

# ARMY TM 9-2320-361-10

## AIR FORCE TO 36A12-1B-1094-1

\* Supersedes all portions of the M4442 series data, dated 26 September 1980, including all changes. (See page i for details.)

### TECHNICAL MANUAL

### OPERATOR'S MANUAL FOR

### 2-1/2-TON, 6x6, M44A2 SERIES TRUCKS (MULTIFUEL)

TRUCK, CARGO: 2-1/2-TON, 6X6,  
M35A2, M35A2C, M36A2;

TRUCK, TANK, FUEL:  
2-1/2-TON, 6X6, M49A2C;

TRUCK, TANK, WATER:  
2-1/2-TON, 6X6, M50A2, M50A3;

TRUCK, VAN, SHOP:  
2-1/2-TON, 6x6, M109A3;

TRUCK, INSTRUMENT REPAIR SHOP:  
2-1/2-TON, 6X6, M185A3;

TRUCK, TRACTOR:  
2-1/2-TON, 6X6, M275A2;

TRUCK, DUMP: 2-1/2-TON, 6X6,  
M342A2;

TRUCK, MAINTENANCE, PIPELINE  
CONSTRUCTION: 2-1/2-TON, 6X6,  
M756A2;

TRUCK, MAINTENANCE,  
EARTH BORING AND POLESETTING:  
2-1/2-TON, 6X6, M764

INCLUDES CHANGES 1 TRHU 4

HOW TO USE THIS  
MANUAL

INTRODUCTION 1-1

OPERATING  
INSTRUCTIONS 2-1

PREVENTIVE  
MAINTENANCE CHECKS 2-29  
AND SERVICES

MAINTENANCE  
INSTRUCTIONS 3-1

TROUBLESHOOTING 3-2

REFERENCES A-1

COMPONENTS OF END  
ITEM AND BASIC  
ISSUE ITEMS LISTS B-1

ADDITIONAL  
AUTHORIZATION LIST C-1

EXPENDABLE/DURABLE  
SUPPLIES AND  
MATERIALS LIST D-1

STOWAGE AND  
SIGN GUIDE E-1

DEPARTMENTS OF THE ARMY AND THE AIR FORCE

December 1988

TECHNICAL MANUAL  
NO. 9-2320-361-10  
TECHNICAL ORDER  
NO. 36A12-1B-1094-1

TM 9-232-361-10  
TO 36A12-1B-1094-1  
C4

CHANGE  
NO. 4

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington D. C., 7 June 1993

OPERATOR'S MANUAL  
FOR  
2-1/2-TON, 6X6, M44A2 SERIES TRUCKS  
(MULTIFUEL)

Model		NSN Without Winch	NSN With Winch
Truck, Cargo	M35A2	2320-00-077-1616	2320-00-077-1617
	M35A2C	2320-00-926-0873	2320-00-926-0875
	M36A2	2320-00-077-1618	2320-00-077-1619
Truck, Tank Fuel	M49A2C	2320-00-077-1631	2320-00-077-1632
Truck, Tank Water	M50A2	2320-00-077-1633	2320-00-077-1632
	M50A3	2320-00-077-1636	2320-00-937-5264
Truck, Van, Shop	M109A3	2320-00-937-4036	2320-00-077-1637
Truck, Instrument Repair Shop	M185A3	4940-00-077-1638	4940-00-077-1639
Truck, Tractor	M275A2	2320-00-077-1640	2320-00-077-1641
Truck, Dump	M342A2	2320-00-077-1643	2320-00-077-1644
Truck, Maintenance Pipeline Construction	M756A2		2320-00-904-3277
Truck, Maintenance Earth Boring and Polesetting	M764		232000-937-5960

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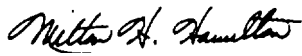
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**WASHINGTON, D. C., 5 May 92**

**CHANGE**  
**NO. 3**

**TECHNICAL MANUAL**  
**OPERATOR'S MANUAL**  
**FOR**  
**2-1/2-TON, 6X6, M44A2 SERIES TRUCKS**  
**(MULTIFUEL)**

<b>Model</b>		<b>NSN Without Winch</b>	<b>NSN With Winch</b>
Truck, Cargo	M35A2	2320-00-077-1616	2320-00-077-1617
	M35A2C	2320-00-926-0873	2320-00-926-0875
	M36A2	2320-00-077-1618	2320-00-077-1619
Truck, Tank, Fuel	M49A2C	2320-00-077-1631	2320-00-077-1632
Truck, Tank, Water	M50A2	2320-00-077-1633	2320-00-077-1634
	M50A3	2320-00-937-4036	2320-00-937-5264
Truck, Van, Shop	M109A3	2320-00-077-1636	2320-00-077-1637
Truck, Instrument Repair Shop	M185A3	4940-00-077-1638	4940-00-077-1639
Truck, Tractor	M275A2	2320-00-077-1640	2320-00-077-1641
Truck, Dump	M342A2	2320-00-077-1643	2320-00-077-1644
Truck, Maintenance, Pipeline Construction	M756A2		2320-00-904-3277
Truck, Maintenance, Earth Boring and Polesetting	M761		2320-00-937-5980

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2-43 through 2-52  
2-81 through 2-84  
2-87 and 2-88  
2-93 and 2-94  
2-99 and 2-100  
2-121 and 2-122  
3-5 and 3-6  
A-1 and A-2  
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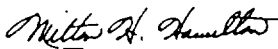
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2-43 through 2-52  
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2-93 and 2-94  
2-99 and 2-100  
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**DEPARTMENTS OF THE ARMY  
AND THE AIR FORCE**

**CHANGE  
NO. 2**

**WASHINGTON D.C., 28 February 1992**

**TECHNICAL MANUAL  
OPERATOR'S MANUAL  
FOR  
2-1/2-TON, 6X6, M44A2 SERIES TRUCKS  
(MULTIFUEL)**

<b>Model</b>		<b>NSN Without Winch</b>	<b>NSN With Winch</b>
Truck, Cargo	M35A2	2320-00-077-1616	2320-00-077-1617
	M35A2C	2320-00-926-0873	2320-00-926-0875
	M36A2	2320-00-077-1618	2320-00-077-1619
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	M50A3	2320-00-077-1636	2320-00-937-5264
Truck, Van, Shop	M109A3	2320-00-937-4036	2320-00-077-1637
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Truck, Dump	M342A2	2320-00-077-1643	2320-00-077-1644
Truck, Maintenance, Pipeline Construction	M756A2		2320-00-904-3277
Truck, Maintenance, Earth Boring and Polesetting	M764		2320-00-937-5980

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2-105 through 2-110  
3-1 and 3-2  
3-17 and 3-18  
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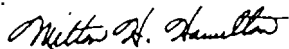
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3-1 and 3-2  
3-17 and 3-18  
A-1 and A-2  
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TECHNICAL ORDER  
NO. 36A12-1B-1094-1

CHANGE  
No.1

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington D.C., 22 December 1989

OPERATOR'S MANUAL  
FOR  
2-1/2-TON, 6x6,  
M44A2 SERIES TRUCKS  
(MULTIFUEL)

TRUCK, CARGO: 2-1/2-TON, 6X6,  
M35A2, M35A2C, M36A2;

TRUCK, TANK, FUEL:  
2-1/2-TON, 6X6, M49A2C;

TRUCK, TANK, WATER:  
2-1/2-TON, 6x6, M50A2, M50A3;

TRUCK, VAN, SHOP:  
2-1/2-TON, 6x6, M109A3;

TRUCK, INSTRUMENT REPAIR SHOP:  
2-1/2-TON, 6x6, M185A3;

TRUCK, TRACTOR:  
2-1/2-TON, 6X6, M275A2;

TRUCK, DUMP: 2-1/2-TON, 6X6,  
M342A2;

TRUCK, MAINTENANCE, PIPELINE  
CONSTRUCTION: 2-1/2-TON, 6X6,  
M756A2;

TRUCK, MAINTENANCE,  
EARTH BORING AND POLESETTING:  
2-1/2-TON, 6X6, M764

TM 9-2320-354-10, 30 September 1987, is changd as follows:

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Distribution:

To be distributed in accordance with DA Form 12-38-R, (Block 185) Operator maintenance requirements for Truck, Multifuel, 21/2-Ton, 6x6, M44A1 and M44A2 series.

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**WARNING**


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**EXHAUST GASES CAN KILL**

Brain damage or death can result from heavy exposure. Precautions must be followed to ensure crew safety when the personnel heater, main, or auxiliary engine of any vehicle is operated for any purpose.

1. Do not operate your vehicle engine in enclosed areas.
2. Do not idle vehicle engine with vehicle windows closed.
3. Be alert at all times for exhaust odors.
4. Be alert for exhaust poisoning symptoms. They are:

- Headache
- Dizziness
- Sleepiness
- Loss of muscular control

5. If you see another person with exhaust poisoning symptoms:

Remove person from area  
 Expose to open air  
 Keep person warm  
 Do not permit physical exercise  
 Administer artificial respiration, if necessary\*  
 Notify a medic

\*For artificial respiration, refer to FM 21-11.

6. BE AWARE, the field protective mask for nuclear-biological-chemical (NBC) protection will not protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST EXHAUST POISONING IS ADEQUATE VENTILATION.

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**WARNING**


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**HIGH INTENSITY NOISE**

Hearing protection is required for the driver and co-driver. Hearing protection is also required for all personnel working in and around this vehicle while the engine is running (reference AR 40-5 and TB MED 501).

## WARNING SUMMARY

- Ž If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.
- Ž Never mix gasoline or JP-4 turbine fuels with other fuels outside vehicle fuel tank. Any mixing should be done by adding fuels to fuel tank. Gasoline and JP-4 turbine fuel are highly combustible and may explode, resulting in injury or death to personnel.
- Ž Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury or death to personnel.
- Ž Do not perform fueling operations, fuel filter checks, inspections, or draining while smoking, or near fire, flames, or sparks. Always keep a fire extinguisher nearby. Fuel may ignite causing injury or death to personnel.
- Ž Don't smoke, have open flame, or make sparks around batteries. They may explode and cause injury or death to personnel.
- Ž Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.
- Ž Do not touch hot exhaust pipes with bare hands. Injury to personnel may result.
- Ž If buzzer stops and air pressure reading is below 65 psi, there may be no braking action. Shut down engine and check to see what is wrong. Failure to do so may result in injury or death to personnel.
- Ž Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.
- Ž Safety braces must be used when checking hydraulic hoist cylinders. Failure to do so may result in injury or death to personnel.
- Ž If warning buzzer does not go on when engine starts, stop engine and notify your supervisor. Failure to do so may result in injury or death to personnel.
- Ž Do not back up vehicle without a ground guide, or injury or death to personnel may result.
- Ž Do not let vehicle coast down hill with clutch pedal depressed or transmission in position "N" (neutral). Doing this may cause vehicle to increase speed and go out of control resulting in injury or death to personnel.
- Ž Never wear nylon clothing when handling petroleum. High electrostatic charges build up in such fabrics. Failure to do so may cause fire, resulting in injury or death to personnel.
- Ž Keep at least 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may result in injury or death to personnel.
- Ž Do not perform fueling procedures while smoking or within 50 ft (15 m) of sparks or open flame. Fuel is flammable and can explode easily, resulting in injury or death to personnel.

**WARNING SUMMARY (Contd)**

- Ž If tachometer shows engine idling at high rpm and engine stop control does not stop engine, do not attempt to stall engine. Leave vehicle and notify your supervisor. Attempting to stall engine at high rpm may engage transmission and move vehicle resulting in injury or death to personnel.
- Ž When hazard warning lights/emergency flashers are in use, they override brake lights/stop lamp operation. Therefore, when driving with hazard warning lights/emergency flashers operating, be prepared to use hand signals to indicate a stop. Failure to do so may result in injury or death to personnel.
- Ž When hooking or unhooking the towbar lunette from a disabled vehicle, set the parking brake or chock the wheels of the disabled vehicle before hooking or unhooking the towbar. If towed vehicle is not chocked, or parking brake not set, disabled vehicle may move, causing injury or death to personnel and/or damage to equipment.
- Ž Be sure the front winch drive shaft/rear winch shearpin is aluminum. Do not substitute any other type metal pin for the shearpin, or injury or death to personnel may result.
- Ž All personnel must stand clear during winching operations. A snapped cable or shifting load may result in injury or death to personnel.
- Ž When hooking up for winching operations, position throat (open part) of hook upward in case overloading straightens out hook. Failure to do this may result in injury or death to personnel.
- Ž Use hand throttle to control engine speed when operating winch. Do not run engine faster than 1200 rpm. Avoid sudden changes in speed or shearpin or cable may break, causing injury or death to personnel.
- Ž On dropside trucks, make sure forward end of dropsides are secured before lowering tailgate. Failure to do this may result in injury or death to personnel.
- Ž Troop seats must be secured in the up position before lowering dropside, or injury or death to personnel may result.
- Ž Do not remove tiller covers, transfer fuels, or drain fuel until rear and dispenser ground wires have been properly connected. Failure to do so may result in injury or death to personnel.
- Ž All personnel must stand clear during hoisting and lowering operations. A snapped cable, shifting or swinging load may result in injury or death to personnel.
- Ž Hearing protection must be worn when using earth boring machine or rear winch, or injury to personnel may result.
- Ž Avoid any contact with high voltage power lines by the derrick or vehicle. If the derrick or vehicle does come in contact with a high voltage power line, the vehicle will become electrically charged. Do not contact any item that is not on the vehicle and grounded or attempt to leave the vehicle. Failure to do this may result in injury or death to personnel.
- Ž Do not pull back on winch control lever during hoisting operations, or load may drop and cause injury or death to personnel.
- Ž Do not attempt to remove 20-inch and 30-inch augers by hand. Use rear winch and boring machine derrick to lift and lower augers. Failure to do this may result in injury or death to personnel.

### WARNING SUMMARY (Contd)

- Ž Keep feet clear of augers when lifting locking handles. Augers tilt to side when released and may result in injury to personnel.
- Ž Do not let personnel stand near auger while boring or spinning soil off auger. Injury to personnel may result from flying materials.
- Check derrick tube for damage before using. A tube bend or flat spot may cause collapse under load, resulting in injury or death to personnel.
- Ž The cable reel is heavy and may require the derrick and winch to load/unload it. Failure to lift reel properly may result in injury or death to personnel.
- Ž Make sure collapsible cable reel is properly mounted on rear winch shaft before operating reel. Failure to do so may result in injury or death to personnel.
- Ž Do not overload cable reel. Maximum pull on reel is 4,000 lb. A snapped cable may result in injury or death to personnel.
- Ž Alcohol used in alcohol evaporator is flammable, poisonous, and explosive. Do not add alcohol while smoking or near fire, flames, or sparks. Do not drink alcohol. Doing this may result in injury or death to personnel.
- Ž Vehicle operation on ice and snow can be dangerous. Operators must drive at reduced speeds and be prepared to meet sudden changes in road conditions and traffic speeds. Maintain safe stopping distances. Failure to do this may cause loss of vehicle control resulting in injury or death to personnel.
- Ž Sudden stops may cause vehicle wheels to lock or engine to stall. Pump brakes gradually when stopping vehicle on ice or snow. Failure to do this may result in injury or death to personnel.
- Ž Compressed air used for cleaning will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).
- Ž Extreme care should be taken when removing radiator tiller cap if temperature gage reads above 180°F. Contact by steam or hot coolant may result in injury or death to personnel.
- Ž Do not operate vehicle on wet, smooth roads with lowered tire inflation. Do not operate vehicle at too great a speed for road conditions. Low tire inflation or excessive speeds may cause loss of vehicle control on wet, smooth roads resulting in injury or death to personnel.
- Ž Towing vehicle to start engine should be done on straight, smooth surface. Failure to do this may cause towed vehicle to lose control resulting in injury or death to personnel.
- Ž One jumper cable must connect positive terminals, and other jumper cable must connect negative terminal of jump starting vehicle to body, away from batteries, of disabled vehicle. Failure to do this may cause batteries to explode resulting in injury or death to personnel.
- Ž Air shutoff valves must be turned on to charge trailer brake system. Failure to do this may cause trailer brake failure resulting in injury or death to personnel.
- Ž Make sure air shutoff valves are turned off after uncoupling trailer. Failure to do this may cause vehicle brake failure resulting in injury or death to personnel.

**WARNING SUMMARY (Cont)**

- Ž Never attempt deepwater fording unless water depth is known to be 72 in. (183 cm) or less, and bottom surface is known to be hard. Limit vehicle speed while fording to 4 mph (6 km/h). Failure to do so may cause vehicle to lose control resulting in injury or death to personnel.
- Ž Do not rely on service brakes until they dry after fording operations. Continue to apply brakes until uneven braking ceases. Failure to do this may result in injury or death to personnel.
- Ž Exhaust gases from mixing pipe can kill. Operate swingfire heater with mixing pipe in well-ventilated area only. Failure to do this may result in injury or death to personnel.
- Ž Box assembly and exhaust pipe will become hot after continued operation. Be careful when opening access door and when removing swingfire heater. Failure to do this may result in injury to personnel.
- Ž When lowering spare wheel, hold wrench handle bar securely. Do not release bar until wheel touches ground. If bar must be released before wheel touches ground, lock shaft in place with pawl. Failure to do this may cause wheel to drop and bar to spin resulting in injury or death to personnel.
- Ž Pawl must rest on shaft gear teeth before raising spare wheel. Failure to do this may cause wheel to drop and bar to spin, resulting in injury or death to personnel.
- Ž Make sure studs are fully seated in slots before tightening nuts, or wheel may drop during operation of vehicle, resulting in injury or death to personnel.
- Ž All personnel must stand clear during removal and replacement of spare wheel. Failure to do this may result in injury or death to personnel.
- Ž Do not work under vehicle that is supported by jack only. Jack may slip, causing vehicle to fall, and result in injury or death to personnel.
- Ž Completely deflate tires before removing from axles if there is obvious damage to wheel components. Injury or death to personnel may result from exploding wheel components.
- Ž Stand clear of tire while gaging and inflating. Injury or death to personnel may result from exploding wheel components.
- Ž When checking connections, do not let tools touch battery box. This can cause a direct short, arcing, tool will heat to red hot, and battery may explode resulting in injury or death to personnel.
- Ž All vehicles must be bonded and grounded for static discharge before fuel transfer. Failure to do so may cause fire, resulting in injury or death to personnel.
- Ž Fuel tank sections should only be top loaded when bottom loading is not possible. Top loading causes static electricity, which may cause fire, resulting in injury or death to personnel.
- Ž Dispenser line should almost touch bottom of tank during filling to decrease the build-up of vapors. Failure to do so may cause fire, resulting in injury or death to personnel.
- Ž This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited LAW AR 70-1 without written approval from the Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-CM-S, Warren, MI 48397-5000.

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**TECHNICAL MANUAL  
NO. 9-2320-361-10  
TECHNICAL ORDER  
NO. 36A12-1B-1091**

**DEPARTMENTS OF THE ARMY  
AND  
THE AIR FORCE  
WASHINGTON, DC 15 Dec 1988**

**OPERATOR'S MANUAL  
FOR  
2-1/2-TON, 6X6, M44A2 SERIES TRUCKS  
(MULTIFUEL)**

This publication is required for official use or for administrative or operational use only. Distribution is limited to U.S. Government Agencies. Other requests for this document must be referred to: Commander, U.S. Army Tank-Automotive Command, Attn: AMSTA-MB, Warren, MI 48397-5000.

<b>Model</b>		<b>NSN Without Winch</b>	<b>NSN With Winch</b>
Truck, Cargo	M35A2	2320-00-077-1616	2320-00-077-1617
	M35A2C	2320-00-926-0873	2320-00-926-0875
	M36A2	2320-00-077-1618	2320-00-077-1619
Truck, Tank, Fuel	M49A2C	2320-00-077-1631	2320-00-077-1632
Truck, Tank, Water	M50A2	2320-00-077-1633	2320-00-077-1634
	M50A3	2320-00-937-4036	2320-00-937-5264
Truck, Van, Shop	M109A3	2320-00-077-1636	2320-00-077-1637
Truck, Instrument Repair Shop	M185A3	4940-00-077-1638	4940-00-077-1639
Truck, Tractor	M275A2	2320-00-077-1640	2320-00-077-1641
Truck, Dump	M342A2	2320-00-077-1643	2320-00-077-1644
Truck, Maintenance, Pipeline Construction	M756A2		2320-00-904-3277
Truck, Maintenance, Earth Boring and Polesetting	M764		2320-00-937-5980

\*This publication supersedes all portions of the M44A2 series vehicles data published in TM 9-2320-209-10-1, 26 September 1980, TM 9-2320-209-10-2, 26 September 1980, TM 9-2320-209-10-3, 26 September 1980, TM 9-2320-209-10-4, 26 September 1980, and all changes.



### REPORTING OF ERRORS

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 back of this manual direct to: Commander, U.S. Army Tank-Command, ATTN: AMSTA-MB, Warren, Michigan 48397-5000. A reply will be furnished to you.

	<b>Page</b>
<u>HOW TO USE THIS MANUAL</u> . . . . .	iii
CHAPTER 1. <u>INTRODUCTION</u> . . . . .	1-1
Section I. General Information . . . . .	1-1
II. Vehicle Description and Data . . . . .	1-6
III. Technical Principles of Operation . . . . .	1-23
CHAPTER 2. <u>OPERATING INSTRUCTIONS</u> . . . . .	2-1
Section I. <u>Controls and Indicators</u> . . . . .	2-1
II. <u>Preventive Maintenance Checks and Services</u> . . . . .	2-29
III. Operation Under Usual Conditions . . . . .	2-81
IV. Operation Under Unusual Conditions . . . . .	2-181
V. Operation of Special Purpose Kits . . . . .	2-193
CHAPTER 3. <u>MAINTENANCE INSTRUCTIONS</u> . . . . .	3-1
Section I. Tools and Equipment . . . . .	3-1
II. Lubrication . . . . .	3-1
III. Troubleshooting . . . . .	3-2
IV. . . . .	3-17
APPENDIX A. REFERENCES . . . . .	A-1
APPENDIX B. BASIC ISSUE ITEMS LISTS . . . . .	B-1
Section I. Introduction . . . . .	B-1
II. Components of End Item . . . . .	B-2
III. Basic Issue Items . . . . .	B-2
APPENDIX C. <u>ADDITIONAL AUTHORIZATION LIST</u> . . . . .	C-1
APPENDIX D. <u>EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST</u> . . . . .	D-1
Section I. Introduction . . . . .	D-1
II. <u>Expendable/Durable Supplies and Materials List</u> . . . . .	D-2
APPENDIX E. <u>STOWAGE AND SIGN GUIDE FOR COMPONENTS OF END ITEM, BASIC ISSUE ITEMS, AND APPLICABLE ADDITIONAL AUTHORIZATION LIST ITEMS</u> . . . . .	E-1
INDEX . . . . .	Index 1

# HOW TO USE THIS MANUAL

## ABOUT YOUR MANUAL

Spend some time looking through this manual. You'll find that it takes a "positive approach" and clearly states only what you can do. Before attempting any questionable operation which is not specifically authorized in this manual, clearance must be obtained from your supervisor.

Features added to improve the convenience of this manual and increase your efficiency are:

- Accessing Information** - This includes physical entry features such as the bleed-to-edge indicators on the cover and edge of the manual. Troubleshooting guides for specific systems lead directly to step-by-step directions for problem solving and maintenance tasks.
- Illustrations** - A variety of methods are used to make locating and identifying components easier. Locator illustrations with keyed text, exploded views, and cut-away diagrams make the information in this manual easier to understand and follow.
- Keying Text With Illustrations** - Instructions/text are located together with figures that illustrate the specific task you are working on. Generally, the task steps and figures are located side by side.

## USING YOUR MANUAL: EXAMPLE 1

TASK: You are starting your M44A2 vehicle engine and are in need of instructions to complete this procedure.

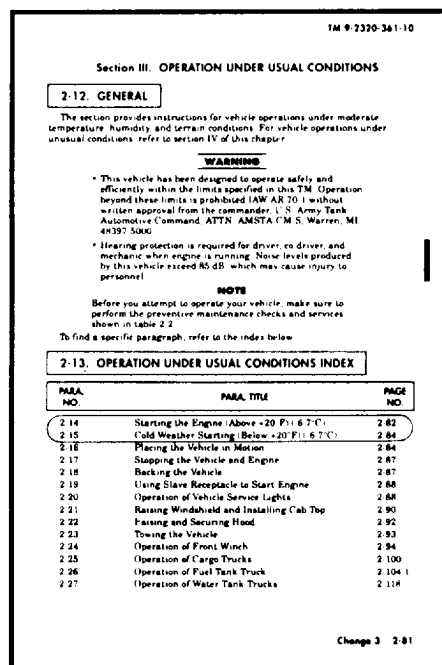
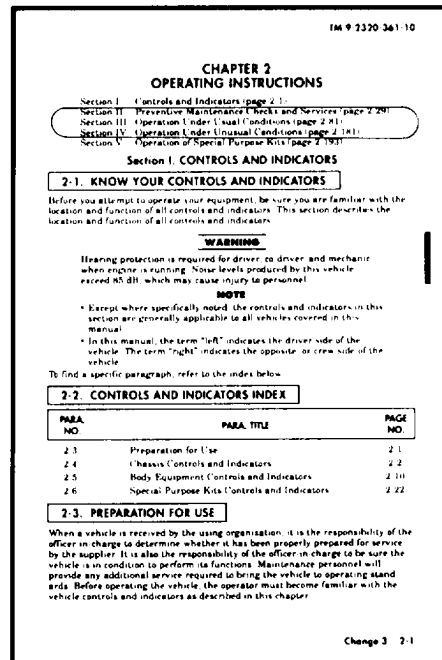
### OPERATING INSTRUCTION STEPS:

- Look at the cover of this manual. You will see chapter, section, and appendix titles listed from top to bottom on the right-hand side.
- Look at the right edge of the manual. On some of the pages you will see bleed-to-edge indicators (black bars) that are aligned with bars on the cover. These are the locations of titles in the text.
- Look for "OPERATING INSTRUCTIONS" in the list on the cover.
- Turn to those pages with the edge indicator matching the black bar for OPERATING INSTRUCTIONS. (Page number is listed next to title.)

*ARMY TM 9-2320-361-10 AIR FORCE TO 36A12-1B-1094-1	
TECHNICAL MANUAL	HOW TO USE THIS MANUAL
OPERATOR'S MANUAL FOR	INTRODUCTION 1-1
2-1/2-TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)	OPERATING INSTRUCTIONS 2-1
TRUCK, CARGO 2-1/2-TON, 6X6, M35A2, M35A2C, M36A2,	PREVENTIVE MAINTENANCE CHECKS, 2-29 AND SERVICES
TRUCK, TANK, FUEL 2-1/2-TON, 6X6, M49A2C	MAINTENANCE INSTRUCTIONS 3-1
TRUCK, TANK, WATER 2-1/2-TON, 6X6, M50A2, M50A3	TROUBLESHOOTING 3-2
TRUCK, VAN, SHOP 2-1/2-TON, 6X6, M109A3	REFERENCES A-1
TRUCK, INSTRUMENT REPAIR SHOP 2-1/2-TON, 6X6, M185A3	COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS B-1
TRUCK, TRACTOR 2-1/2-TON, 6X6, M275A2	ADDITIONAL AUTHORIZATION LIST C-1
TRUCK, DUMP, 2-1/2-TON, 6X6, M342A2	EXPENDABLE, DURABLE SUPPLIES AND MATERIALS LIST D-1
TRUCK, MAINTENANCE, PIPELINE CONSTRUCTION 2-1/2-TON, 6X6, M756A2	STOWAGE AND SIGN GUIDE E-1
TRUCK, MAINTENANCE, EARTH BORING AND POLESETTING 2-1/2-TON, 6X6, M764	
DEPARTMENTS OF THE ARMY AND THE AIR FORCE	
December 1988	

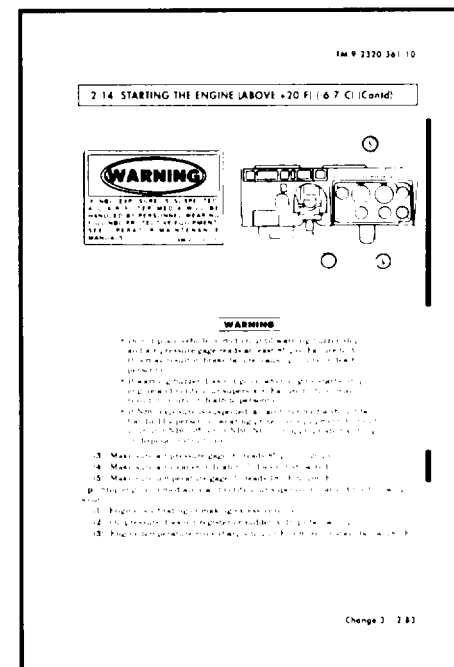
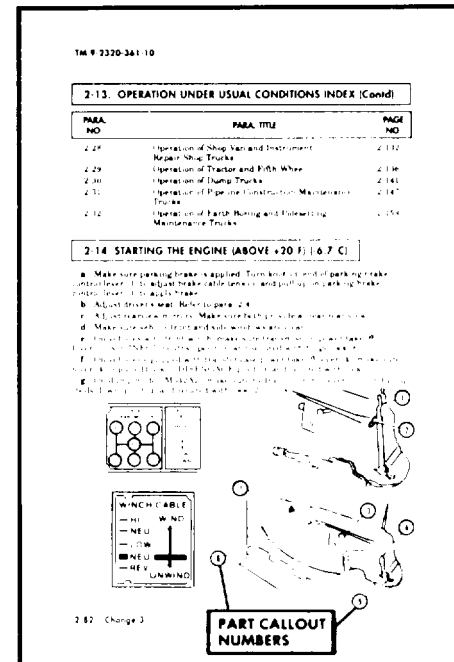
## HOW TO USE THIS MANUAL (contd)

5. You will find that the edge indicator aligned with the front cover black bar has brought you to CHAPTER 2, "OPERATING INSTRUCTIONS".
6. Look through the list of section titles until you find "Section III. OPERATION UNDER USUAL CONDITION".
7. Turn to page 2-81 as indicated.
8. Look through the list of paragraph titles in paragraph 2-13, OPERATION UNDER USUAL CONDITIONS INDEX, until you locate "Starting the Engine (Above 20°F (-6.7°C))".
9. Turn to paragraph 2-14 on page 2-82 as indicated.



## HOW TO USE THIS MANUAL (Contd)

10. Starting on page 2-82 and continuing on page 2-83, you will find directions for starting the engine listed in progressive order.
11. Before performing the operating instruction steps, take time to examine and familiarize yourself with the complete operation procedure and required PMCS.
12. Procedures include everything you must do to accomplish a basic operations task.
13. Numbered callouts, found with the art and text and arranged in a clockwise pattern, will make it easier for you to identify and locate instruments and controls.
14. Pay particular attention to all notes, cautions, and warnings. They are designed to assist you with your task, prevent damage to the vehicle and its components, and protect you from injury.



### Change 3 v

## HOW TO USE THIS MANUAL (Contd)

### USING YOUR MANUAL: EXAMPLE 2

**TASK** Your M44A2 vehicle engine starts but runs rough and lacks power.

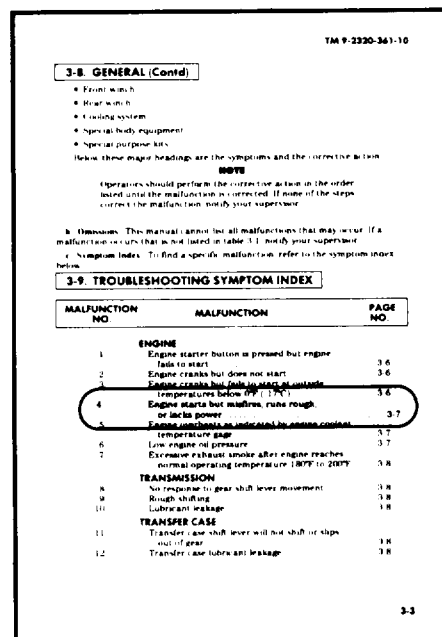
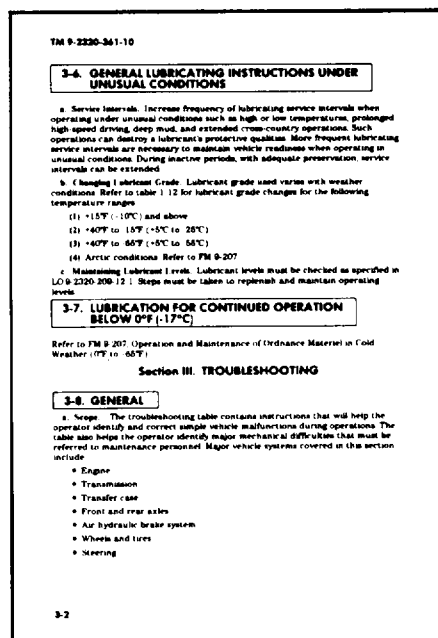
#### TROUBLESHOOTING STEPS:

1. Look at the cover of this manual. You will see chapter, section, and appendix titles listed from top to bottom on the right-hand side.
2. Look at the right edge of the manual. On some of the pages you will see bleed-to-edge indicators (black bars) that are aligned with bars on the cover. These are the locations of titles in the text.
3. Look for "TROUBLESHOOTING" in the list on the cover.
4. Turn to those pages with the edge indicator matching the black bar for TROUBLESHOOTING. (Page number is listed next to title.)

*ARMY TM 9-2320-361-10 AIR FORCE TO 36A12-1B-1094-1	
<b>TECHNICAL MANUAL</b>	<b>HOW TO USE THIS MANUAL</b>
<b>OPERATOR'S MANUAL FOR</b>	<b>INTRODUCTION</b>
<b>2-1/2-TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)</b>	<b>OPERATING INSTRUCTIONS</b>
<b>TRUCK, CARGO, 2-1/2-TON, 6X6, M35A2, M35A2C, M36A2</b>	<b>PREVENTIVE MAINTENANCE CHECKS AND SERVICES</b>
<b>TRUCK, TANK, FUEL, 2-1/2-TON, 6X6, M49A2C</b>	<b>MAINTENANCE INSTRUCTIONS</b>
<b>TRUCK, TANK, WATER, 2-1/2-TON, 6X6, M50A2, M50A3</b>	<b>TROUBLESHOOTING</b>
<b>TRUCK, VAN, SHOP, 2-1/2-TON, 6X6, M109A3</b>	<b>REFERENCES</b>
<b>TRUCK, INSTRUMENT REPAIR SHOP, 2-1/2-TON, 6X6, M185A3</b>	<b>COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST</b>
<b>TRUCK, TRACTOR, 2-1/2-TON, 6X6, M275A2</b>	<b>ADDITIONAL AUTHORIZATION LIST</b>
<b>TRUCK, DUMP, 2-1/2-TON, 6X6, M342A2</b>	<b>EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST</b>
<b>TRUCK, MAINTENANCE, EARTH BORING AND POLESETTING, 2-1/2-TON, 6X6, M764</b>	<b>STORAGE AND SIGN GUIDE</b>
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DEPARTMENTS OF THE ARMY AND THE AIR FORCE	
December 1988	

## HOW TO USE THIS MANUAL (Contd)

5. You will find that the edge indicator aligned with the front cover black bar has brought you to Section III, "TROUBLE-SHOOTING".
6. Look through the list in the "TROUBLESHOOTING SYMPTOM INDEX" until you find "ENGINE". Beneath that heading you will find the symptom heading for "Engine starts but misfires, runs rough, or lacks power".
7. Turn to page 3-7 as indicated.



## HOW TO USE THIS MANUAL (Contd)

8. On page 3-7, steps resolving the problem of "Engine starts but misfires, runs rough, or lacks power".

Step 1. Checked out and was not found to be source of problem.

Step 2. Air cleaner was found to be restricted. To clean air cleaner element, paragraph 3-13 is referenced.

Steps 3 and 4 need not be performed if step 2 corrected the problem.

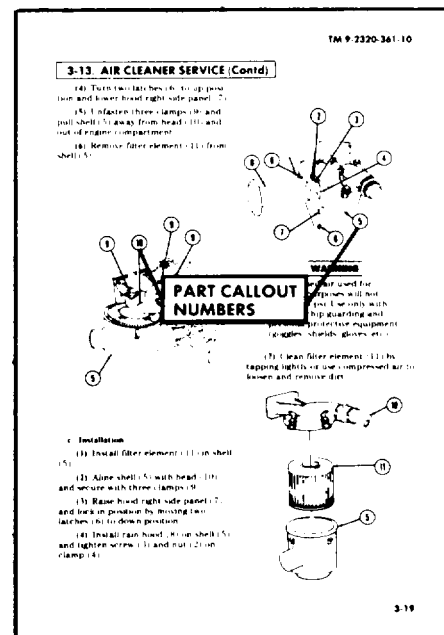
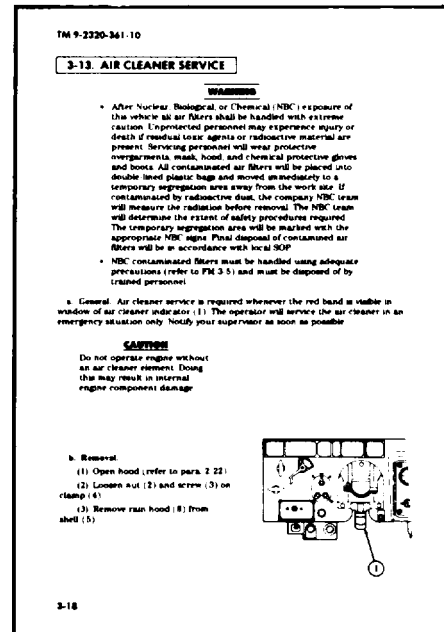
9. Turn to paragraph 3-13 on page 3-18. You will find the complete procedure for removal, cleaning, and installation of the air cleaner element.

Table 3-1. Troubleshooting (Contd.)	
Malfunction	Test or Inspection
Test or Inspection	Corrective Action
<b>4. ENGINE STARTS BUT MISFIRES, RUNS ROUGH, OR LACKS POWER.</b>	
Step 1. Check to see if engine stop control on instrument panel is pulled out.	If pulled out, push in to reset.
Step 2. Check for restricted air cleaner.	If restricted, clean air cleaner element. Refer to para. 3-13.
Step 3. Check fuel supply system for leaks and impurities.	Drain fuel from filter into a container until fuel is clear. Refer to table 2-2. If fuel is not clear before approximately one pint (0.47 l.) has drained, notify your supervisor.
Step 4. Check primary, secondary, and final fuel filter drains for leaks.	If loose, tighten. If leaking, notify your supervisor.
<b>5. ENGINE OVERHEATS AS INDICATED BY ENGINE COOLANT TEMPERATURE GAGE.</b>	
<b>WARNING</b>	
Extreme care should be taken when removing filler cap if temperature gage reads above 194°F. Contact by steam or hot coolant under pressure may result in injury to personnel.	
Step 1. Check outside of radiator core for obstructions.	If clogged, remove debris. Refer to table 2-1.
Step 2. Check coolant level.	If low, add coolant as required.
Step 3. Check for leakage from radiator hoses and hose connections.	If loose, tighten. If still leaking, notify your supervisor.
Step 4. Check engine oil level.	If low, add oil. Refer to L039-2320-209-12-1.
Step 5. Check radiator fan.	If fan blade is not turning, check for loose or broken fan drive belt. If loose or broken, notify your supervisor.
<b>6. LOW ENGINE OIL PRESSURE.</b>	
Check engine oil level.	
If low, add oil. Refer to L039-2320-209-12-1.	

## HOW TO USE THIS MANUAL (Contd)

### MAINTENANCE; PROCEDURES:

10. Procedures include everything you must do to accomplish a basic maintenance task.
11. Before beginning a maintenance task, familiarize yourself with the entire maintenance procedure.
12. Pay particular attention to all notes, cautions, and warnings. They are designed to assist you with your task, prevent damage to the vehicle and its components, and protect you from injury or death.
13. An exploded diagram of the component, removed from the vehicle, shows part locations, attachments, and assembly relationships.
14. Numbered callouts, found with the art and text and arranged in a clockwise pattern, will make it easier for you to identify parts and locations.
15. Examine this manual and you will discover it is easier to use when you understand its design. We hope it will encourage you to use it often.



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# CHAPTER 1

## INTRODUCTION

Section I General Information (page 1-1)

Section II. Vehicle Description and Data (page 1-6)

Section III. Technical Principles of Operation (page 1-23)

### Section I. GENERAL INFORMATION

#### 1-1. SCOPE

a. This manual contains instructions for operating and servicing M44A2 series vehicles. These vehicles are:

- (1) M35A2 Cargo Truck, WO/W and W/W
- (2) M35A2C Cargo Truck, WO/W and W/W (Dropside)
- (3) M36A2 Cargo Truck, WO/M and W/W (XLWB)
- (4) M49A2C Fuel Tank Truck, WO/W and W/W
- (5) M50A2 Water Tank Truck, WO/W and W/W
- (6) M50A3 Water Tank Truck, WO/W and W/W
- (7) M109A3 Shop Van Truck, WO/W and W/W
- (8) M185A3 Instrument Repair Shop Truck, WO/W and W/W
- (9) M275A2 Tractor Truck, WO/W and W/W
- (10) M342A2 Dump Truck, WO/W and W/W
- (11) M756A2 Pipeline Construction Maintenance Truck W/W
- (12) M764 Earth Boring and Polesetting Maintenance Truck, W/W

b. The material presented here provides operators with information and procedures needed to ensure the safest and most efficient operation of these vehicles. This information includes:

- (1) How to operate the vehicle under all environmental conditions.
- (2) The purpose and special capabilities of each vehicle.
- (3) Vehicle limitations such as load limits.
- (4) Warnings and cautions to operators to ensure safety of personnel and equipment.
- (5) The function of all body and instrument panel controls and indicators.
- (6) How and when to use special purpose kits.
- (7) Operator maintenance checks and service procedures.
- (8) Troubleshooting procedures for operators to follow if the vehicle malfunctions.
- (9) Operator forms and records.

## 1-2. GENERAL

This section provides general information required for proper use of this manual. To find a specific paragraph, refer to the index below:

### 1-3. GENERAL INFORMATION INDEX

PARA. NO.	PARA. TITLE	PAGE NO.
1-4.	Maintenance Forms and Records	1-2
1-5.	Reporting Equipment Improvement Recommendations (EIR's)	1-2
1-6.	Equipment Improvement Report and Maintenance Digest (EIR MD)	1-3
1-7.	Destruction of Army Materiel to Prevent Enemy Use	1-3
1-8.	Hand Receipt Manual	1-3
1-9.	Use of the Metric System	1-3
1-10.	Nomenclature Cross Reference List	1-4
1-11.	List of Abbreviations	1-4
1-12.	Glossary	1-5

### 1-4. MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

### 1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's)

If the design of your M44A2 series vehicle needs improvement, let us know. If your vehicle is in proper operating condition and there are problems with vehicle or equipment performance, send us an EIR. You, the user, are the only *one* who can tell us what you don't like about your equipment. It is not necessary to show a new design or a better way to perform a procedure. Just let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MT, Warren, Michigan 48397-5000. We'll send you a reply.

## **1-6. EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD)**

The quarterly Equipment Improvement Report and Maintenance Digest, TB 43-0001-39 series, contains valuable field information on the equipment covered in this manual. Information in the TB 43-0001-39 series is compiled from some of the Equipment Improvement Reports (EIR's) that you prepared on vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that you submitted to the EIR program. The TB 43-0001-39 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWO's), actions taken on some of your DA Form 2028's (Recommended Changes to Publications), and advance information on proposed changes that may affect this manual. The information will help you in doing your job better and will help in keeping you advised of the latest changes to this manual.

## **1-7. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE**

Procedures for destruction of army materiel to prevent enemy use can be found in TM 750-244-6.

## **1-8. HAND RECEIPT MANUAL**

This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). The TM 9-2320-209-10-HR consists of preprinted hand receipts (DA Form 2062) that list end item-related equipment (ie. COEI, BII, and AAL) you must account for. As an aid to property accountability, additional -HR manuals maybe requisitioned from the following source in accordance with procedures in Chapter 3, AR 310-2:

The U.S. Army Adjutant General Publications Center  
ATTN: AGDM-OD  
2800 Eastern Blvd.  
Baltimore, MD 21220

## **1-9. USE OF THE METRIC SYSTEM**

The equipment described in this manual is non-metric. Therefore, all measurements involving vehicle instruments and measuring devices will be non-metric. However, since non-vehicle equipment may have metric measurements, both metric and English units will be used, including listings of vehicle capacities, dimensions, and weights. A metric conversion chart is supplied on the inside back cover of this manual.

## 1-10. NOMENCLATURE CROSS REFERENCE LIST

The following is a list of common military terms used in this manual. Each is shown with its official nomenclature (name).

COMMON NAME	OFFICIAL NOMENCLATURE
Air Pressure Gage .....	Dial Pressure Gage: air pressure
Battery/Generator Indicator . . . . .	Arbitrary Meter: battery and generator
Cable .....	Wire Rope
Fuel Gage .....	Liquid Quantity Indicator
Shearpin .....	Straight Pin
Warning Buzzer .....	Failsafe Unit

## 1-11. LIST OF ABBREVIATIONS

The following is a list of special abbreviations that appear in this manual. For a list of standard abbreviations that appear in this manual, refer to MIL-STD-12.

A .....	After
AAL .....	Additional Authorization List
AMSTA-MB . . . . .	Army Materiel Subordinate Tank-Automotive Maintenance Branch
AR .....	Army Regulation
B .....	Before
BII .....	Basic Issue Items
C .....	Celcius
cm .....	centimeter
COEI .....	Components of End Item
Contd .....	Continued
CW. ....	Chain (and) Wire Rope (lubricating oil)
D .....	During
DA .....	Department of the Army
DF .....	Diesel Fuel
EIR .....	Equipment Improvement Recommendations
EIR MD .....	Equipment Improvement Report and Maintenance Digest
F .....	Fahrenheit
FSCM .....	Federal Supply Code for Manufacturer
GAA .....	Grease, Automotive and Artillery
GO .....	Gear Oil
H .....	Highway
HI .....	high
km .....	kilometer
km/h .....	kilometers per hour
kPa .....	kilopascal
l .....	liter
M .....	Monthly
N .....	Neutral
NATO .....	North Atlantic Treaty Organization
NBC .....	Nuclear, Biological, and Chemical
NEU .....	Neutral
N.m .....	Newton meter
NSN .....	National Stock Number

## 1-11. LIST OF ABBREVIATIONS (Contd)

OEA . . . . .	Oil, Engine (arctic)
OE/HDO . . . . .	Oil, Engine/Heavy Duty Oil
PMCS . . . . .	Preventive Maintenance Checks and Services
R . . . . .	Reverse
SF . . . . .	Standard Form
TA . . . . .	Technical Art
TAMES . . . . .	The Army Maintenance Management System
W . . . . .	Weekly

## 1-12. GLOSSARY

The following list shows definitions of military terms that appear in this manual. Other terms in this manual are defined in the paragraph where they first appear.

Angle of Approach — Angle between front tires and front bumper

Angle of Departure — Angle between rear tires and rear bumperettes

Fording — Crossing through water

Grade — Steepness of terrain

Hydraulic — Operated by oil pressure

In Operation — Vehicle is performing a task it has been designed to perform

Operator — Driver of vehicle

Paulin — Canvas cover or tarp

Slaving — Jump starting

Splash Shields — Mudflaps

Steering Knuckle Boot — C-V boot

## Section II. VEHICLE DESCRIPTION AND DATA

### 1-13. GENERAL

a. The 2-1/2-ton 6x6, M44A2 series trucks are tactical vehicles designed for use over all types of roads and cross-country terrain, and in extreme high or low temperatures and humidity. All vehicles in this series have multifuel engines that are capable of operating on a variety of fuels, including diesel, gasoline, and turbine fuel. M44A2 series vehicles can ford hard-bottom water crossings up to 30 inches (76.2 centimeters) without a deepwater fording kit, and up to 72 inches (182.8 centimeters) with the kit. A five-speed manual transmission and two-speed transfer provide 10 overall speed ranges. All vehicles described in this section may be equipped with a front winch, making them more versatile under difficult field conditions." All M44A2 series vehicles are equipped with a pintle hook" for towing operations.

b. This section provides a description of and data on all M44A2 series vehicles. To find a specific paragraph, refer to the index below:

### 1-14. VEHICLE DESCRIPTION AND DATA INDEX

PARA. NO.	PARA. TITLE	PAGE NO.
1-15.	Designations	1-7
1-16.	Cargo Truck, WO/W and W/W: M35A2	1-7
1-17.	Cargo Truck with Dropsides, WO/W and W/W: M35A2C	1-8
1-18.	Cargo Truck with Extra Long Wheelbases, WO/W and W/W: M36A2	1-8
1-19.	Fuel Tank Truck, WO/W and W/W: M49A2C	1-9
1-20.	Water Tank Truck, WO/W and W/W: M50A2, M50A3	1-9
1-21.	Shop Van Truck, WO/W and W/W: M109A3	1-10
1-22.	Instrument Repair Shop Truck, WO/W and W/W: M185A3	1-10
1-23.	Tractor Truck, WO/W and W/W: M275A2	1-11
1-24.	Dump Truck, WO/W and W/W: M342A2	1-11
1-25.	Pipeline Construction Maintenance Truck, W/W: M756A2	1-12
1-26.	Earth Boring and Polesetting Maintenance Truck, W/W: M764	1-12
1-27.	Differences Between Models	1-13
1-28.	Tabulated Data	1-14

## 1-15. DESIGNATIONS

Vehicles covered in this manual are designated "2-1/2-ton, 6x6, M44A2 series trucks."

a. The "2-1/2-ton" refers to the maximum payload these vehicles can carry under the worst cross-country conditions. Under ideal highway conditions, these vehicles can safely carry up to twice this amount.

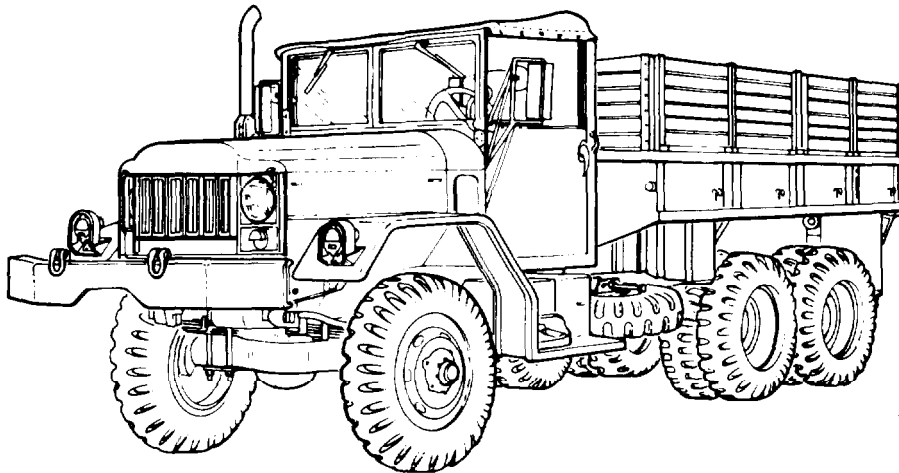
b. The "6x6" means that each vehicle has six wheel ends and all six are capable of driving.

c. The "M44A2" is a code number given to identify this series of vehicles.

## 1-16. CARGO TRUCK, WO/W AND W/W: M35A2

a. **Purpose of the Vehicle.** The M35A2 cargo truck is used to transport equipment, materials, and/or personnel. Since it has permanent steel-welded sides, it is the preferred vehicle for use in transporting bulky payloads that may shift during transit. The truck body provides 270 cubic feet (8 cubic meters) of cargo space. Side racks have built-in troop seats for troop transport operations.

b. **Special limitations.** The M35A2 cargo truck is not suited for operations that require easy side access to cargo. An example of this is a ground-to-truck forklift operation. The M35A2C cargo truck with dropsides is preferred for such operations.



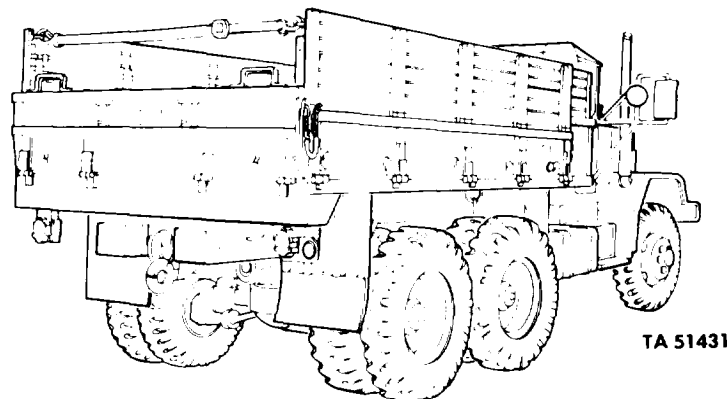
TA 51430

CARGO TRUCK (M35A2)



### 1-17. CARGO TRUCK WITH DROPSIDES, WO/W AND W/W: M35A2C

**Purpose of the Vehicle.** The M35A2C cargo truck with dropsides is used to transport equipment, materials, and/or personnel. The hinged steel sides can be folded down or removed for easy side loading and unloading operations. The truck body provides 270 cubic feet (8 cubic meters) of cargo space. Side racks have built-in troop seats for troop transport operations.

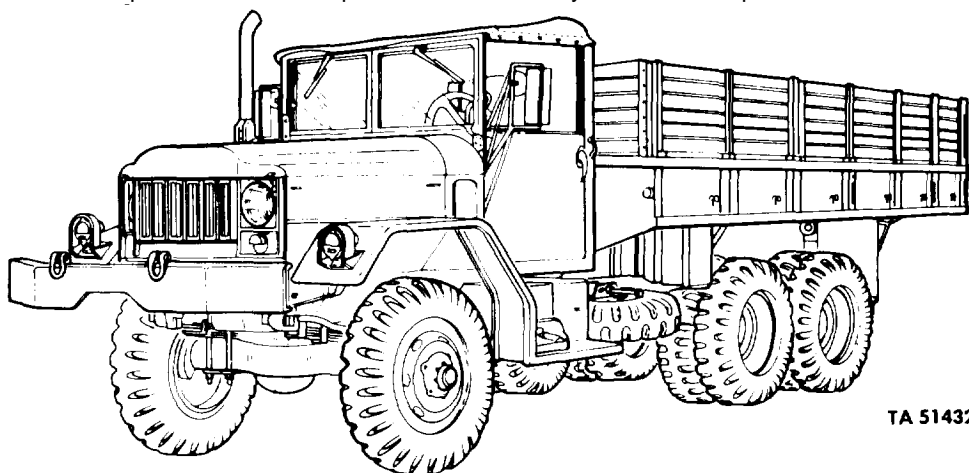


CARGO TRUCK WITH DROPSIDES (M35A2C)

### 1-18. CARGO TRUCK WITH EXTRA LONG WHEELBASES, WO/W AND W/W: M36A2

**a. Purpose of the Vehicle.** The M3d6A2 cargo truck with extra long wheelbases has the same basic purpose as the M35A2 cargo truck except that the longer wheelbase on the M36A2 body provides 410 cubic feet (11.6 cubic meters) of cargo space. The hinged right side can be folded down or removed for easy side loading and unloading operations.

**b. Special Limitations.** The M36A2 cargo truck with extra long wheelbases is not suited for operations that require maneuverability in limited spaces.

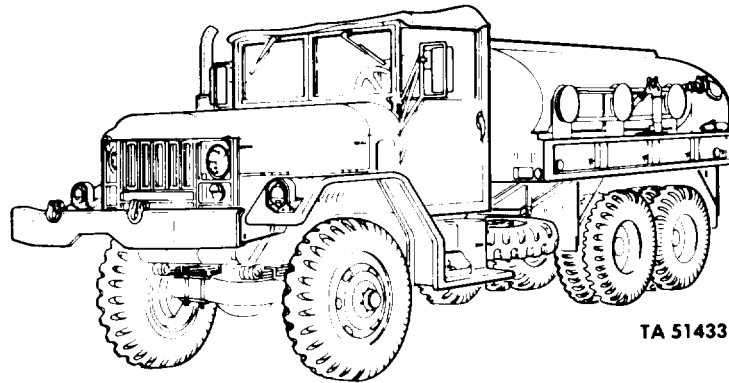


CARGO TRUCK WITH EXTRA LONG WHEELBASE (M36A2)

### 1-19. FUEL TANK TRUCK, WO/W AND W/W: M49A2C

**a. Purpose of the Vehicle.** The M49A2C fuel tank truck is used to transport and discharge fuel. The two 600-gallon tanks can be filled or emptied with or without the use of a delivery pump located in the rear body compartment. The pump can also be used to transfer fuel from one container to another.

**b. Special limitations.** The M49A2C fuel tank truck will never be operated within 50 feet of open flame. Fuel tanks must be drained before vehicle enters any enclosed area.



TA 51433

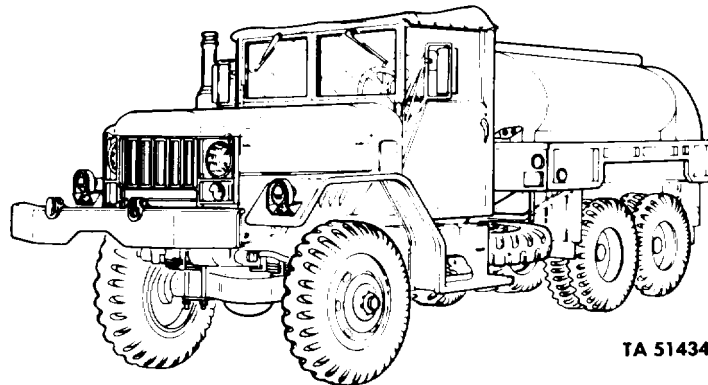
FUEL TANK TRUCK (M49A2C)

### 1-20. WATER TANK TRUCK, WO/W AND W/W: M50A2, M50A3

**a. Differences.** The main difference between the M50A2 water tank truck and the M50A3 water tank truck is that the M50A2 has one 400-gallon water tank and one 600-gallon water tank, while the M50A3 has two 500-gallon water tanks.

**b. Purpose of the Vehicles.** M50A2 and M50A3 water tank trucks are used to transport and discharge water. Filling, emptying, and transferring water is done the same way fuel is filled, emptied, and transferred on the M49A2C fuel tank truck.

**c. Special Limitations.** Special care must be taken at freezing temperatures to prevent freezing water from causing damage to delivery pump and related components.



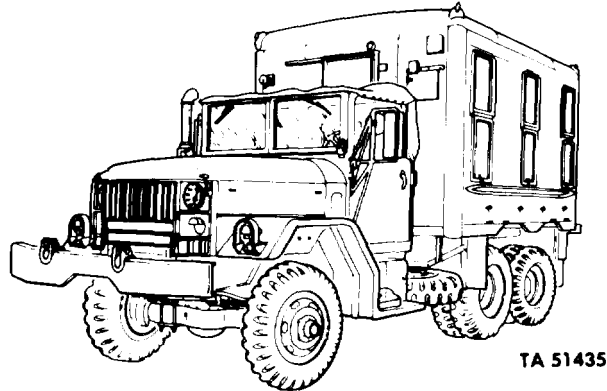
TA 51434

WATER TANK TRUCK (M50A2, M50A3)

### 1-21. SHOP VAN TRUCK, WO/W AND W/W: M109A3

a. **Purpose of the Vehicle.** The M109A3 shop van truck is used as a mobile repair shop. It is also used to transport special equipment that must be kept free of dirt, dust, and moisture.

b. **Special Limitations.** The height of the M109A3 shop van truck is not reducible.

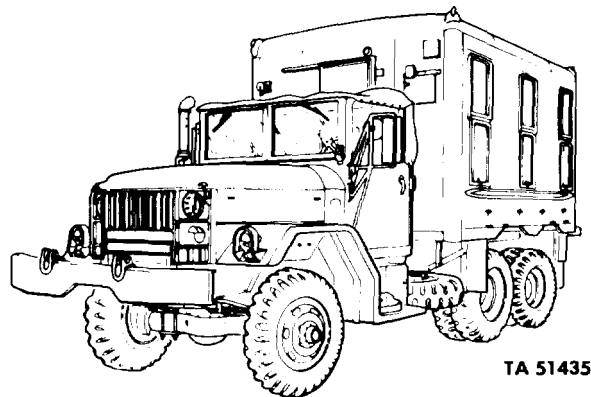


SHOP VAN TRUCK (M109A3)

### 1-22. INSTRUMENT REPAIR SHOP TRUCK, WO/W AND W/W: M185A3

a. **Purpose of the Vehicle.** The M185A3 instrument repair shop truck has the same basic purpose as the M109A3 shop van truck, except that special equipment included with the vehicle make it more suitable for extensive field repairs.

b. **Special Limitations.** The height of the M185A3 instrument repair shop truck is not reducible.

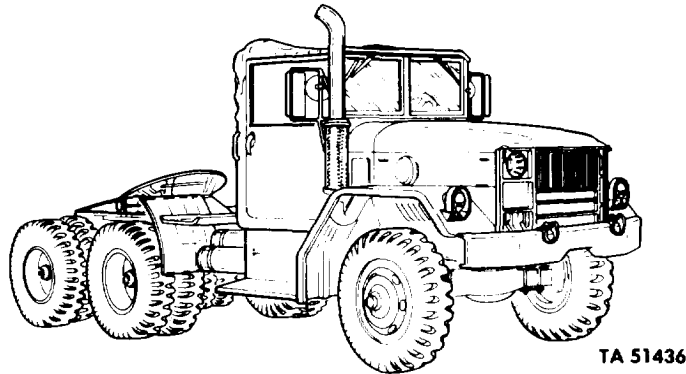


INSTRUMENT REPAIR SHOP TRUCK (M185A3)

### 1-23. TRACTOR TRUCK, WO/W AND W/W: M275A2

**a. Purpose of the Vehicle.** The M275A2 tractor truck is equipped with a fifth wheel for hauling a semitrailer. When connected to a semitrailer, the fifth wheel pivots up, down, and sideways to allow for changes in terrain.

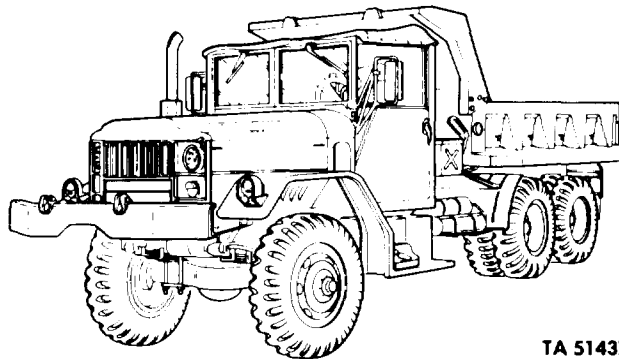
**b. Special limitations.** Fifth wheel cannot pivot more than 21 degrees up, 15 degrees down, or 7 degrees sideways. For this reason, semitrailer operations cross-country are limited to easy grades over known terrain.



TRACTOR TRUCK (M275A2)

### 1-24. DUMP TRUCK, WO/W AND W/W: M342A2

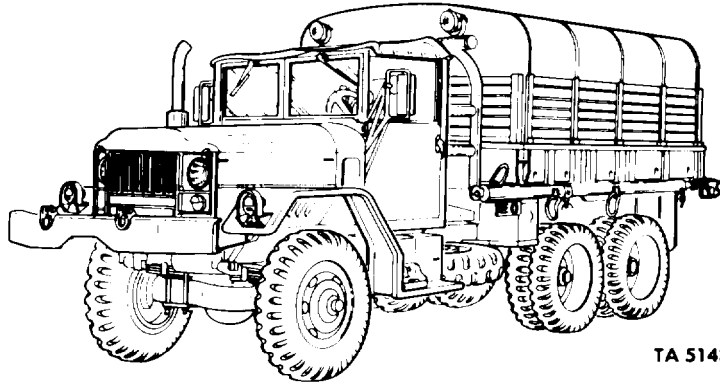
**Purpose of the Vehicle.** The M342A2 dump truck is used to transport materials such as sand, gravel, and stone. It may also haul scrap, rubble, or other waste products. The forward end of the welded steel body extends up and over the cab to protect it from damage during loading, operations. Troop seats may be installed for troop transport operations.



DUMP TRUCK (M342A2)

## 1-25. PIPELINE CONSTRUCTION MAINTENANCE TRUCK, W/W: M756A2

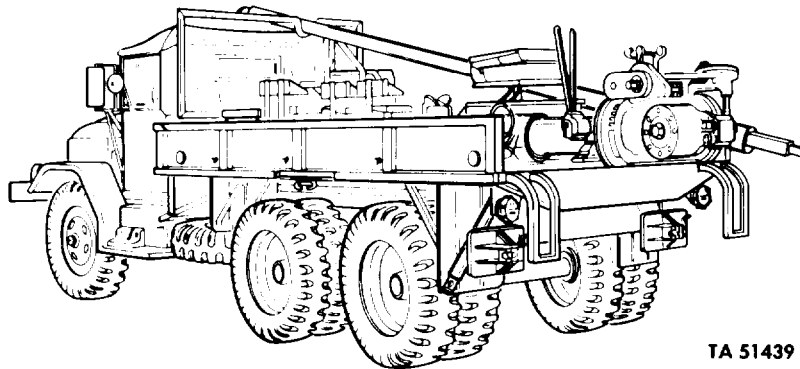
**Purpose of the Vehicle.** The M756A2 pipeline construction maintenance truck is used to load, unload, and transport pipe and pipeline construction equipment. An A-frame, side racks, bows, and tarpaulin are included with the vehicle. Side racks have built-in troop seats for transporting pipeline construction personnel. Body side panels can be removed for side mounting of A-frame. All M756A2 trucks have front and rear-mounted winches.



PIPELINE CONSTRUCTION MAINTENANCE TRUCK (M756A2)

## 1-26. EARTH BORING AND POLESETTING MAINTENANCE TRUCK, W/W: M764

**Purpose of the Vehicle.** The M764 earth boring and polesetting maintenance truck uses an auger to bore holes and a derrick and rear winch to set and pull poles. A collapsible cable reel is used to lay wire and light cable. Hydraulically operated outriggers are used to steady vehicle for earth boring and polesetting operations. All M764 trucks have front-and rear-mounted winches.



EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764)

## 1-27. DIFFERENCES BETWEEN MODELS

This paragraph shows major equipment and operational differences between models of M44A2 series vehicles. It has been organized in tabular form for easy reference by operators.

Table 1-1. Difference Between Models

Vehicle Characteristics	M35A2	M35A2C	M36A2	M49A2C	M50A2	M50A3	M109A3	M185A3	M275A2	M342A2	M756A2	M764	Description (Para. No.)
Body Features:													
Built-In A-Frame											X		2-31
Cab Protector										X	X	X	2-30,2-31,2-32
Earth Boring Machine												X	2-32
Floodlights											X		2-31
Nonreducible Height							X	X					1-28
Permanent Sides	X		X	X	X	X	X	X		X		X	—
Rear Winch											X	X	2-31, 2-32
Reducible Height	X	X	X	X	X	X			X	X	X	X	1-28
Removable Sides		X									X		2-25, 2-31
Operational Capabilities:													
Cargo/Personnel Transport	X	X	X							X	X		2-25, 2-30, 2-31, 2-49
Dump Operations										X			2-30
Earth Boring/ Polesetting												X	2-32
Equipment Repair							X	X					2-28
Fifth Wheel Operations									X				2-29
Fuel Servicing				X									2-26
Pipeline Construction											X		2-31
Water Servicing					X	X							2-27
Wheelbases:													
142 in. (360.6 cm)									X				—
154 in. (391.1 cm)	X	X		X	X	X	X	X		X	X	X	—
190 in. (482.6 cm)			X										—

**1-28. TABULATED DATA**

a. **General.** This paragraph organizes vehicle specifications, special equipment, and performance data in tabular form for easy reference by operators.

b. **Specifications.**

1. **Vehicle Dimensions.** Refer to table 1-2.
2. **Weights.** Refer to table 1-3.
3. **Winch Data.** Refer to table 1-4.
4. **Vehicle/Bridge Classification.** Refer to table 1-5.
5. **Tire Inflation Data.** Refer to table 1-6.
6. **Vehicle Performance Data.** Refer to table 1-7.
7. **Engine and Cooling System Data.** Refer to table 1-8.
8. **Fluid Capacities for Operation Under Usual Conditions.** Refer to table 1-9.
9. **General Service Data.** Refer to table 1-10.
10. **Permissible Fuels.** Refer to table 1-11.

Table 1-2. Vehicle Dimensions

Vehicle	Length Overall W/W		Height Overall		Height Minimum Reducible	
	Inches	Centimeters	Inches	Centimeters	Inches	Centimeters
M35A2	278.3	706.8	112.0	284.4	81.0	205.7
M35A2C	278.3	706.8	112.0	284.4	81.0	205.7
M36A2	343.0	871.2	123.8	314.4	81.0	205.7
M49A2C	277.0	703.5	101.5	257.8	94.0	238.7
M50A2	277.0	703.5	101.5	257.8	94.5	240.0
M50A3	277.0	703.5	101.5	257.8	96.3	244.6
M109A3	282.0	716.2	130.7	331.9	130.7	331.9
M185A3	282.0	716.2	130.1	330.4	130.1	330.4
M275A2	242.0	614.6	101.5	257.8	81.0	205.7
M342A2	274.0	695.9	105.0	266.7	81.0	205.7
M756A2	286.0	726.4	113.0	287.0	108.0	274.3
M764	305.0	774.7	109.7	278.6	94.0	238.7

**NOTE:** Subtract 14 inches (35.5 centimeters) from length overall of all vehicles except for M756A2 and M764 if not equipped with a front winch. All M756A2 and M764 vehicles are equipped with a front winch.

Vehicle	Width Overall		Ground Clearance			
	Inches	Centimeters	Under Axle		Under Chassis	
			Inches	Centimeters	Inches	Centimeters
All except M35A2C, M275A2						
M35A2C	96.0	243.8	12.8	32.5	10.9	27.6
M275A2	97.8	248.4	12.8	32.5	10.9	27.6
	92.9	235.9	12.8	32.5	10.9	27.6

## 1-28. TABULATED DATA (Contd)

Table 1-3. Weights

Vehicle	Empty W/W		Maximum Payload	
	Standard	Metric	Standard	Metric
M35A2	13,720 lb	6,228 kg	5,000 lb	2,270 kg
M35A2C	13,720 lb	6,228 kg	5,000 lb	2,270 kg
M36A2	15,410 lb	6,996 kg	5,000 lb	2,270 kg
M49A2C	14,860 lb	6,746 kg	600 gal.	2,271 l
M50A2	14,600 lb	6,628 kg	400 gal.	1,514 l
M50A3	15,150 lb	6,878 kg	500 gal.	1,892 l
M109A3	15,800 lb	7,173 kg	5,000 lb	2,270 kg
M185A3	17,280 lb	7,845 kg	5,000 lb	2,270 kg
M275A2	12,645 lb	5,740 kg	*7,000 lb	*3,178 kg
M342A2	15,775 lb	7,161 kg	5,000 lb	2,270 kg
M756A2	16,960 lb	7,699 kg	5,000 lb	2,270 kg
M764	20,600 lb	9,352 kg	500 lb	227 kg
Vehicle	Maximum Towed Load (Pintle)			
	Standard	Metric		
All	6,000 lb	2,724 kg		
Vehicle	Maximum Towed Load (Fifth Wheel)			
	Standard	Metric		
M275A2	17,000 lb	7,718 kg		
<b>NOTE:</b> Subtract 520 lb (236 kg) from weight of all vehicles except M756A2 and M764 if not equipped with a front winch. All M756A2 and M764 vehicles are equipped with a front winch.				

\*Loaded trailer weight on fifth wheel is 7,000 lbs (3,178 kg);  
total semi-trailer weight with payload is 17,000 lbs (7,718 kg)

Table 1-4. Winch Data

Vehicle	Description	Capacities		Ref. Para.
		Standard	Metric	
All W/W	Front Winch: Max. Load Cable Length	10,000 lb 200 ft.	2,769 kilograms 61 meters	2-24
M756A2	Rear Winch: Max. Load Cable Length	20,000 lb 300 ft.	4,313 kilograms 91.5 meters	2-31
M764	Rear Winch: Max. Load Cable Length	14,000 lb 700 ft	3,632 kilograms 213.5 meters	2-32



**1-28. TABULATED DATA (Contd)****NOTE**

- Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If your vehicle class number is equal to or less than the bridge class number, the bridge will hold your vehicle. If your vehicle class number is greater than the bridge class number, your vehicle is too heavy for the bridge: DO NOT CROSS.
- For more information, refer to FM 5-36.
- A vehicle equipped with a front winch has the same vehicle class number as it does without a front winch.

*Table 1-5. Vehicle/Bridge Classification*

<b>Vehicle</b>	<b>Vehicle Class Number</b>	
	<b>Empty</b>	<b>With Payload</b>
M35A2	6	8
M35A2C	6	8
M36A2	6	8
M49A2C	7	9
M50A2	7	9
M50A3	6	8
M109A3	7	9
M185A3	7	10
M275A2	5	—*
M342A2	7	9
M756A2	7	10
M764	9	9

\* Weight of semitrailer and payload must be known to determine class number

*Table 1-6. Tire Inflation Data*

	<b>PRESSURE RATING</b>		
	<b>HIGHWAY</b>	<b>CROSS-COUNTRY</b>	<b>MUD, SAND, SNOW</b>
<b>VEHICLE (9:00 x R20 TIRE)</b>	<b>Standard (psi)/ Metric (kPa)</b>	<b>Standard (psi)/ Metric (kPa)</b>	<b>Standard (psi)/ Metric (kPa)</b>
All	50/344	35/241	15/103
All: Spare	Maximum Highway Pressure		

**1-28. TABULATED DATA (Contd)****NOTE**

Unless otherwise stated, vehicle performance data applies to vehicles equipped with all types of engine models.

Table 1-7. Vehicle Performance Data

Vehicle (Engine)	Performance Description	With Maximum Payload and Towed Load		With Maximum Payload Only	
		Standard	Metric	Standard	Metric
All except M275A2	Maximum Grade	24°	—	31°	—
M275A2	Maximum Grade	19°	—	31°	—
All	Maximum Speed	45 mph	72 km/h	56 mph	90 km/h
All except M275A2 (All except LDT-465-1D)	*Cruising Range	*275 mi	*442 km	*300 mi	*482 km
All except M275A2 (LDT-465-1D)	*Cruising Range	*283 mi	*455 km	*309 mi	*497 km
M275A2 (All except LDT-465-1D)	*Cruising Range	*250 mi	*402 km	*300 mi	*482 km
M275A2 (LDT-465-1D)	*Cruising Range	*257 mi	*414 km	*309 mi	*497 km
Vehicle	Angle of Approach W/W (WO/W)	Angle of Departure	Turning Radius W/W (WO/W)		
			Feet	Meters	
All except M36A2, M275A2, M342A2	38° (45°)	38°	37.5 (37)	11.4 (11.2)	
M36A2	38° (45°)	23°	42.5 (42)	12.9 (12.8)	
M275A2	38° (45°)	72°	34.5 (34)	10.5 (10.3)	
M342A2	38° (45°)	63°	37.5 (37)	11.4 (11.2)	

\* Based on use of diesel fuel and operation at 1500 rpm. Use of other fuels and operation at other rpm will result in a shorter cruising range.

**1-28. TABULATED DATA (Contd)****NOTE**

Unless otherwise stated, engine and cooling system data applies to all engine models.

*Table 1-8. Engine Cooling System Data*

<b>ENGINE (LD-465-1, LD-465-1C, LDT-465-1C, LDT-465-1D)</b>	
Type:	
(LD-465-1, LD-465-1C) .....	Multifuel, liquid cooled
(LDT-465-1C, LDT-465-1D) .....	Multifuel, turbocharged, liquid cooled
Cylinders .....	6 (in-line)
Brake Horsepower:	
(LD-465-1, LD-465-1C) (min) .....	126 horsepower at 2600 rpm
(LDT-465-1C, LDT-465-1D) (min) .....	130 horsepower at 2600 rpm
Idle Speed (engine rpm):	
(LD-465-1, LD-465-1C) .....	650 - 700 rpm
(LDT-465-1C, LDT-465-1D) .....	800 - 850 rpm
Operating Speed (engine rpm) .....	1500 - 2600 rpm
Oil Pressure:	
@ Idle (min) .....	10 psi
@ Full Power (max) .....	75 psi
Coolant (normal operating temperature) .....	180°F to 200°F
*Fuel Consumption:	
LD-465-1, LD-465-1C, LDT-465-1C .....	5-6 mpg (2.12-2.55 kilometers per liter)
LDT-465-1D .....	5.15 - 6.18 mpg (2.18 - 2.63 kilometers per liter)
<b>COOLING SYSTEM</b>	
Thermostat:	
Starts to Open .....	180°F
Fully Open .....	200°F
Radiator .....	Vertical flow type

Based on use of diesel fuel and operation at 1500 rpm. Use of other fuels and operation at higher rpm will result in greater fuel consumption.

## 1-28. TABULATED DATA (Contd)

Table 1-9. Fluid Capacities for Operation Under Usual Conditions

Vehicle	Description	Capacity		Fluid Used Under Usual Conditions +32°F to +90°F (0°C to +32.2°C)
		Standard	Metric	
All	Cooling System	32 quarts	30.2 liters	1/2 Ethylene Glycol, 1/2 Water
All	Engine (crankcase only)	20 quarts	18.9 liters	OE/HDO 30
All	Engine (crankcase with filter)	22 quarts	20.8 liters	OE/HDO 30
All	Fuel Tank	50 gallons	189.2 liters	Refer to table 1-13 for permissible fuels.
All	Windshield washer	3 quarts	2.8 liters	Cleaning compound

Table 1-10. General Service Data

Vehicle	Description	Above +15°F (Above -10°C)	+40° to -15°F (+5° to -25°C)	+40° to -65°F (+5° to -55°C)	Arctic Conditions
All	Cooling System	1/4 Ethylene Glycol 3/4 Water	2/5 Ethylene Glycol 3/5 Water	3/5 Ethylene Glycol 2/5 Water	Refer to FM 9-207
All	Windshield Washer	1/3 Cleaning Compound 2/3 Water	1/2 Cleaning Compound 1/2 Water	2/3 Cleaning Compound 1/3 Water	

**1-28. TABULATED DATA (Contd)****NOTE**

Primary fuels listed below must be used whenever possible. Alternate I fuels are most desirable if primary fuels are not available, with alternate II fuels and emergency fuels second most and least desirable.

*Table 1-11. Permissible Fuels*

<b>Fuel</b>	<b>Temperature Limits</b>
<b>Primary Fuels</b>	
Diesel fuel, VV-F-800, grade DF-2 (NATO code no. F-54)	Do not use below +32°F (0°C)
Diesel fuel, VV-F-800, grade DF-1 (NATO code no. F-54)	Do not use below -10°F (-23°C)
Diesel fuel, VV-F-800, grade DF-A (NATO code no. F-54)	All temperatures
<b>Alternate I Fuels</b>	
Turbine fuel, MIL-T-5624, grade JP-5 (NATO code no. F-44)	Do not use below -51°F (-46°C)
Distillate fuel, MIL-F-24397, ND (NATO code no. F-85)	Do not use below +40°F (+4°C)
Commercial diesel fuel (ASTM D975) 2-D and No. 2	Do not use below +32°F (0°C)
Diesel fuel, MIL-F-16884 (NATO code no. F-75 or F-76)	Do not use below +15°F (-9°C)
Commercial diesel fuel (ASTM D975) 1-D and No. 1	Do not use below -10°F (-23°C)
Turbine fuel, aviation, MIL-T-38219 grade JP-7	Do not use below -46°F (-43°C)
Turbine fuel, aviation, kerosene type, MIL-T-83133, grade JP-8 (NATO code no. F-34)	Do not use below -58°F (-50°C)
Aviation gasoline, MIL-G-5572, AVGAS 80/87 (NATO code no. F-12)	Do not use below -76°F (-60°C)
Commercial aviation gasoline (ASTM D910) grade 80/87	Do not use below -72°F (-58°C)
Commercial gasoline, leaded, low lead or unleaded, when research octane number is 89 or below, or octane number displayed on retail gasoline pumps in CONUS is 85 or below	*
Commercial aviation turbine fuel (ASTM D1655), jet A	Do not use below -40°F (-40°C)

**1-28. TABULATED DATA (Contd)***Table 1-11. Permissible Fuels (Contd)*

Fuel	Temperature limits
Commercial aviation turbine fuel (ASTM D1655), jet A-1	Do not use below -52°F (-47°C)
Any mixture of primary and/or alternate I fuels listed above	*
<p style="text-align: center;"><b><u>WARNING</u></b></p> <p>Never mix gasoline or JP-4 turbine fuel with other fuels outside vehicle fuel tank. Any mixing should be done by adding fuels to fuel tank. Gasoline and JP-4 turbine fuel are highly combustible and may explode, resulting in injury or death to personnel.</p> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <p>If engine runs rough when using any alternate II fuel, add 10% to 30%, diesel fuel to smooth engine performance. Failure to add diesel fuel may result in damage to pistons.</p> <p><b>Alternate II Fuels</b></p>	
Turbine fuel, MIL-T-5624, grade JP-4 (NATO code no. F-40)	Do not use below -72°F (-58°C)
Turbine fuel, aviation, naphtha-type (ASTM D1655), jet B	Do not use below -58°F (-50°C)
Gasoline, unleaded/low-leaded, VV-G-001690, special grade (91/82)	*
Combat gasoline, MIL-G-3056, MOGAS (NATO code no. F-46)	Do not use below 0°F (-18°C)
Gasoline, automotive (NATO code no. F-50)	*
Gasoline, W-G-76, regular and premium grades	*
Gasoline, unleaded/low-leaded, W-G-001690, regular and premium grades	*
Aviation gasoline, MIL-G-5572, AVGAS 100/300 (NATO code no. F-18)	Do not use below -75°F (-59°C)
Commercial aviation gasoline (ASTM D910), grade 100/130	Do not use below -72°F (-58°C)
Commercial gasoline (ASTM D439), leaded, low-lead, or unleaded, where research octane number is above 90, or octane number displayed on retail gasoline pumps in CONUS is above 86	*
Any mixture of alternate II with primary, alternate I, and/or alternate II fuels listed above	*
* Any temperature at which fuel will flow.	

**1-28. TABULATED DATA (Contd)***Table 1-11. Permissible Fuels (Contd)***Fuel****Temperature Limits****CAUTION**

Extended operation on emergency fuels may cause early clogging of fuel filters and early fouling of fuel injector nozzles. Add diesel fuel as required to smooth engine performance.

**Emergency Fuels**

Burner fuel oil, VV-F-815, grade FO-1

Do not use below 0°F (-18°C)

Burner fuel oil, VV-F-815, grade FO-2

Do not use below +20°F (-7°C)

Commercial burner fuel oil  
(ASTM D396), grade FO-1

Do not use below 0°F (-18°C)

Commercial burner fuel oil  
(ASTM D396), grade FO-2

Do not use below +20°F (-7°C)

### Section III. TECHNICAL PRINCIPLES OF OPERATION

#### 1-29. GENERAL

This section explains how controls and indicators in the cab of M44A2 series vehicles relate to the operation of vehicle equipment. To find a specific system operation, refer to the index below:

#### 1-30. TECHNICAL PRINCIPLES OF OPERATION INDEX

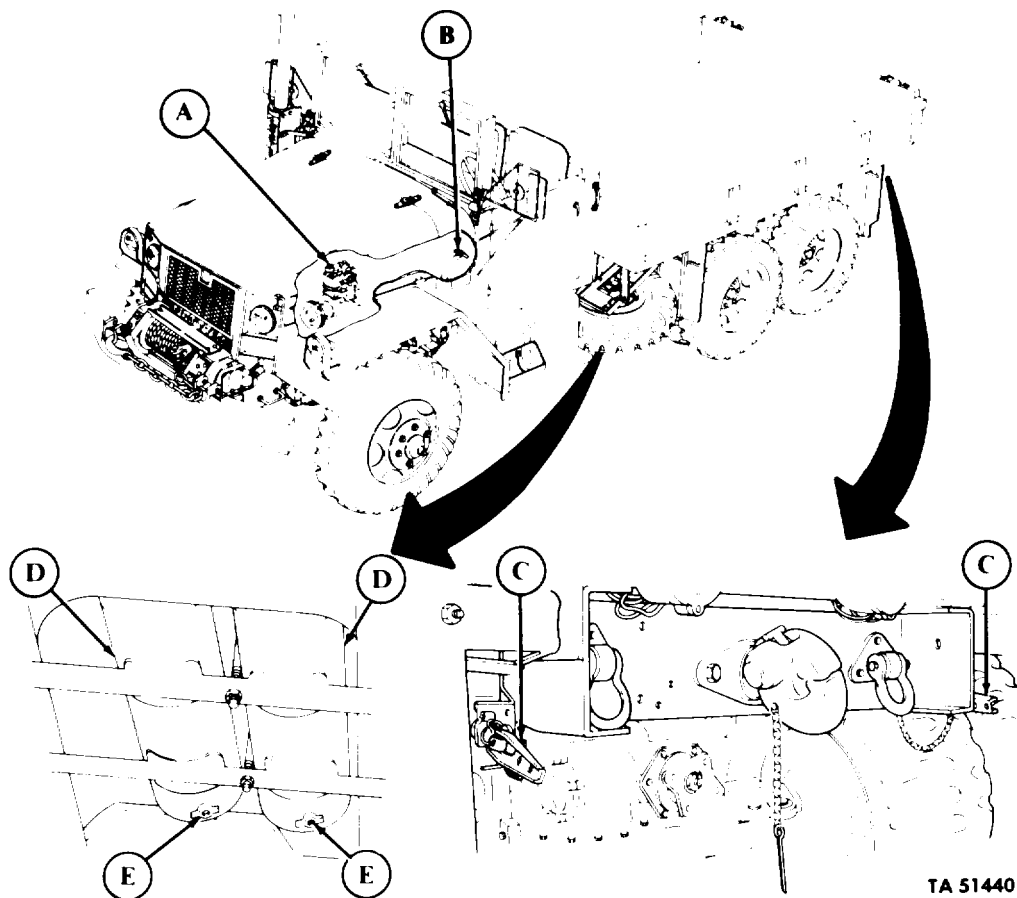
PARA NO.	PARA. TITLE	PAGE
1-31.	Air-Hydraulic Brake System Operation	1-24
1-32.	Front Winch System Operation	1-25
1-33.	Fuel System Operation	1-26
1-34.	Lighting System Operation	1-27



## 1-31. AIR-HYDRAULIC BRAKE SYSTEM OPERATION

The air-hydraulic' brake system of the M44A2 series vehicles uses compressed air to assist operation of the hydraulic brakes by pressurizing hydraulic fluid. The system includes the following major components:

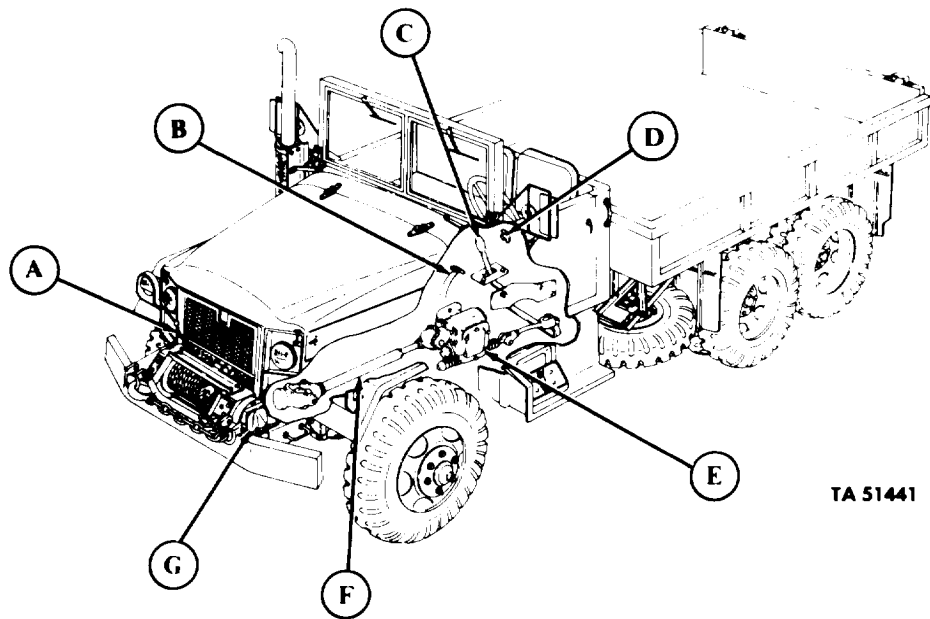
- (A) **AIR COMPRESSOR** — Supplies compressed air to air reservoirs, air hydraulic brake system, trailer brake couplings, and windshield wiper motors.
- (B) **BRAKE PEDAL** — Activates air-hydraulic brake system.
- (C) **TRAILER BRAKE COUPLINGS** — Allow vehicle and trailer brake systems to work together when connected to a trailer.
- (D) **AIR RESERVOIRS** — Store enough air pressure for normal brake operation if main brake system fails or engine stalls. When air pressure in reservoirs is low, a warning buzzer will sound in the driver's compartment.
- (E) **AIR RESERVOIR DRAINCOCKS** — Permits draining of excess moisture and air from air reservoirs.



## 1-32. FRONT WINCH SYSTEM OPERATION

All M44A2 series vehicles can be equipped with a front winch. Operation of the front winch is identical for all applicable models. The system consists of the following major components:

- (A) **CLUTCH LEVER** — Engages or disengages winch drum gear to drive gear of winch motor.
- (B) **CLUTCH PEDAL** — Permits quick engagement or disengagement of transmission power takeoff (PTO). Used with transmission power takeoff control lever to control winch operation.
- (C) **TRANSMISSION POWER TAKEOFF CONTROL LEVER** — Controls speed and direction of winch operation through transmission power takeoff (PTO). Also engages or disengages transmission power takeoff (PTO).
- (D) **HAND THROTTLE** — Sets engine speed at desired rpm for operation of the winch assembly.
- (E) **TRANSMISSION POWER TAKEOFF (PTO)** — Uses driving power from transmission to drive propeller shaft.
- (F) **PROPELLER SHAFT** — Powers winch assembly using driving power sent from transmission power takeoff (PTO).
- (G) **WINCH ASSEMBLY** — Rotates winch drum according to direction and speed of propeller shaft rotation.

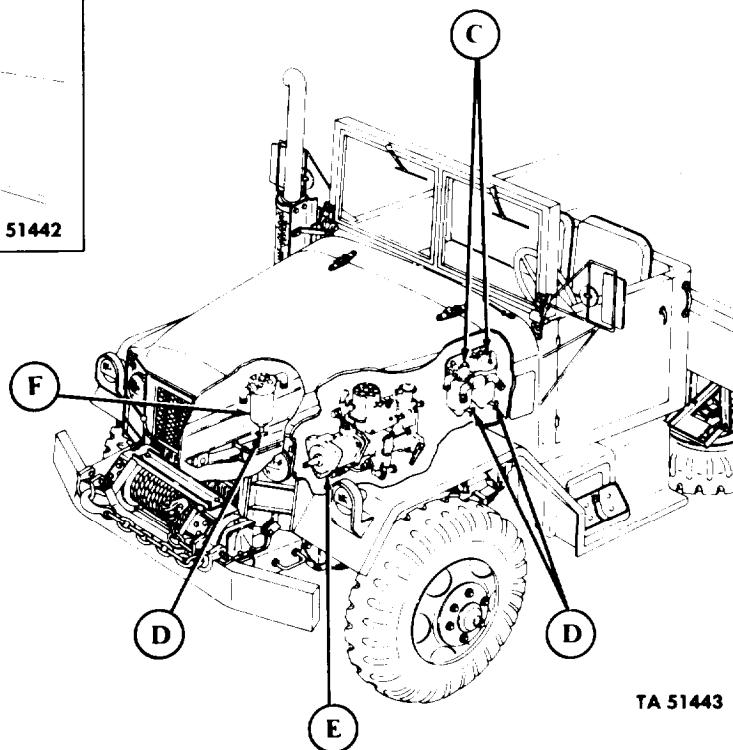
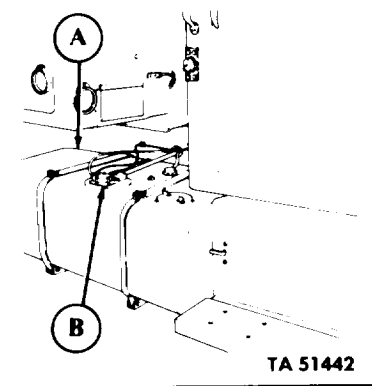


TA 51441

### 1-33. FUEL SYSTEM OPERATION

The fuel system of the M44A2 series vehicles consists of the following major components:

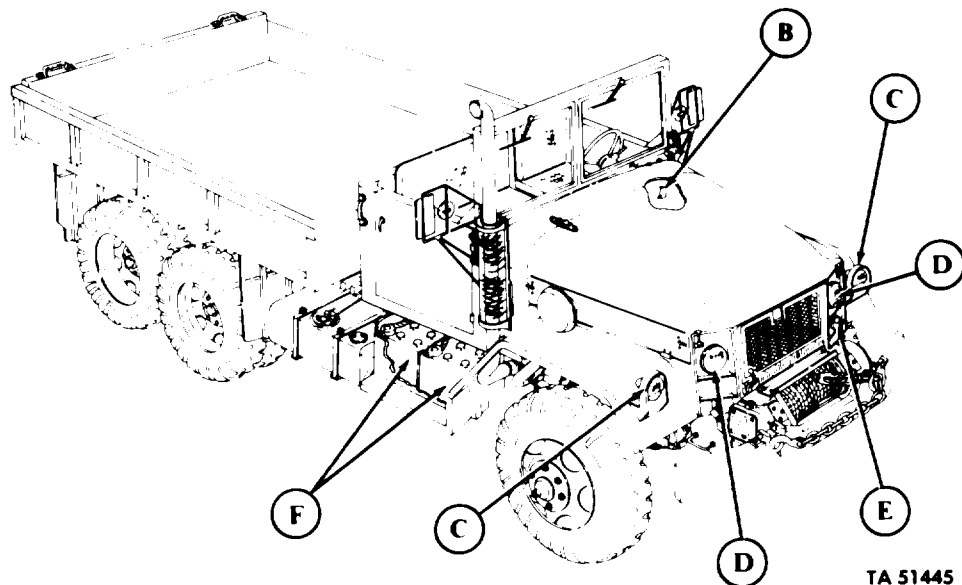
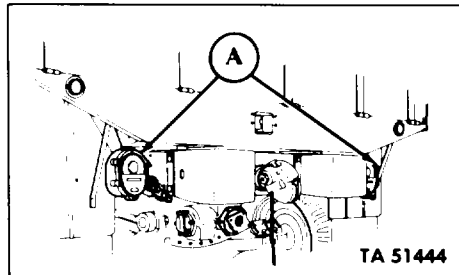
- (A) **FUEL TANK** — Stores engine fuel.
- (B) **FUEL TANK PUMP** — Sends constant flow of fuel to fuel injection pump while ignition is on.
- (C) **SECONDARY AND FINAL FUEL FILTERS** — Filters fuel from primary fuel filter before fuel enters fuel injection pump.
- (D) **DRAIN COCKS** — Permit draining of excess moisture and fuel from primary, secondary, and final fuel filters.
- (E) **FUEL INJECTION PUMP** — Pressurizes fuel in quantity controlled by accelerator pedal and hand throttle, and sends it to spray nozzle for injection into engine cylinders.
- (F) **PRIMARY FUEL FILTER** — Filters fuel from fuel tank before fuel enters secondary and final fuel filters



### 1-34. LIGHTING SYSTEM OPERATION

The lighting system of all M44A2 series vehicles consists of the following major components:

- (A) **REAR COMPOSITE LIGHT** — Functions as combination taillight, stoplight, blackout taillight, blackout stoplight, and turn signal.
- (B) **LIGHT SWITCH** — Controls vehicle lighting system.
- (C) **FRONT COMPOSITE LIGHT** — Functions as combination marker light, blackout marker light, and turn signal,
- (D) **SERVICE HEADLIGHT** — Provides high beam and low beam lighting.
- (E) **BLACKOUT HEADLIGHT** — Functions as headlight for blackout operations.
- (F) **BATTERIES** — Send electrical current to light switch for operation of lighting system.





## CHAPTER 2 OPERATING INSTRUCTIONS

- Section I. Controls and Indicators (page 2-1)
- Section II. Preventive Maintenance Checks and Services (page 2-29)
- Section III. Operation Under Usual Conditions (page 2-81)
- Section IV. Operation Under Unusual Conditions (page 2-181)
- Section V. Operation of Special Purpose Kits (page 2-193)

### Section I. CONTROLS AND INDICATORS

#### 2-1. KNOW YOUR CONTROLS AND INDICATORS

Before you attempt to operate your equipment, be sure you are familiar with the location and function of all controls and indicators. This section describes the location and function of all controls and indicators.

#### WARNING

Hearing protection is required for driver, co-driver, and mechanic when engine is running. Noise levels produced by this vehicle exceed 85 dB, which may cause injury to personnel.

#### NOTE

- Ž Except where specifically noted, the controls and indicators in this section are generally applicable to all vehicles covered in this manual.
- Ž In this manual, the term "left" indicates the driver side of the vehicle. The term "right" indicates the opposite, or crew side of the vehicle.

To find a specific paragraph, refer to the index below.

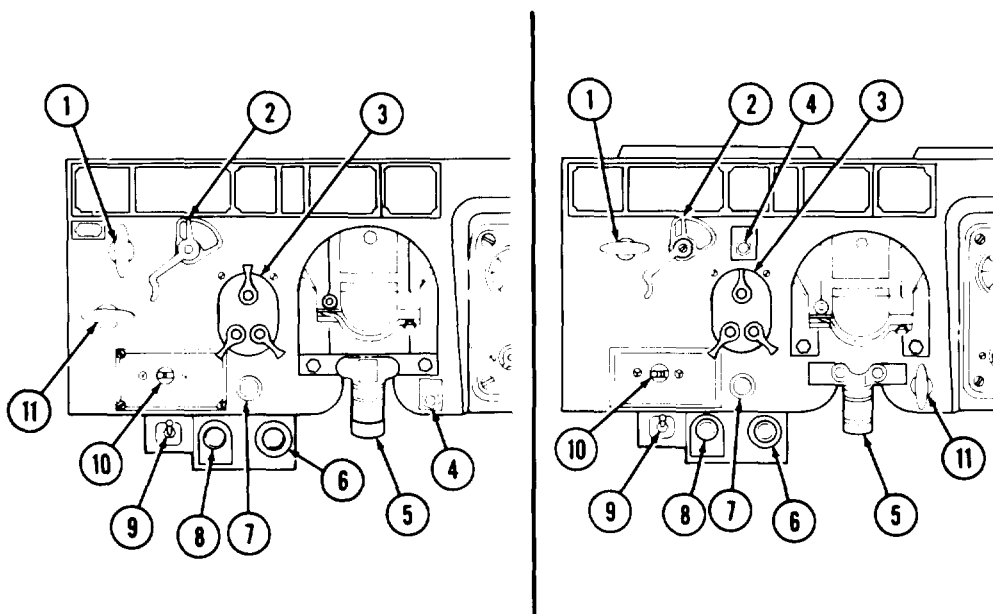
#### 2-2. CONTROLS AND INDICATORS INDEX

PARA N O .	PARA. TITLE	PAGE N O .
2-3.	Preparation for Use	2-1
2-4.	Chassis Controls and Indicators	2-2
2-5.	Body Equipment Controls and Indicators	2-10
2-6.	Special Purpose Kits Controls and Indicators	2-22

#### 2-3. PREPARATION FOR USE

When a vehicle is received by the using organization, it is the responsibility of the officer-in-charge to determine whether it has been properly prepared for service by the supplier. It is also the responsibility of the officer-in-charge to be sure the vehicle is in condition to perform its functions. Maintenance personnel will provide any additional service required to bring the vehicle to operating standards. Before operating the vehicle, the operator must become familiar with the vehicle controls and indicators as described in this chapter.

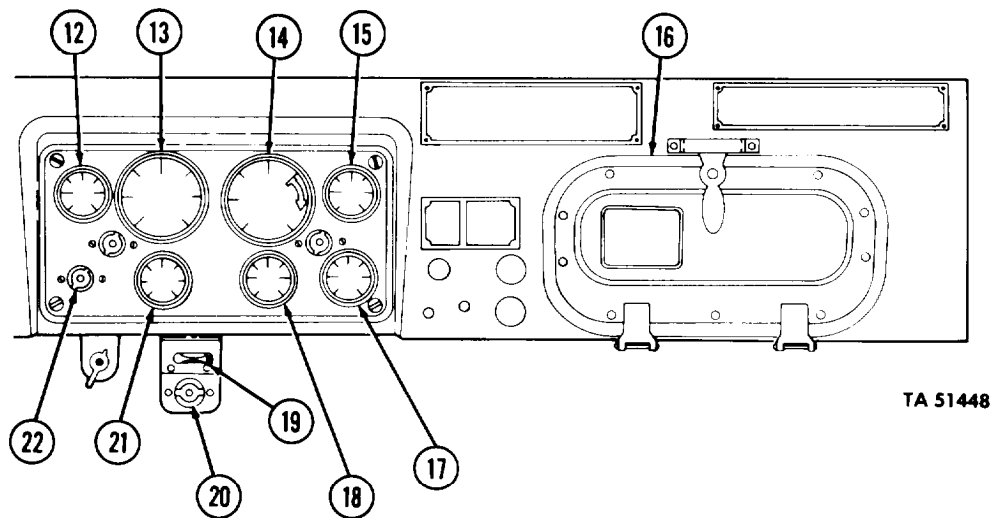
## 2-4. CHASSIS CONTROLS AND INDICATORS



### Key Item and Function

- 1 *Engine Stop Control* stops flow of fuel from fuel pump to shut down engine.
- 2 *Accessory Power Switch* routes power to starter system, instrument panel gages, fuel pump, and low pressure warning buzzer.
- 3 *Light Switch* controls operation of vehicle lights.
- 4 *Engine Start Button* is pressed to route electrical current to the starter to crank engine.
- 5 *Air Cleaner Indicator* shows red when engine air cleaner filter needs servicing.
- 6 *Defroster Knob* is pulled out to direct flow of hot air onto windshield to prevent frosting.
- 7 *Windshield Wiper Control Knob* turns windshield wipers on/off.
- 8 *Damper Control Knob* is pulled out all the way to provide maximum amount of heat to personnel compartment.
- 9 *Heater Blower Switch* is positioned in high or low position to control flow of forced air into personnel compartment.
- 10 *Manifold Heater Switch* turns manifold heater on/off. Manifold heater is used to warmup and help start engine in cold weather (+20°F or below).
- 11 *Hand Throttle Control* sets engine speed at desired rpm without maintaining pressure on accelerator pedal. Throttle control locks in desired position when pulled out. Rotating control handle clockwise or counter-clockwise unlocks it.

## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



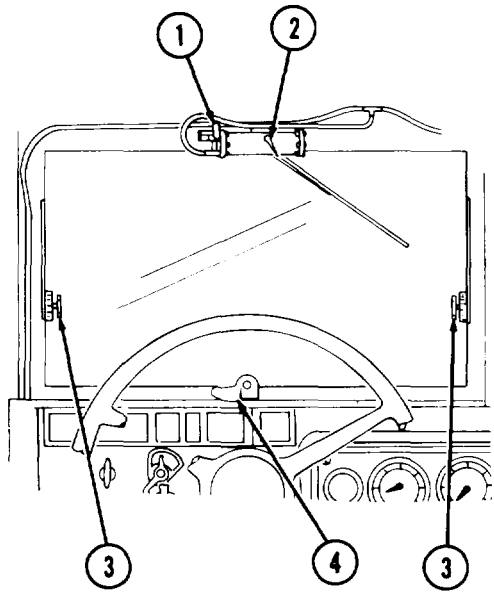
TA 51448

### Key Item and Function

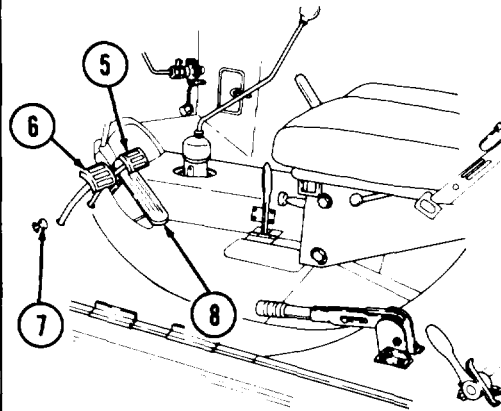
- 12 *Oil Pressure Gage* indicates oil pressure when engine is running. Normal pressure is 10-75 psi.
- 13 *Speedometer/Odometer* indicates vehicle speed and total mileage.
- 14 *Tachometer* indicates engine speed in revolutions per minute (rpm) and operation time in hours and tenths of hours.
- 15 *Engine Coolant Temperature Gage* indicates temperature of engine coolant. Normal operating temperature is 180°-200°F.
- 16 *Map Compartment* provides storage for manuals, forms, and maps.
- 17 *Air Pressure Gage* indicates pressure in air reservoir tanks. Normal pressure is 85-120 psi.
- 18 *Battery/Generator Gage* indicates when the battery is charging or discharging.
- 19 *Front Wheel Drive Lever* engages/disengages front wheel drive power.
- 20 *Front Wheel Drive Indicator Light* shows when front wheel drive is operating.
- 21 *Fuel Level Gage* indicates fuel level in fuel tank.
- 22 *High Beam Indicator* shows when headlights are on high beam.



## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



TA 51449

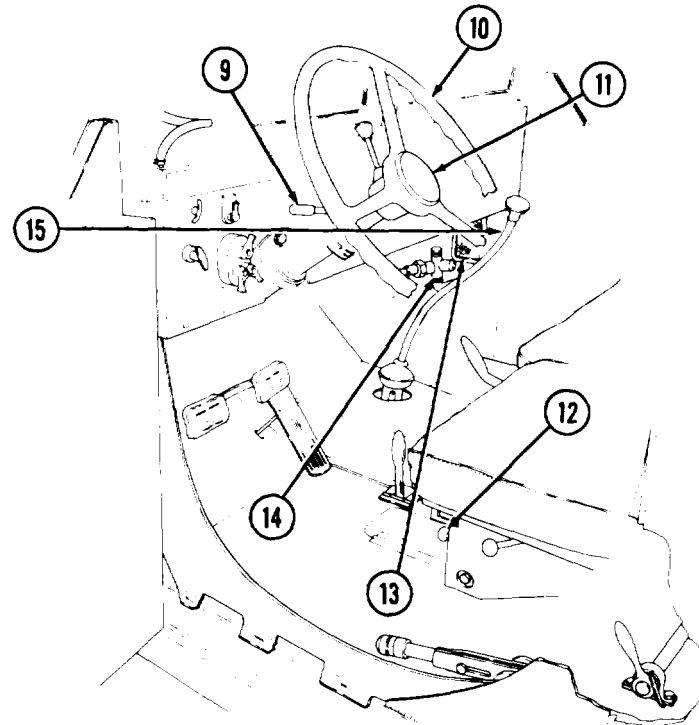


TA 51450

### Key Item and Function

- 1 *Windshield Wiper and Reset Button* is pushed in to reset wiper motor.
- 2 *Windshield Wiper Lever* is used to manually operate windshield wiper.
- 3 *Windshield Clamping Screws* lock windshield in any open position.
- 4 *Windshield Locking Handle* locks windshield in closed position.
- 5 *Service Brake Pedal* is depressed to slow or stop vehicle.
- 6 *Clutch Pedal* is depressed to disengage engine from transmission and allows shifting to a different gear ratio. When clutch pedal is released, engine engages transmission.
- 7 *Dimmer Switch* is depressed to raise or lower headlight beam.
- 8 *Accelerator Pedal* controls engine speed. When pressed down, engine speed increases. When released, engine speed decreases.

## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)

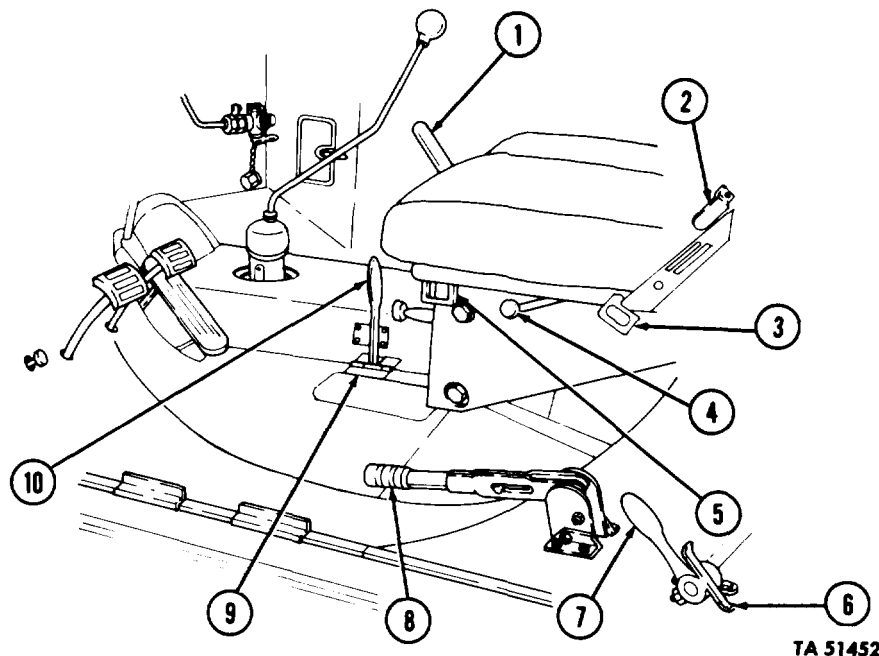


TA 51451

**Key Item and Function**

- 9 *Directional Turn Signal and Flasher Control Lever* is moved down to operate left turn signals and up to operate right turn signals. The flasher control activates emergency flasher lights.
- 10 *Steering Wheel* is used to control direction of vehicle.
- 11 *Horn Button* is pressed to sound vehicle horn.
- 12 *Spring Tension Control Lever* increases seat spring tension when lever is turned clockwise.
- 13 *Cowl Ventilator* opens to allow air flow into driver's component.
- 14 *Air Supply Valve* provides an auxiliary compressed air connection for inflating tires, cleaning air filters, etc.
- 15 *Transmission Gearshift Law* is used to place transmission in 1 through 5 drive positions, reverse, or neutral.

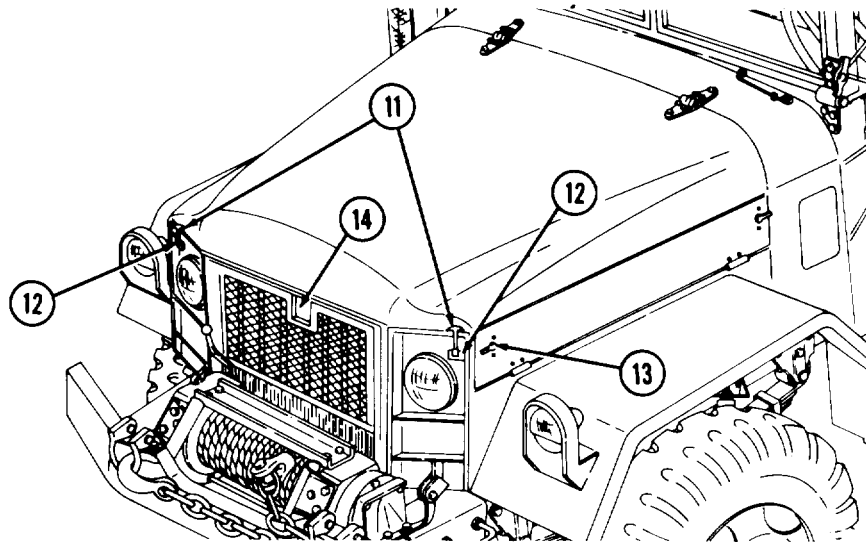
## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



### Key Item and Function

- 1 *Transfer Case Shift Lever* is pushed down to "Low" range for heavy load operations, and pulled up to "High" range for light load operations.
- 2 *Backrest Control Lever* is used to change position of lower section of backrest.
- 3 *Seat Cushion Control lever* is used to adjust height of rear portion of seat cushion.
- 4 *Seat Horizontal Control Lever* is used to move driver's seat forward or backward.
- 5 *Slotted Bracket* at each corner is used to adjust height of front portion of seat cushion.
- 6 *Locking Bar* secures transfer power takeoff lever in "off" position.
- 7 *Transfer Power Takeoff Lever* supplies power to operate auxiliary equipment when in the up position.
- 8 *Parking Brake Lever* is pulled up to apply parking brake. The knob at top of handle is turned to set brake cable tension.
- 9 *Shifting Lever Hinge Lock* secures transmission power takeoff lever in neutral position.
- 10 *Transmission power Takeoff Lever* is moved forward to "HI" or "LOW" position to supply power to front winch for reeling in a load. Moved to "REV" to release or lower a load.

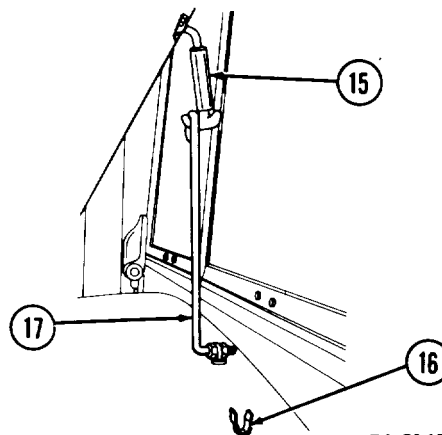
## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



TA 51453

### Key Item and Function

- 11 *Hood Catches* are located on front of hood and used to secure hood in closed position.
- 12 *Hood Holddown)) Latches* are used with hood catches to secure hood in closed position.
- 13 *Engine Side Panel Latches* are turned in "up" position to release side panels.
- 14 *Hood Latch* secures hood in closed position.

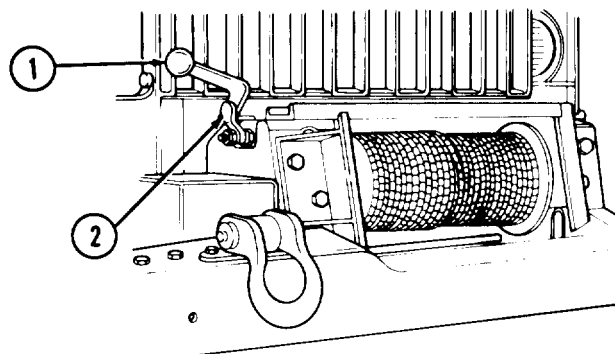


TA 51454

### Key Item and Function

- 15 *Hood Support Latch* is fastened to support hook to secure hood in open position.
- 16 *Hood Retaining Clip* secures support hook when hood is closed.
- 17 *Hood Support Hook* secures hood in open position.

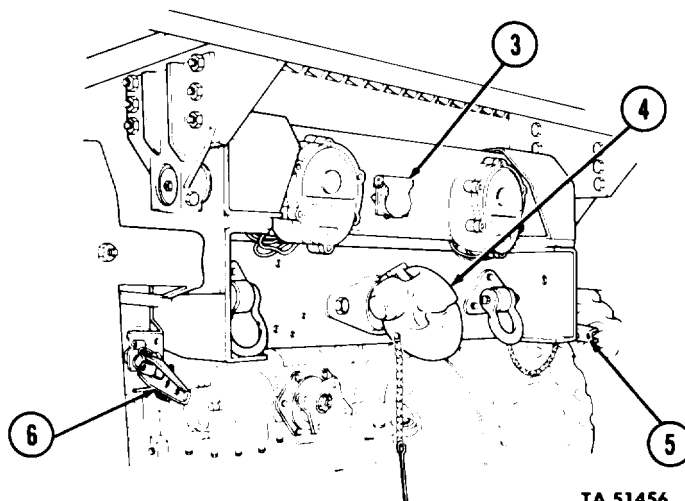
## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



TA 51455

### Key Item and Function

- 1 *Front Winch Clutch Control Lever* is moved to "In" position (toward right side of vehicle) to engage winch, and to "Out" position (toward left side of vehicle) to disengage winch.
- 2 *Front Winch Drum Lock Knob* secures drum when winch is not in use. To unlock drum, pull knob out and up.

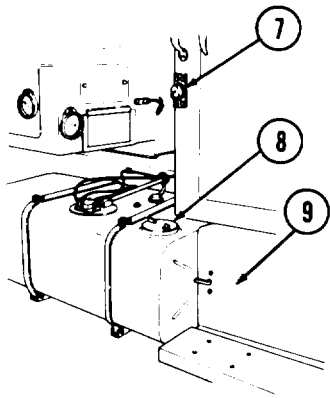


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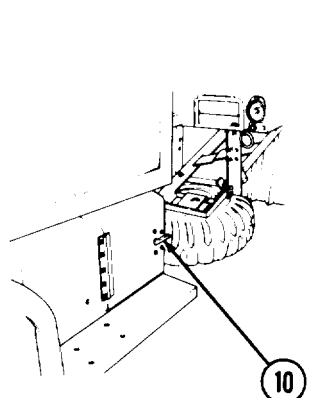
### Key Item and Function

- 3 *Trailer Power Outlet Receptacle* provides electric power for trailer.
- 4 *Towing Pintle Hook* is opened to attach trailer towing bar.
- 5 *Emergency Air Coupling* is connected by an air coupling hose to emergency air coupling of trailer or vehicle to be towed. This connection permits towing vehicle to charge the brake system of trailer or disabled vehicle with air.
- 6 *Trailer Service Air Coupling* is connected by an air coupling hose to service coupling of trailer or vehicle to be towed. This connection permits operator to engage brakes of towed load when pressing brake pedal of the towing vehicle.

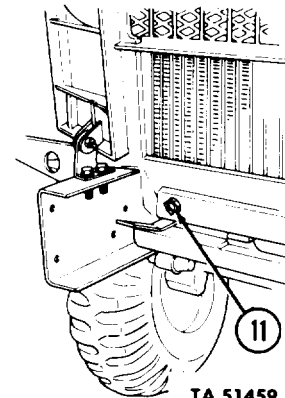
## 2-4. CHASSIS CONTROLS AND INDICATORS (Contd)



TA 51457



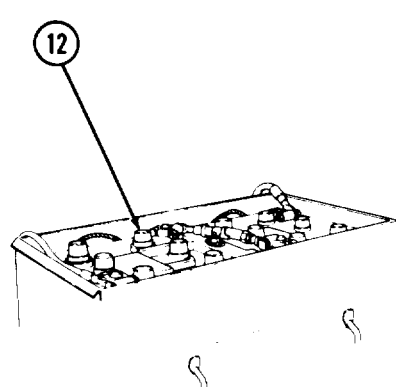
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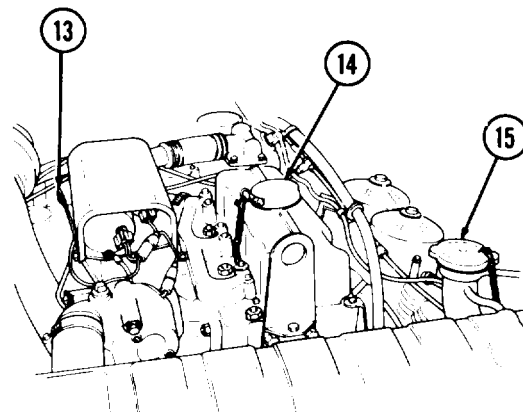
TA 51459

### Key Item and Function

- 7 *Slave Receptacle* located on right rear side of cab, is the plug-in point for an external power service required to slave start vehicle when batteries have become discharged.
- 8 *Fuel Tank Filler Cap* is turned counterclockwise to open for fuel servicing.
- 9 *Battery Compartment Cover* is opened to provide access to batteries.
- 10 *Toolbox Latch Handle* is turned up to unlatch and open toolbox.
- 11 *Radiator Draincock* is turned counterclockwise to drain coolant from radiator.



TA 51460

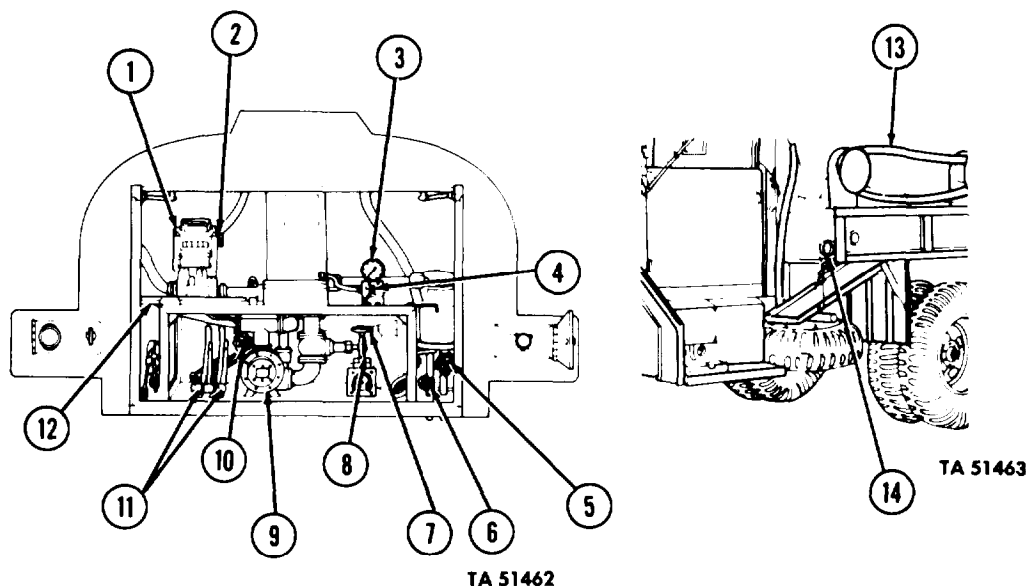


TA 51461

### Key Item and Function

- 12 *Battery Filler Caps* are removed to check battery fluid level.
- 13 *Oil Dipstick* is removed to check oil level.
- 14 *Engine Oil Filler Cap* is removed to add oil.
- 15 *Radiator Cap* is removed to add coolant.

## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS



### a. Fuel Tank Truck (M49A2C).

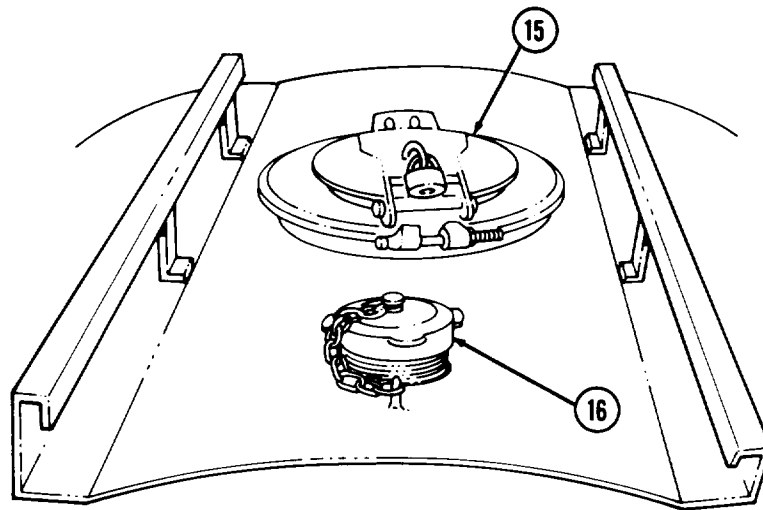
#### Key Item and Function

- 1 *Meter* records amount of fuel pumped out in gallons.
- 2 *Counter Control Lever* is moved up or down to return numbers on meter to zero.
- 3 *Pressure Gage* indicates condition of filter elements by showing difference in pressure between inlet and outlet side of filter.
- 4 *Pressure Gage Handle* is turned right to no. 1 position to take pressure readings on inlet side of valve, and turned left to no. 2 position to take readings on outlet side of valve.
- 5 *Dump Valve Control* is turned left to open automatic dump valve, which dumps water separated from fuel by filter separator unit.
- 6 *Manual Drain Valve Control* is turned left to open manual drain valve to drain sump assembly.
- 7 *Gravity Delivery Line Gate Valve* is turned left to let fuel flow through gravity delivery line.
- 8 *Pump Delivery Line Gate Valve* is turned left to let fuel flow through pump and dispenser line.
- 9 *Delivery Pump Draincock* is turned to drain fuel from delivery pump when maintenance is required.
- 10 *Meter Drain Knob* is turned to drain fuel from meter when maintenance is required.
- 11 *Discharge Valve Control Levers* are pulled back to open discharge valves which control flow of fuel from tank sections.
- 12 *Liquid Level Gage* is dipped into tank sections to measure fuel level.

## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)

### Key Item and Function

- 13 *Dispenser Line and Nozzle* is used to dispense fuel from tank compartments to the desired receptacle.
- 14 *Remote Control Handle* is pulled forward in an emergency to trip operating levers and return them to closed position.



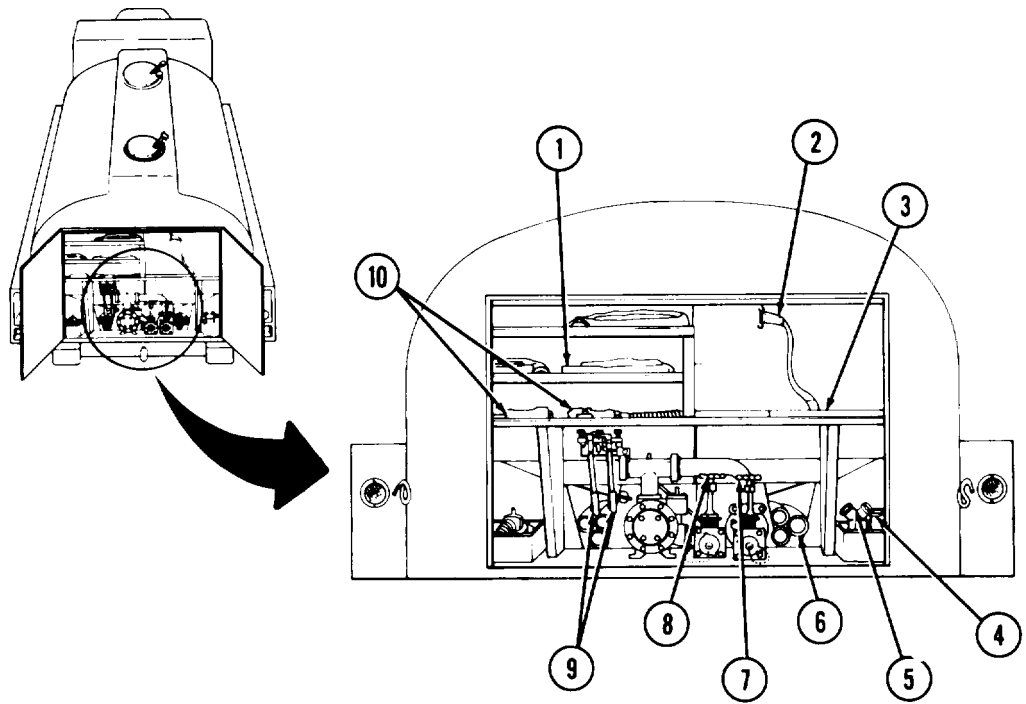
TA 51464

### Key Item and Function

- 15 *Manhole Covers* provide openings for cleaning each compartment.
- 16 *Filler Covers* provide openings for loading each compartment.



## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



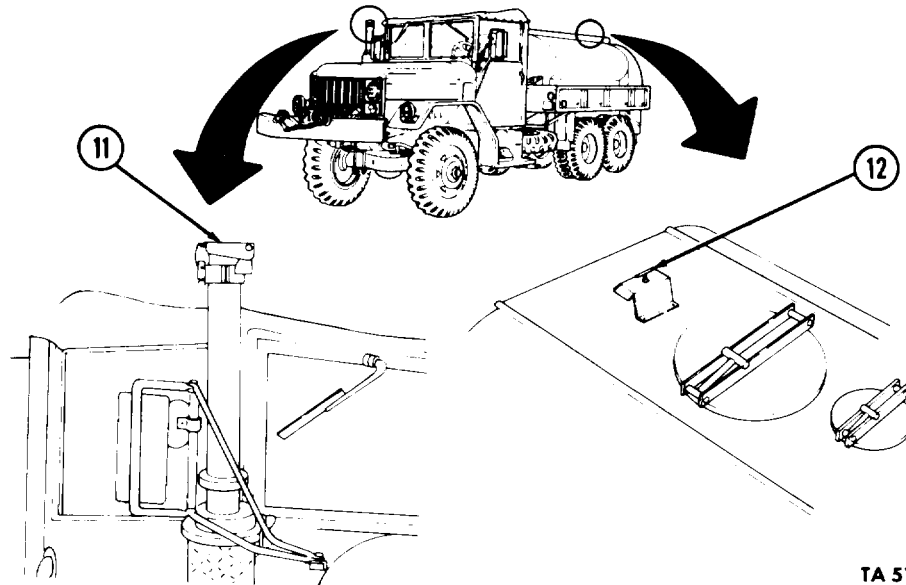
TA 51465

### b. Water Tank Trucks (M50A2 and M50A3).

#### Key Item and Function

- 1 *Water Discharge Hoses* are used to deliver water from tank compartments.
- 2 *Strap* is used to secure manhole cover during arctic operation when heaters are installed in tank openings.
- 3 *Water Lever Gage* is dipped into tank compartments to measure water levels.
- 4 *Water Suction Strainer* is attached to water suction hose to prevent foreign matter from entering tank.
- 5 *"Y" Coupling* is attached to the line discharge/suction valve to facilitate delivery of two streams of water at the same time.
- 6 *Water Suction Hoses* are used to till tank compartments when gravity fill is impossible.
- 7 *Gravity Delivery Line Suction Valve* is turned left to let water flow through gravity delivery line.
- 8 *Pump Delivery Line Discharge Valve* is turned left to let water flow through pump delivery line.
- 9 *Compartment Valve Levers* are pulled back to open discharge valves which control flow of water from tank compartments.
- 10 *Water Dispenser Nozzle* is used to control flow of water at the point of delivery.

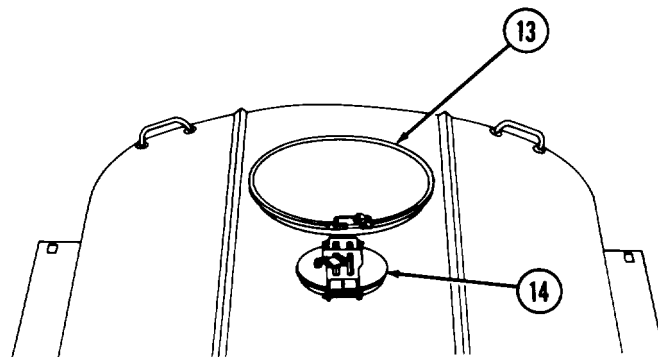
## 2.5 BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



TA 51466

### Key Item and Function

- 11 *Exhaust Stack Cap* is closed to force exhaust gases to enter heating chamber under tank.
- 12 *Shutoff Valve* is opened to release exhaust gases from heating chamber.

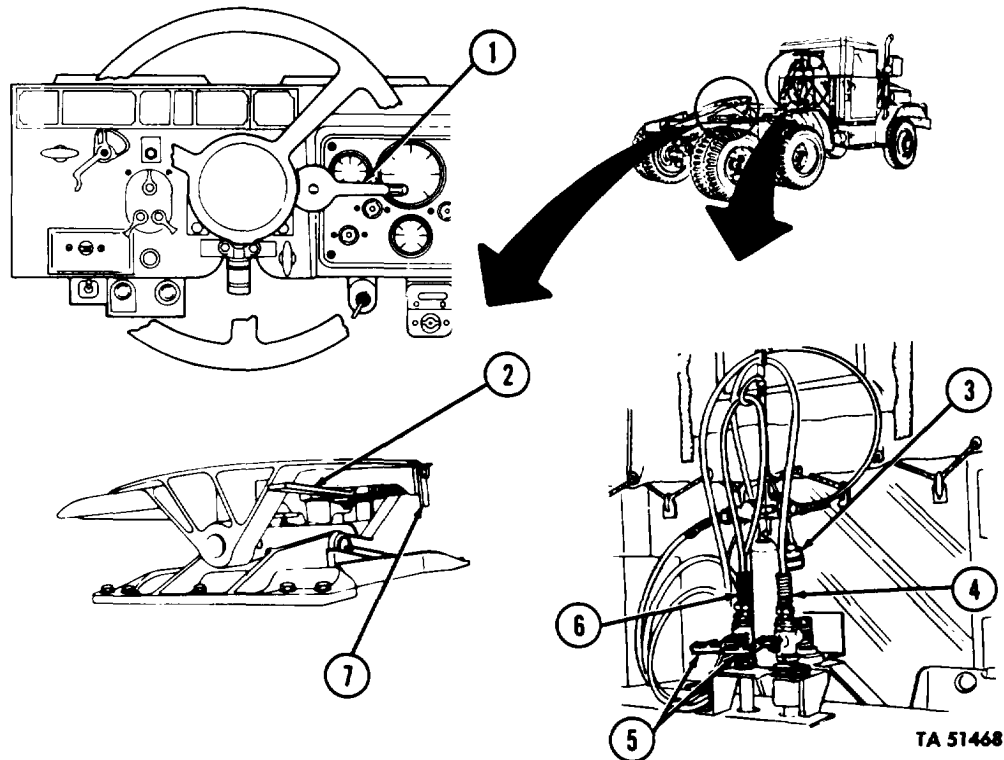


TA 51467

### Key Item and Function

- 13 *Manhole Covers* provide openings for cleaning each compartment.
- 14 *Filler Covers* provide openings for filling each compartment.

## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)

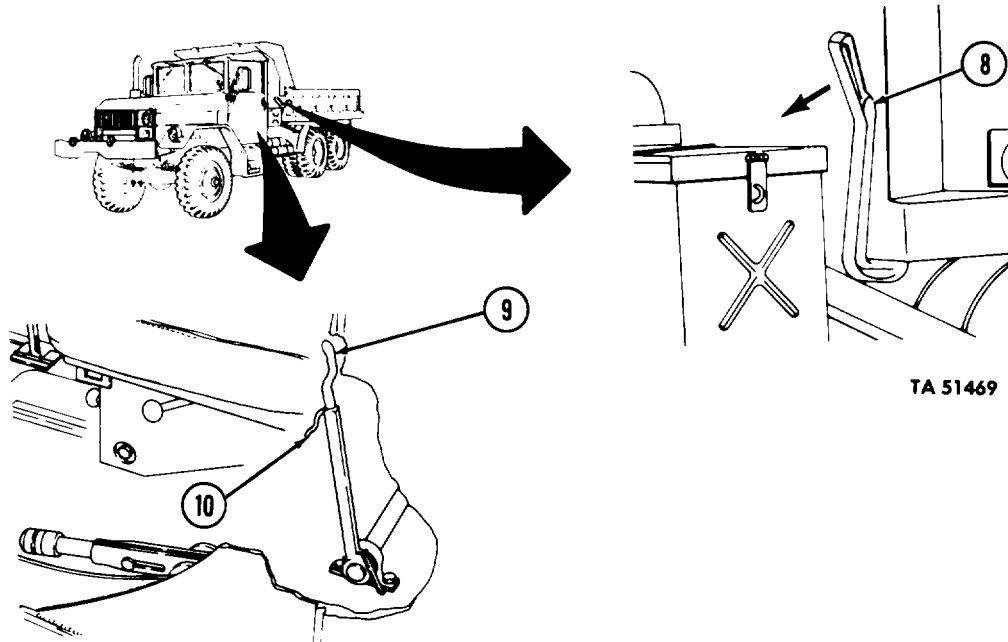


### c. Tractor Truck (M275A2).

#### Key Item and Function

- 1 *Airbrake Hand Control Lever* is moved down (on) to charge semitrailer airbrake system.
- 2 *Fifth Wheel Operating Handle* is pulled forward to unlock jaws and separate semitrailer from tractor.
- 3 *Electric Cable and Connector* is connected to semitrailer electrical receptacle to provide electrical power to semitrailer.
- 4 *Emergency Airbrake Hose Line and Coupling* connects to emergency airbrake coupling on right front side of trailer. The trailer emergency brake system is activated when air system fails.
- 5 *Airbrake Hose Coupling Shutoff Cocks* are turned down (on) to allow air to enter semitrailer brake system, and must be turned off when trailer is uncoupled.
- 6 *Service Airbrake Line and Coupling* is connected to service airbrake receptacle in left front side of trailer to provide air to semitrailer service airbrake system.
- 7 *Safety Latch* assures positive locking of fifth wheel jaws, and is swung to one side to move operating handle.

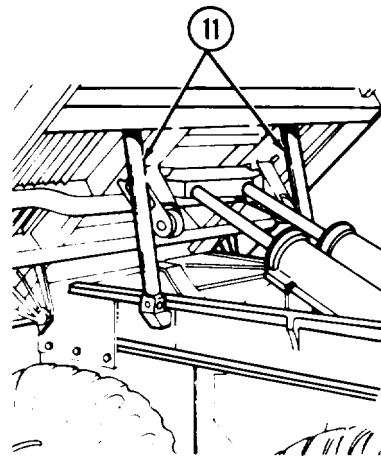
## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



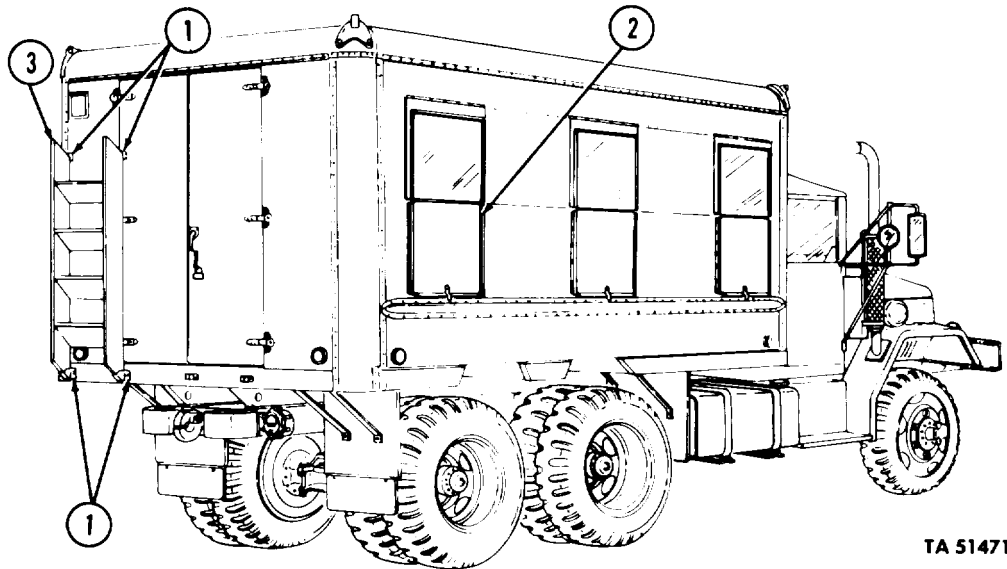
### d. Dump Truck (M342A2).

#### Key Item and Function

- 8 *Tailgate Hand Lever* is pulled forward and down to open tailgate.
- 9 *Hydraulic Hoist Control Lever* is moved forward to raise dump body, and backward to lower dump body.
- 10 *Safety Lock* is turned to side position to secure control lever in back (down) position.
- 11 *Dump Body Safety Braces* are raised to secure dump body in up position for maintenance.



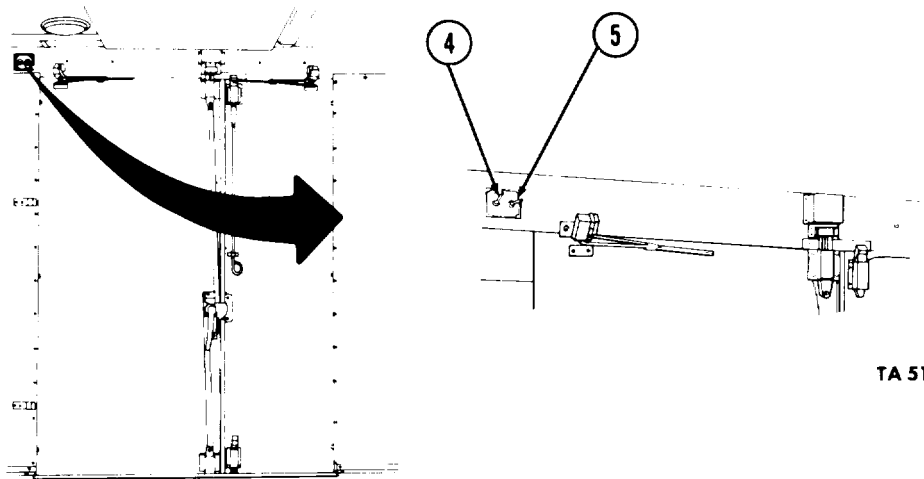
## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



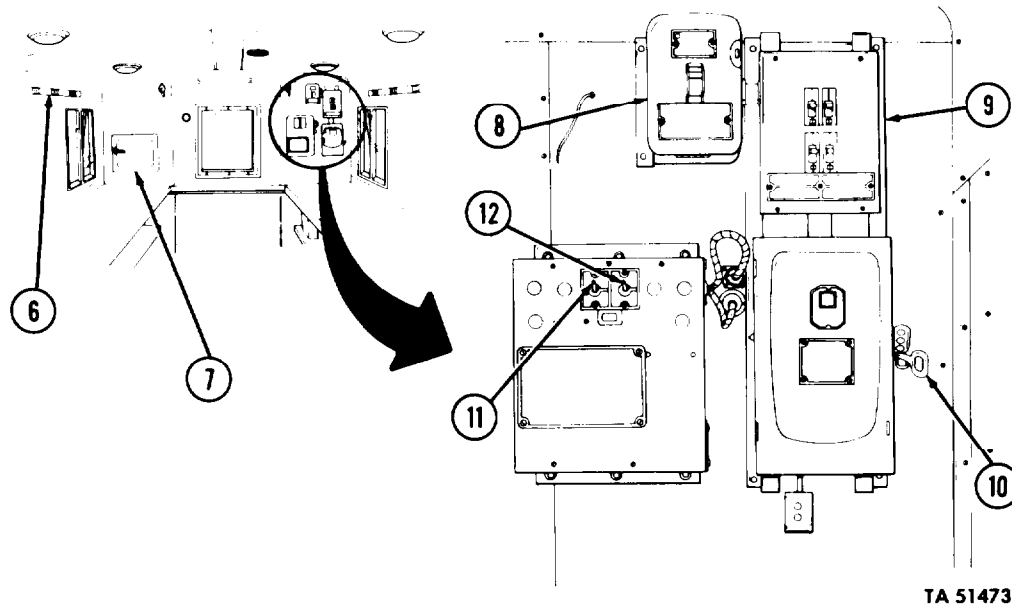
### e. Shop Van and Instrument Repair Shop Trucks (M109A3 and M185A3).

#### Key Item and Function

- 1 *Access Ladder Sockets* are used to secure ladder in stored position.
- 2 *Blackout Panels* provide a means of covering windows during blackout.
- 3 *Access Ladder* provides easy access to van body interior.
- 4 *Dome Light On-Off Switch* controls the 24-volt dome light system.
- 5 *Dome Lights Normal — Blackout Switch* controls dome lights in normal or blackout conditions.



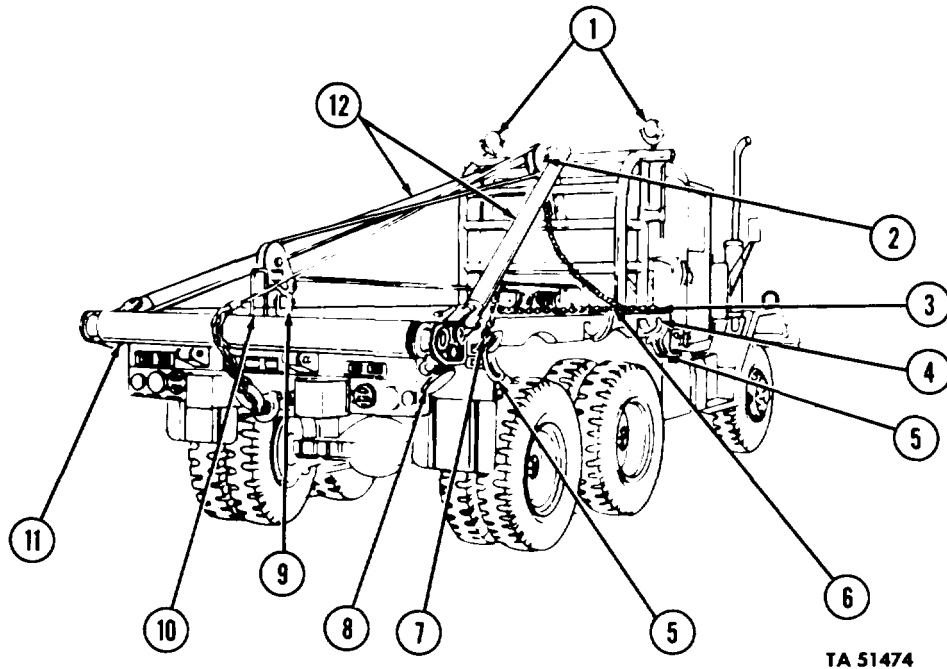
## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



### Key Item and Function

- 6 *Molding Receptacles* provide a means of connecting electrically operated shop tools to the power source.
- 7 *Communications Door* provides a ready means of sending/receiving communications.
- 8 *Operation Blackout Switch* controls dome lights in the 115-volt AC system.
- 9 *Circuit Break Box* has four circuit breakers which control van body circuits.
- 10 *Power Switch* controls all power to van body electrical circuits except the 24-volt AC-DC converter for exhaust blower.
- 11 *Converter selector Switch* is used to choose desired voltage.
- 12 *Exhaust Blower Switch* controls power to exhaust blower.

## 2.5 BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



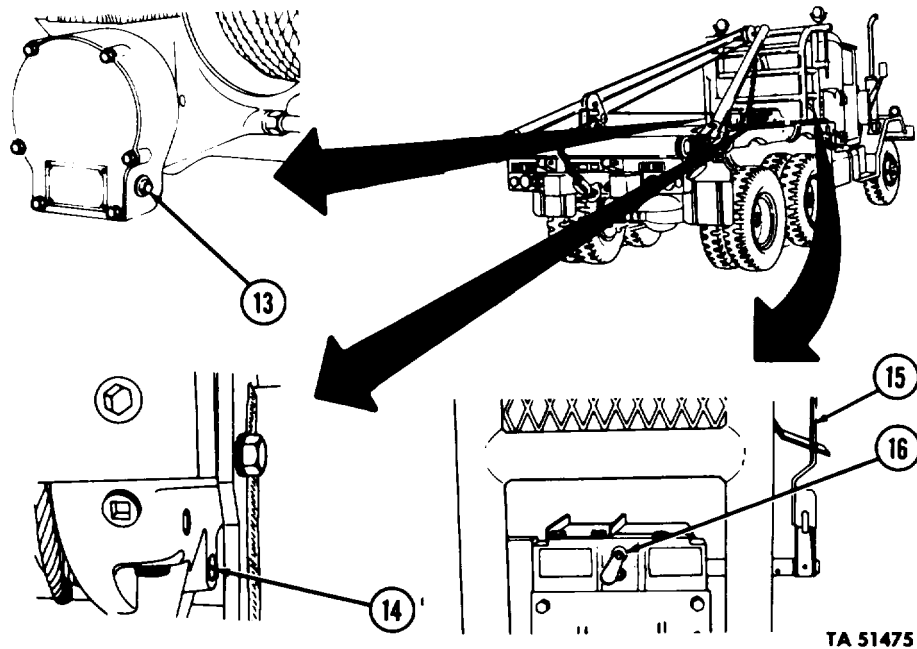
TA 51474

### f. Pipeline Construction Maintenance Truck (M756A2).

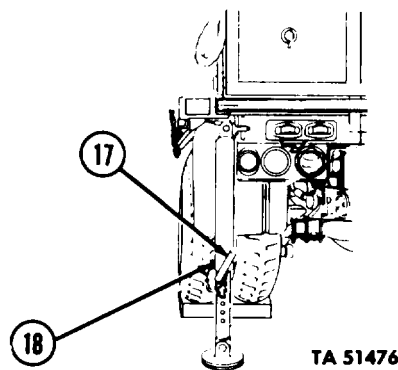
#### Key Item and Function

- 1 *Body Floodlights* provides illumination for night operations.
- 2 *A-frame Sheave* is used to position winch cable for lifting.
- 3 *Chain Slots* are used to secure boom chain to vehicle for rear operations.
- 4 *Side Clamps* are used to secure gin poles in stored position.
- 5 *Chain Brackets* are used to secure boom chains to vehicle body for side operations.
- 6 *Boom Chains* are used to secure A-frame in desired operation positions.
- 7 *Safety Chains* are used to steady gin poles and prevent backlash.
- 8 *Stiff Leg Jacks* are removed from their compartments and positioned on ground to support vehicle when A-frame is being used to lift heavy objects near end of the body.
- 9 *Body Sheave* is used to keep winch cable in proper alignment with respect to the A-frame sheave and the winch.
- 10 *U-bolt* is used to support and position body sheave for lifting A-frame into position.
- 11 *Tailboard Roller* is used to assist rear winch in loading/unloading of heavy objects.
- 12 *Gin Poles* are positioned to form an A-frame for lifting.

## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)

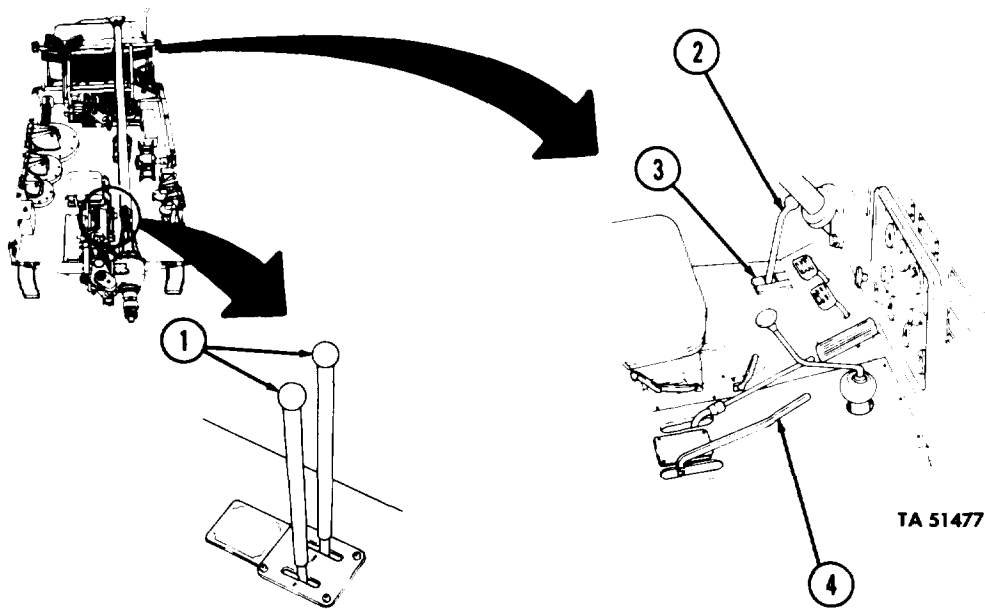
**Key Item and Function**

- 13 **Safety Brake Adjustment Screw** is turned right to tighten brake bands which prevent lowering of load when clutch is free.
- 14 **Drag Brake Adjustment Screw** is turned right to increase drag and prevent free spooling.
- 15 **Drum Clutch Lever** is placed right to make drum ready to turn and left to set drum free.
- 16 **Winch Drumlock** is pulled out and turned 90° to unlock drum.
- 17 **Tee Locking Pin** is used to secure stiff leg in stored position and provides a means of locking upper and lower legs of jacks at the proper height.
- 18 **Safety Pin and Chain** secures tee locking pin.





## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)

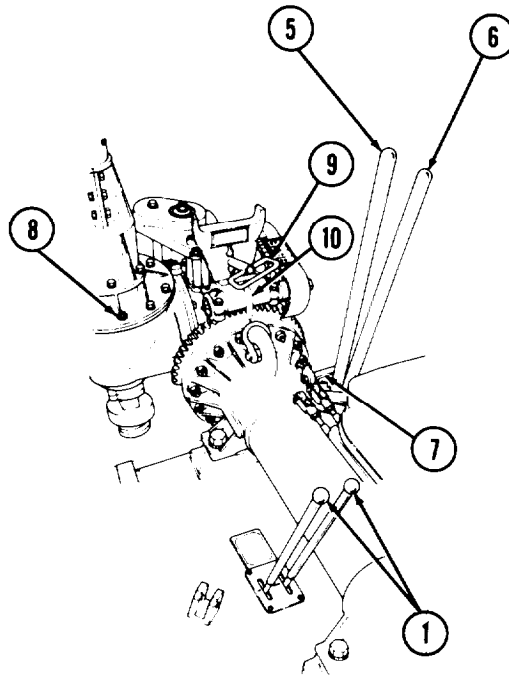


### g. Earth Boring and Polesetting Maintenance Truck (M764).

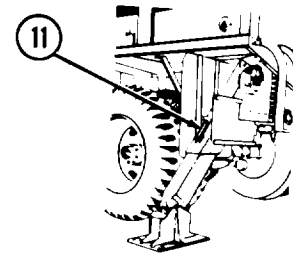
#### Key Item and Function

- 1 *Outrigger Control Valve Levers* are moved to DOWN position to lower the outrigger legs, and to UP position to raise legs. From operator's position, the right lever controls left outrigger leg and left lever controls right leg.
- 2 *Rear Winch Control Lever* is moved forward to operate rear winch, and to the rear to stop rear winch.
- 3 *Hinge Lock* secures rear winch control lever in the off position when not in use.
- 4 *Power-Divider Control Lever* is shifted as needed to provide power to rear winch or earth boring machine.

## 2-5. BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



TA 51478

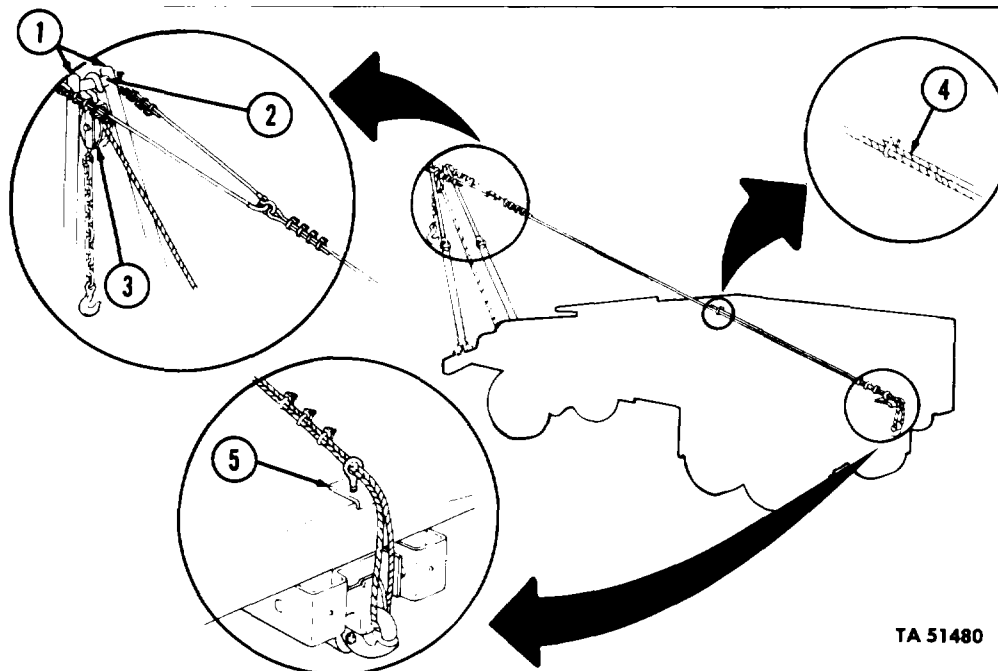


TA 51479

### Key Item and Function

- 5 *Feed Control Lever* controls up and down movement of earth auger, when used with drive control lever.
- 6 *Drive Control Lever* controls rotation of earth auger, when used with feed control lever.
- 7 *Locking Latch* secures drive and feed levers in braking position.
- 8 *Leveling Bubble* indicates that earth auger is in straight up and down position when bubble is centered.
- 9 *Power-Leveler Shifting Handle* is used with boring machine feed and drive control levers to control up and down, and side to side movements of earth boring machine and polesetter derrick.
- 10 *Pointer* indicates the position of earth auger and polesetter derrick with respect to center line of vehicle.
- 11 *Outrigger Safety Latch* secures outrigger leg when in up position.

## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS

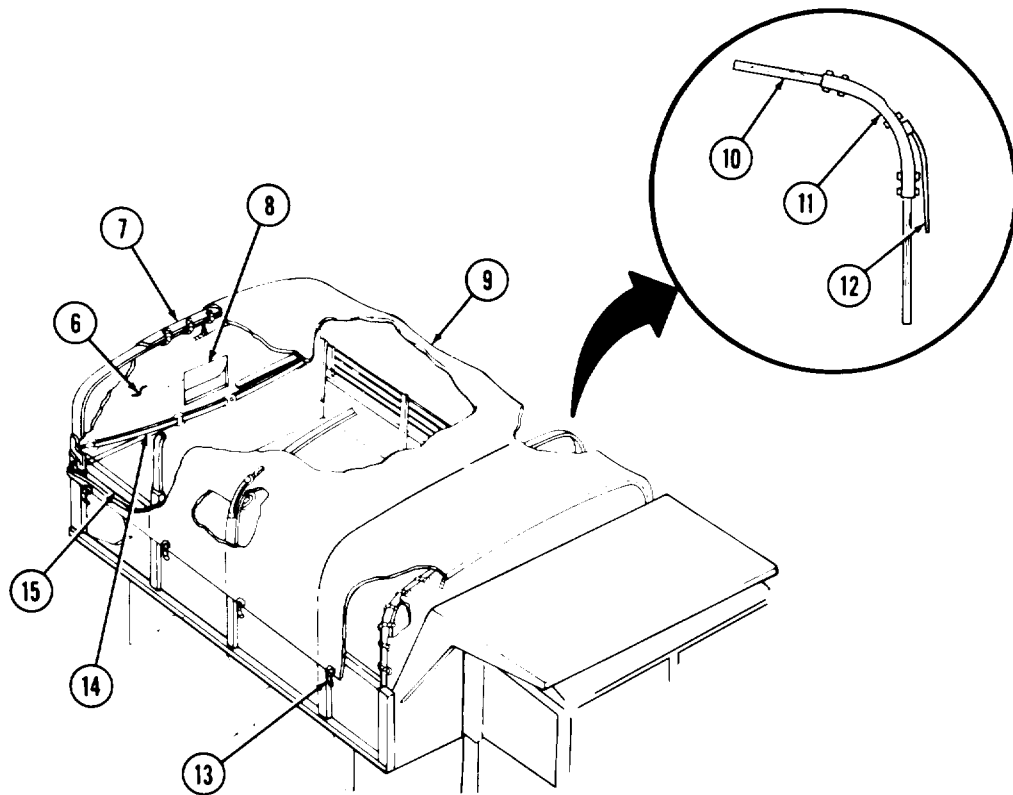


a. **A-frame Kit.** Installed on cargo and tractor trucks equipped with a front winch for loading and unloading equipment. A-frame load limit is 3,000 lb (1,362 kg).

### Key Item and Function

- 1 *Tube and Leg Assemblies* are attached to lifting shackle brackets and apex spreader to form an A-frame for lifting.
- 2 *Apex Spreader* positions the A-frame and supports the sheave assembly.
- 3 *Sheave Assembly* supports front winch cable in the lifting position.
- 4 *Cable Assembly* is attached to A-frame and "inverted pintle hook to maintain the A-frame in a 60° angle position.
- 5 *Plate Assembly* protects cable assembly and truck bed from wear and distortion.

## 2-6. SPEIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



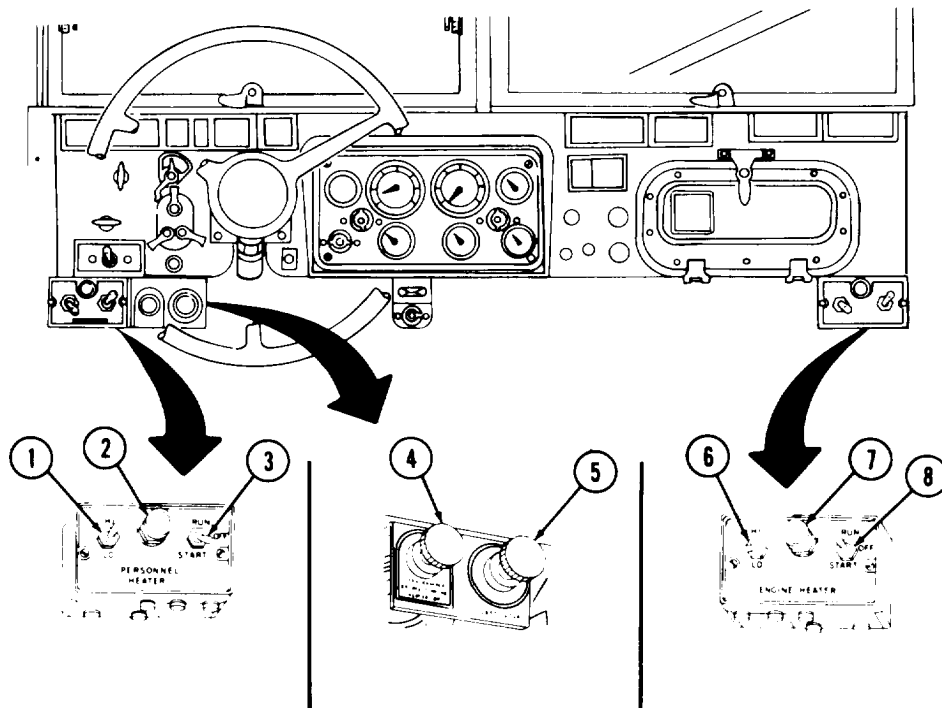
## b. Bow and Tarp Kits.

**Key Item and Function**

- 6 *End Curtains* protect front and rear ends of the cargo compartment.
- 7 *Lashing Rope* secures end curtain to crossbow.
- 8 *End Flap* opens and closes for ventilation.
- 9 *Tarpaulin* protects top and sides of cargo bed.
- 10 *Crossbows* support top of tarpaulin.
- 11 *Stave and Corner Assemblies* support crossbows.
- 12 *Straps* secure tarpaulin to corners of stave and corner assemblies.
- 13 *Lashing Hooks* are used to secure sides of tarpaulin to truck bed.
- 14 *Safety Strap* of tailgate protects passengers against falling from the vehicle.
- 15 *Troop Seats* can be stowed in up position when handling cargo or down for seating.

Change 3 2-23

## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)

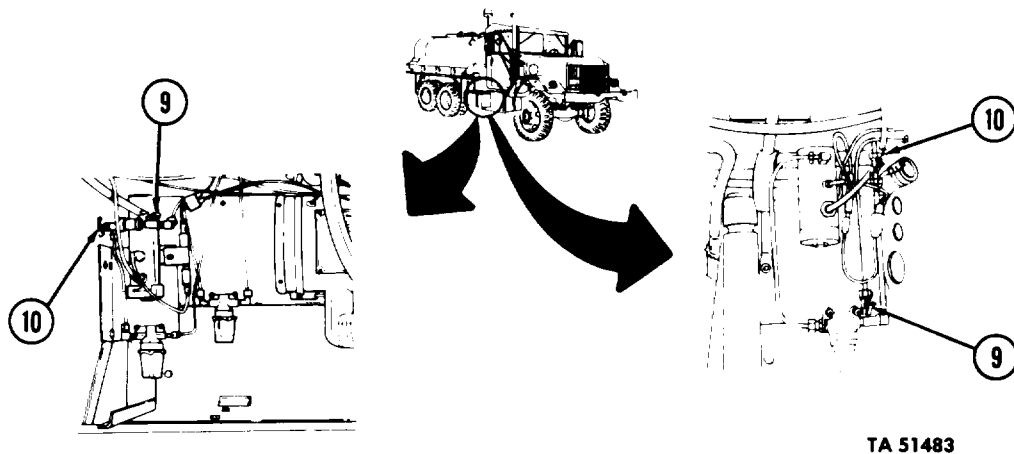


## c. Arctic Winterization Kit.

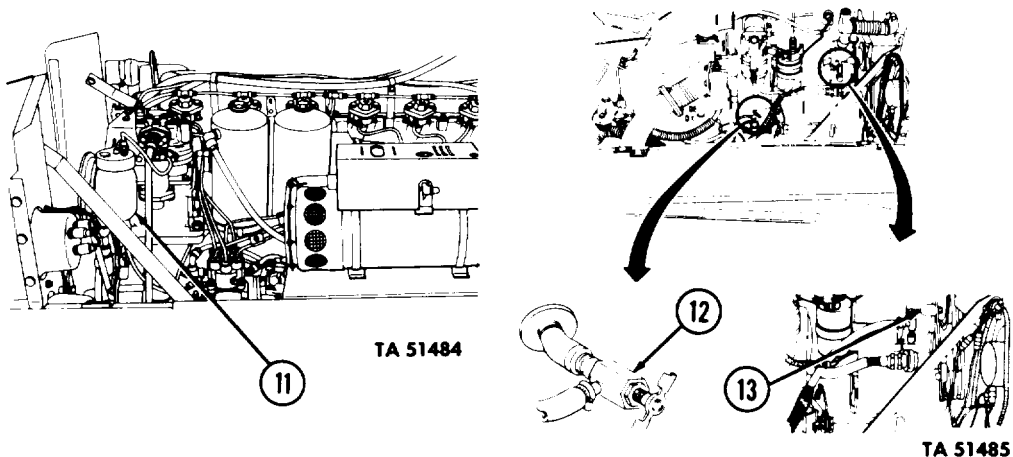
**Key Item and Function**

- 1 *Hi-lo Switch* controls the rate of fuel burning and speed of blower in personnel heater.
- 2 *Red Indicator Light* illuminates when personnel heater is operating.
- 3 *Start-Off-Run Switch* is positioned down to start personnel heater, up to run heater, and in center position to stop heater.
- 4 *Air Control Knob* is pulled all the way out for maximum air flow, and pushed in to lower or shut off air flow.
- 5 *Defroster Control Knob* is pulled all the way out for maximum defroster operation, pushed in for maximum heater operation, and placed halfway out for combination de froster/heater operation.
- 6 *Hi-Lo Switch* controls the rate of fuel burning and speed of blower in power plant (engine) heater.
- 7 *Red Red Indicator Light* illuminates when power plant heater is operating.
- 8 *Start-Off-Run Switch* is positioned down to start power plant (engine) heater, up to run heater, and in center position to stop heater.

## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)

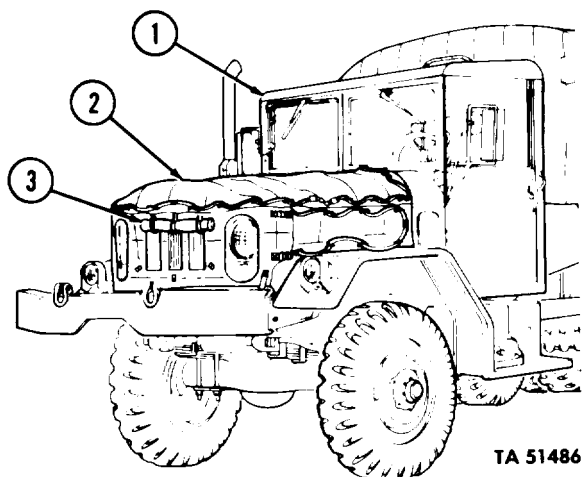
**Key Item and Function**

- 9 *Power Plant Heater Shutoff Cock* is opened (turned left) to let fuel enter power plant heater combustion chamber.
- 10 *Personnel Heater Shutoff Cock* is opened (turned left) to let fuel enter personnel heater combustion chamber.

**Key Item and Function**

- 11 *Alcohol Evaporator Bottle* stores alcohol used to keep air lines from freezing during cold weather operations.
- 12 *Inlet Coolant Shutoff Cock* is opened (turned left) to let coolant from power plant cooling system enter heating chamber of power plant heater.
- 13 *Outlet Coolant Shutoff Cock* is opened (turned left) to let coolant from heating chamber of power plant heater enter power plant cooling system.

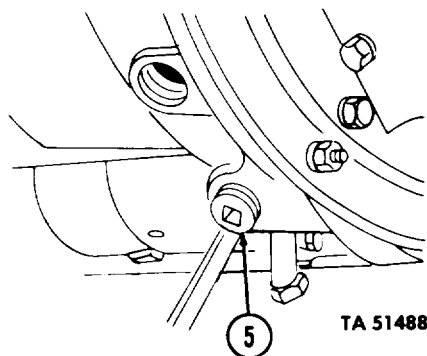
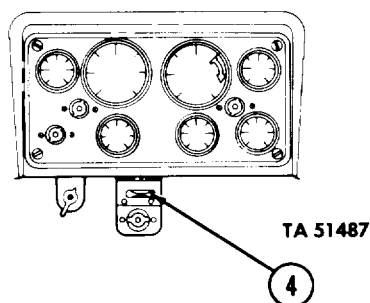
## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



### c. Arctic Winterization Kit (Contd).

#### Key Item and Function

- 1 *Hardtop Closure* replaces canvas cover on cab for arctic temperature operations.
- 2 *Quilted Engine Compartment Cover* is attached to brush guard, hook, and side panels to maintain normal operating temperatures under arctic operating conditions.
- 3 *Aperture Flap* is opened or closed to control amount of air passing through radiator.

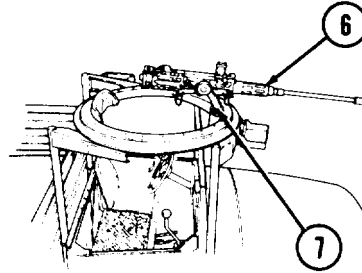


### d. Deepwater Fording Kit,

#### Key Item and Function

- 4 *Fording Valve Control Lever* positioned to the left activates air pressure system and forces air into flywheel housing to prevent water seepage.
- 5 *Flywheel Housing Drainplug* is removed from storage boss and installed in flywheel drainport to prevent water entering flywheel housing.

## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)

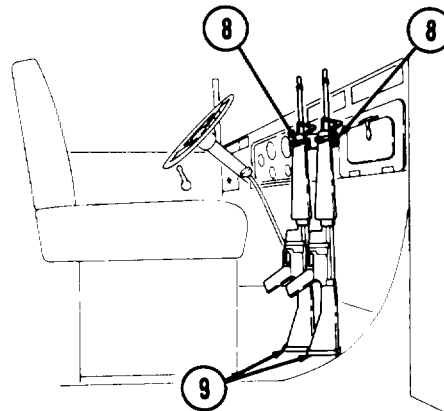


TA 51489

### e. Machine Gun Mount Kit.

#### Key Item and Function

- 6 *Gun* travels full circle around track of mount.
- 7 *Bracket* permits up or down and swivel movement of machine gun.

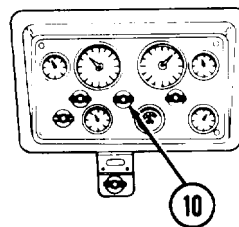


TA 51490

### f. Rifle Mount Kit.

#### Key Item and Function

- 8 *Catch Assembly* holds weapons safely in place for travel. Assembly is pulled out and up to free rifle when needed.
- 9 *Stock Brace* holds stock of rifle in position for travel.



TA 51491

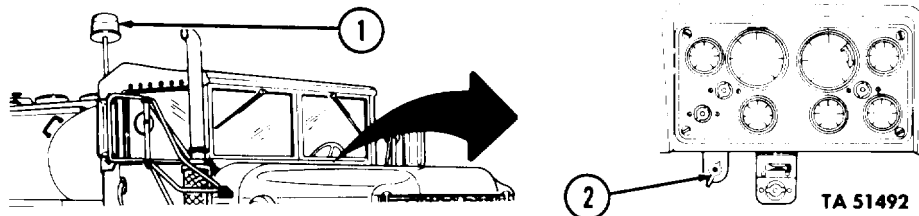
### g. Low Air Pressure Warning Light Kit.

#### Key Item and Function

- 10 *Low Air Pressure Warning Light* indicates when air pressure in reservoir tanks is low.



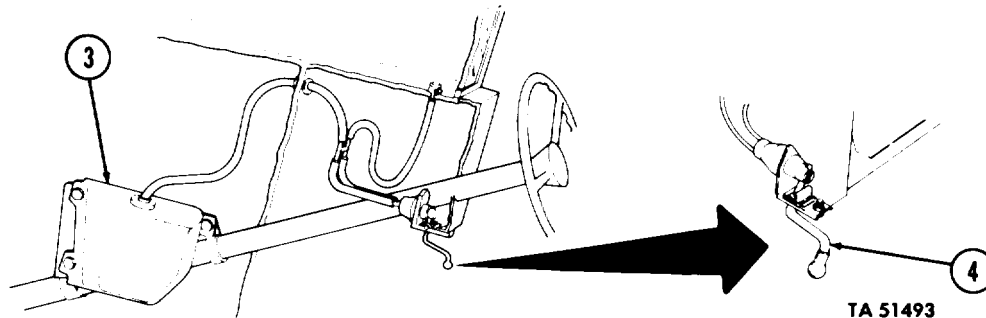
## 2-6. SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



**h. Convoy Warning Light.**

### Key Item and Function

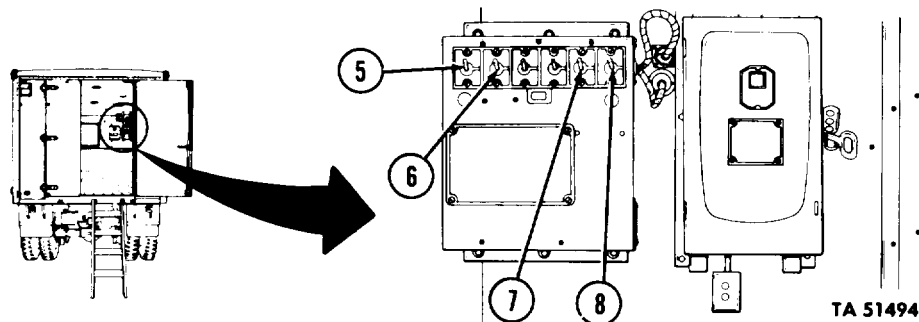
- 1 *Warning Light* illuminates and rotates when turned on.
- 2 *Light Switch* turns warning light on/off.



**i. Windshield Washer Kit.**

### Key Item and Function

- 3 *Reservoir Assembly* stores washer fluid.
- 4 *Washer Lever* is pulled up to activate spray pump.



**j. Van Body Heater Kit.**

### Key Item and Function

- 5 *Hi-Lo Switch* controls speed of blower in primary heater.
- 6 *Run-Off-Start Switch* is positioned down to start body primary heater, up to run heater, and in center position to stop heater.
- 7 *Run-Off-Start Switch* is positioned down to start body secondary heater, up to run heater, and in center position to stop heater.
- 8 *Hi-Lo Switch* controls speed of blower in secondary heater.

## Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

### 2-7. GENERAL

A permanent record of the services, repairs, and modifications made to these vehicles must be recorded. See DA Pam 738-750 for list of the forms and records required. Refer to chapter 3, section IV for specific maintenance instructions.

### 2-8. PREVENTIVE MAINTENANCE CHECKS AND SERVICES INDEX

PARA. NO.	TITLE	PAGE NO.
2-9.	Cleaning Instructions and Precautions	2-29
2-10.	Preventive Maintenance Checks and Services	2-32
2-11.	Class Leakage Definitions	2.33

### 2-9. CLEANING INSTRUCTIONS AND PRECAUTIONS

Cleaning is an after-operation service performed by operator/crew to keep the vehicle in a state of readiness. Facilities and material available to operators for vehicle cleaning can vary greatly in differing operating conditions. However, vehicles must be kept as clean as available cleaning equipment, materials, and tactical situations permit.

#### a. General Cleaning Precautions.

- (1) All cleaning procedures must be accomplished in well-ventilated areas.
- (2) Protective gloves, clothing, and/or respiratory equipment must be worn whenever caustic, toxic, or flammable cleaning solutions are used.
- (3) Diesel fuel or gasoline must never be used for cleaning.
- (4) A fire extinguisher must be available and ready during all cleaning operations involving solvents.

#### b. Special Precautions.

- (1) Do not allow cleaning compounds to come into contact with rubber, leather, vinyl, or canvas materials.
- (2) Do not allow corrosion-removing cleaning compounds to contact painted surfaces.
- (3) Do not use steam or air under pressure in cleaning truck cab interiors or van body interiors.
- (4) Do not steam clean any part of vehicle that has been rustproofed.

## 2-9. CLEANING INSTRUCTIONS AND PRECAUTIONS (Contd)

(5) Mildew must be removed with a bristle brush before paulin can be properly cleaned and aired.

(6) The radiator is always cleaned first from behind in order to blow debris, insects, or other obstructions out and away from radiator core. Low pressure water or air can be used in cleaning radiator core of obstructions.

**c. Cleaning Materials.** Detailed description of specific cleaning compounds, cleaning solvents, drycleaning solutions, and corrosion-removing compounds are found in TM 9-247.

**d. General Guidelines.** Table 2-1 provides a general guideline to cleaning materials used in removing contaminants from various vehicle surfaces.

## 2-9. CLEANING INSTRUCTIONS AND PRECAUTIONS (Contd)

Table 2-1. General Cleaning Instructions.

Cleaning Materials Used to Remove			
Surface	Oil/Grease	Salt/Mud/Dust/Debris	Surface Rust/Corrosior
Body	Grease-cleaning compound, running water, and damp or dry rags.	High pressure water, soapy warm water, soft brush, and damp or dry rags.	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil. *
Cab Interior (Metals)	Grease cleaning compound, and damp or dry rags,	Damp and dry rags.	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil. *
Cab Interior/ Cab Top (Material)	Saddle soap, warm water, soft brush, and dry rags.	Soft brush, soapy warm water, and damp or dry rags.	Not applicable.
Frame	Grease-cleaning compound rinsed with running water, and rags.	High pressure water, soapy warm water, wire brush, and damp or dry rags.	Corrosion-removing compound, wire brush, dry rags, and lubricating oil. *
Engine/ Transmission	Mixed solution, 1 part grease-cleaning compound, 4 parts drycleaning solvent, running water and rags.	High pressure water, soapy warm water, soft wire brush, and damp or dry rags.	Bristle brush, warm soapy water, and dry rags.
Glass	Glass cleaning solution and clean, dry rags.	Glass cleaning solution and clean, dry rags.	Not applicable.
Radiator	Not applicable.	Low pressure water, air, soapy warm water, and damp or dry rags.	Not applicable.
Rubber Insulation	Damp or dry rags.	Damp or dry rags.	Not applicable.
Tires	Soapy water, and bristle brush.	High pressure water, and bristle brush.	Not applicable.
Wire Rope	Cleaning compound and wire brush.	Wire brush.	Wire brush and lubricating oil. *
Wood	Detergent, warm water, and damp or dry rags.	Low pressure water, soapy warm water, and damp or dry rags.	Not applicable.
* After cleaning, apply light grade of lubricating oil to all unprotected surfaces to prevent continued rust.			

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## 2-10. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

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Your Preventive Maintenance Checks and Services, table 2-2, lists the inspection and care of your equipment required to keep it in good operating condition.

**a. Item Number.** This column will be used as a source of item numbers for the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results in PMCS.

**b. Designated Intervals.**

### NOTE

Ž Observe all warnings and cautions.

Ž Designated intervals are performed under usual operating conditions, PMCS intervals must be performed more frequently when operating under unusual conditions.

(1) BEFORE checks and services are performed prior to the equipment leaving its containment area (motorpool or other control or dispatch point) or performing its intended mission.

(2) DURING checks begin when the equipment is being used for its intended mission.

(3) AFTER checks and services begin when the equipment is taken out of its mission mode or returned to its containment area (motorpool or other control or dispatch point).

(4) WEEKLY checks and services are performed once a week.

(5) MONTHLY checks and services are performed once a month.

**c. Procedures.** The procedure column of your PMCS table specifies the required checks and services. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have maintenance personnel do the work.

(1) Troubleshoot malfunctions. Refer to table 3-1.

(2) Use DA Form 2404 and report non-reparable item(s) to maintenance personnel.

(3) Tools included with vehicle are to be used when making PREVENTIVE MAINTENANCE checks and services. Wiping cloths are sometimes needed to remove dirt or grease.

**d. Not Ready Condition.** If a vehicle is not able to perform the prescribed mission, equipment will be reported as not ready or unavailable. Refer to DA Pam 738-750.

### NOTE

The terms "ready/available" and "mission capable" refer to the same status: Equipment is on hand and able to perform its combat mission (see DA Pam 738-750).

## 2-10. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

### e. Troublespots

#### WARNING

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

#### NOTE

Dirt, grease, oil, and debris may cover up a serious problem. Clean as you check. Follow precautions printed on container. Use drycleaning solvent on all metal surfaces. Use soap and water on rubber or plastic material.

(1) Check all bolts, nuts, and screws. If loose, bent, broken, or missing, either tighten or report conditions to your supervisor.

(2) Look for loose or chipped paint, rust, and gaps at welds. If a cracked or broken weld is found, report condition to your supervisor.

(3) Inspect electrical wires and connectors for cracked or broken insulation. Look for bare wires and loose or broken connections. Tighten loose connections. If insulation is cracked or broken, wires bare, or broken connections, report to your supervisor.

(4) Check hoses and fluid lines for wear, damage, and leaks. Make sure clamps and fittings are tight. (Refer to para. 2-11 for information on leaks.)

f. **Correct Assembly or Stowage.** Check each component or assembly for installation in the right place and with no missing parts.

## 2-11. CLASS LEAKAGE DEFINITIONS

Wetness around seals, gaskets, fittings, or connections indicates leakage. A stain also denotes leakage. If a fitting or connector is loose, tighten it. If broken or defective, report it. Use the following as a guide:

a. **Class I.** Leakage indicated by wetness or discoloration not great enough to form drops.

b. **Class II.** Leakage great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

c. **Class III.** Leakage great enough to form drops that fall from the item being checked/inspected.

#### WARNING

Hearing protection is required for driver, co-driver, and mechanic when engine is running. Noise levels produced by vehicle exceed 85 dB, which may cause injury to personnel.

#### CAUTION

Operation is allowable with a class I or II leakage. You must consider fluid capacity of the item/system. WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR. When operating with class I or II leaks, check fluid levels more frequently. Class III leaks must be immediately reported to your supervisor.

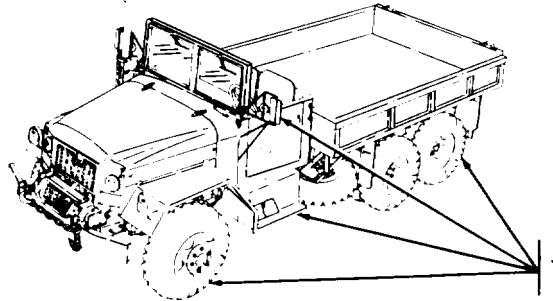


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

**NOTE:** These checks are to be made in the order listed, within designated interval.

B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
1						<p><b>NOTE</b></p> <p>Perform Weekly (W) as well as Before (B) PMCS's if:</p> <p>a. You are the assigned operator but have not operated the vehicle since the last weekly.</p> <p>b. You are operating the vehicle for the first time.</p> <p><b>MAKE THE FOLLOWING WALK-AROUND CHECKS:</b></p> <p><b>EXTERIOR OF VEHICLE</b></p> <p>a. Visually check for obvious damage to body and cab that would impair operation.</p> <p>b. Visually check for under inflated and unserviceable tires (including the spare). Check tires for leaks, cuts, gouges, cracks, or bulges. Remove all penetrating objects.</p> <p>c. Look under vehicle for evidence of fluid leakage (fuel, oil, brake fluid, and coolant).</p> <p>d. Check condition of:</p> <p>(1) Windshield and windows.</p> <p>(2) Windshield wiper arms and blades.</p> <p>(3) Mirrors.</p>	<p>Tires have leaks, cuts, gouges, cracks, or bulges which would result in tire failure during operation. Two or more tires including the spare, missing or unserviceable.</p> <p>Any brake fluid leakage. Class III leakage of oil, coolant, or fuel is evident.</p>

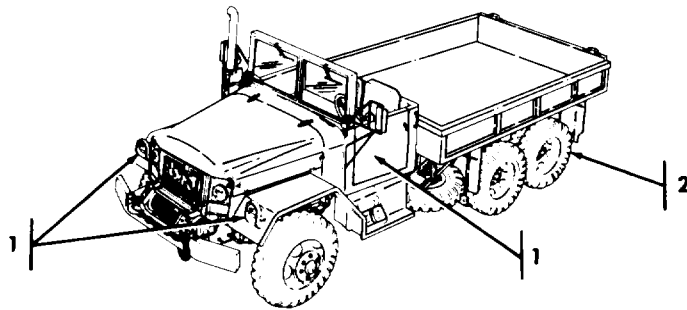


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

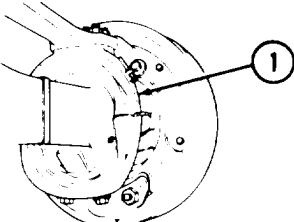
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
2	•			•		(4) All locking and fastening devices. (5) Spare tire mounting. (6) Operation of doors and windows. (7) Operation of headlights, taillights, stoplights, turn signals, and blackout lights. <b>NOTE</b> Boots discovered to be torn on the tops or sides are serviceable only if packed with grease until replacement can be performed by unit maintenance. A tear at the bottom of the boot will not retain lubrication in the joints. Replace the boot as soon as conditions permit. (8) Steering knuckle boots (1). Check for tears.	
				•		 <b>TIRES</b> a. Gage tires for correct air pressure using tire inflation gage and hose assembly. Adjust as necessary: For normal operation of vehicle, tire pressure for 9:00 x 20 tires, should be as follows: Road Condition Highway Cross-country Mud, snow, and sand	Pressure (psi) 50 (345 kPa) 35 (241 kPa) 15 (103 kPa)



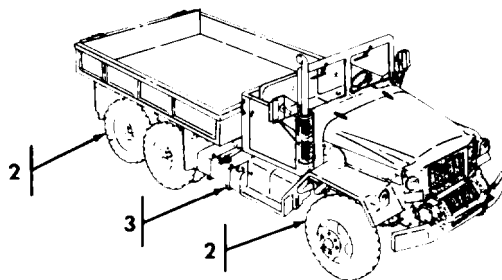


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

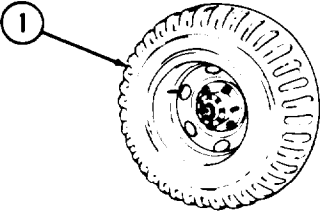
B-Before operation

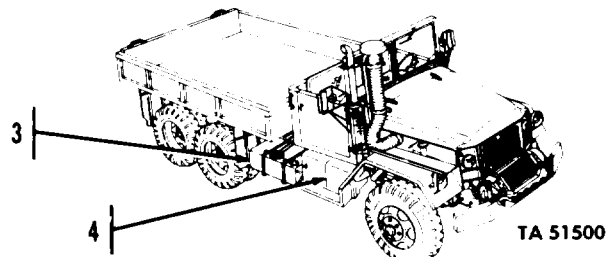
D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
3						<p><b>NOTE</b></p> <p>If one or more stud nuts are missing, notify your supervisor for replacement.</p> <ul style="list-style-type: none"> <li>b. Use wheel stud nut wrench and handle to make sure all wheel stud nuts are tight. If stud nuts are loose, tighten them. Notify your supervisor to retighten to proper torque.</li> <li>c. Check tire (1) tread depth. Tread should not be less than approximately 1/8-in. (3.17 mm) thick.</li> </ul>  <p><b>FUEL SYSTEM</b></p> <p><b><u>WARNING</u></b></p> <p>Do not perform fuel system checks or inspection while smoking or near fire, flames, or sparks. Fuel may ignite, causing injury or death to personnel.</p> <ul style="list-style-type: none"> <li>a. Check fuel tank for leaks and broken supports.</li> </ul>	<p>Two or more missing or broken studs/nuts.</p> <p>One or more tires have tread less than approximately 1/8-in. (3.17 mm) thick, and no spare available.</p>
						<p>Any Class III fuel leakage.</p> <p>Supports are broken.</p>	



*Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)*

**NOTE: These checks are to be made in the order listed, within designated interval.**

**B-Before operation   D-During operation   A-After operation   W-Weekly   M-Monthly**

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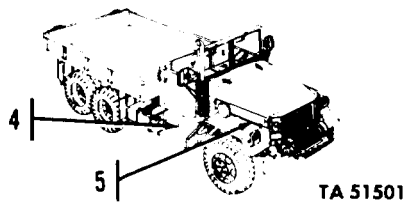
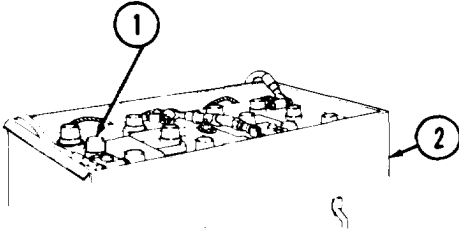


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
5					•	<p>c. Visually check batteries (1) for cracked or leaking casing, broken or burnt terminal posts.</p> <p>d. Check battery compartment (2) for corrosion. If corroded, notify your supervisor.</p>  <p>TA 51502</p>	
						<p>PRIMARY FUEL FILTER</p> <p><b>WARNING</b></p> <p>Do not perform fuel filter checks, inspections, or draining while smoking, or near fire, flames, or sparks. Fuel may ignite, causing injury or death to personnel.</p> <p><b>CAUTION</b></p> <p>If one pint (0.473 l) of fuel is drained and fuel is still unclear, notify your supervisor.</p>	

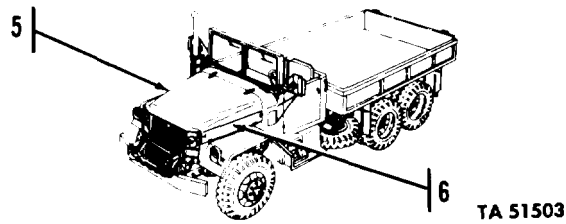


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
6			•			<p>Open draincock (4) at bottom of fuel filter (3). Drain approximately one pint (0.473 l) of fuel into a container. If there are large amounts of water or impurities, notify your supervisor. Close draincock (4). Check for fuel leaks.</p> <p>TA 51504</p> <p>SECONDARY AND FINAL FUEL FILTERS</p> <p><b>WARNING</b></p> <p>Do not perform fuel filter checks, inspections, or draining while smoking or near fire, flames, or sparks. Fuel may ignite, causing injury or death to personnel.</p>	Any Class III fuel leaks.

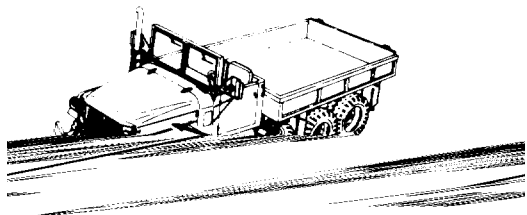
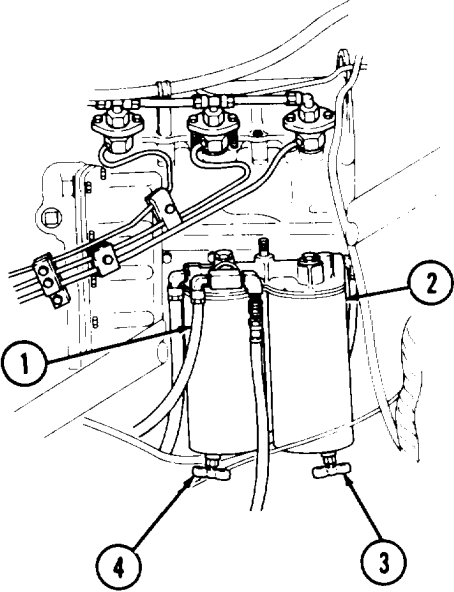


Table 2-2. Operation/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						<p><b>CAUTION</b></p> <p>If one pint (0.473 l) of fuel is drained and fuel is still unclear, notify your supervisor.</p> <ul style="list-style-type: none"><li>• Open draincocks (4) and (3) at bottom of secondary fuel filter (1) and final fuel filter (2). Drain approximately one pint (0.473 l) of fuel from each into a container. If there are large amounts of water or impurities, notify your supervisor. Close draincocks (4) and (3). Check for fuel leaks.</li></ul>  <p>TA 51506</p>	

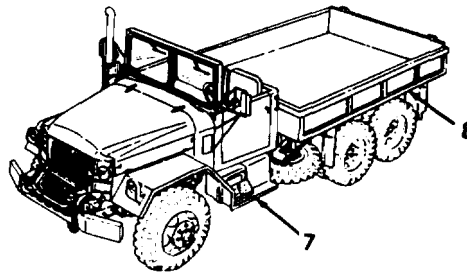


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

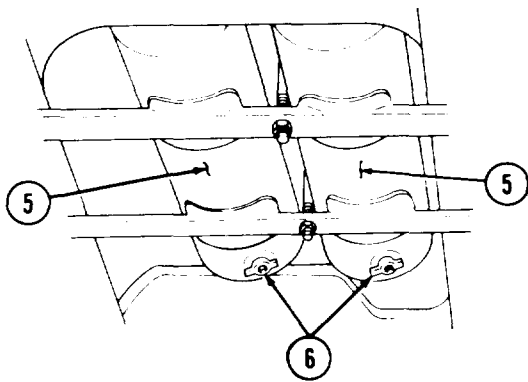
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
7			•			<b>AIR RESERVOIR DRAINCOCKS</b> Drain air reservoirs as follows: a. Open draincocks (6) on bottom of air reservoirs (5) and drain moisture. b. Close draincocks (6). 	
8						<b>UNDERBODY FRAME</b>  <b>NOTE</b> If any of the following conditions are found notify your supervisor.  • Visually check frame side rails, crossmembers and underbody supports for broken bolts, obvious cracks, broken welds, loose rivets, and rusted-through conditions	Any obviously cracked, loose, broken, or missing side rails, crossmembers, welds, bolts, or rivets, or rusted through.

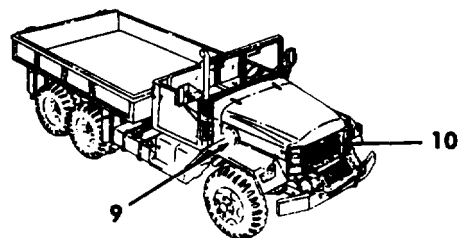
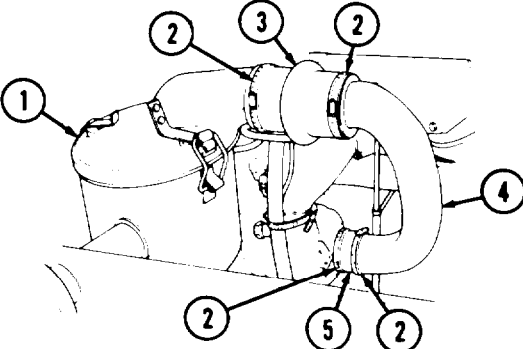


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
9						<b>ENGINE COMPARTMENT</b> <b>AIR INTAKE SYSTEM</b>  <div style="text-align: center;"><b>WARNING</b></div> <p>If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.</p> <ul style="list-style-type: none"> <li>Check clamps (2) for tightness and hump hose (3), tube (4), and air cleaner assembly (1) for openings which would allow foreign materials to enter engine.</li> </ul> 	Intake system any obvious leaks.
10						<b>RADIATOR</b> <ul style="list-style-type: none"> <li>a. Check radiator cap (6) for cracks, bends, and tightness.</li> <li>b. Check to see that radiator (7) is full. If low, add as required.</li> <li>c. Check all hoses for deterioration, leakage, and secure connections.</li> </ul>	Any Class III leaks.

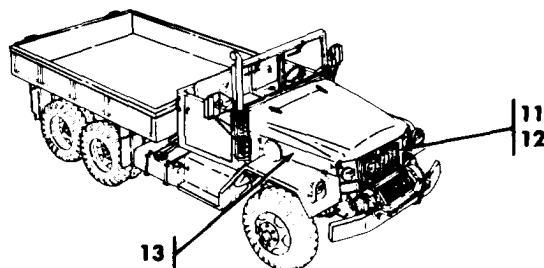
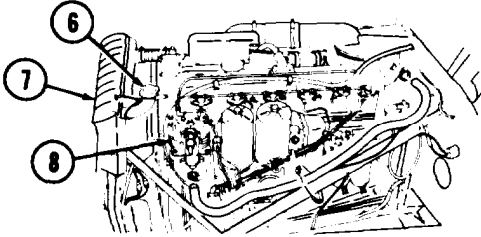


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
11						<b>DRIVEBELTS</b> • Check for missing belts, cracking, fraying, and breaks.	Any drivebelt is missing, broken, cracked to the belt fiber, has more than one crack (1/8 in. (3.18 mm) in depth or 50 percent of belt thickness) within a 6 in. (152.4 mm) area, or has frays more than 2 in. (50.8 mm) long.  Any hose lines missing, leaking, or damaged. Any air leaks.
12						<b>AIR COMPRESSOR</b> • Check compressor (8) for loose bolts and air leaks. 	
13						<b>ENGINE OIL LEVEL</b> • Check engine oil level as follows: a. When checking COLD, oil level should be approximately 1 in. - 1-1/2 in. (25.4-38.1 mm) above full mark. Add oil as necessary. Do not overfill. b. When checking HOT, oil level should be between the "ADD" and "FULL" marks. Add oil as necessary. Do not overfill.	



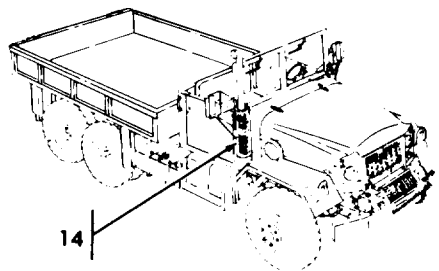
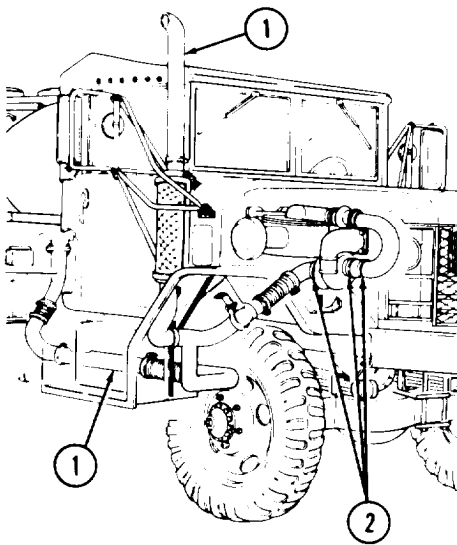


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
14						<p><b>FUEL SYSTEM</b></p> <p><b><u>WARNING</u></b></p> <ul style="list-style-type: none"> <li>Exhaust gases can kill. Operate vehicle only in a well-ventilated area. Failure to do this may result in injury or death to personnel.</li> <li>Do not touch hot exhaust pipes with bare hands. Injury to personnel may result.</li> </ul> <p>Start engine, and after system has warmed up, check exhaust pipes (1) and couplings (2) for leaks and loose clamps.</p> 	Any cracked, broken, or missing parts, and obvious exhaust leaks are evident.

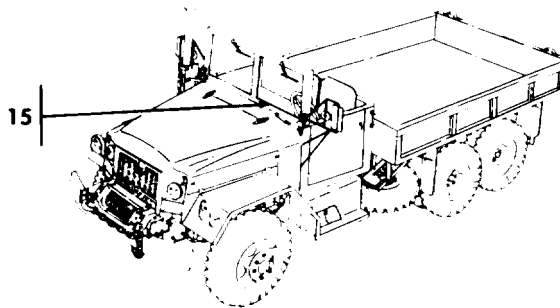


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
15						<p><b>INTERIOR OF VEHICLE INSTRUMENTS</b></p> <p><b><u>WARNING</u></b></p> <p>If buzzer stops and air pressure reading is below 65 psi, there may be no braking action. Shut down engine and check to see what is wrong. Failure to do so may result in injury or death to personnel.</p> <p>a. Start engine and run at idle speed (650-850 RPM) to let it warm up, and listen for air buzzer.</p> <p>b. Listen for unusual noise or vibration.</p> <p><b><u>CAUTION</u></b></p> <p>If oil pressure reading is below normal, or if temperature reading is over 210°F, shut down engine at once, or engine may be damaged.</p> <p><b><u>NOTE</u></b></p> <ul style="list-style-type: none"> <li>Position of instruments shown are different on earlier model vehicles.</li> </ul>	<p>Engine is inoperative.</p> <p>Air buzzer will not come on.</p> <p>Air buzzer will not shut off above 66 psi or will not come on at approximately 60 psi and remain on with decreasing air pressure.</p> <p>There is unusual noise or vibration.</p>

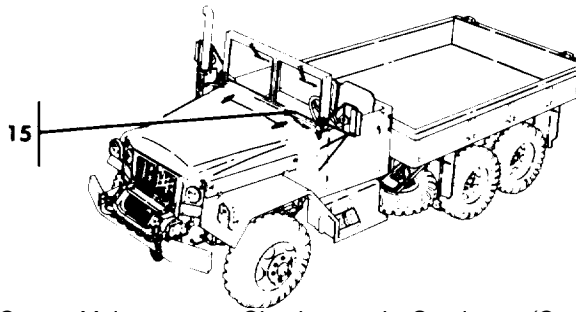
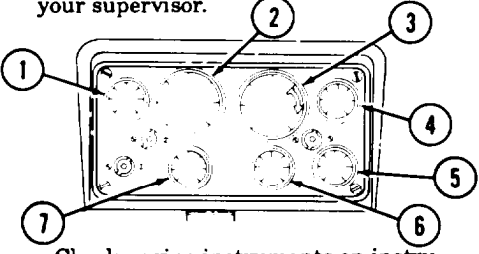


Table 2-2. Operator/Crew Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						<ul style="list-style-type: none"> <li>• Normal oil pressure with engine running at idle speed is about 10 psi. With engine running at road speeds, engine oil pressure should read 45-120 psi.</li> <li>• Some engines have normal oil pressure readings between 40 and 120 psi at road speeds. If your oil pressure gage has a maximum reading of 120 psi and the needle peaks at 120 psi, notify your supervisor.</li> </ul>  <p>c. Check engine instruments on instrument panel for abnormal readings during operation. Normal readings are as follows:</p> <ul style="list-style-type: none"> <li>• Oil pressure (1) – 10-120 psi</li> <li>• Temperature gage (4) – 180°-200°F</li> <li>• Air pressure gage (5) – 85-120 psi</li> <li>• Battery/Generator gage (6) – in green area</li> <li>• Tachometer gage (3) – Idle: 650-850 RPM</li> </ul>	<p>Instruments do not read within limits given.</p> <p>Oil pressure reads less than 10 psi</p> <p>Temperature reads more than 210°F</p> <p>Air pressure gage reads 60 psi or below.</p> <p>Gage needle reads in red area.</p> <p>Tachometer gage reads less than 650 rpm, or more than 850 rpm at idle.</p>

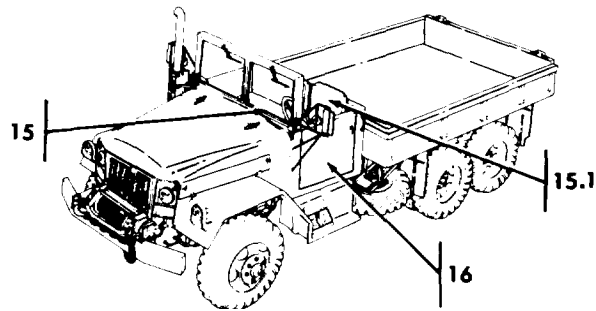


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
15.1		•				Fuel gage (7) - Indicates fuel level	Inoperative or will not lock in the out position.
		•				Speedometer/ Odometer (2) - Indicates speed and total mileage	
16			•			<p><b>CAUTION</b></p> <p>Do not attempt to force cable handle inward while serrations are interlocked. This will strip the serrations on the cable and render the vehicle inoperative. Handle must be turned 1/4 turn to disengage serrations.</p> <p>d. Engine stop cable (10).</p> <p>e. Hand throttle control (9).</p> <p><b>SEAT BELTS</b></p> <p>a. Check for proper operation of buckle and clasp ends.</p> <p>b. Check seat belts for security of mounting.</p> <p><b>AIR CLEANER INDICATOR</b></p> <p>Check air cleaner indicator (8) at bottom of instrument panel. A red band means filter element needs to be cleaned or replaced.</p>	Red is seen on indicator with engine running.
		•					

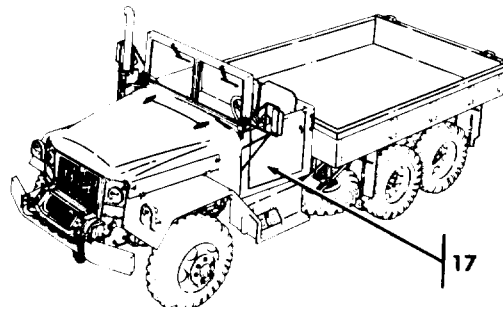


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation    D-During operation    A-After operation    W-Weekly    M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
17						<b>BRAKE SYSTEM</b> <p>a. Start engine with parking brake fully engaged. Bring vehicle air pressure up to a minimum of 85 psi (585 kPa). Shut down engine. While assistant applies and holds the service brake pedal in an engaged position, listen and visually check.</p> <ul style="list-style-type: none"> <li>(1) Air reservoirs for leaks.</li> <li>(2) All brake lines and hoses (air and hydraulic) for deterioration, chafing, binding, and leaks.</li> </ul> <p>b. Operate service brakes to determine stopping ability. Check for any pulling to one side, grabbing, or other abnormal operation.</p> <p>c. Determine parking brake ability to hold vehicle by first applying parking brake, then engage transmission in 5th gear. Vehicle should not move when clutch is slowly released.</p>	<p>Any reservoir, line, or hose missing, chafing, binding, leaking, or damaged.</p> <p>Service brakes do not operate properly, hydraulic or air leaks are evident, or pedal goes within 2 in. (50.8 mm) of floorboard.</p> <p>Parking brake defective or inoperative.</p>

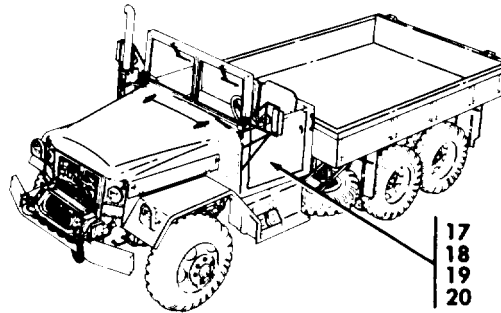


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

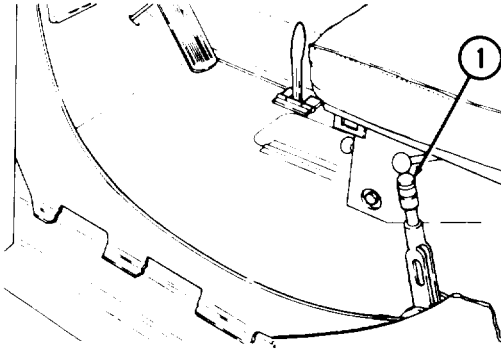
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
	•					<p>d. Adjust parking brake as required by moving knob on top of brake handle (1) clockwise to increase braking action, counterclockwise to decrease braking action.</p> <p>e. Check master cylinder fluid level. Fill as necessary.</p> 	Parking brake cannot be adjusted.
18		•				<p><b>STEERING SYSTEM</b></p> <p>Check for unusual free play, binding, wander, or shimmy.</p>	Loose or binding steering action, steering inoperative.
19		•				<p><b>SUSPENSION</b></p> <p>Check for excessive bounce.</p>	
20	•					<p><b>TRANSMISSION</b></p> <p>Shift transmission in all ranges, observing any unusual stiffness or binding of shifting linkage.</p>	

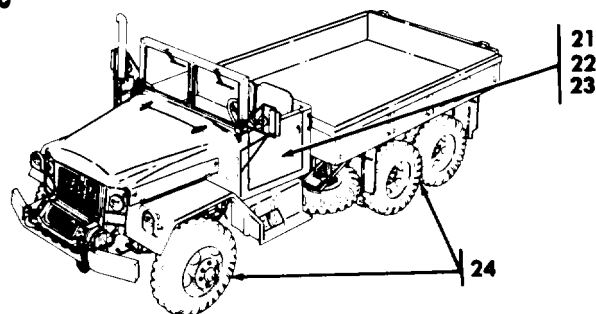


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
21	•					<b>CLUTCH</b> Check for drag, noise, chatter, grab, slippage, and clashing of gears.	Clutch is inoperative, slipping, or has definite grab or chatter.
22	•					<b>TRANSFER CASE</b> Check shifting operation for unusual noises stiffness, or jumping out of gear.	Transfer case is inoperative, noisy, or jumping out of gear.
23	•					<b>HORNS</b> Check for operation if tactical situation permits.	
24	•					<b>FRONT AND REAR DRIVE AXLES AND PROPELLER SHAFTS</b> Listen for unusual noises or vibrations. Vibrations, clicking, or clunking noises indicate worn U-joints or damaged propeller shafts.	Unusual noises or vibration evident.

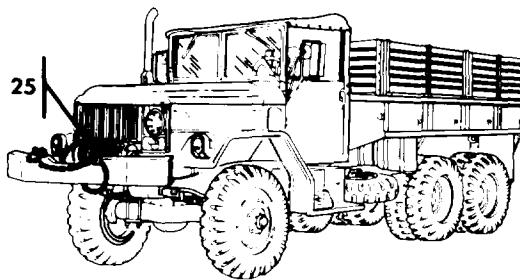


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

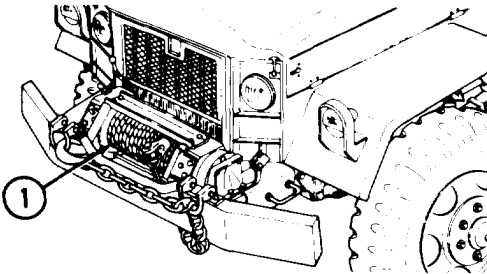
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
25						<p><b>SPECIAL BODY EQUIPMENT</b></p> <p><b>FRONT WINCH</b> (for vehicles where winch is required for mission completion)</p> <p><b>NOTE</b></p> <p>Vehicle is not ready/available if mission requires front winch operation and winch is inoperative.</p> <p>a. Check all winch controls for operation.</p> <p><b><u>WARNING</u></b></p> <p>Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.</p> <p>b. Check cable (1) for kinks, frays, and breaks.</p> <p>c. Check for damaged or missing front winch shearpin.</p> 	<p>No control response.</p> <p>Evidence of frays or breaks.</p> <p>Shearpin is missing or inoperative.</p>

Change 3 2-49



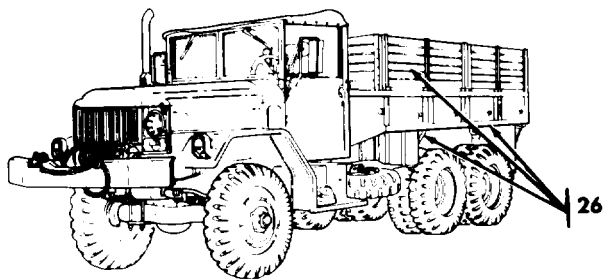


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
26						<p><b>M35A2, M35A2C, and M36A2 CARGO TRUCKS</b></p> <p><b>CARGO BODY</b></p> <ul style="list-style-type: none"> <li>a. Check cargo body for broken or missing mounting bolts</li> </ul> <div style="text-align: center;"> </div> <p>Right-side or cargo body front (2), center (3), and rear (4) mounting bolts.</p>	Any mounting bolts missing or broken.

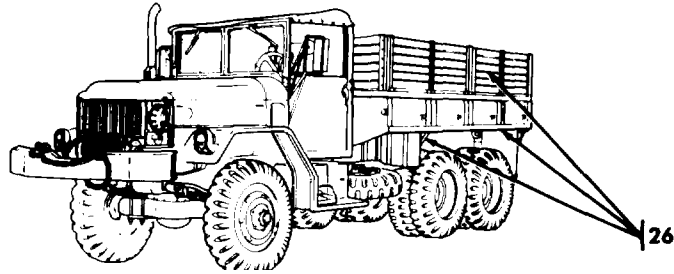


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed within designated interval.

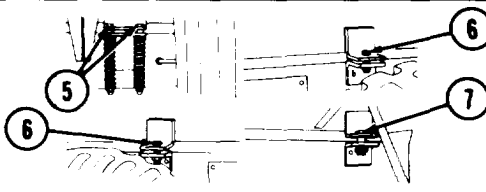
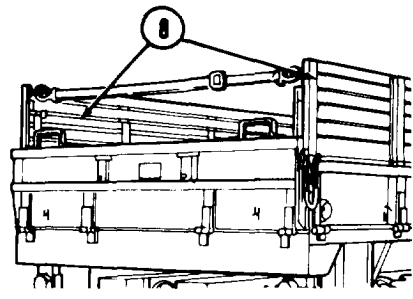
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						 <p>Left-side cargo body front (5), center (6), and rear (7) mounting bolts.</p> <ul style="list-style-type: none"> <li>b. Check side racks (8) for cracks and breaks.</li> <li>c. Check dropside T-bolts for presence and security.</li> <li>d. Check dropside rack locking pins for presence and security.</li> </ul>  <p><b>NOTE</b></p> <p>Vehicle is not ready/available if mission requires safety strap operation and strap is inoperative.</p> <ul style="list-style-type: none"> <li>e. Check for missing or damaged safety strap.</li> </ul>	<p>One or more drop-side T-bolts missing.</p> <p>One or more locking pins are missing.</p> <p>Safety strap missing or damaged.</p>

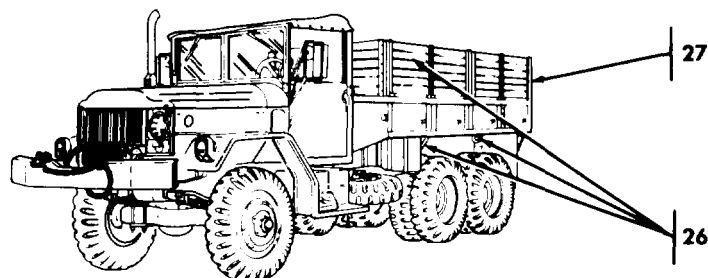


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

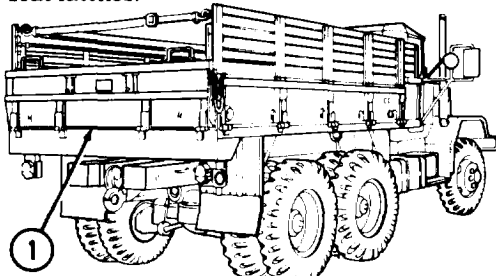
B-Before operation

D-During operation

A-After operation

W-Weekly

M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
27	•					<p>f. If vehicle is equipped with the universal tiedown anchors kit, check for missing or damaged cargo tiedown brackets.</p> <p><b>NOTE</b></p> <p>If vehicle is to be used to transport troops, check the following items.</p>	Cargo tiedown brackets missing or damaged.
	•					<p>g. Check for missing or damaged dropside hinges and pins.</p>	Dropside hinges and pins missing or damaged.
	•					<p>h. Check for missing or damaged seat retainer pins.</p>	Troop seat retainer pins missing or damaged.
	•					<p>i. Check for missing or damaged troop seat latches.</p>	Troop seat latches missing or damaged.
						 <p>1 TAILGATE</p> <p><b>NOTE</b></p> <p>Vehicle is not ready/available if mission requires tailgate and tailgate is inoperative.</p> <p>• a. Check tailgate (1) for damage, security, and ease of operation.</p> <p>• b. Check for missing or damaged retaining pins.</p>	Retaining pins missing or damaged.

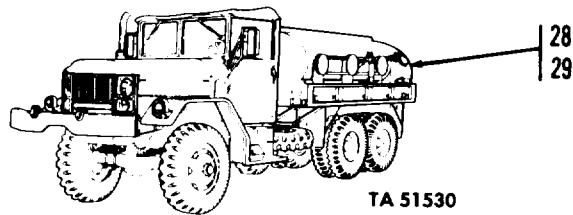
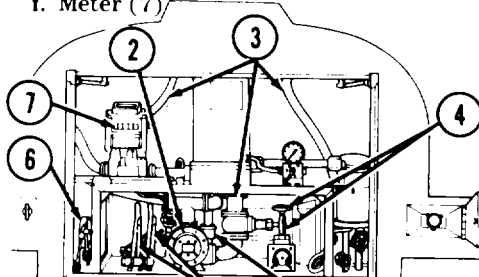
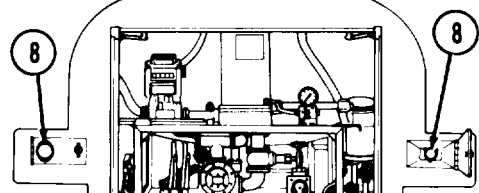


Table 2-2. Operator/Crew, Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
28						<b>M49A2C FUEL TANK TRUCK</b> <b>REAR COMPARTMENT</b> Open rear doors and check that the following items are not loose or obviously damaged. <ul style="list-style-type: none"> <li>a. Delivery pump (2)</li> <li>b. Strainer (5)</li> <li>c. Fuel lines (3)</li> <li>d. Controls (4)</li> <li>e. Ground wire reel (6)</li> <li>f. Meter (7)</li> </ul> 	Delivery pump, strainer, fuel lines, controls, ground wire reel, or meter, loose, or unserviceable.
29						<b>SUCTION HOSES</b> Check both suction hoses in suction hose compartments (8) for damaged or missing parts. 	

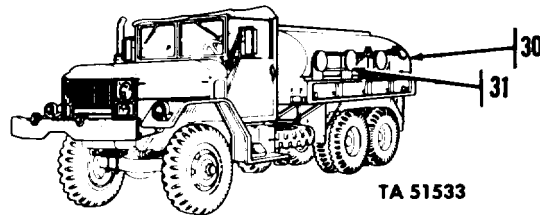
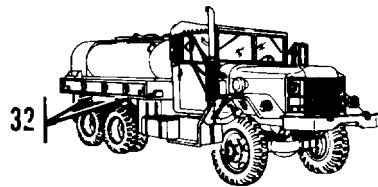


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

**NOTE:** These checks are to be made in the order listed, within designated interval.

**B**-Before operation    **D**-During operation    **A**-After operation    **W**-Weekly    **M**-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
30						<b>FIRE EXTINGUISHERS</b>  <b>NOTE</b> Fire extinguishers are located on right front and left rear walkways.	Contents indicator is not in green area or valve is damaged.  Seal is damaged.
31						<ul style="list-style-type: none"> <li>• Check level of contents and make sure valve is undamaged.</li> <li>• Check for broken seal.</li> </ul> <b>DISPENSER LINE ASSEMBLY</b> Check the following for damaged or missing parts: <ul style="list-style-type: none"> <li>a. Dispenser line (1)</li> <li>b. Dispenser line nozzle (3)</li> <li>c. Bracket (2)</li> <li>d. Nozzle ground clip (4)</li> </ul> <p style="text-align: right;">TA 51534</p>	Dispenser line or nozzle missing or unserviceable.  Nozzle ground clip missing or unserviceable.

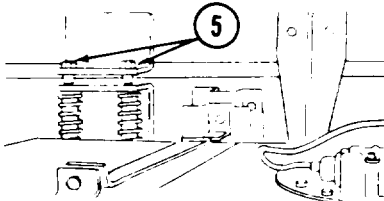
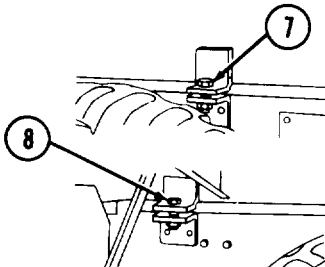


TA 51535

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
32	•				•	<p><b>TANK BODY</b></p> <p>a. Visually check that tank body is not leaking.</p> <p>b. Check tank body for broken or missing mounting bolts.</p>  <p style="text-align: right;">TA 51536</p> <p>Right-side tank body front (5) and center (6) mounting bolts.</p>  <p style="text-align: right;">TA 51537</p> <p>Right-side tank body center (7) and rear (8) mounting bolts.</p>	<p>Tank body has fuel leak.</p> <p>Any mounting bolts broken or missing.</p>

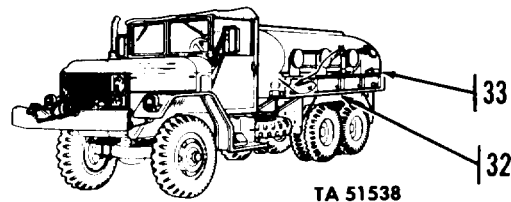
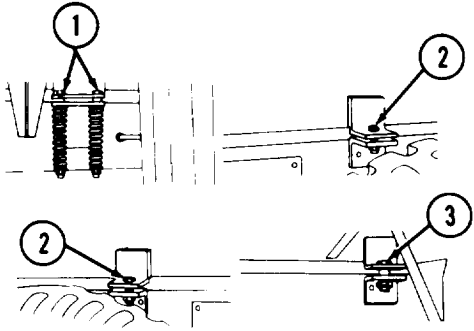


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M	
33						 <p>Left-side tank body front (1), center (2), and rear (3) mounting bolts</p> <p>c. Check for missing or damaged manhole covers and filler covers.</p> <p>d. Check for missing or damaged manhole cover seals.</p> <p>CONTROLS AND RELATED EQUIPMENT</p> <p>a. Check controls and related equipment for proper operation. Listen for unusual/noises.</p> <p>b. Check operation of PTO.</p>
						Manhole cover or filler cover missing or unserviceable.
						Manhole cover seals are missing or damaged.
						Improper operation or unusual noises.
						PTO is inoperative — then limit truck use to gravity fill and discharge.

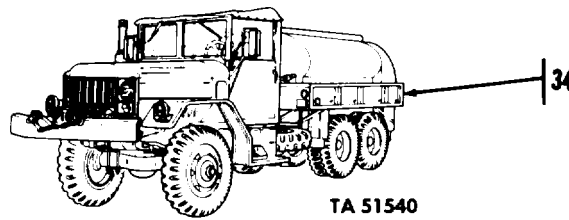
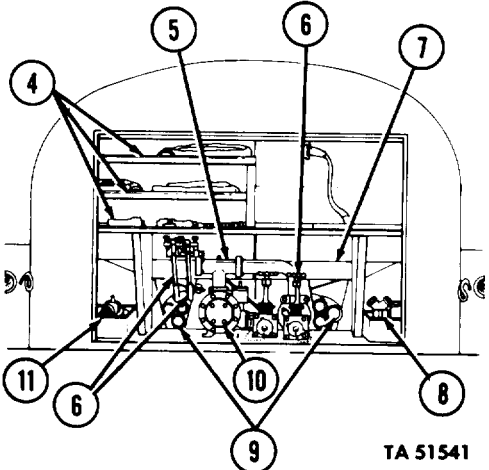


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
34						<p><b>M50A2, AND M50A3 WATER TANK TRUCKS</b></p> <p><b>REAR COMPARTMENT</b></p> <p>Visually check that the following items are not damaged or missing:</p> <ul style="list-style-type: none"> <li>a. Delivery pump (10)</li> <li>b. Delivery strainer (5)</li> <li>c. Water lines (7)</li> <li>d. Controls (6)</li> <li>e. Six suction hoses (9)</li> <li>f. Three discharge hoses (4)</li> <li>g. Dispenser nozzle (11)</li> <li>h. Water suction strainer (8)</li> </ul>  <p>TA 51541</p>	Items missing or unserviceable.



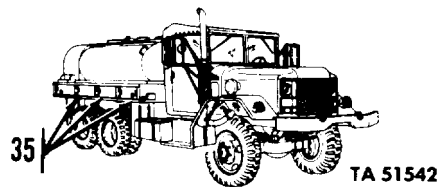
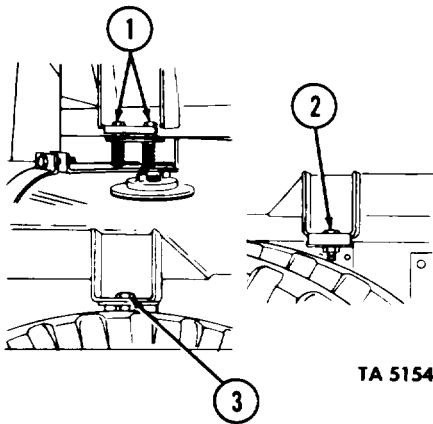
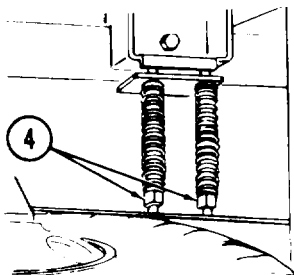
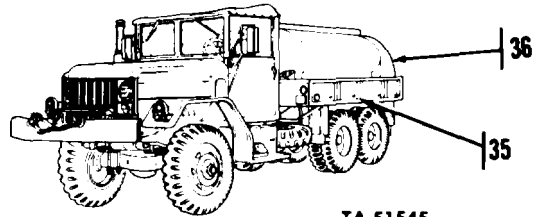


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
35		•			•	<p>TANK BODY</p> <p>a. Check tank body for leaks.</p> <p>b. Check tank body for broken, or missing mounting bolts.</p>  <p>TA 51543</p> <p>Right-side tank body front (1), center (2), and rear (3) mounting bolts.</p>  <p>TA 51544</p>	Any mounting bolts broken or missing.



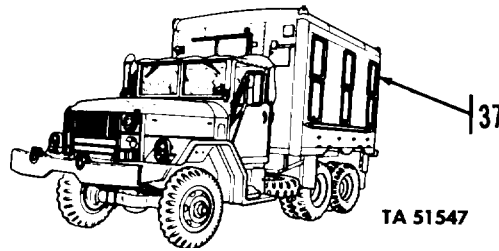
TA 51545

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
36						<p>Left-side body front (4), center (5), and rear (6) mounting bolts.</p> <p>c. Check for missing or damaged manhole covers and filler covers.</p> <p>d. Check for missing or damaged manhole cover seals and filler cover seals.</p> <p>CONTROLS AND RELATED EQUIPMENT</p> <p>a. Check controls and related equipment for proper operation. Listen for unusual noises.</p> <p>b. Check operation of PTO.</p>	<p>Manhole covers or filler covers missing or unserviceable.</p> <p>Manhole cover seals or filler cover seals are missing or damaged.</p> <p>Improper operation or unusual noises.</p> <p>PTO is inoperative — then limit truck use to gravity fill and discharge.</p>



TA 51547

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
37						<p><b>M109A3 AND M185A3 SHOP VAN AND INSTRUMENT REPAIR TRUCKS</b></p> <p>INTERIOR LIGHTS, SWITCHES, AND ACCESSORIES</p> <p>a. Turn on the following switches, lights, and accessories to check operation:</p> <ul style="list-style-type: none"> <li>• (1) Dome light toggle switch (1) and dome light.</li> </ul> <p style="text-align: center;"><b>NOTE</b></p> <p>Vehicle is not ready/available if mission requires blackout lights and lights are inoperative.</p> <ul style="list-style-type: none"> <li>• (2) Blackout dome light toggle switch (2).</li> <li>• (3) Rear door blackout switches (3 and 4) and dome lights.</li> <li>• (4) Exhaust blower switch (10) and exhaust blower.</li> </ul> <div style="text-align: center;"> <p>TA 51548</p> <p><b>RIGHT REAR DOOR</b></p> </div>	

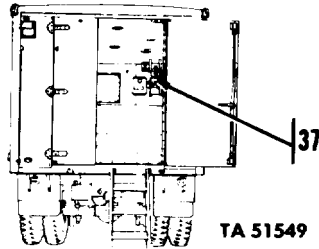


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						<p>b. Check the following front panel items for looseness or damage:</p> <ul style="list-style-type: none"> <li>• (1) Dome light switch (6)</li> <li>• (2) Converter selector switch (5)</li> <li>• (3) Exhaust blower switch (10)</li> <li>• (4) Red light (9)</li> <li>• (5) Power switch handle (8)</li> <li>• (6) Circuit breaker box (7)</li> </ul> <p>TA 51550</p>	

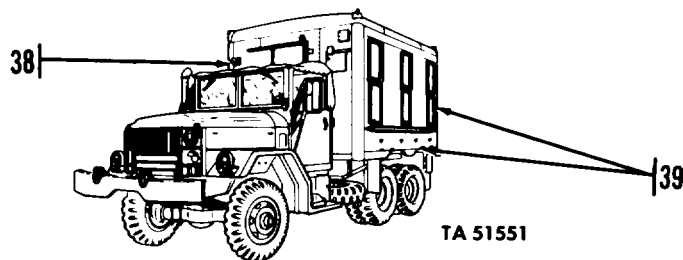
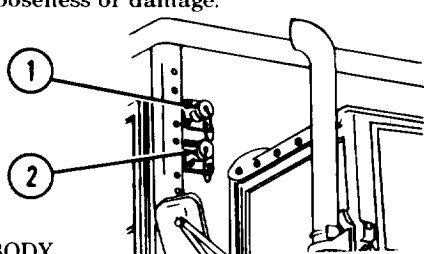
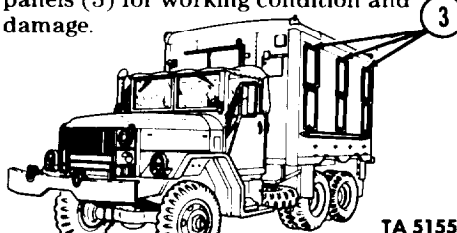


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
38						<p><b>ELECTRICAL CONNECTORS</b></p> <p>Check electrical connectors (1) and (2) for looseness or damage.</p>  <p>TA 51551</p>	
39						<p><b>BODY</b></p> <p><b>NOTE</b></p> <p>Vehicle is not ready/available if mission requires blackout panels and panels are inoperative.</p> <ul style="list-style-type: none"> <li>a. Check windows, screens, and blackout panels (3) for working condition and damage.</li> </ul>  <p>TA 51553</p> <ul style="list-style-type: none"> <li>b. Check rear doors for proper operation.</li> <li>c. Check floorboards for breaks or cracks.</li> <li>d. Check body for broken or missing mounting bolts.</li> </ul>	Any body mounting bolts broken or missing.

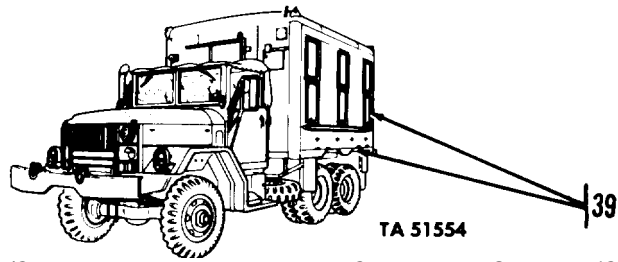
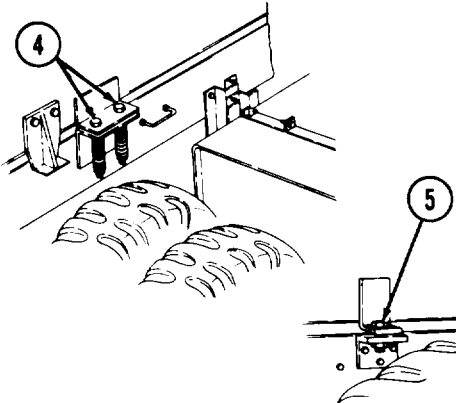
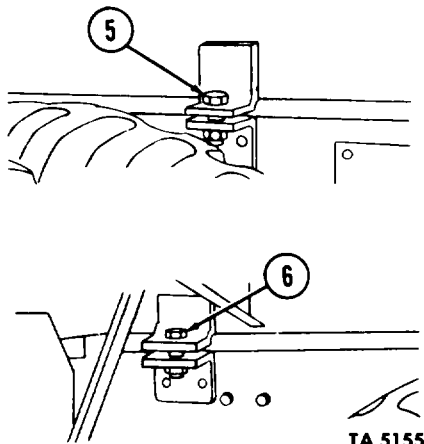


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						 <p>Right-side van body front (4), center (5), and rear (6) mounting bolts.</p> 	

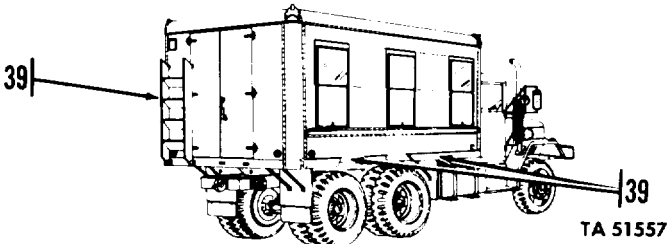
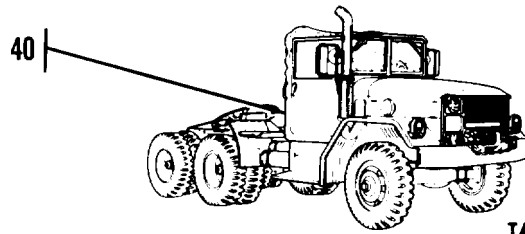


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						<div><p>TA 51558</p><p>Left-side van body front (1), center (2), and rear mounting bolts (3)</p></div> <div><p>TA 51559</p><ul style="list-style-type: none"><li>e. Check for presence and condition of ladder.</li><li>f. Check ladder mounting brackets and locking mechanisms for condition and proper operation.</li></ul></div>	Steps or rails missing, cracked, or broken.

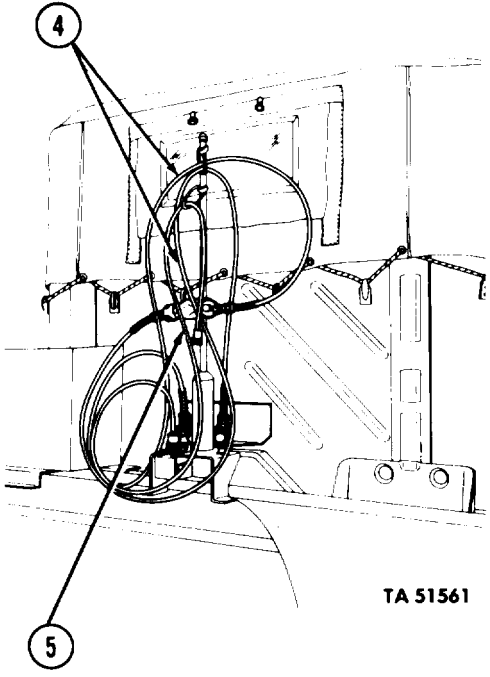


TA 51560

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
40						<b>M275A2 TRACTOR TRUCK</b> <b>TRAILER AIRBRAKE HOSES AND ELECTRICAL CABLE</b> <ul style="list-style-type: none"> <li>Check trailer airbrake hoses (4) for missing or damaged parts.</li> <li>Check electrical cable (5) for missing or damaged parts.</li> </ul> 	Brake hoses are missing or unserviceable.  Electrical cable is missing or unserviceable.

TA 51561



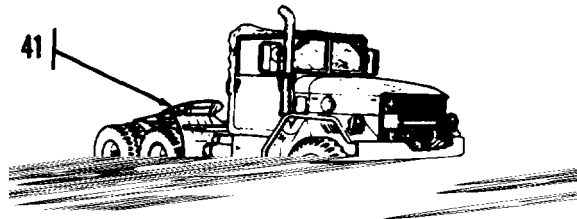
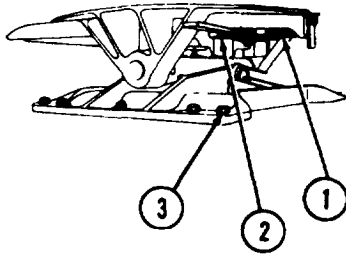
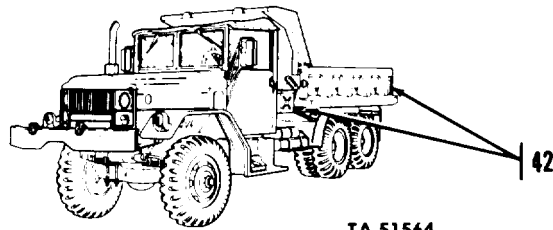


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
41	•				•	<b>FIFTH WHEEL ASSEMBLY</b> <ol style="list-style-type: none"> <li>Check operation of coupler jaws (2).</li> <li>Check for missing or loose fifth wheel assembly mounting bolts (3).</li> <li>Check locking plunger (1) for damage and operation.</li> </ol>  <p>NOTE Perform this check with the trailer empty and the trailer loaded after the tractor/trailer are coupled.</p>	Coupler jaws do not operate. Any mounting bolts are missing or loose. Locking plunger is inoperative.
41.1	•				•	<b>TRAILER BRAKES</b> <ol style="list-style-type: none"> <li>Check for air leaks at the intervehicular connecting hoses, relay valve and air reservoirs.</li> <li>Apply trailer brakes only and attempted to move the tractor /trailer combination.</li> </ol>	Any air leaks are present. Brakes fail to hold tractor/trailer combination from moving.

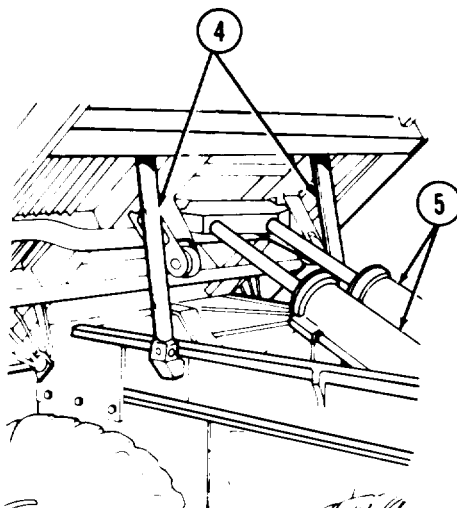


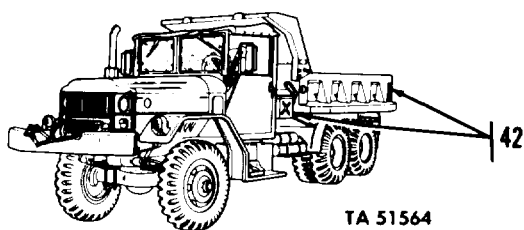
TA 51564

Table 2-2. Operator Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
42						<p><b>M342A2 DUMP TRUCK</b> <b>HYDRAULIC HOIST SYSTEM</b></p> <p><b><u>WARNING</u></b></p> <p>Safety braces must be used when checking hydraulic hoist cylinders. Failure to do so may result in injury or death to personnel.</p> <ul style="list-style-type: none"> <li>• a. Check hydraulic hoist cylinders (5) for leaks.</li> <li>• b. Check condition of dump body safety braces (4).</li> </ul>  <p style="text-align: right;">TA 51565</p>	<p>Class III leakage evident.</p> <p>Safety braces are bent, broken, or damaged.</p>

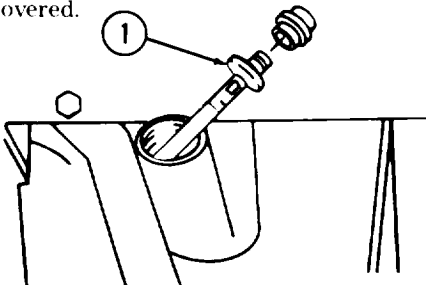
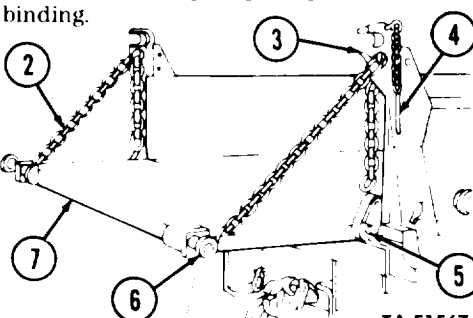


TA 51564

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						<p><b>NOTE</b></p> <p>Check hydraulic oil level with body in down position.</p> <ul style="list-style-type: none"> <li>c. Check oil level in hydraulic oil tank. If oil level is below top of red area on dipstick (1), add oil until red area on dipstick is covered.</li> </ul>  <p>TA 51566</p> <ul style="list-style-type: none"> <li>d. Inspect all hydraulic lines and hoses for signs of deterioration and leakage.</li> <li>e. Operate dump hoist through raising, holding, and lowering positions to check performance. Inspect pivot points for binding.</li> </ul>  <p>TA 51567</p>	<p>Class III leakage evident.</p> <p>Class III leakage evident. Dump hoist inoperative.</p>

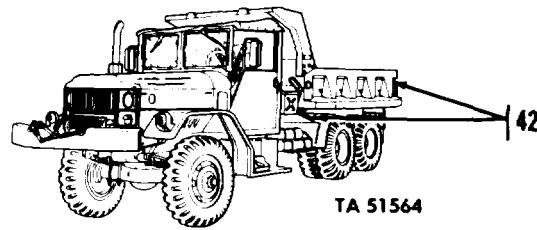


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

**NOTE:** These checks are to be made in the order listed, within designated interval.

**B**-Before operation **D**-During operation **A**-After operation **W**-Weekly **M**-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
					•	<p>f. Inspect tailgate (7) for damage, security, and ease of movement. Also check condition and security of tailgate chains (2), latches and brackets (5), retaining pins (4), hinge pins (6), and brackets (3).</p> <p>TA 51568</p>	Tailgate does not work.
		•				g. Check operation of tailgate hand lever (8) and control linkage.	Control linkage inoperative.
		•				h. Check for damaged or missing cab protector.	Cab protector is missing.

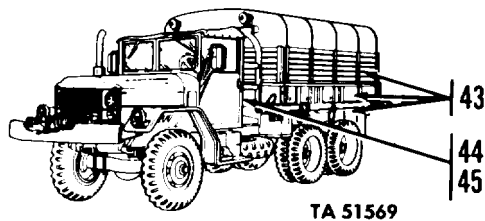
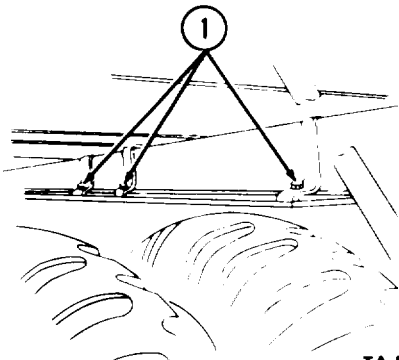


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
43						<b>M756A2 PIPELINE CONSTRUCTION MAINTENANCE TRUCK</b> <b>BODY</b> <ul style="list-style-type: none"> <li>a. Check body for missing or broken mounting bolts (1).</li> <li>b. Check floorboards for breaks or cracks.</li> <li>c. Check troop seats for breaks or cracks.</li> </ul>  <p style="text-align: right;">TA 51570</p>	Any mounting bolts broken or missing.
44	•					<b>CONTROLS AND RELATED EQUIPMENT</b> Check controls and related equipment for proper operation. Listen for unusual noises.	Improper operation or unusual noises.
45					•	<b>REAR WINCH</b> <b>NOTE</b> Vehicle is not ready/available if mission requires rear winch operation and winch is inoperative. <ul style="list-style-type: none"> <li>a. Visually check for missing or damaged rear winch drive chain (2).</li> </ul>	Drive chain is damaged or missing.

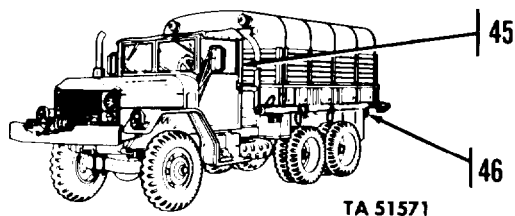


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

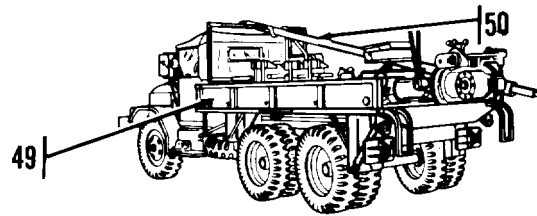
B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
46						<p>TA 51572</p> <p>b. Check for missing or damaged rear winch shearpin (3) (located on back side of sprocket ).</p> <p>c. Check all winch controls for operation.</p> <p><b>WARNING</b></p> <p>Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.</p> <p>d. Check cable for kinks, frays, and breaks.</p> <p>A-FRAME</p> <p>Check for missing or damaged A-frame parts.</p>	<p>Shearpin is missing or unserviceable.</p> <p>No control response.</p> <p>Evidence of breaks or frays.</p> <p>A-frame cannot be used due to damaged or missing parts.</p>
	•						
	•						
		•					

**NOTE: These checks are to be made in the order listed, within designated interval.**

**B-Before operation   D-During operation   A-After operation   W-Weekly   M-Monthly**

[illegible]

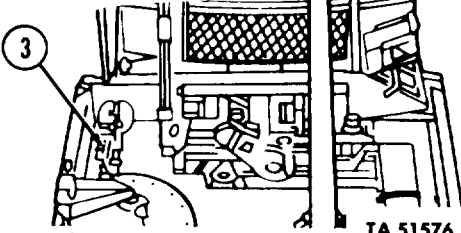
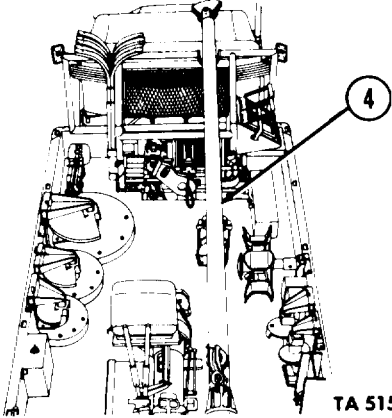


TA 51575

Table 2-2. Operation/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
49						POLE LIFTING JACK  <b>NOTE</b> Vehicle is not ready/available if mission requires pole lifting jack operation and jack is inoperative.  Visually check pole lifting jack (3) for missing parts and damage.	
50						 TA 51576  EARTH BORING MACHINE DERRICK Check earth boring machine derrick (4) for missing parts and damage.  TA 51577	Derrick is damaged and unserviceable.



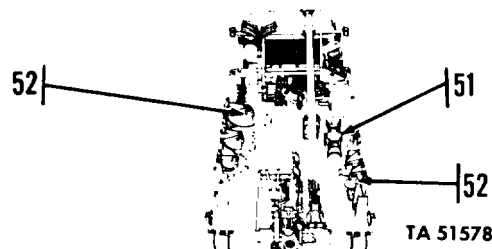
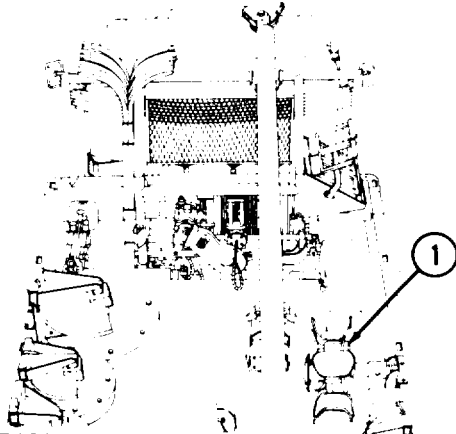
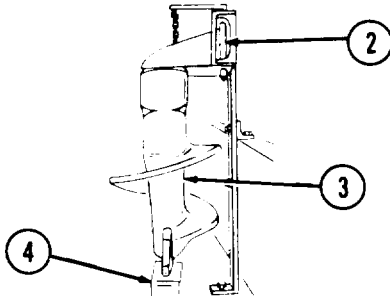


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
51		•				COLLAPSIBLE CABLE REEL Check collapsible cable reel (1) for damage. 	
52		•				EARTH AUGERS Check earth augers (3) for damage. Auger tips should be seated in floor brackets (4) with locking pins (2) in place. 	Auger is damaged.

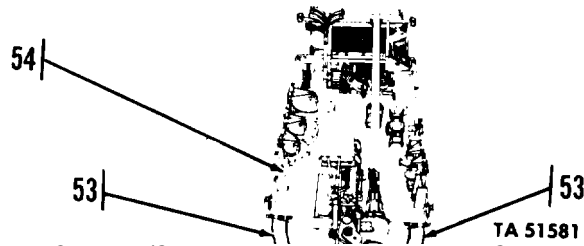
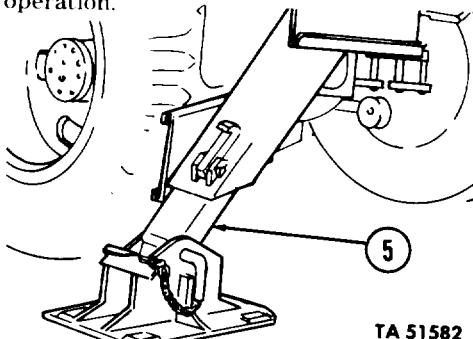
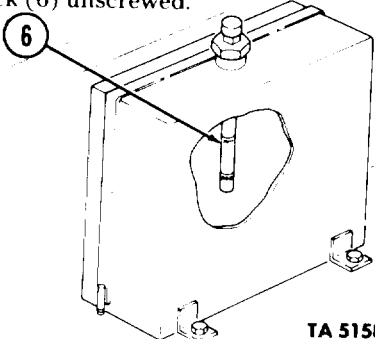
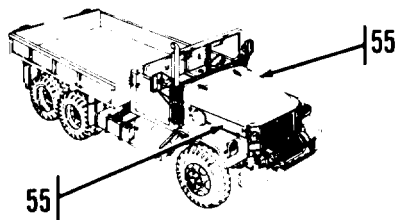


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
53		•				<b>OUTRIGGER HYDRAULIC SYSTEM</b> <b>NOTE</b> Do not operate outriggers unless hydraulic tank is full. <b>OUTRIGGERS</b> Check outriggers (5) for leakage and proper operation. 	Class III leakage. Outriggers (5) inoperative.
54		•				Check oil level in outrigger oil reservoir. If oil is below FULL mark on dipstick (6), add oil until FULL mark is reached with dipstick (6) unscrewed. 	

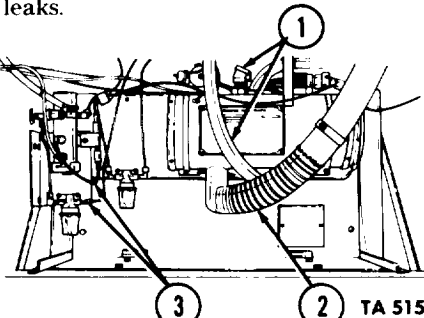


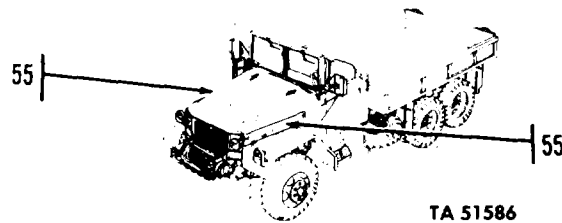
TA 51584

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
55						<b>SPECIAL PURPOSE KITS</b> <b>ARCTIC WINTERIZATION KIT</b> <b>a. Check power plant heater assembly as follows:</b> <ul style="list-style-type: none"> <li>(1) Check heater fuel lines (3) and fittings for leaks.</li> <li>(2) Check for loose or damaged exhaust tube (2).</li> <li>(3) Check coolant hose and fittings (1) for leaks.</li> </ul> 	Any Class III leakage.
						<b>b. Check swingfire heater as follows:</b> <ul style="list-style-type: none"> <li>(1) Check fuel tank for leaks.</li> <li>(2) Check air shutoff valve by depressing pressure pin.</li> </ul>	Any fuel leakage. Pressure pin does not spring back.
						<b>c. Check personnel heater as follows:</b> <b>NOTE</b> Personnel heater is mounted on left side of engine compartment. Check heater fuel line (4) for leaks.	Any Class III leakage.

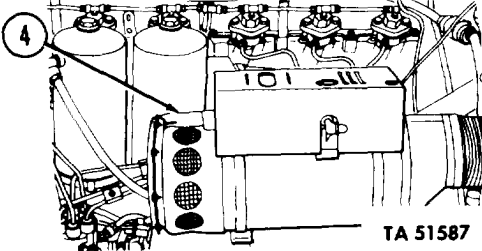
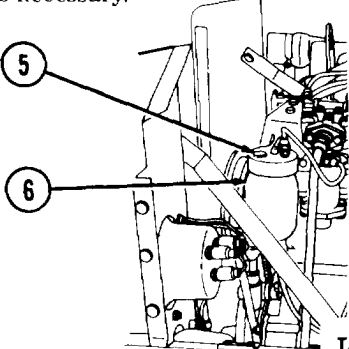


TA 51586

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
						 <p>TA 51587</p> <p>d. Check alcohol evaporator (cold weather only) as follows:</p> <p><b>NOTE</b></p> <p>Alcohol evaporator is mounted in left front area of engine compartment, near air compressor.</p> <p>Unscrew filler cap (5) and check alcohol level in alcohol evaporator (6). Evaporator should be filled to within 1-1/2 in. of top. Fill as necessary.</p>  <p>TA 51588</p>	
						<p>e. Check personnel and power plant heater controls by pressing indicator lamps to make sure they illuminate.</p>	

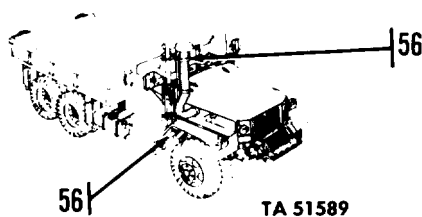
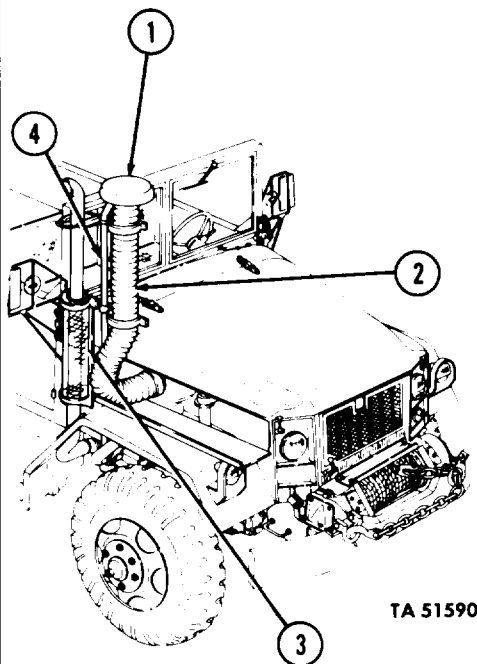


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
56						<p><b>DEEPWATER FORDING KIT</b></p> <ul style="list-style-type: none"> <li>a. Check for loose or damaged air intake system hose (2), crankcase ventilation hose (4), and cap (1).</li> <li>b. Check for loose or damaged exhaust pipe system (3).</li> </ul>	<p>Hoses and cap damaged or unserviceable.</p> <p>Exhaust pipe loose or damaged.</p>



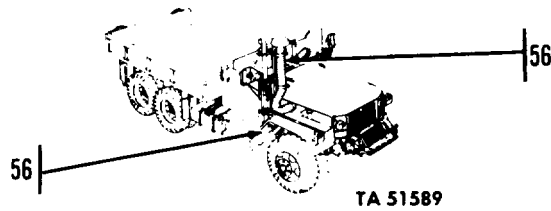
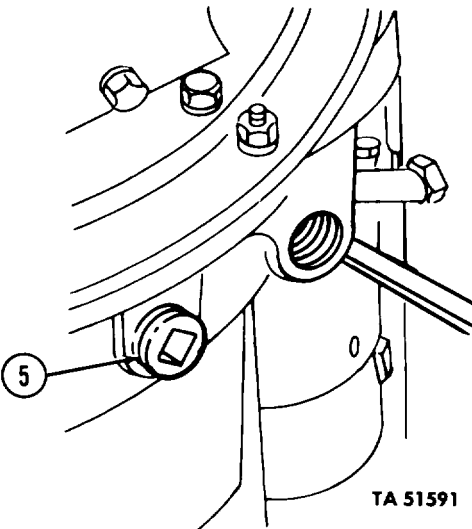


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
	•					<p>c. Check that flywheel housing drainplug (5) (mounted behind and below engine) is in place as shown.</p> 	Drainplug is missing.

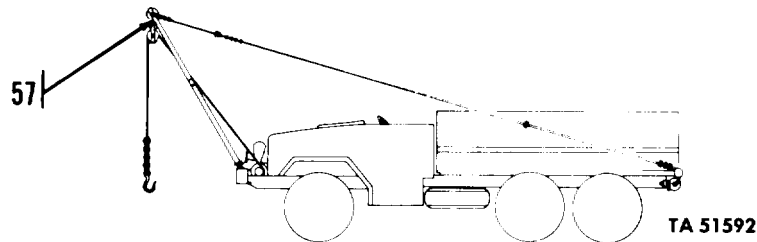


Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Contd)

NOTE: These checks are to be made in the order listed, within designated interval.

B-Before operation D-During operation A-After operation W-Weekly M-Monthly

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
57	•					<p>A-FRAME KIT</p> <p>a. Before operating A-frame (4), make sure it is positioned at about a 60° angle and is securely attached to the front bumper and the inverted pintle hook (3). Also check the following:</p> <ul style="list-style-type: none"><li>(1) Cable clamps (2) are not loose.</li><li>(2) Cable assembly (1) is not frayed or broken.</li></ul> <p><b>WARNING</b></p> <p>Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.</p> <p>b. Check A-frame (4) for bends and winch cable (5) for kinks, frays, and breaks.</p>	<p>Cable is frayed or broken.</p> <p>A-frame is damaged and unserviceable.</p> <p>Cable is frayed or broken</p>

## Section III. OPERATION UNDER USUAL CONDITIONS

### 2-12. GENERAL

The section provides instructions for vehicle operations under moderate temperature, humidity, and terrain conditions. For vehicle operations under unusual conditions, refer to section IV of this chapter.

#### **WARNING**

Ž This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited LAW AR 70-1 without written approval from the commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-CM-S, Warren, MI 48397-5000.

Ž Hearing protection is required for driver, co-driver, and mechanic when engine is running. Noise levels produced by this vehicle exceed 85 dB, which may cause injury to personnel.

#### **NOTE**

Before you attempt to operate your vehicle, make sure to perform the preventive maintenance checks and services shown in table 2-2.

To find a specific paragraph, refer to the index below:

### 2-13. OPERATION UNDER USUAL CONDITIONS INDEX

PARA. NO.	PARA. TITLE	PAGE NO.
2-14.	Starting the Engine (Above +20°F) (-6.7°C)	2-82
2-15.	Cold Weather Starting (Below +20°F) (-6.7°C)	2-84
2-16.	Placing the Vehicle in Motion	2-84
2-17.	Stopping the Vehicle and Engine	2-87
2-18.	Backing the Vehicle	2-87
2-19.	Using Slave Receptacle to Start Engine	2-88
2-20.	Operation of Vehicle Service Lights	2-88
2-21.	Raising Windshield and Installing Cab Top	2-90
2-22.	Raising and Securing Hood	2-92
2-23.	Towing the Vehicle	2-93
2-24.	Operation of Front Winch	2-94
2-25.	Operation of Cargo Trucks	2-100
2-26.	Operation of Fuel Tank Truck	2-104.1
2-27.	Operation of Water Tank Trucks	2-118

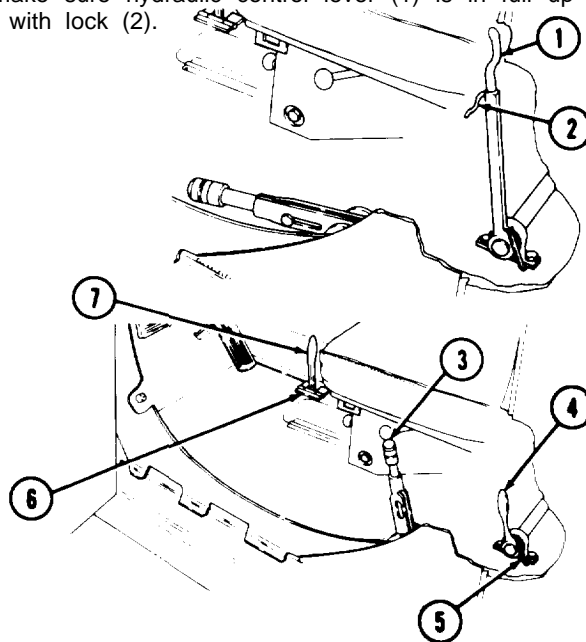
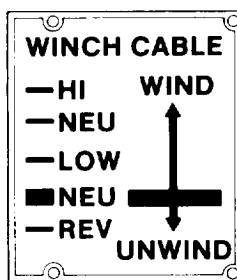
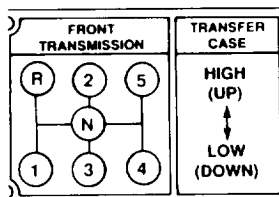


**2-13. OPERATION UNDER USUAL CONDITIONS INDEX (Contd)**

PARA. No.	PARA. TITLE	PAGE NO.
2-28.	Operation of Shop Van and Instrument Repair Shop Trucks	2-132
2-29.	Operation of Tractor and Fifth Wheel	2-136
2-30.	Operation of Dump Trucks	2-141
2-31.	Operation of Pipeline Construction Maintenance Trucks	2-147
2-32.	Operation of Earth Boring and Polesetting Maintenance Trucks	2-159

**2-14. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C)**

- a. Make sure parking brake is applied. Turn knob on end of parking brake control lever (3) to adjust brake cable tension and pull up on parking brake control lever (3) to apply brake.
- b. Adjust driver's seat. Refer to para. 2-4.
- c. Adjust rearview mirrors. Make sure both provide a clear rear view.
- d. Make sure vehicle front and side windows are clean.
- e. On vehicles with front winch, make sure transmission power takeoff lever (7) is in "NEU" (neutral) position and secured with hinge lock (6).
- f. On vehicles equipped with transfer case power takeoff lever (4), make sure lever (4) is pulled back to DISENGAGE position and secured with lock (5).
- g. On dump model (M342A2), make sure hydraulic control lever (1) is in full up (body down) position and secured with lock (2).



## 2-14. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C) (Contd)

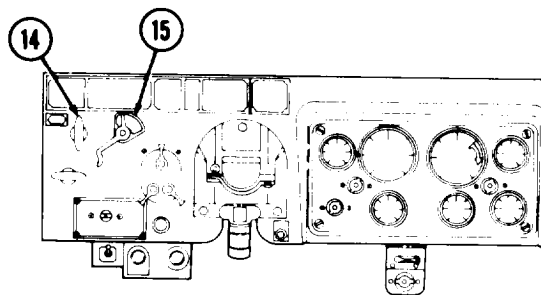
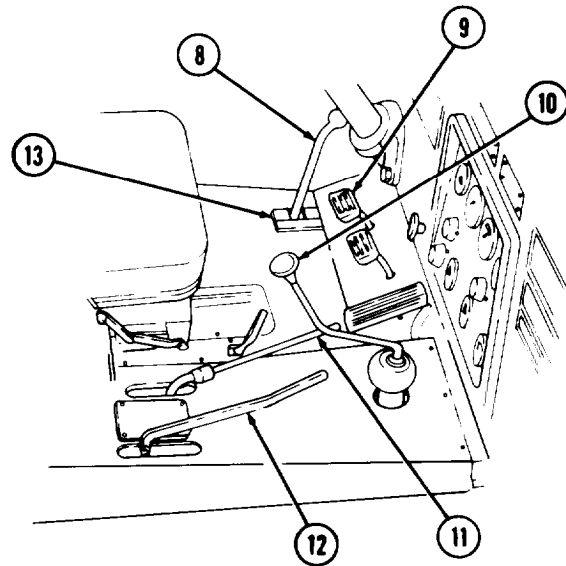
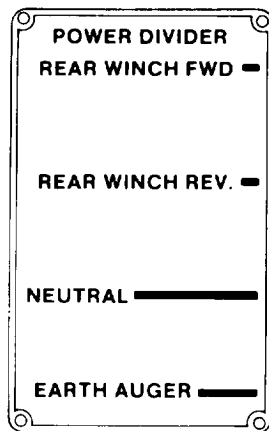
h. On earth boring and polesetting model (M764), make sure power divider control lever (12) is in neutral position, and rear winch control lever (8) is disengaged and secured with hinge lock (13).

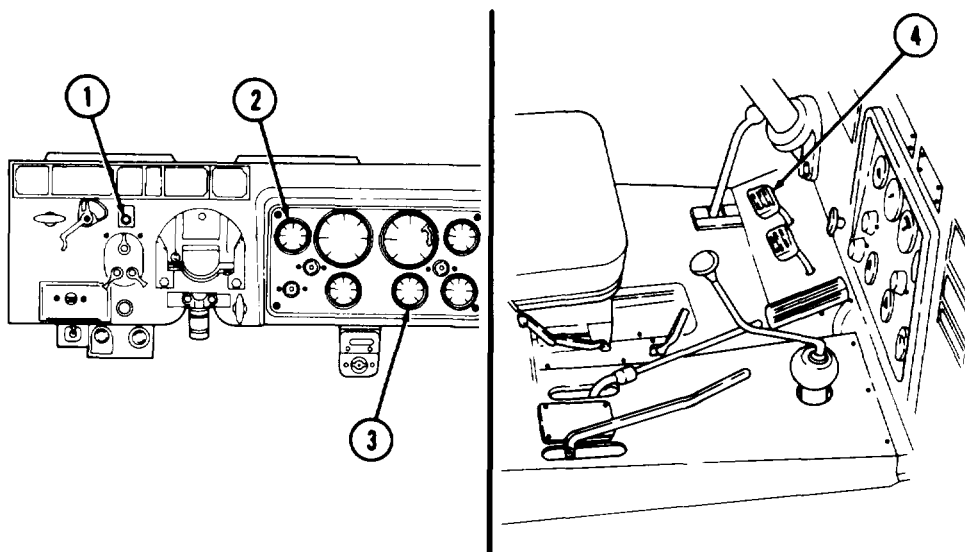
i. Place transmission gearshift lever (10) in "N" (neutral) position.

j. Place transfer case shift lever (11) in HIGH or LOW operating range, depending on expected terrain, load, and vehicle speed.

k. Push engine stop control (14) in, and turn accessory power switch (15) to ON.

l. Depress clutch pedal (9).



**2-14. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C) (Contd)****WARNING**

Hearing protection is required for driver, co-driver, and mechanic when engine is running. Noise levels produced by this vehicle exceed 85 dB, which may cause injury to personnel.

**CAUTION**

Do not press start button for more than 10 seconds at any time or with headlights on. If engine does not start in 10 seconds, wait 10 to 15 seconds before pressing start button again. Failure to do this may result in damage to starter.

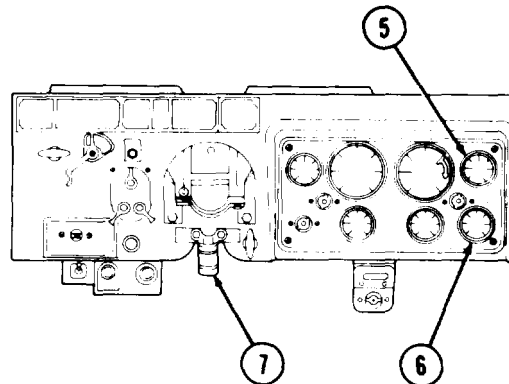
- m. Press start button (1) until engine starts.
- n. Release clutch pedal (4).

**CAUTION**

If any instrument reading is not normal, stop engine immediately by pulling out engine stop control knob and notify your supervisor. Failure to do this may result in damage to engine.

- o. Check for the following instrument readings:
  - (1) Make sure oil pressure gage (2) reads at least 10 psi.
  - (2) Make sure battery/generator indicator (3) reads in the green area.

## 2-14. STARTING THE ENGINE (ABOVE +20°F) (-6.7°C) (Contd)

**WARNING**

- Ž Do not place vehicle in motion until warning buzzer stops and air pressure gage reads at least 85 psi. Failure to do this may result in brake failure, causing injury or death to personnel.
- Ž If warning buzzer does not go on when engine starts, stop engine and notify your supervisor. Failure to do so may result in injury or death to personnel.
- Ž If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.

(3) Make sure air pressure gage (6) reads 85 psi to 120 psi.

(4) Make sure air cleaner indicator (7) does not show red.

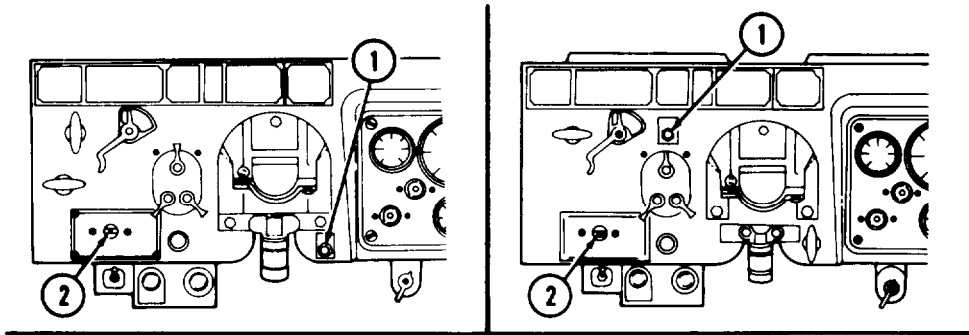
(5) Make sure temperature gage (5) reads 180°F to 200°F.

p. Stop engine immediately and notify your supervisor if any of the following occur:

- (1) Engine is vibrating or making excessive noise.
- (2) Oil pressure does not register or suddenly drops below 10 psi.
- (3) Engine temperature rises sharply to 210°F or more, or stays below 180°F.

## 2-15. COLD WEATHER STARTING (BELOW +20°F) (-6.7°C)

- a. Perform steps a. through 1. in para. 2-14.



### **CAUTION**

Ž Do not press start button for more than 10 seconds at any time or with headlight on. If engine does not start in 10 seconds, wait 10 to 15 seconds before pressing start button again. Failure to do this may result in damage to starter.

Ž Do not operate manifold heater unless engine is idling rough or being cranked. Doing this may result in damage to engine.

- b. Turn manifold heater switch (2) to ON and press start button (1) until engine starts.

- c. Release clutch pedal (7) and turn manifold heater switch (2) to OFF.

- d. Perform steps o. and p. in para. 2-14.

### **NOTE**

If engine does not run smoothly after starting, turn manifold heater switch to ON for 10 seconds, then turn to OFF. Wait 10 seconds and repeat until engine runs smoothly.

## 2-16. PLACING THE VEHICLE IN MOTION

- a. Make sure front winch, tools, and auxiliary equipment are locked and stowed for travel.

- b. Start engine. Refer to para. 2-14 or 2-15.

- c. Set light switch (3) to desired position. (Refer to para. 2-20.)

- d. Depress clutch pedal (7).

### **WARNING**

Do not backup vehicle without a ground guide, or injury or death to personnel may result.

### **NOTE**

"1" (first) position must be used to place vehicle in forward motion.

## 2-16. PLACING THE VEHICLE IN MOTION (Contd)

e. Place transmission gearshift lever (4) in "1" (first) position or "R" (reverse) position as desired.

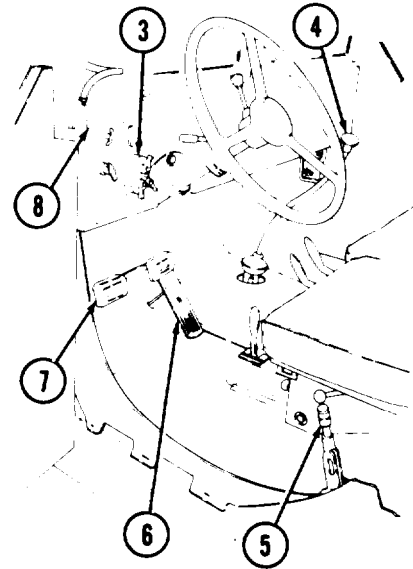
### NOTE

When going forward on upgrade terrain or reverse on downgrade terrain, do not release parking brake until transmission is engaged and vehicle starts to move.

f. Push parking brake lever (5) down to release parking brake.

g. Release clutch pedal (7) slowly and depress accelerator pedal (6) to increase vehicle speed.

CAUTION! DO NOT EXCEED!			FRONT TRANSMISSION		
MAXIMUM ROAD SPEED IN MPH TRANSMISSION	TRANSFER CASE		R	2	5
	HIGH	LOW			
FIFTH OVERDRIVE	56	28	1	N	4
FOURTH	44	22			
THIRD	27	14			
SECOND	16	8			
FIRST	9	5			
REVERSE	9	5			



TA 51601

### CAUTION

- Ž Shift to next higher gear position at road speed just below maximum speed indicated on data plate. Shifting too soon or too late may result in damage to powertrain.
- Ž Do not allow engine speed to exceed 2600 rpm as shown on tachometer in any transmission gearshift lever position.
- Ž Do not downshift transmission gearshift lever more than one position at a time.
- Ž Do not ride clutch by resting foot on clutch pedal while driving or when stopped with engine at idle. Doing this may result in premature wear and damage to equipment.

h. When vehicle speed approaches maximum road speed for gear position being used, and higher speed is desired, depress clutch pedal (7). Shift transmission gearshift lever (4) to next higher gear position, as shown on data plate (8). Slowly release clutch pedal (7) and at the same time depress accelerator pedal (6).

### CAUTION

- Ž When shifting from "2" (second) position to "1" (first) position or from "N (neutral) position to "R" (reverse) position, vehicle must be brought to a complete stop. Failure to do this may result in damage to transmission.
- Ž When downshifting, vehicle speed must not exceed speed of next lower gear as shown on data plate. Doing this may result in damage to transmission.

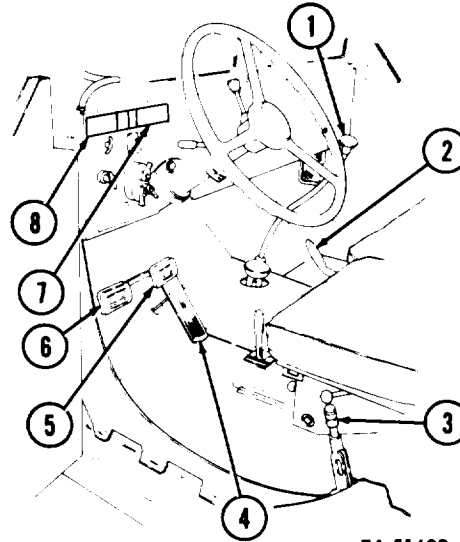
**2-16. PLACING THE VEHICLE IN MOTION (Contd)**

CAUTION! DO NOT EXCEED!			FRONT TRANSMISSION		TRANSFER CASE	WARNING!	
MAXIMUM ROAD SPEED IN MPH					HIGH (UP)	DO NOT SHIFT TRANSFER CASE TO LOW WHEN VEHICLE SPEED IS OVER	
TRANSMISSION	TRANSFER CASE						
	HIGH	LOW					
FIFTH OVERDRIVE	56	28	R	2	↑	FIFTH	28 MPH
FOURTH	44	22					FOURTH
THIRD	27	14	N		↓	THIRD	14 MPH
SECOND	16	8	1	3		SECOND	8 MPH
FIRST	9	5		4		FIRST	5 MPH
REVERSE	9	5				REVERSE	5 MPH

i. When lower gear is desired, depress service brake pedal (5), as necessary, until vehicle speed is within range for next lower gear, as shown on data plate (8). Depress clutch pedal (6), shift transmission gearshift lever (1) to next lower position, and slowly release clutch pedal (6).

**CAUTION**

Before shifting transfer case from HIGH to LOW, make sure vehicle speed is equal to or lower than speed shown on data plate for transmission gear being used. Clutch pedal must be depressed when shifting from HIGH to LOW or from LOW to HIGH. Failure to do this may result in damage to transmission or transfer case.



TA 51602

j. When vehicle is heavily loaded or when road conditions are bad, additional traction can be obtained as follows:

1. Depress service brake pedal (5), as necessary, until vehicle is slowed to equal to or lower than speed shown on data plate (7) for transfer case.
2. Depress clutch pedal (6).
3. Shift transfer case shift lever (2) to LOW.
4. Release clutch pedal (6) slowly.
5. Depress accelerator pedal (4) to bring vehicle to desired speed.

**WARNING**

Do not let vehicle coast downhill with clutch pedal depressed or transmission in "N" (neutral) position. Doing this may cause vehicle to increase speed and go out of control resulting in injury or death to personnel.

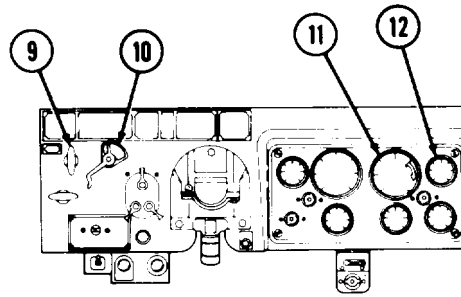
**CAUTION**

Do not apply constant pressure to service brake pedal when going down a steep grade. Doing this may result in overheated brake linings.

k. When driving vehicle down steep grades, transmission maybe shifted into a lower gear to slow vehicle. Pump service brake pedal (5) as necessary to control vehicle speed.

## 2-17. STOPPING THE VEHICLE AND ENGINE

- a. Release accelerator pedal (4).
- b. Depress service brake pedal (5) evenly and depress clutch pedal (6) until vehicle comes to a complete stop.
- c. Allow engine speed to drop to idle (refer to table 1-8) as shown on tachometer (11).
- d. Place transmission gearshift lever (1) in "N" (neutral) position.
- e. Pull parking brake lever (3) up to apply parking brake.
- f. Release clutch pedal (6).
- g. Chock vehicle. On level ground set chocks in front of and behind wheels. If vehicle is parked on a slope, place both chocks on the downhill side.



### CAUTION

Allow engine to cool at idle speed for five minutes after operation. Failure to do this may result in damage to engine and turbocharger.

- h. Allow engine to cool at idle speed for five minutes after operation. If temperature gage (12) reads above 200°F after five minutes, perform the following steps and notify maintenance personnel.
- i. Place accessory power switch (10) and all other switches in OFF position.

### WARNING

If tachometer shows engine idling at high rpm and engine stop control does not stop engine, do not attempt to stall engine. Leave vehicle and notify maintenance personnel. Attempting to stall engine at high rpm may engage transmission and move vehicle resulting in injury or death to personnel.

If engine does not stop after pulling out engine stop control, depress clutch pedal and brake pedal, place transmission gearshift lever in "5" (overdrive) position, and release clutch pedal to stall engine. Notify maintenance personnel if this is done. Failure to do this may result in damage to engine.

- j. Pull engine stop control (9) out to cut off flow of fuel. Leave it in out position.
- k. Release service brake pedal (5) and position wheel chocks.
- l. Perform after operation PMCS. Refer to table 2-2.

## 2-18. BACKING THE VEHICLE

Refer to para. 2-16 and perform steps as necessary to back the vehicle.



## 2-19. USING SLAVE RECEPTACLE TO START ENGINE

- a. Position right side of slaving (recharging) vehicle to right side of disabled vehicle.
- b. Shutoff slaving vehicle engine.

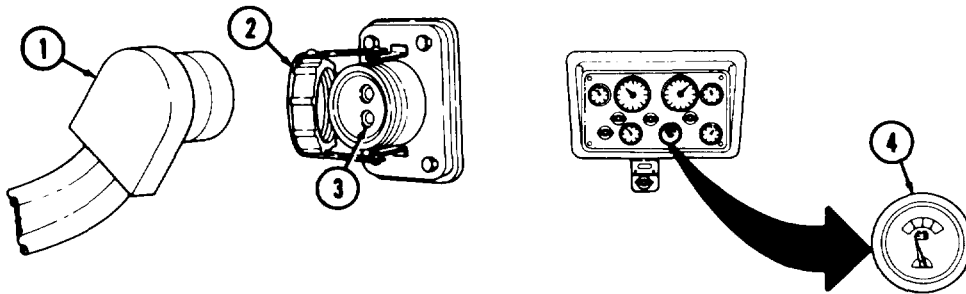
### CAUTION

When slaving, always connect slave cable to disabled vehicle first. Damage to batteries or cable may result from improperly connecting cable.

### NOTE

Make sure electrical switches on both vehicles are in OFF position.

- c. Remove cover (2) from slave receptacle (3) and connect slave cable (1) to slave receptacle (3) on disabled vehicle. Repeat procedure on slaving vehicle.
- d. Start slaving vehicle engine and set idle speed at 1000-1100 rpm.
- e. Start slaved vehicle engine.
- f. After engine starts and is running smoothly, disconnect slave cable (1) from both vehicles.
- g. Put covers (2) back on receptacles (3).
- h. Clean and stow slave cable (1).
- i. Observe battery/generator indicator (4) on slaved vehicle. If indicator (4) does not reach green area, notify maintenance personnel.



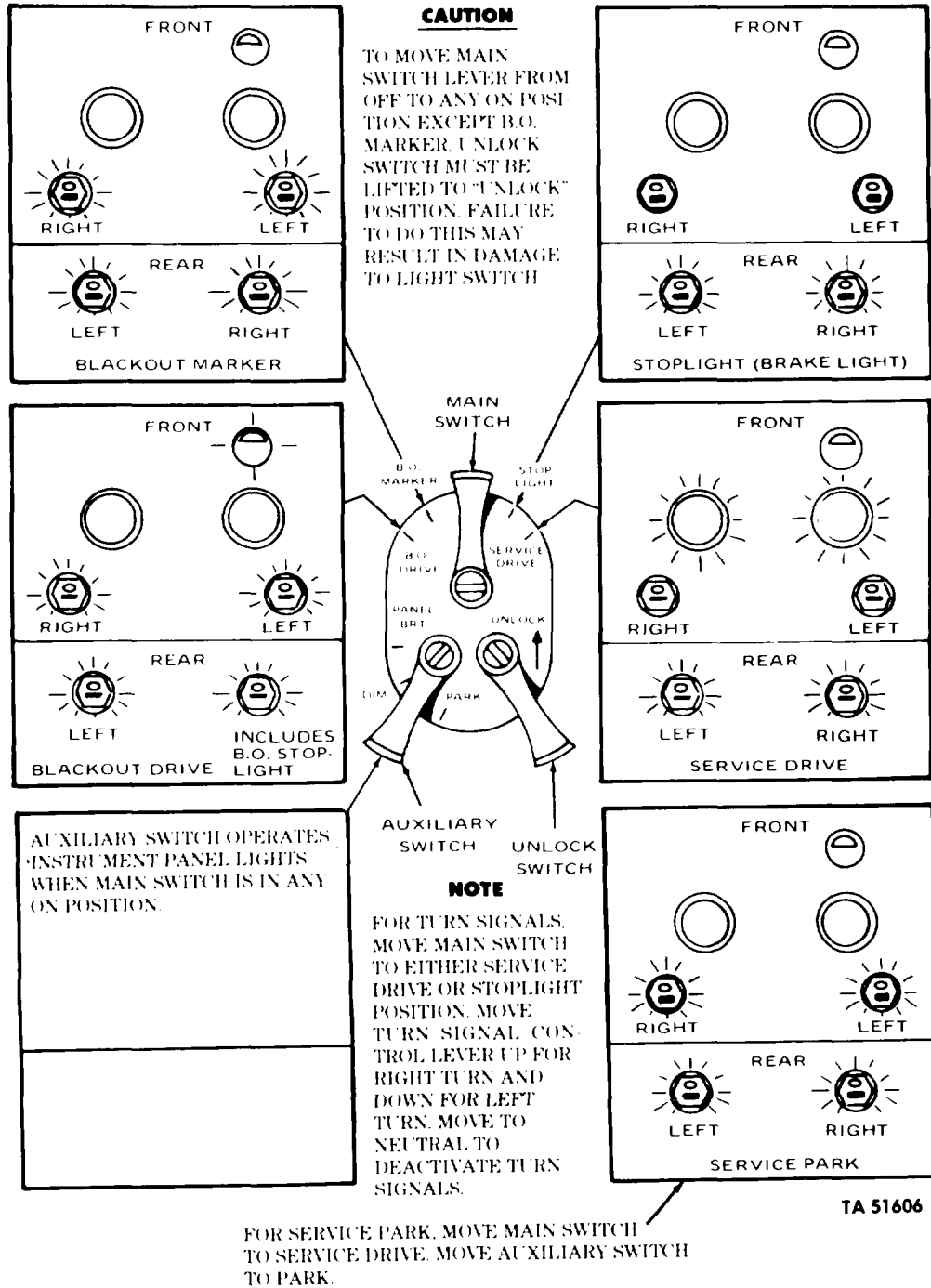
## 2-20. OPERATION OF VEHICLE SERVICE LIGHTS

Select and set light switch for lighting required. See following chart for switch positions.

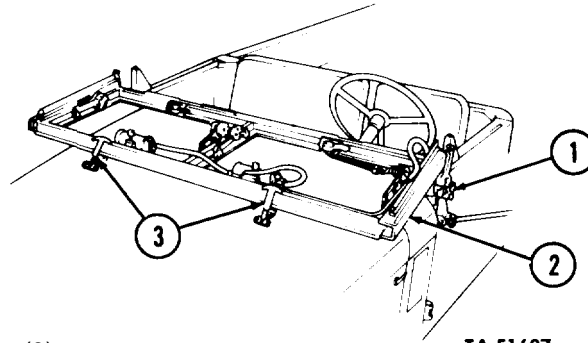
### WARNING

When hazard warning light, emergency flashers are in use, they override brake lights/stop lamp operation. Therefore, when driving with hazard warning lights/emergency flashers operating, be prepared to use hand signals to indicate a stop. Failure to do so may result in injury or death to personnel.

## 2-20. OPERATION OF VEHICLE SERVICE LIGHTS (Contd)

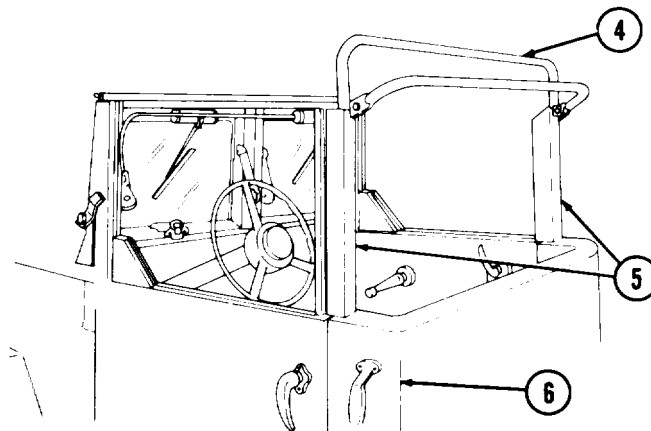


## 2-21. RAISING WINDSHIELD AND INSTALLING CAB TOP



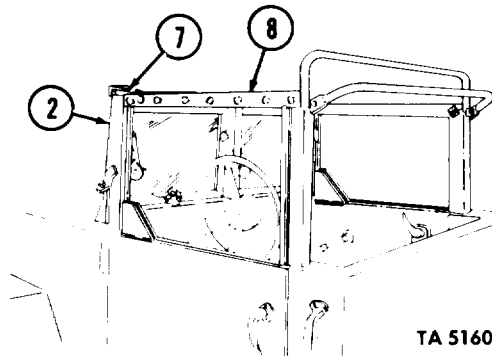
TA 51607

- a. Pull back latches (3).
- b. Raise windshield assembly (2) into place.
- c. Tighten knobs (1) on left and right sides of windshield assembly (2).



TA 51608

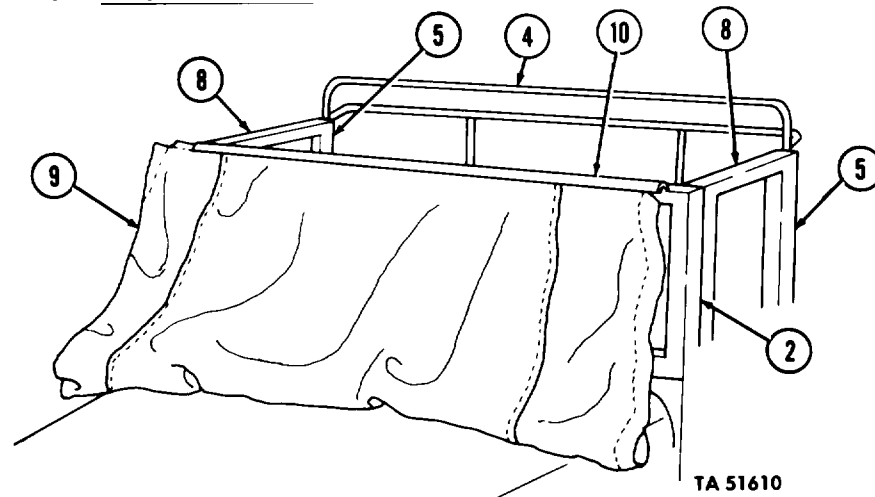
- d. Put pillar posts (5) and crossbar (4) into cab frame (6).



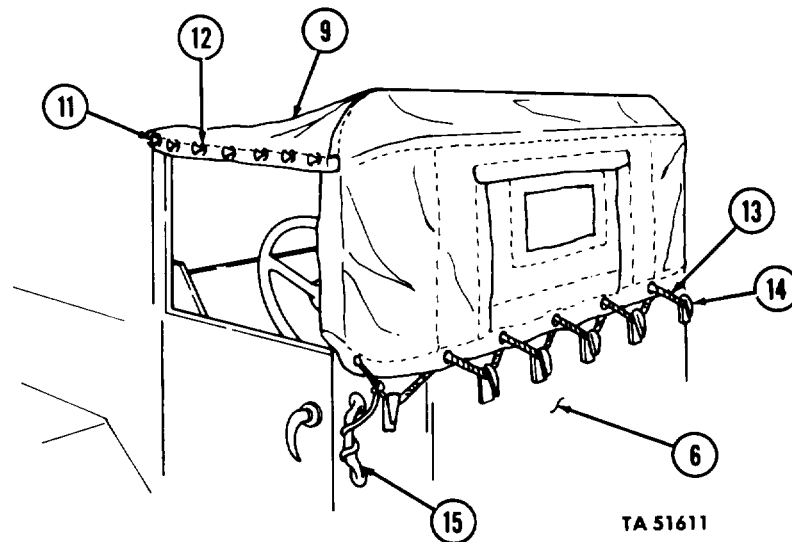
TA 51609

- e. Pull up side roof rails (8) to meet windshield assembly (2).
- f. Push down two fasteners (7) to lock side roof rails (8) to windshield assembly (2).

## 2-21. RAISING WINDSHIELD AND INSTALLING CAB TOP (Contd)

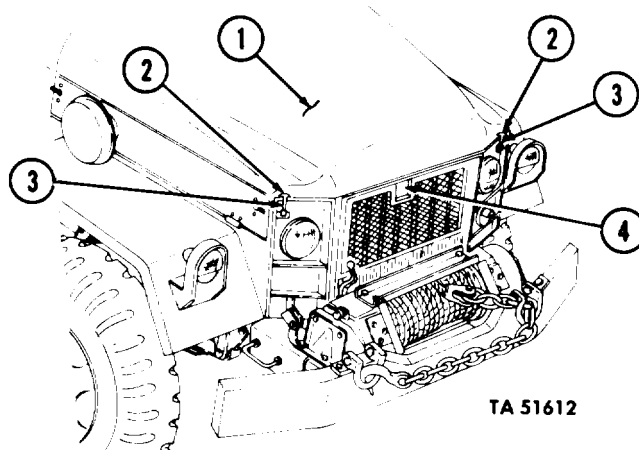


- g. Slide cover (9) into windshield channel (10).
- h. Pull cover (9) over windshield assembly (2) to meet crossbar (4).
- i. Slide cover (9) downward into channel in pillar posts (5).



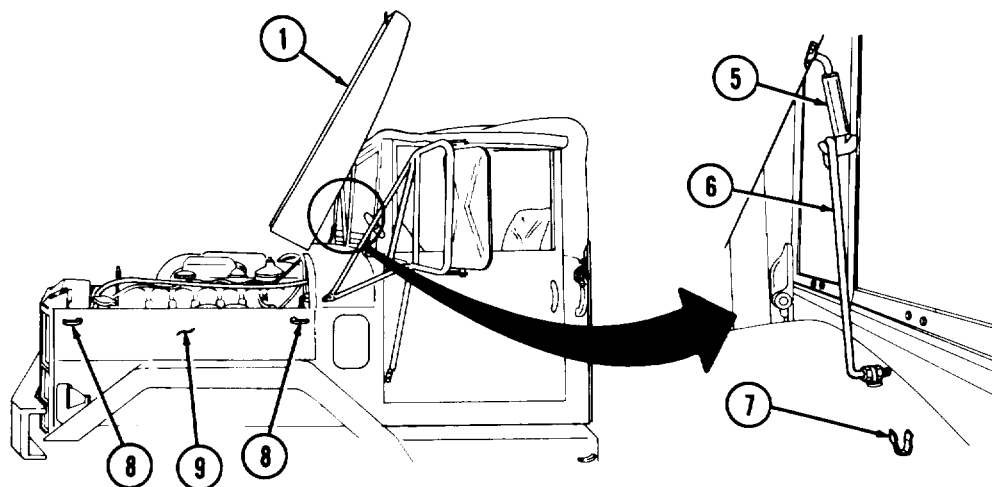
- j. Secure cover (9) on 12 fastener studs (12) and fasten two snaps (11).
- k. Tie lashing rope (13) to side handles (15) and hooks (14) at rear of cab (6).
- l. To remove cover (9), reverse steps d. through k.
- m. Clean cover (9) (refer to para. 2-9), and stow cover (9), pillar posts (5), crossbar (4), and side roof rails (8) behind cab seat.

## 2-22. RAISING AND SECURING HOOD



TA 51612

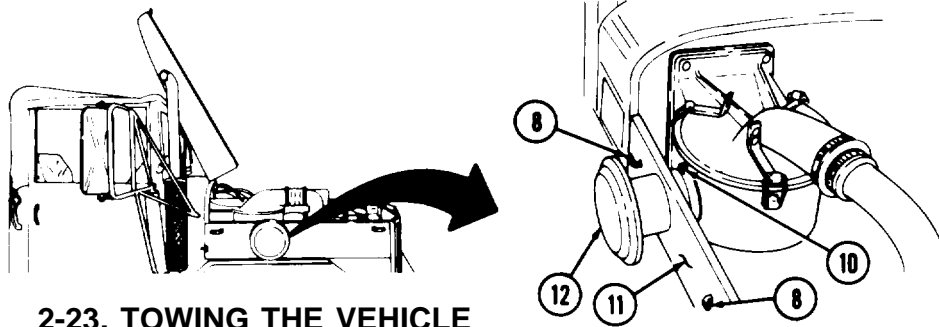
- a. Pull up each hold-down latch (3) until it clears hood catch (2).
- b. Push and hold in hood latch (4).
- c. Lift hood (1) and release hood latch (4).



TA 51613

- d. Raise hood (1) to position shown.
- e. Pull hood support hook (6) out of hood retaining clip (7).
- f. Swing hood support hook (6) up and fasten to hood support latch (5).
- g. Turn two side panel latches (8) to UP position.
- h. Lower left side panel (9).
- i. Loosen clamp (10) and remove air cleaner rain hood (12).
- j. Turn two side panel latches (8) to UP position and lower right side panel (11).
- k. To raise side panels (11) and (9), and lower hood (1), reverse steps a. through j.

## 2-22. RAISING AND SECURING HOOD (Contd)



## 2-23. TOWING THE VEHICLE

### WARNING

When hooking or unhooking the towbar lunette from a disabled vehicle, set the parking brake or chock the wheels of the disabled vehicle before hooking or unhooking the towbar lunette. If disabled vehicle is not chocked, or parking brake not set, disabled vehicle may move, causing injury to personnel and/or damage to equipment.

### CAUTION

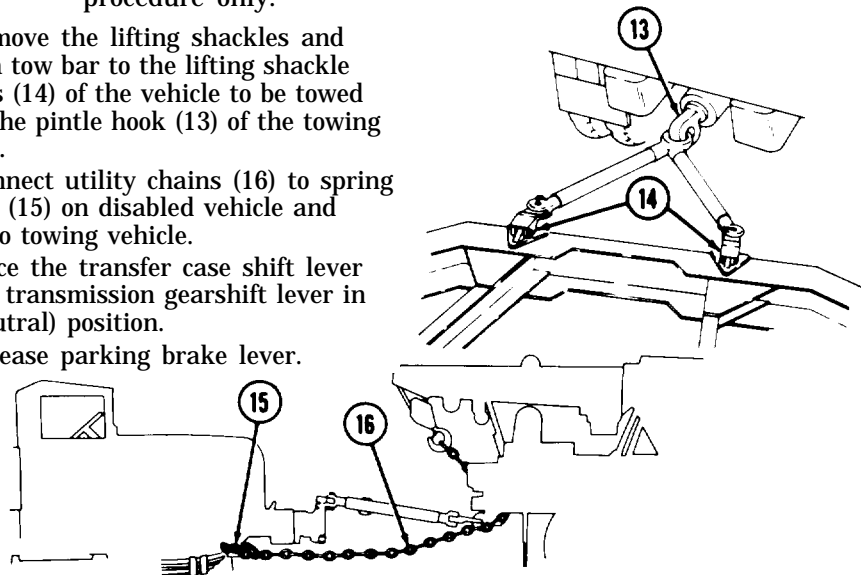
- Ž Do not tow a vehicle which has become disabled because of a damaged transfer, axle, or transmission. Notify your supervisor.
- Ž Do not attempt towing operations with the front or rear wheels off the ground. Notify your supervisor.
- Ž Do not push a disabled vehicle. Use the towing procedure only.

**a.** Remove the lifting shackles and attach a tow bar to the lifting shackle brackets (14) of the vehicle to be towed and to the pintle hook (13) of the towing vehicle.

**b.** Connect utility chains (16) to spring hangers (15) on disabled vehicle and secure to towing vehicle.

**c.** Place the transfer case shift lever and the transmission gearshift lever in "N" (neutral) position.

**d.** Release parking brake lever.



Change 3 2-93

## 2-24. OPERATION OF FRONT WINCH

### WARNING

Be sure the front winch drive shaft shearpin is aluminum. Do not substitute any other type metal pin for the shearpin, or injury or death to personnel may result.

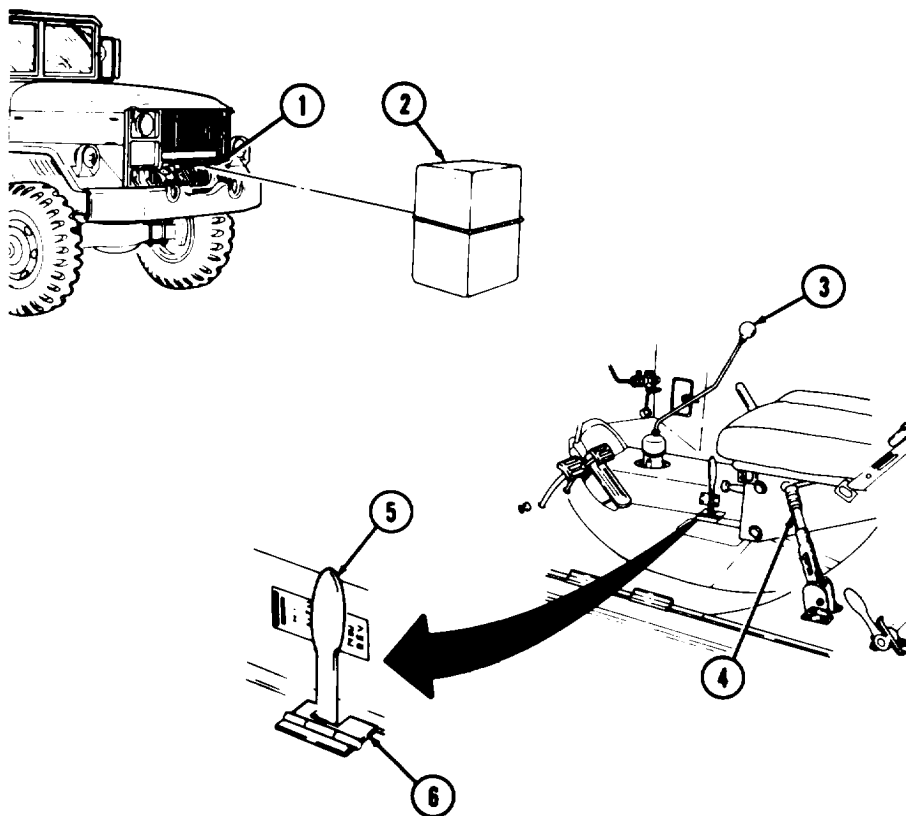
### CAUTION

Do not operate winch with less than four turns of cable on drum. Failure to do so may cause damage to winch.

#### a. Unwinding Winch Line.

(1) Place vehicle so that winch (1) is in direct line with object (2) to be winched.

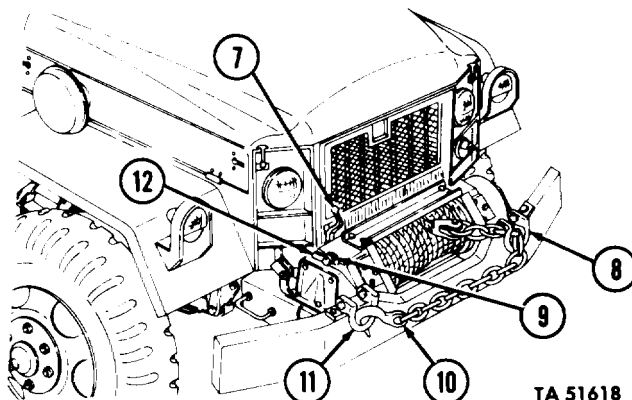
(2) Apply parking brake (4), and place transmission gearshift lever (3) and transmission power takeoff lever (5) in NEUTRAL position with hinge lock (6) closed.



## 2-24. OPERATION OF FRONT WINCH (Contd)

(3) Move winch clutch control lever (7) toward center of truck.

(4) Pull out drum lock knob (12), rotate it a quarter turn, and release into shallow slot on nut (9).



### WARNING

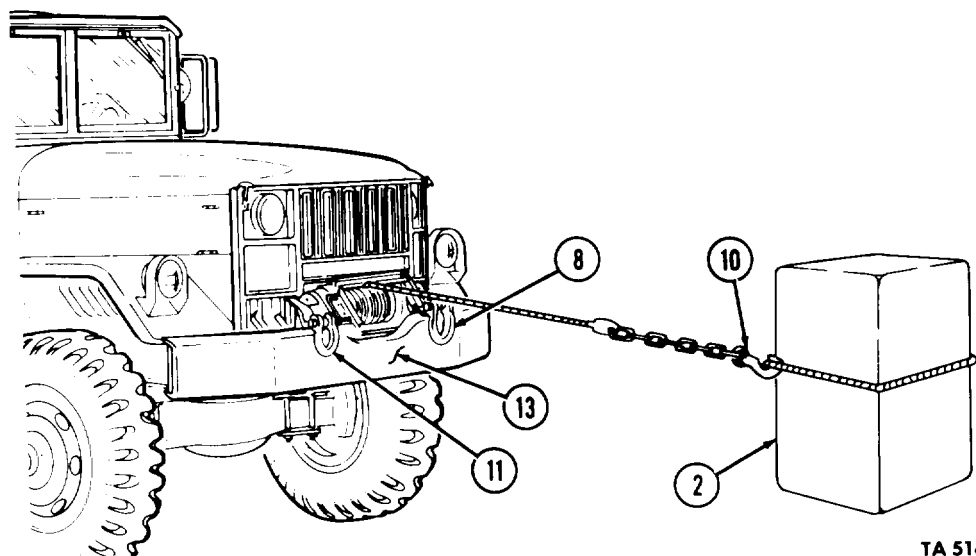
Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

### NOTE

Do not kink winch cable.

(5) Unhook winch cable chain hook (10) from right lifting shackle (11) and pass hook (10) through left lifting shackle (8).

(6) Pull hook (10) up over center of front bumper (13), and out to reach load (2) to be pulled.





## 2-24. OPERATION OF FRONT WINCH (Contd)

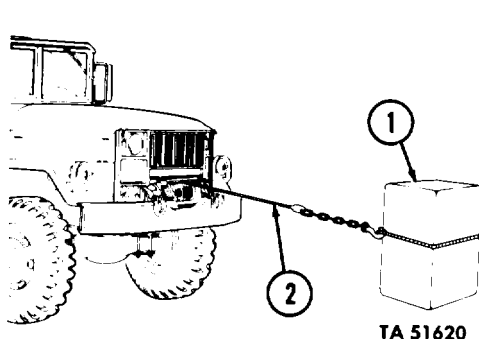
### b. Pulling Load.

#### WARNING

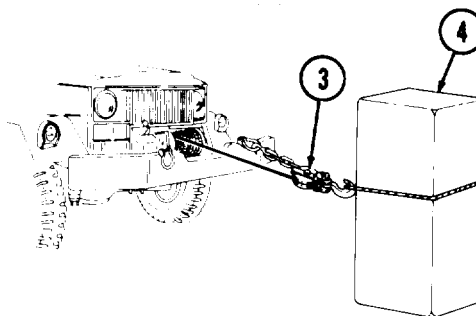
- „ Ž All personnel must stand clear during winching operations. A snapped cable or shifting load may cause injury or death to personnel.
- Ž When hooking up for winching operations, position throat (open part) of hook upward in case overloading straightens out hook. Failure to do this may result in injury or death to personnel.

(1) Fasten winch cable (2) to load (1) being pulled.

(2) To pull an excessively heavy load (4), use a snatch block (3).

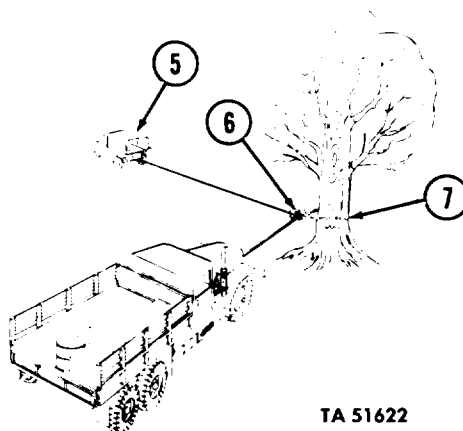


TA 51620



TA 51621

(3) To pull load (5) that is not in a direct line, use snatch block (6) and utility chain (7) as shown.



TA 51622

#### NOTE

Perform step 4 if conditions permit. If not, go to step 5.

## 2-24. OPERATION OF FRONT WINCH (Contd)

(4) Take up slack in winch cable (2) by releasing parking brake lever (12) and slowly backing truck.

(5) Take up slack in winch cable (2) by moving clutch control lever (8) to right side of truck.

### WARNING

Use hand throttle to control engine speed when operating winch. Do not run engine faster than 1200 rpm. Avoid sudden changes in speed, or shearpin or cable may break, causing injury or death to personnel.

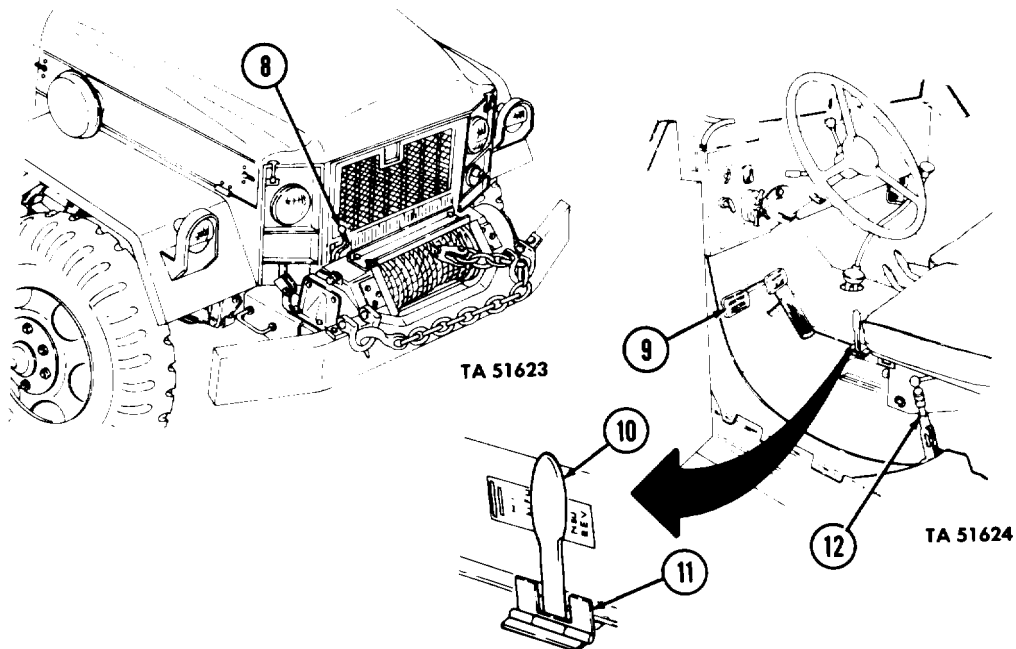
### NOTE

Never use winch clutch control lever to control winch. Always use power takeoff lever and engine clutch.

(6) Depress clutch pedal (9) and disengage hinge lock (11) from power takeoff lever (10).

(7) Place power takeoff lever (10) in LOW for heavy loads, and HIGH for light loads. When in doubt, use LOW.

(8) Slowly release clutch pedal (9) and wind in cable (2) as necessary.



**c. Stopping the Winch.** To stop winch, depress clutch pedal (9), place transmission power takeoff lever (10) in NEUTRAL, and release clutch pedal (9).

## 2-24. OPERATION OF FRONT WINCH (Contd)

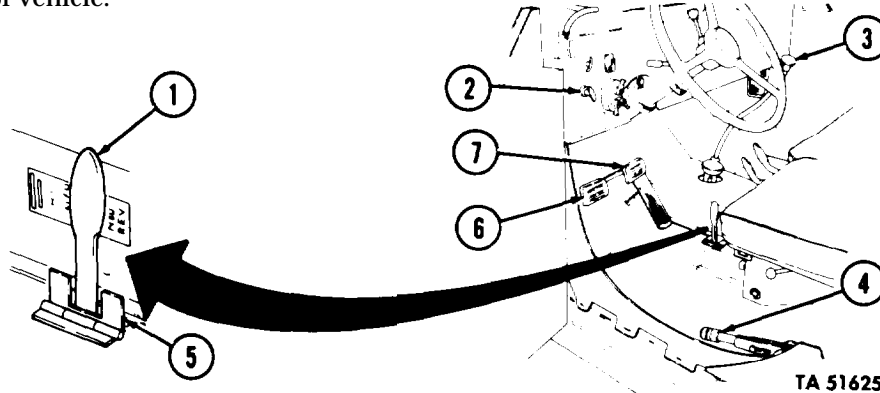
### d. Lowering Load or Unwinding Slack Cable.

#### NOTE

Keep tension on cable when unwinding under power to keep cable from crossing coils.

(1) Depress clutch pedal (6), and place transmission power takeoff lever (1) in REVERSE position. Be sure transmission gearshift lever (3) is in "N" (neutral) position.

(2) Slowly release clutch pedal (6), and adjust throttle (2) for smooth operation of vehicle.



### e. Winding the Winch Line on the Drum.

#### **WARNING**

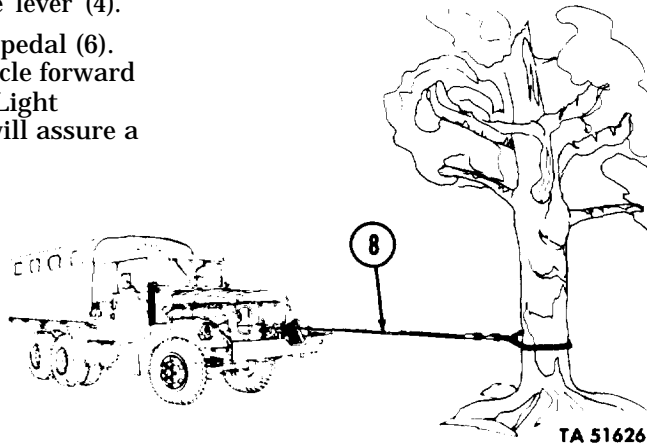
Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

(1) Attach load to end of winch cable (8). If no load is available, attach cable (8) to a tree, or another truck with brakes applied.

(2) Depress clutch pedal (6), and shift transmission power takeoff lever (1) to LOW.

(3) Release parking brake lever (4).

(4) Slowly release clutch pedal (6). The front winch will pull vehicle forward and wind cable (8) on drum. Light pressure on brake pedal (7) will assure a tight, neat wind.



## 2-24. OPERATION OF FRONT WINCH (Contd)

### NOTE

Make sure first layer of winch cable goes onto drum in order and that each additional layer starts back across drum. If necessary, use wooden block to assist in cable alinement.

(5) When winch cable (8) is fully wound on drum, depress clutch pedal (6), place power takeoff lever (1) in NEUTRAL, and secure with hinge lock (5).

(6) Apply parking brake lever (4), and stop engine (refer to para. 2-17).

### f. Locking Front Winch for Travel.

(1) Position cable chain (11) under left frame extension (9), up through left lifting shackle (10), across front of bumper (13), and attach chain hook (14) to right lifting shackle (15).

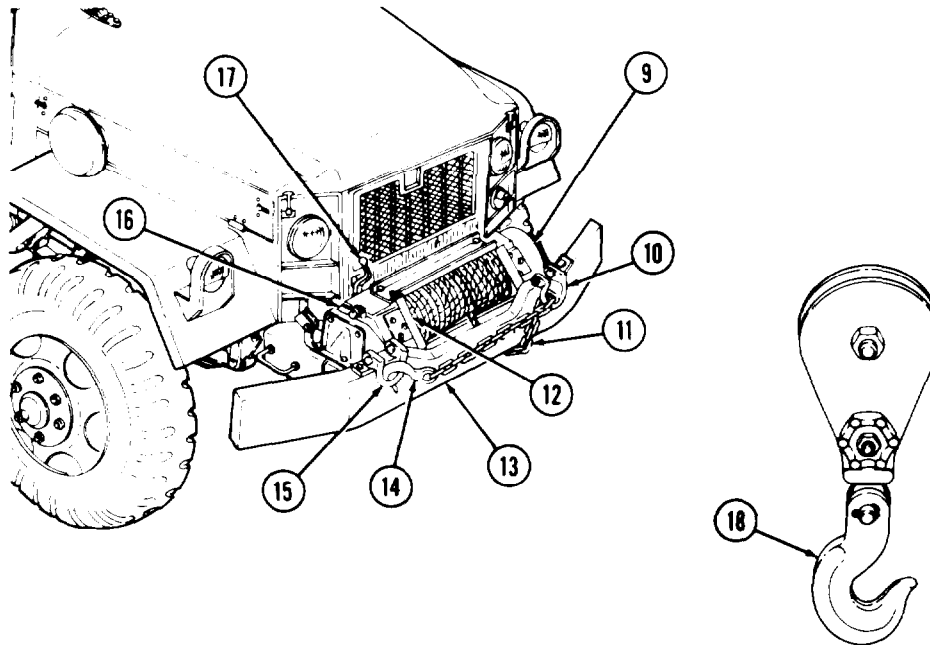
(2) Move clutch control lever (17) toward left side of vehicle to let drum free.

(3) Pull drum lock knob (16), rotate it a quarter turn, and release into deep slot on nut.

(4) Rotate drum until lock knob (16) plunger slips into nearest hole on drum flange (12).

(5) Service snatch block (18) and other equipment used in winching, and stow.

(6) To replace shearpin, refer to para. 3-17.



Change 3 2-99

## 2-25. OPERATION OF CARGO TRUCKS

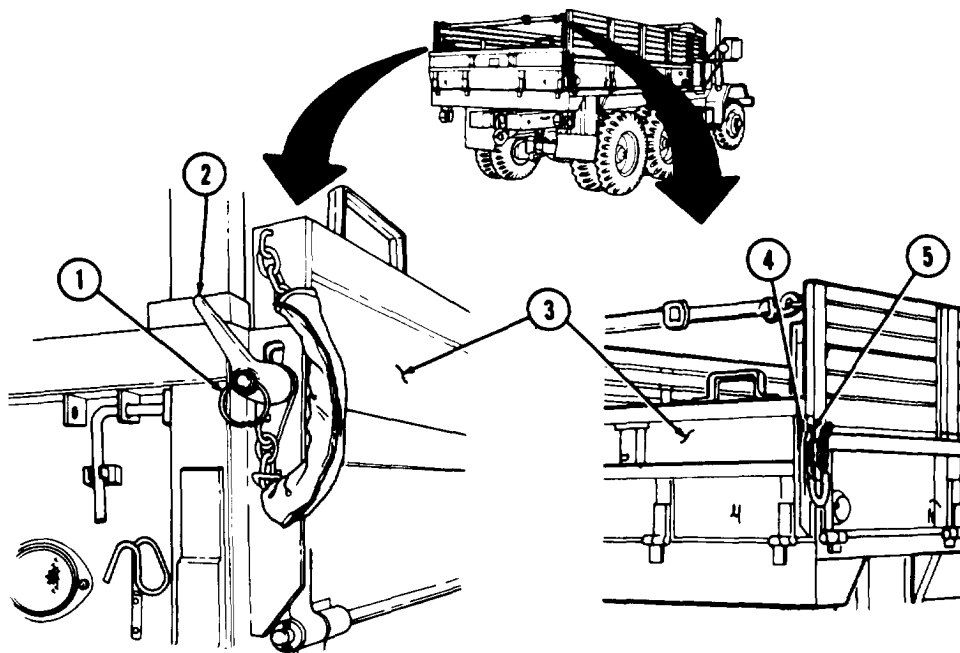
**a. General.** M35A2 and M35A2C cargo trucks have 7 ft 6 in. by 12 ft 3 in. (2.7 by 3.6 m) cargo beds. M36A2 cargo trucks have 7 ft 4 in. by 17 ft. 6 in. (2 by 5.2 m) cargo beds. All can be equipped with bow and tarp kit.

### **b. Lowering Tailgate.**

#### **WARNING**

On dropside trucks, make sure forward end of dropsides are secured before lowering tailgate. Failure to do this may result in injury or death to personnel.

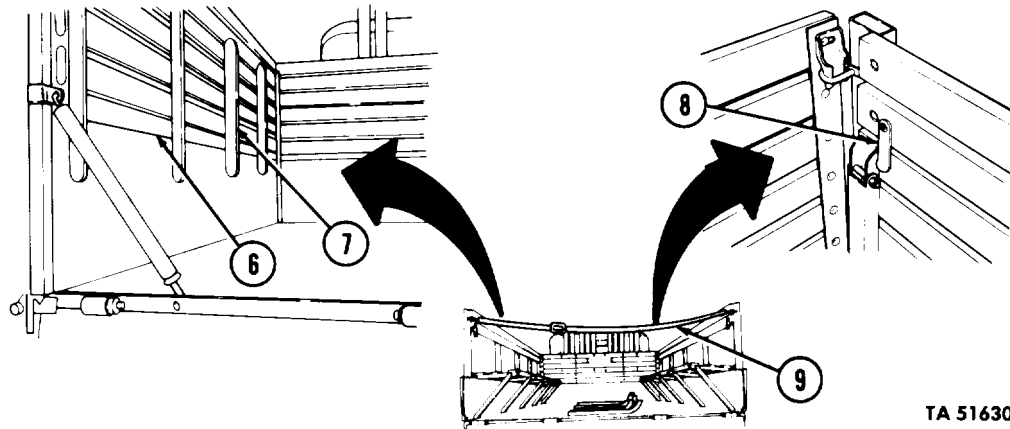
- (1) Remove hooks (5) from retainer slots (4) on both sides of truck.
- (2) On dropside trucks, turn locking handles (2) on side of tailgate (3) counter-clockwise to loosen. Grasp ring (1) and turn T-bolt 90 degrees. Withdraw locking handle (2). Repeat operation on opposite side of tailgate (3).



- (3) Grasp top of tailgate (3) and pull it back. Do not allow tailgate (3) to drop.

### **c. Lowering and Raising Troop Seats.**

- (1) To lower troop seats (6), pull troop seat supports (7) forward 45 degrees, release latches (8), and lower troop seats (6).
- (2) Adjust each troop seat support (7) to contact both side and floor of vehicle.
- (3) To raise troop seats (6), reverse steps c. (1) and c. (2).

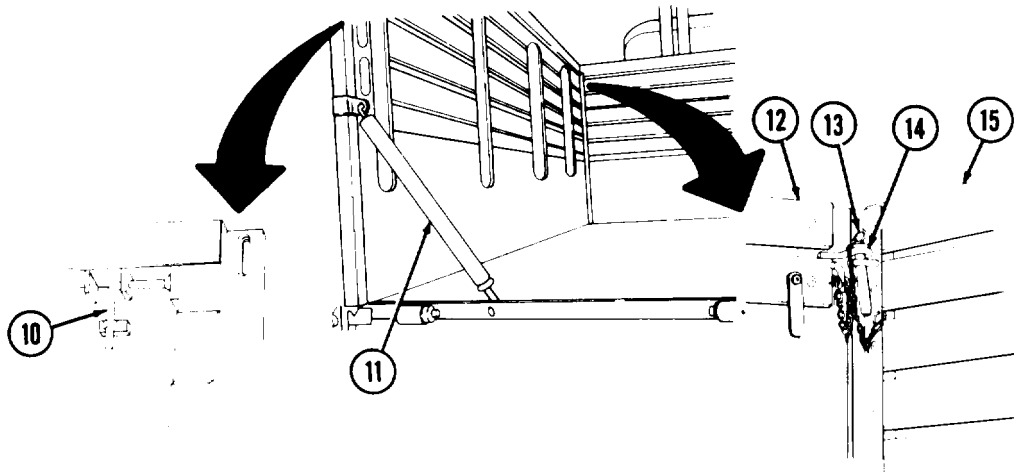
**2-25. OPERATION OF CARGO TRUCKS (Contd)**

TA 51630

**d. Removing Front and Side Racks.****NOTE**

This operation requires two crewmembers.

- (1) Lower tailgate (3). Refer to b. of this para.
- (2) Raise troop seats (6) and secure in place with latches (8). Refer to c. of this para.
- (3) Unhook safety strap (9).
- (4) On dropside vehicles:
  - (a) Unhook stabilizer (11) from truck bed and secure in up position.
  - (b) Pull back side rack locking pin handles (10) from corners of truck bed.
  - (c) Lift front and side rack locking pins (13) out of retainer rings (14).
- (5) Lift and remove side racks (12).
- (6) Lift and remove front rack (15).



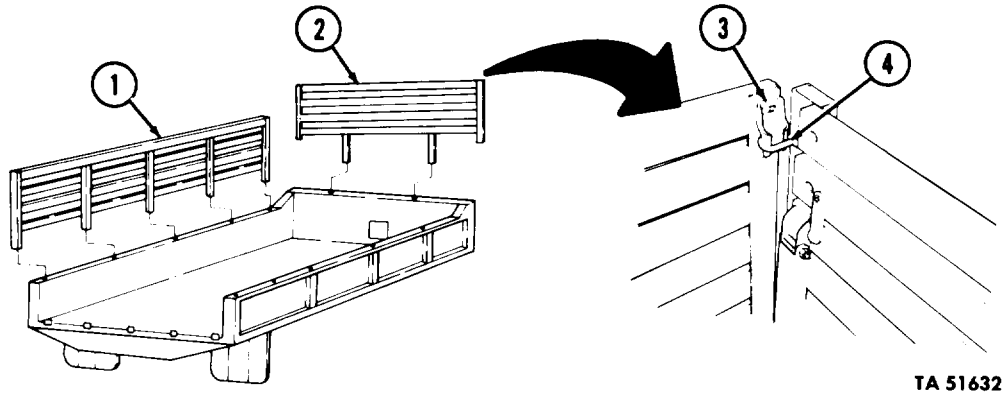
TA 51631

## 2-25. OPERATION OF CARGO TRUCKS (Contd)

### e. Installing Front and Side Racks.

(1) To install front (2) and side (1) racks, reverse steps d.1. through d.6.

(2) When installing front rack (2) on cargo truck without dropsides, be sure front rack retainer clip (3) is inserted inside rack retainer ring (4).

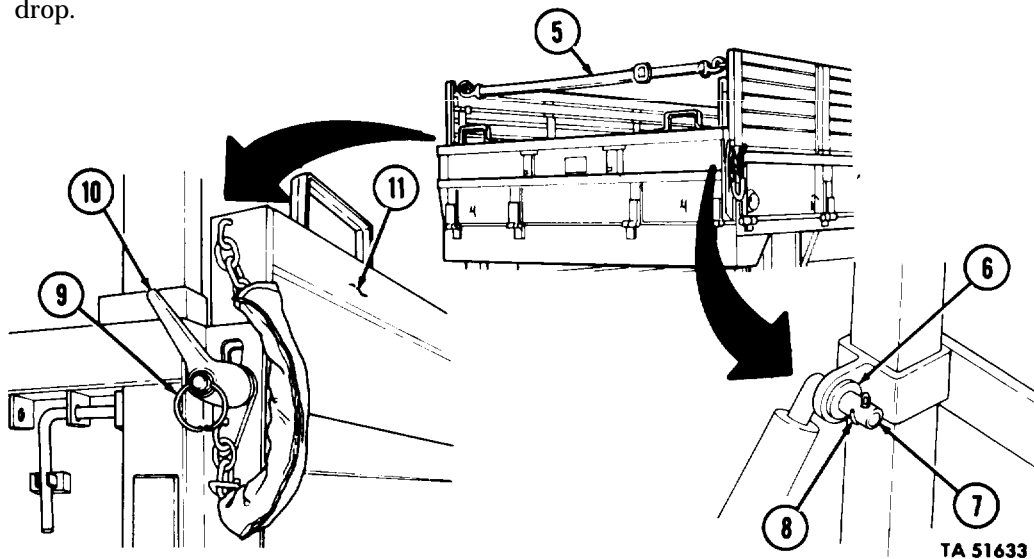


### f. Lowering and Raising Dropsides.

(1) Park vehicle where it can best be loaded or unloaded. Turn accessory power switch and all other switches to OFF position, engage engine stop control, and apply parking brake.

(2) Turn locking handle (10) counterclockwise to loosen. Grasp ring (9) and turn T-bolt 90 degrees. Withdraw locking handle (10). Repeat process on opposite end of tailgate (11).

(3) Grasp top of tailgate (11) and pull it back. Do not allow tailgate (11) to drop.



## 2-25. OPERATION OF CARGO TRUCKS (Contd)

### NOTE

If front and side racks are installed, do steps (4) through (7).

If front and side racks are not installed, go to step (8).

- (4) Unhook safety strap (5).
- (5) Remove cotter pin (8) and washer (6) from stabilizer (7).
- (6) Remove stabilizer (7).
- (7) Lift front and side rack locking pin (12) out of retainer ring (13).
- (8) At front of vehicle, turn locking handle (14) counterclockwise to loosen. Grasp ring (15) and turn T-bolt 90 degrees, withdraw locking handle (14).

### WARNING

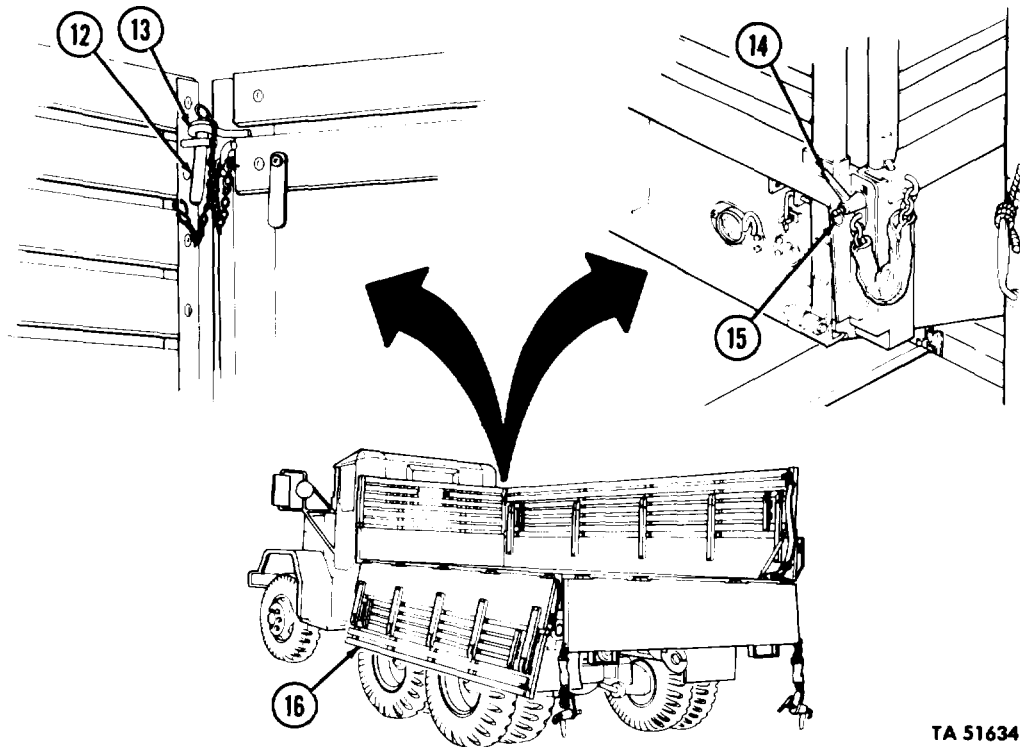
Troop seats must be secured in the up position before lowering dropside, or injury or death to personnel may result.

### NOTE

This operation requires two crewmembers.

(9) Grasp dropside (16) and carefully lower. Do not allow dropside (16) to fall freely.

(10) To load or unload from both sides, perform steps f.(1) through f.(9), as necessary, on both sides of vehicle.



TA 51634



## 2-25. OPERATION OF CARGO TRUCKS (Contd)

(11) To raise dropside (1):

(a) Raise dropside (1) and install locking handle (b) at front of vehicle, Grasp ring (4) and turn T-bolt 90 degrees to secure,

### NOTE

If front and side racks are installed, do steps (b) and (c). If front and side racks are not installed, go to step (d).

(b) Insert front and side rack locking pin (3) through retainer ring (2).

(c) Install stabilizer (7) with washer (6) and cotter pin (8).

(d) Raise opposite dropside (1) as necessary, and secure in place.

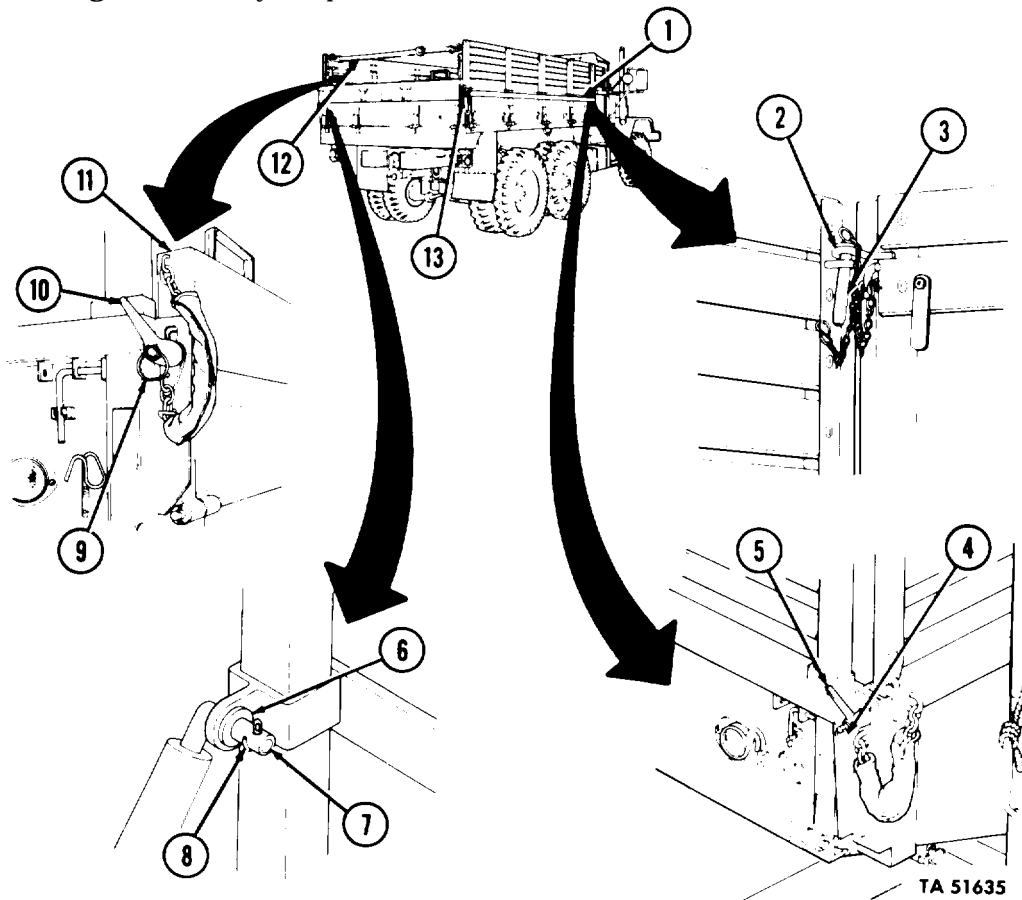
### NOTE

If front and side racks are installed, do step (e). If front and side racks are not installed, go to step (f).

(e) Raise tailgate (11), and install left and right locking handles (10). Grasp rings (9) and turn T-bolts 90 degrees to secure.

(f) Raise tailgate (11) and install hooks (13) on both sides of vehicle.

(g) Hook safety strap (12).



## 2-26. OPERATION OF FUEL TANK TRUCK

**a. General.** The M49A2C fuel tank truck is used for loading, transporting, and dispensing fuels. Equipped with two 600 gallon tanks, the M49A2C has the capability of transferring fuel with or without the use of the delivery pump.

When performing fueling operations, ensure vehicle is properly grounded, proper clothing is worn, and appropriate distances in and around the fueling area and truck are maintained in order to prevent fire hazards and injury to personnel. Nozzles, hoses, dispensing lines, and valves must be kept clean and free of dirt, dust, and moisture to prevent contamination to fuel and damage to equipment.

For additional description and data of the M49A2C fuel tank truck, refer to para. 1-19. Additional information on fuel tank operations can be found in FM 10-71, Petroleum Tank Vehicle Operations, FM 10-69, Petroleum Supply Point Equipment Operations, and DA PAM 750-35, Functional Users Guide for Motor Pool Operation.

### WARNING

- ⚡ Never wear nylon clothing when handling petroleum. High electrostatic charges build up in such fabrics. Failure to do so may cause fire, resulting in injury or death to personnel.
- ⚡ Keep at least 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may result in injury or death to personnel.
- ⚡ Do not perform fueling procedures while smoking or within 50 ft (15 m) of sparks or open flame. Fuel is flammable and can explode easily, resulting in injury or death to personnel.
- ⚡ Do not perform fueling operations while smoking, or near fire, flames, or sparks. Keep fire extinguisher nearby. Fuel may ignite, resulting in injury or death to personnel.
- ⚡ All vehicles must be bonded and grounded for static discharge before fuel transfer. Failure to do so may cause fire, resulting in injury or death to personnel.

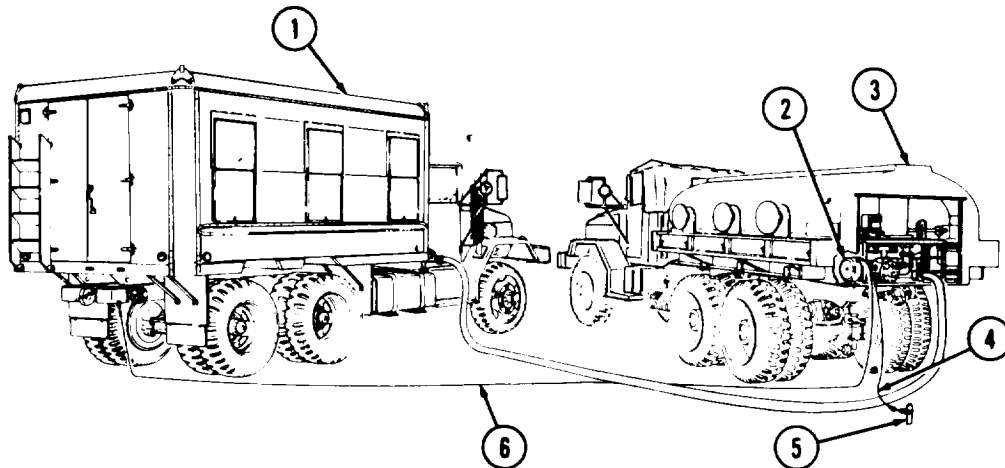
## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

**a.1. Bonding and Grounding.** Bonding electrically connects two units to equalize and form a path for any static potential that might develop during fueling procedures. Grounding electrically connects single or bonded units to ground rods to discharge any static potential into the earth. Both vehicles and equipment involved must be bonded or grounded before performing fueling procedures.

### NOTE

Perform steps 1 through 3 for grounding vehicles during fueling procedures.

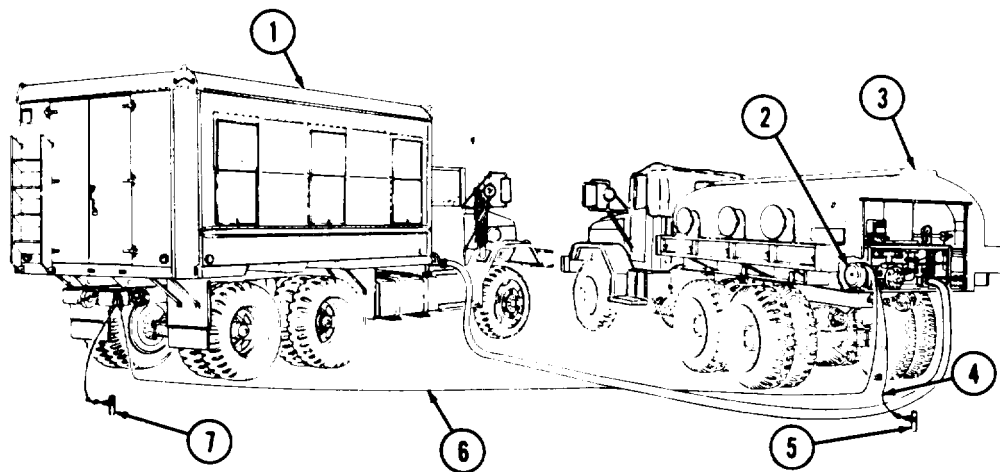
- (1) Extend ground wires (4) and (6) from cable reel (2) of fuel tank truck (3).
- (2) Attach ground wire (4) to ground rod (5).
- (3) Attach ground wire (6) to frame of other vehicle (1).



**2-26. OPERATION OF FUEL TANK TRUCK (Contd)****NOTE**

- Bond only if two rods are used to ground.
- Perform steps 4 through 10 for bonding vehicles during fueling procedures.

- (4) Extend ground wires (4) and (6) from cable reel (2) of fuel tank truck (3).
- (5) Attach ground wire (4) to ground rod (5).
- (6) Route ground wire (6) to frame of other vehicle (1) and attach to ground rod (7).
- (7) Touch hose, drop tube, or discharge nozzle to filler cover before removal.
- (8) Keep filler nozzle in contact with filler hole at all times during fueling procedure.
- (9) After filling is completed, close filler cover, remove ground wires (4) and (6) and ground rods (5) and (7).
- (10) Retract ground wires (4) and (6) on cable reel (2) and stow on fuel tank truck (3).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

### a.2. Bottom Filling the Fuel Tank Sections Using Outside Pump.

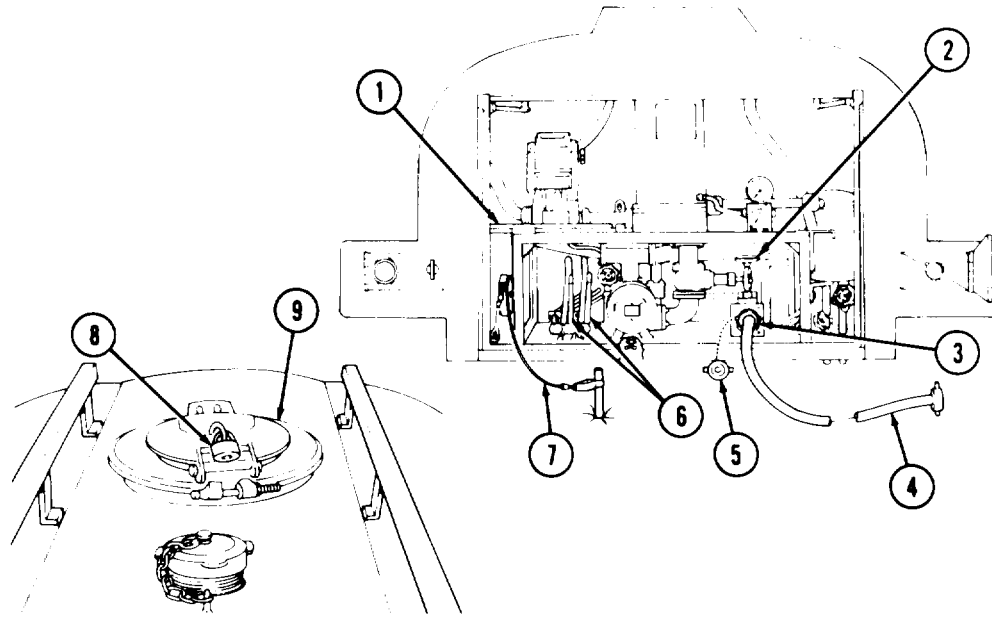
#### WARNING

Keep at least 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may result in injury or death to personnel.

#### NOTE

- Fuel is not filtered or metered by the vehicle.
- Bottom filling with outside pump is not possible unless proper size hose connections are available.

- (1) Park truck at least 25 ft (7.6 m) from fuel supply.
- (2) Attach ground wire (7) to suitable ground (task a.1).
- (3) Remove gravity delivery line gate valve dust cover (5) from gravity delivery valve adapter (3).
- (4) Attach fuel supply hose (4) to gravity delivery valve adapter (3).
- (5) Turn gravity delivery line gate valve knob (2) counterclockwise to open position.
- (6) Remove padlock (8) and open manhole cover (9) on compartment(s) to be filled.
- (7) Pull discharge valve control lever(s) (6) backwards to open position.
- (8) Fill tank as needed. Check fuel level with gage (1).
- (9) Push discharge valve control lever(s) (6) forward to closed position.
- (10) Close manhole cover (9) and install padlock (8).
- (11) Turn gravity delivery line gate valve knob (2) clockwise to closed position.
- (12) Remove fuel supply hose (4) from gravity delivery valve adapter (3) and install gravity delivery line gate valve dust cover (5).
- (13) Remove and secure ground wire (7).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

### WARNING

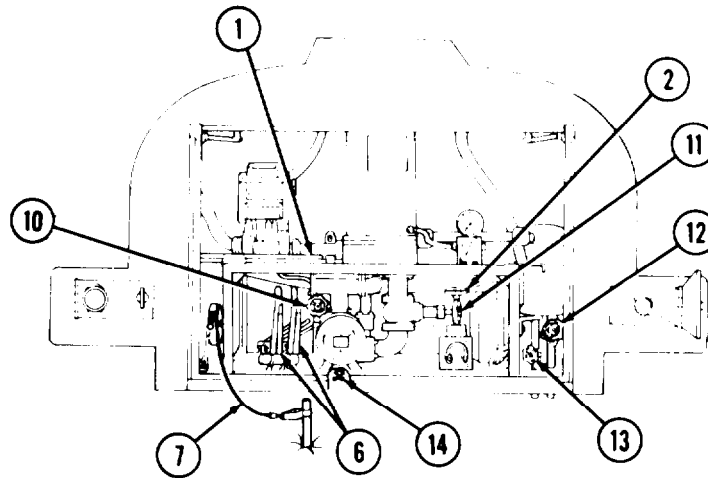
- Keep at least 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may result in injury or death to personnel.
- Fuel tank sections should only be top loaded when bottom loading is not possible. Top loading causes static electricity, which may cause fire, resulting in injury or death to personnel.

### b. Gravity Filling the Fuel Tank Sections.

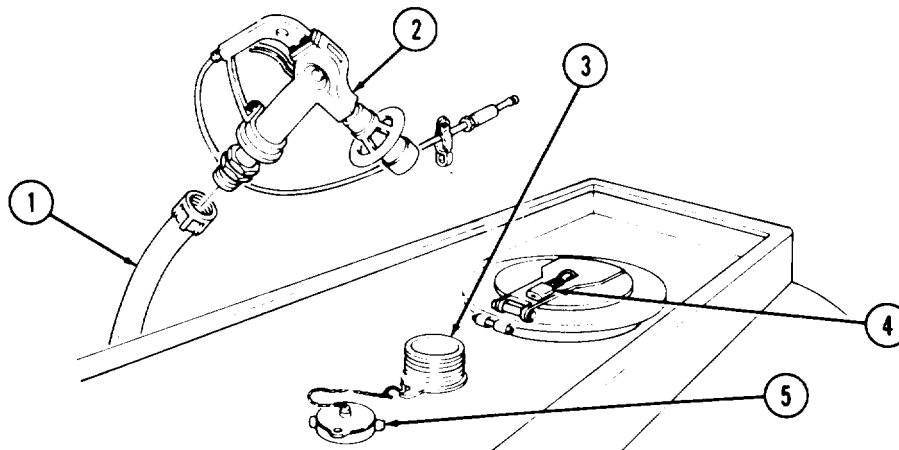
#### NOTE

Drain compartments and piping system, including filter/separator, when changing to a fuel or grade different from the one last earned. Flush with 50 gallons of new product, and circulate new product back to each compartment twice. Circulate new product through all fuel handling components, including meter, filter/separator, and hose reels when applicable. Get rid of this fuel in the approved area after flushing.

- (1) Park truck at least 25 ft (7.6 m) from fuel supply.
- (2) Attach ground wire (7) to suitable ground (task a.1).
- (3) Ensure discharge valve control levers (6) are pushed forward, to closed position.
- (4) Turn delivery pump draincock (14), meter drain knob (10), pump delivery line gate valve knob (11), gravity delivery line gate valve knob (2), manual drain valve knob (13), and automatic dump valve knob (12) clockwise, to closed position.
- (5) Remove fuel level gage (1).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

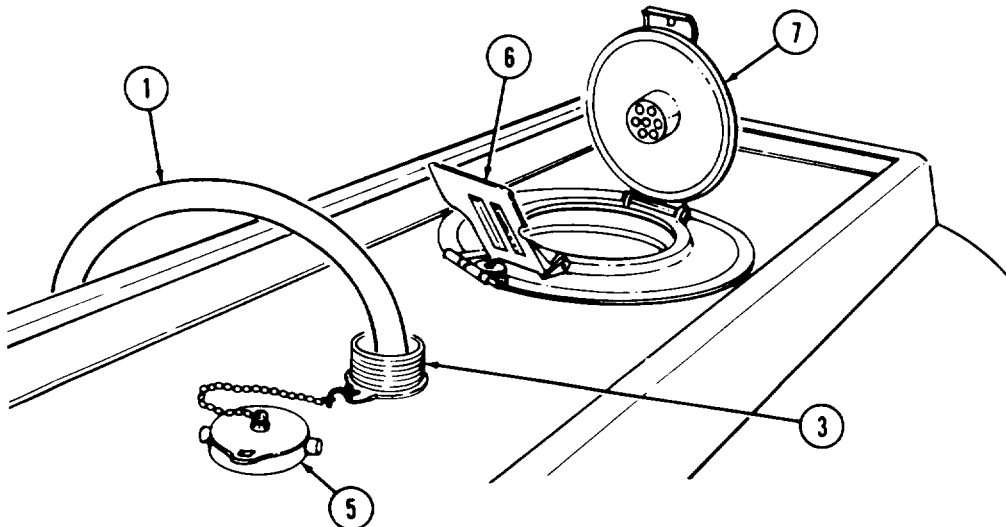


- (6) Remove filler cover (5) from filler hole (3).
- (7) Remove padlock (4), lift cover clamp (6), and open manhole cover (7).
- (8) Remove nozzle (2) from dispenser hose (1).

### WARNING

Dispenser hose should almost touch bottom of tank during filling to decrease the build-up of vapors. Failure to do so may cause fire, resulting in injury or death to personnel.

- (9) Place dispenser hose (1) into filler hole (3) to bottom of tank body. Fill tank as needed. Check fuel level in tank with fuel level gage (8).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

- (10) When tank is filled, remove dispenser hose (1) from filler hole (3).
- (11) Install filler cover (5) on filler hole (3).
- (12) Close manhole cover (7) and install padlock (4).
- (13) Install nozzle (2) on dispenser hose (1).
- (14) Remove ground wire (17) from ground rod (16) and retract on cable reel (18).
- (15) Retract ground wire (17) on cable reel (18) and stow on fuel tank truck.

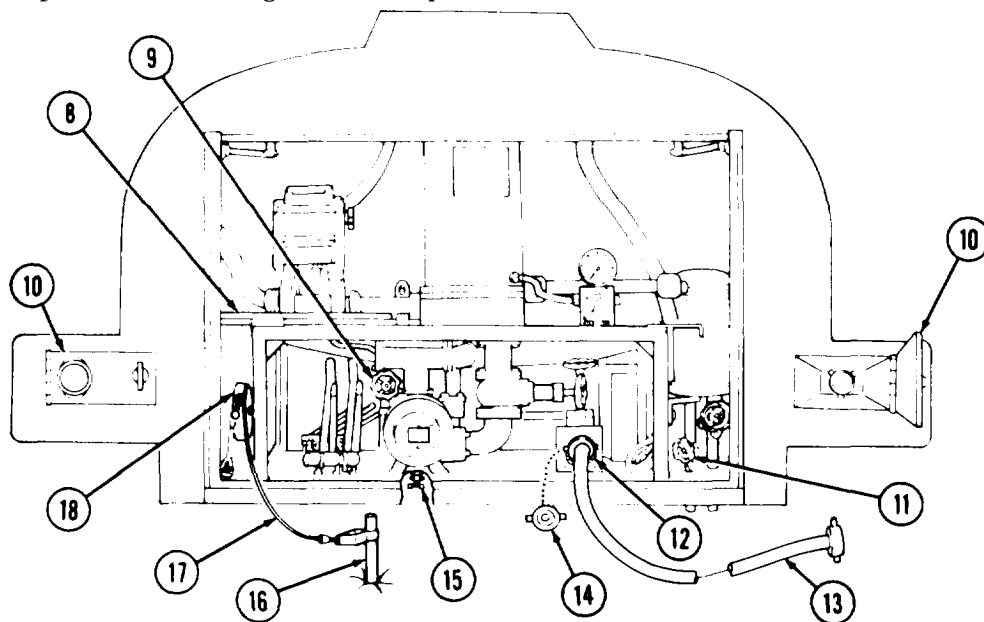
### WARNING

⚡ Fuel tank sections should only be top loaded when bottom loading is not possible. Top loading causes static electricity which may cause fire, resulting in injury or death to personnel.

⚡ Keep at least 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may result in injury or death to personnel.

### c. Suction Filling the Tank Sections or Transferring Fuel from One Source to Another Using Vehicle Pump.

- (1) Park truck at least 25 ft (7.6 m) from fuel supply.
- (2) Attach ground wire (17) to suitable ground (task a.1).
- (3) Remove gravity delivery line gate valve dust cover (14) from gravity delivery valve adapter (12).
- (4) Open hose compartment doors (10) and remove hoses (13) as necessary.
- (5) Attach hose (13) to gravity delivery valve adapter (12).
- (6) Turn meter drain knob (9), manual drain valve knob (11), and delivery pump draincock (15) right to closed position.



Change 2 2-107



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

(7) Unwind dispensing assembly (6).

(8) Remove nozzle (7) from dispenser line (13) and remove filler cover (12) from filler hole (11).

(9) Remove padlock (10), lift cover clamp (8), and open manhole cover (9).

### WARNING

Dispenser line should almost touch bottom of tank during filling to decrease the build-up of vapors. Failure to do so may cause fire, resulting in injury or death to personnel.

(10) Place dispenser line (13) into tiller hole (11) to bottom of tank.

(11) Turn automatic dump valve knob (17), pump delivery line gate valve knob (16), and gravity delivery line gate valve knob (15) counterclockwise to open position.

(12) Remove fuel level gage (14).

### NOTE

Ensure parking brake lever is applied.

(13) Place transmission gearshift lever (2) in middle (neutral) position.

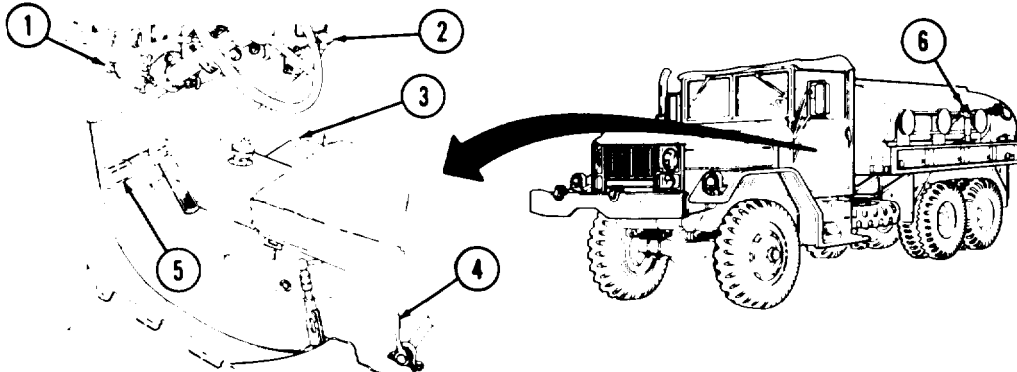
(14) Start engine (para. 2-14 or 2-15), push clutch pedal (5) in and hold. Place transfer case shift lever (3) in middle (neutral) position.

### CAUTION

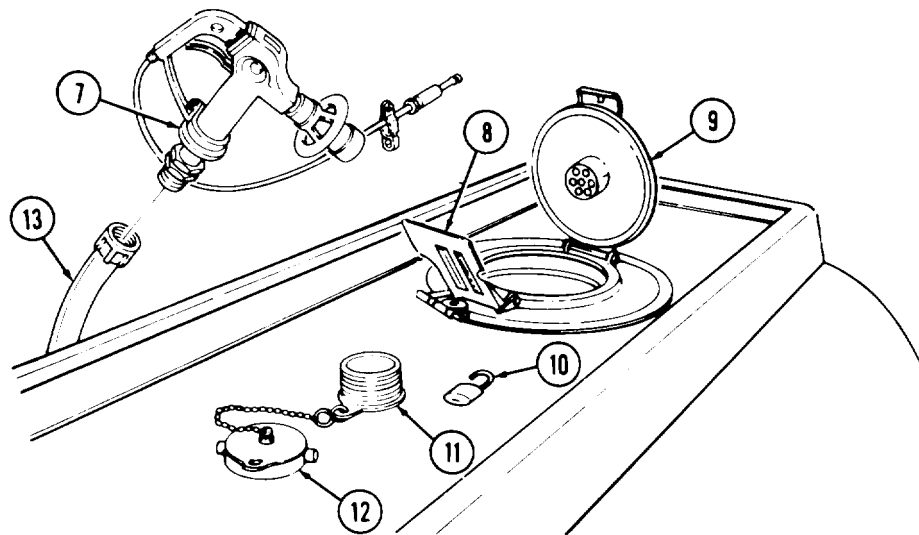
Do not allow engine to run with transmission gearshift lever ENGAGED, transfer case shift lever in NEUTRAL, and transfer power takeoff lever in DISENGAGE positions. Failure to do so may result in damage to equipment.

(15) Engage transfer power takeoff lever (4), place transmission gearshift lever (2) in "2" (second) position, and release clutch pedal (5). Ensure transfer power takeoff lever (4) is engaged.

(16) Slowly pull out hand throttle (1) to run engine at 1150 rpm. Fill tank as needed. Check fuel level with fuel level gage (14).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)



(17) After filling tank, push in hand throttle (l). Shut off engine (para. 2-17), and disengage transfer power takeoff lever (4).

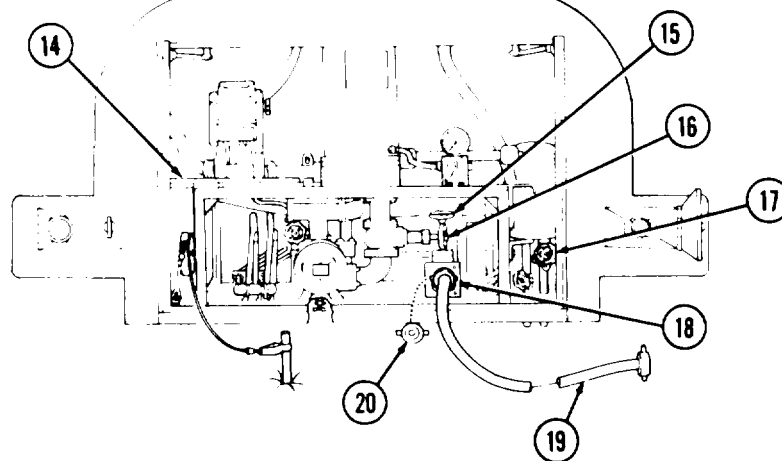
(18) Close manhole cover (9), cover clamp (8), and install padlock (10).

(19) Remove dispenser line (13), install filler cover (12) on filler hole (11), and drain and secure dispensing assembly (6).

(20) Install nozzle (7) on dispenser line (13).

(21) Close gravity delivery line gate valve knob (15) and pump delivery line gate valve knob (16).

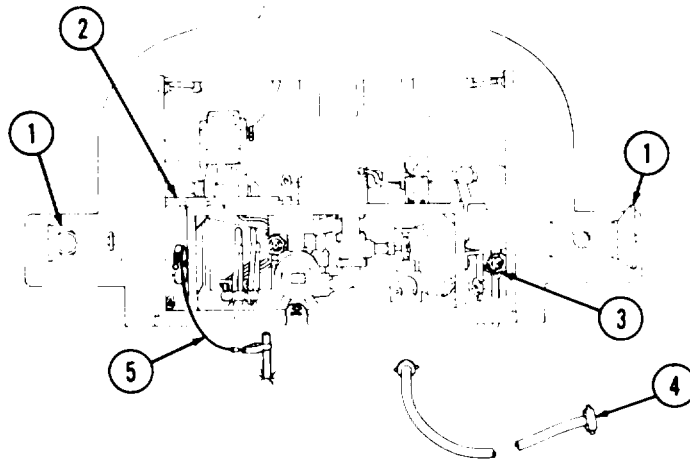
(22) Remove hose (19) from gravity delivery valve adapter (18) and install dust cap (20).



Change 2 2-109

## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

- (23) Drain hose (4) and secure in hose compartment (1).
- (24) Remove and secure ground wire (5) and fuel level gage (2).
- (25) Close automatic dump valve knob (3) when drained.



### d. Power Discharging the Tank.

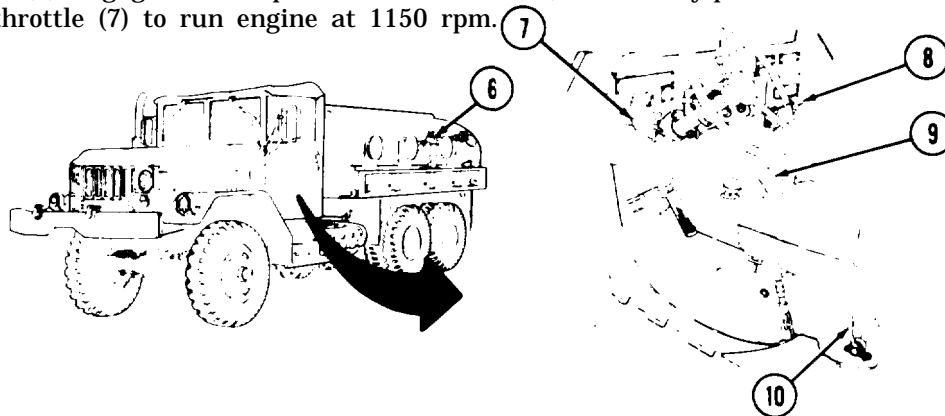
(1) Park truck so dispenser line and nozzle (6) can reach filler hole or unit to be serviced.

#### NOTE

Make sure parking brake lever is applied.

(2) Start engine (refer to para. 2-14 or 2-15), place transmission gearshift lever (8) in "2" (second) position, and transfer case shift lever (9) in middle (neutral) position.

(3) Engage transfer power takeoff lever (10), and slowly pull out hand throttle (7) to run engine at 1150 rpm.

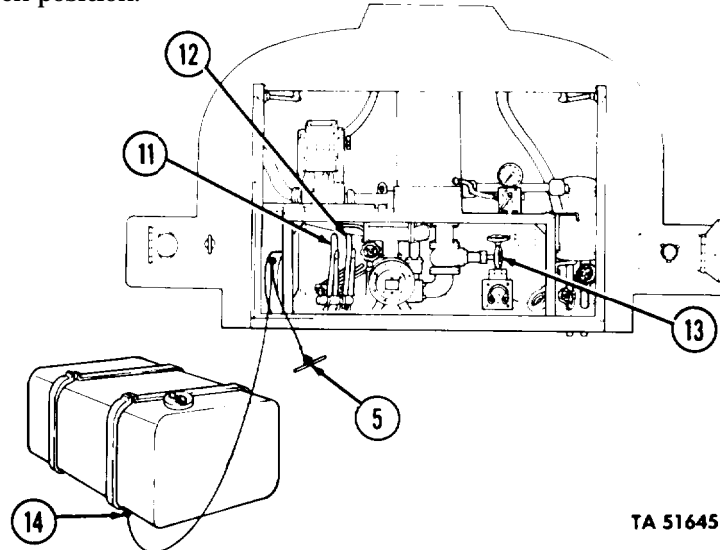


**2-26. OPERATION OF FUEL TANK TRUCK (Contd)**

(4) Attach ground wire (5) to suitable ground, and attach ground wire (14) to unit to be filled.

(5) Turn automatic dump valve knob (3) and pump delivery line gate valve knob (13) left, to open position.

(6) Move discharge valve control lever (11) (forward tank) or (12) (rear tank) back, to open position.



(7) Unwind dispenser line and nozzle (6), and attach nozzle ground wire (17) to unit being serviced.

**WARNING**

Do not remove filler covers until ground wires have been attached to prevent static spark. Failure to do this may result in fire, causing injury or death to personnel.

(8) Open filler cover (16), insert nozzle (15), and fill as needed.

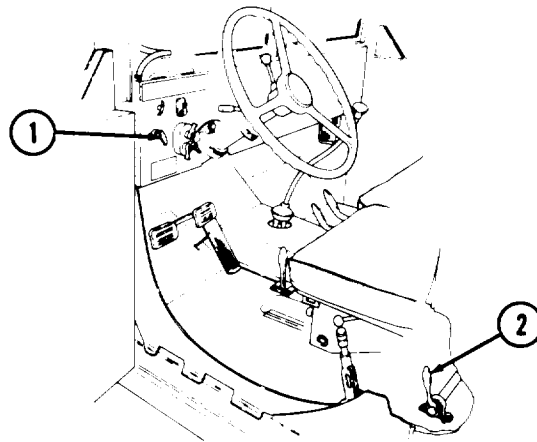
(9) After filling tank, remove nozzle (15) and ground wire (17), close filler cover (16), drain and secure dispenser line and nozzle (6).

(10) Turn pump delivery line gate valve knob (13), and automatic dump valve knob (3) right, to closed position.

(11) Move discharge valve' control lever (11) or (12) forward, to closed position.

## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

- (12) Remove ground wires (4) and (7) and secure.
- (13) Push hand throttle (1) in.
- (14) Shut off engine (refer to para. 2-17) and disengage transfer power takeoff lever (2).



TA 51647

### e. Checking Condition of Filter.

#### NOTE

Filter should be checked once a day during pumping operations.

- (1) Start engine. Refer to para. 2-14 or 2-15.
- (2) Transfer power to pump. Refer to d.(2) and d.(3) of this para.
- (3) Attach ground wires (4) and (7) to suitable grounds.
- (4) Take pressure reading on inlet side of filter:
  - (a) Turn pressure gage control handle (6) right, to position NO. 1.
  - (b) Record pressure reading.
- (5) Take pressure reading on outlet side of filter:
  - (a) Turn pressure gage control handle (6) right, to position NO. 2.
  - (b) Record pressure reading.
- (6) Take pressure reading on internal pressure side of filter:
  - (a) Turn pressure gage control handle (6) right, to position NO. 3.
  - (b) Record pressure reading.
- (7) Close valve by turning pressure gage control handle (6) toward gage.

## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

### NOTE

- Diesel fuel pressure will increase as temperature lowers.
- Diesel fuel #2 is not to be pumped below 33°F (1°C).

**(8)** Check differences between readings. Contact your supervisor if

**(a)** Difference is greater than 20 psi in warm weather, or greater than 27 psi in cold weather between NO. 1 and NO. 2.

**(b)** Difference is greater than 15 psi in warm weather, or greater than 20 psi in cold weather between NO. 1 and NO. 3, or NO. 2 and NO. 3.

**(9)** Remove ground wires (4) and (7), and secure.

**(10)** Disengage power to pump. Refer to d.(13) and d.(14) of this para.

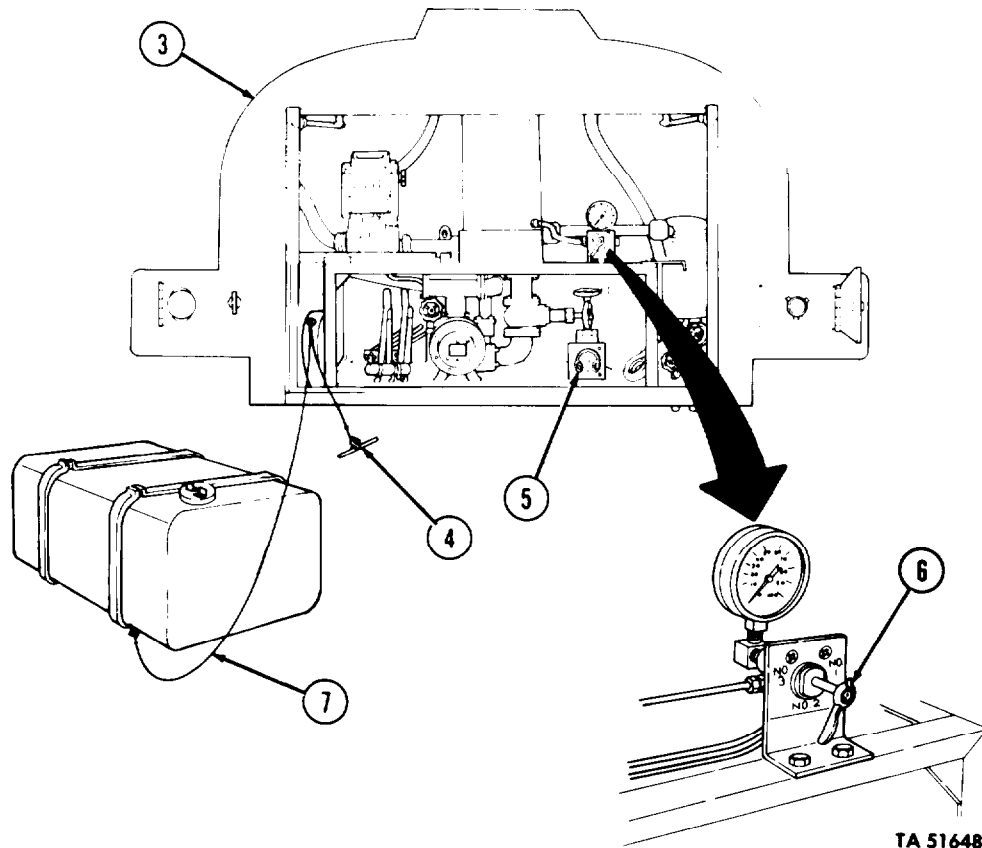
### f. Gravity Discharging the Tank Sections.

**(1)** Park truck with rear compartment (3) near unit to be serviced.

**(2)** Shut off engine. Refer to para. 2-17.

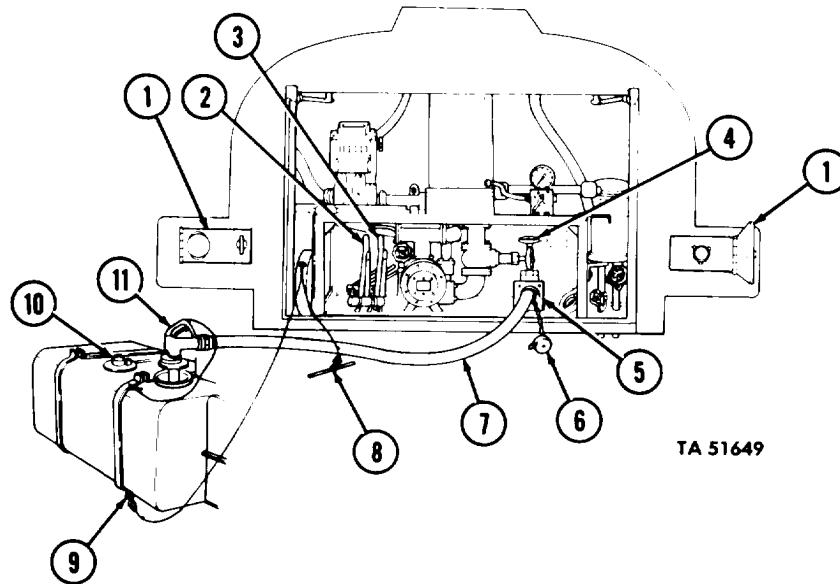
**(3)** Attach ground wire (4) to suitable ground, and ground wire (7) to unit to be tilled.

**(4)** Remove gravity delivery line gate valve dust cover (5).



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

- (5) Remove hoses (7) from compartment (1) as necessary, and fasten to gravity delivery valve adapter (5).
- (6) Attach dispenser nozzle (11) to other end of hose (7).
- (7) Turn gravity delivery line gate valve knob (4) left, to open position.
- (8) Pull discharge valve control lever (2) (forward tank) or (3) (rear tank) back, to open.
- (9) Open filler cover (10), insert nozzle (11), and fill as needed.



- (10) After discharging fuel, push discharge valve control lever (2) or (3) forward, to close.
- (11) Remove nozzle (11), and close filler cover (10).
- (12) Turn gravity delivery line gate valve knob (4) right, to closed position.
- (13) Remove nozzle (11) from hose (7) and secure.
- (14) Remove hose (7), drain, and secure.
- (15) Install gravity delivery line gate valve dust cover (6).
- (16) Remove ground wires (8) and (9) and secure.

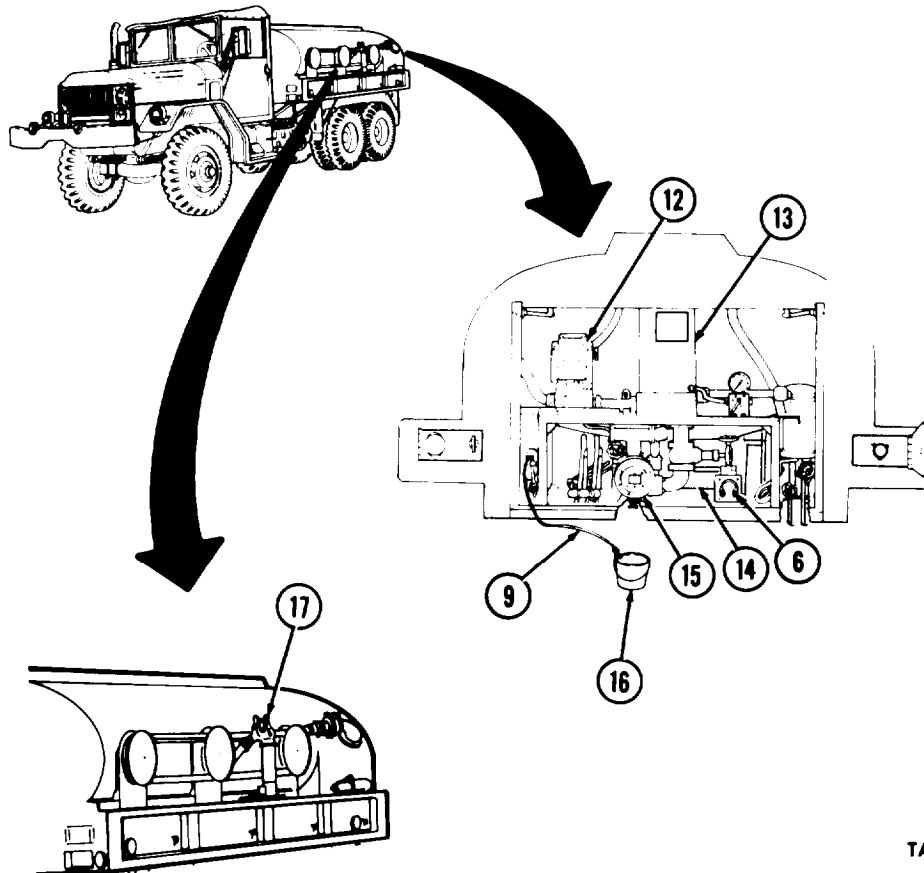
**2-26. OPERATION OF FUEL TANK TRUCK (Contd)****g. Fording.**

- (1) Make sure gravity delivery line gate valve dust cover (6) is secured.
- (2) For complete fording operations, refer to para. 2-41 or 2-52.
- (3) After fording, park truck and stop engine. Refer to para. 2-17.

**WARNING**

Do not drain fuel until ground wire has been attached to container to prevent static spark. Failure to do this may result in injury or death to personnel.

- (4) Attach ground wire (9) to container (16).
- (5) Drain fuel and/or water from delivery lines (17) into container (16).
- (6) If necessary, drain filter separator (13), meter (12), delivery pump (15), and manifold pipes (14).



TA 51650



## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

**(7)** To drain filter separator (3):

**(a)** Place container (6) under water separator drain pipe (7) and automatic dump pipe (5).

**(b)** Turn water separator drain valve (8) and automatic dump valve (4) left, to open position. After water drains, close valves (4) and (8).

**(8)** To drain meter (2):

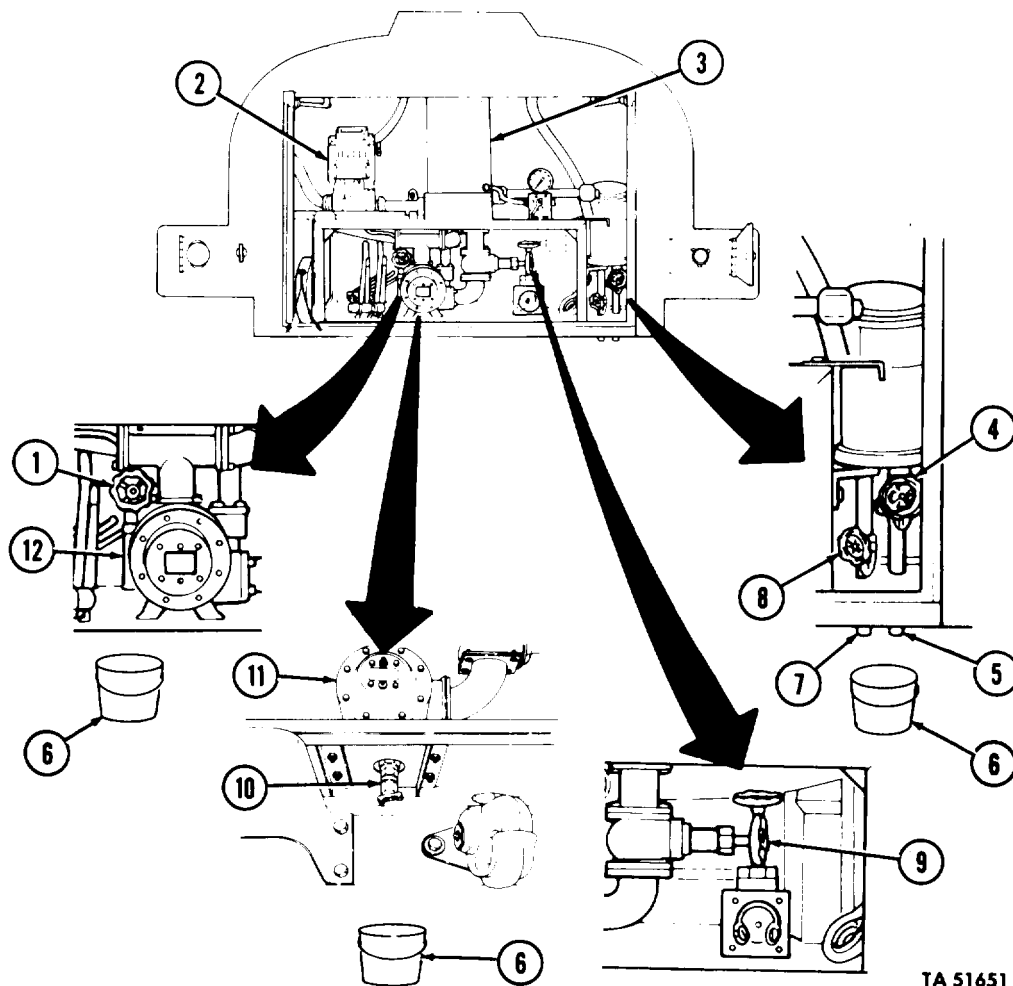
**(a)** Place container (6) under meter drain pipe (12).

**(b)** Turn meter drain valve knob (1) left, to open position. After water drains, close meter drain valve (1).

**(9)** To drain delivery pump (11):

**(a)** Place container (6) under delivery pump (11).

**(b)** Turn draincock (10) and pump delivery line gate valve (9) left, to open position. After water drains, close valve (9) and draincock (10).



TA 51651

## 2-26. OPERATION OF FUEL TANK TRUCK (Contd)

(10) To drain manifold pipes (16):

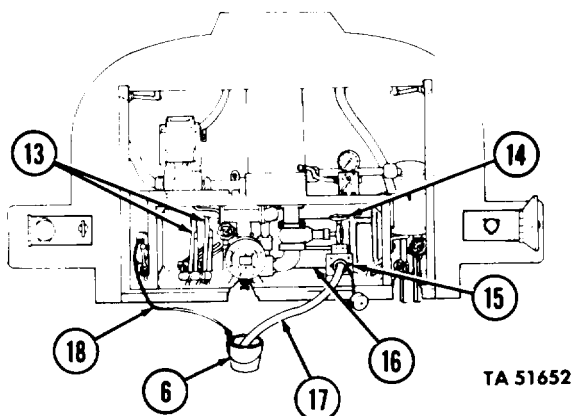
(a) Fasten hose (17) to gravity delivery line gate valve (15). Refer to f. of this para.

(b) Push discharge valve control levers (13) forward, to closed Position.

(c) Turn gravity delivery line gate valve knob (14) left, to open position, and drain hose (17) into container (6). When hose (17) is drained, turn knob (14) right, to closed position.

(d) Remove, drain, and secure hose (17).

(11) Remove ground wire (18) from container (6) and secure.



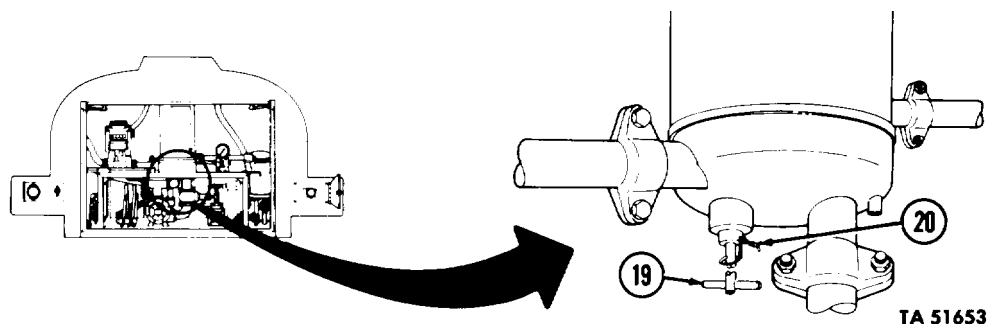
### h. Emergency Discharging.

Do not perform this task with aviation fuel or damage to equipment may result.

#### NOTE

This task is to be performed only in emergency situations if fuel fuses are clogged.

Clip wire (20), turn handle (19) to open fuel separator by-pass valve, and pump fuel (refer to d. or f. of this para.).



## 2-27. OPERATION OF WATER TANK TRUCKS

**a. General.** M50A2 water tank truck has a 400 gallon front tank and a 600 gallon rear tank. M50A3 has two 500 gallon tanks.

- Sanitary precautions must be observed at all times, when handling water and equipment, to keep water clean.
- At freezing temperatures, delivery pump must be run 60 seconds, with delivery line gate valves open, to drain manifold pipes and delivery pump dry. Water in system could freeze and cause damage to components.

### **b. Gravity Filling the Tank Sections.**

(1) Park truck near filling device or filling hose.

#### **NOTE**

Make sure parking brake lever is applied.

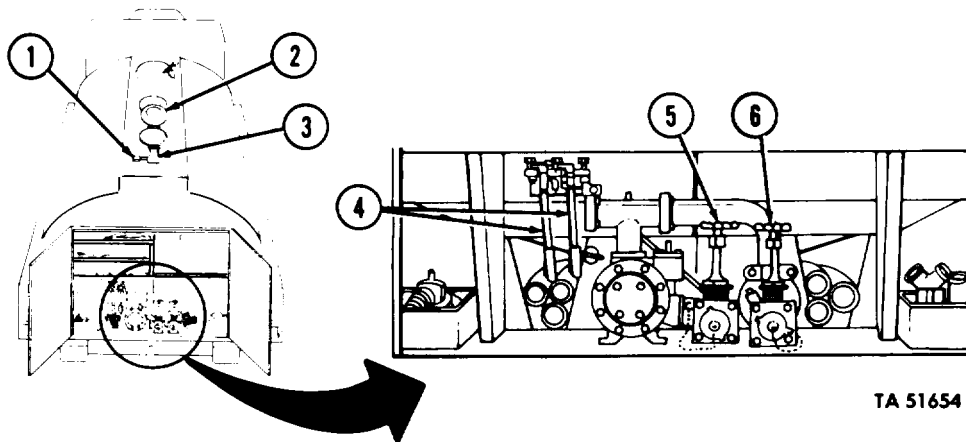
(2) Remove padlock (1), lift cover clamp (3), and open tiller cover (2).

(3) Turn pump delivery line discharge valve knob (5) and gravity delivery line suction valve knob (6) right, to closed position.

(4) Push compartment valve levers (4) forward, to closed position.

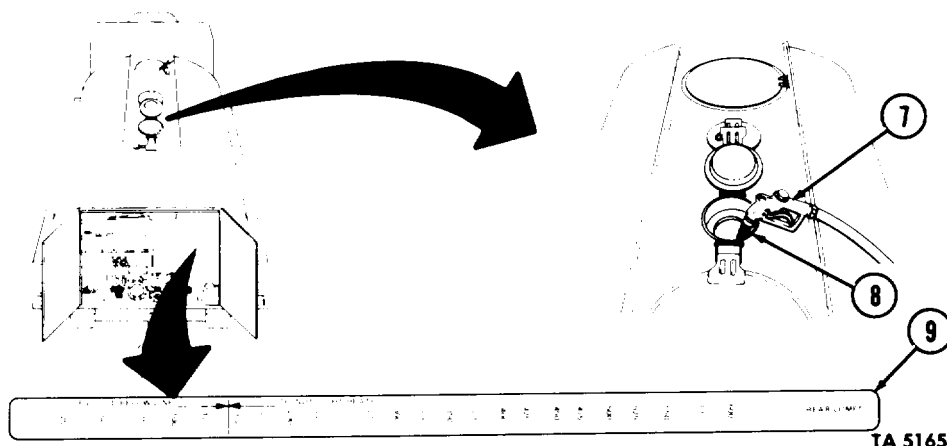
#### **NOTE**

M50A2 has separate water level gages for front and rear tanks. M50A3 has one gage for both tanks.



## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

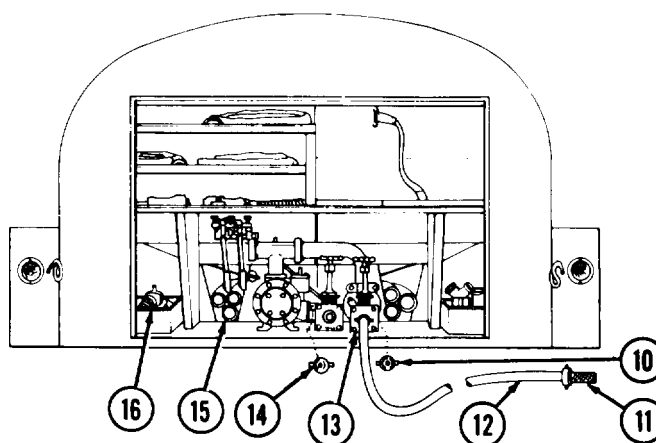
- (5) Remove water level gage (9).
- (6) Insert nozzle (7) into filler hole (8), and fill tank as needed. Check water level with gage (9).
- (7) After filling tank, remove nozzle (7), close filler cover (2), secure cover clamp (3), and install padlock (1).
- (8) Secure water level gage (9).



TA 51655

### c. Suction filling the Tank Sections and Transferring Water from One Location to Another.

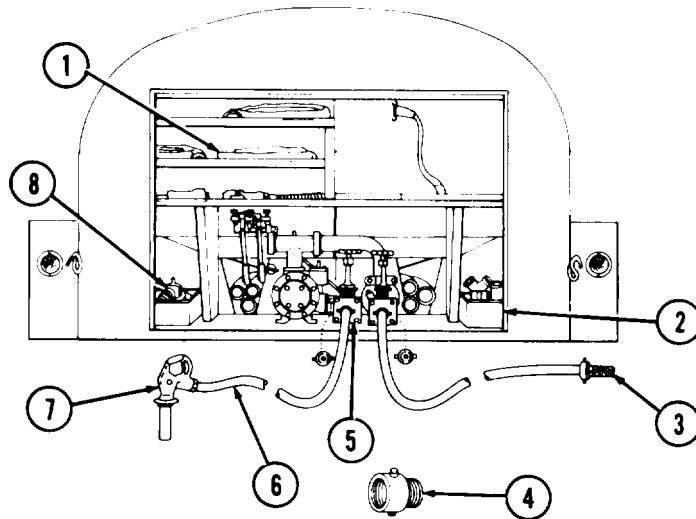
- (1) Start engine (refer to para. 2-14 or 2-15) and place truck near water source.
- (2) Remove gravity delivery line suction valve dust cover (10) and pump delivery line discharge valve dust cover (14).
- (3) Remove suction hose (12) from rear compartment (15) and attach to gravity delivery line suction valve adapter (13).
- (4) Remove strainer (11) from compartment (16) and attach to other end of hose (12).



TA 51656

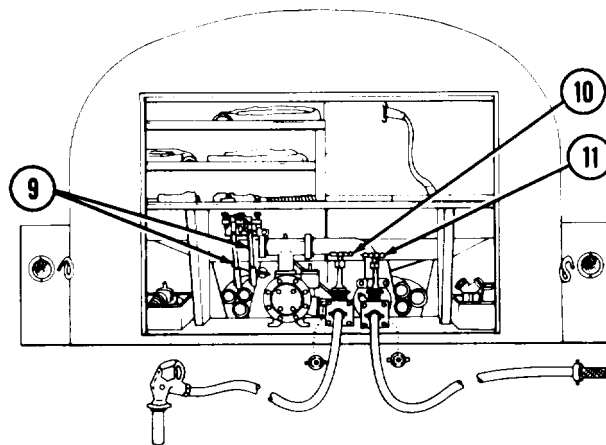
## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

- (5) Place strainer end of hose (3) in water source,
- (6) Remove reducer coupling (4) from compartment (2) and attach to pump delivery line discharge valve adapter (5).
- (7) Remove discharge hose (6) from compartment (1) and attach to coupling (4).
- (8) Remove discharge nozzle (7) from compartment (8) and attach to other end of hose (6).



TA 51657

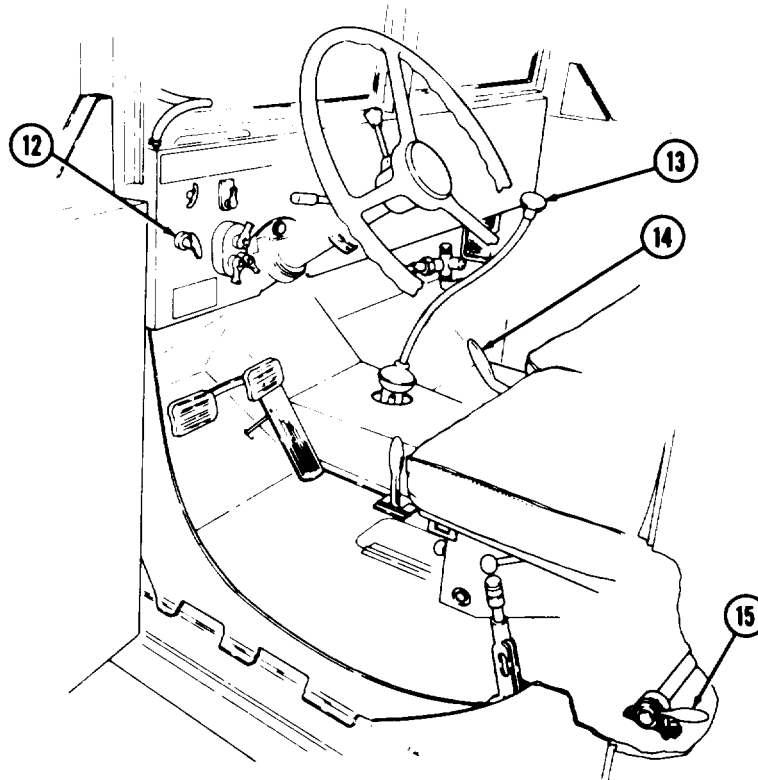
- (9) Turn gravity delivery line suction valve knob (11) and pump delivery line discharge valve knob (10) left, to open position.
- (10) Push compartment valve levers (9) forward, to closed position.



TA 51658

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

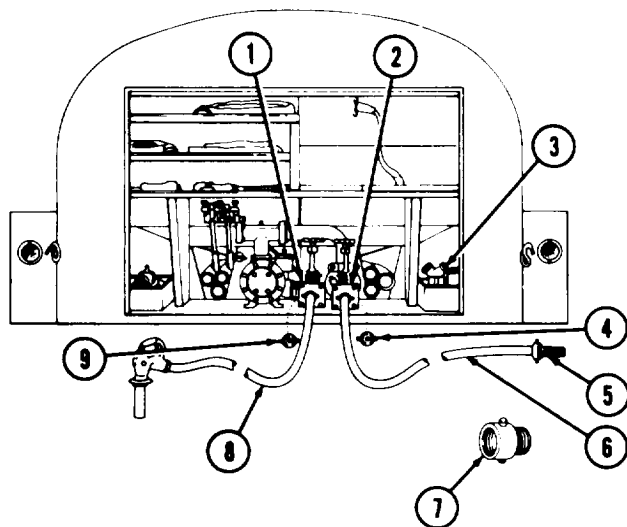
- (11) Place transfer case shift lever (14) in middle position (neutral), and engage transfer power takeoff lever (15).
- (12) Place transmission gearshift lever (13) in "4" (fourth) position.
- (13) Slowly pull out hand throttle (12) until engine reaches 1100 rpm.



- (14) To fill truck tank, refer to b. of this para.
- (15) To fill container, insert discharge nozzle (7), and fill as needed.
- (16) After filling, remove nozzle (7) from container, and strainer end of hose (3) from water source.
- (17) Push hand throttle (12) in, place transmission gearshift lever (13) in "N" (neutral) position, and disengage transfer power takeoff lever (15).
- (18) Turn pump delivery line discharge valve knob (10) and gravity delivery line suction valve knob (11) right, to closed position.
- (19) Shut off engine. Refer to para. 2-17.
- (20) Remove discharge nozzle (7) from hose (6) and secure.

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

- (21) Remove strainer (5) from hose (6) and secure.
- (22) Remove hose (8) from coupling (7), drain and secure.
- (22) Remove hose (6) from adapter (2), drain and secure.
- (24) Remove coupling (7) from pump delivery line discharge valve (1) and secure.
- (25) Install dust covers (4) and (9).



### d. Hydrant Filling the Tank Sections.

- (1) Park truck near hydrant (17).
- (2) Remove padlock (16), lift cover clamp (12), and open filler cover (10).
- (3) Remove hydrant wrench (19) from compartment (15) and remove hydrant cap (20).
- (4) Remove reducer coupling (7) from compartment (3) and attach to hydrant (17).
- (5) Attach discharge hose (8) to coupling (7).
- (6) Remove discharge nozzle (21) from compartment (15) and attach to other end of hose (8).

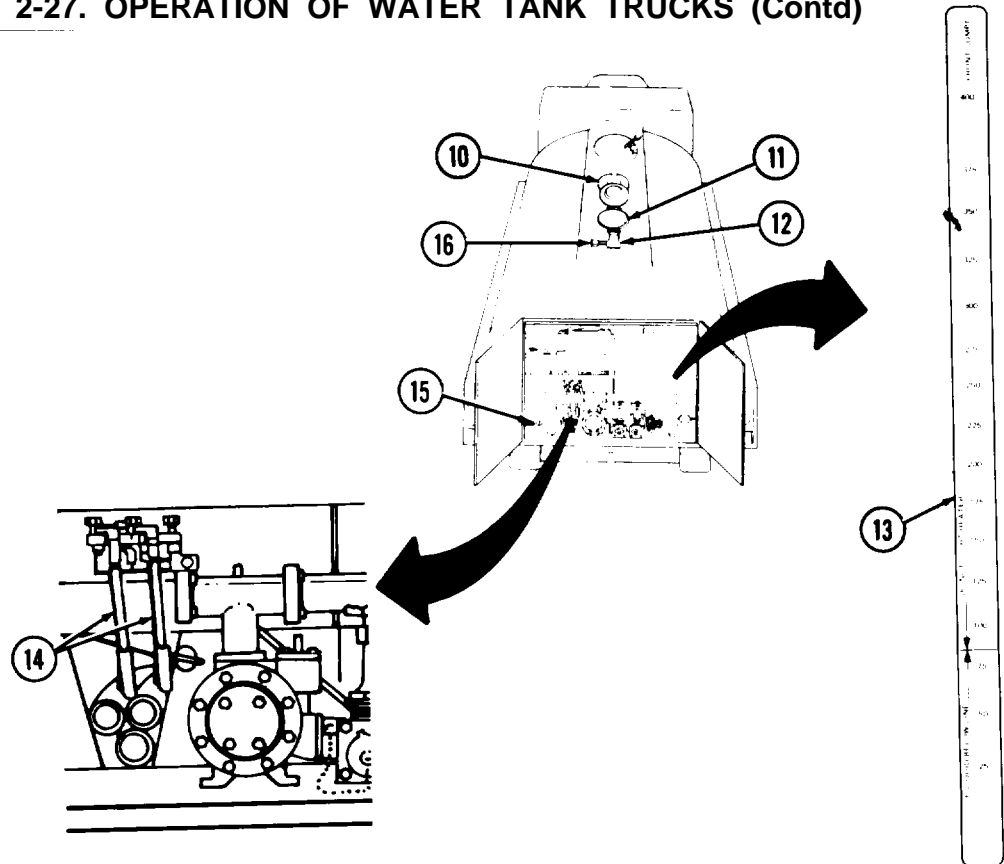
#### NOTE

Ž M50A2 has separate water level gages for front and rear tanks. M50A3 has one gage for both tanks.

Ž Make sure pump delivery line discharge valve and gravity delivery line suction valve are closed.

- (7) Remove water level gage (13).

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)



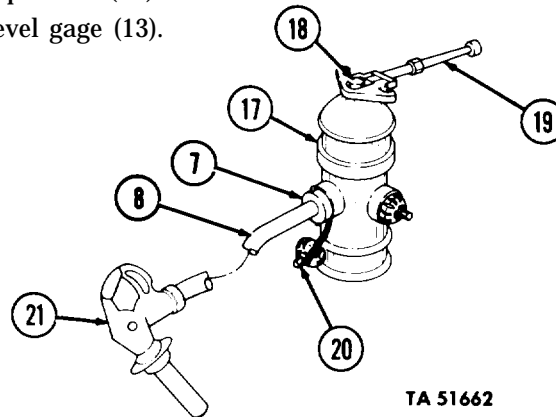
(8) Push compartment valve levers (14) forward, to closed position. **TA 51661**

(9) Use hydrant wrench (19) to turn hydrant valve (18) left, to open position.

(10) Insert nozzle (21) in filler hole (11) and fill as needed. Check water level with gage (13).

(11) After filling tank, remove nozzle (21), close filler cover (10), secure cover clamp (12) and install padlock (16).

(12) Secure water level gage (13).

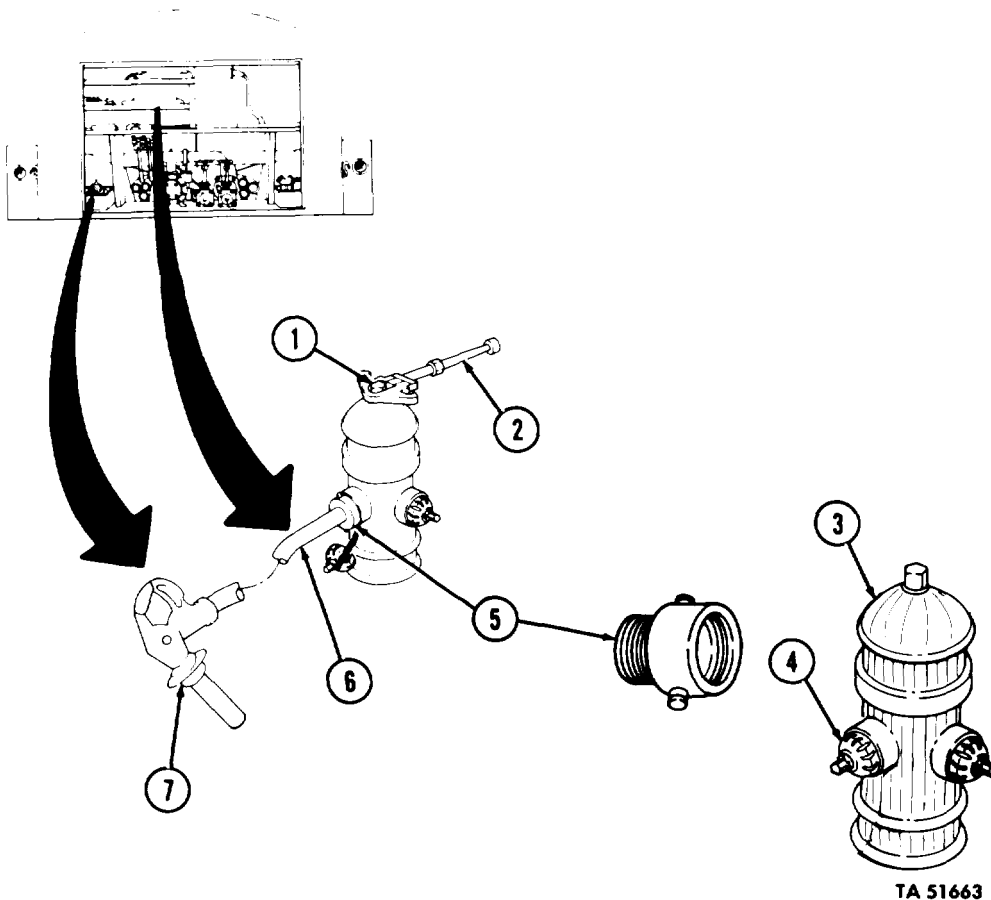


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## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

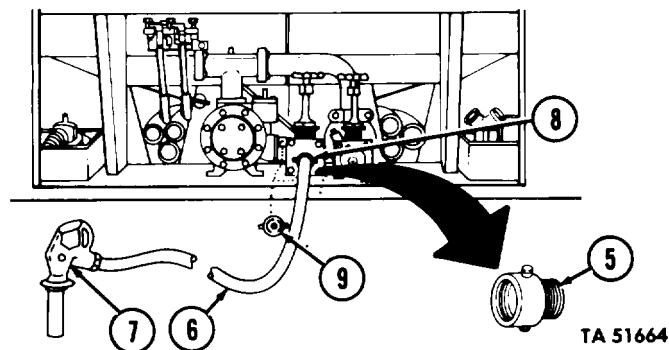
- (13) Turn hydrant valve (1) right, to closed position.
- (14) Press nozzle (7) operating lever to relieve pressure.
- (15) Remove nozzle (7) from hose (6) and secure.
- (16) Remove hose (6) from reducer coupling (5), drain and secure.
- (17) Remove reducer coupling (5) from hydrant (3), and secure.
- (18) Install hydrant cap (4) and secure hydrant wrench (2).



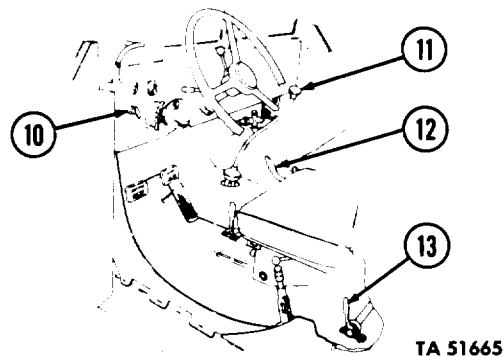
### e. Power Discharging the Tank Sections.

- (1) Park truck near water container, or area to receive water.
- (2) Remove pump delivery line discharge valve dust cover (9).
- (3) Install reducer coupling (5) on pump delivery line discharge valve adapter (8).
- (4) Install discharge hose (6) on coupling (5).
- (5) Install discharge nozzle (7) on other end of hose (6).

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

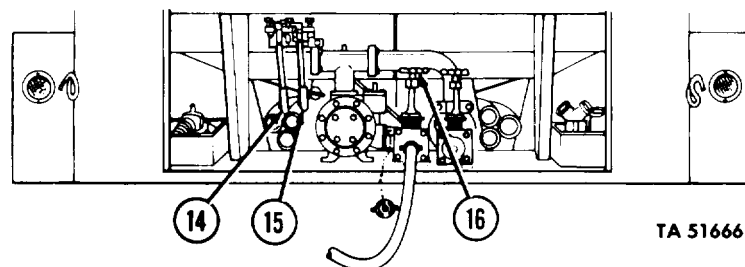


- (6) Start engine (refer to para, 2-14 or 2-15), and place transfer case shift lever (12) in middle position (neutral).
- (7) Engage transfer power takeoff lever (13) and place transmission gearshift lever (11) in "4" (fourth) position.
- (8) Pull out hand throttle (10) to run engine at 1100 rpm.

**NOTE**

Always empty front tank compartment first to keep load properly distributed for vehicle operation.

- (9) Pull compartment lever (14) (front tank) or (15) (rear tank) back, to open position.
- (10) Turn pump delivery line discharge valve knob (16) left, to open position.



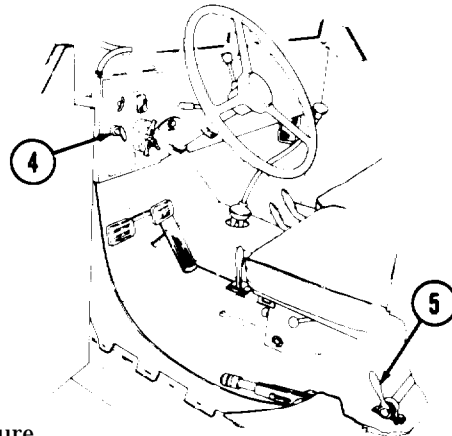
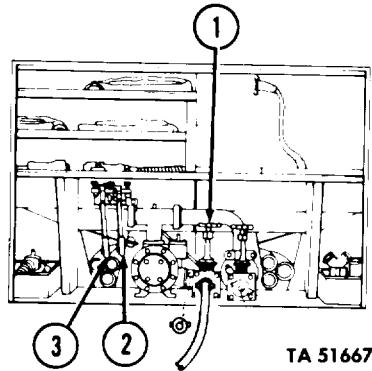
## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

(11) Discharge water.

(12) After discharging water, turn pump delivery line discharge valve (1) right, to closed position.

(13) Push compartment valve lever (3) (front tank) or (2) (rear tank) forward, to closed position.

(14) Push hand throttle (4) in, disengage transfer power takeoff lever (5), and shut off engine (refer to para. 2-17).



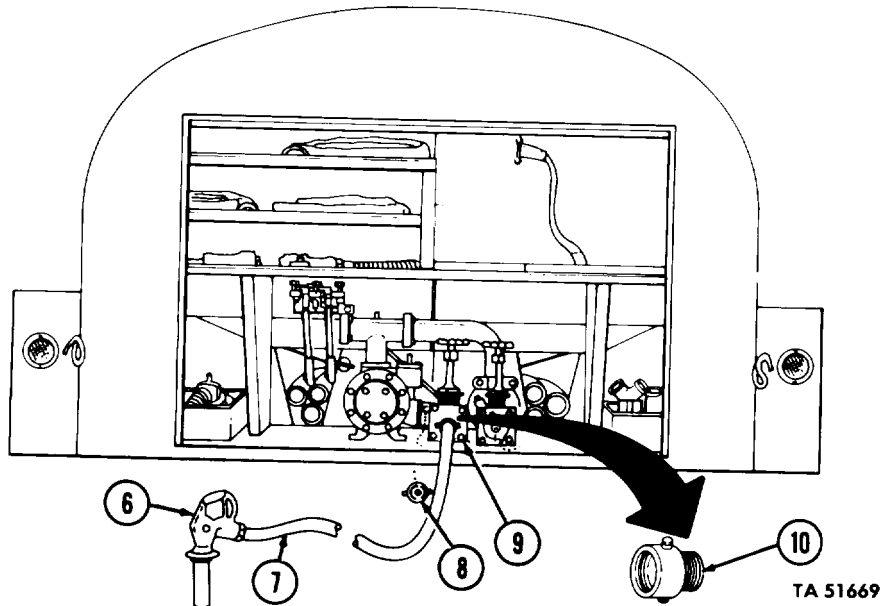
(15) Press nozzle (6) lever to release pressure.

(16) Remove nozzle (6) from hose (7), and secure.

(17) Remove hose (7) from reducer coupling (10), drain, and secure.

(18) Remove coupling (10) from adapter (9) and secure.

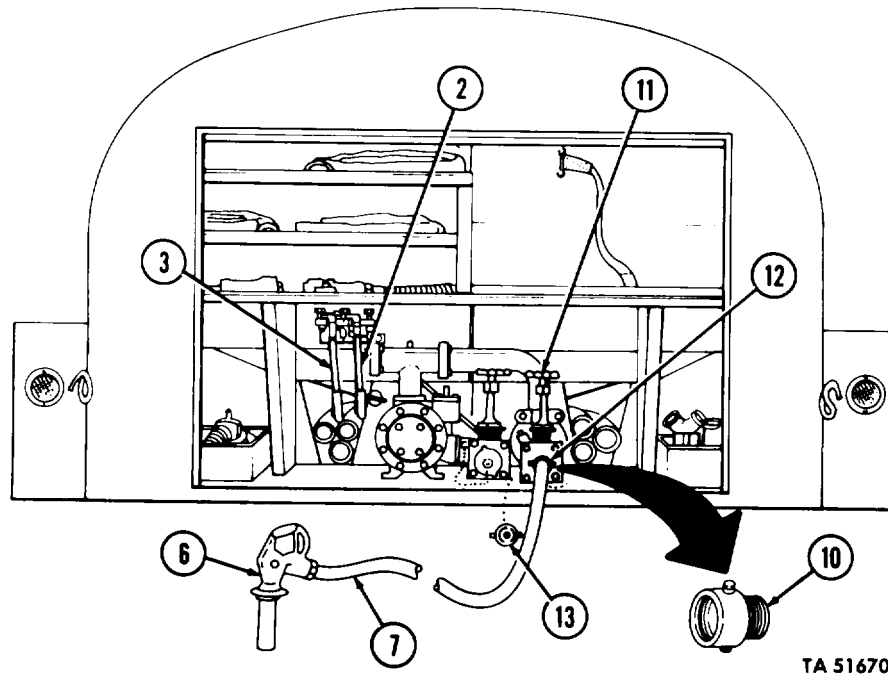
(19) Install pump delivery line discharge valve dust cover (8).



## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

### f. Gravity Discharging the Tank Sections.

- (1) Park truck near water cent airier, or area to receive water.
- (2) Remove gravity delivery line suction valve dust cover (13).
- (3) Install reducer coupling (10) on gravity delivery line suction valve adapter (12).
- (4) Install discharge hose (7) on coupling (10).
- (5) Install discharge nozzle (6) on other end of hose (7).



- (6) Turn gravity delivery line suction valve knob (11) left, to open position.

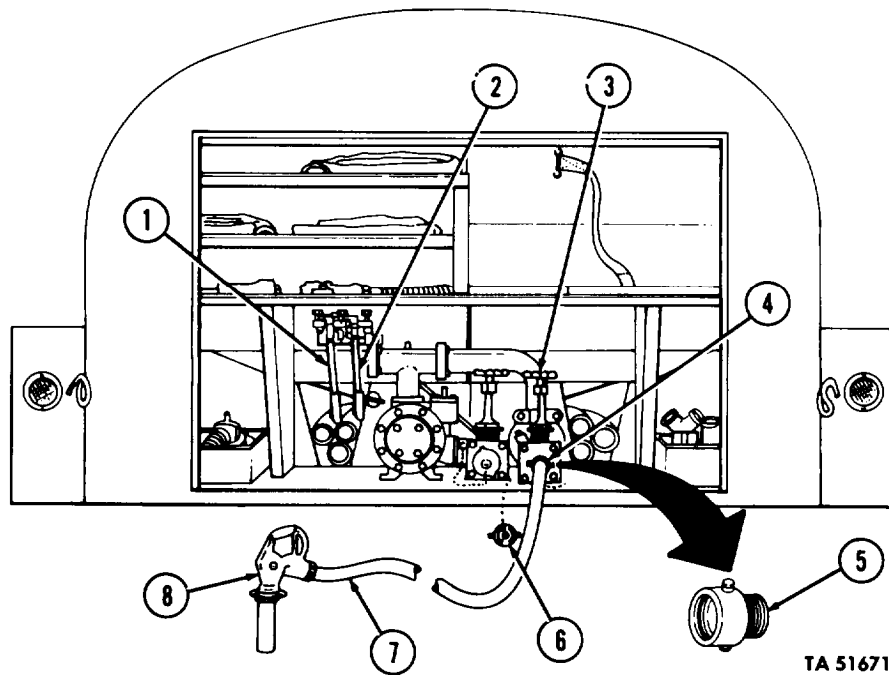
#### NOTE

Always empty front tank compartment first, to keep load properly distributed for vehicle operation.

- (7) Pull compartment valve lever (3) (front tank) or (2) (rear tank) back, to open position.

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

- (8) Discharge water.
- (9) Push compartment valve lever (1) or (2) forward, to closed position.
- (10) Turn gravity delivery line suction valve knob (3) right, to closed position.
- (11) Press nozzle (8) operating lever to release pressure.
- (12) Remove nozzle (8) from hose (7) and secure.
- (13) Remove hose (7) from coupling (5) and secure.
- (14) Remove coupling (5) from adapter (4) and secure.
- (15) Install gravity delivery line suction valve dust cover (6).



### g. Operating Water Tank Trucks During Freezing Temperatures.

#### CAUTION

Do not heat water tank with less than 10 inches of water in both front and rear tank sections. Metal expansion due to heat may cause cracks in seams and welds.

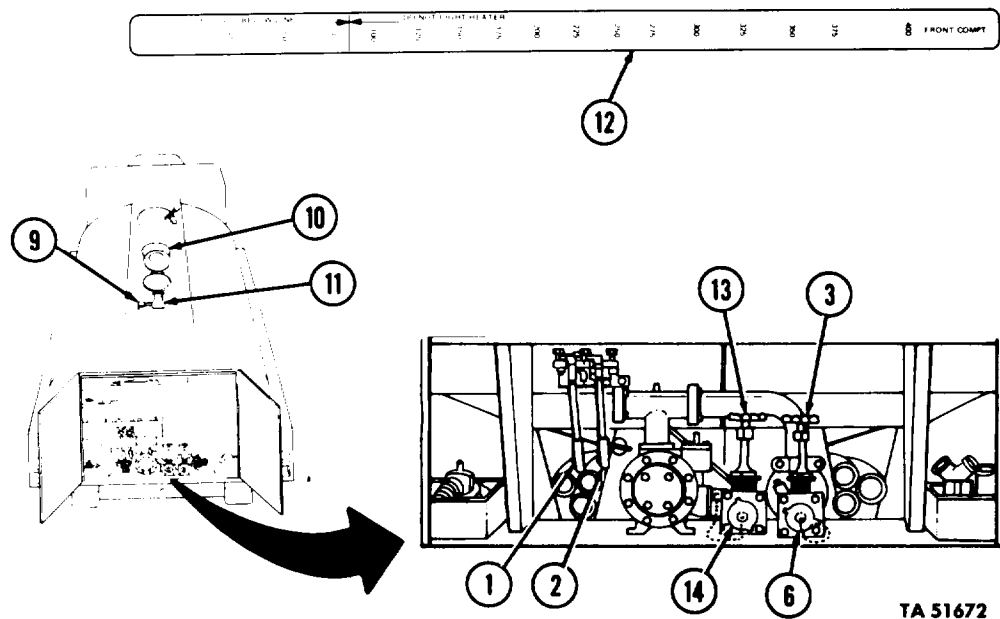
- (1) Remove padlock (9), lift cover clamp (11), and open filler cover (10).

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

### NOTE

M50A2 has separate water level gages for front and rear tanks. M50A3 has one gage for both tanks.

- (2) Remove water level gage (12), and measure water level.
- (3) If less than 10 inches of water in tank, add water (refer to b, c, or d of this para.), or move water from one tank to another.
- (4) To move water from one tank to another:
  - (a) Turn pump delivery line discharge valve knob (13) and gravity delivery line suction valve knob (3) right, to closed position.
  - (b) Pull compartment valve levers (1) and (2) back, to open position.
  - (c) When low tank reaches 10 inches, push compartment valve levers (1) and (2) forward, to closed position.



- (5) Remove pump delivery line discharge valve dust cover (14) and gravity delivery line suction pump dust cover (6), and turn knobs (13) and (3) left, to open position.

### **CAUTION**

During freezing temperatures always keep delivery lines, compartment drain pipes, manifold pipes and delivery pump free of water, except during water discharging operations. Water in system may freeze and damage compartments.

## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

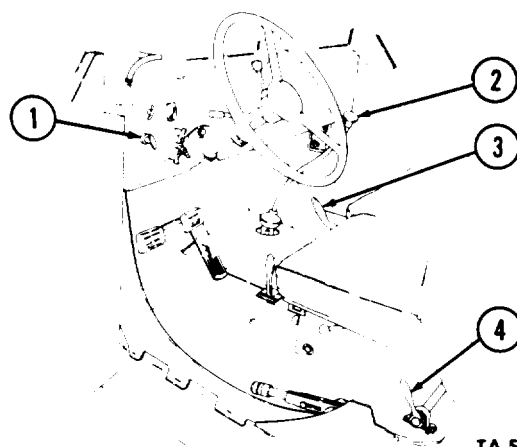
(6) Start engine (refer to para. 2-14 or 2-15) and place transfer case shift lever (3) in neutral.

### NOTE

Make sure parking brake is applied.

(7) Engage transfer power takeoff lever (4) and place transmission gearshift lever (2) in "4" (fourth) position,

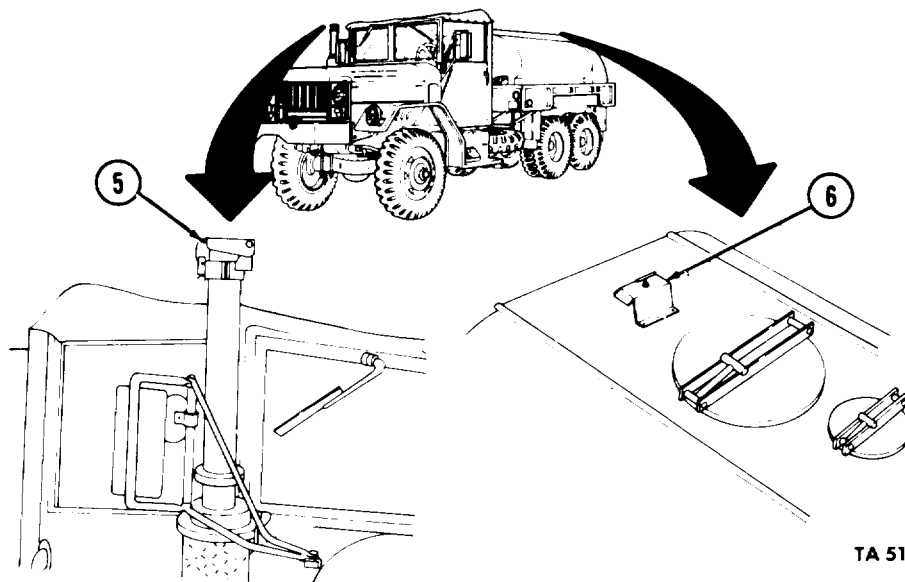
(8) Pull out hand throttle (1) to run engine at 1100 rpm. Let pump run for 60 seconds to drain delivery lines, compartment drain pipes, manifold pipes, and delivery pump.



TA 51673

(9) Push hand throttle (1) in, disengage transfer power takeoff lever (4), and place transmission gearshift lever (2) in "N" (neutral) position.

(10) Close exhaust stack cap (5), and open shutoff valve (6).



TA 51674

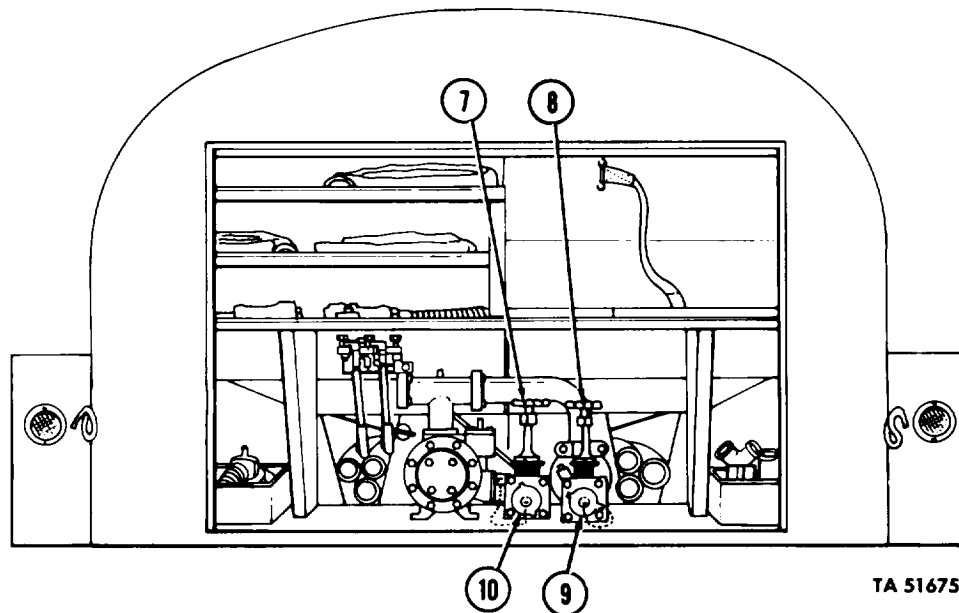
## 2-27. OPERATION OF WATER TANK TRUCKS (Contd)

(11) When outside temperature permits, close shutoff valve (6), open exhaust stack cap (5), and shut off engine (refer to para. 2-17).

### **h. Fording.**

(1) Drain delivery lines, manifold pipes, and delivery pump (refer to g.), turn pump delivery line discharge valve knob (7) and gravity delivery line discharge valve knob (8) right, to closed position, and secure dust caps (10) and (9).

(2) Proceed with fording operation. Refer to para. 2-41 or 2-52.



(3) After fording, flush out manifold pipes, delivery lines, and delivery pump.

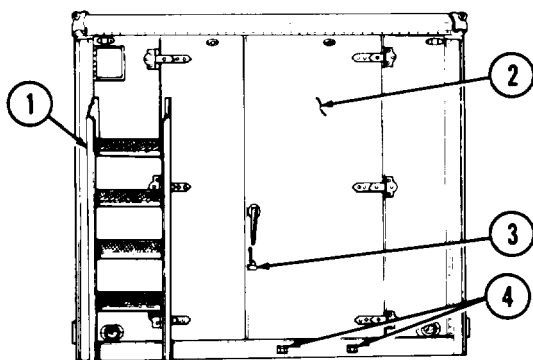
(4) Refer to para. 2-52 to complete after fording operations.



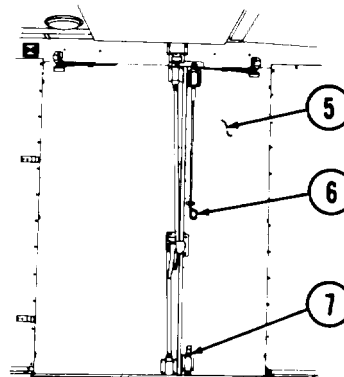
## 2-28. OPERATION OF SHOP VAN AND INSTRUMENT REPAIR SHOP TRUCKS

### a. Preparing Shop Van and Instrument Repair Shop Trucks for Use.

- (1) Unfasten ladder (1) and install on mounting brackets (4).
- (2) Remove padlock (3) and open right door (2).
- (3) Pull latch rod ring (6) down, lift latch rod (7), and open left door (5).

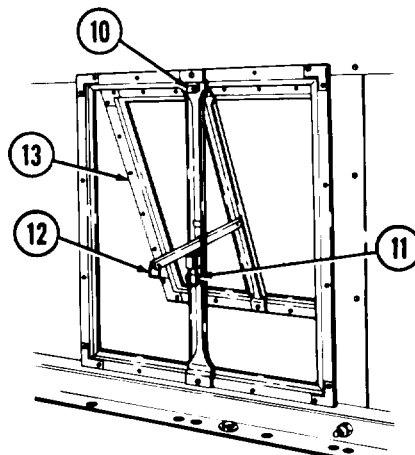
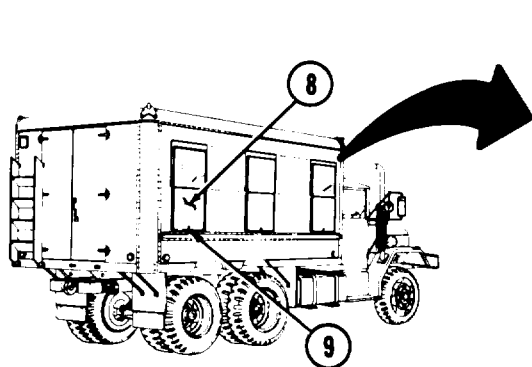


TA 51676



TA 51677

- (4) Lift latch (9), and slide down blackout panel (8) as necessary.
- (5) Press sliding member (12), lift ring (10), and lower sliding member (12) while pulling ring (11) to open window (13).



TA 51678

### b. Supplying 115-Volt AC Power to Van.

- (1) Place power switch (18) in down position.

#### NOTE

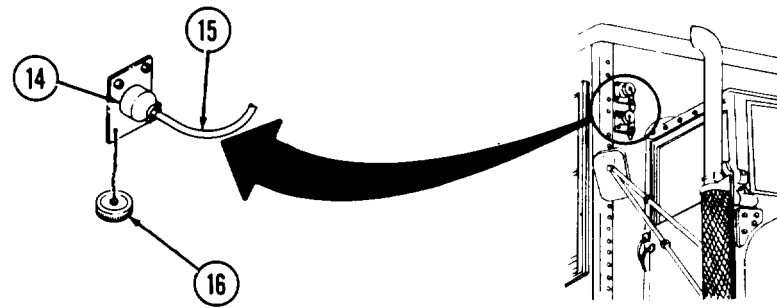
M 185A3 has an auxiliary power source receptacle mounted below 115-volt AC receptacle. Perform steps (2) through (4), as necessary, to use auxiliary power source receptacle.

## 2-28. OPERATION OF SHOP VAN AND INSTRUMENT REPAIR SHOP TRUCKS (Contd)

(2) Remove cable connector dust cover (16).

(3) Install cable connector (15) from outside 115-volt AC power source in receptacle (14).

(4) When van is to be moved, remove connector (15) and install dust cover (16).



TA 51679

### c. Operating Exhaust Blower.

(1) To operate from 115-volt AC source:

(a) Place power switch (18) in up position.

(b) Place heater circuit breaker (17) in UP position.

(c) Place converter selector switch (20) in 115-volt position. Red light (19) will light.

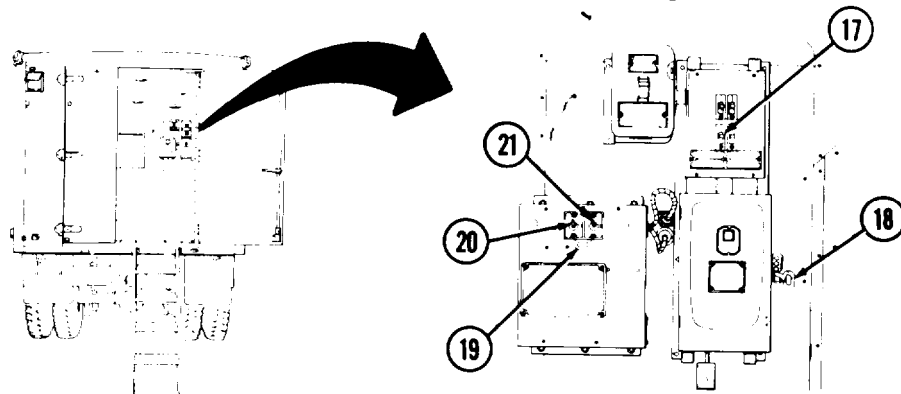
(d) Place exhaust blower switch (21) in HIGH or LOW position.

(2) To operate from 24-volt DC source:

(a) Place power switch (18) in down position.

(b) Place converter selector switch (20) in 24-volt position.

(c) Place exhaust blower switch (21) in HIGH or LOW position.



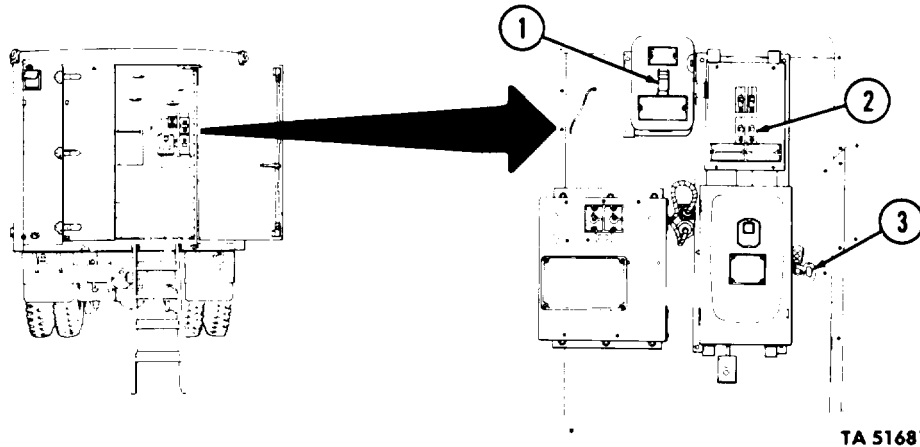
TA 51680

## 2-28. OPERATION OF SHOP VAN AND INSTRUMENT REPAIR SHOP TRUCKS (Contd)

### d. Operating Dome and Blackout Dome Lights.

(1) Operating 115-volt dome lights under normal conditions.

- (a) Place power switch (3) in up position.
- (b) Place ceiling lamp circuit breaker (2) in ON position.
- (c) Place operation blackout switch (1) in down position.

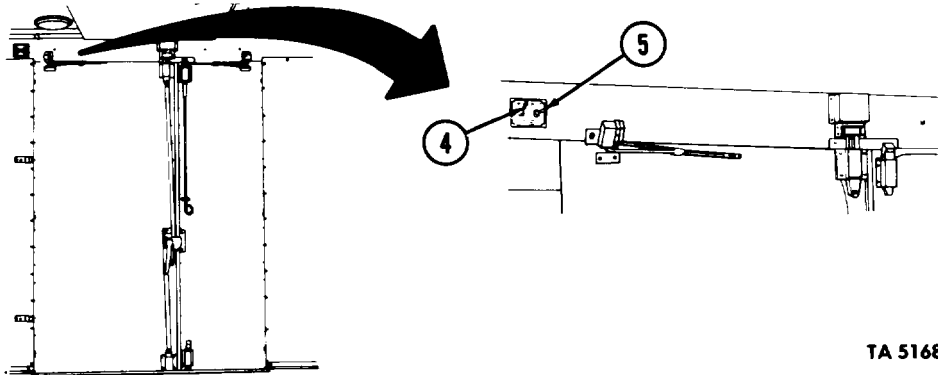


(2) Operating 115-volt dome and blackout lights under blackout conditions.

- (a) Place power switch (3) in up position.
- (b) Place ceiling lamp circuit breaker (2) in ON position.
- (c) Place operation blackout switch (1) in up position.
- (d) Open and close rear doors, as necessary, to check operation of blackout lights. White lights shut off with doors open, red lights stay on.

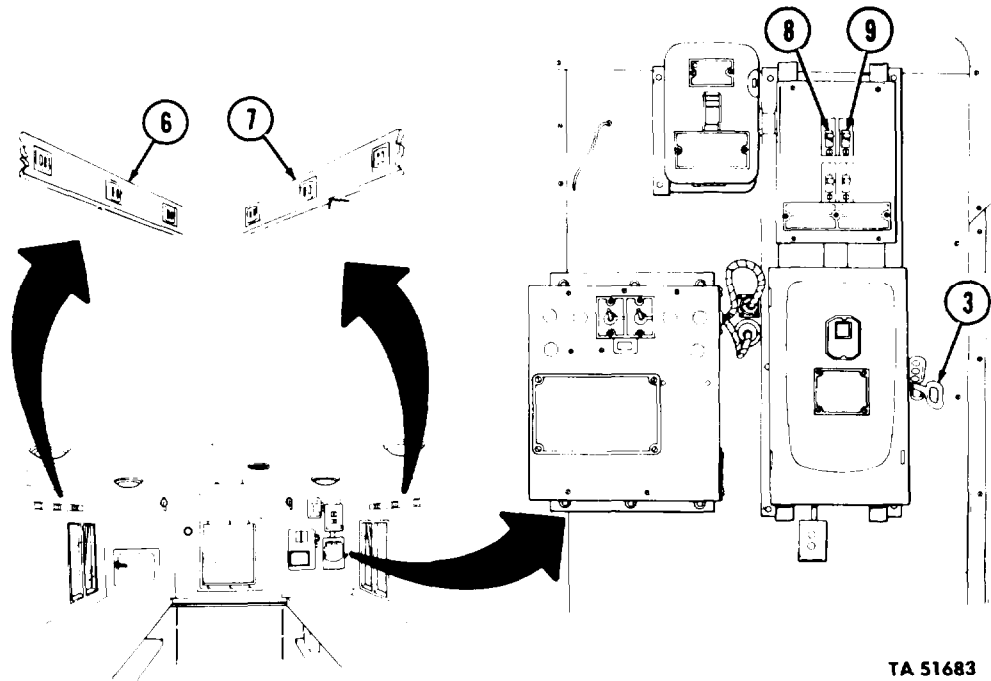
(3) Operating the 24-volt dome lights under normal conditions.

- (a) Place power switch (3) in down position.
- (b) Place dome light toggle switch (4) in ON position.
- (c) Place blackout dome light toggle switch (5) in NORMAL position.



## 2-28. OPERATION OF SHOP VAN AND INSTRUMENT REPAIR SHOP TRUCKS (Contd)

- (4) Operating 24-volt dome lights under blackout conditions.
- (a) Place power switch (3) in down position.
  - (b) Place dome light toggle switch (4) in ON position.
  - (c) Place blackout dome light toggle switch (5) in BLACKOUT position.
  - (d) Open and close rear doors as necessary, to check operation of blackout lights.



### e. Supplying 115-Volt Power to Molding Receptacles.

- (1) Place power switch (3) in up position.
- (2) Place right side power circuit breaker (8) in ON position to supply power to right side molding receptacles (7).
- (3) Place left side power circuit breaker (9) in ON position to supply power to left side molding receptacles (6).

## 2-29. OPERATION OF TRACTOR AND FIFTH WHEEL

**a. General.** A fifth wheel (semitrailer coupler) is mounted on the rear of M275A2 tractor trucks. When connected to a semitrailer, the fifth wheel pivots up, down, and sideways to allow for changes in road conditions. Fifth wheel maximum load ratings are 36,000 lb (16,304 kg) highway, and 17,000 lb (7,718 kg) cross-country.

### b. Wedge Adjustment.

(1) Position fifth wheel wedges (2) fully below walking beam (1) for on-highway operations.

(2) Position wedges (2) back and away from walking beam (1) for cross-country operations.

(3) To position wedges:

(a) Remove screws (3) from center of each wedge (2).

(b) Remove wedge (2) and reverse position.

(c) Using same holes as in step (a), install screws (3) and tighten.

### c. Coupling Semitrailer.

#### NOTE

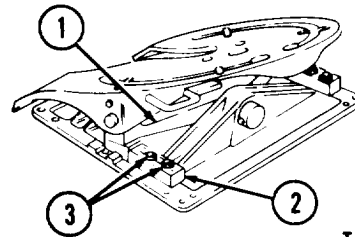
Two crewmembers are required to complete the following procedures.

(1) Back up tractor so fifth wheel coupler jaws (9) aline with semitrailer kingpin (5).

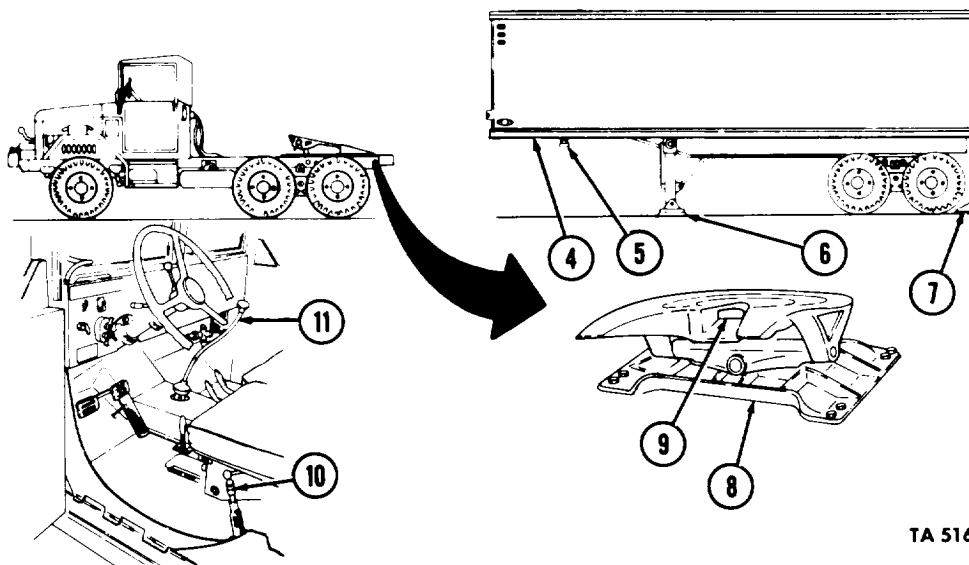
(2) Stop tractor in front of semitrailer, place transmission gearshift lever (11) in "N" (neutral) position, and apply parking brake lever (10).

(3) Adjust trailer landing gear (6) to raise or lower semitrailer skid plate (4). Skid plate (4) should be slightly lower than fifth wheel (8).

#### HIGHWAY POSITION



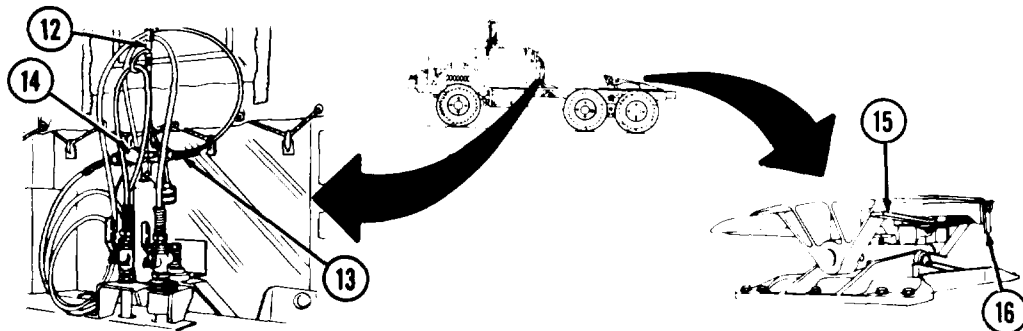
TA 51684



TA 51685

## 2-29. OPERATION OF TRACTOR AND FIFTH WHEEL (Contd)

(5) Turn safety latch (16), left or right, to release locking plunger, and move operating handle (15) forward until it stays in forward position. Coupler jaws (9) are now unlocked.



TA 51686

### **WARNING**

Do not back up vehicle without a ground guide, or injury or death to personnel may result.

(6) Release parking brake lever (10), and slowly back tractor under trailer until fifth wheel coupling jaws (9) are securely locked around semitrailer kingpin (5).

(7) Place transmission gearshift lever (11) in "N" (neutral) position and apply parking brake (10).

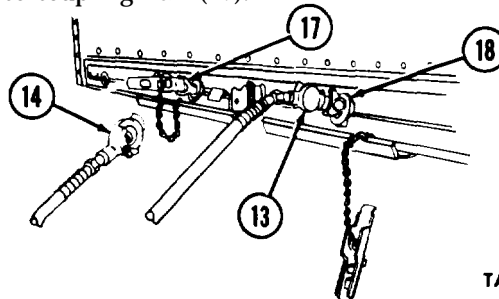
(8) Make sure fifth wheel operating handle (15) is in rearward (locked) position, and safety latch (16) is in vertical position.

### **CAUTION**

Be sure to couple emergency airbrake hose to trailer emergency coupling, and service airbrake hose to service coupling. Hoses not hooked up properly may cause failure in brake system.

(9) Remove emergency airbrake hose coupling half (13) from hose support (12), and attach to trailer emergency coupling half (18).

(10) Remove service airbrake hose coupling half (14) from hose support (12), and attach to trailer service coupling half (17).

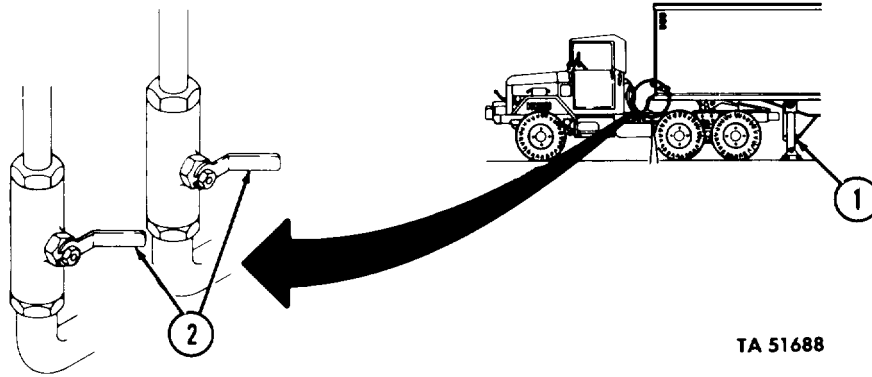


TA 51687

## 2-29. OPERATION OF TRACTOR AND FIFTH WHEEL (Contd)

(11) Place service and emergency cutout cocks (2) in side-to-side position, to turn on air supply.

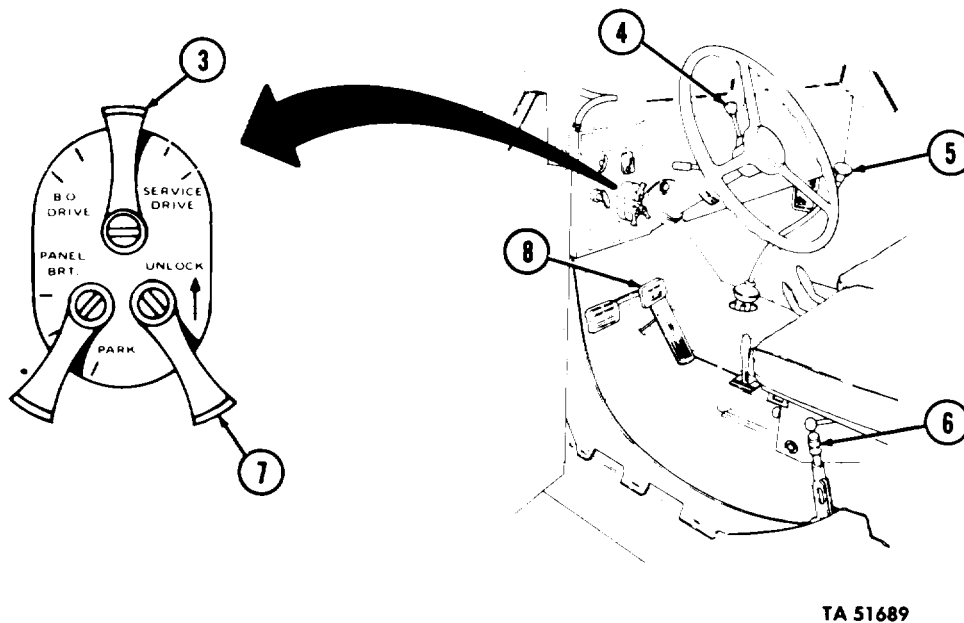
(12) Set airbrake hand control lever (4) in down (on) position to check service airbrake system, Air should be heard passing through control vale.



(13) Release parking brake lever (6), set airbrake hand control lever (4) in down (on) position, and slowly move tractor forward to get positive locking of semitrailer kingpin with fifth wheel.

(14) Place transmission gearshift lever (5) in "N" (neutral) position, apply parking brake lever (6), and shut off engine (refer to para. 2-17).

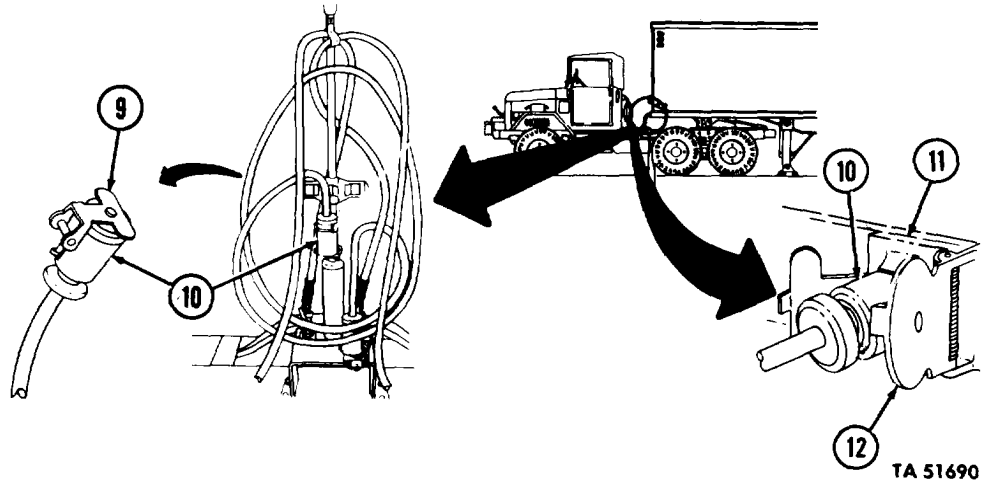
(15) Raise trailer landing gear (1).



**2-29. OPERATION OF TRACTOR AND FIFTH WHEEL (Contd)****CAUTION**

Do not force electrical cable connector into trailer receptacle or damage to equipment may result.

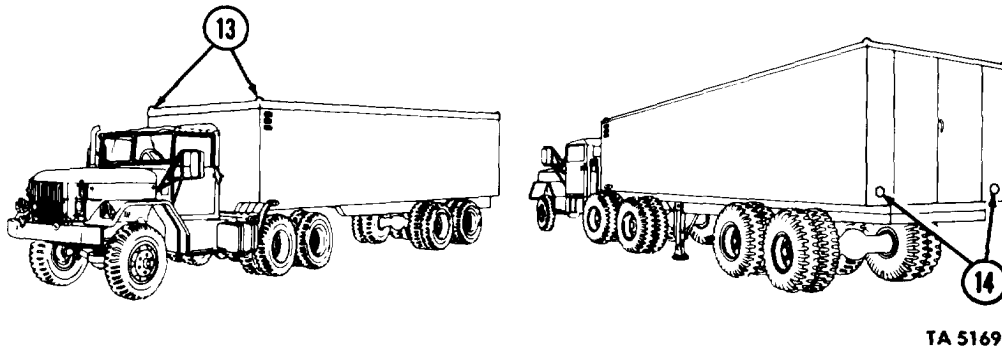
(16) Open caps (9) and (12) on electrical cable connector (10) and trailer receptacle (11), and install connector (10) in receptacle (11).



(17) Lift unlock switch (7), move main switch (3) to SERVICE DRIVE position, release unlock switch (7), and check trailer running lights (13) for operation.

(18) Depress service brake pedal (8), and check trailer, stoplights (14) for operation.

(19) Turn main switch (3) to OFF position.

**d. Uncoupling Semitrailer.****WARNING**

Do not back up trailer without a ground guide, or injury or death to personnel may result.

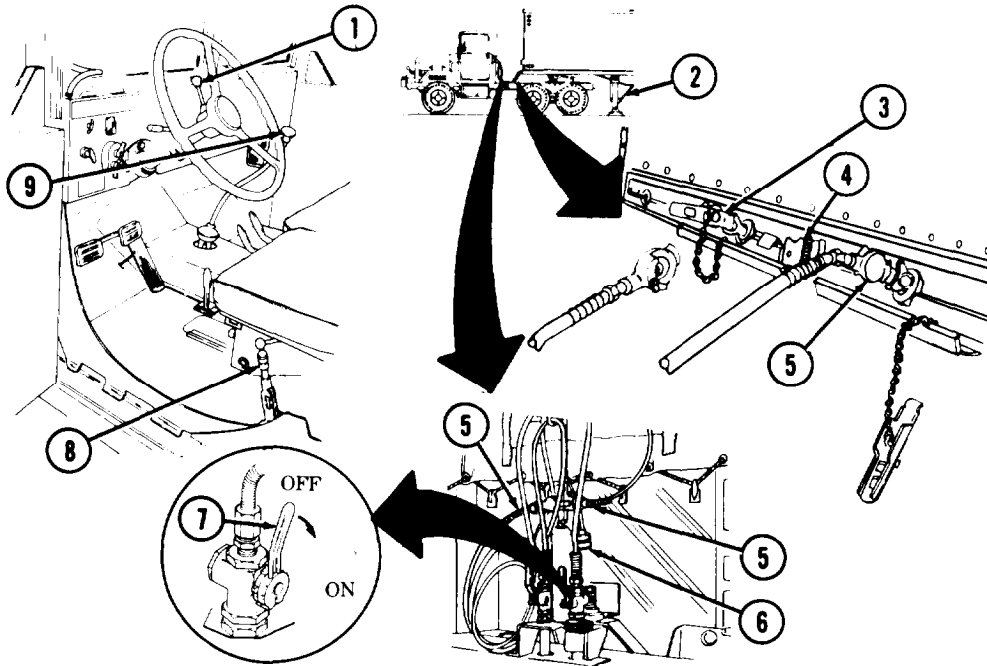


## 2-29. OPERATION OF TRACTOR AND FIFTH WHEEL (Contd)

(1) Place semitrailer in proper location, set airbrake hand control lever (1) in down (on) position, and apply parking brake lever (8).

(2) Shut off engine (refer to para. 2-17), move transmission gearshift lever (9) to "N" (neutral) position, and lower landing gear (2).

(3) Remove cable electrical connector (6) from trailer receptacle (4) and secure.



TA 51692

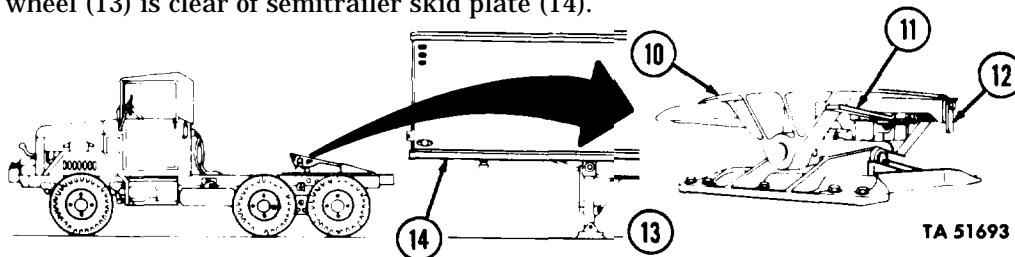
(4) Set airbrake hand control lever (1) in up (off) position, and turn cutout cocks (7) in up-and-down position, to turn off air supply.

(5) Remove emergency and service hose coupling halves (5) from trailer emergency and service coupling halves (3), and secure.

(6) Turn safety latch (12) to release locking plunger and move operating handle (11) forward until coupler jaws (10) are unlocked.

(7) Start engine (refer to par. 2-14 or 2-15).

(8) Release parking brake lever (8) and move tractor forward until fifth wheel (13) is clear of semitrailer skid plate (14).



TA 51693

## 2-30. OPERATION OF DUMP TRUCKS

**a. General.** M342A2 dump trucks may be used as regular cargo carriers or for dumping or spreading operations. Payload capacity is 5,000 lb (2,270 kg). Table 2-3 provides a weight chart for typical materials.

Table 2-3. Weight of Material in Truck.

MATERIAL	WEIGHT OF MATERIAL (lb)		CAPACITY	
			Level Full (2.51 cu-yd or 67.79 cu-ft)	Heaping Full (3.76 cu-yd or 101.50 cu-ft)
	Per cu-ft	Per cu-yd (kg per cuM)	Loaded Weight lb (approx) (kg)	Loaded Weight lb (approx) (kg)
Ashes	43	1,161 (1,518.5)	2,914 (1,323)	4,365 (1,982)
Cinders	46	1,242 (1,624.4)	3,117 (1,415)	4,670 (2,120)
Clay, dry loose	77	2,079 (2,719.1)	5,218* (2,369)	7,817* (3,549)
Clay, wet	110	2,970 (3,884.5)	7,455* (3,385)	11,167* (5,070)
Clay and gravel, dry	100	2,700 (3,531.3)	6,777* (3,077)	10,152* (4,609)
Clay and gravel, wet	65	1,755 (2,295.4)	4,405 (2,000)	6,599* (2,996)
Coal, anthracite (hard)	54	1,458 (1,906.9)	3,660 (1,662)	5,482* (2,489)
Coal, bituminous (soft)	81	2,187 (2,860.4)	5,489* (2,492)	8,223* (3,733)
Coke	28	756 (988.8)	1,898 (862)	2,843 (1,291)
Concrete	138	3,726 (4,873.2)	9,352* (4,246)	14,010* (6,361)
Concrete mix, wet	124	3,348 (4,379.1)	8,403* (3,815)	12,588* (5,715)
Earth, dry loose	75	2,025 (2,648.8)	5,083* (2,308)	7,614* (3,457)
Earth, moist packed	95	2,565 (3,354.8)	6,438* (2,923)	9,444* (4,288)
Earth and gravel, dry loose	100	2,700 (3,531.3)	6,777 (3,077)	10,152* (4,609)
Garbage, dry	37	999 (1,306.6)	2,507 (1,138)	3,756 (1,705)
Garbage, wet	47	1,269 (1,659.7)	3,185 (1,446)	4,771 (2,166)
* Over rated payload				

**2-30. OPERATION OF DUMP TRUCKS (Contd)***Table 2-3. Weight of Material in Truck. (Contd)*

MATERIAL	WEIGHT OF MATERIAL (lb)		CAPACITY	
			Level Full (2.51 cu-yd or 67.79 cu-ft)	Heaping Full (3.76 cu-yd or 101.50 cu-ft)
	Per cu-ft	Per cu-yd (kg per cuM)	Loaded Weight lb (approx) (kg)	Loaded Weight lb (approx) (kg)
Gravel	110	2,970 (3,884.5)	7,455* (3,385)	11,167* (5,070)
Gravel and sand, dry loose	95	2,565 (3,354.8)	6,438* (2,923)	9,444* (4,288)
Gravel and sand, wet	120	3,240 (4,237.6)	8,132* (3,692)	12,182* (5,531)
Limestone, crushed	100	2,700 (3,531.3)	6,777* (3,077)	10,152* (4,609)
Mud, wet	120	3,240 (4,237.6)	8,132* (3,692)	12,182* (5,531)
Rock and stone, crushed	95	2,565 (3,354.8)	6,438* (2,923)	9,444* (4,288)
Salt, fine	50	1,350 (1,765.7)	3,389 (1,539)	5,076 (2,305)
Sand, dry loose	98	2,646 (3,460.7)	6,641* (3,015)	9,949* (4,517)
Sand, dry packed	110	2,970 (3,884.5)	7,455* (3,385)	11,167* (5,070)
Sand, moist loose	120	3,240 (4,237.6)	8,132* (3,692)	12,182* (5,531)
Slag, crushed	75	2,025 (2,648.5)	5,083* (2,308)	7,614* (3,457)
Snow, moist packed	50	1,350 (1,765.7)	3,389 (1,539)	5,076* (2,305)
Stone, crushed	100	2,700 (3,531.3)	6,777* (3,077)	10,152* (4,609)
Stone, loose	95	2,565 (3,354.8)	6,438* (2,923)	9,444* (4,288)
* Over rated payload				

**b. Rigging Tailgate.**

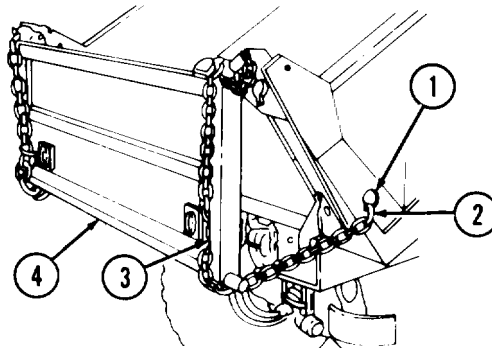
(1) To rig tailgate (4) for dumping and spreading operations:

(a) Pass free end of chains (2) through retainers (3) and into locking slots (1).

## 2-30. OPERATION OF DUMP TRUCKS (Contd)

(b) Leave slack in chains (2) to let tailgate (4) swing open enough for material to slip through.

(c) Secure chains (2) in bottom of locking slots (1).



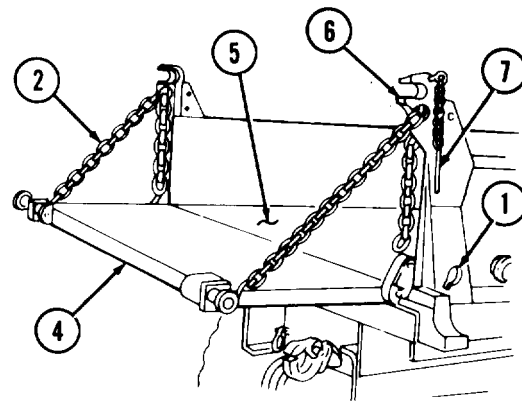
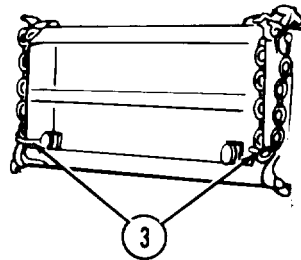
TA 51694

(2) To rig tailgate (4) for regular loading and unloading:

(a) Pull free end of chains (2) through locking slots (1) and retainers (3) anti insert in locking slots (6).

(b) Remove locking pins (7) and slowly lower tailgate (4). Do not let tailgate (4) drop.

(c) When tailgate (4) is in line with truck bed (5) secure chains (2) in bottom of locking slots (6).



TA 51695

### c. Loading Dump Trucks.

(1) To load from top:

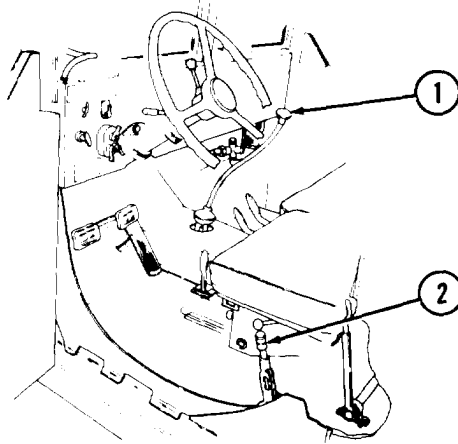
(a) Position truck so truck bed (5) is under loading device.

## 2-30. OPERATION OF DUMP TRUCKS (Contd)

(b) Apply parking brake lever (2), place transmission gearshift lever (1) in "N" (neutral) position, and shut off engine (refer to para. 2-17).

(c) Rig tailgate (3) for loading (refer to b. of this para.).

(d) Load truck, following load limitations in table 2-3, and all safety precautions.



TA 51696

(2) To load from end:

(a) Lower tailgate (3) (refer to b. of this para.).

(b) Position truck near loading dock or platform.

(c) Apply parking brake lever (2), place transmission gearshift lever (1) in "N" (neutral) position and shut off engine (refer to para. 2-17).

(d) Load truck, following load limitations in table 2-3, and all safety precautions.

(e) Raise tailgate (3) and secure with locking pins (4).

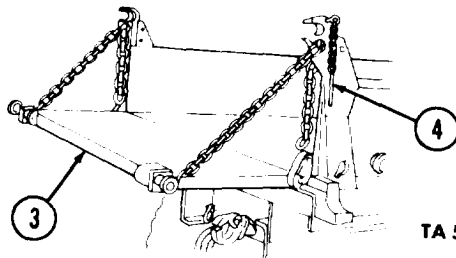
### d. Unloading Dump Truck with Body Down.

(1) Lower tailgate (3) (refer to b. of this para.).

(2) Position truck near unloading dock or platform.

(3) Apply parking brake lever (2), place transmission gearshift lever (1) in "N" (neutral) position, and shut off engine (refer to para. 2-17).

(4) Unload truck, observing all safety precautions.

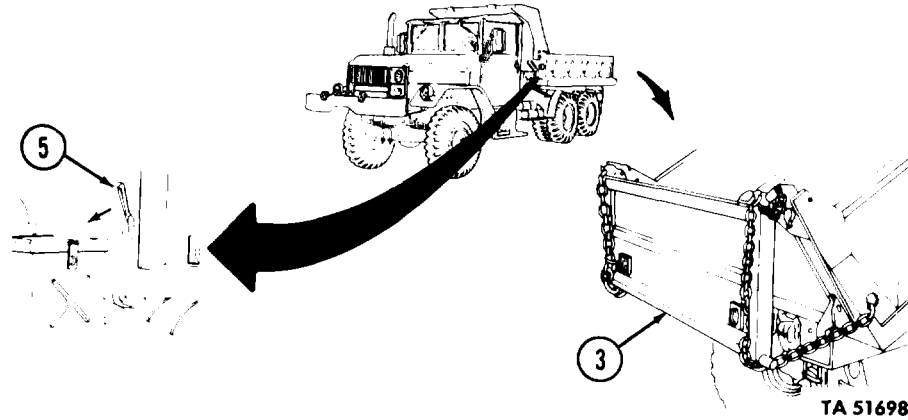


TA 51697

## 2-30. OPERATION OF DUMP TRUCKS (Contd)

### e. Unloading Dump Truck by Dumping.

- (1) Position truck so tailgate (3) is over dumping area.
- (2) Apply parking brake lever (2) and place transmission gear-shift lever (1) in "N" (neutral) position.
- (3) Rig tailgate (3) to swing open at bottom (refer to b. of this para.).
- (4) Pull tailgate hand lever (5) forward and down to open tailgate (3).



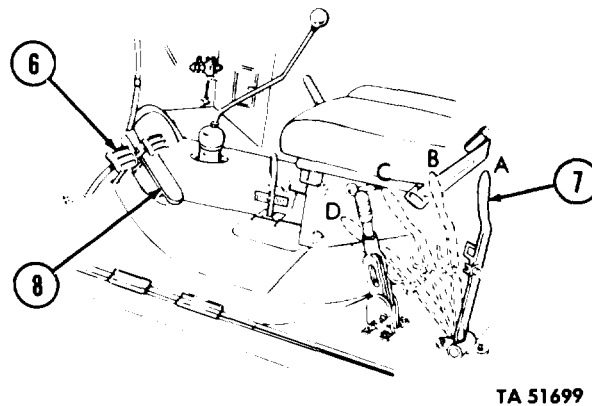
(5) Depress accelerator pedal (8) enough to prevent stalling, depress clutch pedal (6) in, move hoist control lever (7) forward to position D to raise dump body, and release clutch pedal (6).

(6) When dump body is raised to proper height, move hoist control lever (7) to position C, to hold body in position, and dump load.

(7) After dumping, clear tailgate area of material, and move hoist control lever (7) to position B, to lower dump body.

(8) When dump body is down, move hoist control lever (7) to position A, and secure.

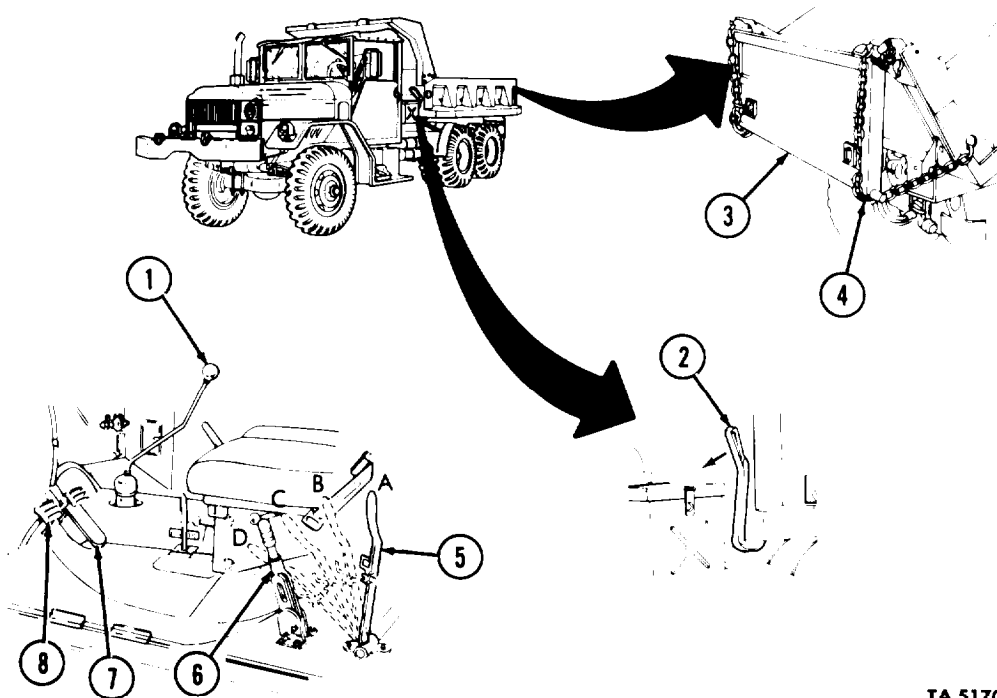
(9) Push tailgate hand lever (5) up and back, to secure tailgate (3).



## 2-30. OPERATION OF DUMP TRUCKS (Contd)

### f. Unloading Dump Truck by Spreading.

- (1) Position truck so tailgate (3) is over starting point of area to be covered.
- (2) Apply parking brake lever (6), and place transmission gearshift lever (1) in "N" (neutral) position.
- (3) Rig tailgate (3) to swing open at bottom (refer to b. of this para.), adjusting chains (4) to control opening for material to be spread.
- (4) Pull tailgate hand lever (2) forward and down to open tailgate (3).
- (5) Depress accelerator pedal (7) enough to prevent stalling, depress clutch pedal (8) in, move hoist control lever (5) forward to position D to raise dump body, and release clutch pedal (8).



TA 51700

- (6) When dump body is raised to proper height, move hoist control lever (5) to position C, to hold body in position, depress clutch pedal (8), and place transmission gearshift lever in "1" (first) position.
- (7) Release parking brake lever (6), and slowly move truck along spreading area, moving hoist control lever (5) to position B or D, to control flow of material.
- (8) After material has been spread, move hoist control lever (5) to position B, to lower dump body.
- (9) When dump body is down, move hoist control lever (5) to position A, and secure.
- (10) Shut off engine (refer to para. 2-17), and push tailgate hand lever (2) up and back, to secure tailgate (3).

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS

**a. General.** The M756A2 pipeline construction truck has an open top metal body with a wood-metal reinforced flatbed. The truck is equipped with a rear winch, a winch and cab protector, two gin poles for constructing an A-frame, two 24-volt floodlights, a tailboard roller, a custom made toolbox, and stiff leg jacks for additional support. Weather protection for personnel and equipment is provided by a cargo body tarpaulin, with end curtains supported by top bows. Front and side cargo body panels with racks support the top bows. These panels and racks are easily removable for side loading. The side cargo racks have built-in troop seats so that the truck can be used as a personnel carrier when necessary. Additional personnel will be required for operating M756A2 trucks.

### b. Operating the Rear Winch.

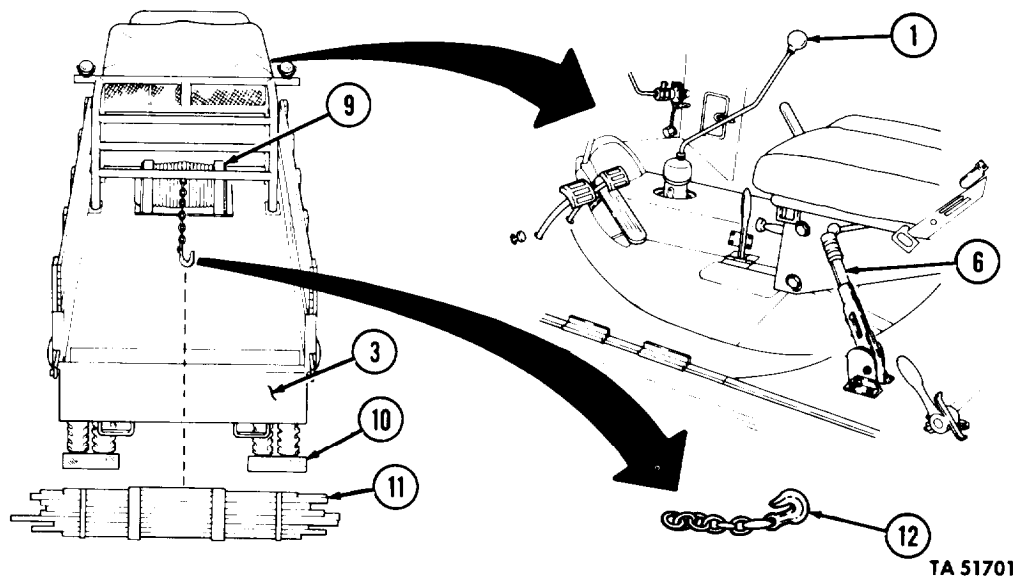
#### WARNING

- All personnel must stand clear during hoisting and lowering operations. A shifting or swinging load may result in injury or death to personnel.
- When hooking up for winching operations, position throat (open part) of hook (12) upward in case overloading straightens out hook (12). Failure to do this may result in injury or death to personnel.

(1) Place truck so winch (9) is in direct line with load (11) to be pulled or lifted.

(2) Apply parking brake lever (6), place transmission gearshift lever (1) in "N" (neutral) position, and shut off engine (refer to para. 2-17).

(3) Set wheel chocks (10) behind rear wheels, and lower tailgate (3) (refer to para. 2-25).



TA 51701



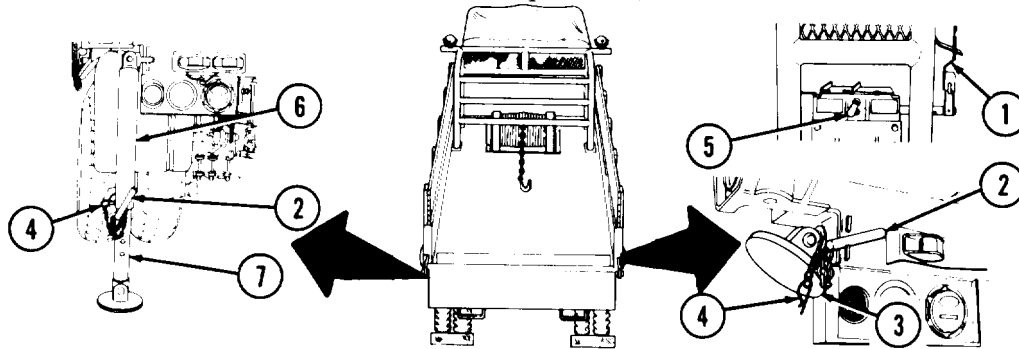
## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

(4) Unhook safety pins (4), remove tee locking pins (2), and remove stiff leg jacks (3) from both sides of truck.

(5) Adjust lower leg (7) in upper leg (6) until lower leg (7) is set firmly on ground. Install tee locking pin (2) through leg (7) and secure with safety pin (4).

(6) Pull out drum lock knob (5) and rotate it 90° to unlocked position.

(7) Place winch clutch lever (1) in off position (toward center of truck).



TA 51702

### WARNING

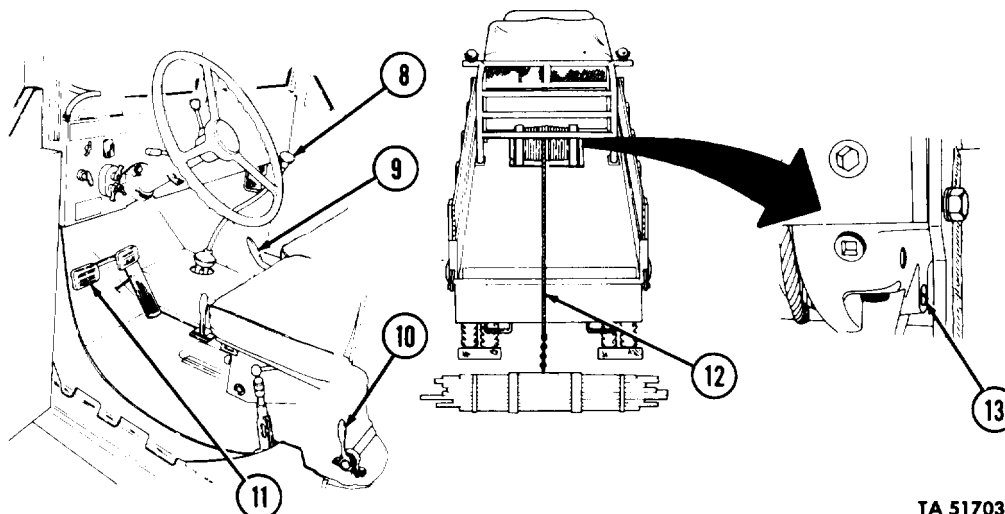
Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

### NOTE

Do not kink winch cable.

(8) Fasten winch cable (12) to load.

(9) Turn adjusting screw (13) right, as necessary, to tighten drag brake and maintain cable tension.



TA 51703

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

(10) Start engine (refer to para. 2-14 or 2-15), place transmission gearshift lever (8) in "N" (neutral) position, engage transfer power takeoff lever (10), and place transfer case shift lever (9) in neutral,

### CAUTION

Do not operate winch with less than four turns of cable on drum. Failure to do so may cause damage to winch.

### NOTE

If winch clutch lever is hard to shift, make sure transfer power takeoff lever is engaged, place transmission in gear, and slip engine clutch slightly.

(11) Shift winch clutch lever (1) to on position (toward left side of truck).

(12) Depress clutch pedal (11) in, place transmission gearshift lever (8) in:

(a) "3" (third) position for normal load.

(b) "1" (first) or "2" (second) position for heavy load.

### NOTE

Make sure first layer of winch cable goes onto drum in order and that each additional layer starts back across drum. If necessary, use wooden block to assist in cable alignment.

(13) Release clutch pedal (11) slowly, to wind in cable (12).

(14) When load clears ground, depress clutch pedal (11) stop winch. Safety brake should hold.

### CAUTION

Do not turn brake adjusting screw counterclockwise more than one full turn, or screw will come out of brake drum, and brake drum will have to be disassembled to repair.

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

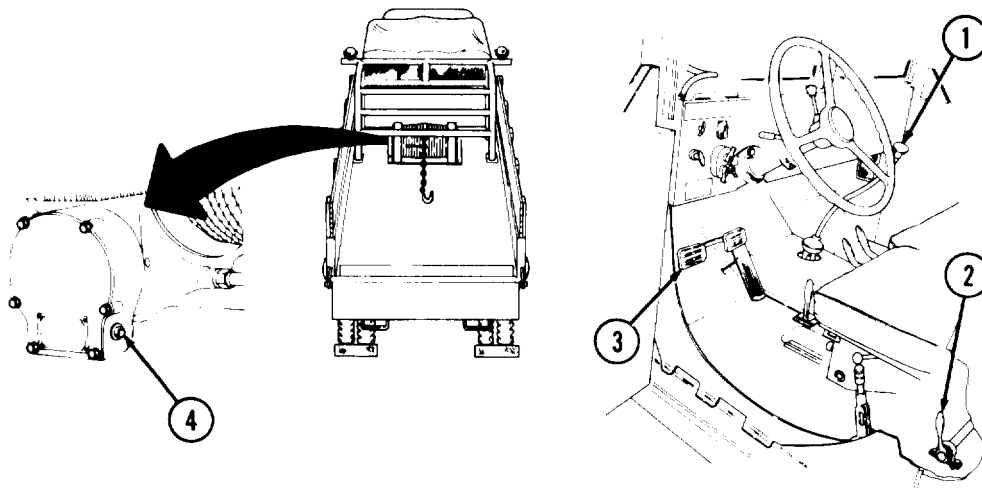
(15) If safety brake does not hold load, turn brake adjustment screw (4) clockwise (from under truck) to tighten brake.

(16) To lower load or unwind winch under power:

- (a) Depress clutch pedal (3).
- (b) Place transmission gearshift lever (1) in "N" (neutral) position.
- (c) Release clutch pedal (3) slowly.

(17) At end of winch operations:

- (a) Depress clutch pedal (3).
- (b) Place transmission gearshift lever (1) in "N" (neutral) position.
- (c) Disengage transfer power takeoff lever (2) and secure.
- (d) Shut off engine. Refer to para. 2-17.



TA 51704

(18) Pull out winch lock knob (6) and rotate 90° until it engages poppet nut (7).

(19) Turn winch drum (5) until poppet engages winch drum flange.

(20) Lift jack legs (9) and (11) to level position, push into stowage compartment about 1 foot, and remove safety pins (10) and tee locking pin (8).

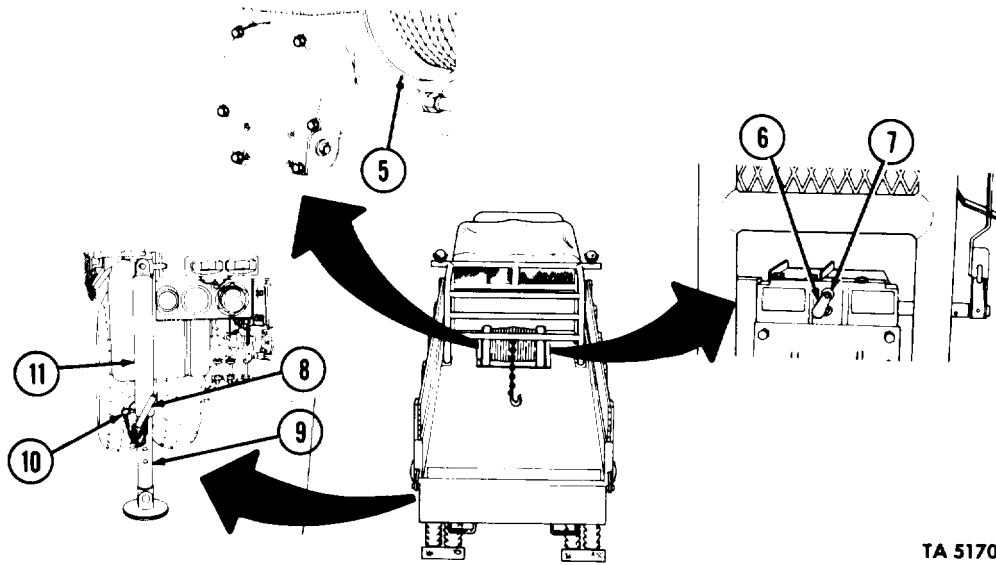
(21) Slide leg (9) into leg (11).

(22) Install tee locking pin (8) in hole, but do not let pin extend out of other side of leg (11).

(23) Slide legs (9) and (11) into compartment, turn tee locking pin (8) handle to up and down position, and push all the way in.

(24) Install safety pin (10) in tee locking pin (8).

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

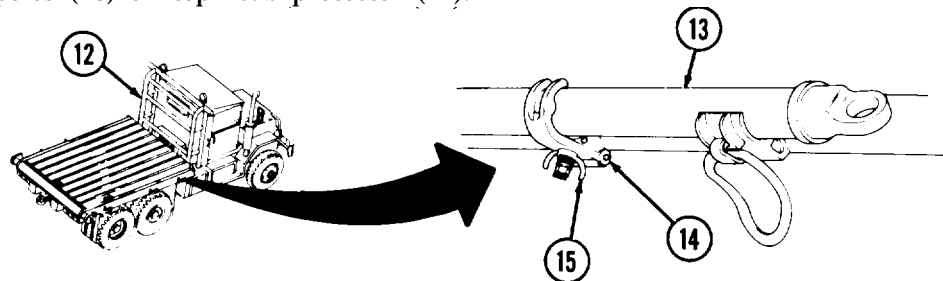


TA 51705

### c. Rigging A-frame for Rear Operation.

(1) To remove tailgate and dropsides, notify your supervisor.

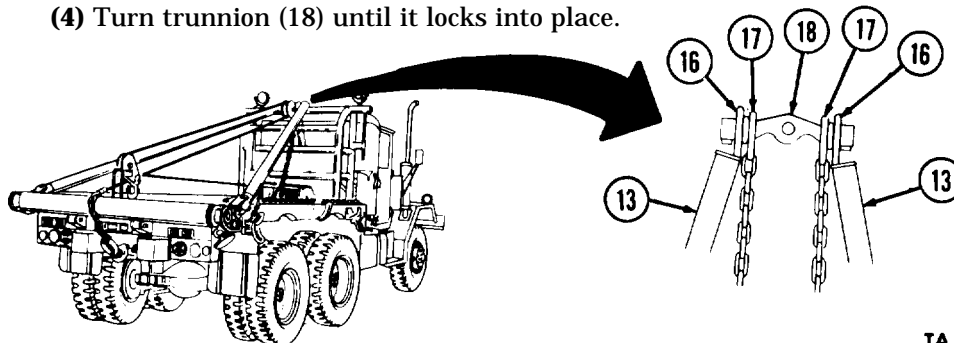
(2) Loosen wingnuts (15) to free gin poles (13) from side clamps (14), and place poles (13) on top cab protector (12).



TA 51706

(3) Insert trunnion (18) through ring ends (17) of boom chains and yoke ends (16) of gin poles (13).

(4) Turn trunnion (18) until it locks into place.



TA 51707

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

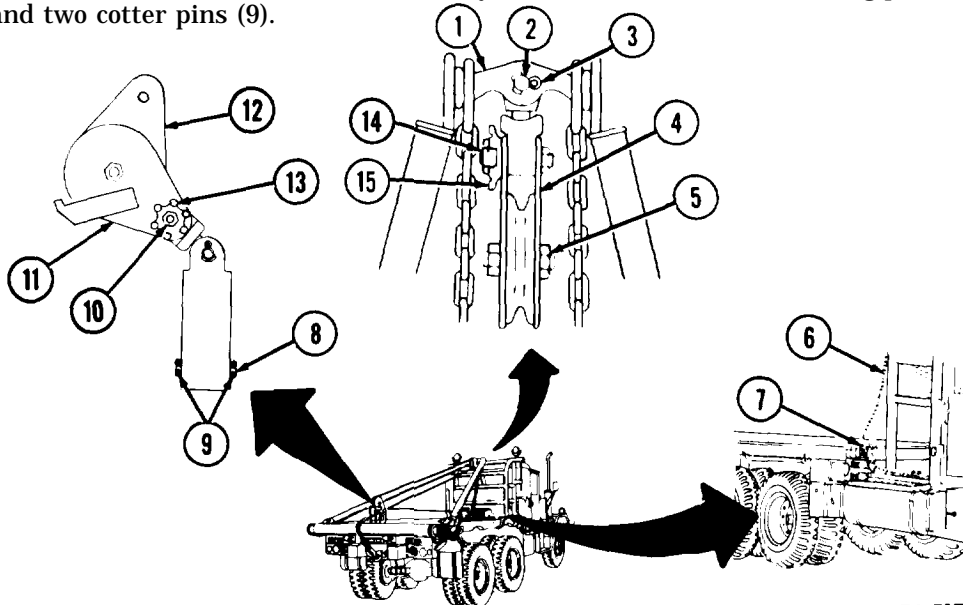
### NOTE

Chain lengths must be the same.

(5) Lock hook end of boom chains (6) into boom chain bracket (7), thirty links from hook.

(6) Install A-frame sheave assembly (5) in trunnion (1), and secure with retaining pin (2) and two cotter pins (3).

(7) Install tailboard sheave assembly (11) in rear well with retaining pin (8) and two cotter pins (9).



TA 51708

(8) Loosen nuts (13) and (15), unscrew retaining pins (10) and (14), and turn side plates (12) and (4) 90°.

### WARNING

Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

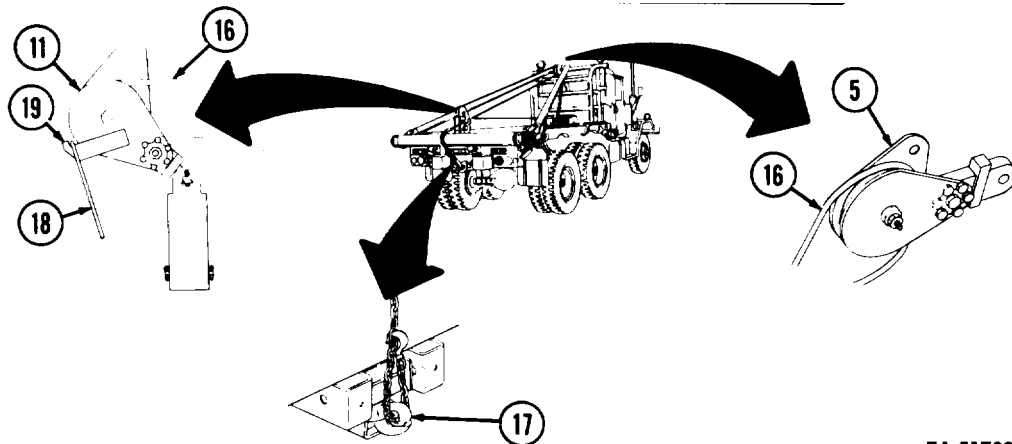
(9) Pull cable (16) from winch (refer to b. of this para.), wrap under, around, and over tailboard sheave (11), and under, around and over A-frame sheave (5).

(10) Turn pintle hook (17) so hook is on top, and secure hook end of cable (16) to pintle hook (17).

(11) Turn side plates (12) and (4) back, screw in retaining pins (10) and (14), and tighten nuts (13) and (15).

(12) Hook U-bolt (18) over tailboard sheave bracket (19).

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)



TA 51709

### NOTE

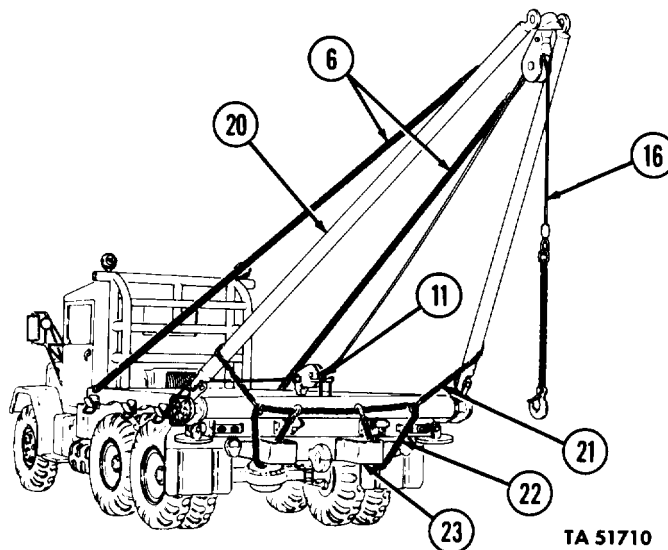
Height of A-frame can be adjusted by making boom chains longer or shorter. Position A-frame at higher angle for heavier loads.

**(13)** Take up slack in cable (16), and slowly operate winch (refer to b. of this para.) until A-frame (20) reaches operating position. If necessary, manually push A-frame (20) over center, until in operating position.

**(14)** Fasten a second chain (22) to safety chains (21) and bumperettes (23) to avoid backlash.

**(15)** Let cable (16) go slack, unhook U-bolt (18) and lower until flush with truck bed.

**(16)** Remove hook end of cable (16) from pintle hook (17).

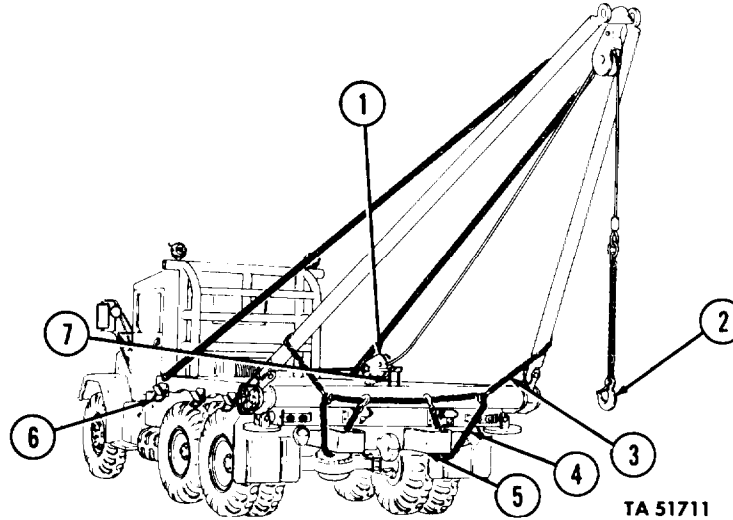


TA 51710

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

### d. Lowering and Securing A-frame After Rear Operations.

- (1) Hook U-bolt (7) over tailboard sheave bracket (1).
- (2) Attach hook end of cable (2) to left center lashing ring (6).
- (3) Remove second chain (4) from bumperettes (5) and safety chains (3).

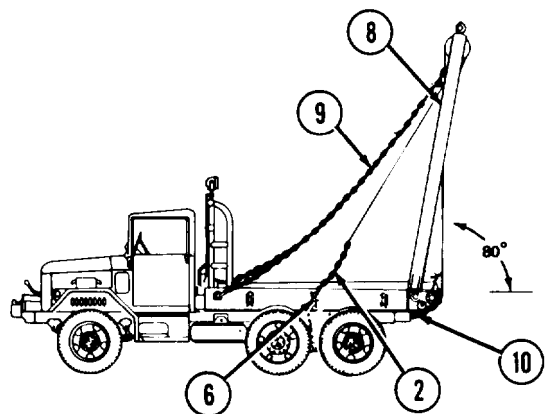


#### CAUTION

Do not let A-frame go past center (90°). It may free fall and damage equipment.

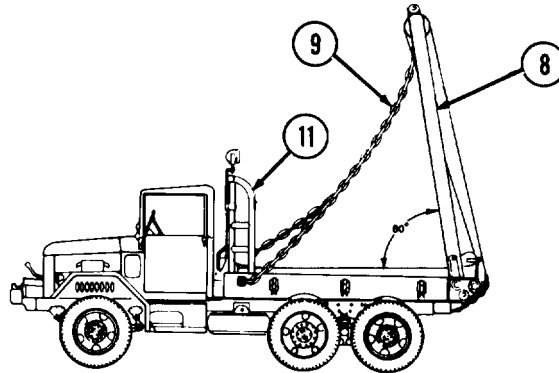
- (4) Operate rear winch (refer to b. of this para.) to raise A-frame (8) to almost vertical position (approximately 80°). Reset boom chains (9) to support A-frame (8) in this position.

- (5) Remove hook end of cable (2) from lashing ring (6) and attach to pintle hook (10). Leave about 2 feet of slack in cable (2).



## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

(6) Hand pull boom chains (9) to bring A-frame (8) over center to an angle of about 80°, and use winch (refer to b, of this para.) to slowly lower A-frame (8) to rest on top of cab protector (11).



TA 51713

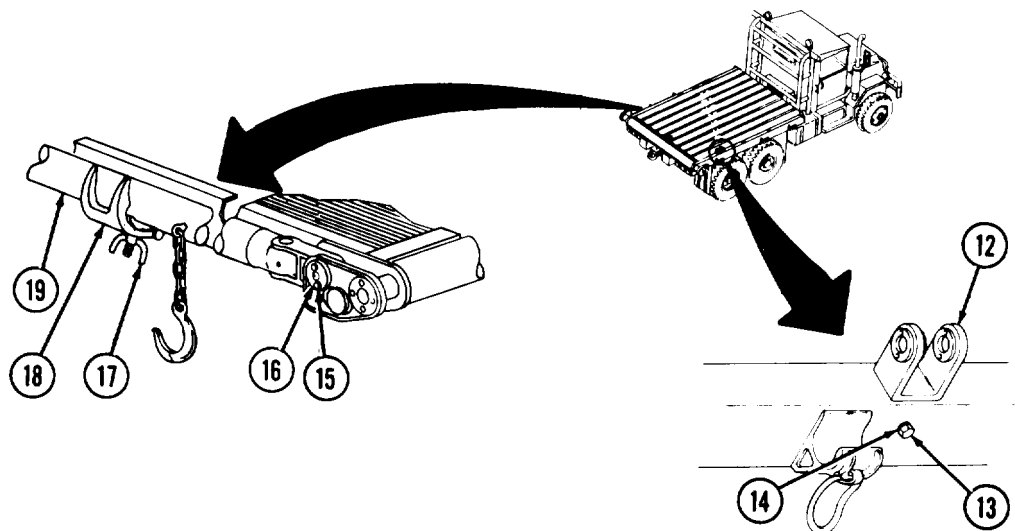
(7) Remove hook end of cable (2) from pintle hook (10) and unhook U-bolt (7) and lower until flush with truck bed.

(8) To disassemble and secure A-frame (8), reverse steps c.1 through c.12.

### e. Rigging A-frame for Side Operation.

(1) Remove screws (15) and gin pole link holding pins (16).

(2) Loosen wingnuts (17) and remove gin poles (19) from side clamps (18).



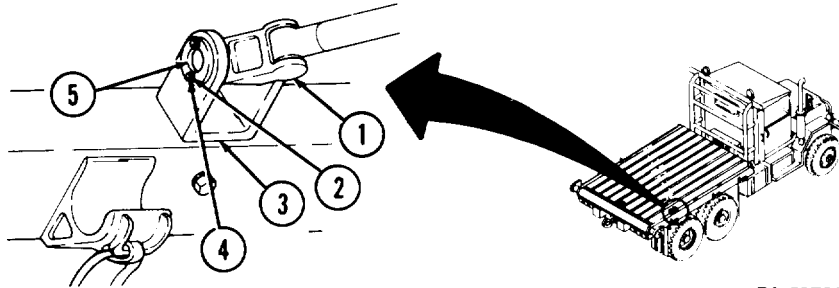
TA 51714

(3) Remove gin pole mounting adapters (12) from storage compartment and install in front and rear stake pockets with lockwashers (14) and screws (13).



## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

(4) Insert gin pole links (1) into adapters (3) and secure with holding pins (5), lockwashers (2), and screws (4).



TA 51715

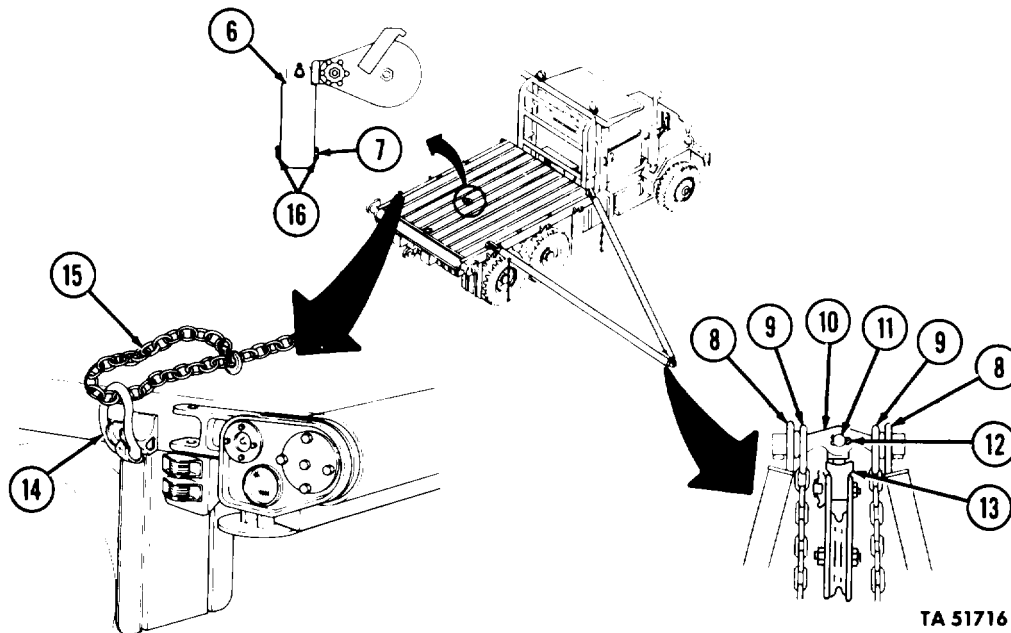
(5) Insert trunnion (10) through ring ends (9) of boom chains (15) and yoke ends (8) of gin poles.

(6) Turn trunnion (10) until it locks into place.

(7) Install A-frame sheave assembly (13) in trunnion (10), and secure with retaining pin (11) and two cotter pins (12).

(8) Insert boom chains (15) through lashing rings (14) on ends of truck bed, double chains (15) back and lock hooks into chains (15) about 15 links from lashing rings (14).

(9) Install tailboard sheave assembly (6) in center sheave mount well with retaining pin (7) and two cotter pins (16).



TA 51716

(10) Loosen nuts (17) and (23), unscrew retaining pins (18) and (24), and turn side plates (19) and (22) 90°.

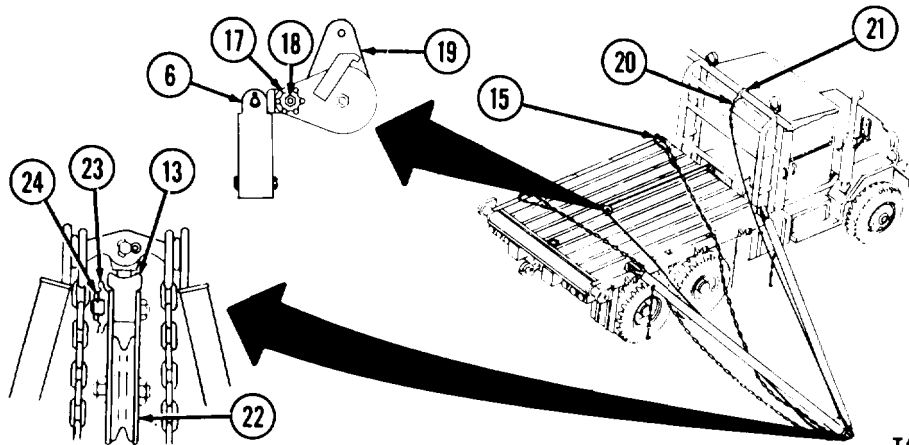
## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

### WARNING

Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

(11) Pull cable (20) from winch (refer to b. of this para.), run it under boom chain (15), under, over, and around tailboard sheave (6), and over and under A-frame sheave (13).

(12) Hook end of cable (20) to lashing hook (21).



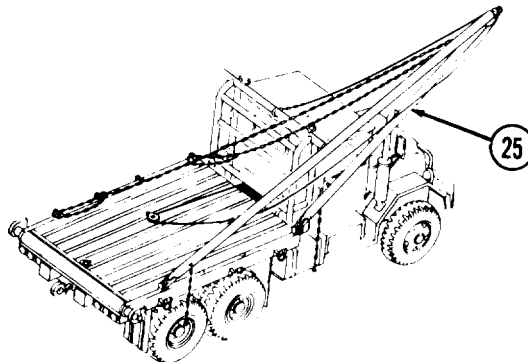
TA 51717

(13) Turn side plates (19) and (22) back, screw in retaining pins (18) and (24), and tighten nuts (17) and (23).

(14) Take up slack in cable (20) (refer to b. of this para.) and raise A-frame (25) to position.

### NOTE

Height of A-frame can be adjusted by making boom chains longer or shorter. Position A-frame at higher angles for heavier loads.



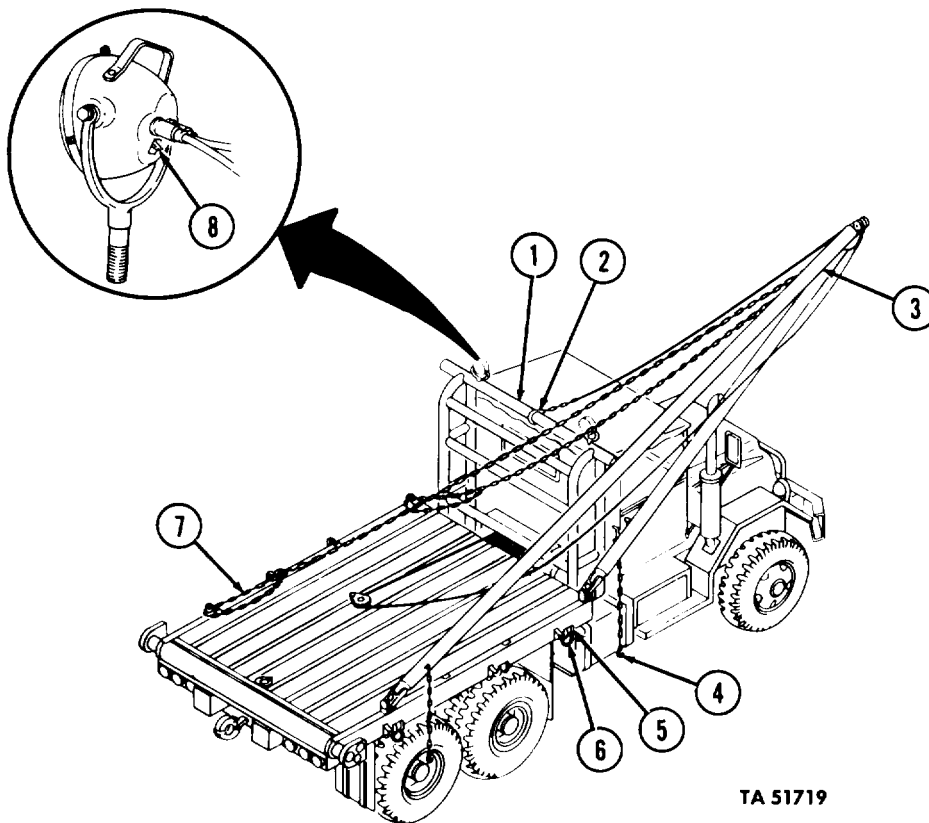
TA 51718

## 2-31. OPERATION OF PIPELINE CONSTRUCTION MAINTENANCE TRUCKS (Contd)

(15) Adjust boom chains (7) to hold A-frame (3) in position.

(16) Install adapter rings (6) on lashing rings (5) at each end of A-frame (3) side of truck.

(17) Install safety chains (4) on adapter rings (6), and unhook end of cable (2) from lashing ring (1).



TA 51719

### f. Lowering and Securing A-frame After Side Operation.

(1) Hook end of cable (2) to lashing ring (1) and take up slack in cable (2).

(2) Unhook boom chains (7) and safety chains (4), and slowly lower A-frame (3) to ground.

(3) To disassemble and secure A-frame (3), reverse steps e.1 through e.16.

### g. Operating Floodlights.

(1) Turn lightswitch in cab to STOPLIGHT or SERVICE DRIVE position (refer to para. 2-20).

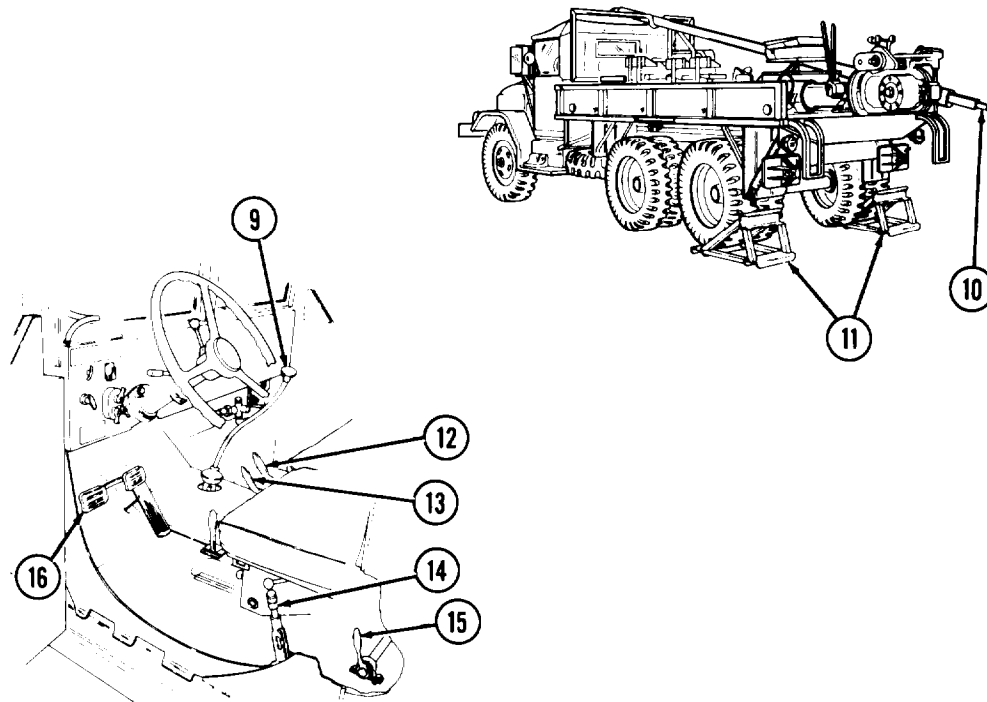
(2) Turn floodlight switch (8) on.

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS

### WARNING

Hearing protection must be worn when using earth boring machine or rear winch, or injury to personnel may result.

**a. General.** M764 earth boring machine and polesetter trucks are equipped with a rear cart h boring machine, rear winch, and collapsible cable reel. The rear winch is used with the earth boring machine derrick to set and pull poles, and with collapsible cable reel to take up or lay wire and light cable.



TA 51720

### b. Preparing Truck for Boring operation.

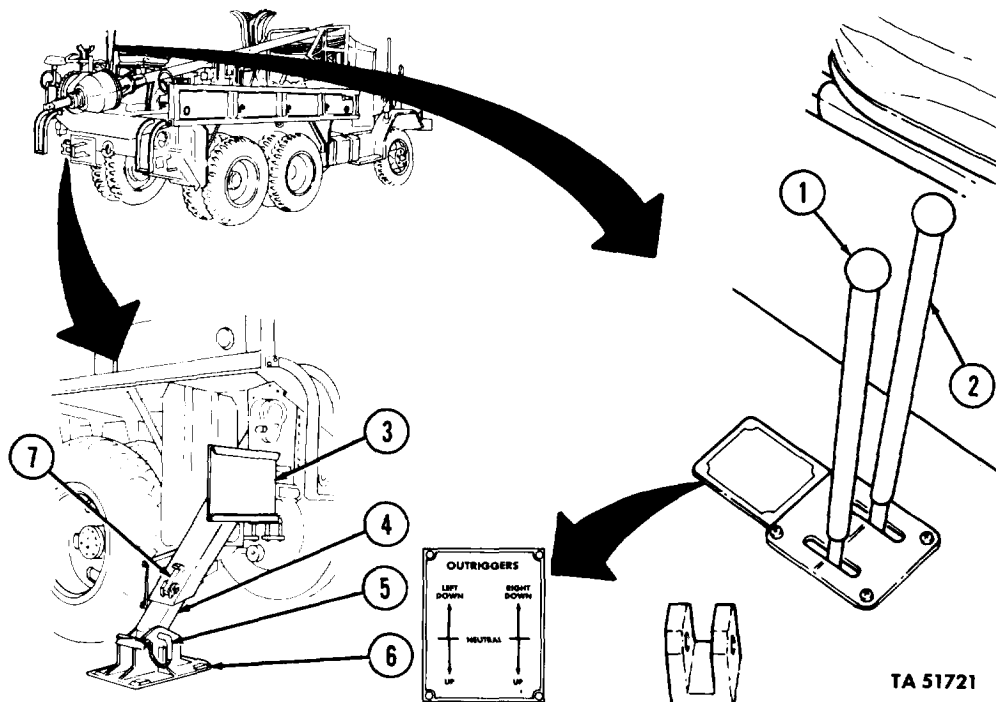
- (1) Start engine (refer to para. 2-14 or 2-15) and place truck so rack bar (10) is directly over hole location when in boring position.
- (2) Depress clutch pedal (16), place transmission gearshift lever (9) in "N" (neutral) position, release clutch pedal (16) and apply parking brake lever (14).
- (3) Set wheel chocks (11) behind rear wheels.
- (4) Depress clutch pedal (16), place transfer case shift lever (13) in neutral and transmission gearshift lever (9) in "1" (first) position.
- (5) Engage transfer power takeoff lever (15), place power divider control lever (12) in EARTH AUGER position, and slowly release clutch pedal (16).

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### NOTE

Outrigger control levers (1) and (2) are spring loaded and will return to neutral when released.

(6) Place outrigger control levers (1) and (2) in UP position to raise outrigger legs (4), pull safety latches (7) out and up, then place control levers (1) and (2) in DOWN position to lower legs (4) about halfway.



(7) Remove outrigger shoes (6) from stowage brackets (3) and install them on outrigger legs (4) with retaining pins (5).

(8) Lower outrigger legs (4) to ground to stabilize machine.

(9) Place transmission gearshift lever (8) in "N" (neutral) position.

### c. Raising, Leveling, and Lowering Derrick Tube.

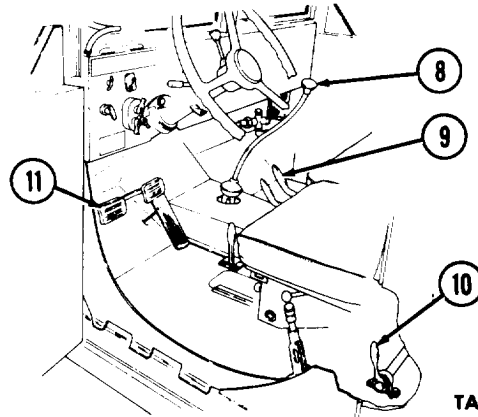
### WARNING

Avoid any contact with high voltage power lines by the derrick or vehicle. If the derrick or vehicle does come in contact with a high voltage power line, the vehicle will become electrically charged. Do not contact any item that is not on the vehicle and grounded or attempt to leave the vehicle. Failure to do this may result in injury or death to personnel.

(1) Depress clutch pedal (11) and engage transfer power takeoff lever (10).

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(2) Place power divider control lever (9) in EARTH AUGER position, place transmission gearshift lever (8) in "1" (first) position, and slowly release clutch pedal (11).



(3) Pull feed (15) and drive (16) control levers toward operator, lift locking latch (14), and release control levers (15) and (16).

(4) To raise derrick (12):

(a) Move power leveler shifting handle (13) down.

(b) Place feed control lever (15) in neutral.

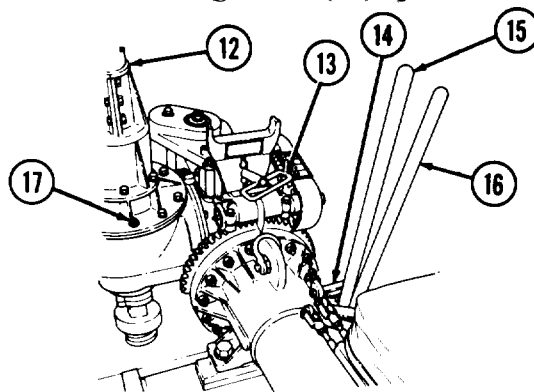
### NOTE

If rack bar gets too close to ground, push feed control lever (15) forward to raise rack bar, but do not compress bumper spring against boring case. Return feed control to neutral.

(c) Move drive control lever (16) forward to raise derrick (12) until leveling bubble (17) is near center.

(5) To move derrick (12) right:

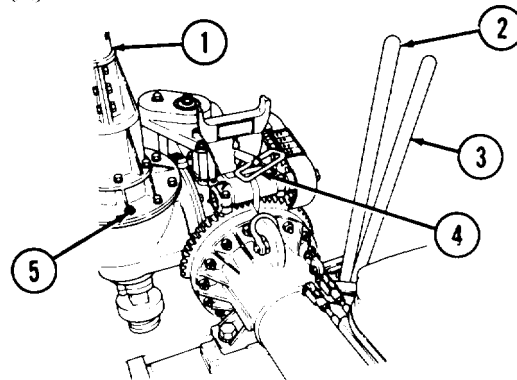
(a) Move power leveler shifting handle (13) up.



## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(b) Place transmission gearshift lever (13) in "1" (first) position and feed control lever (2) in neutral.

(c) Move drive control lever (3) forward until derrick (1) is in position, and return control lever (3) to neutral.



TA 51724

(6) To move derrick (1) left:

(a) Place transmission gearshift lever (13) in "R" (reverse) position.

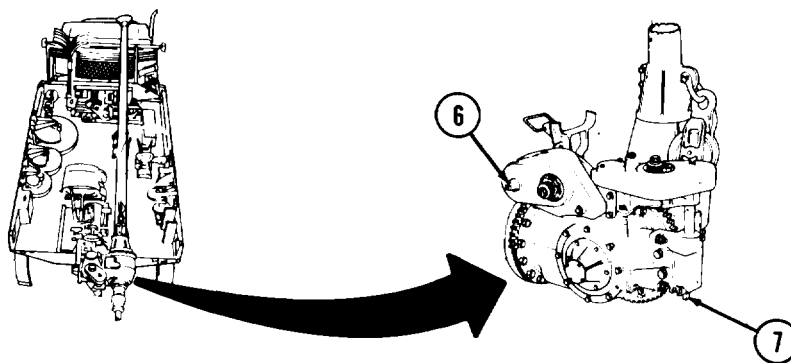
(b) Move power leveler shifting handle (4) up and make sure feed control lever (2) is in neutral.

(c) Move drive control lever (3) forward until derrick (1) is in position, and return control lever (3) to neutral.

### NOTE

Always level boring machine with engine operating at idle speed.

(7) For final leveling adjustment, turn horizontal (side-to-side) and vertical (front-to-back) leveling adjustments (6) and (7).



TA 51725

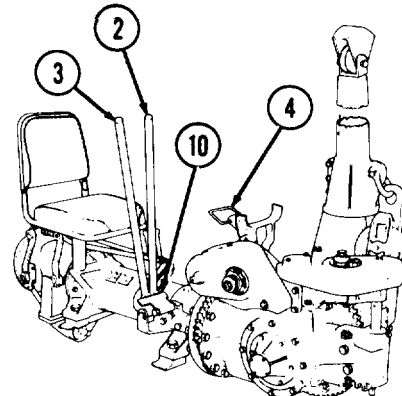
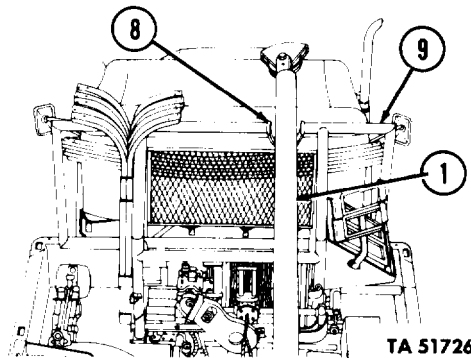
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(8) When leveling bubble (5) is centered, move power leveler shifting handle (4) to neutral.

(9) To lower derrick (1), depress clutch pedal (12), place transmission gearshift lever (13) in "R" (reverse) position and release clutch pedal (12).

(10) Move power leveler shifting handle (4) down, and make sure feed control lever (2) is in neutral,

(11) Move drive control lever (3) forward to lower derrick (1) into cradle (8) on protector (9).



(12) Move power leveler shifting handle (4) to neutral.

TA 51727

Let machine run with feed and drive control levers in neutral to release heat from brake assemblies in clutch case or damage to equipment may occur.

(13) Move feed and drive control levers (2) and (3) toward operator, lower locking latch (10), and release control levers (2) and (3).

### d. Operating and Securing Rear Winch.

(1) Lift lock (15) and pull back winch control lever (11), as needed, to control rear winch brake and prevent free spooling.

(2) Depress clutch pedal (12), place transmission gearshift lever (13) in "N" (neutral) position, and transfer case shift lever (14) in neutral.



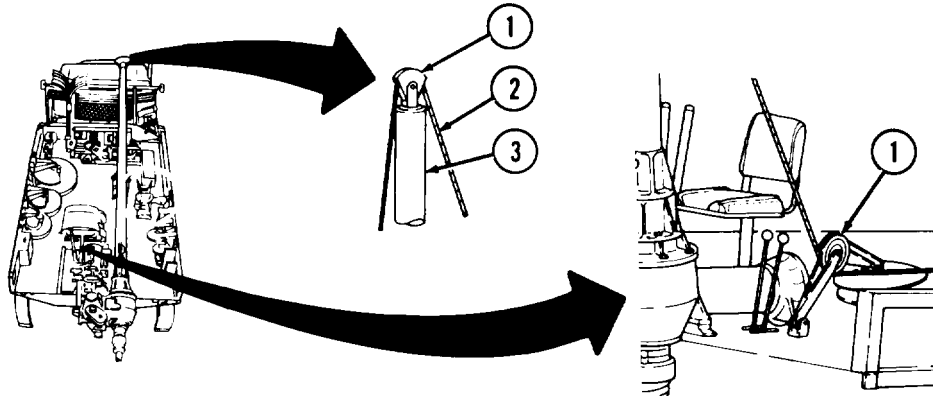
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### WARNING

Wear hand protection when handling winch cable. Broken wires may cause injury to personnel.

(3) Pull out cable (2), and rig on sheave (1), as necessary (refer to h. of this para.).

(4) Raise derrick (3) as necessary (refer to c. of this para.).



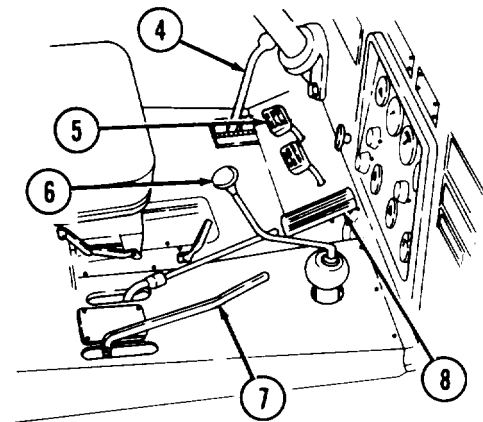
TA 51729

(5) Move transfer power takeoff lever (9) up to engaged position and move rear winch control lever (4) forward, to on position.

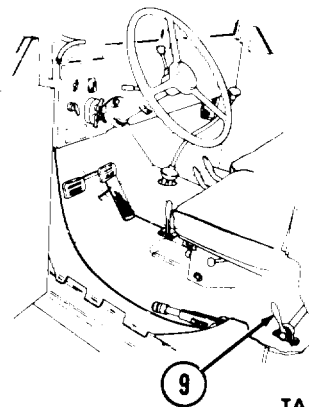
(6) Place power divider control lever (7) in REAR WINCH FWD to wind in load, and REAR WINCH REV to lower load or unwind cable (2).

(7) Place transmission gearshift lever (6) in "2" (second) position.

(8) Release clutch pedal (5) slowly, and depress accelerator pedal (8) enough to operate winch without racing or stalling engine.



TA 51730



TA 51731

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(9) To stop winch from turning, depress clutch pedal (5), and release accelerator pedal (8).

(10) Move power divider control lever (7) to NEUTRAL and release clutch pedal (5).

### WARNING

Do not pull back on winch control lever during hoisting operations, or load may drop and cause injury or death to personnel.

(11) If load is attached to cable (2);

(a) Depress clutch pedal (5).

(b) Place power divider control lever (7) in REAR WINCH REV.

(c) Release clutch pedal (5), lower load and remove cable (2).

(12) Lower derrick (3) if raised (refer to c. of this para.) and remove cable (2) from sheave (1) (refer to h. of this para.).

(13) Depress clutch pedal (5), place power divider control lever (7) in REAR WINCH FWD, and slowly release clutch pedal (5) to wind in cable (2).

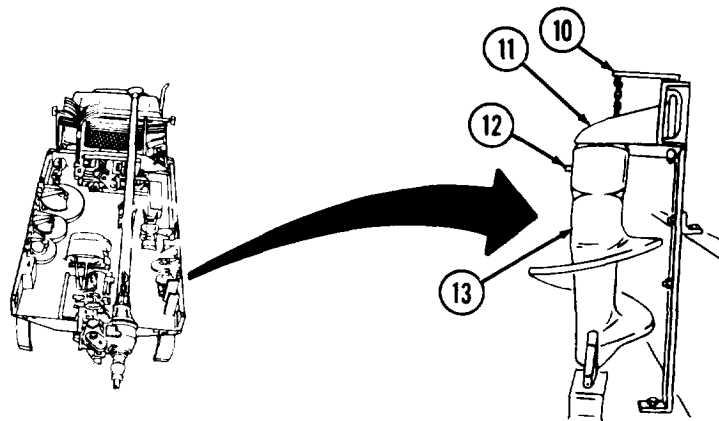
(14) Place rear winch control lever (4) in neutral, and secure.

(15) Place transmission gearshift lever (6) in "N" (neutral) position and disengage transfer power takeoff lever (9).

### e. Installing Augers.

(1) To install 9-inch, 12-inch, and 16-inch augers (13):

(a) Lift locking handle (10), remove holding pin (12), and lift auger (13) from holder (11).

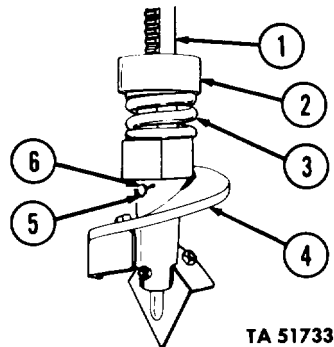


TA 51732

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(b) Install rubber bumper (2) and bumper spring (3) on rack bar (1).

(c) Install auger (4) on rack bar (1) with pin (6) and cotter pin (5).



TA 51733

### WARNING

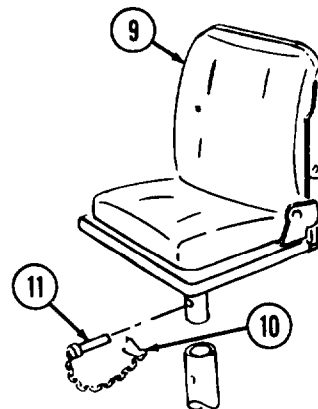
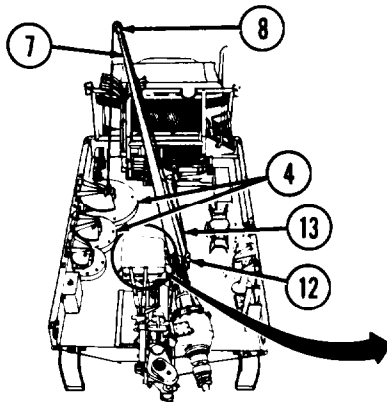
Do not attempt to remove 20-inch and 30-inch augers by hand. Use rear winch and boring machine derrick to lift and lower augers. Failure to do this may result in injury or death to personnel.

(2) To install 20-inch and 30-inch augers (4):

(a) Pull out cable (13) (refer to d. of this para.) and wind under, around, and over strap sheave (12), and over derrick sheave (8).

(b) Start engine (refer to para. 2-14 or 2-15), raise derrick (7) (refer to c. of this para.), and position cable (13) directly over auger (4).

(c) If seat (9) gets in the way of derrick (7), remove safety pin (10), retainer pin (11), and seat (9).



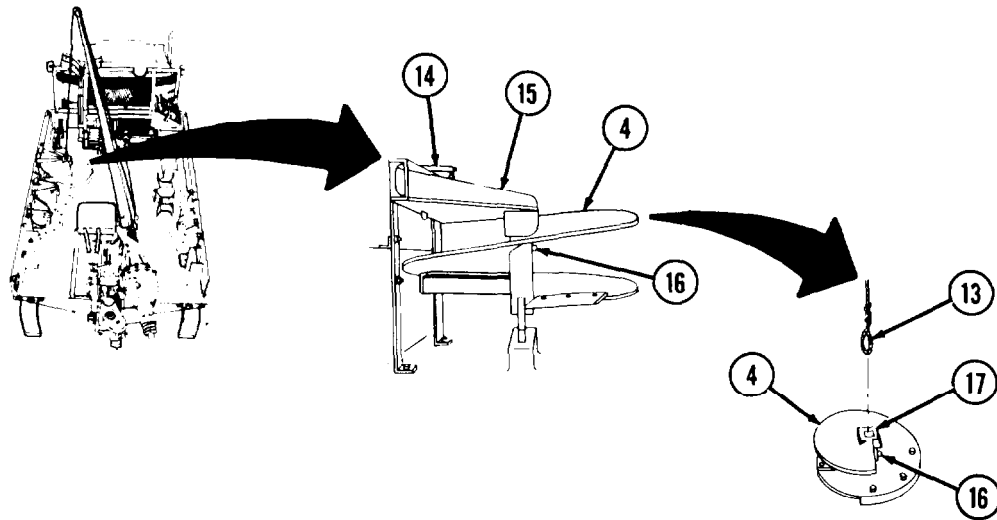
TA 51734

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

Keep feet clear of augers when lifting locking handles. Augers tilt to side when released and may result in injury to personnel.

(d) Lift locking handle (14), remove holding pin (16), and lift holder (15) out of auger (4).

(e) Install cable (13) in square auger mounting hole (17) and secure with holding pin (16).



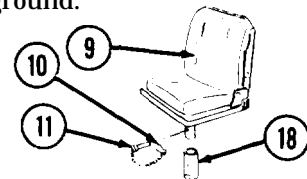
TA 51735

### CAUTION

Make sure cable does not bind against derrick sheave cover while lifting and moving auger. Use a guide line when moving auger or damage to equipment may result.

(f) Operate rear winch (refer to d. of this para.) and move auger (4) to rear of truck, in line with winch and derrick (7), and lower to ground.

(g) Install seat (9), if removed, by placing it on mounting bracket (18), aligning holes, and securing with retainer pin (11) and safety pin (10).



(h) Remove holding pin (16) and cable (13).

(i) Wind cable (13) and secure winch (refer to d. of this para.).

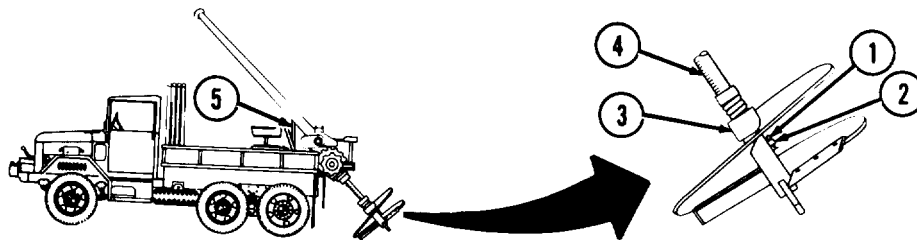
TA 51736

(j) Place derrick (7) in 45° angle (refer to c. of this para.), align rack bar (1) with auger (4), and install rubber bumper (2) and bumper spring (3) on rack bar (1).

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(k) Move feed control lever (5) forward to lower rack bar (4) into auger (3), and secure with pin (2) and cotter pin (1).

(l) Shut off engine. Refer to para. 2-17.



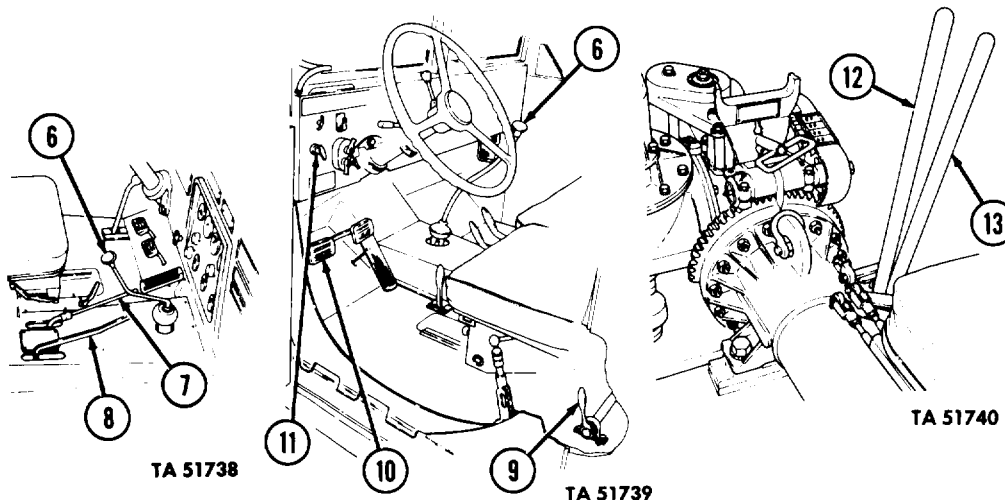
TA 51737

### f. Operating Earth Boring Machine.

(1) Start engine (refer to para. 2-14 or 2-15), depress clutch pedal (10), and place transfer case shift lever (7) in neutral.

(2) Engage transfer power takeoff lever (9), place power divider control lever (8) in EARTH AUGER position, place transmission gearshift lever (6) in "1" (first) position, and slowly release clutch pedal (10).

(3) Set hand throttle (11) to run engine at 1800 rpm.



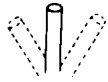











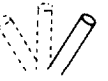








(4) Unlock feed (12) and drive (13) control levers (refer to c. of this para.) and place them in neutral.

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

Table 2-4. Boring Machine Controls

### CAUTION

Do not use position two for boring. It may overload and damage equipment.

BORING MACHINE LEVER POSITIONS		AUGER ACTION
LEFT HAND LEVER	RIGHT HAND LEVER	
FEED - NEUTRAL 	DRIVE - NEUTRAL 	Auger stationary 
FEED - BACK 	DRIVE - FORWARD 	Auger turning and moving down fast 
FEED - NEUTRAL 	DRIVE - FORWARD 	Auger turning and moving down slowly 
FEED - FORWARD 	DRIVE - FORWARD 	Auger turning and moving down at normal digging speed 
FEED - FORWARD 	DRIVE - BACK 	Auger cannot turn and will come up 
FEED - FORWARD 	DRIVE - NEUTRAL 	Auger will turn and will come up 
FEED - BACK 	DRIVE - BACK 	Auger cannot turn or move up and down 

TA 51741

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### WARNING

Do not let personnel stand near auger while boring or spinning soil off auger. Injury to personnel may result from flying material.

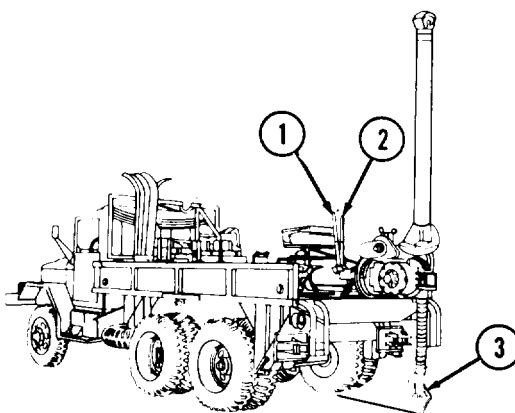
### CAUTION

- Do not use position 2, table 2-4 for boring. It may overload and damage equipment.
- Do not make sudden starts (impact loads). When starting to bore, and do not load auger above bumper spring, or damage to equipment may result.

### NOTE

Inexperienced operators should hold feed control in neutral while pushing drive control forward (position 3, table 2-4).

(5) Push drive control lever (2) forward while pulling back on feed control lever (1) (position 2, table 2-4) to lower auger (3) to ground.



TA 51742

Table 2-5. Gear, Speed Settings for Soil Conditions

SOIL TYPE	TRANSMISSION GEAR	ENGINE SPEED (RPM)	AUGER SPEED (RPM)
SANDY CLAY, ORDINARY SOIL	3RD	2200-2650	90-110
DISINTEGRATED SHALE, SIMILAR	1ST	1800	25
SANDSTONE, FROZEN SOIL	2ND	1700-2400	40-60

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(6) When auger (3) point enters ground, push feed control lever (1) forward (position 4, table 2-4) to start boring at 25 rpm (1800 engine rpm). Maintain boring speed until hole is about 18 inches deep.

(7) If auger (3) is working smoothly, set auger speed for type of soil (refer to table 2-5).

(8) When auger (3) is loaded, place feed (1) and drive (2) control levers in neutral, then pull drive control lever (2) back and push feed control lever (1) forward (position 5, table 2-4) to raise auger above ground.

### CAUTION

Ž Clean rack teeth with wire brush as necessary when boring to prevent dirt from getting into and damaging thrust plate and rack carriers. Keep leveling worms and gears free from sand and dirt to prevent damage to gears.

Ž Take less load on auger when boring in sandy clay, or wet soil. Too much suction will make load too heavy and may damage equipment.

(9) Move drive control lever (2) in and out of neutral (position 6, table 2-4) to spin soil from auger (3). Do not press down bumper spring.

(10) Place control levers (1) and (2) as necessary for drilling (refer to tables 2-4 and 2-5).

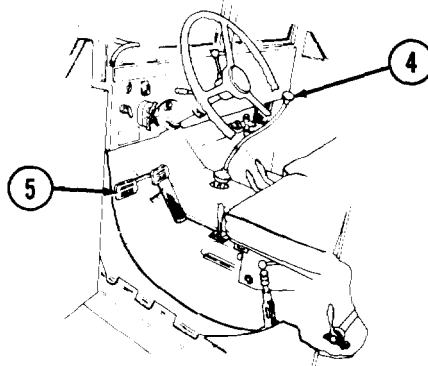
(11) If auger (3) becomes overloaded:

(a) Depress clutch pedal (5).

(b) Place transmission gearshift lever (4) in "R" (reverse) position.

(c) Release clutch pedal (5).

(d) Pull feed control lever (1) back and push drive control lever (2) forward (position 2, table 2-4). Auger (3) will back out of hole.



TA 51743



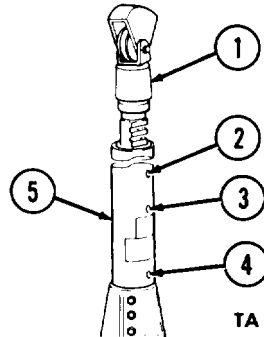
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(12) Check bored hole depth through sighting holes (2), (3), and (4) in derrick tube (5).

(a) If bar guide (1) is sighted through hole (2), bored hole is 8 feet deep.

(b) If bar guide (1) is sighted through hole (3), bored hole is 9 feet deep.

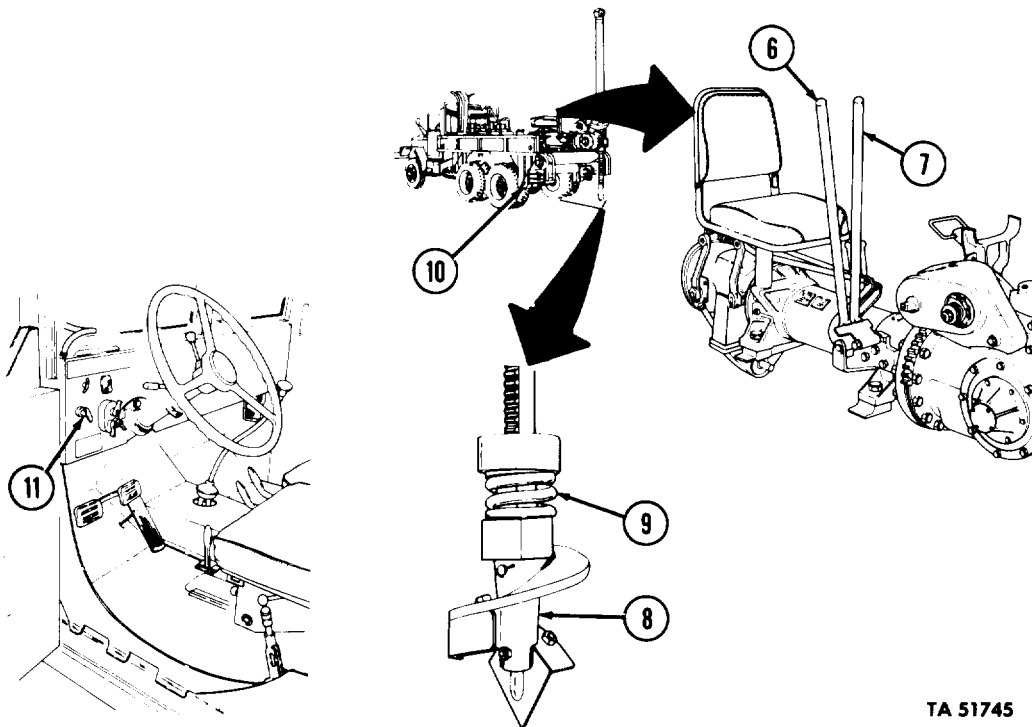
(c) If bar guide (1) is sighted through hole (4), bored hole is 10 feet deep.



TA 51744

(13) After boring, push feed control lever (7) forward and pull drive control lever (6) back (position 5, table 2-4) to raise auger (8) without pressing bumper spring (9).

(14) Pull back on control levers (6) and (7) (position 7, table 2-4) and lock in position. Set hand throttle (11) at engine idle speed, raise outrigger legs (10) (refer to b. of this para.) and move truck away from hole.



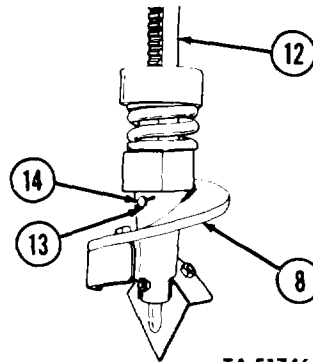
TA 51745

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### g. Preparing Earth Boring Machine for Travel.

(1) With truck away from hole, and engine idling, place feed control lever (7) in neutral and drive control lever (6) forward (position 3, table 2-4) to lower auger (8) to rest on top of ground.

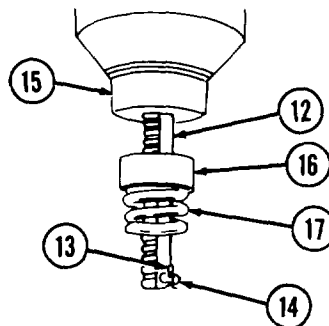
(2) Remove cotter pin (13) and pin (14) from auger (8) and rack bar (12).



(3) Unlock control levers (6) and (7), place feed control lever (7) forward, and drive control lever (6) back (position 5, table 2-4) to move rack bar (12) up and out of auger (8).

(4) Slide rubber bumper (16) and spring (17) upon rack bar (12), and install pin (14) and cotter pin (13).

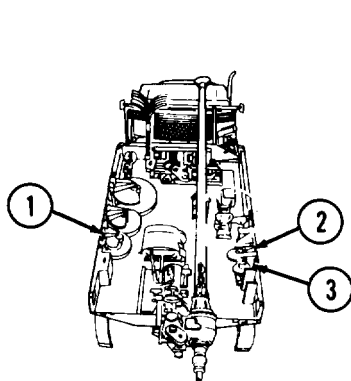
(5) Place feed control lever (7) forward and drive control lever (6) back (position 5, table 2-4) to raise rack bar (12) until rubber bumper (16) touches lower thrust plate cup (15). Do not compress spring (17).



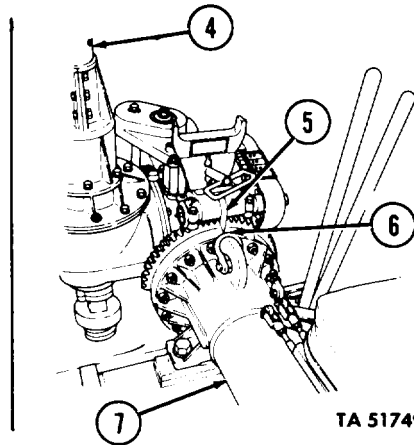
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(6) Lift 9-inch (2), 12-inch (3), and 16-inch (1) auger onto truck and secure.

(7) To lift and secure 20-inch and 30-inch auger, refer to e. of this para.



TA 51748



TA 51749

(8) Position derrick (4) so pointer (5) is directly over key (6) on support tube (7), and lower and secure (refer to c. of this para.).

### h. Dragging Poles.

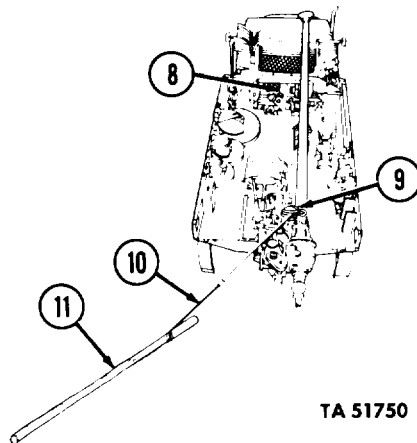
#### CAUTION

Poles 20 feet or more from derrick must be dragged using winch sheave. Dragging without using winch sheave may damage derrick tube.

#### NOTE

Dragging may be done with derrick tube raised or lowered.

(1) To drag pole (11) with derrick (4) lowered, pull cable (10) out from winch (8) (refer to d. of this para.), run it around snatch sheave (9) and attach to pole (11).



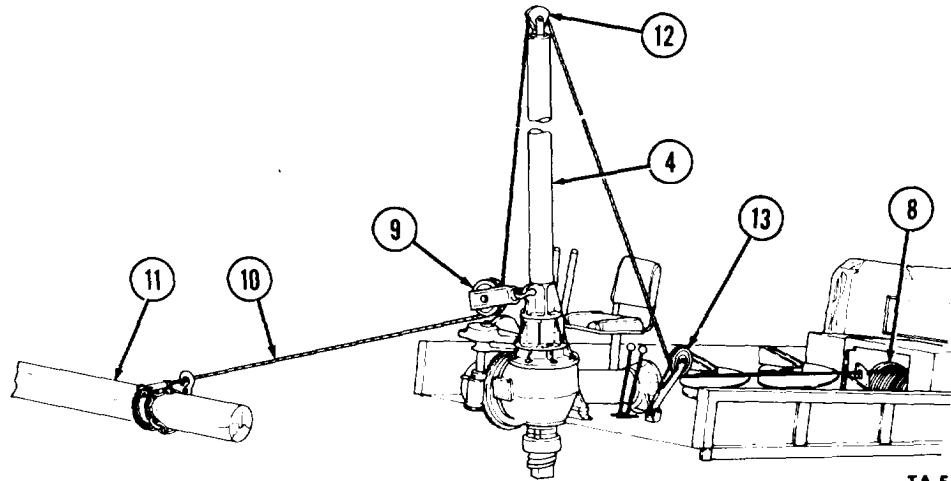
TA 51750

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(2) To drag pole (11) with derrick (4) raised:

(a) Pull cable (10) out from winch (8) (refer to d. of this para.) run it under and around strap sheave (13), and over and around derrick sheave (12).

(b) Raise derrick (4) (refer to c. of this para.) run cable (10) around snatch sheave (9) and attach to pole (11).



TA 51751

(3) Dragging with derrick (4) raised or lowered:

(a) Operate winch (8) (refer to d. of this para.) to pull pole (11), stopping when pole (11) reaches desired location.

(b) Remove cable (10) from pole (11).

(4) To secure from dragging:

(a) Lower derrick (4) if raised (refer to c. of this para.).

(b) Remove cable (10) from sheaves (9), (12), and (13), as necessary, and reel in cable (10) (refer to d. of this para.).

### i. Setting Poles.

#### WARNING

Check derrick tube for damage before using. A tube bend or flat spot may cause collapse under load, resulting in injury or death to personnel.

All personnel must stand clear of derrick during hoisting operations. A snapped cable, shifting, or swinging load may cause injury or death to personnel.

#### CAUTION

Do not exceed load limits of derrick or damage to equipment may result.

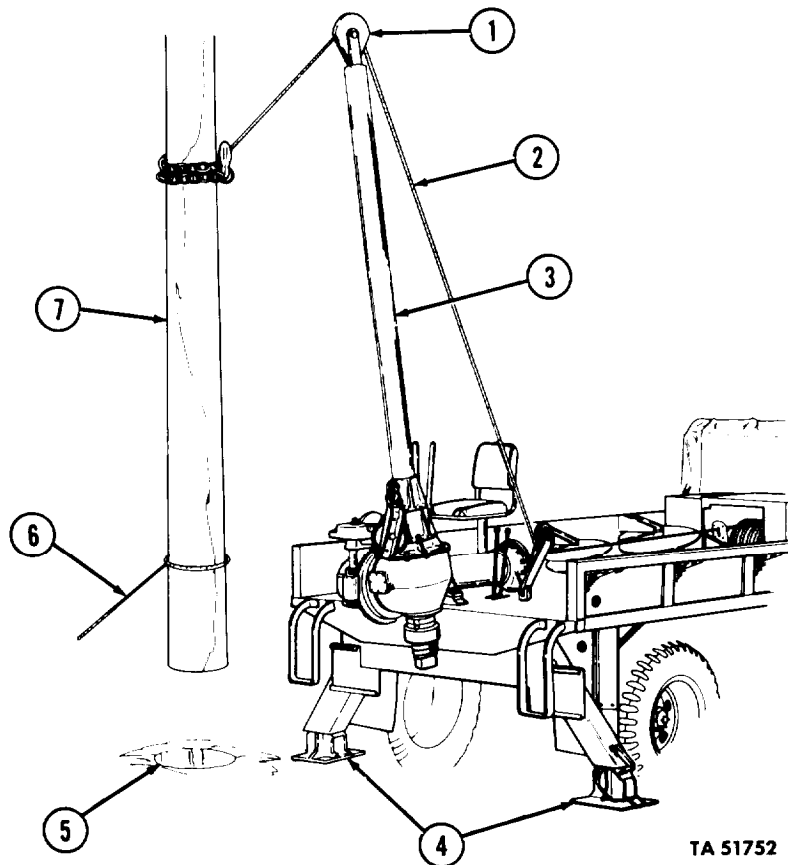
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

(1) Place truck so derrick sheave (1) will be above hole (5) when derrick (3) is raised, and outrigger legs (4) lowered (refer to b. of this para.).

(2) Rig cable (2) for derrick operation (refer to e. of this para.) and raise derrick (3) (refer to c. of this para.).

(3) Fasten cable (2) to pole (7) slightly above balance point, and operate winch to slowly lift pole (7) (refer to d. of this para.).

(4) Stop winch when pole (7) is clear of ground, and over hole (5).



(5) Lower pole (7) slowly into hole (5) using guideline (6) to direct it.

(6) Stop winch when pole (7) reaches bottom of hole (5) and remove guideline (6). Do not allow any slack in cable (2).

(7) Hold upper part of pole (7) in position and shovel dirt into hole (5), tamping it down, until hole (5) is filled.

(8) Shovel left over dirt around pole (7) and tamp down.

(9) Remove cable (2) from pole (7), and raise and secure outrigger legs (4) (refer to b. of this para.).

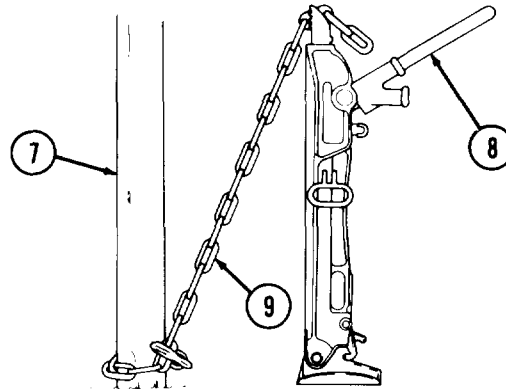
## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### j. Pulling Poles.

#### CAUTION

Make sure pole is strong enough to take pull without breaking before pulling pole. Use pole jack, or dig alongside pole to break suction under pole, as necessary. Failure to do so may result in damage to equipment.

- (1) Wrap jack chain (9) around pole (7) and operate jack handle (8) to loosen pole (7).



TA 51753

- (2) Position truck so derrick sheave (1) almost touches pole (7), rig cable (2) for derrick operation (refer to e. of this para.), and attach cable (2) to pole (7) above balance point.
- (3) Lower outrigger legs (4) (refer to b. of this para.) and attach guideline (6) to lower part of pole (7).
- (4) Operate winch (refer to d. of this para.) to slowly raise pole (7) until it is clear of hole (5).
- (5) Using guideline (6) to direct, slowly lower pole (7) to ground.
- (6) Block pole (7) to keep it from rolling, and remove guideline (6) and cable (2).
- (7) If hole (5) is not to be used, fill it with dirt and tamp it down.
- (8) Raise and secure outrigger legs (4) (refer to b. of this para.), lower and secure derrick (3) (refer to c. of this para.), and secure winch (refer to d. of this para.).

### k. Operating Collapsible Cable Reel.

#### WARNING

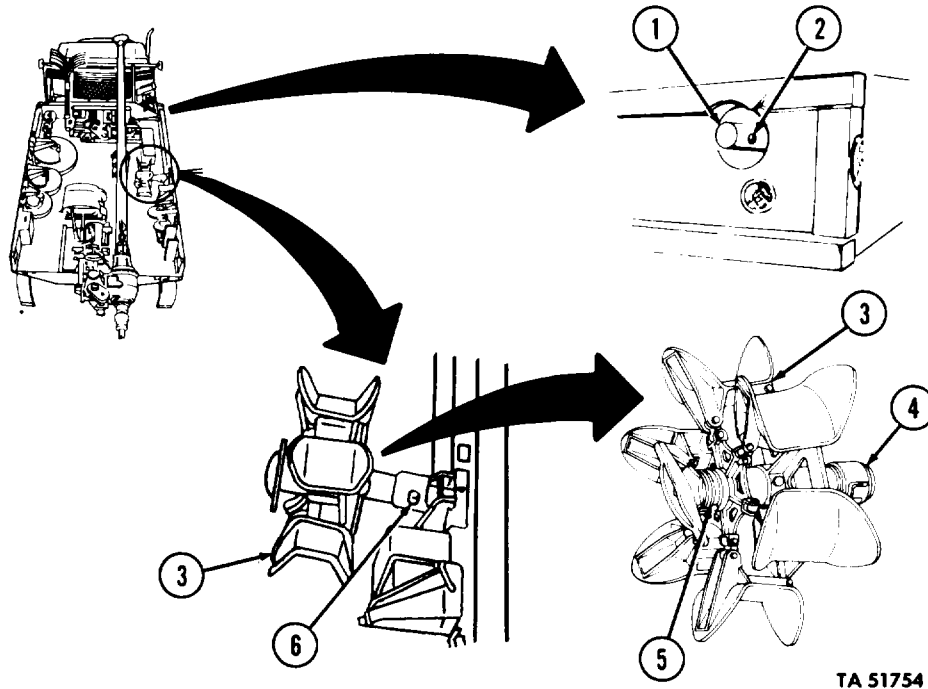
The cable reel is heavy and may require the derrick and winch to load/unload it. Failure to lift reel properly may result in injury or death to personnel.

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

### NOTE

If derrick and winch are used to load/unload cable reel, refer to e. of this para.

- (1) Remove retaining pin (6) and lift collapsible reel (3).
- (2) Install collapsible reel (3) on rear winch shaft (1) and turn it to the right until shaft dowel pins (2) engage grooves (5) in reel spindle shaft (4).



TA 51754

### WARNING

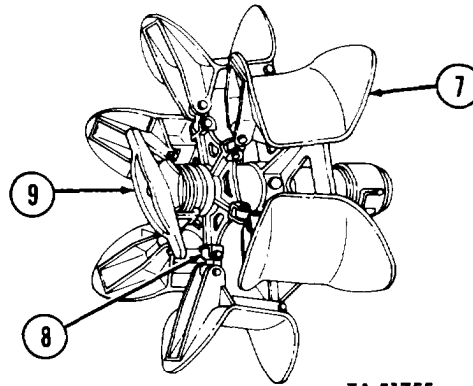
- ⚠ Make sure collapsible cable reel is properly mounted on rear winch shaft before operating reel. Failure to do so may result in injury or death to personnel.
- ⚠ Do not overload cable reel. Maximum pull on reel is 4,000 lb. A snapped cable may cause injury or death to personnel.
- ⚠ Wear hand protection when handling cable. Broken cables may cause injury to personnel.

### CAUTION

Make sure cable ends are secure before installing or removing cable from reel. If cable gets tangled, damage to equipment may result.

## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)

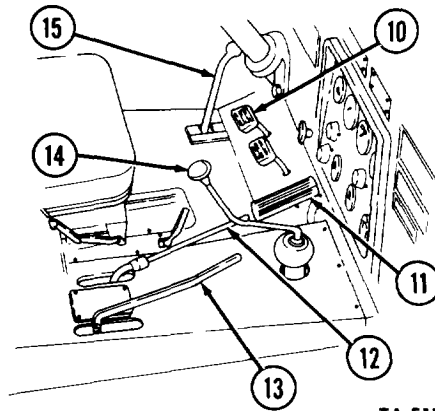
(3) Collapse cable reel (3) by turning operating handle (9) left until sliding spider (8) separates from handle (9). Push in spider (8) to completely collapse cable reel (3). Cable may now be installed on rim segments (7).



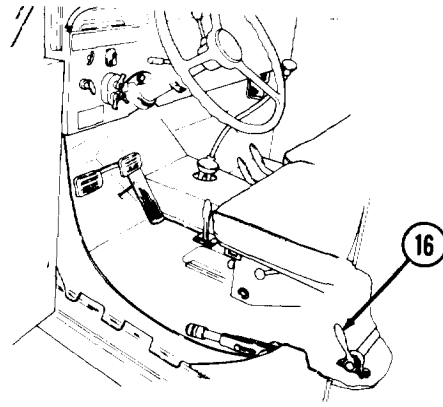
TA 51755

(4) Pull sliding spider (8) forward and turn operating handle (9) right to mesh with spider (8). Continue turning handle (9) as far as it will go.

(5) Start engine (refer to para, 2-14 or 2-15), depress clutch pedal (10), place transfer case shift lever (12) in neutral, and engage transfer power takeoff lever (16).



TA 51756



TA 51757

### CAUTION

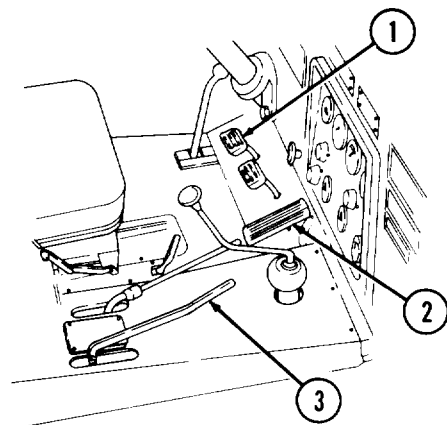
Make sure winch control lever is locked in neutral, or damage to equipment may result.

(6) Place winch control lever (15) in neutral, power divider control lever (13) in REAR WINCH FWD and transmission gearshift lever (14) in "1" (first) or "2" (second) position.

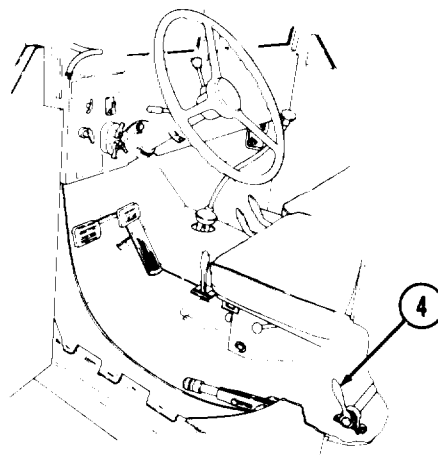
(7) Slowly release clutch pedal (10) and depress accelerator pedal (11) enough to prevent engine stalling.



## 2-32. OPERATION OF EARTH BORING AND POLESETTING MAINTENANCE TRUCKS (Contd)



TA 51758



TA 51759

**(8)** To stop reel action, depress clutch pedal (1), release accelerator pedal (2), and place power divider control lever (3) in NEUTRAL.

**(9)** To secure from operations, disengage transfer power takeoff lever (4), and shut off engine (refer to para. 2-17).

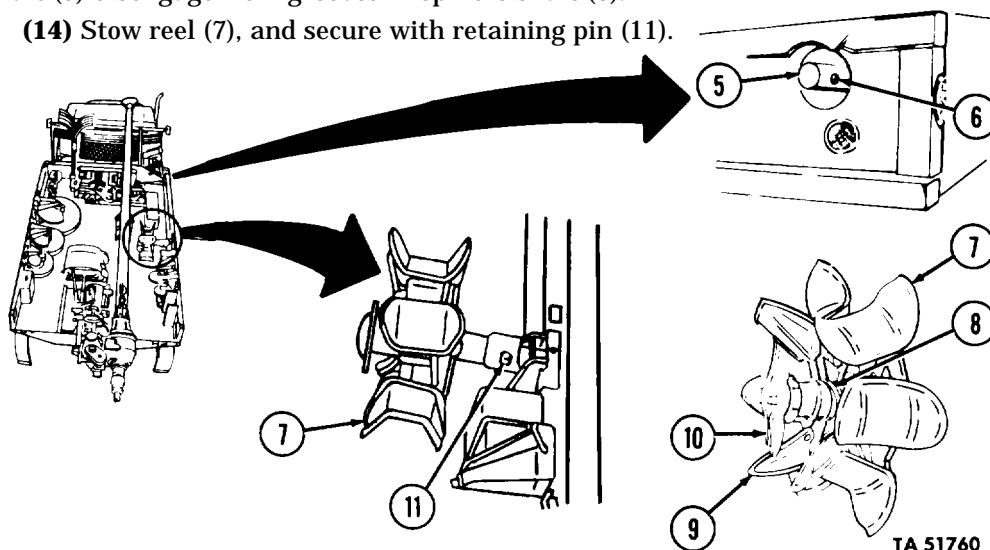
**(10)** Turn operating handle (10) left until sliding spider (9) separates from handle (10).

**(11)** Push in spider (9) to completely collapse reel (7), and remove cable.

**(12)** Pull forward on sliding spider (9) and turn handle (10) right to mesh with spider (9). Continue turning handle (10) as far as it will go.

**(13)** Press reel (7) against spindle spring and turn right until dowel pins (6) on shaft (5) disengage from grooves in spindle shaft (8).

**(14)** Stow reel (7), and secure with retaining pin (11).



TA 51760

## Section IV. OPERATION UNDER UNUSUAL CONDITIONS

### 2-33. SPECIAL INSTRUCTIONS

**a. General.** Special instructions for operating and maintaining vehicles under unusual conditions are included in this section. Unusual conditions are extreme temperatures, humidity, and/or terrain. Special care with cleaning and lubrication must be taken in order to keep vehicles operational when operating under unusual conditions.

**b. Cleaning.** Refer to para. 2-9 for cleaning instructions and precautions.

**c. Lubrication.**

(1) Refer to LO 9-2320-209-12-1 for proper lubricating instructions.

(2) Service intervals in LO 9-2320 -209-12-1 are for normal operating conditions. Reduce intervals to more frequent servicing when operating under unusual conditions.

**d. Driving Instructions.**

(1) FM 21-305 contains special driving instructions for operating wheeled vehicles.

(2) AR 600-55 contains instructions on driver selection, testing, and licensing.

(3) FM 9-207 contains instructions on vehicle operation in extreme cold of 0°F to -65°F (-17°C to -54°C) or below. Other documents with information on cold weather vehicle operation are:

(a) FM 31-70 Basic Cold Weather Manual.

(b) FM 31-71 Northern Operations.

(c) FM 90-6 (HTF) Mountain Operations.

**e. Special Purpose Kits.** Paragraphs describing special purpose kits for operation under unusual conditions can be found in section V of this chapter.

**f. Reporting Material Failure.** Report failure of vehicle, body equipment, or kits on Standard Form 368 (Quality Deficiency Report — Equipment Improvement Recommendations) as presented by DA Pam 738-750 and as stated in paragraph 1-5 of this manual.

### 2-34. OPERATION UNDER UNUSUAL CONDITIONS INDEX

PARA. NO.	PARA. TITLE	PAGE NO.
2-35.	Operation in Extreme Cold	2-182
2-36.	Operation on Ice or Snow	2-184
2-37.	Operation in Extreme Heat	2-185
2-38.	Operation in Dusty or Sandy Areas	2-187
2-39.	Operation in Rainy or Humid Conditions	2-188

## 2-34. OPERATION UNDER UNUSUAL CONDITIONS INDEX (Contd)

PARA NO.	PARA. TITLE	PAGE NO.
2-40.	Operation in Deep Mud	2-189
2-41.	Fording Operation	2-190
2-42.	Towing Vehicle to Start Engine	2-191
2-43.	Using Jumper Cables to Start Engine	2-192

## 2-35. OPERATION IN EXTREME COLD

**a. General.** The operator must always be alert to changes in weather. The operator must take care of assigned vehicle in order to prevent damage to vehicle because of sudden changes in weather. The operator should be cautious when starting or driving a vehicle that has not been operated for a long period. Lubricants may thicken and cause parts failure. Tires may freeze to the ground or may freeze flat on the bottom if underinflated. The operator should be alert to such possibilities to prevent great damage to the vehicle.

### b. Before Operation.

- (1) Perform before operation PMCS. Refer to table 2-2.
- (2) Start power plant heater, if equipped, to warm engine coolant, engine, and batteries before attempting to start engine. Refer to para. 2-48.
- (3) If vehicle is to be operated on ice or snow, perform steps in para. 2-36a.

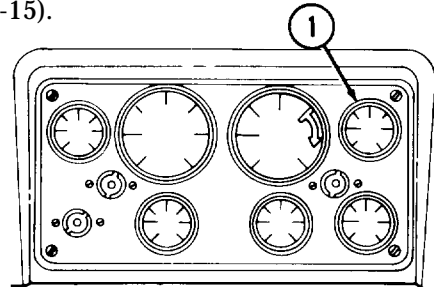
### c. Starting Engine.

Do not operate power plant heater with engine running.  
Doing this may result in overheated engine.

When temperature gage (1) reads 19°F, shut off power plant heater (refer to para. 2-48) and start engine (refer to para. 2-15).

#### NOTE

If vehicle has been exposed to extreme cold before starting, notify your supervisor to warm control linkage, gearcases, and wheel hubs before placing vehicle in motion.



### d. Driving Vehicle.

#### NOTE

TA 51761

If vehicle is to be operated on ice or snow, place transmission gearshift lever in "2" (second) position.

- (1) Place vehicle in motion (refer to para. 2-16) with transmission gearshift lever in "1" (first) position and transfer case shift lever in LOW position. Drive slowly for 100 yards (91 meters) to warm up gearcases and tires.

**2-35. OPERATION IN EXTREME COLD (Contd)**

- (2) If vehicle is to be operated on ice or snow, perform steps in para. 2-36b.

**e. Stopping or Parking.****CAUTION**

Operator must take every precaution to prevent snow from blowing into engine compartment when parked. Snow may melt and later form ice to jam engine controls.

**NOTE**

Do not idle engine for more than 15 minutes.

- (1) Park in sheltered area out of wind if possible. Park so vehicle does not face into the wind if sheltered area is not available.

- (2) Park vehicle with wood planks, brush, mats, or canvas under wheels if a long shutdown period in open area is anticipated.

**CAUTION**

Do not apply parking brake. Doing this may cause brakeshoes to freeze to brakedrum resulting in damage to parking brake system.

- (3) Stop vehicle and engine. Refer to para. 2-17.

- (4) Place chocks in front or behind wheels if parking on a grade.

**CAUTION**

Water must be drained from fuel filters, air reservoirs, and fuel tank as soon as possible after operation in extreme cold. Failure to do this may cause water to freeze resulting in damage to fuel and air systems.

**f. After Operation.**

- (1) Perform after operation PMCS. Refer to table 2-2.

- (2) Notify your supervisor to drain water from fuel tank. Fill fuel tank.

**WARNING**

Alcohol used in alcohol evaporator is flammable, poisonous, and explosive. Do not add alcohol while smoking or near fire, flames, or sparks. Do not drink alcohol. Doing this may result in injury or death to personnel.

- (3) Check fluid level in alcohol evaporator, if installed. Refer to para. 2-6c. Add methyl alcohol, appendix D, item 14, as required.

- (4) Remove all ice and snow from underside of vehicle, air cleaner intake, and fuel tank.

- (5) Operate power plant heater for short standby periods, if installed. Refer to para. 2-48e. If power plant heater will not be used or is not installed, notify your supervisor to store batteries in a warm place.

- (6) Reinflate tires to proper operating pressure if deflated. Refer to para. 3-14f.

## 2-36. OPERATION ON ICE OR SNOW

### a. Before Operation.

- (1) Perform before operation PMCS. Refer to table 2-2.
- (2) Start engine. Refer to para. 2-14 or 2-15. If vehicle is to be operated in extreme cold, perform steps in para. 2-35b and 2-35c, as necessary.

### CAUTION

Do not attempt operation when only one driving wheel is equipped with tire chains. Doing this may result in damage to tires and powertrain.

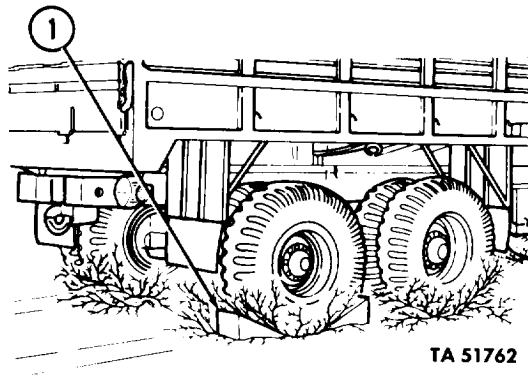
- (3) Operating on snow or on ice requires use of tire chains on driving wheels. Refer to FM 21-305 for installation of tire chains.

- (4) If tire chains are not available, deflate tire pressure to 15 psi (103 kPa). Refer to para. 3-14f.

- (5) Remove chocks (1) from vehicle wheels if used.

### WARNING

Vehicle operation on ice and snow can be dangerous. Operators must drive at reduced speeds and be prepared to meet sudden changes in road conditions and traffic speeds. Maintain safe stopping distances. Failure to do this may cause loss of vehicle control resulting in injury or death to personnel.



### b. Driving Vehicle.

- (1) Place vehicle in motion (refer to para. 2-16) with transmission gearshift lever in "2" (second) position and transfer case shift lever in LOW, Begin movement by releasing clutch pedal gradually without causing wheels to spin or engine to race.

### WARNING

Sudden stops may cause vehicle wheels to lock or engine to stall. Pump brakes gradually when stopping vehicle on ice or snow. Failure to do this may result in injury or death to personnel.

- (2) If rear end skidding occurs, turn steering wheel in direction of skid. Let up on accelerator pedal but do not depress clutch pedal. Pump brake pedal gradually to recover from skid.

### c. After Operation.

- (1) If vehicle is to be parked in extreme cold, perform steps in para. 2-35e.
- (2) Perform steps in para. 2-35f, as necessary.

## 2-37. OPERATION IN EXTREME HEAT

**a. General.** Extreme heat exists when outside temperature exceeds 95°F (35°C). The effect of extreme heat on vehicle engine is a decrease in engine efficiency. Operators must adjust driving to conditions when operating in extreme heat.

### **b. Before Operation.**

- (1) Perform before operation PMCS. Refer to table 2-2.

### **WARNING**

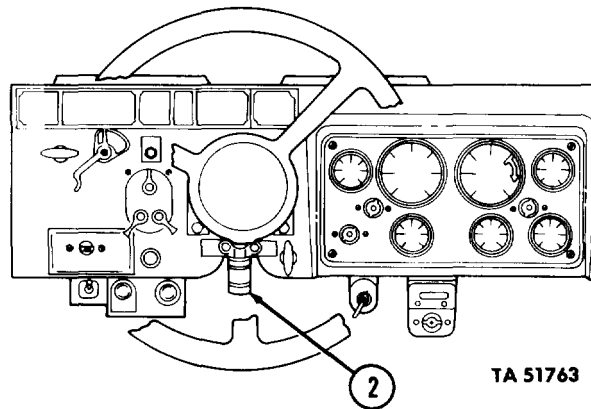
Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

- (2) Check for sand and insects embedded in front of radiator. Blow out all such obstructions with compressed air.

- (3) If vehicle is to be operated in deep sand, deflate tire pressure to 15 psi (103 kPa). Refer to para. 3-14f.

### **NOTE**

Avoid continuous vehicle operation at high speeds. Avoid long, hard pulls on steep grades with transfer case shift lever in LOW position.



### **c. Driving Vehicle.**

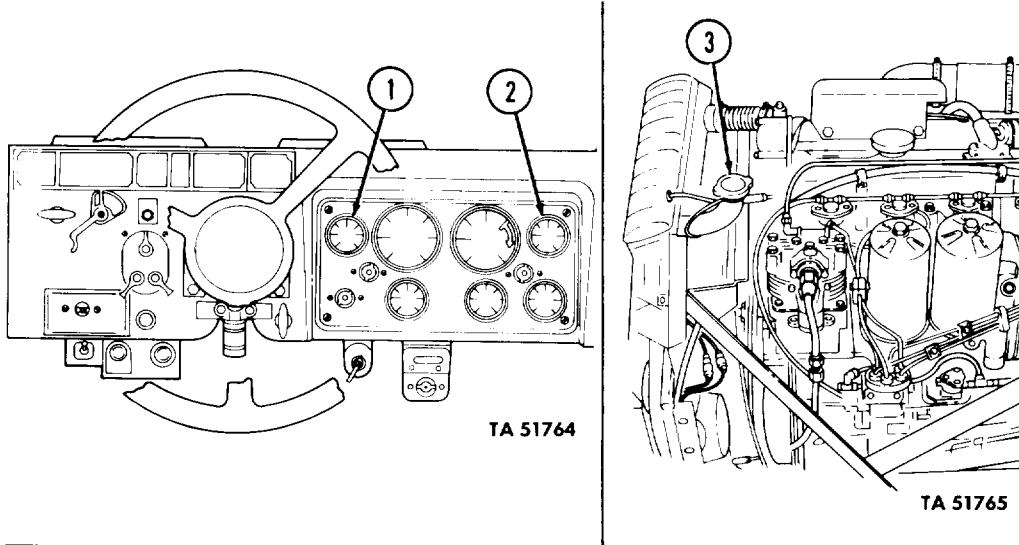
- (1) Start engine. Refer to para. 2-14.

### **NOTE**

If vehicle is to be operated in dusty or sandy areas, place transmission gearshift lever in "2" (second) position and transfer case shift lever in LOW position.

- (2) Place vehicle in motion. Refer to para. 2-16.
- (3) Frequently check air cleaner indicator (2). If indicator (2) shows red, stop the vehicle and engine (refer to para. 2-17) and perform emergency air cleaner service (refer to para. 3-13).

## 2-37. OPERATION IN EXTREME HEAT (Contd)



**(4)** Frequently check temperature gage (2) and oil pressure gage (1). Engine is overheating if one or more of the following conditions exist:

**(a)** Engine coolant temperature is more than 210°F as indicated by temperature gage (2).

**(b)** Engine oil pressure drops below 10 psi with engine at idle as indicated by oil pressure gage (1).

**(5)** If engine overheating occurs:

Do not raise hood. Engine will cool faster at idle with hood closed. Raising hood may result in engine damage from prolonged overheating.

### NOTE

Radiator fan and engine coolant will begin lowering engine temperature a few minutes after vehicle stops.

**(a)** Park vehicle, allowing engine to idle. Refer to para. 2-17.

### CAUTION

If engine temperature continues to rise or does not show signs of decreasing after two minutes of idling, stop engine (refer to para. 2-17) and perform troubleshooting procedures (refer to table 2-1).

**(b)** Observe temperature gage (2) and oil pressure gage (1) for signs that engine is steadily cooling.

**(c)** Stop engine (refer to para. 2-17) when engine temperature reaches normal operating range of 180°F to 200°F as indicated by temperature gage (2).

**(d)** Perform troubleshooting procedures. Refer to table 3-1.

## 2-37. OPERATION IN EXTREME HEAT (Contd)

### WARNING

Extreme care should be taken when removing radiator filler cap if temperature gage reads above 180°F. Contact by steam or hot coolant may result in injury or death to personnel.

(e) Place a thick cloth over radiator filler cap (3). Carefully turn radiator filler cap (3) counterclockwise to its first stop to allow pressure to escape.

(f) Remove radiator filler cap (3) when cooling system pressure is vented, and check coolant level.

### CAUTION

Make sure engine is running before adding coolant to hot engine. Failure to do this may result in damage to engine.

(g) If radiator is not full, start engine (refer to para. 2-14) and add coolant. Install radiator filler cap (3) by turning clockwise.

(6) Proceed with operation. Notify your supervisor of overheating problems upon completion of operation.

#### d. Stopping or Parking.

(1) Perform steps in para. 2-38d.

### NOTE

Allow tires to cool before checking tire pressure. Air pressure in tires reads higher when tires are hot.

(2) Adjust tire pressure as necessary. Refer to para. 3-14f.

(3) Check batteries daily and service as required when operating in extreme heat.

e. After Operation. Perform steps in para. 2-38e, as necessary.

## 2-38. OPERATION IN DUSTY OR SANDY AREAS

a. General. Vehicles operating in dusty or sandy areas require frequent servicing of the air cleaner, cooling system, and lubrication points. Operators should be alert to engine overheating. If engine overheating occurs, refer to para. 2-37.

b. Before Operation. Perform steps in para. 2-37b.

#### c. Driving Vehicle.

(1) Start engine. Refer to para. 2-14.

### NOTE

When driving on hard baked sand, try not to break through the crust. A roadbed of canvas or planking should be set down for short distances.

(2) Place vehicle in motion. Refer to para. 2-16.

(3) If vehicle is to be operated in extreme heat, perform steps in para. 2-37c.



## 2-38. OPERATION IN DUSTY OR SANDY AREAS (Contd)

### CAUTION

Do not attempt to jump vehicle out of deep sand with quick transmission gear changes. Doing this may result in damage to equipment.

(4) If vehicle becomes stuck in deep sand, use second vehicle with winch for recovery operation. Refer to para. 2-24.

#### d. Stopping or Parking.

(1) Park vehicle in a sheltered area out of blowing dust or sand whenever possible. If sheltered area is not available, park so vehicle does not face into wind.

(2) If sheltered area is not available, cover vehicle with paulins. When entire vehicle cannot be covered, protect windows, cab, and engine compartment with paulins to prevent entry of sand or dust.

(3) Stop vehicle and engine. Refer to para. 2-17.

#### e. After Operation.

### WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

(1) At end of daily operation, use low air pressure to remove all sand from vehicle engine compartment, areas around brakes, drums, and spring seats.

### CAUTION

Do not allow dust or sand to enter fuel tank when filling. Doing this may result in damage to fuel system.

(2) Fill fuel tank. Tighten filler cap securely after filling.

(3) Perform after operation PMCS. Refer to table 2-2.

(4) Reinflate tires to proper operating pressure if deflated. Refer to para. 3-14f.

## 2-39. OPERATION IN RAINY OR HUMID CONDITIONS

**a. General.** Material inactive for long periods in hot, humid weather can rust rapidly. Fungus growth may develop in the fuel tank as well as on canvas paulin, seats, and other components. Frequent inspection, cleaning (refer to para. 2-9), and lubrication are necessary to maintain the readiness of vehicles in rainy or humid conditions. Fuel filters and air reservoirs must be drained frequently because of high condensation in fuel and air systems.

## 2-39. OPERATION IN RAINY OR HUMID CONDITIONS (Contd)

### WARNING

Do not operate vehicle on wet, smooth roads with lowered tire inflation. Do not operate vehicle at too great a speed for road conditions. Low tire inflation or excessive speeds may cause loss of vehicle control on wet, smooth roads, resulting in injury or death to personnel.

**b. Before Operation.** If vehicle is to be operated cross-country in heavy rain, deflate tire pressure to 15 psi (103 kPa). Refer to para. 3-14f.

**c. Driving Vehicle.** Perform steps in para. 2-36b.

**d. After Operation.**

(1) Perform after operation PMCS. Refer to table 2-2.

(2) Notify maintenance personnel to drain water from fuel tank. Fill fuel tank.

(3) Reinflate tires to proper operating pressure. Refer to para. 3-14f.

## 2-40. OPERATION IN DEEP MUD

**a. General.**

### CAUTION

Do not attempt operation when only one driving wheel is equipped with tire chains. Doing this may result in damage to tires and powertrain.

(1) Prolonged operation in deep mud requires the use of tire chains on driving wheels. Refer to FM 21-305 for installation of tire chains.

(2) If tire chains are not available, deflate tire pressure to 15 psi (103 kPa). Refer to para. 3-14f.

**b. Before Operation.** Perform before operation PMCS, table 2-2.

**c. Driving Vehicle Cross-Country.**

(1) Start engine. Refer to para. 2-14 or 2-15.

(2) Engage front wheel drive. Refer to para. 2-4.

### NOTE

When placing the vehicle in motion in deep mud, make sure front wheels are in straight ahead position.

(3) Place vehicle in motion (refer to para. 2-16) with transmission gearshift lever in "2" (second) position and transfer case shift lever in LOW position. Begin movement by releasing clutch pedal gradually, without causing wheels to spin or engine to race.

(4) If rear end skidding occurs, turn steering wheel in direction of skid. Let up on accelerator pedal but do not depress clutch pedal. Pump brake pedal gradually to recover from skid.

(5) Be prepared to downshift transmission gearshift lever, if necessary, to prevent vehicle from getting stuck in mud.

## 2-40. OPERATION IN DEEP MUD (Contd)

### CAUTION

Do not attempt to jump vehicle out of deep mud with quick transmission gear changes. Doing this may result in damage to equipment.

(6) If vehicle becomes stuck in deep mud, use second vehicle with winch for recovery operation. Refer to para. 2-24.

#### d. Driving Vehicle on Roads.

### WARNING

Do not operate vehicle on wet, smooth roads with lowered tire inflation. Do not operate vehicle at too great a speed for road conditions. Low tire inflation or excessive speeds may cause loss of vehicle control on wet, smooth roads resulting in injury or death to personnel.

(1) Perform steps in c., as necessary.

(2) Approach large water-filled chuckholes with caution. Chuckhole depth is difficult to determine, and vehicle may become stuck.

#### e. After Operation.

(1) Wash all mud from vehicle as soon as possible, before it has time to dry and harden.

(2) Remove tire chains from driving wheels.

(3) If vehicle front winch was used, clean and lubricate.

(4) Perform after operation PMCS, table 2-2.

## 2-41. FORDING OPERATION

### CAUTION

Never attempt to cross water deeper than 30 in. (76 cm) unless fording (deepwater) kit is installed. Doing this may result in damage to engine components.

a. To ford water more than 30 in. (76 cm) in depth, refer to para. 2-52.

b. If vehicle is accidentally submerged in water deeper than 30 in. (76 cm):

(1) Recover vehicle using second vehicle with front winch. Refer to para. 2-24.

(2) Notify your supervisor.

## 2-42. TOWING VEHICLE TO START ENGINE

### WARNING

Towing vehicle to start engine should be done on straight, smooth surface. Failure to do this may cause towed vehicle to lose control resulting in injury or death to personnel.

### NOTE

Vehicle may be towed to start engine only when slave receptacle starting and jumper cable starting are not possible.

- a. Install towbar on disabled vehicle and connect to pintle hook of towing vehicle. Refer to para. 2-23.

### NOTE

Utility chain should be connected to permit both vehicles to maneuver.

- b. If towbar is not available, install utility chain (2) on lifting shackles (3). Attach center of utility chain (2) to pintle hook (1).
- c. Perform steps a. through h., and step k., in para. 2-14.
- d. Depress clutch pedal of towed vehicle and place transmission gearshift lever in "2" (second) position. Place transfer case shift lever in HIGH position. Release parking brake.
- e. Signal operator of towing vehicle to begin towing.

### NOTE

For cold weather starting, operate manifold heater upon releasing clutch pedal. Refer to para. 2-15.

- f. When towed vehicle reaches 10 mph, turn accessory power switch to ON, slowly release clutch pedal, and depress accelerator pedal until engine starts. If vehicle has been towed 100 yards (91 meters) and engine fails to start, stop towing operation and notify your supervisor.

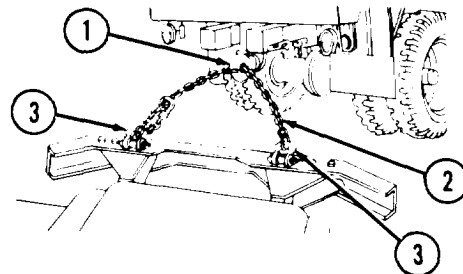
- g. Depress clutch pedal immediately after engine starts.

- h. Signal operator of towing vehicle to stop.

- i. When vehicle stops, place transmission gearshift lever in "N" (neutral) position and apply parking brake lever.

- j. Perform steps n. through p. in para. 2-14.

- k. Remove towbar (refer to para. 2-23). If utility chain (2) was used, remove utility chain (2) from pintle hook (1) and lifting shackles (3).



TA 51766

## **2-43. USING JUMPER CABLES TO START ENGINE**

- a.** Position jump starting vehicle with batteries opposite batteries of disabled vehicle.
- b.** Stop engine of jump starting vehicle. Refer to para. 2-17.
- c.** Open battery compartment doors of both vehicles and pull both battery boxes onto running boards. Refer to para. 3-15.

### **WARNING**

One jumper cable must connect positive terminals and other jumper cable must connect negative terminal of jump starting vehicle to body, away from batteries, of disabled vehicle. Failure to do this may cause batteries to explode, resulting in injury or death to personnel.

- d.** Clamp one jumper cable (2) to positive terminal (1) of jump starting vehicle and positive terminal (3) of disabled vehicle.
- e.** Clamp other jumper cable (5) to negative terminal (6) of jump starting vehicle and body (4) of disabled vehicle.
- f.** Start engine of jump starting vehicle. Refer to para. 2-14 or 2-15.
- g.** Start engine of disabled vehicle. Refer to para. 2-14 or 2-15. If engine does not start after four tries, notify your supervisor.

### **WARNING**

Make sure jumper cable clamps do not contact other jumper cable clamps or terminals. Failure to do this may cause batteries to explode, resulting in injury or death to personnel.

- h.** Remove jumper cables (2) and (5).
- i.** Push both battery boxes in and close battery compartment doors. Refer to para. 3-15.

## Section V. OPERATION OF SPECIAL PURPOSE KITS

### 2-44. GENERAL

a. Certain operating and weather conditions require additional equipment to be added to the vehicle. The using activity informs maintenance personnel to install special support equipment when needed.

b. Special purpose kits for M44A2 series vehicles are listed in table 2-6.

Table 2-6. *Special Purpose Kits*

Kit Description	M35A2	M35A2C	M36A2	M49A2C	M50A2	M50A3	M109A3	M185A3	M275A2	M342A2	M756A2	M764
A-frame (vehicles w/w only)	X	X	X						X		X	
Airbrake (trailer)	X	X	X	X	X	X	X	X		X	X	X
Alternator Conversion (25 to 60 amp)	X	X	X	X	X	X	X	X	X	X	X	X
Alternator Conversion (60 to 100 amp)	X	X	X	X	X	X	X	X	X	X	X	X
Automatic Alarm (chemical agent)	X	X	X	X	X	X	X	X	X	X	X	X
Bow and Tarp (long)			X									
Bow and Tarp (M35A2C)		X										
Bow and Tarp (short)	X											
Bow Retainer and Cab Soft-top	X	X	X	X	X	X	X	X	X	X	X	X
Cargo Body Arctic	X											
Cargo Body Arctic Closure		X										
Cargo Body Tie Down			X									
Closure — Hardtop	X	X	X	X	X	X	X	X	X	X	X	X
Conversion, Rearview Mirror	X	X	X	X	X	X	X	X	X	X	X	X
Convoy Warning Light	X	X	X	X	X	X	X	X	X		X	X
Convoy Warning Light (dump)										X		
Decontamination Mounting	X	X	X	X	X	X	X	X	X	X	X	X
Exhaust, R.H. Mirror and Cab Insulation	X	X	X	X	X	X	X	X	X	X	X	X
Fording (deepwater)	X	X	X	X	X	X	X	X	X	X	X	X
Fuel Sampling Probe Adapter				X								
Fuel Tank Meter Drain				X								
Heater, Arctic Winterization	X	X	X	X	X	X	X	X	X	X	X	X
Heater, Van Body (multifuel) — Primary							X	X				
Heater, Van Body (multifuel) — Secondary							X	X				
Lighting Fixture (field) European												X
Machine Gun Mount	X	X	X	X	X	X	X	X	X	X	X	X
Mini Lighting	X	X	X	X	X	X	X	X	X	X	X	X
M14/M16 Rifle Mounting	X	X	X	X	X	X	X	X	X	X	X	X
Modification — Front Bumper Step	X	X	X	X	X	X	X	X	X	X	X	X
Modification — Speed Control Cable				X	X	X						

**2-44. GENERAL (Contd)***Table 2-6. Special Purpose Kits (Contd)*

<b>Kit Description</b>	<b>M35A2</b>	<b>M35A2C</b>	<b>M36A2</b>	<b>M49A2C</b>	<b>M50A2</b>	<b>M50A3</b>	<b>M109A3</b>	<b>M185A3</b>	<b>M275A2</b>	<b>M342A2</b>	<b>M756A2</b>	<b>M764</b>
Personnel Heater (fuel burning)	X	X	X	X	X	X	X	X	X	X	X	X
Plate Midship and Rear Mounted Winch											X	
Slave Receptacle	X	X	X	X	X	X	X	X	X	X	X	X
Stone Guard WO/W	X	X	X	X	X	X	X	X	X	X		
Stone Guard W/W	X	X	X	X	X	X	X	X	X	X	X	X
Stoplight Switch	X	X	X	X	X	X	X	X	X	X	X	X
Troop Seat and Covering										X		
Troop Seat — Center Mounted	X	X										
Warning Light — Low Air Pressure	X	X	X	X	X	X	X	X	X	X	X	X
Windshield Washer	X	X	X	X	X	X	X	X	X	X	X	X
Winterization, Arctic, Swingfire Heater (gasoline)	X											
Winterization, Arctic, Truck — Multifuel Heater	X											

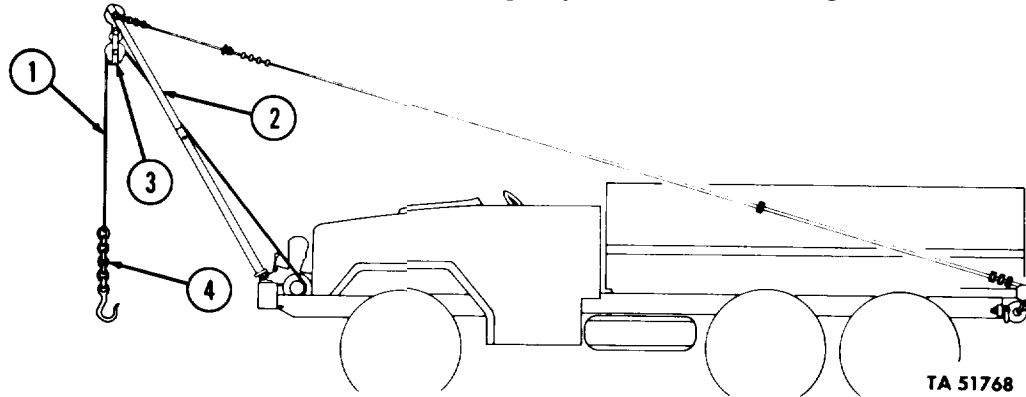
c. Some kits listed in table 2-6 require special operating procedures. To find a specific paragraph, refer to the index below:

**2-45. OPERATION OF SPECIAL PURPOSE KITS INDEX**

<b>PARA. NO.</b>	<b>PARA. TITLE</b>	<b>PAGE NO.</b>
2-46.	Operation of A-frame Kit	2-195
2-47.	Operation of Airbrake (Trailer) Kit	2-196
2-48.	Operation of Arctic Winterization Kit	2-197
2-49.	Bow and Tarp Kit	2-200
2-50.	Bow Retainer and Cab Soft-top Kit	2-206
2-51.	Operation of Cargo Body Arctic Kit	2-206
2-52.	Operation of Fording (Deepwater) Kit	2-210
2-53.	Operation of Personnel Heater (Hot Water) Kit	2-211
2-54.	Operation of Slave Receptacle Kit	2-212
2-55.	Operation of Troop Seat and Covering Kit	2-212
2-56.	Operation of Troop Seat — Center Mounted Kit	2-212
2-57.	Operation of Van Body Heater (Primary and Secondary) Kits	2-212
2-58.	Operation of Windshield Washer Kit	2-215
2-59.	Operation of Swingfire Heater	2-215

## 2-46. OPERATION OF A-FRAME KIT

**a. General.** The A-frame kit is installed on cargo (M35A2, M35A2C, M36A2) and tractor (M275A2) trucks equipped with a front winch to provide a means for lifting, moving, loading, and unloading materials and equipment when standard cranes are not available. The pipeline construction (M756A2) truck may also have the A-frame kit installed. A-frame load capacity is 3,000 lb ( 1,362 kg).



**b. Safety Precautions.** When using an A-frame assembly, the operator should be aware of the following operating instructions for personnel safety and maintaining equipment in operating condition:

- (1) Do not attempt to lift more than 3,000 lb (1,362 kg) with A-frame kit.
- (2) Do not drop poles (2) below 60 degree angle with ground surface.
- (3) Do not allow load to swing.
- (4) Avoid hitting overhead obstacles.
- (5) Prevent kinking and twisting of winch cable (1).
- (6) Do not use winch cable (1) to tie load
- (7) Do not allow cable chain (4) to contact snatch block (3).

**c. Preparation for Use.**

- (1) Perform before operation PMCS, table 2-2.

### WARNING

Vehicle will become charged with electricity if A-frame contacts or breaks high voltage wire. Do not leave vehicle while high voltage line is in contact with A-frame or vehicle. Signal nearby personnel to have electrical power turned off. Failure to do this may result in injury or death to personnel.

### NOTE

A-frame kit is installed and rigged by maintenance personnel.

- (2) Maneuver vehicle into position for operation.
- (3) Park vehicle and apply parking brake.

**d. Operating A-frame.** Operate front winch to raise, lower, or hold load. Refer to para. 2-24.



## 2-47. OPERATION OF AIRBRAKE (TRAILER) KIT

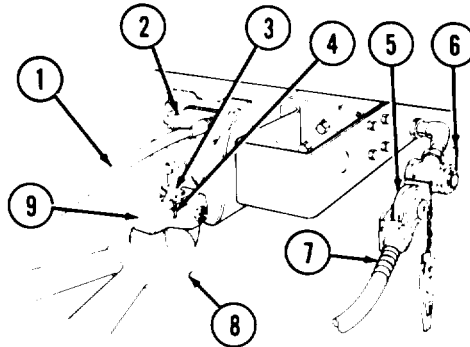
**a. General.** Airbrake (trailer) kit is installed on vehicles hauling trailers or artillery equipped with airbrakes. It is used when heavy payloads are to be hauled and separate braking of the trailer is desired.

### b. Coupling Trailer to Vehicle.

- Refer to appropriate trailer TM for complete trailer operation procedures.
- Attaching yoke of trailer or artillery load to pintle hook requires two or more crewmembers, depending on size and weight of load.

**(1)** Remove cotter pin (4), lift lever (3), insert yoke (8) of trailer or artillery load into pintle hook (9) of vehicle, lower lever (3), and install cotter pin (4).

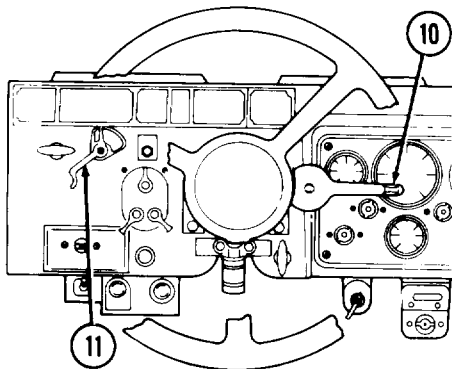
**(2)** Connect load air lines (7) to air couplings (5) of towing vehicle.



TA 51769

### WARNING

Air shutoff valves must be turned on to charge trailer brake system. Failure to do this may result in trailer brake failure causing injury or death to personnel.



TA 51770

**(3)** Pull up handles (6) to charge trailer brake system.

**(4)** Connect trailer brakelight cable (1) to electric receptacle (2).

### c. Airbrake Kit Operation.

**(1)** Start engine (refer to para. 2-14 or 2-15) and operate vehicle as necessary.

#### NOTE

Airbrake hand control should be engaged slowly to provide steady, even braking.

**(2)** Pull down airbrake hand control (10) to apply brakes of towed load

### WARNING

Make sure air shutoff valves are turned off after uncoupling trailer. Failure to do this may result in vehicle brake failure causing injury or death to personnel.

## 2-48. OPERATION OF ARCTIC WINTERIZATION KIT

**a. General.** The arctic winterization kit is installed to permit continued operation of vehicles in temperatures -25°F (-32°C) or less. The kit includes an alcohol evaporator, hardtop closure, fuel burning personnel heater, power plant heater, quilted engine compartment cover, radiator cover, slave receptacle, and thermal barrier.

**b. Special Arctic Winterization Kits.** The cargo (M35A2) truck maybe equipped with one of two types of special arctic winterization kits:

**(1) Multifuel Heater Arctic Winterization Kit** — Includes the arctic winterization kit listed above as well as the cargo body arctic kit. Refer to para. 2-51. All heaters draw fuel from vehicle fuel tank.

**(2) Swingfire Heater Arctic Winterization Kit** — Includes the arctic winterization kit listed above as well as the cargo body arctic kit. Refer to para. 2-51. Fuel burning personnel heater draws fuel from vehicle fuel tank. Power plant heater and cargo body heater are powered by swingfire heater (refer to para. 2-59) which has its own fuel tank and may use only gasoline.

**c. Alcohol Evaporator.** Use methyl alcohol, appendix D, item 14. Refer to para. 2-6c.

**d. Hardtop Closure.** Refer to para. 2-6c.

**e. Operation of Fuel Burning Personnel Heater and Power Plant Heater.**

### NOTE

This procedure covers multifuel heater operation only. For coverage of systems equipped with swingfire heater, refer to para. 2-59.

**(1) General.** Fuel burning personnel heater provides heat to warm vehicle cab and defrost windshield while engine is running. Power plant heater preheats engine coolant, engine, and batteries in preparation for starting in extreme cold or to maintain engine in standby readiness. Since operating procedures for these heaters are similar, they will be explained together.

### CAUTION

Do not operate fuel burning personnel heater and power plant heater at the same time. Doing this may result in overworked electric fuel pump.

### NOTE

Refer to para. 2-6c for location and function of heater controls and indicators.

**(2)** Open personnel heater shutoff cock, or power plant heater shutoff cock and coolant cocks as necessary by turning counterclockwise.

**(3)** Turn accessory power switch (11) to ON.

## 2-48. OPERATION OF ARCTIC WINTERIZATION KIT (Contd)

### NOTE

HI-LO and RUN-OFF-START switches and red indicator light for fuel burning personnel heater and power plant heater are the same.

(4) Depress red indicator light (1) to check operation of circuit. If red indicator light (1) does not illuminate, contact your supervisor.

### NOTE

- RUN-OFF-START switch is spring-loaded and will return to OFF position from START position if not held down.
- If red indicator light for fuel burning personnel heater or power plant heater does not illuminate within two minutes, turn RUN-OFF-START switch to OFF position. Wait three minutes before trying to start heater again. If red indicator light does not illuminate after two attempts, notify your supervisor.
- If RUN-OFF-START switch is turned to RUN position before red indicator light illuminates, heater will not operate.
- For power plant heater operation, perform steps (5) through (8). For fuel burning personnel heater operation, perform steps (9) through (13).

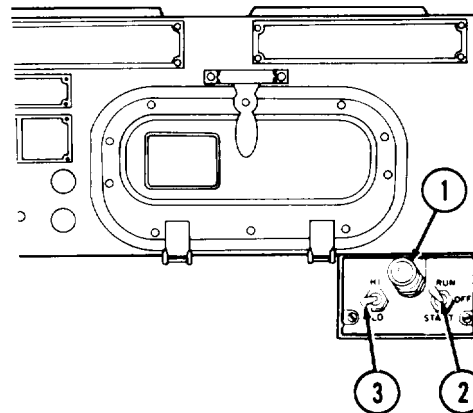
(5) Set HI-LO switch (3) on power plant heater control to HI or LO, as necessary, and turn RUN-OFF-START switch (2) to START position until red indicator light (1) illuminates.

### CAUTION

Do not operate power plant heater with engine running, or engine may overheat.

(6) As soon as red indicator light (1) illuminates, turn RUN-OFF-START switch (2) to RUN position, with no hesitation at OFF position, and run power plant heater as necessary.

(7) Start engine, if required (refer to para. 2-15).



TA 51771

### NOTE

Red indicator light will remain on until fuel in heater burns away and heater cools.

Do not turn accessory switch to OFF while engine is running.

## 2-48. OPERATION OF ARCTIC WINTERIZATION KIT (Contd)

(8) Turn RUN-OFF-START switch (2) to OFF position, and accessory power switch (4) to OFF.

### NOTE

Engine must be running to operate fuel burning personnel heater.

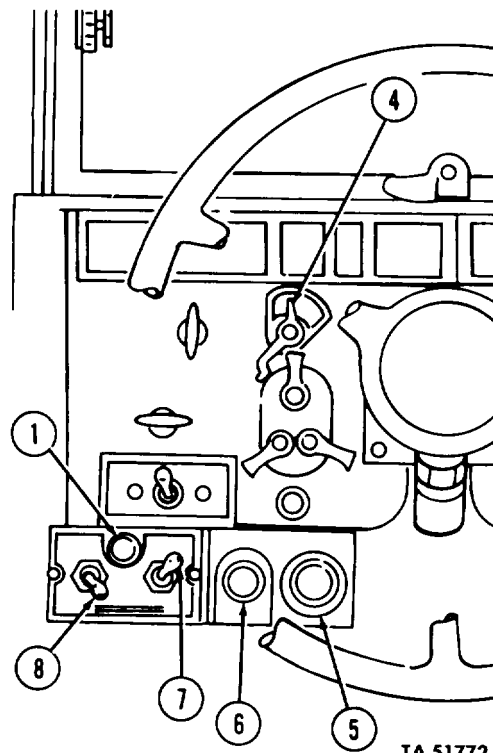
(9) Pull air control knob (6) out all the way.

(10) Turn RUNOFF-START switch (7) on fuel burning personnel heater control to START position until red indicator light (1) illuminates.

(11) As soon as red indicator light (1) illuminates, turn RUN-OFF-START switch (7) to RUN position, with no hesitation at OFF position.

### CAUTION

Heat cab before defrosting windshield. Failure to do this may result in damage to windshield from sudden temperature change.



TA 51772

(12) Set H-LO switch (8) on HI or LO, as necessary, and adjust air control knob (6) and defroster control knob (5) as necessary.

(13) After heater operation, turn RUN-OFF-START switch (7) on fuel burning personnel heater control to OFF position.

(14) Close power plant heater shutoff cock or fuel burning personnel heater shutoff cock, as necessary, by turning clockwise.

### f. Operation of Quilted Engine

Compartment Cover and Radiator Cover.

(1) **General.** The quilted engine compartment cover and radiator cover are used to help engine reach and maintain proper operating temperature. The radiator cover also keeps snow and ice off radiator coils.

## 2-48. OPERATION OF ARCTIC WINTERIZATION KIT (Contd)

(2) Start engine (refer to para. 2-15) with radiator cover aperture flap (2) closed.

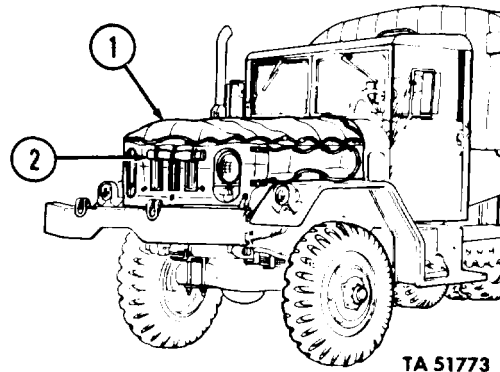
(3) Roll up and secure aperture flap (2) when temperature gage reading exceeds 180°F.

Failure to remove quilted engine compartment cover when temperature gage reading exceeds 200°F may result in overheated engine.

(4) Remove quilted engine compartment cover (1) completely if temperature gage reading exceeds 200°F.

g. Operation of Slave Receptacle. Refer to para. 2-19.

h. Thermal Barrier. Adds insulation to vehicle cab so more warm air is retained in arctic conditions.



## 2-49. BOW AND TARP KIT

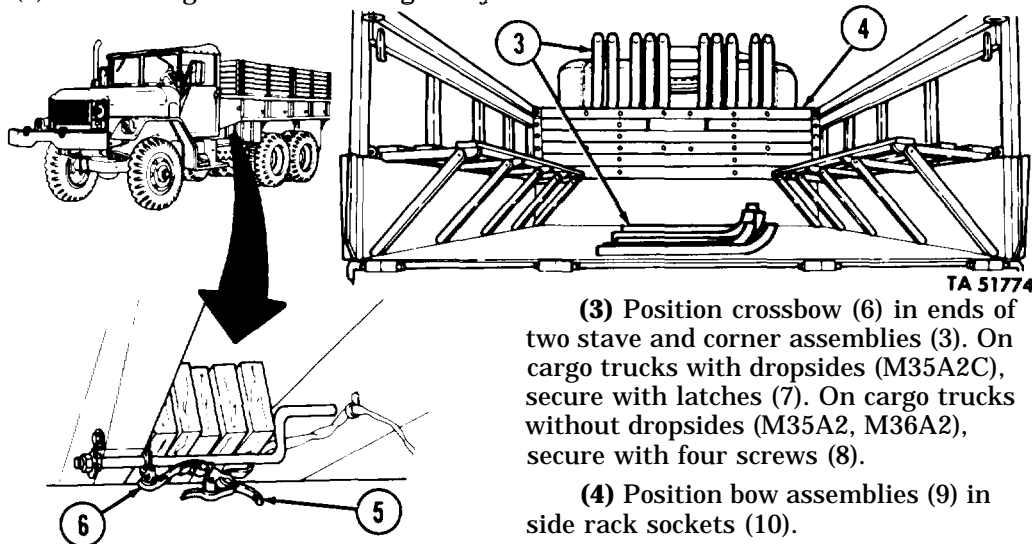
### NOTE

This procedure requires two personnel

#### a. Bow Installation.

(1) On cargo trucks with dropsides (M35A2C), remove stave and corner assemblies (3) from storage sockets in front of rack (4). On cargo trucks without dropsides (M35A2, M36A2), remove stave and corner assemblies (3) from storage area on cargo bed.

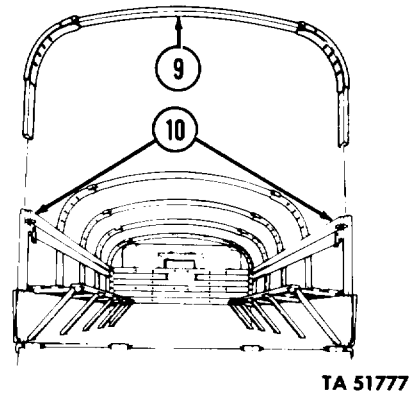
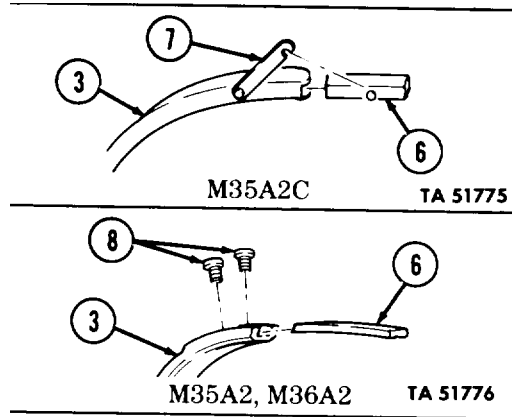
(2) Unbuckle two straps (5), one on each side of truck, and remove crossbows (6) from storage area under cargo body.



(3) Position crossbow (6) in ends of two stave and corner assemblies (3). On cargo trucks with dropsides (M35A2C), secure with latches (7). On cargo trucks without dropsides (M35A2, M36A2), secure with four screws (8).

(4) Position bow assemblies (9) in side rack sockets (10).

## 2-49. BOW AND TARP KIT (Contd)

**b. End Curtain Installation.**

(1) Put two lashing ropes (11) through center two eyelets (12) of rear end curtain (18) and pull lashing ropes (11) through until knots at ends of lashing ropes (11) touch eyelets (12).

(2) Position rear end curtain (18) on bow assembly (9).

(3) Lace one lashing rope (11) around bow assembly (9) and through all eyelets (17) on one side of rear end curtain (18). Repeat for other lashing rope (11).

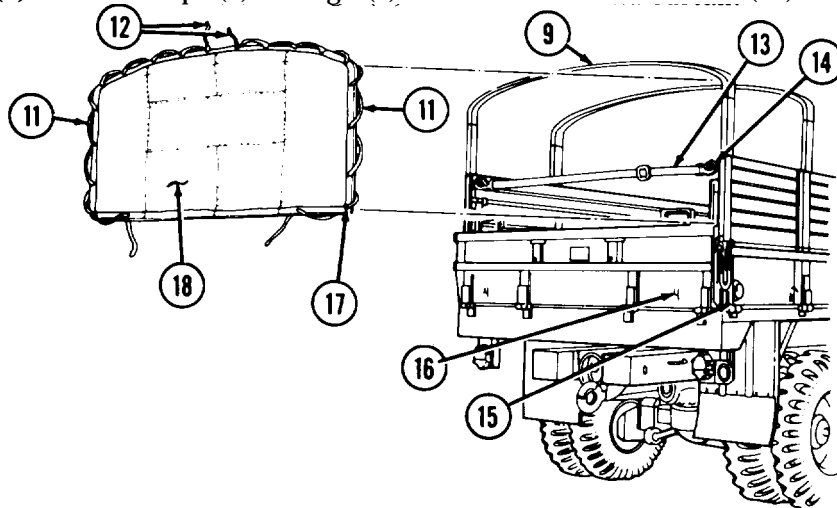
(4) Loop lashing rope (11) around lashing hook (15). Pull lashing rope (11) tight and tie to lashing hook (16). Repeat for other lashing rope (11).

**NOTE**

Do not tie or lash bottom of rear end curtain when transporting troops.

(5) Join safety strap (13) to two side rail eyelets (14).

(6) Perform steps (1) through (4) to install front end curtain (18).

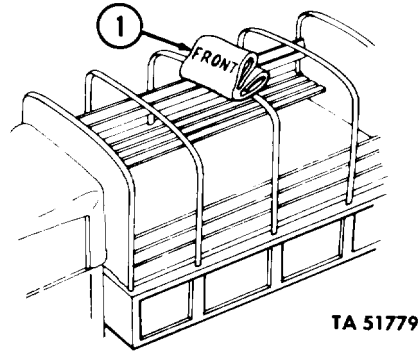
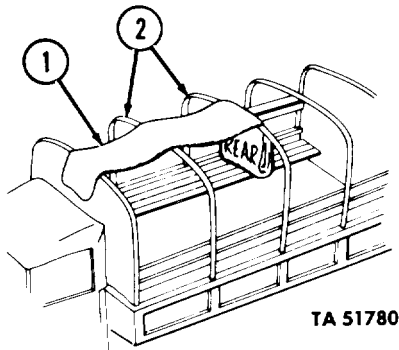


TA 51778

## 2-49. BOW AND TARP KIT (Contd)

### c. Tarp Installation.

(1) Place folded tarp (1) across top center bow assembly (2) with half marked FRONT facing front of vehicle.



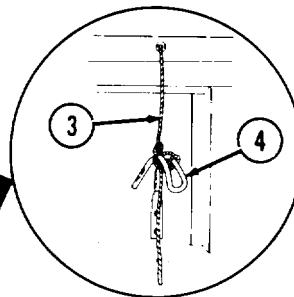
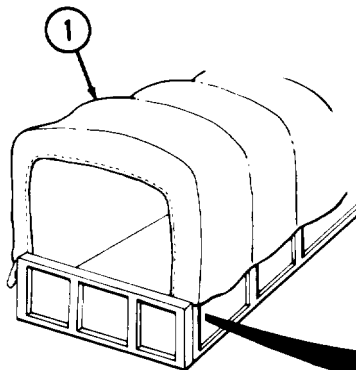
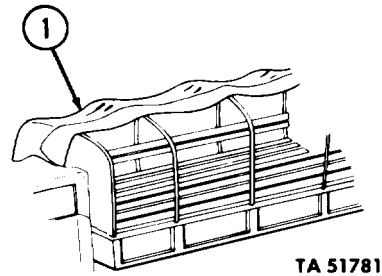
(2) Unfold front of tarp (1) over bow assemblies (2) all the way, then unfold other end of tarp (1) toward rear of vehicle.

(3) Unfold one side of tarp (1), then unfold other side toward sides of truck. Allow loose tarp (1) sides to drape over side of truck.

### CAUTION

Make sure lashing ropes are tied snugly but not too tightly. Tarp may tear if lashing ropes are tied too tightly.

(4) Tie lashing ropes (3) to lashing hooks (4) on each side of vehicle.

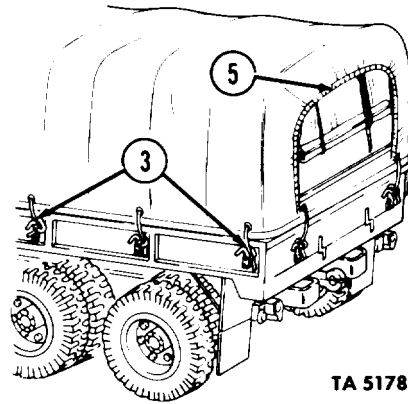
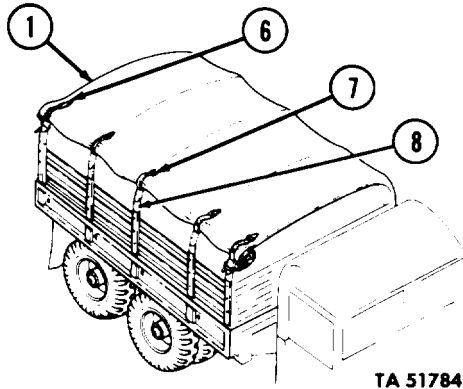


## 2-49. BOW AND TARP KIT (Contd)

### d. Raising Tarp for Ventilation.

(1) Remove rear end curtain (5), if installed.

(2) Untie all lashing ropes (3).



(3) Fold up tarp (1) into three to five folds until straps (6) attached to stave and corner assemblies (8) are exposed.

(4) Fasten folded tarp (1) in place using straps (6) and buckles (7) attached to outside of tarp (1).

(5) Tie front and rear lashing ropes (3) to end stave and corner assemblies (8).

### e. Tarp Removal.

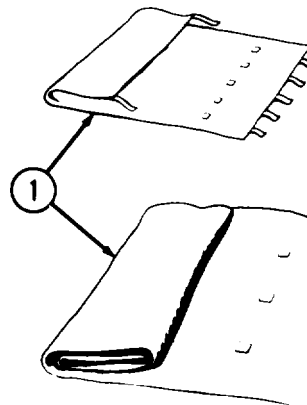
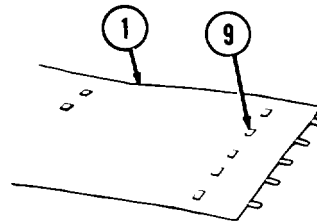
#### CAUTION

Do not fold or stow tarp when wet. Doing this may result in damage to tarp.

(1) Remove tarp (1) from vehicle and lay tarp (1) flat on ground, with buckles (9) on top.

(2) Fold eyelet side of tarp (1) to first row of buckles (9).

(3) Fold tarp (1) over again, and then one more time.

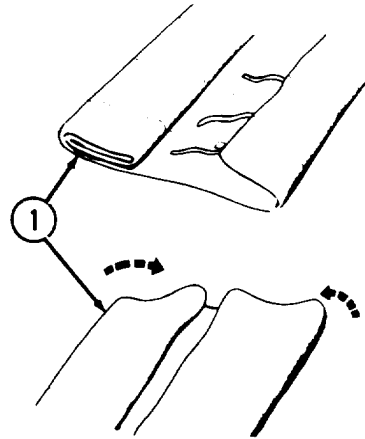


TA 51785

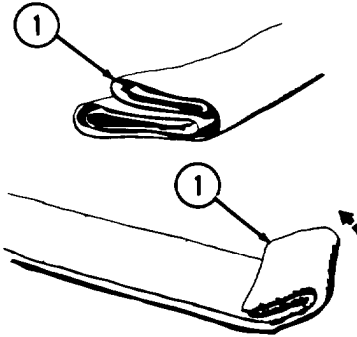


## 2-49. BOW AND TARP KIT (Contd)

(4) Fold other side of tarp (1) once, to the row of buckles.

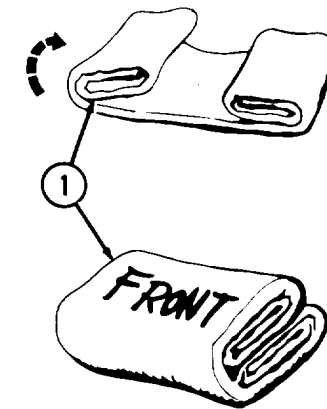


(5) Then fold tarp (1) again, until the two folds meet.



(6) Now fold the side of tarp (1) with three folds over the side with four folds.

(7) Next fold tarp (1) end halfway to the first seam, and then over again, until inner edge of tarp (1) is at middle.



(8) Repeat folding on opposite (1) end until both folded ends meet.

(9) Place folded tarp (1) front end up and with chalk, mark FRONT. Make sure that letters are large enough to be easily seen.

TA 51786

## 2-49. BOW AND TARP KIT (Contd)

(10) Turn folded tarp (1) over and mark REAR.

(11) Place tarp (1) on wood platform or pallet for storage.

### f. End Curtain Removal.

(1) Remove end curtains (4) and fold them to approximately same dimensions as tarp (1).

(2) Place end curtains (4) on same wood platform or pallet as tarp (1) for storage.

(3) Remove safety strap (3) and store with end curtains (4) and tarp (1).

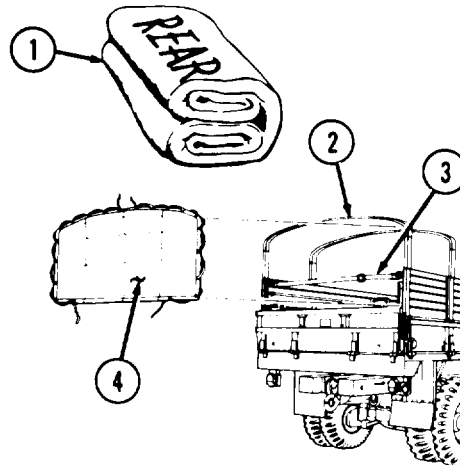
### g. Bow Removal.

(1) Remove bow assemblies (2).

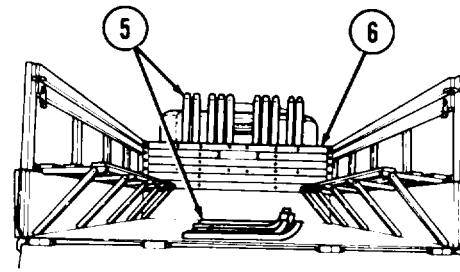
(2) On cargo trucks with dropsides (M35A2C), raise latches (10). On cargo trucks without dropsides (M35A2, M36A2), remove four screws (9).

(3) Separate crossbows (8) from stave and corner assemblies (5).

(4) On cargo trucks with dropsides (M35A2C), store stave and corner assemblies (5) in storage sockets in front of rack (6). On cargo trucks without dropsides (M35A2, M36A2), store in storage area on cargo bed.

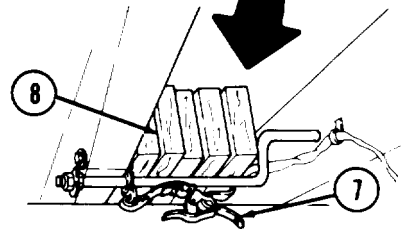
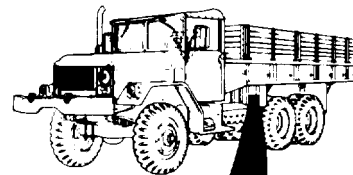


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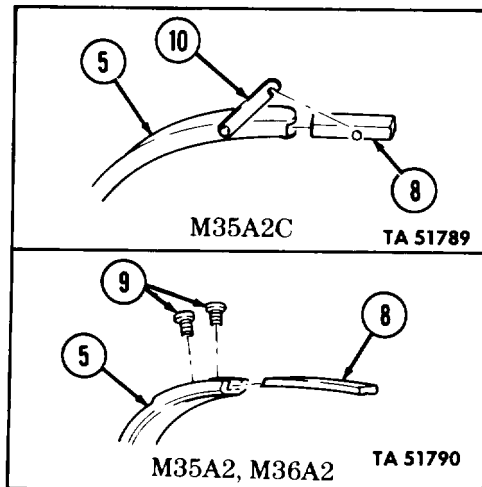


TA 51788

(5) Stow crossbows (8) in storage area under cargo body. Strap together by buckling two straps (7), one on each end.



TA 51791



M35A2C

TA 51789

M35A2, M36A2

TA 51790

## 2-50. BOW RETAINER AND CAB SOFT-TOP KIT

To install bow retainer and cab soft-top kit, refer to para. 2-21.

## 2-51. OPERATION OF CARGO BODY ARCTIC KIT

**a. General.** The cargo body arctic kit is installed to permit cargo and troop transport in temperatures -25°F (-32°C) or less. The kit includes a body heater, insulated body enclosure, lighting system, and a speaking tube.

### b. Operation of Body Heater.

**(1) General.** Body heater provides heat to warm cargo body. On M35A2 cargo trucks, body heater may be either a swingfire (gasoline) heater or a multifuel heater. M35A2C cargo trucks with dropsides may use only multifuel heater.

#### NOTE

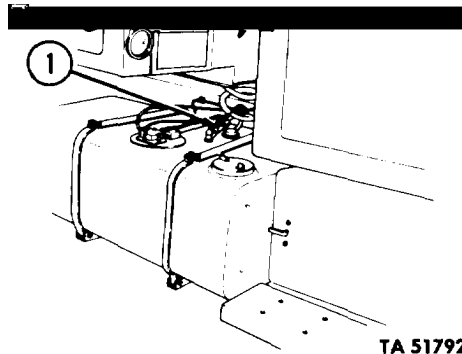
Step (2) applies to vehicles equipped with multifuel heater only.

**(2)** Open fuel tank shutoff cock (1) by turning counterclockwise.

#### NOTE

- Step (3) applies to vehicles equipped with swingfire heater only.

Swingfire heater should be in operation before performing step (3). Refer to para. 2-59.



**(3)** Remove lockpin (2) and open door (3). Install swingfire heater and adjust fuel regulator knob as necessary. Refer to para. 2-59. Close door (3) and install lockpin (2).

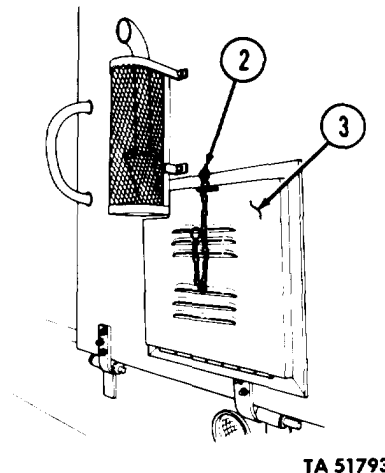
**(4)** Open diverter by turning diverter control lever (4) clockwise.

#### NOTE

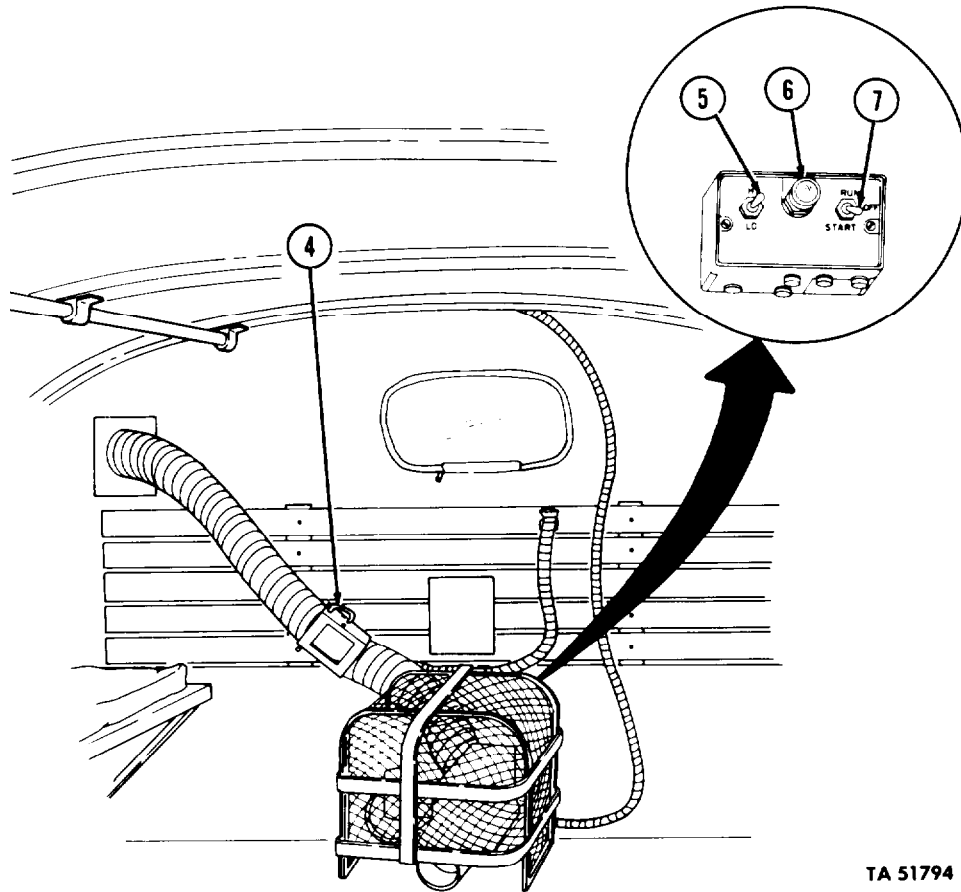
Steps (5) through (12) apply to vehicles equipped with multifuel heater only.

**(5)** Depress red indicator light (6) to check operation of circuit. If red indicator light (6) does not illuminate, notify your supervisor.

**(6)** Set HI-LO switch (5) on control box to HI or LO position, depending upon heating needs.



## 2-51. OPERATION OF CARGO BODY ARCTIC KIT (Contd)

**NOTE**

- RUN-OFF-START switch is spring-loaded and will return to OFF position from START position if not held down.
- If red indicator light does not illuminate within two minutes, turn RUN-OFF-START switch to OFF position. Wait three minutes before trying to start heater again. If red indicator light does not illuminate after two attempts, notify your supervisor.

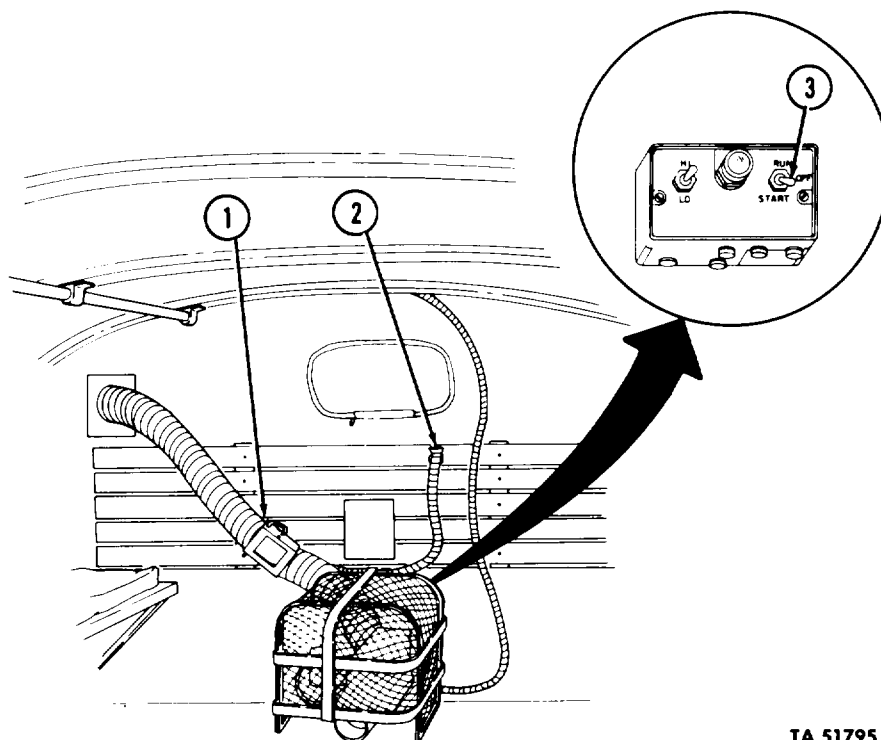
(7) Turn RUN-OFF-START switch (7) on control box to START position. Hold in that position until red indicator light (6) illuminates.

**NOTE**

If RUN-OFF-START switch is turned to RUN position before red indicator light illuminates, heater will not operate.

(8) As soon as red indicator light (6) illuminates, turn RUN-OFF-START switch (7) to RUN position, with no hesitation at OFF position.

## 2-51. OPERATION OF CARGO BODY ARCTIC KIT (Contd)



TA 51795

- (9) Adjust hot air flow with diverter control lever (1)

### NOTE

Blower motor will continue to run for one to three minutes after RUN-OFF-START switch is turned to OFF position. Red indicator light will remain on until fuel in heater burns away and heater cools.

- (10) After heater operation, turn RUN-OFF-START switch (3) to OFF position.

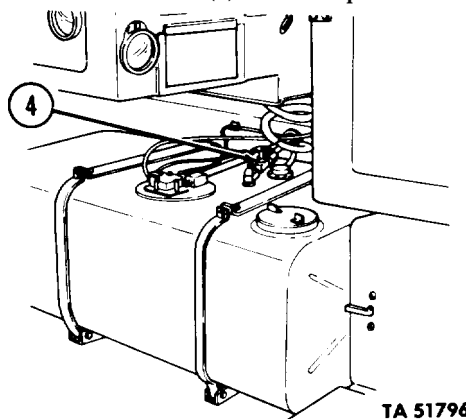
- (11) Close fuel tank shutoff cock (4) by turning clockwise.

- (12) Close diverter by turning diverter cent 01 lever (1) counterclockwise.

### NOTE

Step (13) applies to vehicles equipped with swingfire heater only.

- (13) After heater operation, remove lockpin (5) and open door (6). Remove and shut down swingfire heater as necessary. Refer to para. 2-59. Close door (6) and install lockpin (5).

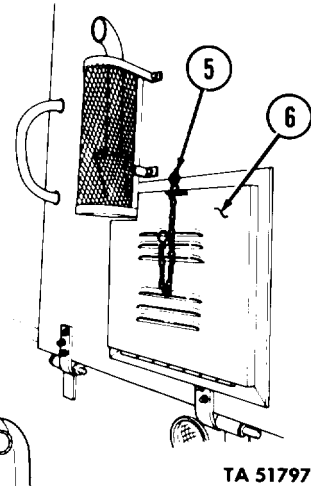
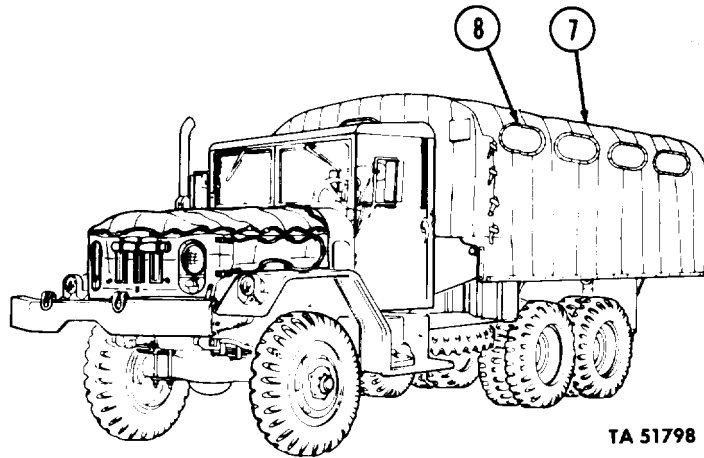


TA 51796

## 2-51. OPERATION OF CARGO BODY ARCTIC KIT (Contd)

### c. Insulated Body Enclosure.

**General.** The insulated body enclosure (7) protects troops and cargo and retains warm air in arctic conditions. A step assembly is installed for easy access to rear door, Window (8) covers on inside of insulated body enclosure (7) have zippers for easy closing and opening.

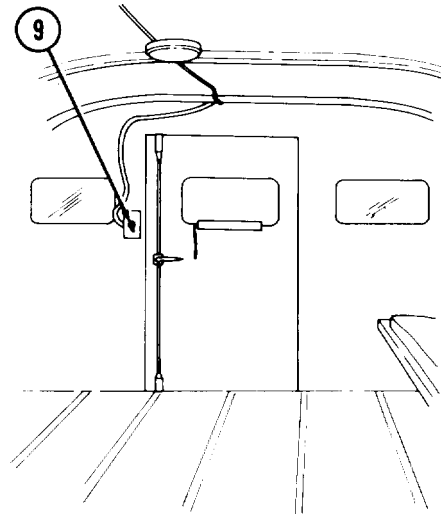


### d. Operation of Lighting System.

**General.** Two dome lights provide illumination for interior of insulated body enclosure (7). Dome lights are operated by switch (9) on inside rear of insulated body enclosure (7).

### e. Speaking Tube.

**General.** Speaking tube (2) at inside front of insulated body enclosure (7) permits communication between personnel in cab and personnel in cargo body.



## 2-52. OPERATION OF FORDING (DEEPWATER) KIT

**a. General.** Salt water causes considerable damage to vehicle components. For this reason, do not drive needlessly in or through salt water. Vehicle components that do come in contact with salt water must be washed with fresh water as soon as possible. The vehicle will ford water up to 30 in. (76 cm) in depth without a fording kit and 72 in. (183 cm) with kit installed.

Never attempt deepwater fording unless water depth is known to be 72 in. (183 cm) or less, and bottom surface is known to be hard. Failure to do this may result in injury or death to personnel.

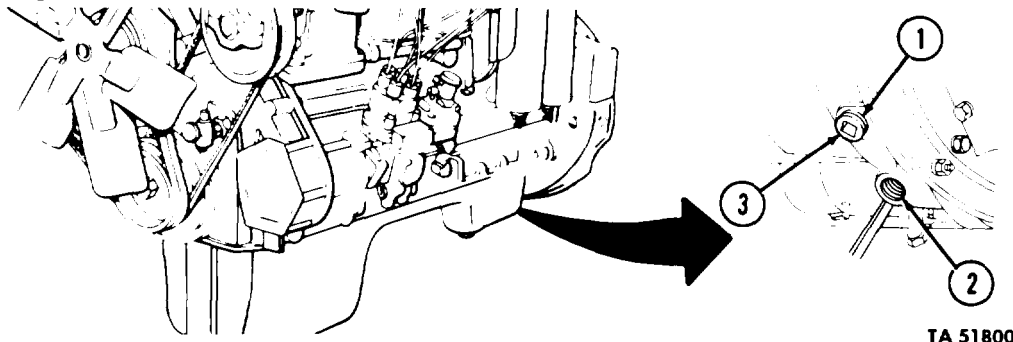
### b. Operator Preparation for Fording.

(1) Tighten battery filler caps and fuel tank filler cap. Make sure oil dipstick is installed securely. Refer to para. 2-4.

(2) Secure all loose objects on vehicle.

(3) Remove flywheel housing drainplug (3) from storage boss (2). Install flywheel housing drainplug (3) in flywheel drainport (1).

(4) To prepare water tank trucks (M50A2, M50A3) for fording operation, refer to para. 2-27.



### c. Fording Operation

(1) Start engine. Refer to para. 2-14 or 2-15.

(2) Place vehicle in motion with transfer case shift lever in low and transmission gearshift lever in "1" (first) position (refer to para. 2-16). Engage front wheel drive (4) (refer to para. 2-4).

### WARNING

Never attempt to cross water deeper than 72 in. (183 cm). Limit vehicle speed while fording to 4 mph. Failure to do this may cause vehicle to lose control resulting in injury or death to personnel.

(3) Enter water slowly. Move fording valve control lever (5) to the left immediately upon entering water.

## 2-52. OPERATION OF FORDING (DEEPWATER) KIT (Contd)

(4) Maintain constant vehicle speed while fording. Try to exit water in area with gentle slope.

(5) Move fording valve control lever (5) to the right immediately upon leaving water.

### WARNING

Do not rely on service brakes until they dry after fording operation. Continue to apply brakes until uneven braking ceases. Failure to do this may result in injury or death to personnel.

#### d. After Fording Operation.

(1) Stop vehicle (refer to para. 2-17) on firm, level surface and disengage front wheel drive (4) (refer to para. 2-4).

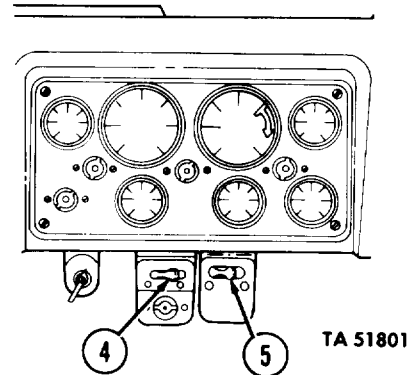
(2) Remove flywheel housing drainplug (3) from flywheel drainport (1). Install flywheel housing drainplug (3) in storage boss (2).

### CAUTION

All parts of vehicle that were in contact with salt water during fording operation must be washed with fresh water as soon as possible. Failure to do this may result in corrosion damage to equipment.

(3) Use fresh water to wash all parts of vehicle that were in contact with salt water during fording operation.

(4) Notify your supervisor to service vehicle as soon as possible.

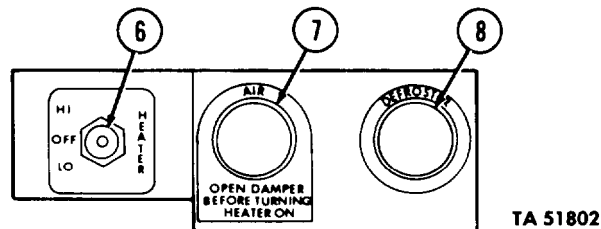


## 2-53. OPERATION OF PERSONNEL HEATER (HOT WATER)

### NOTE

The personnel heater (hot water) kit is effective in temperatures down to -25°F (-32°C). Colder temperatures require use of arctic winterization kit.

Start engine (refer to para. 2-14 or 2-15), allow temperature to reach normal operating range (refer to table 1-10), and turn HI-LO switch (6) to LO. Adjust air control knob (7) and defroster control knob (8) all necessary.





## 2-54. OPERATION OF SLAVE RECEPTACLE KIT

To operate slave receptacle kit, refer to para. 2-19.

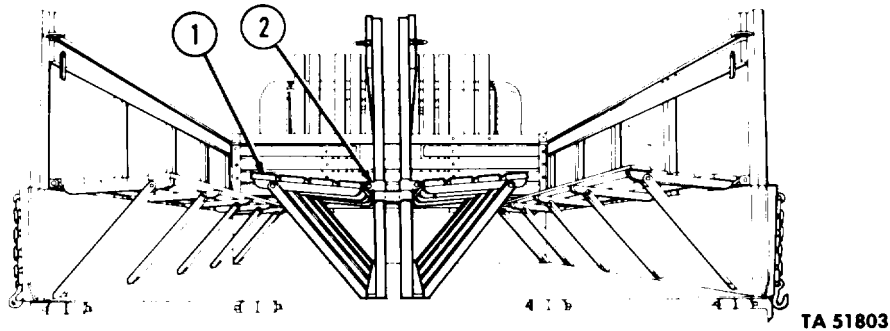
## 2-55. OPERATION OF TROOP SEAT AND COVERING KIT

To operate, remove, and install troop seats, refer to para. 2-25. To remove and install covering, refer to para. 2-49.

## 2-56. OPERATION OF TROOP SEAT – CENTER MOUNTED

**a. General.** Troop seat — center mounted kit is installed to double troop transport capacity on cargo trucks (M35A2, M35A2C).

**b.** To operate troop seats (1), refer to para. 2-25. Troop seats (1) are installed on opposite sides of pocket assemblies (2).



## 2-57. OPERATION OF VAN BODY HEATER (PRIMARY AND SECONDARY) KITS

**a. General.** Van body primary heater kit is installed on M109A3 shop van and M185A3 instrument repair shop trucks to warm van body in temperatures down to -25°F (-32°C). Colder temperatures require addition of van body secondary heater kit. Both heaters have flexible ducts that may be rerouted for spot heating of individual pieces of equipment.

### b. Operation of Body Heater.

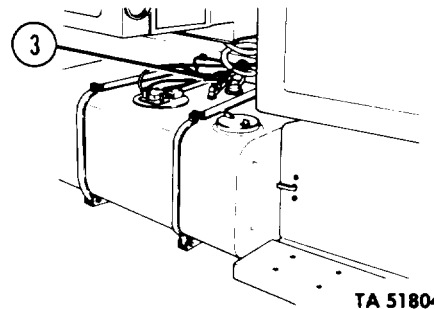
#### NOTE

Van body primary and secondary heaters are operated the same way. This procedure covers operation of van body primary heater.

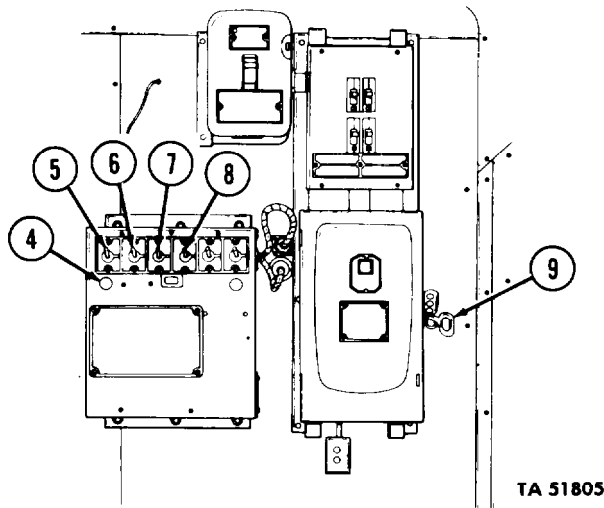
**(1)** Open fuel tank shutoff cock (3) by turning counterclockwise.

**(2)** Supply 115-volt AC power to van if available. Refer to para. 2-28b. If 115-volt AC power is available, place converter selector switch (7) down to 115V position.

**(3)** If 115-volt AC power is not available, place power switch (9) in down position. Place converter selector switch (7) up to 24V position



## 2-57. OPERATION OF VAN BODY HEATER (PRIMARY AND SECONDARY) KITS (Contd)



(4) Depress red indicator light (4) to check operation of circuit. If red indicator light (4) does not illuminate, notify your supervisor.

(5) Set HI-LO switch (5) to HI (up) or LOW (down) position, depending upon heating needs.

### NOTE

Ž RUN-OFF-START switch is spring-loaded and will return to OFF position from START position if not held down.

Ž If red indicator light does not illuminate within two minutes, turn RUN-OFF-START switch to OFF position. Wait three minutes before trying to start heater again. If red indicator light does not illuminate after two attempts, notify your supervisor.

(6) Turn RUN-OFF-START switch (6) down to START position. Hold in that position until red indicator light (4) illuminates.

### NOTE

If RUN-OFF-START switch is turned to RUN position before red indicator light illuminates, heater will not operate.

(7) As soon as red indicator light (4) illuminates, turn RUN-OFF-START switch (6) to RUN position, with no hesitation at OFF position.

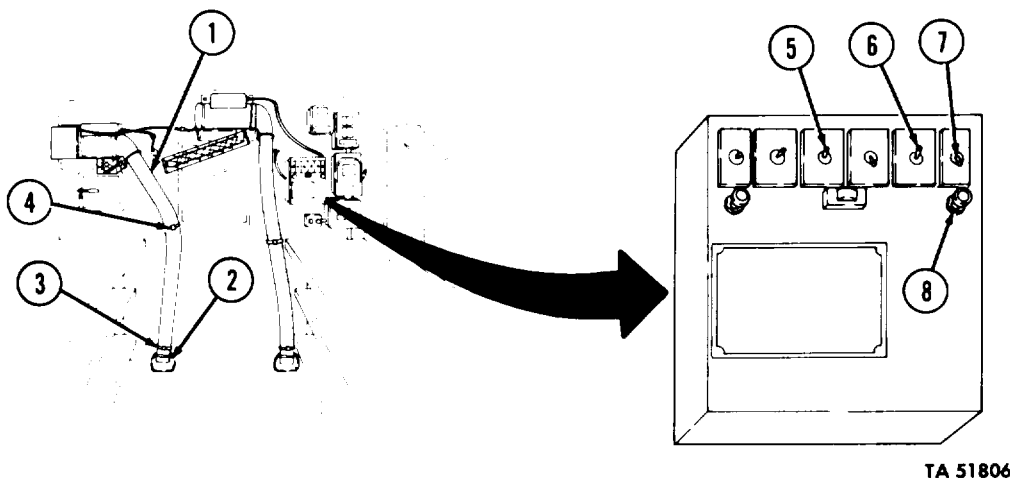
### NOTE

Blower motor will continue to run for one to three minutes after RUN-OFF-START switch is turned to OFF position. Red indicator light will remain on until fuel in heater burns away and heater cools.

(8) After heater operation, turn RUN-OFF-START switch (6) to OFF position.

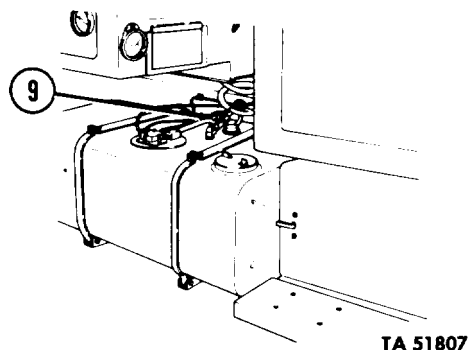
(9) Place exhaust blower switch (8) in HIGH (up) or LOW (down) position as necessary to circulate fresh air into van body.

## 2-57. OPERATION OF VAN BODY HEATER (PRIMARY AND SECONDARY) KITS (Contd)



(10) Repeat steps 2 through 9 to operate van body secondary heater. Controls for secondary heater are: RUN-OFF-START switch (6), HI-LO switch (7), and red indicator light (8).

(11) After all heater operation is complete, place converter selector switch (5) in OFF (middle) position. Close fuel tank shutoff cock (9) by turning clockwise.



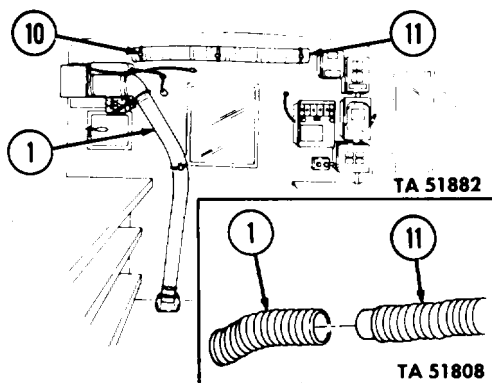
### c. Spot Heating Using Ducts.

(1) Unbuckle straps (3) and (4) as necessary.

(2) Remove duct (1) from deflector (2).

(3) To operate heater, refer to b. of this para.

(4) Direct hot air from duct (1) at equipment to be warmed.



### NOTE

On vehicles with primary heater only, auxiliary duct will be mounted on wall. On vehicles with both heaters, auxiliary duct will be mounted on ceiling.

(5) If equipment to be warmed is hard to reach with duct (1), unbuckle three straps (10) and remove auxiliary duct (11). Install auxiliary duct (11) on duct (1).

## 2-57. OPERATION OF VAN BODY HEATER (PRIMARY AND SECONDARY) KITS (Contd)

(6) After spot heating, remove auxiliary duct (11) from duct (1). Install auxiliary duct (11) by buckling three straps (10) Position duct (1) on deflector (2) and install by buckling straps (3) and (4).

(7) To shut off heater, refer to b. of this para.

## 2-58. OPERATION OF WINDSHIELD WASHER KIT

To operate windshield washer kit, refer to para. 2-6.

## 2-59. OPERATION OF SWINGFIRE HEATER

**a. General.** The swingfire heater is a portable heater that can be used to heat the cargo body enclosure and engine of M35A2 cargo trucks equipped with swingfire heater arctic winterization kit. It may also be used to thaw frozen equipment.

### CAUTION

Use only gasoline to operate swingfire heater. Using any other fuel may result in damage to swingfire heater.

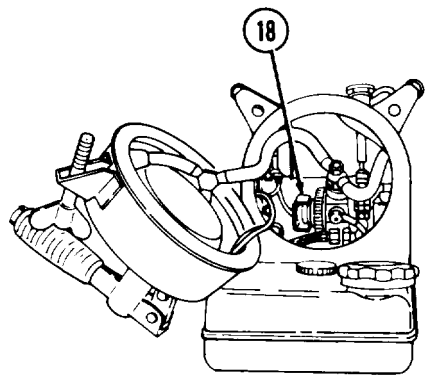
### NOTE

Each swingfire heater has its own fuel tank,

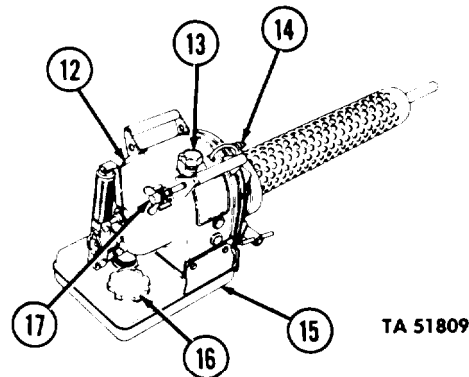
### b. Operation of Swingfire Heater.

(1) Remove fuel tank cap (16) and fill fuel tank (15) with gasoline. Install fuel tank cap (16).

(2) Depress pressure pin (14) to check operation of air shutoff valve. If pressure pin (14) does not return to out position, notify your supervisor.



TA 51810



TA 51809

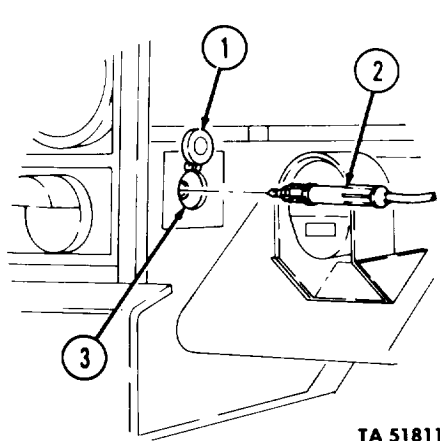
(3) Loosen wingnut (17) by turning counterclockwise and open cover (12).

(4) Turn diaphragm valve (18) all the way clockwise.

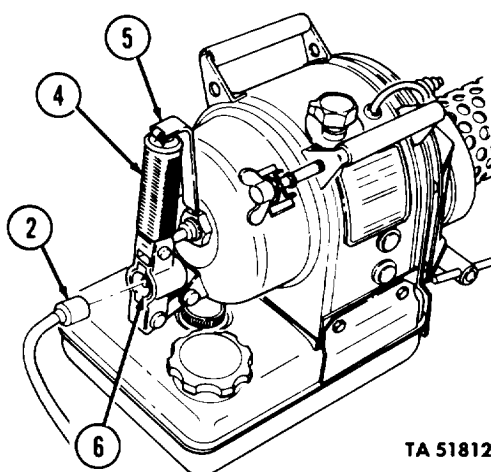
(5) Install cover (12) and tighten wingnut (17) by turning clockwise.

(6) Close fuel regulator knob (13) by turning clockwise.

## 2-59. OPERATION OF SWINGFIRE HEATER (Contd)



TA 51811



TA 51812

(7) Raise power receptacle cover (1) and install one end of starter cable (2) in power receptacle (3). Install other end of starter cable (2) in starter cable receptacle (6).

(8) Squeeze ignition switch (5) against pump lever (4) and hold there one minute for every 10°F below 0°F, then release.

### NOTE

It maybe necessary to loosen wingnut and open cover slightly so pulsating sounds can be heard more clearly.

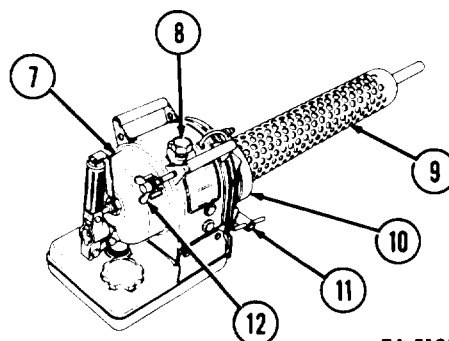
(9) Move pump lever (4) forward and backward three or four times, then turn fuel regulator knob (8) one to one-and-a-half turns counterclockwise. Continue moving hand lever (4) and adjust fuel regulator knob (8) until pulsating sounds come to equal intervals.

(10) When pulsating sounds come to equal intervals, stop moving pump lever (4).

(11) Let swingfire heater (9) run three to five minutes. Adjust fuel regulator knob (8) if pulsations are not at equal intervals.

(12) Close cover (7) if opened and tighten wingnut (12) by turning clockwise.

(13) Remove starter cable (2) from starter cable receptacle (6) and power receptacle (3). Close power receptacle cover (1).



TA 51813

(14) Install swingfire heater (9) in mixing pipe (refer to c. of this para.), turboheater (refer to d. of this para.), or water jacket (refer to e. of this para.) as necessary.

## 2-59. OPERATION OF SWINGFIRE HEATER (Contd)

(15) After heater operation, remove swingfire heater (9), from mixing pipe (refer to c. of this para.), turboheater (refer to d. of this para.), or water jacket (refer to e. of this para.) as necessary. Close fuel regulator knob (8) by turning clockwise.

(16) After swingfire heater (9) stops, loosen wingnut (12) by turning counter-clockwise and remove cover (7).

(17) Turn diaphragm valve (13) all the way counterclockwise.

(18) Install cover (7) and tighten wingnut (12) by turning clockwise.

### c. Operation of Mixing Pipe.

(1) **General.** Mixing pipe is installed on swingfire heater to thaw frozen brake lines, brakedrums, gear parts, tires, and other equip

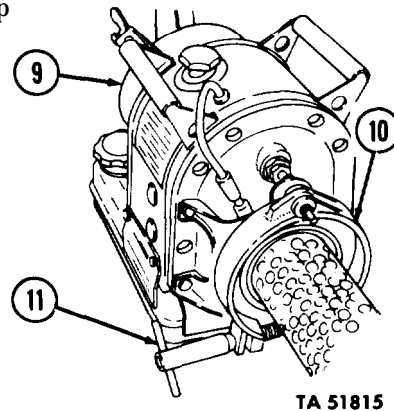
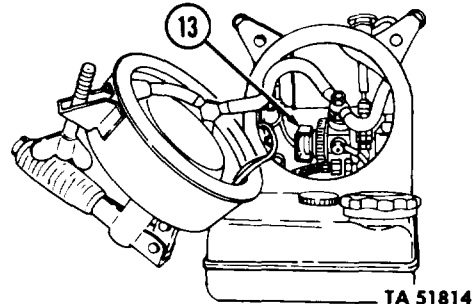
(2) Open wingnut (11) all the way counterclockwise.

(3) Make sure gasket (10) is flat against body of swingfire heater (9).

### NOTE

Swingfire heater should be in operation when installed. Refer to b. of this para.

(4) Install mixing pipe (14) on swingfire heater (9) and tighten wingnut (11) by turning clockwise.



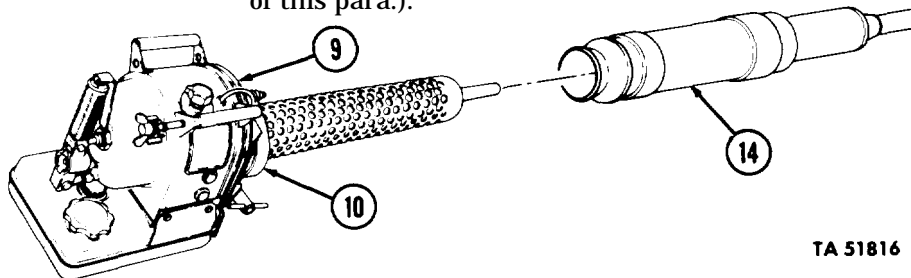
### **WARNING**

Exhaust gases from mixing pipe can kill. Operate swingfire heater with mixing pipe in well-ventilated area only. Failure to do this may result in injury or death to personnel.

(5) Direct hot air from mixing pipe (14) at equipment to be thawed.

(6) After equipment is thawed, loosen wingnut (11) by turning counterclockwise and remove mixing pipe (14).

(7) Install swingfire heater (9) in turboheater or water jacket, or stow, as of this para.).



## 2-59. OPERATION OF SWINGFIRE HEATER (Contd)

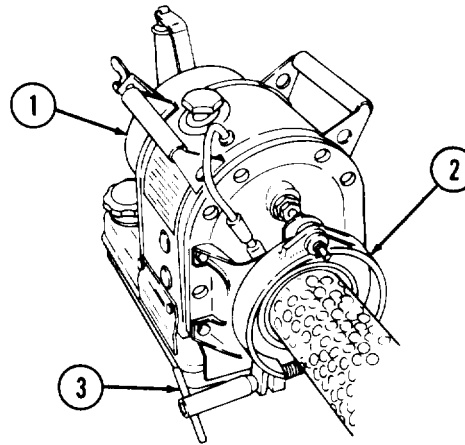
### d. Operation of Turboheater.

(1) **General.** Swingfire heater is installed in turboheater to provide heated air for cargo body enclosure.

(2) Open wingnut (3) all the way counterclockwise.

(3) Make sure gasket (2) is flat against body of heater (1).

(4) Raise catch (9) and open access door (7).



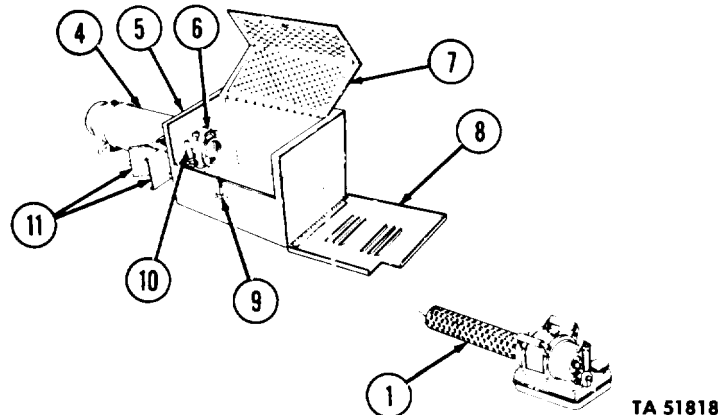
TA 51817

### NOTE

- Make sure swingfire heater is installed with pump lever straight up.
- Swingfire heater should be in operation when installed. Refer to b. of this para.

(5) Open door (8) (refer to para. 2-51) and install swingfire heater (1) in turboheater (4). Tighten wingnut (3) by turning clockwise.

(6) Make sure overheating switch (6) is in OPERATION position.



TA 51818

(7) Close access door (7) and install catch (9).

(8) Adjust air flow by moving diverters (11).

### WARNING

Box assembly will become hot after continued operation. Be careful when opening access door. Failure to do this may result in injury to personnel.

(9) If swingfire heater (1) suddenly stops and fuel tank is not empty, raise catch (9), and open access door (7). Do not allow skin to contact box (5) if hot

## 2-59. OPERATION OF SWINGFIRE HEATER (Contd)

(10) If overheating switch (6) is not in OPERATION position, allow swingfire heater (1) to cool. Place overheating switch (6) in OPERATION position. Operate swingfire heater (refer to b. of this para.), close access door (7), and install catch (9). If swingfire heater will not operate, notify supervisor.

### WARNING

Box assembly and exhaust pipe will become hot after continued operation. Be careful when opening access door and when removing swingfire heater. Failure to do this may result in injury to personnel.

(11) After operation, raise catch (9) and open access door (7). Do not allow skin to contact box (5) if hot. Open door (8) (refer to para. 2-51), loosen wingnut (3) by turning counterclockwise, and remove swingfire heater (1). Do not allow skin to contact exhaust pipe (10).

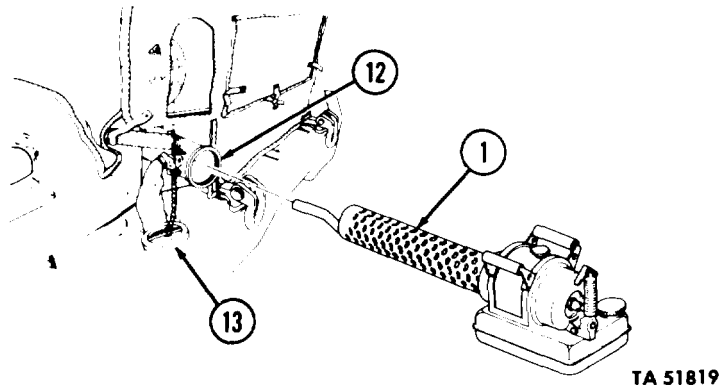
(12) Install swingfire heater (1) in mixing pipe or water jacket, or stow, as necessary. Refer to f. of this para.

#### **e. Operation of Water Jacket.**

(1) **General.** Swingfire heater is installed in water jacket to heat engine coolant and permit easy starting in arctic conditions.

(2) Open wingnut (3) all the way counterclockwise.

(3) Make sure gasket (2) is flat against body of heater (1).



### **NOTE**

- Water jacket is located on right side of engine compartment.
- Make sure swingfire heater is installed with pump lever straight up.
- Swingfire heater should be in operation when installed. Refer to b. of this para.

(4) Remove cap (13) and install swingfire heater (1) in water jacket (12). Tighten wingnut (3) by turning clockwise.



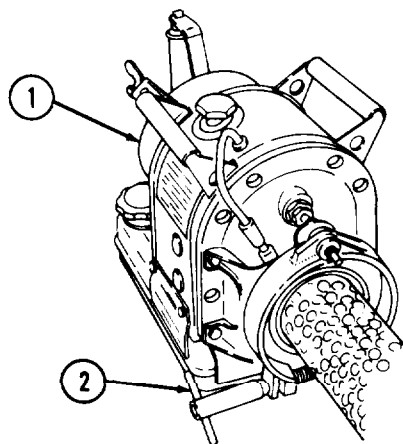
## 2-59. OPERATION OF SWINGFIRE HEATER (Contd)

(5) Allows swingfire heater (1) to run until temperature gage reads 190°F.

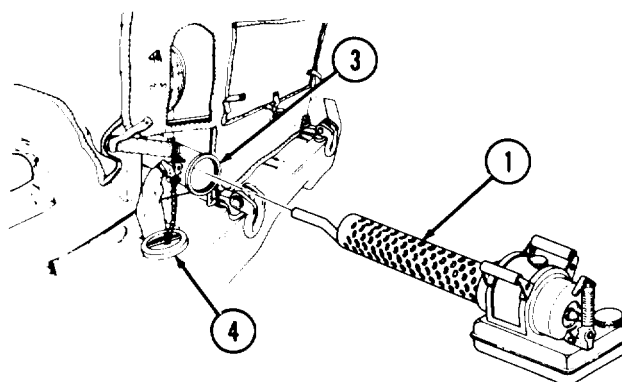
(6) When temperature gage reads 190°F, loosen wingnut (2) by turning counterclockwise and remove swingfire heater (1). Start engine. Refer to para. 2-15.

(7) Install cap (4) on end of water jacket (3).

(8) Install swingfire heater (1) in mixing pipe or turboheater, or stow, as necessary (refer to f. of this para.)



TA 51820



TA 51821

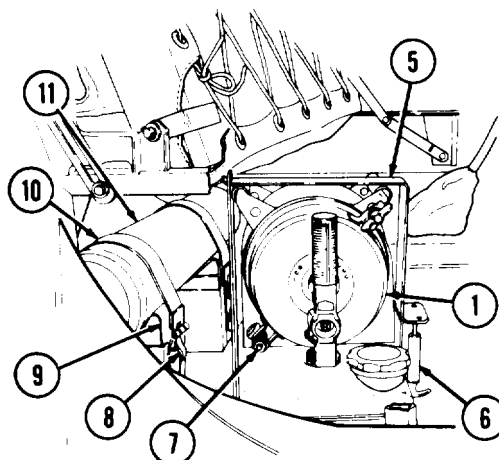
### f. Stowage of Swingfire Heater and Mixing Pipe.

(1) **General.** Swingfire heater and mixing pipe are stowed under companion seat.

(2) Shut off swingfire heater (1) (refer to b. of this para.).

(3) Position swingfire heater (1) on stowage brackets (7). Place strap (5) over swingfire heater (1) and install hook (6) on stowage bracket (7).

(4) Position mixing pipe (11) on stowage brackets (9). Place straps (10) over mixing pipe (11) and install latches (8) on stowage brackets (9).



TA 51822

## CHAPTER 3

### MAINTENANCE INSTRUCTIONS

Section I. Tools and Equipment (page 3-1)  
Section II. Lubrication (page 3-1)  
Section III. Troubleshooting (page 3-2)  
Section IV. Maintenance Procedures (page 3-17)

#### Section I. TOOLS AND EQUIPMENT

##### 3-1. SPECIAL TOOLS AND EQUIPMENT

No special tools or test equipment are required by the operator for maintenance of M44A2 series vehicles.

##### 3-2. BASIC ISSUE ITEMS

Tools, equipment, and accessories issued with M44A2 series vehicles or prescribed for use by the operator of M44A2 series vehicles are listed in the basic issue items list in appendix B of this manual.

##### 3-3. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS

Supplies and materials required for operation and maintenance of the equipment covered in this manual are listed in appendix D.

#### Section II. LUBRICATION

##### 3-4. LUBRICATION ORDER

Lubrication order LO 9-2320-209-12-1 designates cleaning and lubrication procedures for M44A2 series vehicles. This document is issued with each vehicle and is carried in vehicle at all times. A damaged or lost lubrication order should be replaced immediately.

##### 3-5. GENERAL LUBRICATION INSTRUCTIONS

**a. Service Intervals.** Service intervals in the lubrication order are for normal operation in moderate temperatures, humidity, and atmospheric conditions.

**b. Application Points.** Wipe lubricating fittings and surrounding surfaces clean before and after applying lubricant.

**c. Reports and Records.**

(1) Maintain vehicle lubrication record in accordance with DA PAM 738-750.

(2) Report unsatisfactory performance of lubricants or preserving materials on DA Form SF368.

Change 2 3-1

### 3-6. GENERAL LUBRICATING INSTRUCTIONS UNDER UNUSUAL CONDITIONS

**a. Service Intervals.** Increase frequency of lubricating service intervals when operating under unusual conditions such as high or low temperatures, prolonged high-speed driving, deep mud, and extended cross-county operations. Such operations can destroy a lubricant's protective qualities. More frequent lubricating service intervals are necessary to maintain vehicle readiness when operating in unusual conditions. During inactive periods, with adequate preservation, service intervals can be extended.

**b. Changing Lubricant Grade.** Lubricant grade used varies with weather conditions. Refer to table 1-12 for lubricant grade changes for the following temperature ranges:

- (1) +15°F (-10°C) and above
- (2) +40°F to -15°F (+5°C to -25°C)
- (3) +40°F to -65°F (+5°C to -55°C)
- (4) Arctic conditions: Refer to FM 9-207

**c. Maintaining Lubricant Levels.** Lubricant levels must be checked as specified in LO 9-2320-209-12-1. Steps must be taken to replenish and maintain operating levels.

### 3-7. LUBRICATION FOR CONTINUED OPERATION BELOW 0°F (-17°C)

Refer to FM 9-207, Operation and Maintenance of Ordnance Materiel in Cold Weather (0°F to -65°F).

## Section III. TROUBLESHOOTING

### 3-8. GENERAL

**a. Scope.** The troubleshooting table contains instructions that will help the operator identify and correct simple vehicle malfunctions during operations. The table also helps the operator identify major mechanical difficulties that must be referred to maintenance personnel. Major vehicle systems covered in this section include:

- Ž Engine
- Ž Transmission
- Ž Transfer case
- Ž Front and rear axles
- Ž Air-hydraulic brake system
- Ž Wheels and tires
- Ž Steering

3-8. GENERAL (Contd)

- Front winch
- Rear winch
- Cooling system
- Special body equipment
- Special purpose kits

Below these major headings are the symptoms and the corrective action.

NOTE

Operators should perform the corrective action in the order listed until the malfunction is corrected. If none of the steps correct the malfunction, notify your supervisor.

**b. Omissions.** This manual cannot list all malfunctions that may occur. If a malfunction occurs that is not listed in table 3-1, notify your supervisor.

**c. Symptom Index.** To find a specific malfunction, refer to the symptom index below:

3-9. TROUBLESHOOTING SYMPTOM INDEX

MALFUNCTION NO.	MALFUNCTION	PAGE NO.
ENGINE		
1.	Engine starter button is pressed but engine fails to start . . . . .	3-6
2.	Engine cranks but does not start . . . . .	3-6
3.	Engine cranks but fails to start at outside temperatures below 0°F(-17°C) . . . . .	3-6
4.	Engine starts but misfires, runs rough, or lacks power . . . . .	3-7
5.	Engine overheats as indicated by engine coolant temperature gage . . . . .	3-7
6.	Low engine oil pressure . . . . .	3-7
7.	Excessive exhaust smoke after engine reaches normal operating temperature 180°F to 200°F . . . .	3-8
TRANSMISSION		
8.	No response to gear shift lever movement . . . . .	3-8
9.	Rough shifting . . . . .	3-8
10.	Lubricant leakage . . . . .	3-8
TRANSFER CASE		
11.	Transfer case shift lever will not shift or slips out of gear . . . . .	3-8
12.	Transfer case lubricant leakage . . . . .	3-8

**3-9. TROUBLESHOOTING SYMPTOM INDEX (Contd)**

<b>MALFUNCTION NO.</b>	<b>MALFUNCTION</b>	<b>PAGE NO.</b>
	<b>FRONT AND REAR AXLES</b>	
13.	Front axle is noisy . . . . .	3-8
14.	Rear axle is noisy . . . . .	3-8
	<b>AIR-HYDRAULIC BRAKE SYSTEM</b>	
15.	Vehicle pulls to one side during braking . . . . .	3-8
16.	Brake pedal depresses to floorboard . . . . .	3-8
17.	Insufficient air pressure as indicated by low air pressure warning buzzer or air pressure gage . . . .	3-9
18.	Trailer brakes do not function when brake pedal is depressed or hand control lever is used (M275A2 only) . . . . .	3-9
19.	Service brakes do not operate . . . . .	3-9
20.	Parking brake does not hold vehicle . . . . .	3-9
21.	Parking brake drags or overheats . . . . .	3-9
	<b>WHEELS AND TIRES</b>	
22.	Wheel wobbles or shimmies . . . . .	3-9
23.	Excessive or uneven tire wear . . . . .	3-9
24.	Vehicle wanders or pulls to one side on level surface or highway . . . . .	3-10
	<b>STEERING</b>	
25.	Hard steering . . . . .	3-10
26.	Oil leaks . . . . .	3-10
	<b>FRONT WINCH</b>	
27.	Winch drum does not turn or pay out cable . . . . .	3-10
28.	Winch does not wind . . . . .	3-10
	<b>REAR WINCH</b>	
29.	Winch not operating . . . . .	3-11
30.	Vehicle rolls while operating rear winch . . . . .	3-11
31.	Tailboard roller binds, or does not turn (M756A2 only) . . . . .	3-11
	<b>COOLING SYSTEM</b>	
32.	Engine temperature exceeds 210°F . . . . .	3-11
	<b>SPECIAL BODY EQUIPMENT:</b>	
	<b>DUMP BODY HOIST ASSEMBLY</b>	
33.	Hoist does not lift dump body . . . . .	3-12
34.	Body raises to full dump but does not power down . . . . .	3-12
35.	Hydraulic pump is noisy . . . . .	3-12
36.	Tailgate does not open . . . . .	3-12
	<b>OUTRIGGERS (M764)</b>	
37.	Both outriggers do not extend or retract . . . . .	3-12

**3-9. TROUBLESHOOTING SYMPTOM INDEX (Contd)**

<b>MALFUNCTION NO.</b>	<b>MALFUNCTION</b>	<b>PAGE NO.</b>
<b>SPECIAL PURPOSE KITS:</b>		
<b>ARCTIC WINTERIZATION KIT</b>		
38.	Engine fails to reach operating temperature . . . . .	3-13
39.	Engine temperature exceeds 200°F . . . . .	3-13
40.	Fuel burning personnel heater fails to start when RUN-OFF-START switch is held in start position . . . .	3-13
41.	Power plant heater fails to start when RUN-OFF-START switch is held in start position . . . .	3-14
42.	Heater fails to continue burning . . . . .	3-14
43.	Windshield defrosters not operating . . . . .	3-14
44.	Engine oil pan shroud not receiving heat (Power plant heater only) . . . . .	3-14
45.	Engine coolant system not receiving heat (Power plant heater only) . . . . .	3-15
<b>DEEPWATER FORDING KIT</b>		
46.	Fording control handle inoperative . . . . .	3-15
<b>A-FRAME KIT</b>		
47.	Winch inoperative . . . . .	3-15
48.	A-frame inoperative or misaligned . . . . .	3-15
<b>SLAVE RECEPTACLE</b>		
49.	Slave cable connected but engine will not turn over . . .	3-15
<b>WINDSHIELD WASHER KIT</b>		
50.	Washer inoperative . . . . .	3-16

Table 3-1. Troubleshooting

<b>MALFUNCTION</b> <b>TEST OR INSPECTION</b> <b>CORRECTIVE ACTION</b>
---

**WARNING**

Hearing protection is required for driver, co-driver, and mechanic when engine is running. Noise levels produced by this vehicle exceed 85 dB, which may cause injury to personnel.

**NOTE**

If corrective action does not correct malfunction, notify your supervisor.

**ENGINE****1. ENGINE STARTER BUTTON IS PRESSED BUT ENGINE FAILS TO START.**

Step 1. Check to see if accessory power switch is off.

If off, turn switch on.

Step 2. Visually check to see if batter cables, terminals, and connections are loose, broken, or corroded. Check battery for proper water level.

If loose, broken, corroded, or if battery water level is low, notify your supervisor.

**2. ENGINE CRANKS BUT DOES NOT START.****NOTE**

Do not completely fill fuel tank before checking visually for leaks, in fuel system.

Step 1. Check to see if fuel gage indicates empty.

If empty, fill fuel tank.

**NOTE**

Whenever fuel tank is completely drained and then refilled, the fuel system must be bled. Notify your supervisor.

Step 2. Check to see if engine stop control on instrument panel is pulled out.

If pulled out, push in to reset.

**3. ENGINE CRANKS BUT FAILS TO START AT OUTSIDE TEMPERATURES BELOW 0°F (-170°C).**

Step 1. Perform steps 1 and 2 of malfunction 2.

Step 2. Engine still fails to start.

Refer to FM 9-207: Operation and Maintenance of Ordnance Material in Extreme Cold Weather (0° to -66°F).

Table 3-1. Troubleshooting (Contd)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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**4. ENGINE STARTS BUT MISFIRES, RUNS ROUGH, OR LACKS POWER.**

- Step 1. Check to see if engine stop control on instrument panel is pulled out.  
If pulled out, push in to reset.
- Step 2. Check for restricted air cleaner.  
If restricted, clean air cleaner element. Refer to para. 3-13.
- Step 3. Check fuel supply system for water and impurities.  
Drain fuel from filter into a container until fuel is clear. Refer to table 2-2  
If fuel is not clear before approximately one pint (0.473 l) has drained, notify your supervisor.
- Step 4. Check primary, secondary, and final fuel filter draincocks for looseness.  
If loose, tighten.  
Check draincocks for leaks.  
If leaking, notify your supervisor.

**5. ENGINE OVERHEATS AS INDICATED BY ENGINE COOLANT TEMPERATURE GAGE.****WARNING**

Extreme care should be taken when removing filler cap if temperature gage reads above 180°F. Contact by steam or hot coolant under pressure may result in injury to personnel.

- Step 1. Check outside of radiator core for obstructions.  
If clogged, remove debris. Refer to table 2-1.
- Step 2. Check coolant level.  
If low, add coolant as required.
- Step 3. Check for leakage from radiator hoses and hose connections.  
If loose, tighten. If still leaking, notify your supervisor.
- Step 4. Check engine oil level.  
If low, add oil. Refer to LO 9-2320-209-12-1.
- Step 5. Check radiator fan.  
If fan blade is not turning, check for loose or broken fan drive belt.  
If loose or broken, notify your supervisor.

**6. LOW ENGINE OIL PRESSURE.**

- Check engine oil level.  
If low, add oil. Refer to LO 9-2320-209-12-1.



Table 3-1. Troubleshooting (Contd)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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**7. EXCESSIVE EXHAUST SMOKE AFTER ENGINE REACHES NORMAL OPERATING TEMPERATURE 180°F to 200°F.**

Check for restricted air cleaner.

If restricted, clean air cleaner element. Refer to para. 3-13

**TRANSMISSION**

**8. NO RESPONSE TO GEAR SHIFT LEVER MOVEMENT.**

Notify your supervisor.

**9. ROUGH SHIFTING.**

Notify your supervisor.

**10. LUBRICANT LEAKAGE.**

Check for loose drainplug.

If loose, tighten drainplug.

**TRANSFER CASE**

**11. TRANSFER CASE SHIFT LEVER WILL NOT SHIFT OR SLIPS OUT OF GEAR.**

Notify your supervisor.

**12. TRANSFER CASE LUBRICANT LEAKAGE.**

Check for loose drainplug.

If loose, tighten drainplug.

**FRONT AND REAR AXLES**

**13. FRONT AXLE IS NOISY.**

Check differential oil level.

If low, add oil. Refer to LO 9-2320-209-12-1.

**14. REAR AXLE IS NOISY.**

Check differential oil level.

If low, add oil, Refer to LO 9-2320-209-12-1.

**AIR-HYDRAULIC BRAKE SYSTEM**

**15. VEHICLE PULLS TO ONE SIDE DURING BRAKING.**

Check air pressure in tires.

Inflate or deflate tires to correct air pressure. Refer to para. 3-14f.

**16. BRAKE PEDAL DEPRESSES TO FLOORBOARD.**

Notify your supervisor.

Table 3-1. Troubleshooting(Contd)

<b>MALFUNCTION</b>	<b>TEST OR INSPECTION</b>	<b>CORRECTIVE ACTION</b>
<b>17. INSUFFICIENT AIR PRESSURE AS INDICATED BY LOW AIR PRESSURE WARNING BUZZER OR AIR PRESSURE GAGE.</b>		
	Step 1. Check to see if air reservoir draincocks are open.	If open, close draincocks securely. Refer to table 2-2.
	Step 2. Check all air lines for loose connections.	If loose, tighten.
	Step 3. Check towed equipment for air leaks at draincocks or air lines.	If leaking, tighten.
<b>18. TRAILER BRAKES DO NOT FUNCTION WHEN BRAKE PEDAL IS DEPRESSED OR HAND CONTROL LEVER IS USED (M275A2 ONLY).</b>		
	Check trailer couplings.	If closed, open. If open, notify your supervisor.
<b>19. SERVICE BRAKES DO NOT OPERATE.</b>		
	Step 1. Check to see if air reservoir drain cocks are open.	If open, close draincocks securely. Refer to table 2-2.
	Step 2. Check all air lines for loose connections.	If loose, tighten.
<b>20. PARKING BRAKE DOES NOT HOLD VEHICLE.</b>		
	Step 1. Check parking brake control lever position.	If partially applied, pull parking brake control lever all the way up.
	Step 2. Check parking brake control lever adjustment.	Turn knob on end of lever clockwise to increase braking action. Refer to table 2-2.
<b>21. PARKING BRAKE DRAGS OR OVERHEATS.</b>		
	Check parking brake control lever position.	If partially applied, release parking brake.
<b>WHEELS AND TIRES</b>		
<b>22. WHEEL WOBBLES OR SHIMMIES.</b>		
	Check for loose wheel stud nuts.	If loose, tighten. Notify your supervisor to retighten to proper torque.
<b>23. EXCESSIVE OR UNEVEN TIRE WEAR.</b>		
	Check air pressure in tires.	Inflate or deflate tires to correct air pressure, Refer to para. 3-14f.

*Table 3-1. Troubleshooting (Contd)*

<b>MALFUNCTION</b>	<b>TEST OR INSPECTION</b>	<b>CORRECTIVE ACTION</b>
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**24. VEHICLE WANDERS OR PULLS TO ONE SIDE ON LEVEL SURFACE OR HIGHWAY.**

Check air pressure in tires.

Inflate or deflate tires to correct air pressure. Refer to para. 3- 14f.

**STEERING**

**25. HARD STEERING.**

Check air pressure in tires.

Inflate or deflate tires to correct air pressure. Refer to para. 3-14f.

**26. OIL LEAKS.**

Check for loose connections.

If loose, tighten.

**FRONT WINCH**

**WARNING**

Wear hand protection when handling winch cable. Broken wires may cause injury.

**27. WINCH DRUM DOES NOT TURN OR PAY OUT CABLE.**

Step 1. Check to see if drum lock knob is engaged.

Pull out drum lock knob, rotate 90 degrees, and release. Refer to para. 2-24.

Step 2. Check if cable is binding.

Free cable from drum.

Step 3. Check if winch clutch control lever is in "IN" or "OUT" position, as necessary.

Move winch clutch control lever to proper position.

**28. WINCH DOES NOT WIND.**

Step 1. Check to see if transmission power takeoff is engaged.

If not, engage transmission power takeoff.

Step 2. Check to see if winch clutch control lever is engaged.

If not, engage clutch control lever.

Step 3. Check shearpin.

If broken, replace. Refer to para. 3-16.

**MALFUNCTION  
TEST OR INSPECTION  
CORRECTIVE ACTION**

**REAR WINCH**

**29. WINCH NOT OPERATING.**

Step 1. Check to see if transfer case power takeoff shift lever is pushed back to engaged position.

If not, push transfer case power takeoff shift lever back to engaged position.

Step 2. Check shearpin.

If broken, replace. Refer to para. 3-17.

**30. VEHICLE ROLLS WHILE OPERATING REAR WINCH.**

Step 1. Check to see if parking brake is applied.

If not, apply parking brake.

Step 2. Check to see if chock blocks are in place.

If not, place chock blocks at wheels and notify your supervisor.

**31. TAILBOARD ROLLER BINDS, OR DOES NOT TURN (M756A2 ONLY).**

Step 1. Check auxiliary rollers for obstruction,

If obstructed, clear from rollers.

Step 2. Check auxiliary rollers for scheduled lubrication.

Lubricate auxiliary rollers (refer to LO 9-232 0-209-12-1) as necessary.

**COOLING SYSTEM**

**WARNING**

Extreme care should be taken when removing filler cap if temperature gage reads above 180°F. Contact by steam or hot coolant under pressure may result in injury to personnel.

**32. ENGINE TEMPERATURE EXCEEDS 210°F.**

Step 1. Check outside of radiator core for obstructions.

If clogged, remove debris. Refer to table 2-1.

Step 2. Check for leakage from tank, hoses, and hose connections.

Tighten hose connections. If still leaking, notify your supervisor.

Step 3. Check coolant level.

If low, add coolant. Refer to table 2-2.

Step 4. Check engine oil level.

If low, add oil, Refer to para. 3-5 or, LO 9-2320-209-12-1.

Step 5. Check radiator fan.

If fan blade is not turning, notify your supervisor.

Table 3-1. Troubleshooting (Contd)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<b>SPECIAL BODY EQUIPMENT</b>		
<b>DUMP BODY HOIST ASSEMBLY</b>		
<b>33. HOIST DOES NOT LIFT DUMP BODY.</b>		
	Step 1. Check to see if transmission power takeoff is engaged.	If not, engage transmission power takeoff.
	Step 2. Check to see if hydraulic hoist control lever is pushed back to raise position.	If not, push lever back to raise position.
	Step 3. Check level of hydraulic oil in reservoir. Refer to table 2-2.	If low, add oil to proper level. Refer to table 1-11 or LO 9-2320-209-12-1.
	Step 4. Check for hydraulic leaks.	Tighten loose connections. If leaks continue, notify your supervisor.
<b>34. BODY RAISES TO FULL DUMP BUT DOES NOT POWER DOWN.</b>		
	Step 1. Check to see if support braces are in place	If in place, lower.
	Step 2. Check to see if dump body control lever is pulled full forward to lower position.	If not, pull lever full forward to lower position.
<b>35. HYDRAULIC PUMP IS NOISY.</b>		
	Check level of hydraulic oil in reservoir. Refer to table 2-2.	
	If low, add oil to proper level. Refer to table 1-11 or LO 9-2320-209-12-1.	
<b>36. TAILGATE DOES NOT OPEN.</b>		
	Step 1. Check to see if tailgate hand lever is pulled forward and down to unlock tailgate.	If not, pull tailgate hand lever forward and down to unlock tailgate.
	Step 2. Check to see if tailgate chains are restricting tailgate from opening.	Reposition tailgate chains so they will not restrict opening of tailgate.

**OUTRIGGERS (M764)****37. BOTH OUTRIGGERS DO NOT EXTEND OR RETRACT.**

- Step 1. Check hydraulic oil level in reservoir.  
If low, notify your supervisor.

Table 3-1. Troubleshooting(Contd)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

- |  |   |   |
|--|---|---|
|  | Step 2. Check outrigger controls.                         | If not operating, notify your supervisor. |
|  | Step 3. Check if safety latches are hindering outriggers. | Move safety latches.                      |

### SPECIAL PURPOSE KITS: ARCTIC WINTERIZATION KIT

**38. ENGINE FAILS TO REACH OPERATING TEMPERATURE.**

- Check to see if radiator cover aperture flap is open. Refer to para. 2-48.  
Roll flap down.

**39. ENGINE TEMPERATURE EXCEEDS 200°F.**

- Check to see if radiator cover aperture flap is closed. Refer to para. 2-48.  
Roll flap up and secure.

**40. FUEL BURNING PERSONNEL HEATER FAILS TO START WHEN RUN-OFF-START SWITCH IS HELD IN START POSITION.****WARNING**

- Ž Exhaust gases can kill. Do not operate engine coolant heater in closed area occupied by personnel. Doing this may result in injury or death to personnel.
- Ž Do not perform fuel system checks or services while smoking or near fire, flames, or sparks. Always keep a fire extinguisher nearby. Fuel may ignite causing injury or death to personnel.

**NOTE**

- If RUN-OFF-START switch is turned to RUN position before red indicator light illuminates, heater will not operate.
- Step 1. Press PRESS-TO-TEST button on heater control box to check operation of circuit.  
If red indicator light does not illuminate, notify your supervisor.
- Step 2. Check to see if HI-LO switch on heater control box is set to HI.  
Set HI-LO switch to HI.
- Step 3. Check fuel level on fuel gage.  
Fill fuel tank if necessary.
- Step 4. Check to see if personnel heater shutoff cock is closed. Refer to para. 2-6c.  
Open personnel heater shutoff cock.

Table 3-1. Troubleshooting (Contd)

**MALFUNCTION  
TEST OR INSPECTION  
CORRECTIVE ACTION**

**41. POWER PLANT HEATER FAILS TO START WHEN RUN-OFF-START SWITCH IS HELD IN START POSITION.**

**WARNING**

Exhaust gases can kill. Do not operate power plant heater in closed area occupied by personnel. Doing this may result in injury or death to personnel.

**CAUTION**

Do not operate fuel burning personnel heater and power plant heater at the same time. Doing this may result in overworked electric fuel pump.

**NOTE**

If RUN-OFF-START switch is turned to RUN position before red indicator light illuminates, heater will not operate.

Step 1. Press PRESS-TO-TEST button on heater control box to check operation of circuit.

If red indicator light does not illuminate, notify your supervisor.

Step 2. Check fuel level on fuel gage.

Fill fuel tank if necessary.

Step 3. Check to see if power plant heater shutoff cock is closed. Refer to para. 2-6c.

Open power plant heater shutoff cock.

**NOTE**

Select HI position if engine is cold. Select LO position if engine is already well heated. When in HI position, heater will automatically change to LO position when coolant temperature exceeds 190°F, and automatically change to HI position when coolant temperature drops below 120°F.

**42. HEATER FAILS TO CONTINUE BURNING.**

Check fuel level on fuel gage.

Fill fuel tank if necessary.

**43. WINDSHIELD DEFROSTERS NOT OPERATING.**

Step 1. Check adjustment of defroster control handle.

Adjust defroster control handle.

Step 2. Check for restrictions in defroster deflectors.

Clear restriction.

**44. ENGINE OIL PAN SHROUD NOT RECEIVING HEAT (POWER PLANT HEATER ONLY).**

Step 1. Check to see if power plant heater is operating. Refer to para. 2-48.

Start heater. If inoperative, notify your supervisor.

Table 3-1. Troubleshooting (Contd)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
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<p>Step 2. Check to see if power plant heater exhaust tube is disconnected from oil pan shroud.</p>
---

<p>Connect heater exhaust tube.</p>
-------------------------------------

<p><b>45. ENGINE COOLANT SYSTEM NOT RECEIVING HEAT (POWER PLANT HEATER ONLY).</b></p>
---

<p>Step 1. Check to see if power plant heater is operating. Refer to para. 2-48.</p>
--

<p>Start heater. If inoperative, notify your supervisor.</p>
--

<p>Step 2. Check to see if one or more coolant shutoff cocks are closed at engine.</p>
--

<p>Open coolant shutoff cock(s).</p>
--------------------------------------

### DEEPWATER FORDING KIT

<p><b>46. FORDING CONTROL HANDLE INOPERATIVE.</b></p>
---

<p>Step 1. Check to see if wire is attached to fording control valve.</p>
---

<p>If not attached, notify your supervisor.</p>
---

<p>Step 2. Check to see if wire is kinked.</p>
--

<p>If kinked, notify your supervisor.</p>
---

### A-FRAME KIT

<p><b>47. WINCH INOPERATIVE.</b></p>
--------------------------------------

<p>Check winch.</p>
---------------------

<p>Refer to malfunction 27.</p>
---------------------------------

<p><b>48. A-FRAME INOPERATIVE OR MISALINED.</b></p>
---

<p>Step 1. Check to see if cable is installed in towing pintle.</p>
---

<p>If not, install cable in towing pintle and lock pintle in closed position.</p>
---

<p>Step 2. Check for loose cable clamps and frays or breaks in cable.</p>
---

<p>If cable clamps are loose, or cable broken or frayed, notify your supervisor.</p>
--

<p>Step 3. Check to see if A-frame is bent.</p>
---

<p>If A-frame is bent, notify your supervisor.</p>
--

### SLAVE RECEPTACLE

<p><b>49. SLAVE CABLE CONNECTED BUT ENGINE WILL NOT TURN OVER.</b></p>
--

<p>Step 1. Check for poor receptacle connections.</p>
---

<p>Make proper connections.</p>
---------------------------------

<p>Step 2. Check if slave receptacle battery cables are loose or disconnected.</p>
--

<p>If loose or disconnected, notify your supervisor.</p>
--



Table 3-1. Troubleshooting (Contd)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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WINDSHIELD WASHER KIT

50. WASHER INOPERATIVE.

Step 1. Check windshield washer fluid level in reservoir.

Fill as required.

Step 2. Look for broken, loose, or restricted tubing.

If tubing is broken, loose, or restricted, notify your supervisor.

## Section IV. MAINTENANCE PROCEDURES

### 3-10. GENERAL

The operator/crew is responsible for daily, weekly, and monthly preventive maintenance checks and services listed in table 2-2. Other maintenance services, also the responsibility of the operator/crew, are listed in this section. To find a specific paragraph, refer to the index below:

### 3-11. MAINTENANCE PROCEDURES INDEX

PARA No.	PARA. TITLE	PAGE No.
3-12.	Break-In Operation	3-17
3-13.	Air Cleaner Service	3-18
3-14.	Wheels and Tires	3-20
3-15.	Battery Inspection	3-27
3-16.	Front Winch Shearpin Replacement	3-28
3-17.	Rear Winch Shearpin Replacement	3-30

### 3-12. BREAK-IN OPERATION

#### a. Road Test.

#### CAUTION

Do not go faster than the maximum allowable speeds shown on the maximum road speed data plate. Do not drive continuously at maximum allowable speeds. Be alert for signs of equipment failure. Failure to do this will result in equipment damage.

#### NOTE

Perform "Before operation" and "Weekly" PMCS in table 2-2 before driving vehicle for the first time.

All vehicles received by the using organization must be road tested to check operation and condition for all new or reconditioned vehicles, except those previously driven 50 mi (80 km). The operator will check the instrument panel and gages as often as possible for signs of unsatisfactory performance. Stops will be made at least every 10 mi (16 km) to give the operator a chance to check the vehicle for possible coolant, oil, fuel, or exhaust leakage and any signs that may show the engine, transmission, wheel hubs, brakedrums, axles, differentials, or transfer case assemblies are overheated. The vehicle must be checked thoroughly for any control that is hard to operate and any instrument not operating properly. Unusual noises and vibration will be noted. All unusual conditions will be reported to your supervisor.

**b. After Road Test.** After the road test, correct any faulty condition that can be done at operator's maintenance level. Notify your supervisor about any other faulty condition.

### 3-13. AIR CLEANER SERVICE

#### WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.

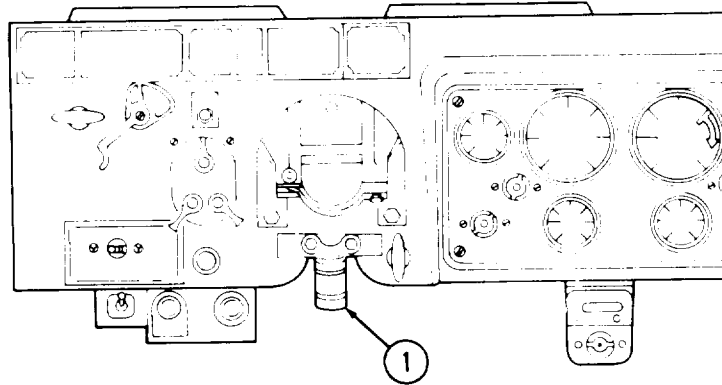
- a. General.** Air cleaner service is required whenever the red band is visible in window of air cleaner indicator (1). The operator will service the air cleaner in an emergency situation only. Notify your supervisor as soon as possible.

#### CAUTION

Do not operate engine without an air cleaner element. Doing this may result in internal engine component damage.

**b. Removal.**

- (1) Open hood (refer to para. 2-22).
- (2) Loosen nut (2) and screw (3) on clamp (4).
- (3) Remove rain hood (8) from shell (5).

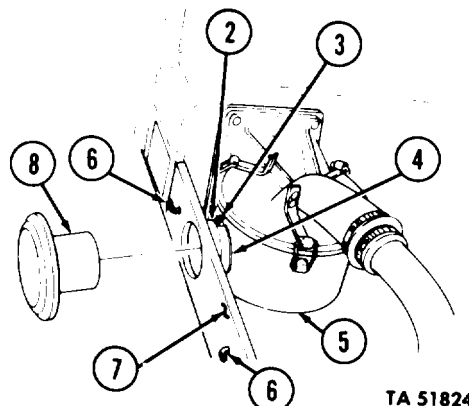
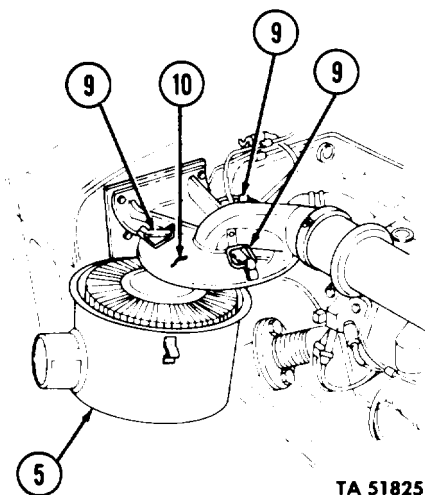


### 3-13. AIR CLEANER SERVICE (Contd)

(4) Turn two latches (6) to Up position and lower hood right side panel (7).

(5) Unfasten three clamps (9) and pull shell (5) away from head (10) and out of engine compartment.

(6) Remove filter element (11) from shell (5).



#### WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shields, gloves, etc).

(7) Clean filter element (11) by tapping lightly or use compressed air to loosen and remove dirt.

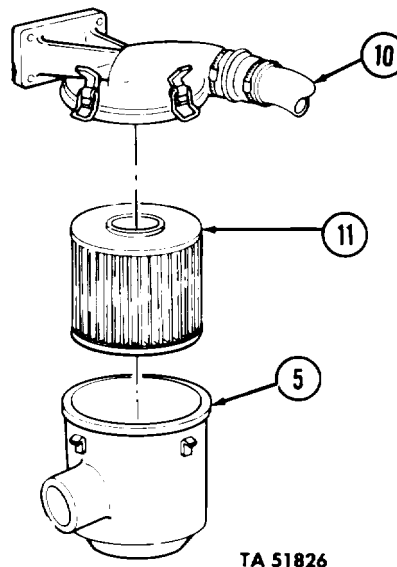
#### c. Installation.

(1) Install filter element (11) in shell (5).

(2) Aline shell (5) with head (10), and secure with three clamps (9).

(3) Raise hood right side panel (7) and lock in position by moving two latches (6) to down position.

(4) Install rain hood (8) on shell (5) and tighten screw (3) and nut (2) on clamp (4).



### 3-14. WHEELS AND TIRES

**a. General.** Tires are checked as part of preventive maintenance checks and services (refer to table 2-2). If tire becomes flat while operating, stop vehicle immediately, if tactical situation permits. The M275A2 vehicle does not carry a spare tire.

**b. Spare Wheel Replacement (All Vehicles Except M342A2 and M275A2).**

**NOTE**

This procedure requires two personnel.

**(1) Removal.**

**(a)** Park vehicle on level ground with engine off and parking brake applied.

**(b)** Loosen nuts (3) and turn spare wheel (4) clockwise to align nuts (3) with holes (6) in bracket (2).

**(c)** Using spare tire mounting wrench, turn shaft (5) right to disengage pawl (1), and lift pawl (1).

**WARNING**

When lowering spare wheel, hold wrench handle bar securely. Do not release bar until wheel touches ground. If bar must be released before wheel touches ground, lock shaft in place with pawl. Failure to do this may cause wheel to drop and bar to spin, resulting in injury or death to personnel.

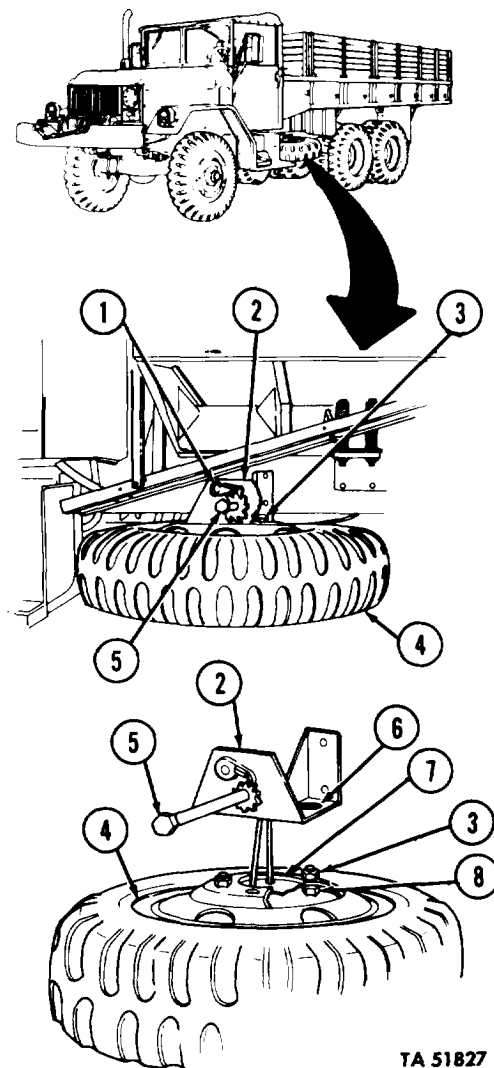
**(d)** Using spare tire mounting wrench, turn shaft (5) left until spare wheel (4) is lowered to ground.

**(e)** Remove two nuts (3), studs (8), and plate (7) from wheel (4).

**(2) Installation.**

**(a)** Position plate (7) and two studs (8) on wheel (4).

**(b)** Install nuts (3) halfway onto studs (8).



**WARNING**

Pawl must rest on shaft gear teeth before raising spare wheel. Failure to do this may cause wheel to drop and bar to spin, resulting in injury or death to personnel.

### 3-14. WHEELS AND TIRES (Contd)

(c) Turn shaft (5) right until wheel (4) is raised into place against bracket (2).

#### WARNING

Make sure studs are fully seated in slots before tightening nuts, or wheel may drop during operation of vehicle, resulting in injury or death to personnel.

(d) Install nuts (3) and studs (8) through holes (6) in bracket (2), and turn wheel (4) counterclockwise.

(e) Tighten two nuts (3).

#### c. Spare Wheel Replacement (M342A2).

##### (1) Removal.

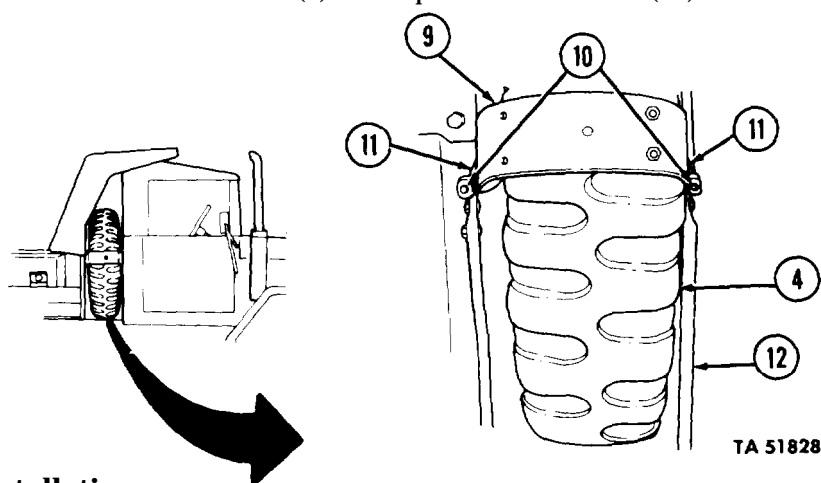
#### WARNING

All personnel must stand clear during removal and replacement of spare wheel. Failure to do this may result in injury or death to personnel.

#### NOTE

This procedure requires two personnel.

- (a) Remove two tie rod nuts (10).
- (b) Raise tie rods (11) and swing retaining bar (9) down.
- (c) Raise and remove wheel (4) from spare wheel carrier (12).



##### (2) Installation.

- (a) Lift wheel (4) into position in spare wheel carrier (12).
- (b) Swing retaining bar (9) up.
- (c) Position tie rods (11) in retaining bar slots and install two tie rod nuts (10).

### 3-14. WHEELS AND TIRES (Contd)

#### d. Jacking Procedure.

##### (1) Raising Vehicle.

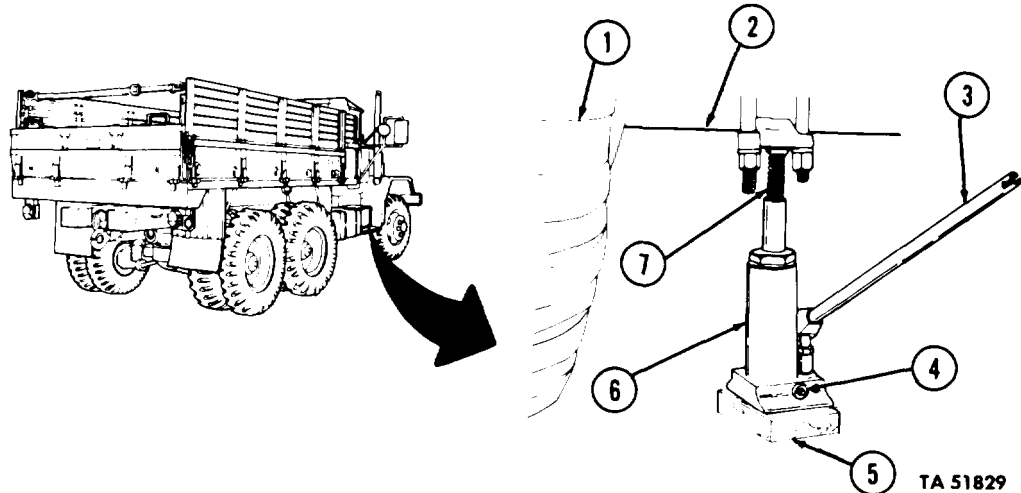
#### WARNING

Do not work under vehicle that is supported by jack only. Jack may slip, causing vehicle to fall, and result in injury or death to personnel.

#### NOTE

This task is shown for the right front wheel only, but is the same for all wheels.

- (a) Park truck on level ground with engine off, parking brake applied, and wheels chocked.
- (b) Remove hydraulic jack (6) and handle (3) from toolbox.
- (c) If ground is soft, place wood block (5) on ground under axle housing (2) and position hydraulic jack (6) on wood block (5).
- (d) Turn jack screw (7) until it is completely extended.
- (e) Turn bleeder valve (4) clockwise with slotted end of jack handle (3) until it stops.
- (f) Insert jack handle (3) in hydraulic jack (6) and move handle up and down until wheel (1) has been raised off ground.



##### (2) Lowering Vehicle.

- (a) Turn bleeder valve (4) slowly counterclockwise with slotted end of jack handle (3), and wheel (1) will gently lower to ground.
- (b) Remove hydraulic jack (6) and handle (3) from under axle housing (2) and place in toolbox.

### 3-14. WHEELS AND TIRES (Contd)

#### e. Wheel Replacement.

##### WARNING

Completely deflate tires before removing from axles if there is obvious damage to wheel components. Injury or death to personnel may result from exploding wheel components.

##### NOTE

This procedure requires two personnel.

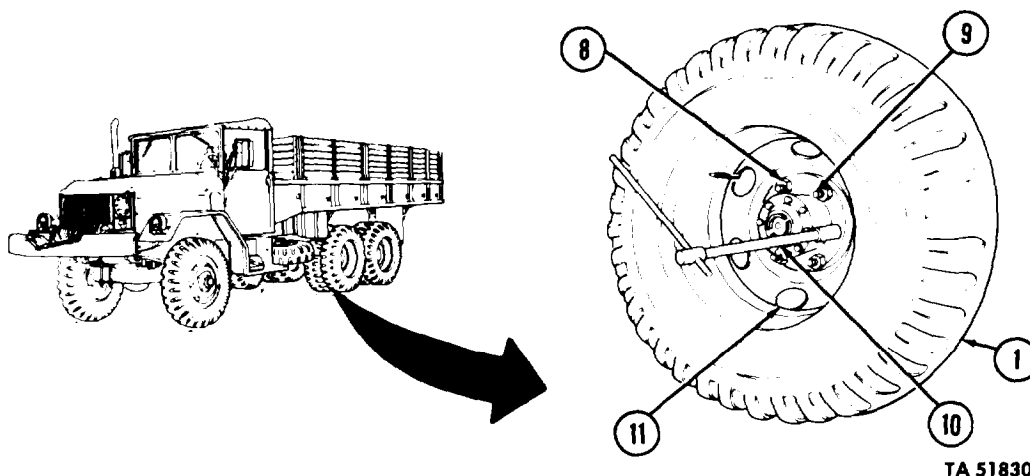
##### (1) Removal.

(a) Park truck on level ground with engine off, parking brake applied, and wheels chocked.

##### NOTE

Wheel stud nuts on left side have left-hand threads and must be turned to the right to loosen. Wheel stud nuts on right side have right-hand threads and must be turned to the left to loosen. Studs and nuts are stamped (L) left and (R) right.

(b) Loosen, but do not remove, six wheel stud nuts (8) with wheel stud nut wrench (10).



(c) Position hydraulic jack (6) and raise wheel assembly (1) off ground. Refer to step d.

##### CAUTION

Do not slide wheel on threaded studs. Sliding wheel may damage threads.

(d) Remove six wheel stud nuts (8).

(e) Grip wheel (1) through vent holes (11), lift wheel (1), pull toward you, and remove from studs (9).



### 3-14. WHEELS AND TIRES (Contd)

#### NOTE

If inner wheel is to be removed, reverse wheel stud nut wrench, remote handle, and install near large end of wrench. Remove all inner wheel stud nuts, and remove inner wheel from studs.

#### (2) Installation.

#### CAUTION

When installing stud nuts, make sure to put curved (ball seat) surface of nut toward wheel to seat properly. Failure to do this may result in damage to wheel.

#### NOTE

- Treads of rear dual tires should be matched as closely as possible. Valves on rear tires must be opposite each other (18° apart). Ventilation holes in outer wheel should be directly aligned with ventilation holes in inner wheel.
- Nuts have left-hand threads on left wheel assembly and right-hand threads on right wheel assembly. Studs and nuts are stamped (L) left and (R) right.
- Use jack handle as a prybar to raise wheel over wheel studs.

(a) Remove spare wheel from spare wheel carrier and install unserviceable wheel in carrier.

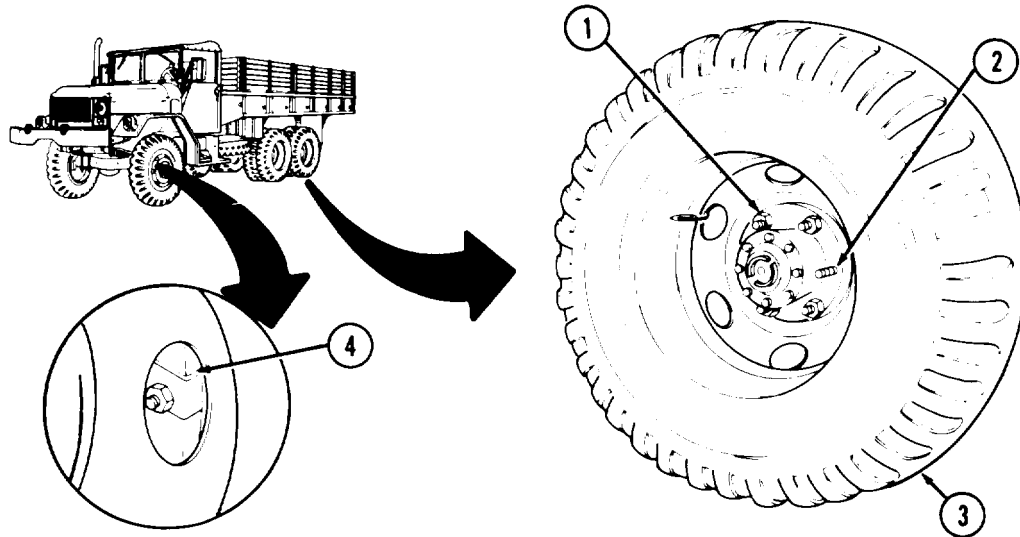
(b) Lift wheel (3) and position on wheel studs (2). On front wheel, make sure brake inspection plate (4) is visible through ventilation hole.

#### NOTE

If inner wheel was replaced, make sure inner stud nuts are properly seated when installed.

(c) Install, and hand tighten, six stud nuts (1) on wheel studs (2).

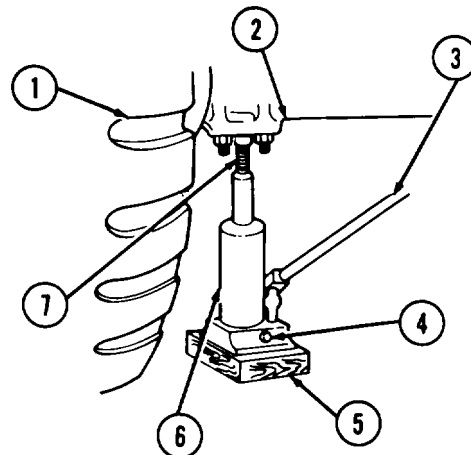
### 3-14. WHEELS AND TIRES (Contd)



(d) Lower wheel (3) to ground. Refer to d. of this para.

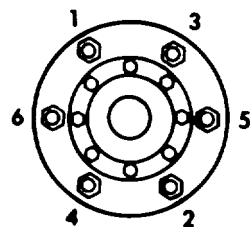
TA 51831

(e) Tighten stud nuts (1) in sequence shown, using wheel stud nut wrench.



TA 51832

#### TIGHTENING SEQUENCE



TA 51833

#### NOTE

- Have stud nuts checked and tightened to specified torque by maintenance personnel as soon as possible.
- Return unserviceable wheel and tire assembly to maintenance personnel for repair, replacement, or exchange.

### 3-14. WHEELS AND TIRES (Contd)

#### f. Tire Inflation.

(1) **General.** Tires require a weekly pressure check. Inflation pressure is one of the most important elements of tire care. Pressure recommendations for all tires on all models have been carefully selected to provide good tire life (refer to table 1-7 for recommended tire pressures). Check and adjust tire pressures when tires are cold, because pressures normally increase during operation. Never decrease pressure of warm tires except for operations in mud, sand, or snow. Reinflate tires which were deflated for operations in cross-country, mud, sand, or snow. After operations are completed, tires must be removed, and reinflated in a tire inflation cage by maintenance personnel.

#### (2) Tire Gaging.

#### WARNING

Stand clear of tire while gaging and inflating. Injury or death to personnel may result from exploding wheel components.

(a) Remove tire inflation gage (10) and hose (4) assembly from stowage compartment.

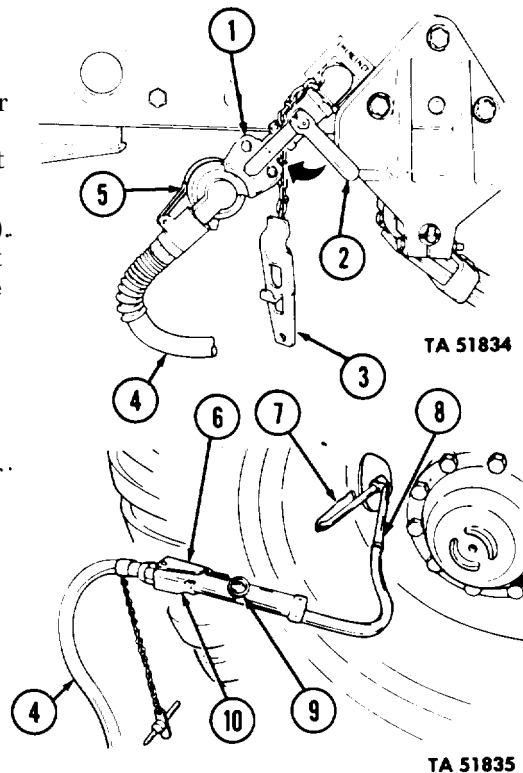
(b) Start at one corner of vehicle and gage all tires. Remove tire valve caps, apply tire gage air chuck (8) on tire valve stem (7) and press down to read tire pressure on gage dial (9). Reinstall tire valve caps and tighten caps finger tight.

#### (3) Tire Inflation.

(a) Start engine (refer to para. 2-14 or 2-15) and apply parking brake. Make sure air reservoir pressure is higher than recommended tire pressure by checking air pressure gage on instrument panel.

(b) Remove coupling half cover (3). Install hose coupling half (5) to left-front emergency air coupling half (1) to inflate front tires, and right-rear emergency air coupling half (1) to inflate rear tires. Turn air valve handle (2) 90 degrees counterclockwise to release compressed air to gage (10) and hose (4) assembly.

(c) Remove tire valve cap, apply air chuck (8) on tire valve stem (7), and press down firmly. Depress air chuck lever (6) to inflate tire. Release lever (6) momentarily to read tire pressure on gage dial (9). Adjust tire pressure as necessary.



### 3-14. WHEELS AND TIRES (Contd)

(d) When tire inflation operation is completed, turn air valve handle (2) 90 degrees clockwise to close. Uncouple hose coupling half (5) from air coupling half (1) and install cover (3) on coupling half (1).

(e) Return tire inflation gage (10) and hose (4) assembly to stowage compartment.

### 3-15. BATTERY INSPECTION

#### WARNING

Do not smoke, allow open flames, sparks, or wear jewelry when working near batteries. Battery gases may explode, causing injury or death to personnel.

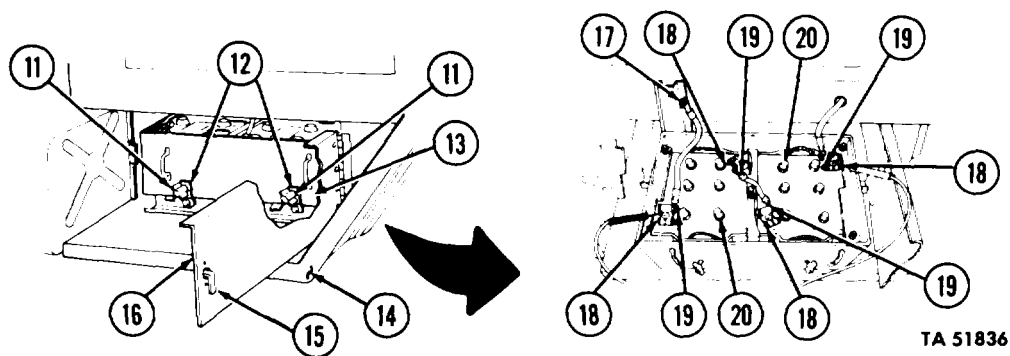
- a. Park vehicle with engine off and parking brake applied.
- b. Turn handle (15) down and open battery compartment door (16).
- c. Loosen two thumbscrews (11) and push clamps (12) down to release battery box (13).
- d. Pull battery box (13) onto running board (14) and remove all battery filler caps (20).
- e. Check fluid level in each cell. If fluid level is low, notify your supervisor. Replace filler caps (20).

#### WARNING

When checking connections, do not let tools touch battery box. This may cause a direct short, arcing, tool will heat to red hot, and battery may explode, resulting in serious injury or death to personnel.

f. Check cable-to-clamp connections (19), clamp-to-post connections (18), and ground connection (17) for tightness. If connections require tightening, notify your supervisor.

g. Push battery box (13) in place and raise clamps (12) to hold box (13) in place. Tighten thumbscrews (11).

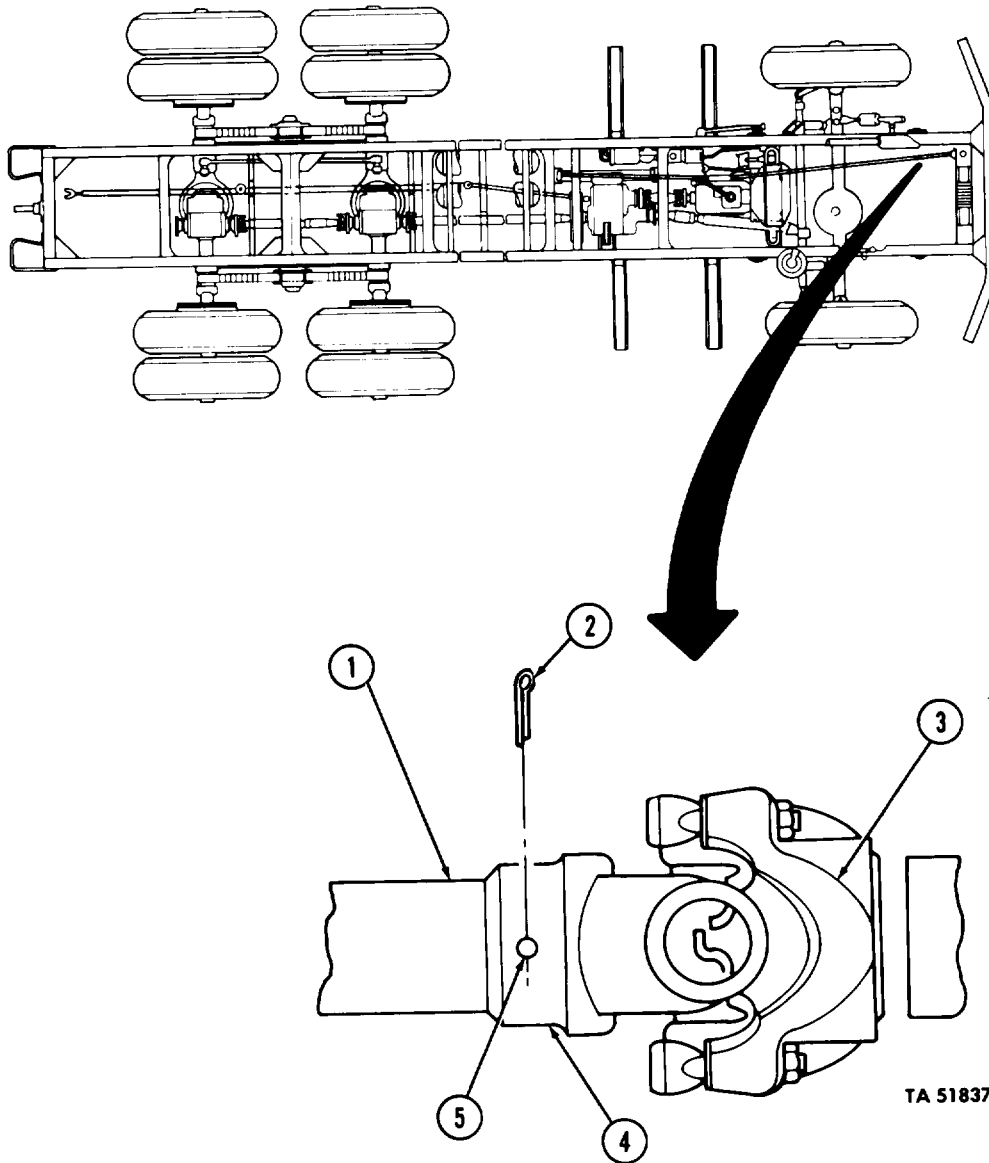


TA 51836

### 3-16. FRONT WINCH SHEARPIN REPLACEMENT

a. Removal.

- (1) Park vehicle with engine off and parking brake applied.
- (2) Turn universal joint (3) on winch drive shaft (1) until shearpin (5) is visible.
- (3) Remove two cotter pins (2) from shearpin (5). Discard cotter pins (2).
- (4) Remove shearpin (5) using drift punch and hammer. If shearpin (5) has broken, line up holes in yoke (4) and drive shaft (1) and tap out remaining pieces of shearpin (5). Discard shearpin (5).



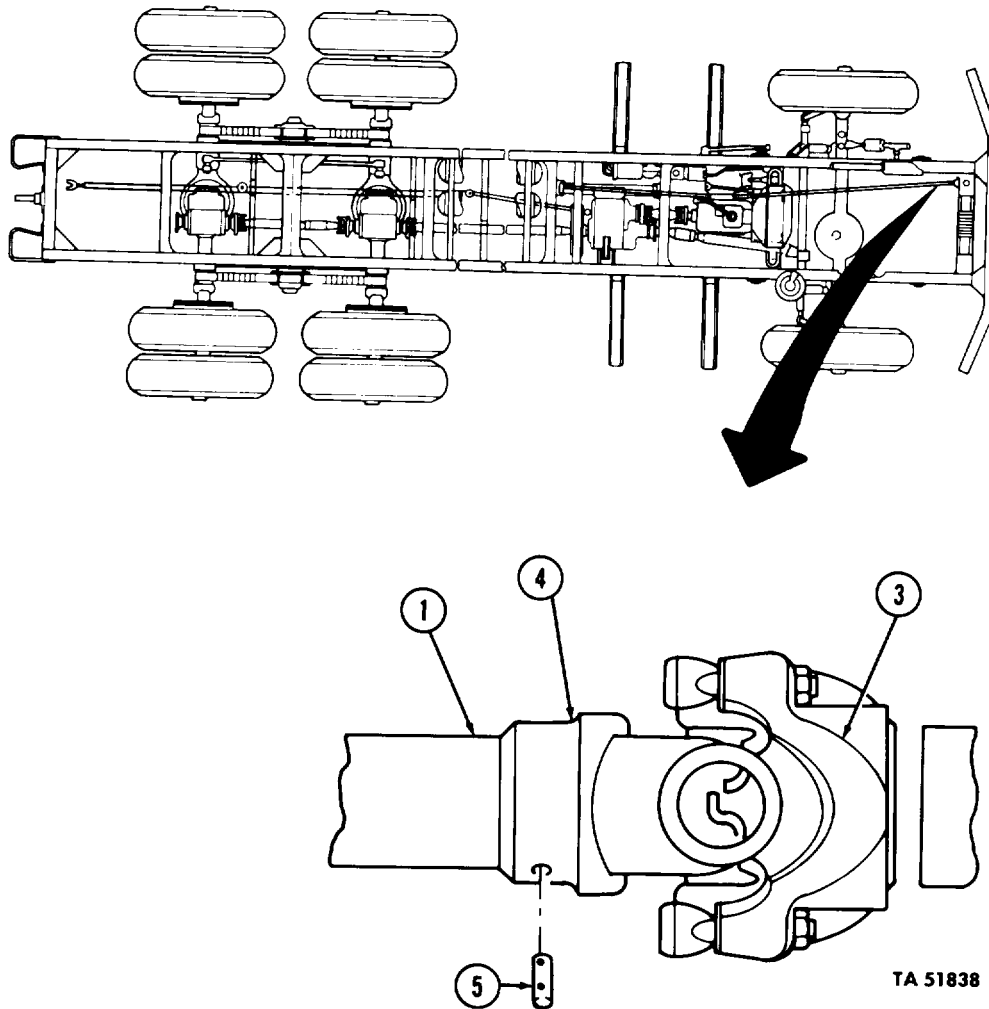
### 3-16. FRONT WINCH SHEARPIN REPLACEMENT (Contd)

#### b. Installation.

##### WARNING

Be sure the front winch drive shaft shearpin is aluminum. Do not substitute any other type metal pin for the shearpin, or injury or death to personnel may result.

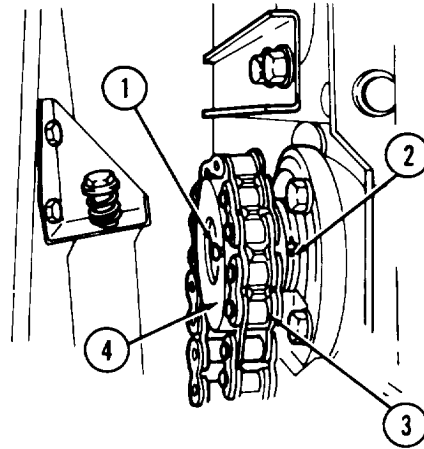
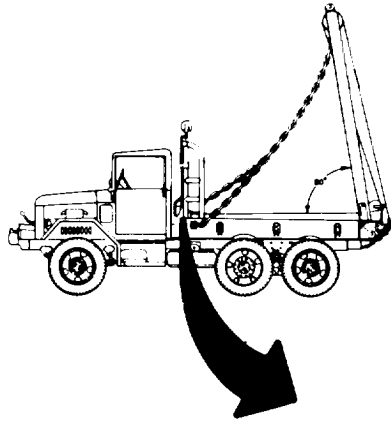
- (1) Coat new shearpin (5) with grease (use grease, GAA, Appendix D, Item 7).
- (2) Aline hole in yoke (4) with hole in drive shaft (1) and insert shearpin (5).
- (3) Use drift punch and hammer to tap shearpin (5) in place.
- (4) Install two new cotter pins (2) in shearpin (5) holes and bend back pin (2) ends.



### 3-17. REAR WINCH SHEARPIN REPLACEMENT

#### a. Removal (Truck, M756A2).

- (1) Park vehicle with engine off and parking brake applied.
- (2) Remove cotter pin (2) and pry out shearpin (1) head. Pull shearpin (1) from sprocket hub (4). Discard cotter pin (2) and shearpin (1).
- (3) If shearpin (1) is broken, use pliers to pull broken ends from sprocket hub (4).



TA 51839

#### b. Installation (Truck, M756A2).

#### WARNING

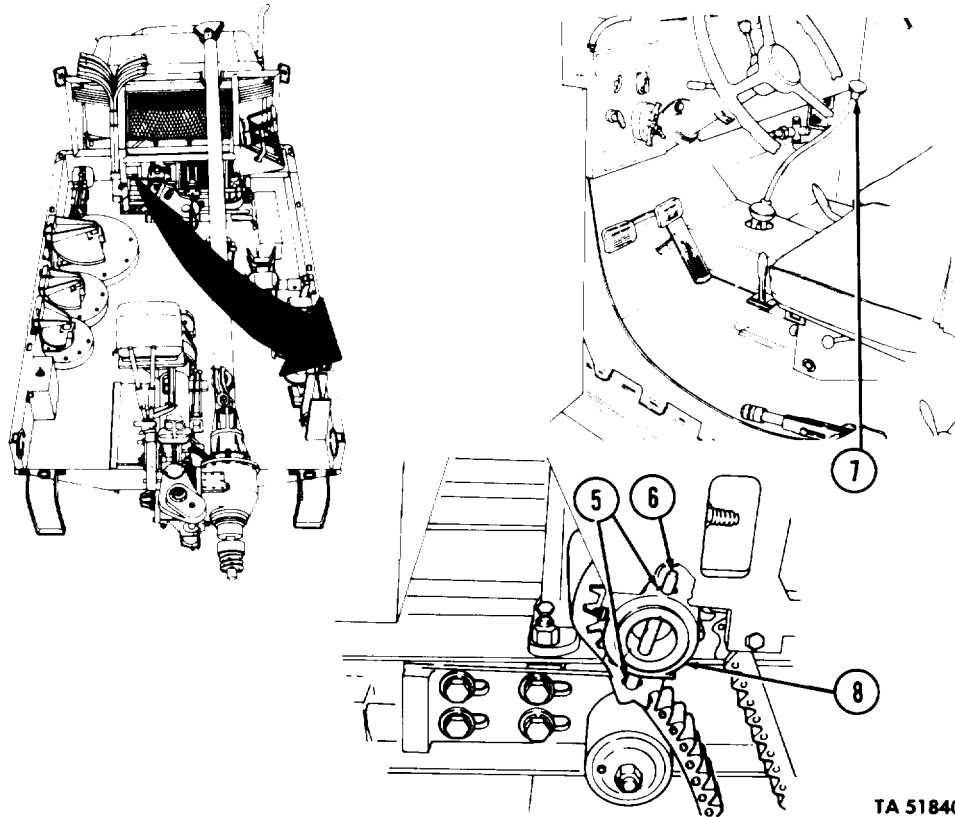
Be sure the rear winch shearpin is aluminum. Do not substitute any other type metal pin for the shearpin, or injury or death to personnel may result.

- (1) Coat new shearpin (1) with grease (use grease, GAA, Appendix D, Item 7), and insert in hole in sprocket hub (4).
- (2) Rotate sprocket (3) until shearpin (1) slides in all the way.
- (3) Install new cotter pin (2) in hole in shearpin (1) and bend back ends of pin (2).

### 3-17. REAR WINCH SHEARPIN REPLACEMENT (Contd)

#### c. Removal (Truck, M764).

- (1) Park vehicle with engine off and parking brake applied.
- (2) Place transmission gear shift lever (7) in "N" (neutral) position.
- (3) Rotate drive sprocket (8) until ends of shearpin (6) are visible.
- (4) Remove two cotter pins (5) from shearpin (6). Discard cotter pins (5).
- (5) Using drift punch and hammer, drive shearpin (6) from sprocket (8). If shearpin (6) is broken, drive all pieces from sprocket. Discard shearpin (6).



TA 51840

#### d. Installation (Truck, M764).

#### WARNING

Be sure the rear winch shearpin is aluminum. Do not substitute any other type metal pin for the shearpin, or injury or death to personnel may result.

- (1) Coat new shearpin (6) with grease (use grease, GAA, Appendix D, Item 7).
- (2) Mine shearpin (6) holes in drive sprocket (8) and insert shearpin (6). Tap shearpin (6) until cotter pin holes are visible.
- (3) Install two new cotter pins (5) in shearpin (6) and bend back pin (5) ends.





## APPENDIX A REFERENCES

### A-1. INDEXES

The following indexes should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this manual:

Consolidated Index of Army Publications and Blank Forms . . . . .	DA PAM 25-30
Equipment Improvement Report and Maintenance Summary (EIR MS) . . . . .	TM 43-0143

### A-2. OTHER PUBLICATIONS

#### a. Technical Manuals.

Cleaning Materials . . . . .	TM 9-247
Deepwater Fording of Ordnance Material . . . . .	TM 9-238
Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Decontaminating Apparatus . . . . .	TM 3-4320-204-12&P
Standards and Criteria for Technical Inspection . . . . .	TM 9-2610-201-14
Use and Care of Hand Tools and Measuring Tools . . . . .	TM 9-243

#### b. Technical Bulletins.

Occupational and Environmental Health: Hearing Conservation . . . . .	TB MED 501
Tank Body Stencilling . . . . .	TB MED 577
Equipment Improvement Report and Maintenance Digest (EIR MD): Tank-Automotive Equipment . . . . .	TB 43-0001-39
Security of Tactical Wheeled Vehicles . . . . .	TB 9-2300422-20
Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems . . . . .	TB 750-651

#### c. Field Manuals.

Basic Cold Weather Manual . . . . .	FM 31-70
Manual for the Wheeled Vehicle Driver . . . . .	FM 21-305
First Aid for Soldiers . . . . .	FM 21-11
Motor Transport Units and Operation . . . . .	FM 55-30
Mountain Operations . . . . .	FM 90-6(HTF)
NBC Decontamination . . . . .	FM 3-5
Northern Operations . . . . .	FM 31-71
Operation and Maintenance of Ordnance Material in Cold Weather (0° to -65°F) . . . . .	FM 9-207
Petroleum Supply Point Equipment Operations . . . . .	FM 10-69
Petroleum Tank Vehicle Operation . . . . .	FM 10-71
Route Reconnaissance and Classification . . . . .	FM 5-36
Vehicle Recovery Operations . . . . .	FM 20-22

## A-2. OTHER PUBLICATIONS (Contd)

### d. General Publications.

Catalogue of Abbreviations and Brevity Codes . . . . . AR 310-50  
 Driver Selection, Testing, and Licensing . . . . . AR 600-55  
 Lubrication Order . . . . . LO 9-2320-209-12-1  
 Procedures and Destruction of Tank-Automotive  
     Equipment to Prevent Enemy Use . . . . . TM 750-244-6  
 The Army Maintenance Management System (TAMMS) . DA PAM 738-750  
 ■ Hand Receipt Manual . . . . . TM 9-2320-209-10- 1-HR

### e. Forms.

Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404  
 Equipment Log Assembly (Records) . . . . . DA Form 2408  
 ■ Functional Users Guide for Motor Pool Operations . . . . . DA PAM 750-35  
 Maintenance Request . . . . . DA Form 2407/DA Form 5504  
 Maintenance Request–  
     Continuation Sheet . . . . . DA Form 2407-1/DA Form 5504-1  
 Quality Deficiency Report . . . . . SF 368  
 Recommended Changes to DA Publications . . . . . DA Form 2028

## APPENDIX B

### COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

#### Section I. INTRODUCTION

##### B-1. SCOPE

This appendix lists components of end item and basic issue items for M44A2 series vehicles to help you inventory items required for safe and efficient operation.

##### B-2. GENERAL

The components of end item and basic issue items lists are divided into the following sections:

**a. Section II. Components of End Item.** This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

**b. Section III. Basic Issue Items (BII).** These are the minimum essential items required to place M44A2 series vehicles in operation, to operate them, and to perform emergency repairs. Although shipped separately packaged, BII must be with the vehicle during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

##### B-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

**a. Column (1) - Illustration Number (Illus Number).** This column indicates the number of the illustration in which the item is shown.

**b. Column (2) - National Stock Number.** Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

**c. Column (3) - Description.** Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On Code" heading in this column. These codes are identified as:

Code	Used On	Code	Used On
A	All	444	M342A2 wo/w
AA	All w/w	445	M35A2C wo/w
437	M3542 wo/w	446	M35A2C w/w
438	M35A2 w/w	455	M36A2 wo/w

**B-3. EXPLANATION OF COLUMNS (Contd)**

<b>Code</b>	<b>Used On</b>	<b>Code</b>	<b>Used On</b>
456	M36A2 w/w	510	M109A3 wo/w
470	M756A2	511	M109A3 w/w
483	M275A2 wo/w	516	M185A3 wo/w
484	M275A2 w/w	527	M342A2 w/w
503	M49A2C wo/w	B48	M764
506	M49A2C w/w	B95	M50A3 wo/w
507	M50A2 wo/w	B96	M50A3 w/w

**d. Column (4) - Unit of Measure (U/M).** Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation; (e.g., ea, in., pr).

**e. Column (5) - Quantity Required (Qty rqr).** Indicates the quantity of the item authorized to be used with/on the vehicle.

**B-4. FEDERAL SUPPLY CODES FOR MANUFACTURER**

<b>Code</b>	<b>Manufacturer</b>
	U.S. Army Tank-Auto-motive Command
21450	Ordnance Corps Engineering Stds.
96906	Military Standards

**Section II. COMPONENTS OF END ITEM****B-5. GENERAL**

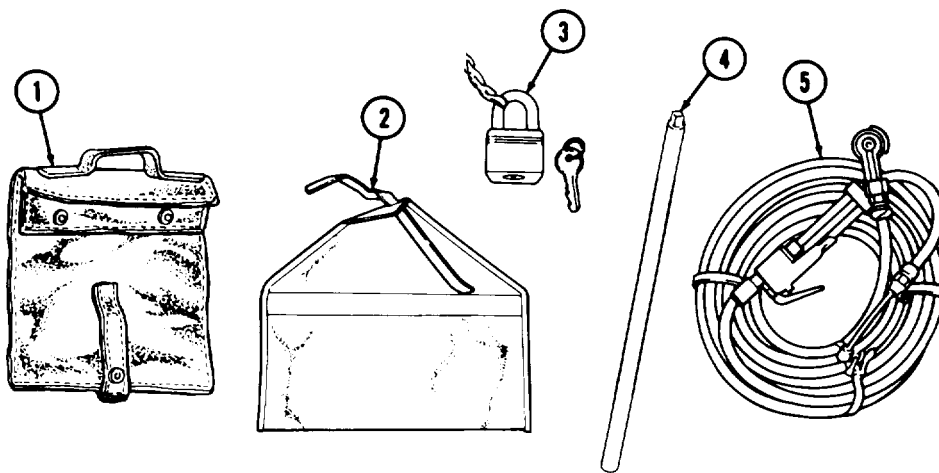
These items are installed in the vehicle at the time of manufacture or rebuild.  
(None authorized for M44A2 series.)

**Section III. BASIC ISSUE ITEMS****B-6. GENERAL**

These are the minimum essential items required to place and maintain M44A2 series vehicles in operation. Although shipped separately packed, BII must accompany the vehicle during operation and whenever it is transferred between accountable officers. The illustrations will assist you to identify each basic issue item.

## Section III. BASIC ISSUE ITEMS

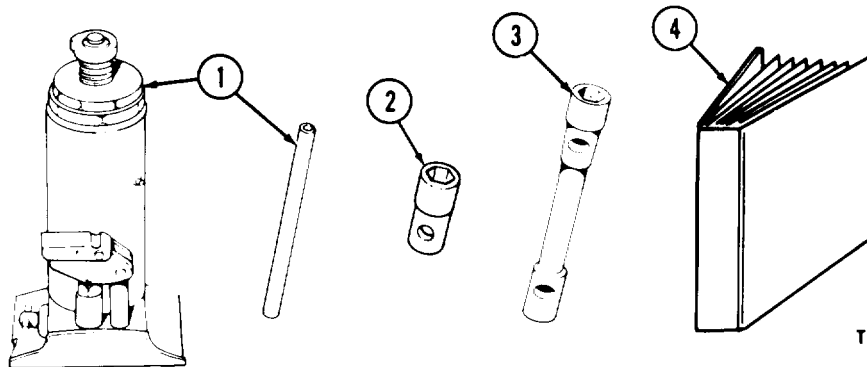
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>EQUIPMENT, MISCELLANEOUS</b>		
1.	2540-00-670-2459	BAG: pamphlet, cotton duck, A 3 in. x 9-1/4 in. x 11-1/4 in. (in map compartment) (19207) 7961712	EA	1
2.	5140-00-772-4142	BAG: tool, cotton duck, A 10-1/8 in. x 20-1/4 in., w/flap (in toolbox) (19207) 7724142	EA	1
3.	5340-00-682-1508	PADLOCK: key operated, A size 1-1/2 in., w/ clevis, chain, and 2 keys (in toolbox) (96906) MS35647-3	EA	1
		<b>EQUIPMENT FOR TIRE SERVICE</b>		
4.	5120-00-243-2419	BAR: handle, socket wrench, A wheel stud nut, 3/4 in. diameter x 30 in. long (in toolbox) (19207) 6196147 (used with WRENCH #11676946 and WRENCH #11677000-2)	EA	1
5.	4910-01-038-2820	GAGE AND HOSE ASSY: A 30 ft hose (tire inflation) (in toolbox) (19207) 11677140-5	EA	1



Change 3 B-3

## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
		<b>EQUIPMENT FOR TIRE SERVICE (Contd)</b>			
1.	5120-00-595-8396	JACK: hydraulic, 8-ton, 9 in. closed (max), 19-1/2 in. open (min), w/operating lever (in toolbox) (19207) 12300922	A	EA	1
2.	5120-01-144-8802	WRENCH: socket, spare tire mounting, 1-1/2 in. hex x 5-3/4 in. long (in toolbox) (19207) 11676946 (used with BAR #6196547)	437,438, 445,446, 455,456, 470,503, 506,507, 510,511, 516,B48, B95,B96	EA	1
3.	5120-00-293-1289	WRENCH: socket, wheel stud nut, 1-1/2 in. hex and 13/16 in. square end, 14 in. to 16 in. long (in toolbox) (19207) 11677000-2 (used with BAR #6196147)	A	EA	1
4.		<b>PUBLICATIONS</b>  MANUAL: technical (operator's) (in pamphlet bag) TM 9-2320-361-10	A	EA	1



TA 51842

## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
5.		<b>PUBLICATIONS (Contd)</b> ORDER: lubrication (in pamphlet bag) LO 9-2320-209-12-1	A	EA	1
6.	5120-00-061-8546	<b>TOOLS, COMMON</b> HAMMER: hand, machinist, ball peen, 2 lb head weight, 15 in.-17 in. long (in toolbag) (19207) 11677028-3	AA	EA	1
7.	5315-00-732-1019	KEY: wrench, drainplug, straight bar, 1/2 in. square x 2-1/2 in. long (in toolbag) (96906) MS20066-543	A	EA	1
8.	5315-00-839-5820	PIN: cotter, 1/16 in. diameter x 3/4 in. long (in toolbag) (96906) MS24665-134 (used with PIN #7538740)	AA	EA	6
9.	5315-00-736-8685	PIN: shear, 9/32 in. diameter x 2-3/8 in. long (in toolbag) (19207) 7538740	AA	EA	3
10.	5120-00-223-7397	PLIERS: common, slip joint, straight nose, combination w/cutter, 8 in. long (in toolbag) (19207) 11655775-3	A	EA	1

TA 51843



## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
<b>TOOLS, COMMON (Contd)</b>				
1.	5120-00-752-9031	PUNCH: drive, point 5/32 in. diameter x 2 in. long minimum, 8 in. minimum overall length (in toolbag) (19207) 11677010 AA	EA	1
2.	5120-00-234-8913	SCREWDRIVER: cross tip, straight, Phillips, no. 2 tip, plastic handle, 4 in. blade, 7-1/2 in. long max. (in toolbag) (19207) 11655777-12 A	EA	1
3.	5120-00-222-8852	SCREWDRIVER: flat tip, flared sides, plastic handle, round-blade, 1/4 in. wide top, 4 in. blade, 8 in. long max. (in toolbag) (19207) 11655777-2 A	EA	1
4.	5120-00-240-5328	WRENCH: adjustable, open-end, heavy duty, 8 in. long, .95 in. jaw opening (in toolbag) (19207) 11655778-3 A	EA	1
5.	5120-00-264-3796	WRENCH: adjustable, open-end, heavy duty, 12 in. long, 1.32 in. jaw opening (in toolbag) (19207) 11655778-5 A	EA	1
6.	9905-00-148-9546	WARNING DEVICE: highway, A triangular, reflective (19207) 11669000	SE	1

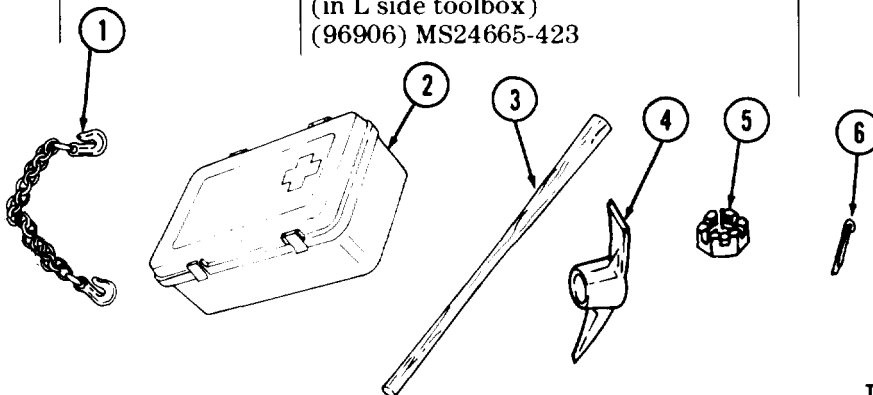
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
<b>TOOLS AND EQUIPMENT — PIPELINE CONSTRUCTION TRUCK (M756A2)</b>					
7.	5340-00-425-0610	ADAPTER: gin pole, side-mounting (in L side toolbox) (19207) 11647843	470	EA	2
8.	5110-00-293-2336	AX: single bit, 4 lb head weight, 35-1/2 in. to 36-1/2 in. long (in pioneer tool bracket, midship- mounted winch protector basket) (19207) 6150925	470	EA	1
9.	3990-00-171-9774	BINDER: load, lever-type, heavy duty, 1/4 in. to 1/2 in. chain capacity (in L side toolbox) (19207) 11677040	470	EA	2
10.	3120-00-702-6039	BUSHING: steel pipe, 3/4 in. ID, 1-1/2 in. long (in L side toolbox) (19207) 11647839	470	EA	2
11.	4010-00-158-5618	CHAIN: boom tie, ring one end, grab hook other end, 1/2 in. chain, 23-1/2 ft long (in midship-mounted winch protector basket) (19207) 11647877	470	EA	2

TA 51845

## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT — PIPELINE CONSTRUCTION TRUCK (M756A2) (Contd)</b>		
1.	4010-01-033-2811	CHAIN: log, grab hook one end, sling hook other end, 7/16 in. chain, 12 ft long (in R side toolbox) (19207) 11677052	EA	2
2.	6545-00-922-1200	FIRST AID KIT: general purpose, 12 unit (in L side toolbox) (19207) 11677011	EA	1
3.	5120-00-288-6574	HANDLE: mattock pick, railroad or clay, 36 in. long (in pioneer tool bracket, midship-mounted winch protector basket) (19207) 11677021	EA	1
4.	5120-00-243-2395	MATTOCK: pick-type, 5 lb, w/o handle (in pioneer tool bracket, midship- mounted winch protector basket) (19207) 11677022	EA	1
5.	5310-00-850-6881	NUT: slotted, hexagon, 3/4 in. — 10 UNC (in L side toolbox) (96906) MS35692-57	EA	2
6.	5315-00-013-7228	PIN: cotter, 5/32 in. diameter x 1-1/2 in. long (in L side toolbox) (96906) MS24665-423	HD	8



TA 51846

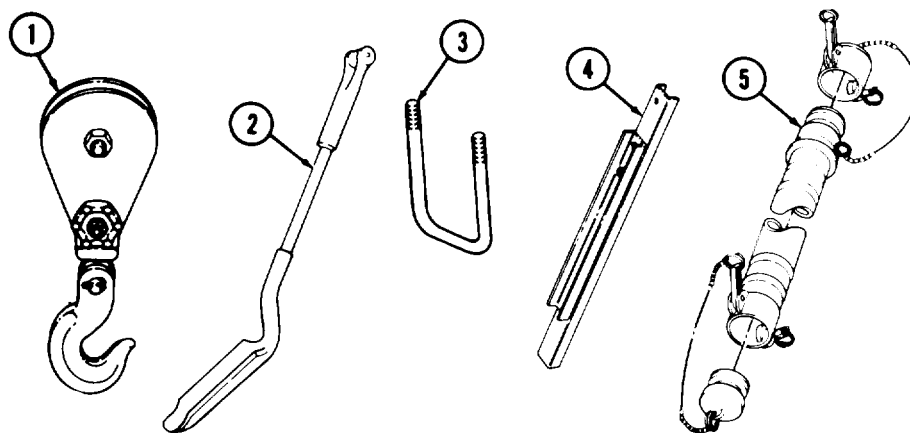
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
<b>TOOLS AND EQUIPMENT — PIPELINE CONSTRUCTION TRUCK (M756A2) (Contd)</b>					
7.	5315-00-013-7238	PIN: cotter, 5/32 in. diameter x 1-3/4 in. long (in L side toolbox) (96906) MS24665-425	470	HD	2
8.	5315-00-140-4775	PIN: straight, headless, 1 in. diameter x 4-1/2 in. long (in L side toolbox) (19207) 11647875	470	EA	4
9.	—	ROLLER: load, pipe, plain ends, 2 in. ID x 48 in. long (in R side toolbox) (19207) 11677041	470	EA	3
10.	2590-00-147-5280	SHEAVE ASSY: rear- mounting (in L side toolbox) (19207) 11647840-1	470	EA	1
11.	3940-00-151-6770	SHEAVE ASSY: center- mounting (in L side toolbox) (19207) 11647840-2	470	EA	1
12.	3940-00-162-4201	SHEAVE ASSY: w/boom trunnion (in L side toolbox) (19207) 11647841	470	EA	1

TA 51847

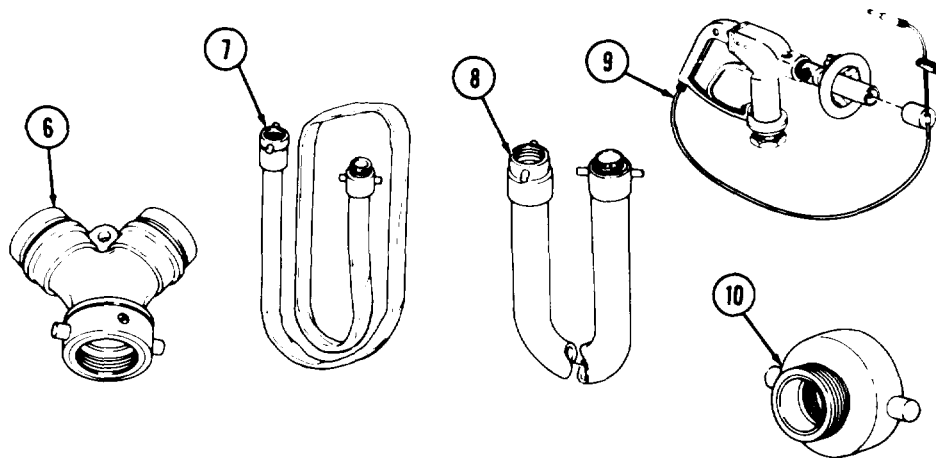
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - PIPELINE CONSTRUCTION TRUCK (M756A2) (Contd)</b>		
1.	3940-00-151-6769	SHEAVE ASSY: w/hook (in L side toolbox) (19207) 1167932	EA	1
2.	5120-00-293-3336	SHOVEL: hand, round point, D-handle, short size (in pioneer tool bracket, midship-mounted winch protector basket) (19207) 11655784	EA	1
3.	5306-01-322-2909	U-BOLT: rear-mounting (in L side toolbox) (19207) 11647876	EA	1
		<b>TOOLS AND EQUIPMENT - FUEL TANK TRUCK (M49A2C)</b>		
4.	5210-00-884-4840	GAGE ASSY: fuel tank level (in rear cabinet) (19207) 10872403	EA	1
5.	4720-01-029-5046	HOSE ASSY: w/dustcaps, 1-1/2 in. ID 10-1/2 ft long, (in L and R side compart- ments) (19207) 11672535	EA	2



## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - WATER TANK TRUCKS (M50A2, M50A3)</b>		
6.	4730-00-322-9636	COUPLING: "Y", 2 in. female inlet to two 1-1/2 in. male outlets (in toolbox in rear cabinet) (19207) 8332729	EA	1
7.	4720-00-318-0941	HOSE: discharge, smooth bore, 1-1/2 in. ID x 25 ft long (in rear cabinet) (19207) 8330012	EA	3
8.	4720-00-318-0940	HOSE: suction, smooth bore, 2 in. ID x 10 ft long (in rear cabinet under tank) (19207) 8330011	EA	6
9.	4930-01-022-7901	NOZZLE ASSY: 1-1/2 in. inlet, fuel type (in rear cabinet) (19207) 12275441-2	EA	2
10.	4730-00-090-9228	REDUCER: 2-1/2 in. female pipe end, 1-1/2 in. male end (in rear cabinet toolbox) (19207) 8330013	EA	1



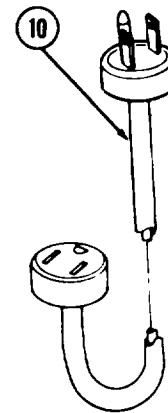
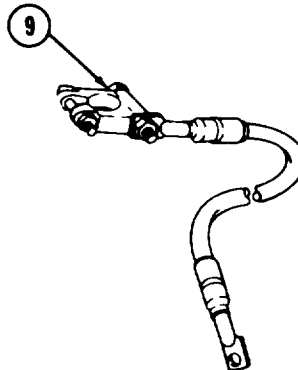
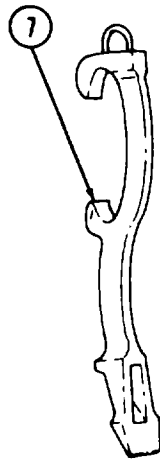
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr	
		<b>TOOLS AND EQUIPMENT - WATER TANK TRUCKS (M50A2, M50A3) (Contd)</b>			
1.	4730-00-335-1814	REDUCER: 2 in. female pipe end, 1-1/2 end male pipe end (in rear cabinet toolbox) (19207) 8330014	507, B95, B96	EA	1
2.	5210-00-532-9058	STICK: gage (in rear cabinet) (19207) 8329924	507	EA	1
3.	2590-00-566-1440	STICK: gage (in rear cabinet) (19207) 11609128	B95, B96	EA	1
4.	4730-00-314-0747	STRAINER: suction, 2 in. female pipe end (in rear compartment toolbox) (19207) 8330015	507,511 B95, B96	EA	1
5.	5120-00-277-1461	WRENCH: pipe, adjustable, heavy duty, 1 in. - 2 in. jaw opening (in rear compart- ment toolbox) (21450) 41W664	507, B96,	EA	2
6.	5120-00-288-8849	WRENCH: spanner, hydrant and hose (in rear compartment toolbox) (19207) 11655779-1	507, B95, B96	EA	2

The illustrations show the following items: 1. A reducer fitting with a female pipe end and a male pipe end. 2. A stick gage. 3. A stick gage. 4. A strainer with a suction pipe end. 5. A pipe wrench. 6. A spanner wrench for hydrant and hose.

## Section III. BASIC ISSUE ITEMS (Contd)

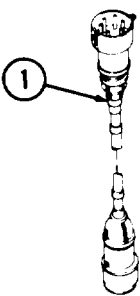
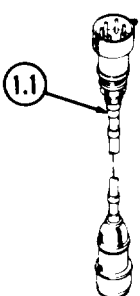
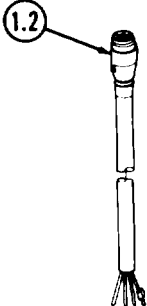
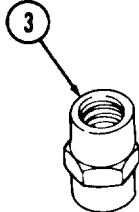
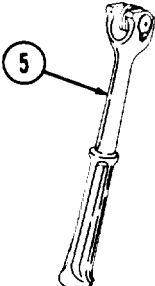
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
7.	5120-00-293-1602	<b>TOOLS AND EQUIPMENT - WATER TANK TRUCKS (M50A2, M50A3) (Contd)</b>  WRENCH: spanner, universal 507, hose coupling (in rear B95, compartment toolbox) B96 (00912) 0010-OP-0-1-94-001	EA	2
8.		<b>TOOLS AND EQUIPMENT - SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3)</b>  DELETED		
9.	6140-00-851-4573	CABLE: ground, 48 in. long 510,511, (used w/rod 8380403) 516 (in L side toolbox) (19207) 7017575	EA	1
10.	6150-00-682-3460	CABLE ASSY: power, electri- 516 cal, 3 conductor, 50 ft long (on L side rear table shelf) (19207) 11647741	EA	1





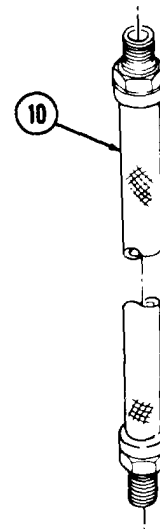
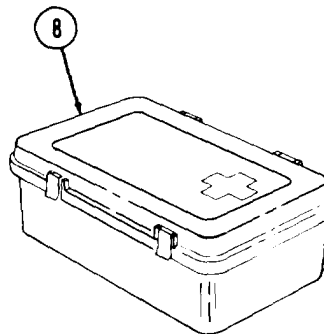
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3) (Contd)</b>		
1.	6150-01-290-2127	CABLE: power, electrical, shielded, 6 conductor, 100 ft long (on L side rear table shelf) (19207) 12368257	EA	1
1.1	6150-00-104-4572	CABLE: power electrical, shielded, 3 conductor, 50 ft long (on L side rear table shelf) (19207) 7096967	EA	1
1.2	2590-00-870-9935	CABLE: pigtail 39.25 in. long (90129) X8110-71	EA	1
2.		DELETED		
3.	4730-00-580-7408	COUPLING: pipe, automotive, 1/4-18 NPTF (air hose to compressor) (in L side filing cabinet top drawer) (04164) 272M0075P004	EA	1
4.		DELETED		
5.	5120-01-165-4676	DRESSER: abrasive wheel, size O, 1-1/4 in. OD cutter wheel, 12 in. long max. (in L side table drawer) (19207) 11655781	EA	1

## Section III. BASIC ISSUE ITEMS

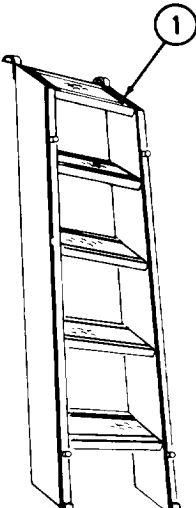
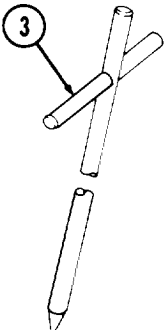
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3) (Contd)</b>		
6.	5133-01-047-0258	DRILL SET: twist, H.S. steel, 516 fractional sizes, 1/16 in. - 3/8 in., w/case (21 drills) (in L side table drawer) (19207) 11677009-1	EA	1
7.		DELETED		
8.	6545-00-922-1200	FIRST AID KIT: general purpose, 12-unit (in R side wall rack) (19207) 11677011	EA	1
9.		DELETED		
10.	4720-01-128-5697	HOSE: air, 1/4-18 NPTF male thread both ends, 3/8 in. ID x 15 ft long (L side filing cabinet top drawer) (19207) 11624424-2	EA	1



Change 3 B-15

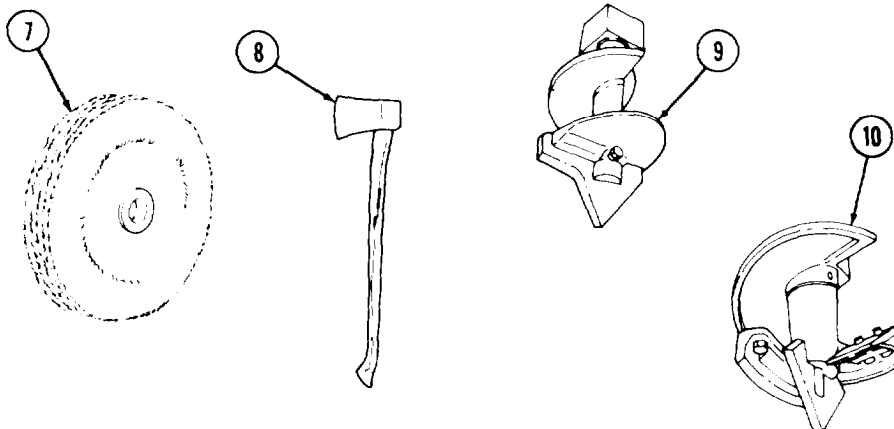
## SECTION III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3) (Contd)</b>		
1.	2540-00-735-6179	LADDER ASSY: van boarding (rear of body) (19207) 8757809 510,511, 516	EA	1
2.		DELETED		
3.	2510-00-790-2296	ROD: ground, 3/4 in. diameter x 30 in. long, w/cross bar (used w/ CABLE 7017575) (in L side toolbox) (19207) 8380403 510,511, 516	EA	1
4.		DELETED		
5.		DELETED		

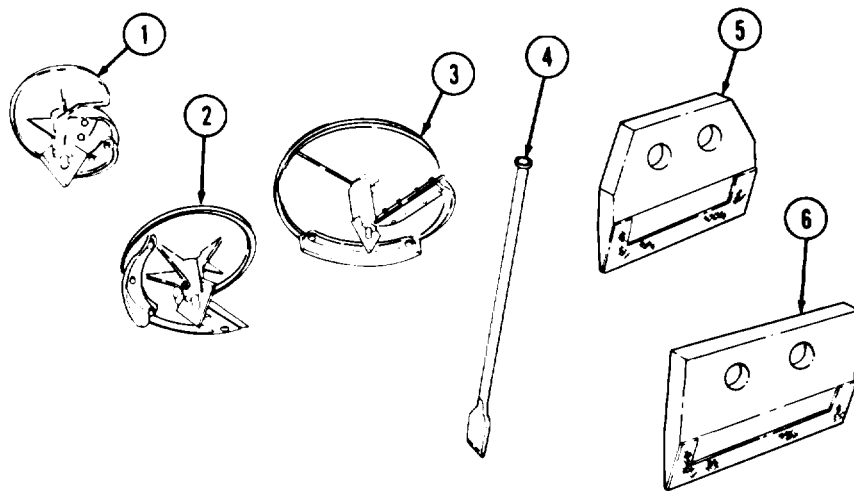
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
6.		<b>TOOLS AND EQUIPMENT - SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3,M185A3) (Contd)</b>		
		DELETED		
7.	3460-00-516-3053	WHEEL: buffing and polishing, muslin bleached cloth, 5/8 in. arbor size, 1/2 in. thick x 6 in. OD (in L side table drawer) (81348) GGG W301	516 EA	1
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764)</b>		
8.	5110-00-293-2336	AX: single bit, 4 lb head weight, 35-1/2 in. - 36-1/2 in. long (in pioneer tool bracket) (19207) 6150925	B48 EA	1
9.	3820-00-733-6160	AUGER ASSY: earth, 9 in. (in R side bracket) (19207) 7336160	B48 EA	1
10.	3830-00-695-7217	AUGER ASSY: earth, 12 in. (in R side bracket) (19207) 8332447	B48 EA	1



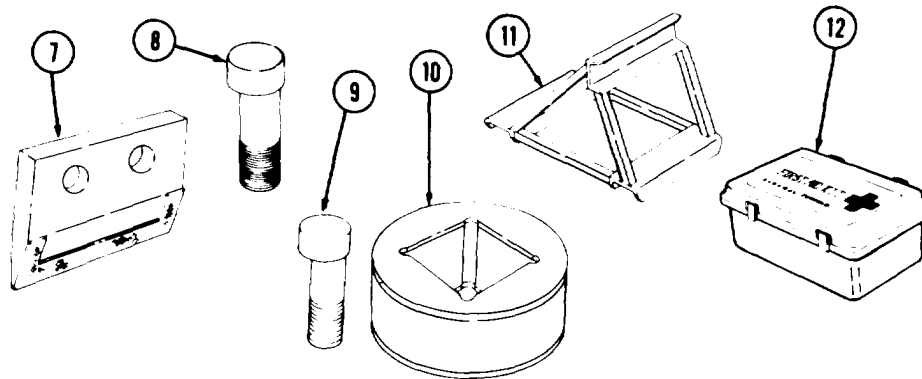
## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
1.	3820-00-695-7218	AUGER ASSY: earth, 16 in. (in L side bracket) (19207) 8332448 B48	EA	1
2.	3830-00-695-7219	AUGER ASSY: earth, 20 in. (in L side bracket) (19207) 8332449 B48	EA	1
3.	3820-00-477-9897	AUGER ASSY: earth, 30 in. (in L side bracket) (19207) 11623812 B48	EA	1
4.		BAR: earth digging and tamping, 8 ft long, tamp head size 2-1/4 in. - 2-1/2 in. diameter (19207) 12301424 B48	EA	2
5.	3820-00-161-4874	BLADE: 12 in. earth auger (in R side toolbox) (19207) 7005090 B48	EA	2
6.	3805-00-161-4882	BLADE: 20 in. earth auger (in R side toolbox) (19207) 7005253 B48	EA	2



## Section III. BASIC ISSUE ITEM (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
7.	3820-00-161-4883	BLADE: 16 in. and 30 in. earth augers (in R side toolbox) (1DF03) 246B73	B48 EA	4
8.	5306-00-407-2779	BOLT: auger blade, eccentric head, 3/4 in. diameter x 2-3/16 in. long (in R side toolbox) (19207) 7005242	B48 EA	4
9.	5306-00-429-7390	BOLT: auger blade, eccentric head, 7/8 in. diameter x 2-11/32 in. long (in R side toolbox) (19207) 7374019	B48 EA	2
10.	5340-00-111-3603	BUMPER: auger rack bar, rubber, 7 in. OD x 3 in. thick (in R side toolbox) (19207) 11623832	B48 EA	1
11.	2540-00-406-4588	CHOCK BLOCK: wheel, metal construction (in R front bracket) (19207) 11623408	B48 EA	2
12.	6545-00-922-1200	FIRST AID KIT: general purpose, 12 unit (in L side toolbox) (19207) 11677011	B48 EA	1



## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
1.	5120-00-288-6574	HANDLE: mattock, pick, railroad or clay, 36 in. long (in pioneer tool bracket) (19207) 11677021	B48 EA	1
2.	5120-00-223-8996	HOOK: cant, 4-1/2 ft long handle, 8 in. minimum hook opening (81348) GGG-P-151TY2	B48 EA	2
3.		HOOK: winch, detachable, quick connect, type "S" (in R side toolbox) (19207) 8332403	B48 EA	1
4.	5120-00-595-3881	JACK ASSY: mechanical, rack bar, pole pulling, hinged base, w/chain, 38-1/4 in. closed, 22 in. rise, 15-ton capacity (on body and L side toolbox) (19207) 8329902	B48 EA	1
5.	5120-00-243-2395	MATTOCK: pick-type, 5 lb, w/o handle (in pioneer tool bracket) (19207) 11677022	B48 EA	1
6.	5315-00-276-5728	PIN: auger retaining, 3/4 in. diameter x 4-3/4 in. long (in R side toolbox) (19207) 7005041	B48 EA	3

## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT — EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
7.	5315-00-018-7988	PIN: cotter, 3/16 in. diameter x 1-1/4 in. long (secure auger retaining pin) (in R side toolbox) (96906) MS24665-493	B48 EA	6
8.	3820-00-161-4881	PLATE: thrust, 12 in. auger (in R side toolbox) (19207) 7005250	B48 EA	1
9.	3820-00-161-4879	PLATE: thrust, 16 in. auger (in R side toolbox) (19207) 7005247	B48 EA	1
10.	3820-00-161-4876	PLATE: thrust, 20 in. auger (in R side toolbox) (19207) 7005246	B48 EA	1
11.	3820-00-477-9898	PLATE: 30 in. auger (in R side toolbox) (19207) 11623811	B48 EA	1
12.	3820-00-125-8640	POINT: blade, 9 in. auger (in R side toolbox) (19207) 7005256	B48 EA	2

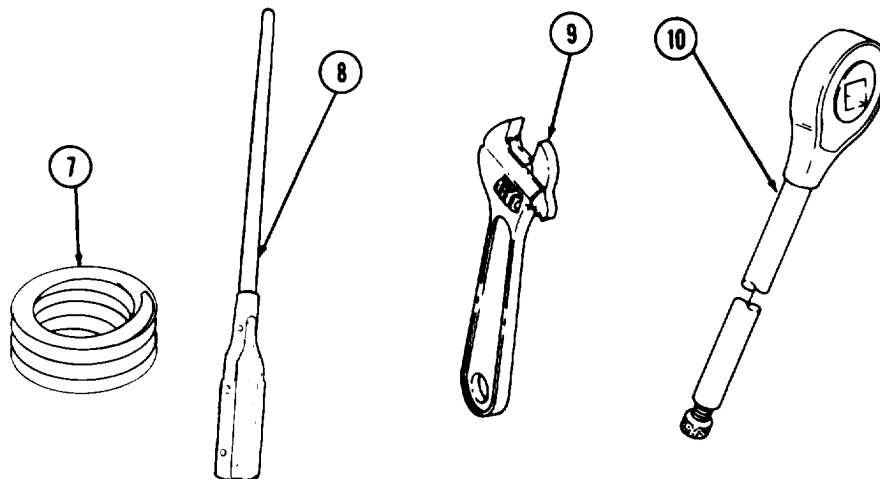


## Section III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
1.	3815-00-125-2906	POINT: blade, 12 in., 16 in., 20 in., and 30 in. auger (in R side toolbox) (19207) 7005254 B48	EA	2
2.	5120-00-596-1112	POLE: pike, fixed pike, plain tip, w/guard, 12 ft long (80244) GGG-P-335TY1CL1STB B48	EA	2
3.	2590-00-924-5896	REEL ASSY: cable, collapsible, 18-3/4 in. maximum collapsed diameter (in R side bracket) (19207) 7329291 B48	EA	1
4.	5120-00-293-3336	SHOVEL: hand, round point, D handle, short size (in pioneer tool bracket) (19207) 11655784 B48	EA	1
5.	5120-00-188-8440	SHOVEL: hand, telegraph, 8 ft long, straight handle (81348) GGG-S-326-TY8CLAS72 B48	EA	2
6.	5120-00-188-8444	SPOON: hand, telegraph, 8 ft long, straight handle (80244) GGG-S-326 TY12SZA B48	EA	2

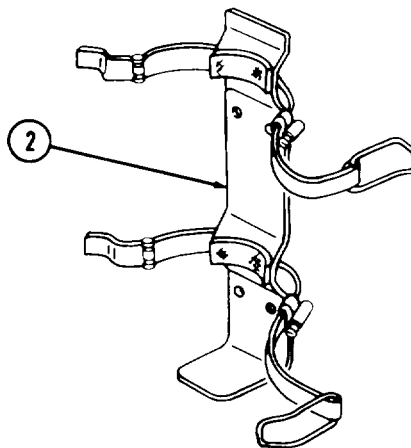
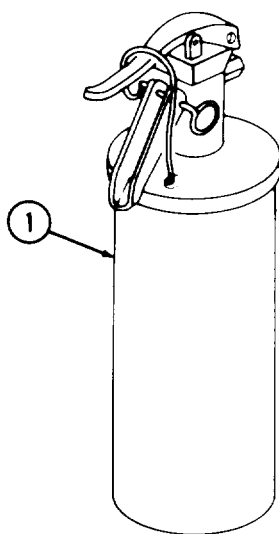
## SECTION III. BASIC ISSUE ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
		<b>TOOLS AND EQUIPMENT - EARTH BORING AND POLESETTING MAINTENANCE TRUCK (M764) (Contd)</b>		
7.	5360-00-597-3795	SPRING: compression, auger rack bar, 4-1/8 OD x 4 in. long (in R side toolbox) (1DF03) EA2447	B48 EA	1
8.	5120-00-242-3417	TAMPER: hand, backfill, 7-1/2 ft long minimum, tamp head size, 1-1/2 in. x 3-1/2 in. minimum (80244) GGG-T-0040 TY3CL	B48 EA	2
9.	5120-00-423-6728	WRENCH: adjustable, open- end, heavy-duty, 1.70 in. jaw opening, 15 in. long (in R side toolbox) (19207) 6187328	B48 EA	1
10.	5120-00-247-3261	WRENCH: ratchet, reversible 1 in. square female drive, 24 in. long (for horizontal leveling of boring machine) (in R side toolbox) (19207) 11677048	B48 EA	1



## Section. III. BASIC ITEMS (Contd)

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number Usable On Code	(4) U/M	(5) Qty rqr
1.	4210-01-149-1356	<b>COMMON EQUIPMENT</b>		
		<b>FIRE EXTINGUISHER:</b> w/bracket (12255634) purple-k (19207) 12255633-1		
		L rear tank body 503,506	EA	1
		R rear tank body 503,506	EA	1
		R front tank body 503,506	EA	1
		L rear interior 510,511 516	EA	1
2.	4210-01-183-4822	L rear cab corner A	EA	1
		<b>BRACKET, FIRE EXTINGUISHER</b> (19207) 12255634 A	EA	1



## APPENDIX C ADDITIONAL AUTHORIZATION

### INTRODUCTION

#### C-1. SCOPE

This appendix lists additional items you are authorized for support of M44A2 series vehicles.

This list identifies items that do not have to accompany the truck and do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA or JTA.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. If item required differs for different models of this equipment, the model and the assigned usable on code is shown. These codes are identified as:

Code	Usable On	Code	Used On
A	All	484	M275A2 w/w
AA	All w/w	503	M49A2C wo/w
437	M35A2 wo/w	506	M49A2C w/w
438	M35A2 w/w	507	M50A2 wo/w
444	M342A2 wo/w	510	M109A3 wo/w
445	M35A2C wo/w	511	M109A3 w/w
446	M35A2C w/w	516	M185A3 wo/w
455	M36A2 wo/w	527	M342A2 w/w
456	M36A2 w/w	B48	M764
470	M756A2	B95	M50A3 wo/w
483	M275A2 wo/w	B96	M50A3 w/w

## Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER      USABLE ON CODE	(3) U/M	(4) QTY AUTH
4930-00-288-1511	ADAPTER: extension, grease gun, flexible hose, 12 in. - 14 in. long (19207) 6300333	B48	EA 1
5110-00-293-2336	AX: single bit, 4 lb head weight, 35-1/2 in. to 36-1/2 in. long (19207) 6150925	All except 470	EA 1
5120-00-224-1390	BAR: crow, pinch-point, 48 in. long (19207) 11677049	470	EA 2
3940-00-111-6693	BLOCK: snatch, 1/2 in. diameter wire rope, single 6 in. sheave, w/swivel hook, 5-ton safe working load (19207) 11631700	AA	EA 1
5310-00-473-6444	BRUSH: wire, rotary, wheel, 5/8 in. arbor size, 6 in. OD (19207) 11677006	516	EA 1
7110-00-634-2860	CABINET ASSY: filing (19207) 7063095	516	EA 2
7240-00-222-3084	CAN: safety, 1 gal. capacity, color- red, w/flexible spout (19207) 11677015	516	EA 1
7240-00-222-3088	CAN: gasoline, military type, 5-gallon (81902) 14196P1	A	EA 1
2540-00-933-9024	CHAIN ASSY: tire, single, type TS, size 9.00 in. x 20 in. (96909) MS500055-14	All except 503,506	PR 3
4010-00-473-6166	CHAIN: utility, single leg, 5/8 in. link, 16 ft long, w/grab hook and 2 pear- shaped link ends (19207) 7077063	A	EA 1
2540-01-052-6234	CHOCK: wheel (96906) MS52127-2	A	EA 2
4310-00-631-5693	COMPRESSOR: reciprocating power driven; type 1, style 1, group A, size 1 (89307) 66-30127-10	516	EA 1
4730-00-142-2717	COUPLING: pipe, automotive 1/4-18 NPTF (21450) 444097	516	EA 1

## Section II. ADDITIONAL AUTHORIZATION LIST (Contd)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER      USABLE ON CODE	(3) U/M	(4) QTY AUTH
5120-00-278-6641	CUTTER SET: abrasive wheel dresser, size O, 1/4 in. bore x 1-1/4 in. OD (96906) MS15796-1	516	EA 1
4320-00-246-1186	DECONTAMINATION APPARATUS: portable, DS-2, 1-1/2 qt ABC-M11 w/bracket (81361) D5-51-269	A	EA 2
5120-00-223-9952	DRESSER: abrasive wheel, size O, 1-1/4 in. OD cutter wheel, 11 in. long max. (81348) GGG-D-631	516	EA 1
5130-00-853-4480	DRILL: electric, w/stand, type IV, 3/8 in. drill (81348) WD661	516	1
5133-00-449-6775	DRILL SET: twist, H.S. steel, wire-gage sizes No. 1 to No. 60, w/case (60 drills) (81348) GGG-D-751	516	EA 1
6545-00-922-1200	FIRST AID KIT: general purpose, 12 unit (19207) 11677011	ALL except 470,516, B48	EA 1
4930-00-223-3391	GREASE GUN: hand, lever-operated, 14 oz. capacity, w/15° rigid bent extension, 22 in. maximum closed length (19207) 5644803	B48	EA 1
3415-00-517-7754	GRINDING MACHINE: utility, bench mounting, type 1, size 7 (81348) MIL-G-80260	516	1
4940-00-333-5541	GUN: air blow, straight-design, button-operated, 1/4-18 NPT male thread (17431) DGA520	516	EA 1
	HAMMER: blacksmith's, cross peen 3 lb, 16 in. long (19207) 11677042	470	EA 1
5120-00-900-6095	HAMMER: blacksmith's, double face (19207) 11677050	470	EA 1
5120-00-061-8543	HAMMER: hand, machinist, ball peen, 1 lb head weight, 15-1/2 in. length maximum (19207) 11677028	B48	EA 1

Change 3 C-3

## Section II. ADDITIONAL AUTHORIZATION LIST (Contd)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER      USABLE ON CODE	(3) U/M	(4) QTY AUTH
5120-00-288-6574	HANDLE: mattock, pick, railroad or clay (19207) 11677021      All except 470,B48	EA	1
5120-00-221-7959	HANDLE, SOCKET WRENCH: hinged 3/4 in. drive, 17-3/4 in. - 23 in. long 5668 (47805)      A	EA	1
5120-00-542-4011	JACK: rack bar, single rigid, 10 in. closed, 12 in. rise, 10-ton capacity (59462) A1022      470	EA	1
6230-00-901-9755	LIGHT: extension, electrical 115V, 25 ft cord, w/100W lamp (81348) W-L-661-1-1-2      516	EA	1
5120-00-243-2395	MATTOCK: pick type, 5-lb, w/o handle (19207) 11677022      All except 470,B48	EA	1
4930-00-344-6472	OILER: hand, push-button, 8 oz. capacity, 5 in. rigid spout (19204) 6008514      B48	EA	1
5120-00-293-3336	SHOVEL: hand, round point, D-handle, short size (19207) 11655784      All except 470,B48	EA	1
7690-00-589-8322	SIGN, DECAL: fire extinguisher (19207) 7053776      516		1
7140-00-177-6154	SPOUT: can, gasoline, flexible nozzle, 1-1/4 in. OD x 16 in. long (19207) 11677020      A	EA	1
7110-00-634-8596	STOOL: revolving, adjustable seat height 22 in. min/30 in. max, w/foot rest (19207) 11677016      516	EA	1
5340-00-126-9011	STRAP: webbing, w/buckle, 5/8 in. wide x 144 in. long (19207) 8690499      516	EA	1

## Section II. ADDITIONAL AUTHORIZATION LIST (Contd)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER      USABLE ON CODE	(3) U/M	(4) QTY AUTH
5340-01-012-2607	STRAP: webbing, w/buckle or end clip, 5/8 in. wide x 40-1/2 in. long (19204) 501288      516	EA	1
5120-00-243-1372	WISE: bench, clamp base, utility, jaw 2-1/2 in. wide x 2-1/4 in. opening (81348) GGG-V-410      516	EA	1
5120-00-293-1439	WISE: machinist's, swivel base, jaw 4 in. wide x 6 in. opening (19207) 11655782-3      516	EA	1

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## APPENDIX D

### EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

#### Section I. INTRODUCTION

##### D-1. SCOPE

This appendix lists expendable/durable supplies and materials you will need to operate and maintain M44A2 series vehicles. This listing is for informational purposes only and is not authority to requisition listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

##### D-2. EXPLANATION OF COLUMNS

**a. Column (1) - Item Number.** This number is assigned to each entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use methyl alcohol appendix D, item 14).

**b. Column (2) - Level.** This column identifies the lowest level of maintenance that requires the listed item.

##### **C — Operator/Crew**

**c. Column (3) - National Stock Number.** This is the national stock number assigned to the item: use it to request or requisition the item.

**d. Column (4) - Description.** Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parenthesis, followed by the part number. For FSCM codes used, refer to appendix B.

**e. Column (5) - Unit of Measure (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by an alphabetical abbreviation (e.g., GAL., OZ, QT). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

## Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NO.	(4) DESCRIPTION	(5) U/M
1	C	6850-00-174-1806	ANTIFREEZE, PERMANENT TYPE: arctic grade (-90°F (-68°C)) (81349) MIL-A-11755  55 GAL. DRUM	GAL.
2	C	6850-00-181-7929	ANTIFREEZE, PERMANENT: ethylene glycol (-65°F (-54°C)) inhibited (O-A-548, type I) heavy duty, single package (81349) MIL-A-46153  1 GAL. CONTAINER	GAL.
3	C	6850-00-181-7933	5 GAL. CONTAINER	GAL.
4	C	6850-00-181-7940	55 GAL. DRUM	GAL.
5	C	6850-00-926-2275	CLEANING COMPOUND: (windshield washer) (81348) O-C-1901	PT
6	C	9140-00-160-1830	GASOLINE: type II arctic (swingfire heater) (81349) MIL-G-3056  GREASE, AUTOMOTIVE AND ARTILLERY GAA (81349) MIL-G-10924	GAL.
7	C	9150-00-065-0029	2-1/4 OZ TUBE	OZ
8	C	9150-00-935-1017	14 OZ CARTRIDGE	OZ
9	C	9150-00-190-0904	1-3/4 LB CAN	LB
10	C	9150-00-190-0905	6-1/2 LB CAN	LB
11	C	9150-00-190-0907	35 LB PAIL	LB
12	C	9150-00-180-7369	120 LB DRUM  INHIBITOR: CORROSION, LIQUID COOLING SYSTEM, POWDER FORM (81348) O-1-00490	LB
13	C	6850-00-753-4967	6 OZ CAN	OZ

**Section II. EXPENDABLE/DURABLE SUPPLIES AND  
MATERIAL LIST (Contd)**

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NO.	(4) DESCRIPTION	(5) U/M
			METHYL ALCOHOL: methanol (81348) O-M 232	
14	C	6810-00-597-3608	1 GAL. CAN	GAL.
15	C	6810-00-275-6010	5 GAL. CAN	GAL.
			OIL, FUEL, DIESEL, DF-A: arctic (81348) VV-F-800	
16	C	9140-00-286-5282	5 GAL. DRUM	GAL.
17	C	9140-00-286-5284	55 GAL. DRUM (16 gage)	GAL.
18	C	9140-00-286-5285	55 GAL. DRUM (18 gage)	GAL.
19	C	9140-00-286-5283	BULK	GAL.
			OIL, FUEL, DIESEL, DF-1: winter (81348) VV-F-800	
20	C	9140-00-286-5287	5 GAL. DRUM	GAL.
21	C	9140-00-286-5288	55 GAL. DRUM (16 gage)	GAL.
22	C	9140-00-286-5289	55 GAL. DRUM (18 gage)	GAL.
23	C	9140-00-286-5286	BULK	GAL.
			OIL, FUEL, DIESEL, DF-2: regular (81348) VV-F-800	
24	C	9140-00-286-5295	5 GAL. CAN	GAL.
25	C	9140-00-286-5296	55 GAL. DRUM (16 gage)	GAL.
26	C	9140-00-286-5297	55 GAL. DRUM (18 gage)	GAL.
27	C	9140-00-286-5294	BULK	GAL.

**Section II. EXPENDABLE/DURABLE SUPPLIES AND  
MATERIALS LIST (Contd)**

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NO.	(4) DESCRIPTION	(5) U/M
28	C	9150-00-234-5197	OIL, LUBRICATING, EXPOSED GEAR, CW (81348) VV-L-751 5 LB CAN	LB
29	C	9150-00-261-7891	35 LB PAIL	LB
30	C	9150-01-035-5390	OIL, LUBRICATING, GEAR: GO 75 (81349) MIL-L-2150 1 QT	QT
31	C	9150-01-035-5391	5 GAL. DRUM	GAL.
32	C	9150-01-035-5392	LUBRICATING OIL, GEAR, MULTI- PURPOSE, GQ 80/90 (81349) MIL-L-2105 1 QT CAN	QT
33	C	9150-01-035-5393	5 GAL. DRUM	GAL.
34	C	9150-01-035-5394	55 GAL. DRUM (16 gage)	GAL.
35	C	9150-00-402-4478	OIL, LUBRICATING, ENGINE, ARCTIC (ICE, SUB-ZERO) OEA (81349) MIL-L-46167 1 QT CAN	QT
36	C	9150-00-4020-2372	5 GAL. CAN	GAL.
37	C	9150-00-491-7197	55 GAL. DRUM (16 gage)	GAL.
38	C	9150-00-189-6727	OIL, LUBRICATING, OE/HODO 10 (81349) MIL-L-2104 1 QT CAN	QT
39	C	9150-00-186-6668	5 GAL. DRUM	GAL.
40			DELETED	
41	C	9150-00-191-2772	55 GAL DRUM (18 gage)	GAL.
42	C	9150-00-183-7807	BULK	GAL.

**Section II. EXPENDABLE/DURABLE SUPPLIES AND  
MATERIALS LIST (Contd)**

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NO.	(4) DESCRIPTION	(5) U/M
			OIL, LUBRICATING, OE/HDO 30 (81349) MIL-L-2104	
43	C	9150-00-186-6681	1 QT CAN	QT
44	C	9150-00-188-9858	5 GAL. DRUM	GAL.
45	C	9150-00-189-6729	55 GAL. DRUM (18 gage)	GAL.
46	C	9150-00-183-7808	BULK	GAL.
			RAG: wiping, unbleached cotton and cotton-synthetic, mixed colors (58536) A-A-531	
47	C	7920-00-205-1711	50 LB BALE	LB
			SOLVENT, DRYCLEANING: type II (81348) P-D-680	
48	C	6850-00-110-4498	1 PT	PT
49	C	6850-00-274-5421	5 GAL.	GAL.
50	C	6850-00-285-8011	55 GAL.	GAL.
51	C	6850-00-637-6135	BULK	GAL.



## APPENDIX E

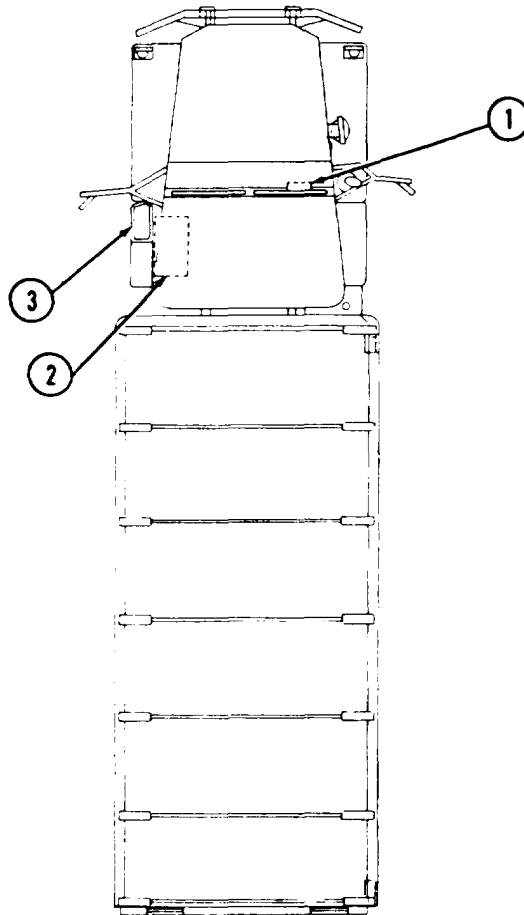
### STOWAGE AND SIGN GUIDE FOR COMPONENTS OF END ITEM, BASIC ISSUE ITEMS, AND APPLICABLE ADDITIONAL AUTHORIZATION LIST ITEMS

#### E-1. SCOPE

This appendix shows the location for stowing basic issue equipment and additional authorized equipment on the truck. A sign guide is also provided to show location of data plates and other relevant information attached to the truck.

#### E-2. STOWAGE LOCATIONS

##### a. All Vehicles.



KEY	LOCATION
1	Map compartment inside cab, right side instrument panel
2	Toolbox - vehicle left side (all vehicles except M275A2)
3	Gas can bracket, left access step

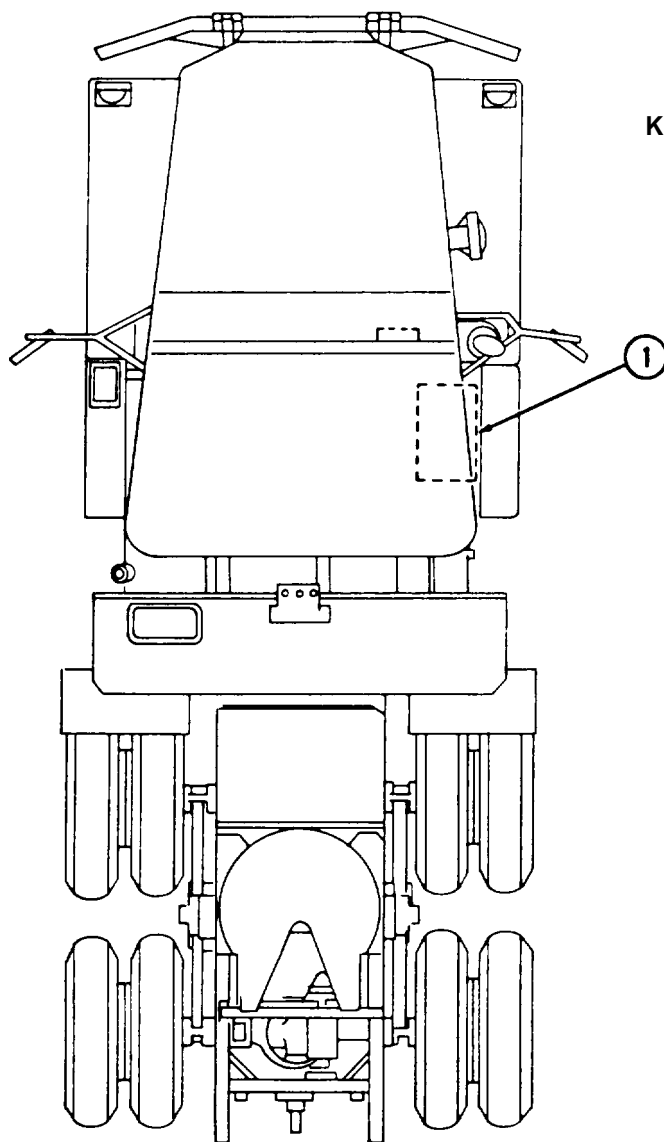
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## E-2. STOWAGE LOCATIONS (Contd)

### b. M275A2 Tractor.

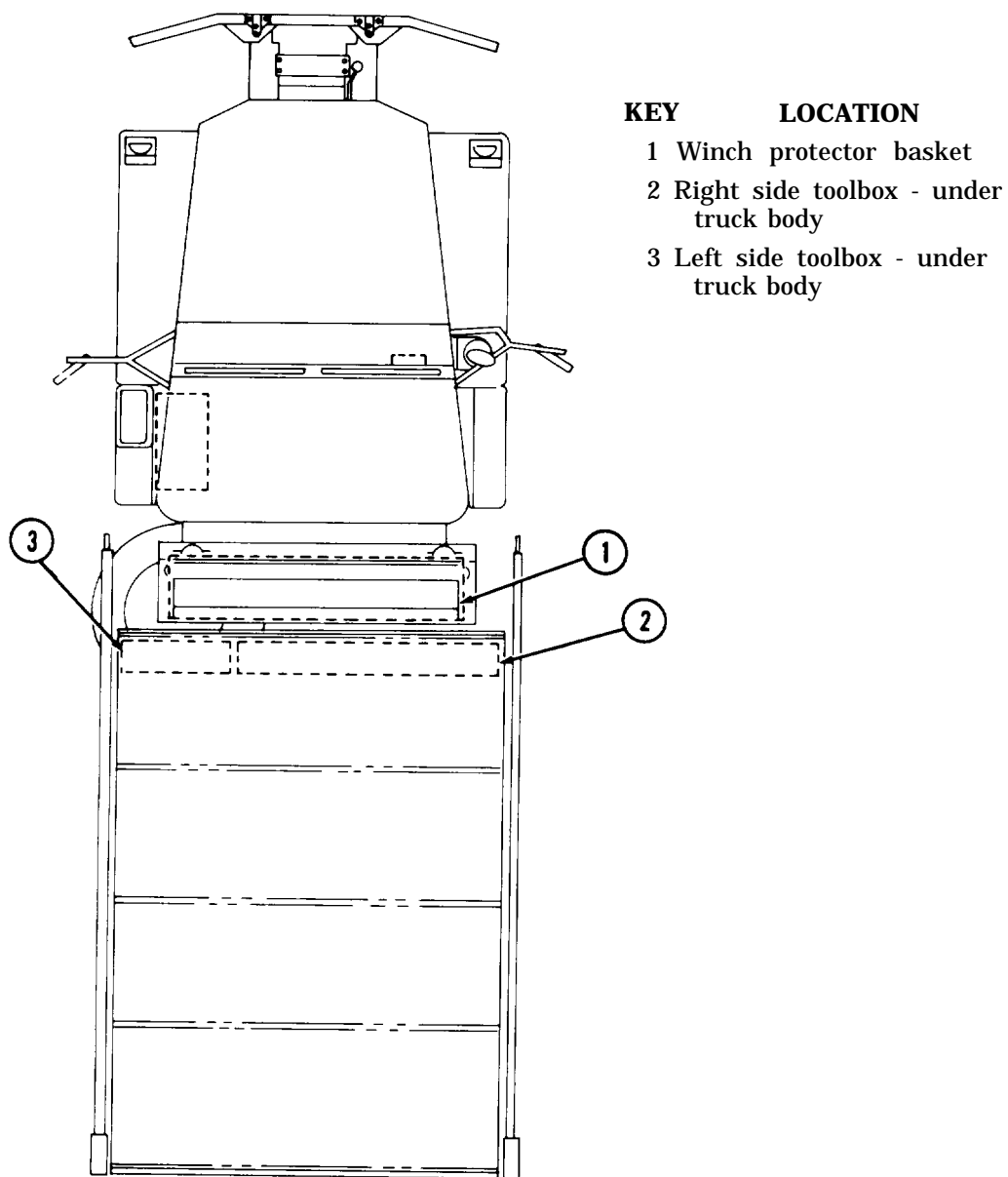


KEY	LOCATION
1	Toolbox - vehicle right side

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## E-2. STOWAGE LOCATIONS (Contd)

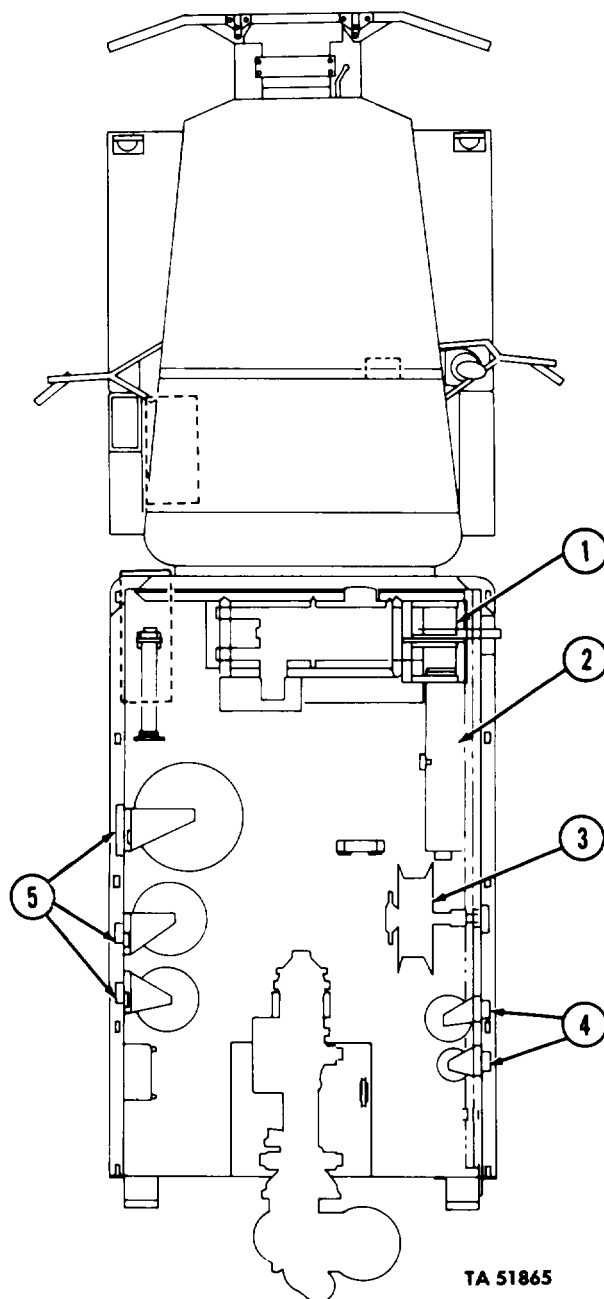
**c. M756A2 Pipeline Construction Maintenance.**



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## E-2. STOWAGE LOCATIONS (Contd)

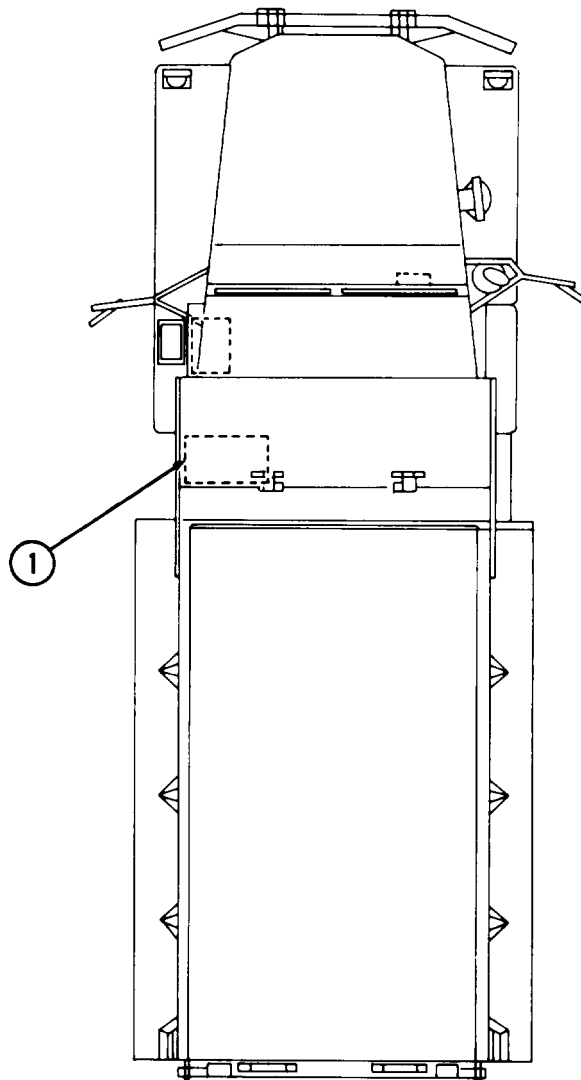
### d. M764 Earth Boring and Polesetting Maintenance.



KEY	LOCATION
1	Right front bracket for chock blocks storage
2	Right side toolbox - on deck of body
3	Reel assembly bracket for cable reel stowage
4	Right side auger bracket for 9 in. and 12 in. auger stowage
5	Left side auger brackets for 16 in., 20 in., and 30 in. auger stowage

## E-2. STOWAGE LOCATIONS (Contd)

### e. M342A2 Dump.

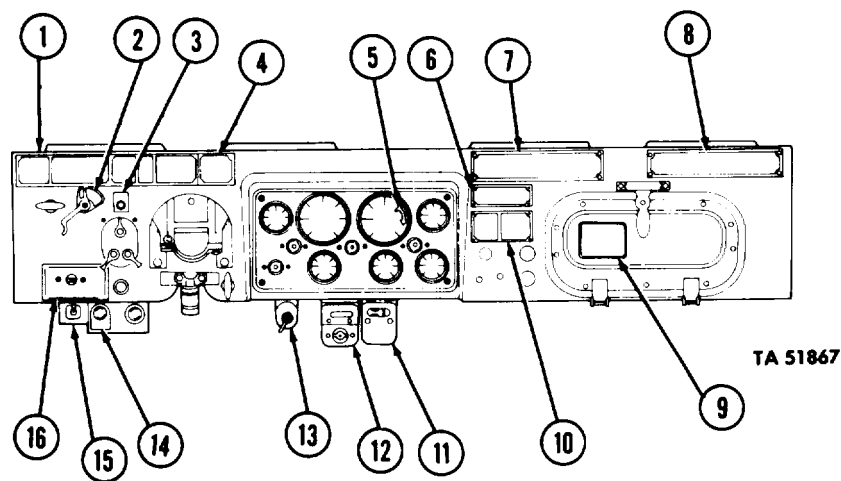


**KEY LOCATION**  
 1 Toolbox behind cab,  
 under cab protector

TA 51866

**E-3. SIGN GUIDE****a. Locations of Cab Compartment Decals and Data Plates.**

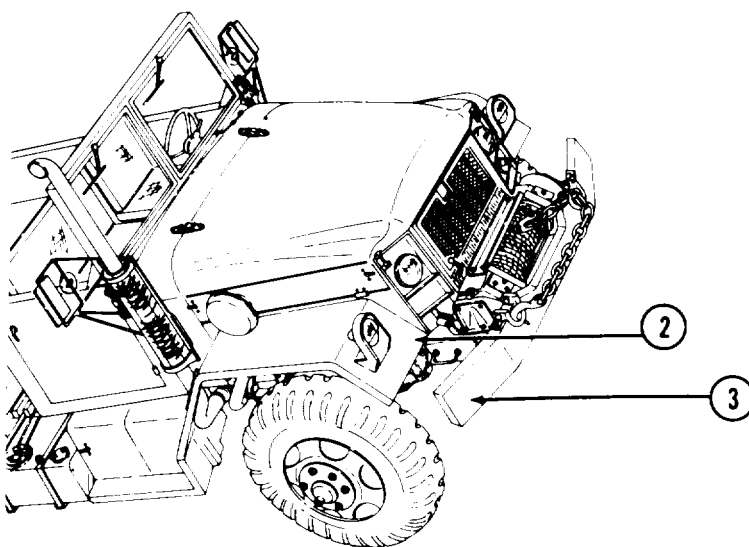
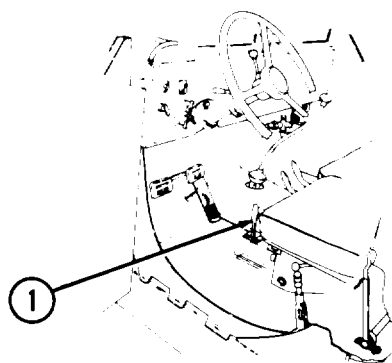
KEY	ITEM	APPLICABLE MODELS
1	Instruction plate with transmission/transfer warning data	All
2	Accessory power switch data plate	All
3	Engine start button data plate	All
4	Authorized fuel data plate	All
5	Tachometer warning decal	All
6	Winch operation data plate	All w/w
7	Weight and dimensional data plate	All
8	Servicing and publication data plate	All
9	Hearing protection caution plate	All
10	Engine idling data plate	All
11	Deepwater fording data plate	All w/deepwater fording kit
12	Front wheel drive lever data plate	All
13	Convoy warning light switch data plate	All w/convoy warning light
14	Damper control knob data plate	All
15	Heater blower switch data plate	All
16	Manifold heater switch data plate	All



### E-3. SIGN GUIDE (Contd)

#### b. Front Winch Data Plates.

KEY	ITEM	APPLICABLE MODELS
1	Winch control data plate	All w/w
2	Winch warning plate	All w/w
3	Winch cable and snatch block data plate	All w/w

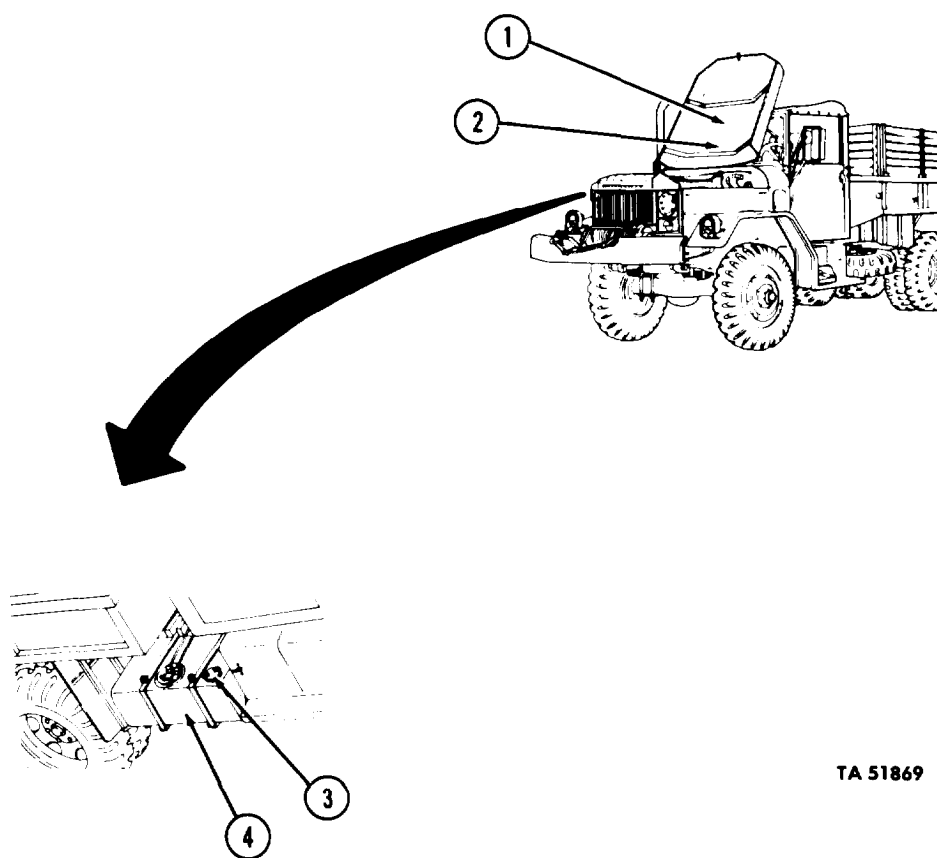


TA 51868

### E-3. SIGN GUIDE (Contd)

#### c. Locations of Body Data Plates and Stencils.

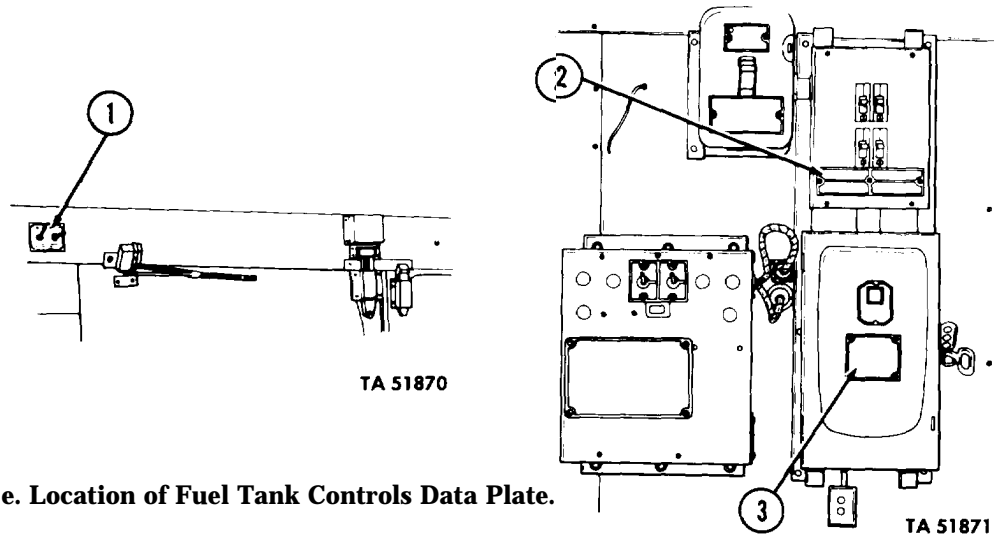
KEY	ITEM	APPLICABLE MODELS
1	Raised hood warning stencil	All
2	NBC warning plate	All
3	Fuel tank filler cap stencil	All
4	Fuel tank fill caution stencil	All



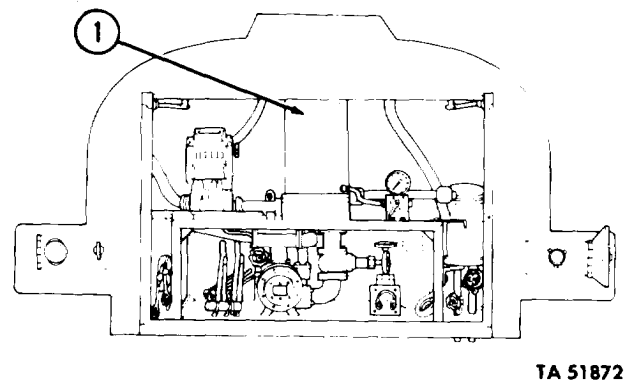
TA 51869

**E-3. SIGN GUIDE (Contd)****d. Locations of Van Body Data Plates.**

KEY	ITEM	APPLICABLE MODELS
1	Dome light switches data plate	M109A3, M185A3
2	Van circuit breakers data plate	M109A3, M185A3
3	Van power switch data plate	M109A3, M185A3

**e. Location of Fuel Tank Controls Data Plate.**

KEY	ITEM	APPLICABLE MODELS
1	Operating instructions data plate	M49A2C

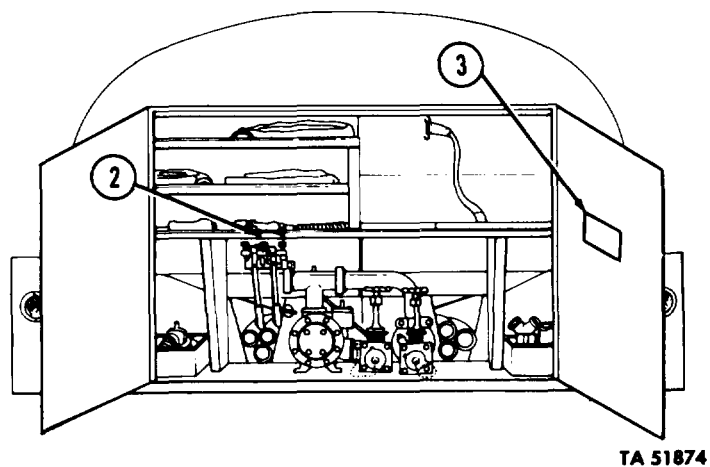
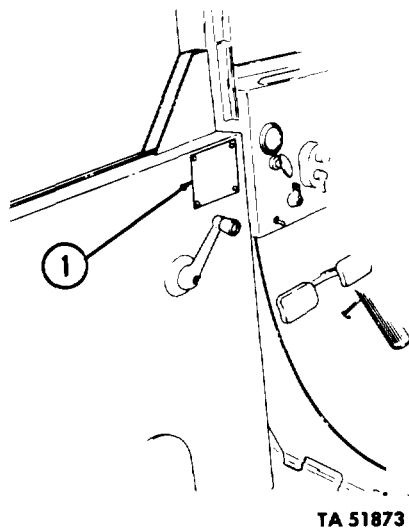




### E-3. SIGN GUIDE (Contd)

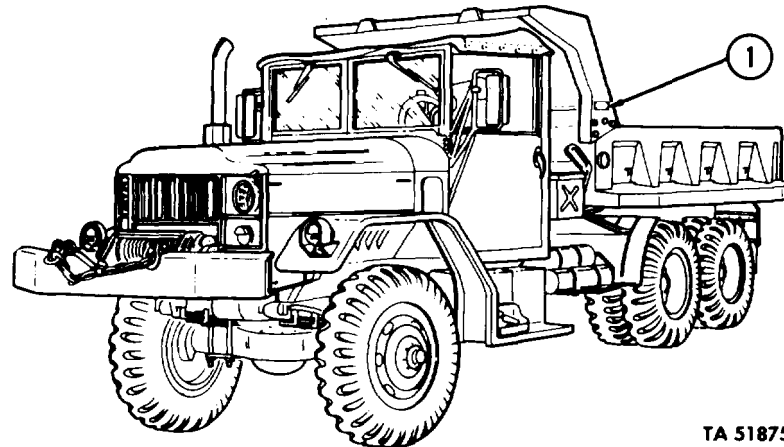
#### f. Location of Water Tank Truck Caution and Controls Data Plates.

KEY	ITEM	APPLICABLE MODELS
1	Water heating caution plate	M50A2, M50A3
2	Tank capacities data plate	M50A2, M50A3
3	Operating instructions data plate	M50A2, M50A3



**E-3. SIGN GUIDE (Contd)****g. Location of Dump Body Warning Plate.**

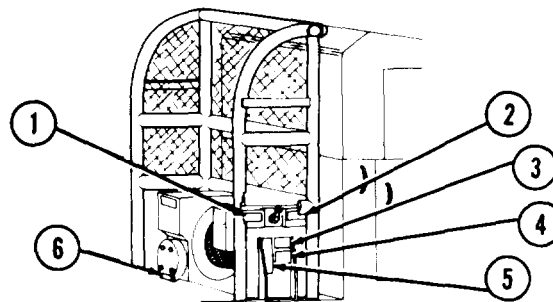
KEY	ITEM	APPLICABLE MODELS
1	Cab protector warning plate	M342A2



TA 51875

**h. Location of Pipeline Construction Truck Warning, Caution, and Data Plates.**

KEY	ITEM	APPLICABLE MODELS
1	Drum lock caution plate	M756A2
2	Clutch lever warning plate	M756A2
3	Winch assembly data plate	M756A2
4	Winch cable warning plate	M756A2
5	Winch cable and snatch block data plate	M756A2
6	Safety brake caution plate	M756A2

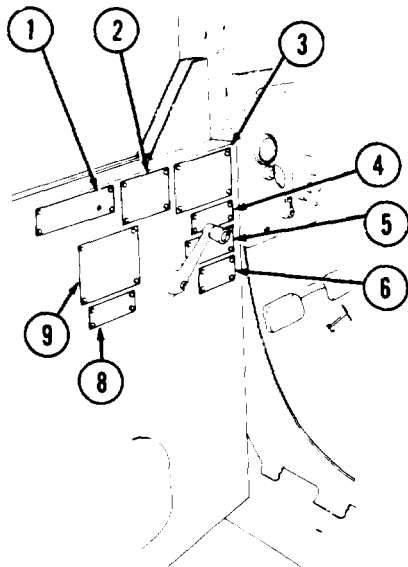


TA 51876

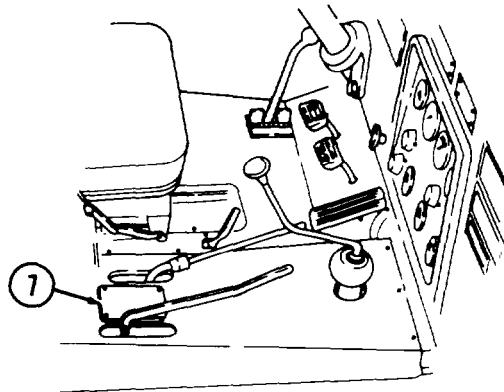
**E-3. SIGN GUIDE (Contd)**

i. Location of Earth Boring and Polesetting Maintenance Truck Warning, Caution, and Data Plates.

KEY	ITEM	APPLICABLE MODELS
1	Winch operation warning plate	M764
2	Winch control data plate	M764
3	operating procedure data plate	M764
4	Transfer pto caution plate	M764
5	Winch operation warning plate	M764
6	Outrigger caution plate	M764
7	Power divider data plate	M764
8	Hearing protection warning plate	M764
9	Winch load data/shearpin caution plate	M764



TA 51877

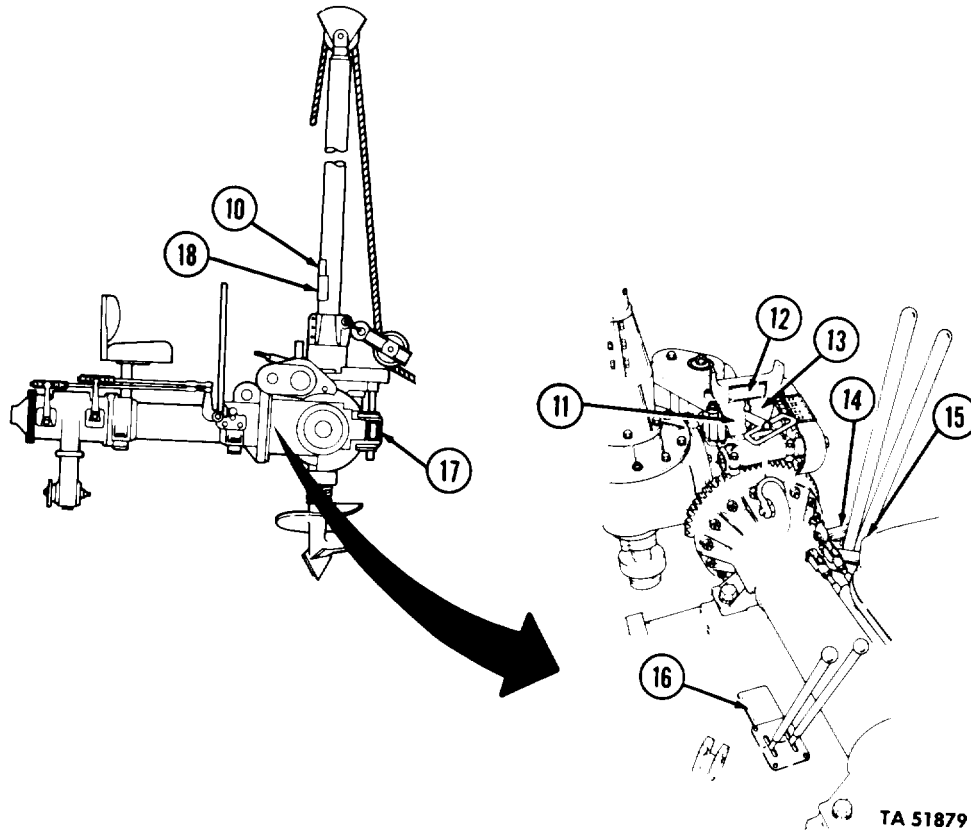


TA 51878

### E-3. SIGN GUIDE (Contd)

#### i. Location of Earth Boring and Polesetting Maintenance Truck Warning, Caution, and Data Plates (Contd).

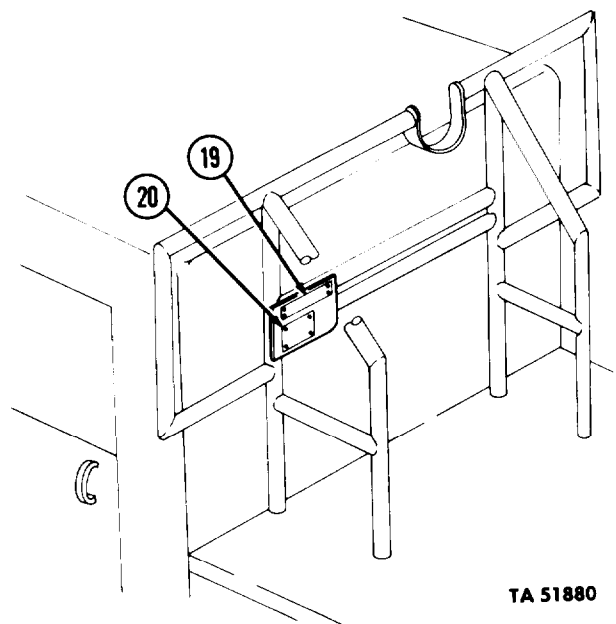
KEY	ITEM	APPLICABLE MODELS
10	Bumper spring/auger caution plate	M764
11	Power leveler data plate	M764
12	Boring machine operation data plate	M764
11	Rack bar data plate	M 764
14	Boring machine levers lock warning plate	M764
15	Outrigger taut ion plate	M764
16	Outrigger controls data plate	M764
17	Hearing protect ion warning plate	M764
18	Winch capacity caution plate	M764



E-3. SIGN GUIDE (Contd)

i. Location of Earth Boring and Polesetting Maintenance Truck Warning, Caution, and Data Plates (Contd).

KEY	ITEM	APPLICABLE MODELS
19	Rear winch warning plate	M764
20	Rear winch shearpin data/caution plate	M764



TA 51880

## INDEX

	Para	Page
<b>A</b>		
Abbreviations, list of . . . . .	1-11	1-4
Additional authorization list, appendix C:		
Additional authorization list . . . . .		C-2
Introduction:		
Explanation of listing . . . . .	C-3	C-1
General . . . . .	C-2	C-1
Scope . . . . .	C-1	C-1
A-frame kit:		
Controls and indicators . . . . .	2-6a	2-22
A-frame kit, operation of:		
General . . . . .	2-46a	2-195
Operating A-frame . . . . .	2-46d	2-195
Preparation for use . . . . .	2-46c	2-195
Safety precautions . . . . .	2-46b	2-195
A-frame kit (PMCS) . . . . .	2-10	2-80
A-frame kit:		
Troubleshooting . . . . .	3-9	3-15
Airbrake (trailer) kit:		
Controls and indicators . . . . .	2-5c	2-14
Airbrake (trailer) kit, operation of		
Airbrake kit operation . . . . .	2-47c	2-196
Coupling trailer to vehicle, . . . . .	3-47b	2-196
General . . . . .	2-47a	2-196
Troubleshooting . . . . .	3-9	3-9
Air cleaner:		
Controls and indicators . . . . .	2-4	2-2
Filter (PMCS) . . . . .	2-10	2-47
Service . . . . .	3-13	3-18
Air-hydraulic brake system:		
Operation . . . . .	1-31	1-24
Troubleshooting . . . . .	3-9	3-8
Appendix A-References:		
Indexes . . . . .	A-1	A-1
Other publications. . . . .	A-2	A-1
Appendix B-Components of End Item and Basic Issue Items List:		
Basic issue items:		
General . . . . .	B-6	B-2
Components of end item:		
General . . . . .	B-5	B-2
Explanation of columns . . . . .	B-3	B-1
Federal supply codes for manufacturer.. . . .	B-4	B-2
General . . . . .	B-2	B-1
Scope . . . . .	B-1	B-1
Appendix C-Additional Authorization List:		
Additional authorization list.....		C-2
Introduction:		
Explanation of listing . . . . .	C-3	C-1
General . . . . .	C-2	C-1
Scope . . . . .	C-1	C-1

## INDEX (Contd)

	Para	Page
Appendix D-Expendable/Durable Supplies and Materials List:		
Expendable/durable supplies and materials list . . . . .		D-2
Introduction:		
Explanation of columns . . . . .	D-2	D-1
Scope . . . . .	D-1	D-1
Appendix E-Stowage and Sign Guide for Components of End Item, Basic Issue Items, and Applicable Additional Authorization		
List Items:		
Scope . . . . .	E-1	E-1
Sign guide . . . . .	E-3	E-6
Stowage locations . . . . .	E-2	E-1
Arctic winterization kit:		
Controls and indicators . . . . .	2-6c	2-24
PMCS . . . . .	2-10	2-76
Troubleshooting . . . . .	3-9	3-13
Arctic winterization kit, operation of:		
Alcohol evaporator . . . . .	2-48c	2-197
General . . . . .	2-48a	2-197
Hardtop closure . . . . .	2-48d	2-197
Operation of fuel burning personnel heater and power plant heater . . . . .	2-48e	2-197
Operation of quilted engine compartment cover and radiator cover . . . . .	2-48f	2-199
operation of slave receptacle . . . . .	2-48g	2-200
Special arctic winterization kits . . . . .	2-48b	2-197
Thermal barrier . . . . .	2-48h	2-200
Army materiel to prevent enemy use, destruction of . . . . .	1-7	1-3
<b>B</b>		
Backing the vehicle . . . . .	2-18	2-87
Basic issue items list . . . . .	B-6	B-3
Batteries (PMCS) . . . . .	2-10	2-37
Battery Inspection . . . . .	3-15	3-27
Body equipment controls and indicators:		
Dump truck (M342A2) . . . . .	2-5d	2-15
Earth boring and polesetting maintenance truck (M764) . . . . .	2-5g	2-20
Fuel tank truck (M49A2C) . . . . .	2-5a	2-10
Pipeline construction maintenance truck (M756A2) . . . . .	2-5f	2-18
Shop van and instrument repair shop trucks (M109A3 and M185A3) . . . . .	2-5e	2-16
Tractor truck (M275A2) . . . . .	2-5c	2-14
Water tank trucks (M50A2 and M50A3) . . . . .	2-5b	2-12
Boring machine controls. table 2.4 . . . . .	2-32	2-169
Bow and tarp kit:		
Controls and indicators . . . . .	2-6b	2-23
Bow installation . . . . .	2-49a	2-200
Bow removal . . . . .	2-49g	2-205
End curtain installation . . . . .	2-49b	2-201
End curtain removal . . . . .	2-49f	2-205
Raising tarp for ventilation . . . . .	2-49d	2-203

**INDEX (Contd)**

	Para	Page
Tarp installation . . . . .	2-49c	2-202
Tarp removal . . . . .	2-49e	2-203
Bow retainer and cab soft-top kit. . . . .	2-50	2-206
Brakes system (PMCS) . . . . .	2-10	2-47
Brake system operation, air-hydraulic. . . . .	1-31	1-24
Brake system, air-hydraulic:		
Troubleshooting . . . . .	3-9	3-8
Break-in operation:		
After road test . . . . .	3-12b	3-17
Road test . . . . .	3-12a	3-17
<b>C</b>		
Cab sof-top kit, bow retainer and . . . . .	2-50	2-206
Cartop, raising windshield and installing . . . . .	2-21	2-90
Cargo body arctic kit, operation of:		
General . . . . .	2-5a	2-206
Insulated body enclosure . . . . .	2-51c	2-209
Operation of body heater. . . . .	2-51b	2-206
Operation of lighting system . . . . .	2-51d	2-209
Speaking tube . . . . .	2-51e	2-209
Cargo truck, M35A2 wo/w and w/w:		
Purpose . . . . .	1-16a	1-7
Special limitations . . . . .	1-16b	1-7
Cargo truck, dropside, M35A2C wo/w and w/w:		
Purpose . . . . .	1-17	1-8
Cargo truck, XLWB, M36A2 wo/w and w/w;		
Purpose . . . . .	1-18a	1-8
Special limitations. . . . .	1-18b	1-8
Cargo trucks, operation of		
General . . . . .	2-25a	2-100
Installing front and side racks . . . . .	2-25e	2-102
Lowering and raising dropside . . . . .	2-25f	2-102
Lowering and raising troop seats, . . . . .	2-25c	2-100
Lowering tailgate . . . . .	2-25b	2-100
Remoting front and side racks . . . . .	2-25d	2-101
Cargo trucks (PMCS) . . . . .	2-10	2-50
Chapter 1. Introduction Index . . . . .		1-1
Chapter 2-Operating Instructions Index . . . . .		2-1
Chapter 3-Maintenance Instructions Index . . . . .		3-1
Chassis controls and indicators . . . . .	2-4	2-2
Checks and services, preventive maintenance:		
General . . . . .	2-7	2-29
Index . . . . .	2-8	2-29
Preventive maintenance checks and services . . . . .	2-10	2-32
Table 2-2, Operator/Crew Preventive Maintenance Checks and Services . . . . .		2-34
Class leakage definitions . . . . .	2-11	2-33
Cleaning instructions and precautions . . . . .	2-9	2-29
Coldweather starting (below +20°F) (-6.7°C) . . . . .	2-15	2-84



## INDEX (Contd)

	Para	Page
Components of end item and basic issue item lists, appendix B:		
Basic issue items:		
General . . . . .	B-6	B-2
Components of end item:		
General . . . . .	B-5	B-2
Introduction:		
Explanation of columns . . . . .	B-3	B-1
Federal Supply Codes for Manufacturer, . . . . .	B-4	B-2
General . . . . .	B-2	B-1
Scope . . . . .	B-1	B-1
Controls and indicators:		
Index . . . . .	2-2	2-1
Know your controls and indicators. . . . .	2-1	2-1
Preparation for use . . . . .	2-3	2-1
Controls and indicators, body equipment:		
Dump truck (M342A2) . . . . .	2-5d	2-15
Earth boring and polesetting maintenance truck (M764) . . . . .	2-5g	2-20
Fuel tank truck (M49A2C) . . . . .	2-5a	2-10
Pipeline construction maintenance truck (M756A2) . . . . .	2-5f	2-18
Shop van and instrument repair shop trucks (M109A3 and M185A3) . . . . .	2-5e	2-16
Tractor truck (M275A2) . . . . .	2-5c	2-14
Water tank trucks (M50A2 and M50A3) . . . . .	2-5b	2-12
Controls and indicators, chassis. . . . .	2-4	2-2
Controls and indicators, special purpose kits:		
A-frame kit . . . . .	2-6a	2-22
Arctic winterization kit . . . . .	2-6c	2-24
Bow and tarp kits . . . . .	2-6b	2-23
Convoy warning light kit . . . . .	2-6h	2-28
Deepwater fording kit . . . . .	2-6d	2-26
Low air pressure warning light kit. . . . .	2-6g	2-27
Machine gun mount kit . . . . .	2-6e	2-27
Rifle mount kit . . . . .	2-6f	2-27
Van body heater kit . . . . .	2-6j	2-28
Windshield washer kit . . . . .	2-6i	2-28
Cross refernece list, nomenclature. . . . .	1-10	1-4
<b>D</b>		
Data. tabulated . . . . .	1-28	1-14
Deep mud, operation in:		
After operation . . . . .	2-40e	2-190
Before operation . . . . .	2-40b	2-189
Driving vehicle cross-country . . . . .	2-40c	2-189
Driving vehicle in roads . . . . .	2-40d	2-190
General . . . . .	2-40a	2-189
Deepwater fording kit:		
Controls and indicators . . . . .	2-6d	2-26
Operation . . . . .	2-52	2-210
PMCS . . . . .	2-10	2-78
Troubleshooting . . . . .	3-9	3-15

## INDEX (Contd)

	Para	Page
Description and data, Vehicle:		
Designations . . . . .	1-15	1-7
General . . . . .	1-13	1-6
Vehicle description and data index. . . . .	1-14	1-6
Destruction of army materiel to prevent enemy use . . . . .	1-7	1-3
Differences between models . . . . .	1-27	1-13
Dump truck, M342A2 (PMCS) . . . . .	2-10	2-67
Dump trucks, operation of		
General . . . . .	2-30a	2-141
Loading dump trucks . . . . .	2-30c	2-143
Rigging tailgate. . . . .	2-30b	2-142
Unloading dump truck by dumping. . . . .	2-30e	2-145
Unloading dump truck by spreading. . . . .	2-30f	2-146
Unloading dump truck with body down. . . . .	2-30d	2-144
Dump truck, M342A2 wo/w and w/w. . . . .	1-24	1-11
Dusty or sandy areas, operation in:		
After operation. . . . .	2-38e	2-188
Before operation. . . . .	2-38b	2-187
Driving vehicle. . . . .	2-38c	2-187
General. . . . .	2-38a	2-187
Stopping or parking. . . . .	2-38d	2-188
<b>E</b>		
Earth boring and polesetting maintenance trucks, operation of		
Dragging poles. . . . .	2-32h	2-174
General . . . . .	2-32a	2-159
Installing augers. . . . .	2-32e	2-165
Operating andsecuring rear winch. . . . .	2-32d	2-163
Operating collapsible cable reel . . . . .	2-32k	2-177
Operating earth boring machine . . . . .	2-32f	2-168
Preparing earth boring machine for travel . . . . .	2-32g	2-173
Preparing truck for boring operation . . . . .	2-32b	2-159
Pulling poles . . . . .	2-33j	2-177
Raising, leveling, and lowering derrick tube . . . . .	2-32c	2-160
setting poles . . . . .	2-32i	2-175
Earth boring and polesetting maintenance truck M764, w/w . . . . .	1-26	1-12
Earth boring and polesetting truck, M764 (PMCS) . . . . .	2-10	2-72
Engine and cooling system data, table 1-8. . . . .	1-28	1-18
Equipment improvement recommendations (EIR's), reporting . . . . .	1-5	1-2
Equipment improvement report and maintenance digest (EIR MD) . . . . .	1-6	1-3
Equipment, tools and:		
Basic issue items . . . . .	3-2	3-1
Expendable/durable supplies and materials. . . . .	3-3	3-1
Special tools and equipment . . . . .	3-1	3-1
Errors, reporting of. . . . .		ii
Expendable/durable supplies and materials list, appendix D:		
Expendable/durable supplies and materials list. . . . .		D-2
Introduction:		
Explanation of columns . . . . .	D-2	D-1
Scope . . . . .	D-1	D-1

## INDEX (Contd)

	Para	Page
Extreme cold, operation in:		
After operation . . . . .	2-35f	2-183
Before operation . . . . .	2-35b	2-182
Driving vehicle . . . . .	2-35d	2-182
General . . . . .	2-35a	2-182
Starting engine . . . . .	2-35c	2-182
Stopping or parking . . . . .	2-35e	2-183
Extreme heat, operation in:		
After operation . . . . .	2-37e	2-187
Before operation . . . . .	2-37b	2-185
Driving vehicle . . . . .	2-37c	2-185
General . . . . .	2-37a	2-185
Stopping or parking . . . . .	2-37d	2-187
<b>F</b>		
Fluid capacities for operation under usual conditions, table 1-9. . .	1-28	1-19
Fording (deepwater) kit:		
After fording operation . . . . .	2-52d	2-211
Controls and indicators . . . . .	2-6d	2-26
Fording operation . . . . .	2-52c	2-210
General . . . . .	2-52a	2-210
Operator preparation for fording. . . . .	2-52b	2-210
Preventative maintenance checks and services. . . . .	2-10	2-78
Fording operation . . . . .	2-41	2-190
Forms and records, maintenance . . . . .	1-4	1-2
Front winch, operation of		
Locking front winch for travel. . . . .	2-24f	2-99
Lowering load or unwinding slack cable . . . . .	2-24d	2-98
Pulling load . . . . .	2-24b	2-96
Stopping the winch . . . . .	2-24c	2-97
Unwinding winch line . . . . .	2-24a	2-94
Winding the winch line on the drum . . . . .	2-24e	2-98
Front winch shearpin replacement:		
Installation . . . . .	3-16b	3-29
Removal . . . . .	3-16a	3-28
Front winch system operation . . . . .	1-32	1-25
Fuel system operation . . . . .	1-33	1-26
Fuel tank truck, operation of		
Bonding and grounding . . . . .	2-26a.1	2-104.2
Bottom filling the fuel tank sections using outside pump . . . . .	2-26a.2	2-104.4
Checking condition of filter. . . . .	2-26e	2-112
Emergency discharging . . . . .	2-26h	2-117
Fording . . . . .	2-26g	2-115
General . . . . .	2-26a	2-104.1
Gravity discharging the tank sections . . . . .	2-26f	2-113
Gravity filling the fuel tank sections . . . . .	2-26b	2-105
Power discharging the tank.... . . . .	2-26d	2-110
Suction filling the tank sections or transferring fuel from one source to another through pump . . . . .	2-26c	2-107
Fuel tank truck, M49A2C (PMCS). . . . .	2-10	2-53
Fuel tank truck, M49A2C wo/wand w/w . . . . .	1-19	1-9

**INDEX (Contd)**

	<b>Para</b>	<b>Page</b>
<b>G</b>		
Gear, speed settings for soil conditions, table 2-5 . . . . .	2-32	2-170
General cleaning instructions, table 2-1 . . . . .	2-9	2-31
General information:		
General . . . . .	1-2	1-2
General information index . . . . .	1-3	1-2
Scope . . . . .	1-1	1-1
General service data, table 1-10 . . . . .	1-28	1-19
Glossary . . . . .	1-12	1-5
<b>H</b>		
Hand receipt manual . . . . .	1-8	1-3
Hood, raising and securing . . . . .	2-22	2-92
How to use this manual . . . . .		iii
Ice or snow, operation on:		
After operation . . . . .	2-36c	2-184
Before operation . . . . .	2-36a	2-184
Driving vehicle . . . . .	2-36b	2-184
Index, chapter 1-Introduction . . . . .		1-1
Index, chapter 2-Operating instructions . . . . .		2-1
Index, chapter 3-Maintenance instructions, . . . . .		3-1
Indicators, controls and:		
Index . . . . .	2-2	2-1
Know your controls and indicators.. . . .	2-1	2-1
Information, general:		
General . . . . .	1-2	1-2
General information index . . . . .	1-3	1-2
Scope . . . . .	1-1	1-1
Installing cab top, raising windshield and . . . . .	2-21	2-90
Instrument repair shop truck, M185A3 wo/w and w/w		
Purpose . . . . .		1-10
Special limitations. . . . .	1-22b	1-10
<b>J</b>		
Jumper cables to start engine, using. . . . .	2-43	2-192
<b>L</b>		
Leakage definitions, class . . . . .	2-11	2-33
Lighting system operation . . . . .	1-34	1-27
Lights, operation of vehicle service. . . . .	2-20	2-88
List of abbreviations . . . . .	1-11	1-4
Lubrication:		
General lubrication instructions . . . . .	3-5	3-1
General lubricating instructions under unusual conditions . . . .	3-6	3-2
Lubrication for continued operation below 0°F (-17°C) . . . . .	3-7	3-2
Lubrication order . . . . .	3-4	3-1

## INDEX (Contd)

	Para	Page
<b>M</b>		
Maintenance digest (EIR MD), equipment improvement report and	1-6	1-3
Maintenance forms and records . . . . .	1-4	1-2
Maintenance procedures:		
General . . . . .	3-10	3-17
Maintenance procedures index. . . . .	3-11	3-17
Metric system, use of the . . . . .	1-9	1-3
M35A2, cargo truck, wo/w and w/w . . . . .	1-16	1-7
M35A2C, cargo truck with dropsides, wo/w and w/w . . . . .	1-17	1-8
M36A2, cargo truck with extra long wheelbases, wo/w and w/w . . .	1-18	1-8
M35A2, M35A2C, and M36A2 cargo trucks (PMCS) . . . . .	2-10	2-50
M49A2C, fuel tank truck (PMCS) . . . . .	2-10	2-53
M49A2C, fuel tank truck, wo/w and w/w . . . . .	1-19	1-9
M50A2 and M50A3, water tank trucks (PMCS) . . . . .	2-10	2-57
M50A2, M50A3, water tank trucks, wo/w and w/w . . . . .	1-20	1-9
M109A3 and M185A3, shop van and instrument repair trucks (PMCS) . . . . .	2-10	2-60
M109A3, shop vantruck, wo/w and w/w . . . . .	1-21	1-10
M185A3, instrument repair shop truck, wo/w and w/w . . . . .	1-22	1-10
M275A2, tractor truck (PMCS) . . . . .	2-10	2-65
M275A2, tractor truck, wo/wand w/w . . . . .	1-23	1-11
M342A2, dump truck (PMCS) . . . . .	2-10	2-67
M342A2, dump truck, wo/wand w/w . . . . .	1-24	1-11
M756A2, pipeline construction maintenance truck, w/w . . . . .	1-25	1-12
M756A2, pipeline construction maintenance truck (PMCS) . . . . .	2-10	2-70
M764, earth boring and polesetting maintenance truck, w/w . . . . .	1-26	1-12
M764 earth boring and polesetting truck (PMCS) . . . . .	2-10	2-72
Models, differences between.. . . .	1-27	1-13
<b>N</b>		
Nomenclature cross reference list. . . . .	1-10	1-4
<b>O</b>		
Operation, break-in:		
After road test . . . . .	3-12b	3-17
Road test . . . . .	3-12a	3-17
Operation, fording . . . . .	2-41	2-190
Operation in deep mud:		
After operation . . . . .	2-40e	2-190
Before operation . . . . .	2-40b	2-189
Driving vehicle cross-countryside . . . . .	2-40c	2-189
Driving vehicle on roads . . . . .	2-40d	2-190
General . . . . .	2-40a	2-189
Operation in dusty or sandy areas:		
After operation . . . . .	2-38e	2-188
Before operation . . . . .	2-38b	2-187
Driving vehicle . . . . .	2-38c	2-187
General . . . . .	2-38a	2-187
Stopping or parking . . . . .	2-38d	2-188

## INDEX (Contd)

	Para	Page
Operation in extreme cold:		
After operation . . . . .	2-35f	2-183
Before operation . . . . .	2-35b	2-182
Driving vehicle . . . . .	2-35d	2-182
General . . . . .	2-35a	2-182
Starting engine . . . . .	2-35c	2-182
Stopping or parking . . . . .	2-35e	2-183
Operation in extreme heat:		
After operation . . . . .	2-37e	2-187
Before operation . . . . .	2-37b	2-185
Driving vehicle . . . . .	2-37c	2-185
General . . . . .	2-37a	2-185
Stopping or parking . . . . .	2-37d	2-187
Operation in rainy or humid conditions:		
After operation . . . . .	2-39d	2-189
Before operation . . . . .	2-39b	2-189
Driving operation . . . . .	2-39c	2-189
General . . . . .	2-39a	2-188
Operation of arctic winterization kit:		
Alcohol evaporator . . . . .	2-48c	2-197
General . . . . .	2-48a	2-197
Hardtop closure . . . . .	2-48d	2-197
Operation of fuel burning personnel heater and power plant heater . . . . .	2-48e	2-197
Operation of quilted engine compartment cover and radiator cover . . . . .	2-48f	2-199
Operation of slave receptacle . . . . .	2-48g	2-200
Special arctic wintertiatiion kits. . . . .	2-48b	2-197
Thermal barrier . . . . .	2-48h	2-200
Operation of A-frame kit:		
General . . . . .	2-46a	2-195
Operating A-frame . . . . .	2-46d	2-195
Preparation for use . . . . .	2-46c	2-195
Safety precautions . . . . .	2-46b	2-195
Operation of airbrake (trailer) kit:		
Airbrake kit operation . . . . .	2-47c	2-196
Coupling trailer to vehicle . . . . .	2-47b	2-196
General . . . . .	2-47a	2-196
Operation of cargo body arctic kit:		
General . . . . .	2-51a	2-206
Insulated body enclosure . . . . .	2-51c	2-209
Operation of body heater . . . . .	2-51b	2-206
Operation of lighting system . . . . .	2-51d	2-209
Speaking tube . . . . .	2-51e	2-209

## INDEX (Contd)

	Para	Page
Operation of cargo trucks:		
General . . . . .	2-25a	2-100
Installing front and side racks . . . . .	2-25e	2-102
Lowering and raising dropsides. . . . .	2-25f	2-102
Lowering and raising troop seats. . . . .	2-25c	2-100
Lowering tailgate . . . . .	2-25b	2-100
Removing front and side racks. . . . .	2-25d	2-101
Operation of dump trucks:		
Loading dump trucks. . . . .	2-30a	2-141
Riggin Tailgate . . . . .	2-30c	2-143
Unloading dump truck by dumping. . . . .	2-30b	2-142
Unloading dump truck by spreading . . . . .	2-30e	2-145
Unloading dump truck with body don . . . . .	2-30f	2-146
Unloading dump truck with body don . . . . .	2-30d	2-144
Operation of earth boring and polesetting maintenance trucks:		
Dragging poles . . . . .	2-32h	2-174
General . . . . .	2-32a	2-159
Installing augers . . . . .	2-32e	2-165
Operating and securing rear winch. . . . .	2-32d	2-163
Operating collapsible cable reel. . . . .	2-32k	2-177
Operating earth boring machine.. . . .	2-32f	2-168
Preparing earth boring machine for travel. . . . .	2-32g	2-173
Preparing truck for boring operation . . . . .	3-32b	2-159
Pulling poles . . . . .	2-32j	2-177
Raising, leveling, and lowering derrick tube. . . . .	2-32c	2-160
Setting poles . . . . .	2-32i	2-175
Operation of fording (deepwater) kit:		
After fording operation . . . . .	2-52d	2-211
Fording operation . . . . .	2-52c	2-210
General . . . . .	2-52a	2-210
Operator preparation for fording. . . . .	2-52b	2-210
Operation of front winch:		
Locking front winch for travel . . . . .	2-24f	2-99
Lowering load or unwinding slack cable. . . . .	2-24d	2-98
Pulling load . . . . .	2-24b	2-96
Stopping the winch . . . . .	2-24c	2-97
Unwinding winch line . . . . .	2-24a	2-94
Winding the winch line on the drum . . . . .	2-24e	2-98
Operation of fuel tank truck:		
Bonding and grounding . . . . .	2-26a.1	2-104.2
Bottom filling the fuel tank sections using outside pump . . . . .	2-26a.2	2-104.4
Checking condition of filter . . . . .	2-26e	2-112
Emergency discharging . . . . .	2-26h	2-117
Fording... . . . .	2-26g	2-115
Gravity discharging the tank sections . . . . .	2-26a	2-104.1
Gravity filling the fuel tank sections. . . . .	2-26f	2-113
Power discharging the tank . . . . .	2-26b	2-105
Suction filling the tank sections or transferring fuel from one source to another through pump . . . . .	2-26d	2-110
Suction filling the tank sections or transferring fuel from one source to another through pump . . . . .	2-26c	2-107
Operation of personnel heater (hot water) kit . . . . .	2-53	2-211

## INDEX (Contd)

	Para	Page
Operation of pipeline construction maintenance trucks:		
General .....	2-31a	2-147
Lowering and securing A-frame after rear operation .....	2-31d	2-154
Lowering and securing A-frame after side operation .....	2-31f	2-158
Operating floodlights .....	2-31g	2-158
Operating the rear winch .....	2-31b	2-147
Rigging A-frame for rear operation .....	2-31c	2-151
Rigging A-frame for side operation .....	2-31e	2-155
Operation of shop van and instrument repair shop trucks:		
Operating dome and blackout dome lights .....	2-28d	2-134
Operating exhaust blower .....	2-28c	2-133
Preparing shop van and instrument repair shop trucks for use . . .	2-28a	2-132
Supplying 115-volt AC power to van .....	2-28b	2-132
Supplying 115-volt power to molding receptacles .....	2-28e	2-135
Operation of slave receptacle kit.. .....	2-54f	2-212
Operation of special purpose kits:		
General .....	2-44	2-193
Index .....	2-45	2-194
Operation of swing fire heater		
General .....	2-59a	2-215
Operation of mixing pipe .....	2-59c	2-217
Operation of swingfire heater.. .....	2-59b	2-215
Operation of turboheater .....	2-59d	2-218
Operation of water jacket .....	2-59e	2-219
Stowage of swing fire heater and mixing pipe. ....	2-59f	2-220
Operation of tractor and fifth wheel:		
Coupling semitrailer .....	2-29c	2-136
General .....	2-29a	2-136
Uncoupling semitrailer .....	2-29d	2-139
Wedge adjustment .....	2-29b	2-136
Operation of troop seat and covering kit .....	2-55	2-212
Operation of troop seat — center mounted kit .....	2-56	2-212
Operation of van body heater (primary and secondary) kits:		
General .....	2-57a	2-212
Operation of bodyheater .....	2-57b	2-212
Spot heating using ducts .....	2-57c	2-214
Operation of vehicle service lights .....	2-20	2-88
Operation of water tank trucks:		
Fording .....	2-27h	2-131
General .....	2-27a	2-118
Gravity discharging the tank sections. ....	2-27f	2-127
Gravity filling the tank sections. ....	2-27b	2-118
Hydrant filling the tank sections. ....	2-27d	2-122
Operating water tank trucks during freezing temperatures .....	2-27g	2-128
Power discharging the tank sections .....	2-27e	2-124
Suction filling the tank sections and transferring water from one location to another .....	2-27c	2-119



## INDEX (Contd)

	Para	Page
Operation on ice or snow:		
After operation . . . . .	2-36c	2-184
Before operation . . . . .	2-36a	2-184
Driving vehicle.. . . .	2-36b	2-184
Operation under unusual conditions:		
Index . . . . .	2-34	2-181
Special instructions . . . . .	2-33	2-181
Operation under usual conditions:		
General . . . . .	2-12	2-81
Index . . . . .	2-13	2-81
Operation of windshield washer kit. . . . .	2-58	2-215
<b>P</b>		
Permissible fuels, table 1-11 . . . . .	1-28	1-22
Personnel heater (hot water) kit, operation of: . . . . .	2-53	2-211
Pipeline construction truck, M756A2 (PMCS) . . . . .	2-10	2-70
Pipeline construction maintenance trucks, operation of		
General . . . . .	2-31a	2-147
Lowering and securing A-frame after rear operation.. . . .	2-31d	2-154
Lowering and securing A-frame after side operation . . . . .	2-31f	2-158
Operating floodlights . . . . .	2-31g	2-158
Operating the rear winch. . . . .	2-31b	2-147
Rigging A-frame for rear operation . . . . .	2-31c	2-151
Rigging A-frame for side operation . . . . .	2-31e	2-155
pipeline construction maintenance truck, M756A2 w/w . . . . .	1-25	1-12
Placing the vehicle in motion.. . . .	2-16	2-84
Preparation for use . . . . .	2-3	2-1
Preventive maintenance checks and services:		
Cleaning instructions and precautions.. . . .	2-9	2-29
General . . . . .	2-7	2-29
Index . . . . .	2-8	2-29
Preventive maintenance checks and services (PMCS) . . . . .	2-10	2-32
Table 2-2. Operator/Crew Preventive Maintenance Checks and Services . . . . .		2-34
Principles of operation, technical:		
General . . . . .	1-29	1-23
Technical principles of operation index . . . . .	1-30	1-23
<b>R</b>		
Rainy or humid conditions, operation in:		
After operation.. . . .	2-39d	2-189
Before operation . . . . .	2-39b	2-189
Driving vehicle . . . . .	2-39c	2-189
General . . . . .	2-39a	2-188
Raising and securing hood . . . . .	2-22	2-92
Raising windshield and installing cab top . . . . .	2-21	2-90
Rear winch shearpin replacement:		
Installation (truck, M756A2) . . . . .	3-17b	3-30
Installation (truck, M764) . . . . .	3-17d	3-31
Removal (truck, M756A2) . . . . .	3-17a	3-30
Removal (truck, M764) . . . . .	3-17c	3-31

## INDEX (Contd)

	Para	Page
References, appendix A:		
Indexes . . . . .	A-1	A-1
Other publications . . . . .	A-2	A-1
Reporting equipment improvement recommendations (EIR's) . . . . .	1-5	1-2
Reporting of errors . . . . .		ii
<b>S</b>		
Scope . . . . .	1-1	1-1
Shearpin replacement, front winch:		
Installation . . . . .	3-16b	3-29
Removal . . . . .	3-16a	3-28
Shearpin replacement, rear winch:		
Installation (truck, M756A2) . . . . .	3-17b	3-30
Installation . . . . .	3-17d	3-31
Removal (truck, M756A2) . . . . .	3-17a	3-30
Removal (truck, M764) . . . . .	3-17c	3-31
Shop van and instrument repair shop trucks, M109A3 and M185A3 (PMCS) . . . . .	2-10	2-60
Shop van and instrument repair shop trucks, operation of:		
Operating dome and blackout dome lights . . . . .	2-28d	2-134
Operating exhaust blower . . . . .	2-28c	2-133
Preparing shop van and instrument repair shop trucks for use . . . . .	2-28a	2-132
Supplying 115-volt AC power to van . . . . .	2-28b	2-132
Supplying 115-volt power to molding receptacles . . . . .	2-28e	2-135
Shop van truck, M109A3 wo/w and w/w . . . . .	1-21	1-10
Slave receptacle kit, operation of . . . . .	2-54	2-212
Slave receptacle to start engine, using . . . . .	2-19	2-88
Special purpose kits controls and indicators:		
A-frame kit . . . . .	2-6a	2-22
Arctic winterization kit . . . . .	2-6c	2-24
Bow and tarp kit . . . . .	2-6b	2-23
Convoy warning light kit . . . . .	2-6h	2-28
Deepwater fording kit . . . . .	2-6d	2-26
Low air pressure warning light kit . . . . .	2-6g	2-27
Machine gun mount kit . . . . .	2-6e	2-27
Rifle mount kit . . . . .	2-6f	2-27
Van body heater kit . . . . .	2-6j	2-28
Windshield washer kit . . . . .	2-6i	2-28
Special purpose kits, operation of		
General . . . . .	2-44	2-193
Operation of special purpose kits index . . . . .	2-45	2-194
Special purpose kits, table 2.6 . . . . .	2-44	2-193
Start engine, towing vehicle to . . . . .	2-42	2-191
Starting (below +20°F) (-6.7°C), cold weather . . . . .	2-15	2-84
Starting the engine (above +20°F) (-6.7°C) . . . . .	2-14	2-82
Stopping the vehicle and engine . . . . .	2-17	2-87

## INDEX (Contd)

	Para	Page
Stowage and sign guide for components of end item, basic issue items, and applicable additional authorization list items, appendix E:		
Scope . . . . .	E-1	E-1
Sign guide . . . . .	E-3	E-6
Stowage locations . . . . .	E-2	E-1
Summary, warning . . . . .		a
Swingfire heater, operation of		
General . . . . .	2-59a	2-215
Operation of mixing pipe... . . . .	2-59c	2-217
Operation of swingfire heater. . . . .	2-59b	2-215
Operation of turbo heater . . . . .	2-59d	2-218
Operation of water jacket . . . . .	2-59e	2-219
Stowage of swingfire heater and mixing pipe. . . . .	2-59f	2-220
<b>T</b>		
Table 1-1. Differences Between Models . . . . .	1-27	1-13
Table 1-2. Vehicle Dimensions.. . . .	1-28	1-14
Table 1-3. Weights . . . . .	1-28	1-15
Table 1-4. Winch Data..... . . . .	1-28	1-15
Table 1-5. Vehicle/Bridge Classification . . . . .	1-28	1-16
Table 1-6. Tire Inflation Data... . . . .	1-28	1-16
Table 1-7. Vehicle Performance Data . . . . .	1-28	1-17
Table 1-8. Engine and Cooling System Data . . . . .	1-28	1-18
Table 1-9. Fluid Capacities for Operation Under Usual Conditions . . . . .	1-28	1-19
Table 1-10. General Service Data. . . . .	1-28	1-19
Table 1-11. Permissible Fuels . . . . .	1-28	1-20
Table 2-1. General Cleaning Instructions . . . . .	2-9	2-31
Table 2-2. Operator/Crew Preventive Maintenance Checks and Services . . . . .	2-10	2-34
Table 2-3. Weight of Material in Truck . . . . .	2-30	2-141
Table 2-4. Boring Machine Controls. . . . .	2-32	2-169
Table 2-5. Gear, Speed Settings for Soil Conditions . . . . .	2-32	2-170
Table 2-6. Special Purpose Kits... . . . .	2-44	2-193
Table 3-1. Troubleshooting . . . . .	3-9	3-6
Tabulated data . . . . .	1-28	1-14
Tarp kit, bow and:		
Controls and indicators . . . . .	2-6b	2-23
Bow installation . . . . .	2-49a	2-200
Bow Removal . . . . .	2-49g	2-205
End curtain installation . . . . .	2-49b	2-201
End curtain removal . . . . .	2-49f	2-205
Raising tarp for ventilation . . . . .	2-49d	2-203
Tarp installation . . . . .	2-49c	2-202
Tarp removal . . . . .	2-49e	2-203
Technical principles of operation:		
General . . . . .	1-29	1-23
Index . . . . .	1-30	1-23
Tire inflation data, table 1-6. . . . .	1-28	1-16

## INDEX (Contd)

	Para	Page
Tires, wheels and:		
General . . . . .	3-14a	3-20
Jacking procedure . . . . .	3-14d	3-22
Spare wheel replacement (all vehicles except M342A2 and M275A2) . . . . .	3-14b	3-20
Spare wheel replacement (M342A2) . . . . .	3-14c	3-21
Tire inflation . . . . .	3-14f	3-26
Wheel replacement . . . . .	3-14e	3-23
Title block page . . . . .		i
Tools and equipment:		
Basic issue items . . . . .	3-2	3-1
Expendable/durable supplies and materials . . . . .	3-3	3-1
Special tools and equipment . . . . .	3-1	3-1
Towing the vehicle . . . . .	2-23	2-93
Towing vehicle to start engine. . . . .	2-42	2-191
Tractor and fifth wheel, operation of		
Coupling semitrailer . . . . .	2-29c	2-136
General . . . . .	2-29a	2-136
Uncoupling semitrailer . . . . .	2-29d	2-139
Wedge adjustment . . . . .	2-29b	2-136
Tractor truck, M275A2 (PMCS) . . . . .	2-10	2-65
Tractor truck, M275A2 wo/w and w/w . . . . .	1-23	1-11
Troop seat and covering kit, operation of . . . . .	2-55	2-212
Troop seat — center mounted kit, operation of . . . . .	2-56	2-212
Troubleshooting:		
General . . . . .	3-8	3-2
Troubleshooting symptom index . . . . .	3-9	3-3
Troubleshooting, table 3-1 . . . . .	3-9	3-6
<b>U</b>		
Unusual conditions, operation under:		
Index . . . . .	2-34	2-181
Special instructions . . . . .	2-33	2-181
Use of the metric system . . . . .	1-9	1-3
Using jumper cables to start engine. . . . .	2-43	2-192
Using slave receptacle to start engine . . . . .	2-19	2-88
Usual conditions, operation under:		
General . . . . .	2-12	2-81
Index . . . . .	2-13	2-81
<b>V</b>		
Van body heater (primary and secondary) kits, operation of		
General . . . . .	2-57a	2-212
Operation of body heater . . . . .	2-57b	2-212
Spot heating using ducts . . . . .	2-57c	2-214
Vehicle/bridge classification, table 1-5 . . . . .	1-28	1-16
Vehicle description and data:		
General . . . . .	1-13	1-6
Index . . . . .	1-14	1-6
Vehicle dimensions, table 1-2 . . . . .	1-28	1-14
Vehicle performance data, table 1-7 . . . . .	1-28	1-17

## INDEX (Contd)

	Para	Page
Vehicle service lights, operation of .....	2-20	2-88
<b>W</b>		
Warning summary .....		a
Water tank trucks, M50A2 and M50A3 (PMCS) .....	2-10	2-57
Water tank trucks, operation of		
Fording .....	2-27h	2-131
General .....	2-27a	2-118
Gravity discharging the tank sections .....	2-27f	2-127
Gravity filling the tank sections .....	2-27b	2-118
Hydrant filling the tank sections .....	2-27d	2-122
Operating water tank trucks during freezing temperatures .....	2-27g	2-128
Power discharging the tank sections .....	2-27e	2-124
Suction filling the tank sections and transferring water from one location to another .....	2-27c	2-119
Water tank trucks, M50A2, M50A3 wo/w and w/w .....	1-20	1-9
Weight of material in truck table 2-3 .....	2-30	2-141
Weights, table 1-3 .....	1-28	1-15
Wheels and tires:		
General .....	3-14a	3-20
Jacking procedure .....	3-14d	3-22
Spare wheel replacement (all vehicles except M342A2 and M275A2) .....	3-14b	3-20
Spare wheel replacement (M342A2) .....	3-14c	3-21
Tire inflation .....	3-14f	3-26
Wheel replacement .....	3-14e	3-23
Winch data, table 1-4 .....	1-28	1-15
Winch system operation, front.. ..	1-32	1-25
Windshield and in stalling cab top, raising .....	2-21	2-90
Windshield washer kit, operation of .....	2-58	2-215
Winterization kit, arctic (PMCS) .....	2-10	2-76

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*Chief of Staff*

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Distribution:

To be distributed in accordance with DA Form 12-38-R, Operator maintenance requirement for Truck, Multifuel, 2 1/2-Ton, 6x6, M44A1 and M44A2 series.





## SOMETHING WRONG WITH THIS PUBLICATION?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

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PUBLICATION NUMBER

TM 9-23.20-361-10

PUBLICATION DATE

15 Dec 1988

PUBLICATION TITLE

OPERATOR'S MANUAL

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
2-72	2-10		2-2
2-82	2-14		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Item 48c reads 'check cable for kinks, frays, and brakes.'

Should read: check cable for kinks, frays, and breaks.

ILLUSTRATION SHOULD HAVE AN ARROW FROM NUMBER NINE TO CLUTCH PEDAL.

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## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches  
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches  
 1 Kilometer = 1000 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

### WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces  
 1 Kilogram = 1000 Grams = 2.2 Lb  
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

### CUBIC MEASURE

1 Cu Centimeter = 1000 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 = 1000 Milliliters = 33.82 Fluid Ounces

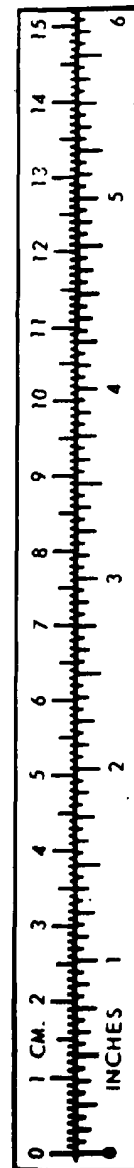
### TEMPERATURE

$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$   
 212° Fahrenheit is equivalent to 100° Celsius  
 900 Fahrenheit is equivalent to 32.2° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5 \text{ C}^{\circ} + 32 = \text{F}^{\circ}$

### 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 Centimeter . . . . .	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 . . . . .	0.235
Kilometers per Hour . . . . .	Miles per Hour . . . . .	0.621



TA089991