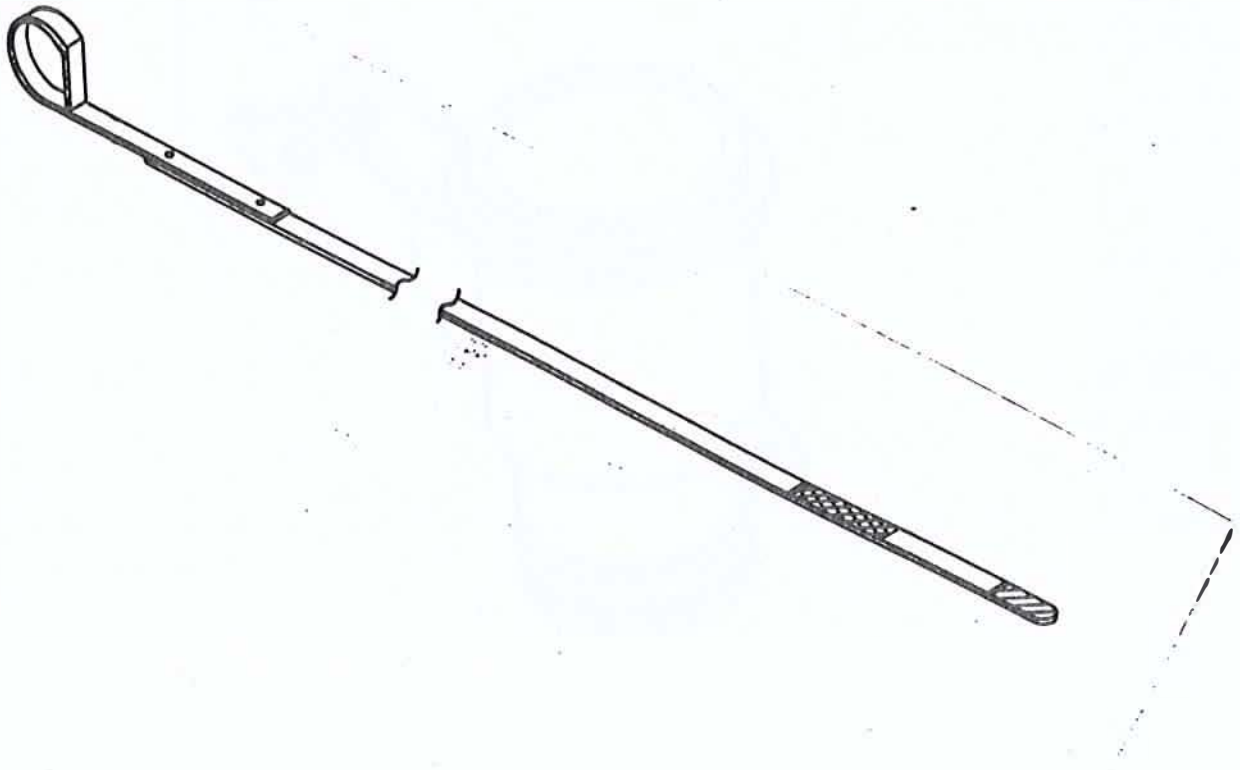
ITEM: GAGE, ~~700~~, LIQUID LEVEL:
oil level indicator

OIP 11684006 and
12275750

REFERENCE: Figure 5-88 (5/724)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Etched letters and lines missing	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		<i>WORN, BENT OR EXTREMELY LOOSE RIVETS</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

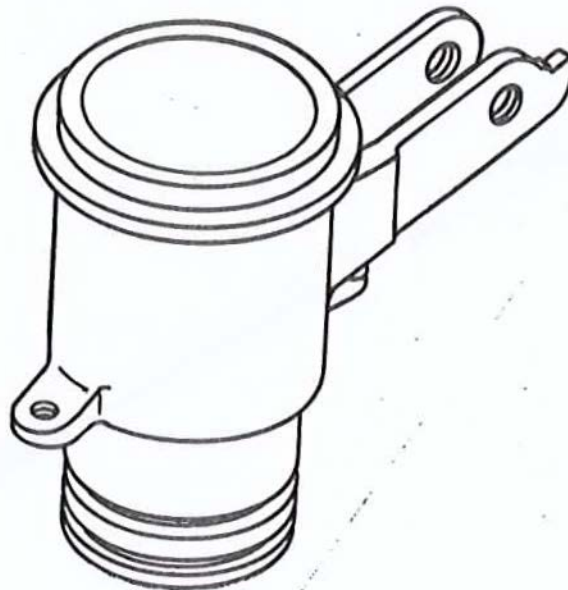
OIP 10935619

ITEM: NECK:
oil level indicator tube

REFERENCE: Figure 5-88 (5/724)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Gouges, burs, or raised metal on O-ring surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

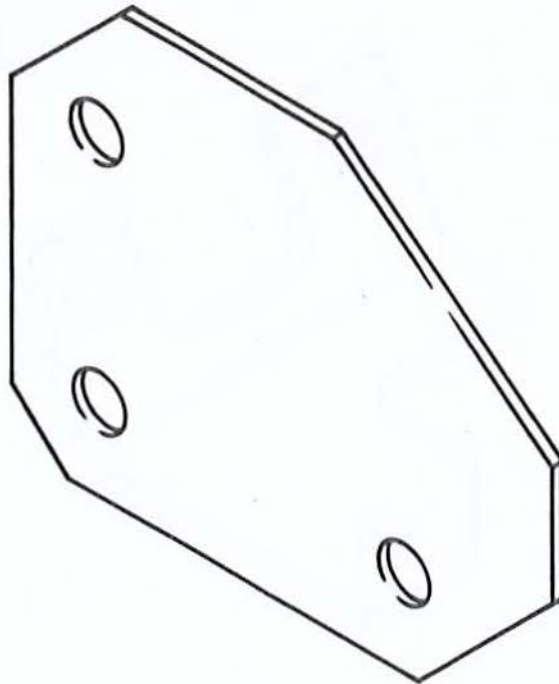
OIP 11682609

ITEM: BRACKET, MOUNTING: UPPER:
oil filler tube support (~~UPPER~~)
(Model AVDS-1790-2DR)

REFERENCE: Figure 5-88 (5/724)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		BRACKET BROKEN WELDS OR MISSING WASHERS	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

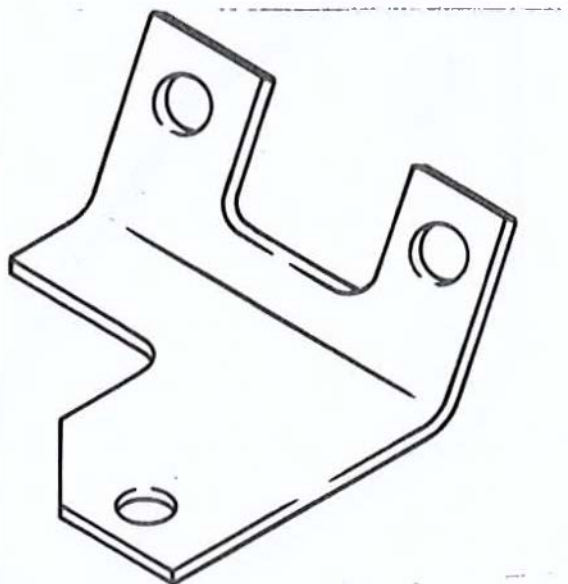
OIP 11682610

ITEM: ~~BRACKET, ANGLE, LOWER~~
ANGLE BRACKET:
 oil filler tube support (LOWER)
 (Model AVDS-1790-2DR)

REFERENCE: Figure 5-88 (5/724)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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Change 3
5/138.1
3

OVERHAUL INSPECTOR PROCEDURE:

DMIR 9-2815-220

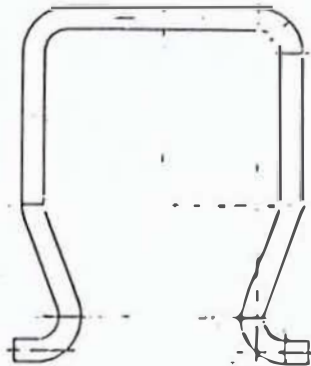
OIP 12314659

ITEM: HANDLE, BAIL:
OIL FILLER TUBE

REFERENCE: FIGURE 5-88 (5/72A)

ITEM: 18

NO.	REF. LTR	CHARACTERISTIC	%AQL	INSP METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BENT OR DISTORTED	5.0 2.5	VISUAL	NONE ALLOWED NONE ALLOWED



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DMWR 9-2815-220

5-109. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

(3) Test. A pressure test of the upper filler tube assembly and the gage rod neck assembly, with the cap assemblies installed and closed, is necessary to assure fording capability. Install the cap and neck assemblies to test equipment and pressurize to six (6) inches of water. The cap must not indicate any air leakage.

DMWR 9-2815-220

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FRAME

Section XXVII. OVERHAUL OF ENGINE GENERATOR AND STARTER SUPPORTS

5-110. General. This section covers overhaul of the engine generator and starter supports (fig. 5-89) (5/741). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions. ~~See identification information included with the repair instructions.~~

5-111. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-112. Inspection. Inspect the engine generator and starter supports according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the engine generator and starter supports are listed in table 5-40 (5/742). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

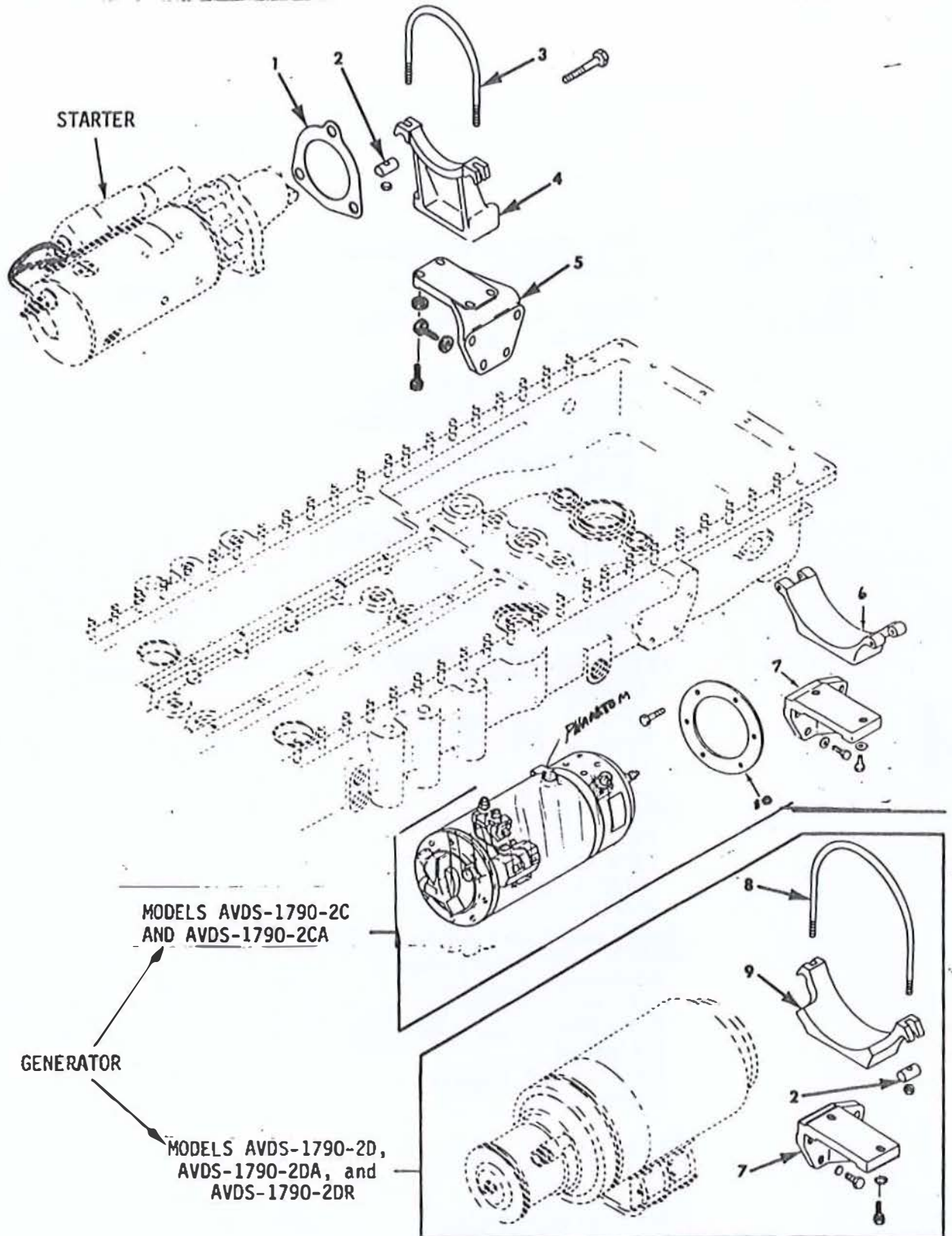


Figure 5-89. Engine generator and starter supports.

Table 5-40. Wear Limits, Fits, and Tolerances for Engine Generator and Starter Supports

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-89 (5/741)	1	GASKET: starter mounting - part no. 7084278		Replace
	/ 2	BAR, CLAMPING, GENERATOR: starter to starter cradle - part no. 10882765 Refer to OIP 10882765 (5/744)		
	/ 3	BOLT, U: starter to starter cradle - part no. 10883080 Refer to OIP 10883080 (5/745)		
	/ 4	BRACKET, ENGINE ACCESSORY: CRADLE ASSEMBLY, ENGINE STARTER - part no. 12275796 Refer to OIP 12275796 (5/746)	12275796	
	✓ 5	ANGLE BRACKET: BRACKET, ANGLE: starter support - part no. 10865001 Refer to OIP 10865001 (5/747)		
	/ 6	CLAMP, LOOP CRADLE ASSEMBLY, GENERATOR CRADLE: generator, engine accessory assembly - part no. 11684162 (Models AVDS-1790-2C and AVDS-1790- 2CA) 11684162 Refer to OIP 11684162 (5/748)		
	✓ 7	BRACKET, ENGINE ACCESSORY GENERATOR - part no. 11684057 Refer to OIP 11684057 (5/749)		

Table 5-40. Wear Limits, Fits, and Tolerances for Engine Generator and Starter Supports - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-89 (5/741)	✓ 8	BOLT, U: generator to cradle - part no. 10882750 (Models AVDS-1790-2D, AVDS-1790-2DA and AVDS-1790-2DR) 05750 Refer to OIP 10882750 (5/750)		
	✓ 9	BRACKET, MOUNTING: CRADLE, GENERATOR GENERATOR part no. 12275797 (Models AVDS-1790-2D, AVDS-1790-2DA and AVDS-1790-2DR) 05751 Refer to OIP 12275797 (5/751)		
10		GASKET: GENERATOR TO GENERATOR ADAPTER - PART NO. 8666738 (525722(02978))		REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10882765

ITEM: BAR, CLAMPING, GENERATOR:
starter to starter cradle

REFERENCE: Figure 5-89 (5/741)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	0.0	Visual	Replace
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

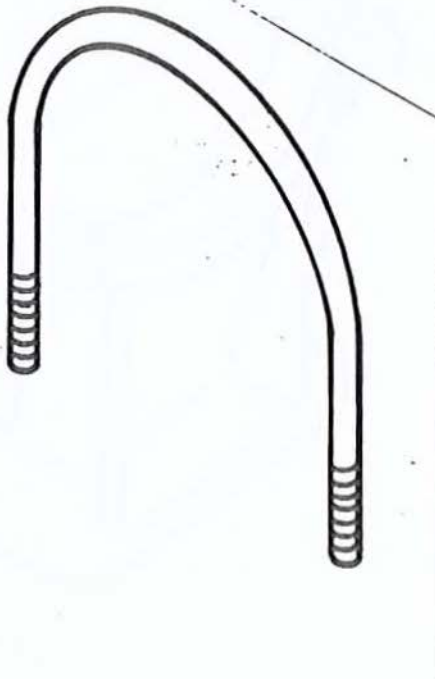
OIP 10883080

ITEM: BOLT, U:
starter to starter cradle

REFERENCE: Figure 5-89 (5/741)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	0.0	Visual	None allowed
3		Bent or deformed	2.5	Visual	None allowed
4		<i>BASE METAL SHOWING THROUGH PROTECTIVE FINISH</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE

2815-220
DMWR 9-2020-792

OIP 12275796

ITEM: ~~CRADLE ASSEMBLY~~ BRACKET, ENGINE ACCESSORY:
ENGINE STARTER
STARTER

REFERENCE: Figure 5-89 (5/741)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Loose or missing screw thread inserts	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

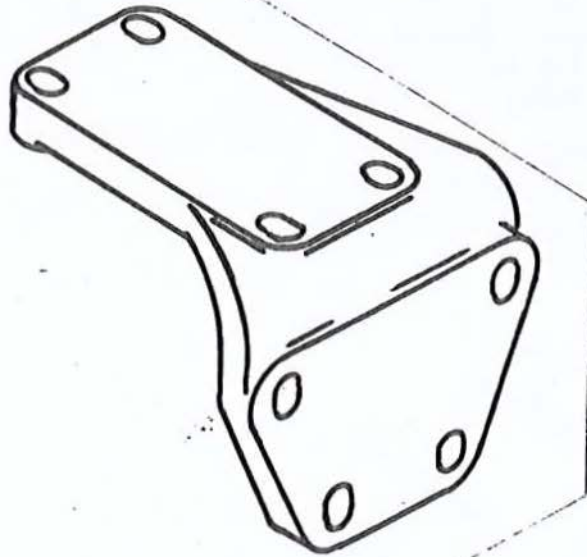
ITEM: ~~BRACKET ANGLE~~
ANGLE BRACKET:
starter support

OIP 10865001

REFERENCE: Figure 5-89 (5/741)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Warped or bent contact surfaces	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

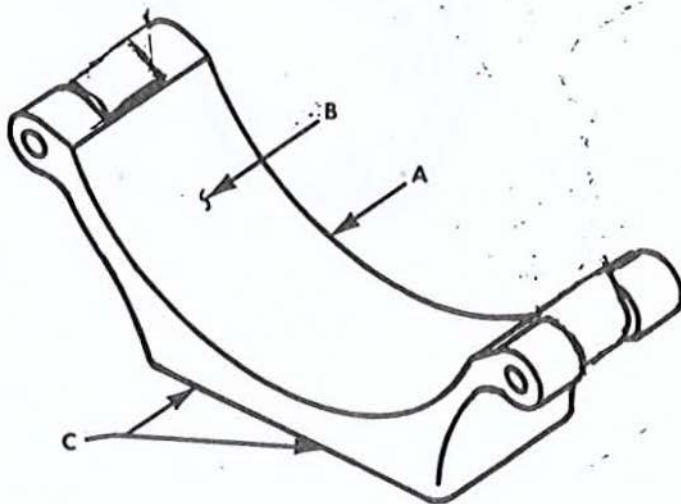
ITEM: ~~CRACKS, generator engine necessary assembly~~ **CRADLE ASSEMBLY, GENERATOR**

OIP 11684162

REFERENCE: Figure 5-89 (5/741)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1	A	Cracks	0.0	Dye penetrant	None allowed
2	B	Liner - smooth with no tears or distortion	2.5	Visual	None allowed
3	C	NO DAMAGED OR MISSING THREADS THREAD INSERTS FOR LOOSENESS AND DAMAGED OR MISSING THREADS	2.5	VISUAL	NONE ALLOWED
4	D	Trunion assembly, no twisted metal or separated spot welds	2.5	Visual	None allowed
5	E	No twisted or damaged threads on tee bolt assembly	2.5	Visual	None allowed
		No damaged threads or loose or missing screw thread inserts	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

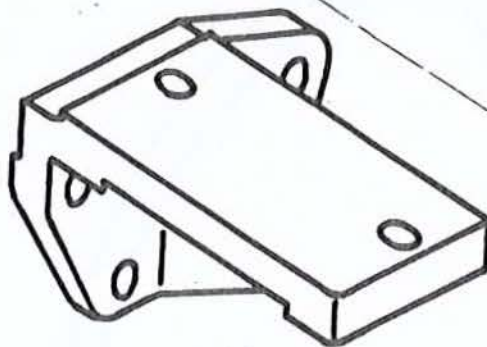
ITEM: BRACKET, ENGINE ACCESSORY GENERATOR

OIP 11684057

REFERENCE: Figure 5-89 (5/741)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Warped or bent contact surfaces	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

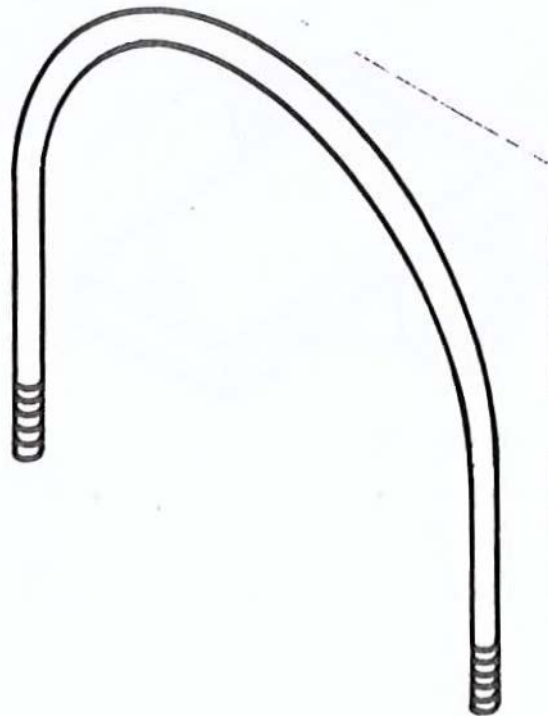
OIP 10882750

ITEM: BOLT, U:
generator to cradle

REFERENCE: Figure 5-89 (5/741)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	1.0	Visual	Replace
3		Bent or deformed	2.5	Visual	None allowed
4		<i>BASE METAL SHOWING THROUGH PROTECTIVE FINISH</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

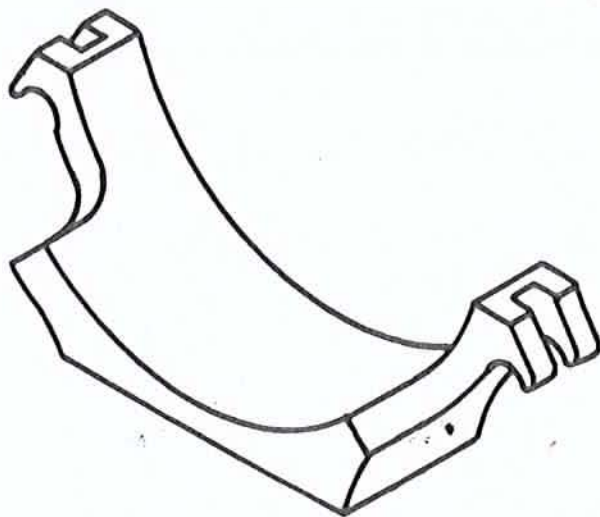
BRACKET, MOUNTING:
ITEM: ~~CRADLE GENERATOR:~~
 (Models ~~AVDS-1790-2D, AVDS-1790-2DA,~~
 and ~~AVDS-1790-2DR~~)
 GENERATOR

OIP 12275797

REFERENCE: Figure 5-89 (5/741)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Loose or missing screw thread inserts	0.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-113. Repair and Assembly.

a. Repair.

- (1) General repair instructions. Refer to paragraph 5-5 (5/5).
- (2) Replacement of inserts. Refer to paragraph 5-6, b (5/8), when replacing damaged screw thread inserts.

Table 5-41. Deleted.

Figure 5-90. Deleted.

5-113. (Cont)

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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FRAME

Section XXVIII. OVERHAUL OF FUEL BACKFLOW VALVE AND FUEL FILTERS

5-114. General. This section covers overhaul of the fuel backflow valve and fuel filters (figs. 5-91 through 5-95.1) (5/756) through (5/760.1). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-115. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-116. Inspection.

a. General. Inspect the fuel backflow valve and fuel filters according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the fuel backflow valve and fuel filters are listed in table 5-42 (5/761). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

✓ b. Fuel Backflow Valve. Inspect the fuel backflow valve using the procedures outlined below.

- ✓ (1) Fill fuel backflow valve with test fluid, MIL-F-7024A, Type II, and apply a pressure of 1/2 psi to the port marked FREE FLOW (fuel inlet from primary fuel filter). The backflow valve must open at this pressure. Valve operation can be determined when fluid flows from the fuel pump outlet port (fig. 5-95) (5/760).
- ✓ (2) Apply a pressure of 85 to 95 psi to the heater pump inlet port. The relief valve must bypass fluid at this pressure.
- ✓ (3) Plug the fuel pump outlet port and the heater pump outlet port. Then apply a pressure of 85 to 95 psi at the heater pump inlet port. There should be no fuel leakage from the port marked FREE FLOW.
- ✓ (4) If the valve leaks or fails to pass either test, discard and secure new valve.

NOTE
 BACKFLOW VALVE AND FUEL PUMP
 POSITIONED INCORRECTLY FOR
 ENGINE MODEL (AVDS-1790-2DR)

DMWR 9-2815-22a

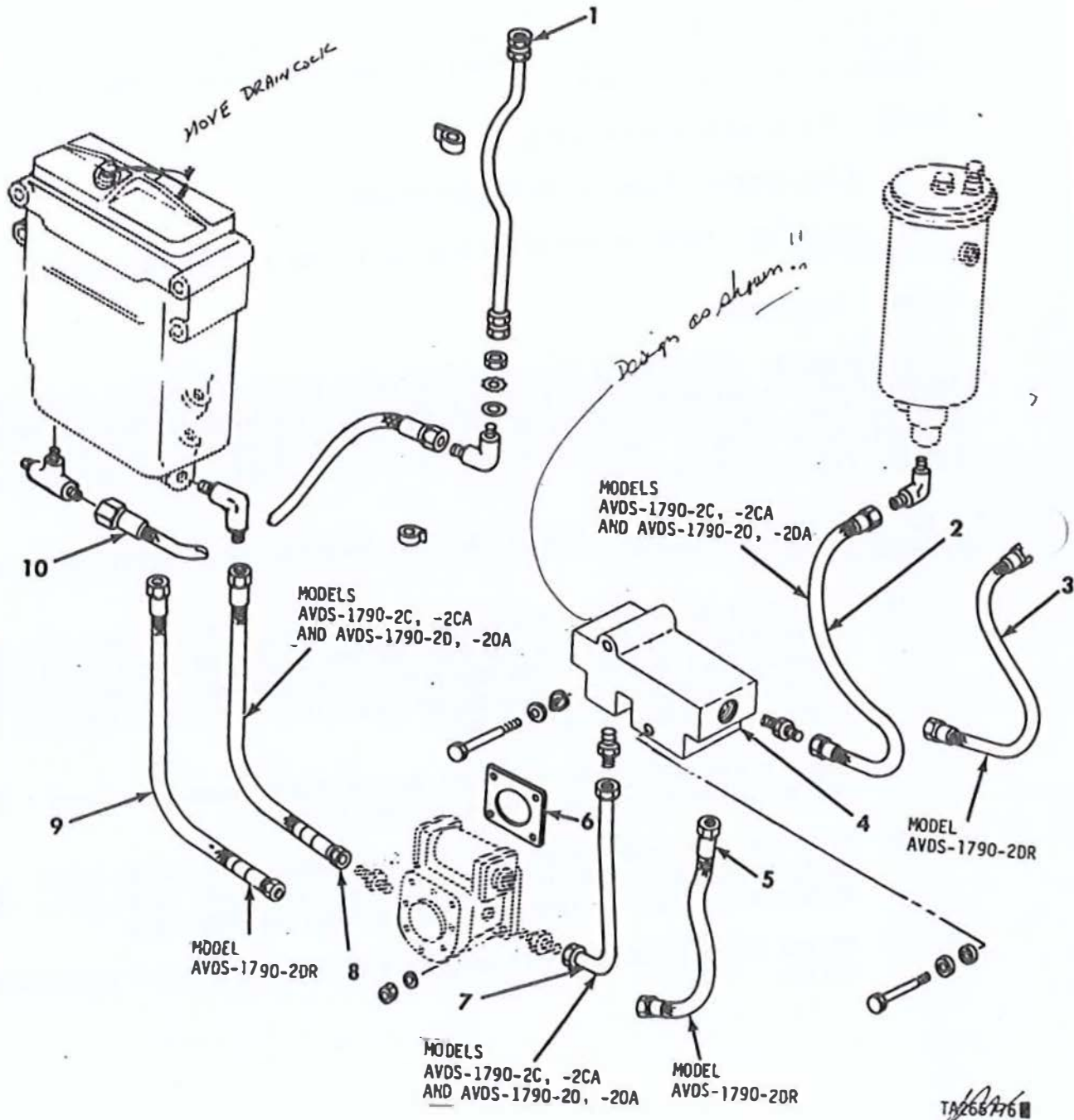
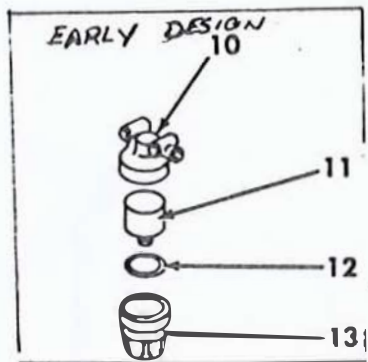
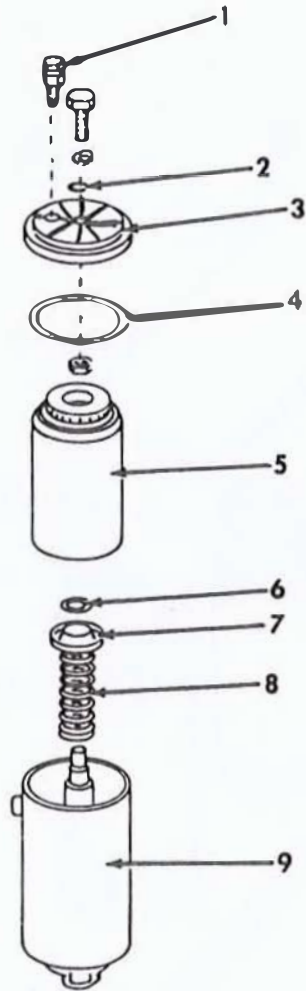


Figure 5-91. Fuel backflow valve, tubes and hoses.



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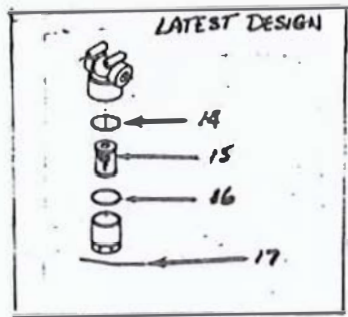


Figure 5-92. Primary fuel filter and manifold heater fuel filter assemblies.

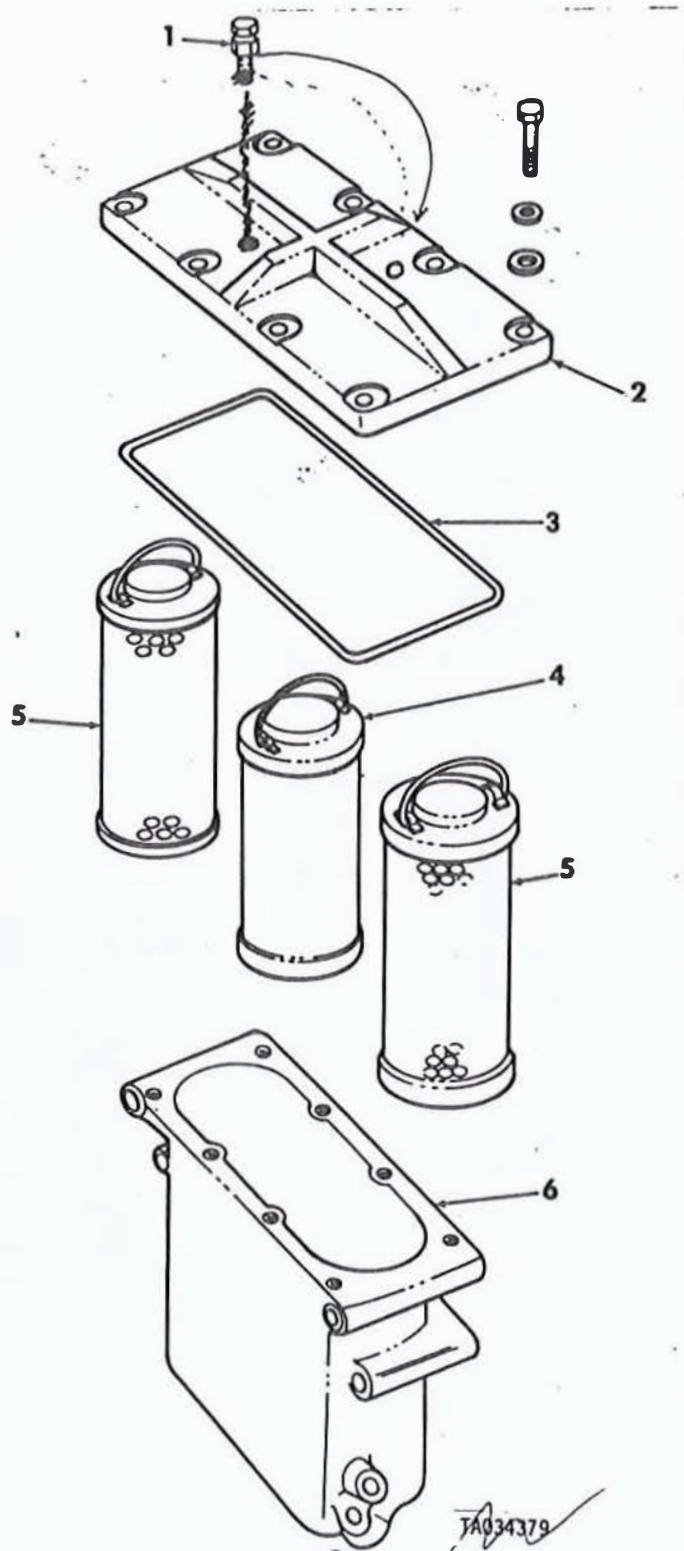


Figure 5-93. Water separator fuel filter.

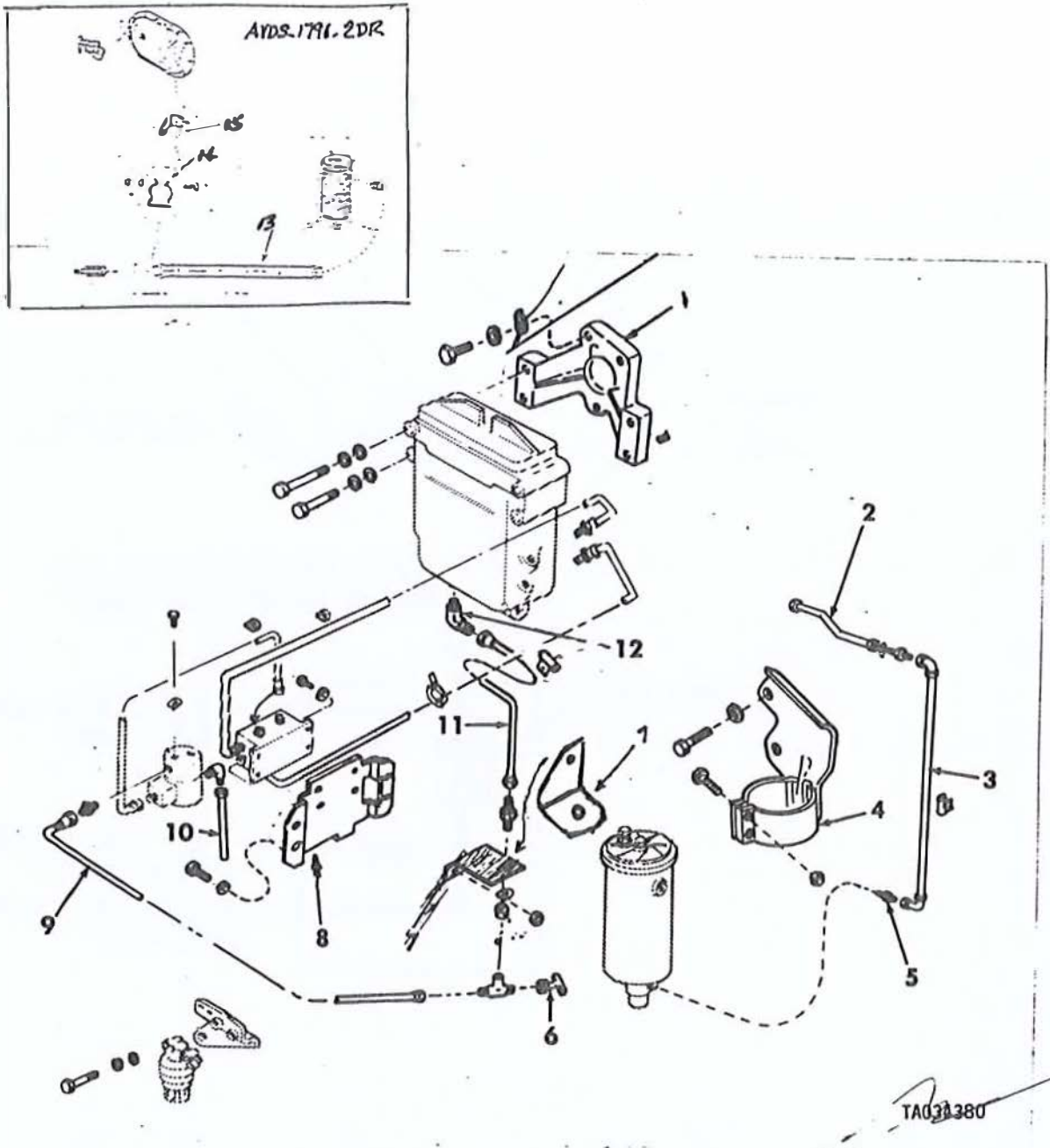
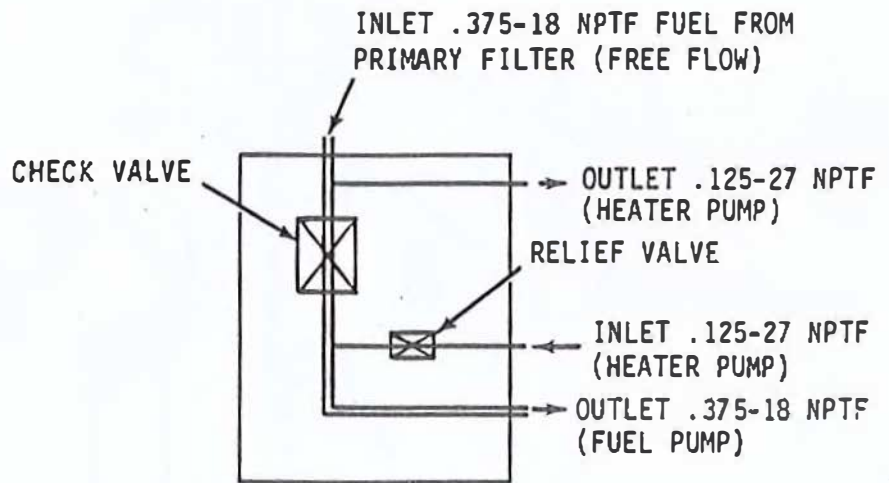
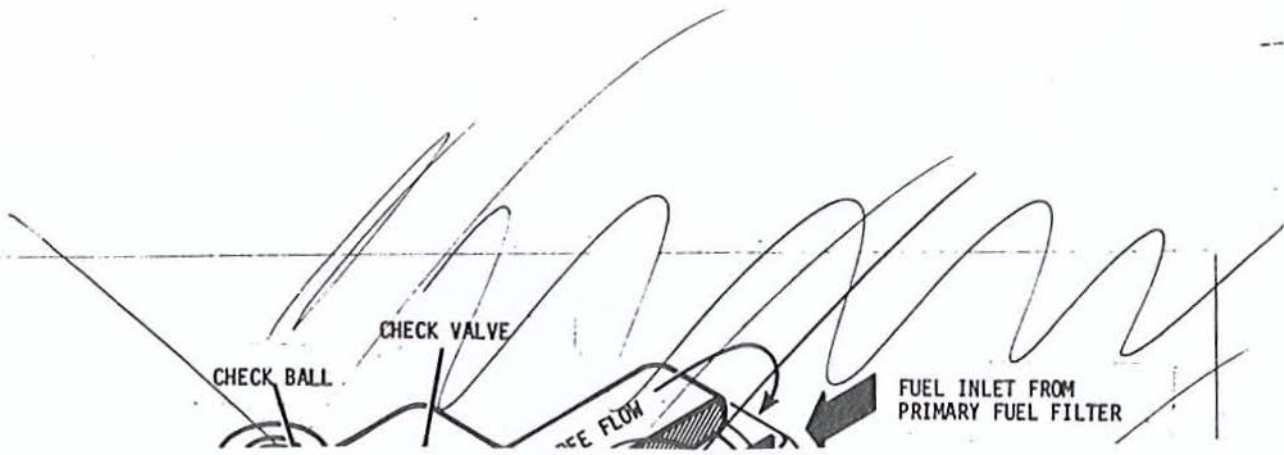


Figure 5-94. Fuel filters and associated parts.

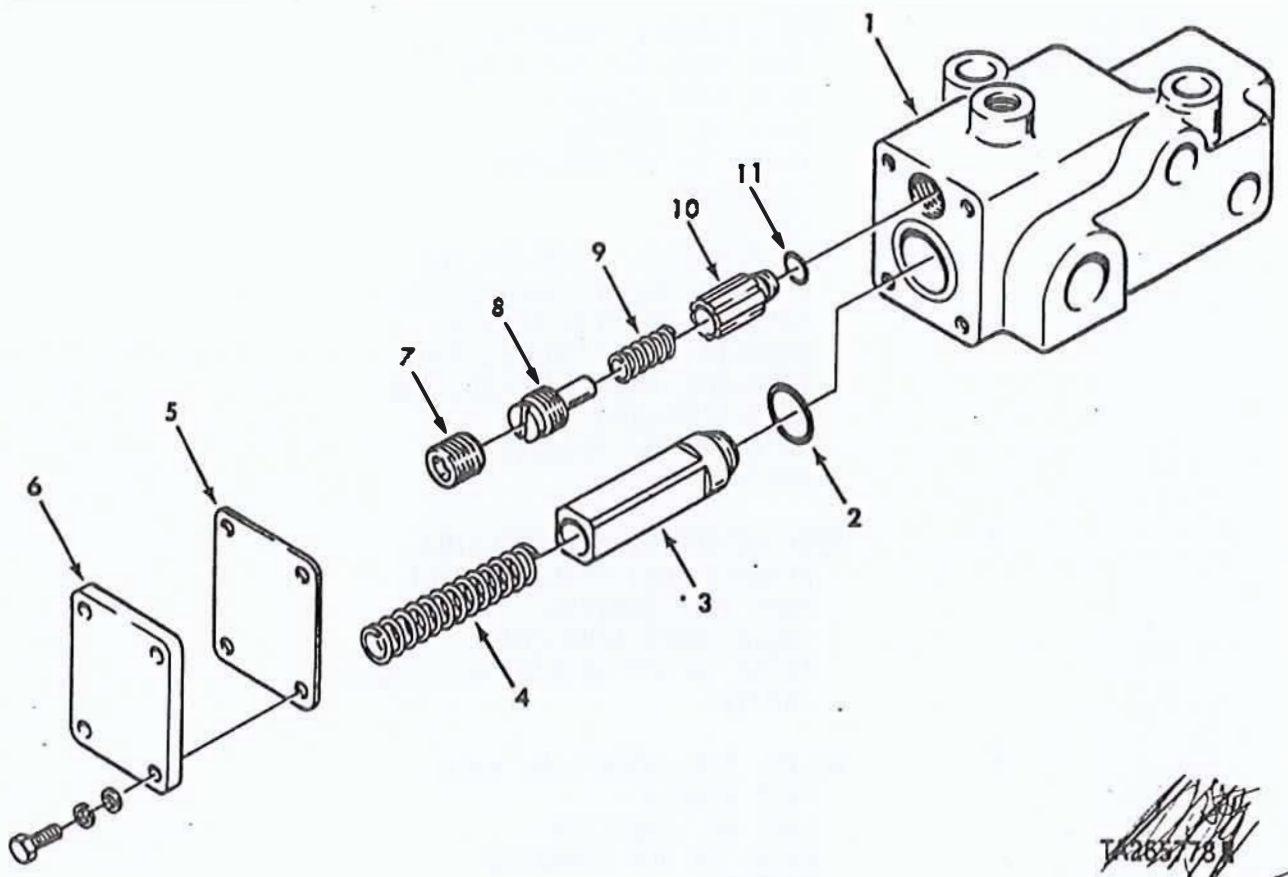


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Figure 5-95. Fuel backflow valve flow diagram.

DMWR 9-2815-220

APPLICABLE ONLY
FOR
~~REMOTE CONTROLS~~
REMOTE CONTROLS
PART NO. 9000



~~1285778~~

Figure 5-95.1. Fuel backflow valve.

Change 3

5/760.1

(5/760.2 Blank)

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-91 (5/756)	1	HOSE HOSE ASSEMBLY, NONMETALLIC: fuel injector inlet to bulk head elbow - part no. 8761510 Refer to OIP 8761510 (5/786.2) (5/768.2)		
	2	HOSE ASSEMBLY, NONMETALLIC: primary fuel filter outlet - part no. MS28741-8-0124 (Models AVDS-1790-2C, AVDS- 1790-2CA, AVDS-1790-20, and AVDS-1790-2DA) Refer to OIP MS28741 (5/769)		
	3	HOSE ASSEMBLY, NONMETALLIC: primary fuel filter outlet - part no. 11684294 (Model AVDS-1790-2DR) Refer to OIP MS28741 AND 11684294 (5/769)		
	4	VALVE, FUEL BACKFLOW: main fuel supply - part no. 10882764 Refer to OIP 10882764 (5/770)		
	5	HOSE ASEMBLY, NONMETALLIC: fuel backflow valve outlet to fuel pump inlet part no. MS28741-8-0240 (Model AVDS-1790-2DR) Refer to OIP MS28741 (5/769)		

Table 5-42. Wear Limits, Fits, and Tolerances for
Fuel Backflow Valve and Fuel Filters - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-91 (5/756)	6	GASKET: fuel pump mounting part no. 7415354 (AN4059-1)		Replace
	7	TUBE ASSEMBLY, METAL: fuel backflow valve outlet to fuel pump inlet - part no. 10882768 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, and AVDS-1790-2DA) Refer to OIP 10882768 (5/771)		
	8	HOSE ASEMBLY, NONMETALLIC: fuel pump outlet to water separator fuel filter inlet- part no. MS28741-8-0134 (Models AVDS-1790-2C, AVDS- 1790-2CA, AVDS-1790-2D and AVDS-1790-20A) Refer to OIP MS28741 (5/769)		
	9	HOSE ASSEMBLY, NONMETALLIC: fuel pump outlet to water separator fuel filter inlet - part no. MS28741-8-0330 (Model AVDS-1790-2DR) Refer to OIP MS28741 (5/769)		
	10	HOSE ASEMBLY, NONMETALLIC: Water separator fuel filter outlet elbow ^{TEE} to bulkhead elbow - part no. MS28741-8-0300 Refer to OIP MS28741 (5/769)		

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-92 (5/757)	1	Check, Drain: <i>PLUG, VENT:</i> VALVE, BLEEDER, FUEL FILTER primary fuel filter - part no. 12254231 Refer to OIP 12254231 (5/772)		
	2	GASKET: primary fuel filter head to filter body - part no. 11641847 <i>11641857</i>		Replace
	3	HEAD, FUEL FILTER: primary - part no. 11641745 Refer to OIP 11641745 (5/773)		
	4	GAS ET: primary fuel filter head to filter body - part no. 11641744		Replace
	5	FILTER ELEMENT, FLUID: ELEMENT: primary fuel filter - part no. 11668618 <i>CF3ED (90005)</i>		Replace
	6	PACKING, PREFORMED: primary fuel filter spring retainer - part no. MS29513-116		Replace
	7	FILTER ELEMENT: RETAINER ASSEMBLY: DOCK FILTER: primary - part no. 11641868 Refer to OIP 11641868 (5/774)		
	8	SPRING, HELICAL, COMPRESSION: primary fuel filter ele- ment - part no. 11641867 Refer to OIP 11641867 (5/775)		

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-92 (5/757)	9	BODY ASSEMBLY, FUEL FILTER: primary - part no. 11641746 Refer to OIP 11641746 (5/776)		
	10	HEAD, FILTER: flame heater fuel - part no. 7416621 Refer to OIP 7416621 (5/777)		
	11	FILTER ELEMENT, FLUID: PR8W PR8W flame heater fuel with spring - 7413737 part no. 7413737 569807-02 (90005)		Replace
	12	PACKING, PREFORMED: head to bowl, flame heater fuel filter assembly - part no. MS29513-125		Replace
	13	BOWL, SEDIMENT: flame heater fuel filter assembly - part no. 7413736 Refer to OIP 7413736 (5/778)		
5-93 (5/758)	1	WATER BLEEDER VALVE WATER BLEEDER VALVE water separator - part no. 12254231 Refer to OIP 12254231 (5/772)		
	2	COVER: water separator filter - part no. 28M94(53964) Refer to OIP 28M94(53964) (5/779)		

Table 5-42: Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-93 (5/758)	3	PACKING, PREFORMED: water separator filter cover to body - part no. 11610232		Replace
	4	FILTER, FINE <i>ELEMENT, FLUID:</i> FINE water separator (fine) - part no. 11602061 <i>A3002A2 (53964)</i>		Replace
	5	ELEMENT, FILTER: water separator - part no. 11602062 <i>A-3002-1 (08181)</i>		Replace
	6	BODY, FUEL FILTER: water separator - part no. 28M68 (<i>53964</i>) Refer to OIP 28M68 (<i>53964</i>) (5/780)		
5-94 (5/759)	1	<i>ASSEMBLY</i> BRACKET, FUEL FILTER: water separator - part no. 10951434 Refer to OIP 10951434 (5/781)		
	2	HOSE ASSEMBLY, NONMETALLIC: primary fuel filter bleed hose bulkhead union to cylinder no. 1 injector nozzle - part no. MS8005E100C Refer to OIP MS8005 (5/666)		
	3	HOSE ASSEMBLY, NONMETALLIC: primary fuel filter con- stant bleed - part no. MS8005E230F135 Refer to OIP MS8005 (5/666)		

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-94 (5-759)	4	BRACKET, FILTER, FLUID: primary - part no. 11684010 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, and AVDS-1790-2DA) part no. 11684295 (Model AVDS-1790-2DR) Refer to OIP's 11684010 and 11684295 (5/782)		
	5	FILTER, FLUID, PRESSURE: primary fuel filter constant bleed - part no. 11684261 Refer to OIP 11684261 (5/783)		
	6	COCK, DRAIN: water separa- tor drain at bulkhead fitting - part no. MS35782-1 Refer to OIP MS35782-1 (5/784)		
	7	BRACKET, ANGLE: water separator drain valve <i>DRAIN COCK</i> part no. 11684126 Refer to OIP 11684126 (5/785)		
	8	PLATE, MOUNTING: water separator control - part no. 11684019 Refer to OIP 11684019 (5/786)		
	9	HOSE ASSEMBLY, NONMETALLIC: water separator bulkhead - part no. MS8005E140A Refer to OIP MS8005 (5/666)		

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-94	10	TUBE ASSEMBLY, METAL: water separator drain control assembly outlet - part no. 11684022 Refer to OIP 11684022 (5/787)		
	11	HOSE ASSEMBLY, NONMETALLIC: water separator outlet to bulkhead connection - part no. MS8005E160E270 Refer to OIP MS8005 (5/666) (5/666)		
	12	FILTER, FUEL-WATER SEPARATOR: drain outlet - part no. 11684260 Refer to OIP 11684260 (5/788)		
5-95.1 (5/760.1)	1	VALVE BODY: fuel backflow - part no. 12254393 (REWORK DWG) Refer to OIP 12254393 (5/788.1)		
		Inside diameter of control valve bore	<u>0.3360-0.3380</u>	0.3385
		Depth of control valve straight bore	1.3100-1.3300	1.3305
		Inside diameter of sleeve valve bore	0.9370-0.9380	0.9385
		Depth of sleeve valve straight bore	1.8100-1.8300	1.8305
2	PACKING, PREFORMED: sleeve valve - part no. AN123964 M93461/1-111		Replace	

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5/95.1 (5/760.1)	3	VALVE, SLEEVE: fuel backflow - part no. 12254391 Refer to OIP 12254391 (5/788.3)		
		Major outside diameter of sleeve bore	0.9320-0.9330	0.9315
		Length to gage line	1.6850-1.6950	1.6845
		Diameter at gage line	0.7500	0.7500
		Fit of sleeve valve in valve body	0.0040L-0.0060L	0.0065L
	4	SPRING: sleeve valve - part no. 12254392 Refer to OIP 12254392 (5/788.4)		
		Free length	2.1150-2.1250	2.1150-2.1250
		Load at 1.1250 inches	0.3800-0.4200 lbs.	0.3800 lbs.
		Maximum solid length	0.2500	0.2500
	5	GASKET: fuel backflow cover - part no. 12254395		Replace
	6	COVER: fuel backflow valve - Refer to OIP 12254393-1 (5/788.5)		
	7	PLUG: Control valve adjusting screw - part no. 12254393-2 Refer to OIP 12254393-2 (5/788.6)		

Table 5-42. Wear Limits, Fits, and Tolerances for Fuel Backflow Valve and Fuel Filters - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5/95.1 (5/760.1)	8	SCREW, ADJUSTING: control valve - part no. 12254393-3 Refer to OIP 12254393-3 (5/788.7)		
	9	SPRING: control valve - part no. 12254390 Refer to OIP 12254390 (5/788.8)		
		Free length	0.6650-0.6750	0.6650-0.6750
		Load at 0.500 inch	6.1500-6.8500 lbs.	6.1500-6.8500
		Maximum solid length	0.4200	0.4200
	10	VALVE, CONTROL fuel backflow - part no. 12254389 Refer to OIP 12254389 (5/788.9)		
		Outside diameter of control valve	0.3300-0.3320	0.3300
		Length to gage line	0.4440-0.4480	0.4435
		Diameter at gage line	0.3000	0.3000
		Fit of control valve in valve body	0.0040L-0.0080L	0.0085L
	11	PACKING, PREFORMED: control valve - part no. AN-123956 M83461/1-006(81349)		Replace

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

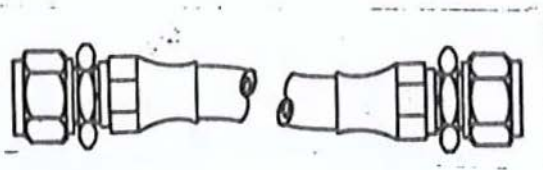
OIP 8761510

ITEM: ^{HSE} ~~TUBE~~ ASSEMBLY, NONMETALLIC:
fuel injector inlet to bulkhead
elbow

REFERENCE: Figure 5-91 (5/756)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 2000 100 psi	None allowed
2		Hose for frayed collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

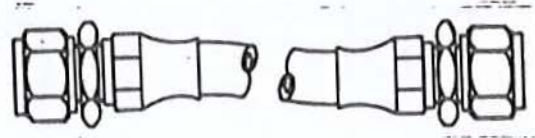
DMWR 9-2815-220

ITEM: HOSE ASSEMBLY, NONMETALLIC

OIP MS28741
 11684294
REFERENCE: Figure 5-91 (5/756)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 1500 100 psi	None allowed
2		Hose for frayed, collapsed, or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

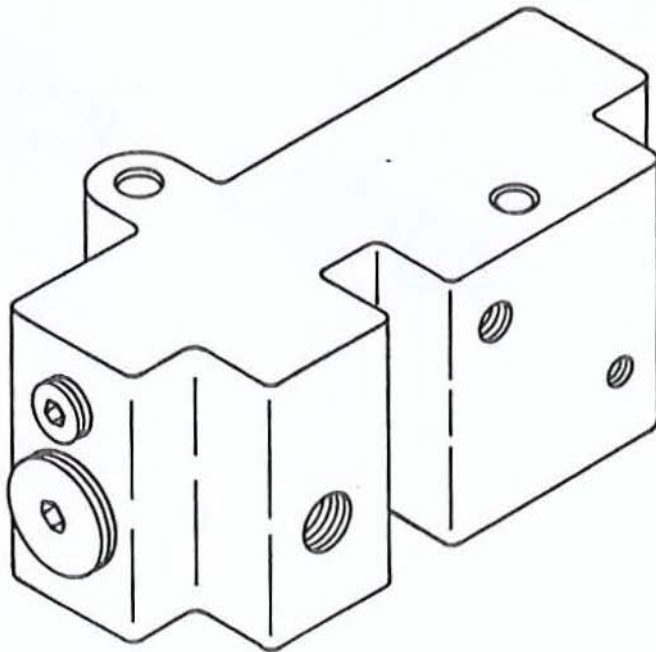
OIP 10882764

REFERENCE: Figure 5-91 (5/756)

ITEM: VALVE, FUEL BACKFLOW:
main fuel supply

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Threads for damage	2.5	Visual	None allowed
3		Gaskets for leaks	2.5	Visual	None allowed
3		Functional test backflow valve cracking pressure 1/2 psi (Max)	1.0	Refer to paragraph 5-116,b (5/755)	Free flow
4		Functional test relief valve cracking pressure 100 psi 85 to 95 psi	1.0	Refer to paragraph 5-116,b (5/755)	No leakage



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

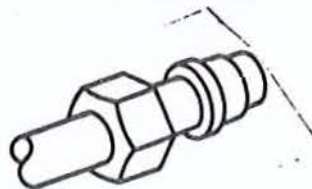
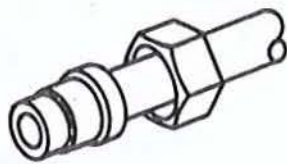
OIP 10882768

ITEM: TUBE ASSEMBLY, METAL:
fuel back flow check valve
outlet to fuel pump inlet
(Models AVDS-1790-2C and AVDS-1790-2D)

REFERENCE: Figure 5-91 (7/756)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or deformed tube	0.0	Visual	None allowed
2		Nuts for cracks and damaged threads	0.0	Visual	None allowed
3		Sleeve for cracks, burs or mutilated sealing surfaces	0.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

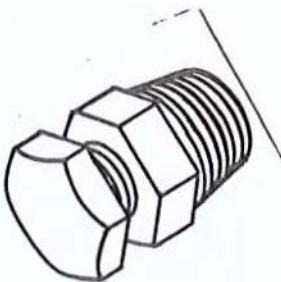
OIP 12254231

ITEM: ~~VALVE BLEEDER FUEL FILTER~~ *PLUG, VENT*

REFERENCE: Figure 5-92 (5/757)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged hex	2.5	Visual	None allowed
3		Damaged thread	2.5	Visual	None allowed
4		<i>LEAKS</i>	<i>2.5</i>	<i>PRESSURE TEST</i>	<i>SHALL NOT LEAK WHEN SUBJECTED TO 150 POUNDS INTERNAL PRESSURE WHEN SUBMERGED IN WATER</i>



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

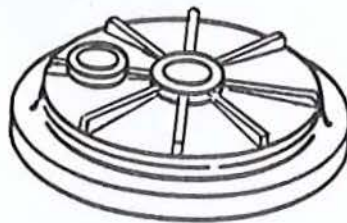
OIP 11641745
 C30086 (53964)

ITEM: HEAD, FUEL FILTER:
 primary

REFERENCE: Figure 5-92 (5/757)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye Penetrant	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

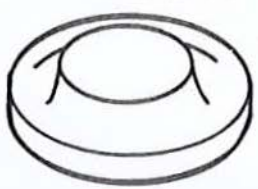
DMWR 9-2815-220

ITEM: RETAINER ^{FILTER ELEMENT:} ASSEMBLY, FUEL FILTER:
primary

OIP 11641868
~~8613052 (53964)~~
REFERENCE: Figure 5-92 (5/757)

ITEM: Item 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

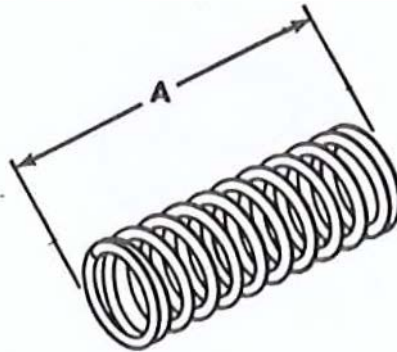
OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: SPRING, HELICAL, COMPRESSION:
primary fuel filter element

OIP 11641867
A609019 (53964)
REFERENCE: Figure 5-92 (5/757)
ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Must be no greater than 1.90 inches and no less than 1.88 inches
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

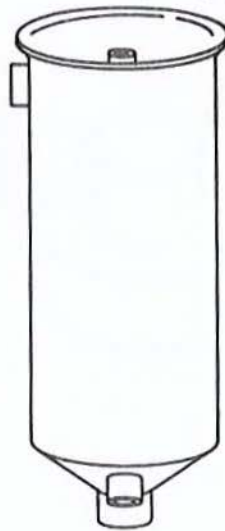
DMWR 9-2815-220

ITEM: BODY ASSEMBLY, FUEL FILTER:
primary

OIP 11641746
CB 00087(53964)
REFERENCE: Figure 5-92 (5/757)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked or deformed bowl	0.0	Visual	None allowed
2		Broken or bent post	0.0	Visual	None allowed
3		Broken brazed joints	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

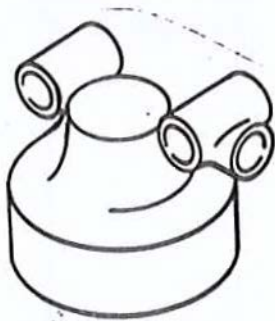
DMWR 9-2815-220

ITEM: HEAD FILTER:
flame heater fuel

OIP 7416621
1742568 (90005)
REFERENCE: Figure 5-92 (5/757)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BOWL, SEDIMENT:
flame heater fuel filter assembly

OIP 7413736
26413 (90005) 26413-1 (9000)

REFERENCE: Figure 5-92 (5/757)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Burs or raised metal on flange surface	2.5	Visual	None allowed
3		Bent flange	1.0	Measure	Squareness flange to thread must not exceed 0.0100 inch
4		Damaged thread	2.5	Visual	None allowed
5		Deformed bowl	2.5	Visual	None allowed
6		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

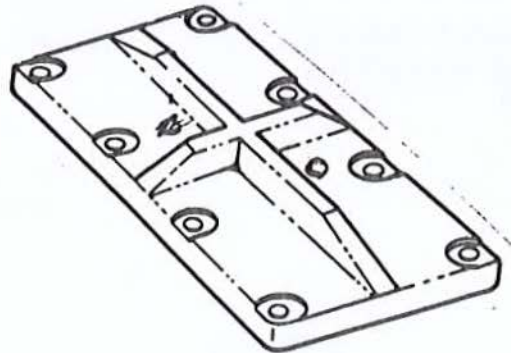
ITEM: COVER:
water separator filter

OIP 28M94 (53964)

REFERENCE: Figure 5-93 (5/758)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220 |

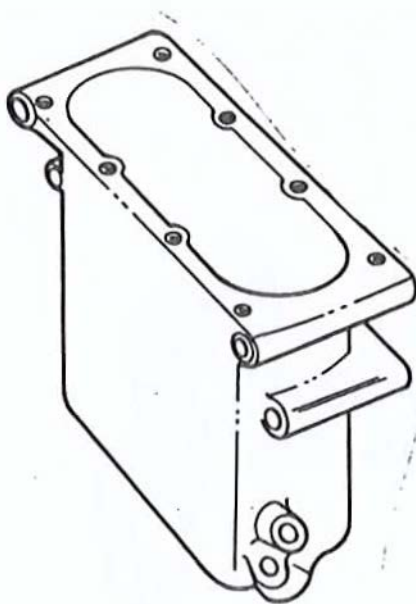
OIP 28M68 (53964)

ITEM: BODY, FUEL FILTER:
water separator

REFERENCE: Figure 5-93 (5/758)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye penetrant	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

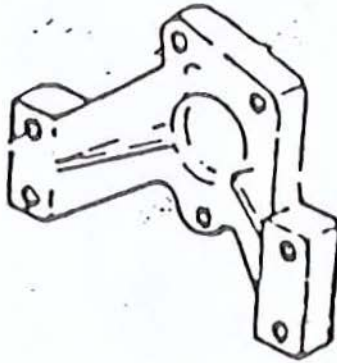
OIP 10951434

ITEM: BRACKET, FUEL FILTER:
water separator

REFERENCE: Figure 5-94 (5/759)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye Penetrant	None allowed
2		Thread inserts for looseness and damaged or missing threads	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: BRACKET, FILTER, FLUID:
primary

OIP 11684010
11684295

REFERENCE: Figure 5-94 (5/759)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken <i>WELDS</i>	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed

BROKEN WELDS VISUAL NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

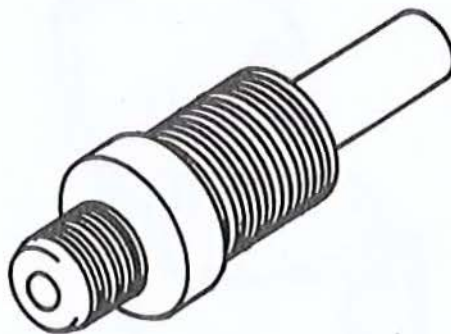
OIP 11684261

ITEM: FILTER, FLUID, PRESSURE:
primary fuel filter constant bleed

REFERENCE: Figure 5-94 (5/759)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Crushed or missing filter element	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on seat	2.5	Visual	None allowed
5		<i>BROKEN OR CRACKED BRAZE</i>	<i>2.5</i>	<i>VISUAL</i>	<i>NONE ALLOWED</i>



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OVERHAUL INSPECTION PROCEDURE

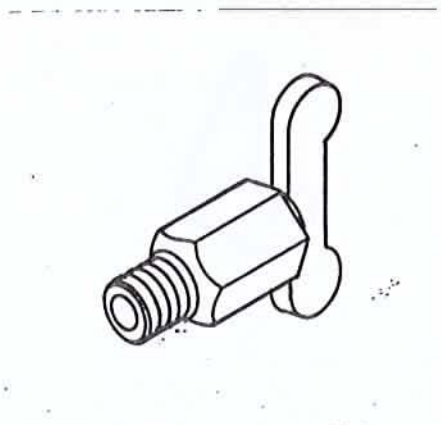
DMWR 9-2815-220

OIP MS35782-1

ITEM: COCK, DRAIN:
water separator drain at bulkhead fitting REFERENCE: Figure 5-94 (5 /759)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Broken or bent handle	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Plugged fuel passage	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684126

**ITEM: BRACKET, ANGLE:
water separator drain valve**

REFERENCE: Figure 5-94 (5/759)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

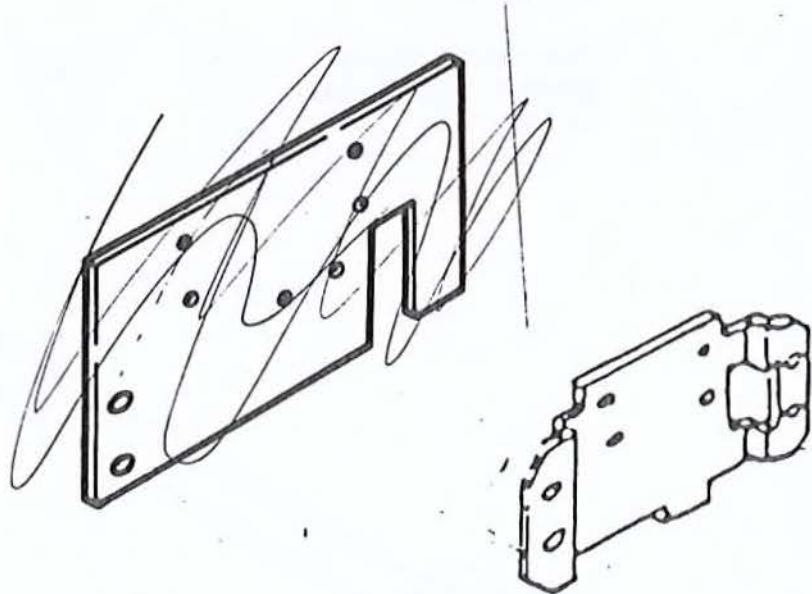
OIP 11684019

ITEM: PLATE, MOUNTING:
water separator control

REFERENCE: Figure 5-94 (5/759)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or or broken	0.0	Visual	None allowed
2		Base metal showing protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

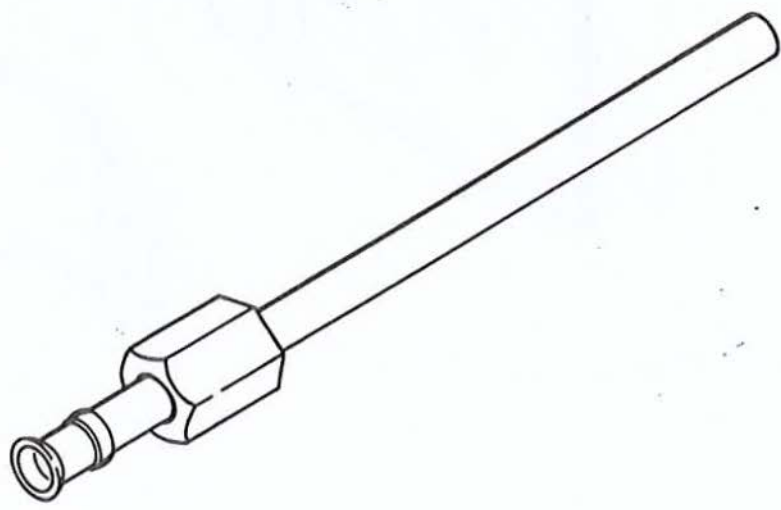
OIP 11684022

ITEM: TUBE ASSEMBLY, METAL:
water separator drain control assembly
outlet

REFERENCE: Figure 5-94 (5/759)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Damaged thread on nut	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on sleeve or flared seat	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

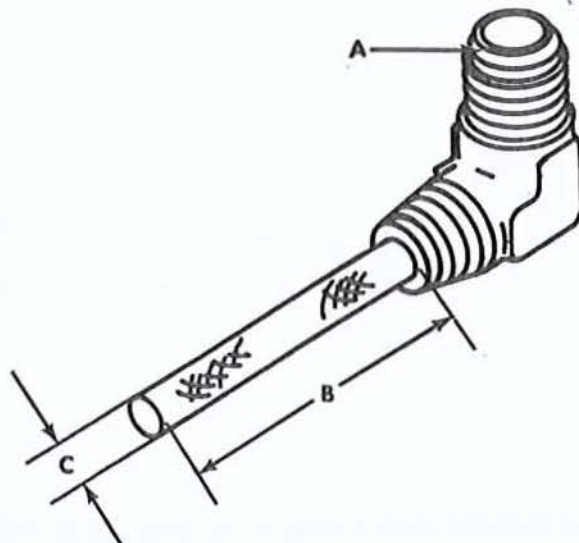
OIP 11684260

**ITEM: FILTER, FUEL-WATER SEPARATOR:
drain outlet**

REFERENCE: Figure 5-94 (5/759)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent, dented or crushed screen	2.5	Visual	None allowed
3		Broken or cracked braze	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5	A	Scratches, dents, or gouges on seating surface	2.5	Visual	None allowed
6	B	Dimension, length of screen	1.0	Measure	Dimension of screen must measure 1.750 ± 0.010 inches
7	C	Outside diameter of screen	1.0	Measure	Outside diameter of screen must measure 0.210 ± 0.010 inches



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OVERHAUL INSPECTION PROCEDURE

DWG 10867357

DMR 9-2015-220

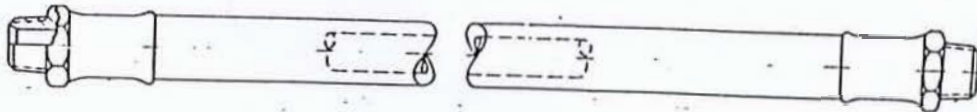
OIP 10867369

ITEM: HOSE ASSEMBLY, NONMETALLIC:
ENGINE FUEL SUPPLY

REFERENCE: FIGURE 5-9A (5/759)

ITEM: 13

NO.	REF. LB	CHARACTERISTIC	*AQL	DEP. METHOD	REQUISITE
1		HOSE FOR EVIDENCE OF LEAKS	0.0	PROOF PRESSURE TEST AT 100 100 PSI	NONE ALLOWED
2		HOSE FOR FRAYED, COLLAPSED, OR PERMANENTLY DISTORTED CONDITIONS	2.5	VISUAL	NONE ALLOWED
3		CRACKED BUSHES OR LOOSE PRESSED CRACKED AND DAMAGED COUPLINGS	2.5	VISUAL	NONE ALLOWED
4		FRAYED AND DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED
		DAMAGED SEALS	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

OMTR 9-2015-220

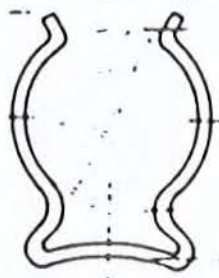
OIP M84066/2-312

ITEM: CLIP, SPRING, TENSION:
FUEL SUPPLY HOSE TO BRACKET

REFERENCE: FIGURE 5-94 (5/759)

ITEM: 14

NO.	REF. LTR	CHARACTERISTIC	AQL	INSP. METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BASE METAL STAINING BENT OR DISTORTED THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED REPAIR
3		BENT OR DISTORTED	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMR 9-2815-220

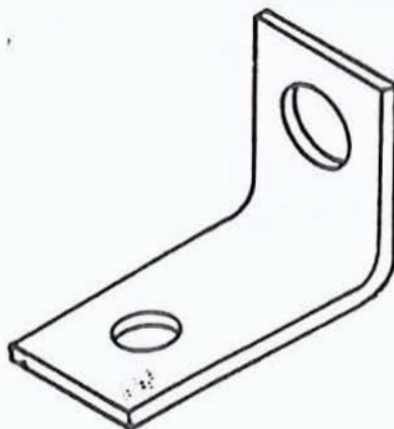
OIP MS 9599-216

**ITEM: BRACKET, ANGLE:
FUEL SUPPLY HOSE SPRING CLIP**

REFERENCE: FIGURE 5-94 (5/75)

ITEM: 15

NO.	REF. LIB	CHARACTERISTIC	°AQL	INSP. METHOD	REQUISITE
1		CRACKS	0.0	VISUAL	NONE ALLOWED
2		BENT OR DISTORTED	2.5	VISUAL	NONE ALLOWED
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254393

**ITEM: VALVE BODY:
fuel backflow**

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3	A	Thread depth	0.0	Measure	Thread must be 13/16 minimum
4	A	Bore depth	1.0	Measure	Must be no greater than 1.330 inches
5	A	Bore diameter	1.0	Measure	Must be no greater than 0.3385 inch
6	B	Bore depth	1.0	Measure	Must be no greater than 1.8305 inches
7	B	Bore diameter	1.0	Measure	Must be no greater than 0.9385 inch
8		Gouges, burrs or raised metal in valve bores	2.5	Visual	None allowed
9		Valve seat damage, two places	1.0	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

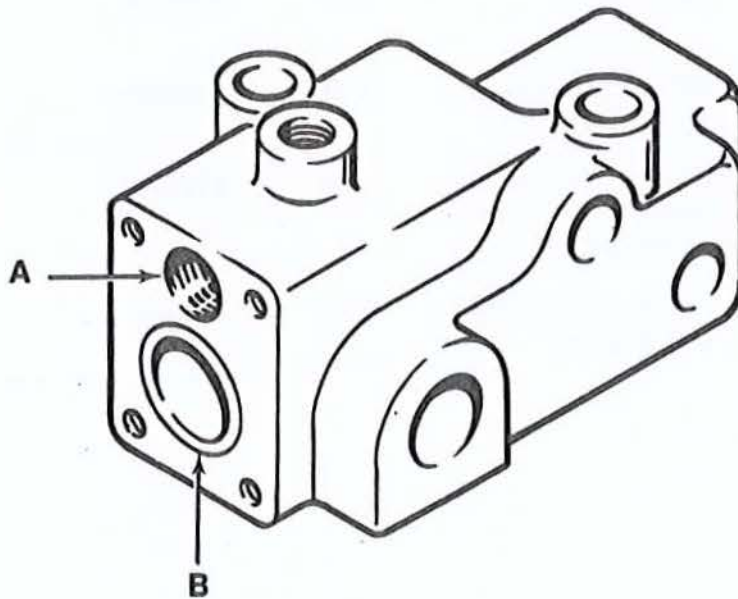
OIP 12254393

ITEM: VALVE BODY:
fuel backflow

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

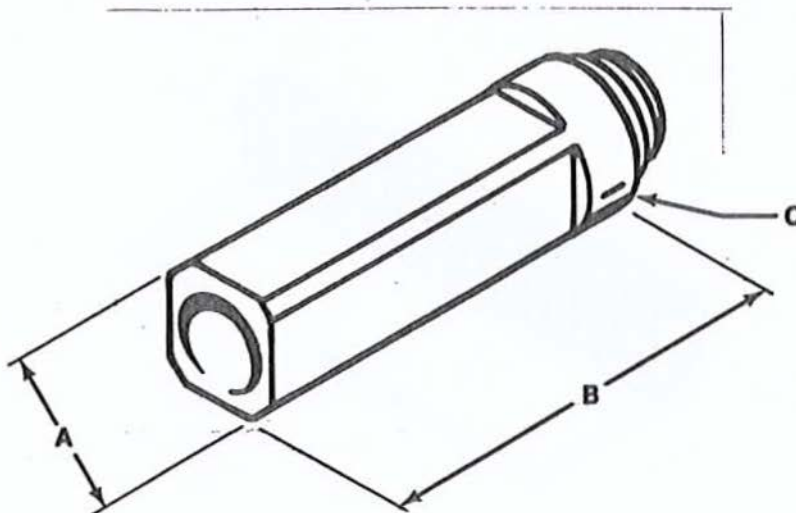
OIP 12254391

ITEM: VALVE, SLEEVE:
fuel backflow

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Gouges, burrs or raised metal	2.5	Visual	None allowed
3		Bare metal showing through protective finish	2.5	Visual	None allowed
4	A	Major diameter, two places	1.0	Measure	Diameter must be no less than 0.9315 inch
5	B	Length to gage line	1.0	Measure	Must be no less than 1.6845 inch
6	C	Diameter at gage line	1.0	Measure	Must be no less than 0.750 inch



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254392

ITEM SPRING:
sleeve valve

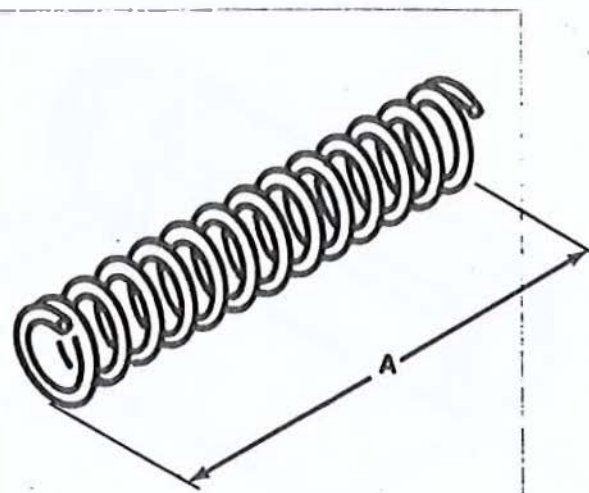
REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Dimension must be no greater than 2.125 inches and no less than 2.115 inches
3		Load at 1.125 inches	2.5	Measure	0.3800 pound
4		Maximum solid height	2.5	Measure	Dimension must be no less than 0.250 inch

NOTE

Spring must not take permanent set when compressed solid



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(3)

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

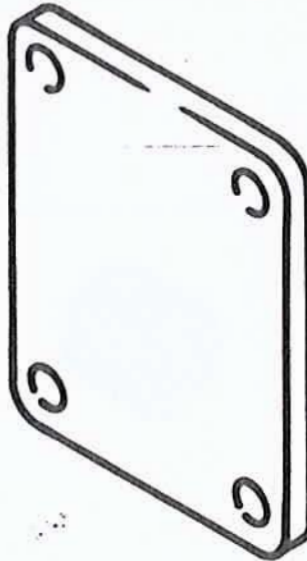
OIP 12254393-1

ITEM: COVER:
fuel backflow valve

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on gasket surface	2.5	Visual	None allowed



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Change 3/ 5/788.5

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254393-2

ITEM: PLUG:
control valve adjusting screw

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Stripped or damaged threads	1.0	Visual	None allowed
3		Damaged hex socket	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254393-3

ITEM: SCREW, ADJUSTING:
control valve

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Stripped or damaged threads	1.0	Visual	None allowed
3		Damaged screwdriver slot	1.0	Visual	None allowed



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changes 5/788.7

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 12254390

ITEM: SPRING:
control valve

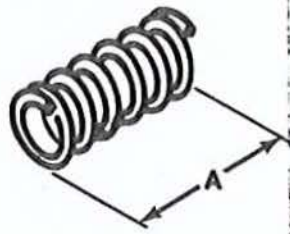
REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Dimension must be no greater than 0.6750 inch and no less than 0.6650 inch
3		Maximum solid height	2.5	Measure	Dimension must be no less than 0.4200 inch
4		Load at 0.500 inch	2.5	Measure	6.1500 - 6.8500 pounds

NOTE

Spring must not take permanent set when compressed solid



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OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220

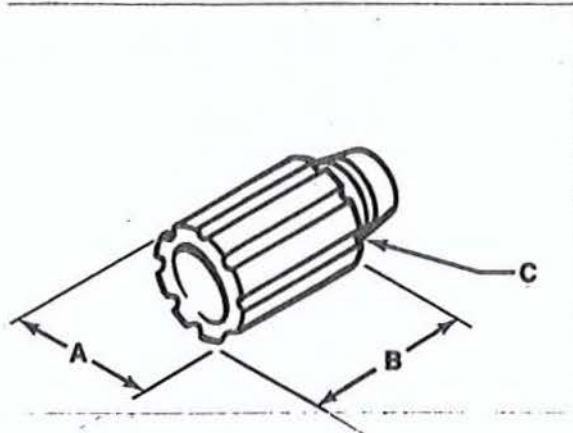
OIP 12254389

ITEM: VALVE, CONTROL:
fuel backflow

REFERENCE: Figure 5-95.1 (5/760.1)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Gouges, burrs or raised metal	2.5	Visual	None allowed
3	A	Outside diameter	1.0	Measure	Diameter must be no less than 0.3300 inch
4	B	Length to gage line	1.0	Measure	Must be no less than 0.4435 inch
5	C	Diameter at gage line	1.0	Measure	Diameter must be no less than 0.300 inch



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Bl 1

5/788.10

5-117. Repair and Assembly.

a. Repair.

(1) General repair procedures. Refer to paragraph 5-5 (5/5) for general repair instructions. Repair any cracked brazing evident around primary fuel filter fitting by brazing around the fitting (OIP 11641746, 5/776). Refer to TM-9-237, Operator's Manual Welding Theory and Application for brazing methods.

(2) Fuel backflow valve repair procedures.

(a) Remove four capscrews, lockwashers, flat washers, and cover. Remove and discard gasket. Remove spring and sleeve valve. Remove and discard sleeve valve preformed packing. Remove plug, lockwasher, adjusting screw, spring and control valve (or check ball). (Discard check ball). Remove and discard control valve preformed packing.

(b) Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(c) Inspect parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances are listed in Table 5-42 (5/767). See paragraph 5-4 b and c (5/3) for explanation of wear limits, fits and tolerances.

(d) Rework valve body in accordance with instructions shown in Figure 5-95.2 (5/790).

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM-9-2815-220-34 for assembly of fuel filters. Assemble backflow valve assembly in reverse order of disassembly, using all components of ~~Flow Control Valve Repair Kit~~, part no. 5705053.

VALVE PARTS KIT

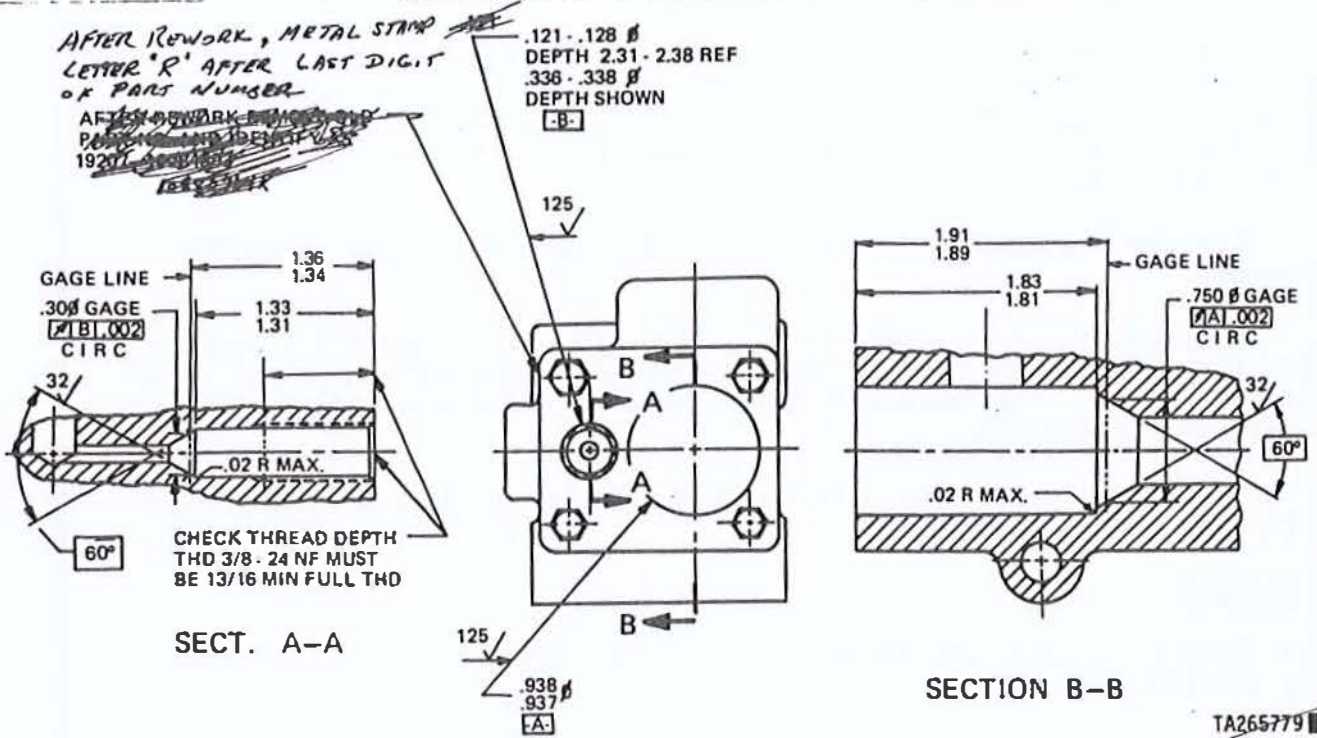


Figure 5-95.2. Rework of Backflow Housing

Section XXIX. OVERHAUL OF FUEL INJECTION TUBES AND FUEL RETURN TUBES

5-118. General. This section covers overhaul of the fuel injector and nozzle fuel return lines (figs. 5-96 and 5-97) (5/792) and (5/793). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-119. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(2) Fuel injection pump fuel tubes. Flush the fuel tube assemblies with a high pressure flushing device. After flushing, blow dry with compressed air and plug tube ends with plugs or caps to assure cleanliness.

(3) Nozzle fuel return tubes and hoses.

(a) Steam clean hoses after removal from engine.

(b) Visually inspect hoses for cracks, cuts, and bad fittings.

(c) Install ^{HOSES} ~~lines~~ on test fixture. (Refer to figure 5-95.3).

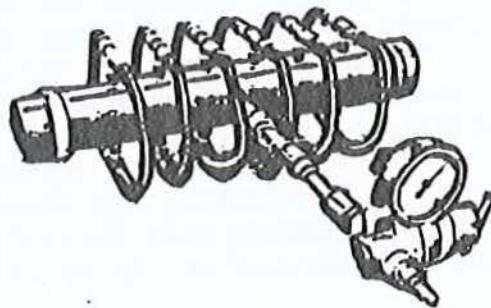


Figure 5-95.3. Test Fixture for Fuel Return Tubes and Hoses.

- (d) Charge fixture to ¹⁰⁰/~~30~~ PSI compressed air.
- (e) Submerge fixture with hoses into cold water vat.
- (f) Tighten any hose fittings that leak, if leak cannot be stopped by tightening, replace hoses until a set of ~~2~~ each have passed pressure test.
- (g) Remove hoses from fixture.
- (h) Buff fittings to remove rust and discoloration.
- (i) Hand clean hose with detergent by wiping with cloth.
- (j) Coat hose fittings with lubricating compound (NSN 9150-00-823-7860).
- (k) Place completed set of hoses in plastic bag to protect from dirt.

5-120. Inspection.

a. General. Inspect the fuel injector and nozzle fuel return lines according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the fuel injector and nozzle fuel return lines are listed in table 5-43 (5/795). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Fuel Injection Pump Fuel Tubes. Inspect tubes for correct inside diameter hole dimension. The correct dimension is 0.0815 to 0.0865-inch. Tubes with larger or smaller hole diameters must be discarded. Carefully inspect all tubes for proper configuration using a current preformed tube of like function for comparison. Excessive bending or hand forming creates high stress points and greatly reduces tube life. Discard any tube that deviates from preformed comparison tube configuration. Inspect the compression sleeves, (fig. 5-98) (5/794) compression nuts, support sleeves, and support nuts for defects or damage. Refer to figure 5-98 (5/794) for comparison of sleeve fittings shown in serviceable and unserviceable condition. Straighten minor bends in tubing when possible. Discard entire tube assembly if fittings are damaged or tubing has been kinked or worn from rubbing.

c. Fuel Injection Pump Fuel Return Hose. Inspect in accordance with OIP ~~MS52104C4-007~~ MS52104C4-007.

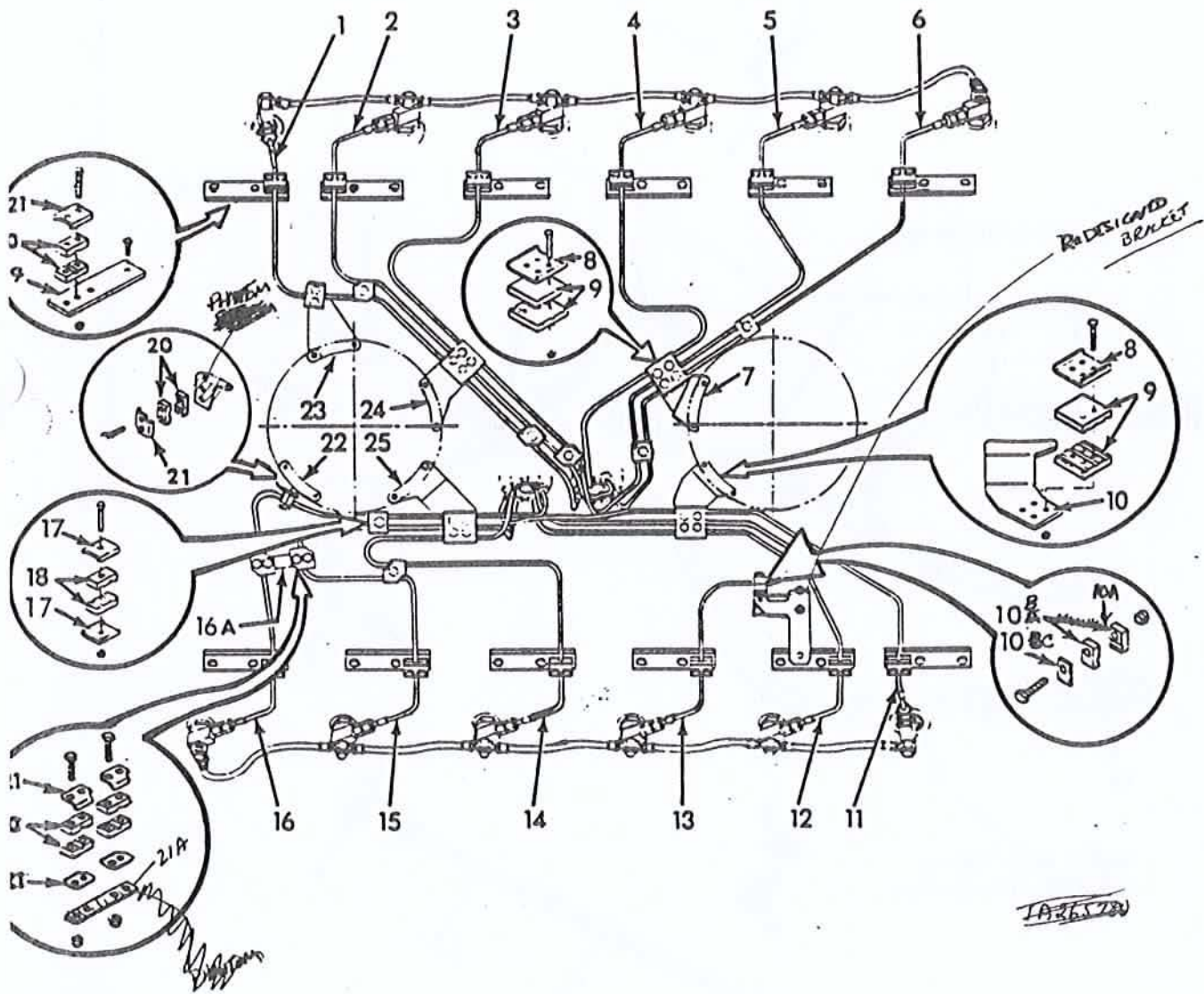
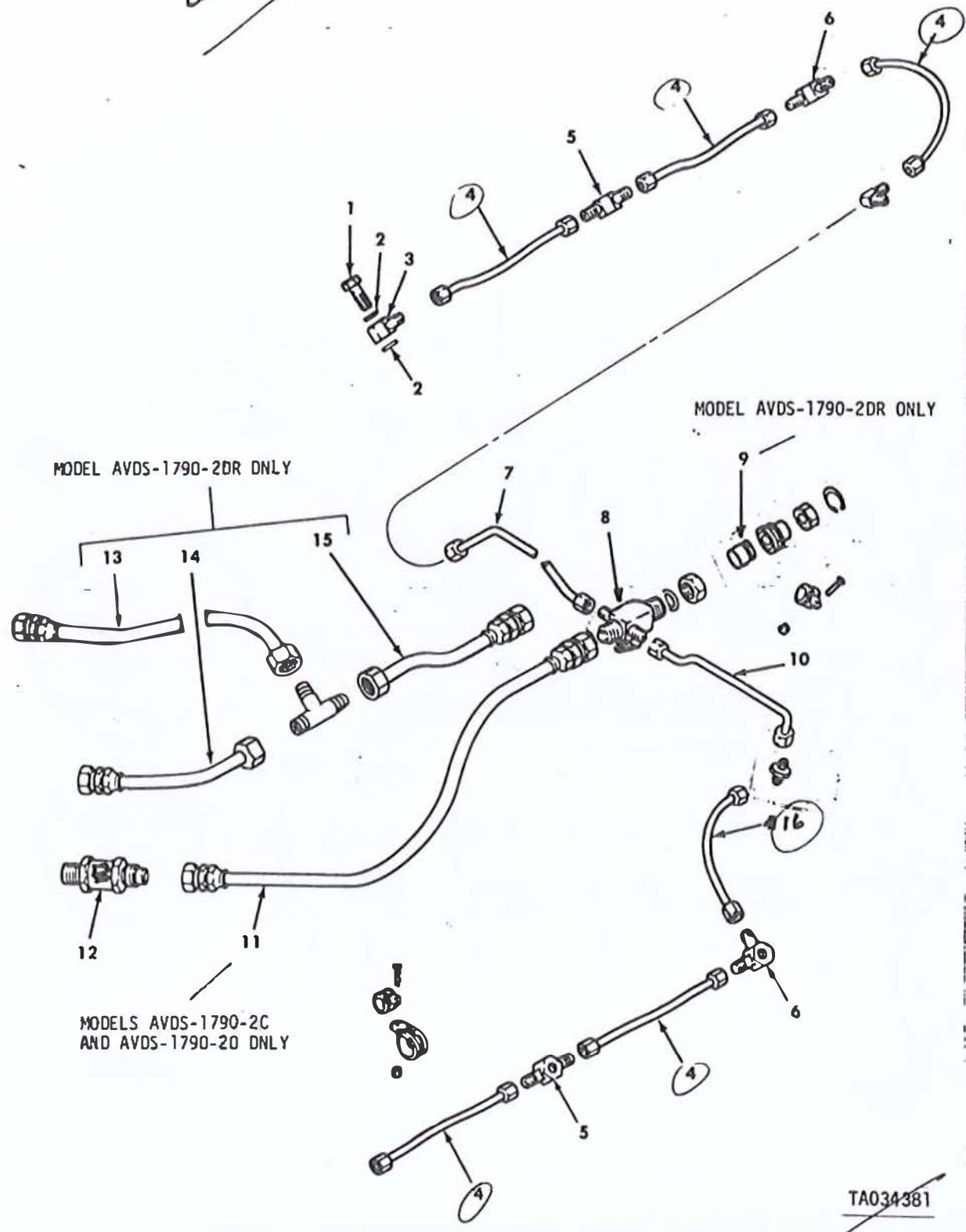


Figure 5-96. Fuel Injector lines, clamps, and associated parts.

ITEMS
4, 16 ARE HOSES
CHANGE PART !!

DMWR 9-2815-220



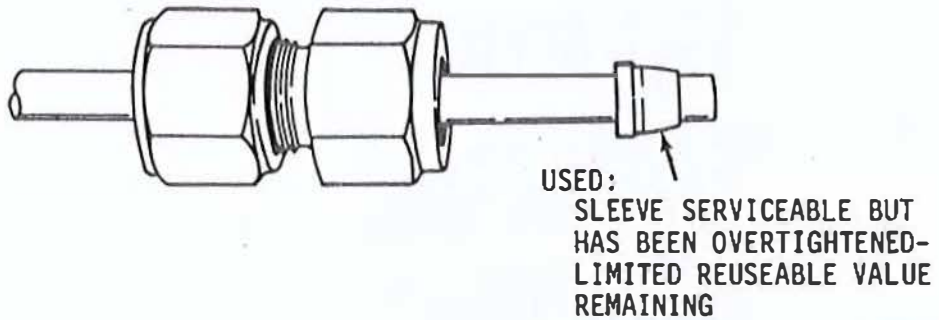
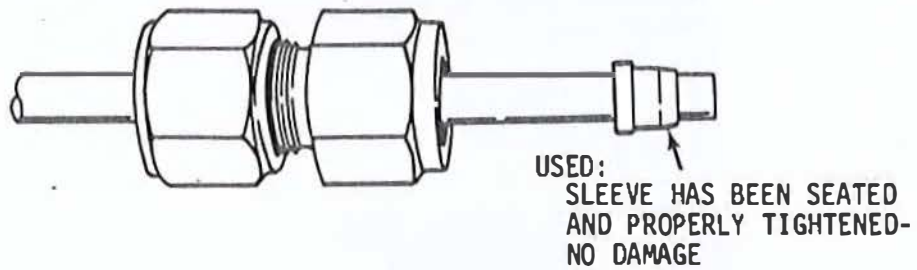
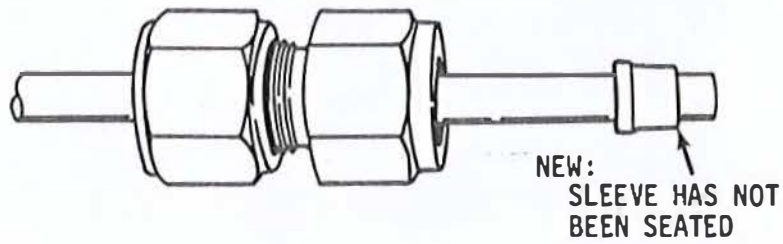
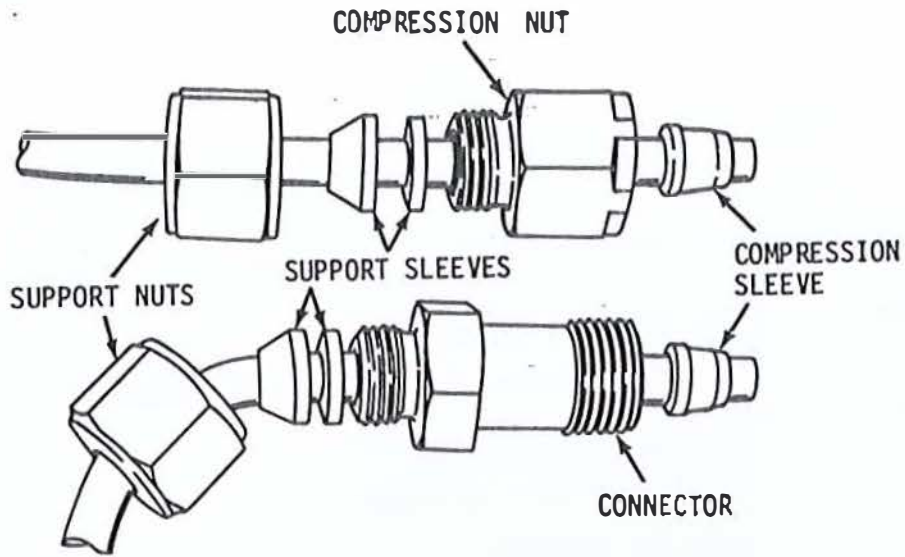
MODEL AVDS-1790-2DR ONLY

MODEL AVDS-1790-2DR ONLY

MODELS AVDS-1790-2C
AND AVDS-1790-20 ONLY

TA034381

Figure 5-97. Fuel injector and nozzle fuel return lines.



TA034383

Figure 5-98. Comparison of serviceable sleeves - injector nozzle tube ends.

Table 5-43. Wear Limits, Fits, and Tolerances for Fuel Injector and Nozzle Fuel Return Lines

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-96 (5/792) _r	1	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 6R - part no. 11682756 Refer to OIP 11682751 (5/803)		
	2	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 5R - part no. 11682755 Refer to OIP 11682751 (5/803)		
	3	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 4R - part no. 11682754 Refer to OIP 11682751 (5/803)		
	4	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 3R - part no. 11682753 Refer to OIP 11682751 (5/803)		
	5	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 2R - part no. 11682752 Refer to OIP 11682751 (5/803)		

Table 5-43. Wear Limits, Fits, and Tolerances for
Fuel Injector and Nozzle Fuel Return Lines - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-96 (5/792)	6	TUBE, ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 1R - part no. 11682751 Refer to OIP 11682751 (5/803)		
	7	BRACKET, DOUBLE ANGLE: cylinder no. 1, 2, and 3 injection tubes, right bank to front fan tower - part no. 11684146 Refer to OIP 11684146 (5/804)		
	8	STRAP, RETAINING: 3 tube - part no. 11684154 Refer to OIP 11684154 (5/805)		
	9	FAIRLEAD HALF, TUBULAR: fuel injection tube (3 tube) - part no. 11684159 Refer to OIP 11684159 (5/806)		
	10	BRACKET, DOUBLE ANGLE: cylinder no. 1, 2, and 3 injection tubes, left bank to front fan tower - part no. 11684145 Refer to OIP 11684145 (5/807)		

Table 5-43. Wear Limits, Fits, and Tolerances for
Fuel Injector and Nozzle Fuel Return Lines - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-96 (5/792)	11	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 1L - part no. 11682757 Refer to OIP 11682751 (5/803)		
	12	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 2L - part no. 11682758 Refer to OIP 11682751 (5/803)		
	13	TUBE ASSEMBLY, METAL: fuel injection pump to fuel in- jector nozzle, cylinder no. 3L - part no. 11682759 Refer to OIP 11682751 (5/803)		
	14	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 4L - part no. 11682760 Refer to OIP 11682751 (5/803)		
	15	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 5L - part no. 11682761 Refer to OIP 11682751 (5/803)		

Table 5-43. Wear Limits, Fits, and Tolerances for Fuel Injector and Nozzle Fuel Return Lines - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-96 (5/792)	16	TUBE ASSEMBLY, METAL: fuel injection pump to fuel injector nozzle, cylinder no. 6L - part no. 11682762 Refer to OIP 11682751 (5/803)		
	17	STRAP, RETAINING: 2 tube - part no. 11684156 Refer to OIP 11684156 (5/808)		
	18	FAIRLEAD HALF, TUBULAR: fuel injection tube (2 tube) - part no. 11684157 Refer to OIP 11684157 (5/809)		
	19	SPACER, PLATE: fuel injection line fairlead half - part no. 11684160 Refer to OIP 11684160 (5/810)		
	20	FAIRLEAD HALF, TUBULAR: fuel injection tube (1 tube) - part no. 11684158 Refer to OIP 11684158 (5/811)		
	21	STRAP, RETAINING: 1 tube - part no. 11684155 Refer to OIP 11684155 (5/812)		
	21A	SPACER PLATE: fuel injection line fairlead half - part no. 12254295 Refer to OIP 12254295 (5/812.1)		

Table 5-43
Wear Limits, Fits, and Tolerances for
Fuel Injector and Nozzle Fuel Return Lines - Continued

R

<u>References</u> <u>Fig. No.</u>	<u>Item No.</u>	<u>Item, Point of Measurement Or Inspection</u>	<u>New Part Size</u>	<u>Wear Limit</u>
5-96 (5/792)	22	BRACKET, ANGLE: cylinder no. 6 injection tube, left bank to rear fan tower - part no. 11684148 Refer to OIP 11684148 (5/813)		
	23	BRACKET, DOUBLE ANGLE: cylinder no. 6 injection tube, right bank to rear fan tower - part no. 11684147 Refer to OIP 11684147 (5/814)		
	24	BRACKET, DOUBLE ANGLE: cylinders no. 4, 5, and 6 injection tubes, right bank to rear fan tower - part no. 11684144 Refer to OIP 11684144 (5/815)		
	25	BRACKET, DOUBLE ANGLE: cylinders no. 4, 5, and 6 injection tubes, left bank to rear fan tower - part no. 11684143 Refer to OIP 11684143 (5/816)		
	26	COVER, ACCESS: 3 tube - part no. 11684149 Refer to OIP 11684149 (5/817)		
5-97 (5/793)	1	BOLT, FLUID, PASSAGE: fuel return connector to fuel injector nozzle - part no. AN775-4 7323992 Refer to OIP AN775-4 7323992 (5/818)		

Table 5-43. Wear Limits, Fits, and Tolerances for
Fuel Injector and Nozzle Fuel Return Lines - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement</u> <u>or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-97 (5/793)	2	WASHER, FLAT: fuel injection nozzle to fuel return connector and bolt, cylinder no. 1 through 6, left and right bank part no. 7323994		Replace
	3	CONNECTOR, FLUID PRESSURE: fuel injection nozzle to inter cylinder fuel return hose assembly, cylinder no. 1 left bank - part no. 7324661 Refer to OIP 7324661 (5/819)		
	4	HOSE ASSEMBLY, NONMETALLIC: inter cylinder connecting, fuel return cylinder no. 1, 2, 3, 4, and 5, right and left bank and cylinder no. 6 left bank fuel return tube to elbow - part no. MS52104C4-0074 REFER TO OIP MS52104C4-0074		Replace
	5	CONNECTOR, MULTIPLE FLUID, PRESSURE LINE: fuel injection nozzle to inter cylinder fuel return hose assembly, cylinder no. 2 through 5, left and right bank - part no. AN779-4 7323993 Refer to OIP AN779-4 7323993 (5/820) (5/820.1)		

Table 5-43. Wear Limits, Fits, and Tolerances for Fuel Injector and Nozzle Fuel Return Lines - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-97 (5/793)	6	CONNECTOR, MULTIPLE, FLUID PRESSURE LINE: fuel injection nozzle to inter cylinder fuel return hose assembly, cylinder no. 1 and 6, right bank and no. 6, left bank - part no. 11684208 Refer to OIP 11684208 (5/821)		
	7	TUBE ASSEMBLY, METAL: cylinder no. 6 left bank fuel return to tee - part no. 11684255 Refer to OIP 11684255 (5/822)		
	8	CROSS, TUBE: fuel return bulkhead - part no. 10865290 Refer to OIP 10865290 (5/823)		
	9	PLUG ASSEMBLY, SEALING: <u>overflow cross -</u> part no. 11682602 Refer to OIP 11682602 (5/824)		
	10	TUBE ASSEMBLY, METAL: cylinder no. 6 right bank, fuel return to tee - part no. 11684256 Refer to OIP 11684256 (5/825)		

(MODEL A/D/S-1190-2DR.)

Table 5-43. Wear Limits, Fits, and Tolerances for Fuel Injector and Nozzle Fuel Return Lines - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-97 (5/793)	11	HOSE ASSEMBLY, NONMETALLIC: fuel injection pump check valve to bulkhead cross tee - part no. 10882940 (Models AVDS-1790-2C, and AVDS-1790-2D, and AVDS-1790-2DA) Refer to OIP 10882940 (5/826)		
	12	VALVE, CHECK: fuel injection pump outlet elbow to fuel return hose - part no. 8759089 Refer to OIP 8759089 (5/827)		
	13	HOSE ASSEMBLY, NONMETALLIC: fuel injection pump check valve to tee - part no. MS8005H120A (MODEL AVDS-1790-2DR) Refer to OIP MS8005 (5/666)		
	14	HOSE ASSEMBLY, NONMETALLIC: injection pump overflow tee to tube nipple - part no. MS8005H520A (MODEL AVDS-1790-2DR) Refer to OIP MS8005 (5/666)		
	15	HOSE ASSEMBLY, NONMETALLIC: injection pump overflow tee to cross - part no. MS8005H060A (MODEL AVDS-1790-2DR) Refer to OIP MS8005 (5/666)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

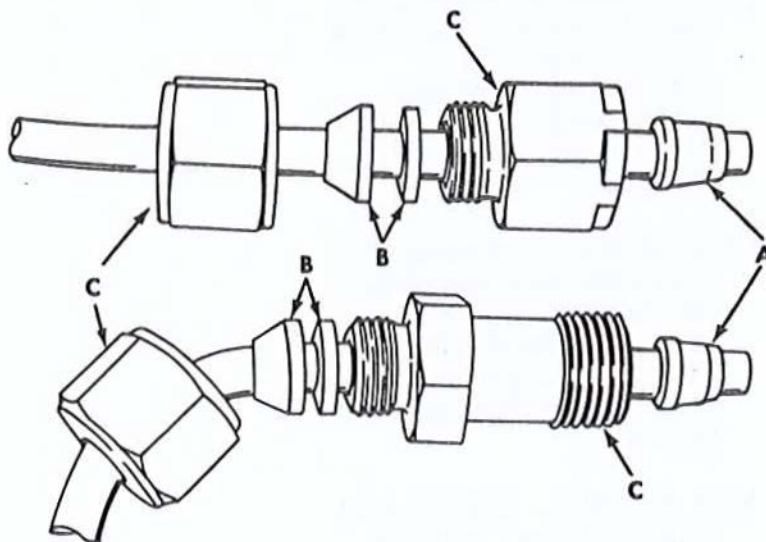
OIP 11682751

ITEM: TUBE ASSEMBLY, METAL:
fuel injection pump to
injector nozzle

REFERENCE: Figure 5-96 (5/792)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Inside diameter	2.5	Wire gage	Must be no greater than 0.0865 inch or less than 0.0815 inch
2	A	Damaged compression sleeves	0.0	Visual	None allowed
3	B	Damaged support sleeves	0.0	Visual	None allowed
4	C	Damaged compression nut, support nut or connector	0.0	Visual	None allowed
5		Sharp binds or wear from rubbing	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

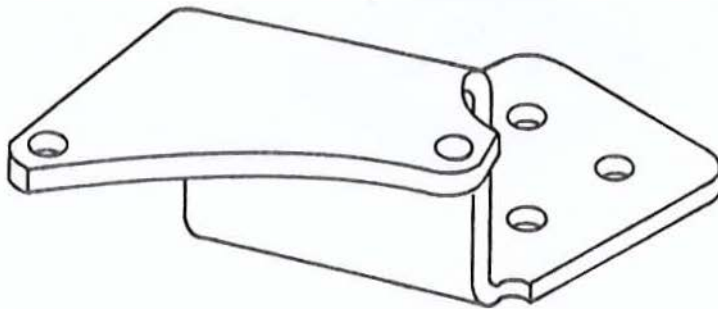
OIP 11684146

ITEM: BRACKET, DOUBLE ANGLE:
cylinder no. 1, 2, and 3
injection tubes, right bank to
front fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

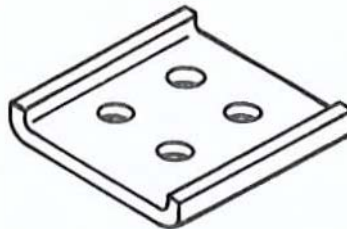
OIP 11684154

ITEM: STRAP, RETAINING:
3 tube

REFERENCE: Figure 5-96 (5/792)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

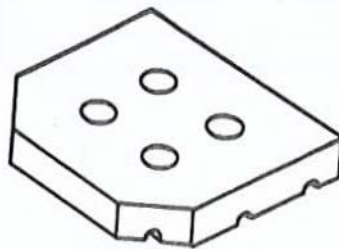
—ITEM: FAIRLEAD HALF, TUBULAR:
fuel injection tube
(3 tube)

OIP 11684159

REFERENCE: Figure 5-96 (5/792)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked or broken	0.0	Visual	None allowed
2		Worn grooves	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

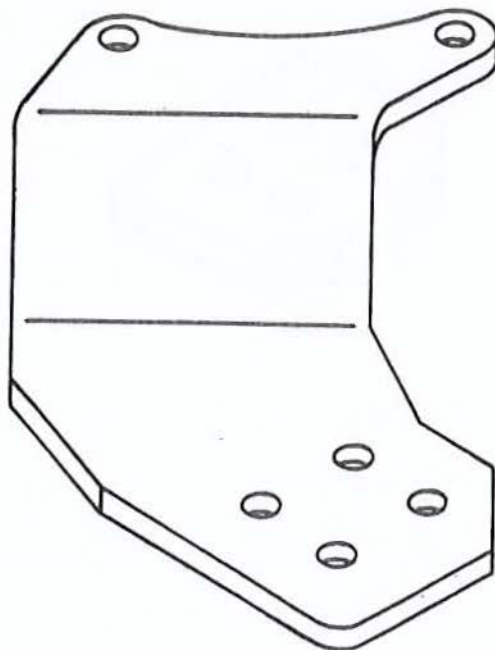
OIP 11684145

ITEM: BRACKET, DOUBLE ANGLE:
cylinders no. 1, 2; and 3
injection tubes, left bank to
front fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

HAUL INSPECTION PROCEDURE

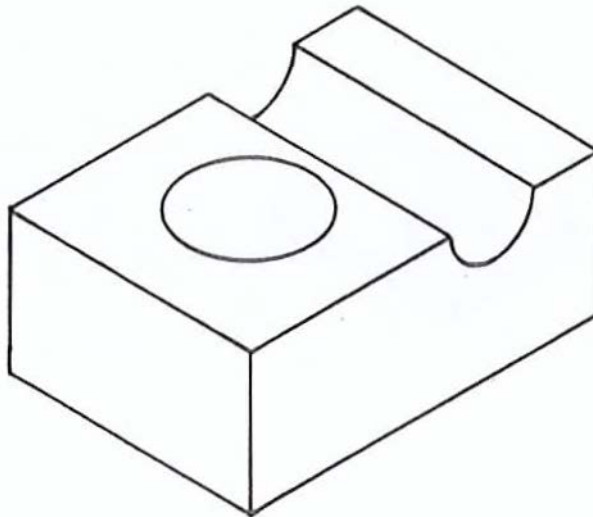
9-2815
 DMWR ~~10100~~-220

STRAP, RETAINING:
 fuel injection tube cylinder
 no. 3 left bank

OIP 12254293-1 (UPPER)
 12254293-2 (LOWER)
 REFERENCE: Figure 5-96 (5/792)

ITEM: 10A & 10B

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked or broken	0.0	Visual	None allowed
2		Worn grooves	2.5	Visual	None allowed
3		DETERIORATED BROWN STAIN (YELLOW) LOWER STRAP	2.5	VISUAL	NONE ALLOWED



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

9-2815-
DMWR ~~101290~~ 220

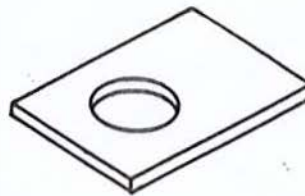
OIP 12254294

ITEM: SPACER, PLATE:
fuel injection tube cylinder
no. 3, left bank

REFERENCE: Figure 5-96 (5/792)

ITEM: ~~10B~~ 10C

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684156

**ITEM: STRAP, RETAINING:
(2 tube)**

REFERENCE: Figure 5-96 (5/792)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

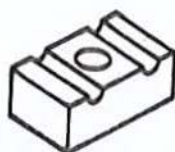
OIP 11684157

ITEM: FAIRLEAD HALF, TUBULAR:
fuel injection tube
(2 tube)

REFERENCE: Figure 5-96 (5/792)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked or broken	0.0	Visual	None allowed
2		Worn grooves	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

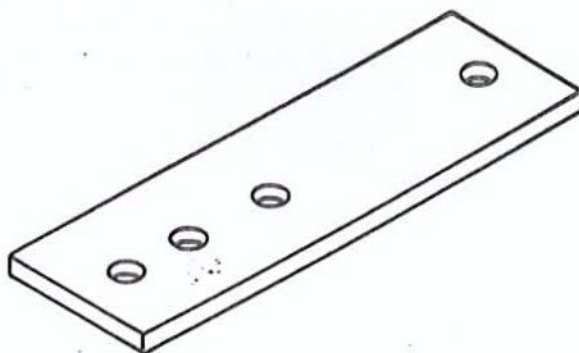
OIP 11684160

ITEM: SPACER, PLATE:
fuel injection line fairlead half

REFERENCE: Figure 5-96 (5/792)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

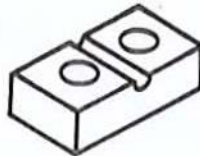
ITEM: FAIRLEAD HALF, TUBULAR:
fuel injection tube
(1 tube)

OIP 11684158

REFERENCE: Figure 5-96 (5/792)

ITEM: 20

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked or broken	0.0	Visual	None allowed
2		Worn grooves	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11684155

**ITEM: STRAP, RETAINING:
(1 tube)**

REFERENCE: Figure 5-96 (5/792)

ITEM: 21

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

HAUL INSPECTION PROCEDURE

9-2815
DMWR ~~75-1380-220~~

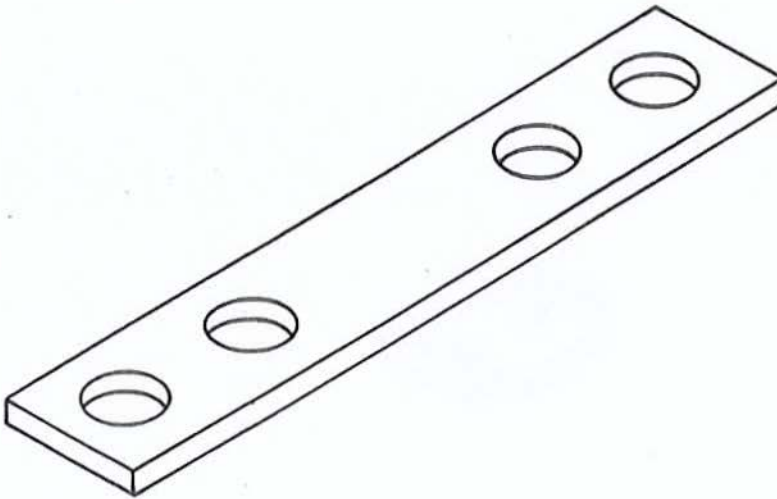
OIP 12254295

SPACER, PLATE :
FUEL INJECTION LINE FAIRLEAD HOLE

REFERENCE: Figure 5-96 (5/792)

ITEM: J6A 2/A

O.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Certification Inspection only.

5/812.1
5/807.3 (5/807.4 Blank)

OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220

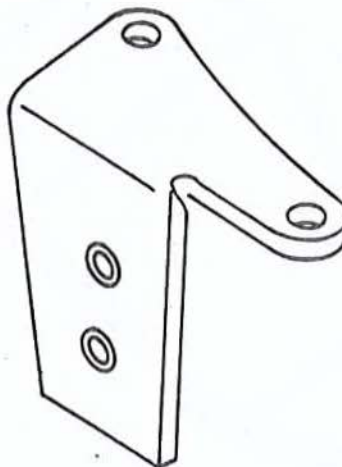
OIP 11684148

ITEM: BRACKET, ANGLE:
cylinder no. 6
injection tube, left bank to
rear fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 22

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

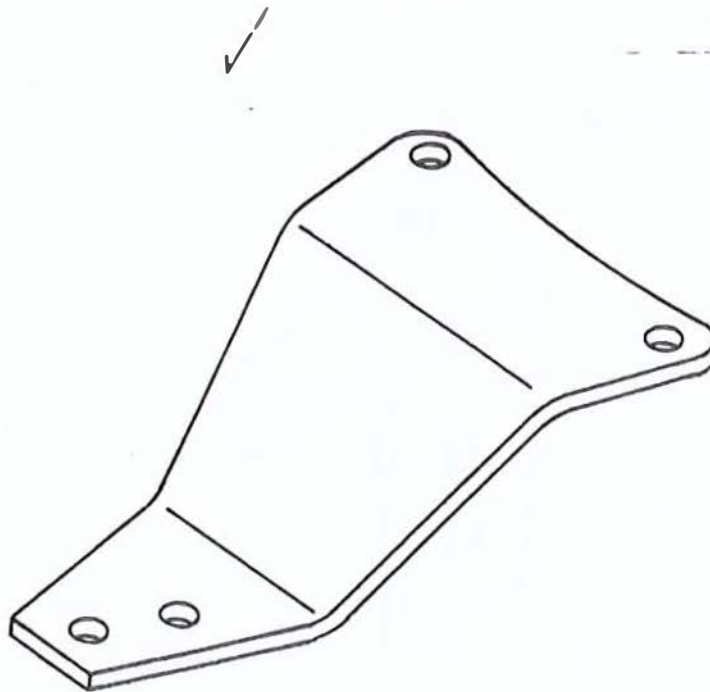
OIP 11684147

ITEM: BRACKET, DOUBLE ANGLE:
cylinder no. 6 injection tube,
right bank to rear fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 23

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

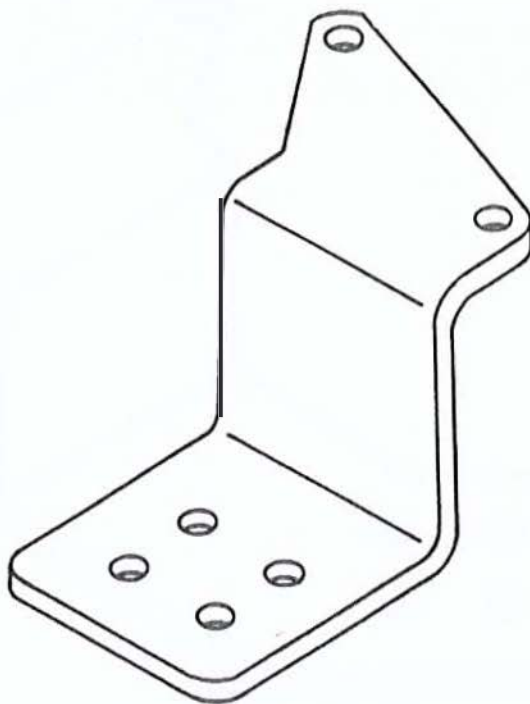
OIP 11684144

ITEM: BRACKET, DOUBLE ANGLE:
cylinder no. 4, 5, and 6
injection tubes, right bank to
rear fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 24

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

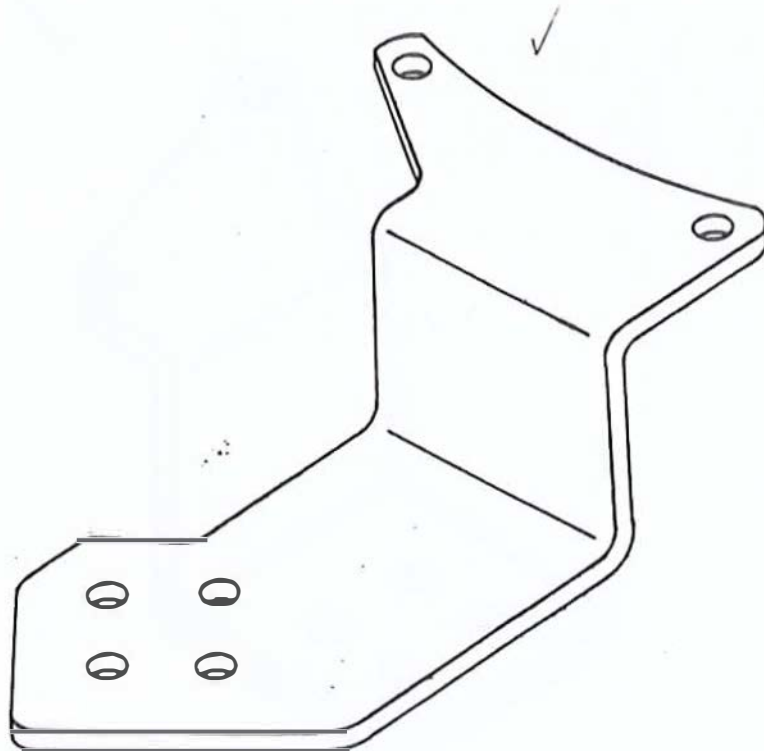
OIP 11684143

ITEM: BRACKET, DOUBLE ANGLE:
cylinder no. 4, 5, and 6
injection tubes, left bank to
rear fan tower

REFERENCE: Figure 5-96 (5/792)

ITEM: 25

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed
3		Burs or raised metal on mounting surfaces	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

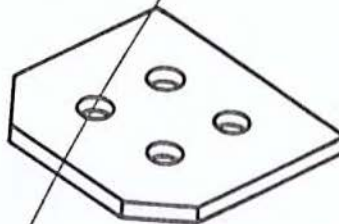
OIP 11684149

ITEM: ~~COVER~~, ACCESS:
(3 ~~to~~ be)

REFERENCE: Figure 5-96 (5/792)

ITEM: 26

NO.	REF	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

7323 992

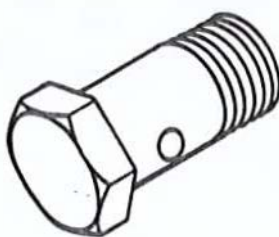
OIP AN775-4

ITEM: BOLT, FLUID, PASSAGE:
fuel return connector
to injector nozzle

REFERENCE: Figure 5-97 (5/793)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged thread	2.5	Visual	None allowed
3		Nicks, gouges and raised metal	2.5	Visual	None allowed
4		Bent shank	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 7324661

ITEM: CONNECTOR, FLUID PRESSURE:
fuel injection nozzle to inter
cylinder fuel return hose assem-
bly, cylinder no. 1 left bank

REFERENCE: Figure 5-97 (5/793)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats and contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

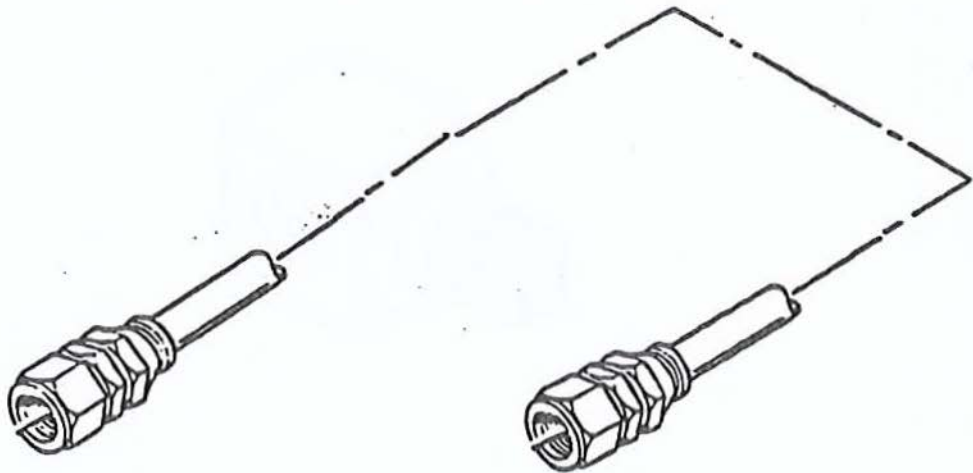
OIP MS52104C4-0074

ITEM: HOSE ASSEMBLY, NONMETALLIC; ~~FUEL RETURN~~
 INTER CYLINDER CONNECTING, FUEL RETURN CYL NOS 1, 2,
 3, 4 AND 5, RIGHT AND LEFT BANKS AND CYL NO. 6 LEFT BANK
 FUEL RETURN TUBE TO ELBOW

REFERENCE: FIGURE 5-97 (5/793)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 30 000 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

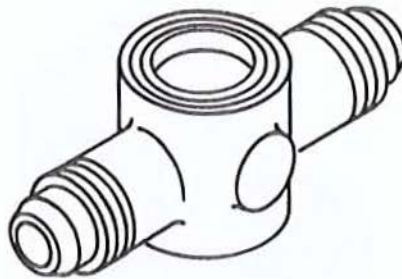
OIP ⁷¹²³⁹⁹³
AN779-4

ITEM: CONNECTOR, MULTIPLE FLUID, PRESSURE LINE:
fuel injection nozzle to inter cylinder
fuel return hose assembly, cylinder no. 2
through 5, left and right bank

REFERENCE: Figure 5-97 (5/793)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats and contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

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SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

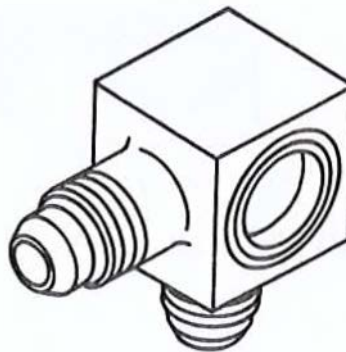
OIP 11684208

ITEM: CONNECTOR, MULTIPLE FLUID, PRESSURE LINE:
fuel injection nozzle to inter cylinder
fuel return hose assembly cylinder no. 1
and 6, right bank and no. 6, left bank

REFERENCE: Figure 5-97 (5/793)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats and contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

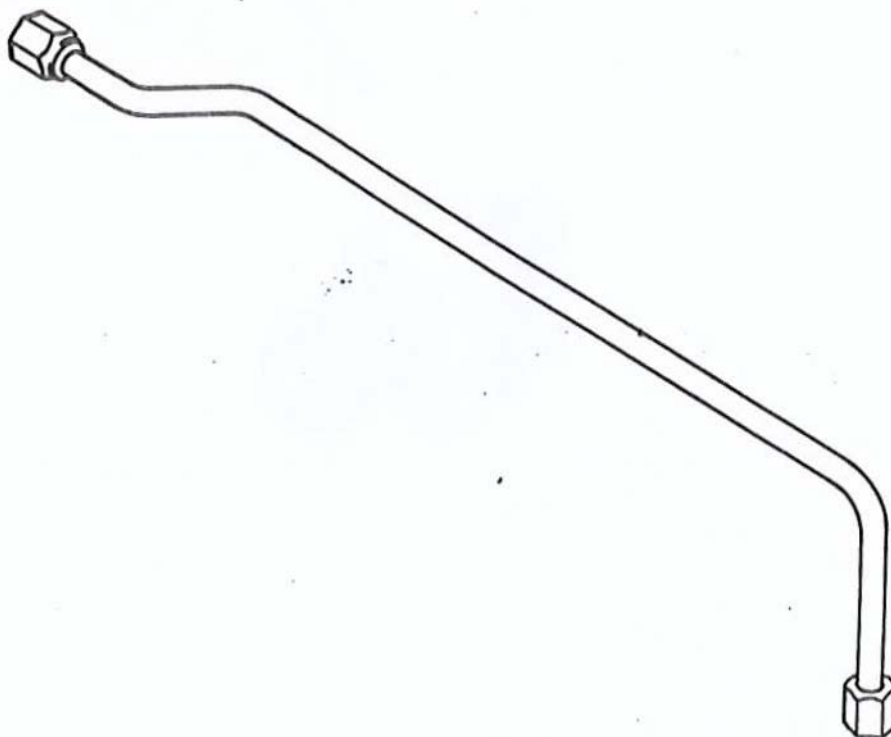
OIP 11684255

ITEM: TUBE ASSEMBLY, METAL:
cylinder no. 6 left bank
fuel return to tee

REFERENCE: Figure 5-97 (5/793)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Damaged thread on nuts	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on sleeves or flared seats	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

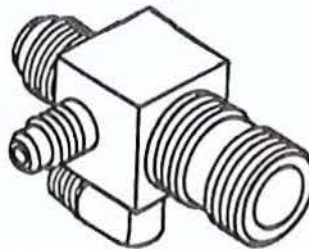
OIP 10865290

ITEM: CROSS, TUBE:
fuel return bulkhead

REFERENCE: Figure 5-97 (5/793)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	•AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats and contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

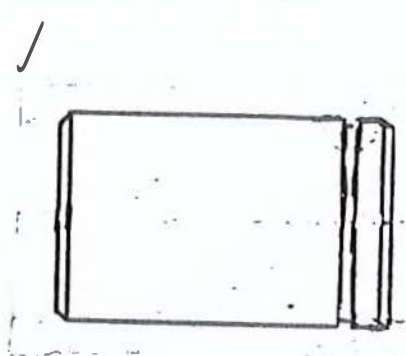
OIP 11682602

ITEM: PLUG ASSEMBLY, SEALING:
overflow cross
~~(MODEL AVDS-1790-2DR)~~

REFERENCE: Figure 5-97 (5/793)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
32		Surface Nicks Damage to surface grooves or RAISED METAL ON CONTACT SURFACES	2.5	Visual	None allowed
43		Base metal showing through protective finish	2.5	Visual	None allowed
4		DAMAGED GROOVE	2.5	Visual	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

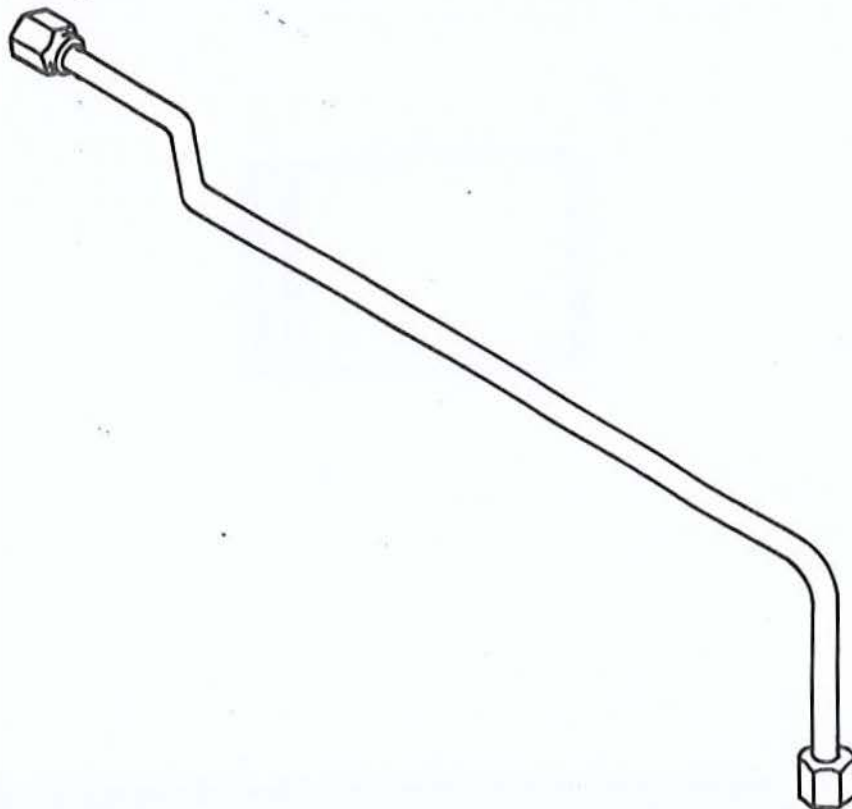
OIP 11684256

ITEM: TUBE ASSEMBLY, METAL:
cylinder no. 6 right bank,
fuel return to tee

REFERENCE: Figure 5-97 (5/793)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Damaged thread on nuts	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on sleeves or flared seats	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

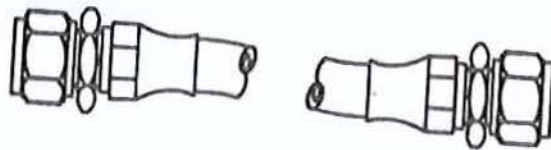
OIP 10882940

ITEM: HOSE ASSEMBLY, NONMETALLIC:
fuel injection pump check valve to
bulkhead cross tee
~~(Models AVDS-1790-2C and AVDS-1790-2D)~~

REFERENCE: Figure 5-97 (5/793)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof Pressure test at 200 100 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8759089

ITEM: VALVE, CHECK:
fuel injection pump outlet
elbow to fuel return hose

REFERENCE: Figure 5-97 (5/793)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damage to sealing surface	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Functional check	0.0		Must have free flow in direction of arrow and no leakage at 40 psi in reverse direction
5		<i>Free flow or flow</i> Directional arrow	2.5	Visual	Must be visible and legible



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

5-121. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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Section XXX. OVERHAUL OF FUEL INJECTOR NOZZLE

5-122. General. This section covers overhaul of the fuel injector nozzles (fig. 5-99) (5/831). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-123. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

NOTE

Nozzle should not be disassembled unless it fails testing described in paragraph 5-124, b (5/832).

b. Cleaning.

NOTE

Do not use sharp tools, wire brushes, or abrasive materials to clean the nozzle or nozzle body.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(2) Test preparation. Clean exterior of nozzle to remove carbon and dirt. Do not allow dirt to enter nozzle fuel inlet opening.

(3) Fuel injector nozzle assembly. Soak nozzle body in carbon removing solvent to remove major carbon deposits. Remaining carbon deposits should be removed using a soft cloth or felt pad and mutton tallow. A piece of soft wood, soaked in oil may also be used as a carbon remover.

(4) Nozzle spray orifices. Remove carbon from the orifices of the nozzle body by soaking nozzle body in a carbon removing solvent only. Do not clean orifices with cleaning wire as this method will distort nozzle orifices and also may block opening due to wire breakage.

(5) Fuel injector holder and associated parts. Clean all parts thoroughly. Be sure hands are kept free from accumulation of grease which will cause collection of dust and grit on parts. Cover or wrap all parts after cleaning to protect them from dirt accumulation.

5-124. Inspection.

a. General. Inspect fuel injector nozzles according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for fuel injector nozzles are listed in table 5-44 (5/835). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

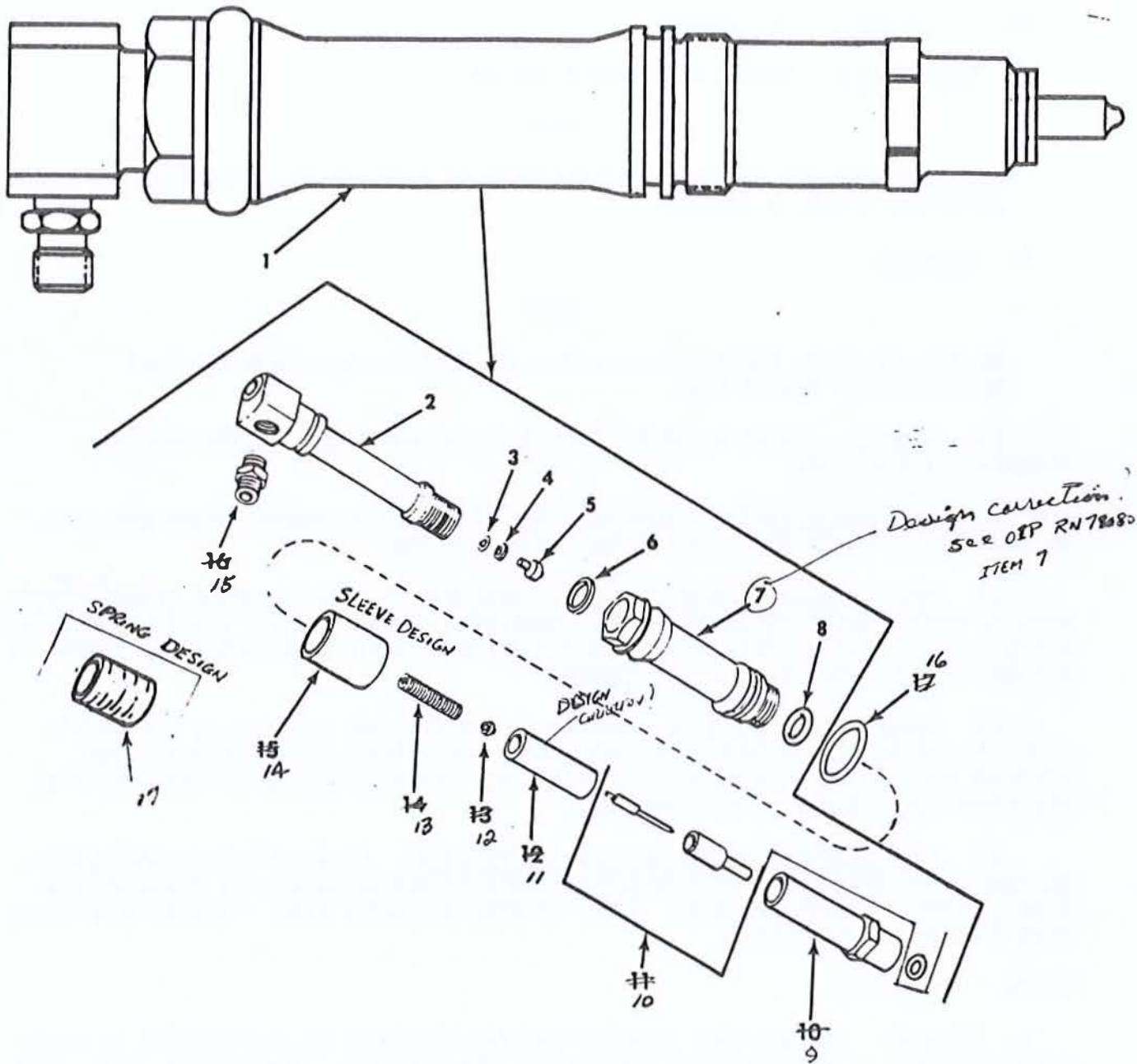


Figure 5-99. Fuel injector nozzle and holder assembly.

(5) Nozzle capnut and tube connector. Inspect the nozzle capnut and tube connector for nicks, burs, raised metal surfaces, and cracks. Inspect threaded area inside capnut for stripped or damaged threads. Inspect the gasket area on end of capnut for deep scratches.

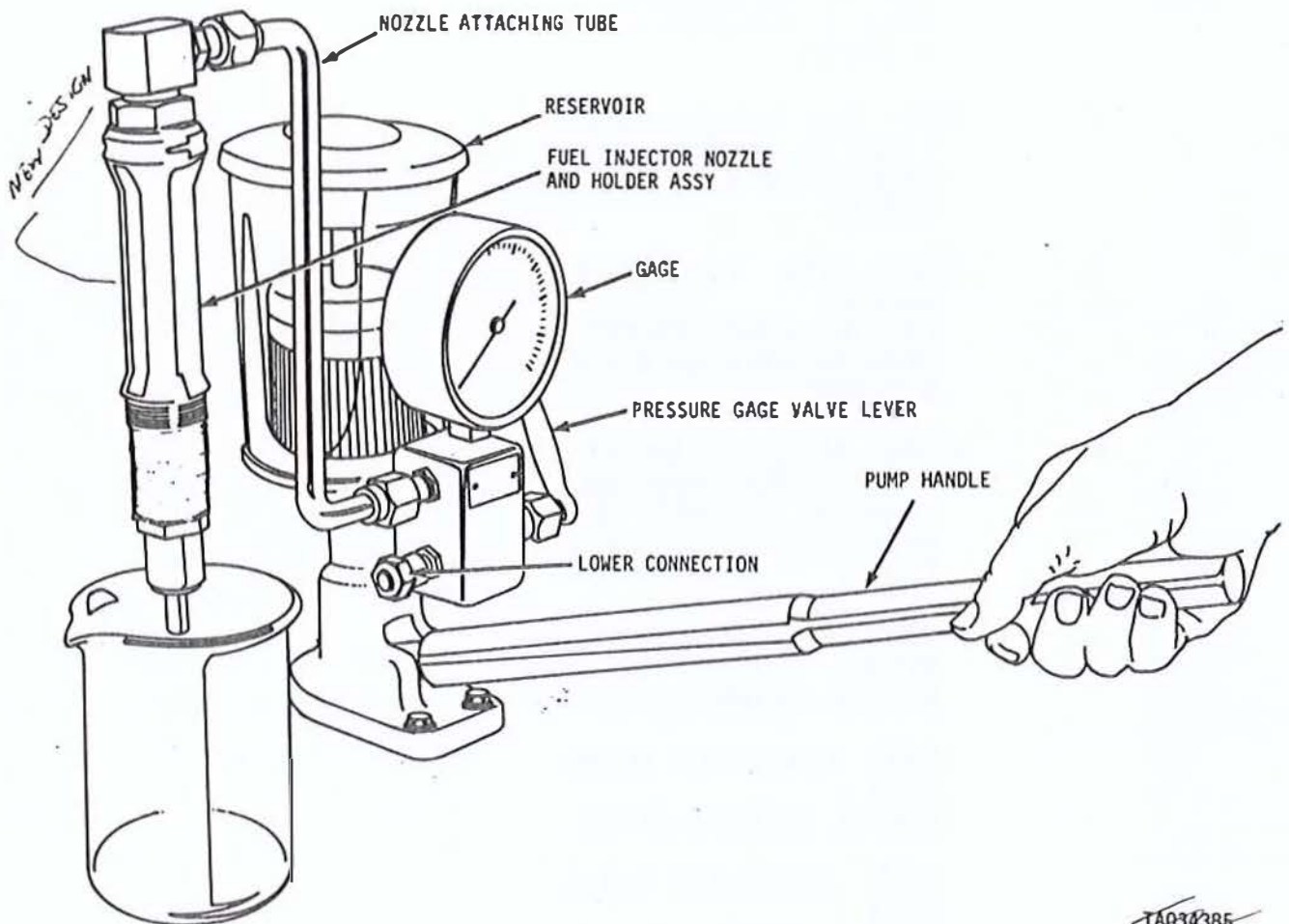


Figure 5-102. Testing fuel injector nozzle and holder assembly.

Table 5-44. Wear Limits, Fits, and Tolerances for
Fuel Injector Nozzle and Holder Assembly

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-99 (5/831)	1	NOZZLE, FUEL INJECTOR - part no. 10912452- 3 3 Refer to paragraph 5-124, b (5/832)		
	2	BODY: fuel injector nozzle - part no. HH78371 Refer to OIP HH78371 (01843) (5/838)		
	3	SPACER, RING: fuel injector nozzle - part no. SR7827 (99-66) Refer to paragraph 5-124, b (5/832)		
	4	SPACER, NOZZLE AND HOLDER: 0.0015-0.0025 inches thick (01843) - part no. SR7828-1 ¹²⁴ Refer to paragraph 5- 4 , b (5/832) SHIM: 0.0062-0.0078 inches thick - part no. SR7828-2 (01843) SHIM: 0.009-0.011 inches thick - part no. SR7828-3 (01843) SHIM: 0.024-0.026 inches thick - part no. SR7828-4 (01843) SHIM: 0.040-0.044 inches thick - part no. SR7828-5 (01843)		

Table 5-44. Wear Limits, Fits, and Tolerances for Fuel Injector Nozzle and Holder Assembly - Continued

<u>References</u>				
<u>Fig.</u>	<u>Item</u>	<u>Item, point of measurement</u>	<u>New part size</u>	<u>Wear limit</u>
<u>No.</u>	<u>No.</u>	<u>or inspection</u>		
5-99 (5/831)	5	SEAT, NOZZLE AND HOLDER: fuel injector nozzle spring - part no. GU7837 Refer to OIP GU7837 (99066) (5/839)		
	6	PACKING, PREFORMED: fuel injector nozzle holder to retainer - part no. M83248/1-911		Replace
	7	RETAINER: fuel injector nozzle - part no. RN789 RN780807 Refer to OIP RN789 RN780807 (01843) (5/840)		
	8	PACKING, PREFORMED: fuel injector nozzle holder - part no. M89084-025 M83248/1-126		Replace
	9	Deleted.		
9 10		NUT: fuel injector nozzle - part no. NT7899 Refer to OIP NT7899 (01843) (5/841)		
10 11		NOZZLE, FUEL INJECTOR - part no. 10912481 Refer to OIP 10912481 (5/842)		
11 12		SPACER: fuel injector nozzle - part no. SR7829 Refer to OIP SR7829 (01843) (5/843)		
12 13		SEAT: fuel injector nozzle - part no. 10951061 Refer to OIP 10951061 (5/844)		

Table 5-44. Wear Limits, Fits, and Tolerances for Fuel Injector Nozzle and Holder Assembly - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-99 (5/831)	14 13	SPRING: fuel injector nozzle - part no. SP7830 Refer to OIP SP7830 (01843) (5/845)		
	17 25	HOLDER SPRING: SPRING, FUEL INJECTOR NOZZLE - part no. 7320485 Refer to OIP 7320485 (5/846) (5/847.1)		
	18 15	STUD, FUEL INLET: fuel injector nozzle - part no. SD78117 Refer to OIP SD78117 (01843) (5/847)		
	27 16	PACKING, PREFORMED: fuel injector nozzle retainer to cylinder - part no. 10935359		Replace
	14	SLEEVE: FUEL INJECTOR NOZZLE - PART NO. SV780843 REFER TO OIP SV780843 (01843) (5/846)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

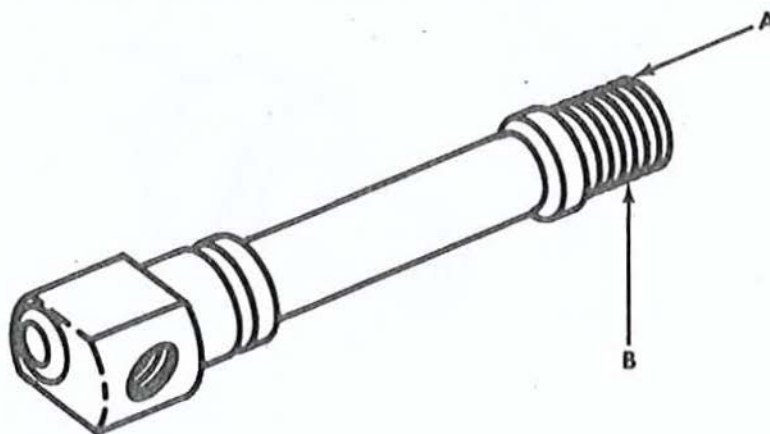
OIP HH78371 (0843)

ITEM: ~~BODY~~ ~~HEAD~~:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: 2

NO.	DEF CTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3	A	Discoloration on lapped sealing surface	2.5	Visual	None allowed
4	B	Damaged threads	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

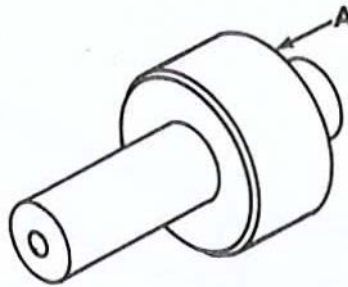
OIP GU7837 (99066)

ITEM: SEAT, NOZZLE AND HOLDER:
fuel injector nozzle spring

REFERENCE: Figure 5-99 (5/831)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	1.0	Visual	None allowed
3	A	Spring seat wear and evidence of pounding	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

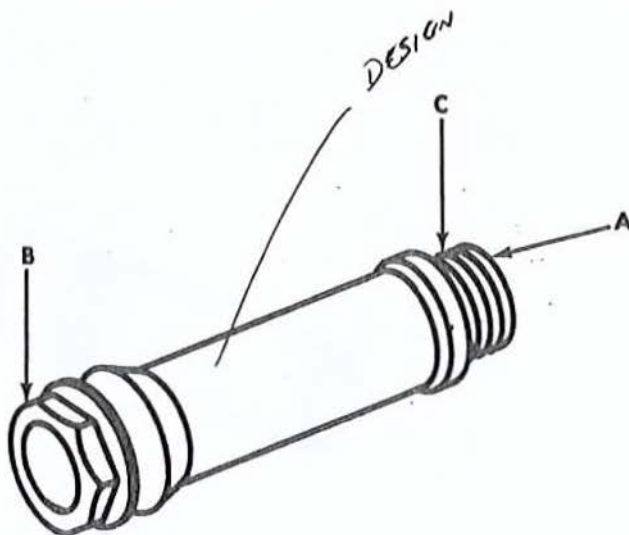
OIP RN783 RN 780807 (0043)

ITEM: RETAINER:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	B	Rounding of hex nut area	2.5	Visual	None allowed
4	C	Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

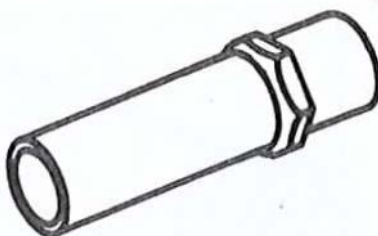
DMWR 9-2815-220

OIP NT7899 (61843)

REFERENCE: Figure 5-99 (5/831)

ITEM: 309

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3		Damaged threads (internal)	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10912481

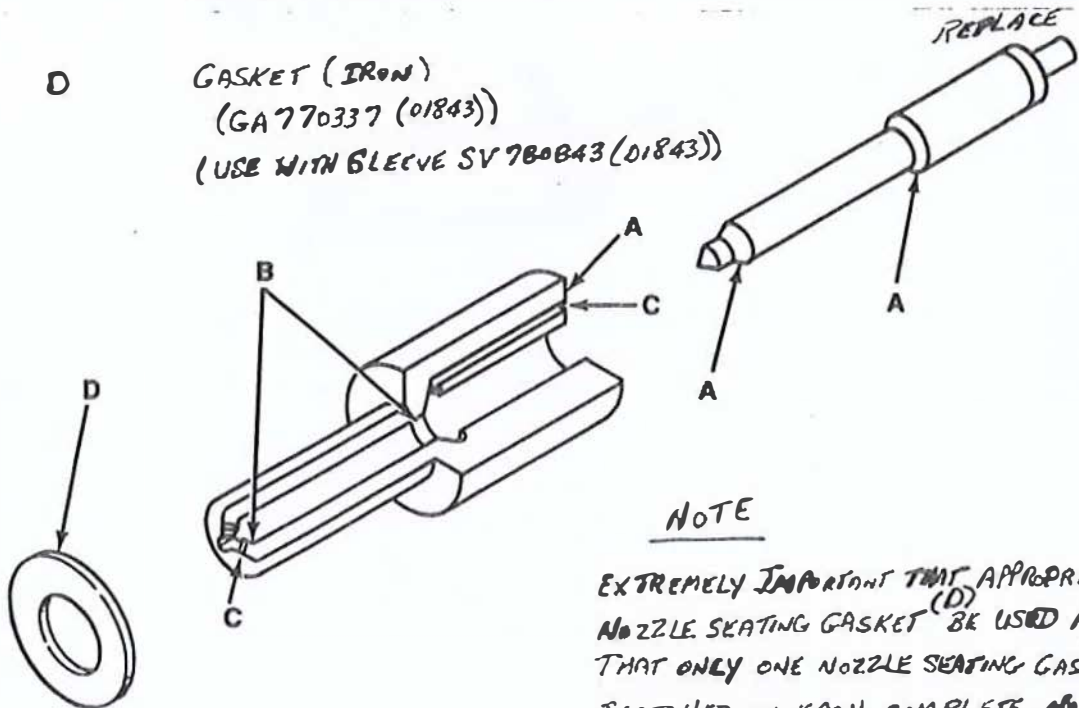
ITEM: NOZZLE, FUEL INJECTOR

REFERENCE: Figure 5-99 (5/831)

ITEM: #10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	B	Distortion, pitting, or discoloration of valve seat	2.5	Visual	None allowed
4	C	Obstruction of spray orifices and drilled passages	2.5	Visual	None allowed
5	D	Flat washer (DEAD SOFT) (7748837) (GA 7727 (01843)) (USE WITH SPRING 7320485)			Replace

5 D GASKET (IRON)
(GA 770337 (01843))
(USE WITH SLEEVE SV 780843 (01843))



NOTE
EXTREMELY IMPORTANT THAT APPROPRIATE NOZZLE SEATING GASKET (D) BE USED AND THAT ONLY ONE NOZZLE SEATING GASKET BE INSTALLED ON EACH COMPLETE NOZZLE AND HOLDER ASSEMBLY.

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

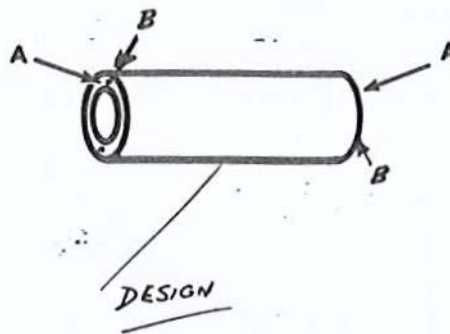
OIP SR7829 (01843)

ITEM: SPACER:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: 22 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Discoloration on lapped sealing surfaces	2.5	Visual	None allowed
4	B	OBSTRUCTION OF DRILLED PASSAGES	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

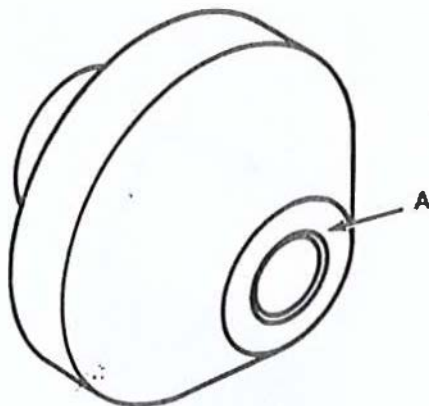
OIP 10951061

ITEM: SEAT:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: ~~512~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

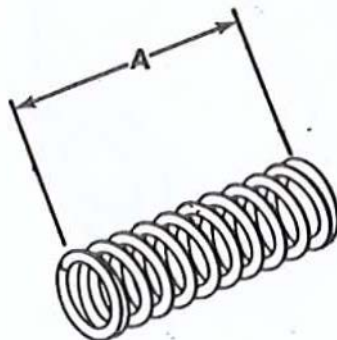
OIP SP7830 (01843)

ITEM: SPRING:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: ~~34~~ 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2	A	Free length	2.5	Measure	Dimension must be no less than 1.6560 inches and no greater than 1.6660 inches
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

VERHAUL INSPECTION PROCEDURE

9-2815
DMWR 7-220-220

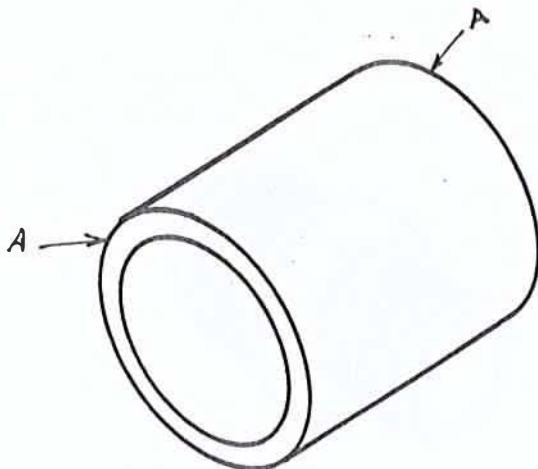
OIP SV780843 (01843)

SLEEVE: fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: 13 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2	A	DISCOLORATION ON LAPPED SURFACE	2.5	VISUAL	NONE ALLOWED



NOTE:

(IRON) NOZZLE GASKET GA 770337 (01843)

MUST BE USED WITH SLEEVE SV 780843 (01843)

Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

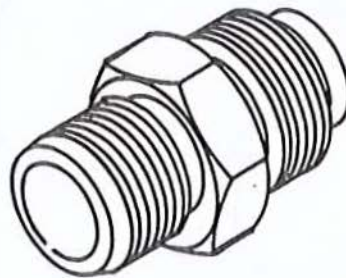
OIP SD78117 (01843)

ITEM: STUD, FUEL INLET:
fuel injector nozzle

REFERENCE: Figure 5-99 (5/831)

ITEM: 1615

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMR 9-215-220

ITEM: ~~SPRING~~ ^{Holder, SPRING:} Fuel Injector Nozzle

DIP 7320485

REFERENCE: Figure 5-99 (5/831)

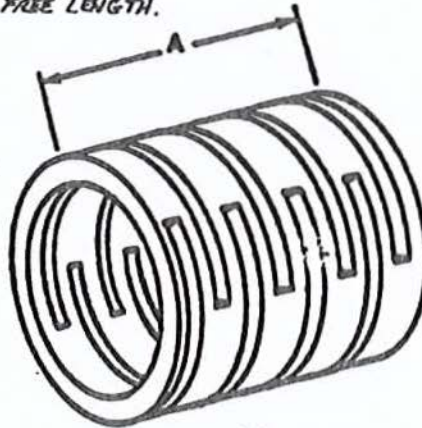
ITEM: ~~17~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2	A	Free length	1.0	Measure	Dimension must be no greater than 1.4100 1.4000 inches or no less than 1.4040 1.4070 inches.

Dimension must be no greater than 1.4100 ~~1.4000~~ inches or no less than 1.4040 ~~1.4070~~ inches.

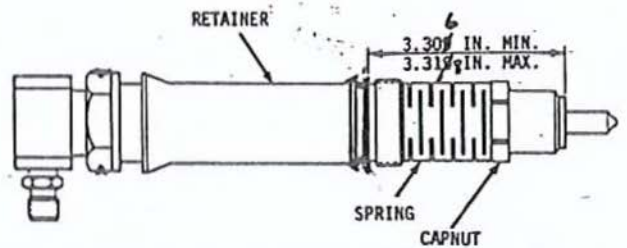
Springs not meeting minimum free length requirement of ~~1.4070~~ may be shimmed to .003 inches to meet free length tolerance.

3 CHECK SPRING TO DIMENSIONS SHOWN BELOW. DIMENSION SHOWS SPRING AT FREE LENGTH.



NOTE:

^{NO TLE}
 (DEAD SOFT) FLAT WASHER
 ARMY PART NO. ~~7748837~~ 7748837 / AMBAC
 PART NO. GAT727 MUST BE USED
 WITH SPRING 7320485



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5/846 Change #
 5/847.1

SHEET 1 OF 1

5-125. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Repair of nozzle assembly. Replace nozzle assembly (10, fig. 5-99) (5/831) when body seat or valve seat is badly worn, pounded, or pitted, or when nozzle body orifices are clogged. Also replace nozzle assembly when lapped sealing surfaces are nicked, scratched, or cracked.

(3) Repair of nozzle assembly components. Repair of nozzle components is limited to cleaning up threads on the nozzle body, nozzle retainer, and capnuts. It is not practical to attempt repairs to any of the remaining parts.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XXX.1 OVERHAUL OF SMOKE GENERATING SYSTEM

5-125.1 ~~General~~. This section covers overhaul of the smoke generating system (fig. 5-102.2) (5/848.2). Specific instructions on disassembly, cleaning, inspection, repair and assembly are included. Wear limits, fits, tolerances and overhaul inspection procedures (OIP's) for individual components are also included.

5-125.2. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

CAUTION

The valves contain rubber parts and should not be immersed in solvent.

(2) Solenoid Valves. Plug inlet and outlet openings to prevent entrance of foreign material. Clean solenoid valves with a cloth moistened with dry cleaning solvent (P-D-680, Type II).

5-125.3. Inspection.

a. General. Inspect the smoke generating system according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the smoke generating system are listed in table 5-44.1 (5/848.3). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Solenoid Valves. Inspect solenoid valves for cracks and dents. Install suitable fittings, activate the solenoid valve with 24 volt dc current, and pump fuel through the valve. Free fuel flow through the valve indicates the valve is functioning normally. Restricted fuel flow indicates a faulty electrical circuit or improper torque setting of acorn nut. Loosen acorn nut and torque nut to 50 pound inches. Recheck solenoid operation. If valve is still inoperative, replace valve. Turn current off. Fuel must not flow when valve is closed. No leakage allowed.

DMWR 9-2815-220

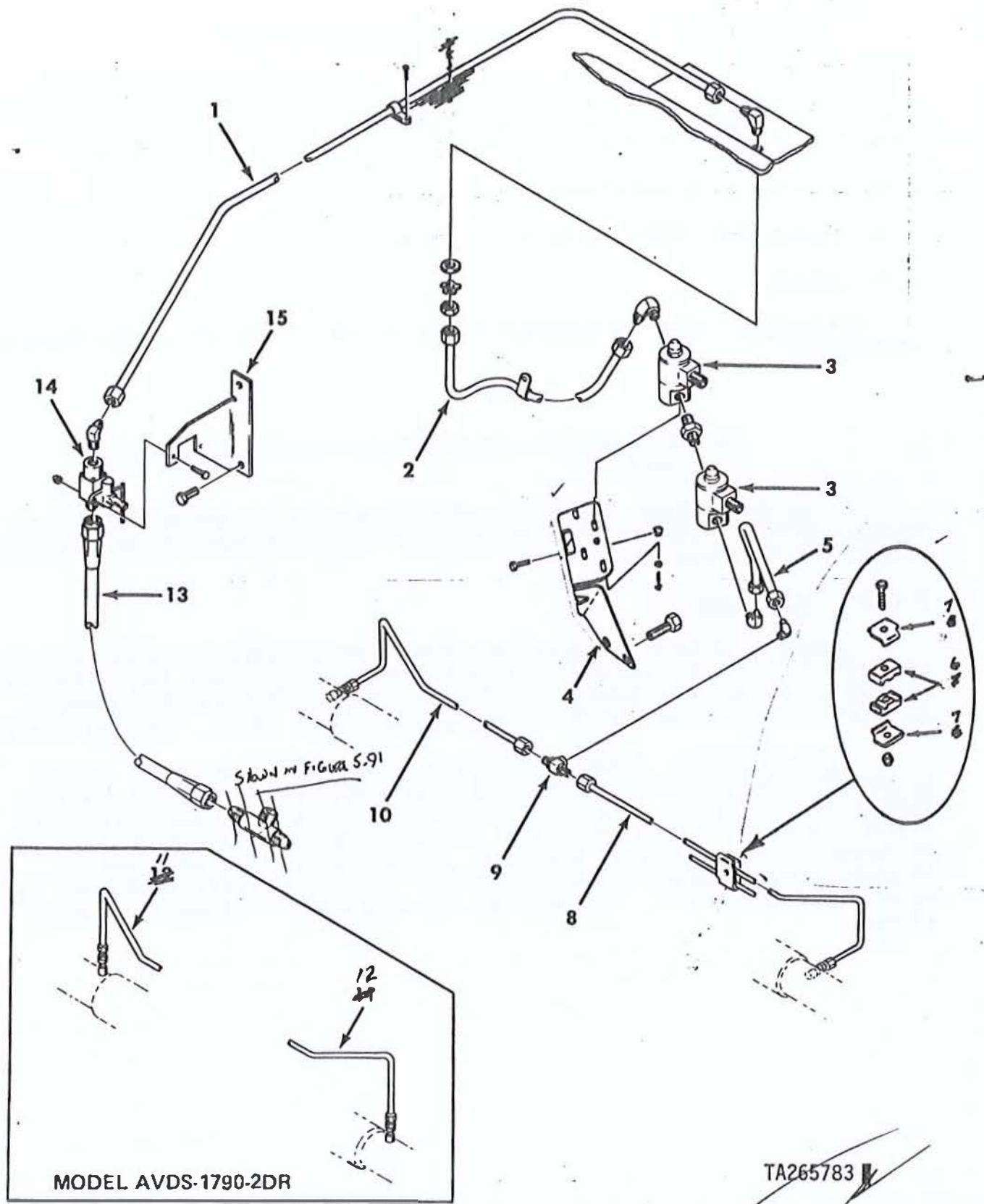


Figure 5-102.2. Smoke Generating System

5/848.2

Change 3

TA265783

Table 5-44.1. Wear Limits, Fits, and Tolerances for Smoke Generating System

References		Item, point of measurement or inspection	New part size	Wear limits
Fig. No.	Item No.			
5-102.2	1	TUBE ASSEMBLY, METAL: part no. 12275811 12354367 Refer to OIP 12275811 12354367 (5/848.6)		FUEL SHUT-OFF VALVE OUTLET TO BULKHEAD ELBOW
	2	TUBE ASSEMBLY, METAL: part no. 12275780 Refer to OIP 12275811 12354367 (5/848.6)		SOLENOID VALVE INLET
	3	VALVE, SOLENOID: part no. 11668627-2 Refer to OIP 11668627 (5/848.7)		SMOKE GENERATING SYSTEM
	4.	BRACKET, Solenoid: part no. 12275712 Refer to OIP 12275712 (5/848.8)		mounting Solenoid Valve To LIFTING EYE AND TRANSMISSION ADAPTER
	5	TUBE ASSEMBLY, METAL: part no. 12275782 Refer to OIP 12275811 12354367 (5/848.6)		SOLENOID VALVE OUTLET TO EXHAUST MANIFOLD ELBOW
	6	FAIRLEAD HALF, two tube part no. 11684157 Refer to OIP 11684157 (5/809)		TUBULAR:
	7	STRAP, RETAINING: part no. 11684156 Refer to OIP 11684156 (5/808)		TWO TUBE manifold tubes

Table 5-44.1 Wear Limits, Fits, and tolerances for
Smoke Generating System - Continued

References		Item, point of measurement or inspection	New part size	Wear limits
Fig. No.	Item No.			
5-102.2 (5/848.2)	8	TUBE ASSEMBLY, METAL: tee to exhaust manifold, right bank part no. 12275807 <i>REFER TO OIP 12275807</i> (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20, and AVDS-1790-20A) (5/848.8)		Replace
	9	TEE to manifold pipe to tube: part no. 11669685 <i>EXHAUST MANIFOLD FUEL SUPPLY TUBES</i> Refer to OIP 11669685 (5/848.9)		
	10	TUBE ASSEMBLY, METAL: tee to exhaust manifold left bank part no. 12275808 <i>REFER TO OIP 12275807</i> (models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-20, and AVDS-1790-2DA) (5/848.8)		Replace
	11	TUBE ASSEMBLY, METAL: tee to exhaust manifold right right bank part no. 12275812 <i>REFER TO OIP 12275807</i> (model AVDS-1790-2DR) (5/848.8)		Replace
	12	TUBE ASSEMBLY, METAL: tee to exhaust manifold left left bank part no. 12275810 <i>REFER TO OIP 12275807</i> (model AVDS-1790-2DR) (5/848.8)		Replace
	13	HOSE ASSEMBLY, NONMETALLIC: fuel SHUT-OFF VALVE INLET part no. MS28741-8-0194 Refer to OIP MS28741 (5/769)		
	14	VALVE, BALL: fuel shut-off part no. 1169749 11669749 Refer to OIP 1169749 11669749 (5/848.10)		

Table 5-44.1. Wear Limits, Fits, and Tolerances for
Smoke Generating System - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limits</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-102.2 (5/848.2)	15 2	ANGLE BRACKET: BRACKET, ANGLE; fuel shut-off valve part no. 12275809 Refer to OIP 12275809 (5/848.11)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

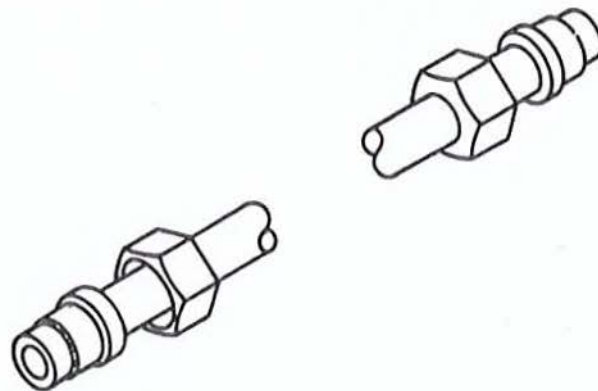
OIP ~~12275811~~ / 2354367

ITEM: TUBE ASSEMBLY, METAL:

REFERENCE: Figure 5-102.2 (5/848.2)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Damaged thread on nuts	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on sleeves	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220

OIP 11668627

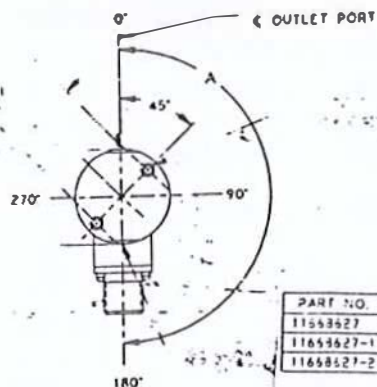
ITEM: VALVE, SOLENOID

REFERENCE: Figure 5-102.2 (5/848.2)

ITEM: 3

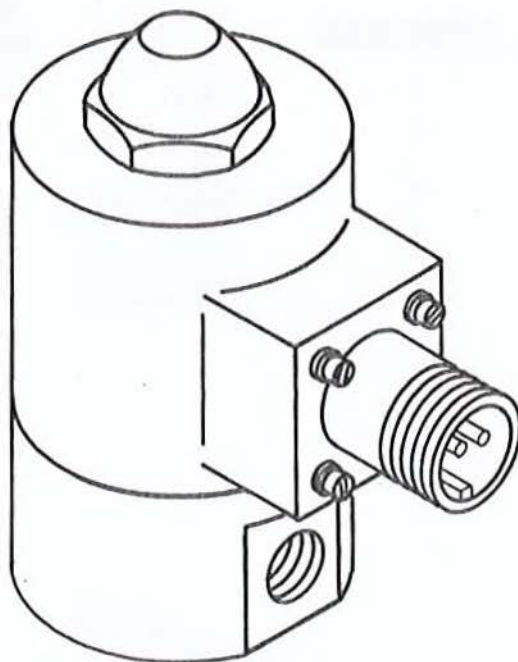
NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Connector threads for damage	2.5	Visual	None allowed
2		Pipe thread for damage	2.5	Visual	None allowed
3		Functional test with 12 V power supply	0.0	Audible	Must have audible click when actuated
		Continuity	0.0	Measure	No opens allowed
		Leakage	0.0	Visual	Must not leak at 150 psi in forward direction with valve closed

APPLY 105 PSIG AIR TO VALVE INLET. THERE SHALL BE NO EXTERNAL LEAKS OR DAMAGE TO VALVE SEAT.



PART NO.	"A"
11668627	130°
11668627-1	45°
11668627-2	135°

ORIENTATION OF BOTTOM UNIT WITH RESPECT TO TOP UNIT CAN BE CHANGED THROUGH 360° FROM OUTLET (SEE TABULATION)



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OVERHAUL INSPECTOR PROCEDURE

OMWR 9-2815-220

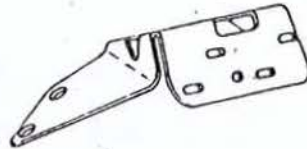
OIP 12275712

**ITEM: BRACKET, SOLENOID:
SOLENOID VALVE TO LIFTING EYE AND
TRANSMISSION ADAPTER**

REFERENCE: Figure 5-102.2 (5-848.2)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or weld	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



[Handwritten signature]

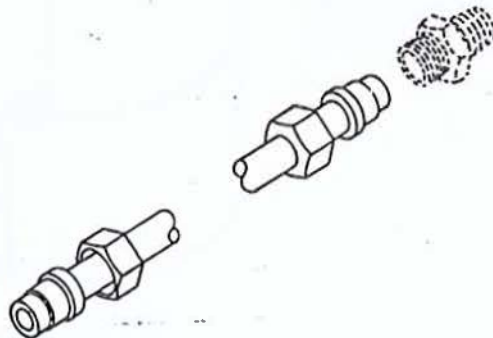
OIP 12275807

ITEM: TUBE ASSEMBLY, METAL

REFERENCE: Figure 5-102.2 (5-848.2)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Damaged thread on nut & connector	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on sleeves	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE:

DMWR:9-2815-220:

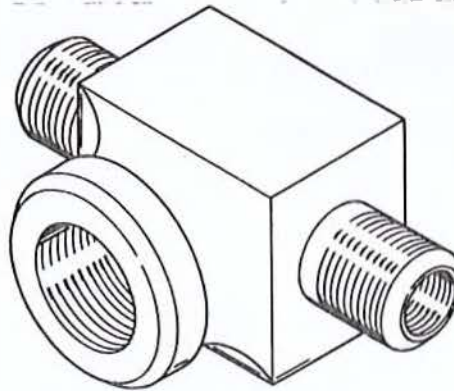
OIP 11669685

ITEM: TEE, ~~Exhaust~~ Pipe to Tube
to tube
EXHAUST MANIFOLD FUEL SUPPLY TUBES

REFERENCE: Figure 5-102.2 (5/848.2)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

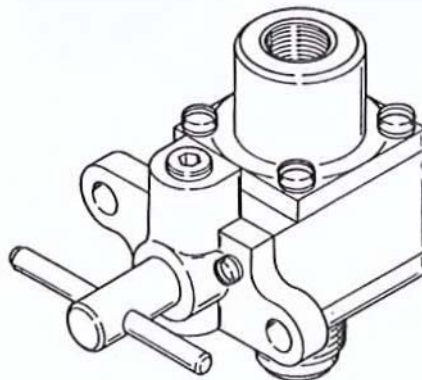
OIP 11669749

ITEM: VALVE, BALL: fuel
shut-off

REFERENCE: Figure 5-102.2 (5/848.2)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose or missing screws	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Scratches, gouges, nicks, or raised metal on seat	2.5	Visual	None allowed
5		Functional test (torque)	1.0	Measure	Starting, 10 in. lbs. (max) Running, 6 in. lbs. (max)
6		Leak tests: external - 0 to 90 psi internal at 30 psi	1.0	Measure Measure	None allowed 10 dpm (max)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

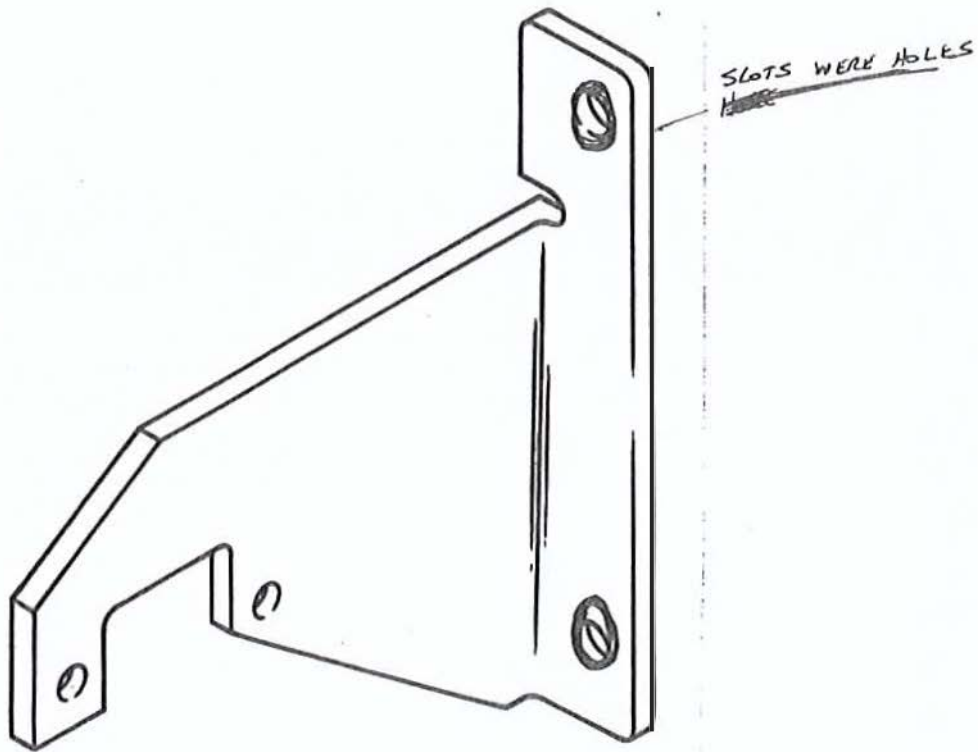
OIP 12275809

ITEM: ~~BRACKET, ANGLE:~~
 ANGLE BRACKET:
 FUEL SHUT-OFF VALVE

REFERENCE: 5-102.2 (5/848.2)

ITEM: 15

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



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DMWR 9-2815-220

5-125.4. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XXX.2. OVERHAUL OF DUST DETECTOR AND ASSOCIATED PARTS

5-125.5. General. This section covers overhaul of the dust detector and associated parts (fig. 5-102.3) (5/848.15) comprising part of the clean air package on Models AVDS-1790-2CA and AVDS-1790-2DA. Specific instructions for disassembly, cleaning, inspection, repair and assembly are included. Wear limits, fits and tolerances and overhaul inspection procedures (OIP's) for individual components are also included.

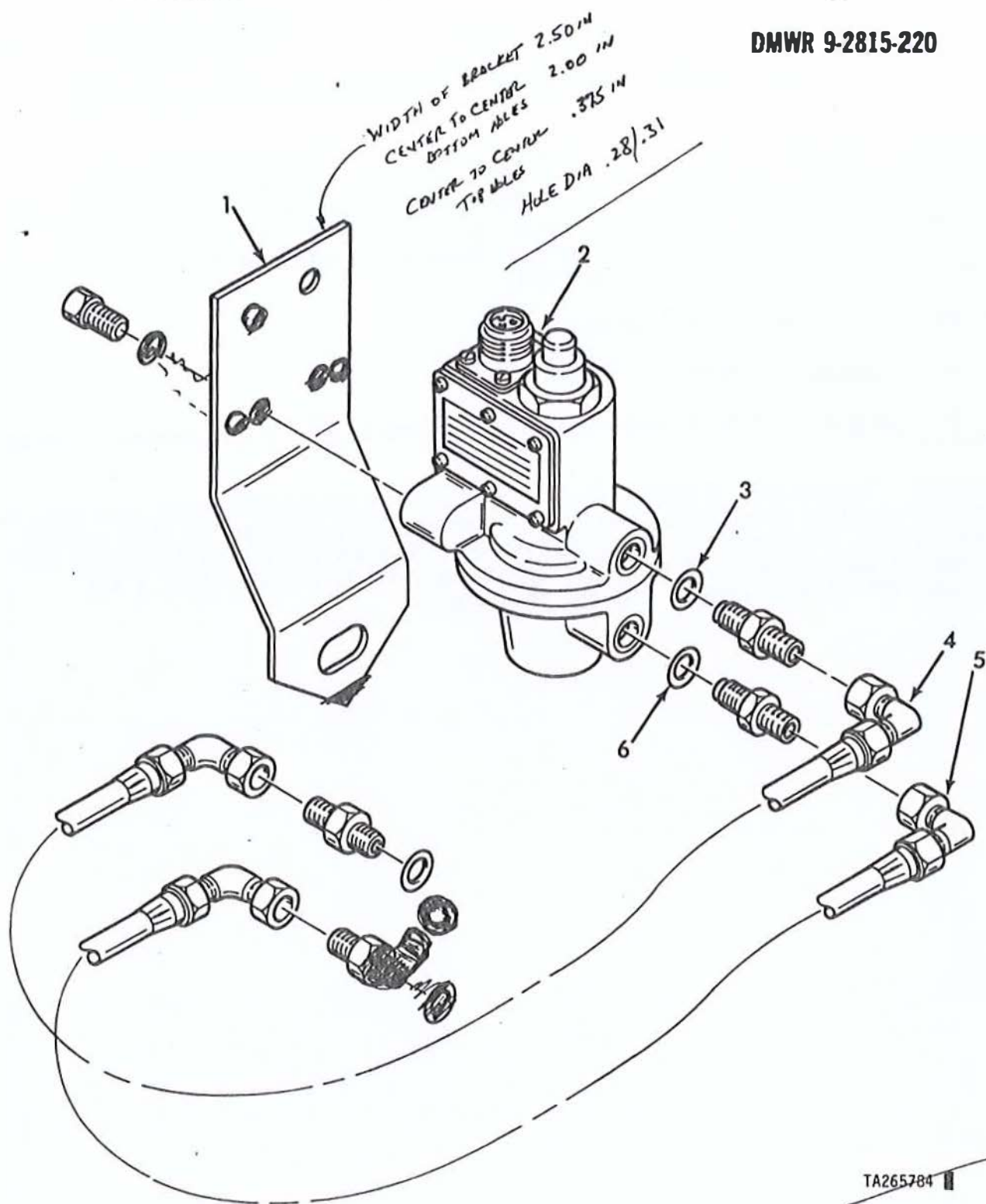
5-125.6. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3 a, b, and c (5/1) for general cleaning instructions.

5-125.7. Inspection. Inspect the dust detector and associated parts according to the instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits and tolerances for the dust detector and associated parts are listed in table 5-44.2 (5/848.15). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits and tolerances.

DMWR 9-2815-220



TA265784

Figure 5-102.3. Dust Detector and Associated Parts

Table 5-44.2. Wear Limits, Fits and Tolerances for Dust Detector and Associated Parts

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-102.3	1 (5/848.14)	BRACKET, ^{DOUBLE ANGLE:} MOUNTING:- air pressure switch part no. 12275870 12354347 Refer to OIP 12275870 12354347 (5/848.16)		
	2	SWITCH, PRESSURE ^{AIR} DIFFERENTIAL part no. 12275842 Refer to OIP 12275842 (5/848.17)		
	3	PACKING, PREFORMED part no. MS28778-4		Replace
	4	HOSE ASSEMBLY, NONMETALLIC: High Low air pressure switch INLET part no. AE6040E0092-020 MS8005F092F020 AND MS8005FMS F000 Refer to OIP AE6040 MS8005 (5/848.18) (5/666)		
	5	HOSE ASSEMBLY, NONMETALLIC: Low High air pressure switch OUTLET part no. AE6040E0145000 and MS8005E02 ^{F020} MS8005E02 AND MS8005E02 ^{EMS F000} AE6040E0112-020 Refer to OIP AE6040 MS8005 (5/848.18) (5/666)		
	6	PACKING, PREFORMED part no. MS28778-5		Replace

OVERHAUL INSPECT ON PROCEDURE

DMWR 9-2815-220

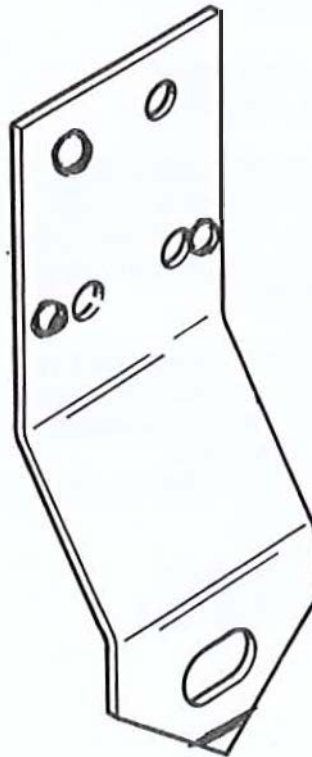
OIP ¹²³⁵⁴³⁴⁷~~12275870~~

ITEM: BRACKET, ^{DOUBLE ANGLE:} MOUNTING:
air pressure switch

REFERENCE: Figure 5-102.3 (5/848.14)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Deformed holes or slot	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on contact surfaces.	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

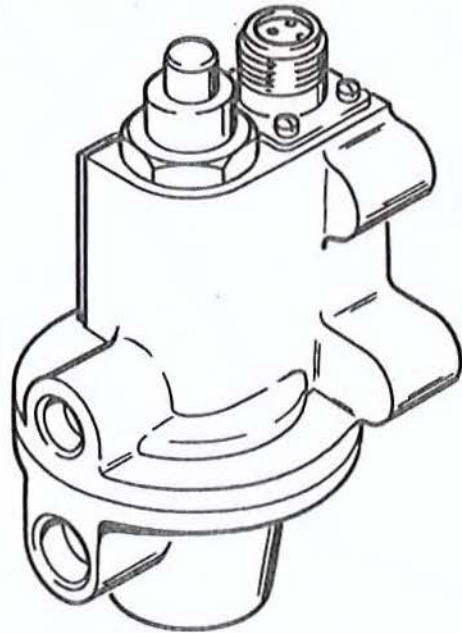
DMWR 9-2815-220

ITEM: ~~PRESSURE SWITCH, DIFFERENTIAL:~~
 SWITCH, PRESSURE:
 AIR

OIP 12275842
 D525-13 (143M)
 REFERENCE: Figure 5-102.3 (5/848.14)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose or missing screws	2.5	Visual	None allowed
3		Thread inserts, for looseness and damaged or missing threads	2.5	Visual	None allowed
4		Damaged threads on connector	2.5	Visual	None allowed
5		Pressure ports for damaged threads and gouges, nicks or raised metal on seats	2.5	Visual	None allowed
6		Functional test	1.0	Measure	Circuit is normally open. The circuit must close and pop-up button extend when the "HI" pressure exceeds the "LOW" pressure by 5.5 ±.5" Hg. Reset pop-up button and reopen circuit when the differential pressure drops below 3.5" Hg. Electrical Rating: ELECTRICAL RATING: 3 amps resistive, 2 amps inductive, at 28 volts dc.



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP AE6040

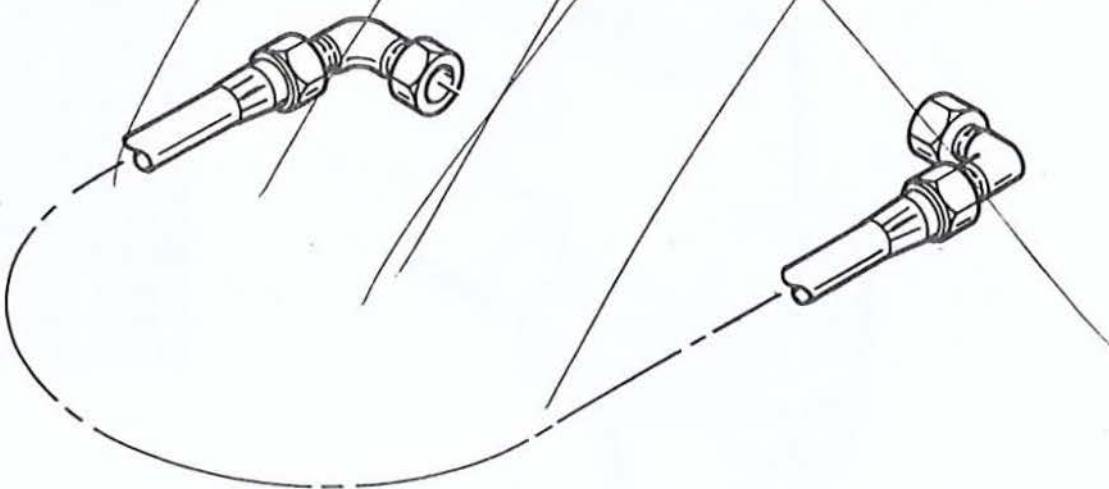
ITEM: HOSE ASSEMBLY, NONMETALLIC

REFERENCE: Figure 5-102.3 (5/848.14)

ITEM: 4.

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 3000 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed

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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

DMWR 9-2815-220

5-125.8. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XXX.3. OVERHAUL OF DUST EJECTOR AND
ASSOCIATED PARTS

5-125.9. General. This section covers overhaul of the dust ejector and associated parts (fig. 5-102.4) (5/848.21) comprising part of the clean air package on Models AVDS-1790-2CA and AVDS-1790-2DA. Specific instructions on disassembly, cleaning, inspection, repair and assembly are included. Wear limits, fits, tolerances and overhaul inspection procedure (OIP's) for individual components are also included.

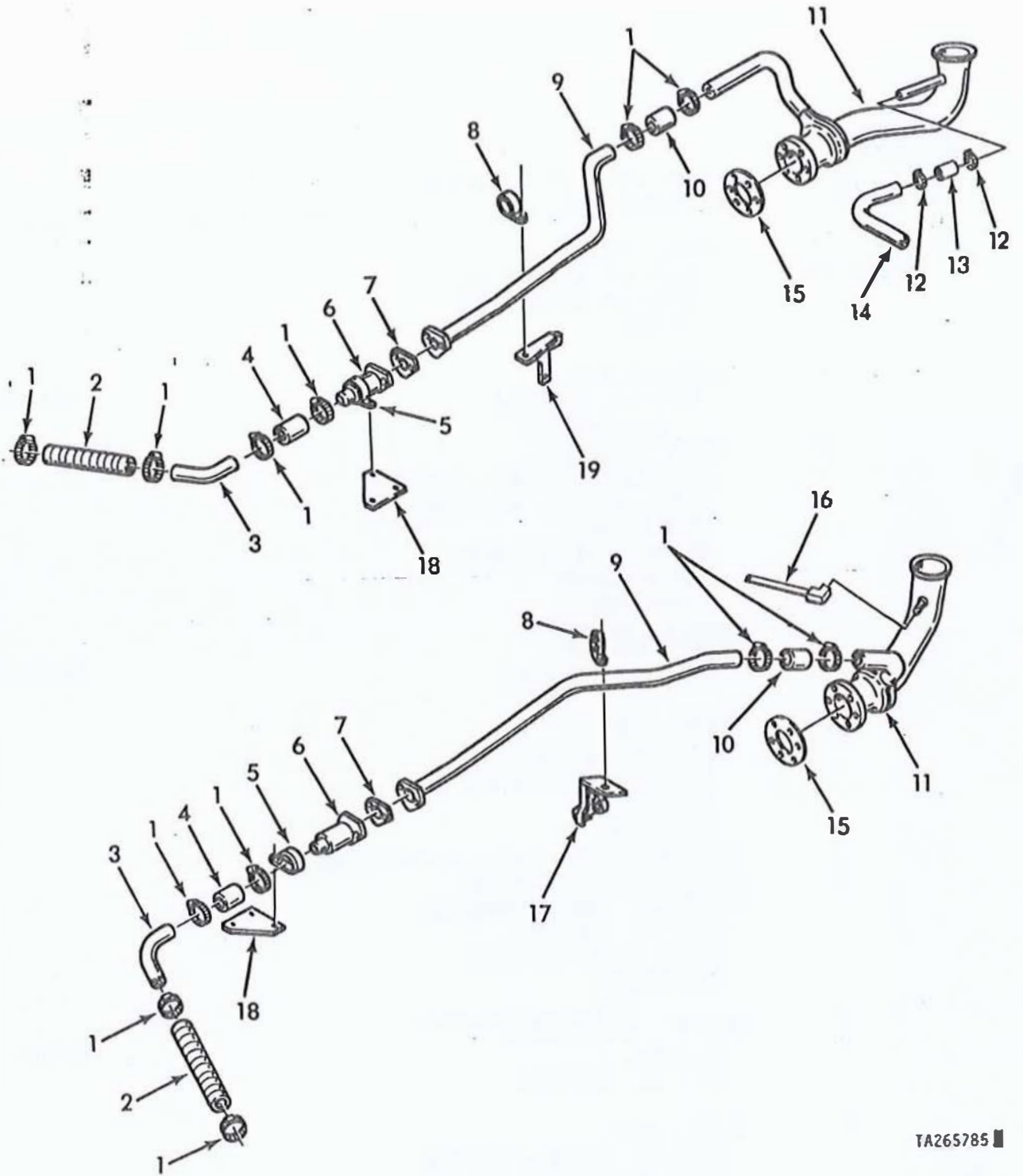
5-125.10. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instruction.

5-125.11. Inspection. Inspect the dust ejector and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits and tolerances for the dust ejector and associated parts are listed in table 5-44.3 (5/848.22). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits and tolerances.

DMWR 9-2815-220



TA265785 ■

Figure 5-102.4. Dust Ejector and Associated Parts.

Change 3

5/848.21

Table 5-44.3. Wear Limits, Fits and Tolerances for Dust Ejector and Associated Parts

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-102.4 (5/848.21)	1	CLAMP, HOSE: part no. MS35842-13 Refer to OIP MS35842 (5/383)		
	2	HOSE, AIR DUCT : part no. 12314574		Replace
	3	^{BENT, METALLIC:} TUBE, scavenge, part no. 12314564 - left bank, part no. 12314568- right bank Refer to OIP 12314564 and 12314568 (5/848.25)		
	4	^{HOSE, NONMETALLIC:} HOSE, AIR DUCT: part no. 12275883		Replace
	5	CLAMP, LOOP: part no. 12314637 Refer to OIP 12314637 and 12275861 (5/848.26)		
	6	CAP ASSEMBLY, PROTECTIVE, MUFFLER, MANIFOLD PIPE: SUBMERGENCE CHECK VALVE ASSEMBLY: EXTENDED part no. 12275844 Refer to OIP 12275844 (5/848.27)		
	7	GASKET: ^{CAP ASSEMBLY MOUNTING} check valve to tube part no. 12275824		Replace
	8	CLAMP, LOOP: part no. 12314637 12275861 Refer to OIP 12314637 and 12275861 (5/848.26)		

Table 5-44.3. Wear Limits, Fits and Tolerances for Dust Ejector and Associated Parts - Continued

References		Item, point of measurement or inspection	New Part Size	Wear Limit
Fig. No.	Item No.			
5-102.4	9 (5/848.21)	<p><i>METAL:</i> TUBE ASSEMBLY, SCAVENGE: SCAVENGE part no. 12314565- left bank, part no. 12314569 - right bank Refer to OIP 12314565 and 12314569 (5/848.28)</p>		
	10	<p>HOSE, AIR DUCT: ² part no. 10935282-4</p>		Replace
	11	<p>EXHAUST EXHAUST: ^{RIGHT} part no. 12275879 - left bank, part no. 12314567 ^{LEFT} right bank Refer to OIP 12275879 and 12314567 (5/848.29) through (5/848.32)</p>		
	12	<p>CLAMP, HOSE: ^{MS 3584-2-12} part no. 11630499-1 Refer to OIP 11630499-1 MS 3584-2 (5/383)</p>		
	13	<p>HOSE, AIR DUCT: part no. 10898794</p>		Replace
	14	<p>TUBE, BENT, METALLIC: ^{CANNELED SLENDER, INTERMEDIATE} part no. 12275880 Refer to OIP 12275880 (5/848.33)</p>		
	15	<p>GASKET: ¹²³⁵⁴³⁰³ part no. 10864007</p>		Replace
	16	<p>^{SOLE} TUBE, BENT, METALLIC: TUBE, TRANSMISSION BREATHER: ^{TRANSMISSION BREATHER} part no. 12275831 Refer to OIP 12275831 (5/848.34)</p>		

Table 5-44.3. Wear Limits, Fits and Tolerances for
Dust Ejector and Associated Parts - Continued

<u>References</u>		<u>Item, point of measurement</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>	<u>or inspection</u>		
5-102.4 (5/848.21)	17	BRACKET, SUPPORT ^{DOUBLE ANGLE MOUNTING:} right ^{RIGHT} SCAVENGE AIR TUBE, REAR ^{SCAVENGE AIR TUBE, REAR TUBE, LEFT}	part no. 12314561 Refer to OIP 12314561 (5/848.35)	
	18	BRACKET, support ^{ANGLE BRACKET:} SCAVENGE AIR TUBE, FRONT	part no. 12275822 Refer to OIP 12275822 (5/848.36)	
	19	BRACKET, support ^{ANGLE BRACKET:} SCAVENGE AIR TUBE, REAR, LEFT	part no. 12275823 Refer to OIP 12275823 (5/848.37)	

OVERHAUL INSPECTION PROCEDURE

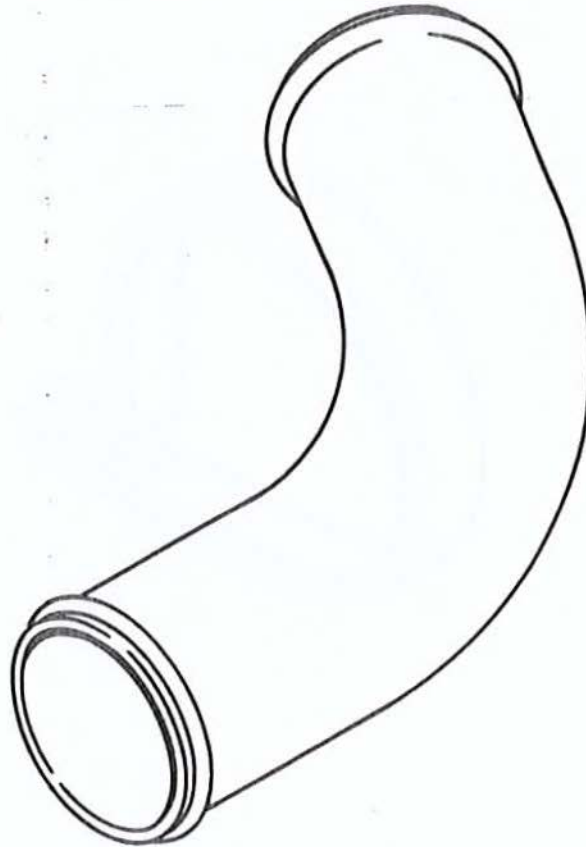
DMWR: 9-2815-220

ITEM: TUBE, ^{BENT, METALLIC} scavenge

OIP 12314564 ^(LEFT) and 12314568 ^(RIGHT)
 REFERENCE: Figure 5-102.4 (5/848.2)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

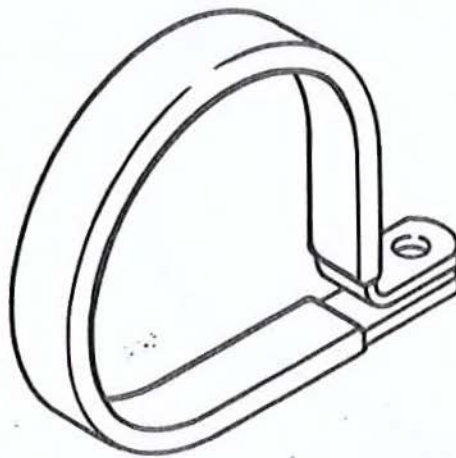
OIP 12314637 and
12275861

ITEM: CLAMP, LOOP

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 5 and 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, broken or bent clamp	0.0	Visual	None allowed
2		Torn or deteriorated rubber cushion	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220:

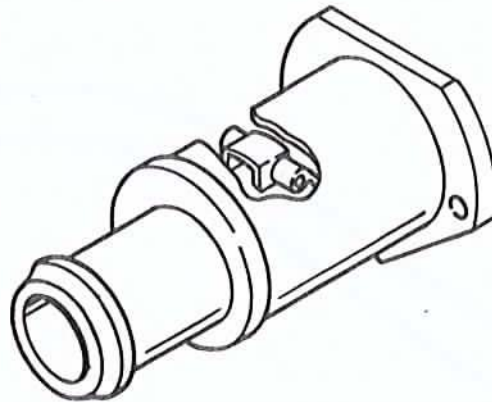
OIP 12275844

ITEM: CAP ASSEMBLY, PROTECTIVE, MUFFLER-EXHAUST PIPE
~~SUBMERGENCE CHECK VALVE ASSEMBLY,~~
~~EXHAUST EJECTOR~~

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes flange or welds	0.0	Visual	None allowed
2		Leak test or flapper	0.0	Apply water head of 5 feet at flange.	Shall not leak more than one pint in 15 min.
3		Missing or damaged hinge pins	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed



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Change 3

5/848.27

OVERHAUL INSPECTION PROCEDURE:

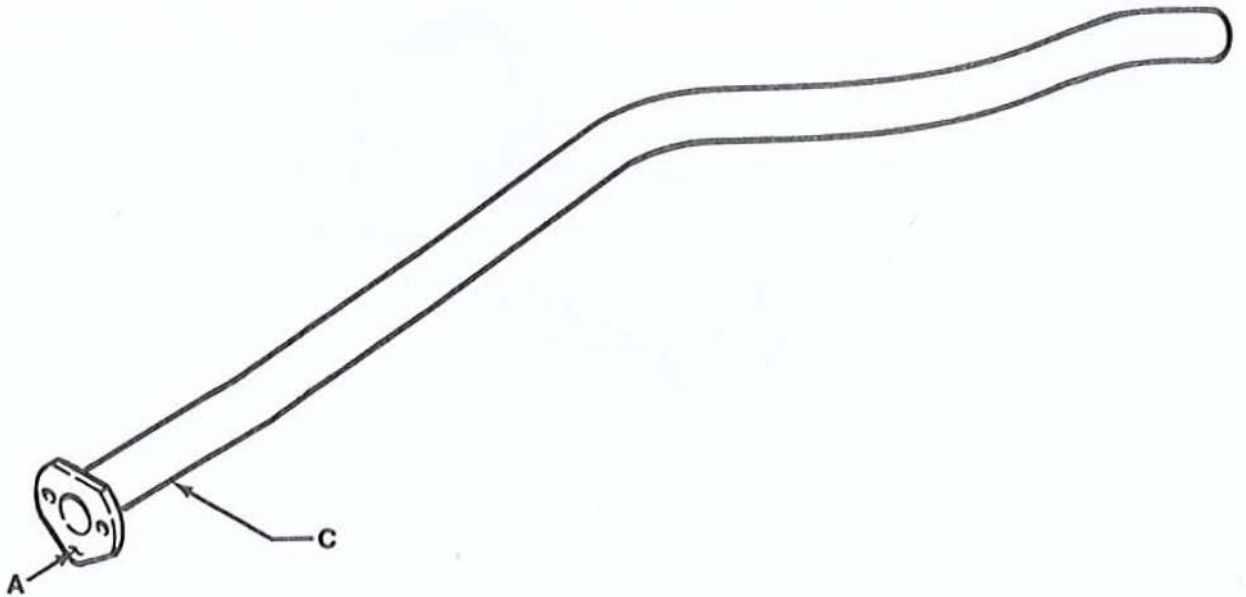
DMWR-9-2815-220

ITEM: TUBE ASSEMBLY, ^{METAL:} ~~SCAVENGE~~ ^{SCAVENGE}

OIP 12314565 ^(LEFT) and
12314569 ^(RIGHT)
REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tube, flange and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Bent or distorted tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5	A	Squareness of contact surface to tube O.D.	2.5	Measure	Surface must be PERPENDICULAR TO ^{PERPENDICULAR TO} within .015



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE:

~~12314567 EJECTOR, EXHAUST~~

DMWR-9-2815-220 (RIGHT)

ITEM: ~~EJECTOR~~ ^{PIPE,} EXHAUST

699112 (Q2978) OIP 12275879 and ~~12314567~~ (LEFT)

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes, flanges and welds	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Pressure test for leaks	0.0	Underwater leak test using 10 psi internal air pressure. Plug all openings	No leaks permissible
4	A	Squareness of flange contact surface to O.D. of tube	2.5	Measure	Surface must be flat to -D- within .015
5		Support bracket broken or missing (12314567 only)	2.5	Visual	None allowed
6	B	Concentricity of nozzle to I.D. of tube	2.5	Measure	Nozzle must be concentric to -E- within .060 dia. (M)
7	C	Location of tube end to (2) 2.870 ^{2.870} dia holes and centerline of ejector	2.5	Measure	Must be on location specified within +.03 either direction
8		Holes due to erosion		Visual	None allowed
9		2.780 ^{2.870} - 2.890 and 3.370 - 3.390 inch ejector nozzle diameters.		Measure	Must not exceed .010 inch over high limit
10		Location of nozzle exit from flange: 6.53 - 6.59 inches (12275879) (12275879) 5.22 - 5.28 inches (12314567)		Measure	Must not exceed .030 inch under low limit

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

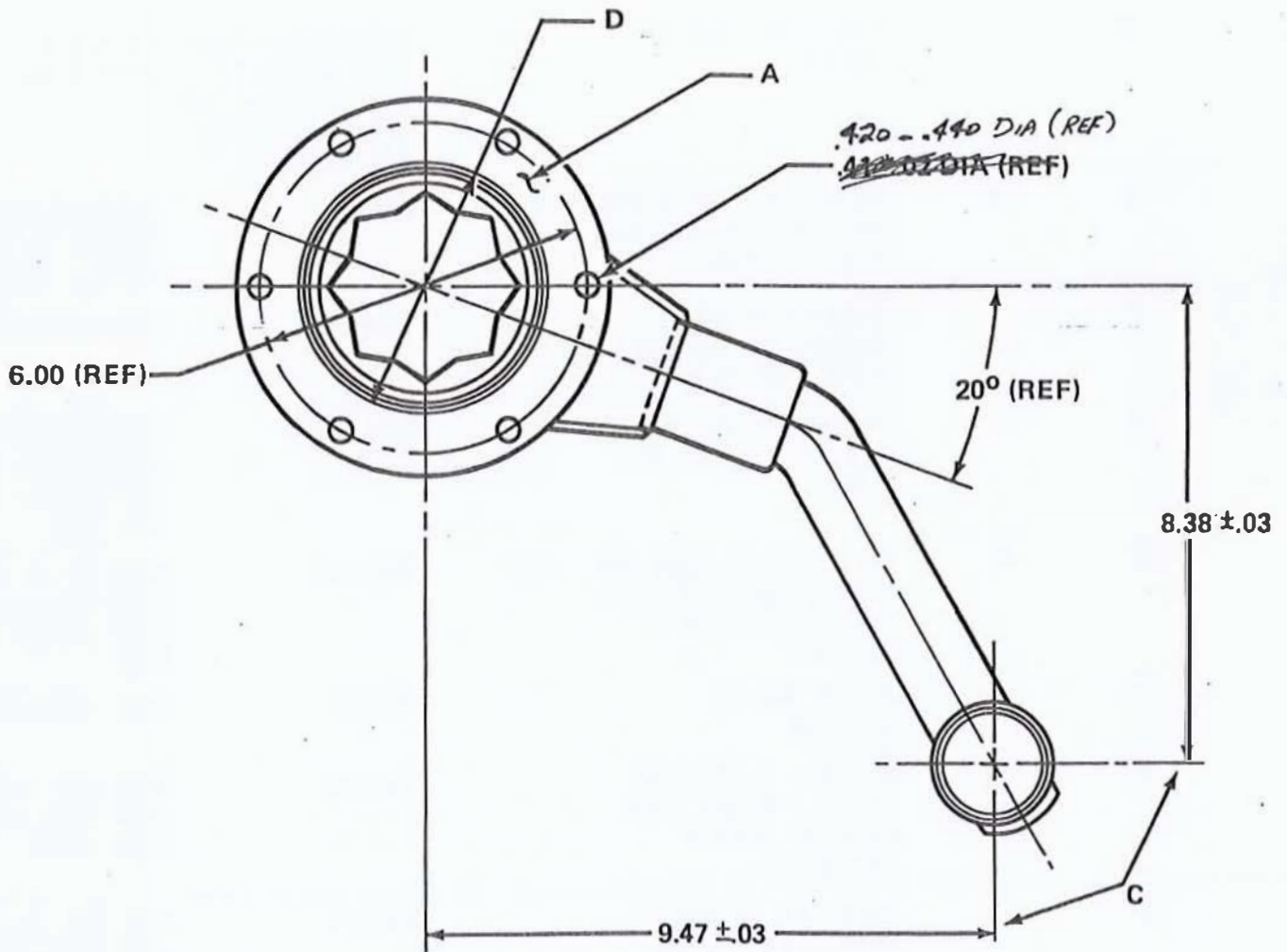
ITEM: ^{PIPE} EXHAUST, R.H.

OIP 12314567

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220:

P. DE

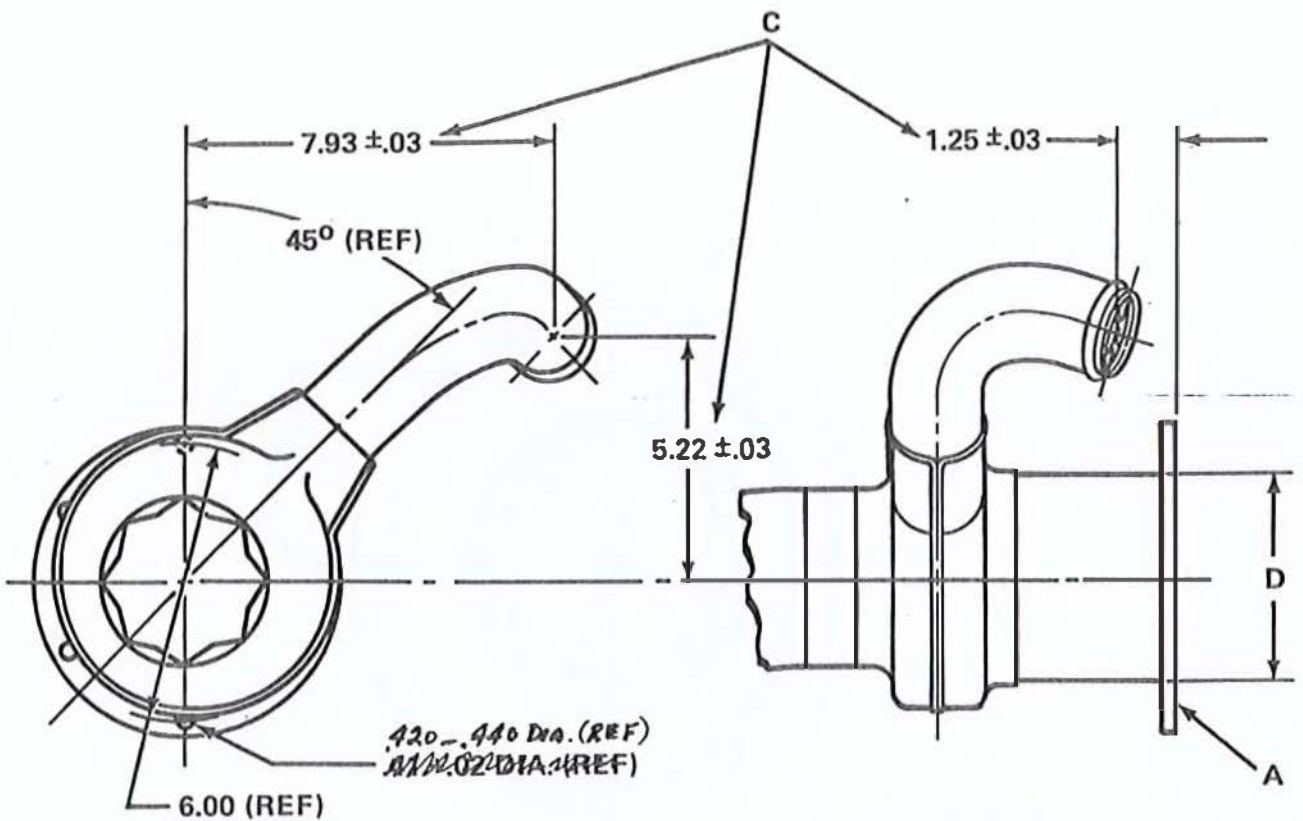
OIP 12275879

ITEM: EJECTOR, EXHAUST R.H.

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3

5/848.31

gsh

SHEET 3 OF 4

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220:

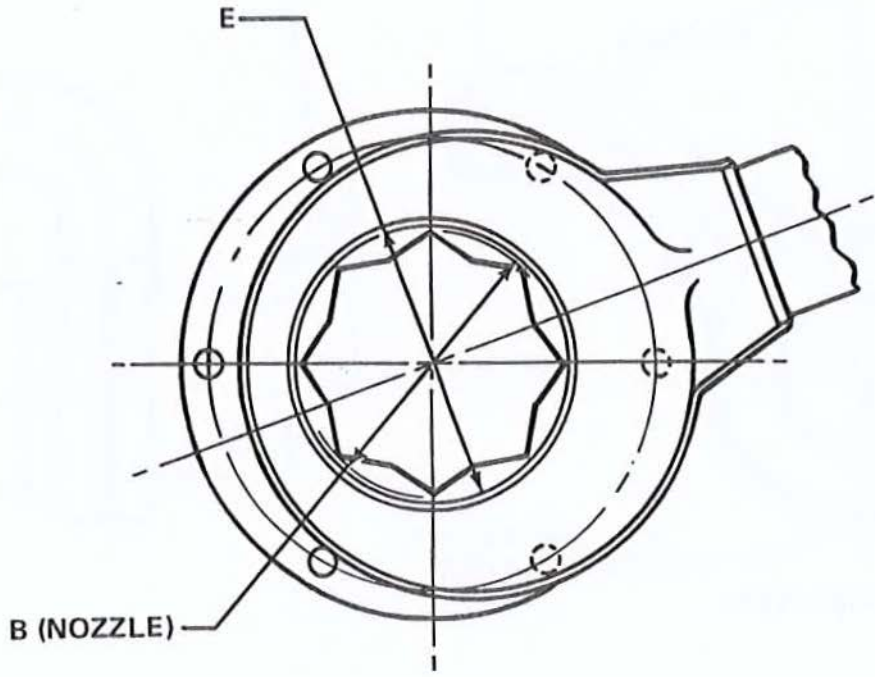
ITEM: ^{Pipe} ~~EJECTOR~~, EXHAUST

OIP 12275879 R.H.
12314567 R.H.

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
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OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220

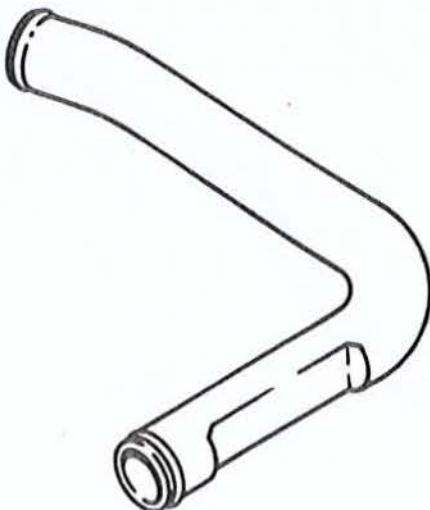
ITEM: ^{BENT, METALLIC:} TUBE, ~~INTERMEDIATE~~
CRANKCASE BREATHER, ^{INTERMEDIATE}

OIP 12275880

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or Distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

TUBE, BENT, METALLIC:

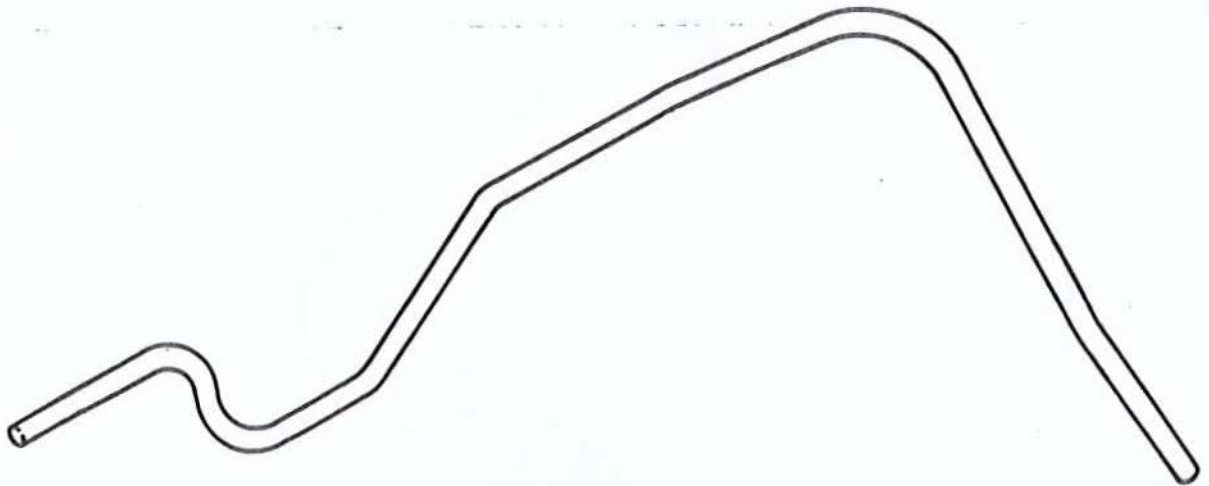
OIP 12275831

ITEM: TUBE, TRANSMISSION BREATHER

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 16

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-2202

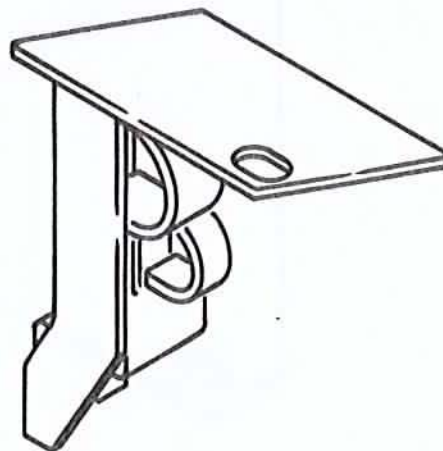
ITEM: BRACKET, ^{MOUNTING:} ~~SUPPORT, RIGHT~~
~~SCAVENGE AIR, REAR TUBE, ~~RIGHT~~~~

OIP 12314561

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3

5/848.35

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220

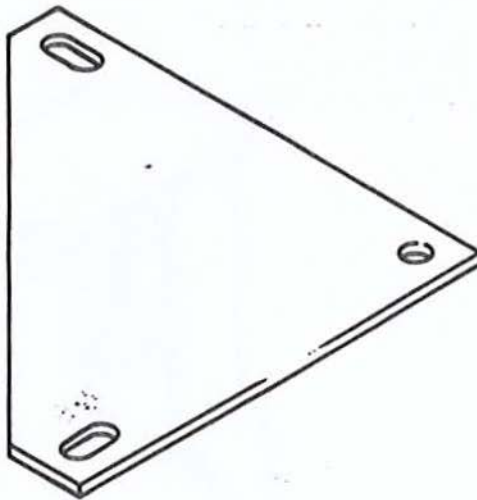
ANGLE BRACKET:
~~CORNER BRACKET:~~
ITEM: SUPPORT BRACKET
SCAVENGE AIR TUBE, FRONT

OIP 12275822

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 18

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

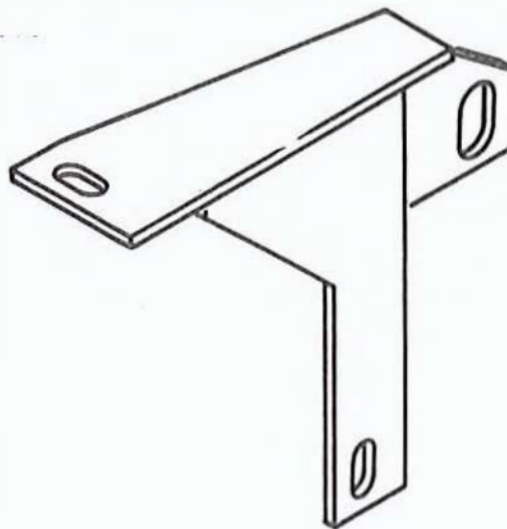
ANGLE BRACKET:
ANGLE:
ITEM: ~~BRACKET~~ ~~LEFT REAR~~
SCAVENGE AIR TUBE, REAR, LEFT

OIP 12275823

REFERENCE: Figure 5-102.4 (5/848.21)

ITEM: 19

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-125.12. Repair and Assembly

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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Section XXXI. OVERHAUL OF OIL HOSES - INJECTION
PUMP, TURBOSUPERCHARGERS, OIL COOLERS, AND GENERATOR

5-126. General. This section covers overhaul of the injection pump, turbosupercharger, oil cooler and generator (~~Model AVDS1790-20~~) oil hoses (figs. 5-103 and 5-104) (5/851) and (5/851). (Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

(MODELS AVDS1790-2C AND AVDS1790-2)

5-127. Disassembly and cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

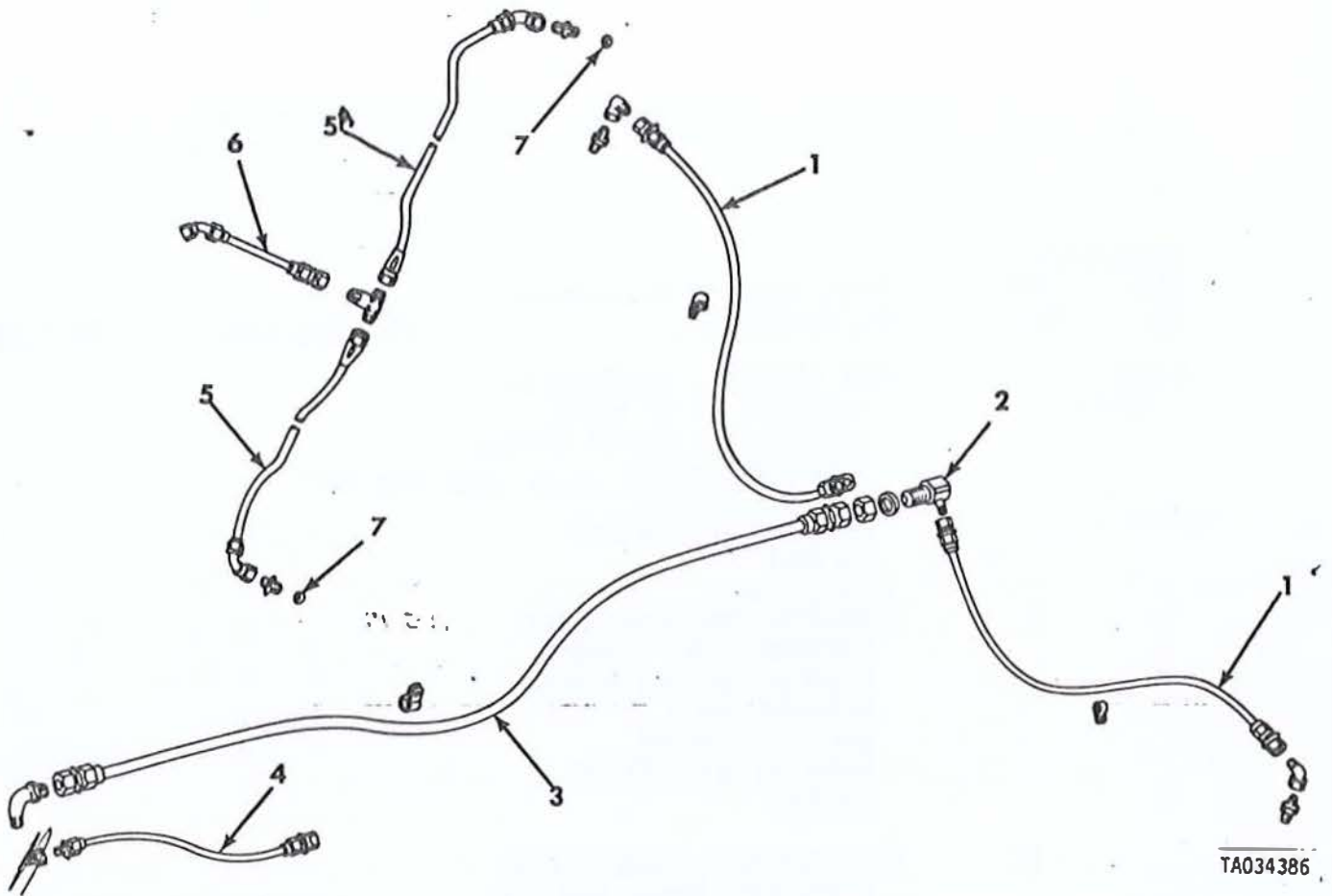
b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-128. Inspection.

a. General. Inspect the oil hoses according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the oil hoses are listed in table 5-45 (5/852). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

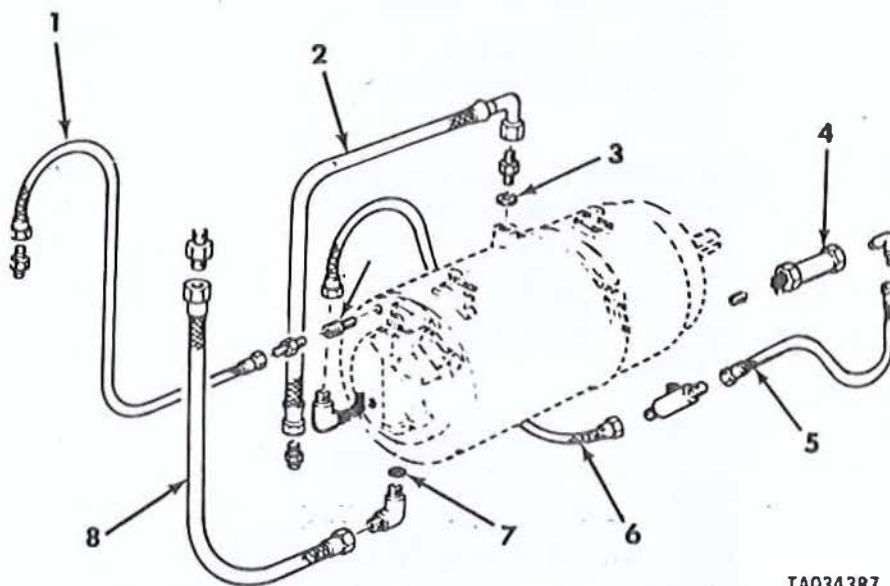
b. Oil Hoses and Lines. Inspect fuel injection pump, oil cooler, turbosupercharger, and generator (~~Model AVDS-1790-20 only~~), hoses for cracks, frayed or chaffing of the woven metal sheathing. Check hose connectors for cracks or damage.

(MODELS AVDS-1790-2C AND AVDS1790-2C ONLY),



TA034386

Figure 5-103. Injection pump, turbosupercharger, and oil cooler oil hoses.



TA034387

Figure 5-104. Generator oil lines - Models AVDS-1790-2C AND AVDS-1790-2CA

Table 5-45. Wear Limits, Fits, and Tolerances for Oil Hoses - Injection Pump, Turbosuperchargers, Oil Coolers, and Generator

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-103	1	HOSE ASSEMBLY, NONMETALLIC: bulkhead tee to turbo- supercharger swivel elbow use and tight (MODEL AVOS-1790-2DR) part no. 8761507 Refer to OIP 8761507 (5/855)		
	2	ELBOW, TUBE: CONNECTOR, MULTIPLE FLUID PRESSURE LINE: turbo- supercharger oil line hose bulkhead tee - part no. 8761449 Refer to OIP 8761449 (5/856)		
	3	HOSE ASSEMBLY, NONMETALLIC: crankshaft damper and oil filter housing to turbo- supercharger oil inlet tee - part no. 8761491-3 Refer to OIP 8761491-3 (5/857)		
	4	HOSE ASSEMBLY, NONMETALLIC: crankshaft damper and oil filter housing to fuel injection pump oil inlet - part no. 8761502-2 Refer to OIP 8761502-2 (5/858)		
	5	HOSE ASSEMBLY, NONMETALLIC: oil cooler vent, reference right - part no. (MS8005E284C) Refer to OIP MS8005 MS8005E284C (5/666)		

Table 5-45. Wear Limits, Fits, and Tolerances for Oil Hoses -- Injection Pump, Turbosuperchargers, Oil Coolers, and Generator - Continued

<u>References</u>	<u>Item</u>	<u>Item, point of measurement</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>No.</u>	<u>or inspection</u>		
5-103 (5/851)	6	HOSE AS MBLY, NONMETALLIC: oil cooler vent, center - part no. MS8005E0408 MS8005E043B Refer to OIP MS8005 (5/666)		
	7	PACKING, PREFORMED: oil cooler vent adapter LEIR (MODEL AVDS 1790-2DR) part no. M83248-1-012 LEFT (MODELS AVDS 1790-2C, AVDS 1790-2CA, MS9388-012 M83248/1-012) AVDS 1790-2D AND AVDS 1790-2DA)		Replace
5-104 (5/851)	1	HOSE ASSEMBLY, NONMETALLIC: generator adapter to IDEAL VENT- manifold part no. MS8005E212C Refer to OIP MS8005 (MODELS AVDS-1790-2C AND AVDS-1790-2CA) (5/851) (5/666)		
	2	HOSE ASSEMBLY, NONMETALLIC: generator oil return - part no. MS8005E212C H237F090 Refer to OIP MS8005 (5/851) (5/666) (MODELS AVDS 1790-2C AND AVDS 1790-2CA)		
	3	PACKING, PREFORMED: generator oil return hose adapter - MS9388-114 part no. (M83248/1-114) (Models AVDS-1790-2C AND AVDS 1790-2CA)		Replace
	4	VALVE, CHECK: generator oil drain, rear - part no. 11668690 Refer to OIP 11668690 (MODELS AVDS-1790-2C AND AVDS-1790-2CA) (5/860)		
	5	HOSE ASSEMBLY, NONMETALLIC: generator oil drain, rear to tee - part no. MS8005E076C (MODELS AVDS-1790-2C AND AVDS-1790-2CA) Refer to OIP MS8005 (5/851) (5/666)		

Table 5-45. Wear Limits, Fits, and Tolerances for Oil Hoses - Injection Pump, Turbosuperchargers, Oil Coolers, and Generator - Continued

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-104 (5/851)	6	HOSE ASSEMBLY, NONMETALLIC: generator oil drain, front to tee - part no. MS8005E140C Refer to OIP MS8005 (5/859) (5/666)	(SSAOC 7A140000 (18286)) (MODELS AVDS-1790-2C AND AVDS-1790-2CA)	
	7	PACKING, PREFORMED: generator oil inlet elbow - part no. MS28778-10 (Models AVDS-1790-2C AND AVDS-1790-2CA)		Replace
	8	HOSE ASSEMBLY, NONMETALLIC: generator oil inlet - part no. MS8005 A147C H147C Refer to OIP MS8005 (5/859) (5/666)	(MODELS AVDS-1790-2C AND AVDS-1790-2CA)	

OVERHAUL INSPECTION PROCEDURE

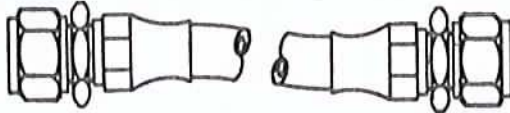
DMWR 9-2815-220

OIP 8761507

ITEM: HOSE ASSEMBLY, NONMETALLIC:
bulkhead tee to turbosupercharger
swivel elbow ~~left and right~~

REFERENCE: Figure 5-103 (5/851)
ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 2000 100 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

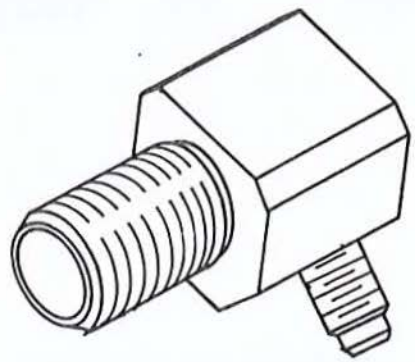
OIP 8761449

ITEM: ^{FLOW, TUBE:} ~~CONNECTOR, MULTIPLE FLUID, PRESSURE LINE:~~
 turbosupercharger oil line bulkhead tee

REFERENCE: Figure 5-103 (5/851)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on seats	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		LEAKS	2.5	PRESSURE TEST	SHALL NOT LEAK WHEN SUBJECTED TO 100 PSI INTERN AIR PRESSURE AND SUBMERGED IN WATER



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

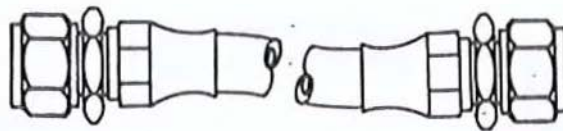
OIP 8761491-3

**ITEM: HOSE ASSEMBLY, NONMETALLIC:
crankshaft damper and oil filter housing
to turbosupercharger oil inlet tee**

REFERENCE: Figure 5-103 (5/851)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 1500 100 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761502-2

ITEM: HOSE ASSEMBLY, NONMETALLIC:
crankshaft damper and oil filter
housing to fuel injection pump oil
inlet

REFERENCE: Figure 5-103 (5/851)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 3000 100 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nut and fitting for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nut to turn	2.5	Visual	Must turn freely
5		Damaged seats	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

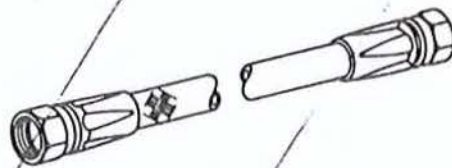
OIP MS8005

**ITEM: HOSE ASSEMBLY, NONMETALLIC
(Model AVDS-1790-2C)**

REFERENCE: Figure 5-104 (5/851)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Hose for evidence of leaks	0.0	Proof pressure test at 3000 psi	None allowed
2		Hose for frayed, collapsed or permanently distorted conditions	2.5	Visual	None allowed
3		Nuts for cracks and damaged threads	2.5	Visual	None allowed
4		Freedom of nuts to turn	2.5	Visual	Must turn freely.
5		Damaged seats	2.5	Visual	None allowed



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***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.**

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

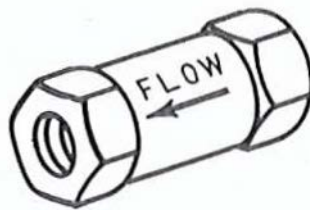
OIP 11668690

ITEM: VALVE, CHECK:
Generator oil drain, rear
Models AVDS-1790-2C and AVDS-1790-2CA)

REFERENCE: Figure 5-104 (5/851)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Functional test cracking pressure	1.0	Measure	Must not be more than .55 psi
4		Leakage from 0 to 200 psi	1.0	Measure	None allowed
5		Word FLOW with directional arrow	0.0	Visual	Must be visible and legible



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5-129. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/ 5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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AVDS-1790-2DA

Section XXXII. OVERHAUL OF GENERATOR AIR DUCTING

5-130. General. This section covers overhaul of generator air ducting (Models AVDS-1790-2D, and AVDS-1790-2DR) (fig. 5-105) (5/864). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-131. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-132. Inspection. Inspect the generator air ducting according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the generator air ducting are listed in table 5-46 (5/865). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

DMWR 9-2815-220

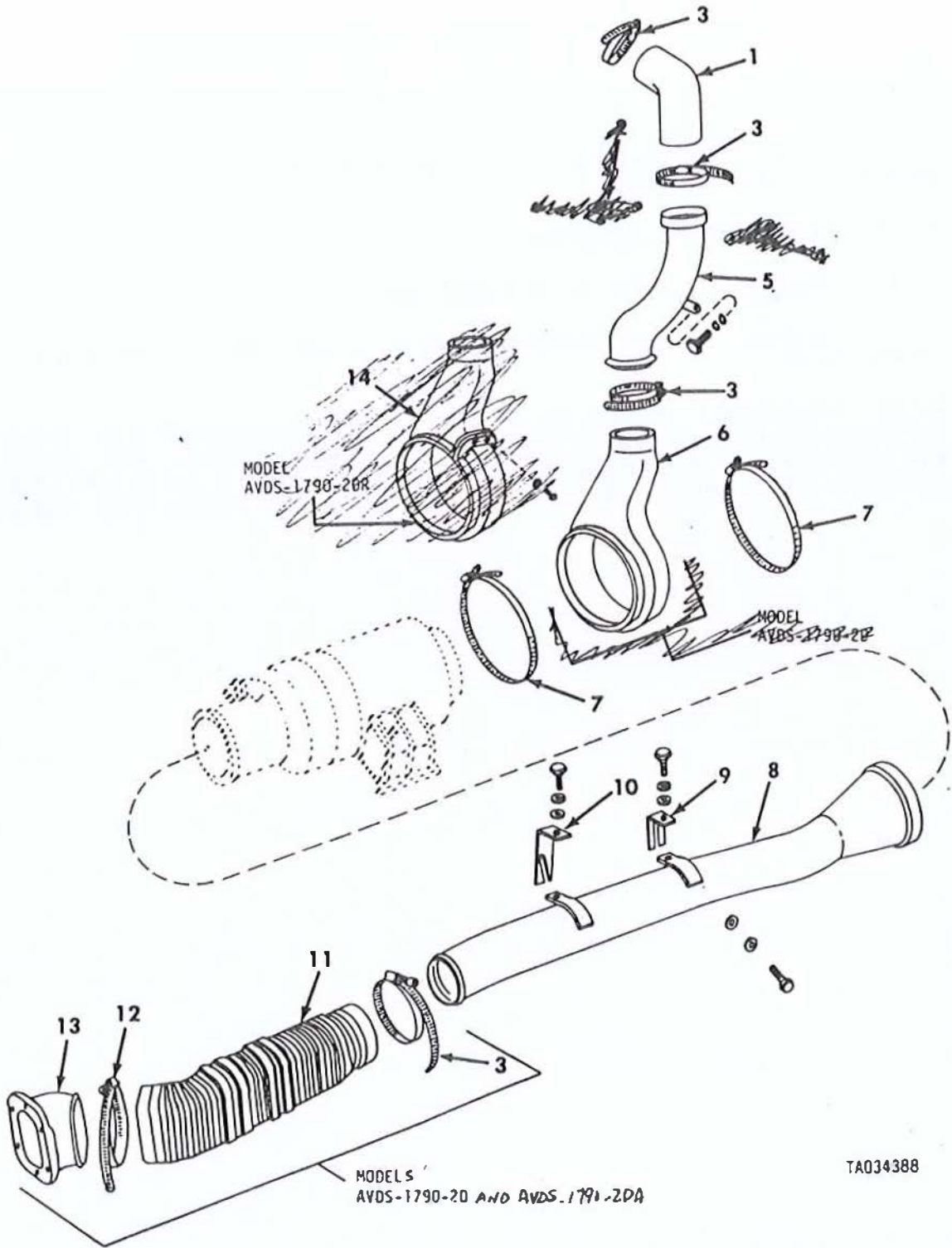


Figure 105. Generator air ducting - Models AVDS-1790-20, and AVDS-1790-20R

Table 5-46. Wear Limits, Fits, and Tolerances for
Generator Air Ducting (Models AVDS-1790-2D, ^{AVDS-1790-2DA} and AVDS-1790-2DR)

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-105 (5/864)	1	HOSE, PREFORMED: generator air exhaust - part no. 11682579 Refer to OIP 11682579 (5/868)		
		2 STRAP, RETAINING: generator air exhaust pipe to turbo-supercharger shroud plate boss - (Models AVDS-1790-2D and AVDS-1790-2DA) part no. 10883940 Refer to OIP 10883940 (5/869)		
	3	CLAMP, HOSE: exhaust air hose to generator air exhaust tube ^{PIPE} and shroud adapter and boot to exhaust pipe, and generator air intake hose to intake to part no. MS35842-14 Refer to OIP MS35842 (5/383)	3	CLAMP, HOSE: GENERATOR AIR INTAKE HOSE TO INTAKE TUBE - (Models AVDS-1790-2D and AVDS-1790-2D PART NO. MS35842-14 REFER TO OIP MS35842 (5/383)
	4	STRAP, RETAINING: generator air exhaust pipe to turbo-supercharger shroud plate boss - (Models AVDS-1790-2D and AVDS-1790-2DA) part no. 10883941 Refer to OIP 10883941 (5/870)		
	5	PIPE, FOR EXHAUST: GENERATOR AIR - part no. 10935471 Refer to OIP 10935471 (5/871)		
	6	BOOT, GENERATOR AIR: exhaust - part no. 10883745 Refer to OIP 10883745 (5/872) (5/872)		

Table 5-46. Wear Limits, Fits, and Tolerances for Generator Air Ducting - (Models AVDS-1790-2D, and AVDS-1790-2DR) - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-105 (5/864)	7	CLAMP, HOSE: boot to generator - part no. MS35842-15 Refer to OIP MS35842 WW-C-440 (5/383)	WW-C-440 TYPE F 8.75 (81398)	
	8	TUBE, ASSEMBLY, GENERATOR: <i>BENT, METALLIC:</i> Generator air intake - part no. 10884037 Refer to OIP 10884037 (5/873)		
	9	BRACKET, ANGLE: <i>ANGLE BRACKET:</i> generator air intake tube to crankcase - part no. 10884034 Refer to OIP 10884034 (5/874)		
	10	BRACKET, ANGLE: <i>ANGLE BRACKET:</i> generator air intake tube to crankcase - part no. 10884033 Refer to OIP 10884033 (5/875)		
	11	HOSE, GENERATOR AIR <i>AIR DUCT: GENERATOR -</i> part no. 10883740 Refer to OIP 10883740 (5/876)	(MODELS AVDS-1790-2D AND AVDS-1790-2DA)	
	12	CLAMP, HOSE: generator intake hose elbow - part no. MS35842-15 (Models AVDS-1790-2D and AVDS-1790-2DA) Refer to OIP MS35842 (5/383)		
	13	ELBOW, hose <i>FLANGE TO BOSS:</i> generator air intake hose - part no. 10883748 Refer to OIP 10883748 (5/877)	(MODELS AVDS-1790-2D AND AVDS-1790-2DA)	

Table 5-46. Wear Limits, Fits, and Tolerances for
Generator Air Ducting - (Models AVDS-1790-2D and AVDS-1790-2DR) - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-705 (5/864)	14	BOOT, GENERATOR AIR: exhaust - - part no. 11682585 Refer to OIP 11682585 (5/872)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

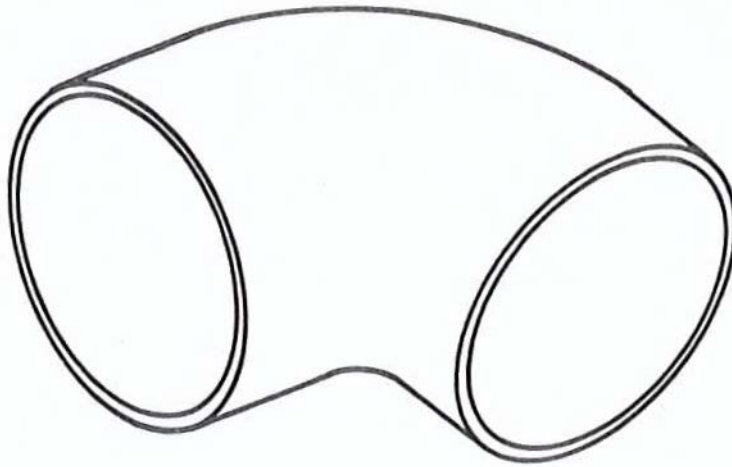
OIP 11682579

ITEM: HOSE, PREFORMED:
generator air exhaust

REFERENCE: Figure 5-105 (5/864)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Torn or deteriorated	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9/2815-220

OIP 10883940

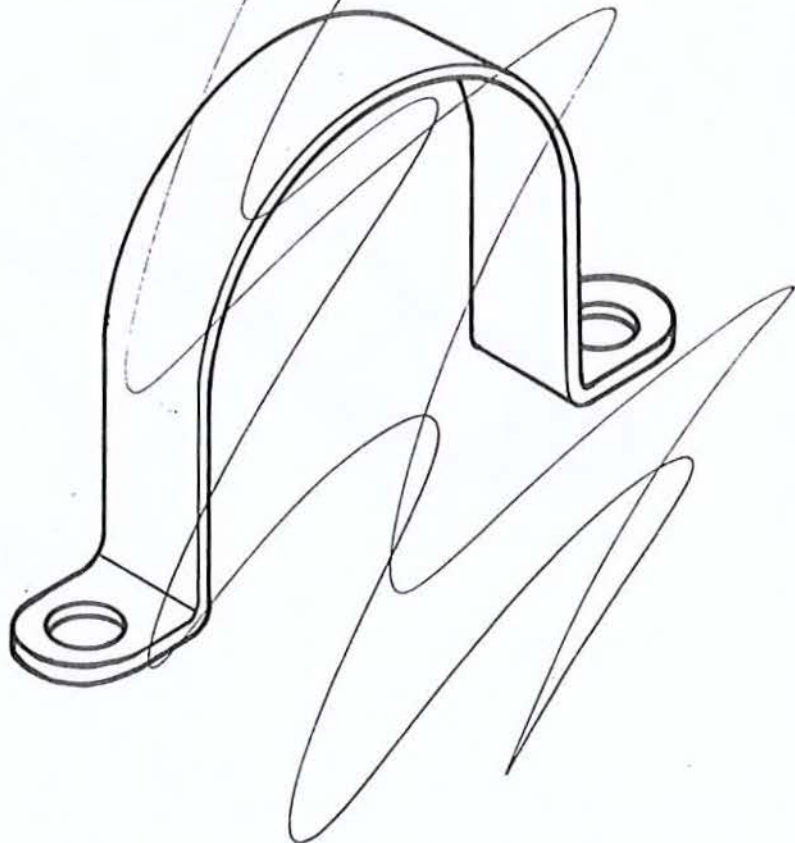
ITEM: STRAP RETAINING:
generator air exhaust pipe to turbosuper-
charger shroud plate boss
(Model AVDS-1790-20)

REFERENCE: Figure 5-105 (5/864)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed

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OVERHAUL INSPECTION PROCEDURE

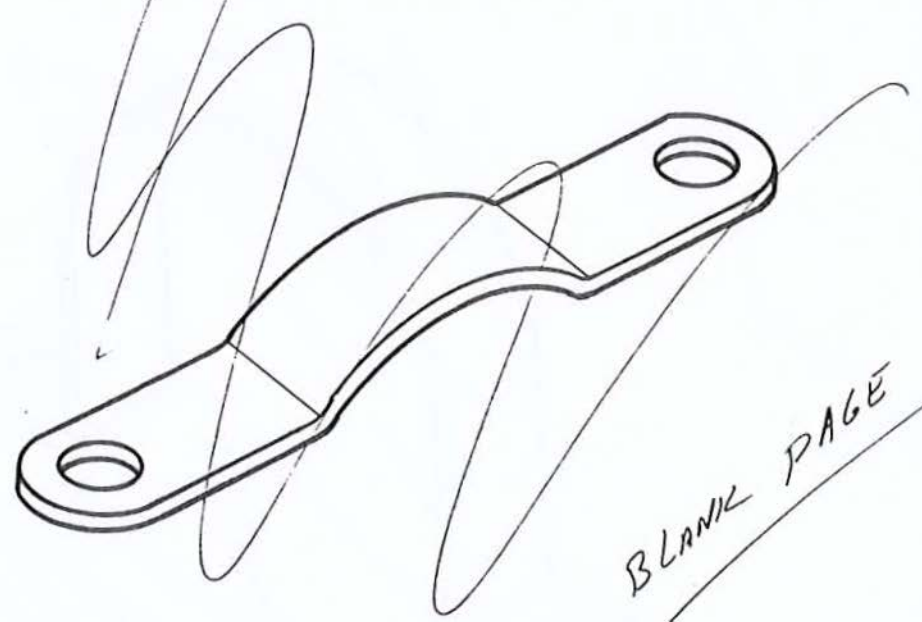
~~DMWR 92835-270~~

OIP 10883941

ITEM: STRAP, RETAINING:
generator air exhaust pipe to turbosuper-
charger shroud plate boss
(Model AVDS-1790-2D)

REFERENCE: Figure 5-105 (5/864)
ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish.	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

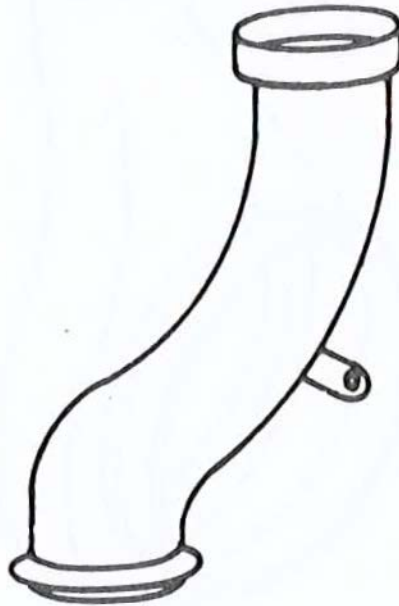
OIP 10935471

ITEM: PIPE, ~~ADA~~ EXHAUST; GENERATOR
GENERATOR AIR

REFERENCE: Figure 5-105 (5/864)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Dented or deformed tube ends	2.5	Visual	None allowed
3		Fractured or missing welds	2.5	Visual	None allowed
4		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

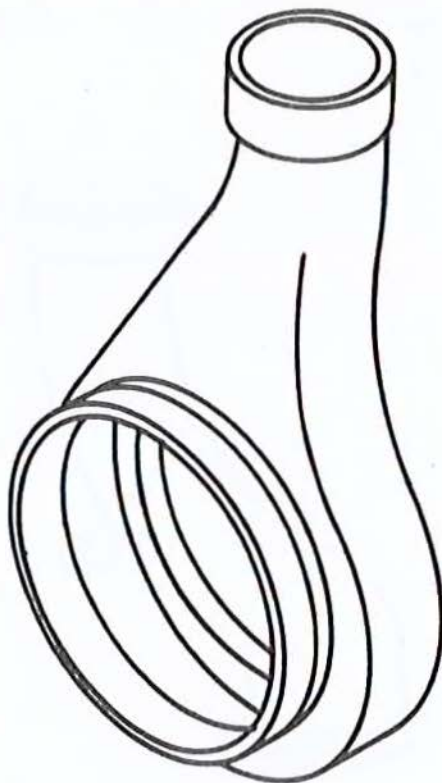
OIP 10883745 ~~and~~
~~11682585~~

ITEM: 800T, GENERATOR AIR:
 exhaust

REFERENCE: Figure 5-105 (5/864)

ITEM: 6 ~~and 14~~

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Torn or deteriorated	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

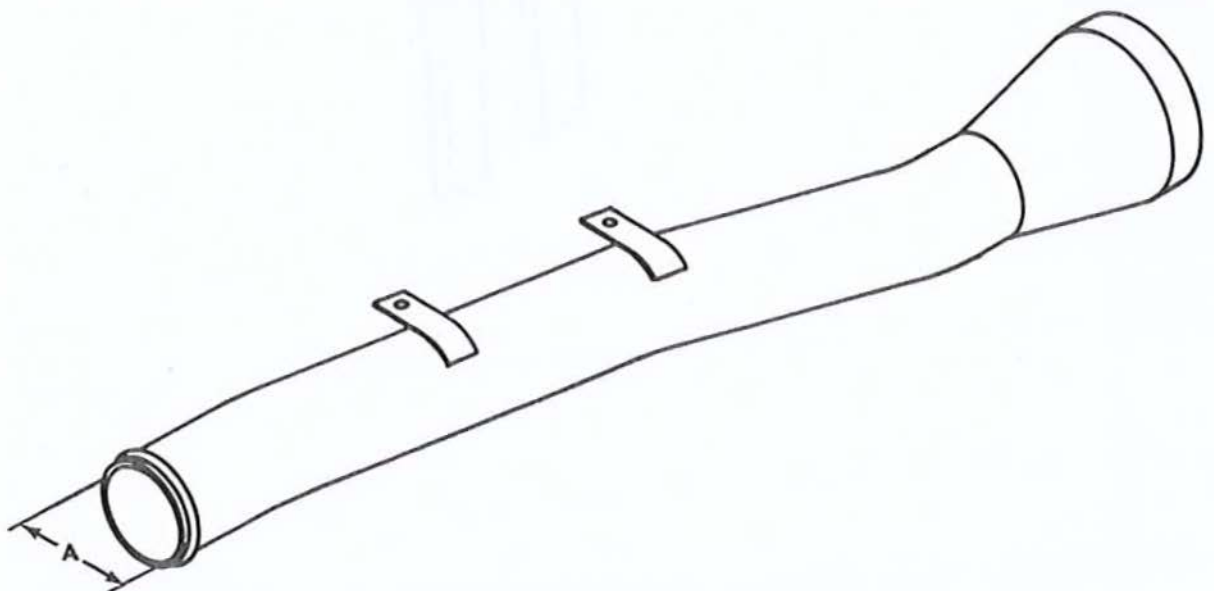
ITEM: ^{BENT, METALLIC:} TUBE ASSEMBLY, GENERATOR:
 GENERATOR air intake

OIP 10884037

REFERENCE: Figure 5-105 (5/864)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Fractured or missing welds	2.5	Visual	None allowed
3		Broken, loose, or bent brackets	2.5	Visual	None allowed
4		Damaged threads	2.5	Visual	None allowed
5		Crushed, dented, or deformed tube ends	2.5	Visual	None allowed
6		<i>BASE METAL SHOWING THROUGH PROTECTIVE FINISH</i>	2.5	<i>VISUAL</i>	<i>NONE ALLOWED</i>
7-8	A	Inside diameter	1.0	Measure	Diameter must be no greater than 4.9650 ^{4.9730} inches or less than 4.9630 inches
8-7		Scratches, nicks, or gouges	1.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

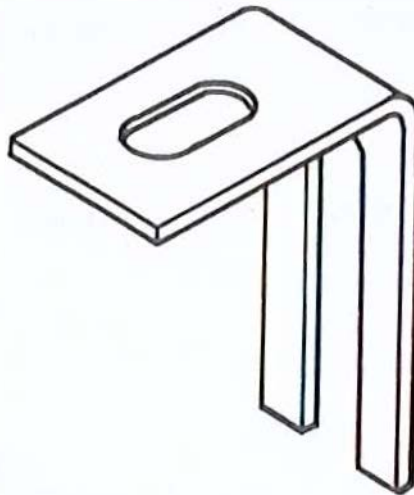
OIP 10884034

ITEM: *ANGLE BRACKET:*
~~BRACKET, ANGLE:~~
generator air intake tube to crankcase

REFERENCE: Figure 5-105 (5/864)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

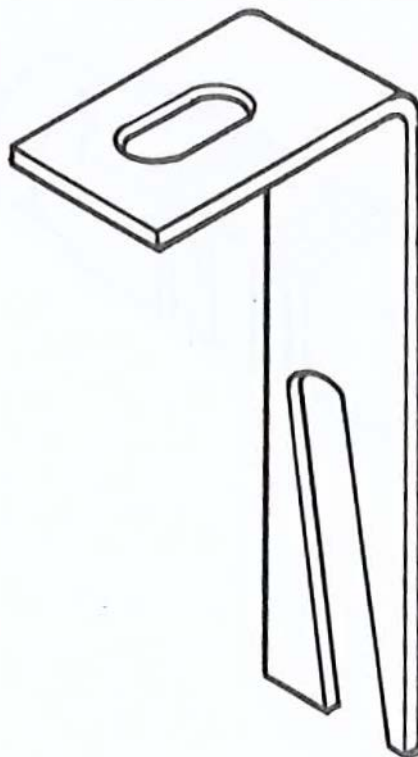
OIP 10884033

ITEM: *ANGLE BRACKET:*
~~BRACKET, ANGLE:~~
 generator air intake tube to crankcase

REFERENCE: Figure 5-105 (5/864)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or or broken	0.0	Visual	None allowed
2		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

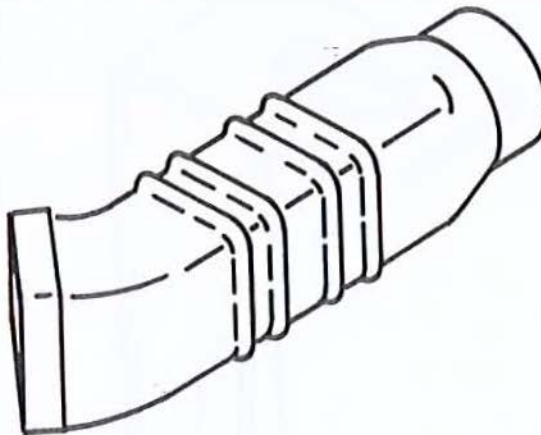
OIP 10883740

ITEM: *AIR DUCT:*
 HOSE, GENERATOR ~~REF~~
 (~~MODEL NO. 1290-281~~)

REFERENCE: Figure 5-105 (5/864)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Torn or deteriorated	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

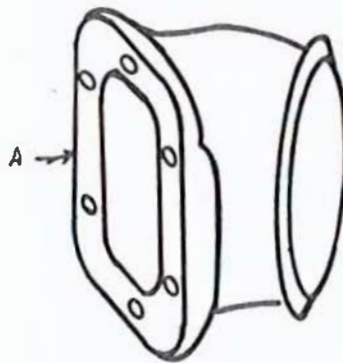
ITEM: ELBOW, *FLANGE To BSS:*
generator air intake hose
(Mod ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~)

OIP 10883748

REFERENCE: Figure 5-105 (5/864)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Dye Penetrant	None allowed
2		Thread inserts for looseness and damaged or missing thread	2.5	Visual	None allowed
3		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
4	A	WARPED FLANGE	2.5	MEASURE	MUST BE FLAT WITHIN 0.0050 INCH



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-133. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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Section XXXIII. OVERHAUL OF BREATHER TUBES AND FIRE EXTINGUISHER TUBE

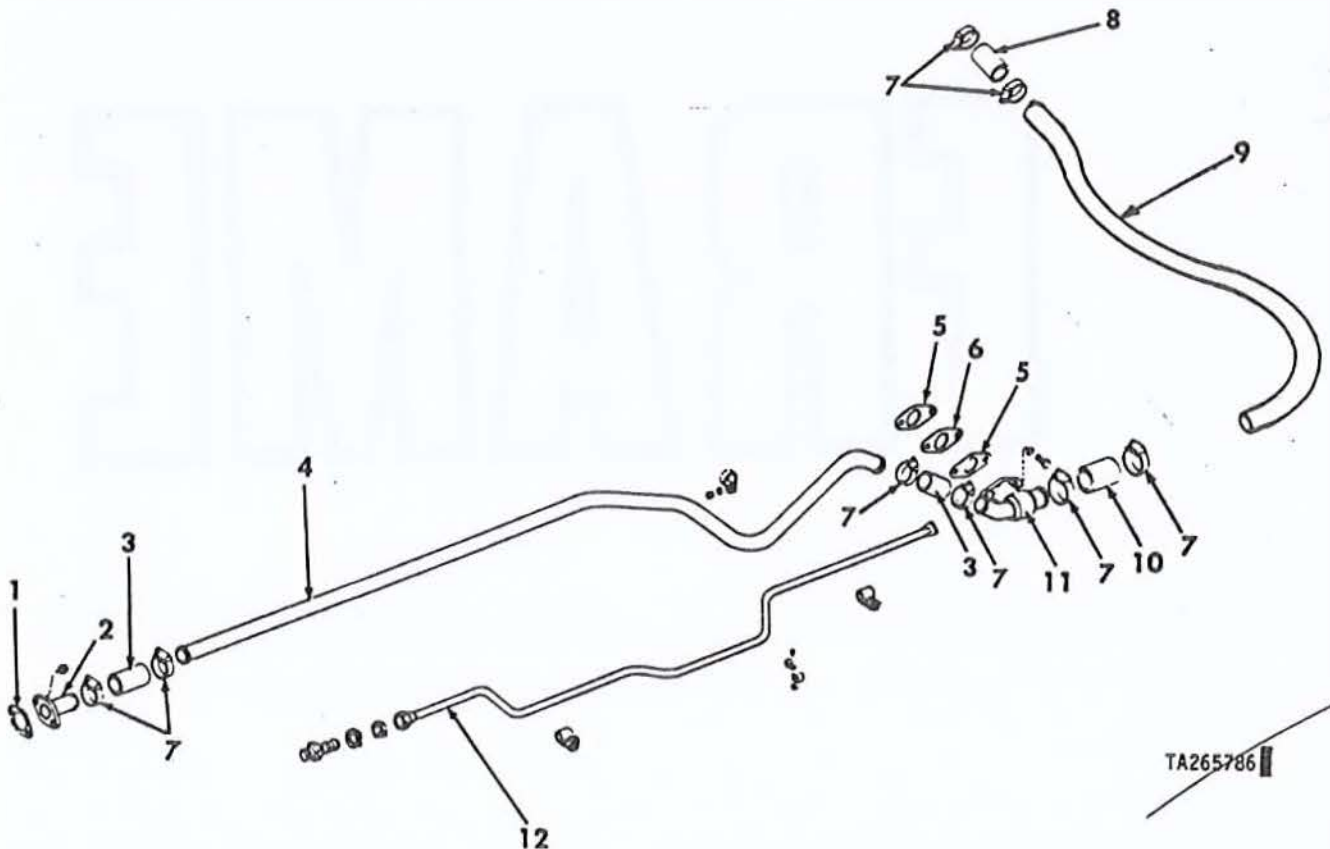
5-134. General. This section covers overhaul of the breather tubes and fire extinguisher tube (fig. 5-106) (5/88C). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-135. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-136. Inspection. Inspect the breather tubes and fire extinguisher tube according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the breather tubes and fire extinguisher tube are listed in table 5-47 (5/881). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.



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Figure 5-106. Crankcase breather tubes and fire extinguisher tube.

Table 5-47. Wear Limits, Fits, and Tolerances for Breather Tubes and Fire Extinguisher Tube

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-106 (5 / 880)	1	GASKET: crankcase breather tube, damper end - part no. 8682680		Replace
	2	ADAPTER, STRAIGHT, FLANGE TO HOSE: crankcase breather, damper end - part no. 8761472 Refer to OIP 8761472 (5 / 884)		
	3	HOSE, AIR DUCT: crankcase intermediate breather tube to BREATHER TUBE tee and crankcase breather tube to intermediate tube, damper end - part no. 10898793		Replace
	4	TUBE, BENT, METALLIC: crankcase breather - part no. 10882890 (Models AVDS-1790-2C, and and AVDS-1790-2D ^{AVDS-1790-2CA,} ^{and AVDS-1790-2DA}) part no. 11684215 (Model AVDS-1790-2DR) Refer to OIP 10882890 ^{AND 11684215} (5 / 885)		
	5	GASKET: crankcase breather tube tee to accessory drive housing - part no. 8682770		Replace
	6	SPACER, PLATE: breather tube to accessory drive housing - part no. 11683964 Refer to OIP 11683964 (5 / 886)		

Table 5-47. Wear Limits, Fits, and Tolerances for Breather Tubes and Fire Extinguisher Tube - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-106 (5/880)	7	CLAMP, HOSE: crankcase breather tube hose to tee, breather tube hose to ex- haust pipe, crankcase intermediate breather tube to breather tube tee, and crankcase breather tube to intermediate tube, damper end - part no. 11630499-1 MS35842-12 Refer to OIP 11630499-1 MS35842 (5/383)		
	8	HOSE, AIR DUCT: crankcase breather tube to exhaust pipe, flywheel end - part no. 10898793-1		Replace
	9	TUBE, BENT, METALLIC: crank- case breather, flywheel end - part no. 10951368 12354417 Refer to OIP 10951368 12354417 (5/887)		
	10	HOSE, AIR DUCT: crankcase breather tube to tee assembly, flywheel end - part no. 10898794		Replace
	11	CRANKCASE BREATHER ^{FLANGE TO TUBE:} TEE, CRANKCASE BREATHER breather tubes to accessory drive housing, flywheel end - part no. 10865422 AVDS-1790-2CA, (Models AVDS-1790-2C, and AVDS-1790-2D 2 AND AVDS-1790-2DA) part no. 11684216 (Model AVDS-1790-2DR) Refer to OIP 10865422 AND 11684216 (5/888)		

Table 5-47. Wear Limits, Fits, and Tolerances for
Breather Tubes and Fire Extinguisher Tube - Continued

<u>References</u>		<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
<u>Fig. No.</u>	<u>Item No.</u>			
5-106 (5/880)	12	TUBE ASSEMBLY, METAL: fire extinguisher system - part no. 8761131 Refer to OIP 8761131 (5/889)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 8761472

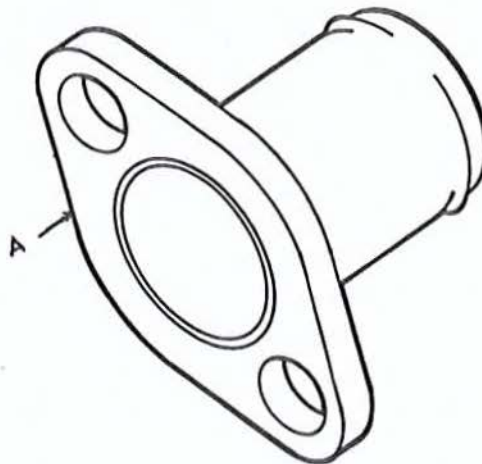
ITEM: ADAPTER, STRAIGHT, FLANGE TO HOSE:
crankcase breather, damper end

REFERENCE: Figure 5-106 (5/880)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, gouges or raised metal on contact surface	2.5	Visual	None allowed
3		Deformed tube	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed

5 **LEAKS** *2.5* **PRESSURE TEST** *SHALL NOT LEAK WHEN SUBJECTED TO 15 POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER*



6 **A** **WARPED FLANGE**

2.5

MEASURE

MUST BE FLAT WITHIN 0.0030 INCH

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

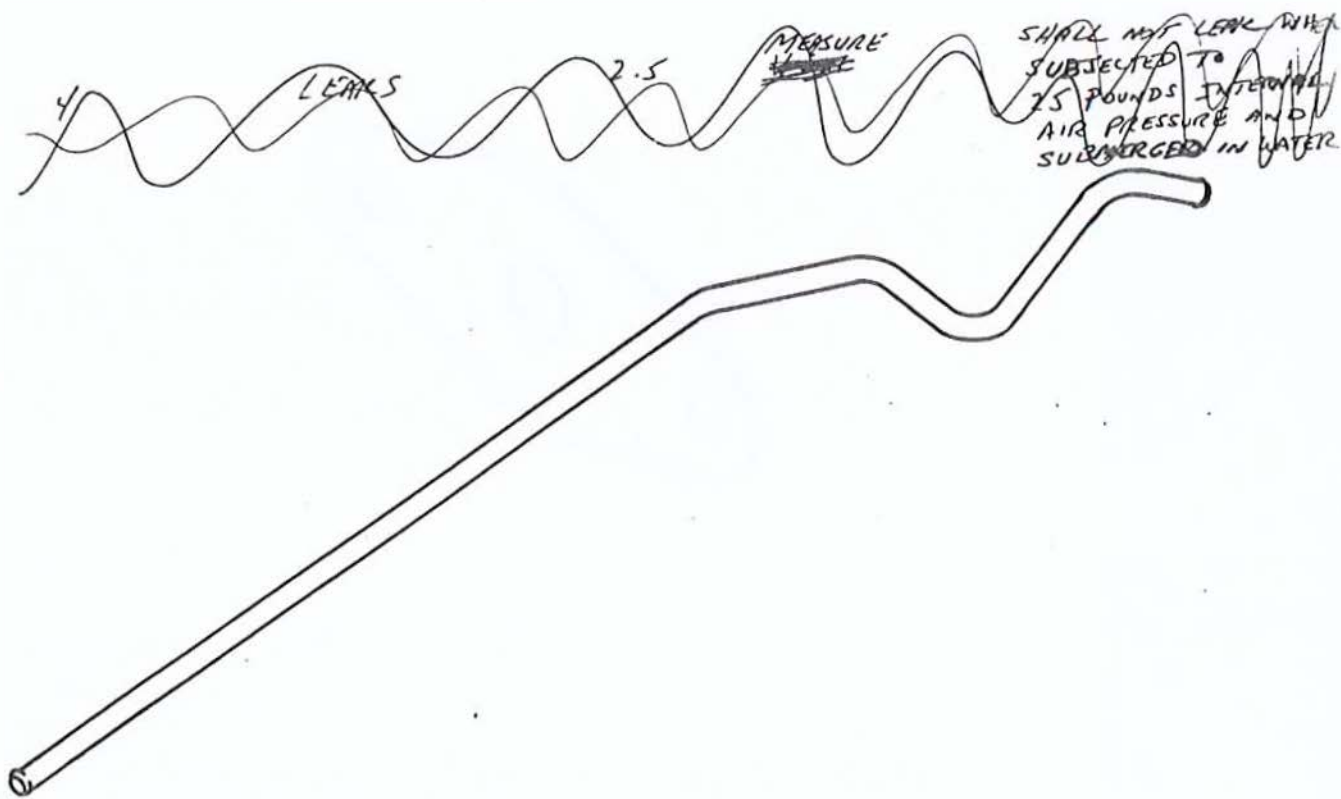
ITEM: TUBE, BENT, METALLIC:
crankcase breather

OIP 10882890
11684215

REFERENCE: Figure 5-106 (5/880)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

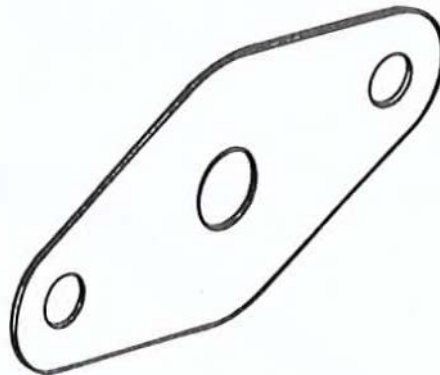
OIP 11683964

ITEM: SPACER, PLATE:
breather tube to accessory drive housing

REFERENCE: Figure 5-106 (5/880)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracked, bent or broken	0.0	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

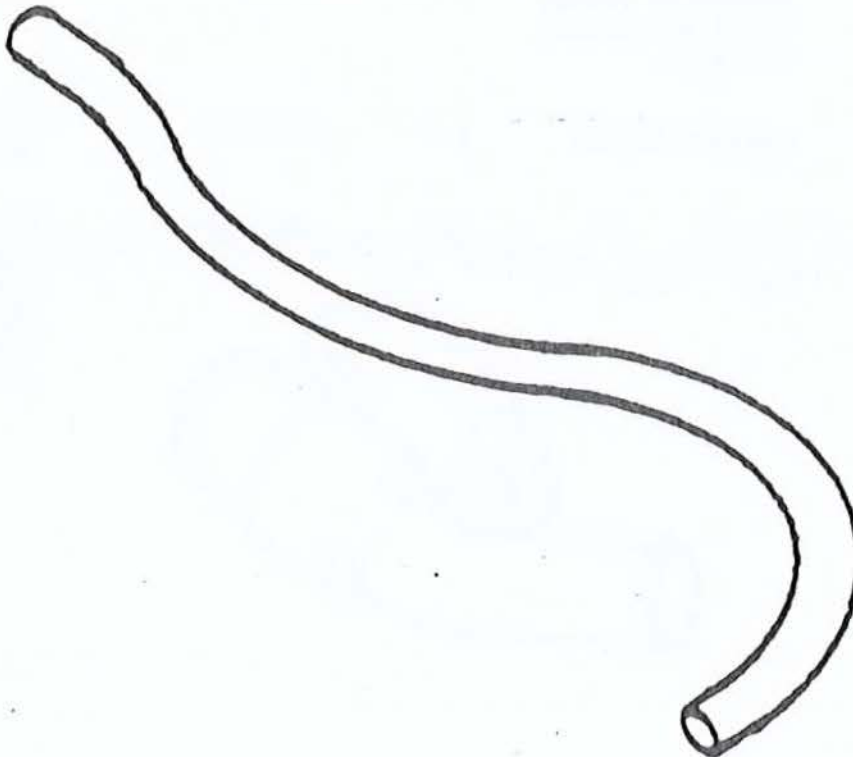
OIP ~~10951368~~ 12354417

ITEM: TUBE, BENT, METALLIC:
crankcase breather, flywheel end

REFERENCE: Figure 5-106 (5/880)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

11684216 - BREATHER

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

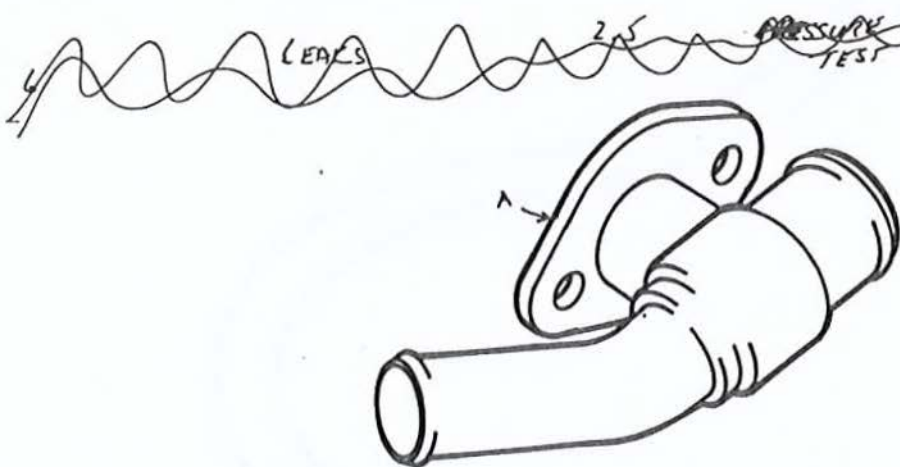
ITEM: ^{FLANGE TO TUBE:} TEE, ~~CRANK~~ BREATHER:
breather tubes to accessory drive housing,
flywheel end

OIP 10865422
11684216

REFERENCE: Figure 5-106 (5/880)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in tubes, tee and welds	0.0	Visual	None allowed
2		Bent and distorted tubes	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
5	A	WRAPPED FLANGE	2.5	MEASURE	MUST BE FLAT WITHIN 0.0040 IN



MUST BE FLAT WITHIN 0.0040 IN

SHALL NOT LEAK WHEN SUBJECTED TO 25 POUNDS INTRINSIC AIR PRESSURE AND SUBMERGED IN WATER

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

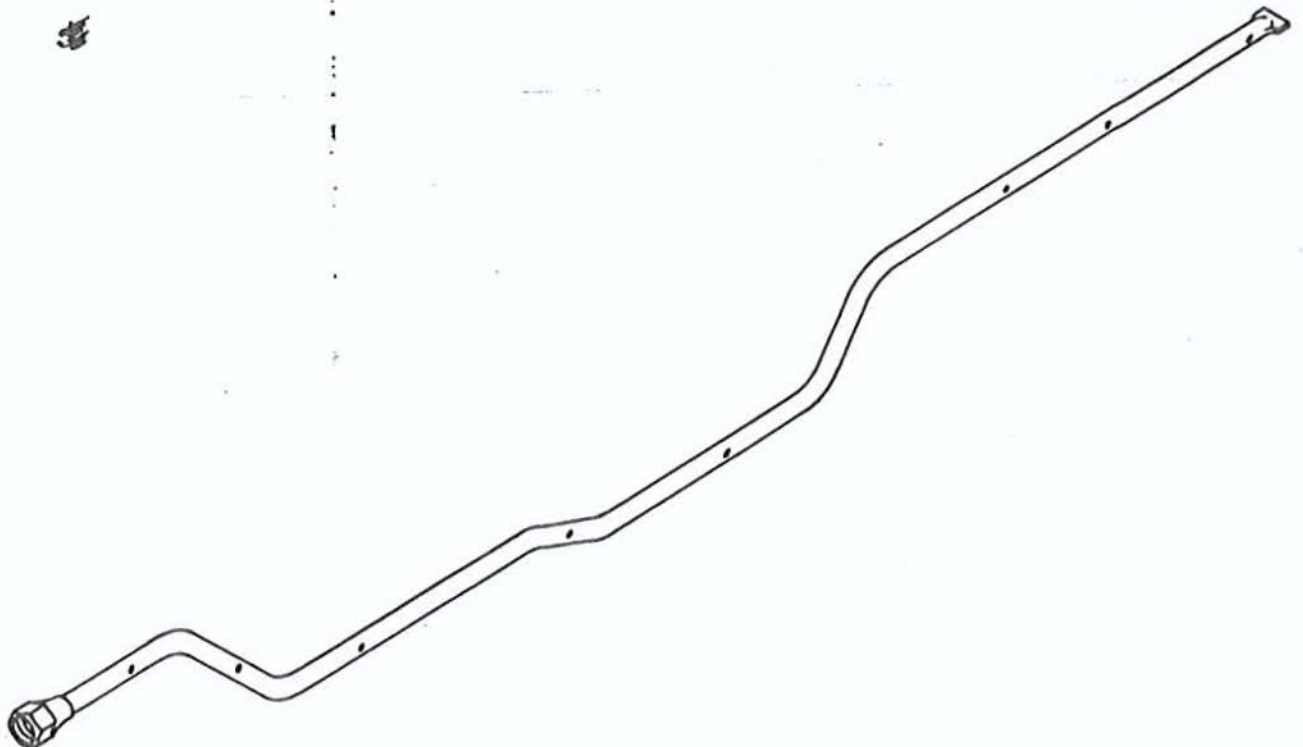
ITEM: TUBE ASSEMBLY, METAL:
fire extinguisher system

OIP 8761131

REFERENCE: Figure 5-106 (5/880)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or deformed tube	2.5	Visual	None allowed
3		Base metal showing through protective finish ON NUT <i>DAMAGED THREAD</i>	2.5	Visual	None allowed
4		Plugged spray holes in tube	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-137. Repair and Assembly.

a. Repair.

- (1) General repair instructions. Refer to paragraph 5-5 (5 / 5).
- (2) Breather tubes and tee. Straighten bent tubes to as near original shape as possible. Remove minor warpage of mounting surfaces by rubbing across an abrasive cloth held tightly on a surface plate or similar flat surface.

b. Assembly.

- (1) General assembly procedures. Refer to paragraph 5-8 (5 / 11) for general assembly procedures.
- (2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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FRAME

Section XXXIV. OVERHAUL OF FUEL INJECTION PUMP DRIVE COUPLING

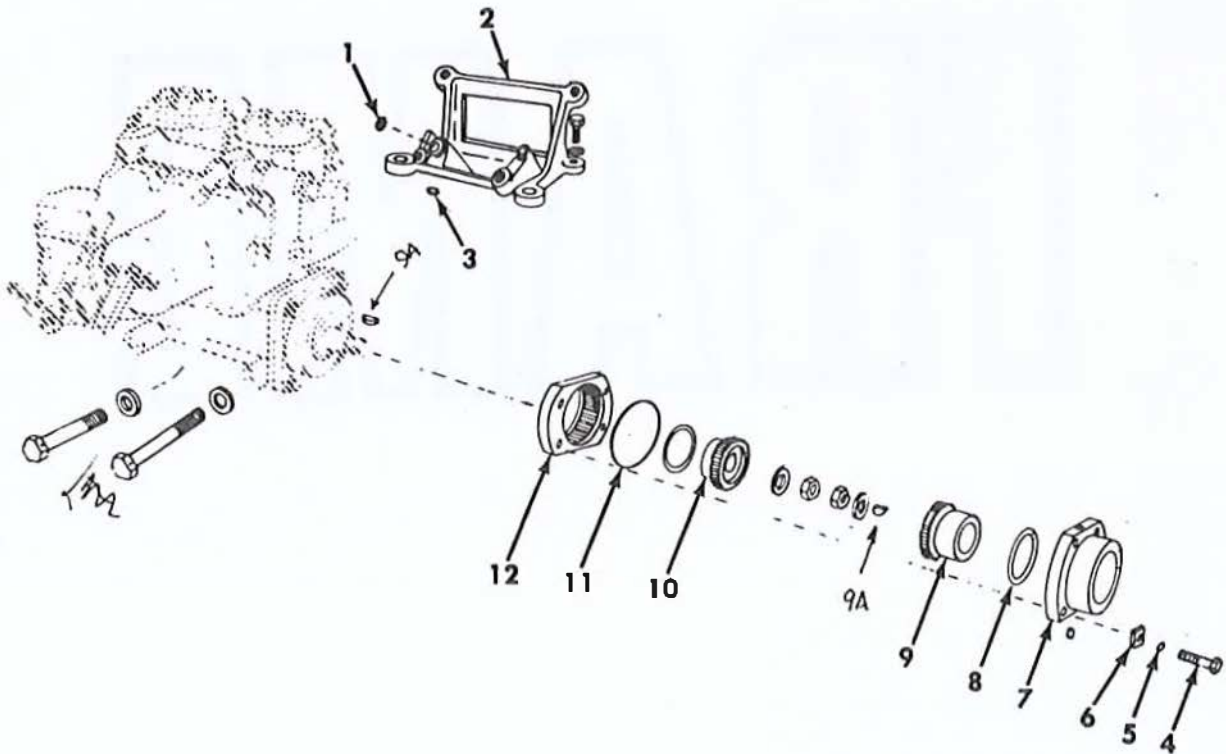
5-138. General. This section covers overhaul of the fuel injection pump drive coupling (fig. 5-107) (5/892). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-139. Disassembly and cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-140. Inspection. Inspect the fuel injection pump drive coupling according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the fuel injection pump drive coupling are listed in table 5-48 (5/893). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.



TA034390

Figure 5-107. Fuel injection pump drive coupling.

Table 5-48. Wear Limits, Fits, and Tolerances for Fuel Injection Pump Drive Coupling

<u>References</u>				
<u>Fig. No.</u>	<u>Item No.</u>	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-107 (5/892)	1	PACKING, PREFORMED: injection pump base oil transfer tube to fuel injection metering pump - part no. MS28775-116		Replace
	2	BASE INJECTION PUMP ASSEMBLY - <i>BRACKET, EYE, ROTATING SHAFT -</i> <i>PUMP BASE -</i> part no. 8761085 Refer to OIP 8761085 (5/895)		
	3	PACKING, PREFORMED: injection base assembly oil transfer tube to crankcase - part no. MS28775-113		Replace
	4	BOLT: fuel injection pump sleeve - part no. C3062-11 (86988) <i>WA29906 (75394)</i>		Replace
	5	WASHER, LOCK: fuel injection pump sleeve - part no. 22506 110 730 (16764) <i>WA01363 (75394)</i>		Replace
	6	SPACER: fuel injection pump coupling sleeve - part no. C3062-5 (86988) <i>WA29909 (75394)</i>		Replace
	7	SLEEVE: fuel injection pump coupling (part of matched set) - part no. C3062-1 (86988) Refer to OIP C3062-1 <i>CB14983 (75394)</i> (5/896) <i>AND CB14983</i>		
	8	PACKING, PREFORMED - RING, FUEL INJECTION COUPLING - part no. C3062-8 (86988) <i>WA29908 (75394)</i>		Replace

Table 5-48. Wear Limits, Fits, and Tolerances for Fuel Injection Pump Drive Coupling - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-107 (5/892)	9	HUB: fuel injection pump coupling (part of matched set) - part no. C3062-3 (86988) CB 14984 (75394) Refer to OIP C3062-3 (86988) (5/897) CB 14984 (75394)		
	10	HUB: fuel injection pump coupling (part of matched set) - part no. C3062-4 (86988) CB 14985 (75394) Refer to OIP C3062-4 (86988) (5/898) ^{1st} CB 14985 (75394)		
	11	PACKING, PREFORMED: fuel injection pump coupling - part no. AN6230-16 MS 28775-238 WA 26581 (75394)		Replace
	12	SLEEVE: fuel injection pump coupling (part of matched set) - part no. C3062-2 (86988) CB 14982 (75394) Refer to OIP C3062-2 (86988) (5/899) CB 14982 (75394)		

9A

KEY, WOODRUFF
PART NO. 8761 ^{1/2} ~~3/4~~

REPLACE

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: ~~BASE INSPECTION AND ASSEMBLY~~
BRACKET, EYE ROTATING SHAFT:
PUMP BASE

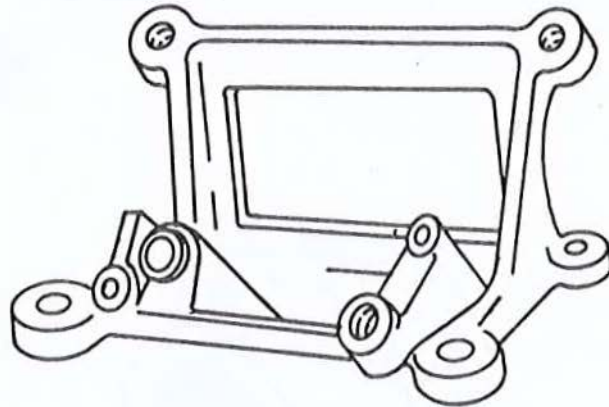
OIP 8761085

REFERENCE: Figure 5-107 (5/892)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged tube	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed

5
CASE METAL SHOWING THROUGH PROTECTIVE FINISH 2.5 VISUAL NONE ALLOWED



6
LEAKS 2.5 *PRESSURE TEST* *SHALL NOT LEAK WHEN SUBJECTED TO 50 POUNDS INTERNAL AIR PRESSURE AND SUBMERGED IN WATER*

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

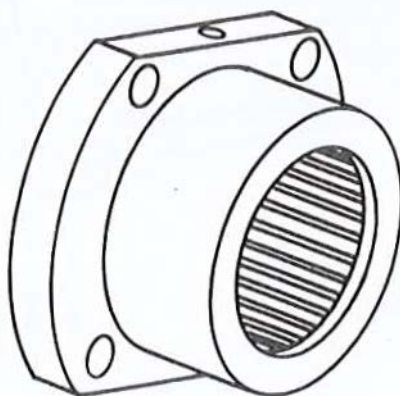
DMWR 9-2815-220

ITEM: SLEEVE:
fuel injection pump coupling

OIP C3062-1 (86988)
C814983 (75394)
REFERENCE: Figure 5-107 (5/892)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges or raised metal on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged or worn gear teeth	2.5	Visual	None allowed
5		Backlash	0.0	Measure	Must be no greater than 0.0030 0.0040-inch when assembled with mating hub part no. C3062-3 (86988) or C814984 (75394)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: HUB:
fuel injection pump coupling

OIP C3062-3 (86988)
CB 14984 (75394)
REFERENCE: Figure 5-107 (5/892)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged or worn gear teeth	2.5	Visual	None allowed
5		Backlash	0.0	Measure	Must be no greater than 0.0030 ^{0.0040} inch when assembled with mating sleeve part no. C3062-1(86988), or CB 14983(75394)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

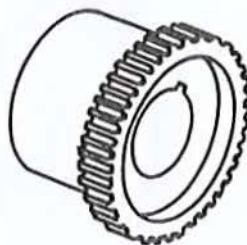
DMWR 9-2815-220

ITEM: HUB:
fuel injection pump coupling

OIP C3062-4 (86988)
CB14985 (75394)
REFERENCE: Figure 5-107 (5/892)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged or worn gear teeth	2.5	Visual	None allowed
5		Backlash	0.0	Measure	Must be no greater than 0.0040 0.0030 inch when assembled with mating sleeve part no. C3062-2 (86988) or CB14982 (75394)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

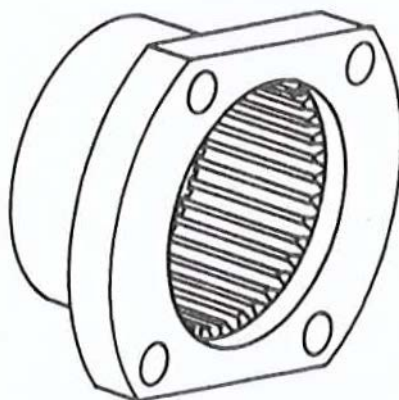
DMWR 9-2815-220

ITEM: SLEEVE:
fuel injection pump coupling

OIP C3062-2 (86988)
CB14982 (75394)
REFERENCE: Figure 5-107 (5/892)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, gouges, or raised metal on contact surfaces	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Damaged or worn gear teeth	2.5	Visual	None allowed
5		Backlash	0.0	Measure	Must be no greater than 0.0035 <i>0.0040</i> inch when assembled with mating hub part no. C3062-4 (8698) or CB14985 (7539)



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-141. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5 / 5).

(2) Fuel injection pump coupling hubs and sleeves. The fuel injection pump coupling hubs and sleeves (7, 9, 10, and 12, fig. 5-107) are a matched set. Should any of these items be found defective during inspection, the entire set must be replaced.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5 / 11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DMWR 9-2815-220

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Section XXXV. OVERHAUL OF POWER TAKE-OFF DRIVE ASSEMBLY AND
FUEL PUMP DRIVE, MODEL AVDS-1790-2DR

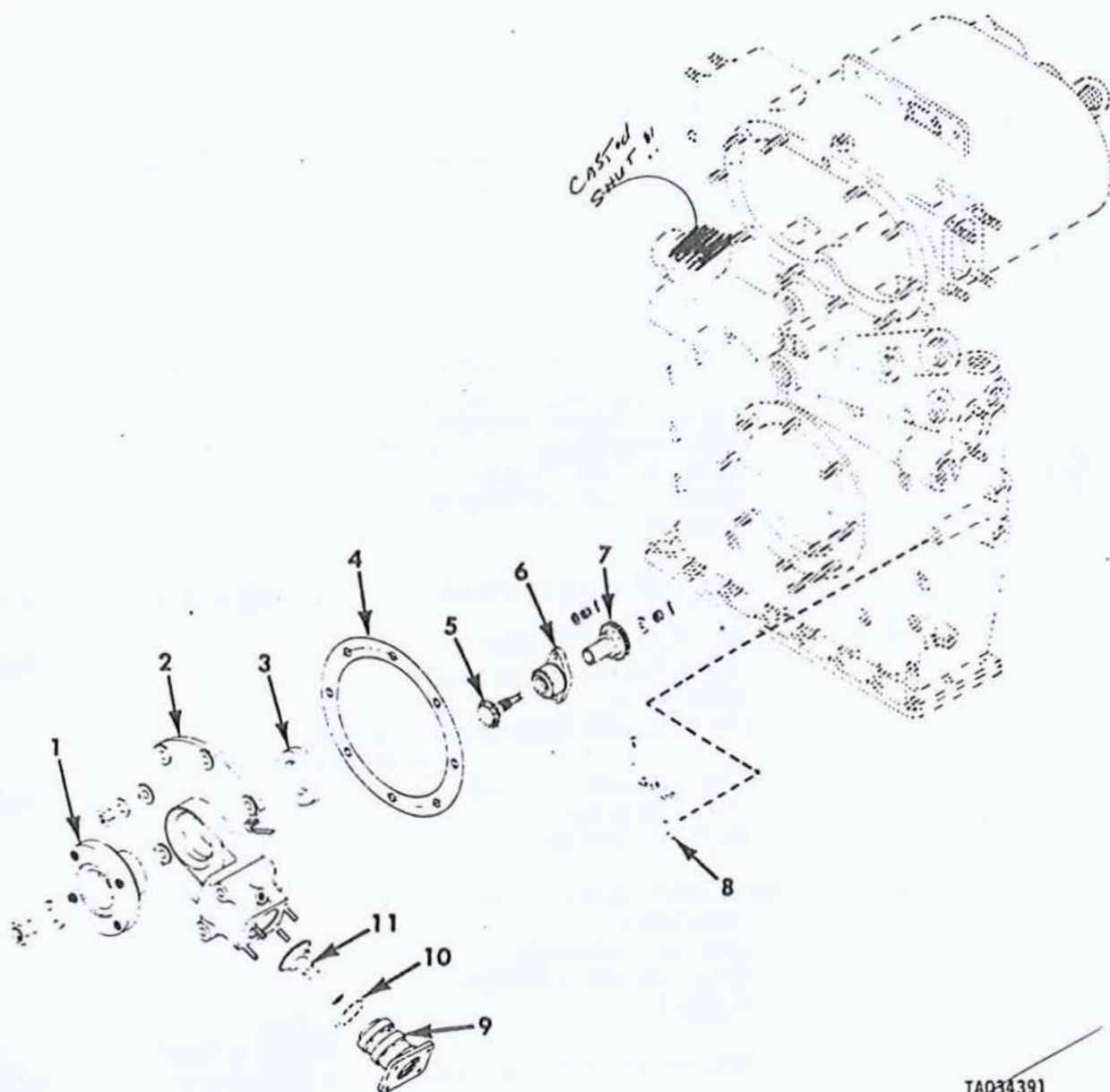
5-142. General. This section covers overhaul of the power take-off drive assembly and fuel pump drive, Model AVDS-1790-2DR (fig. 5-108) (5/903). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions. Stud identification information is included with the repair instructions.

5-143. Disassembly and Cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-144. Inspection. Inspect the power take-off drive assembly and fuel pump drive according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the power take-off drive assembly and fuel pump drive are listed in table 5-49 (5/904). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.



TA034391

Figure 5-108. Power take-off drive assembly and fuel pump drive - Model AVDS-1790-2DR.

Table 5-49. Wear Limits, Fits, and Tolerances for Power Take-off Drive Assembly and Fuel Pump Drive (Model AVDS-1790-2DR)

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-108	1	COUPLING, HALF, SHAFT: power take-off - part no. 12275765 Refer to OIP 12275765 (5/907)		
		Inside diameter pilot	2.7500-2.7520	2.7530
	2	HOUSING; ^{MECHANICAL DRIVE:} power take-off drive assembly ^{FUEL PUMP-} part no. 12275765-90 Refer to OIP 12275765-90 (5/908)		
		Oil seal bore diameter	2.7490-2.7510	2.7520
	3	SEAL, PLAIN, ENCASED: power take-off and fuel pump drive - part no. MS51000-123-2-1166-9675 473236(01212)		Replace
	4	GASKET: power take-off drive housing - part no. 8725277		Replace
	5	GEARSHAFT, BEVEL: fuel pump idler - part no. 10898995 Refer to OIP 10898995 (5/909)		
		Outside diameter (pilot)	^{0.5610} 0.5580 - 0.5620	0.5580 0.5590
		Dimension over pins (spline - 0.0800 diameter pins)	0.5706-0.5720	0.5699
		Backlash	^{0.0080 - 0.0120} 0.0012 - 0.0030	*

Table 5-49. Wear Limits, Fits, and Tolerances for
Power Take-off Drive Assembly and Fuel Pump Drive
(Model AVDS-1790-2DR) - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-108 (5/903)	6	BRACKET, MOUNTING: FUEL PUMP DRIVE ADAPTER, FUEL PUMP DRIVE BEVEL SHAFTGEAR - part no. 10898993 Refer to OIP 10898993 (5/910)		
		Inside diameter (bearing surface)	0.8120-0.8130	0.8135
		Outside diameter (pilot)	1.4960-1.4970	1.4955
	7	GEAR, SPUR: fuel pump driven and idler - part no. 10898994 Refer to OIP 10898994 (5/911)		
		Outside diameter (bearing surface)	0.8090-0.8100	0.8085
		Dimension between pins (0.0600 diameter pins) (spline)	0.3896-0.3914	0.3923
		Dimension over rolls (0.1125 diameter rolls) (spur)	1.9060-1.9110	1.9035
	8	BRACKET, MOUNTING: backflow valve - part no. 11682615 Refer to OIP 11682615 (5/912)		
	9	BRACKET, MOUNTING: FUEL PUMP DRIVE ADAPTER, FUEL PUMP DRIVE SHAFTGEAR: driven - part no. 10899002 Refer to OIP 10899002 (5/913)		

Table 5-49. Wear Limits, Fits, and Tolerances for
Power Take-off Drive Assembly and Fuel Pump Drive
(Model AVDS-1790-2DR) - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-108 (5/903) continued	9	Inside diameter (bearing running shaft)	0.7495-0.7505	0.7510
		Outside diameter of pilot	2.1220-2.1230	2.1210
5-108 (5/903)	10	PACKING, PREFORMED: fuel pump driven shaftgear to power take-off drive housing - part no. MS29561-135 <i>MS9241-135</i>		Replace
		11	GEARSHAFT, BEVEL: fuel pump driven - part no. 10899003 Refer to OIP 10899003 (5/914)	
		Outside diameter bearing surface	0.7465-0.7475	0.7460
		Dimension between 0.0600 diameter pins (spline)	0.3896-0.3914	0.3923
	Backlash	0.0080 - 0.0120 0.0012-0.0080	*	

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

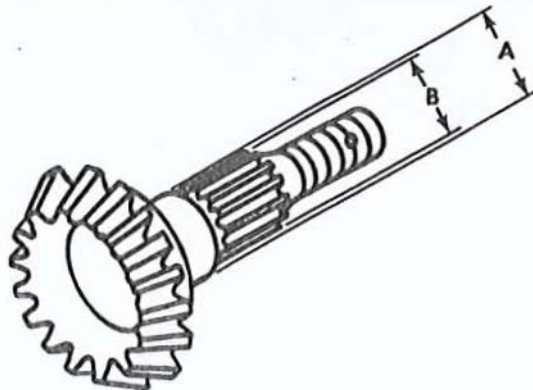
OIP 10898995

ITEM: GEARSHAFT, BEVEL:
fuel pump idler

REFERENCE: Figure 5-108 (5/903)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Missing or chipped teeth (bevel gear)	2.5	Visual	None allowed
5		Missing or chipped teeth (spline)	2.5	Visual	None allowed
6	A	Outside diameter (pilot)	1.0	Measure	Must not be less than 0.5360 inch 0.539
7	B	Dimension over pins (spline) 0.0800 diameter pins	1.0	Measure	Must not be less than 0.5699 inch
8		Backlash	1.0	Measure	Dimension must be no greater than 0.0140 inch when assembled with mating gear



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

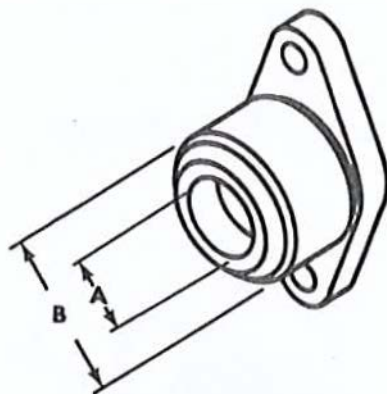
OIP 10898993

ITEM: ~~WADLER FUEL PUMP DRIVE BEVEL SHAFTGEAR~~
BRACKET, MOUNTING:
FUEL PUMP DRIVE BEVEL SHAFTGEAR

REFERENCE: Figure 5-108 (5/903)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter (bearing surface)	1.0	Measure	Must not be greater than 0.8135 inch
4	B	Outside diameter (pilot)	1.0	Measure	Must not be less than 1.4955 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

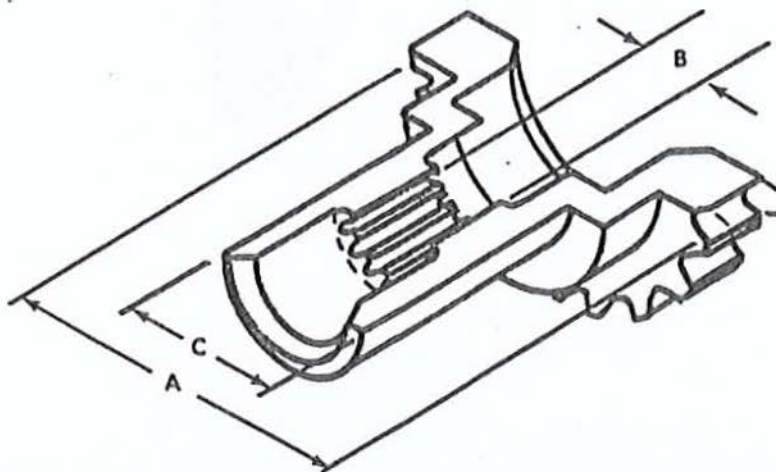
OIP 10898994

ITEM: GEAR, SPUR:
fuel pump driven and idler

REFERENCE: Figure 5-108 (5/903)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Magnetic particle	None allowed
2		Scratches, nicks or gouges on contact surfaces	2.5	Visual	None allowed
3		Missing or chipped teeth (spline)	2.5	Visual	None allowed
4		Missing or chipped teeth (spur gear)	2.5	Visual	None allowed
5	A	Outside diameter (bearing surface)	1.0	Measure	Must not be less than 0.8085 inch
6	B	Dimension between pins, spline. Pin diameter 0.0600 inch	1.0	Measure	Must not be greater than 0.3923 inch
7	C	Dimension over rolls spur gear (0.1125 diameter rolls)	1.0	Measure	Must not be less than 1.9035 inches



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OVERHAUL INSPECTION PROCEDURE:

DMWR 9-2815-220:

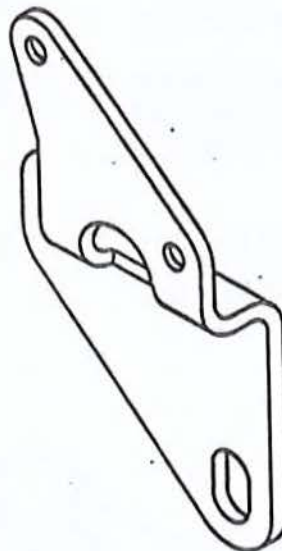
OIP 11682615:

ITEM: BRACKET, MOUNTING:
backflow valve

REFERENCE: Figure 5-108 (5/903)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Bent	2.5	Visual	None allowed
4		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

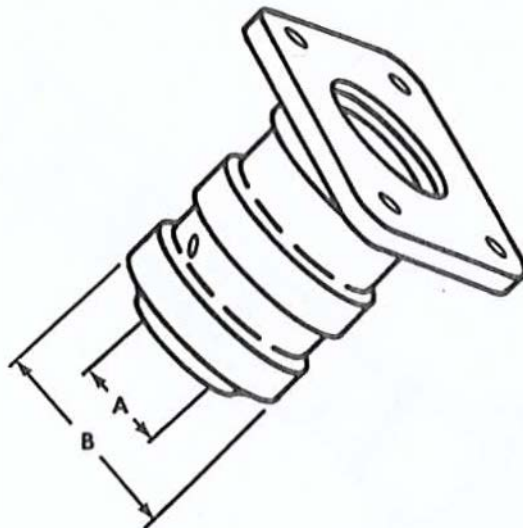
ITEM: ~~ADAPTER, FUEL PUMP BEVEL SHAFTGEAR:~~
 driven
 FUEL PUMP BEVEL SHAFTGEAR, DRIVEN

OIP 10899002

REFERENCE: Figure 5-108 (5/903)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on contact surfaces	2.5	Visual	None allowed
3	A	Inside diameter (bearing running shaft)	1.0	Measure	Must not be greater than 0.7510 inch
4	B	Outside pilot diameter	1.0	Measure	Must be no less than 2.1210 inches



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

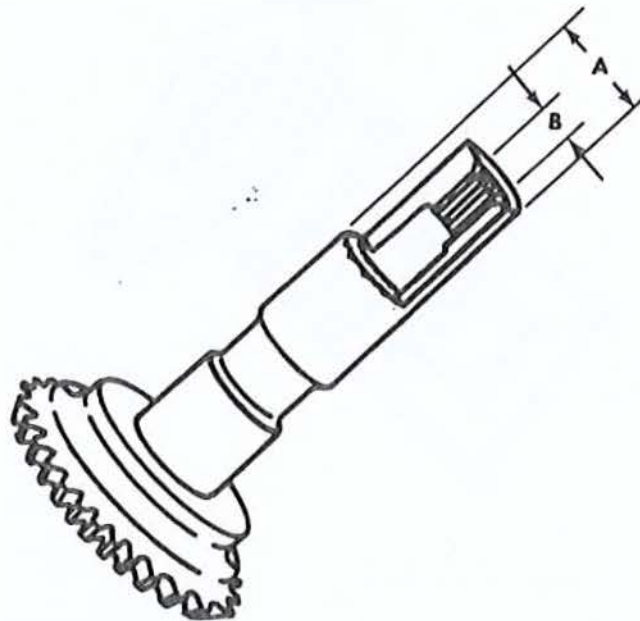
OIP 10899003

**ITEM: GEARSHAFT, BEVEL:
fuel pump driven**

REFERENCE: Figure 5-108 (5/903)

ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Scratches, nicks, or gouges on con- tact surfaces	2.5	Visual	None allowed
3		Missing or chipped teeth (spline)	2.5	Visual	None allowed
4		Missing or chipped teeth (bevel gear)	2.5	Visual	None allowed
5	A	Outside diameter (3.08" bearing surface)	1.0	Measure	Must not be less than 0.7460 inch
6	B	Dimension between pins, spline. Pin diameter 0.0600 inch	1.0	Measure	Must not be greater than 0.3923 inch



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

5-145. Repair and Assembly.

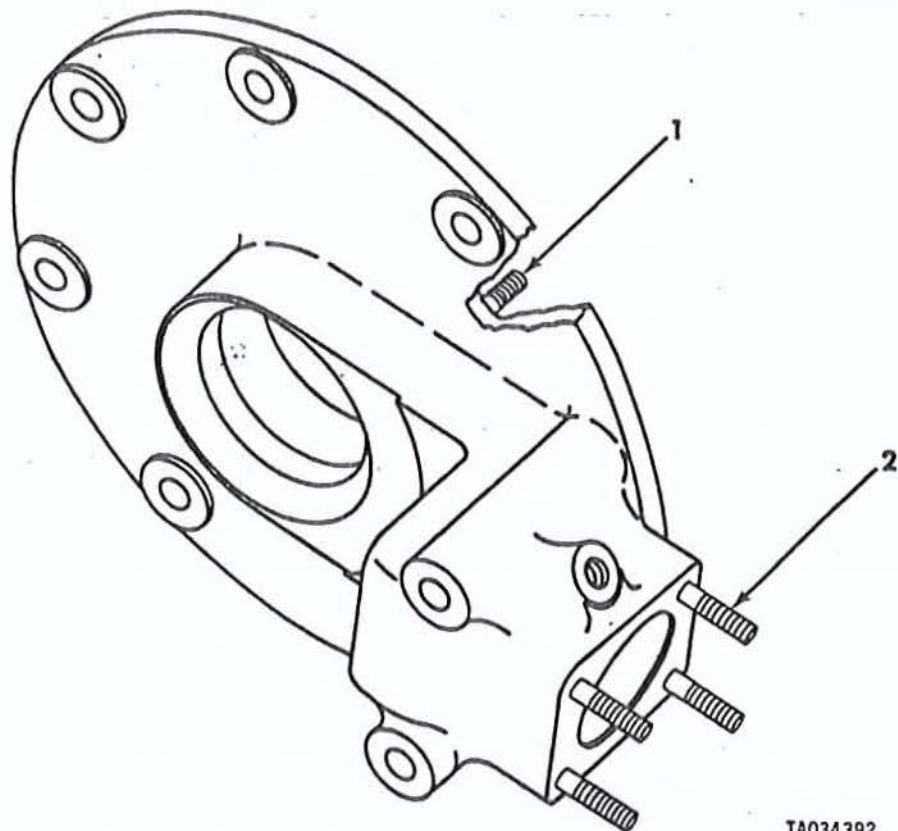
a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Replacement of studs. Refer to paragraph 5-5, d (5/6), table 5-50 (5/915), and figure 5-109 (5/915) when replacing damaged, bent, or stripped power take-off drive assembly housing studs.

Table 5-50. Power Take-off Drive Assembly Housing Standard Stud Identification

References Fig. no.	Item no.	Setting height	No. reqd.	Stud size and length
5-109 (5/915)	1	23/32	2	1/4-20 (9/16) x 1/4-28 (17/32) x 1-3/16
	2	1-1/8	4	5/16-18 (11/16) x 5/16-24 (13/16) x 1-25/32 (49/64)



TA034392

Figure 5-109. Power take-off drive assembly housing standard stud identification.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5 / 11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

DAWR 9-2815-220

BLANK

FRAME

Section XXXVI. OVERHAUL OF ENGINE ELECTRICAL COMPONENTS

5-146. General. This section covers overhaul of the engine electrical components (fig. 5-110) (5/920). These include sending units and switches, the time totalizing meter, the low voltage protection module, the fuel/water automatic drain control, and the fuel shut off cable. Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-147. Disassembly and cleaning.

a. Disassembly. Refer to TM 9-2815-220-34.

b. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(2) Solenoid valve. Plug valve inlet and outlet openings to prevent entrance of foreign material. Clean the solenoid valve with a cloth moistened with dry-cleaning solvent (P-D-680, Type II). The valve contains rubber parts and should not be immersed in the solvent.

5-148. Inspection.

a. General. Inspect the engine electrical components according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the engine electrical components are listed in table 5-51 (5/921). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Time Totalizing Meter.

(1) Inspection. Inspect the time totalizing meter for dents or other deformities which would impair its function.

(2) Test. Test the time totalizing meter by connecting the meter's electrical connection to a 24-volt source. The time totalizing meter records time whenever energized by a 24-volt source in tenths of an hour and will numerically advance every six minutes. Allow sufficient time during test to ensure the hour counter is functioning properly. After test, the time totalizing meter should be reset to zero using the resetting device (9, fig. 2-2) (2/8).

c. Transmitters and Switches.

(1) Engine oil temperature transmitter. Inspect the temperature transmitter for dents or other deformities which would impair its function. Functionally inspect the engine oil temperature transmitter by connecting it to a constant voltage source of 28.5 V dc. Current through the unit must be 26.15 to 27.25 milliampers with the sensing element in water at 200 degrees F, $\pm 1/2$ degree at a flow of 10 feet per minutes past the unit.

5-148. (Cont)

(2) Engine high oil temperature switch. Inspect the high temperature switch for dents or other deformities which would impair its function. Functionally inspect the switch for continuity. The engine oil high temperature switch must be closed when the sensing element is immersed in oil between 245 and 255 degrees F, and must be open when oil temperature is below 245 degrees F.

(3) Engine low oil pressure switch. Inspect the low oil pressure switch for dents or other deformities which would impair its function. Functionally inspect the switch under pressure for electrical continuity. The switch must be closed between 0 and 9 psi and be open above 9 to 13 psi.

NOTE

Model AVDS-1790-2DR uses a second engine - low pressure oil switch for auxiliary generator control.

(4) Engine oil pressure transmitter. Inspect the oil pressure transmitter for dents or other deformities which would impair its function. Inspect calibration of oil pressure transmitter under pressure using an ohmmeter. Resistance through the engine oil pressure transmitter must be 0 to 1.0 ohms resistance at 0 psi, ~~1.5 to 3.0~~ ^{4.5 to 6.0} ohms at ~~10~~ ²⁰ psi, ~~14.5 to 16.5~~ ^{16.5} ohms at ~~60~~ ⁷⁰ psi, and 28 to 31 ohms at ~~128~~ ¹²⁰ psi.

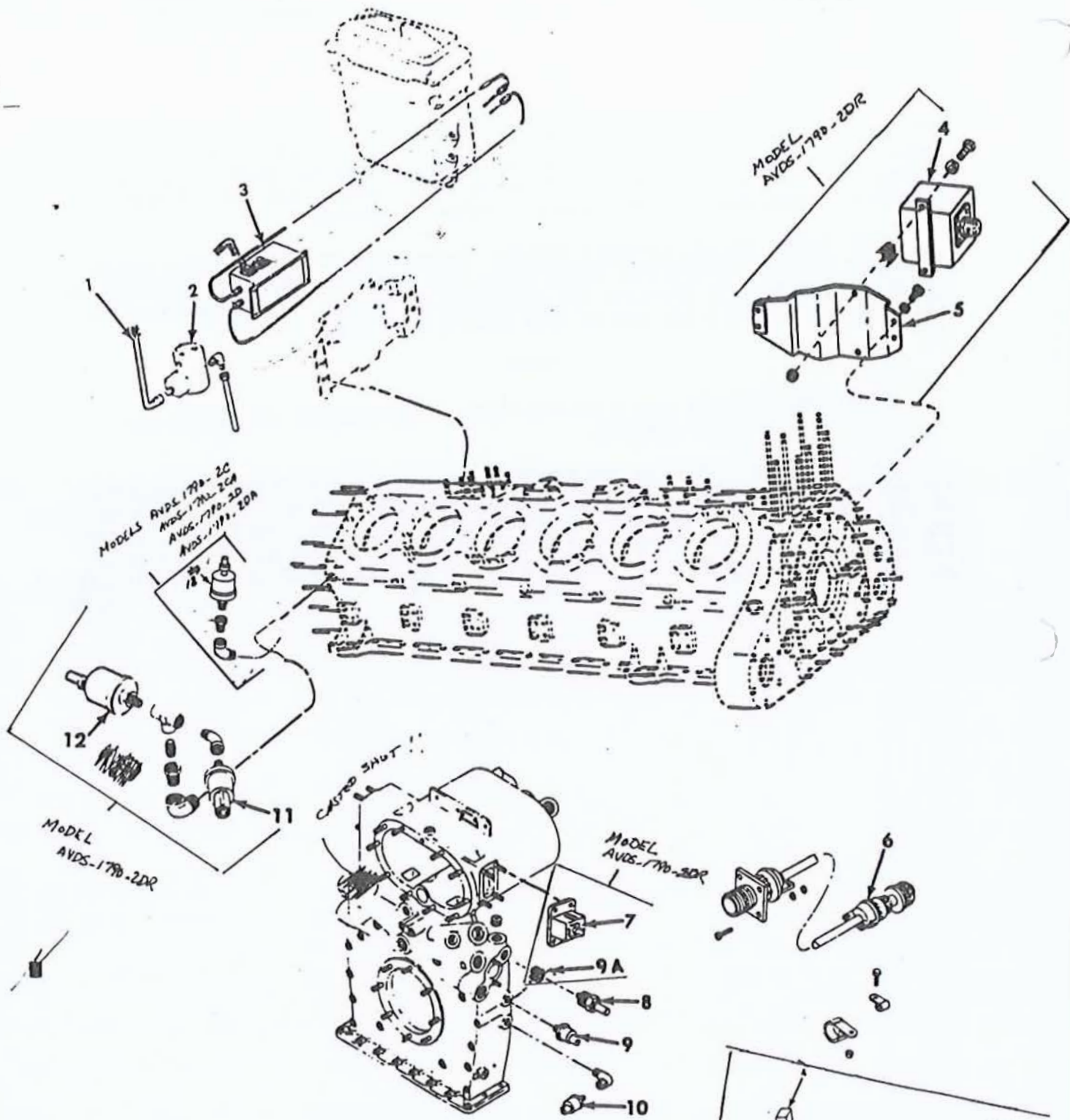


Figure 5-110. Engine electrical components.

3/159 check
part with 508

5/920 Change

MODELS AVDS-1790-2C.
AVDS-1790-2CA,
AVDS-1790-2D AND
AVDS-1790-2DA

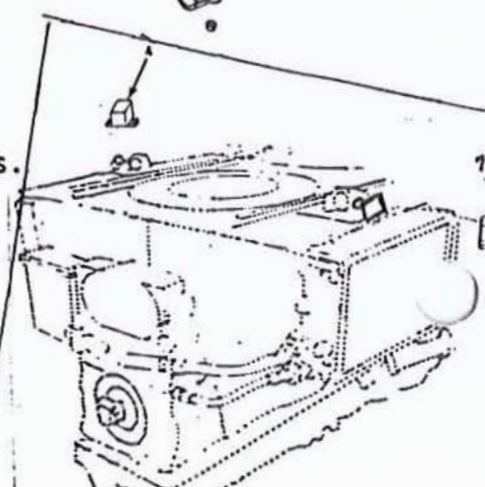


Table 5-51. Wear Limits, Fits, and Tolerances for Engine Electrical Components

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-710 (5/920)	1	WIRING HARNESS: automatic water drain - part no. 11684127 Refer to OIP 11684127 (5/923)		
	2	VALVE, 8/16 SOLENOID: water separator drain - part no. 11668627 Refer to OIP 11668627 (5/848.7)		
	3	SEPARATOR, WATER, LIQUID FUEL: CONTROL ASSEMBLY, FUEL <i>AUTOMATIC DRAIN -</i> WATER-SEPARATOR: part no. 11668625 Refer to OIP 11668625 (5/925)		
	4	RELAY-SOLENOID, ENGINE STARTER, ELECTRICAL: starter low voltage control system part no. 11668620 Refer to OIP 11668620 (5/927)		
	5	BRACKET, MOUNTING; STARTER <i>RELAY SOLENOID -</i> LOW VOLTAGE MODULE - <i>MODEL AVOS-1790-2DR</i> part no. 11684055 Refer to OIP 11684055 (5/929)		
	6	LEAD, ELECTRICAL: fuel injection pump fuel shut off solenoid - part no. 10882641 Refer to OIP 10882641 (5/930)		

Table 5-51. Wear Limits, Fits, and Tolerances for Engine Electrical Components - Continued

<u>References</u> Fig. No.	<u>Item</u> No.	<u>Item, point of measurement or inspection</u>	<u>New part size</u>	<u>Wear limit</u>
5-110 (5/920)	7	METER, TIME TOTALIZING, ELECTRICAL part no. 11640392 Refer to OIP 11640392 (5/931)		
	8	TRANSMITTER, TEMPERATURE, ELECTRICAL RESISTANCE: engine oil - part no. 7389566 Refer to OIP 7389566 (5/932)		
	9	SWITCH, THERMOSTATIC: en- gine oil high temperature - part no. 7771274-1 Refer to OIP 7771274-1 (5/933)		
	9A	PLUG, PIPE: Core hole - part no. 444705 (MODEL AVDS-1790-2DR) Refer to OIP 444705 (5/934)		
	10	SWITCH, PRESSURE: engine low oil pressure warning - part no. 11668621 Refer to OIP 11668621 (5/934.1)		
	11	SWITCH, PRESSURE: auxiliary generator control - part no. 10874979 (Model AVOS-1790-2DR) Refer to OIP 10874979 (5/935)		
	12	TRANSMITTER, PRESSURE: ENGINE oil pressure, high- part no. 7416363 Refer to OIP 7416363 (5/936)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

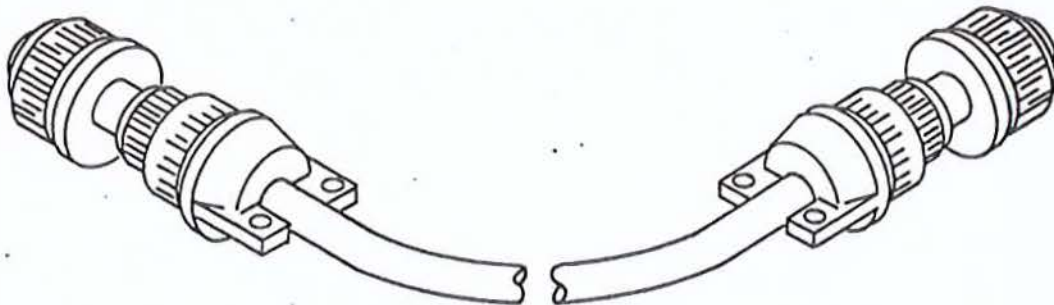
OIP 11684127

ITEM: WIRING HARNESS:
automatic water drain

REFERENCE: Figure 5-110 (5/920)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Broken or cracked insulation	2.5	Visual	None allowed
4		Continuity	1.0	Measure	



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1

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

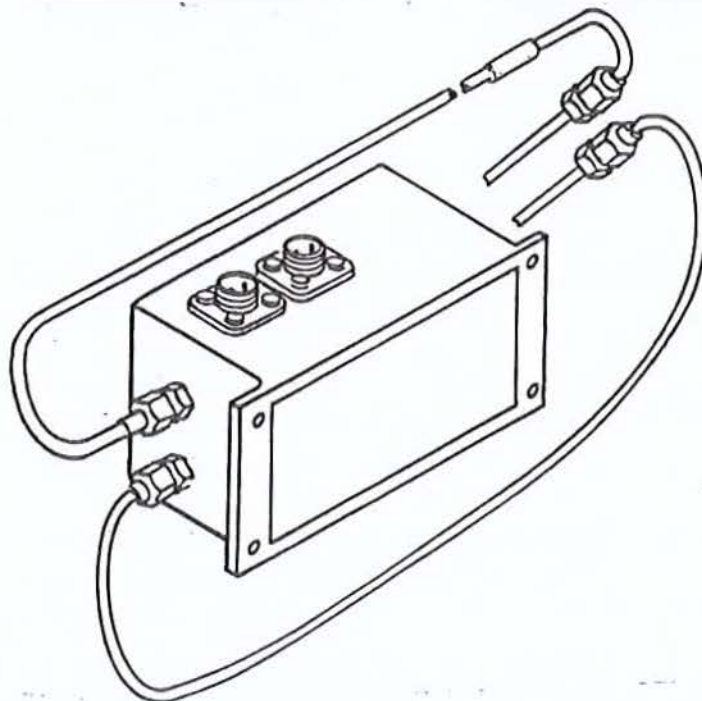
ITEM: *SEPARATOR, WATER, LIQUID FUEL:*
~~CONTROL ASSEMBLY,~~
 FUEL/WATER SEPARATOR
 AUTOMATIC DRAIN

OIP 11668625

REFERENCE: Figure 5-110 (5/920)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Broken or damaged probes and cables	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed
5		Loose, damaged, or missing pins	2.5	Visual	None allowed
6		Functional check	0.0		See sheet 2
7		Missing red shrink tubing on upper/ new probe lead	2.5	Visual	None allowed



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4

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: *SEPARATOR, WATER, LIQUID ~~FUEL~~*
~~CONTROL ASSEMBLY,~~
FUEL/WATER SEPARATOR:
AUTOMATIC DRAIN

OIP 11668625

REFERENCE: Figure 5-110 (5/920)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
-----	------------	----------------	------	----------------	-----------

OPERATION

The control module will energize the load when a conductive liquid (such as water) reaches the high probe, and de-energize the load when the conductive liquid falls below the low probe provided the conductive liquid leaves the low probe within 18 ± 3 seconds after reaching the high probe.

If the conductive liquid remains longer than 18 ± 3 seconds at either probe after reaching the high probe, the control module will de-energize the load and the load will remain de-energized until the control module is reset.

Reset of the control module is accomplished by interrupting the input power to the control module for one second or longer. Reset may also be accomplished by causing the conductive liquid to fall below the low probe.

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220:

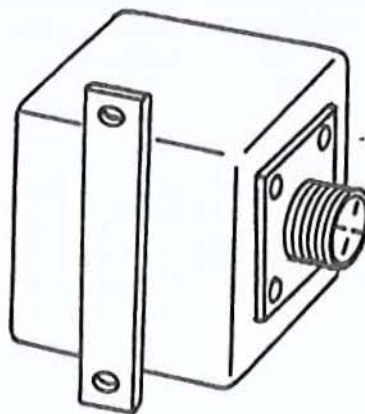
ITEM: RELAY SOLENOID, ENGINE STARTER, ELECTRICAL:
~~starter~~ low voltage ~~protective system~~

OIP 11668620
 SX 7EG1 (P/640)

REFERENCE: Figure 5-110 (5/920)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Loose, damaged, or missing pins	2.5	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed
4		Broken seals (watertight)	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed
6		Functional check	0.0		See sheet 2



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 11668620

5X7EG1 (81640)

ITEM: RELAY SOLENOID, ENGINE STARTER, ELECTRICAL:
~~starter low voltage protective system~~

REFERENCE: Figure 5-110 (5/920)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
		<u>Connector Pin Function</u>			<u>Connector Pin Designation</u>
		Battery Voltage Sensor			A
		Relay Input			B
		Generator Voltage Sensor			C
		Relay Output			D
		Ground			Case

~~3.2.1~~ Performance.

~~3.2.1.1~~ Electrical Characteristics. The nominal voltage (battery) to the unit shall be 24 VDC. The unit shall work satisfactorily, as designed, through the range of 0-34 VDC.

~~3.2.1.2~~ Battery Voltage Sensing.

~~3.2.1.2.1~~ Contact Closure. When a DC voltage of 34.0 to 12.25 ± .50 volts is applied to Pin "A" (+) and the case is grounded, continuity shall be provided through Pins "B" and "D".

~~3.2.1.2.2~~ Contact Opening. Continuity between Pins "B" and "D" shall be interrupted 500 millisecond after a DC voltage of 12 volts or less is applied to Pin "A" with the case grounded.

3.2.1.2.3 Resetting. If continuity between Pins "B" and "D" has been interrupted ~~3.2.1.2.2~~, it can only be re-established and maintained by removing the power from Pin "A" and applying DC voltage in excess of 12.25 ± .50 but less than 34.0 volts again to Pin "A".

3.2.1.2.4 Voltage Variations. During initial time delay (500 MS) fluctuations in applied voltage, if less than 12 volts, to Pin "A" shall not cause interruption of continuity between Pins "B" and "D" as long as this fluctuating voltage remains above 5 volts.

*Spec. Sheet
 on PAGE 51925-1*

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

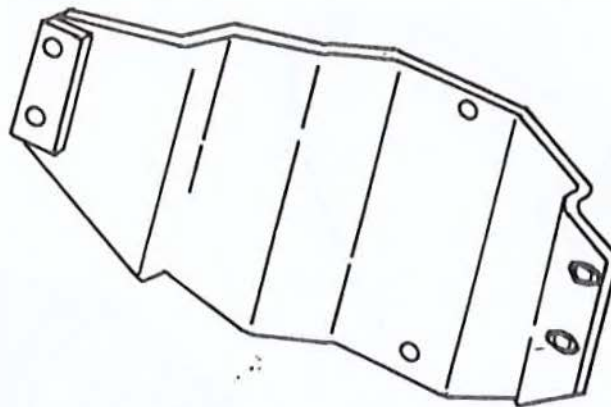
OIP 11684055

ITEM: BRACKET, MOUNTING; STARTER
~~LOW VOLTAGE MODULE~~
 STARTER RELAY SOLDOWD

REFERENCE: Figure 5-110 (5/920)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Loose or missing SPACER	2.5	VISUAL	NONE ALLOWED



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

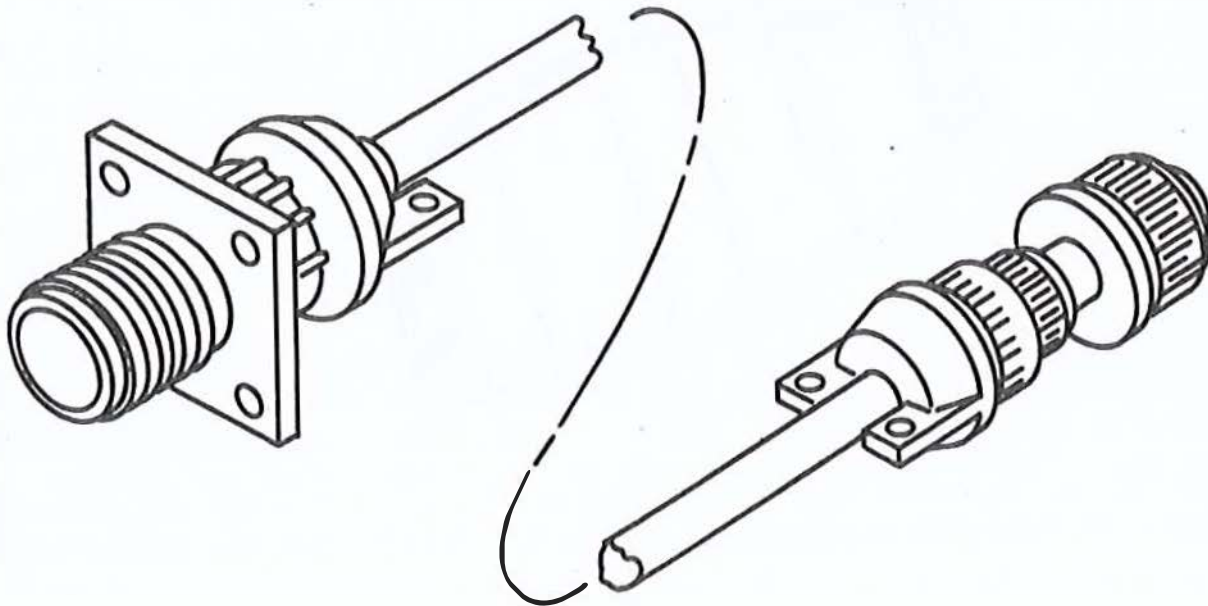
OIP 10882641

ITEM: LEAD, ELECTRICAL:
fuel injection pump fuel
shutoff solenoid

REFERENCE: Figure 5-110 (5/920)

ITEM: 6

NO.	REF. LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged threads	2.5	Visual	None allowed
3		Broken or cracked insulation	2.5	Visual	None allowed
4		Functional test	1.0	24 volts dc	Continuity



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DVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

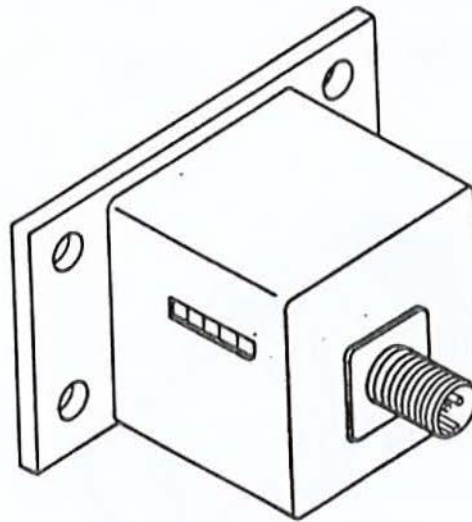
OIP 11640392

ITEM: METER, TIME TOTALIZING ~~REFLECTOR~~

REFERENCE: 5-110 (5/920)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	°AQL	INSP METHOD	REQUISITE
1		Inspect case for dents or damage that could hinder unit function	2.5	Visual	None allowed
2		Damaged threads on connector	2.5	Visual	None allowed
3		Operational check	0.0	Connect meter to a 24 volt electrical system and test. Run sufficient time to be certain meter is recording accurately	.NOTE Time registered in test run should be recorded in build up record.



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OVERHAUL INSPECTION PROCEDURE

DMWR-9-2815-220

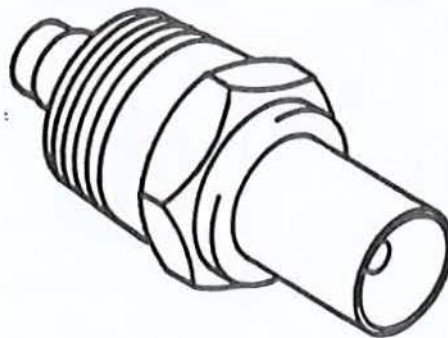
ITEM: TRANSMITTER, TEMPERATURE, ELECTRICAL RESISTANCE:
engine oil

OIP 7389566
(MS24537-1)

REFERENCE: Figure 5-110 (5/920)

ITEM: 8

NO.	REF. LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Inspect for dents or other deformities that could cause malfunction	2.5	Visual	None allowed
3		Functional inspection	1.0	Measure	✓ With constant voltage control set at 28.5 volts, and a 360 OHM \pm 2% resistor in series, milli-amp reading to be 24.6 to 28.5 with unit in water at 200 \pm 5° F, having circulation past the unit
4		Pipe threads for damage	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DWTR 9-2815-220

.7771274-1

OIP (M12285-1-5)
(MIL-S-12285-1)

ITEM: SWITCH, THERMOSTATIC:
engine oil high temperature

REFERENCE: Figure 5-110 (5/920)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Dents, gouges, or other deformity that could cause malfunction	2.5	Visual	None allowed
3		Damaged pipe thread	2.5	Visual	None allowed
4		Functional test	1.0	Measure	Switch must be open below 245°F and close between 245 and 255°F <i>240 250</i>



•Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 4 5/933

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 444705 (CQAX2)
HWPA60

ITEM: PLUG, PIPE

REFERENCE: Figure 5-110 (5/934)

ITEM: 9A

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Damaged Threads	2.5	Visual	None allowed
3		Distortion of Socket Hex	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

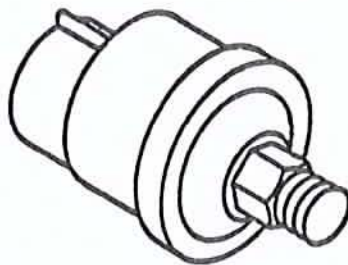
OIP 11668621

**ITEM: SWITCH, PRESSURE:
engine low oil pressure warning**

REFERENCE: Figure 5-110 (5/920)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Dents, gouges, or other deformities that could cause malfunction	2.5	Visual	None allowed
3		Damaged pipe threads	2.5	Visual	None allowed
4		Continuity test and functional test.	1.0	Measure	Switch must open between 9 and 13 psig with increasing pressure and close between 9 and 13 psig with decreasing pressure.



•Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 4 5/934.1 (5/934.2 blank)



OVERHAUL INSPECTION PROCEDURE

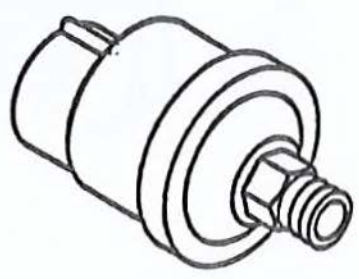
DWNR 9-2815-220

ITEM: SWITCH, PRESSURE:
auxiliary generator
control

OIP 10874979
A30518 (71500)
REFERENCE: Figure 5-110 (5/920)
ITEM: 11

NO.	REF LTR	CHARACTERISTIC	°AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Dents, gouges, or other deformities that could cause a malfunction.	2.5	Visual	None allowed
3		Damaged pipe thread	2.5	Visual	None allowed
4		Functional test	1.0	Measure	Closed contacts at terminals NC and C must open at 2.5 to 5.5 psi. Opened contacts at terminals NO and C must close at 2.5 to 5.5 psi. Must withstand 150 psi (SAE No. 10 oil) for 5 minutes at room temperature without leakage or change in specifications.

OPERATING PRESSURE



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

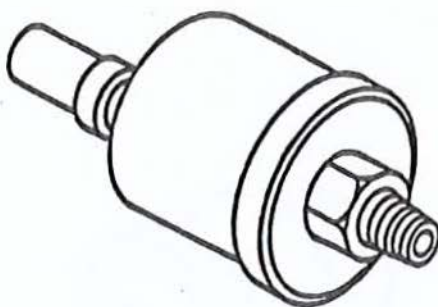
DMWR 9-2815-220

ITEM: TRANSMITTER, PRESSURE:
engine oil pressure, high

OIP 7416363
(MS24539-1)
REFERENCE: Figure 5-110 (5/920)

ITEM: 12

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Dents, gouges, or other deformities that could cause malfunction	2.5	Visual	None allowed
3		Damaged pipe thread	2.5	Visual	None allowed
4		Functional test	1.0	Measure	0 psf = 0-1.0 ohms 20 psf = 3.5 - 5.5 ohms 4.5 - 6.0 70 psf = 16.5 - 18.5 ohms 120 psf = 28 - 31 ohms



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-149. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5) for general repair instructions.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

Section XXXVII. OVERHAUL OF ENGINE WIRING HARNESS^{ES} BRACKETS,
STRAPS AND ASSOCIATED PARTS

5.150. **General.** This section covers overhaul of the engine wiring harnesses, brackets, straps and associated parts (figs. 5-111 through 5-117) (5/940) through (5/948). Specific instructions on cleaning, inspection, and repair are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are also included.

5-151. **Disassembly and Cleaning.**

a. **Disassembly.** Refer to TM 9-2815-220-34.

b. **Cleaning.** Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

5-152. **Inspection.**

a. **General.** Inspect the engine wiring harness brackets, straps and associated parts according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the engine wiring harness assemblies are listed in table 5-52 (5/949). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits and tolerances.

b. **Wiring Harness Assemblies and Cables.**

(1) All wiring will be completely inspected, circuit tested, and rebuilt to perform as a new harness.

(2) Harnesses shall be bound together with one-half overlapping turns using black tape as required on the specific drawing.

(3) Crimp terminals to conductors in accordance with specification MIL-F-13513.

(4) Tolerances for cable lengths and cable assembly dimensions shall meet drawing requirements.

(5) Refer to TM 9-2350-253-20-1 for replacement of cable connectors, female plugs, male plugs and female receptacles.

5.152.1. **Reclamation.** When necessary, the power pack harness bracket P/N 11682725 for the 1790-2B engine can be converted to the bracket P/N 11673848 for the 1790-2C. Use the procedures outlined below to perform the conversion. Refer to Figure 5-110.1 (5/939).

a. Using a drill press or milling machine enlarge 1.438 diameter hole in bracket P/N 11682725 to 2.310 inch - 2.330 inch diameter.

b. Drill four (4) new holes to .209 inch - .219 inch diameter.

c. Machine all holes to requirements of drawing 11673848.

When Hook Meter
Moved To Tip of
ENGINE THESE BRACKETS
WERE REFLINED BY
A382
G83

DMWR 9-2815-220

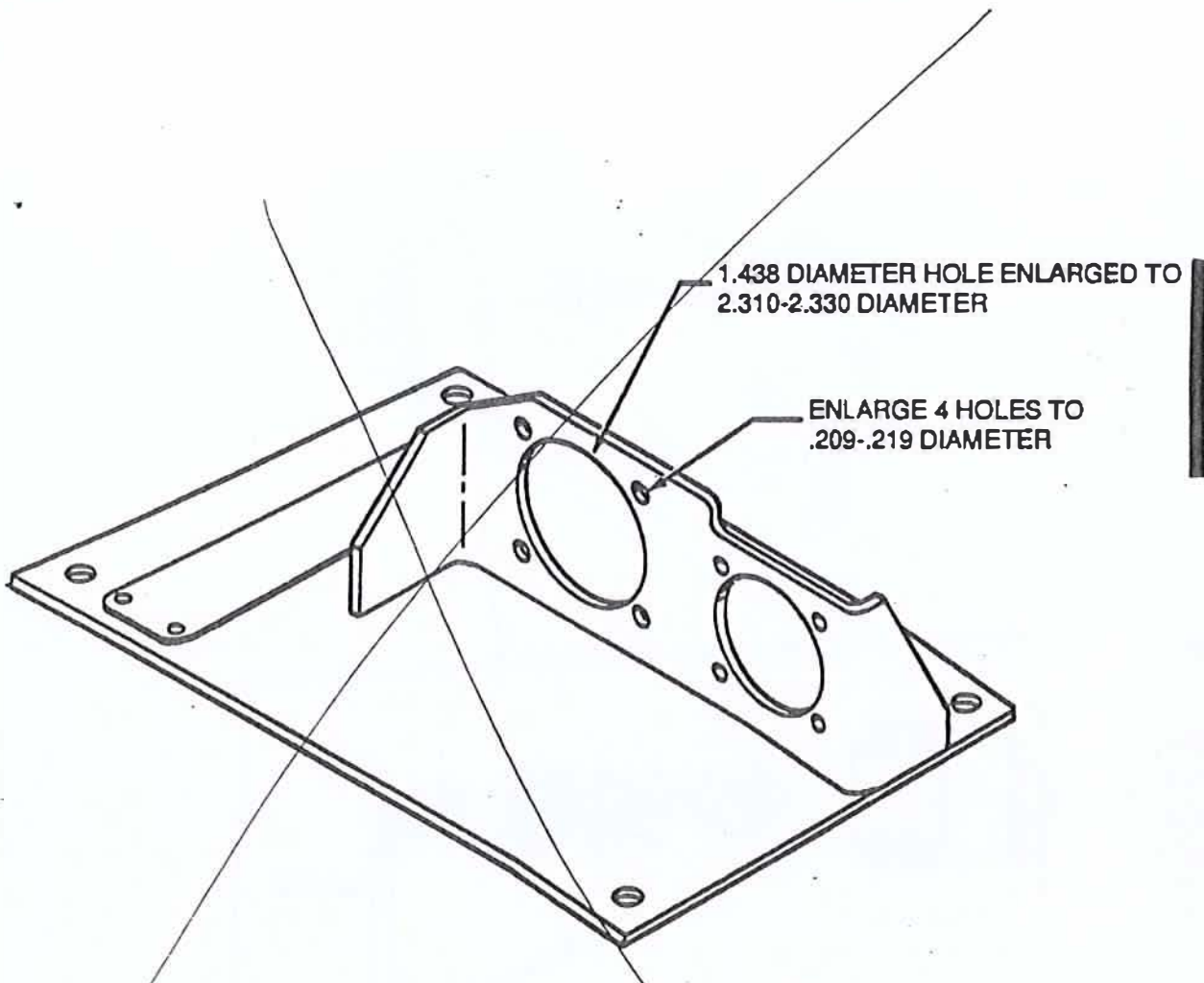
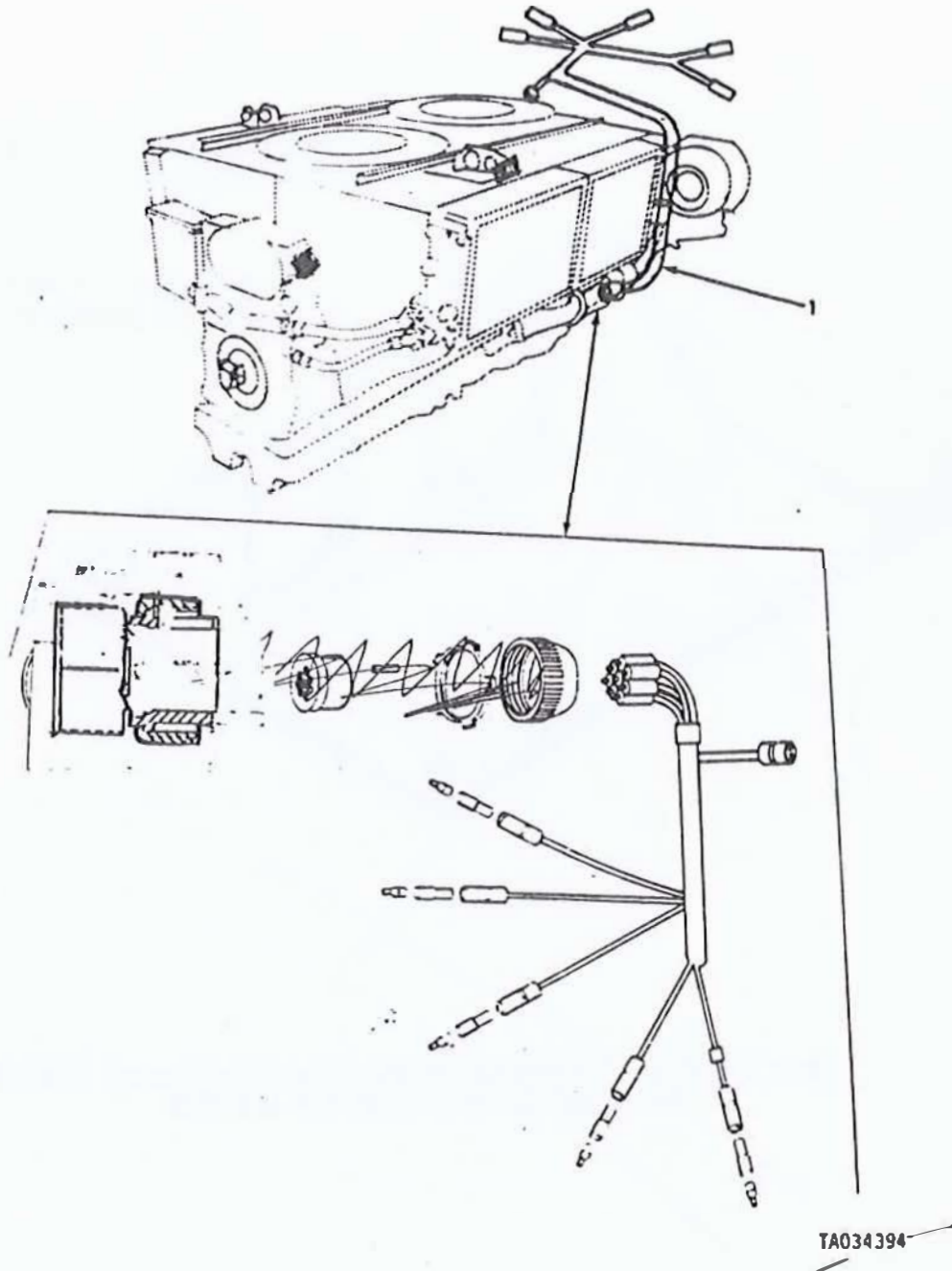


Figure 5-110.1. Conversion of Generator Wire Support Bracket
P/N 11682725 to Bracket P/N 11673848

Change 4 5/939

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Figure 5-111. Transmission wiring harness connectors and terminals.
(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)

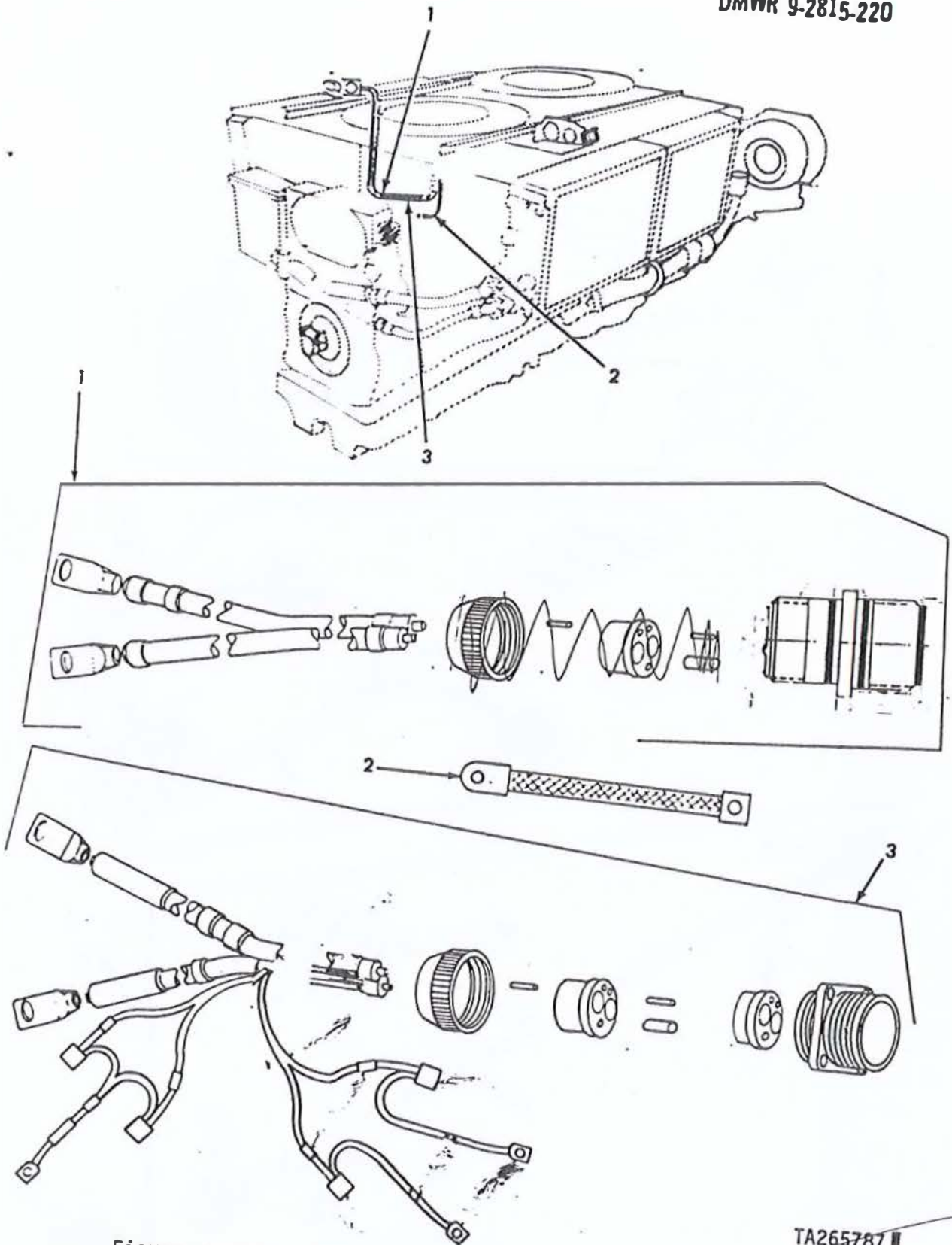
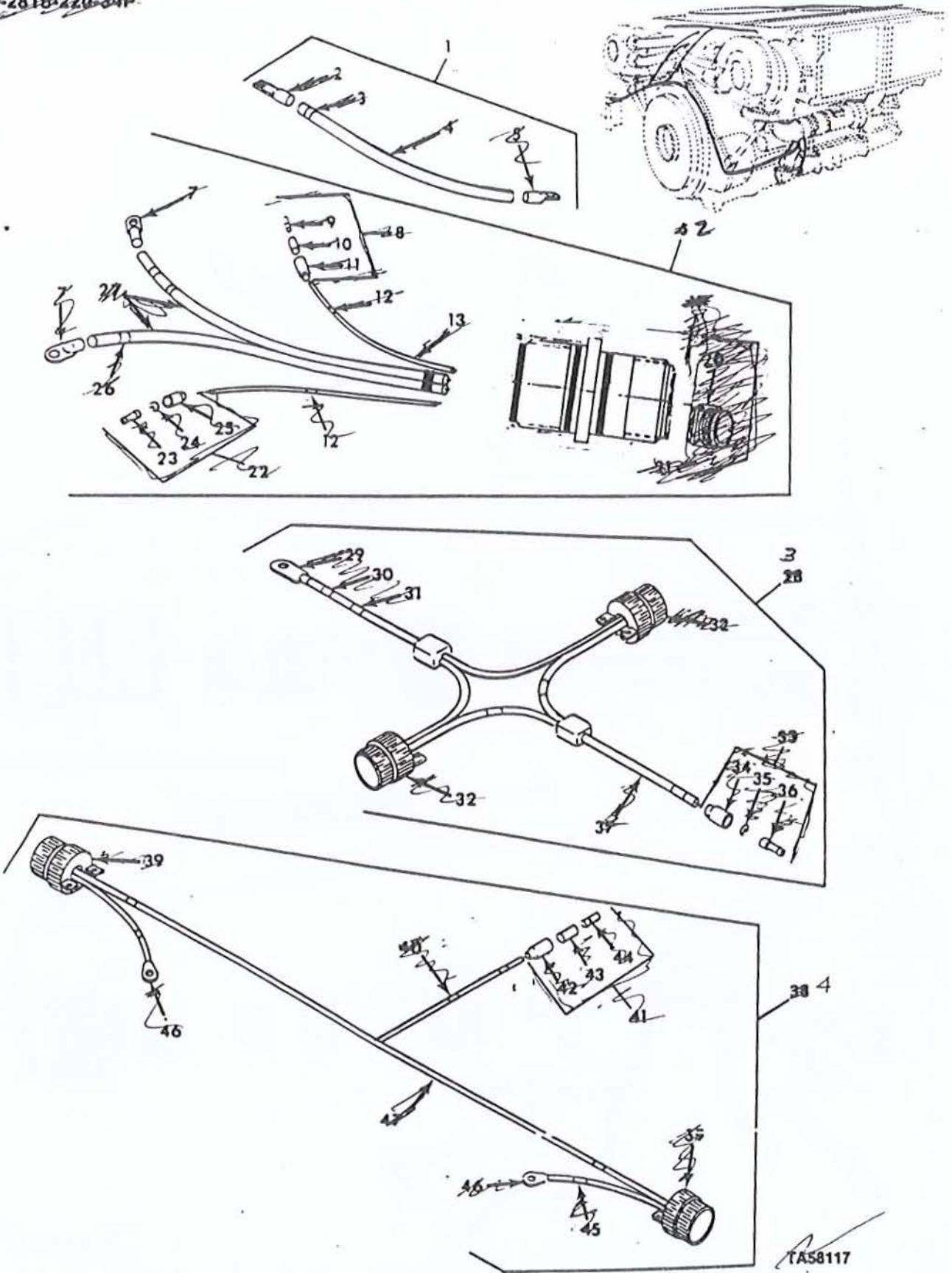


Figure 5-112. Starter cables and associated parts.
(MODELS AVDS-7790-2C, AVDS-1790-2CA, AVDS-1790-2D
AND AVDS-1790-2DA)

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~~TA 0-2815-220-34P~~



5-112.1
Figure 64C. Starter wiring harnesses and associated parts (model AVOS-1790-20R)

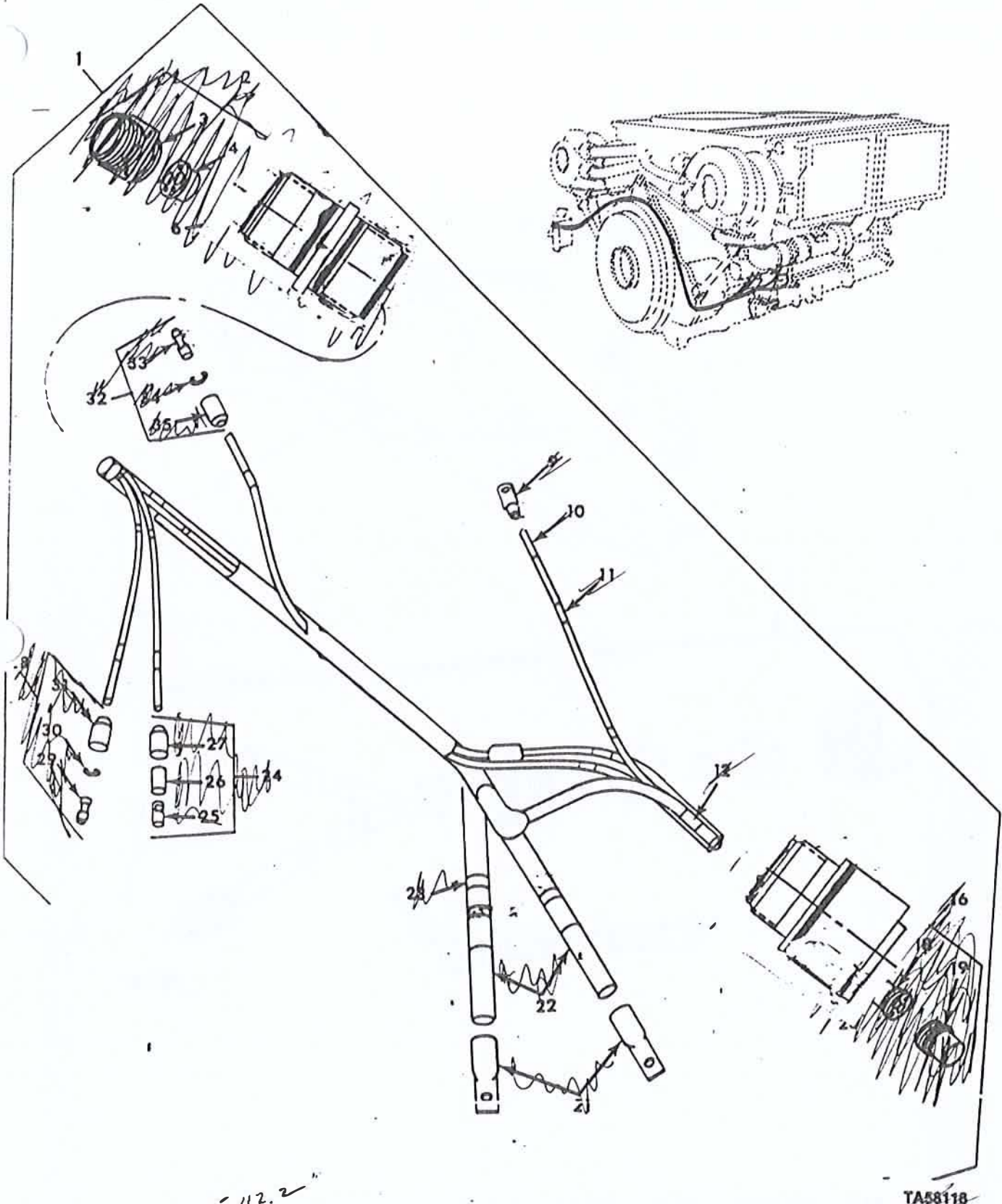


Figure-640. Starter wiring harness and associated parts (model AVDS-1790-2DR).

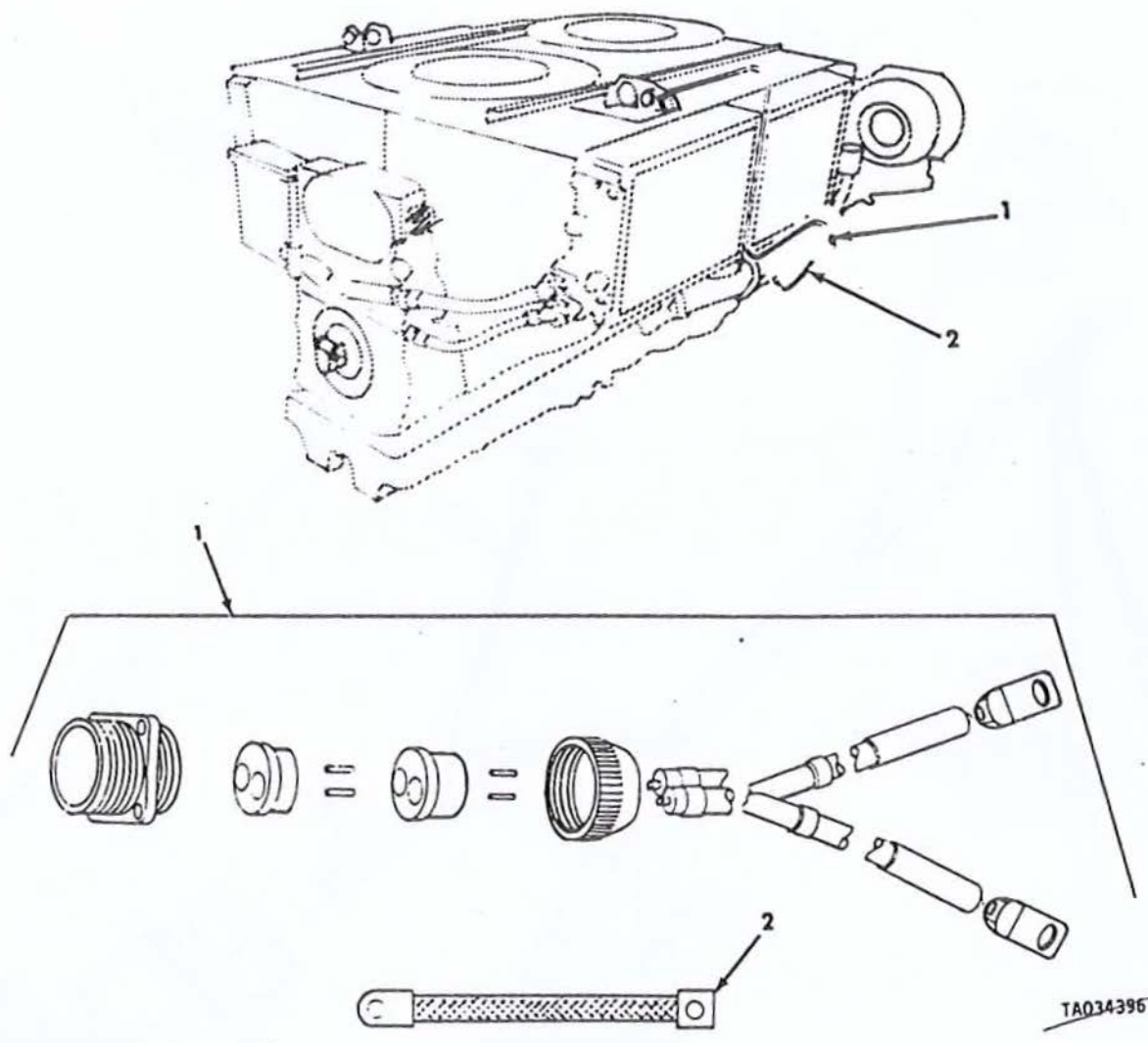


Figure 5-113. Generator cables and associated parts (Models AVDS-1790-2C and AVDS-1790-2CA).

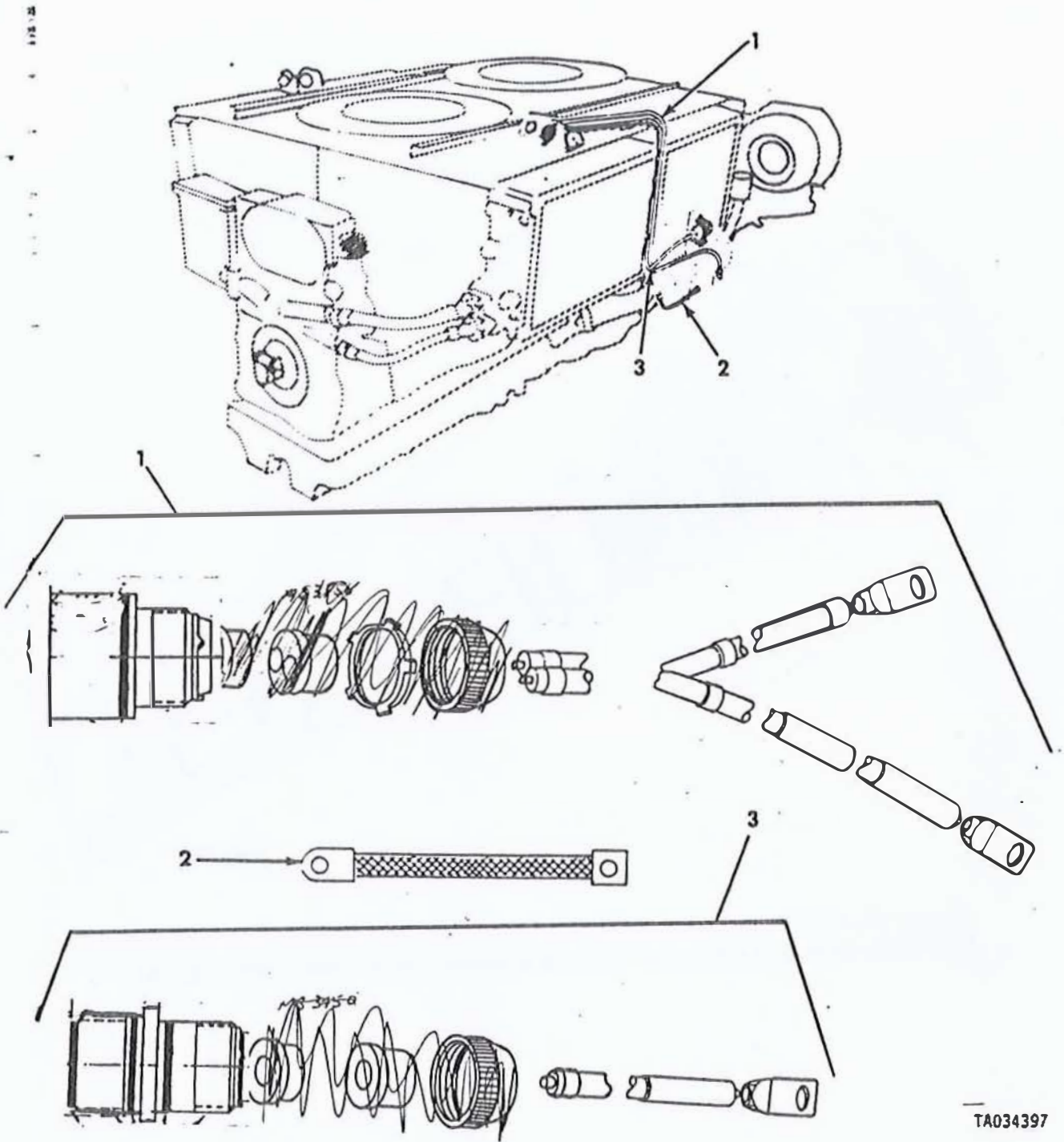


Figure 5-114. Generator cables, blower motor harness, and associated parts (Models AVDS-1790-2D and AVDS-1790-2DA).

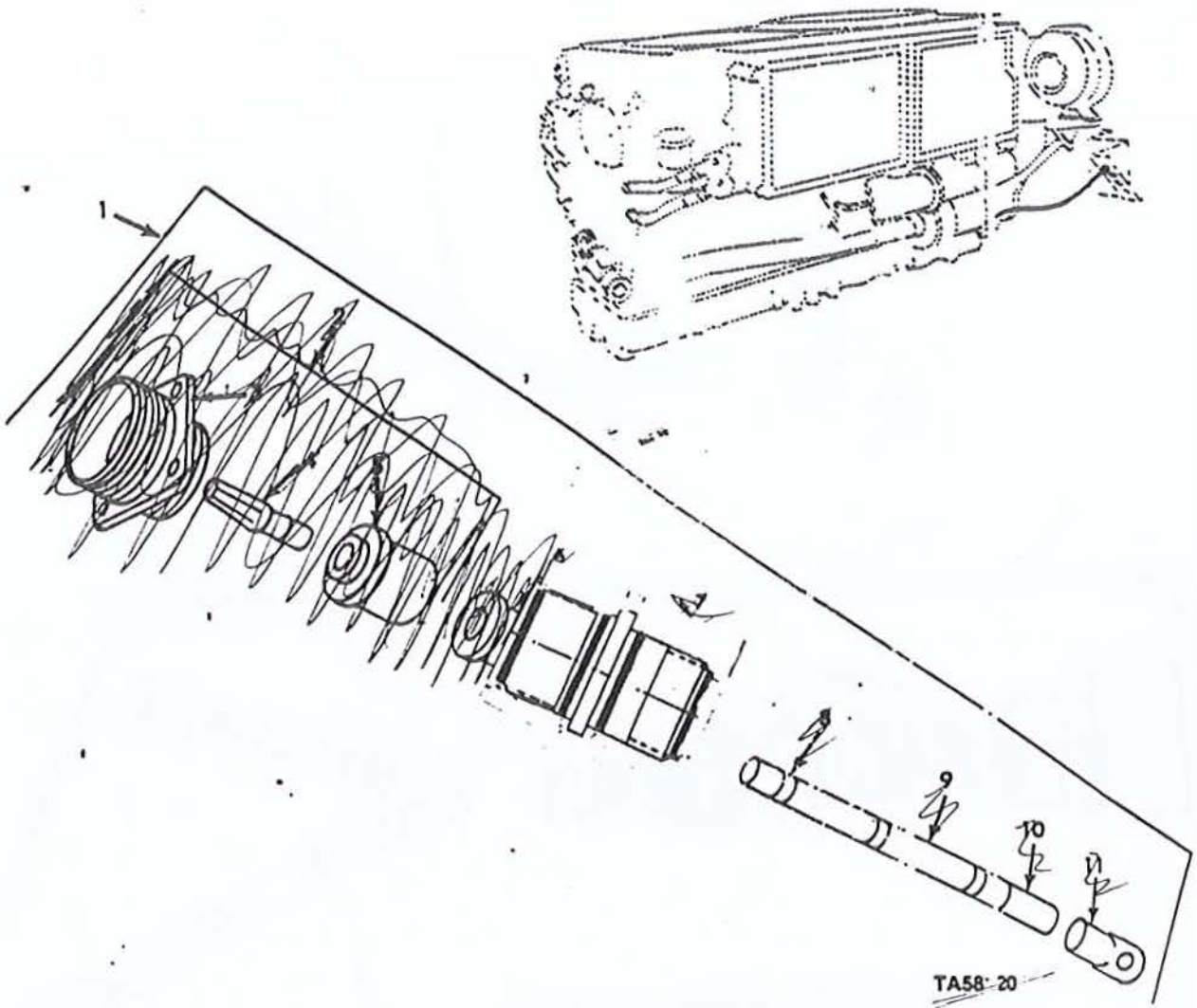


FIGURE 5-114.1

Figure 69A. Generator electrical lead and associated parts (model AVDS-1790-2DR)

DMWR 9-2815-220

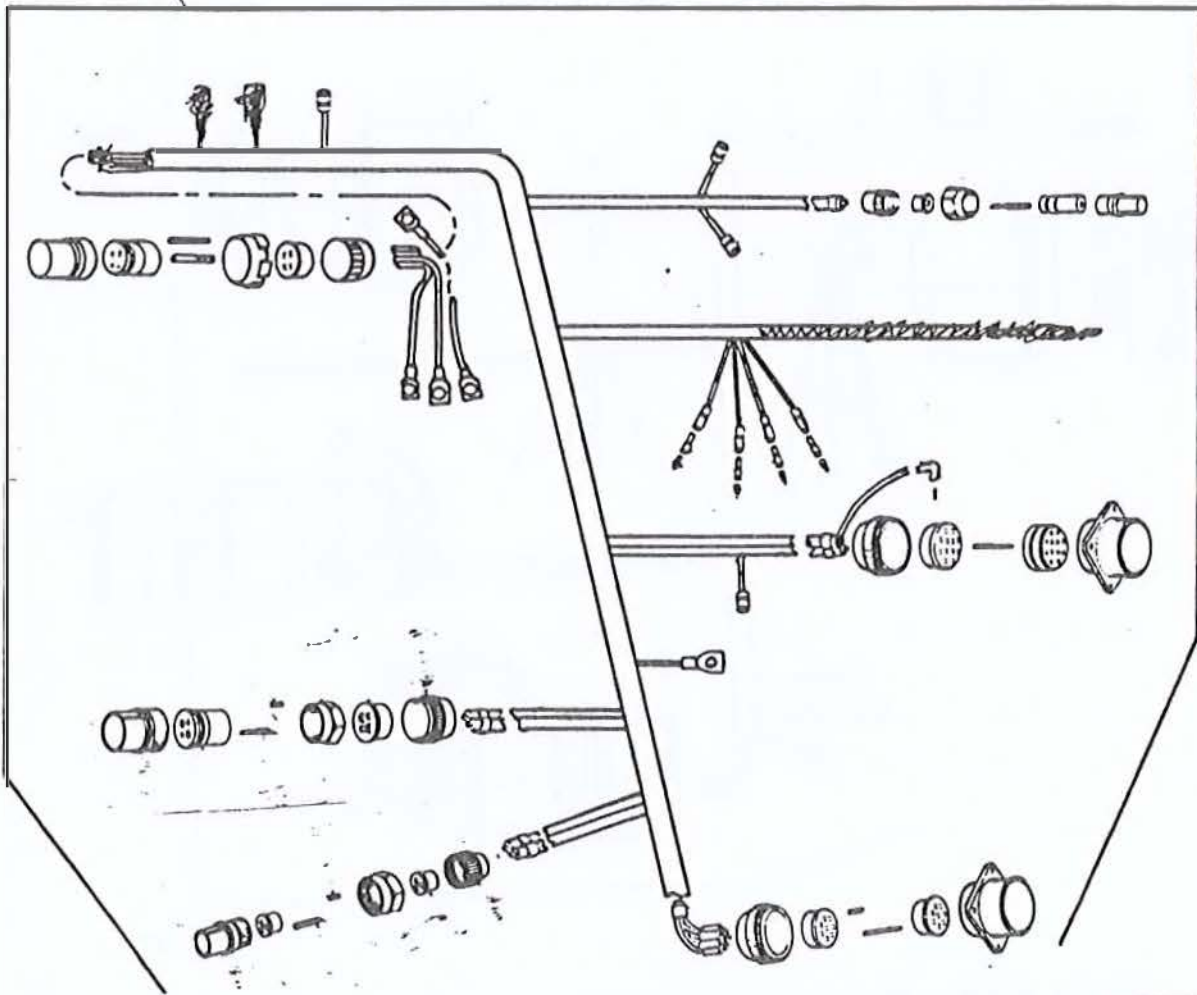
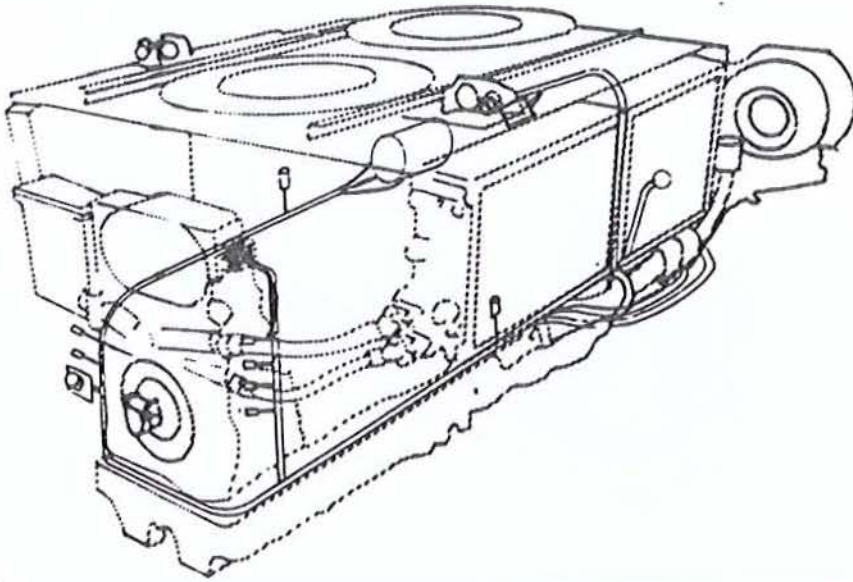
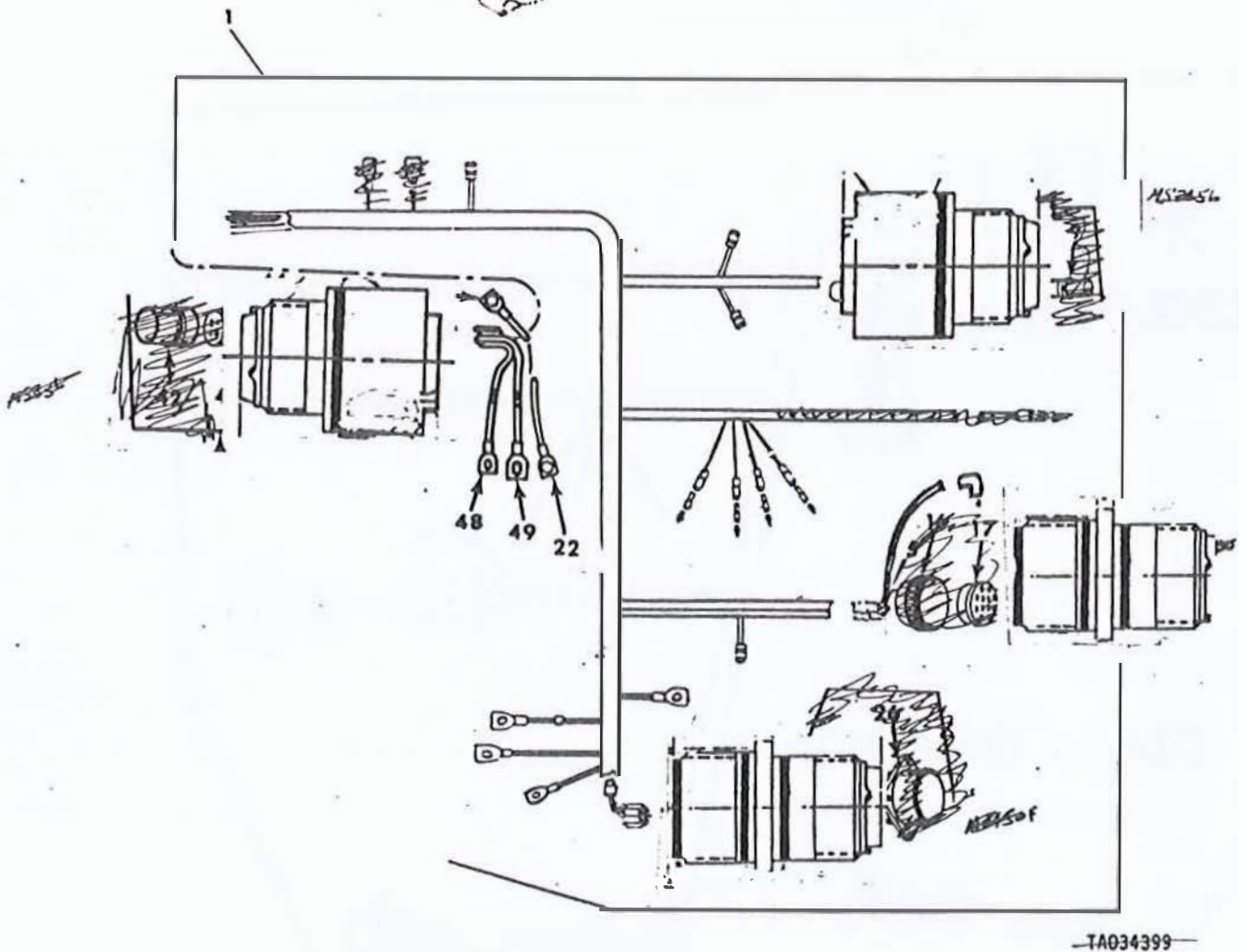
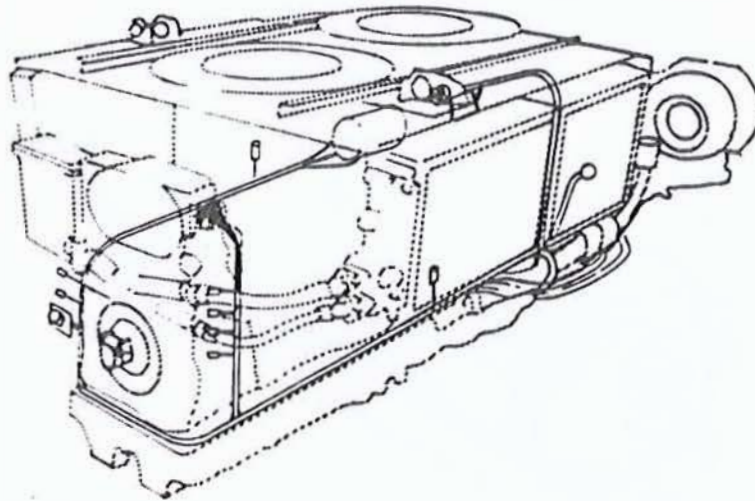


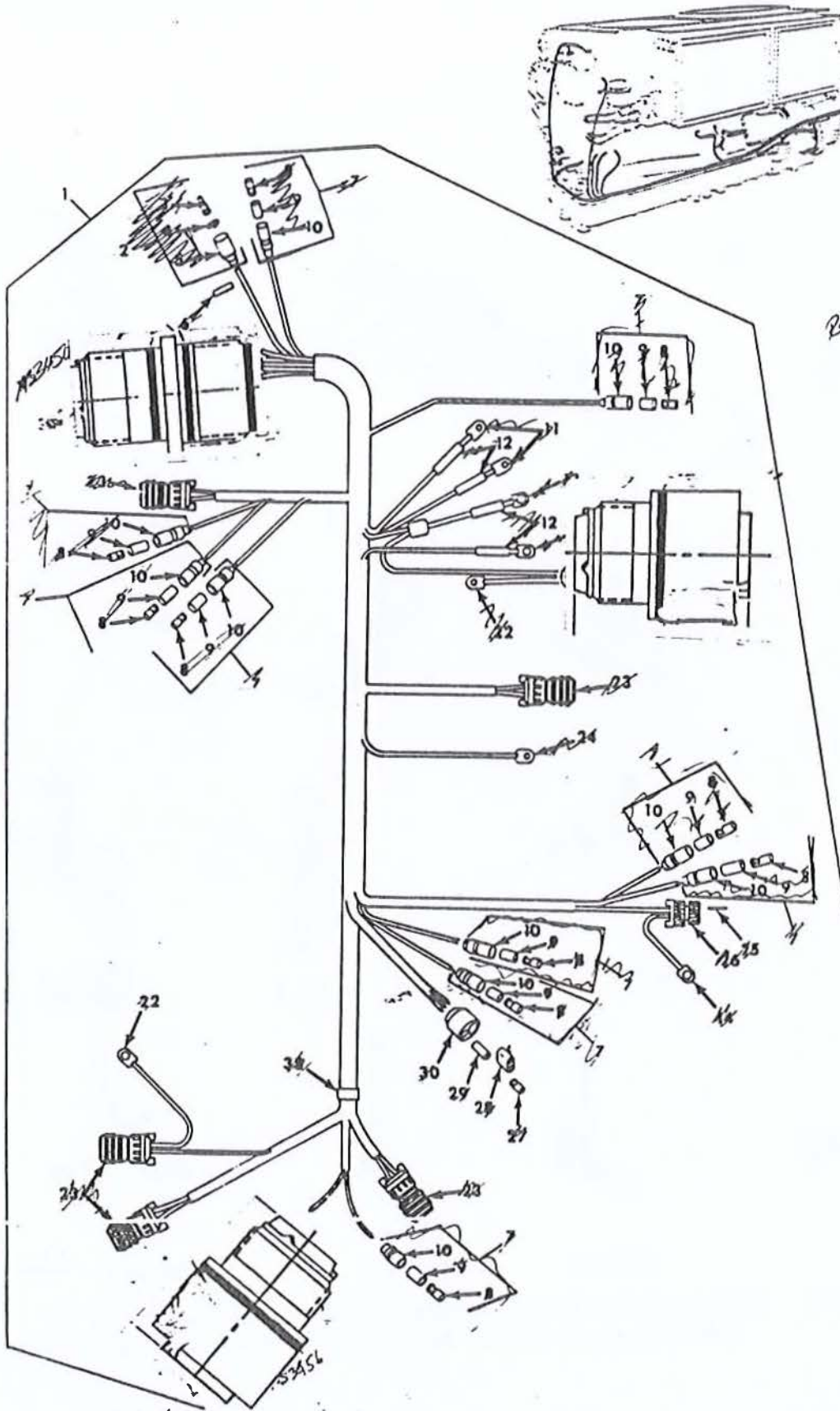
Figure 5-115. Engine wiring harness, connectors, and terminals (Models AVDS-1790-2C and AVDS-1790-2CA).

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Figure 5-116. Engine wiring harness, connectors, and terminals (Models AVDS-1790-20 and AVDS-1790-20A).



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5.116.1
Figure 64A. Engine wiring harness connectors and terminals (model AVOS-1790-20R)

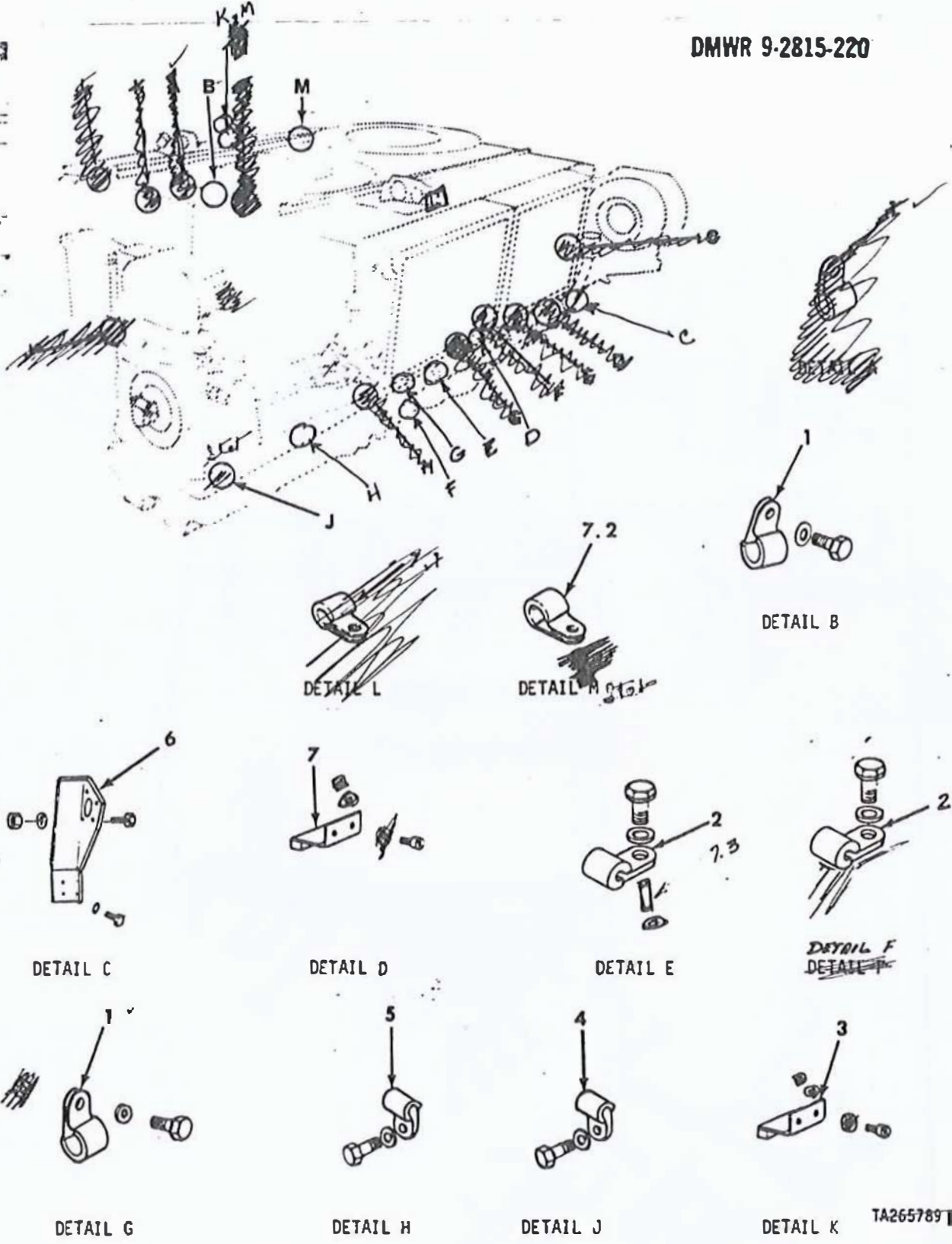
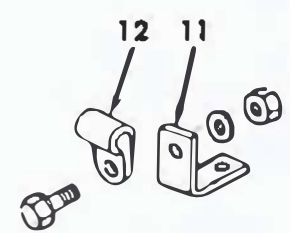
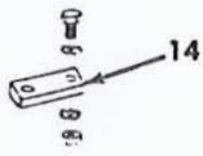
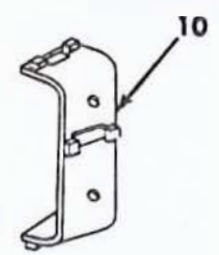
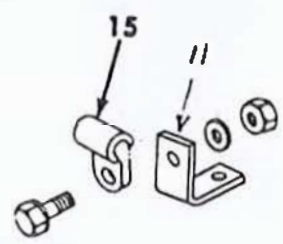
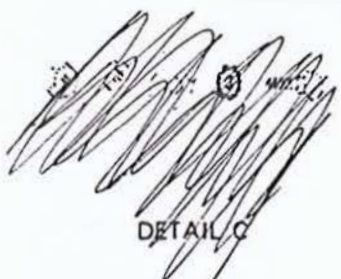
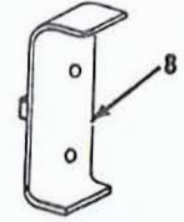
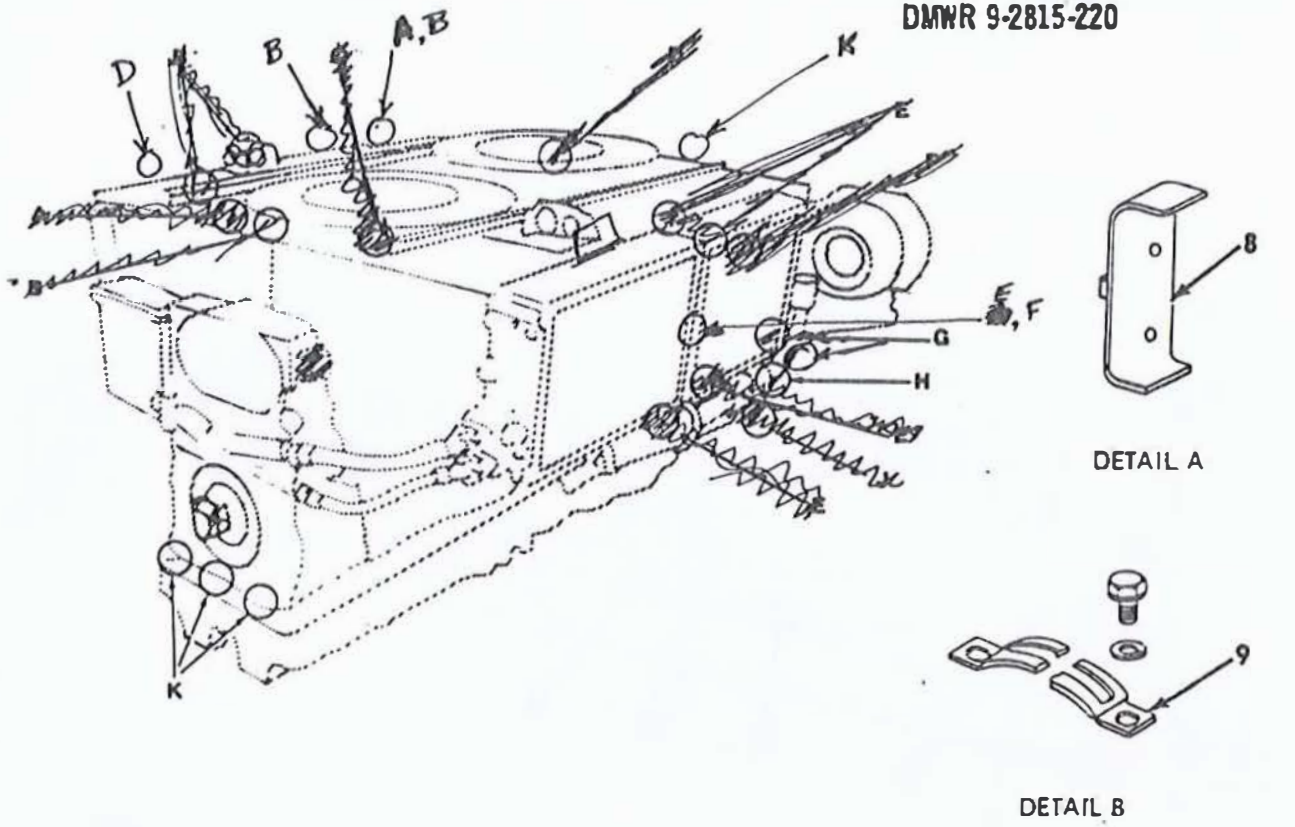


Figure 5-117. Engine wiring harness brackets and clamps (Sheet 1 of 3)
 (MODELS AVDS-179D-2C, AVDS-179D-2CA, AVDS-179D-2D AND AVDS-179D-2DA)

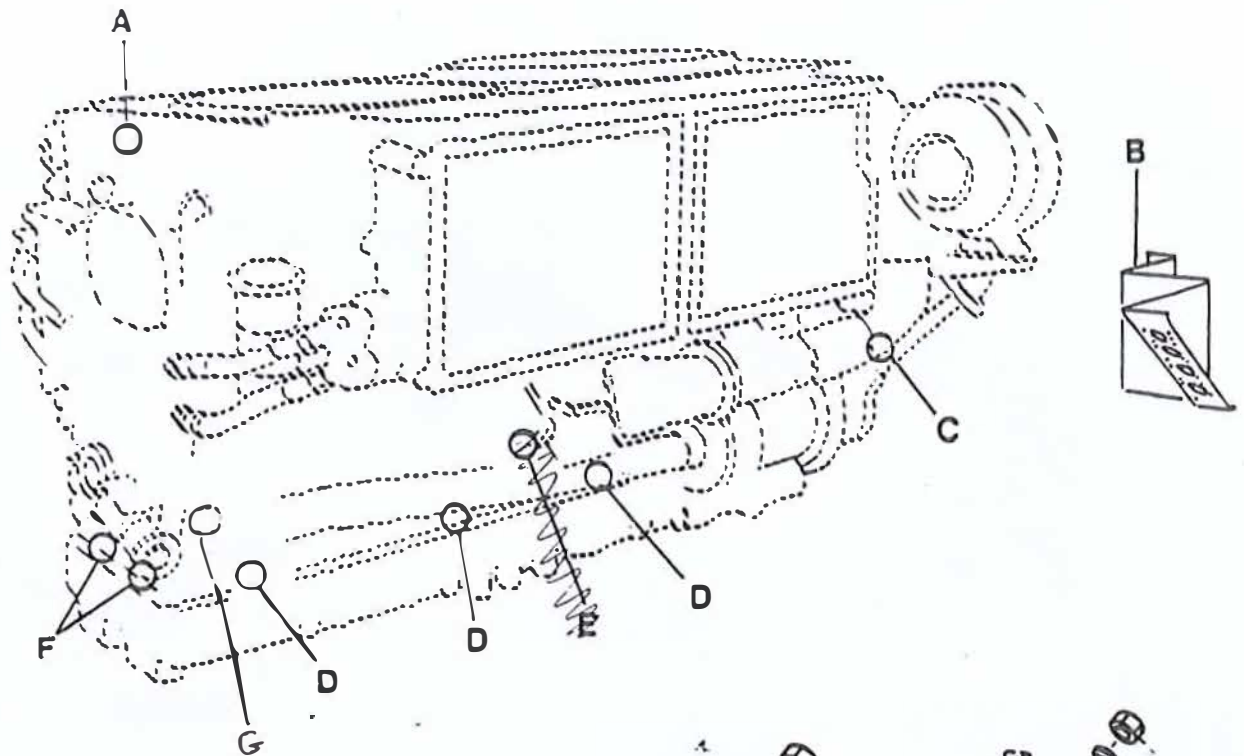
TA265789

DMWR 9-2815-220



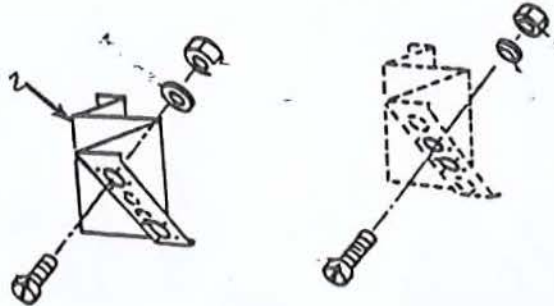
TA031401

Figure 5-117. Engine wiring harness brackets and clamps (Sheet 2 of 3).
(MODELS AVDS-179, 2C, AVDS-179-2CA, AVDS-179-2D AND AVDS-179, 2DA)



DETAIL A

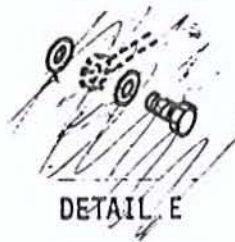
DETAIL B



DETAIL C



DETAIL D



DETAIL E



DETAIL F

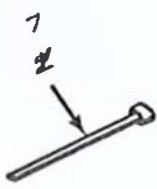
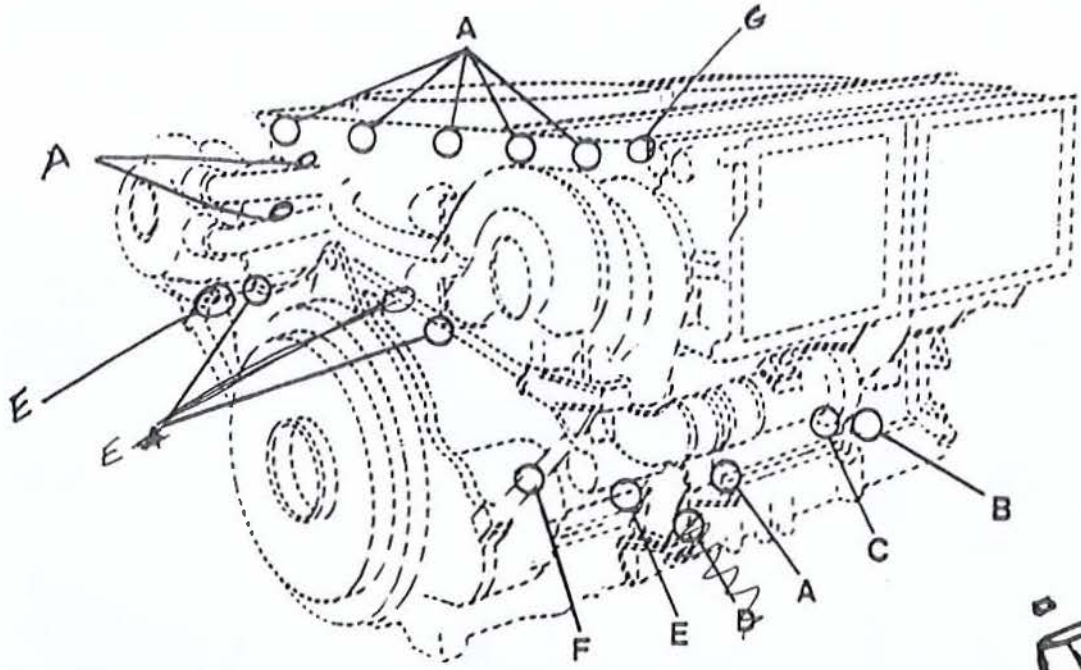
TA58173

FIGURE 5-177.1

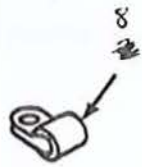
Figure 60A. Engine wiring harness bracket and clamps (model AVDS-1790-2DR) (SHEET 1 OF 2)

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~~115271~~

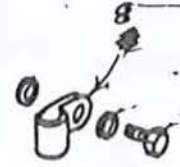
TM 9-2815-220-34P



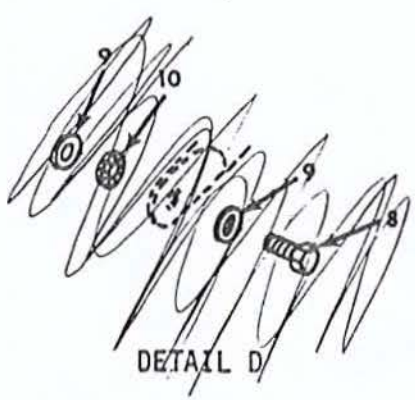
DETAIL A



DETAIL B



DETAIL C



DETAIL D



DETAIL E



DETAIL F

5-117.1
Figure 608. Engine wiring harness clamps (model AVDS-1790-2DR) (SHEET 2 OF 2)

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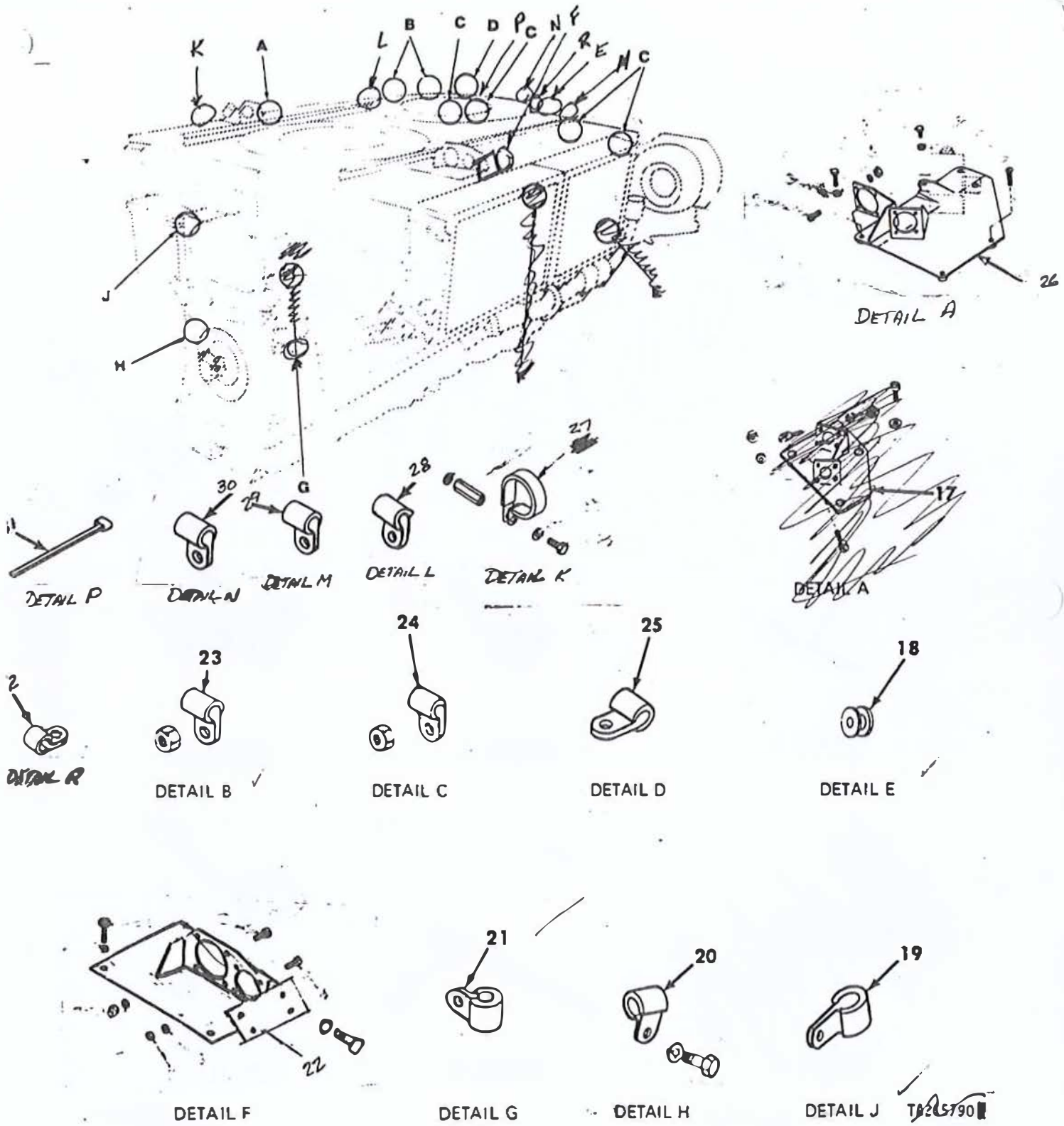


Figure 5-117. Engine wiring harness brackets and clamps (Sheet 3 of 3).

(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)

Table 5-52. Wear Limits, Fits, and Tolerances for Engine Wiring Harness Brackets, Straps and Associated Parts ~~as shown~~

References	Item	Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	No.			
5-111 (5/940)	1	WIRING HARNESS, BRANCHED: transmission - part no. 11655457 (MODELS AVDS-179A-2C, AVDS-179A-2CA, AVDS-179A-2D AND AVDS-179A-2DA) REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
5-112 (5/941)	1	WIRING HARNESS: starter ground - (MODELS AVDS-179A-2C, AVDS-179A-2CA, AVDS-179A-2D AND AVDS-179A-2DA) part no. 11655454 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
	2	LEAD, ELECTRICAL: starter ground - (MODELS AVDS-179A-2C, AVDS-179A-2CA, AVDS-179A-2D AND AVDS-179A-2DA) part no. 11682595-2		REPLACE REPLACE
	3	CABLE ASSEMBLY, POWER, ELECTRICAL, BRANCHED: WIRING HARNESS: starter STARTER MOTOR, SPARK AND DISTRIBUTOR MOTOR - (MODELS AVDS-179A-2C, AVDS-179A-2CA, AVDS-179A-2D AND AVDS-179A-2DA) part no. 11655450-123 10619 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
5-113 (5/942)	1	LEAD ASSEMBLY, ELECTRICAL: generator - (MODELS AVDS-179A-2C AND AVDS-179A-2CA) part no. 11655451 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
	2	LEAD, ELECTRICAL: generator ground - (MODELS AVDS-179A-2C AND AVDS-179A-2CA) part no. 11682595-1		REPLACE Replace
5-114 (5/943)	1	LEAD ASSEMBLY, ELECTRICAL: generator blower - (MODELS AVDS-179A-2D AND AVDS-179A-2DA) part no. 11682724 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
	2	LEAD, ELECTRICAL: generator ground - (MODELS AVDS-179A-2D AND AVDS-179A-2DA) part no. 11682595		REPLACE Replace
	3	LEAD, ELECTRICAL: generator - (MODELS AVDS-179A-2D AND AVDS-179A-2DA) part no. 11682723 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		Replace
5-114.1 (5/943.1)	1	LEAD, ELECTRICAL: GENERATOR - (MODEL AVDS-179A-2DA) PART NO. 11671357 5/949 REFER TO PARA 5-152 INSPECTION B, PAGE 5/938		

Table 5-52. Wear Limits, Fits, and Tolerances for Engine Wiring Harness Brackets, Straps and Associated Parts - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-115 (5/944)	1	WIRING HARNESS, BRANCHED: engine electrical - (MODELS AVDS-1790-2C, AVDS-1790-2CA) part no. 12354385 12354385 <i>REFER TO PARA 5-152 INSPECTION b, PAGE 5/938</i>		Replace
5-116 (5/945)	1	WIRING HARNESS, BRANCHED: engine electrical (MODELS AVDS-1790-2D, AVDS-1790-2DA) part no. 12354385 12354384 <i>REFER TO PARA 5-152 INSPECTION b, PAGE 5/938</i>		Replace
5-117 (5/946)	1	CLAMP, LOOP: WIRING HARNESS CABLE ASSEMBLY to engine block - part no. 10863816 (MODELS AVDS-1790-2C, AVDS-1790-2CA) Refer to paragraph 5-152, <i>a (5/938)</i>		Replace
	2	CLAMP, LOOP: WIRING HARNESS <i>GENERATOR CABLE</i> to engine block - (AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 7057332-3 Refer to paragraph 5-152, <i>a (5/938)</i>		
	3	<i>ENGINE ACCESSORY:</i> BRACKET, MOUNTING: cooler frame, left bank (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11673854 Refer to OIP 11673854 (5/955)		
	4	CLAMP, LOOP: wiring har- ness to engine block (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. MS21333-112 Refer to paragraph 5-152, <i>a (5/938) (5/938)</i>		
	5	CLAMP, LOOP: wiring har- ness to engine block (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. MS21333-113 Refer to paragraph 5-152, <i>a (5/938)</i> 938		

Table 5-52. Wear Limits, Fits, and Tolerances for
Engine Wiring Harness
Brackets, Straps and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear Limit
5/117 (5/946)	6	BRACKET, MOUNTING: trans- mission disconnect part no. 11673851 Refer to OIP 11673851 (5/956)	(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	
	7	<i>ENGINE ACCESSORY:</i> BRACKET, MOUNTING: cooler frame, right bank part no. 11673853 Refer to OIP 11673853 (5/955)	(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	
7.1		CLAMP, LOOP: fuel shut- off valve hose part no. MS21333-62 Refer to paragraph 5-152, b (5/939)		
7.2		CLAMP, LOOP: solenoid <i>CABLE ASSEMBLY</i> valve inlet hose part no. MS21333-104 Refer to paragraph 5-152, a (5/938)	(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	
8		BRACKET, MOUNTING: cooler screen assembly, left bank - part no. 11673855 Refer to OIP 11673855 (5/957)	(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA)	
7.3		POST, ELECTRICAL-MECHANICAL EQUIPMENT: CABLE ASSEMBLY CLAMP part no. 12254369 Refer to OIP 12254369 (5/955.1)		

Change 3

5/951

Table 5-52. Wear Limits, Fits, and Tolerances for
Engine Wiring Harness
Brackets, Straps and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-117 (5/946)	9	STRAP, RETAINING: STARTER CABLE ASSEMBLY cable to cooler brackets - part no. 11684276-2 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D Refer to OIP 11684276-2 AND AVDS-1790-2DA) (5/958)		
	10	BRACKET, MOUNTING: cooler screen assembly, right bank - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11673852 Refer to OIP 11673852 (5/959)		
	11	BRACKET, ANGLE: ^{ANGLE BRACKET:} wiring har- ness to damper housing, AND WIRING HARNESS TO BLOCK AND transmission wiring harness to transmission - part no. 10863598 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D Refer to OIP 10863598 AND AVDS-1790-2DA) (5/960)		
	12	CLAMP, LOOP: wiring harness to bracket, damper end AND TRANSMISSION WIRING HARNESS TO BRACKET part no. MS21333-102 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D Refer to paragraph 5-152, AVDS-1790-2DA) 2 (5/938)		
	13	^{CONDUCTOR:} BUS, BAR: generator cable - part no. 11673850 (Models AVDS-1790-2C, AND AVDS-1790-2CA) Refer to OIP 11673850 (5/961)		
	14	^{CONDUCTOR} BUS, BAR: generator ground LEAD STRAP - part no. 11673856 (Models AVDS-1790-2C, AND AVDS-1790-2CA) Refer to OIP 11673856 (5/962)		

Table 5-52. Wear Limits, Fits, and Tolerances for Engine Wiring Harness Brackets, Straps and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-117 (5/946)	15	CLAMP, LOOP: WIRING HARNESS wiring harness to BLACK ^{BLACK} - etc ^{MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA} part no. MS21333- 111 111 Refer to paragraph 5-152, a (5/939) g		
	16	STRAP, RETAINING: WIRING HARNESS ^{WIRING} CABLE ASSEMBLY - harness to cooler screen brackets ^(MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 11684276-1 Refer to OIP 11684276-1 (5/958)		
	17	BRACKET, MOUNTING STARTER CABLE ASSEMBLY part no. 11673847 Refer to OIP 11673847 (5/963)		
	18	^{NONMETALLIC} GROMMET, RUBBER trans- mission wiring harness through shroud - (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. MS35489-27		Replace
	19	CLAMP, LOOP: wiring har- ^{ELECTRICAL FUEL SHUT-OFF LEAD} nass to engine clamp part no. MS21333-118 (MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) Refer to paragraph 5-152, b (5/939) g		
	20	CLAMP, LOOP: wiring har- ness to engine block ^{AND DAMPER HOUSING} part no. MS21333- 112 112 ^{MODELS AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA} Refer to paragraph 5-152, b (5/939) g		
	21	CLAMP, LOOP: ^{WIRING HARNESS} hour meter cable ^{TO DAMPER HOUSING AND LEAD TO UPPER COVER} part no. MS21333-110 (MODELS AVDS-1790-2C AND AVDS-1790-2CA) Refer to paragraph 5-152, b (5/939) g		

Table 5-52. Wear Limits, Fits, and Tolerances for Engine Wiring Harness Bracket, Straps and Associated Parts - Continued

References Fig. No.	Item No.	Item, point of measurement or inspection	New part size	Wear limit
5-117 (5/946)	22	<p>BRACKET, MOUNTING: SUPPORT WIRING, GENERATOR: Wiring harness assembly and cable assembly, generator, right bank top shroud - part no. 11603840 12354383 (Models AVDS-1790-2C7 AND AVDS-1790-2CA) part no. 11682725 12354382 (Models AVDS-1790-2D1 AND AVDS-1790-2DA) Refer to OIP 4369380 12354382 AND 12354383 (5/964)</p>		
	23	<p>CLAMP, LOOP: transmission wiring harness to transmission - (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 7351617 Refer to paragraph 5-152, b (5/938) a g</p>		
	24	<p>CLAMP, LOOP: transmission wiring harness to transmission - (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. 7351807 Refer to paragraph 5-152, b (5/938) a g</p>		
	25	<p>CLAMP, LOOP: transmission wiring harness to transmission - (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) part no. MS21333-122 Refer to paragraph 5-152, b (5/938) a g</p>		
	26	<p>BRACKET, MOUNTING, MOTOR: starter cable assembly and low voltage relay solenoid located on top of engine part no. 12254374 (Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D AND AVDS-1790-2DA) Refer to OIP 12254374 (5/964.1)</p>		

TABLE 5-52. WEAR LIMITS, FITS AND TOLERANCES FOR
ENGINE WIRING HARNESS

BRACKETS, STRAPS AND ASSOCIATED PARTS-CONTINUED

<u>REFERENCES</u>	<u>ITEM</u>	<u>ITEM, POINT OF MEASUREMENT OR INSPECTION</u>	<u>NEW PART SIZE</u>	<u>WEAR LIMITS</u>
FIG No. 5-117.1 (5/938.1)	ITEM No. 1	COVERER CLAMP, LOOP: SOLENOID WIRE - (MODEL NOS-1790-2DR) PART No. MS21333-110 REFER TO PARAGRAPH 5-152, a (5/938)		
	2	ENGINE ACCESSORY: BRACKET, Mounting LEAD AND Wiring WIRING HARNESS CONNECTORS - (MODEL NOS-1790-2DR) PART No. 11671981 REFER TO OIP 11671981 (5/969.2)		
	3	CLAMP, LOOP: WIRING HARNESS To DAMPER HOUSING (MODEL NOS-1790-2DR) PART No. MS21333-125 REFER TO PARAGRAPH 5-152, a (5/938)		
	4	CLAMP, LOOP: WIRING HARNESS TO OIL PAN - (MODEL NOS-1790-2DR) PART No. MS21333-127 REFER TO PARAGRAPH 5-152, a (5/938)		
	5	STRAP, TIEDOWN, ELECTRICAL COMPONENTS: SECURE LEAD AND WIRING HARNESS TO CYLINDER OIL DRAIN TUBE (MODEL NOS-1790-2DR) PART No. MS3367-3.0		REPLACE
	6	STRAP, TIE DOWN, ELECTRICAL COMPONENTS: SECURE WIRING HARNESS, DAMPER END (MODEL NOS-1790-2DR) PART No. MS3367-1.9 5/954.1		REPLACE

TABLE 5-52
WEAR LIMITS, FITS AND TOLERANCES FOR
ENGINE WIRING HARNESS

DMWR 9-2914-220

SLEETS, STRAPS AND ASSOCIATED PARTS - CONTINUED

REFERENCES	ITEM	ITEM, POINT OF MEASUREMENT OR INSPECTION	NEW PART SIZE	WEAR
FIG -NO.	NO.			
5-117.1 (5/948.1)	7	STRAP, TIEDOWN, ELECTRICAL COMPONENTS: HARNES TO SMOKE EXHAUSTING TUBES, FLYWHEEL END, SECURE WIRING HARNESS, FLYWHEEL END, SECURE WIRING HARNESS TO STARTER GROUND CABLE - (MODEL AVDS-1790-2DR) PART NO. MS3367-1-9		REPLACE
	8	CLAMP, LOOP: WIRING HARNESS TO OIL PIN, WATER DRAIN MODULE GROUND WIRE TO CLAMP - (MODEL AVDS-1790-2DR) PART NO. MS21333-120 REFER TO PARAGRAPH 5-152, a (5/938)		
	9	CLAMP, LOOP: WIRING HARNESS TO TURBOCHARGER CHARGER SLEET - (MODEL AVDS-1790-2DR) PART NO. 10863816 REFER TO PARAGRAPH 5-152, a (5/938)		
	10	STRAP, TIEDOWN, ELECTRICAL COMPONENTS: SECURE STARTER WIRING HARNESS, FLYWHEEL END - (MODEL AVDS-1790-2DR) MS PART NO. MS3367-3-0		REPLACE
	11	CLAMP, LOOP: DUST DETECTOR HARNESS TO FRAME - (MODEL AVDS-1790-2DR) PART NO. MS21333-108 REFER TO PARAGRAPH 5-152, a (5/938)		

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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

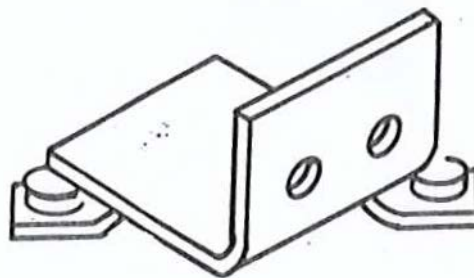
OIP 11673854 (LEFT BANK)
 11673853 (RIGHT BANK)

ITEM: BRACKET, ~~MOUNTING~~ ^{ENGINE ACCESSORY:}
 cooler frame

REFERENCE: Figure 5-117 (5/946)

ITEM: 3 & 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Broken welds	2.5	Visual	None allowed
3		Bent or distorted	2.5	Visual	None allowed
4		Liners loose, torn or in deteriorated condition	2.5	Visual	None allowed
5		Loose clinch nuts or damaged threads	2.5	Visual	None allowed
6		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

9-2815
DMWR ~~7800000~~-220

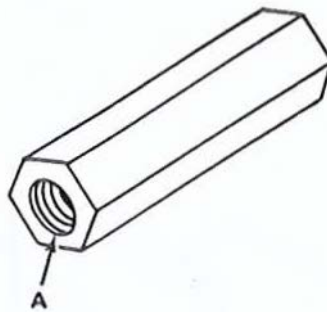
OIP 12254369

ITEM: POST, ELECTRICAL - MECHANICAL
EQUIPMENT: cable assembly
clamp

REFERENCE: Figure 5-117 (5/946)

ITEM: 7.3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Base metal exposed through protective coating	0.0	Visual	None allowed
3	A	Damaged threads	0.0	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

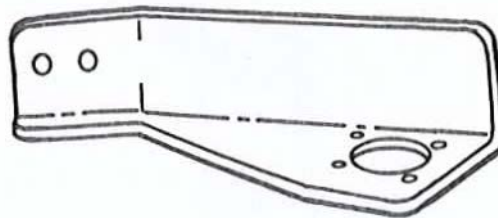
OIP 11673851

ITEM: BRACKET, MOUNTING:
transmission disconnect

REFERENCE: Figure 5-117 (5/946)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

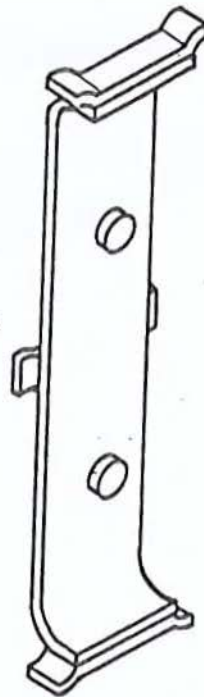
OIP 11673855

**ITEM: BRACKET, MOUNTING:
cooler screen assembly,
left bank**

REFERENCE: Figure 5-117 (5/947)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Liners loose, torn or in deteriorated condition	2.5	Visual	None allowed
5		Loose clinch nuts or damaged threads	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

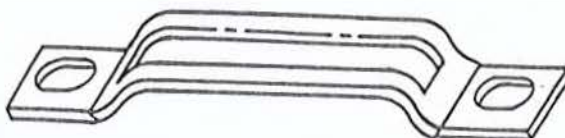
OIP 11684276-2 (~~LEFT BANK~~)
 11684276-1 (~~RIGHT BANK~~)

ITEM: STRAP, RETAINING: ~~CABLE ASSEMBLY~~
~~starter cable to cooler bracket and~~
~~wiring harness to cooler screen bracket~~

REFERENCE: Figure 5-117 (5/947)

ITEM: 9 and 16

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Cushion torn or deteriorated	2.5	Visual	None allowed
4		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

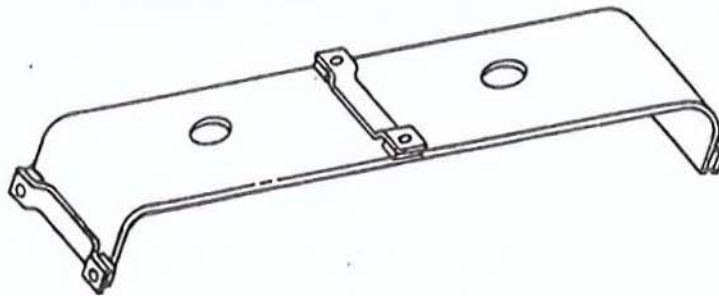
OIP 11673852

**ITEM: BRACKET, MOUNTING:
cooling screen assembly,
right bank**

REFERENCE: Figure 5-117 (5/947)

ITEM: 10

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed
4		Liners loose, torn or in deteriorated condition	2.5	Visual	None allowed
5		Loose clinch nuts or damaged threads	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

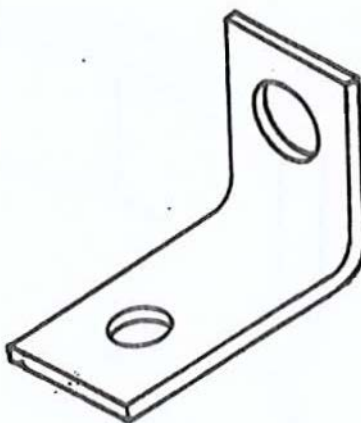
OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10863598

1 ITEM: *ANGLE BRACKET:*
~~BRACKET, ANGLE:~~
wiring harness to damper housing and *Block*
NO transmission wiring harness to transmission REFERENCE: Figure 5-117 (5/947)
ITEM: 11

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

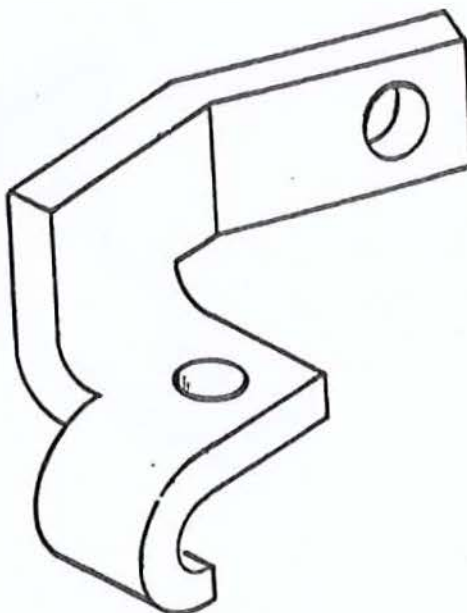
ITEM: ~~BUS BAR~~ ^{CONDUCTOR :}
 generator cable
 (~~Model AWS-1790-2C~~)

OIP 11673850

REFERENCE: Figure 5-117 (5/947)

ITEM: 13

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



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Change 3

5/961

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

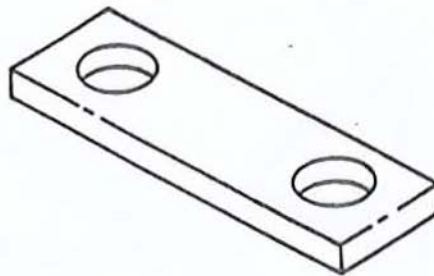
ITEM: ^{CONDUCTOR:}
 BUS BAR:
 generator ground ~~STEEL~~ LEAD
 (5/96) ~~AMS 1790-2C~~

OIP 11673856

REFERENCE: Figure 5-117 (5/947)

ITEM: 14

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

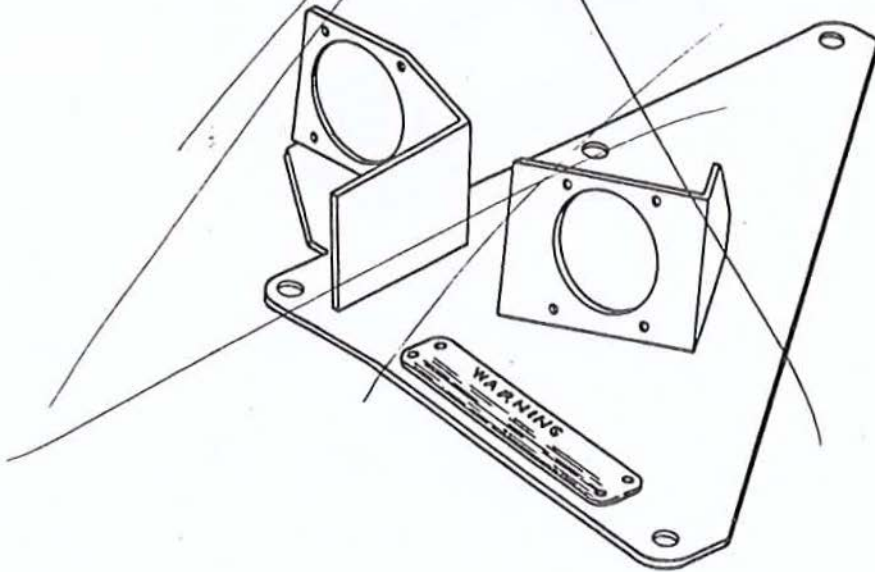
OIP 11673847

ITEM: BRACKET, MOUNTING:
starter cable assembly

REFERENCE: Figure 5-117 (5/948)

ITEM: 17

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in brackets and welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Loose or missing data plate or warning plate	2.5	Visual	None allowed
4		Missing or unreadable data (warning) on plates	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3 *[Signature]* 5/963

OVERHAUL INSPECTION PROCEDURE

DMWR-9-2815-220

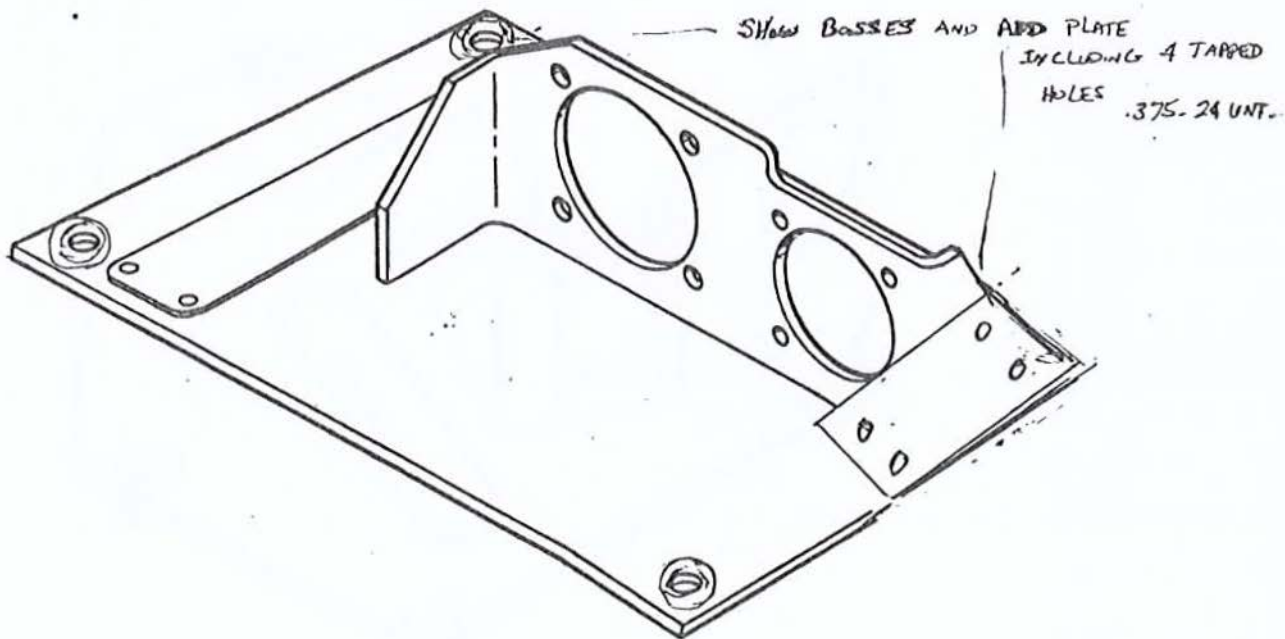
OIP ~~12354382~~ 12354382
~~12602725~~ 62354383

REFERENCE: Figure 5-117 (5/948)

ITEM: 22

ITEM: ~~SUPPORT WIRING, GENERATOR~~
 BRACKET MOUNTING:
 GENERATOR WIRING AND TIME
 TOTALIZING METER

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in brackets and welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Loose or missing bracket warning plate	2.5	Visual	None allowed
4		Missing or unreadable data on bracket warning plate on plate WARNING PLATE	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed
6		DAMAGED THREADS	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR-9-2815-220

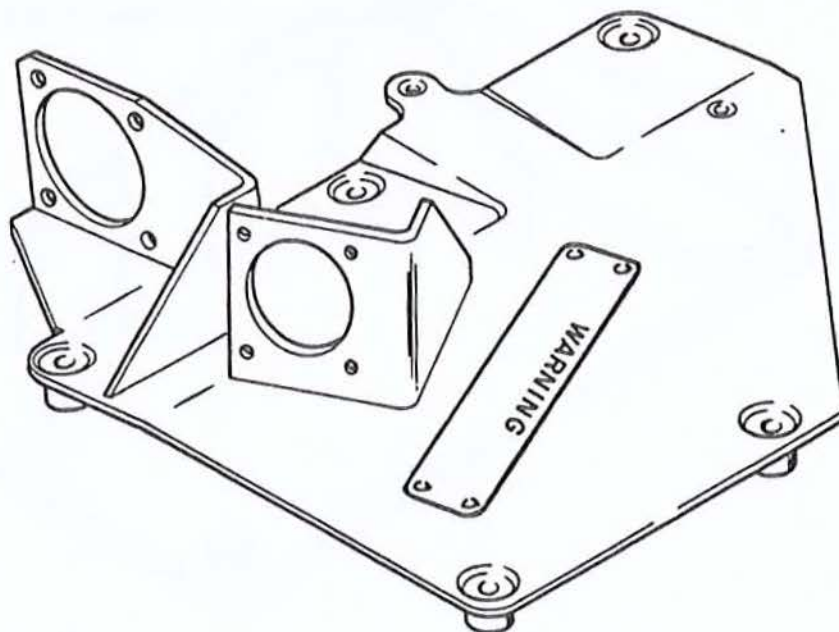
OIP 12254374

ITEM: BRACKET, MOUNTING, MOTOR:
starter cable assembly and low
voltage relay solenoid located
on top of engine

REFERENCE: Figure 5-117 (5/948)

ITEM: 26

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in brackets and welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Loose or missing data or warning plate	2.5	Visual	None allowed
4		Missing or Unreadable data on the WARNING PLATE	2.5	Visual	None allowed
5		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

Change 3

5/964.1.13/264216161 SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

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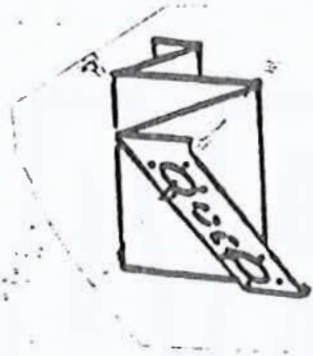
ITEM: BRACKET, ENGINE ACCESSORY MOUNTING;
LEAD AND WIRE HARNESS CONNECTORS

OIP 11671981

REFERENCE: FIGURE 5-117.1 (5) 948.1

ITEM: 2

NO.	REF. LTR.	CHARACTERISTIC	*AQL	INSPECTION METHOD	REQUISITE
1		CRACKS IN BRACKETS AND WELDS	0.0	VISUAL	NONE ALLOWED
2		BRACKET WELDS			
2		BENT OR DISTORTED	2.5	VISUAL	NONE ALLOWED
3		BASE METAL SHOWING THROUGH PROTECTIVE FINISH	2.5	VISUAL	NONE ALLOWED



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

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FRAME

5-153. Repair and Assembly.

a. Repair. Refer to paragraph 5-5 (5/5).

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

(2) Assembly procedures. Refer to TM 9-2815-220-34.

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FRAME

Section XXXVIII. OVERHAUL OF ENGINE SHIPPING AND STORAGE CONTAINER

5-154. General. This section covers overhaul of the engine shipping and storage container (fig. 5-118) (5/968). Specific instructions on disassembly, cleaning, inspection, repair, and assembly are included. Wear limits, fits, tolerances, and overhaul inspection procedures (OIP's) for individual components are included with the inspection instructions.

5-155. ~~Overhaul~~ Cleaning.

a. Cleaning.

(1) General. Refer to paragraph 5-3, a, b, and c (5/1) for general cleaning instructions.

(2) Exterior and Interior. Clean the interior and exterior of the container using the process in C-1 of MIL-P-116. Remove minor paint scale and rust with a power buffer. If major rust exists, remove by abrasive blasting.

5-156. Inspection.

a. General. Inspect the engine shipping and storage container according to instructions in paragraph 5-4 (5/2) and the OIP's included in this section. Wear limits, fits, and tolerances for the engine shipping and storage container are listed in table 5-53 (5/969). See paragraph 5-4, b and c (5/3) for explanation of wear limits, fits, and tolerances.

b. Exterior and Interior. Inspect the exterior and interior of the upper and lower sections of the container for dents, cracks, or a defective weld. Check mounting flanges for bends. Bends that do not affect proper alignment of the upper and lower sections of the container are permissible. Inspect the lower section of the container for cracked mounting flanges, bent or stripped studs. Inspect vibration damper mounts for cracks, tears or separation of bonding between metal and rubber. Inspect container skids for splits or cracks. Minor cracks and dents are acceptable if serviceability is not affected.

c. Gasket, Humidity Indicator, and Valves. Check the gaskets and discard if permanently deformed. Check humidity indicator (5, fig. 118) (5/968) and discard if pink discoloration is evident. Pressure test relief valve to be sure it functions properly. Apply a soap solution to the valve and replace any valve that does not open with a gage reading of seven to ten psi.

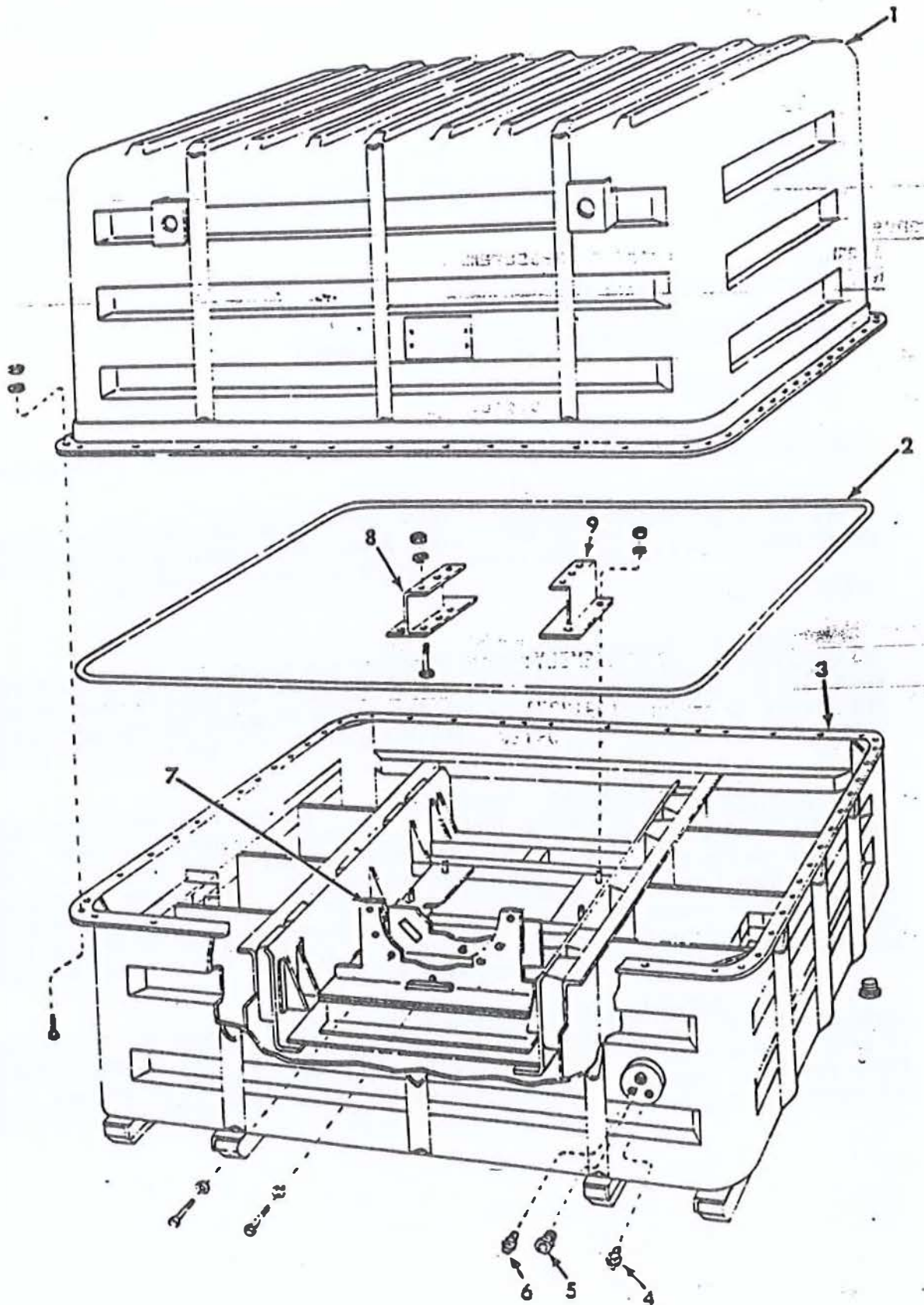


Figure 5-118. Engine shipping and storage container.

Table 5-53. Wear Limits, Fits, and Tolerances for Engine Shipping and Storage Container

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-118 (5/968)	1	CONTAINER ASSEMBLY: upper section - part no. 10912298 Refer to OIP 10912298 (5/971)		
	2	GASKET: seal between upper and lower con- tainer sections - part no. 10912270 Refer to OIP 10912270 (5/972)		
	3	CONTAINER ASSEMBLY: lower section - part no. 10912271 Refer to OIP 10912271 (5/973)		
	4	VALVE, SAFETY RELIEF: air - part no. 8376456 Refer to OIP 8376456 (5/975)		
	5	INDICATOR, HUMIDITY PLUG - part no. 8355883 Refer to OIP 8355883 (5/976)		
	6	VALVE, PNEUMATIC TANK: filling - part no. 8376442 8376442 Refer to OIP 8335 (5/977) 8376442		

Table 5-53. Wear Limits, Fits, and Tolerances for Engine Shipping and Storage Container - Continued

References		Item, point of measurement or inspection	New part size	Wear limit
Fig. No.	Item No.			
5-118 (5/978)	7	BRACKET, ANGLE: tr ^{ENGINE MOUNTING} adapter part no. 12275746 Refer to OIP 12275746 (5/978)		
	8	BRACKET, ENGINE MOUNT - part no. 10951231 Refer to OIP 10951231 (5/979)		
	9	BRACKET, ENGINE MOUNT - part no. 10951230 Refer to OIP 10951230 (5/980)		

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

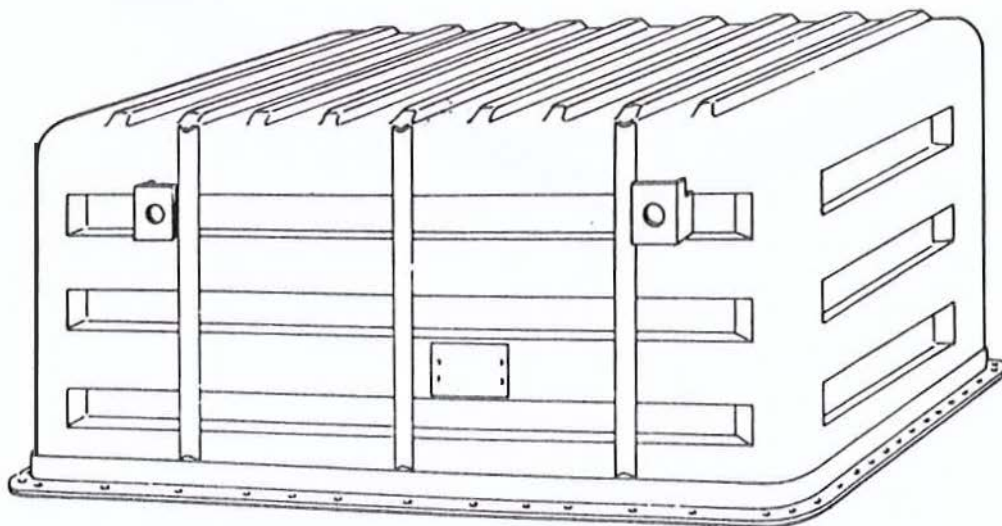
OIP 10912298

— ITEM: CONTAINER ASSEMBLY:
upper section

REFERENCE: Figure 5-118 (5/968)

ITEM: 1

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks or defective welds	0.0	Visual	None allowed
2		Bent or distorted mounting flange	2.5	Visual	None allowed
3		Missing ^{IDENTIFICATION PLATE} or unreadable container markings	2.5	Visual	None allowed
4		Dents	2.5	Visual	None allowed that would interfere with required clearances
5		Base metal showing through protective finish	2.5	Visual	None allowed
6		Bent or broken lifting eyes	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DWNR 9-2815-220

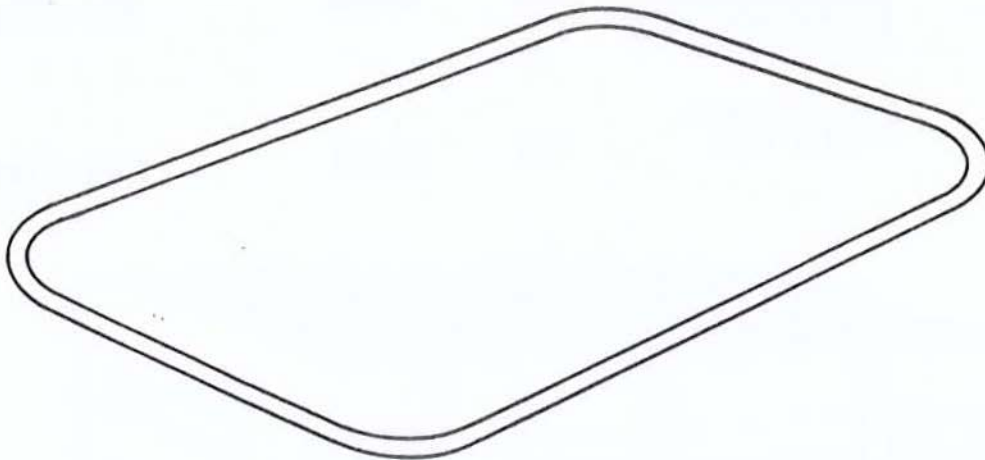
OIP 10912270

ITEM: GASKET:
seal between upper and lower
container sections

REFERENCE: Figure 5-118 (5/968)

ITEM: 2

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cuts, breaks, de- terioration or permanent distor- tion	0.0	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

OIP 10912271

ITEM: CONTAINER ASSEMBLY:
lower section

REFERENCE: Figure 5-118 (5/968)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AOL	INSP METHOD	REQUISITE
1		Cracks or defective welds	0.0	Visual	None allowed
2		Bent or distorted mounting flanges and sealing surfaces	2.5	Visual	None allowed
3		Missing or damaged studs	2.5	Visual	None allowed
4		Missing or damaged bolts, washers, and nuts	2.5	Visual	None allowed
5		Deterioration, cracks, tears, or bonding separation of rubber on damper mounts	2.5	Visual	None allowed
6		Damaged threads	2.5	Visual	None allowed
7		Missing or damaged pipe plugs	2.5	Visual	None allowed
8		Missing or damaged guide pins	2.5	Visual	None allowed
9		Rotted, broken or badly split skids	2.5	Visual	None allowed
10		Dents	2.5	Visual	None allowed that would interfere with required clearances
11		Missing or damaged desiccant baskets	2.5	Visual	None allowed

*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AOL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2920-252

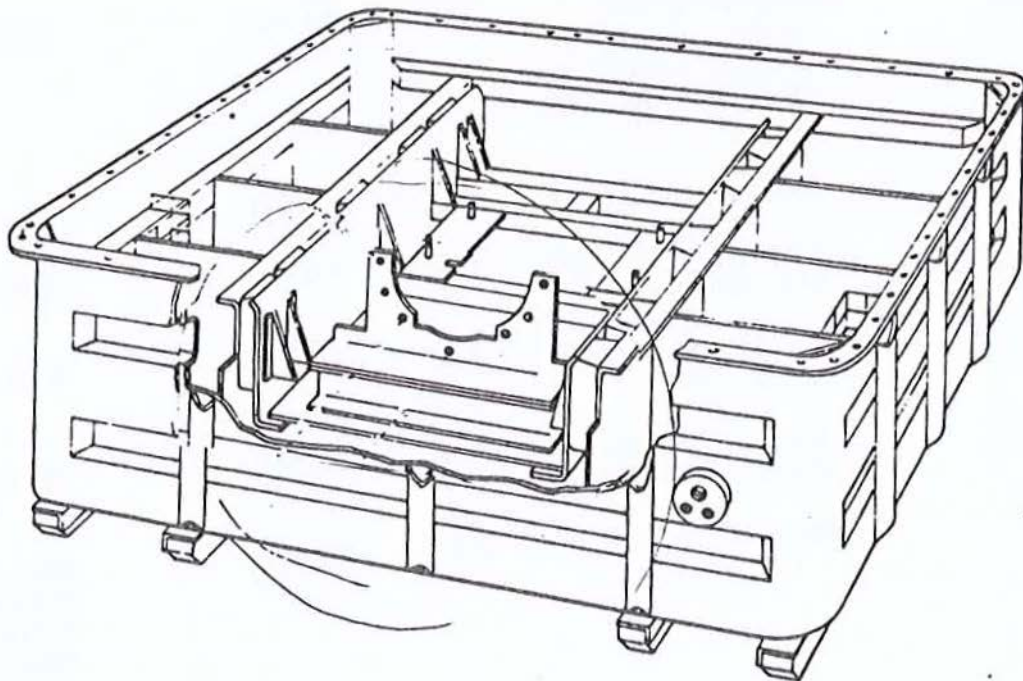
ITEM: CONTAINER ASSEMBLY:
lower section

OIP 10912271
~~1001000000~~

REFERENCE: Figure 5-118 (5/968)

ITEM: 3

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
12		Base metal showing through protective finish	2.5	Visual	None allowed
13		Missing or unreadable decal and container markings	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

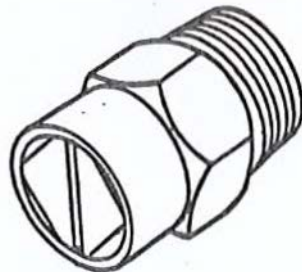
DMWR 9-2815-220

ITEM: VALVE, SAFETY RELIEF:
air

OIP 8376456
C13A(65493)
REFERENCE: Figure 5-118 (5/968)

ITEM: 4

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Functional check	1.0	Pressure test	Must open at 7 to 10 psi and close at 6 psi. Must hold 5 psi air in container
3		Damaged threads	2.5	Visual	None allowed



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Change# 5/975

SHEET 1 OF 1

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

ITEM: INDICATOR, HUMIDITY PLUG

OIP 8355883

REFERENCE: Figure 5-118 (5/968)

ITEM: 5

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks	0.0	Visual	None allowed
2		Pink discoloration	0.0	Visual	None allowed
3		Damaged threads	2.5	Visual	None allowed



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412-222-424

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

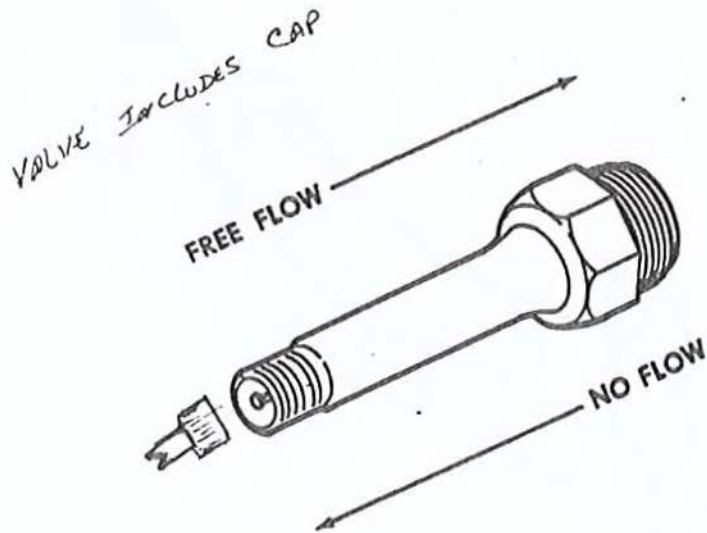
OIP ~~8335~~ 8376442

ITEM: VALVE, PNEUMATIC TANK:
filling

REFERENCE: Figure 5-118 (5/968)

ITEM: 6

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Damaged thread	2.5	Visual	None allowed
2		Functional	2.5	Apply 15 psi air pressure	Must not leak in no flow direction and flow in free flow direction



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OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

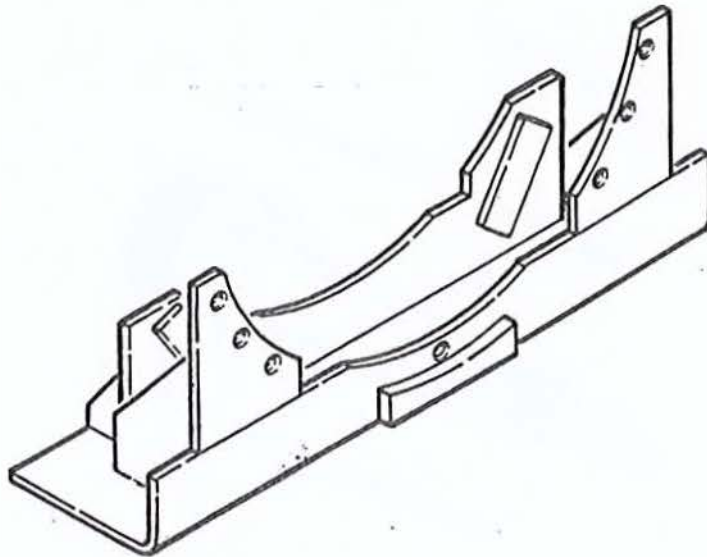
OIP 12275746

ITEM: BRACKET, ANGLE:
~~transmission adapter~~
ENGINE MOUNTING

REFERENCE: Figure 5-118 (5/968)

ITEM: 7

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final end Verification Inspection only.

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

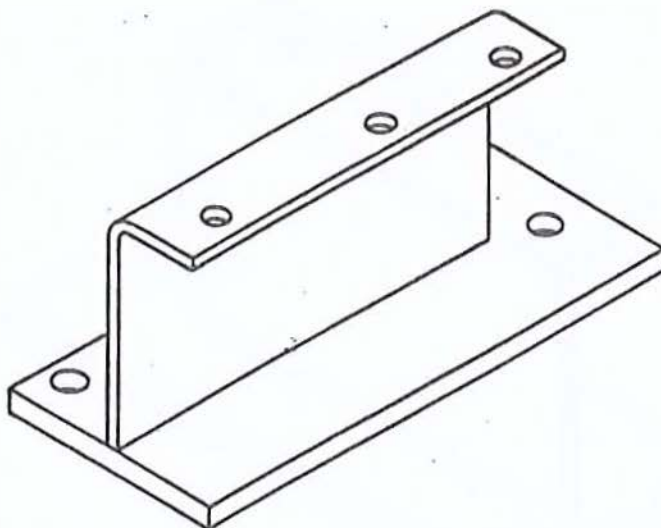
OIP 10951231

ITEM: BRACKET, ENGINE MOUNT

REFERENCE: Figure 5-118 (5/968)

ITEM: 8

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal show- ing through pro- tective finish	2.5	Visual	None allowed



***Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.**

OVERHAUL INSPECTION PROCEDURE

DMWR 9-2815-220

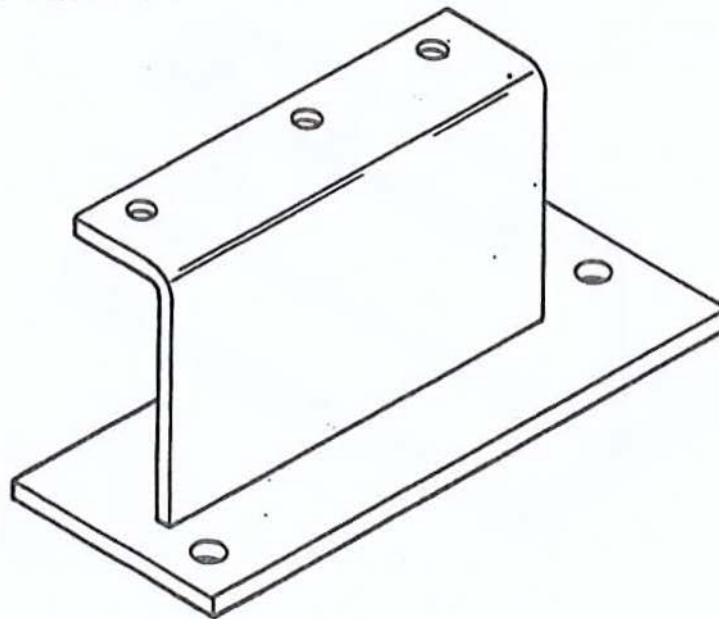
OIP 10951230

ITEM: BRACKET, ENGINE MOUNT

REFERENCE: Figure 5-118 (5/968)

ITEM: 9

NO.	REF LTR	CHARACTERISTIC	*AQL	INSP METHOD	REQUISITE
1		Cracks in bracket or welds	0.0	Visual	None allowed
2		Bent or distorted	2.5	Visual	None allowed
3		Base metal showing through protective finish	2.5	Visual	None allowed



*Used components and refinished parts recovered as products of disassembly will be examined 100% by the contractor to determine serviceability. AQL's are specified for Government Final and Verification Inspection only.

5-157. Repair and Assembly.

a. Repair.

(1) General repair instructions. Refer to paragraph 5-5 (5/5).

(2) Cracks. Refer to paragraph 5-7 (5/10) when repairing cracks by welding. Remove weld splatter.

(3) Dents and bends. Straighten all dents which would interfere with required clearance, i.e., approximately three to four inches of clearance between component and inside surface of container. Straighten bends that might affect proper alignment.

(4) Vibration damper mounts. Replace vibration damper mounts if there is evidence of cracks, tears, or separation of bonding between metal and rubber. Do not use mounts that are over five years old unless a representative sample indicates such mounts will perform in accordance with test requirements of MIL-M-45907.

(5) Skids. Replace unserviceable skids. Fabricate skids from wood conforming to Class A of MIL-W-3912. Wood must be pressure creosoted per TT-W-571.
 GROUP IV ~~QUALITY~~ of ~~GROUP~~ MIL-C-104.

(6) Painting. If interior or exterior of container required removal of paint or rust by power buffing, apply spot prime and paint as required. If container required abrasive blasting, remove grit and coat with one coat of primer (TT-P-636, TT-E-529, or TT-E-485, Type IV) as prescribed by TM 9-213.

b. Assembly.

(1) General assembly procedures. Refer to paragraph 5-8 (5/11) for general assembly procedures.

~~(2) Assembly procedures. Refer to TM 9-2815-220-3A.~~

(2) Pressure test. Pressurize the container to 10 psi using air that has passed through a water separator, and allow container to stand for a minimum of 12 hours. In a period of 12 hours, at an ambient temperature that does not vary more than 5°F, a pressure drop of more than 1/4 psi will be sufficient cause for rejection. Leaks may be detected using a solution of detergent and water. If the container air pressure is maintained satisfactorily, release pressure, remove air pressure gage and install relief valve.

DRAWING STATES
 CLEAN PER METHOD I SPEC TT-C-490
 TREAT PER TYPE I OR TYPE III TT-C-490
 PRIME PER TT-P-636
 ENAMEL PER TFE-529
 COLOR OLIVE DRAB

BLANK

FRAME

CHAPTER 6

FINAL ASSEMBLY AND PERFORMANCE CHECK

Section I. FINAL ASSEMBLY

6-1. General. Final assembly consists of assembling the engine subassemblies. Also, included in this chapter is the final performance check of the assembled engine.

6-2. Assembly. Refer to TM 9-2815-220-34 for assembly instructions.

6-3. Crankcase Air Pressure Test.

a. Leak Test. After final assembly, the engine must be pressure leak-tested by sealing all engine openings to ambient with appropriate plugs and covers and applying 5 psi (10.2" Hg.) air pressure into the engine crankcase thru a gage and shut-off valve. Check all joints, seals, etc. for leaks by applying a solution of liquid soap or detergent and water. Repair leaks and retest.

b. Pressure Drop Test. Using the same crankcase pressurizing system described in paragraph "a", apply 3 psi (6.1" Hg.) air pressure into the engine crankcase and shut off the air supply. A maximum pressure drop from 3 psi (6.1" Hg.) to 1.25 psi (2.5" Hg.) in a 3 minute period is acceptable. A pressure loss of more than 1.75 psi (3.6" Hg.) in a 3 minute period is cause for rejection.

STATE OF TEXAS

COUNTY OF [illegible]

[illegible text]

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Section II. FINAL PERFORMANCE CHECK

6-4. Engine Specifications. The specifications listed below must be met by overhauled engines. Subsequent paragraphs in this section include procedures and data required to test overhauled engines.

a. Fuel and Oil. Final performance tests must be made using fuel conforming to VV-F-800 Grade DF-2. Engine lubricating oil must conform to MIL-L-21260, Type I, Grade 30.

b. Speed Range. The engine must operate satisfactorily under all loads through a speed range of 1000 to 2400 rpm and must idle satisfactorily at ~~675 to 725 rpm.~~ ^{700 to 750 RPM}

c. Corrected Gross Brake Horsepower (CGBHP) (Without Accessories). Under full throttle setting, the engine will develop 750 plus 30 or minus 15, corrected gross brake horsepower at 2400 rpm, using fuel conforming to VV-F-800 Grade DF-2 when tested using proper correction factors. See paragraph 6-7 (6/7).

d. Gross Torque (Without Accessories). Under full throttle setting, engine will develop the following gross torque using fuel conforming to VV-F-800 Grade DF-2.

(1) 1770 to 1843 lbs-ft. at 1800 rpm (607-631 CGBHP)

(2) 1609 to 1707 lbs-ft. at 2400 rpm (735-780 CGBHP)

e. Oil consumption. The engine must not consume more than 0.0075 pounds per brake horsepower hour (lbs/bhp-hr) of lubricating oil when operating under full load with engine oil temperature between 140 degrees F and 250 degrees F measured at the main oil gallery ~~oil cooler outlet~~ and using engine oil conforming to MIL-L-21260, Type I, Grade 30.

f. Fuel Consumption (Without Accessories). When operating at full rack - full load, on a dynamometer, at a speed of 2400 rpm, the engine must consume not more than ~~0.403~~ pounds per brake horsepower hour (lbs/bhp-hr) of fuel conforming to VV-F-800 Grade DF-2. When operating at full rack - full load on a dynamometer at 1800 rpm, the engine must consume not more than ~~0.403~~ lbs/bhp-hr of fuel conforming to VV-F-800 Grade DF-2.

g. Exhaust Gas Temperature. ^{UNDER FULL LOAD,} Exhaust gas temperatures, measured at individual cylinder ports, must not exceed 1250°F. Temperature variations between cylinders must not exceed 150°F.

h. Blow-by Flow. With engine at full rack - full load, blow-by must not exceed 18 cfm ~~with 100 psi test pressure at 2400 rpm with 2000 psi test pressure at 1800 rpm~~ ^{(NEW CYLINDERS) AND 21 CFM (REWORKED CYLINDERS).}

i. Lubricating Oil Temperature. Temperature of oil in the engine oil pan sump must not exceed 250°F. Temperature of oil entering the engine through the oil pump must be maintained between 160°F and 220°F.

j. Oil Pressure. Crankcase gallery oil pressure must not be more than 70 psi or less than 40 psi when engine is operating at 2400 rpm, and must not be less than 15 psi when engine is idling at ~~675 to 725 rpm~~ ^{1000 to 2400 rpm}, measured at and/or adjacent to the oil pressure sending unit, with the oil temperature of 140°F ~~measured~~ measured at main oil gallery ~~oil cooler outlet~~ using MIL-L-21260, Type I, Grade 30 oil.

~~CHANGE 3 TO DRAW~~
~~CHANGE 3 TO DRAW~~

A MINIMUM
 6/3

6-4. (Cont)

k. Temperatures. Induction inlet air temperature must be maintained between 60°F and 100°F.

l. Fuel Pressure. The fuel pressure at the injection pump inlet must be 40-41 psi at engine speeds of 1800 to 2400 rpm.

MINIMUM

m. Manifold Pressure. The intake manifold pressure at full load must be 2.05 to 2.35 times the turbosupercharger compressor housing inlet pressure (dry barometer reading). Variation between left and right banks must not exceed 4 inches Hg.

n. Exhaust Smoke Density Test. The maximum exhaust smoke density at full load, when measured within one foot of the exhaust outlet, must not exceed the following conditions when using fuel conforming to VV-F-800 Grade DF-2:

Engine RPM	Robert Bosch smoke meter no.
1800	4.0
2000	3.7
2200	3.2
2400	3.0

*MSG 13-5410 PL
N. Ro*

6-5. Engine Final Performance Check Log Sheets. The information below is an outline of procedures to be used when entering data in the engine final performance check log sheets. Log sheets must be maintained neat and legible, and must contain all necessary data.

- Calculate the observed brake horsepower (bhp) and specific fuel consumption for all readings.
- Enter the gross corrected bhp for all full load readings on the acceptance run.
- Use the Army and Navy method of recording time.
- Enter all data, including serial number of accessories, at the start of the run. If it is found necessary to change accessories, record the serial number of the part removed and tag it properly for disposition. Also, enter the serial number of the new part added with an explanation as to why the original part was changed.
- On the acceptance run, when replacements, changes, or adjustments are made to the engine that materially affect its performance, such as injectors, valve timing, etc., the engine shall be thoroughly warmed up and thereafter perform satisfactorily on all full load points. When minor changes or adjustments are made, the engine shall run at various speeds, after such changes, sufficient to ascertain that the parts are performing satisfactorily.

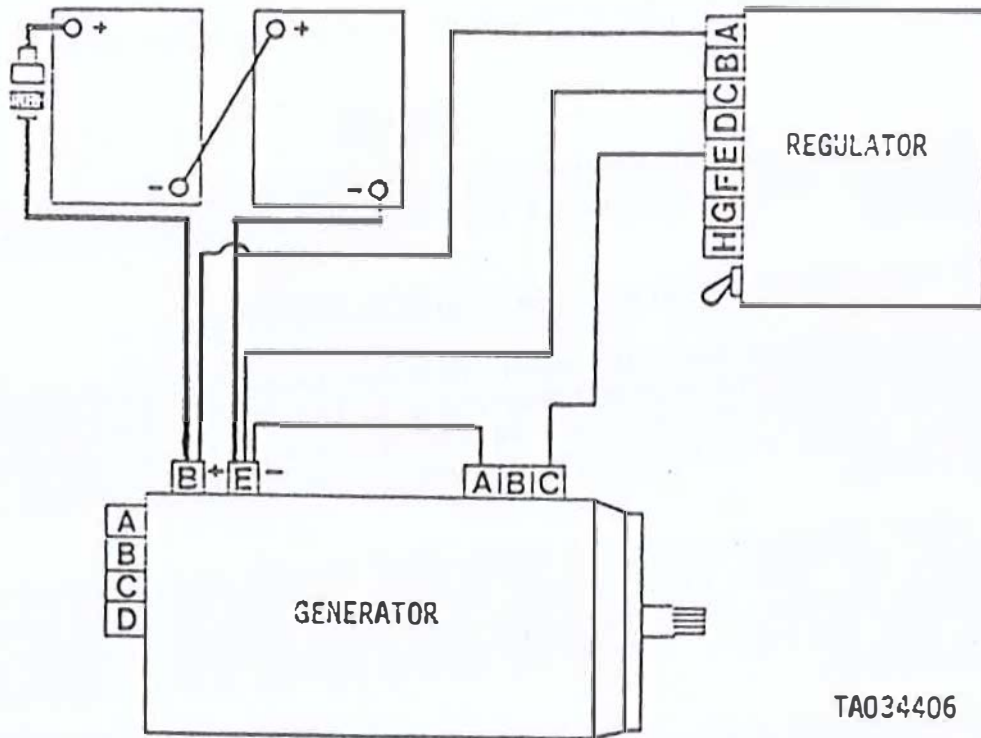
NOTE

Oil seals which are changed during the test run shall perform satisfactorily for a minimum of 15 minutes through runs 13-14-15 & 16 of test schedule. Table 6-1 (6/11)

6-6. Final Performance Check Operating Instructions. The procedures outlined below are to be used in conducting the final performance check on the assembled engine. The test schedule is listed in Table 6-1 (6/11).

CAUTION:

On the AVDS 1790-2C or -2CA engines, it will be necessary to load the generator to 50 amperes during the final performance check to prevent damage to the generator drive gear-slip clutch. Connect the generator to the voltage regulator and batteries as shown in figure 6-1 (6/5).



TA034406

Figure 6-1.
Wiring schematic for AVDS 1790-2C or 2CA
Generator during engine test

~~NO WIRING SCHEMATIC FOR AVDS-1790-2C, 2CA, 2DA, 2DB, 2DC, 2DD, 2DE, 2DF, 2DG, 2DH, 2DI, 2DJ, 2DK, 2DL, 2DM, 2DN, 2DO, 2DP, 2DQ, 2DR, 2DS, 2DT, 2DU, 2DV, 2DW, 2DX, 2DY, 2DZ~~
NO WIRING SCHEMATIC FOR AVDS-1790-2D, AVDS-1790-2DA AND AVDS-1790-2DR

6-6. (Cont)

WARNING

Do not attempt to start engine unless the fuel shut-off solenoid is connected and ascertained to be operative.

- a. Bleed the primary and fuel/water separator filters to remove trapped air.
- b. Turn on the master switch.
- c. Crank the engine several revolutions with the fuel shut-off switch in the OFF position to make certain the engine is not hydrostatically locked and is otherwise free.
- d. Start engine by operating electric starting motor while slightly depressing throttle.

CAUTION

Do not operate the starting motor continuously for more than thirty seconds. Allow a two-minute cool-off period before re-energizing starter.

Do not re-engage starter when engine is rotating.

If oil pressure does not reach indicated pressure within twenty seconds, stop the engine immediately by holding the fuel shut-off switch in the OFF position. Determine cause of low oil pressure. While engine is running, one operator is to be at the control at all times.

e. After starting, check all items vital to safe engine operation, such as fuel lines, oil lines, oil pressure, throttle control, mounting bolts, couplings, thermocouple harness, etc. Make sure test cell, observation window, and control room are neat and clean. During the warm-up period, fill out heading of log sheet completely.

f. Set manifold pressure manometers to ~~current~~ ^{THE LOCAL UNCORRECTED} wet barometer reading and entrance air inclinometer to ~~dry~~ ^{LOCAL UNCORRECTED WET} barometer reading, as applicable.

g. Check cylinders for firing. Enter time and rpm at start of each period. Complete readings as soon as engine temperatures have stabilized. Plot oil consumption every ten minutes at 2400 rpm-full load, during run No. 8 (Table 6-1) (6/11). Determine that the governor is not limiting the fuel flow.

h. Exhaust gas temperatures, measured at individual ports, must not exceed 1250°F. Temperature variation between cylinders must not exceed 150°F.

i. Record the entrance air temperature between 60°F. to 100°F and use air entrance temperature correction factor per table 6-2 (6/12).

6-6. (Cont)

j. On run no. 10, repair all fuel and oil leaks. Check again before engine is removed from stand and again before shipping.

k. At completion of acceptance run, check acceleration, idle speed, and idie oil pressure. Acceleration should be checked with a moderate steady throttle movement.

l. On acceptance test, if power is outside limits, check for cause and make correction. Gross corrected brake hp. shall be maintained between 735 and 780 at 2400 rpm, full rack - full load.

m. Governor shall be adjusted to limit the engine no-load speed as follows:

Low Idle	700-760 675-725 rpm
High Idle	2600-2660 rpm

n. Adjust for smooth low idle, if necessary. Governor under-run below low idle setting during deceleration is permissible providing the governor return to low idle response is positive with a steady operation at the low idle setting.

o. During ^{OR} test with ^{A MINIMUM} oil temperature of 140°F ~~to 250°F~~ measured at the ~~oil cooler outlet~~ ^{MAIN} ~~oil cooler outlet~~ ^{APPROX} ~~oil cooler outlet~~ ^{TDS}, the oil pressure shall not be more than 70 nor less than 40 psi measured at and/or adjacent to the pressure sending unit, when the engine is operating at 2400 rpm, using MIL-L-21260 Type I, Grade 30 oil and shall not be less than 15 psi when engine is idling. ~~300-350 psi~~

p. After completing run no. 16, ^{FULL LOAD} check flame heater system for operation and fuel leaks. ~~CHECK SMOKE GENERATING SYSTEM FUEL FLOW.~~ ~~CHECK SMOKE GENERATING SYSTEM FUEL FLOW (DROPPED RAILS)~~

~~Final Performance Check Computations.~~ The computational data included below is for use in entering information in the final performance check log sheets.

a. ^{bhp. obs.} Observed Brake Horsepower (obs. bhp.). Calculate ^{bhp. obs.} obs. bhp. as follows:

$$\frac{\text{obs. bhp.}}{\text{bhp. obs.}} = \frac{2 \pi LWN}{33000} \text{ or } \frac{2 \pi NT}{33000} = \frac{T}{5252} = \frac{\text{beam} \times 3 \times 1.75 \times N}{5252} = \frac{\text{beam} \times N}{1000}$$

where -

- L = length of torque arm in feet (21.008 in. or 1.75 ft.)
- N = rpm of dynamometer shaft
- T = torque in lb-ft. = LW = beam x 3 x 1.75
- W = force in lbs. at length L
- $\pi = 3.1416$

b. ^{CORRECTED NET bhp.} ~~Corrected Net bhp.~~ The corrected net brake horsepower is calculated as follows:

$$\text{corrected net bhp.} = \text{obs. bhp.} \times \text{correction factor}$$

6-6. (Cont)

c. Correction Factor.

Correction Factor = $CF_T \times CF_p \times CF_F$

CF_T = Temperature Corr. Factor at turbocharger air inlet. Table 6-2 (6/12).

CF_p = Barometer Air Pressure Corr. Factor at turbocharger air inlet. Table 6-4 (6/14)

CF_F = Fuel Temperature Corr. Factor at the primary fuel filter inlet. Table 6-5 (6/1

d. Corrected Gross Brake Horsepower. Determine corrected gross brake horsepower as follows:

corrected gross bhp. = corrected net bhp. + fan hp.

Fan horsepower values are listed in Table 6-3 (6/13).

e. Brake Specific Fuel Consumption. The brake specific fuel consumption is determined as follows:

$$\text{Brake specific fuel consumption} = \frac{\text{obs. fuel flow (lb/hr.)} \times CF_F}{\text{corrected gross brake hp.}}$$

f. Fuel Air Ratio. The fuel/air ratio is calculated as follows:

$$\text{fuel air ratio} = \frac{\text{fuel (lb/hr.)}}{\text{air (lb/hr.)}}$$

g. Brake Specific Oil Consumption. The brake specific oil consumption is determined using the following formula:

$$\text{brake specific oil consumption} = \frac{\text{obs. oil consumption (lb/hr.)}}{\text{corrected gross brake hp.}}$$

h. Example. The following is an example showing how the above formula information is used in determining various log sheet data.

(1) Operating parameters. For this example, the following hypothetical engine operating parameters are:

engine rpm = 2400 rpm

beam/torque = 255/1340

wet barometer reading = 29.64 in. Hg.

dry barometer reading = 29.35 in. Hg.

average air entry pressure in inches H_2O = 0

average air entry temperature = 88°F

fuel temperature = 70°F

fuel flow = 308 lbs/hr.

(2) Correction factors. The required correction factors are determined from the parameters listed above using tables 6-2 through 6-5 (6/12) through (6/17) as follows:

↑
PARA. C.

6-7. (Cont)

(a) The dry entry pressure correction factor is calculated by subtracting the average entry pressure in inches H₂O from the dry barometer reading,

$$29.35 - 0 = 29.35 \text{ in. Hg.}$$

and this value is used to find the correction factor (1.00670) listed in table 6-4 (6/14).

(b) The average air entry temperature correction factor for 88°F is 1.01540, as listed in table 6-2 (6/12).

(c) The fuel temperature correction factor for 70°F is 1.010, as listed in table 6-5 (6/17).

(d) The total correction factor is then calculated as the product of the three correction factors as follows:

$$1.00670 \times 1.01540 \times 1.010 = 1.03240.$$

(3) Observed brake horsepower. The observed brake horsepower (obs. bhp.) is calculated as follows:

$$\text{obs. bhp.} = \frac{\text{rpm} \times \text{scale units}}{1000} = \frac{2400 \times 255}{1000} = 612.0$$

or -

$$\text{obs. bhp.} = \frac{\text{torque} \times \text{rpm}}{5252} = \frac{1340 \times 2400}{5252} = 612.0$$

(4) Corrected net brake horsepower. The corrected net brake horsepower value is calculated from the observed brake horsepower using the previously determined correction factor:

$$\text{corrected net bhp.} = \text{obs. bhp.} \times \text{correction factor} = 612.0 \times 1.03240 = 631.83 \text{ hp.}$$

(5) Fan horsepower. The fan horsepower is determined at 2400 rpm from table 6-3 (6/13) to be 108.0 hp.

(6) Corrected gross brake horsepower. The corrected gross brake horsepower is determined by adding the fan horsepower to the corrected net brake horsepower -

$$\text{corrected gross bhp.} = \text{corrected net bhp.} + \text{fan hp.} = 631.83 + 108.0 = 739.83 \text{ bhp}$$

(7) Brake specific fuel consumption. The brake specific fuel consumption is calculated by dividing the corrected fuel consumption (lbs/hr.) by the corrected gross brake horsepower -

brake specific fuel consumption =

$$\frac{\text{obs. fuel flow (lbs/hr.)} \times \text{CF}_f}{\text{corrected gross bhp.}} = \frac{308 \times 1.010}{739.83} = 0.420 \text{ lbs/bhp-hr.}$$

6-8. Engine Preservation Procedure.

a. Equip an auxiliary fuel container, with a fuel line, and fill with a sufficient amount of preservative oil, conforming to Specification VV-L-800, to operate the engine as prescribed below. Arrange the container to provide adequate pressure to assure proper supply of the preservative oil to the fuel system. Disconnect the fuel line at the most convenient point nearest to the engine fuel pump and connect the line from the auxiliary fuel container to the fuel-to-engine line at the point of disconnect. Disconnect the engine fuel return line and connect a transparent plastic tube to the fuel return connection. Insert other end of plastic tube into a container to collect the return diesel fuel. The fuel valve on the auxiliary fuel container must be turned to the ON position; the engine started and operated at 750-1000 rpm until observed fuel return is purged of diesel fuel and the system filled with preservative oil.

b. Drain lubricating oil from engine.

c. Remove engine from test stand and cap or plug all openings.

Table 5-1. Performance Check Test Schedule

Run no.	Time (min.)	rpm	Scale units	Torque lb-ft.
1.	10	700	Warm up	
2.	15	1000	16.0	85
3.	15	1400	83.5	440
4.	20	1800	159.5	837
5.	20	2200	195.0	1024
6.	20	2400	208.0	1092
7.	30	2400	229.0	1202
8.	30	2400	*FR-FL	*FR-FL
9.	Check for low idle at 675-725 ⁷⁰⁰⁻⁷⁵⁰ rpm - Adjust if necessary.			
10.	Check governor high idle speed. This shall be between 2600 and 2660 rpm (no load water off). If adjustment is required, recheck horsepower at 1800 and 2400 full load. The governor must be resealed after adjustments.			
11.	Inspect for oil and fuel leaks.			
12.	AVDS-1790-2DR ONLY. SET SOLENOID GOVERNOR SPEED HI- IDLE TO 1750-1800 RPM. WATER OFF 2DR Required governor speed drive unit 1750-1800			

Run no.	Time (min.)	rpm	Corr. Gross bhp
13.	5	2400 *FR-FL	735-780
14.	5	2200 *FR-FL	
15.	5	2000 *FR-FL	
16.	5	1800 *FR-FL	607-631

*Full rack - full load

[Handwritten signature]

Table 6-2. Air Entrance Temperature Correction Factors

Temp. °F.	Corr.	Temp. °F.	Corr.	Temp. °F.	Corr.
60	1.0000	80	1.01100	100	1.02200
61	1.00055	81	1.01155	101	1.02255
62	1.00110	82	1.01210	102	1.02310
63	1.00165	83	1.01265	103	1.02365
64	1.00220	84	1.01320	104	1.02420
65	1.00275	85	1.01375	105	1.02475
66	1.00330	86	1.01430	106	1.02530
67	1.00385	87	1.01485	107	1.02585
68	1.00440	88	1.01540	108	1.02640
69	1.00495	89	1.01595	109	1.02695
70	1.00550	90	1.01650	110	1.02750
71	1.00605	91	1.01705	111	1.02805
72	1.00660	92	1.01760	112	1.02860
73	1.00715	93	1.01815	113	1.02915
74	1.00770	94	1.01870	114	1.02970
75	1.00825	95	1.01925	115	1.03025
76	1.00880	96	1.01980	116	1.03080
77	1.00935	97	1.02035	117	1.03135
78	1.00990	98	1.02090	118	1.03190
79	1.01045	99	1.02145	119	1.03245

Table 6-3. Fan Horsepower Correction Factors

Rpm	Hp.
2520	125.0
2400	108.0
2200	83.2
2000	62.5
1800	45.6
1600	32.0
1400	21.4
1200	13.5
1000	7.8
900	5.7

Table 6-4. Air Entrance Pressure Correction Factors

In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.
29.92	1.00000	29.70	1.00270	29.48	1.00524
29.91	1.00015	29.69	1.00280	29.47	1.00536
29.90	1.00030	29.68	1.00290	29.46	1.00548
29.89	1.00042	29.67	1.00300	29.45	1.00560
29.88	1.00054	29.66	1.00310	29.44	1.00572
29.87	1.00066	29.65	1.00320	29.43	1.00584
29.86	1.00078	29.64	1.00332	29.42	1.00596
29.85	1.00090	29.63	1.00344	29.41	1.00608
29.84	1.00102	29.62	1.00356	29.40	1.00620
29.83	1.00114	29.61	1.00368	29.39	1.00630
29.82	1.00126	29.60	1.00380	29.38	1.00640
29.81	1.00138	29.59	1.00392	29.37	1.00650
29.80	1.00150	29.58	1.00404	29.36	1.00660
29.79	1.00162	29.57	1.00416	29.35	1.00670
29.78	1.00174	29.56	1.00428	29.34	1.00682
29.77	1.00186	29.55	1.00440	29.33	1.00694
29.76	1.00198	29.54	1.00452	29.32	1.00706
29.75	1.00210	29.53	1.00464	29.31	1.00718
29.74	1.00222	29.52	1.00476	29.30	1.00730
29.73	1.00234	29.51	1.00488	29.29	1.00742
29.72	1.00246	29.50	1.00500	29.28	1.00754
29.71	1.00258	29.49	1.00512	29.27	1.00766

Table 6-4. Air Entrance Pressure Correction Factors - Continued

In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.
29.26	1.00788	29.04	1.01032	28.82	1.01296
29.25	1.00790	29.03	1.01044	28.81	1.01308
29.24	1.00802	29.02	1.01056	28.80	1.01320
29.23	1.00814	29.01	1.01068	28.79	1.01330
29.22	1.00826	29.00	1.01030	28.78	1.01340
29.21	1.00838	28.99	1.01092	28.77	1.01350
29.20	1.00850	28.98	1.01104	28.76	1.01360
29.19	1.00862	28.97	1.01116	28.75	1.01370
29.18	1.00874	28.96	1.01128	28.74	1.01382
29.17	1.00886	28.95	1.01140	28.73	1.01394
29.16	1.00898	28.94	1.01152	28.72	1.01406
29.15	1.00910	28.93	1.01164	28.71	1.01418
29.14	1.00922	28.92	1.01176	28.70	1.01430
29.13	1.00934	28.91	1.01188	28.69	1.01442
29.12	1.00946	28.90	1.01200	28.68	1.01454
29.11	1.00958	28.89	1.01212	28.67	1.01466
29.10	1.00970	28.88	1.01224	28.66	1.01478
29.09	1.00980	28.87	1.01236	28.65	1.01490
29.08	1.00990	28.86	1.01248	28.64	1.01502
29.07	1.01000	28.85	1.01260	28.63	1.01514
29.06	1.01010	28.84	1.01272	28.62	1.01526
29.05	1.01020	28.83	1.01284	28.61	1.01538

Table 6-4. Air Entrance Pressure Correction Factors - Continued

In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.	In. Hg.-abs.	Corr.
28.60	1.01550	28.38	1.01804	28.16	1.02060
28.59	1.01562	28.37	1.01816	28.15	1.02070
28.58	1.01574	28.36	1.01828	28.14	1.02082
28.57	1.01586	28.35	1.01840	28.13	1.02094
28.56	1.01598	28.34	1.01852	28.12	1.02106
28.55	1.01610	28.33	1.01864	28.11	1.02118
28.54	1.01622	28.32	1.01876	28.10	1.02130
28.53	1.01634	28.31	1.01888	28.09	1.02142
28.52	1.01646	28.30	1.01900	28.08	1.02154
28.51	1.01658	28.29	1.01912	28.07	1.02166
28.50	1.01670	28.28	1.01924	28.06	1.02178
28.49	1.01682	28.27	1.01936	28.05	1.02190
28.48	1.01694	28.26	1.01948	28.04	1.02202
28.47	1.01706	28.25	1.01960	28.03	1.02214
28.46	1.01718	28.24	1.01972	28.02	1.02226
28.45	1.01730	28.23	1.01984	28.01	1.02238
28.44	1.01740	28.22	1.01996	28.00	1.02250
28.43	1.01750	28.21	1.02008		
28.42	1.01760	28.20	1.02020		
28.41	1.01770	28.19	1.02030		
28.40	1.01780	28.18	1.02040		
28.39	1.01792	28.17	1.02050		

Table 6-5. Fuel Temperature Correction Factors

Temp. °F	Corr.	Fuel flow lb/hr. max.	Temp. °F	Corr.	Fuel flow lb/hr. max.
60	1.000	313.0	76	1.016	308.2
61	1.001	312.7	77	1.017	307.9
62	1.002	312.4	78	1.018	307.6
63	1.003	312.1	79	1.019	307.3
64	1.004	311.8	80	1.020	307.0
65	1.005	311.5	81	1.021	306.7
66	1.006	311.2	82	1.022	306.4
67	1.007	310.9	83	1.023	306.1
68	1.008	310.6	84	1.024	305.8
69	1.009	310.3	85	1.025	305.5
70	1.010	310.0	86	1.026	305.2
71	1.011	309.7	87	1.027	304.9
72	1.012	309.4	88	1.028	304.6
73	1.013	309.1	89	1.029	304.3
74	1.014	308.8	90	1.030	304.0
75	1.015	308.5	91	1.031	303.7
			92	1.032	303.4
			93	1.033	303.1
			94	1.034	302.8
			95	1.035	302.5
			96	1.036	302.2
			97	1.037	301.9
			98	1.038	301.6
			99	1.039	301.3
			100	1.040	301.0

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CHAPTER 7
QUALITY ASSURANCE REQUIREMENTS

Section I. GENERAL

7-1. Introduction. This portion of the work requirement provides policy for quality assurance (QA) activities in the end item overhaul.

7-2. Responsibility for Inspection. The contractor/depot quality assurance activity performing the depot maintenance is responsible for the performance of the inspections specified herein. The contractor/depot may utilize his own facilities or any other commercial laboratory acceptable to the procuring activity. The procuring activity reserves the right to perform any of the inspections specified herein when such inspections are felt to be necessary to assure that supplies or services conform to the prescribed requirements.

Section II. TERMS AND DEFINITIONS

7-3. Quality Assurance Terms and Definitions. Quality assurance terms and definitions used herein are in accordance with MIL-M-38784A and MIL-STD-109.

a. Overhaul Inspection Procedures (OIP). The overhaul inspection procedure (OIP) is a document that furnishes data for inspection to prescribed wear limits. The following is an explanation of inspection terminology contained in the inspection method column of OIP's in this DMWR:

(1) Visual signifies the requisite will be either scaled or compared with a visual comparison standard.

(2) Measure signifies the item will be dimensionally inspected using available standard measuring equipment.

(3) Manual signifies the item will be functionally tested for secureness, rigidity, operation or smoothness of action as required.

(4) Magnetic particle inspection signifies the type of inspection to be performed on the item.

(5) Dye penetrant inspection signifies the type of inspection to be performed on the item.

b. Verification. A quality assurance activity function, consisting of objective determination that supplies or services conform to the requirements, or visual examination that procedures and records conform to requirements specified herein.

Section III. INSPECTION EQUIPMENT

7-4. Inspection and Test Equipment. Unless otherwise specified, the contractor will be responsible for the acquisition, maintenance, and disposition of inspection and test equipment required to determine conformance to requirements. All inspection and test equipment used in conjunction with the program will be controlled in accordance with requirements of MIL-STD-120, MIL-I-45607 and MIL-C-45662.

a. Inspection and Test Equipment Availability. All inspection and test equipment will be made available to the representative from the procuring activity when required for verification purposes.

b. Diagnostic and Test Equipment Requirements. Diagnostic test equipment, where required, will be as specified in the applicable OIP. Magnetic particle inspection equipment will be in accordance with MIL-I-6868.

c. Establishment of Standards. At the beginning of the overhaul program, the OIP's will be reviewed and sample parts will be established as standards for those characteristics requiring inspection judgment decisions. Items selected as visual comparison standards will be mutually established by the contractor and the procuring activity. These standards will assist in determining configuration and minimum acceptance criteria regarding burs, cracks, bends, mutilations, protective finish, color, wear, etc. Control of established visual comparison standards will be in accordance with established procedures for inspection equipment. Sample standards selected will be tested to demonstrate the following:

- (1) Interchangeability with at least three sets of mating parts.
- (2) Performance, in an assembled state, consisting of six actuations.

Section IV. CERTIFICATION

7-5. Certification of Personnel, Materials, and Processes.

a. Certification of Personnel. The contractor/depot QA activity will be responsible to the procuring activity for ascertaining and certifying that personnel skills, equipment, and materials meet the requirements of the work to be accomplished. Unless otherwise specified, the contractor/depot QA activity will provide the representative from the procuring activity with statements or other evidence that specifications for such special processes as welding, radiography, plating and the like will be complied with.

b. Magnetic Particle Inspection. The contractor will provide, document, and maintain a magnetic particle inspection procedure including demagnetizing technique. General requirements and tests for the magnetic particle inspection process will be in accordance with MIL-I-6868. The contractor's procedure will include at least the following information:

- (1) Material, size, shape, and condition of part.
- (2) Type and direction of magnetization.
- (3) Equipment to be used for magnetization.
- (4) Surface preparation (finishing and cleaning).
- (5) Type of magnetic particle used.
- (6) Magnetizing current.
- (7) Demagnetization.
- (8) Test for concentration of particle suspension.
- (9) Sketches or a chart showing the inspection grid to be used.

Section V. QUALITY ASSURANCE PLAN

7-6. Quality Assurance Plan. The contractor will prepare, as specified by the procuring activity, either a quality program plan or an inspection plan in accordance with MIL-I-45208. This plan will include but not be limited to:

a. Quality Planning.

- (1) Organizational responsibilities.
- (2) Control of specifications.
- (3) Control of vendors or suppliers.
- (4) Purchase procedures.
- (5) Technical control of finishing processes in-house and purchased services.
- (6) Technical control of preparatory operations for protective finishes.
- (7) Technical controls of testing.
- (8) Special repair process instructions.

b. Material Control (Incoming).

- (1) Raw material.
- (2) Control of discrepant material.
- (3) Finished material.
- (4) Semi-finished material.
- (5) Purchased processes.

c. Material Control (In-house).

- (1) Material in process.
- (2) Finished material.

d. Inspection and Acceptance.

- (1) In-process inspection.
- (2) Final inspection.
- (3) Packaging inspection.

7-6. (Cont)

e. Inspection Stamps.

- (1) Control of stamps.
- (2) Use of stamps.

f. Control of Inspection and Test Equipment.

- (1) Test equipment.
- (2) Gages.
 - (a) Special.
 - (b) Standard.
- (3) Standard measuring equipment.

g. Submission of Plan. The contractor will submit the quality assurance plan to the procuring activity prior to the start of overhaul activities. The contractor will be responsible to maintain his quality system during the life of the contract.

Section VI. INSPECTION AND AUDITS

7-7. First Article Inspection (Repaired Item).

a. First Item Inspection. First repaired item inspection will be conducted in three phases as follows:

- (1) Special process inspection.
- (2) Final inspection on completed engines.
- (3) Processing for storage and shipment.

b. Special Process Inspection. Special process inspection will be conducted by the procuring activity in accordance with the applicable portions of this DMWR. The contractor will notify the procuring activity at least 10 days in advance of the special process inspection.

c. First Item Inspection. The contractor quality assurance activity and procuring activity representative will conduct a complete first completed engine inspection in accordance with applicable portions of this DMWR and the results will be recorded in the final inspection record (FIR) (Appendix B) (B/1). At the time of this inspection, the contractor quality assurance activity will make available the inspection records and certifications pertinent to previously installed and/or inspected assemblies.

(1) The first accepted overhauled engine, where practical, will remain at the contractor's facility as a representative sample of production and will be the last engine to be shipped.

(2) As part of the first engine inspection, the first overhauled engine of each model must be submitted to an endurance qualification test and must meet the performance requirements of MIL-E-62177 (AT).

NOTE

The endurance run, examinations, and tests will be performed by the Government at a place designated by the Government.

(3) Processing for storage and shipment inspection will be conducted on samples selected from the first 10 items accepted. They will be inspected in accordance with paragraph 7-11 (7/9).

7-8. In-Process Inspection.

a. Contractor Responsibility. The contractor is responsible for fulfilling all elements of in-process inspection specified herein. This will include but not be limited to the following essential elements:

(1) Inspection of individual characteristics as required in chapter 3 and the OIP's included in chapter 5.

7-8. (Cont)

- (2) 100% inspection for serviceability at disassembly.
- (3) 100% inspection for completeness at reassembly.
- (4) Non-use of defective materiel.
- (5) Segregation of the defective materiel against unauthorized use.
- (6) Inspection of reclaimed materiel for dimensional and functional conformance to new part configuration.
- (7) Inspection of new parts prior to installation.
- (8) Continuity of in-process inspection at the various stages of disassembly, repair, refinish, reassembly, and test.
- (9) Maintenance of inspection records for control of quality.
- (10) QA activity verification to acceptance quality levels (AQL's) specified in the OIP's.
- (11) Fifty hour quality control test. During the overhaul production, one engine is to be selected each quarter and subjected to a 50-hour quality control test per MIL-E-62290 (AT), less water submergence test. If production falls below 50 engines per month, test one engine per 50.

b. Defective Materiel.

(1) Defective materiel, which is deemed not reparable, shall be segregated, identified and stored in a closed storage area.

(2) Materiel requiring rework or reprocessing shall be appropriately identified by the contractor and maintained separate from serviceable materiel until necessary rework has been accomplished and accepted.

c. Verification. Verification of reparable, serviceable, and nonreparable materiel will be accomplished on a sampling basis. Disclosure of usable or reclaimable materiel will be cause for contractor screening of the entire lot.

7-9. Final Inspection of Completed Engines. The suppliers quality assurance activity will perform final inspection on each overhauled engine utilizing a Final Inspection Record (FIR) (Appendix B) (B/1).

7-10. Quality Audits.

a. Periodic Audits. Periodic quality audits of contractor quality assurance activities will be conducted by the procuring activity.

b. Puroose. The purpose of quality audits is to assure that quality assurance/quality control functions are being performed in compliance with the provisions of this DMWR and are effectively providing delivery of acceptable materiel to the user.

7-11. Inspection of Processing for Storage and/or Shipment. Examination of processing and packaging of the item will be performed in accordance with the classification of defects and acceptable quality levels (AQL's) specified in table 7-1 (7/ 9). Sample size will be in accordance with MIL-STD-105, using inspection level I. A visual inspection will be performed to assure that the processes specified in chapter 8 result in parts and packages meeting the acceptable quality level.

Table 7-1. Classification of Defects for Storage and Shipment Inspection

Categories	Defect	AQL (1% defective)
Critical	None defined	
Major	None defined	
Minor:		
201	Illegible or incorrect marking	4.00
202	Inadequate cleaning and drying	4.00
203	Improper preservative application	4.00
204	Improper assembly and package closure	4.00
205	Workmanship	6.50

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CHAPTER 8

PRESERVATION, PACKAGING, PACKING, MARKING, AND SHIPPING

Section I. PRESERVATION

8-1. **Cleaning.** The engine assembly must be thoroughly cleaned in accordance with process C-1 (any applicable process), MIL-P-116, and dried using the most applicable process. Processes used must accomplish thorough cleaning and drying without damage to any part.

NOTE

Materials used in cleaning, packaging, packing, and marking must be free of all defects and imperfections that may affect their serviceability.

8-2. **Preservation.**

a. **General.** Preservation requirements should be accomplished on test stand after final test. Refer to paragraph 6-8 (6/10) for preservation through the fuel system. Allow auxiliary fuel to remain connected until preservation through the combustion chambers is completed.

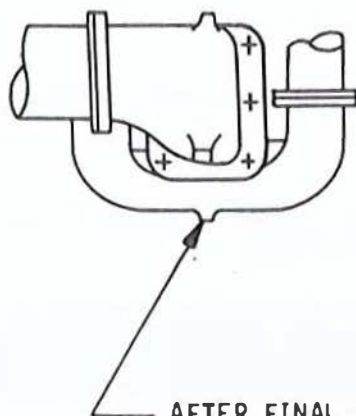
b. **Preservation Through Combustion Chambers.** Following preservation through the fuel system (paragraph 6-8) (6/10), allow the engine to cool to approximately 100 degrees F. Cover the turbosupercharger inlets and set the accelerator to full throttle. Then crank the engine with the starter for 20 seconds. Allow the starter to cool for three minutes and again crank the engine for 20 seconds. After cranking the engine the second time, disconnect the preservative fuel supply inlet and return lines and remove turbosupercharger inlet covers. Then drain the intake manifolds (fig. 8-1) (8/2).

c. **Flywheel Preservation.** Coat engine flywheel with oil (MIL-L-21260, Grade 30).

d. **Crankcase.** After preservation through the combustion chambers is complete, drain oil from the crankcase. A caution tag must be wired to the transmission adapter indicating the engine contains no oil. A record tag (Preparation Record for Storage of Shipment, DD form 1397) must then be furnished and completed.

e. **Engine Openings.** Close all openings of engine with cap plugs or tape to prevent dirt contamination.

DMWR 9-2815-220



AFTER FINAL 20 SECOND CRANKING (REF. PARA. D)
REMOVE PLUGS AND DRAIN INTAKE MANIFOLDS (LEFT
AND RIGHT BANK) REPLACE PLUGS AFTER DRAINING
IS COMPLETED.

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Figure 8-1. Draining intake manifolds.

Section II. PACKAGING, PACKING AND MARKING

The disassembly and packaging of engine items, in preparation for installation into the shipping container, are similar for Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D and AVDS-1790-2DA. Paragraph 8-3 covers the instructions for disassembly, packaging and packing of the above mentioned models, variations for specific models are noted at the proper locations. Paragraph 8-4 contains the disassembly, packaging, and packing of Model AVDS-1790-2DR engine. Paragraph 8-5 contains storage and shipping container marking instructions characteristic for all models.

8-3. Models AVDS-1790-2C, AVDS-1790-2CA, AVDS-1790-2D, and AVDS-1790-2DA.

a. Disassembly Instructions.

(1) Removal of oil filler tube.

(a) For models AVDS-1790-2C and AVDS-1790-2D. remove oil filler tube part no. 11641922 and bracket part 11641928 ~~11641928~~ by removing one bolt part no. 583748, two nuts part no. ~~503345~~, three screws part no. ~~MS35304-32~~, two lockwashers part no. ~~MS35338-26~~, ^{MS21044N5} nose part no. 8357967-4, and two ^{MS90726-32} clamps MS35842-13.

(b) For Models AVDS-1790-2CA and AVDS-1790-2DA, remove oil filler tube part no. 12314593, including bracket part no. 12314591 and attaching hardware mentioned in step (a) above.

(c) Package all items (except filler tube), including installation drawing 11641994 (Models AVDS-1790-2CA and AVDS-1790-2DA installation drawing 12314621) into one bag conforming to MIL-B-117, style 2, type I, class B (4 MIL), size 7 x 8. Heat seal. Identification required.

(d) Preserve interior of oil filler tube with oil (MIL-L-21260, P-10) and seal open end of tube with a cap conforming to MIL-C-5501/7-F28.

(2) Packaging of loose parts to attach harness to transmission.

(a) Gather together grommet part no. MS35489-27 (1), bracket part no. 10863598 (1), clamp no. MS21333-102 (1), screw MS90725-3 (1), washer part no. MS35338-44 (1), nut part no. MS51967-1 (1), clamp part no. MS21333-122 (1), clamp part no. 7351807 (4), clamp part no. 7351617 (2), and nut part no. MS27151-24 (6).

(b) Place the above items in a MIL-B-117, style 2, type I, class B bag, size 5 x 8. Heat seal. Identification required.

(3) Models AVDS-1790-2D and AVDS-1790-2DA, packaging of loose parts from generator hose.

(a) Gather gasket part no. 10883737 (1), lockwasher part no. MS35338-⁴⁴~~25~~ (6), and screw MS35304-8 (6).

(b) Place the above items in a MIL-B-117, style 2, type I, class B bag, size 5 x 6. Heat seal. Identification required.

8-3. (Cont)

(4) Package (wrap) loose transmission wiring harness assembly part no. 11655457 (1). Identification required.

(5) Package items identified in steps (1) through (4) above into carton PPP-B-636, style RSC, type C.F., class DOM, grade 275, size 32.25 x 11.00 x 4.875. Tape enclosure with ~~PPP-T-42~~ tape 2" x 38" (2 pcs.). Secure carton to inside of metal container in a manner to assure no movement or interference.

(6) Package "O" ring part no. 7723892 (1) into MIL-B-117, style 2, type I, class B bag, size 9 x 9. Coil "O" ring into five (5) coils and heat seal. Tape to the flywheel adapter plate on engine with PPP-T-60 tape. Identification required.

(7) Remove shroud plate part no. 10865272, plate part no. 10865277, nut part no. 503345 (6), and bolt part no. 583748 (6).

(a) Package together using separators conforming to MIL-8-121, type II, grade A, class 2, size 46 x 18 between each plate. Bag bolts and nuts in a 4 x 5 bag conforming to MIL-B-117, style 2, type I, class B. Heat seal. Identification required.

(b) Place between stiffeners PPP-F-320, type CF, grade 275, size 13.50 x 19.0 (2 pcs.) or 19 x 27 scored (1 pc.). Tape all around using ~~PPP-T-42~~ tape. Identification required.

(c) Secure package to the oil cooler top shroud plate of engine using PPP-T-60 tape in a manner to assure no movement or interference.

(8) Models AVDS-1790-2CA and AVDS-1790-2DA disassembly and packaging of VEDES. Remove the following parts identified by their part nos. and quantities.

(a) Remove: ~~right bank~~ exhaust ejector 12314567 (1); ~~left bank~~ exhaust ejector 12275879, tube, intermediate crankcase breather 12275880 (1); tube, transmission breather 12275831 (1); tube 12314564 (1); tube 12314565 (1); tube 12314568 (1); tube assembly 12314569 (1); bracket, support 12275822 (2); bracket, ~~right rear~~ 12275823 (1); bracket 12314561 (1); ~~bracket 12314570 (1); bracket 12314571 (1);~~ insulation 12275889 (1); insulation 12275890 (1); insulation 12275891 (1); insulation 12275892 (1). All items above shall be cleaned and preserved (all bare surfaces). Identify each item.

(b) Remove gasket ~~10864007~~ (2) and gasket 12275824 (2) and place between stiffeners and identify.

(c) Remove check valve 12275844 (2). Preserve valves, wrap and place each one in PPP-B-566 style II, type D, class A, carton and identify.

(d) Remove and package each separate item (quantity together) in a MIL-B-117 style 2, type I, grade 4 MIL, class B bag. Heat seal and identify. Remove: washer MS15795-806 (44); ~~washer MS9320-10 (16)~~; lockwasher MS35335-58 (22); lockwasher MS35338-44 (2); lockwasher MS35338-45 (2); nut MS21045-5 (5); nut MS35649-264 (22); ~~nut MS51823-6 (1)~~; nut 12275894 (12); screw MS51957-28 (22); screw MS90726-6 (2); ~~screw MS90725-9 (2)~~; screw MS90726-32 (7); screw 425340 (BCYX6) (3); screw 425594 (BCYX6) (1); ~~rivet 111874 (BMGX1.1) (4)~~; clamp MS21333-52 (1); clamp MS35842-13 (12); clamp ~~MS35842-12 (2)~~; clamp 12275861 (2); elbow MS51820-6 (1); ~~sleeve MS51825-6 (1)~~; hose 10898794 (1); hose 10935282-2 (2); hose 12275883 (2); hose 12314574 (2) and installation drawing 12314597 (1).

Clamp 12314637 (2), Elbow ^{8/14} MS51815-8 (1); Screw MS90726-12; Change 3

MS90726-12 (1)

(1)
(2)
?

8-3. (Cont)

(e) Package items from steps (8) (a) - (d) into carton PPP-B-636, style RSC, type CF, grade WR, class V3C, size 52 x 16 x 12. Tape carton using PPP-T-60, type III, class 1. Cushion all items so as to prevent damage. Secure carton to the inside of metal container in a manner to assure no movement or interference.

b. Engine Processing Instructions.

(1) Cleaning. Except as otherwise specified, the engines shall be thoroughly cleaned in accordance with process C-1 (any applicable process) of specification MIL-P-116 and dried by the most applicable process. The process used shall accomplish thorough cleaning and drying without damage to any part.

(2) Preservation through fuel system. The engine fuel intake line shall be disconnected. A line from a portable container with two compartments shall be connected to the fuel intake line fitting leading to the engine. One compartment shall contain fuel conforming to VV-F-800 and the other compartment shall contain MIL-L-46002, grade 1 preservative oil. A transparent line shall be connected to the cross fuel return bulkhead to allow for draining into a recovery container. The fuel valve of the portable container shall be turned to the "ON" position. The engine shall be started and operated at fast idle until thoroughly warm. The engine shall then be operated at 700 rpm, at which time the fuel supply shall be switched to the portable container containing MIL-L-46002, grade 1 preservative oil. The engine shall continue to operate at 700 rpm until preservative oil is flowing into the recovery container, approx. three (3) minute minimum. The engine shall then be stopped. The temporary fuel return line shall be disconnected and a cap plug MIL-C-5501/7-F28 shall be placed securely to bulkhead fitting. The temporary fuel intake line shall be disconnected and the permanent fuel intake line connected. (The recovered fuel oil mixture shall not be used to preserve other fuel systems.)

(3) Drain plug shall be removed, crankcase drained, and drain plug reinstalled. Preserve flywheel with MIL-L-21260(P10) type 1, grade 30. A processing record DD-Form 1397 shall be furnished, completed, and affixed in a conspicuous location on engine. A tag shall be prepared indicating; "Warning - engine contains no oil". The tag shall be affixed in a conspicuous location on engine.

(4) Fog lower oil filler tube and dipstick tube with MIL-L-46002, grade 1. A tag shall be prepared indicating: "engine preserved - do not crank until issued to the user". The tag shall be attached near the starter.

(5) All openings such as manifolds, air intakes, breathers, etc., shall be masked with tape or plastic plugs and perforated.

(6) A warning tag "remove all tape and packaging seals prior to cranking the engine" shall be placed in conspicuous location on engine.

c. Installing Engine into Shipping Container.

(1) Secure rear bracket part no. 12275746 to engine transmission adapter using seven cap screws, part no. MS35298-89 (.4375-20 UNF x 1.50) and seven lock-washers, part no. MS35338-47 (.4375 std.)

8-3. (Cont)

(2) Secure oil pan brackets part nos. 10951230 and 10951231, to engine oil pan using six machine bolts, part no. 10863824 (.750-16 UNF x 7.00); six lockwashers, part no. MS35338-51 (.750 std.); and six hex nuts, part no. ~~MS35690-1225~~ (.750-16 UNF). *MS51968-23*

(3) Secure rear bracket to mount support, part no. 10882686, using six cap screws, part no. MS35292-100 (.4375-20 UNF x 4.25); six lockwashers part no. ~~MS35337-28~~ (.4375 std.); and six hex nuts, part no. MS35690-725 (.4375-20 UNF). *MS35338-47*

(4) Secure oil pan brackets to mount support, part no. 10882686, using four lockwashers, part no. MS35338-51 (.750 std.); and four hex nuts, part no. ~~MS35690-1225~~ (.750-16 UNF). *MS51968-23*

(5) Insert seventeen (16 unit bags) of class I desiccant, conforming to spec. MIL-D-3464, into desiccant baskets (eight bags in one basket, and nine bags in other basket).

(6) Install preformed packing, part no. 10912270, on container lower section mounting flange.

(7) Install container upper section on lower section. Closure bolts shall be tightened using 88 to 105 lb-ft of torque.

(8) When the closure assembly is complete, fill the container to five lb. per square inch gage pressure using clean, dry air.

8-4. Model AVDS-1790-2DR.

a. Disassembly Instructions.

(1) Remove oil filler tube part no. 11682616 including nut ~~503351~~ (2), screw ~~MS35304-60~~ (1), hose 8357967-4 (1), clamp MS35842-13 (2) and screw ~~MS35304-59~~ (1). *MS51922-21*
MS90726-60 *MS90726-59*

(a) Package all above items (except filler tube), including installation drawing part no. 12254224, into one bag conforming to MIL-B-117, style 2, type I, class B (4 MIL), size 7 x 8. Heat seal. Identification required.

(b) Preserve interior of oil filler tube with MIL-L-21260 (P-10). Seal open end of tube with cap plug conforming to spec. MIL-C-5501/7-F28.

(c) Package above items into carton PPP-B-636, style RSC, type CF, class DOM, grade 275, size 8 x 4 x 24. Tape closure with ~~PPP-T-42~~ tape, size 2 x 14, 2 pcs. *A-A-883*

(d) Secure the carton to the inside of metal container in a manner to assure no movement or interference.

(2) Packaging "O" ring part no. 7359808 (1) into MIL-B-117, style 2, type I, class B, bag size 9 x 9. Coil "O" ring into (5) coils. Heat seal bag. Identification required. Secure bag to transmission adapter with PPP-T-60 tape.

8-4. (Cont)

b. Engine Processing Instructions. See paragraph 8.3b for engine processing instructions.

c. Installing Engine into Shipping Container.

(1) Secure rear bracket part no. 12275746 to engine transmission adapter using seven lockwashers part no. ~~1595340-48~~ (.500 extra heavy) and seven hex nuts part no. MS51968-14 (.500-20 UNF). *MS35337-29*

(2) Complete steps 8.3c (2) - (8).

8-5. Storage and Shipping Container Markings. The container must be marked in accordance with MIL-STD-129 as follows:

a. Adjacent to lifting rings, eyes, or lugs, (with arrows 5 inches long pointing thereto), mark in 1-inch letters, LIFT HERE.

b. Adjacent to and above air-filling valve, mark in 1-inch letters, AIR VALVE, and below, FILL TO 5 POUNDS PRESSURE.

c. Adjacent to and below air-filling valve, mark in 1-inch letters, USE DRY AIR ONLY.

d. Adjacent to and above the item-record receptacle, mark in 1/2-inch letters, RECORDS.

e. Adjacent to and above the humidity indicator, mark in 1/2-inch letters, HUMIDITY INDICATOR.

f. Adjacent to and above the relief valve, mark in 1/2-inch letters, RELIEF VALVE, and below, DO NOT DISTURB.

g. Along closure flange on both sides of the container, mark in 1-inch letters, WARNING: RELEASE PRESSURE BEFORE OPENING CONTAINER.

h. At loaded center of balance (43 inches from relief valve end) on both sides of the lower section of the container, mark a vertical line 6-inches high and 1-inch wide with adjacent 1-inch letters, CENTER OF BALANCE.

i. Each container must be provided with a name plate conforming to Specification MIL-P-514 and must be secured to the record receptacle end of container.

j. Each container must contain a decal, part no. 12275747 Models AVDS 1790-2A, 2C, 2CA, 2D, 2DA and 2DR, with instruction for assembling container. Decal will be secured to the inner wall of the lower section at the name plate end of the container.

Section III. PREPARATION FOR STORAGE OR SHIPMENT

8-6. Inspections and Tests. After assembled shipping and storage container has been pressurized, allow container to stand for a minimum of twelve hours to ensure pressure is maintained. Containers that are to be stored for extended periods should be inspected regularly for presence of moisture in the container. This is determined by observing the humidity indicator located in the recessed insert on the end of the container. Under moisture-free conditions the indicator will show blue in color.

APPENDIX A

REFERENCES

Section I. GENERAL

A-1. Purpose. The information contained in this appendix has been prepared as a reference list of those publications pertinent to the operation and maintenance of the vehicle/weapons systems incorporating the material supported by this publication.

A-2. Arrangement of Listings. The publication listings contained in each section of this appendix are arranged in alphanumerical order by publication number.

A-3. Requisitioning of Publications. Copies of the publications referenced herein, which are required in the performance of your mission, may be requisitioned on DA Form 17 from Commanding Officer, AF Publications Center, 1655 Woodson Road, St. Louis, Missouri 63144.

SECTION II. TECHNICAL AND REFERENCE MANUALS

A-4. Operator and Maintenance.

- TM 9-2350-256-34-1 Direct Support and General Support Maintenance Manual: Medium Recovery Vehicle, Full Tracked: M88A1 (Diesel Engine), Hull.
- TM 9-2350-257-10-1 Operator's Manual: Tank, Combat, Full-Tracked 105-MM Gun, M60A1 (RISE), NSN 2350-00-116-9765, Hull.
- TM 9-2350-257-10-2 Operator's Manual: Tank, Combat, Full-Tracked: 105-MM Gun, M60A1 (RISE), NSN 2350-00-116-9765, Turret.
- TM 9-2350-257-20-1 Organizational Maintenance Manual: Tank, Combat, Full-Tracked: 105-MM Gun, M60A1 (RISE), NSN 2350-00-116-9765, Hull.
- TM 9-2350-257-20-2 Organizational Maintenance Manual: Tank, Combat, Full-Tracked: 105-MM Gun, M60A1 (RISE), NSN 2350-00-116-9765, Turret.
- TM 9-2815-220-34 Direct Support and General Support Maintenance Manual: Engine with Container: Turbosupercharged, Diesel, Fuel Injection, 90-Degree V Type, Air-Cooled, 12-Cylinder, Assembly; Models AVDS-1790-2C, (NSN 2815-00-410-1203), AVDS-1790-2CA, (NSN 2815-01-149-1353), AVDS-1790-2D, (NSN 2815-00-410-1204), and AVDS-1790-2DR, (NSN 2815-00-124-5387), AVDS-1790-2DA, (NSN 2815-01-166-2051).

A-5. Repair Parts and Special Tools List (RPSTL).

- TM 9-2815-220-34P Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Engine with Container: Turbosupercharged, Diesel, Fuel Injection, 90-Degree V Type, Air-Cooled, 12-Cylinder, Assembly; Models AVDS-1790-2C (NSN 2815-00-410-1203), AVDS-1790-2CA (NSN 2815-01-149-1353), AVDS-1790-2D (NSN 2815-00-410-1204), and AVDS-1790-2DR (NSN 2815-00-124-5387), AVDS-1790-2DA, (NSN 2815-01-166-2051).

- TM 43-0139 Painting Instructions for Field Use, 8 JUL 75.

A-6. Lubrication Order (LO).

- LO 9-2350-257-12 Tank, Combat, Full-Tracked, M60A1 (RISE)

A-7. General Type Equipment Publications.

- DA PAM 108-1 Index of Army Motion Picture and Related Audio-Visual Aids.
- DA PAM 310-1 Consolidated index of Army Publications and Blank Forms.

A-7. (Cont)

- TM-9-207 Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65° F.)
- TM-9-214 Inspection, Care and Maintenance of Anti-Friction Bearings.
- TM-9-237 Operator's Manual: Welding Theory and Application.
- DA PAM 738-750 The Army Maintenance Management System (TAMMS).

A-7. Military and Federal Specifications.

JAN-I-171

TOLUENE

MIL-B-117

Bag, Sleeve and Tubing - Interior Packaging

MIL-B-121

Barrier Material, Grease Proofed, Water Proofed, Flexible

MIL-C-5501

Cap and Plug, Protective, Dust and Moisture Seal

MIL-C-6529

Corrosion Preventative, Aircraft Engine

MIL-C-6864

Cleaning Compound, Solvent, Oil Cooler

MIL-STD-45662
~~MIL-E-45662~~

Calibration System Requirements

MIL-C-81884

Corrosion-Preventative Oil, Gas Turbine Engine, Aircraft Synthetic Base

MIL-D-3464

Desiccants, Activated, Bagged, Packaging Use and Static Dehumidification

AWS A5.10

~~MIL-E-16053~~

SPECIFICATION FOR ALUMINUM AND ALUMINUM ALLOY BARE ELECTRODE WELDING RODS AND ELECTRODES.

MIL-E-62177 (AT)

Engines, Diesel, Air Cooled 12 Cylinder 90° V-Type, 750 H.P., Models ~~AVDS-1790-2, AVDS-1790-2A, AVDS-1790-2C, AVDS-1790-2D, and AVDS-1790-2DR, AVDS-1790-2CA AND AVDS-1790-2DA~~

MIL-STD-1949

~~MIL-I-6868~~

Inspection, ~~Process~~, Magnetic Particle

MIL-I-45208

Inspection System Requirements

DMWR 9-2815-220

MIL-L-6082	Lubrication Oil, Aircraft Reciprocating Engine (Piston)
MIL-L-7808	Lubrication Oil, Aircraft Turbine Engine, Synthetic
MIL-L-212608	Lubricating Oil, Internal Combustion Engine
MIL-L- ²¹⁰⁴ 45199	Lubricating Oil, Internal Combustion Engine
MIL-M-38784A	Manuals, Technical: General Style and Format Requirements
MIL-P-116	Preservation-Packaging, Methods of
MIL-P-514	Plates, Identification, Instruction and Marking, Blank
MIL-P-8585 ^{TT-P-1157}	Primer Coating, Zinc Chromate
MIL-P-14232	Parts, Equipment, and Tools for Army Materiel, Packaging and Packing of
MIL-P-16173	Corrosion Preventative Compound Solvent Cutback, Cold Application
MIL-S-6872A ^{DOD-STD-1866}	Soldering Process, General Specifications for (NON-ELECTRICAL)
MIL-S-12382	
MIL-S-22473	Sealing, Locking, and Retaining Compounds, Single Component
MIL-STD-105	Sampling Procedure and Tables for Inspection by Attributes
MIL-STD-109A	Quality Assurance Terms and Definitions
MIL-STD-120	Gage Inspection
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-410A	Qualification of Inspection Personnel (Magnetic Particle and Penetrant) ^{NONDESTRUCTIVE TESTING PERSONNEL QUALIFICATIONS AND CERTIFICATION}
MIL-STD-1687	Thermal Spray Processes for Naval Ship Machinery and Ordnance Applications
MIL-T-5021 ^{MIL-STD-1595}	Test, Aircraft and Missile Welding Operators Qualification ^{QUALIFICATION OF AIRCRAFT, MISSILE AND AEROSPACE}
MIL-W-8604 ^{MIL-STD-2219}	Welding of Aluminum Alloys: Process for ^{FUSION WELDERS}
P-D-680	FUSION WELDING FOR AEROSPACE APPLICATIONS
PPP-B-636	Dry Cleaning Solvent
PPP-P-291	Boxes, Fiberboard
PPP-T-42 ^{A-A-883}	Paperboard, Wrapping and Cushioning
	Tape, Packaging/Masking, Paper ^{PRESSURE SENSITIVE ADHESIVE, MASKING}

A-7. (Cont)

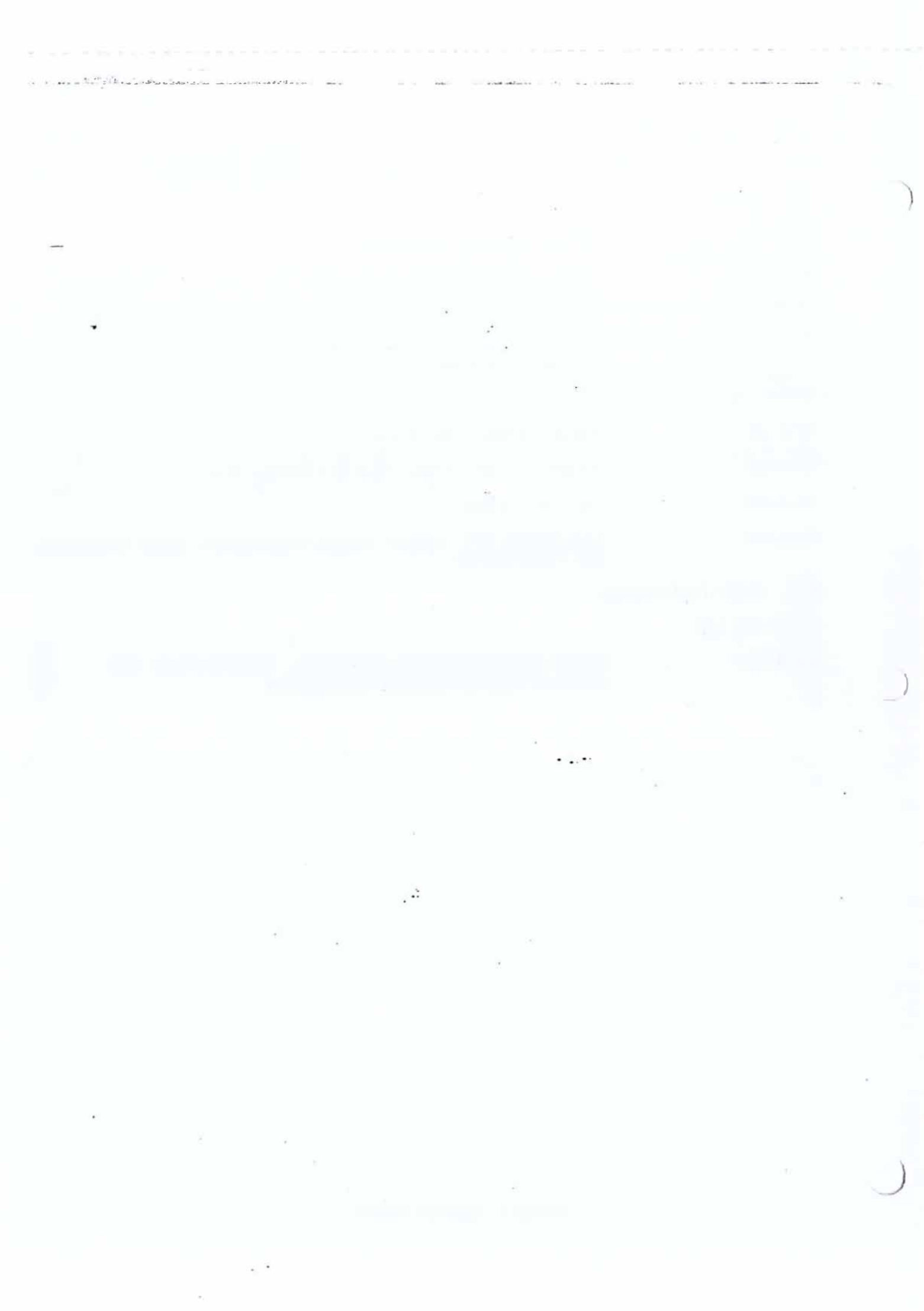
PPP-T-60	Tape, Packaging, Waterproof
ASTM B26/B26M	
QQ-A-601	Aluminum Alloy Sand-Castings PERMANENT & SEMIPERMANENT
QQ-A-596	MOLD CASTINGS
QQ-R-566	Rods and Electrodes, Welding Aluminum and Aluminum Alloys
TT-C-490	Cleaning Methods and Pretreatment of Ferrous Surfaces for Organic Coatings
ASTM B108	
TT-C-916B	ALUMINUM-ALLOY PERMANENT MOLD CASTINGS
TT-E-529	Enamel, Alkyd, Semi-Gloss
TT-P-664	
TT-P-636	Primer Coating, Alkyd, CORROSION-INHIBITING, LEAD AND WOOD AND FERROUS METAL CROMATE FREE, VOC-COMPLIANT
VV-F-800	Fuel Oil, Diesel
VV-L-800	Lubricating Oil, General Purpose Preservative (Water Displacing Low Temperature)

A-8. Other Publications.

TACOM STD 113

TB 9-289

Depot Reconditioning of Engine, Transmission and Similar Reusable Metal Containers



APPENDIX B
FINAL INSPECTION RECORDS

B-1. Final Inspection Records. Final inspection will be accomplished to determine conformance to the requirements of this DMWR. The inspector will use the Final Inspection Record as a guide in conducting inspection of the engine or engine components, individually or collectively. Inspections and tests need not be conducted in the order listed, however, all inspection characteristics must be completed prior to submitting to the QA representative for acceptance. Five sets of final inspection records follow in this appendix, one for each model engine covered in this DMWR.

B-2. Final Inspection Deficiencies. Deficiencies disclosed during final inspection will be delineated on the deficiency sheets, following each final inspection record set, which will be attached to the Final Inspection Record and become a permanent part of the inspection record. Defective engines will be returned for repair of defects or replacement of defective parts noted on the deficiency sheet. Corrective action taken will be noted in the proper column and the components resubmitted for acceptance inspection of the listed deficiencies. The inspector will reinspect the listed deficiencies for correction, and initial each entry of the deficiency sheet if found to be in compliance.

FINAL INSPECTION RECORD
FOR
ENGINE, DIESEL: 12-CYLINDER, 90°V-TYPE, AVDS-1790-2C
Sheet 1 of 17

DYNAMOMETER TESTS AND FINAL INSPECTION

SERIAL NO. _____

CONTRACT NO. _____

DYNAMOMETER TEST

FINAL INSPECTION

CONTRACTOR INSPECTOR
& DATE _____

GOVERNMENT INSPECTOR
& DATE _____

INSTRUCTIONS TO INSPECTOR

1. CONTRACTOR INSPECTION AND DATA SHALL BE COMPLETED PRIOR TO SUBMISSION TO GOVERNMENT INSPECTOR FOR ACCEPTANCE.
2. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF MIL-E-62177(A T)
3. INSPECTIONS SHALL BE PERFORMED TO DETERMINE CONFORMANCE WITH ENGINE DWG. 11682700 AND REFERENCE DWGS. SPECIFIED.
4. DYNAMOMETER TEST RESULTS SHALL BE RECORDED ON FINAL RUN.
5. THE FOLLOWING CHARACTERISTICS MUST BE VISUALLY REVIEWED AND ALL DEFICIENCIES AND THEIR CORRECTIVE ACTION SHALL BE LISTED ON ATTACHED DEFICIENCY SHEETS.
 - A. CONDITION: ALL PARTS MUST EXHIBIT NO EVIDENCE OF DAMAGE, MUTILATION, OR POOR WORKMANSHIP OF CONSTRUCTION.
 - B. COMPLETENESS OF ASSEMBLY AND SECURED: ALL MOUNTING BRACKETS, BOLTS, NUTS, RIVETS, WASHERS, ETC. MUST BE COMPLETE AND SECURED. ANY EVIDENCE OF PARTS BEING INCOMPLETE AND IMPROPERLY SECURED WILL BE CAUSE FOR REJECTION.

- C. ROUTING, CLIPPING AND CLEARANCES: ALL WIRING HARNESSSES, FUEL, OIL AND AIR LINES MUST BE PROPERLY ROUTED AND CLIPPED PER THEIR RESPECTIVE INSTALLATION DRAWING. SUFFICIENT CLEARANCES BETWEEN THESE AND ADJACENT PARTS MUST BE MAINTAINED TO INSURE THERE CAN BE NO INTERFERENCE. PHYSICALLY HANDLE THE ITEM TO VERIFY IT IS SECURED.
- D. PAINT: PAINTED AREAS MUST BE THOROUGHLY COVERED. THERE MUST BE NO EVIDENCE OF THIN AREAS.
- 6. NO ERASURES SHALL BE MADE TO CHANGE SYMBOLS, SIGNATURES OR DATA.
- 7. INSPECTORS SHALL SIGN FOR EACH ITEM, WHEN ALL CHARACTERISTICS OF THE ITEM ARE ACCEPTABLE, USING THE SYMBOLS LISTED BELOW.

SYMBOLS: (✓) ACCEPTABLE (X) UNACCEPTABLE (0) NOT APPLICABLE

- 8. SEQUENCE OF INSPECTION IS DIVIDED INTO SIX (6) AREAS AS VIEWED FROM DAMPER END OF ENGINE AS FOLLOWS:

- AREA NO. 1 DAMPER END
- AREA NO. 2 LEFT BANK
- AREA NO. 3 TRANSMISSION MOUNTING FACE END
- AREA NO. 4 RIGHT BANK
- AREA NO. 5 TOP
- AREA NO. 6 BOTTOM

SECTION A - DYNAMOMETER TEST

1. GOVERNOR SETTING

HIGH SPEED - FULL LOAD _____ (2400-2450) NO LOAD _____ (²⁶⁶⁰2640 MAX.)
 LOW SPEED - NO LOAD _____ (⁷⁰⁰⁻⁷⁵⁰675-725)
 RPM STABILIZE - FULL LOAD _____ (WITHIN 30 SECONDS)
 SEAL _____

2. HORSEPOWER & TORQUE

CORRECTED GHP - 2400 RPM _____ (735-780)
 CORRECTED TORQUE - 2400 RPM _____ (1609-1707)
 CORRECTED TORQUE - 1800 RPM _____ (1770-1842)
 CORRECTED GHP - 1800 RPM _____ (607-631)

3. FUEL CONSUMPTION

LBS/CGHP/HR - 2400 RPM _____ (0.420)
 1800 RPM _____ (0.400)

4. OIL CONSUMPTION (LUBRICATING)

LBS/CGHP/HR - FULL THROTTLE _____ (.0075 MAX)

5. OIL PRESSURE

GALLERY OIL PRESSURE AT OIL TEMP OF 140° - 250° F.

GRADE 30 OIL - 2400 RPM _____ (40-70) PSI, 700 RPM _____ (15 MIN) PSI

6. OIL TEMPERATURE

OIL COOLER OUTLET - FULL THROTTLE _____ (250° F. MAX.)

SUMP - FULL THROTTLE _____ (140° F. - 250° F.)

SECTION A - DYNAMOMETER TEST

7. CYLINDER TEMPERATURE

EXHAUST GAS TEMP MAX. _____ (1250° F. MAX.)

8. EXHAUST SMOKE DENSITY

<u>ENGINE RPM</u>	<u>VISUAL NO.</u>	<u>METER NO.</u>
1800	_____ 3	_____ 3.5 4.0
2000	_____ 3	_____ 3.2 3.7
2200	_____ 2	_____ 2.6 3.2
2400	_____ 1	_____ 2.4 3.0

9. OIL LEAKS _____

10. FUEL LEAKS _____

11. ACCESSORIES

<u>TYPE</u>	<u>MFG. NAME</u>	<u>SERIAL NO.</u>
GENERATOR _____	_____	_____
STARTER _____	_____	_____
FUEL INJ PUMP ASSY _____	_____	_____
TURBO SUPERCHARGER _____ (LEFT BANK)	_____	_____
TURBO SUPERCHARGER _____ (RIGHT BANK)	_____	_____
GENERATOR DRIVE COUPLING _____	_____	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR'S. Insp. Initials
	AREA NO. I DAMPER END		
101	CONNECTORS (OIL COOLER HOSES) L & R BANK GASKETS, NUTS, HOSE ASSYS, CLAMPS, SCREWS, NUTS, ADAPTERS & ANNULAR GASKETS	VISUAL	
102	PRIMARY FUEL FILTER ASSY. BRACKET, SCREWS, NUTS, ELBOW, ADAPTER, HOSE ASSYS. (PRIMARY FUEL FILTER TO FUEL CHECK VALVE & PRIMARY FUEL FILTER TO ENGINE), BULKHEAD & BLEEDER VALVE (NOTE INLET LOCATION)	VISUAL	
103	CAMSHAFT END COVER PLATE (R. BANK) MTG. SCREWS, LOCKWASHERS, & GASKET	VISUAL	
104	TACHOMETER DRIVE ADAPTOR SCREWS, WASHERS & LOCKWASHERS	VISUAL	
105	THROTTLE CONTROL ASSY. MTG. BRACKET, SCREWS, LOCKWASHERS, BEARING & SNAP RINGS. LEVER, BEARINGS, SNAP RINGS, ADJUSTING SCREW, LOCK NUT, BOLT, NUT & STOP PIN. SPRING & SPACERS. LEVER, SCREW, LOCKWASHER & STOP PIN. LEVER, RINGS, WASHERS & COTTER PIN. LEVER, BOLT, WASHER & STOP PIN. CROSS SHAFT, SNAP RINGS & BEARING. OVERTRAVEL - (BOTH DIRECTIONS).	VISUAL Functional	
106	SHROUDS BOLTS, SCREWS & LOCKWASHERS PAINT	VISUAL	
107	FIRE EXTINGUISHER CONNECTOR.	VISUAL	
108	FUEL HOSE ASSY, WASHER, ELBOW & CLAMP. (SECONDARY FILTER TO ENGINE)	VISUAL	

11A SHAKING GENERATOR BRACKET, SCREWS, LOCKNUTS,
FULL SHUT-OFF VALVE, ~~SHAKE GENERATOR~~;
ELBOW, ASSESSY (SHUT-OFF VALVE TO TEE).



AVDS-1790-2C - Sheet 6 of 17

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's. In. Initials
109	CONNECTOR (FUEL SHUT OFF LEAD) MTG.SCREWS.	VISUAL	
110	SECONDARY FUEL FILTER WATER SEPERATOR <i>CASU</i> , MTG. BRACKET, SCREWS, LOCKWASHERS, WASHERS, CLAMP, HOSE ASSY. (FUEL PUMP TO FUEL WATER SEPERATOR), ELBOW, BLEEDER VALVE & PIPE PLUG LOW & HIGH WATER SENSOR CONNECTORS, LOW & HIGH WATER SENSORS	VISUAL	
111	LIFTING EYES (L & R BANK) GASKET & MTG. NUTS	VISUAL	
112	ENGINE INSTALLATION GUIDES (L & R BANK) MTG. NUTS & WASHERS	VISUAL	
113	OIL COOLER VENTS (L & R BANK) NIPPLE, HOSE ASSYS. TEE, CLAMPS & CONNECTORS	VISUAL	
114	OIL FILTER COVER GASKET, MTG. NUTS, WASHERS, SCREW & SEAL INSTRUCTION PLATE, DRIVE SCREWS & WASHERS	VISUAL	
115	OIL FILTER COOLER BY-PASS PLUGS AND GASKETS	VISUAL	
116	DAMPER HSG. OIL DRAIN VALVE, GASKET AND ADAPTER (NOTE: VALVE IN CLOSED POSITION)	VISUAL	
117	CRANKSHAFT DAMPER HSG. TO CRANKCASE, MTG. NUTS & WASHERS	VISUAL	
118	MISC. PIPE PLUGS	VISUAL	
9	PRIMER SOLENOID & FILTER ASSY. MTG BRACKET, SCREWS, WASHERS, NUTS, NIPPLE, ELBOW, TEE, CONNECTOR & CLAMP	VISUAL	

AVDS-1790-2C - Sheet 7 of 17
 SECTION B
 BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
120	FUEL CHECK VALVE ASSY. MTG. BRACKET, SCREWS, WASHERS & LOCKWASHERS TUBE ASSY. (FUEL CHECK VALVE TO SOLENOID VALVE & FILTER ASSY.) TEE, CONNECTORS, REDUCER, FILTER & ELBOW	VISUAL	_____
121	SENDING UNIT, SWITCHES, ADAPTER REDUCERS & ELBOW	VISUAL	_____
122	OIL PRESSURE REG. VALVE COVER GASKET, MTG. NUTS & WASHERS	VISUAL	_____
123	FUEL WATER SEPARATOR DRAIN MTG. BRACKET, NUT, DRAIN COCK, TEE, CONNECTOR, NUT, HOSE ASSY, (DRAIN TO SECONDARY FUEL FILTER) & LOCK WASHER, ELBOW, HOSE ASSY. (DRAIN TO DRAIN CONTROL SOLENOID VALVE)	VISUAL	_____
124	FUEL PUMP ASSY. ADAPTER, GASKETS, MTG. NUTS, WASHERS, CONNECTORS & TUBE ASSY. TO CHECK VALVE, WASHERS	VISUAL	_____
125	CRANKSHAFT DAMPER HSG. TO OIL PAN, MTG. BOLTS & WASHERS	VISUAL	_____
126	METER, TIME TOTALIZING	VISUAL	_____
127	LEAKS, FUEL & OIL	VISUAL	_____
AREA NO. 2 LEFT BANK			
201	OIL COOLERS WITH SCREENS, SCREENS ^{WASHERS} BOLTS, LOCKWASHERS & BRACKETS	VISUAL	_____
202	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	_____

AVOS-1790-2C - Sheet 8 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins. Initials
203	CYLINDER ASSEMBLIES MTG.NUTS & COOLING FINS CONDITION	VISUAL	
204	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS TUBE ASSY. GASKET, SCREWS & LOCKWASHERS.	VISUAL	
205	LOWER OIL FILLER TUBE ASSY. GASKET, MTG. SCREWS, & SEALS	VISUAL	
206	OIL LEVEL INDICATOR TUBE ASSY. GASKET, MTG.NUTS SPRING, SCREWS, CAP ASSY. & ADAPTER OIL LEVEL GAGE ROD (11684006)	VISUAL	
-207	INTAKE MANIFOLD MANIFOLD, PLUG TUBES, GASKET, FLANGES, LOCKNUTS, NUTS & LOCKWASHERS ELBOW, GASKET, NUTS, WASHERS, & PLUGS <i>let</i>	VISUAL	
208	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
209	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS, CLAMPS & PAINT	VISUAL	
210	ENGINE SHROUDS & COVER SCREWS & LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
211	CRANKCASE NUTS, WASHERS, COTTER PINS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
212	OIL PAN PLUG, MTG.NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
213	TURBOCHARGER ASSY. TURBOCHARGER MTG BASE, NUTS, WASHERS, MTG. STUDS, NIPPLE, CONNECTOR & ELBOW. SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE HOSE & CLAMPS	VISUAL	COMPRESSOR COVER TUBE CAPS
214	INTAKE TUBE ASSY (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSES & CLAMPS TUBE, GASKET & NUTS	VISUAL	
215	MANIFOLD HEATER ASSY. GASKET, MTG.NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT, REDUCER & ELBOWS	VISUAL	
216	FUEL WATER SEPARATOR DRAIN CONTROLS MTG.PLATE, SCREWS & WASHERS CONTROL ASSY, SCREWS, WASHERS, WIRING HARNESS (CONTROL ASSY. TO VALVE) & CLAMP SOLENOID VALVE, SCREWS & WASHERS NIPPLE, ELBOW & TUBE ASSY.	VISUAL	

307A SMOKE GENERATING SOLENOID VALVES, BRACKET,
SCREW, WASHER, NIPPLE, ELBOWS, TEE,
TUBE ASSYS EXHAUST MANIFOLD (R & L), SOLENOID
VALVE OUTLET, RETAINING STRAPS, FAIRLEAD
VALVES, BOLTS & LOCK NUTS.



SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR'S INSPECTION Initials
217	STARTER & MTG.NUTS SUPPORT, BOLTS, WASHERS CRADLE, NUTS, WASHERS, U-BOLT, BARS & NUTS ADAPTER HSG., GASKETS, NUTS, & WASHERS	VISUAL	
218	STARTER RELAY MODULE MTG. BRACKET, SCREWS & WASHERS SPACER, SCREWS & NUTS.	VISUAL	
219	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 3			
TRANSMISSION MTG. FACE END			
301	SHROUDS, COVERS & PLATES BOLTS, NUTS, WASHERS, LOCK CLIPS, PLATES, LOCKWASHERS, SCREWS, GROMMETS & PAINT	VISUAL	
302	FUEL SOLENOID VALVE BRACKET, MTG. BOLTS WITH LOCKWASHERS, SCREWS, WASHERS, ELBOWS, NIPPLE, VALVE & TUBE ASSY TO FUEL RETURN COUPLING, ELBOW, TEE, TUBE ASSYS FLAME HEATER & CLAMPS (R & L BANK)	VISUAL	
303	ELBOW (TURBO OIL SUPPLY)- R & L BANK WASHER, SHOULDER HOSE ASSYS. TO TURBO, CLAMPS, SCREWS & LOCKWASHERS	VISUAL	
304	CONNECTOR-FUEL INJECTOR FUEL RETURN, NUT & WASHER	VISUAL	
305	BREATHING HOSE & CLAMP TUBE ASSY, HOSE & CLAMPS	VISUAL	
306	CAMSHAFT HOUSING (RIGHT & LEFT BANK) GASKET, SCREWS, WASHERS & LOCKWASHERS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's INSP. Initials
307	COVER PLATE, CAMSHAFT HSG. (R & L BANK) GASKET, SCREWS & WASHERS	VISUAL	
308	ADAPTER, CAMSHAFT DRIVE (R & L BANK), NUTS & WASHERS	VISUAL	
309	^{CONSOLE,} FLANGE, CAMSHAFT DRIVE (R & L BANK) GASKET, SCREWS, WASHERS, LOCKWASHERS, HOSE & CLAMP	VISUAL	
310	EXHAUST MANIFOLD ^{PIPE} TUBE ASSYS (R & L BANK) GASKET, BOLTS, NUTS, WASHERS, & PIPE PLUGS, ^{CLAMPING BRACKETS, U-BOLTS,} LOCK WASHERS & NUTS	VISUAL	
311	ACCESSORY DRIVE HOUSING MTG. NUTS & WASHERS	VISUAL	
312	TURBO TIE ROD ASSY. TIE ROD, MTG. SCREWS, LOCKWASHERS & CLAMP, ^{SEAT BRACES, GROMMETS, SPACERS,} BOLTS & NUTS	VISUAL	
313	LIFTING EYE SCREWS LOCKWASHERS	VISUAL	
314	FLYWHEEL BOLTS, ROCK PLATES, TIMING POINTER, DOWELS & GEARSHAFT	VISUAL	
315	ADAPTER - TRANSMISSION NUTS, LOCKWASHERS, BOLTS & DOWELS	VISUAL	
316	^{TIMING POINTER & SCREWS} LEAKS, FUEL & OIL	VISUAL	
401	AREA NO. 4 RIGHT BANK OIL COOLERS WITH SCREENS, SCREWS, BOLTS, LOCKWASHERS & BRACKETS	VISUAL	

AVDS-1790-2C - Sheet 12 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins Initials
402	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	
403	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
404	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS, & LOCKWASHERS & NIPPLE	VISUAL	
405	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, NUTS, LOCKNUTS, & LOCKWASHERS ELBOW, GASKET, WASHERS , NUTS, WASHERS & PLUGS	VISUAL	
406	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
407	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS & PAINT	VISUAL	
408	ENGINE SHROUDS & COVER SCREWS, LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
409	CRANKCASE PIPE PLUGS, NUTS, WASHERS, COTTER PINS, DATA AND OVER- HAUL PLATES W/ DRIVE SCREWS ENGINE SERIAL NO. REQ'D. ENGINE P/N 11682700 REQ'D. CONTRACT NO. REQ'D. SENDING UNIT, ADAPTER & ELBOW	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
410	<p>TURBOCHARGER ASSY. TURBO, MTG.BASE, NUTS, WASHERS, MTG.STUDS, SCREWS NIPPLE, CONNECTOR & ELBOW SUPPORT (TURBO.TO TRANS.ADAPTOR) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG.SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS</p>	<p><i>COMPRESSOR COVER TUBE CAPS</i></p> <p>VISUAL</p>	<p>_____</p>
411	<p>INTAKE TUBE ASSY (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSE & CLAMPS TUBE, GASKET & NUTS</p>	<p>VISUAL</p>	<p>_____</p>
412	<p>MANIFOLD HEATER ASSY. GASKET, MTG.NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY.) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT CONNECTOR & ELBOW <i>REDUCER & ELBOWS</i></p>	<p>VISUAL</p>	<p>_____</p>
413	<p>GENERATOR ASSY. <i>SELF LOCKING BOLTS</i> GENERATOR, ^{<i>GASKET</i>} ADAPTER, GASKET, ^{<i>FLAT WASHER,</i>} SCREWS LOCKWASHERS, SCREWS & NUT. SUPPORT, WASHERS, BOLTS, SCREWS & CRADLE. ^{<i>ADAPTER</i>} UNION & HOSE ASSY TO OIL PAN. ^{<i>COUPLER</i>} NIPPLE, ADAPTER & HOSE ASSY. TO BREAK ELBOW (GENERATOR VENT) ELBOW & HOSE ASSY TO CRANKCASE. NIPPLE, ELBOW, HOSE ASSY ^{<i>TO</i>} (GENERATOR OIL DRAIN) CHECK VALVE, TEE, TUBE ^{<i>HOSE</i>} ASSY, ELBOW, CHECK VALVE & NIPPLE.</p>	<p>VISUAL</p>	<p>_____</p>

502A METER, TIME TOTALIZING, SCREWS
&
~~AND~~ LOCKWASHERS

502B STARTER RELAY MODULE, SCREWS
&
~~AND~~ LOCKWASHERS

502C TUBE ASSY SMOKE GENERATING FUEL
SHUT-OFF VALVE OUTLET, BULKHEAD
ELBOW, & CLAMPS

502D OIL SAMPLING, BRACKET, ^{BOLTS, LOCKWASHERS,}
~~VALVE ASSY~~
DRAIN COCKS, HOSE ASSYS, CLAMPS, TEE
& ADAPTER



SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
414	OIL PAN PIPE PLUGS, MTG NUTS, WASHERS, SCREWS, LOCKWASHERS & RE-ADAPTER DUCER	VISUAL	
415	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 5 TOP			
501	HOUSING, VANE, ENGINE COOLING FAN (FRONT & BACK) SCREWS, WASHERS & LOCKWASHERS	VISUAL	
502	SHROUDS & COVER PLATES SCREWS, WASHERS, LOCKWASHERS, NUTS	VISUAL	
503	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 6 BOTTOM			
601	OIL PAN ASSY. ADAPTER, GASKET, SCREWS, PLUG & GASKET	VISUAL	
602	LEAKS, FUEL & OIL	VISUAL	
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS. THE ENGINE IS NOW READY FOR WIRE HARNESS INSTALLATION.</p> <p>CONTRACTOR INSPECTOR _____ DATE _____</p>			

AVDS-1790-2C - Sheet 15 of 17
SECTION C

SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR.'s Insp. Initials
701	<u>ELECTRICAL HARNESS OPERATION</u> STARTER MOTOR _____ STARTER LOW VOLTAGE PROTECTION _____ GENERATOR _____ MANIFOLD HEATER (RT) _____ MANIFOLD HEATER (LT) _____ ENG. OIL TEMP _____ ENG. HI OIL TEMP _____ FUEL SHUT-OFF _____ FUEL WATER SEPARATOR _____ ENG. LOW OIL PRESSURE _____ HOURMETER _____ FUEL SOLENOID _____ ENGINE OIL PRESSURE _____ <i>SMOKER GENERATING FUEL SOLENOIDS</i>	Functional	_____
702	PRESERVE FUEL SYSTEM _____	VISUAL	_____
703	LEAKS, FUEL & OIL _____	VISUAL	_____
801	AREA NO. 1 DAMPER END ELECTRICAL WIRING (INSTALLATION DWG. #11655432) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS _____	VISUAL	_____
802	DAMPER HSG. TO OIL PAN MTG. SCREWS & WASHERS _____	VISUAL	_____
803	LEAKS, FUEL & OIL _____	VISUAL	_____

AVDS-1790-2C - Sheet 16 of 17
SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
AREA NO. 2 LEFT BANK			
901	ELECTRICAL WIRING (INSTALLATION DWG. 11655432) BRACKET ASSY., OIL COOLER, BRACKET, RETAINING STRAPS, SCREWS & LOCKWASHERS BRACKET ASSY. ENG. SHROUD BRACKET, SCREWS, NUTS, RETAINING STRAPS & LOCKWASHERS CLAMPS, SCREWS, WASHERS & ^{REST.} LOCKWASHERS WIRING HARNESES ENGINE & STARTER GROUND ^{STARTER}	VISUAL	
902	LOCKWIRE STARTER SUPPORT SCREWS STARTER GROUND LEADS	VISUAL	
903	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 3 TRANSMISSION MOUNTING FACE END			
1001	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 4 RIGHT BANK			
1101	ELECTRICAL WIRING (INSTRUCTION DWG. #1165532) (# 11655432) BRACKET ASSY., (OIL COOLER), BRACKET, RETAINING STRAPS, SCREWS, BOLTS & LOCKWASHERS BRACKET ASSY. (ENG. SHROUD) BRACKET, SCREWS, NUTS, RETAINING STRAP, LOCKWASHERS BRACKET ASSY. (TRANS. DISCONNECT) BRACKET, SCREWS & LOCKWASHERS, CLAMPS, SCREWS & LOCKWASHERS. ^{WASHERS}	VISUAL	
1102	LEAKS, FUEL & OIL	VISUAL	

BUS BARS

B/17

LOD ASSY., CONVERSION ~~WASHERS~~

STARTER GROUND LEADS

SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
1201	<p style="text-align: center;">AREA NO. 5 TOP</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #11655432) WIRING HARNESS, BRACKETS, SCREWS, LOCKWASHERS, CLAMPS, NUTS. _____ NOTE POSITION OF ELECTRICAL CONNECTORS</p>	VISUAL	_____
1202	<p>GUTER SHROUDS WIRING HARNESS GIDE PANEL SECURED _____</p>	VISUAL	_____
1203	<p>LEAKS, FUEL & OIL _____</p>	VISUAL	_____
1301	<p style="text-align: center;">AREA NO. 6 BOTTOM</p> <p>LEAKS, FUEL & OIL _____</p>	VISUAL	_____
	<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>		

DMWR 9-2815-220

DEFICIENCY SHEET

END ITEM NOMENCLATURE

ENGINE, DIESEL: 12 CYLINDER, 90°V-TYPE, AVDS-1790-2C

USA OR SERIAL NO.	CONTRACT NO.	DATE
-------------------	--------------	------

Item No.	Description of Deficiency	Corrective Action	Contractor Inspector Initials

BLANK

FRAME

FINAL INSPECTION RECORD
FOR
ENGINE, DIESEL: 12-CYLINDER, 90°V-TYPE, AVDS-1790-2D
Sheet 1 of 17

DYNAMOMETER TESTS AND FINAL INSPECTION

SERIAL NO. _____

CONTRACT NO. _____

DYNAMOMETER TEST

FINAL INSPECTION

CONTRACTOR INSPECTOR
& DATE _____

GOVERNMENT INSPECTOR
& DATE _____

INSTRUCTIONS TO INSPECTOR

1. CONTRACTOR INSPECTION AND DATA SHALL BE COMPLETED PRIOR TO SUBMISSION TO GOVERNMENT INSPECTOR FOR ACCEPTANCE.
2. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF MIL-E-62177(AT)
3. INSPECTIONS SHALL BE PERFORMED TO DETERMINE CONFORMANCE WITH ENGINE DWG. 11684000 AND REFERENCE DWGS. SPECIFIED.
4. DYNAMOMETER TEST RESULTS SHALL BE RECORDED ON FINAL RUN.
5. THE FOLLOWING CHARACTERISTICS MUST BE VISUALLY REVIEWED AND ALL DEFICIENCIES AND THEIR CORRECTIVE ACTION SHALL BE LISTED ON ATTACHED DEFICIENCY SHEETS.
 - A. CONDITION: ALL PARTS MUST EXHIBIT NO EVIDENCE OF DAMAGE, MUTILATION, OR POOR WORKMANSHIP OF CONSTRUCTION.
 - B. COMPLETENESS OF ASSEMBLY AND SECURED: ALL MOUNTING BRACKETS, BOLTS, NUTS, RIVETS, WASHERS, ETC. MUST BE COMPLETE AND SECURED. ANY EVIDENCE OF PARTS BEING INCOMPLETE AND IMPROPERLY SECURED WILL BE CAUSE FOR REJECTION.

- C. **ROUTING, CLIPPING AND CLEARANCES:** ALL WIRING HARNESES, FUEL, OIL AND AIR LINES MUST BE PROPERLY ROUTED AND CLIPPED PER THEIR RESPECTIVE INSTALLATION DRAWING. SUFFICIENT CLEARANCES BETWEEN ADJACENT MOVING PARTS OR PARTS IN EXCESS OF 400⁰ F MUST BE MAINTAINED TO INSURE THERE CAN BE NO DAMAGE TO THE LINES OR WIRING HARNESES. PHYSICALLY HANDLE THE ITEM TO VERIFY IT IS SECURED.
- D. **PAINT:** PAINTED AREAS MUST BE THOROUGHLY COVERED. THERE MUST BE NO EVIDENCE OF THIN AREAS.
6. NO ERASURES SHALL BE MADE TO CHANGE SYMBOLS, SIGNATURES OR DATA.
7. INSPECTORS SHALL SIGN FOR EACH ITEM, WHEN ALL CHARACTERISTICS OF THE ITEM ARE ACCEPTABLE, USING THE SYMBOLS LISTED BELOW.

SYMBOLS: (✓) ACCEPTABLE (X) UNACCEPTABLE (O) NOT APPLICABLE

8. SEQUENCE OF INSPECTION IS DIVIDED INTO SIX (6) AREAS AS VIEWED FROM DAMPER END OF ENGINE AS FOLLOWS:

AREA NO. 1 DAMPER END

AREA NO. 2 LEFT BANK

AREA NO. 3 TRANSMISSION MOUNTING FACE END

AREA NO. 4 RIGHT BANK

AREA NO. 5 TOP

AREA NO. 6 BOTTOM

SECTION A - DYNAMOMETER TEST

1. GOVERNOR SETTING

HIGH SPEED - FULL LOAD _____ (2400-2450) NO LOAD _____ (²⁶⁶⁰2640 MAX.)
 LOW SPEED - NO LOAD _____ (700-750)
 RPM STABILIZE - FULL LOAD _____ (WITHIN 30 SECONDS)
 SEAL _____

2. HORSEPOWER & TORQUE

CORRECTED GHP - 2400 RPM _____ (735-780)
 CORRECTED TORQUE - 2400 RPM _____ (1609-1707)
 CORRECTED TORQUE - 1800 RPM _____ (1770-1842)
 CORRECTED GHP - 1800 RPM _____ (607-631)

3. FUEL CONSUMPTION

LBS/CGHP/HR - 2400 RPM _____ (0.420)
 1800 RPM _____ (0.400)
 (0.409)

4. OIL CONSUMPTION (LUBRICATING)

LBS/CGHP/HR - FULL THROTTLE _____ (.0075 MAX)

5. OIL PRESSURE

GALLERY OIL PRESSURE AT OIL TEMP OF 140° - 250° F.
 GRADE 30 OIL - 2400 RPM _____ (40-70) PSI, 700 RPM _____ (15 MIN) PSI

6. OIL TEMPERATURE

OIL COOLER OUTLET - FULL THROTTLE _____ (250° F. MAX.)
 SUMP - FULL THROTTLE _____ (140° F. - 250° F.)

SECTION A - DYNAMOMETER TEST

7. CYLINDER TEMPERATURE

EXHAUST GAS TEMP MAX. _____ (1250° F. MAX.)

8. EXHAUST SMOKE DENSITY

ENGINE RPM

VISUAL NO.

METER NO.

1800

3

~~3.5~~ 4.0

2000

3

~~3.2~~ 3.7

2200

2

~~2.6~~ 3.2

2400

1

~~2.4~~ 3.0

9. OIL LEAKS _____

10. FUEL LEAKS _____

11. PRESERVE FUEL SYSTEM _____

12. MANIFOLD HEATER R & L BANK FUNCTIONAL _____

13. METER TIME TOTALIZING FUNCTIONAL _____

14. ACCESSORIES

TYPE

MFG. NAME

SERIAL NO.

GENERATOR _____

STARTER _____

FUEL INJ PUMP ASSY. _____

TURBO SUPERCHARGER
(LEFT BANK) _____

TURBO SUPERCHARGER
(RIGHT BANK) _____

AVDS-1790-2D - Sheet 5 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	<p style="text-align: center;"><i>AREA No. 1 DAMPOR END CHARACTERISTIC</i></p>	Method of Inspection	MFR's Insp. Initials
101	CONNECTORS (OIL COOLER HOSES) L & R BANK GASKETS, NUTS, HOSE ASSYS, SCREWS, NUTS SCREWS, NUTS ; ADAPTERS & ANNULAR GASKETS	VISUAL	
102	PRIMARY FUEL FILTER ASSY. BRACKET, SCREWS, NUTS, ELBOW, ADAPTER, HOSE ASSYS, (PRIMARY FUEL FILTER TO FUEL CHECK VALVE & PRIMARY FUEL FILTER TO ENGINE), BULKHEAD & BLEEDER VALVE NOTE: INLET LOCATION	VISUAL	
103	CAMSHAFT END COVER PLATE R. BANK MTG. SCREWS, LOCK WASHERS, & GASKET	VISUAL	
104	TACHOMETER DRIVE ADAPTER SCREWS & WASHERS LOCKWASHERS	VISUAL	
105	THROTTLE CONTROL ASSY. MTG. BRACKET, SCREWS, LOCKWASHERS, BEARING & SNAP RINGS LEVER, BEARINGS, SNAP RINGS, ADJUSTING SCREW, LOCK NUT, BOLT, NUT & STOP PIN SPRING & SPACERS LEVER, SCREW, LOCKWASHER & STOP PIN LEVER, RINGS, WASHERS & COTTER PIN LEVER, BOLT, LOCKWASHER & STOP PIN CROSS SHAFT, SNAP RINGS & BEARING OVERTRAVEL (BOTH DIRECTIONS)	VISUAL Functional	
106	SHROUDS BOLTS, SCREWS & LOCKWASHERS PAINT	VISUAL	
107	FIRE EXTINGUISHER CONNECTOR	VISUAL	
108	FUEL HOSE ASSY., WASHER, ELBOW & CLAMP (SECONDARY FILTER TO ENGINE)	VISUAL	

111D SMOKE GENERATING FUEL SHUT-OFF
VALVE, BRACKET, SCREWS, LOCKNUTS,
ELBOW, HOSE ASSY (SHUT-OFF VALVE
T-TEE)



AVDS-1790-2D - Sheet 6 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
109	CONNECTOR (FUEL SHUT-OFF LEAD) MTG. SCREWS	VISUAL	
110	SECONDARY FUEL FILTER WATER SEPERATOR <i>Gaskets</i> , MTG. BRACKET, SCREWS, LOCK- WASHERS & CLAMP HOSE ASSY. (FUEL PUMP TO FUEL WATER SEPERATOR), ELBOW, & BLEEDER VALVE & <i>pipe Plug</i> LOW & HIGH WATER SENSOR CONNECTORS LOW & HIGH WATER SENSORS	VISUAL	
111	LIFTING EYES L & R BANK GASKET, MTG. NUTS	VISUAL	
112	ENGINE INSTALLATION GUIDES L & R BANK MTG. NUTS & WASHERS	VISUAL	
113	OIL COOLER VENTS L & R BANK NIPPLE, HOSE ASSYS, TEE, CLAMPS & CONNECTORS	VISUAL	
114	OIL FILTER COVER GASKET, MTG NUTS, WASHERS, SCREW & SEAL INSTRUCTION PLATE, DRIVE SCREWS, & WASHERS	VISUAL	
115	OIL FILTER AND OIL COOLER BY-PASS PLUGS & GASKETS	VISUAL	
116	DAMPER HSG. OIL DRAIN VALVE, GASKET & ADAPTER (NOTE VALVE IN CLOSED POSITION)	VISUAL	
117	CRANKSHAFT DAMPER HSG. TO CRANKCASE, MTG. NUTS & WASHERS	VISUAL	
118	MISC. PIPE PLUGS		

AVDS-1790-2D - Sheet 7 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
119	PRIMER SOLENOID & FILTER ASSY MTG. BRACKET, SCREWS, WASHERS, NUTS, NIPPLE, ELBOW, TEE, CONNECTOR & CLAMP	VISUAL	
120	FUEL CHECK VALVE ASSY. MTG. BRACKET, SCREWS, WASHERS & LOCKWASHERS TUBE ASSY. (FUEL CHECK VALVE TO SOLENOID VALVE & FILTER ASSY.) TEE, CONNECTORS, REDUCER, & FILTER	VISUAL	
121	SENDING UNIT, SWITCHES, ADAPTER, REDUCERS & ELBOW	VISUAL	
122	OIL PRESSURE REG. VALVE COVER, GASKET, MTG. NUTS & WASHERS	VISUAL	
123	FUEL WATER SEPARATOR DRAIN MTG. BRACKET, NUT, DRAIN COCK, TEE, CONNECTOR, NUT, WASHER, HOSE ASSY. (DRAIN TO SECONDARY FUEL FILTER).		
124	<i>Loc. 1120-1122</i> ELBOW & HOSE ASSY. (DRAIN TO DRAIN CONTROL SOLENOID VALVE).	VISUAL	
124	FUEL PUMP ASSY. ADAPTER, GASKETS, MTG. NUTS, WASHERS, CONNECTORS & TUBE ASSY TO CHECK VALVE CLAMP	VISUAL	
125	CRANKSHAFT DAMPER HSG. TO OIL PAN, MTG. BOLTS & WASHERS	VISUAL	
126	METER, TIME TOTALIZING	VISUAL	
127	LEAKS, FUEL & OIL	VISUAL	

BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins Initials
	AREA NO. 2 LEFT BANK		
201	OIL COOLERS WITH SCREENS, SCREWS ^{WASHERS} BOLTS, LOCKWASHERS & BRACKETS	VISUAL	
202	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	
203	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
204	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS & LOCKWASHERS	VISUAL	
205	LOWER OIL FILLER TUBE ASSY. GASKET, MTG. SCREWS & SEALS	VISUAL	
206	OIL LEVEL INDICATOR TUBE ASSY. GASKET, MTG. NUTS SPRING, SCREWS, CAP ASSY. & FUNCTION OIL LEVEL GAGE ROD 11684006 ON NO. 1 ENGINE	VISUAL VISUAL	
207	INTAKE MANIFOLD MANIFOLD, PLUG TUBES, GASKETS, FLANGES, LOCK- NUTS, & LOCKWASHERS ^{NUTS} ELBOW, GASKET, NUTS, WASHERS & PLUGS	VISUAL	
208	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
209	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS, CLAMPS & PAINT	VISUAL	

AVDS-1790-20 - Sheet 9 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFG's Insp. Initials
210	ENGINE SHROUDS & COVER SCREWS & LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	_____
211	CRANK CASE NUTS, WASHERS, COTTER PINS	VISUAL	_____
212	OIL PAN PLUG, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	_____
213	TURBOCHARGER ASSY. MTG. BASE, NUTS, WASHERS, MTG. STUDS, NUTS , NIPPLE, CONNECTOR & ELBOW SUPPORT (TURBO TO TRANS.ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS CLAMPS	VISUAL	_____
214	INTAKE TUBE ASSY. (TURBO TO MANIFOLD) ELBOW, GASKET & NUTS HOSE & CLAMPS TUBE, GASKET, & NUTS	VISUAL	_____
215	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT & CONNECTOR & ELBOWS REDUCER	VISUAL	_____

COMPRESSOR COVER TUBE CAPS

302A SMOKE GENERATING SOLENOID VALVES,
BRACKET, SCREW, WASHER, NIPPLE,
ELBOWS, TEE, TUBE ASSYS,
EXHAUST MANIFOLD (R & L), SOLENOID
VALVE OUTLET, RETAINING STRAPS,
PARLEND HALVES, BOLTS & LOCK NUTS.



SECTION B

BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
216	FUEL WATER SEPARATOR DRAIN CONTROLS MTG. PLATE, SCREWS & WASHERS CONTROL ASSY, SCREWS, WASHERS, WIRING HARNESS (CONTROL ASSY. TO VALVE), & CLAMP SOLENOID VALVE, SCREWS & WASHERS NIPPLE, HOSE CONNECTION , ELBOW & TUBE ASSY.	VISUAL	
217	STARTER & MTG. NUTS SUPPORT, BOLTS & WASHERS CRADLE, NUTS, WASHERS, U-BOLT, BARS & NUTS ADAPTER HSG., GASKETS, NUTS & WASHERS	VISUAL	
218	STARTER RELAY MODULE MTG. BRACKET, SCREWS & WASHERS SPACER, SCREWS & NUTS	VISUAL	
219	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 3			
TRANSMISSION MTG. FACE END			
301	SHROUDS, COVERS & PLATES ^{CLIPS,} BOLTS, NUTS, WASHERS, LOCK-WASHERS, SCREWS, GROMMETS & PAINT	VISUAL	
302	FUEL SOLENOID VALVE BRACKET, MTG. BOLTS WITH LOCKWASHERS, SCREWS, WASHERS, ELBOW S, NIPPLE VALVE & TUBE ASSY. TO FUEL RETURN COUPLING, ELBOW, TEE, TUBE ASSYS. TO FLAME HEATER & CLAMPS (R & L BANK)	VISUAL	
303	ELBOW (TURBO OIL SUPPLY) L & R BANK WASHERS, CONNECTORS, SHIELDED, HOSE ASSY. TO TURBO, CLAMPS, SCREWS, AND LOCKWASHERS	VISUAL	

SECTION B

BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
304	CONNECTOR - FUEL INJECTOR FUEL RETURN NUT & WASHER	VISUAL	
305	BREATHER TUBE ASSY, HOSE, CLAMP HOSE & CLAMPS <i>HOSE &</i> TUBE ASSY, HOSE & CLAMPS		
306	CAMSHAFT HOUSING (RIGHT & LEFT BANK) GASKET, SCREWS & WASHERS <i>& LOCKWASHERS</i>	VISUAL	
307	COVER PLATE, CAMSHAFT HSG. (R & L BANK) GASKET, SCREWS & WASHERS	VISUAL	
308	ADAPTER, CAMSHAFT DRIVE (R & L BANK) GASKET, NUTS & WASHERS	VISUAL	
309	FLANGE, CAMSHAFT DRIVE (R & L BANK) GASKET, SCREWS, WASHERS, LOCKWASHERS, HOSE & CLAMP	VISUAL	
310	EXHAUST MANIFOLD <i>PIPE</i> TUBE ASSYS (R & L BANK) GASKET, BOLTS, NUTS, WASHERS & PIPE PLUGS <i>CLAMPING BRACKETE, U-BOLTS, LOCKWASHERS & NUTS</i>	VISUAL	
311	ACCESSORY DRIVE HOUSING MTG. NUTS & WASHERS	VISUAL	
312	TURBO TIE ROD ASSY. TIE ROD, MTG. SCREWS, LOCKWASHERS, <i>CLAMP & SET</i> & CLAMP, BRACES, GROMMETS, SCREWS, NUTS, WASHERS, & BOLTS	VISUAL	
313	LIFTING EYE SCREWS & LOCKWIRE	VISUAL	
314	FLYWHEEL <i>FLYWHEEL</i> BOLTS, LOCKPLATE, DOWEL & GEARSHAFT	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's In: Initials
315	ADAPTER - TRANSMISSION NUTS, LOCKWASHERS BOLTS & DOWELS TIMING POINTER & SCREWS & LOCKWASHERS	VISUAL	
316	GENERATOR AIR EXHAUST ELBOW & CLAMPS HOSE	VISUAL	
317	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 4 RIGHT BANK			
401	OIL COOLERS WITH SCREENS, BRACKETS, SCREWS & BOLTS & LOCKWASHERS	VISUAL	
402	THERMOSTATIC VALVES & GASKETS ENG. & TRANS OIL COOLERS	VISUAL	
403	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
404	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS & LOCKWASHERS.	VISUAL	
405	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, NUTS, LOCKWASHERS & LOCKNUTS ELBOW, GASKET, NUTS, WASHERS & PLUGS	VISUAL	
406	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
407	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS & PAINT	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
408	ENGINE SHROUDS & COVER SCREWS, LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	_____
409	CRANKCASE PIPE PLUGS, NUTS, WASHERS, COTTER PINS, DATA AND OVER- HAUL PLATES W/DRIVE SCREWS ENGINE SERIAL NO. REQ'D. ENGINE P/N 11684000 REQ'D. CONTRACT NO. REQ'D. SENDING UNIT, ADAPTER & ELBOW	VISUAL	_____
410	TURBOCHARGER ASSY. TURBO, MTG. BASE, NUTS, WASHERS, MTG. STUDS, NIPPLE, CONNECTOR & ELBOW SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS	VISUAL	_____
411	INTAKE TUBE ASSY. (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSE & CLAMPS TUBE, GASKET & NUTS	VISUAL	_____
412	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) CLAMPS, SCREWS, & NUTS SPRAY NOZZLE, HOLDER, NUT, CONNECTOR & ELBOWS <i>REDUCER</i>	VISUAL	_____

COMPRESSOR COVER TUBE CAPS

S02A METER, TIME TOTALIZING
SCREWS & LOCKWASHERS

S02B STARTER RELAY MODULE
SCREWS & LOCKWASHERS

S02C TUBE ASSY SMOKE GENERATING
FUEL SHUT-OFF VALVE OUTLET
BULKHEAD ELBOW & CLAMPS

S02D OIL SAMPLING BRACKET,
BOLTS, LOCKWASHERS, DRAIN COCKS,
HOSE ASSYS, CLAMPS, TEE &
ADAPTER



AVDS-1790-2D - Sheet 14 of 17
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's In: Initials
413	GENERATOR ASSY. ^{SCREWS,} SUPPORT, BOLTS, WASHERS CRADLE, NUTS & WASHERS, ^{SCREWS & WASHERS} "U" BOLT, BARS, & NUTS. TUBE, BRACKETS, ^{STRAPS,} SCREWS, WASHERS & LOCKWASHERS BOOT, ^{PIPE ASSY,} CLAMPS, TUBE, SUPPORT, CLAMP, WASHERS, SCREWS, LOCKWASHERS, ELBOW & CLAMPS	VISUAL	
414	OIL PAN PIPE PLUGS, MTC. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
415	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 5 TOP			
501	HOUSING, VANE, ENGINE COOLING FAN (FRONT & BACK) SCREWS, WASHERS, & LOCKWASHERS	VISUAL	
502	SHROUDS & COVER PLATES SCREWS, WASHERS, LOCKWASHERS & NUTS	VISUAL	
503	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 6 BOTTOM			
601	OIL PAN ASSY. ADAPTER, GASKET, SCREWS, PLUG & GASKET	VISUAL	
602	LEAKS, FUEL & OIL	VISUAL	

SPARE
BASIC ENGINE ASSEMBLY INSPECTION
 SECTION #C

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
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THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS. THE ENGINE IS NOW READY FOR WIRE HARNESS INSTALLATION.

CONTRACTOR INSPECTOR _____
 & DATE 10/14/10

CONTRACTOR INSPECTION _____ DATE _____

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
701	<u>ELECTRICAL HARNESS OPERATION</u> STARTER MOTOR _____ STARTER LOW VOLTAGE PROTECTION _____ GENERATOR _____ MANIFOLD HEATER (RT) _____ MANIFOLD HEATER (LT) _____ ENG. OIL TEMP _____ ENG. HI OIL TEMP _____ FUEL SHUT-OFF _____ FUEL WATER SEPARATOR _____ ENG. LOW OIL PRESSURE _____ HOUR METER _____ FUEL SOLENOID _____ ENGINE OIL PRESSURE _____ <i>SMALL GENERATOR FUEL SOLENOID</i>	Functional	_____
702	PRESERVE FUEL SYSTEM _____	VISUAL	_____
703	LEAKS, FUEL & OIL _____ <i>INSPECTION AT 1790-20-1000</i>	VISUAL	_____

AVDS-1790-20 - Sheet 16 of 17
SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
701	GENERATOR AIR SNORKEL PRESSURE TEST @ 5 PSI	Functional	
AREA NO. 1 DAMPER END			
801	ELECTRICAL WIRING (INSTALLATION DWG. #11682727) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS	VISUAL	
802	DAMPER HSG. TO OIL PAN MTG. SCREWS & WASHERS	VISUAL	
AREA NO. 2 LEFT BANK			
901	ELECTRICAL WIRING (INSTALLATION DWG. #11682727) BRACKET ASSY., OIL COOLER, BRACKET, RETAINING STRAPS, SCREWS & LOCKWASHERS BRACKET ASSY. ENG. SHROUD BRACKET, SCREWS, NUTS, RETAINING STRAPS & LOCK- WASHERS; CLAMPS, SCREWS WASHERS &, LOCKWASHERS; PRO LOCKWIRE STARTER SUPPORT SCREWS WIRING HARNESSES ENGINE, STARTER Ground ^{to MOTOR}	VISUAL	
AREA NO. 3 TRANSMISSION MOUNTING FACE END			
1001	GENERATOR AIR OUTLET ELBOW & CLAMPS	VISUAL	

AVOS-1790-2D - Sheet 17 of 17
SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
1101	<p style="text-align: center;">AREA NO. 4 RIGHT BANK</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #11682727) BRACKET ASSY., (OIL COOLER), BRACKET, RETAINING STRAP, SCREWS, BOLTS & LOCKWASHERS, BRACKET SCREWS, NUTS, RETAINING STRAP, LOCKWASHERS BRACKET ASSY. (TRANS. DISCONNECT) BRACKET, SCREWS & LOCKWASHERS CLAMPS, SCREWS & LOCKWASHERS, <u>WASHERS & NUTS</u></p>	VISUAL	_____
1102	<p>LEAD ASSYS. GENERATOR & GENERATOR BLOWER GENERATOR GROUND LEAD GENERATOR AIR INTAKE TUBE, BRACKETS, SCREWS, BOLTS, WASHERS, LOCKWASHERS, HOSE HOSE, CLAMPS & ELBOW</p>	VISUAL	_____
1201	<p style="text-align: center;">AREA NO. 5 TOP</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #11682727) WIRING HARNESS, BRACKETS, SCREWS LOCKWASHERS, CLAMPS, NUTS, NOTE POSITION OF ELECTRICAL CONNECTORS</p>	VISUAL	_____
1202	<p>OUTER SHROUDS REMOVED SECURED</p>		
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>			

DEFICIENCY SHEET

END ITEM NOMENCLATURE

ENGINE, DIESEL: 12 CYLINDER, 90°V-TYPE, AVDS-1790 -2D

USA OR SERIAL NO.	CONTRACT NO.	DATE
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Item No.	Description of Deficiency	Corrective Action	Contractor Inspector Initials

Item No.	DEFICIENCY SHEET		Contractor Inspector Initials
	Description of Deficiency	Corrective Action	
APPROVED BY CONTRACTOR INSPECTOR		APPROVED BY GOVERNMENT INSPECTOR	

BLANK

FRAME

FINAL INSPECTION RECORD
FOR

ENGINE, DIESEL: 12-CYLINDER, 90°V-TYPE, AVDS-1790-2DR
Sheet 1 of ~~75~~
18

DYNAMOMETER TESTS AND FINAL INSPECTION

SERIAL NO. _____

CONTRACT NO. _____

DYNAMOMETER TEST

FINAL INSPECTION

CONTRACTOR INSPECTOR
& DATE _____

GOVERNMENT INSPECTOR
& DATE _____

INSTRUCTIONS TO INSPECTOR

1. CONTRACTOR INSPECTION AND DATA SHALL BE COMPLETED PRIOR TO SUBMISSION TO GOVERNMENT INSPECTOR FOR ACCEPTANCE.
2. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF MIL-E-62177(AT)
3. INSPECTIONS SHALL BE PERFORMED TO DETERMINE CONFORMANCE WITH ENGINE DWG. 11684150 AND REFERENCE DWGS. SPECIFIED.
4. DYNAMOMETER TEST RESULTS SHALL BE RECORDED ON FINAL RUN.
5. THE FOLLOWING CHARACTERISTICS MUST BE VISUALLY REVIEWED AND ALL DEFICIENCIES AND THEIR CORRECTIVE ACTION SHALL BE LISTED ON ATTACHED DEFICIENCY SHEETS.
 - A. CONDITION: ALL PARTS MUST EXHIBIT NO EVIDENCE OF DAMAGE. MUTILATION OR POOR WORKMANSHIP OF CONSTRUCTION.
 - B. COMPLETENESS OF ASSEMBLY AND SECURED: ALL MOUNTING BRACKETS, BOLTS, NUTS, RIVETS, WASHERS, ETC. MUST BE COMPLETE AND SECURED. ANY EVIDENCE OF PARTS BEING INCOMPLETE AND IMPROPERLY SECURED WILL BE CAUSE FOR REJECTION.

- C. ROUTING, CLIPPING AND CLEARANCES: ALL WIRING HARNESSSES, FUEL, OIL AND AIR LINES MUST BE PROPERLY ROUTED AND CLIPPED PER THEIR RESPECTIVE INSTALLATION DRAWING. SUFFICIENT CLEARANCES BETWEEN THESE AND ADJACENT PARTS MUST BE MAINTAINED TO INSURE THERE CAN BE NO INTERFERENCE. PHYSICALLY HANDLE THE ITEM TO VERIFY IT IS SECURED.
- D. PAINT: PAINTED AREAS MUST BE THOROUGHLY COVERED. THERE MUST BE NO EVIDENCE OF THIN AREAS.
6. NO ERASURES SHALL BE MADE TO CHANGE SYMBOLS, SIGNATURES OR DATA.
7. INSPECTORS SHALL SIGN FOR EACH ITEM, WHEN ALL CHARACTERISTICS OF THE ITEM ARE ACCEPTABLE, USING THE SYMBOLS LISTED BELOW.

SYMBOLS: (✓) ACCEPTABLE (X) UNACCEPTABLE (O) NOT APPLICABLE

8. SEQUENCE OF INSPECTION IS DIVIDED INTO SIX (6) AREAS AS VIEWED FROM DAMPER END OF ENGINE AS FOLLOWS:

AREA NO. 1 DAMPER END

AREA NO. 2 LEFT BANK

AREA NO. 3 TRANSMISSION MOUNTING FACE END

AREA NO. 4 RIGHT BANK

AREA NO. 5 TOP

AREA NO. 6 BOTTOM

SECTION A - DYNAMOMETER TEST

1. GOVERNOR SETTING

HIGH SPEED - FULL LOAD _____ (2400-2450) NO LOAD _____ (²⁶⁶⁰2640 MAX.)

LOW SPEED - NO LOAD _____ (⁷⁰⁰⁻⁷⁵⁰~~675-725~~)

RPM STABILIZE - FULL LOAD _____ (WITHIN 30 SECONDS)

SEAL _____

2. HORSEPOWER & TORQUE

CORRECTED GHP - 2400 RPM _____ (735-780)

CORRECTED TORQUE - 2400 RPM _____ (1609-1707)

CORRECTED TORQUE - 1800 RPM _____ (1770-1842)

CORRECTED GHP - 1800 RPM _____ (607-631)

3. FUEL CONSUMPTION

LBS/CGHP/HR - 2400 RPM _____ (0.420)

1800 RPM _____ (0.400)
(0.409)

4. OIL CONSUMPTION (LUBRICATING)

LBS/CGHP/HR - FULL THROTTLE _____ (.0075 MAX)

5. OIL PRESSURE

GALLERY OIL PRESSURE AT OIL TEMP OF 140° - 250° F.

GRADE 30 OIL - 2400 RPM _____ (40-70) PSI, 700 RPM _____ (15 MIN) PSI

6. OIL TEMPERATURE

OIL COOLER OUTLET - FULL THROTTLE _____ (250° F. MAX.)

SUMP - FULL THROTTLE _____ (140° F. - 250° F.)

SECTION A - DYNAMOMETER TEST

7. CYLINDER TEMPERATURE

EXHAUST GAS TEMP MAX. _____ (1250° F. MAX.)

8. EXHAUST SMOKE DENSITY

<u>ENGINE RPM</u>	<u>VISUAL NO.</u>	<u>METER NO.</u>
1800	_____ 3	_____ 3.5 4.0
2000	_____ 3	_____ 3.2 3.7
2200	_____ 2	_____ 2.6 3.2
2400	_____ 1	_____ 2.4 3.0

9. OIL LEAKS _____

10. FUEL LEAKS _____

11. ~~MANIFOLD FUEL SYSTEM~~ _____

12. ~~MANIFOLD HEATER R & L BANK FUNCTIONAL~~ _____

13. ~~METER TIME TOTALIZING FUNCTIONAL~~ _____

11. ACCESSORIES

<u>TYPE</u>	<u>MFG. NAME</u>	<u>SERIAL NO.</u>
GENERATOR	_____	_____
STARTER	_____	_____
FUEL INJ PUMP ASSY.	_____	_____
TURBO SUPER CHARGER (LEFT BANK)	_____	_____
TURBO SUPER CHARGER (RIGHT BANK)	_____	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item Nb.	CHARACTERISTIC	Method Of Inspection	MFR's Insp. Initials
	AREA NO. 1 DAMPER END		
101	CONNECTORS (OIL COOLER HOSES) L & R BANK GASKETS, NUTS, HOSE ASSYS, CLAMPS , SCREWS, NUTS, ADAPTERS & ANNULAR GASKETS	VISUAL	
102	PRIMARY FUEL FILTER ASSY. BRACKET, SCREWS, NUTS, CLAMP, ELBOW, ADAPTER, HOSE ASSYS. (PRIMARY FUEL FILTER TO FUEL CHECK VALVE & PRIMARY FUEL FILTER TO ENGINE), BULKHEAD & BLEEDER VALVE NOTE INLET LOCATION	VISUAL	
103	CAMSHAFT END COVER PLATE ASSY. R. BANK MTG. SCREWS, LOCKWASHERS, & GASKET	VISUAL	
104	TACHOMETER DRIVE ADAPTOR CAMSHAFT END PLATE COVER R. BANK GASKET, SCREWS, WASHERS & LOCKWIRE SCREWS & WASHERS	VISUAL	
105	THROTTLE CONTROL ASSY. SCREWS BOLTS HOUSING, SCREWS, WASHERS, STOP PINS, COVER, GASKET, SCREWS, WASHERS & LOCKWASHERS SOLENOID, SCREWS LOCKWASHERS & GASKET HOUSING, ADJUSTING SCREW , LOCK NUT & SPACER LINK LEVER, BRACKET, ADJUSTING SCREW , LOCK NUT, STOP PIN, BEARINGS, SNAP RINGS, SCREW NUT SPACER LOCK & SPACER SPRING AND SPACERS LEVER, SCREW, LOCKWASHER & STOP PIN CROSS SHAFT, SNAP RINGS & BEARING LEVER, RINGS, WASHERS & COTTER PIN LEVER, LOCKWASHER, SCREW & STOP PIN	VISUAL	

111P SMOKE GENERATING FUEL SHUT-OFF
VALVE, BRACKET SCREENS, LOCKNUTS,
ELBOW, 1.056 ASSY (~~THE~~ SHUT-OFF VALVE TO TBE).



BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
106	SHROUDS BOLTS, SCREWS, LOCKWASHERS & PAINT	VISUAL	
107	FIRE EXTINGUISHER CONNECTOR	VISUAL	
108	FUEL HOSE ASSY., WASHERS, ELBOWS & CLAMP (SECONDARY FILTER TO ENGINE)		
109	CONNECTOR (FUEL SHUT-OFF LEAD) MTG. SCREWS	VISUAL	
110	SECONDARY FUEL FILTER WATER SEPARATOR GASKET, MTG. BRACKET, SCREWS, WASHERS, LOCKWASHERS & CLAMP HOSE ASSY. (FUEL PUMP TO FUEL WATER SEPARATOR) ELBOW, BLEEDER VALVE & PIPE PLUG LOW & HIGH WATER SENSOR CONNECTORS, LOW & HIGH WATER SENSORS	VISUAL	
111	LIFTING EYES (L & R BANK) GASKET, MTG. NUTS & SPACERS	VISUAL	
112	HOSE ASSY (FUEL SUPPLY) & QUICK DISCONNECT FUEL RETURN TO TANK CONNECTOR COUPLING	VISUAL	
113	OIL COOLER VENTS R & L BANK NIPPLE, HOSE ASSYS., TEE, CLAMPS, & CONNECTORS	VISUAL	
114	OIL FILTER COVER GASKET, MTG. NUTS, WASHERS, SCREW & SEAL INSTRUCTION PLATE, SCREWS & WASHERS OIL SAMPLING DRAIN COCK	VISUAL	
115	OIL FILTER & OIL COOLER BY-PASS PLUGS & GASKETS	VISUAL	
116	DAMPER HSG. OIL DRAIN VALVE, GASKET & ADAPTER (NOTE VALVE IN CLOSED POSITION)	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
117	CRANKSHAFT DAMPER HSG. TO CRANK-CASE, MTG. NUTS & WASHERS	VISUAL	_____
118	MISCELLANEOUS PIPE PLUGS	VISUAL	_____
119	PRIMER SOLENOID & FILTER ASSY. MTG. BRACKETS, SCREWS, WASHERS, NUTS, NIPPLE, ELBOW, TEE, CONNECTOR & CLAMP	VISUAL	_____
120	FUEL CHECK VALVE ASSY. MTG. BRACKET, SCREWS, WASHERS, LOCKWASHERS, PLUG ADAPTER NIPPLE SOLENOID TUBE ASSY (FUEL CHECK VALVE TO SOLENOID VALVE & FILTER ASSY.) TEE, CONNECTOR, REDUCER , ELBOW & REDUCER FILTER & ELBOW	VISUAL	_____
121	SWITCHES TRANSMITTER, ELBOW & REDUCERS PIPE PLUG	VISUAL	_____
122	OIL PRESSURE REG. VALVE COVER, GASKET, MTG. NUTS & WASHERS	VISUAL	_____
123	FUEL WATER SEPARATOR DRAIN MTG. BRACKET, NUT, DRAIN COCK, TEE, CONNECTOR, NUT, WASHER HOSE ASSY. (DRAIN TO SECONDARY FUEL FILTER), ELBOW & HOSE ASSY. (DRAIN TO DRAIN CONTROL SOLENOID VALVE)	VISUAL	_____
124	FUEL PUMP ASSY. ADAPTER , GASKET, MTG. NUTS, WASHERS, HOSE ASSY. (TO CHECK VALVE), ELBOWS NIPPLES , ADAPTER & CLAMP	VISUAL	_____
125	CRANKSHAFT DAMPER HSG. TO OIL PAN, MTG. BOLTS & WASHERS	VISUAL	_____
126	METER, TIME TOTALIZING LEAD , CLAMPS, SCREWS & LOCK- WASHERS Locknuts	VISUAL	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
127	POWER TAKE-OFF ASSY. HOUSING, GASKET, NUTS, WASHERS, CLAMPS, ELBOW, & HOSE ASSY. (TO C'CASE) COUPLING, WASHER & NUT COUPLING, WASHER & LOCKWASH	VISUAL	
128	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 2 LEFT BANK			
201	OIL COOLERS WITH SCREENS, VALVES , BRACKETS, BOLTS, WASHERS & LOCKWASHERS	VISUAL	
202	THERMOSTATIC VALVES & GASKETS ENGINE & TRANS. OIL COOLERS	VISUAL	
203	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
204	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS LOCKWIRES, CLAMPS, SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS & LOCKWASHERS	VISUAL	
205	LOWER OIL FILLER TUBE ASSY. GASKET, MTG. SCREWS & SEALS	VISUAL	
206	OIL LEVEL INDICATOR TUBE ASSY GASKET, MTG. NUTS SPRING, SCREWS, CAP ASSY. FUNCTION OIL LEVEL GAGE ROD (Q160-086) (1227575c)	VISUAL	
207	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, LOCK- NUTS, NUTS, LOCKWASHERS, ELBOW, GASKET. NUTS. WASHERS & PLUGS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
208	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	/
209	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, LOCK- WASHERS, CLAMPS & PAINT	VISUAL	
210	ENGINE SHROUDS SCREWS & LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
211	CRANKCASE NUTS, WASHERS, COTTER PINS	VISUAL	
212	OIL PAN PLUG, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
213	TURBOCHARGER ASSY. MTG. BASE, NUTS, WASHERS, MTG. STUDS, MTG. NUTS, NIPPLE, CONNECTOR & ELBOW SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS	VISUAL	
214	INTAKE TUBE ASSY (TURBO TO MANIFOLD) ELBOW, GASKET & NUTS HOSE & CLAMPS TUBE, GASKET & NUTS.	VISUAL	

DUST DETECTOR
PRESSURE SWITCH, BRACKET, SCREWS,
LOCKWASHERS, PACKINGS, ADAPTERS,
HOSE ASSYS (PRESSURE SWITCH INLET
OUTLET)

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's In. Initials
215	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY.) SCREWS, NUTS & CLAMPS SPRAY NOZZLE, HOLDER, NUT REDUCER & ELBOWS	VISUAL	_____
216	FUEL WATER SEPARATOR DRAIN CONTROLS MTG. PLATE, SCREWS & WASHERS CONTROL ASSY, SCREWS, WASHERS, WIRING HARNESS (CONTROL ASSY. TO VALVE), & CLAMP SOLENOID VALVE, SCREWS & WASHERS NIPPLE, ELBOW & TUBE ASSY.	VISUAL	_____
217	STARTER & MTG. NUTS SUPPORT, BOLTS, WASHERS CRADLE, NUTS, WASHERS, U BOLT, BARS & NUTS, ADAPTER HSG. GASKETS, NUTS, & WASHERS.	VISUAL	_____
218	STARTER RELAY MODULE ^{BOLTS, LOCKWASHERS} MTG. BRACKET, SCREWS & WASHERS SPACER, SCREW & NUTS ^{BOLTS, LOCKWASHERS & NUTS}	VISUAL	_____
219	LEAKS, FUEL & OIL	VISUAL	_____
AREA NO. 3 TRANSMISSION MTG. FACE END			
301	SHROUDS, COVERS, & PLATES BOLTS, NUTS, WASHERS, LOCKPLATES, ^{CLIPS, LOCKWASHERS,} SCREWS, GROMMET & PAINT	VISUAL	_____

302A SMOKE GENERATING SOLENOID VALVES, BRACKET,
SCREW, WASHER, NIPPLE, ELBOWS, TEE
TUBE ASSYS EXHAUST MANIFOLD (REL) & SOLENOID
VALVE OUTLET, CLAMPS

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
302	FUEL SOLENOID VALVE BRACKET, MTG BOLTS WITH LOCKWASHERS, SCREWS, WASHERS, ELBOW'S, NIPPLE, VALVE & TUBE ASSY TO FUEL RETURN. COUPLING, ELBOW, TEE, TUBE ASSYS TO FLAME HEATER & CLAMPS (R & L BANK)	VISUAL	
303	ELBOW (TURBO OIL SUPPLY) R & L BANK WASHER, SHOCKED HOSE ASSY. TO TURBO, CLAMPS, SCREWS, & LOCKWASHERS.	VISUAL	
304	CONNECTOR-FUEL INJECTOR FUEL RETURN, NUTS & WASHER, A SNAP RING.	VISUAL	
305	BREATHER HOSE, CLAMP, TUBE, CLAMPS & HOSE.	VISUAL	
306	CAMSHAFT HOUSING (RIGHT & LEFT BANK) GASKET, SCREWS, WASHERS & LOCKWASHERS.	VISUAL	
307	COVER PLATE, CAMSHAFT HSG. (R & L BANK) GASKET, SCREWS & WASHERS.	VISUAL	
308	ADAPTER, CAMSHAFT DRIVE (R & L BANK) NUTS & WASHERS.	VISUAL	
309	FLANGE, CAMSHAFT DRIVE (R & L BANK) GASKET, SCREWS, WASHERS, LOCKWASHERS, HOSE & CLAMP.	VISUAL	
310	EXHAUST MANIFOLD ^{PIPE} TUBE ASSY'S (R & L BANK) GASKET, BOLTS, NUTS, WASHERS, <i>PIPE PLUGS,</i> & SUPPORT. <i>CLAMPING BRACKETS, 4- BOLTS, 8/56 LOCKWASHERS & NUTS</i>	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's In Initials
311	ACCESSORY DRIVE HOUSING MTG. NUTS & WASHERS	VISUAL	
312	TURBO TIE ROD ASSY. TIE ROD, MTG. SCREWS, LOCKWASHERS, SEAT & CLAMP BRACES, GROMMETS, SCREWS, NUTS WASHERS, BOLTS & SPACERS	VISUAL	
313	LIFTING EYE SCREWS & LOCKWASHERS	VISUAL	
314	FLYWHEEL, MOUNTING BOLTS, LOCKWASHERS & DOWELS	VISUAL	
315	TRANSMISSION ADAPTER, MTG, NUTS, LOCKWASHERS, BOLTS & DOWELS	VISUAL	
316	ADAPTER FLYWHEEL, BOLTS, LOCKWASHERS & DOWELS	VISUAL	
317	ADAPTER TRANSMISSION, MOUNTING LOCKWASHERS SCREWS, LOCKNUTS, WASHERS & STUDS	VISUAL	
318	LEVER ASSY. TRANSMISSION CONTROL BOLT, WASHER & NUT SPACER, BOLT, NUT & COTTER PIN	VISUAL	
319	GENERATOR AIR EXHAUST ELBOW & CLAMPS HOSE	VISUAL	
320	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 4 RIGHT BANK			
401	OIL COOLERS WITH SCREENS, SCREWS, BRACKETS, BOLTS; WASHERS LOCKWASHERS	VISUAL	
402	THERMOSTATIC VALVES & GASKETS ENGINE & TRANS. OIL COOLERS	VISUAL	
403	CYLINDER ASSEMBLIES MTG NUTS & COOLING FINS CONDITION	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
404	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS TUBE ASSY. GASKET, SCREWS & LOCKWASHERS	VISUAL	
405	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, NUTS, LOCKWASHERS & LOCKNUTS. ELBOW, GASKET, NUTS, WASHERS, & PLUGS	VISUAL	
406	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
407	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS & PAINT	VISUAL	
408	ENGINE SHROUDS & COVER SCREWS, LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
409	CRANKCASE PIPE PLUGS, ELBOWS NUTS, WASHERS & COTTER PINS DATA & OVERHAUL PLATES WITH DRIVE SCREWS ENGINE SERIAL NO. REQ'D. ENGINE P/N 11684150 REQ'D. CONTRACT NO. REQ'D. SWITCH ELBOW, TEE, NIPPLE, REDUCER & ELBOW SWITCH P/N (MS2459) (10874979)	VISUAL	
410	TURBOCHARGER ASSY. TURBO, MTG. BASE, NUTS, WASHERS, MTG. STUDS, MTG. NUTS , NIPPLE, CONNECTOR & ELBOW SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS	VISUAL	DUST DETECTOR PRESSURE SWITCH, BRACKET, SCREWS, LOCKWASHERS, PACKING ADAPTERS, HOSE ASSYS (PRESSURE SWITCH INLET & OUTLET)

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
411	INTAKE TUBE ASSY. (TURBO TO MANIFOLD) ELBOW, GASKET & NUTS. HOSE & CLAMPS. TUBE, GASKET, & NUTS.	VISUAL	
412	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY.) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT, REDUCER & ELBOWS	VISUAL	
413	GENERATOR ASSY. ^{SCREWS} SUPPORT, BOLTS & WASHERS. CRADLE, NUTS & WASHERS. ^{SCREWS} "U" BOLT, BARS, & NUTS. ^{STRAPS} TUBE, BRACKETS , SCREWS, WASHERS & LOCKWASHERS. BOOT, CLAMPS.	VISUAL	
414	OIL PAN PIPE PLUGS, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
415	GENERATOR AIR SNORKEL PRESSURE TEST @ 5 PSI	Functional	
416	LEAKS FUEL & OIL	VISUAL	
AREA NO. 5 TOP			
501	HOUSING, VANE, ENGINE COOLING FAN (FRONT & BACK) SCREWS, WASHERS & LOCKWASHERS	VISUAL	

502A TUBE ASSY SMOKE GENERATING
FUEL SHUT.OFF VALVE OUTLET
BULKHEAD ELBOW & CLAMPS



SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
502	SHROUDS & COVER PLATES SCREWS, WASHERS, LOCKWASHERS, NUTS	VISUAL	_____
503	LEAKS, FUEL & OIL	VISUAL	_____
AREA NO. 6 BOTTOM			
601	OIL PAN ASSY. ADAPTER, GASKET, SCREWS, PLUG & GASKET	VISUAL	_____
602	LEAKS, FUEL & OIL	VISUAL	_____
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR AND DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>			

~~Basic~~ ^{Some} SECTION ~~B~~ C
ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
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THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS. THE ENGINE IS NOW READY FOR WIRE HARNESS INSTALLATION.

CONTRACTOR INSPECTOR & DATE Walt H. [Signature]

CONTRACTOR INSPECTION _____ DATE _____

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
701	<u>ELECTRICAL HARNESS OPERATION</u> STARTER MOTOR _____ STARTER LOW VOLTAGE PROTECTION _____ GENERATOR _____ MANIFOLD HEATER (RT) _____ MANIFOLD HEATER (LT) _____ ENG.OIL TEMP _____ ENG.HI OIL TEMP _____ FUEL SHUT-OFF _____ FUEL WATER SEPARATOR _____ ENG.LOW OIL PRESSURE _____ HOURMETER _____ FUEL SOLENOID _____ ENGINE OIL PRESSURE _____	Functional	_____
702	SMOKE GENERATOR FUEL SOLENOIDS PRESERVE FUEL SYSTEM _____	VISUAL	_____
703	LEAKS, FUEL & OIL _____ SMOKE GENERATOR FUEL SOLENOIDS	VISUAL	_____

SMOKE GENERATOR FUEL SOLENOIDS
 OIL DETECTOR PRESSURE SWITCHES
 AUXILIARY GENERATOR OIL PRESSURE SWITCH

DMWR 9-2815-220

AVDS-1790-2DR Sheet ¹⁷ 18 of ~~17~~

SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Inst. Initials.
701	GENERATOR AIR SNORKEL PRESSURE TEST @ 5 PSI	Functional	[Signature]
	AREA NO. 1 DAMPER END		
801	ELECTRICAL WIRING (11671980) (INSTALLATION DWG. #11682727) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS TIE-WRAPS	VISUAL	
802	DAMPER HSG. TO OIL PAN MTG. SCREWS & WASHERS	VISUAL	[Signature]
	AREA NO. 2 LEFT BANK		
901	ELECTRICAL WIRING (11671980) (INSTALLATION DWG. #11682727) BRACKET ASSY. OIL COOLER BRACKET, RETAINING STRAP, SCREWS & LOCKWASHERS BRACKET ASSY. ENG. SHROUD BRACKET, SCREWS, NUTS, RETAINING STRAPS & LOCK- WASHERS, CLAMPS, SCREWS WASHERS, & LOCKWASHERS, NUTS & TIE-WRAPS LOCKWIRE STARTER SUPPORT SCREWS LEAD, STARTER GROUND	VISUAL	
	AREA NO. 3 TRANSMISSION MOUNTING FACE END		
1001			
1002	GENERATOR AIR OUTLET ELBOW & CLAMPS	VISUAL	

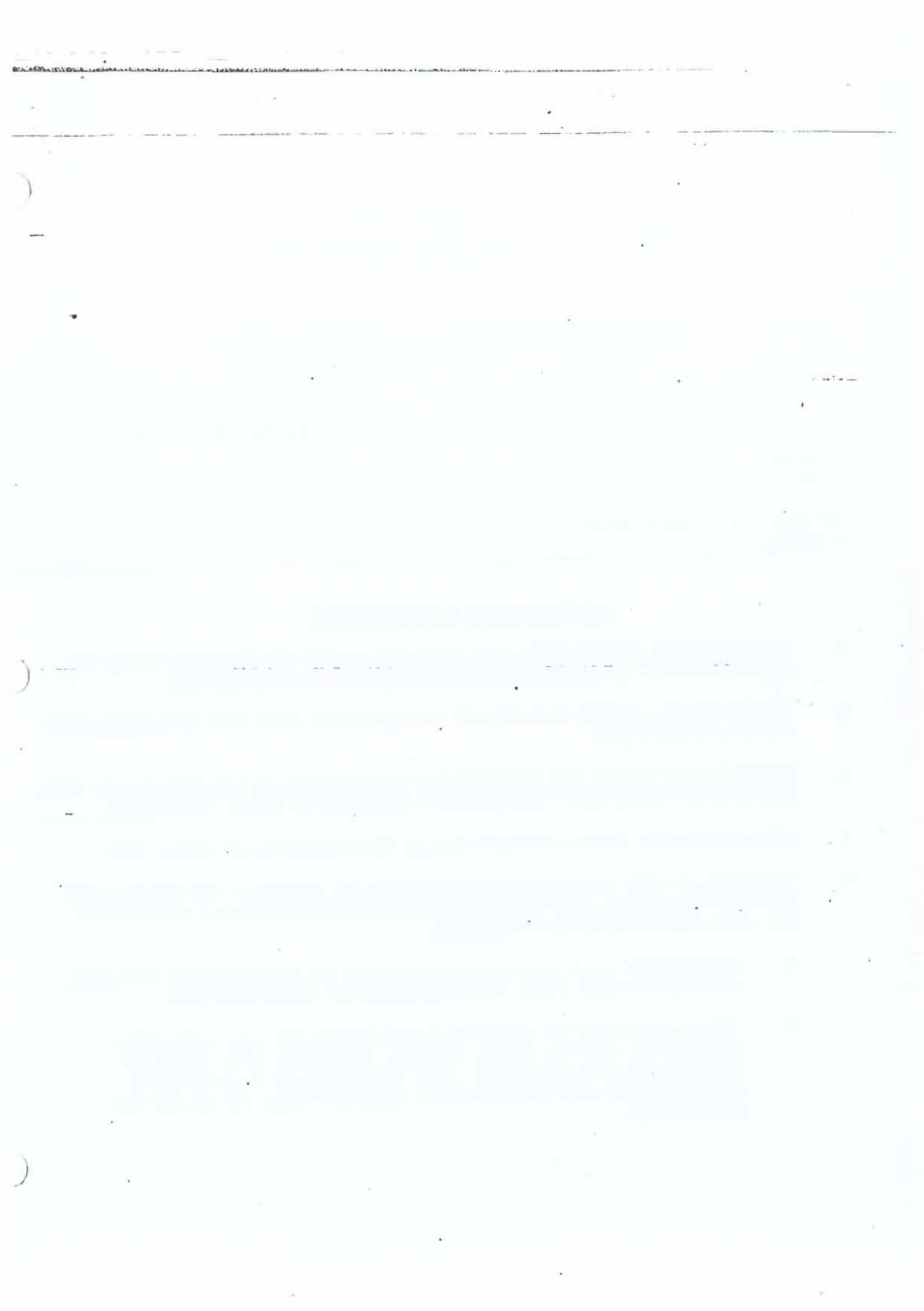
ELECTRICAL WIRING (INSTALLATION DWG. #11671980) 8/39 B/60A/B
 CLAMPS, RETAINING STRAPS, SCREWS,
 BOLTS & LOCKWASHERS
 TIE-WRAPS
 CABLE ASSY, SMOKE SOLENOID VALVES
 WIRING HARNESS, DUST DETECTOR SWITCHES

SECTION C

SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
1101	<p style="text-align: center;">AREA NO. 4 RIGHT BANK</p> <p>ELECTRICAL WIRING (11671980) (INSTALLATION DWG. #H682727) BRACKET ASSY. (OIL COOLER) CLAMPS BRACKET, RETAINING STRAP, SCREWS, BOLTS, & LOCKWASHERS, BRACKET SCREWS, NUTS, RETAINING STRAP, LOCKWASHERS BRACKET ASSY (TRANS. DISCONNECT) BRACKET, SCREWS & LOCKWASHERS = NUTS CLAMPS, SCREWS & LOCKWASHERS TIE WRAPS</p>	VISUAL	
1102	<p>GENERATOR AIR INTAKE TUBE, BRACKETS, SCREWS & BOLTS WASHERS, LOCKWASHERS, NUTS, HOSE, CLAMPS & ELBOW ENGINE WIRING HARNESS LONG GENERATOR GROUND</p>	VISUAL	
1201	<p style="text-align: center;">AREA NO. 5 TOP</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #H682727) (11671980) WIRING HARNESS, BRACKETS, SCREWS LOCKWASHERS, CLAMPS, NUTS, NOTE POSITION OF ELECTRICAL CONNECTORS</p>	VISUAL	
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>			

B/40
B/LOB



FINAL INSPECTION RECORD
FOR
ENGINE, DIESEL: 12-CYLINDER, 90°V-TYPE, AVDS-1790-2CA
Sheet 1 of 19

DYNAMOMETER TESTS AND FINAL INSPECTION

SERIAL NO. _____

CONTRACT NO. _____

DYNAMOMETER TEST

FINAL INSPECTION

CONTRACTOR INSPECTOR
& DATE _____

GOVERNMENT INSPECTOR
& DATE _____

INSTRUCTIONS TO INSPECTOR

1. CONTRACTOR INSPECTION AND DATA SHALL BE COMPLETED PRIOR TO SUBMISSION TO GOVERNMENT INSPECTOR FOR ACCEPTANCE.
2. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF MIL-E-62177(AT)
3. INSPECTIONS SHALL BE PERFORMED TO DETERMINE COMFORMANCE WITH ENGINE INSTALLATION 12314611 AND REFERENCE DWGS. SPECIFIED.
4. DYNAMOMETER TEST RESULTS SHALL BE RECORDED ON FINAL RUN.
5. THE FOLLOWING CHARACTERISTICS MUST BE VISUALLY REVIEWED AND ALL DEFICIENCIES AND THEIR CORRECTIVE ACTION SHALL BE LISTED ON ATTACHED DEFICIENCY SHEETS.
 - A. CONDITION: ALL PARTS MUST EXHIBIT NO EVIDENCE OF DAMAGE, MUTILATION, OR POOR WORKMANSHIP OF CONSTRUCTION.
 - B. COMPLETENESS OF ASSEMBLY AND SECURED: ALL MOUNTING BRACKETS, BOLTS, NUTS, RIVETS, WASHERS, ETC. MUST BE COMPLETE AND SECURED. ANY EVIDENCE OF PARTS BEING INCOMPLETE AND IMPROPERLY SECURED WILL BE CAUSE FOR REJECTION.

- C. ROUTING, CLIPPING AND CLEARANCES: ALL WIRING HARNESSSES, FUEL, OIL AND AIR LINES MUST BE PROPERLY ROUTED AND CLIPPED PER THEIR RESPECTIVE INSTALLATION DRAWING. SUFFICIENT CLEARANCES BETWEEN THESE AND ADJACENT PARTS MUST BE MAINTAINED TO INSURE THERE CAN BE NO INTERFERENCE. PHYSICALLY HANDLE THE ITEM TO VERIFY IT IS SECURED.
- D. PAINT: PAINTED AREAS MUST BE THOROUGHLY COVERED. THERE MUST BE NO EVIDENCE OF THIN AREAS.
- 6. NO ERASURES SHALL BE MADE TO CHANGE SYMBOLS, SIGNATURES OR DATA.
- 7. INSPECTORS SHALL SIGN FOR EACH ITEM, WHEN ALL CHARACTERISTICS OF THE ITEM ARE ACCEPTABLE, USING THE SYMBOLS LISTED BELOW.

SYMBOLS: (✓) ACCEPTABLE (X) UNACCEPTABLE (O) NOT APPLICABLE

- 8. SEQUENCE OF INSPECTION IS DIVIDED INTO SIX (6) AREAS AS VIEWED FROM DAMPER END OF ENGINE AS FOLLOWS:

AREA NO. 1 DAMPER END

AREA NO. 2 LEFT BANK

AREA NO. 3 TRANSMISSION MOUNTING FACE END

AREA NO. 4 RIGHT BANK

AREA NO. 5 TOP

AREA NO. 6 BOTTOM

SECTION A - DYNAMOMETER TEST

1. GOVERNOR SETTING

HIGH SPEED - FULL LOAD _____ (2400-2450) NO LOAD _____ ²⁶⁶⁰ (2640 MAX)
 LOW SPEED - NO LOAD _____ ⁷⁰⁰⁻⁷⁵⁰ (675-725)
 RPM STABILIZE - FULL LOAD _____ (WITHIN 30 SECONDS)
 SEAL _____

2. HORSEPOWER & TORQUE

CORRECTED GHP - 2400 RPM _____ (735-780)
 CORRECTED TORQUE - 2400 RPM _____ (1609-1707)
 CORRECTED TORQUE - 1800 RPM _____ (1770-1842)
 CORRECTED GHP - 1800 RPM _____ (607-631)

3. FUEL CONSUMPTION

LBS/CGHP/HR - 2400 RPM _____ (0.420)
 1800 RPM _____ (~~0.400~~)
 (0.409)

4. OIL CONSUMPTION (LUBRICATING)

LBS/CGHP/HR - FULL THROTTLE _____ (.0075 MAX)

5. OIL PRESSURE

GALLERY OIL PRESSURE AT OIL TEMP OF 140° - 250° F.

GRADE 30 OIL - 2400 RPM _____ (40-70) PSI, 700 RPM _____ (15 MIN) PSI

6. OIL TEMPERATURE

OIL COOLER OUTLET - FULL THROTTLE _____ (250° F. MAX.)
 SUMP - FULL THROTTLE _____ (140° F. - 250° F.)

SECTION A - DYNAMOMETER TEST

7. CYLINDER TEMPERATURE

EXHAUST GAS TEMP MAX. _____ (1250° F. MAX.)

8. EXHAUST SMOKE DENSITYENGINE RPMVISUAL NO.METER NO.

1800

_____ 3

_____ 3.5 4.0

2000

_____ 3

_____ 3.2 3.7

2200

_____ 2

_____ 2.6 3.2

2400

_____ 1

_____ 2.4 3.0

9. OIL LEAKS _____10. FUEL LEAKS _____11. ACCESSORIESTYPEMFG. NAMESERIAL NO.

GENERATOR _____

STARTER _____

FUEL INJ PUMP ASSY _____

TURBO SUPERCHARGER
(LEFT BANK) _____TURBO SUPERCHARGER
(RIGHT BANK) _____

GENERATOR DRIVE COUPLING _____

AVDS-1790-2CA - Sheet 5 of 19

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR'S. Insp. Initials
	AREA NO. I DAMPER END		
101	CONNECTORS (OIL COOLER HOSES) L & R BANK GASKETS, NUTS, HOSE ASSYS, CLAMPS SCREWS, NUTS , ADAPTERS & ANNULAR GASKETS	VISUAL	
102	PRIMARY FUEL FILTER ASSY. BRACKET, SCREWS, NUTS, ELBOW, ADAPTER, HOSE ASSYS. (PRIMARY FUEL FILTER TO FUEL CHECK VALVE & PRIMARY FUEL FILTER TO ENGINE), BULKHEAD & BLEEDER VALVE (NOTE INLET LOCATION)	VISUAL	
103	CAMSHAFT END COVER PLATE (R. BANK) MTG. SCREWS, LOCKWASHERS, & GASKET	VISUAL	
104	TACHOMETER DRIVE ADAPTOR SCREWS, WASHERS & LOCKWASHERS	VISUAL	
105	THROTTLE CONTROL ASSY. MTG. BRACKET, SCREWS, LOCKWASHERS, BEARING & SNAP RINGS. LEVER, BEARINGS, SNAP RINGS, ADJUSTING SCREW, LOCK NUT, BOLT, NUT & STOP PIN. SPRING & SPACERS. LEVER, SCREW, LOCKWASHER & STOP PIN. LEVER, RINGS, WASHERS & COTTER PIN. LEVER, BOLT, WASHER & STOP PIN. CROSS SHAFT, SNAP RINGS & BEARING. OVERTRAVEL - (BOTH DIRECTIONS).	VISUAL Functional	
106	SHROUDS BOLTS, SCREWS & LOCKWASHERS PAINT	VISUAL	
107	FIRE EXTINGUISHER CONNECTOR.	VISUAL	
108	FUEL HOSE ASSY, WASHER, ELBOWS & CLAMP. (SECONDARY FILTER TO ENGINE)	VISUAL	

AVDS-1790-2CA - Sheet 6 of 19

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's. Insp. Initials
109	CONNECTOR (FUEL SHUT OFF LEAD) MTG.SCREWS.	VISUAL	
110	SECONDARY FUEL FILTER WATER SEPERATOR MTG. BRACKET, SCREWS, LOCKWASHERS, WASHERS, CLAMP, HOSE ASSY. (FUEL PUMP TO FUEL WATER SEPERATOR), ELBOW & BLEEDER VALVE & PIPE PLUG LOW & HIGH WATER SENSOR CONNECTORS, LOW & HIGH WATER SENSORS	VISUAL	
111	FUEL SHUT-OFF VALVE - SMOKE GENERATING, BRACKET, SCREWS & LOCKNUTS, ELBOW, HOSE ASSY. -FUEL SHUT-OFF VALVE TO TEE	VISUAL	
112	LIFTING EYES (L & R BANK) GASKET & MTG. NUTS	VISUAL	
113	ENGINE INSTALLATION GUIDES (L & R BANK) MTG. NUTS & WASHERS	VISUAL	
114	OIL COOLER VENTS (L & R BANK) NIPPLE, HOSE ASSYS. TEE, CLAMPS & CONNECTORS	VISUAL	
115	OIL FILTER COVER GASKET, MTG. NUTS, WASHERS, SCREW & SEAL INSTRUCTION PLATE, DRIVE SCREWS & WASHERS	VISUAL	
116	OIL FILTER W/OIL COOLER BY-PASS PLUGS AND GASKETS	VISUAL	
117	DAMPER HSG. OIL DRAIN VALVE, GASKET AND ADAPTER (NOTE: VALVE IN CLOSED POSITION)	VISUAL	
118	CRANKSHAFT DAMPER HSG. TO CRANKCASE, MTG. NUTS & WASHERS	VISUAL	
119	MISC. PIPE PLUGS	VISUAL	

AVDS-1790-2CA - Sheet 7 of 19
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
120	PRIMER SOLENOID & FILTER ASSY. MTG BRACKET, SCREWS, WASHERS, NUTS, NIPPLE, ELBOW, TEE, CONNECTOR & CLAMP	VISUAL	
121	FUEL CHECK VALVE ASSY. MTG. BRACKET, SCREWS, WASHERS & LOCKWASHERS TUBE ASSY. (FUEL CHECK VALVE TO SOLENOID VALVE & FILTER ASSY.) TEE, CONNECTORS, REDUCER, FILTER & ELBOW	VISUAL	
122	SENDING UNIT, SWITCHES, ADAPTER REDUCERS & ELBOW	VISUAL	
123	OIL PRESSURE REG. VALVE COVER GASKET, MTG. NUTS & WASHERS	VISUAL	
124	FUEL WATER SEPARATOR DRAIN MTG. BRACKET, NUT, DRAIN COCK, ^{WASHER} TEE, CONNECTOR, NUT, HOSE ASSY, (DRAIN TO SECONDARY FUEL FILTER) & LOCK WASHER, ELBOW, HOSE ASSY. (DRAIN TO DRAIN CONTROL SOLENOID VALVE)	VISUAL	
125	FUEL PUMP ASSY. ADAPTER, GASKETS, MTG. NUTS, WASHERS, CONNECTORS & TUBE ASSY. TO CHECK VALVE, CLAMP	VISUAL	
126	CRANKSHAFT DAMPER HSG. TO OIL PAN, MTG. BOLTS & WASHERS	VISUAL	
127	METER, TIME TOTALIZING	VISUAL	
128	LEAKS, FUEL & OIL	VISUAL	

AVDS-1790-2CA - Sheet 8 of 19
 SECTION B
 BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
	AREA NO. 2 LEFT BANK		
201	OIL COOLERS WITH SCREENS, ^{WASHERS,} SCREWS, BOLTS, LOCKWASHERS & BRACKETS	VISUAL	
202	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	
203	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
204	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS HOSES, GLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS TUBE ASSY. GASKET, SCREWS & LOCKWASHERS.	VISUAL	
205	LOWER OIL FILLER TUBE ASSY. GASKET, MTG. SCREWS, & SEALS	VISUAL	
206	OIL LEVEL INDICATOR TUBE ASSY. GASKET, MTG. NUTS SPRING, SCREWS, CAP ASSY, ROD FUNCTION OIL LEVEL GAGE ROD (11684006)	VISUAL	
207	INTAKE MANIFOLD MANIFOLD, PLUG TUBES, GASKET, FLANGES, LOCKNUTS, NUTS & LOCKWASHERS ELBOW, GASKET, NUTS, WASHERS, & PLUGS	VISUAL	
208	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
209	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS, CLAMPS & PAINT	VISUAL	
210	ENGINE SHROUDS & COVER SCREWS & LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
211	CRANKCASE NUTS, WASHERS, COTTER PINS	VISUAL	
212	OIL PAN PLUG, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
213	TURBOCHARGER ASSY. TURBOCHARGER MTG BASE, NUTS, WASHERS, MTG. STUDS, NIPPLE, CONNECTOR & ELBOW, DIFFERENTIAL PRESSURE SWITCH, BRACKET, ADAPTERS, HOSE ASSYS, SCREWS & LOCKWASHERS SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCK WASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE HOSE & CLAMPS	VISUAL	<p><i>PACKING S.</i></p> <p><i>HOSE ASSY. (PRESSURE INLET & OUTLET)</i></p>
214	INTAKE TUBE ASSY (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSES & CLAMPS TUBE, GASKET & NUTS	VISUAL	

AVDS-1790-2CA - Sheet 10 of 19

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR'S INSP. Initials
215	MANIFOLD HEATER ASSY. GASKET, MTG.NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT, REDUCER & ELBOWS	VISUAL	_____
216	FUEL WATER SEPARATOR DRAIN CONTROLS MTG.PLATE, SCREWS & WASHERS CONTROL ASSY, SCREWS, WASHERS, WIRING HARNESS (CONTROL ASSY. TO VALVE) & CLAMP SOLENOID VALVE, SCREWS, WASHERS, NIPPLE, ELBOW & TUBE ASSY.	VISUAL	_____
217	STARTER & MTG.NUTS SUPPORT, BOLTS, WASHERS CRADLE, NUTS, WASHERS, U-BOLT, BARS & NUTS ADAPTER HSG., GASKETS, NUTS, & WASHERS	VISUAL	_____
218	STARTER RELAY MODULE MTG. BRACKET, SCREWS & WASHERS SPACER, SCREWS & NUTS	VISUAL	_____
219	LEAKS, FUEL & OIL	VISUAL	_____
301	AREA NO. 3 TRANSMISSION MTG. FACE END SHROUDS, COVERS & PLATES BOLTS, NUTS, WASHERS, LOCK CLIPS, PLATES, LOCKWASHERS SCREWS, GROMMETS & PAINT	VISUAL	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's INSPECTION Initials
302	FUEL SOLENOID VALVE BRACKET, MTG. BOLTS WITH LOCKWASHERS, SCREWS, WASHERS, ELBOW S, NIPPLE, VALVE & TUBE ASSY TO FUEL RETURN COUPLING, ELBOW, TEE, TUBE ASSYS FLAME HEATER & CLAMPS (R & L BANK)	VISUAL	_____
303	SOLENOID VALVES - SMOKE GENERATING; BRACKET, NUT, CAP SCREW, WASHERS & BOLTS, ELBOWS, TUBE ASSYS: EXHAUST ELBOW TO TEE (L & R BANK), SOLENOID VALVE OUTLET TO TUBE TEE, SOLENOID VALVE TO BULKHEAD, TEE, PIPES , RETAINING CLAMPS, NUTS, SCREWS & WASHERS	VISUAL	_____
304	ELBOW (TURBO OIL SUPPLY) - R & L BANK WASHER, SHIELDED HOSE ASSYS. TO TURBO, CLAMPS, SCREWS & LOCKWASHERS	VISUAL	_____
305	CONNECTOR-FUEL INJECTOR FUEL RETURN, NUT & WASHER	VISUAL	_____
306	BREATHER HOSE & CLAMP TUBE ASSY, HOSE & CLAMPS	VISUAL	_____
307	CAMSHAFT HOUSING (RIGHT & LEFT BANK) GASKET, SCREWS, WASHERS & LOCKWASHERS	VISUAL	_____
308	COVER PLATE, CAMSHAFT HSG. (R & L BANK) GASKET, SCREWS & WASHERS	VISUAL	_____
309	ADAPTER, CAMSHAFT DRIVE (R & L BANK) (NUTS & WASHERS. GASKETS)	VISUAL	_____
310	FLANGE, CAMSHAFT DRIVE (R & L BANK) GASKET, SCREWS, WASHERS, LOCKWASHERS, HOSE & CLAMP	VISUAL.	_____
311	EXHAUST MANIFOLD ^{PIPE} TUBE ASSYS (R & L BANK) GASKET, BOLTS, NUTS, WASHERS, & PIPE PLUGS. <i>Clamp & Bracket, U-BOLTS, LOCKWASHERS & NUTS</i>	VISUAL	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR'S INSPECTION Initials
312	ACCESSORY DRIVE HOUSING MTG.NUTS & WASHERS	VISUAL	
313	TURBO TIE ROD ASSY. TIE ROD, MTG. SCREWS LOCKWASHERS & CLAMP SEAT BRACES, GROMMETS, SPACERS, BOLTS & NUTS	VISUAL	
314	LIFTING EYE SCREWS W/ LOCKWASHERS	VISUAL	
315	FLYWHEEL BOLTS, LOCKPLATES, ^{Timing} TIMING POINTS DOWELS & GEARSHAFT	VISUAL	
316	ADAPTER - TRANSMISSION NUTS, LOCKWASHERS, BOLTS & DOWELS ^{Timing Points} SCREWS	VISUAL	
317	EXHAUST EJECTOR (L BANK), GASKET, NUTS, INSULATION, SCREWS, WASHERS, LOCK- WASHERS & NUTS, TUBE - CRANKCASE BREATHER, CLAMP, SCREW & NUT, HOSE & CLAMPS	VISUAL	
318	EXHAUST EJECTOR (R BANK), GASKET, NUTS, INSULATION, SCREWS, WASHERS, LOCK- WASHERS & NUTS, TRANS BREATHER TUBE, ELBOWS	VISUAL	
319	LEAKS, FUEL & OIL	VISUAL	
401	AREA NO. 4 RIGHT BANK ^{SCREENS,} OIL COOLERS WITH SCREENS, SCREWS, BOLTS, LOCKWASHERS & BRACKETS	VISUAL	

AVDS-1790-2CA - Sheet 13 of 19
SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
402	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	
403	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
404	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS, & LOCKWASHERS ^{W/ NUTS}	VISUAL	
405	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, NUTS, LOCKNUTS, & LOCKWASHERS ELBOW, GASKET, W/ NUTS , NUTS, WASHERS & PLUG	VISUAL	
406	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
407	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS & PAINT	VISUAL	
408	ENGINE SHROUDS & COVER SCREWS, LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
409	CRANKCASE PIPE PLUGS, NUTS, WASHERS, COTTER PINS, DATA AND OVER- HAUL PLATES W/ DRIVE SCREWS ENGINE SERIAL NO. REQ'D. ENGINE P/N 12314611 REQ'D. CONTRACT NO. REQ'D. SENDING UNIT, ADAPTER & ELBOW	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
410	<p>TURBOCHARGER ASSY. TURBO, MTG.BASE, NUTS, WASHERS, MTG.STUDS, MTG.NUTS, NIPPLE, CONNECTOR & ELBOW DIFFERENTIAL PRESSURE SWITCH, BRACKET, ADAPTERS, HOSE ASSYS, STRAP, SCREWS & LOCKWASHERS SUPPORT (TURBO.TO TRANS.ADAPTOR) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG.SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS</p>	<p><i>PACKINGS</i> <i>HOSE ASSYS (PRESSURE SWITCH INLET FOSTLES),</i> <i>TIE-WRAP</i></p> <p>VISUAL</p>	<p>_____</p>
411	<p>INTAKE TUBE ASSY (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSE & CLAMPS TUBE, GASKET & NUTS</p>	<p>VISUAL</p>	<p>_____</p>
412	<p>MANIFOLD HEATER ASSY. GASKET, MTG.NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY.) CLAMPS, SCREWS & NUTS SPRAY NOZZLE, HOLDER, NUT CONNECTOR & ELBOWS REDUCER</p>	<p>VISUAL</p>	<p>_____</p>

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
413	<p>GENERATOR ASSY. ^{SELF-LOCKING BOLTS} GENERATOR, ^{GASKET} ADAPTER, GASKET, ^{FLAT WASHERS} LOCKWASHERS, SCREWS & NUT. SUPPORT, WASHERS, SCREWS SCREWS & CRADLE. UNION & HOSE ASSY TO OIL PAN. NIPPLE, ADAPTER & HOSE ASSY. TO-INTAKE ELBOW (GENERATOR VENT) ELBOW & HOSE ASSY TO CRANK CASE. NIPPLE, ELBOW, HOSE ASSY TO (GENERATOR OIL DRAIN) CHECK VALVE, TEE, PIPE HOSE ASSY, ELBOW, CHECK VALVE & NIPPLE.</p>	VISUAL	
414	<p>OIL PAN PIPE PLUGS, MTG NUTS, WASHERS, SCREWS, LOCKWASHERS & RE- ADAPTER DUGER.</p>	VISUAL	
415	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 5 TOP			
501	<p>HOUSING, VANE, ENGINE COOLING FAN (FRONT & BACK) SCREWS, WASHERS & LOCKWASHERS</p>	VISUAL	
502	<p>SHROUDS & COVER PLATES SCREWS, WASHERS, LOCKWASHERS, NUTS</p>	VISUAL	
503	<p>TUBE ASSY - SCAVENGE AIR (L BANK): HOSES, CLAMPS, SUBMERGENCE CHECK VALVE, GASKET, BRACKETS, TUBE, BOLTS, SCREWS, WASHERS & NUTS LOCKWASHERS</p>	VISUAL	

506A METER, TIME TOTALIZING
SCREWS & LOCKWASHERS

506B STARTER RELAY MODULE
SCREWS & LOCKWASHERS



SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp Initials
504	TUBE ASSY - SCAVENGE AIR (R BANK): HOSES, CLAMPS, SUBMERGENCE CHECK VALVE, GASKET, BRACKETS, TUBE, BOLTS, SCREWS, WASHERS & NUTS <i>LOCKWASHERS</i>	VISUAL	
505	TUBE ASSY - SMOKE GENERATING, CLAMPS, SCREWS , ELBOW-BULKHEAD	VISUAL	
506	SHUT-OFF VALVES ^{DRAIN COCKS} - OIL SAMPLING, HOSE ^{LOCKWASHERS} , BRACKET, BOLTS & WASHERS ^{DRAIN COCKS} , HOSE ^{DRAIN COCKS} , ASSYS-OIL DRAIN HOSE ASSY SHUT-OFF VALVES TO OIL COOLERS, CLAMPS & BOLTS, TEE ADAPTER ADAPTER, OIL COOLER	VISUAL	
507	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 6			
BOTTOM			
601	OIL PAN ASSY. ADAPTER, GASKET, SCREWS, PLUG & GASKET	VISUAL	
602	LEAKS, FUEL & OIL	VISUAL	
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS. THE ENGINE IS NOW READY FOR WIRE HARNESS INSTALLATION.</p> <p>CONTRACTOR INSPECTOR _____ DATE _____</p>			

AVDS-1790-2CA - Sheet 17 of 19
SECTION C

SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR.'s Ins Initials
701	<u>ELECTRICAL HARNESS OPERATION</u> STARTER MOTOR _____ STARTER LOW VOLTAGE PROTECTION _____ GENERATOR _____ MANIFOLD HEATER (RT) _____ MANIFOLD HEATER (LT) _____ ENG. OIL TEMP _____ ENG. HI OIL TEMP _____ FUEL SHUT-OFF _____ FUEL WATER SEPARATOR _____ ENG. LOW OIL PRESSURE _____ HOURMETER _____ FUEL SOLENOID _____		
702	ENGINE OIL PRESSURE _____ SMOKE GENERATING FUEL SOLENOIDS _____ DUST DETECTOR PRESSURE SWITCHES _____ PRESERVE FUEL SYSTEM _____	Functional	
703	LEAKS, FUEL & OIL _____	VISUAL	
801	AREA NO. 1 DAMPER END ELECTRICAL WIRING <i>12314222</i> (INSTALLATION DWG. #11655492) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS _____	VISUAL	
802	DAMPER HSG. TO OIL PAN MTG. SCREWS & WASHERS _____	VISUAL	
803	LEAKS, FUEL & OIL _____	VISUAL	

AVDS-1790-2CA - Sheet 18 of 19

SECTION C

SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
<p>AREA NO. 2 LEFT BANK</p>			
901	<p>ELECTRICAL WIRING (INSTALLATION DWG. #1655432) 12314622) BRACKET ASSY., OIL COOLER, BRACKET, RETAINING STRAPS, SCREWS & LOCKWASHERS BRACKET ASSY. ENG. SPROUD BRACKET, SCREWS, NUTS, RE- TAINING STRAPS & LOCKWASHERS CLAMPS, SCREWS, WASHERS & POST & LOCKWASHERS WIRING HARNESSES ENGINE, STARTER GROUND & MOTOR</p>	VISUAL	_____
902	<p>LOCKWIRE STARTER SUPPORT SCREWS STARTER GROUND LEADS</p>	VISUAL	_____
903	<p>LEAKS, FUEL & OIL</p>	VISUAL	_____
<p>AREA NO. 3 TRANSMISSION MOUNTING FACE END</p>			
1001	<p>LEAKS, FUEL & OIL</p>	VISUAL	_____
<p>AREA NO. 4 RIGHT BANK</p>			
1101	<p>ELECTRICAL WIRING (INSTRUCTION DWG. #165532) 12314622) BRACKET ASSY., (OIL COOLER), BRACKET, RETAINING STRAP, SCREWS, BOLTS & LOCKWASHERS BRACKET ASSY. (ENG. SPROUD) BRACKET, SCREWS, NUTS, RETAINING STRAP, LOCKWASHERS BRACKET ASSY. (TRANS. DISCONNECT) BRACKET, SCREWS & LOCKWASHERS, CLAMPS, SCREWS & LOCKWASHERS GENERATOR GROUND LEADS</p>	VISUAL	_____
1102	<p>LEAKS, FUEL & OIL</p>	VISUAL	_____

BUS BARS

Change 3

8/83

LEAD ASSY, GENERATOR

SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
1201	<p style="text-align: center;">AREA NO. 5 TOP</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #116554327 12314422) WIRING HARNESS, BRACKETS, SCREWS, LOCKWASHERS, CLAMPS, NUTS. NOTE POSITION OF ELECTRICAL CONNECTORS</p>	VISUAL	
1202	<p>OUTER SHROUDS SIDE PLATES SECURED</p>	VISUAL	
1203	LEAKS, FUEL & OIL	VISUAL	
	<p style="text-align: center;">AREA NO. 6 BOTTOM</p>		
1301	LEAKS, FUEL & OIL	VISUAL	
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>			

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FINAL INSPECTION RECORD
FOR
ENGINE, DIESEL: 12-CYLINDER, 90°V-TYPE, AVDS-1790-2DA
Sheet 1 of 18
19

DYNAMOMETER TESTS AND FINAL INSPECTION

SERIAL NO. _____

CONTRACT NO. _____

DYNAMOMETER TEST

FINAL INSPECTION

CONTRACTOR INSPECTOR
& DATE _____

GOVERNMENT INSPECTOR
& DATE _____

INSTRUCTIONS TO INSPECTOR

1. CONTRACTOR INSPECTION AND DATA SHALL BE COMPLETED PRIOR TO SUBMISSION TO GOVERNMENT INSPECTOR FOR ACCEPTANCE.
2. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF MIL-E-62177(AT)
3. INSPECTIONS SHALL BE PERFORMED TO DETERMINE CONFORMANCE WITH ENGINE INSTALLATION 12314641 AND REFERENCE DWGS. SPECIFIED.
4. DYNAMOMETER TEST RESULTS SHALL BE RECORDED ON FINAL RUN.
5. THE FOLLOWING CHARACTERISTICS MUST BE VISUALLY REVIEWED AND ALL DEFICIENCIES AND THEIR CORRECTIVE ACTION SHALL BE LISTED ON ATTACHED DEFICIENCY SHEETS.
 - A. CONDITION: ALL PARTS MUST EXHIBIT NO EVIDENCE OF DAMAGE, MUTILATION, OR POOR WORKMANSHIP OF CONSTRUCTION.
 - B. COMPLETENESS OF ASSEMBLY AND SECURED: ALL MOUNTING BRACKETS, BOLTS, NUTS, RIVETS, WASHERS, ETC. MUST BE COMPLETE AND SECURED. ANY EVIDENCE OF PARTS BEING INCOMPLETE AND IMPROPERLY SECURED WILL BE CAUSE FOR REJECTION.

- C. ROUTING, CLIPPING AND CLEARANCES: ALL WIRING HARNESSSES, FUEL, OIL AND AIR LINES MUST BE PROPERLY ROUTED AND CLIPPED PER THEIR RESPECTIVE INSTALLATION DRAWING. SUFFICIENT CLEARANCES BETWEEN THESE AND ADJACENT PARTS MUST BE MAINTAINED TO INSURE THERE CAN BE NO INTERFERENCE. PHYSICALLY HANDLE THE ITEM TO VERIFY IT IS SECURED.
- D. PAINT: PAINTED AREAS MUST BE THOROUGHLY COVERED. THERE MUST BE NO EVIDENCE OF THIN AREAS.
6. NO ERASURES SHALL BE MADE TO CHANGE SYMBOLS, SIGNATURES OR DATA.
7. INSPECTORS SHALL SIGN FOR EACH ITEM, WHEN ALL CHARACTERISTICS OF THE ITEM ARE ACCEPTABLE, USING THE SYMBOLS LISTED BELOW.

SYMBOLS: (✓) ACCEPTABLE (X) UNACCEPTABLE (O) NOT APPLICABLE

8. SEQUENCE OF INSPECTION IS DIVIDED INTO SIX (6) AREAS AS VIEWED FROM DAMPER END OF ENGINE AS FOLLOWS:

AREA NO. 1 DAMPER END

AREA NO. 2 LEFT BANK

AREA NO. 3 TRANSMISSION MOUNTING FACE END

AREA NO. 4 RIGHT BANK

AREA NO. 5 TOP

AREA NO. 6 BOTTOM

SECTION A - DYNAMOMETER TEST

1. GOVERNOR SETTINGHIGH SPEED - FULL LOAD _____ (2400-2450) NO LOAD _____ ²⁶⁶⁰ (2640 MA)LOW SPEED - NO LOAD _____ ⁷⁰⁰⁻⁷⁵⁰ (~~625-725~~)

RPM STABILIZE - FULL LOAD _____ (WITHIN 30 SECONDS)

SEAL _____

2. HORSEPOWER & TORQUE

CORRECTED GHP - 2400 RPM _____ (735-780)

CORRECTED TORQUE - 2400 RPM _____ (1609-1707)

CORRECTED TORQUE - 1800 RPM _____ (1770-1842)

CORRECTED GHP - 1800 RPM _____ (607-631)

3. FUEL CONSUMPTION

LBS/CGHP/HR - 2400 RPM _____ (0.420)

1800 RPM _____ (~~0.400~~)
(0.409)4. OIL CONSUMPTION (LUBRICATING)

LBS/CGHP/HR - FULL THROTTLE _____ (.0075 MAX)

5. OIL PRESSURE

GALLERY OIL PRESSURE AT OIL TEMP OF 140° - 250° F.

GRADE 30 OIL - 2400 RPM _____ (40-70) PSI, 700 RPM _____ (15 MIN) PSI

6. OIL TEMPERATURE

OIL COOLER OUTLET - FULL THROTTLE _____ (250° F. MAX.)

SUMP - FULL THROTTLE _____ (140° F. - 250° F.)

SECTION A - DYNAMOMETER TEST

7. CYLINDER TEMPERATURE

EXHAUST GAS TEMP MAX. _____ (1250° F. MAX.)

8. EXHAUST SMOKE DENSITY

<u>ENGINE RPM</u>	<u>VISUAL NO.</u>	<u>METER NO.</u>
1800	3	3.5 4.0
2000	3	3.2 3.7
2200	2	2.6 3.2
2400	1	2.4 3.0

9. OIL LEAKS _____

10. FUEL LEAKS _____

11. PRESERVE FUEL SYSTEM _____

12. MANIFOLD HEATER R & L BANK FUNCTIONAL _____

13. METER TIME TOTALIZING FUNCTIONAL _____

1.1A. ACCESSORIES

<u>TYPE</u>	<u>MFG. NAME</u>	<u>SERIAL NO.</u>
GENERATOR	_____	_____
STARTER	_____	_____
FUEL INJ PUMP ASSY.	_____	_____
TURBO SUPERCHARGER (LEFT BANK)	_____	_____
TURBO SUPERCHARGER (RIGHT BANK)	_____	_____

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
	AREA NO. 1 DAMPER END .		
101	CONNECTORS (OIL COOLER HOSES) L & R BANK GASKETS, NUTS, HOSE ASSYS, SCREWS SCREWS, NUTS , ADAPTERS & ANNULAR GASKETS	VISUAL	
102	PRIMARY FUEL FILTER ASSY. BRACKET, SCREWS, NUTS, ELBOW, ADAPTER, HOSE ASSYS, (PRIMARY FUEL FILTER TO FUEL CHECK VALVE & PRIMARY FUEL FILTER TO ENGINE), BULKHEAD & BLEEDER VALVE NOTE: INLET LOCATION	VISUAL	
103	CAMSHAFT END COVER PLATE R. BANK MTG. SCREWS, LOCK WASHERS, & GASKET	VISUAL	
104	TACHOMETER DRIVE ADAPTER SCREWS, WASHERS & LOCKWASHER	VISUAL	
105	THROTTLE CONTROL ASSY. MTG. BRACKET, SCREWS, LOCKWASHERS, BEARING & SNAP RINGS LEVER, BEARINGS, SNAP RINGS, ADJUSTING SCREW, LOCK NUT, BOLT, NUT & STOP PIN SPRING & SPACERS LEVER, SCREW, LOCKWASHER & STOP PIN LEVER, RINGS, WASHERS & COTTER PIN LEVER, BOLT, LOCKWASHER & STOP PIN CROSS SHAFT, SNAP RINGS & BEARING OVERTRAVEL (BOTH DIRECTIONS)	VISUAL Functional	
106	SHROUDS BOLTS, SCREWS & LOCKWASHERS PAINT	VISUAL	
107	FIRE EXTINGUISHER CONNECTOR	VISUAL	

19
AVDS-1790-2DA - Sheet 6 of 18

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
108	FUEL HOSE ASSY., WASHER ^{WASHERS,} ELBOWS & CLAMP (SECONDARY FILTER TO ENGINE)	VISUAL	
109	CONNECTOR (FUEL SHUT-OFF LEAD) MTG. SCREWS	VISUAL	
110	SECONDARY FUEL FILTER WATER SEPERATOR GASKET, MTG. BRACKET, SCREWS, LOCK-WASHERS & CLAMP HOSE ASSY. (FUEL PUMP TO FUEL WATER SEPERATOR), ELBOW, & BLEEDER VALVE, PIPE PLUG LOW & HIGH WATER SENSOR CONNECTORS LOW & HIGH WATER SENSORS	VISUAL	
111	FUEL SHUT -OFF VALVE - SMOKE GENERATING , BRACKET, SCREWS& LOCKNUTS, ELBOW , HOSE ASSY - FUEL SHUT-OFF VALVE TO TEE	VISUAL	
112	LIFTING EYES L & R BANK GASKET, MTG. NUTS	VISUAL	
113	ENGINE INSTALLATION GUIDES L & R BANK MTG. NUTS & WASHERS	VISUAL	
114	OIL COOLER VENTS L & R BANK NIPPLE, HOSE ASSYS, TEE, CLAMPS & CONNECTORS	VISUAL	
115	OIL FILTER COVER GASKET, MTG NUTS, WASHERS, SCREW & SEAL INSTRUCTION PLATE, DRIVE SCREWS, & WASHERS	VISUAL	
116	OIL FILTER HOSE COVER BY-PASS PLUGS & GASKETS	VISUAL	

AVDS-1790-2DA - ¹⁹Sheet 7 of 18

SECTION 3

BASIC ENGINE ASSEMBLY INSPECTION

Item No	CHARACTERISTIC	Method of Inspection	MFR's Inis Initials
117	DAMPER HSG. OIL DRAIN VALVE, GASKET & ADAPTER (NOTE VALVE IN CLOSED POSITION)	VISUAL	
118	CRANKSHAFT DAMPER HSG. TO CRANKCASE, MTG. NUTS & WASHERS	VISUAL	
119	MISC. PIPE PLUGS		
120	PRIMER SOLENOID & FILTER ASSY MTG. BRACKET, SCREWS, WASHERS, NUTS, NIPPLE, ELBOW, TEE, CONNECTOR & CLAMP	VISUAL	
121	FUEL CHECK VALVE ASSY. MTG. BRACKET, SCREWS, WASHERS & LOCKWASHERS TUBE ASSY. (FUEL CHECK VALVE TO SOLENOID VALVE & FILTER ASSY.) TEE, CONNECTORS, REDUCER, & FILTER	VISUAL	
122	SENDING UNIT, SWITCHES, ADAPTER, REDUCERS & ELBOW	VISUAL	
123	OIL PRESSURE REG. VALVE COVER, GASKET, MTG. NUTS & WASHERS	VISUAL	
124	FUEL WATER SEPARATOR DRAIN MTG. BRACKET, NUT, DRAIN COCK, TEE, CONNECTOR, NUT, WASHER, HOSE ASSY. (DRAIN TO SECONDARY FUEL FILTER). <i>Lockwasher</i> ELBOW & HOSE ASSY. (DRAIN TO DRAIN CONTROL SOLENOID VALVE).	VISUAL	
125	FUEL PUMP ASSY. ADAPTER, GASKETS, MTG. NUTS, WASHERS, CONNECTORS & TUBE ASSY TO CHECK VALVE & CLAMP	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MER's Inst Initials
126	CRANKSHAFT DAMPER HSG. TO OIL PAN. MTG. BOLTS & WASHERS	VISUAL	
127	METER, TIME TOTALIZING	VISUAL	
128	LEAKS, FUEL & OIL	VISUAL	
AREA NO. 2 LEFT BANK			
201	OIL COOLERS WITH SCREENS, ^{WASHERS} SCREWS , BOLTS, LOCKWASHERS & BRACKETS	VISUAL	
202	THERMOSTATIC VALVES & GASKETS ENG. & TRANS. OIL COOLERS	VISUAL	
203	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
204	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS & LOCKWASHERS	VISUAL	
205	LOWER OIL FILLER TUBE ASSY. GASKET, MTG. SCREWS & SEALS	VISUAL	
206	OIL LEVEL INDICATOR TUBE ASSY. GASKET, MTG. NUTS SPRING, SCREWS, CAP ASSY. & FUNCTION OIL LEVEL GAGE ROD 11684006 OIL NOT REQUIRED	VISUAL VISUAL	

AVDS-1790-2DA - ¹⁹ Sheet 9 of 18

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFG's Insp Initials
207	INTAKE MANIFOLD MANIFOLD, PLUG TUBES, GASKETS, FLANGES, LOCK - NUTS, & LOCKWASHERS ^{NUTS} ELBOW, GASKET, NUTS, WASHERS & PLUGS	VISUAL	
208	MANIFOLD HEATER IGNITION COIL CLAMPS, SCREWS & NUTS	VISUAL	
209	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS, CLAMPS & PAINT	VISUAL	
210	ENGINE SHROUDS & COVER SCREWS & LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
211	CRANKCASE NUTS, WASHERS, COTTER PINS	VISUAL	
212	OIL PAN PLUG, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
213	TURBOCHARGER ASSY. MTG. BASE, NUTS, WASHERS, MTG. STUDS, NUTS , NIPPLE, CONNECTOR & ELBOW DIFFERENTIAL PRESSURE SWITCH, BRACKET, ADAPTERS, HOSE ASSYS , SCREWS & ^{PACKINGS,} WASHERS SUPPORT (TURBO TO TRANS.ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET HOSES & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins Initials
214	INTAKE TUBE ASSY. (TURBO TO MANIFOLD) ELBOW, GASKET & NUTS HOSE & CLAMPS TUBE, GASKET, & NUTS	VISUAL	
215	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) SCREWS & NUTS CLAMPS, SPRAY NOZZLE, HOLDER, NUT CONNECTION & ELBOWS	VISUAL	
216	FUEL WATER SEPARATOR DRAIN CONTROLS MTG. PLATE, SCREWS & WASHERS CONTROL ASSY, SCREWS, WASHERS, WIRING HARNESS (CONTROL ASSY. TO VALVE), & CLAMP SOLENOID VALVE, SCREWS & WASHERS NIPPLE, HOSE CONNECTION, ELBOW & TUBE ASSY.	VISUAL	
217	STARTER & MTG. NUTS SUPPORT, BOLTS & WASHERS CRADLE, NUTS, WASHERS, U-BOLT, BARS & NUTS ADAPTER HSG., GASKETS, NUTS & WASHERS	VISUAL	
218	STARTER RELAY MODULE MTG. BRACKET, SCREWS & WASHERS SPACER, SCREWS & NUTS	VISUAL	
219	LEAKS, FUEL & OIL	VISUAL	

BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
	AREA NO. 3 TRANSMISSION MTG. FACE END		
301	SHROUDS, COVERS & PLATES ^{CLIPS,} BOLTS, NUTS, WASHERS, LOCK- WASHERS, SCREWS, GROMMETS & PAINT	VISUAL	
302	FUEL SOLENOID VALVE BRACKET, MTG. BOLTS WITH LOCKWASHERS, SCREWS, WASHERS, ELBOW S, NIPPLE VALVE & TUBE ASSY. TO FUEL RETURN COUPLING, ELBOW, TEE, TUBE ASSYS. TO FLAME HEATER & CLAMPS (R & L BANK)	VISUAL	
303	SOLENOID VALVES - SMOKE GENERATING; BRACKET, NUT, CAP SCREW, WASHERS & ^{NIPPLE} BOLTS, ELBOWS, TUBE ASSY'S: EXHAUST ELBOW TO TEE - (L & R BANK), SOLENOID. VALVE OUTLET TO TUBE TEE, SOLENOID VALVE TO BULKHEAD, TEE, PLATES, CLAMPS, NUTS, SCREWS & WASHERS <i>RETAINING STRAPS, FAIRLEAD HALVES, BOLTS & LOCKNUTS</i>	VISUAL	
304	ELBOW (TURBO OIL SUPPLY) L & R BANK WASHER, CONNECTORS ^{WELDED} HOSE ASSY. TO TURBO, CLAMPS, SCREWS, AND LOCKWASHERS	VISUAL	
305	CONNECTOR-FUEL INJECTOR FUEL RETURN NUT & WASHER	VISUAL	
306	BREATHER TUBE ASSY HOSE, CLAMP HOSE & CLAMPS <i>TUBE ASSY, HOSE AND CLAMPS</i>		
307	CAMSHAFT HOUSING (RIGHT & LEFT BANK) GASKET, SCREWS & WASHERS ^{LOCKWASHERS}	VISUAL	
308	COVER PLATE, CAMSHAFT HSG. (R & L BANK) GASKET, SCREWS & WASHERS	VISUAL	

Change 3

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
309	ADAPTER, CAMSHAFT DRIVE (R & L BANK) GASKET, NUTS & WASHERS	VISUAL	
310	FLANGE, CAMSHAFT DRIVE (R & L BANK) GASKET, SCREWS, WASHERS, LOCKWASHERS, HOSE & CLAMP	VISUAL	
311	EXHAUST MANIFOLD ^{PIPE} PIPE ASSYS (R & L BANK) GASKET, BOLTS, NUTS, WASHERS & PIPE PLUGS CLAMPING BRACKETS, U-BOLTS, LOCKWASHERS & NUTS	VISUAL	
312	ACCESSORY DRIVE HOUSING MTG. NUTS & WASHERS	VISUAL	
313	TURBO TIE ROD ASSY. TIE ROD, MTG. SCREWS, LOCKWASHERS, CLAMP & SCUT & CLAMP, BRACES, BROMMETS, SCREWS, NUTS, WASHERS, & BOLTS	VISUAL	
314	LIFTING EYE SCREWS LOCKWASHERS	VISUAL	
315	FLYWHEEL BOLTS, LOCKWASHERS DOWELS & GEARSHAFT	VISUAL	
316	ADAPTER-TRANSMISSION NUTS, LOCKWASHERS , BOLTS & DOWELS TIMING POINTER, SCREWS & LOCKWASHERS	VISUAL	
317	GENERATOR AIR EXHAUST ELBOW & CLAMPS Hose	VISUAL	

AVDS-1790-2DA - Sheet 13 of 18¹⁹SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins. Initials
318	EXHAUST EJECTOR (L BANK), GASKET, NUTS, INSULATION, SCREWS, WASHERS, LOCKWASHERS & NUTS, TUBE - CRANK-CASE BREATHER, CLAMP, SCREW & NUT, HOSE & CLAMPS	VISUAL	
319	EXHAUST EJECTOR (R BANK), GASKET, NUTS, INSULATION, SCREWS, WASHERS, LOCKWASHERS & NUTS, TRANS. BREATHER TUBE, ELBOWS	VISUAL	
320	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 4 RIGHT BANK			
401	OIL COOLERS WITH SCREENS, BRACKETS, SCREWS & BOLTS & LOCKWASHERS	VISUAL	
402	THERMOSTATIC VALVES & GASKETS ENG. & TRANS OIL COOLERS	VISUAL	
403	CYLINDER ASSEMBLIES MTG. NUTS & COOLING FINS CONDITION	VISUAL	
404	CYLINDER HEAD OIL DRAIN ADAPTER, GASKET, SCREWS & LOCKWASHERS. HOSES, CLAMPS, TUBE ASSYS, BOLTS, LOCKWIRES, CLAMPS, SCREWS & NUTS. TUBE ASSY. GASKET, SCREWS & LOCKWASHERS.	VISUAL	
405	INTAKE MANIFOLD ASSY. MANIFOLD, PLUG, TUBES, GASKETS, FLANGES, NUTS, LOCKWASHERS & LOCKNUTS. ELBOW, GASKET, NUTS, WASHERS & PLUGS	VISUAL	

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins Initials
406	MANIFOLD HEATER IGNITION COLL CLAMPS, SCREWS & NUTS	VISUAL	
407	CYLINDER AIR DEFLECTORS & BAFFLES SCREWS, BOLTS, NUTS, WASHERS & PAINT	VISUAL	
408	ENGINE SHROUDS & COVER SCREWS, LOCKWASHERS, BOLTS, NUTS, & PAINT	VISUAL	
409	CRANKCASE PIPE PLUGS, NUTS, WASHERS, COTTER PINS, DATA AND OVER- HAUL PLATES W/DRIVE SCREWS ENGINE SERIAL NO. REQ'D. ENGINE P/N 12314641 REQ'D. CONTRACT NO. REQ'D. SENDING UNIT, ADAPTER & ELBOW	VISUAL	
410	TURBOCHARGER ASSY. TURBO, MTG. BASE, NUTS, WASHERS, MTG. STUDS, NIPPLE, CONNECTOR & ELBOW, SUPPORT (TURBO TO TRANS ADAPTER) SCREWS, LOCKWASHERS, BOLT, NUT & COTTER PIN OIL DRAIN BACK TUBE MTG. SCREWS, LOCKWASHERS, GASKET, HOSE & CLAMPS OIL DRAIN BACK TUBE, HOSE & CLAMPS	VISUAL	
411	INTAKE TUBE ASSY. (TURBO TO MANIFOLD) ELBOW, GASKET, & NUTS HOSES & CLAMPS TUBE, GASKET & NUTS	VISUAL	

*DIFFERENTIAL PRESSURE SWITCH,
BRACKET ADAPTORS, PACKINGS,
SCREWS & LOCKWASHERS
HOSE ASYS (PRESSURE SWITCH
INLET & OUTLET)*

Change 3

BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Ins: Initials
412	MANIFOLD HEATER ASSY. GASKET, MTG. NUTS & WASHERS SPARK PLUG & LEAD TO IGNITION COIL FUEL LINE (TO PRIMER SOLENOID & FILTER ASSY) CLAM S, SCREWS, & NUTS SPRAY NOZZLE, HOLDER, NUT, CONNECTOR & ELBOWS REDUCER	VISUAL	
413	GENERATOR ASSY. SCREWS, SUPPORT, BOLETS, WASHERS CRADLE, NUTS & WASHERS, SCREWS & WASHERS "U" SOLT, BARS, & NUTS. STRAPS, TUBE, BRACKETS, SCREWS, WASHERS & LOCKWASHERS BOOT CLAMPS, TUBE SUPPORT, CLAMP, WASHERS, SCREWS, LOCKWASHERS, ELBOW & CLAMPS	VISUAL	
414	OIL PAN PI E PLUGS, MTG. NUTS, WASHERS, SCREWS & LOCKWASHERS	VISUAL	
415	LEAKS, OIL & FUEL	VISUAL	
AREA NO. 5			
TOP			
501	HOUSING, VANE, ENGINE COOLING FAN (FRONT & BACK) SCREWS, WASHERS, & LOCKWASHERS	VISUAL	
502	SHROUDS & COVER PLATES SCREWS, WASHERS, LOCKWASHERS & NUTS	VISUAL	
503	TUBE ASSY - SCAVENGE AIR (L BANK): HOSES, CLAMPS, SUBMERGENCE CHECK VALVE, GASKET, BRACKETS, TUBE, BOLTS, SCREWS, WASHERS & NUTS	VISUAL	

506A METER, TIME TOTALIZING
SCREWS & LOCKWASHERS



506B STARTER RELAY MODULE
SCREWS & LOCKWASHERS

SECTION B
BASIC ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Initials
504	TUBE ASSY - SCAVENGE AIR (R BANK): HOSES, CLAMPS, SUBMERGENCE CHECK VALVE, GASKET, BRACKETS, TUBES, BOLTS, SCREWS, WASHERS & NUTS	VISUAL	
505	TUBE ASSY - SMOKE GENERATING, CLAMPS, BOLTS, ELBOW - BULKHEAD	VISUAL	
506	SHUT-OFF ^{DRAIN COCKS} VALVES - OIL SAMPLING, ^{LOCK WASHERS} BRACKET, BOLTS & WASHERS, HOSE ASSYS - OIL DRAIN ^{HOSE ASSYS & DRAIN COCKS} SHUT-OFF VALVES TO OIL COOLERS, CLAMPS, BOLTS TEE & OIL COOLER, ADAPTER, OIL COOLER	VISUAL	
507	LEAKS. FUEL & OIL	VISUAL	
AREA NO. 6 BOTTOM			
601	OIL PAN ASSY. ADAPTER, GASKET, SCREWS, PLUG & GASKET	VISUAL	
602	LEAKS, FUEL & OIL	VISUAL	
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS. THE ENGINE IS NOW READY FOR WIRE HARNESS INSTALLATION.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p>			

SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR.'s Initials
701	<u>ELECTRICAL HARNESS OPERATION</u> STARTER MOTOR _____ STARTER LOW VOLTAGE PROTECTION _____ GENERATOR _____ MANIFOLD HEATER (RT) _____ MANIFOLD HEATER (LT) _____ ENG. OIL TEMP _____ ENG. HI OIL TEMP _____ FUEL SHUT-OFF _____ FUEL WATER SEPARATOR _____ ENG. LOW OIL PRESSURE _____ HOURMETER _____ FUEL SOLENOID _____		
702	ENGINE OIL PRESSURE _____ SMOKE GENERATING FUEL SOLENOIDS _____ DUST DETECTOR PRESSURE SWITCHES _____ PRESERVE FUEL SYSTEM _____	Functional	
703	LEAKS, FUEL & OIL _____	VISUAL	
801	AREA NO. 1 DAMPER END ELECTRICAL WIRING (12314622) (INSTALLATION DWG. #11655452) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS _____	VISUAL	
802	DAMPER HSG. TO OIL PAN MTG. SCREWS & WASHERS _____	VISUAL	
803	LEAKS, FUEL & OIL _____	VISUAL	

5-15-82

SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Insp. Initials
701	<p>GENERATOR AIR SNORKEL PRESSURE TEST @ 5 PSI</p>	Functional	<u> </u>
<p>AREA NO. 1 DAMPER END</p>			
801	<p>ELECTRICAL WIRING (12314645) (INSTALLATION DWG. #11682727) CLAMPS, BRACKETS, NUTS, WASHERS & SCREWS</p>	VISUAL	<u> </u>
802	<p>DAMPER HSG. TO OIL PAN MTC. SCREWS & WASHERS</p>	VISUAL	<u> </u>
<p>AREA NO. 2 LEFT BANK</p>			
901	<p>ELECTRICAL WIRING (12314645) (INSTALLATION DWG. #11682727) BRACKET ASSY., OIL COOLER, BRACKET, RETAINING STRAPS, SCREWS & LOCKWASHERS BRACKET ASSY. ENGR. SHROUD BRACKET, SCREWS, NUTS, RETAINING STRAPS & LOCK- WASHERS, CLAMPS, SCREWS WASHERS & LOCKWASHERS & Post LOCKWIRE STARTER SUPPORT SCREWS WIRING HARNESSES ENGINE, STARTER GROUND & MOTOR</p>	VISUAL	<u> </u>
<p><u>STARTER GROUND LEAD</u></p>			
<p>AREA NO. 3 TRANSMISSION MOUNTING FACE END</p>			
1001	<p>GENERATOR AIR OUTLET ELBOW & CLAMPS</p>	VISUAL	<u> </u>

SECTION C
SPARE ENGINE ASSEMBLY INSPECTION

Item No.	CHARACTERISTIC	Method of Inspection	MFR's Inst. Initials
1101	<p style="text-align: center;">AREA NO. 4 RIGHT BANK</p> <p>ELECTRICAL WIRING <i>12314645)</i> (INSTALLATION DWG. #11682727) BRACKET ASSY. (OIL COOLER), BRACKET, RETAINING STRAPS, SCREWS, BOLTS & LOCKWASHERS BRACKET SOB WS, NUTS, RETAINING STRAP, LOCKWASHERS BRACKET ASSY. (TRANS. DISCONNECT) BRACKET, SCREWS & LOCKWASHERS CLAMPS, SCREWS & LOCKWASHERS, <i>WASHERS & NUTS</i> <i>LEAD ASSYS GENERATOR & GENERATOR BLOWER</i> <i>GENERATOR GROUND LEAD</i></p>	VISUAL	
1102	<p>GENERATOR AIR INTAKE TUBE, BRACKETS, SCREWS BOLTS WASHERS, LOCKWASHERS, HOSE HOSE, CLAMPS & ELBOW</p>	VISUAL	
1201	<p style="text-align: center;">AREA NO. 5 TOP</p> <p>ELECTRICAL WIRING (INSTALLATION DWG. #11682727) <i>12314645)</i> WIRING HARNESS, BRACKETS, SCREWS LOCKWASHERS, CLAMPS, NUTS, NOTE POSITION OF ELECTRICAL CONNECTORS</p>	VISUAL	
1202	<p><i>OUTER SHEET SECURED</i></p>		
<p>THE ABOVE LISTED CHARACTERISTICS HAVE BEEN INSPECTED AND ARE IN CONFORMANCE WITH THE ENGINE STOCKLIST AND ENGINE ASSEMBLY DRAWINGS.</p> <p>CONTRACTOR INSPECTOR & DATE _____</p> <p>SIGNATURE OF CONTRACTOR INSPECTOR ALSO REQUIRED ON COVER SHEET UNDER FINAL INSPECTION.</p>			

GLOSSARY

The majority of terms used in this DMWR are adequately defined in text or appear in a standard dictionary. Those terms that are peculiar to the equipment covered by this DMWR, however, or are essential to the intent and requirements of this DMWR, are defined as follows:

A

ACCEPTABLE
QUALITY LEVEL (AQL)

The maximum percent defective (or the maximum number of defects per hundred units) that can be considered satisfactory as a process average for the purposes of sampling inspection.

ACCEPTANCE

The act of an authorized representative of the Government by which the Government assumes for itself, or as an agent of another ownership of identified and existing supplies tendered, or approves specific services rendered, as partial or complete performance of the contract by the contractor.

ASSEMBLE

The operation of fitting together all subassemblies and associated parts into a complete assembly to effect a serviceable item of equipment.

ASSEMBLY

A group of two or more physically related and connected parts capable of being disassembled; which when combined with other subassemblies, assemblies, components, and parts, create a complete end item or unit of a complete end item.

ASSOCIATED PARTS

A group of two or more parts that are not part of an assembly but are used in conjunction with it to create a complete end item.

C

CALIBRATION

Comparison of an instrument to another of which is a standard of known accuracy traceable to national standards, to detect, correlate, report, eliminate by adjustment any discrepancy in accuracy of the instrument being compared with the standard.

CERTIFICATE OF
CONFORMANCE

A written statement by the contractor when authorized by contract, certifying that supplies or services are in compliance with contract requirements.

DMWR 9-2815-220

CHARACTERISTIC	A identifiable property of a product of material.
CHIPPED	Evidence of material missing (usually on edges) due to extensive use or abuse.
COMPONENT	A group of physically connected assemblies, sub-assemblies, and/or parts, capable of independent operation or function, which may be externally activated from another source, but when combined with other components, assemblies, subassemblies, and/or parts, form a functional unit or end item.
CONTRACTING OFFICER'S REPRESENTATIVE (COR)	COR is used herein to indicate the representative of the individual designated as responsible for overall administration of the contract by the Army.
CORROSION	Surface pitting, resulting in surface deterioration, caused by chemical action such as contact of dissimilar and noncompatible materials or exposure to hostile elements.
CRACK	Separation of an item's base material, usually due to extensive use, abuse, or sudden impact or application of force, visually evidenced by an irregular line.
D	
DEPOT MAINTENANCE WORK REQUIREMENTS (DMWR)	A document that provides, in explicit terms, the scope of depot/contract maintenance operations to be performed on an item or equipment; kinds and types of material to be used; quality of workmanship; method of repair procedures, and techniques; modification requirements; wear limits, fits, and tolerances; equipment performance parameters to be achieved; quality assurance requirements; and other essential factors which prescribe depot/contract maintenance operations to insure that an acceptable and cost effective product is produced.
DISASSEMBLY	The operation required to reduce an assembly or sub-assembly to its separate parts.
EXPENDABLE ITEMS	Items that are consumed in use or which lose their identity upon application.
F	
FAILURE	The malfunction of an item or its inability to perform within previously specified limits.
FULL RACK	Operation at maximum output within limits imposed by automatic or inherent controls.

I

- INSPECTION The examination and testing of an item to determine whether it conforms to specified requirements.
- INSTALLATION The replacement of an assembly, part, or component on or in another assembly, component, or end item of which it is a part.
- ITEM A generic term used to identify a specific item under consideration.

M

- MAINTENANCE All actions necessary for restoring an item to service condition.
- MEASURING AND TEST EQUIPMENT Devices used to measure, gage, test, inspect, or otherwise examine parts or components to determine compliance with technical requirements.
- MODIFICATION An alteration and/or integral change, after production, affecting the configuration of equipment or its parts, components, subassemblies, or assemblies.

N

- NONCONFORMANCE The failure of an item to conform to specified requirements for any quality characteristic.

O

- OVERHAUL Generally, the highest degree of maintenance performed. Overhaul consists of all maintenance required to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment.

P

- PART A part is the smallest subdivision of an assembly and is not normally subjected to further subdivision during maintenance.

Q

- QUALITY ASSURANCE (QA) A planned system of all actions necessary to provide confidence that the item or product conforms to established technical requirements.
- QUALITY CONTROL (QC) A management function whereby control of quality of raw or produced material is exercised to prevent production of defective material.

DMWR 9-2815-220

R

RELIABILITY ASSURANCE	All actions required to provide adequate probability that material conforms to established reliability requirements.
REPAIR	To restore an assembly, subassembly, component, or part to a serviceable condition in accordance with the instructions contained in this DMWR.
RECONDITION	Renovate, repair, overhaul, rebuild, or any combination of these activities to return an item to a state of serviceability.

S

SERVICEABLE	Capable of being returned in service or returned to stock for later issue without limitation to performance or overall function.
SERVICING	The lubrication, treating, cleaning, and/or preservation required to maintain equipment and/or other respective parts in a serviceable condition.
SMR CODE	Source, Maintenance, and Recoverability data relating to repair parts provisioning, category of maintenance, and recovery or salvage of unserviceable items.
SPECIFICATION	A document intended primarily for use in procurement, which describes the essential requirements for items, materials, or services, including procedures for determining that the requirements have been met. Specifications for items and materials may also contain preservation, packaging, packing, and marking requirements.

T

TEST	The checking of equipment, using approved test and diagnostic equipment or facilities, to determine that the component or end item is functioning properly within the limits set forth in this document.
TESTING	An element of inspection generally requiring the determination using technical means of the properties or elements of supplies, or components thereof, including functional operation, and involving the application of established scientific principles and procedures.

V

VERIFICATION INSPECTION	Inspection performed by the responsible Government Quality Assurance element on items which have undergone inspection by the supplier.
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VISUAL
EXAMINATION

Examination performed by normal vision, including the use of any normal corrective lenses required by inspection personnel.

BLANK

FRAME

INDEX NOT
 VERIFIED
 SHOULD BE DONE
 AFTER RENUMBERING

DMWR 9-2815-220

INDEX

Subject	Paragraph	Page
A		
Accessories (See specific item.)		
Adapter, generator drive (See generator drive.)		
Adapter, starter drive (See starter drive.)		
Adapter, transmission:		
Assembly	5-17b	5/63
Cleaning	5-15b	5/56
Disassembly	5-15a	5/56
Inspection	5-16	5/56
Repair	5-17a	5/63
Wear limits, fits, and tolerances	table 5-3	5/58
Advance assembly, fuel injection pump:		
Assembly and test	5-65b	5/418
Cleaning	5-63b	5/390
Disassembly	5-63a	5/390
Inspection	5-64	5/390
Repair	5-65a	5/418
Wear limits, fits, and tolerances	table 5-26	5/390
Appendix A (Listing of manual references)	A-1	A/1
Appendix B (Final inspection records)	B-1	B/1
Assembly	5-8	5/11
Assembly (See specific item.)		
Automatic drain system (See fuel check valve and electrical components.)		
B		
Bearing, ball and needle:		
Cleaning	5-3e	5/2
Inspection	5-4e	5/3
Repair	5-5c	5/5
Bearing, connecting rod (See connecting rod.)		
Bearing, crankshaft main (See crankcase assembly.)		
Bearing, fan clutch (see clutch, fan drive.)		
Bulk and expendable materials	2-6	2/26
Bushings, liners, and bushing type bearings:		
Inspection	5-4i	5/4
Repair	5-5h	5/7
C		
Camshaft and drive assemblies:		
Assembly	5-53b	5/333
Cleaning	5-51b	5/307
Description	1-5c	1/11

INDEX - Continued

Subject	Paragraph	Page
Disassembly	5-51a	5/307
Drive ratios and rotations	1-6	1/22
Inspection	5-52	5/307
Repair	5-53a	5/330
Wear limits, fits, and tolerances	table 5-20	5/309
Castings:		
Cleaning	5-3b	5/1
Inspection	5-4d	5/3
Repair	5-5b	5/5
Cleaning, general (Also see specific item.)	5-3	5/1
Clutch, fan drive:		
Assembly	5-69b	5/445
Cleaning	5-67b	5/426
Description	1-5c	1/18
Disassembly	5-67a	5/426
Inspection	5-68	5/426
Repair	5-69a	5/445
Wear limits, fits, and tolerances	table 5-27	5/428
Connecting rod:		
Assembly	5-33b	5/144
Cleaning	5-31b	5/121
Description	1-5c	1/10
Disassembly	5-31a	5/121
Inspection	5-32c	5/122
Repair	5-33a	5/143
Wear limits, fits and tolerances	table 5-9	5/126
Cooling fan (See fan, cooling.)		
Cooling fan shroud (See shrouds, engine.)		
Cooling fan vane (See shrouds, engine.)		
Cooling system	1-5c	1/18
Corrective action	1-3d	1/4
Coupling, fuel injection pump drive:		
Assembly	5-141b	5/900
Cleaning	5-139b	5/892
Disassembly	5-139a	5/892
Inspection	5-140	5/892
Repair	5-141a	5/900
Wear limits, fits, and tolerances	table 5-48	5/893
Cover, valve rocker arm (See cylinder assembly.)		
Crankcase assembly:		
Assembly	5-13b	5/51
Cleaning	5-11b	5/16
Description	1-5c	1/7
Disassembly	5-11a	5/16

INDEX - Continued

Subject	Paragraph	Page
Inspection	5-12	5/16
Repair	5-13a	5/48
Wear limits, fits, and tolerances	table 5-1	5/17
Crankcase breather tube (See tube, crankcase breather.)		
Crankcase main bearing stud nuts, torquing procedure	5-9c	5/13
Crankshaft accessory drive gear (See housing, rear fan and accessory drive.)		
Crankshaft and associated parts:		
Assembly	5-22b	5/88
Cleaning	5-19b	5/65
Description	1-5c	1/8
Disassembly	5-19a	5/65
Inspection	5-20	5/65
Repair	5-21a	5/88
Wear limits, fits, and tolerances	table 5-5	5/67
Crankshaft torsional vibration damper (See damper, torsional vibration.)		
Cylinder air deflector (See shrouds, engine.)		
Cylinder assembly:		
Assembly	5-37e	5/201
Cleaning	5-35b	5/146
Data	1-6	1/22
Description	1-5c	1/10
Disassembly	5-35a	5/146
Inspection	5-36	5/146
Repair	5-37a	5/191
Wear limits, fits, and tolerances	table 5-10	5/148
Cylinder head shroud plates (See shrouds, engine.)		
Cylinder oil drain tubes (See tube, cylinder head oil drain.)		

D

Damper, torsional vibration:		
Cleaning	5-3	5/1
Description	1-5c	1/8
Inspection	5-4	5/3
Repair	5-5	5/5
Wear limits, fits, and tolerances	table 5-5	5/67
Data plates:		
Equipment data plates	1-7a	1/24
Overhaul data plates	1-7b	1/29
Definitions	1-4	1/4
Deflector, cylinder air (See shrouds, engine.)		
Deflector, cylinder head (See shrouds, engine.)		

INDEX - Continued

Subject	Paragraph	Page
Deviations and exceptions	1-3	1/4
Differences between models	1-8	1/31
Disassembly (See specific item.)	5-2	5/1
Dowel pins:		
Inspection	5-4g	5/4
Repair	5-5e	5/7
Drive ratios and rotation data	1-6	1/23
E		
Elbow, exhaust manifold (See manifolds, exhaust.)		
Elbow, turbosupercharger air outlet (See manifolds, intake.)		
Electrical cables	5-3d	5/2
Electrical components:		
Assembly	5-149b	5/937
Cleaning	5-147b	5/918
Disassembly	5-147a	5/918
Inspection	5-148	5/918
Repair	5-149a	5/937
Wear limits, fits, and tolerances	5-51	5/921
Electromagnetic compatibility standards	2-10	2/49
Exhaust system and turbosupercharger	1-5c	1/18
Exhaust valve (See cylinder assembly.)		
F		
Fabricated tools and equipment	2-5	2/14
Facilities	2-1	2/1
Fan, cooling:		
Assembly	5-89b	5/614
Cleaning	5-87b	5/553
Description	1-5c	1/18
Disassembly	5-87a	5/553
Inspection	5-88	5/553
Repair	5-89a	5/614
Wear limits, fits, and tolerances	table 5-33	5/557
Fan drive clutch, front (See clutch, cooling fan.)		
Fan drive clutch, rear (See clutch, cooling fan.)		
Fan drive housing, front (See housing, front fan drive.)		
Filter (See specific item.)		
Final assembly and performance check:		
Final assembly	6-1	6/1
Performance check	6-4	6/3
Final inspection references (See Appendix B.)		

INDEX - Continued

Subject	Paragraph	Page
Fire extinguisher system (See tube, fire extinguisher.) . . .	1-5c	1/21
Flywheel:		
Cleaning	5-3	5/1
Description	1-5c	1/8
Inspection	5-4	5/3
Repair	5-5	5/5
Wear limits, fits, and tolerances	table 5-5	5/67
Frame, oil cooler and associated parts (See oil cooler frames, shrouds, and associated parts.)		
Fuel check valve (See valve, fuel check.)		
Fuel filter, manifold heater (See fuel filters.)		
Fuel filters:		
Assembly	5-117b	5/789
Cleaning	5-115b	5/755
Description	1-5c	1/16
Disassembly	5-115a	5/755
Inspection	5-116	5/755
Repair	5-117a	5/789
Wear limits, fits, and tolerances	table 5-42	5/761
Fuel filter, primary (See fuel filters.)		
Fuel injection metering pump:		
Data	1-6	1/23
Description	1-5c	1/13
Fuel injector nozzle return tubes (See tube, fuel injector nozzle fuel return.)		
Fuel injector tubes (See tube, fuel injector.)		
Fuel pump drive (Models AVDS-1790-2C and AVDS-1790-2D, See crankshaft and associated parts.)		
Fuel pump drive (Model AVDS-1790-2DR):		
Assembly	5-145b	5/916
Cleaning	5-143b	5/902
Disassembly	5-143a	5/902
Inspection	5-144	5/902
Repair	5-145a	5/915
Wear limits, fits, and tolerances	table 5-49	5/904
Fuel shutoff solenoid (See electrical components.)		
Fuel system:		
Data	1-6	1/22
Description	1-5c	1/13
Fuel/Water separator filter and elements (See fuel filters.)		

G

Gear, accessory drive (See housing, rear fan and accessory drive.)
Gear, generator driven idler (See generator drive.)
Gear, starter driven idler (See starter drive.)

INDEX - Continued

Subject	Paragraph	Page
Gear, starter idler (See starter drive.)		
Gears and shafts:		
Inspection	5-4h	5/4
Repair	5-5g	5/7
Gearshaft, starter driven (See starter drive.)		
Gearshaft, transmission drive (See crankshaft and associated parts.)		
Generator	1-5b	1/7
Generator, air ducting:		
Assembly	5-133b	5/878
Cleaning	5-131b	5/863
Disassembly	5-131a	5/863
Inspection	5-132	5/863
Repair	5-133a	5/878
Wear limits, fits, and tolerances	table 5-46	5/865
Generator drive:		
Assembly	5-25b	5/105
Cleaning	5-23b	5/90
Disassembly	5-23a	5/90
Inspection	5-24	5/90
Repair	5-25a	5/104
Wear limits, fits, and tolerances	table 5-6	5/92
Generator drive gearshaft (See generator drive.)		
Generator driven idler gear (See generator drive.)		
Glossary		Glossary/1
Guide, valve (See cylinder assembly.)		

H

Heater, manifold:		
Assembly	5-97b	5/676
Cleaning	5-95b	5/654
Data	1-6	1/23
Description	1-5c	1/16
Disassembly	5-95a	5/654
Inspection	5-96	5/654
Repair	5-97a	5/676
Wear limits, fits, and tolerances	table 5-36	5/657
Hose, fuel inlet (See fuel filters.)		
Hose, fuel return (See tube, fuel injector.)		
Hose, turbosupercharger oil (See hoses, oil.)		
Hoses, oil (injection pump, turbosuperchargers, generator, and oil coolers):		
Assembly	5-129b	5/861
Cleaning	5-127b	5/850

INDEX - Continued

Subject	Paragraph	Page
Disassembly	5-127a	5/850
Inspection	5-128	5/850
Repair	5-129a	5/861
Wear limits, fits, and tolerances	table 5-45	5/852
Housing, crankshaft damper and oil filter:		
Assembly	5-49b	5/305
Cleaning	5-47b	5/276
Disassembly	5-47a	5/276
Inspection	5-48	5/276
Repair	5-49a	5/304
Wear limits, fits, and tolerances	table 5-18	5/278
Housing, crankshaft oil seal (See crankcase assembly.)		
Housing, front fan drive:		
Assembly	5-57b	5/352
Cleaning	5-55b	5/335
Disassembly	5-55a	5/335
Inspection	5-56	5/335
Repair	5-57a	5/351
Wear limits, fits, and tolerances	table 5-22	5/336
Housing, rear fan and accessory drive:		
Assembly	5-61b	5/387
Cleaning	5-59b	5/354
Disassembly	5-59a	5/354
Inspection	5-60	5/354
Repair	5-61a	5/387
Wear limits, fits, and tolerances	table 5-24	5/357

I

Identification numbers	1-3a	1/4
Ignition unit, manifold heater (See heater, manifold.)		
Induction heater system (See heater, manifold.)		
Insert, threaded (See screw thread inserts.)		
Inspection and test equipment	2-4	2/6
Inspection, general (Also see specific item.)	5-4	5/2
Inspection requisite	1-3g	1/4
Intake manifold (See manifold, intake.)		
Intake manifold heater (See heater, manifold.)		
Intake valve (See cylinder assembly.)		
Introduction	1-1	1/1

L

Lever, intermediate throttle (See linkage, throttle.)
 Linkage, fuel injection pump (See linkage, throttle.)

INDEX - Continued

Subject	Paragraph	Page
Linkage, throttle (Models AVDS-1790-2C and AVDS-1790-2D.)		
Assembly	5-81b	5/520
Cleaning	5-79b	5/492
Disassembly	5-79a	5/492
Inspection	5-80	5/492
Repair	5-81a	5/520
Wear limits, fits, and tolerances	table 5-31	5/496
Linkage, throttle (Model AVDS-1790-2DR.)		
Assembly	5-85b	5/551
Cleaning	5-83b	5/522
Disassembly	5-83a	5/522
Inspection	5-84	5/522
Repair	5-85a	5/551
Wear limits, fits, and tolerances	table 5-32	5/525
Listing of manual references (See Appendix A.)		
Location of engine components	1-5	1/6
Lubrication system:		
Data	1-6	1/22
Description	1-5c	1/11
M		
Main bearings	1-5c	1/8
Maintenance forms and records	1-2	1/4
Maintenance, overhaul and repair, general (Also see specific item.)	5-1	5/1
Man-hours	1-3f	1/4
Man-hour standards	2-9	2/46
Mandatory replacement parts	2-7	2/27
Manifold air induction and heater system (See heater, manifold.)		
Manifold, exhaust:		
Assembly	5-101b	5/699
Cleaning	5-99b	5/678
Disassembly	5-99a	5/678
Inspection	5-100	5/678
Repair	5-101a	5/699
Wear limits, fits, and tolerances	table 5-37	5/680
Manifold heater (See heater, manifold.)		
Manifold heater fuel filter (See fuel filters.)		
Manifold heater fuel tube (See fuel filters.)		
Manifold heater solenoid valve (See electrical components.)		

INDEX - Continued

Subject	Paragraph	Page
Manifold, intake:		
Assembly	5-93b	5/652
Cleaning	5-91b	5/616
Disassembly	5-91a	5/616
Inspection	5-92	5/616
Repair	5-93a	5/651
Wear limits, fits, and tolerances	table 5-34	5/618
Meter, time totalizing (See electrical components.)		
Module, starter low-voltage protective (See electrical components.)		
Mounting base, front fan drive housing (See housing, front fan drive.)		
Mounting base, rear fan drive housing (See housing, rear fan and accessory drive.)		
Mounting base tie rod, turbosupercharger (See manifold, intake.)		
Mounting base, turbosupercharger (See manifold, intake.)		
Non-completion	1-3b, c	1/4
Nozzle and holder, fuel injector:		
Assembly	5-125b	5/848
Cleaning	5-123b	5/830
Disassembly	5-123a	5/830
Inspection and test	5-124	5/830
Repair	5-125a	5/848
Wear limits, fits, and tolerances	table 5-44	5/835
Nozzle, piston oiler (See crankcase assembly.)		
0		
Oil capacity data	1-6	1/23
Oil cooler frames, shrouds, and associated parts:		
Assembly	5-77b	5/490
Cleaning	5-75b	5/472
Disassembly	5-75a	5/472
Inspection	5-76	5/472
Repair	5-77a	5/490
Wear limits, fits, and tolerances	table 5-30	5/474
Oil coolers and screens, engine and transmission:		
Assembly	5-73b	5/470
Cleaning	5-71b	5/447
Description	1-5c	1/20

INDEX - Continued

Subject	Paragraph	Page
Disassembly	5-71a	5/447
Inspection	5-72	5/451
Repair	5-73a	5/469
Wear limits, fits, and tolerances.	table 5-28	5/452
Oil filler tube (See tube, oil filler.)		
Oil filter (See housing, crankshaft damper and oil filter.)		
Oil filter housing (See housing, crankshaft damper and oil filter.)		
Oil level indicator tube (See tube, oil level indicator.)		
Oil pan assembly:		
Assembly	5-45b	5/274
Cleaning	5-43b	5/260
Description	1-5c	1/11
Disassembly	5-43a	5/260
Inspection	5-44	5/260
Repair	5-45a	5/273
Wear limits, fits, and tolerances	table 5-16	5/262
Oil passages	5-3c	5/2
Oil pressure regulating valve (See housing, crankshaft damper and oil filter.)		
Oil pressure sending unit (See electrical components.)		
Oil pump assembly:		
Assembly	5-41b	5/257
Cleaning	5-39b	5/203
Data	1-6	1/23
Description	5-39a	1/12
Disassembly	5-39a	5/203
Inspection	5-40	5/203
Repair	5-41a	5/256
Wear limits, fits, and tolerances	table 5-13	5/206
Oil pump pressure relief valve (See oil pump.)		
Oil seal, crankshaft (See crankshaft assembly.)		
Oil seal, fan drive (See housing, front fan drive.)		
Oil temperature sending unit (See electrical components.)		
Overhaul procedure	1-1b	1/4
P		
Painted parts (See sheet metal parts.)		
Parts availability	1-3e	1/4
Pistons, rings, and piston pins:		
Assembly	5-33b	5/144
Cleaning	5-31b	5/121

INDEX - Continued

Subject	Paragraph	Page
Data	1-6	1/22
Description	1-5c	1/10
Disassembly	5-31a	5/121
Inspection	5-32b	5/122
Repair	5-33a	5/143
Wear limits, fits, and tolerances	table 5-9	5/125
Power take-off drive assembly (See fuel pump drive.)		
Preservation, packaging, packing, marking and shipping:		
Cleaning	8-1	8/1
Engine assembly	8-4	8/4
Inspection and tests	8-6	8/7
Loose items	8-3	8/3
Preservation	8-2	8/1
Storage and shipping container markings	8-5	8/6
Preshop analysis:		
Cleaning	3-5	3/3
General	3-1	3/1
Overhaul estimate	3-2	3/2
Preliminary inspection	3-4	3/3
Temporary preservation	3-6	3/3
Unpacking instructions	3-3	3/2
Pump, fuel:		
Data	1-6	1/23
Description	1-5c	1/13
Q		
Quality assurance requirements:		
Certification of personnel, materials and processes	7-5	7/4
Final inspection of completed engines	7-9	7/8
First article inspection	7-7	7/7
In-process inspection	7-8	7/7
Inspection and test equipment	7-4	7/3
Inspection of processing for storage and/or shipment	7-11	7/9
Quality assurance plan	7-6	7/5
Quality assurance terms and definitions	7-3	7/2
Quality audits	7-10	7/8
Quality of material	2-8	2/46
Responsibility for inspection	7-2	7/1
R		
References	1-1d	1/4
Removal of major assemblies	4-1	4/1
Removal (See specific item.)		

INDEX - Continued

Subject	Paragraph	Page
Repair, general (Also see specific item.)	5-5	5/5
Rocker arm cover, valve (See cylinder assembly.)		
Rocker arm, shaft and valve (See cylinder assembly.)		
Rod, throttle control (See linkage, throttle.)		
Scope	1-1	1/1
Screw thread inserts:		
Inspection	5-4j	5/4
Replacement	5-6	5/8
Shaft, throttle control cross (See linkage, throttle.)		
Sheet metal parts:		
Cleaning	5-3f	5/2
Inspection	5-4k	5/5
Repair (paint)	5-5f	5/7
Shipping and storage container:		
Assembly	5-157b	5/981
Cleaning	5-155b	5/967
Disassembly	5-155a	5/967
Inspection	5-156	5/967
Installation, engine	8-4	8/4
Repair	5-157a	5/981
Wear limits, fits, and tolerances	table 5-53	5/969
Shroud, camshaft drive (See camshaft and drive assemblies.)		
Shrouds, engine:		
Assembly	5-89b	5/614
Cleaning	5-87b	5/553
Disassembly	5-87a	5/553
Inspection	5-88	5/553
Repair	5-89a	5/614
Wear limits, fits, and tolerances	table 5-33	5/557
Shroud, front (See shrouds, engine.)		
Shroud plate, cylinder head (See shrouds, engine.)		
Shroud, rear (See shrouds, engine.)		
Shroud, transmission (Models AVDS-1790-2C and AVDS-1790-2D):		
Assembly	5-89b	5/614
Cleaning	5-87b	5/553
Disassembly	5-87a	5/553
Inspection	5-88	5/553
Repair	5-89a	5/614
Wear limits, fits, and tolerances	table 5-33	5/557
Solenoid, fuel cutoff.	1-5c	1/16
Solenoid valve, automatic drain (See electrical components.)		
Solenoid valve, manifold heater (See heater, manifold.)		

INDEX Continued

Subject	Paragraph	Page
Special tools and equipment	2-3	2/1
Standard pipe plug torques	5-9d	5/14
Starter	1-5b	1/7
Starter drive:		
Assembly	5-29c	5/119
Cleaning	5-27b	5/107
Disassembly	5-27a	5/107
Inspection	5-28	5/107
Repair	5-29a	5/118
Wear limits, fits, and tolerances	table 5-8	5/108
Starter driven idler gear (See starter drive.)		
Studs:		
Identification (See specific subassembly.)		
Inspection	5-4f	5/3
Repair	5-5d	5/6
Torque specifications	5-9b	5/12
Support frame, oil cooler (See oil cooler frames, shrouds, and associated parts.)		
Support, turbosupercharger (See manifold, intake.)		
Supports, generator and starter:		
Assembly	5-113b	5/753
Cleaning	5-111b	5/740
Disassembly	5-111a	5/740
Inspection	5-112	5/740
Repair	5-113a	5/752
Wear limits, fits, and tolerances	table 5-40	5/742
Switches	1-5c	1/21
Symbols	5-4c	5/3
T		
Tabulated data	1-6	1/22
Tachometer drive (ratio)	1-6	1/23
Technical requirements	2-1	2/1
Test and adjustments (See specific item.)		
Thermostat, transmission oil cooler flow control (See oil coolers and screens, engine and transmission.)		
Threaded insert (See screw thread inserts.)		
Throttle control cross shaft (See linkage, throttle.)		
Throttle control rod (See linkage, throttle.)		
Throttle linkage (See linkage, throttle.)		
Tie rod, crankcase (See crankcase assembly.)		
Tie rod, turbosupercharger (See manifold, intake.)		
Tools and equipment, improvised (See fabricated tools and equipment.)		

INDEX (Continued)

Subject	Paragraph	Page
Tools and equipment, special (See special tools and equipment.)		
Torque specifications	5-9	5/12
Transmission adapter (See adapter, transmission.)		
Transmitters		1/21
Tube, crankcase breather:		
Assembly	5-137b	5/890
Cleaning	5-135b	5/880
Disassembly	5-135a	5/880
Description	1-5c	1/21
Inspection	5-137a	5/880
Repair	5-137a	5/890
Wear limits, fits, and tolerances	table 5-47	5/881
Tube, cylinder head oil drain:		
Assembly	5-105b	5/721
Cleaning	5-103b	5/701
Disassembly	5-103a	5/701
Inspection	5-103a	5/701
Repair	5-105a	5/721
Wear limits, fits, and tolerances	table 5-38	5/703
Tube, fire extinguisher:		
Assembly	5-139b	5/890
Cleaning	5-135b	5/880
Disassembly	5-135a	5/880
Inspection	5-136	5/880
Repair	5-137a	5/890
Wear limits, fits, and tolerances	table 5-47	5/881
Tube, fuel injector:		
Assembly	5-121b	5/828
Cleaning	5-119b	5/791
Disassembly	5-119a	5/791
Inspection	5-120	5/791
Repair	5-121a	5/828
Wear limits, fits, and tolerances	table 5-43	5/795
Tube, fuel injector nozzle fuel return:		
Assembly	5-121b	5/828
Cleaning	5-119b	5/791
Disassembly	5-119a	5/791
Inspection	5-120	5/791
Repair	5-121a	5/828
Wear limits, fits, and tolerances	table 5-43	5/795
Tube, intake manifold (See manifold, intake.)		
Tube, manifold heater fuel (See heater, manifold.)		

INDEX - Continued

Subject	Paragraph	Page
Tube, oil filler:		
Assembly	5-109b	5/738
Cleaning	5-107b	5/723
Disassembly	5-107a	5/723
Inspection	5-108	5/723
Repair	5-109a	5/738
Wear limits, fits, and tolerances	table 5-39	5/725
Tube, oil level indicator:		
Assembly	5-109b	5/738
Cleaning	5-107b	5/723
Disassembly	5-107a	5/723
Inspection	5-108	5/723
Repair	5-109a	5/738
Wear limits, fits, and tolerances	table 5-39	5/725
Turbosupercharger	1-5c	1/16
Turbosupercharger oil hose (See hose, oil.)		

V

Valve clearance adjusting screws (See cylinder assembly.)		
Valve cover, rocker arm (See cylinder assembly.)		
Valve, exhaust (See cylinder assembly.)		
Valve, fuel check:		
Assembly	5-117b	5/789
Cleaning	5-115b	5/755
Description	1-5c	1/16
Disassembly	5-115a	5/755
Inspection	5-116	5/755
Repair	5-117a	5/789
Wear limits, fits, and tolerances	table 5-42	5/761
Valve, intake (See cylinder assembly.)		
Valve, oil cooler bypass (See housing, crankshaft damper and oil filter.)		
Valve, oil cooler thermostatic (See oil coolers and screens, engine and transmission.)		
Valve, oil filter bypass (See housing, crankshaft damper and oil filter.)		
Valve, oil pressure regulator (See housing, crankshaft damper and oil filter.)		
Valve rocker arm (See cylinder assembly.)		
Valve rocker arm cover (See cylinder assembly.)		
Vane, cooling fan (See shrouds, engine.)		

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS MANUAL?

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

Your mailing address.

DATE Date you fill out this form.

PUBLICATION NUMBER

TM 9-XXXX-XXX-XX

DATE

Date of TM

TITLE

Title of TM.

BE EXACT: . . . PIN-POINT WHERE IT IS

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
3		2	
109		51	
2-8			2-1
12	1-6a		

Item 10. Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.

Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.

2-1 Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.

Since there are both 20- and 30- round magazines for this rifle, data on both should be listed.

SAMPLE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 2028-2 (TEST) 1 AUG 74

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND," MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

TEAR ALONG DOTTED LINE