ROUTINE

MWO effective date is 1 September 2002 and completion date is 31 December 2003.

MWO 9-2320-387-20-1

MODIFICATION WORK ORDER

MODIFICATION OF 1-1/4 TON VEHICLE
EXPANDED CAPACITY VEHICLE
M1113 AND M1114

REAR DIFFERENTIAL COOLER MODIFICATION KIT

Headquarters, Department of the Army, Washington, D.C.

1 September 2002

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM." The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or e-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

1. PURPOSE.

This modification provides instructions for installing rear differential cooler system on the expanded capacity vehicles. The rear differential cooler eliminates internal heat buildup during use in desert-like conditions.

2. PRIORITY.

This modification is classified as ROUTINE.

3. END ITEM TO BE MODIFIED.

a. Selected vehicles as identified by serial number 192,464 and below.

NOMENCLATURE	NSN	PART NO.	CAGEC	MODEL
Truck, Utility, Expanded Capacity, 4x4				
Shelter Carrier	2320-01-412-0143	87T0014	19207	M1113
Up-Armored Carrier	2320-01-413-3739	87T0015	19207	M1114

b. Vehicle National Stock Number (NSN) will not change as a result of this MWO.

4. MODULE TO BE MODIFIED.

Not applicable.

5. PARTS TO BE MODIFIED.

Not applicable.

6. APPLICATION.

a. Time Compliance Schedule: The effective date of this MWO is 1 July 2002 and its completion date is 31 December 2003.

b. The lowest level of maintenance authorized to apply this MWO is organizational.

c. Work force and man-hour requirements for application of this MWO to a single unit, end item, or system:

REQUIREMENTS	
WORK FORCE/SKILLS	**MAN-HOURS**
One Wheeled Vehicle Mechanic (MOS 63B) or equivalent	12.0
Total man-hours required for a single application of this MWO	12.0

7. TECHNICAL PUBLICATIONS AFFECTED/CHANGED AS A RESULT OF THE MWO.

TECHNICAL PUBLICATION	DATE
TM 9-2320-387-10	Oct 97
TM 9-2320-387-24	Dec 97
TM 9-2320-387-24P	Sep 98

8. MWO KITS, PARTS, AND THEIR DISPOSITION.

a. The following kit is required to accomplish this modification. The security classification of the kit is unclassified. Shipping data is: Weight 30 lbs; the kit measures 58.8 x 16.6 x 8.3 in.; its volume is 4.050 cu. ft.

NSN	NOMENCLATURE	CAGEC	PART NO.
2520-01-493-7899	Rear Differential Cooler Modification Kit	19207	57K3586

b. Rear Differential Cooler Modification Kit component parts are listed below. The listing is used to inventory the kit for completeness.

NSN	NOMENCLATURE	CAGEC	PART NO.	QTY
9905-00-858-5682	Plate, Instruction, MWO	19207	10930014	1
4730-01-413-8244	Clamp	19207	11608950-1	3
4730-01-461-9362	Clamp	19207	11608950-14	2
5365-01-272-8376	Spacer, Sleeve	19207	12338186-61	2
5340-01-197-5477	Plate, Reinforcement	19207	12339006	1
4730-01-409-1204	Tee	19207	12447077	1
5306-01-488-6213	Screw	19207	12448438-18	12
4720-01-488-6218	Hose	19207	12469224	1
4720-01-488-6220	Hose	19207	12469225	1
	Wrap, Spiral	19207	12469440-1	1
	Wrap, Spiral	19207	12469440-2	1
4810-01-488-6225	Valve, Manifold	19207	12469456	1
4720-01-488-6230	Hose	19207	12469499	1
4720-01-488-6232	Hose	19207	12469500	1
5340-01-488-6234	Cooler Cover Assembly	19207	12469504	1
	Tube	19207	12469505	1
4710-01-488-6236	Tube	19207	12469506	1
4710-01-488-6237	Tube	19207	12469507	1
4720-01-488-6243	Tube	19207	12469508	1
4710-01-488-6241	Tube	19207	12469509	1
4710-01-488-6311	Tube	19207	12469510	1
4710-01-488-6424	Hose	19207	12469511	2
4710-01-488-6426	Hose	19207	12469512	2
5305-00-253-5614	Screw, Drive	96906	MS21318-20	1
5340-00-764-7051	Clamp	80205	MS21333-69	2
5340-00-809-1492	Clamp	80205	MS21333-100	6
5340-00-901-8132	Clamp	80205	MS21334-26	2
5310-00-013-0622	Nut	96906	MS21083-N08	2
5975-01-074-2072	Strap, Tiedown	96906	MS3367-3-0	4
5975-01-166-0092	Strap, Tiedown	96906	MS3367-6-0	1
5310-00-061-4650	Nut	81349	M45913/4-4CG8Z	3
5310-00-814-0673	Nut	81349	M45913/4-5CG8Z	2
5310-00-935-9021	Nut	81349	M45913/4-6CG8Z	1
5310-00-012-0214	Lockwasher	24617	120214	1
5310-00-582-5965	Lockwasher	24617	120380	4
5310-00-012-0423	Lockwasher	24617	120423	4
	Screw, Self-tapping	24617	171027	2
5310-01-102-3270	Washer	24617	2436161	5
5305-00-115-9934	Screw	24617	9415763	2
5310-00-013-1015	Washer	24617	9423534	4
5305-00-071-2509	Screw	80204	B1821BH025C175N	1
5305-00-071-2510	Screw	80204	B1821BH025C200N	2
	Union	81343	6 070101	2
4730-01-488-6433	Adapter	81343	6-4 070102	1
4730-00-491-9576	Adapter	81343	6-6 070120	2
	Tee	81343	6-6-6 070432	1

c. Bulk and Expendable Material:

NSN	NOMENCLATURE	CAGEC	PART NO.	QTY
6850-00-110-4498	Drycleaning Solvent	81348	P-D-680	A/R
6850-01-159-4844	Silicone Compound	11862	1052734	A/R
8030-01-054-0740	Sealing Compound, Pipe	05972	59231	A/R
8040-01-167-2613	Adhesive: Type II, Class I	58536	A-A-3097 TY2 CL 1	A/R
9150-01-035-5392	Lubricating Oil	81349	MIL-L-2105	A/R
9150-01-353-4799	Hydraulic Fluid	24617	Dexron® III	A/R

d. Parts Disposition. All parts removed and not used during installation will be returned to stock for disposition in accordance with AR 725-50.

9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED.

a. Hand tools necessary to apply MWO are contained in this tool kit:

NOMENCLATURE	NSN	CAGEC	SUPPLY CATALOG
Tool Kit, General Mechanic's	5180-00-177-7033	50980	SC 5180-95-N26

b. Tools necessary to apply MWO is in this shop set:

NOMENCLATURE	NSN	CAGEC	SUPPLY CATALOG
Shop Equipment, Automotive Maintenance and Repair: Organizational Maintenance Common #1	4190-00-754-0654	19204	SC 4910-95-A74

10. MODIFICATION PROCEDURES.

a. Vehicle Preparation.

(1) Park vehicle and apply parking brake lever. (Refer to TM 9-2320-387-10.)

(2) Disconnect battery ground cables. (Refer to TM 9-2320-387-24.)

(3) Remove rear brake protection guards. (Refer to TM 9-2320-387-24.)

(4) Remove rear propeller shaft. (Refer to TM 9-2320-387-24.)

NOTE

Have drainage container ready to catch oil.

(5) Remove drain plug and drain rear differential oil. (Refer to TM 9-2320-387-24.)

WARNING

Hood must be supported during hood prop and bracket removal. Failure to support hood may cause injury to personnel or damage to equipment.

(6) Remove four screws, lockwashers, hood prop rod, and bracket from left splash shield and airlift bracket as shown in figure 1. Discard lockwashers.

(7) Remove three screws, washers, and access cover from left splash shield as shown in figure 2.

NOTE

Perform steps 9 through 14 for M1113 and steps 8 through 11 and 14 for M1114.

(8) Remove nut and fuel filter drain valve from left splash shield as shown in figure 3.

(9) Remove four screws, washers, and lockwashers from plate and left splash shield as shown in figure 2. Discard lockwashers.

(10) Remove nut, two washers, and screw from support bracket and left splash shield as shown in figure 2. Discard nut.

(11) Remove nut, two washers, and screw from master cylinder bracket and left splash shield as shown in figure 2. Discard nut.

(12) Remove nut, three washers, and screw from left splash shield and airlift bracket as shown in figure 2. Discard nut.

(13) Remove screw, washer, and lockwasher from left splash shield and airlift bracket as shown in figure 2. Discard lockwasher.

(14) Remove nut, screw, clamp, and harness from left splash shield as shown in figure 2. Discard nut and remove left splash shield from vehicle.

b. Left Splash Shield Modification.

NOTE

Use 12469456 manifold valve as a template to ensure two holes align with marks on left splash shield prior to drilling.

(1) Locate, mark, and drill two 0.281-inch diameter holes in left splash shield as shown in figure 4.

c. Tunnel Support Braces Modification.

(1) Locate, mark, and drill three 0.201-inch diameter holes (#7 drill bit) in tunnel support braces as shown in figure 5.

(2) Using 0.250-20 UNC standard tap, thread hole drilled in step 1 in front tunnel support brace as shown in figure 5.

d. Rear Differential Cooler Cover Installation.

CAUTION

Ensure all debris from around rear differential cover is removed to prevent debris from contaminating rear differential and causing possible damage.

(1) Remove twelve screws and cover from rear differential as shown in figure 6.

WARNING

Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel or damage to equipment.

(2) Using drycleaning solvent, clean rear differential face as shown in figure 6.

(3) Apply approximately 0.125-inch thickness of 1052734 silicone compound to face of rear differential as shown in figure 7.

(4) Install 12469504 cooler cover assembly on rear differential by rotating cooler cover assembly upward from below and secure with twelve 12448438-18 screws as shown in figure 7. Tighten screws to 16 lb-ft (22 N·m).

(5) Install drainplug on rear differential and tighten drainplug to 13-18 lb-ft (18-24 N·m).

(6) Remove fill plug from cooler cover assembly and fill rear differential to appropriate level with MIL-L-2105 lubricating oil as shown in figure 7.

(7) Install fill plug on cooler cover assembly and tighten fill plug to 13-18 lb-ft (18-24 N·m).

e. Oil Cooler Hoses and Tubes Installation.

NOTE

- Ensure to remove all protective caps and plugs from tubes and hoses prior to connecting with other tubes and hoses.
- For ease of identification during installation, place tape on both ends of one 12469511 hose and 12469512 hose. Also, place tape on both ends of 12469510 tube, 12469505 tube, 12469507 tube, and 12469225 hose. These items will be for left side installation.

(1) Connect 12469512 L.H. hose to 12469510 L.H. tube as shown in figure 8.

(2) Connect 12469512 R.H. hose to 12469509 tube as shown in figure 8.

NOTE

Ensure hoses 12469512 have O-ring installed on ends that connect to cooler cover assembly.

(3) Route 12469512 L.H. hose and 12469510 L.H. tube over rear crossmember and along rear differential support brace and connect hose to left port on cooler cover assembly as shown in figures 9 and 10.

(4) Route 12469512 R.H. hose and 12469509 tube over rear crossmember and along rear differential support brace and connect hose to right port on cooler cover assembly as shown in figures 9 and 10.

(5) Route 12469511 L.H. hose over transfer case to right side frame rail, along two transmission oil cooler lines and connect to 12469510 L.H. tube as shown in figures 9 and 11.

(6) Route 12469511 R.H. hose over transfer case to right side frame rail, along two transmission oil cooler lines and connect to 12469509 tube as shown in figures 9 and 11.

(7) Connect 12469505 L.H. tube to 12469511 L.H. hose as shown in figure 11.

(8) Connect 12469506 tube to 12469511 R.H. hose as shown in figure 11.

(9) Install six MS21333-100 clamps on 12469510 and 12469509 tubes as shown in figure 12.

(10) Secure two tubes to center tunnel support brace with two clamps, 2436161 washer, and 171027 screw as shown in figure 12.

(11) Secure two tubes to rear tunnel support brace with two clamps, 2436161 washer, and 171027 screw as shown in figure 12.

(12) Secure two tubes to front tunnel support brace with two clamps, 12338186-61 spacers, 2436161 washer, and B1821BH025C175N screw as shown in figure 12.

(13) Secure two hoses to differential support brace with MS3367-6-0 tiedown strap as shown in figure 10.

(14) Secure two 12469511 hoses together with three MS3367-3-0 tiedown straps as shown in figure 13.

(15) Install two 6 070101 unions on tubes as shown in figure 11.

(16) Install two MS21333-69 clamps on lower transmission oil cooler line as shown in figure 11.

(17) Install two MS21334-26 clamps on tubes 12469505 and 12469506 as shown in figure 11.

(18) Position 12469505 and 12469506 tubes up against right frame rail, under idler arm, and clamps MS21334-26 positioned under clamps MS21333-69 as shown in figure 11.

(19) Secure tubes and clamps together with four 9423534 washers, two 9415763 screws, and MS21083-N08 nuts as shown in figure 11.

(20) Position 12469507 L.H. tube and 12469508 tube adjacent to right frame rail and front intermediate crossmember as shown in figure 14.

(21) Connect 12469508 tube to union on 12469506 tube as shown in figure 14.

(22) Connect 12469507 L.H. tube to union on 12469505 L.H. tube as shown in figure 14.

(23) Install two 11608950-14 clamps on front intermediate crossmember and tubes as shown in figure 14.

f. Front Hoses Installation.

WARNING

Do not drain fluid when engine is hot. Severe injury to personnel will result.

CAUTION

Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

Have drainage container ready to catch fluid.

(1) Loosen clamp and remove hose and clamp from elbow on hydraulic control valve as shown in figure 15.

(2) Remove elbow from hydraulic control valve as shown in figure 15.

NOTE

Do not apply pipe sealing compound to first two threads of adapter.

(3) Apply 59231 pipe sealing compound to threads of 6-4 070102 adapter and install on hydraulic control valve as shown in figure 15.

(4) Remove nut, washer, screw, and speedometer cable support brace from clamps and hoses as shown in figure 16. Remove clamp from hose disconnected in step 1 from hydraulic control valve.

(5) Remove nut, washer, and screw from two clamps and hoses as shown in figure 16. Remove clamps from hose.

(6) Remove nut, washer, screw, and clamps from hose connected to outlet port on power steering oil cooler as shown in figure 17.

(7) Loosen clamp and remove hose and clamp from outlet port on power steering oil cooler as shown in figure 17. Retain clamp and discard hose.

(8) Connect 12469225 hose to 12469507 lower tube on front intermediate crossmember and route along left inner cowl to adapter on hydraulic control valve as shown in figure 18.

(9) Connect hose to adapter on hydraulic control valve as shown in figure 18.

(10) Connect 6-6-6 070432 tee to 12469500 hose as shown in figure 19. Do not tighten hose.

(11) Connect tee to 12469508 upper tube and route 12469500 hose over elbow on fan shroud and under brake limiter bracket as shown in figure 19. Do not tighten tee.

(12) Connect 12469224 hose to tee on upper tube on front intermediate crossmember and route to outlet port on power steering oil cooler as shown in figure 20.

(13) Install existing hose clamp on hose and connect to power steering oil cooler outlet port as shown in figure 20. Tighten hose clamp.

g. Manifold Valve and Hoses Installation.

(1) Install 12469456 manifold valve on left splash shield with two B1821BH025C200N screws, 2436161 washers, and 12339006 reinforcement plate as shown in figure 21.

(2) Install two 6-6 070120 adapters with O-rings on manifold valve as shown in figure 21.

(3) Position left splash shield back on vehicle as shown in figure 21.

(4) Connect 12469499 hose to adapter as shown in figure 21.

(5) Connect 12469500 hose installed in para. f, step 11 to adapter as shown in figure 21.

(6) Locate, mark, and splice power steering hose from hydro-boost to power steering reservoir as shown in figure 21.

(7) Install 12469440-2 spiral wrap on power steering hose cut in step 6 as shown in figure 21.

(8) Install 12469440-1 spiral wrap on other end of power steering hose cut in step 6 as shown in figure 22.

(9) Install two 11608950-1 clamps on hose spliced in step 6 with 12447077 tee as shown in figure 21. Tighten clamps.

(10) Install 11608950-1 clamp on 12469499 hose and connect hose to tee as shown in figure 21. Tighten clamp.

(11) Secure 12469500 hose to elbow on fan shroud with MS3367-3-0 tiedown strap as shown in figure 23.

NOTE

Ensure that hose and tee are positioned towards fan shroud and away from moving parts when tightening.

(12) Tighten hose on tee installed in para. f, step 10 as shown in figure 19.

(13) Tighten tee on tube installed in para. f, step 11 as shown in figure 19.

h. Vehicle Final Preparation.

NOTE

Perform steps 1 through 6 for M1113 and steps 1 and 4 through 7 for M1114.

(1) Install harness and clamp on left splash shield with screw and M45913/4-4CG8Z nut as shown in figure 2.

(2) Install screw, washer, and 120214 lockwasher on left splash shield and airlift bracket as shown in figure 2.

(3) Install screw, three washers, and M45913/4-5CG8Z nut on left splash shield and airlift bracket as shown in figure 2.

(4) Install left splash shield on master cylinder bracket with two washers, screw, and M45913/4-6CG8Z nut as shown in figure 2.

(5) Install left splash shield on support bracket with two washers, screw, and M45913/4-5CG8Z nut as shown in figure 2.

(6) Install left splash shield on plate with four washers, 120423 lockwashers, and screws as shown in figure 2.

(7) Install fuel filter drain valve on left splash shield with nut as shown in figure 3.

(8) Install access cover on left splash shield with three existing washers and screws as shown in figure 2.

(9) Install hood prop rod and bracket on left splash shield and airlift bracket with four 120380 lockwashers and screws as shown in figure 1.

(10) Install existing clamp on hose to hydraulic control valve and secure to speedometer cable support brace with existing screw, washer, and M45913/4-4CG8Z nut as shown in figure 24.

(11) Install existing clamps on hose to hydraulic control valve and hose (12469499) and secure with existing screw, washer, and M4591314-4CG8Z nut as shown in figure 24.

(12) Connect battery ground cables. (Refer to TM 9-2320-387-24.)

(13) Fill power steering reservoir, start engine, and check for leaks.

(14) Turn wheels all the way to the left and stop engine.

(15) Fill power steering reservoir to full cold level on cap. Leave cap off.

(16) Raise front wheels off ground.

(17) Turn steering wheel left and right, holding wheels at steering stops for five seconds, for at least forty times.

NOTE

- Power steering fluid must be free of bubbles and foam. If bubbles or foam are noted, it could be an indication of a loose connection or leaky O-ring.
- Fluid with air in it will have a milky appearance. Air must be eliminated from system before normal steering action can be obtained.

(18) Check power steering reservoir level. If any bubbles are seen, repeat step 17.

(19) Start engine and with engine idling, add power steering fluid if necessary. Install cap on reservoir.

(20) Turn wheels to center, shut off engine, and lower front wheels to ground.

(21) Start engine and run engine for two or three minutes, turning wheels left and right.

(22) Check for leaks.

(23) Install rear brake protection guards. (Refer to TM 9-2320-387-24.)

(24) Install rear propeller shaft. (Refer to TM 9-2320-387-24.)

11. CALIBRATION REQUIREMENTS.

Not applicable to the MWO.

12. WEIGHT AND BALANCE DATA.

Weight and balance are not significantly affected by this MWO.

13. QUALITY ASSURANCE REQUIREMENTS.

a. General. The following information is furnished to ensure the proper application of the MWO and provide clarification in regard to the adequacy of installer's inspection methods and procedures applicable to Quality Assurance (QA). Inspection shall be IAW TM 750-245-4, TM 9-2320-387-10, TM 9-2320-387-24, and MWO 9-2320-387-20-1.

b. Installer Responsibilities. The installer is responsible for following instructions in MWO 9-2320-387-20-1, TM 9-2320-387-10, and TM 9-2320-387-24. The installer will report Rear Differential Cooler Modification Kits received that are damaged or missing component parts so the kit supplier can be properly notified. Any discrepancies noted will be corrected before the vehicle leaves the installer's work area. Requirements contained in this MWO shall be included in the installer's inspection plan or quality assurance program. These requirements shall not be construed as eliminating the installer's responsibility from complete compliance with provisions of the contract and submitting to the Government products that meet all requirements of the contract.

c. Government Verification. All QA operations and installation changes and inspections performed by the installer are subject to Government verification at unannounced and varying intervals. Verification will consist of observations and inspections to confirm that practices, methods, and procedures of the installer's written inspection plan are being properly applied; and that Government product inspection to confirm the quality of product offered for Government acceptance does not deviate from prescribed acceptance standards specified in TM 9-2320-387-10, TM 9-2320-387-24, and TM 750-245-4. Deviations will be brought to the attention of the installer for correction.

d. In-process Inspection. During normal assembly operations, paragraph 10, Modification Procedure, will be used to check the installer's work. After installation is complete, the vehicle will be checked IAW the PMCS checklist for correct installation and to ensure there are no defects. Any defects noted will be corrected by the installer before the vehicle is placed in service. All vehicles modified during a production shift will be checked to ensure product quality.

14. RECORDING AND REPORTING OF THE MODIFICATION.

a. Records and Reports. The organization responsible for MWO application will report application information as follows:

(1) Reporting will be accomplished by electronic means. MWO application information can be input directly into the Modification Management Information System (MMIS) over the internet. If internet is not available, recording will be on a 3.5-inch disk, which will be mailed to the MMIS administrator. Entry into the MMIS system is password protected. New users can register online at http://www.mmis-mwo.com. Passwords are normally approved and issued within 48 hours.

(2) Submission will be comprised of the nine (9) data elements listed in the table below. Elements 1, 2, 4, 6, 7, 8, and 9 are given for this MWO (as shown). The person reporting the MWO data will acquire the remaining elements (3 and 5), and input all nine into MMIS.

DATA elements — Input Data

1. Material Change Number (MCN)
2. MWO number
3. Unit Identification Code (UIC) @ Battalion Level
4. NSN of End Item
5. Serial Number
6. USA Registration Number
7. Date of Application
8. Hours required for Application
9. Software Version

(3) For off-line reporting, the 3.5-inch disk shall be mailed to the following address:

Commander
TACOM-Warren
ATTN: AMSTA-LC-CIPWM
Warren, MI 48397-5000

b. Marking Equipment.

(1) After Rear Differential Cooler Modification Kit is installed, mark MWO number "9-2320-387-20-1" in the MWO applied block and date applied in Date Block on 10930014 MWO Instruction Plate.

NOTE

- Do not remove any existing MWO instruction plates from the reinforcement panel.
- Perform steps 2 and 3 for M1113 and step 4 for M1114.

(2) Install MWO instruction plate 10930014 by drilling a 0.104-in. diameter hole (#37 drill bit) within designated area on left side body reinforcement panel and secure with MS21318-20 drive screw as shown in figure 25.

(3) After drive screw is installed, flatten or remove protruding excess drive screw material from inside of side body reinforcement panel.

(4) Apply adhesive, type II, class I on back of MWO instruction plate (10930014) and install on left side body armor panel as shown in figure 26.

15. MATERIAL CHANGE (MC) NUMBER.

This MWO is authorized by (MC) number 1-01-06-0008.

16. MODIFICATION IDENTIFICATION.

a. When installed correctly, the rear differential cooler installation will appear as shown in figure 27.

b. After the Rear Differential Cooler Modification Kit is installed, the differential should be tested for proper operation. Any faults detected or discrepancies noted will be corrected before the vehicle is returned to normal service.

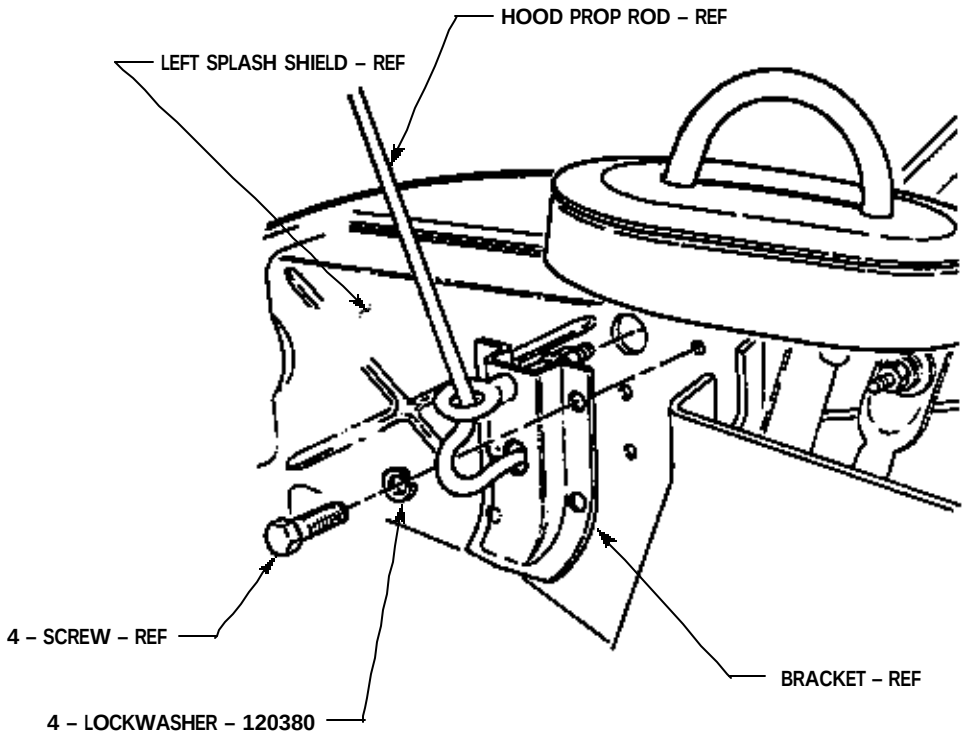

HOOD PROP ROD – REF
LEFT SPLASH SHIELD – REF
4 – SCREW – REF
4 – LOCKWASHER – 120380
BRACKET – REF

FIGURE 1

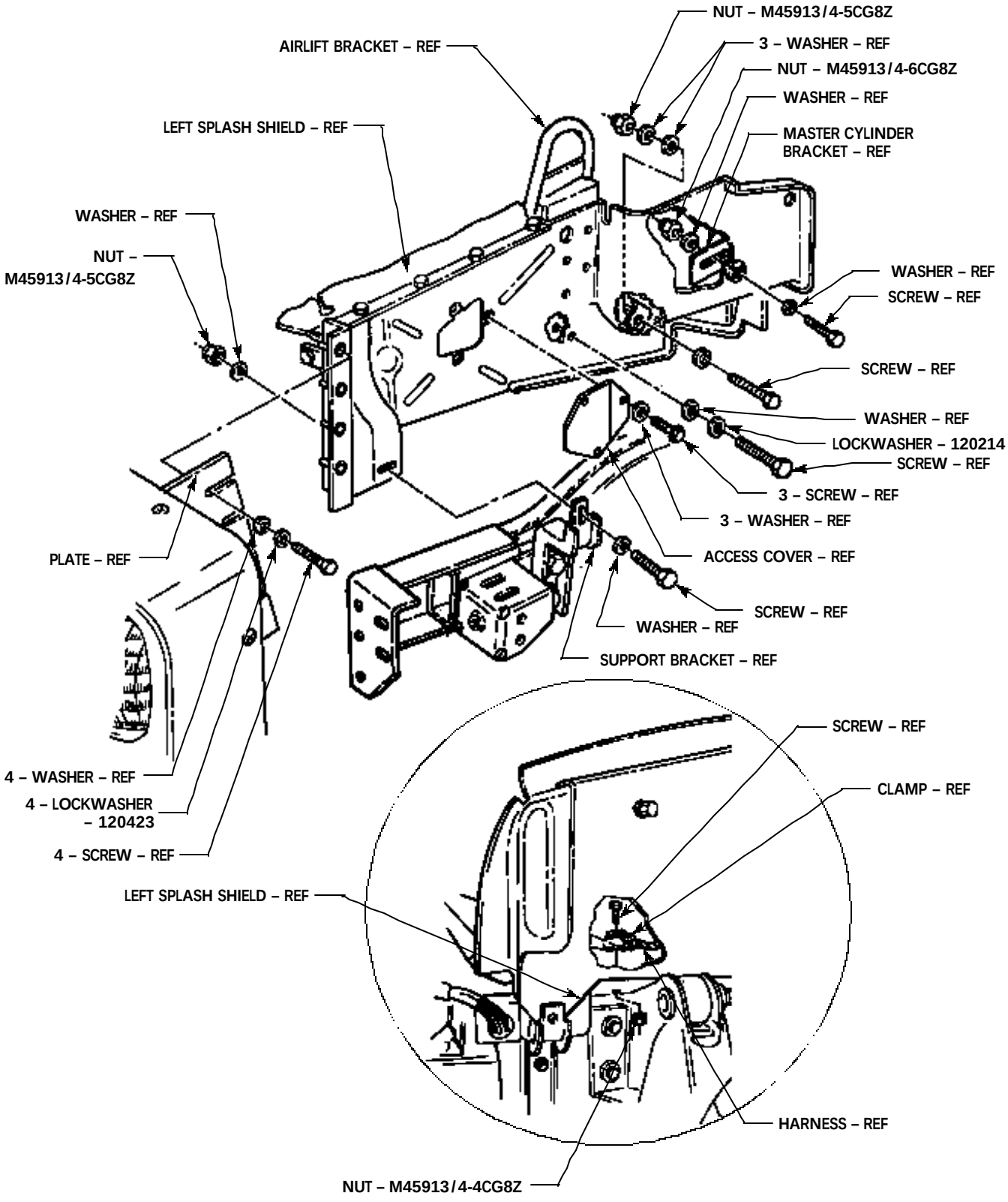

NUT – M45913/4-5CG8Z
AIRLIFT BRACKET – REF
3 – WASHER – REF
NUT – M45913/4-6CG8Z
WASHER – REF
LEFT SPLASH SHIELD – REF
MASTER CYLINDER BRACKET – REF
WASHER – REF
NUT – M45913/4-5CG8Z
WASHER – REF
SCREW – REF
SCREW – REF
WASHER – REF
LOCKWASHER – 120214
SCREW – REF
3 – SCREW – REF
3 – WASHER – REF
PLATE – REF
ACCESS COVER – REF
SCREW – REF
WASHER – REF
SUPPORT BRACKET – REF
4 – WASHER – REF
4 – LOCKWASHER – 120423
4 – SCREW – REF
SCREW – REF
CLAMP – REF
LEFT SPLASH SHIELD – REF
HARNESS – REF
NUT – M45913/4-4CG8Z

FIGURE 2

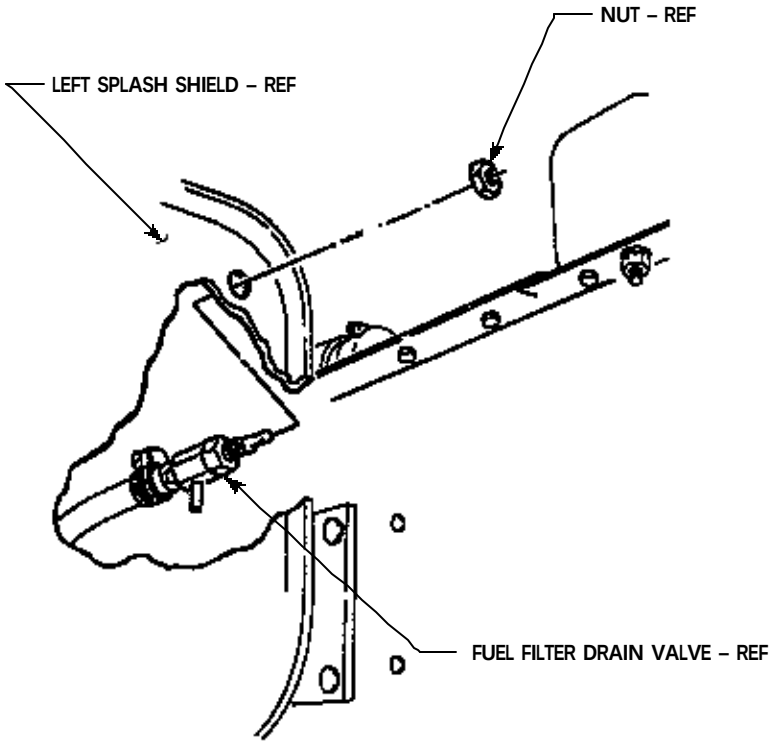


FIGURE 3

NOTE: ALL DIMENSIONS ARE IN INCHES

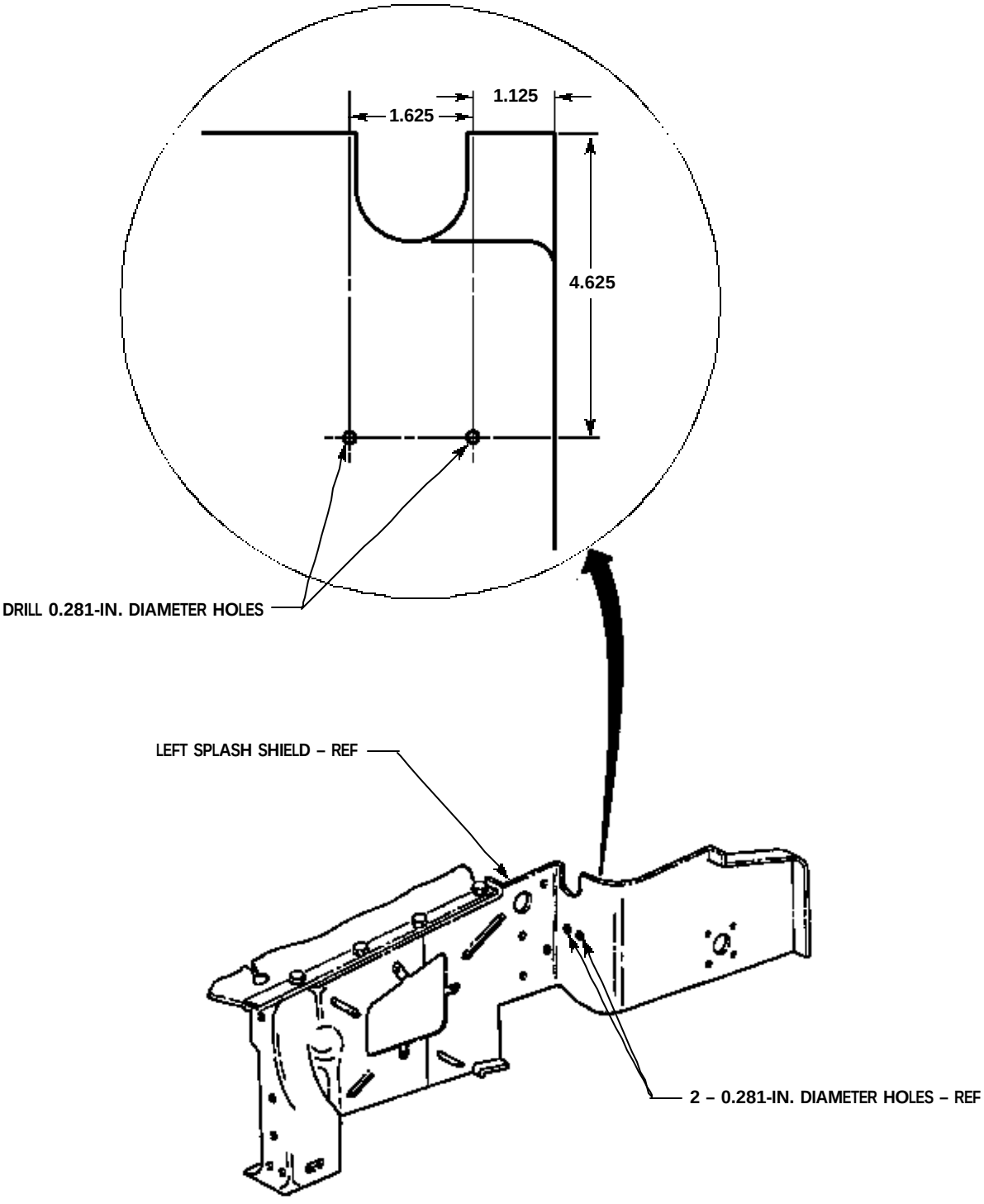


FIGURE 4

NOTE: ALL DIMENSIONS ARE IN INCHES

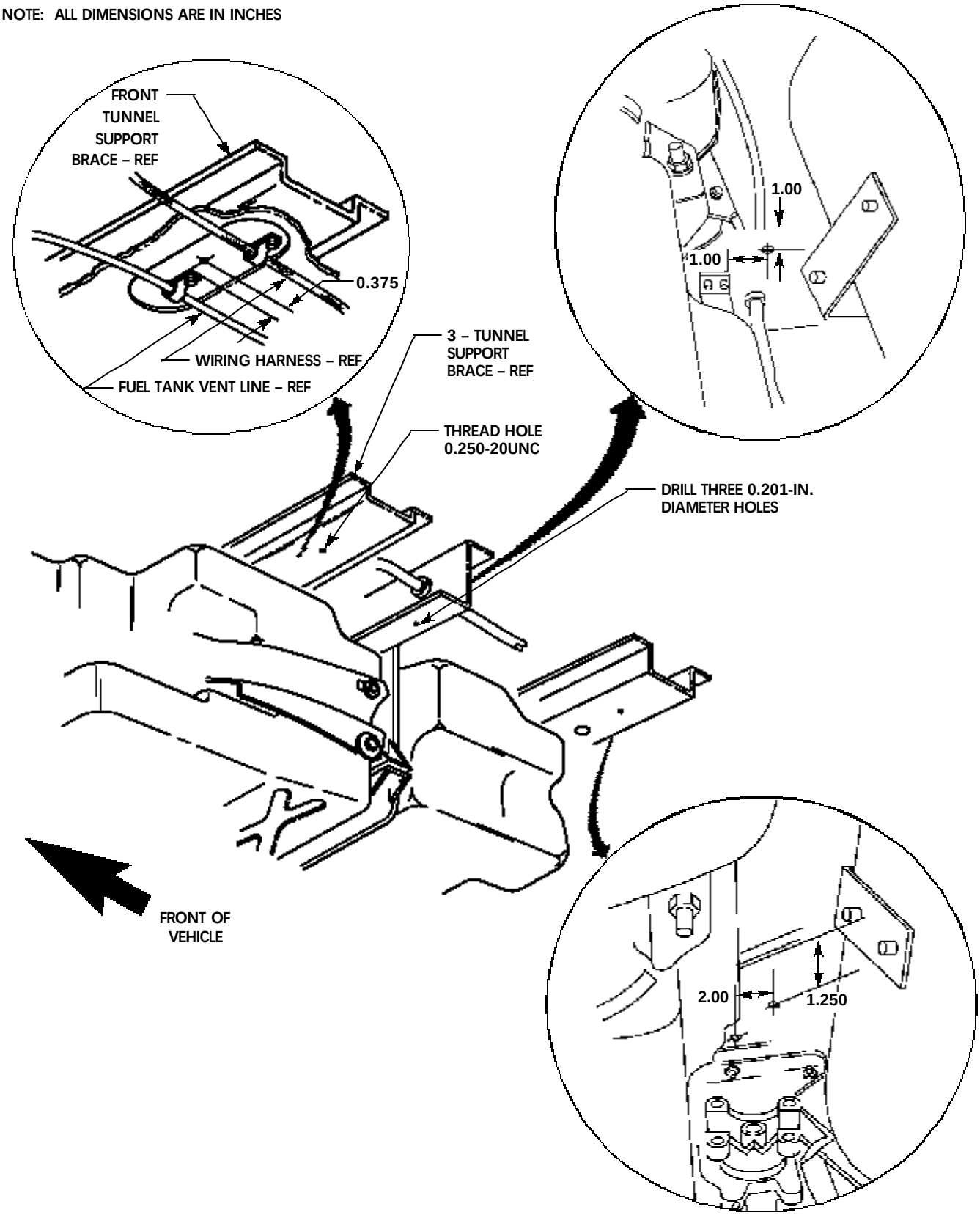


FIGURE 5

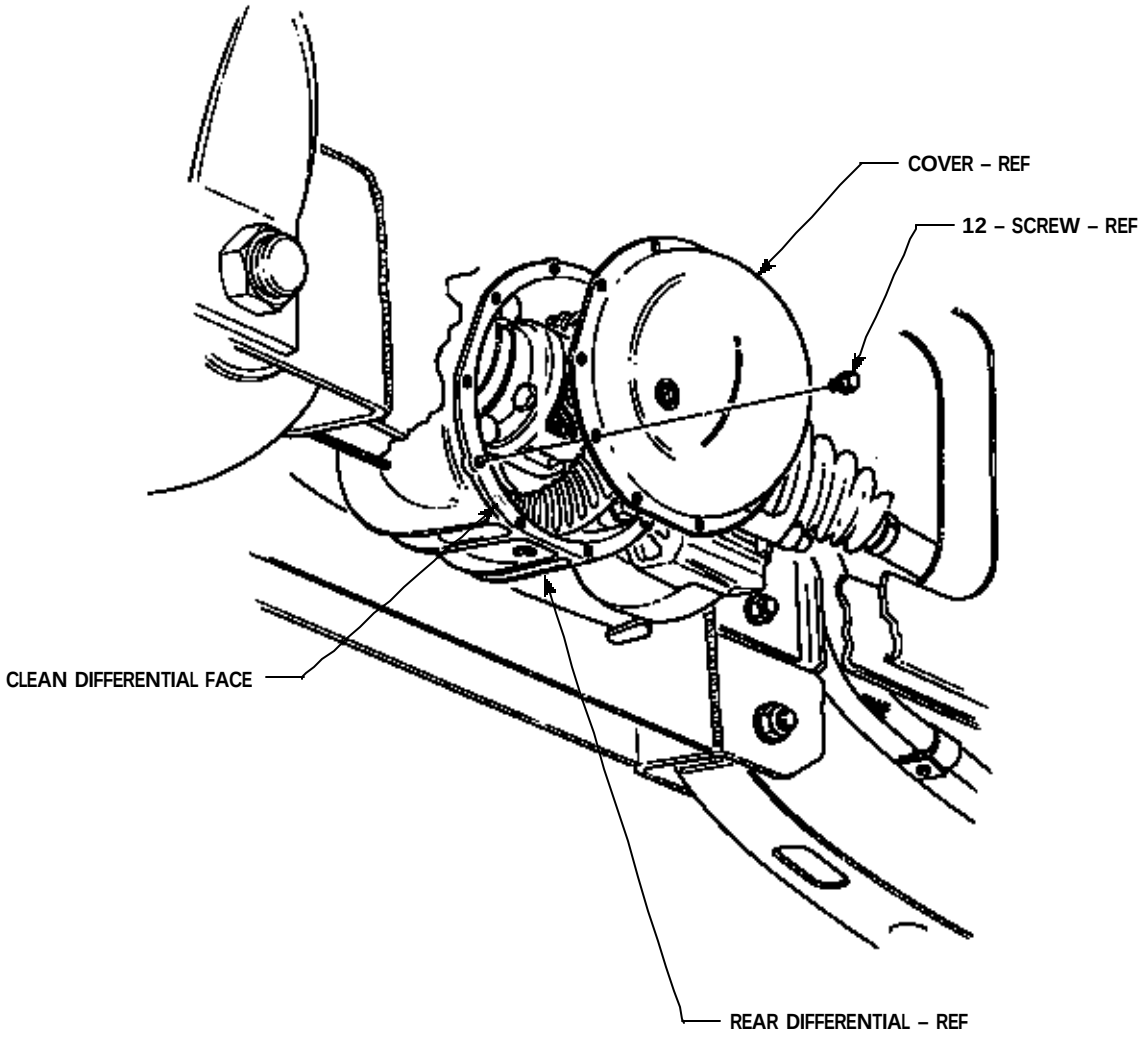

COVER – REF
12 – SCREW – REF
CLEAN DIFFERENTIAL FACE
REAR DIFFERENTIAL – REF

FIGURE 6

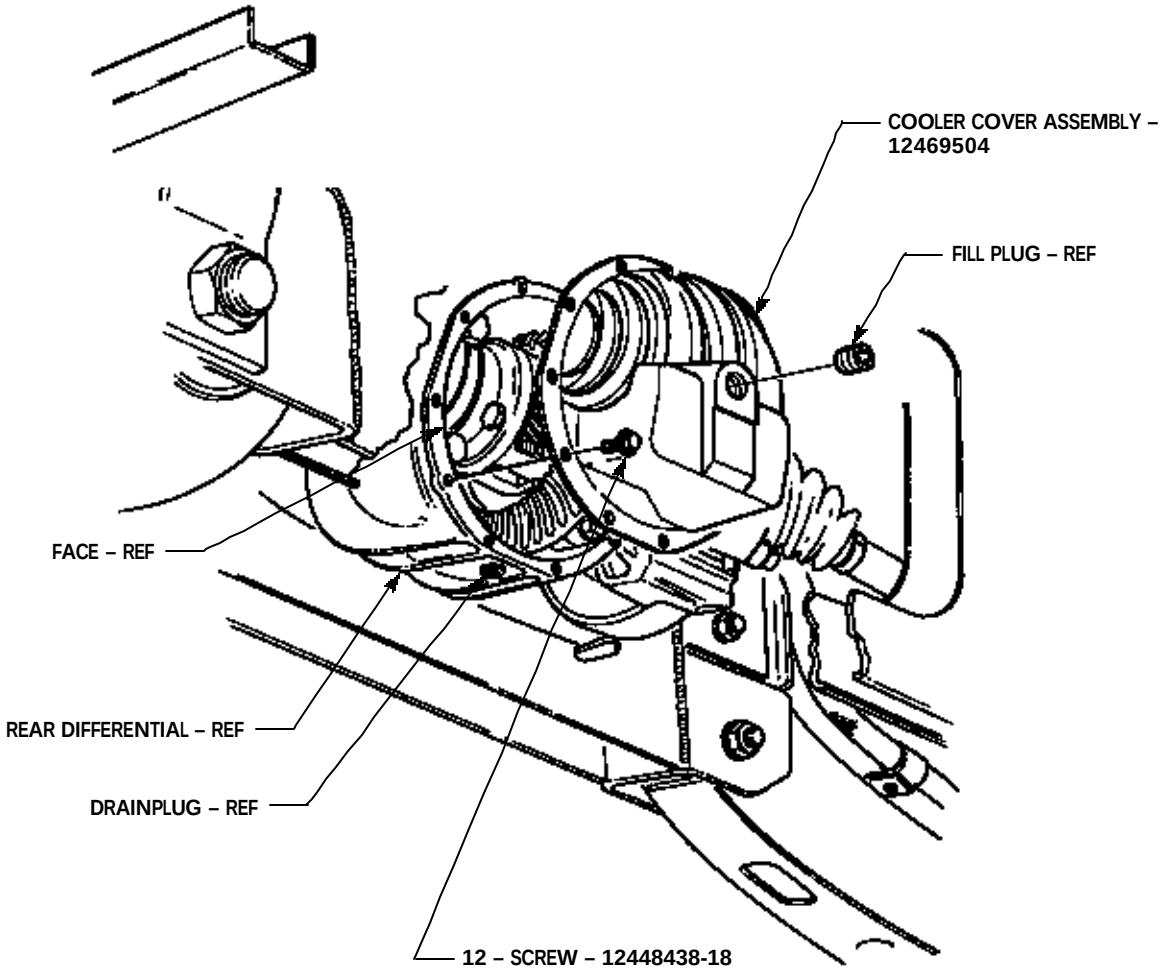

COOLER COVER ASSEMBLY – 12469504
FILL PLUG – REF
FACE – REF
REAR DIFFERENTIAL – REF
DRAINPLUG – REF
12 – SCREW – 12448438-18

FIGURE 7

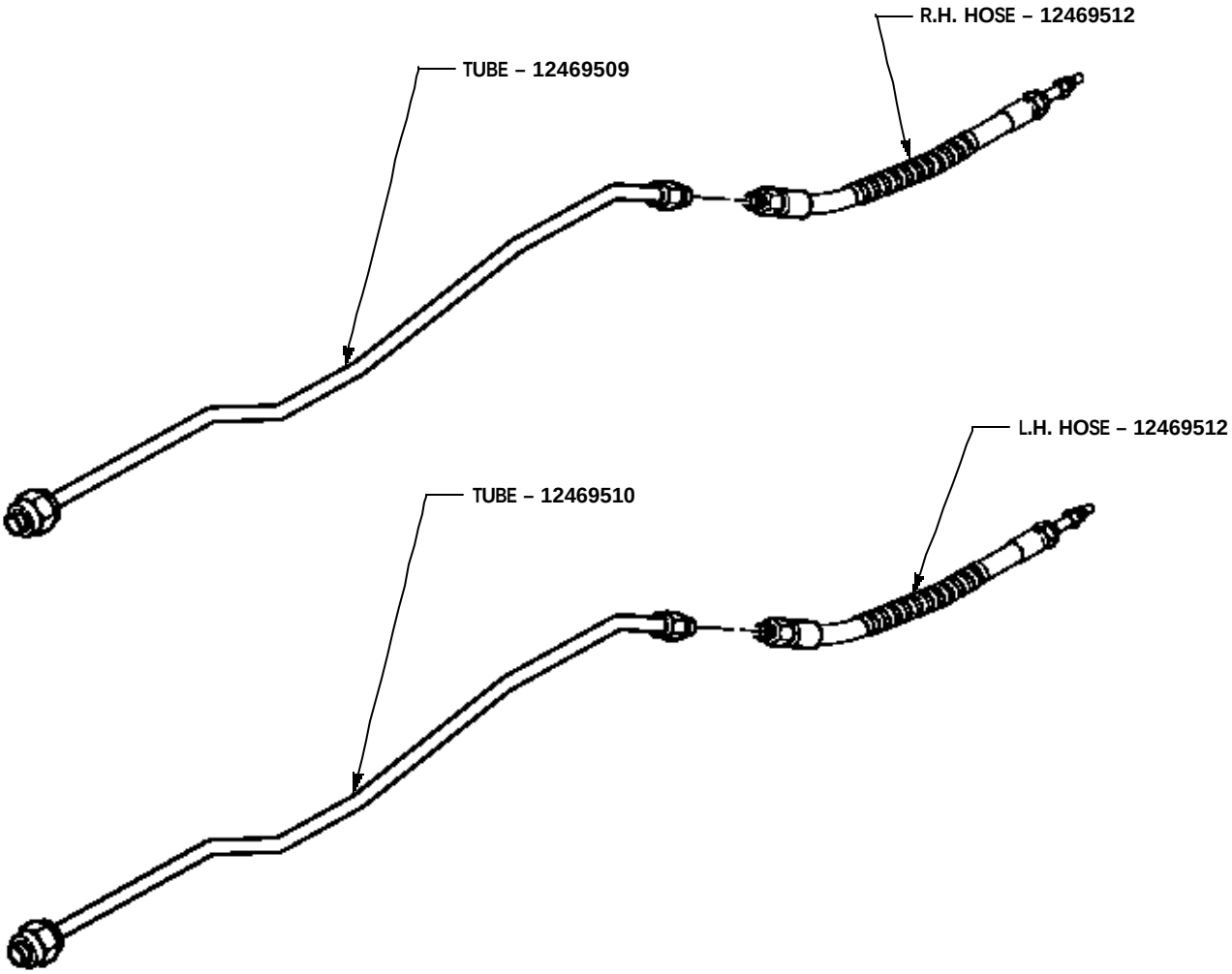

R.H. HOSE – 12469512
TUBE – 12469509
L.H. HOSE – 12469512
TUBE – 12469510

FIGURE 8

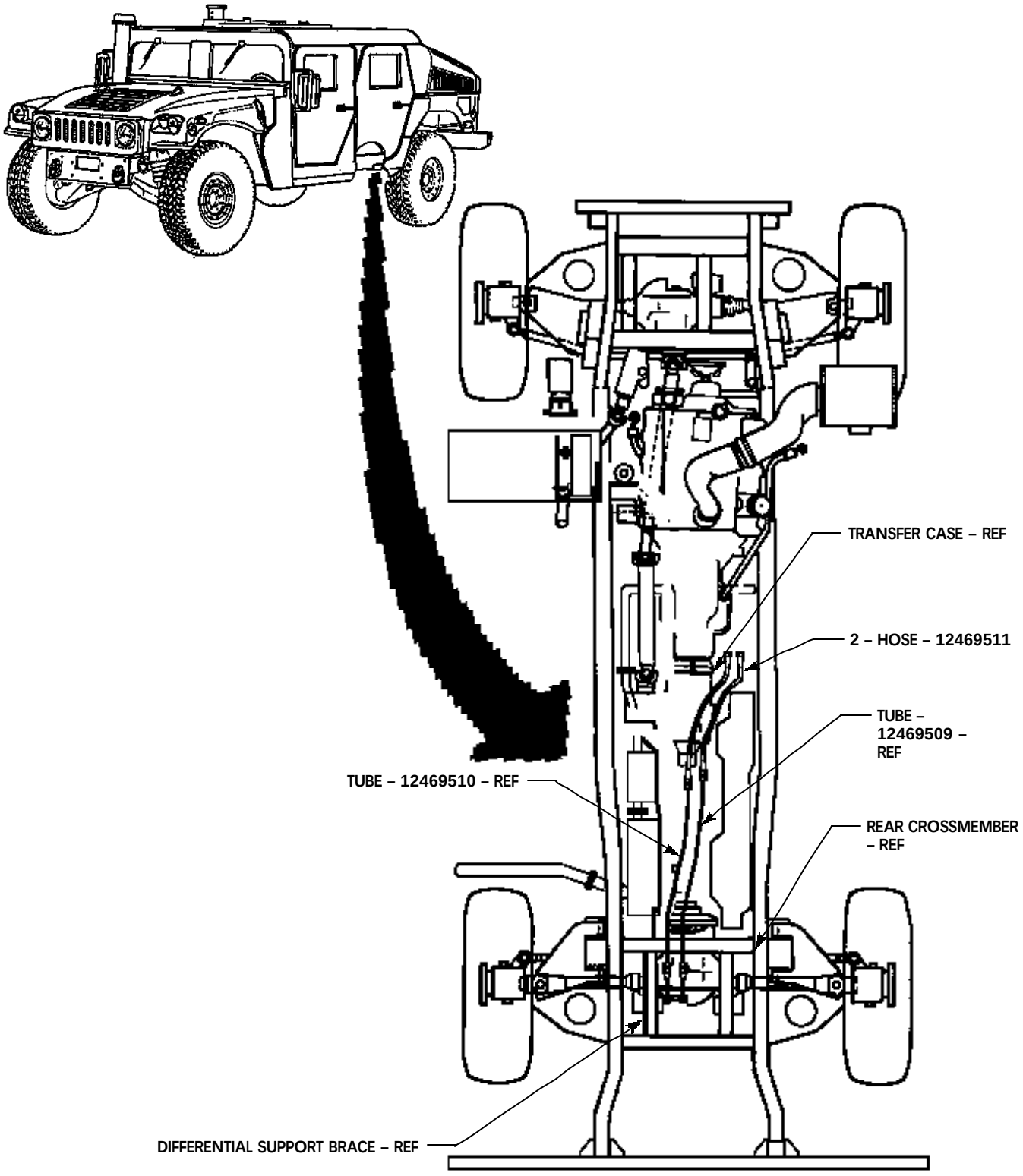

TRANSFER CASE – REF
2 – HOSE – 12469511
TUBE – 12469509 – REF
TUBE – 12469510 – REF
REAR CROSSMEMBER – REF
DIFFERENTIAL SUPPORT BRACE – REF

FIGURE 9

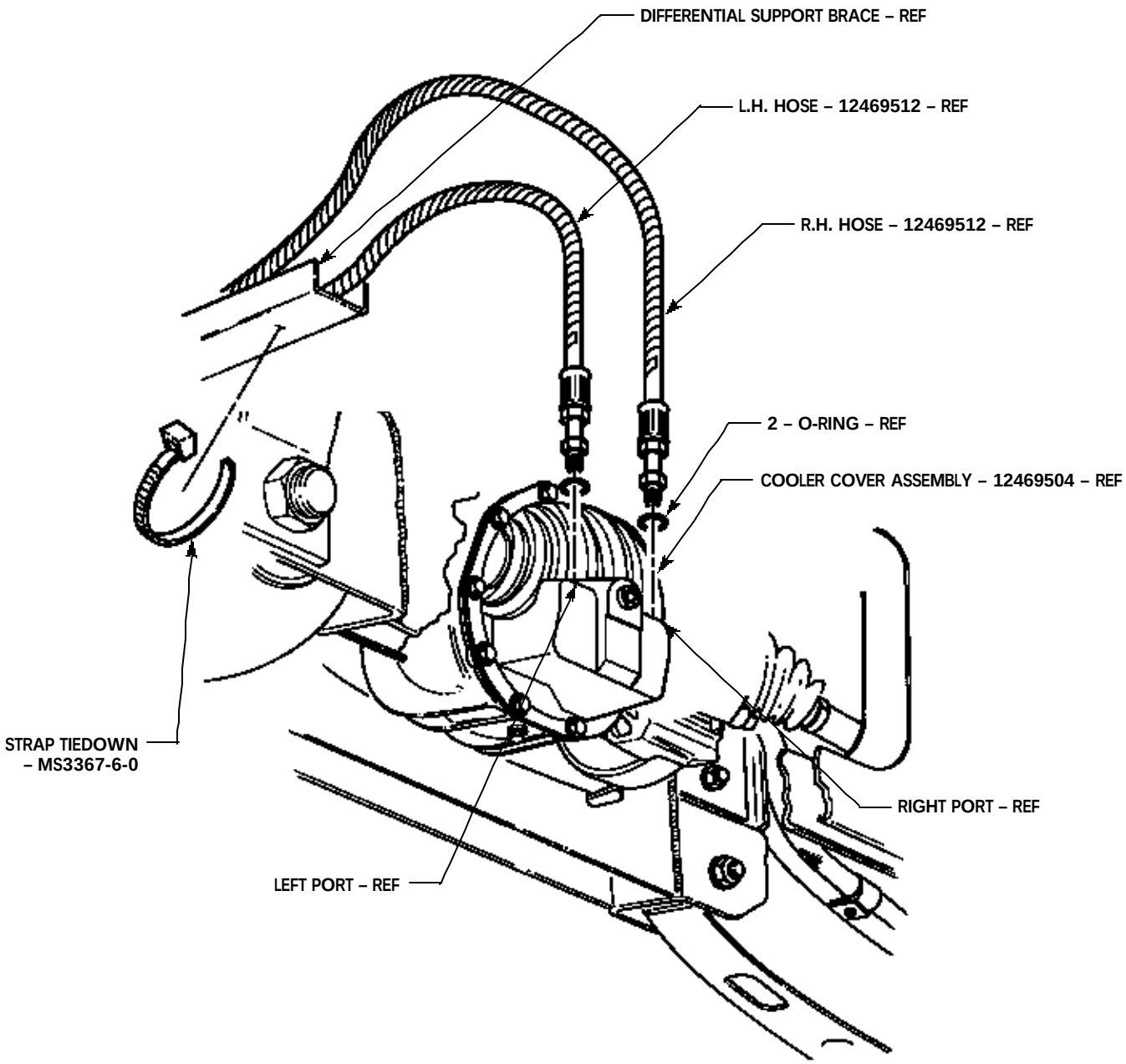

DIFFERENTIAL SUPPORT BRACE – REF
L.H. HOSE – 12469512 – REF
R.H. HOSE – 12469512 – REF
2 – O-RING – REF
COOLER COVER ASSEMBLY – 12469504 – REF
STRAP TIEDOWN – MS3367-6-0
RIGHT PORT – REF
LEFT PORT – REF

FIGURE 10

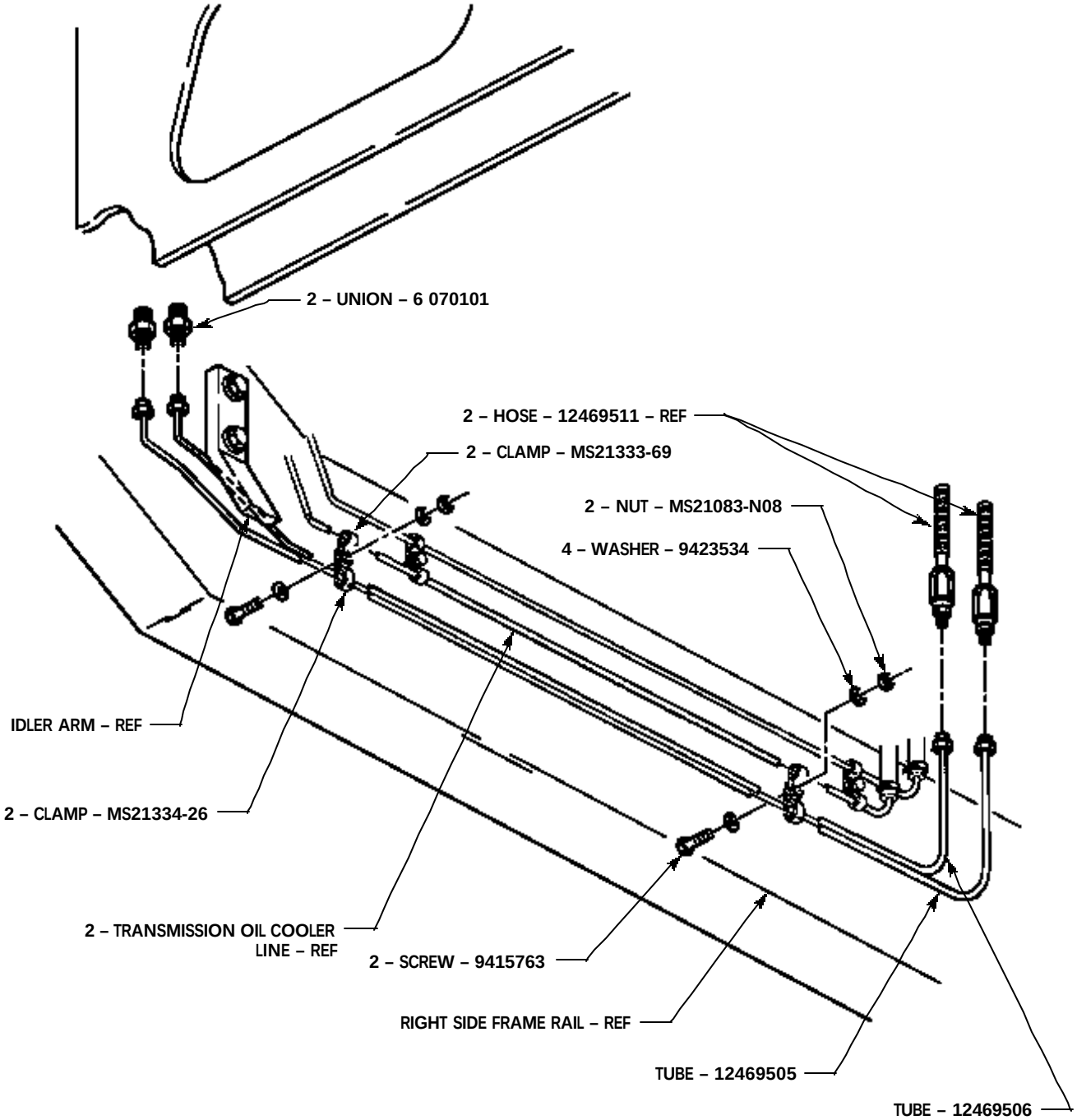

2 – UNION – 6 070101
2 – HOSE – 12469511 – REF
2 – CLAMP – MS21333-69
2 – NUT – MS21083-N08
4 – WASHER – 9423534
IDLER ARM – REF
2 – CLAMP – MS21334-26
2 – TRANSMISSION OIL COOLER LINE – REF
2 – SCREW – 9415763
RIGHT SIDE FRAME RAIL – REF
TUBE – 12469505
TUBE – 12469506

FIGURE 11

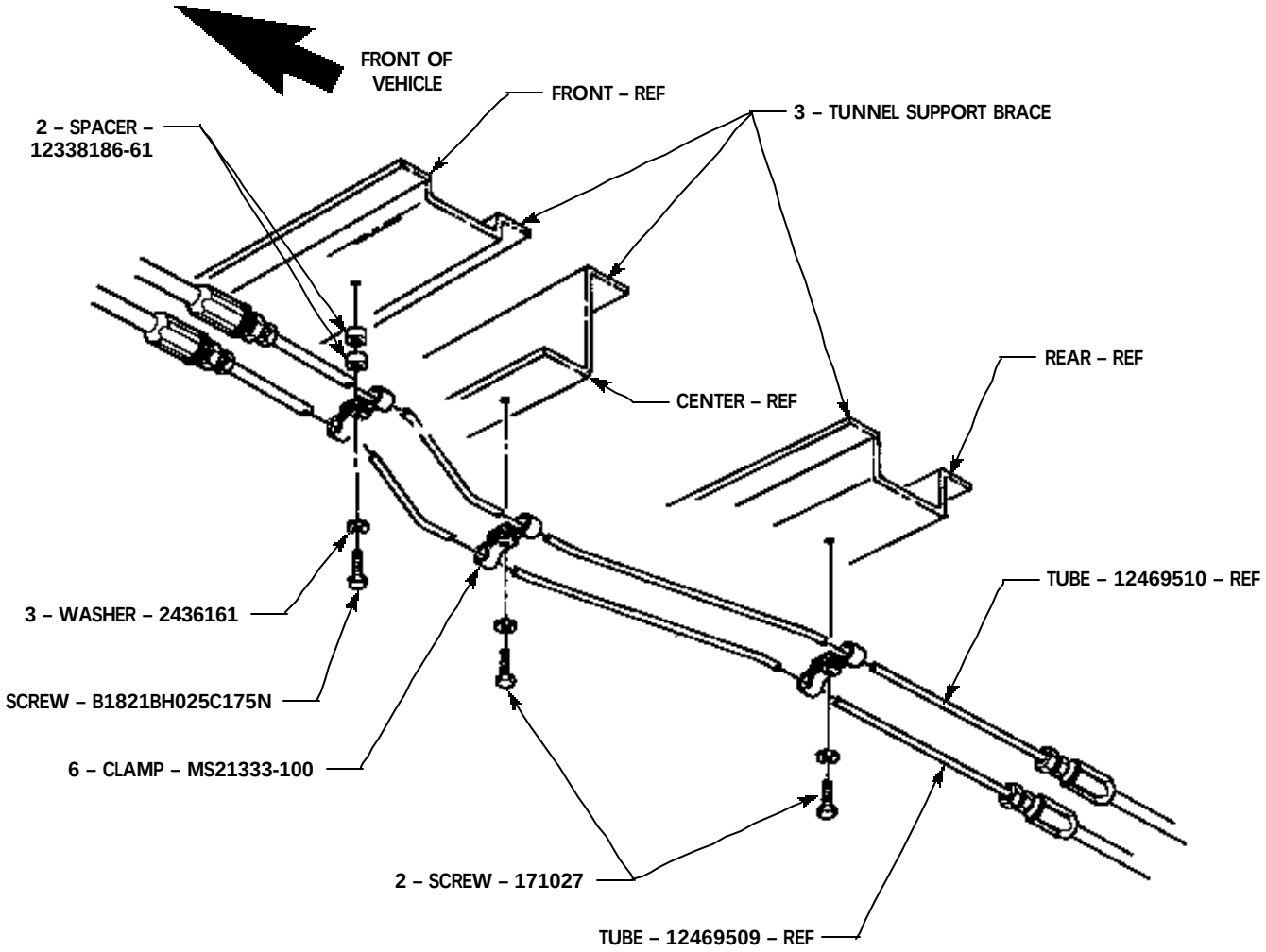

FRONT OF VEHICLE
FRONT – REF
3 – TUNNEL SUPPORT BRACE
2 – SPACER – 12338186-61
REAR – REF
CENTER – REF
TUBE – 12469510 – REF
3 – WASHER – 2436161
SCREW – B1821BH025C175N
6 – CLAMP – MS21333-100
2 – SCREW – 171027
TUBE – 12469509 – REF

FIGURE 12

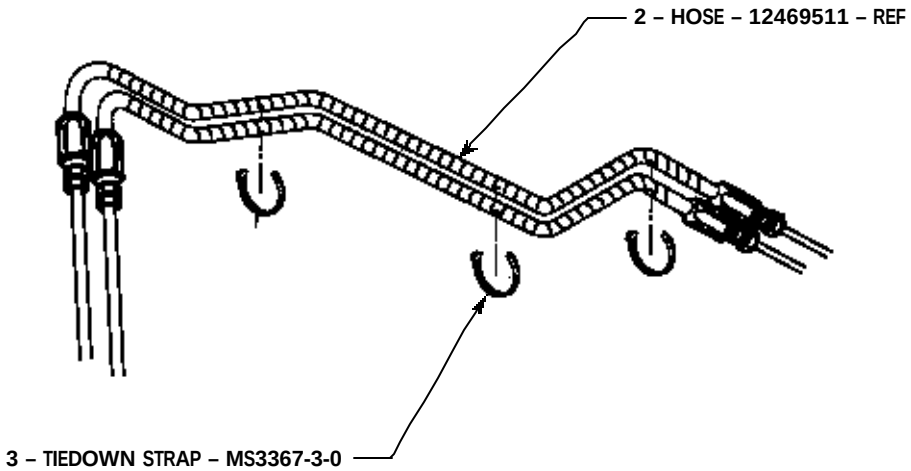


FIGURE 13

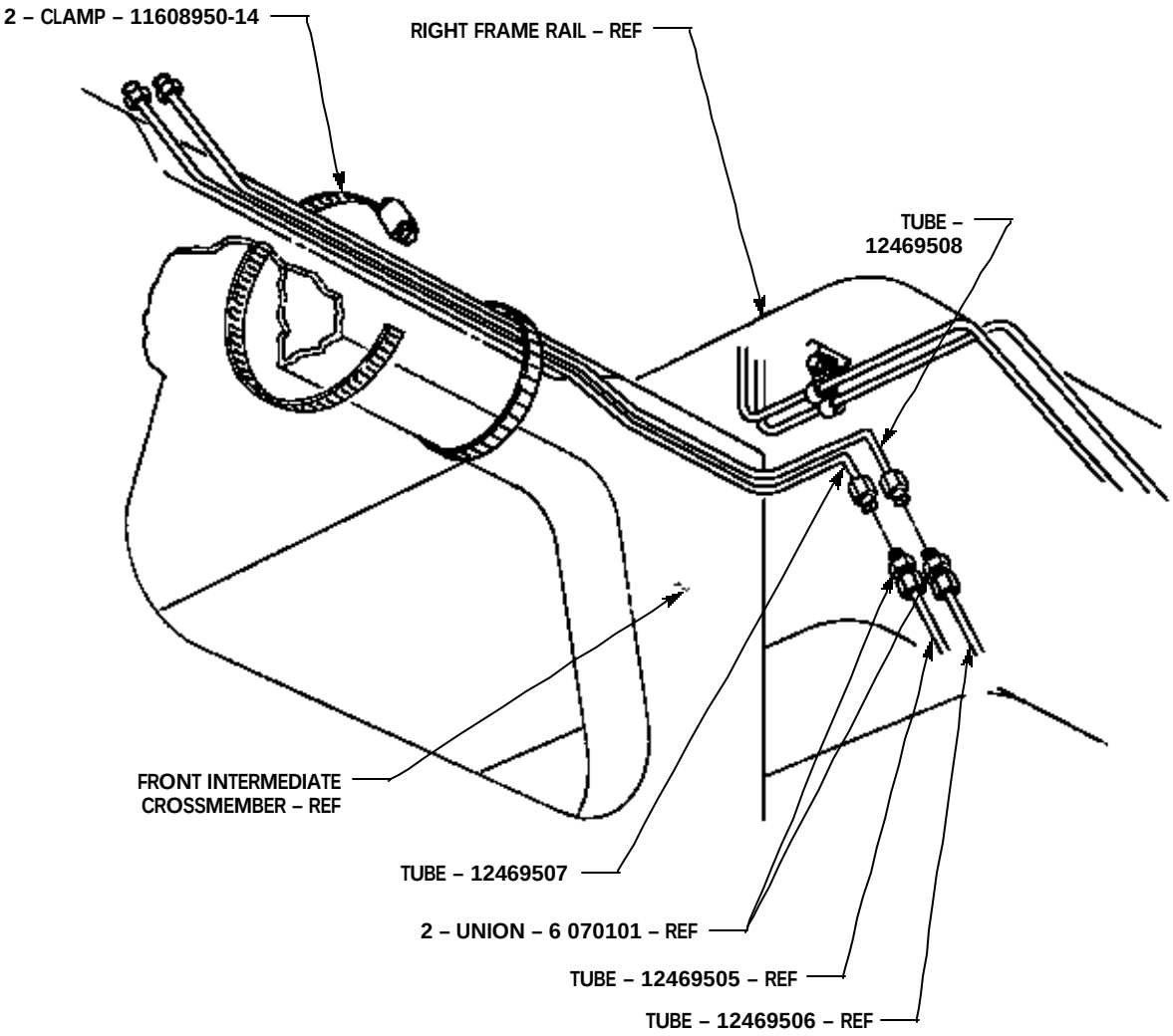

2 – CLAMP – 11608950-14
RIGHT FRAME RAIL – REF
TUBE – 12469508
FRONT INTERMEDIATE CROSSMEMBER – REF
TUBE – 12469507
2 – UNION – 6 070101 – REF
TUBE – 12469505 – REF
TUBE – 12469506 – REF

FIGURE 14

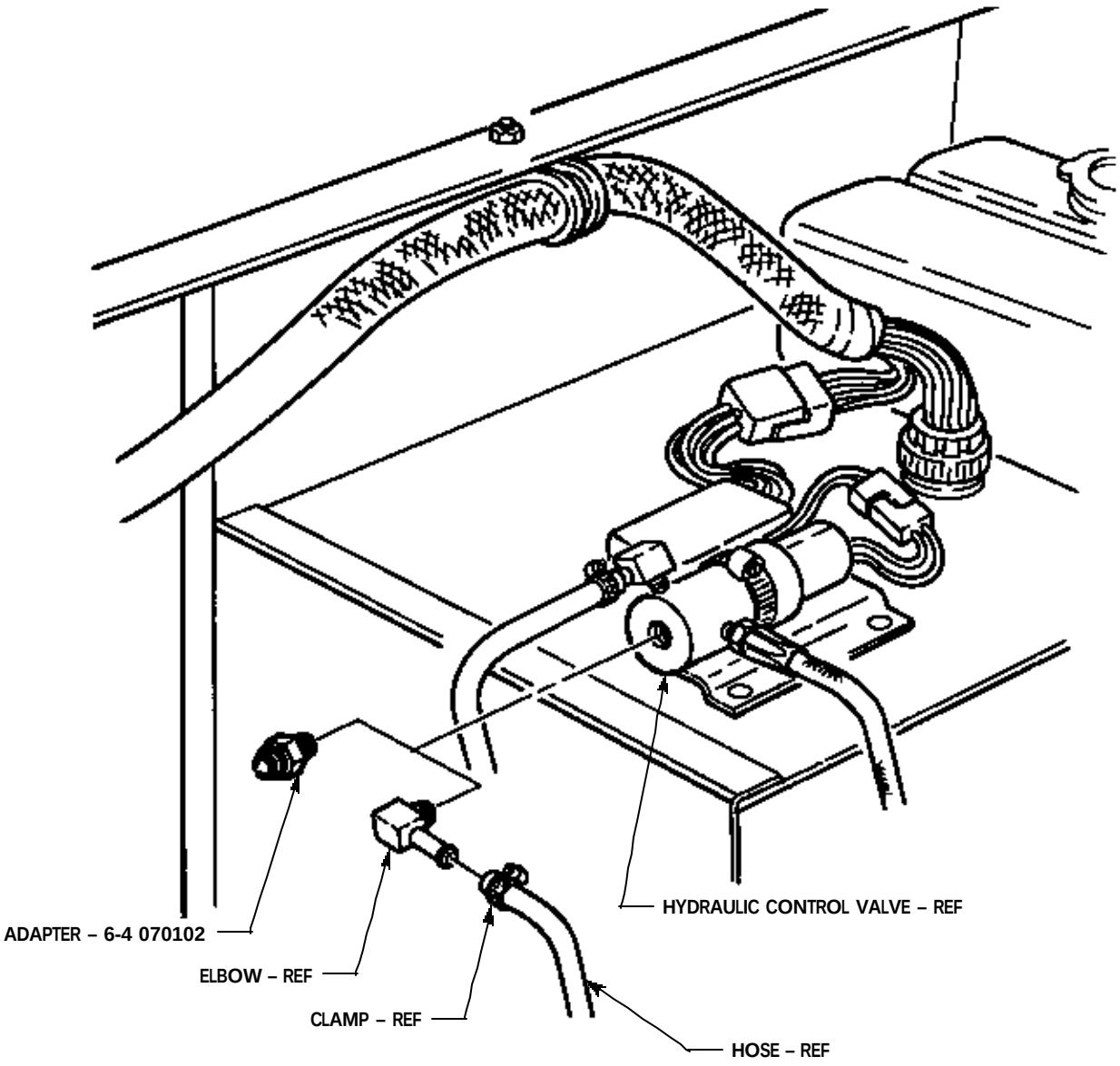

HYDRAULIC CONTROL VALVE – REF
ADAPTER – 6-4 070102
ELBOW – REF
CLAMP – REF
HOSE – REF

FIGURE 15

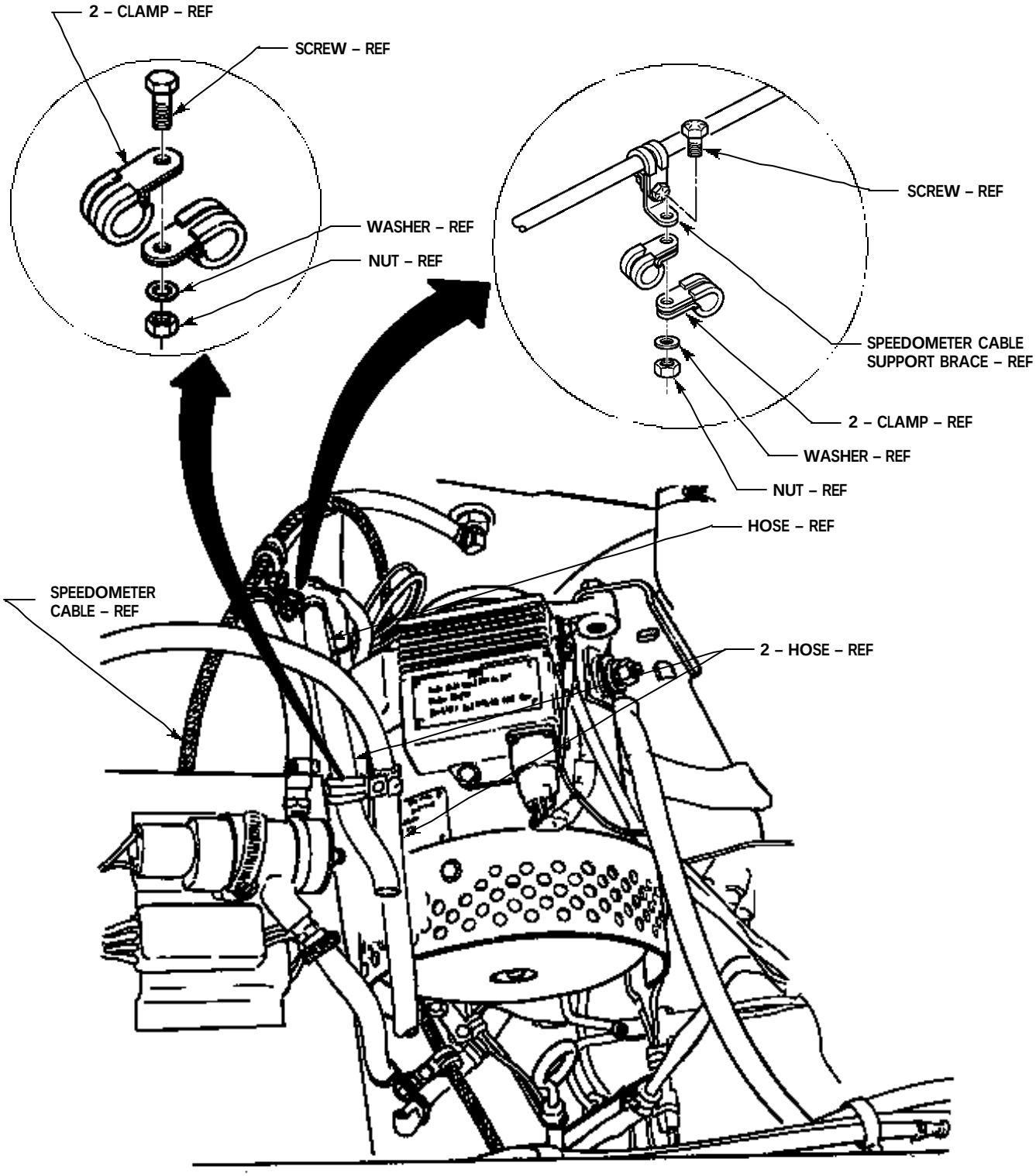

2 – CLAMP – REF
SCREW – REF
WASHER – REF
NUT – REF
SCREW – REF
SPEEDOMETER CABLE SUPPORT BRACE – REF
2 – CLAMP – REF
WASHER – REF
NUT – REF
HOSE – REF
SPEEDOMETER CABLE – REF
2 – HOSE – REF

FIGURE 16

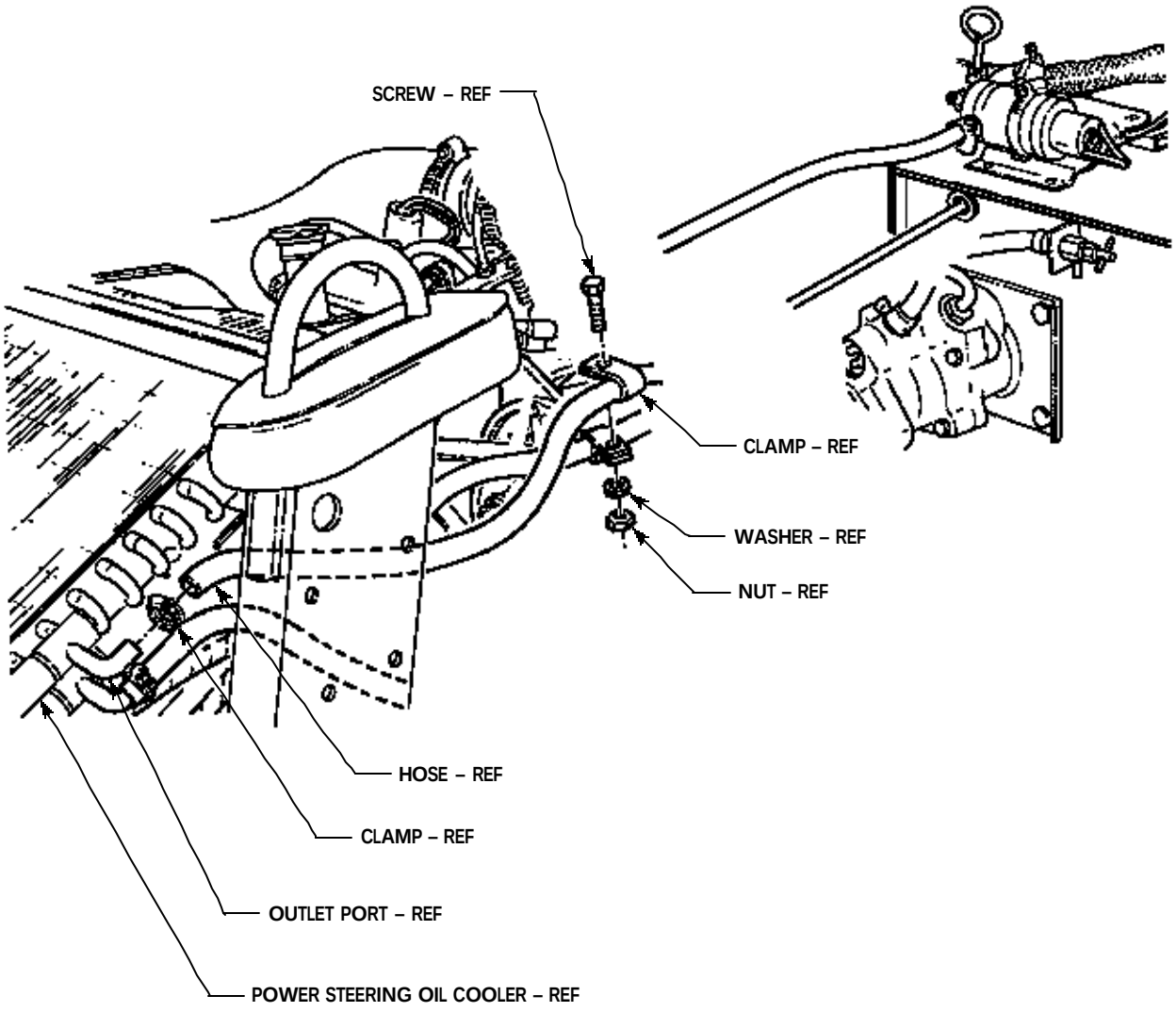

SCREW – REF
CLAMP – REF
WASHER – REF
NUT – REF
HOSE – REF
CLAMP – REF
OUTLET PORT – REF
POWER STEERING OIL COOLER – REF

FIGURE 17

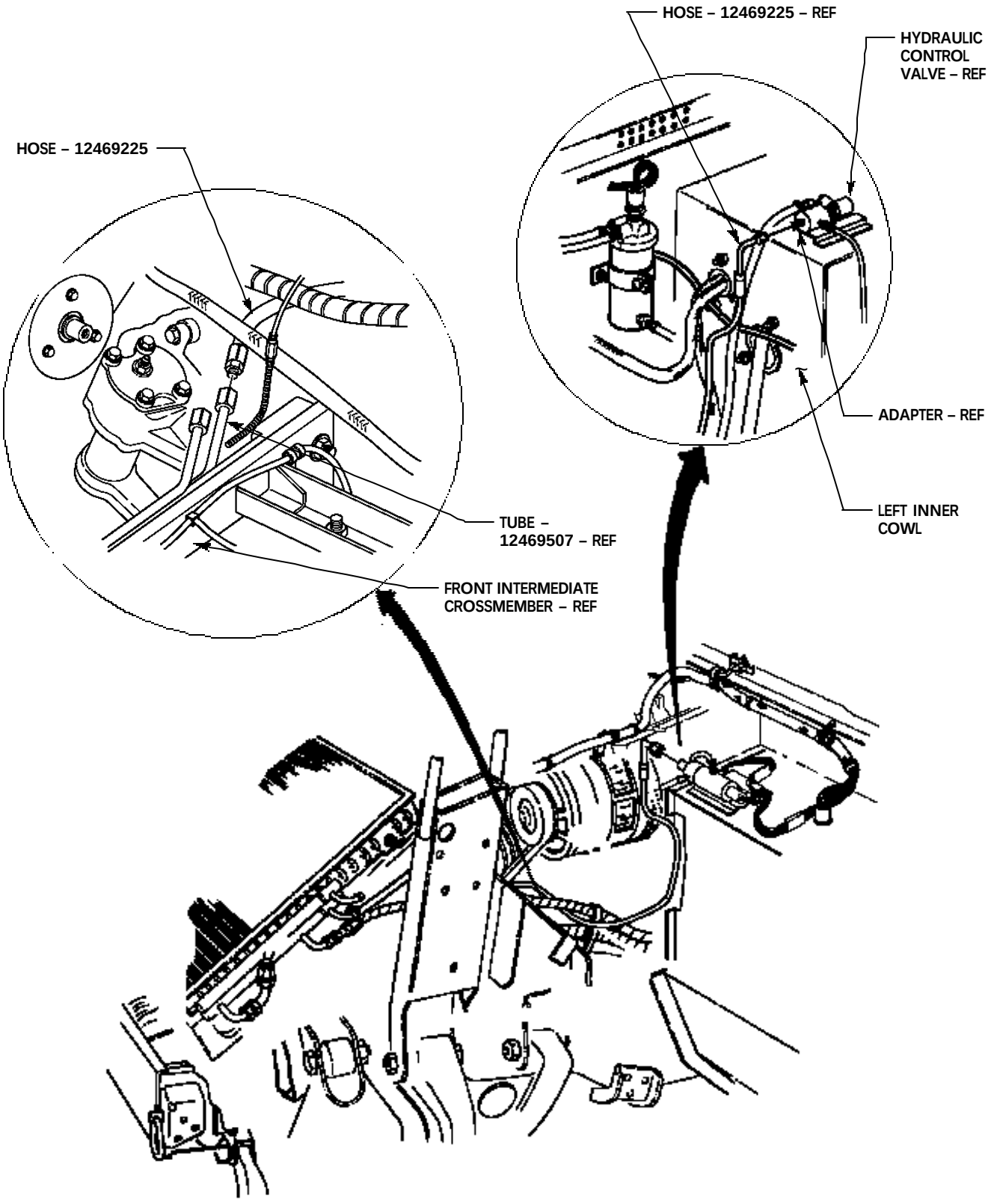

HOSE – 12469225 – REF
HYDRAULIC CONTROL VALVE – REF
HOSE – 12469225
ADAPTER – REF
LEFT INNER COWL
TUBE – 12469507 – REF
FRONT INTERMEDIATE CROSSMEMBER – REF

FIGURE 18

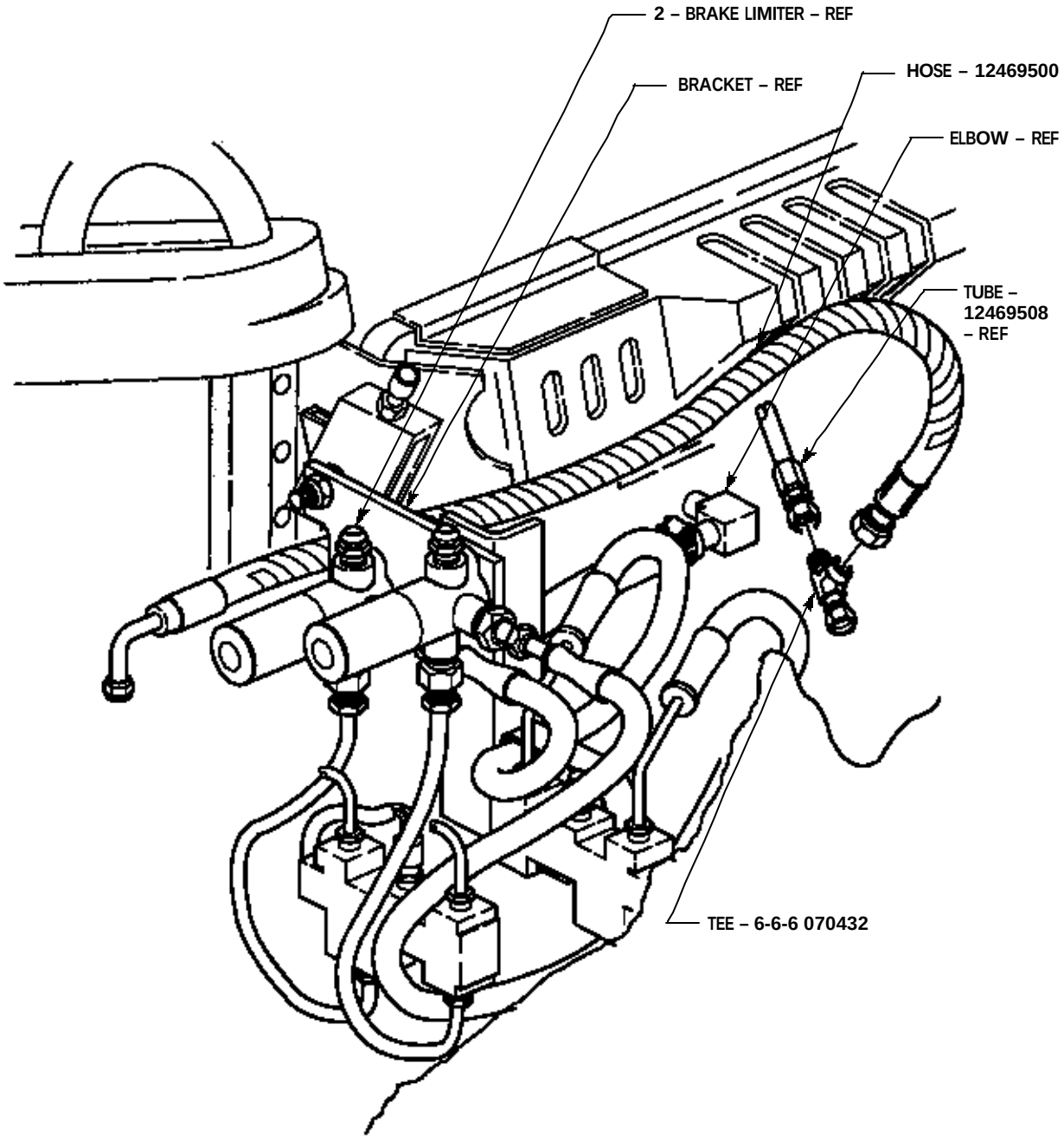

2 – BRAKE LIMITER – REF
BRACKET – REF
HOSE – 12469500
ELBOW – REF
TUBE – 12469508 – REF
TEE – 6-6-6 070432

FIGURE 19

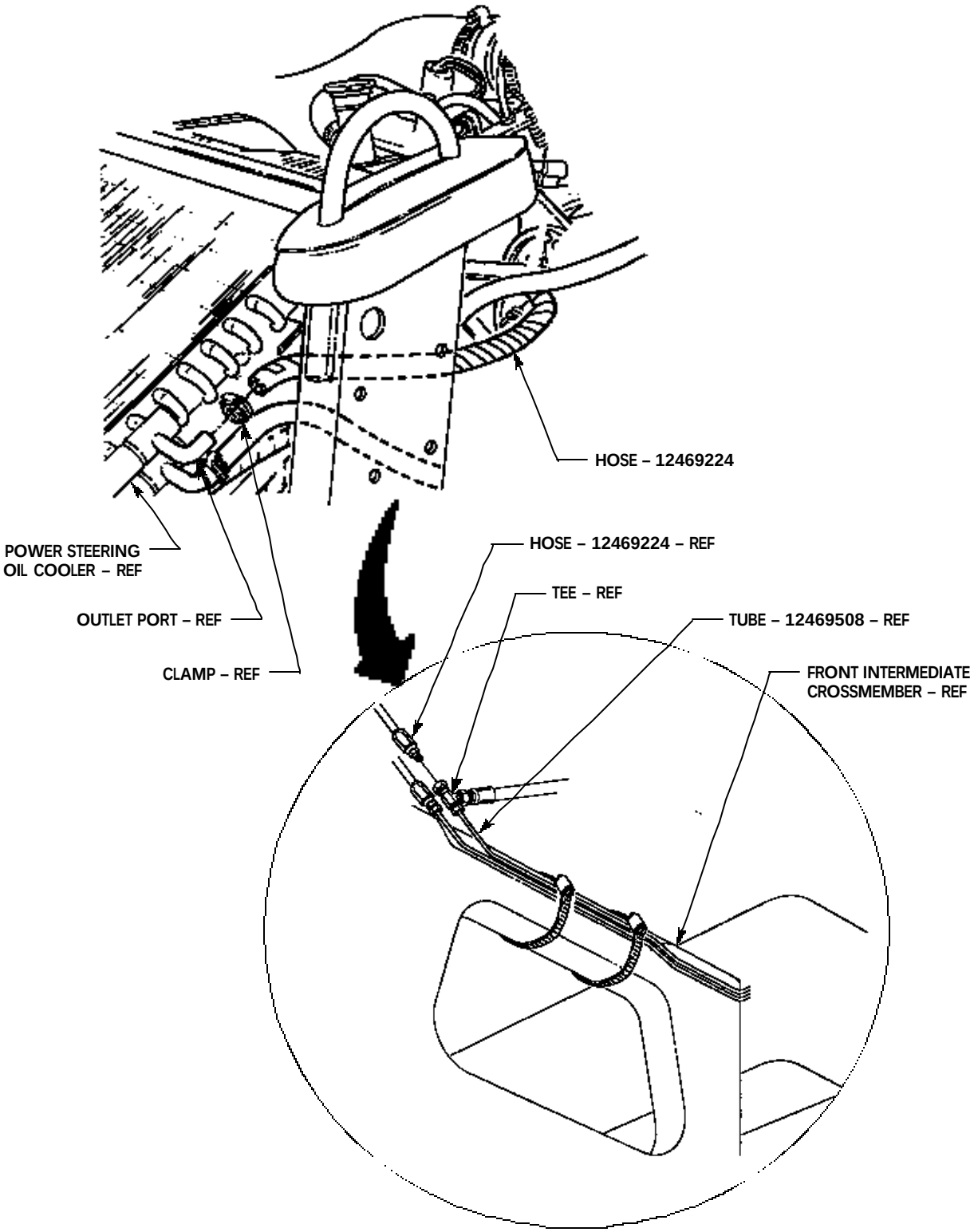

HOSE – 12469224
POWER STEERING OIL COOLER – REF
OUTLET PORT – REF
CLAMP – REF
HOSE – 12469224 – REF
TEE – REF
TUBE – 12469508 – REF
FRONT INTERMEDIATE CROSSMEMBER – REF

FIGURE 20

NOTE: ALL DIMENSIONS ARE IN INCHES

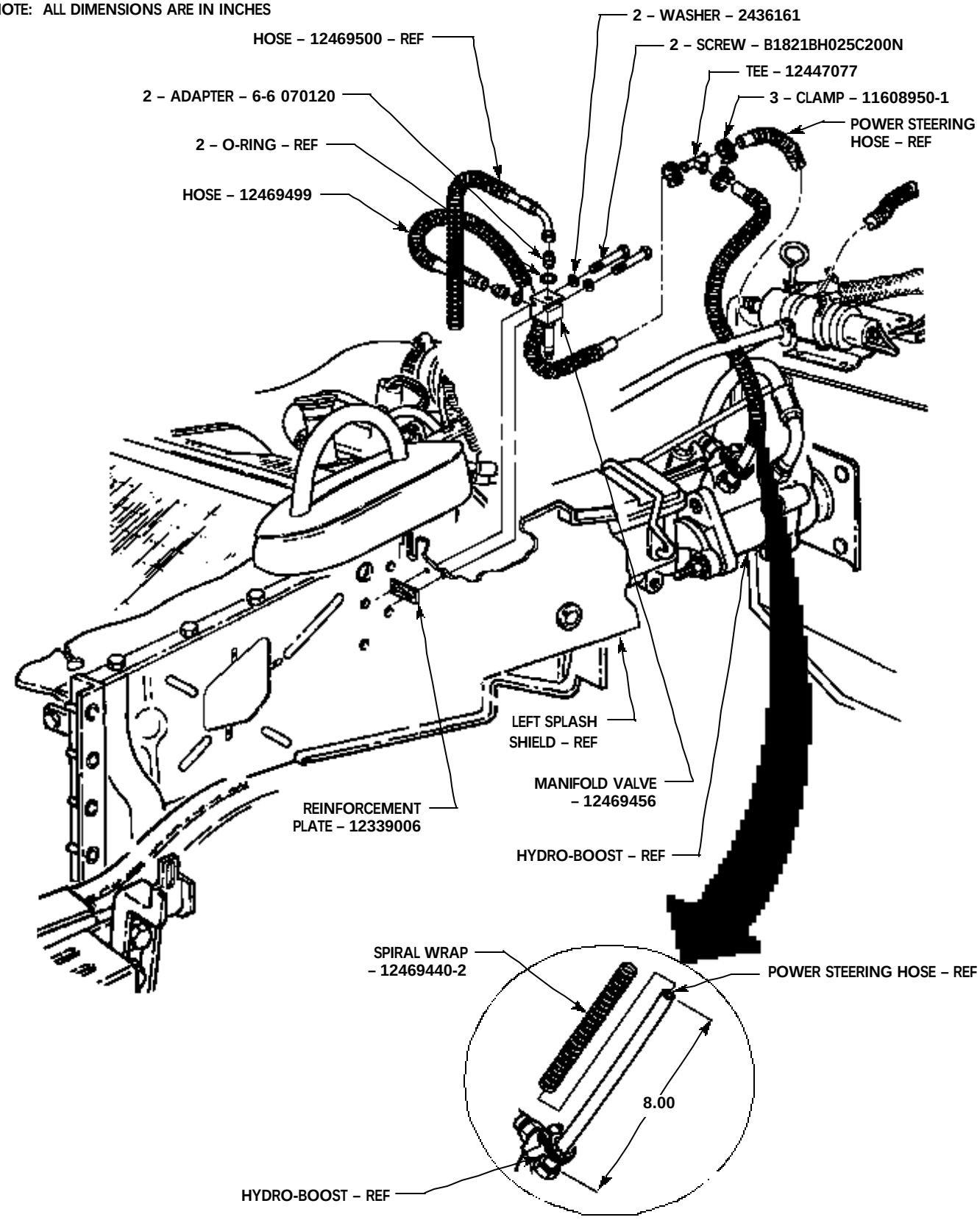


FIGURE 21

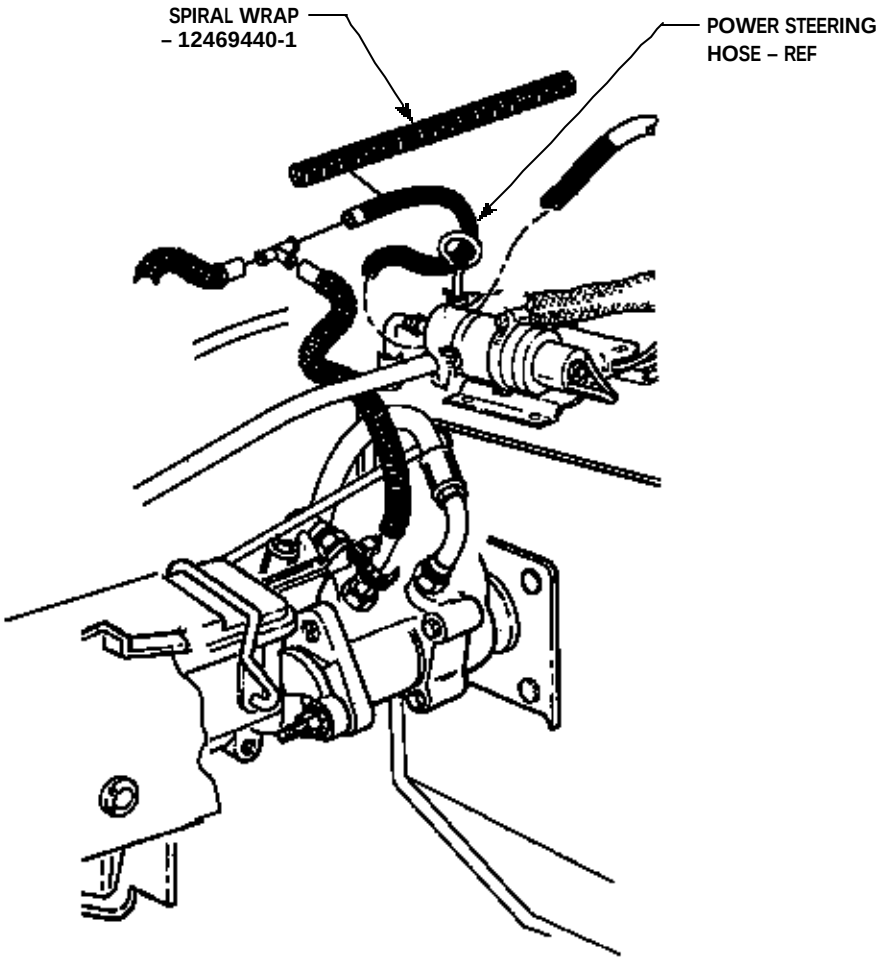


FIGURE 22

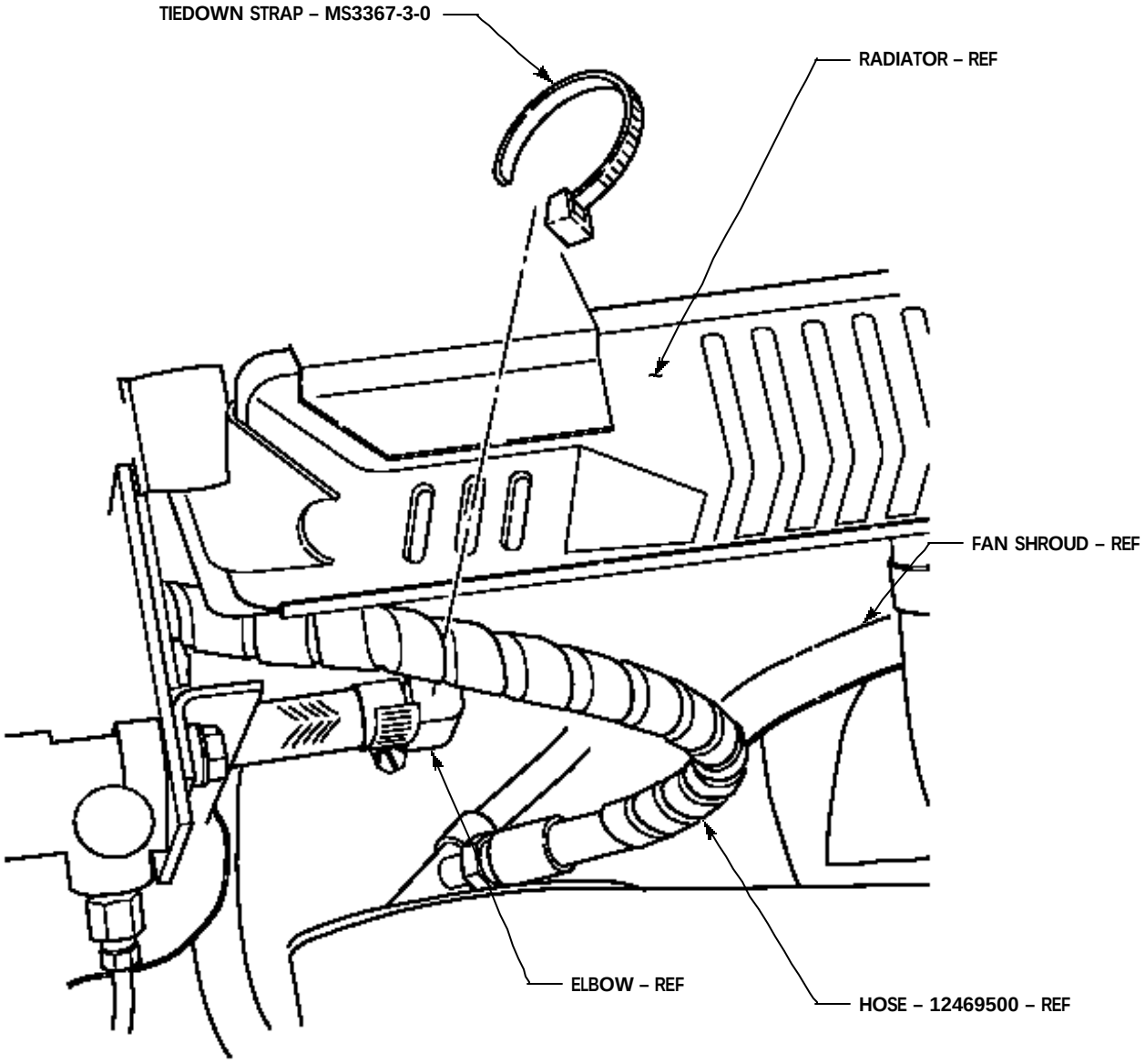

TIEDOWN STRAP – MS3367-3-0
RADIATOR – REF
FAN SHROUD – REF
ELBOW – REF
HOSE – 12469500 – REF

FIGURE 23

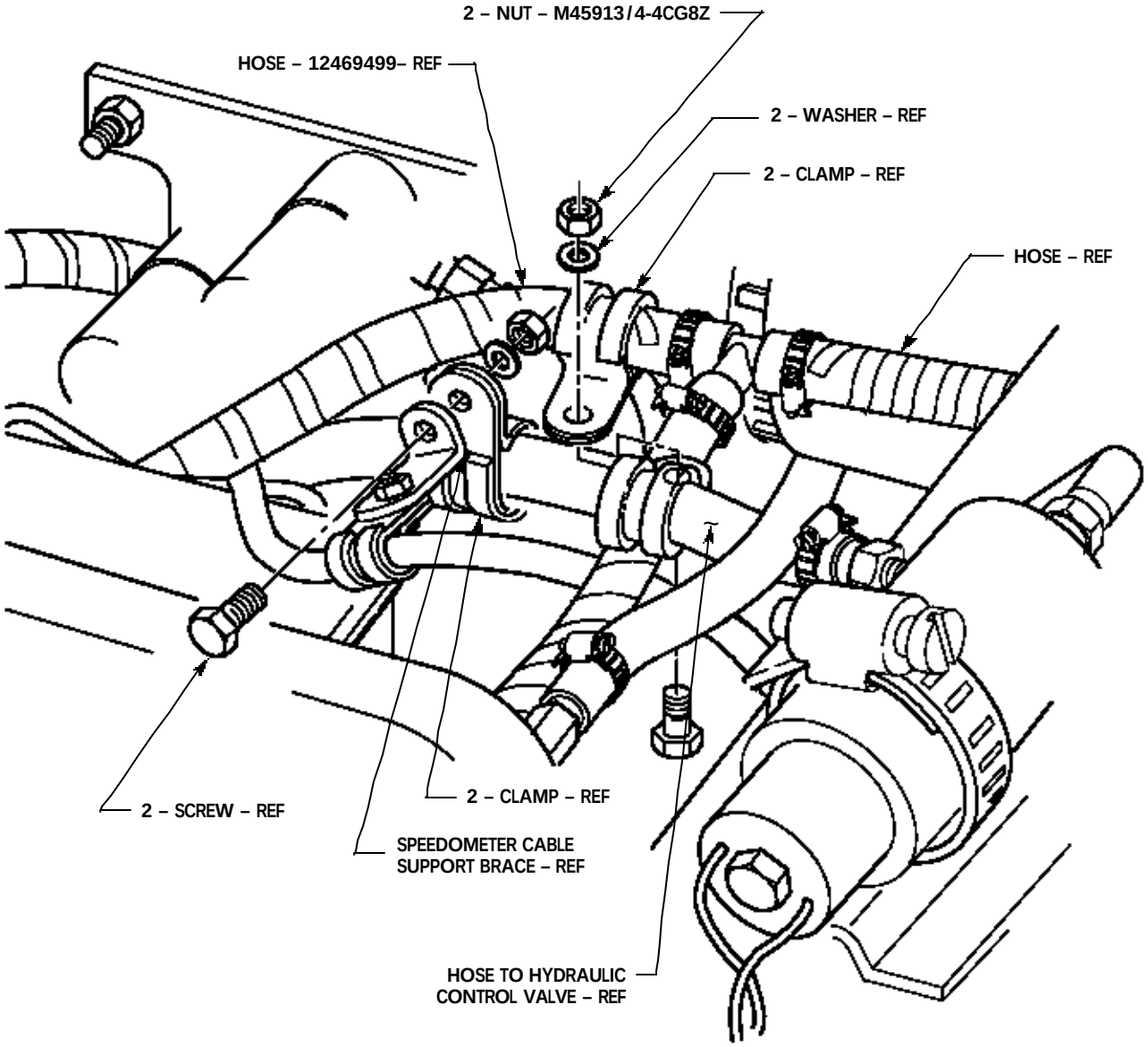
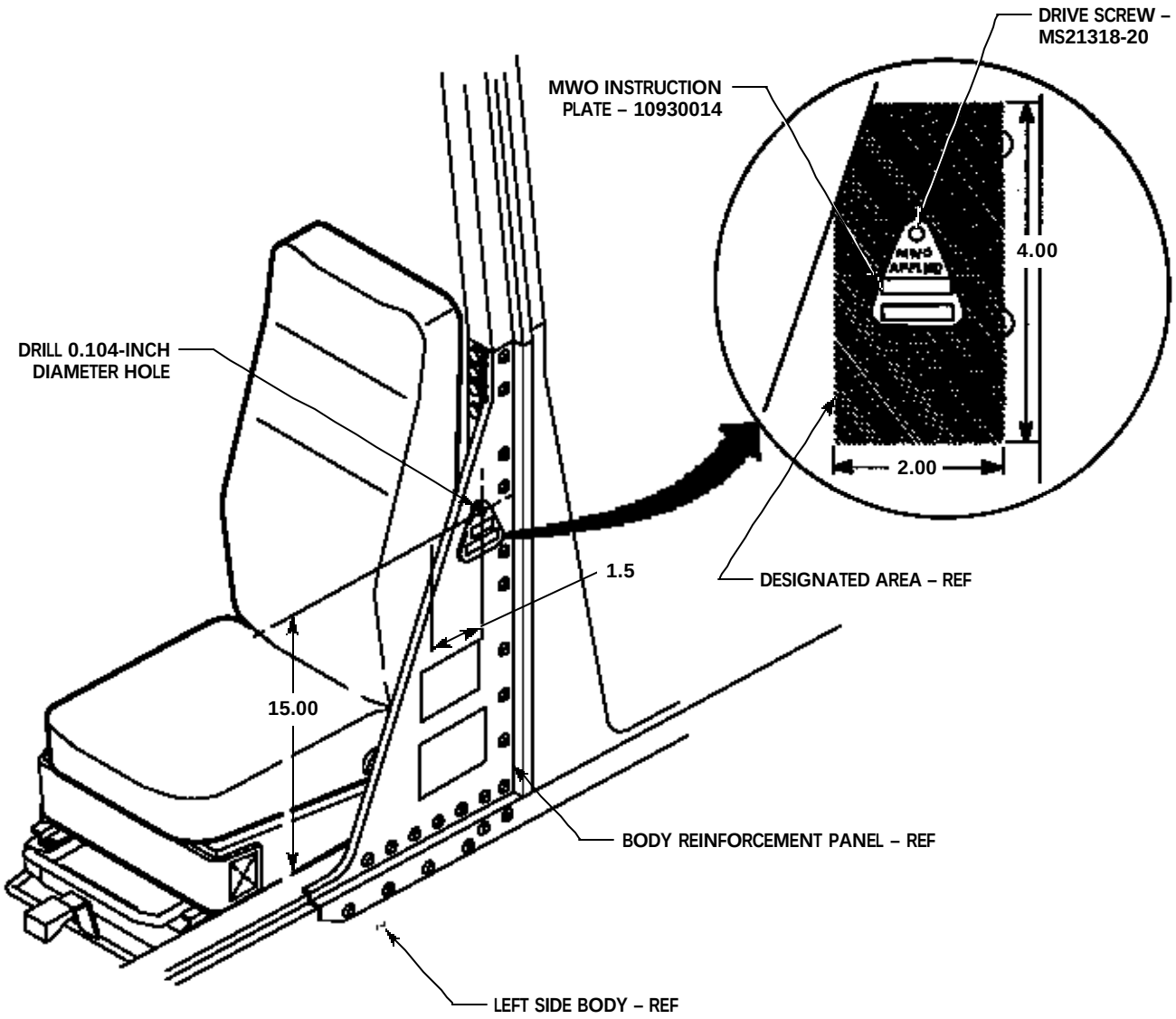

2 – NUT – M45913/4-4CG8Z
HOSE – 12469499– REF
2 – WASHER – REF
2 – CLAMP – REF
HOSE – REF
2 – SCREW – REF
2 – CLAMP – REF
SPEEDOMETER CABLE
SUPPORT BRACE – REF
HOSE TO HYDRAULIC
CONTROL VALVE – REF

FIGURE 24

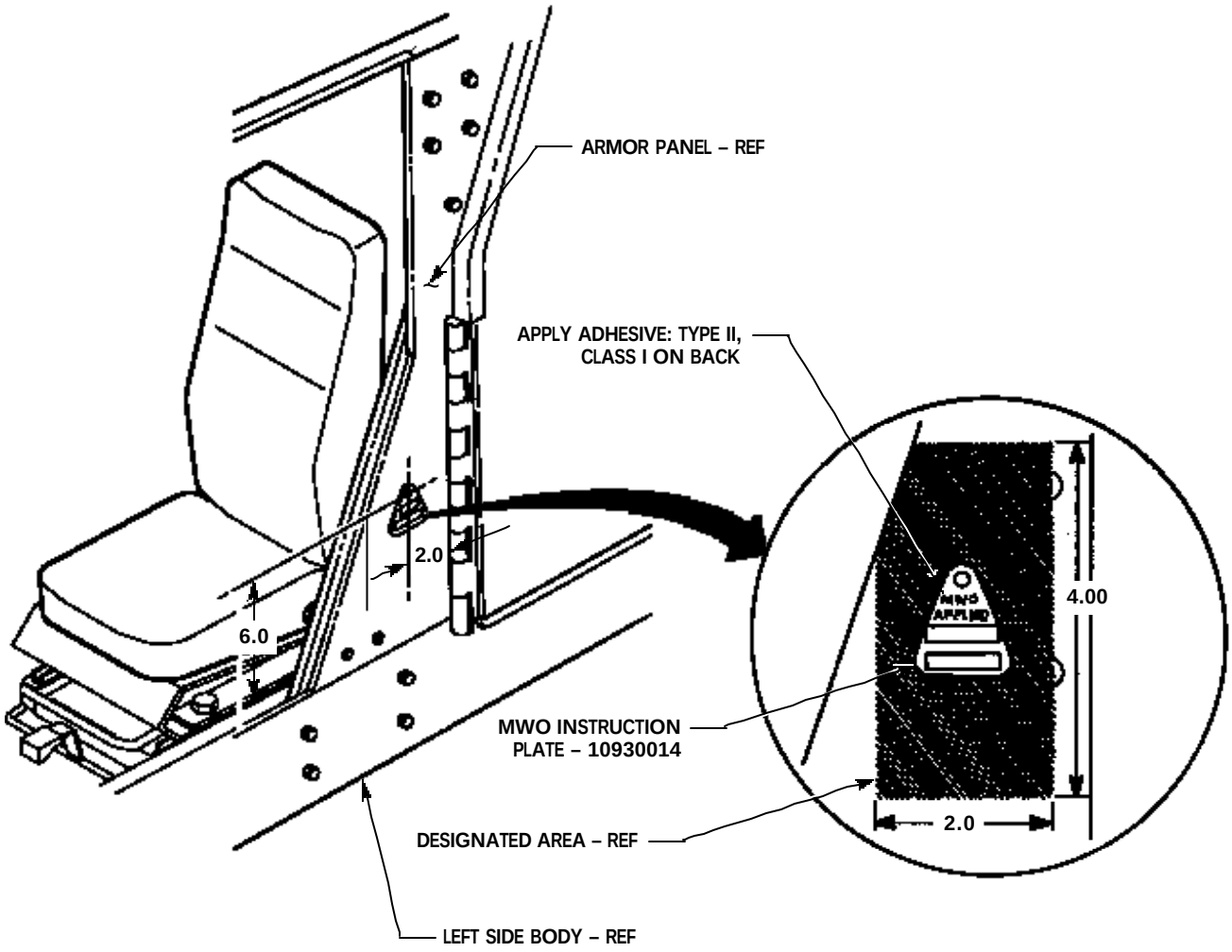
NOTE: ALL DIMENSIONS ARE IN INCHES



M1113

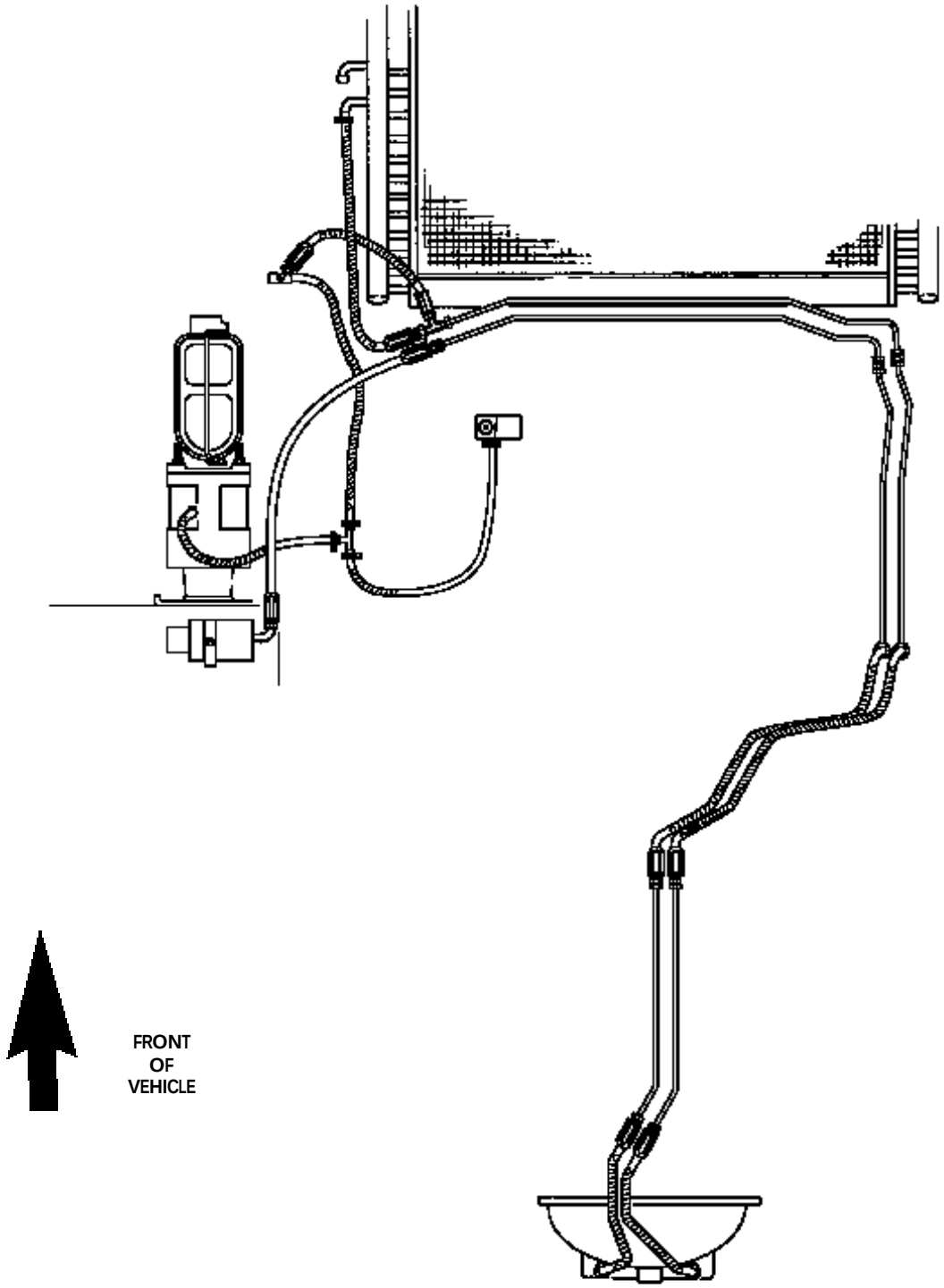
FIGURE 25

NOTE: ALL DIMENSIONS ARE IN INCHES



M1114

FIGURE 26



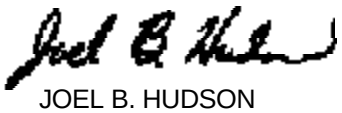
REAR DIFFERENTIAL COOLER INSTALLED

FIGURE 27

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0211403

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 381119, requirements for MWO 9-2320-387-20-1.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches
1 Kilometer = 1,000 Meters = 0.621 Miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F -32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 °C +32 = °F

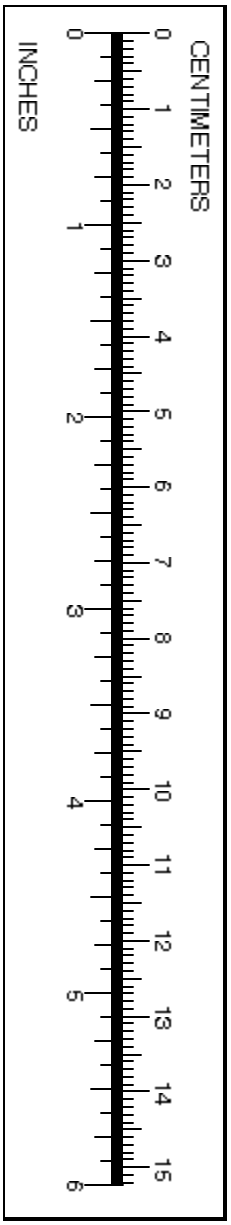
WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
1 Kilogram = 1,000 Grams = 2.2 Lb
1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621



PIN: 076726-000