

TECHNICAL MANUAL

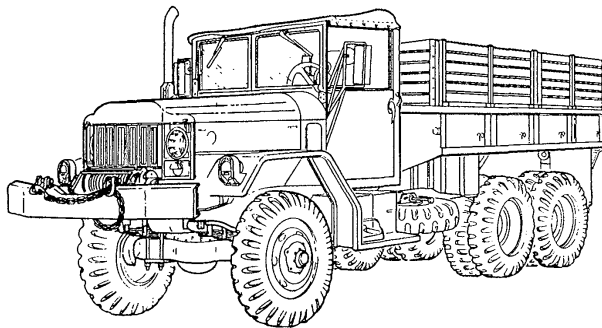
OPERATOR'S MANUAL

FOR

2-1/2 TON, 6X6, M44A2

SERIES TRUCKS

(MULTIFUEL)



TRUCK, CARGO, M35A2 (2320-00-077-1616) (EIC: BMA),
(2320-00-077-1617) (EIC: BMB);

TRUCK, CARGO, XLWB, M36A2 (2320-00-077-1618) (EIC: BMC),
(2320-00-077-1619) (EIC: BMD);

TRUCK, CARGO, DROPSIDE, M35A2C (2320-00-926-0873) (EIC: BMR),
(2320-00-926-0875) (EIC: BMS);

TRUCK, TANK, FUEL SERVICING, M49A2C (2320-00-077-1631) (EIC: BME),
(2320-00-077-1632) (EIC: BMF);

TRUCK, TANK, WATER, M50A3 (2320-00-937-4036) (EIC: BMT),
(2320-00-937-5264) (EIC: BMU);

TRUCK, VAN, SHOP, M109A3 (2320-00-077-1636) (EIC: BMJ),
(2320-00-077-1637) (EIC: BMK);

TRUCK, VAN, REPAIR, M185A3 (4940-00-077-1638) (EIC: BMW)

HOW TO USE THIS MANUAL

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DURABLE ITEMS LIST
STOWAGE AND
DECAL/PLATE GUIDE

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HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE

AUGUST 2006

WARNING

EXHAUST GASES CAN KILL

Death or brain damage can result from exhaust gas exposure. When the vehicle engine or personnel heater is operated, the following precautions must be taken to ensure crew safety:

1. Do not operate vehicle engine or personnel heater in an enclosed area.
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 a person with exhaust poisoning symptoms:
 - Remove person from area.
 - Expose person to fresh air.
 - Maintain persons body temperature (i.e., keep them warm when the weather is cold and keep them cool when the weather is hot).
 - Make the person comfortable, keep them at rest.
 - Perform artificial respiration, if necessary.*
 - Notify a medic.

*For artificial respiration procedures, refer to FM 4-25.11.

6. BE AWARE, the field protective mask and ambulance Nuclear-Biological-Chemical (NBC) system does not protect personnel against exhaust gas poisoning.

THE BEST DEFENSE AGAINST EXHAUST GAS POISONING IS ADEQUATE VENTILATION.

WARNING SUMMARY

- DO NOT CROSS A BRIDGE if the vehicle classification number is greater than the bridge classification number. The vehicle is too heavy for the bridge. Failure to do so may result in injury or death to personnel.
- Never mix gasoline or JP-4 turbine fuel with other fuels outside vehicle fuel tank; gasoline and JP-4 turbine fuel are highly combustibile and may explode, resulting in injury or death to personnel. Mixing must be done only by adding fuels to fuel tank.
- Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB; long term exposure to this noise causes hearing loss.
- Always wear a seatbelt when operating the vehicle. Failure to wear a seatbelt when operating the vehicle may result in serious injury or death to personnel.
- If warning buzzer does not sound when engine starts, immediately pull out engine stop control to stop engine. Failure to do so may result in injury or death to personnel. Notify your supervisor.
- Do not place vehicle in motion until warning buzzer stops and air pressure gauge reads 85 psi (586 kPa) or greater. Failure to comply may result in brake failure, causing injury or death to personnel.
- If Nuclear, Biological, or Chemical (NBC) exposure is suspected, all air filter media must be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC noncommissioned officer for appropriate handling and disposal instructions.

NBC contaminated filters must be handled using adequate precautions

- In accordance with AR 385-55, check for clearance and give warning before backing vehicle. If rear visibility is blocked by cargo or otherwise limited, driver must use ground guides. Failure to use ground guides while backing vehicle may result in injury or death to personnel.
- When initiating forward vehicle motion on upgrade terrain or backward on downgrade terrain, do not release parking brake until clutch begins to engage engine and vehicle motion starts. Failure to do this can cause vehicle to roll uncontrollably and cause injury or death to personnel.
- Do not allow vehicle to coast downhill with clutch pedal depressed or transmission gearshift lever in "N" (neutral) position. Coasting downhill may cause vehicle speed to increase uncontrollably, resulting in injury or death to personnel.
- When positioning chocks, ensure that you are visible to the operator. Place chocks from the side of the vehicle and step away. Stay clear of the front and rear of vehicle. If the vehicle moves unexpectedly, injury or death to personnel can occur.
- Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.
- Do not attempt to stall engine if tachometer indicates engine is idling at high RPM. Leave vehicle running, ensure that all personnel and equipment are clear of vehicle, and notify maintenance personnel. Attempting to stall engine at high RPM may engage transmission and cause vehicle to move unpredictably, resulting in injury or death to personnel or damage to equipment.

WARNING SUMMARY (Contd)

- Before performing the following engine stalling procedure, ensure that all personnel and equipment are clear of vehicle. Stalling vehicle may engage transmission and cause vehicle to move unpredictably, resulting in injury or death to personnel or damage to equipment.
- When hazard warning lights and emergency flashers are in use, they override brake and stop light operation. Therefore, when driving with hazard warning lights and emergency flashers on, use a hand signal to indicate a stop. Failure to use a hand signal may result in injury or death to personnel.
- Ensure front winch drive shaft shearpin is aluminum. The shearpin is a safety device designed to shear when drive forces are excessive. Use of shearpin materials other than aluminum may result in injury or death to personnel and damage to equipment.
- Do not operate winch with less than four turns of cable on drum. Operating winch with less than four turns of cable on drum may cause cable to pull out of drum, resulting in injury or death to personnel and damage to equipment.
- Wear leather gloves when handling winch cable. Handling the cable without leather gloves may result in injury to personnel.
- When attaching cable hook to load, position hook throat (open part) upward. With the hook positioned in this manner, if the hook straightens out due to overloading and detaches from load, it will be forced toward the ground, not upward. Failure to position the hook in this manner may result in injury or death to personnel.
- During winch operations, keep all personnel clear of winch operation area. A broken winch drive shaft shearpin, broken cable or utility chain, detached hook, or shifting load can cause injury or death to personnel.
- Do not use winch clutch control lever to control winch directly. Use only the transmission PTO lever and clutch pedal. Using the winch clutch control lever to control the winch directly places the operator in an extremely dangerous position (near the moving drum and between the vehicle and the load). Failure to comply may result in injury or death to personnel.
- For winch operations, use hand throttle to control engine speed. Do not set engine speed >1,200 RPM.
- Change engine speed gradually. Changing engine speed too quickly can cause equipment to break, resulting in injury or death to personnel.
- When tending the cable, stay clear of the winch drum. Severe injury can occur if body parts become caught between the cable and the drum. If necessary, use a wooden block to align cable.
- Avoid being trapped between vehicle and load. While tending the cable, stay clear of front of vehicle whenever possible and be aware of the vehicle motion and location of load. Becoming trapped between vehicle and load can result in severe crushing injuries and death to personnel.
- Before connecting/disconnecting towbar to/from disabled vehicle, set disabled vehicle parking brake and chock wheels. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

WARNING SUMMARY (Contd)

- Use extreme care when positioning tow vehicle for towbar connection and disconnection. Keep personnel clear of area between tow vehicle and disabled vehicle. Failure to do this can result in serious crushing injuries and death to personnel.
- Ensure tailgate is supported when removing or installing tailgate hooks. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.
- Do not allow tailgate to drop freely. Support tailgate while swinging it down. Failure to comply will allow tailgate to drop quickly and may cause injury to personnel.
- On M35A2C dropside trucks, before lowering tailgate, ensure front of dropsides are secured to the body with locking handles. Failure to do so may allow dropsides to drop unexpectedly, causing injury or death to personnel.
- Ensure tailgate is supported when removing locking handles. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.
- Ensure side gate is supported when removing front side gate locking handle. Failure to do so may allow side gate to drop unexpectedly, causing injury or death to personnel.
- Do not allow side gate to fall freely. Support side gate while swinging it down. Failure to comply will allow side gate to drop quickly and may cause injury to personnel.
- Troop seats must be secured in the up position before lowering dropside. Failure to do so may result in injury to personnel.
- Ensure side gate is supported when installing side gate front locking handle. Failure to do so may allow side gate to drop unexpectedly, causing injury or death to personnel.
- Ensure tailgate is supported when installing locking handle. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.
- Fuel is extremely flammable and explosive. Keep fire extinguisher nearby when performing fueling operations. Burning fuel or fuel that explodes can cause injury or death to personnel.
- Do not perform fueling operations while smoking or within 50 ft (15 m) of sparks or open flame. Failure to do so may result in injury or death to personnel.
- Before conducting a fuel transfer operation, all vehicles must be bonded and grounded to prevent electrostatic discharge. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel.
- Never wear nylon clothing when handling fuel; high electrostatic charges can build up on nylon. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel.
- To prevent electrostatic discharge when using the dispenser nozzle, always connect nozzle ground wire to tank being filled and keep nozzle in contact with fuel tank filler hole during fueling procedure. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel.

WARNING SUMMARY (Contd)

- Maintain a minimum of 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may cause fire, resulting in injury or death to personnel.
- Top filling should be performed only when bottom filling is not possible, and when authorized by the commander. Top filling increases electrostatic buildup and fuel vapors in the tank and may cause fire or explosion, resulting in injury or death to personnel.
- To decrease electrostatic build-up and fuel vapors when top filling, perform the following:
 - Position end of dispenser hose at bottom of tank.
 - Pump fuel at a low flow rate until the end of the dispenser hose is covered by fuel; then switch to a normal flow rate.
 - Failure to do so may cause fire or explosion, resulting in injury or death to personnel.
- When operating auxiliary equipment using the transfer power takeoff (PTO), ensure the transfer case is in the neutral (middle) position. Engaging the transmission with the transfer case engaged causes vehicle motion and may cause injury or death to personnel.
- When driving on snow or ice, observe the following:
 - Reduce speed and be prepared for sudden changes in road conditions and traffic speeds.
 - Increase stopping distances.
 - Pump brakes gradually to avoid locking up wheels or stalling engine.
 - If rear of vehicle skids to either side, turn steering wheel in the same direction that rear of vehicle is skidding.
 - Failure to follow these guidelines may cause loss of vehicle control, resulting in injury or death to personnel.
- Methyl alcohol used in alcohol evaporator is flammable, explosive, and poisonous. Do not add alcohol while smoking or near flames or sparks. Do not drink methyl alcohol. Failure to comply may result in injury or death to personnel.
- Compressed air used for cleaning must not exceed 30 psi (207 kPa). Wear goggles/face shield and gloves when cleaning with compressed air. Failure to do so may result in injury to personnel.
- Do not operate vehicle with low tire pressure on wet smooth roads at high speed. Doing so may result in loss of vehicle control and injury or death to personnel.

WARNING SUMMARY (Contd)

- When driving in heavy rain, observe the following:
Reduce speed and be prepared for sudden changes in road conditions and traffic speeds.
Increase stopping distances.
Pump brakes gradually to avoid locking up wheels or stalling engine.
If rear of vehicle skids to either side, turn steering wheel in the same direction that rear of vehicle is skidding.
Failure to follow these guidelines may cause loss of vehicle control, resulting in injury or death to personnel.
- Towing a disabled vehicle to start engine should be performed on straight, smooth terrain or road. Failure to do this may cause disabled vehicle driver to lose control, resulting in injury or death to personnel.
- Connect one jumper cable between the positive (+) battery terminals of the two vehicles. Connect the second jumper cable from the starting vehicle negative (-) terminal to the disabled vehicle chassis (away from the batteries). Failure to do this may cause batteries to explode, resulting in injury or death to personnel.
- When disconnecting jumper cables, do not allow jumper cable clamps to touch battery terminals or battery cable clamps. Failure to comply may cause batteries to explode, resulting in injury or death to personnel.
- Use care when operating the front winch with A-frame kit. Observe the following mechanical safety precautions:
Do not exceed lifting capacity, 3,000 lb (1,361 kg).
Leg assembly angle must not be less than 60°.
Do not allow load to swing.
Be aware of the A-frame height, avoid collisions with overhead objects, especially high-voltage lines (see high-voltage electrical safety precautions below).
Do not use winch cable to tie load.
Failure to follow these mechanical safety precautions can result in injury or death to personnel and equipment damage.
- Do not operate vehicle near high-voltage lines. If the A-frame or any part of vehicle contacts a high-voltage line, attempt to break contact with line by moving vehicle away from line. If contact cannot be broken, stay in vehicle. Notify bystanders to stay clear of the vehicle. Call for help; request that the high-voltage line be shut down. Failure to follow these high-voltage safety precautions can result in death to personnel.
- Ensure 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.
- 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.

WARNING SUMMARY (Contd)

- 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.
- Unless vehicle is equipped with deep water fording kit, never attempt to cross water deeper than 72 in. (183 cm). (Refer to TM-9-2320-361-24.) 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.
- 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.
- Swingfire heater exhaust gases are poisonous. Operate swingfire heater in well-ventilated area only. Failure to do this may result in death to personnel.
- When swingfire heater is operated, the pulsating pipe and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.
- When operating turboheater, box, access door, and exhaust pipe become hot. Touching box, access door, or exhaust pipe results in burns to personnel.
- Hot coolant is under pressure. Use care when removing coolant filler cap or inspecting for engine coolant leaks. Steam or hot coolant under pressure may cause severe injury to personnel.
- Fuel is extremely flammable and explosive. Do not perform fuel system checks or services near open flames or sparks. Always keep a fire extinguisher nearby. Burning fuel or fuel that explodes can cause injury or death to personnel.
- Personnel heater exhaust gases are poisonous. Operate heater in a well-ventilated area only. Failure to do this may result in death to personnel.
- Engine coolant heater exhaust gases are poisonous. Operate heater in a well-ventilated area only. Failure to do this may result in death to personnel.
- Skysol 100 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use.

Contact with Skysol 100 may cause skin irritation. Use chemical-resistant gloves. In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water. Wash contaminated clothing before reuse. Eye contact may cause irritation, tearing, or blurring of vision. Use face shield or goggles when eye contact may occur. In case of eye contact, flush eyes with large amounts of water for at least 15 minutes or until irritation subsides. Inhalation may cause irritation to upper respiratory passages. DO NOT have food or drink in the vicinity. Failure to comply may result in injury to personnel.

- Do not smoke, have open flame, or make sparks when performing battery maintenance. Batteries may explode causing severe injury to personnel.

WARNING SUMMARY (Contd)

- Remove all jewelry such as rings, identification tags, and bracelets. If jewelry or disconnected battery ground cable contacts battery post, a direct short can result, causing damage to equipment or severe injury to personnel.
- Exhaust gases can kill. Operate vehicle only in a well-ventilated area. Failure to do so may result in injury or death to personnel.
- Do not touch hot exhaust pipes with bare hands. Injury to personnel may result.
- If warning buzzer stops and air pressure is below 85 psi (586 kPa), service brakes may not function properly; stop engine and troubleshoot problem. Failure to comply may result in brake failure, causing injury or death to personnel.
- NBC contaminated filters must be handled using adequate precautions (FM 3-5) and must be disposed of by trained personnel.
- When releasing pawl and lowering spare wheel, hold spare tire mounting wrench handle bar securely. Do not release handle bar until wheel is completely lowered. If handle bar must be released before wheel is completely lowered, lock shaft with pawl. Failure to comply will cause wheel to drop quickly and handle bar to spin, resulting in injury or death to personnel.
- The pawl must be set to engage the ratchet before raising the spare wheel. Failure to comply may cause wheel to drop quickly and handle bar to spin, resulting in injury or death to personnel.
- Ensure studs are fully seated in slots before tightening nuts. Failure to do this may cause wheel assembly to drop during vehicle operation, resulting in injury or death to personnel.
- Do not work under vehicle that is supported by a jack only. The jack may slip, causing the vehicle to fall, resulting in injury or death to personnel.
- If there is obvious damage to wheel components, completely deflate tire before removing wheel from axle. Failure to do so can result in exploding wheel components and injury or death to personnel.
- Stay clear of wheel when checking tire air pressure and inflating tire. Injury or death to personnel may result from exploding wheel components.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves when performing battery maintenance. Severe injury will result if acid contacts eyes or skin.
- Before inspecting and servicing the power steering assist system, the manual shutoff valve must be closed. If the manual shutoff valve is not closed, small parts under pressure can be expelled at high velocity, causing injury to personnel.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Date of issue for the original manual is:

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CONSISTING OF THE FOLLOWING:

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HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 18 AUGUST 2006

TECHNICAL MANUAL
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
TRUCK, CARGO, XLWB, M36A2	2320-00-077-1618	2320-00-077-1619
TRUCK, CARGO, DROPSIDE, M35A2C	2320-00-926-0873	2320-00-926-0875
TRUCK, TANK, FUEL SERVICING, M49A2C	2320-00-077-1631	2320-00-077-1632
TRUCK, TANK, WATER, M50A3	2320-00-937-4036	2320-00-937-5264
TRUCK, VAN, SHOP, M109A3	2320-00-077-1636	2320-00-077-1637

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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TRUCK, VAN, REPAIR, M185A3

4940-00-077-1638

CURRENT AS OF 7 DECEMBER 2005

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HOW TO USE THIS MANUAL

Prior to operating the vehicle or performing vehicle maintenance, operators must be familiar with the structure and content of this Technical Manual (TM). Knowing how to use this manual allows the operator to quickly find information and decrease the time required to perform a procedure.

This TM has the following key features:

Work Package Format—This TM is modular and is organized into Work Packages (WP). Each WP is a stand-alone information package. Each WP has a two-character/six-digit number (e.g., WP 0001 00). The first four digits identify the sequential WP number (i.e., 0001, 0002, 0003, etc.), the last two digits indicate the revision level (i.e., 00 is the initial release, 01 is revision 1, 02 is revision 2, etc.).

Cover—Chapter numbers and titles, and a brief description of chapter content are listed on the front cover for quick reference.

Table of Contents—WP titles and numbers are listed in the Table of Contents, in the front matter section of this TM (immediately preceding this section).

Acronyms and Abbreviations—A list of acronyms and abbreviations that are used throughout this manual is provided in WP 0001 00.

Illustrations—component callout numbers, referenced in the text (e.g., Turn winch propeller shaft (1) universal joint (3) until shear pin (5) is visible), correspond to illustration callout numbers. Illustration callouts are numbered sequentially, starting at the 11 o'clock position and continuing clockwise around the illustration.

Index—The two-level alphabetical index is located in the rear matter section (immediately following the last WP). The index lists both operational procedures and keywords, and the WP and page number for each index entry.

CHAPTER 1

GENERAL INFORMATION

FOR

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

Work Package Title	Work Package Number
General Information.....	WP 0001 00
Vehicle Description and Data	WP 0002 00
Theory of Operation	WP 0003 00

GENERAL INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

GENERAL INFORMATION

SCOPE

This manual contains operating and maintenance instructions for 2-1/2 ton, 6X6, M44A2 series vehicles (multifuel). This manual provides information about how to safely and efficiently operate M44A2 series vehicles, including the following:

- Warnings and cautions to operators to ensure personnel and equipment safety
- Purpose and special capabilities of each vehicle
- Procedures for operating the vehicle under all environmental conditions
- Function of all body and instrument panel controls and indicators
- Guidelines for using special purpose kits
- Vehicle limitations
- Maintenance procedures
- Troubleshooting procedures
- Forms and records

Type of Manual: Operator

Model Numbers and Equipment Names:

- M35A2 cargo truck, without winch (WO/W) and with winch (W/W)
- M35A2C cargo truck, WO/W and W/W (Dropside)
- M36A2 cargo truck, WO/W and W/W, with extra-long wheelbase (XLWB)
- M49A2C fuel servicing tank truck, WO/W and W/W
- M109A3 shop van truck, WO/W and W/W
- M185A3 repair van truck, WO/W
- M50A3 water tank truck, WO/W and W/W

Purpose of Equipment:

The M35A2, M35A2C, and M36A2 cargo trucks are used to transport equipment, materials, and personnel. The M49A2C fuel servicing and M50A3 water tank trucks are used to transport and discharge fuel and water, respectively. The M109A3 shop van truck and M185A3 repair van truck are mobile repair shops.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army (DA) forms and procedures used for equipment maintenance are those prescribed by (as applicable) DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

GENERAL INFORMATION (Contd)

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S)

If your M44A2 series vehicle needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. The preferred method for submitting Quality Deficiency Reports (QDRs) is through the Army Electronic Product Support (AEPS) web site under the Electronic Deficiency Reporting System (EDRS). The web address is: <https://aeprs.ria.army.mil>. This is a secure site, requiring a password that can be applied for on the front page of the web site. If the above method is not available to you, put it on an SF (Standard Form) 368, Product Quality Deficiency Report (PQDR), and mail it to us at:

Department of the Army
U.S. Army Tank-automotive and Armaments Command
ATTN: AMSTA-TR-E/PQDR MS 267
6501 E. 11 Mile Road
Warren, MI 48397-5000

We'll send you a reply.

For the Marine Corps, submit QDRs per Marine Corps Order (MCO) 4855-10.

EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR/MD)

The quarterly Equipment Improvement Report and Maintenance Digest, TB 43-0001-62 series, contains valuable field information on the equipment covered in this manual. Information in the TB 43-0001-62 series is compiled from some of the EIRs that are prepared on vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that are submitted to the EIR program. The TB 43-0001-62 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWOs), actions taken on some DA Form 2028s (Recommended Changes to Publications), and advance information on proposed changes that may affect this manual. This information will help you do your job better and keep you informed of the latest changes to this manual.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any M44A2 series vehicle corrosion problem be reported, so that the problem can be corrected and improvements can be made to prevent the problem in future M44A2 series vehicles.

Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example of corrosion is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking.

Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking.

If a corrosion problem is identified, it should be reported using an SF 368, PQDR. Use of key words such as corrosion, rust, deterioration, or cracking will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS).

GENERAL INFORMATION (Contd)

OZONE DEPLETING SUBSTANCES (ODS'S)

The use of ozone depleting substances (ODSs) for new acquisitions has been curtailed by Executive Order 12856, 3 August 1993, other relevant public laws, and DOD and Army policy.

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.

PREPARATION FOR STORAGE OF EQUIPMENT

Storage and shipment instructions are located in TM 9-2320-361-24, Shipment and Limited Storage, and TM 746-10, Marking, Packaging, and Shipment of Supplies and Equipment: General Packaging Instructions for Field Use.

NOMENCLATURE CROSS-REFERENCE LIST

The following list provides the official nomenclature for common military terms used in this manual.

Table 1. Nomenclature Cross-Reference List.

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

GENERAL INFORMATION (Contd)

ABBREVIATIONS AND ACRONYMS

The following list provides the abbreviations and acronyms, and their definitions used in this manual.

Abbreviation/ Acronym	Definition
°	Degrees
°C	Degrees Celsius (e.g., 0 °C)
°F	Degrees Fahrenheit (e.g., 32 °F)
%	Percent
>	Greater Than
<	Less Than
AAL	Additional Authorization List
A	Ampere, Annual
AC	Alternating Current
AR	Army Regulation
ASTM	American Society for Testing Materiel
AVGAS	Aviation Gasoline
BE	Bale
BII	Basic Issue Item
CA	Cartridge
CAGE	Commercial And Government Entity
CAGEC	Commercial And Government Entity Code
Class	Classification
cm	Centimeter
CN	Can
COEI	Components of End Item
Contd	Continued
CONUS	Continental United States
CTA	Common Table of Allowance
cu	Cubic
CV	Constant Velocity
CW	Chain and Wire Rope (grease)
DA	Department of the Army
dB	Decibel
dc, DC	Direct Current
DR	Drum
EIR	Equipment Improvement Recommendation
FM	Field Manual
FSCM	Federal Supply Code for Manufacturer
ft	Feet, Foot
ft3	Cubic Feet
GAA	Grease, Automotive and Artillery
gal.	Gallon

GENERAL INFORMATION (Contd)**ABBREVIATIONS AND ACRONYMS (Contd)**

Abbreviation/ Acronym	Definition
GL.....	Gallon
GO.....	Gear Oil
GTA.....	Graphic Training Aid
HDO.....	Heavy Duty Oil
hp.....	Horsepower
HR.....	Hand Receipt
H.S.....	High Speed
ID.....	Inside Diameter
IAW.....	In Accordance With
in.....	Inch
incl.....	Include
JTA.....	Joint Table of Allowances
kg.....	Kilogram
km.....	Kilometer
kPa.....	Kilopascal
kph.....	Kilometers Per Hour
kpl.....	Kilometers Per Liter
L.....	Liter
lb.....	Pound
m.....	Meter
m ³	Cubic Meter
max.....	Maximum
mi.....	Mile
MIL.....	Military
MIL-STD.....	Military-Standard
min.....	Minimum
mm.....	Millimeter
mpg.....	Miles Per Gallon
mph.....	Miles Per Hour
MTOE.....	Modified Table of Organization and Equipment
MWO.....	Maintenance Work Order
N.....	Neutral
NATO.....	North Atlantic Treaty Organization
NBC.....	Nuclear, Biological, and Chemical
N•m.....	Newton Meter
no.....	Number
NPT.....	National Pipe Taper
NPTF.....	National Pipe Taper Dryseal Pressure
OD.....	Outside Diameter
OE.....	Oil, Engine

GENERAL INFORMATION (Contd)**ABBREVIATIONS AND ACRONYMS (Contd)**

Abbreviation/ Acronym	Definition
OEA	Oil, Engine, Arctic
oz	Ounce
pam, Pam, PAM	Pamphlet
para	Paragraph
PMCS	Preventive Maintenance Checks and Services
psi	Pounds Per Square Inch
pt	Pint
PTO	Power Takeoff
qt	Quart
Qty	Quantity
RECM	Recommended
R.H.	Right Hand
RPM	Revolutions Per Minute
rqr	Required
SE	Set
SF	Standard Form
TACOM	Tank-automotive and Armaments Command
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TDA	Table of Distribution and Allowance
TM	Technical Manual
TOE	Table of Organization and Equipment
TS	Single-Type (tire chain)
U-joint	Universal-Joint
U/M	Unit of Measure
UOC	Usable On Code
V	Volts, Volts Direct Current
VAC	Volts, Alternating Current
W	Watt
WO/W	Without Winch
WP	Work Package
W/W	With Winch
XLWB	Extra Long Wheelbase
yd	Yard

GENERAL INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

VEHICLE DESCRIPTION AND DATA

GENERAL

The 2-1/2 ton, 6X6, M44A2 series vehicles 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 using a variety of fuels, including diesel, gasoline, and turbine fuel. M44A2 series vehicles can ford hard-bottom water crossings up to 30 in. (76.2 cm) without a deep water fording kit, and up to 72 in. (182.9 cm) with the kit. A five-speed manual transmission and two-speed transfer provide 10 overall speed ranges. All vehicles described in this Work Package (WP) 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.

To find information in this WP about a specific vehicle, refer to the index below.

VEHICLE DESCRIPTION AND DATA INDEX

Title	Page No.
Designations	0002 00-2
Cargo Truck, Without Winch (WO/W) and With Winch (W/W): M35A2	0002 00-2
Cargo Truck with Dropsides, WO/W and W/W: M35A2C	0002 00-3
Cargo Truck with Extra-Long Wheelbase, WO/W and W/W: M36A2	0002 00-3
Fuel Tank Truck, WO/W and W/W: M49A2C	0002 00-4
Water Tank Truck, WO/W and W/W: M50A3	0002 00-5
Shop Van Truck, WO/W and W/W: M109A3	0002 00-6
Repair Van Truck, WO/W: M185A3	0002 00-6
Differences Between Models	0002 00-7
Vehicle Data	0002 00-7

VEHICLE DESCRIPTION AND DATA (Contd)

DESIGNATIONS

Vehicles described in this manual are designated 2-1/2 ton, 6X6, M44A2 series vehicles.

2-1/2 ton—indicates the maximum payload that the vehicles can carry.

6X6—indicates that each vehicle has six wheel ends that are capable of driving.

M44A2—code number given to identify this series of vehicles.

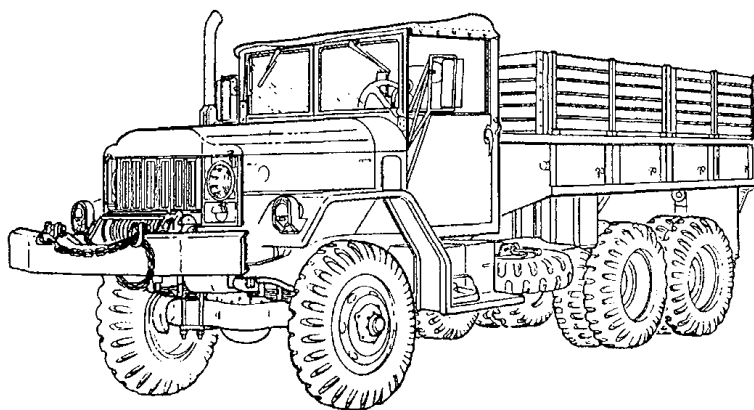
Cargo Truck, WO/W and W/W: M35A2

Purpose of the Vehicle

The M35A2 cargo truck is used to transport equipment, materials, and personnel. Because it has permanent steel-welded sides, it is the preferred vehicle for transporting bulky payloads that may shift during transit. The truck body provides 270 ft³ (7.65 m³) of cargo space. Side racks have built-in troop seats for troop transport operations.

Special Limitations

The M35A2 cargo truck is not suited for operations that require easy side cargo access; for example, ground-to-truck forklift operations. The M35A2C dropside cargo truck is preferred for this type of operation.



Cargo Truck (M35A2)

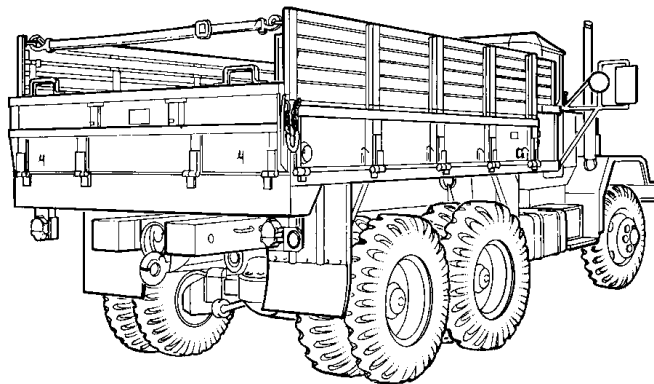
VEHICLE DESCRIPTION AND DATA (Contd)

DESIGNATIONS (Contd)

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 personnel. The hinged steel sides can be folded down or removed for easy side loading and unloading operations. The truck body provides 270 ft³ (7.65 m³) of cargo space. Side racks have built-in troop seats for troop transport operations.



Cargo Truck with Dropsides (M35A2C)

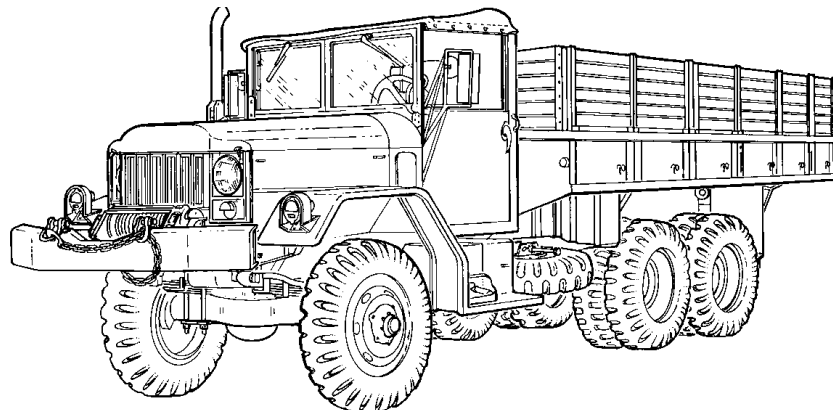
Cargo Truck with Extra-long Wheelbase, WO/W and W/W: M36A2

Purpose of the Vehicle

The M36A2 cargo truck, with extra-long wheelbase, has the same purpose as the M35A2 cargo truck (i.e., to transport equipment, materials, and personnel). The longer M36A2 wheelbase provides 410 ft³ (11.61 m³) of cargo space. The hinged right side can be folded down or removed for easy side loading and unloading operations.

Special Limitations

The M36A2 cargo truck, with extra-long wheelbase, is not suited for operations that require maneuverability in limited spaces.



Cargo Truck with Extra-long Wheelbase (M36A2)

VEHICLE DESCRIPTION AND DATA (Contd)

DESIGNATIONS (Contd)

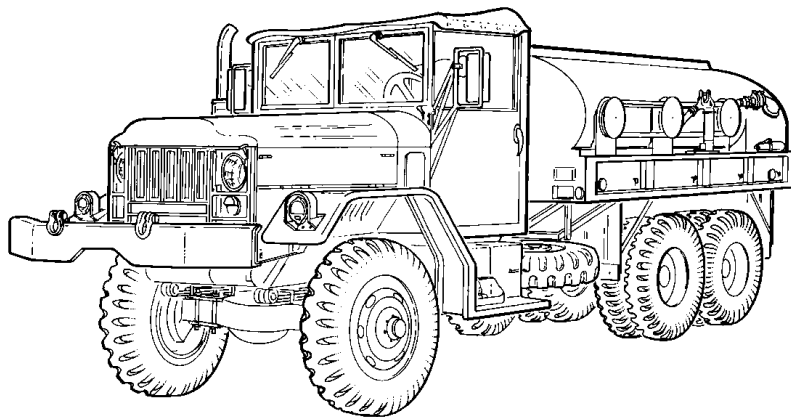
Fuel Tank Truck, WO/W and W/W: M49A2C

Purpose of the Vehicle

The M49A2C fuel tank truck is used to transport and discharge fuel. Each 600-gallon (2,271-L) tank can be filled or emptied with or without the delivery pump, located in the rear body compartment. The pump can also be used to transfer fuel from one container to another.

Special Limitations

Because fuel is extremely flammable, several safety procedures must be followed when operating the M49A2C fuel tank truck; refer to the Warning Summary in the front matter of this manual and all warnings in WP 0018 00, Fuel Tank Truck Operation. Fuel tank trucks must never be operated within 50 ft (15.25 m) of an open flame. Also, before a fuel tank truck enters an enclosed area, fuel tanks must be drained.



Fuel Tank Truck (M49A2C)

VEHICLE DESCRIPTION AND DATA (Contd)

DESIGNATIONS (Contd)

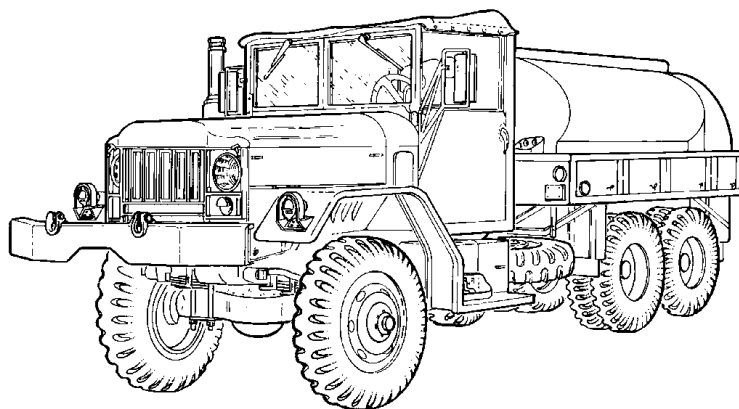
Water Tank Truck, WO/W and W/W: M50A3

Purpose of the Vehicle

M50A3 water tank trucks are used to transport and discharge water. Each 500-gallon (1,892-L) tank can be filled or emptied with or without the delivery pump, located in the rear body compartment. The pump can also be used to transfer water from one container to another.

Special Limitations

To prevent ice from damaging the delivery pump, valves, and related components, purge all water lines, valves, and pumps when the temperature is below 32 °F (0 °C) and the water distribution system is not used for prolonged periods of time.



Water Tank Truck (M50A3)

VEHICLE DESCRIPTION AND DATA (Contd)

DESIGNATIONS (Contd)

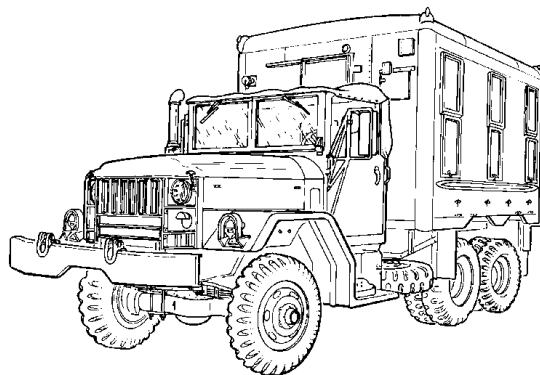
Shop Van Truck, WO/W and W/W: M109A3

Purpose of the Vehicle

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

Special Limitations

The height of the M109A3 shop van truck is 10.9 ft (3.32 m) and is not reducible.



Shop Van Truck (M109A3)

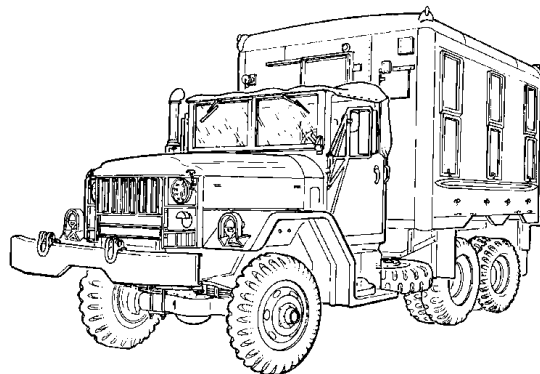
Repair Van Truck, WO/W and W/W: M185A3

Purpose of the Vehicle

The M185A3 repair van truck performs the same basic function as the M109A3 shop van truck. Additionally, it includes special equipment for more extensive field repairs.

Special Limitations

The height of the M185A3 repair van truck is 10.8 ft (3.31 m), and is not reducible.



Repair Van Truck (M185A3)

VEHICLE DESCRIPTION AND DATA (Contd)

DIFFERENCES BETWEEN MODELS

Table 1 shows major equipment and operational differences between M44A2 series vehicles.

Table 1. Differences Between M44A2 Series Vehicles.

VEHICLE CHARACTERISTICS	M35A2	M35A2C	M36A2	M49A2C	M50A3	M109A3	M185A3	DESCRIPTION (WORK PACKAGE)
Body Features:								
Reducible Height	X	X	X	X	X			0013 00
Removable Sides		X	X					0017 00
Operational Capabilities								
Cargo/Personnel Transport	X	X	X					0017 00, 0035 00
Fuel Servicing				X				0018 00
Water Servicing					X			0019 00
Equipment Repair						X	X	0020 00
Wheelbase:								
154 in. (391 cm)	X	X		X	X	X	X	
190 in. (482 cm)			X					

VEHICLE DATA

General

This section organizes vehicle specifications, special equipment, and performance data in tabular form for easy operator reference. Use the following index to locate specific data in this WP.

Specifications

Data	Table
Vehicle Dimensions	2
Ground Clearance	3
Vehicle Weights (Empty)	4
Payloads	5
Front Winch	6
Vehicle/Bridge Classifications	7
Tire Inflation Pressures, 9:00×R20 Tire	8
Grade, Speed, and Range Performance	9
Maneuverability	10
Engine	11
Cooling System	12
Fluid Capacities	13
Low Temperature Coolant and Windshield Washer Mixtures	14
Permissible Fuels	15

VEHICLE DESCRIPTION AND DATA (Contd)

VEHICLE DATA (Contd)

Table 2. Vehicle Dimensions.

VEHICLE	LENGTH (W/W)		LENGTH (WO/W)		HEIGHT		MINIMUM REDUCIBLE HEIGHT		WIDTH	
	in.	cm	in.	cm	in.	cm	in.	cm	in.	cm
M35A2	278.3	706.9	264.3	671.3	112.0	284.5	81.0	205.7	96.0	243.8
M35A2C	278.3	706.9	264.3	671.3	112.0	284.5	81.0	205.7	97.8	248.4
M36A2	343.0	871.2	329.0	835.7	123.8	314.4	81.0	205.7	96.0	243.8
M49A2C	277.0	703.6	263.0	668.0	101.5	257.8	94.0	238.8	96.0	243.8
M50A3	277.0	703.6	263.0	668.0	101.5	257.8	96.3	244.6	96.0	243.8
M109A3	282.0	716.3	268.0	680.7	130.7	332.0	130.7	332.0	96.0	243.8
M185A3	282.0	716.3	268.0	680.7	130.1	330.5	130.1	330.5	96.0	243.8

Table 3. Ground Clearance.

UNDER AXLE		UNDER CHASSIS	
in.	cm	in.	cm
12.8	32.5	10.9	27.7

Table 4. Vehicle Weights (Empty).

VEHICLE	WO/W		W/W	
	lb	kg	lb	kg
M35A2	13,200	5,987	13,720	6,223
M35A2C	13,200	5,987	13,720	6,223
M36A2	14,890	6,754	15,410	6,990
M49A2C	14,340	6,505	14,860	6,740
M50A3	14,630	6,636	15,150	6,872
M109A3	15,280	6,931	15,800	7,167
M185A3	16,760	7,602	17,280	7,838

VEHICLE DESCRIPTION AND DATA (Contd)

VEHICLE DATA (Contd)

Table 5. Payloads.

VEHICLE	PAYLOAD	
	STANDARD	METRIC
M35A2	5,000 lb	2,268 kg
M35A2C	5,000 lb	2,268 kg
M36A2	5,000 lb	2,268 kg
M49A2C	1200 gal.	4,542 L
M50A3	1000 gal.	3,784 L
M109A3	5,000 lb	2,268 kg
M185A3	5,000 lb	2,268 kg
MAXIMUM TOWED LOAD (PINTLE)		
All	6,000 lb	2,722 kg

Table 6. Front Winch.

DESCRIPTION	CAPACITY		REF. WP
	STANDARD	METRIC	
Max. Load	10,000 lb	4,536 kg	0015 00
Cable Length	200 ft	61 m	

WARNING

DO NOT CROSS A BRIDGE if the vehicle classification number is greater than the bridge classification number. The vehicle is too heavy for the bridge. Failure to do so may result in injury or death to personnel.

NOTE

- Bridge and vehicle classification allows vehicle operators to avoid bridge failure due to overloading. A vehicle may be driven across a bridge without restrictions if the vehicle classification number is less than or equal to the bridge classification number.
- For more information about vehicle/bridge classification, refer to GTA 05-07-013, Rapid Field Classification Booklet.
- A vehicle equipped with a front winch has the same vehicle classification as a vehicle without a front winch.

Table 7. Vehicle/Bridge Classifications.

VEHICLE	CLASSIFICATION NUMBER	
	EMPTY	WITH MAX. PAYLOAD
M35A2	6	8
M35A2C	6	8
M36A2	6	8
M49A2C	7	9
M50A3	6	8
M109A3	7	8
M185A3	7	8

VEHICLE DESCRIPTION AND DATA (Contd)

VEHICLE DATA (Contd)

Table 8. Tire Inflation Pressures, 9:00xR20 Tire.

HIGHWAY (MAX.)		CROSS-COUNTRY		MUD, SAND, SNOW	
psi	kPa	psi	kPa	psi	kPa
50	345	35	241	15	103

Table 9. Grade, Speed, and Range Performance.

ENGINE	PERFORMANCE DESCRIPTION	WITH MAX. PAYLOAD AND TOWED LOAD		WITH MAX. PAYLOAD ONLY	
		STANDARD	METRIC	STANDARD	METRIC
All	Max. Grade	24°	—	31°	—
All	Max. Speed	45 mph	72 kph	56 mph	90 kph
LDT-465-1D	Cruising Range*	283 mi	455 km	309 mi	497 km

*Based on use of diesel fuel and operation at 1,500 RPM. Use of other fuels and operation at other RPM will result in a shorter cruising range.

Table 10. Maneuverability.

VEHICLE	ANGLE OF APPROACH		ANGLE OF DEPARTURE	TURNING RADIUS (W/W)		TURNING RADIUS (WO/W)	
	W/W	WO/W		ft	m	ft	m
All (except M36A2)	38°	45°	38°	37.5	11.43	37.0	11.28
M36A2	38°	45°	23°	42.5	12.95	42.0	12.80

VEHICLE DESCRIPTION AND DATA (Contd)

VEHICLE DATA (Contd)

Table 11. Engine.

Type:	
LDT-465-1D	Multifuel, turbocharged, liquid cooled
Cylinders	6 (in-line)
Brake Horsepower:	
LDT-465-1D	130 hp @ 2,600 RPM
Idle Speed:	
LDT-465-1D	800–850 RPM
Operating speed	1,500–2,600 RPM
Oil Pressure:	
@ Idle (min)	10 psi (60 kPa)
@ Full power (max.)	75 psi (517 kPa)
Coolant:	
Normal operating temperature	180–200 °F (82–93 °C)
Fuel Consumption*:	
LDT-465-1D	5.15–6.18 mpg (2.19–2.63 kpl)

* Based on use of diesel fuel and operation at 1,500 RPM. Use of other fuels and operation at higher RPM will result in greater fuel consumption.

Table 12. Cooling System.

Thermostat:	
Starts to open	180 °F (82 °C)
Fully open	200 °F (93 °C)
Radiator	Vertical flow type

VEHICLE DESCRIPTION AND DATA (Contd)**VEHICLE DATA (Contd)****Table 13. Fluid Capacities.**

DESCRIPTION	FLUID*	CAPACITY	
		STANDARD	METRIC
Cooling	1/2 Ethylene Glycol, 1/2 Water	32 qt	30.3 L
Crankcase	15W40-MIL-PRF-2104	20 qt	18.9 L
Crankcase (with filter)	15W40-MIL-PRF-2104	22 qt	20.8 L
Fuel Tank	Fuel, refer to table 15	50 gal.	189.2 L
Windshield Washer	1/3 Cleaning Compound, 2/3 Water	3 qt	2.8 L

*Fluids used at 32–90 °F (0–32 °C).

NOTE

For information about Arctic operations, refer to FM 9-207,
Operations and Maintenance of Ordnance Materiel in Cold Weather.

Table 14. Low Temperature Coolant and Windshield Washer Mixtures.

DESCRIPTION	TEMPERATURE		
	ABOVE 15 °F (-10 °C)	-15 TO +40 °F (-25 TO 5 °C)	-65 TO +40 °F (-55 TO 5 °C)
Coolant	1/4 Ethylene Glycol, 3/4 Water	2/5 Ethylene Glycol, 3/5 Water	3/5 Ethylene Glycol, 2/5 Water
Windshield Washer	1/3 Cleaning Compound, 2/3 Water	1/2 Cleaning Compound, 1/2 Water	2/3 Cleaning Compound, 1/3 Water

VEHICLE DESCRIPTION AND DATA (Contd)**VEHICLE DATA (Contd)****NOTE**

- If the vehicle's fuel density compensator is bypassed, the vehicle must be refueled with diesel fuel only, and the fuel tank must be clearly stenciled DIESEL FUEL ONLY. If the fuel density compensator is bypassed and fuel other than diesel fuel is used, the engine will not run properly.
- Primary fuels listed in table 15 must be used whenever possible. If primary fuels are not available, alternate fuels should be used in the following order (i.e., from

Table 15. Permissible Fuels.

FUEL	LOWER TEMPERATURE LIMIT (DO NOT USE BELOW THIS TEMPERATURE)
Primary Fuels	
Diesel fuel, VV-F-800, grade DF-2 (NATO code no. F-54)	+32 °F (0 °C)
Diesel fuel, VV-F-800, grade DF-1 (NATO code no. F-54)	-10 °F (-23 °C)
Diesel fuel, VV-F-800, grade DF-A (NATO code no. F-54)	Can be used at all temperatures.
Alternate I Fuels	
Turbine fuel, MIL-T-5624, grade JP-5 (NATO code no. F-44)	-51 °F (-46 °C)
Distillate fuel, MIL-F-24397, ND (NATO code no. F-85)	+40 °F (+4 °C)
Commercial diesel fuel (ASTM D975) 2-D and no. 2	+32 °F (0 °C)
Diesel fuel, MIL-F-16884 (NATO code no. F-75 or F-76)	+15 °F (-9 °C)
Commercial diesel fuel (ASTM D975) 1-D and no. 1	-10 °F (-23 °C)
Turbine fuel, aviation, MIL-T-38219 grade JP-7	-46 °F (-43 °C)
Turbine fuel, aviation, kerosene type, MIL-T-83133, grade JP-8 (NATO code no. F-34)	-58 °F (-50 °C)
Aviation gasoline, MIL-G-5572, AVGAS 80/87 (NATO code no. F-12)	-76 °F (-60 °C)
Commercial aviation gasoline (ASTM D910) grade 80/70	-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	-40 °F (-40 °C)
Commercial aviation turbine fuel (ASTM D1655), jet A-1	-52 °F (-47 °C)
Any mixture of primary and/or alternate I fuels listed above.	*

*Any temperature at which fuel will flow.

VEHICLE DESCRIPTION AND DATA (Contd)**VEHICLE DATA (Contd)****WARNING**

Never mix gasoline or JP-4 turbine fuel with other fuels outside vehicle fuel tank; gasoline and JP-4 turbine fuel are highly combustible and may explode, resulting in injury or death to personnel. Mixing must be done only by adding fuels to fuel tank.

CAUTION

If engine runs rough when using an alternate II fuel, add 10%–30% diesel fuel to smooth engine performance. Failure to add diesel fuel may result in piston damage.

Table 15. Permissible Fuels (Contd).

FUEL	LOWER TEMPERATURE LIMIT (DO NOT USE BELOW THIS TEMPERATURE)
Alternate II Fuels	
Turbine fuel, MIL-T-5624, grade JP-4 (NATO code no. F-40)	-72 °F (-58 °C)
Turbine fuel, aviation, naphtha-type (ASTM D1655), jet B	-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)	0 °F (-18 °C)
Gasoline, automotive (NATO code no. F-50)	*
Gasoline, W-G-76, regular and premium grades	*
Gasoline, unleaded/low-leaded, VV-G-001690, regular and premium grades	*
Aviation gasoline, MIL-G-5572, AVGAS 100/300 (NATO code no. F-18)	-75 °F (-59 °C)
Commercial aviation gasoline (ASTM D910), grade 100/130	-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	*

CAUTION

Extended operation using emergency fuels may clog fuel filters and foul fuel injector nozzles. Add diesel fuel, as required, to smooth engine performance.

Emergency Fuels	
Burner fuel oil, VV-F-815, grade FO-1	0 °F (-18 °C)
Burner fuel oil, VV-F-815, grade FO-2	20 °F (-7 °C)
Commercial burner fuel oil (ASTM D396), grade FO-1	0 °F (-18 °C)
Commercial burner fuel oil (ASTM D396), grade FO-2	20 °F (-7 °C)

*Any temperature at which fuel will flow.

GENERAL INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

THEORY OF OPERATION

GENERAL

This Work Package (WP) explains how M44A2 series vehicle cab controls and indicators are used to operate vehicle equipment and monitor equipment status. To locate a specific system operation in this WP, refer to the index below.

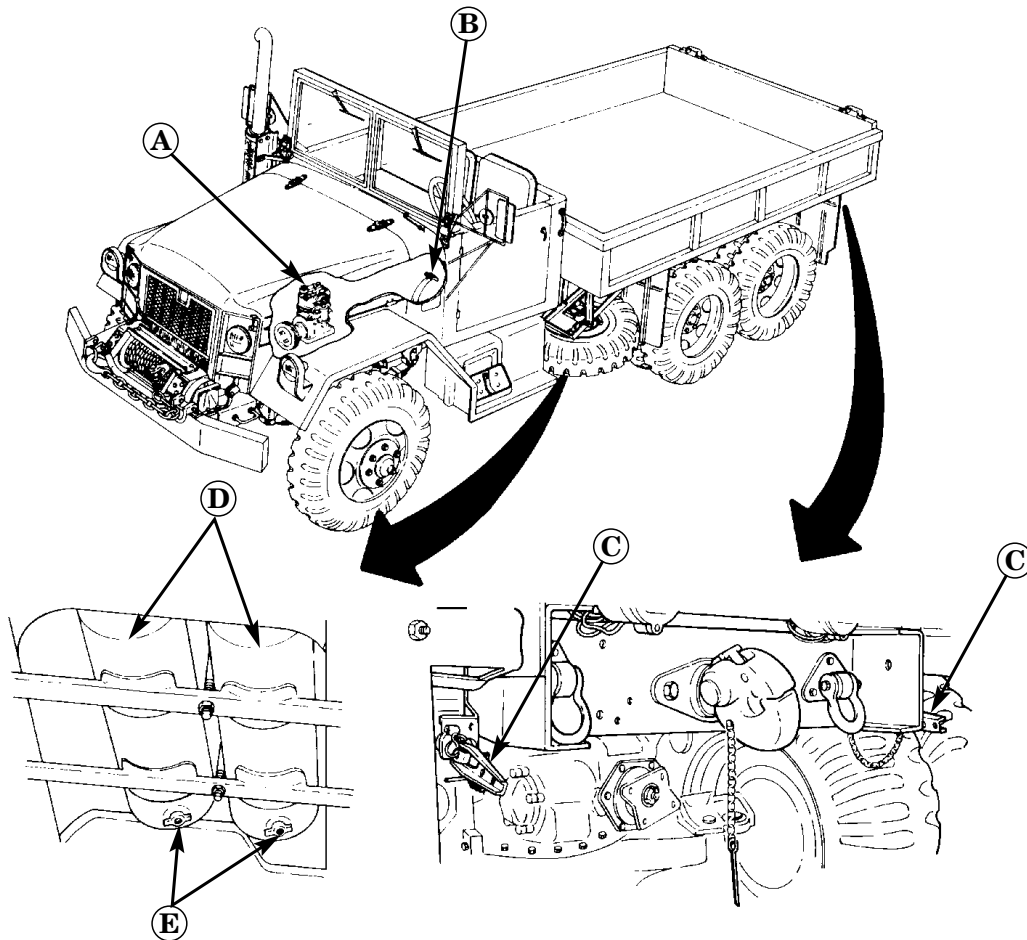
System	Page No.
Air-Hydraulic Brake System Operation	0003 00-2
Front Winch System Operation.	0003 00-3
Fuel System Operation	0003 00-4
Lighting System Operation	0003 00-5

THEORY OF OPERATION (Contd)

AIR-HYDRAULIC BRAKE SYSTEM OPERATION

The M44A2 series vehicle air-hydraulic brake system uses compressed air to assist hydraulic brake operation, by pressurizing the hydraulic fluid. The system includes the following major components:

- Ⓐ **AIR COMPRESSOR**—supplies compressed air to air reservoirs, air-hydraulic brake system, trailer brake system via couplings, and windshield wiper motors.
- Ⓑ **BRAKE PEDAL**—activates air-hydraulic brake system.
- Ⓒ **TRAILER BRAKE COUPLINGS**—when towing a trailer, trailer brake couplings provide a point of connection for the trailer air brake system and allow vehicle and trailer brake systems to work together.
- Ⓓ **AIR RESERVOIRS**—store compressed air. If the main brake system fails or engine stalls, air reservoirs supply compressed air for brake operation. When reservoir air pressure is low, a warning buzzer sounds in the cab.
- Ⓔ **AIR RESERVOIR DRAIN VALVES**—permit draining of excess moisture and release of compressed air from air reservoirs.

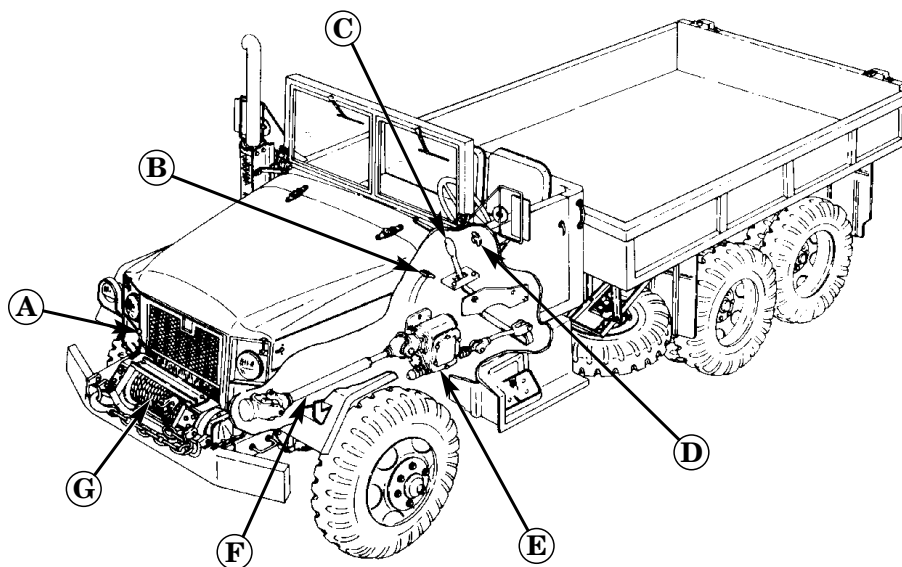


THEORY OF OPERATION (Contd)

FRONT WINCH SYSTEM OPERATION

All M44A2 series vehicles can be equipped with a front winch. Front winch operation is the same for all vehicle models. The system consists of the following major components:

- Ⓐ **CLUTCH CONTROL LEVER**—used to engage or disengage winch drum gear.
- Ⓑ **CLUTCH PEDAL**—permits quick engagement or disengagement of transmission power takeoff (PTO). Used in conjunction with transmission PTO control lever.
- Ⓒ **TRANSMISSION POWER TAKEOFF (PTO) CONTROL LEVER**—engages or disengages transmission PTO; controls propeller shaft rotational direction and speed, which, in turn, controls winch drum rotational direction and speed.
- Ⓓ **HAND THROTTLE**—used to set engine at desired speed (<1,200 RPM) for winch operation.
- Ⓔ **TRANSMISSION POWER TAKEOFF (PTO)**—transfers driving power from transmission to propeller shaft and winch.
- Ⓕ **PROPELLER SHAFT**—transfers driving power from transmission PTO to winch.
- Ⓖ **FRONT WINCH**—drum rotates according to operator-selected direction and speed settings to let out or reel in cable with chain/hook assembly.

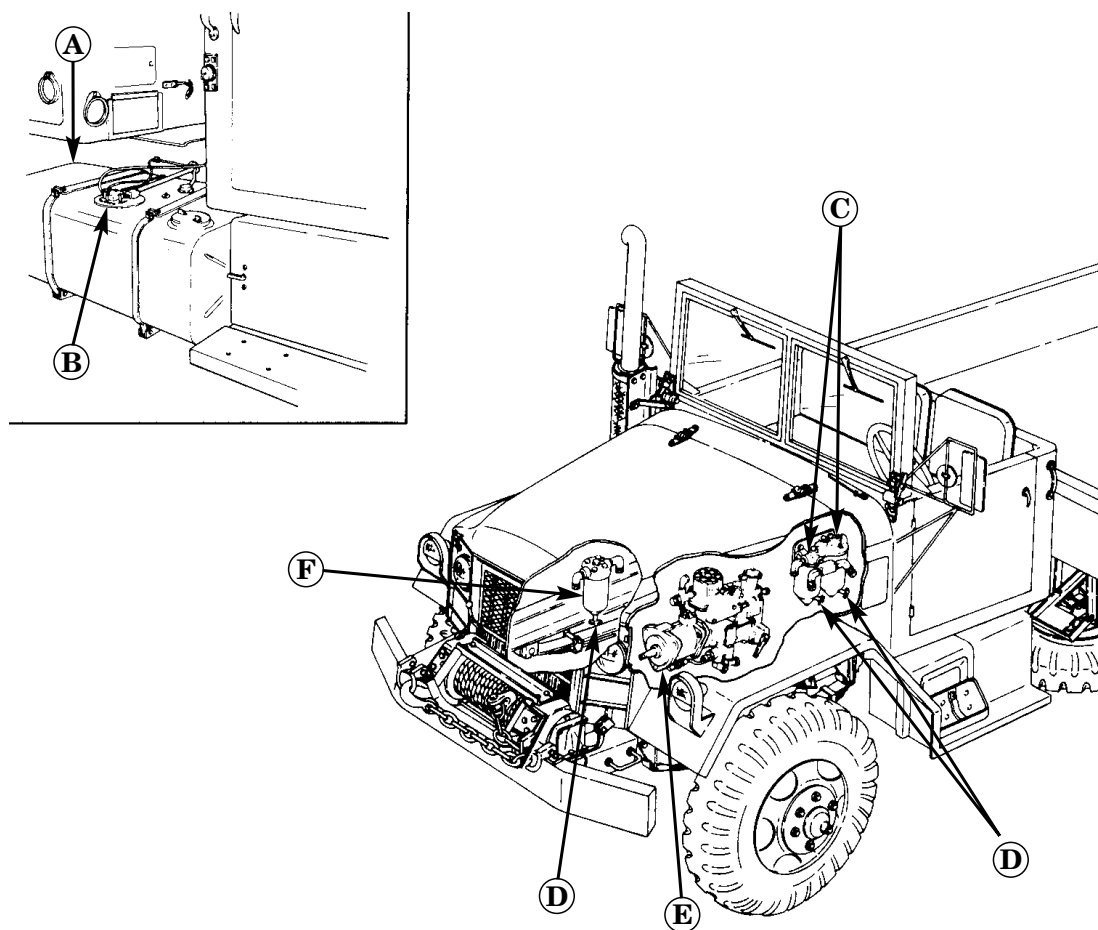


THEORY OF OPERATION (Contd)

FUEL SYSTEM OPERATION

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

- Ⓐ **FUEL TANK**—fuel storage.
- Ⓑ **FUEL TANK PUMP**—electric pump located in the fuel tank; supplies fuel at a constant rate to the fuel injection pump. Power is supplied to the fuel tank pump when ignition is ON.
- Ⓒ **SECONDARY AND FINAL FUEL FILTERS**—provide additional fuel filtering before fuel enters the fuel injection pump.
- Ⓓ **DRAIN VALVES**—permit draining of excess moisture and fuel from primary, secondary, and final fuel filters.
- Ⓔ **FUEL INJECTION PUMP**—pressurizes and supplies fuel to injector nozzles for injection into cylinders. The accelerator pedal and hand throttle are connected to the fuel injector pump to provide operator control of the fuel injector pump and fuel to injectors.
- Ⓕ **PRIMARY FUEL FILTER**—first fuel filter in the fuel distribution system; filters dirt and water from fuel directly from the fuel tank.

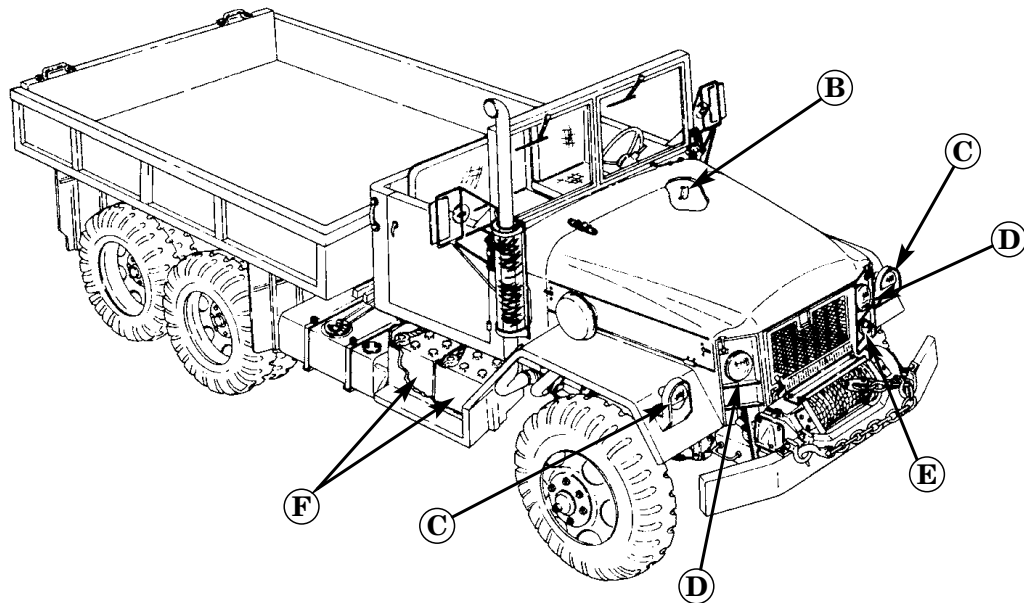
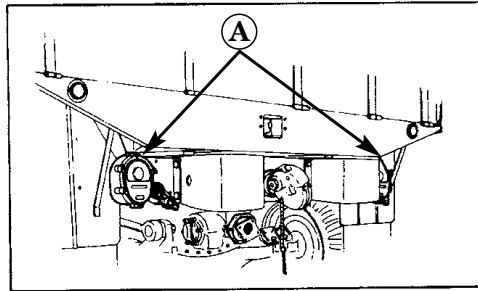


THEORY OF OPERATION (Contd)

LIGHTING SYSTEM OPERATION

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

- Ⓐ **REAR COMPOSITE LIGHT**—combination taillight, stoplight, blackout taillight, blackout stoplight, and turn signal.
- Ⓑ **LIGHT SWITCH**—used to control vehicle lighting system.
- Ⓒ **FRONT COMPOSITE LIGHT**—combination marker light, blackout marker light, and turn signal.
- Ⓓ **SERVICE HEADLIGHT**—provides low/high beam lighting of road ahead of vehicle.
- Ⓔ **BLACKOUT HEADLIGHT**—headlight for blackout operations.
- Ⓕ **BATTERIES**—provide 24.0 VDC to light switch for lighting system operation.



END OF WORK PACKAGE

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CHAPTER 2

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

Work Package Title	Work Package Number
Description and Use of Operator Controls and Indicators	WP 0004 00
Operation Under Usual Conditions	WP 0005 00
Driver's Seat and Seatbelt Operation.	WP 0006 00
Starting Engine Above +20 °F (-6.7 °C)	WP 0007 00
Cold Weather Starting Below +20 °F (-6.7 °C)	WP 0008 00
Placing the Vehicle in Motion	WP 0009 00
Stopping the Vehicle and Engine	WP 0010 00
Starting Engine Using Slave Receptacle	WP 0011 00
Service Lights Operation.	WP 0012 00
Raising Windshield and Cab Soft Top Installation.	WP 0013 00
Raising and Securing Hood.	WP 0014 00
Towing the Vehicle	WP 0015 00
Front Winch Operation	WP 0016 00
Cargo Truck Operation	WP 0017 00
Fuel Tank Truck Operation	WP 0018 00
Water Tank Truck Operation	WP 0019 00
Shop Van and Repair Van Truck Operation	WP 0020 00
Operation Under Unusual Conditions	WP 0021 00
Extreme Cold Operation	WP 0022 00
Snow and Ice Operation	WP 0023 00
Extreme Heat Operation Above 95 °F (35 °C)	WP 0024 00
Sandy and Dusty Operation	WP 0025 00
Heavy Rain and High Humidity Operation	WP 0026 00
Deep Mud Operation	WP 0027 00
Fording Operation	WP 0028 00
Towing Vehicle to Start Engine	WP 0029 00
Starting Engine Using Jumper Cables	WP 0030 00
Special Purpose Kits Operation	WP 0031 00
A-Frame Kit Operation	WP 0032 00
Trailer Airbrake Kit Operation.	WP 0033 00
Arctic Winterization Kit Operation	WP 0034 00
Bow and Cover Kit.	WP 0035 00
Cargo Body Arctic Kit Operation	WP 0036 00
Deep Water Fording Kit Operation	WP 0037 00
Personnel Heater (Hot Water) Operation	WP 0038 00
Van Body Heater Kits (Primary and Secondary) Operation	WP 0039 00
Swingfire Heater Operation	WP 0040 00

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

KNOW YOUR CONTROLS AND INDICATORS

Before operating M44A2 series vehicle equipment, personnel must be familiar with the location and function of the vehicle controls and indicators described in this Work Package (WP).

WARNING

Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB; long term exposure to this noise causes hearing loss.

NOTE

- Except where specifically noted, the controls and indicators in this WP apply to all M44A2 series vehicles.
- In this WP, the term “left” indicates the driver side and “right” indicates the crew side of the vehicle.

CONTROLS AND INDICATORS INDEX

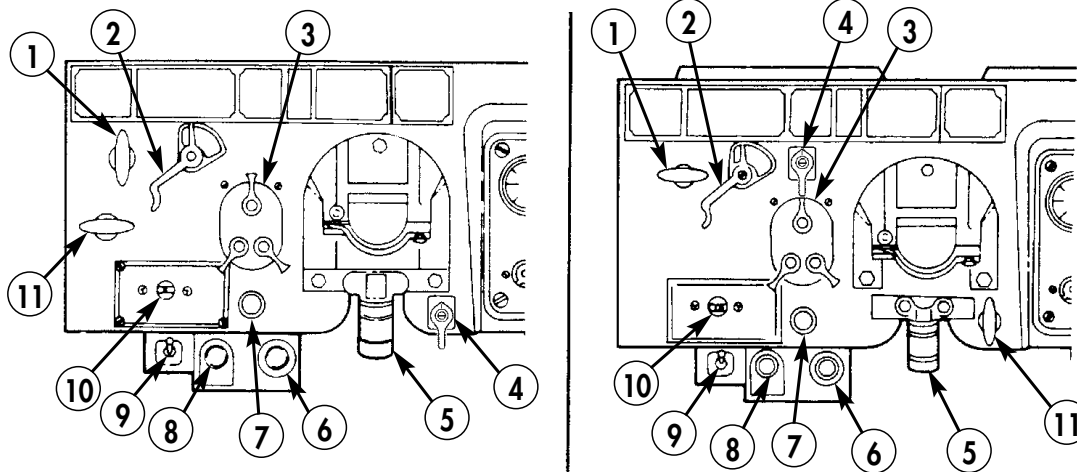
Title	Page No.
Preparation for Use	WP 0004 00-1
Chassis Controls and Indicators	WP 0004 00-2
Body Equipment Controls and Indicators	WP 0004 00-10
Special Purpose Kits Controls and Indicators	WP 0004 00-16

PREPARATION FOR USE

When a vehicle is received by an organization, the officer-in-charge is responsible for ensuring that the vehicle has been properly prepared for service by the supplier and is fully operational. If additional maintenance is required to make the vehicle fully operational, maintenance personnel perform these tasks.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

CHASSIS CONTROLS AND INDICATORS

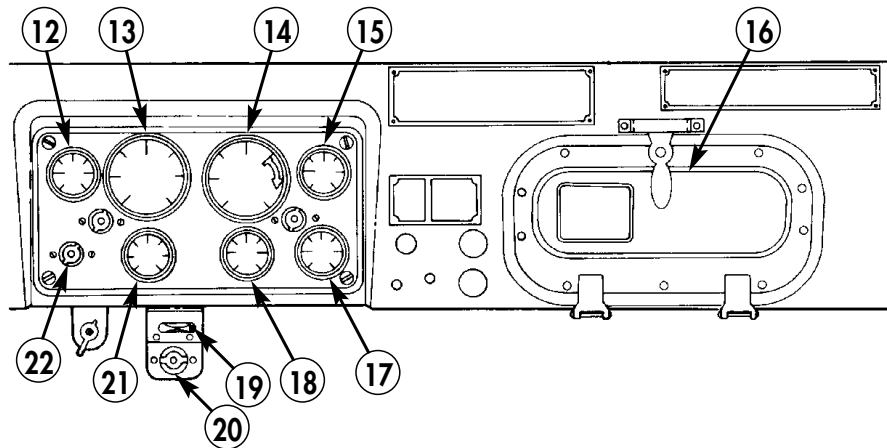


Key Item and Function

1. **Engine Stop Control**—when pulled out, stops fuel flow to shut down engine.
2. **Accessory Power Switch**—two-position rotary switch (ON/OFF); routes power to starter system, instrument panel gauges, fuel pump, and low pressure warning buzzer.
3. **Light Switch**—three rotary switches in one switch body; used to control vehicle lights.
4. **Engine Start Switch**—momentary rotary switch. When rotated clockwise, routes 24 VDC to starter relay to start engine. Switch returns to its original position when released.
5. **Air Cleaner Indicator**—indicator is normally green. When indicator is red, air cleaner filter should be replaced.
6. **Defroster Control Knob**—when pulled all the way out, provides maximum heated air flow to windshield to prevent frosting or remove existing frost.
7. **Pneumatic Windshield Wiper Control Knob**—used to set windshield wipers to ON/OFF.
8. **Damper Control Knob**—when pulled all the way out, opens a damper to provide maximum heated airflow to the personnel compartment. Pushing the control in closes the damper.
9. **Heater Blower Switch**—three-position toggle switch (LOW/OFF/HIGH); controls rate of forced airflow to the personnel compartment.
10. **Manifold Heater Switch**—two-position momentary toggle switch (OFF/ON (momentary)); when set to ON, manifold heater warms engine intake manifold to facilitate cold weather (<+20 °F (-7 °C)) starting. Switch returns to OFF position when released.
11. **Hand Throttle Control**—used to set engine at desired RPM (revolutions per minute), without the need to maintain pressure on the accelerator pedal. When pulled out, the hand throttle control locks in the desired position; rotating the handle clockwise or counterclockwise unlocks it and allows it to return to its original position.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

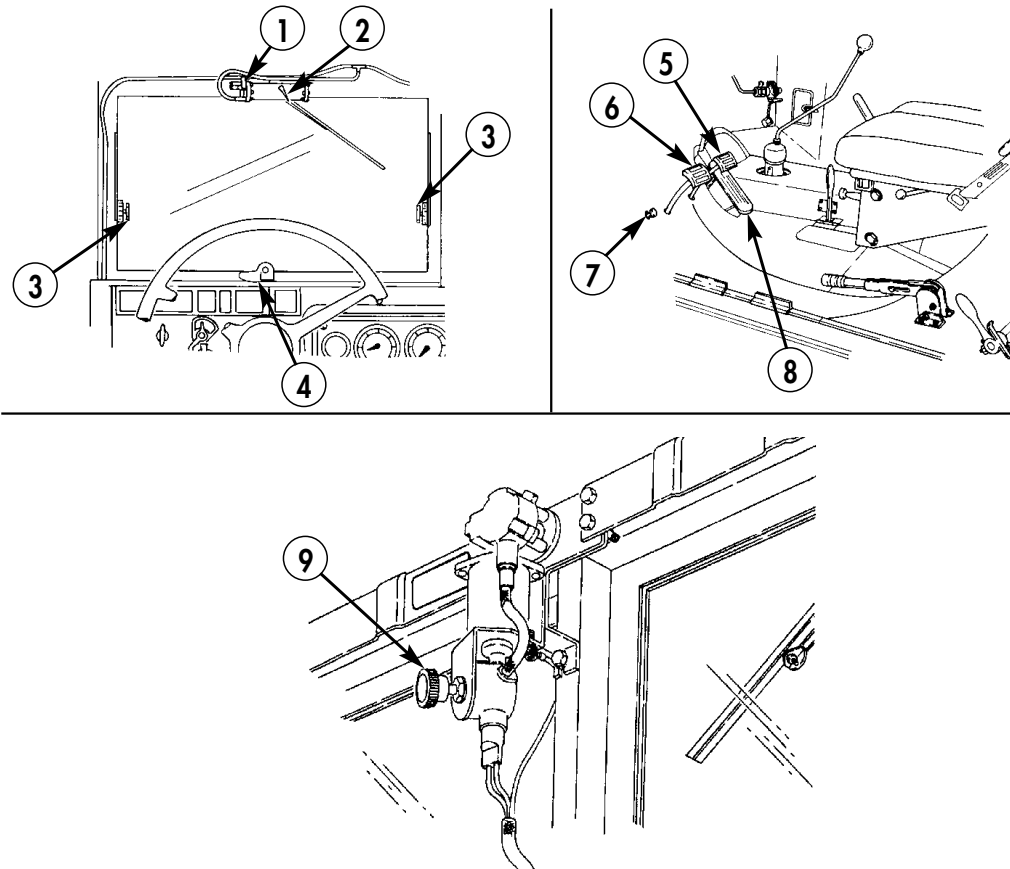
CHASSIS CONTROLS AND INDICATORS (Contd)

**Key Item and Function**

12. **Oil Pressure Gauge**—indicates oil pressure when engine is running. Normal pressure is 10–75 psi (69–517 kPa).
13. **Speedometer/Odometer**—indicates vehicle speed in miles/kilometers per hour (mph/kph) and total mileage.
14. **Tachometer**—indicates engine speed in RPM and operation time in hours and tenths of hours.
15. **Temperature Gauge**—indicates engine coolant temperature. Normal operating temperature is 180–200 °F (82–93 °C).
16. **Map Compartment**—provides for storage of manuals, forms, and maps.
17. **Air Pressure Gauge**—indicates air reservoir tank pressure. Normal pressure is 85–120 psi (586–827 kPa).
18. **Battery/Generator Meter**—indicates that the batteries are charging or discharging.
19. **Front Wheel Drive Control Valve Lever**—engages/disengages the front wheel drive.
20. **Front Wheel Drive Indicator Light**—illuminates when the front wheel drive is engaged.
21. **Fuel Gauge**—indicates the fuel tank fuel level.
22. **High Beam Indicator**—illuminates when headlight high beams are ON.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

CHASSIS CONTROLS AND INDICATORS (Contd)



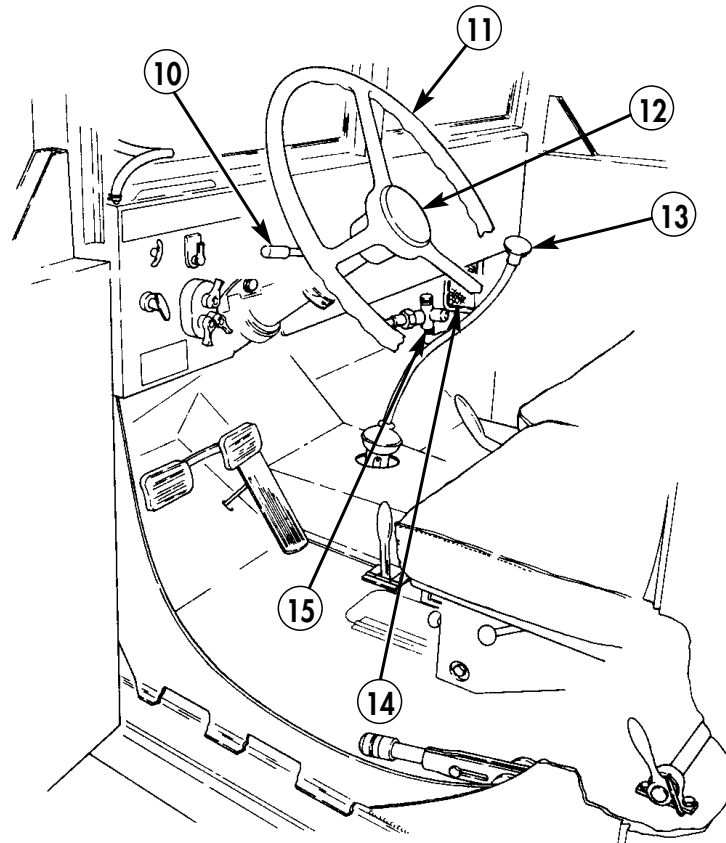
Key Item and Function

1. **Windshield Wiper Reset Button**—when pushed, resets the wiper motor.
2. **Windshield Wiper Lever**—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**—depressed to slow and stop vehicle.
6. **Clutch Pedal**—when depressed, disengages clutch from engine and allows transmission to be shifted to a different gear ratio. When clutch pedal is released, clutch engages engine.
7. **Headlight Beam Selection Switch**—pressed to select high or low headlight beams.
8. **Accelerator Pedal**—controls engine speed. When depressed, engine speed increases; when released, engine speed decreases.

NOTE

Item 9 is for vehicles with electric windshield wiper kit installed.

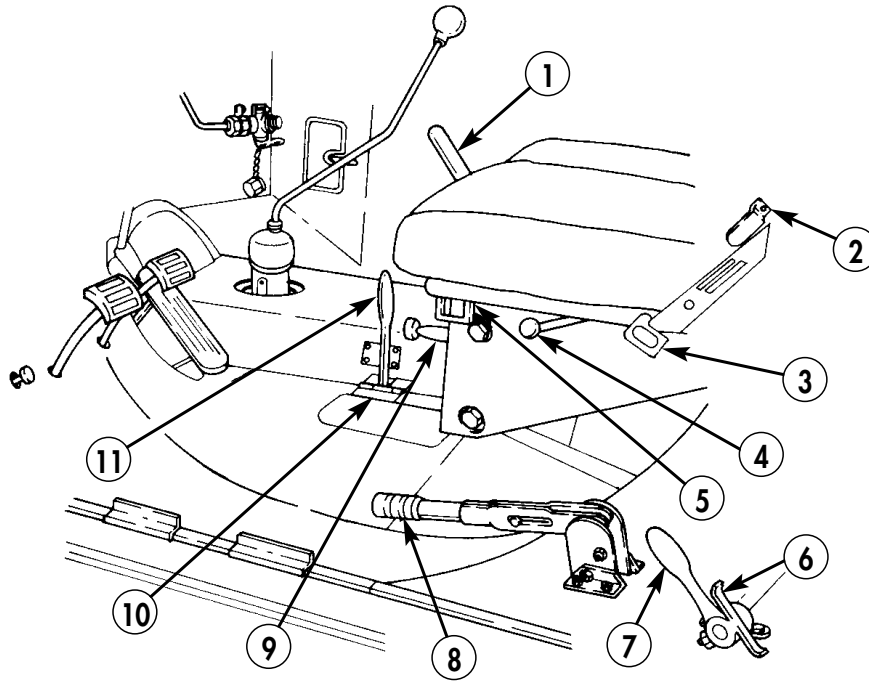
9. **Electric Windshield Wiper Control Knob**—used to set windshield wipers to LOW, HIGH, or OFF.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)**CHASSIS CONTROLS AND INDICATORS (Contd)****Key Item and Function**

10. **Directional Turn Signal and Flasher Control Lever**—moved down to operate left turn signals and up to operate right turn signals. The flasher control activates emergency flasher lights.
11. **Steering Wheel**—used to control vehicle's direction of motion.
12. **Horn Button**—pressed to sound vehicle horn.
13. **Transmission Gearshift Lever**—used to place transmission in drive positions (1-5), reverse, or neutral.
14. **Cowl Ventilator**—controls fresh air flow into personnel compartment.
15. **Air Supply Valve**—provides auxiliary compressed air connection for inflating tires, and cleaning air filters.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

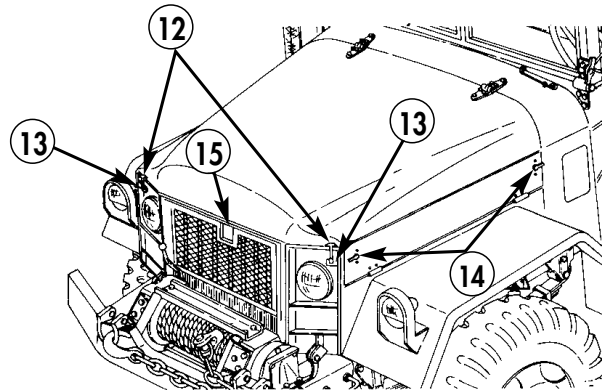
CHASSIS CONTROLS AND INDICATORS (Contd)

**Key Item and Function**

1. **Transfer Case Shift Lever**—pushed down to LOW range for heavy load operations, and pulled up to HIGH range for light load operations.
2. **Backrest Control Lever**—used to change position of lower section of backrest.
3. **Seat Cushion Control Lever**—used to adjust height of rear portion of seat cushion.
4. **Seat Horizontal Control Lever**—when pulled back, releases driver's seat so it can be moved forward or backward.
5. **Slotted Bracket**—located at each front corner, 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 (PTO) Lever**—in the up position, supplies power to operate auxiliary equipment.
8. **Parking Brake Lever**—pulled up to apply parking brake. The knob at the top of the handle is turned to set brake cable tension.
9. **Spring Tension Control Lever**—when crank is turned clockwise, seat spring tension increases.
10. **Shifting Lever Hinge Lock**—secures transmission power takeoff lever in neutral position.
11. **Transmission Power Takeoff (PTO) Lever**—moved forward to HI or LOW position to supply power to front winch for reeling in or raising a load. Moved to REV position to release or lower a load.

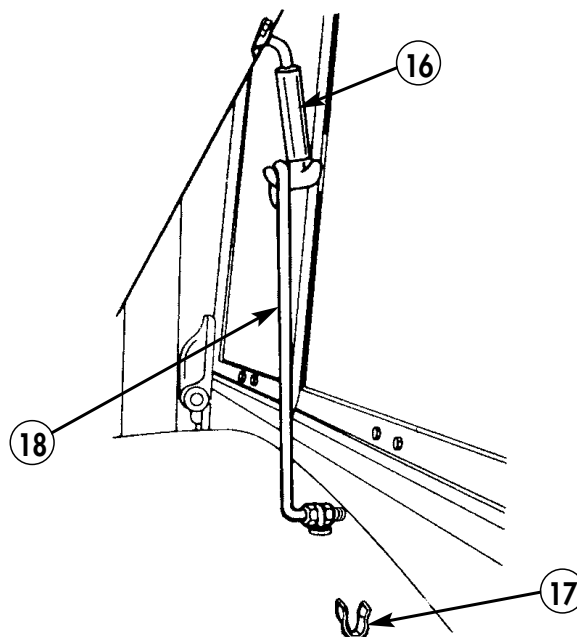
DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

CHASSIS CONTROLS AND INDICATORS (Contd)



Key Item and Function

- 12. **Hood Catches**—located on front of hood, used to secure hood in closed position.
- 13. **Hood Holddown Latches**—used with hood catches to secure hood in closed position.
- 14. **Engine Side Panel Latches**—turned to UP position to release side panels.
- 15. **Hood Latch**—secures hood in closed position.

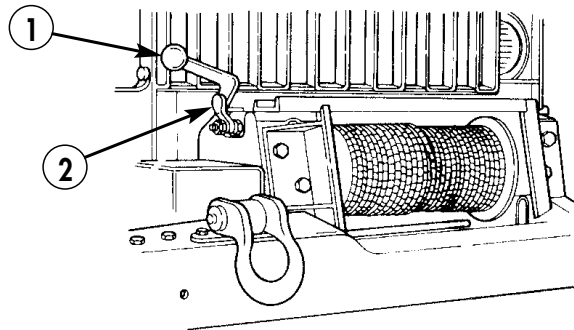


Key Item and Function

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

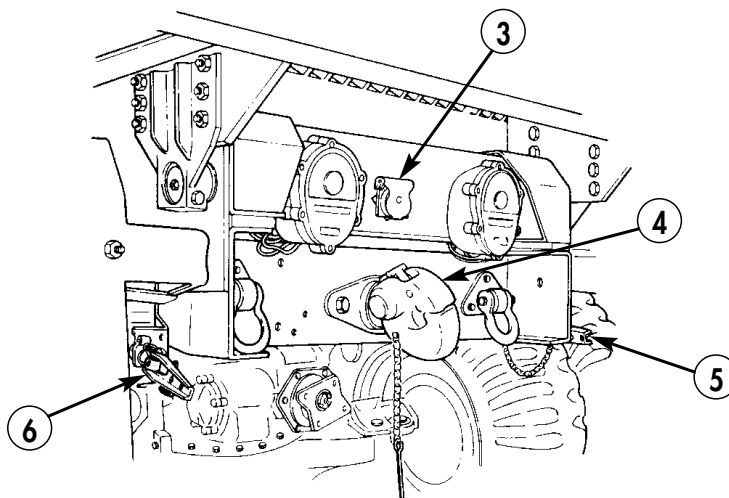
DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

CHASSIS CONTROLS AND INDICATORS (Contd)



Key Item and Function

1. **Front Winch Clutch Control Lever**—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 Latch**—secures drum when winch is not in use. To unlock drum, pull latch out and rotate a quarter turn (either clockwise or counterclockwise).

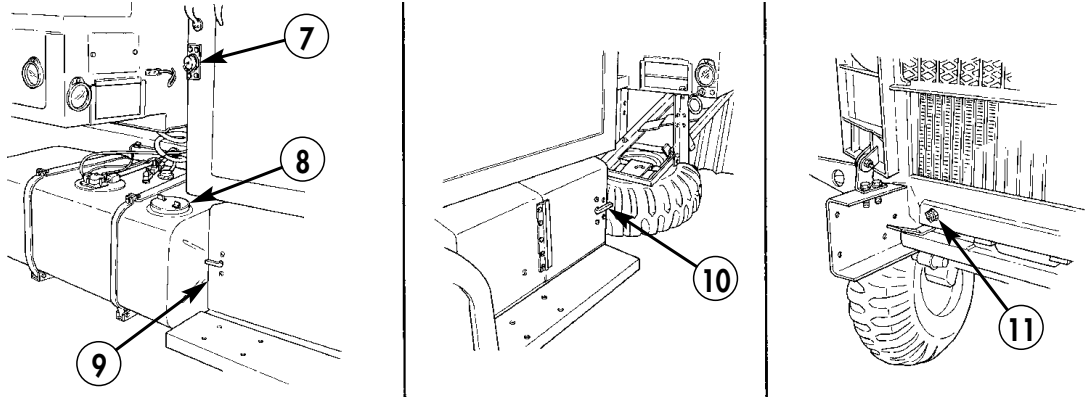


Key Item and Function

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

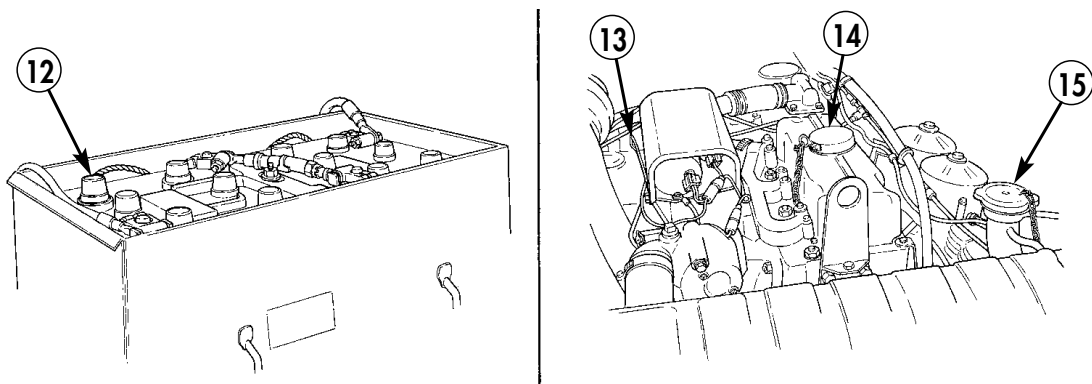
DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

CHASSIS CONTROLS AND INDICATORS (Contd)



Key Item and Function

7. **Slave Receptacle**—located on right rear side of cab. Connection point for external power to start vehicle when vehicle batteries are discharged.
8. **Fuel Tank Filler Cap**—turned counterclockwise to open for fuel servicing.
9. **Battery Compartment Cover**—opened to provide access to batteries.
10. **Tool Box Latch Handle**—turned up to unlatch and open tool box.
11. **Radiator Drain Valve**—turned counterclockwise to drain coolant from radiator.

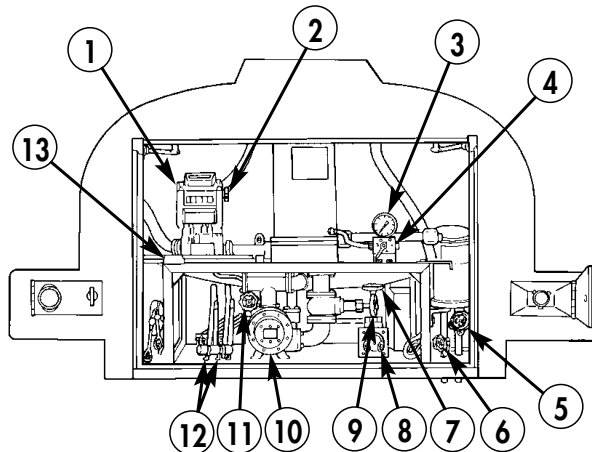


Key Item and Function

12. **Battery Filler Caps**—removed to check battery fluid level or to add distilled water.
13. **Oil Dipstick**—removed to check engine crankcase oil level.
14. **Engine Oil Filler Cap**—removed to add oil to engine crankcase.
15. **Radiator Cap**—removed to add engine coolant.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

BODY EQUIPMENT CONTROLS AND INDICATORS



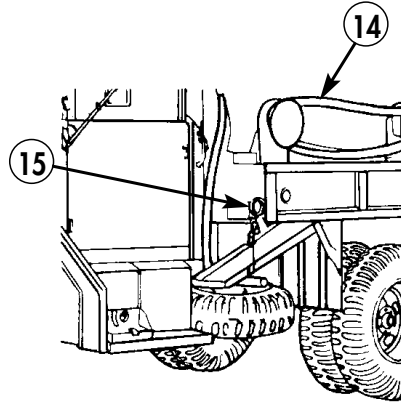
Fuel Tank Truck (M49A2C)

Key Item and Function

1. **Meter**—records amount of fuel (in gal.) pumped out.
2. **Counter Control Lever**—moved up or down to reset meter to zero.
3. **Pressure Gauge**—indicates inlet pressure to or outlet pressure from filter elements; the side measured is selected using the test valve. The condition of filter elements is determined by calculating the pressure difference between inlet and outlet sides of the filter elements.
4. **Test Valve**—turned to position NO. 1 for pressure readings on inlet side of the filter elements; turned to position NO. 2 for pressure readings on outlet side of the filter elements.
5. **Filter-Separator Drain Valve**—turned counterclockwise to open valve, drains water separated from fuel by the filter separator unit.
6. **Sump Valve**—turned counterclockwise to open valve and drain sump.
7. **Gravity Delivery Line Gate Valve**—turned counterclockwise to open valve and let fuel flow through gravity delivery line.
8. **Gravity Delivery Line Gate Valve Adapter**—fitting that provides a connection point for the fuel hose.
9. **Delivery Pump Line Gate Valve**—turned counterclockwise to open valve and let fuel flow through pump and dispenser line.
10. **Delivery Pump Drain Valve**—turned to open valve and drain fuel from delivery pump when maintenance is required.
11. **Meter Globe Valve**—turned to drain fuel from meter when meter maintenance is required.
12. **Discharge Valve Control Levers**—pulled back to open discharge valves, which control fuel flow from tank sections. The left lever controls the front tank valve, the right lever controls the rear tank valve.
13. **Liquid Level Gauge**—inserted into tank sections to measure fuel level.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

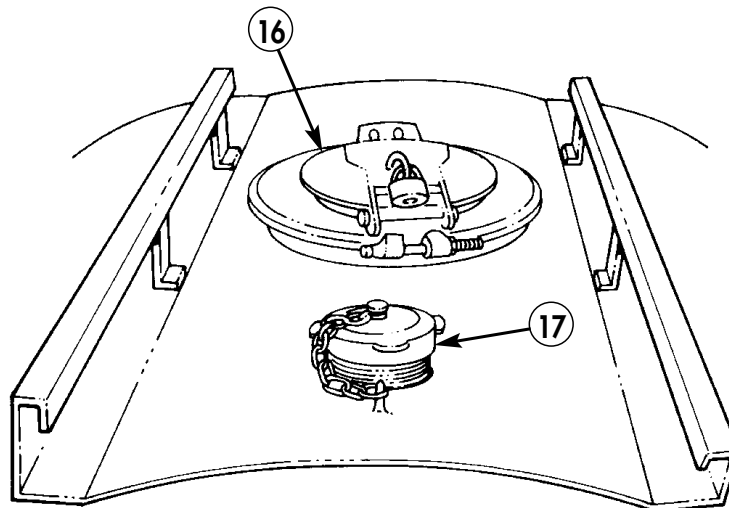
BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



Fuel Tank Truck (M49A2C)(Contd)

Key Item and Function

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

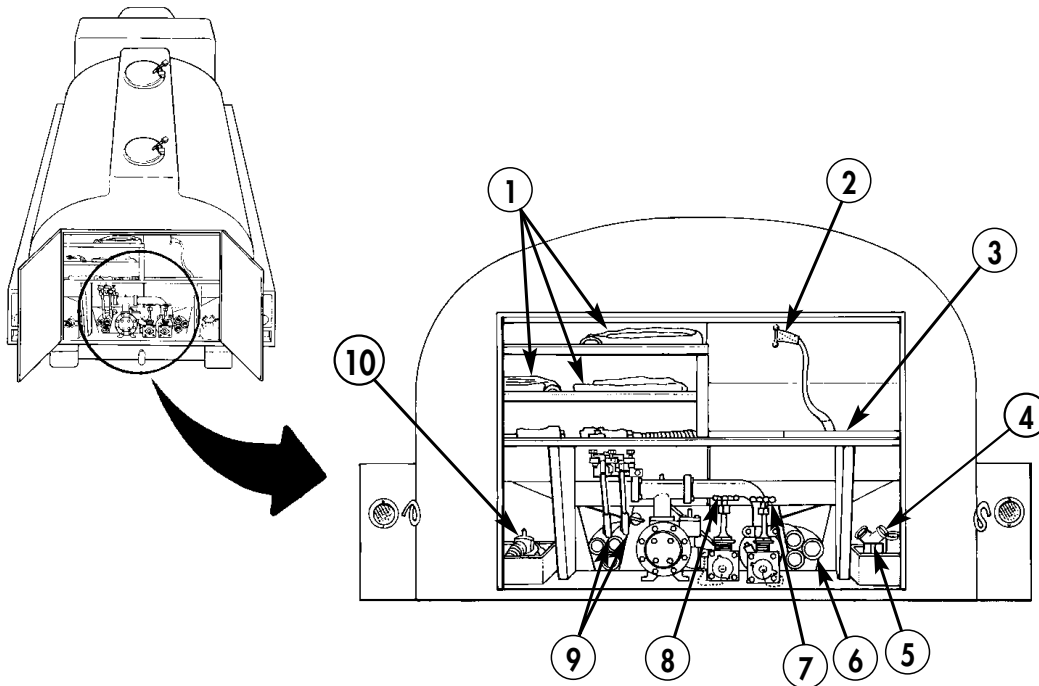


Key Item and Function

16. **Manhole Covers**—when removed provide openings for access to each compartment for cleaning and other maintenance.
17. **Filler Covers**—when removed provide openings for filling each compartment.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



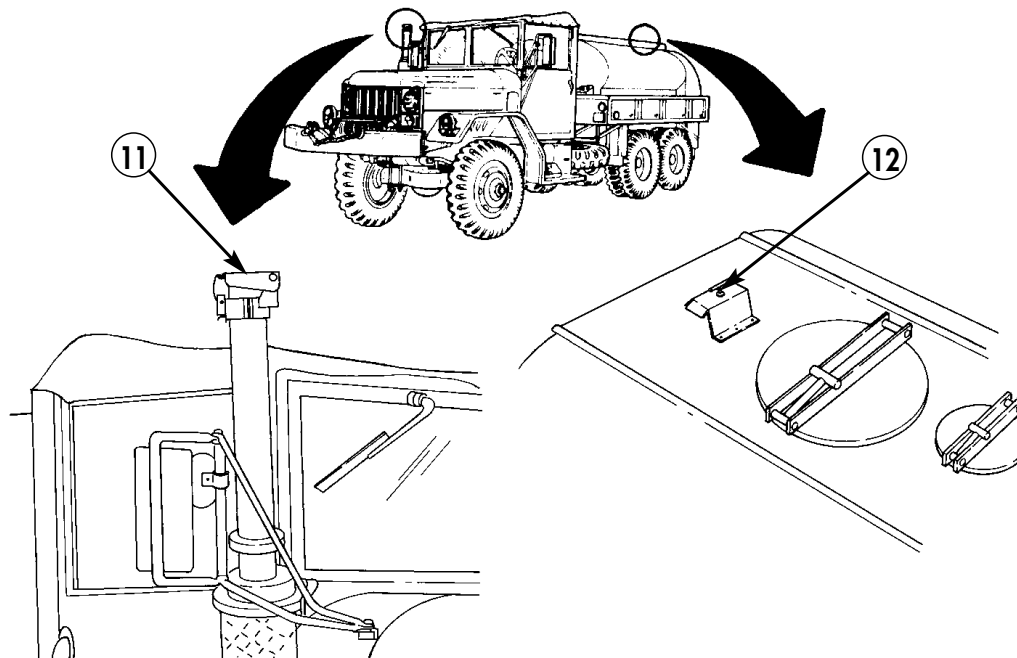
Water Tank Truck (M50A3)

Key Item and Function

1. **Water Discharge Hoses**—used to deliver water from tank compartments.
2. **Strap**—used to secure manhole cover during arctic operation when heaters are installed in tank openings.
3. **Water Level Gauge**—inserted into tank compartments to measure water levels.
4. **Y Coupling**—attached to the line discharge/suction valve to facilitate delivery of two streams of water at the same time.
5. **Water Suction Strainer**—attached to water suction hose to prevent foreign matter from entering tank.
6. **Water Suction Hoses**—used to fill tank compartments when gravity filling is not possible.
7. **Gravity Delivery Line Suction Valve**—turned counterclockwise to open valve and let water flow through gravity delivery line.
8. **Pump Delivery Line Discharge Valve**—turned counterclockwise to open valve and let water flow through pump delivery line.
9. **Compartment Valve Levers**—pulled back to open discharge valves, which control water flow from tank compartments.
10. **Water Dispenser Nozzle**—used to control the water flow rate at the point of delivery.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

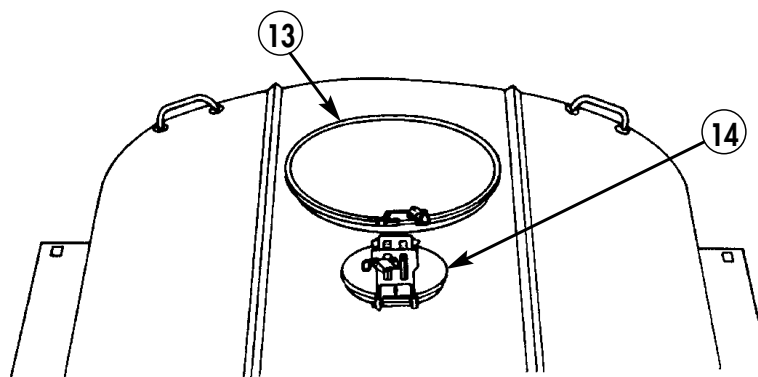
BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



Water Tank Truck (M50A3)(Contd)

Key Item and Function

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

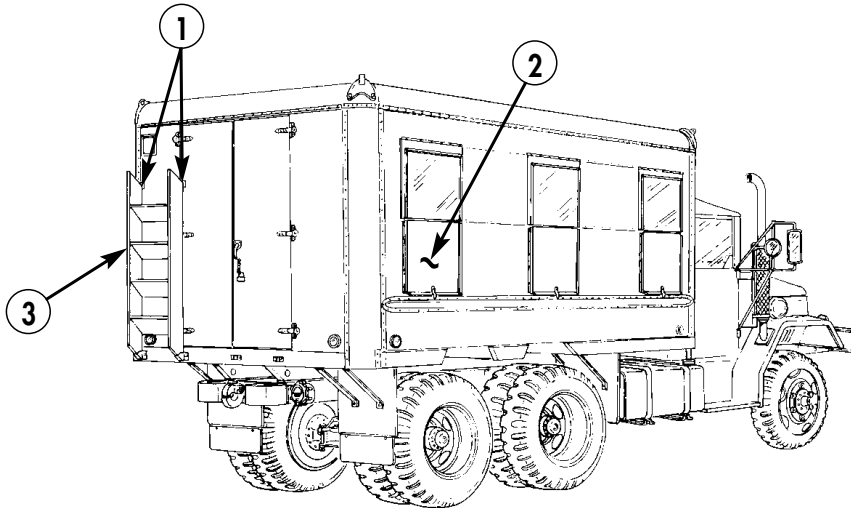


Key Item and Function

13. **Manhole Covers**—when removed, provide openings for access to each compartment for cleaning and other maintenance.
14. **Filler Covers**—when removed, provide openings for filling each compartment.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

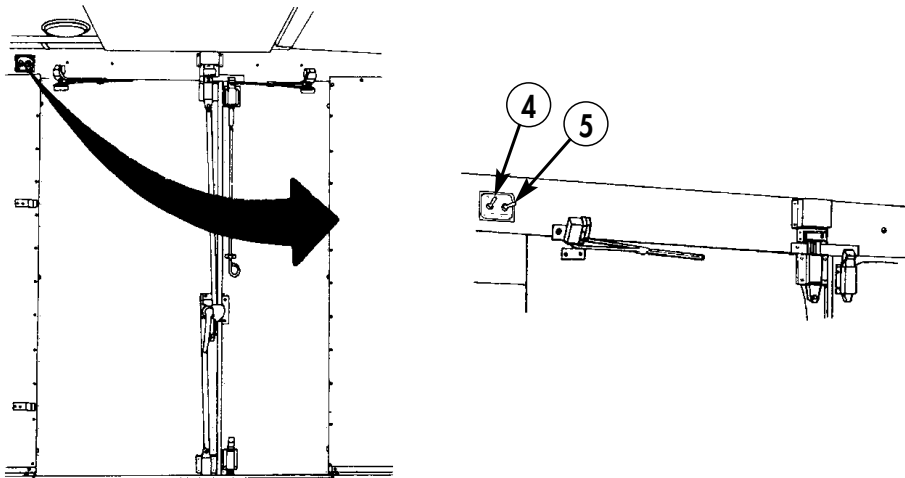
BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



Shop Van and Instrument Repair Shop Trucks (M109A3 and M185A3)

Key Item and Function

1. **Access Ladder Sockets**—used to secure ladder in stored position.
2. **Blackout Panels**—provide a means to cover windows during blackout.
3. **Access Ladder**—provides easy access to van body interior.

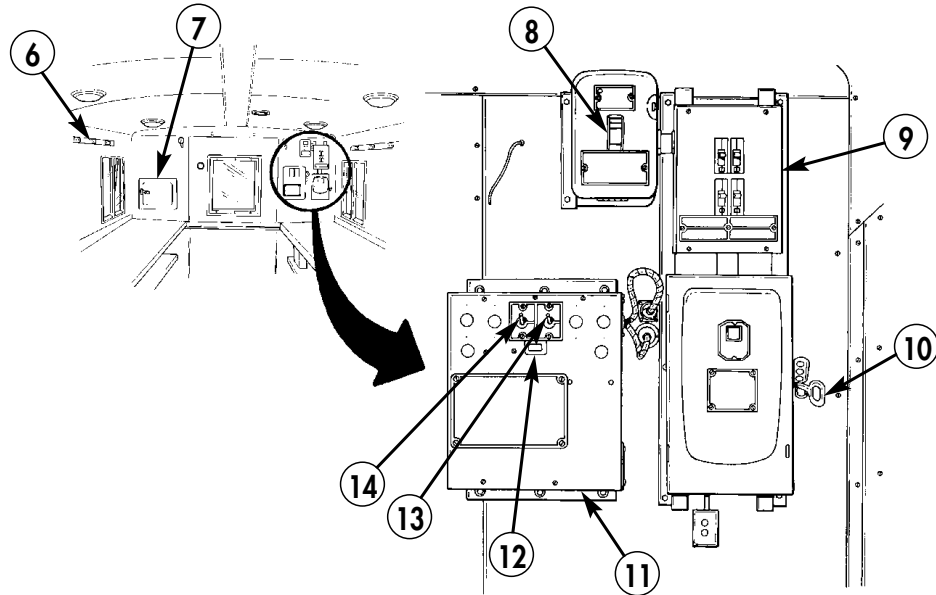


Key Item and Function

4. **Dome Light ON/OFF Switch**—used to set 24 VDC dome light system to ON.
5. **Dome Lights Normal/Blackout Switch**—used to switch between normal and blackout dome light settings.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

BODY EQUIPMENT CONTROLS AND INDICATORS (Contd)



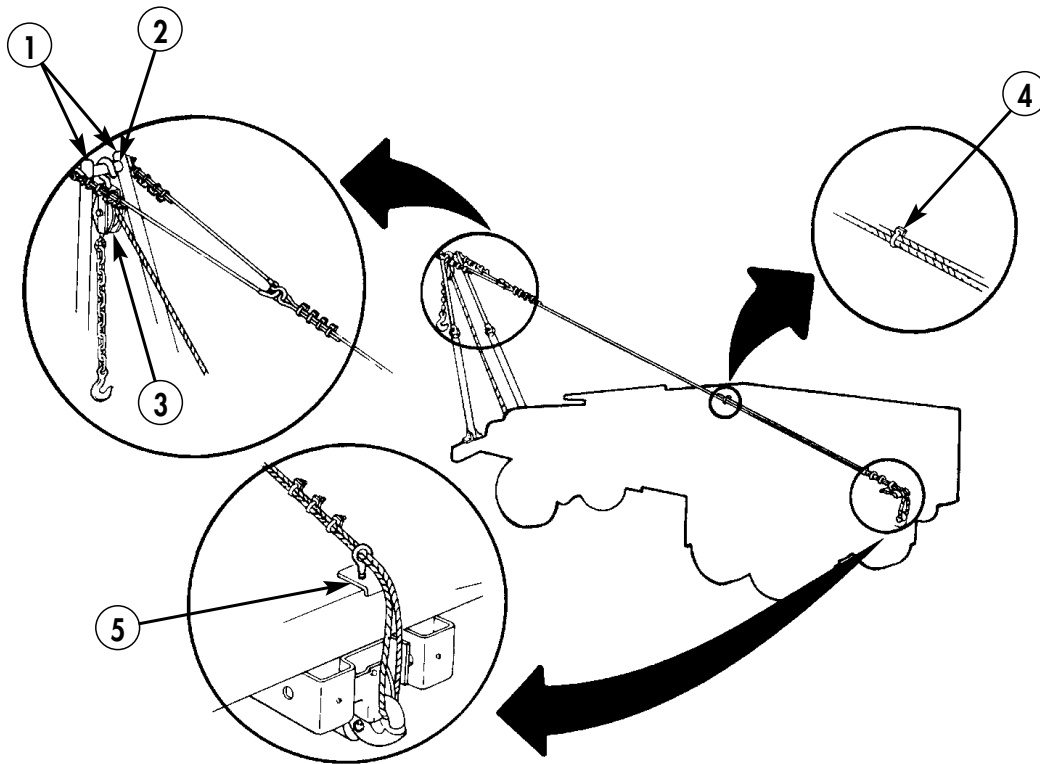
Shop Van and Instrument Repair Shop Trucks (M109A3 and M185A3)

Key Item and Function

6. **Molding Receptacles**—for connection of electrically powered tools to the 115 VAC power distribution system.
7. **Access Door**—allows personnel to communicate or exchange equipment between the van body and the cab.
8. **Operation Blackout Switch**—controls 115 VAC dome lights.
9. **Circuit Breaker Box**—115 VAC power distribution and circuit protection, four circuit breakers.
10. **Power Switch**—controls power distribution to all van body electrical circuits, except the AC-DC converter for exhaust blower converter.
11. **Exhaust Blower Converter**—supplies 24 VDC or 115 VAC power to the exhaust blower.
12. **Red Indicator Lamp**—indicates that the converter selector switch is set to the 115 VAC position.
13. **Converter Selector Switch**—used to select 24 VDC or 115 VAC power source for the exhaust blower. The exhaust blower can operate on either 24 VDC or 115 VAC.
14. **Exhaust Blower Switch**—used to set exhaust blower to LOW/OFF/HIGH.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

SPECIAL PURPOSE KITS CONTROLS AND INDICATORS



A-Frame Kit

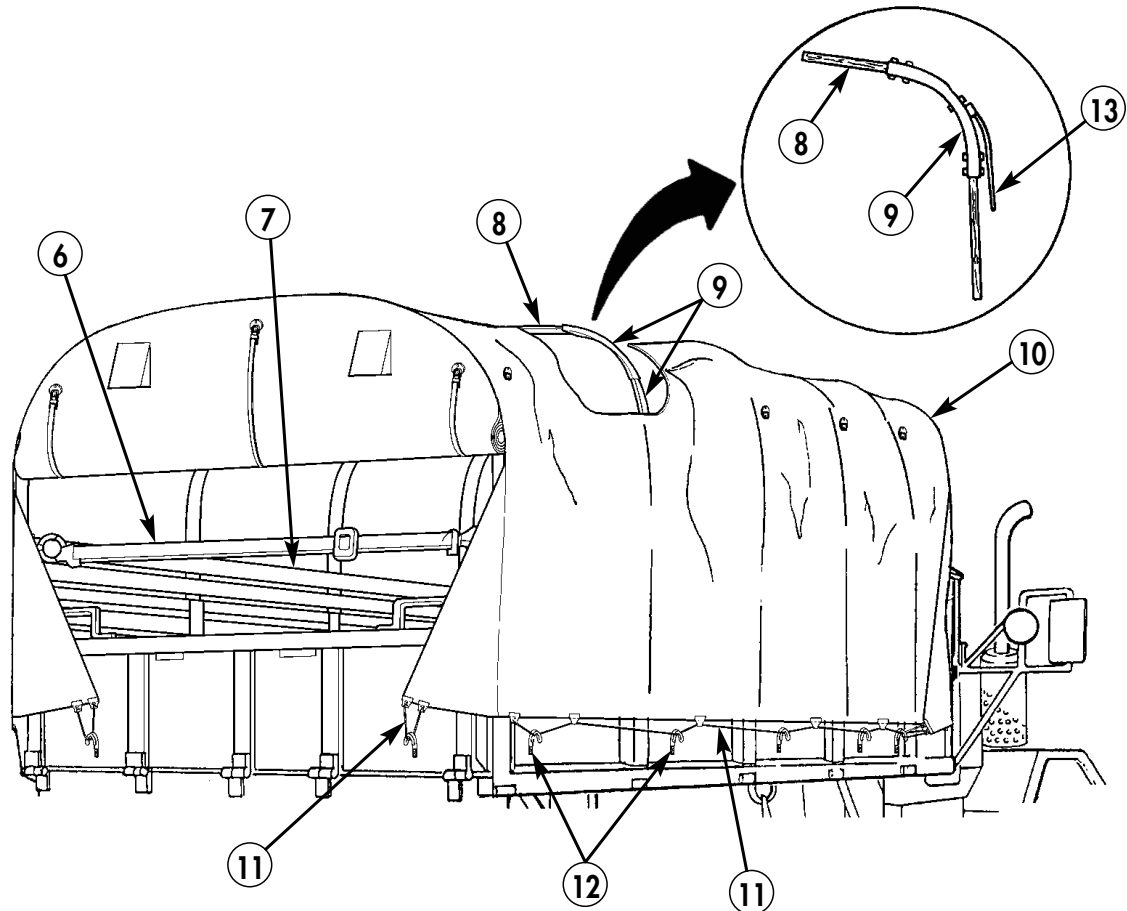
Installed on cargo trucks equipped with a front winch. Used in conjunction with the front winch for loading and unloading equipment. The A-frame load limit is 3,000 lb (1,361 kg).

Key Item and Function

1. **Leg Assemblies**—attached to lifting shackle brackets and spreader to form the A-frame.
2. **Spreader**—positions the A-frame and supports the snatch block.
3. **Snatch Block**—supports front winch cable in the lifting position.
4. **Cable Assembly**—attached to A-frame and inverted pintle hook to maintain the A-frame at a 60° angle.
5. **Plate/Eyebolt Assembly**—holds cable assembly in place at the rear of the truck bed, preventing the cable assembly from slipping and causing damage to the cable assembly and truck bed.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



Bow and Cover Kit

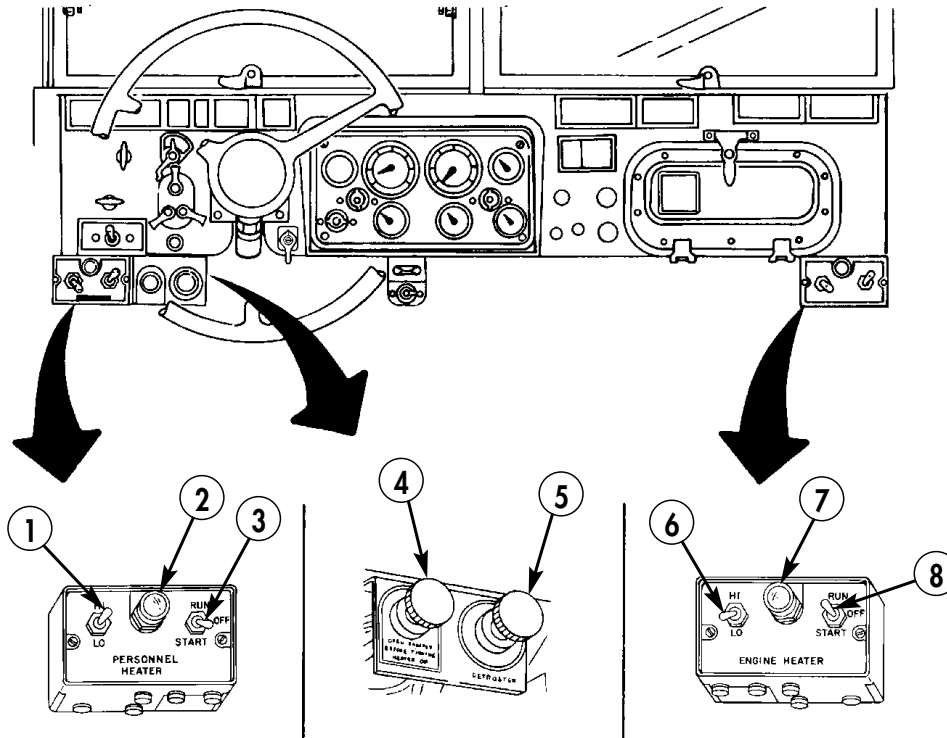
Provides weatherproof protection for the cargo compartment.

Key Item and Function

6. **Safety Strap**—protects passengers from falling out of vehicle.
7. **Troop Seats**—can be stowed in the up position when handling cargo or down for seating.
8. **Bow**—provide support for cover top.
9. **Stake and Corner Assembly**—support crossbows.
10. **Cover**—protects top and sides of cargo bed.
11. **Straps**—secure cover to cargo body.
12. **Lashing Hooks**—secure sides of tarpaulin to truck bed.
13. **Straps**—secure tarpaulin to stave and corner assemblies.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



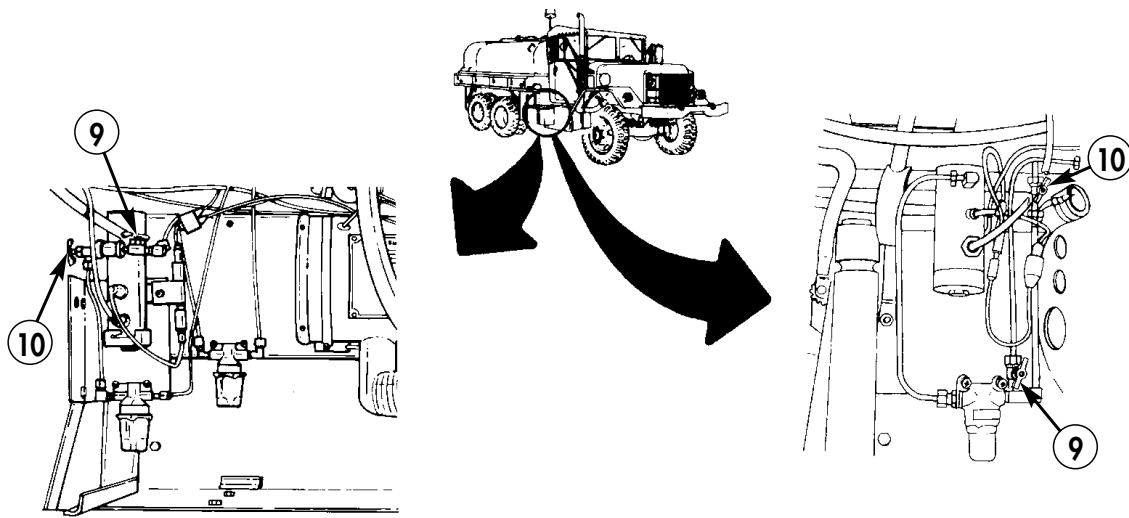
Arctic Winterization Kit

Item and Function

1. **HI/LO Switch**—controls the personnel heater fuel burning rate and blower speed.
2. **Red Indicator Light**—illuminates when personnel heater is operating.
3. **START/OFF/RUN Switch**—positioned down to start, up to run, and in the center to stop personnel heater.
4. **Air Control Knob**—pulled all the way out for maximum airflow, pushed in to decrease or shut off airflow.
5. **Defroster Control Knob**—pulled out for maximum defroster operation, pushed in for maximum heater operation; positioned halfway out for combination defroster/heater operation.
6. **HI/LO Switch**—controls the engine coolant heater fuel burning rate and blower speed.
7. **Red Indicator Light**—illuminates when engine coolant heater is operating.
8. **START/OFF/RUN Switch**—positioned down to start, up to run, and in the center to stop engine coolant heater.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

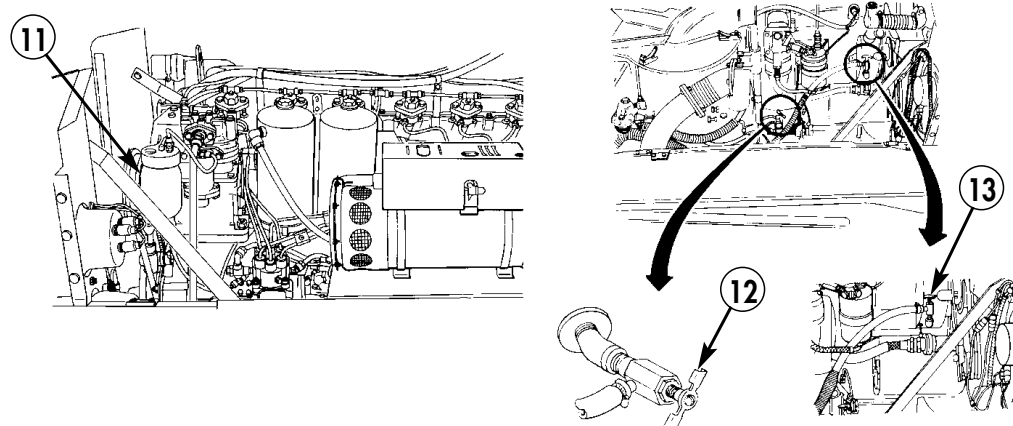
SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



Arctic Winterization Kit (Contd)

Key Item and Function

9. **Engine Coolant Heater Fuel Shutoff Valve**—turned counterclockwise to open valve and let fuel enter engine coolant heater combustion chamber.
10. **Personnel Heater Fuel Shutoff Valve**—turned counterclockwise to open valve and let fuel enter personnel heater combustion chamber.

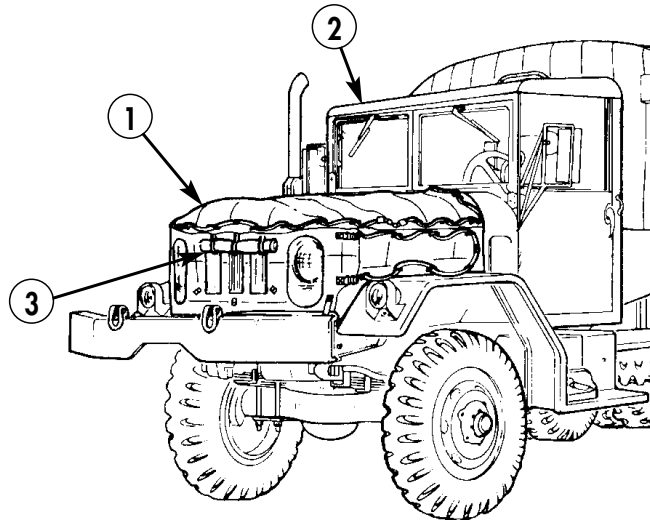


Key Item and Function

11. **Alcohol Evaporator Jar**—stores alcohol used to keep air lines from freezing.
12. **Inlet Coolant Shutoff Valve**—turned counterclockwise to open valve and let coolant from engine cooling system to enter engine coolant heater.
13. **Outlet Coolant Shutoff Valve**—turned counterclockwise to open valve and let coolant from engine coolant heater to return to engine cooling system.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

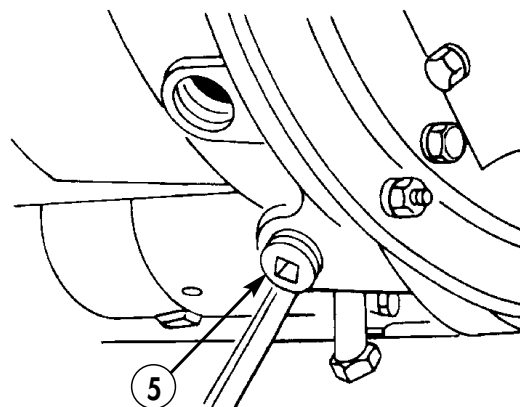
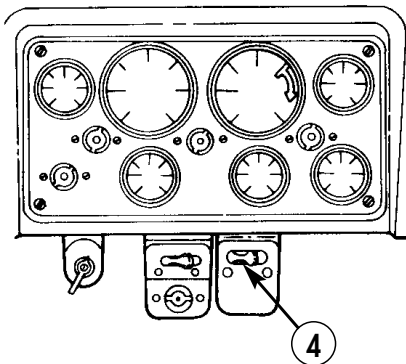
SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



Arctic Winterization Kit (Contd)

Key Item and Function

1. **Hardtop Closure**—replaces cab canvas cover.
2. **Quilted Engine Compartment Cover**—attached to brush guard, hook, and side panels to maintain normal engine operating temperatures.
3. **Aperture Flap**—closed to decrease the amount of air passing through the radiator.



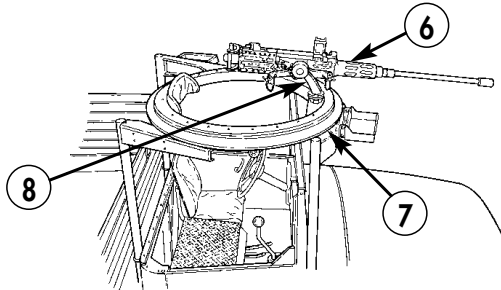
Deep Water Fording Kit

Key Item and Function

4. **Forcing Control Valve Lever**—positioned to the left to activate air pressure system and force air into flywheel housing to prevent water seepage.
5. **Flywheel Housing Drainplug**—removed from storage boss and installed in flywheel drainport to prevent water from entering flywheel housing.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

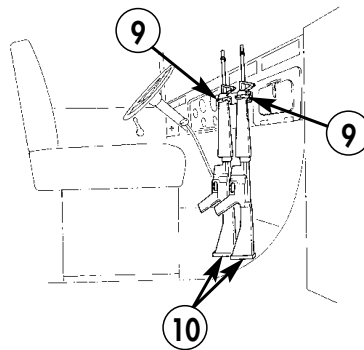
SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



Machine Gun Mount Kit

Key Item and Function

- 6. **Machine Gun**
- 7. **Ring**—allows the machine gun to rotate 360° by rolling around track.
- 8. **Bracket**—machine gun is mounted to bracket. Bracket permits tilt and swivel gun movement.

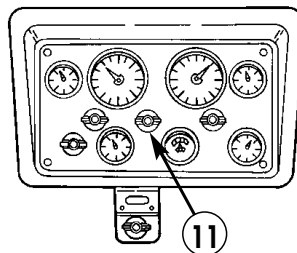


Rifle Mount Kit

Includes hardware to mount two M14 or M16 series rifles.

Key Item and Function

- 9. **Catch**—holds barrel in place. Pulled out and up to release rifle.
- 10. **Support**—holds rifle butt in place.



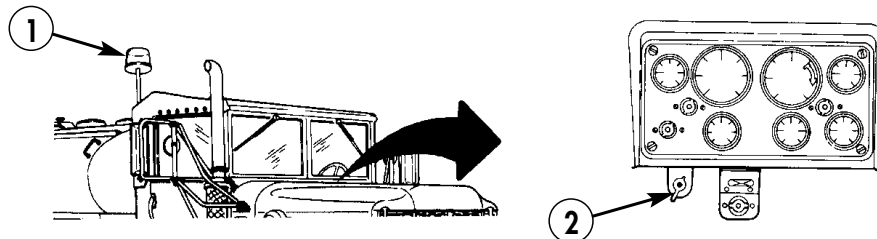
Low Air Pressure Warning Light Kit

Key Item and Function

- 11. **Low Air Pressure Warning Light**—indicates when air reservoir air pressure is low.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS (Contd)

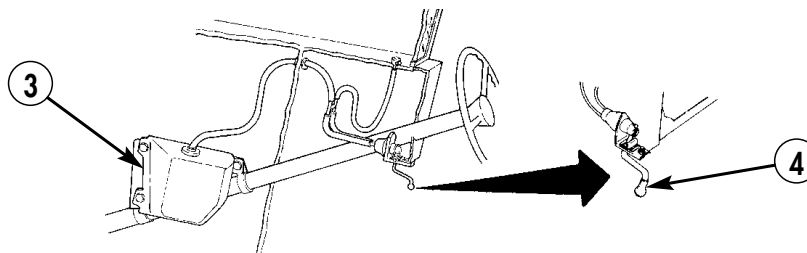
SPECIAL PURPOSE KITS CONTROLS AND INDICATORS (Contd)



Convoy Warning Light

Key Item and Function

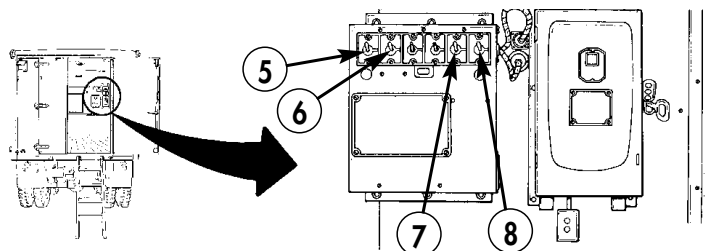
1. **Warning Light**—illuminates and rotates when turned ON.
2. **Light Switch**—used to turn warning light ON/OFF.



Windshield Washer Kit

Key Item and Function

3. **Reservoir**—washer fluid storage.
4. **Windshield Washer Pump Lever**—pulled up to operate pump.



Van Body Heater Kit

Key Item and Function

5. **Primary Heater HI/LO Switch**—controls primary heater blower speed.
6. **Primary Heater RUN/OFF/START Switch**—positioned down to start, up to run, and in the center position to stop body primary heater.
7. **Secondary Heater RUN/OFF/START Switch**—positioned down to start, up to run, and in the center position to stop body secondary heater.
8. **Secondary Heater HI/LO Switch**—controls secondary heater blower speed.

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

OPERATION UNDER USUAL CONDITIONS

GENERAL

This Work Package (WP) provides an index for WPs that describe vehicle operation under moderate temperature, humidity, and terrain conditions. For vehicle operation under unusual conditions, refer to WP 0021 00.

WARNING

Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB. Long term exposure to this noise causes hearing loss.

NOTE

- This vehicle has been designed to operate safely and efficiently within the limits specified in this TM. Operation beyond these limits is prohibited, in accordance with AR 750-1, without written approval from:
Commander, U.S. Army Tank-Automotive Command
ATTN: AMSTA-CM-S
Warren, MI 48397-5000
- Before operating the M44A2 series vehicle, ensure that all required Preventive Maintenance Checks and Services (PMCS) have been performed (WP 0045 00).

To locate a particular operation procedure, refer to the following index:

OPERATION UNDER USUAL CONDITIONS INDEX

Starting Engine Above +20 °F (-6.7 °C)	WP 0007 00
Cold Weather Starting Below +20 °F (-6.7 °C).	WP 0008 00
Placing the Vehicle in Motion	WP 0009 00
Stopping the Vehicle and Engine	WP 0010 00
Starting Engine Using Slave Receptacle	WP 0011 00
Service Lights Operation	WP 0012 00
Raising Windshield and Cab Soft Top Installation	WP 0013 00
Raising and Securing Hood	WP 0014 00
Towing the Vehicle	WP 0015 00
Front Winch Operation	WP 0016 00
Cargo Truck Operation	WP 0017 00
Fuel Tank Truck Operation	WP 0018 00
Water Tank Truck Operation	WP 0019 00
Shop Van and Repair Van Truck Operation	WP 0020 00

END OF WORK PACKAGE

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OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

DRIVER'S SEAT AND SEATBELT OPERATION

DRIVER'S SEAT ADJUSTMENT

WARNING

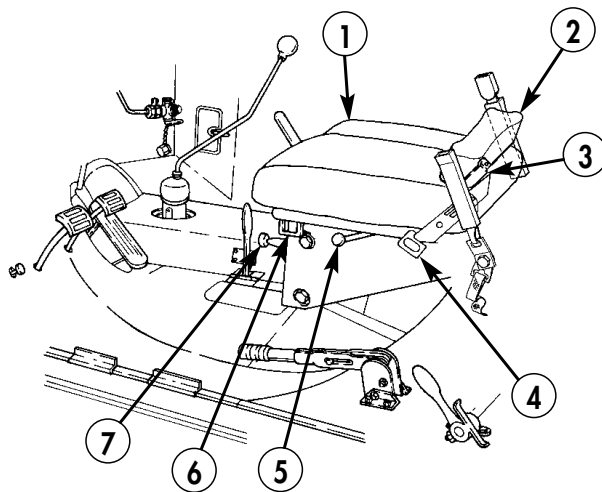
Always wear a seatbelt when operating the vehicle. Failure to wear a seatbelt when operating the vehicle may result in serious injury or death to personnel.

NOTE

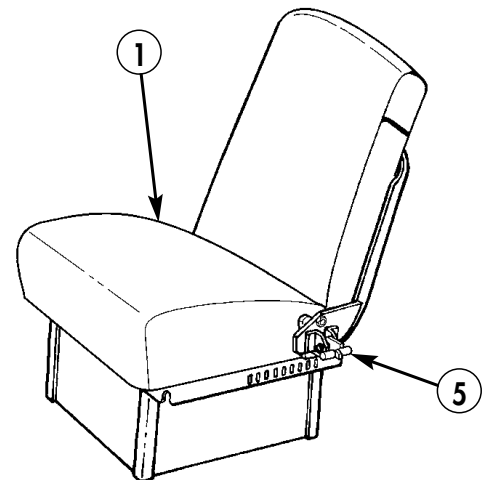
For fixed seat, perform step 4 only.

1. Set front of driver's seat (1) height by positioning seat cushion slotted bracket (6).
2. Adjust rear of driver's (1) seat height using seat cushion control lever (4).
3. Adjust lower part of backrest (2) using backrest control lever (3).
4. Adjust driver's seat (1) horizontally forward or backward.
 - a. Sit in driver's seat (1).
 - b. Pull and hold horizontal control lever (5) to release seat (1).
 - c. Slide seat (1) forward or backward to desired position.
 - d. Release lever (5) to lock seat (1) in position.
5. Adjust driver's seat (1) spring tension.
 - a. Sit in driver's seat (1).
 - b. Rotate spring tension crank (7) to desired spring tension.

FLOATING SEAT



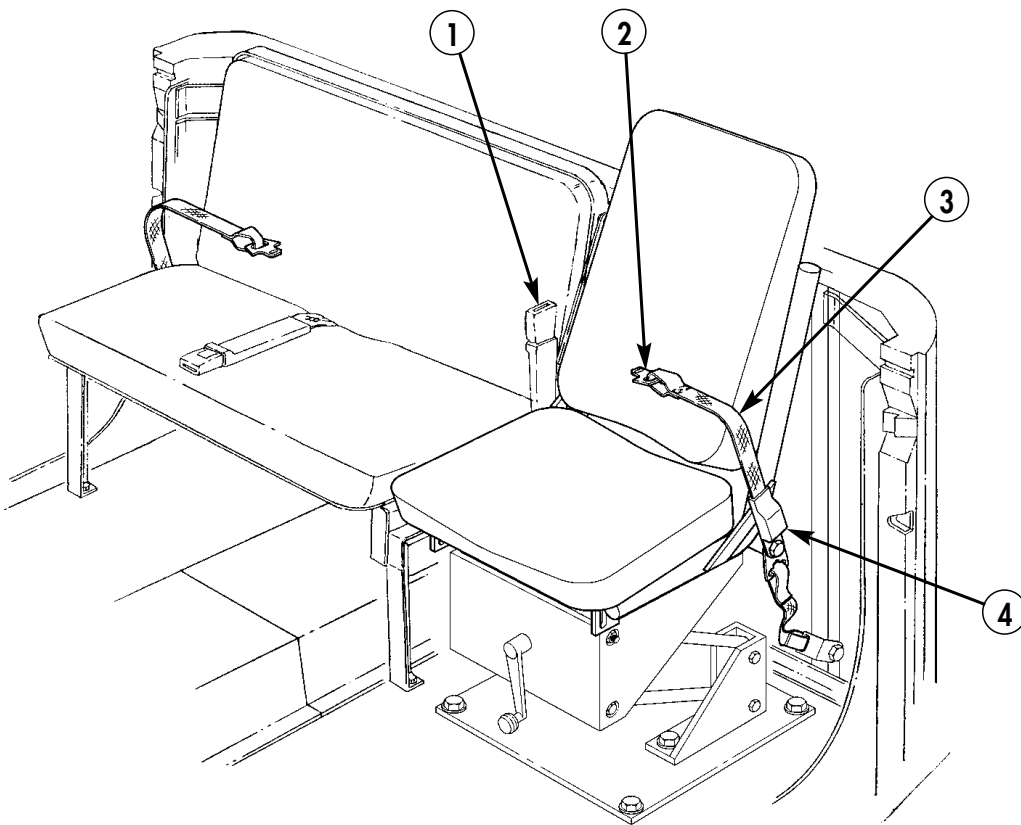
FIXED SEAT



DRIVER'S SEAT AND SEATBELT OPERATION (Contd)

SEATBELT ADJUSTMENT

1. Pull seatbelt (3) across body at hips (not waist); ensure belt (3) is not twisted.
2. Insert latch plate (2) into buckle (1).
3. Remove slack from seatbelt (3) by pulling belt (3) up and releasing; belt (3) retracts automatically into retractor (4).
4. To release seatbelt (3), push buckle (1) release button to release latch plate (2).



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

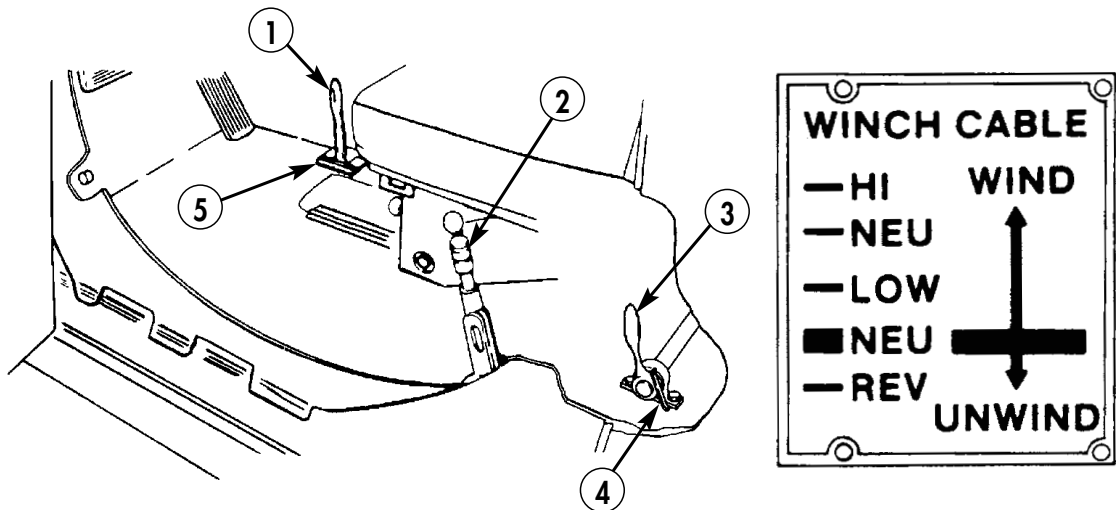
STARTING ENGINE ABOVE +20 °F (-6.7 °C)

1. Pull up on parking brake lever (2) to apply parking brake. To adjust parking brake cable tension, before applying parking brake, turn knob on end of parking brake lever (2).
2. Adjust driver's seat, Work Package (WP) 0006 00.

WARNING

Always wear seat belts when operating vehicle. The use of seat belts is essential to the safety of all personnel. Failure to wear seat belts when operating vehicle may result in serious injury or death to personnel.

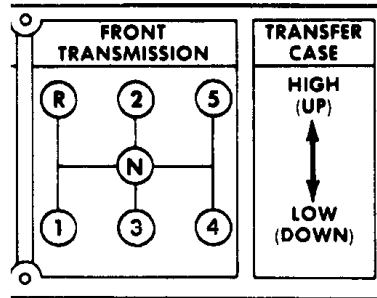
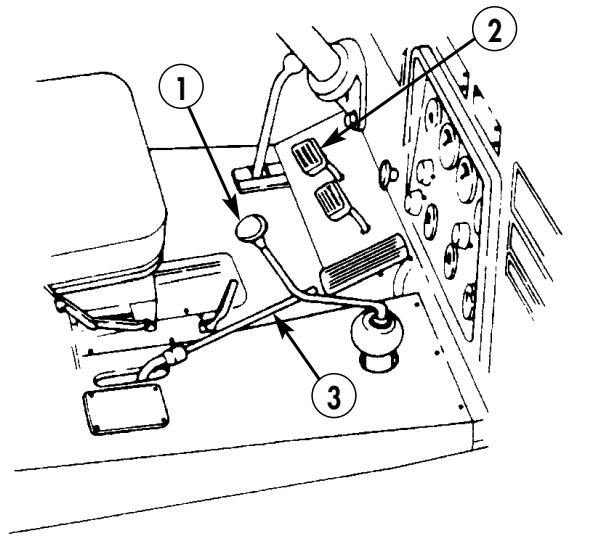
3. Fasten seat belt (WP 0006 00).
4. Adjust rearview mirrors, ensure both mirrors provide a clear rear view.
5. Ensure vehicle front and side windows are clean.



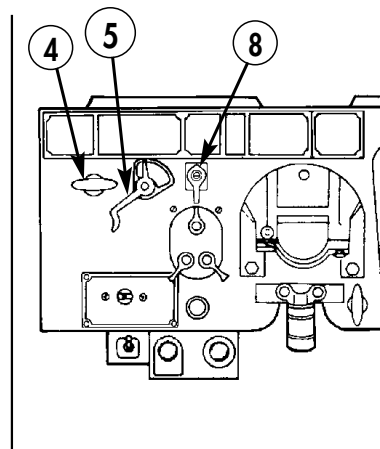
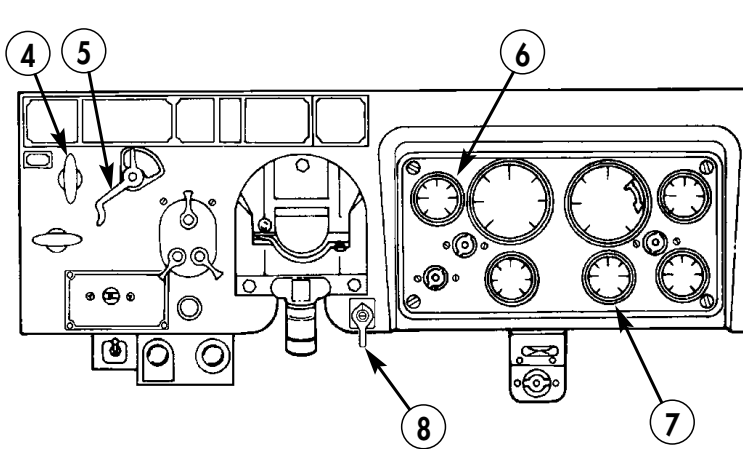
6. On vehicles with a front winch, ensure transmission power takeoff lever (1) is in neutral (NEU) position and secured with shifting lever hinge lock (5).
7. On vehicles with a transfer power takeoff, disengage transfer power take off by pushing transfer power takeoff lever (3) forward and down. Secure lever (3) with locking bar (4).

STARTING ENGINE ABOVE +20 °F (-6.7 °C) (Contd)

8. Place transmission gearshift lever (1) in neutral (N) position.
9. Place transfer case shift lever (3) in HIGH or LOW position, depending on the load, expected terrain, and vehicle speed. Use HIGH for light loads, easy terrain, and high speeds. Use LOW for heavy loads, difficult terrain, and low speeds.



10. Push engine stop control (4) in.
11. Turn accessory power switch (5) to ON.
12. Depress and hold clutch pedal (2).



STARTING ENGINE ABOVE +20 °F (-6.7 °C) (Contd)**WARNING**

- If warning buzzer does not sound when engine starts, immediately pull out engine stop control to stop engine. Failure to do so may result in injury or death to personnel. Notify your supervisor.
- Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB. Long-term exposure to this noise causes hearing loss.

CAUTION

Do not activate engine start switch for more than 10 seconds at a time or with headlights on. If engine does not start within 10 seconds, release switch and wait 10–15 seconds before activating switch again. Failure to do this may damage starter.

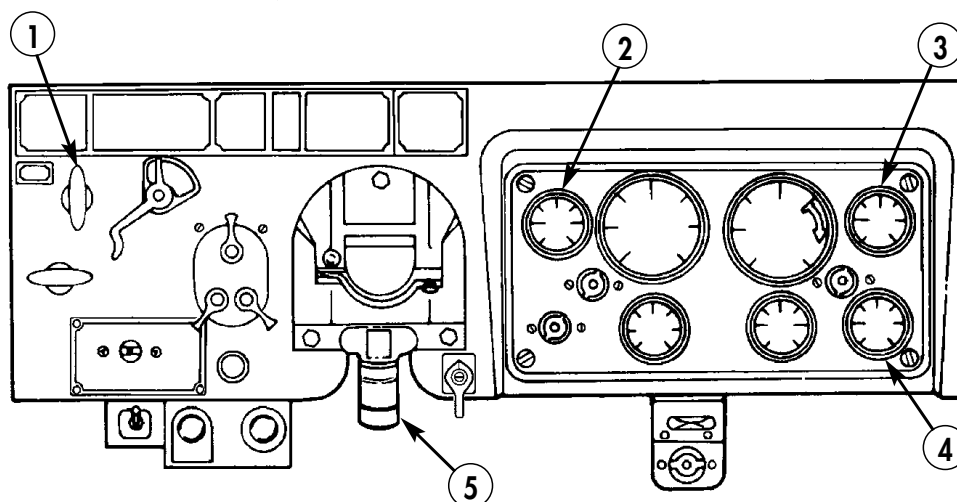
13. Activate engine start switch (8) by rotating switch clockwise to start position and holding until engine starts. When engine starts, release switch.
14. Release clutch pedal (2).

CAUTION

If any instrument reading is abnormal, immediately pull out engine stop control to stop engine. Failure to do this may result in damage to engine. Notify your supervisor.

15. Ensure the following instrument readings are indicated:
 - a. **Oil Pressure Gauge** (6): 10 psi (68.9 kPa) or greater.
 - b. **Battery/Generator Meter** (7): in the green area.

STARTING ENGINE ABOVE +20 °F (-6.7 °C) (Contd)

**WARNING**

- Do not place vehicle in motion until warning buzzer stops and air pressure gauge reads 85 psi (586 kPa) or greater. Failure to comply may result in brake failure, causing injury or death to personnel.
- If Nuclear, Biological, and Chemical (NBC) exposure is suspected, all air filter media must be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC non commissioned officer for appropriate handling and disposal instructions.

- Air Pressure Gauge (4):** 85–120 psi (586–827 kPa).
 - Air Cleaner Indicator (5):** shows green, not red.
 - Temperature Gauge (3):** 180–200 °F (82–93 °C).
16. If any of the following occur, immediately pull out engine stop control (1) to stop engine and notify your supervisor:
- Engine vibration**—engine is vibrating or making excessive noise.
 - Low oil pressure**—oil pressure gauge (2) does not register pressure or quickly drops below 10 psi (68.9 kPa).
 - Engine temperature (too high or low)**—engine temperature gauge (3) rises sharply to greater than 210 °F (99 °C), or stays below 180 °F (82 °C).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

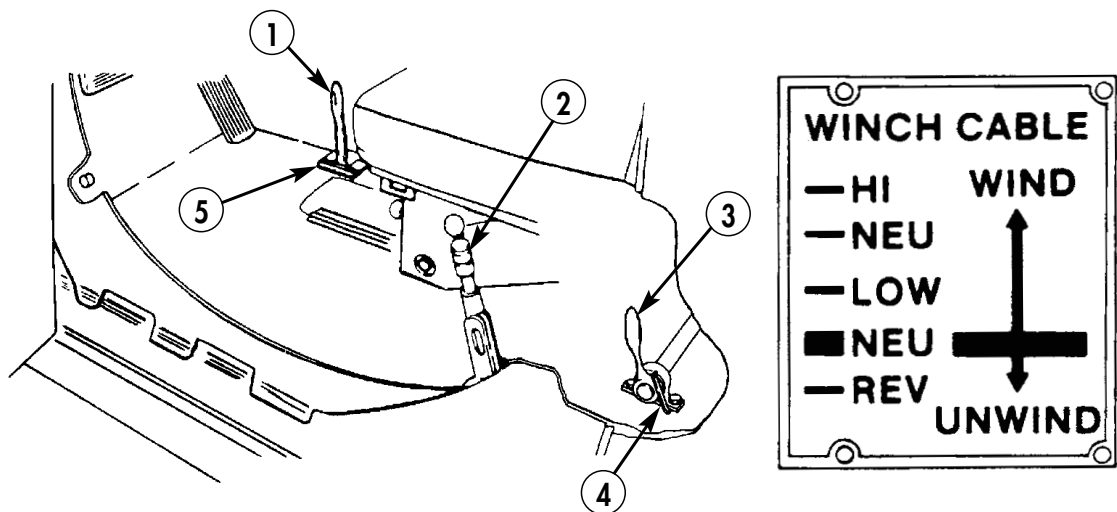
COLD WEATHER STARTING BELOW +20 °F (-6.7 °C)

1. Pull up on parking brake lever (2) to apply parking brake. To adjust parking brake cable tension, before applying parking brake, turn knob on end of parking brake lever (2).
2. Adjust driver's seat, Work Package (WP) 0006 00.

WARNING

Always wear seat belts when operating vehicle. The use of seat belts is essential to the safety of all personnel. Failure to wear seat belts when operating vehicle may result in serious injury or death to personnel.

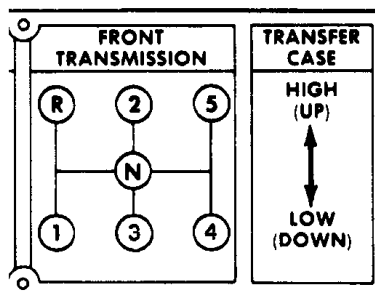
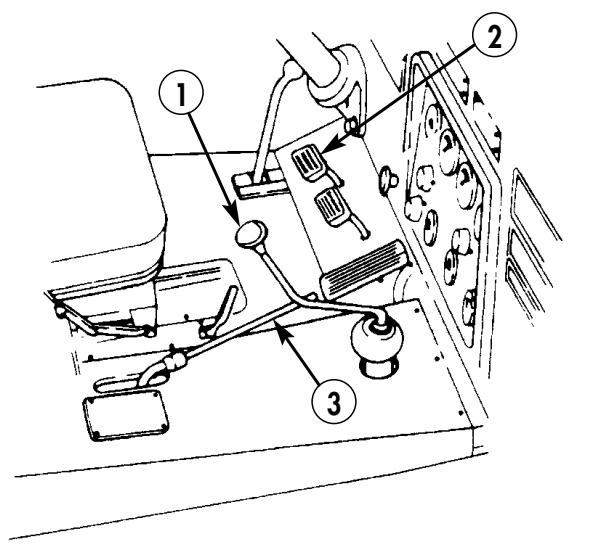
3. Fasten seat belt (WP 0006 00).
4. Adjust rearview mirrors, ensure both mirrors provide a clear rear view.
5. Ensure vehicle front and side windows are clean.



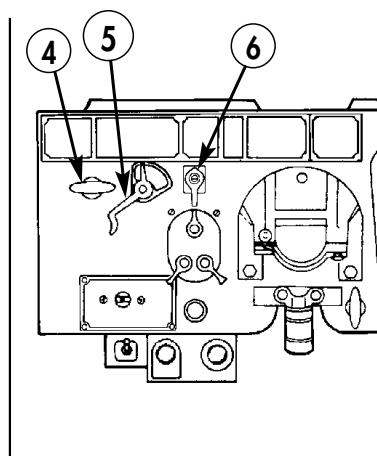
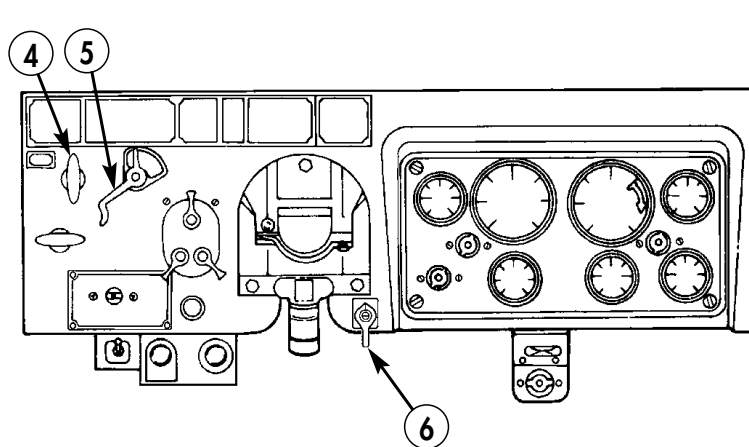
6. On vehicles with a front winch, ensure transmission power takeoff lever (1) is in neutral (NEU) position and secured with shifting lever hinge lock (5).
7. On vehicles with a transfer power takeoff, disengage transfer power take off by pushing transfer power takeoff lever (3) forward and down. Secure lever (3) with locking bar (4).

COLD WEATHER STARTING BELOW +20 °F (-6.7 °C) (Contd)

8. Place transmission gearshift lever (1) in neutral (N) position.
9. Place transfer case shift lever (3) in HIGH or LOW position, depending on the load, expected terrain, and vehicle speed. Use HIGH for light loads, easy terrain, and high speeds. Use LOW for heavy loads, difficult terrain, and low speeds.



10. Push engine stop control (4) in.
11. Turn accessory power switch (5) to ON.
12. Depress and hold clutch pedal (2).



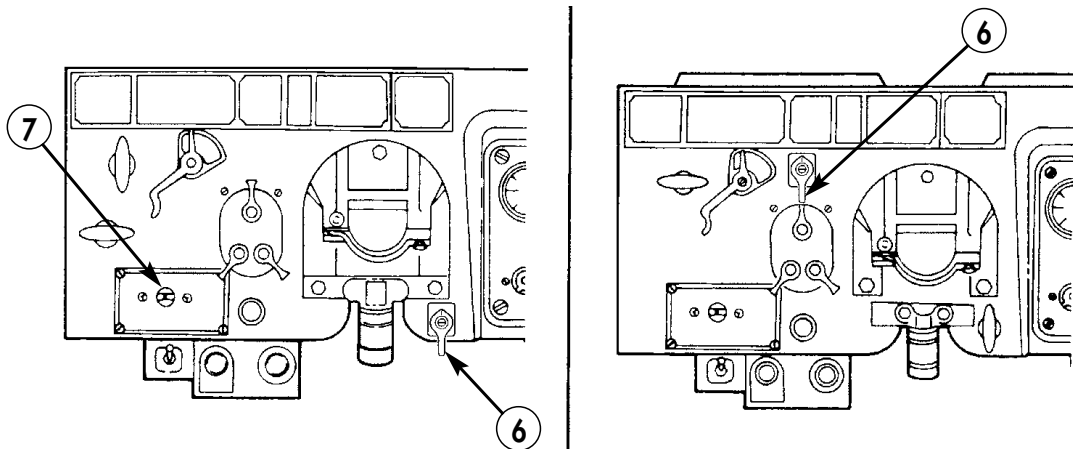
COLD WEATHER STARTING BELOW +20 °F (-6.7 °C) (Contd)**WARNING**

- If warning buzzer does not sound when engine starts, stop engine immediately by pulling out engine stop control. Failure to do so may result in injury or death to personnel. Notify your supervisor.
- Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB; long term exposure to this noise causes hearing loss.

CAUTION

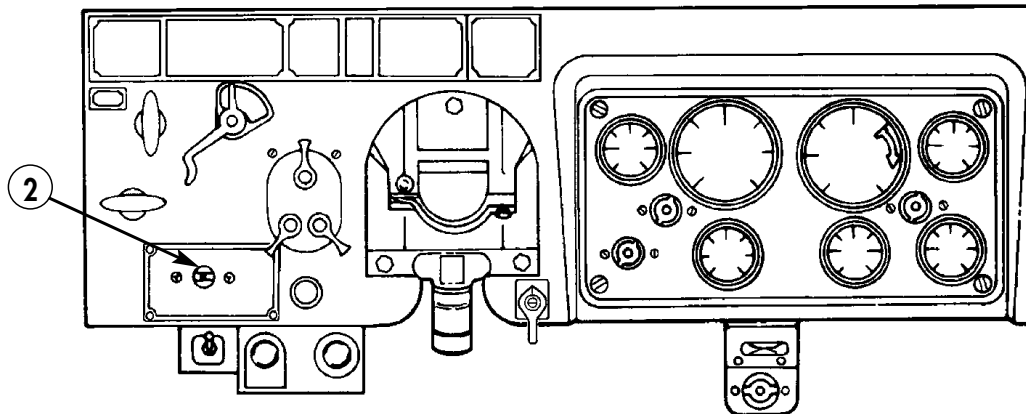
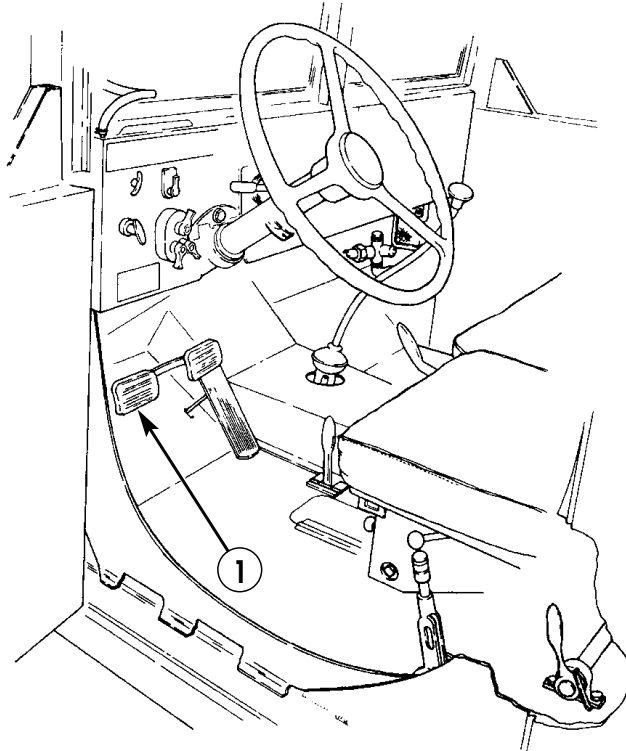
- Do not activate engine start switch for more than 10 seconds at a time or with headlights on. If engine does not start within 10 seconds, release switch and wait 10–15 seconds before activating switch again. Failure to do this may damage starter.
- Operate manifold heater only when engine is being cranked or idling roughly. Use manifold heater intermittently (up to 10 seconds ON/10 seconds OFF) at idle until engine is running smoothly. Use of manifold heater when the engine is not being cranked, or continuous use longer than 10 seconds, may result in damage to engine.

13. Set/hold manifold heater switch (7) to ON, activate engine start switch (6) by rotating switch clockwise to start position and holding; when engine starts, release engine start switch (2).



COLD WEATHER STARTING BELOW +20 °F (-6.7 °C) (Contd)

14. Release clutch pedal (1) and manifold heater switch (2).
15. Perform steps 15 and 16 in WP 0007 00.



END OF WORK PACKAGE

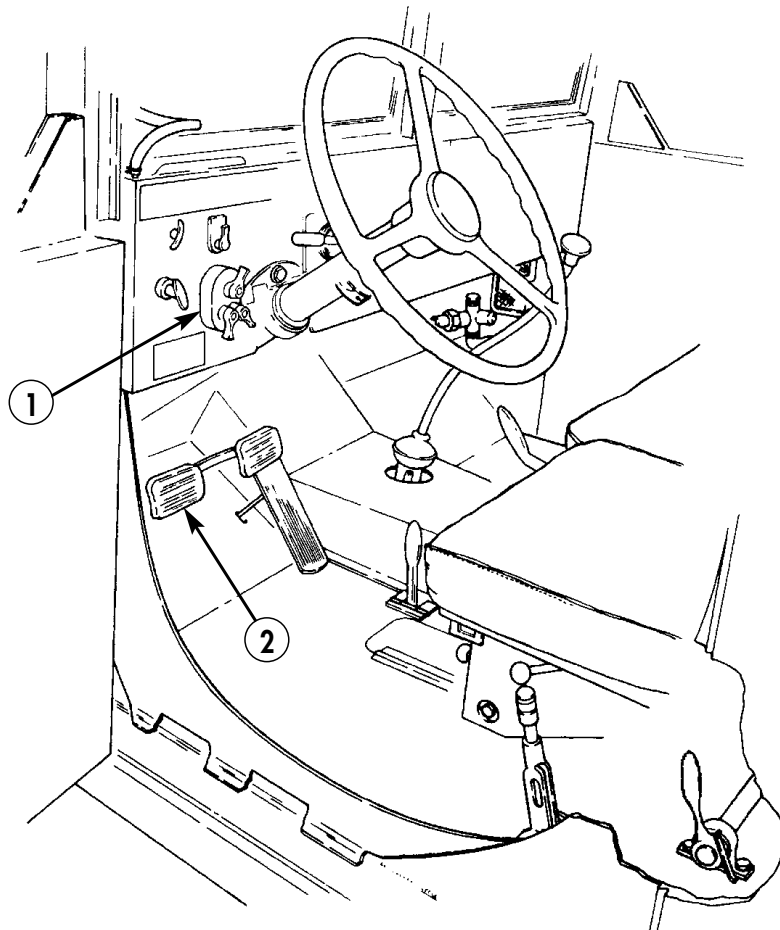
0008 00-4

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

PLACING THE VEHICLE IN MOTION

INITIATING VEHICLE MOTION



1. Ensure front winch, tools, and auxiliary equipment are stowed and locked for travel.
2. Start engine, Work Package (WP) 0007 00 and WP 0008 00.
3. Set light switch (1) to desired position (WP 0012 00).
4. Depress clutch pedal (2) to disengage clutch from engine.

PLACING THE VEHICLE IN MOTION (Contd)

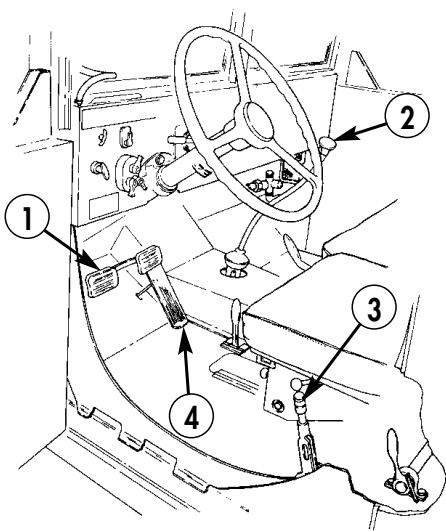
INITIATING VEHICLE MOTION (Contd)

WARNING

- In accordance with AR 385-55, check for clearance and give warning before backing vehicle. If rear visibility is blocked by cargo or otherwise limited, driver must use ground guides. Failure to use ground guides while backing vehicle may result in injury or death to personnel.
- When initiating forward vehicle motion on upgrade terrain or backward on downgrade terrain, do not release parking brake until clutch begins to engage engine and vehicle motion starts. Failure to do this can cause vehicle to roll uncontrollably and cause injury or death to personnel.

NOTE

- Refer to data plate for transmission gearshift lever positions and maximum road speed for each transmission and transfer case setting.
 - Do not initiate forward motion using transmission positions “2-5” (SECOND through FIFTH OVERDRIVE). Initiating forward motion using transmission positions 2-5 results in jerky vehicle motion and may cause the engine to stall.
5. Place transmission gearshift lever (2) in position “1” (FIRST) for forward motion or position “R” (REVERSE) for backward motion, as required.
 6. Push parking brake lever (3) forward and down to release brake.



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

PLACING THE VEHICLE IN MOTION (Contd)

INITIATING VEHICLE MOTION (Contd)

CAUTION

Do not partially engage (ride) the clutch for extended periods of time while in motion or stopped with engine at idle. Riding the clutch causes the clutch to overheat, results in premature clutch wear, and may damage the clutch.

7. Release clutch pedal (1) and depress accelerator pedal (4) as follows:
 - a. Slowly release clutch pedal (1) to engage engine.
 - b. As clutch engages engine, slowly depress accelerator pedal (4).
 - c. Release clutch pedal (1) completely to fully engage engine.
8. Continue to depress accelerator pedal (4) until desired vehicle speed is achieved.

UPSHIFTING TRANSMISSION

When vehicle speed approaches maximum for forward gear being used, and higher speed is desired, the transmission must be upshifted.

CAUTION

- Shifting early or late may damage powertrain. Shift to next higher gear at a road speed just below maximum speed, as indicated on data plate.
- Do not allow engine speed to exceed 2,600 RPM, as indicated by tachometer. Exceeding 2,600 RPM may damage powertrain.
- Do not partially engage (ride) clutch for extended periods of time while in motion or stopped with engine at idle. Riding clutch causes clutch to overheat, results in premature clutch wear, and may damage clutch.

NOTE

Refer to data plate for transmission gearshift lever positions, and maximum road speed for each transmission and transfer case setting.

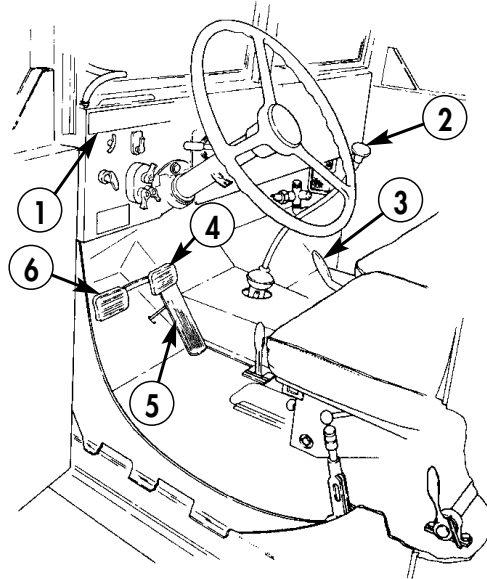
To upshift transmission, perform the following:

1. Release accelerator pedal (4) and, at the same time, depress and hold clutch pedal (1) to disengage clutch from engine.
2. Shift transmission gearshift lever (2) to next higher position.
3. Slowly release clutch pedal (1) and, at the same time, depress accelerator pedal (4) to engage engine.
4. Release clutch pedal (1) completely to fully engage engine.
5. Continue to depress accelerator pedal (4) until desired vehicle speed is achieved.

PLACING THE VEHICLE IN MOTION (Contd)

DOWNSHIFTING TRANSMISSION

When transmission gearshift lever (2) is in positions “3-5” (THIRD through FIFTH OVERDRIVE), and vehicle needs to be slowed or stopped, the transmission must be downshifted. When driving vehicle forward down steep grades, the transmission may be downshifted to slow vehicle. Pump service brake pedal (4) as necessary to control vehicle speed.



1	CAUTION! DO NOT EXCEED!		FRONT TRANSMISSION 	TRANSFER CASE HIGH (UP) ↑ ↓ LOW (DOWN)	WARNING! DO NOT SHIFT TRANSFER CASE TO LOW WHEN VEHICLE SPEED IS OVER																													
	<table border="1"> <thead> <tr> <th>TRANSMISSION</th> <th>HIGH</th> <th>LOW</th> </tr> </thead> <tbody> <tr> <td>FIFTH OVERDRIVE</td> <td>56</td> <td>28</td> </tr> <tr> <td>FOURTH</td> <td>44</td> <td>22</td> </tr> <tr> <td>THIRD</td> <td>27</td> <td>14</td> </tr> <tr> <td>SECOND</td> <td>16</td> <td>8</td> </tr> <tr> <td>FIRST</td> <td>9</td> <td>5</td> </tr> <tr> <td>REVERSE</td> <td>9</td> <td>5</td> </tr> </tbody> </table>	TRANSMISSION				HIGH	LOW	FIFTH OVERDRIVE	56	28	FOURTH	44	22	THIRD	27	14	SECOND	16	8	FIRST	9	5	REVERSE	9	5	<table border="1"> <tbody> <tr> <td>FIFTH</td> <td>28 MPH</td> </tr> <tr> <td>FOURTH</td> <td>22 MPH</td> </tr> <tr> <td>THIRD</td> <td>14 MPH</td> </tr> <tr> <td>SECOND</td> <td>8 MPH</td> </tr> <tr> <td>FIRST</td> <td>5 MPH</td> </tr> <tr> <td>REVERSE</td> <td>5 MPH</td> </tr> </tbody> </table>	FIFTH	28 MPH	FOURTH	22 MPH	THIRD	14 MPH	SECOND	8 MPH
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REVERSE	5 MPH																																	

PLACING THE VEHICLE IN MOTION (Contd)

DOWNSHIFTING TRANSMISSION (Contd)

CAUTION

- To shift transmission gearshift lever to “1” (FIRST) or “R” (REVERSE) position, vehicle must be completely stopped. Failure to do this may result in transmission damage.
- To downshift, vehicle speed must not exceed maximum road speed of next lower gear, as shown on data plate. Exceeding the road speed of the lower gear may result in transmission damage.
- Do not downshift transmission gearshift lever more than one position at a time. Doing this may damage powertrain.
- Do not allow engine speed to exceed 2,600 RPM, as indicated by tachometer. Exceeding 2,600 RPM may damage powertrain.
- Do not partially engage (ride) the clutch for extended periods of time while in motion or stopped with engine at idle. Riding the clutch causes the clutch to overheat, results in premature clutch wear, and may damage the clutch.

NOTE

Refer to data plate for transmission gearshift lever positions, and maximum road speed for each transmission and transfer case setting.

To downshift transmission, perform the following:

1. Release accelerator pedal (5).
2. Depress service brake pedal (4), as necessary, to slow vehicle until road speed is within range of next lower gear, as shown on data plate (1).
3. Depress clutch pedal (6) and hold to disengage clutch from engine.
4. Shift transmission gearshift lever (2) to next lower position.
5. Slowly release clutch pedal (6) and, at the same time, depress accelerator pedal (5) to engage engine.
6. Continue to depress accelerator pedal (5) until desired vehicle speed is achieved.

PLACING THE VEHICLE IN MOTION (Contd)

SHIFTING TRANSFER CASE

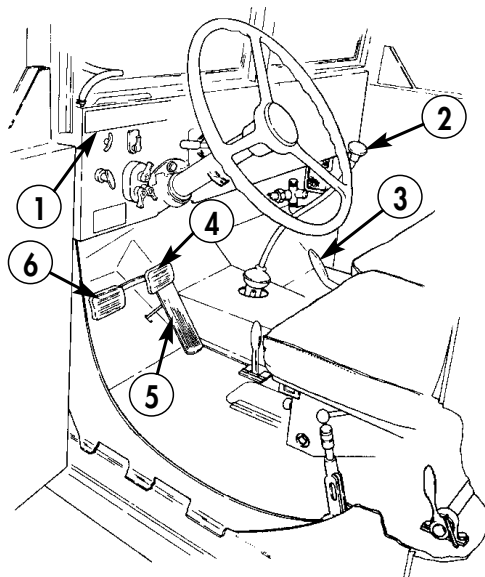
When vehicle is heavily loaded or when road conditions are poor, additional traction can be obtained by shifting the transfer case from HIGH to LOW.

CAUTION

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

To shift the transfer case from HIGH to LOW, perform the following:

1. Release accelerator pedal (5).
2. Depress service brake pedal (4), as necessary, until vehicle is slowed to equal or lower speed than shown on data plate (1) for transfer case.
3. Depress clutch pedal (6) and hold to disengage clutch from engine.
4. Shift transfer case shift lever (3) from HIGH to LOW position.
5. Slowly release clutch pedal (6) and, at the same time, depress accelerator pedal (5) to engage engine.
6. Continue to depress accelerator pedal (5) until desired vehicle speed is achieved.



1	CAUTION! DO NOT EXCEED!		FRONT TRANSMISSION R 2 5 N 1 3 4	TRANSFER CASE HIGH (UP) ↓ LOW (DOWN)	WARNING! DO NOT SHIFT TRANSFER CASE TO LOW WHEN VEHICLE SPEED IS OVER																																
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OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

STOPPING THE VEHICLE AND ENGINE

WARNING

Do not allow vehicle to coast downhill with clutch pedal depressed or transmission gearshift lever in "N" (neutral) position. Coasting downhill may cause vehicle speed to increase uncontrollably, resulting in injury or death to personnel.

CAUTION

Apply brakes intermittently to slow vehicle when driving down a steep grade. Do not apply constant pressure to service brake pedal. Applying brakes constantly causes brake linings to overheat and be damaged.

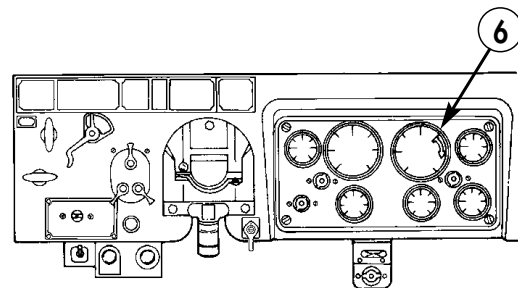
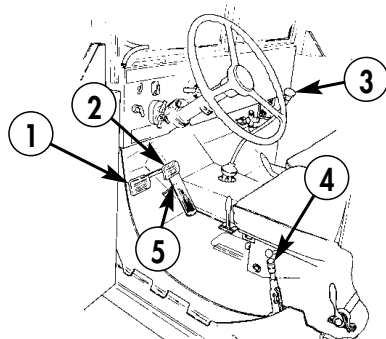
NOTE

- When driving the vehicle forward down steep grades, the transmission may be downshifted to slow the vehicle, Work Package (WP) 0009 00.
- The following procedure requires two personnel. The procedure is performed by the operator, except in step 10 when crew positions wheel chocks.

STOPPING THE VEHICLE

To stop vehicle, perform the following:

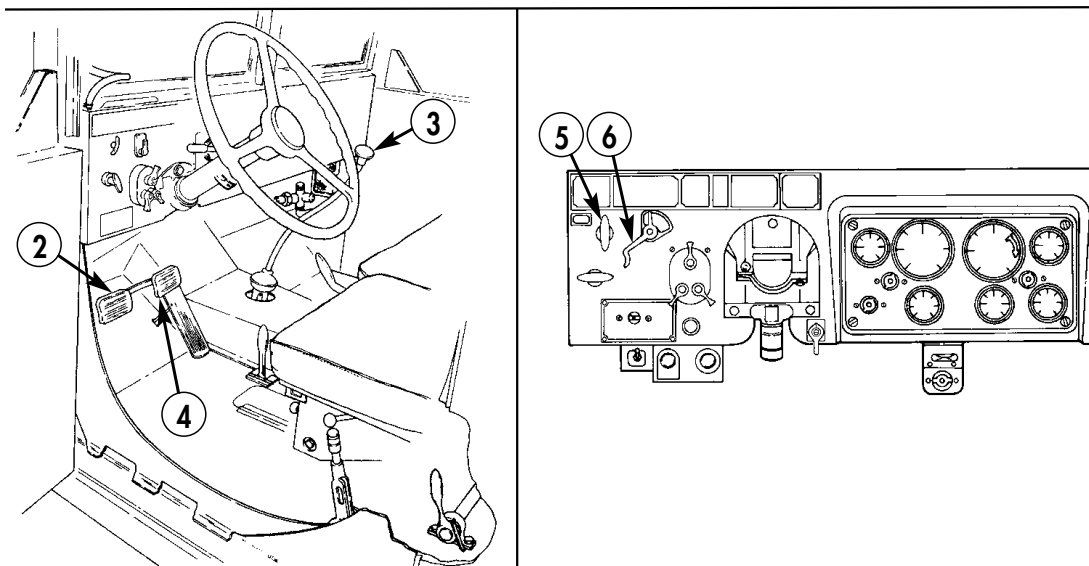
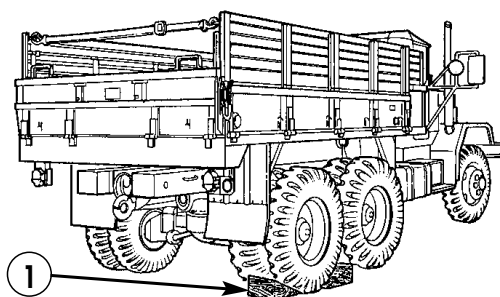
1. Release accelerator pedal (5).
2. Downshift transmission (WP 0009 00), as required.
3. Depress service brake pedal (2) evenly to slow vehicle.
4. Depress and hold clutch pedal (1) to disengage clutch from engine until vehicle comes to a complete stop.
5. Continue to depress and hold service brake pedal (2).
6. Allow engine speed to drop to idle (WP 0002 00, Engine Data) as indicated by tachometer (6).
7. Place transmission gearshift lever (3) in "N" (neutral) position.
8. Pull parking brake lever (4) up and back to apply parking brake.
9. Release clutch pedal (1).



STOPPING THE VEHICLE AND ENGINE (Contd)**WARNING**

When positioning chocks, ensure that you are visible to the operator. Place chocks from the side of the vehicle and step away. Stay clear of the front and rear of vehicle. If the vehicle moves unexpectedly, injury or death to personnel can occur.

10. Crew positions wheel chocks (1).
 - a. When vehicle is parked on level terrain, set chocks (1) in front of and behind rear wheels.
 - b. When vehicle is parked on a slope, place both chocks (1) on downhill side of wheel.

**CAUTION**

After operation, engine must cool at idle speed for a minimum of 5 minutes. Failure to do this may result in damage to engine and turbocharger.

11. Allow engine to cool at idle speed for a minimum of 5 minutes.

STOPPING THE VEHICLE AND ENGINE (Contd)

STOPPING THE VEHICLE (Contd)

NOTE

After 5 minutes, if the temperature gauge reads greater than 200 °F (93 °C), perform the following steps and notify maintenance personnel.

12. Set accessory power switch (6) and all other switches to “OFF” position.

NOTE

If engine does not stop when engine stop control is pulled out, refer to STALLING ENGINE procedure below.

13. Pull engine stop control (5) out to stop fuel flow and stop engine. Leave engine stop control (5) in the out position.
14. Release service brake pedal (4).
15. Unfasten seatbelt (WP 0006 00).
16. Perform after-operation Preventive Maintenance Checks and Services (PMCS) (WP 0045 00).

STALLING ENGINE

If pulling the engine stop control out does not stop engine, the engine must be intentionally stalled.

WARNING

- Do not attempt to stall engine if tachometer indicates engine is idling at high RPM. Leave vehicle running, ensure that all personnel and equipment are clear of vehicle, and notify maintenance personnel. Attempting to stall engine at high RPM may engage transmission and cause vehicle to move unpredictably, resulting in injury or death to personnel or damage to equipment.
- Before performing the following engine stalling procedure, ensure that all personnel and equipment are clear of vehicle. Stalling vehicle may engage transmission and cause vehicle to move unpredictably, resulting in injury or death to personnel or damage to equipment.

To stall engine, perform the following procedure:

1. Depress clutch pedal (2).
2. Depress service brake pedal (4).
3. Place transmission gearshift lever (3) in “5” (FIFTH OVERDRIVE) position.
4. Release clutch pedal (2) to engage engine and stall engine; ensure that engine is stalled.
5. Depress and hold clutch pedal (2).
6. Place transmission gearshift lever (3) in “N” (neutral) position.
7. Release service brake pedal (4).

STOPPING THE VEHICLE AND ENGINE (Contd)**STALLING ENGINE (Contd)**

8. Unfasten seatbelt (WP 0006 00).
9. Notify maintenance personnel that vehicle required stalling to stop engine.
10. Perform after-operation PMCS (WP 0045 00).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

STARTING ENGINE USING SLAVE RECEPTACLE

1. Position right side of slaving vehicle along right side of disabled vehicle.
2. Stop slaving vehicle engine, Work Package (WP) 0010 00.

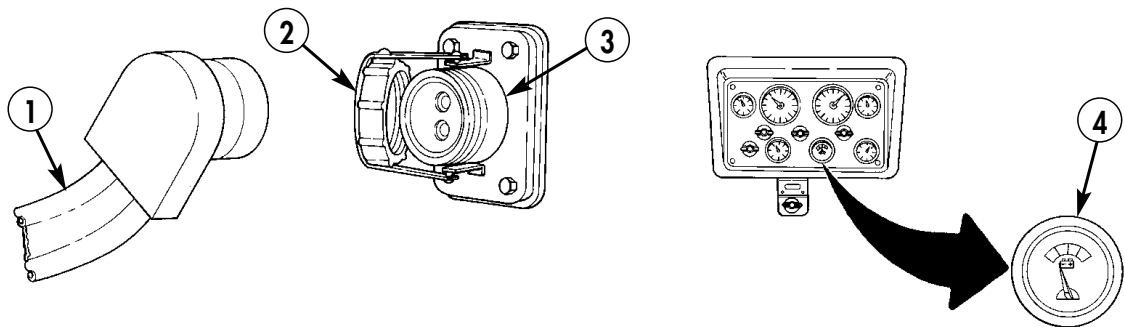
CAUTION

When slaving, always connect slave cable to disabled vehicle first and slaving vehicle second. Failure to make connections in this order may result in damage to batteries or cable.

NOTE

Before attempting to start disabled vehicle, ensure that all electrical switches on both vehicles are set to "OFF."

3. On disabled vehicle, remove slave receptacle cover (2) and connect slave cable (1) to slave receptacle (3).
4. On slaving vehicle, remove slave receptacle cover (2) and connect slave cable (1) to slave receptacle (3).
5. Start slaving vehicle engine and set engine speed to 1,000–1,100 RPM (WP 0007 00 and WP 0008 00).
6. Start disabled vehicle engine (WP 0007 00 and WP 0008 00).
7. When disabled vehicle engine is running smoothly, disconnect slave cable (1) from both vehicle slave receptacles (3).
8. Replace slave receptacle covers (2) on both vehicles.
9. Clean and stow slave cable (1).
10. Observe battery/generator indicator (4) on slaved vehicle. If indicator (4) does not reach green area, notify maintenance personnel.



END OF WORK PACKAGE

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OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

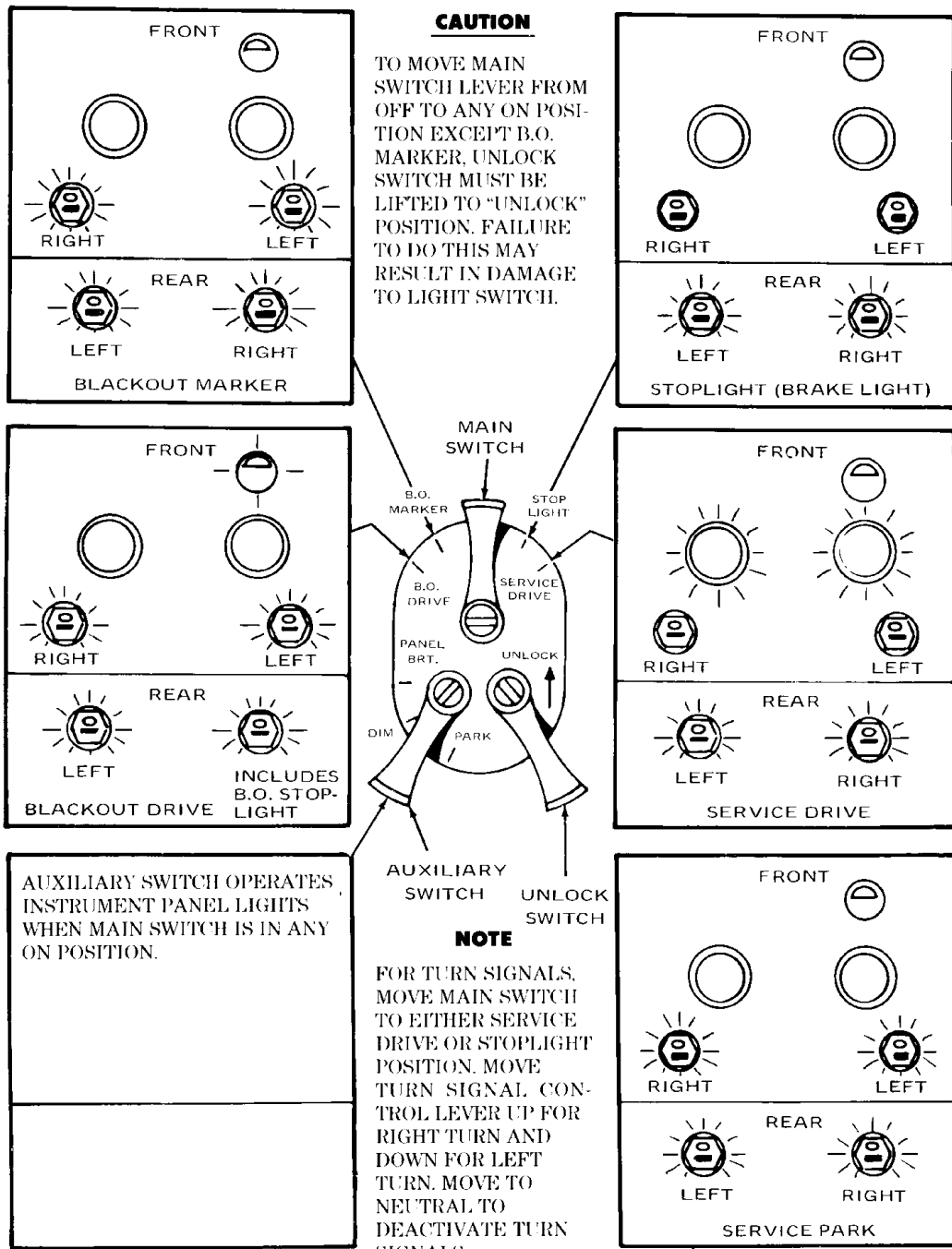
SERVICE LIGHTS OPERATION

WARNING

When hazard warning lights and emergency flashers are in use, they override brake and stop light operation. Therefore, when driving with hazard warning lights and emergency flashers on, use a hand signal to indicate a stop. Failure to use a hand signal may result in injury or death to personnel.

Refer to the following chart for service lights switch settings.

SERVICE LIGHTS OPERATION (Contd)



FOR SERVICE PARK, MOVE MAIN SWITCH TO SERVICE DRIVE. MOVE AUXILIARY SWITCH TO PARK.

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

RAISING WINDSHIELD AND CAB SOFT TOP INSTALLATION

INTRODUCTION

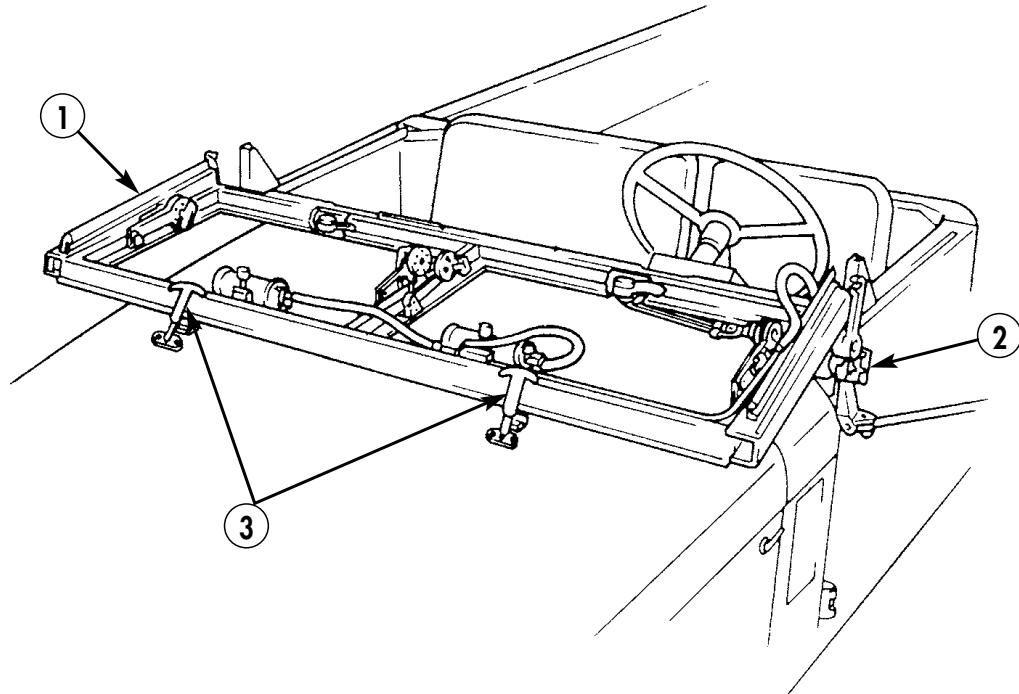
This Work Package (WP) describes how to raise the windshield and install the cab soft top. To reduce vehicle height, the soft top can be removed and the windshield lowered. Refer to WP 0002 00 for normal and reduced height specifications.

RAISING WINDSHIELD

NOTE

To lower windshield, reverse steps 1–3.

1. Pull windshield fasteners (3) to release windshield from hood.
2. Swing windshield assembly (1) up into position.
3. Tighten large wing nuts (2) on left and right sides of windshield assembly (1) to secure windshield.



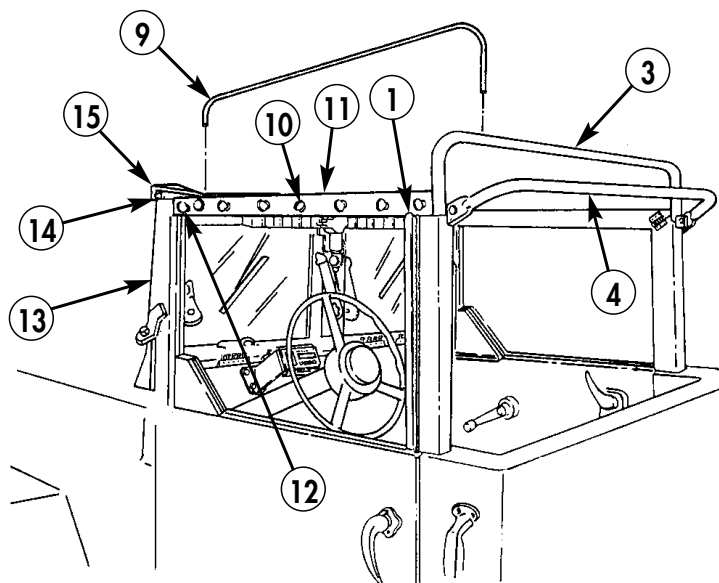
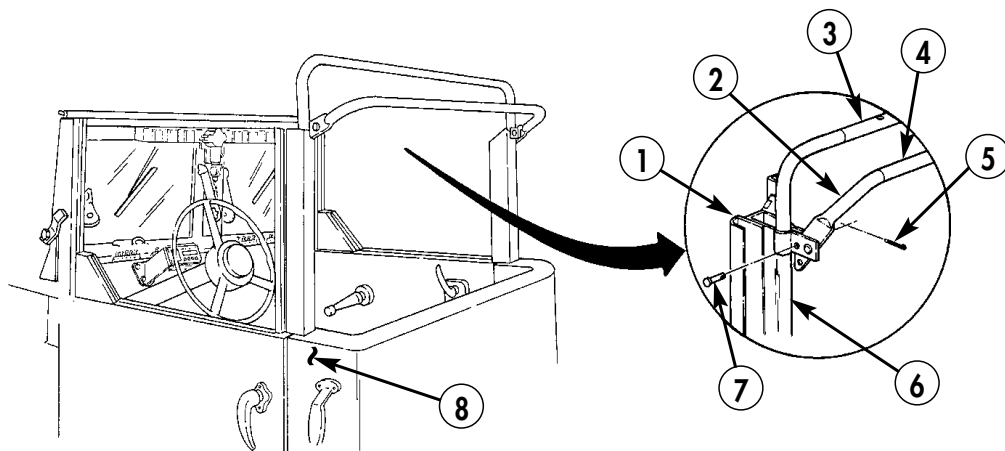
RAISING WINDSHIELD AND CAB SOFT TOP INSTALLATION (Contd)

CAB SOFT TOP INSTALLATION

NOTE

This procedure should be performed by two personnel.

1. Install clevis pins (7) and cotter pins (5) to attach left and right lower crossbar supports (2) to left and right posts (6).
2. Install lower crossbar (4) between left and right lower crossbar supports (2).
3. Install upper crossbar (3) between left and right posts (6).
4. Insert posts (6), with upper crossbar (3) and lower crossbar (4) installed, into cab frame (8).
5. Swing left and right rails (11) up for connection to windshield assembly (13).
6. Insert rail tabs (15) into windshield assembly slots (14).
7. Install three bows (9) between top of windshield assembly (13) and upper crossbar (3).



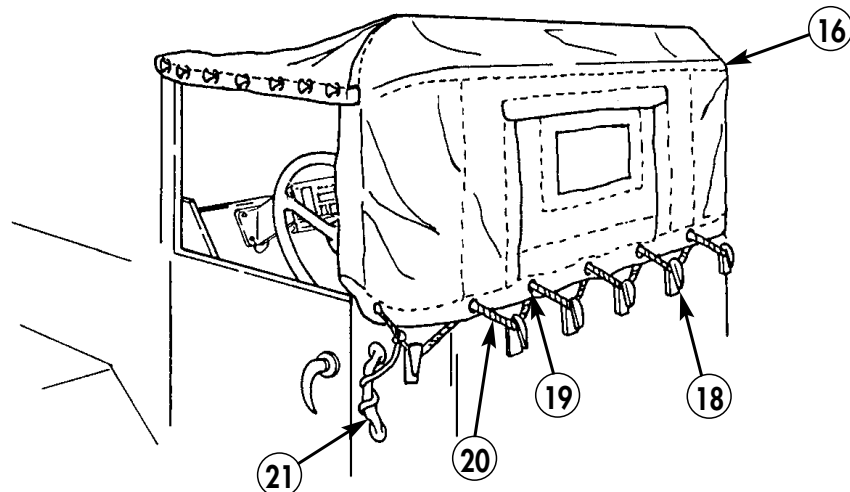
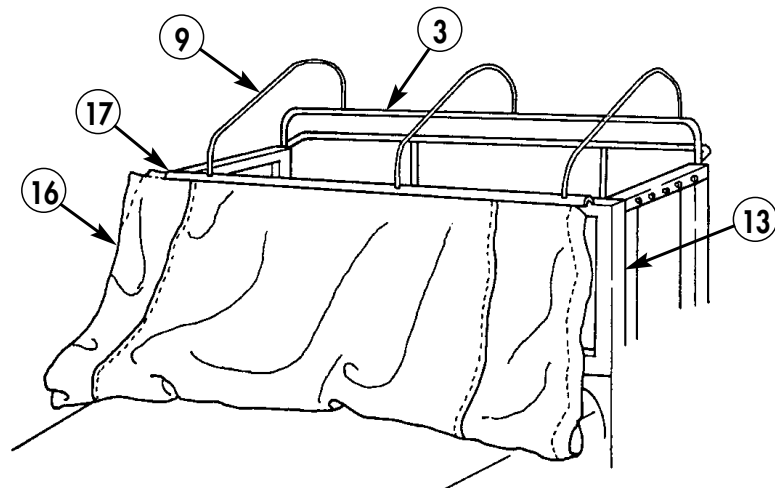
RAISING WINDSHIELD AND CAB SOFT TOP INSTALLATION (Contd)

CAB SOFT TOP INSTALLATION (Contd)

8. Slide cover (16) into windshield channel (1).
9. Flip cover (16) over windshield assembly (13), bows (9), and upper crossbar (3).
10. Slide cover (16) downward into left and right post channels (1).
11. Secure cover (16) to rails (11) using studs (10) (six studs per rail) and snaps (12) (one snap per rail).
12. Tie lashing rope (20) to left side handle (21).
13. Thread lashing rope (20) through eyelets (19) and hooks (18).
14. Tie lashing rope (20) to right side handle.

CAB SOFT TOP REMOVAL

1. To remove cab soft top, reverse Cab Soft Top Installation steps 1–14 above.
2. Clean cover (16) (WP 0045 00).
3. Stow cover (16), posts (6), upper (3) and lower (4) crossbars, bows (9), and lashing rope (20) behind cab seats.



END OF WORK PACKAGE

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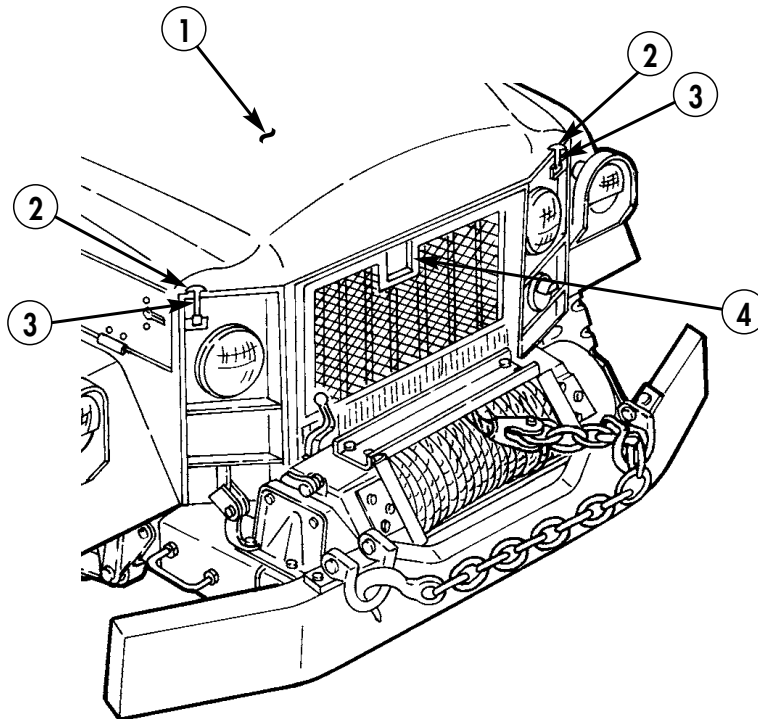
OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

RAISING AND SECURING HOOD

RAISING HOOD

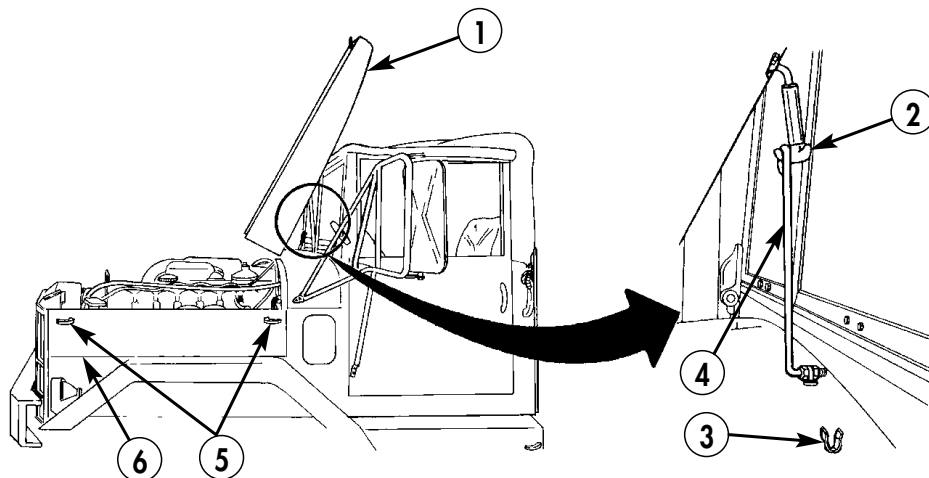
1. Pull up left and right fasteners (3) until they clear catches (2).
2. Push in and hold hood latch (4).
3. Lift hood (1) and release hood latch (4).
4. Raise hood (1) to full open position.



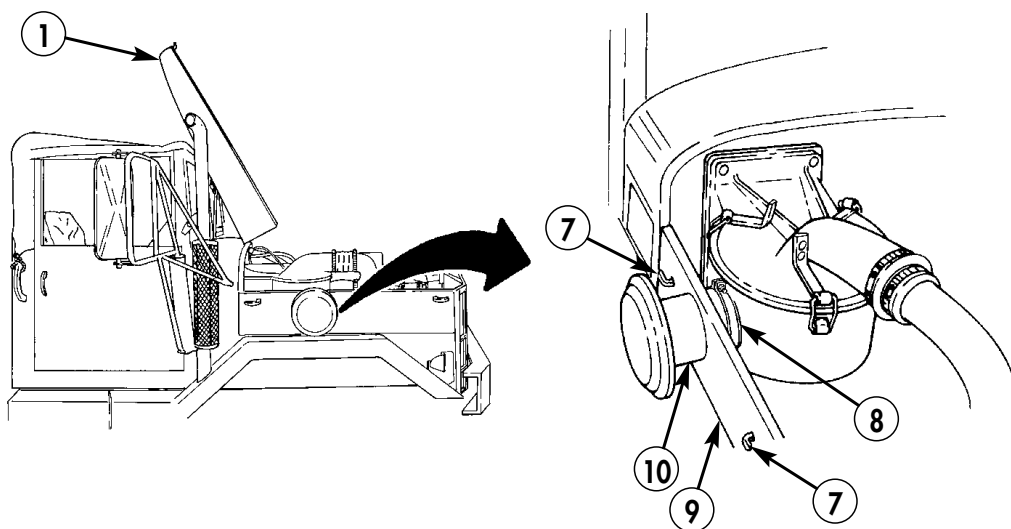
RAISING AND SECURING HOOD (Contd)

RAISING HOOD (Contd)

5. Remove hood support hook (4) from retaining clip (3).
6. Swing hood support hook (4) up and attach to fastener (2).
7. Turn two left side panel latches (5) to up position.
8. Swing left side panel (6) down.



9. Loosen clamp (8) and remove air cleaner intake hood (10).
10. Turn two right side panel latches (7) to up position.
11. Lower right side panel (9).



SECURING HOOD

To raise side panels (9) and (6) and lower hood (1), reverse steps 1–11 above.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

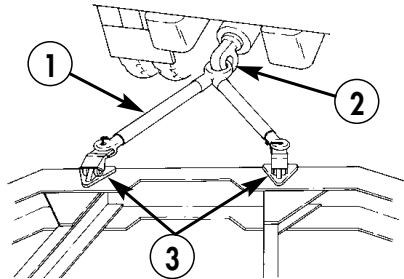
TOWING THE VEHICLE

DISABLED VEHICLE PREPARATION

WARNING

Before connecting/disconnecting towbar to/from disabled vehicle, set disabled vehicle parking brake and chock wheels. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

1. Set parking brake and chock wheels (Work Package (WP) 0010 00).
2. Remove lifting shackles (TM 9-2320-361-24).
3. Attach towbar (1) to lifting shackle brackets (3).



TOWING VEHICLE PREPARATION

WARNING

- Use extreme care when positioning tow vehicle for towbar connection and disconnection. Keep personnel clear of area between tow vehicle and disabled vehicle. Failure to do this can result in serious crushing injuries and death to personnel.
- In accordance with AR 385-55, check for clearance and give warning before backing the vehicle. If rear visibility is blocked by cargo or otherwise limited, driver must use ground guides. Failure to use ground guides while backing the vehicle may result in injury or death to personnel.

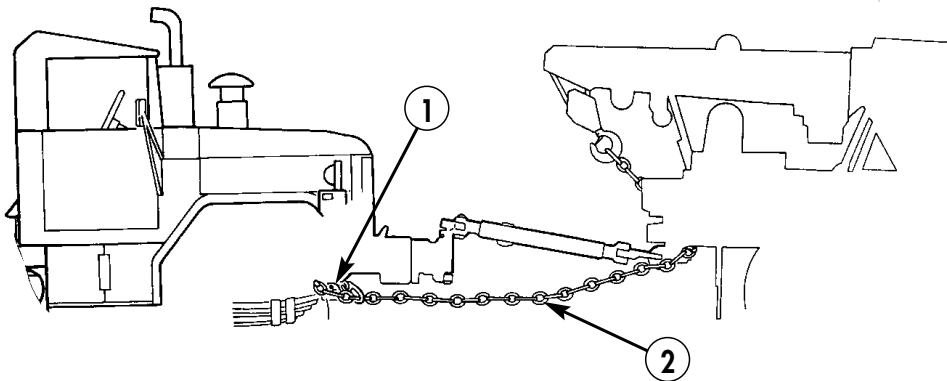
CAUTION

- Do not tow a vehicle that is disabled because of a damaged transfer case, axle, or transmission.
 - Do not tow a vehicle if its front or rear wheels are off the ground.
 - Do not push a disabled vehicle; use towing procedure only.
1. Using ground guide (IAW AR 385-55), position towing vehicle for towbar connection.
 2. Set parking brake and chock wheels (WP 0010 00).
 3. Attach towbar (1) to towing vehicle pintle hook (2).

TOWING THE VEHICLE (Contd)

TOWING VEHICLE PREPARATION (Contd)

4. Connect safety chains (2) from disabled vehicle spring hangers (1) to towing vehicle.



TOWING DISABLED VEHICLE

Disabled vehicle:

1. Place transfer case shift lever in neutral (middle) position.
2. Place transmission gearshift lever in "N" (neutral) position.
3. Release parking brake lever.
4. Remove wheel chocks.

Towing vehicle:

1. Remove wheel chocks.
2. Place vehicle in motion (WP 0009 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

FRONT WINCH OPERATION

WARNING

- Ensure front winch drive shaft shearpin is aluminum. The shearpin is a safety device designed to shear when drive forces are excessive. Use of shearpin materials other than aluminum may result in injury or death to personnel and damage to equipment. For shearpin replacement procedure, refer to Work Package (WP) 0051 00.
- Do not operate winch with less than four turns of cable on drum. Operating winch with less than four turns of cable on drum may cause cable to pull out of drum, resulting in injury or death to personnel and damage to equipment.

NOTE

In this WP, the term left indicates the driver side and right indicates the crew side of the vehicle.

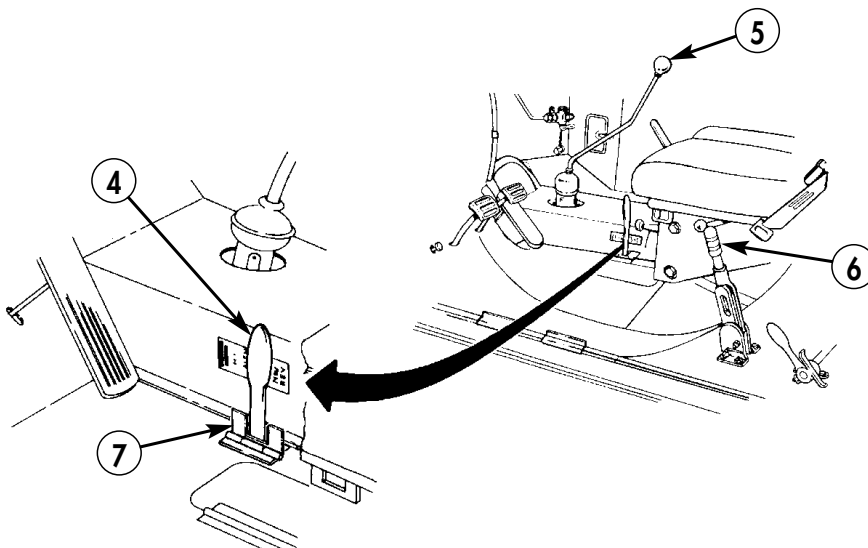
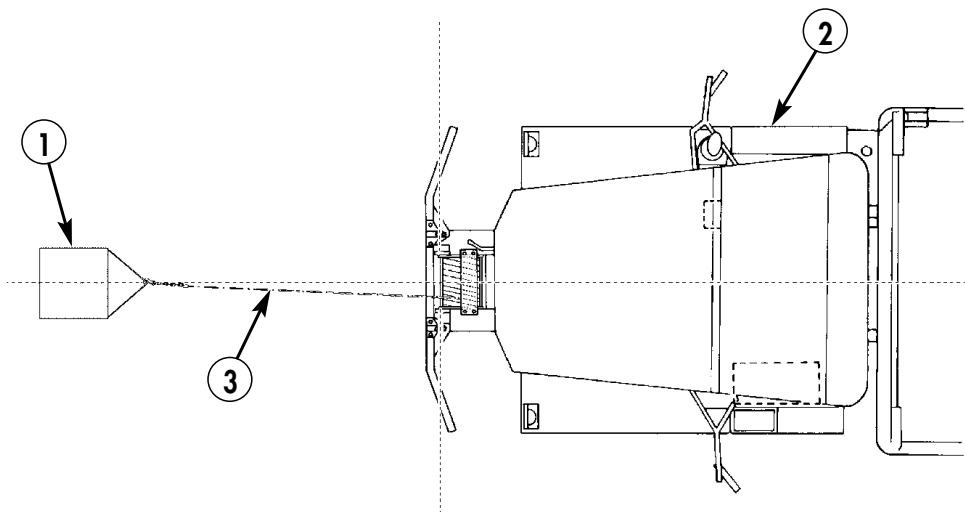
FRONT WINCH OPERATION (Contd)

1. Position vehicle.

NOTE

When positioning the vehicle to pull a load, ensure that the winch cable is in line with the vehicle. This facilitates unwinding the cable from the drum and winding the cable onto the drum without cross winding.

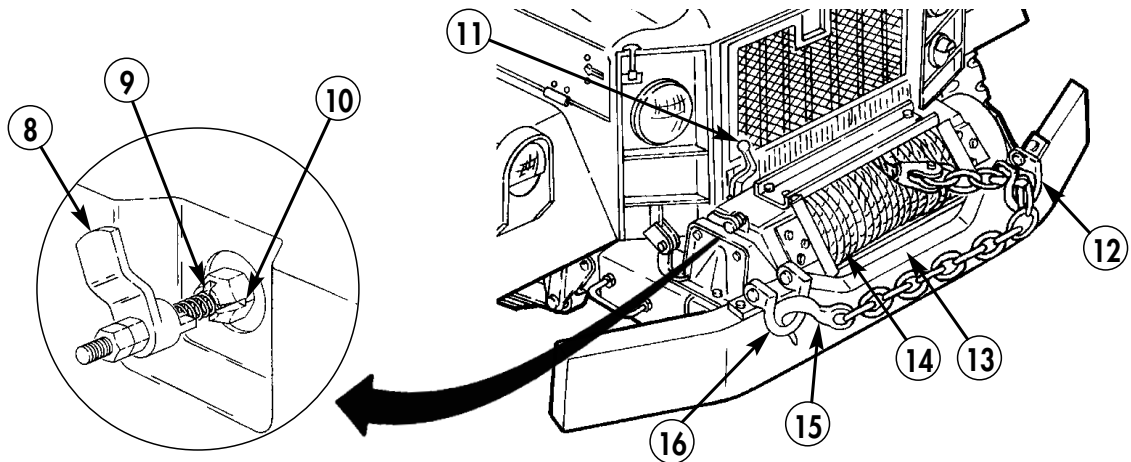
- Position vehicle (2) so when winch cable (3) is attached to load (1), cable (3) is in line with vehicle (2).
- Apply parking brake (6).
- Place transmission gearshift lever (5) in N (neutral) position.
- Place transmission power takeoff (PTO) lever (4) in NEU (neutral) position.
- Lock transmission PTO lever (4) with hinge lock (7).



FRONT WINCH OPERATION (Contd)

2. Unwind cable.

- a. Move winch clutch control lever (11) to OUT position (toward left side of vehicle) to disengage winch drum (14).
- b. Set drum lock latch (8) to unlocked position. From locked position (latch set into deep slot on nut (10)):
 - (1) Pull latch (8) out.
 - (2) Rotate latch (8) a quarter turn (either clockwise or counterclockwise).
 - (3) Release latch (8) into shallow slot on nut (9).



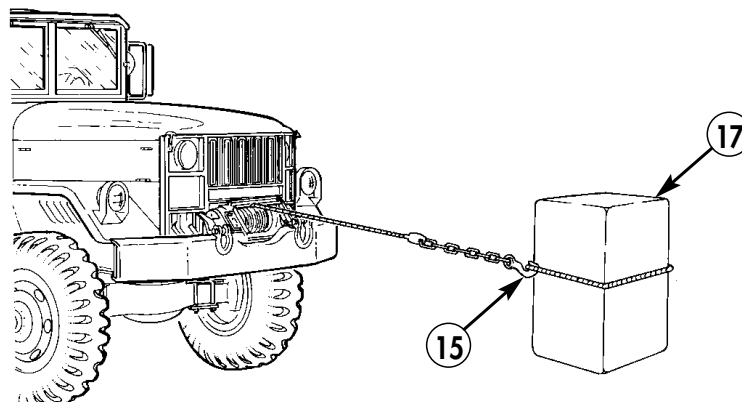
WARNING

Wear leather gloves when handling winch cable. Handling the cable without leather gloves may result in injury to personnel.

NOTE

Do not kink winch cable.

- c. Remove cable hook (15) from right lifting shackle (16).
- d. Pass cable hook (15) through left lifting shackle (12).
- e. Pull cable hook (15) over center of front bumper (13) and out to load (17).



FRONT WINCH OPERATION (Contd)

3. Connect cable hook to load.

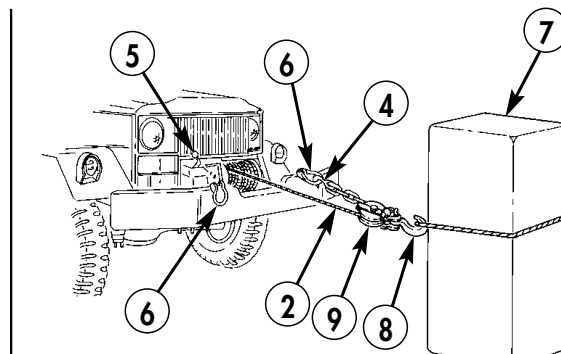
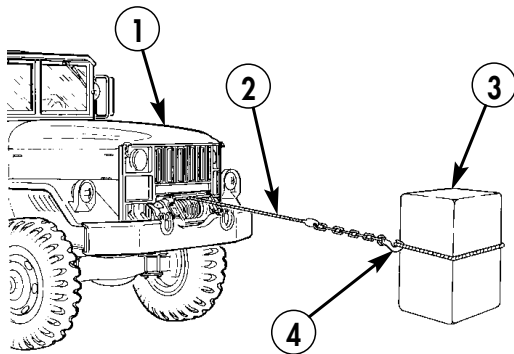
WARNING

When attaching cable hook to load, position hook throat (open part) upward. With the hook positioned in this manner, if the hook straightens out due to overloading and detaches from load, it will be forced toward the ground, not upward. Failure to position the hook in this manner may result in injury or death to personnel.

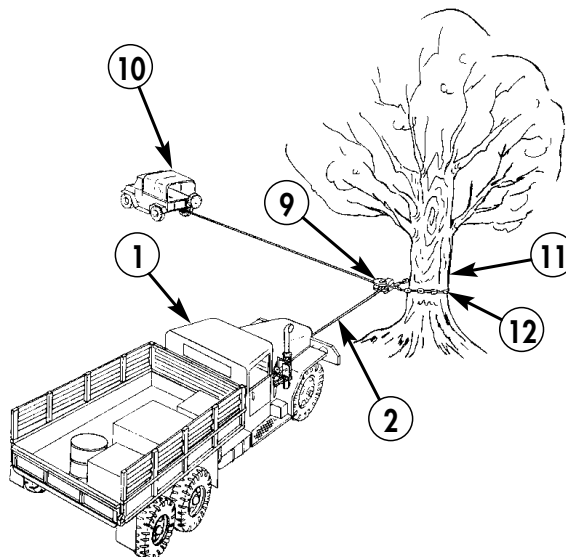
NOTE

- To pull heavy load, use a snatch block.
- To pull load that is not in line with the vehicle, use a utility chain and snatch block.

- a. For normal load (3), fasten cable hook (4) to load (3).
- b. For heavy load (7):
 - (1) Fasten cable hook (4) to lifting shackle (6) (left or right depending on situation).
 - (2) Attach snatch block (9) to winch cable (2).
 - (3) Attach snatch block hook (8) to load (7).



- c. For load (10) that is not in line with vehicle (1):
 - (1) Attach utility chain (12) to fixed object (11) (e.g., tree or structure).
 - (2) Attach cable hook (4) to load (10).
 - (3) Attach snatch block (9) to winch cable (2).
 - (4) Attach snatch block hook (8) to utility chain (12).



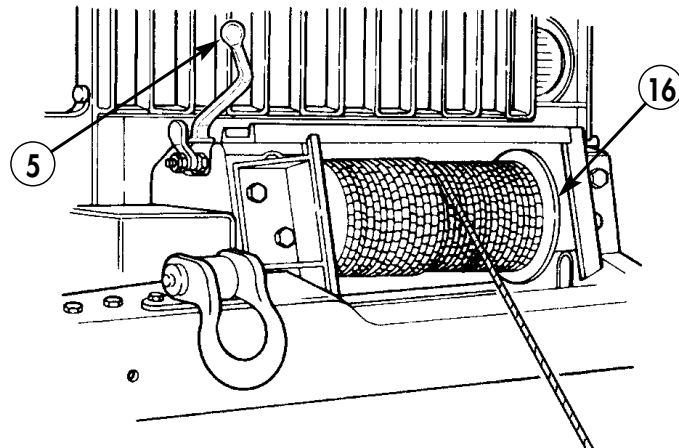
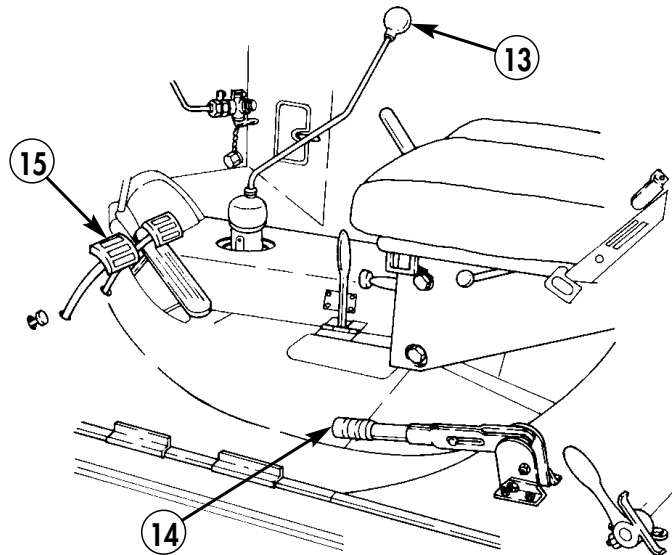
FRONT WINCH OPERATION (Contd)

4. Pull load.

NOTE

If it is possible to back up the vehicle, perform steps a and b; if not, go to step c.

- Slowly back up vehicle (1) to take up winch cable (2) slack.
- When winch cable (2) is tight, stop vehicle (1).
- Apply parking brake (14).
- Depress and hold clutch pedal (15).
- Place transmission gearshift lever (13) in N (neutral) position.
- Release clutch pedal (15).
- Move winch clutch control lever (5) to IN position (toward right side of vehicle) to engage winch drum (16).



FRONT WINCH OPERATION (Contd)

WARNING

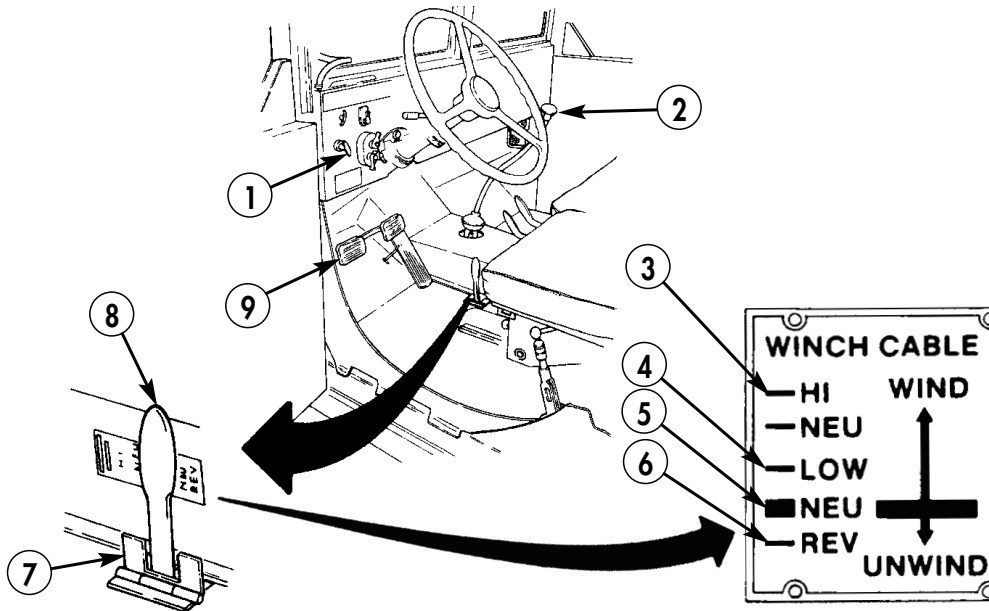
- During winch operations, keep all personnel clear of winch operation area. A broken winch drive shaft shearpin, broken cable or utility chain, detached hook, or shifting load can cause injury or death to personnel.
- Do not use winch clutch control lever to control winch directly. Use only the transmission PTO lever and clutch pedal. Using the winch clutch control lever to control the winch directly places the operator in an extremely dangerous position (near the moving drum and between the vehicle and the load). Failure to comply may result in injury or death to personnel.
- For winch operations, use hand throttle to control engine speed. Do not set engine speed >1,200 RPM.
- Change engine speed gradually. Changing engine speed too quickly can cause equipment to break, resulting in injury or death to personnel.

- h. Set engine speed, using hand throttle (1), to <1,200 RPM.
- i. Depress and hold clutch pedal (9).
- j. Unlock transmission PTO lever (8) hinge lock (7).

NOTE

If uncertain about load weight, set transmission PTO lever to LOW position.

- k. Set transmission PTO lever (8) to:
 - (1) LOW position (4) for heavy load.
 - (2) HIGH position (3) for light load.



FRONT WINCH OPERATION (Contd)

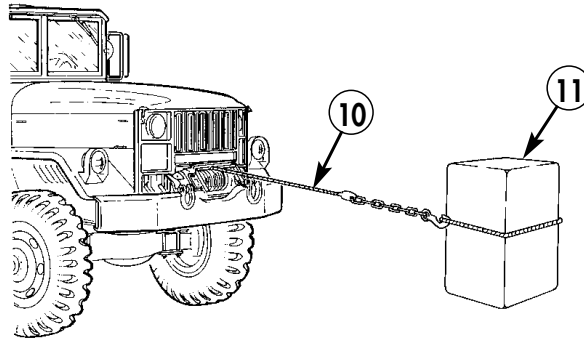
NOTE

- When winch operation is initiated, to stop winch momentarily, depress clutch pedal. Slowly release clutch pedal to resume winch operation.
- Keep left foot near clutch pedal to be ready to stop winch when necessary.

- l. Slowly release clutch pedal (9) to wind in cable (10) and pull load (11).
- m. Adjust hand throttle (1) for smooth engine and winch operation.
- n. Go directly to step 5.

5. Stop winch.

- a. When load (11) reaches desired position, depress and hold clutch pedal (9) to stop winch.
- b. Place transmission PTO lever (8) in NEU (neutral) (5) position.
- c. Lock transmission PTO lever (8) hinge lock (7).
- d. Release clutch pedal (9).



6. Release load.

NOTE

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

- a. Depress and hold clutch pedal (9).
- b. Ensure transmission gearshift lever (2) is in N (neutral) position.
- c. Unlock transmission PTO lever hinge lock (7).
- d. Place transmission PTO lever (8) in REV (reverse) (6) position.

NOTE

- When winch operation is initiated, to stop winch momentarily, depress clutch pedal. Slowly release clutch pedal to resume winch operation.
 - Keep left foot near clutch pedal to be ready to stop winch when necessary.
- e. Slowly release clutch pedal (9).
 - f. Adjust hand throttle (1) for smooth engine and winch operation.

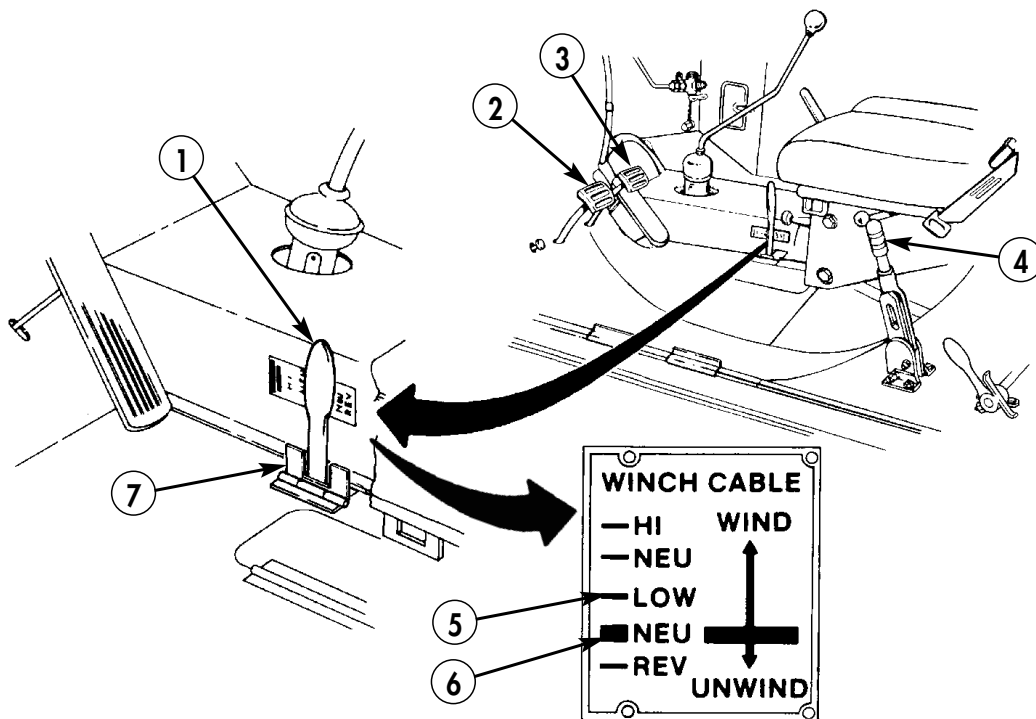
FRONT WINCH OPERATION (Contd)

7. Wind cable on drum.

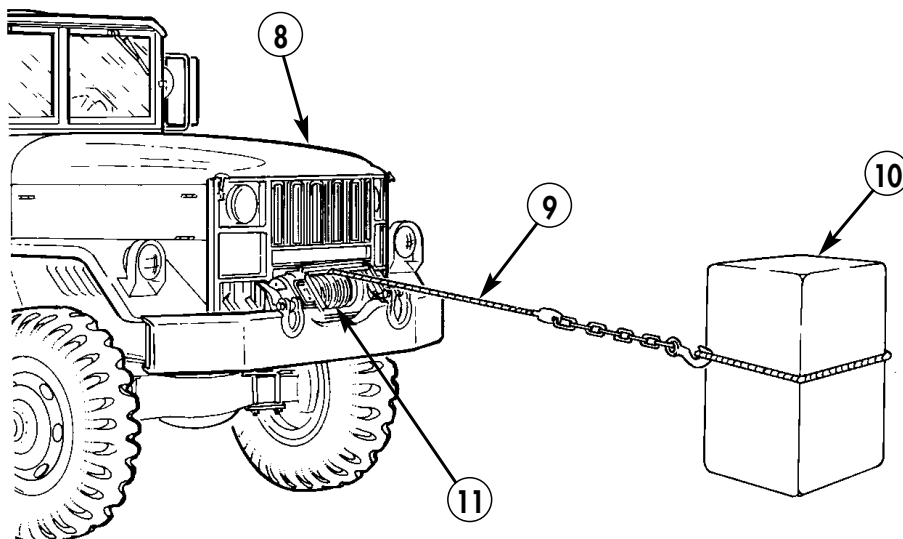
NOTE

Crew member must tend cable while cable is winding onto drum, to ensure that it winds tightly and does not cross-wind.

- a. Apply parking brake (4).

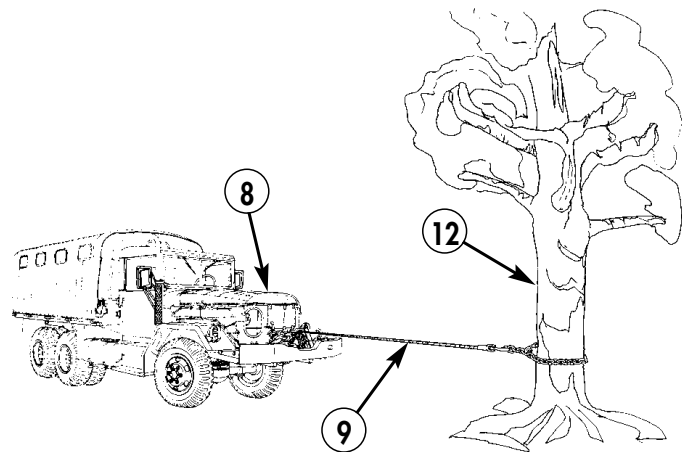


- b. Attach winch cable (9) to load (10). If no load is available, attach cable (9) to fixed object (12) (e.g., tree, structure, or another vehicle).



FRONT WINCH OPERATION (Contd)

- c. Depress clutch pedal (2).
- d. Place transmission PTO lever (1) in LOW position (5).
- e. Release parking brake (4).
- f. Apply light pressure on brake pedal (3) to ensure that cable winds tightly.

**WARNING**

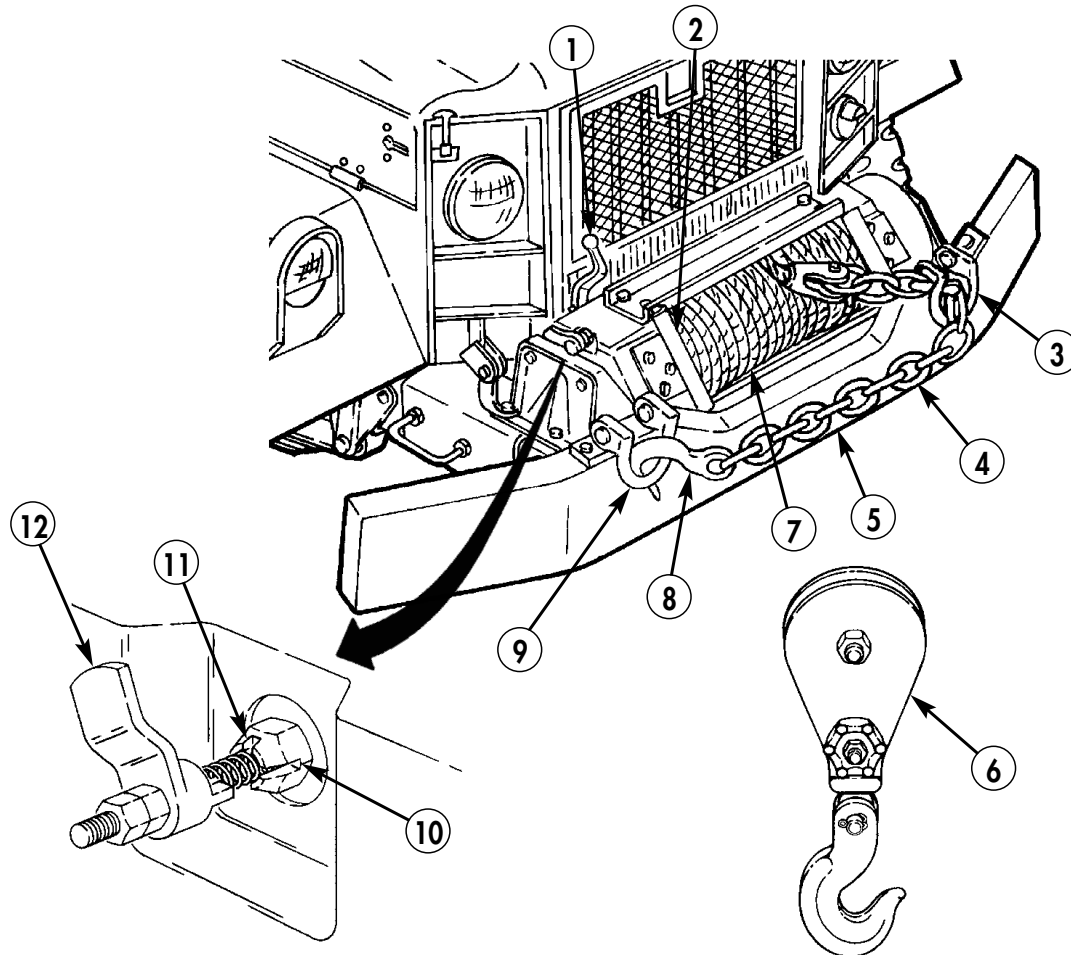
- When tending the cable, stay clear of the winch drum. Severe injury can occur if body parts become caught between the cable and the drum. If necessary, use a wooden block to align cable.
- Avoid being trapped between vehicle and load. While tending the cable, stay clear of front of vehicle whenever possible and be aware of the vehicle motion and location of load. Becoming trapped between vehicle and load can result in severe crushing injuries and death to personnel.
- Wear leather gloves when handling winch cable. Handling the cable without leather gloves may result in injury to personnel.

NOTE

- When winch operation is initiated, to stop winch momentarily, depress clutch pedal. Slowly release clutch pedal to resume winch operation.
 - Keep left foot near clutch pedal to be ready to stop winch when necessary.
 - Crew member must ensure that first layer of cable winds onto drum without cross winding and that each additional layer starts back across drum without cross winding.
- g. Slowly release clutch pedal (2), winch will wind cable (9) onto drum (11):
 - (1) Winch will pull load (10) toward vehicle (8), or
 - (2) Winch will pull vehicle (8) forward toward fixed object (12).
 - h. Crew member tends winch cable (9) to ensure that it winds correctly.
 - i. When winch cable (9) is fully wound on drum (11):
 - (1) Depress clutch pedal (2).
 - (2) Place transmission PTO lever (1) in NEU (neutral) (6) position.
 - (3) Lock transmission PTO lever (1) with hinge lock (7).
 - (4) Apply parking brake (4) and stop engine (WP 0010 00).

FRONT WINCH OPERATION (Contd)

8. Lock front winch for travel.



- a. Position cable chain (4):
 - (1) Through left lifting shackle (3)
 - (2) Across front of bumper (5)
 - (3) Attach cable hook (8) to right lifting shackle (9).
- b. Move winch clutch control lever (1) to OUT position (toward left side of vehicle) to disengage winch drum.
- c. Set drum lock latch (12) to locked position. From unlocked position (latch set into shallow slot on nut (11)):
 - (1) Pull latch (12) out.
 - (2) Rotate latch (12) a quarter turn (either clockwise or counterclockwise).
 - (3) Release latch (12) into deep slot on nut (10).
- d. Rotate drum (7) until drum lock latch (12) plunger slips into nearest drum flange (2) hole.
- e. Service snatch block (6) and other equipment used for winching operation and stow.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

CARGO TRUCK OPERATION

GENERAL

This Work Package (WP) describes how to arrange various components of the M44A2 series cargo truck cargo area. All cargo truck models can be equipped with a bow and cover kit (WP 0035 00), which provides weatherproof protection for the cargo area.

Table 1. M44A2 Series Cargo Truck Bed Dimensions.

VEHICLE	LENGTH		WIDTH	
	STANDARD	METRIC	STANDARD	METRIC
M35A2	12 ft 3 in.	3.73 m	7 ft 6 in.	2.28 m
M35A2C (dropside)				
M36A2	17 ft 6 in.	5.33 m	7 ft 4 in.	2.24 m

CARGO TRUCK OPERATION (Contd)

LOWER AND RAISE TAILGATE

NOTE

The M35A2C dropside cargo truck has locking handles that secure the tailgate to the side gates. M35A2/M36A2 cargo trucks use hooks to secure the tailgate to the side gates.

M35A2/M36A2 Cargo Truck

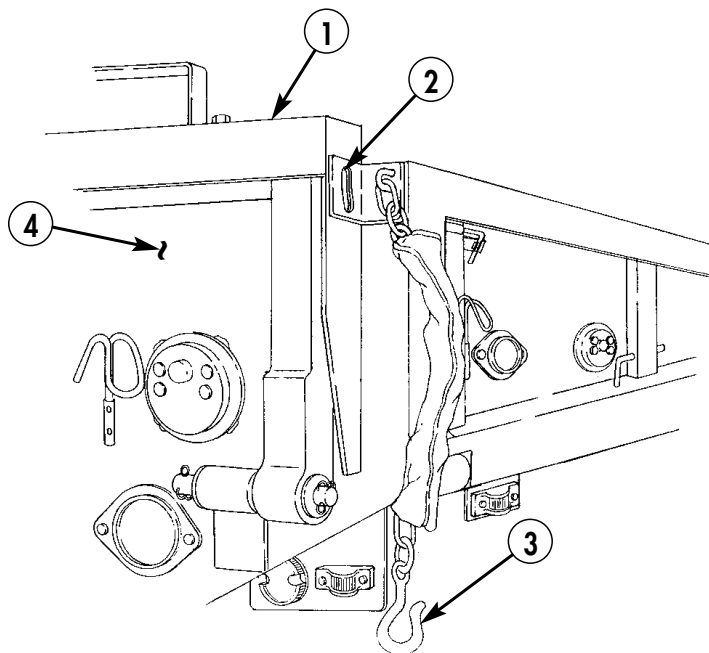
WARNING

- Ensure tailgate is supported when removing or installing tailgate hooks. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.
- Do not allow tailgate to drop freely. Support tailgate while swinging it down. Failure to comply will allow tailgate to drop quickly and may cause injury to personnel.

NOTE

To raise M35A2/M36A2 tailgate, reverse steps 2 and 3. Support tailgate while installing hooks.

1. Support tailgate (4) to prevent it from dropping.
2. Remove left and right hooks (3) from retainer slots (2).
3. Grasp top of tailgate (1) and slowly pull tailgate (4) back and down.



CARGO TRUCK OPERATION (Contd)

WARNING

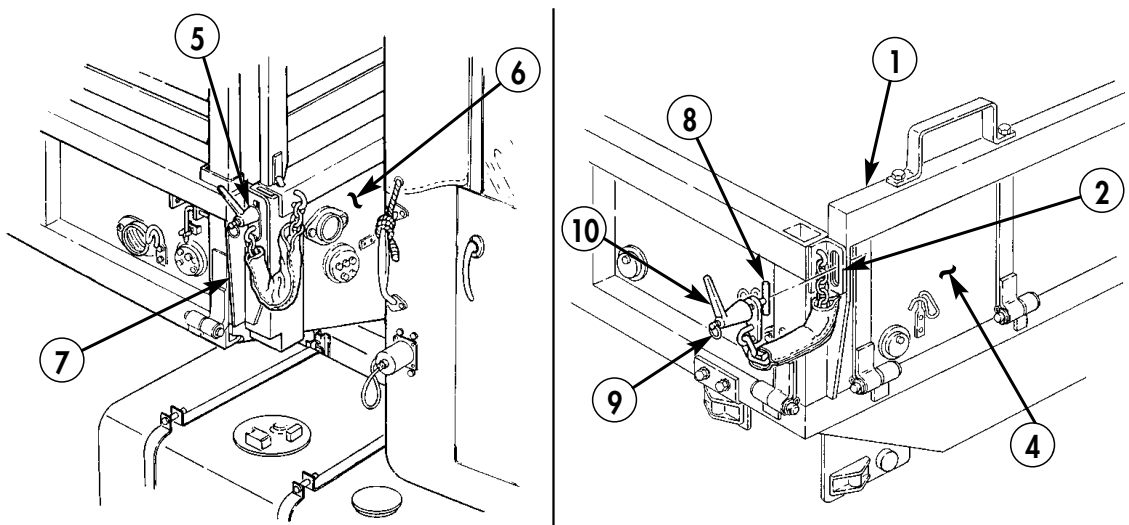
- On M35A2C dropside trucks, before lowering tailgate, ensure front of dropside is secured to the body with locking handles. Failure to do so may allow dropside to drop unexpectedly, causing injury or death to personnel.
- Ensure tailgate is supported when removing locking handles. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.
- Do not allow tailgate to drop freely. Support tailgate while swinging it down. Failure to comply will allow tailgate to drop quickly and may cause injury to personnel.

NOTE

- The following procedure should be performed by two personnel.
- To raise M35A2C tailgate, reverse steps 2–5. After raising tailgate, support tailgate while installing locking handles.

M35A2C (Dropside) Cargo Truck

1. Ensure front of side gates (7) are secured to body (6) with locking handles (5).
2. Rotate tailgate locking handle (10) counterclockwise to loosen.
3. Grasp ring (9) and rotate T-bolt (8) 90° to align with slot (2).
4. Remove locking handle (10) from slot (2).
5. Grasp top of tailgate (1) and slowly pull tailgate (4) back and down.



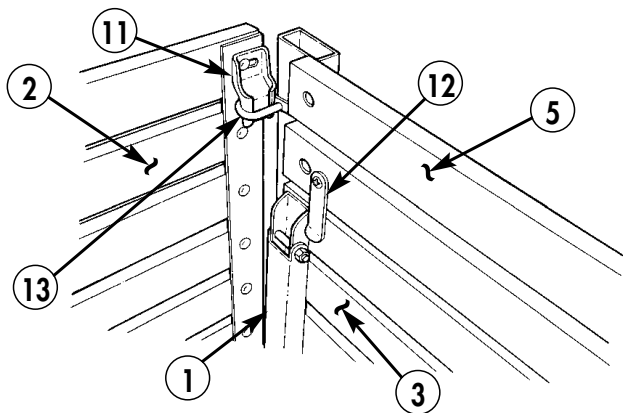
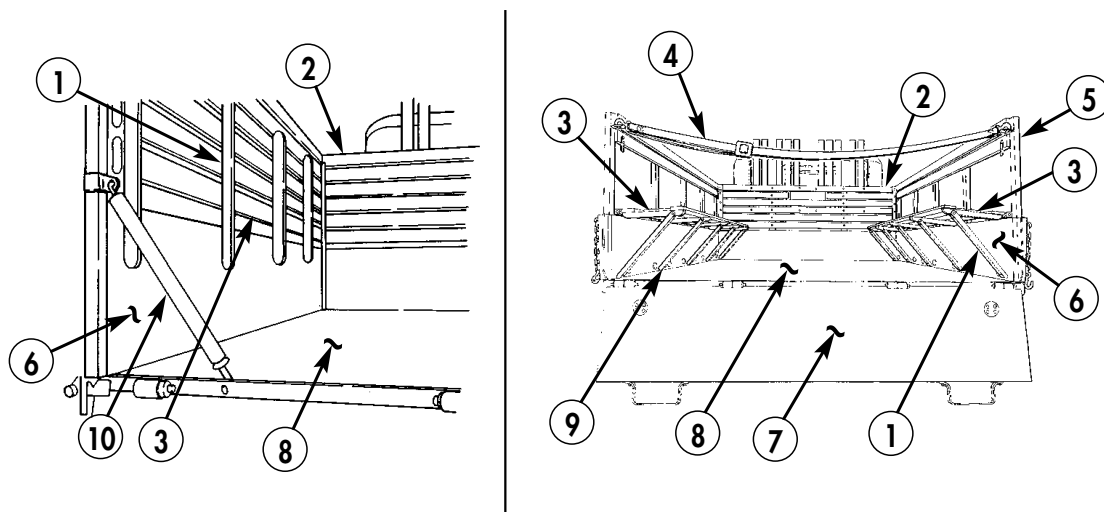
CARGO TRUCK OPERATION (Contd)

LOWER AND RAISE TROOP SEATS

NOTE

To raise troop seats, reverse steps 1–3.

1. Swing troop seat supports (1) up 45°.
2. Release latches (12).
3. Swing troop seats (3) down.
4. Adjust troop seat supports (1) so they contact corner (9) between side gate (6) and cargo body bed (8).



CARGO TRUCK OPERATION (Contd)

REMOVE AND INSTALL FRONT AND SIDE RACKS

NOTE

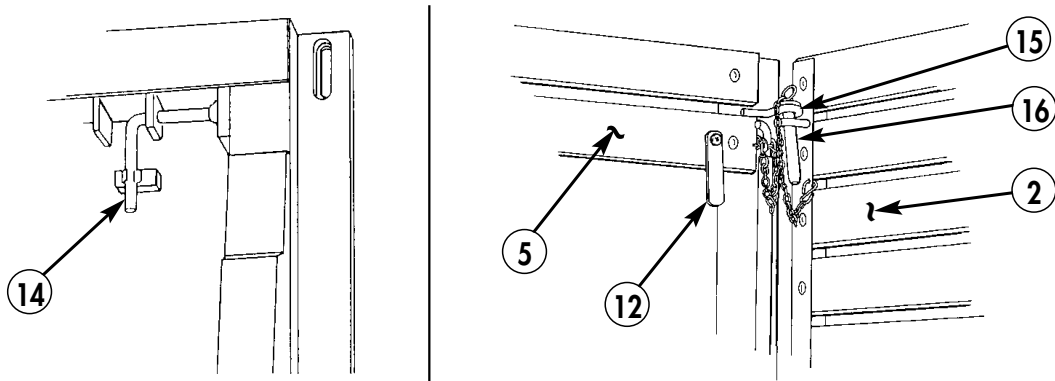
The following procedure must be performed by two personnel.

1. Lower tailgate (7), refer to LOWER AND RAISE TAILGATE in this WP.
2. Raise and secure troop seats (3), refer to LOWER AND RAISE TROOP SEATS in this WP.
3. Remove safety strap (4).

NOTE

Perform steps 4 and 5 for M35A2C dropside vehicles only.

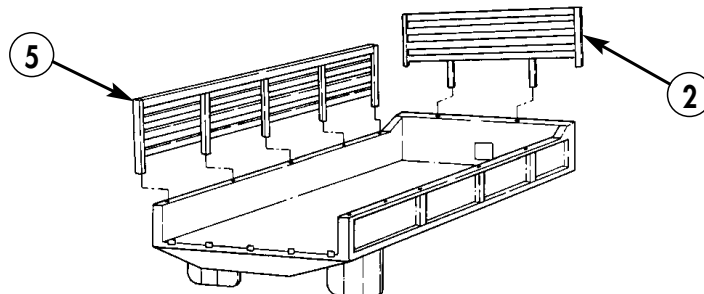
4. Remove bottom end of stabilizer (10) from cargo body bed (8), swing up and secure in up position.
5. Pull front and rear side gate rack latches (14) out to release side racks (5).



NOTE

Perform step 6 for vehicles with pins and retainer rings.

6. For vehicles with pins (16) and retainer rings (15), remove pins (16) from retainer rings (15).
7. Lift and remove front rack (2).
8. Lift and remove side rack (5).
9. To install front and side racks, reverse steps 1–8. When installing front rack on vehicles with retainer clip (11), ensure front rack retainer clip is inserted in side rack retainer ring (13).



CARGO TRUCK OPERATION (Contd)

LOWER AND RAISE SIDE GATE

This procedure describes how to lower and raise an M35A2C dropside truck side gate (1). Depending on the cargo loading or unloading requirements, one or the other or both side gates (1) will need to be lowered.

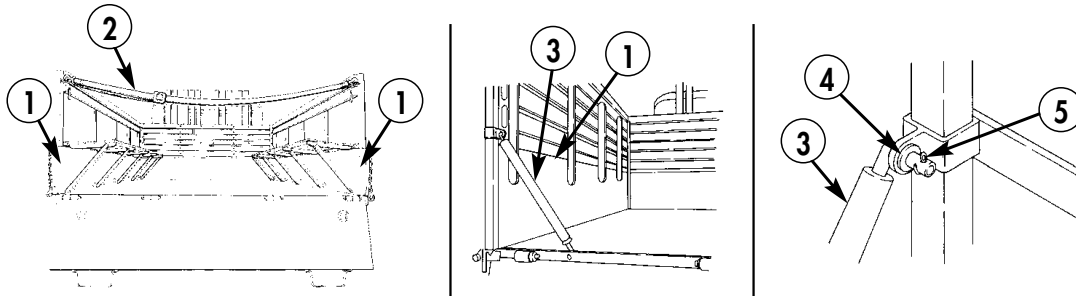
Lower Side Gate

1. Lower tailgate, refer to LOWER TAILGATE in this WP.

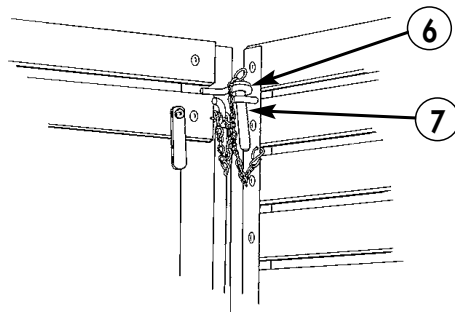
NOTE

If front and side racks are installed, perform steps 2–4. If not, go to step 5.

2. Remove safety strap (2).
3. On M35A2C dropside vehicles, perform the following:
 - a. Remove stabilizer cotter pin (5) and washer (4).
 - b. Remove stabilizer (3).



- c. Remove pin (7) from retainer rings (6).



CARGO TRUCK OPERATION (Contd)

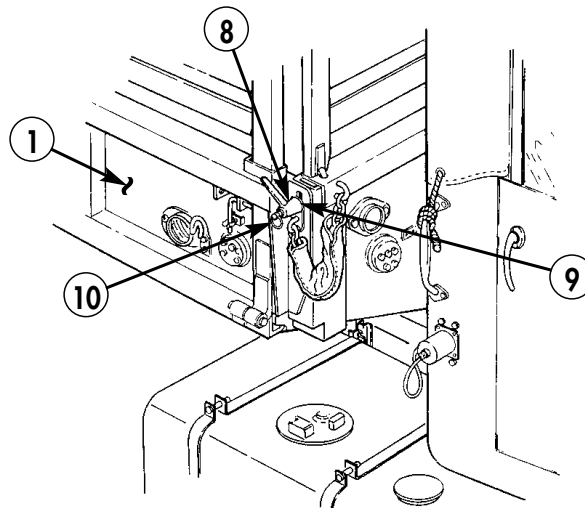
WARNING

- Ensure side gate is supported when removing front side gate locking handle. Failure to do so may allow side gate to drop unexpectedly, causing injury or death to personnel.
- Do not allow side gate to fall freely. Support side gate while swinging it down. Failure to comply will allow side gate to drop quickly and may cause injury to personnel.
- Troop seats must be secured in the up position before lowering dropside. Failure to do so may result in injury to personnel.

NOTE

This operation requires two crew members. The first crew member must support the side gate while the second crew member removes locking handle.

4. At front of side gate:
 - a. First crew member—support side gate (1).
 - b. Second crew member—remove front locking handle (8):
 - (1) Rotate front locking handle (8) counterclockwise to loosen.
 - (2) Grasp ring (10) and rotate T-bolt 90° to align with slot (9).
 - (3) Remove locking handle (8) from slot (9).
5. Both crew members—grasp side gate (1) and slowly lower it.
6. To load or unload from both sides, repeat steps 1–5 for the other side gate.



CARGO TRUCK OPERATION (Contd)

Raise Side Gate

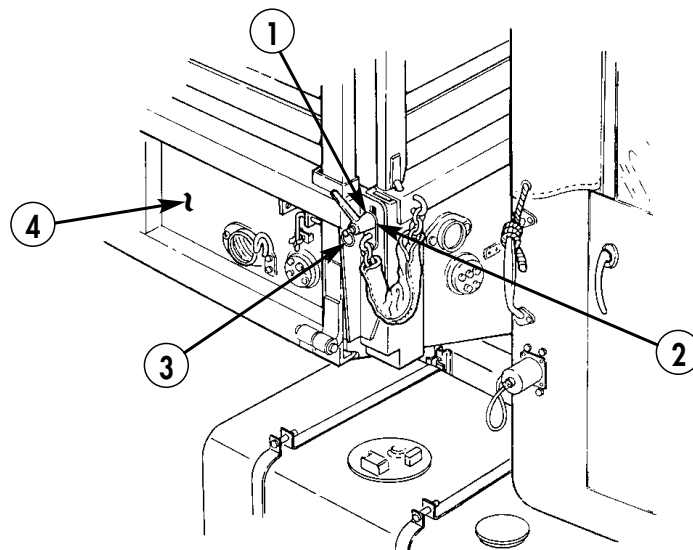
WARNING

Ensure side gate is supported when installing side gate front locking handle. Failure to do so may allow side gate to drop unexpectedly, causing injury or death to personnel.

NOTE

This operation requires two crew members. The first crew member must support the side gate, while the second crew member installs locking handle.

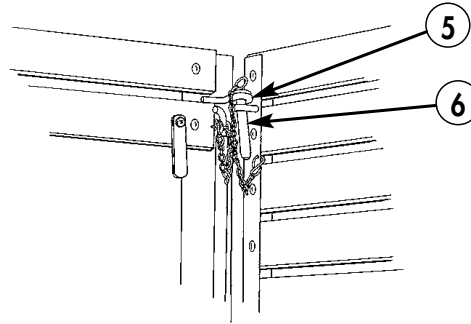
1. Both crew members—raise side gate (4).
2. First crew member—support side gate (4).
3. Second crew member—install front locking handle (1):
 - a. Install T-bolt through slot (2).
 - b. Grasp ring (3) and turn T-bolt 90°.
 - c. Rotate locking handle (1) clockwise to tighten.



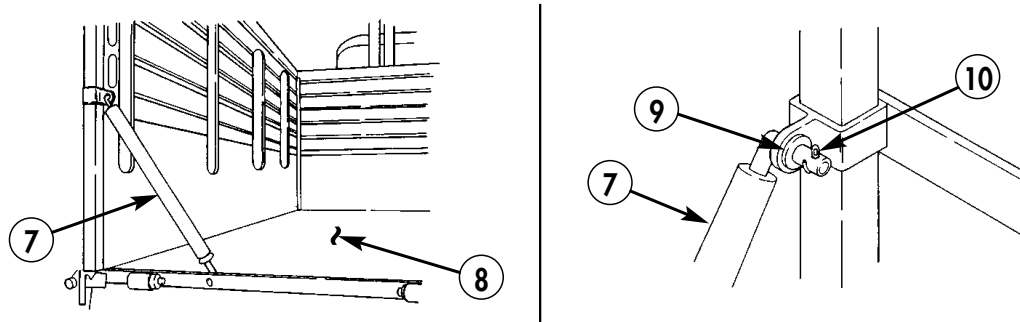
CARGO TRUCK OPERATION (Contd)**NOTE**

If front and side racks are installed, perform steps 4–7. If front and side racks are not installed, go to step 8.

4. Insert pin (6) into retainer rings (5).



5. Attach stabilizer (7) to cargo body bed (8).
6. Attach upper stabilizer:
 - a. Install washer (9)
 - b. Install cotter pin (10).



7. Install safety strap (11)

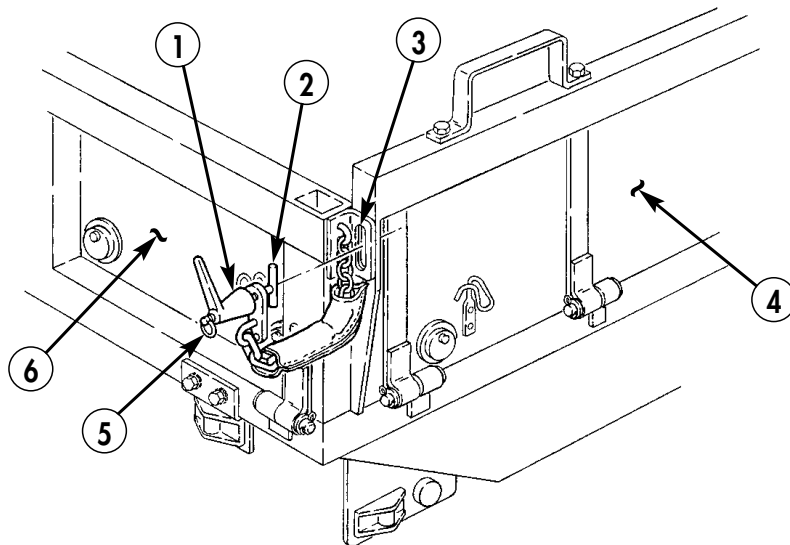
CARGO TRUCK OPERATION (Contd)

8. Raise tailgate (4).

WARNING

Ensure tailgate is supported when installing locking handle. Failure to do so may allow tailgate to drop unexpectedly, causing injury to personnel.

9. Secure tailgate (4) to side gate (6):
- Support tailgate (4).
 - Install T-bolt (2) through slot (3).
 - Grasp ring (5) and turn T-bolt (2) 90°.
 - Rotate locking handle (1) clockwise to tighten.



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

FUEL TANK TRUCK OPERATION

WARNING

- Fuel is extremely flammable and explosive. Keep fire extinguisher nearby when performing fueling operations. Burning fuel or fuel that explodes can cause injury or death to personnel.
- Do not perform fueling operations while smoking or within 50 ft (15 m) of sparks or open flame. Failure to do so may result in injury or death to personnel.
- Before conducting a fuel transfer operation, all vehicles must be bonded and grounded to prevent electrostatic discharge. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel.
- Never wear nylon clothing when handling fuel; high electrostatic charges can build up on nylon. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel.
- Maintain a minimum of 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may cause fire, resulting in injury or death to personnel.

NOTE

- When changing to a new fuel or grade, drain compartments, lines, and filter-separator. Flush system with 50 gal. (189 L) of new fuel. Circulate new fuel back to tank twice. Circulate new fuel through all fuel handling components, including meter, filter-separator, and hoses. Dispose of fuel used for flushing in approved area.
- Refer to Work Package (WP) 0002 00 for permissible fuels data, which includes lower temperature limit information. Use only specified fuels and do not attempt to dispense fuel below the specified lower temperature limit.

INTRODUCTION

The M49A2C fuel tank truck is used to transport and dispense fuel. It is equipped with two 600-gallon tanks (2,271-L) (front and rear compartments) and can transfer fuel with or without the delivery pump.

In order to prevent fire and explosion hazards and injury to personnel when performing fueling operations, ensure vehicle is properly bonded and grounded, proper clothing is worn, and appropriate distances around the truck and fueling area are maintained. Nozzles, hoses, dispensing lines, and valves must be kept clean and dry to prevent fuel contamination and equipment damage.

FUEL TANK TRUCK OPERATION (Contd)

REFERENCES

For general M49A2C fuel tank truck information, refer to WP 0002 00. For important fuel tank truck operation and safety information, refer to FM 10-67-1, Concepts and Equipment of Petroleum Operations. Additional vehicle operation information can be found in DA PAM 750-35, Maintenance of Supplies and Equipment Guide for Motor Pool Operations.

BONDING AND GROUNDING

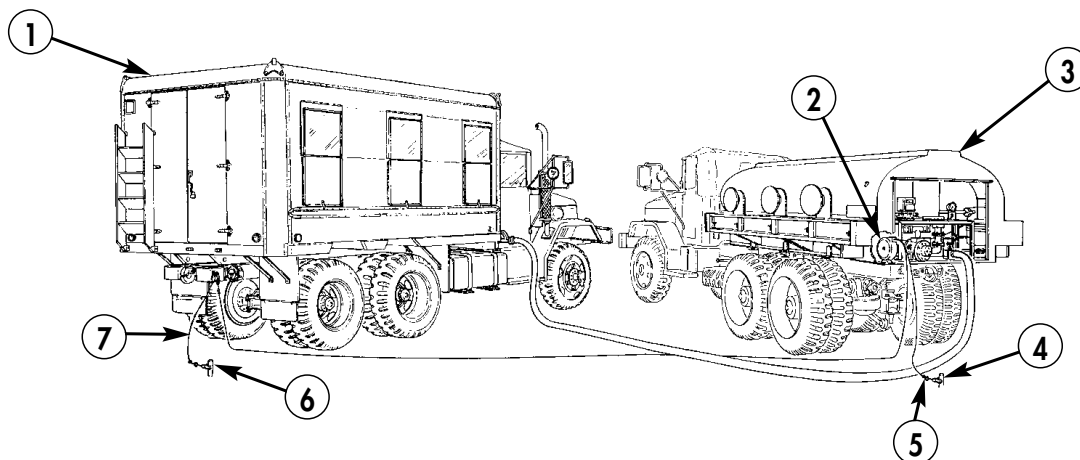
Electrostatic charges can accumulate on vehicles and equipment and discharge, causing a spark that can ignite fuel vapors. Bonding and grounding dissipate electrostatic charges to ground without a spark, and must be done when performing fueling operations.

Bonding is the connection of two electrically conductive objects to equalize the electrical potential between them. Bonding alone does not dissipate electrostatic charges; it equalizes the charge on the two objects to prevent sparking.

Grounding electrically connects single or bonded vehicles and equipment to earth ground, via ground wires and rods, to dissipate electrostatic charges without a spark. Before performing fueling operations, all vehicles and equipment must be bonded and grounded.

NOTE

- This procedure describes bonding and grounding only. Refer to specific fueling procedures for fueling operations.
 - If a ground connection cannot be made using a ground rod, use another suitable ground (e.g., metal building or underground pipe).
1. Install ground rods (4) and (6).
 2. Extend ground wires (5) and (7) from fuel tank truck (3) cable reel (2).
 3. Connect ground wire (5) to ground rod (4) or other suitable ground.
 4. Connect ground wire (7) to frame of vehicle being fueled (1) and then to ground rod (6) or other suitable ground.



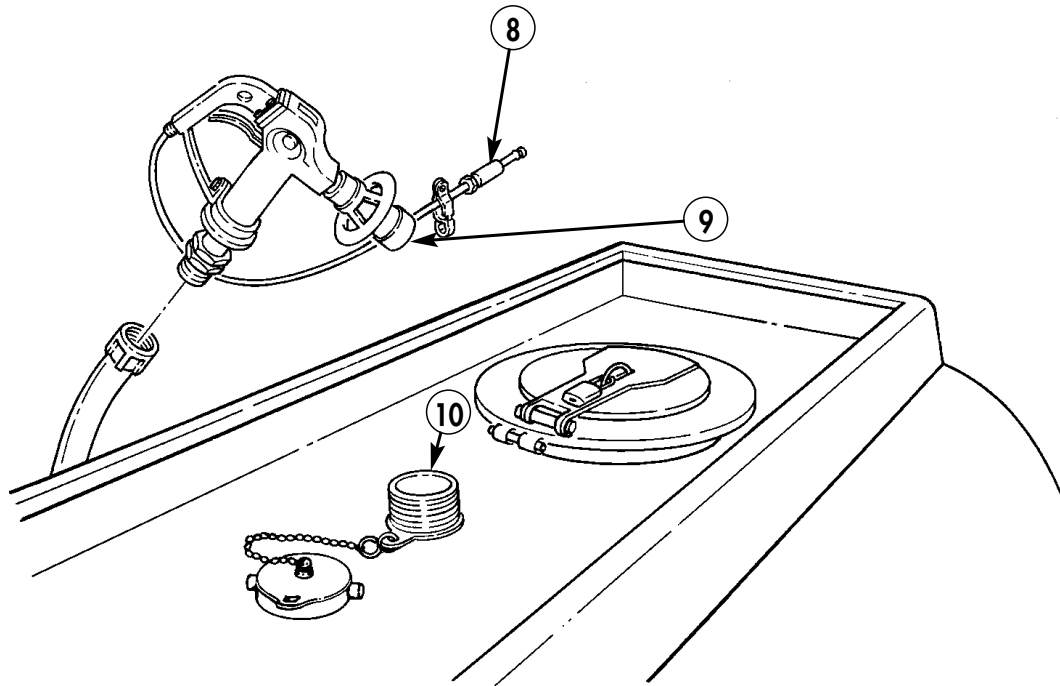
FUEL TANK TRUCK OPERATION (Contd)

BONDING AND GROUNDING (Contd)

WARNING

To prevent electrostatic discharge when using the dispenser nozzle, always connect nozzle ground wire to tank being filled and keep nozzle in contact with fuel tank filler hole during fueling procedure. Electrostatic discharge causes a spark, which can ignite fuel, resulting in injury or death to personnel

5. Attach dispenser nozzle (9) ground wire (8) to tank being filled.
6. Insert dispenser nozzle (9) into fuel tank filler hole (10); keep nozzle in contact with filler hole (10) during fueling operation.
7. When fuel transfer is complete:
 - a. Disconnect dispenser nozzle ground wire (8).
 - b. Disconnect ground wires (5) and (7) and retract ground wires onto reel (2).
 - c. Stow ground rods (4) and (6).



FUEL TANK TRUCK OPERATION (Contd)

BOTTOM FILLING FUEL TANKS

Bottom filling is the preferred method of filling fuel tank compartments because electrostatic buildup and production of fuel vapors is minimal compared to top filling.

WARNING

Maintain a minimum of 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may cause fire, resulting in injury or death to personnel.

NOTE

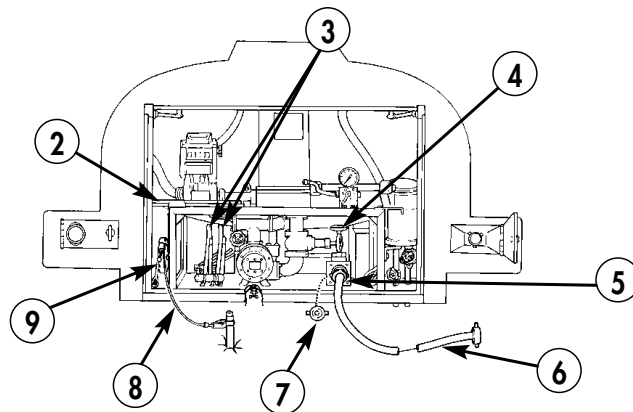
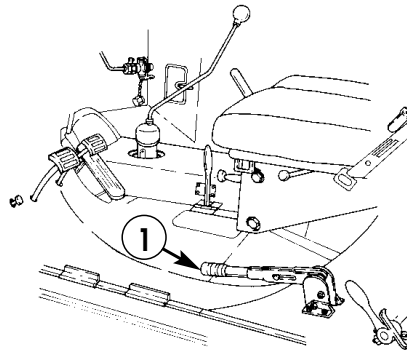
Before attempting to bottom fill fuel tanks, ensure that the proper hose size and connectors are available.

1. Park M49A2C fuel tank truck at least 25 ft (7.6 m) from fuel supply.

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

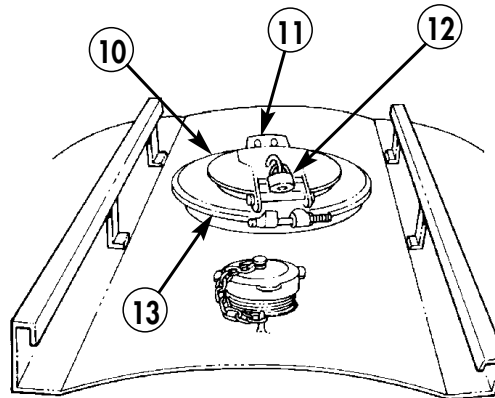
2. Pull parking brake lever (1) up and back to apply parking brake.
3. Chock wheels (WP 0010 00).
4. Ground vehicle (refer to BONDING AND GROUNDING procedure in this WP).
5. Remove gravity delivery line gate valve adapter (5) dust cap (7).
6. Connect fuel hose (6) from fuel supply to gravity delivery line gate valve adapter (5).
7. Turn gravity delivery line gate valve (4) counterclockwise to full-open position.



FUEL TANK TRUCK OPERATION (Contd)

BOTTOM FILLING FUEL TANKS (Contd)

8. Open manhole cover:
 - a. Remove padlock (12).
 - b. Lift cover clamp (11).
 - c. Open manhole cover (10).



NOTE

The discharge valve lever actuated depends on which compartment is being filled. The left lever controls the front compartment valve, the right lever controls the rear compartment valve.

9. Pull discharge valve control lever (3) backward to open position. Lever locks in open position.

NOTE

When bottom filling fuel tank compartments, the fuel is not filtered or metered. The compartment fuel level must be checked manually using the fuel level gauge.

10. Turn fuel supply on, monitor fuel level with the fuel level gauge (2) via manhole (13).
11. When fuel level has reached the desired level, turn fuel supply off.
12. Squeeze discharge valve control lever (3) release and push lever forward to closed position.
13. Secure manhole cover:
 - a. Close manhole cover (10).
 - b. Close cover clamp (11).
 - c. Install padlock (12).
14. Turn gravity delivery line gate valve (4) clockwise to closed position.
15. Disconnect fuel supply hose (6) from gravity delivery line gate valve adapter (5).
16. Install gravity delivery line gate valve adapter (5) dust cap (7).
17. Disconnect ground wire (8) and retract ground wire onto reel (9).
18. Remove wheel chocks (WP 0010 00).

FUEL TANK TRUCK OPERATION (Contd)

TOP FILLING FUEL TANKS

WARNING

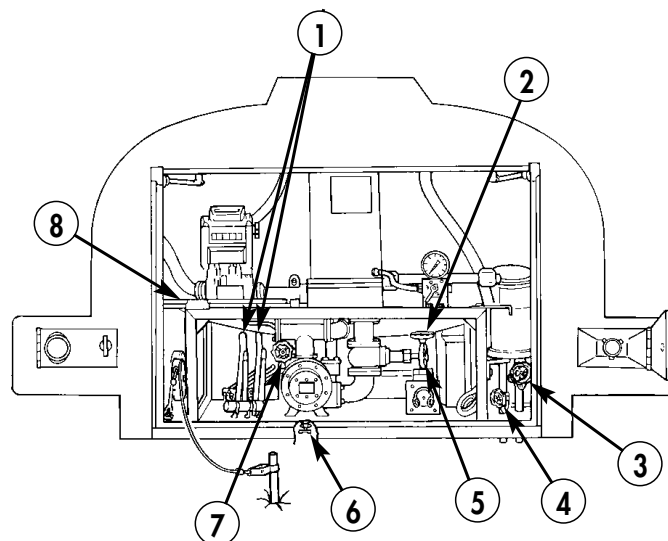
- Top filling should be performed only when bottom filling is not possible, and when authorized by the commander. Top filling increases electrostatic buildup and fuel vapors in the tank and may cause fire or explosion, resulting in injury or death to personnel.
- Maintain a minimum of 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may cause fire, resulting in injury or death to personnel.

1. Park M49A2C fuel tank truck at least 25 ft (7.6 m) from fuel supply.

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

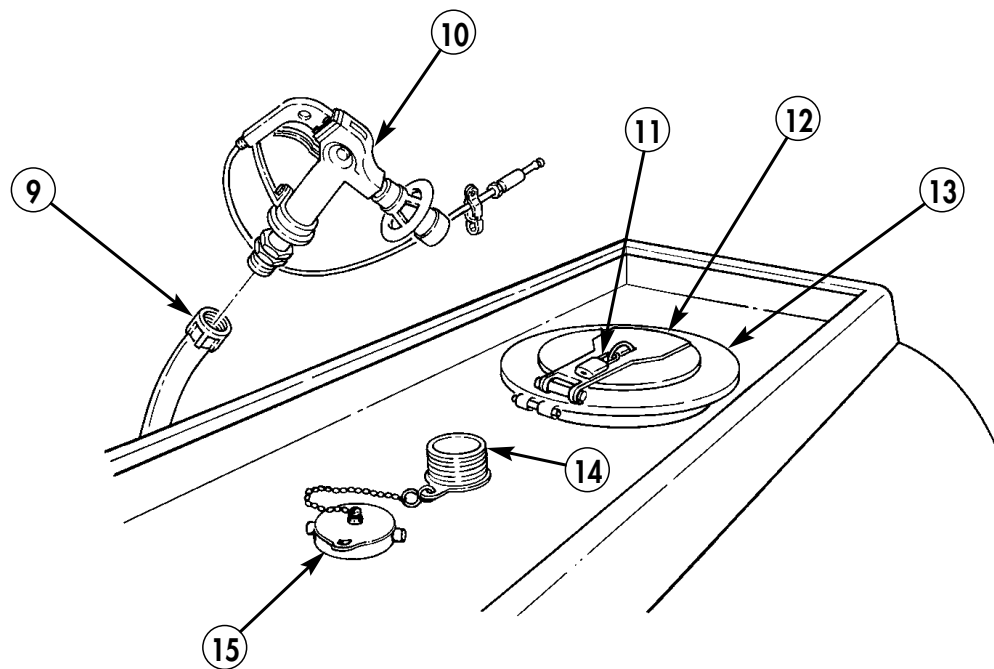
2. Pull parking brake lever up and back to apply parking brake and chock wheels (WP 0010 00).
3. Ground vehicle (refer to BONDING AND GROUNDING procedure in this WP).
4. Ensure discharge valve control levers (1) are pushed forward to closed position.
5. For the following controls, turn clockwise to closed position:
 - a. Delivery pump drain valve (6)
 - b. Meter globe valve (7)
 - c. Delivery pump line gate valve (5)
 - d. Gravity delivery line gate valve (2)
 - e. Sump valve (4)
 - f. Filter-separator drain valve (3)



FUEL TANK TRUCK OPERATION (Contd)

TOP FILLING FUEL TANK (CONTD)

6. Remove fuel level gauge (8) from holder.
7. Remove filler cover (15) from filler hole (14).
8. Open manhole cover:
 - a. Remove padlock (11).
 - b. Lift cover clamp (12).
 - c. Open manhole cover (13).
9. Remove nozzle (10) from dispenser hose (9).



FUEL TANK TRUCK OPERATION (Contd)

TOP FILLING FUEL TANK (Contd)

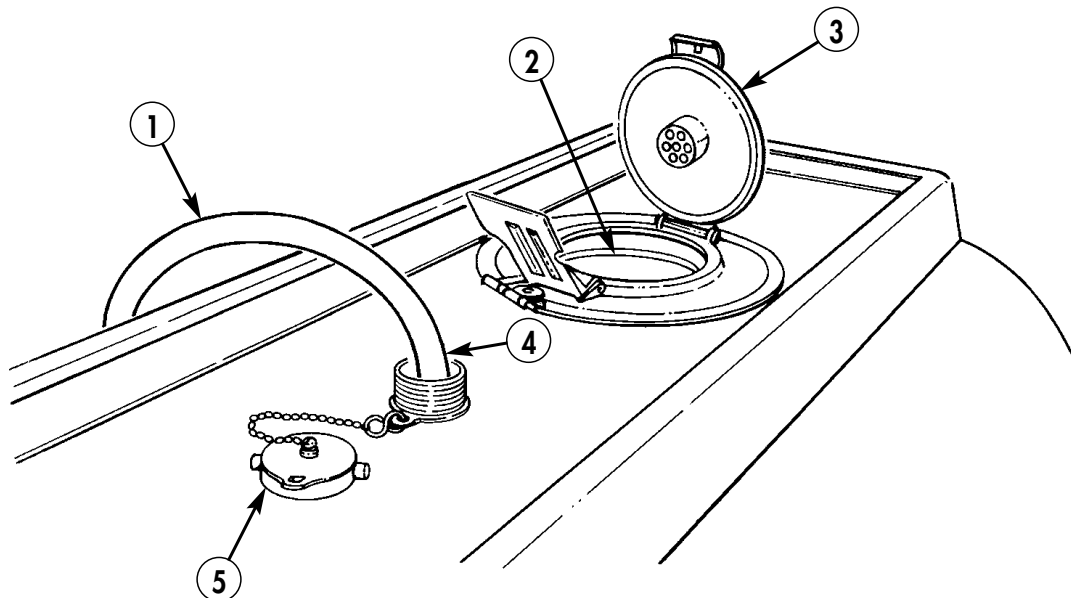
WARNING

To decrease electrostatic build-up and fuel vapors when top filling, perform the following:

- Position end of dispenser hose at bottom of tank.
- Pump fuel at a low flow rate until the end of the dispenser hose is covered by fuel; then switch to a normal flow rate.

Failure to do so may cause fire or explosion, resulting in injury or death to personnel.

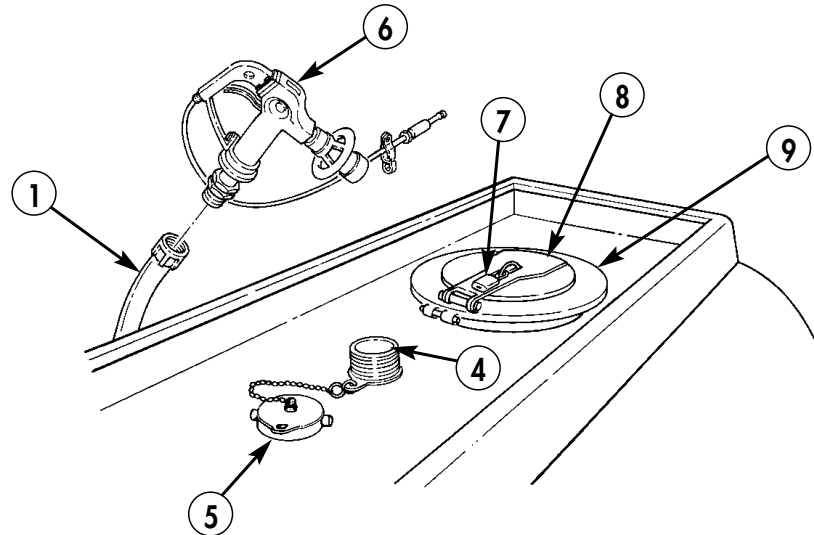
10. Insert dispenser hose (1) into filler hole (4); position end of dispenser hose (1) at bottom of tank.
11. Turn fuel supply on, check fuel level in tank using fuel level gauge (10) via manhole (2).
12. Turn fuel supply off when desired amount of fuel is in tank compartment.
13. Remove dispenser hose (1) from filler hole (4).
14. Install filler cover (5) on filler hole (4).



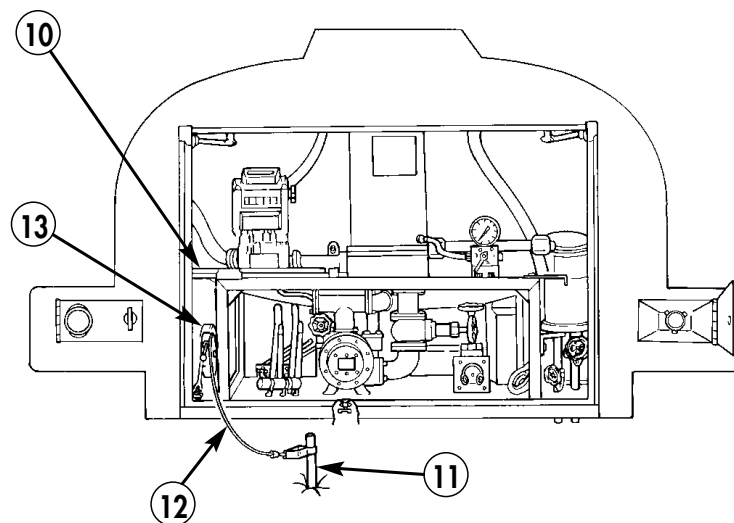
FUEL TANK TRUCK OPERATION (Contd)

TOP FILLING FUEL TANK (Contd)

15. Secure manhole cover:
 - a. Close manhole cover (9).
 - b. Close cover clamp (8).
 - c. Install padlock (7).



16. Install nozzle (6) on dispenser hose (1) and stow.
17. Disconnect ground wire (12) and retract ground wire onto reel (13).
18. Stow ground rod (11).
19. Remove wheel chocks (WP 0010 00).



FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER

WARNING

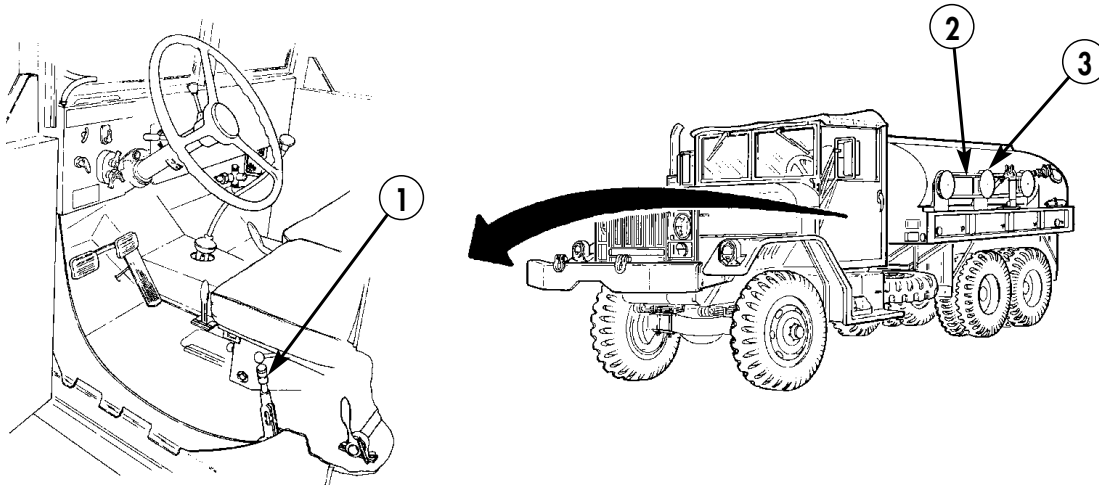
- Top filling should be performed only when bottom filling is not possible, and when authorized by the commander. Top filling increases electrostatic build-up and fuel vapors in the tank and may cause fire or explosion, resulting in injury or death to personnel.
- Maintain a minimum of 25 ft (7.6 m) between fuel tank vehicles during fueling operations to avoid congestion. Failure to do so may cause fire, resulting in injury or death to personnel.

1. Park M49A2C fuel tank truck at least 25 ft (7.6 m) from fuel supply.

WARNING

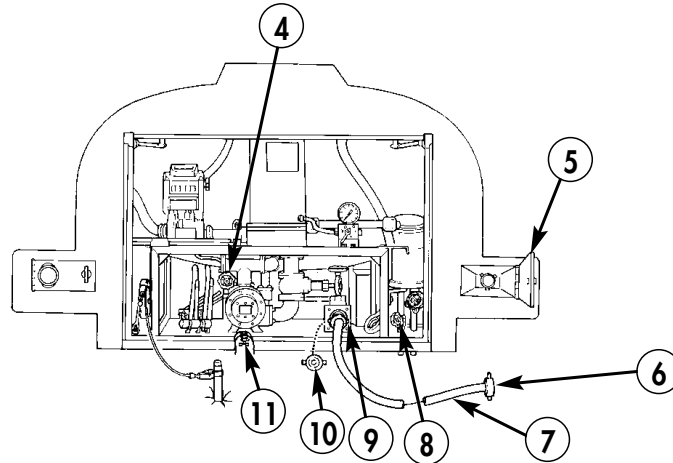
Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

2. Pull parking brake lever (1) up and back to apply parking brake.
3. Chock wheels (WP 0010 00).
4. Ground vehicle (refer to BONDING AND GROUNDING procedure in this WP).
5. Remove gravity delivery line gate valve adapter (9) dust cap (10).
6. Open hose compartment door (5) and remove fuel hose (7).
7. Attach fuel hose (7) to gravity delivery line gate valve adapter (9).
8. Attach other end of fuel hose (6) to fuel supply.
9. Ensure the following are turned clockwise to closed position:
 - a. Meter globe valve (4)
 - b. Sump valve (8)
 - c. Delivery pump drain valve (11)



FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER (Contd)



10. Unwind dispenser hose (2) from holder assembly (3).
11. Remove dispenser nozzle (12) from dispenser hose (2).
12. Remove filler cover (17) from filler hole (16).
13. Open manhole cover:
 - a. Remove padlock (15).
 - b. Lift cover clamp (13).
 - c. Open manhole cover (14).

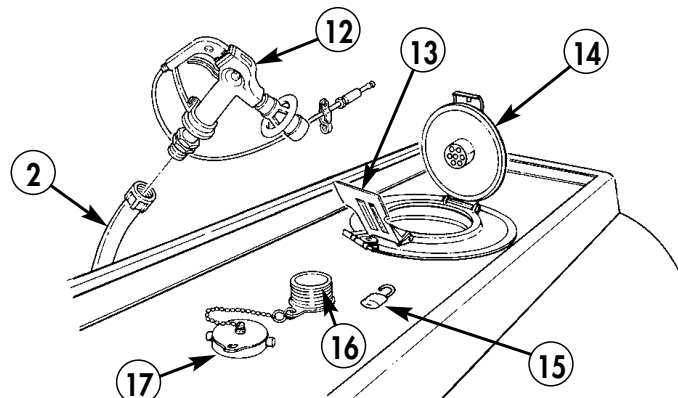
WARNING

To decrease electrostatic build-up and fuel vapors when top filling, perform the following:

- Position end of dispenser hose at bottom of tank.
- Pump fuel at a low flow rate until the end of the dispenser hose is covered by fuel; then switch to a normal flow rate.

Failure to do so may cause fire or explosion, resulting in injury or death to personnel.

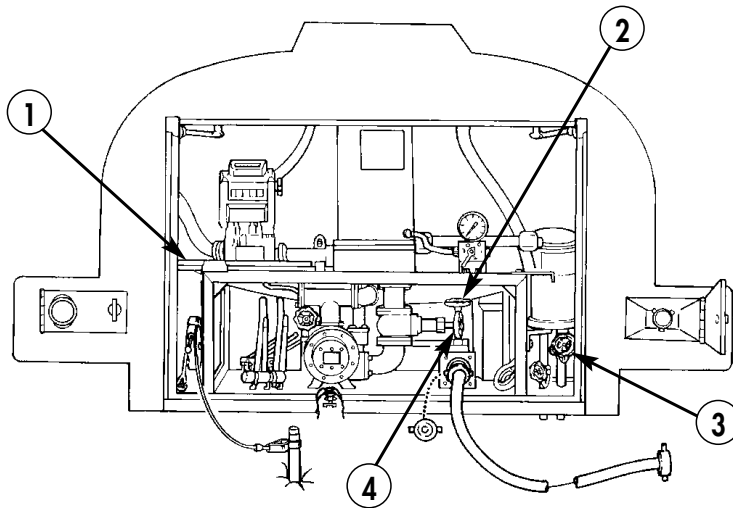
14. Insert dispenser hose (2) into filler hole (16) and position end of dispenser hose (2) at bottom of tank.



FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER (Contd)

15. Turn the following counterclockwise to full-open position:
 - a. Filter-separator drain valve (3)
 - b. Delivery pump line gate valve (4)
 - c. Gravity delivery line gate valve (2)
16. Remove fuel level gauge (1) from holder.



17. Place transmission gearshift lever (5) in N (neutral) position.
18. Start engine (WP 0007 00 or WP 0008 00).
19. Depress clutch pedal (8) and hold.

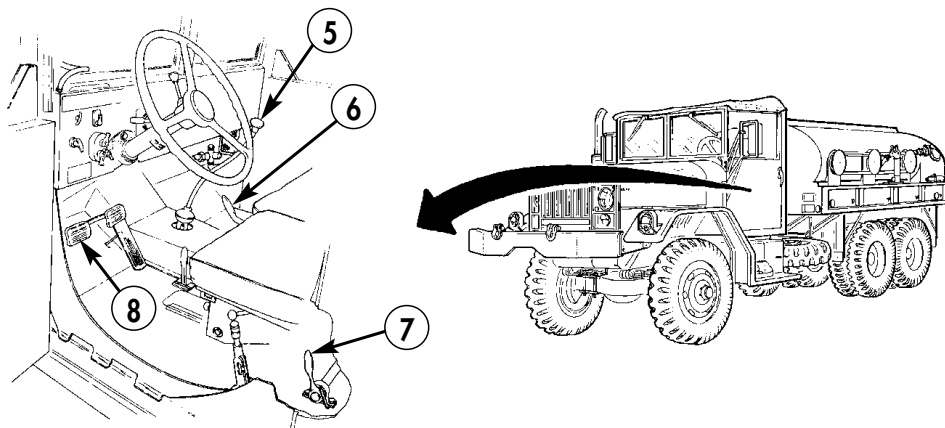
FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER (Contd)

WARNING

When operating auxiliary equipment using the transfer power takeoff (PTO), ensure the transfer case is in the neutral (middle) position. Engaging the transmission with the transfer case engaged causes vehicle motion and may cause injury or death to personnel.

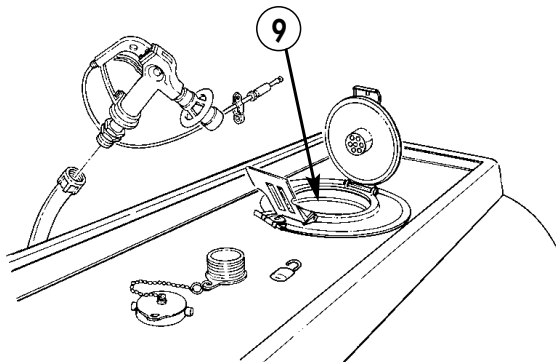
20. Place transfer case shift lever (6) in neutral (middle) position.



CAUTION

Do not engage the transfer PTO with the transmission engaged; engage the transfer PTO before engaging the transmission. Engaging the transfer PTO with the transmission engaged may damage equipment.

21. Pull up transfer PTO lever (7) to engage transfer PTO.
22. Place transmission gearshift lever (5) in 2 (SECOND) position.
23. Slowly release clutch pedal (8) to engage fuel pump and start fueling, and check fuel tank compartment fuel level with fuel level gauge (1) via the manhole (9).



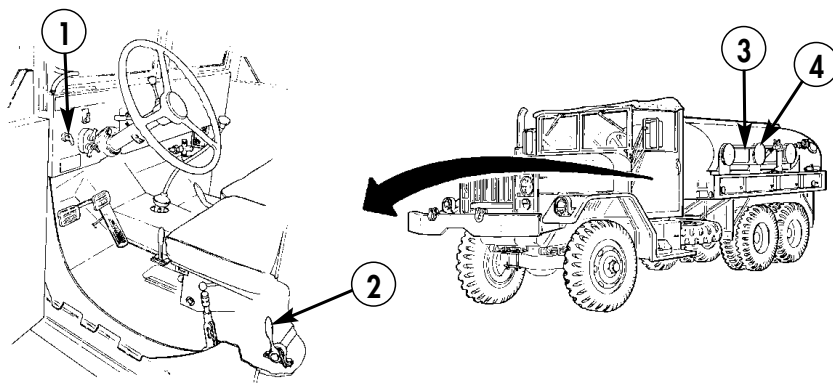
FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER (Contd)

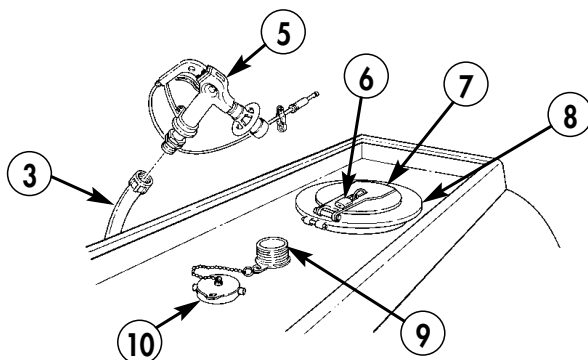
NOTE

Ensure transfer PTO is engaged.

24. Check transfer PTO lever (2) and ensure that transfer PTO is engaged.
25. Slowly pull hand throttle (1) out to set engine speed to 1,150 RPM, as indicated by tachometer.
26. When fueling is complete, perform the following:
 - a. Push hand throttle (1) in.
 - b. Stop engine (WP 0010 00).
 - c. Push transfer PTO lever (2) forward and down to disengage transfer PTO.



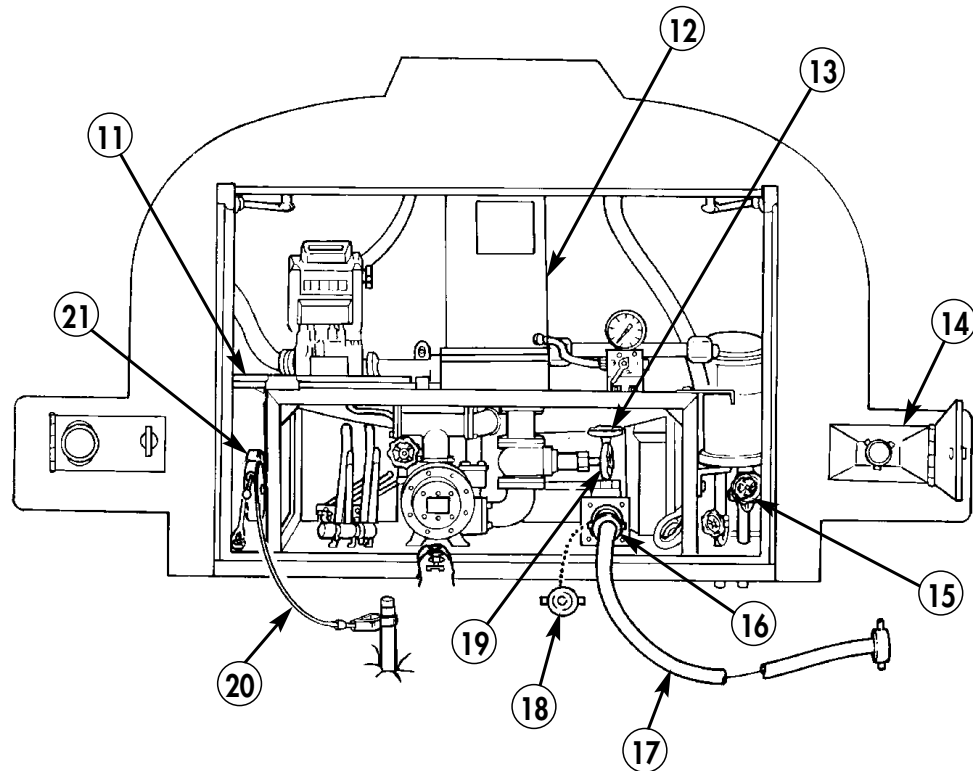
27. Secure manhole cover:
 - a. Close manhole cover (8).
 - b. Close cover clamp (7).
 - c. Install padlock (6).
28. Remove dispenser hose (3) from filler hole (9).
29. Install filler hole cover (10) on filler hole (9).
30. Secure dispenser hose:
 - a. Drain dispenser hose (3).
 - b. Secure dispenser hose (3) on holder (4).
 - c. Install nozzle (5) on dispenser hose (3).



FUEL TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER FUEL FROM ONE CONTAINER TO ANOTHER (Contd)

31. Close gravity delivery line gate valve (13).
32. Close delivery pump line gate valve (19).
33. Disconnect fuel supply hose (17) from fuel supply.
34. Drain fuel supply hose (17).
35. Disconnect other end of fuel supply hose (17) from gravity delivery line gate valve adapter (16) and install dust cap (18).
36. Secure fuel supply hose (17) in hose compartment (14).
37. Disconnect ground wire (20) and retract ground wire onto reel (21).
38. Stow fuel level gauge (11).
39. When filter-separator (12) is completely drained, close filter-separator drain valve (15).
40. Remove wheel chocks (WP 0010 00).



FUEL TANK TRUCK OPERATION (Contd)

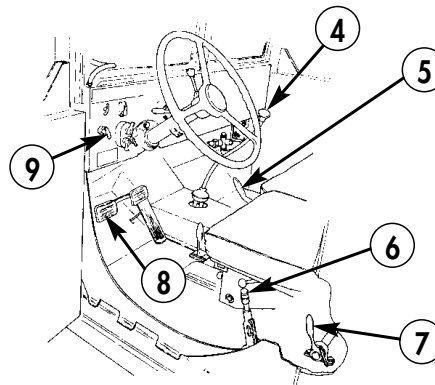
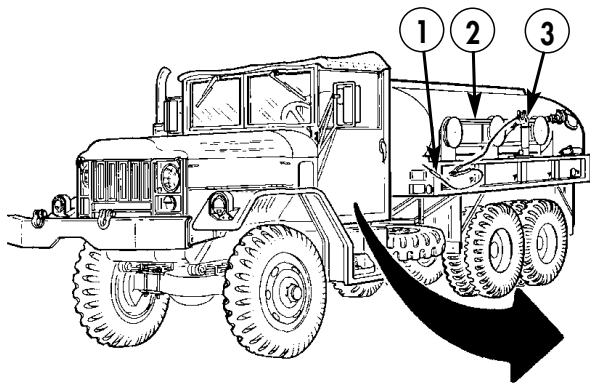
POWER DISCHARGING THE TANKS

1. Park M49A2C fuel tank truck so dispenser hose (2) and nozzle (3) can reach tank to be filled.

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

2. Pull parking brake lever (6) up and back to apply parking brake.
3. Chock wheels (WP 0010 00).
4. Attach ground wire (14) to suitable ground (15).



5. Attach ground wire (17) to tank to be filled (18).
6. Start engine (WP 0007 00 or WP 0008 00).
7. Depress clutch pedal (8) and hold.

WARNING

When operating auxiliary equipment using the transfer PTO, ensure the transfer case is in neutral (middle) position. Engaging the transmission, with the transfer case engaged, causes vehicle motion and may cause injury or death to personnel.

8. Place transfer case shift lever (5) in neutral (middle) position.

CAUTION

Do not engage the transfer PTO with the transmission engaged; engage the transfer PTO before engaging the transmission. Engaging the transfer PTO with the transmission engaged may damage equipment.

9. Pull up transfer PTO lever (7) to engage transfer PTO.
10. Place transmission gearshift lever (4) in 2 (SECOND) position.
11. Slowly release clutch pedal (8).

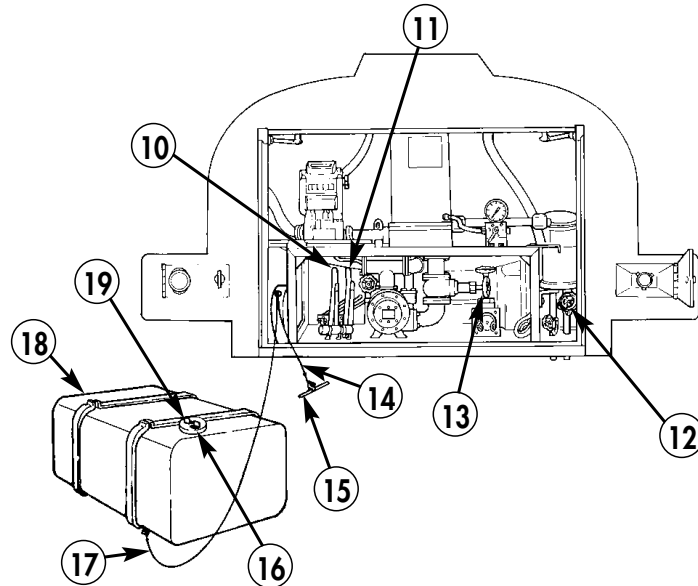
NOTE

Ensure transfer PTO is engaged.

12. Check transfer PTO lever (7), ensure that transfer PTO is engaged.

FUEL TANK TRUCK OPERATION (Contd)

POWER DISCHARGING THE TANKS (Contd)



13. Slowly pull hand throttle (9) out to set engine speed to 1,150 RPM, as indicated by tachometer.
14. Turn filter-separator drain valve (12) counterclockwise to full-open position.
15. Turn delivery pump line gate valve (13) counterclockwise to full-open position.

NOTE

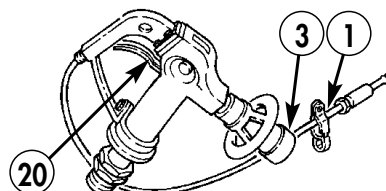
The discharge valve control lever (left or right) used depends on which tank compartment is being discharged. The left lever controls discharge from the front compartment; the right lever controls discharge from the rear compartment.

16. Pull discharge valve control lever (11) (rear compartment) or (10) (front compartment) back to the open position.
17. Unwind dispenser hose (2).

WARNING

To prevent electrostatic discharge, attach ground wire to filler cover before removing filler covers; electrostatic discharge may cause a spark, which can ignite fuel, resulting in injury or death to personnel.

18. Attach nozzle ground wire (1) to tank being filled (18).
19. Open filler cover (16).
20. Insert nozzle (3) into filler hole (16).
21. Squeeze dispenser nozzle handle (20) to start fueling.

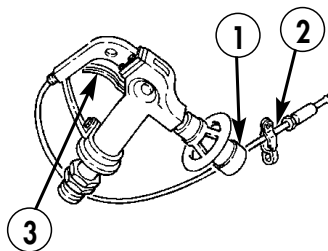


FUEL TANK TRUCK OPERATION (Contd)

POWER DISCHARGING THE TANKS (Contd)

22. When fueling is completed:

- a. Release dispenser nozzle handle (3).
- b. Remove dispenser nozzle (1) from filler hole (9).
- c. Disconnect dispenser nozzle ground wire (2) from tank (11).
- d. Close filler cover (12).
- e. Drain and secure dispenser hose and nozzle (1).

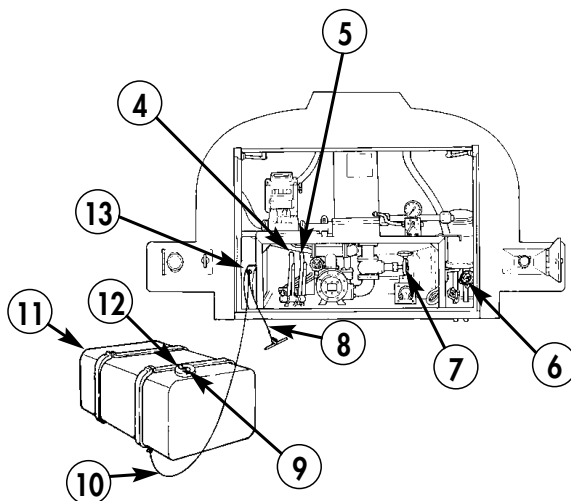


23. Turn delivery pump line gate valve (7) clockwise to closed position.

24. Turn filter-separator drain valve (6) clockwise to closed position.

25. Move discharge valve control lever (4) or (5) forward to closed position.

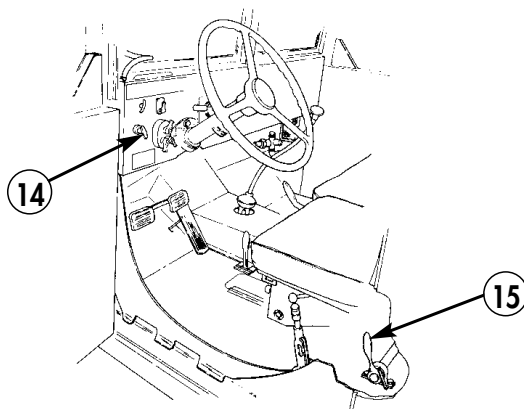
26. Disconnect ground wires (8) and (10) and retract ground wires onto reel (13).



27. Push hand throttle (14) in.

28. Stop engine (WP 0010 00).

29. Push transfer PTO lever (15) down to disengage transfer PTO.



30. Remove wheel chocks (WP 0010 00).

FUEL TANK TRUCK OPERATION (Contd)

CHECKING FILTER-SEPARATOR

The filter-separator is a very important part of the fuel dispensing system—it removes solid contaminants and water from liquid fuels.

In this procedure, the condition of the filter-separator filter elements is checked by measuring the pressure differential between each of the three filter elements. If any pressure differential exceeds the specified limit, notify your supervisor; the filter elements must be replaced by maintenance personnel.

FUEL TANK TRUCK OPERATION (Contd)

CHECKING FILTER-SEPARATOR (Contd)

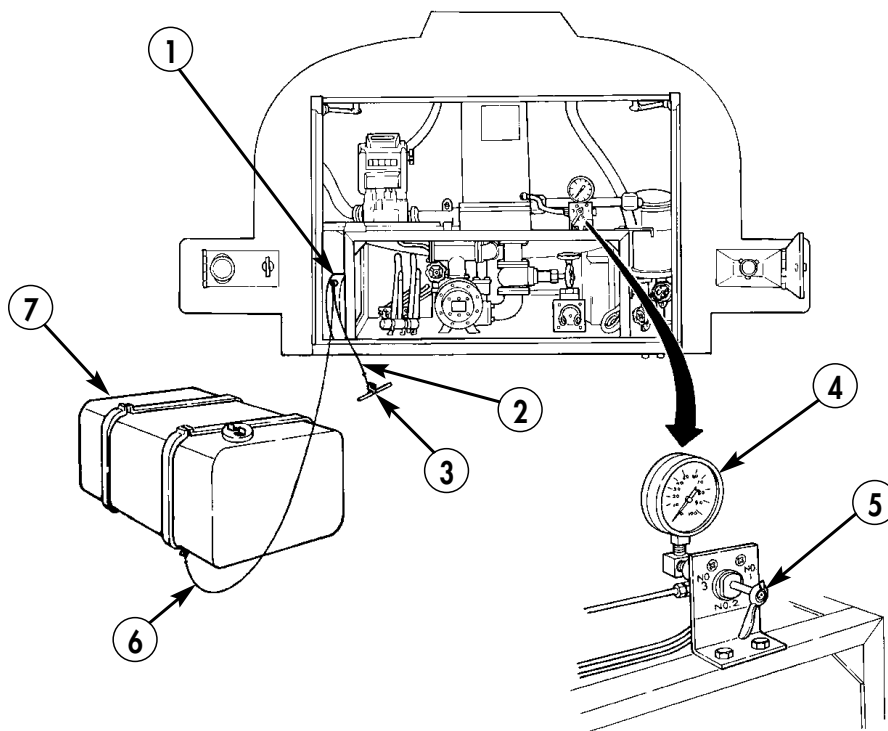
NOTE

- Diesel fuel viscosity (i.e., resistance to flowing) increases as temperature decreases, resulting in higher measured fuel pump system pressures. For example, commercial diesel fuel (ASTM D975) 2-D and no. 2 should not be pumped, due to its high viscosity, below +32 °F (0 °C).
 - Refer to WP 0002 00 for permissible fuels data, which includes lower temperature limits. Do not attempt to dispense fuel below the specified lower temperature limit.
 - During continuous fuel pumping operations, filter-separator filter elements must be checked daily.
1. Attach ground wire (2) to ground stake (3) or other suitable ground.
 2. Attach ground wire (6) to tank (7) being filled.
 3. Start engine (WP 0007 00 or WP 0008 00).

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

4. Pull parking brake lever up to apply parking brake and chock wheels (WP 0010 00).
5. Transfer power to pump (refer to POWER DISCHARGING THE TANK procedure in this WP, steps 1–20).



FUEL TANK TRUCK OPERATION (Contd)

CHECKING FILTER-SEPARATOR (Contd)

6. Measure and record filter-separator filter element pressures, indicated by pressure gauge (4).
 - a. Inlet:
 - (1) Turn test valve (5) to position NO. 1.
 - (2) Record pressure reading.
 - b. Outlet:
 - (1) Turn test valve (5) to position NO. 2.
 - (2) Record pressure reading.
 - c. Internal:
 - (1) Turn test valve (5) to position NO. 3.
 - (2) Record pressure reading.
7. Turn test valve (5) to the closed (12 o'clock) position.
8. Disconnect ground wires (6) and (2) and retract ground wires onto reel (1).
9. Push hand throttle in.
10. Stop engine (WP 0010 00).
11. Push transfer PTO lever down to disengage transfer PTO.
12. Remove wheel chocks.
13. Determine pressure differential between each of the three filter elements. Notify your supervisor if difference is greater than values indicated below.
 - a. Between test valve settings NO. 1/NO. 2:
 - (1) Warm weather: 20 psi (138 kPa)
 - (2) Cold weather: 27 psi (186 kPa)
 - b. Between test valve settings NO. 1/NO. 3 or NO. 2/NO. 3:
 - (1) Warm weather: 15 psi (103 kPa)
 - (2) Cold weather: 20 psi (138 kPa)

FUEL TANK TRUCK OPERATION (Contd)

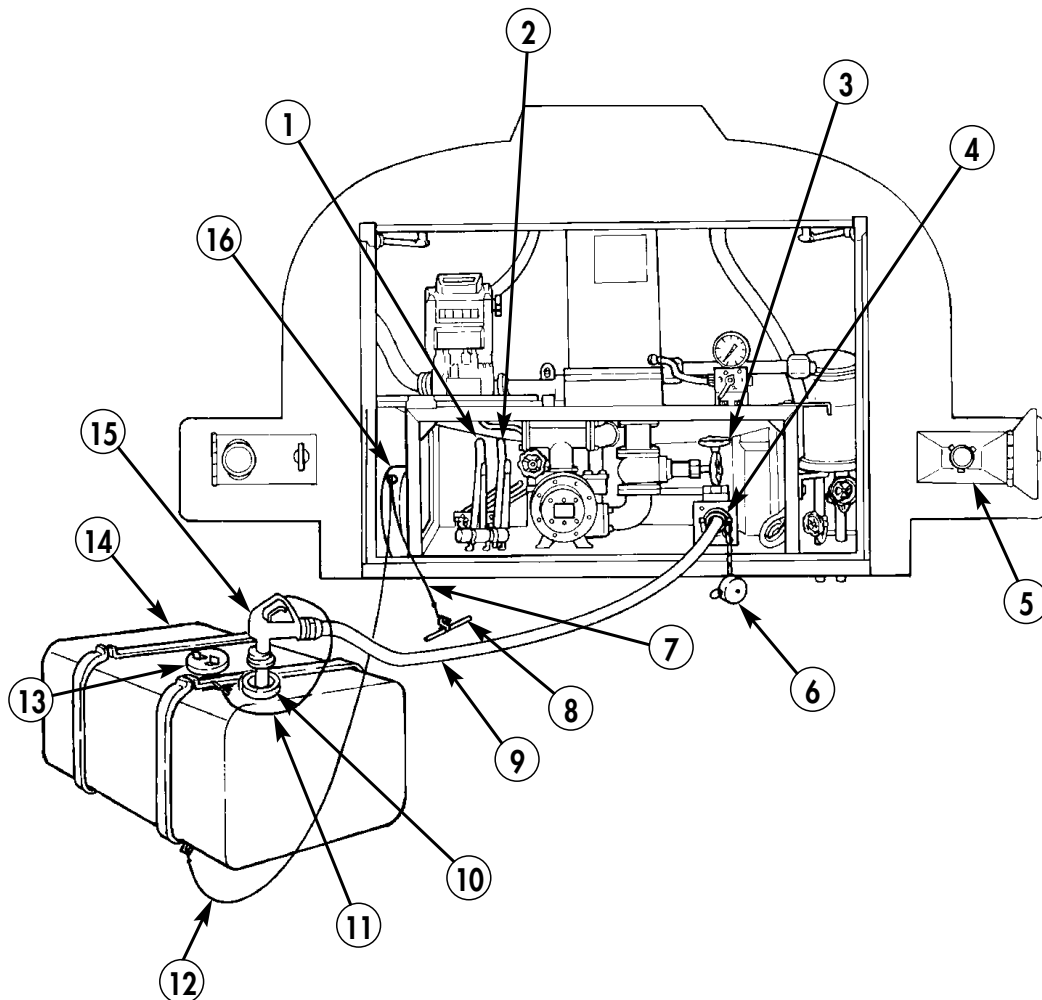
GRAVITY DISCHARGING THE TANKS

1. Park M49A2C fuel tank truck with rear compartment (3) near fuel tank to be filled.
2. Stop engine (WP 0010 00).

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

3. Pull parking brake lever up to apply parking brake and chock wheels (WP 0010 00).
4. Connect ground wire (7) to ground rod (8) or other suitable ground.
5. Connect ground wire (12) to tank to be filled (14).
6. Remove gravity delivery line gate valve adapter (4) dust cover (6).



FUEL TANK TRUCK OPERATION (Contd)

GRAVITY DISCHARGING THE TANKS (Contd)

7. Remove fuel hose (9) from compartment (5).
8. Attach fuel hose (9) to gravity delivery line gate valve adapter (4).
9. Attach dispenser nozzle (15) to end of fuel hose (9).
10. Turn gravity delivery line gate valve (3) counterclockwise to full-open position.

NOTE

The discharge valve control lever (left or right) used depends on which tank compartment is being discharged. The left lever controls discharge from the front compartment; the right lever controls discharge from the rear compartment.

11. Pull discharge valve control lever (1) (front compartment) or (2) (rear compartment) back to the open position.
12. Attach dispenser nozzle ground wire (11) to tank (14).
13. Open filler cover (13).
14. Insert dispenser nozzle (15) into tank (14) filler hole (10).
15. Squeeze dispenser nozzle (15) handle to start fuel flow and fill tank (14).
16. When fuel discharging is complete, release dispenser nozzle (15) handle.
17. Push discharge valve control lever (1) or (2) forward to closed position.
18. Disconnect dispenser nozzle ground wire (11).
19. Remove dispenser nozzle (15) from filler hole (10).
20. Close filler cover (13).
21. Turn gravity delivery line gate valve (3) clockwise to closed position.
22. Remove dispenser nozzle (15) from fuel hose (9) and secure dispenser nozzle (15).
23. Disconnect fuel hose (9) from gravity delivery line gate valve adapter (4), drain, and secure fuel hose (9) in compartment (5).
24. Install gravity delivery line gate valve dust cover (6).
25. Disconnect ground wires (7) and (12) and retract ground wires onto reel (16).
26. Remove wheel chocks (WP 0010 00).

FUEL TANK TRUCK OPERATION (Contd)

FORDING

1. Ensure gravity delivery line gate valve dust cover (4) is secured.
2. For fording operation procedures, refer to WP 0028 00 and WP 0037 00.
3. When fording operations are complete, park vehicle and stop engine (WP 0010 00).

WARNING

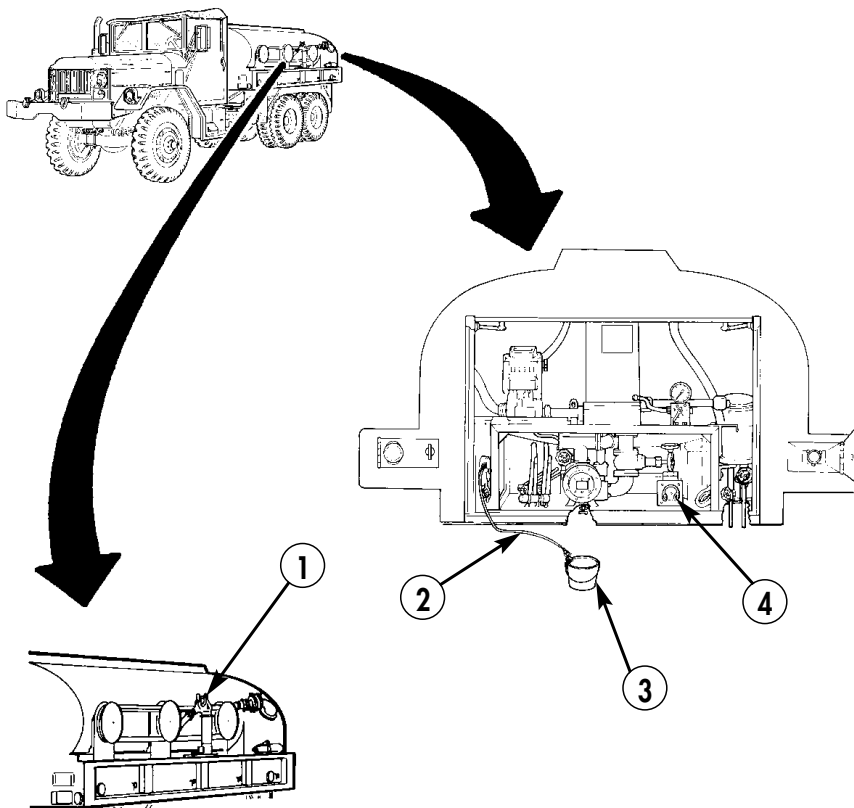
Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

4. Pull parking brake lever up to apply parking brake and chock wheels (WP 0010 00).

WARNING

To prevent electrostatic discharge, before draining fuel, attach ground wire to container. Failure to do this may result in injury or death to personnel.

5. Attach ground wire (2) to container (3).
6. Drain fuel and/or water from dispenser hose (1) into container (3).



FUEL TANK TRUCK OPERATION (Contd)

FORDING (Contd)

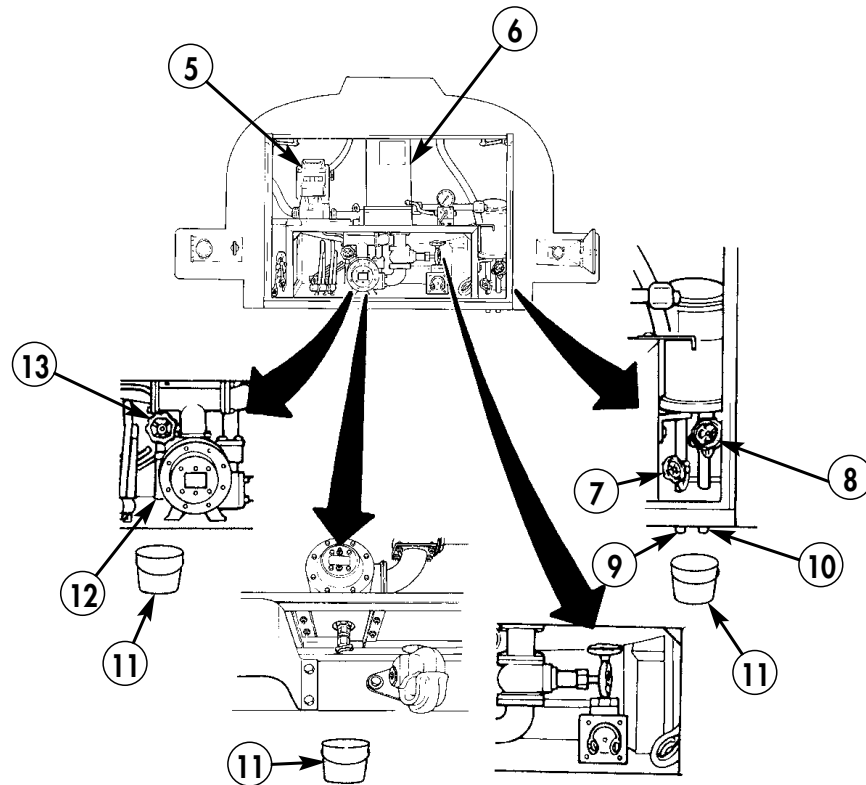
7. If necessary, drain the following:

a. Filter-separator (6)

- (1) Place container (11) under filter separator drain pipe (10) and sump drain pipe (9).
- (2) Turn the following valves counterclockwise to full-open position to drain water from sump:
 - (a) Sump valve (7)
 - (b) Filter separator drain valve (8)
- (3) When water stops draining from sump and filter separator drain pipes, turn the following valves clockwise to closed position:
 - (a) Filter separator drain valve (8)
 - (b) Sump valve (7)

b. Meter (5)

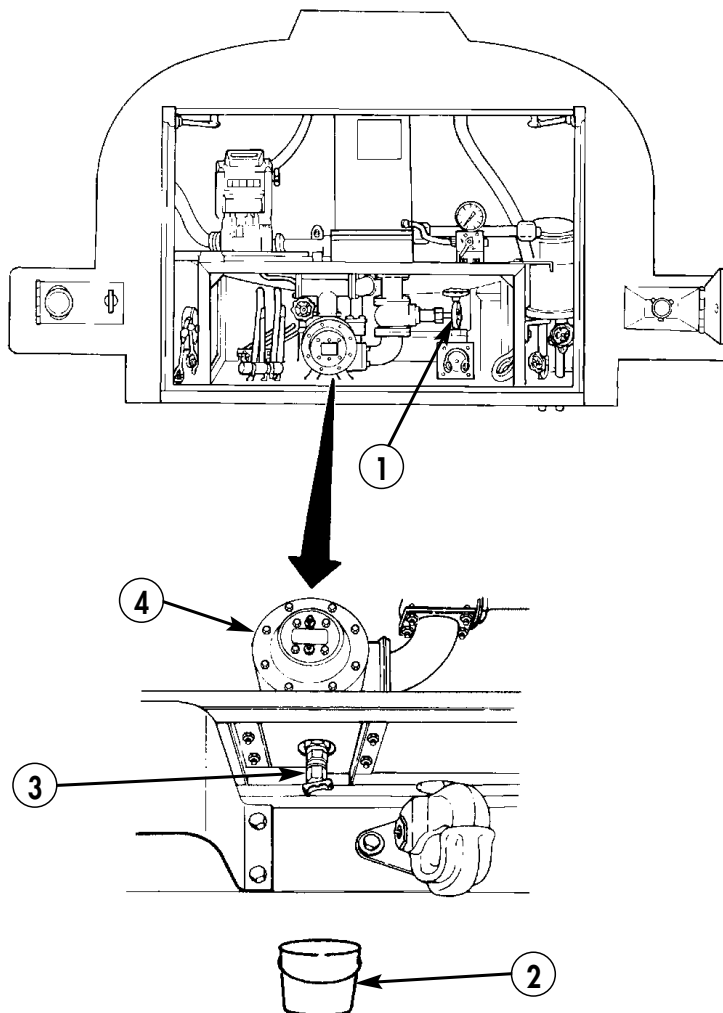
- (1) Place container (11) under meter drain pipe (12).
- (2) Turn meter globe valve (13) counterclockwise to full-open position.
- (3) When water stops draining from meter drain pipe (12), turn meter globe valve (13) clockwise to closed position.



FUEL TANK TRUCK OPERATION (Contd)

FORDING (Contd)

- c. Delivery pump (4)
 - (1) Place container (2) under delivery pump drain valve (3).
 - (2) Turn the following valves counterclockwise to full-open position:
 - (a) Delivery pump drain valve (3)
 - (b) Delivery pump line gate valve (1)
 - (3) When water stops draining from delivery pump drain valve (3), turn the following valves clockwise to closed position:
 - (a) Delivery pump line gate valve (1)
 - (b) Delivery pump drain valve (3)

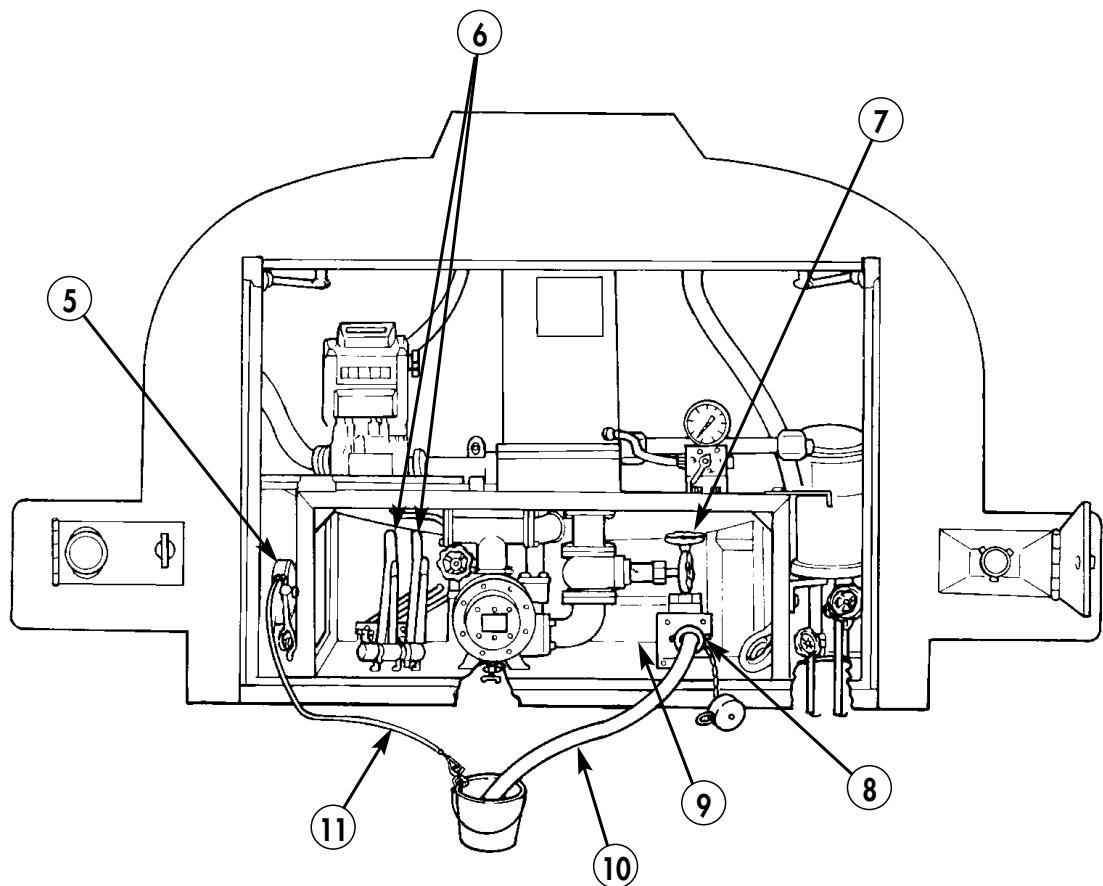


FUEL TANK TRUCK OPERATION (Contd)

FORDING (Contd)

d. Manifold pipes (9)

- (1) Connect fuel hose (10) to gravity delivery line gate valve adapter (8).
 - (2) Push discharge valve control levers (6) forward to closed position.
 - (3) Turn gravity delivery line gate valve (7) counterclockwise to full-open position to drain water from manifold into container (6).
 - (4) When water stops draining from manifold, turn gravity delivery line gate valve (7) clockwise to closed position.
 - (5) Disconnect, drain, and secure fuel hose (10).
8. Disconnect ground wire (11) and retract ground wire onto reel (5).
 9. Remove wheel chocks (WP 0010 00).



FUEL TANK TRUCK OPERATION (Contd)

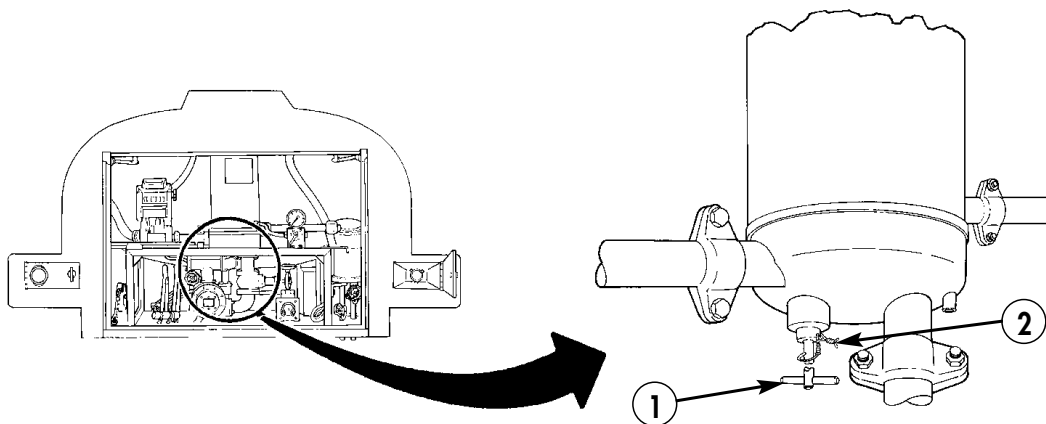
EMERGENCY FILTER-SEPARATOR BYPASS FUELING

The filter-separator is a very important part of the fuel dispensing system—it removes solid contaminants and water from liquid fuels. This procedure is performed only in an emergency situation, when filter-separator filters are clogged.

CAUTION

Never bypass the filter-separator when dispensing aviation fuel; doing so may damage equipment.

1. Cut and remove wire (2).
2. Turn filter separator by-pass valve (1) counterclockwise to open position.
3. Pump fuel, refer to the following procedures in this WP:
 - a. POWER DISCHARGING THE TANKS
 - b. GRAVITY DISCHARGING THE TANKS



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

WATER TANK TRUCK OPERATION

GENERAL

The M50A3 water tank truck has two 500-gallon (1,892-L) tanks. Sanitary precautions must be observed at all times when handling water and equipment to keep water clean.

CAUTION

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 can freeze and cause damage to components.

WATER TANK TRUCK OPERATION (Contd)

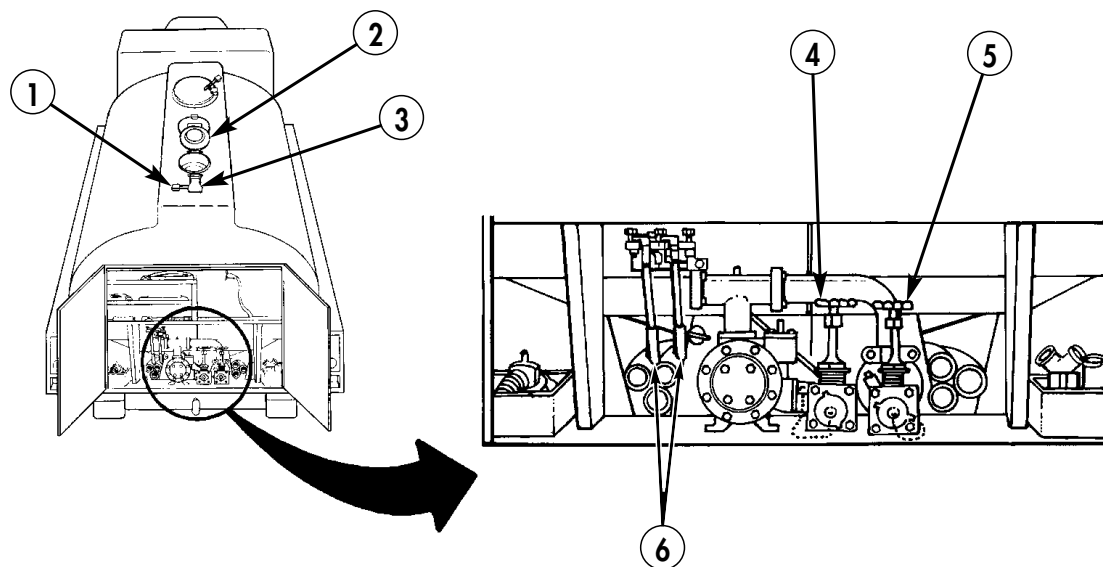
GRAVITY FILLING TANK SECTIONS

1. Park truck near water supply.

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

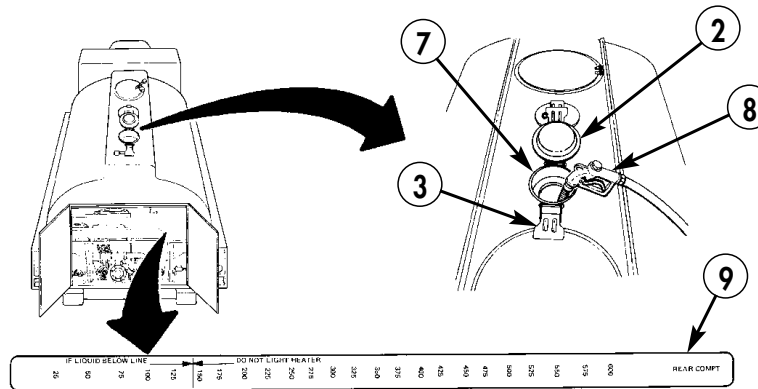
2. Apply parking brake and chock wheels (Work Package (WP) 0010 00).
3. Open filler cover:
 - a. Remove padlock (1).
 - b. Lift cover clamp (3).
 - c. Open filler cover (2).
4. Turn pump delivery line discharge valve (4) clockwise to closed position.
5. Turn gravity delivery line suction valve (5) clockwise to closed position.
6. Push compartment valve levers (6) forward to closed position.
7. Remove water level gauge (9).
8. Insert nozzle (8) into filler hole (7).
9. Fill tank as needed, check water level with gauge (9).



WATER TANK TRUCK OPERATION (Contd)

GRAVITY FILLING TANK SECTIONS (Contd)

10. After filling tank:
 - a. Remove nozzle (8) from filler hole (7).
 - b. Close filler cover (2).
 - c. Secure cover clamp (3).
 - d. Install padlock (1).
11. Secure water level gauge (9).



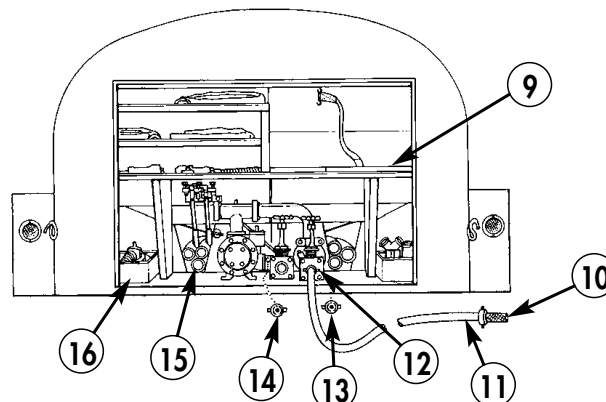
USING VEHICLE PUMP TO FILL TANKS OR TRANSFER WATER FROM ONE CONTAINER TO ANOTHER

1. Start engine (WP 0007 00 or WP 0008 00).
2. Park truck near water supply.

WARNING

Ensure parking brake is applied and wheels are chocked. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

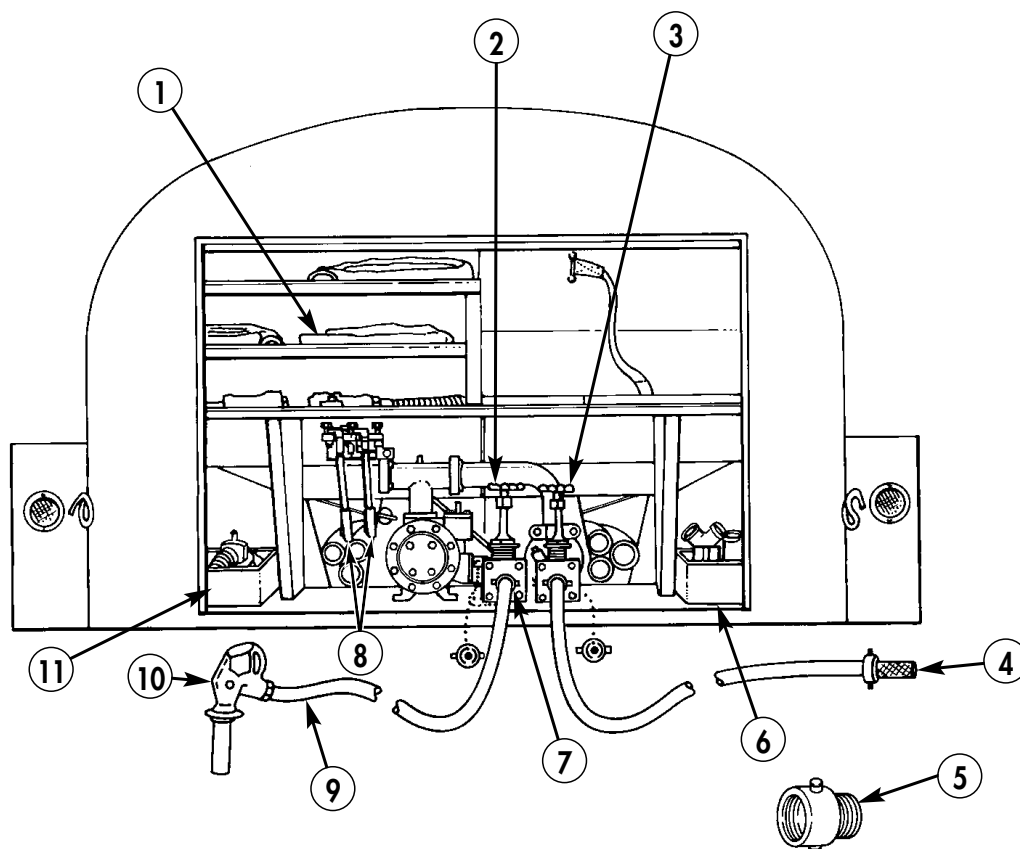
3. Apply parking brake and chock wheels (WP 0010 00).
4. Remove gravity delivery line suction valve dust cover (13).
5. Remove pump delivery line discharge valve dust cover (14).
6. Remove water suction hose (11) from rear compartment (15) and attach to gravity delivery line suction valve adapter (12).
7. Remove strainer (10) from compartment (16) and attach to other end of water suction hose (11).



WATER TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER WATER FROM ONE CONTAINER TO ANOTHER (Contd)

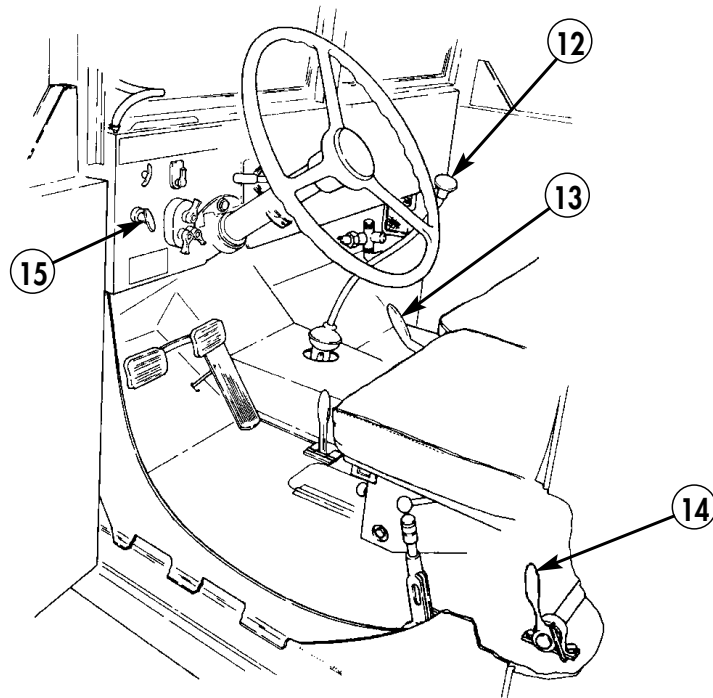
8. Place strainer end of hose (4) in water supply.
9. Remove reducer coupling (5) from compartment (6) and attach to pump delivery line discharge valve adapter (7).
10. Remove water discharge hose (9) from compartment (1) and attach to coupling (5).
11. Remove water dispenser nozzle (10) from compartment (11) and attach to other end of water discharge hose (9).
12. Turn gravity delivery line suction valve (3) counterclockwise to open position.



WATER TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER WATER FROM ONE CONTAINER TO ANOTHER (Contd)

13. Turn pump delivery line discharge valve (2) counterclockwise to open position.
14. Push compartment valve levers (8) forward to closed position.
15. Place transfer case shift lever (13) in neutral (middle) position.
16. Pull transfer power takeoff (PTO) lever (14) up and back to engage transfer PTO.
17. Place transmission gearshift lever (12) in 4 (fourth) position.
18. Slowly pull out hand throttle (15) until engine speed is 1,100 RPM.
19. To fill tank, refer to GRAVITY FILLING THE TANK SECTIONS procedure in this WP.
20. To fill container, insert discharge nozzle (10), and fill as required.
21. After filling:
 - a. Remove nozzle (10) from container.
 - b. Remove strainer end of hose (4) from water source.
22. Push hand throttle (15) in.
23. Place transmission gearshift lever (12) in N (neutral) position.
24. Push transfer PTO lever (14) forward and down to disengage transfer PTO.
25. Turn pump delivery line discharge valve (2) clockwise to closed position.
26. Turn gravity delivery line suction valve (3) clockwise to closed position.
27. Stop engine (WP 0010 00).
28. Remove discharge nozzle (10) from water discharge hose (9) and secure nozzle and hose.



WATER TANK TRUCK OPERATION (Contd)

USING VEHICLE PUMP TO FILL TANKS OR TRANSFER WATER FROM ONE CONTAINER TO ANOTHER (Contd)

29. Remove strainer (5) from hose (6) and secure.
30. Remove water discharge hose (11) from coupling (7), drain and secure.
31. Remove water suction hose (6) from gravity delivery line suction valve adapter (9), drain and secure.
32. Remove coupling (7) from pump delivery line discharge valve adapter (1) and secure.
33. Install dust covers (8) and (10).

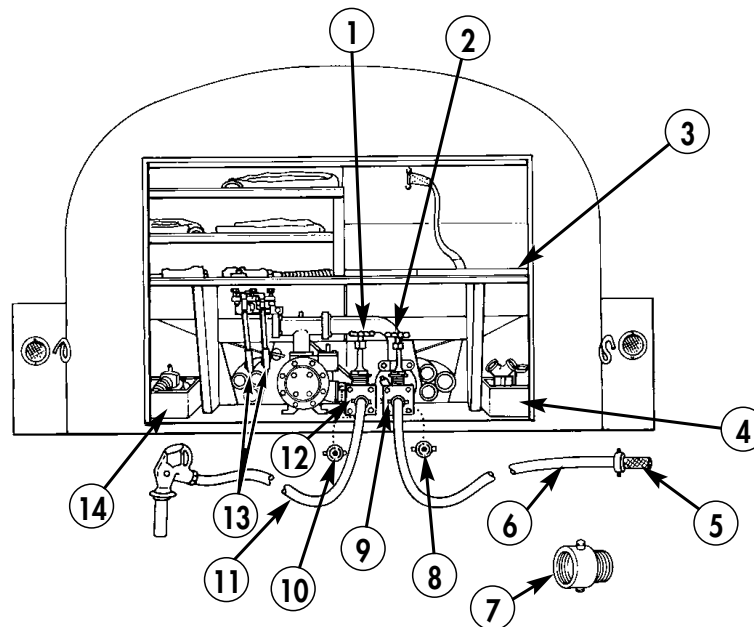
HYDRANT FILLING TANK SECTIONS

1. Park truck near hydrant (19).
2. Open filler cover:
 - a. Remove padlock (18).
 - b. Lift cover clamp (17).
 - c. Open filler cover (15).
3. Remove hydrant wrench (21) from compartment (14) and remove hydrant cap (22).
4. Remove reducer coupling (7) from compartment (4) and attach to hydrant (19).
5. Attach discharge hose (11) to coupling (7).
6. Remove discharge nozzle (23) from compartment (14) and attach to other end of water discharge hose (11).
7. Remove water level gauge (3).

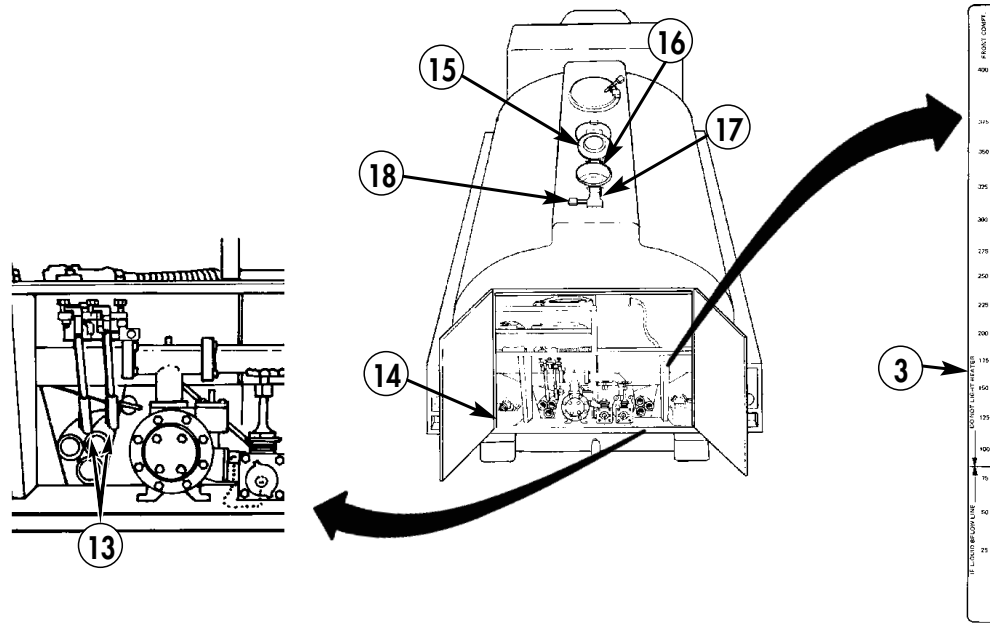
NOTE

Ensure pump delivery line discharge valve and gravity delivery line suction valve are closed.

8. Turn pump delivery line discharge valve (1) clockwise to closed position.
9. Turn gravity delivery line suction valve (2) clockwise to closed position.

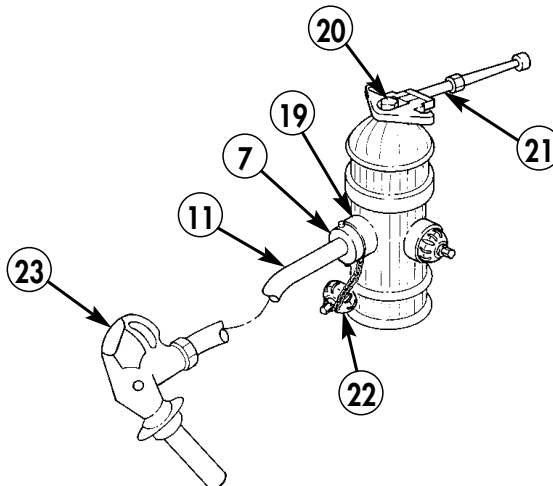


WATER TANK TRUCK OPERATION (Contd)



HYDRANT FILLING TANK SECTIONS (Contd)

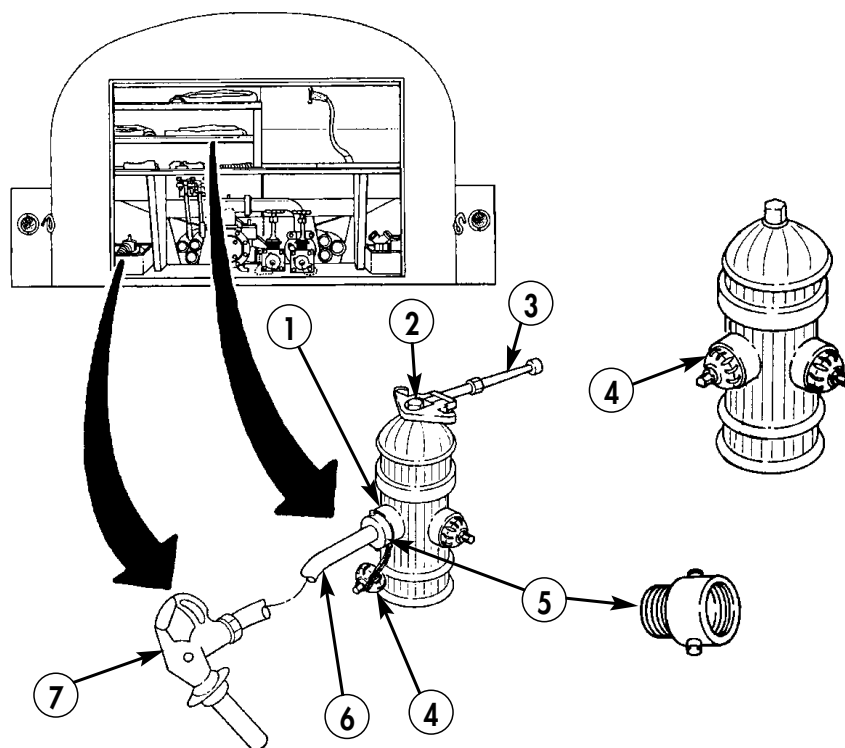
10. Push compartment valve levers (13) forward to closed position.
11. Using hydrant wrench (21), turn hydrant valve (20) counterclockwise to open position.
12. Insert water dispenser nozzle (23) into filler hole (16).
13. Fill as needed; check water level with gauge (3).
14. After filling tank:
 - a. Remove water dispenser nozzle (23).
 - b. Close filler cover (15).
 - c. Secure cover clamp (17).
 - d. Install padlock (18).
 - e. Secure water level gauge (3).



WATER TANK TRUCK OPERATION (Contd)

HYDRANT FILLING TANK SECTIONS (Contd)

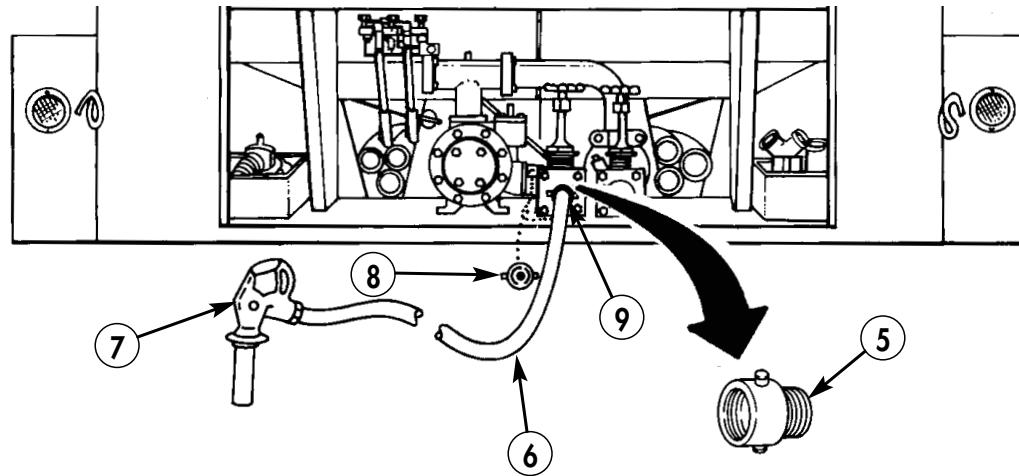
15. Using hydrant wrench (3), turn hydrant valve (2) clockwise to closed position.
16. Press water dispenser nozzle (7) operating lever to relieve pressure.
17. Remove water dispenser nozzle (7) from water discharge hose (6) and secure.
18. Remove water discharge hose (6) from reducer coupling (5), drain and secure.
19. Remove reducer coupling (5) from hydrant (1) and secure.
20. Using hydrant wrench (3), install hydrant cap (4) and secure hydrant wrench (3).



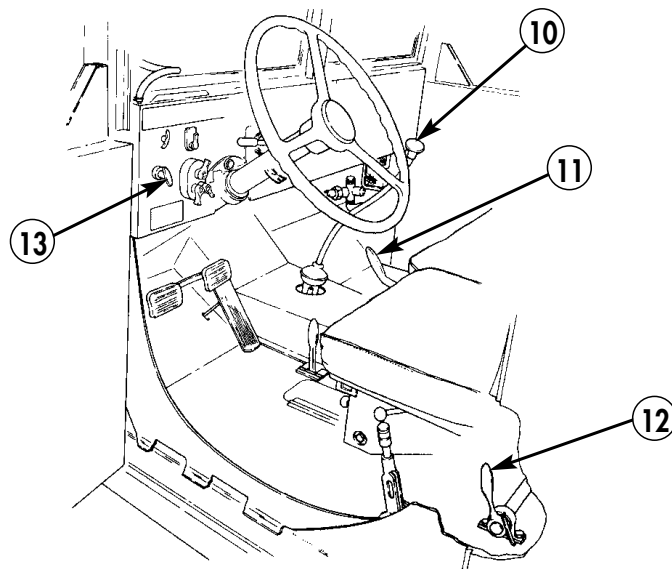
WATER TANK TRUCK OPERATION (Contd)

POWER DISCHARGING TANK SECTIONS

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



6. Start engine (WP 0007 00 or WP 0008 00).
7. Place transfer case shift lever (11) in neutral (middle) position.
8. Pull transfer PTO lever (12) up and back to engage transfer PTO.
9. Place transmission gearshift lever (10) in 4 (fourth) position.
10. Pull hand throttle (13) out to run engine at 1,100 RPM.



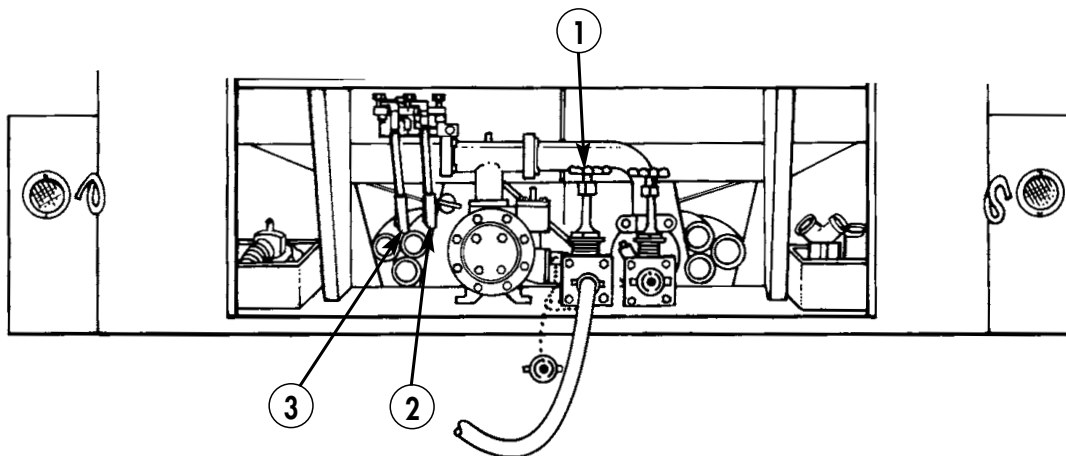
WATER TANK TRUCK OPERATION (Contd)

POWER DISCHARGING TANK SECTIONS (Contd)

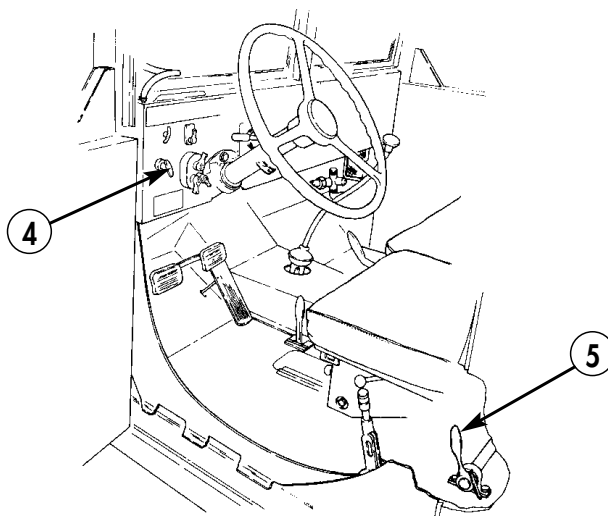
NOTE

To keep load properly distributed, empty front tank compartment first.

11. Pull compartment valve lever (3) (front tank) or (2) (rear tank) back to open position.
12. Turn pump delivery line discharge valve (1) counterclockwise to open position.
13. Discharge water.
14. After discharging water, turn pump delivery line discharge valve (1) clockwise to closed position.
15. Push compartment valve lever (3) (front tank) or (2) (rear tank) forward to closed position.



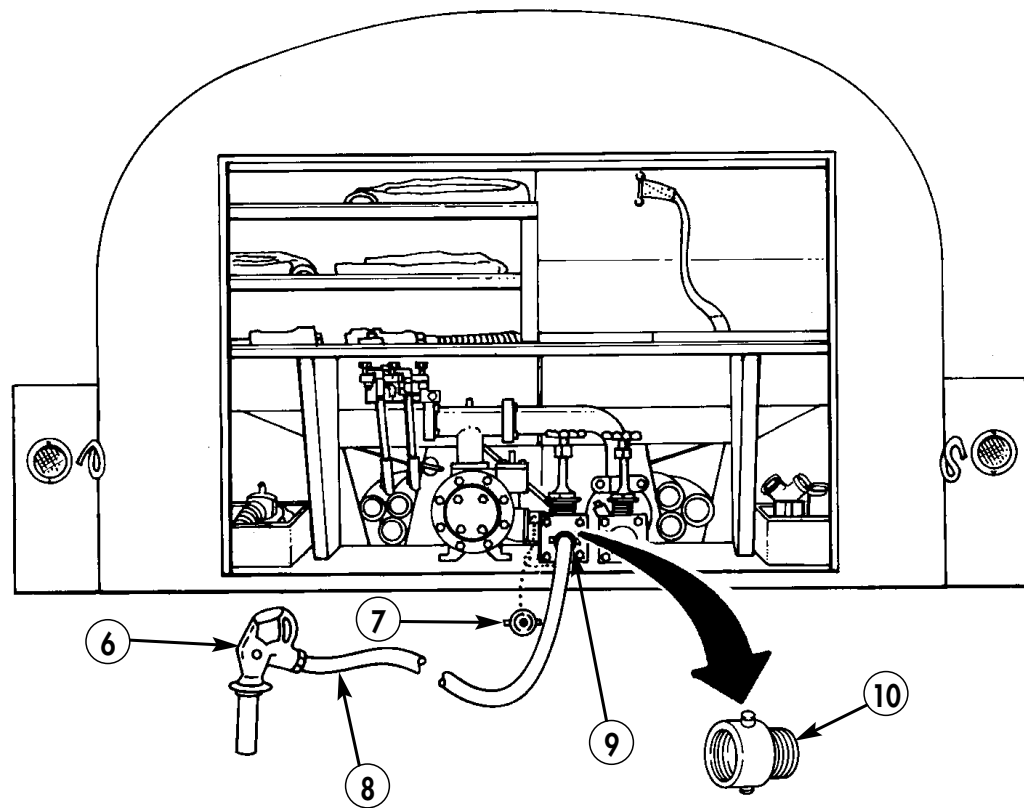
16. Push hand throttle (4) in.
17. Push transfer PTO lever (5) forward and down to disengage transfer PTO.
18. Stop engine (WP 0010 00).



WATER TANK TRUCK OPERATION (Contd)

POWER DISCHARGING TANK SECTIONS (Contd)

19. Press water dispenser nozzle (6) lever to release pressure.
20. Remove water dispenser nozzle (6) from water discharge hose (8), and secure.
21. Remove water discharge hose (8) from reducer coupling (10), drain, and secure.
22. Remove reducer coupling (10) from pump delivery line discharge valve adapter (9) and secure.
23. Install pump delivery line discharge valve adapter dust cover (7).



WATER TANK TRUCK OPERATION (Contd)

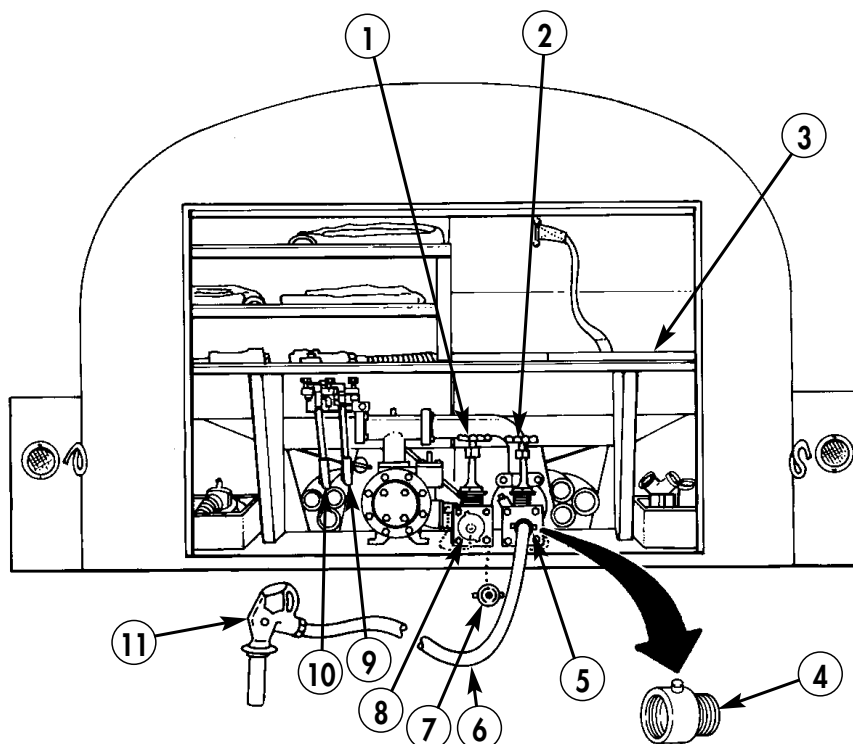
GRAVITY DISCHARGING TANK SECTIONS

1. Park truck near water supply.
2. Remove gravity delivery line suction valve dust cover (7).
3. Install reducer coupling (4) on gravity delivery line suction valve adapter (5).
4. Install discharge hose (6) on reducer coupling (4).
5. Install water dispenser nozzle (11) on other end of water discharge hose (6).
6. Turn gravity delivery line suction valve (2) counterclockwise to open position.

NOTE

To keep load properly distributed, empty front tank compartment first.

7. Pull compartment valve lever (10) (front tank) or (9) (rear tank) back to open position.
8. Discharge water.
9. Push compartment valve lever (9) or (10) forward, to closed position.
10. Turn gravity delivery line suction valve (2) clockwise to the closed position.
11. Press water dispenser nozzle (11) operating lever to release pressure.
12. Remove water dispenser nozzle (11) from water discharge hose (6) and secure.
13. Remove water discharge hose (6) from reducer coupling (4) and secure.
14. Remove reducer coupling (4) from adapter (5) and secure.
15. Install gravity delivery line suction valve dust cover (7).



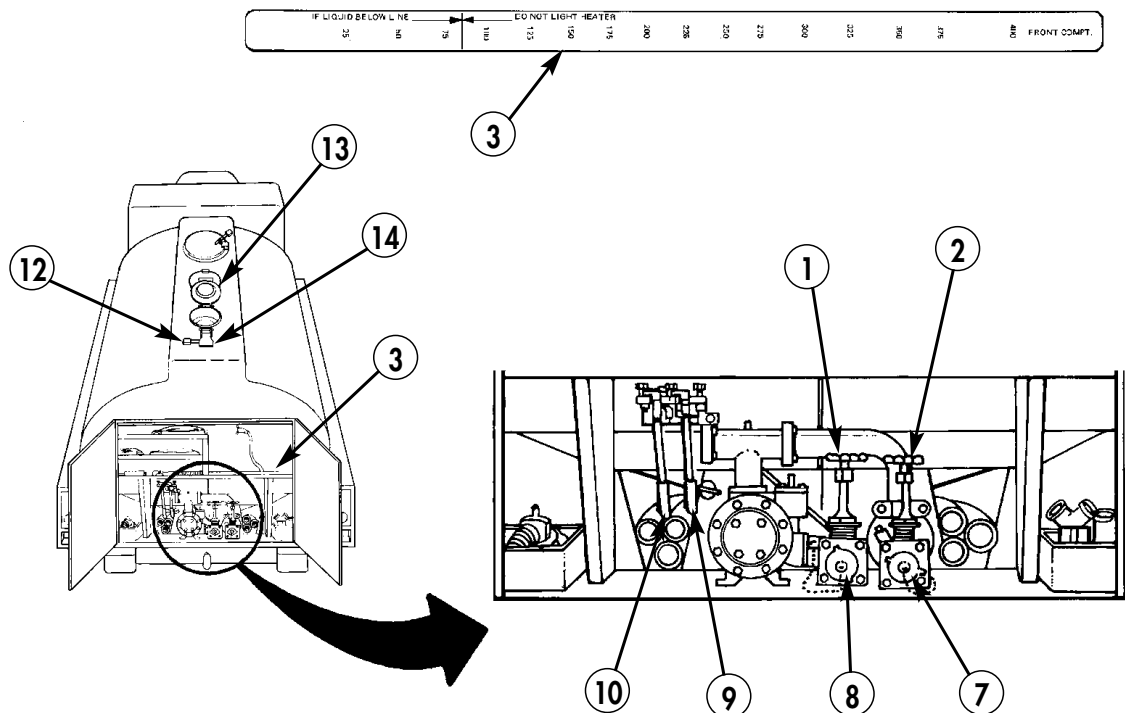
WATER TANK TRUCK OPERATION (Contd)

OPERATING WATER TANK TRUCKS DURING FREEZING TEMPERATURES

CAUTION

Do not heat water tank with less than 10 in. of water in both front and rear tank sections. Metal expansion due to heat may cause cracks in seams and welds.

1. Remove padlock (12), lift cover clamp (14), and open filler cover (13).
2. Remove water level gauge (3) and measure tank section water levels.
3. If there is less than 10 in. of water in a tank section, add water (refer to filling procedures in this WP) or move water from one tank to another. To move water from one tank to another:
 - a. Turn pump delivery line discharge valve (1) clockwise to closed position.
 - b. Turn gravity delivery line suction valve (2) clockwise to closed position.
 - c. Pull compartment valve levers (9) and (10) back to open position.
 - d. When low tank water level reaches 10 in., push compartment valve levers (9) and (10) forward to closed position.
4. Remove pump delivery line discharge valve dust cover (8).
5. Remove gravity delivery line suction pump dust cover (7).
6. Turn pump delivery line discharge valve (1) counterclockwise to open position.
7. Turn gravity delivery line suction valve (2) counterclockwise to open position.



WATER TANK TRUCK OPERATION (Contd)

OPERATING WATER TANK TRUCKS DURING FREEZING TEMPERATURES (Contd)

CAUTION

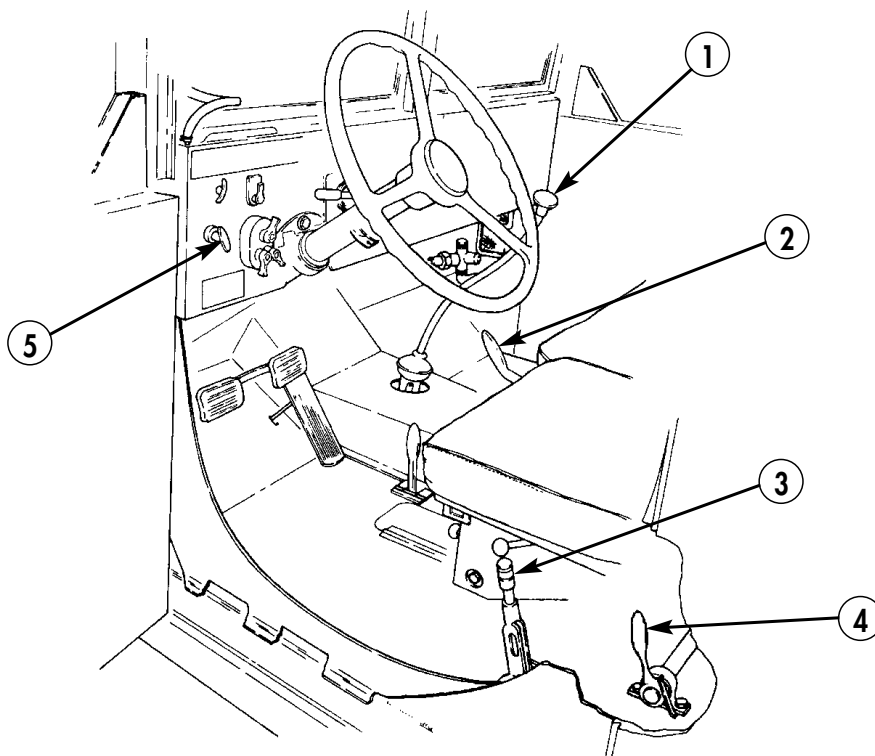
During freezing temperatures always keep delivery lines, compartment drain pipes, manifold pipes, and delivery pump free of water, except during water discharging operations. Water in system may freeze and damage equipment.

8. Start engine (WP 0007 00 or WP 0008 00).
9. Place transfer case shift lever (2) in neutral.

NOTE

Ensure parking brake is applied.

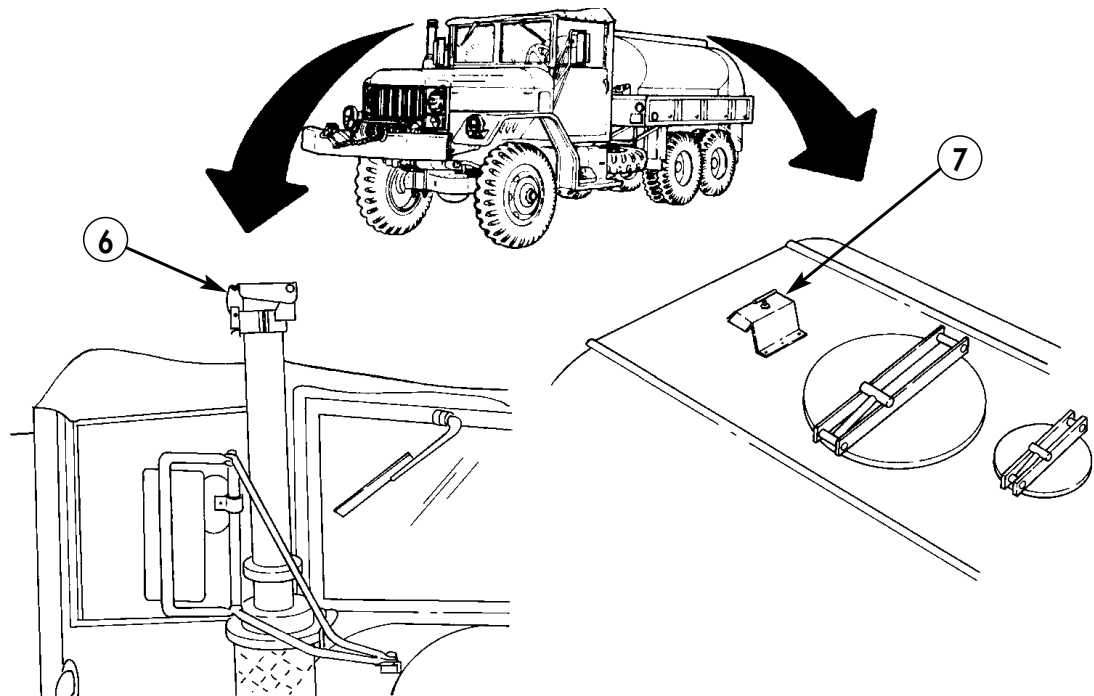
10. Pull parking brake lever (3) up and back to apply parking brake.
11. Pull transfer PTO lever (4) up and back to engage transfer PTO.
12. Place transmission gearshift lever (1) in 4 (fourth) position.
13. Pull hand throttle (5) out to run engine at 1,100 RPM. Let pump run for 60 seconds to drain delivery lines, compartment drain pipes, manifold pipes, and delivery pump.
14. Push hand throttle (5) in.
15. Push transfer PTO lever (4) forward and down to disengage transfer PTO.
16. Place transmission gearshift lever (1) in N (neutral) position.



WATER TANK TRUCK OPERATION (Contd)

OPERATING WATER TANK TRUCKS DURING FREEZING TEMPERATURES (Contd)

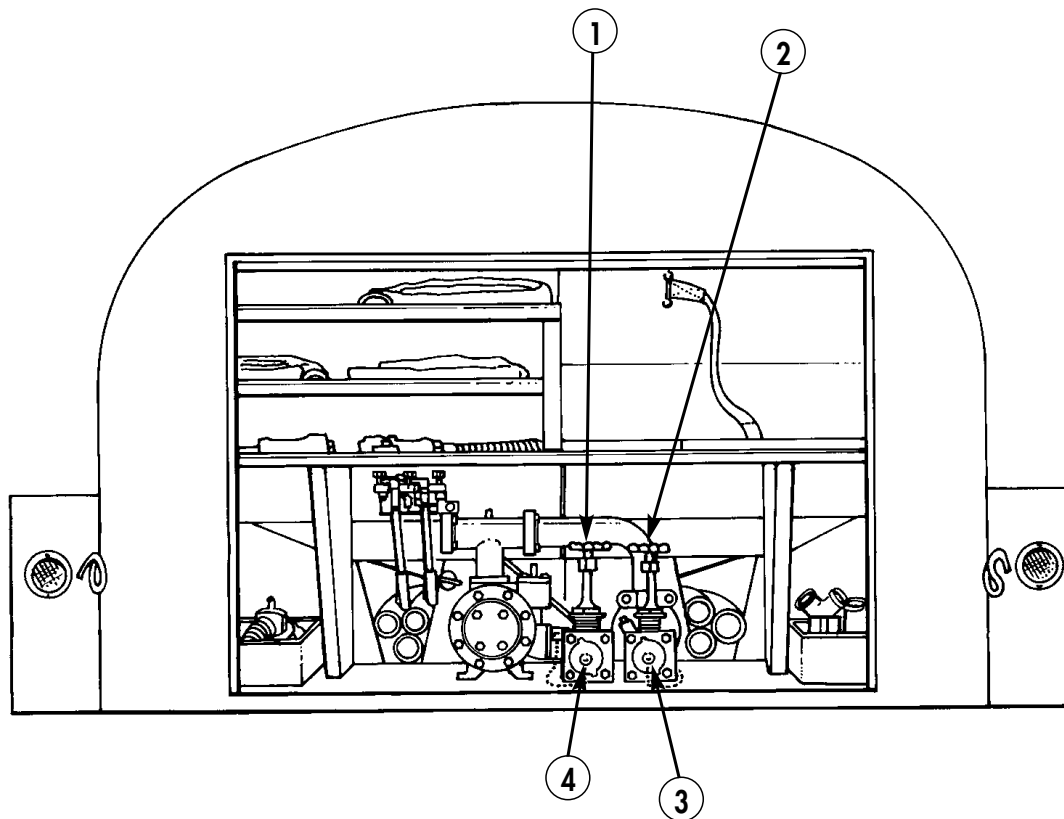
17. Close exhaust stack cap (6).
18. Open shutoff valve (7).
19. When outside temperature permits:
 - a. Close shutoff valve (7).
 - b. Open exhaust stack cap (6).
 - c. Stop engine (WP 0010 00).



WATER TANK TRUCK OPERATION (Contd)

FORDING

1. Drain the following (refer to OPERATING WATER TANK TRUCKS DURING FREEZING TEMPERATURES in this WP.):
 - a. Delivery lines
 - b. Manifold pipes
 - c. Delivery pump
2. Turn pump delivery line discharge valve (1) clockwise to closed position.
3. Turn gravity delivery line discharge valve knob (2) clockwise to closed position.
4. Secure dust caps (3) and (4).
5. Proceed with fording operation (WP 0028 00 and WP 0037 00).
6. After fording, flush out the following:
 - a. Manifold pipes
 - b. Delivery lines
 - c. Delivery pump
7. Refer to WP 0037 00 for post-fording operation procedures.



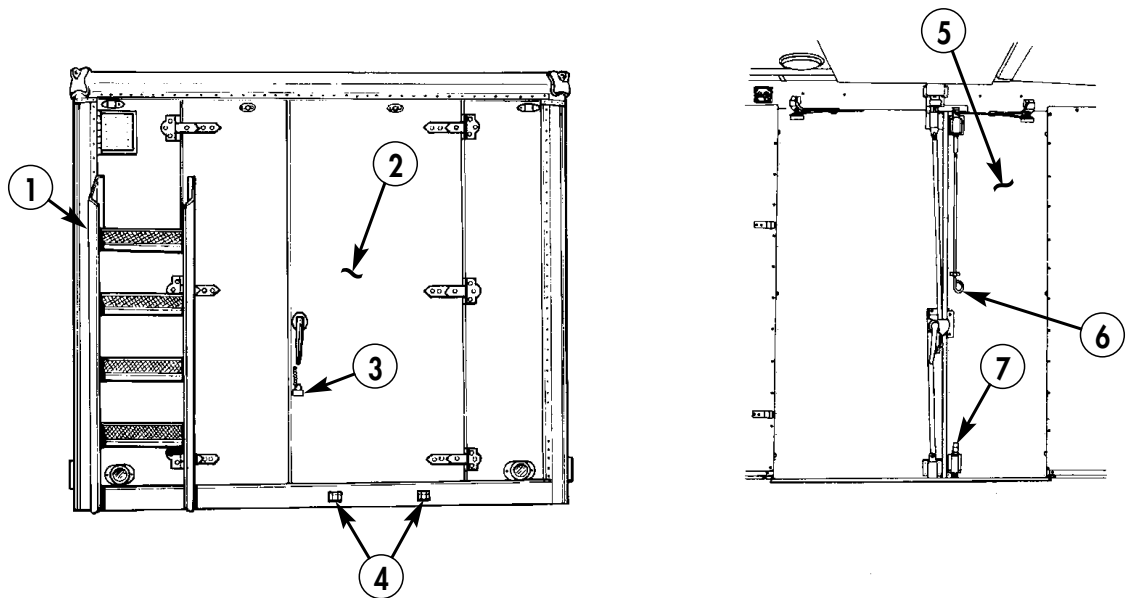
OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

SHOP VAN AND REPAIR VAN TRUCK OPERATION

PREPARING SHOP VAN AND REPAIR VAN TRUCKS FOR USE

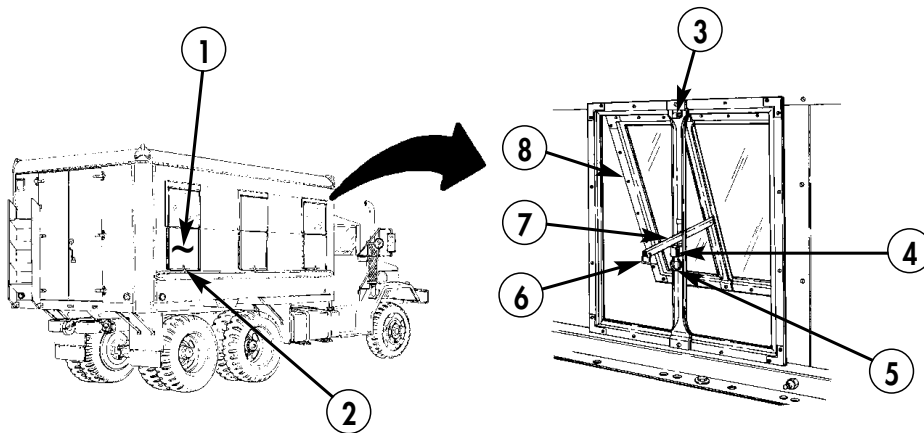
1. Unfasten ladder (1) and install on mounting brackets (4).
2. Remove padlock (3) and open right door (2).
3. Pull latch rod ring (6) down, lift latch rod (7), and open left door (5).



SHOP VAN AND REPAIR VAN TRUCK OPERATION (Contd)

PREPARING SHOP VAN AND REPAIR VAN TRUCKS FOR USE (Contd)

4. Slide blackout panel down:
 - a. Lift latch (2).
 - b. Slide blackout panel (1) down.
5. Open window (8):
 - a. Press sliding member (7).
 - b. Lift sliding member ring (6) to release sliding member (7) from retainer (3).
 - c. Swing sliding member (7) out and down to horizontal orientation.
 - d. Pull latch ring (5) down and push sliding member (7) out.
 - e. When latch (4) pin snaps into sliding member (7) hole, release latch ring (5).



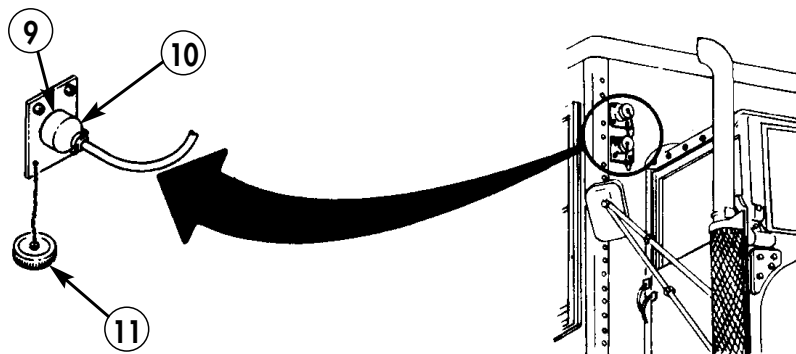
SUPPLYING 115-VOLT AC POWER TO VAN

1. Set power switch (13) to the OFF (down) position.

NOTE

The M185A3 repair van truck has an auxiliary power source receptacle mounted below 115-volt AC receptacle. Perform steps 2–4, as necessary, to use auxiliary power source receptacle.

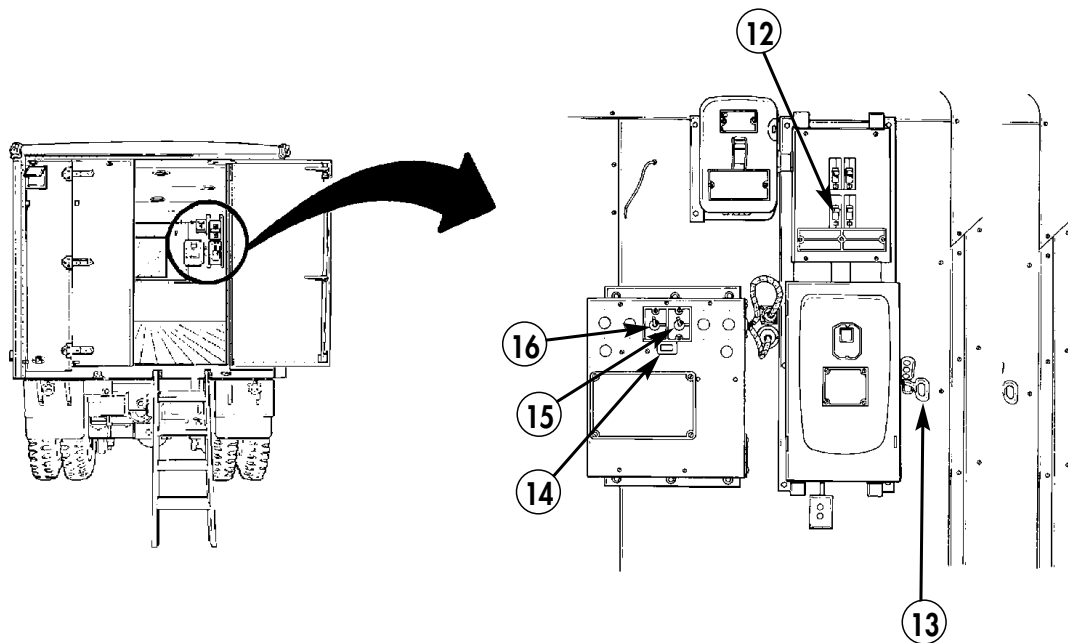
2. Remove cable connector dust cover (11).
3. Insert external 115 VAC power source cable connector (10) into receptacle (9).
4. When vehicle needs to be moved, remove connector (10) and install dust cover (11).



SHOP VAN AND REPAIR VAN TRUCK OPERATION (Contd)

OPERATING EXHAUST BLOWER

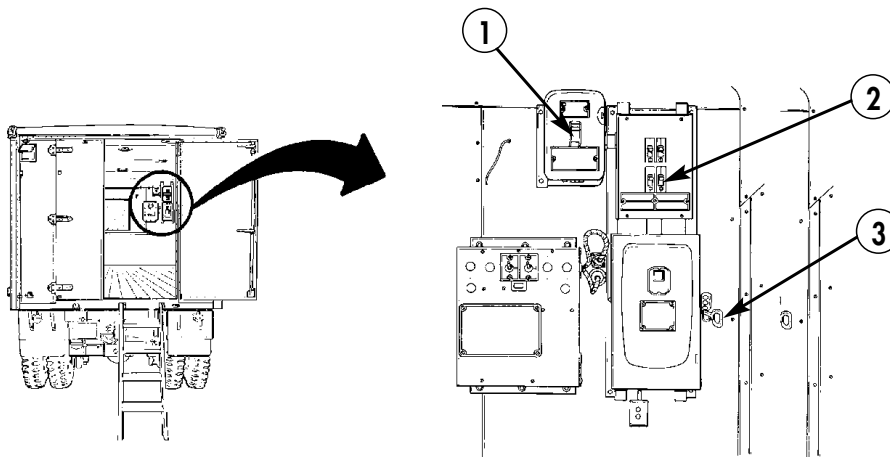
1. To operate from 115 VAC source:
 - a. Set power switch (13) to ON (up) position.
 - b. Set heater circuit breaker (12) to ON (up) position.
 - c. Set converter selector switch (15) to 115 VAC position; observe that red indicator lamp (14) illuminates.
 - d. Set exhaust blower switch (16) to HIGH or LOW position; observe that exhaust blower is operating.
2. To operate from 24 VDC source:
 - a. Set power switch (13) to OFF (down) position.
 - b. Set converter selector switch (15) to 24 VDC position.
 - c. Set exhaust blower switch (16) to HIGH or LOW position; observe that exhaust blower is operating.



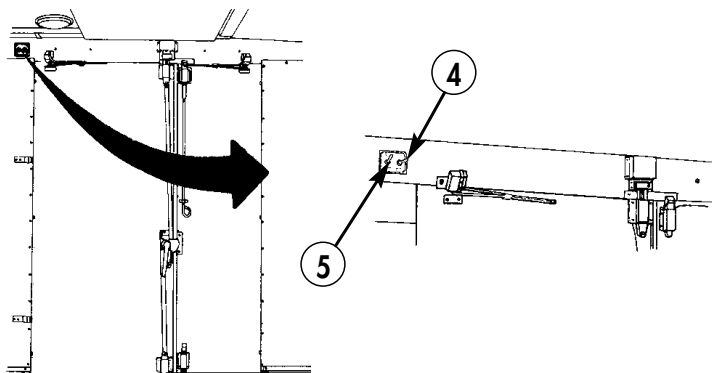
SHOP VAN AND REPAIR VAN TRUCK OPERATION (Contd)

OPERATING DOME AND BLACKOUT DOME LIGHTS

1. Operating 115 VAC dome lights under normal (non-blackout) conditions.
 - a. Set power switch (3) to ON (up) position.
 - b. Set ceiling lamp circuit breaker (2) to ON position.
 - c. Set operation blackout switch (1) to NORMAL (down) position; observe that dome lights are illuminated.



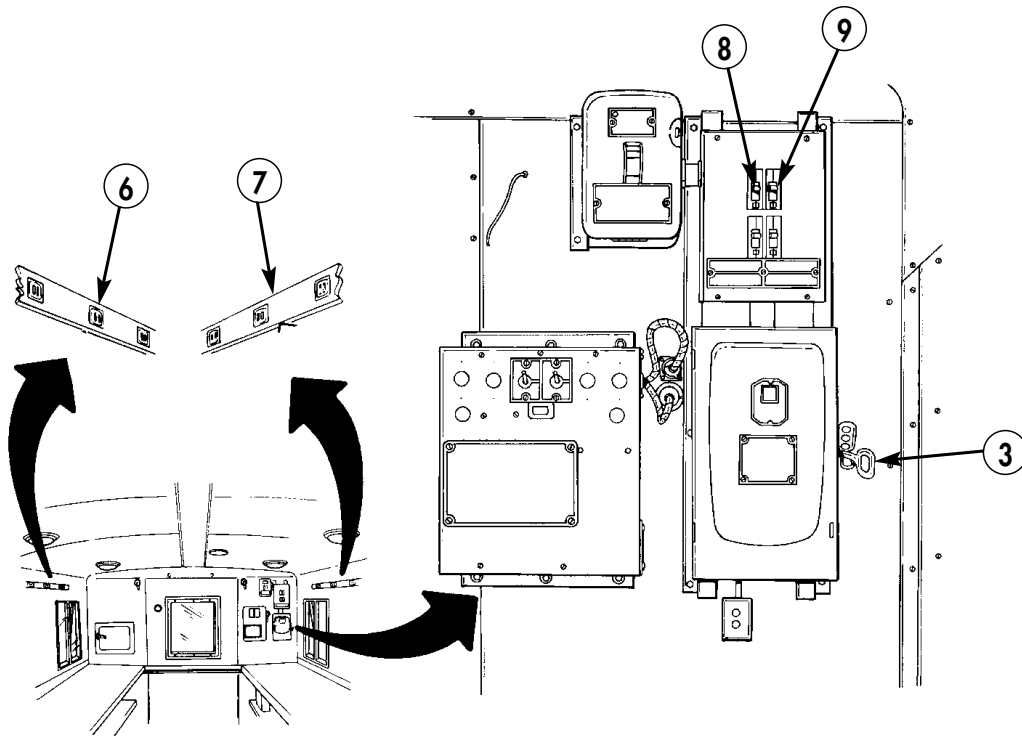
2. Operating 115 VAC dome and blackout lights under blackout conditions.
 - a. Set power switch (3) to ON (up) position.
 - b. Set ceiling lamp circuit breaker (2) to ON position.
 - c. Set operation blackout switch (1) to BLACKOUT (up) position.
 - d. Check blackout light operation. Open and close rear doors; when rear doors are open, white lamps extinguish and red lights stay on.
3. Operating 24 VDC dome lights under normal (non-blackout) conditions.
 - a. Set power switch (3) to OFF (down) position.
 - b. Set dome light ON/OFF switch (5) to ON position.
 - c. Set dome lights NORMAL/BLACKOUT switch (4) to NORMAL position.



SHOP VAN AND REPAIR VAN TRUCK OPERATION (Contd)

OPERATING DOME AND BLACKOUT DOME LIGHTS (CONTD)

4. Operating 24 VDC dome lights under blackout conditions.
 - a. Set power switch (3) to OFF (down) position.
 - b. Set dome light ON/OFF switch (5) to ON position.
 - c. Set dome lights NORMAL/BLACKOUT switch (4) to BLACKOUT position.
 - d. Check blackout light operation. Open and close rear doors. When rear doors are open, white lamps extinguish and red lights stay on.



SUPPLYING 115 VAC TO MOLDING RECEPTACLES

1. Set power switch (3) to ON (up) position.
2. Set right side power circuit breaker (8) to ON position to supply power to right side molding receptacles (7).
3. Set left side power circuit breaker (9) to ON position to supply power to left side molding receptacles (6).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

OPERATION UNDER UNUSUAL CONDITIONS

GENERAL

This Work Package (WP) provides special instructions for operating and maintaining vehicles under unusual conditions, which include extreme temperatures, humidity, and difficult terrain. When operating under unusual conditions, it is especially important to keep the vehicle clean and adequately lubricated.

CLEANING

Refer to WP 0044 00 for cleaning instructions and precautions.

LUBRICATION

NOTE

Service intervals specified in WP 0043 00 are for normal operating conditions. Reduce intervals when operating under unusual conditions.

Refer to WP 0043 00 for lubricating instructions.

DRIVING INSTRUCTIONS

1. FM 21-305 Manual for the Wheeled Vehicle Driver
Contains general principles of nontactical wheeled vehicle operation. It also provides special instructions for tactical vehicle operation.
2. AR 600-55 The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing)
Establishes standards, policies, and procedures for selection, training, testing, and licensing of operators of Army wheeled and tracked vehicles and equipment.
3. FM 9-207 Operations and Maintenance of Ordnance Materiel in Cold Weather
Provides general and technical guidance for operating equipment and ordnance materiel under extremely harsh cold weather conditions below 0 °F (-17 °C).
Other documents providing information about cold weather vehicle operation:
 - a. FM 31-70 Basic Cold Weather Manual
 - b. FM 31-71 Northern Operations

SPECIAL PURPOSE KITS

For information about special purpose kits used for unusual condition operation, refer to WP 0031 00.

OPERATION UNDER UNUSUAL CONDITIONS (Contd)

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 WP 0001 00, REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S).

OPERATION UNDER UNUSUAL CONDITIONS INDEX

Work Package Title	Work Package Number
Extreme Cold Operation Below 0 °F (-17 °C)	WP 0022 00
Snow and Ice Operation	WP 0023 00
Extreme Heat Operation Above 95 °F (35 °C)	WP 0024 00
Sandy and Dusty Operation	WP 0025 00
Heavy Rain and High Humidity Operation	WP 0026 00
Deep Mud Operation	WP 0027 00
Fording Operation	WP 0028 00
Towing Vehicle to Start Engine	WP 0029 00
Starting Engine Using Jumper Cables	WP 0030 00

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

EXTREME COLD OPERATION

GENERAL

The operator must be alert to changes in weather and be prepared to perform preventive vehicle maintenance in order to prevent damage to the vehicle due to extreme cold and weather. The operator must be cautious when starting or driving a vehicle that has not been operated for a long period. Lubricants can thicken and cause part failure. Snow and ice can cause tires to stick to the ground. If tires are underinflated and they freeze, a flat area forms on the bottom of the tire. The operator must be alert to these situations to prevent damage to the vehicle.

REFERENCES

Before performing the following vehicle operations, review the references in Table 1.

Table 1. Operation in Extreme Cold Reference.

WORK PACKAGE	TITLE
WP 0004 00	Special Purpose Kits Controls and Indicators, Arctic Winterization Kit
WP 0008 00	Cold Weather Starting Below +20 °F (-6.7 °C)
WP 0023 00	Snow and Ice Operation
WP 0034 00	Arctic Winterization Kit Operation
WP 0045 00	Preventive Maintenance Checks and Services (PMCS), Arctic Winterization Kit
FM 21-305	Manual for the Wheeled Vehicle Driver

BEFORE OPERATION

1. Perform before operation PMCS (WP 0045 00).
2. Start engine coolant heater.

Before starting engine, start engine coolant heater (if installed) to warm engine coolant, engine, and batteries (WP 0034 00).

EXTREME COLD OPERATION (Contd)

BEFORE OPERATION (Contd)

CAUTION

Do not attempt to operate vehicle when only one driving wheel is equipped with tire chains. Failure to comply may result in damage to tires and powertrain. Tire chains must be installed in pairs, one on each side of the same driving axle.

3. Install tire chains or deflate tires.
 - a. Install tire chains if operating on snow, if available.

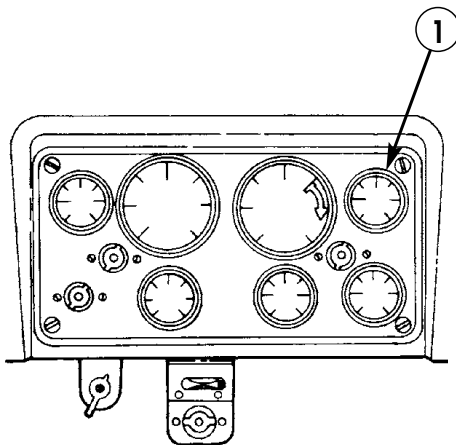
Using tire chains on driving wheels facilitates driving on snow; however, chains slip on hard packed snow and ice. Refer to FM 21-305 for tire chain installation procedure.
 - b. Deflate tires to a pressure of 15 psi (103 kPa), if tire chains are not available or when operating on hard packed snow or ice (WP 0049 00).

STARTING ENGINE

CAUTION

Do not operate engine coolant heater with engine running. Doing so may cause engine to overheat.

1. When temperature gauge (1) indicates 19 °F (-7 °C), shut off engine coolant heater (WP 0034 00).
2. Start engine (WP 0008 00).



EXTREME COLD OPERATION (Contd)

DRIVING VEHICLE

WARNING

When driving on snow or ice, observe the following:

- Reduce speed and be prepared for sudden changes in road conditions and traffic speeds.
- Increase stopping distances.
- Pump brakes gradually to avoid locking up wheels or stalling engine.
- If rear of vehicle skids to either side, turn steering wheel in the same direction that rear of vehicle is skidding.

Failure to follow these guidelines may cause loss of vehicle control, resulting in injury or death to personnel.

NOTE

- If vehicle has been exposed to extreme cold for long periods, before placing the vehicle in motion, notify your supervisor that control linkages, gearcases, and wheel hubs require warming before placing vehicle in motion.
 - When releasing clutch pedal and depressing accelerator pedal to initiate vehicle motion, avoid letting wheels spin or engine speed exceed 2,600 RPM.
 - When initiating vehicle motion, if vehicle will be operated on snow or ice, place transmission gearshift lever in the 2 (SECOND) position to prevent wheels from slipping.
1. Place vehicle in motion (WP 0009 00) with the following control settings:
 - a. Transmission gearshift lever in 1 (FIRST) position.
 - b. Transfer case shift lever in LOW position.
 2. Drive slowly and carefully for approximately 100 yds (91 m) to warm up gearcases and tires.
 3. If the rear of the vehicle skids to either side, perform the following to recover from the skid:
 - a. Turn steering wheel in the same direction that the rear of the vehicle is skidding. For example, if the rear of the vehicle starts to skid to the left (driver's side), turn the steering wheel to the left. Doing so keeps the front wheels in line with the intended direction of motion.
 - b. Let up on accelerator pedal, but do not depress clutch pedal.
 - c. Pump brake pedal gradually.
 - d. Continue driving carefully.

EXTREME COLD OPERATION (Contd)

STOPPING OR PARKING

CAUTION

Park vehicle to prevent snow from blowing into engine compartment. If snow enters engine compartment, melts, and refreezes, the ice can jam engine controls.

NOTE

Do not allow engine to idle for more than 15 minutes.

1. Park vehicle in sheltered area, if possible. If sheltered area is not available, park facing away from wind.
2. Park vehicle with wood planks, brush, mats, or canvas under wheels if a long shutdown period in open area is anticipated. This helps prevent wheels from freezing to ground.

CAUTION

Do not apply parking brake. Doing so may cause brakeshoes to freeze to brakedrums resulting in damage to parking brake system.

3. Stop vehicle and engine (WP 0010 00).
4. Place chocks in front of or behind wheels if parking on a grade.

AFTER OPERATION

CAUTION

Drain water from fuel filters and air reservoirs immediately after extreme cold operation. Freezing water in the fuel and air systems causes damage to the equipment.

1. Perform after operation PMCS (WP 0045 00).
2. Notify your supervisor that fuel tank requires emptying and refilling.

WARNING

Methyl alcohol used in alcohol evaporator is flammable, explosive, and poisonous.

- Do not add alcohol while smoking or near flames or sparks.
- Do not drink methyl alcohol.

Failure to comply may result in injury or death to personnel.

3. Check alcohol evaporator fluid level (if installed) (WP 0004 00). Add methyl alcohol (WP 0056 00, item 13/14), as required.
4. Remove all snow and ice from underside of vehicle, air cleaner intake, fuel tank, and around tires.

EXTREME COLD OPERATION (Contd)**AFTER OPERATION (Contd)****NOTE**

If power plant heater will not be used or is not installed, notify your supervisor that the batteries must be stored in a warm place.

5. Operate engine coolant heater (if installed) for short standby periods to keep batteries from freezing (WP 0034 00).
6. Inflate tires (if deflated) to proper operating pressure (WP 0049 00).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

SNOW AND ICE OPERATION

BEFORE OPERATION

1. Perform before operation Preventive Maintenance Checks and Services (PMCS).
 - a. Perform before operation PMCS Work Package (WP) 0045 00.
 - b. If Arctic Winterization Kit is installed, perform Arctic Winterization Kit before operation PMCS, (WP 0045 00).
2. Start engine coolant heater, if operating at temperatures below 0 °F (-17 °C).
Before starting engine, start engine coolant heater (if installed) to warm engine coolant, engine, and batteries (WP 0034 00).

STARTING ENGINE

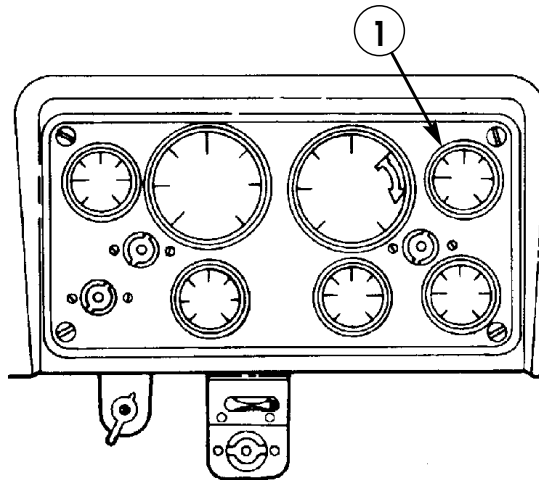
CAUTION

Do not operate engine coolant heater with engine running. Doing so may cause engine to overheat.

NOTE

If vehicle will be operated in extreme cold below 0 °F (-17 °C), start at step 1. If vehicle will be operated in temperatures above 0 °F (-17 °C), go to step 2.

1. Shut off engine coolant heater (WP 0034 00) when temperature gauge (1) indicates 19 °F (-7 °C).

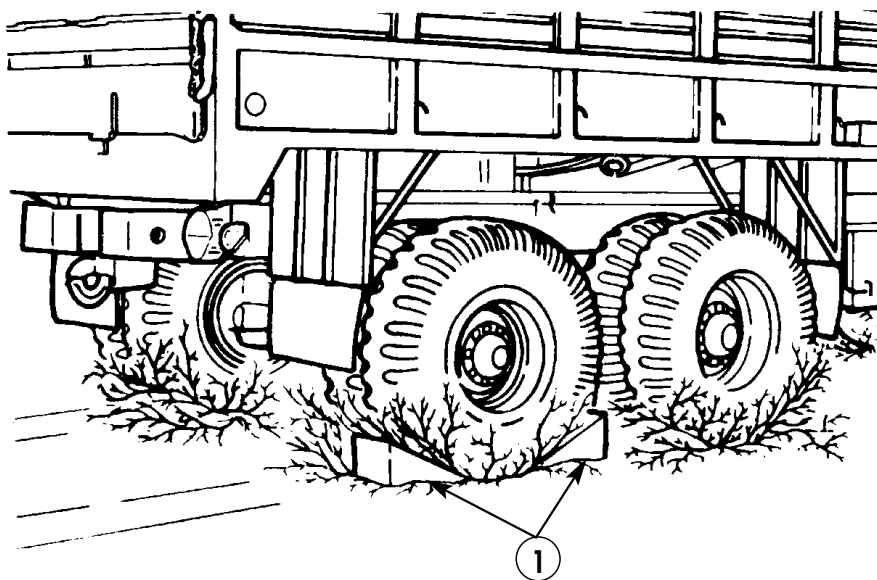


2. Start engine (WP 0007 00 or WP 0008 00).

SNOW AND ICE OPERATION (Contd)

STARTING ENGINE (Contd)

3. Remove wheel chocks (1).



DRIVING VEHICLE

CAUTION

Do not attempt to operate vehicle when only one driving wheel is equipped with tire chains. Failure to comply may result in damage to tires and powertrain. Tire chains must be installed in pairs, one on each side of the same driving axle.

NOTE

Using tire chains on driving wheels facilitates driving on snow; however, chains slip on hard packed snow and ice. Refer to FM 21-305 for tire chain installation procedure.

1. Install tire chains or deflate tires.
 - a. Install tire chains if operating on snow, if available.
 - b. Deflate tires to a pressure of 15 psi (103 kPa), if tire chains are not available or when operating on hard packed snow or ice (WP 0049 00).

SNOW AND ICE OPERATION (Contd)

DRIVING VEHICLE (Contd)

WARNING

When driving on snow or ice, observe the following:

- Reduce speed and be prepared for sudden changes in road conditions and traffic speeds.
- Increase stopping distances.
- Pump brakes gradually to avoid locking up wheels or stalling engine.
- If rear of vehicle skids to either side, turn steering wheel in the same direction that rear of vehicle is skidding.

Failure to follow these guidelines may cause loss of vehicle control, resulting in injury or death to personnel.

NOTE

- When releasing clutch pedal and depressing accelerator pedal to initiate vehicle motion, avoid letting wheels spin or engine speed exceed 2,600 RPM.
 - Initiating vehicle motion with transmission in 2 (SECOND) position and transfer case in LOW position helps prevent wheels from slipping.
2. Place vehicle in motion (WP 0009 00) with the following control settings:
 - a. Transmission gearshift lever in 2 (SECOND) position.
 - b. Transfer case shift lever in LOW position.
 - c. Engage front wheel drive (WP 0004 00).
 3. If rear of vehicle skids to either side, perform the following to recover from skid:
 - a. Turn steering wheel in the same direction that rear of vehicle is skidding.
For example, if rear of vehicle starts to skid to the left (driver's side), turn steering wheel to the left. Doing so keeps front wheels in line with intended direction of motion.
 - b. Release accelerator pedal, but do not depress clutch pedal.
 - c. Pump service brake pedal gradually.

STOPPING OR PARKING

CAUTION

Park vehicle to prevent snow from blowing into engine compartment. If snow enters engine compartment, melts, and refreezes, the ice can jam engine controls.

NOTE

Do not allow engine to idle for more than 15 minutes.

1. Park vehicle in sheltered area, if possible. If sheltered area is not available, park facing away from wind.
2. Park vehicle with wood planks, brush, mats, or canvas under wheels if long shutdown period in open area is anticipated. This helps prevent wheels from freezing to ground.

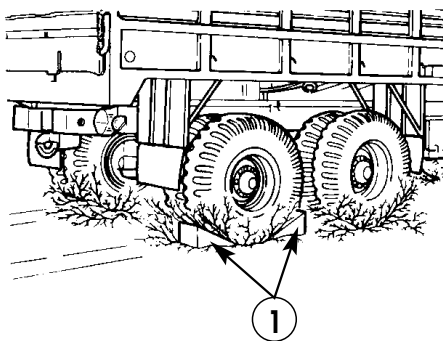
SNOW AND ICE OPERATION (Contd)

STOPPING OR PARKING (Contd)

CAUTION

Do not apply parking brake. Doing so may cause brakeshoes to freeze to brakedrums resulting in damage to parking brake system.

3. Stop vehicle and engine (WP 0010 00).
4. Place chocks (1) in front of wheels, or behind wheels if parking on grade.



AFTER OPERATION

CAUTION

Drain water from fuel filters and air reservoirs immediately after extreme cold (<0 °F (-17 °C)) operation. Freezing water in the fuel and air systems causes damage to the equipment.

1. Perform after operation PMCS (WP 0045 00).
2. Notify your supervisor that fuel tank requires emptying and refilling.

WARNING

Methyl alcohol used in alcohol evaporator is flammable, explosive, and poisonous.

- Do not add alcohol while smoking or near flames or sparks.
- Do not drink methyl alcohol.

Failure to comply may result in injury or death to personnel.

3. Check alcohol evaporator fluid level (if installed), refer to WP 0004 00. Add methyl alcohol (WP 0056 00, item 13/14), as required.
4. Remove all snow and ice from underside of vehicle, air cleaner intake, fuel tank, and around tires.

NOTE

If operating in extreme cold (<0 °F (-17 °C)) and engine coolant heater will not be used or is not installed, notify your supervisor that the batteries must be stored in a warm place.

5. Operate engine coolant heater (if installed and operating in extreme cold (<0 °F (-17 °C)) for short standby periods to keep batteries from freezing (WP 0034 00).
6. Inflate tires (if deflated) to proper operating pressure (WP 0049 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

EXTREME HEAT OPERATION ABOVE 95 °F (35 °C)

GENERAL

Extreme heat above 95 °F (35 °C) decreases engine efficiency. When operating the M44A2 vehicle in extreme heat, operators must avoid the following when possible:

- High road and engine speed
- Heavy cargo transport and towing
- Driving up steep grades
- Operating with transfer case in LOW (unless operating in deep sand)

BEFORE OPERATION

1. Perform before operation Preventive Maintenance Checks and Services (PMCS) Work Package (WP) 0045 00.

WARNING

Compressed air used for cleaning must not exceed 30 psi (207 kPa). Wear goggles/face shield and gloves when cleaning with compressed air. Failure to do so may result in injury to personnel.

NOTE

If radiator is clogged, its effectiveness is decreased.

2. Inspect front of radiator.
Check for sand, insects, or any objects that may be embedded in front of radiator.
3. Clear objects from front of radiator using compressed air, as required.
4. Deflate tires, as required.

If vehicle will be operated in deep sand, deflate tires to 15 psi (103 kPa) (WP 0049 00).

EXTREME HEAT OPERATION ABOVE 95 °F (35 °C) (Contd)

DRIVING VEHICLE

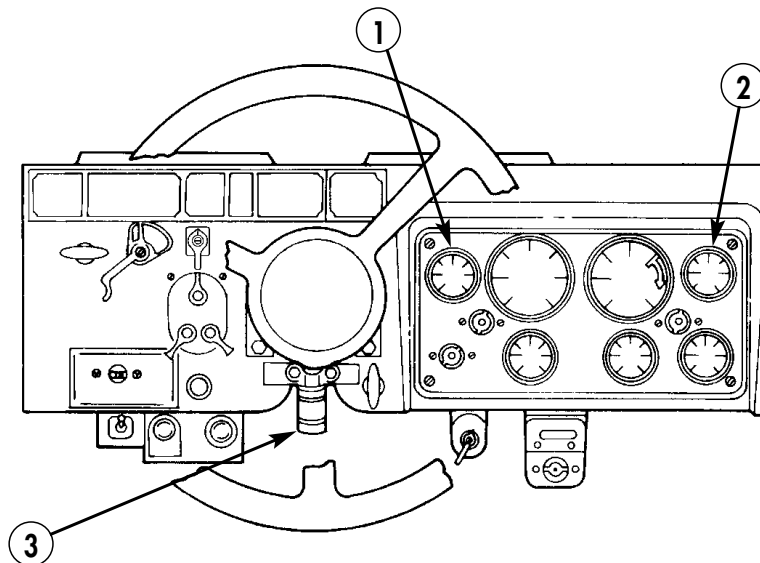
1. Start engine (WP 0007 00).

NOTE

Before initiating vehicle motion in deep sand, place transmission gearshift lever in the 2 (SECOND) position and transfer case shift lever in LOW position.

2. Place vehicle in motion (WP 0009 00).
3. Check air cleaner indicator (3) frequently.

If air cleaner indicator (3) is red, stop vehicle and engine (WP 0010 00) and perform air cleaner service (WP 0048 00).



EXTREME HEAT OPERATION ABOVE 95 °F (35 °C) (Contd)

DRIVING VEHICLE (Contd)

CAUTION

When operating vehicle in high heat, check temperature and oil pressure gauges frequently. Do not operate vehicle under the following engine conditions:

- Coolant temperature is greater than 210 °F (99 °C).
- Oil pressure drops below 10 psi (103 kPa) at idle.

Engine overheating and low oil pressure can cause severe engine damage.

4. Check temperature gauge (2) frequently.
5. Check oil pressure gauge (1) frequently.

CAUTION

If engine overheats, do not raise hood. Engine cools faster at idle with hood closed. Raising hood may result in engine damage from prolonged overheating.

6. If engine overheats:

CAUTION

If engine temperature does not decrease or continues to rise after idling for approximately two minutes, stop engine (WP 0010 00) and perform troubleshooting procedures (WP 0042 00).

- a. Park vehicle (WP 0010 00) and let engine run at idle.
The engine cooling system should lower engine temperature.
- b. Observe temperature gauge (2) and oil pressure gauge (1).
- c. Stop engine (WP 0010 00) when engine temperature reaches normal operating range, 180–200 °F (82–93 °C).
- d. Perform troubleshooting procedures (WP 0042 00).

EXTREME HEAT OPERATION ABOVE 95 °F (35 °C) (Contd)

STOPPING AND PARKING

1. Park vehicle in sheltered area, if possible. If sheltered area is not available, park facing away from wind.
2. If sheltered area is not available, cover vehicle with tarps to prevent entry of sand or dust. When entire vehicle cannot be covered, protect windows, cab, and engine compartment first.
3. Stop vehicle and engine (WP 0010 00).

NOTE

Allow tires to cool before checking air pressure. Air pressure is higher when tires are hot.

4. Check tire air pressure.
5. Adjust tire air pressure, as required (WP 0049 00).

NOTE

When operating in extreme heat, check batteries daily and service as required (WP 0045 00).

6. Check batteries daily.

AFTER OPERATION

1. Fill fuel tank. Tighten filler cap securely after filling.
2. Perform after operation PMCS (WP 0045 00).
3. Notify your supervisor that vehicle overheated.

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

SANDY AND DUSTY OPERATION

GENERAL

When operating the M44A2 vehicle in sandy and dusty areas perform frequent air cleaner, cooling system, and lubrication servicing. Check air filter indicator frequently. Because the radiator can become clogged with sand and dust, causing the cooling system's effectiveness to decrease, check the temperature gauge frequently for engine overheating (>210 °F (99 °C)). If engine overheats, refer to Work Package (WP) 0024 00 for information about recovering from the overheating condition.

REFERENCES

- WP 0024 00, Extreme Heat Operation Above 95 °F (35 °C)
- FM 90-3, Desert Operations

BEFORE OPERATION

1. Perform before operation Preventive Maintenance Checks and Services (PMCS) (WP 0045 00).

WARNING

Compressed air used for cleaning must not exceed 30 psi (207 kPa). Wear goggles/face shield and gloves when cleaning with compressed air. Failure to do so may result in injury to personnel.

2. Inspect front of radiator.
Check for sand, insects, or any objects that may be embedded in front of radiator.
3. Clear objects from front of radiator using compressed air, as required.
4. Clear sand from engine compartment and areas around brakes, drums, and spring seats using compressed air, as required.
5. Deflate tires, as required.
If vehicle will be operated in deep sand, deflate tires to 15 psi (103 kPa) (WP 0049 00).

SANDY AND DUST OPERATION (Contd)

DRIVING VEHICLE

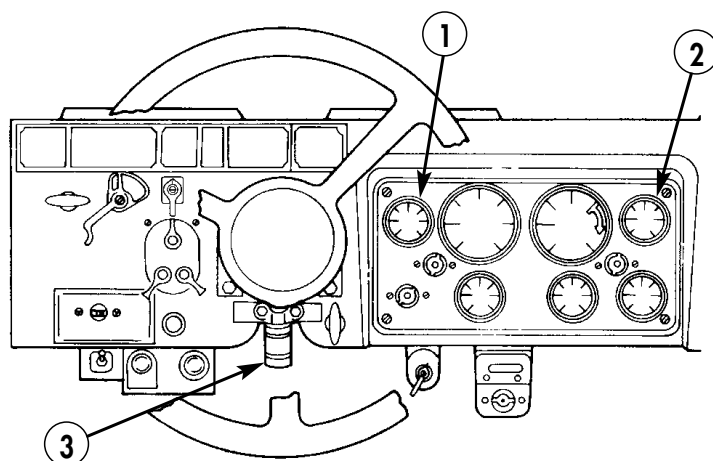
1. Start engine (WP 0007 00).

CAUTION

Do not attempt to recover a vehicle that has become bogged in deep sand by rocking vehicle, using quick transmission gear changes between reverse and forward. Doing so may result in damage to the powertrain.

NOTE

- When driving on surface crust, avoid breaking through the crust to minimize dust signature and chance of bogging down, refer to FM 90-3.
 - Before initiating vehicle motion in deep sand, place transmission gearshift lever in the 2 (SECOND) position and transfer case shift lever in LOW position.
 - Vehicle loads must be evenly distributed. Rear-wheel drive should be used where possible to prevent the front wheels from digging into the sand and becoming mired.
 - Drivers must switch to all-wheel drive or change gears before a vehicle bogs down in the sand.
2. Place vehicle in motion (WP 0009 00).
 3. Check air cleaner indicator (3) frequently.
If air cleaner indicator (3) is red, stop vehicle and engine (WP 0010 00) and perform air cleaner service (WP 0048 00).
 4. Check temperature gauge (2) frequently.
 5. Check oil pressure gauge (1) frequently.



NOTE

Refer to FM 90-3 for information about vehicle recovery in sand.

6. If vehicle becomes stuck in deep sand, use second vehicle with winch for recovery operation (WP 0016 00).

SANDY AND DUST OPERATION (Contd)

STOPPING OR PARKING

1. Park vehicle in sheltered area, if possible. If sheltered area is not available, park facing away from wind.
2. Stop vehicle and engine (WP 0010 00).
3. If sheltered area is not available, cover vehicle with tarps to prevent accumulation of sand and dust on vehicle. When entire vehicle cannot be covered, protect windows, cab, and engine compartment first.

AFTER OPERATION

WARNING

Compressed air used for cleaning must not exceed 30 psi (207 kPa). Wear goggles/face shield and gloves when cleaning with compressed air. Failure to do so may result in injury to personnel.

1. After daily operation, clear sand from engine compartment and areas around brakes, drums, and spring seats using compressed air.

CAUTION

Do not allow dust or sand to enter fuel tank. During refueling operations, cover the gap between the fuel dispenser nozzle and the fuel tank filler hole. Dust or sand in the fuel tank may result in damage to the fuel system.

2. Fill fuel tank, tighten filler cap securely after filling.
3. Perform after operation PMCS (WP 0045 00).
4. Inflate tires (if deflated) to proper operating pressure (WP 0049 00).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

HEAVY RAIN AND HIGH HUMIDITY OPERATION

GENERAL

In hot humid weather, exposed metal surfaces can rust rapidly. Fungus can grow in the fuel tank and on canvas tarps, seats, and other equipment. Frequent inspection, cleaning Work Package (WP) 0041 00, and lubrication are necessary to maintain vehicle readiness in rainy and humid conditions. Fuel filters and air reservoirs must be drained frequently due to increased condensation in fuel and air systems.

WARNING

Do not operate vehicle with low tire pressure on wet smooth roads at high speed. Doing so may result in loss of vehicle control and injury or death to personnel.

BEFORE OPERATION

If vehicle will be operated cross-country in heavy rain, deflate tires to 15 psi (103 kPa) (WP 0049 00).

HEAVY RAIN AND HIGH HUMIDITY OPERATION (Contd)

DRIVING VEHICLE

WARNING

When driving in heavy rain, observe the following:

- Reduce speed and be prepared for sudden changes in road conditions and traffic speeds.
- Increase stopping distances.
- Pump brakes gradually to avoid locking up wheels or stalling engine.
- If rear of vehicle skids to either side, turn steering wheel in the same direction that rear of vehicle is skidding.

Failure to follow these guidelines may cause loss of vehicle control, resulting in injury or death to personnel.

NOTE

- When releasing clutch pedal and depressing accelerator pedal to initiate vehicle motion, avoid letting wheels spin or engine speed exceed 2,600 RPM.
 - Initiating vehicle motion with transmission in 2 (SECOND) position and transfer case in LOW position helps prevent wheels from slipping.
1. Place vehicle in motion (WP 0009 00).
 2. If rear of vehicle skids to either side, perform the following to recover from skid:
 - a. Turn steering wheel in the same direction that rear of vehicle is skidding.
For example, if rear of vehicle starts to skid to the left (driver's side), turn steering wheel to the left. Doing so keeps front wheels in line with intended direction of motion.
 - b. Let up on accelerator pedal, but do not depress clutch pedal.
 - c. Pump service brake pedal gradually.

AFTER OPERATION

1. Perform after operation Preventive Maintenance Checks and Services (PMCS) (WP 0045 00).
2. Notify your supervisor that fuel tank requires emptying and refilling.
3. Inflate tires (if deflated) to proper operating pressure (WP 0049 00).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

DEEP MUD OPERATION

GENERAL

When conducting prolonged operation in deep mud, use tire chains on driving wheels. Refer to FM 21-305 for tire chain installation procedure. If tire chains are not available, deflate tires to 15 psi (103 kPa).

REFERENCES

- FM 21-305 Manual for the Wheeled Vehicle Driver
- Work Package (WP) 0049 00 Wheel and Tire Service

BEFORE OPERATION

Perform before operation Preventive Maintenance Checks and Services (PMCS) (WP 0045 00).

DRIVING VEHICLE CROSS-COUNTRY

1. Start engine (WP 0007 00).

WARNING

Do not operate vehicle with low tire pressure on wet smooth roads at high speed. Doing so may result in loss of vehicle control and injury or death to personnel.

CAUTION

Do not attempt to operate vehicle when only one driving wheel is equipped with tire chains. Failure to comply may result in damage to tires and powertrain. Tire chains must be installed in pairs, one on each side of the same driving axle.

2. Install tire chains or deflate tires.
 - a. Install tire chains, if available. Refer to FM 21-305 for tire chain installation procedure.
 - b. Deflate tires to a pressure of 15 psi (103 kPa), if tire chains are not available (WP 0049 00).
3. Engage front wheel drive (WP 0004 00).

DEEP MUD OPERATION (Contd)

DRIVING VEHICLE CROSS-COUNTRY (Contd)

CAUTION

Do not attempt to recover a vehicle that has become bogged down in deep mud by rocking vehicle, using quick transmission gear changes between reverse and forward gears. Doing so may result in damage to the powertrain.

NOTE

- Before placing vehicle in motion in deep mud, ensure front wheels are straight.
 - When releasing clutch pedal and depressing accelerator pedal to initiate vehicle motion, avoid letting wheels spin or engine speed exceed 2,600 RPM.
 - Initiating vehicle motion with transmission in the 2 (SECOND) position and transfer case in LOW position helps prevent wheels from slipping.
 - Be prepared to downshift transmission gearshift lever, if necessary, to prevent vehicle from getting bogged down in mud.
 - Vehicle can get stuck in deep potholes. Avoid large water-filled potholes, when possible. Pothole depth cannot be determined when full of water. If pothole cannot be avoided, cross pothole slowly with transmission gear shift lever in the 2 (SECOND) position.
4. Place vehicle in motion (WP 0009 00) with the following control settings:
 - a. Transmission gearshift lever in 2 (SECOND) position.
 - b. Transfer case shift lever in LOW position.
 5. If rear of vehicle skids to either side, perform the following to recover from skid:
 - a. Turn steering wheel in the same direction that rear of vehicle is skidding.
For example, if rear of vehicle starts to skid to the left (driver's side), turn steering wheel to the left. Doing so keeps front wheels in line with intended direction of motion.
 - b. Let up on accelerator pedal, but do not depress clutch pedal.
 - c. Pump service brake pedal gradually.
 6. If vehicle becomes bogged down in deep mud, use vehicle's front winch or second vehicle with winch for recovery operation (WP 0016 00).

AFTER OPERATION

1. Wash all mud from vehicle immediately following operations.
If mud dries, it is more difficult to clean the vehicle.
2. If front winch was used, perform FRONT WINCH after operation PMCS (WP 0045 00).
3. Remove tire chains.

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

FORDING OPERATION

CAUTION

Never attempt to ford water deeper than 30 in. (76 cm) without the Deep Water Fording Kit installed. Doing so may result in damage to engine.

NOTE

If fording water deeper than 30 in. (76 cm) is attempted, without the Deep Water Fording Kit installed, the vehicle may stall and become disabled.

1. Before attempting to ford water more than 30 in. (76 cm) deep, ensure Deep Water Fording Kit is installed, refer to Work Package (WP) 0037 00 for Deep Water Fording Kit operation.
2. If vehicle is accidentally operated in water deeper than 30 in. (76 cm) and becomes disabled:
 - a. Recover vehicle using vehicle's front winch (if installed) or second vehicle with winch (WP 0016 00).
 - b. Notify your supervisor.

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

TOWING VEHICLE TO START ENGINE

WARNING

Towing a disabled vehicle to start engine should be performed on straight, smooth terrain or road. Failure to do this may cause disabled vehicle driver to lose control, resulting in injury or death to personnel.

NOTE

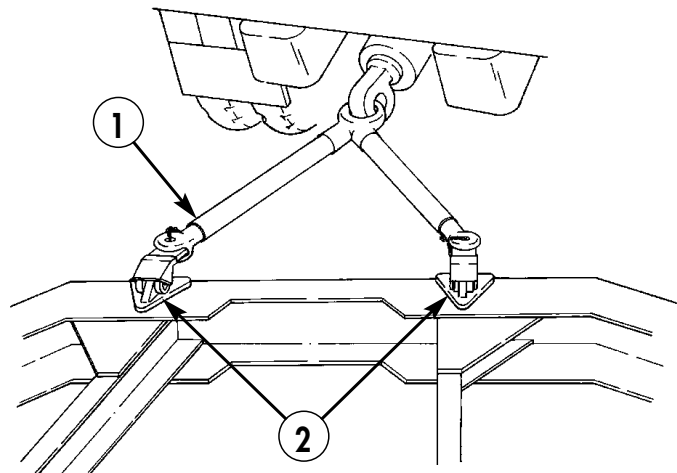
Disabled vehicle should be towed to start engine only when slave receptacle starting and jumper cable starting are not possible.

DISABLED VEHICLE PREPARATION

WARNING

Before connecting/disconnecting towbar to/from disabled vehicle, set disabled vehicle parking brake and chock wheels. Failure to do this may result in unexpected vehicle movement, injury or death to personnel, and damage to equipment.

1. Set parking brake and chock wheels (WP 0010 00).
2. Remove lifting shackles (TM 9-2320-361-24), if using towbar (1).
3. Attach towbar (1) to lifting shackle brackets (2).



TOWING VEHICLE TO START ENGINE (Contd)

TOWING VEHICLE PREPARATION

WARNING

- Use extreme care when positioning tow vehicle for towbar connection and disconnection. Keep personnel clear of area between tow vehicle and disabled vehicle. Failure to do this can result in serious crushing injuries and death to personnel.
- In accordance with AR 385-55, check for clearance and give warning before backing the vehicle. If rear visibility is blocked by cargo or otherwise limited, driver must use ground guides. Failure to use ground guides while backing the vehicle may result in injury or death to personnel.

CAUTION

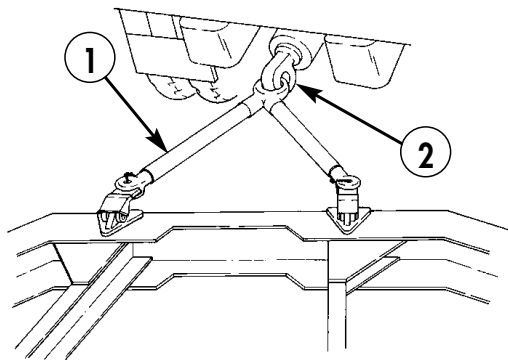
Do not push a disabled vehicle; use towing procedure only. Pushing a disabled vehicle can result in damage to both vehicles.

1. Using ground guide (in accordance with AR 385-55), position towing vehicle for towbar connection.
2. Set parking brake and chock wheels (WP 0010 00).

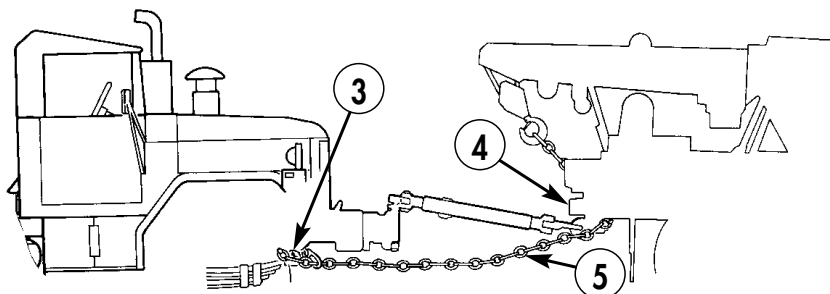
NOTE

If towbar is not available, go to step 5.

3. Attach towbar (1) to towing vehicle pintle hook (2).



4. Connect safety chains (5) from disabled vehicle spring hangers (3) to towing vehicle (4).



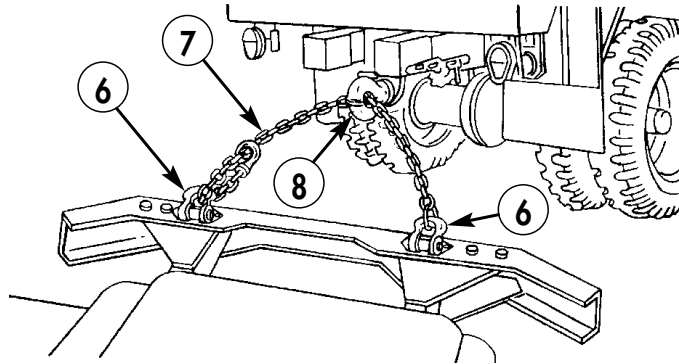
TOWING VEHICLE TO START ENGINE (Contd)

TOWING VEHICLE PREPARATION (Contd)

NOTE

Utility chain must be connected with adequate slack, to allow both vehicles to maneuver.

5. If towbar is not available:
 - a. Attach utility chain (7) to disabled vehicle lifting shackles (6).
 - b. Attach center of utility chain (7) to towing vehicle pintle hook (8).

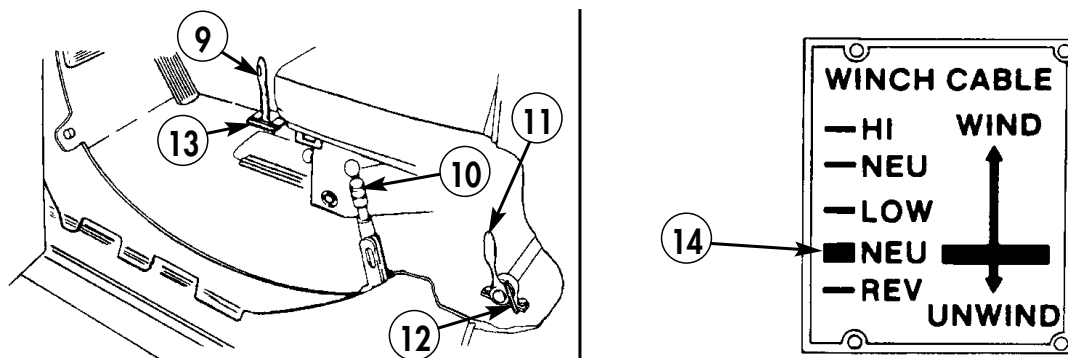


6. Apply parking brake (10).
7. Adjust driver's seat (WP 0006 00).

WARNING

Always wear seatbelts when operating vehicle. The use of seatbelts is essential to the safety of all personnel. Failure to wear seatbelts when operating vehicle may result in serious injury or death to personnel.

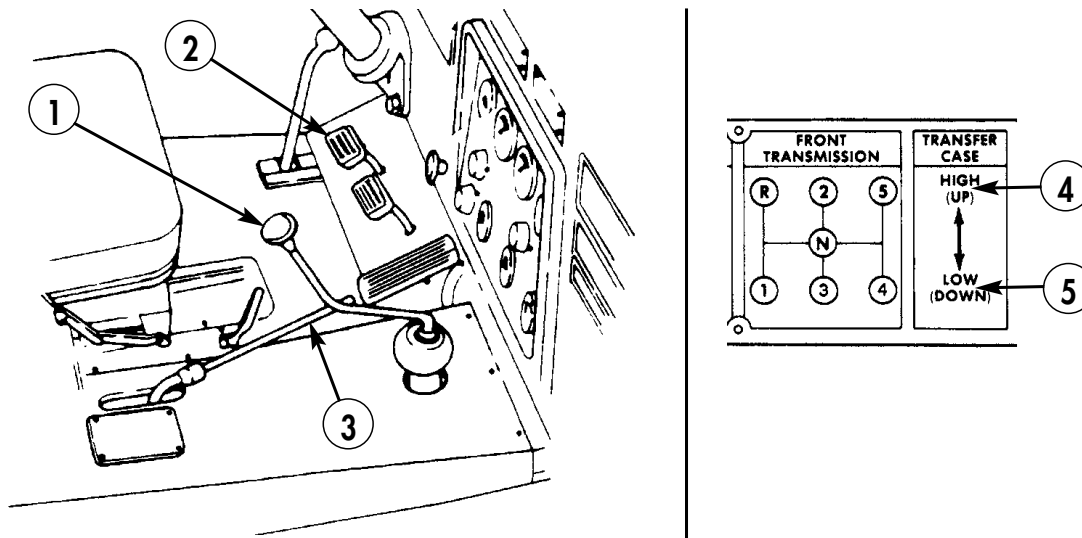
8. Ensure vehicle front and side windows are clean.
9. Adjust rearview mirrors; ensure both mirrors provide a clear rear view.
10. Fasten seat belt (WP 0006 00).
11. On vehicles with a front winch, ensure transmission Power Takeoff (PTO) lever (9) is in neutral (NEU) position (14) and secured with shifting lever hinge lock (13).
12. On vehicles with a transfer PTO, disengage transfer PTO by pushing transfer PTO lever (11) forward and down. Secure lever (11) with locking bar (12).



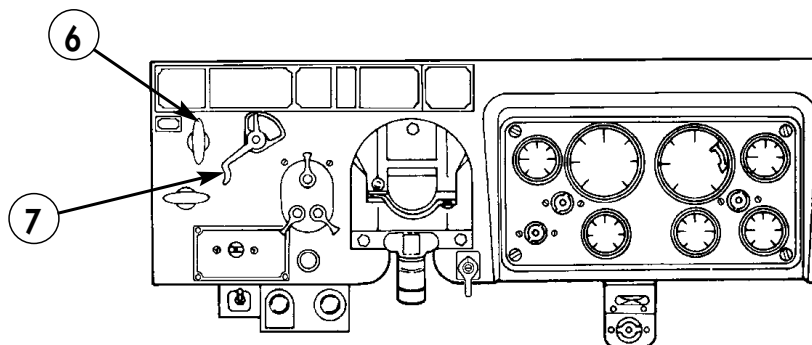
TOWING VEHICLE TO START ENGINE (Contd)

TOWING VEHICLE PREPARATION (Contd)

13. Place transmission gearshift lever (1) in N (neutral) position.
14. Place transfer case shift lever (3) in LOW (down) position (5).



15. Push engine stop control (6) in.
16. Turn accessory power switch (7) to ON.



TOWING OPERATION

1. Disabled vehicle:
 - a. Depress and hold clutch pedal (2).
 - b. Place transmission gearshift lever (1) in 2 (SECOND) position.
 - c. Place transfer case shift lever (3) in HIGH (up) position (4).
 - d. Release parking brake (8).
2. Disabled vehicle operator: signal towing vehicle operator to begin towing.
3. Towing vehicle operator: initiate vehicle motion (WP 0009 00).

TOWING VEHICLE TO START ENGINE (Contd)

TOWING OPERATION (Contd)

4. When vehicles reach approximately 10 mph, on disabled vehicle:
 - a. Turn accessory power switch (7) to ON.
 - b. Push engine stop control (6) in.

NOTE

For cold weather starting below 20 °F (-6.7 °C), set disabled vehicle manifold heater to ON (WP 0008 00) immediately after releasing clutch pedal.

- c. Slowly release clutch pedal (2) and depress accelerator pedal (9) slightly until engine starts, depress clutch pedal (2) immediately after engine starts.

NOTE

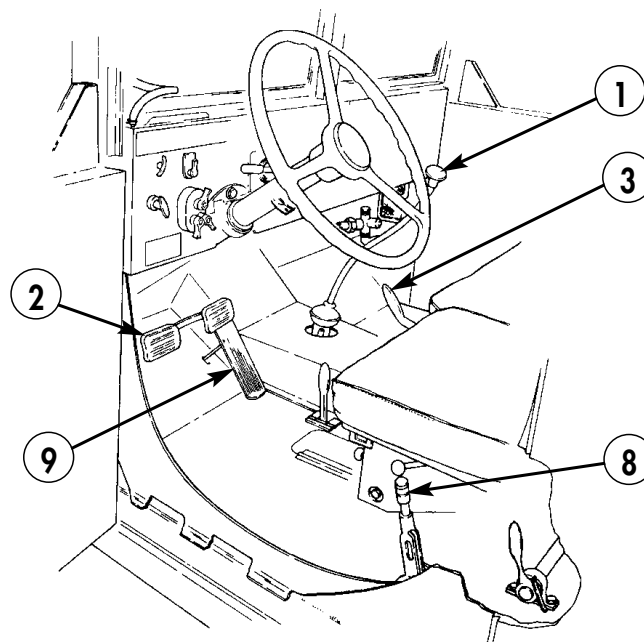
If vehicle has been towed approximately 100 yds (91 m) and engine does not start, stop towing operation and notify your supervisor.

5. Disabled vehicle operator signal towing vehicle operator to stop.

WARNING

Chock towing vehicle wheels to ensure vehicle does not move while removing towbar or utility chain. Failure to do so can result in injury or death to personnel.

6. Towing vehicle operator stop vehicle and engine, and chock wheels (WP 0010 00).
7. Disabled vehicle operator:
 - a. Place transmission gearshift lever (1) in N (neutral) position.
 - b. Apply parking brake (8).
 - c. Chock wheels (WP 0010 00).



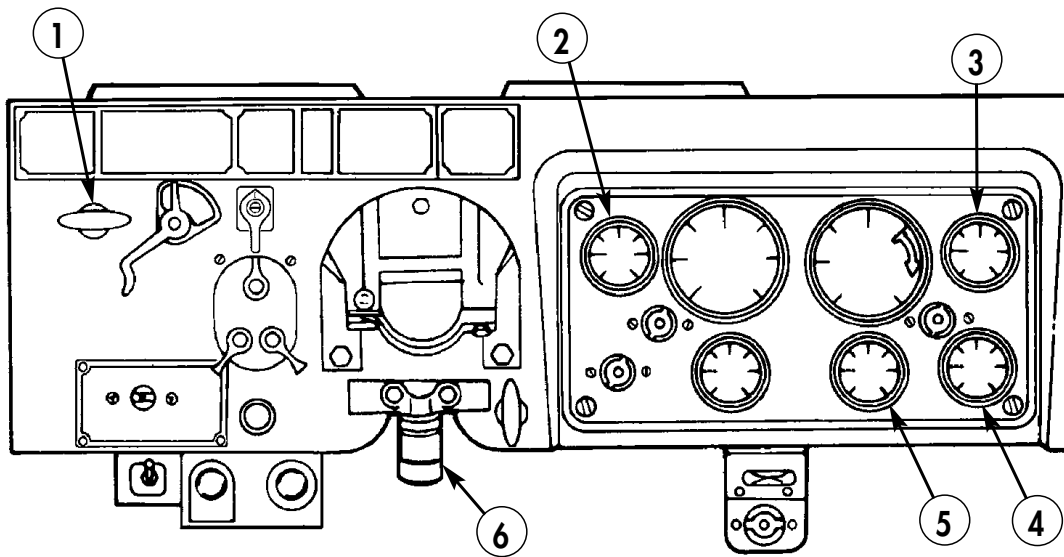
TOWING VEHICLE TO START ENGINE (Contd)

TOWING OPERATION (Contd)

CAUTION

If any instrument reading is abnormal, immediately pull out engine stop control to stop engine. Failure to do this may result in damage to engine. Notify your supervisor.

8. Ensure the following instrument readings are indicated. If any of the following readings are abnormal, pull out engine stop control (1) to stop engine:
 - a. **Oil Pressure Gauge (2):** 10 psi (68.9 kPa) or greater.
 - b. **Battery/Generator Meter (5):** in green area.



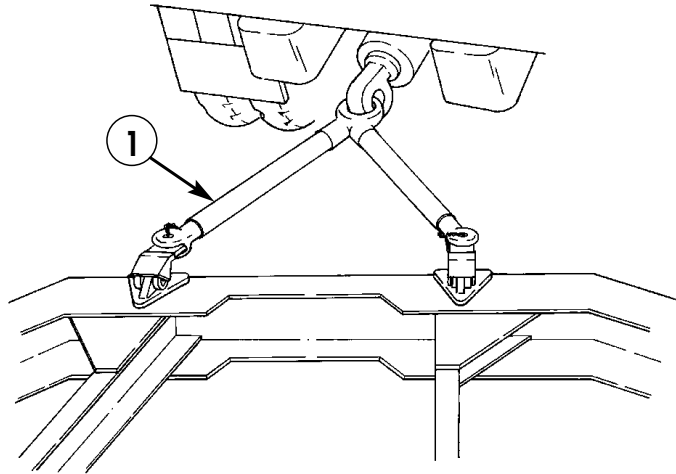
TOWING VEHICLE TO START ENGINE (Contd)**TOWING OPERATION (Contd)****WARNING**

- Do not place vehicle in motion until warning buzzer stops and air pressure gauge reads 85 psi (586 kPa) or greater. Failure to comply may result in brake failure, causing injury or death to personnel.
 - If Nuclear, Biological, or Chemical (NBC) exposure is suspected, all air filter media must be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC noncommissioned officer for appropriate handling and disposal instructions.
NBC contaminated filters must be handled using adequate precautions.
- c. **Air Pressure Gauge** (4): 85–120 psi (586–827 kPa).
 - d. **Air Cleaner Indicator** (6): shows green, not red.
 - e. **Temperature Gauge** (3): 180–200 °F (82–93 °C).
9. If any of the following occur, immediately pull out engine stop control (1) to stop engine and notify your supervisor:
- a. Engine vibration—engine is vibrating or making excessive noise.
 - b. Low oil pressure—oil pressure gauge (2) does not register pressure or quickly drops below 10 psi (68.9 kPa).
 - c. Engine temperature (too high or low)—engine temperature gauge (3) rises sharply to greater than 210 °F (99 °C), or stays below 180 °F (82 °C).

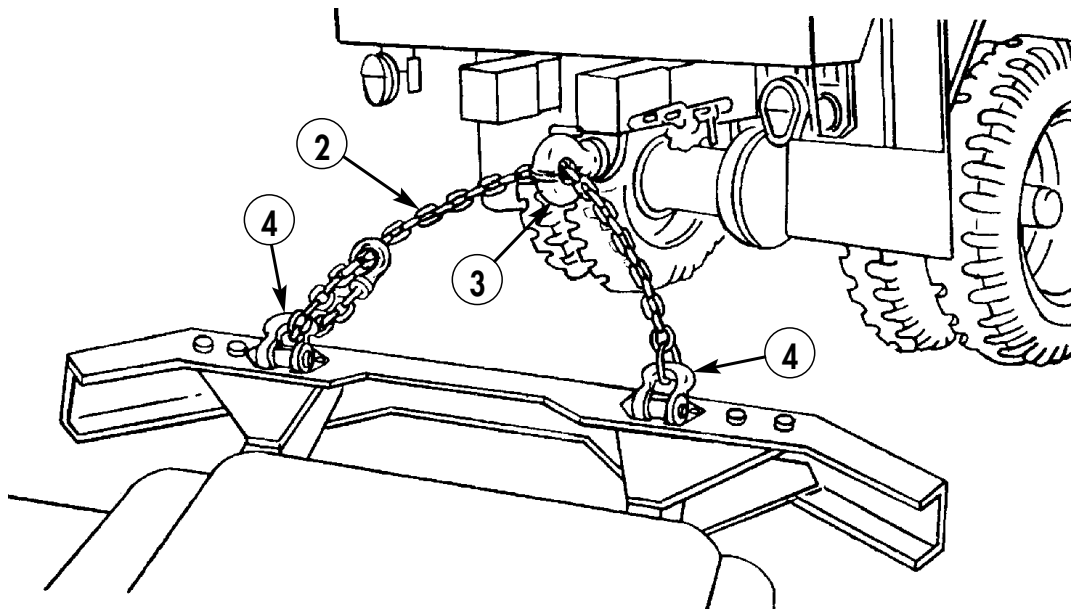
TOWING VEHICLE TO START ENGINE (Contd)

TOWING OPERATION (Contd)

10. Remove towbar (1).



11. If utility chain was used, remove utility chain (2) from pintle hook (3) and lifting shackles (4).



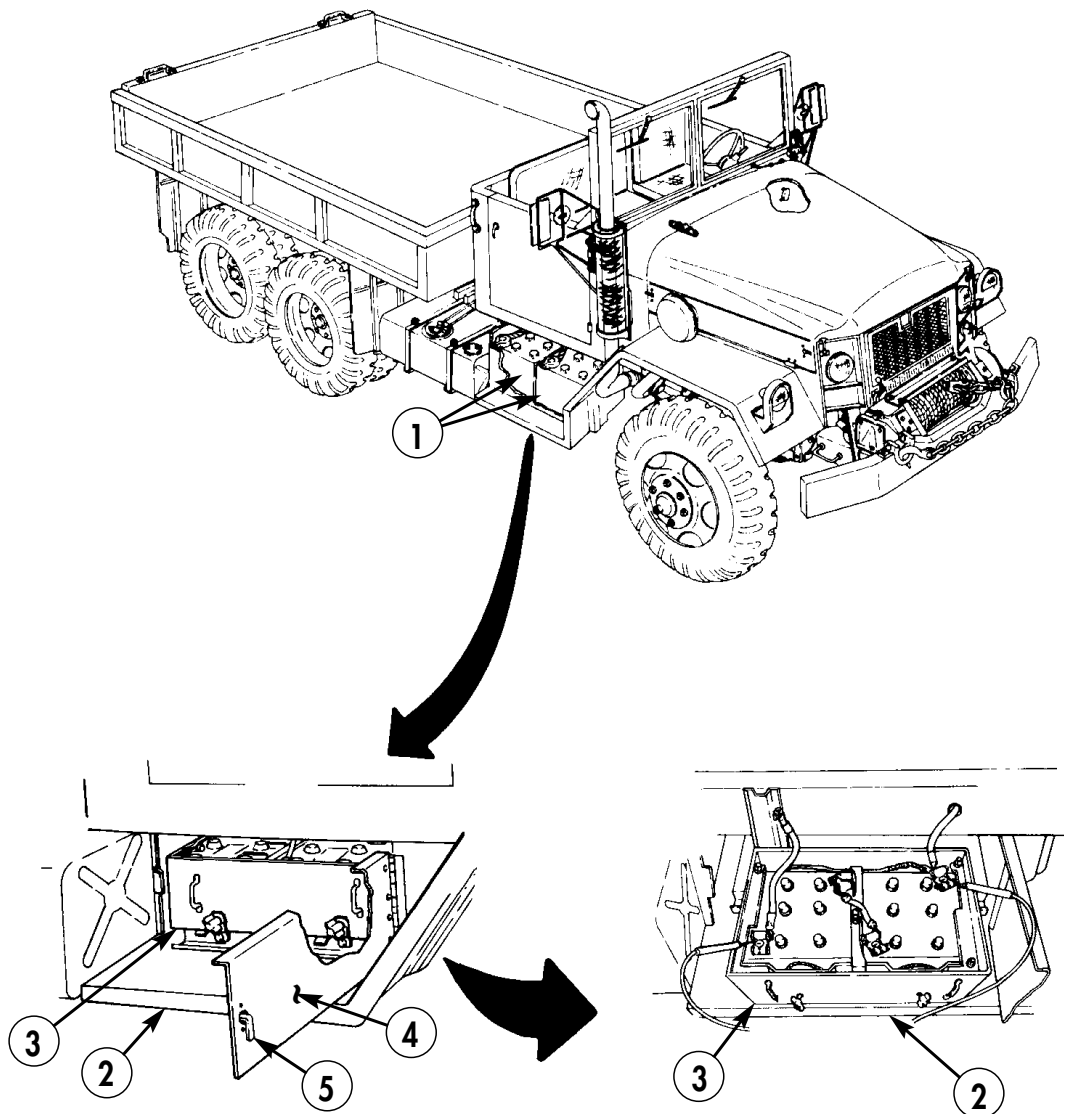
END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

STARTING ENGINE USING JUMPER CABLES

1. Position starting vehicle with its batteries (1) near disabled vehicle batteries (1).
2. Stop starting vehicle engine (WP 0010 00).
3. On both vehicles:
 - a. Turn latch (5) and open battery compartment door (4).
 - b. Pull battery box (3) out onto running board (2).



STARTING ENGINE USING JUMPER CABLES (Contd)**WARNING**

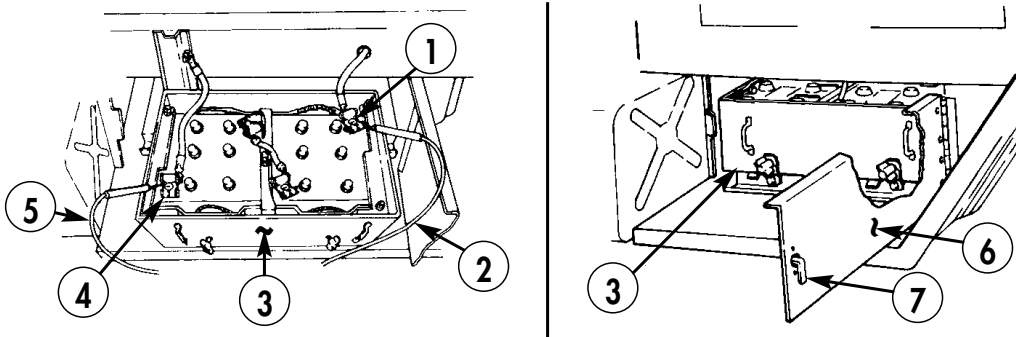
Connect one jumper cable between the positive (+) battery terminals of the two vehicles. Connect the second jumper cable from the starting vehicle negative (-) terminal to the disabled vehicle chassis (away from the batteries). Failure to do this may cause batteries to explode, resulting in injury or death to personnel.

4. Connect one jumper cable (2) to starting vehicle positive terminal (+) (1); connect other end to disabled vehicle positive terminal (+) (1).

NOTE

Connect jumper cable to unpainted hardware (e.g., bolt) on disabled vehicle chassis to ensure a good electrical connection.

5. Connect other jumper cable (5) to starting vehicle negative terminal (-) (4); connect other end to disabled vehicle chassis (away from batteries).



6. Start starting vehicle engine (WP 0007 00 or WP 0008 00).

NOTE

If engine does not start after four attempts, notify your supervisor.

7. Start disabled vehicle engine (WP 0007 00 or WP 0008 00).

WARNING

When disconnecting jumper cables, do not allow jumper cable clamps to touch battery terminals or battery cable clamps. Failure to comply may cause batteries to explode, resulting in injury or death to personnel.

8. Disconnect jumper cable from:
 - a. Disabled vehicle chassis
 - b. Starting vehicle negative terminal (-) (4)
 - c. Disabled vehicle positive terminal (+) (1)
 - d. Starting vehicle positive terminal (+) (1)
9. On both vehicles:
 - a. Push battery box (3) in.
 - b. Close battery compartment door (6) and turn latch (7).

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

SPECIAL PURPOSE KITS OPERATION

GENERAL

Certain operating and weather conditions require additional equipment to be installed on the vehicle. This additional equipment is provided in special purpose kits. Each kit provides all required equipment for a particular function. Maintenance personnel are directed to install special purpose kits, as required.

M44A2 series vehicle special purpose kits are listed in table 1.

Table 1. Special Purpose Kits.

DESCRIPTION	M35A2	M35A2C	M36A2	M49A2C	M50A3	M109A3	M1185A3
A-Frame (Vehicles With Winch (W/W) only)	X	X	X				
Airbrake (Trailer)	X	X	X	X	X	X	X
Alternator Conversion (25-60 A)	X	X	X	X	X	X	X
Alternator Conversion (60-100 A)	X	X	X	X	X	X	X
Arctic Winterization, Heater	X	X	X	X	X	X	X
Arctic Winterization, Heater (Multifuel)	X						
Arctic Winterization, Swingfire Heater (Gasoline)	X						
Automatic Alarm (Chemical Agent)	X	X	X	X	X	X	X
Bow Retainer and Cab Soft-top	X	X	X	X	X	X	X
Bow and Cover (Long)			X				
Bow and Cover (M35A2C)		X					
Bow and Cover (Short)	X						
Cargo Body Arctic	X						
Cargo Body Arctic Enclosure		X					
Cargo Body Tie Down			X				
Convoy Warning Light	X	X	X	X	X	X	X
Decontamination Mounting	X	X	X	X	X	X	X
Exhaust, R.H. Mirror, and Cab Insulation	X	X	X	X	X	X	X
Fording (Deep Water)	X	X	X	X	X	X	X
Front Bumper Step Modification	X	X	X	X	X	X	X

SPECIAL PURPOSE KITS OPERATION (Contd)

Table 1. Special Purpose Kits (Contd).

DESCRIPTION	M35A2	M35A2C	M36A2	M49A2C	M50A3	M109A3	M1185A3
Fuel Sampling Probe Adapter				X			
Fuel Tank Meter Drain				X			
Hardtop Enclosure	X	X	X	X	X	X	X
Heater, Van Body (Multifuel), Primary						X	X
Heater, Van Body (Multifuel), Secondary						X	X
Machine Gun Mount	X	X	X	X	X	X	X
M14/M16 Rifle Mount	X	X	X	X	X	X	X
Mini Lighting	X	X	X	X	X	X	X
Personnel Heater (Fuel Burning)	X	X	X	X	X	X	X
Slave Receptacle	X	X	X	X	X	X	X
Speed Control Cable Modification				X	X		
Stoplight Switch	X	X	X	X	X	X	X
Troop Seat (Center Mounted)	X	X					
Warning Light (Low Air Pressure)	X	X	X	X	X	X	X
Windshield Washer	X	X	X	X	X	X	X
Power Steering Assist	X	X	X	X	X	X	X

Some special purpose kits listed in table 1 require special operating procedures. To find a specific procedure, refer to the index below.

SPECIAL PURPOSE KIT OPERATION INDEX

Kit	Work Package Number
A-frame	WP 0032 00
Trailer Airbrake	WP 0033 00
Arctic Winterization	WP 0034 00
Bow and Cover	WP 0035 00
Cargo Body Arctic	WP 0036 00
Deep Water Fording	WP 0037 00
Personnel Heater (Hot Water)	WP 0038 00
Van Body Heater (Primary and Secondary)	WP 0039 00
Swingfire Heater	WP 0040 00

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

A-FRAME KIT OPERATION

GENERAL

The A-frame kit can be installed on M35A2, M35A2C, and M36A2 cargo vehicles equipped with a front winch. The A-frame provides a means of lifting, moving, loading, and unloading materials and equipment. The A-frame load capacity is 3,000 lb (1,361 kg).

SAFETY PRECAUTIONS

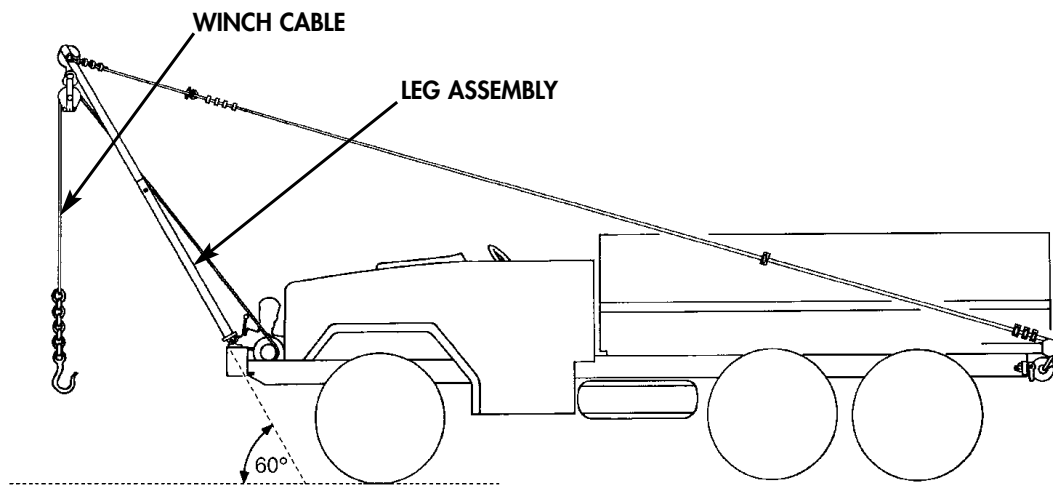
When using an A-frame assembly, the operator must observe the following operating precautions for personnel and equipment safety.

WARNING

Use care when operating the front winch with A-frame kit. Observe the following mechanical safety precautions:

- Do not exceed lifting capacity, 3,000 lb (1,361 kg).
- Leg assembly angle must not be less than 60°.
- Do not allow load to swing.
- Be aware of the A-frame height, avoid collisions with overhead objects, especially high-voltage lines (see high-voltage electrical safety precautions below).
- Do not use winch cable to tie load.

Failure to follow these mechanical safety precautions can result in injury or death to personnel and equipment damage.



A-FRAME KIT OPERATION (Contd)

SAFETY PRECAUTIONS (Contd)

WARNING

Do not operate vehicle near high-voltage lines. If the A-frame or any part of vehicle contacts a high-voltage line, attempt to break contact with line by moving vehicle away from line. If contact cannot be broken, stay in vehicle. Notify bystanders to stay clear of the vehicle. Call for help; request that the high-voltage line be shut down. Failure to follow these high-voltage safety precautions can result in death to personnel.

CAUTION

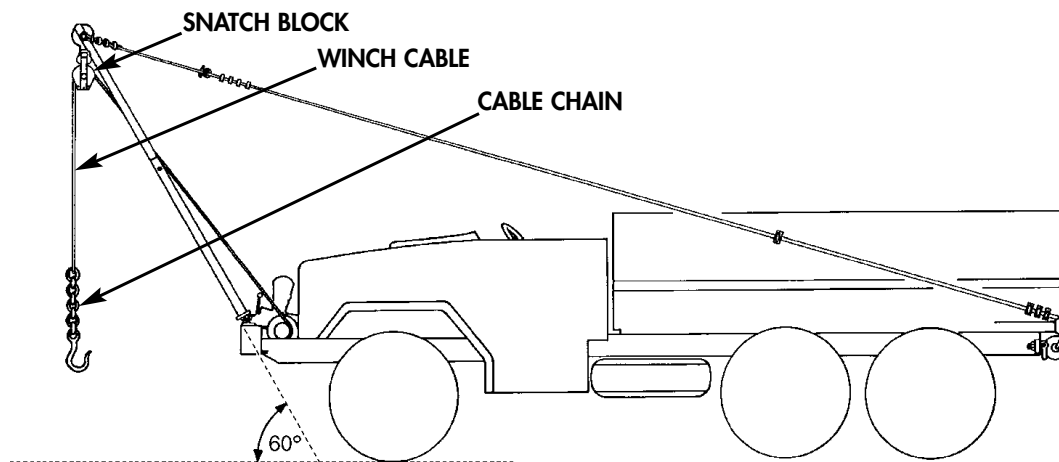
Use care when operating the front winch with A-frame kit. Observe the following safety precautions:

- Do not allow cable chain to contact snatch block.
- Prevent winch cable from kinking or twisting.

Failure to follow these safety precautions can result in equipment damage.

NOTE

The A-frame kit is installed and rigged by maintenance personnel.



PREPARATION FOR USE

1. Maintenance personnel install A-frame kit.
2. Perform before operation Preventive Maintenance Checks and Services (PMCS) (WP 0045 00).
3. Position vehicle for operation.
4. Stop vehicle, apply parking brake, and chock wheels (WP 0010 00).

OPERATING A-FRAME

Operate front winch to raise, lower, or hold load (WP 0016 00).

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

TRAILER AIRBRAKE KIT OPERATION

WARNING

Ensure 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.

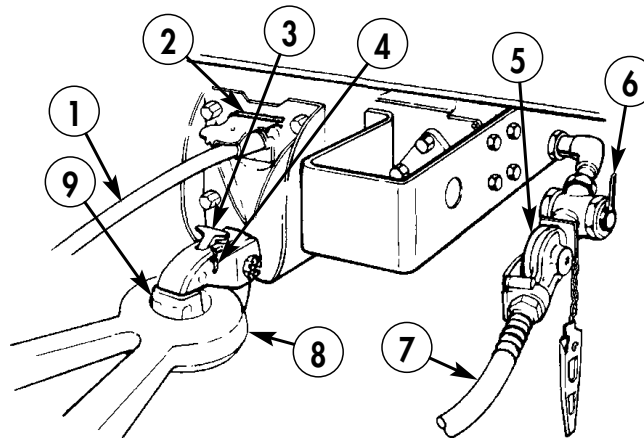
GENERAL

The trailer airbrake kit is installed on vehicles hauling trailers or artillery equipped with airbrakes. It is used when heavy payloads are hauled and separate trailer braking is desired.

COUPLING TRAILER TO VEHICLE

NOTE

- 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 trailer or artillery load yoke (8) into vehicle pintle hook (9), lower lever (3), and install cotter pin (4).
2. Connect load air lines (7) to towing vehicle air couplings (5).

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.

3. Pull up handles (6) to charge trailer brake system.
4. Connect trailer brake light cable (1) to electric receptacle (2).

TRAILER AIRBRAKE KIT OPERATION (Contd)

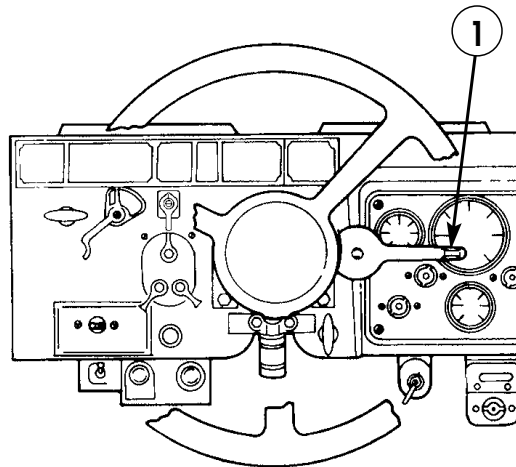
AIRBRAKE KIT OPERATION

1. Start engine (WP 0007 00 or WP 0008 00) and operate vehicle as necessary.

NOTE

Airbrake hand control should be engaged slowly to provide steady, even braking.

2. Pull down airbrake hand control (1) to apply brakes of towed load.



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

ARCTIC WINTERIZATION KIT OPERATION

GENERAL

The arctic winterization kit is installed to permit continued vehicle operation in temperatures below -25 °F (-32 °C). The kit includes an alcohol evaporator, hardtop closure, fuel burning engine coolant and personnel heater, quilted engine compartment cover, aperture flap, slave receptacle, and thermal barrier.

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 and the cargo body arctic kit described in Work Package (WP) 0036 00. All heaters draw fuel from the vehicle fuel tank.
2. **Swingfire Heater Arctic Winterization Kit**—Includes the arctic winterization kit listed above and the cargo body arctic kit (WP 0036 00). The fuel burning personnel heater draws fuel from the vehicle fuel tank. The engine coolant heater and cargo body heater are powered by the swingfire heater (WP 0040 00), which has its own fuel tank and uses gasoline only.

ALCOHOL EVAPORATOR

The alcohol evaporator (WP 0004 00) uses methyl alcohol (methanol) (WP 0056 00, item 13/14).

ALCOHOL EVAPORATOR

Refer to WP 0004 00, ARCTIC WINTERIZATION KIT.

FUEL BURNING ENGINE COOLANT AND PERSONNEL HEATER OPERATION

NOTE

This procedure describes multifuel heater operation only. For a description of swingfire heater operation, refer to WP 0040 00.

General

The fuel burning engine coolant heater preheats engine coolant, engine, and batteries in preparation for starting in extreme cold or to maintain engine in standby readiness. The fuel burning personnel heater provides heat to warm the vehicle cab and defrost the windshield while the engine is running. Because operating procedures for these heaters are similar and they are normally operated in sequence (engine coolant heater first, then personnel heater), they are explained together.

ARCTIC WINTERIZATION KIT OPERATION (Contd)

FUEL BURNING ENGINE COOLANT AND PERSONNEL HEATER OPERATION (Contd)

CAUTION

Do not operate the engine coolant heater and fuel burning personnel heater at the same time. Failure to comply may cause electric fuel pump failure.

Preparation for Engine Coolant and Personnel Heater Operation

NOTE

Refer to WP 0004 00 for the location and function of heater fuel and coolant shutoff valves.

1. Turn engine coolant heater or personnel heater fuel shutoff valve counterclockwise to open, as necessary.
2. Turn inlet/outlet coolant shutoff valves counterclockwise to open, as necessary.
3. Turn accessory power switch (1) to ON position.

NOTE

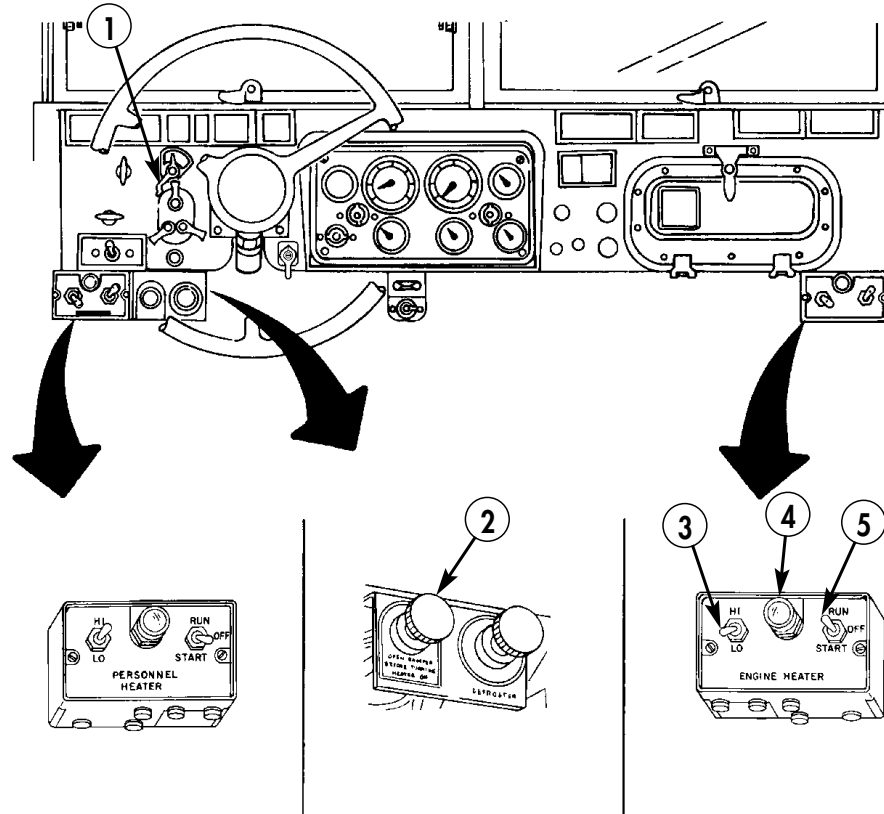
- HI/LO and START/OFF/RUN switches and red indicator light are the same for the engine coolant heater and personnel heater control.
- The START/OFF/RUN switch is a momentary switch that returns to the OFF position, if not held in the START (down) position.
- If the red indicator light does not illuminate within 2 minutes, set the START/OFF/RUN switch to the OFF position. Wait 3 minutes before starting the heater again. If the red indicator light does not illuminate after two attempts, notify your supervisor.
- If the START/OFF/RUN switch is set to the RUN position before red indicator light illuminates, the heater will not operate.

Engine Coolant Heater Operation

1. Press engine coolant heater control red indicator light (4) to check circuit operation. If red indicator light (4) does not illuminate, contact your supervisor.
2. Set engine coolant heater control HI/LO switch (3) to HI or LO, as necessary.
3. Set START/OFF/RUN switch (5) to START position and hold until red indicator light (4) illuminates.
4. Set START/OFF/RUN switch (5) to RUN position, with no hesitation at OFF position. Run engine coolant heater, as necessary.

ARCTIC WINTERIZATION KIT OPERATION (Contd)

FUEL BURNING ENGINE COOLANT AND PERSONNEL HEATER OPERATION (Contd)



Engine Coolant Heater Operation (Contd)

CAUTION

Do not operate engine coolant heater with engine running. Failure to comply may cause engine to overheat.

NOTE

- The red indicator light stays on until the fuel in the heater burns completely and the heater cools.
- Do not turn the accessory power switch to the OFF position if continuing to run the engine.

5. Start engine (WP 0008 00), if necessary. Set START/OFF/RUN switch (5) to OFF position.
6. Turn accessory power switch (1) to OFF position, if not continuing to run engine.
7. Pull damper control knob (2) all the way out.

ARCTIC WINTERIZATION KIT OPERATION (Contd)

FUEL BURNING ENGINE COOLANT AND PERSONNEL HEATER OPERATION (Contd)

Personnel Heater Operation

NOTE

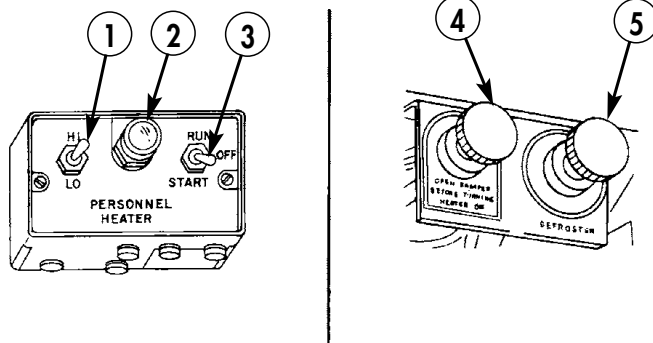
Engine must be running to operate personnel heater.

1. Set personnel heater control START/OFF/RUN switch (3) to START position and hold until red indicator light (2) illuminates.
2. Set START/OFF/RUN switch (3) to RUN position, with no hesitation at OFF position.

CAUTION

Heat cab before defrosting windshield. Failure to do this may result in windshield damage due to the rapid temperature change.

3. Push defroster control knob (5) all the way in to heat cab.
4. Set personnel heater control HI/LO switch (1) to HI or LO, as necessary.
5. Pull defroster control knob (5) out to defrost windshield, after cab is warm.
6. Adjust air control knob (4) and defroster control knob (5), as necessary.
7. After heater operation, set personnel heater control START/OFF/RUN switch (3) to OFF position.



8. Turn engine coolant heater or personnel heater shutoff valve clockwise to close, as necessary (WP 0004 00).

ARCTIC WINTERIZATION KIT OPERATION (Contd)

QUILTED ENGINE COMPARTMENT COVER AND APERTURE FLAP OPERATION

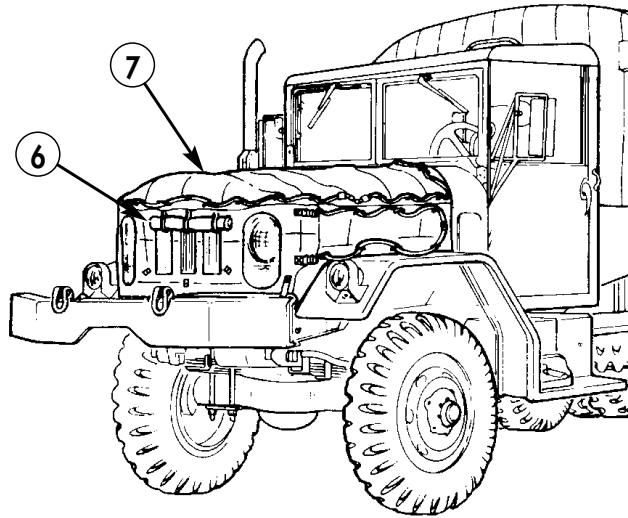
The quilted engine compartment cover and aperture flap are used to keep heat in the engine compartment so the engine can reach and maintain a normal operating temperature (180–200 °F (82–93 °C)). The aperture flap also keeps snow and ice off the radiator coils.

1. Close (roll down) aperture flap (6).
2. Start engine (WP 0008 00).
3. Open (roll up) and secure aperture flap (6) when engine temperature exceeds 180 °F (82 °C).

CAUTION

If engine temperature exceeds 200 °F (93 °C), remove quilted engine compartment cover. Failure to remove cover may cause engine to overheat.

4. Remove quilted engine compartment cover (7) if engine temperature exceeds 200 °F (93 °C).



SLAVE RECEPTACLE OPERATION

Refer to WP 0011 00.

THERMAL BARRIER

Adds insulation to the vehicle cab so warm air is retained in the cab in arctic conditions.

END OF WORK PACKAGE

0034 00-5/6 blank

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

BOW AND COVER KIT

NOTE

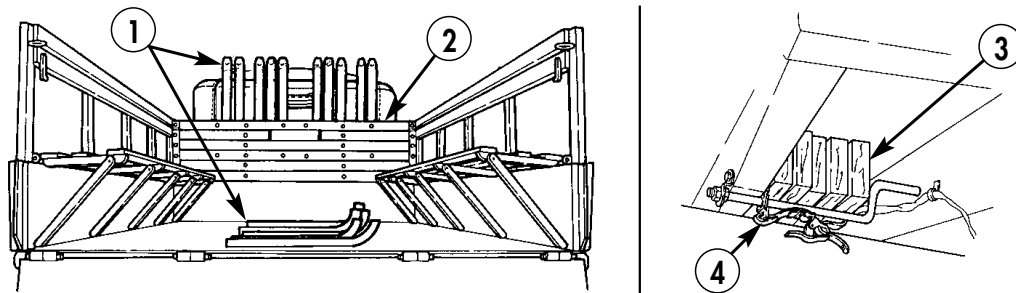
- This procedure requires two personnel.
- The polyvinyl cover replaces the canvas tarp. In addition to describing the installation and removal of the polyvinyl cover kit, this Work Package (WP) includes the canvas tarp removal procedure.

BOW INSTALLATION

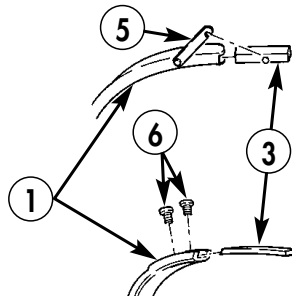
NOTE

The corner pieces may already be installed on the stakes. If not, install corners on stakes before continuing with the bow installation procedure.

1. Remove stake and corner assemblies (1) from storage area.
 - a. M35A2C (with dropsides)—storage sockets in front of rack (2).
 - b. M35A2, M36A2 (without dropsides)—storage area on cargo bed.
2. Remove bows (3) from storage area under cargo body. Unbuckle two straps (4) (one on each side of vehicle). Remove bows (3) from storage area.



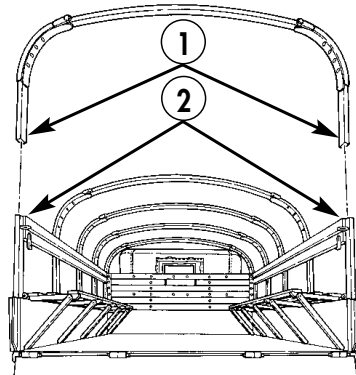
3. Attach corner assemblies (1) (with stakes) to each end of bows (3).
 - a. M35A2C (with dropsides)—secure with latches (5).
 - b. M35A2, M36A2 (without dropsides)—secure with two screws (6).



BOW AND COVER KIT (Contd)

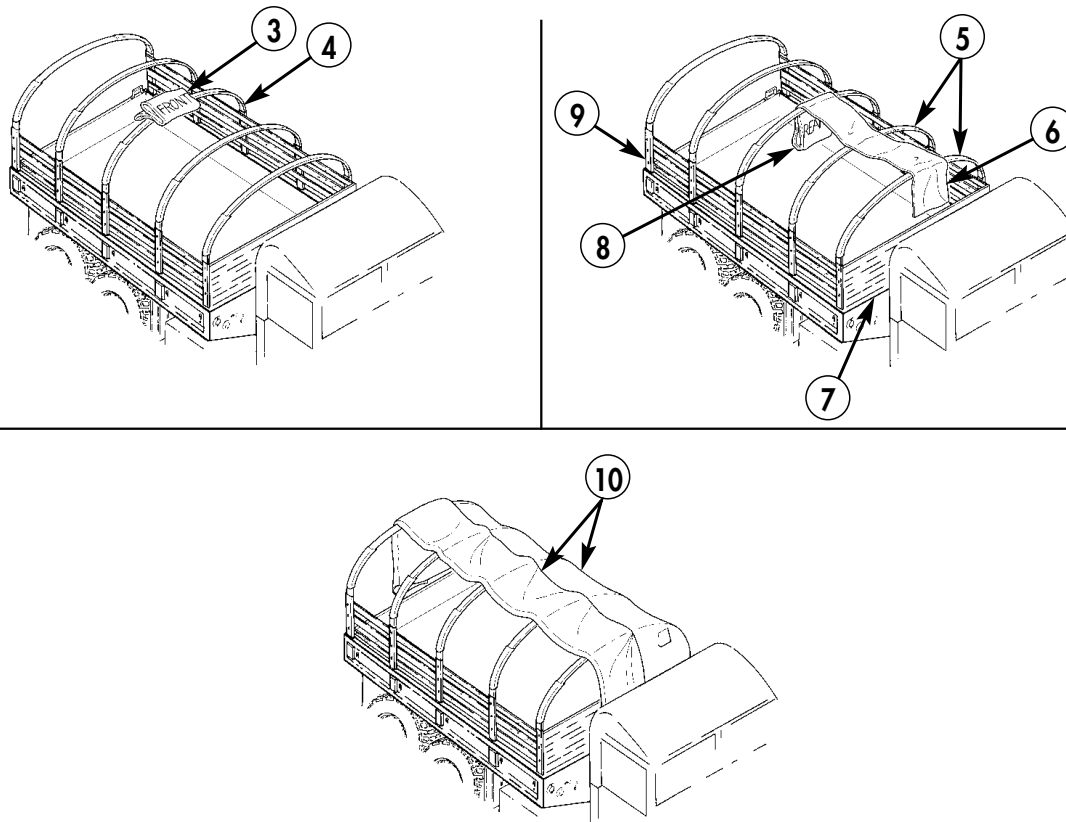
BOW INSTALLATION (Contd)

4. Insert bow assembly stakes (1) into side rack sockets (2).



COVER INSTALLATION

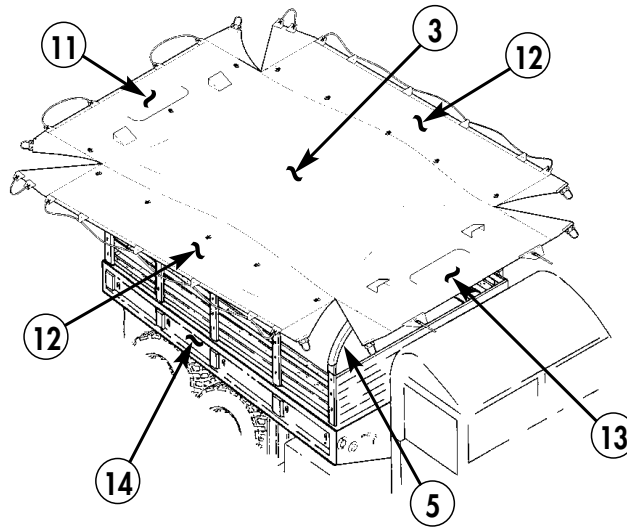
1. Place folded cover (3) on center bow assembly (4).
2. Unfold cover.
 - a. Unfold cover front (6) over bow assemblies (5) toward cargo body front (7).
 - b. Unfold cover rear (8) over bow assemblies (5) toward cargo body rear (9).
 - c. Unfold side panels (10).



BOW AND COVER KIT (Contd)

COVER INSTALLATION (Contd)

3. Allow front (13), rear (11), and side (12) cover (3) panels to drape over bow assemblies (5) and cargo body sides (14); ensure cover (3) is centered.

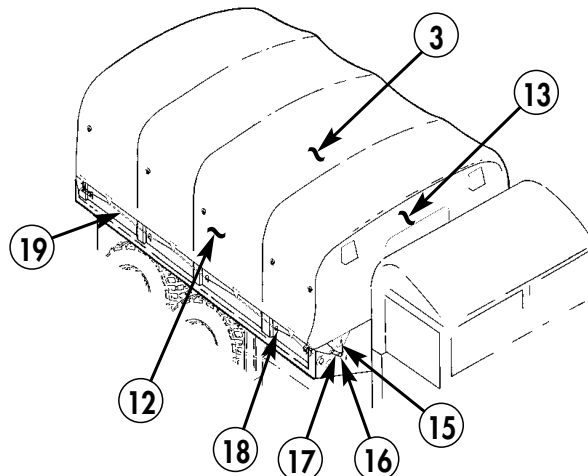


4. Attach side panel straps to cargo body lashing hooks:
 - a. Completely attach one side panel (12) with straps (19) to side lashing hooks (18).
 - b. On other side of cargo body, pull cover (3) tight and attach side panel (12) with straps (19) to side lashing hooks (18).

NOTE

For maximum protection against weather, ensure that the cover panels wrap around the corners and are secured to the cargo body lashing hooks.

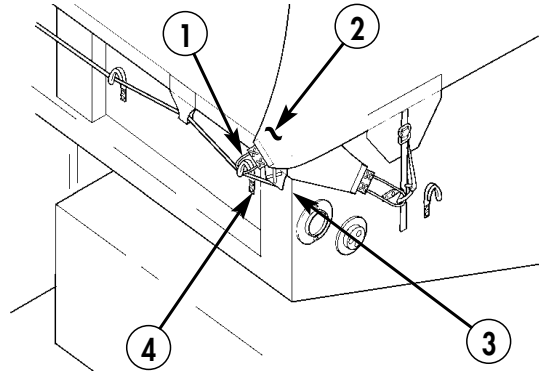
- c. Attach side panel (12) front straps (17) to front lashing hooks (16).
5. Attach front panel (13) straps (15) to front lashing hooks (16).



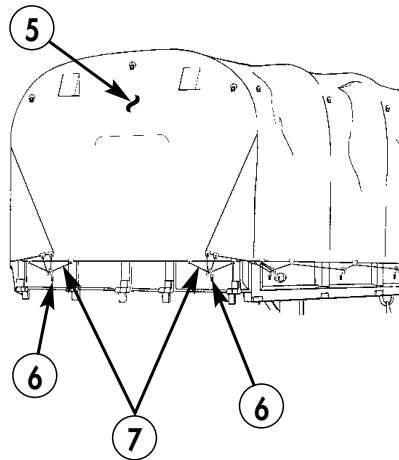
BOW AND COVER KIT (Contd)

COVER INSTALLATION (Contd)

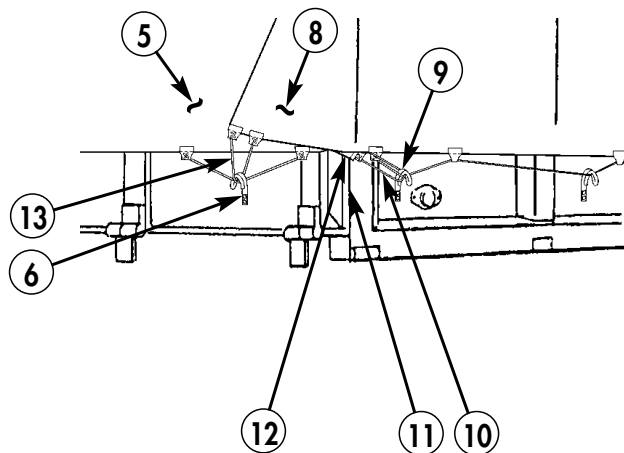
6. Wrap front panel flaps (2) around cargo body front corners (3) and secure straps (1) to side front lashing hooks (4).



7. Attach rear panel (5) straps (7) to tailgate lashing hooks (6).



8. Wrap rear panel flaps (12) around cargo body rear corners (11) and secure straps (10) to side rear lashing hooks (9).
9. Wrap side panel rear flaps (8) around cargo body rear corners (11) and secure straps (13) to tailgate lashing hooks (6).



BOW AND COVER KIT (Contd)

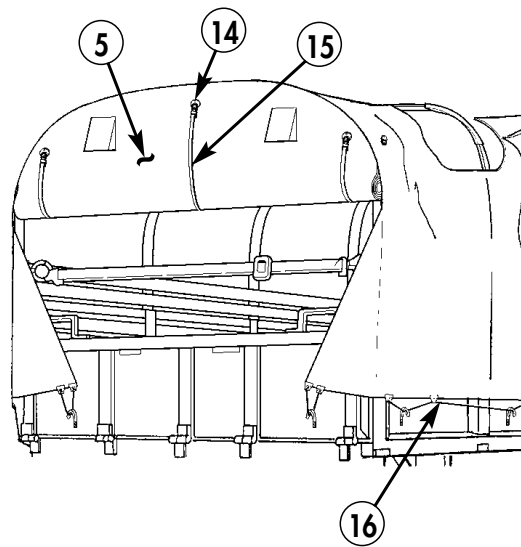
RAISING COVER FOR VENTILATION

1. Raise rear panel.
 - a. Detach side panel rear flap (8) straps (13) from tailgate lashing hooks (6).
 - b. Detach rear panel straps (10) from side rear lashing hooks (9) and tailgate lashing hooks (6).

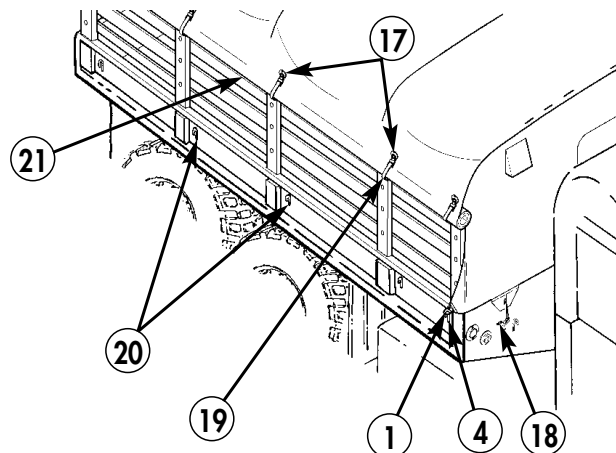
NOTE

Roll panels under so that rain and snow cannot accumulate in the area between the roll and the cover.

- c. Roll rear panel (5) up and secure with straps (15) and buckles (14).



2. Raise side panels.
 - a. Detach front panel flap straps (1) from side front lashing hooks (4).
 - b. Detach all side panel straps (16) from front (18) and side (20) lashing hooks.
 - c. Roll side panels (21) up and secure with straps (19) and buckles (17).
 - d. Reattach front panel flap straps (1) to side front lashing hooks (4).



BOW AND COVER KIT (Contd)**COVER REMOVAL AND PREPARATION FOR STOWAGE**

1. Remove cover (1) from vehicle; reverse COVER INSTALLATION steps 4–9 in this WP.

2. Lay cover (1) flat on ground with top (buckles (2)) up.

3. Fold front panel (4) onto cover (1) top.

4. Fold rear panel (3) onto cover (1) top.

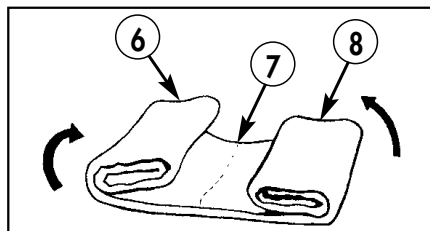
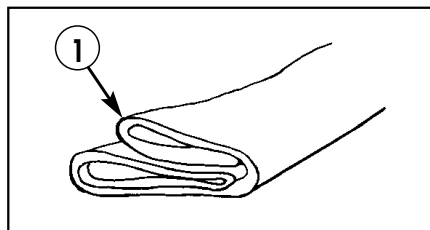
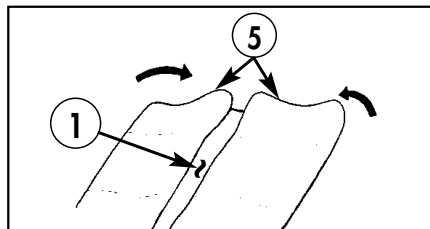
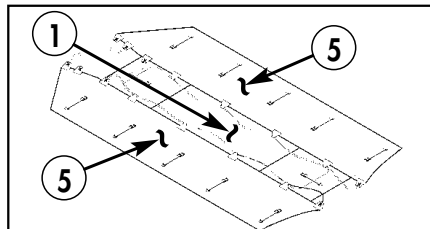
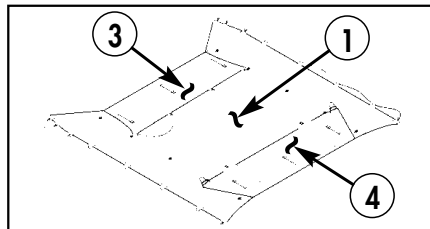
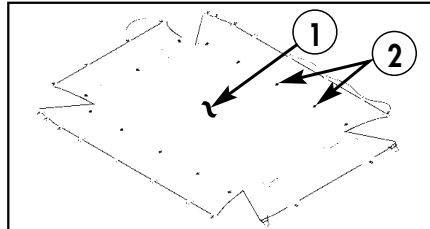
5. Fold side panels (5) toward cover (1) middle.

6. Repeat folding sides (5) toward cover (1) middle.

7. Fold cover (1) in half, length wise.

8. Fold cover front (8) and rear (6) toward middle (7).

9. Repeat folding cover front (8) and rear (6) toward middle (7).



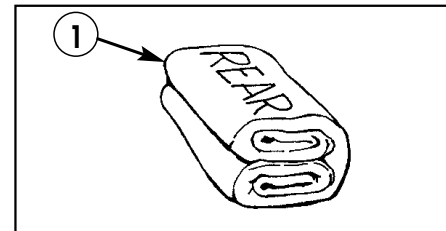
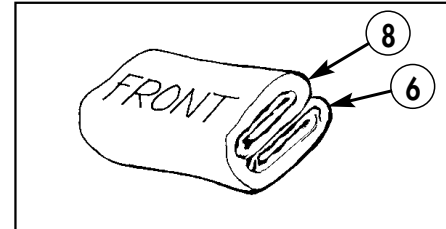
BOW AND COVER KIT (Contd)**COVER REMOVAL AND PREPARATION FOR STOWAGE (Contd)**

10. Fold cover front (8) over rear (6).

NOTE

When writing on cover, ensure letters are large enough to be easily read.

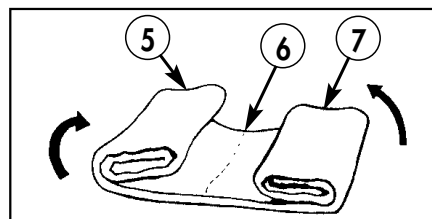
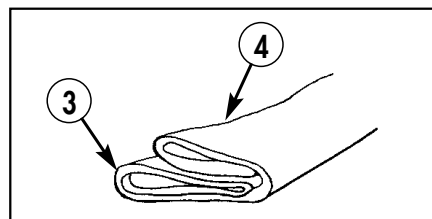
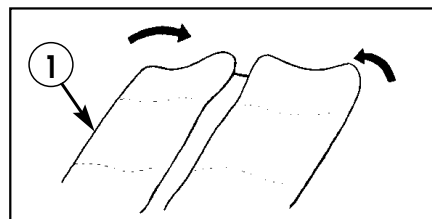
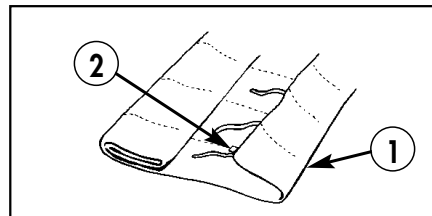
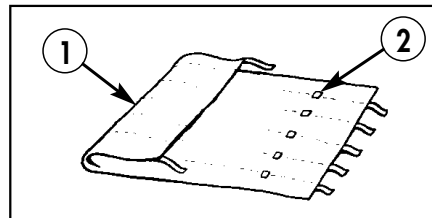
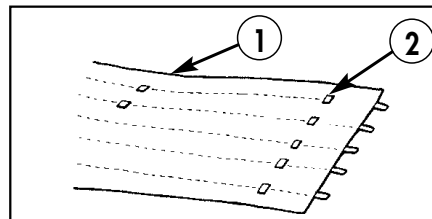
11. Write "FRONT" on cover (1) with permanent marker.
12. Flip folded cover (1) over.
13. Write "REAR" on cover (1) with permanent marker.
14. Place cover (1) on pallet for storage.



BOW AND COVER KIT (Contd)**TARP REMOVAL AND PREPARATION FOR STOWAGE****CAUTION**

Do not fold or stow tarp when wet. Failure to comply may result in damage to tarp.

1. Remove tarp (1) from vehicle.
2. Lay tarp (1) flat on ground, with buckles (2) up.
3. Fold one side (eyelets) of tarp (1) to first row of buckles (2).
4. Fold tarp (1) over again, and then one more time.
5. Fold other side of tarp (1) once, to row of buckles (2).
6. Fold tarp (1) again, until two folds meet.
7. Fold side of tarp with three folds (4) over side with four folds (3).
8. Fold tarp front (7) halfway to first seam, and then over again, until folded edge is at tarp middle (6). Fold tarp rear (5) halfway to first seam, and then over again, until both folded ends meet.



BOW AND COVER KIT (Contd)

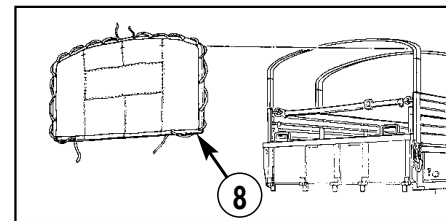
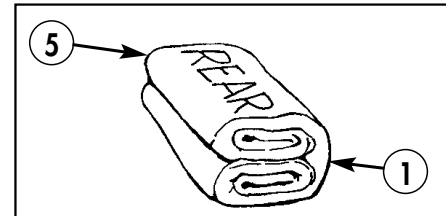
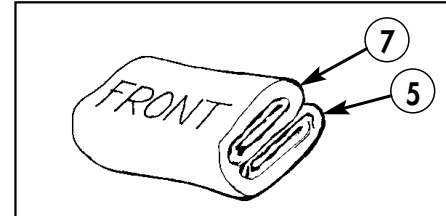
TARP REMOVAL AND PREPARATION FOR STOWAGE (Contd)

9. Fold front section (7) over rear section (5).

NOTE

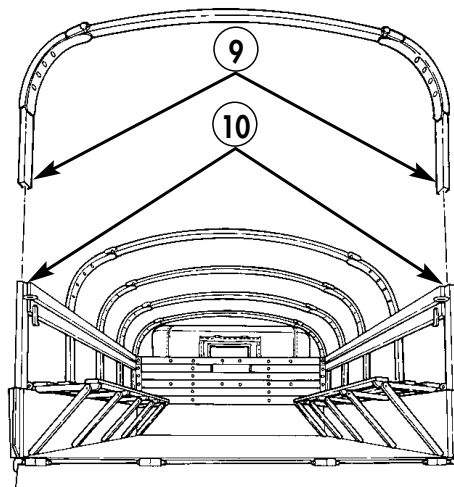
When writing on cover, ensure letters are large enough to be easily read.

10. Write "FRONT" on tarp front section (7) with chalk.
11. Flip folded tarp (1) over.
12. Write "REAR" on rear section (5) with chalk.
13. Remove and fold front and rear end curtains (8).
14. Place tarp (1) and end curtains (8) on pallet for storage.



BOW ASSEMBLY REMOVAL AND STOWAGE

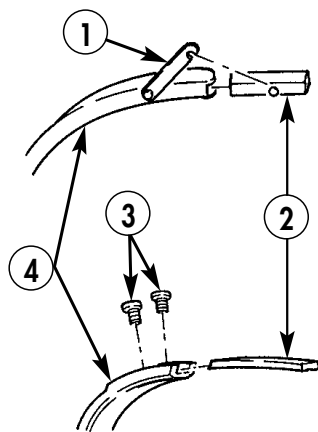
1. Remove bow assembly stakes (9) from side rack sockets (10).



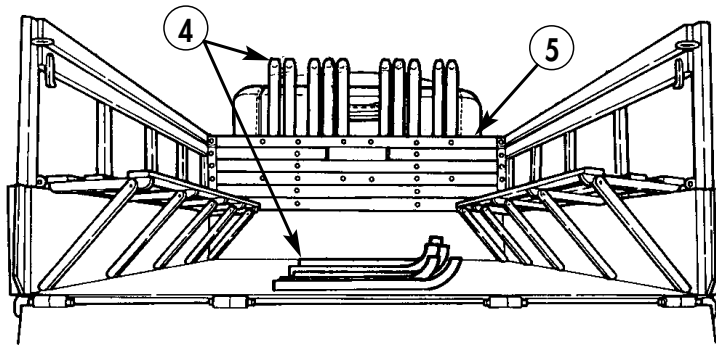
BOW AND COVER KIT (Contd)

BOW ASSEMBLY REMOVAL AND STOWAGE (Contd)

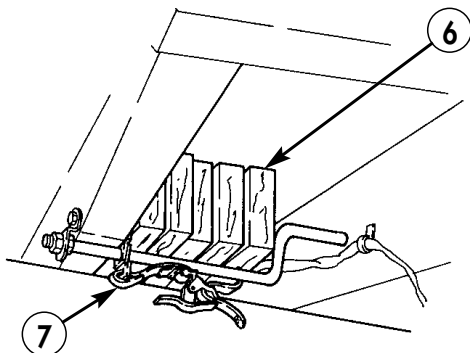
2. Detach stake and corner assemblies (4) from bows (2)
 - a. M35A2C (with dropsides)—raise latches (1).
 - b. M35A2, M36A2 (without dropsides)—remove two screws (3).



3. Stow stake and corner assemblies (4).
 - a. M35A2C (with dropsides)—storage sockets in front of rack (5).
 - b. M35A2, M36A2 (without dropsides)—storage area on cargo bed.



4. Stow bows (6) in storage area under cargo body. Secure with straps (7) (one on each side of vehicle)



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

CARGO BODY ARCTIC KIT OPERATION

GENERAL

The cargo body arctic kit is installed to permit cargo and troop transport in temperatures below -25 °F (-32 °C). The kit includes a body heater, insulated body enclosure, lighting system, and a speaking tube.

BODY HEATER OPERATION

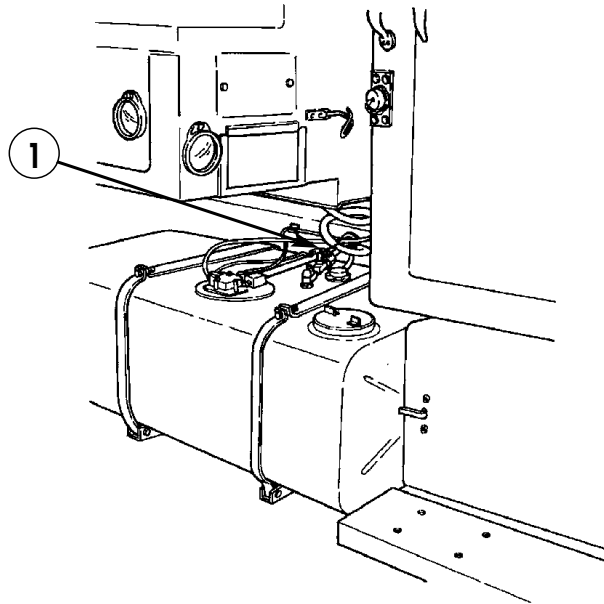
General

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 1 applies to vehicles equipped with multifuel heater only.

1. Open fuel tank shutoff valve (1) by turning counterclockwise.



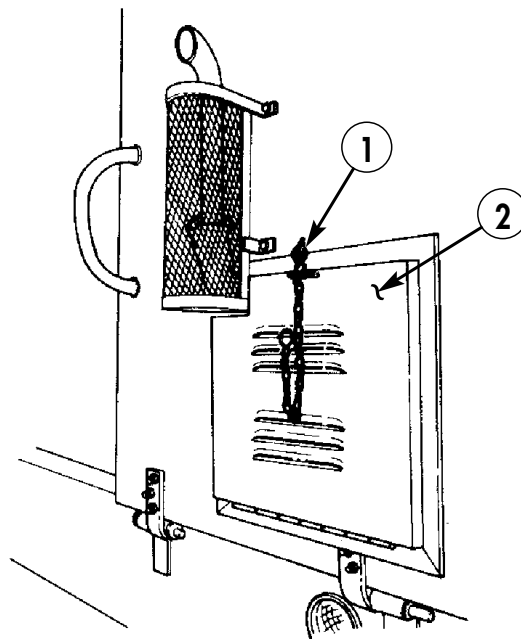
CARGO BODY ARCTIC KIT OPERATION (Contd)

BODY HEATER OPERATION (Contd)

NOTE

Step 2 applies to vehicles equipped with swingfire heater only.
Swingfire heater should be in operation before performing step 2.
Refer to WP 0040 00.

- Remove lockpin (1) and open door (2). Install swingfire heater and adjust fuel regulator knob as necessary, refer to WP 0040 00. Close door (2) and install lockpin (1).



- Open diverter by turning diverter control lever (3) clockwise.

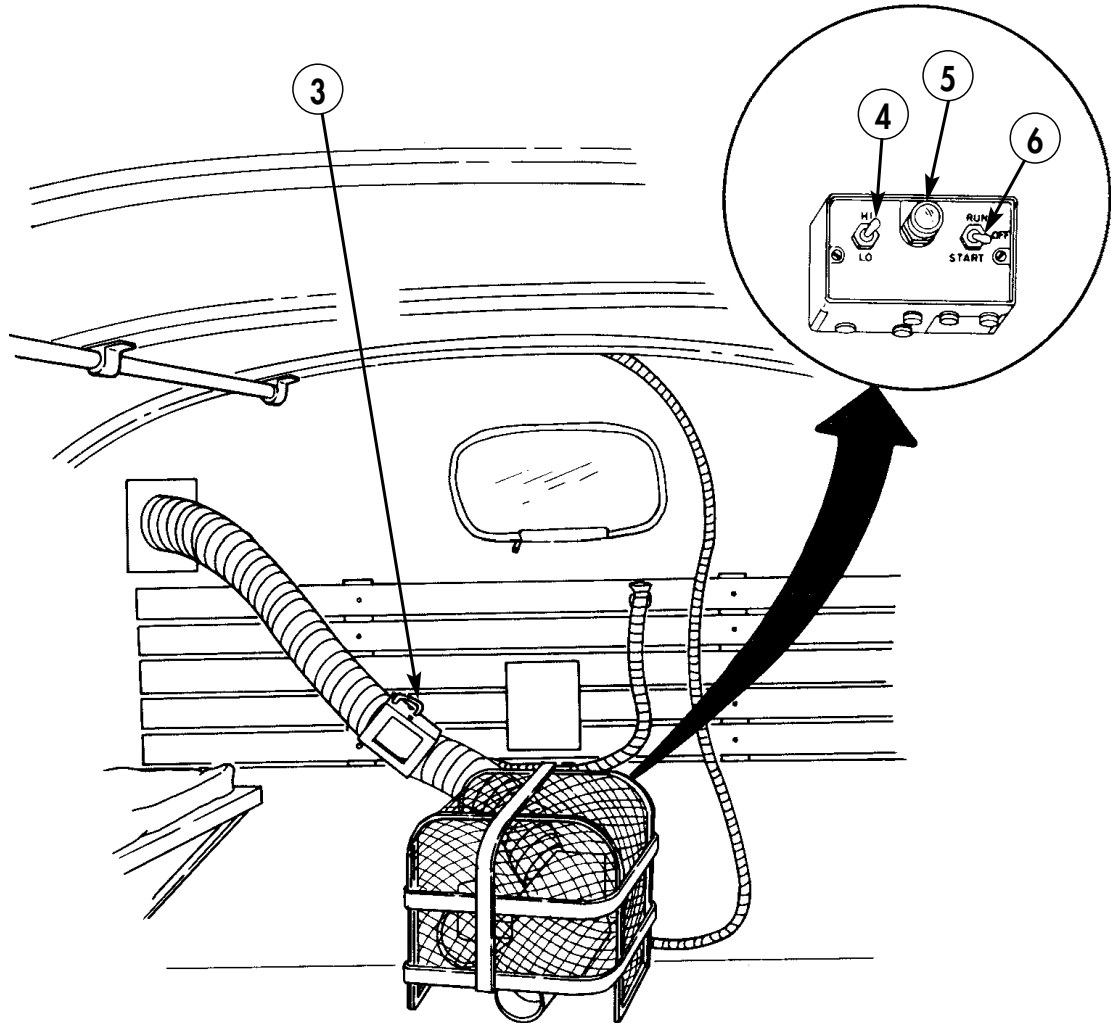
NOTE

Steps 4–11 apply to vehicles equipped with multifuel heater only.

- Press red indicator light (5) to check operation of circuit. If red indicator light (5) does not illuminate, notify your supervisor.
- Set HI/LO switch (4) on control box to HI or LO position, depending upon heating needs.

NOTE

- The START/OFF/RUN switch is a momentary switch that returns to the OFF position, if not held in the START (down) position.
 - If the red indicator light does not illuminate within two minutes, set the START/OFF/RUN switch to the OFF position. Wait three minutes before starting the heater again. If the red indicator light does not illuminate after two attempts, notify your supervisor.
- Set START/OFF/RUN switch (6) on control box to START position. Hold in that position until red indicator light (5) illuminates.

CARGO BODY ARCTIC KIT OPERATION (Contd)**BODY HEATER OPERATION (Contd)****NOTE**

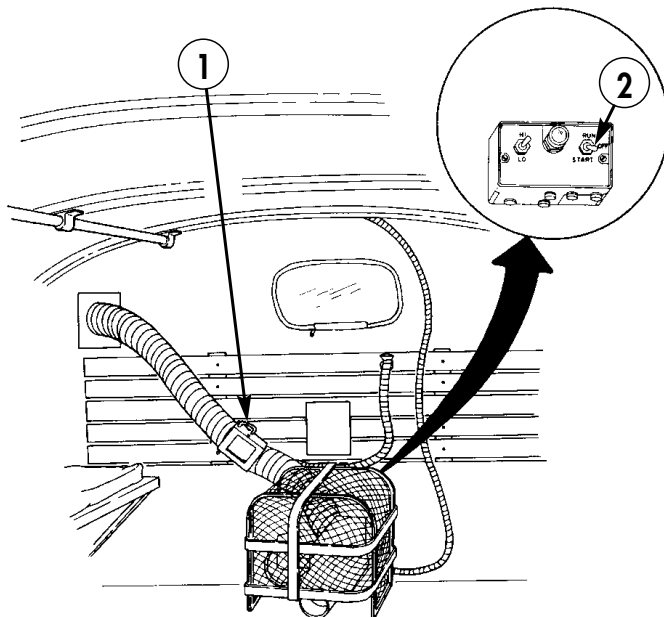
If the START/OFF/RUN switch is turned to the RUN position before red indicator light illuminates, the heater will not operate.

7. Set START/OFF/RUN switch (6) to RUN position, with no hesitation at OFF position.

CARGO BODY ARCTIC KIT OPERATION (Contd)

BODY HEATER OPERATION (Contd)

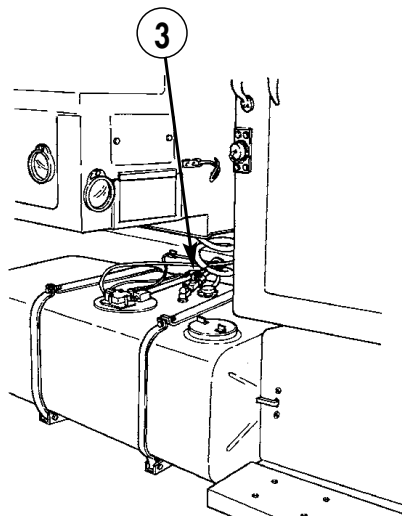
8. Adjust hot air flow with diverter control lever (1).



NOTE

Blower motor will continue to run for one to three minutes after START/OFF/RUN switch is turned to the OFF position. Red indicator light will remain ON until fuel in heater burns away and heater cools.

9. After heater operation, turn START/OFF/RUN switch (2) to OFF position.
10. Close fuel tank shutoff valve (3) by turning clockwise.
11. Close diverter by turning diverter control lever (1) counterclockwise.



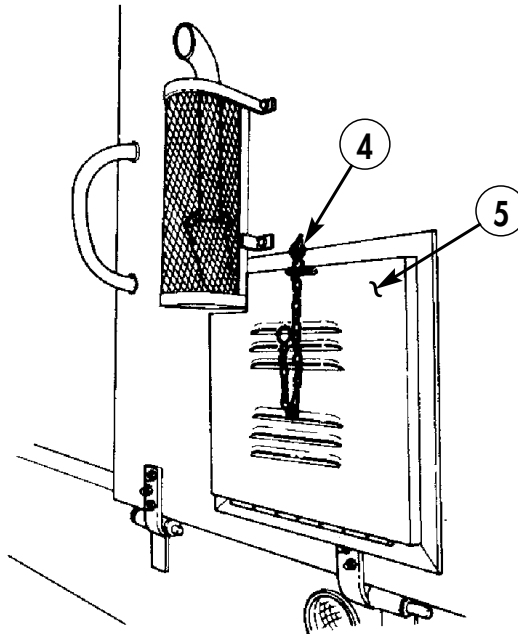
CARGO BODY ARCTIC KIT OPERATION (Contd)

BODY HEATER OPERATION (Contd)

NOTE

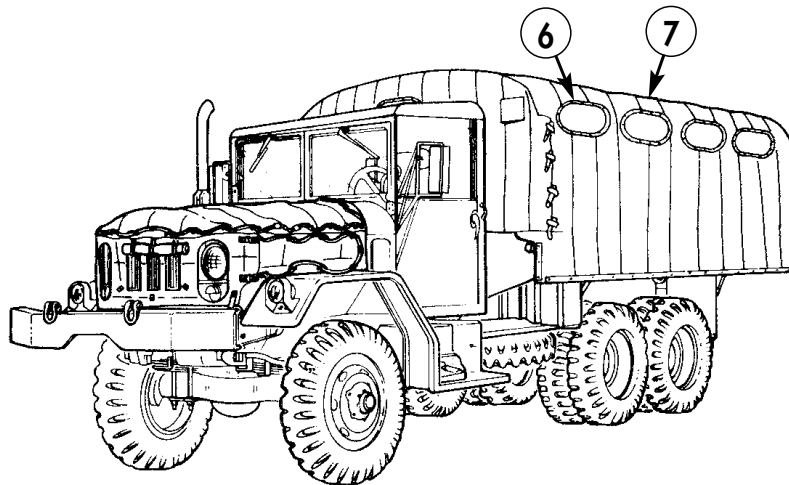
Step 12 applies to vehicles equipped with a swingfire heater only.

12. After heater operation, remove lockpin (4) and open door (5). Remove and shut down swingfire heater as necessary, refer to WP 0040 00. Close door (5) and install lockpin (4).



INSULATED BODY ENCLOSURE

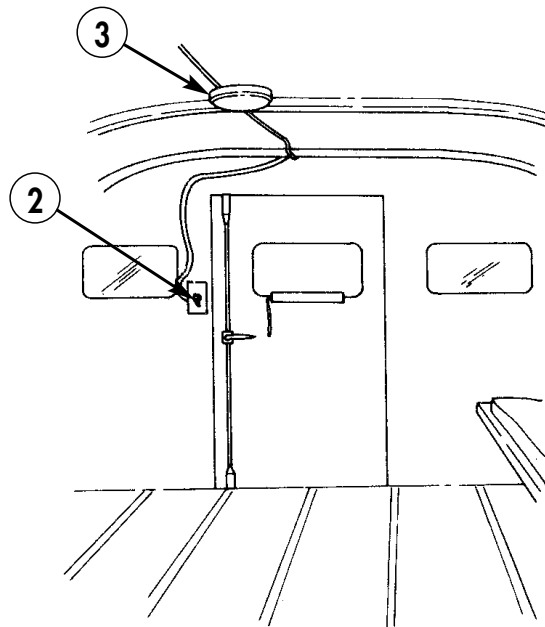
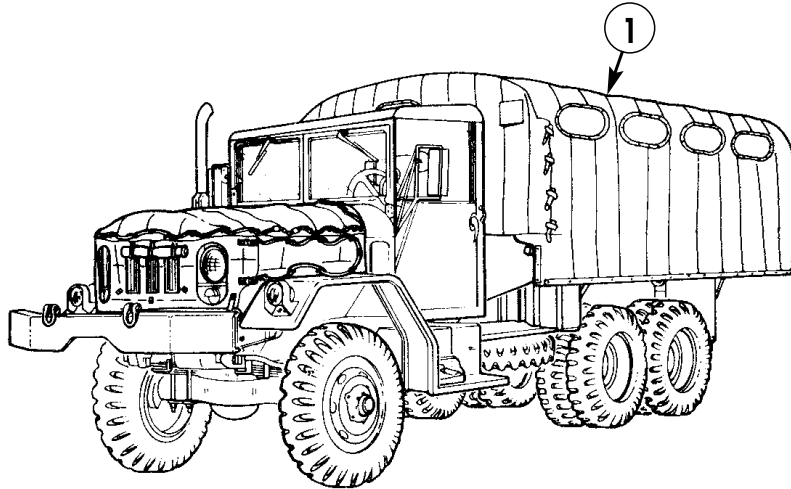
The insulated body enclosure (7) protects troops and cargo and retains warm air in arctic conditions. A step assembly is installed for easy access to rear door, Window covers (6) on the inside of the insulated body enclosure (7) have zippers for easy closing and opening.



CARGO BODY ARCTIC KIT OPERATION (Contd)

Lighting System Operation

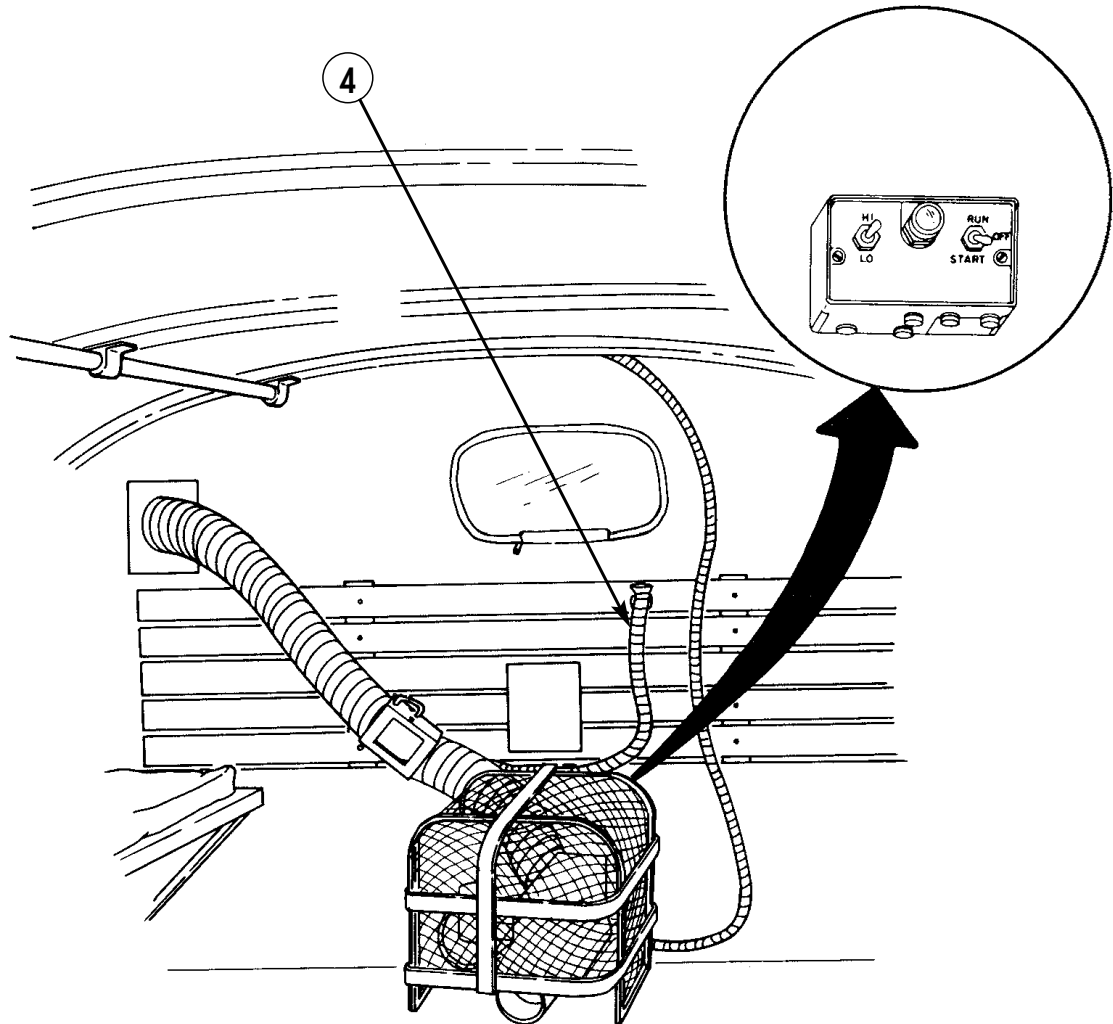
Two dome lights (3) provide illumination for interior of insulated body enclosure (1).
Dome lights (3) are operated by switch (2) on inside rear of insulated body enclosure (1).



CARGO BODY ARCTIC KIT OPERATION (Contd)

Speaking Tube

Speaking tube (4) at inside front of insulated body enclosure (1) permits communication between personnel in cab and personnel in cargo body.



END OF WORK PACKAGE

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OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

DEEP WATER FORDING KIT OPERATION

GENERAL

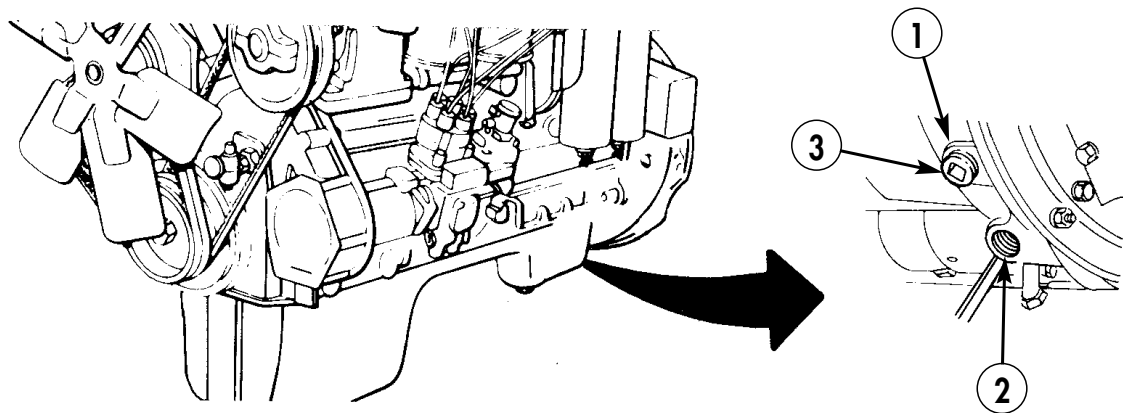
Salt water causes considerable damage to vehicle components. For this reason, avoid driving through salt water. Vehicle components that come in contact with salt water must be washed with fresh water as soon as possible. The vehicle will ford water up to 30 in. (76 cm) in depth without a deep water fording kit and 72 in. (183 cm) with kit installed.

WARNING

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.

OPERATOR PREPARATION FOR FORDING

1. Tighten battery filler caps and fuel tank filler cap. Make sure oil dipstick is installed securely. Refer to WP 0004 00.
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 (M50A3) for fording operation, refer to WP 0019 00.



DEEP WATER FORDING KIT OPERATION (Contd)

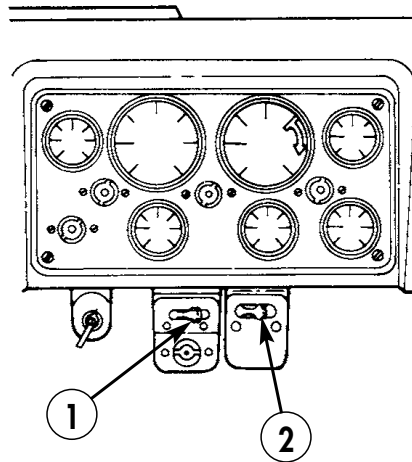
FORDING OPERATION

1. Start engine. Refer to WP 0007 00 or WP 0008 00.
2. Place vehicle in motion with transfer case shift lever in LOW position and transmission gearshift lever in 1 (FIRST) position (WP 0009 00). Engage front wheel drive (1) (WP 0004 00).

WARNING

Unless vehicle is equipped with deep water fording kit, never attempt to cross water deeper than 72 in. (183 cm). (Refer to TM-9-2320-361-24.) 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 (2) to the left immediately upon entering water.
4. Maintain constant vehicle speed while fording. Try to exit water in area with gentle slope.
5. Move fording control valve lever (2) to the right immediately upon leaving water.



AFTER FORDING OPERATION

WARNING

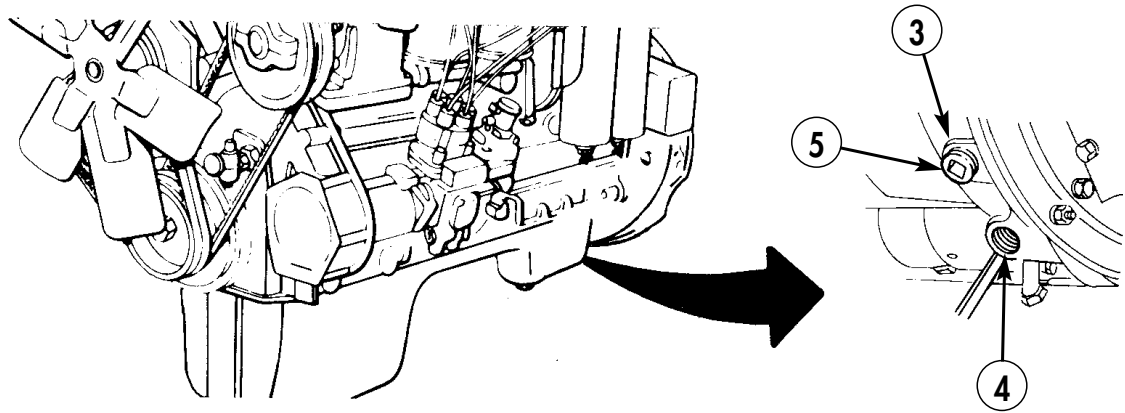
Do not rely on service brakes until they dry after fording operation. Continue to apply brakes until uneven braking ceases. Failure to do this may result in injury or death to personnel.

1. Stop vehicle (WP 0010 00) on firm, level surface and disengage front wheel drive (1) (WP 0004 00).

DEEP WATER FORDING KIT OPERATION (Contd)

AFTER FORDING OPERATION (Contd)

2. Remove flywheel housing drainplug (5) from flywheel drainport (3). Install flywheel housing drainplug (5) in storage boss (4).



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.

END OF WORK PACKAGE

0037 00-3/4 blank

OPERATOR INSTRUCTIONS

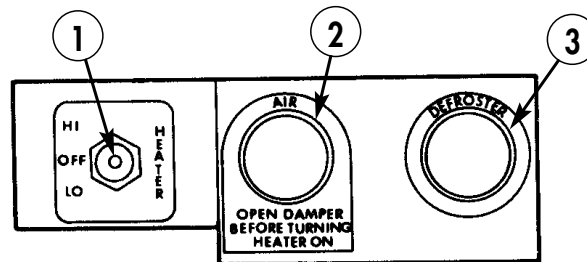
2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

PERSONNEL HEATER (HOT WATER) OPERATION

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 (WP 0032 00).

1. Start engine (WP 0007 00 or WP 0008 00). Allow engine to reach normal operating temperature, 180–200 °F (82–93 °C).
2. Set heater blower switch (1) to LO position.
3. Adjust damper control knob (2).
4. Adjust defroster control knob (3).



OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

VAN BODY HEATER KITS (PRIMARY AND SECONDARY) OPERATION

GENERAL

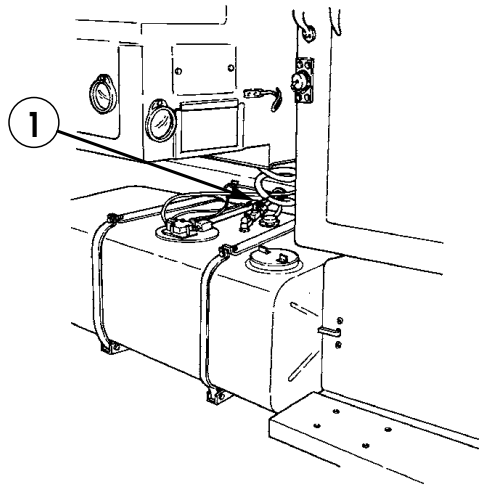
The van body primary heater kit is installed on M109A3 shop van and M185A3 repair van vehicles to warm van body in temperatures down to -25 °F (-32 °C). Colder temperatures require the addition of the van body secondary heater kit. Both heaters have flexible ducts that can be moved to heat specific equipment.

BODY HEATER OPERATION

NOTE

Van body primary and secondary heaters are operated the same way. This procedure describes van body primary heater operation.

1. Turn fuel tank shutoff valve (1) counterclockwise to open.



2. Supply 115VAC power to van if available, refer to Work Package (WP) 0020 00.

VAN BODY HEATER KITS (PRIMARY AND SECONDARY) OPERATION (Contd)

BODY HEATER OPERATION (Contd)

3. If 115VAC power is available, set converter selector switch (4) to 115V (down) position.
4. If 115VAC power is not available, set power switch (6) to OFF (down) position.
5. Set converter selector switch (4) to 24V (up) position.
6. Press red indicator light (1) to check circuit operation. If red indicator light (1) does not illuminate, notify your supervisor.
7. Set primary heater HI/LO switch (2) to HI (up) or LOW (down) position, depending on heating requirements.

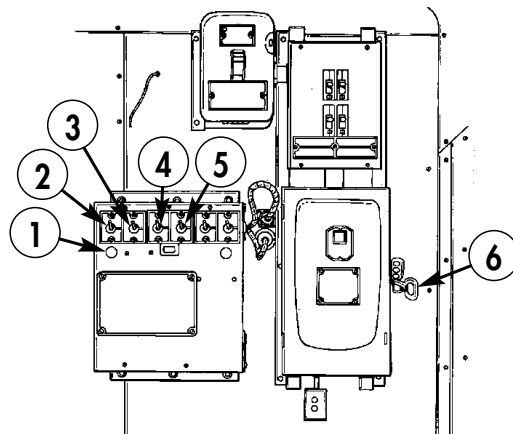
NOTE

- The primary heater RUN/OFF/START switch is a momentary switch that returns to the OFF (middle) position from the START position when released.
 - If the red indicator light does not illuminate within two minutes, release the RUN/OFF/START switch. Wait three minutes before trying to start heater again. If the red indicator light does not illuminate after two attempts, notify your supervisor.
 - If the RUN/OFF/START switch is set to the RUN position before the red indicator light illuminates, heater will not operate.
 - When setting the RUN/OFF/START switch from START to RUN, do not pause in the OFF (middle) position; switch quickly from START to RUN.
8. Set and hold Primary Heater RUN/OFF/START switch (3) in START position until red indicator light (1) illuminates. When the red indicator light (1) illuminates, set RUN/OFF/START switch (3) quickly to RUN position.

NOTE

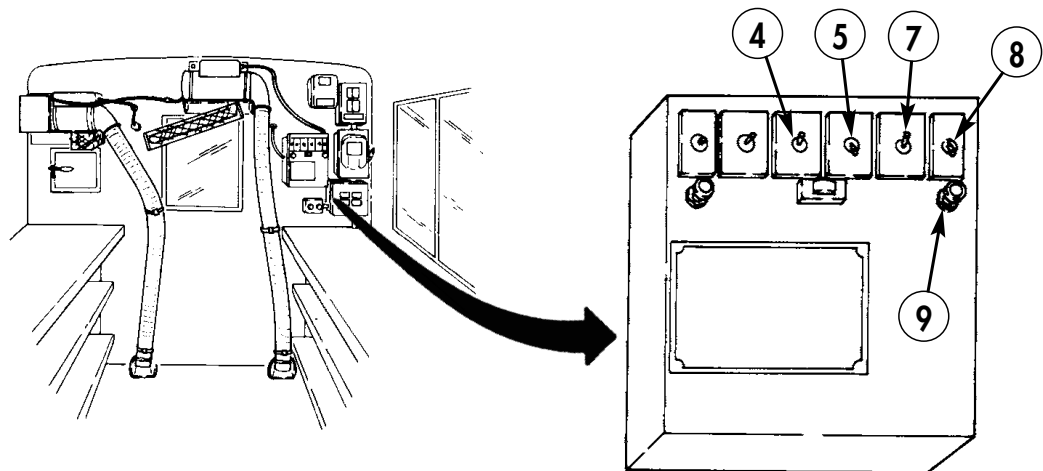
The blower motor continues to run for one to three minutes after the RUN/OFF/START switch is set to the OFF (middle) position. The red indicator light remains on until all fuel in heater burns and heater cools.

9. After heater operation, set RUN/OFF/START switch (3) to OFF (middle) position.

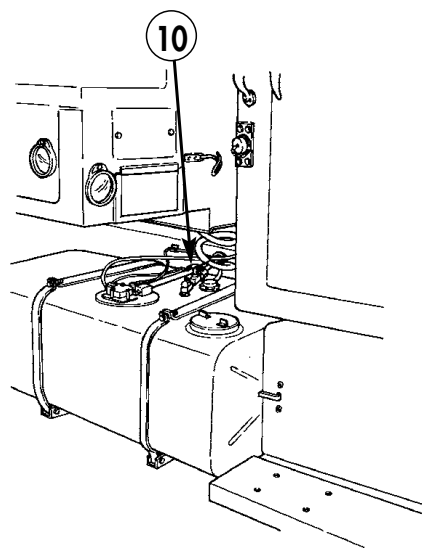


VAN BODY HEATER KITS (PRIMARY AND SECONDARY) OPERATION (Contd)**BODY HEATER OPERATION (Contd)**

10. Set exhaust blower switch (5) to HIGH (up) or LOW (down) position as necessary to bring fresh air into van body.
11. Repeat steps 2–10 to operate van body secondary heater. Controls for secondary heater are:
 - a. RUN/OFF/START switch (7)
 - b. HI/LO switch (8)
 - c. Red indicator light (9)
12. After all heater operation is complete, set converter selector switch (4) to OFF (middle) position.



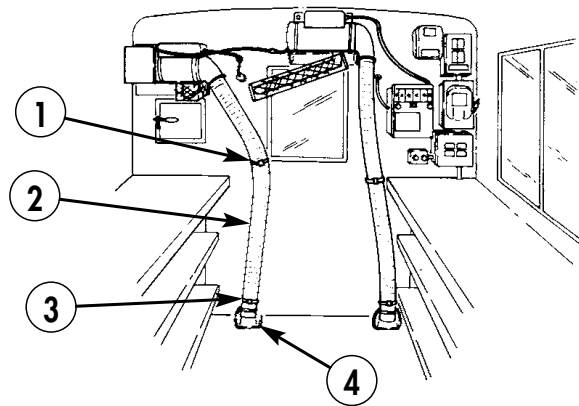
13. Turn fuel tank shutoff valve (10) clockwise to close.



VAN BODY HEATER KITS (PRIMARY AND SECONDARY) OPERATION (Contd)

SPOT HEATING EQUIPMENT USING DUCTS

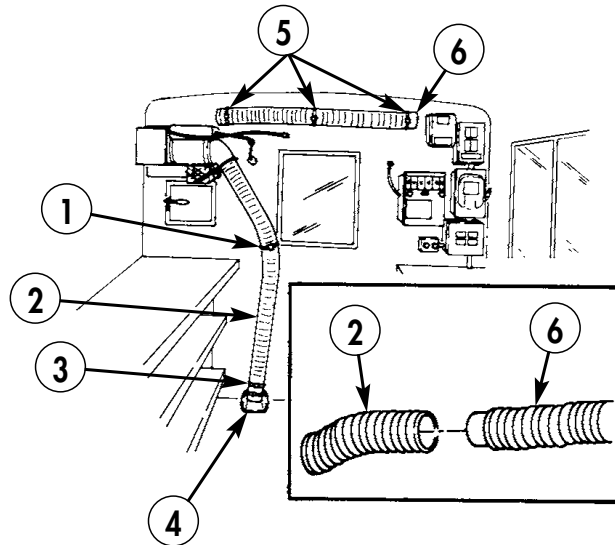
1. Unbuckle straps (1) and (3).
2. Disconnect duct (2) from deflector (4).
3. To operate heater, refer to BODY HEATER OPERATION procedure in this WP.
4. Spot heat equipment. Direct hot air flow from duct (2) toward equipment to be warmed.



VAN BODY HEATER KITS (PRIMARY AND SECONDARY) OPERATION (Contd)**SPOT HEATING EQUIPMENT USING DUCTS (Contd)****NOTE**

On vehicles with primary heater only, auxiliary duct is mounted on wall. On vehicles with both heaters, auxiliary duct is mounted on ceiling.

5. If equipment to be warmed is difficult to reach with duct (2), use auxiliary duct:
 - a. Unbuckle three straps (5).
 - b. Remove auxiliary duct (6).
 - c. Install auxiliary duct (6) on duct (2).
 - d. Spot heat equipment.
6. After spot heating:
 - a. Remove auxiliary duct (6) from duct (2).
 - b. Install auxiliary duct (6) by buckling three straps (5).
 - c. Position duct (2) on deflector (4).
 - d. Buckle straps (1) and (3).



7. Shut off heater, refer to BODY HEATER OPERATION procedure in this WP.

END OF WORK PACKAGE

0039 00-5/6 blank

OPERATOR INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

SWINGFIRE HEATER OPERATION

SWINGFIRE HEATER

General

The swingfire heater is a portable heater that can be used to heat the M35A2 vehicle cargo body enclosure, engine, and equipment. The swingfire heater is available on vehicles equipped with the arctic winterization kit (with swingfire heater). Because of poisonous exhaust gases produced by the swingfire heater, the heater must be operated in well-ventilated areas only or vented outside of space being heated.

Preparation for Operation

CAUTION

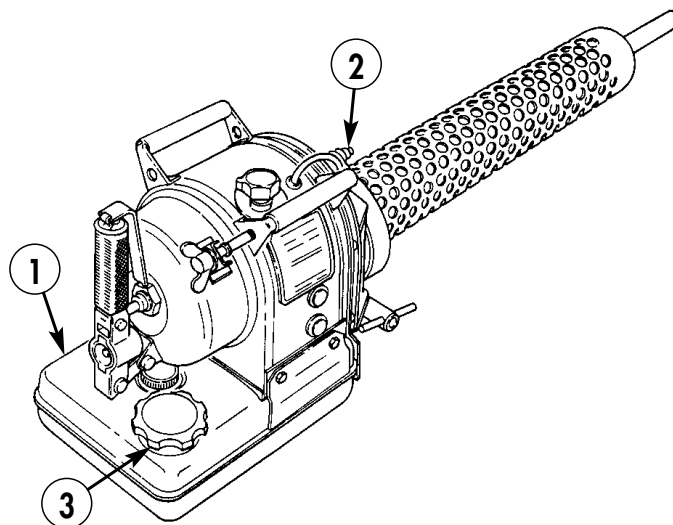
Use only gasoline to operate swingfire heater, using fuels other than gasoline may result in damage to heater.

1. Fill fuel tank:
 - a. Remove fuel tank cap (3).
 - b. Fill fuel tank (1) with gasoline.
 - c. Install fuel tank cap (3), ensure fuel tank cap (3) is tight.

NOTE

If pressure pin does not return to out position, do not operate swingfire heater. Notify your supervisor.

2. Press/release pressure pin (2) to check for proper air shutoff valve operation. Observe that pressure pin (2) returns to the out position (i.e., pressure pin (2) pops out).

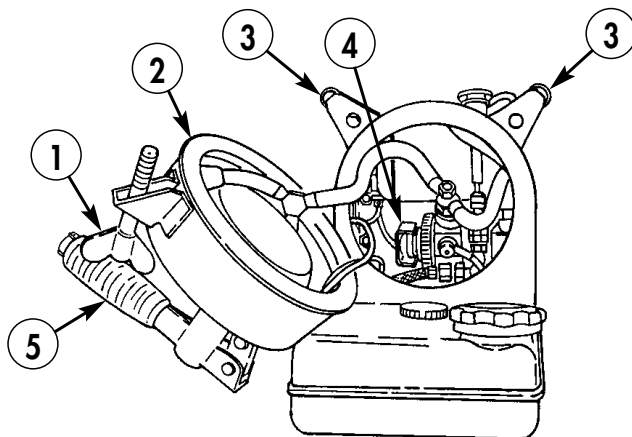


SWINGFIRE HEATER OPERATION (Contd)

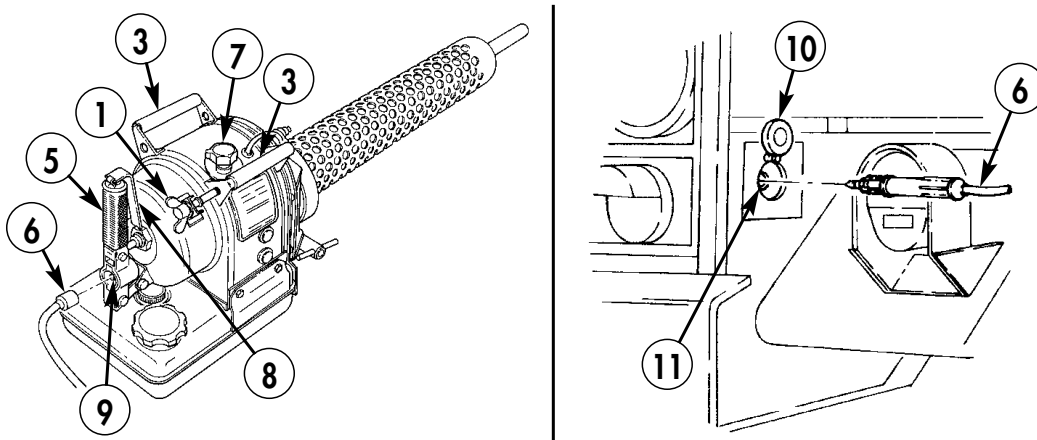
SWINGFIRE HEATER (Contd)

Preparation for Operation (Contd)

3. Adjust diaphragm valve:
 - a. Remove cover (2):
 - (1) Turn wingnut (1) counterclockwise to loosen.
 - (2) Remove cover (2).
 - b. Turn diaphragm valve (4) completely clockwise.
 - c. Install cover (2):
 - (1) Position cover (2).
 - (2) Turn wingnut (1) clockwise to tighten.



4. Turn fuel regulator knob (7) clockwise to close.
5. Open power receptacle cover (10).
6. Insert one end of starter cable (6) into vehicle power receptacle (11). Insert other end of starter cable (6) into swingfire heater starter cable receptacle (9).



SWINGFIRE HEATER OPERATION (Contd)

SWINGFIRE HEATER (Contd)

Operation

WARNING

Swingfire heater exhaust gases are poisonous. Operate swingfire heater in well-ventilated area only. Failure to do this may result in death to personnel.

1. Firmly grasp carrying handle (3) with one hand and pump lever (5) with other hand.

NOTE

- To verify that the preheating system is functioning, squeeze the ignition switch, observe humming sound. If humming sound is not observed, the preheating system is not functioning. Notify your supervisor that the preheating system is not functioning.
- When holding the ignition switch to activate the preheating system, hold for one minute for every 10 °F (6 °C) below 0 °F (-18 °C) and release. Refer to table 1.

Table 1. Preheating Time.

TEMPERATURE	TIME (MINUTES)
0 to -20 °F (-18 to -29 °C)	2
-20 to -30 °F (-29 to -34 °C)	3
-30 to -40 °F (-34 to -40 °C)	4
-40 to -50 °F (-40 to -46 °C)	5
-50 to -60 °F (-46 to -51 °C)	6

2. Squeeze/hold ignition switch (8) to activate preheating system, observe humming sound. Hold ignition switch (8) for the time indicated in table 1 and continue to hold.

NOTE

When swingfire heater ignites, it makes a pulsating sound. To hear the pulsating sound better, loosen wingnut and open cover slightly.

3. Start heater:
 - a. Move pump lever (5) forward and backward using a firm regular motion four times.
 - b. Turn fuel regulator knob (7) counterclockwise (open) one to one-and-a-half turns
 - c. Continue pumping lever (5).
 - d. When heater ignites (pulsating sound observed) release ignition switch (8), continue pumping lever (5).
 - e. Adjust fuel regulator knob (7) until pulse intervals are equal.
 - f. Stop pumping lever (5).

SWINGFIRE HEATER OPERATION (Contd)

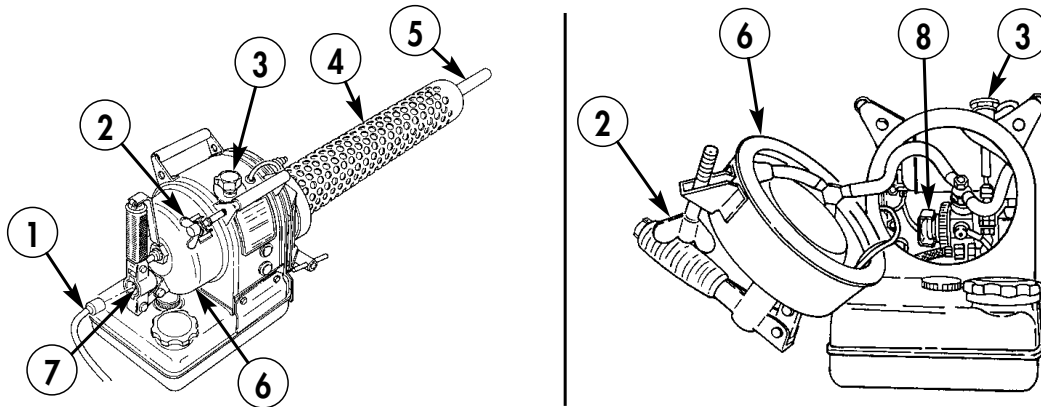
SWINGFIRE HEATER (Contd)

Operation (Contd)

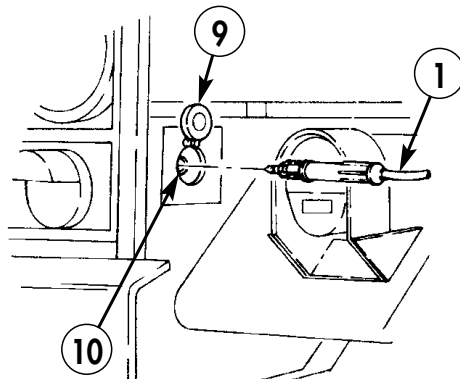
WARNING

When swingfire heater is operated, the pulsating pipe and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.

4. Allow heater to run three to five minutes. Do not touch pulsating pipe (5) or perforated mantle pipe (4).
5. Adjust fuel regulator knob (3) so pulse intervals are equal, as required.
6. Close cover (6), if opened, and turn wingnut (2) clockwise to tighten.



7. Remove starter cable (1) from swingfire heater starter cable receptacle (7) and vehicle power receptacle (10).
8. Close vehicle power receptacle cover (9).



9. Install swingfire heater into one of the following, as required:
 - a. Mixing pipe (refer to Mixing Pipe Operation procedure in this Work Package (WP))
 - b. Turboheater (refer to Turboheater Operation procedure in this WP)
 - c. Water jacket (refer to Water Jacket Operation procedure in this WP)

SWINGFIRE HEATER OPERATION (Contd)

SWINGFIRE HEATER (Contd)

After Operation

WARNING

When swingfire heater is operated, the pulsating pipe and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.

1. Do not touch pulsating pipe (5) or perforated mantle pipe (4). Remove swingfire heater from one of the following, as required:
 - a. Mixing pipe (refer to Mixing Pipe in this WP)
 - b. Turboheater (refer to Turboheater in this WP)
 - c. Water jacket (refer to Water Jacket in this WP)
2. Turn fuel regulator knob (3) clockwise to close.
3. When swingfire heater stops, remove cover (6):
 - a. Turn wingnut (2) counterclockwise to loosen.
 - b. Remove cover (6).
4. Turn diaphragm valve (8) completely counterclockwise.
5. Install cover (6) and turn wingnut (2) clockwise to tighten.
6. Allow heater to cool before stowing, refer to SWINGFIRE HEATER AND MIXING PIPE STOWAGE procedure in this WP.

MIXING PIPE

General

The mixing pipe is installed on the swingfire heater to thaw frozen brake lines, brakedrums, gear parts, tires, and other equipment.

Operation

WARNING

- Swingfire heater exhaust gases are poisonous. Operate swingfire heater, with mixing pipe, in well-ventilated area only. Failure to do this may result in death to personnel.
- When swingfire heater is operated, mixing pipe, pulsating pipe, and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.

SWINGFIRE HEATER OPERATION (Contd)

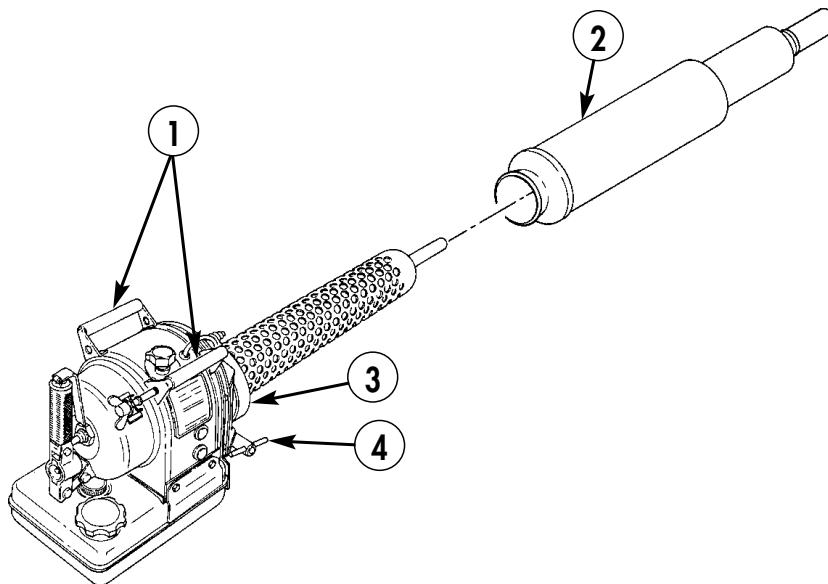
MIXING PIPE (Contd)

Operation (Contd)

1. Turn wingnut (4) completely counterclockwise to loosen quick-change coupling (3).
2. Ensure quick-change coupling (3) is flat against swingfire heater body.

NOTE

Swingfire heater must be operating when installing mixing pipe. Refer to SWINGFIRE HEATER Operation in this WP.



3. Insert mixing pipe (2) into quick-change coupling (3) and turn wingnut (4) clockwise to tighten.
4. Hold swingfire heater by handles (1).
5. Direct hot air from mixing pipe (2) at equipment to be heated.

After Operation

WARNING

When swingfire heater is operating, the mixing pipe, pulsating pipe, and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.

1. Turn wingnut (4) counterclockwise to loosen quick-change coupling (3).
2. Remove mixing pipe (2) from quick-change coupling (3).
3. Stow swingfire heater and mixing pipe, refer to SWINGFIRE HEATER AND MIXING PIPE STOWAGE procedure in this WP.

SWINGFIRE HEATER OPERATION (Contd)

TURBOHEATER

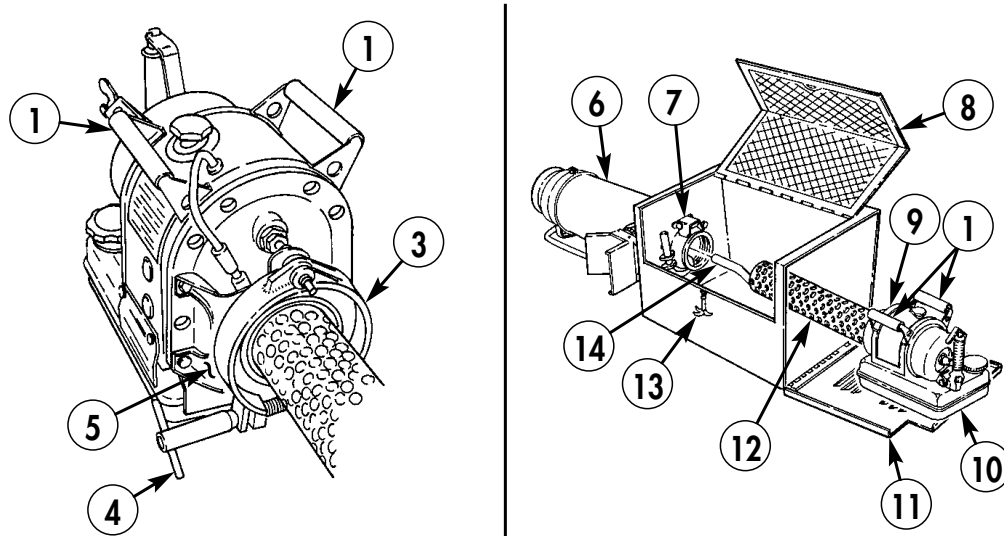
General

The swingfire heater is installed in the turboheater to provide heated air for the cargo body enclosure.

Operation

WARNING

- Swingfire heater exhaust gases are poisonous. Operate swingfire heater in well-ventilated area only. Failure to do this may result in death to personnel.
 - When swingfire heater is operating, the pulsating pipe and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.
1. Turn wingnut (4) completely counterclockwise to loosen quick-change coupling (3). Do not touch the swingfire heater pulsating pipe (14) and perforated mantle pipe (12).
 2. Ensure quick-change coupling (3) is flat against heater body (5).



3. Open catch (13) and open access door (8).

NOTE

- The swingfire heater must be operating when installed in the turboheater. Refer to SWINGFIRE HEATER Operation in this WP.
 - Ensure the swingfire heater is installed in the turboheater upright with fuel tank down and carrying handles up.
4. Open door (11) (WP 0036 00) and install swingfire heater (9) in turboheater (6), ensure fuel tank (10) is down and carrying handles (1) are up.
 5. Turn wingnut (4) clockwise to tighten quick-change coupling (3).
 6. Set overheating switch (7) to OPERATION position.

SWINGFIRE HEATER OPERATION (Contd)

TURBOHEATER (Contd)

Operation (Contd)

7. Close access door (6) and close catch (9).
8. Adjust diverters (10) to control airflow.

WARNING

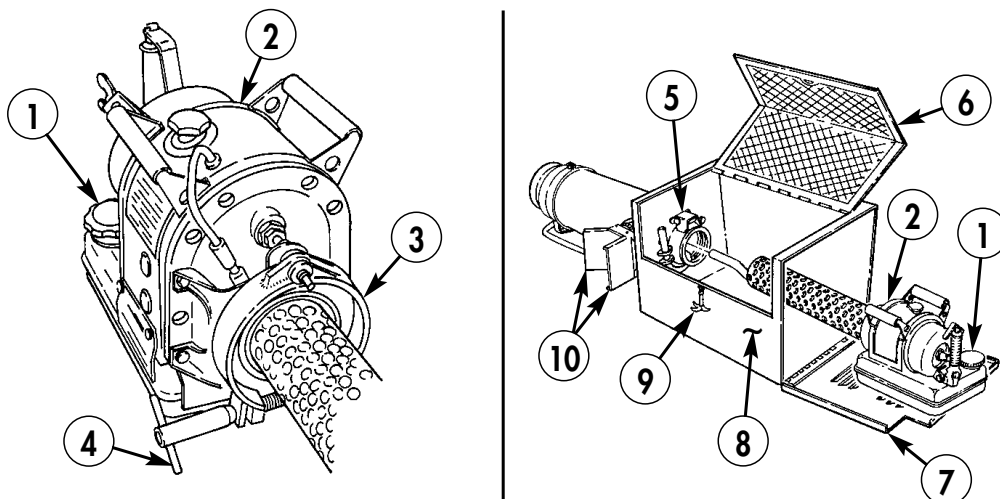
When operating turboheater, box, access door, and exhaust pipe become hot. Touching box, access door, or exhaust pipe results in burns to personnel.

9. If swingfire heater stops:
 - a. Open door (7).
 - b. Check fuel tank (1).
 - (1) If fuel tank (1) is empty:
 - (a) Fill fuel tank (1).
 - (b) Continue operating swingfire heater, refer to SWINGFIRE HEATER Operation in this WP.
 - (c) Close door (7), stop here, do not go to step c.
 - (2) If fuel tank (1) is not empty, go to step c.
 - c. Open catch (9) and access door (6).
 - d. If overheating switch (5) is not in "OPERATION" position:
 - (1) Allow swingfire heater (2) to cool.
 - (2) Place overheating switch (5) in "OPERATION" position.
 - e. Operate swingfire heater, refer to SWINGFIRE HEATER Operation in this WP.

NOTE

If swingfire heater will not operate, notify supervisor.

- f. Close access door (6) and catch (9).



SWINGFIRE HEATER OPERATION (Contd)

TURBOHEATER (Contd)

After Operation

WARNING

When operating turboheater, box, access door, and exhaust pipe become hot. Touching box, access door, or exhaust pipe results in burns to personnel.

1. Open catch (9) and open access door (6).
2. Open door (7).

WARNING

When swingfire heater is operating, the pulsating pipe and perforated mantle pipe get hot. Do not touch pipes when heater is operating. Use carrying handles when handling the heater. Touching pipes when heater is operating results in burns to personnel.

3. Turn wingnut (4) counterclockwise to loosen quick-change coupling (2).
4. Remove swingfire heater (2) from turboheater box (8).
5. Stow swingfire heater, refer to SWINGFIRE HEATER AND MIXING PIPE STOWAGE procedure in this WP.

SWINGFIRE HEATER OPERATION (Contd)

WATER JACKET

General

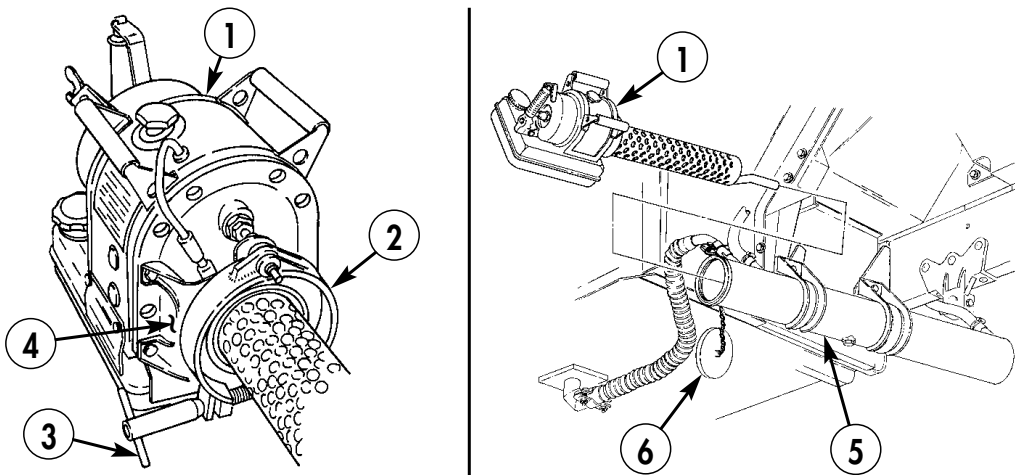
The swingfire heater is installed in the water jacket to heat engine coolant and facilitate starting in cold temperatures.

Operation

NOTE

- The water jacket is located on the right side of the engine compartment.
- The swingfire heater must be operating when installed in the water jacket. Refer to SWINGFIRE HEATER Operation in this WP.
- Ensure the swingfire heater is installed in the water jacket upright with fuel tank down and carrying handles up.

1. Turn wingnut (3) completely counterclockwise to loosen quick-change coupling (2).
2. Ensure quick-change coupling (2) is flat against heater body (4).
3. Remove water jacket cap (6).
4. Insert swingfire heater (1) into water jacket (5).
5. Turn wingnut (3) clockwise to tighten quick-change coupling (2).
6. Set accessory power switch to ON position (WP 0004 00).
7. Run swingfire heater (1) until temperature gauge (WP 0004 00) indicates 190 °F (88 °C).
8. Remove swingfire heater (1) from water jacket (5):
 - a. Turn wingnut (3) counterclockwise to loosen quick-change coupling (2).
 - b. Remove swingfire heater (1) from water jacket (5).
 - c. Install cap (6) on water jacket (5).



9. Start engine (WP 0008 00).
10. Stow swingfire heater, refer to SWINGFIRE HEATER AND MIXING PIPE STOWAGE procedure in this WP.

SWINGFIRE HEATER OPERATION (Contd)

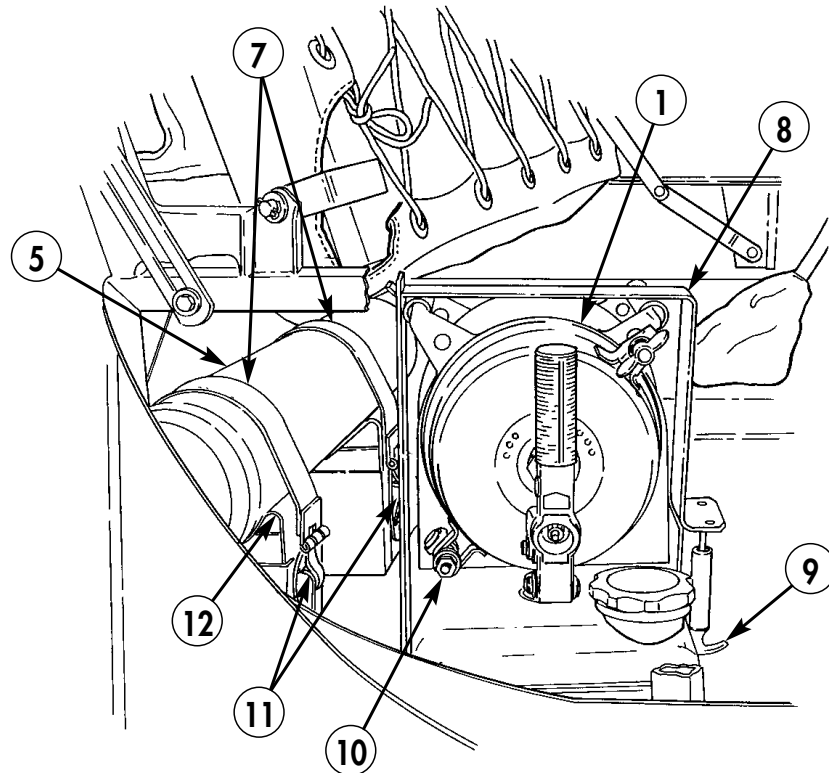
SWINGFIRE HEATER AND MIXING PIPE STOWAGE

Swingfire heater and mixing pipe are stowed under companion seat.

NOTE

Ensure heater is cool, before stowing.

1. Shut off swingfire heater (1), refer to SWINGFIRE HEATER After Operation procedure in this WP. Ensure heater is cool.
2. Stow swingfire heater (1):
 - a. Position swingfire heater (1) on stowage brackets (10).
 - b. Place strap (8) over swingfire heater (1).
 - c. Secure stowage bracket hook (9).
3. Stow mixing pipe (5):
 - a. Position mixing pipe (5) on stowage brackets (12).
 - b. Place straps (7) over mixing pipe (5).
 - c. Secure stowage bracket latches (11).



END OF WORK PACKAGE

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CHAPTER 3

TROUBLESHOOTING PROCEDURES FOR 2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

Work Package Title	Work Package Number
Troubleshooting Index	WP 0041 00
Troubleshooting Procedures	WP 0042 00

TROUBLESHOOTING PROCEDURES

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

TROUBLESHOOTING INDEX

Malfunction No.	Malfunction	WP 0042 00 Page
ENGINE		
1.	Engine starter switch is activated but engine does not crank	1
2.	Engine cranks but does not start	1
3.	Engine cranks but does not start below 0 °F (-17 °C)	2
4.	Engine starts but misfires, runs rough, or lacks power.	2
5.	Low oil pressure	2
6.	Excessive exhaust smoke after engine reaches normal operating temperature 180–200 °F (82–93 °C)	2
TRANSMISSION		
1.	No response to gearshift lever movement	3
2.	Rough shifting	3
3.	Lubricating oil leak	3
TRANSFER CASE		
1.	Shift lever does not shift or slips out of gear	3
2.	Lubricating oil leakage	3
FRONT AND REAR AXLES		
	Front or rear axle noise	3
AIR-HYDRAULIC BRAKE SYSTEM		
1.	Vehicle pulls to one side when braking	3
2.	Brake pedal depresses to floor.	3
3.	Insufficient air pressure as indicated by low air pressure warning buzzer or air pressure gauge	3
4.	Service brakes do not operate	3
5.	Parking brake does not hold vehicle.	4
6.	Parking brake drags.	4
WHEELS AND TIRES		
1.	Wheel vibrates or wobbles	4
2.	Excessive or uneven tire wear.	4
3.	Vehicle drifts or pulls to one side on level surface.	4

TROUBLESHOOTING INDEX (Contd)

Malfunction No.	Malfunction	WP 0042 00 Page
STEERING		
	Hard steering	5
POWER ASSIST STEERING		
	Hard steering	5
FRONT WINCH		
	Winch not operating	6
COOLING SYSTEM		
	Engine temperature exceeds 210 °F (99 °C)	6
ARCTIC WINTERIZATION KIT		
1.	Engine does not reach normal operating temperature 180–200 °F (82–93 °C)	7
2.	Engine temperature exceeds 200 °F (93 °C)	7
3.	Fuel burning personnel heater does not operate	7
4.	Fuel burning engine coolant heater does not operate	8
5.	Personnel/engine coolant heater does not continue burning	8
6.	Engine oil pan shroud not receiving heat (engine coolant heater only)	9
7.	Engine coolant system not receiving heat (engine coolant heater only)	9
8.	Defroster not operating	9
DEEP WATER FORDING KIT		
	Fording control valve lever not operating	9
A-FRAME KIT		
1.	Winch not operating	9
2.	A-frame not operating or misaligned	9
SLAVE RECEPTACLE KIT		
	Slave cable connected but engine does not crank	10
WINDSHIELD WASHER KIT		
	Windshield washer not operating	10

TROUBLESHOOTING PROCEDURES

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

TROUBLESHOOTING PROCEDURES

WARNING

Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB. Long-term exposure to this noise causes hearing loss.

NOTE

If corrective action does not correct malfunction, notify your supervisor.

Table 1. Engine.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE STARTER SWITCH IS ACTIVATED BUT ENGINE DOES NOT CRANK	<ol style="list-style-type: none"> 1. Check if accessory power switch is set to ON position. 2. Check battery cables and terminals. 3. Check battery water level. 	<p>Set to ON position, as required.</p> <p>If connections are loose, broken, or corroded, notify your supervisor.</p> <p>If battery water level is low, notify your supervisor.</p>
2. ENGINE CRANKS BUT DOES NOT START	<p style="text-align: center;">NOTE</p> <p>Visually check for fuel system leaks before completely filling fuel tank.</p> <ol style="list-style-type: none"> 1. Check fuel gauge (WP 0004 00). <p style="text-align: center;">NOTE</p> <p>When fuel tank is completely drained and then refilled, the fuel system must be bled. Notify your supervisor if fuel system needs to be bled.</p> <ol style="list-style-type: none"> 2. Check if engine stop control (WP 0004 00) is pushed in. 	<p>Fill fuel tank, as required.</p> <p>Push engine stop control in, as required.</p>

TROUBLESHOOTING PROCEDURES (Contd)

Table 1. Engine (Contd).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. ENGINE CRANKS BUT DOES NOT START BELOW 0 °F (-17 °C)	Perform malfunction 2 procedure, steps 1 and 2.	If engine does not start, refer to FM 9-207, Operations and Maintenance of Ordnance Materiel in Cold Weather.
4. ENGINE STARTS BUT MISFIRES, RUNS ROUGH, OR LACKS POWER	<ol style="list-style-type: none"> 1. Check if engine stop control (WP 0004 00) is pushed in. 2. Check if air cleaner is restricted. 3. Check fuel supply system for water and impurities. 4. Check that primary, secondary, and final fuel filter drain valves are tightly closed. 5. Check drain valves for leaks. 	<p>Push engine stop control in, as required.</p> <p>Clean air cleaner element (WP 0048 00), as required.</p> <p>Drain fuel from filter into container until fuel is clear (WP 0045 00). If fuel is not clear after approximately one pt (0.47 L) has drained, notify your supervisor.</p> <p>Tighten valves, as required.</p> <p>If leaking, notify your supervisor.</p>
5. LOW OIL PRESSURE	Check oil level.	Add oil, as required (WP 0043 00).
6. EXCESSIVE EXHAUST SMOKE AFTER ENGINE REACHES NORMAL OPERATING TEMPERATURE 180–200 °F (82–93 °C)	Check for restricted air cleaner.	Clean air cleaner element, as required. (WP 0048 00).

TROUBLESHOOTING PROCEDURES (Contd)*Table 2. Transmission.*

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. NO RESPONSE TO GEARSHIFT LEVER MOVEMENT	—	Notify your supervisor.
2. ROUGH SHIFTING	—	Notify your supervisor.
3. LUBRICATING OIL LEAK	—	Notify your supervisor.

Table 3. Transfer Case.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. SHIFT LEVER DOES NOT SHIFT OR SLIPS OUT OF GEAR	—	Notify your supervisor.
2. LUBRICATING OIL LEAKAGE	—	Notify your supervisor.

Table 4. Front and Rear Axles.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
FRONT OR REAR AXLE NOISE	—	Notify your supervisor.

Table 5. Air-Hydraulic Brake System.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. VEHICLE PULLS TO ONE SIDE WHEN BRAKING	Check air pressure in all tires.	Inflate or deflate tires to correct air pressure, as required (WP 0049 00).
2. BRAKE PEDAL DEPRESSES TO FLOOR	—	Notify your supervisor.
3. INSUFFICIENT AIR PRESSURE AS INDICATED BY LOW AIR PRESSURE WARNING BUZZER OR AIR PRESSURE GAUGE	<ol style="list-style-type: none"> 1. Check if air reservoir drain valves are closed. 2. Check all air lines for loose connections. 3. Check towed equipment drain valves and air lines for air leaks. 	<p>Close drain valves securely (WP 0045 00).</p> <p>If loose, tighten.</p> <p>If leaking, tighten.</p>
4. SERVICE BRAKES DO NOT OPERATE	<ol style="list-style-type: none"> 1. Check if air reservoir drain valves are closed. 2. Check all air lines for loose connections. 	<p>Close drain valves securely (WP 0045 00).</p> <p>If loose, tighten.</p>

TROUBLESHOOTING PROCEDURES (Contd)

Table 5. Air-Hydraulic Brake System (Contd).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. PARKING BRAKE DOES NOT HOLD VEHICLE	<p style="text-align: center;">NOTE</p> <p>Refer to WP 0045 00 for information about adjusting the parking brake.</p> <ol style="list-style-type: none"> 1. Check parking brake lever position. 2. Check parking brake lever adjustment. 	<p>Pull parking brake lever all the way up and back.</p> <p>Before applying parking brake, turn knob on end of lever clockwise to increase braking action.</p>
6. PARKING BRAKE DRAGS	<ol style="list-style-type: none"> 1. Check parking brake lever position. 2. Check parking brake lever adjustment. 	<p>If parking brake is partially applied, release parking brake.</p> <ol style="list-style-type: none"> 1. Before applying parking brake, turn knob on end of lever counterclockwise to decrease braking action. 2. If parking brake still drags, notify your supervisor.

Table 6. Wheels and Tires.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. WHEEL VIBRATES OR WOBLES	Check if all wheel stud nuts are tight.	<ol style="list-style-type: none"> 1. Tighten wheel stud nuts. 2. Notify your supervisor that wheel stud nuts require tightening to specified torque.
2. EXCESSIVE OR UNEVEN TIRE WEAR	Check air pressure in all tires.	Inflate or deflate tires to correct air pressure, as required (WP 0049 00).
3. VEHICLE DRIFTS OR PULLS TO ONE SIDE ON LEVEL SURFACE	Check air pressure in all tires.	Inflate or deflate tires to correct air pressure, as required (WP 0049 00).

TROUBLESHOOTING PROCEDURES (Contd)

Table 7. Steering.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
HARD STEERING	1. Check air pressure in all tires.	Inflate or deflate tires to correct air pressure, as required (WP 0049 00).
	2. Check steering gear for leaks.	If leaking, notify your supervisor.
	3. Check steering gear oil level.	If low, notify your supervisor.

Table 8. Power Assist Steering.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
HARD STEERING	1. Check air pressure in tires.	Inflate or deflate tires to correct air pressure (WP 0049 00).
	2. Check that manual shutoff valve is open (WP 0052 00).	
	3. Check power steering assist cylinder, drag link, and lines for leaks and damage.	
	NOTE In the event of a power steering assist system failure, the manual shutoff valve can be closed and vehicle operation can continue using manual steering	a. Tighten loose fittings. b. If the steering assist cylinder, drag link, or lines are broken or damaged, notify your supervisor.

TROUBLESHOOTING PROCEDURES (Contd)

Table 9. Front Winch.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
WINCH NOT OPERATING	<p style="text-align: center;"><u>WARNING</u></p> <p>Wear leather gloves when handling winch cable. Handling cable without leather gloves may result in injury to personnel.</p> <p style="text-align: center;">NOTE</p> <p>Refer to WP 0016 00, Front Winch Operation.</p> <ol style="list-style-type: none"> 1. Check if drum lock latch is unlocked. 2. Check if cable is binding. 3. Check if clutch control lever is in the IN position. 4. Check if transmission PTO is engaged. 5. Check if winch clutch control lever is engaged. 6. Check shearpin. 	<p>If locked, pull drum lock latch out, rotate one-quarter turn, and release.</p> <p>Free cable from drum.</p> <p>Set clutch control lever to IN position.</p> <p>Engage transmission PTO.</p> <p>Engage clutch control lever.</p> <p>If shearpin is broken, replace (WP 0051 00).</p>

Table 10. Cooling System.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
ENGINE TEMPERATURE EXCEEDS 210 °F (99 °C)	<p style="text-align: center;"><u>WARNING</u></p> <p>Hot coolant is under pressure. Use care when removing coolant filler cap or inspecting for engine coolant leaks. Steam or hot coolant under pressure may cause severe injury to personnel.</p> <ol style="list-style-type: none"> 1. Check tank, hoses, and hose connections for leaks. 2. Check coolant level. 3. Check outside of radiator core for obstructions. 4. Check engine oil level. 5. Check if radiator fan turns while engine is running. If fan does not turn, check if belt is loose or broken. 	<p>Tighten hose connections, as required. If still leaking, notify your supervisor.</p> <p>Add coolant, as required (WP 0045 00).</p> <p>Remove debris, if clogged (WP 0045 00).</p> <p>Add oil, as required (WP 0043 00).</p> <p>If belt is loose or broken, notify your supervisor.</p>

TROUBLESHOOTING PROCEDURES (Contd)

Table 11. Arctic Winterization Kit.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE DOES NOT REACH NORMAL OPERATING TEMPERATURE 180–200 °F (82–93 °C)	<p style="text-align: center;">NOTE</p> <p>For arctic winterization kit operation procedures, refer to WP 0034 00.</p> <p>Check if radiator aperture flap is closed (rolled down).</p>	Close flap (roll down).
2. ENGINE TEMPERATURE EXCEEDS 200 °F (93 °C)	Check if radiator aperture flap is open (rolled up).	Open flap (roll up).
3. FUEL BURNING PERSONNEL HEATER DOES NOT OPERATE	<p style="text-align: center;"><u>WARNING</u></p> <ul style="list-style-type: none"> • Fuel is extremely flammable and explosive. Do not perform fuel system checks or services near open flames or sparks. Always keep a fire extinguisher nearby. Burning fuel or fuel that explodes can cause injury or death to personnel. • Personnel heater exhaust gases are poisonous. Operate heater in a well-ventilated area only. Failure to do this may result in death to personnel. <p style="text-align: center;">NOTE</p> <p>If START/OFF/RUN switch is set to RUN position before red indicator light illuminates, heater will not operate.</p> <ol style="list-style-type: none"> 1. Press red indicator light to check circuit operation. 2. Check if heater control HI/LO switch is set to HI. 3. Check fuel gauge. 4. Check if personnel heater shutoff valve is open (WP 0004 00). 	<p>If red indicator light does not illuminate, notify your supervisor.</p> <p>Set HI/LO switch to HI.</p> <p>Fill fuel tank.</p> <p>Open personnel heater shutoff valve.</p>

TROUBLESHOOTING PROCEDURES (Contd)

Table 11. Arctic Winterization Kit. (Contd).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>4. FUEL BURNING ENGINE COOLANT HEATER DOES NOT OPERATE</p>	<p style="text-align: center;"><u>WARNING</u></p> <p>Engine coolant heater exhaust gases are poisonous. Operate heater in a well-ventilated area only. Failure to do this may result in death to personnel.</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Do not operate fuel burning personnel heater and engine coolant heater at the same time. Failure to comply may result in an overworked electric fuel pump.</p> <p style="text-align: center;"><u>NOTE</u></p> <ul style="list-style-type: none"> • If START/OFF/RUN switch is set to RUN position before red indicator light illuminates, heater will not operate. • Using heater control, select HI position if engine is cold. Select LO position if engine is warm. On HI, heater automatically switches to LO when coolant temperature exceeds 190 °F (88 °C). On LO, heater automatically switches to HI when coolant temperature drops below 120 °F (49 °C) <ol style="list-style-type: none"> 1. Press red indicator light to check circuit operation. 2. Check fuel gauge. 3. Check if engine coolant heater shutoff valve is open (WP 0004 00). 	<p>If red indicator light does not illuminate, notify your supervisor.</p> <p>Fill fuel tank, as required.</p> <p>Open engine coolant heater shutoff valve.</p>
<p>5. PERSONNEL/ ENGINE COOLANT HEATER DOES NOT CONTINUE BURNING</p>	<p>Check fuel gauge.</p>	<p>Fill fuel tank, as required.</p>

TROUBLESHOOTING PROCEDURES (Contd)

Table 11. Arctic Winterization Kit. (Contd).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. ENGINE OIL PAN SHROUD NOT RECEIVING HEAT (ENGINE COOLANT HEATER ONLY)	<ol style="list-style-type: none"> 1. Check if engine coolant heater is operating. 2. Check if engine coolant heater exhaust tube is connected to oil pan shroud. 	<p>Start heater. If not operative, notify your supervisor.</p> <p>Connect heater exhaust tube.</p>
7. ENGINE COOLANT SYSTEM NOT RECEIVING HEAT (ENGINE COOLANT HEATER ONLY)	<ol style="list-style-type: none"> 1. Check if power plant heater is operating. 2. Check if all coolant shutoff valves are open at engine. 	<p>Start heater. If not operative, notify your supervisor.</p> <p>Open all coolant shutoff valve(s).</p>
8. DEFROSTER NOT OPERATING	<ol style="list-style-type: none"> 1. Check defroster control knob position. 2. Check for defroster deflector restrictions. 	<p>Adjust defroster control knob.</p> <p>Clear restrictions, as required.</p>

Table 12. Deep Water Fording Kit.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
FORDING CONTROL VALVE LEVER NOT OPERATING	<ol style="list-style-type: none"> 1. Check if tube is attached to fording control valve. 2. Check if tube is kinked. 	<p>If tube is not attached, notify your supervisor.</p> <p>If tube is kinked, notify your supervisor.</p>

Table 13. A-Frame Kit.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. WINCH NOT OPERATING	Check winch. Refer to Table 8, Front Winch, in this WP.	—
2. A-FRAME NOT OPERATING OR MISALIGNED	<ol style="list-style-type: none"> 1. Check if cable is installed in towing pintle. 2. Check for loose cable clamps and cable fraying or breaks. 3. Check if A-frame is bent. 	<p>Install cable in towing pintle and lock pintle in closed position.</p> <p>If cable clamps are loose, or cable is broken or frayed, notify your supervisor.</p> <p>If A-frame is bent, notify your supervisor.</p>

TROUBLESHOOTING PROCEDURES (Contd)*Table 14. Slave Receptacle Kit.*

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
SLAVE CABLE CONNECTED BUT ENGINE DOES NOT CRANK	<ol style="list-style-type: none"> 1. Check receptacle connections. 2. Check slave receptacle battery cable connections. 	<p>Make proper connections.</p> <p>If connections are loose or disconnected, notify your supervisor.</p>

Table 15. Windshield Washer Kit.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
WINDSHIELD WASHER NOT OPERATING	<ol style="list-style-type: none"> 1. Check windshield washer reservoir fluid level. 2. Check for broken, loose, or restricted tubing. 	<p>Fill, as required.</p> <p>If tubing is broken, loose, or restricted, notify your supervisor.</p>

CHAPTER 4

MAINTENANCE INSTRUCTIONS FOR 2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

Work Package Title	Work Package Number
Lubrication Instructions	WP 0043 00
Preventive Maintenance Checks and Services (PMCS) Introduction	WP 0044 00
Operator/Crew Preventive Maintenance Checks and Services (PMCS)	WP 0045 00
Maintenance Instructions Index	WP 0046 00
Startup Operation	WP 0047 00
Air Cleaner Service	WP 0048 00
Wheel and Tire Service	WP 0049 00
Battery Inspection	WP 0050 00
Front Winch Shearpin Replacement	WP 0051 00
Power Steering Assist System Service	WP 0052 00

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

LUBRICATION INSTRUCTIONS

INTERVALS

Scheduled lubrication intervals are based on normal operation. Change hard time intervals if lubricants are contaminated, or if the vehicle is being operated under adverse conditions (including longer than usual operating hours). The hard time interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals apply when Aeronautical Equipment Army Oil Analysis Program (AOAP) laboratory support is not available.

This Work Package (WP) has been revised, based on a DA program, to extend intervals to conserve lubricants. This instruction applies only to vehicles in normal operation. Lubricate more frequently under abnormal or extreme conditions (e.g., high or low temperatures, emersion in water, or exposure to sand or dust). Contaminated lubricants must be changed regardless of scheduled intervals.

The following interval codes are used in this WP:

D—Daily

S—Semiannually (6 months)

1—1,000 mi (1,609 km)

CLEANING

WARNING

Skysol 100 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use.

Contact with Skysol 100 may cause skin irritation. Use chemical-resistant gloves. In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water. Wash contaminated clothing before reuse. Eye contact may cause irritation, tearing, or blurring of vision. Use face shield or goggles when eye contact may occur. In case of eye contact, flush eyes with large amounts of water for at least 15 minutes or until irritation subsides. Inhalation may cause irritation to upper respiratory passages. DO NOT have food or drink in the vicinity. Failure to comply may result in injury to personnel.

Clean lubrication fittings with Skysol 100 solvent and dry the fittings before lubricating.

LUBRICATION INSTRUCTIONS (Contd)

LUBRICANTS

Refer to table 1 for abbreviation definitions and references for lubricants used in this WP. Refer to table 2 for lubricant capacities and temperature ranges for lubricants used in this WP.

Table 1. Military Lubricants.

ABBREVIATION	DEFINITION	REFERENCE	
		DOCUMENT NO.	PERFORMANCE SPECIFICATION TITLE
OE/HDO	Oil, Engine/ Heavy Duty Oil	MIL-PRF-2104	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
OEA	Oil, Engine, Arctic	MIL-PRF-46167	Lubricating Oil, Internal Combustion Engine, Arctic
GO	Gear Oil	MIL-PRF-2105	Lubricating Oil, Gear, Multipurpose (Metric)

NOTE

Steering Gear Oil (GO) capacity is approximate.

Table 2. Lubricant Temperature Guide.

COMPONENT	LUBRICANT	CAPACITY	TEMPERATURE
Oil Can Points	OE/HDO 40	—	>20 °F (-6 °C)
	OE/HDO 15/40		>0 °F (-17 °C)
	OE/HDO 5/40		-30 to 40 °F (-34 to 4 °C)
Steering Gear	GO 85/140	3-1/8 pts (1.48 L)	>10 °F (-12 °C)
	GO 80/90		-10 to 40 °F (-23 to 4 °C)
	GO 75		<-50 to 40 °F (-45 to 4 °C)

OIL CAN POINTS

Lubricate the following components every 1,000 mi (1609 km), or monthly, with the appropriate (based on temperature) viscosity grade OE/HDO:

- Door hinges
- Tailgate hinges
- Windshield hinges
- Engine compartment side panel hinges
- Locks and latches
- Front winch propeller shaft shear pin
- Tank truck discharge valve control lever pivot pins

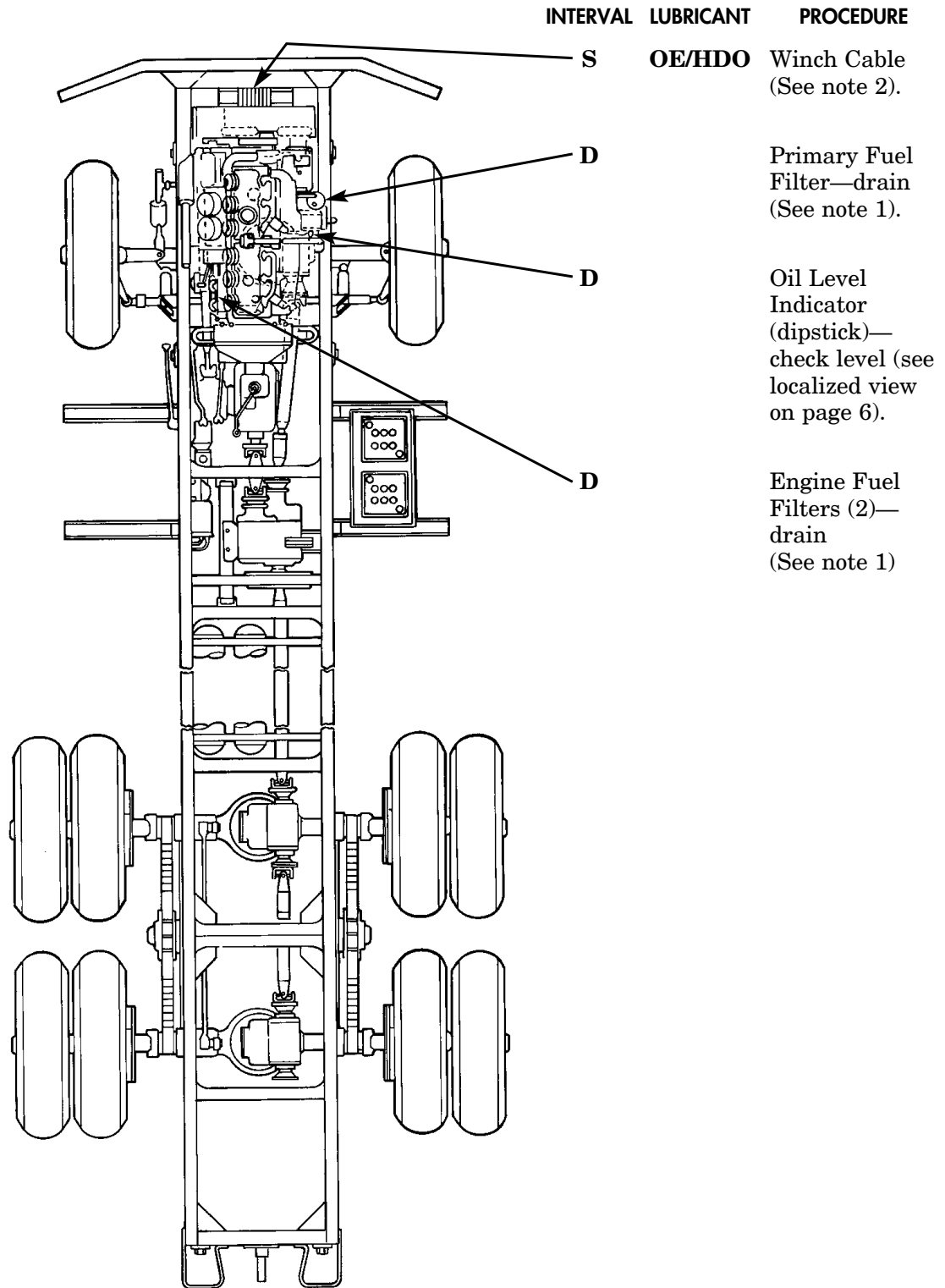
CAUTION

Do not lubricate springs, leaves, clutch release bearing, generator, alternator, starter, or shock absorbers. Failure to comply can result in damage to equipment.

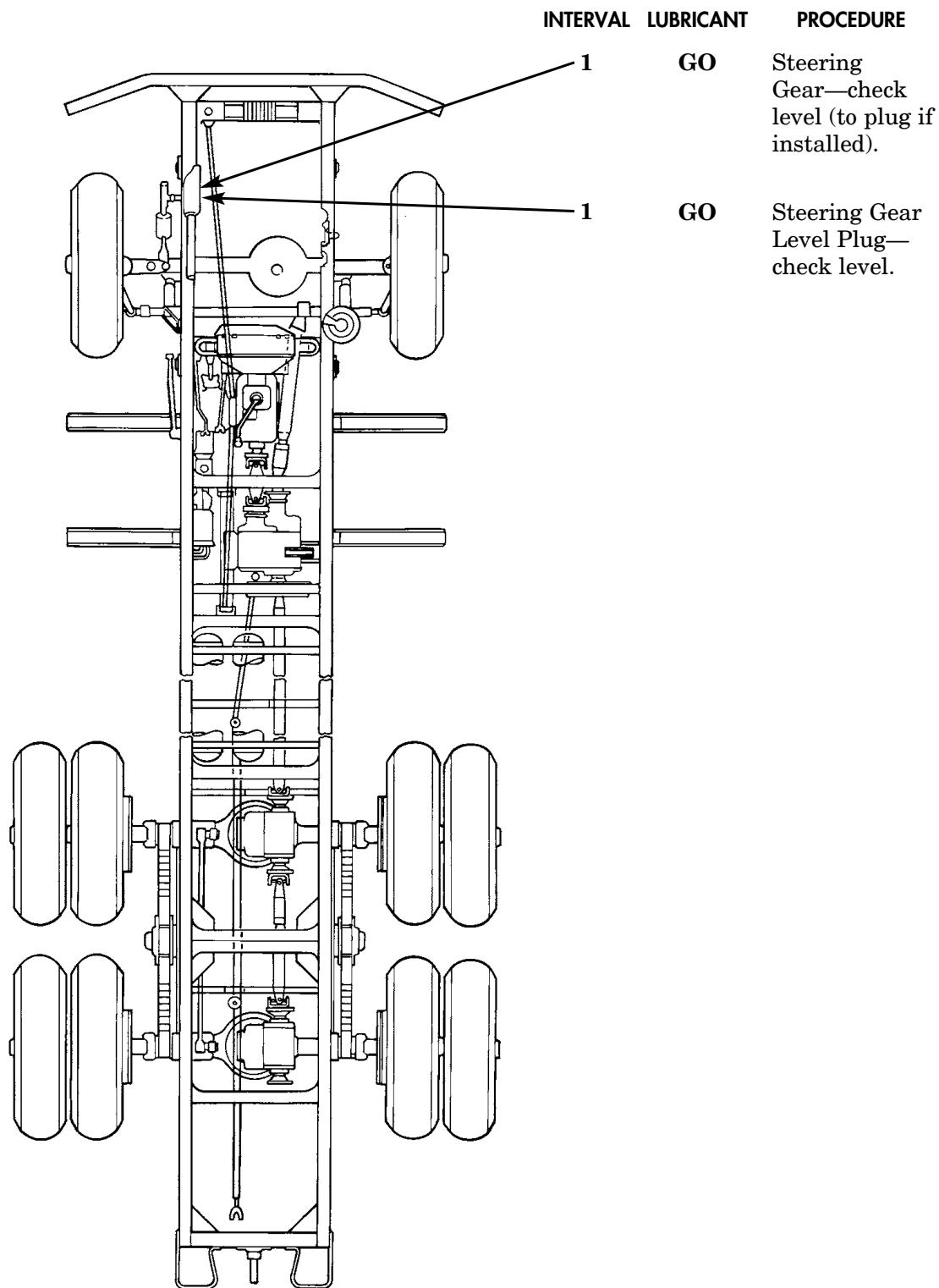
NOTE

- For arctic operation lubrication instructions, refer to FM 9-207 Operations and Maintenance of Ordnance Materiel in Cold Weather.
- Perform lubrication after fording operations.
- General notes are located at the end of this WP

LUBRICATION INSTRUCTIONS (Contd)



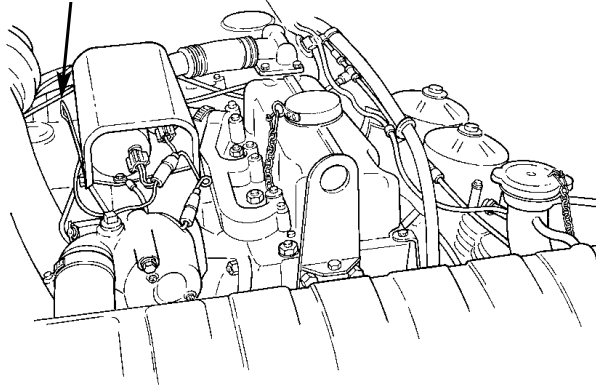
LUBRICATION INSTRUCTIONS (Contd)



LUBRICATION INSTRUCTIONS (Contd)

LOCALIZED LUBRICATION POINTS

OIL LEVEL INDICATOR



Engine Crankcase

NOTES

1. Fuel Filters

Drain primary fuel filter. If fuel filter contains dirt or water, drain secondary and final filters. If dirt or water is found in final filter, notify your supervisor.

2. Winch Cables

After each day's operation, clean and oil with new OE/HDO. Semiannually, unwind entire cable, clean, and oil. At semiannual PM service, if cable is not generally used, unwind entire cable. Use a brush to clean, and soak with new OE/HDO. Wipe off excess, and coat with Chain and Wire Rope (CW) grease before rewinding cable on drum.

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

A permanent record of vehicle service, repair, and modification is required. Refer to DA PAM 738-750 for information about the forms and records that are used to record vehicle maintenance.

CLEANING INSTRUCTIONS AND PRECAUTIONS

Cleaning is an after-operation service performed by operators to maintain vehicle readiness. Vehicles must be kept as clean as possible, depending on the available cleaning equipment and materials and tactical situation.

General Cleaning Precautions

- Perform all cleaning procedures in well-ventilated areas.
- Wear protective gloves, clothing, and respiratory equipment when using caustic, toxic, or flammable cleaning materials.
- Never use diesel fuel or gasoline for cleaning.
- A fire extinguisher must be readily available during all cleaning operations using flammable cleaning materials.

Special Precautions

- Do not allow cleaning materials to come in contact with rubber, leather, vinyl, or canvas.
- Do not allow corrosion-removing cleaning materials to contact painted surfaces.
- Do not use steam or high-pressure air to clean cab or van body interiors.
- Do not steam-clean rustproofed surfaces.
- Remove mildew from canvas with a bristle brush before cleaning the canvas.
- Use low-pressure air or water to clear debris from the radiator core. Force debris out the front of the radiator by applying low-pressure air or water to the rear of the radiator first.

Cleaning Materials

Refer to TM 9-247 for a detailed description of cleaning compounds, cleaning solvents, and corrosion-removing compounds.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION (Contd)

CLEANING INSTRUCTIONS AND PRECAUTIONS (Contd)

General Guidelines

Table 1 provides general guidelines for the use of cleaning materials and equipment for removing contaminants from vehicle surfaces.

Table 1. Cleaning Instructions.

SURFACE	CONTAMINANT		
	OIL/GREASE	DIRT/MUD/DUST/SALT	SURFACE RUST/
	CLEANING MATERIAL/EQUIPMENT/METHOD		
Body	Grease-cleaning compound, running water, and damp and dry rags	High pressure water, warm soapy water, soft brush, and damp and dry rags	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil*
Cab Interior (Metal)	Grease-cleaning compound, running water, and damp and dry rags	Damp and dry rags	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil*
Cab Interior/Cab Top (Fabric)	Saddle soap, warm water, soft brush, and dry rags	Soft brush, warm soapy water, and damp or dry rags	—
Frame	Grease-cleaning compound, running water, and damp and dry rags	High pressure water, warm soapy water, wire brush, and damp and dry rags	Corrosion-removing compound, wire brush, dry rags, and lubricating oil*
Engine/Transmission	Skysol 100 and damp and dry rags	High pressure water, warm soapy 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	—
Radiator	—	Low pressure water or air, warm soapy water, and damp and dry rags	—
Rubber Insulation	Damp and dry rags	Damp and dry rags	—
Tires	Warm soapy water and bristle brush	High pressure water and bristle brush	—
Wire Rope	Cleaning compound and wire brush	Wire brush	Wire brush and lubricating oil*
Wood	Detergent, warm water, and damp and dry rags	Low pressure water, warm soapy water, and damp and dry rags	—

*After cleaning, apply a light grade of lubricating oil to all unprotected surfaces to prevent further rusting corrosion.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION (Contd)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

The Operator/Crew Preventive Maintenance Checks and Services Work Package (WP 0045 00) includes inspection and service procedures that must be performed to maintain the vehicle and other equipment in good operating condition.

Trouble Spots

WARNING

Skysol 100 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use.

Contact with Skysol 100 may cause skin irritation. Use chemical-resistant gloves. In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water. Wash contaminated clothing before reuse. Eye contact may cause irritation, tearing, or blurring of vision. Use face shield or goggles when eye contact may occur. In case of eye contact, flush eyes with large amounts of water for at least 15 minutes or until irritation subsides. Inhalation may cause irritation to upper respiratory passages. DO NOT have food or drink in the vicinity. Failure to comply may result in injury to personnel.

NOTE

Dirt, grease, oil, and debris may cover up a serious problem. Clean as you check. Follow precautions printed on container. Use Skysol 100 solvent to clean metal surfaces. Use soap and water to clean rubber and plastic.

- Check bolts, nuts, and screws. If loose, tighten. If bent, broken, or missing, notify your supervisor.
- Check painted surfaces. If paint is loose or chipped, or rust is observed on bare metal surfaces, notify your supervisor.
- Check welds. If cracked or broken, notify your supervisor.
- Check electrical wiring. If connection is loose, tighten. If insulation is cracked or broken, wires are bare, or connections are broken, notify your supervisor.
- Check hoses and fluid lines. Ensure clamps and fittings are tight. If hoses or lines are worn, damaged, or leaking, notify your supervisor. Refer to Class Leakage Definitions in this WP for information about leaks.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION (Contd)**PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)****Correct Assembly and Stowage**

Check that each component and assembly is correctly installed and there are no missing parts.

Class Leakage Definitions

Wetness around seals, gaskets, fittings, or connections indicates leakage. A stain also indicates leakage. If a fitting or connector is loose, tighten it. If a fitting or connector is broken or defective, notify your supervisor.

Use the following leak definitions as a guide:

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

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

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

PMCS Table**NOTE**

The following items correspond to the table headings in table 1 in Operator/Crew Preventive Maintenance Checks and Services, WP 0045 00.

Item No.

These index numbers correspond to the equipment listed in the Items to be Inspected/Procedure column. These index numbers are entered in the DA Form 2404, Equipment Inspection and Maintenance Worksheet TM ITEM NO. column, or DA Form 5988-E Equipment Maintenance and Inspection Worksheet (Automated) ITEM NUM column.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION (Contd)**PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)****Interval**

Specifies when a particular procedure is performed.

NOTE

Designated weekly (W) and monthly (M) intervals are recommended intervals under usual operating conditions. These intervals may need to be decreased when operating under unusual conditions.

Before—procedure is performed before the equipment leaves its containment area (i.e., motorpool or other control or dispatch point) or before it performs its intended mission.

During—procedure is performed when the equipment is being operated during its intended mission.

After—procedure is performed when the equipment is taken out of its mission mode or returned to its containment area (i.e., motorpool or other control or dispatch point).

Weekly—procedure is performed once a week.

Monthly—procedure is performed once a month.

Item to Check/Service

This column specifies the equipment to be checked, inspected, or serviced.

NOTE

Some procedures must be performed by maintenance personnel.

Procedure

This column includes the check, inspection, and service procedures. Also included are all applicable warnings, cautions, and notes. Tools included with the vehicle must be used when performing PMCS. In addition to tools, wiping cloths are required to remove dirt and grease from vehicle surfaces.

References:

WP 0042 00, Troubleshooting Procedures

DA Form 2404, Equipment Inspection and Maintenance Worksheet—used to report non-reparable item(s) to maintenance personnel.

NOTE

The terms “ready/available” and “mission capable” have the same definition (i.e., the equipment is on hand and able to perform its combat mission); refer to DA PAM 738-750.

Equipment Not Ready/Available If:

If a vehicle is not able to perform its prescribed mission, it must be reported as not ready/available; refer to DA PAM 738-750.

END OF WORK PACKAGE

0044 00-5/6 blank

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

WARNING

Hearing protection is required for driver, crew, and mechanic when engine is running. Noise levels produced by M44A2 series vehicles exceed 85 dB. Long term exposure to this noise causes hearing loss.

CAUTION

Vehicle operation with a class I or II leak is permitted; however, system fluid capacities must be considered and fluid levels must be checked more frequently. All leaks must be reported to your supervisor. Failure to comply may result in equipment damage.

NOTE

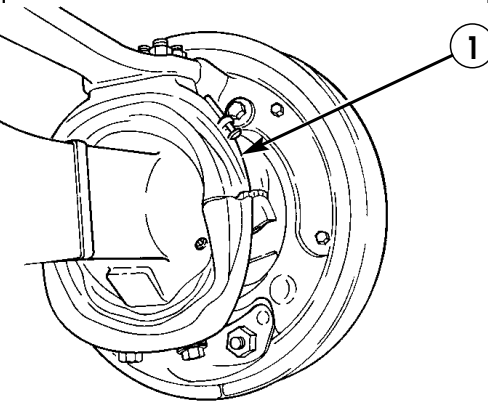
The following PMCS must be performed in the order listed, within each interval.

Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Before Before	Exterior	<p>NOTE</p> <p>Perform Weekly and Before PMCS if:</p> <ul style="list-style-type: none"> You are the assigned operator but have not operated the vehicle since the last Weekly. You are operating the vehicle for the first time. <p>WALK-AROUND CHECKS</p> <p>Exterior</p> <p>a. Visually check for body and cab damage that could impair operation.</p> <p>b. Visually check for under inflated and unserviceable tires (including spare). Check tires for leaks, cuts, gouges, cracks, or bulges. Remove all penetrating objects.</p>	<p>b. Tires have leaks, cuts, gouges, cracks, or bulges, which could result in tire failure during operation. Two or more tires, including spare, missing or unserviceable.</p>

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

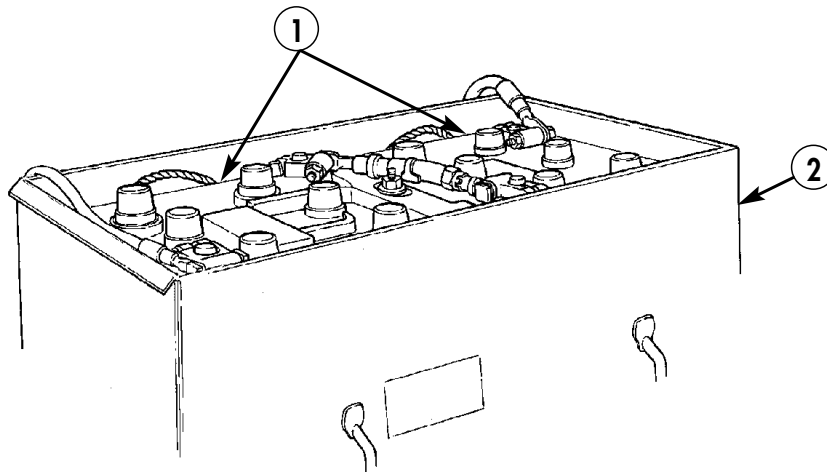
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1 (Contd)	Before Before Before Weekly Before Before Before Weekly Weekly	Exterior (Contd)	c. Look under vehicle for evidence of fluid (fuel, oil, brake fluid, and coolant) leak. d. Check condition of: 1. Windshield and windows 2. Windshield wiper arms and blades 3. Mirrors 4. All locking and fastening devices 5. Spare tire mounting 6. Door and window operation 7. Headlights, taillights, stoplights, turn signals, and blackout lights operation. <p style="text-align: center;">NOTE</p> 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 does not retain lubrication in the joints. Replace the boot as soon as conditions permit. 8. Steering knuckle boots (1). Check for tears.  9. Check that spring plate is properly secured to steering arm and that spring and clamp are properly connected to flexible hydraulic brake line (refer to TM 9-2320-361-24).	c. Any brake fluid leakage. Class III oil, coolant, or fuel leak. 1. Windshield cracked, shattered, or missing.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

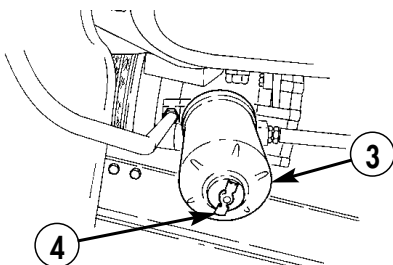
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
3	Weekly	Batteries	<p style="text-align: center;"><u>WARNING</u></p> <ul style="list-style-type: none"> • Do not smoke, have open flame, or make sparks when performing battery maintenance. Batteries may explode causing severe injury to personnel. • Remove all jewelry such as rings, dog tags, and bracelets. If jewelry or disconnected battery ground cable contacts battery post, a direct short can result, causing damage to equipment or severe injury to personnel. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • If fluid level is below split-rings or is boiling, notify your supervisor. • When temperature drops below 32 °F (0 °C), run the engine for 15 minutes to allow water added to battery by maintenance personnel to mix with electrolyte. <ol style="list-style-type: none"> a. Check that battery (1) fluid level is up to split-ring. 	Battery missing, leaking, unserviceable, or does not crank engine.
	Weekly		<ol style="list-style-type: none"> b. Check terminals and posts for tightness, damage, and corrosion. 	
	Weekly		<ol style="list-style-type: none"> c. Check for cracked or leaking casing. 	
	Monthly		<ol style="list-style-type: none"> d. Check battery compartment (2) for corrosion; if corroded, notify your supervisor. 	



OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

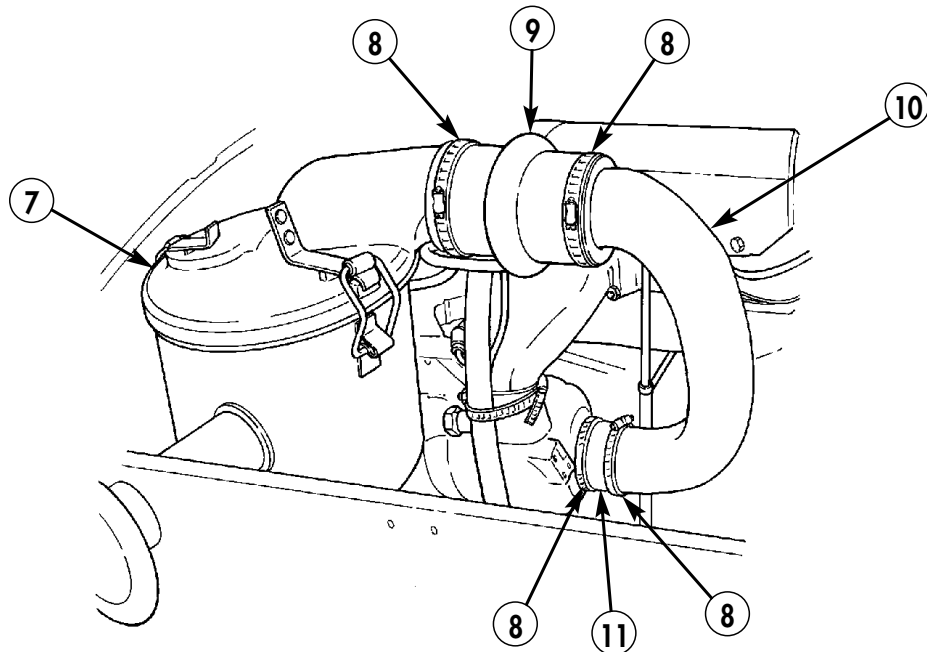
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
4	Weekly Monthly	Fuel System	<p style="text-align: center;"><u>WARNING</u></p> <ul style="list-style-type: none"> • Fuel is extremely flammable and explosive. Do not perform fuel system checks or services near open flames or sparks. Always keep a fire extinguisher nearby. Burning fuel or fuel that explodes can cause injury or death to personnel. • The fuel system is pressurized. Eye protection must be worn to prevent injury to personnel. <p>a. Check fuel tank for leaks and broken supports.</p> <p>b. Check fuel lines and hoses for leaks and damage. Ensure all connections are secure.</p>	<p>a. Any Class III fuel leak. Supports are broken.</p> <p>b. Any Class III fuel leak.</p>
5	After After	Primary Fuel Filter	<p style="text-align: center;"><u>WARNING</u></p> <ul style="list-style-type: none"> • Fuel is extremely flammable and explosive. Do not perform fuel system checks or services near open flames or sparks. Always keep a fire extinguisher nearby. Burning fuel or fuel that explodes can cause injury or death to personnel. • The fuel system is pressurized. Eye protection must be worn to prevent injury to personnel. <p style="text-align: center;"><u>CAUTION</u></p> <p>If one pint (0.473 L) of fuel is drained and fuel is still not clear, notify your supervisor.</p> <p>a. Open drain valve (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 drain valve (4).</p> <p>b. Check for fuel leaks.</p> 	<p>b. Any Class III fuel leaks.</p>

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

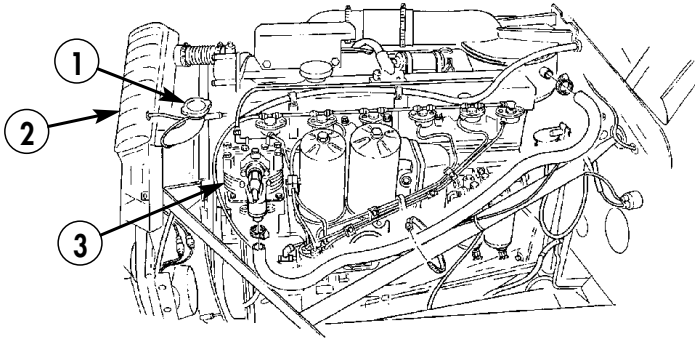
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
8	Monthly	Frame	<p>Underbody</p> <p>NOTE</p> <p>If any of the following conditions exist, notify your supervisor.</p> <p>Visually check frame side rails, crossmembers, and underbody supports for broken welds or bolts, cracks, loose rivets, or rusted-through conditions.</p>	Any cracked, loose, broken, or missing side rails, crossmembers, or rivets. Frame is rusted through.
9	Monthly	Air intake system	<p>Engine Compartment</p> <p>WARNING</p> <p>If Nuclear, Biological, or Chemical (NBC) exposure is suspected, all air filter media must be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC noncommissioned officer for appropriate handling and disposal instructions.</p> <p>Check clamps (8) for tightness and connector hose (9), tube (10), hose (11), and air cleaner assembly (7) for openings which could allow foreign materials to enter engine.</p>	Any openings.



OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

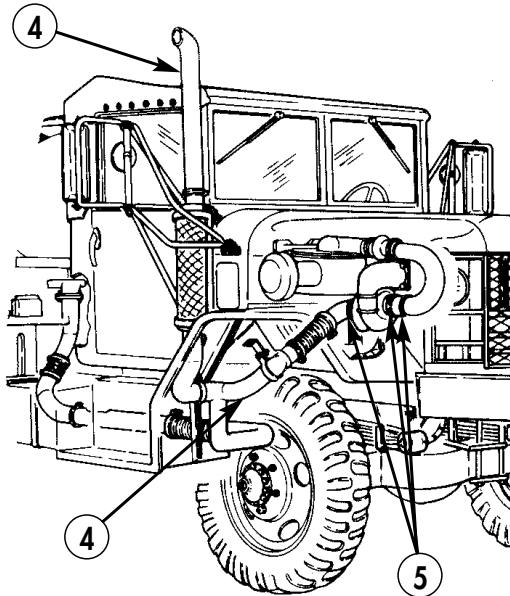
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
10	Weekly Weekly Monthly	Radiator	a. Check radiator cap (1) for cracks, bends, and tightness. b. Check if radiator (2) is full; add coolant, as required. c. Check all hoses for deterioration, leaks, and secure connections.	c. Any class III leak.
11	Monthly	Drive belts	Check for missing, cracked, frayed, or broken belts.	Any drivebelt missing, broken, or cracked to belt fiber. More than one crack 1/8 in. (3.2 mm) deep (50% belt thickness) within a 6 in. (152 mm) length. Frays >2 in. (51 mm).
				
12	Monthly	Air compressor	Check air compressor (3) for loose bolts and air leaks.	Any hose lines missing, leaking, or damaged. Any air leak.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

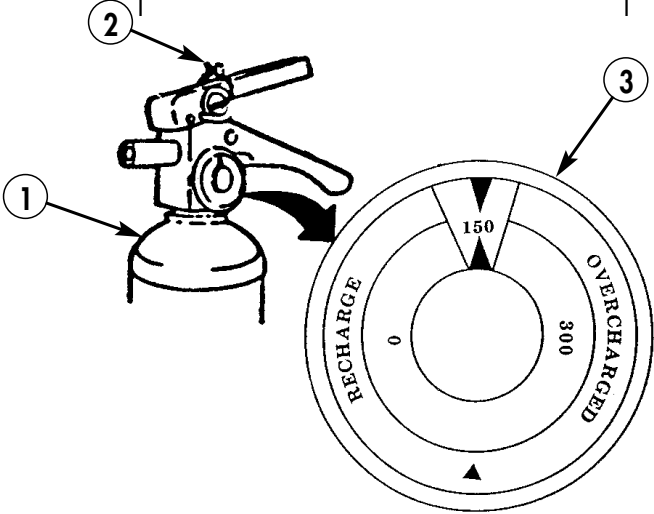
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
13	Before	Engine oil level	Check engine oil level as follows: a. When checking cold, oil level should be approximately 1–1.5 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 ADD and FULL marks. Add oil as necessary; do not overfill.	
14	Before	Exhaust system	<p style="text-align: center;">WARNING</p> <ul style="list-style-type: none"> • Exhaust gases can kill. Operate vehicle only in a well-ventilated area. Failure to do so may result in injury or death to personnel. • Do not touch hot exhaust pipes with bare hands. Injury to personnel may result. a. Start engine. b. Check exhaust pipes (4) and couplings (5) for leaks and loose clamps, when engine is at normal operating temperature (180–200 °F (82–93 °C)).	b. Any cracked, broken, or missing parts, or exhaust leaks.



OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
15	Before Before Before	Fire extinguisher	<p>INTERIOR</p> <p>a. Check for missing or damaged fire extinguisher (1).</p> <p>b. Check gauge (3) for proper pressure, 150 psi (1,034 kPa).</p> <p>c. Check for damaged or missing seal (2).</p> 	<p>a. Fire extinguisher missing or damaged.</p> <p>b. Pressure gauge in RECHARGE area.</p> <p>c. Seal broken or missing.</p>
16	Before	Instruments	<p>WARNING</p> <p>If warning buzzer stops and air pressure is below 85 psi (586 kPa), service brakes may not function properly; stop engine and troubleshoot problem. Failure to comply may result in brake failure, causing injury or death to personnel.</p> <p>CAUTION</p> <p>If oil pressure reading is <10 psi (69 kPa), or if temperature reading is >210 °F (99 °C), stop engine immediately. Failure to do so can result in engine damage.</p> <p>a. Start engine and run at idle speed (650–850 RPM).</p>	<p>a. Engine does not operate. Warning buzzer does not activate.</p>

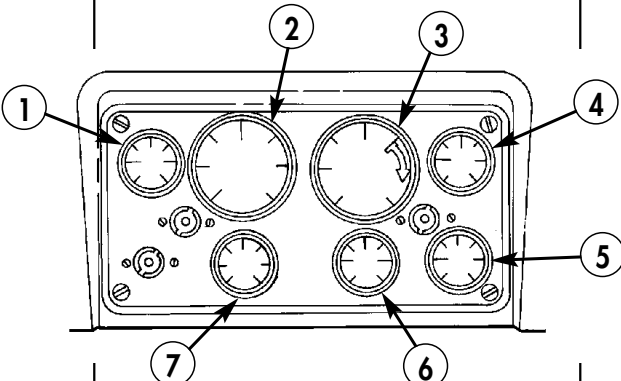
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
16 (Contd)	Before	Instruments (Contd)	b. Listen for warning buzzer and observe air pressure gauge.	b. Warning buzzer does not stop above 66 psi (455 kPa). Warning buzzer does not activate at approximately 60 psi (414 kPa) and remains on when air pressure continues to decrease.
	Before		c. Listen for unusual noise or vibration.	c. There is unusual noise or vibration.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

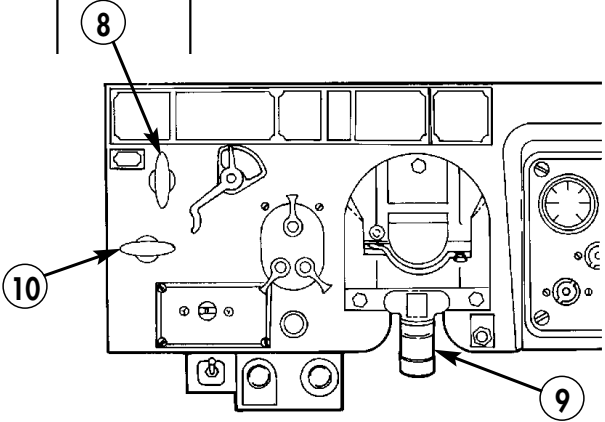
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:																		
16 (Contd)		Instruments (Contd)	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • The position of instruments is different on earlier model vehicles. • Normal oil pressure with engine running at idle speed is about 10 psi (69 kPa). • At road speeds, oil pressure should be 45–120 psi (310–827 kPa). • Some engines have normal oil pressure readings of 40–120 psi (276–827 kPa) at road speeds. If the oil pressure gauge has a maximum reading of 120 psi (827 kPa) and the needle peaks at 120 psi (827 kPa), notify your supervisor. <div style="text-align: center;">  </div> <p>d. Check instrument panel engine instruments for abnormal readings during operation; normal readings are as follows:</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Gauge/Meter</th> <th style="text-align: left;">Normal Reading</th> </tr> </thead> <tbody> <tr> <td>Oil pressure gauge (1):</td> <td>10–120 psi (69–827 kPa)</td> </tr> <tr> <td>Temperature gauge (4):</td> <td>180–200 °F (82–93 °C)</td> </tr> <tr> <td>Air pressure gauge (5):</td> <td>85–120 psi (586–827 kPa)</td> </tr> <tr> <td>Battery/generator meter (6):</td> <td>in green area</td> </tr> <tr> <td>Tachometer (3):</td> <td>650–850 RPM (at idle)</td> </tr> <tr> <td>Fuel gauge (7):</td> <td>fuel level</td> </tr> <tr> <td>Speedometer (2):</td> <td>vehicle speed</td> </tr> <tr> <td>Odometer:</td> <td>total mileage</td> </tr> </tbody> </table>	Gauge/Meter	Normal Reading	Oil pressure gauge (1):	10–120 psi (69–827 kPa)	Temperature gauge (4):	180–200 °F (82–93 °C)	Air pressure gauge (5):	85–120 psi (586–827 kPa)	Battery/generator meter (6):	in green area	Tachometer (3):	650–850 RPM (at idle)	Fuel gauge (7):	fuel level	Speedometer (2):	vehicle speed	Odometer:	total mileage	<p>d. Any instrument reading is not normal.</p> <p>Oil pressure is <10 psi (69 kPa).</p> <p>Temperature >200 °F (93 °C).</p> <p>Air pressure is <85 psi (586 kPa).</p> <p>Meter is in the red area.</p> <p>Engine speed is <650 or >850 RPM at idle.</p>
Gauge/Meter	Normal Reading																					
Oil pressure gauge (1):	10–120 psi (69–827 kPa)																					
Temperature gauge (4):	180–200 °F (82–93 °C)																					
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Fuel gauge (7):	fuel level																					
Speedometer (2):	vehicle speed																					
Odometer:	total mileage																					

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

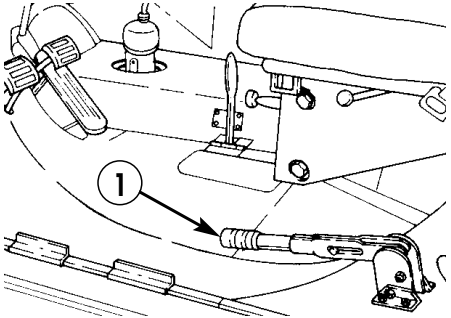
ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
17	After	Controls	a. Engine stop control (8).	a. Not operating or does not lock in the out position.
18	During Before Before	Seat belts	b. Hand throttle control (10). a. Check for proper buckle and clasp end operation. b. Check seat belts for secure mounting.	
19	Before	Air cleaner indicator	<p style="text-align: center;">NOTE</p> <p>A red band on the air cleaner indicator indicates that the filter element needs to be cleaned or replaced.</p> <p>Check air cleaner indicator (9).</p>	Indicator is red when engine is running.



The diagram shows a top-down view of the engine control panel. Callout 8 points to the engine stop control, callout 9 points to the air cleaner indicator, and callout 10 points to the hand throttle control.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
20	<p>Monthly</p> <p>Monthly</p> <p>Before</p> <p>Before</p> <p>Before</p> <p>Weekly</p>	Brake system	<p>a. Start engine with parking brake fully engaged.</p> <p>b. Stop engine (WP 0010 00) when air pressure gauge reaches 85 psi (585 kPa).</p> <p>c. Crew—depress and hold service brake pedal.</p> <p>d. Driver—listen and visually check:</p> <ol style="list-style-type: none"> 1. Air reservoirs for leaks. 2. All brake lines and hoses (air and hydraulic) for deterioration, chafing, binding, and leaks. <p>e. Crew—release service brake pedal.</p> <p>f. Operate service brakes to determine stopping ability. Check for pulling to one side, grabbing, or other abnormal operation.</p> <p>g. Determine parking brake ability to hold vehicle.</p> <ol style="list-style-type: none"> 1. Apply parking brake. 2. Engage transmission in 2 (SECOND) position, with transfer case in LOW position. 3. Slowly release clutch pedal; vehicle should not move. <p>h. Adjust parking brake as required. Turn parking brake lever knob (1), with brake released, to set cable tension.</p>  <p>i. Check master cylinder fluid level, fill as necessary.</p>	<ol style="list-style-type: none"> 1. Any reservoir, line, or hose missing, chafing, binding, leaking, or damaged. 2. Any hydraulic or air leak. f. Service brakes do not operate properly, or brake pedal depresses to within 2 in. (51 mm) of floor. g. Parking brake does not hold vehicle. h. Parking brake cannot be adjusted

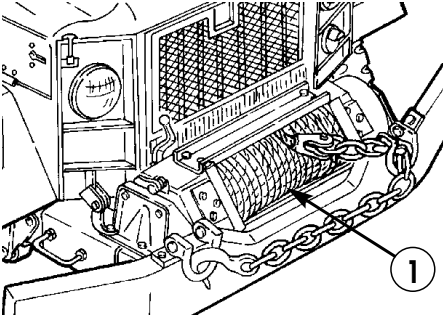
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
21	During	Steering system	Check for unusual play, binding, wander, vibration, or wobble.	Loose or binding steering action, steering not operating.
22	During	Power assist steering	<p style="text-align: center;"><u>WARNING</u></p> <p>The sudden jerking of the steering wheel in the opposite direction turned indicates air lines at the power assist cylinder have been crossed. Stop vehicle immediately and notify your supervisor. Failure to do this may result in injury to personnel.</p> <p>a. Check steering for smooth response to turning. If steering wheel suddenly jerks in the opposite direction turned, stop vehicle immediately and notify your supervisor.</p> <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Steering will seem as if it is binding if power assist is inoperative. • If binding is caused by inoperative power assist, vehicle is still mission capable. <p>b. Check for unusual free play, wandering, binding, or shimmy.</p>	<p>a. Steering wheel jerks in the opposite direction turned.</p> <p>b. Steering action is loose or binds, or steering is inoperative (unless inoperative power assist causes binding).</p>
23	During	Suspension	Check for excessive bounce.	
24	Before	Transmission	Shift transmission in all ranges, check for: <p>a. Unusual shifting linkage stiffness.</p> <p>b. Shifting linkage binding.</p> <p>c. Gears not meshing correctly, indicated by vibration or noise.</p>	Transmission is not operating, binding, vibrating, or noisy.
25	Before	Clutch	Check for drag, noise, chatter, grab, or slip.	Clutch is not operating, slips, grabs, or chatters.
26	Before	Transfer case	Check shifting operation for unusual noise, stiffness, or jumping out of gear.	Transfer case is not operating, noisy, or jumps out of gear.
27	Before	Horns	Check horn operation if tactical situation permits.	
28	Before	Front/rear axles and propeller shafts	Check for unusual noise or vibration. Vibration, clicking, or clunking noise indicates worn U-joints, loose mounting bolts, or damaged propeller shafts.	Unusual noise or vibration.

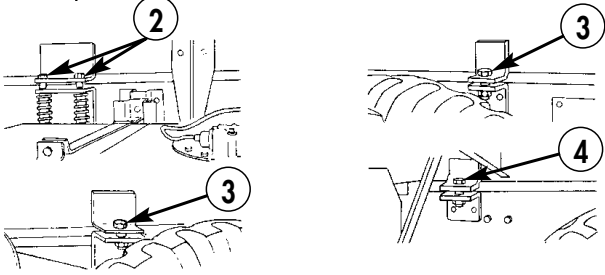
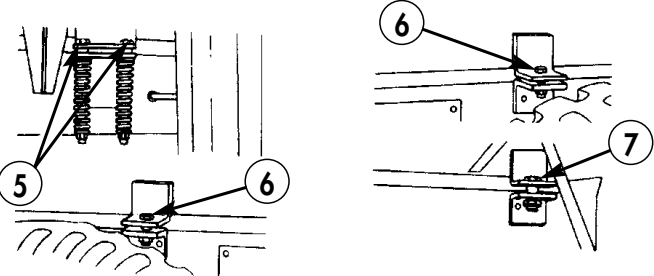
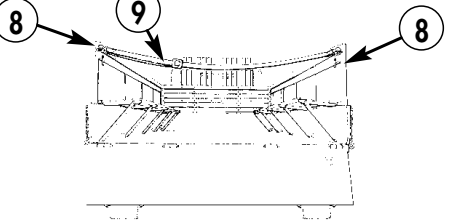
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
29	<p>During</p> <p>During</p> <p>Before</p>	Front winch	<p>SPECIAL BODY EQUIPMENT</p> <p>NOTE</p> <p>The vehicle is not considered ready/available if the mission requires the front winch and the front winch is not operating.</p> <p>a. Check operation of all winch controls (WP 0016 00).</p> <p>WARNING</p> <p>Wear leather gloves when handling the winch cable. Handling the cable without leather gloves may result in injury to personnel.</p> <p>b. Check cable (1) for kinks, fraying, and breaks.</p> <p>c. Check for damaged or missing shearpin, refer to WP 0051 00.</p> 	<p>a. No control response.</p> <p>b. Breaks or fraying.</p> <p>c. Shearpin missing or damaged.</p>

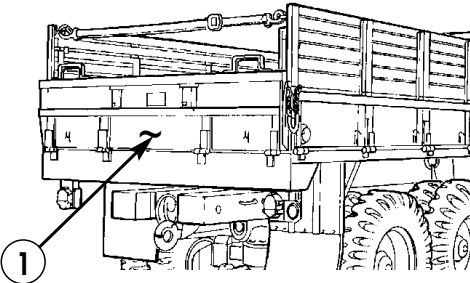
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
30	Weekly	Cargo body	<p>M35A2, M35A2C, and M36A2 Cargo Trucks</p> <p>a. Check cargo body for broken or missing mounting bolts.</p>	<p>a. Any mounting bolt missing or broken.</p>
			 <p>1. Right side cargo body front (2), center (3), and rear (4) mounting bolts.</p>	
	Monthly		 <p>2. Left side cargo body front (5), center (6), and rear (7) mounting bolts.</p>	
	Monthly		<p>b. Check side racks (8) for cracks and breaks.</p>	<p>c. Any dropside T-bolt missing.</p>
Monthly	<p>c. Check if dropside T-bolts are installed and secure.</p>	<p>d. Any locking pin missing.</p>		
Monthly	<p>d. Check if dropside rack locking pins are installed and secure.</p>  <p>e. Check for missing or damaged safety strap (9).</p>	<p>e. Safety strap missing or damaged.</p>		

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

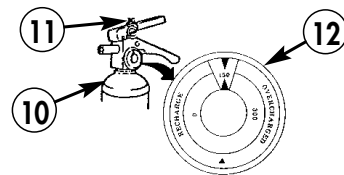
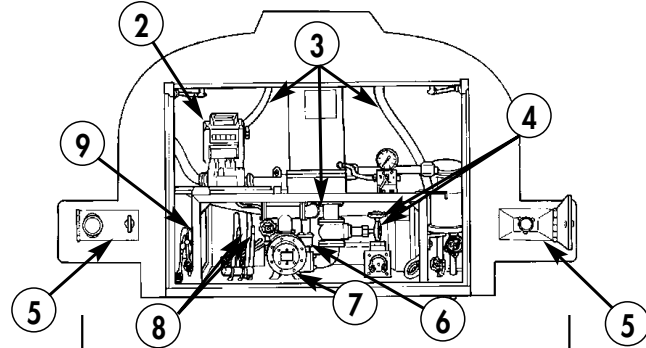
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
30 (Contd)	Before Before Before Before	Cargo body (Contd)	<p style="text-align: center;">NOTE</p> <p>If vehicle is equipped with the universal tie-down anchors kit, check cargo tie down brackets.</p> <p>f. Check for missing or damaged cargo tie-down brackets.</p> <p style="text-align: center;">NOTE</p> <p>If vehicle is used to transport troops, check if the following items are missing or damaged:</p> <p>g. Dropside hinges and pins.</p> <p>h. Seat retainer pins.</p> <p>i. Troop seat latches.</p> 	<p>f. Cargo tie-down brackets missing or damaged.</p> <p>g. Dropside hinges and pins missing or damaged.</p> <p>h. Troop seat retainer pins missing or damaged.</p> <p>i. Troop seat latches missing or damaged.</p>
31	Before Monthly Monthly	Tailgate	<p style="text-align: center;">NOTE</p> <p>Vehicle is not ready/available if mission requires tailgate and tailgate is not operative.</p> <p>a. Check glad hand couplings; ensure glad hand couplings are installed on glad hands.</p> <p>b. Check that tailgate (1) is secure and not damaged. Check for ease of operation.</p> <p>c. Check for missing or damaged retaining pins.</p>	<p>c. Retaining pins missing or damaged.</p>

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

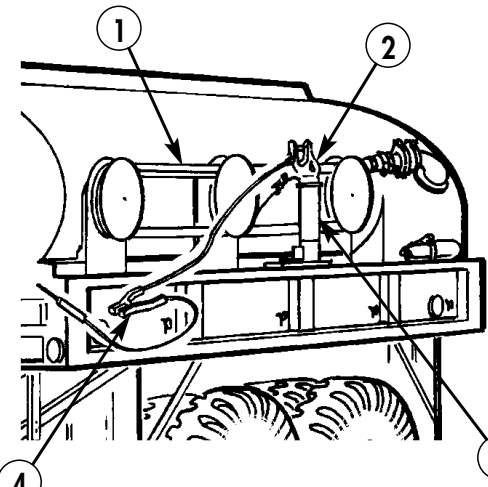
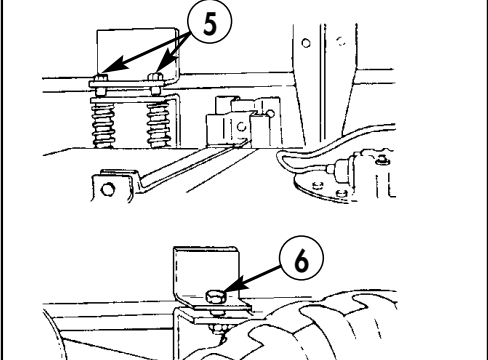
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
32	Before Before Before Before Before Before Before Before	Rear compartment	<p>M49A2C Fuel Tank Truck</p> <p>Open rear doors and check that the following items are secure and not damaged.</p> <ol style="list-style-type: none"> Delivery pump (7) Strainer (6) Fuel lines (3) Valves (4) Ground wire reel (9) Meter (2) Control levers (8) 	Delivery pump, strainer, fuel lines, controls, ground wire reel, or meter, loose or unserviceable.
33	Before	Suction hoses	<p>Check both suction hoses in suction hose compartments (5) for damaged or missing parts.</p>	
34	Before Before Before	Fire extinguishers	<p>NOTE</p> <p>Fire extinguishers are located on the right front and left rear walkways.</p> <ol style="list-style-type: none"> Check for missing or damaged fire extinguisher (10). Check gauge (12) for proper pressure, 150 psi (1,034 kPa). Check for damaged or missing seal (11). 	<ol style="list-style-type: none"> Fire extinguisher missing or damaged. Pressure gauge in RECHARGE area. Seal broken or missing.



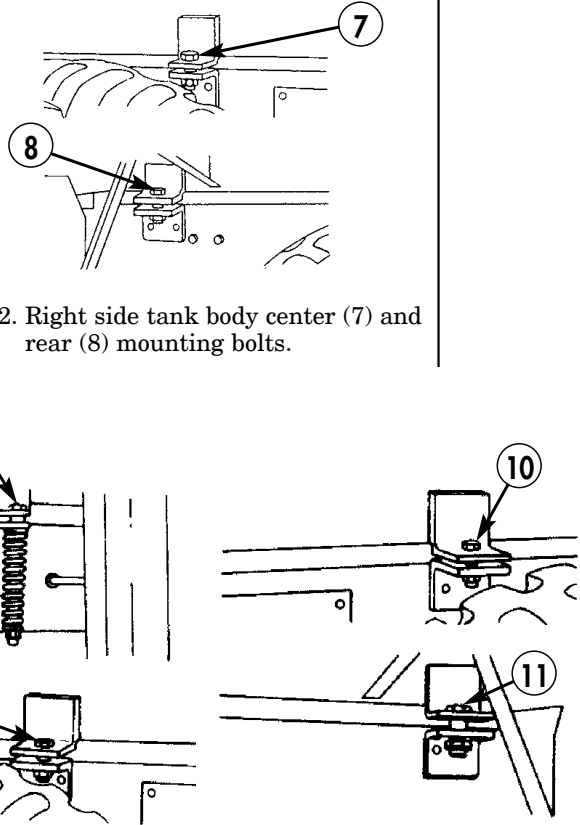
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
35	Before Before Before Before	Dispenser line assembly	<p>Check the following for damaged or missing parts:</p> <ul style="list-style-type: none"> a. Dispenser line (1) b. Dispenser line nozzle (2) c. Nozzle storage rack (3) d. Nozzle ground clip (4) 	Dispenser line, nozzle, or nozzle ground clip missing or unserviceable.
36	Before Weekly	Tank body	<ul style="list-style-type: none"> a. Check for tank body leaks. b. Check tank body for broken or missing mounting bolts.  <p>1. Right side tank body front (5) and center (6) mounting bolts.</p>	<ul style="list-style-type: none"> a. Tank body has fuel leak. b. Any broken or missing mounting bolts.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

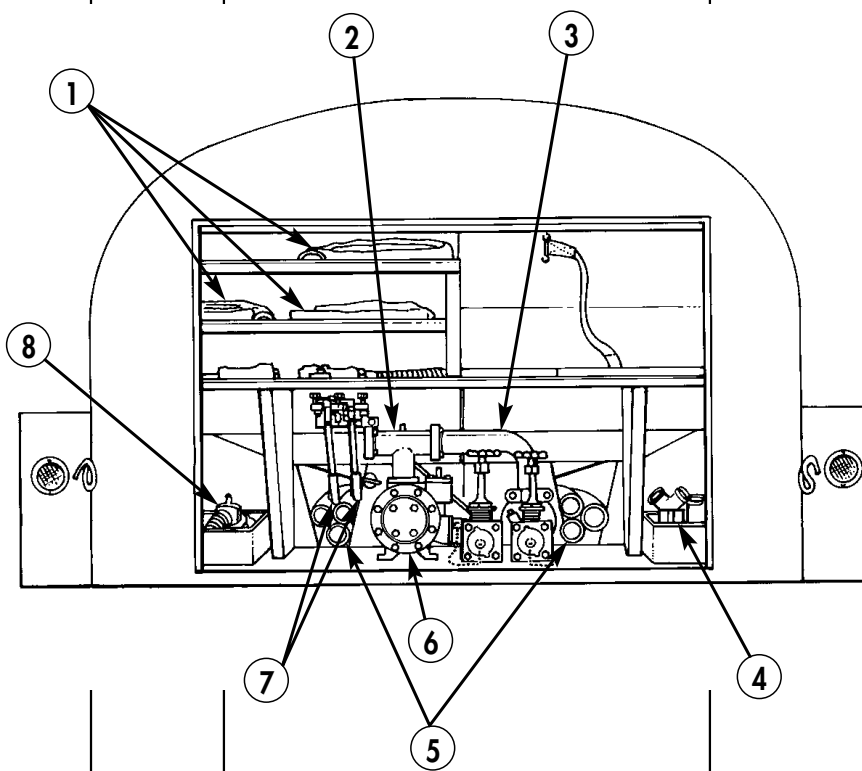
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
36 (Contd)		Tank body (Contd)	 <p>2. Right side tank body center (7) and rear (8) mounting bolts.</p> <p>3. Left side tank body front (9), center (10), and rear (11) mounting bolts.</p>	
	Weekly		c. Check for missing or damaged manhole covers and filler covers.	c. Manhole cover or filler cover missing or unserviceable.
	During		d. Check for missing or damaged manhole cover seals.	d. Manhole cover seals missing or damaged.
37	During	Controls and related equipment	a. Check controls and related equipment for proper operation, listen for unusual noise.	a. Improper operation or unusual noise.
	During		b. Check PTO operation.	b. If PTO is not operating, vehicle is limited to gravity fill and discharge.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

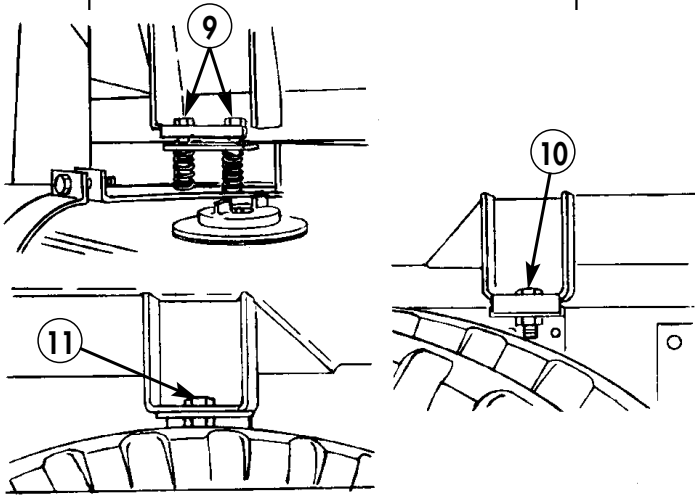
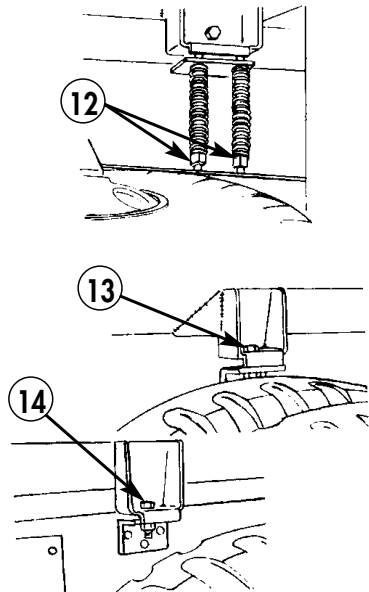
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
38	Before Before Before Before Before Before Before Before	Rear compartment	<p>M50A3 Water Tank Trucks</p> <p>Check the following items:</p> <ul style="list-style-type: none"> a. Delivery pump (6) b. Delivery strainer (2) c. Water lines (3) d. Compartment valve levers (7) e. Six suction hoses (5) f. Three discharge hoses (1) g. Dispenser nozzle (8) h. Water suction strainer (4) 	Any item missing or unserviceable.



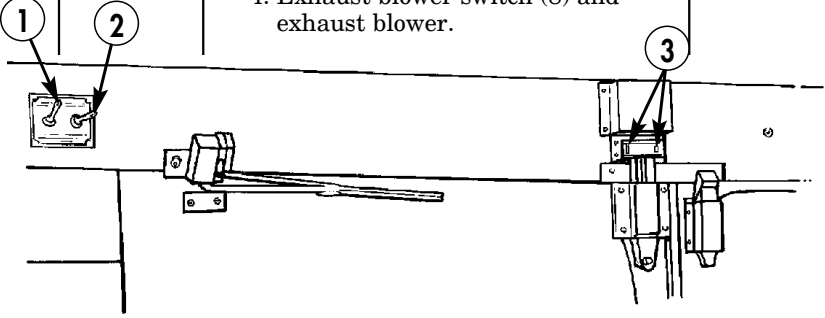
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
39	During Weekly	Tank body	<p>a. Check tank body for leaks.</p> <p>b. Check tank body for broken or missing mounting bolts.</p> <p>1. Right side tank body front (9), center (10), and rear (11) mounting bolts.</p>  <p>2. Left side body front (12), center (13), and rear (14) mounting bolts.</p> 	b. Any broken or missing mounting bolts.

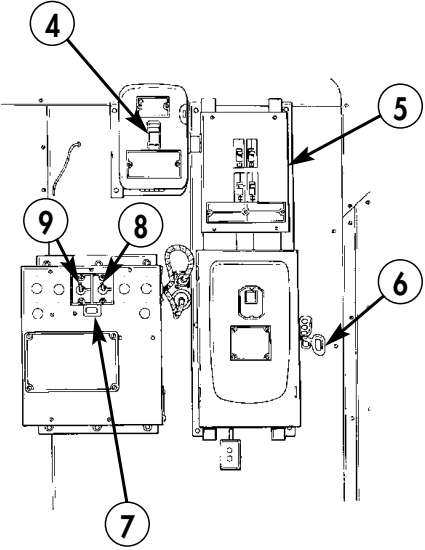
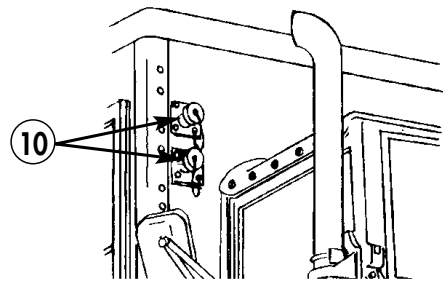
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
39 (Contd)	Weekly	Tank body (Contd)	c. Check for missing or damaged manhole and filler covers.	c. Manhole or filler covers missing or unserviceable.
	During		d. Check for missing or damaged manhole cover and filler cover seals.	d. Manhole or filler cover seals missing or damaged.
40	Before	Controls and related equipment	a. Check controls and related equipment for proper operation, listen for unusual noise.	a. Improper operation or unusual noise.
	Before		b. Check PTO operation.	b. If PTO is not operating, vehicle is limited to gravity fill and discharge.
			M109A3 Shop Van and M185A3 Repair Van Trucks	
41	Before	Interior lights, switches, and accessories	a. Set the following switches on to check operation of associated lights or accessories: 1. Dome light toggle switch (1) and dome light.	
			NOTE Vehicle is not ready/available if mission requires blackout lights and lights are not operating.	
	Before		2. Blackout dome light toggle switch (2).	
	Before		3. Rear door blackout switches (3) and dome lights.	
	Before		4. Exhaust blower switch (8) and exhaust blower.	
				
RIGHT REAR DOOR				

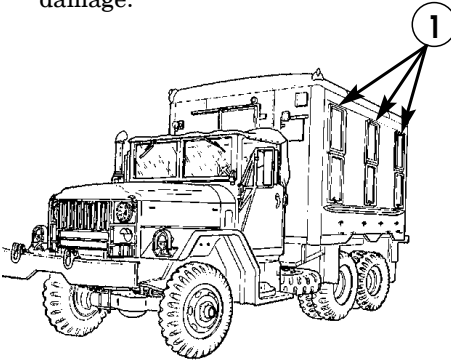
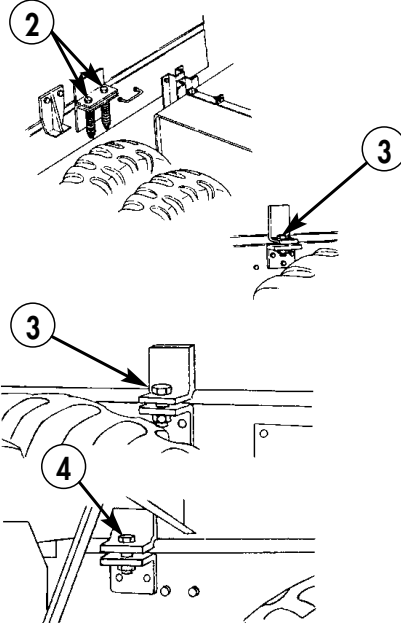
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
41 (Contd)	Weekly Weekly Weekly Weekly Weekly Weekly	Interior lights, switches, and accessories (Contd)	b. Check the following front panel items for looseness or damage: <ol style="list-style-type: none"> 1. Operation blackout switch (4) 2. Converter selector switch (9) 3. Exhaust blower switch (8) 4. Red indicator lamp (7) 5. Power switch (6) 6. Circuit breaker box (5) 	
42	Weekly	Electrical Connectors	Check if electrical connectors (10) are loose or damaged. 	

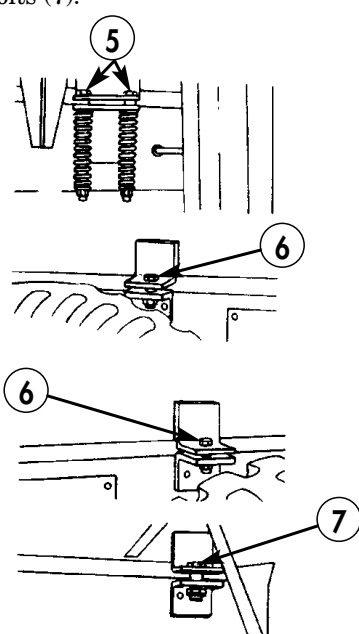
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
43	<p>Monthly</p> <p>Monthly</p> <p>Monthly</p> <p>Monthly</p>	Body	<p>NOTE</p> <p>Vehicle is not ready/available if mission requires blackout panels and panels are not operative.</p> <p>a. Check for window, screen, and blackout panel (1) operation and damage.</p>  <p>b. Check rear door operation.</p> <p>c. Check floorboards for cracks or breaks.</p> <p>d. Check body for broken or missing mounting bolts.</p> <p>1. Right side van body front (2), center (3), and rear (4) mounting bolts.</p> 	<p>d. Any body mounting bolt broken or missing.</p>

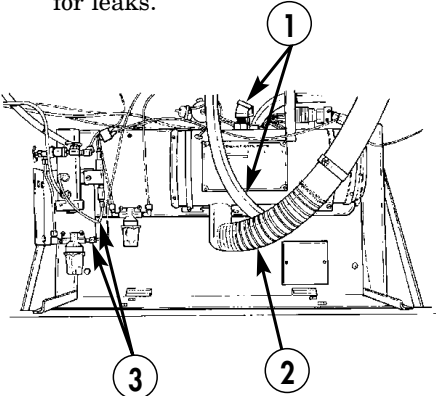
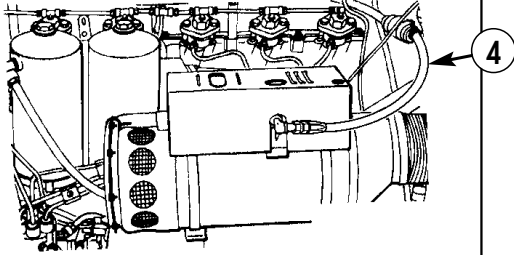
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
43 (Contd)	Monthly Monthly	Body (Contd)	<p>2. Left side van body front (5), center (6), and rear mounting bolts (7).</p>  <p>e. Check ladder.</p> <p>f. Check ladder mounting brackets and locking mechanisms for condition and proper operation.</p>	e. Steps or rails missing, cracked, or broken.

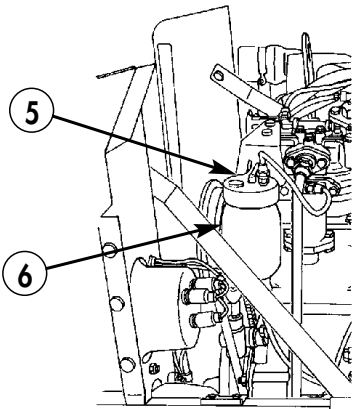
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
44	Before Before Before Before Before Before	Arctic winterization kit	<p>SPECIAL PURPOSE KITS</p> <p>a. Check engine coolant heater assembly:</p> <ol style="list-style-type: none"> 1. Check heater fuel lines (3) and fittings for leaks. 2. Check for loose or damaged exhaust tube (2). 3. Check coolant hose and fittings (1) for leaks.  <p>b. Check swingfire heater:</p> <ol style="list-style-type: none"> 1. Check fuel tank for leaks. 2. Check air shutoff valve by pressing pressure pin; pin should pop out. <p style="text-align: center;">NOTE</p> <p>Personnel heater is mounted on the left side of the engine compartment.</p> <p>c. Check personnel heater fuel line (4) for leaks.</p> 	<ol style="list-style-type: none"> 1. Any Class III leak. 3. Any Class III leak. 1. Any fuel leak. 2. Pressure pin does not pop out. c. Any Class III leak.

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

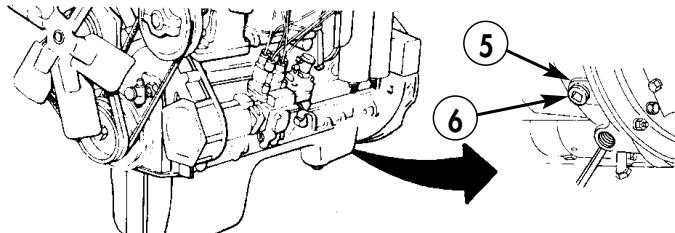
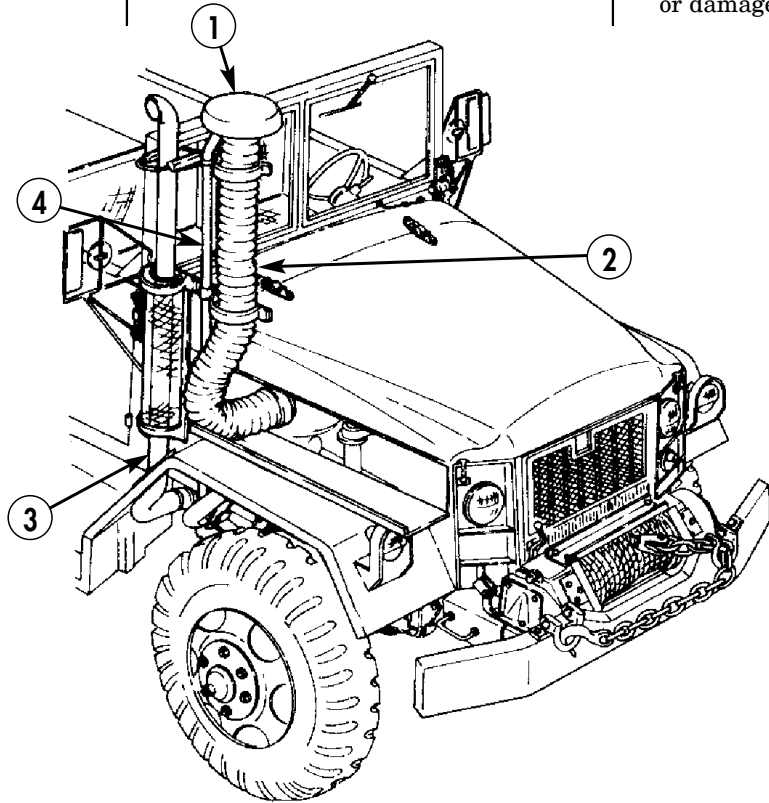
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
44 (Contd)	Before	Arctic winterization kit (Contd)	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • The alcohol evaporator is mounted in the left front area of the engine compartment, near the air compressor. • The alcohol evaporator level should be checked at temperatures below -25 °F (-32 °C). <p>d. Check alcohol evaporator (6) alcohol level as follows:</p> <ol style="list-style-type: none"> 1. Unscrew filler cap (5). 2. Check alcohol level, level should be within 1/2–1 in. of top. Fill as necessary. 3. Install filler cap (5).  <p>e. Press personnel and power plant heater red indicator lights (light should illuminate) to check heater circuit operation (WP 0034 00).</p>	
	Before		<p>e. Press personnel and power plant heater red indicator lights (light should illuminate) to check heater circuit operation (WP 0034 00).</p>	

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

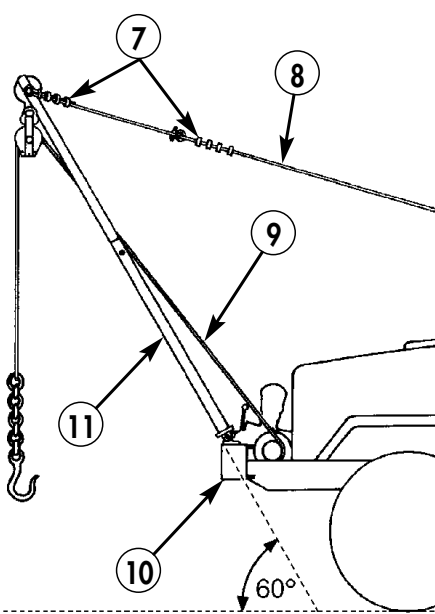
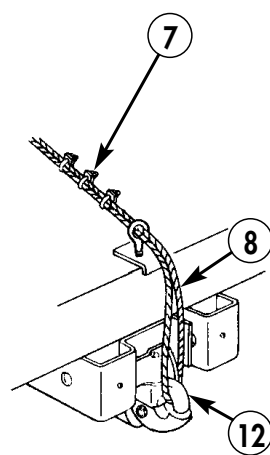
Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
45	Before Before Before Before	Deep water fording kit	a. Check for loose or damaged: 1. Air intake system hose (2) 2. Crankcase ventilation hose (4) 3. Cap (1) 4. Exhaust pipe system (3)	1. Hose damaged or unserviceable. 2. Hose damaged or unserviceable. 3. Cap damaged or unserviceable. 4. Exhaust pipe loose or damaged.
	Before		b. Check that flywheel housing drain plug (6) is in place in storage boss (5).	b. Drain plug is missing.



OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (Contd)

Table 1. Preventive Maintenance Checks and Services (Contd).

ITEM NO.	INTERVAL	ITEM TO CHECK/SERVICE	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
46	<p>Before</p> <p>Before</p> <p>Before</p> <p>Weekly</p> <p>Weekly</p>	A-Frame Kit	<p>WARNING</p> <p>Wear leather gloves when handling A-frame and winch cables. Handling the cables without leather gloves may result in injury to personnel.</p> <p>a. Ensure A-frame (11) is positioned at approximately 60° and is secured to front bumper (10) and inverted pintle hook (12).</p> <p>b. Check the following A-frame assembly components:</p> <p>1. Cable clamps (7) are tight.</p> <p>2. Cable assembly (8) is not frayed or broken.</p>  <p>c. Check A-frame (11) for bends.</p> <p>d. Check winch cable (9) for kinks, fraying, or breaks.</p>	<p>1. Clamps missing or broken</p> <p>2. Cable is frayed or broken.</p> <p>c. A-frame is damaged or unserviceable.</p> <p>d. Cable is frayed or broken.</p> 

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

MAINTENANCE INSTRUCTIONS INDEX

Work Package Title	Work Package Number
Start Up Operation	WP 0047 00
Air Cleaner Service	WP 0048 00
Wheel and Tire Service	WP 0049 00
Battery Inspection	WP 0050 00
Front Winch Shearpin Replacement	WP 0051 00
Power Steering Assist System Service	WP 0052 00

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

STARTUP OPERATION

ROAD TEST

CAUTION

- Do not exceed the maximum road speeds shown on the maximum road speed data plate. Do not drive at maximum speeds for extended periods.
 - Be alert for signs of equipment failure.
- Failure to comply may result in equipment damage.

NOTE

Perform Weekly and Before Preventive Maintenance Checks and Services (PMCS), Work Package (WP) 0045 00, if:

- You are the assigned operator but have not operated the vehicle since the last Weekly.
- You are operating the vehicle for the first time.

All reconditioned vehicles received by an organization must be road tested to check for proper operation and vehicle condition. The operator must carefully check the instrument panel gauges often, during operation, for abnormal readings. Stops should be made at least every 10 mi (16 km) to check for coolant, oil, fuel, or exhaust leaks and any indication that the engine, transmission, wheel hubs, brake drums, axles, differentials, or transfer case assemblies are overheated. All controls must be checked thoroughly for proper operation. Unusual noise and vibration must be noted. Report all unusual conditions to your supervisor.

AFTER ROAD TEST

NOTE

For maintenance level information, refer to TM 9-2320-361-24.

After a road test, correct all faulty conditions that are authorized to be performed at the crew (C) maintenance level. For faulty conditions that must be performed at the organizational (O) or higher maintenance levels, notify your supervisor.

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

AIR CLEANER SERVICE

WARNING

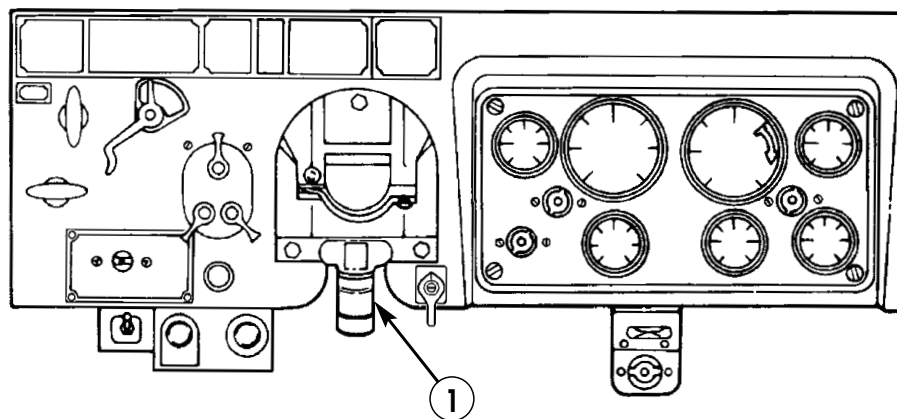
- If Nuclear, Biological, or Chemical (NBC) exposure is suspected, all air filter media must be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC noncommissioned officer for appropriate handling and disposal instructions.
- NBC contaminated filters must be handled using adequate precautions (FM 3-5) and must be disposed of by trained personnel.

CAUTION

Do not operate engine without an air cleaner element. Failure to comply may result in internal engine damage.

GENERAL

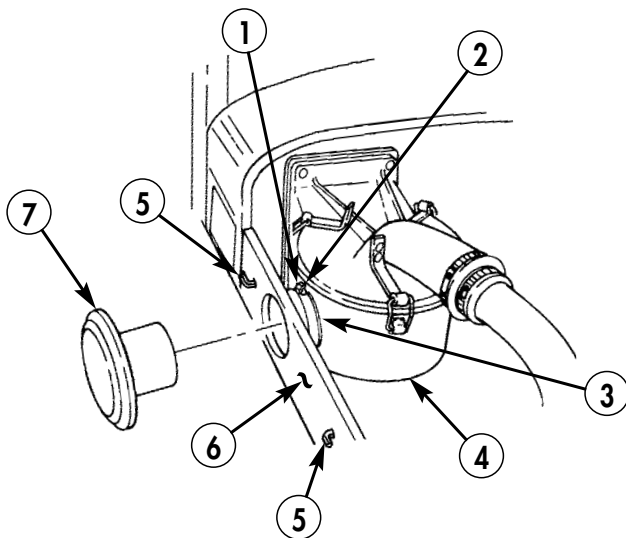
Air cleaner servicing must be performed when the red band is visible in the air cleaner indicator window (1). In an emergency situation, when the vehicle must be operated and maintenance personnel are not available to perform the air cleaner and element replacement procedure, the operator is authorized to perform the following air cleaner service procedure. If the air cleaner requires servicing in a non-emergency situation, notify your supervisor.



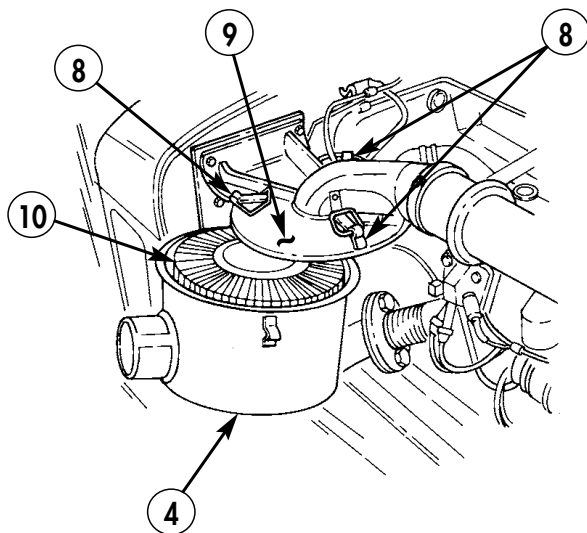
AIR CLEANER SERVICE (Contd)

REMOVAL

1. Open hood, Work Package (WP) 0014 00.
2. Loosen nut (1) and screw (2) on clamp (3).
3. Remove rain hood (7) from shell (4).
4. Turn two latches (5) to up position and lower hood right side panel (6).



5. Unlatch three clamps (8) and remove shell (4) from head (9).
6. Remove filter element (10) from shell (4).



AIR CLEANER SERVICE (Contd)

REMOVAL (Contd)

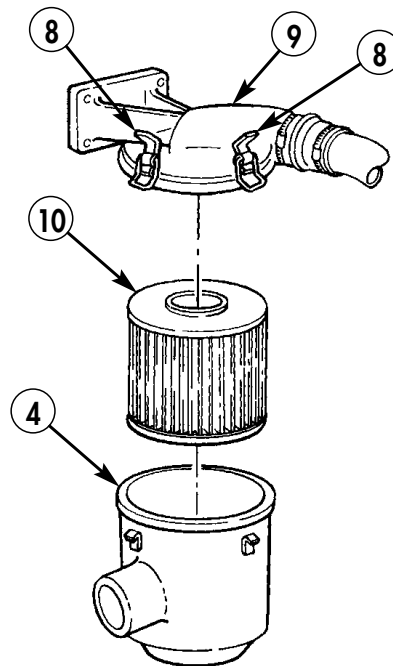
WARNING

Compressed air used for cleaning must not exceed 30 psi (207 kPa).
Wear goggles/face shield and gloves when cleaning with compressed air. Failure to do so may result in injury to personnel.

7. Clean filter element (10) by tapping it lightly or use compressed air to loosen and remove dirt.

INSTALLATION

1. Install filter element (10) in shell (4).
2. Align shell (4) with head (9), and secure with three clamps (8).



3. Raise hood right side panel (6) and lock in position by moving two latches (5) to down position.
4. Install rain hood (7) on shell (4) and tighten screw (2) and nut (1) on clamp (3).

END OF WORK PACKAGE

0048 00-3/4 blank

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

WHEEL AND TIRE SERVICE

GENERAL

Wheels and tires are inspected when performing weekly Preventive Maintenance Checks and Services (PMCS), Work Package (WP) 0045 00. If a tire becomes flat during vehicle operation, stop the vehicle immediately and replace the wheel if the tactical situation permits. The spare tire is mounted to the spare tire carrier, located on the left side of the vehicle, behind the cab, and below the cargo, tank, or van body.

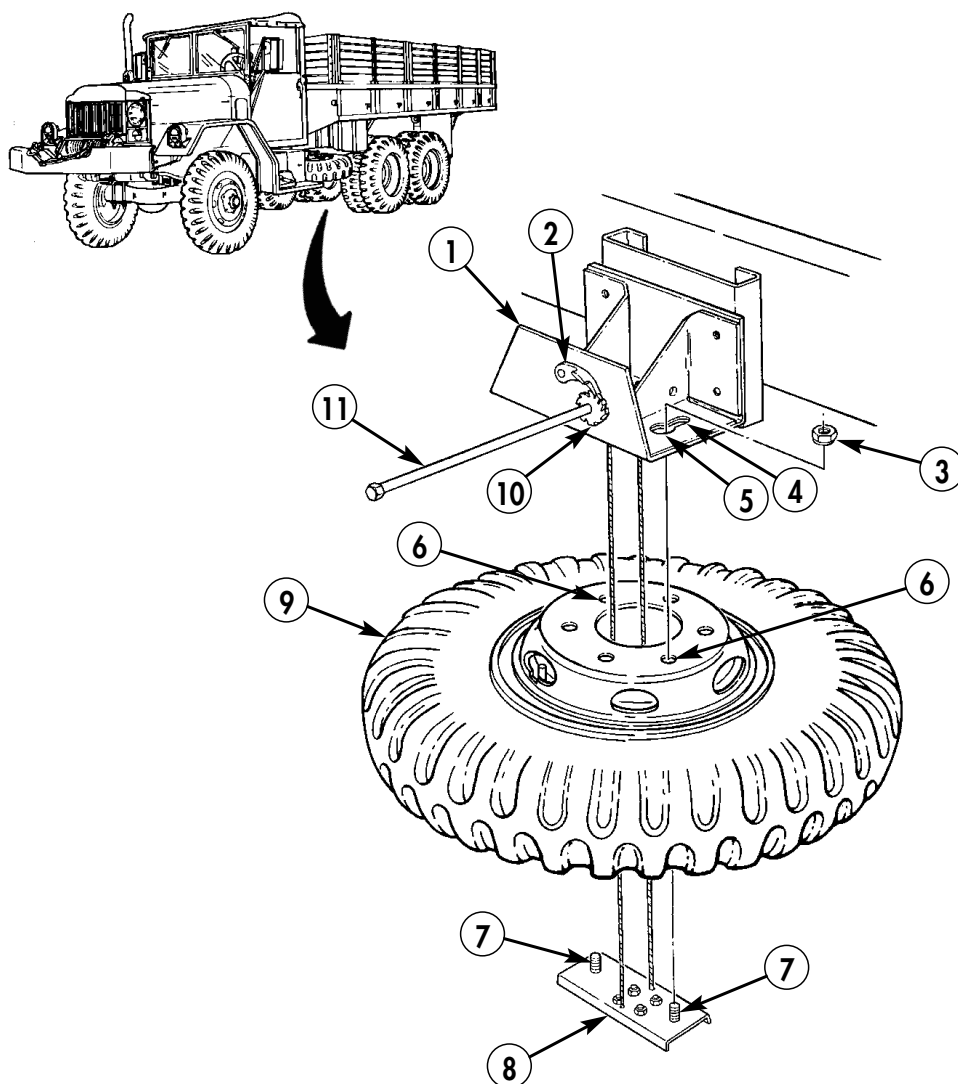
WHEEL AND TIRE SERVICE (Contd)

SPARE WHEEL REPLACEMENT

NOTE

This procedure requires two personnel.

1. Remove spare wheel assembly from spare tire carrier.
 - a. Park vehicle on level ground, stop engine, apply parking brake, and chock wheels (WP 0010 00).
 - b. Loosen two nuts (3) using spare tire mounting wrench.
 - c. Turn spare wheel (9) slightly clockwise to align nuts (3) with frame assembly (1) holes (5).



WHEEL AND TIRE SERVICE (Contd)

SPARE WHEEL REPLACEMENT (Contd)

WARNING

When releasing pawl and lowering spare wheel, hold spare tire mounting wrench handle bar securely. Do not release handle bar until wheel is completely lowered. If handle bar must be released before wheel is completely lowered, lock shaft with pawl. Failure to comply will cause wheel to drop quickly and handle bar to spin, resulting in injury or death to personnel.

- d. Turn shaft (11) slightly clockwise, using spare tire mounting wrench, to disengage pawl (2) from ratchet (10).
 - e. Hold shaft (11) in position with wrench; lift pawl (2) to release ratchet (10) and shaft (11).
 - f. Turn shaft (11) counterclockwise, using wrench, until spare wheel (9) is completely lowered.
 - g. Remove two nuts (3) from studs (7).
 - h. Remove wheel (9) from carrier.
2. Install spare wheel on carrier.
- a. Position wheel (9) below carrier.
 - b. Position pickup member (8) on wheel (9); insert two studs (7) in wheel holes (6).
 - c. Install nuts (3) halfway onto studs (7).

WARNING

The pawl must be set to engage the ratchet before raising the spare wheel. Failure to comply may cause wheel to drop quickly and handle bar to spin, resulting in injury or death to personnel.

- d. Set pawl (2) to engage ratchet (10).
- e. Turn shaft (11) clockwise, using spare tire mounting wrench, to raise wheel (9). Raise wheel (9) until studs (7) and nuts (3) go through pickup member (8) holes (5) and wheel (9) is firmly seated against frame assembly (1).
- f. Turn wheel (9) counterclockwise to seat studs (7) into slots (4).

WARNING

Ensure studs are fully seated in slots before tightening nuts. Failure to do this may cause wheel assembly to drop during vehicle operation, resulting in injury or death to personnel.

- g. Tighten two nuts (3) using spare tire mounting wrench.

WHEEL AND TIRE SERVICE (Contd)

JACKING PROCEDURE

1. Raise wheel.

WARNING

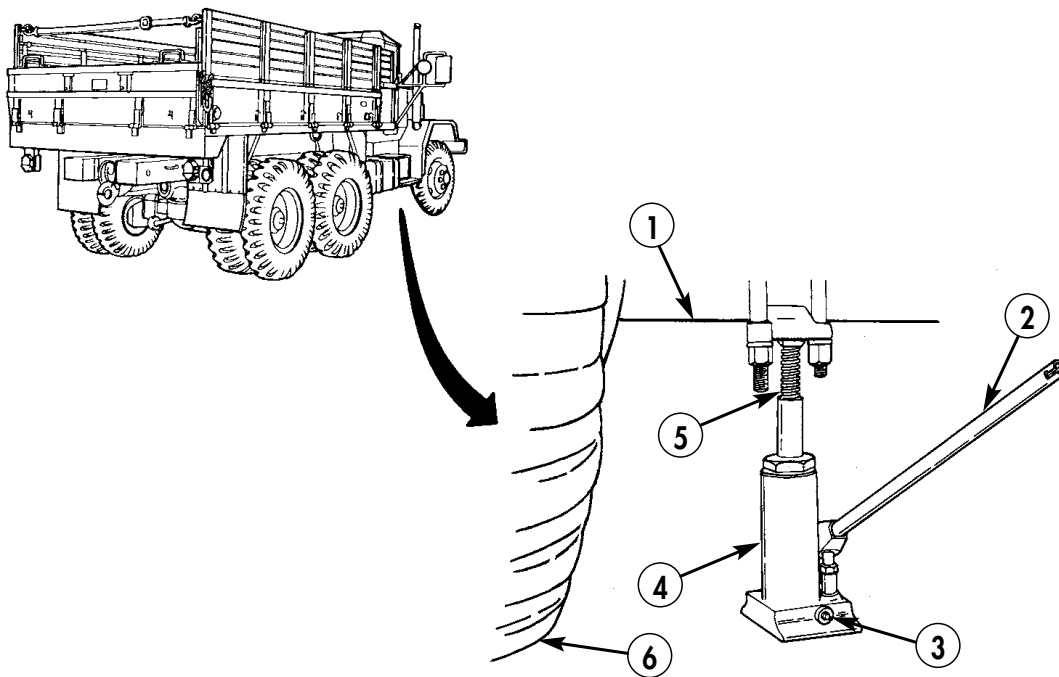
Do not work under vehicle that is supported by a jack only. The jack may slip, causing the vehicle to fall, resulting in injury or death to personnel.

- a. Park vehicle on level ground, stop engine, apply parking brake, and chock wheels (WP 0010 00).
- b. Remove hydraulic jack (4) and handle (2) from toolbox.

NOTE

Place wood block on ground under axle housing if ground is soft.

- c. Place hydraulic jack (4) on ground or wood block under axle housing (1).
 - d. Turn jack screw (5) counterclockwise to extend screw until it contacts axle housing (1).
 - e. Turn bleeder valve (3) clockwise, with jack handle (2) slotted end, until it stops.
 - f. Insert jack handle (2) into jack (4).
 - g. Pump handle (2) until wheel (6) is off ground.
2. Lower wheel.
 - a. Slowly turn bleeder valve (3) counterclockwise, with jack handle (2) slotted end, to slowly lower wheel (6).
 - b. Remove jack (4) and handle (2) from under axle housing (1) and place in toolbox.



WHEEL AND TIRE SERVICE (Contd)

WHEEL REPLACEMENT

WARNING

If there is obvious damage to wheel components, stand to the side of the tire wheel assembly and completely deflate tire before removing wheel from axle. Failure to do so can result in exploding wheel components and injury or death to personnel.

NOTE

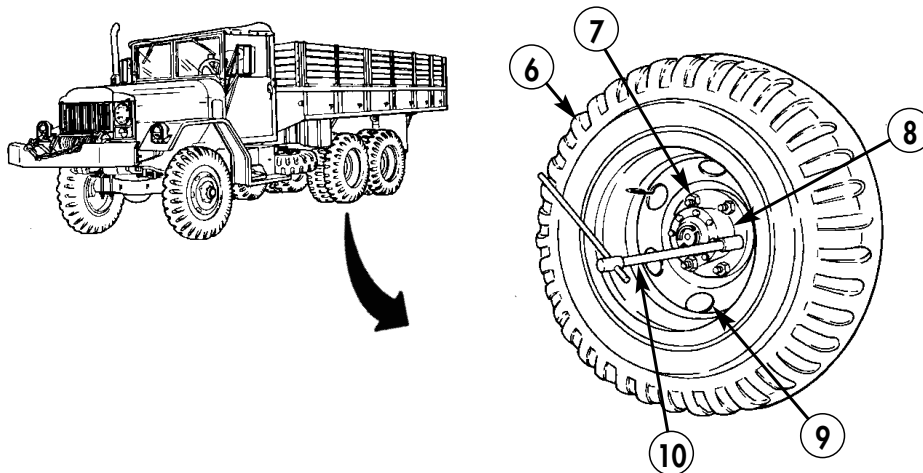
- This procedure requires two personnel.
- Steps 1.a–1.e describe front wheel and rear/outer wheel removal. Step 1.f describes rear/inner wheel removal.

1. Remove unserviceable wheel.
 - a. Park vehicle on level ground, stop engine, apply parking brake, and chock wheels (WP 0010 00).

NOTE

Wheel stud nuts on left side have left-hand threads and must be turned clockwise to loosen. Wheel stud nuts on right side have right-hand threads and must be turned counterclockwise to loosen. Studs and nuts are stamped L (left) and R (right).

- b. Loosen, but do not remove, six wheel stud nuts (7) with wheel stud nut wrench (10).
- c. Raise wheel (6) with jack (refer to JACKING PROCEDURE in this WP).



- d. Remove six wheel stud nuts (7).

CAUTION

Lift wheel when removing wheel from hub. Do not drag wheel over threaded studs when removing wheel from hub. Dragging wheel over studs damages stud threads.

- e. Remove wheel from hub.
 - (1) With personnel on each side of wheel (6), grip wheel at vent hole (9) and outside of tire (tread area).
 - (2) Lift wheel (6) and pull wheel off hub (8).

WHEEL AND TIRE SERVICE (Contd)

WHEEL REPLACEMENT (Contd)

NOTE

- If replacing the inner rear wheel, perform step f.
- To remove inner rear wheel, reverse the wheel stud nut wrench and use the square socket end to remove wheel studs.

f. Remove inner wheel.

- (1) Remove six stud nuts.
- (2) Remove inner wheel from hub.

2. Install Wheel.

NOTE

- Match rear dual tire treads as closely as possible.
- Dual rear wheels must be mounted so that the valves are opposite each other (180° apart) to allow access to inner valve through ventilation hole.
- Outer wheel ventilation holes should be aligned with inner wheel ventilation holes.
- Wheel stud nuts on left side have left-hand threads and must be turned clockwise to loosen. Wheel stud nuts on right side have right-hand threads and must be turned counterclockwise to loosen. Studs and nuts are stamped L (left) and R (right).

- a. Remove spare wheel from spare tire carrier (refer to SPARE WHEEL REPLACEMENT procedure in this WP)
- b. Install unserviceable wheel in carrier (refer to SPARE WHEEL REPLACEMENT procedure in this WP).

CAUTION

Lift wheel when installing wheel on hub. Do not drag wheel over threaded studs when installing wheel on hub. Dragging wheel over studs damages stud threads.

NOTE

When installing front wheel, ensure brake inspection plate is visible through ventilation hole.

- c. With personnel on each side of wheel (1), lift wheel (1) onto hub (2) and align holes with wheel studs (3); firmly seat wheel (1) on hub (2). On front wheel (1), ensure brake inspection plate (6) is visible through ventilation hole (5).

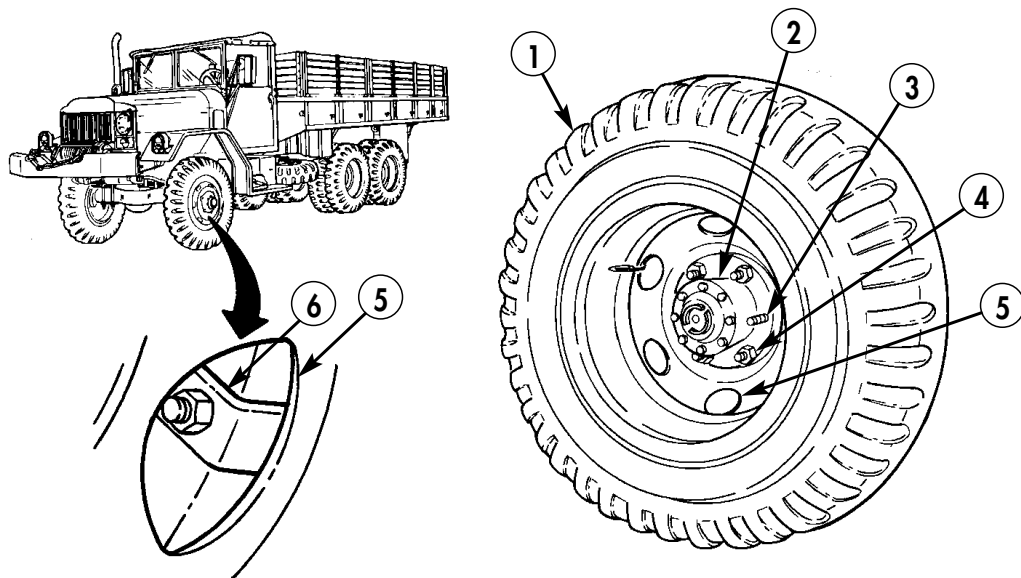
WHEEL AND TIRE SERVICE (Contd)

WHEEL REPLACEMENT (Contd)

CAUTION

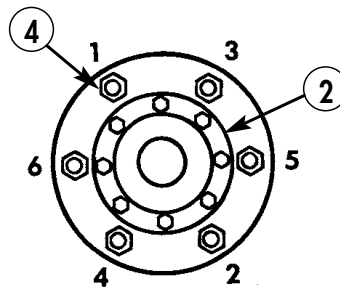
- When installing stud nuts, ensure ball seats properly (i.e., curved surface toward wheel). Failure to do this can result in damage to wheel.
- If inner wheel is replaced, ensure inner stud nuts are properly seated.

d. Install, and hand tighten, six stud nuts (4) on wheel studs (3).



e. Lower wheel (1) to ground (refer to JACKING PROCEDURE in this WP).

f. Tighten stud nuts (4) in sequence shown, using wheel stud nut wrench.



TIGHTENING SEQUENCE

g. Notify your supervisor that stud nuts (4) require tightening to specified torque.

h. Return unserviceable wheel (1) to maintenance personnel for repair, replacement, or exchange.

WHEEL AND TIRE SERVICE (Contd)

TIRE INFLATION

General

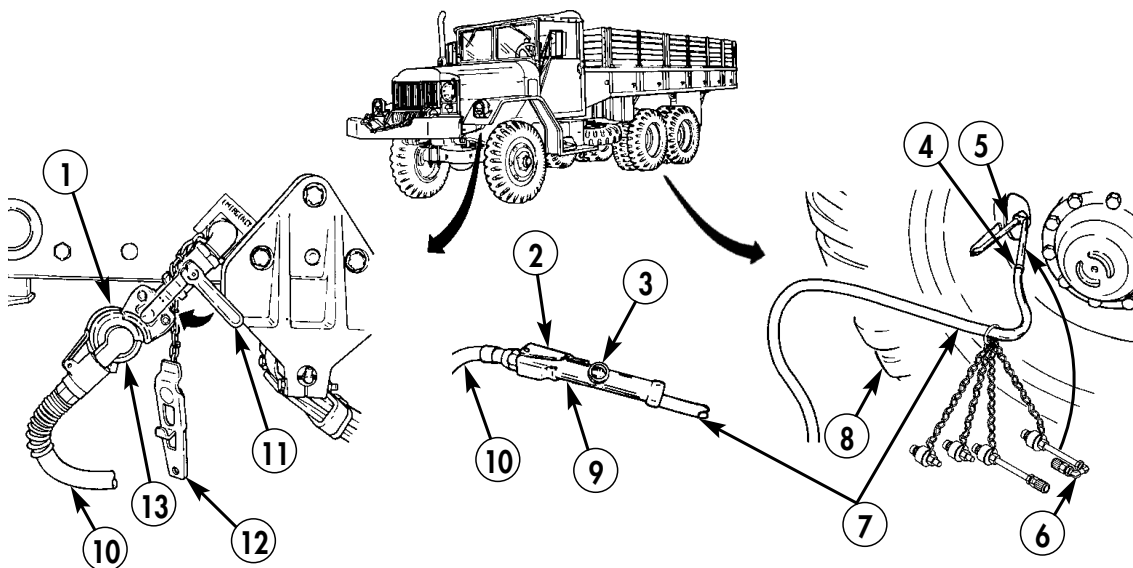
Checking tire air pressure is an important aspect of tire maintenance. Tire air pressure must be checked weekly. Recommended air pressures for all tires on all vehicle models have been carefully selected to provide maximum tire life and performance (refer to WP 0002 00, table 8 for recommended tire air pressures).

Check and adjust tire air pressure when tires are cold. Recommended air pressures are specified for cold tires (i.e., tires that have not warmed up due to vehicle operation). When vehicle is operated and tire warms up, tire air pressure increases; do not decrease warm tire air pressure to the recommended air pressure for a cold tire. Following cross-country operations in mud, sand, or snow, ensure that tires are reinflated for highway use.

WARNING

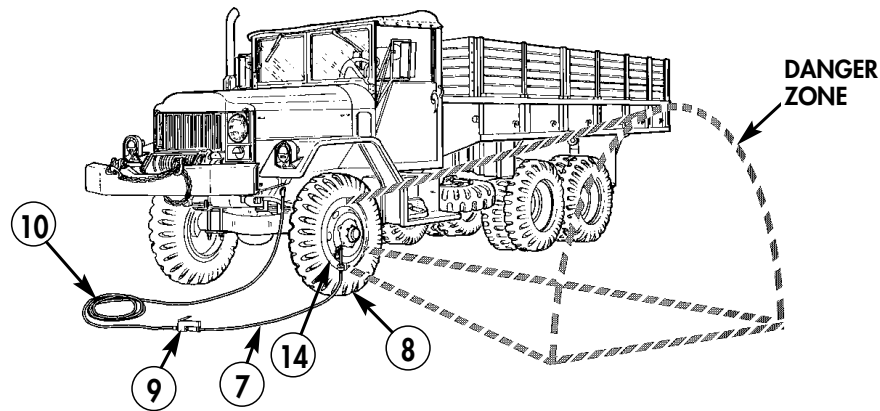
Stay clear of wheel when checking tire air pressure and inflating tire. Injury or death to personnel may result from exploding wheel components.

1. Check tire air pressure.
 - a. Remove tire inflator-gauge (9) and hose (7) assembly and 30 ft hose (10) from stowage compartment.
 - b. Connect chuck (6) to hose coupling (4).
 - c. Remove tire valve (5) cap.
 - d. Attach chuck (6) to tire valve (5), press firmly to lock.
 - e. Position inflator-gauge (9) away from wheel (14), outside of danger zone.
 - f. Press inflator-gauge lever (2); observe and note dial (3) air pressure value.
 - g. Release inflator-gauge lever (2).
 - h. Disconnect chuck (6) from valve (5).
 - i. Install tire valve (5) cap, tighten finger-tight.
 - j. Disconnect chuck (6) from hose coupling (4).



WHEEL AND TIRE SERVICE (Contd)

TIRE INFLATION (Contd)



2. Inflate tire.
 - a. Start engine (WP 0007 00 or WP 0008 00) and apply parking brake.

NOTE

Ensure air reservoir pressure is higher than required tire air pressure; observe air pressure at instrument panel air pressure gauge (WP 0004 00).

- b. Check instrument panel air pressure gauge, ensure air pressure is higher than required tire air pressure.
- c. Remove tire valve (5) cap.
- d. Connect chuck (6) to tire valve (5), press down firmly to lock.

NOTE

Use left-front emergency air coupling to inflate front tires and right-rear emergency air coupling to inflate rear tires.

- e. Remove emergency air coupling half cover (12).
- f. Connect hose coupling half (13) to emergency air coupling half (1).
- g. Turn air valve handle (11) 90° counterclockwise to open valve and release compressed air to inflator-gauge (9) and hose (7) assembly.
- h. Press inflator-gauge lever (2) to inflate tire (8). Release lever (2) to read air pressure on dial (3). Adjust tire air pressure as necessary.
- i. When tire inflation operation is completed, turn air valve handle (11) 90° clockwise to close.
- j. Disconnect hose coupling half (13) from emergency air coupling half (1) and install cover (12) on coupling half (1).
- k. Disconnect chuck (6) from tire valve (5).
- l. Install tire valve (5) cap, tighten finger tight.
- m. Disconnect chuck (6) from hose coupling (4).
- n. Stow tire inflator-gauge (9) and hose (7) assembly and 30 ft hose (10) in stowage compartment.

END OF WORK PACKAGE

0049 00-9/10 blank

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

BATTERY INSPECTION

WARNING

- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves when performing battery maintenance. Severe injury will result if acid contacts eyes or skin.
- Do not smoke, have open flame, or make sparks when performing battery maintenance. Batteries may explode causing severe injury to personnel.
- Remove all jewelry such as rings, identification tags, and bracelets. If jewelry or disconnected battery ground cable contacts battery post, a direct short can result, causing damage to equipment or severe injury to personnel.

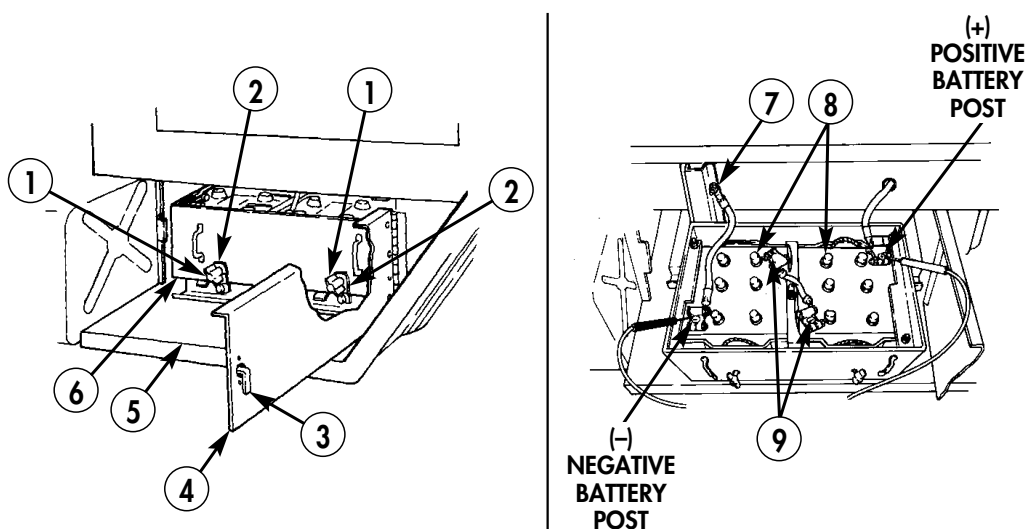
BATTERY INSPECTION (Contd)

1. Park vehicle, stop engine, apply parking brake, and chock wheels (WP 0010 00).
2. Turn latch handle (3) 90° clockwise, open battery compartment door (4).
3. Loosen two thumbscrews (1).
4. Push clamps (2) down to release battery box (6).
5. Pull battery box (6) out onto running board (5).
6. Remove all battery filler caps (8).
7. Check electrolyte (fluid) level in all cells. If electrolyte level is low, notify your supervisor.
8. Replace filler caps (20).

WARNING

When disconnecting battery cables, disconnect the ground cable first. Do not allow tools to come in contact with vehicle when disconnecting battery cable clamps. A direct short can result, causing instant heating of tools, tool damage, battery damage, or battery explosion, and severe injury to personnel.

9. Check the following connections. If connections are loose, notify your supervisor.
 - a. Positive and negative battery posts
 - b. Jumper cable clamps-posts (9)
 - c. All cable-clamp connections
 - d. Ground connection (7)
10. Secure battery box.
 - a. Push battery box (6) into battery compartment.
 - b. Raise clamps (2).
 - c. Tighten thumbscrews (1).
 - d. Close battery compartment door (4), turn latch handle (3) 90° counterclockwise.

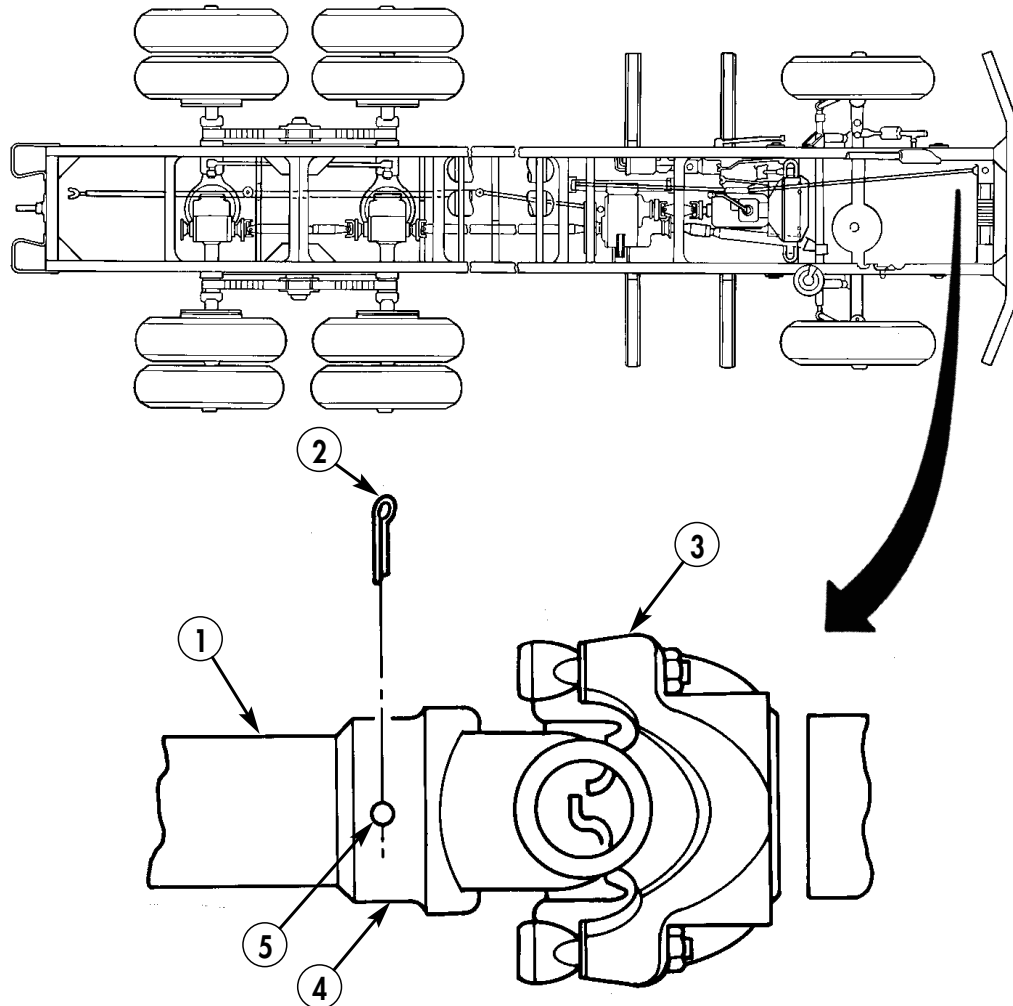


MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

FRONT WINCH SHEARPIN REPLACEMENT

1. Remove shearpin.
 - a. Park vehicle, stop engine, apply parking brake, and chock wheels (WP 0010 00).
 - b. Turn winch propeller shaft (1) universal joint (3) until shearpin (5) is visible.
 - c. Remove two cotter pins (2) from shearpin (5). Discard cotter pins (2).
 - d. Remove shearpin (5) using hammer and punch. If shearpin (5) is broken, line up yoke (4) holes with propeller shaft (1) holes and tap out remaining shearpin (5) pieces. Discard shearpin (5).



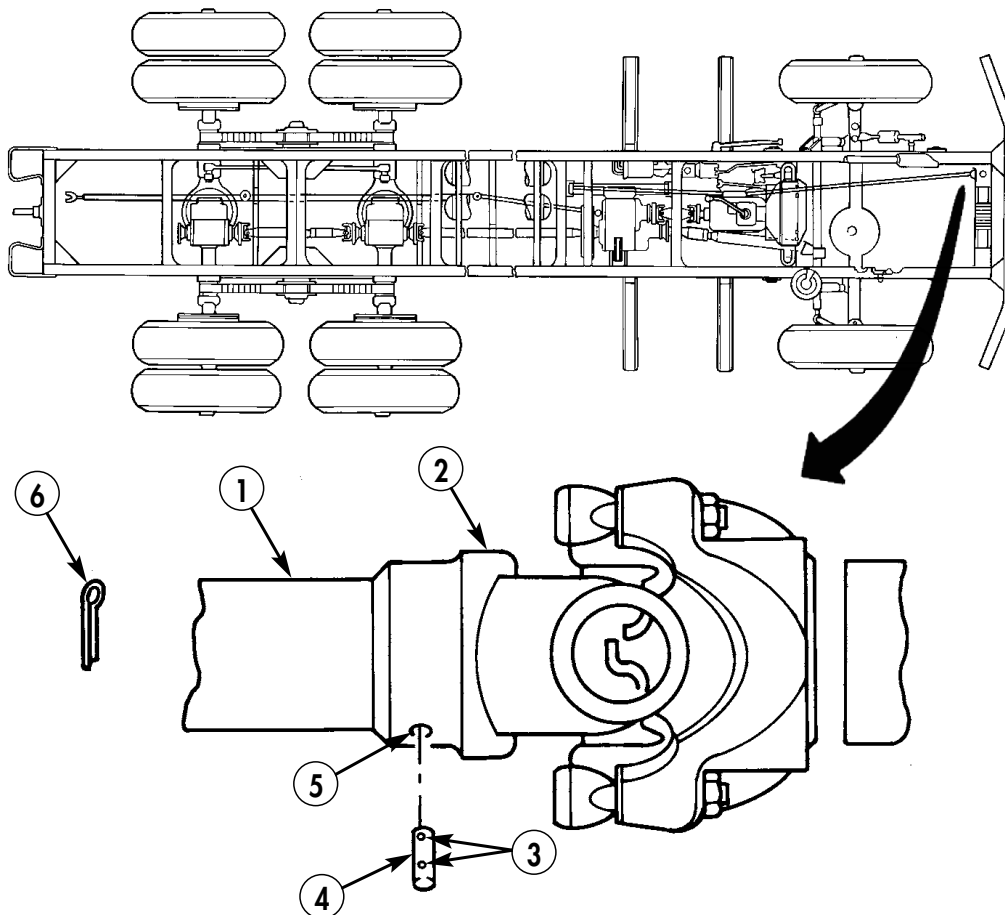
FRONT WINCH SHEARPIN REPLACEMENT (Contd)

2. Install shearpin.

WARNING

Ensure front winch drive shaft shearpin is aluminum. The shearpin is a safety device designed to shear when drive forces are excessive. Use of shearpin materials other than aluminum may result in injury or death to personnel and damage to equipment.

- a. Coat new shearpin (4) with grease (grease, automotive and artillery GAA, WP 0056 00, Item 7).
- b. Align yoke (2) hole (5) with propeller shaft (1) hole and insert shearpin (4) into yoke (2) hole (5).
- c. Tap shearpin (4) into hole (5), using hammer and punch, until shearpin (4) cotter pin holes (3) are visible on both sides of yoke (2).
- d. Install two new cotter pins (6) into shearpin (4) cotter pin holes (3) and bend back cotter pin (6) ends using pliers.

**END OF WORK PACKAGE**

0051 00-2

MAINTENANCE INSTRUCTIONS

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

POWER STEERING ASSIST SYSTEM SERVICE

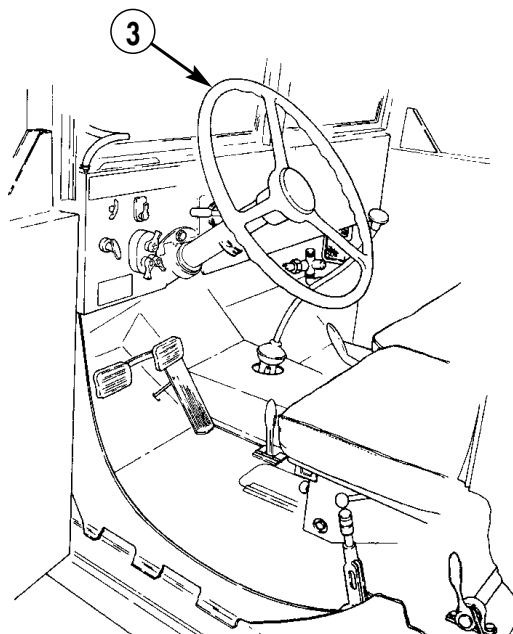
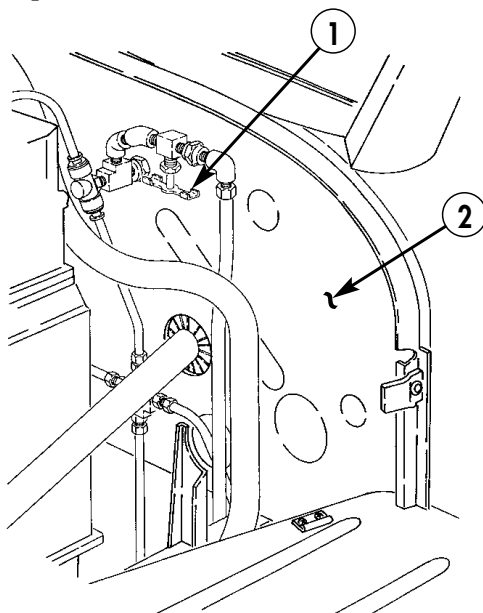
GENERAL

A power steering assist kit is available for M44A2 series vehicles, refer to TM 9-2320-361-24 and TM 9-2320-361-24P. Before inspecting and servicing the power steering assist system components, the manual shutoff valve must be closed. If the power steering assist system fails, the manual shutoff valve can be closed and the vehicle can be operated using manual steering.

1. Raise and secure hood, Work Package (WP) 0014 00.

WARNING

- The power steering assist system is pressurized. Eye protection must be worn to prevent injury to personnel.
 - Before inspecting and servicing the power steering assist system, the manual shutoff valve must be closed. If the manual shutoff valve is not closed, small parts under pressure can be expelled at high velocity, causing injury to personnel.
2. Close manual shutoff valve (1) on firewall (2).
 3. Turn steering wheel (3) clockwise and counterclockwise to exhaust remaining air from power steering assist system.
 4. Check for loose, broken, or cracked air lines and power steering assist components.
 5. Tighten loose fittings.
 6. Notify your supervisor if power steering assist components are damaged.
 7. Open manual shutoff valve (1).



END OF WORK PACKAGE

0052 00-1/2 blank

CHAPTER 5

SUPPORTING INFORMATION

FOR

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

Work Package Title	Work Package Number
References	WP 0053 00
Components of End Item (COEI) and Basic Issue Items (BII) Lists.	WP 0054 00
Additional Authorization List (AAL).	WP 0055 00
Expendable and Durable Supplies and Materials List	WP 0056 00
Stowage and Decal/Data Plate Guide	WP 0057 00

SUPPORTING INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

REFERENCES

INDEX

The Department of the Army pamphlet (DA PAM) 25-30 contains records of current and obsolete publications and blank forms published by the Army, other military services, Department of Defense (DOD) activities, and other government agencies and activities. This pamphlet also provides resources for materials published by other services, but not available through this index, which are used worldwide.

Consolidated Army Publications and Blank Forms Index DA PAM 25-30

PUBLICATIONS

Technical Manuals (TMs)

Operator's and Unit Maintenance Manual Including Repair Parts
and Special Tools List for Decontaminating Apparatus,
Portable, DS2, 1-1/2 Quart, ABC-M11 TM 3-4230-204-12&P

Use and Care of Hand Tools and Measuring Tools TM 9-243

Materials Used for Cleaning, Preserving, Abrading and Cementing
Ordnance Materiel and Related Materials Including Chemicals TM 9-247

Operator's, Unit, Direct Support, and General Support Maintenance
Manual for Care, Maintenance, Repair, and Inspection of
Pneumatic Tires and Inner Tubes TM 9-2610-201-14

Procedures for Destruction of Tank-Automotive Equipment
to Prevent Enemy Use TM 750-244-6

Technical Bulletins (TBs)

Security of Tactical Wheeled Vehicles TB 9-2300-422-20

Use of Antifreeze Solutions, Antifreeze Extender, Cleaning Compounds,
and Test Kit in Engine Cooling Systems TB 750-651

REFERENCES (Contd)

Field Manuals (FMs)

NBC Decontamination.....	FM 3-5
Mountain Operations	FM 3-97.6
First Aid.....	FM 4-25.11
Operations and Maintenance of Ordnance Materiel in Cold Weather.....	FM 9-207
Concepts and Equipment of Petroleum Operations	FM 10-67-1
Manual for the Wheeled Vehicle Driver.....	FM 21-305
Basic Cold Weather Manual	FM 31-70
Northern Operations	FM 31-71
Army Motor Transport Units and Operations.....	FM 55-30
Desert Operations	FM 90-3

General Publications

Authorized Abbreviations, Brevity Codes, and Acronyms.....	AR 310-50
Prevention of Motor Vehicle Accidents	AR 385-55
The Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing)	AR 600-55
Army Materiel Maintenance Policy.....	AR 750-1
Hearing Conservation Program.....	DA PAM 40-501
Functional Users Manual for The Army Maintenance Management System (TAMMS).....	DA PAM 738-750
Guide for Motor Pool Operations.....	DA PAM 750-35
Rapid Field Classification Booklet.....	GTA 05-07-013
General Supply: Deep-Water Fording Kits for Ordnance Tank— Automotive Materiel	SB 9-155

Forms

Recommended Changes to DA Publications	DA Form 2028
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Maintenance Request	DA Form 2407
Maintenance Request Continuation Sheet.....	DA Form 2407-1
Equipment Log Assembly (Records)	DA Form 2408
Product Quality Deficiency Report	SF 368

SUPPORTING INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

Scope

This Work Package (WP) includes the BII list for M44A2 series vehicles, for the purpose of conducting an inventory of items required for safe and efficient vehicle operation.

NOTE

There are no COEI authorized for M44A2 series vehicles.

COEI

This list is for information purposes only and is not authorization to requisition replacements. These items are part of the end item. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. COEI items are removed and separately packaged for transportation or shipment only when necessary. Illustrations are provided to help the operator locate and identify the items.

BII

These essential items are required to place an M44A2 series vehicle in operation, operate it, and perform emergency repairs on it. Although shipped separately packaged, BII must be with an M44A2 series vehicle during operation and when it is transferred between property accounts. Listing these items is authorization to request/requisition them for replacement, based on authorization of the end item by the Table of Organization and Equipment/Modified Table of Organization and Equipment (TOE/MTOE). Illustrations are provided to help the operator locate and identify the items.

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

COEI and BII List Columns Description

Column (1) Illus No.—sequential illustration number

Column (2) National Stock Number (NSN)—item stock number, used for requisitioning

Column (3) Description, CAGEC, and Part Number—federal item name (in all capital letters) followed by a basic description when needed. The COEI and BII stowage location is also included in this column. The last line, below the description, is the Commercial and Government Entity Code (CAGEC) (in parentheses) and part number. The following CAGECs are used for M44A2 series vehicles:

<u>CAGEC</u>	<u>Manufacturer</u>
00912	Akron Brass Co., Division of Premier/Farnell L.L.C.
04164	Raytheon Company AMDS
21450	Army Weapons Command
56161	General Dynamics Land Systems Canada Corp.
96906	Military Standards, Promulgated by Military Departments

Column (4) Usable On Code (UOC)—indicates that an item is used for a particular equipment model. The following are M44A2 series vehicle UOCs:

<u>Code</u>	<u>Used on</u>
A	All M44A2 series vehicles
AA	All M44A2 series vehicles, With Winch (W/W)
437	M35A2 Cargo Truck, Without Winch (WO/W)
438	M35A2 Cargo Truck, W/W
445	M35A2C Cargo Truck, with Dropsides, WO/W
446	M35A2C Cargo Truck, with Dropsides, W/W
455	M36A2 Cargo Truck with Extra-Long Wheelbase, WO/W
456	M36A2 Cargo Truck with Extra-Long Wheelbase, W/W
503	M49A2C Fuel Tank Truck, WO/W
506	M49A2C Fuel Tank Truck, W/W
510	M109A3 Shop Van Truck, WO/W
511	M109A3 Shop Van Truck, W/W
516	M185A3 Repair Van Truck, WO/W
B95	M50A3 Water Tank Truck, WO/W
B96	M50A3 Water Tank Truck, W/W

Column (5) Unit of Issue (U/I)—physical item quantity or count as issued; related to the NSN in column (2)

Column (6) Qty Rqr—quantity required

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BI) LISTS (Contd)

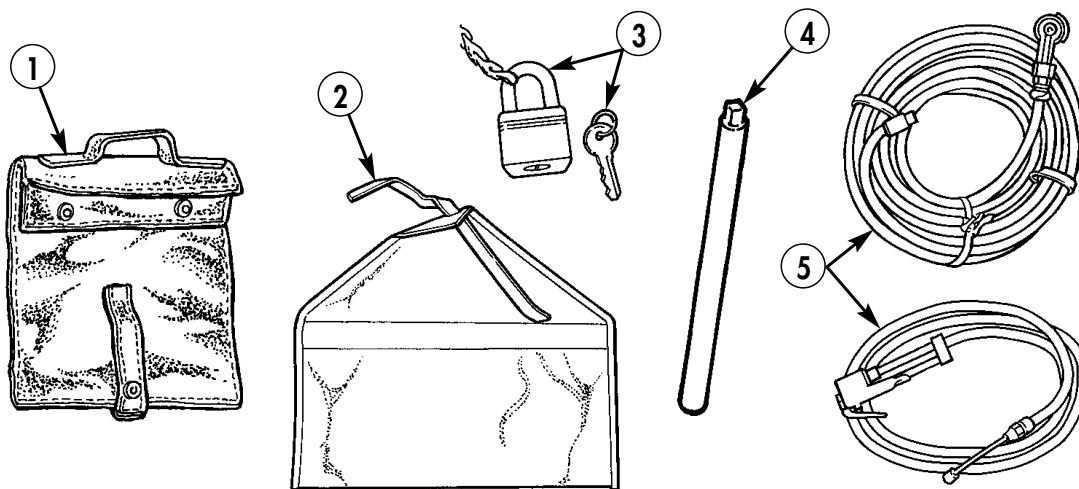


Table 1. Basic Issue Items List.

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
1	2540-00-670-2459	EQUIPMENT, MISCELLANEOUS BAG: pamphlet, cotton duck, 3 in. x 9-1/4 in. x 11-1/4 in. (in map compartment) (19207) 7961712	A	EA	1
2	5140-00-772-4142	BAG: tool, cotton duck, 10-1/8 in. x 20-1/4 in., w/flap (in toolbox) (19207) 7724142	A	EA	1
3	5340-00-682-1508	PADLOCK: key operated, size 1-1/2 in., w/clevis chain, and 2 keys (in toolbox) (96906) MS35647-3	A	EA	1
4	5120-00-243-2419	TIRE SERVICE EQUIPMENT BAR: handle, socket wrench, wheel stud nut, 3/4 in. diameter x 30 in. long (in toolbox) (19207) 6196147 (used with WRENCH #11676946 and WRENCH #11677000-2)	A	EA	1
5	4910-01-417-2734	INFLATOR-GAUGE AND HOSE ASSY: 30 ft hose (tire inflation) (in tool box) (19207) 116477140-10	A	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

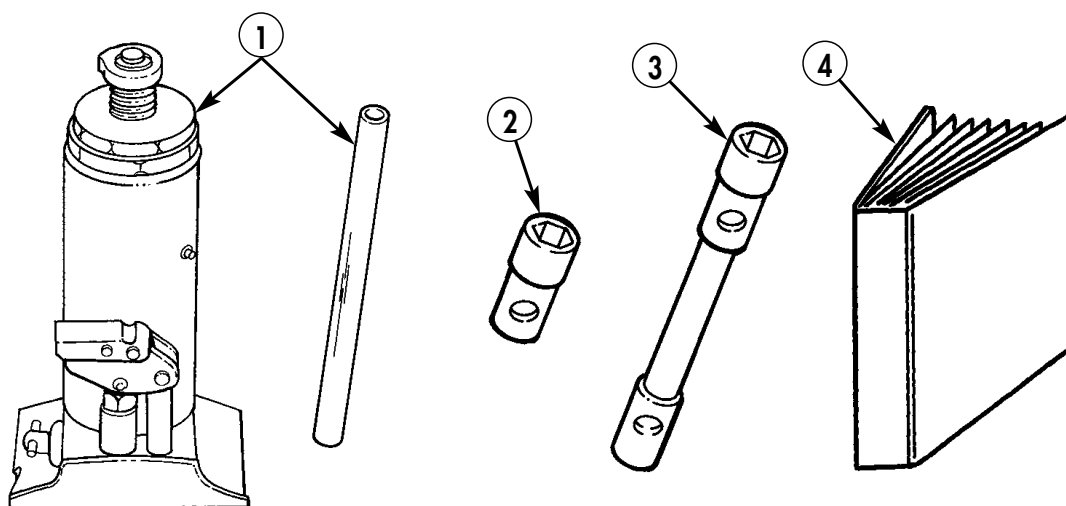


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
		TIRE SERVICE EQUIPMENT (Contd)			
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)	A	EA	1
3	5120-00-293-1289	WRENCH: socket, wheel stud nut, 1-1/2 in. hex and 13/16 in. square end, 14-16 in. long (in toolbox) (19207) 11677000-2 (used with BAR #6196147)	A	EA	1
4		PUBLICATIONS MANUAL: technical (operator's) (in pamphlet bag) TM 9-2320-361-10	A	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

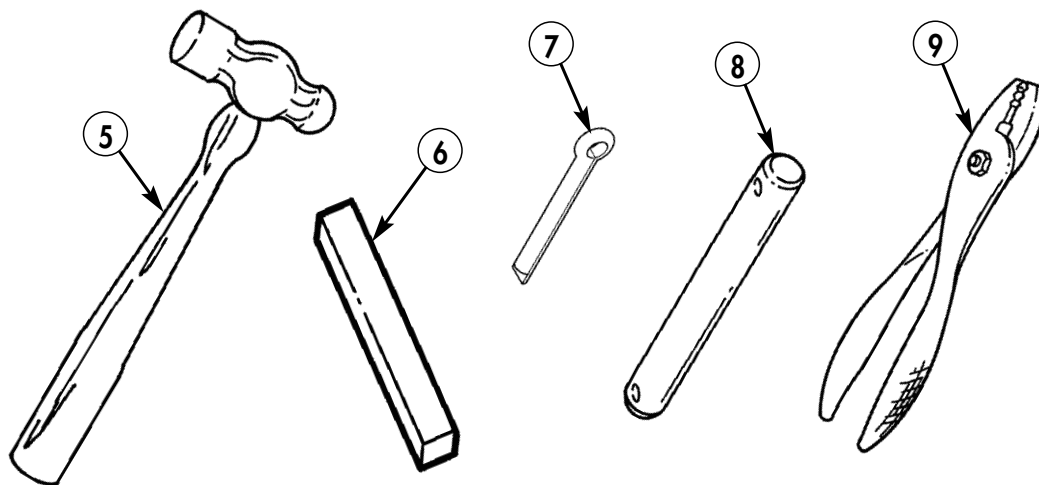


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
5	5120-00-061-8546	TOOLS, COMMON HAMMER: hand, machinist, ball peen, 2 lb head weight, 15-17 in. long (in toolbag) (19207) 11677028-3	AA	EA	1
6	5315-00-732-1019	KEY: wrench, drain plug, straight bar, 1/2 in. square x 2-1/2 in. long (in toolbag) (96906) MS20066-543	A	EA	1
7	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
8	5315-00-736-8685	PIN: shear, 9/32 in. diameter x 2-3/8 in. long (in toolbag) (19207) 7538740	AA	EA	3
9	5120-00-223-7397	PLIERS: common, slip joint, straight nose, combination w/cutter, 8 in. long (in toolbag) (19207) 11655775-3	A	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

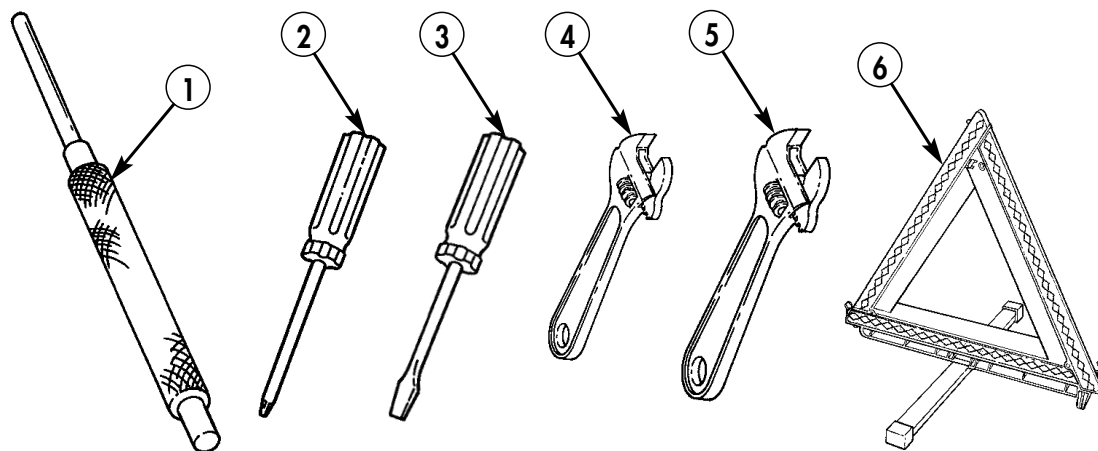


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
		TOOLS, COMMON (Contd)			
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, flare 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, 0.95 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, triangular, reflective (19207) 11669000	A	SE	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

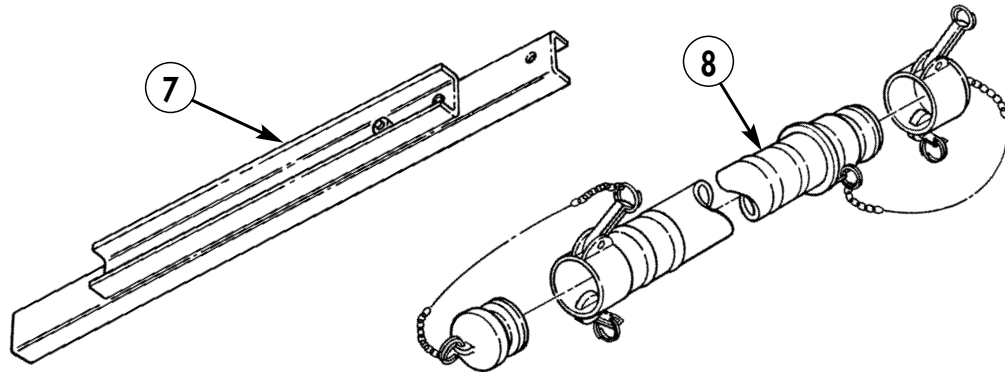


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
7	5210-00-884-4840	TOOLS AND EQUIPMENT, FUEL TANK TRUCK (M49A2C) GAUGE ASSY: fuel tank level (in rear cabinet) (19207) 10872403	503, 506	EA	1
8	4720-01-029-5046	HOSE ASSY: w/dust caps, 1-1/2 in. ID 10-1/2 ft. long (in left and right side compartments) (19207)11672535	503, 506	EA	2

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

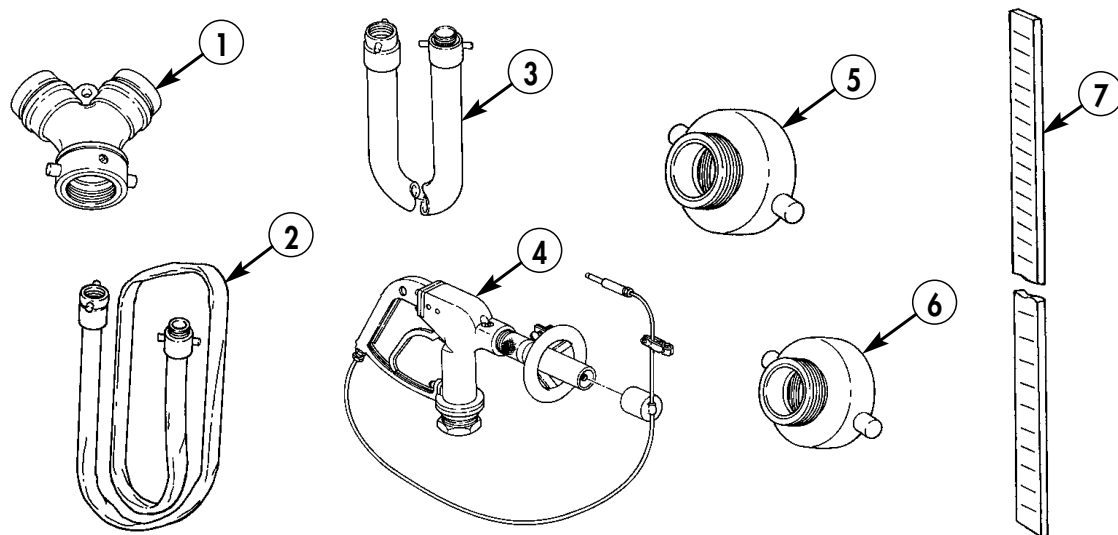


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
1	4730-00-322-9636	TOOLS AND EQUIPMENT, WATER TANK TRUCK (M50A2, M50A3) COUPLING: "Y", 2 in. female inlet to two 1-1/2 in. male outlets (in toolbox in rear cabinet) (19207) 8332729	B95, B96	EA	1
2	4720-00-318-0941	HOSE: discharge, smooth bore, 1-1/2 in. ID x 25 ft long (in rear cabinet) (19207) 8330012	B95, B96	EA	3
3	4720-00-318-0940	HOSE: suction, smooth bore, 2 in. ID x 10 ft long (in rear cabinet under tank) (19207) 8330011	B95, B96	EA	6
4	4930-01-022-7901	NOZZLE ASSY: 1-1/2 in. inlet, fuel type (in rear cabinet) (19207) 12275441-2	B95, B96	EA	2
5	4730-00-090-9228	REDUCER: 2-1/2 in. female pipe end, 1-1/2 in. male end (in rear cabinet toolbox) (19207) 8330013	B95, B96	EA	1
6	4730-00-335-1814	REDUCER: 2 in. female pipe end, 1-1/2 in. male pipe end (in rear cabinet toolbox) (19207) 8330014	B95, B96	EA	1
7	2590-00-566-1440	STICK: gauge (in rear cabinet) (19207) 11609128	B95, B96	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

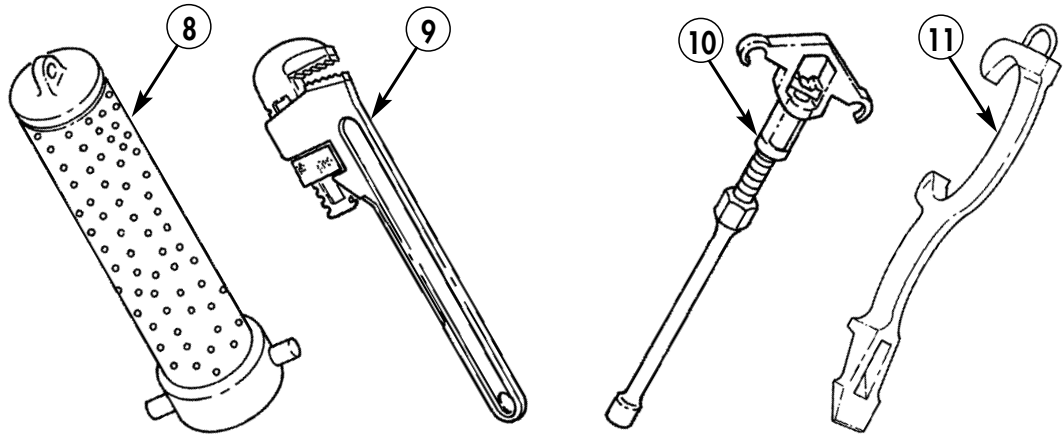


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
		TOOLS AND EQUIPMENT, WATER TANK TRUCK (M50A2, M50A3) (Contd)			
8	4730-00-314-0747	STRAINER: suction, 2 in. female pipe end (in rear compartment) (19207) 8330015	B95, B96	EA	1
9	5120-00-277-1461	WRENCH: pipe, adjustable, heavy duty, 1-2 in. jaw opening (in rear compartment toolbox) (21450) 41W664	B96	EA	2
10	5120-00-288-8849	WRENCH: spanner, hydrant and hose (in rear compartment toolbox) (19207) 11655779-1	B95, B96	EA	2
11	5120-00-293-1602	WRENCH: spanner, universal hose coupling (in rear compartment toolbox) (00912) 0010-OP-0-1-94-001	B95, B96	EA	2

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

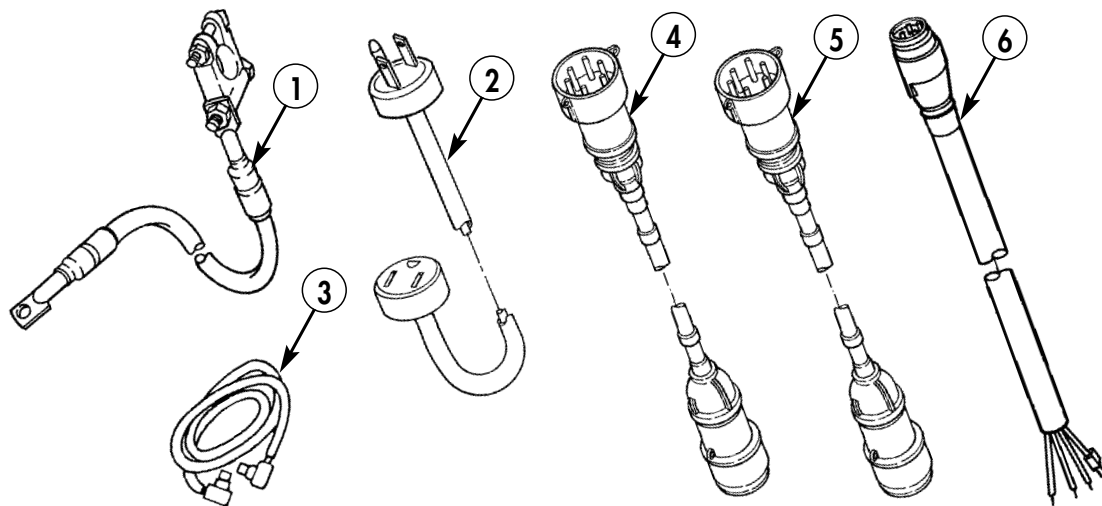


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
		TOOLS AND EQUIPMENT, SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3)			
1	6140-00-851-4573	BATTERY CABLE: ground, 48 in. long (used w/rod 8380403) (in left side toolbox) (19207) 7017575	510, 511, 516	EA	1
2	6150-00-682-3460	CABLE ASSY: power, electrical, 3 conductor, 50 ft long (on left side rear table shelf) (19207) 11647741	510, 511, 516	EA	1
3	2590-00-148-7961	CABLE KIT: slave, electric, 24-volts, 20 ft long, w/2 coupling ends (NATO), w/adaptor (NATO-to-standard) (56161) 10502786	A	EA	1
4	6150-01-290-2127	CABLE: power, electrical, 110-volt, 4 conductor, 100 ft long (on left side rear table shelf) (19207) 12368257	510, 511, 516	EA	1
5	6150-00-104-4572	CABLE: power electrical, shielded, 3 conductor, 50 ft long (on left side rear table shelf) (19207) 7096967	510, 511, 516	EA	1
6	6150-01-298-1502	CABLE: pigtail 39.25 in. long (19207) 12368256	510, 511, 516	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

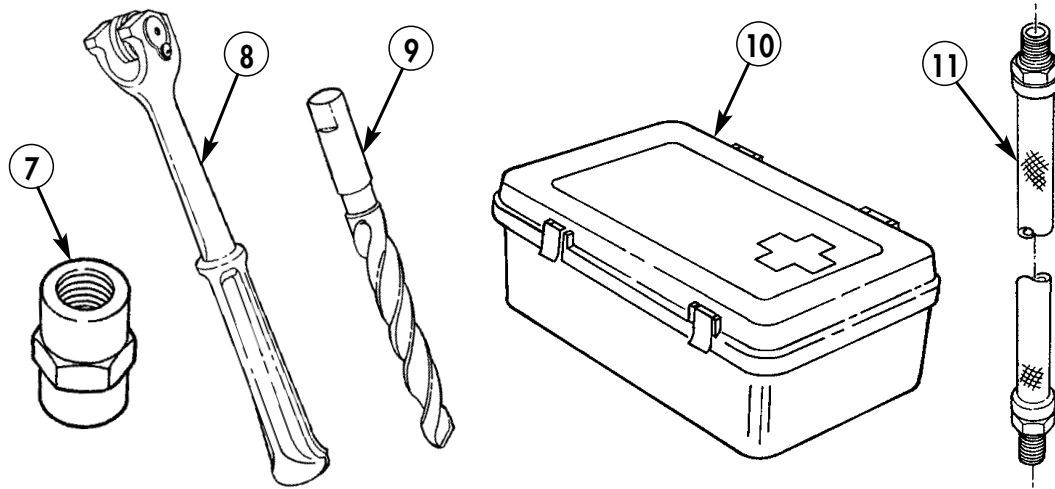


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
7	4730-00-580-7408	TOOLS AND EQUIPMENT, SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3) COUPLING: pipe, automotive, 1/4-18 NPTF (air hose to compressor) (in left side filing cabinet top drawer) (04164) 272M0075P004	516	EA	1
8	5120-01-165-4676	DRESSER: abrasive wheel, size O, 1-1/4 in. OD cutter wheel, 12 in. long max. (in left side table drawer) (19207) 11655781	516	EA	1
9	5133-01-047-0258	DRILL SET: twist, H.S. steel, fractional sizes, 1/16-3/8 in., w/case (25 drills) (in left side table drawer) (55719) DBM125B	516	EA	1
10	6545-00-922-1200	FIRST AID KIT: general purpose, 12-unit (in right side wall rack) (19207) 11677011	516	EA	1
11	4910-01-038-2820	HOSE: air, 1/4-18 NPTF male thread both ends, 21/32 in. OD x 30 ft long (left side filing cabinet top drawer) (19207) 11677140-5	516	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS (Contd)

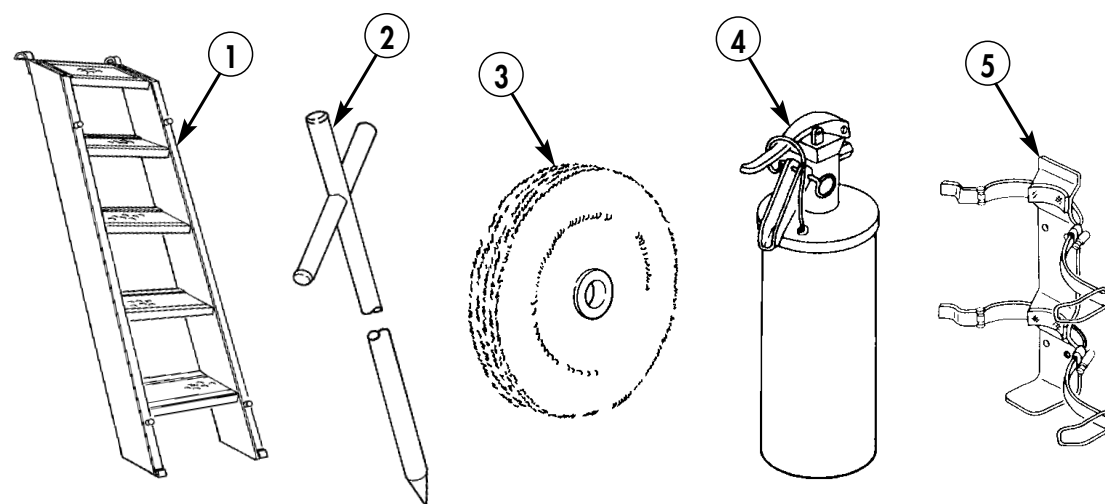


Table 1. Basic Issue Items List (Contd).

(1) ILLUS NO.	(2) NSN	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) UOC	(5) U/I	(6) QTY RQR
		TOOLS AND EQUIPMENT, SHOP VAN TRUCK AND INSTRUMENT REPAIR SHOP TRUCK (M109A3, M185A3)			
1	2540-00-735-6179	LADDER ASSY: van boarding (rear of body) (19207) 8757809	510, 511, 516	EA	1
2	2510-00-790-2296	ROD: ground, 3/4 in. diameter x 30 in. long, w/cross bar (used w/CABLE 7017575) (in left side toolbox) (19207) 8380403	510, 511, 516	EA	1
3	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 left side table drawer) (81348) GGG W301	516	EA	1
		COMMON EQUIPMENT			
4	4210-01-149-1356	FIRE EXTINGUISHER: w/bracket (12255634) purple-k (19207) 12255633-1 Left rear tank body Right rear tank body Right front tank body Left rear interior	503,506 503,506 503,506 510, 511, 516	EA EA EA EA	1 1 1 1
5	4210-01-183-4822	BRACKET, FIRE EXTINGUISHER (19207) 12255634	503, 506, 510, 511, 516	EA	1

SUPPORTING INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

ADDITIONAL AUTHORIZATION LIST (AAL)

INTRODUCTION

This Work Package (WP) lists additional items that are authorized for support of M44A2 series vehicles.

The Additional Authorization List (AAL) identifies items that are not required to accompany the vehicle and are not required to be turned in with the vehicle. All of these items are authorized by one of the following:

- Common Table of Allowances (CTA)
- Modified Table of Organization and Equipment (MTOE)
- Table of Distribution and Allowances (TDA)
- Joint Table of Allowances (JTA)

National stock numbers (NSNs), descriptions, and quantities are provided to identify additional items required to support M44A2 vehicles. If the item required is used only for certain vehicle models, the Usable On Code (UOC) is shown, refer to table 1. These codes are identified as:

Table 1. M44A2 Usable On Codes.

CODE	USABLE ON	CODE	USABLE ON
A	All	503	M49A2C WO/W
AA	All With Winch (W/W)	506	M49A2C W/W
437	M35A2 Without Winch (WO/W)	507	M50A2 WO/W
438	M35A2 W/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	B95	M50A3 WO/W
456	M36A2 W/W	B96	M50A3 W/W

ADDITIONAL AUTHORIZATION LIST (AAL) (Contd)

Table 2. Additional Authorization List.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) UOC	(4) U/I	(5) QTY RECM
5935-00-322-8959	ADAPTER: connector (19207) 11677570	A	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	A	EA	1
3940-00-111-6693	BLOCK: tackle, 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 (81345) UL 30	516	EA	1
7240-01-337-5269	CAN: gasoline, military (58536) CID A-A-59592	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
2540-00-678-3469	CHOCK BLOCK: wheel (19207) 7979235	A	EA	2
4730-00-580-7408	COUPLING: pipe (04164) 272M0075P004	516	EA	1
5120-00-278-6641	CUTTERS: abrasive wheel (17049) 11220	516	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL) (Contd)**Table 2. Additional Authorization List (Contd).**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) UOC	(4) U/I	(5) QTY RECM
4230-00-720-1618	DECONTAMINATING APPARATUS: portable, DS-2, 1-1/2 qt ABC-M11 w/bracket (81361) D5-51-269	A	EA	1
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
5130-00-204-2703	DRILL: electric, portable (07429) 457	516	EA	1
5133-00-449-6775	DRILL SET: twist, H.S. steel, wire-gauge sizes No. 1-60, w/case (60 drills) (05047) B94.11M	516	EA	1
4210-01-149-1356	FIRE EXTINGUISHER: w/ bracket (12255634) Purple-k (19207) 12255633-1	A	EA	1
6545-00-922-1200	FIRST AID KIT: general purpose, 12 unit (64616) SC C-6545-IL VOL 2	All except 516	EA	1
3415-00-517-7754	GRINDING MACHINE: utility, bench mounting, type 1, size 7 (1Z322) MPFM99	516	EA	1
4940-00-333-5541	GUN: air blow, straight-design, button- operated, 1/4-18 NPT male thread (17431) DGC-502 9.5 CFM	516	EA	1
5120-00-288-6574	HANDLE: mattock, pick, railroad or clay (19207) 11677021	A	EA	1
5120-01-358-3171	HANDLE, SOCKET WRENCH: hinged, 0.75 in. drive, 18.4-23.0 in. long (1CV05) 5668	A	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	A	EA	1
5120-00-293-3336	SHOVEL: hand, round point, D-handle, short size (19207) 11655784	A	EA	1
7690-00-489-8322	SIGN, DECAL: fire extinguisher (19207) 7053776	516	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL) (Contd)*Table 2. Additional Authorization List (Contd).*

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) UOC	(4) U/I	(5) QTY RECM
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, 22-30 in., w/foot rest (58536) A-A-3014	516	EA	1
5340-00-126-9011	STRAP: webbing, w/buckle, 5/8 in. wide x 144 in. long (19207) 8690499	516	EA	1
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	VISE: 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	VISE: machinist's swivel base, jaw 4 in. wide x 6 in. opening (66983) 204	516	EA	1

SUPPORTING INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

EXPENDABLE AND DURABLE SUPPLIES AND MATERIALS LIST

INTRODUCTION

Scope

This Work Package (WP) lists the expendable and durable supplies and materials that are required to operate and maintain M44A2 series vehicles. This list is for informational purposes only and is not authorization to requisition items. These items are authorized 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.

Expendable and Durable Items List Column Explanations

Column (1)—Item Number—sequential number assigned to each item. Item numbers are referenced in operator instructions.

For example, “Coat new shearpin (4) with grease (grease, automotive and artillery GAA, WP 0056 00, Item 7).”

Column (2)—Level—the lowest level of maintenance that requires the item.

C=Operator/Crew

Column (3)—National Stock Number (NSN)—used to requisition the item.

Column (4)—Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N)—additional information required to identify and requisition the item.

Column (5)—Unit of Issue (U/I)—item physical measurement or count as issued.

EXPENDABLE AND DURABLE SUPPLIES AND MATERIALS LIST (Contd)

Table 1. Expendable and Durable Items List.

(1) ITEM NO.	(2) LEVEL	(3) NSN	(4) ITEM NAME, DESCRIPTION, CAGEC, AND P/N	(5) U/I
1	C	6850-01-464-9096	ANTIFREEZE: arctic, type IP, ethylene glycol, prediluted (60/40%), recycled engine coolant. (58536) A-A-52624 55 GAL. DRUM	DR
2	C	6850-01-464-9125	ANTIFREEZE: type I, ethylene glycol, concentrated (100%), recycled engine coolant, concentration A, recycled. (58536) A-A-52624 1 GAL. CONTAINER	GL
3	C	6850-01-464-9137	5 GAL. CONTAINER	CO
4	C	6850-01-464-9152	55 GAL. DRUM	DR
5	C	6850-00-926-2275	CLEANING COMPOUND: windshield washer systems (58536) A-A-59664 BOX, 12-16 OZ. BOTTLES	BX
6	C	9130-00-160-1830	GASOLINE AUTOMOTIVE: COMBATGAS, MOGAS type II symbol (swingfire heater) (81349) MILG3056 BULK	GL
7	C	9150-01-197-7688	GREASE, AUTOMOTIVE AND ARTILLERY (GAA): (81349) MIL-G-10924 2-1/4 OZ. TUBE	TU
8	C	9150-01-197-7693	14 OZ. CARTRIDGE	CA
9	C	9150-01-197-7690	1-3/4 LB CAN	CN
10	C	9150-01-197-7689	6-1/2 LB CAN	CN
11	C	9150-00-197-7692	35 LB PAIL	CN
12	C	9150-01-197-7691	120 LB DRUM	DR
13	C	6810-00-292-9676	METHANOL: technical (81348) O-M-232K-A-1-QT 1 QT CAN	QT
14	C	6810-00-275-6010	METHANOL: technical (81348) O-M-232K-A-5-GL 5 GAL. CAN	CN
15	C	9140-00-286-5282	DIESEL FUEL: DF-A, arctic (81348) VVF800GRADEDFAAR 5 GAL. CAN	CN
16	C	9140-00-286-5285	55 GAL. DRUM (18 gauge)	DR
17	C	9140-00-286-5283	BULK	GL

EXPENDABLE AND DURABLE SUPPLIES AND MATERIALS LIST (Contd)*Table 1. Expendable and Durable Items List (Contd).*

(1) ITEM NO.	(2) LEVEL	(3) NSN	(4) ITEM NAME, DESCRIPTION, CAGEC, AND P/N	(5) U/I
18	C	9140-00-286-5287	DIESEL FUEL: DF-1, winter (81346) ASTM D 975 5 GAL. CAN	CN
19	C	9140-00-286-5288	55 GAL. DRUM (16 gauge)	DR
20	C	9140-00-286-5289	55 GAL. DRUM (18 gauge)	DR
21	C	9140-00-286-5286	BULK	GL
22		9140-00-286-5295	DIESEL FUEL: DF-2 (81346) ASTM D 975 5 GAL. CAN	CN
23		9140-00-286-5296	55 GAL. DRUM (16 gauge)	DR
24		9140-00-286-5297	55 GAL. DRUM (18 gauge)	DR
25		9140-00-286-5294	BULK	GL
26		9150-01-422-9329	LUBRICATING OIL: exposed gear (81348) MIL-PRF-2105 1 QT CAN	QT
27		9150-01-422-9335	5 GAL. CAN	CN
28		9150-01-422-9342	5 GAL. CAN	CN
29		9150-01-035-5390	LUBRICATING OIL, GEAR: 75W grade (81349) M2150-1-75W 1 QT CAN	QT
30		9150-01-035-5391	LUBRICATING OIL, GEAR: 75W grade (81349) MIL-PRF-2105 5 GAL. CAN	CN
31		9150-01-035-5392	LUBRICATING OIL, GEAR: 80W-90 grade (81349) M2105-1-80W90 1 QT CAN	QT
32		9150-01-035-5393	LUBRICATING OIL, GEAR: 80W-90 grade (81349) M2105-3-80W90 5 GAL. CAN	CN
33		9150-01-035-5394	LUBRICATING OIL, GEAR: 80W-90 grade (81349) MIL-PRF-2105 55 GAL. DRUM (16 gauge)	DR
34		9150-00-402-2372	LUBRICATING OIL, ENGINE: arctic (81349) MIL-PRF-46167 5 GAL. CAN	CN
35		9150-00-491-7197	55 GAL. DRUM (18 gauge)	DR

EXPENDABLE AND DURABLE SUPPLIES AND MATERIALS LIST (Contd)*Table 1. Expendable and Durable Items List (Contd).*

(1) ITEM NO.	(2) LEVEL	(3) NSN	(4) ITEM NAME, DESCRIPTION, CAGEC, AND P/N	(5) U/I
36	C	9150-00-189-6727	LUBRICATING OIL, ENGINE: 10W grade (81349) M2104-1-10W 1 QT CAN	QT
37	C	9150-00-183-7807	LUBRICATING OIL, ENGINE: 10W grade (81349) M2104-2-10W BULK	GL
38	C	9150-00-186-6668	LUBRICATING OIL, ENGINE: 10W grade (81349) MIL-PRF-2104 5 GAL. CAN	CN
39	C	9150-00-191-2772	55 GAL. DRUM (18 gauge)	DR
40	C	9150-00-186-6681	LUBRICATING OIL, ENGINE: 30 grade (81349) M2104-1-30W 1 QT CAN	QT
41	C	9150-00-189-6729	LUBRICATING OIL, ENGINE: 30 grade (81349) M2104-4-30W 55 GAL. DRUM (18 gauge)	DR
42	C	9150-00-188-9858	LUBRICATING OIL, ENGINE: (81349) MIL-PRF-2104 5 GAL. CAN	CN
43	C	9150-00-183-7808	BULK	GL
44	C	7920-00-205-1711	RAG, WIPING: unbleached cotton, mixed colors (58536) 7920-00-205-1711 50 LB BALE	BE
45	C	6850-01-381-4423	CLEANING COMPOUND, SOLVENT: (0K209) SKYSOL 100 5 GAL. CAN	CN

SUPPORTING INFORMATION

2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)

STOWAGE AND DECAL/DATA PLATE GUIDE

INTRODUCTION

This Work Package (WP) shows the locations for stowing basic issue equipment and additional authorized equipment on the vehicle. A sign guide is also provided to show the location of data plates, decals, and stencils located on the vehicle.

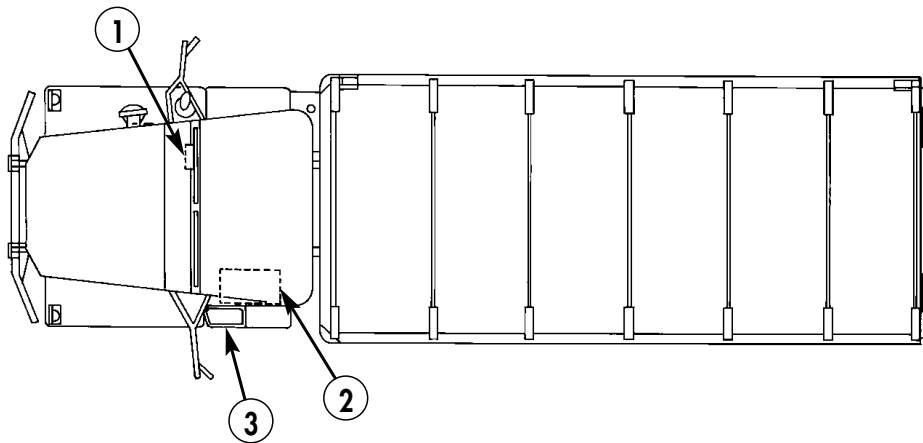
STOWAGE LOCATIONS

NOTE

The KEY numbers in table 1 correspond to the stowage location callout numbers in the associated illustration.

Table 1. Stowage Locations (All Vehicles).

KEY	ITEM	LOCATION
1	Map compartment	Inside cab, right side instrument panel
2	Toolbox	Vehicle left side
3	Gas can bracket	Left access step



STOWAGE AND DECAL/DATA PLATE GUIDE (Contd)

SIGN GUIDE

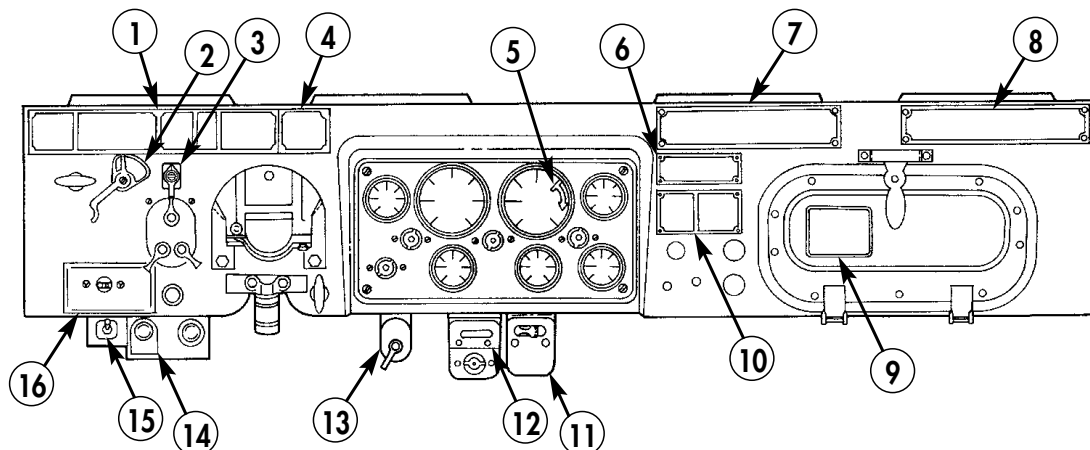
Cab Compartment

NOTE

The KEY numbers in tables 2-7 correspond to the callout numbers in the associated illustrations.

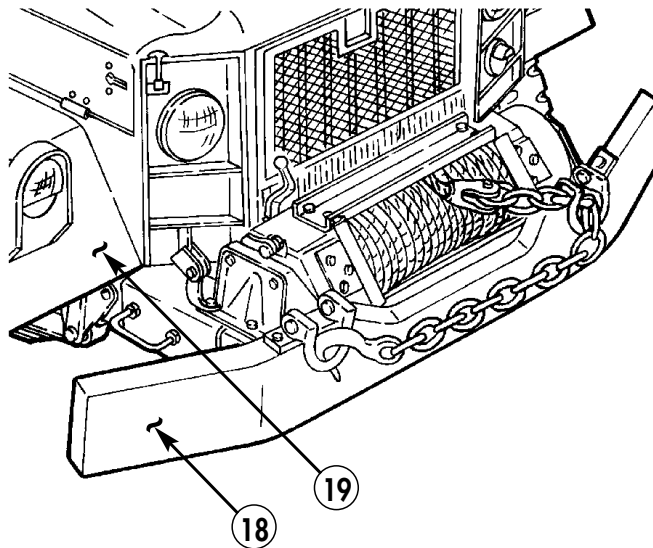
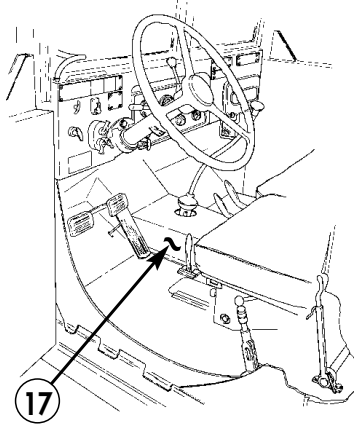
Table 2. Cab Compartment Data Plates and Decals.

KEY	DATA PLATE	MODELS
1	Cooling system draining information, transmission caution, and transfer case warning	All
2	Accessory power switch	
3	Engine start switch	
4	Authorized fuel	
5	Tachometer warning (decal)	
6	Winch operation	All with/winch (w/w)
7	Weight and dimensions	All
8	Servicing and publications	
9	Hearing protection caution	
10	Engine idling	
11	Deepwater fording	All w/deepwater fording kit
12	Front wheel drive valve lever	All
13	Convoy warning light switch	All w/convoy warning light
14	Damper control knob	All
15	Heater blower switch	
16	Manifold heater switch	



STOWAGE AND DECAL/DATA PLATE GUIDE (Contd)**Front Winch***Table 3. Front Winch Data Plates.*

KEY	DATA PLATE	MODELS
17	Winch control	All w/w
18	Winch warning	
19	Winch cable and snatch block	

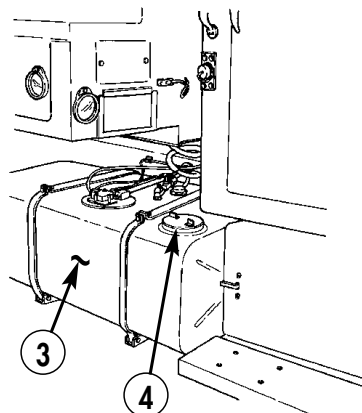
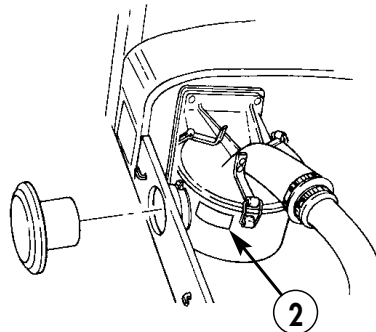
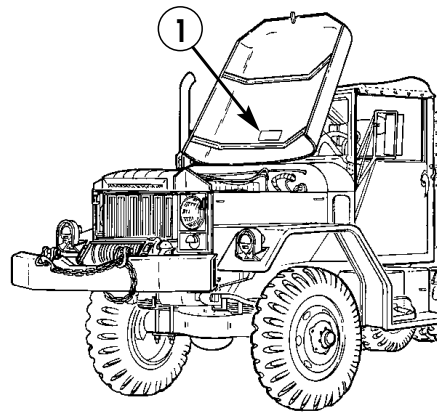


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Body

Table 4. Body Data Plates and Stencils.

KEY	DATA PLATE	MODELS
1	Raised hood warning stencil	All
2	NBC warning plate	
3	Fuel tank fill caution stencil	
4	Fuel tank filler cap stencil	

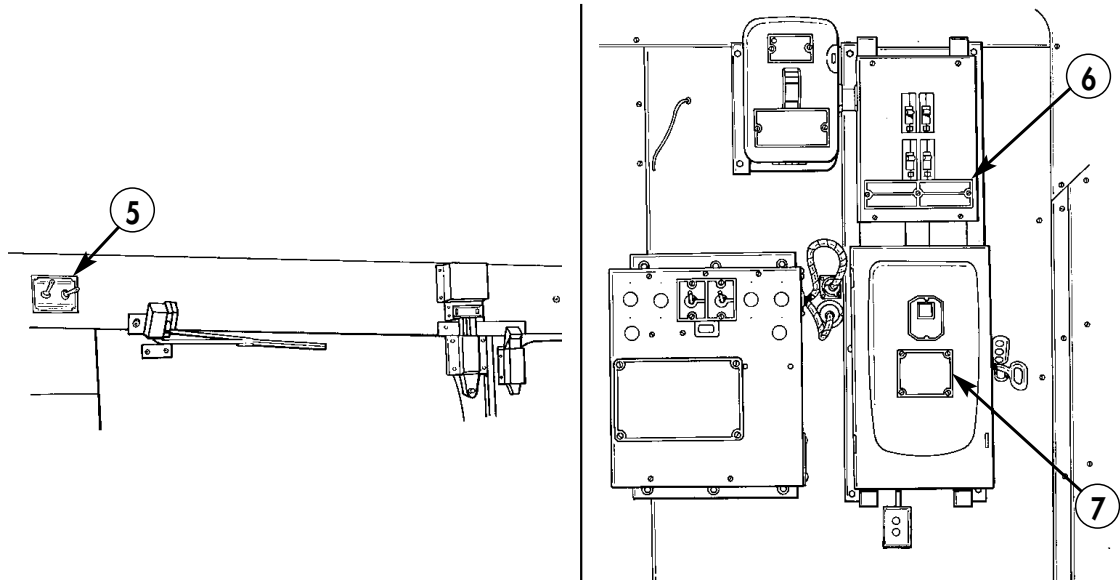


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Van Body

Table 5. Van Body Data Plates.

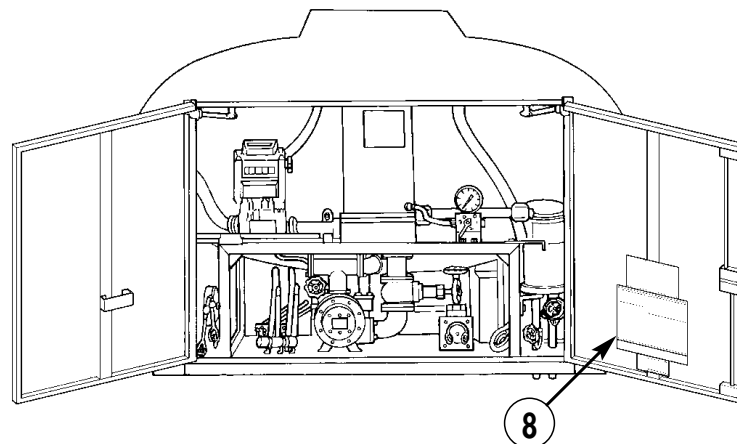
KEY	DATA PLATE	MODELS
5	Dome light switches	M109A3, M185A3
6	Van circuit breakers	
7	Van power switch	



Fuel Tank Truck

Table 6. Fuel Tank Controls Data Plate.

KEY	DATA PLATE	MODELS
8	Operating instructions	M49A2C

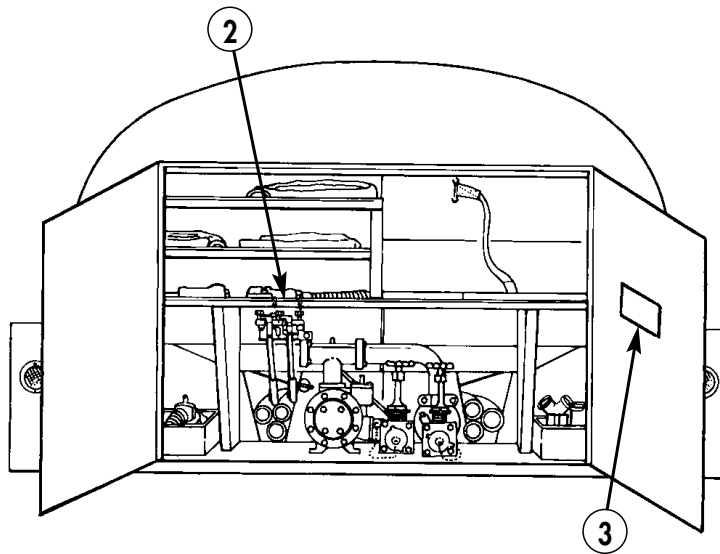
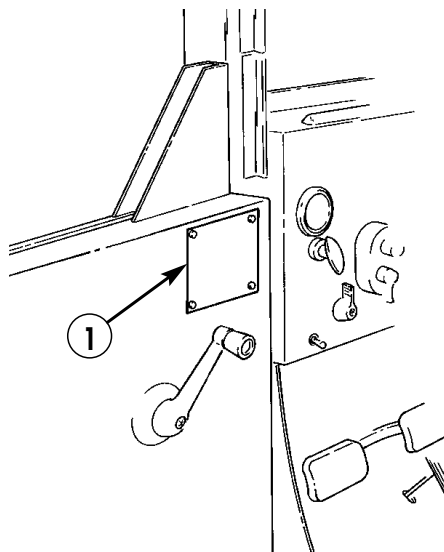


STOWAGE AND DECAL/DATA PLATE GUIDE (Contd)

Water Tank Truck

Table 7. Water Tank Truck Caution and Controls Data Plates.

KEY	DATA PLATE	MODELS
1	Water heating caution plate	M50A2, M50A3
2	Tank capacities data plate	
3	Operating instructions data plate	



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By Order of the Secretary of the Army:

Official:



JOYCE E. MORROW
*Administrative Assistant to the
Secretary of the Army*
0617801

PETER J. SCHOOMAKER
*General, United States Army
Chief of Staff*

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To be distributed in accordance with the initial distribution number (IDN) 380416,
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TO: <i>(Forward to proponent of publication or form) (include ZIP code)</i> AMSTA-LC-LPIT Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i> Co. B, 1st BN, 2nd Brigade Ft. Hood, TX 76445
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PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER TM 9-2320-360-10	DATE 2 MARCH 2005	TITLE TECHNICAL MANUAL OPERATOR'S MANUAL FOR 2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)
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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>
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	2-12					Reads: Latch secures bolster locks. Should read: Latch secures bolster travel locks.
	2-119					Reads: Release clutch pedal (11) slowly. Should read: Release clutch pedal (13) slowly.
	3-4				3-1, item 3	Reads: Engine cranks but fails to start at outside temperatures below 0°F (-27°C). Should read: Engine cranks, but fails to start at outside temperatures below 0°F (-17°C)

SAMPLE

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE, OR TITLE: Pat Smith, 1LT	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION: AV272-4162	SIGNATURE: <i>Pat Smith, 1LT</i>
---	--	-------------------------------------

TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LPIT Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location)</i> <i>(include ZIP code)</i>	DATE: 28 Oct 2006
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER TM 9-2320-360-10	DATE 2 MARCH 2005	TITLE TECHNICAL MANUAL OPERATOR'S MANUAL FOR 2-1/2 TON, 6X6, M44A2 SERIES TRUCKS (MULTIFUEL)
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
SAMPLE								

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE, OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II (<i>reverse</i>) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
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PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER TM 9-2320-361-10	DATE 18 August 2006	TITLE 2-1/2 Ton, M44A2 Series Trucks (Multi-fuel)
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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LPIT / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (Include ZIP Code)</i>	DATE
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 9-2320-361-10	DATE 18 August 2006	TITLE 2-1/2 TON, M44A2 SERIES TRUCKS (MULTI-FUEL)
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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PUBLICATION/FORM NUMBER				DATE		TITLE	
TM 9-2320-361-10				18 August 2006		2-1/2 TON, M44A2 SERIES TRUCKS (MULTI-FUEL)	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible).	
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER TM 9-2320-361-10	DATE 18 August 2006	TITLE 2-1/2 TON, M44A2 SERIES TRUCKS (MULTI-FUEL)
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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 = 1,000 Millimeters = 39.37 Inches
- 1 Kilometer = 1,000 Meters = 0.621 Miles

SQUARE MEASURE

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

CUBIC MEASURE

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

LIQUID MEASURE

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

TEMPERATURE

- $5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
- 212° Fahrenheit is equivalent to 100° Celsius
- 90° Fahrenheit is equivalent to 32.2° Celsius
- 32° Fahrenheit is equivalent to 0° Celsius
- $9/5 ^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

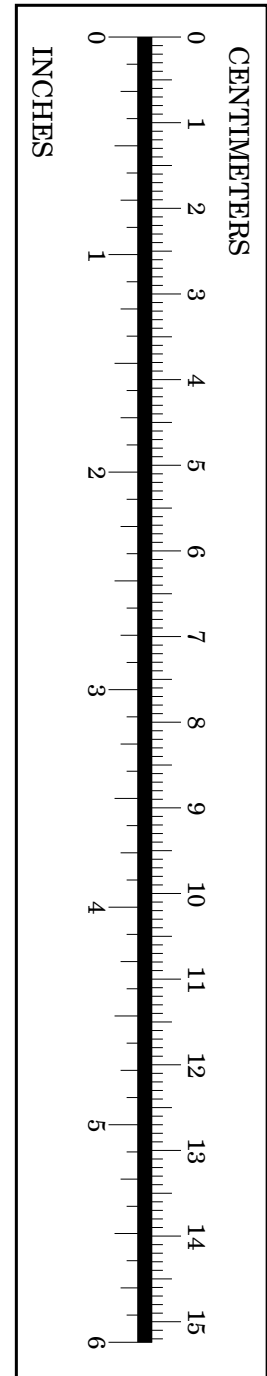
WEIGHTS

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

APPROXIMATE CONVERSION FACTORS

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

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



PIN: 065087-000