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TM 9-2320-360-10*

*SUPERSEDES TM 9-2320-360-10, DATED 31 MAY 2007

TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR

TRUCK, TRACTOR, 8X8
M1070
NSN 2320-01-318-9902 (EIC B5C)



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HEADQUARTERS, DEPARTMENT OF THE ARMY
31 MARCH 2010

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WARNING SUMMARY

GENERAL SAFETY CAUTION/WARNING SUMMARY

- This list summarizes critical warnings. They are repeated here to let you know how important they are.
- Study these warnings carefully.
- They can save your life and the lives of personnel you work with.
- If there is any doubt about handling tools, materials, equipment, and procedures, see TB 43-0216, Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.

Table 1. Warning Icons Used In This Manual.

WARNING ICON	DESCRIPTION
	EAR PROTECTION - headphones over ears show that noise level will harm ears.
	ELECTRICAL - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.
	HEAVY OBJECT - human figure stooping over heavy object shows physical injury potential for improper lifting technique, and/or the aid of an assistant(s) and/or lifting device (as required).
	HEAVY PARTS - hand with heavy object on top shows that heavy parts can crush and harm.

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Table 1. Warning Icons Used In This Manual. - Continued

WARNING ICON	DESCRIPTION
	HEAVY PARTS - foot with heavy object on top shows that heavy parts can crush and harm.
	HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.
	HEAVY PARTS - moving heavy object pinning human figure against stationary object shows that heavy, moving parts/objects present a danger to life or limb.
	HOT AREA - hand over object radiating heats shows that part is hot and can burn.
	MOVING PARTS - hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.

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Table 1. Warning Icons Used In This Manual. - Continued

WARNING ICON	DESCRIPTION
	SHARP OBJECT - pointed object in hand shows that a sharp object presents a danger to life or limb.
	SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger of falling.
	BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.
	CHEMICAL - drops of liquid on hand show that the material will cause burns or irritation to human skin or tissue.
	CRYOGENIC - hand in block of ice shows that the material is extremely cold and can injure human skin and tissue.

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Table 1. Warning Icons Used In This Manual.

WARNING ICON	DESCRIPTION
	EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.
	EYE PROTECTION - person with goggles shows that the material will injure the eyes.
	FIRE - flame shows that material may ignite and cause burns.
	RADIATION - three circular wedges show that the material emits radioactive energy and can injure human tissue.
	VAPOR - human figure in a cloud shows that material vapors present a danger to life or health.

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FOR INFORMATION ON FIRST AID: Reference FM 4-25.11. (WP 0113)

WARNING

MODIFICATION HAZARD

- Unauthorized modifications to, alterations to, or installations on this equipment are prohibited and are in violation of AR 750-10.
- Failure to comply may result in injury or death to personnel or damage to equipment.

WARNING



CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH

- Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines.
- Carbon monoxide does not have color or smell and can cause death. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling and coma. Permanent BRAIN DAMAGE or DEATH can result from heavy exposure.
- Carbon monoxide can become dangerously concentrated under conditions of no ventilation.
- The following precautions MUST be followed to ensure personnel are safe whenever personnel heater or main or auxiliary engine is operated for any purpose:
  - DO NOT operate personnel heater or engine of vehicle in enclosed area without adequate ventilation. Failure to comply may result in injury or death to personnel.
  - DO NOT idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.
  - DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes. Failure to comply may result in injury or death to personnel.
  - NEVER sleep in a vehicle when the heater is operating or the engine is idling.
  - BE AWARE that the gas particulate filter unit or the field protection mask for Chemical, Biological, Radiological, and

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Nuclear (CBRN) protection WILL NOT offer safety from carbon monoxide poisoning.

- BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either odor or exposure symptoms are present, IMMEDIATELY EVACUATE AND VENTILATE the area. Affected personnel treatment shall be: expose to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration as described in FM 4-25.11 and get immediate medical attention. Failure to comply may result in injury or death to personnel.
- **THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.**

WARNING

HIGH-PRESSURE HYDRAULIC SYSTEM

- Hydraulic systems can cause serious injuries if high-pressure lines or equipment fails.
- Never work on hydraulic systems or equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and can give first aid.
- Never disconnect any hydraulic hose or part while the engine is running. Allow several minutes to elapse after shutting off engine, to allow pressure to relieve itself, before attempting to remove hoses. Failure to comply may result in injury to personnel.
- The HET vehicles contain hydraulic systems operating at oil pressures up to 3,000 psi (20 685 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.

WARNING



ELECTRICAL SYSTEM

- Remove all jewelry, such as rings, ID tags, bracelets, etc. If jewelry or tools contact electrical circuits, a direct short may result. Failure to comply may result in serious injury or death to personnel.

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- Do not smoke, use open flame, make sparks or other ignition sources around batteries. A battery giving off gas could explode. Failure to comply may result in serious injury or death to personnel.
- Be careful when working on or with electrical equipment. Do not be misled by the term "low voltage." Voltages as low as 50 volts can cause death. For artificial respiration, refer to FM 4-25.11.
- When working inside the vehicle with power off, be sure to ground every capacitor likely to hold a dangerous voltage potential.
- Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment.

WARNING



SOLVENT CLEANING COMPOUND

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in a well-ventilated area. Use respirator as needed.
- Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal:
  - First aid for ingestion: do not induce vomiting. Seek immediate medical attention.
  - First aid of skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention.
  - First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention.
  - First aid for inhalation: move to fresh air. If symptoms persist, seek medical attention.
  - If not breathing, provide artificial respiration. Seek immediate medical attention.
- The flashpoint for Type II solvent cleaning compound is 141 to 198°F (61 to 92°C), and Type III is 200 to 241°F (93 to 116°C):
  - Keep away from open flames and other sources of ignition. Failure to comply may result in injury or death to personnel.

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- Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.

- Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment:
  - Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particles may cause injury.
  - Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.

WARNING



POLYURETHANE COATING (CARC)

- Eye and hearing protection must be worn at all times when using power tools for grinding, cutting, sawing, and drilling. Failure to do so may result in injury to personnel.

- Chemical Agent Resistant Coating (CARC) paint contains isocyanate which is highly irritating to skin and respiratory system. High concentrations of isocyanate can produce symptoms of itching and reddening of skin, a burning sensation in the throat and nose, and watering of the eyes. In extreme concentrations, isocyanate can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness:
  - First aid for ingestion: do not induce vomiting. Seek immediate medical attention.
  - First aid of skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention.
  - First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention.
  - First aid for inhalation: move to fresh air. If symptoms persist, seek medical attention.
  - If not breathing, provide artificial respiration. Seek immediate medical attention.

- The following precautions must be taken whenever using CARC paint or performing maintenance on components protected with CARC paint:
  - Protective equipment (gloves, goggles, ventilation mask) must be worn when using CARC paint.

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- NEVER cut CARC-coated materials without high-efficiency, air-purifying respirators in use.
- DO NOT grind or sand painted equipment without high-efficiency, air-purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.
- Use only in well-ventilated area. Check with local environmental office for methods and locations approved for painting in accordance with local and state environmental regulations.
- Always use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.

WARNING



ADHESIVE

- Adhesive, solvents and sealing compounds can burn easily and are harmful causing immediate bonding on contact with eyes, skin, or clothing and gives off harmful vapors.
- If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.
- If adhesive gets in your eyes, try to keep them open; flush them with water for 15 minutes and get immediate medical attention.
- Wear protective goggles and use in a well-ventilated area.
- Keep away from open fire and use in well-ventilated area to avoid injury or death.

WARNING



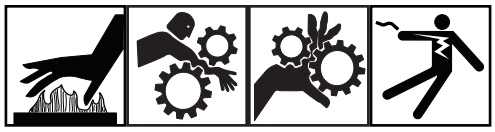
FLAMMABLE LIQUID AND COMBUSTIBLE VAPOR

- Gasoline, fuel oil, lubricating oil, grease, paint, paint thinner, cleaning solvents, and other combustible liquids present a serious fire hazard.

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- Combustible liquids must ALWAYS be stored in their approved containers and designated compartments or deck storage locations.
- Ensure exhaust and ventilation fans are operating while using cleaning solvents or paint products.
- Never store or charge batteries in a confined space without ventilation or near electrical equipment.
- Fuel is very flammable and can explode easily.
- To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.
- Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.
- When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.
- Starting fluid is toxic and flammable. Do not store in cab and do not breathe fumes. Do not puncture or burn containers. Dispose of container following manufacturer's recommendations on the container.
- Never use fuel to clean parts. Fuel is highly flammable. Serious personnel injury could result if fuel ignites during cleaning.
- Ether is very flammable and could explode causing serious injury or death. Keep ether cylinders away from heat and open flame.
- Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.

WARNING



MOVING MACHINERY

- Use extreme care when operating or working near moving machinery including running engine, rotating shafts, and other moving parts. Failure to comply may result in injury or death to personnel.
- Use extreme care when measuring voltage while engine is running around rotating fan blade and hot engine parts. Failure to comply may result in injury or death to personnel.

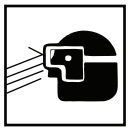
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WARNING

HEAVY-DUTY WINCH OPERATION

- Avoid quick, jerking winch operation. All personnel must stand clear during winching operations from possible snapping cable or shifting load. Failure to comply may result in injury or death to personnel.
- When hooking up for winching operations, position throat (open part) of hook upward in case overloading straightens out hook. Failure to comply may result in injury or death to personnel.
- The cable drum requires a minimum of five wraps of wire rope (cable) for safety. Failure to comply may result in injury or death to personnel.
- Be careful when handling the winch cable. Ensure cut ends are taped. Ensure cut ends of cable on winch assembly are securely fastened down. Failure to comply may result in injury or death to personnel.
- Always wear leather gloves when handling winch cable. Failure to comply may result in injury or death to personnel.

WARNING



PARTS UNDER PRESSURE

- Wear safety goggles and use caution when removing or installing springs, snap rings, retaining rings, and other parts under spring tension. These parts can act as projectiles. Failure to comply may result in injury or death to personnel.
- The radiator is very hot and pressurized during vehicle operation. Let radiator cool before removing cap. Failure to do so can result in serious burns.
- During pressure tests, ensure air pressure is drained to 0 psi (0 kPa) before taking off any components. If pressure is not released, plates or line could blow off and harm personnel. Do not drain air from tank with any part of body in air spray path. Skin embolisms and/or debris in eyes can occur from released pressure.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.

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- Stand clear of trajectory area during deflation or personal injury or death may result.
- Lock-ring is under tension. If lock-ring breaks loose it could cause injury to personnel. Keep hands and fingers away from lock-ring when removing.
- Never adjust relief valve so that personnel must stand on strongback to operate latch.
- If there is any residual pressure in tank when relief valve is open, personnel may lose their balance and fall. Failure to comply may result in injury or death to personnel.
- Use extreme care when removing or installing spring retainers. Spring retainers are under tension and can act as projectiles when released suddenly. Ensure proper eye protection is worn to prevent injury to personnel.
- Use extreme care when removing or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel. Eye protection is required during all grinding operations. Failure to comply may result in serious injury to personnel.
- Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in personal injury or death.
- Do not remove the radiator cap when the engine is hot, as steam and hot coolant can escape. Failure to comply may result in personal injury or death.

WARNING



HEAVY PARTS

- Any part or component that weighs over 50 lbs (23 kg) must be removed with the aid of an assistant and a lifting device. Failure to comply may result in personal injury or death.
- Utility chains are heavy and difficult to handle. Two personnel are required when handling utility chains. Failure to comply may result in injury to personnel.

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WARNING

EXTREME HEAT

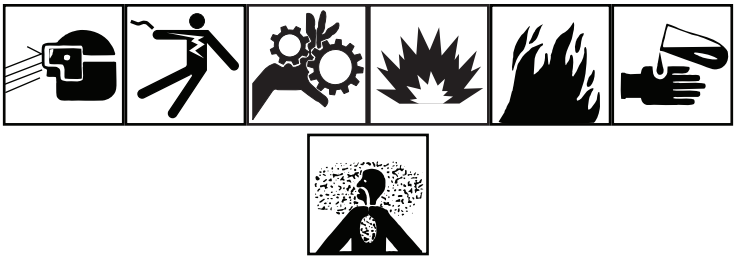
If required to remain inside the vehicle during extreme heat, occupants should follow the water intake, work/rest cycle, and other heat stress preventive medicine measures contained in FM 21-10, Field Hygiene and Sanitation.

WARNING

CABLES

- Always wear heavy gloves when handling winch cables; never let cable run through hands. Frayed cables can cut. Failure to comply may result in injury or death to personnel.
- Never operate winch with less than five wraps of cable on winch drum. Frayed cables can cut. Failure to comply may result in injury or death to personnel.

WARNING



LEAD-ACID BATTERIES

- Wear proper eye protection when working around batteries. Failure to comply may result in injury or death to personnel.
- Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc. prior to working on or around vehicle. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.
- Batteries produce explosive gases. Do not smoke or use open flame near batteries. Do not allow hot, sparking, or glowing objects near batteries. If batteries are giving off gases, presence of a heat, flame, or spark may cause fire and/or explosion. Failure to comply may result in injury or death to personnel.

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- Battery electrolyte is harmful to skin, and eyes. Avoid battery electrolyte contact with skin, eyes, or clothing. If battery electrolyte spills, take immediate action to stop burning effects:
  - External - If battery electrolyte contacts skin, immediately flush effected area with cold running water to remove all acid. Failure to comply may result in injury or death to personnel.
  - Eyes - Immediately flush eyes with cold water for 15 minutes and seek immediate medical attention. IMPORTANT - If only one eye is affected, ensure the affected eye is always (during both flushing and transport) kept lower (the lower the better) than unaffected eye. This will help keep affected eye from draining into (and contaminating) the unaffected eye. Failure to comply may result in injury or death to personnel.
  - Internal - Drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil and seek immediate medical attention. Failure to comply may result in injury or death to personnel.
  - Clothing or vehicle - Immediately flush area with cold water and neutralize battery electrolyte with baking soda or household ammonia solution. Failure to comply may result in injury or death to personnel.

WARNING



CBRN

- CBRN-contaminated air filters must be handled and disposed of only by authorized and trained personnel.
- The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-11.4) is used, and prescribed safety measures and decontamination procedures (FM 3-11.5) are followed.
- The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

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WARNING

TIRE OPERATION

- Operating a vehicle with a tire in an overinflated or underinflated condition, or with a questionable defect, may lead to premature tire failure. Ensure tire has proper tire pressure. Failure to comply may result in injury or death to personnel.
- When inflating tires mounted on the vehicle, all personnel must remain out of trajectory of the side ring and lock-ring as shown by the areas indicated. Failure to follow proper procedures may result in serious injury or death to personnel.
- Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated or damage or personal injury or death may result.
- No heat shall be applied to a multi-piece wheel or wheel component or damage or injury or death may result.
- Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.
- When a wheel/tire is in a restraining device, do not rest or lean any part of body or equipment on or against the restraining device, or injury or death could result.
- While changing tires or while performing tire maintenance, stay out of the trajectory path. Failure to comply may result in injury or death to personnel.
- Always use an inflation hose with an in-line gauge and a clip-on chuck when inflating tires. The gauge and valve must be mounted a minimum of 10 feet (3.10 m) away from air chuck.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Tire is heavy. Brace tire to ensure tire will not fall over on you or on others.

WARNING

VEHICLE OPERATION

- Speed limits posted on curves reflect speeds that are considered safe for automobiles. Heavy vehicles with a high center of gravity can roll over at these speed limits. Use caution and reduce your speed below

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the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.

- Use caution and reduce your speed below the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.
- Always use seatbelts when operating vehicle. Failure to use seatbelt can result in serious injury or death in case of accident.
- Operation at speeds over 15 mph (24 kph) on paved roads can be achieved when the operator determines that the vehicle being towed and the terrain allow safe operation.
- Under no condition can speeds over 35 mph (55 kph) on paved road and 15 mph (24 kph) off-road be allowed. Loss of control can cause serious injury or death. Excessive speed can cause damage to vehicle being towed.

WARNING

BRAKES

- Ensure all personnel are clear from front of vehicle before performing brake stall check. Be ready to apply service brake. Operator must remain in cab while performing this check. Failure to comply could result in personnel injury.
- Never use parking brake for normal braking or wheels will lock up causing severe skid. Skidding vehicle may result in serious personal injury or death.
- Do not use trailer brakes as a parking brake. Trailer brakes may not hold loaded vehicle and trailer on a grade. A runaway vehicle may cause severe personal injury or death.
- Engine must be shut OFF and parking brake set before performing PMCS walk around. Failure to comply may result in injury or death to personnel.

WARNING



BURNS

The exhaust pipe and muffler can become very hot during vehicle operation. Be careful not to touch these parts with bare hands, or allow

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body to come in contact with exhaust pipe or muffler. Exhaust system parts can become hot enough to cause serious burns.

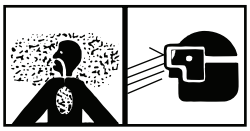
WARNING



HEARING PROTECTION

- Excessive noise levels are present any time the heavy-duty winch or crane is operating.
- Wear single hearing protection (earplugs or equivalent) while working around equipment while it is running. Failure to do so could result in damage to your hearing.
- Seek medical aid should you suspect a hearing problem.
- Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with DA PAM 40-501. Hearing loss occurs gradually but becomes permanent over time.

WARNING



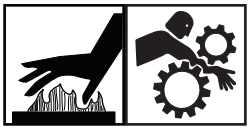
COMPRESSED AIR

- Brake shoes may be coated with dust. Breathing this dust may be harmful to your health.
- Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury or death to personnel.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa).
- Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

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- Steam cleaning creates hazardous noise levels and severe burn potential. Eye, skin, and ear protection is required. Failure to comply may result in injury to personnel.
- Face shield must be used by personnel operating spray gun. Failure to comply may result in injury to personnel.

WARNING



ENGINE/TRANSMISSION COMPONENTS

- Ensure engine is cool before performing maintenance. Failure to comply may result in severe burns.
- Use caution when draining hot oil. Oil may burn exposed skin and cause injury to personnel. If injured, seek medical attention immediately.
- Never use magnetic plug in center of engine oil pan to drain oil. Failure to comply may result in injury to personnel and could cause oil to drain on vehicle components.
- When working on a running engine, use caution around rotating parts. Tools, clothing, and hands may get caught causing serious injury or death to personnel.
- Use caution when working near hood mounting bracket that extends beyond firewall. Failure to comply may result in injury to personnel.
- Parking brake must be applied, with transmission range selector and transfer case in neutral before starting DDR cylinder cutout test. Failure to comply may result in vehicle moving unexpectedly and injury to personnel.

WARNING



HAZARDOUS WASTE

- When servicing this vehicle, performing maintenance, or disposing of materials such as engine coolant, transmission fluid, lubricants, batteries, battery acid or CARC paint, consult your Unit/local

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hazardous waste disposal center or safety office for local regulatory guidance. If further information is needed, please contact the Army environmental hotline at 1-800-872-3845. Improper disposal of this material may result in damage to environment or injury to personnel.

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LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE:
Zero in the "Change No." column indicates an original page or work package.

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 68 AND TOTAL NUMBER OF WORK PACKAGES IS 117, CONSISTING OF THE FOLLOWING:

Dates of issue for the original manual and revision are:

Original 31 MAY 2007 Revision 31 MARCH 2010

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 MARCH 2010

TECHNICAL MANUAL

OPERATOR'S MANUAL
TRUCK, TRACTOR, 8X8, M1070
NSN 2320-01-318-9902

Current as of 31 March 2010

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HOW TO USE THIS MANUAL

USABLE ON CODE (UOC) INFORMATION

Usable On Code (UOC) - the user should be aware that the BASE model M1070 Heavy Equipment Transporter vehicle UOC is "MTH". Dependent on the format used for printing this manual, the user may or may not see instructions printed in this manual stating what information is applicable to which model HET series vehicle by UOC.

WARNINGS, CAUTIONS, AND NOTES

Read all WARNINGS, CAUTIONS, AND NOTES before performing any procedure.

Warnings, cautions, notes, subject headings, and other essential information are printed in **BOLD** type, making them easier for the user to see.

GENERAL INFORMATION

This manual is designed to help operate and maintain the Heavy Equipment Transporter (HET). Listed below are some features included in this manual to help locate and use the required information:

- Chapter 1 of this manual includes HET series vehicle general information, theory of operation, differences between models, etc.
- Chapter 2 of this manual provides operating procedures and operator Preventive Maintenance Checks and Services (PMCS) for both the HET series vehicle, and its accompanying operating systems.
- Chapter 3 of this manual provides operator troubleshooting procedures for both the HET series vehicle, and its accompanying operating systems.

In addition to text, there are illustrations showing:

1. Components, controls, and indicators.
2. How to take a component off, and put it back on.
3. Cleaning and inspection criteria are also listed when necessary.

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CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION

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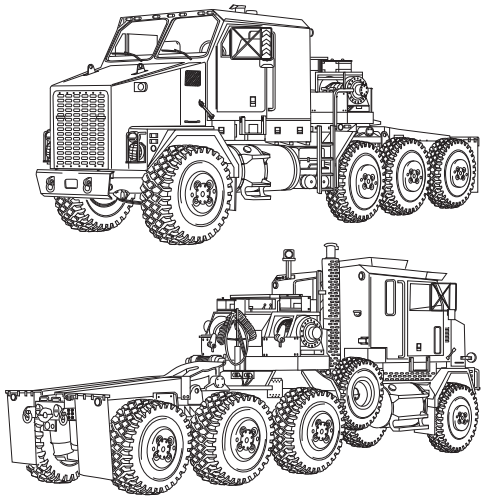
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OPERATOR MAINTENANCE
INTRODUCTION

SCOPE

This manual is used for operation and operator-performed maintenance of HET Tractor:
Name and Model: Truck, Tractor, M1070, 8 X 8, Heavy Equipment Transporter (HET).
Purpose of Equipment: HET Tractor and the M1000 Trailer form the Heavy Equipment Transport System (HETS). HETS will be used to load, unload, and transport the M1 Series Main Battle Tank (MBT) during administrative and tactical operations.
Special Inclusions: A Stowage and Sign Guide (WP 0083) and On-Vehicle Equipment Loading Plan (WP 0117) are included with this manual.

Table 1. Overview.

M1070, TRUCK TRACTOR, 8 X 8, Heavy Equipment Transporter (HET)	DESCRIPTION
 *Figure 1.*	Tractor vehicle with 86,000 lbs (39 044 kg) GVWR, and 231,400 lbs (105 056 kg) GCWR. Vehicle is equipped with fifth wheel, 3.5 in. (8.9 cm) kingpin, two 55,000 lbs (24 970 kg) capacity recovery winches, and a 3,000 lbs (1 361 kg) capacity auxiliary winch.

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MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8 The Army Maintenance Management System (TAMMS) Users Manual. (WP 0113)

EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD) AND QUALITY DEFICIENCY REPORTING (QDR).

The quarterly TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest (WP 0113) contains valuable field information on equipment covered in this manual. Information in the TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest (WP 0113) is compiled from some of the Equipment Improvement Reports (EIR) that have been prepared on vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that were submitted to the EIR program. TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest (WP 0113) contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWOs), warranties (if applicable), actions taken on some of the DA Form 2028s (WP 0113) (Recommended Changes to Publications), and advance information on proposed changes that may affect this manual. Refer to the TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest (WP 0113) periodically for the most current and authoritative information on the equipment. The information will help to do a better job and will advise of the latest changes to this manual. Also refer to DA PAM 25-30, (WP 0113) Consolidated Index of Army Publications and Blank Forms at http://www.army.mil/usapa/2530.html, and reference section (WP 0113) of this manual. If you have a change recommendation to this manual, submit a DA Form 2028s (WP 0113) (Recommended Changes to Publications) via e-mail to: ROCK-TACOM-TECH-PUBS@conus.army.mil.

You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (WP 0113) (Recommended Changes to Publications and Blank Forms) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is https://aeps.ria.army.mil. The DA Form 2028 (WP 0113) is located under the Public Applications section in the AEPS Public Home Page. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 (WP 0113) program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LC-LMPP / TECH-PUBS, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HAND RECEIPT (HR) INFORMATION

The is a companion document to this manual which consists of preprinted hand receipts (DA Form 2062) (WP 0113) that list end item related equipment (COEI, BII, (WP 0114) and AAL (WP 0115)) which must be accounted for. As an aid to property accountability, additional Hand Receipt (-HR) Manuals may be requisitioned from the following source in accordance with procedures in DA PAM 25-30, (WP 0113) Consolidated Index of Army Publications and Blank Forms; Commander US Army Distribution Operation Facility, 1655 Woodson Road, St Louis, MO 63114-6181.

CORROSION PREVENTION AND CONTROL

The HET Tractor has a total service life of 20 years which allows for extended periods of operation in a corrosive environment. A corrosive environment includes exposure to high humidity, salt spray, road-deicing chemicals, gravel damage, and atmospheric contamination. No action beyond normal washing and repair of damaged areas is necessary to control corrosion. To prevent moisture accumulation, drain holes are provided on structural and sheet metal areas where necessary, and stowage boxes are provided with seals and baffled drains.

Corrosion prevention and control (CPC) of Army material is a continuing concern. It is important that any corrosion problems be reported so they can be corrected and improvements can be made to prevent problems in the future. While corrosion is typically associated with the rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368. (WP 0113) The use of key words, such as corrosion, rust, deterioration, and cracking will ensure that the information is identified as a CPC problem.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Procedures for the destruction of Army materiel to prevent enemy use are contained in TM 750-244-6. (WP 0113)

PREPARATION FOR STORAGE OR SHIPMENT

Contact Field Level Maintenance for information on preparing the HET Tractor for storage or shipment.

WARRANTY INFORMATION

The HET Tractor is warranted by Oshkosh Corporation for 12 months; 4 months additional if placed in storage. The warranty starts on the date found in block 23 of DA Form 2408-9 (WP 0113) in the vehicle logbook. Report all defects in material or workmanship to the supervisor, who will take appropriate action through the field level maintenance shop.

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WARRANTY INFORMATION - Continued

Report all defects in material or workmanship to the supervisor, who will take the appropriate action. For complete information covering this warranty, refer to Warranty Program in the general information section of this manual.

NOMENCLATURE CROSS-REFERENCE LIST

Table 2. Common Nomenclature.

COMMON NAME	OFFICIAL NOMENCLATURE
Brake Pedal	Service Brake Pedal
Cable	Wire Rope
Cold Start System	Ether Quick-Start System
DDR	CTS J1708 Application
Engine Coolant	Antifreeze, Ethylene Glycol Mixture
Glad Hand	Quick Disconnect Coupling
HET Tractor	Truck, Tractor, M1070, 8X8, Heavy Equipment Transporter (HET)
High Idle Switch	Engine Speed Control Switch
Jake Brake, Jacobs® Brake	Engine Retarder, Engine Brake
O-Ring	Preformed Packing
Three Rear Axles	Tridem Axles

LIST OF ABBREVIATIONS

Table 3. Abbreviations.

ABBREVIATION	OFFICIAL NOMENCLATURE
AAL	Additional Authorization List
AMDF	Army Master Data File

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
amp	Ampere
bar	Barometric Pressure
BII	Basic Issue Items
BL	Bottom Load
BOI	Basis of Issue
C	Celsius
CAGEC	Commercial And Government Entity Code
CARC	Chemical Agent Resistant Coating
CBRN	Chemical, Biological, Radiological, and Nuclear
CCA	Cold Cranking Amperes
CHU	Container Handling Unit
CID	Cubic Inch Displacement
CKT	Circuit
cm	Centimeter
COEI	Components of End Item
CTA	Common Table of Allowance
CTIS	Central Tire Inflation System
CPC	Corrosion Prevention Control
CTA	Common Table of Allowance

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
cu in.	Cubic Inch
DA	Department of the Army
dia.	Diameter
DS	Direct Support
EIR	Equipment Improvement Recommendations
F	Fahrenheit
FHTV	Family of Heavy Tactical Vehicles
fl. oz.	Fluid Ounce
FRS	Forward Repair System
ft.	Foot
GAA	Grease, Automotive, and Artillery
gal	Gallon
GCWR	Gross Combination Weight Rating
GPFU	Gas Particulate Filter Unit
gpm	Gallons Per Minute
GS	General Support
GVWR	Gross Vehicle Weight Rating
HD	Heavy Duty
HDI	Hexamethylene Diisocyanate
HET	Heavy Equipment Transporter

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
HETS	Heavy Equipment Transport System
hp	Horsepower
HVAC	Heating, Ventilation, and Air Conditioning
I.D.	Inside Diameter
in.	Inch
ISO	International Standards Organization
JTA	Joint Table of Allowances
kg	Kilogram
km	Kilometer
Kmh or km/h	Kilometer per Hour
kPa	Kilopascals
kw	Kilowatt
L	Liter
lbs	Pound
lb-ft	Pound-Foot
lb-in	Pound-Inch
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LH	Left-Hand
M	Meter

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
MAC	Maintenance Allocation Chart
MBT	Main Battle Tank
mi	Mile
ml	Milliliter
MLC	Military Load Class
mm	Millimeter
Mph	Miles Per Hour
MTOE	Modified Tables of Organization and Equipment
NIIN	National Item Identification Number
N·m	Newton Meter
NOC	Not Usable-On Code
NSN	National Stock Number
O.D.	Outside Diameter
OEA	Oil, Engine, Arctic
OE/HDO	Oil, Engine/Hydraulic Oil
OSK	Oshkosh Corporation
Oz	Ounce
PMCS	Preventive Maintenance Checks and Services
psi	Pounds per Square Inch

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
pt.	Pint
PTO	Power Take-Off
qt.	Quart
Qty. Recm.	Quantity Recommended
Qty. Rqr.	Quantity Required
RFI	Radio-Frequency Interference
RH	Right-Hand
rpm	Revolutions Per Minute
RPSTL	Repair Parts and Special Tools List
SAE	Society of Automotive Engineers
SMR	Source, Maintenance, and Recoverability
SRA	Specialized Repair Activity
STE/ICE-R	Simplified Test Equipment/Internal Combustion Engine Reprogrammable
TAMMS	The Army Maintenance Management System
TDA	Tables of Distribution and Allowance
TM	Technical Manual
TMDE	Test, Measuring, and Diagnostic Equipment
TOE	Tables of Organization and Equipment
u/m	Unit of Measure

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LIST OF ABBREVIATIONS - Continued

Table 3. Abbreviations. - Continued

ABBREVIATION	OFFICIAL NOMENCLATURE
UOC	Usable-On Code
VDC	Volts Direct Current
XHD	Extra Heavy-Duty

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SAFETY, CARE, AND HANDLING

Significant hazards and safety recommendations are listed in the Table 4 below.

Table 4. Significant Hazards And Safety Recommendations.

OPERATING HAZARD	SAFETY RECOMMENDATION OR PRECAUTION	CONDITION (see NOTE below)
Low oil pressure/high coolant temperature	Stop engine operation when CHECK GAUGES and CHECK ENGINE indicators are illuminated, engine warning alarm sounds, and gauges indicate abnormal readings. (WP 0015)	Abnormal
Low air pressure	Do not drive HET Tractor while low air pressure alarm is sounding or LOW AIR indicator (WP 0015) is illuminated.	Abnormal
Electric shock	Do not wear watches, rings, or other jewelry while working on or near an electrical circuit.	Abnormal
Refueling vehicle	Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open flame and keep fire extinguisher (WP 0033) within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post sign that says: NOT SMOKING WITHIN 50 FEET OF VEHICLE.	Normal
Connecting/Disconnecting trailer	Ensure that position of assistant is known at all times. Ensure no one is standing directly behind tractor or trailer during connection/disconnection.	Normal
Vehicle instability on a hill	Avoid driving diagonally across a hill. HET Tractor may roll, causing equipment damage and injury or death to personnel.	Normal

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SAFETY, CARE, AND HANDLING - Continued

Table 4. Significant Hazards And Safety Recommendations. - Continued

OPERATING HAZARD	SAFETY RECOMMENDATION OR PRECAUTION	CONDITION (see NOTE below)
Winching operations	Do not use winches (WP 0035) for lifting personnel. Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cable can cut severely. Do not operate winch without guard in place. Do not place hands or feet near winch during operation. Ensure that both DRIVER SIDE and PASSENGER SIDE WINCH KICKOUT controls are disengaged prior to paying out winch cables. Failure to disengage KICKOUT controls may result in injury to personnel.	Normal

NOTE

Category of hazards as to whether or not they may be expected under normal or abnormal operating conditions.

METRIC SYSTEM

The equipment described herein contains metric components and requires metric, common, and special tools. Therefore, metric units and English units will be used throughout this publication. A chart is supplied below to help convert these measurements.

LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 miles

SQUARE MEASURE
1 Sq Centimeter = 100 Sq Millimeter = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeter = 10.76 Sq Feet
1 Sq Kilometer = 1,000,00 Sq Meters = 0.386 Sq Miles

WEIGHTS
1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces

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METRIC SYSTEM - Continued

1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE
1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

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

Table 5. Approximate Conversion Factors.

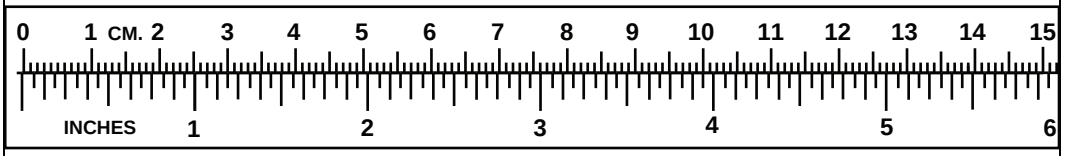
TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573

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METRIC SYSTEM - Continued

Table 5. Approximate Conversion Factors. - Continued

TO CHANGE	TO	MULTIPLY BY
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
Pounds per Square Inch	Bar	0.068948
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609



RULER NOT TO SCALE

Figure 2.

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280

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METRIC SYSTEM - Continued

Table 5. Approximate Conversion Factors. - Continued

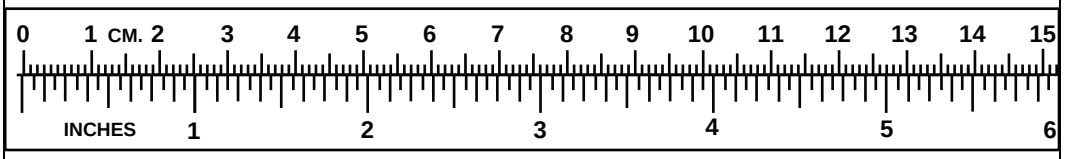
TO CHANGE	TO	MULTIPLY BY
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
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
Bar	Pounds per Square Inch	14.504
Kilometers per Liter	Miles per Gallon	2.354

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METRIC SYSTEM - Continued

Table 5. Approximate Conversion Factors. - Continued

TO CHANGE	TO	MULTIPLY BY
Kilometers per Hour	Miles per Hour	0.621



RULER NOT TO SCALE

Figure 3.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WARRANTY PROGRAM

GENERAL

NOTE

This work package supersedes TB 9-2320-360-14.

This work package provides implementation instructions for the Warranty on the Truck, Tractor, M1070. It contains instructions for obtaining services and/or supplies covered under warranty. This bulletin also describes methods of processing warranty claims. For additional warranty information on the HET Tractor or any U.S. Army Tank-Automotive Command (TACOM) equipment, contact your local Warranty Control Office/Officer (WARCO) or TACOM Logistics Assistance Representative (LAR).

If your WARCO or TACOM LAR is not available or if additional information is required, contact TACOM. The number to call is DSN 786-7423, COMMERCIAL (313) 574-7423. The caller should be prepared to provide:

1. Name.
2. DSN and commercial telephone numbers.
3. Complete unit designation.
4. Identification of the vehicles to include serial number(s).
5. A brief description of the problem.
6. Contract number (refer to Table 1 of this work package).

EXPLANATION OF TERMS:

Abuse

The improper use, maintenance, repair or handling of warranted items that may cause the warranty of those items to become void (for example; not following service intervals or using the vehicle for other than what is intended).

Acceptance Date

The date an item of equipment is accepted into the Army's inventory by the execution of the acceptance block and signing of a DD Form 250 (WP 0113) or approved acceptance document by an authorized representative of the Government.

Alterations/Modifications

Any alteration after production such as retrofit, conversion, remanufacture, design change, engineering change, and the like.

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EXPLANATION OF TERMS: - Continued

Contractor

The supplier of equipment who enters into an agreement directly with the Government to furnish supplies.

Correction

The elimination of a defect.

Defect

Any condition or characteristic in any supplies or services furnished by the contractor under the contract that is not in compliance with requirements of the contract.

Extended Warranty

Warranty that is provided for assemblies/parts beyond the standard 12 months.

Failed Item

A part, component, or end item that fails to perform its intended use.

False Return

The return of suspected defective warranty items to the manufacturer that are eventually determined to be serviceable.

Manufacturer's Recall

Safety Recall An item is recalled to repair or replace a defective part or assembly which may affect safety.

Service Recall An item is recalled to repair or replace a defective part or assembly which does not affect the safe use of this item.

Owning Unit

The Army Unit authorized to operate, maintain, and use the equipment.

Reimbursement

A written provision in this warranty in which the Using/Support Unit may make the necessary repairs, with or without prior approval from the contractor, and the Government will be reimbursed for the repair parts and labor costs.

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EXPLANATION OF TERMS: - Continued

Repair

A maintenance action required to restore an item to serviceable condition without affecting the warranty.

Serviceable

The condition of an item which may be new or used that meets all the requirements and performs the functions for which it was originally intended.

Supplies

All spares required to maintain and repair the vehicle.

Supporting Repair Facility

The repair activity authorized to accomplish warrantable repairs at the appropriate level of maintenance identified in the Maintenance Allocation Chart (MAC) .

Warranty Control Office (WARCO)

Serves as the intermediary between the troops owning the equipment and the local dealer, contractor, or manufacturer. All warranty claim actions will be processed through the WARCO.

Warranty

A written agreement between a contractor and the Government which outlines the rights and obligations of both parties for defective supplies.

Warranty Claim

Action started by the equipment user for warranty repair or reimbursement.

Warranty Expiration Date

The date the warranty is no longer valid. This date will be twelve (12) months plus up to four (4) months authorized storage from the Government acceptance date (DD Form 250, Block 21A) (WP 0113).

Warranty Period

Twelve (12) months from signature date on DD Form 250. (WP 0113)

Warranty Start Date

The date the warranty is put into effect. Refer to warranty data plate attached to inside driver’s door panel.

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COVERAGES-SPECIFIC

This work package applies to:

Table 1. Vehicle Information.

Noun	Model	NSN	Cage
Truck, Tractor, Heavy Equipment Transporter (HET)	M1070	2320-01-318-9902	45152

NOTE

The item is manufactured by Oshkosh Corporation (OSK), under contract #DAAE07-90-C-0204. Inquiries to OSK can be made by calling (920) 235-9151.

Oshkosh Corporation warrants the supplies are free from defects in design, material, and workmanship for a period of 12 months from date of acceptance as shown on the vehicle warranty data plate in the cab. This warranty includes labor and materials to correct all defects in design, material, and workmanship.

This 12 month warranty is extended up to four (4) months from date of acceptance if the vehicle is put into Government storage before use. In this case, the warranty starts when the vehicle is either taken out of storage or until four (4) months from the warranty start date shown on the warranty data plate, whichever occurs first.

In addition to the 12 month warranty, the HET Tractor shall be warranted for a total service life of 10 years, including extended periods in a corrosion hazard environment. During this 10 year service life, there shall be no damage caused by corrosion requiring repair or replacement of parts. No actions beyond normal washing or replacement of accident-damaged paint shall be necessary to maintain the corrosion protection in place. The contractor warrants and shall be responsible for all corrosion damage repair of the HET Tractor during that period.

Extended warranty provided for the engine and transmission is acquired through Oshkosh Corporation. The engine is warranted 100% for 18 months. The transmission is warranted 100% for 12 months and for a portion of the parts and labor from 13 to 24 months. This is from the acceptance date of the vehicle. Refer to extended engine warranty and extended transmission warranty information below.

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COVERAGES-SPECIFIC - Continued

If a vehicle is placed in Government storage following acceptance, the Government shall advise Oshkosh Corporation. Provide the vehicle serial number and date placed in storage. Also, advise Oshkosh Corporation the date vehicle is taken out of storage.

If a safety recall occurs during the vehicle warranty period, Oshkosh Corporation agrees to extend the term of the warranty by a period equal to the time period required to make necessary safety defect corrections. If the vehicle is in storage and the safety recall defect correction time does not affect the required removal dates, the warranty extension does not apply. The following brief summary of procedural Steps is outlined for reference in the event a vehicle recall program is required for compliance with National Highway Traffic Safety Act (NHTSA) regulations.

Once it has been determined by Oshkosh Corporation system safety engineering that the problem is safety related, it is the responsibility of Oshkosh Corporation to furnish a defect information report to the Office of Compliance, NHTSA, for each defect in Oshkosh Corporation's HET vehicle. This report will be submitted within five (5) working days after the defect on the vehicle or component is determined to be safety related. At the same time, Oshkosh Corporation will provide notification to: Commander, USA TACOM Attn: AMSTA-MVA (Safety Recall) Warren, MI 48397-5000.

It will be the responsibility of Oshkosh Corporation to maintain a record of vehicles initially shipped to consignees identified on DD Form 250 (Material Inspection and Receiving Report). (WP 0113) This list of addresses will be provided to NHTSA as part of the notification above.

Once a campaign number has been assigned by the NHTSA, it will be the responsibility of Oshkosh Corporation to:

Conduct the campaign in accordance with the National Highway Traffic Safety Act of 1966.

Provide NHTSA with any reports required during the course of the campaign.

If a defect/failure is caused by or falls within any of the following categories, it is not considered warrantable and a claim should not be initiated:

1. Misuse or negligence.
2. Accident.
3. Improper operation.
4. Improper storage.
5. Improper transport.
6. Improper or insufficient maintenance.
7. Improper alterations or repairs.
8. Defect/failure discovered or occurring after warranty expiration.

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COVERAGES-SPECIFIC - Continued

9. Use of parts/components not provided or authorized by Oshkosh Corporation or its authorized dealers.
10. False returns.
11. Combat damage.
12. The replacement of expendable items (such as filters, lubricating oils, fan belts, and light bulbs) made in connection with normal maintenance services.

CONTRACTOR RESPONSIBILITIES:

When the owning unit decides to have the contractor repair the supplies, the WARCO shall notify the contractor of the defect in writing or by telephone within 60 days. At that time, the contractor will provide a notification number which is to be referenced in all subsequent correspondence including DA Form 2407 (Maintenance Request) (WP 0113) and DA Form 2402 (Exchange Tag). (WP 0113)

When the owning unit has directed the contractor to correct the supplies, the contractor will furnish all material required to correct the defective supplies. Repairs shall be completed within ten (10) working days after receipt of telephonic or written claim notification. Furthermore, the contractor will provide a copy of the work order to owning unit upon completion of repair.

When the contractor receives written notification requiring contractor repair, they will have the option:

1. Correct the supplies in the field.
2. Return the vehicle or parts to the contractor's designated facility for correction.

When the contractor corrects the supplies, all labor involved shall be borne by the contractor. Additionally, the contractor shall arrange and bear all transportation costs of the supplies to their facility and return to user.

The contractor, within five (5) working days of receiving such notice, shall notify the warranty claimant by telephone as to the method of correction, dates work is to be performed, and by whom. At that time, the contractor will provide a notification number to track all activity.

The contractor has the right to inspect any defective supplies, wherever located, within 30 days of notification of warranty claim for the purpose of evaluating the cause or existence of the defect.

GOVERNMENT RESPONSIBILITIES:

The Major Subordinate Command for the HET Tractor is the U.S. Army Tank-Automotive and Armaments Command (TACOM), Warren, MI 48397-5000. TACOM is responsible for managing and implementing the warranty.
Warranty claims will be reported to: Commander, USA TACOM Attn: AMSTA-MMAP Warren, MI 48397-5000 Telephone: DSN 786-7537 Commercial: (586) 574-7537.

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GOVERNMENT RESPONSIBILITIES: - Continued

Warranty claims may be data faxed to: USA TACOM Attn: AMSTA-MMAP Telephone: DSN 786-8231 Commercial: (586) 574-8231.

TACOM RESPONSIBILITIES:

1. Verify, review, process, and, if valid and complete, submit claims to the contractor.
2. Reject claims that are not valid and send them back to the local WARCO with a short explanation of why the claim is rejected.
3. Request additional information for incomplete claims.
4. Provide warranty claim acknowledgment / closeout letters.
5. Ensure the contractor performs in accordance to the terms of the contract.

EQUIPMENT OWNING UNIT RESPONSIBILITIES:

1. Identify defects/failures and verify the defects/failures are warrantable.
2. Submit warranty claims using DA Form 2407 (WP 0113) and DA Form 2407-1 (WP 0113) or DA Form 5504 (WP 0113) and DA Form 5504-1 (WP 0113) through channels to the supporting repair facility.
3. Tag and retain (IAW DA PAM 750-8 (WP 0113) and this work package) parts, pieces of parts, and/or assemblies removed at the owning unit level as a result of a warrantable defect/failure and/or correction.

SUPPORTING REPAIR FACILITY RESPONSIBILITIES:

1. Identify defects/failures as warrantable (if owning unit has not already identified them). Verify defects/failures are warrantable.
2. Review, process, and submit valid warranty claims to the local WARCO if the DA Form 2407 (WP 0113) and DA Form 2407-1 (WP 0113) or DA Form 5504 (WP 0113) and DA Form 5504-1 (WP 0113) are complete and correctly filled out.
3. Reject invalid warranty claims or request additional information for incomplete and incorrect claims.
4. Coordinate with the owning unit and decide which option for repair is desired to correct warrantable defect/failure.
5. Depending on which repair option is chosen, provide labor as required to accomplish the warrantable repairs.
6. Tag and retain (IAW DA PAM 750-8 (WP 0113) and this work package) all parts, pieces of parts, and/or assemblies removed as a result of the warrantable defect/failure and/or correction.

LOCAL WARRANTY CONTROL OFFICE (WARCO) RESPONSIBILITIES:

1. Verify, administer, and process warranty claims which are forwarded to the TACOM WARCO (IAW DA PAM 750-8 (WP 0113) and this work package).
2. Act as liaison between owning unit, the manufacturer, support repair facility, and TACOM.

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GOVERNMENT RESPONSIBILITIES: - Continued

3. Notify the owning units of all warranty claim acknowledgments/closeouts, information, and/or instructions received from TACOM or the contractor.
4. Act as liaison between local dealers and the Army.

ALTERATIONS/MODIFICATIONS

Alterations/modifications shall not be applied unless authorized by TACOM.

WARRANTY DATA PLATE

The HET Tractor will have a warranty data plate. (WP 0026) The contractor is required to mount the warranty data plate on the inside of the driver side door panel. (WP 0083)

When the vehicle is received, the owning unit should locate the warranty data plate (WP 0026) and compare the warranty start date with the date shown on the applicable DD Form 250 (Material Inspection and Receiving Report) (WP 0113) or DD Form 1149. (WP 0113) If these dates differ, disregard the data plate. The date shown on the DD Form 250 (WP 0113) or DD Form 1149 (WP 0113) is the date to be used as a warranty start date.

CLAIM PROCEDURES

REPORTING WARRANTY CLAIMS

The procedures for reporting warranty claims are found in DA PAM 750-8 (WP 0113) and this work package. Responsibilities of TACOM are found in AR 700-139. (WP 0113) For all levels of maintenance operating under the Standard Army Maintenance System (SAMS), Warranty Claim Actions are processed on DA Form 5504 (WP 0113) and DA Form 5504-1. (WP 0113) For those units not operating under SAMS, use DA Form 2407 (WP 0113) and DA Form 2407-1. (WP 0113) It is very important to fill in the blocks on the forms as accurately as possible. Refer to example (Figure 1) in government forms section of this work package

DISCOVERY OF DEFECTS

The contractor shall be notified in writing within 30 days, utilizing DA Form 2407 (WP 0113) by the local Warranty Control Office/Officer (WARCO) following the discovery of a defect in supplies which requires contractor repair and/or replacement parts. This shall constitute formal notification of a warranty claim, and initiate the time period for contractor responsibilities and action under the warranty. This notification shall include, but not be limited to furnishing of the equipment serial number, operating hours, part number or NSN of the defective part and circumstances surrounding the defect(s). At this time, the contractor will further be informed whether the owning unit has elected:

1. To correct the defect themselves.
2. To direct the contractor to correct the defect.

Upon completion of contractor repair, forward completed warranty claims (Information Only) electronically to AEPS (Army Electronic Product Support) http://aeps.ria.army.mil.

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CLAIM PROCEDURES - Continued

IDENTIFICATION OF FAILED ITEMS

Failed warranty items shall be tagged/identified to prevent improper repair or use. Include the contractor's notification number provided by the contractor at the time he is notified of the defect.

Refer to government forms section of this work package for items requiring special handling, storage, or shipment during the processing of claims shall be identified.

DISPOSITION

The repair activity shall retain defective supplies for thirty (30) days following receipt of acknowledgment of a warranty claim from TACOM. If receipt of acknowledgment is not received, inquiries should be made to TACOM through your local WARCO. If receipt of acknowledgment is received but no instructions are forthcoming within thirty (30) days of receipt, supplies may be disposed of.

FALSE RETURNS

When supplies are inspected by the contractor and found to be non-warrantable due to abuse or improper maintenance, or the supplies are found to be serviceable, the repair activity submitting the claim may be required to make reimbursement for contractor services. All failed items returned for warranty claim action will be monitored by TACOM.

REIMBURSEMENT FOR ARMY REPAIR

The contractor shall reimburse the Government by submitting monies monthly to: Defense Accounting Office, DAOTACOM, ATTN: DFAS-IN/EM-BED, TACOM, Warren, Michigan 48397-5000. In the event that the repair activity should receive any reimbursement from the contractor, the monies must be forwarded to the above address.

The contractor shall reimburse the Government for the cost of labor involved in the correction of the defect. The cost of labor involved shall be computed at the rate of $30.00 per hour multiplied by the number of labor hours in such services appearing in the contractor's flat rate time schedule manual or the Government's MAC, whichever is less. Additionally, the cost of replacement parts required to correct the defect shall be reimbursed by the contractor, if such parts are obtained through the Government's supply channels. Warranty claims, for reimbursement, where repair labor costs and repair parts costs combined do not exceed $150.00 for any one failure will not be submitted to TACOM.

CLAIM DENIAL/DISPUTES

All denials or disputes will be handled by TACOM.

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CLAIM DENIAL/DISPUTES - Continued

WARRANTY DISPUTE CLAIM

DEFINITION Failure of the Government and Oshkosh Corporation to agree on any matters related to or arising under the contract warranty provision shall be resolved in accordance with the disputes clause of the contract and Federal Acquisition Regulations (FAR) Subpart 33.2.

DISPUTE SETTLEMENT In situations where Oshkosh Corporation declines to perform repair on items for which the Government believes it has a valid warranty claim, or when Oshkosh Corporation furnishes parts and services to the Government and later claims the replaced part was not damaged due to defect in design, materials, or workmanship, the following procedure applies:

OSHKOSH CORPORATION DECLINES REPAIR When Oshkosh Corporation or an authorized dealer declines to repair an item under warranty, proceed to perform repairs yourself. Use your own repair parts.

Immediately report situation using DA Form 2407 (WP 0113) as follows:

1. Record "WARRANTY DISPUTE" and complete description of failure.
2. Enter name, activity, and telephone number of person submitting warranty dispute.
3. Enter name, address, and telephone number of Oshkosh Corporation representative or dealership that refused service.
4. Enter specific reasons given for refusal.
5. Enter specific facts/evidence you feel will refute Oshkosh Corporation’s reason for refusal. Include photographs and sketches, if possible.

Submit copies 2 and 5 of DA Form 2407 (WP 0113) to:

1. Commander, USA TACOM ATTN: SFAE-CS-TVH Warren, MI 48397-5000
2. Oshkosh Corporation ATTN: Warranty Administration P.O. Box 2566 Oshkosh, WI 54903-2566

PM-TV will try to resolve the warranty problem by mutual agreement. If necessary, the case will be presented to Warranty Administrator for review, analysis, and further investigation of facts.

OSHKOSH CORPORATION REQUESTS REIMBURSEMENT When Oshkosh Corporation makes analysis, then claims part failure is not covered by the contract warranty provision, the Government will be provided all the facts supporting this position and a request for reimbursement.

Prior to any decision regarding settlement, units will be required to provide data to PM-TV to support Government’s position.

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CLAIM DENIAL/DISPUTES - Continued

If Warranty Administrator decides Oshkosh Corporation's claim is valid, the unit which requested warranty support will submit a "direct fund cite" to Warranty Administrator for his/her recommendations to the contracting officer for decision regarding amount(s) due.

REPORTING

Reporting or recording action on a failed item shall be specified in DA PAM 750-8 (WP 0113) or DA PAM 738-751. (WP 0113) Contractor or repair activity unique forms shall not be used.

STORAGE/SHIPMENT/HANDLING

If vehicles are stored at the contractor's facility prior to placing such system in service, the contractor agrees that the time period of the warranty will not begin for such stored vehicles until they are withdrawn from the contractor's storage or until four (4) months from the date of acceptance whichever occurs first. The Government, prior to placing each new vehicle system in storage and again at time of withdrawal, shall notify the contractor.

In the event the contractor repairs the vehicle at the contractor's branch, dealership, or facility, the contractor shall be responsible for transportation costs. Receipt for such supplies by the contractor's local facility or dealership is considered proper notification by the Government. New supplies to replace defective supplies shall be shipped no charge to CONUS repair location. Replacement supplies shall be shipped no charge to OCONUS port of embarkation.

All supplies returned to the contractor shall be identified with the contractor's notification number provided at the time the contractor is contacted. All subsequent correspondence shall also be referenced with the contractor's notification number to assume proper and expeditious processing.

STORAGE

Refer to preparation for storage or shipment and storage maintenance procedures for further information.

SHIPMENT

Refer to preparation for storage or shipment for further information.

HANDLING

Refer to safety, care, and handling for further information.

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EXTENDED WARRANTIES

EXTENDED ENGINE WARRANTY

NOTE

- This warranty and extended service coverage is only applicable to Detroit Diesel engines for this contract and is expressly in lieu of any other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose.
- Detroit Diesel Corporation does not authorize any person to create for it any other obligation or liability in connection with these engines.
- Detroit Diesel Corporation shall not be liable for incidental or consequential damages resulting from breach of this written warranty.

A schedule of extended engine service coverage has been agreed to and is outlined in the following schedule.

Table 2. Extended Service Coverage for Detroit Diesel Corporation Engines.

Coverage		
Limitation Months	**Parts**	**Labor**
0 - 18 (see NOTE)	100%	100%

NOTE

Any vehicle accepted for depot storage will have an additional six month coverage. Oshkosh Corporation must be notified in writing within 60 days of any vehicle placed in storage.

The coverage period will begin on the date the engine is accepted by the U.S. Government (DD Form 250). (WP 0113)

This extended service coverage covers:

1. Only malfunctions resulting from deficiency in material or workmanship under normal use and service.
2. Labor costs necessary to make a warranty repair, including engine removal and installation.
3. Service supplies (such as lubricating oil, filters, engine coolant, and belts) when such items are not reusable due to a warrantable action.

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EXTENDED WARRANTIES - Continued

This extended service coverage does not cover:

1. Conditions resulting from misuse, improper engine preservation, negligence, alteration, accident, or lack of performance of normal maintenance services.
2. Any engine which has been repaired by other than an authorized DDC service outlet so as, in any way in the judgment of DDC, to affect adversely its performance and reliability.
3. The replacement of maintenance items (such as filters, belts, lubricating oil, and antifreeze) made in connection with normal maintenance services.
4. Loss of time, inconvenience, loss of use of the engine or other consequential damages.
5. DDC (through Oshkosh Corporation) is not responsible for the repair of mechanical braking devices installed on the Engine. Such devices are warranted by the brake manufacturer through Oshkosh Corporation.

In the event of a warranty failure, the Government Warranty Administrator will contact the Oshkosh Corporation Warranty Administrator, who will advise him of the nearest Detroit Diesel dealer equipped to handle the warranty problem. Oshkosh Corporation will make arrangements with the Detroit Diesel dealer for the required vehicle service. The Government Warranty Administrator may deliver the vehicle to the designated Detroit Diesel dealer for service.

Oshkosh Corporation shall be notified in writing within 60 days following discovery of a defect in the supplies. This notification shall include, but shall not necessarily be limited to, furnishing the applicable equipment serial number, engine serial number, operating hours or miles on the equipment, part number of the defective part, location of equipment, Unit Identifier Code (UIC), and a point of contact to include telephone number and circumstances surrounding the defect. At this time, Oshkosh Corporation shall further be informed whether the Government has elected:

1. To correct the defect itself or;
2. To authorize Oshkosh Corporation to correct the defect.

If the Government elects to correct the defective part, Oshkosh Corporation shall reimburse the Government for the cost of labor involved in the correction, inclusive of the cost of the end item disassembly and assembly. The cost of labor shall be computed utilizing actual labor hours to perform the repair not to exceed the Detroit Diesel Corporation (DDC) Labor Time Guide for on-highway truck applications by the actual labor cost which will not exceed the DDC distributor rate for the geographic area. When contacting the contractor, ask for the DDC distributor rate in your area.

Oshkosh Corporation shall reimburse the Government identified by claim number, Unit Identifier Code (UIC), date of claim, and total dollars distributed between parts and labor. In the event of a warranty claim where it is later determined that the engine components were not defective, Oshkosh Corporation shall submit a claim to the Government for equitable price adjustment.

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EXTENDED WARRANTIES - Continued

If Oshkosh Corporation is directed to correct the defect, the repair of deficient engine parts and optional equipment qualifying under this coverage will be performed by any authorized DDC services outlet within a reasonable time following the delivery of the engine/vehicle to the service outlet's place of business. The engine will be repaired using new parts or remanufactured parts designated reliabilt and sold by authorized DDC service outlets.

Additionally, a new part used to replace a defective part under this warranty, will carry a full 6 six month parts warranty. Should the 18 months engine coverage extend beyond the six month parts warranty, the warranty on the installed new part will be the same as the remaining engine coverage.

The Government is responsible for the performance of regular maintenance services as specified in the technical manuals.

Should the Government plan to store the vehicle/engine, the engine must be preserved in accordance with storage maintenance procedures.

EXTENDED TRANSMISSION WARRANTY

Work performed under the extended warranty must be done by the Allison dealer.

Oshkosh Corporation warrants the transmission is free from defects in design, material, and workmanship, and will conform with the specifications and all other requirements of this contract for a period of 24 months from the date of acceptance as shown on the Material Inspection and Receiving Report (DD Form 250) (WP 0113), or 50,000 miles (80,450 km), whichever occurs first. Oshkosh Corporation warrants that it will repair any defective or malfunctioning part of the transmission in accordance with Table 4 (below).

Table 3. Allison Transmission Warranty Limitations and Adjustment Schedule.

Warranty Limitations (whichever comes first)		Adjustment Charge to be Paid by User	
Months	**Transmission Miles**	**Parts**	**Labor**
0 - 12	50,000 (80,450 km)	No Charge	No Charge
13 - 15	12,001 - 20,000 (19,310 - 32,180 km)	20% (See NOTE)	20% (See NOTE)
16 - 18	20,001 - 30,000	40%	40%

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EXTENDED WARRANTIES - Continued

Table 3. Allison Transmission Warranty Limitations and Adjustment Schedule. - Continued

Warranty Limitations (whichever comes first)		Adjustment Charge to be Paid by User	
Months	**Transmission Miles**	**Parts**	**Labor**
	(32,182 - 48,270 km)	(See NOTE)	(See NOTE)
19 - 21	30,001 - 40,000 (48,272 - 64,360 km)	60% (See NOTE)	60% (See NOTE)
22 - 24	40,001 - 50,000 (64,362 - 80,450 km)	80% (See NOTE)	80% (See NOTE)

NOTE

Percentage of Detroit Diesel Allison Dealer's normal charge.

A new part used to replace a defective part will carry a full six month parts warranty. Should the transmission warranty extend beyond the six month parts warranty, the warranty on the installed new part will be the same as the remaining transmission warranty.

In the event of warranty failure, the Government Warranty Administrator will contact Oshkosh Corporation’s Warranty Administrator who will advise him of the nearest Detroit Diesel Allison dealer equipped to handle the warranty problem. Oshkosh Corporation will make arrangements with the Detroit Diesel Allison dealer for the required vehicle service. The Government Warranty Administrator may deliver the vehicle to the designated Detroit Diesel Allison dealer for service.

GOVERNMENT FORMS

DA FORM 2407

USE OF THE FORM Use of DA Form 2407 (WP 0113) to obtain parts and labor reimbursements, and to report warranty claim actions after the work has been accomplished or when a dispute arises:

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GOVERNMENT FORMS - Continued

1. The WARCO is responsible for forwarding DA Form 2407 (WP 0113) when claims concern direct-exchange items. Refer to local WARCO responsibilities section of this work package.
2. DA Form 2407 (WP 0113) is forwarded by the unit when authorized to replace the item when direct exchange of the item is not involved.
3. Evacuating units forward DA Form 2407 (WP 0113) when all work is performed by Oshkosh.
4. DA Form 2407, (WP 0113) when used to report a warranty dispute, is submitted by the unit authorized to replace the item. DA Form 2407 (WP 0113) is prepared in accordance with this section.

FORWARDING THE FORM When DA Form 2407 (WP 0113) is prepared after work is accomplished, make sure copies 2 and 5 are marked "FOR INFORMATION ONLY" or "FOR REIMBURSEMENT," then forwarded to:

1. Commander, USA TACOM ATTN: AMSTA-MMAP Warren, MI 48397-5000
2. Also forward copy 3 to: Oshkosh Corporation ATTN: Warranty Administration P.O. Box 2566 Oshkosh, WI 54903-2566

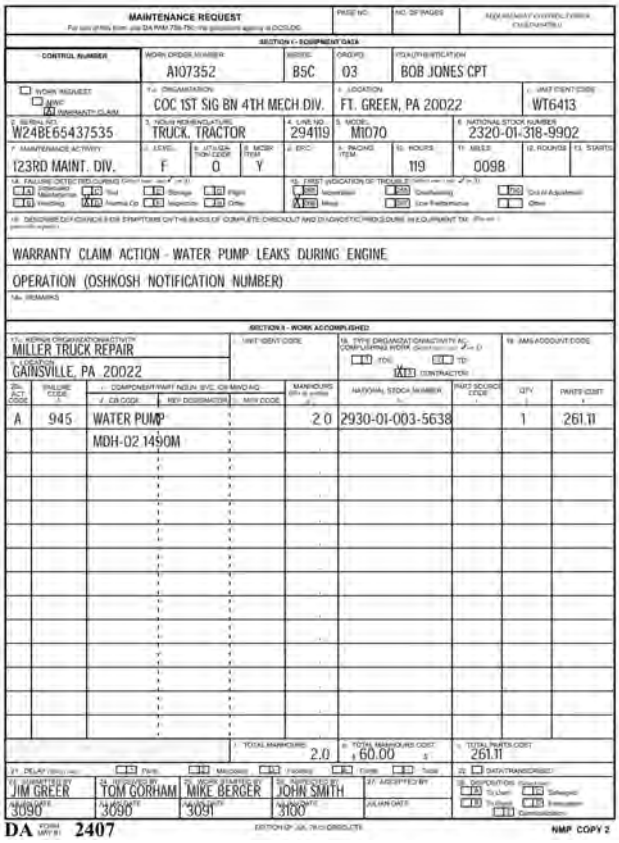
WARRANTY DISPUTES When DA Form 2407 (WP 0113) is prepared for warranty disputes, make sure copies 2 and 5 are marked "WARRANTY DISPUTES." Forward to the address given in appendix D for technical review and evaluation to minimize technical misunderstandings between you and Oshkosh Corporation whenever possible. You must include the following information:

1. Name, address, and telephone number of the Oshkosh representative/dealership that refused service.
2. Specific reason for the refusal.
3. Specific facts/evidence you feel will refute Oshkosh’s reason for refusal. Include photographs and sketches, if possible.

COMPLETING THE FORM DA PAM 750-8 (WP 0113) governs preparation of DA Form 2407. (WP 0113) In addition to instructions provided in DA PAM 750-8, (WP 0113) the following information will assist you in filling out the form for the purpose of claims under HET vehicle warranty. Refer to Figure 1 (below) for an example of completed DA Form 2407 (WP 0113):

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GOVERNMENT FORMS - Continued



MAINTENANCE REQUEST

CONTROL NUMBER	WORK ORDER NUMBER: A107352	BASIC: B5C	ORG: 03	FAULT IDENTIFICATION: BOB JONES CPT	
WORK REQUEST / WARRANTY CLAIM	ORGANIZATION: COC 1ST SIG BN 4TH MECH DIV.	LOCATION: FT. GREEN, PA 20022			UNIT IDENT CODE: WT6413
SERIAL NO.: W24BE65437535	NOUN NOMENCLATURE: TRUCK, TRACTOR	LIN/ NO.: 294119	MODEL: M1070		NATIONAL STOCK NUMBER: 2320-01-318-9902
MAINTENANCE ACTIVITY: 123RD MAINT. DIV.	LEVEL: F	MAJCOM ITEM: 0	MCSR ITEM: Y	PACING ITEM:	HOURS: 119
MILES: 0098	ROUNDS:	STARTS:			

FAILURE DETECTED DURING: [A] Operation [C] Test [D] Storage [E] Flight [G] Welding [M] Normal Op [I] Inspection [O] Other

FIRST INDICATION OF TROUBLE: [SR] Inspection [SM] Visual [SO] Overheating [SP] Low Performance [SQ] Out of Adjustment [Z] Other

DESCRIBE DEFICIENCIES OR SYMPTOMS ON THE BASIS OF COMPLETE CHECKOUT AND DIAGNOSTIC PROCEDURE IN EQUIPMENT TM:

WARRANTY CLAIM ACTION - WATER PUMP LEAKS DURING ENGINE

OPERATION (OSHKOSH NOTIFICATION NUMBER)

REMARKS:

SECTION II - WORK ACCOMPLISHED

WORK ORGANIZATION/ACTIVITY: MILLER TRUCK REPAIR	UNIT IDENT CODE:	TYPE ORGANIZATION/ACTIVITY PERFORMING WORK: [TDL] [TD] [M1] CONTRACTOR	MAS ACCOUNT CODE:		
LOCATION: GAINSVILLE, PA 20022					

ACT CODE	FAILURE CODE	COMPONENT/PART NOUN, SVC, ION MMO AIG / CA CODE	REF DESIGNATOR	MAN CODE	MANHOURS	NATIONAL STOCK NUMBER	PART SOURCE CODE	QTY	PARTS COST
A	945	WATER PUMP			2.0	2930-01-003-5638		1	261.11
		MDH-02.149OM							

TOTAL MANHOURS: 2.0 | TOTAL MANHOURS COST: $ 60.00 | TOTAL PARTS COST: 261.11

DELAY: [PARTS] [MAINTENANCE] [FACILITIES] [TOOLS] [TRANSPORTATION] | DATA TRANSMISSION:

COMPLETED BY	RECOMMENDED BY	WORK SUPERVISOR	INSPECTED BY	ACCEPTED BY	DISPOSITION
JIM GREER	TOM GORHAM	MIKE BERGER	JOHN SMITH		[A] To User [B] Salvage [F] To Depot [G] Evacuation [H] Condemnation
JULIAN DATE: 3090	JULIAN DATE: 3090	JULIAN DATE: 3091	JULIAN DATE: 3100	JULIAN DATE:	

DA FORM 2407 — NMP COPY 2

Figure 1.

Section I. (to be filled in by equipment owning unit):

1. Block 2. Enter the Oshkosh vehicle chassis serial number found on vehicle identification data plate.
2. BLOCK 3: Truck, Tractor
3. BLOCK 5: M1070
4. BLOCK 6: 2320-01-318-9902
5. Block 16. Enter 'WARRANTY CLAIM ACTION' and give complete description of failure. **Include Oshkosh notification number. Without the Oshkosh Corporation notification number, no reimbursement can be made by Oshkosh Corporation.**

Section II. (To be filled in by repair activity):

1. Block 17. Fill in name and address of facility which made the repair.

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GOVERNMENT FORMS - Continued

2. Block 18. Check appropriate box.

DA FORM 2402

USE OF THE FORM DA Form 2402 (WP 0113) must be filled out and attached to any and all defective parts removed from HET Tractor. Refer to figure 4 for an example of a completed DA Form 2402 (WP 0113).



Figure 2.

BLOCK 11 Enter the Oshkosh Corporation chassis serial number of the vehicle found on vehicle data plate attached to inside driver's door panel.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

EQUIPMENT CHARACTERISTICS

The HET Tractor is used in combination with the M1000 Trailer to form the Heavy Equipment Transport System (HETS). The HETS is used to load, unload, and transport the M1 Series Main Battle Tank (MBT) and other heavy tracked/wheeled vehicles weighing up to 140,000 lbs (63 560 kg) during administrative and tactical operations.

EQUIPMENT CAPABILITIES

1. Operates in temperatures from -25 to 120°F (-32 to 49°C) in normal configuration (arctic kit not installed) and -50°F to 120°F (-46°C to 49°C) with arctic kit installed.
2. Fords water up to 28 in. (71 cm) deep for 5 minutes without damage or requiring maintenance before operation can continue.
3. Normal operating range is 325 mi (523 km), based on 250 gal. (946 L) of fuel and 231,400 lbs (105 056 kg) gross combination weight rating (GCWR) when operated at an average speed of 30 mph (48 km/h). Varying loads, prolonged idle, use of Power Takeoff (PTO), off-road driving, and climatic conditions affect operating range.
4. Tiedown points are located so HET Tractor can be restrained in all directions during air transport in C-5A and C-17 aircraft. HET Tractor is also capable of being transported by highway, rail, and sea.

EQUIPMENT FEATURES

1. Eight-cylinder, 736 cu in. (12.1 L), V-type, 2-cycle, turbocharged diesel engine.
2. Automatic transmission with one reverse speed and five forward speeds.
3. Operator-controlled 6-wheel/8-wheel drive with high and low range transfer case for positive traction on unimproved road surfaces.
4. Power steering system consists of basic manual steering system with hydraulic boost. An auxiliary steering pump provides hydraulic boost in the event of main pump failure. Mechanical linkage also provides operator control in event of hydraulic oil pressure loss.
5. Fuel system includes two fuel tanks, injectors, pipes (inlet and outlet), manifolds (integral with the cylinder head), pump, fuel/water separator, secondary filter, and fuel lines.
6. Two front and two rear towing eyes.
7. Manual-release pintle hook which will allow towing of trailer.
8. Two main winches, each having 55,000 lbs (24 970 kg) capacity, used for recovering, loading, and unloading heavy tracked/wheeled vehicles. Auxiliary

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EQUIPMENT FEATURES - Continued

winch having 3,000 lbs (1 361 kg) capacity used for pulling main winch cable back to payload.

9. Central Tire Inflation System (CTIS) allows operator to automatically adjust tire pressure to suit terrain conditions.
10. Personnel cab has accommodations for two personnel in front seats and three personnel in rear seat. Rear seat converts into beds which sleep two personnel.
11. Heavy duty, full oscillating fifth wheel accommodates M1000 trailer or any other trailer with 3-1/2 in. kingpin.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Major components and accessories found on the M1070 HET Tractor are illustrated and described below.

Table 1. Location and Description of Major Components.

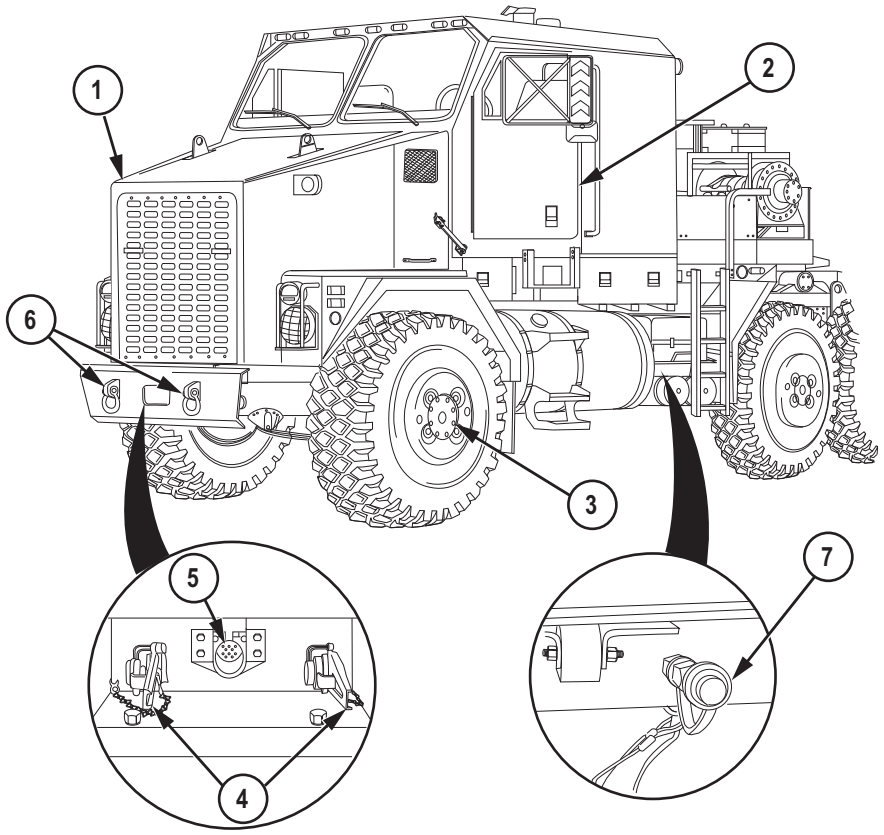


Figure 1.

1	**HOOD.** Houses engine and components.

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Table 1. Location and Description of Major Components. - Continued

2	**PERSONNEL CAB.** Provides protection from weather for crew and contains controls, gauges, and indicators. The cab has provisions to accommodate five fully-equipped personnel and sleeping provisions for two. It is equipped with a footrest, a sliding rear window, rifle mounts, and a stowage area under rear seat.
3	**NO. 1 DRIVING AXLE.**Controls direction of HET Tractor when in motion. (WP 0006) When needed, transmits power to hubs to turn wheels.
4	**GLADHANDS.** Couples air supply from another vehicle during towing operations.
5	**ELECTRICAL CONNECTOR.** A 12-volt (7-pin) connector receives power from towing vehicle electrical system through intervehicular cable. (WP 0114, Table 3, Item 8)
6	**TOW EYES.** Attachment points for towing operations.
7	**QUICK-DISCONNECT COUPLING.** Used to connect air line from BII (WP 0114, Table 3, Item 22) to vehicle air system. Air line is used to manually inflate tires or power air wrench. (WP 0114, Table 3, Item 44)

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Table 1. Location and Description of Major Components. - Continued

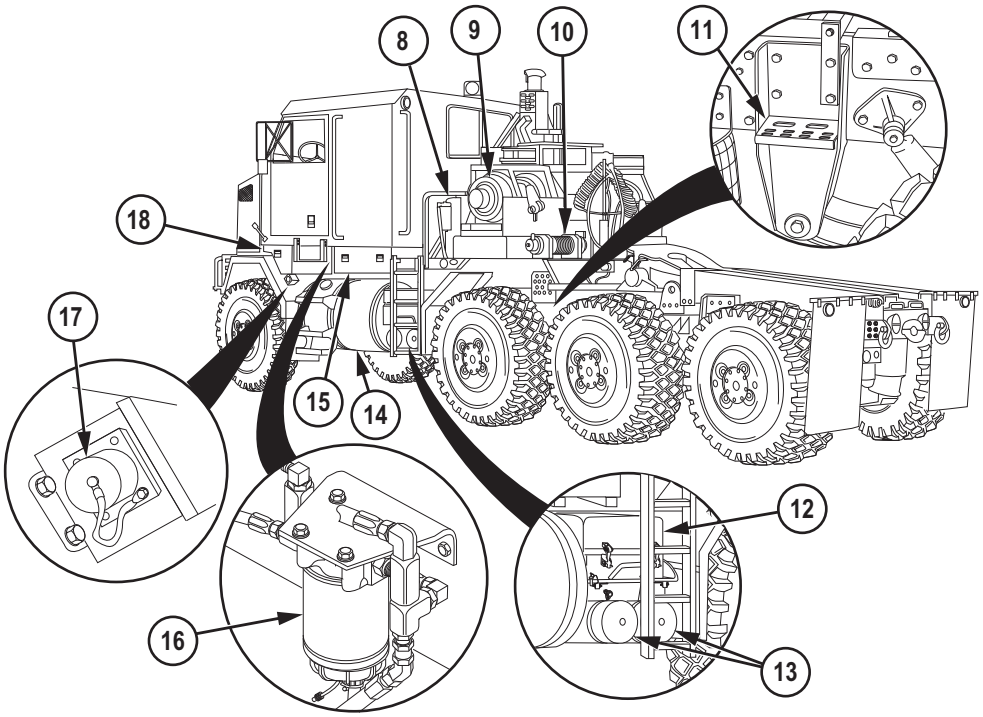


Figure 2.

8	**HYDRAULIC OIL RESERVOIR.** Stores, cools, and filters oil used to operate main and auxiliary winches.
9	**MAIN (RECOVERY) WINCHES.**Two winches (WP 0010) (driver side shown) that operate independently of each other used to recover, load, and unload heavy tracked and wheeled vehicles.
10	**AUXILIARY WINCH.**Pulls the main winch cables out to payload. (WP 0010)
11	**FIFTH WHEEL ACCESS STEP.** Allows safe access to fifth wheel access platform.
12	**BATTERY BOX.** Contains four batteries and protects them from inclement weather. Pulls out for easier access to batteries. (WP 0112)

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Table 1. Location and Description of Major Components. - Continued

13	**AIR RESERVOIRS.** Store compressed air for operation of brake, suspension, and central tire inflation systems.
14	**NO. 1 FUEL TANK.** A 150 gal. (568 L) tank which stores fuel used to operate engine. Receives excess fuel not used by engine fuel injection system. Connects to fuel tank No. 2 with hose and shutoff valve.
15	**STOWAGE BOX.** Used to stow Components Of End Item (COEI), Basic Issue Items (BII), (WP 0114) and Additional Authorization List (AAL) (WP 0115) items.
16	**FUEL/WATER SEPARATOR.** Removes water and contaminants from fuel before entering fuel pump. The unit incorporates a thermostatically activated electric heater to prevent gelling of fuel in cold weather operation.
17	**SLAVE RECEPTACLE.** A 24-volt receptacle used to slave start (WP 0078) the HET Tractor.
18	**TOOL BOX.** Used to stow Components Of End Item (COEI), Basic Issue Items (BII), (WP 0114) and Additional Authorization List (AAL) (WP 0115) items.

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Table 1. Location and Description of Major Components. - Continued

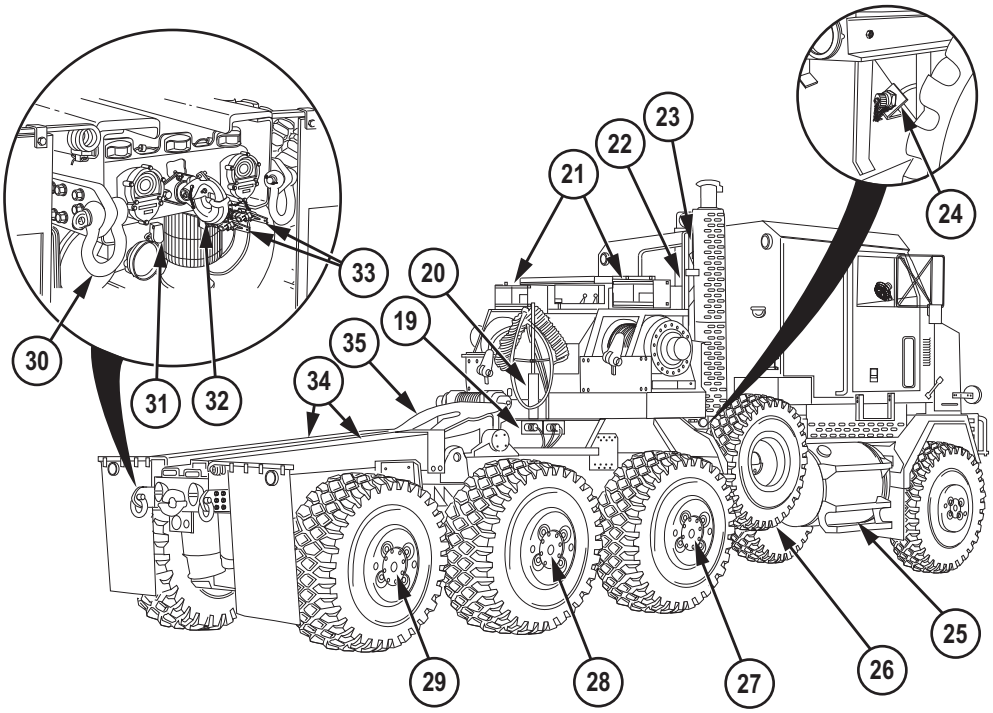


Figure 3.

19	**TRAILER ELECTRICAL CONNECTORS.** Two connectors (24-volt/12-pin and 12-volt/7-pin) supply power to trailer electrical system through intervehicular cable. (WP 0114, Table 2, Item 2)
20	**TRAILER GLADHANDS.** Couples air supply to trailer.
21	**CHOCK BLOCKS STOWAGE BOXES.** Used to stow wheel chocks. (WP 0114, Table 3, Item 11)
22	**PERSONNEL LADDER.** Provides access to engine compartment when servicing engine and accessories. Mounts in holes in driver side or passenger side fenders when in use. Folds and mounts on exhaust stack for storage.
23	**TIRE DAVIT.** Raises and lowers spare tire.

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Table 1. Location and Description of Major Components. - Continued

24	**QUICK-DISCONNECT COUPLING.** Used to connect air hose from BII (WP 0114, Table 3, Item 22) to vehicle air system. Air hose is used to manually inflate tires or power air wrench. (WP 0114, Table 3, Item 44)
25	**NO. 2 FUEL TANK.** A 100 gal. (379 L) tank stores diesel engine operating fuel.
26	**SPARE TIRE.** Used to replace a damaged tire. (WP 0108)
27	**NO. 2 AXLE.** Supports weight of HET Tractor and transmits power to hubs to turn rear wheels.
28	**NO. 3 AXLE.** Supports weight of HET Tractor and transmits power to hubs to turn rear wheels.
29	**NO. 4 AXLE.** Supports weight of HET Tractor and assists No. 1 axle in steering (WP 0006) when in motion. Transmits power to hubs to turn rear wheels.
30	**TOW EYES.** Attachment points for towing operations.
31	**ELECTRICAL CONNECTOR.** A 12-volt (7-pin) connector supplies power to trailer or to towed vehicle electrical system through the intervehicular cable. (WP 0114, Table 3, Item 8).
32	**PINTLE HOOK.** Hitch used for towing trailer or another vehicle using the tow bar. (WP 0070)
33	**GLADHANDS.** Couples air supply to another vehicle or trailer during towing or trailering operations.
34	**APPROACH RAMPS.** Raise the front end of trailer to guide kingpin into fifth wheel.
35	**FIFTH WHEEL.** Couples trailer to HET Tractor. (WP 0034)

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EQUIPMENT DATA

Table 1. Vehicle Dimensions.

Width (vehicle): 102 in. (2 591 mm)
Width (mirrors extended): 144 in. (3 658 mm)
Height (overall): 140.1 in. (3 559 mm)
Length (overall): 361.6 in. (9 185 mm)
Wheelbase: 215 in. (5 461 mm)
Track: 82 in. (2 083 mm)
5th Wheel Height: 64 in. (1 626 mm)
Kingpin Diameter: 3.5 in. (89 mm)
Ground Clearance: 15.9 in. (404 mm)

Table 2. Weights and Payloads.

HET Tractor Curb Weight: 38,910 lbs (17 665 kg)
Gross Vehicle Weight Rating (GVWR): 86,000 lbs (39 044 kg)
Gross Combination Weight Rating (GCWR): 231,400 lbs (105 056 kg)
Kingpin Load: 46,000 lbs (20 884 kg)

Table 3. Weight Distribution.

Axle Loads of HET Tractor (Curb Weight)
No. 1 Axle: 17,620 lbs (7 999 kg)

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Table 3. Weight Distribution. - Continued

No. 2 Axle: 7,219 lbs (3 277 kg)
No. 3 Axle: 7,050 lbs (3 201 kg)
No. 4 Axle: 7,030 lbs (3 192 kg)
Axle Loads of HET Tractor (Gross Vehicle Weight)
No. 1 Axle: 20,122 lbs (9 135 kg)
No. 2 Axle: 22,022 lbs (9 998 kg)
No. 3 Axle: 21,982 lbs (9 980 kg)
No. 4 Axle: 21,874 lbs (9 931 kg)

Table 4. Vehicle Performance.

Cruising Range at GCWR: 325 mi. (523 km)
Maximum Sustained Forward Speed (at 2100 rpm) - 5th Gear: 45 mph (72 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 4th Gear: 32 mph (51 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 3rd Gear: 22 mph (35 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 2nd Gear: 14 mph (23 km/h)
Maximum Sustained Forward Speed (at 2100 rpm) - 1st Gear: 9 mph (14 km/h)
Maximum Grade at GCWR: 15 percent
Maximum Grade w/50,000 lbs (22 700 kg) Payload: 30 percent
Maximum Side Slope at GCWR: 20 percent
Maximum Towed Speed (refer to FM 4-30.31): 5 mph (8 km/h)
Maximum Ford Depth: 28 in. (711 mm)
Approach Angle: 30 degrees

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Table 4. Vehicle Performance. - Continued

Turning Radius (HET Tractor Only): 67.9 ft. (20.7 m)
Turning Radius (HET System = HET Tractor + M1000 Trailer): 78.8 to 81 ft. (24.03 to 24.7 m)

Table 5. Fluid Capacities.

Refer to lubrication instructions (WP 0106) in operator's PMCS for vehicle fluid capacities.

Table 6. Engine.

Make: Detroit Diesel Corporation
Model: 8V92TA DDEC II or III/IV
Type: 2-Stroke, V-Type Diesel, Turbocharged, Aftercooled
Cylinders: 8
Bore: 4.84 in. (123 mm)
Stroke: 5 in. (127 mm)
Displacement: 736 cid (12.1 L)
Torque (at 2100 rpm): 1470 lb-ft (1 993 N·m)
Maximum Brake Horsepower (at 2100 rpm): 500 BHP (373 kW)
Maximum Governed Engine Speed (Loaded): 2050 - 2150 rpm
Oil Filter Type: Full Flow, Replaceable Element
Oil Filter Quantity: 1

Table 7. Fuel System.

Type: Electronic Diesel Injection
Tank Quantity: 2

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Table 7. Fuel System. - Continued

Air Cleaner Type: Dry element

Table 8. Cooling System.

Radiator Working Pressure: 10 psi (68.95 kPa)

Table 9. Air Compressor.

Make: Midland
Model: EL 3200
Type: Four-Cylinder, Piston-Type

Table 10. Electrical System.

Alternators (2)
Make: Prestolite
Model: 4805JX (14 VDC) and 4826JX (28 VDC)
Drive Type: Belt
Voltage Regulator: Integral
Dual Voltage System: Separate Alternators Common at Batteries
Starter
Make: Leece Neville
Model: 24 VDC per MIL-S-3785 (series) (WP 0113), Type II, Grade A
Rating: 680 Amps, 50 lb-ft (68 N·m) at 18.7 VDC
Batteries
Make: Exide
Type: 6TL

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Table 10. Electrical System. - Continued

Number of Batteries: 4 (additional two batteries if Swingfire arctic heater kit is installed)
Battery Connection: Series - parallel
Battery Capacity (at 20 hour rate): 900 amp
Rating: 600 Cold Cranking Amps at 0°F (-18°C) for 60 seconds

Table 11. Transmission.

Make: Allison
Model: CLT 754
Type: Automatic
Number of Forward Speeds: 5
Number of Reverse Speeds: 1

Table 12. Power Takeoff.

Make: Chelsea/Dana
Model: 270 series

Table 13. Transfer Case.

Make: Oshkosh
Model: 55000 Series
Type: 2-Speed, Helical Gear

Table 14. No. 1 Axle.

Make: Rockwell
Model: SVI 5 MRDIS-FC
Type: Planetary Hub Reduction

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Table 14. No. 1 Axle. - Continued

Ratio: 7.36:1
Type: 21,500 lbs (9 761 kg)
Steering Angle: 36 degrees (both left and right)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 15. No. 2 Axle.

Make: Rockwell
Model: SVI 5 MRTGS-FC
Type: Planetary Hub Reduction
Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 16. No. 3 Axle.

Make: Rockwell
Model: SVI 5 MRTGS-FC
Type: Planetary Hub Reduction

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Table 16. No. 3 Axle. - Continued

Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 17. No. 4 Axle.

Make: Rockwell
Model: SVI 5 MRDIS-FC
Type: Planetary Hub Reduction
Ratio: 7.36:1
Type: 23,680 lbs (10 751 kg)
Steering Angle: 19 degrees (both left and right)
Differential Carrier
Make: Rockwell
Model: SVI 5MR
Type: Spiral Bevel

Table 18. Propeller Shafts.

Make: Spicer
Model (Transmission to Transfer Case): 1810
Model (Transfer Case to Axle No. 1): 1610

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Table 18. Propeller Shafts. - Continued

Model (Transfer Case to Axle No. 2): 1810
Model (No. 2 Axle to No. 3 Axle): 1710
Model (No. 3 Axle to No. 4 Axle): 1610

Table 19. Suspension System.

Front
Make: Hendrickson/Canada
Type: Taper leaf
Rear
Make: Hendrickson/Turner
Type: Air Ride

Table 20. Brake System.

Make: Rockwell
Model: 16.5 in. Q-Series
Type: S-Cam. Air Actuated
Drum Size: 16.5 in. (419 mm) diameter X 7.9 in. (201 mm) wide
FMVSS Certification: Yes
Brake Air Chambers: 8
Pressure Range: 60-120 psi (414-827 kPa)

Table 21. Hydraulic System.

Operating Pressure: 3,000 psi (20 685 kPa)
Overload Protection: Yes

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Table 22. Cab.

Windshield: Tinted, two-piece, safety glass
Personnel Capacity: 5
Sleeping Capacity: 2

Table 23. Towing Eyes.

Quantity: 4 (2 front, 2 rear)
Maximum Load Capacity Each: 28,000 lbs (12 712 kg)

Table 24. Pintle Hook.

Type: Manual Release
Maximum Load Capacity - Pulling: 49,000 lbs (22 246 kg)
Maximum Load Capacity - Vertical: 9,800 lbs (4 449 kg)

Table 25. Recovery Winches (2).

Make: DP Manufacturing
Model: 55K
Speeds: 2
Maximum Load (per winch): 55,000 lbs (24 970 kg)
Cable Dimensions: 1 in. (25 mm) diameter X 170 ft. (51.8 m) length

Table 26. Auxiliary Winch.

Make: DP Manufacturing
Model: 3GN
Speeds: 1
Maximum Load (per winch): 3,000 lbs (1 362 kg)

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Table 26. Auxiliary Winch. - Continued

Cable Dimensions: .25 in. (6.4 mm) diameter X 300 ft. (91.5 m) length

Table 27. Wheels.

Make: Titan
Rim Size: 20 x 10
Type: Two-piece bolt together wheel
Quantity: 9 (including spare)
Stud Quantity Per Wheel: 10
Maximum Wheel Load: 12,500 lbs (5 675 kg)

Table 28. Central Tire Inflation System (CTIS).

Make: CM Automotive

Table 29. Tires.

Make: Michelin
Size: 425/95 R20 (16.00 R20)
Tread Design: Non-Directional, On-Off Road
Ply Rating: 22 Ply
Type: Tubeless/Radial
Load Range: M
Per Tire Load (HET Tractor Unloaded)
Front: 9,184 lbs (4 170 kg)
Rear: 3,772 lbs (1 712 kg)
Per Tire Load (HET Tractor at GVWR)

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Table 29. Tires. - Continued

Front: 10,282 lbs (4 668 kg)
Rear: 11,073 lbs (5 027 kg)

Table 30. Auxiliary Equipment.

Arctic Engine Heater Kit (Swingfire or M12 EMI)
Chemical Alarm Kit
Decontamination Apparatus Portable (DAP) Kit
Gas Particulate Filter Unit
Radio
Note: HET Tractor may or may not be equipped with any of these items depending on mission, climate, or other factors.

Table 31. Load Classification Chart.

Configuration	MLC
M1070 HET Tractor without Trailer	19
M1070 HET Tractor with M1000 Trailer	30
M1070 HET Tractor with M1000 Trailer and M1 Tank	95

Table 32. Tire Pressure (All Tires).

Terrain Condition	Maximum Speed	Tire Pressure
Highway	45 mph (72 km/h)	75 psi (517 kPa)
Crosscountry	30 mph (48 km/h)	55 psi (379 kPa)
Mud, Sand, Snow	15 mph (24 km/h)	40 psi (276 kPa)

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Table 32. Tire Pressure (All Tires). - Continued

Terrain Condition	Maximum Speed	Tire Pressure
Emergency	5 mph (8 km/h)	30 psi (207 kPa)

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OPERATOR MAINTENANCE
STEERING SYSTEM

The No. 1 (1) and No. 4 (2) axles are used to steer the HET Tractor. Each of the two steering axles (1 and 2) turn in opposing directions in response to operator's inputs via turning the steering wheel (3) in the cab (4).

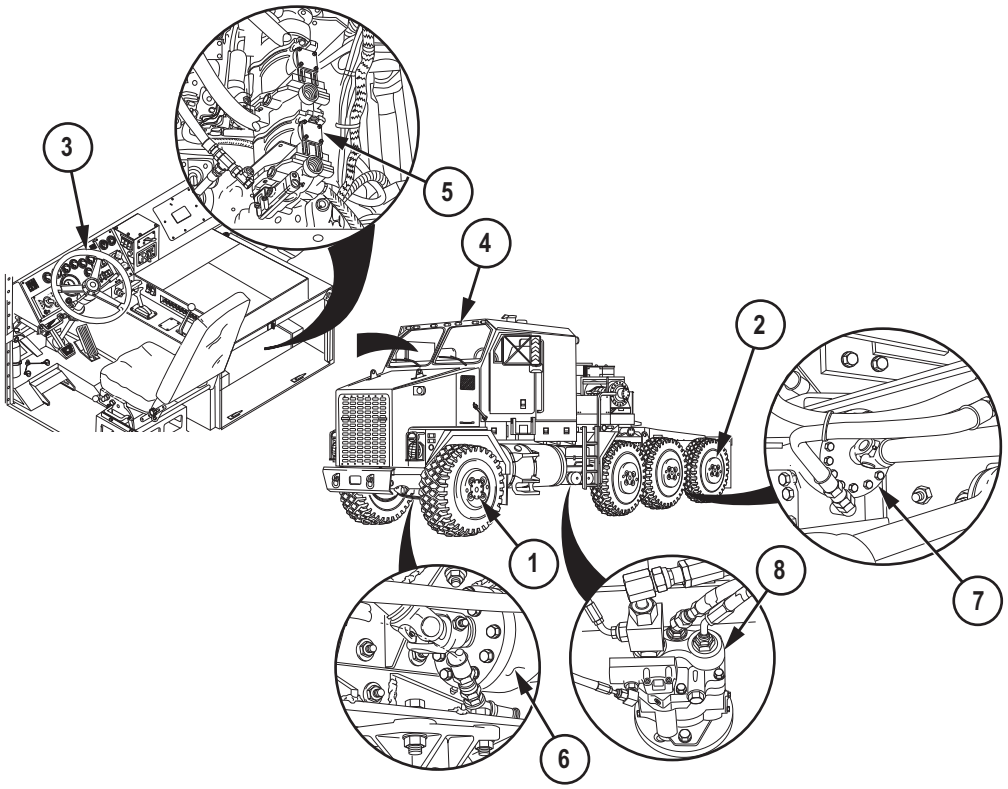


Figure 1.

Steering power is generated by a steering pump (5) driven directly at the engine providing pressure to No. 1 axle steering gear (6) and No. 4 axle steering gear (7). The steering pump (5) delivers fluid to enable the operator to turn the wheels of a fully-loaded HET Tractor. An interconnected series of shaft linkages rotate with hydraulic power assist to turn the two steering axles (1 and 2). In the event of main steering system failure, an auxiliary steering pump (8) connected to the transfer case provides power steering.

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As the steering wheel (3) is turned by the operator, the rotational motion of the upper steering assembly shafts (9) is translated at a tee gear box (10) below the cab (4) to both No. 1 axle steering gear (6) and No. 4 axle steering gear (7).

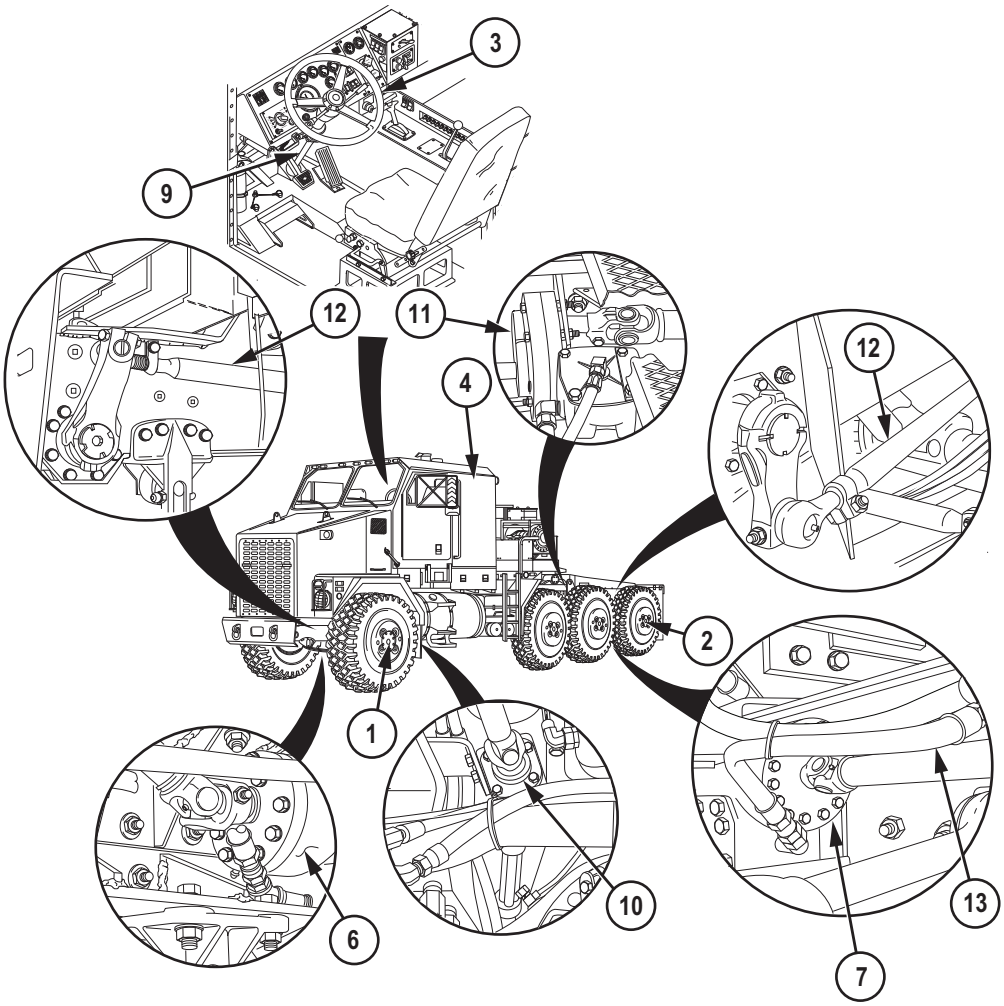


Figure 2.

A steering reduction gear (11) reduces the steering angle on No. 4 axle (2).

Both No. 1 axle steering gear (6) and No. 4 axle steering gear (7) multiply the rotational force to a pair of drag links (12) and four axle steering arms that apply directional motion to turn two steering axles (1 and 2).

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In the event a steering hydraulic hose (13) to No. 4 steering axle (2) is severed, or fluid leaks from the system (power steering is inoperable), the HET Tractor can be steered for short distances in emergency situations.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
POWER TRAIN

Introduction

Power for the HET Tractor is generated by a two-stroke, V-type diesel engine coupled directly to an automatic transmission.

Power Train

The engine is capable of 500 horsepower of braking.

The engine is equipped with an electronic control system that regulates fuel delivery to each injector as well as governing engine speed for power takeoff operation. Engine sensors and engine performance can be checked using a plug-in diagnostic reader.

Five forward drive ranges can be manually selected, depending on the terrain and conditions. The transmission will automatically downshift as engine speed and throttle position change.

Power from the transmission is directed to the transfer case and propeller shafts forward and rear. The front axle and rear tridem axles are each equipped with planetary wheel ends. In low range, driver-controlled lockouts in the differentials provide positive drive to all four axles.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
ELECTRICAL SYSTEM

Introduction

The HET Tractor electrical system is a combined 12 VDC and 24 VDC system:

1. The 12 VDC source supplies electrical power to operate HET Tractor lights, trailer lights, instrument panel/dash lighting, indicator/warning lights and gauges inside cab, and windshield wipers/washer motors.
2. The 24 VDC source supplies electrical power to operate HET Tractor engine starter motor, winches, Central Tire Inflation System (CTIS), fuel/water separator, air dryers, trailer blackout lights, and ether injection system.

Power Train

NOTE

Model A dash panel shown, Model B dash panel similar.

Four 12-volt storage batteries (1) are connected in series-parallel with the negative terminal grounded to provide current to both circuits.

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Power Train - Continued

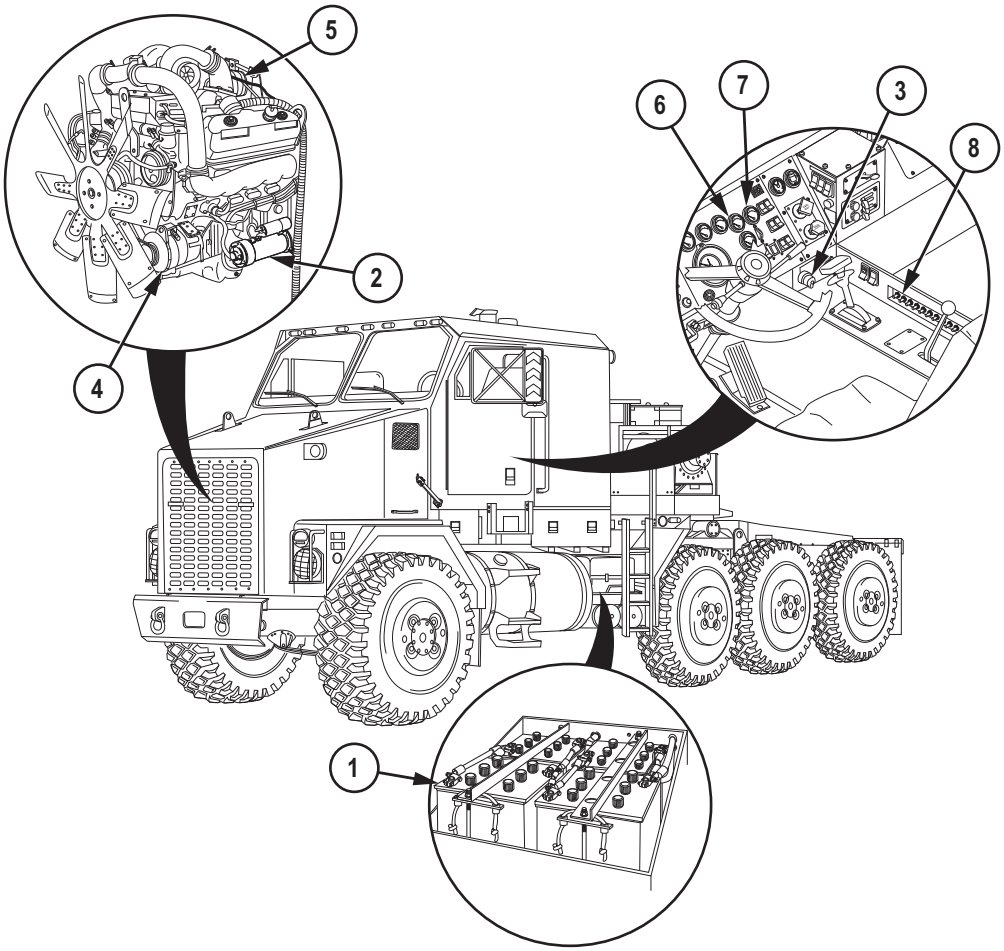


Figure 1.

The starter motor (2) operates directly from the 24 VDC source through the ENGINE switch (3) in the cab.

A belt-driven alternator (4) having a capacity of 130 amps maintains the charge on the batteries for the 24 VDC system. A second belt-driven alternator (5), having a capacity of 145 amps, maintains the charge on the batteries for the 12 VDC system.

The main instrument panel in the cab is equipped with dual battery gauges:

1. Battery gauge (6) displays voltage output for the 12 VDC system.
2. Battery gauge (7) displays voltage output for the 24 VDC system.

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Power Train - Continued

The HET Tractor electrical circuits are protected against overloads by automatic reset circuit breakers (8).

Wiring harnesses are used to carry current to operate equipment and accessories.

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OPERATOR MAINTENANCE
AIR SYSTEM

Introduction

Major systems on HET Tractor which operate with air include service and parking brakes, rear suspension system, and Central Tire Inflation System (CTIS). Other vehicle components which operate with air include the transfer case and interaxle lockups, winch tensioners and kickouts, windshield washer, and horns. Valves are installed to isolate air-operated components so operation of one does not affect the operation of another. System air pressure is 120-125 psi (827-862 kPa).

Air System

The air system consists of an engine-driven air compressor (1), a purge reservoir (2), and five air reservoirs (3, 4, 5, 6, and 7). Air is drawn from the engine air intake and routed to the air compressor (1).

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Air System - Continued

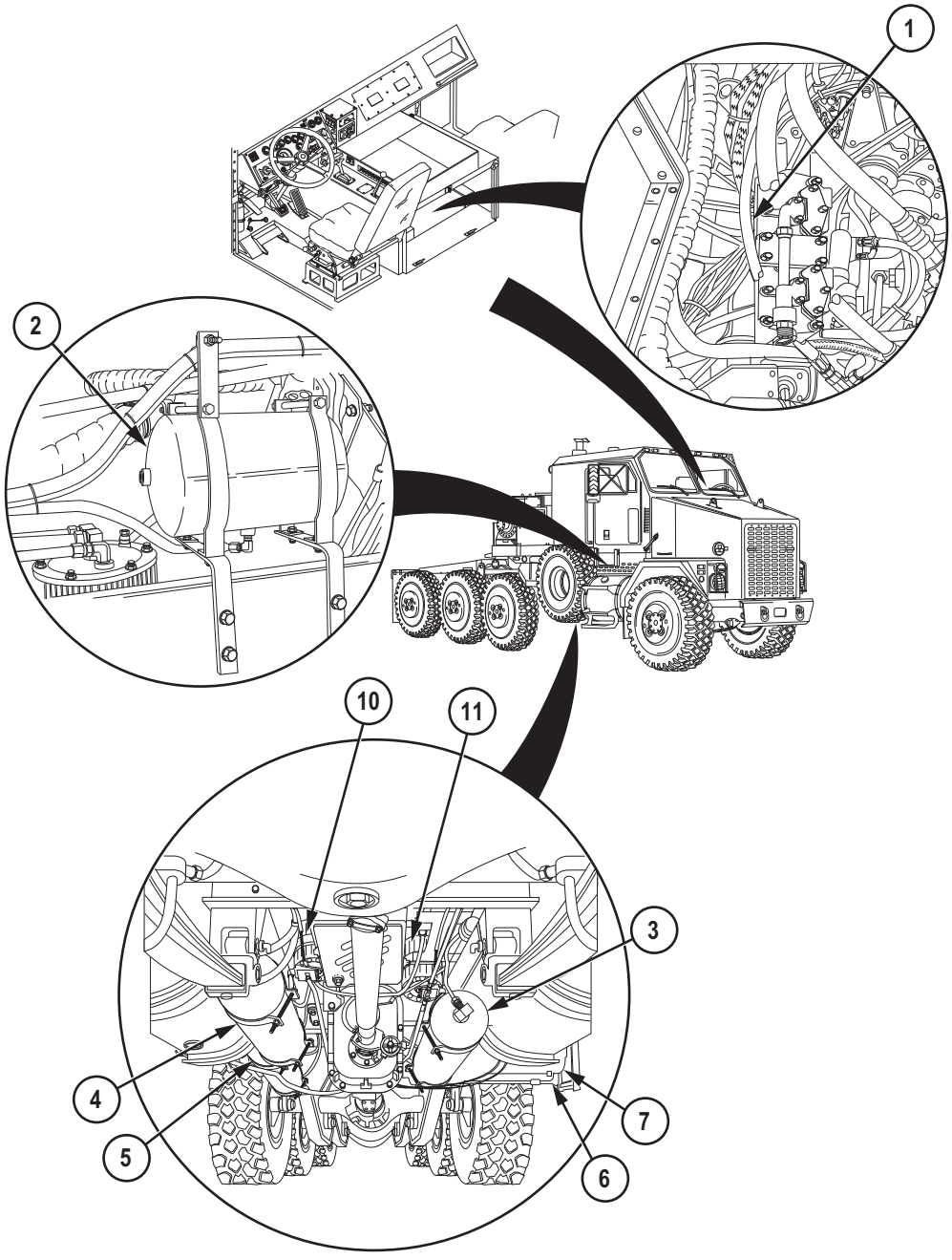


Figure 1.

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Air System - Continued

Pressurized air flows from the air compressor (1) through an aftercooler (8), a coalescing filter (9), and air dryers (10 and 11) where the air is cooled and the moisture/oil is removed. From the air dryers (10 and 11), air goes to the purge reservoir (2) and air reservoir (3). The purge reservoir (2) supplies the air to purge the air dryers (10 and 11) and aftercooler (8) when required. Purging the air in the air dryers (10 and 11) is automatically done when 125 psi (862 kPa) system pressure is reached at the air compressor (1). The compressor cycle is stopped and air from purge reservoir (2) clears accumulated water through a valve on the bottom of the air dryers (10 and 11). Moisture not removed by the air dryers (10 and 11) will condense in air reservoirs. The air pressure in reservoir (3) is sensed, and controls air compressor operation. Reservoir (3) supplies air to reservoirs (4, 5, 6, and 7) and CTIS. (WP 0011) Reservoirs (5, 6, and 7) are interconnected and separated from reservoir (4) with check valves. Reservoirs (5, 6, and 7) supply air to operate the CTIS, (WP 0011) service and parking brakes on rear tridem axles, and rear suspension system. Air pressure in reservoirs (5, 6, and 7) is indicated by the red needle on the AIR PRESS gauge (12). (WP 0016) Reservoir (4) supplies air to operate service brakes on front axle, parking brakes on rear tridem axles, transfer case and interaxle lockups, winch tensioners and kickouts, windshield washers, and horns. Air pressure in reservoir (4) is indicated by the green needle on the AIR PRESS gauge (12). (WP 0016) If air system pressure falls below 60 psi (414 kPa), an audible alarm will sound and the LOW AIR indicator (13) (WP 0015) will illuminate (red).

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Air System - Continued

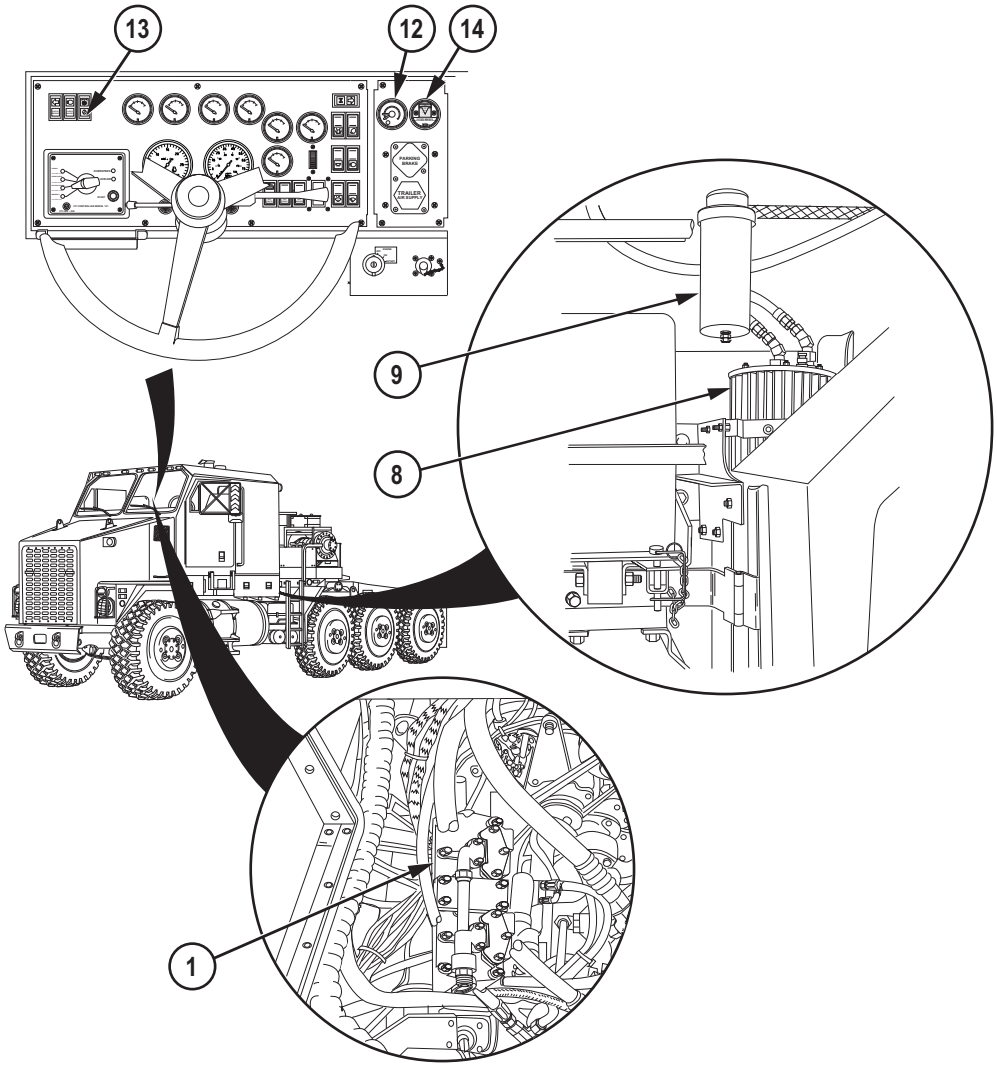


Figure 2.

Air system protection elements include an AIR CLEANER RESTRICTION indicator (14) (WP 0016) that determines whether air flow through the air cleaner is impeded.

The rear suspension system contains a pair of suspension air springs (15) on each rear axle that automatically inflate or deflate according to load. Air is regulated to the air springs (15) by two (driver side and passenger side) height control valves (16).

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Air System - Continued

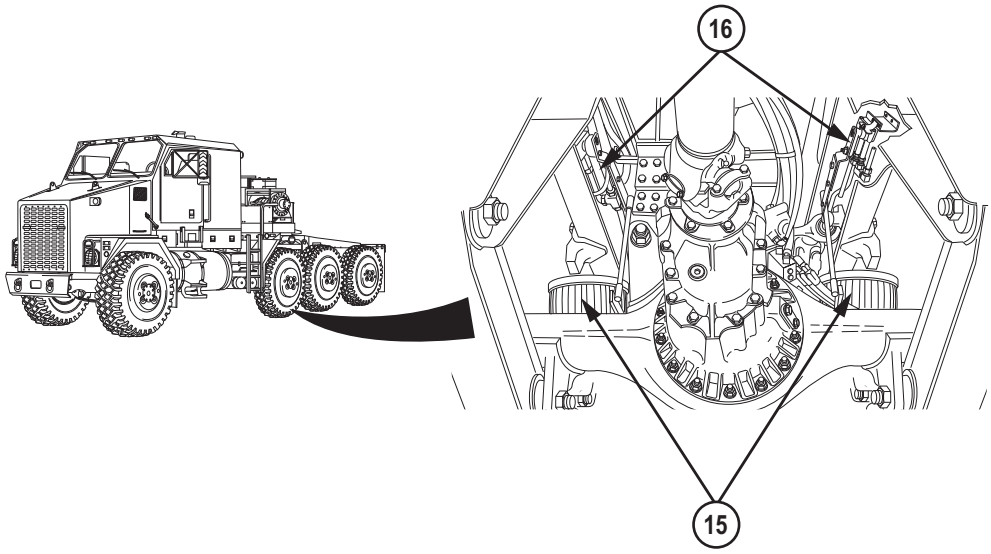


Figure 3.

Air to the transfer case (17) enables engagement of four-wheel drive in high or low gear range. An interaxle lockup pilot valve also prevents the axles from locking up in high ranges.

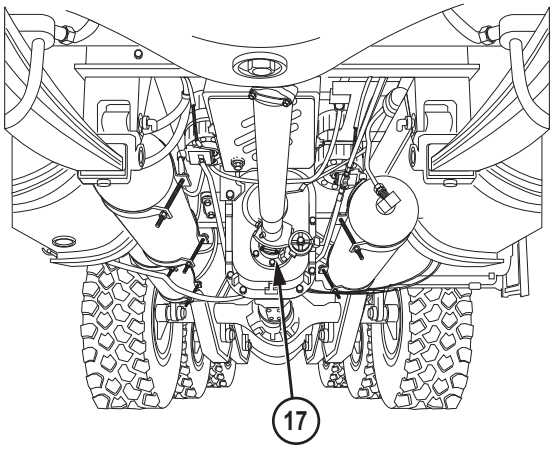


Figure 4.

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OPERATOR MAINTENANCE
WINCH SYSTEM

The winch system operates hydraulically and consists of a driver side main (recovery) winch (1), a passenger side main (recovery) winch (2) and an auxiliary winch (3). The main winches operate independently and are used to recover, load, and unload heavy tracked and wheeled vehicles. The main (recovery) winches (1 and 2) are mounted side-by-side directly to the winch platform. Each main (recovery) winch (1 and 2) has a maximum capacity of 55,000 lbs (24 970 kg). The auxiliary winch (3) is used to pull the main winch cable (4) back to the payload. The auxiliary winch (3) is mounted to the winch platform just below the driver side main (recovery) winch (1). The auxiliary winch (3) has a maximum capacity of 3,000 lbs (1 362 kg).

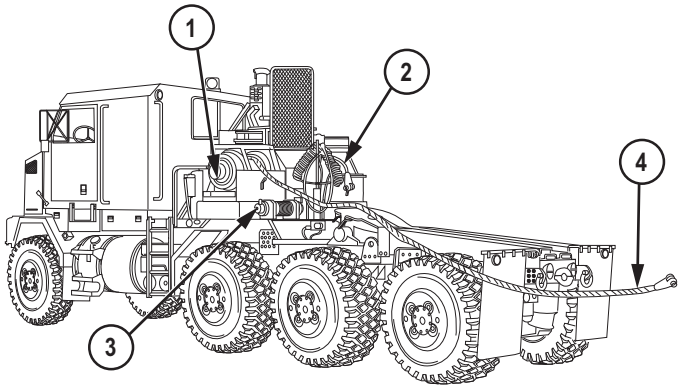


Figure 1.

All three winches (1 through 3) are controlled from the operator's station (5), which incorporates a shield (6) that protects the operator during winching operations. (WP 0035) Each main (recovery) winch (1 and 2) is powered by a two-speed hydraulic motor (7 and 8). The auxiliary winch (3) is powered by a single-speed hydraulic motor (9). A Power Takeoff (PTO) driven hydraulic pump (10) supplies winch system with hydraulic oil from a 45 gal. (170 L) reservoir (11). Two view gauges (12) on the reservoir (11) indicate the hydraulic oil level.

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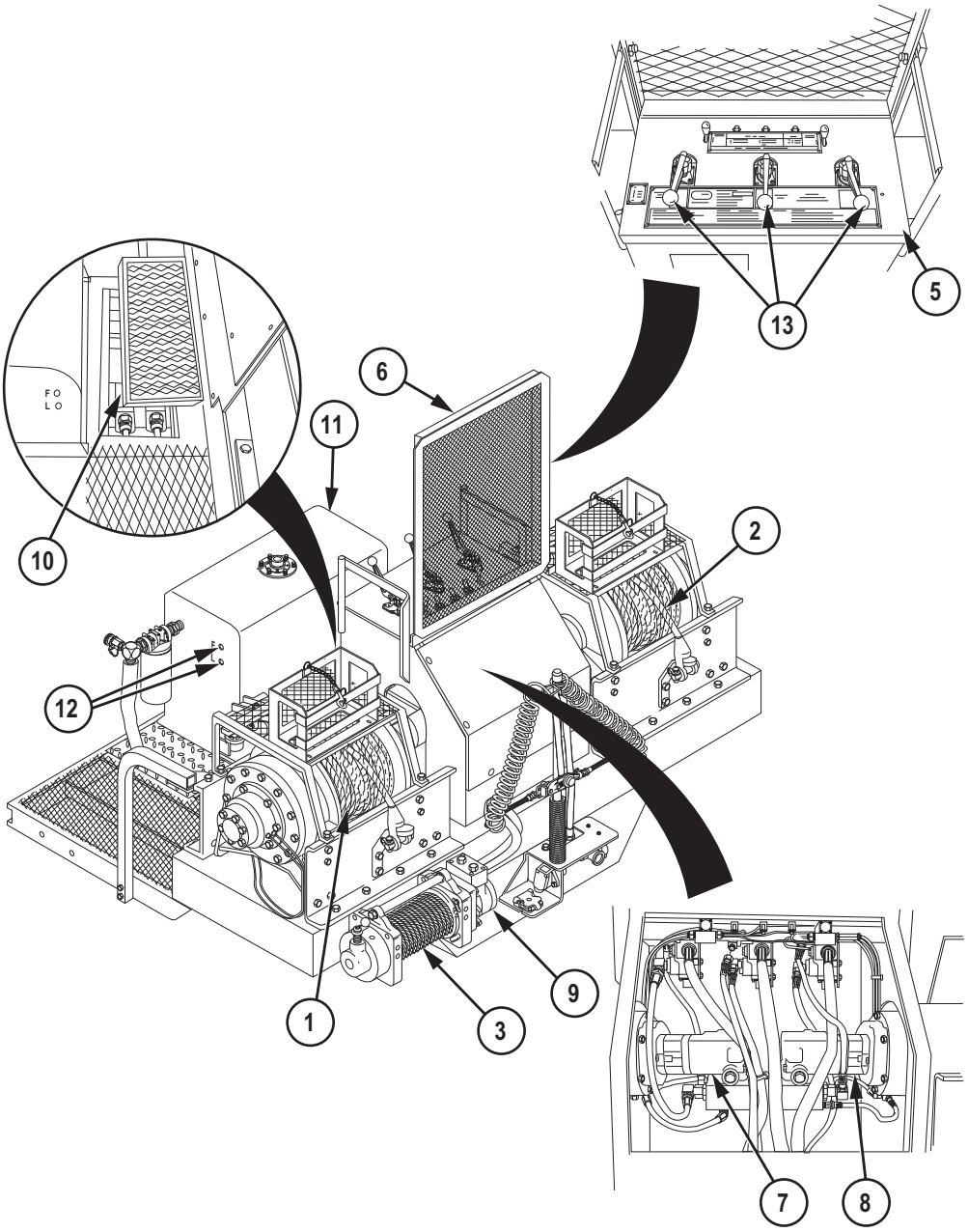


Figure 2.

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All three winches (1 through 3) have a fail-safe, spring-loaded brake which will automatically set when winch control (13) is in neutral position or when hydraulic pressure is less than 270 psi (1 862 kPa).

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OPERATOR MAINTENANCE
CENTRAL TIRE INFLATION SYSTEM (CTIS)

Introduction

The Central Tire Inflation System (CTIS) allows the HET operator to adjust the vehicle tire pressure to one of four predetermined settings. Each tire pressure setting has a vehicle speed limitation. If the average vehicle speed exceeds this limit, the CTIS will activate a flashing (amber) overspeed light (1) on the CTIS controller (2).

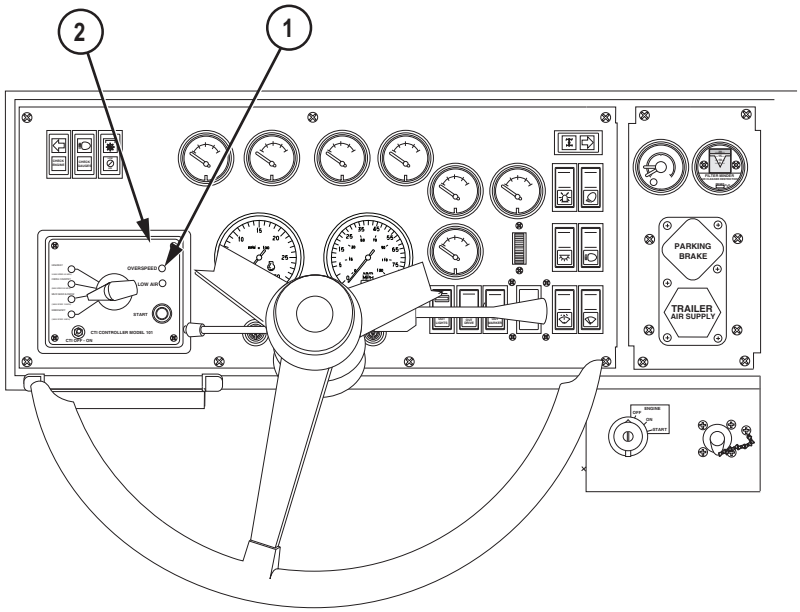


Figure 1.

Central Tire Inflation System (CTIS)

The CTIS consists of five major components (controller, power manifold, porting block, air lines, and wheel valves). CTIS controller (2) mounted on the main instrument panel (WP 0015) (3) contains the switches and indicator lights for system operation.

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Central Tire Inflation System (CTIS) - Continued

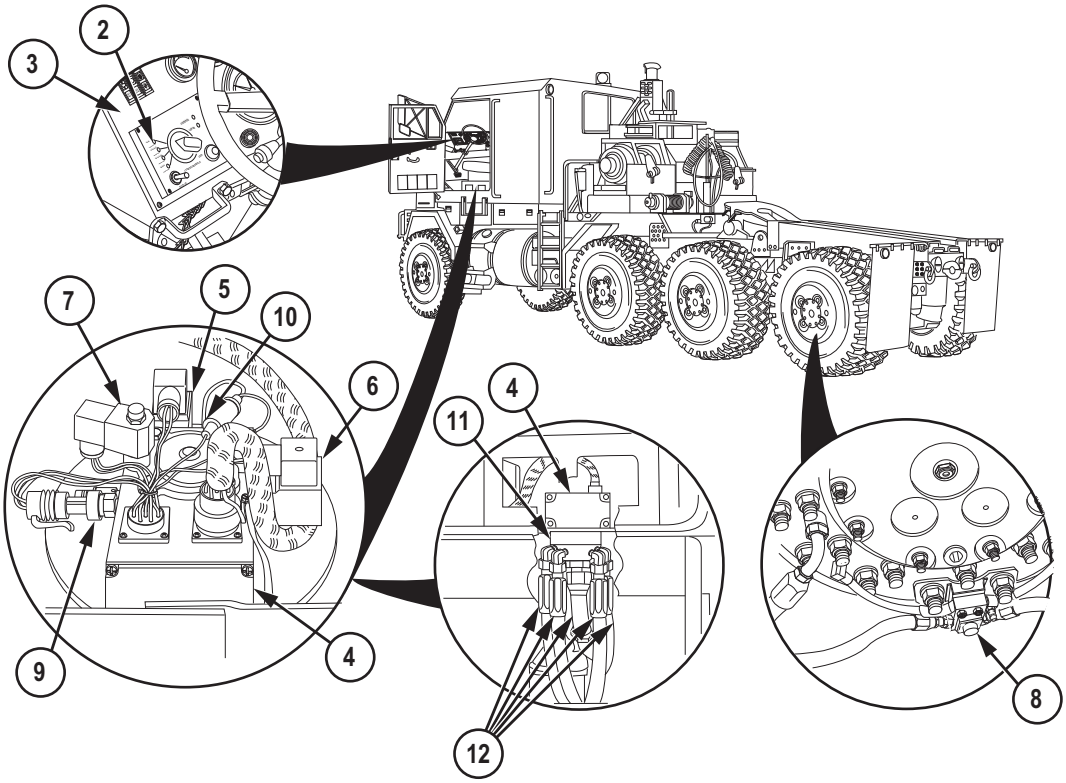


Figure 2.

Power manifold (4) located under the driver's seat, contains an inflation valve (5) for increasing tire pressures, a deflation valve (6) to reduce tire pressures, and a quick-release valve (7) which is closed during checking, inflating, and deflating modes. The quick-release valve (7) opens at the end of a cycle to rapidly exhaust all air pressure from the CTIS, which in turn closes all wheel valves (8). Power manifold (4) has two other components in addition to the valves (5 through 7), they are a pressure transducer (9) that monitors system pressure for the CTIS controller (2) and a low air pressure switch (10) used to shut the CTIS off when chassis air pressure is less than 85 psi (586 kPa). CTIS restart requires pressure of 110 psi (758 kPa) or more.

Located directly under the power manifold (4) is the porting block (11), to which the air lines (12) to the axles are connected. Air pressure passes through these air lines (12) and the axle assemblies to the wheel valves (8). The wheel valves (8) are opened and closed by the CTIS depending on pressures at the porting block (11) and individual tire pressures.

The air pressure to operate the CTIS comes from air reservoir No. 3. (WP 0009) The CTIS will shut off its air supply from the air system if the pressure drops below 85 psi (586 kPa)

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Central Tire Inflation System (CTIS) - Continued

or when the electrical power is interrupted. Air pressure is present in CTIS air lines (12) only when the system is monitoring (or adjusting) the tire pressures, approximately once every 15 minutes. At all other times, the system has no pressure and the wheel valves (8) remain closed.

The CTIS has an automatic routine that checks for moderate to large air leaks or air loss. During the initial start of the CTIS, the quick-release valve (7) is closed and the inflation valve (5) opens to attempt to build system pressure. If the pressure transducer (9) fails to sense that the system is capable of maintaining pressure, the CTIS will shut itself off and the CTIS controller (2) will display a flashing (red) low air indicator (13).

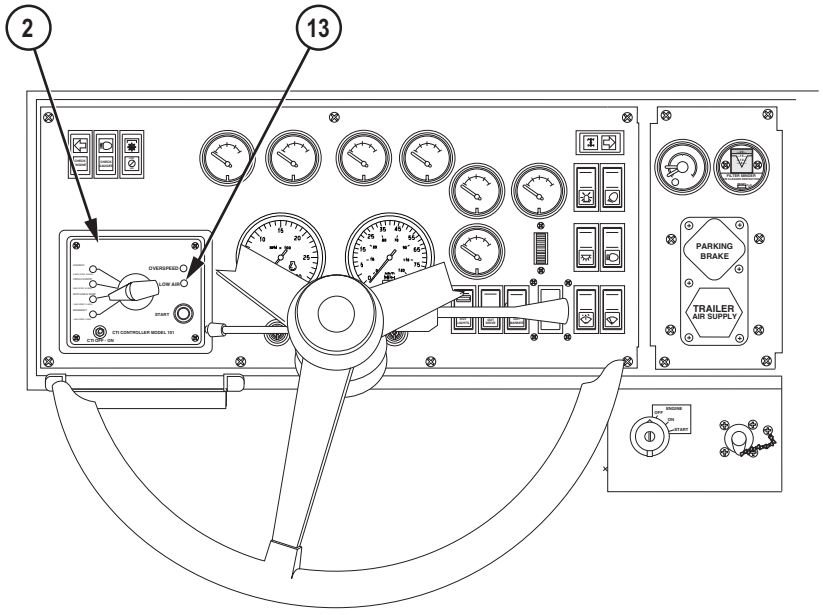


Figure 3.

When the CTIS has completed a pressure adjustment cycle, the CTIS controller (2) starts an internal timer. If no changes occur during the next 15 minutes, a check cycle is automatically activated, during which tire pressures are measured and adjusted as necessary. This provides for improved tire life as hot tire pressures are adjusted and slowly leaking tires are kept inflated.

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CHAPTER 2

OPERATOR INSTRUCTIONS

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OPERATOR MAINTENANCE
CAB-MOUNTED FOOT CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of cab-mounted foot controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about cab-mounted foot controls.

Table 1. Cab-Mounted Foot Controls.

Key	Control/ Indicator	Function

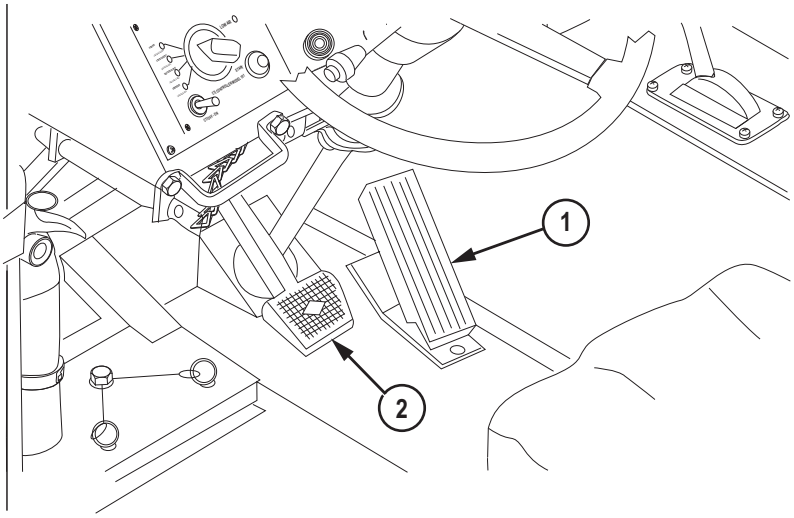


Figure 1.

1	Accelerator Pedal	Used to control engine speed. Push pedal down to increase engine speed. Release pedal to decrease engine speed.

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Table 1. Cab-Mounted Foot Controls. - Continued

Key	Control/ Indicator	Function
2	Service Brake Pedal	Applies service brakes when pressed. Also applies trailer service brakes when HET Tractor is coupled to trailer.

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OPERATOR MAINTENANCE
CAB-MOUNTED HAND CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of cab-mounted hand controls which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about cab-mounted hand controls.

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Table 1. Cab-Mounted Hand Controls.

Key	Control/ Indicator	Function

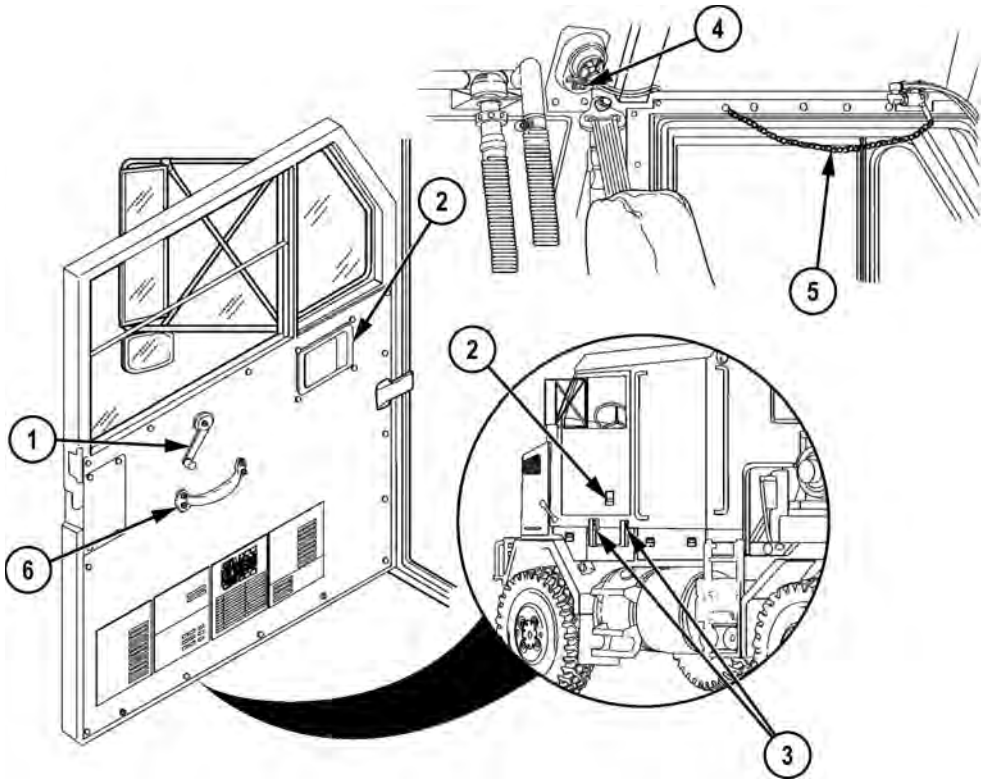


Figure 1.

1	Cab Door Window Glass Regulator	Located on each door. Raises or lowers window glass when handle is turned.
2	Cab Door Latch	Located on inside and outside of each door. Opens cab door from inside and outside HET Tractor when pulled.
3	Cab Door Lock Bracket	Located on driver side step. Provides a means to lock door closed.

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Table 1. Cab-Mounted Hand Controls. - Continued

Key	Control/ Indicator	Function
4	Map Light Switches	Located behind each door above seat belt mount. Two-position switches used to control map lights.
5	Air Horn Chain	Located above driver side door. Sounds country horn when pulled. Country horn is used in unpopulated areas.
6	Cab Door Handle	Located on each door. Closes cab door from inside HET Tractor when pulled.

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OPERATOR MAINTENANCE
STEERING COLUMN-MOUNTED CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of steering column-mounted controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about steering column-mounted controls.

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Table 1. Steering Column-Mounted Controls.

Key	Control/ Indicator	Function

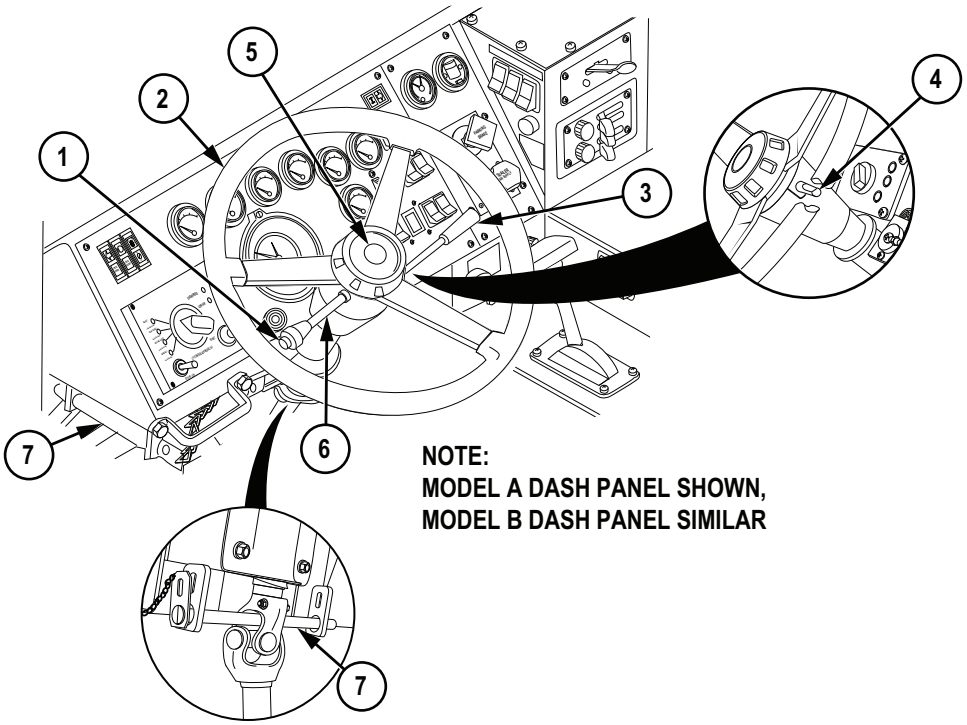


Figure 1.

1	Headlight Dimmer Switch	Push button switch used to raise or lower headlight beams. High beam indicator illuminates (blue) when high beams are engaged.
2	Steering Wheel	Used to control direction of HET Tractor travel.
3	Trailer Handbrake Control Lever	Used to apply and release trailer service brakes without engaging HET Tractor service brakes. Not used during normal operation. Can be used for coupling and uncoupling trailers without spring brake.

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Table 1. Steering Column-Mounted Controls. - Continued

Key	Control/ Indicator	Function
4	Emergency Flasher Control	Two-position, push/pull switch used to control emergency flashers. BLACKOUT LIGHTS switch must be in off position before emergency flashers will operate. Push in switch to activate emergency flashers. Left and right turn indicators flash (green) when emergency flashers are engaged.
5	Horn Button	Sounds city horn when pressed. Horn is for use in populated areas.
6	Turn Signal Lever	Used to operate turn signals. Push turn signal lever up to signal right turn. Pull turn signal lever down to signal left turn. Automatically returns to off position when steering wheel is returned to straight position. Left or right turn indicator flashes when turn signal is engaged.
7	Steering Column Lock Pin	Prevents steering wheel from turning when installed in steering column.

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OPERATOR MAINTENANCE
MAIN INSTRUMENT PANEL CONTROLS AND INDICATORS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of main instrument panel controls and indicators which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about main instrument panel controls and indicators.

Table 1. Main Instrument Panel Controls and Indicators.

Key	Control/ Indicator	Function

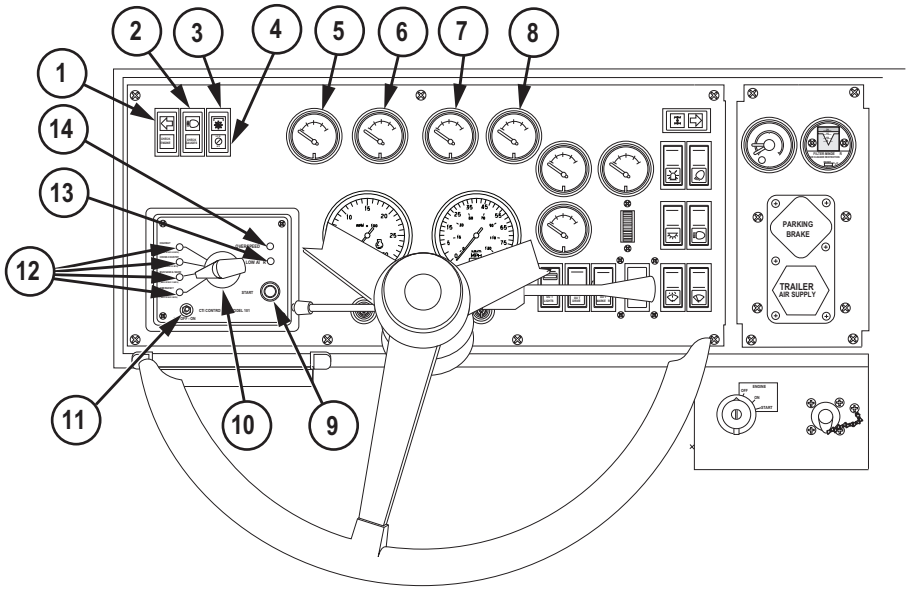


Figure 1.

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
1	Left Turn Indicator	Flashes (green) when turn signal lever is pulled down.
2	High Beam Indicator	Illuminates (blue) when HET Tractor headlights are on high.
3	PTO Indicator	Illuminates (green) when PTO control switch is set to on position.
4	LOW AIR Indicator	Illuminates (red) and remains lit until air system pressure is greater than 60 psi (414 kPa). Warning alarm sounds at the same time indicator is lit.
5	WATER TEMP Gauge	Shows engine coolant temperature in °F and °C.
6	OIL PRESS Gauge	Shows engine oil pressure in psi and kPa.
7	TRANS TEMP Gauge	Shows transmission oil temperature in °F and °C.
8	T-CASE TEMP Gauge	Shows transfer case oil temperature in °F and °C.
9	Central Tire Inflation System START Switch	Push-button switch enables CTIS function when pressed.

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
10	Central Tire Inflation System Rotary Selector Switch	Four-position switch used to control tire inflation/deflation for different terrain conditions.
11	Central Tire Inflation System ON/ OFF Switch	Two-position switch. When switch is in ON position, CTIS will operate. Positioning switch to OFF will shut down CTIS.
12	Tire Pressure Indicator Lights	Light indicates terrain condition selected by CTIS rotary selector switch. A maximum speed is associated with each terrain condition. Lights are labeled as follows: HIGHWAY - Maximum speed 45 mph (72 km/h). Tire pressure is 75 psi (517 kPa). CROSS COUNTRY - Maximum speed 30 mph (48 km/h). Tire pressure is 55 psi (379 kPa). MUD, SAND & SNOW - Maximum speed is 15 mph (24 km/ h). Tire pressure is 40 psi (276 kPa). EMERGENCY - Maximum speed is 5 mph (8 km/h). Tire pressure is 30 psi (207 kPa).
13	LOW AIR (Central Tire Inflation System) Indicator	Lights (red) to warn of low pressure in HET Tractor air system. This condition causes CTIS to shut down, giving HET Tractor brake system priority for available air pressure. The CTIS automatically resumes operation when air pressure builds up to approximately 110 psi (758 kPa).

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
14	OVERSPEED Indicator	Flashes (amber) when speed of HET Tractor is too fast for existing tire pressure as selected by central tire inflation system rotary selector switch.

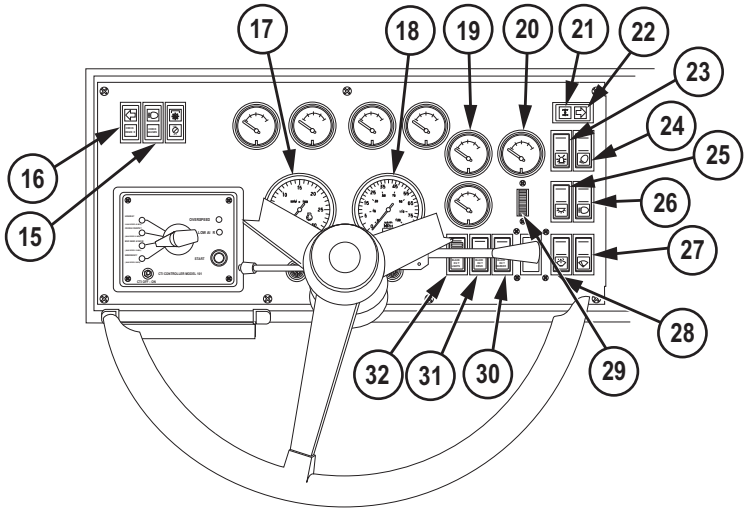


Figure 2.

15	CHECK GAUGES Indicator	Illuminates when engine coolant level is too low, engine (oil or coolant) temperature is too high, or oil pressure is too low. Warning alarm sounds at the same time indicator is lit.
16	CHECK ENGINE Indicator	Illuminates (amber) when engine malfunction occurs.
17	Tachometer/ Hourmeter	Shows engine operating speed (rpm X 100) and total operating time (HOURS).

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
18	Speedometer/ Odometer	Shows tractor traveling speed (in mph and km/h) and total miles traveled.
19	BATTERY Gauge (12-volt system)	Shows state of charge of batteries and alternator voltage output. During normal operations, range is 13 to 15 volts.
20	BATTERY Gauge (24-volt system)	Shows state of charge of batteries and alternator voltage output. During normal operations, range is twice the 12-volt system voltage, +/- 1 volt (26 to 30 volts).
21	All Wheel Drive Indicator	Lights (green) when DRIVELINE control is set to LOCK position or when TRANSFER CASE shift lever is set to LOW position.
22	Right Turn Indicator	Flashes (green) when turn signal is on.
23	Beacon Light Switch	Two-position switch used to control rotating beacon light. Push beacon light switch up to turn light off and down to turn light on.
24	Work Light Switch	Two-position switch used to control work light.
25	Dome Light Switch	Two-position switch used to control dome light.
26	Headlights Switch	Three-position switch used to control headlights, clearance lights, and parking lights. BLACK OUT LIGHTS switch must be set to off position before headlights will operate.

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
27	Windshield Wiper Switch	Three-position switch used to operate and control speed of windshield wipers.
28	Windshield Washer Switch	Momentary switch used to control windshield washer.
29	Instrument Panel Lighting Control	Used to control brightness of instrument panel lights.
30	BLACK OUT MARKER Switch	Two-position switch used to control blackout marker lights. BLACK OUT LIGHTS switch must be set to on position before blackout marker lights will operate.
31	BLACK OUT DRIVE Switch	Two-position switch used to control blackout driving lights. BLACK OUT LIGHTS switch must be set to on position before blackout driving lights will operate.

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
32	BLACK OUT LIGHTS Switch	Two-position switch used to control BLACK OUT DRIVE and BLACK OUT MARKER switches. When turned on, other lighting is inoperative.

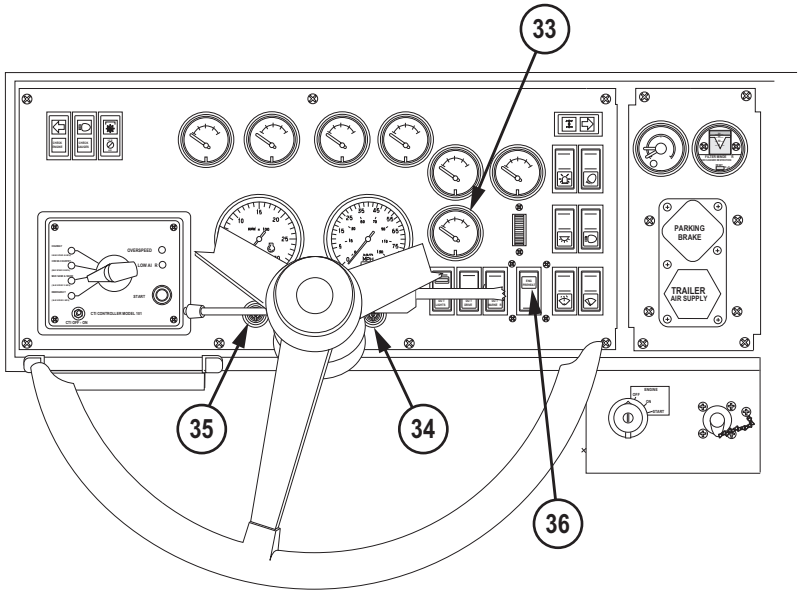


Figure 3.

33	FUEL Gauge	Shows amount of fuel in fuel tank.
34	Warning Alarm	Sounds when engine coolant level is too low, engine (oil or coolant) temperature is too high, or oil pressure is too low. Indicator lights at the same time alarm sounds.
35	Warning Alarm	Sounds when air system pressure is below 60 psi (414 kPa).

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Table 1. Main Instrument Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
36	ENG PREHEAT Switch	Two-position switch used to control M12 EMI Arctic Heater. Push to up position to turn on and run arctic heater. Push to down position to turn arctic heater off.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
AIR SYSTEM PANEL CONTROLS AND INDICATORS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of air system panel controls and indicators which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about air system panel controls and indicators.

Table 1. Air System Panel Controls and Indicators.

Key	Control/ Indicator	Function

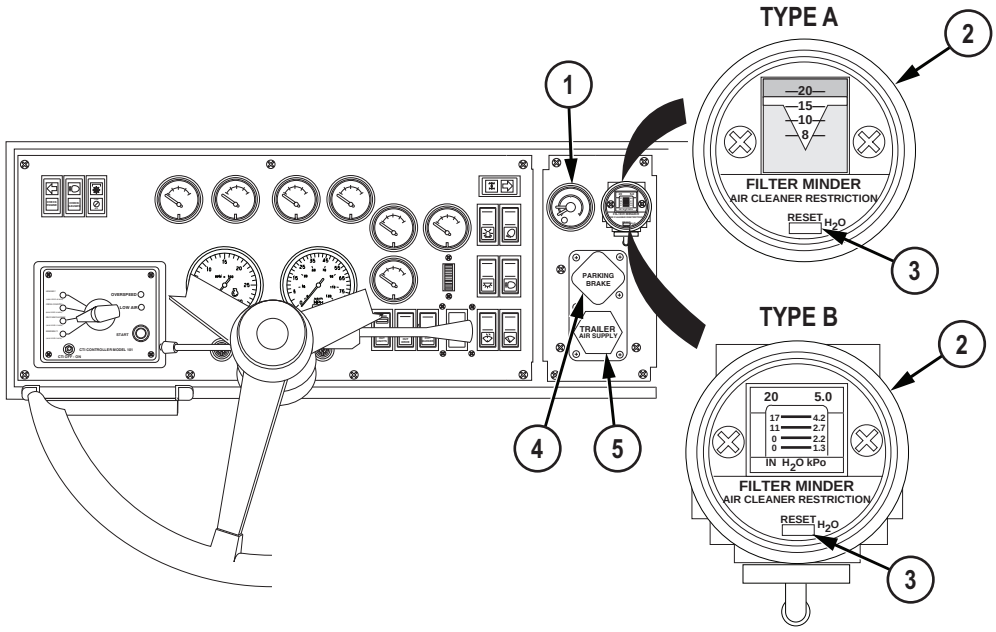


Figure 1.

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Table 1. Air System Panel Controls and Indicators. - Continued

Key	Control/ Indicator	Function
1	AIR PRESSURE Gauge	Shows air pressure (in psi and kPa) in reservoirs available to operate air system components. Green needle indicates air pressure to operate service brakes on front axle, parking brakes on rear tridem axles, transfer case and interaxle lockups, winch tensioners and kickouts, windshield washers, and horns. Red needle indicates air pressure to operate service and parking brakes on rear tridem axles, CTIS pressure transducer, and rear suspension system. Normal operating range for AIR PRESS gauge is 60 to 120 psi (414 to 827 kPa).
2	AIR CLEANER RESTRICTION Indicator	Indicates when air cleaner filter is restricted. Yellow diaphragm enters red zone when air cleaner is clogged and needs service. Yellow RESET button on face gauge is used to reset gauge after air cleaner has been serviced.
3	AIR CLEANER RESTRICTION Indicator RESET Button	Push to reset AIR CLEANER RESTRICTION indicator after air cleaner has been serviced.
3	PARKING BRAKE Control	Used to apply and release HET Tractor parking brakes and trailer parking brakes if equipped.
4	TRAILER AIR SUPPLY Control	Used to control air supply to trailer.

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OPERATOR MAINTENANCE
CENTER PANEL CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of center panel controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about center panel controls.

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Table 1. Center Panel Controls.

Key	Control/ Indicator	Function

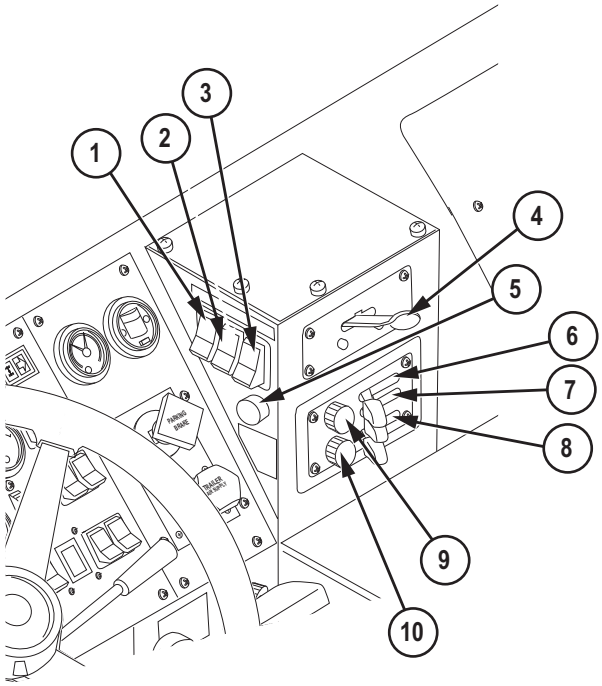


Figure 1.

1	GAS PART FILTER Switch	Two-position switch used to operate and control gas particulate filter unit.
2	CHEMICAL ALARM Switch	Two-position switch used to control chemical alarm kit.
3	PTO Control Switch	Two-position switch used to control power takeoff. PTO indicator lights (green) when PTO is engaged.
4	DRIVELINE Control	Used to control drive train operation. DRIVELINE Control has two functions depending on the TRANSFER CASE Shift Lever position. The control either activates the front axle lock-

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Table 1. Center Panel Controls. - Continued

Key	Control/ Indicator	Function
		up or the axle differential interaxle power dividers. When control is set to UNLOCK position, with the transfer case shift lever set to HI range, the transfer case drives rear axles only. When DRIVELINE Control is set to LOCK position and transfer case shift lever set to HI range, the transfer case drives both front axle and rear axles. When DRIVELINE Control is set to UNLOCK position and transfer case shift lever set to LO range, the interaxle differentials are unlocked allowing them to turn at different speeds. When DRIVELINE Control is set to LOCK position and transfer case shift lever set to LO range, the interaxle differentials are locked, causing all differentials to turn at the same rate, increasing traction.

TRANSFER CASE SHIFT LEVER POSITION	DRIVELINE CONTROL POSITION	DRIVING FRONT AXLE	INTERAXLE LOCKUP ENGAGED
HI	UNLOCK	NO	NO
HI	LOCK	YES	NO
LO	UNLOCK	YES	NO
LO	LOCK	YES	YES

Figure 2.

5	ETHER START Control	Used to inject ether into engine air intake adapter for cold weather starting.Use ether start only if outside temperature is below 45°F (7°C). Press ETHER START control to inject ether.
6	DEF/CAB Control	Used to control cab air. When control is set to DEF position, air defrosts windshield. When control is set to CAB position, air heats cab interior. When control is positioned between CAB and DEF, air defrosts windshield and heats cab interior.

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Table 1. Center Panel Controls. - Continued

Key	Control/ Indicator	Function
7	RECIRC/F/A Control	Used to control outside air flow to cab. When control is set to RECIRC position, cab air recirculates. When control is set to F/A position, fresh air is vented into cab.
8	OFF/HEAT Control	Used to control temperature of air that heats cab interior and defrosts windshield.
9	FRONT Fan Switch	Four-position switch used to control operation and speed of front heater fan.
10	REAR Fan Switch	Four-position switch used to control operation and speed of rear exhaust fan. Exhaust fan ventilates cab by blowing cab air to the outside through louvers located in the rear cab wall.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TUNNEL PANEL CONTROLS - DRIVER SIDE

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of driver side tunnel panel controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about driver side tunnel panel controls.

Table 1. Tunnel Panel Controls - Driver Side.

Key	Control/ Indicator	Function

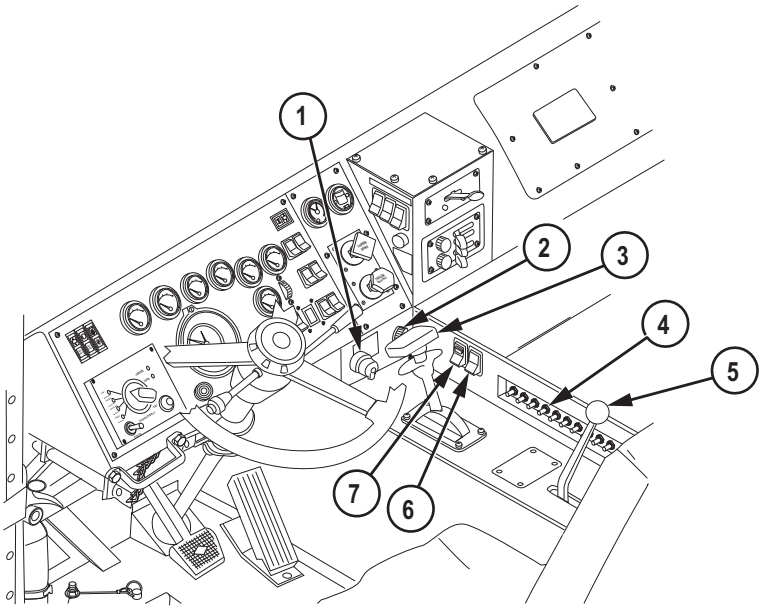


Figure 1.

https://truckmanualshub.com/

Table 1. Tunnel Panel Controls - Driver Side. - Continued

Key	Control/ Indicator	Function
1	ENGINE Switch	Three-position switch (OFF, ON, START). When ENGINE switch is set to ON position, electrical system will operate. START position operates engine cranking circuit. When switch is released after engine starts, switch will return to ON position. Positioning switch to OFF will shut down engine and turn off electrical system.
2	Utility Outlet	Outlet used for connecting portable work light.
3	Transmission Range Selector	Used to select transmission range.
		R (reverse) - Permits operation in reverse.
		N (neutral) - Drive gears not engaged.
		2-5 - Normal driving over hard, smooth surfaces that provide high wheel traction and little or no wheel slippage.
		2-4 and 2-3 - Driving over soft, rough, slippery surfaces, or cross-country terrain.
		2 - Hill climbing and engine braking to slow HET Tractor when descending steep hills.
		1 - Maximum engine braking when descending very steep grades, climbing steep grades, or driving through deep mud, sand, or snow.

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Table 1. Tunnel Panel Controls - Driver Side. - Continued

Key	Control/ Indicator	Function
4	Circuit Breakers	Breakers open automatically to protect HET Tractor from electrical overloads. Push in circuit breaker buttons to reset.
5	TRANSFER CASE Shift Lever	Used to select HIGH or LOW range or NEUTRAL. All wheel drive indicator lights (green) when DRIVELINE control is in LOCK position or when TRANSFER CASE shift lever is set to LOW position.
6	Engine Brake Retarder HI/LO Switch	Two-position switch used to control high or low mode of engine brake retarder. Switch in up position is LO and switch in down position is HI. Engine brake retarder on/off switch must be set to on position for engine brake retarder HI/LO switch to function.
7	Engine Brake Retarder On/ Off Switch	Two-position switch used to turn engine brake retarder on or off. Switch in up position is OFF and switch in down position is ON. Switch locks in off position.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
VENTILATOR CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of ventilator controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about ventilator controls.

Table 1. Ventilator Controls.

Key	Control/ Indicator	Function

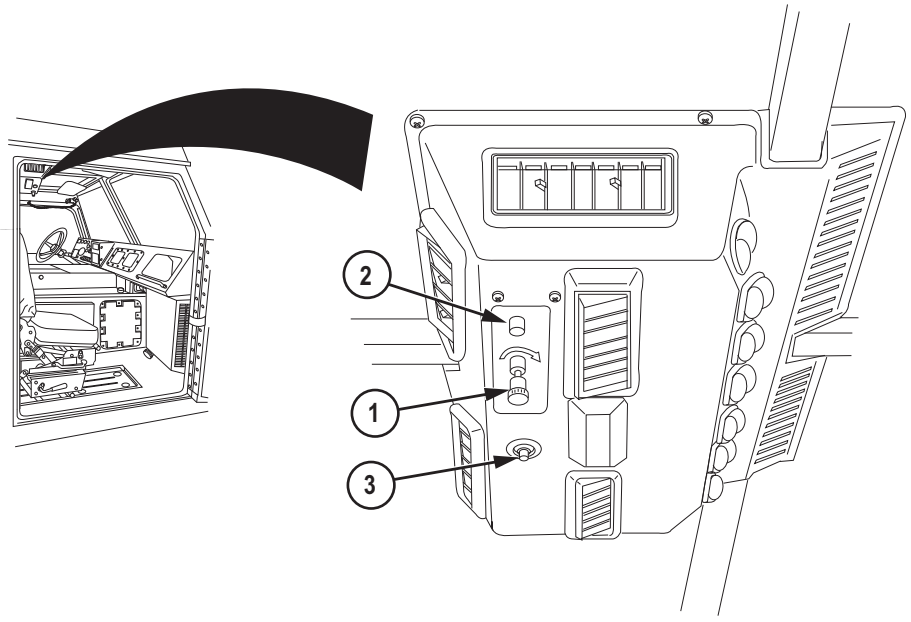


Figure 1.

https://truckmanualshub.com/

Table 1. Ventilator Controls. - Continued

Key	Control/ Indicator	Function
1	Recirculate/ Fresh Air Control	Used to control air flow to cab. When control knob is pulled out, fresh outside air is vented into cab. When control knob is pushed in, cab air recirculates. Turn control knob clockwise to lock in position; turn control knob counterclockwise to unlock and adjust:
2	Blower Fan Switch	Four-position switch used to control operation and speed of ventilator blower fan.
3	Circuit Breaker	Breaker opens automatically to protect ventilator from electrical overload. Push in circuit breaker button to reset.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TUNNEL PANEL CONTROLS - PASSENGER SIDE

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of passenger side tunnel panel controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about passenger side tunnel panel controls.

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Table 1. Tunnel Panel Controls - Passenger Side.

Key	Control/ Indicator	Function

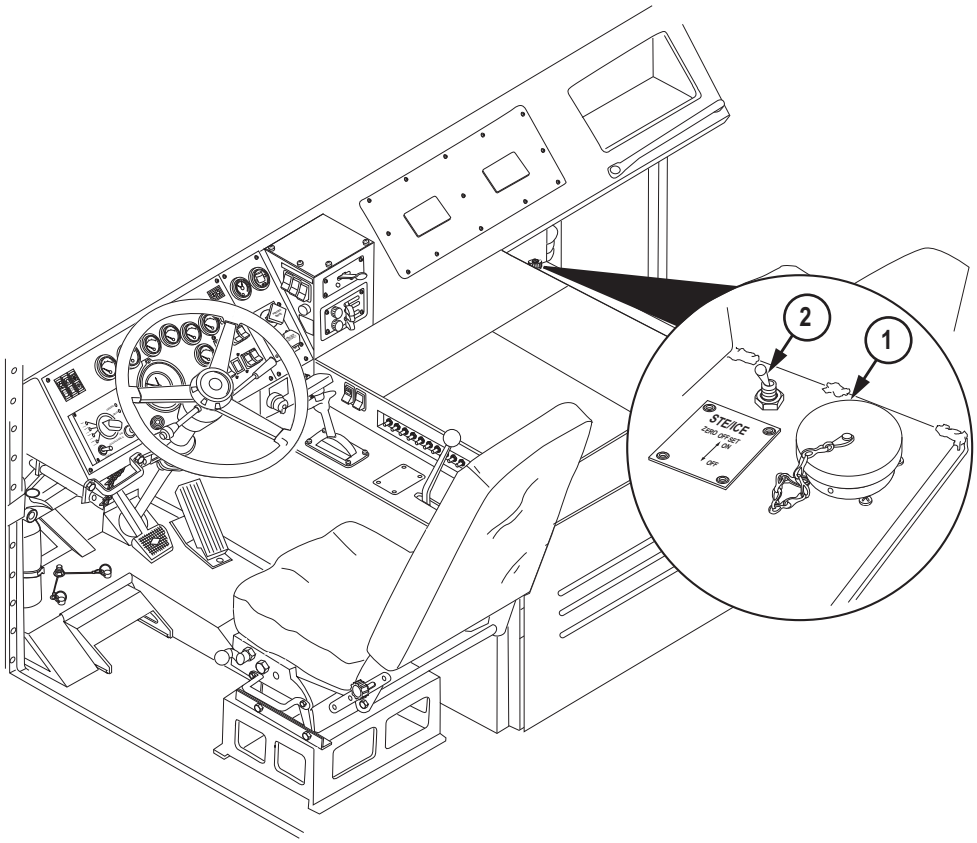


Figure 1.

1	STE/ICE Receptacle	Used to connect STE/ICE.
2	STE/ICE ZERO	Used to reset instrument connected to simplified test equipment/internal combustion engine (STE/ICE) receptacle to zero.

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Table 1. Tunnel Panel Controls - Passenger Side. - Continued

Key	Control/ Indicator	Function
	OFFSET Switch	

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FRONT SEAT ADJUSTMENT CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of front seat adjustment controls which are used in the operation of HET Tractor. Controls described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about front seat adjustment controls.

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Table 1. Front Seat Adjustment Controls.

Key	Control/ Indicator	Function

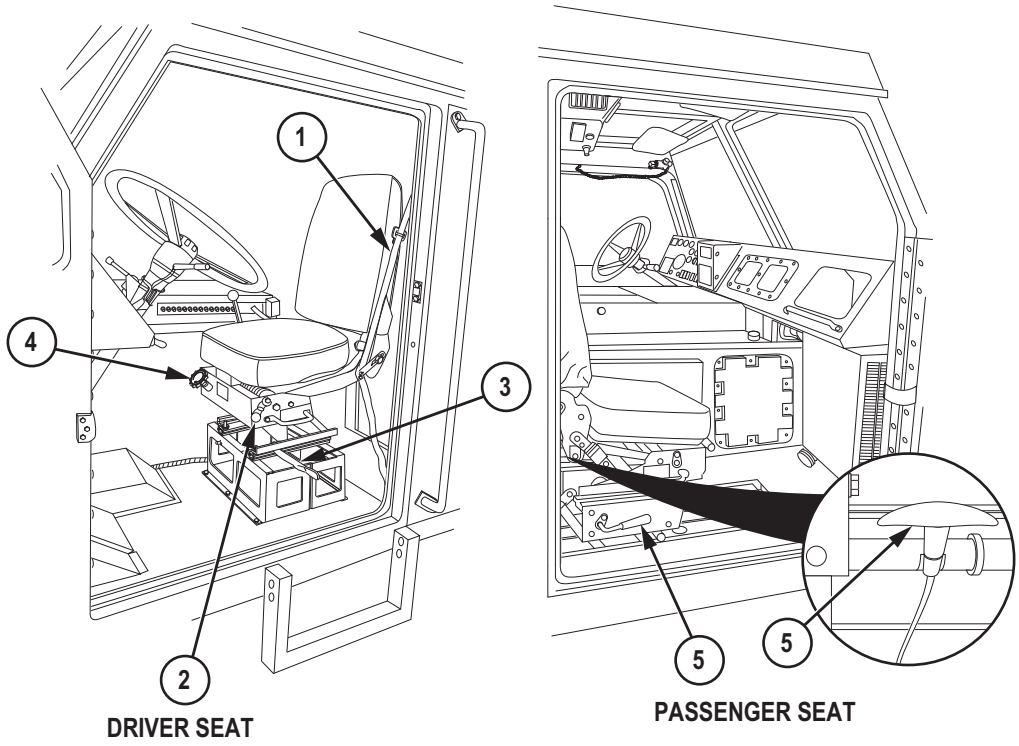


Figure 1.

1	Seat Belt/ Shoulder Harness	Used to secure personnel in seat.
2	Height Adjustment Control	Used to adjust seat height.
3	Forward/ Backward	Used to move seat forward or backward.

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Table 1. Front Seat Adjustment Controls. - Continued

Key	Control/ Indicator	Function
	Adjustment Control	
4	Ride Adjustment Control	Used to adjust seat tension and ride firmness.
5	Seat Lift Controls (passenger seat only)	Used to lift and move seat forward to allow access to and from rear seat.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINCH STATION CONTROLS AND INDICATORS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of winch station controls and indicators which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about winch station controls and indicators.

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Table 1. Winch Station Controls and Indicators.

Key	Control/ Indicator	Function

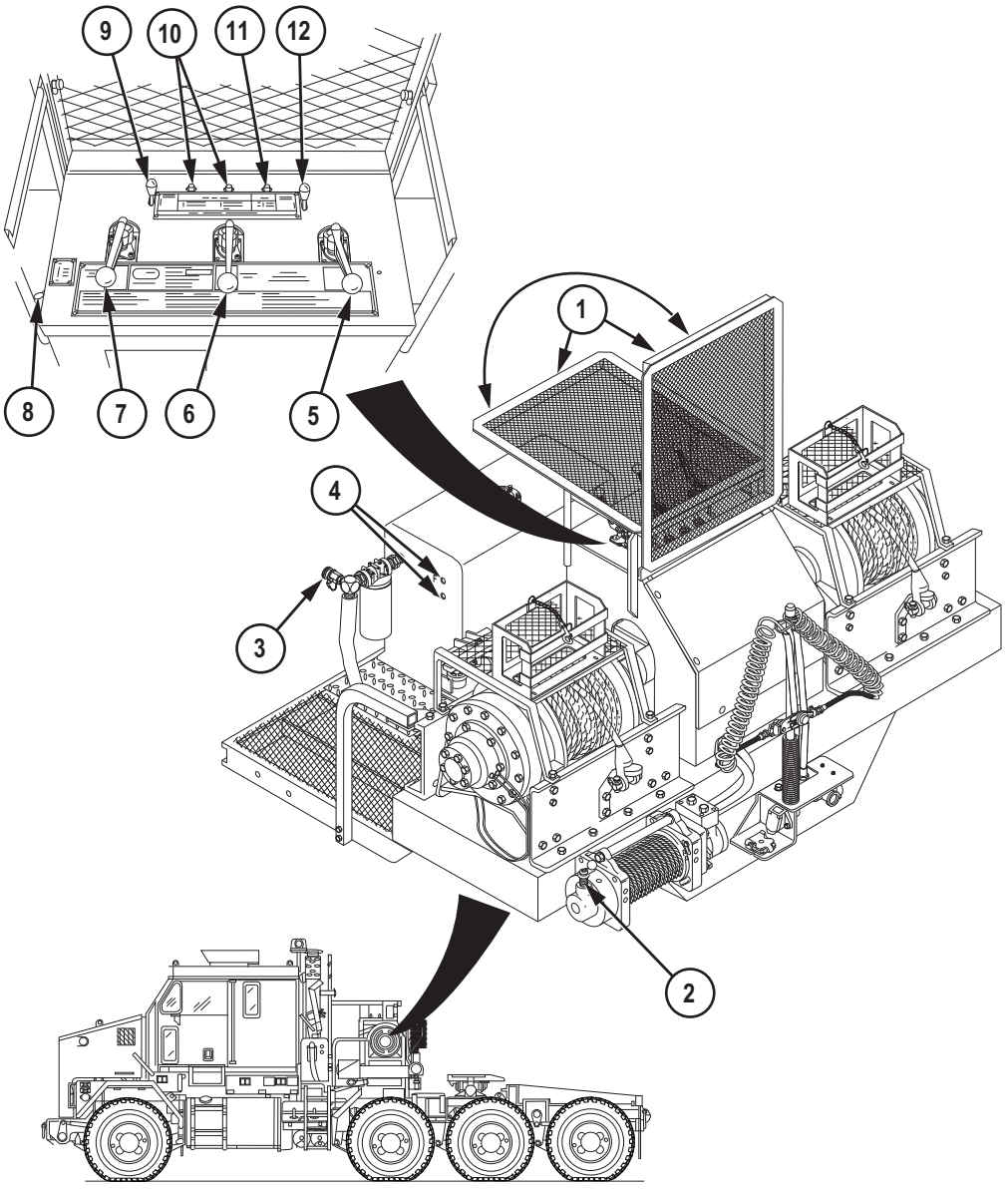


Figure 1.

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Table 1. Winch Station Controls and Indicators. - Continued

Key	Control/ Indicator	Function
1	Personnel Guard	Two-position guard which protects operator during winch operation.
2	Auxiliary Winch Manual Kickout Control	Used to engage and disengage auxiliary winch kickout. Lift and rotate control 180 degrees to disengage kickout. When disengaged, winch drum will spool freely and cable can be payed out by hand. Return control to locked position to engage auxiliary winch manual kickout. When engaged, winch operation is controlled from AUXILIARY WINCH control.
3	Hydraulic Oil Sampling Valve	Used to take samples of hydraulic oil for Army Oil Analysis Program (AOAP).
4	OIL LEVEL Sight Glass	Indicates FULL or LOW level of hydraulic oil in reservoir. Fluid level should be between top (FULL) and bottom (LOW) of two sight glasses.
5	DRIVER SIDE WINCH Control	Used to pay out and reel in driver side winch cable when DRIVER SIDE WINCH KICKOUT is engaged.
6	AUXILIARY WINCH Control	Used to pay out and reel in auxiliary winch cable when auxiliary winch manual kickout is engaged.
7	PASSENGER SIDE WINCH Control	Used to pay out and reel in passenger side winch cable when PASSENGER SIDE WINCH KICKOUT is engaged.

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Table 1. Winch Station Controls and Indicators. - Continued

Key	Control/ Indicator	Function
8	CABLE HOLD DOWN Control	Used to engage and disengage cable tensioner on main winches. Control is OFF when paying out winch cable with auxiliary winch. Control is ON when reeling in winch cable to ensure cable spools properly onto drum
9	PASSENGER SIDE WINCH KICKOUT Control	Used to engage and disengage passenger side winch kickout. When disengaged, winch drum will spool freely and cable can be payed out using auxiliary winch. When engaged, winch operation is controlled from PASSENGER SIDE WINCH control.
10	ENGINE SPEED CONTROL Switches	Two switches used to control speed of engine during winch operations. When left switch is set to LOW ENGINE IDLE, engine operates at low rpm. When left switch is set to HIGH ENGINE IDLE and PUSH TO LOCK ENGINE @ HIGH IDLE switch is pressed, engine operates at high rpm.
11	WINCH SPEED CONTROL Switch	Two-position (LOW/HIGH) switch used to control pay out/reel in speed of main winches.
12	DRIVER SIDE WINCH KICKOUT Control	Used to engage and disengage driver side winch kickout. When disengaged, winch drum will spool freely and cable can be payed out using auxiliary winch. When engaged, winch operation is controlled from DRIVER SIDE WINCH control.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FIFTH WHEEL CONTROLS

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of fifth wheel controls which are used in the operation of HET Tractor. Controls in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about fifth wheel controls.

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Table 1. Fifth Wheel Controls.

Key	Control/ Indicator	Function

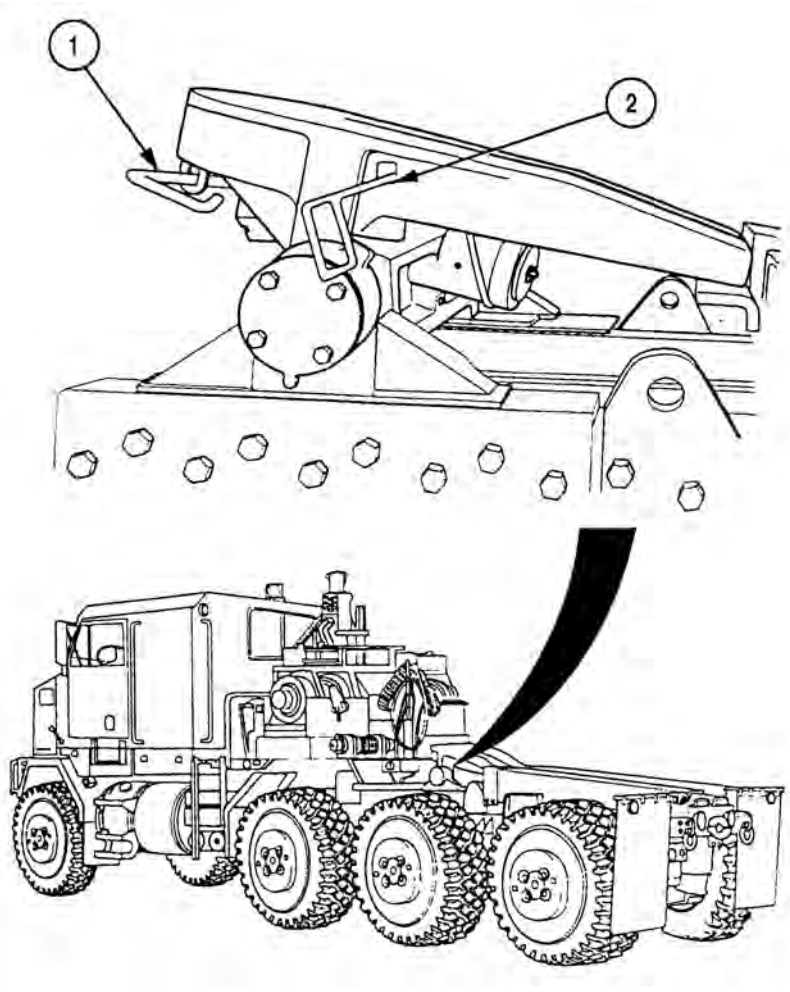


Figure 1.

1	Primary Lock Release Handle	Used to open fifth wheel coupler jaws. Jaws open when handle is pulled.

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Table 1. Fifth Wheel Controls. - Continued

Key	Control/ Indicator	Function
2	Secondary Lock Release Handle	Used to unlock fifth wheel coupler jaws and allows them to be opened with primary lock release handle. Coupler jaws unlock when handle is pulled.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXTERIOR-MOUNTED CONTROLS AND INDICATORS - DRIVER SIDE

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of driver side exterior-mounted controls and indicators which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about driver side exterior-mounted controls and indicators.

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Table 1. Exterior-Mounted Controls and Indicators - Driver Side.

Key	Control/ Indicator	Function

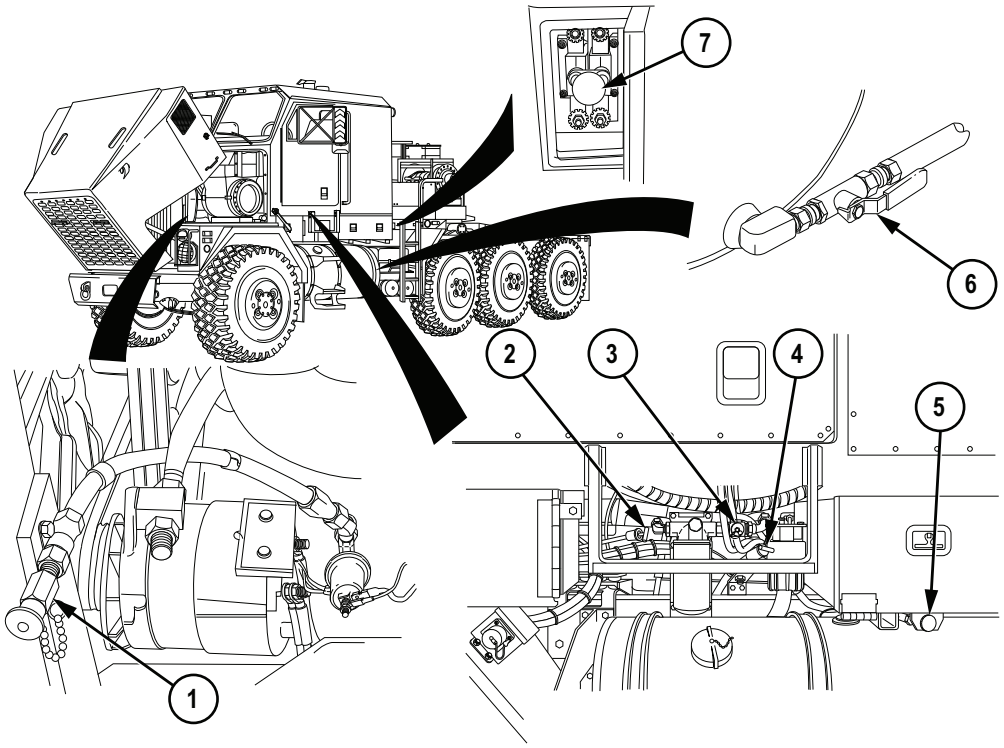


Figure 1.

1	Engine Oil Sampling Valve	Used to take samples of engine oil for Army Oil Analysis Program (AOAP).
2	Engine Oil Dipstick	Indicates engine oil level. Turn dipstick handle counterclockwise to release from tube and obtain measurement. Fully insert dipstick into tube and turn handle clockwise to secure.

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Table 1. Exterior-Mounted Controls and Indicators - Driver Side. - Continued

Key	Control/ Indicator	Function
3	Transmission Oil Sampling Valve	Used to take samples of transmission oil for AOAP.
4	Transmission Oil Dipstick	Indicates transmission oil level. Turn dipstick handle counterclockwise to release from tube and obtain measurement. Fully insert dipstick into tube and turn handle clockwise to secure.
5	Fuel Primer Pump	Supplies fuel to fuel lines. Hand pump is used after fuel system maintenance and to drain water from fuel/water separator.
6	Driver Side Fuel Shutoff Valve Control	Isolates driver side from passenger side fuel tank. Should be closed during side slope operation when driver side of truck is higher than the passenger side. Should be open at all other times.
7	Battery Disconnect Switch	When in ON position, power is available to control modules and electrical system. When in OFF position, battery does not run down due to control module load.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXTERIOR-MOUNTED CONTROLS AND INDICATORS - PASSENGER SIDE

CONTROLS AND INDICATORS INTRODUCTION

This section displays the location and describes the use of passenger side exterior-mounted controls and indicators which are used in the operation of HET Tractor. Controls and indicators described in this section are the same for all vehicles, except where otherwise indicated.

LOCATION AND USE OF CONTROLS AND INDICATORS

Know the location and proper use of every control and indicator before operating HET Tractor. Separate illustrations with keys are provided for learning about passenger side exterior-mounted controls and indicators.

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Table 1. Exterior-Mounted Controls and Indicators - Passenger Side.

Key	Control/ Indicator	Function

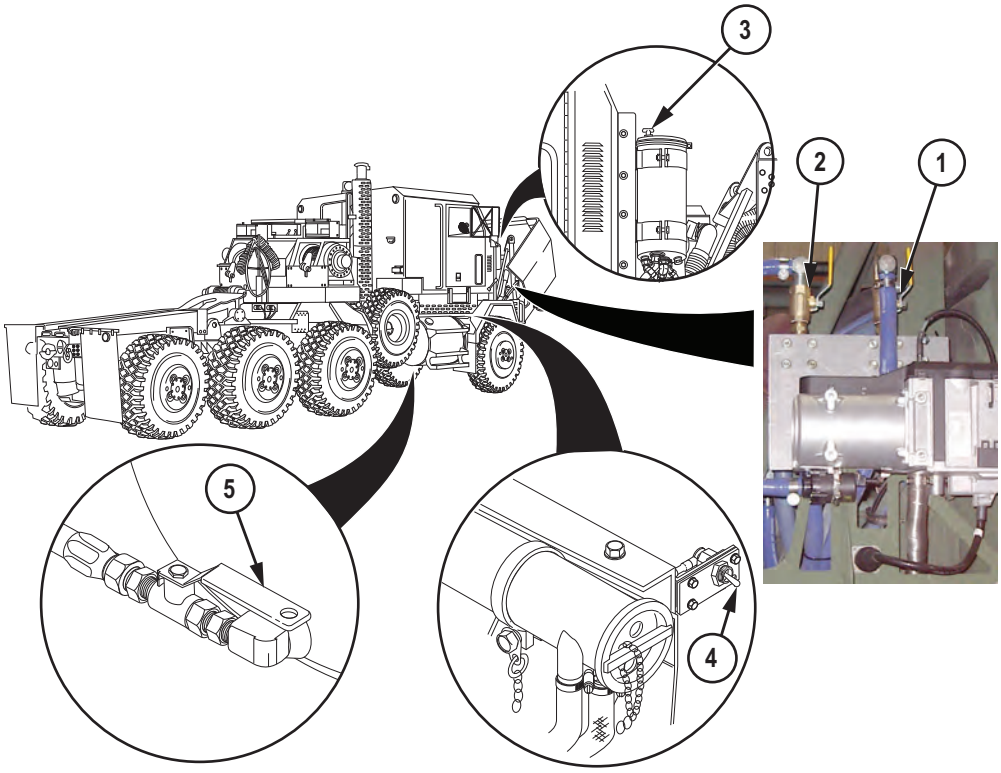


Figure 1.

1	M12 EMI Arctic Heater Outlet Valve (if equipped)	Move valve handle counterclockwise to connect arctic heater outlet to engine cooling circuit. Move valve handle clockwise to isolate arctic heater outlet from engine cooling circuit.
2	M12 EMI Arctic Heater Inlet Valve (if equipped)	Move valve handle counterclockwise to connect arctic heater inlet to engine cooling circuit. Move valve handle clockwise to isolate arctic heater inlet from engine cooling circuit.

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Table 1. Exterior-Mounted Controls and Indicators - Passenger Side. - Continued

Key	Control/ Indicator	Function
3	Power Steering Oil Dipstick	Indicates power steering oil level. Turn dipstick handle counterclockwise to release from tube and obtain measurement. Fully insert dipstick into tube and turn handle clockwise to secure.
4	Swingfire Arctic Kit Pump Switch (if equipped)	When installed, two-position switch used to control coolant pump operation.
5	Passenger Side Fuel Shutoff Valve	Isolates driver side and passenger side fuel tanks. Should be closed only when required by maintenance procedures. Should be open all other times.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
DECALS AND DATA PLATES

INITIAL SETUP:

Not Applicable

The following section provides data plates and decals found on the HET Tractor. Pay close attention to warnings and cautions noted. Locations of these data plates on HET Tractor can be found in the Stowage And Sign Guide. (WP 0083)

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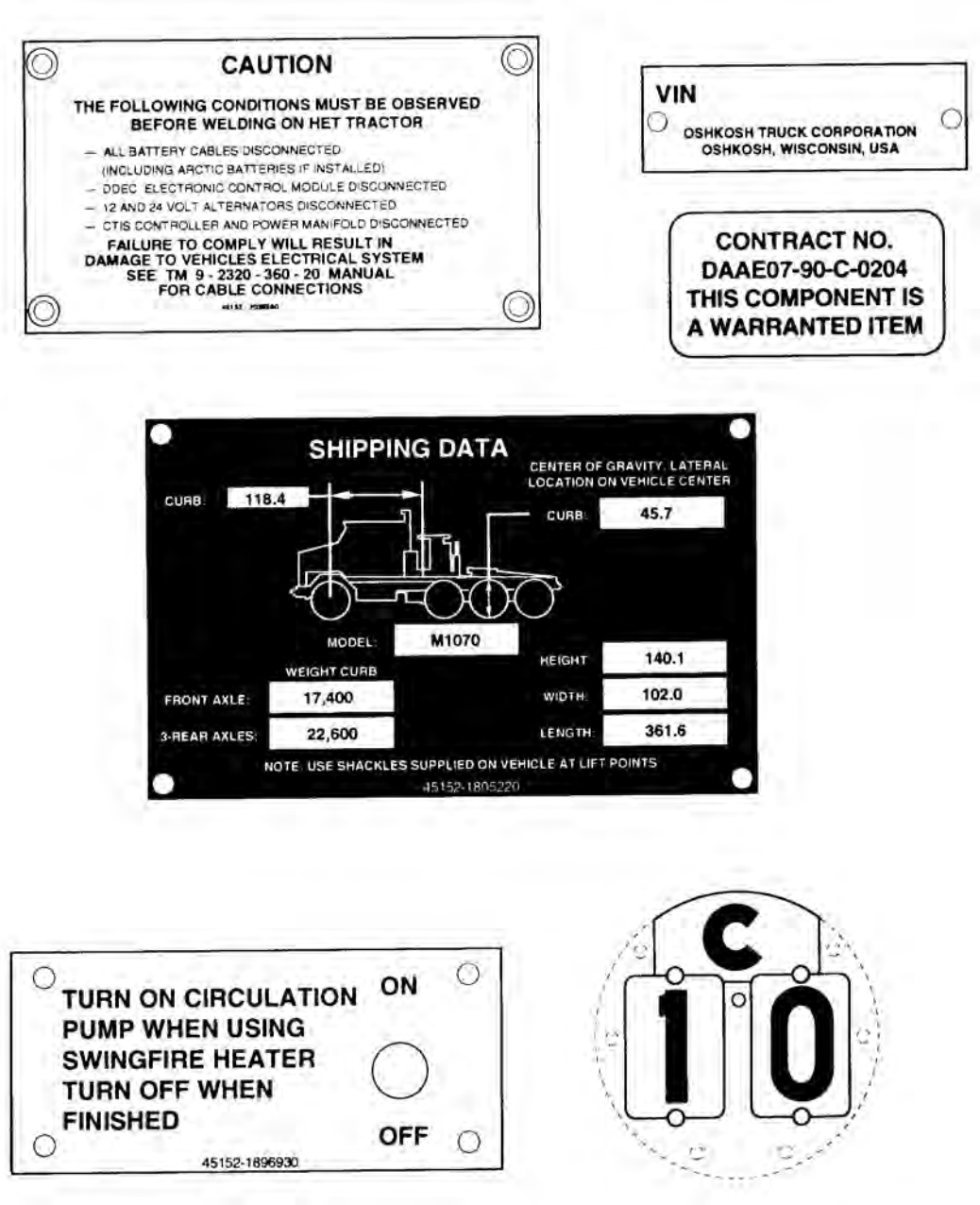


Figure 1.

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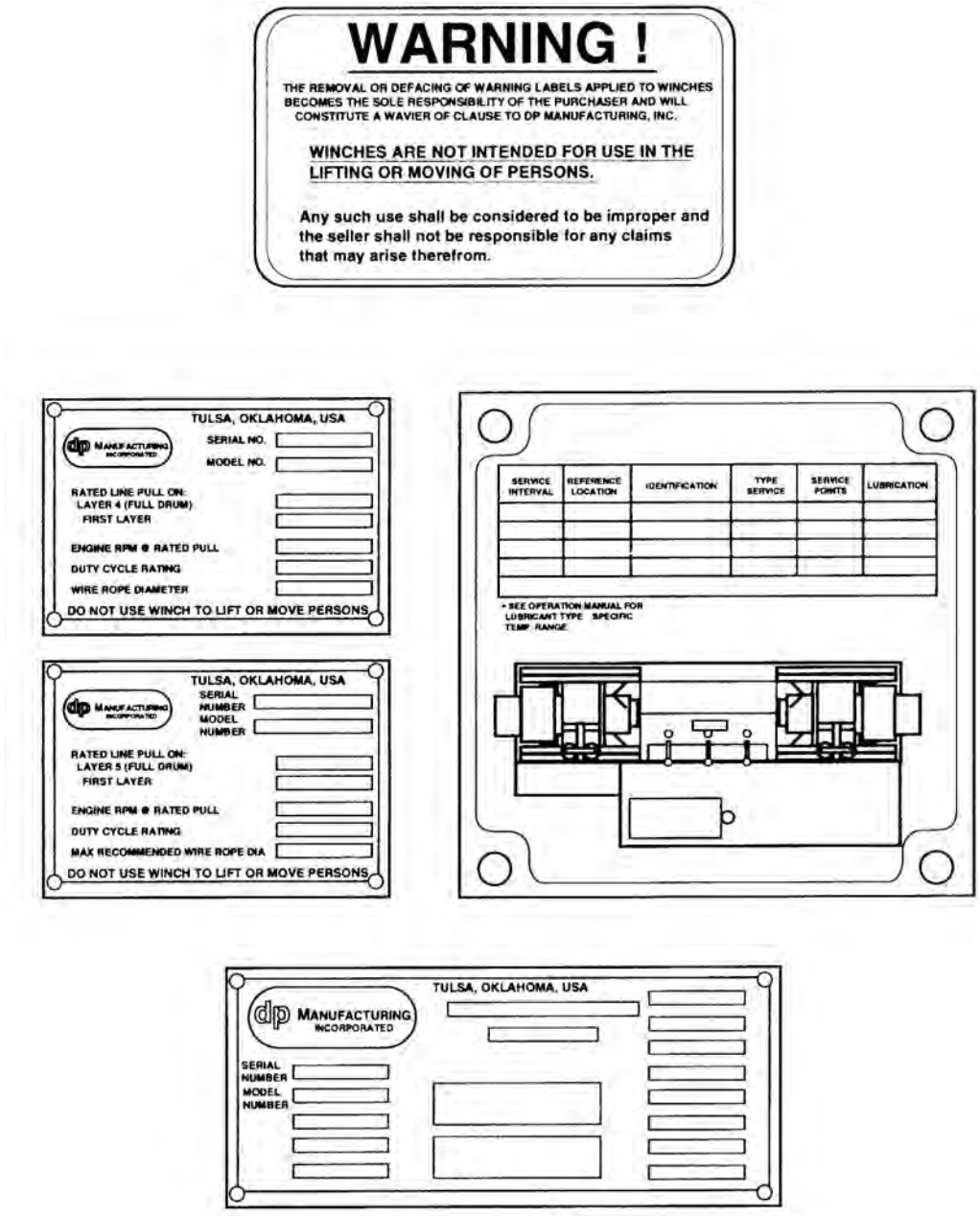


Figure 2.

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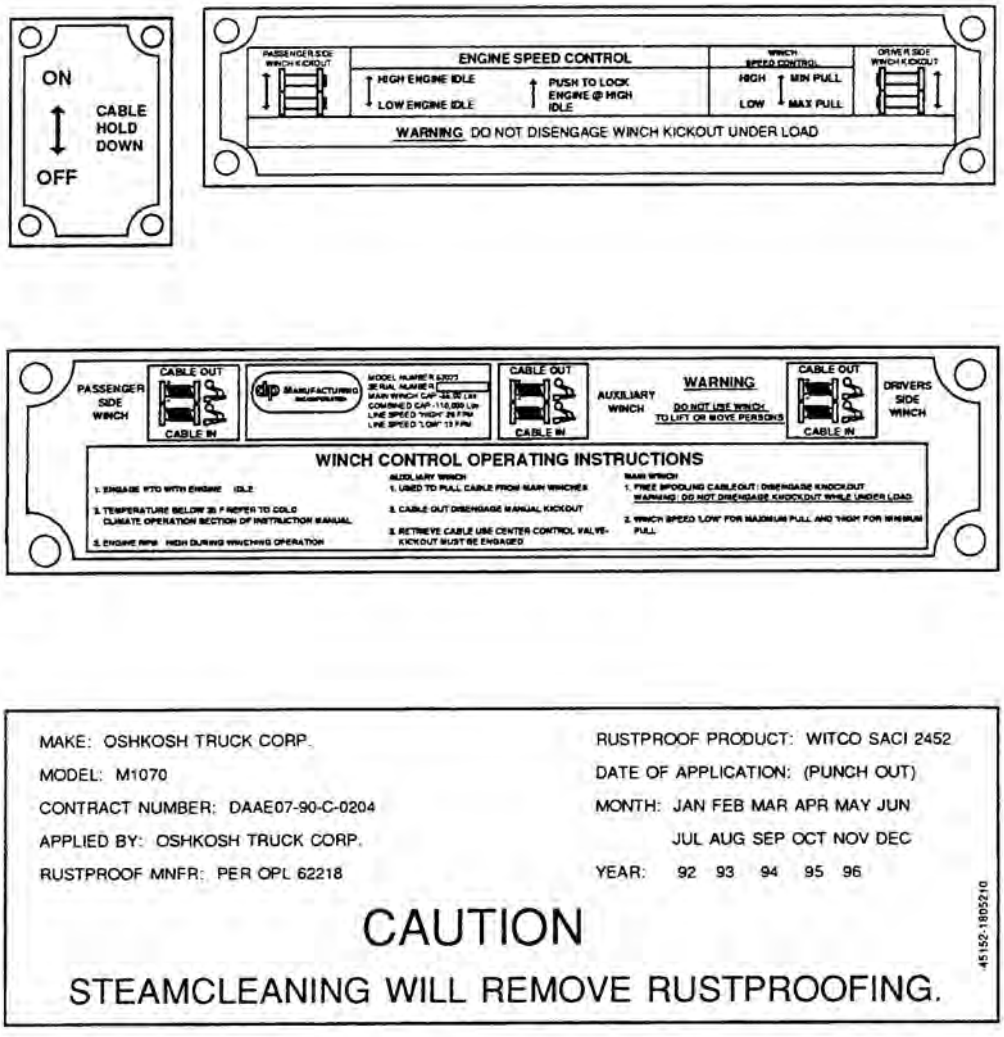


Figure 3.

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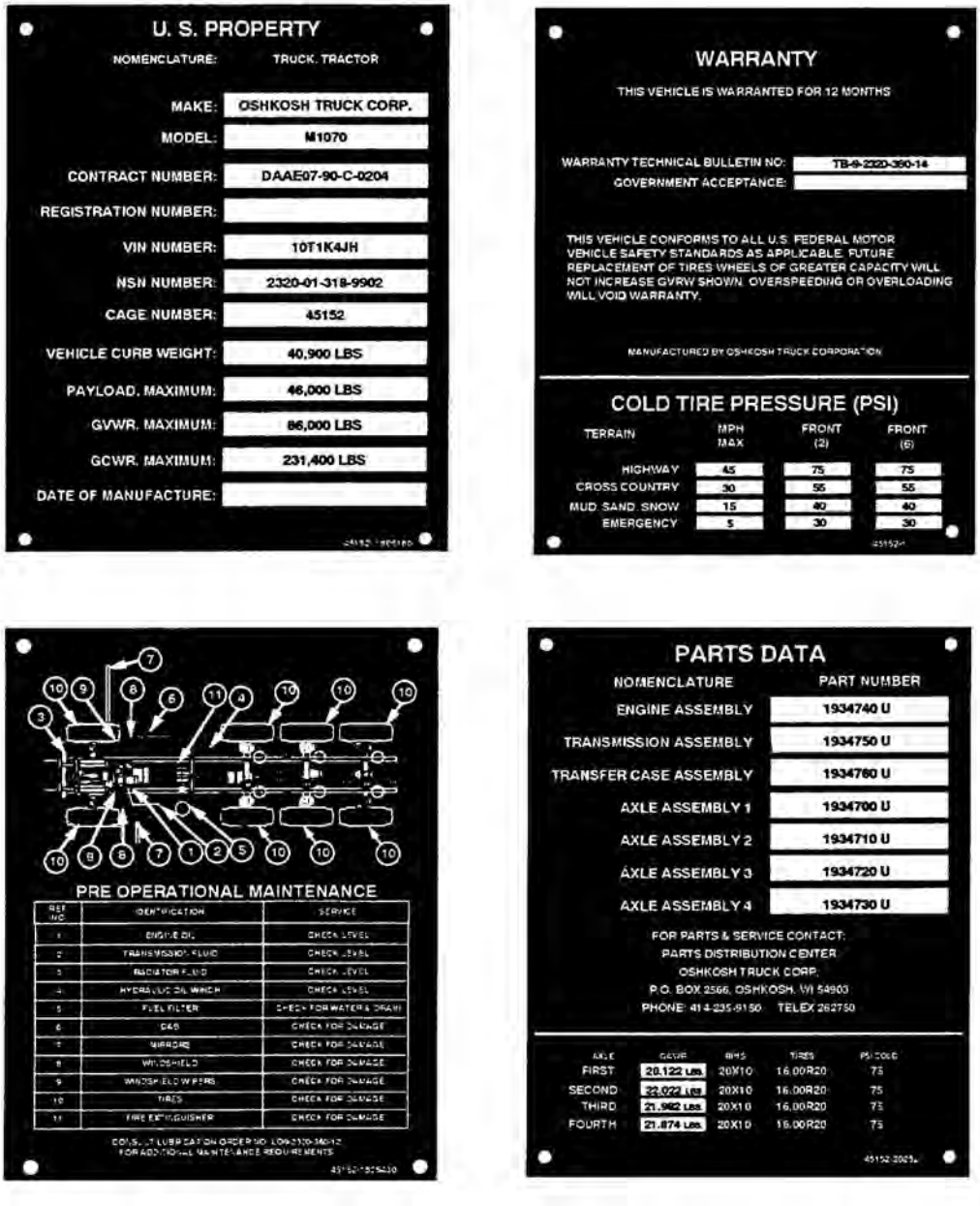


Figure 4.

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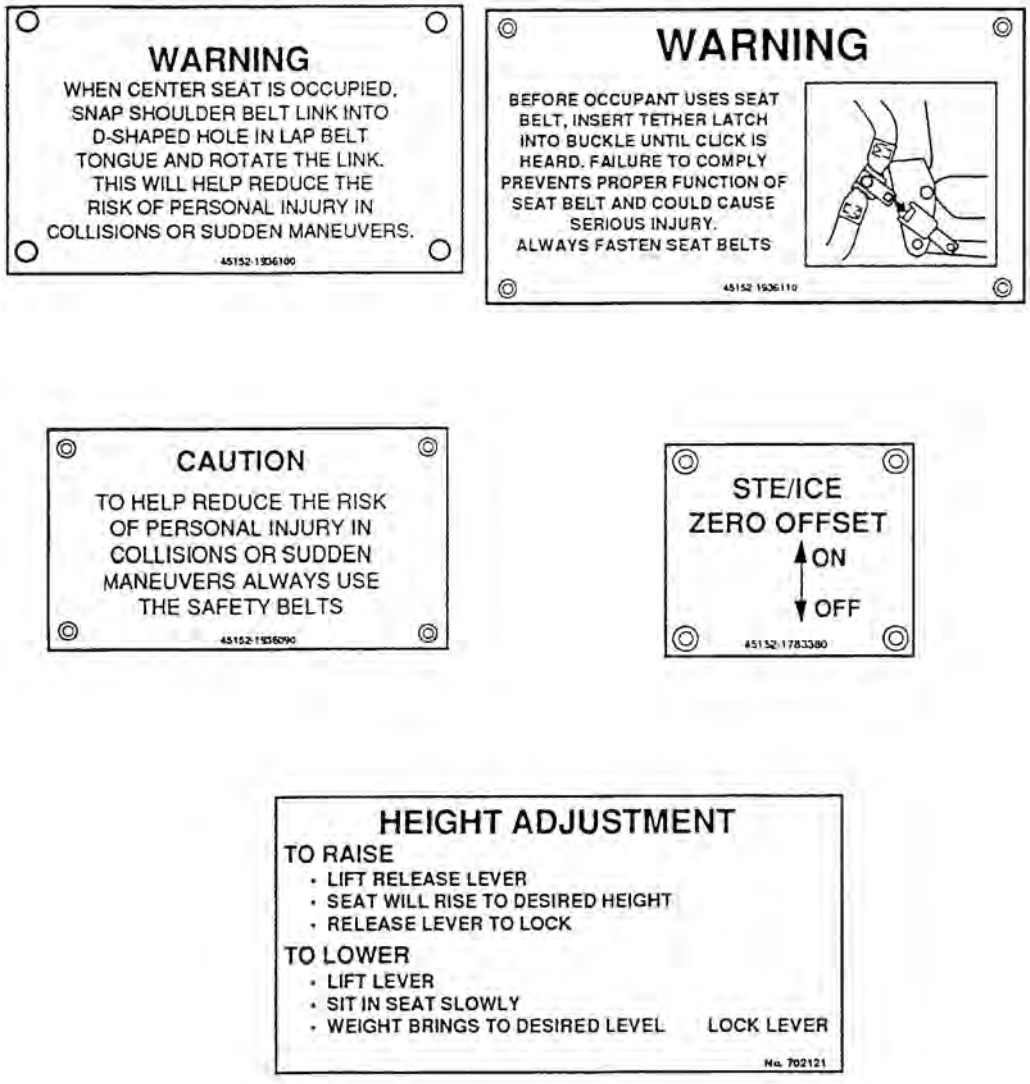
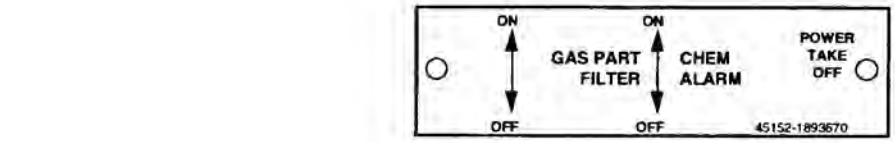
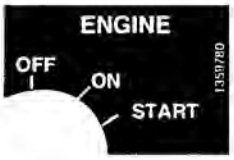
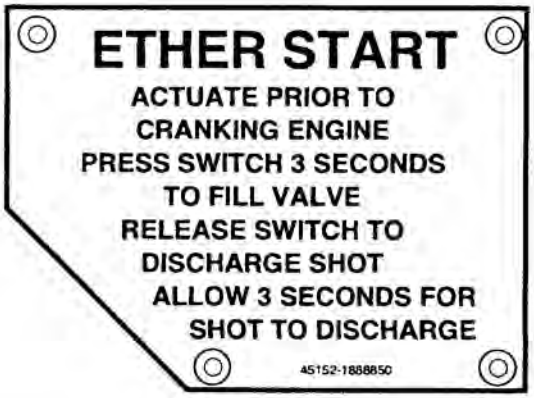


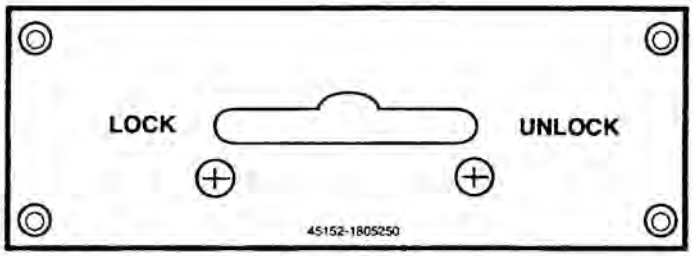
Figure 5.

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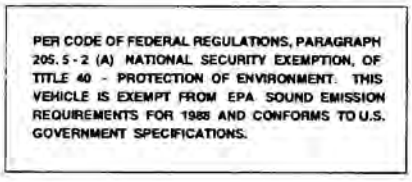


Figure 6.

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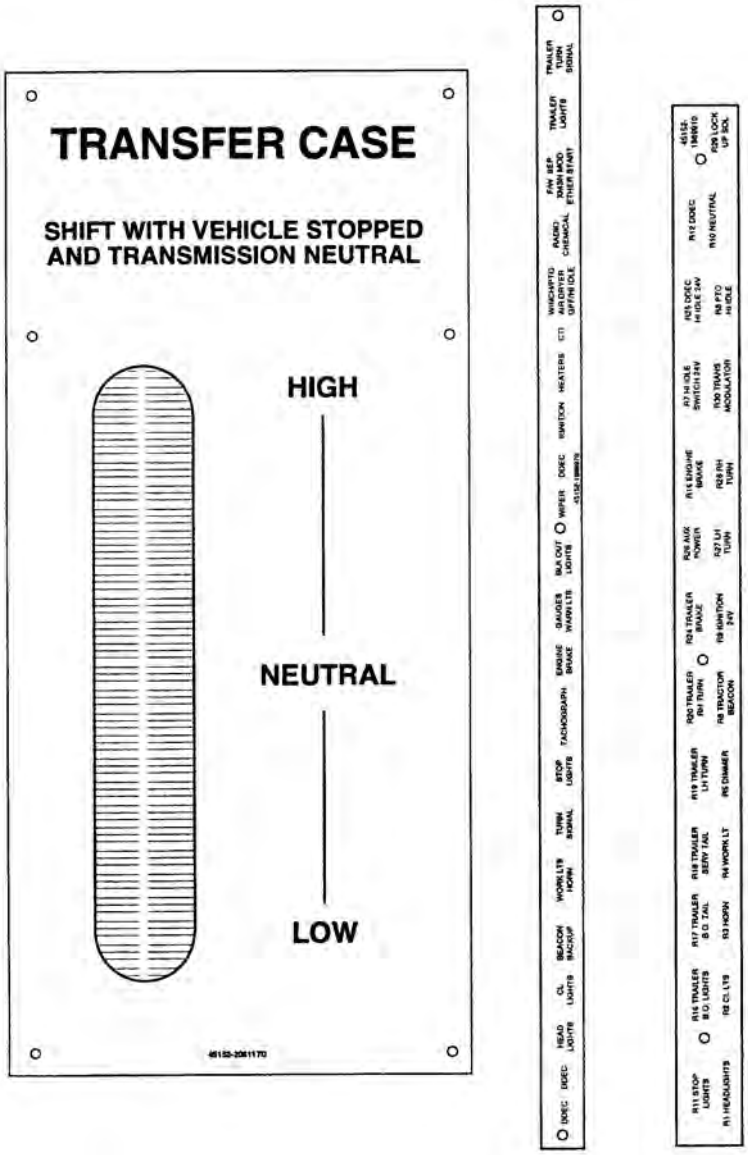


Figure 7.

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Figure 8.

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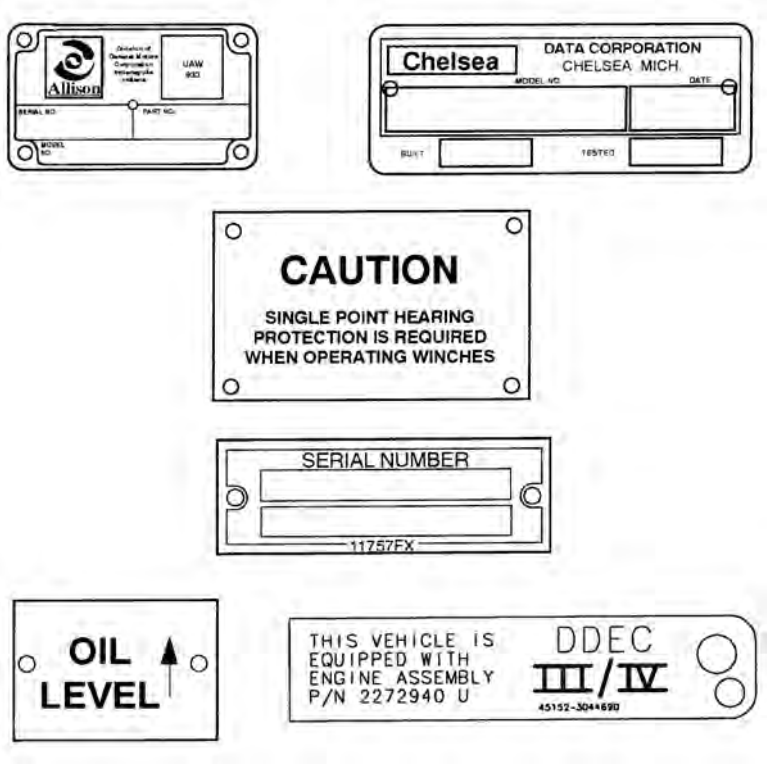


Figure 9.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
GENERAL HET TRACTOR-TRAILER OPERATING PROCEDURES

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (2)

MOVING TRAILER FORWARD

WARNING

Ensure the position of assistant is known at all times. Failure to comply may result in serious injury or death to personnel.

WARNING

All safety requirements such as hazard flags, road permits, flashing warning lights, escort vehicles, and wide load signs must be met. Failure to comply may result in serious injury or death to personnel or damage to equipment.

1. **Driving.** When towing a trailer, overall length of HET Tractor/trailer must be kept in mind when passing other vehicles. During trailering operations, acceleration rate is reduced and stopping distance increases.

WARNING

The HET tractor-trailer combination does not track in the same way as standard or conventional tractor-trailer combinations. Operators must know and understand this prior to operating HET tractor-trailer on public access roads. Wide, conventional tractor-trailer turns may result in damage to equipment and serious injury or death to personnel.

WARNING

When making sharp turns, the trailer may swing beyond normal turning radius. Failure to observe this warning may result in personnel injury or damage to equipment.

WARNING

Speed limits posted on curves reflect speeds that are considered safe for automobiles. Heavy vehicles with a high center of gravity can roll over at these speed limits. Use care and reduce your speed below the posted

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MOVING TRAILER FORWARD - Continued

limit prior to entering a curve. Failure to comply may result in serious injury or death to personnel.

2. **Turning.** When turning corners, trailer wheels turn inside the turning radius of towing HET Tractor. To make right or left turn at intersection, drive HET Tractor about halfway into intersection and then cut sharply to right or left. This will prevent trailer from running over curb or from going into lane of oncoming traffic.

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MOVING TRAILER FORWARD - Continued

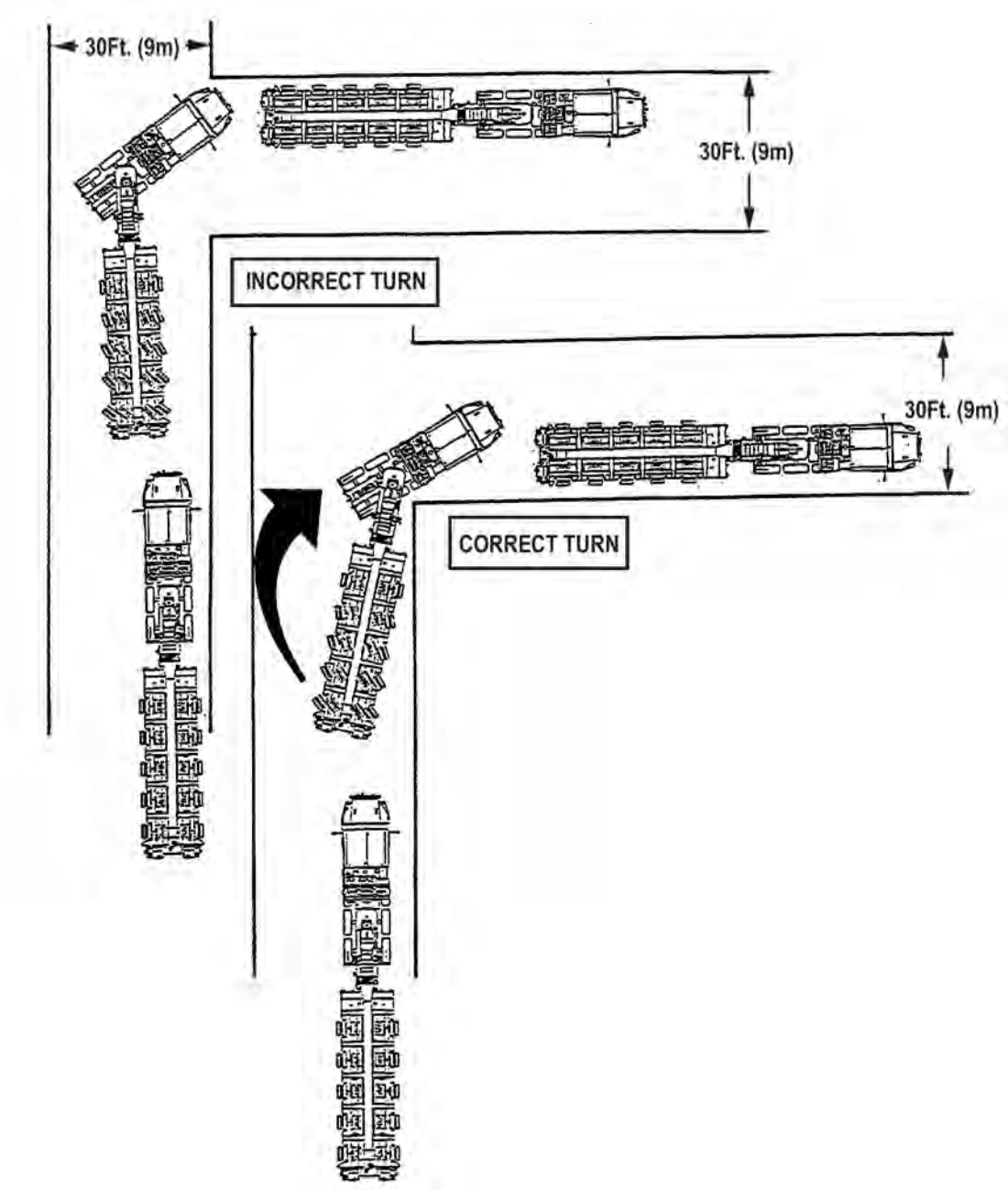


Figure 1.

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BACKING TRAILER

WARNING

Use caution when trailer is backing up. Wheels on trailer will not be straight when HET Tractor/trailer is stopped and then driven forward. Rear of trailer will swing wide right or left. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure the position of assistant is known at all times. Failure to comply may result in serious injury or death to personnel.

NOTE

An assistant (ground guide) is required to give signals during backing operations.

When backing, rear of trailer will always move in direction opposite of front wheels on HET Tractor. Trailer will turn quickly. When HET Tractor front wheels are turned right, rear of trailer will go left. When trailer has turned, and backing in a straight line is required, turn HET Tractor wheels in direction trailer is moving. This will bring HET Tractor and trailer in a straight line. Observe the following precautions when backing trailer:

a. Adjust side mirrors for best visibility.

b. Use a ground guide when backing HET Tractor/trailer. Ground guide must be visible to operator at all times to provide backing instructions.

c. Back up slowly. Pay close attention to signals and location of ground guide.

BRAKING, STOPPING, AND PARKING TRAILER

1. During normal operation, service brakes of HET Tractor and a properly coupled trailer are both applied when service brake pedal (WP 0012) is pushed. Service brake pedal pressure must be applied gradually and smoothly, (WP 0039) keeping in mind that stopping distance will increase when trailer is being towed.
2. PARKING BRAKE control (WP 0016) will apply parking brakes to both the tractor and a properly coupled trailer.

NOTE

- Trailer handbrake control lever (WP 0014) is not used during normal operation.
- Trailer handbrake control lever (WP 0014) can be used for coupling and uncoupling trailers without spring brake.

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BRAKING, STOPPING, AND PARKING TRAILER - Continued

3. Trailer handbrake control lever applies brake to trailer only. (WP 0040) Do not apply trailer handbrake control lever when parking.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION

INITIAL SETUP:

Not Applicable

OPERATE CTIS

1. Start engine. (WP 0037)

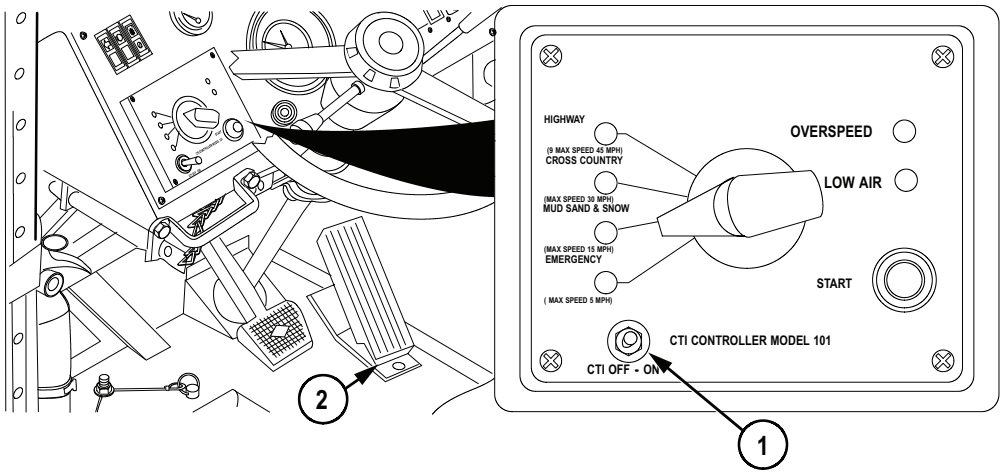


Figure 1.

NOTE

Model A dash panel shown, Model B dash panel similar.

2. Set central tire inflation system (CTIS) ON/OFF switch (1) to ON position.

CAUTION

- When central tire inflation system (CTIS) rotary selector switch is set to EMERGENCY, do not exceed 5 mph (8 km/h). Distance traveled should not exceed 15 miles (24 km). Failure to comply may result in damage to equipment

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OPERATE CTIS - Continued

- If LOW AIR indicator illuminates (red), CTIS will not operate due to low air pressure. Failure to comply may result in damage to equipment.

NOTE

- If HET Tractor is stopped during CTIS selection change, an increase in engine rpm is required to provide adequate air supply.
- CTIS automatically turns off if HET Tractor air pressure drops below 85 psi (586 kPa) to provide priority to HET Tractor air brake system. CTIS will automatically resume operation when air pressure increases to 110 psi (758 kPa) or above.
- During CTIS operation, it is normal to hear air coming out of wheel valves when inflating or deflating.
- If CTIS malfunctions, set the ON/OFF switch to OFF position, then back to ON position. This action will reset the controller and may eliminate the problem.

3. Slowly press down on throttle pedal (2). (WP 0012)

NOTE

- If HET Tractor average speed exceeds speed limit setting for 1 minute, an amber OVERSPEED light will begin to flash slowly. CTIS will automatically inflate HET Tractor tires to next higher air pressure setting (refer to Table 1 below).
- While CTIS is operating, green light at next higher setting will flash slowly until next higher setting is reached.
- When next higher CTIS air pressure setting is reached, amber OVERSPEED light will stop flashing. Green light indicating new CTIS setting will stop flashing and remain illuminated.

4. Set central tire inflation system (CTIS) rotary selector switch (3) to appropriate position.

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OPERATE CTIS - Continued

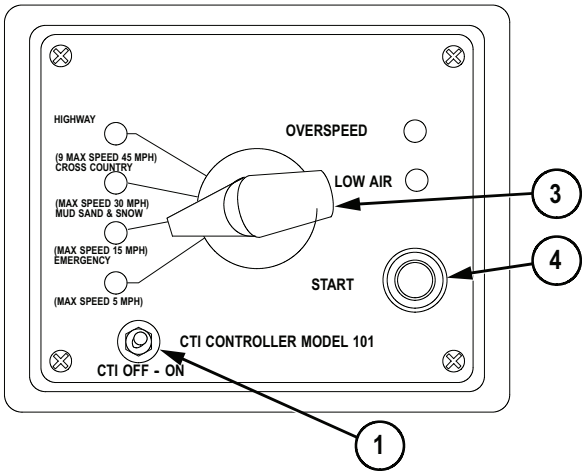


Figure 2.

5. Press central tire inflation system (CTIS) START switch (4).

CAUTION

CTIS rotary selector switch should always match lighted terrain flashing green light. If switch and lighted settings do not match, operator must correct the problem. Failure to comply may result in damage to equipment.

6. Perform one of the following tasks if CTIS setting and driving conditions do not match:
   a. Set central tire inflation system (CTIS) rotary selector switch (3) to flashing green light position to increase tire pressure.
   b. Reduce HET Tractor speed and check for continuous green light on central tire inflation system (CTIS) rotary selector switch (3) setting. This will indicate CTIS setting, HET Tractor speed, and ground conditions are correctly matched.

Table 1. CTIS Maximum Speed and Tire Pressure.

TERRAIN	MAX SPEED	FRONT TIRE PRESSURE	REAR TIRE PRESSURE
Highway	45 mph (72 km/h)	75 psi (517 kPa)	75 psi (517 kPa)
Cross Country	30 mph (48 km/h)	55 psi (379 kPa)	55 psi (379 kPa)

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OPERATE CTIS - Continued

Table 1. CTIS Maximum Speed and Tire Pressure. - Continued

TERRAIN	MAX SPEED	FRONT TIRE PRESSURE	REAR TIRE PRESSURE
Mud, Sand, Snow	15 mph (24 km/h)	40 psi (276 kPa)	40 psi (276 kPa)
Emergency	5 mph (8 km/h)	30 psi (207 kPa)	30 psi (207 kPa)

7. Set central tire inflation system (CTIS) ON/OFF switch (1) to OFF position before shutting down engine. (WP 0042)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINDSHIELD WIPERS/WASHER OPERATION

INITIAL SETUP:

Not Applicable

WINDSHIELD WIPERS OPERATION

NOTE

Model B dash panel shown, Model A dash panel similar.

Push windshield wiper switch (1) to center position for low speed, down position for high speed, and up position to stop wipers.

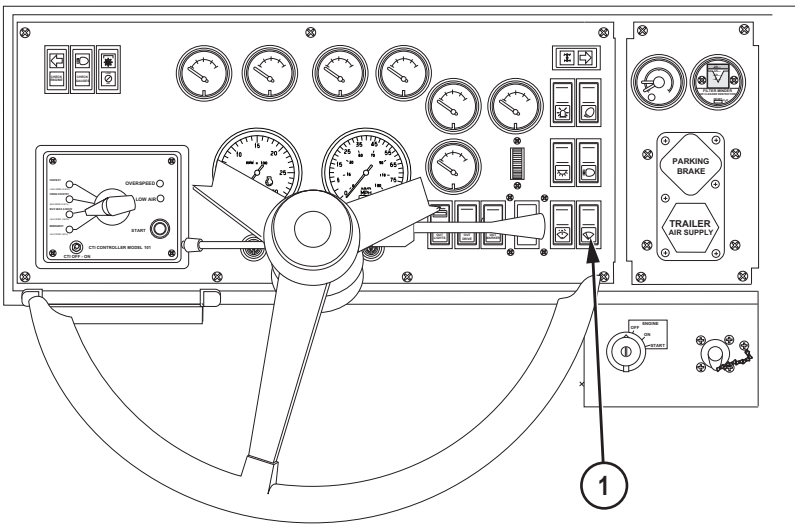


Figure 1.

END OF TASK

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WINDSHIELD WASHER OPERATION

NOTE

Model A dash panel shown, Model B dash panel similar.

1. Push windshield wiper switch (1) down to turn on windshield wipers.

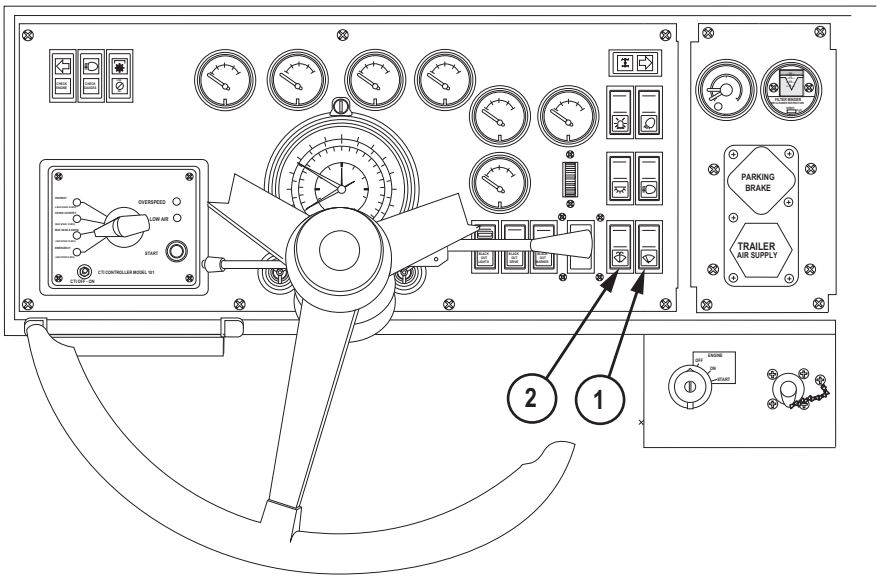


Figure 2.

2. Push down and hold windshield washer switch (2) to spray cleaning fluid on windshield.
3. Release windshield washer switch (2) to stop washer spray.
4. Push windshield wiper switch (1) up to turn off windshield wipers.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CAB TEMPERATURE CONTROLS OPERATION

INITIAL SETUP:

Not Applicable

HEATER OPERATION

NOTE

Heater temperature is controlled by position of OFF/HEAT control. Temperature increases as control is moved right. Temperature decreases as control is moved left.

1. Slide DEF/CAB control (1) to CAB position.

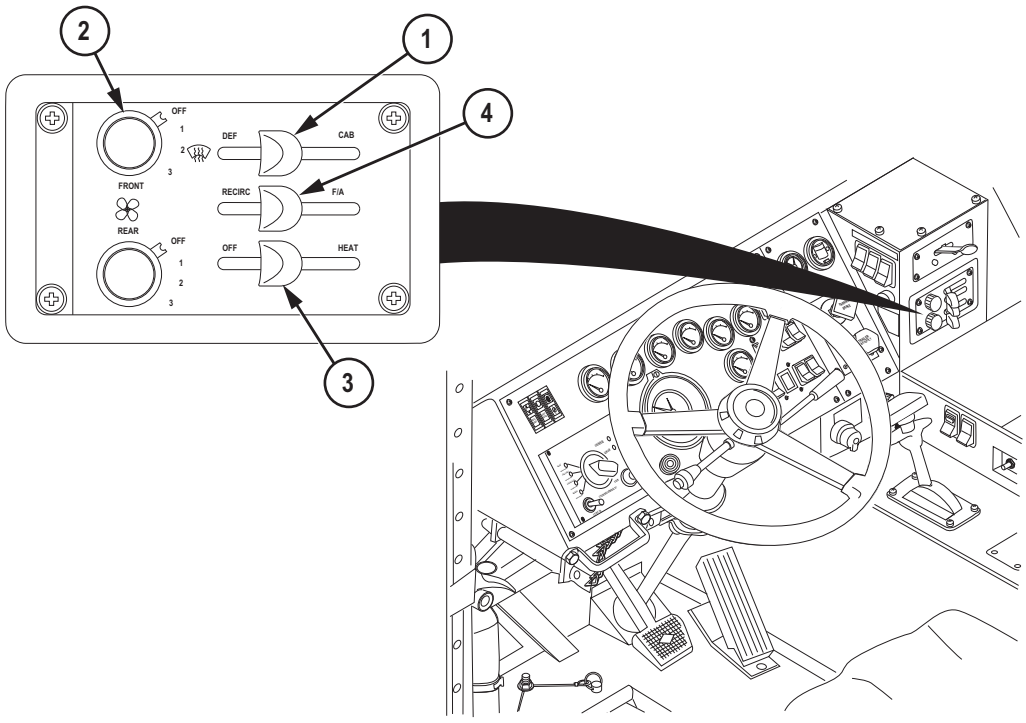


Figure 1.

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HEATER OPERATION - Continued

2. Set FRONT fan switch (2) to speed 1, 2, or 3.
3. Slide OFF/HEAT control (3) right to increase heat temperature (as desired).
4. Slide RECIRC/F/A control (4) to F/A (fresh air) to add fresh air for cab ventilation.
5. Slide RECIRC/F/A control (4) to RECIRC if cab ventilation is not desired.
6. Slide OFF/HEAT control (3) left to reduce heat or OFF position (as desired).
7. Set FRONT fan switch (2) to OFF position (as desired).

END OF TASK

WINDSHIELD DEFROST OPERATION

NOTE

Defrost temperature is controlled by position of OFF/HEAT control. Temperature increases as control is moved right. Temperature decreases as control is moved left.

1. Slide DEF/CAB control (1) to DEF.

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WINDSHIELD DEFROST OPERATION - Continued

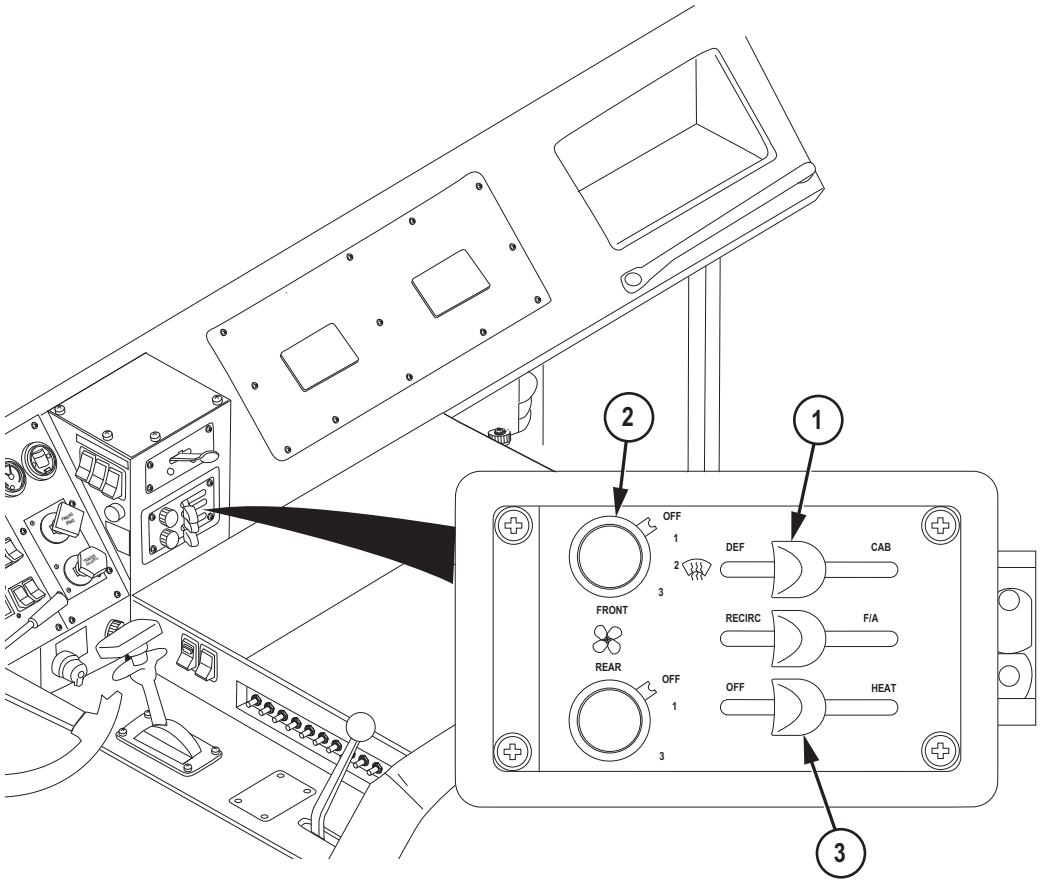


Figure 2.

2. Set FRONT fan switch (2) to speed 1, 2, or 3.
3. Slide OFF/HEAT control (3) right to increase heat temperature (as desired).
4. Slide OFF/HEAT control (3) left to reduce heat or OFF position (as desired).
5. Set FRONT fan switch (2) to OFF position (as desired).

END OF TASK

EXHAUST FAN OPERATION

1. Set REAR fan switch (1) to speed 1, 2, or 3.

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EXHAUST FAN OPERATION - Continued

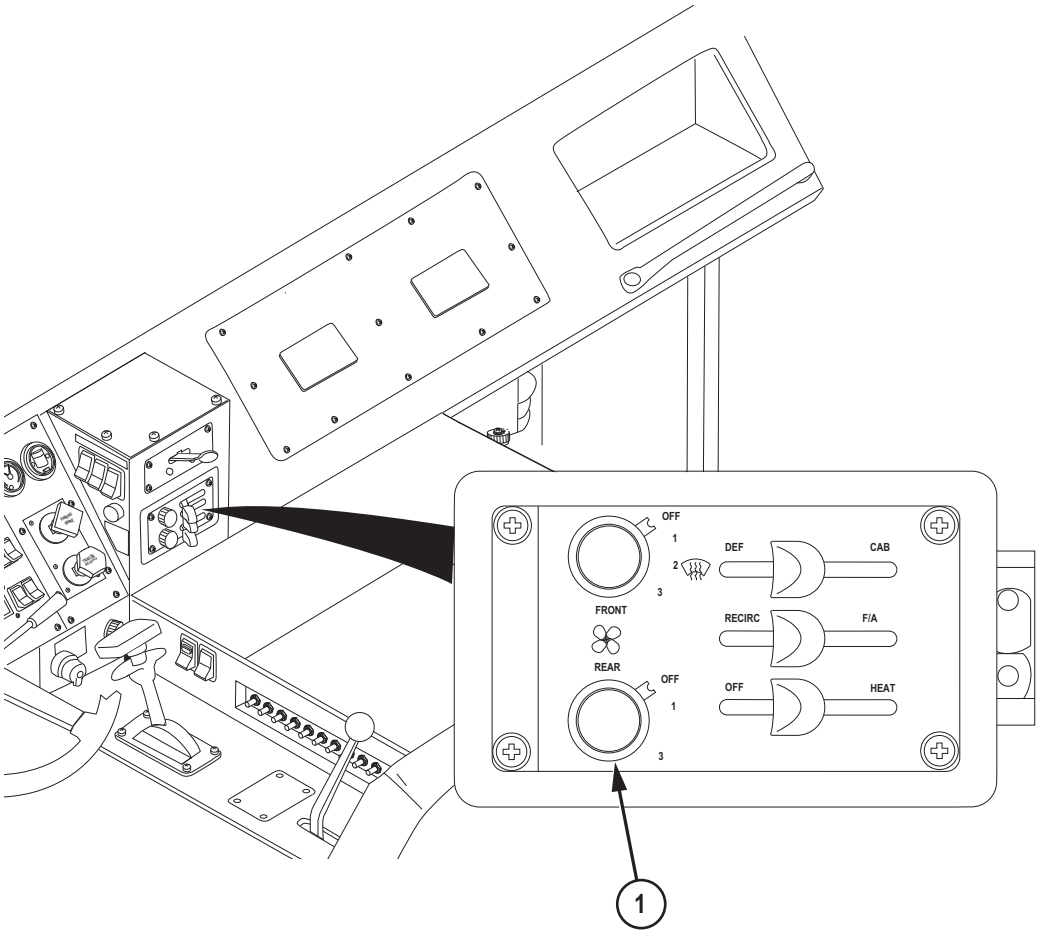


Figure 3.

2. Turn REAR fan switch (1) to OFF position when exhaust fan operation is not desired.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
VENTILATOR OPERATION

INITIAL SETUP:

Not Applicable

1. Set blower fan switch (1) to H (high), M (medium), or L (low) speed as desired.

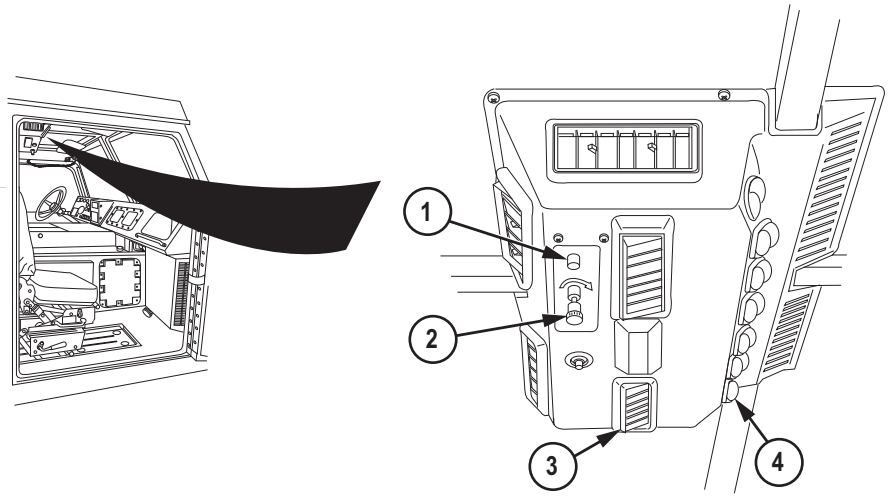


Figure 1.

2. Complete the following Steps if changing the recirculate/fresh air control position is desired:
   a. Turn recirculate/fresh air control (2) counterclockwise to unlock.

NOTE

Recirculate/fresh air control should remain in recirculate position when operating HET tractor in dusty conditions.

   b. Set recirculate/fresh air control (2) to the desired position:
      (1) Pull recirculate/fresh air control (2) out to add fresh outside air into cab.
      (2) Push recirculate/fresh air control (2) in to recirculate air inside cab.

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c. Turn recirculate/fresh air control (2) clockwise to lock in position.

3. Adjust air flow rate and direction with louvers (3) and (4).
4. Set blower fan switch (1) to OFF position when ventilator operation is no longer desired.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
PERSONNEL LADDER OPERATION

INITIAL SETUP:

Not Applicable

SETUP LADDER

1. Remove two rubber latches (1) from brackets (2) while supporting ladder (3).

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SETUP LADDER - Continued

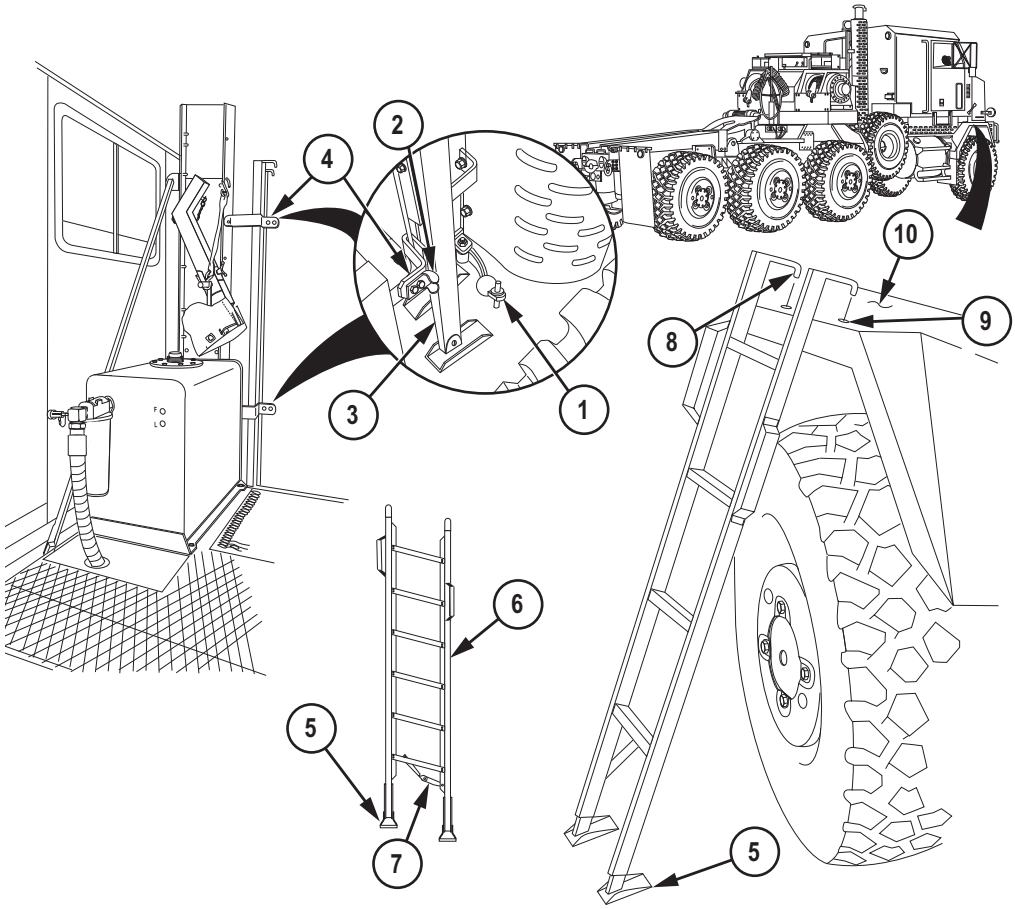


Figure 1.

2. Remove ladder (3) from two mounting brackets (4).
3. Set two shoes (5) on hard surface.
4. Pull side rail (6) down until lock (7) engages.
5. Place two hooks (8) in holes (9) in fender (10).
6. Position two shoes (5) securely on ground.

END OF TASK

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STOW LADDER

1. Push in lock (1) and push side rail (2) up to collapse ladder (3).

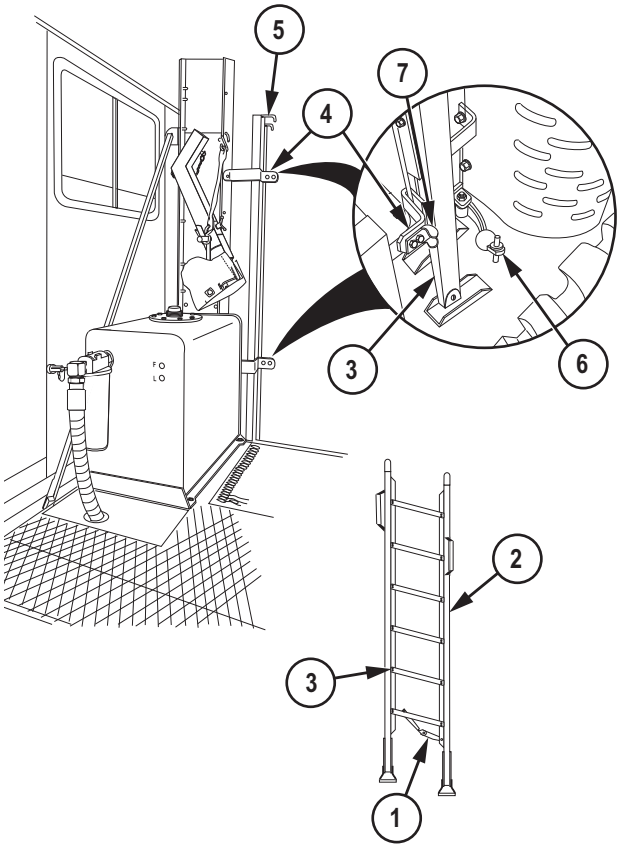


Figure 2.

2. Install ladder (3) in two mounting brackets (4) with hooks (5) toward rear of vehicle.
3. While supporting ladder (3), install two rubber latches (6) in brackets (7).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FIRE EXTINGUISHER OPERATION

INITIAL SETUP:

Not Applicable

FIRE EXTINGUISHER REMOVAL

1. Pull latch (1) and open straps (2).

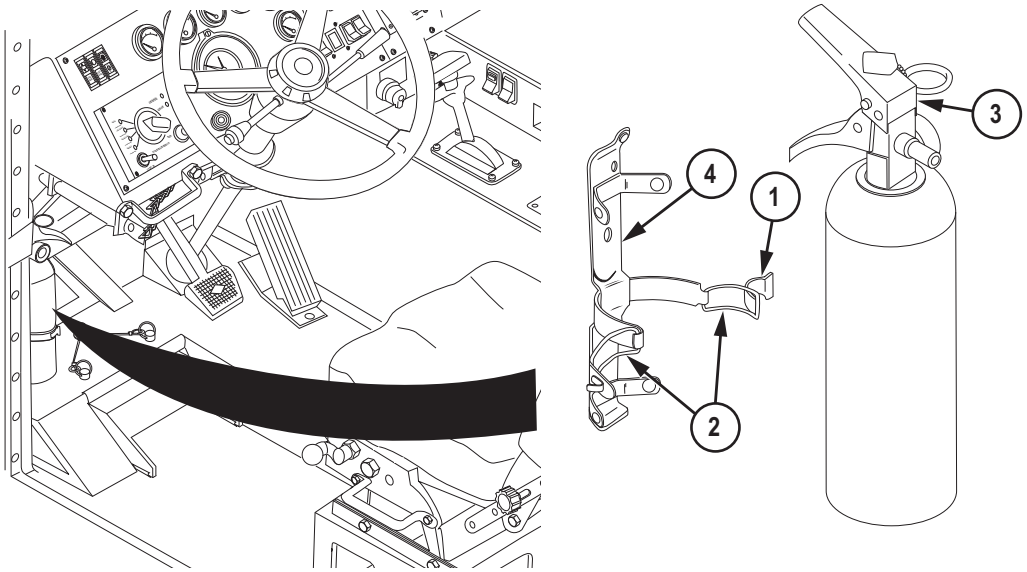


Figure 1.

2. Pull fire extinguisher (3) straight out and off bracket (4).

END OF TASK

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EXTINGUISH FIRE

NOTE

- Fire extinguisher is a dry chemical type. Refer to MSDS for specific extinguisher warnings and cautions for use.
- Remember the word PASS to operate fire extinguisher:
  - P - Pull safety pin.
  - A - Aim at base of fire nearest you.
  - S - Squeeze handles together.
  - S - Sweep extinguisher back and forth along base of fire.

1. Hold fire extinguisher (1) upright. Pull safety pin (2) to break plastic seal (3).

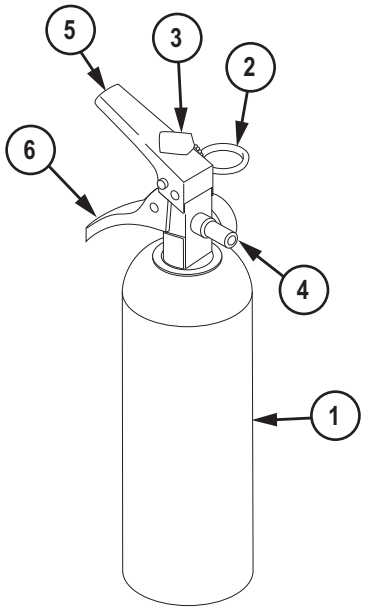


Figure 2.

2. Point nozzle (4) at base of fire and stand back 8 ft. (2.44 m).
3. Squeeze levers (5 and 6) together. Spray discharge in a side-to-side motion at base of fire.
4. Release lever (6) when fire is out.
5. Notify field level maintenance to replace fire extinguisher (1).

END OF TASK

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FIRE EXTINGUISHER INSTALLATION

1. Set fire extinguisher (1) in bracket (2).

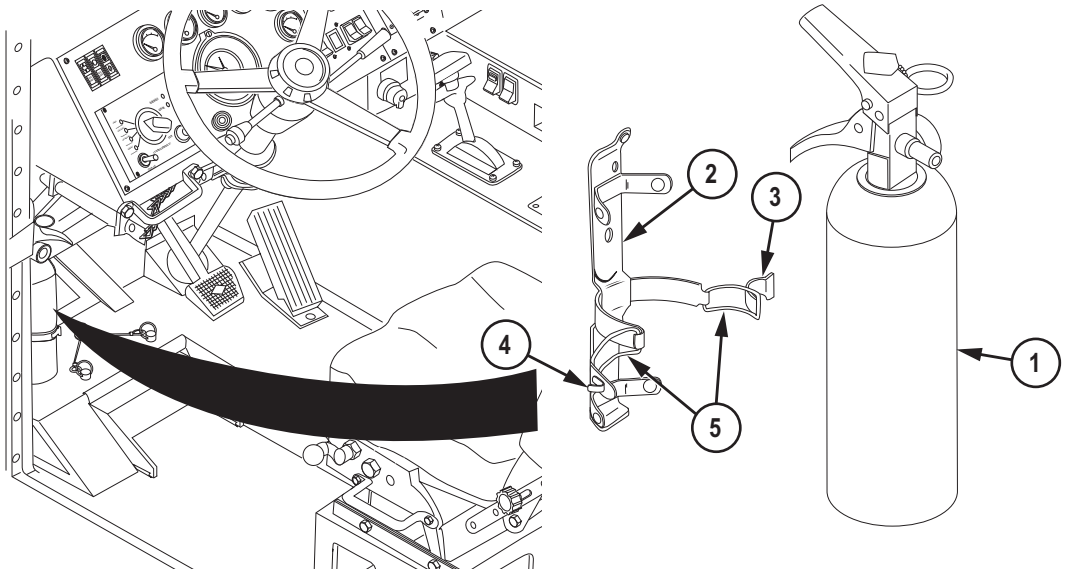


Figure 3.

2. Position latch (3) in hook (4).
3. Push on latch (3) to secure straps (5).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TRAILER CONNECTION/DISCONNECTION (FIFTH WHEEL)

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (2)

References
TM 9-2330-381-14
FM 21-305

TRAILER CONNECTION TO HET TRACTOR

CAUTION

Lockouts must be positioned as identified in Table 1. Failure to comply may result in damage to equipment.

NOTE

If fifth wheel lockouts are not positioned correctly, do Steps (1) through (3).

1. Loosen four screws (1) on each side of fifth wheel (2).

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TRAILER CONNECTION TO HET TRACTOR - Continued

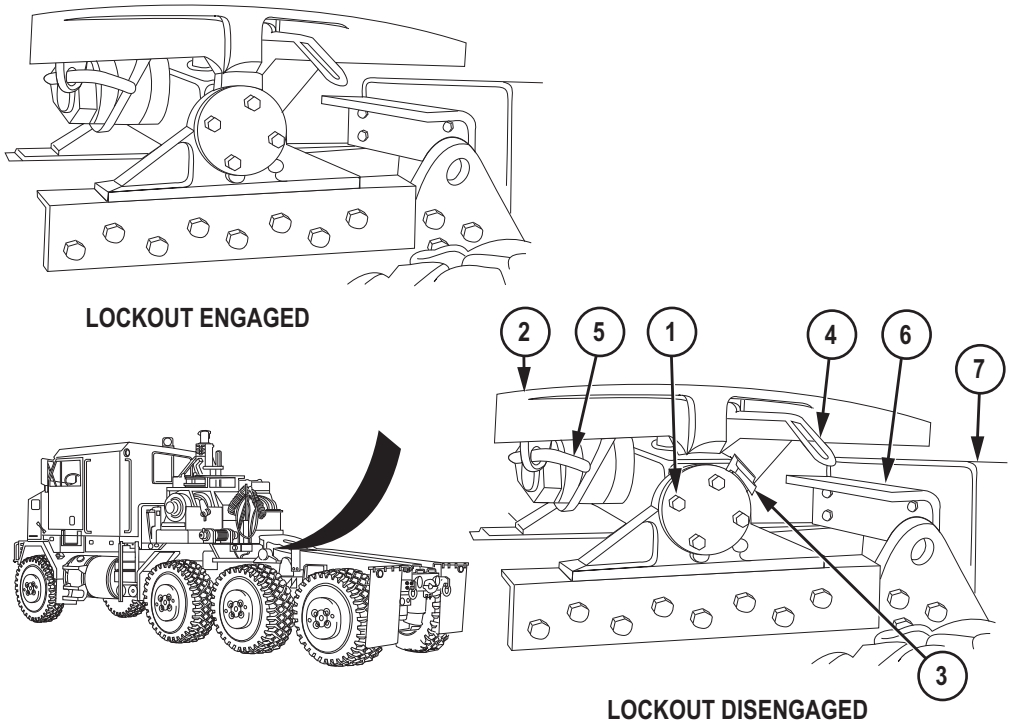


Figure 1.

NOTE

Driver side lockout pivots to the rear and passenger side lockout pivots to the front.

2. Rotate two lockouts (3) into correct position per Table 1.

Table 1. Lockout Positions.

Trailer Type	On-Road	Off-Road
MI000 Trailer	Disengage Lockouts	Disengage Lockouts
Other trailers with combined center of gravity of trailer and payload BELOW 65 in. (165.1 cm)	Engage Lockouts	Disengage Lockouts

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TRAILER CONNECTION TO HET TRACTOR - Continued

Table 1. Lockout Positions. - Continued

Trailer Type	On-Road	Off-Road
Other trailers with combined center of gravity of trailer and payload ABOVE 65 in. (165.1 cm)	Engage Lockouts	Engage Lockouts

3. Tighten screws (1) on each side of fifth wheel (2).

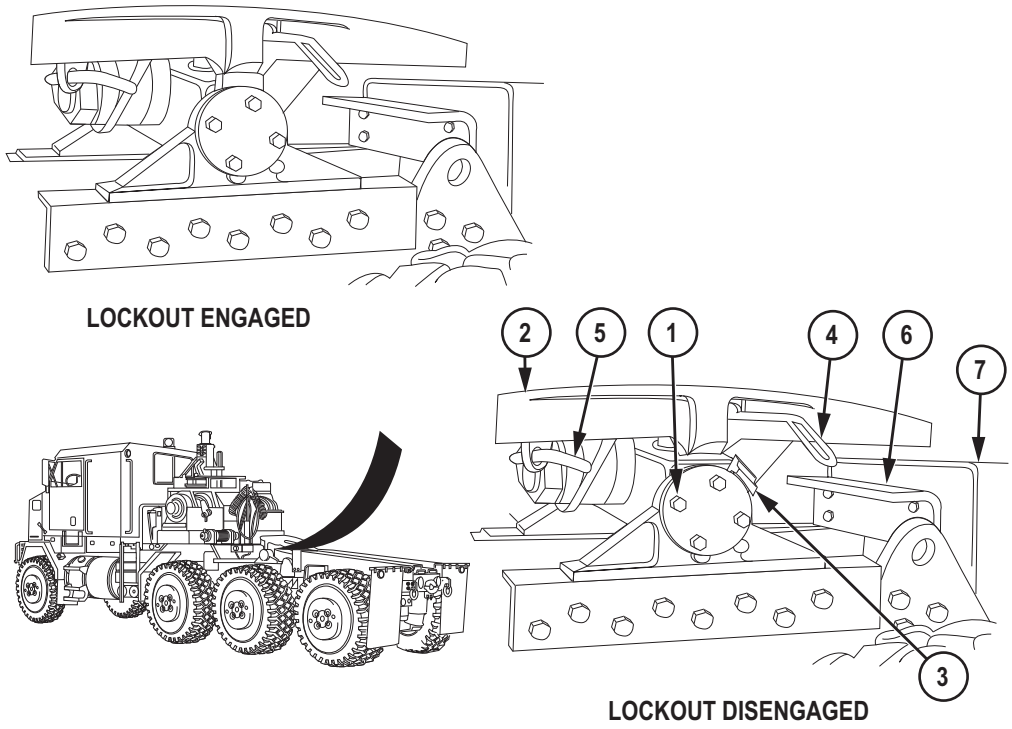


Figure 2.

4. Pull fifth wheel secondary lock release handle (4) completely out and latch in out position.
5. Pull fifth wheel primary lock release handle (5) completely out and latch in out position.
6. Push down rear of fifth wheel (2) until it rests on stop (6) and below guide ramps (7).

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TRAILER CONNECTION TO HET TRACTOR - Continued

CAUTION

- Ensure there is a generous amount of grease on fifth wheel, ramps, king pin, and steering wedge. Insufficient lubrication may result in damage to equipment.
- HET Tractor and trailer coupling should be done with the HET Tractor and trailer straight in line, not at an angle. If the wedge of the trailer is not aligned with fifth wheel, operate trailer to align them. Fifth wheel or steering wedge may be damaged.

7. Prepare trailer for coupling (TM 9-2330-381-14). (WP 0113)

NOTE

Loosening steering wedge adjusting nut ensures steering wedge can be properly fitted and tightened after king pin is locked in fifth wheel.

8. Turn steering wedge adjusting nut (8) three full turns counterclockwise.

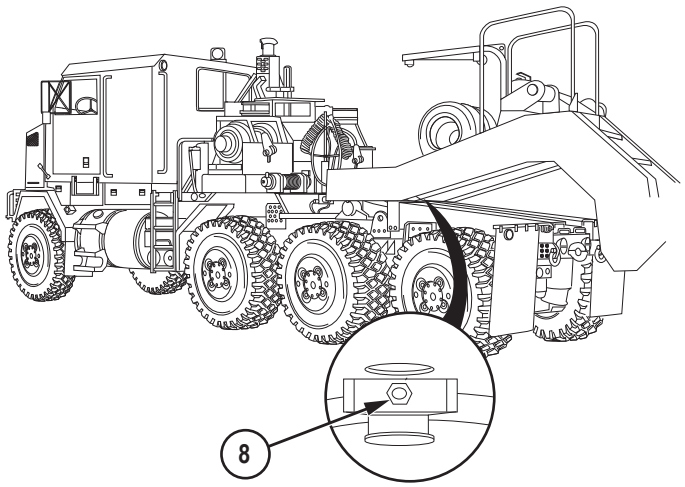


Figure 3.

9. Start HET Tractor engine. (WP 0037)

WARNING

The position of assistant must be known at all times. Be careful no one is standing directly behind tractor or trailer or under trailer neck during coupling procedure. Failure to comply may result in serious injury or death to personnel.

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TRAILER CONNECTION TO HET TRACTOR - Continued

CAUTION

- Do not allow king pin to miss and overrun fifth wheel. Ensure trailer gooseneck is high enough to clear the rear of the ramps. Failure to comply may result in damage to equipment.
- Do not allow king pin to run up fifth wheel ramps. Severe damage to HET Tractor and trailer may result.

NOTE

If trailer is too low to slide up on ramps, raise gooseneck on trailer in accordance with TM 9-2330-381-14. (WP 0113)

10. Instruct assistant to provide hand signals on left side of trailer.
11. With assistant providing hand signals on ground behind vehicle, (FM 21-305) (WP 0113), slowly back HET Tractor under trailer to align king pin (9) with throat (10) of fifth wheel (2).

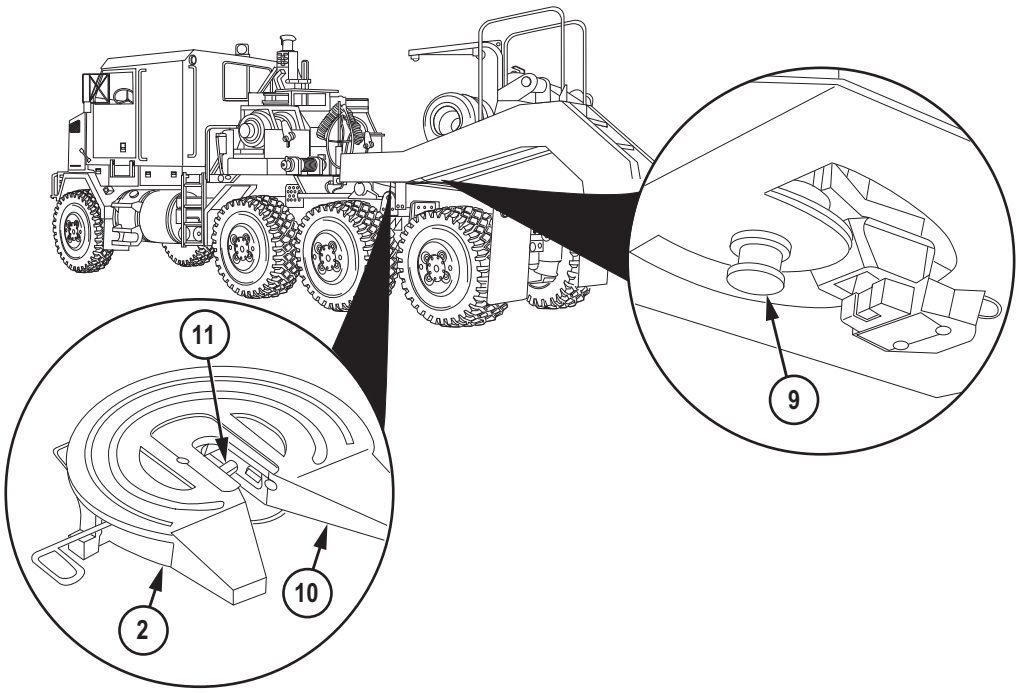


Figure 4.

12. Continue backing slowly until fifth wheel jaws (11) lock around king pin (9) on trailer.

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TRAILER CONNECTION TO HET TRACTOR - Continued

NOTE

When king pin is properly locked in fifth wheel, light should not show between top of fifth wheel plate and bottom of trailer.

13. Move HET Tractor forward slightly to check coupling and rock tractor back and forth until king pin (9) is locked in fifth wheel (2).
14. Put HET Tractor transmission in N (neutral) (WP 0041) position and set parking brake (WP 0043) when king pin (9) is locked.
15. Check that primary lock release handle (5) and secondary lock release handle (4) are in locked position.

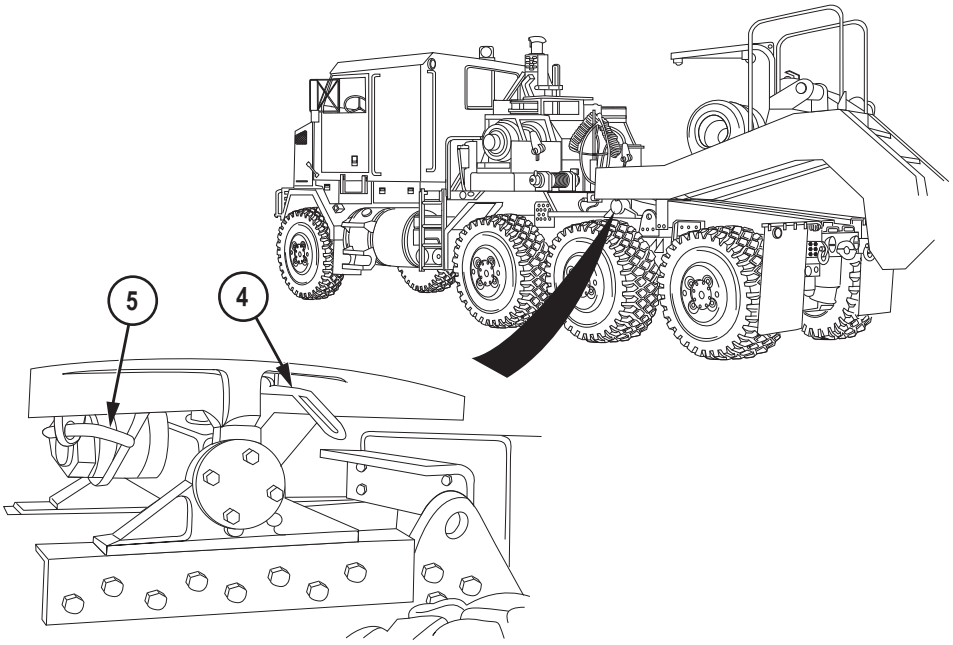


Figure 5.

WARNING

Personnel must be clear of steering wedge while cycling back and forth. Failure to comply may result in serious injury or death to personnel.

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TRAILER CONNECTION TO HET TRACTOR - Continued

NOTE

The 7-pin, 12-volt trailer light cable may be used in the appropriate connectors if the 12-pin, 24-volt intervehicular cable is damaged or missing.

16. Remove intervehicular wiring harness (12) from stowage box (13).

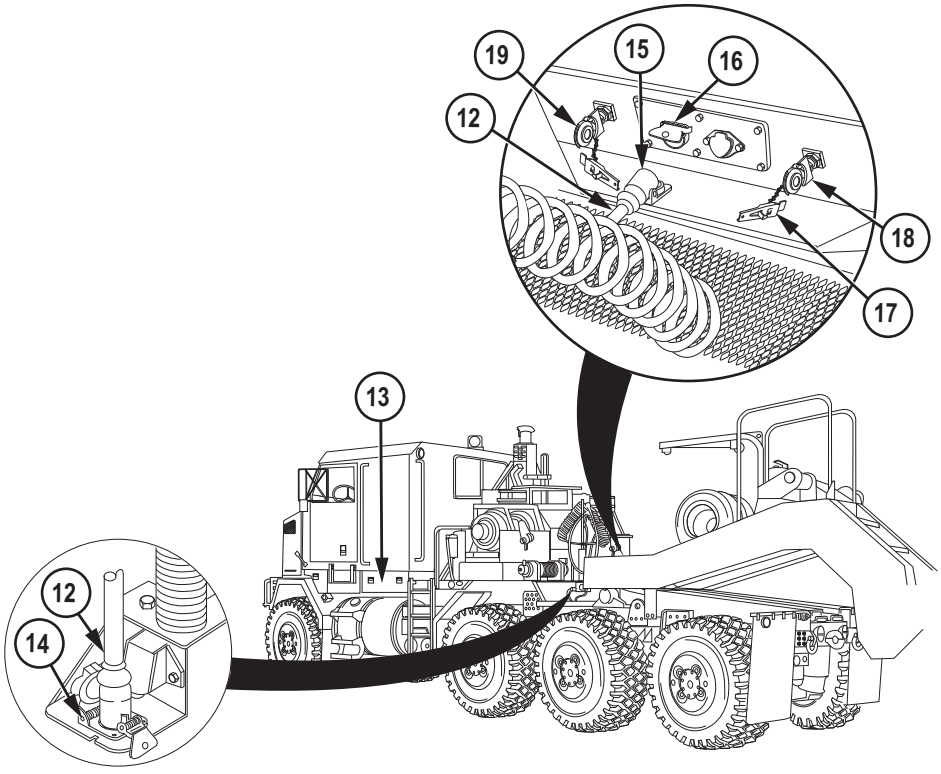


Figure 6.

NOTE

Ensure connector is locked in position. Receptacle cover locks wiring harness connector in position when fully seated. If connector is not fully seated, intermittent operation of trailer lights could occur.

17. Install intervehicular wiring harness (12) in receptacle (14).
18. Connect cable plug (15) of intervehicular wiring harness (12) to trailer receptacle (16).

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TRAILER CONNECTION TO HET TRACTOR - Continued

19. Remove dummy couplings (17) from EMERGENCY coupling (18) and SERVICE coupling (19) on trailer.
20. Disconnect red air hose (20) from dummy coupling (21) on pogo stick (22) and connect to EMERGENCY coupling (18) on trailer.

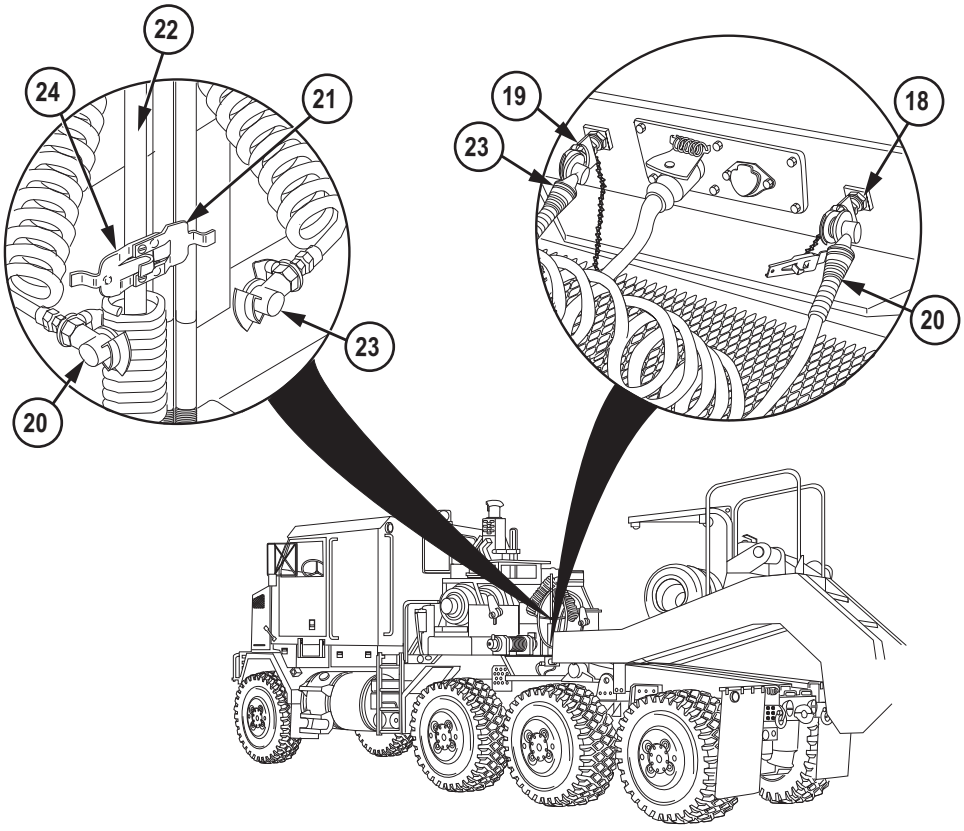


Figure 7.

21. Disconnect blue air hose (23) from dummy coupling (24) on pogo stick (22) and connect to SERVICE coupling (19) on trailer.

CAUTION

Due to characteristics of air spring suspensions, approximately 5 minutes must be allowed for the HET Tractor suspension to compensate for the added load. Failure to comply may result in damage to suspension.

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TRAILER CONNECTION TO HET TRACTOR - Continued

22. Refer to (TM 9-2330-381-14) (WP 0113) to tighten steering wedge, raise landing gear, adjust trailer height, and prepare trailer for operation.

NOTE

If AIR PRESS gauge does not indicate 65 psi (448 kPa) or more, trailer brakes will not release.

23. Check that AIR PRESS gauge (25) on cab dash indicates at least 65 psi (448 kPa) before starting out.

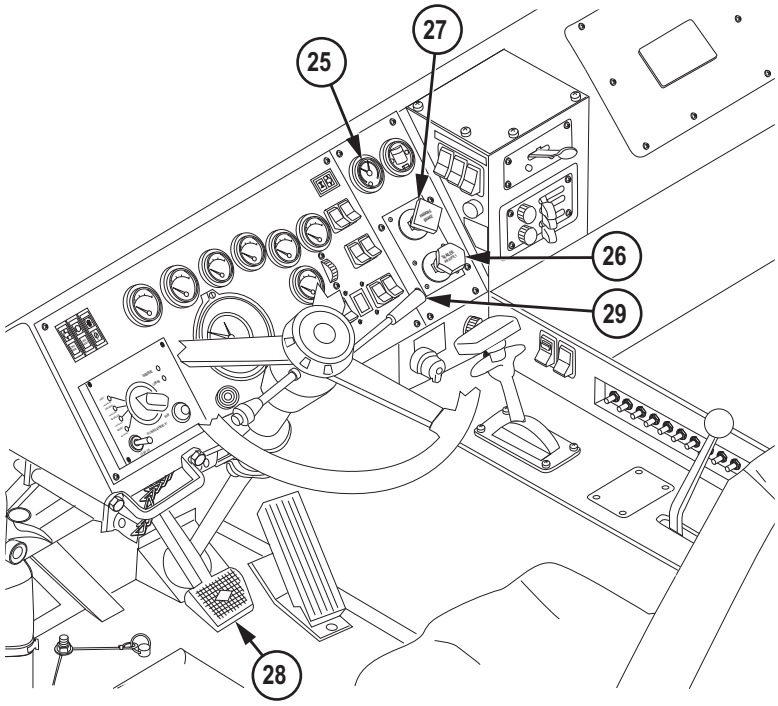


Figure 8.

24. Push in TRAILER AIR SUPPLY button (26) to pressurize air system.
25. Push in PARKING BRAKE control (27) to release parking brake.
26. Apply brake pedal (28) and check for proper operation.
27. Apply and release trailer hand brake control (29) to check trailer brake operation.
28. Refer to (TM 9-2330-381-14) (WP 0113) to adjust trailer steering.

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TRAILER CONNECTION TO HET TRACTOR - Continued

29. Drive HET Tractor. (WP 0037)

END OF TASK

TRAILER DISCONNECTION FROM HET TRACTOR

1. Park HET Tractor. (WP 0042)
2. Set transmission range selector (1) to N (neutral) position. (WP 0041)

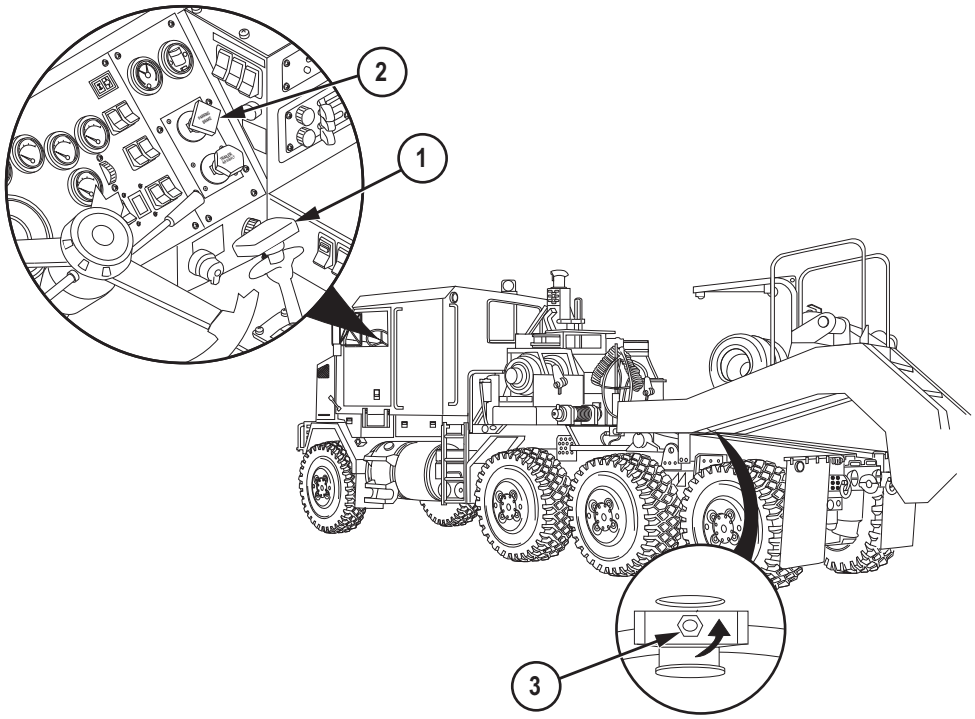


Figure 9.

3. Pull out PARKING BRAKE control (2) (WP 0043) to apply parking brake.

CAUTION

Use wheel chocks when uncoupling trailer. Trailer may roll resulting in damage to trailer.

4. Place two chock blocks in front of outside tires on driver side front bogie and two chock blocks behind outside tires on passenger side front bogie.

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TRAILER DISCONNECTION FROM HET TRACTOR - Continued

5. Lower trailer landing gear (TM 9-2330-381-14). (WP 0113)
6. Loosen steering wedge adjusting nut (3) one full turn counterclockwise.

NOTE

If lock release handles cannot be moved, set trailer brakes and move HET Tractor backward slightly to relieve pressure on lock mechanism.

7. Pull primary lock release handle (4) and latch in out position.

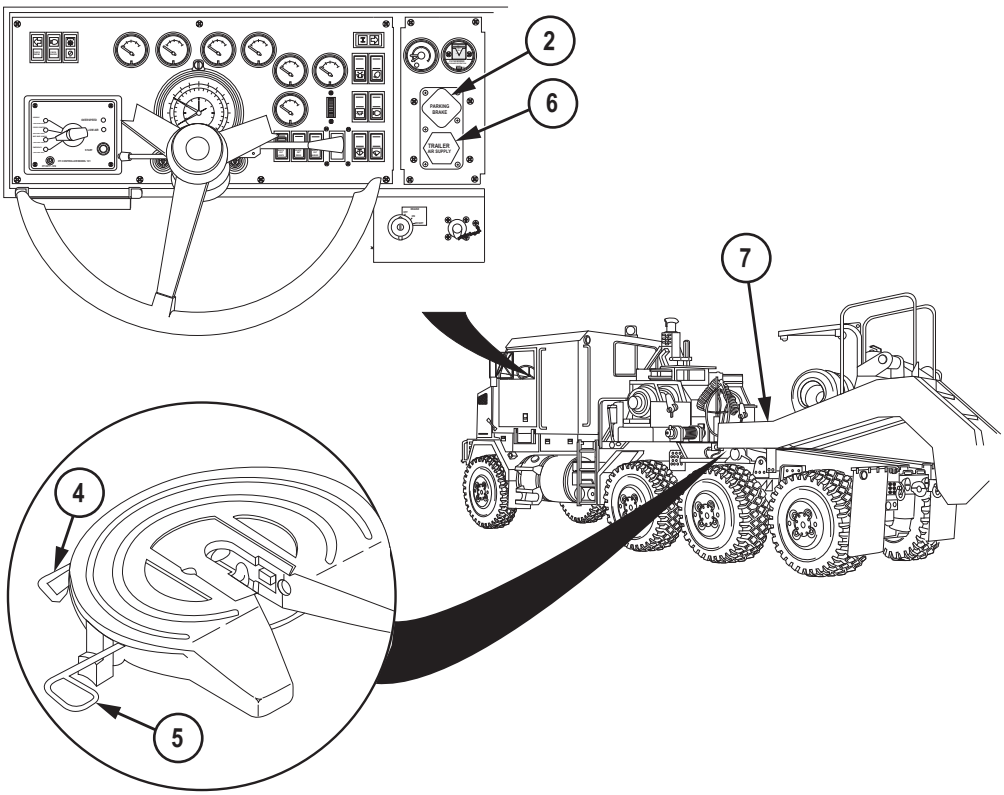


Figure 10.

8. Pull secondary lock release handle (5) and latch in out position.
9. Push PARKING BRAKE control (2) to release parking brake.
10. Pull out TRAILER AIR SUPPLY button (6).

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TRAILER DISCONNECTION FROM HET TRACTOR - Continued

11. Drive HET Tractor forward slowly approximately 1 ft. (0.305 m) until king pin is clear of lock mechanism.
12. Pull out PARKING BRAKE control (2) to apply parking brake.
13. Raise trailer gooseneck (7) off fifth wheel (TM 9-2330-381-14). (WP 0113)

CAUTION

Ensure receptacle cover is closed completely over receptacle. Failure to do so may result in corrosion or intermittent operation.

14. Disconnect intervehicular wiring harness cable plug (8) from trailer receptacle (9).

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TRAILER DISCONNECTION FROM HET TRACTOR - Continued

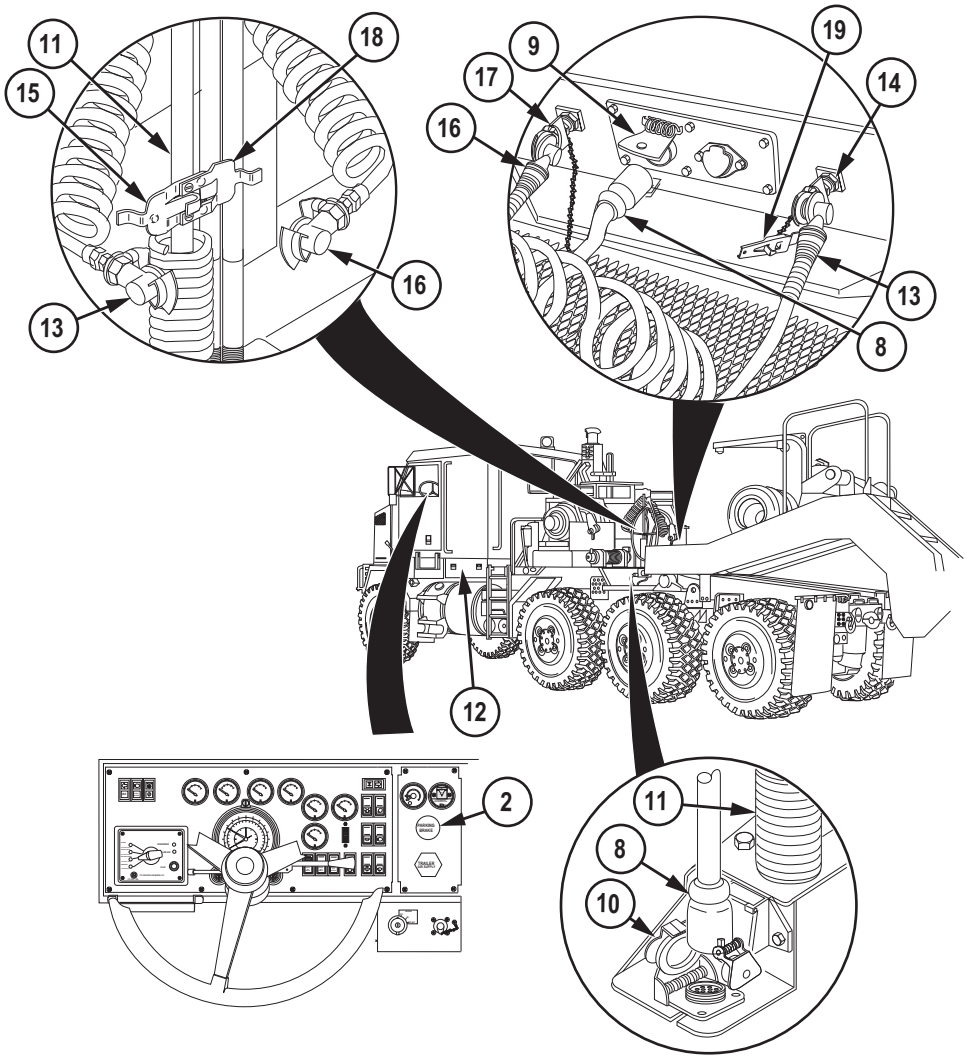


Figure 11.

15. Remove intervehicular harness cable plug (8) from receptacle (10) on pogo stick (11). Return harness to stowage box (12).
16. Disconnect red air hose (13) from EMERGENCY coupling (14) on trailer and connect to dummy coupling (15) on pogo stick (11).
17. Disconnect blue air hose (16) from SERVICE coupling (17) on trailer and connect to dummy coupling (18) on pogo stick (11).

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TRAILER DISCONNECTION FROM HET TRACTOR - Continued

18. Install dummy couplings (19) on trailer couplings (14 and 17).
19. Push PARKING BRAKE control (2) to release parking brake.
20. Drive HET Tractor forward slowly until it is clear of trailer.
21. Check HET Tractor brakes. (WP 0039)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINCH OPERATION

INITIAL SETUP:

Materials/Parts
Plug, Ear (WP 0116, Table 1, Item 47)

Personnel Required
Operator and Assistant - - - (2)

PREPARATION TO OPERATE WINCH

NOTE

- Model A dash panel shown, Model B dash panel similar.
- Both winches are required to load and unload the M1000 trailer. However, vehicle recovery operations can be performed using only one main winch.

1. Start engine. (WP 0037)

CAUTION

HET Tractor must be positioned in a straight line with trailer. Failure to comply may damage winch cable.

2. Position HET Tractor on solid ground so tires have good traction. Position HET Tractor for straight pull.
3. Turn on beacon light switch (1).

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PREPARATION TO OPERATE WINCH - Continued

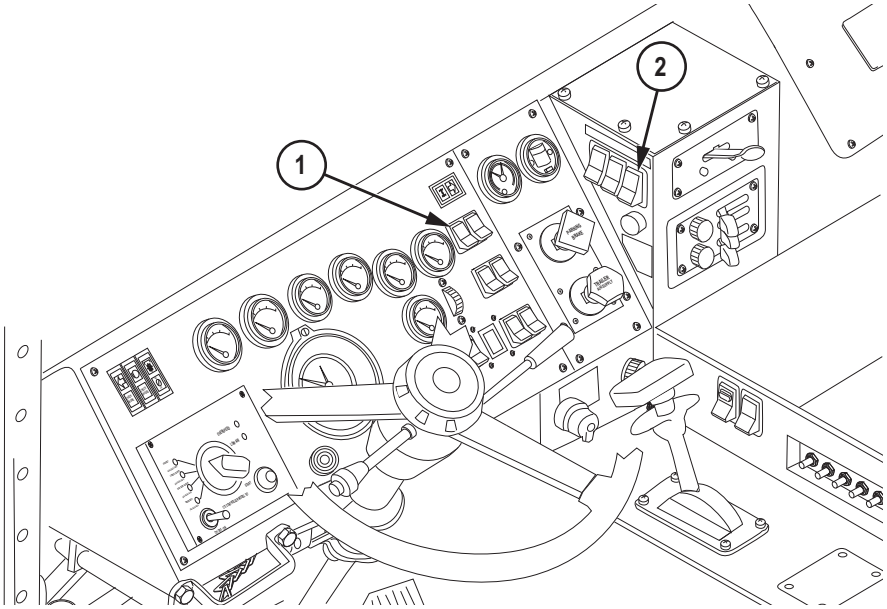


Figure 1.

CAUTION

Do not attempt to engage PTO with engine in high idle. Failure to comply may result in damage to PTO.

NOTE

PTO indicator will light when switch is turned to on position.

4. With engine idling, set PTO switch (2) to on.

WARNING



Wear approved hearing protection devices when working within 30 ft. (9.2 m) of HET Tractor during winch operation. Permanent hearing loss may result if exposed to constant high noise levels.

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PREPARATION TO OPERATE WINCH - Continued

WARNING

Winch platform safety chain must be installed in winch cable guard before winching. Failure to comply may result in personnel falling from winch platform.

5. Raise guard (3) and lock in vertical position.

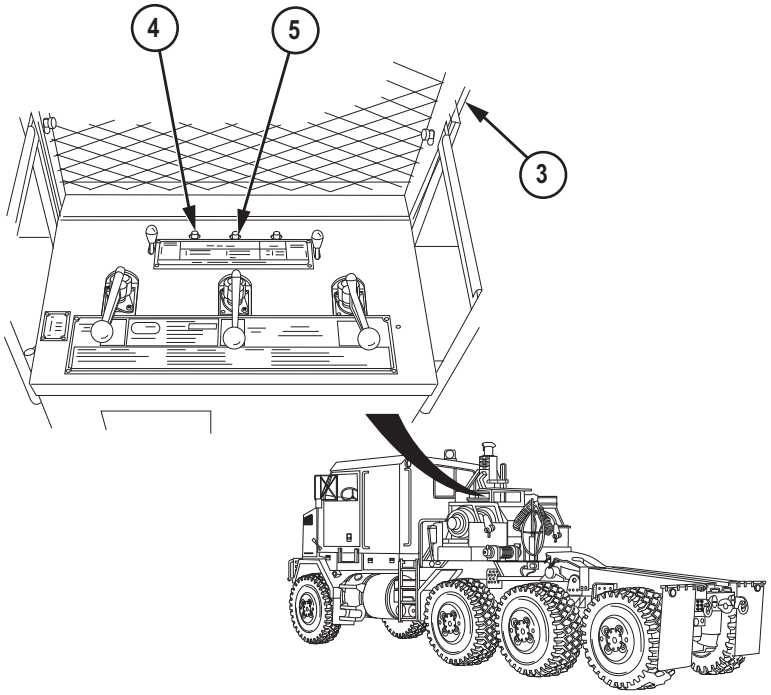


Figure 2.

6. Push ENGINE SPEED CONTROL switch (4) to HIGH ENGINE IDLE.

NOTE

Engine speed should increase to approximately 1500 rpm when PUSH TO LOCK ENGINE @ HIGH IDLE switch is pushed.

7. Move PUSH TO LOCK ENGINE @ HIGH IDLE switch (5) forward and release to increase engine speed.

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PREPARATION TO OPERATE WINCH - Continued

CAUTION

Never move main winch controls to CABLE OUT position with CABLE HOLD DOWN lever in ON position. Failure to comply may result in cable tangling up on drum and damage to equipment.

8. Move CABLE HOLD DOWN lever (6) to OFF position.

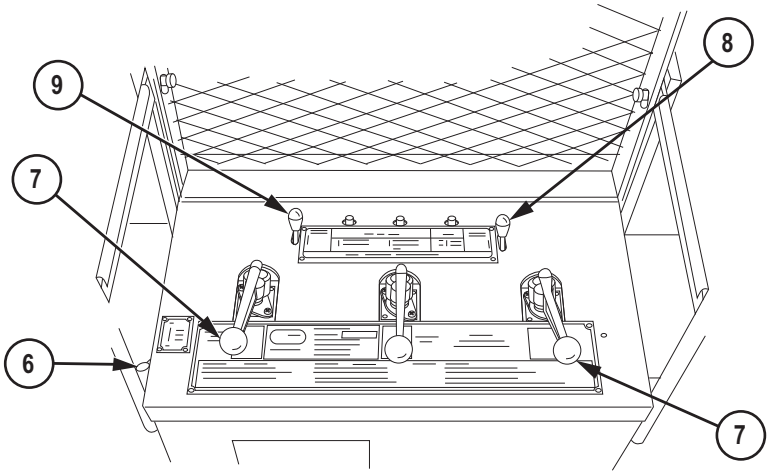


Figure 3.

9. Pull up on control levers (7) just enough to relieve tension on winch cables.
10. Push CABLE HOLD DOWN lever (6) to ON position.

CAUTION

Never release kickouts with winch under load. Damage to equipment and load will result.

NOTE

- There are separate controls for driver side winch and passenger side winch. Use appropriate controls for winch being used.
- If the kickouts do not disengage, it may be necessary to rotate the winch drum slightly back and forth using the winch controls. This will relieve any tension so the kickouts can function.
- Kickouts are disengaged when winch drums do not turn when control levers are actuated.

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PREPARATION TO OPERATE WINCH - Continued

11. Release DRIVER SIDE WINCH KICKOUT control (8) and PASSENGER SIDE WINCH KICKOUT control (9).
12. Remove cover (10) from auxiliary winch (11).

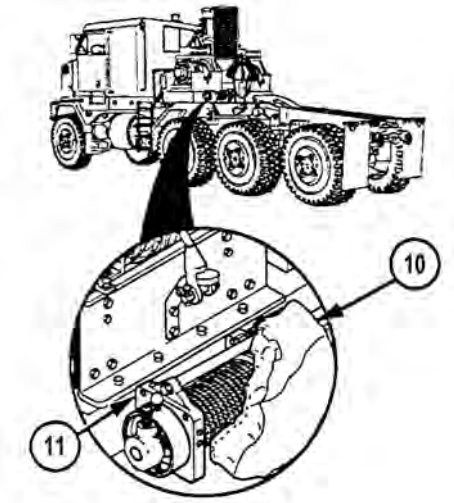


Figure 4.

13. Release auxiliary winch kickout lever (12).

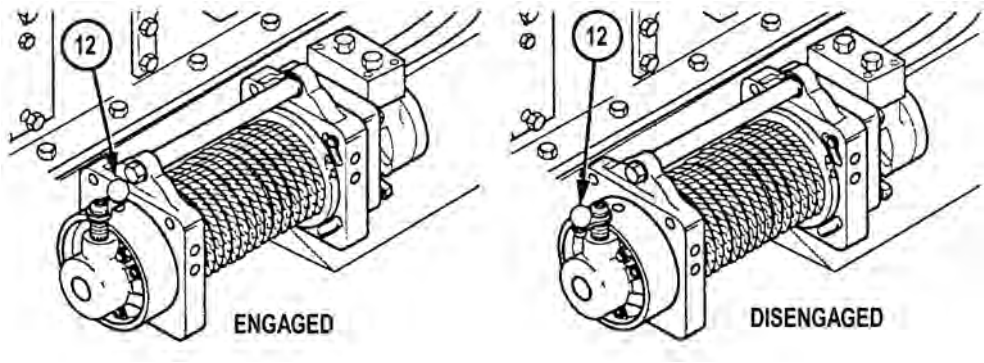


Figure 5.

END OF TASK

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY

WARNING

DO NOT use winches for lifting personnel. Failure to comply may result in serious injury or death to personnel.

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

WARNING



Do not operate winch without personnel guard in place. Failure to comply may result in serious injury or death to personnel.

WARNING



Do not place hands or feet near winch during operation. Failure to comply may result in serious injury or death to personnel.

CAUTION

Never move main winch controls to CABLE OUT position with CABLE HOLD DOWN lever in ON position. Failure to comply may result in cable tangling up on drum and damage to equipment.

1. Remove snatch block (1) from rear stowage box (2).

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

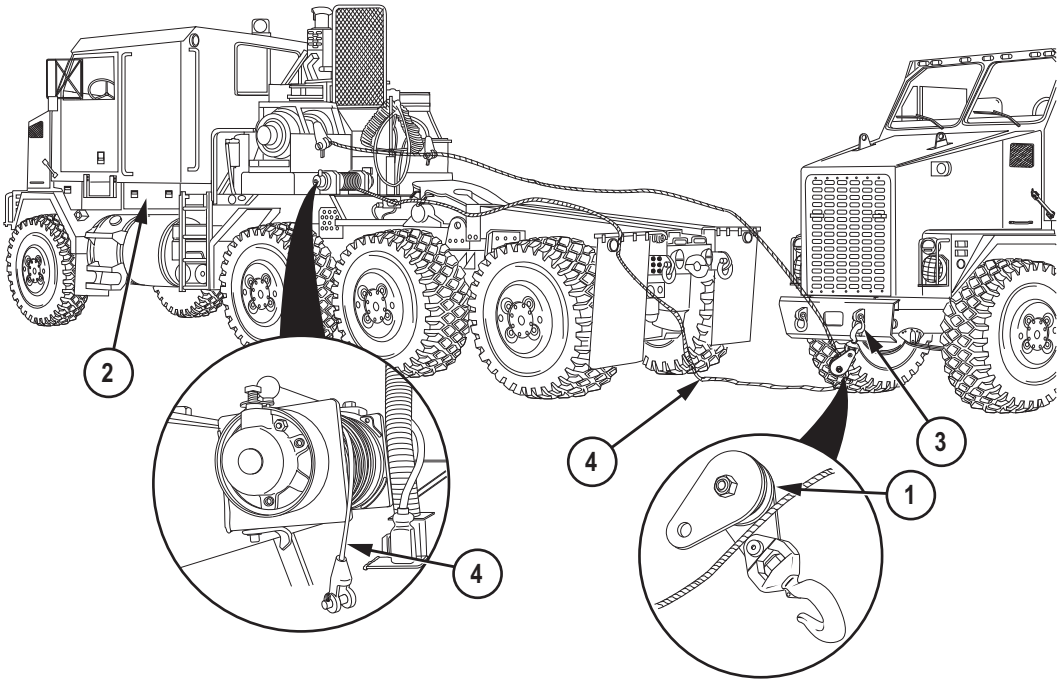


Figure 6.

2. Attach snatch block (1) to shackle (3) on disabled vehicle.
3. Grasp end of auxiliary winch cable (4) and pull through open snatch block (1).
4. Close snatch block (1).
5. Pull end of auxiliary winch cable (4) back to main winch cable (5).

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

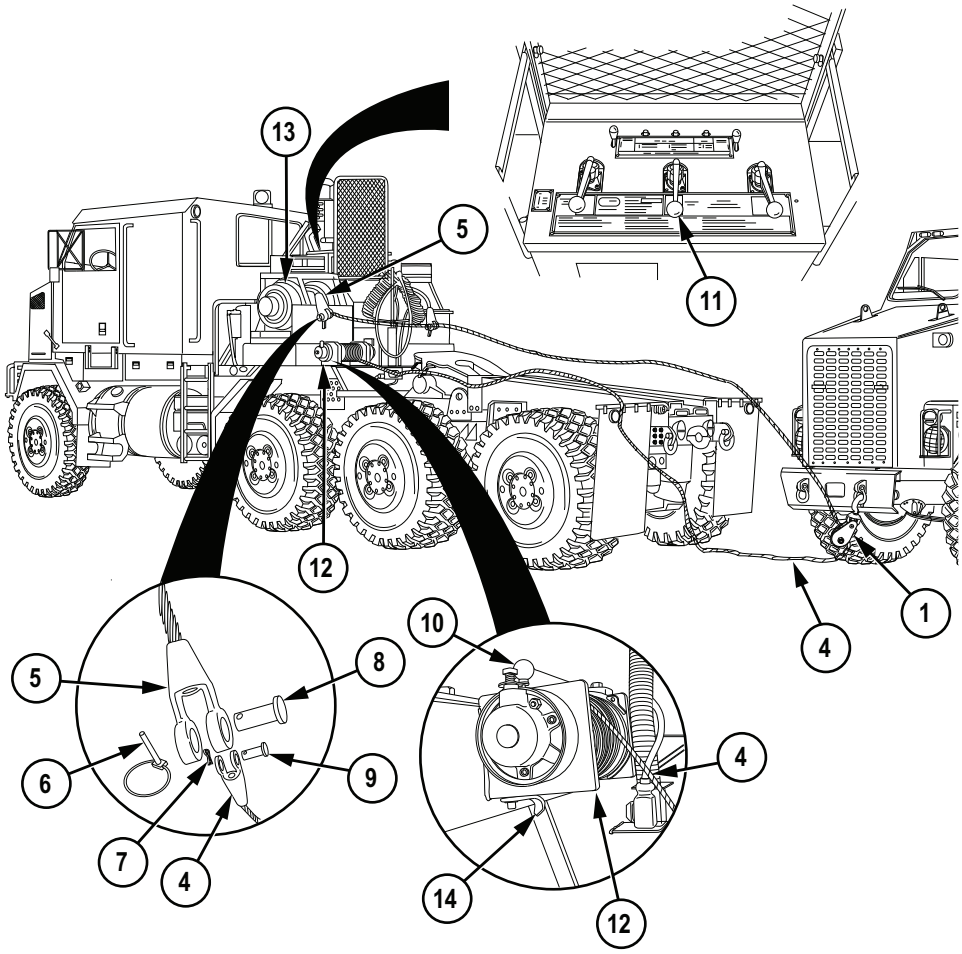


Figure 7.

NOTE

Either driver side winch or passenger side winch cable can be attached to auxiliary winch cable to payout cable for vehicle recovery.

6. Remove pins (6 and 7) and clevis pins (8 and 9) from auxiliary winch cable (4) and main winch cable (5).
7. Attach auxiliary winch cable (4) to main winch cable (5).
8. Install clevis pin (9) and pin (7) in auxiliary winch cable (4) to secure.

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

NOTE

If kickout does not engage, it may be necessary to actuate the winch controls back and forth. This will internally align the gears so the kickouts can function.

9. Engage auxiliary winch kickout lever (10).

WARNING

Ensure that both DRIVER SIDE and PASSENGER SIDE WINCH KICKOUT controls are disengaged. Failure to disengage KICKOUT controls may result in serious injury or death to personnel.

WARNING

Use care when operating auxiliary winch control lever. Cable may pay out at high rate of speed which may result in serious injury or death to personnel.

10. Push down and hold AUXILIARY WINCH control lever (11) to pull auxiliary winch cable (4) back to auxiliary winch (12).
11. Hold down AUXILIARY WINCH control lever (11) until main winch cable (5) has reached disabled vehicle.

CAUTION

- There must be at least five wraps of cable left on drum. If not, move HET Tractor closer to disabled vehicle or shut down winch. Failure to do so may result in loosened cable and damaged equipment.
- Never release cable hold-downs with most of cable out. Failure to comply may result in cable becoming tangled.

12. Ensure there are at least five wraps of cable left on drum (13).
13. Remove pin (7) and clevis pin (8) from auxiliary winch cable (4).
14. Disconnect auxiliary winch cable (4) from main winch cable (5).
15. Install clevis pin (9) and pin (7) in auxiliary winch cable (4).
16. Remove snatch block (1) from disabled vehicle. Remove auxiliary winch cable (4) from snatch block (1).
17. With the aid of an assistant, walk out auxiliary winch cable (4) to eliminate uneven wraps on spool.

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

WARNING

Personnel must use caution when winding auxiliary winch cable onto the drum. Tension must be kept on cable when winding on drum. Failure to comply may result in serious injury or death to personnel and/or damage to equipment.

NOTE

Low idle may be used when paying in auxiliary winch cable for easier winding.

18. Walk auxiliary winch cable (4) back to auxiliary winch (12) while assistant operates AUXILIARY WINCH control lever (11).

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

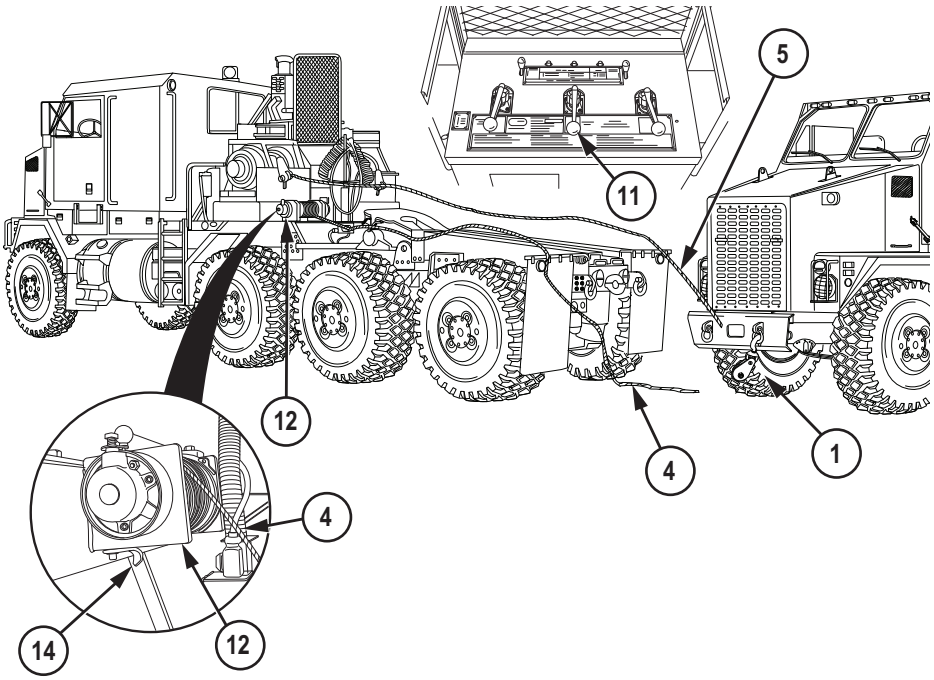


Figure 8.

19. Stow auxiliary winch cable (4) on hook (14).
20. Stow snatch block (1) in rear stowage box.
21. Connect main winch cable (5) to disabled vehicle.

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

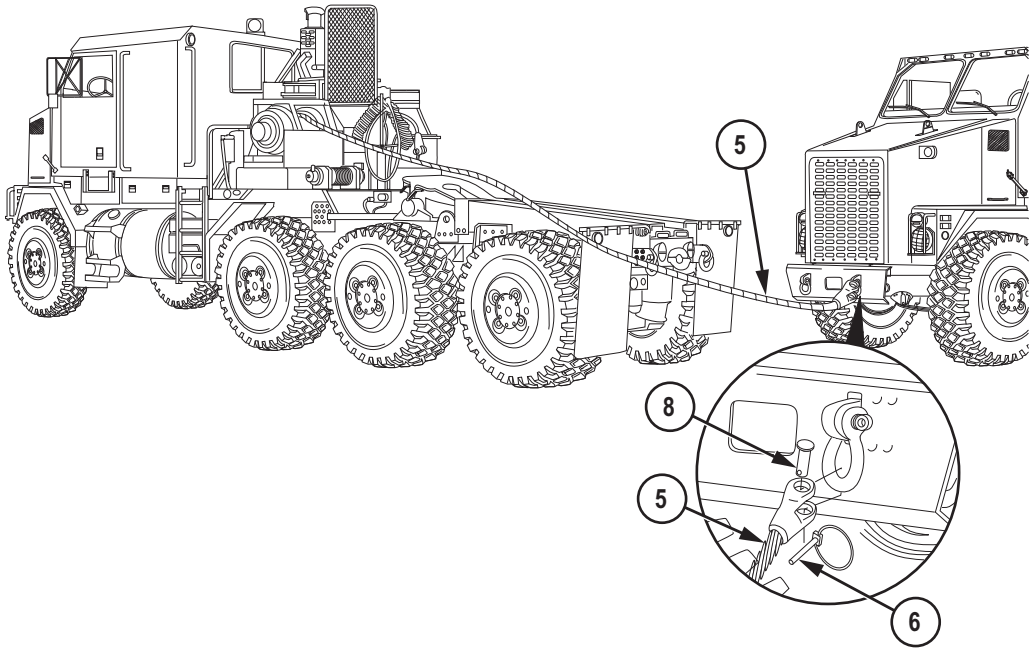


Figure 9.

22. Install clevis pin (8) and pin (6) in main winch cable (5).

WARNING

Keep all personnel clear of area when tension is on winch cable. Winch cable could come loose or break and whip. Failure to comply may result in serious injury or death to personnel.

NOTE

There are separate controls for driver side winch and passenger side winch. Use appropriate controls for winch(es) being used.

23. Engage WINCH KICKOUT control (15).

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

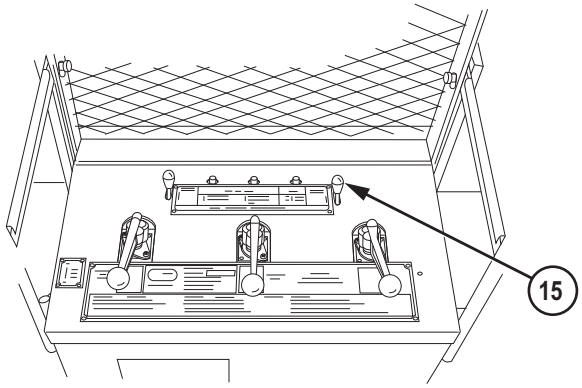


Figure 10.

24. Set WINCH SPEED CONTROL (16) to LOW position.

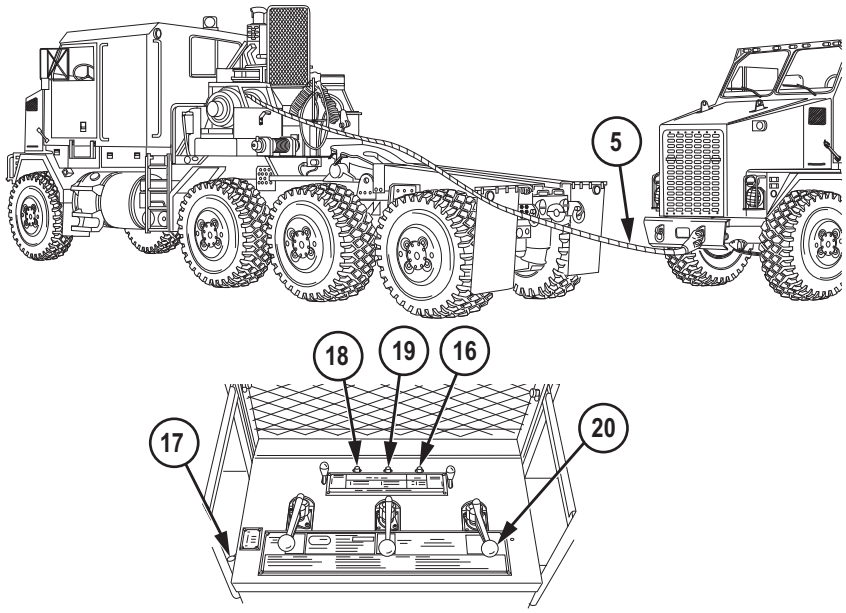


Figure 11.

25. Push CABLE HOLD DOWN lever (17) to ON position.
26. Push ENGINE SPEED CONTROL switch (18) to HIGH ENGINE IDLE position.

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CABLE PAYOUT, VEHICLE CONNECTION, AND RECOVERY - Continued

27. Push and release PUSH TO LOCK ENGINE @ HIGH IDLE switch (19) forward to increase engine speed.

WARNING

Personnel must use caution when winding main winch cable onto the drum. Tension must be kept on cable when winding on drum. Failure to comply may result in serious injury or death to personnel and/or damage to equipment.

CAUTION

- Check cable routing before paying in cable. Failure to have cable routed correctly may damage equipment.
- If excess cable is laying on the platform or ground, assistant must provide tension while the operator takes up the slack. Failure to comply may result in damage to equipment.

NOTE

When both winch cables are being used, pay in cables in equal amounts.

28. Push down WINCH control (20) to CABLE IN position. Slowly tighten winch cable (5) to recover disabled vehicle.

WARNING

Keep all personnel clear of area when tension is on winch cable. Winch cable could come loose or break and whip. Failure to comply may result in serious injury or death to personnel.

CAUTION

Never move main winch controls to CABLE OUT position with CABLE HOLD DOWN lever in ON position. Failure to comply may result in cable tangling up on drum and damage to equipment.

29. When disabled vehicle is fully recovered, move CABLE HOLD DOWN lever (17) to OFF position.
30. Pull up WINCH control (20) to CABLE OUT position to pay out cable (5) until there is enough slack to disconnect cable from disabled vehicle.

END OF TASK

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DISCONNECTION AND STOWAGE

WARNING



Some windup may occur in the cable during winching. Any twisting of the cable can be felt when the pin is being removed from clevis. Do not attempt to hold cable end to prevent twisting. Do not put fingers or other objects into the jaws of the clevis when releasing the cable. Always drop the cable away from your body when releasing. Failure to comply may result in serious injury or death to personnel.

1. Remove pin (1) and clevis pin (2) from main winch cable (3).

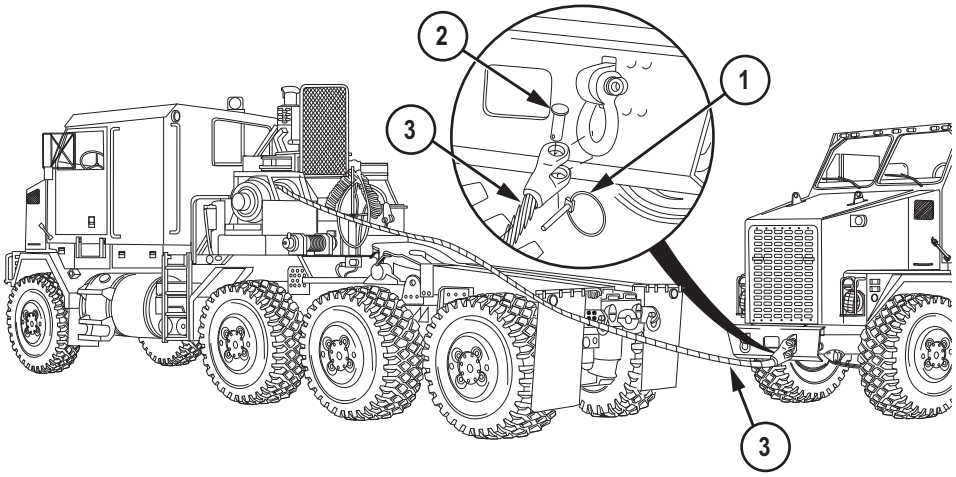


Figure 12.

2. Disconnect main winch cable (3) from recovered vehicle.
3. Install clevis pin (2) and pin (1) in main winch cable (3).
4. Move CABLE HOLD DOWN lever (4) to ON position.

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DISCONNECTION AND STOWAGE - Continued

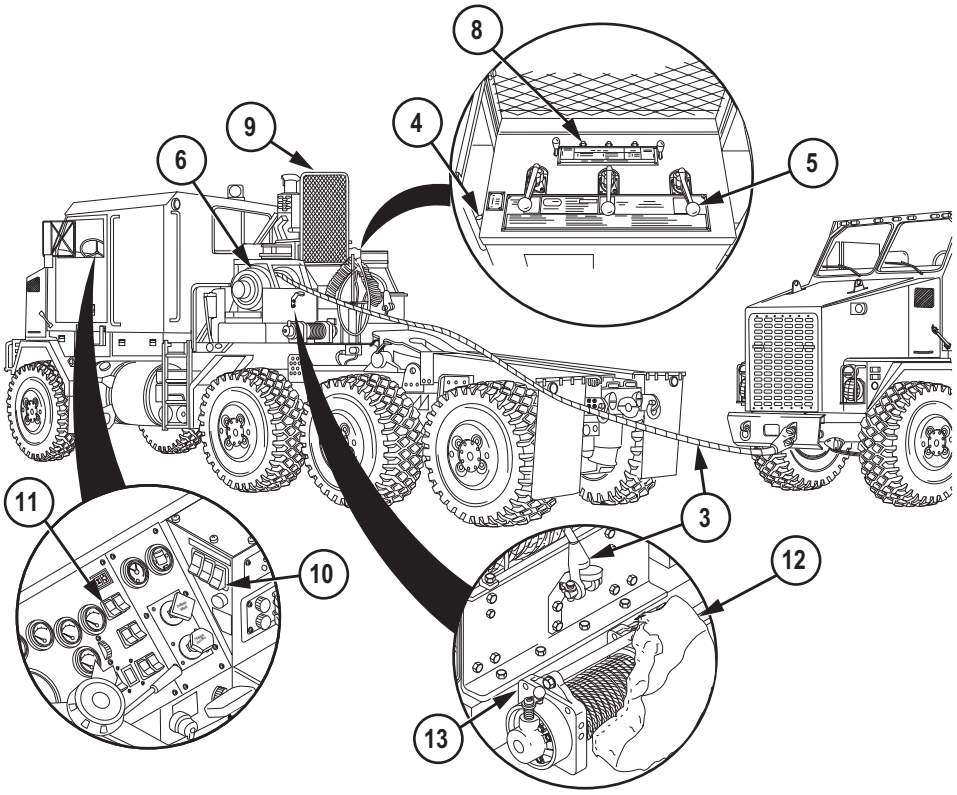


Figure 13.

5. Push WINCH control (5) to CABLE IN. Reel in main winch cable (3) on winch drum (6).
6. Secure main winch cable (3) on drum hook (7).
7. Set ENGINE SPEED CONTROL switch (8) to LOW ENGINE IDLE position.
8. Lower guard (9) on winch control consoles.

NOTE

Engine may stall if transmission is shifted into gear before PTO switch is turned off.

9. Set PTO switch (10) to off position.
10. Turn off beacon light switch (11).
11. Shut off engine. (WP 0042)

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DISCONNECTION AND STOWAGE - Continued

12. Install cover (12) on auxiliary winch (13).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
M12 EMI ARCTIC HEATER OPERATION

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)
Wheels Chocked. (WP 0064)

STARTUP

NOTE

When operating in conditions requiring use of M12 EMI Arctic Heater, follow instructions for Operation in Cold Environment (WP 0076) or Operation in Extremely Cold Environment (WP 0066) to maintain HET Tractor serviceability.

1. Open hood. (WP 0111)
2. Move M12 EMI Arctic Heater inlet valve (1) and outlet valve (2) handles counterclockwise to ON position.

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STARTUP - Continued

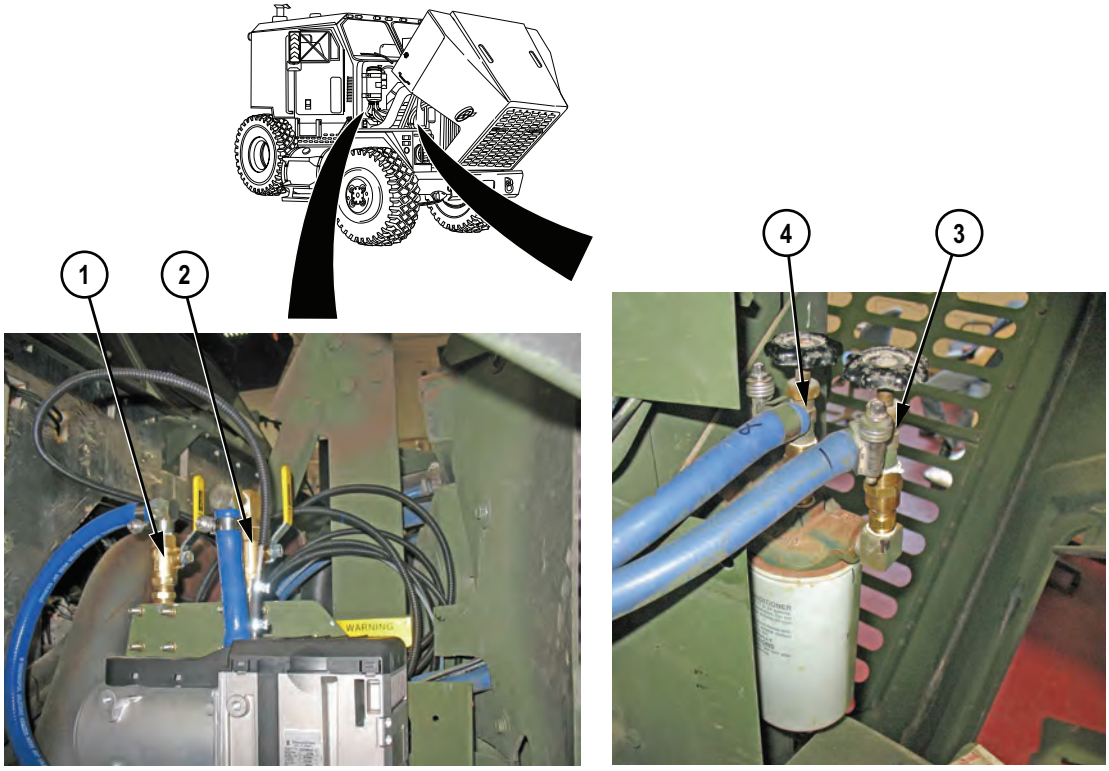


Figure 1.

3. Turn coolant filter inlet valve (3) and outlet valve (4) handles clockwise to closed position.

WARNING



CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH.

- THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.
- Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas that, when breathed, deprives body of oxygen and causes

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STARTUP - Continued

SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or death can result from heavy exposure. Carbon monoxide can become dangerously concentrated under conditions of no ventilation. Precautions MUST be followed to ensure personnel are safe whenever personnel heaters or engine is operated for any purpose. Failure to comply may result in serious injury or death to personnel.

- Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines.
- DO NOT operate engine or personnel heater in a closed place without proper ventilation. Failure to comply may result in serious injury or death to personnel.
- DO NOT idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.
- NEVER sleep in a HET Tractor when the heater is operating or the engine is idling.
- Do not drive HET Tractor with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes. Failure to comply may result in serious injury or death to personnel.
- BE ALERT at all times during HET Tractor operation for exhaust odors and exposure symptoms. If either is present, IMMEDIATELY VENTILATE personnel compartments. If symptoms persist, move affected personnel to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 4-25.11. Failure to comply may result in serious injury or death to personnel.
- BE AWARE that the gas particulate filter unit or field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

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STARTUP - Continued

WARNING



Turn off M12 EMI Arctic Heater whenever any fuel tank on the HET Tractor is being filled. Failure to comply may result in serious injury or death to personnel.

NOTE

M12 EMI Arctic Heater startup sequence can take more than two minutes.

4. Press ENG PREHEAT switch (WP 0015) (5) up to on position. ENG PREHEAT switch indicator will illuminate (green) and M12 EMI Arctic Heater startup sequence will begin.

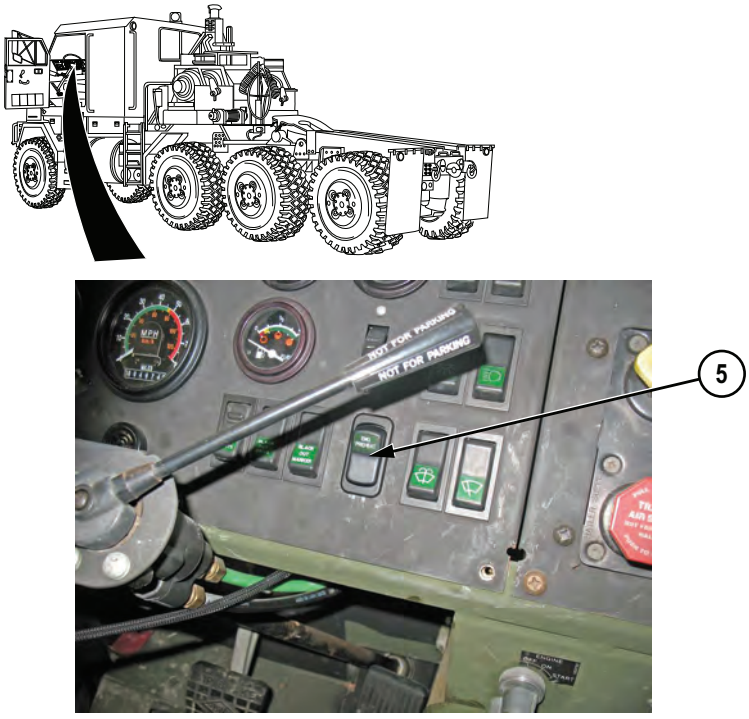


Figure 2.

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STARTUP - Continued

NOTE

- Allow five to seven minutes after initially pressing the ENG PREHEAT switch (WP 0015) for heater startup.
- If M12 EMI Arctic Heater fails to start within 105 seconds of fuel pump start, it will automatically attempt a second start sequence.
- If second start is unsuccessful within 75 seconds of fuel pump start, the M12 EMI Arctic Heater will enter a "no-start safety" shutdown.
- If M12 EMI Arctic Heater flames out during operation, it automatically attempts to restart. If restart fails within 90 seconds of fuel delivery or, if a flameout occurs again within 10 minutes, a "flameout" shutdown occurs.
- Do not attempt to reset M12 EMI Arctic Heater more than twice.

5. If M12 EMI Arctic Heater fails to start, push ENG PREHEAT switch (WP 0015) down to off position for ten seconds, then back up to on position to reset and restart the M12 EMI Arctic Heater.

NOTE

- M12 EMI Arctic Heater operation generates very little noise. Noisy environments may make it difficult to determine if the M12 EMI Arctic Heater is running. If unsure about heater status, place hand near (not on) the M12 EMI Arctic Heater outlet hose to check for warmth.
- While in operation, M12 EMI Arctic Heater monitors and maintains circulating coolant temperature by cycling through several stages (High, Medium 1, Medium 2, Medium 3, Low and Off).

6. Once the M12 EMI Arctic Heater is operating, close hood (WP 0111) and allow M12 EMI Arctic Heater to run for 15 minutes or more to heat engine coolant.

END OF TASK

SHUTDOWN

NOTE

When switched off, the M12 EMI Arctic Heater enters an after-run sequence lasting 180 seconds (three minutes) to cool the combustion chamber and clean the glow plugs.

1. Press ENG PREHEAT switch (WP 0015) (1) down to off position. ENG PREHEAT switch indicator will go out and M12 EMI Arctic Heater after-run sequence will begin.

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SHUTDOWN - Continued

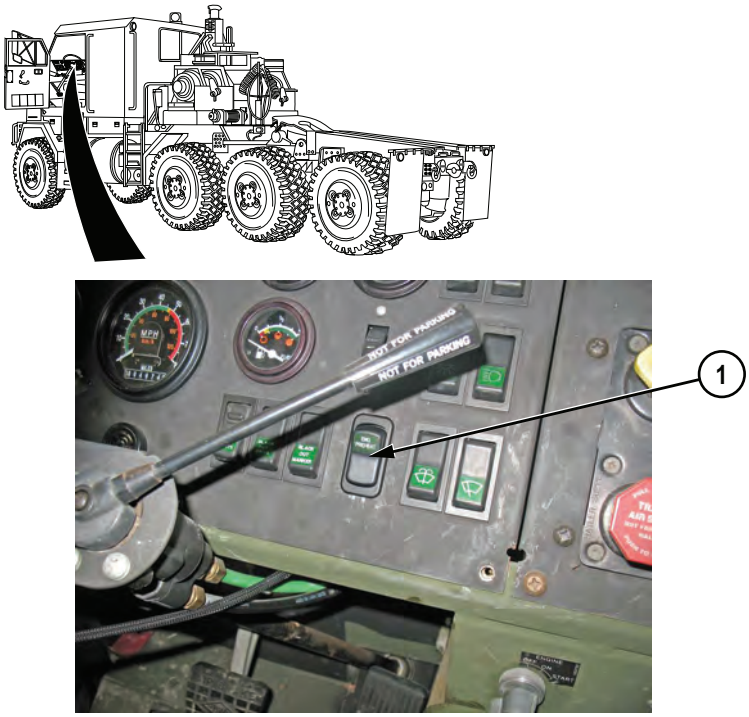


Figure 3.

2. When after-run sequence is complete, open hood. (WP 0111)
3. Turn coolant filter inlet valve (2) and outlet valve (3) handles counterclockwise to on position.

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SHUTDOWN - Continued

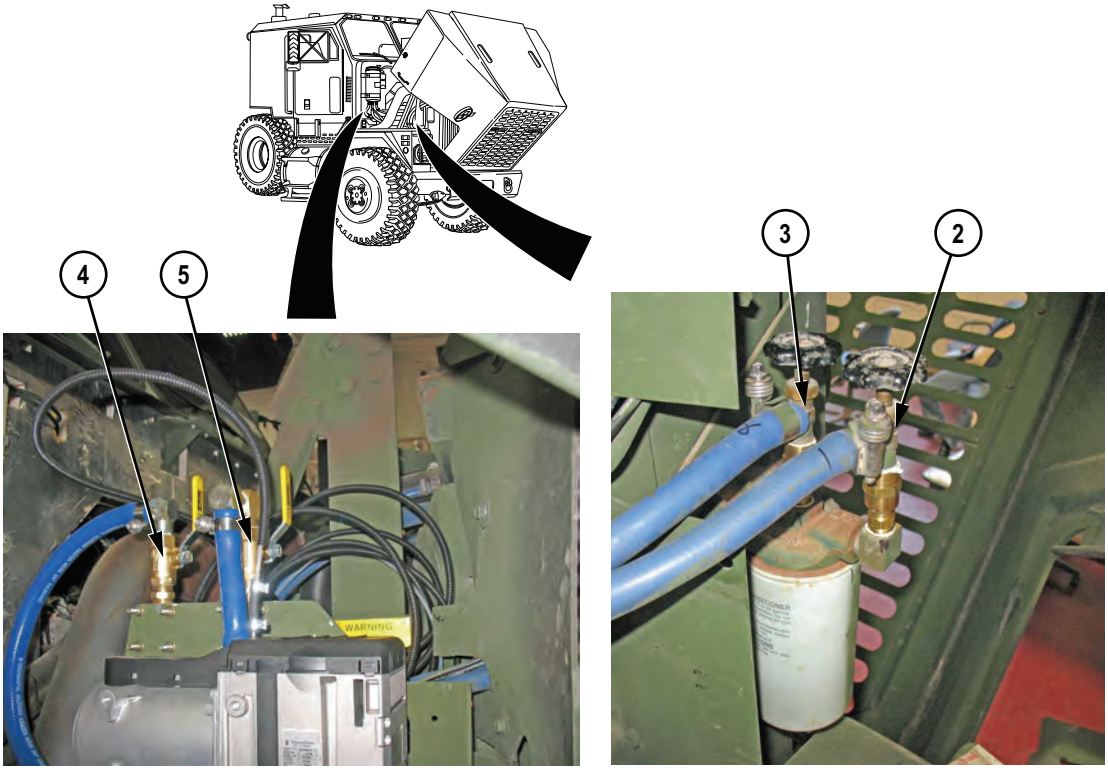


Figure 4.

4. Move M12 EMI Arctic Heater inlet valve (4) and outlet valve (5) handles clockwise to OFF position.
5. Close hood. (WP 0111)
6. Start engine. (WP 0037)
7. Remove wheel chocks. (WP 0064)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
START ENGINE

INITIAL SETUP:

Not Applicable

COLD ENGINE STARTING

WARNING

Before starting and moving HET Tractor, check on and around HET Tractor for other personnel. Failure to comply may result in serious injury or death to personnel.

NOTE

Model B dash panel shown, Model A dash panel similar.

1. Pull out PARKING BRAKE control (WP 0043) (1) to apply parking brakes.

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COLD ENGINE STARTING - Continued

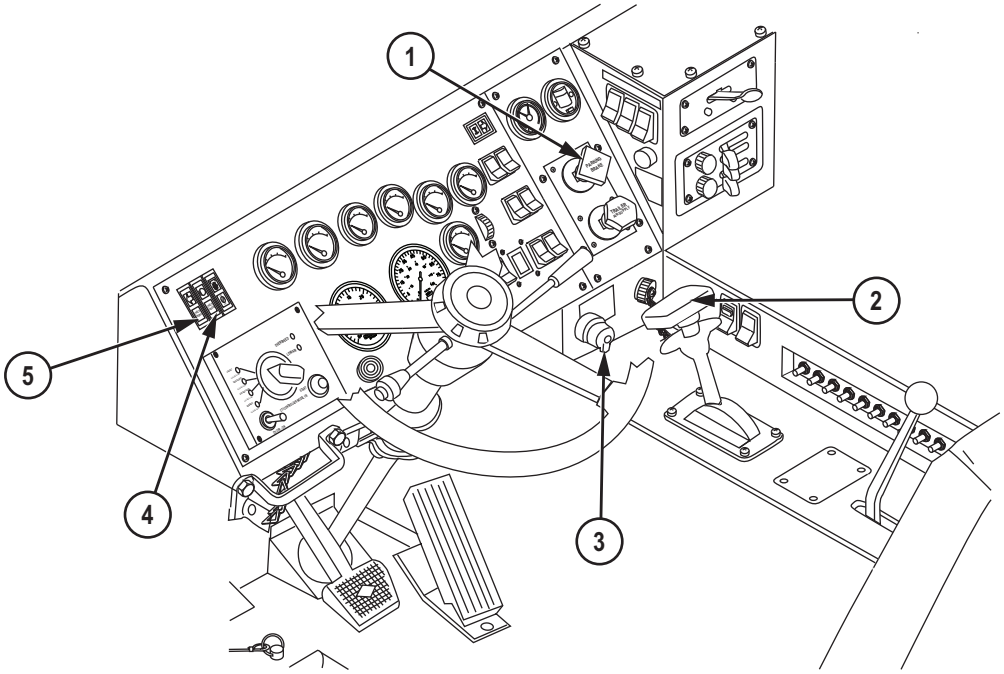


Figure 1.

2. Set transmission range selector (2) to N (neutral) position. (WP 0041)

CAUTION

- CHECK GAUGES indicator illuminates (amber) to warn driver when a potential engine failure (e.g., low oil pressure, low coolant, coolant overheating, etc.) has occurred. If indicator illuminates, shut down engine immediately and notify field level maintenance. Failure to comply may result in damage to equipment.
- CHECK ENGINE indicator illuminates (amber) to warn driver of failures that will not critically damage engine. HET Tractor should be serviced as soon as possible. Failure to comply may result in damage to equipment.
- CHECK GAUGES and CHECK ENGINE indicators will illuminate (amber) and warning alarm will sound for approximately 5 seconds when ENGINE switch is turned to ON position. Do not attempt to start engine if CHECK GAUGES or CHECK ENGINE indicators remain illuminated (amber) after approximately 5 seconds. Failure to comply may result in damage to equipment.

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COLD ENGINE STARTING - Continued

3. Turn ENGINE switch (3) to ON position. (WP 0018)
4. Observe CHECK GAUGES indicator (WP 0015)(4) and CHECK ENGINE indicator (WP 0015)(5):
   a. If CHECK GAUGES indicator (WP 0015)(4) remains illuminated after approximately 5 seconds, refer to operator troubleshooting procedures.
   b. If CHECK ENGINE indicator (WP 0015)(5) remains illuminated after approximately 5 seconds, refer to operator troubleshooting procedures.

CAUTION

Do not press ETHER START control more than three times in a single starting attempt. Failure to observe this caution may cause severe engine damage.

NOTE

- Model B dash panel shown, Model A dash panel similar.
- Complete Step (5) only if outside temperature is below 45°F (7°C).
- If outside temperature is above 45°F (7°C), skip to Step (5).

5. If outside air temperature is below 45°F (7°C), operate ETHER START control (WP 0017) (6):

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COLD ENGINE STARTING - Continued

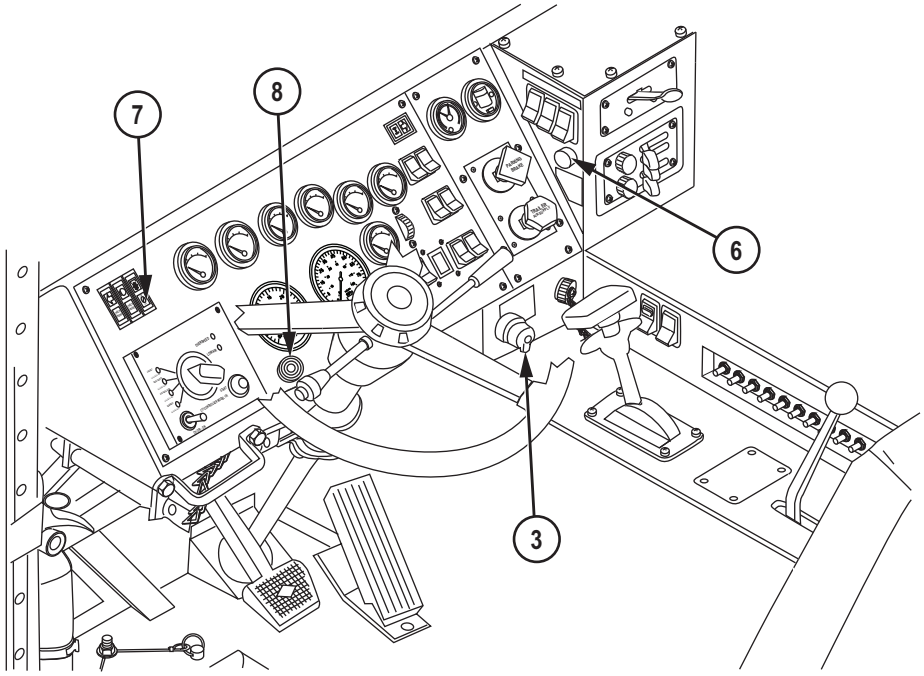


Figure 2.

a. Press, hold for three seconds, and release ETHER START control (WP 0017) (6) one time if outside air temperature is below 45°F (7°C). Wait 3 seconds and go to Step (6).

b. Press, hold for three seconds, and release ETHER START control (WP 0017) (6) two times if outside air temperature is below 10°F (-12°C). Wait 3 seconds and go to Step (6).

c. Press, hold for three seconds, and release ETHER START control (WP 0017) (6) three times if outside air temperature is below -10°F (-23°C). Wait 3 seconds and go to Step (6).

6. Turn ENGINE switch (3) to START position (WP 0018) for about 15 seconds or until engine starts:

   a. Release ENGINE switch (WP 0018) (3). Engine switch (3) will return to ON position.

   b. LOW AIR indicator (WP 0015) (7) will illuminate (red) and warning alarm (8) will sound until air pressure is greater than 60 psi (414 kPa).

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COLD ENGINE STARTING - Continued

NOTE

- If engine will not crank when ENGINE switch is turned to START position, refer to operator troubleshooting procedures.
- If engine cranks when ENGINE switch is turned to START position but fails to start after three attempts, refer to operator troubleshooting procedures.

7. If engine fails to start, repeat Steps (3) through (6).

CAUTION

- If OIL PRESS gauge does not show engine oil pressure within 10–15 seconds after starting engine, shut down engine immediately. Lack of lubrication may damage engine. Refer to operator troubleshooting procedures.
- Do not operate engine above 1000 rpm during warm up until OIL PRESS gauge indicates 25 to 30 psi (172 to 207 kPa) at 800 to 1000 rpm. OIL PRESS gauge should indicate 50 to 70 psi (345 to 483 kPa) when engine operates at 1800 to 2100 rpm. Lack of lubrication may damage engine.

NOTE

- At idle, oil pressure can indicate as low as 5 psi (34 kPa).
- At temperatures between -26°F (-32°C) and -50°F (-46°C), run engine at 1200 to 1500 rpm for an additional 10 minutes.
- If winches are going to be used immediately, only run engine at 1200 to 1500 rpm for 5 minutes before performing winch-warm. (WP 0076)

8. Run engine at idle for 5 minutes.

NOTE

Model B dash panel shown, Model A dash panel similar.

9. Check that OIL PRESS gauge (WP 0015)(9) reads approximately 25 to 30 psi (172 to 207 kPa) at 800 to 1000 rpm.

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COLD ENGINE STARTING - Continued

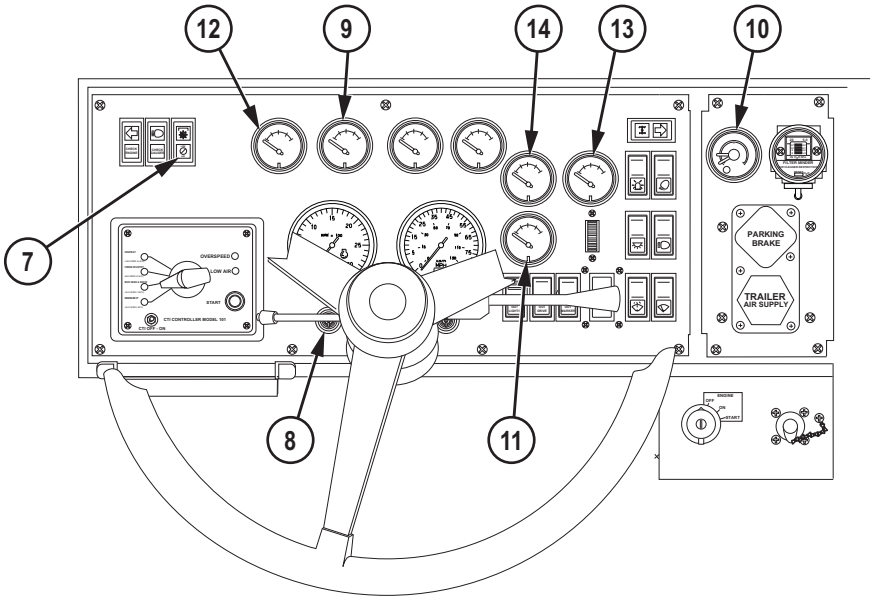


Figure 3.

NOTE

If red and green needles on AIR PRESS gauge do not read 60 to 120 psi (414 to 827 kPa) after warm-up, shut engine OFF (WP 0042) and notify field level maintenance.

10. Check that AIR PRESS gauge (WP 0016) (10) reads 60 to 125 psi (414 to 862 kPa). LOW AIR indicator (7) illuminates (red) and warning alarm (8) will sound until both needles reach 60 to 75 psi (414 to 517 kPa).

NOTE

Approximate cruising range of HET Tractor (at GCWR) is 325 mi (523 km) with full fuel tanks.

11. Check that FUEL gauge (WP 0015) (11) indicates enough fuel to complete mission.
12. Check that WATER TEMP gauge (WP 0015) (12) does not read over 210°F (99°C).
13. Check that 24-volt system BATTERY gauge (WP 0015) (13) reads between 26 and 30 volts.
14. Check that 12-volt system BATTERY gauge (WP 0015) (14) reads between 13 and 15 volts.

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COLD ENGINE STARTING - Continued

NOTE

HET Tractor may include one of two types of AIR CLEANER RESTRICTION indicator, both types (A and B) are shown in Figure 4 (below).

15. Check that AIR CLEANER RESTRICTION indicator (WP 0016) (15) reads below 15 (in green area).

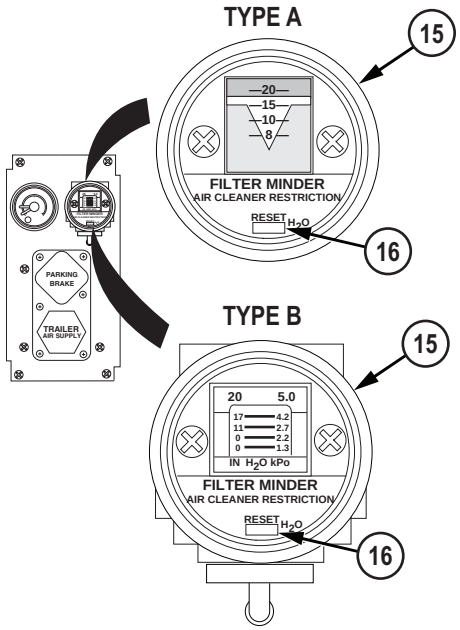


Figure 4.

a. Press and release RESET button (16) if AIR CLEANER RESTRICTION indicator (WP 0016)(15) reads greater than 15.

b. Shut engine OFF (WP 0042) and notify field level maintenance if AIR CLEANER RESTRICTION indicator (WP 0016)(15) still reads greater than 15 (in yellow or red area) after RESET button (16) has been pressed and released.

END OF TASK

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WARM ENGINE STARTING

WARNING

Before starting and moving HET Tractor, check on and around HET Tractor for other personnel. Failure to comply may result in serious injury or death to personnel.

NOTE

Model B dash panel shown, Model A dash panel similar.

1. Pull out PARKING BRAKE control (WP 0043)(1) to apply parking brakes.

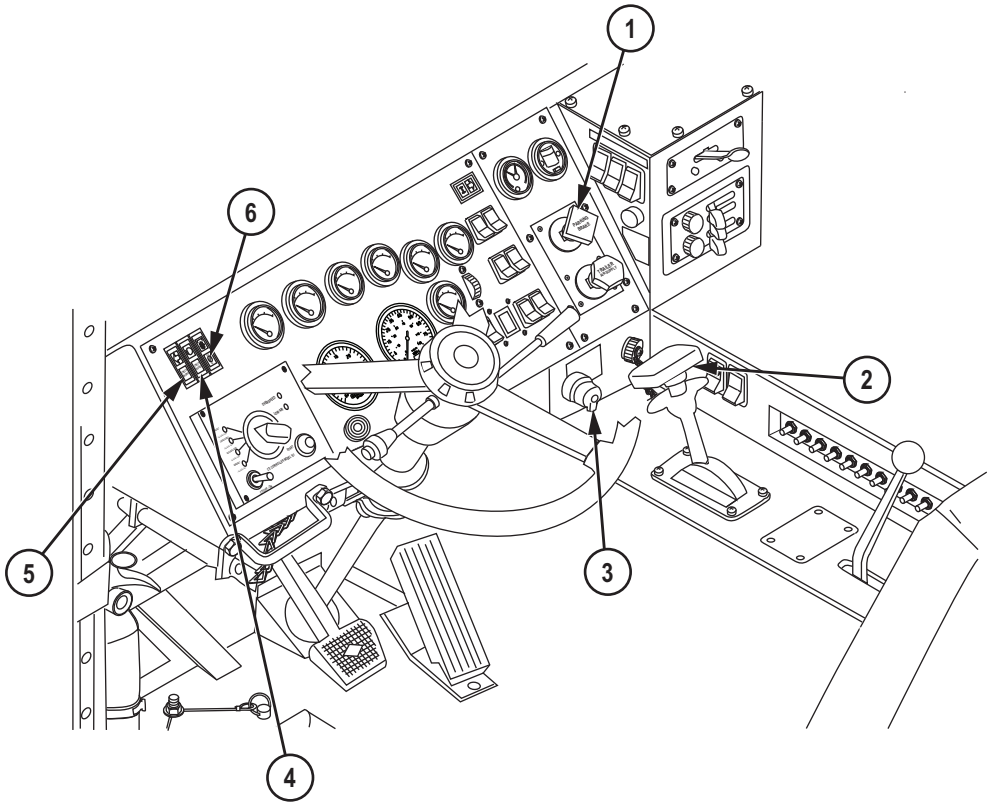


Figure 5.

2. Set transmission range selector (2) to N (neutral) position.

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WARM ENGINE STARTING - Continued

CAUTION

- CHECK GAUGES indicator illuminates (amber) to warn driver when a potential engine failure (e.g., low oil pressure, low coolant, coolant overheating, etc.) has occurred. If indicator illuminates, shut down engine immediately and notify field level maintenance. Failure to comply may result in damage to equipment.
- CHECK ENGINE indicator illuminates (amber) to warn driver of failures that will not critically damage engine. HET Tractor should be serviced as soon as possible. Failure to comply may result in damage to equipment.
- CHECK GAUGES and CHECK ENGINE indicators will illuminate (amber) and warning alarm will sound for approximately 5 seconds when ENGINE switch is turned to ON position. Do not attempt to start engine if CHECK GAUGES or CHECK ENGINE indicators remain illuminated (amber) after approximately 5 seconds. Failure to comply may result in damage to equipment.

3. Turn ENGINE switch (3) to ON position. (WP 0018)
4. Observe CHECK GAUGES indicator (WP 0015)(4) and CHECK ENGINE indicator (WP 0015)(5):
   a. If CHECK GAUGES indicator (WP 0015)(4) remains illuminated after approximately 5 seconds and gauge(s) indicate abnormal readings, refer to operator troubleshooting procedures.
   b. If CHECK ENGINE indicator (WP 0015)(5) remains illuminated after approximately 5 seconds and gauge(s) indicate abnormal readings, refer to operator troubleshooting procedures.
5. Turn ENGINE switch (3) to START position (WP 0018) for about 15 seconds or until engine starts:
   a. Release ENGINE switch (WP 0018)(3). Engine switch (3) will return to ON position.
   b. LOW AIR indicator (WP 0015) (6) will illuminate (red) and warning alarm (7) will sound until air pressure is greater than 60 psi (414 kPa).
6. Check that WATER TEMP gauge (WP 0015)(11) does not read over 210°F (99°C).
7. Check that 24-volt system BATTERY gauge (WP 0015)(12) reads between 26 and 30 volts.
8. Check that 12-volt system BATTERY gauge (WP 0015)(13) reads between 13 and 15 volts.

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WARM ENGINE STARTING - Continued

NOTE

HET Tractor may include one of two types of AIR CLEANER RESTRICTION indicator, both types (A and B) are shown in Figure 7 (below).

9. Check that AIR CLEANER RESTRICTION indicator (WP 0016) (14) reads below 15 (in green area).

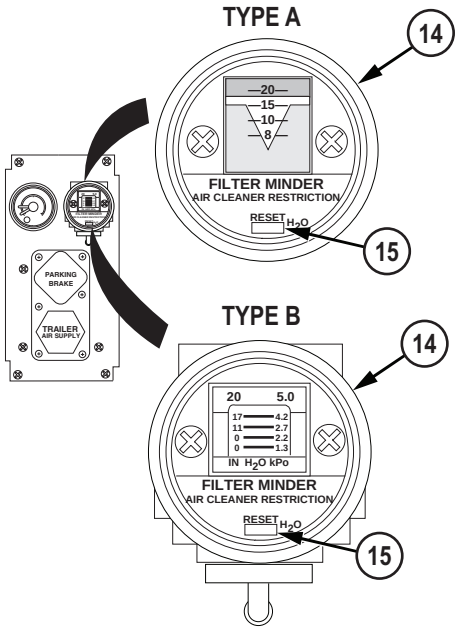


Figure 6.

a. Press and release RESET button (15) if AIR CLEANER RESTRICTION indicator (WP 0016) (14) reads greater than 15.

b. Shut engine OFF (WP 0042) and notify field level maintenance if AIR CLEANER RESTRICTION indicator (WP 0016) (14) still reads greater than 15 (in yellow or red area) after RESET button (15) has been pressed and released.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
ENGINE BRAKE OPERATION

INITIAL SETUP:

Not Applicable

WARNING

Apply engine brake only when HET Tractor tires have good traction. Use of engine brake on slick surfaces can cause HET Tractor to skid. Failure to comply may result in serious injury or death to personnel.

NOTE

- Use engine brake only when additional braking is required (i.e., descending grades).
- Wheel brakes must be used in addition to engine brakes for maximum braking.
- Allow engine to warm up before engaging engine brake retarder switch.
- Safety lock on engine brake retarder on/off switch locks switch in off position only.
- Model B dash panel shown, Model A dash panel similar.

1. Check that engine brake retarder ON/OFF switch (1) (WP 0018) is in OFF (uppermost) position.

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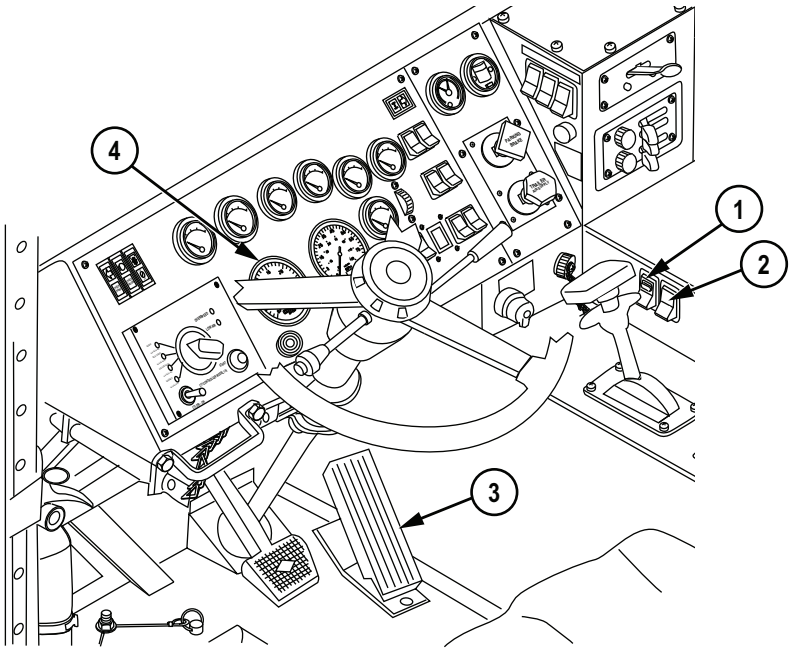


Figure 1.

2. Check that engine brake retarder HI/LO switch (2) is in LO (uppermost) position.

NOTE

- Safety lock on engine brake retarder ON/OFF switch must be pressed and held before engine brake retarder ON/OFF switch can be set to ON position.
- Safety lock on engine brake retarder ON/OFF switch locks switch in off position only.

3. Press engine brake retarder ON/OFF switch (1) (WP 0018) to ON (lowest) position for reduced engine braking.
4. Press engine brake retarder HI/LO switch (2) (WP 0018) to HI (lowest) position for maximum engine braking.
5. Lift foot off the throttle pedal (3). (WP 0012) Engine brake will automatically slow HET Tractor.

NOTE

Engine brake does not operate below 1000 rpm.

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6. Optimum engine braking occurs with engine speed between 1650 and 2100 rpm. Select appropriate transmission range (WP 0041) and engine brake settings to maintain desired effect. Do not over speed engine during braking.
7. If more braking is required, set engine brake retarder HI/LO switch (2) (WP 0018) to HI position.
8. Check that tachometer (4) (WP 0015) reads between 1650 and 2100 rpm whenever engine brake is used.

NOTE

Safety lock on engine brake retarder on/off switch locks switch in off position only.

9. Set engine brake retarder ON/OFF switch (1) (WP 0018) to off (uppermost) position when engine braking is no longer desired.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SERVICE BRAKES OPERATION

INITIAL SETUP:

Not Applicable

WARNING

Repeated application of the brake pedal will deplete air supply and service brakes will not work until air pressure builds up again. Serious personal injury or death may result from loss of service brakes.

NOTE

Normal operating air pressure is 100 to 120 psi (690 to 827 kPa). If air pressure drops below 85 psi (586 kPa), CTIS will become inoperative. If air pressure drops below 60 psi (414 kPa), the low air pressure alarm will sound.

Push down and hold service brake pedal (1) as needed to slow or stop HET Tractor.

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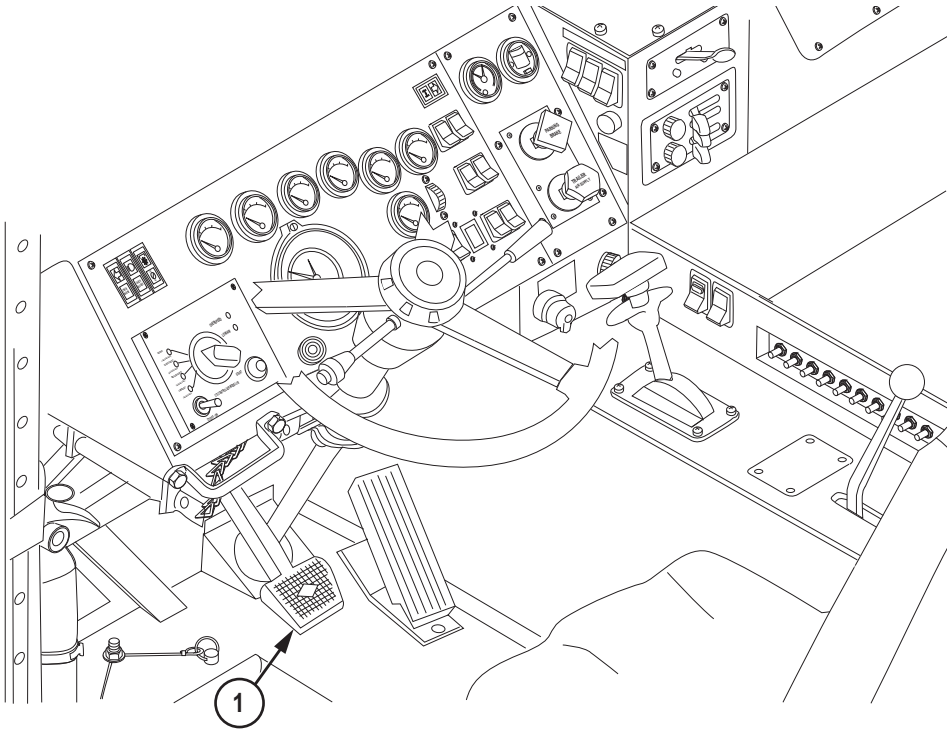


Figure 1.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TRAILER BRAKES OPERATION

INITIAL SETUP:

Not Applicable

NOTE

- Model B dash panel shown, Model A dash panel similar.
- When service brake pedal is pressed, both HET Tractor and trailer brakes will be applied.

Pull down trailer handbrake control lever (WP 0014) (1) during trailer connect/disconnect operations, (WP 0034) if required, to apply trailer brakes only.

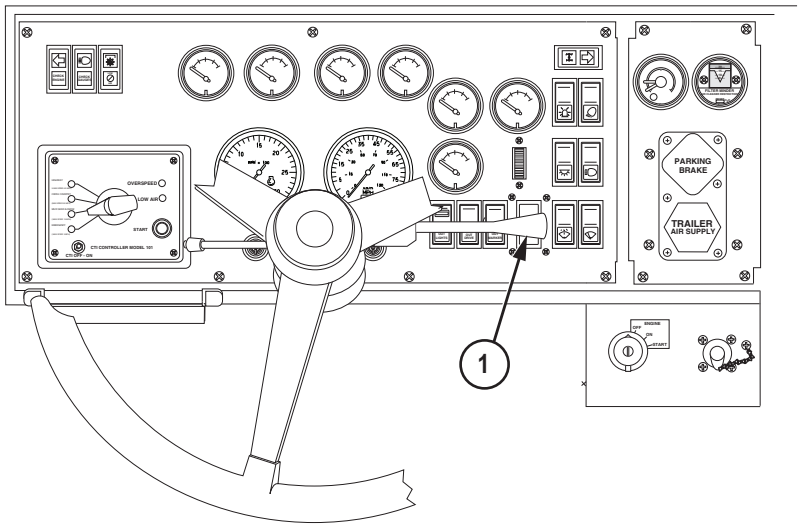


Figure 1.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TRANSMISSION AND TRANSFER CASE OPERATION

INITIAL SETUP:

Not Applicable

1. Start engine. (WP 0037)
2. Push down on service brake pedal (1) (WP 0012) to apply service brakes. (WP 0039)

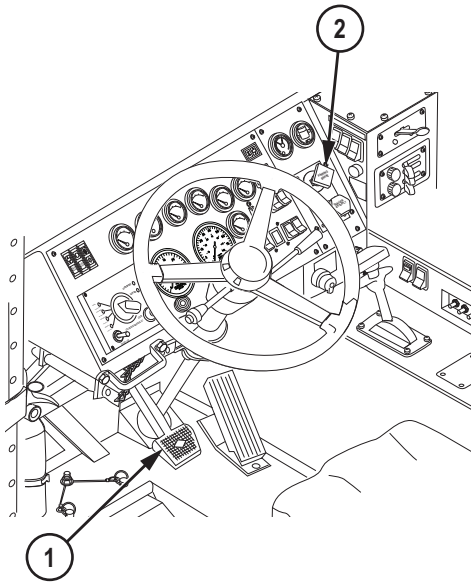


Figure 1.

3. Push in PARKING BRAKE control (2) (WP 0016) to disengage parking brakes. (WP 0043)

CAUTION

These are guidelines for operation, and may not be applicable under all circumstances. Refer to applicable procedures within this manual for

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specific operating procedures. Failure to comply may result in damage to equipment.

NOTE

- Table 1 considers that vehicle is operated at full payload.
- Grades are off-road.

4. Use Table 1 (below) to establish proper vehicle (CTIS, transfer case, and driveline control) settings.

Table 1. Recommended Modes of Operation.

Road Condition	CTIS Setting				Transfer Case Setting		Driveline Control	
	Hwy	**CC**	**M/S/S**	**Emer**	**High**	**Low**	**Open**	**Lock-up**
Highway	X				X		X	
Gravel/ Dirt		X			X		X	
Mud/ Sand/ Snow No Wheel Spin			X			X	X	
Mud/ Sand/ Snow With Wheel Spin			X			X		X
Mud/ Sand/ Snow With Wheel Spin				X		X		X

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Table 1. Recommended Modes of Operation. - Continued

Road Condition	CTIS Setting				Transfer Case Setting		Driveline Control	
	Hwy	CC	M/S/S	Emer	High	Low	Open	Lock-up
Fording-Hard Bottom		X				X	X	
Fording-Soft Bottom No Wheel Spin			X			X		X
Fording-Soft Bottom With Wheel Spin				X		X		X
Grade-Slight		X			X		X	
Grade-Moderate < or = 10%		X				X	X	
Grade-Steep > 10%			X			X		X
Grade-Steep With Wheel Spin				X		X		X

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CAUTION

- Do not force movement of TRANSFER CASE shift lever. TRANSFER CASE shift lever may be hard to move if there is a driveline windup. Using excessive force may cause damage to shift linkage or change linkage adjustment.
- Do not move TRANSFER CASE shift lever when HET Tractor is moving or when transmission is in gear. Damage to driveline could result.

NOTE

If TRANSFER CASE shift lever is hard to move, it may be necessary to set transmission range selector to 2-5 and/or R (reverse), then back to N (neutral) position. If transfer case still will not shift, refer to troubleshooting procedures.

5. Select transfer case position:

CAUTION

- When operating with transmission range selector set to 1 (first range) and transfer case set to HIGH, stop and shift transfer case to LOW position if transmission temperature exceeds 250°F (121°C) or if HET Tractor cannot maintain 4 mph. Failure to comply may result in transmission overheating and damage to equipment.
- Avoid using LOW transfer case with transmission range selector in 1 (first range). If using LOW transfer case and 1 (first range), do not exceed 1200 rpm when starting from a stop. If the HET Tractor does not move prior to reaching 1200 rpm, do not continue to increase engine rpm. Failure to comply may result in driveline damage.

a. Set TRANSFER CASE shift lever (3) (WP 0018) to HIGH for driving on level highway or secondary roads.

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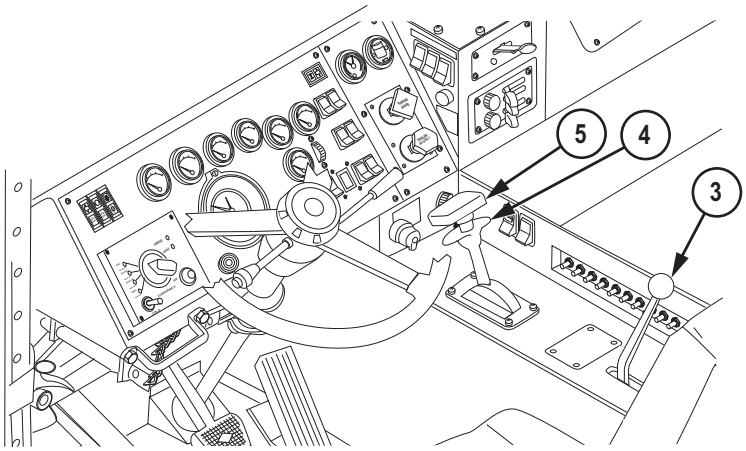


Figure 2.

b. Set TRANSFER CASE shift lever (3) (WP 0018) to LOW for off-road driving, and whenever extra traction/power is required.

6. Pull up on release lever (4). Set transmission range selector (5) to desired position: (WP 0018)

NOTE

- Whenever transmission range selector is set to R (reverse), reverse light will illuminate to aid the operator's vision and an alarm will sound to warn surrounding personnel.
- BLACK OUT LIGHTS switch (WP 0015) must be set to off position before reverse light will illuminate and reverse alarm will sound.

a. Use R (reverse) to move HET Tractor backwards.

b. Use N (neutral) to:

(1) Start engine. (WP 0037)

(2) Park HET Tractor.

(3) Perform winch operation. (WP 0035)

CAUTION

- If transmission is continuously shifting up and down between two gears, manually select the next lower gear range. Failure to comply may result in damage to equipment.

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- If transmission or transfer case temperature exceeds 250°F (121°C), shift to next lower gear range. Failure to comply may result in damage to equipment.

c. Use 2 to 5 (drive) to:

(1) Move forward from a stop.

(2) Drive in normal conditions at approximately 45 mph (72 km/h).

d. Use 2 to 4 (fourth range) to:

(1) Move forward from a stop.

(2) Drive in normal conditions at approximately 32 mph (51 km/h).

e. Use 2 to 3 (third range) to:

(1) Move forward from a stop.

(2) Drive in off-road conditions.

(3) Drive in city traffic at approximately 22 mph (35 km/h).

f. Use 2 (second range) to:

(1) Move forward from a stop.

(2) Drive down moderate grades at approximately 14 mph (23 km/h).

(3) Control HET Tractor speed.

CAUTION

- When using 1 (first range) with transfer case in HIGH, stop and shift transfer case into LOW if transmission temperature exceeds 250°F (121°C) or if HET Tractor cannot maintain 4 mph (6 km/H). Failure to comply may result in transmission overheating and damage to equipment.
- Do not downshift into 1 (first range), with transfer case in LOW, while engine speed is above 1200 rpm. Failure to comply may result in driveline damage.

g. Use 1 (first range) to:

(1) Move forward from a stop.

(2) Drive through mud or snow. (WP 0075)

(3) Drive up or down steep grades (WP 0074) at approximately 4 to 9 mph (6 to 14 km/h).

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(4) Give maximum HET Tractor speed control.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SHUT ENGINE OFF

INITIAL SETUP:

Not Applicable

WARNING

Do not park HET Tractor on a steep grade. If HET Tractor must be parked on a grade, wheels must be chocked. If parked on a paved road, wheels must be turned toward the shoulder if facing down hill and away from the shoulder if facing uphill. Failure to comply may result in serious injury or death to personnel and/or damage to equipment.

1. Park HET Tractor.

NOTE

Model B dash panel shown, Model A dash panel similar.

2. Set transmission range selector (1) to N (neutral) position. (WP 0041)

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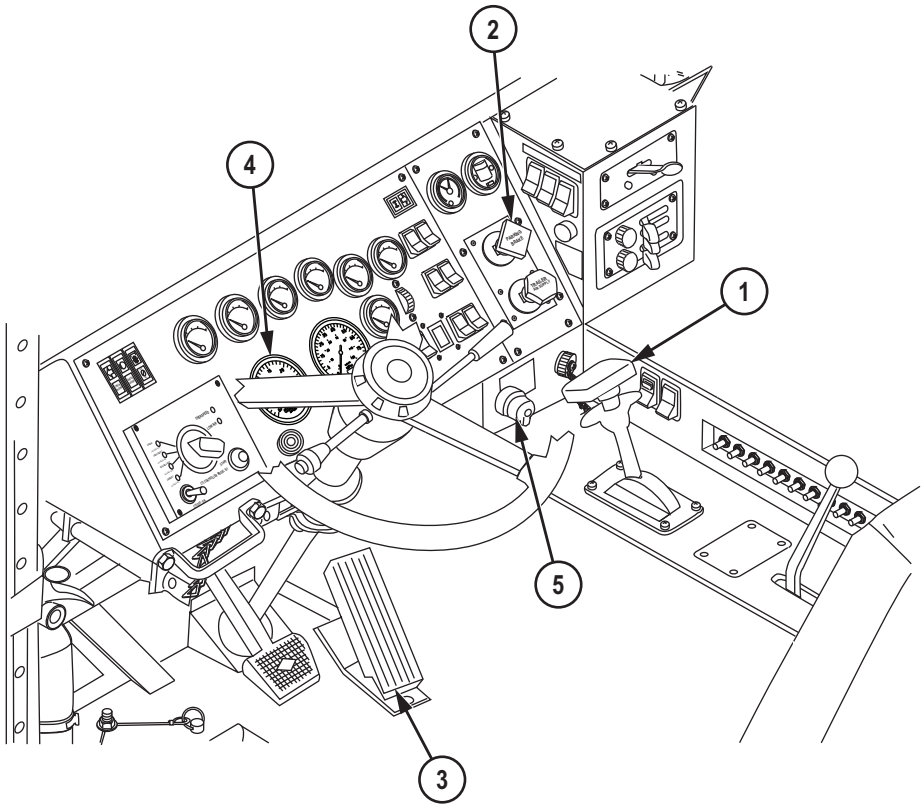


Figure 1.

CAUTION

Before shutting down engine, run at reduced speed (800 to 1000 rpm) under no-load conditions for 3 to 5 minutes to allow turbocharger to slow down and cool off. Failure to comply may result in damage to turbocharger.

3. Pull out PARKING BRAKE control (2) to apply parking brakes. (WP 0043)
4. Increase throttle pedal (3) (WP 0012) pressure until tachometer (4) (WP 0015) indicates 800 to 1000 rpm.
5. Run engine for 3 to 5 minutes.
6. Release pressure on throttle pedal (3). (WP 0012)
7. Turn off lights and electrical accessories (including CTIS). (WP 0028)
8. Turn ENGINE switch (5) to OFF position. (WP 0018)

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9. Chock wheels on HET Tractor. (WP 0064)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE PARKING BRAKE

INITIAL SETUP:

Not Applicable

1. Pull out PARKING BRAKE control (1) to apply.

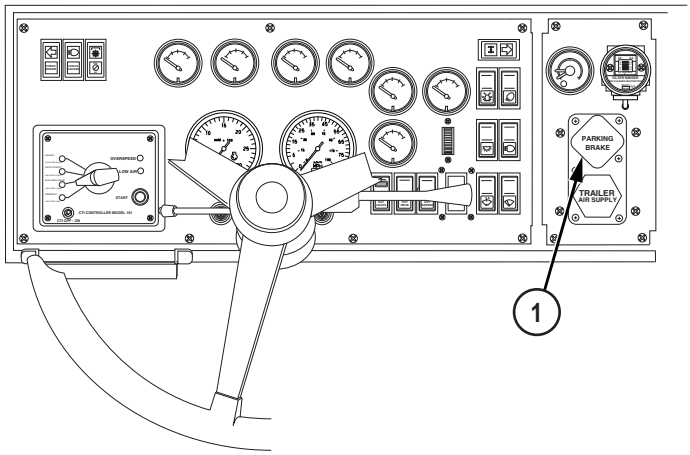


Figure 1.

2. Push in PARKING BRAKE control (1) to release.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SWINGFIRE ARCTIC HEATER OPERATION

INITIAL SETUP:

Not Applicable

SWINGFIRE ARCTIC HEATER OPERATION

WARNING



CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH.

- THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.
- Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas that, when breathed, deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or death can result from heavy exposure. Carbon monoxide can become dangerously concentrated under conditions of no ventilation. Precautions MUST be followed to ensure personnel are safe whenever personnel heaters or engine is operated for any purpose. Failure to comply may result in serious injury or death to personnel.
- Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines.
- DO NOT operate engine or personnel heater in a closed place without proper ventilation. Failure to comply may result in serious injury or death to personnel.
- DO NOT idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.
- NEVER sleep in a HET Tractor when the heater is operating or the engine is idling.

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SWINGFIRE ARCTIC HEATER OPERATION - Continued

- Do not drive HET Tractor with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes. Failure to comply may result in serious injury or death to personnel.
- BE ALERT at all times during HET Tractor operation for exhaust odors and exposure symptoms. If either is present, IMMEDIATELY VENTILATE personnel compartments. If symptoms persist, move affected personnel to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 4-25.11. Failure to comply may result in serious injury or death to personnel.
- BE AWARE that the gas particulate filter unit or field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

1. Prepare heater for operation. Refer to Swingfire heater operating instructions.
2. Check gasket (1) for adequate seating with water jacket (2) before installation.

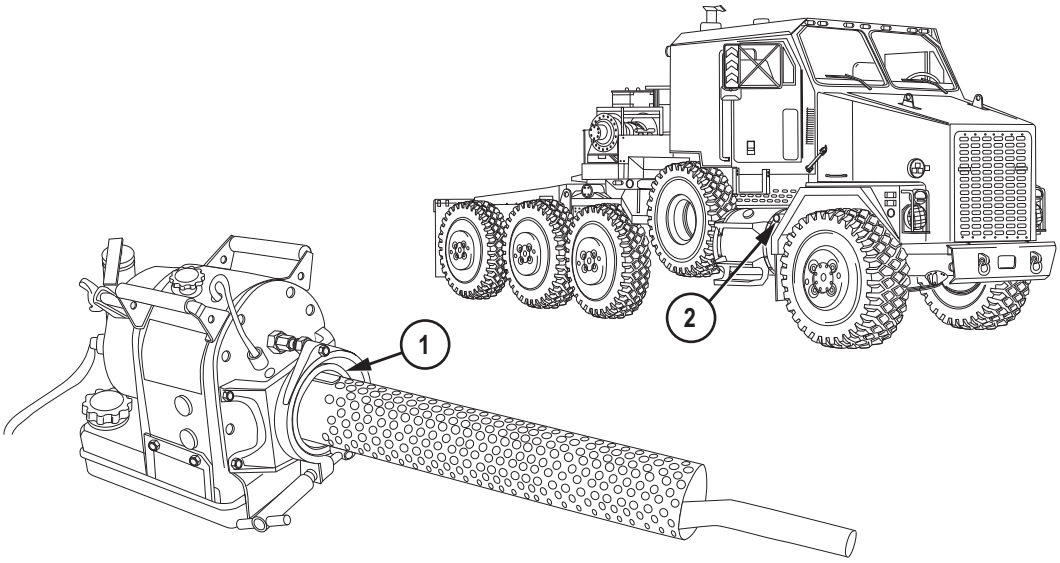


Figure 1.

3. Loosen wing nut (3) until it stops.

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SWINGFIRE ARCTIC HEATER OPERATION - Continued

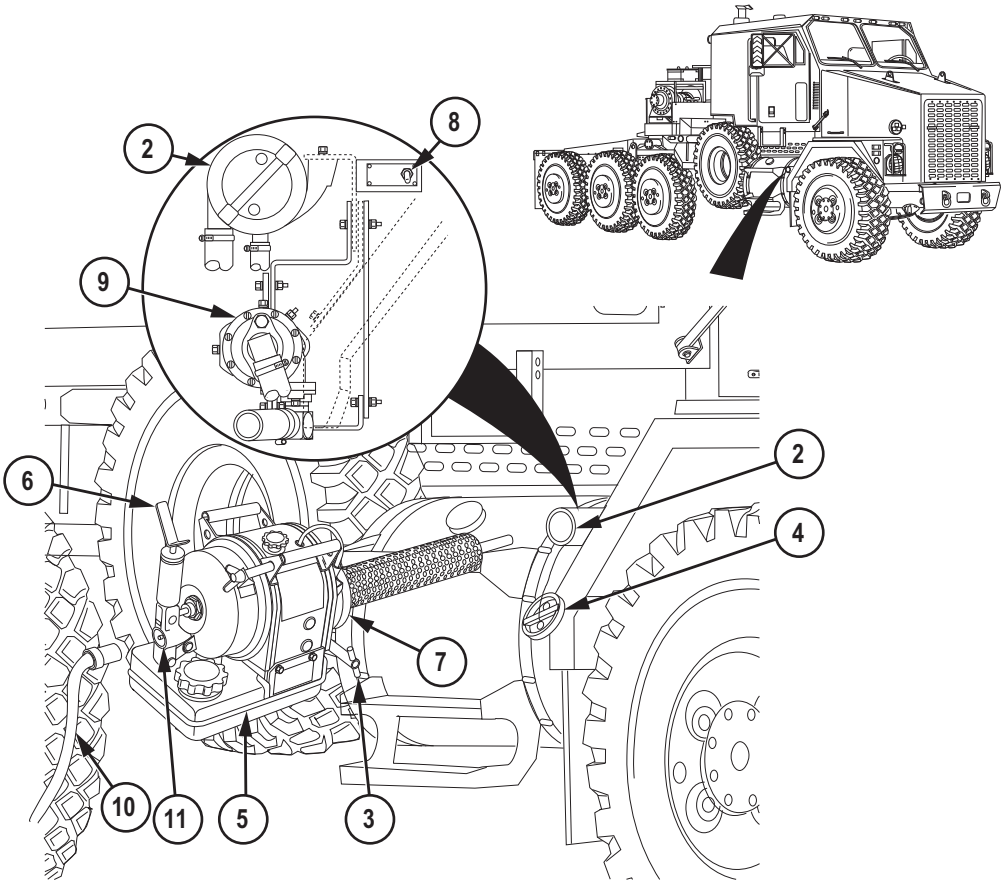


Figure 2.

4. Remove cap (4) from water jacket (2).
5. Install heater (5) in water jacket (2) with hand pump lever (6) in upright vertical position.
6. Turn wing nut (3) until clamp (7) is tight around water jacket (2).
7. Flip switch (8) to the up position to start pump (9).
8. Install cable (10) in heater receptacle (11).
9. Install other end of cable (10) in vehicle receptacle (12).

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SWINGFIRE ARCTIC HEATER OPERATION - Continued

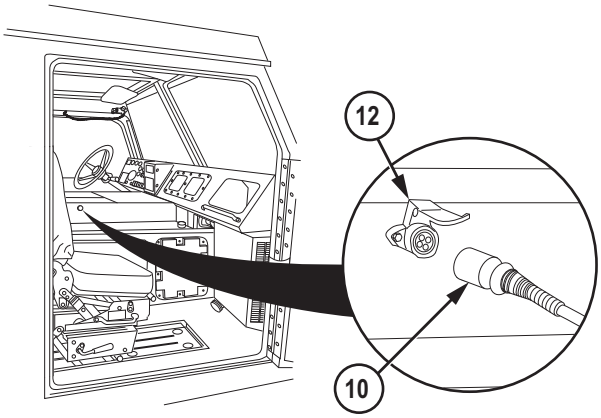


Figure 3.

10. Refer to Swingfire heater operating instructions.
11. Start engine. (WP 0037)

SWINGFIRE ARCTIC HEATER SHUTDOWN

1. Close fuel regulator valve (1) to shut off heater (2).

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SWINGFIRE ARCTIC HEATER SHUTDOWN - Continued

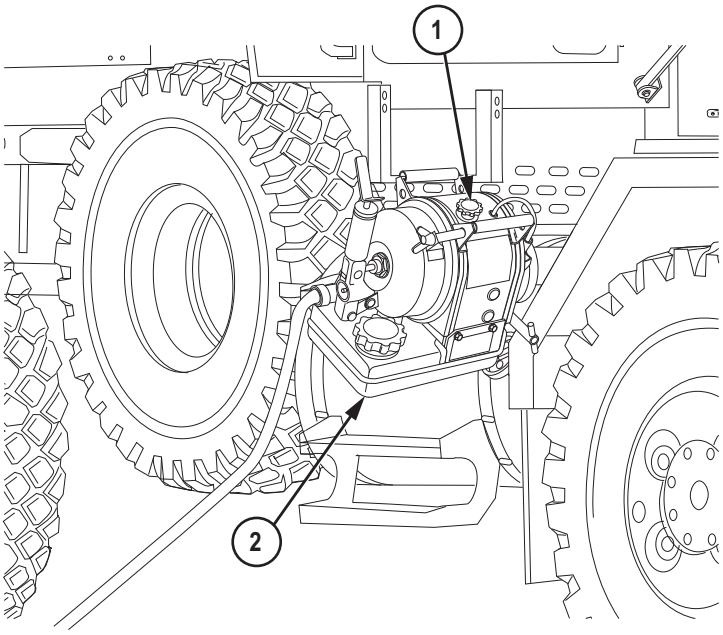


Figure 4.

2. Flip switch (3) to the down position to turn off pump (4).

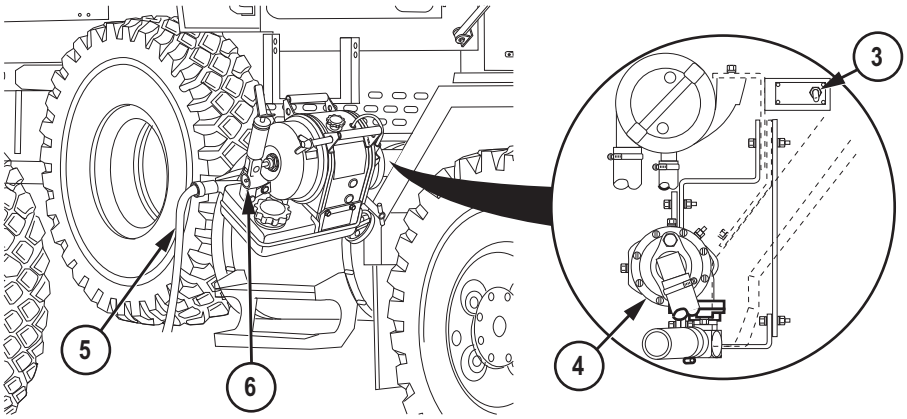


Figure 5.

3. Remove cable (5) from heater receptacle (6).

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SWINGFIRE ARCTIC HEATER SHUTDOWN - Continued

4. Remove cable (5) from vehicle receptacle (7).

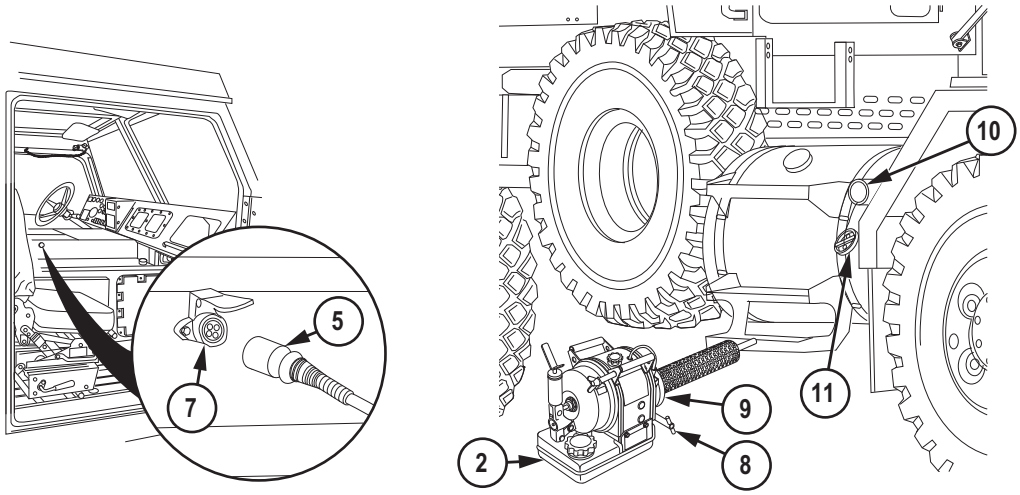


Figure 6.

WARNING



Heater is very hot and can burn. Handle heater carefully. Failure to comply may result in serious injury or death to personnel.

5. Loosen wing nut (8) on heater (2) and clamp (9).
6. Remove heater (2) from water jacket (10).
7. Install cap (11) on water jacket (10).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
GAS PARTICULATE FILTER UNIT (GPFU) OPERATION

INITIAL SETUP:

References
TM 3-4240-280-10 (WP 0113)
FM 21-10 (WP 0113)

GAS PARTICULATE FILTER UNIT (GPFU) OPERATION

WARNING



- BE AWARE that the gas particulate filter unit or the field protective mask for Chemical, Biological, Radiological, and Nuclear (CBRN) protection WILL NOT offer safety from carbon monoxide poisoning.
- If CBRN exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit CBRN Officer or CBRN NCO for appropriate handling or disposal procedures.
- Unprotected personnel may experience injury or death of residual toxic agents or radioactive material are present. Wear protective mask, hood, protective overgarments, chemical protective gloves, and boots in CBRN environments.
- If required to remain inside the HET Tractor during extreme heat, occupants should follow the water intake, work/rest cycle, and other heat stress preventive medicine measures contained in FM 21-10. Failure to comply may result in serious injury or death to personnel.

NOTE

- The GPFU is designed to operate with the M25A1 or M42 protective mask.
- Perform Steps (1) through (7) only when under CBRN attack or when ordered to do so.

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GAS PARTICULATE FILTER UNIT (GPFU) OPERATION - Continued

- For detailed information concerning protective mask, refer to TM 3-4240-280-10.

1. Remove protective mask (1) and canister (2) from pouch (3).

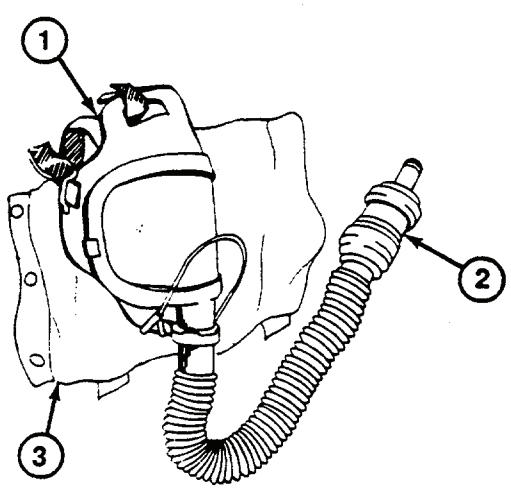


Figure 1.

2. Put on protective mask (1).
3. Clear and seal protective mask (1).

WARNING

Spring clip on filter assembly air intake must be pulled so intake holes are open for gas particulate filter system to work. Failure to pull out clip may result in serious injury or death to personnel.

4. Pull out on spring clip (4) to uncover intake holes (5).

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GAS PARTICULATE FILTER UNIT (GPFU) OPERATION - Continued

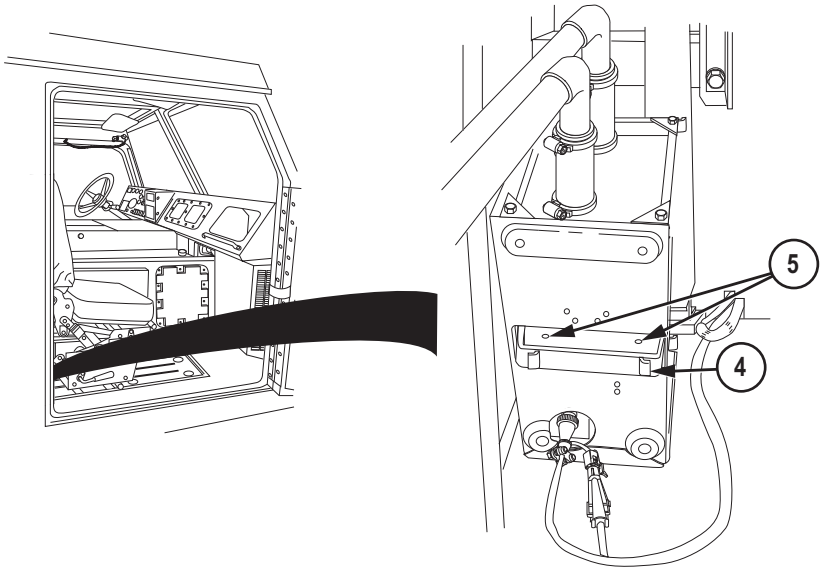


Figure 2.

5. Press GAS PART (particulate) FILTER switch (6) to ON position.

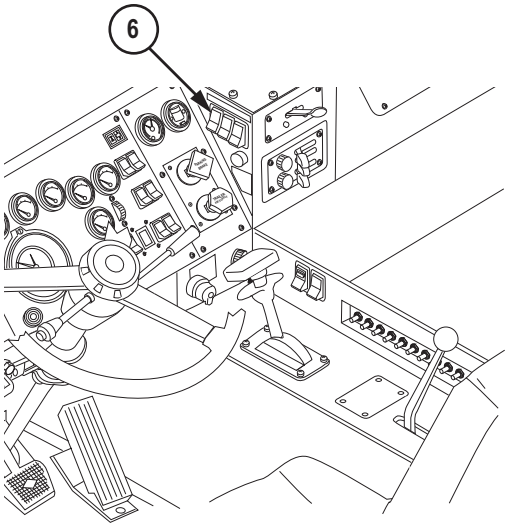


Figure 3.

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GAS PARTICULATE FILTER UNIT (GPFU) OPERATION - Continued

NOTE

Three hoses are located on left cab wall behind driver seat. Two hoses are located on right cab wall behind passenger seat.

6. Disconnect air duct hose breakaway socket (7) from mount (8).

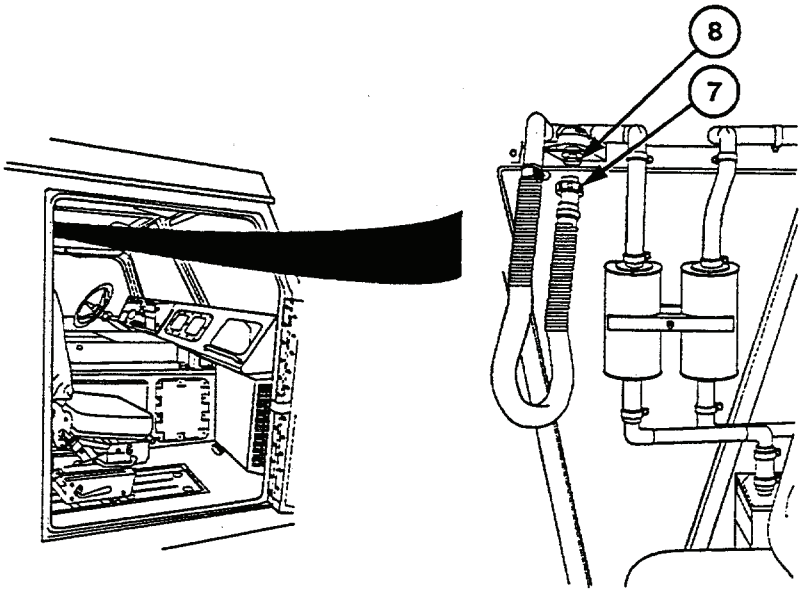


Figure 4.

7. Connect air duct hose breakaway socket (7) to canister (2) of protective mask (1) and breathe through mask.

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GAS PARTICULATE FILTER UNIT (GPFU) OPERATION - Continued

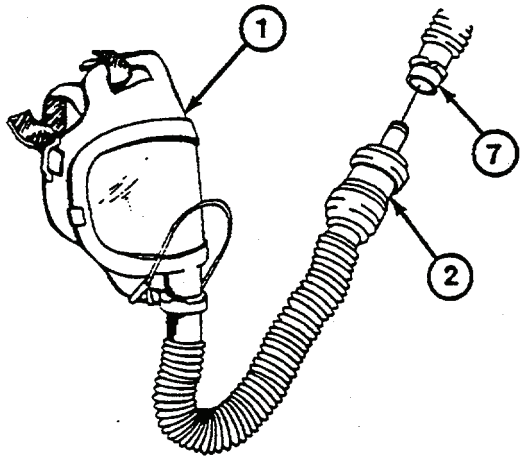


Figure 5.

END OF TASK

GAS PARTICULATE FILTER HOSE REMOVAL AND STOWAGE

NOTE

Perform Steps (1) through (5) only when CBRN attack is over or when ordered to do so.

1. When protective mask (1) is no longer needed, disconnect air duct hose breakaway socket (2) from canister (3).

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GAS PARTICULATE FILTER HOSE REMOVAL AND STOWAGE - Continued

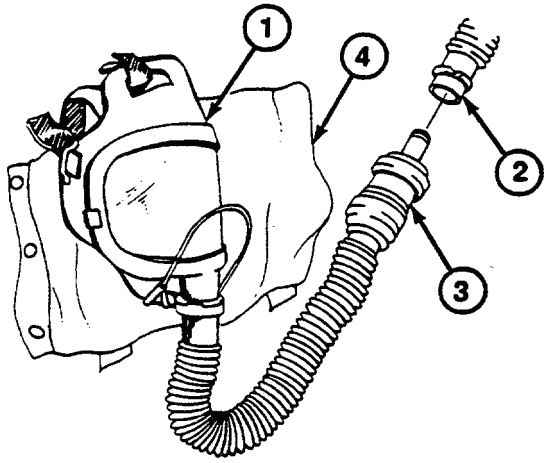


Figure 6.

2. Remove mask (1) and place in pouch (4).
3. Press GAS PART (particulate) FILTER switch (5) to OFF position.

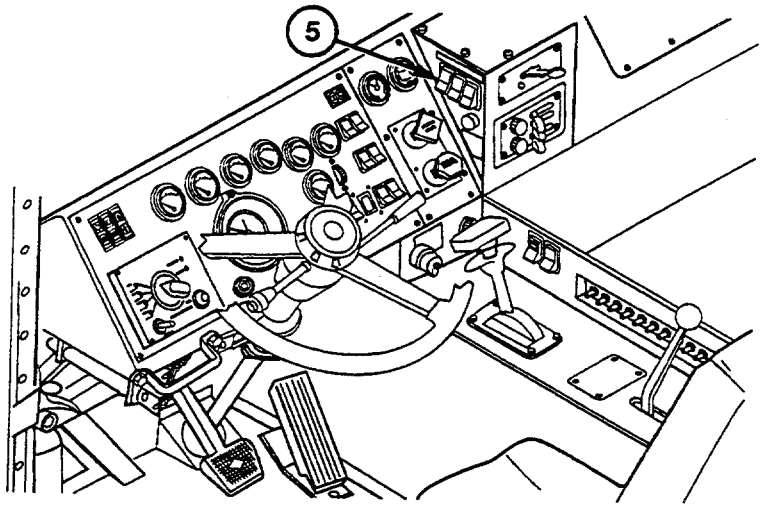


Figure 7.

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GAS PARTICULATE FILTER HOSE REMOVAL AND STOWAGE - Continued

4. Push in on spring clip (6) to cover intake holes (7).

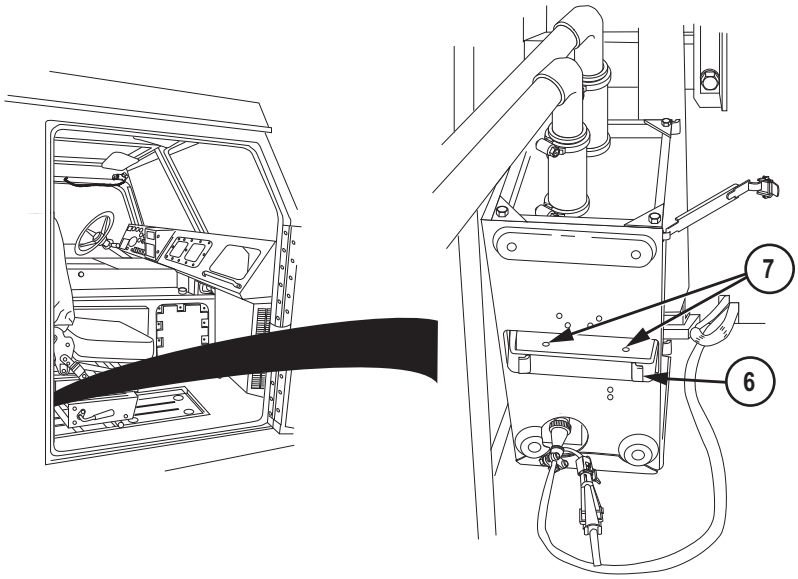


Figure 8.

5. Connect air duct hose breakaway socket (2) to mount (8).

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GAS PARTICULATE FILTER HOSE REMOVAL AND STOWAGE - Continued

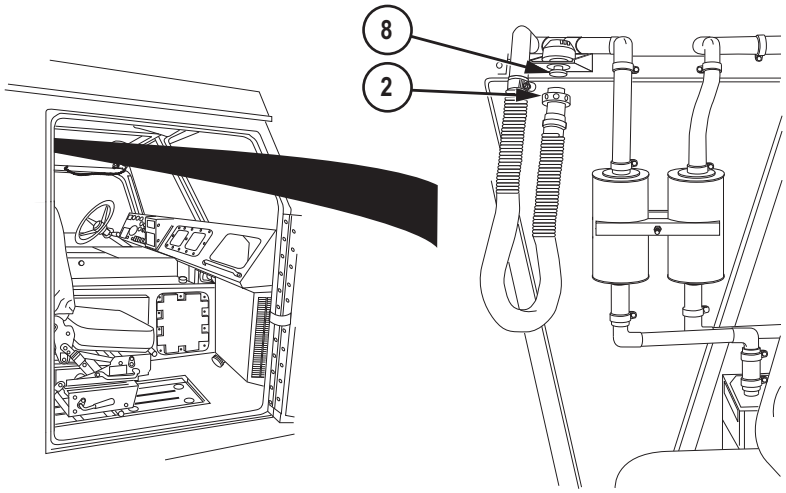


Figure 9.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
RIFLE STOWAGE MOUNT OPERATION

INITIAL SETUP:

Not Applicable

RIFLE STOWAGE IN STOWAGE MOUNT

NOTE

There are two rifle mounts. Both are used the same way.

1. Position rifle butt (1) in lower support (2) with trigger guard (3) toward rear.

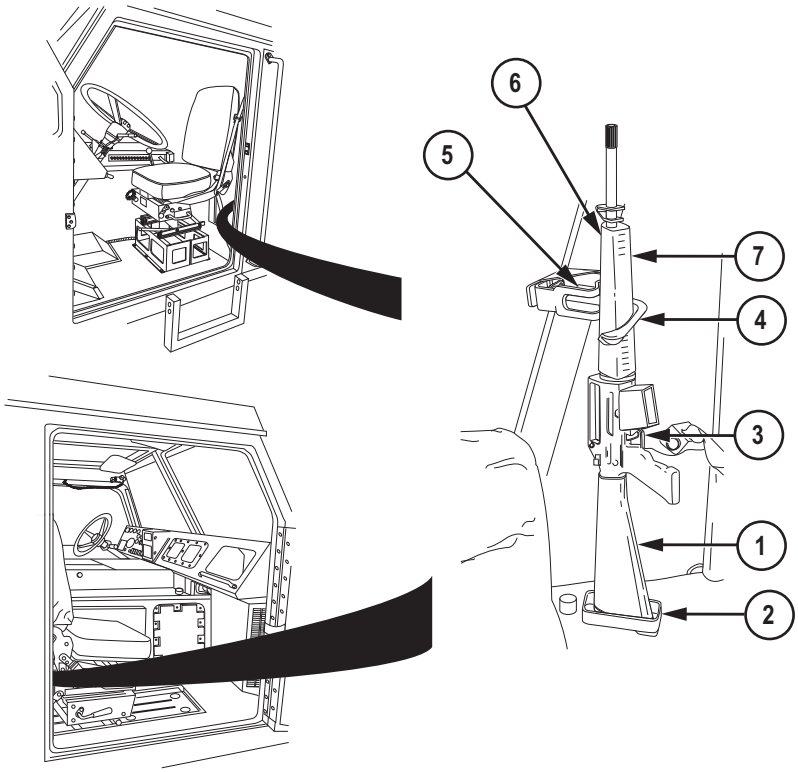


Figure 1.

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RIFLE STOWAGE IN STOWAGE MOUNT - Continued

2. Pull handle (4) of top mount (5) out and toward middle of cab.
3. Place rifle heat guard (6) in top mount (5).
4. Push handle (4) across heat guard (6).
5. Ensure rifle (7) is held tightly in mount.

END OF TASK

RIFLE REMOVAL FROM STOWAGE MOUNT

1. Pull handle (1) of top mount (2) out and toward outside of cab.

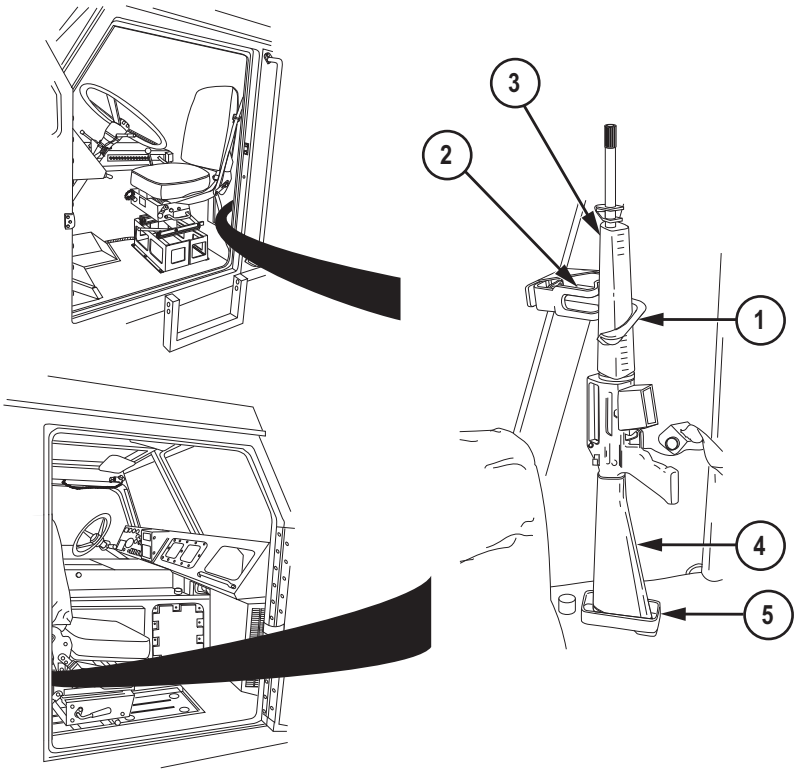


Figure 2.

2. Remove rifle heat guard (3) from top mount (2).

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RIFLE REMOVAL FROM STOWAGE MOUNT - Continued

3. Remove rifle butt (4) from lower support (5).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CHEMICAL ALARM KIT OPERATION

INITIAL SETUP:

References
TM 3-6665-225-12 (WP 0113)

OPERATE CHEMICAL ALARM

Refer to TM 3-6665-225-12 (WP 0113) for operating instructions.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
DECONTAMINATION KIT OPERATION

INITIAL SETUP:

References
TM 3-4230-214-12&P (WP 0113)

OPERATE DECONTAMINATION KIT

Refer toTM 3-4230-214-12&P (WP 0113) for operating instructions.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
RADIO OPERATION

INITIAL SETUP:

References
TM 11-5820-401-10-1 (WP 0113)
TM 11-5820-890-10-1 (WP 0113)

OPERATE RADIO

Refer to TM 11-5820-401-10-1 (WP 0113) (AN/VRC-46) or TM 11-5820-890-10-1 (WP 0113) (AN/VRC-90) for operating instructions.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE CAB INTERNAL LIGHTS

INITIAL SETUP:

Not Applicable

CAB INTERNAL LIGHTS

NOTE

- Model A dash panel shown, Model B dash panel similar.
- BLACK OUT LIGHTS switch must be in off position for cab internal lights to operate.

1. Turn ENGINE switch (1) to ON position.

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CAB INTERNAL LIGHTS - Continued

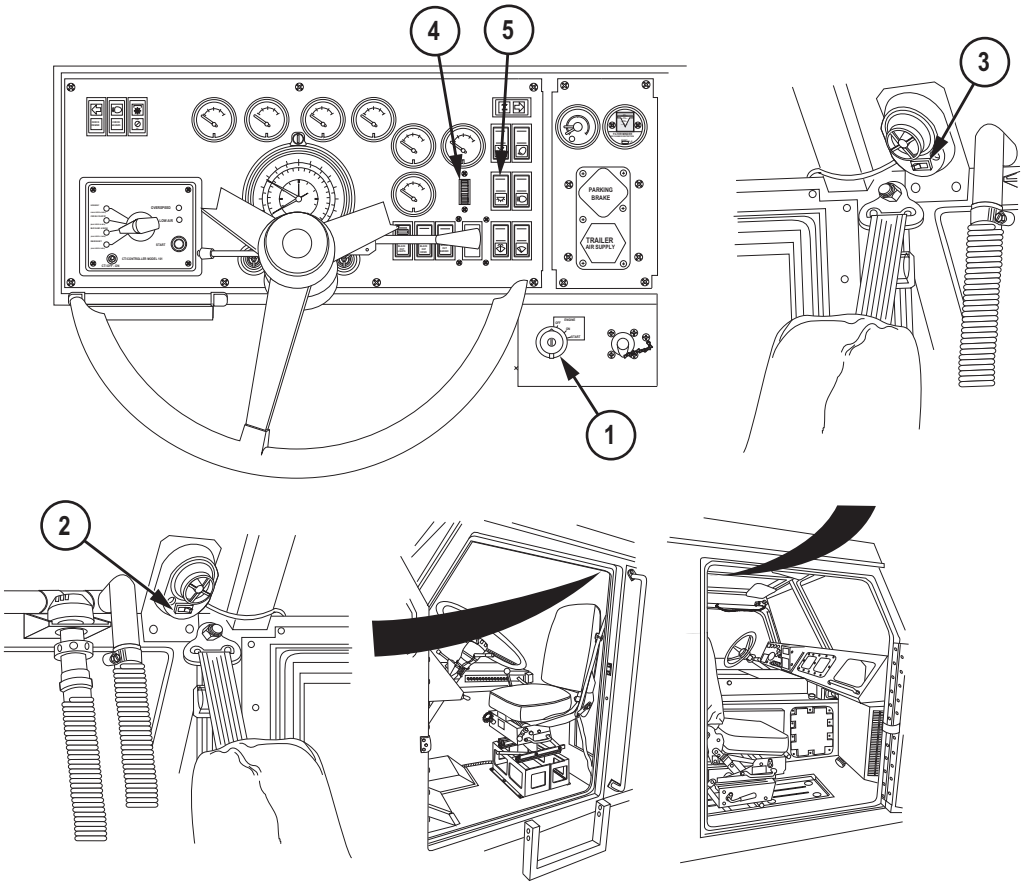


Figure 1.

2. Operate map lights:
   a. Press driver side map light switch (2) right to turn off, left to turn on.
   b. Press passenger side map light switch (3) right to turn off, left to turn on.
3. Operate panel lights:
   a. Roll instrument panel lighting control (4) up to brighten instrument panel lights.
   b. Roll instrument panel lighting control (4) down to dim instrument panel lights.
   c. Roll switch, either up or down, until it stops to turn panel lights off.
4. Operate dome light:

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CAB INTERNAL LIGHTS - Continued

a. Push dome light switch (5) down to turn dome light on.

b. Push dome light switch (5) up to turn dome light off.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE BEACON AND EXTERNAL-MOUNTED WORK LIGHTS

INITIAL SETUP:

Not Applicable

NOTE

- Model B dash panel shown, Model A dash panel similar.
- BLACK OUT LIGHTS switch (WP 0018) must be off for external work lights to operate.
- Emergency flashers will work with engine switch in any position.

1. Turn ENGINE switch (1) to ON position. (WP 0018)

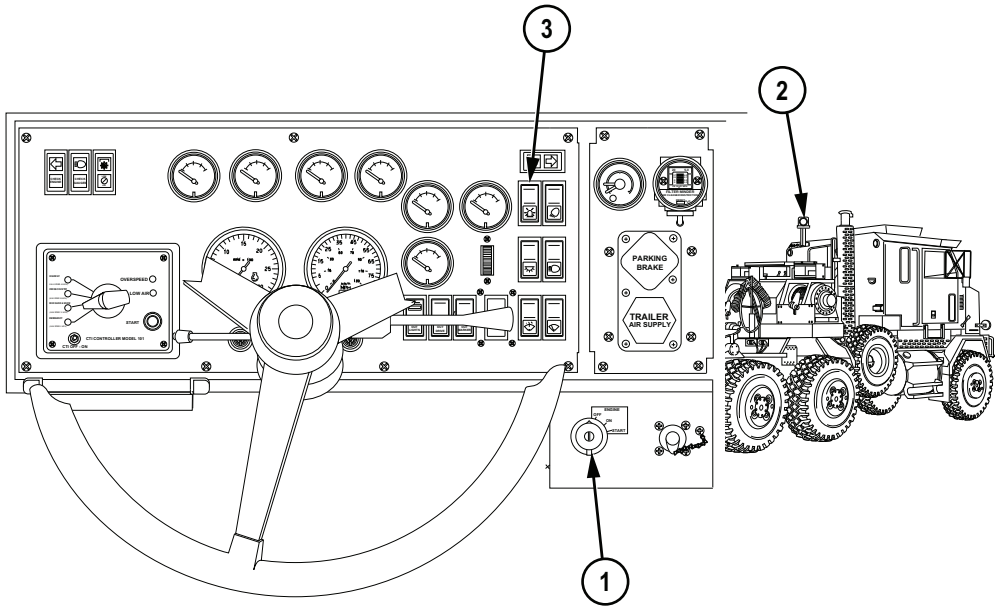


Figure 1.

2. Operate beacon light (2):
   a. Push beacon light switch (3) down to turn beacon light (2) on.

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b. Push beacon light switch (3) up to turn beacon light (2) off.

3. Operate external mounted work lights (4):
   a. Push work light switch (5) down to turn work lights on.
   b. Push work light switch (5) up to turn work lights off.

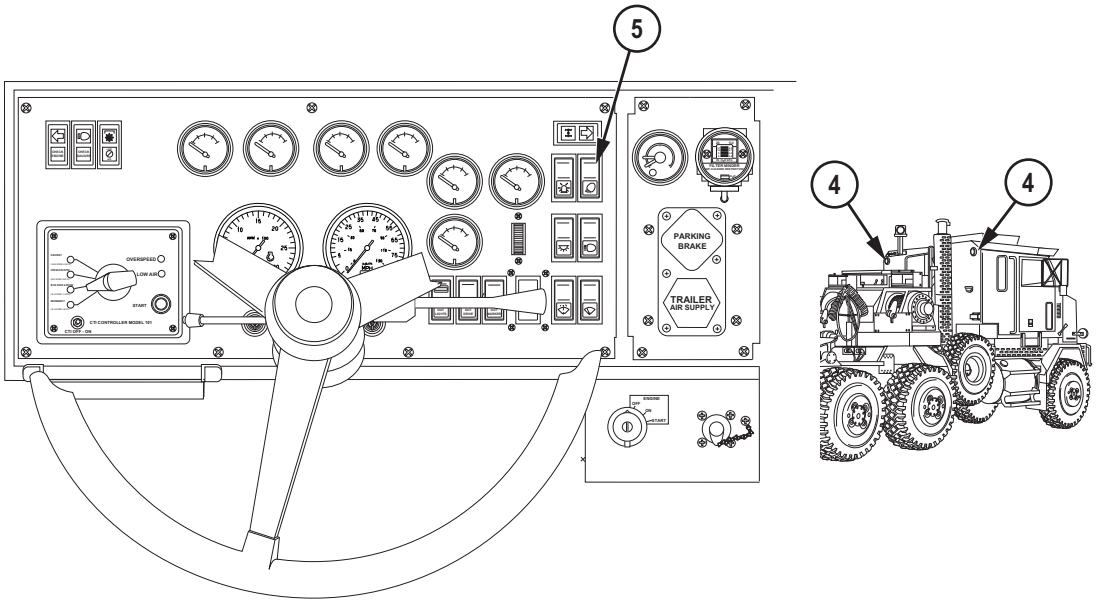


Figure 2.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE SERVICE DRIVE LIGHTS

INITIAL SETUP:

Not Applicable

SERVICE DRIVE LIGHTS

CAUTION

Failure to place light switches in the off position when vehicle is not in use may cause battery and/or vehicle damage.

NOTE

- Model A dash panel shown, Model B dash panel similar.
- BLACK OUT LIGHTS switch (WP 0015) must be off for service drive lights to operate.

1. Turn ENGINE switch (1) to ON position. (WP 0018)

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SERVICE DRIVE LIGHTS - Continued

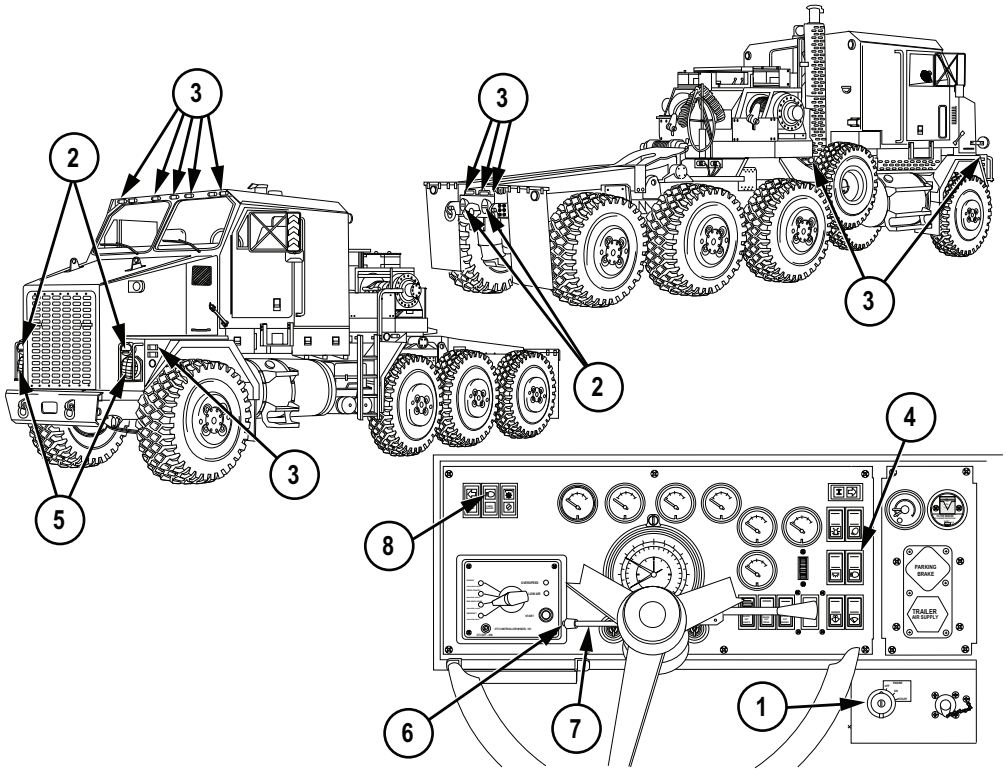


Figure 1.

2. Operate parking (2) and clearance lights (3):
   a. Push headlights switch (4) (WP 0015) to center position to turn parking (2) and clearance lights (3) on.
   b. Push headlights switch (4) (WP 0015) to full up position to turn parking (2) and clearance lights (3) off.

NOTE

Parking and clearance lights are turned on when headlights are on.

3. Operate headlights (5):
   a. Push headlights switch (4) (WP 0015) to full down position to turn headlights (5) on.

      Press headlight dimmer switch (6) on end of turn signal lever (7) to turn headlight high beams on/off. High beam indicator (8) illuminates (blue) when headlight high beams are on.

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SERVICE DRIVE LIGHTS - Continued

b. Push headlights switch (4) (WP 0015) to full up position to turn headlights (5) off.

NOTE

BLACK OUT LIGHTS switch (WP 0015) must be off for reverse light to operate.

4. Operate reverse light (9):
   a. Reverse light (9) will illuminate when transmission range selector (10) is set to R (reverse) position.
   b. Reverse light (9) will go out when transmission range selector (10) is set to any position other than R (reverse).

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SERVICE DRIVE LIGHTS - Continued

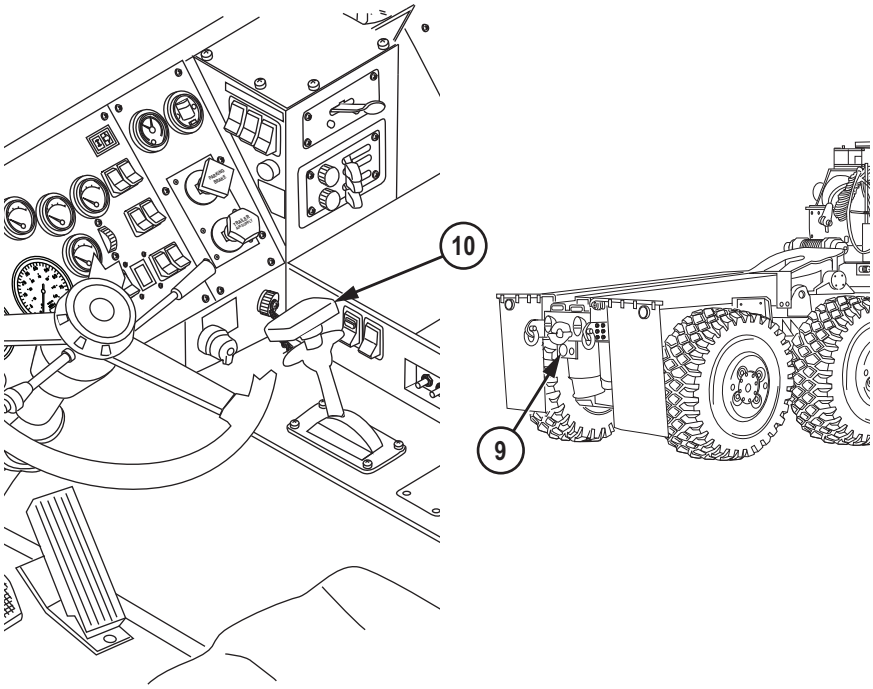


Figure 2.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE BLACKOUT LIGHTS

INITIAL SETUP:

Not Applicable

NOTE

- Model A dash panel shown, Model B dash panel similar.
- City horn, reverse alarm, reverse light, cab internal lights, cab external lights, emergency flashers, turn signals, and service drive lights will not operate when BLACK OUT LIGHTS switch is set to on position.

1. Turn ENGINE switch (1) to ON position.

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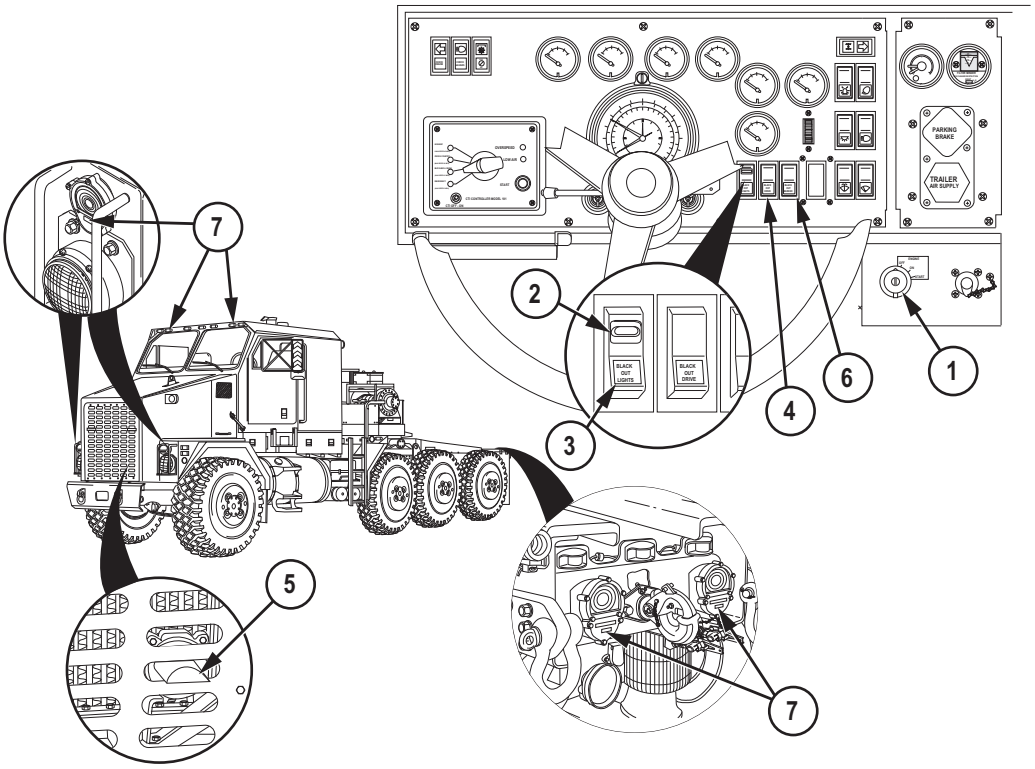


Figure 1.

2. Turn blackout lights on:

NOTE

- Safety lock on BLACK OUT LIGHTS switch must be pressed and held before BLACK OUT LIGHTS switch can be operated.
- Safety lock on BLACK OUT LIGHTS switch locks switch in both on and off positions.

   a. Push safety switch (2) down and hold while pushing BLACK OUT LIGHTS switch (3) down (on position).

   b. Push BLACK OUT DRIVE switch (4) down to turn blackout drive light (5) on.

   c. Push BLACK OUT MARKER switch (6) down to turn blackout marker lights (7) on.

3. Turn blackout lights off:

   a. Push BLACK OUT DRIVE switch (4) up to turn blackout drive light (5) off.

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b. Push BLACK OUT MARKER switch (6) up to turn blackout marker lights (7) off.

NOTE

- Safety lock on BLACK OUT LIGHTS switch must be pressed and held before BLACK OUT LIGHTS switch can be operated.
- Safety lock on BLACK OUT LIGHTS switch locks switch in both on and off positions.

c. Push safety switch (2) down and hold while pushing BLACK OUT LIGHTS switch (3) up (off position).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE EMERGENCY FLASHERS

INITIAL SETUP:

Not Applicable

EMERGENCY FLASHERS

NOTE

- Model A dash panel shown, Model B dash panel similar.
- BLACK OUT LIGHTS switch (WP 0015) must be in off position for emergency flashers to operate.
- Emergency flashers will work with engine switch in any position.

1. Push in emergency flasher control (1). (WP 0014) Both left (2) and right (3) turn indicators, and front (4) and rear (5) composite lights will flash simultaneously at approximately once per second.

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EMERGENCY FLASHERS - Continued

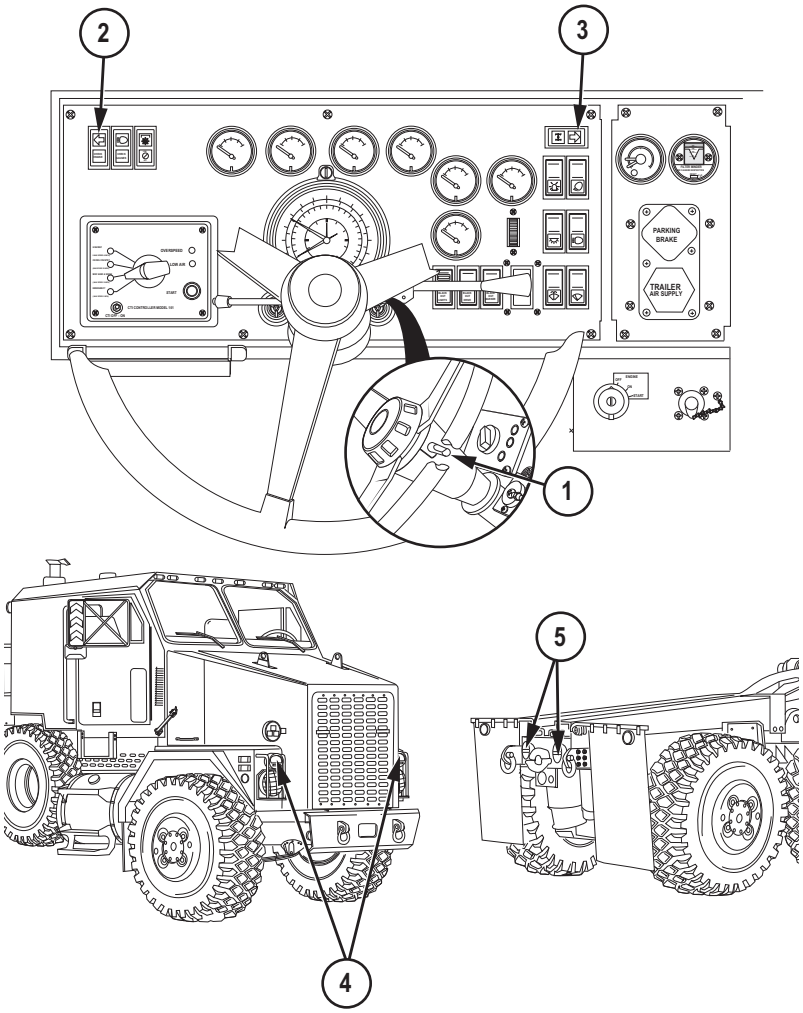


Figure 1.

NOTE

Perform Step (2) when emergency flashers are no longer desired.

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EMERGENCY FLASHERS - Continued

2. Pull out emergency flasher control (1) (WP 0014) when emergency flashers are no longer desired. Turn indicators (2 and 3) and composite lights (4 and 5) will go out.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE TURN SIGNALS

INITIAL SETUP:

Not Applicable

TURN SIGNAL OPERATION

NOTE

Model A dash panel shown, Model B dash panel similar.

1. Turn ENGINE switch (1) to ON position.

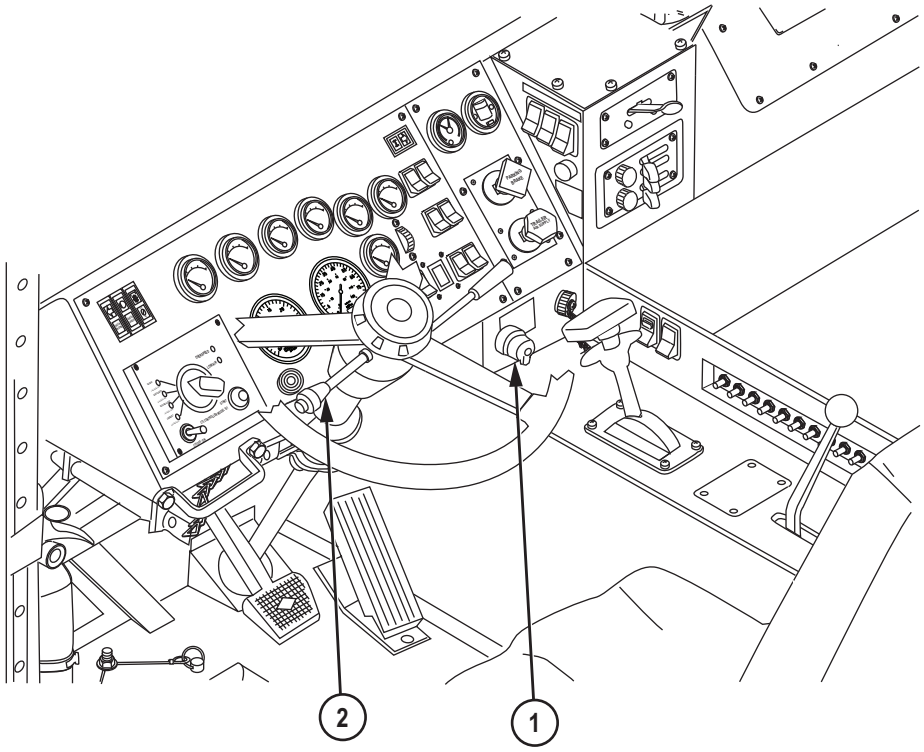


Figure 1.

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TURN SIGNAL OPERATION - Continued

2. Push turn signal lever (2) up to activate right turn signal. Pull turn signal lever down to activate left turn signal.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE PORTABLE WORK LIGHT

INITIAL SETUP:

Not Applicable

PORTABLE WORK LIGHT

NOTE

- Model A dash panel shown, Model B dash panel similar.
- BLACK OUT LIGHTS switch must be off for external lights to operate.
- Passenger side and driver side portable work lights operate the same way. Passenger side shown.

1. Retrieve portable work light (1) and portable work light coiled wire harness (2) from BII stowage.

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PORTABLE WORK LIGHT - Continued



Figure 1.

2. Remove connector cover (3) from portable work light (1).
3. Connect one end of portable work light coiled wire harness (2) to portable work light (1).
4. Remove connector cover (4) from portable work light connector (5) on rear of cab.

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PORTABLE WORK LIGHT - Continued

5. Connect remaining end of portable work light coiled wire harness (2) to portable work light connector (5).
6. Turn ENGINE switch (6) to ON position.

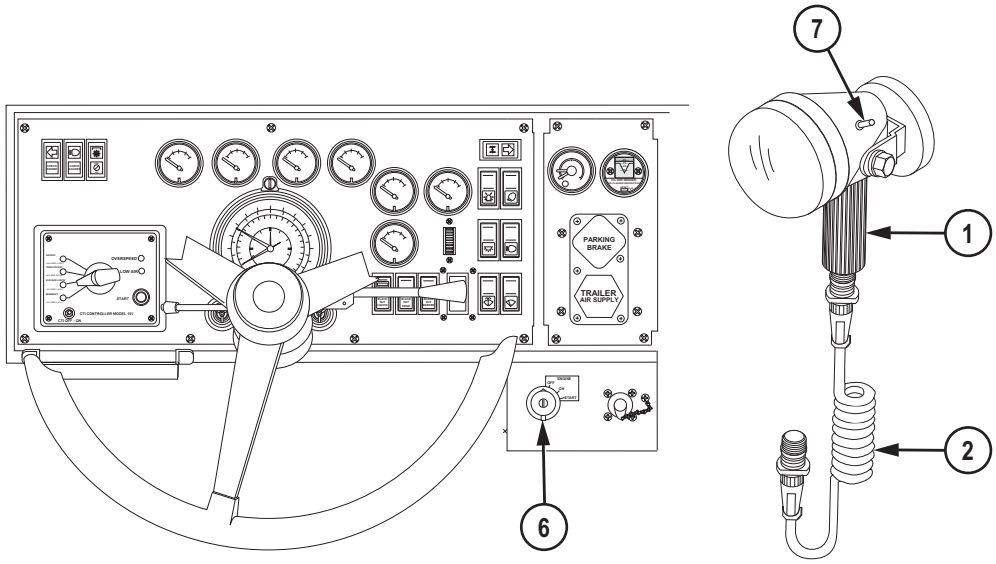


Figure 2.

7. Push switch (7) on portable work light (1) up to turn portable work light on, down to turn portable work light off.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXTEND/STOW FOOTREST

INITIAL SETUP:

Not Applicable

EXTEND FOOTREST

1. Remove two lockpins (1) from holes (2).

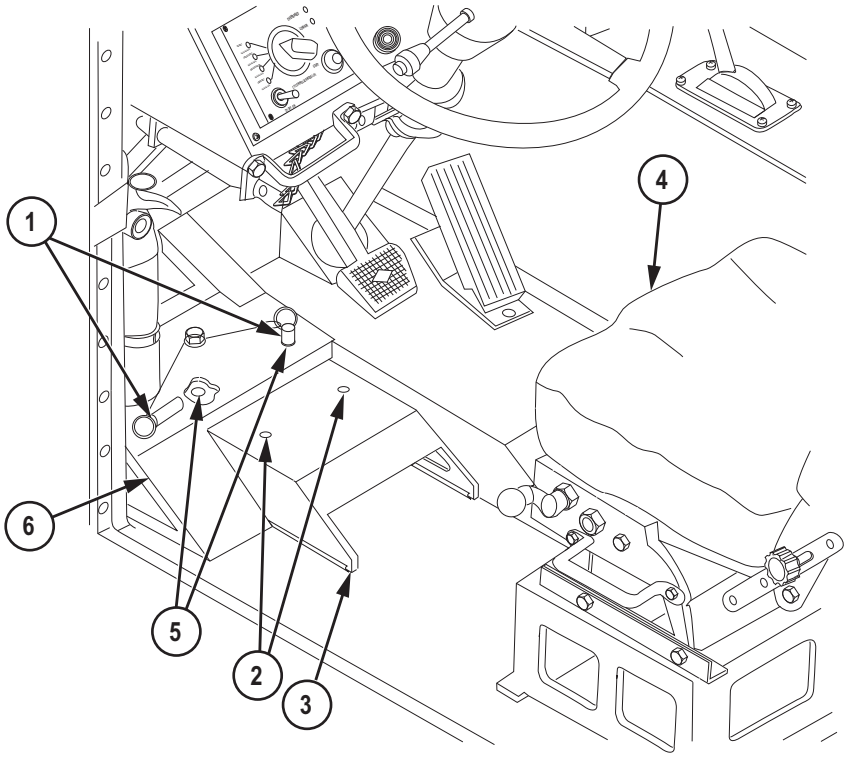


Figure 1.

2. Pull footrest (3) toward seat (4) until holes (5) are aligned.

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EXTEND FOOTREST - Continued

3. Install two lockpins (1) in holes (5).

END OF TASK

STOW FOOTREST

1. Remove two lockpins (1) from holes (2).

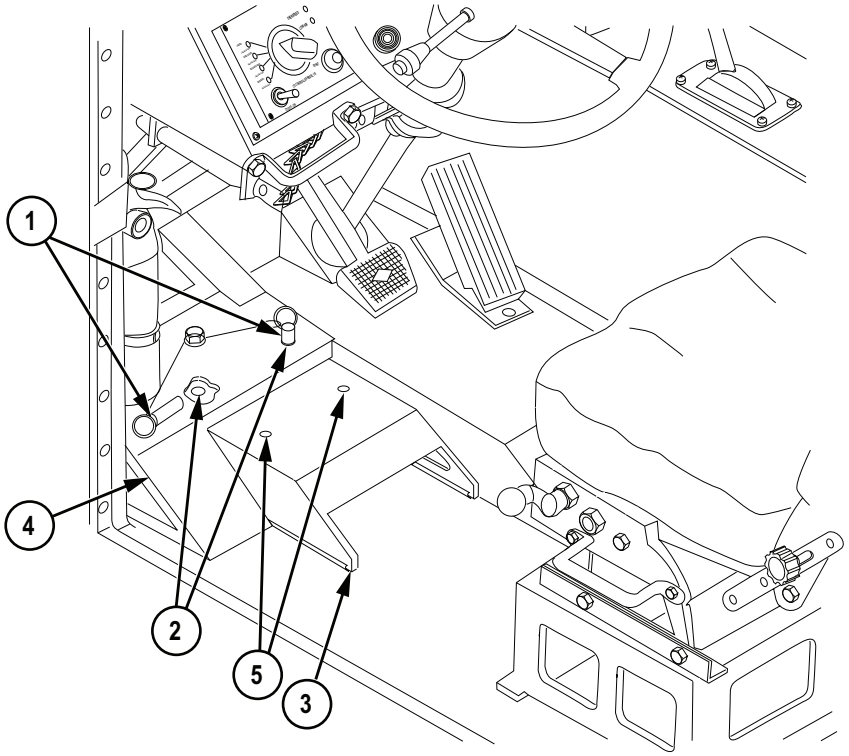


Figure 2.

2. Push footrest (3) forward under floorbox (4) until holes (5) are aligned.
3. Install two lockpins (1) in holes (5).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
ADJUST DRIVER'S SEAT

INITIAL SETUP:

Not Applicable

NOTE

Sit in seat to make the following adjustments.

1. Adjust cushion firmness:
   a. Turn ride adjustment control (1) clockwise to increase cushion firmness.
   b. Turn ride adjustment control (1) counterclockwise to decrease cushion firmness.

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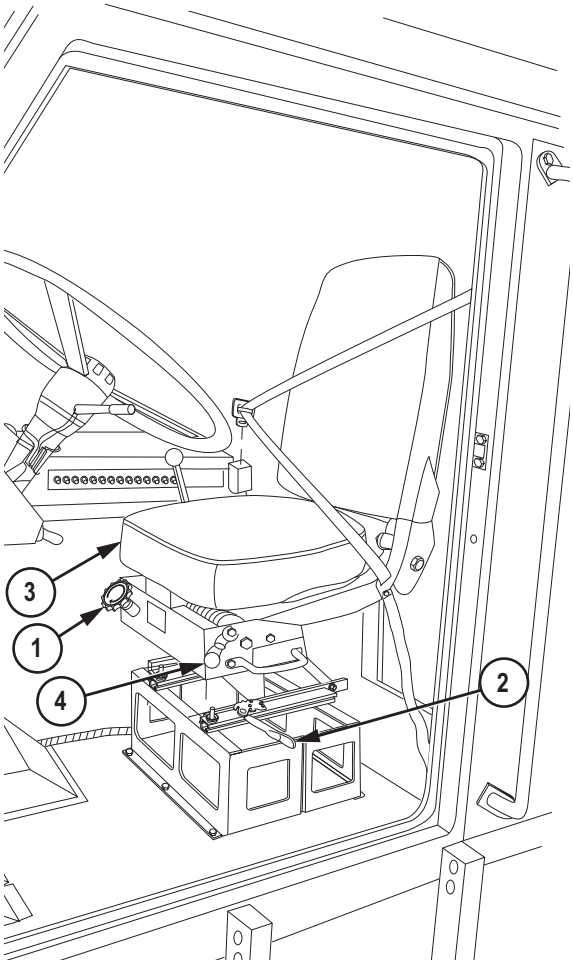


Figure 1.

2. Adjust seat position:
   a. Push forward/backward adjustment control (2) to left and slide seat (3) forward or backward.
   b. Release forward/backward adjustment control (2) to lock seat (3) in place.
3. Adjust seat height:
   a. Pull height adjustment control (4) up and lift self off seat (3) to raise.
   b. Push down on seat (3) to lower.

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c. Release height adjustment control (4) to lock seat (3) at desired height.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE DRIVER'S SEAT BELT

INITIAL SETUP:

Not Applicable

1. Insert seat belt flat metal end (1) in buckle (2) until click is heard.

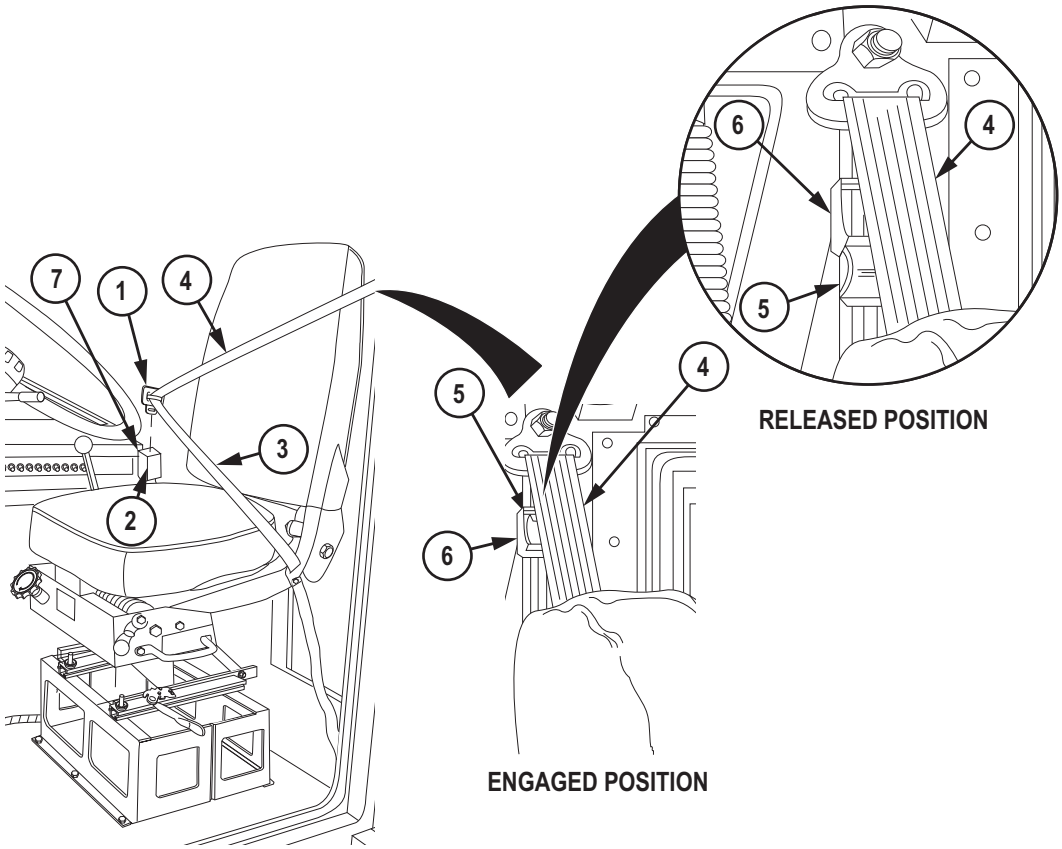


Figure 1.

2. Place lap belt (3) as low on hips as possible.

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NOTE

Seat belt does not have self-adjusting lock. Pull shoulder belt to take out slack from lap belt.

3. Pull shoulder belt (4) until lap belt (3) fits snug.
4. Adjust shoulder belt (4) with no more than 1 in. (2.5 cm) slack between chest and shoulder belt (4).
5. Lift up release lever (5) of comfort latch (6) to clamp shoulder belt (4) in place.
6. Pull down on shoulder belt (4) to release lever (5) of comfort latch (6).
7. Push down on red button (7) to release lap belt (3). Pull out seat belt flat metal end (1).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
ADJUST PASSENGER SEAT

INITIAL SETUP:

Not Applicable

ADJUST PASSENGER SEAT

NOTE

Sit in seat to make adjustments.

1. Adjust cushion firmness:
   a. Turn ride adjustment control (1) clockwise to increase cushion firmness.
   b. Turn ride adjustment control (1) counterclockwise to decrease cushion firmness.

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ADJUST PASSENGER SEAT - Continued

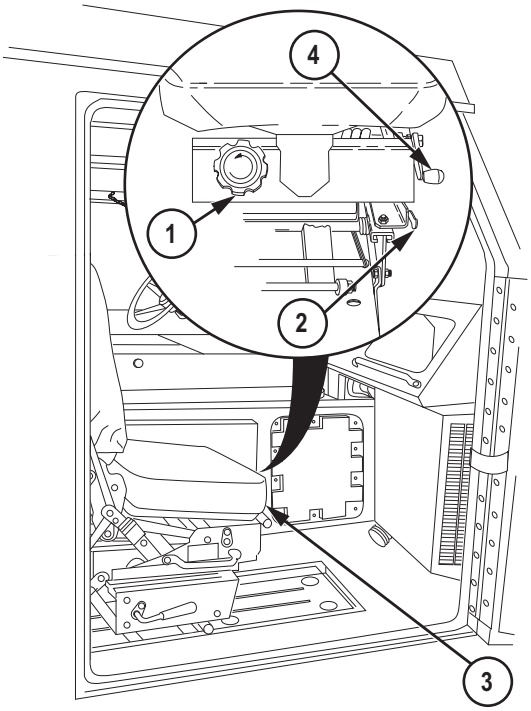


Figure 1.

2. Adjust seat position:
   a. Push forward/backward adjustment control (2) to left and slide seat (3) forward or backward.
   b. Release forward/backward adjustment control (2) to lock seat (3) in place.
3. Adjust seat height:
   a. Pull height adjustment control (4) up and lift self off seat (3) to raise.
   b. Push down on seat (3) to lower.
   c. Release height adjustment control (4) to lock seat (3) at desired height.
4. Allow access to/from rear seat:

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ADJUST PASSENGER SEAT - Continued

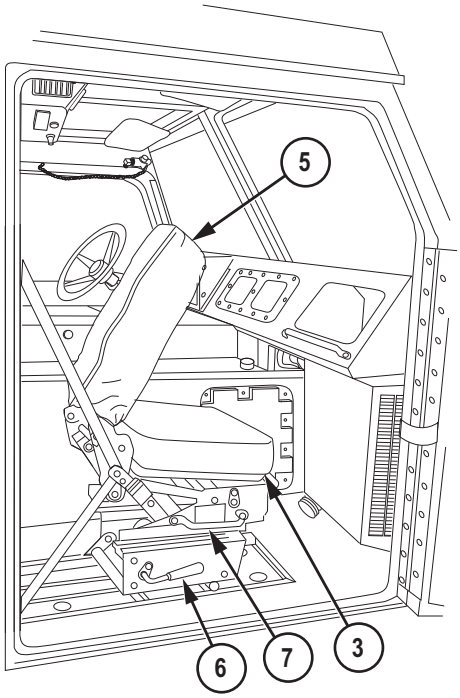


Figure 2.

a. Lift backrest (5) up and push forward.

WARNING

Seat belts must be disconnected when pivoting passenger seat forward for rear passenger seat access. Failure to comply may result in serious injury to personnel.

b. Pull seat lift control (6) up, lift seat (3) using grab handle (7), and push seat (3) forward.

c. Release seat lift control (6).

d. Push seat (3) rearward and down until it clicks to return seat (3) to operating position.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE PASSENGER'S SEAT BELT

INITIAL SETUP:

Not Applicable

1. Insert seat belt flat metal end (1) in buckle (2) until click is heard.

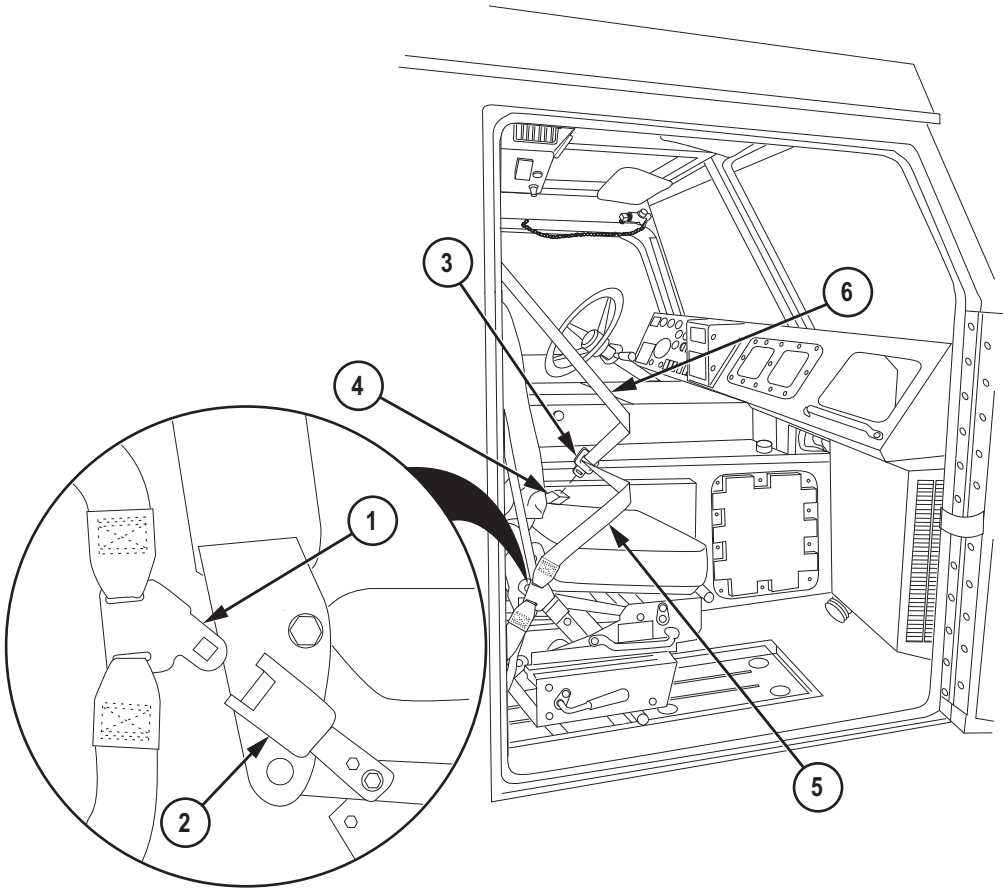


Figure 1.

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2. Insert seat belt flat metal end (3) in buckle (4) until click is heard.
3. Place lap belt (5) as low on hips as possible.

NOTE

Seat belt does not have self-adjusting lock. Pull shoulder belt to take out slack from lap belt.

4. Pull shoulder belt (6) until lap belt (5) fits snug.
5. Adjust shoulder belt (6) with no more than 1 in. (2.5 cm) slack between chest and belt (6).

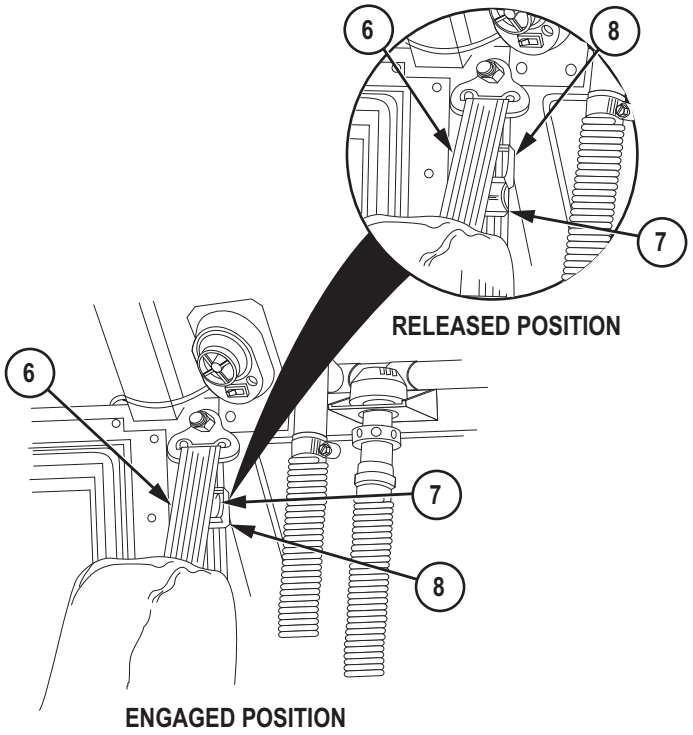


Figure 2.

6. Lift up lever (7) of comfort latch (8) to clamp shoulder belt (6) in place.
7. Pull down on shoulder belt (6) to release lever (7) of comfort latch (8).
8. Push down on red button (9) on buckle (4) to release seat belt (10).

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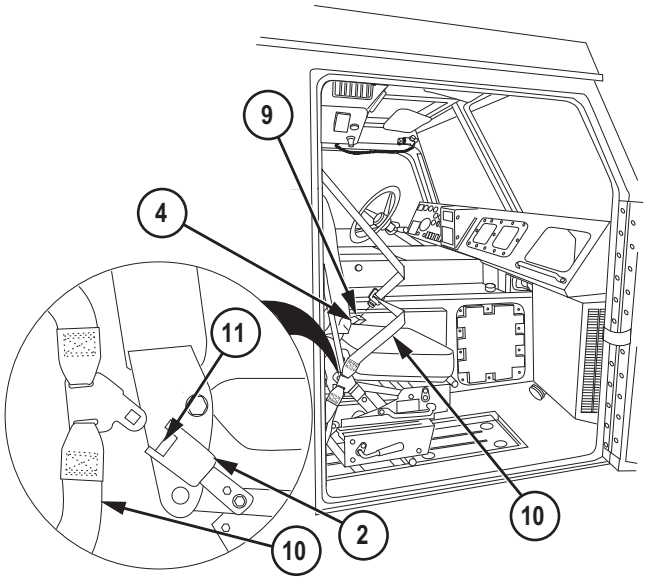


Figure 3.

NOTE

Seat belts must be disconnected when pivoting passenger's seat forward for rear passenger seat access.

9. Push down red button (11) on buckle (2) to release seat belt (10).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
REAR SEAT/BED CONVERSION

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (2)

1. Change rear seat to beds:
   a. Pull up lever (1) while assistant pulls up lever (2) and raise back of seat (3) until it is in horizontal position (shown).

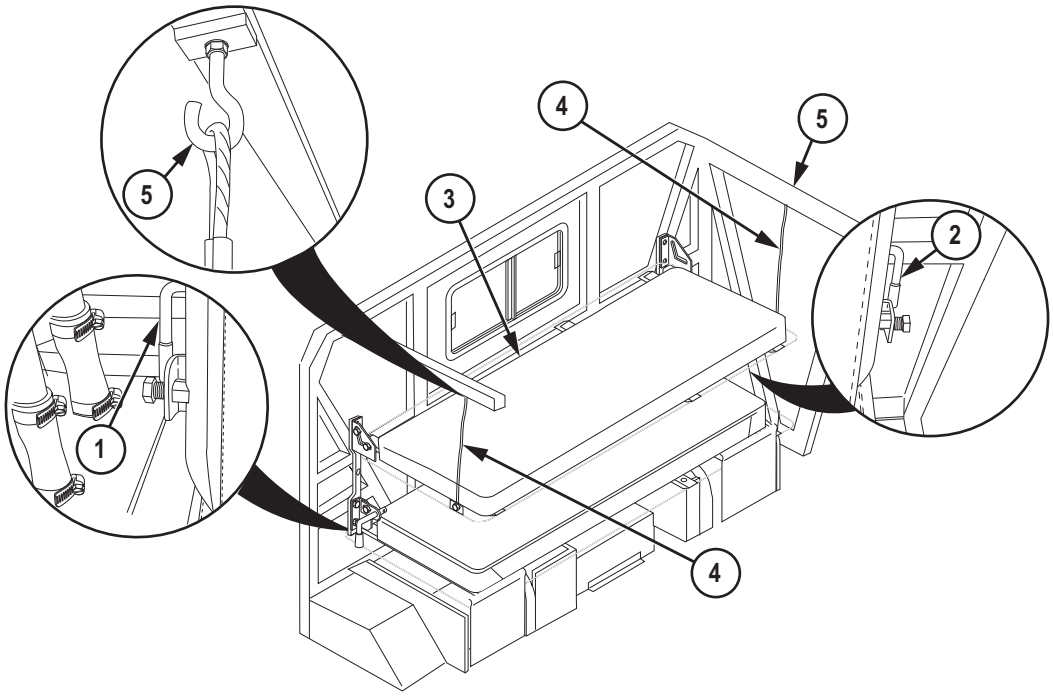


Figure 1.

   b. With the aid of an assistant, attach two cables (4) to two hooks (5) on back of seat (3).
2. Change beds to rear seat:

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a. With the aid of an assistant, remove two cables (4) from two hooks (5) on back of seat (3).

b. With the aid of an assistant, lower back of seat (3) until it is in vertical position.

c. Push in back of seat (3) and ensure back of seat (3) is locked in place.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATE REAR SEAT BELTS

INITIAL SETUP:

Not Applicable

NOTE

Passenger side and driver side outer seat belts are operated the same way. Passenger side is shown.

1. Operate outer two seat belts:
   a. Insert seat belt flat metal end (1) in buckle (2) until click is heard.

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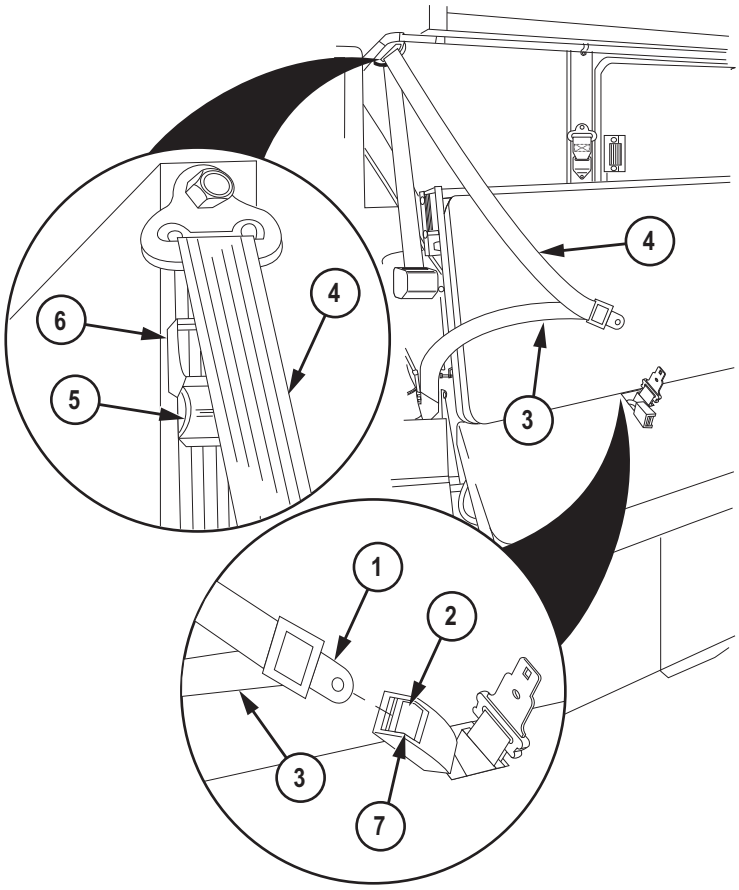


Figure 1.

b. Place lap belt (3) as low on hips as possible.

NOTE

Seat belt does not have self-adjusting lock. Pull shoulder belt to take out slack from seat belt.

c. Pull shoulder belt (4) until lap belt (3) is snug.

d. Adjust shoulder belt (4) with no more than 1 in. (2.5 cm) slack between chest and belt (4).

e. Lift up lever (5) of comfort latch (6) to clamp shoulder belt (4) in place.

f. Pull down on shoulder belt (4) to release lever (5) of comfort latch (6).

g. Push down on red button (7) on buckle (2) to release seat belt (8).

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2. Operate inner two seat belts:

NOTE

Passenger side and driver side inner seat belts are operated the same way. Passenger side is shown.

a. Insert seat belt flat metal end (1) in buckle (2) until click is heard.

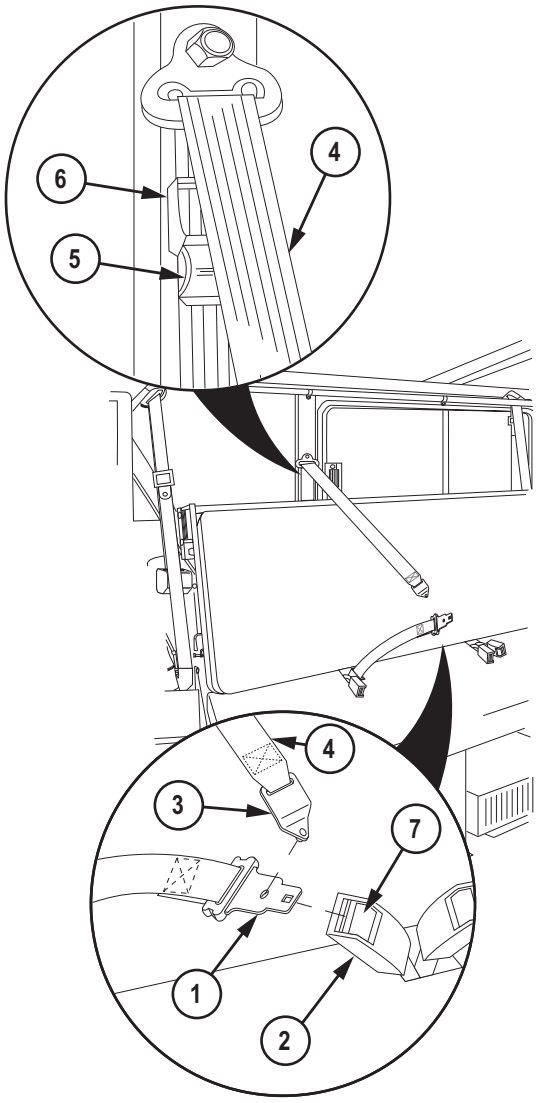


Figure 2.

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b. Insert shoulder belt metal end (3) in seat belt flat metal end (1).

NOTE

Seat belt does not have self-adjusting lock. Pull shoulder belt to take out slack from seat belt.

c. Adjust shoulder belt (4) with no more than 1 in. (2.5 cm) slack between chest and belt (4).

d. Lift up lever (5) of comfort latch (6) to clamp shoulder belt (4) in place.

e. Pull down on shoulder belt (4) to release lever (5) of comfort latch (6).

f. Remove shoulder belt metal end (3) from seat belt flat metal end (1).

g. Push down on red button (7) on buckle (2) to release seat belt flat metal end (1).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
INSTALL/REMOVE WHEEL CHOCKS

INITIAL SETUP:

Not Applicable

INSTALL WHEEL CHOCKS

NOTE

- Vehicle is equipped with four wheel chocks.
- Always chock tires if vehicle is shutdown on uneven terrain.
- Always chock tires if vehicle parking brake is inoperative.
- Ensure local policy for chocking vehicle tires is followed.

1. Remove two wheel chocks (1) from stowage.

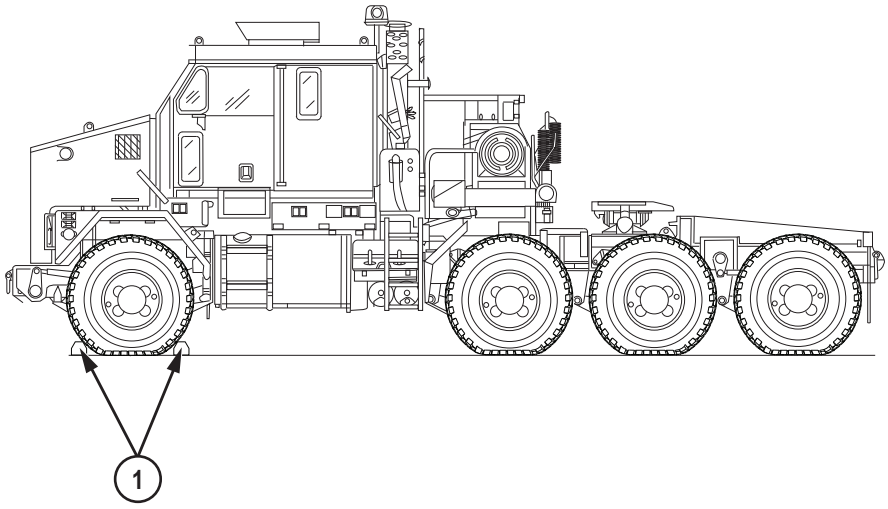


Figure 1.

2. Place wheel chocks (1) snugly against front and rear of tire (No. 1 axle driver side tire shown).

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REMOVE WHEEL CHOCKS

NOTE

- Vehicle is equipped with four wheel chocks.
- Ensure local policy for removing wheel chocks is followed.

1. Remove wheel chocks (1) from front and rear of tire (No. 1 axle driver side tire shown).

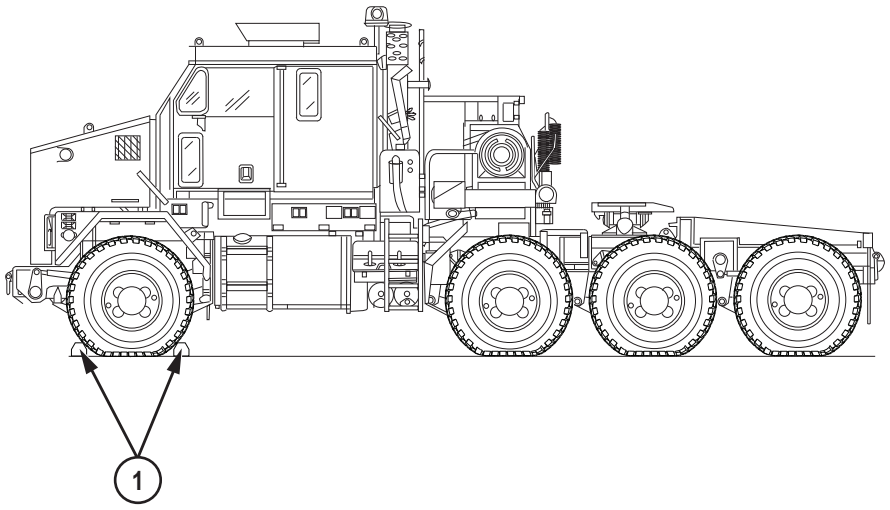


Figure 2.

2. Return wheel chocks (1) to stowage.
3. Repeat Steps (1) and (2) if more than one wheel is chocked.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION IN DESERT ENVIRONMENT

INITIAL SETUP:

References
FM 90-3 (WP 0113)

1. Principles of operating in extreme heat (WP 0072), operating in extreme dust (WP 0073), and operating in sand or mud (WP 0075) apply to desert environment operation.
2. Temperatures can change as much as 70°F (21°C) between day and night. These changes can damage equipment if HET Tractor is not properly prepared.
   a. Due to expansion and contraction of all fluids and air, care should be taken when filling fuel tanks and fluid reservoirs to prevent overflow when temperatures change.
   b. Precision instruments can be affected by temperature changes and may need adjustment more often.
3. Refer to FM 90-3 (WP 0113) for detailed instructions on living and working in a desert environment.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION IN EXTREMELY COLD ENVIRONMENT, -50 TO -26°F (-46 TO -32°C)

INITIAL SETUP:

References
FM 9-207 (WP 0113)
FM 31-70 (WP 0113)

References - Continued
FM 21-305 (WP 0113)
FM 31-71 (WP 0113)

WARNING

Do not touch extremely cold metal (-26 to -65°F [-32 to -54°C]). Bare skin may freeze to cold metal. Failure to comply may result in serious injury or death to personnel.

CAUTION

- Drain fuel/water separator before topping off fuel tanks. Keep fuel tanks full during cold environment operations. Water forms in empty tanks as they cool. Water in system can freeze and block fuel flow to engine. Failure to comply may result in damage to equipment.
- Special care must be used during cold environment operations. In severe cold, engine coolant and windshield washer fluid can freeze. Batteries can freeze and crack. Oil and grease may get thick and stiff. Rubber will easily crack. Failure to comply may result in damage to equipment.
- Do not force dipstick removal (WP 0110) in cold environment. Wait 3 to 5 minutes after loosening dipstick before attempting to remove. Failure to comply may result in damage to equipment.

NOTE

- Before operating HET Tractor in extremely cold environment, ensure engine arctic kit is installed.
- Prepare HET Tractor IAW FM 9-207 (WP 0113) before operating in cold environment.
- Refer to FM 31-70, (WP 0113)FM 31-71, (WP 0113) and FM 21-305 (WP 0113) for additional information on operating in cold environment.
- CHECK ENGINE indicator (WP 0015) may illuminate (amber) during cold starts (WP 0037) in extremely cold environments. Typically, the

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CHECK ENGINE indicator (WP 0015) will illuminate 8 minutes after starting and go out 2-3 minutes later. If CHECK ENGINE indicator (WP 0015) stays on longer than 15 minutes after starting, refer to operator troubleshooting procedures.

1. Principles of operating in cold environment (WP 0076) apply to extreme cold environment.
2. Operate Swingfire arctic kit (WP 0044) or M12 EMI arctic heater (WP 0036) for approximately 25 minutes to warm up engine.
3. Idle engine rather than shutting it down during short stops.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION IN FOREST OR UNEVEN TERRAIN

INITIAL SETUP:

Not Applicable

WARNING

Avoid driving diagonally across a hill. HET Tractor may roll. Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure HET Tractor can clear ground obstructions, such as stumps and large rocks, before driving over. Stumps and rocks can damage components underneath HET Tractor.

1. Avoid driving over ground obstructions when possible.

CAUTION

Ensure HET Tractor can clear overhanging tree limbs and other obstructions. Low overhead obstructions can damage top of HET Tractor.

2. Avoid driving under low overhead obstructions when possible.
3. Steer HET Tractor straight up and down hills when possible. When necessary to drive across a hill:
   a. Choose lowest angle possible.
   b. Keep HET Tractor moving.
   c. Avoid quick, sharp turns.
   d. Driver Side fuel shutoff valve (WP 0028) should be closed while driving across hill when driver side of HET Tractor is higher than passenger side.
   e. Check tire traction and braking. Rocks and fallen leaves can be very slippery, especially when wet.

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f. Ensure tire and spare wheel are in good condition when driving over rocky terrain. Tire punctures are more likely to occur when operating on rocky terrain.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FORD WATER OBSTACLE

INITIAL SETUP:

Not Applicable

CAUTION

- Do not ford water unless depth is known. Fording water deeper than 28 in. (71 cm) will cause equipment damage.
- Towing a semitrailer or trailer may affect maximum fording depth (refer to applicable semitrailer/trailer operators manual). Do not ford water obstacle deeper than maximum depth allowed by either HET Tractor or semitrailer/trailer (whichever depth is less). Failure to comply may result in damage to equipment.

NOTE

After vehicle fords water obstacle, service all lubrication points below fording depth and check submerged gearboxes for presence of water upon return from mission (refer to lubrication instructions (WP 0106) for more information).

1. Ensure depth of water is not deeper than 28 in. (71 cm).
2. Ensure bottom of fording site is firm enough so that HET Tractor will not become stuck.
3. Stop HET Tractor at edge of water obstacle.
4. If service brakes have been used heavily and are hot, allow drums and shoes to cool before entering water if possible.
5. Ensure HET Tractor is operating correctly before entering water.
6. Turn central tire inflation system (CTIS) rotary selector switch (1) to EMERGENCY position. (WP 0028)

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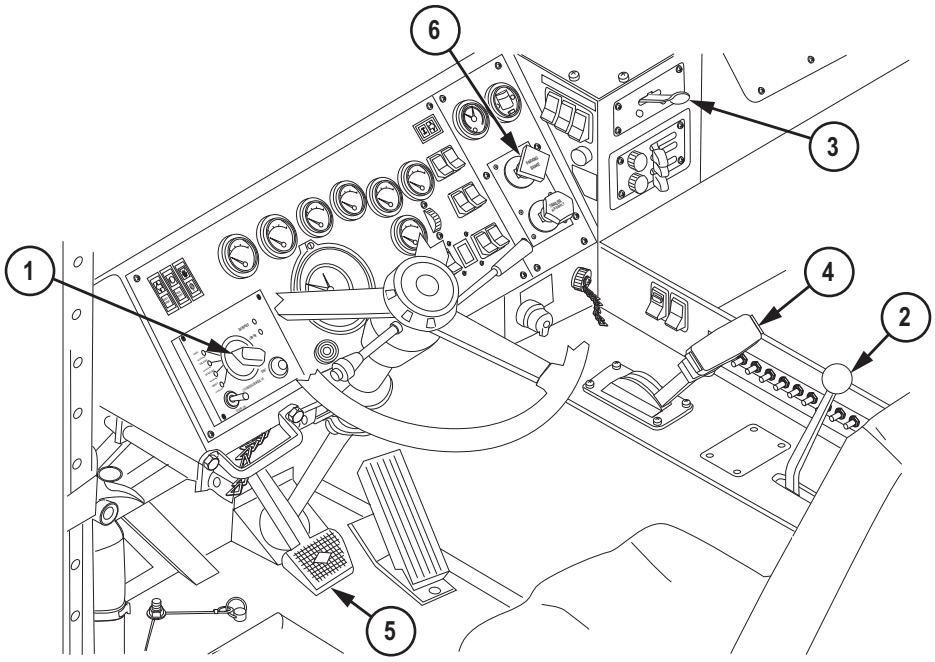


Figure 1.

7. Set TRANSFER CASE shift lever (2) to LOW position. (WP 0041)
8. Set DRIVELINE control (3) to LOCK position. (WP 0017)

CAUTION

Avoid using LOW transfer case with transmission selector in 1 (first range). If using LOW transfer case and transmission range selector set to 1 (first range) position, do not exceed 1200 RPM when starting from a stop. If HET Tractor does not move prior to reaching 1200 RPM, do not continue to increase engine RPM. Failure to comply may result in driveline damage.

9. Set transmission range selector (4) to 2 position. (WP 0041)

CAUTION

Limit HET Tractor speed to 3 or 4 mph (5 or 6 km/h) during fording operations. Failure to comply may result in damage to equipment.

10. Drive HET Tractor slowly into water. Keep speed steady while fording water. Do not stop HET Tractor unless absolutely necessary.
11. Restart engine immediately. If engine will not start, tow or winch HET Tractor from water with another vehicle as soon as possible.

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12. If HET Tractor accidentally enters water deeper than 28 in. (71 cm):
    a. Press brake pedal (5) until HET Tractor stops.
    b. Set transmission range selector (4) to R (reverse) position. (WP 0041)
    c. Let up on brake pedal (5).
    d. Slowly back HET Tractor out of deep water.

WARNING

Do not rely on service brakes after fording water. Wet brakes may not stop HET Tractor. Failure to comply may result in serious injury or death to personnel.

13. After leaving water, press brake pedal (5) (WP 0039) lightly and hold while driving slowly to dry out brake linings.
14. Stop HET Tractor when clear of fording area.
15. Apply and release PARKING BRAKE control (6) (WP 0043) several times to remove water from brake components.

CAUTION

Salt water is corrosive and will damage HET Tractor parts that it contacts. HET Tractor parts that come in contact with salt water must be washed. Failure to comply may result in damage to equipment.

16. Remove water and clean foreign deposits from all HET Tractor parts as soon as possible. (WP 0107)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TIRE CHAINS INSTALLATION/REMOVAL

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (2)

INSTALL TIRE CHAINS

WARNING

Do not back up HET Tractor without a ground guide. The location of the ground guide must be known at all times. Failure to comply may result in serious injury or death to personnel.

CAUTION

- Use tire chains on axles No. 2 and No. 3 only. Chains must not be used when driving on hard surfaces where there is no wheel slippage. Improper use of tire chains may result in severe equipment damage.
- The Central Tire Inflation System (CTIS) setting must not be set below the CROSS COUNTRY setting, or equipment damage may result.
- The maximum speed limit for trucks with chains is 10 mph (16 km/h) on highway and 15 mph (24 km/h) off highway. Traveling above the maximum speed may result in damage to equipment.

NOTE

The installation and removal of tire chains requires two crew members.

1. Position tire chain (1) on the ground with cross chain connecting links (2) facing down.

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INSTALL TIRE CHAINS - Continued

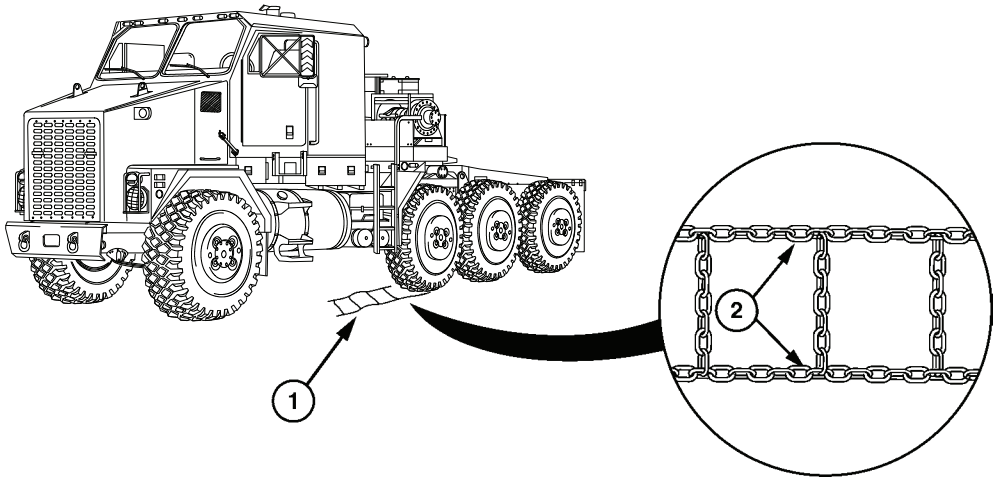


Figure 1.

2. Start engine. (WP 0037)
3. Set transmission range selector (3) to D (drive) position.

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INSTALL TIRE CHAINS - Continued

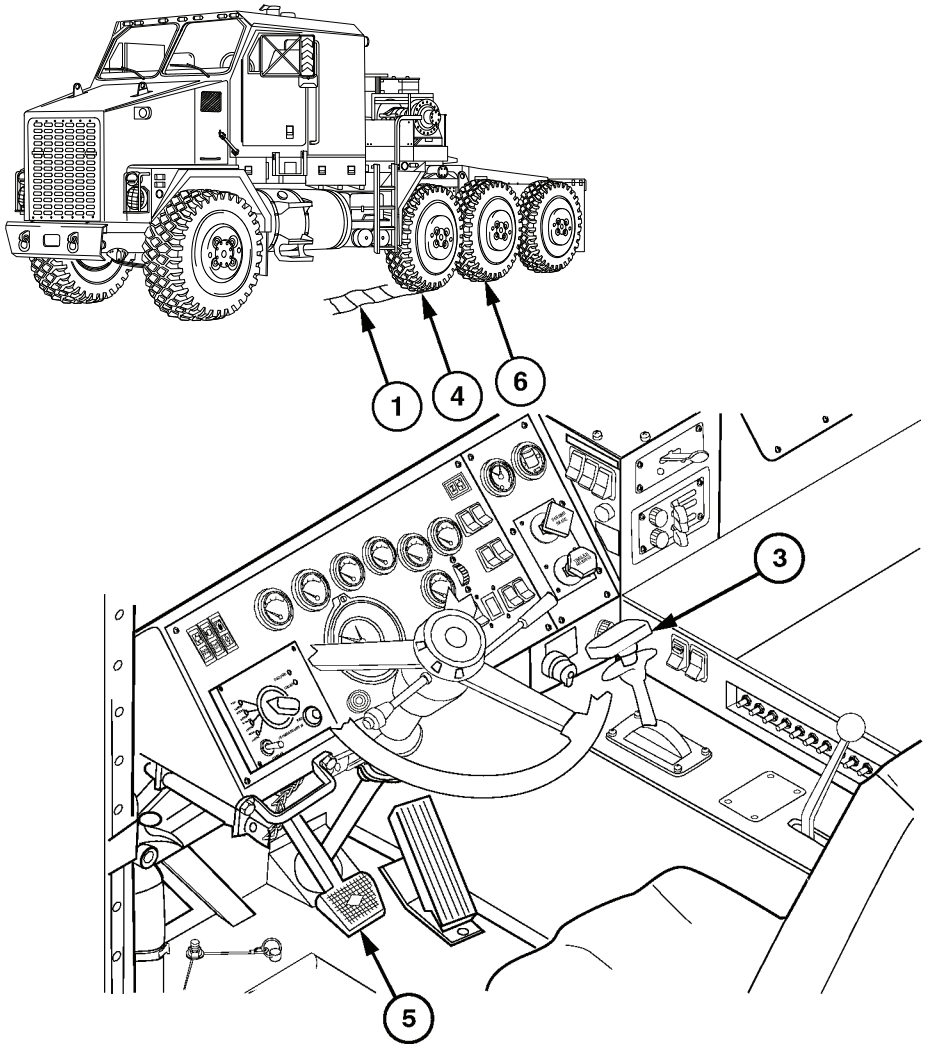


Figure 2.

4. Move truck ahead onto tire chain (1) so tire (4) is about one-third of the way on tire chain.
5. Push down on service brake pedal (5) to apply service brakes.
6. Shut OFF engine. (WP 0042)
7. Ensure neighboring tire (6) is not on chain (1).
8. Wrap tire chain (1) around tire (4).

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INSTALL TIRE CHAINS - Continued

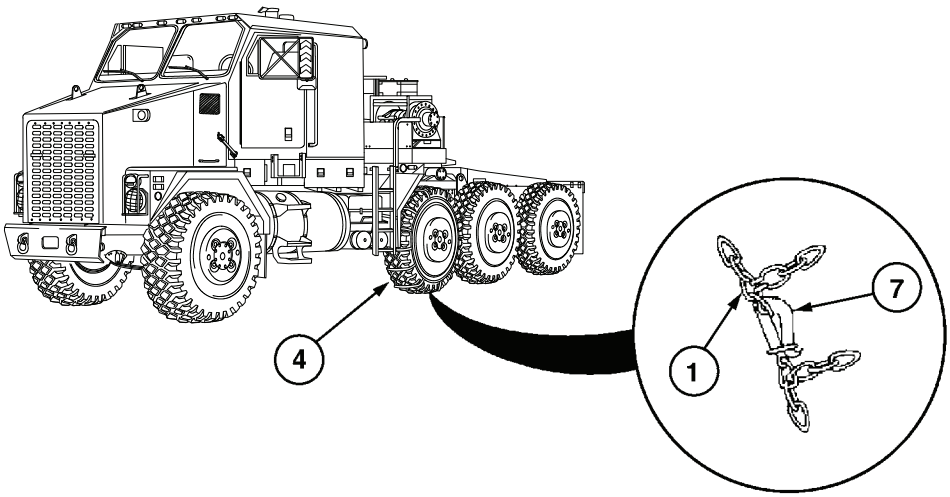


Figure 3.

9. Connect and secure inside and outside clamps (7) so tire chain (1) is as tight as possible on tire (4).
10. Install tire chains (1) on remaining three tires by repeating Steps (1) through (9).

REMOVE TIRE CHAINS

1. Start engine. (WP 0037)
2. Set transmission range selector (3) to D (drive) position.
3. Move truck ahead until chain clamps (7) are positioned toward front of vehicle.
4. Push down on service brake pedal (5) to apply service brakes.
5. Shut OFF engine. (WP 0042)
6. Disconnect inside and outside clamps (7) on tire chain (1).
7. Unwrap tire chain (1) from tire (4) and spread tire chain out on ground behind tire.
8. Start engine. (WP 0037)
9. Set transmission range selector (3) to D (drive) position.
10. Move truck forward off tire chain (1).
11. Push down on service brake pedal (5) to apply service brakes.
12. Remove tire chains (1) from remaining three tires by repeating steps (3) through (11).

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REMOVE TIRE CHAINS - Continued

13. Shut OFF engine. (WP 0042)

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CONNECT/DISCONNECT TOW BAR

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (6)

TOW BAR CONNECTION

1. Remove cotter pins (1) from pins (2) on front tow eye shackles (3) of disabled vehicle. Remove pins (2) and tow eye shackles (3) from front tow eyes (4).

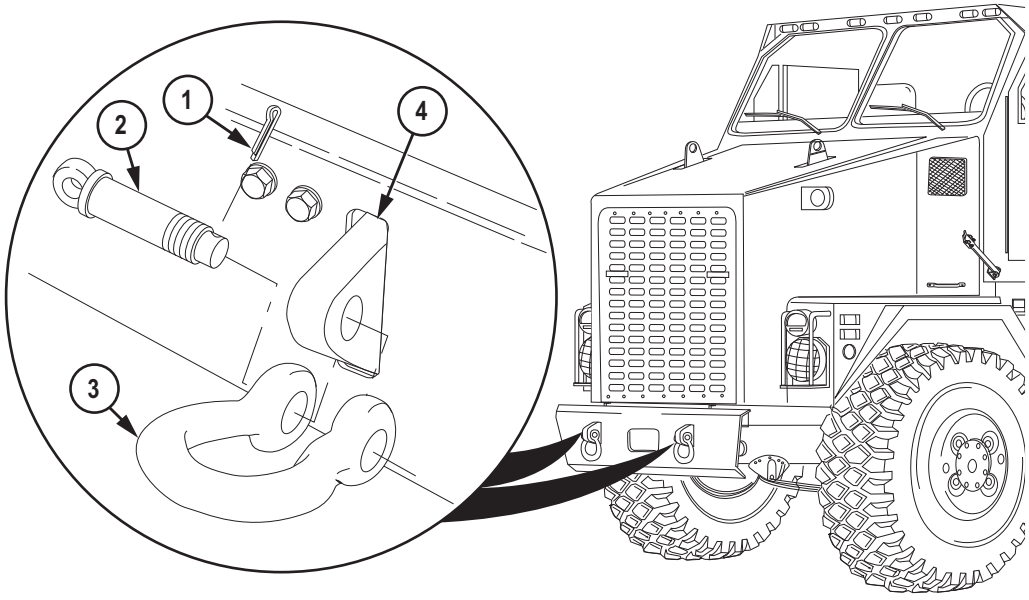


Figure 1.

2. Install pins (2) in front tow eye shackles (3). Install cotter pins (1) in pins (2).
3. Set front tow eye shackles (3) aside for use with safety chains.

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TOW BAR CONNECTION - Continued

WARNING



Towing vehicle and disabled vehicle must have parking brakes applied and disabled vehicle must have wheels chocked before connecting tow bar. Injury or death may result if vehicles roll into each other while personnel are making tow bar connections.

WARNING



Tow bar is heavy and requires four people to carry. Do not drop tow bar. Failure to comply may result in serious injury or death to personnel.

4. Position rear of towing vehicle near front of disabled vehicle.
5. Obtain tow bar (5) from unit maintenance with the aid of assistants.

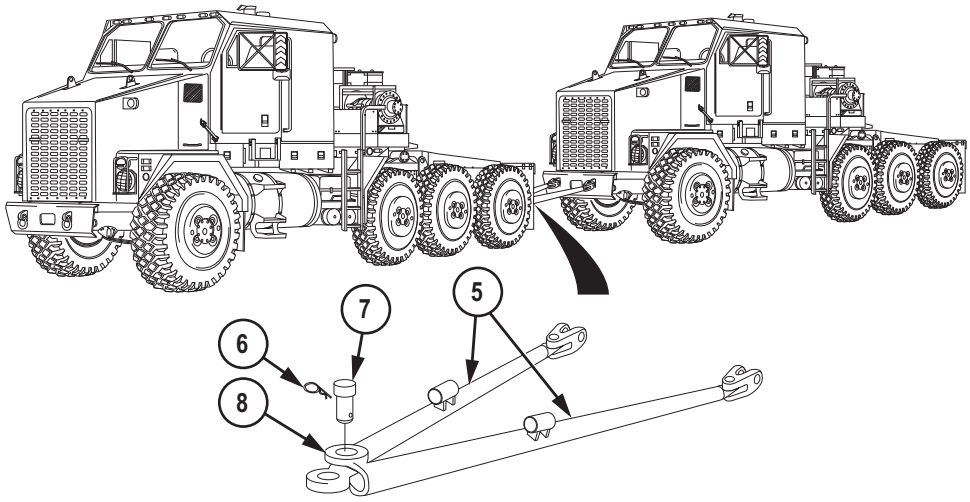


Figure 2.

6. Remove cotter pin (6) from pin (7). Remove pin from tow bar (5).

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TOW BAR CONNECTION - Continued

7. Separate tow bar (5) at pivot point (8).
8. Position legs of tow bar (5) in front of disabled vehicle with spare pin holders (9) facing up.

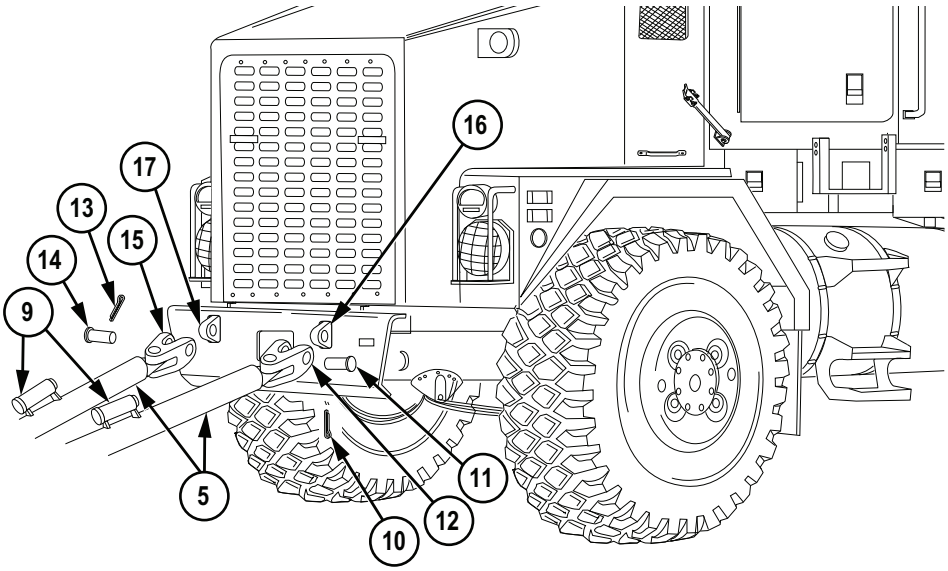


Figure 3.

9. Remove cotter pin (10) from pin (11) on tow bar shackle (12) and remove pin from tow bar shackle.
10. Remove cotter pin (13) from pin (14) on tow bar shackle (15). Remove pin from tow bar shackle.
11. Align tow bar shackle (12) with tow eye (16) while two assistants hold tow bar leg. Install pin (11) in tow bar shackle (12). Install cotter pin (10) in pin (11).
12. Align tow bar shackle (15) with tow eye (17) while two assistants hold tow bar leg. Install pin (14) in tow bar shackle (15). Install cotter pin (13) in pin (14).
13. Align legs of tow bar (5) at pivot point (8). Install pin (7) in tow bar (5). Install cotter pin (6) in pin (7).

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TOW BAR CONNECTION - Continued

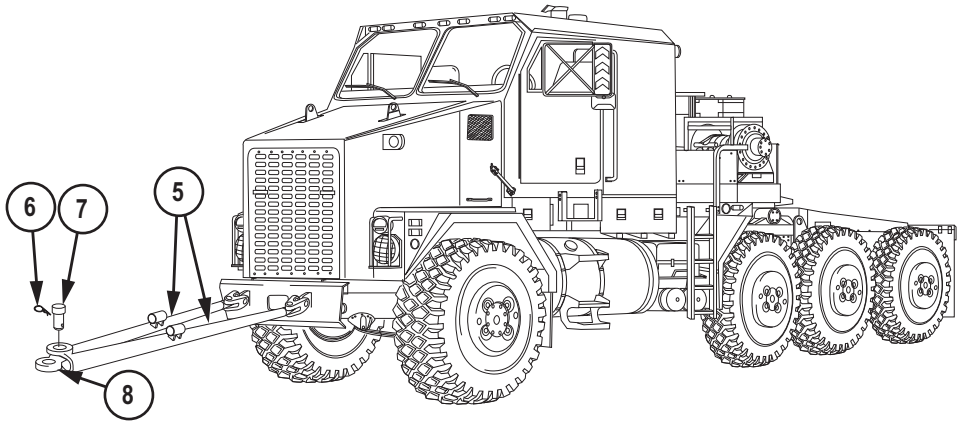


Figure 4.

14. Position towing vehicle so pintle hook (18) is aligned with tow bar lunette eye (19).

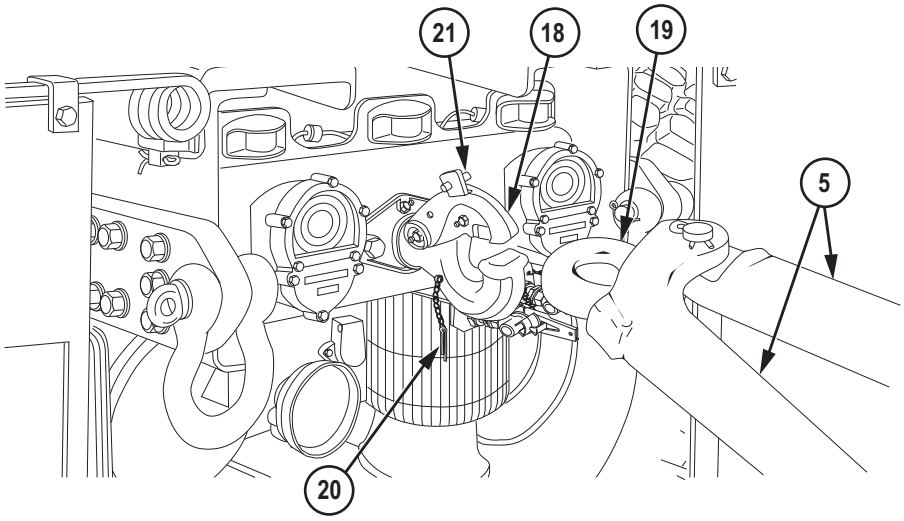


Figure 5.

15. Remove cotter pin (20) from pintle hook (18).
16. Pull latch (21) away from vehicle and hold.

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TOW BAR CONNECTION - Continued

WARNING



Do not put hands near pintle hook while aligning lunette eye with pintle hook. Towing vehicle could move suddenly. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not move towing vehicle without assistance of ground guide.

WARNING

Ground guide and personnel lifting tow bar must be visible to operator at all times. Failure to comply may result in serious injury or death to personnel.

17. Lift top of pintle hook (18) and let go of latch (21). Pintle hook will be locked open.
18. Slowly back up towing vehicle with aid of ground guide while assistants lift tow bar (5). Back up towing vehicle until tow bar lunette eye (19) is aligned with pintle hook (18).
19. Connect tow bar lunette eye (19) to pintle hook (18).
20. Pull latch (21) and close top part of pintle hook (18).
21. Install cotter pin (20) in pintle hook (18).
22. Remove intervehicular electrical cable (22) from stowage box.

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TOW BAR CONNECTION - Continued

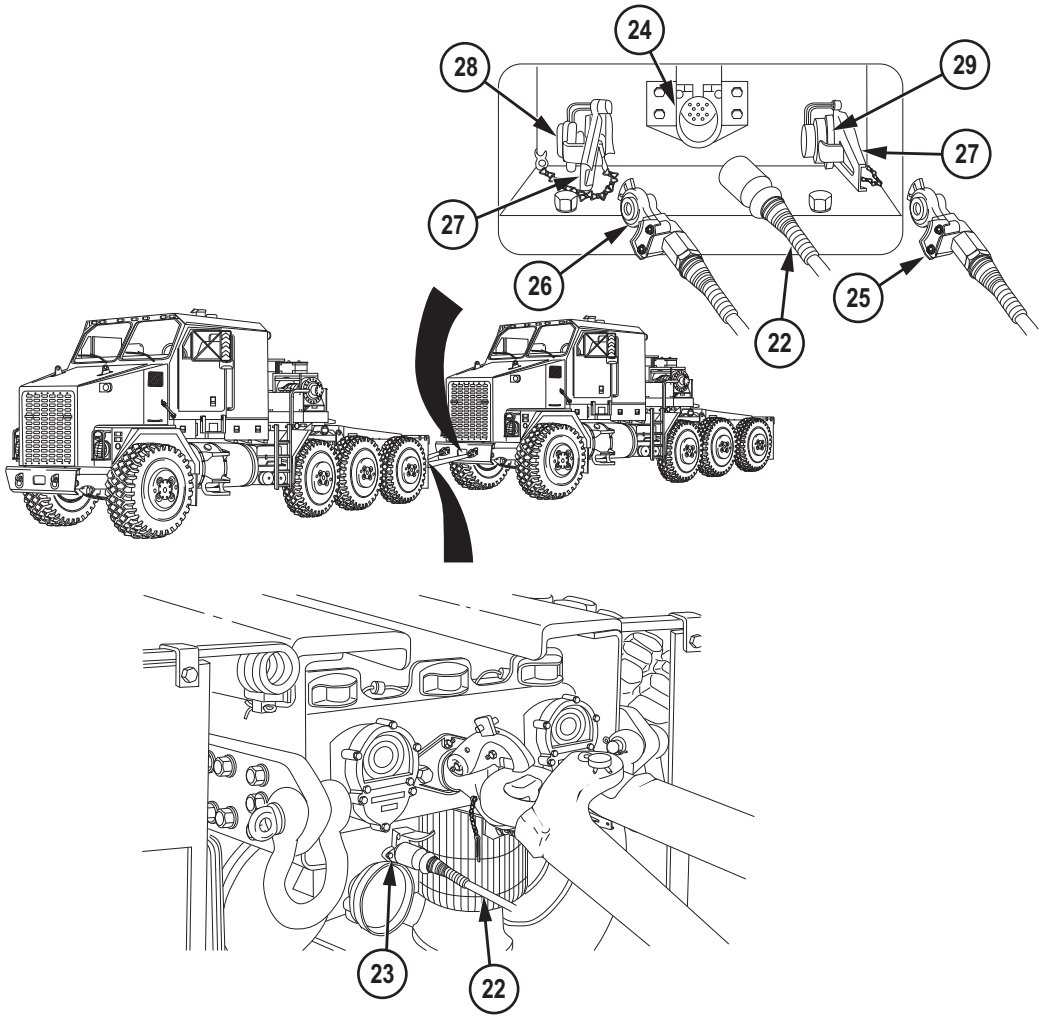


Figure 6.

23. Install electrical cable (22) on rear receptacle (23) of towing vehicle and front receptacle (24) of disabled vehicle.

NOTE

Go to Step (29) if vehicle air system is damaged.

24. Remove two intervehicular air hoses (25 and 26) from stowage box.
25. Remove dummy couplings (27) from front gladhands (28 and 29) of disabled vehicle.

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TOW BAR CONNECTION - Continued

26. Remove dummy couplings (30) from rear gladhands (31 and 32) of towing vehicle.

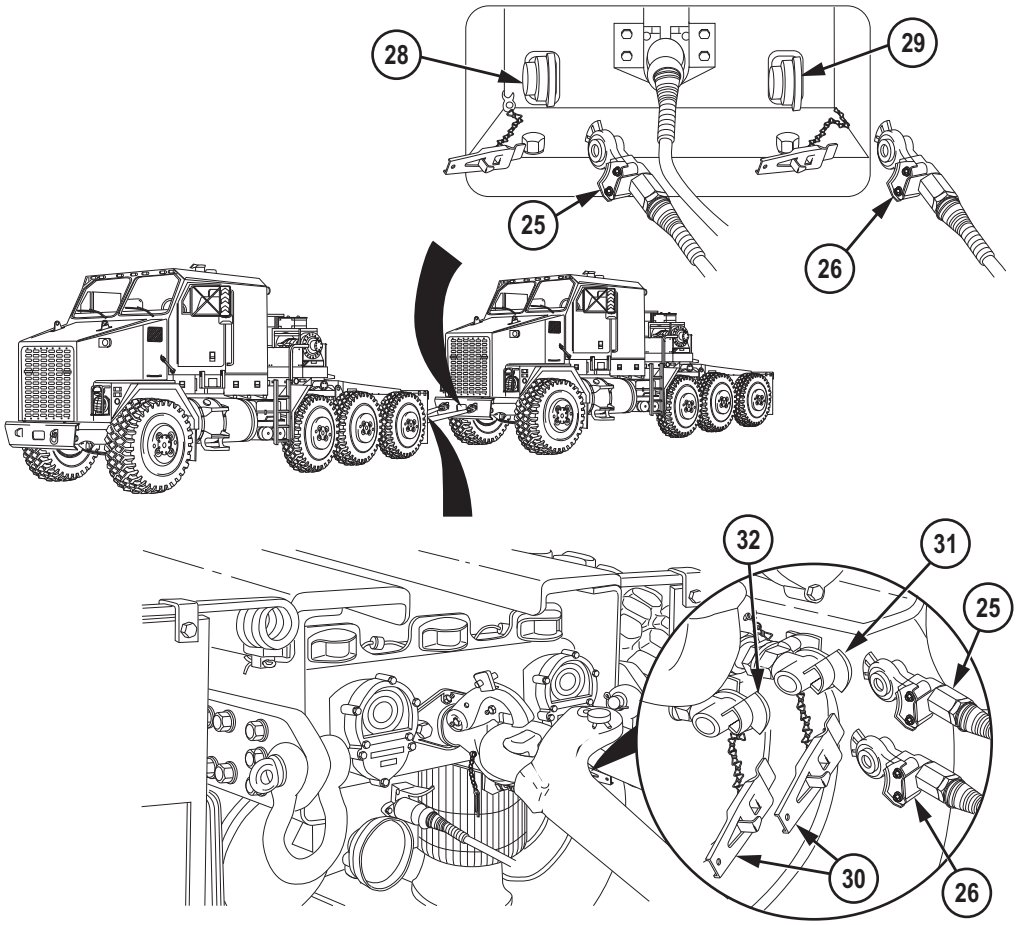


Figure 7.

27. Connect service intervehicular air hose (25) to rear service gladhand (31) of towing vehicle and front service gladhand (28) of disabled vehicle.

NOTE

Go to Step (30) if intervehicular air hoses are installed.

28. Connect emergency intervehicular air hose (26) to rear emergency gladhand (32) of towing vehicle and to front emergency gladhand (29) of disabled vehicle.

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TOW BAR CONNECTION - Continued

WARNING



Utility chains are heavy and difficult to handle. Two personnel are required when handling utility chains. Failure to comply may result in serious injury or death to personnel.

29. Manually release spring brakes. (WP 0080)
30. Remove two utility chains (33 and 34) one from each vehicle stowage box with the aid of an assistant.

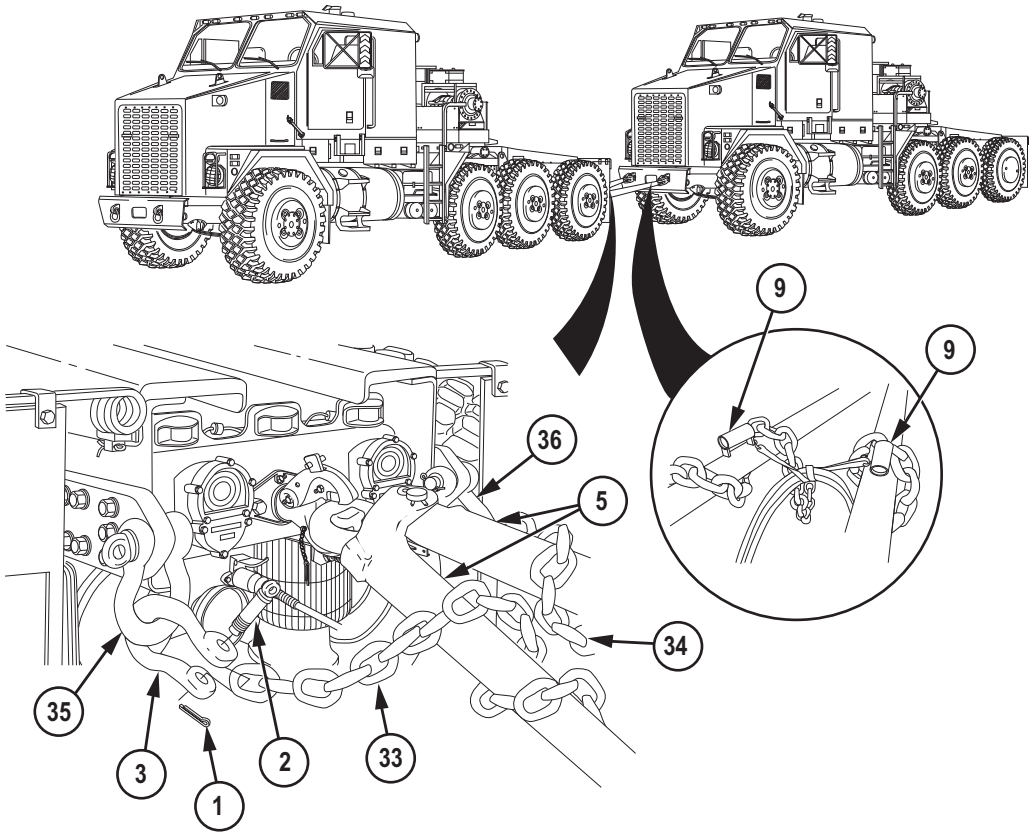


Figure 8.

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TOW BAR CONNECTION - Continued

31. Install tow eye shackles (3) on rear tow eye shackles (35 and 36) of towing vehicle.
32. Position utility chains (33 and 34) in tow eye shackles (3). Install pins (2) through tow eye shackles (3) and utility chains (33 and 34). Install cotter pins (1) in pins (2).
33. Install utility chains (33 and 34) around tow bar (5) with one wrap of chain in front of spare pin holder (9) and three wraps behind with the aid of an assistant.
34. Attach one utility chain (33) to front spring (37) on disabled vehicle.

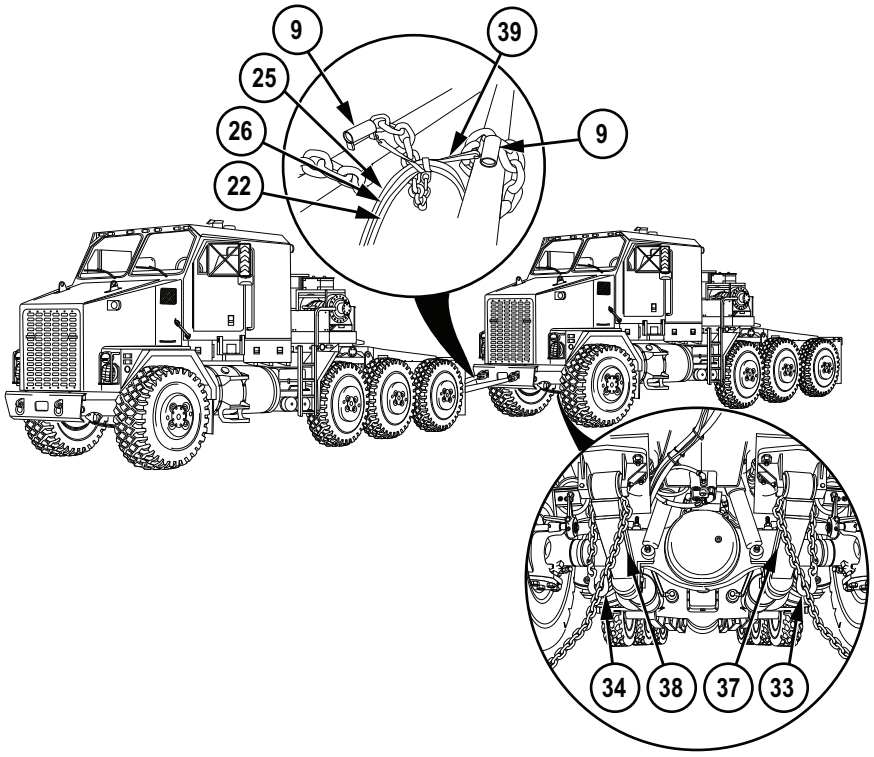


Figure 9.

CAUTION

Slack in chain, air hoses, and electrical cable must be positioned evenly in front of and behind spare pin holder. Hoses and cable must not drag on ground. Failure to comply may result in damage to equipment.

35. Attach other utility chain (34) to front spring (38) on disabled vehicle.

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TOW BAR CONNECTION - Continued

36. Attach rubber strap (39) to one spare pin holder (9). Wrap rubber strap (39) twice around two intervehicular air hoses (25 and 26) and electrical cable (22). Attach rubber strap (39) to other spare pin holder (9).
37. Pick up and stow chock blocks.
38. Release parking brakes on disabled vehicle.
39. Push in TRAILER AIR SUPPLY control on towing vehicle.
40. Turn on emergency flashers.
41. Turn on beacon light.
42. Release parking brakes on towing vehicle.
43. Transport disabled vehicle. (WP 0071)

TOW BAR DISCONNECTION

WARNING

Do not operate a HET Tractor with a tire in an over-inflated or under-inflated condition, or with a questionable defect. Do not attempt to inflate a tire that is in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in serious injury or death to personnel and damage to equipment.

WARNING



Tow bar is heavy and requires four people to carry. Do not drop tow bar. Failure to comply may result in serious injury or death to personnel.

1. Pull out TRAILER AIR SUPPLY control on towing vehicle.

NOTE

Shackles will be installed on towed vehicle according to later procedure in this section.

2. Remove two cotter pins (1), pins (2), and shackles (3) from utility chains (33 and 34) and rear tow eyes (35 and 36).

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TOW BAR DISCONNECTION - Continued

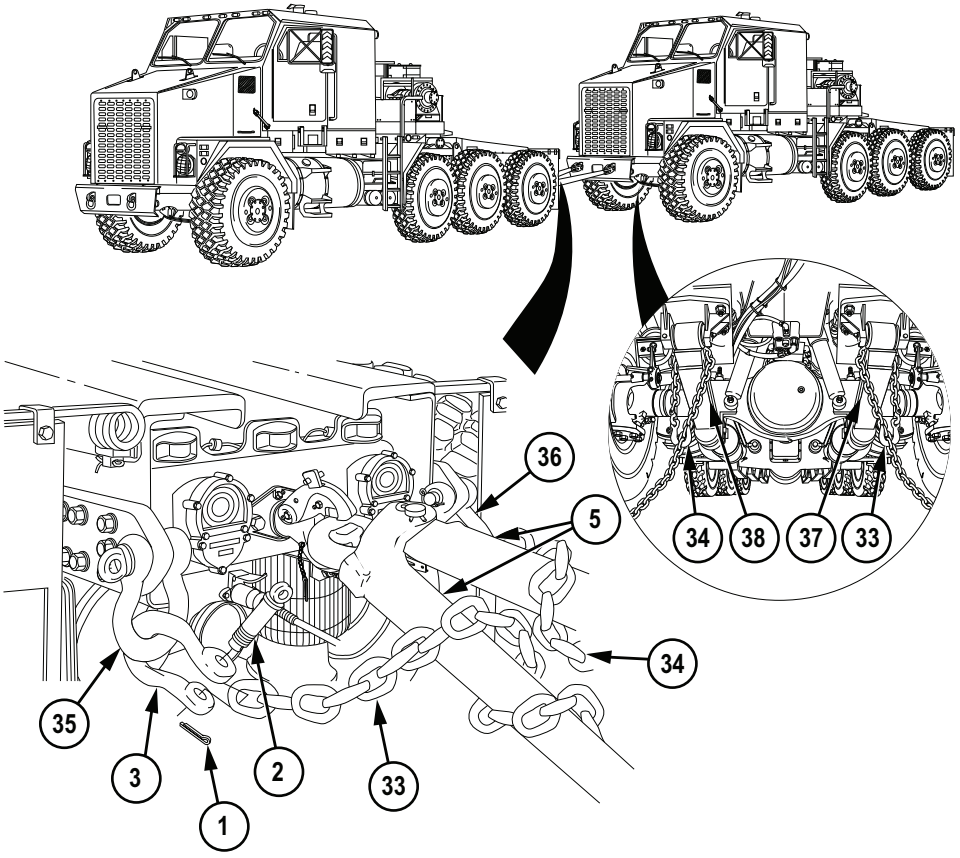


Figure 10.

3. Set shackles (3), pins (2), and cotter pins (1) aside until tow bar is disconnected.
4. Disconnect utility chain (33) from rear of towing vehicle and from front spring (37) on disabled vehicle.

WARNING



Utility chains are heavy and difficult to handle. Two personnel are required when handling utility chains. Failure to comply may result in serious injury or death to personnel.

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TOW BAR DISCONNECTION - Continued

5. Disconnect utility chain (34) from rear of towing vehicle and from front spring (38) on disabled vehicle.
6. Stow one utility chain (33 or 34) in each vehicle's stowage box with the aid of an assistant.
7. Chock wheels of disabled vehicle.

NOTE

Go to Step (15) if spring brakes were MANUALLY RELEASED before towing.

8. Remove rubber strap (39) from tow bar spare pin holders (9).

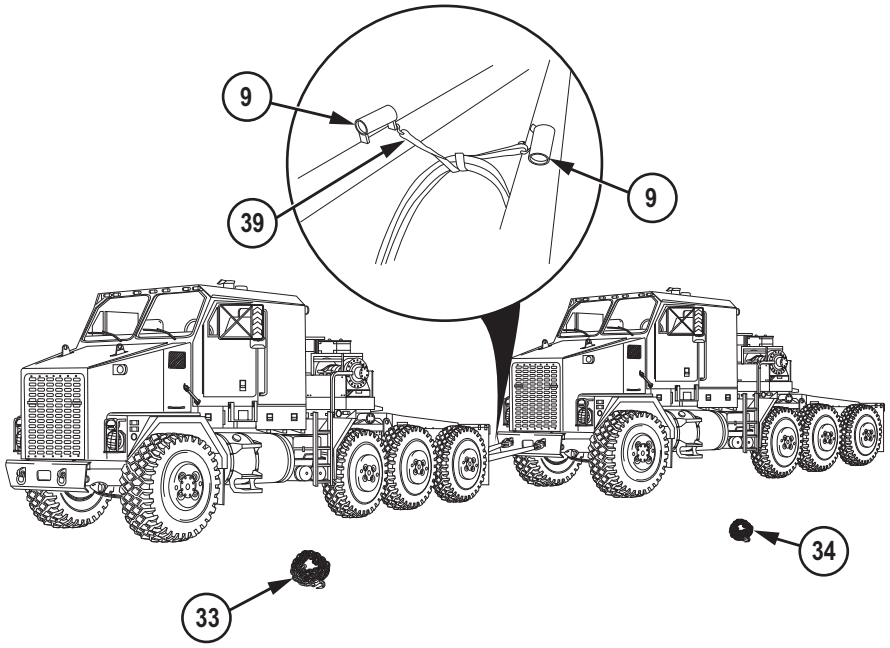


Figure 11.

9. Disconnect service intervehicular air hose (26) from rear service gladhand (31) of towing vehicle and from service gladhand (28) on disabled vehicle.

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TOW BAR DISCONNECTION - Continued

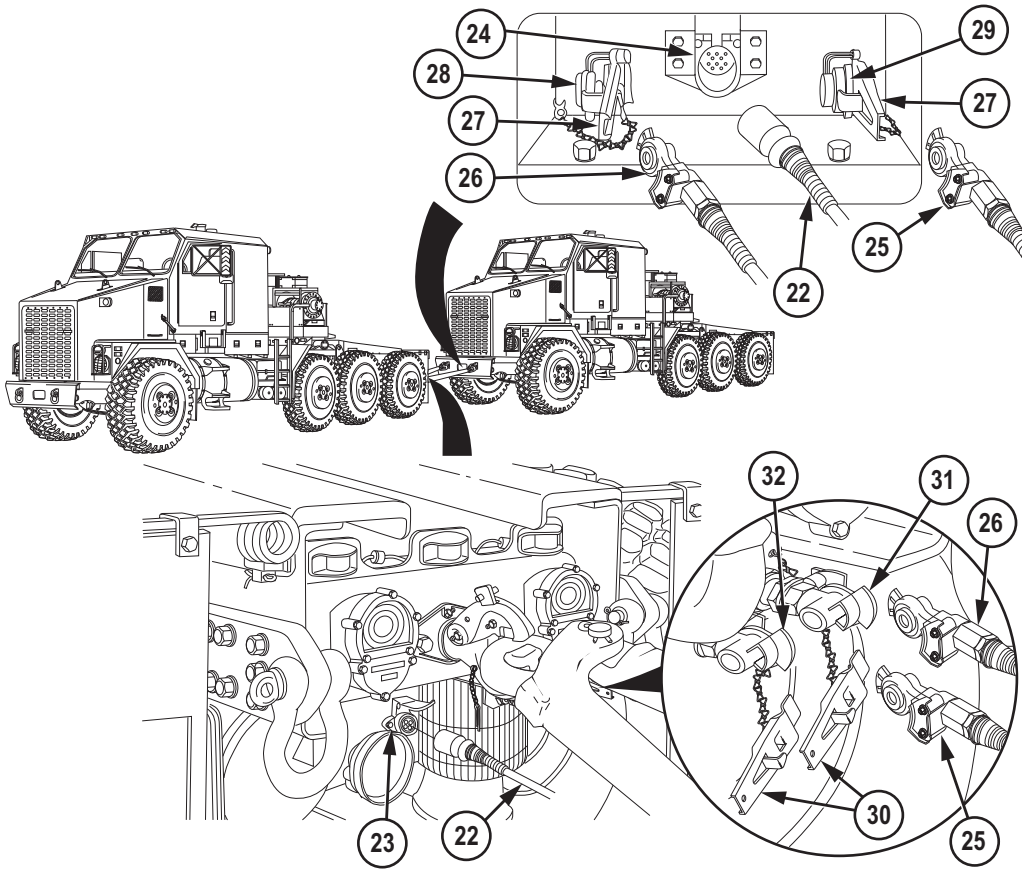


Figure 12.

10. Disconnect emergency intervehicular air hose (25) from rear emergency gladhand (32) of towing vehicle and from front emergency gladhand (29) on disabled vehicle.
11. Disconnect electrical cable (22) from 7-pin connectors (23 and 24).
12. Install dummy couplings (27) on gladhands (28 and 29) of disabled vehicle.
13. Install dummy couplings (30) on gladhands (31 and 32) of towing vehicle.

NOTE

Go to Step (16) if intervehicular air hoses and electrical cable were used.

14. Stow air hoses (26 and 25) and electrical cable (22) in stowage box.
15. Manually apply spring brakes. (WP 0080)

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TOW BAR DISCONNECTION - Continued

16. Remove cotter pin (20) from pintle hook (18).

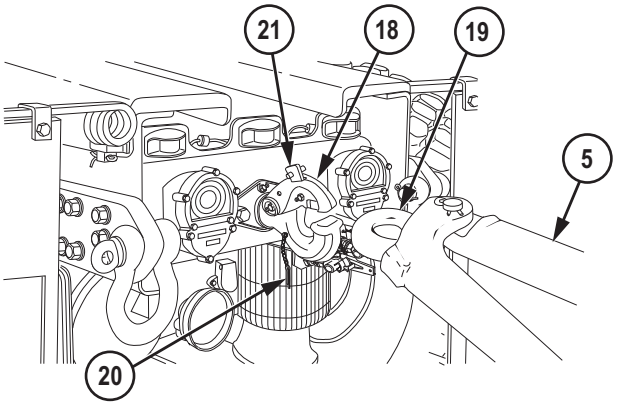


Figure 13.

17. Pull latch (21) away from vehicle and hold.

WARNING



Do not put hands near pintle hook while aligning lunette eye with pintle hook. Towing vehicle could move suddenly. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not move towing vehicle without assistance of ground guide.

WARNING

Ground guide and personnel lifting tow bar must be visible to operator at all times. Failure to comply may result in serious injury or death to personnel.

NOTE

To aid in tow bar removal, HET Tractors should be directly behind each other and pintle hook in vertical position.

18. Lift top of pintle hook (18) and let go of latch (21). Pintle hook will be locked open.

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TOW BAR DISCONNECTION - Continued

19. Two assistants lift tow bar (5) until lunette eye (19) is clear of pintle hook (18).
20. Drive towing vehicle forward with aid of ground guide. When vehicle is clear, lower tow bar (5) to ground.
21. Pull latch (21) and close pintle hook (18). Install cotter pin (20) in pintle hook.
22. While two assistants hold leg of tow bar (5), remove cotter pin (13) from pin (14) on tow eye shackle (15). Remove pin (14) from tow eye shackle.

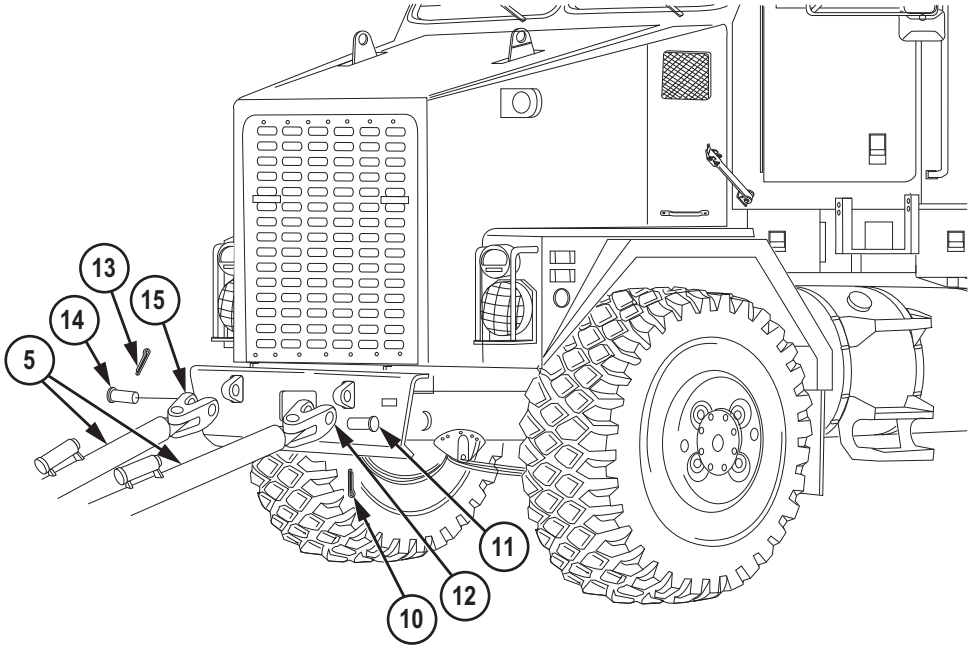


Figure 14.

23. While two assistants hold leg of tow bar (5), remove cotter pin (10) from pin (11) on tow eye shackle (12). Remove pin from tow eye shackle.
24. Install pin (14) in tow eye shackle (15). Install cotter pin (13) in pin.
25. Install pin (11) in tow eye shackle (12). Install cotter pin (10) in pin.
26. Return tow bar (5) to unit maintenance.
27. Remove cotter pins (1) from pins (2) on front tow eye shackles (3).

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TOW BAR DISCONNECTION - Continued

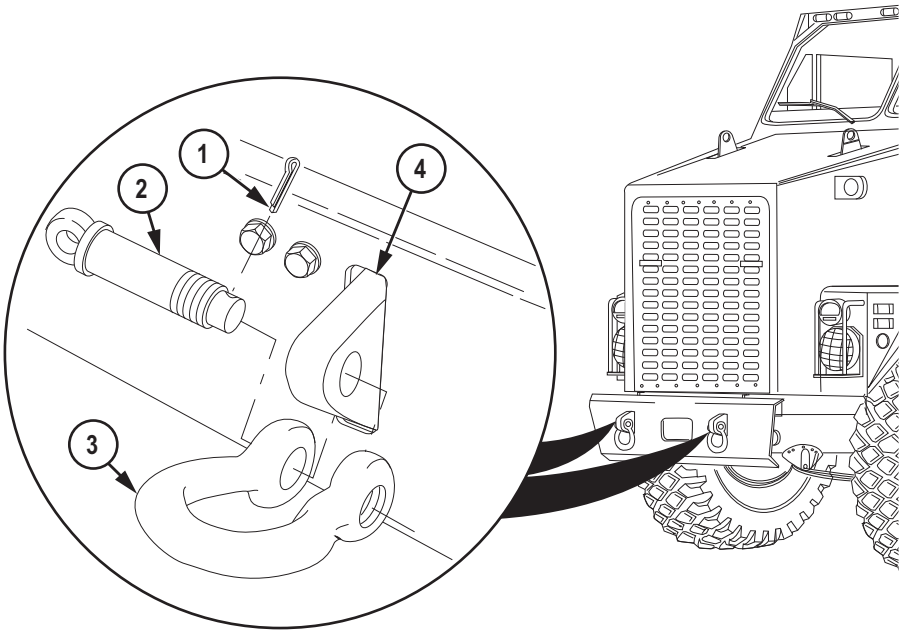


Figure 15.

28. Align tow eye shackles (3) with tow eyes (4).
29. Install pins (2) in tow eye shackles (3) and tow eyes (4). Install cotter pins (1) in pins (2).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
PREPARE HET FOR TOWING

INITIAL SETUP:

References
FM 4-30.31 (WP 0113)
FM 21-305 (WP 0113)

PREPARE HET FOR TOWING USING TOW BAR

WARNING

Personnel must not occupy towed vehicle during towing operation. Vehicle may become disconnected while being towed. Failure to comply may result in serious injury or death to personnel.

CAUTION

Disabled vehicle GVWR must be 49,000 lbs (22 246 kg) or less. Failure to comply may result in damage to towing or disabled vehicle.

NOTE

Disabled vehicles must be prepared and moved in accordance with FM 20-22 (WP 0113) and FM 21-305. (WP 0113)

1. Connect tow bar between towing vehicle and disabled vehicle (WP 0070).

CAUTION

Fold in outside rear view mirrors. Failure to comply may result in damage to equipment.
In the event of a hydraulic steering system failure, the transfer case to No. 2 axle propshaft must be removed. Failure to comply may result in damage to steering pumps.

2. Fold in rear view mirrors against doors.
3. Set TRANSFER CASE shift lever (1) to NEUTRAL position.

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PREPARE HET FOR TOWING USING TOW BAR - Continued

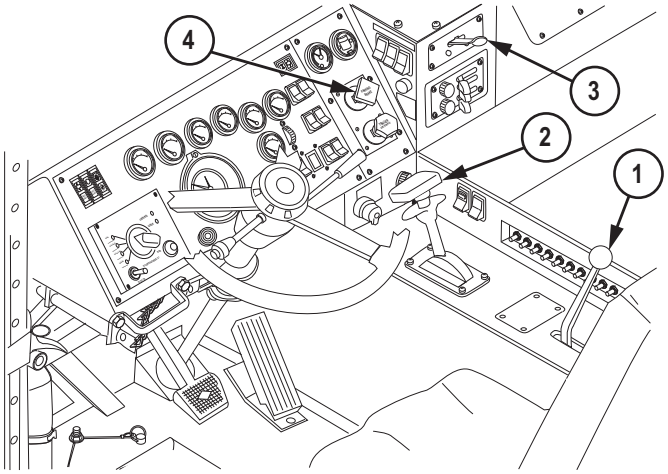


Figure 1.

4. Set transmission range selector (2) to N (neutral) position.
5. Set DRIVELINE control (3) to UNLOCK position.
6. Push in PARKING BRAKE control (4).

PREPARE TOWING VEHICLE USING TOW BAR

1. Start engine. (WP 0037)

NOTE

Model A dash panel shown, Model B dash panel similar.

2. Push in TRAILER AIR SUPPLY control (1).

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PREPARE TOWING VEHICLE USING TOW BAR - Continued

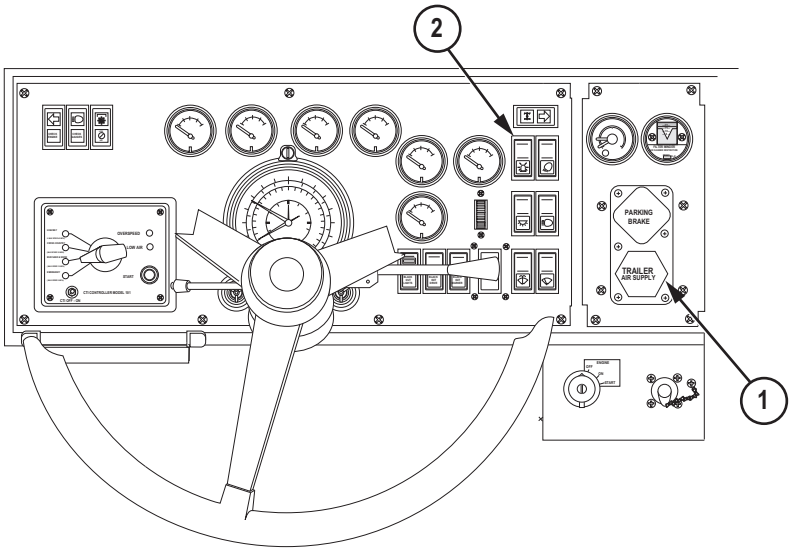


Figure 2.

3. Turn on rotating beacon light switch (2).

PREPARE HET FOR TOWING USING M984 WRECKER

CAUTION

The appropriate propshaft must be removed prior to performing lift and tow operations. Failure to comply may result in damage to transfer case.

NOTE

Perform Steps (1) and (2) only if towing from the rear.

1. Secure steering wheel with steering column lock pin. (WP 0014)
2. Remove transfer case to axle No. 1 propshaft.

NOTE

Perform Step (3) only if towing from the front.

3. Remove transfer case to axle No. 2 propshaft.

CAUTION

Fold in outside rear view mirrors. Failure to comply may result in damage to equipment.

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PREPARE HET FOR TOWING USING M984 WRECKER - Continued

4. Fold in rear view mirrors against doors.
5. Set TRANSFER CASE shift lever (1) to N (neutral) position.

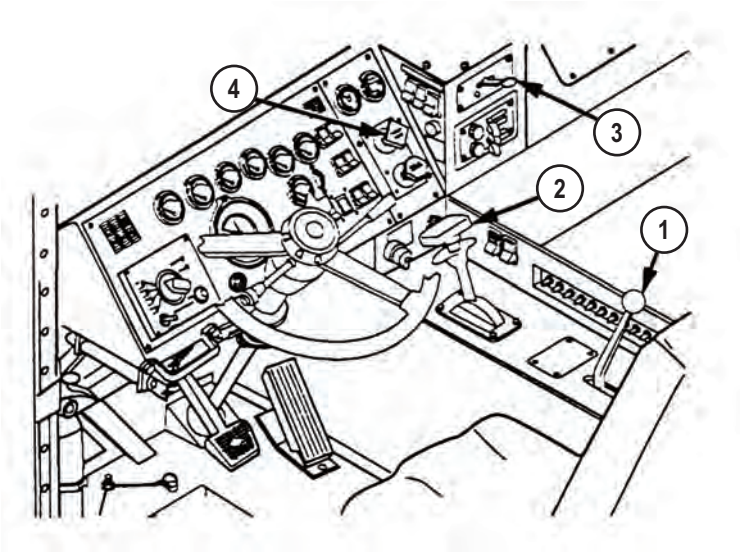


Figure 3.

6. Set transmission range selector (2) to N (neutral) position.
7. Set DRIVELINE control (3) to UNLOCK position.
8. Push in PARKING BRAKE control (4).

TRANSPORT DISABLED VEHICLE

CAUTION

- Due to reduced braking ability, do not exceed 15 mph (24 km/h) on highway or 5 mph (8 km/h) off-road while towing disabled vehicle with tow bar. Failure to comply may result in damage to towing or disabled vehicle.
- Avoid turning tight corners while towing HET Tractor with tow bar. Failure to comply may result in damage to towing or disabled vehicle.
- Towed HET Tractor must be backed up in a straight line when using tow bar. Never attempt to steer towed HET Tractor into position. Failure to comply may result in damage to tires or steering components.

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TRANSPORT DISABLED VEHICLE - Continued

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXTREME HEAT OPERATION

INITIAL SETUP:

Not Applicable

CAUTION

- When operating in temperatures above 100°F (38°C), extra care must be taken to prevent overheating engine (temperatures over 210°F [99°C]), transmission (temperatures over 250°F [121°C]), and transfer case (temperatures over 250°F [121°C]). Watch WATER TEMP gauge, TRANS TEMP gauge, and T-CASE TEMP gauge (WP 0015) closely. Failure to comply may result in damage to equipment.
- HET Tractor cooling and lubrication systems support each other. Failure of one system will rapidly cause failure of other system. Check coolant and oil levels often. Keep operating strain to a minimum. Failure to comply may result in damage to equipment.
- Idling the engine cools the engine faster than quick shutdown and may prevent damage from engine heat. Ensure shut engine OFF (WP 0042) procedures are followed exactly to allow engine proper cool-down period. Failure to comply may result in damage to equipment.

1. Keep engine operating strain to a minimum:
   a. Use low gear ranges only when necessary.
   b. Follow shut engine OFF (WP 0042) procedures exactly to allow engine proper cool-down period.
2. Check oil levels often. Oil seals are more likely to leak in extremely hot weather.

NOTE

Model A dash panel is shown, Model B dash panel similar.

3. When TRANS TEMP gauge (1) or T-CASE (transfer) TEMP gauge (2) (WP 0015) reads higher than 250°F (121°C):

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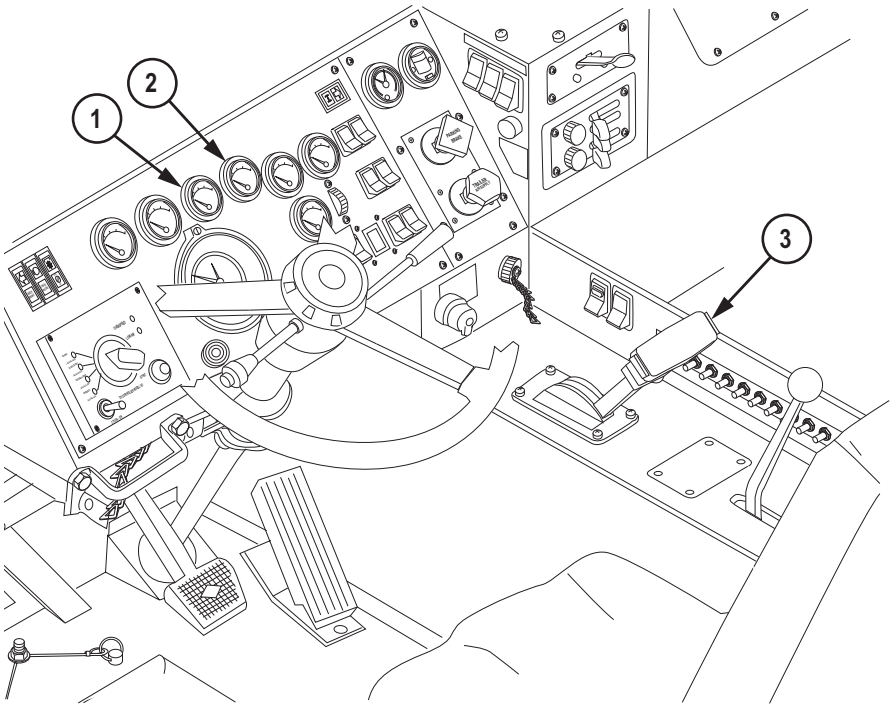


Figure 1.

a. Set transmission range selector (3) to lower gear range (WP 0041) and continue operation.

b. Stop HET Tractor and let transmission/transfer case cool if TRANS TEMP gauge (1) and T-CASE TEMP gauge (2) (WP 0015) do not return to normal range.

c. Set transmission range selector (3) to normal gear range (WP 0041) and continue operation when TRANS TEMP gauge (1) and T-CASE TEMP gauge (2) (WP 0015) read in normal range.

4. Check cooling system; notify field level maintenance if any of the following are found:

a. Leaky hose connections that have been tightened but still leak.

b. Loose fan belt.

c. Cracked or leaking hoses.

d. Radiator fins plugged with dust, leaves, or insects.

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NOTE

- Batteries do not hold charge well in extreme heat. Battery specific gravity must be changed IAW TM 9-6140-200-14 (WP 0113) to adjust for heat.
- Anytime ambient temperature exceeds 90°F (32°C), daily checking of electrolyte level in each cell of batteries is warranted. Contact field level maintenance to perform electrolyte level checks.

5. Keep batteries filled to the bottom of the split ring.
6. In hot, damp climates check body and chassis often; notify field level maintenance if any of the following are found:
   a. Signs of pitting or paint blistering on metal surfaces.
   b. Signs of mildew, mold, or fungus on fabrics and rubber.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXTREME DUST OPERATION

INITIAL SETUP:

Not Applicable

CAUTION

Blowing dust can scratch glass surfaces. Keep glass surfaces covered with tarpaulin as much as possible in these conditions to prevent scratching. Failure to comply may result in damage to equipment.

NOTE

Take extra care when cleaning glass to prevent scratching surfaces.

1. Leave glass surfaces covered if not needed for operations.

NOTE

- Model B dash panel is shown, Model A dash panel similar.
- HET Tractor may include one of two types of AIR CLEANER RESTRICTION indicator, (WP 0016) both types (A and B) are shown in Figure 1 (below).

2. Check AIR CLEANER RESTRICTION indicator (1) (WP 0016) frequently. Shut engine OFF (WP 0042) immediately when yellow diaphragm is above 17. Check other gauges and indicator lights on main instrument panel (2) (WP 0015) to ensure dust does not affect equipment.

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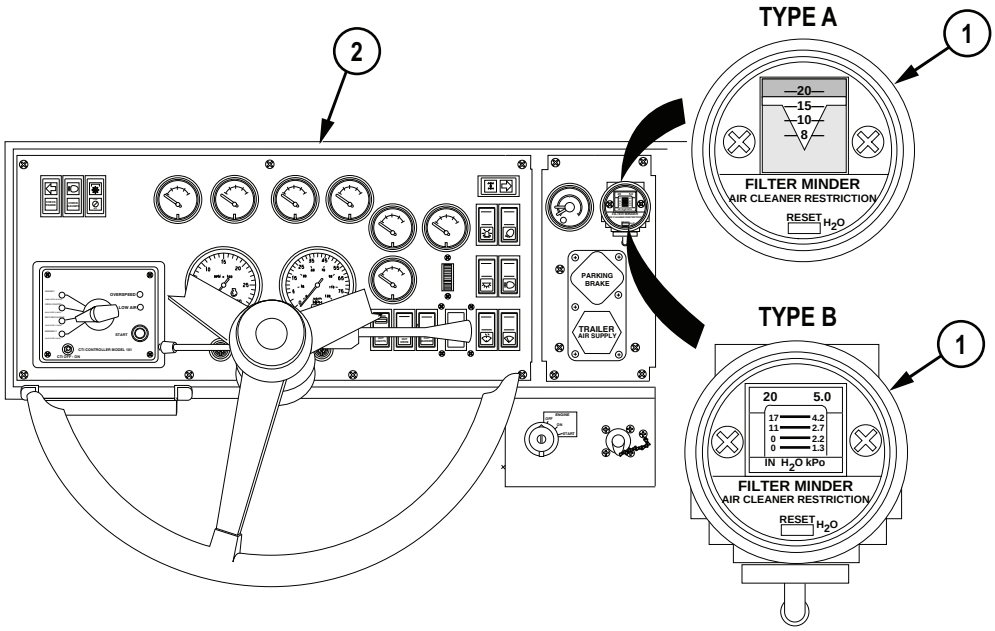


Figure 1.

3. Allow as much distance as reasonable between vehicles and operate at low speeds to reduce impaired vision, vehicle overheating, or possible clogging of air filter.

4. Check and drain fuel/water separator (3) if water is present in bowl.

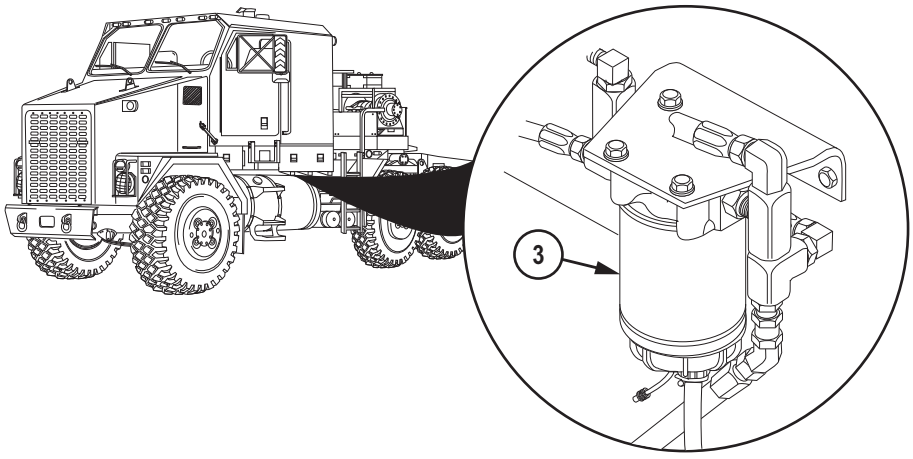


Figure 2.

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5. Park HET Tractor so it does not face into wind when possible to prevent sand and dust from damaging the vehicle.
6. Cover air intake, radiator, and cab with tarpaulin during extended shutdown.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION ON STEEP GRADES

INITIAL SETUP:

Not Applicable

DRIVING UP MODERATE TO STEEP GRADES

NOTE

Model A dash panel shown, Model B dash panel similar.

1. Check that central tire inflation system (CTIS) rotary selector switch (1), (WP 0015)transfer case shift lever (2), (WP 0018) and DRIVELINE control (3) (WP 0017) settings match terrain conditions. Refer to transmission and transfer case operation (WP 0041) and central tire inflation system (CTIS) operation (WP 0028) for more information.

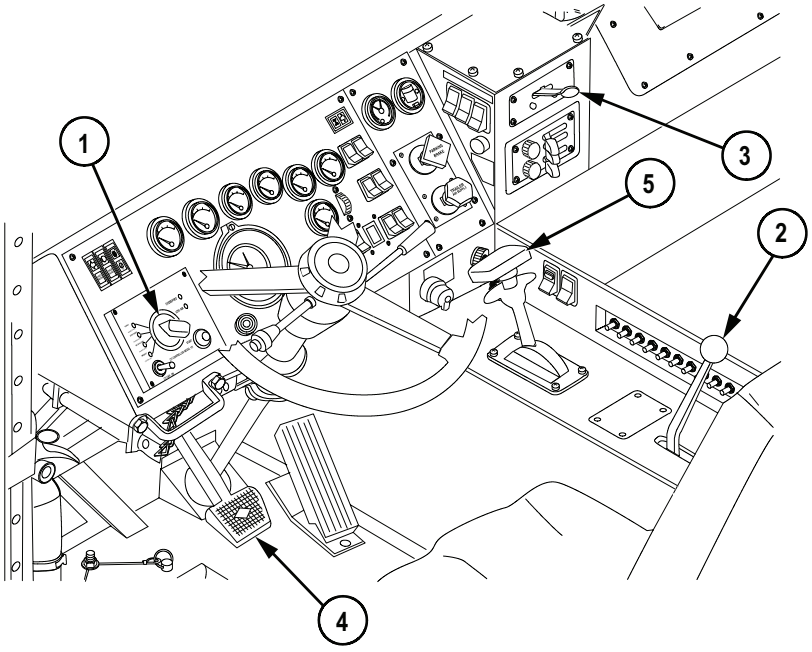


Figure 1.

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DRIVING UP MODERATE TO STEEP GRADES - Continued

CAUTION

Do not shift DRIVELINE control (WP 0017) while vehicle is moving. Failure to comply may result in damage to equipment.

NOTE

After DRIVELINE control (WP 0017) is shifted, let vehicle creep forward several feet to allow shift collars to fully engage.

2. Apply service brake pedal (4) (WP 0039) and move DRIVELINE control (3) (WP 0017) to LOCK position.

CAUTION

Do not shift transmission into first gear while HET Tractor is moving. Severe damage to driveline will result.

3. Apply service brake pedal (4) (WP 0039) and set transmission range selector (5) to: (WP 0041)
   a. 1 (first gear range) position if encountering an extreme grade (greater than 13 percent).
   b. All other gear selections are acceptable while climbing grades of less than 13 percent.

CAUTION

Excessive wheel slippage while traveling up a steep upgrade could cause driveline damage. When wheel slippage is detected, immediately stop the HET Tractor. Failure to comply may result in damage to equipment.

4. Release service brake pedal (4) (WP 0039) and proceed up grade, gradually applying throttle as traction allows.
5. If wheels start to slip, stop HET Tractor and go to wheel slippage procedures (below).
6. After reaching the top of the grade, stop the HET Tractor and unlock DRIVELINE control (3). (WP 0017)
7. Select appropriate transmission gear, transfer case range, (WP 0041) and CTIS setting (WP 0028) for the terrain.
8. If DRIVELINE control (3) (WP 0017) was locked up, back HET Tractor up approximately 5-10 ft. (1.5 - 3 m) to relieve driveline loading.

WHEEL SLIPPAGE PROCEDURES

1. If wheel slippage is encountered while driving up steep grade perform the following:

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WHEEL SLIPPAGE PROCEDURES - Continued

a. Stop HET Tractor.

NOTE

- Model A dash panel shown, Model B dash panel similar.
- Central tire inflation system (CTIS) may not engage properly if central tire inflation system (CTIS) START button (WP 0015) is pressed too quickly.
- For a detailed explanation of the CTIS, refer to Central tire inflation system (CTIS) operation. (WP 0028)
- Allow time for Central tire inflation system (CTIS) adjustment - Central tire inflation system (CTIS) tire pressure indicator light (at selected setting) will flash (green) while Central tire inflation system (CTIS) is adjusting tire pressures. Central tire inflation system (CTIS) tire pressure indicator light will illuminate (green) steady when tire pressures are properly adjusted.

b. Turn central tire inflation system (CTIS) rotary selector switch (1) to MUD, SAND, AND SNOW position. (WP 0028)

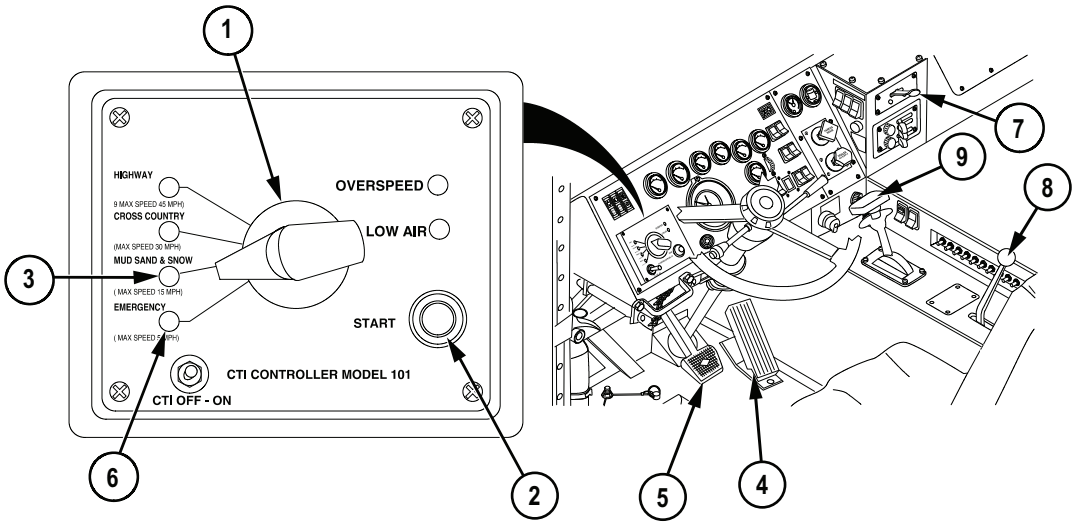


Figure 2.

c. Press and hold START switch (2) for approximately one second:

(1) When CTIS MUD, SAND, AND SNOW tire pressure indicator light (3) remains steady green, gradually apply throttle pedal (4) (WP 0012) and release service brake pedal (5) (WP 0039) as traction allows.

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WHEEL SLIPPAGE PROCEDURES - Continued

(2) If wheels start to slip go to Step 1.d.

d. Stop HET Tractor.

CAUTION

- When using EMERGENCY position on Central tire inflation system (CTIS), top speed should not exceed 5 mph (8 km/h) and distance traveled should not exceed 5 miles (8 km). Failure to comply may result in damage to equipment.
- Care must be exercised as steering response is limited due to full driveline lock-up. Failure to comply may result in damage to equipment.

NOTE

Allow time for CTIS adjustment - CTIS tire pressure indicator light (at selected setting) will flash (green) while CTIS is adjusting tire pressures. CTIS tire pressure indicator light will illuminate (green) steady when tire pressures are properly adjusted.

e. Turn central tire inflation system (CTIS) rotary selector switch (1) to EMERGENCY position. (WP 0028)

f. Press and hold central tire inflation system (CTIS) START switch (2) (WP 0015) for approximately one second:

When CTIS EMERGENCY tire pressure indicator light (6) remains steady green, gradually apply throttle pedal (4) (WP 0012) and release service brake pedal (5) (WP 0039) as traction allows.

2. After reaching the top of the grade:

a. Stop HET Tractor.

b. Unlock DRIVELINE control (7). (WP 0017)

c. Check that Central tire inflation system (CTIS) rotary selector switch (1), (WP 0015)transfer case shift lever (8), and transmission range selector (9) (WP 0018) settings match terrain conditions. Refer to transmission and transfer case operation (WP 0041) and central tire inflation system (CTIS) operation (WP 0028) for more information.

DRIVING DOWN STEEP GRADES

CAUTION

Do not allow speed to go above 2100 rpm. Failure to comply may result in damage to equipment.

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DRIVING DOWN STEEP GRADES - Continued

NOTE

Model A dash panel shown, Model B dash panel similar.

1. Adjust transmission range selector (1) (WP 0018) as needed. Refer to transmission and transfer case operation (WP 0041) for more information.

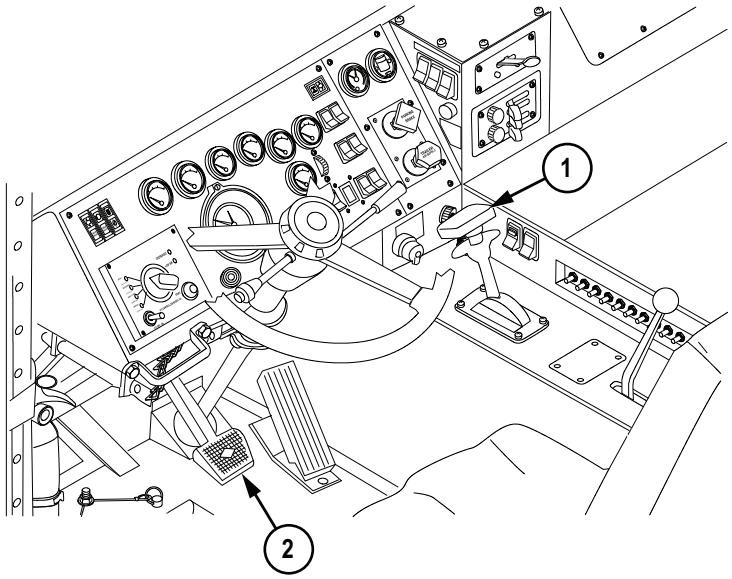


Figure 3.

WARNING

Rapid or repeated operation of service brakes will consume compressed air supply and cause automatic spring brake application when pressure drops below 45 psi (310 kPa). Failure to follow proper service brake operating procedures may result in serious injury or death to personnel.

2. Apply and release service brake pedal (2) (WP 0039) as needed to control HET Tractor speed.

CAUTION

Engine brake operates best when engine speed is between 1650 and 2100 rpm. Do not allow speed to go above 2100 rpm. Failure to comply may result in damage to equipment.

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DRIVING DOWN STEEP GRADES - Continued

3. Use engine brake as needed. Refer to engine brake retarder operation (WP 0038) for more information.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION IN SAND, MUD, OR SNOW

INITIAL SETUP:

Not Applicable

OPERATION IN SAND, MUD, OR SNOW

WARNING

Operating in mud causes brake linings to get wet and can impair HET Tractor braking. If braking is impaired while operating in mud, dry brakes by driving HET Tractor about 500 ft. (152 m) while applying service brakes frequently. This must be done with brakedrums totally out of mud so that drying action can take place. Failure to comply may result in serious injury or death to personnel and/or damage to equipment.

CAUTION

Blowing sand can scratch glass surfaces. Keep glass surfaces covered with tarpaulin as much as possible in these conditions to prevent scratching. Failure to comply may result in damage to equipment.

NOTE

- Model A dash panel shown, Model B dash panel similar.
- Driving on sand at night or early morning when sand is damp is desirable. Damp sand gives better traction.
- Take extra care when cleaning glass to prevent scratching surfaces.

1. Leave glass surfaces covered if not needed for operations.
2. Check AIR CLEANER RESTRICTION indicator (1) (WP 0016) frequently:
   a. Shut engine OFF (WP 0042) immediately when yellow diaphragm enters red zone.
   b. Check all gauges and indicators on main instrument panel (WP 0015) to be sure dust is not affecting equipment.

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OPERATION IN SAND, MUD, OR SNOW - Continued

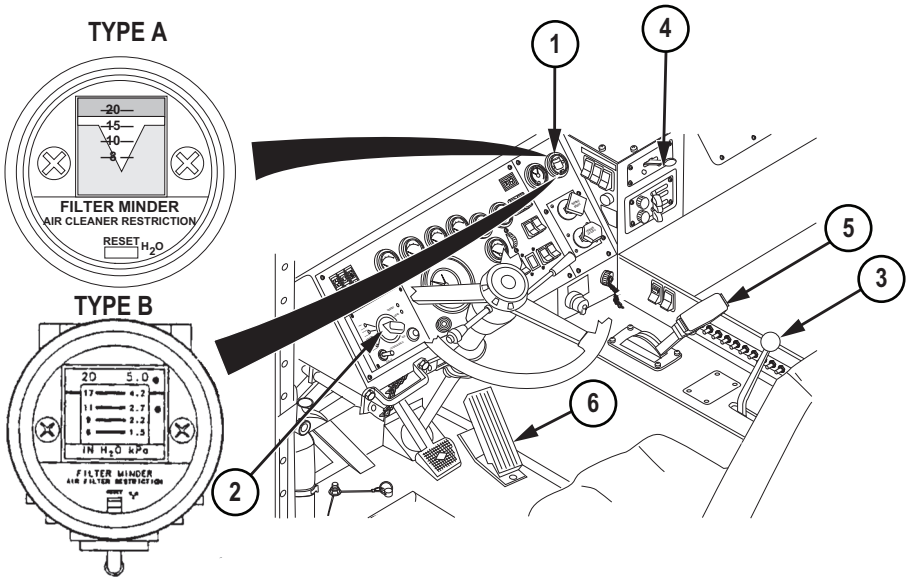


Figure 1.

3. Set central tire inflation system (CTIS) rotary selector switch (2) to CROSS COUNTRY position. (WP 0028)

CAUTION

Avoid using LOW transfer case with selector in 1 (first range). If using LOW transfer case and transmission is set to 1 (first gear range) position, do not exceed 1200 RPM when starting from a stop. If HET Tractor does not move prior to reaching 1200 RPM, do not continue to increase engine RPM. Failure to comply may result in driveline damage.

4. Set TRANSFER CASE shift lever (3) to LOW position. (WP 0041)
5. Accelerate slowly so tires do not spin and dig into sand or mud.

   Set central tire inflation system (CTIS) rotary selector switch (2) to MUD, SAND & SNOW position (WP 0028) if tires spin.

6. Set DRIVELINE control (4) (WP 0017) to LOCK position for added tire traction.

CAUTION

Do not downshift into 1 (first range), with transfer case in LOW, while engine speed is above 1200 RPM. Failure to comply may result in driveline damage.

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OPERATION IN SAND, MUD, OR SNOW - Continued

7. Shift transmission range selector (5) to lower gear range (WP 0041) for added tire traction.

NOTE

- Do not straddle or drive on sides of sand mounds. Loose sand will not support HET Tractor on steep slopes.
- Drive HET Tractor slowly when in loose sand or mud to avoid becoming stuck.

8. Keep throttle pedal (6) (WP 0012) steady after HET Tractor reaches desired speed.

WARNING

Avoid driving diagonally across a hill. HET Tractor may roll. Failure to comply may result in serious injury or death to personnel.

NOTE

Steer HET Tractor straight up and down hills when possible. When necessary to drive across a hill, choose lowest angle possible, keep HET Tractor moving, and avoid quick, sharp turns.

9. To move HET Tractor forward and turn after HET Tractor is stuck in loose sand or mud:
   a. Set transmission range selector (5) to R (reverse) position. (WP 0041)

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OPERATION IN SAND, MUD, OR SNOW - Continued

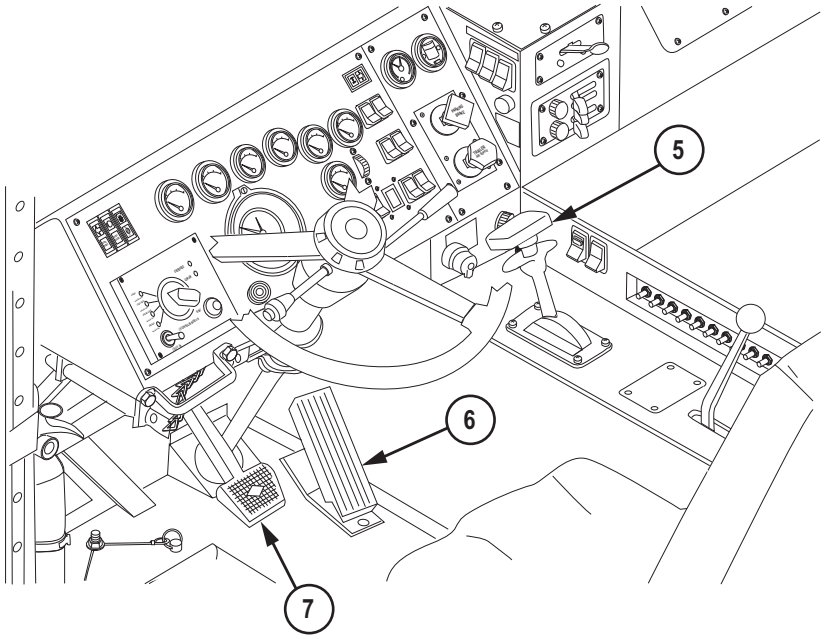


Figure 2.

b. Press throttle pedal (6) (WP 0012) and move HET Tractor straight back about 20 ft. (6 m).

c. Release throttle pedal (6). (WP 0012) Press service brake pedal (7). (WP 0012)

CAUTION

Avoid using LOW transfer case with transmission selector in 1 (first range). If using LOW transfer case & 1 (first range), do not exceed 1200 RPM when starting from a stop. If the tractor does not move prior to reaching 1200 RPM, do not continue to increase engine RPM. Failure to comply may result in driveline damage.

d. Set transmission range selector (5) to 1 (first gear range) position. (WP 0041)

e. Release service brake pedal (7). (WP 0012) Press throttle pedal (6) (WP 0012) to move HET Tractor forward slowly then increase speed gradually.

f. Turn HET Tractor gradually to avoid oversteering the vehicle.

g. Set transmission range selector (5) to 2-5 position (WP 0041) when HET Tractor picks up speed and is moving forward smoothly.

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OPERATION IN SAND, MUD, OR SNOW - Continued

10. If HET Tractor starts to skid:
    a. Release throttle pedal (6). (WP 0012)
    b. Steer in direction of skid until HET Tractor stops skidding.
    c. Lightly apply service brake pedal (7) (WP 0012) when HET Tractor is under control.
    d. Slowly apply throttle pedal (6) (WP 0012) and steer HET Tractor on straight course.
11. To park HET Tractor:
    a. Park HET Tractor so it does not face into wind when possible to avoid glass surfaces being scratched by sand, dust, and damage to radiator.
    b. Clean mud off HET Tractor as soon as possible to avoid damage to paint.

CAUTION

- Do not hit axle breathers when cleaning mud from axles. Damage to axle breathers could result.
- Do not direct high-pressure water stream at glass surfaces, seals, air intake, axle breathers, exhaust outlet, or any other component of HET Tractor that could be easily damaged by high-pressure water stream. Failure to comply may result in damage to equipment.

NOTE

Ensure axle breather vent caps move freely on breather body.

    c. Clean mud from wheels, brakes, axles, universal joints, steering mechanism, and radiator as soon as possible.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPERATION IN COLD ENVIRONMENT, -25 TO 32°F (-32 TO 0°C)

INITIAL SETUP:

References
FM 9-207 (WP 0113)
FM 31-70 (WP 0113)

References - Continued
FM 31-71 (WP 0113)
FM 21-305 (WP 0113)

WARNING



When operating HET Tractor on snow or ice, be sure to remove all snow and ice from footwear, brake pedal, and accelerator pedal. Serious injury to personnel and damage to HET Tractor may result if feet slip from controls during operation.

CAUTION

- Drain fuel/water separator before topping off fuel tanks. Keep fuel tanks full during cold environment operations. Water forms in empty tanks as they cool. Water in system can freeze and block fuel flow to engine. Failure to comply may result in damage to equipment.
- Special care must be used during cold environment operations. In severe cold, engine coolant and windshield washer fluid can freeze. Batteries can freeze and crack. Oil and grease may get thick and stiff. Rubber will easily crack. Failure to comply may result in damage to equipment.
- Do not force dipstick removal (WP 0110) in cold environment. Wait 3 to 5 minutes after loosening dipstick before attempting to remove. Failure to comply may result in damage to equipment.

NOTE

- Prepare HET Tractor IAW FM 9-207 (WP 0113) before operating in cold environment.

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- Refer to FM 31-70, (WP 0113)FM 31-71, (WP 0113) and FM 21-305 (WP 0113) for additional information on operating in cold environment.

1. Use ETHER START control (1) to start engine. (WP 0037)

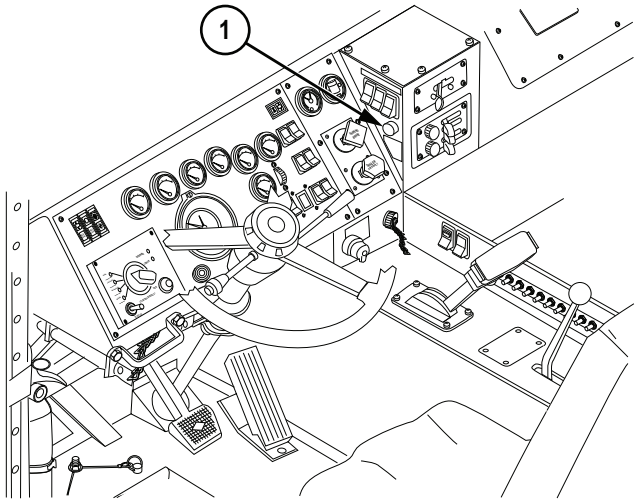


Figure 1.

CAUTION

Before using winch system, hydraulic oil must be warmed whenever temperatures are below 32°F (0°C). Failure to comply may result in damage to winch pump.

2. Warm up winch system before operating:
   a. Start engine. (WP 0037)
   b. Engage power takeoff. (WP 0035)
   c. Operate engine at idle for 15 minutes.
   d. Engage high idle for 10 minutes. (WP 0035)
   e. Disengage high idle. (WP 0035)
   f. Pay winch cable out and in one drum revolution on all three winches. (WP 0035)
   g. Resume normal winch operations. (WP 0035)
3. Drive HET Tractor 3 to 5 miles (5 to 8 km) before activating CTI system.

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NOTE

The CTI system should be in ON position only when parked during cold starts in cold environments. CTI will adjust tire pressures during warm up period while HET Tractor is parked.

a. Move CTI switch to OFF position before moving HET Tractor. (WP 0028)

b. Drive HET Tractor 3 to 5 miles (5 to 8 km).

c. Move CTI switch to ON position and select appropriate terrain position. (WP 0028)

CAUTION

Avoid using LOW transfer case with transmission selector in 1 (first range). If using LOW transfer case & 1 (first range), do not exceed 1200 RPM when starting from a stop. If the tractor does not move prior to reaching 1200 RPM, do not continue to increase engine RPM. Failure to comply may result in driveline damage.

4. Set transmission range selector (2) to 1 position and TRANSFER CASE shift lever (3) to HIGH position. Drive HET Tractor at the lowest possible speed to warm driveline components and tires.

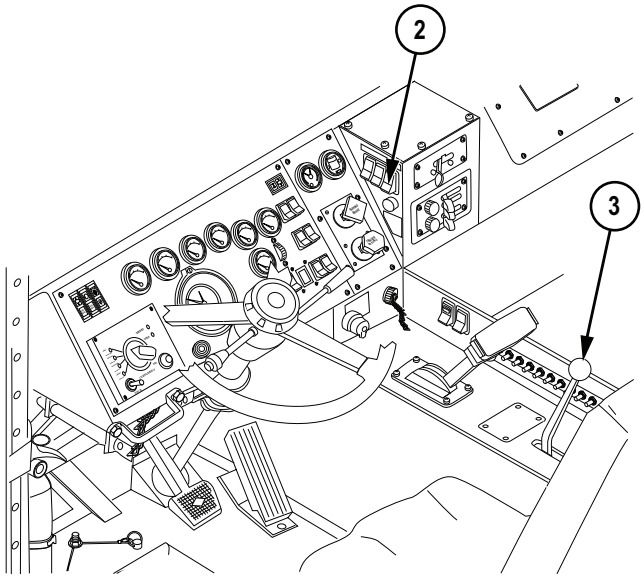


Figure 2.

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WARNING

Reduce speeds when operating on snow or ice or accidents resulting in damage to HET Tractor may occur. Provisions must be made for increased stopping distances. Failure to comply may result in serious injury or death to personnel.

NOTE

Model A dash panel shown, Model B dash panel similar.

5. When driving on snow, ice, and slippery surfaces:

   a. Set CTIS rotary selector switch (4) to CROSS COUNTRY. (WP 0028)

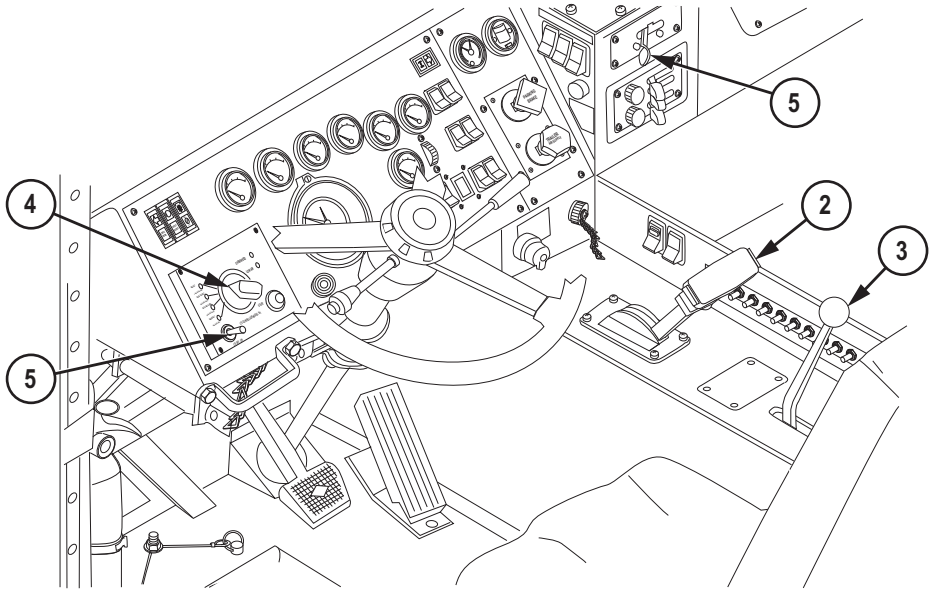


Figure 3.

   b. Set TRANSFER CASE shift lever (3) to LOW.

   c. Accelerate slowly so tires do not spin. Set CTIS rotary selector switch (4) to MUD, SAND & SNOW if tires spin. (WP 0028)

   d. Set DRIVELINE control (5) to LOCK for added tire traction.

   e. Shift transmission range selector (2) to lower gear range for added tire traction.

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WARNING

Avoid driving diagonally across a hill. HET Tractor may roll. Failure to comply may result in serious injury or death to personnel.

f. Steer HET Tractor straight up and down hills when possible. When necessary to drive across a hill, choose lowest angle possible. Keep HET Tractor moving. Avoid quick, sharp turns.

WARNING

Do not use engine brake retarder in wet, slick, or icy road conditions. Loss of vehicle control could occur. Failure to comply may result in serious injury or death to personnel.

WARNING

To stop on snow or ice, pump brakes gradually. Continuous braking can cause wheels to lock and HET Tractor to slide out of control. Failure to comply may result in serious injury or death to personnel.

WARNING



When operating HET Tractor on snow or ice, be sure to remove all snow and ice from footwear, brake pedal, and accelerator pedal. Serious injury to personnel and damage to HET Tractor may result if feet slip from controls during operation.

6. Pump brake pedal (6) gradually to slow or stop HET Tractor.

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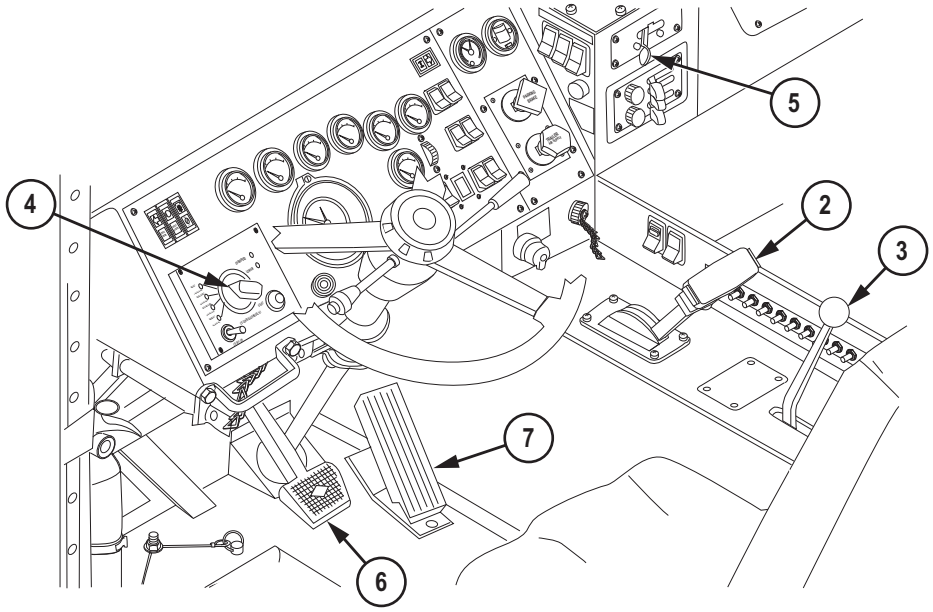


Figure 4.

CAUTION

Do not downshift into 1 (first range), with transfer case in LOW, while engine speed is above 1200 RPM. Failure to comply may result in driveline damage.

7. Downshift transmission range selector (2) to slow HET Tractor if required.
8. Drive slowly and test brakes after driving through slush or water. If brakes slip:
   a. Continue to drive slowly.
   b. Apply moderate pressure on brake pedal (6) to cause slight brake drag.
   c. Let up on brake pedal (6) when brakes dry and no longer slip.
   d. Resume normal driving speed.
9. If HET Tractor starts to skid:
   a. Release accelerator pedal (7).
   b. Steer in direction of skid until HET Tractor stops skidding.
   c. Press brake pedal (6) lightly when HET Tractor is under control.
   d. Press accelerator pedal (7) slowly. Steer HET Tractor on straight course.
10. If HET Tractor starts to slide while climbing hill:

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a. Release accelerator pedal (7).

b. Steer in direction of slide until HET Tractor stops.

c. Press accelerator pedal (7) slowly. Steer HET Tractor on straight course.

11. If HET Tractor becomes stuck:

CAUTION

Avoid using LOW transfer case with transmission selector in 1 (first range). If using LOW transfer case & 1 (first range), do not exceed 1200 RPM when starting from a stop. If the tractor does not move prior to reaching 1200 RPM, do not continue to increase engine RPM. Failure to comply may result in driveline damage.

a. Shovel clear path ahead of each wheel. Put boards, brush, mats, canvas, or similar material in cleared paths to get better tire traction.

b. Set CTIS rotary selector switch (4) to MUD, SAND & SNOW position. (WP 0028)

c. Set TRANSFER CASE shift lever (3) to LOW position.

d. Set DRIVELINE control (5) to LOCK position.

e. Set transmission range selector (2) to 1 position.

f. Accelerate slowly so tires do not spin.

g. If HET Tractor remains stuck, set CTIS rotary selector switch (4) to EMERGENCY position.

h. Use another vehicle to recover.

NOTE

Model A dash panel shown, Model B dash panel similar.

12. To park HET Tractor:

a. Park HET Tractor so it does not face into wind when possible.

b. Park HET Tractor on dry ground when possible. Place wood planks, brush, mats, or canvas under tires if dry ground is not available.

NOTE

Do not apply parking brake in extremely cold weather. Brake shoes can freeze to brake drum. Ensure HET Tractor is parked on level terrain and wheels are chocked.

c. Park HET Tractor on level ground.

d. Set TRANSFER CASE shift lever (3) to LOW position.

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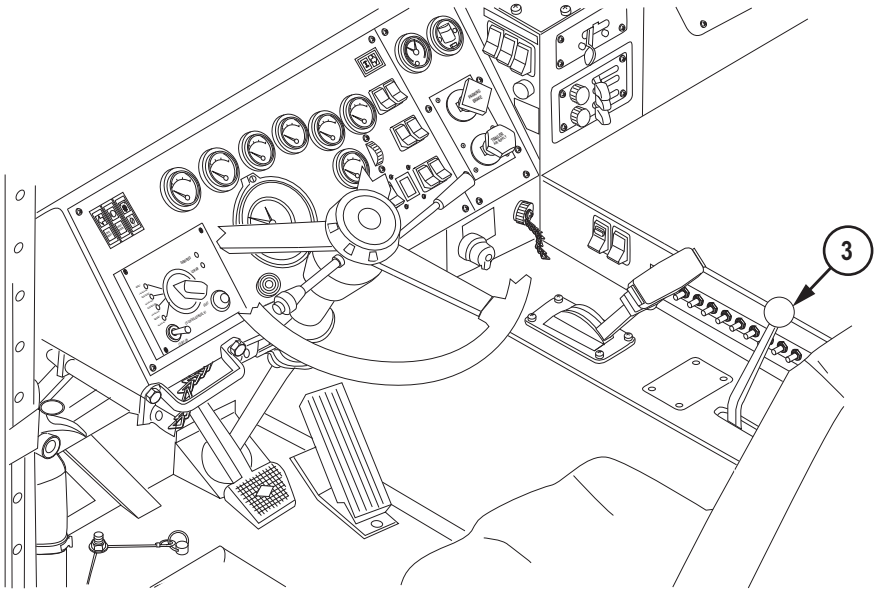


Figure 5.

CAUTION

Do not hit axle breathers when cleaning mud, snow, and ice from axles. Damage to axle breathers could result.

NOTE

Ensure axle breather vent caps move freely on breather body.

13. Clean mud, snow, and ice from wheels, brakes, axles, universal joints, mirrors, steering mechanism, and radiator as soon as possible. Ensure all components are thoroughly dry after cleaning.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SET UP/SECURE HIGHWAY EMERGENCY MARKER KIT

INITIAL SETUP:

Not Applicable

SET UP HIGHWAY EMERGENCY MARKER KIT

WARNING

Be aware of traffic when exiting HET Tractor. Failure to comply may result in serious injury or death to personnel.

NOTE

- Model A dash panel is shown, Model B dash panel similar.
- Highway emergency marking kit is used to mark location of stopped/ disabled vehicle and to caution oncoming traffic.

1. Push in emergency flasher control (1). (WP 0054)

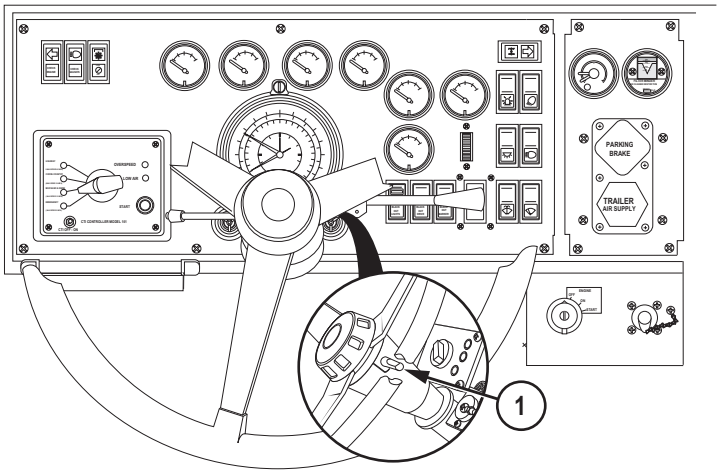


Figure 1.

2. Prepare three markers for use:

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SET UP HIGHWAY EMERGENCY MARKER KIT - Continued

a. Remove emergency marking kit (2) from stowage box (3).

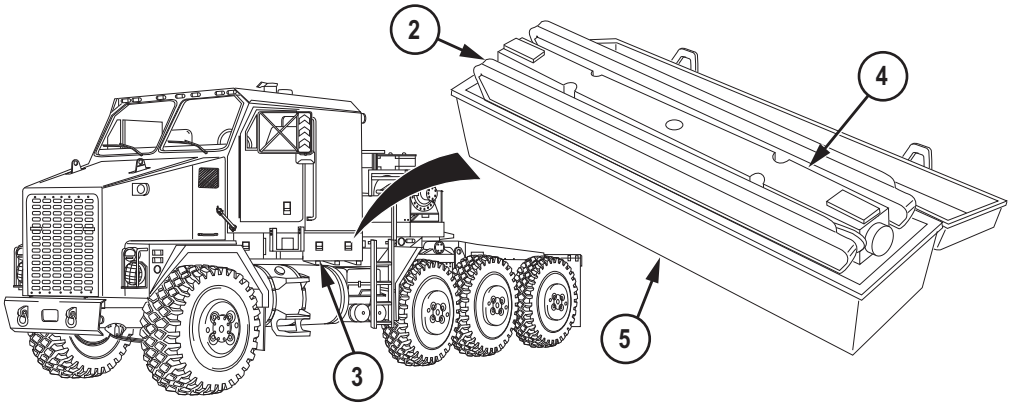


Figure 2.

b. Remove markers (4) from case (5).

c. Raise marker arms (6).

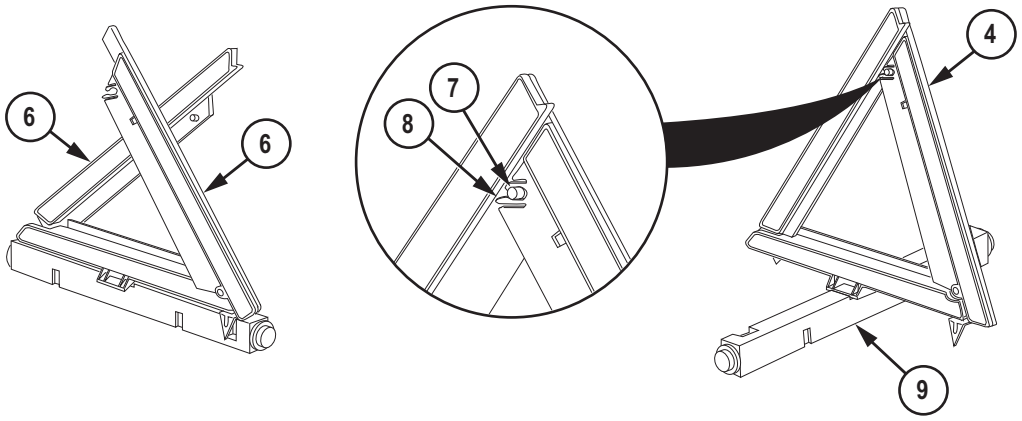


Figure 3.

d. Overlap ends of marker arms (6) and snap pin (7) into slot (8).

e. Rotate marker (4) about 1/4 turn on base (9) until it stops.

NOTE

Refer to Figure 4 (below) for correct emergency marker placement.

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SET UP HIGHWAY EMERGENCY MARKER KIT - Continued

3. To place markers (4) on highway during time lights are required (sunset to sunrise):

   Place a reflector in obstructed lane or on shoulder of road if vehicle is on or over shoulder at a point between vehicle and approaching traffic using that lane. Do this before making any attempt to repair vehicle. Place reflectors in following manner:

   (1) Place one reflector in center of lane of traffic occupied by vehicle not less than 40 paces or approximately 100 ft. (30 m) from vehicle in direction of traffic approaching in that lane. If vehicle is on or over shoulder and does not occupy a traffic lane, place warning device alongside edge of roadway to avoid obstructing traffic lane.

   (2) Place one reflector on traffic side of vehicle 4 paces or approximately 10 ft. (3 m) to rear of vehicle in direction in which traffic using that lane will approach.

   (3) Place one reflector not less than 40 paces or approximately 100 ft. (30 m) from vehicle in opposite direction.

   (4) If engine of vehicle is stopped within 300 ft. (91 m) of a curve, crest of a hill, or other obstruction to view, place one reflector not less than 4 paces or approximately 10 ft. (3 m) but not more than 120 paces or approximately 300 ft. (91 m) from vehicle to afford ample warning to other users of highway.

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SET UP HIGHWAY EMERGENCY MARKER KIT - Continued

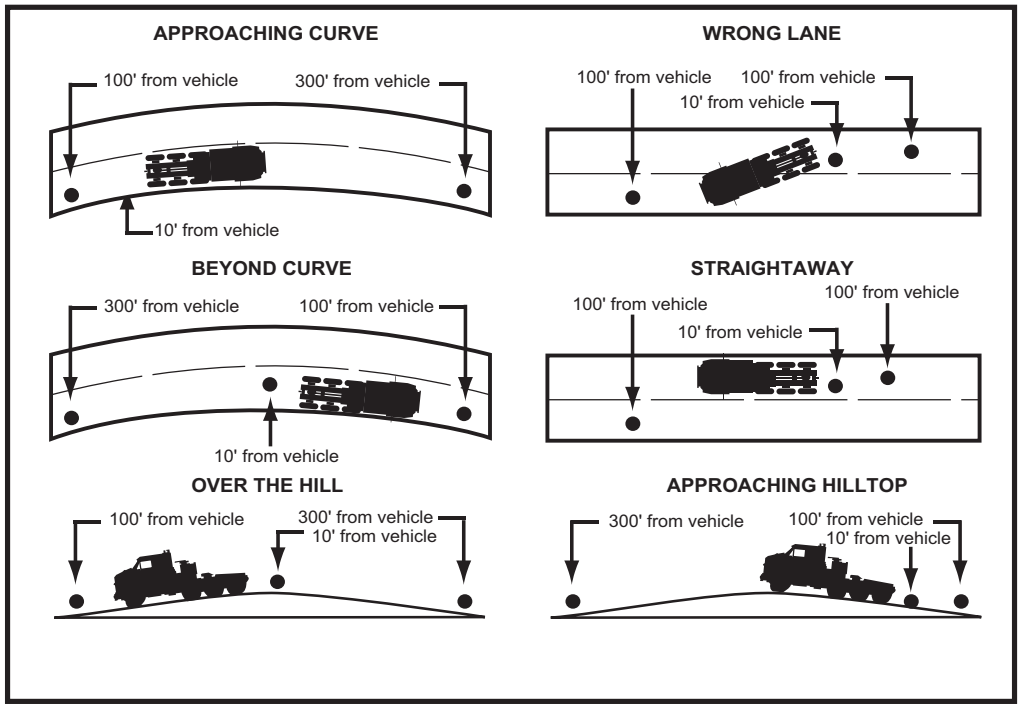


Figure 4.

NOTE

Refer to Figure 4 (above) for correct emergency marker placement.

4. To place markers (4) on highway during time lights are not required (sunrise to sunset):

   Place red flags or reflectors with flats mounted on them as prescribed for night, except that since most warning kits contain only two flags, reflector placed 10 ft. (3 m) behind vehicle will have no flag mounted on it.

SECURE/STOW HIGHWAY EMERGENCY MARKER KIT

1. Stow three markers:

   a. Rotate marker (1) over base (2).

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SECURE/STOW HIGHWAY EMERGENCY MARKER KIT - Continued

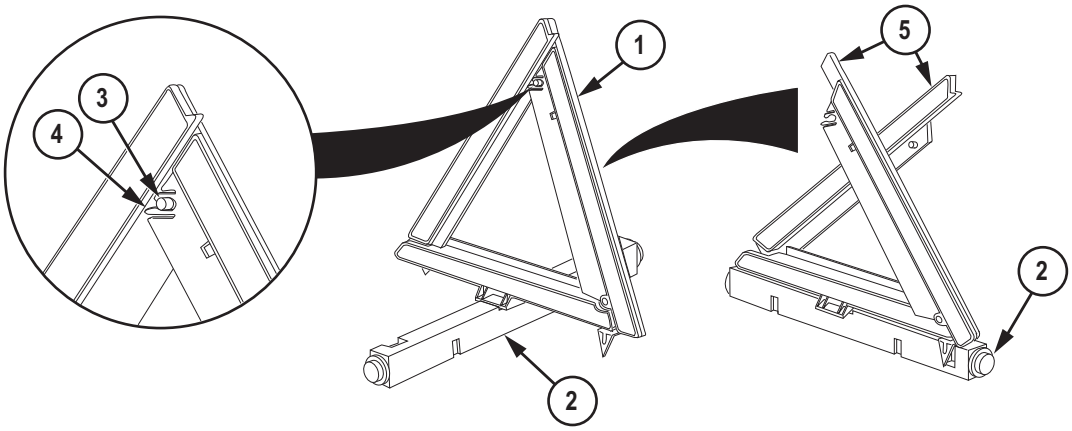


Figure 5.

b. Remove pin (3) from slot (4).

c. Separate marker arms (5).

d. Fold marker arms (5) down onto base (2).

e. Stow three markers (1) in case (6).

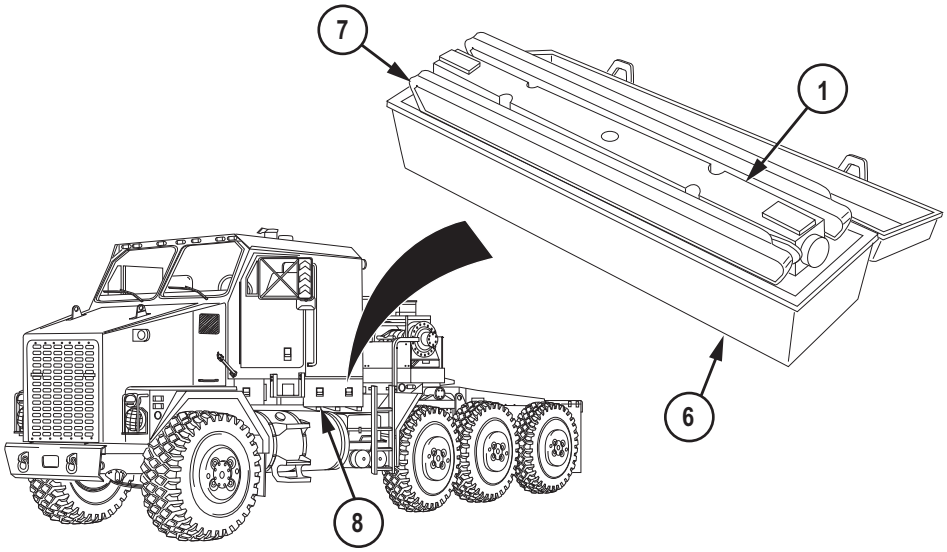


Figure 6.

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SECURE/STOW HIGHWAY EMERGENCY MARKER KIT - Continued

f. Return emergency marking kit (7) in stowage box (8).

NOTE

Model A dash panel is shown, Model B dash panel similar.

2. Pull out emergency flasher control (9). (WP 0054)

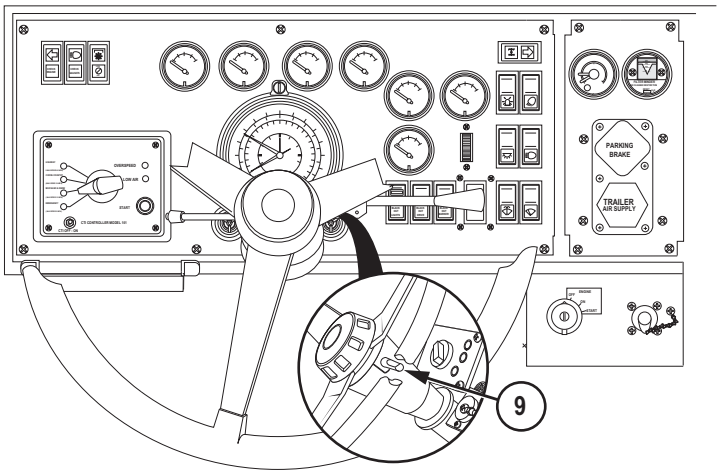


Figure 7.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SLAVE START VEHICLE

INITIAL SETUP:

Personnel Required
Operator and Assistant - - - (2)

PREPARE VEHICLES FOR SLAVING PROCEDURE

NOTE

Report any malfunction requiring HET Tractor to be slave started to unit maintenance.

1. Start engine of assist (slaving) vehicle. (WP 0037)

NOTE

NATO slave receptacle on HET Tractor is located on rear splash guard of driver side front fender.

2. Position assist (slaving) vehicle (1) next to disabled vehicle (2) so NATO slave receptacles are side by side.

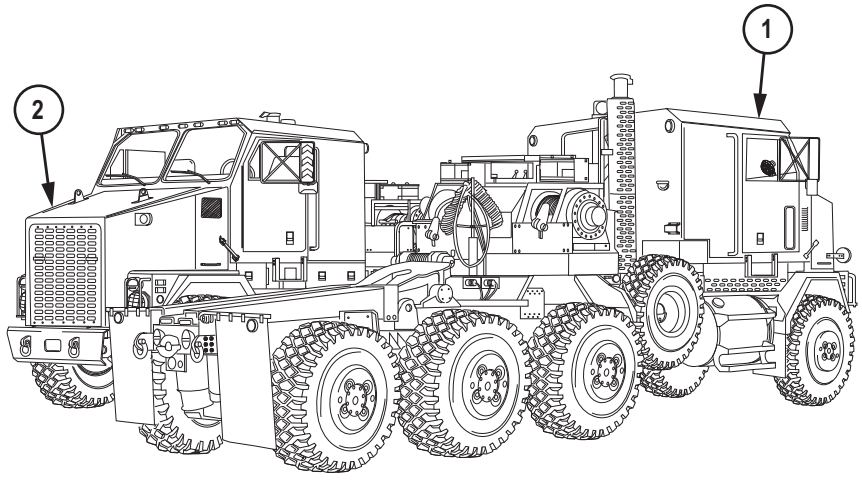


Figure 1.

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PREPARE VEHICLES FOR SLAVING PROCEDURE - Continued

3. Shut engine OFF of assist (slaving) vehicle (1). (WP 0042)

CAUTION

Slave starting can produce power surges which can damage electrical circuits. Ensure all electrical circuits on both assist (slaving) and disabled vehicle are set to OFF position. Ensure central tire inflation system (CTIS) ON/OFF switch (WP 0015) is set to OFF position on both assist (slaving) and disabled vehicle. Failure to comply may result in damage to equipment.

4. Secure both assist (slaving) vehicle (1) and disabled vehicle (2) electrical systems:
   a. Set ENGINE switch to OFF position on both assist (slaving) vehicle (1) and disabled vehicle (2). (WP 0018)
   b. Set all electrical switches to OFF position on both assist (slaving) vehicle (1) and disabled vehicle (2).
   c. Set central tire inflation system (CTIS) ON/OFF switch (WP 0015) to OFF position on both assist (slaving) vehicle (1) and disabled vehicle (2).

SLAVE START DISABLED VEHICLE

WARNING



SLAVE STARTING VEHICLE.

- Ensure ENGINE switches on both vehicles are set to OFF position before connecting NATO slave cables. Ensure vehicles are not touching each other. Failure to comply may result in serious injury or death to personnel.
- Remove all jewelry such as rings, dog tags, bracelets, etc., before performing any of following steps in slave start procedure. Failure to comply may result in serious injury or death to personnel.
- Do not smoke, have open flame, or make sparks when slave starting vehicle. Batteries can explode. Failure to comply may result in serious injury or death to personnel.

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SLAVE START DISABLED VEHICLE - Continued

CAUTION

ALWAYS connect NATO slave cable to DISABLED VEHICLE FIRST - before connecting it to assist (slaving vehicle). Failure to comply may result in damage to equipment.

1. Remove NATO slave cable (1) from stowage box (2) of disabled vehicle (3).

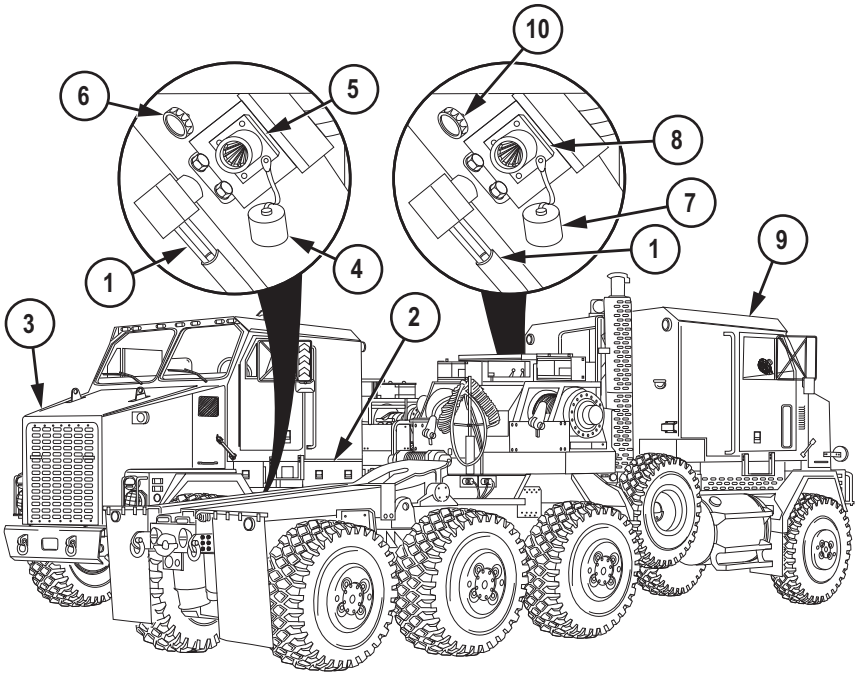


Figure 2.

2. Remove cap (4) from slave receptacle (5) of disabled vehicle (3).
3. Remove cap (6) from NATO slave cable (1).
4. Plug NATO slave cable (1) into slave receptacle (5) of disabled vehicle (3).
5. Remove cap (7) from slave receptacle (8) of assist (slaving) vehicle (9).
6. Remove cap (10) from free end of NATO slave cable (1).
7. Plug free end of NATO slave cable (1) into slave receptacle (8) of assist (slaving) vehicle (9).
8. Start engine of assist (slaving) vehicle (9). (WP 0037)

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SLAVE START DISABLED VEHICLE - Continued

NOTE

Operate engine of assist (slave) vehicle at 1000 rpm until disabled vehicle is started.

9. Start engine of assist (slaving) vehicle (9). (WP 0037)
10. Assistant starts engine of disabled vehicle (3). (WP 0037)
11. Remove NATO slave cable (1) from slave receptacle (5) of disabled vehicle (3).
12. Install cap (6) on NATO slave cable (1).
13. Install cap (4) on slave receptacle (5) of disabled vehicle (3).
14. Remove NATO slave cable (1) from slave receptacle (8) of assist (slaving) vehicle (9).
15. Install cap (10) on NATO slave cable (1).
16. Install cap (7) on slave receptacle (8) of assist (slaving) vehicle (9).
17. Stow NATO slave cable (1) in stowage box (2) of disabled vehicle (3).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
PERFORM IMMEDIATE ACTION FOR LOSS OF AIR SUPPLY SYSTEM PRESSURE

INITIAL SETUP:

Not Applicable

GENERAL AIR SYSTEM INFORMATION

NOTE

Air pressure shown by the green pointer of AIR PRESS gauge (WP 0016) indicates air pressure for:

- Front service brakes.
- Trailer service brakes.
- Winch system.
- HI-LO range valve.
- Tire inflation connectors.
- Windshield washer.
- Horns.
- Transmission modulator.
- Driveline lockup.
- Fan clutch.

NOTE

Air pressure shown by the red pointer of AIR PRESS gauge (WP 0016) indicates air pressure for:

- Central tire inflation pressure transducer.
- Rear tridem spring brakes.
- Trailer emergency brakes.
- Rear tridem service brakes.
- Air suspension.

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GENERAL AIR SYSTEM INFORMATION - Continued

Operator should be familiar with information in notes above.

END OF TASK

EMERGENCY PROCEDURE

WARNING

Maximum braking requires 90 psi (621 kPa) or more air pressure. If air pressure drops below 90 psi (621 kPa), braking ability will be reduced. If air pressure continues to drop, air system is malfunctioning. Brake failure may result in serious injury or death to personnel and/or damage to equipment.

NOTE

- Model A dash panel shown, Model B dash panel similar.
- Operator should presume that emergency parking/spring brake must be activated manually if a low air condition occurs during operation of the HET Tractor.

1. If LOW AIR indicator (1) illuminates and/or low air alarm (2) sounds (WP 0015) while driving the HET Tractor, check AIR PRESS gauge (3) (WP 0016) to verify that a low air pressure condition exists.

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EMERGENCY PROCEDURE - Continued

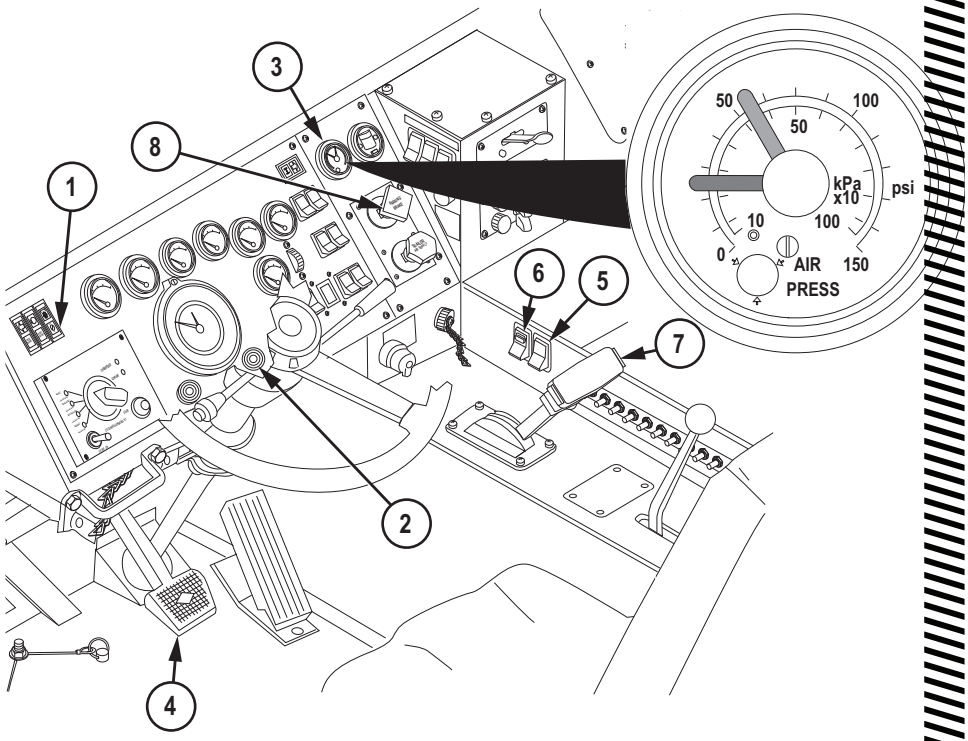


Figure 1.

2. If a low air condition exists, take immediate action to stop the HET Tractor:
   a. Apply and hold service brake pedal (4). (WP 0039)
   b. Ensure engine brake retarder is initiated: (WP 0038)
      (1) Engine brake retarder HI/LO switch (5) is set to HI position. (WP 0018)
      (2) Engine brake retarder ON/OFF switch (6) is set to ON position. (WP 0018)
   c. Downshift transmission range selector (7). (WP 0041)
   d. Pull out PARKING BRAKE control (8) to apply spring brakes. (WP 0043)
3. Check for air system damage or leaks. Refer to operator's troubleshooting procedures.

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EMERGENCY PROCEDURE - Continued

NOTE

- If loss of air pressure is result of damaged air spring, complete Step (4).
- If loss of air pressure is not result of damaged air spring, skip to Step (5).

4. Remove and plug air line. Refer to limp home procedure. (WP 0081)
5. Ensure field level maintenance is notified upon return.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
MANUALLY RELEASE/APPLY SPRING BRAKES

INITIAL SETUP:

Not Applicable

RELEASE SPRING BRAKES

WARNING

Do not operate HET Tractor with spring brakes released. HET Tractor will be able to roll free once spring brakes are released. Use wheel chocks, or similar aid, to prevent HET Tractor from moving once spring brakes are released. Failure to comply may result in serious injury or death to personnel.

NOTE

- Procedures for releasing and applying spring brakes are the same for No. 2, No. 3, and No. 4 axles. No. 4 axle shown.
- There are no spring brakes on No. 1 axle.

1. Install wheel chocks (1).

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RELEASE SPRING BRAKES - Continued

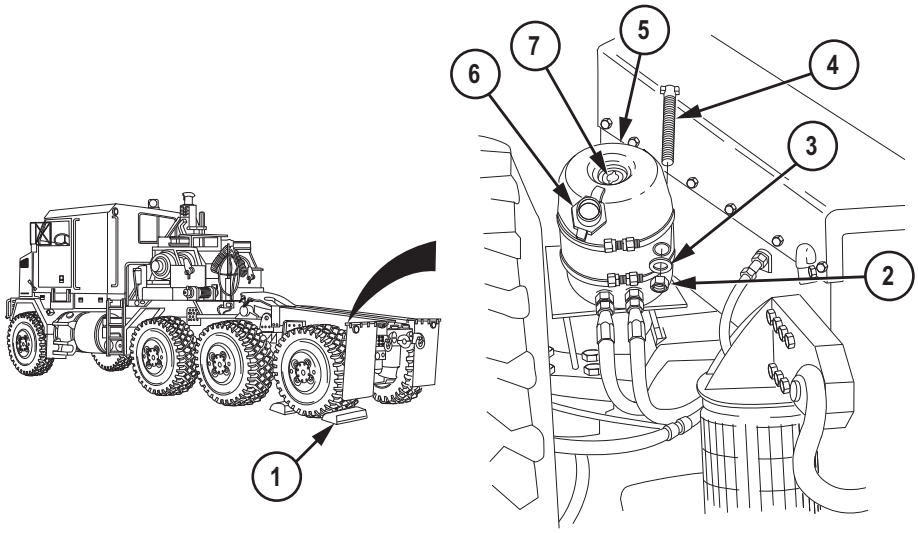


Figure 1.

2. Remove nut (2), washer (3), and tool (4) from mounting position on spring brake chamber (5).
3. Remove dust cap (6) from access hole (7) in spring brake chamber (5).
4. Insert tool (4) in access hole (7) and align with slot (8) inside spring brake chamber (5).

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RELEASE SPRING BRAKES - Continued

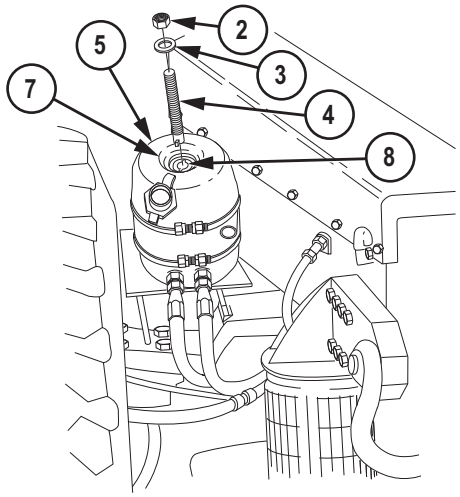


Figure 2.

5. Push tool (4) into slot (8) until it stops.
6. Turn tool (4) and pull out until it is seated and stops.
7. Install washer (3) and nut (2) on tool (4).
8. Release spring brake chamber (5) by tightening nut (2) down until it stops.

APPLY SPRING BRAKES

1. Loosen and remove nut (1) and washer (2) from tool (3).

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APPLY SPRING BRAKES - Continued

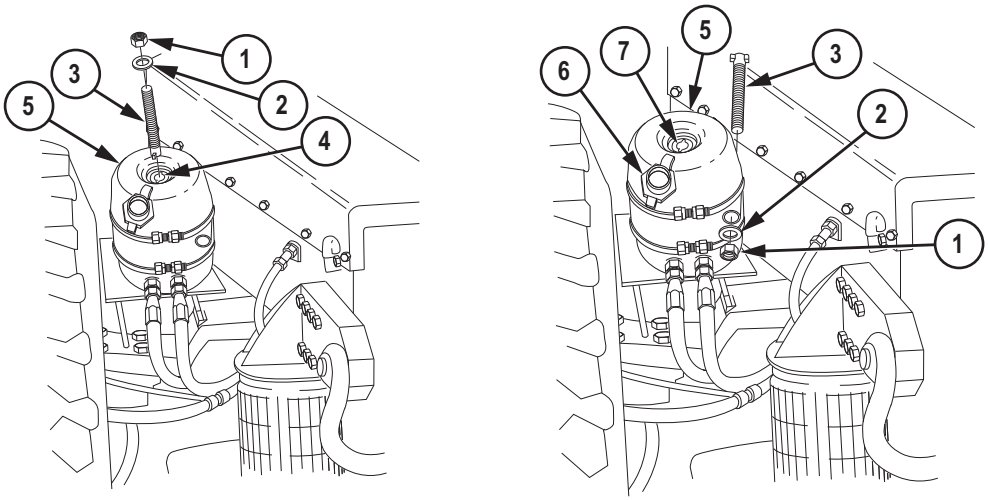


Figure 3.

2. Push tool (3) down and pull out of slot (4) inside spring brake chamber (5).
3. Install dust cap (6) in access hole (7) of spring brake chamber (5).
4. Install tool (3), washer (2), and nut (1) in mounting position on spring brake chamber (5).
5. Tighten nut (1).
6. Remove wheel chocks (8) as required.

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APPLY SPRING BRAKES - Continued

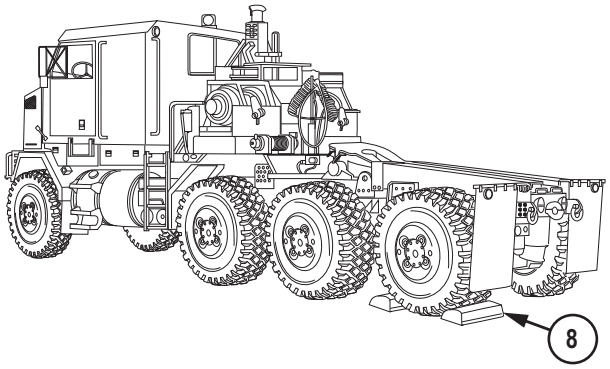


Figure 4.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
LIMP HOME PROCEDURE

INITIAL SETUP:

Not Applicable

CAUTION

Do not operate HET Tractor with more than one air spring disabled per side. Failure to comply may result in damage to equipment.

NOTE

Limp home procedure is used after failure of an air spring.

1. Shut engine OFF. (WP 0042)
2. Install wheel chocks (1).

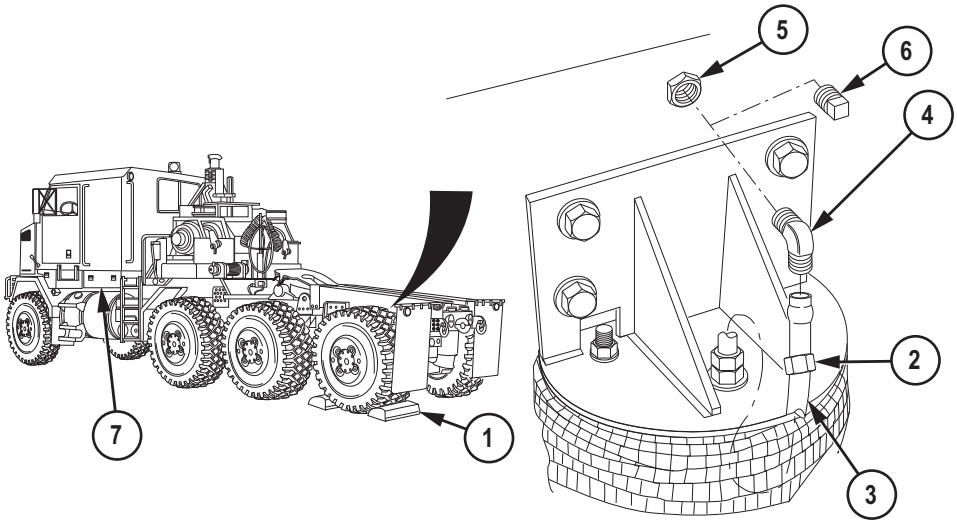


Figure 1.

3. Remove nut (2) and air hose (3) from elbow (4).
4. Remove elbow (4) from fitting (5).

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5. Remove plug (6) from stowage box (7) and install on fitting (5).
6. Position elbow (4) on air hose (3).
7. Install nut (2) on elbow (4).
8. Remove wheel chocks (1).
9. Start engine. (WP 0037)

CAUTION

Maximum speed of HET Tractor in limp home configuration is 5 mph (8 km/h) off-road and 15 mph (24 km/h) on-road. Failure to comply may result in damage to equipment.

10. Continue with mission.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
MOVEMENT TRACKING SYSTEM (MTS) POWER CONVERTER FAILURE

INITIAL SETUP:

Not Applicable

MTS POWER CONVERTER FAILURE

NOTE

- The MTS power converter is part of the C4ISR kit installed in some HET Tractors.
- Not all HET Tractors are equipped with the C4ISR kit, and kit installation locations may vary. Standard installation shown.
- Follow these instructions only if the C4ISR kit is installed on your vehicle.
- Indications of a possible problem with the MTS power converter include loss of power to the MTS mobile unit V2, and smoke, heat, and/or ozone smell coming from the MTS battery/control box.
- If a problem with the MTS power converter is indicated, perform the following Steps:

1. If HET Tractor is in motion, bring vehicle to a stop in a safe location.

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MTS POWER CONVERTER FAILURE - Continued

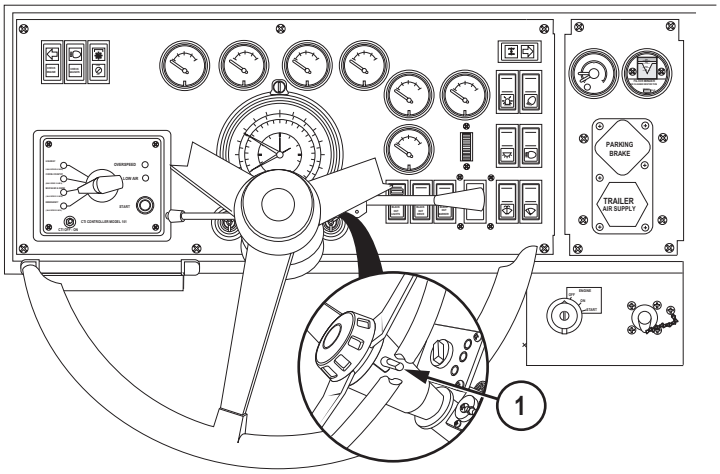


Figure 1.

2. Push in (turn on) EMERGENCY FLASHER control (1). (WP 0054)

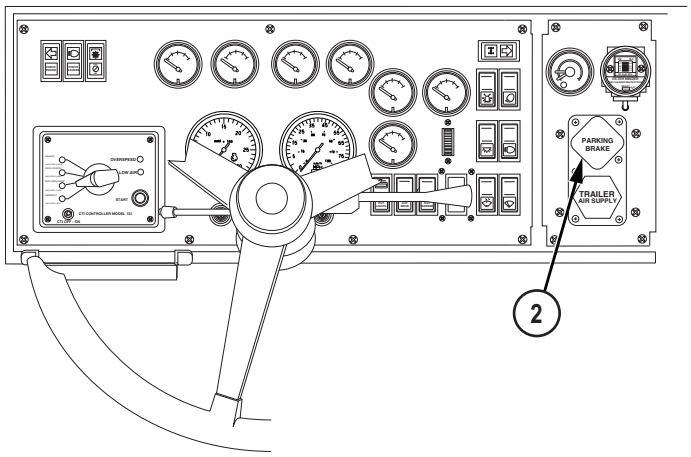


Figure 2.

3. Pull out PARKING BRAKE control (2) to apply parking brake. (WP 0043)

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MTS POWER CONVERTER FAILURE - Continued

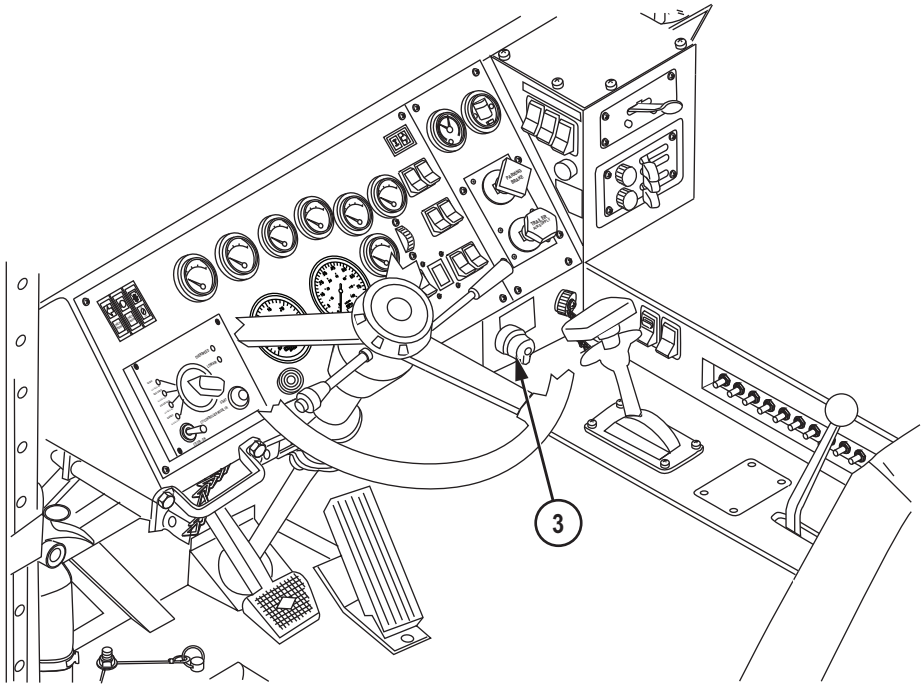


Figure 3.

4. Turn vehicle power switch (3) off. (WP 0018)
5. Exit vehicle, leaving doors open to ventilate cab.

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MTS POWER CONVERTER FAILURE - Continued

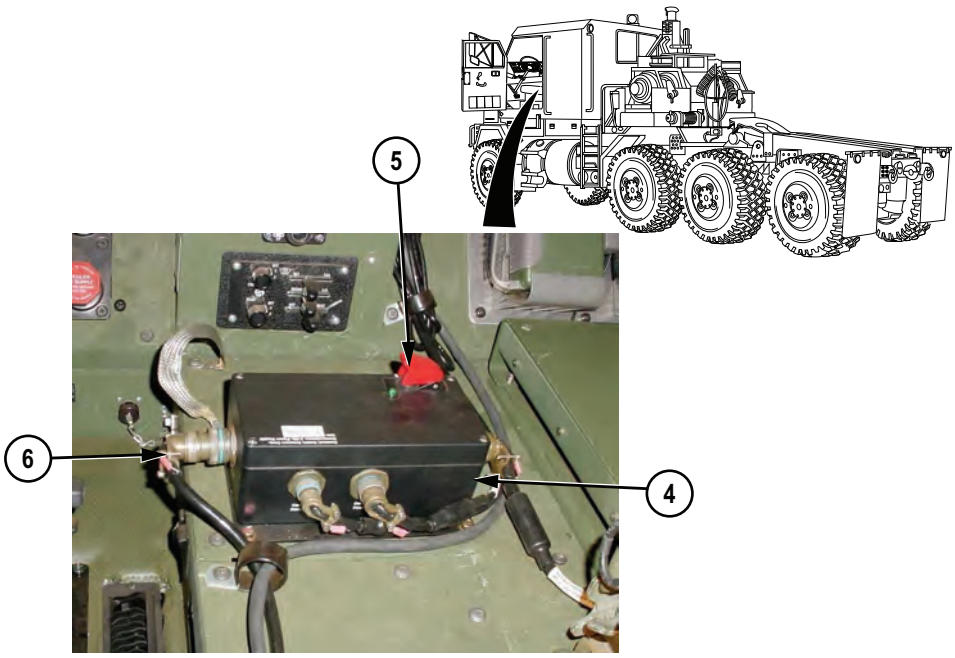


Figure 4.

6. Verify that MTS battery/control box (4) is the source of smoke or odor.
7. When smoke is cleared, re-enter HET Tractor and turn MTS battery/control box switch (5) to OFF position.

CAUTION

Do not attempt to remove MTS battery/control box cover. Failure to comply may result in damage to equipment.

8. Disconnect power cable (6) from MTS battery/control box (4).

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MTS POWER CONVERTER FAILURE - Continued

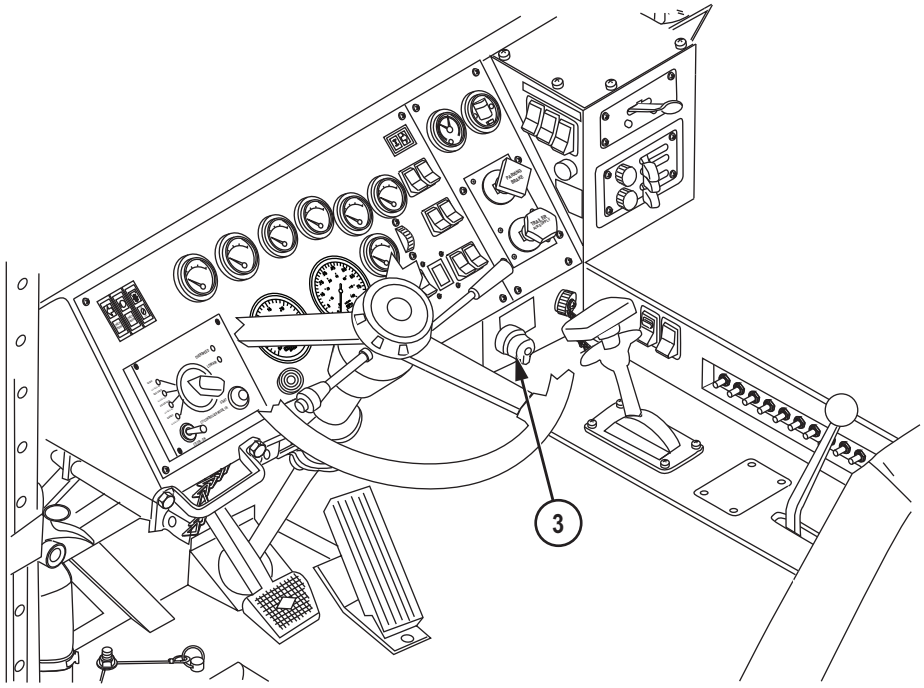


Figure 5.

9. Turn vehicle power switch (3) to ON and start engine. (WP 0037)

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MTS POWER CONVERTER FAILURE - Continued

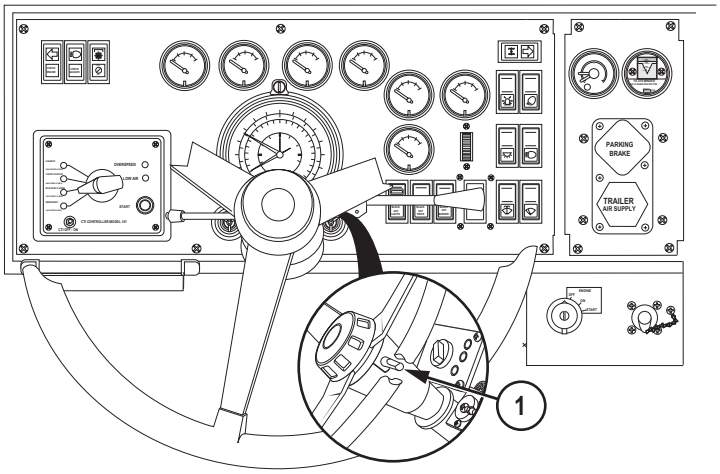


Figure 6.

10. Pull out (turn off) EMERGENCY FLASHER control (1). (WP 0054)
11. Push in PARKING BRAKE control (2) to release parking brake. (WP 0043)

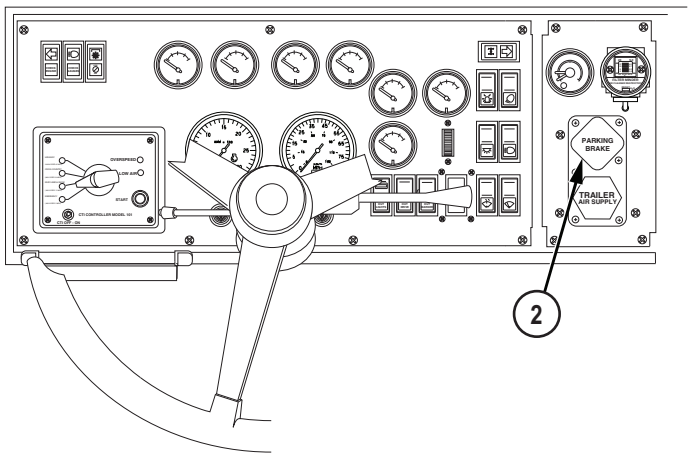


Figure 7.

12. Resume mission.

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MTS POWER CONVERTER FAILURE - Continued

13. When mission is complete, deliver vehicle to Field Maintenance and report problem.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
STOWAGE AND SIGN GUIDE

Scope

This work package shows locations for data plates, decals, and stencils that are required to be in place on the HET Tractor.

General

The following figures show the location of metal signs, decals, and stencils used on the vehicle. Most of these signs and stencils contain cautions or information needed to operate the vehicle safely.

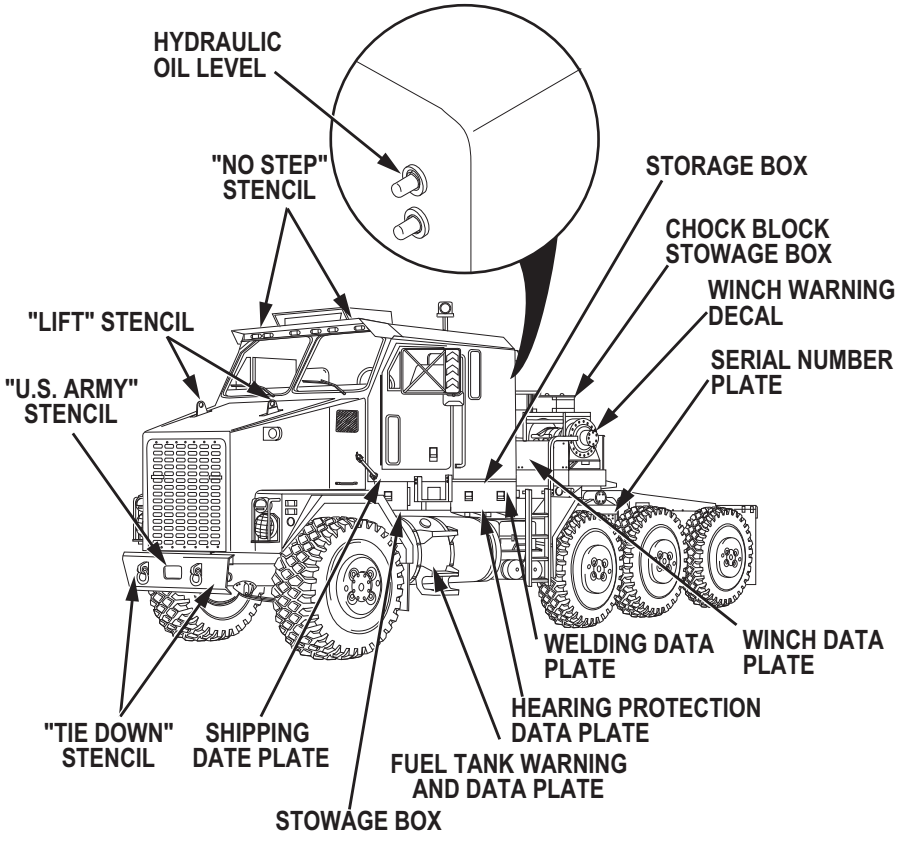


Figure 1. HET Tractor Exterior

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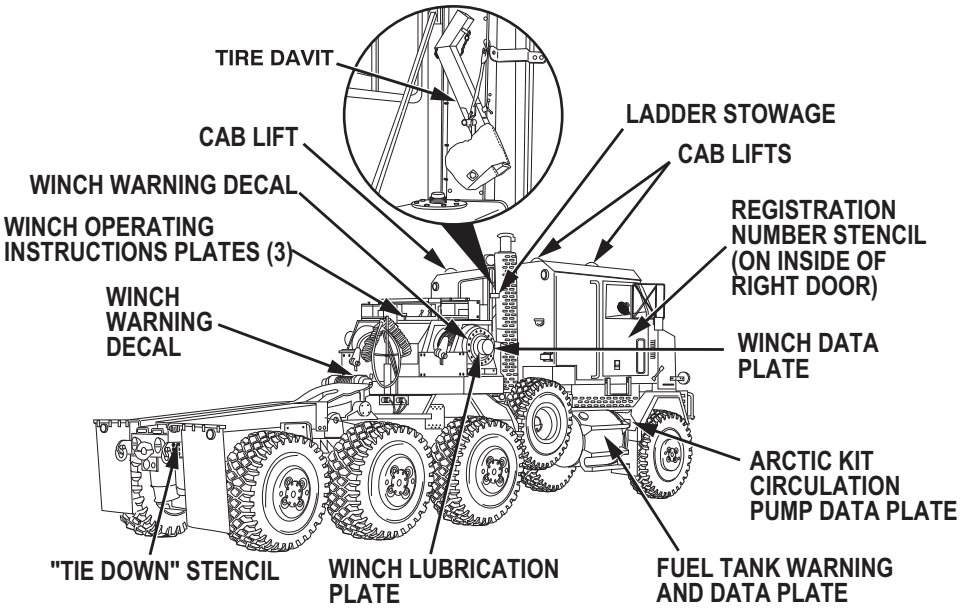


Figure 2. HET Tractor Exterior

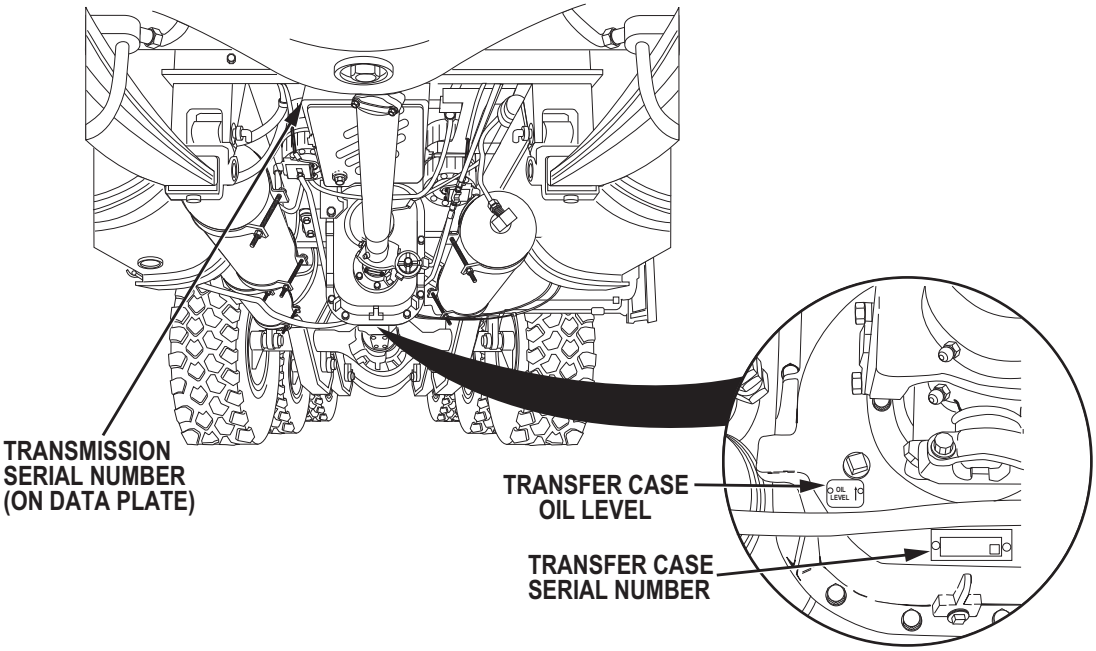


Figure 3. HET Tractor Undercarriage

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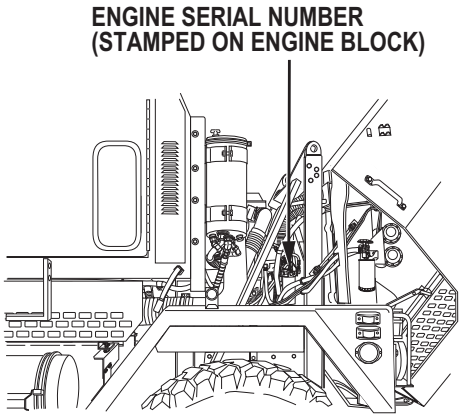


Figure 4. HET Tractor Engine Compartment (Passenger Side)

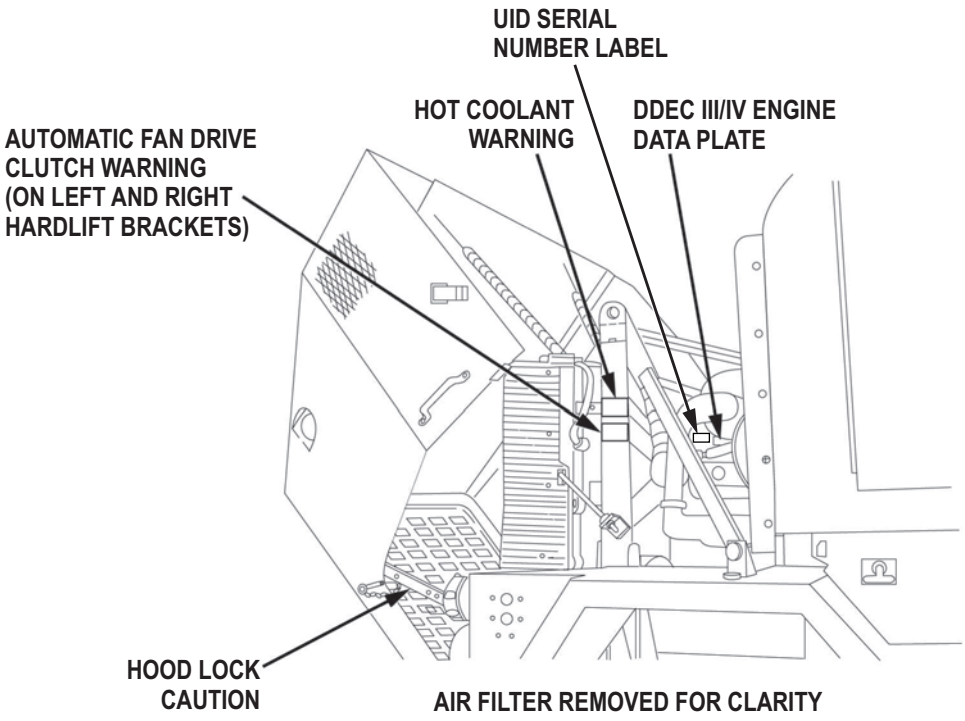


Figure 5. HET Tractor Engine Compartment (Driver Side)

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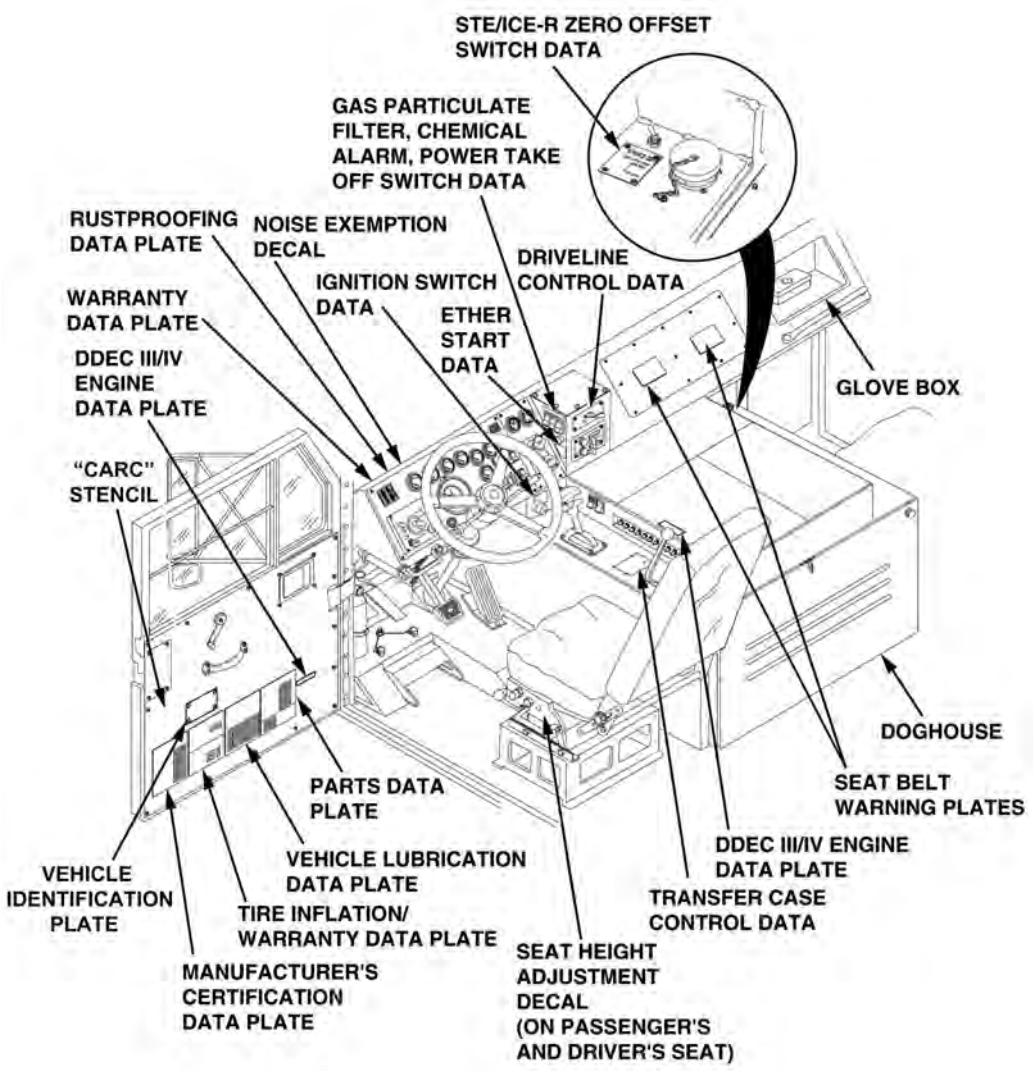


Figure 6. HET Tractor Forward Interior

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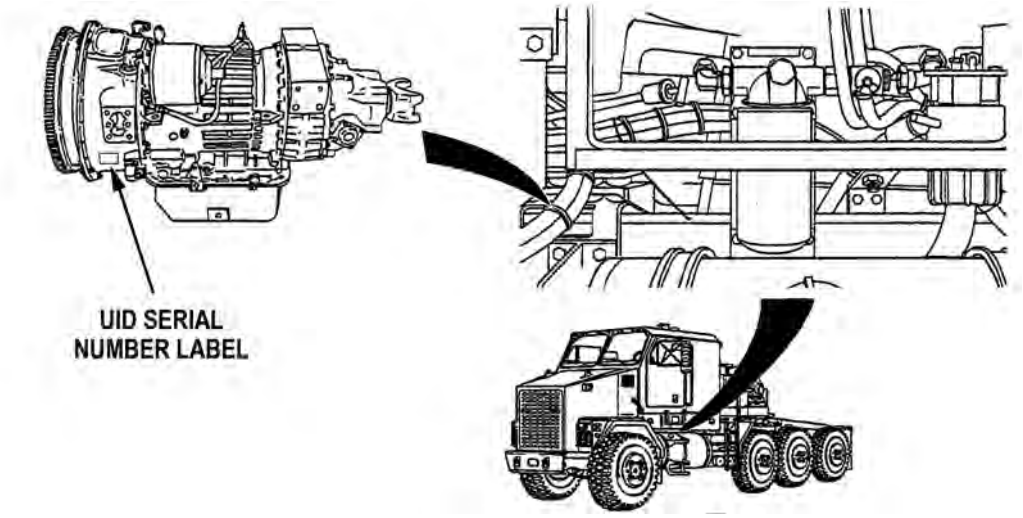


Figure 7. HET Tractor Transmission

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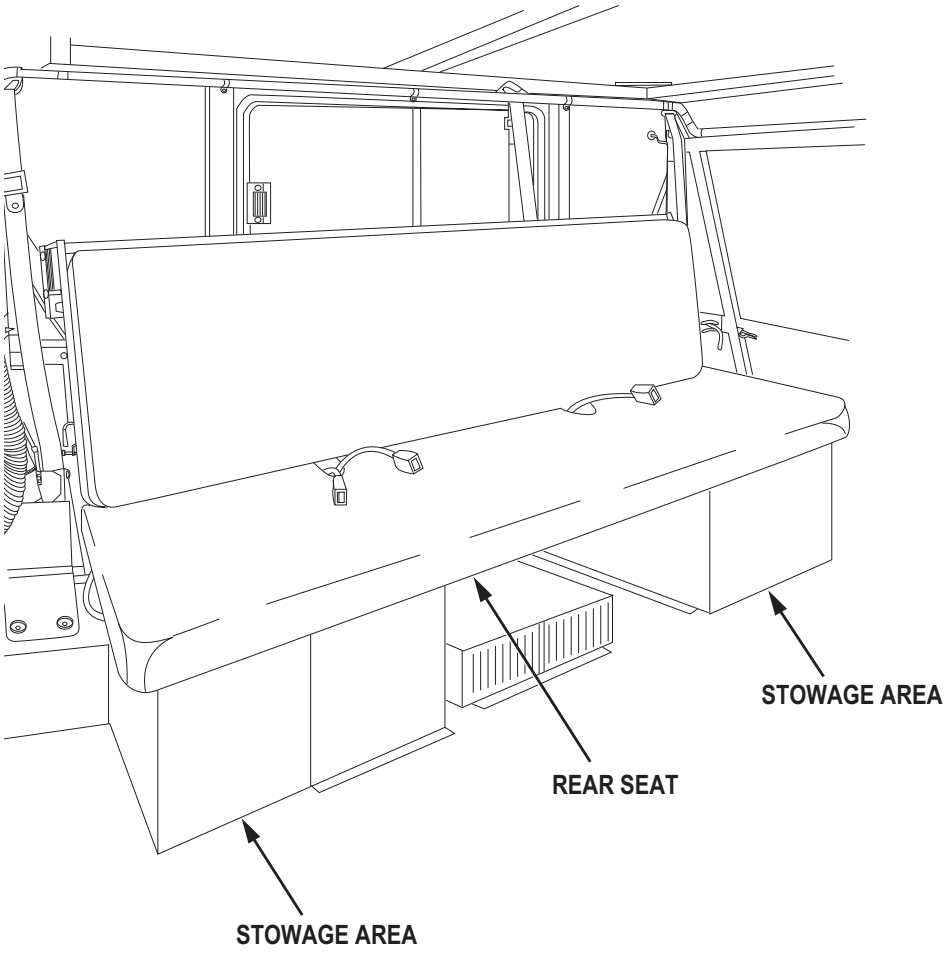


Figure 8. HET Tractor Rear Interior

END OF WORK PACKAGE

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CHAPTER 3

TROUBLESHOOTING PROCEDURES

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OPERATOR MAINTENANCE
HET TRACTOR WANDERS, PULLS TO ONE SIDE, LEANS, OR SHIMMIES

INITIAL SETUP:

Tools and Special Tools
Basic Issue Items (BII). (WP 0114)

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
HET TRACTOR WANDERS, PULLS TO ONE SIDE, LEANS, OR SHIMMIES

TEST 1 - Are tires properly inflated?

WARNING

Tire air pressure must be checked properly. Failure to comply may result in serious injury or death to personnel.

Check tires (WP 0109) for proper air pressure.

CONDITION/INDICATION
Are tires properly inflated?

DECISION
No - Test 2 - Does CTIS operate properly?
Yes - Test 3 - Are wheel lug nuts damaged, loose, or missing?

TEST 2 - Does CTIS operate properly?

NOTE

CTIS will not operate if air system pressure is less than 85 psi (586 kPa).

Check CTIS operation (WP 0028) by turning CTIS switch to a higher or lower setting and waiting for operation to complete.

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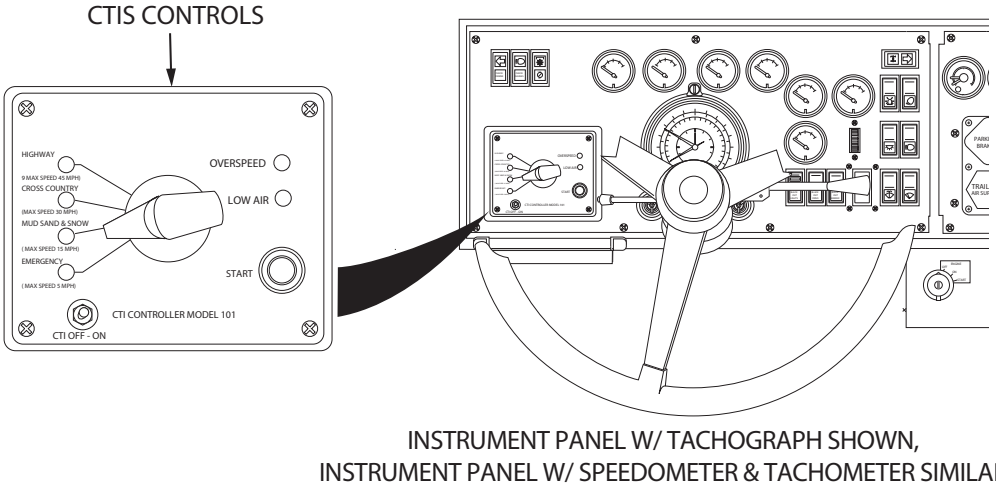


Figure 1. CTIS Control Panel.

CONDITION/INDICATION

Does CTIS operate properly?

DECISION

No -

Yes - Inflate tires to proper pressure using CTIS. (WP 0028)Test 8 - Does HET tractor wander, pull to one side, lean, or shimmy?

TEST 3 - Are wheel lug nuts damaged, loose, or missing?

1. Turn ignition switch to OFF position.
2. Remove wheel covers (WP 0100) and inspect lug nuts.

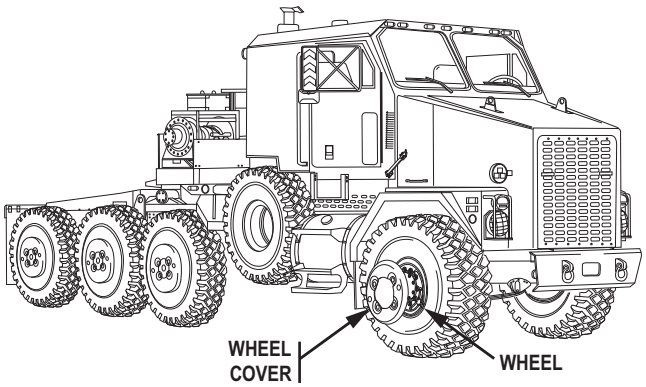


Figure 2. Wheel and Wheel Cover-HET Base.

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CONDITION/INDICATION
Are wheel lug nuts damaged, loose, or missing?

DECISION
No - Test 4 - Are front axle spring assemblies and/or shock absorbers loose or damaged?
Yes - Replace damaged lug nuts. (WP 0108)Test 8 - Does HET tractor wander, pull to one side, lean, or shimmy?

TEST 4 - Are front axle spring assemblies and/or shock absorbers loose or damaged?
Check front axle spring assemblies and shock absorbers for loose mountings and damage.

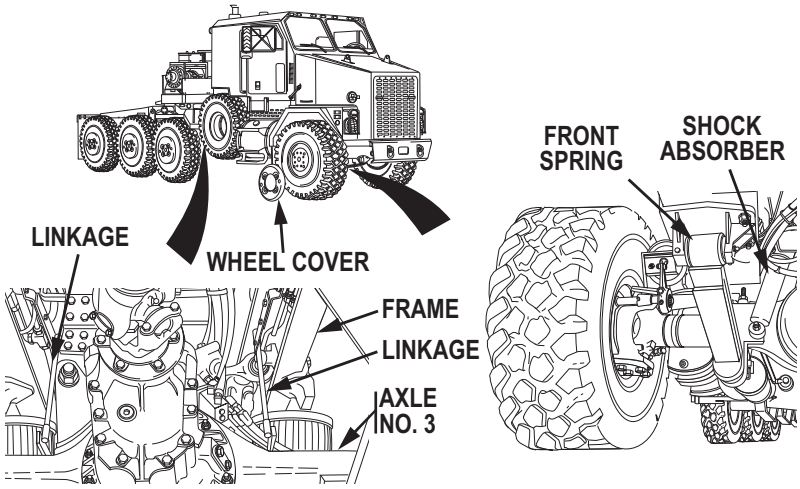


Figure 3. Linkage Breakdown.

CONDITION/INDICATION
Are front axle spring assemblies and/or shock absorbers loose or damaged?

DECISION
No - Test 5 - Is ride height valve linkage damaged?
Yes - Contact supervisor.

TEST 5 - Is ride height valve linkage damaged?
Check linkage on ride height valves.

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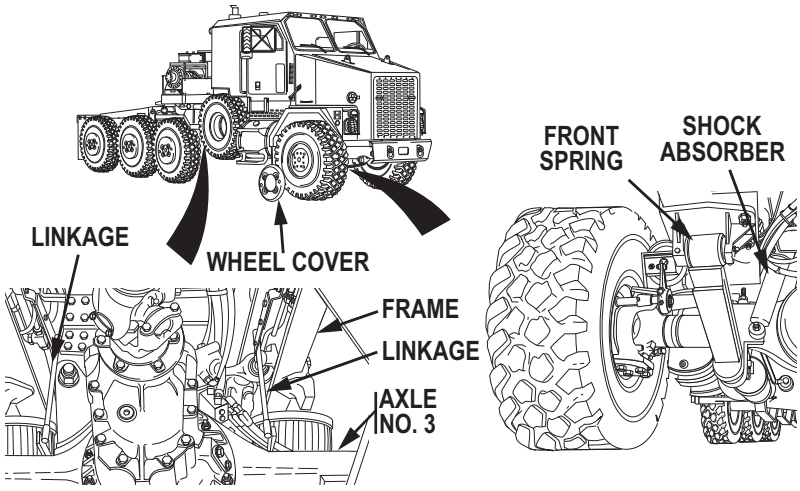


Figure 4. Linkage Breakdown.

CONDITION/INDICATION

Is ride height valve linkage damaged?

DECISION

No - Test 6 - Is ride height level?
Yes - Contact supervisor.

TEST 6 - Is ride height level?

NOTE

Difference in distance between bottom of frame and ground should be less than or equal to 1.5 in. (38.1 mm) from side to side.

Check for level ride height.

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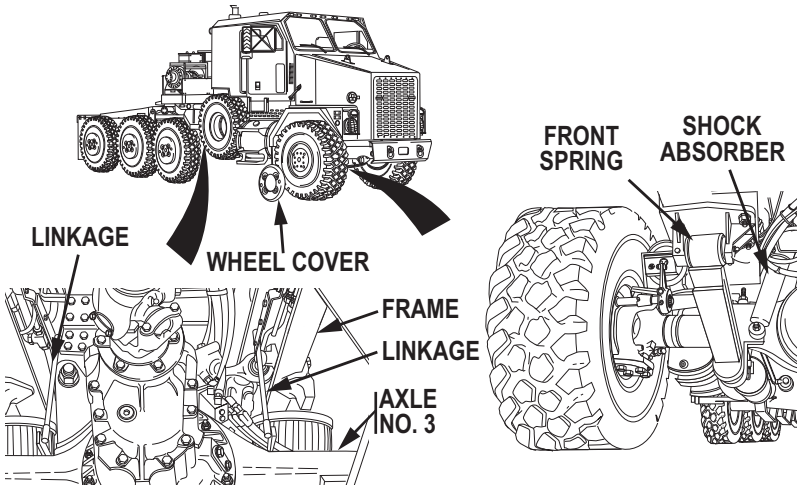


Figure 5. Linkage Breakdown.

CONDITION/INDICATION

Is ride height level?

DECISION

No - Adjust ride height level. Test 8 - Does HET tractor wander, pull to one side, lean, or shimmy?

Yes - Test 7 - Are axles No. 2, 3, and 4 air spring assemblies or shock absorbers loose or damaged?

TEST 7 - Are axles No. 2, 3, and 4 air spring assemblies or shock absorbers loose or damaged?

1. Check air spring assemblies and shock absorbers on axles No. 2, 3, and 4 for loose mountings and damage.

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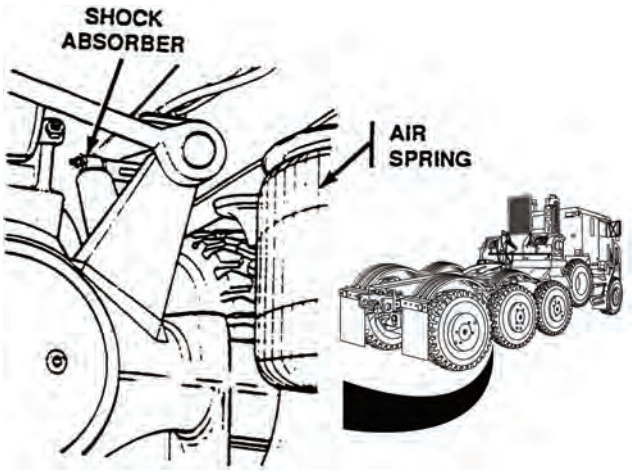


Figure 6. Shock Absorber And Air Spring.

2. Check air spring assemblies for leakage.

CONDITION/INDICATION

Are axles No. 2, 3, and 4 air spring assemblies or shock absorbers loose or damaged?

DECISION

No - Test 8 - Does HET tractor wander, pull to one side, lean, or shimmy?
Yes - Contact supervisor.

TEST 8 - Does HET tractor wander, pull to one side, lean, or shimmy?

1. Ensure vehicle is returned to operating condition.
2. Start engine. (WP 0037)
3. Drive HET tractor at speed where the problem was initially encountered.
4. Bring HET tractor to a full stop.

CONDITION/INDICATION

Does HET tractor wander, pull to one side, lean, or shimmy?

DECISION

No - Problem corrected.
Yes - Contact supervisor.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
HET TRACTOR DIFFICULT TO STEER OR EXCESSIVE PLAY

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
HET TRACTOR DIFFICULT TO STEER OR EXCESSIVE PLAY

TEST 1 - Is power steering fluid level low?
Check power steering fluid level.

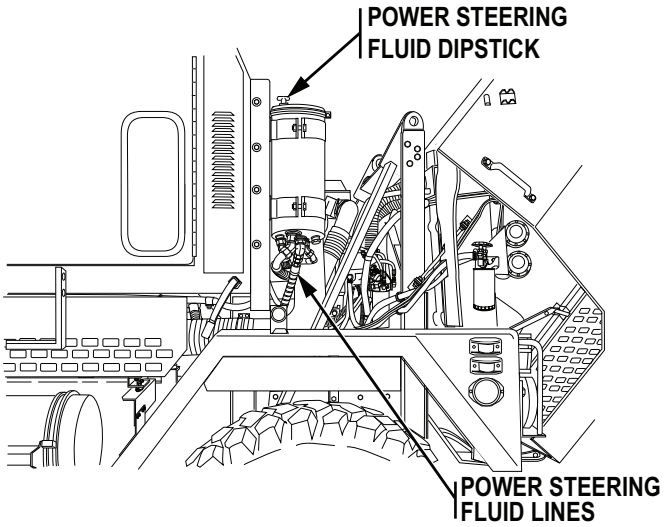


Figure 1.

CONDITION/INDICATION
Is power steering fluid level low?

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DECISION

No - Test 2 - Are power steering fluid lines leaking or damaged?
Yes - Fill power steering fluid to proper level. (WP 0102)Test 4 - Is HET tractor difficult to steer, or is there excessive play in steering wheel?

TEST 2 - Are power steering fluid lines leaking or damaged?

Check power steering fluid lines for leakage and damage.

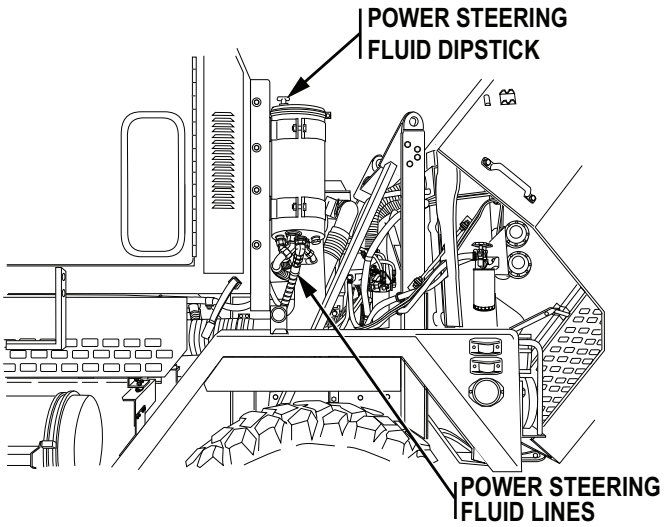


Figure 2.

CONDITION/INDICATION

Are power steering fluid lines leaking or damaged?

DECISION

No - Test 3 - Are power steering components damaged?
Yes - Contact Supervisor.

TEST 3 - Are power steering components damaged?

Check power steering components for damage.

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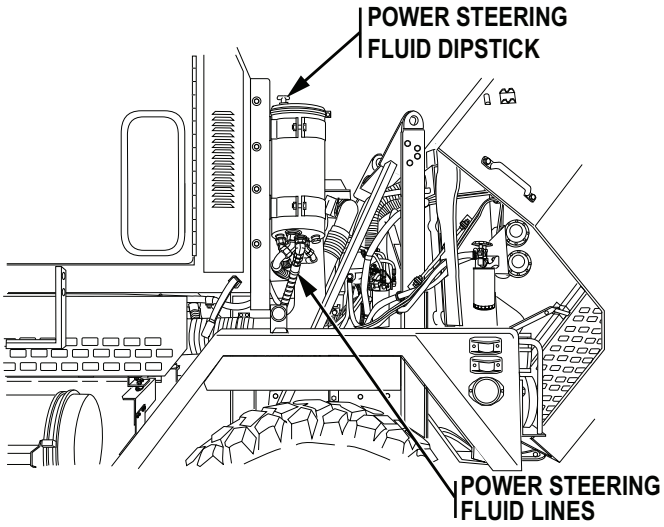


Figure 3.

CONDITION/INDICATION

Are power steering components damaged?

DECISION

No - Test 4 - Is HET tractor difficult to steer, or is there excessive play in steering wheel?

Yes - Contact supervisor.

TEST 4 - Is HET tractor difficult to steer, or is there excessive play in steering wheel?

1. Ensure vehicle is returned to operating condition.
2. Start engine. (WP 0037)
3. Drive HET tractor at speed where the problem was initially encountered.
4. Bring HET tractor to a full stop.

CONDITION/INDICATION

Is HET tractor difficult to steer, or is there excessive play in steering wheel?

DECISION

No - Problem corrected.

Yes - Contact supervisor.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
TIRES WORN UNEVENLY OR EXCESSIVELY

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
TIRES WORN UNEVENLY OR EXCESSIVELY

TEST 1 - Are tires properly inflated?
Check tires (WP 0109) for proper air pressure.

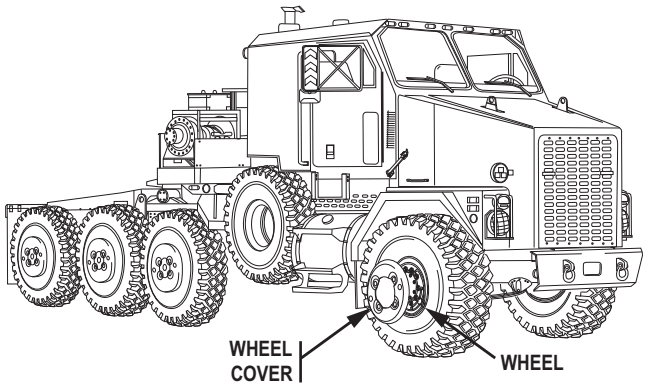


Figure 1.

CONDITION/INDICATION
Are tires properly inflated?

DECISION
No - Test 2 - Does CTIS operate properly?
Yes - Problem still exists.

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TEST 2 - Does CTIS operate properly?

NOTE

CTIS will not operate if air system pressure is less than 85 psi (586 kPa).

1. Start engine. (WP 0037)
2. Check CTIS operation (WP 0028) by moving CTIS switch to a higher or lower setting and waiting for operation to stop.

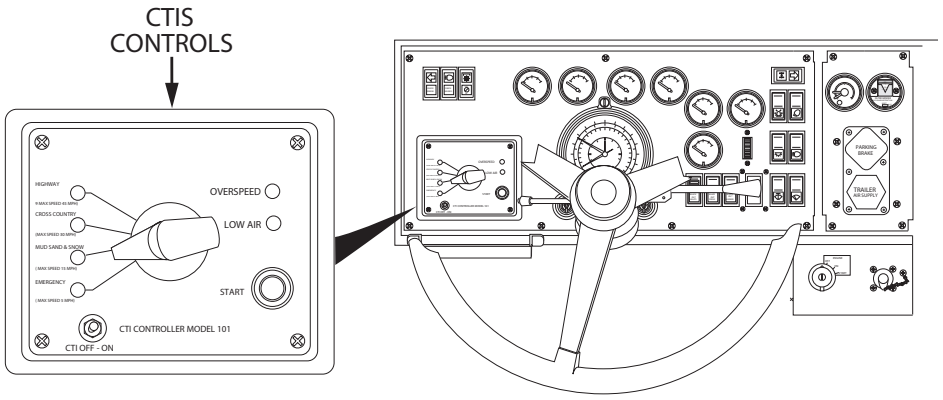


Figure 2.

CONDITION/INDICATION

Does CTIS operate properly?

DECISION

No - Contact supervisor.

Yes - Inflate tires to proper level using CTIS. (WP 0028)Contact supervisor.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WHEEL WOBBLES OR SHIMMIES

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
WHEEL WOBBLES OR SHIMMIES

TEST 1 - Are wheel lugnuts tight and free of damage?

1. Remove wheel covers. (WP 0100)

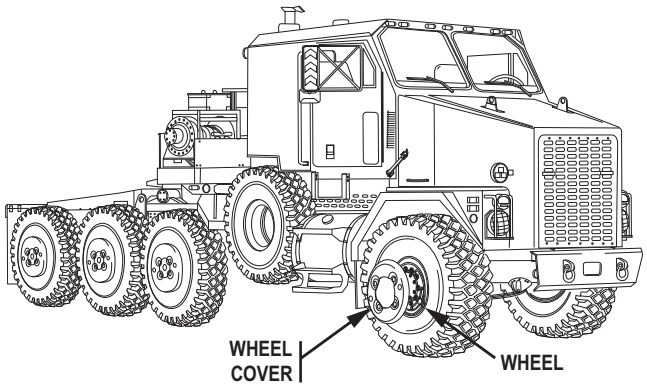


Figure 1.

2. Check for damaged, loose, and missing wheel lugnuts.

CONDITION/INDICATION
Are wheel lugnuts tight and free of damage?

DECISION
Lugnuts loose or missing. - Contact supervisor. Test 2 - Are any wheels bent?
Lugnuts OK. - Contact supervisor.

TEST 2 - Are any wheels bent?
Visually check all wheels for bent or damaged condition.

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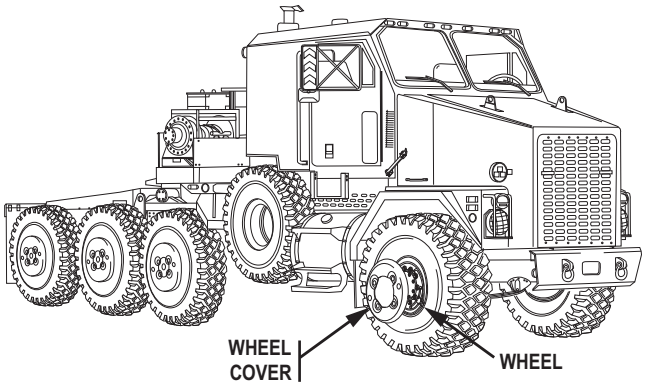


Figure 2.

CONDITION/INDICATION
Are any wheels bent?

DECISION
No - Contact Supervisor.
Yes - Test 3 - Does wheel wobble or shimmy?

TEST 3 - Does wheel wobble or shimmy?
1. Ensure vehicle is returned to normal operating condition.
2. Start engine. (WP 0037)
3. Drive HET tractor at speed where problem was encountered.
4. Bring HET tractor to a full stop.

CONDITION/INDICATION
Does wheel wobble or shimmy?

DECISION
No - Problem corrected.
Yes - Contact supervisor.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINCHES WILL NOT OPERATE

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
WINCHES WILL NOT OPERATE

TEST 1 - Is PTO engaged?
1. Start engine. (WP 0037)
2. Check if PTO is engaged.

CONDITION/INDICATION
Is PTO engaged?

DECISION
No - Test 4 - Do winches operate properly?
Yes - Test 2 - Are any circuit breakers tripped?

TEST 2 - Are any circuit breakers tripped?
Check if any circuit breakers are tripped.

CONDITION/INDICATION
Are any circuit breakers tripped?

DECISION
No - Test 3 - Is hydraulic fluid level correct?
Yes - Reset tripped circuit breakers.

TEST 3 - Is hydraulic fluid level correct?
Check hydraulic fluid level. (WP 0102, Step 1)

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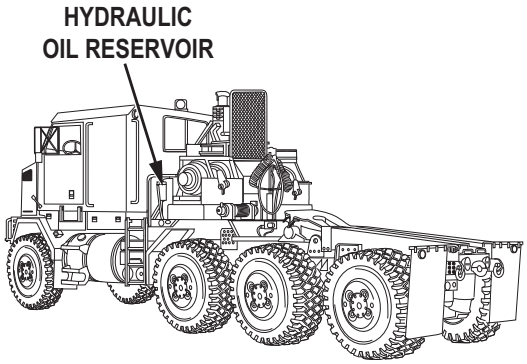


Figure 1.

CONDITION/INDICATION
Is hydraulic fluid level correct?

DECISION
No - Contact supervisor.
Yes - Test 4 - Do winches operate properly?

TEST 4 - Do winches operate properly?
1. Start engine. (WP 0037)
2. Enable PTO.
3. Check for correct winch (WP 0022) operation.

CONDITION/INDICATION
Do winches operate properly?

DECISION
No - Problem still exists.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINCHES UNUSUALLY NOISY WHEN OPERATING

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
WINCHES UNUSUALLY NOISY WHEN OPERATING

TEST 1 - Is winch cable twisted, tangled, or causing drum to bind?
Check if cable is twisted, tangled, or causing drum to bind.

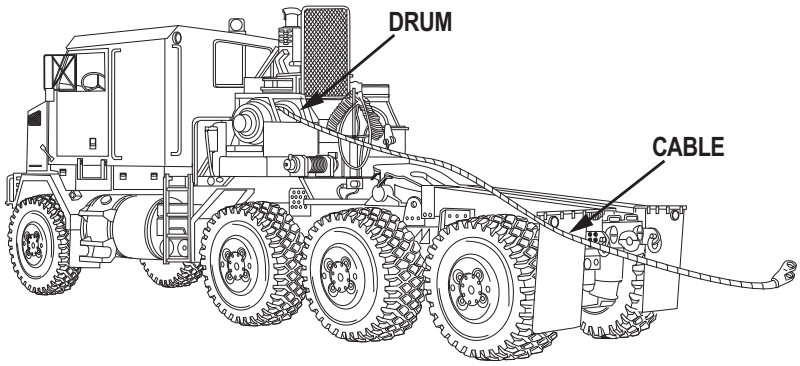


Figure 1.

CONDITION/INDICATION
Is winch cable twisted, tangled, or causing drum to bind?

DECISION
No - Contact supervisor.
Yes - Test 2 - Can cable be straightened or untangled?

TEST 2 - Can cable be straightened or untangled?
1. Let out or take in winch cable (WP 0022) as necessary to straighten cable and free drum.

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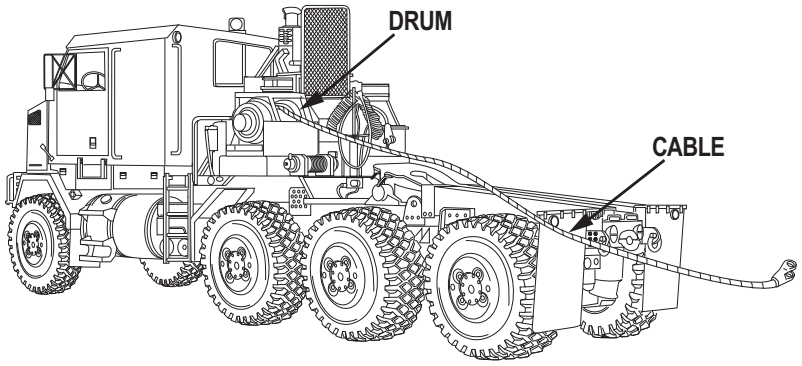


Figure 2.

2. Operate winch and check for unusual noises.

CONDITION/INDICATION

Can cable be straightened or untangled?

DECISION

No - Contact supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WINCH OPERATES TOO SLOW, TOO FAST, OR ONLY ONE SPEED

INITIAL SETUP:

Personnel Required
Wheeled Vehicle Mechanic 91B (2)

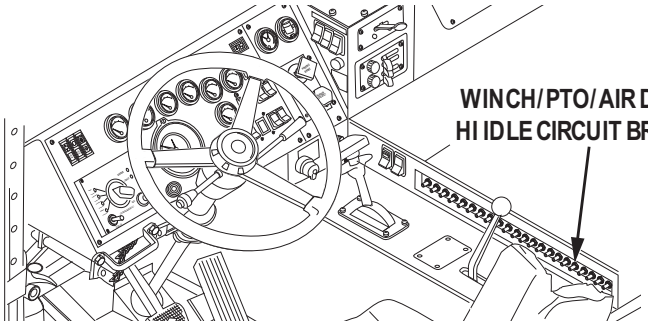
Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
WINCH OPERATES TOO SLOW, TOO FAST, OR ONLY ONE SPEED

TEST 1 - Is winch/PTO/air dryer/GPFU/HI idle circuit breaker tripped?

1. Check if winch/PTO/air dryer/GPFU/HI idle circuit breaker has been tripped.



INSTRUMENT PANEL W/ TACHOGRAPH SHOWN,
INSTRUMENT PANEL W/ SPEEDOMETER & TACHOMETER SIMILAR

Figure 1.

2. Reset circuit breaker (WP 0018) if tripped.

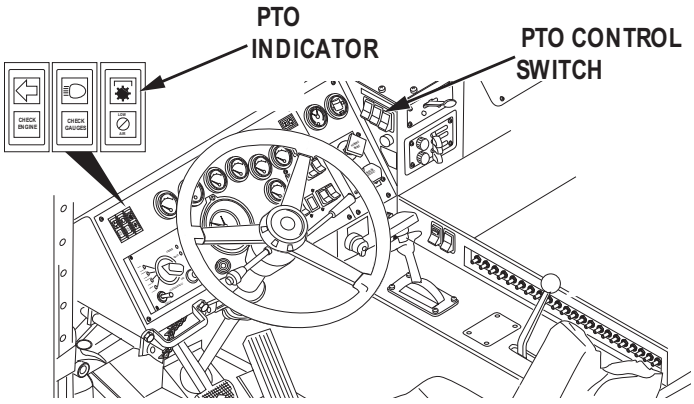
CONDITION/INDICATION
Is winch/PTO/air dryer/GPFU/HI idle circuit breaker tripped?

DECISION
No - Test 2 - Is engine speed 1450-1500 rpm with PTO engaged?
Yes - Test 5 - Does winch operate properly?

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TEST 2 - Is engine speed 1450-1500 rpm with PTO engaged?

1. Start engine. (WP 0037)
2. Engage PTO.



INSTRUMENT PANEL W/ TACHOGRAPH SHOWN,
INSTRUMENT PANEL W/ SPEEDOMETER & TACHOMETER SIMILAR

Figure 2.

3. Have an assistant position left engine speed control switch to high engine idle.
4. Have an assistant press right engine speed control switch.
5. Monitor engine speed with tachometer.

CONDITION/INDICATION

Is engine speed 1450-1500 rpm with PTO engaged?

DECISION

No - Contact supervisor.
Yes - Test 3 - Is hydraulic fluid level correct?

TEST 3 - Is hydraulic fluid level correct?

Check hydraulic fluid level. (WP 0102, Step 1)

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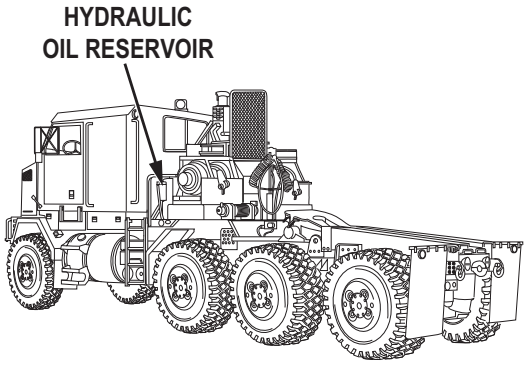


Figure 3.

CONDITION/INDICATION
Is hydraulic fluid level correct?

DECISION
No - Contact supervisor.
Yes - Test 4 - Is transmission fluid level normal?

TEST 4 - Is transmission fluid level normal?
Check transmission fluid level. (WP 0102)

CONDITION/INDICATION
Is transmission fluid level normal?

DECISION
No - Contact supervisor.
Yes - Test 5 - Does winch operate properly?

TEST 5 - Does winch operate properly?
1. Start engine. (WP 0037)
2. Engage PTO.
3. Check for proper winch operation. (WP 0035)

CONDITION/INDICATION
Does winch operate properly?

DECISION
No - Problem still exists.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CABLE HOLD DOWN DOES NOT OPERATE

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
CABLE HOLD DOWN DOES NOT OPERATE

TEST 1 - Does the air pressure gauge show a pressure of at least 70 psi (483 kPa) on green needle?
1. Start engine. (WP 0037)
2. Check air pressure gauge for over 70 psi (483 kPa) on green needle.

CONDITION/INDICATION
Does the air pressure gauge show a pressure of at least 70 psi (483 kPa) on green needle?

DECISION
No - Contact supervisor.
Yes - Test 2 - Does cable hold down operate?

TEST 2 - Does cable hold down operate?
1. Ensure vehicle is returned to operating condition.
2. Start engine (WP 0037) and run at 1450-1500 rpm for at least one minute to allow air pressure to build.
3. Shut OFF engine. (WP 0042)
4. Move cable hold down switch from OFF to ON while watching cable hold down assembly.

CONDITION/INDICATION
Does cable hold down operate?

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DECISION

No - Contact supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CTIS WILL NOT OPERATE

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
CTIS WILL NOT OPERATE

TEST 1 - Is CTIS switch in ON position?
Check to see if CTIS switch (WP 0028) is set to ON position.

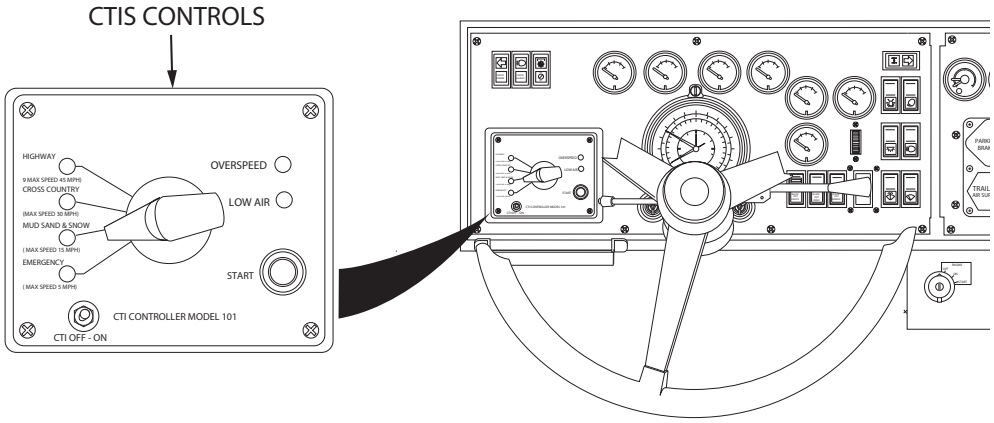


Figure 1. CTIS Controls.

CONDITION/INDICATION
Is CTIS switch in ON position?

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DECISION

No - Turn CTIS switch to ON position. (WP 0028)Test 5 - Does CTIS operate properly?

Yes - Test 2 - Does CTIS run properly after resetting controller?

TEST 2 - Does CTIS run properly after resetting controller?

NOTE

Turning CTIS OFF, and then ON, resets controller.

1. Set CTIS ON/OFF switch (WP 0028) to OFF position.

NOTE

CTIS will not operate if air system pressure is less than 85 psi (586 kPa).

2. Turn ON CTIS. (WP 0028)

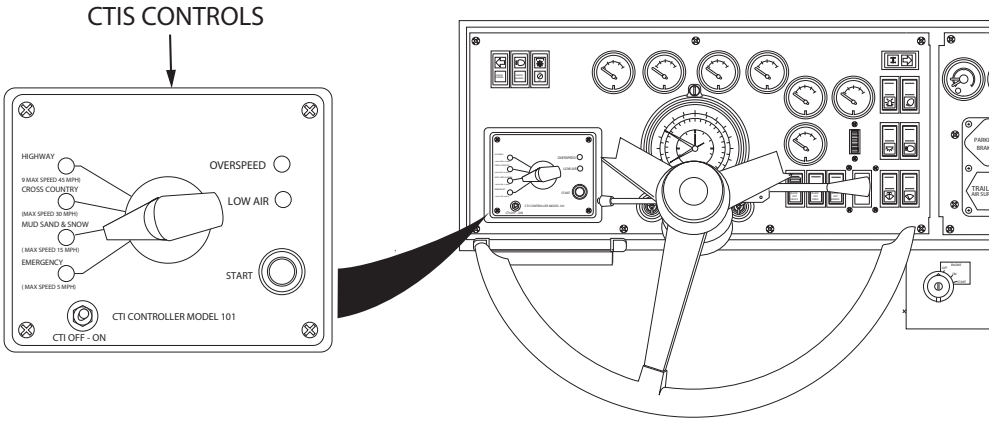


Figure 2. CTIS Controls.

3. Check CTIS operation. (WP 0028)

CONDITION/INDICATION

Does CTIS run properly after resetting controller?

DECISION

No - Test 3 - Is CTIS circuit breaker tripped?

Yes - Problem corrected.

TEST 3 - Is CTIS circuit breaker tripped?

1. Check if CTIS circuit breaker has been tripped.

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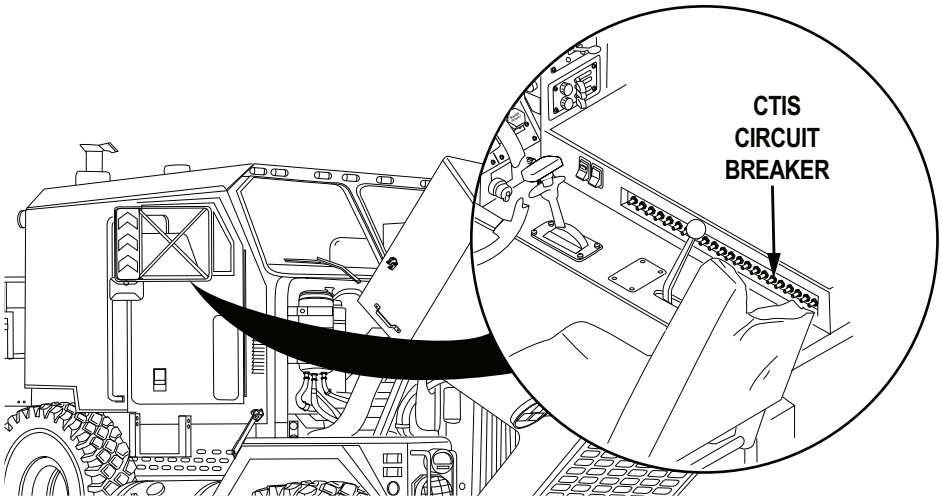


Figure 3. CTIS Circuit Breaker.

2. Reset circuit breaker if tripped.

CONDITION/INDICATION

Is CTIS circuit breaker tripped?

DECISION

No - Test 4 - Does low air (CTIS) indicator extinguish after air system reaches operating pressure?

Yes - Test 5 - Does CTIS operate properly?

TEST 4 - Does low air (CTIS) indicator extinguish after air system reaches operating pressure?

NOTE

CTIS will operate if air system pressure is greater than 85 psi (586 kPa). However, the low air (CTIS) indicator will not extinguish unless air system pressure is at least 110 psi (759 kPa).

1. Start engine. (WP 0037)
2. Observe air pressure gauge to see if air pressure builds to at least 110 psi (759 kPa).

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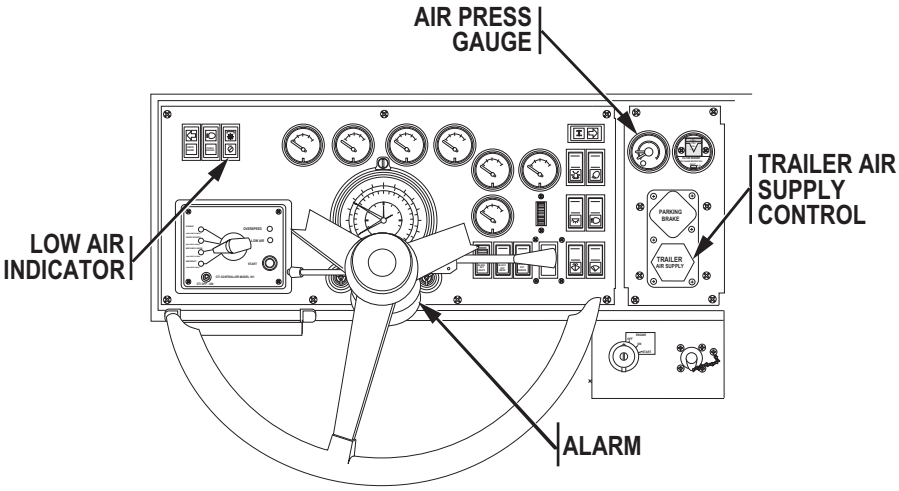


Figure 4. Air Press Gauge.

3. Check if low air (CTIS) indicator light extinguishes.

CONDITION/INDICATION

Does low air (CTIS) indicator extinguish after air system reaches operating pressure?

DECISION

No - Indicator light circuit is faulty. Contact supervisor.
Yes - Test 5 - Does CTIS operate properly?

TEST 5 - Does CTIS operate properly?

NOTE

CTIS will not operate if air system pressure is less than 85 psi (586 kPa).

1. Start engine. (WP 0037)
2. Check CTIS operation. (WP 0028)

CONDITION/INDICATION

Does CTIS operate properly?

DECISION

No - Contact supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FIFTH WHEEL WILL NOT LOCK WHEN COUPLING TRAILER TO HET TRACTOR

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
FIFTH WHEEL WILL NOT LOCK WHEN COUPLING TRAILER TO HET TRACTOR

TEST 1 - Has dirt, ice, snow, or other debris built-up on fifth wheel?

1. Check if dirt, ice, snow, or other debris has built up on fifth wheel.

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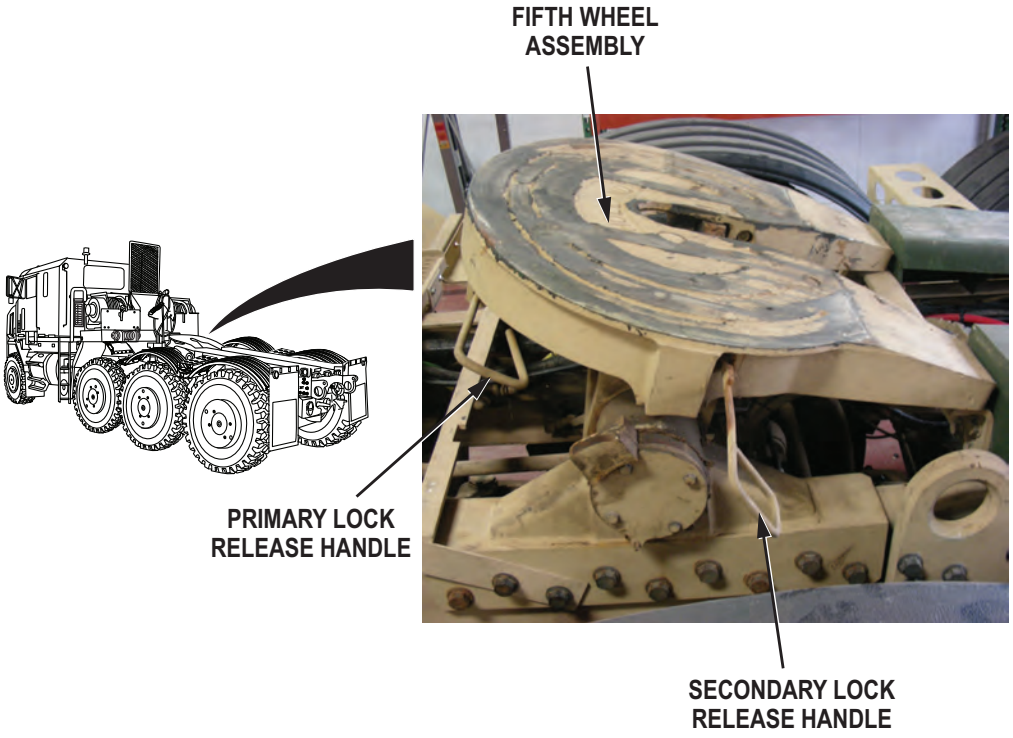


Figure 1. Fifth Wheel Coupling Components.

2. Clean fifth wheel to remove any built up debris.

CONDITION/INDICATION

Has dirt, ice, snow, or other debris built-up on fifth wheel?

DECISION

No - Test 2 - Is fifth wheel secondary lock release handle in locked position?
Yes - Test 4 - Does fifth wheel lock?

TEST 2 - Is fifth wheel secondary lock release handle in locked position?

Check that fifth wheel secondary lock release handle (WP 0023) is in locked position.

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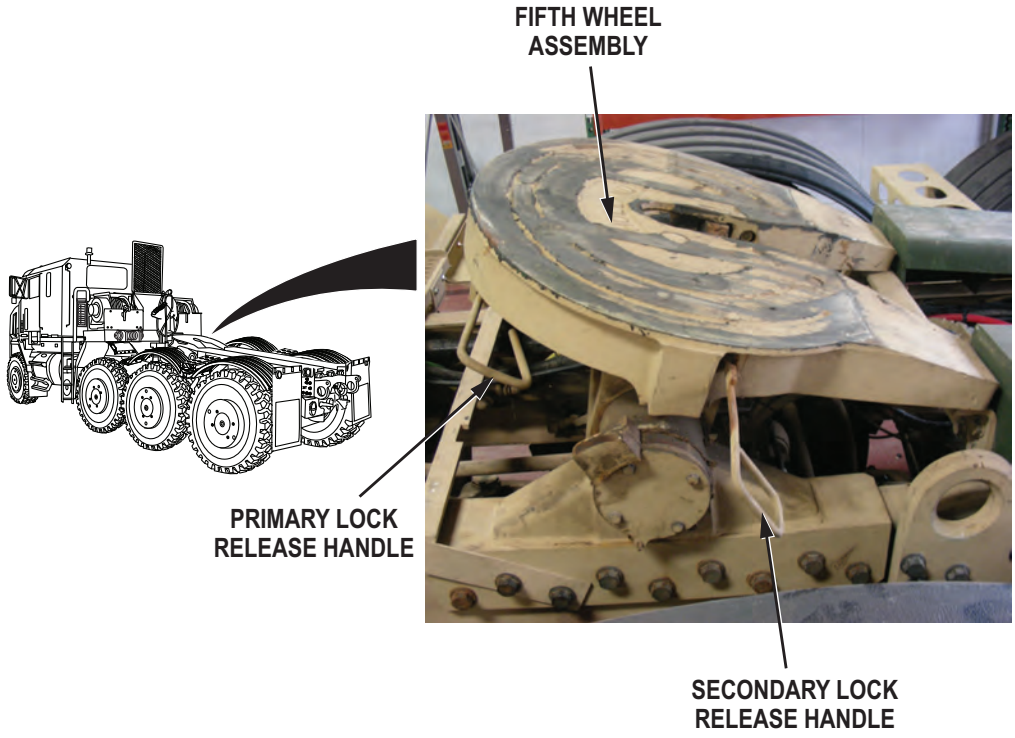


Figure 2. Fifth Wheel Coupling Components.

CONDITION/INDICATION

Is fifth wheel secondary lock release handle in locked position?

DECISION

No - Place fifth wheel secondary lock release handle in locked position.
(WP 0023)Test 4 - Does fifth wheel lock?
Yes - Test 3 - Is fifth wheel primary lock release handle in locked position?

TEST 3 - Is fifth wheel primary lock release handle in locked position?

Check if fifth wheel primary lock release handle is in locked position.

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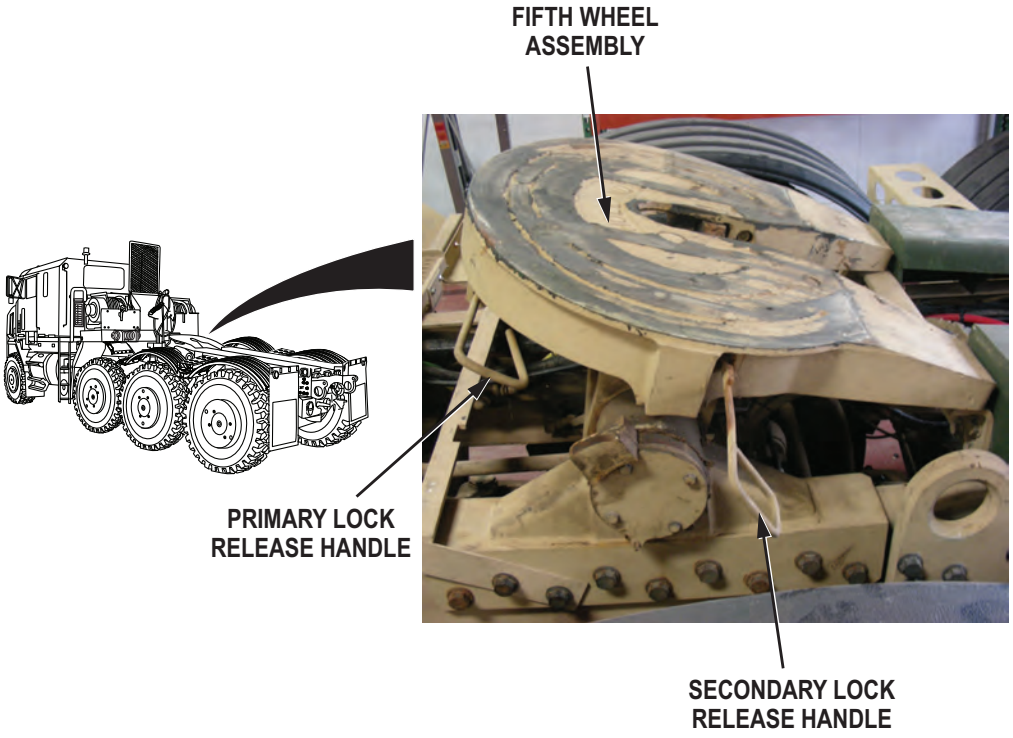


Figure 3. Fifth Wheel Coupling Components.

CONDITION/INDICATION

Is fifth wheel primary lock release handle in locked position?

DECISION

No - Place fifth wheel primary lock release handle in locked position. (WP 0023)Test 4 - Does fifth wheel lock?

Yes - Test 4 - Does fifth wheel lock?

TEST 4 - Does fifth wheel lock?

Attempt to couple trailer (WP 0034) to HET tractor.

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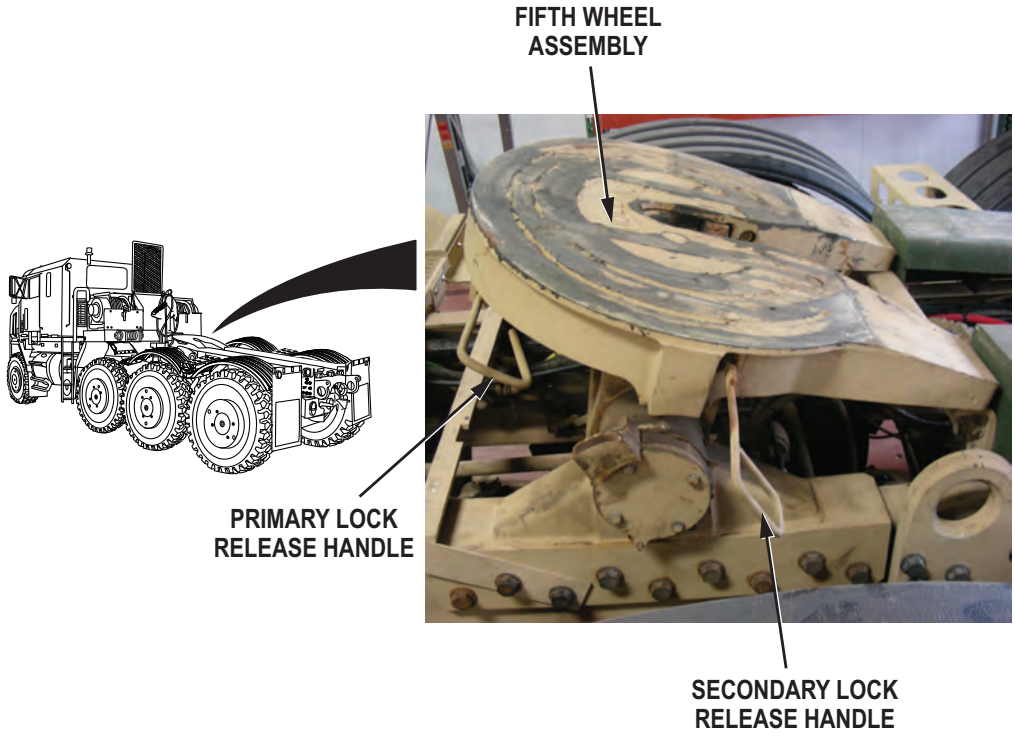


Figure 4. Fifth Wheel Coupling Components.

CONDITION/INDICATION

Does fifth wheel lock?

DECISION

No - Problem still exists.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXCESSIVE MOVEMENT OF TRAILER KING PIN IN FIFTH WHEEL

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
EXCESSIVE MOVEMENT OF TRAILER KING PIN IN FIFTH WHEEL

TEST 1 - Are any fifth wheel mounting screws or locknuts loose or missing?
Check for loose or missing fifth wheel mounting screws and locknuts.

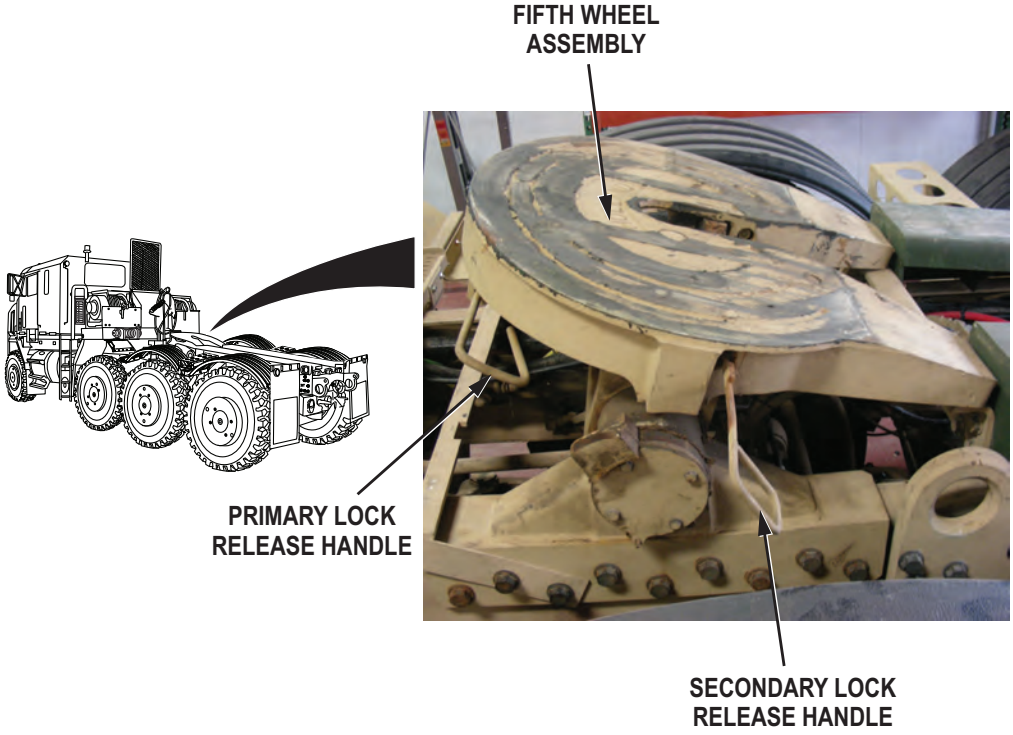


Figure 1. Fifth Wheel Primary and Secondary Lock Release Handles.

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CONDITION/INDICATION

Are any fifth wheel mounting screws or locknuts loose or missing?

DECISION

No - Contact supervisor.

Yes - Fifth wheel mounting screws and/or locknuts need to be installed and/or tightened. Contact supervisor.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
FIFTH WHEEL WILL NOT UNLOCK WHEN DISCONNECTING TRAILER FROM HET TRACTOR

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
FIFTH WHEEL WILL NOT UNLOCK WHEN DISCONNECTING TRAILER FROM HET TRACTOR

TEST 1 - Has dirt, ice, snow, or other debris built up on fifth wheel?
1. Check if dirt, ice, snow, or other debris has built up on fifth wheel.

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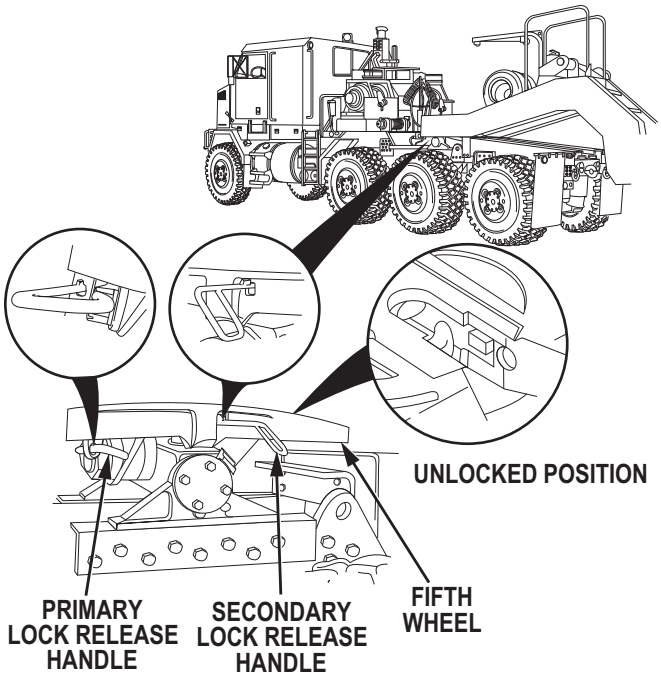


Figure 1. Fifth Wheel Primary and Secondary Lock Release Handles.

2. Clean fifth wheel to remove any built-up debris.

CONDITION/INDICATION

Has dirt, ice, snow, or other debris built up on fifth wheel?

DECISION

No - Test 2 - Is fifth wheel secondary lock release handle in unlocked position?
Yes - Test 6 - Does fifth wheel unlock?

TEST 2 - Is fifth wheel secondary lock release handle in unlocked position?

NOTE

It may be necessary to set trailer brakes and move HET Tractor backward slightly to relieve pressure on locking mechanism.

Ensure fifth wheel secondary lock release handle (WP 0023) is in unlocked position.

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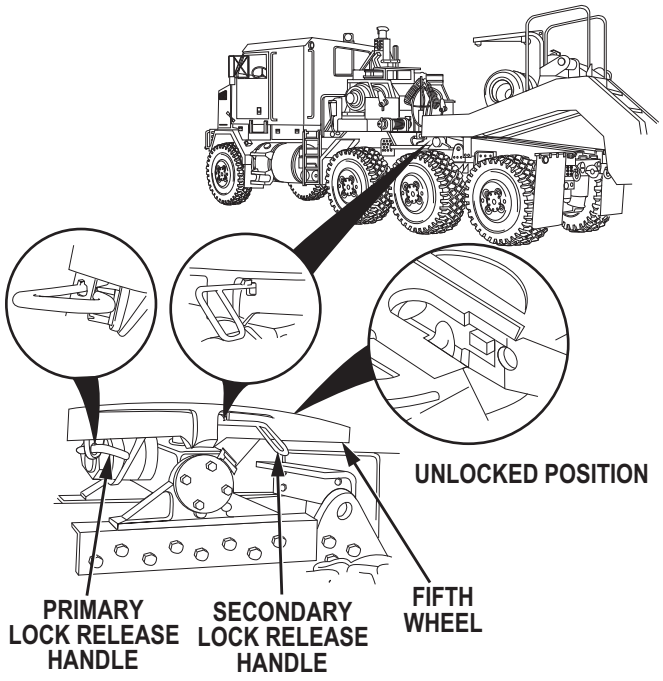


Figure 2. Fifth Wheel Primary and Secondary Lock Release Handles.

CONDITION/INDICATION

Is fifth wheel secondary lock release handle in unlocked position?

DECISION

No - Pull fifth wheel secondary lock release handle out to unlocked position. (WP 0023)Test 6 - Does fifth wheel unlock?

Yes - Test 3 - Is fifth wheel primary lock release handle in unlocked position?

TEST 3 - Is fifth wheel primary lock release handle in unlocked position?

NOTE

It may be necessary to set trailer brakes and move HET Tractor slightly backward to relieve pressure on locking mechanism.

Ensure if fifth wheel primary lock release handle is in unlocked position.

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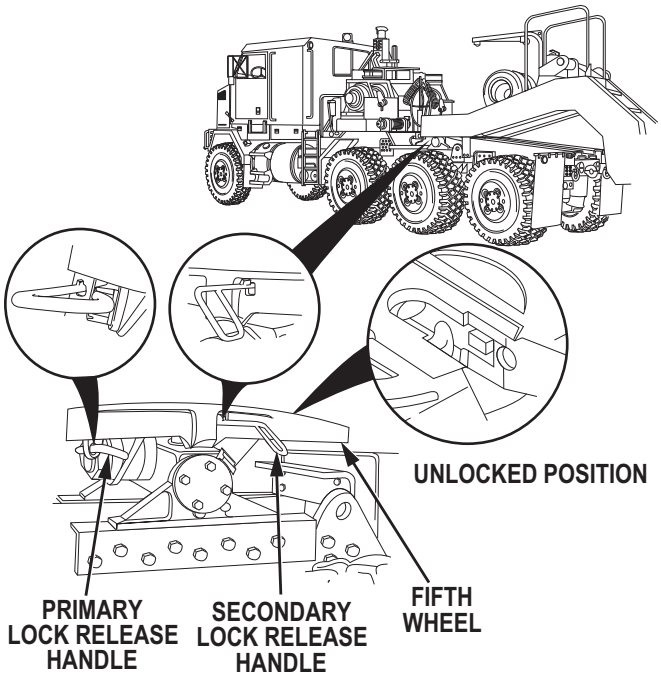


Figure 3. Fifth Wheel Primary and Secondary Lock Release Handles.

CONDITION/INDICATION
Is fifth wheel primary lock release handle in unlocked position?

DECISION
No - Pull fifth wheel primary lock release handle out to unlocked position.
(WP 0023)Test 6 - Does fifth wheel unlock?
Yes - Test 4 - Is fifth wheel properly lubricated?

TEST 4 - Is fifth wheel properly lubricated?
Check if fifth wheel needs lubrication.

CONDITION/INDICATION
Is fifth wheel properly lubricated?

DECISION
No - Trailer must be separated from tractor to apply lubrication. Contact supervisor.
Yes - Test 5 - Are any fifth wheel mounting screws or locknuts loose or missing?

TEST 5 - Are any fifth wheel mounting screws or locknuts loose or missing?
Check for loose or missing fifth wheel mounting screws or locknuts.

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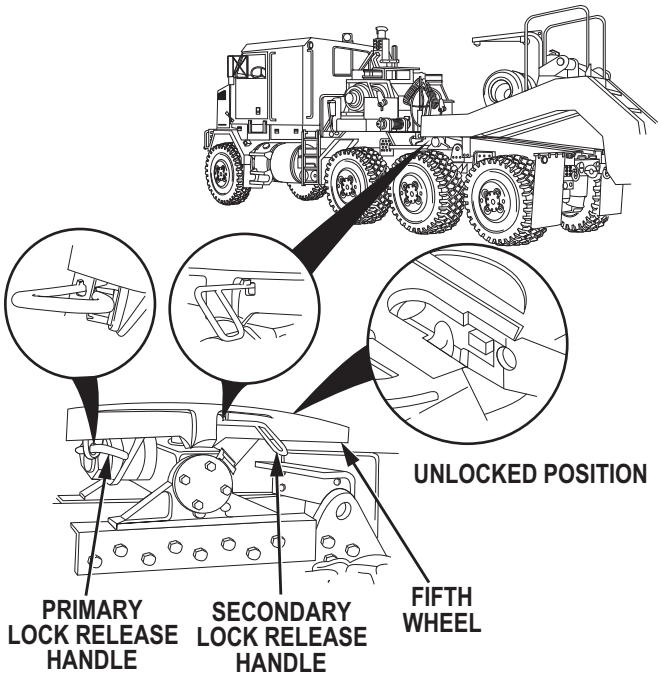


Figure 4. Fifth Wheel Primary and Secondary Lock Release Handles.

CONDITION/INDICATION
Are any fifth wheel mounting screws or locknuts loose or missing?

DECISION
No - Test 6 - Does fifth wheel unlock?
Yes - Fifth wheel mounting screws or locknuts need to be installed and/or tightened. Contact supervisor.

TEST 6 - Does fifth wheel unlock?
1. Attempt to disconnect trailer (WP 0034) from HET tractor.
2.

CONDITION/INDICATION
Does fifth wheel unlock?

DECISION
No - Contact supervisor.
Yes - Problem corrected.

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXHAUST SYSTEM UNUSUALLY NOISY OR EXHAUST FUMES IN CAB

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brakes applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
EXHAUST SYSTEM UNUSUALLY NOISY OR EXHAUST FUMES IN CAB

TEST 1 - Are all engine access panels in place and securely fastened?
1. Check that all engine access panels are in place and securely fastened.
2. If necessary, tighten loose engine access panels.

CONDITION/INDICATION
Are all engine access panels in place and securely fastened?

DECISION
No - Contact supervisor.
Yes - Test 2 - Does exhaust pipe, muffler, or tailpipe have holes or loose connections?

TEST 2 - Does exhaust pipe, muffler, or tailpipe have holes or loose connections?
1. Check exhaust pipe, muffler, and tailpipe for holes or loose connections.
2. Tighten any loose connections.

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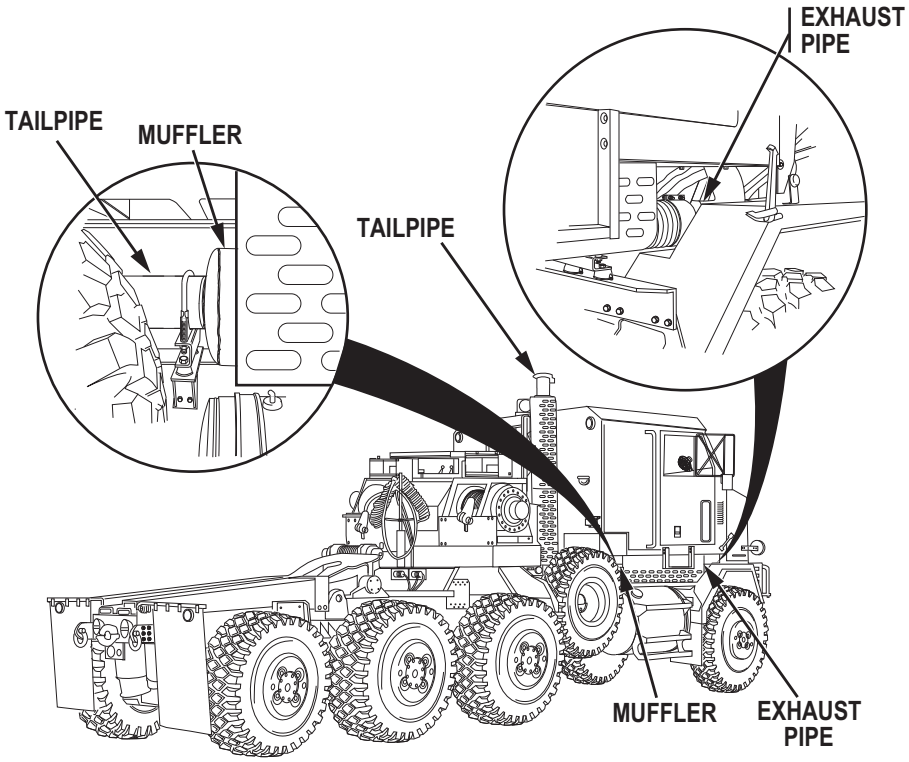


Figure 1. Exhaust System Components.

CONDITION/INDICATION

Does exhaust pipe, muffler, or tailpipe have holes or loose connections?

DECISION

No - Test 3 - Is exhaust system noisy or leaking?
Yes - Contact supervisor.

TEST 3 - Is exhaust system noisy or leaking?

1. Start engine. (WP 0037)
2. Check for noisy exhaust system and fumes in cab.

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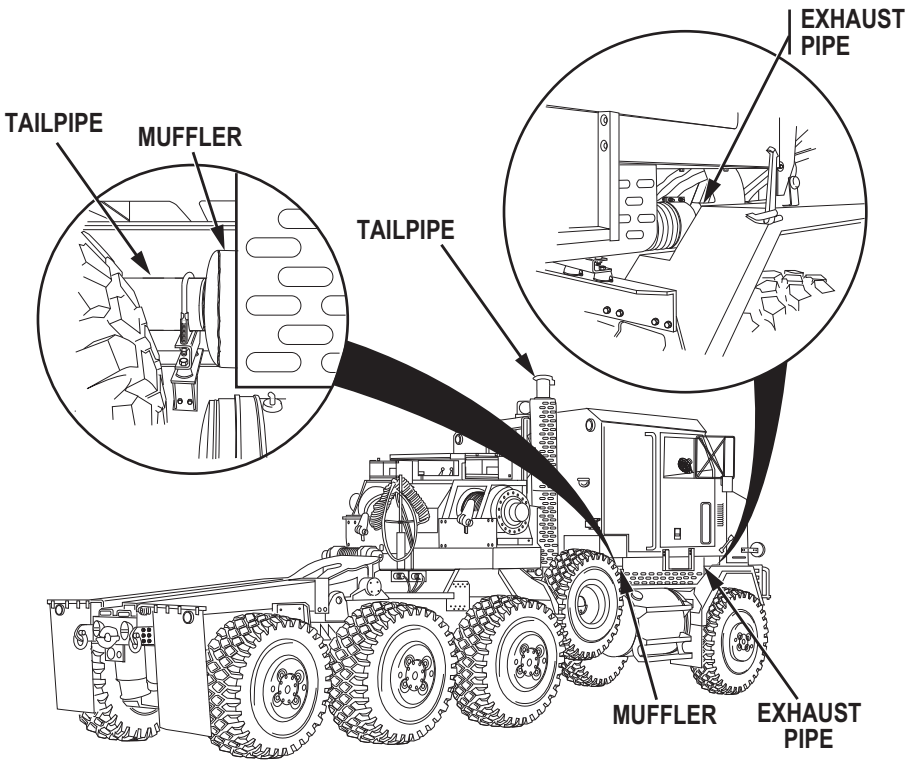


Figure 2. Exhaust System Components.

3. Shut off engine. (WP 0042)

CONDITION/INDICATION

Is exhaust system noisy or leaking?

DECISION

No - Problem still exists.
Yes - Problem corrected.

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OPERATOR MAINTENANCE
SPECIAL PURPOSE KITS

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
SPECIAL PURPOSE KITS

TEST 1 -

1. Identify and proceed with appropriate system for your problem.
2. Radio Troubleshooting. (WP 0113, Operator's Manual for Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435), and AN/VRC-49 (5820-00-223-7437); (used without intercom set))
3. Chemical Alarm Troubleshooting. (WP 0113, Operator's and Organizational Maintenance Manual for Alarm Chemical)
4. M13 Decontamination Unit Troubleshooting. (WP 0113, Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontamination Apparatus)

CONDITION/INDICATION

DECISION

-

Restart -

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OPERATOR MAINTENANCE
GAS PARTICULATE FILTER UNIT WILL NOT OPERATE

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

TROUBLESHOOTING PROCEDURE
GAS PARTICULATE FILTER UNIT WILL NOT OPERATE

TEST 1 - Are hoses or clamps faulty?
1. Check hoses for cuts, tears, cracks and holes.
2. Check hose clamps for damage or looseness.
3. Tighten hose clamps as needed.

CONDITION/INDICATION
Are hoses or clamps faulty?

DECISION
Clamp(s) loose. No damage. - Tighten clamp(s). (Test 3 - Does GPFU operate properly?)Test 2 - Is GPFU circuit breaker OK?
Damage found. - Contact supervisor.

TEST 2 - Is GPFU circuit breaker OK?
1. Check if winch/PTO/air dryer/GPFU/hi idle circuit breaker has been tripped.

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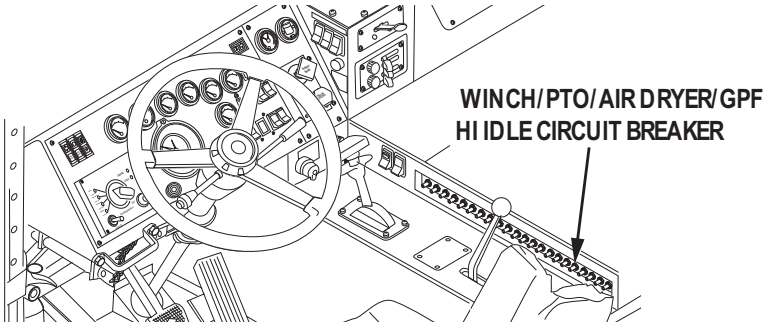


Figure 1. Winch/PTO/Air Dryer/GPFU/Hi Idle Circuit Breaker.

2. Reset circuit breaker if tripped.
   a. If winch/PTO/air dryer/GPFU/hi idle circuit breaker was not tripped, click on **Yes** button.
   b. If winch/PTO/air dryer/GPFU/hi idle circuit breaker was tripped, click on **No** button.

CONDITION/INDICATION
Is GPFU circuit breaker OK?

DECISION
No - Test 3 - Does GPFU operate properly?
Yes - Contact supervisor.

TEST 3 - Does GPFU operate properly?
Check GPFU (WP 0045) operation.

CONDITION/INDICATION
Does GPFU operate properly?

DECISION
No - Problem still exists.
Yes - Problem corrected.

END OF WORK PACKAGE

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CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

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OPERATOR MAINTENANCE
INTRODUCTION - PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

PMCS INTRODUCTION

This section contains PMCS requirements for HET tractor vehicles. The PMCS tables contain checks and services necessary to ensure that the vehicle is ready for operation. Using PMCS tables, perform maintenance at specified intervals.

MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with paperwork. There is not much of it, but it must be kept up. The filled out forms and records have several uses. They are a permanent record of services, repairs, and modifications made on the vehicle; they are reports to unit maintenance and to your Commander; and they serve as a checklist to find out what is wrong with the vehicle after its last use, and whether those faults have been fixed. For the information needed on forms and records, refer to DA PAM 750-8. (WP 0113)

EXPLANATION OF COLUMNS

- **Item Number Column.** Numbers in this column shall be used as a source of item numbers for the TM Number Column on DA Form 2404 (WP 0113) (Equipment Inspection and Maintenance Worksheet), in recording results of PMCS.
- **Interval Column.**The interval column tells you when to do a certain check or service. Semiannual PMCS must be performed every 6 months, and annual PMCS must be performed every 12 months.
- **Item to be Inspected Column.**This column tells you the item to be checked/serviced.
- **Procedure Column.**The procedure column of your PMCS table tells you how to do the required checks and services.
- **Not Fully Mission Capable If: Column.**This column tells you what faults will keep your HET Tractor from being capable of performing its primary mission. If you perform check and service procedures that show faults listed in this column, do not operate the HET Tractor. Follow standard operating procedures for maintaining the HET Tractor or reporting equipment failure.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

- Do the before (B) PREVENTIVE MAINTENANCE just before operating vehicle. Pay attention to the CAUTIONS and WARNINGS.
- Do the during (D) PREVENTIVE MAINTENANCE while vehicle and/or its component systems are in operation. Pay attention to the CAUTIONS and WARNINGS.
- Do the after (A) PREVENTIVE MAINTENANCE right after operating vehicle. Pay attention to the CAUTIONS and WARNINGS.

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PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Continued

- Do the (W) PREVENTIVE MAINTENANCE weekly. Pay attention to the CAUTIONS and WARNINGS.
- Do the (M) PREVENTIVE MAINTENANCE once a month. Pay attention to the CAUTIONS and WARNINGS.
- If something does not work, troubleshoot and notify the supervisor.
- Always do PREVENTIVE MAINTENANCE in the same order until it gets to be a habit. Once practiced, problems can be spotted in a hurry.
- If something looks wrong and cannot be fixed right then, write it on DA Form 2404 (WP 0113) or DA Form 5988-E. (WP 0113) If something seems seriously wrong, report it to field maintenance RIGHT NOW.
- When doing PREVENTIVE MAINTENANCE, take along the tools needed and a rag or two to make all the checks.

GENERAL MAINTENANCE PROCEDURE

- **Cleanliness:** Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use solvent cleaning compound (WP 0116, Table 1, Item 7, 8, 9, 10, 11, 12) on all metal surfaces and soapy water on rubber.
- **Bolts, Nuts, and Screws:** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. They cannot all be checked with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads.
- **Welds:** Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, have it repaired.
- **Electric Wires and Connectors:** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good shape.
- **Hydraulic Lines and Fittings:** Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can indicate a leak. If a connector or fitting is loose, tighten it. If something is broken or worn out, repair or replace per applicable procedure.
- **Damage is defined as:** Any conditions that affect safety or would render the vehicle unserviceable for mission requirements.

FLUID LEAKAGE

It is necessary to know how fluid leakage affects the status of fuel, oil, coolant, and the hydraulic systems. The following are definitions of types/classes of leakage necessary to know in order to determine the status of the vehicle.

NOTE

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify the supervisor. When operating

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FLUID LEAKAGE - Continued

with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired per applicable procedure.

Class I: Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II: Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

Class III: Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Prior to performing your PMCS, check with your PLL clerk to verify that the latest publications are being used by the operator and organizational unit.

Listed below are the sections of the PMCS.

PMCS - BEFORE (WP 0100)

PMCS - DURING (WP 0101)

PMCS - AFTER (WP 0102)

PMCS - WEEKLY (WP 0103)

PMCS - MONTHLY (WP 0104)

PMCS - SEMIANNUAL (WP 0105)

Vehicles designated or dispatched to transport Class A or B ammunition, explosives, poisons, or radioactive yellow III materials over public highways require more stringent inspections.

Daily Walk Around PMCS Diagram. This routing diagram will be of help to complete the B, D, or A PMCS. It shows the vehicle PMCS routing track, which matches the sequence of PMCS to be performed.

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PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

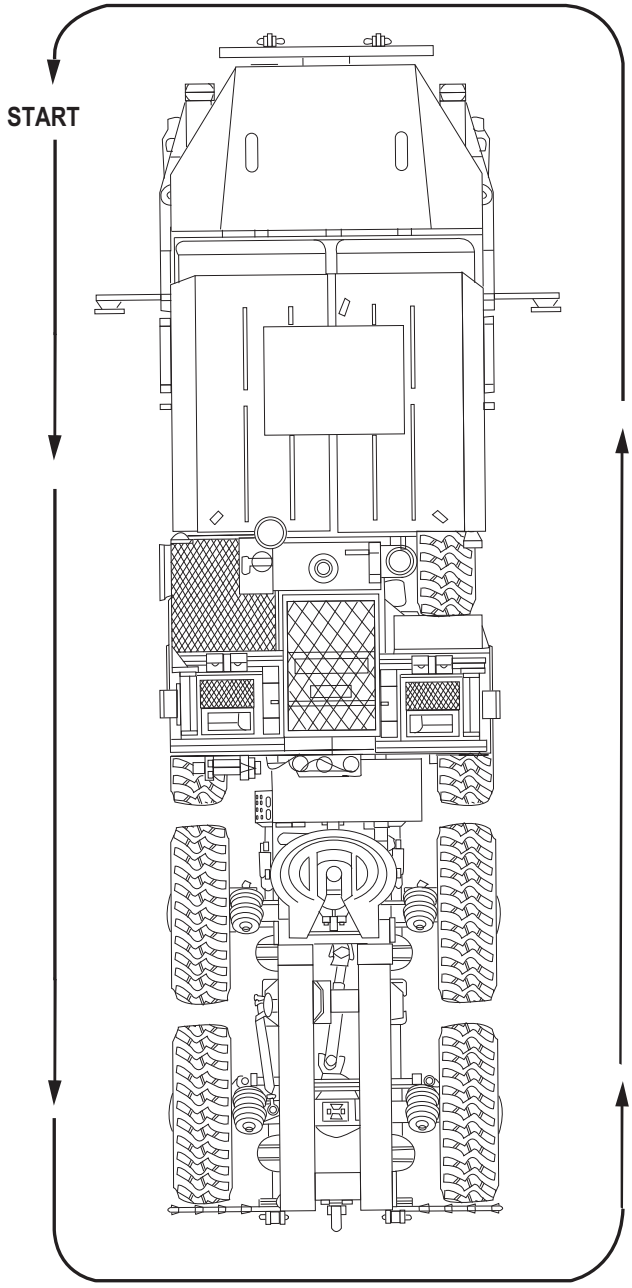


Figure 1.

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OPERATOR MAINTENANCE
BEFORE - PREVENTIVE MAINTENANCE

INITIAL SETUP:

Table 1. PMCS - BEFORE

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel. **WARNING**  Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in serious injury or death to personnel. **NOTE** Perform Operator's Before, After, and Weekly PMCS checks if: • You are the assigned driver but have not operated the vehicle	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			since the last weekly inspection. • You are operating the vehicle for the first time. **NOTE** • Clean all lubrication points with solvent cleaning compound and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated. • Always refer to Lubrication Instructions to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in Lubrication Instructions. **NOTE** If leakage is detected, further investigation is needed to determine the location and	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			cause of the leak. If there is any doubt, contact your Supervisor.	
1	Before	Driver Side Exterior	1. Visually inspect cab and components for obvious damage that would impair operation.	Any damage that would impair operation.
			2. Check condition of windshield.	
			3. Check condition of windshield wipers, arms, and blades.	
			4. Check radiator sightglass (1). Add coolant if coolant is not visible in sightglass.	Coolant is not visible in sightglass.

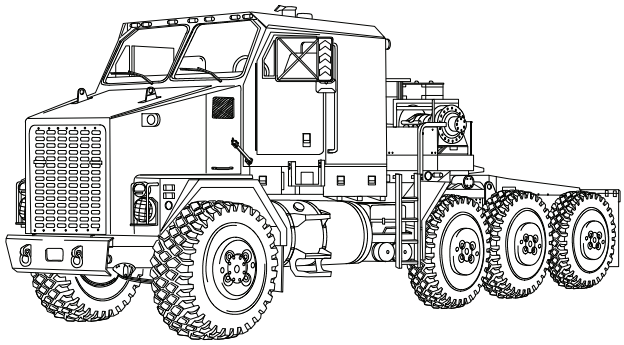


Figure 1.

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Table 1. PMCS - BEFORE - Continued

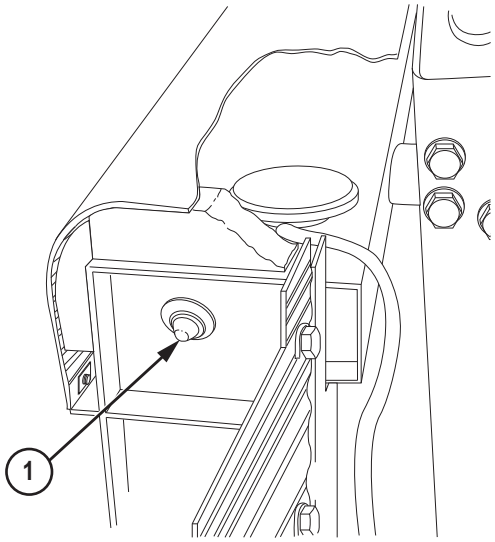
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 2.

			5. Check that mud flaps are in place and intact.	
			6. Look under HET Tractor for evidence of damage or fluid leakage.	Any fuel, Class III leak, or air lines/fittings leaking or damaged.
			WARNING Do not operate a HET Tractor with a tire in an over-inflated or under-inflated condition, or with a questionable defect.	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			Do not attempt to inflate a tire that is in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in serious injury or death to personnel and damage to equipment. **NOTE** • A tire is bad or in need of repair if the bead, side wall, and tread areas show signs of damage. • Remember that this process requires you to make judgement calls and the goal is to safely maintain equipment in top quality condition.	
2	Before	Driver Side Tires	1. Check for correct air pressure on each driver side tire and service tire as required.	
3	Before	Batteries	1. Check batteries for damage.	Batteries damaged.
			2. Contact Field maintenance to check battery electrolyte levels if ambient temperature has exceeded 90°F (32°C) since last PMCS Before checks.	Battery electrolyte level is low.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
4	Before	Rear of Vehicle	1. Visually check rear of vehicle for obvious damage that would impair operation.	Any damage that would impair operation.
5	Before	Fifth Wheel Without Trailer Coupled	1. Check coupler jaws (1), primary lock release handle (2), secondary lock release handle (3), linkage, and locking plunger (under fifth wheel) for damage and proper operation.	Coupler jaws are broken or mechanism is damaged or will not operate properly.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

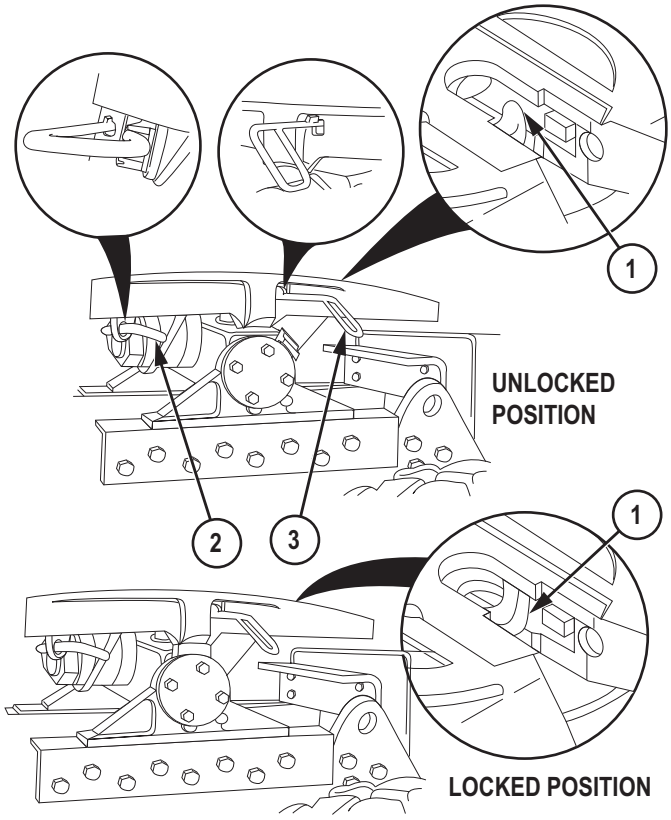


Figure 3.

			2. Check that coupler jaws (1) lock in open position: a. Pull out secondary lock release handle (3) and latch in position.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			b. Pull out primary lock release handle (2) two times. c. Put primary lock release handle (2) in locked position. d. Check that coupler jaws (1) stay open with primary lock release handle in locked position. 3. Check that top surface of fifth wheel (4) and fifth wheel ramps (5) are properly and adequately lubricated. (WP 0106)	Coupler jaws will not stay open.

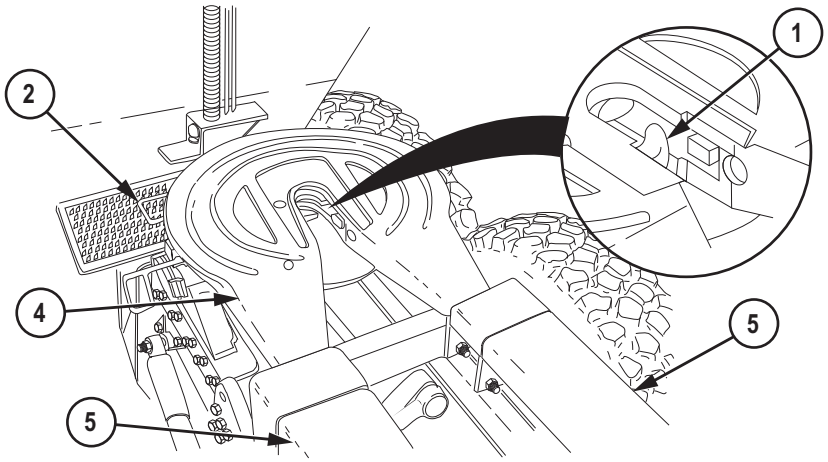


Figure 4.

6	Before	Fifth Wheel	1. Check that primary lock release handle (1) and secondary lock	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		With Trailer Coupled	release handle (2) are completely in.	

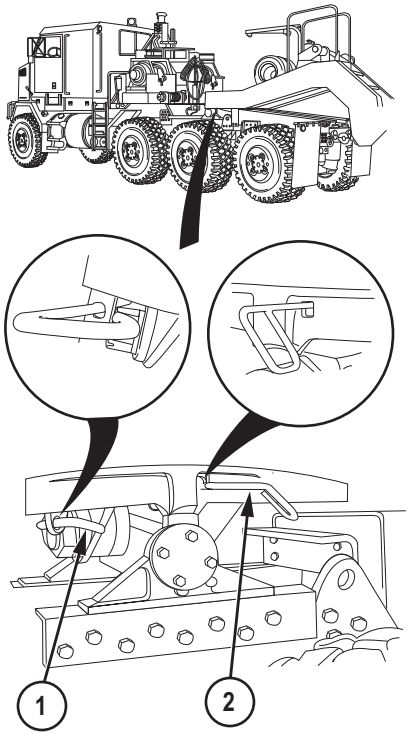


Figure 5.

7	Before	Trailer Air Brake Hoses and Electrical Cable	1. Check that service coupling (1), intervehicular electrical cable (2), and emergency coupling (3) are securely connected to trailer.	Either air brake hose or electrical cable cannot be con-

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		With Trailer Coupled		nected to trailer.

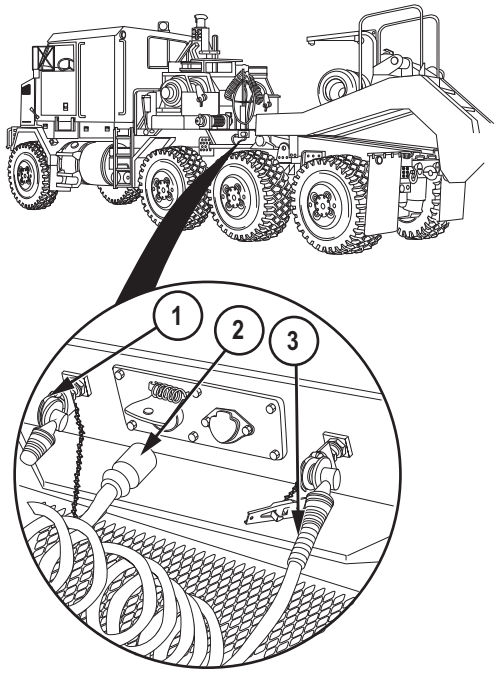


Figure 6.

			2. Check trailer air brake hoses, relay valve, and air reservoirs for leaks.	Any air leaks or damage present.
			3. Check trailer intervehicular cable for obvious damage.	Both inter-vehicular and trailer

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				electrical cables are missing or unserviceable.
			NOTE If leakage is detected, further investigation is needed to determine the location and cause of the leak. If there is any doubt, contact your Supervisor.	
8	Before	Driver Side Rear Exterior	1. Check vehicle rear for obvious damage.	Any damage that would impair operation.
			2. Look under HET for evidence of fluid leakage.	Any fuel, Class III leak, or air lines/fittings leaking or damaged.
			3. Check that mud flaps are in place and intact.	
9	Before	Wheel Chocks	1. Ensure vehicle is equipped with four wheel chocks.	Wheel chock(s) missing.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE If leakage is detected, further investigation is needed to determine the location and cause of the leak. If there is any doubt, contact your Supervisor.	
10	Before	Passenger Side Exterior	1. Visually inspect components for obvious damage.	Any damage that would impair operation.
			2. Look under HET Tractor for evidence of damage or fluid leakage.	Any fuel, Class III leak, or air lines/fittings leaking or damage.
			WARNING Do not operate a HET Tractor with a tire in an over-inflated or under-inflated condition, or with a questionable defect. Do not attempt to inflate a tire that is in an over-inflated or under-inflated condition, or with a questionable defect. Failure to comply may result in serious injury or death to personnel and damage to equipment.	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE • Remember that a tire in storage (spare) can be flat but not look like it. The HET tire sidewalls can support the wheel. Don't be fooled. • A tire is bad or in need of repair if the bead, sidewall, and tread areas show signs of damage. • Remember that this process requires you to make judgement calls and the goal is to safely maintain equipment in top quality condition.	
11	Before	Passenger Side Tires (Including Spare Tire)	1. Check for correct air pressure on each passenger side tire (1) (including spare tire) and service tire as required.	Tire missing, deflated, or unserviceable.

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Table 1. PMCS - BEFORE - Continued

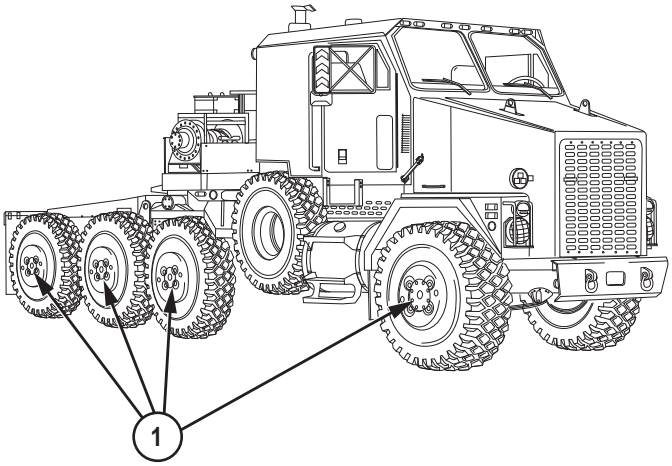
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 7.

			NOTE If leakage is detected, further investigation is needed to determine the location and cause of the leak. If there is any doubt, contact your Supervisor.	
12	Before	Front	1. Visually inspect components for obvious damage.	Any damage that would impair operation.
			2. Look under HET Tractor for evidence of fluid leakage.	Any fuel, Class III leak, or air

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				lines/fittings leaking or damaged.
13	Before	Cab Fire Extinguisher	1. Check for missing or damaged fire extinguisher (1) under dashboard on driver side. Check gauge (2) for proper pressure of about 150 psi (1034 kPa). Make sure mounting is secure. Check for damaged or missing seal (3).	Fire Extinguisher is missing or damaged, pressure gauge needle is in RECHARGE area, or seal is damaged or missing.

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Table 1. PMCS - BEFORE - Continued

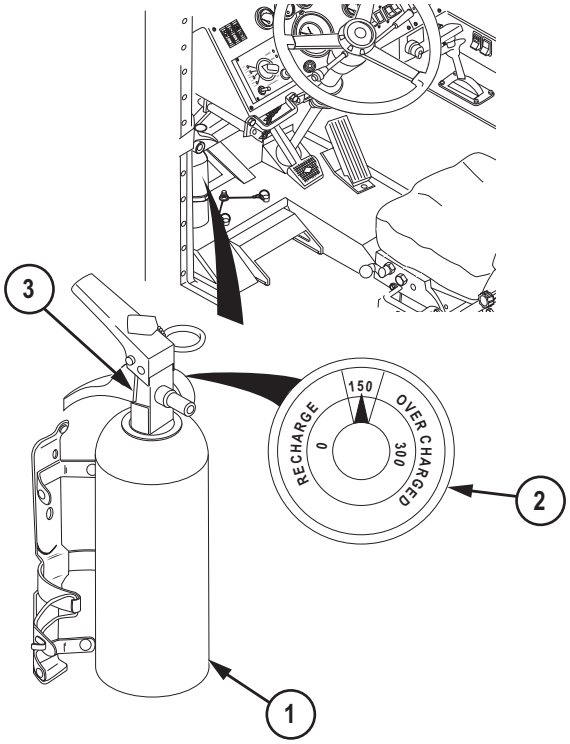
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				
			NOTE Vehicle operation with inoperative seat belts may violate AR 385-10.	
14	Before	Seat Belts	1. Check seat belt strap webbing for wear, tears, fraying, etc.	Webbing is cut, frayed,

Figure 8.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				or excessively worn.
			2. Check latch and buckle for proper operation, wear, deformation, damage, and broken casing.	Buckle/latch does not engage with a solid-sounding "click" and/ or does not release freely when button is pushed. Molded plastic around buckle/latch is deformed, cracked, or broken.
			3. Check that all seat belt retractors are not locked up and pay out/ reel in webbing straps properly.	Retractor(s) do not operate properly, or retractor cover(s) are cracked/ broken.
			4. Check all seat belt mounting hardware for looseness and other damage.	Hardware is loose, missing, rusted, corroded, or damaged.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
15	Before	Seats	1. Check operation of driver's seat adjustment mechanism.	Seat adjustment mechanism broken or missing.
			2. Check operation of passenger's side seat adjustment mechanism. **NOTE** • Complete all start engine procedures, and comply with all notes, cautions, and warnings within that procedure before completing the PMCS checks below. • Once all start engine procedures are completed, engine should be kept running for the remaining PMCS checks.	Seat adjustment mechanism broken or missing.
16	Before	Engine	1. Start engine. (WP 0037) **NOTE** Check the instruments listed below for damage, operation, and condition.	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
17	Before	Instrument Panel	1. Turn ignition switch to ON. CHECK GAUGES and CHECK ENGINE lights illuminate and go out after approximately 6 seconds.	CHECK GAUGES or CHECK ENGINE light does not go out and gauge(s) indicate abnormal reading.
			2. Correct idle of 600 rpm (+/- 100 RPM).	Tachometer indicates less than 500 rpm or more than 700 rpm.
			3. Press engine brake retarder ON/OFF switch (1) to ON. Press engine brake retarder HI/LO switch (2) to HI position. Increase engine rpm to approximately 1800 rpm and release throttle pedal. Decompression of engine will be heard in exhaust system. Press engine brake retarder HI/LO switch (2) to LO position and check operation.	Engine brake retarder is inoperative.

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Table 1. PMCS - BEFORE - Continued

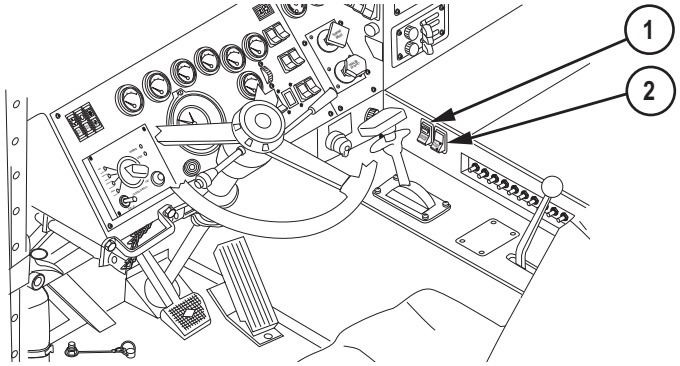
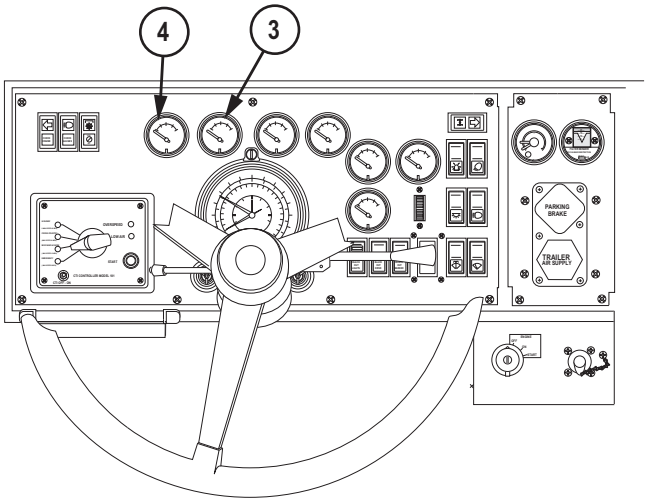
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 9.

			4. Check operation of CTIS. (WP 0028)	
			5. Check engine OIL PRESS gauge (3) for normal operating range of 50 to 70 psi (345 to 483 kPa) between engine speeds of 1800 to 2100 rpm. Minimum for safe operation is 30 psi (207 kPa). At idle, oil pressure can go as low as 5 psi (35 kPa).	Gauge indicates less than 30 psi (207 kPa) during normal operation or less than 5 psi (35 kPa) at idle and CHECK GAUGES indicator lights/alarm sounds.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			 *Figure 10.*	
			NOTE At idle, water temperature may not reach 180°F (82°C). 6. Check engine WATER TEMP gauge (4) for normal operating temperature of 180 to 200°F (83 to 93°C).	Gauge reads in red area (approximately 230°F (110°C)) and CHECK GAUGES indicator lights/alarm sounds.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			7. Check AIR CLEANER RESTRICTION indicator (5). Press RESET button if indicator reads greater than 15 (in yellow or red area). Notify your Supervisor if indicator still reads greater than 15 (in yellow or red area).	Gauge reads in red area (approximately 230°F [110°C] and CHECK GAUGES indicator lights/alarm sounds.

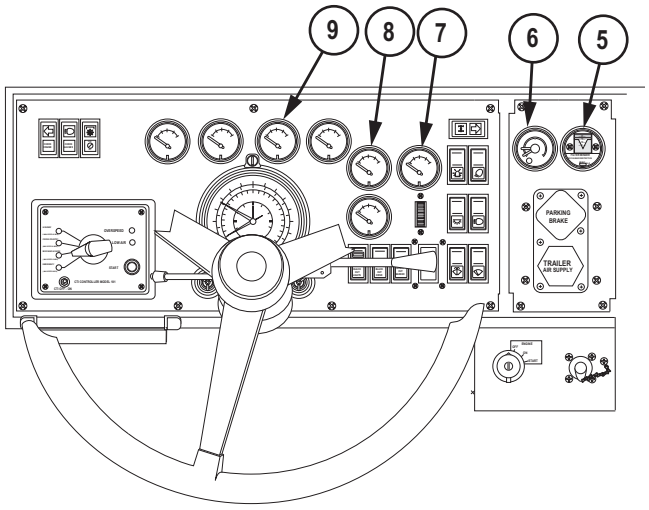


Figure 11.

			8. Check AIR PRESS gauge (6) for system air pressure level above 60 psi (414 kPa). Repeatedly step on brake pedal until air pressure drops below 60 psi (414	Gauge indication for either section is less than 60 psi (414

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			kPa). Check that warning buzzer operates below 60 psi (414 kPa).	kPa) when low air pressure indicator lights or warning alarm sounds.
			9. Check BATTERY gauge (7) for 26 to 30 VDC.	Gauge indicates below 26 VDC or above 30 VDC.
			10. Check BATTERY gauge (8) for 13 to 15 VDC.	Gauge indicates below 13 VDC or above 15 VDC.
			NOTE At idle, TRANS TEMP gauge may indicate 0 to 160°F (-18 to 71°C) oil temperature.	
			11. Check TRANS TEMP gauge (9) for normal operating temperature of less than 220°F (105°C).	Gauge indicates in red area approximately 300°F (149°C) or more.
			12. Check T-Case (transfer case) TEMP gauge (10).	Gauge indicates in red area 300°F

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				(149°C) or more.

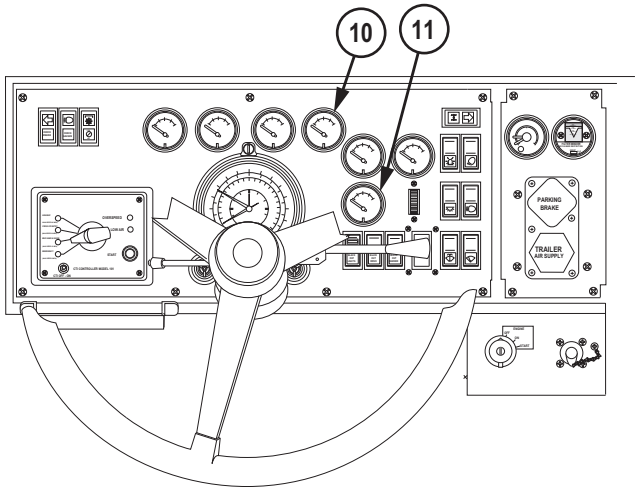


Figure 12.

		13. Ensure FUEL gauge (11) operates. **NOTE** Transfer case must be in HIGH range when making this check. 14. Check DRIVELINE control (12) for proper operation. All wheel drive indicator should light in lock position.	Does not function properly for required mission.

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Table 1. PMCS - BEFORE - Continued

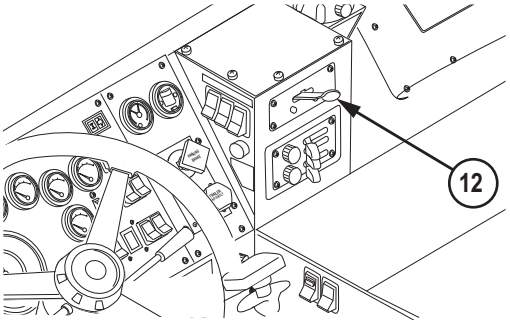
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 13.

			CAUTION HET Tractor must be parked when making transfer case check. Transfer case will be damaged if shifted while HET Tractor is moving.	
18	Before	Shifters	1. Check transfer case operation in HIGH and LOW ranges. (WP 0041)	Does not operate in both ranges.
			2. Check transmission for proper operation in all ranges. (WP 0041)	Any gear range does not work.
			3. Check DRIVELINE CONTROL lever operation. (WP 0017)	
			4. Lever should interact with transfer case shift lever to show	DRIVELINE CONTROL lever or indi-

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			correct indications on instrument panel.	cators inoperable.
			NOTE Engine must be running to perform this check.	
19	Before	Brakes and Parking Brakes	1. Check brakes by moving HET Tractor approximately 60 ft. (18.3 m) and steadily apply brake pedal. HET Tractor should stop smoothly without noticeable side pull or vibration.	Service brakes do not operate properly.
			2. With HET Tractor stopped and range selector in gear, release brake pedal. Brakes should release immediately and allow HET Tractor to roll forward.	Service brakes do not operate properly.
			3. Check parking brake while HET Tractor is still stopped; apply PARKING BRAKE control (1) with transmission still in 2-5 and engine at idle. HET Tractor should not move.	HET Tractor moves with parking brake applied.

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Table 1. PMCS - BEFORE - Continued

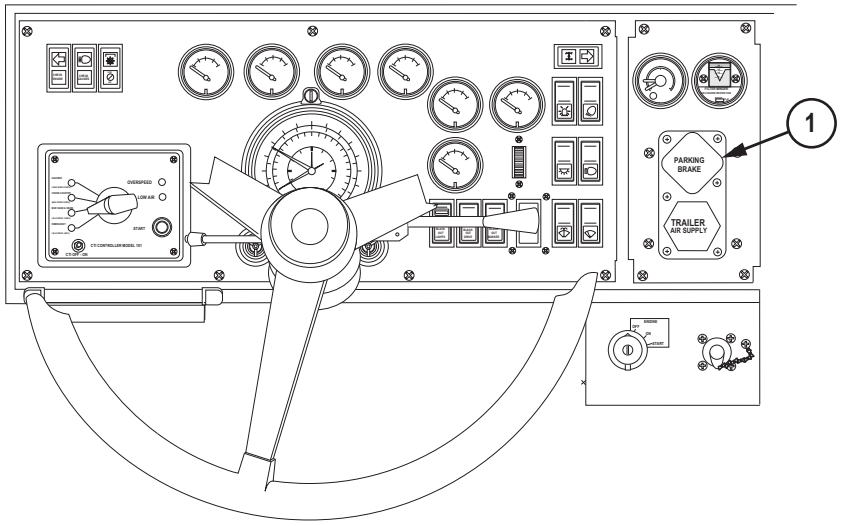
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				
			NOTE Check trailer hand brake control only if trailer is connected to HET Tractor.	
			4. Check trailer brakes by applying trailer hand brake control (1) only, and attempt to move tractor/ trailer combination. Do not apply brake pedal. HET Tractor and trailer should not move.	Brakes fail to hold tractor/trailer from moving.

Figure 14.

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

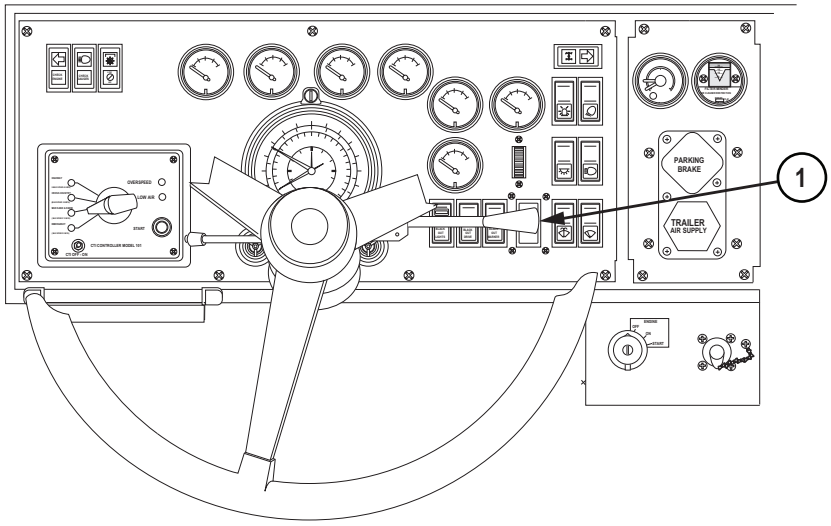


Figure 15.

			NOTE Operator may continue on with mission if vehicle requires no servicing.	
20	Before	Engine	1. Shut OFF engine (as required). (WP 0042)	
			NOTE Not all HET Tractors will have radios.	
21	Before	Radio	1. Refer to TM 11-5820-401-10-1 (AN/VRC-46) or TM	

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Table 1. PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			11-5820-890-10-1 (AN/VRC-90) for preventive maintenance checks and services.	

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
DURING - PREVENTIVE MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Gloves, Leather (WP 0115, Table 2)

References
AR 385-10

Table 1. PMCS - DURING

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel.	
1	During	Engine	1. Check and/or listen for excessive smoke, unusual noise, rough running, and misfiring.	Engine has excessive smoke, unusual noise, runs rough, or misfires.
			NOTE Check trailer handbrake control lever only if a trailer is hooked up to vehicle.	
2	During	Trailer Handbrake Control Lever	1. Check trailer handbrake control lever for proper operation. (WP 0014) Listen for actuation. If	Control lever does not apply trailer brakes.

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			none, refer to applicable trailer operator's manual. **NOTE** During operation, all gauges should maintain the proper readings listed in the PMCS BEFORE checks.	
3	During	Instrument Panel	1. Monitor all gauges, indicators, and warning lights for proper reading and operation while operating vehicle. **NOTE** Sound of air dryer discharge is normal. 2. Listen for air dryer discharge when system air pressure reaches approximately 120 psi (827 kPa).	Gauges, indicators, and warning lights do not read/operate properly.
4	During	Steering	**NOTE** Engine must be running to perform this check. 1. Check vehicle steering for proper operation:	

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			a. Turn steering wheel from full left to full right, back to full left.	Steering inoperable or binds.
5	During	Service Brakes	1. Be alert for chatter, noise, and side pull.	Service brakes do not operate properly.
			NOTE Winch checks are performed during recovery operations.	
6	During	Winches	1. Inspect winches (1) for loose parts, hydraulic leaks and obvious external damage.	Any winch is inoperative, loose, leaking, or damaged.

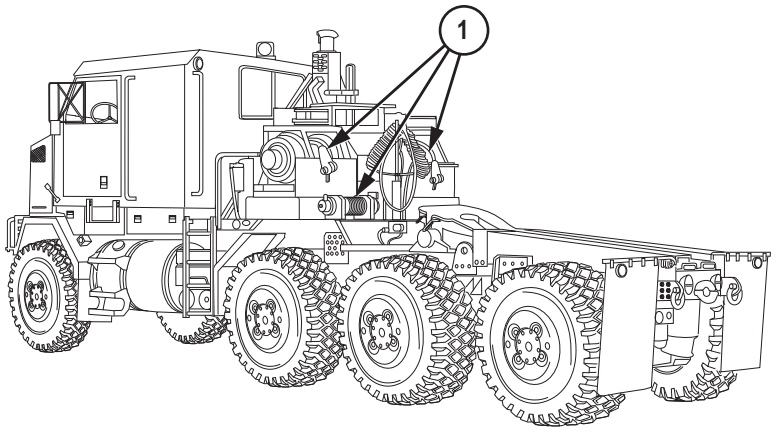


Figure 1.

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Check winch controls for proper operation. **WARNING** Wear leather gloves when checking winch cable. Failure to comply may result in serious injury or death to personnel. 3. Check winch cables (2) for kinks, frays, and breaks.	

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

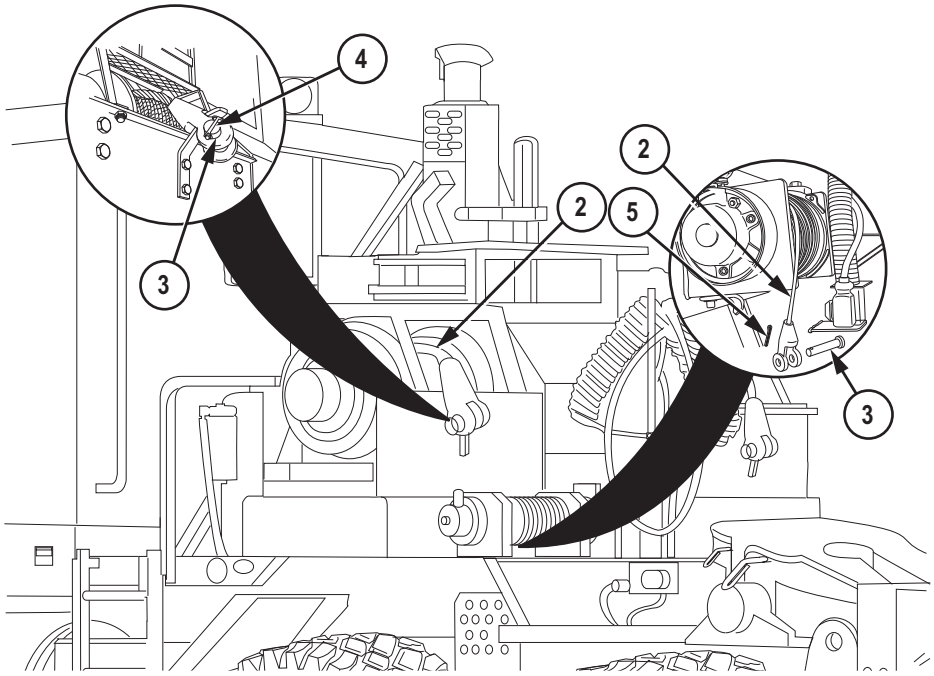


Figure 2.

			4. Check winches for missing or damaged clevis pins (3), snapper pins (4), and pin (5). **NOTE** Light checks will require assistance.

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
7	During	Lights	1. Check headlights, blackout drive lights, clearance lights, stoplights, turn signals, reflectors, and backup lights. 2. Check operation of beacon light (1).	

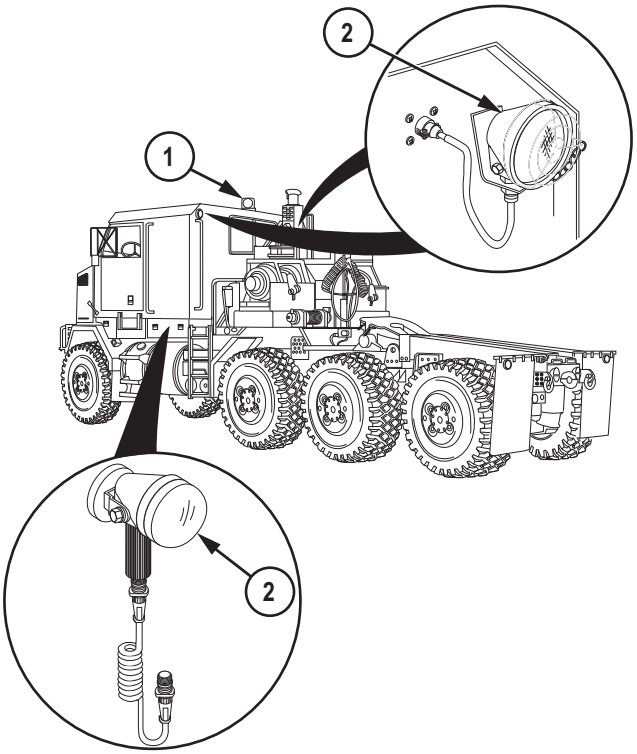


Figure 3.

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Table 1. PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			3. Check operation of work lights (2). 4. Check operation of dome light and map lights. **NOTE** Operation of vehicle with malfunctioning service lights may violate AR 385-10. 5. Check emergency flasher control for proper operation.	

END OF TASK

END OF WORK PACKAGE

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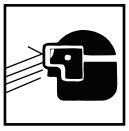
OPERATOR MAINTENANCE
AFTER - PREVENTIVE MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Gloves, Leather (WP 0115, Table 2)

References
AR 385-10

Table 1. PMCS - AFTER

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel. **WARNING**  Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in serious injury or death to personnel. **NOTE** Perform Operator's Before, After, and Weekly PMCS checks if: • You are the assigned driver but have not	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. **NOTE** • Clean all lubrication points with solvent cleaning compound and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant is squeezed out of the part being lubricated. • Always refer to lubrication instructions to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in lubrication instruction. (WP 0106) **CAUTION** Ensure that any oil discharged from engine air box drain is from oil slobber and	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			not an oil leak. Failure to comply may result in damage to equipment.	
1	After	Underneath Vehicle	1. Check under HET Tractor for fluid and air leaks. 2. Check for obvious damage. **CAUTION** • Dipstick must be inserted all the way into tube to ensure proper reading. Failure to comply may result in damage to equipment. • Never allow engine oil level to drop below the LOW mark. Failure to comply may result in damage to engine. **NOTE** • Allow at least 15 minutes to elapse after engine shutdown before checking oil.	Any fuel, class III leak, or air lines/fittings leaking or damaged.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Diesel engine slobber is an inherent condition of diesel engines. When engines are allowed to idle for prolonged periods of time, this may be interpreted as a Class III leak. Check engine oil level. If there is any doubt, consult Supervisor or Field Maintenance.	
2	After	Engine Oil	1. Check engine oil level on dipstick (1). Proper oil level is between LOW mark and FULL mark.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

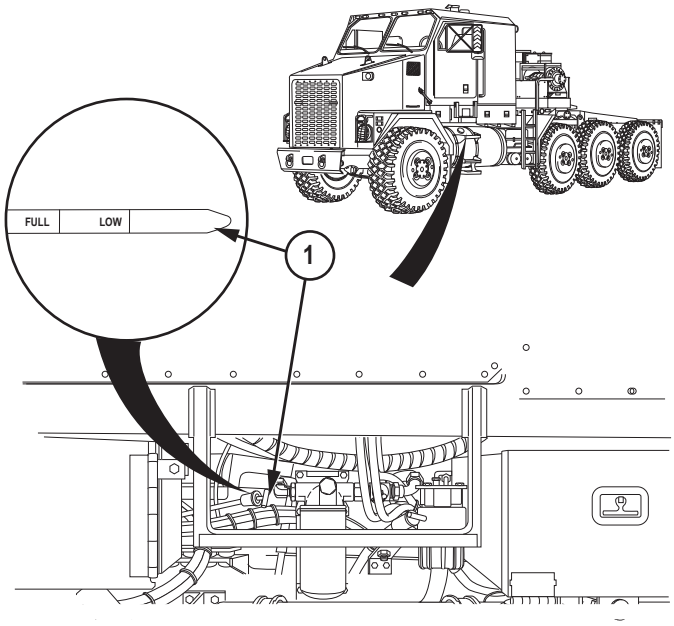


Figure 1. Engine Oil Level.

			2. Add oil if engine oil level is at or below LOW mark (refer to Lubrication Instructions). (WP 0106)	Overfull, notify Field Maintenance.
3	After	Driver Side Exterior	1. Check driver side for obvious damage.	Any damage that would impair operation.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Parking brake must be set before checking transmission fluid. Failure to comply may result in serious injury or death to personnel. **NOTE** Perform the following check with engine running and transmission in N (neutral). If transmission temperature is below 160°F (71°C), fluid level should be within COLD RUN area. If transmission fluid temperature is above 160°F (71°C), fluid level should be within HOT RUN area.	
4	After	Transmission Fluid Level	1. Check transmission fluid level on dipstick (1). Add transmission fluid if fluid level is too low. (WP 0106)	

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Table 1. PMCS - AFTER - Continued

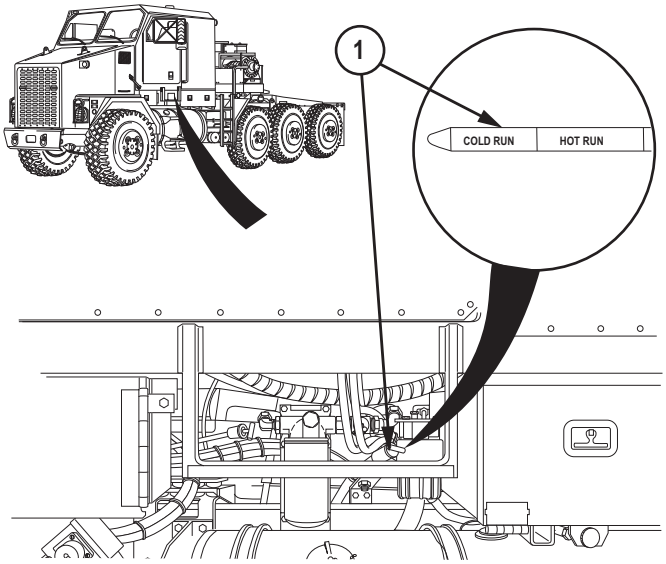
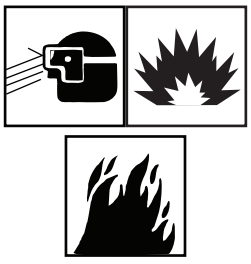
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 2. Transmission Fluid Level.

			WARNING  Fuel is very flammable and can explode easily. Keep fuel	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited when engine is hot. When working with fuel, wear proper eye protection and post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE. Failure to comply may result in serious injury or death to personnel. **NOTE** Drain fuel in suitable container.	
5	After	Fuel/ Water Separator	1. Check for presence of water in bowl (1) of fuel/water separator (2). If there is water, pull drain hose (3) from behind fuel tank. Turn knurled nut (4) counterclockwise on bottom of bowl to open contaminant drain valve (5).	

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Table 1. PMCS - AFTER - Continued

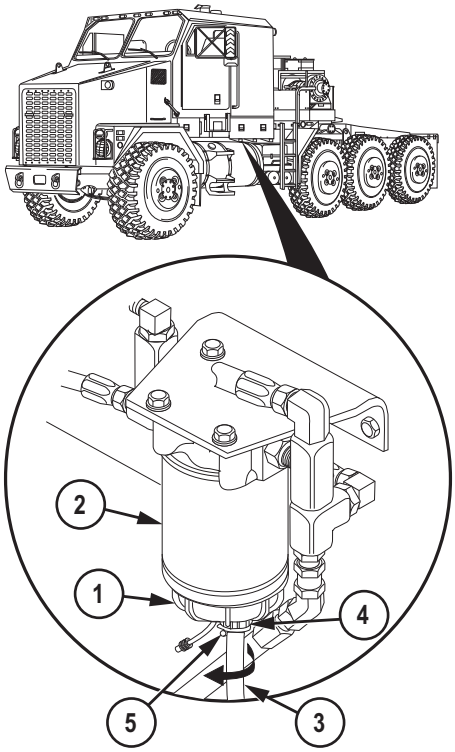
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 3. Fuel/Water Separator.

			2. Push in and turn primer pump (6) 1/4 turn in either direction to release. Pump fuel primer pump (6) and purge water from fuel/ water separator. Push in and turn fuel primer pump (6) 1/4 turn in either direction to lock. Keep drain open until only pure fuel is flowing out of drain hose (3).

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			Close drain valve by turning knurled nut (4) clockwise. Position drain hose (3) back behind fuel tank.	

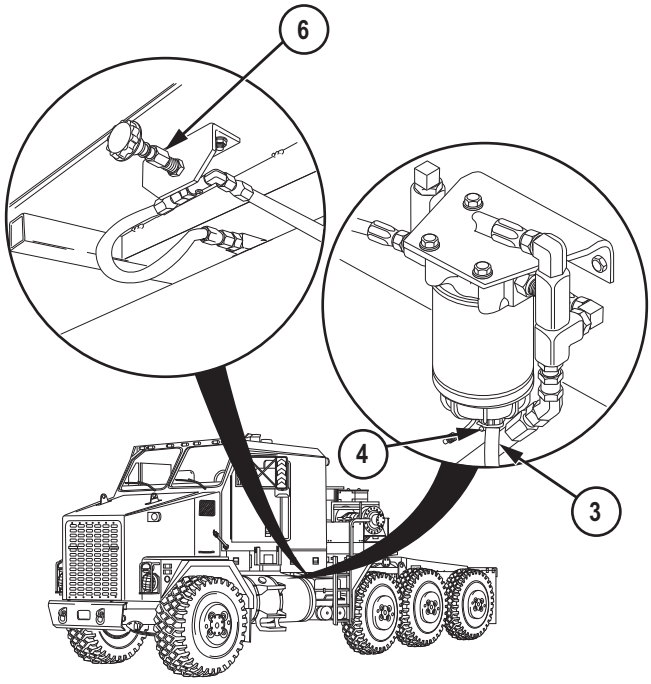


Figure 4. Fuel Primer Pump.

6	After	Driver Side Air Reservoirs	1. With HET Tractor parked and engine off, listen for sound of air system leaks around reservoirs.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Pull three cables (1) by battery box (2) to drain reservoirs until no water comes out of system.	

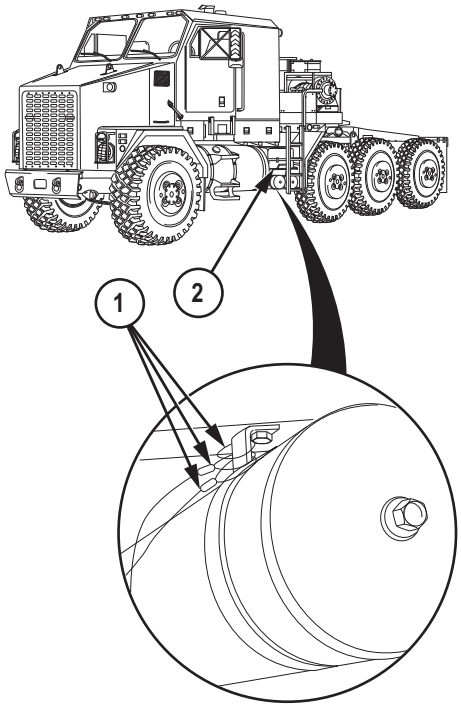


Figure 5. Driver Side Air Reservoirs.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING  Planetary hubs get hot enough to burn. Use caution when checking hubs. Failure to comply may result in serious injury or death to personnel.	
7	After	Driver Side Wheels	1. Check planetary hubs (1) by feeling for warmth.	One or more hubs are noticeably warmer than the others.

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Table 1. PMCS - AFTER - Continued

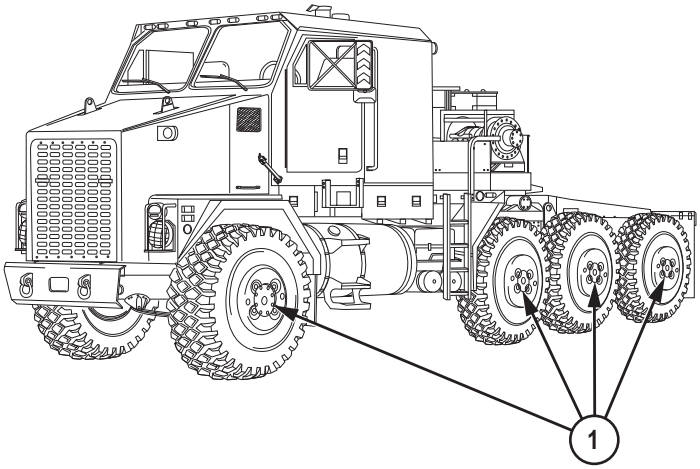
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				
			2. Check for obvious damage.	
			3. Check wheels for broken, cracked, and bent surfaces.	Wheel is broken, cracked, or bent.
			4. Check lugnuts and wheel studs for obvious looseness and damage. If loose, tighten and report to maintenance as soon as practical.	Two or more lug-nuts or studs on the same wheel are missing, broken, or bent.

Figure 6. Driver Side Wheels.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
8	After	Driver Side Tires	1. Check tires for cuts, gouges, cracks, or scratches. Remove any sharp objects.	Tires have cuts, gouges, or cracks that would result in tire failure during operation. One or more tires are missing or unserviceable and no spare is available.
9	After	Driver Side Shock Absorbers	1. Check driver side shock absorbers for leaks and damage.	Damaged or class III leak present.
10	After	Towing Gladhands	1. Check for presence and condition of towing gladhands (1).	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

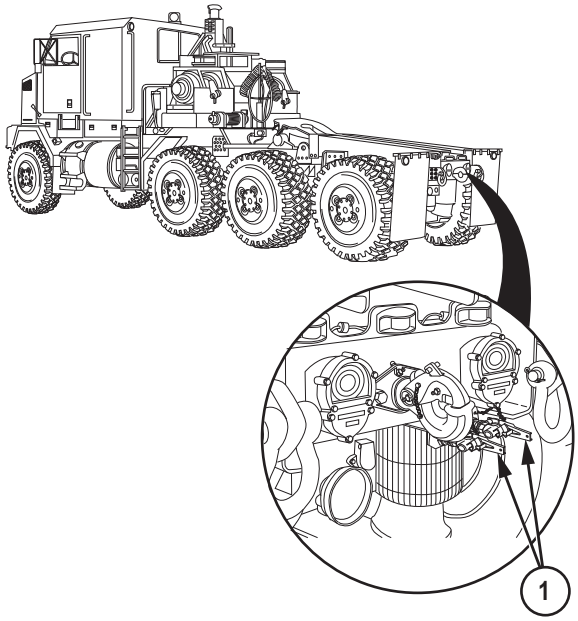


Figure 7. Towing Gladhands.

11	After	Fifth Wheel	1. Check locking plunger (1), primary release handle and linkage (2), for damage and proper operation.	Mechanism is damaged or will not operate properly.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

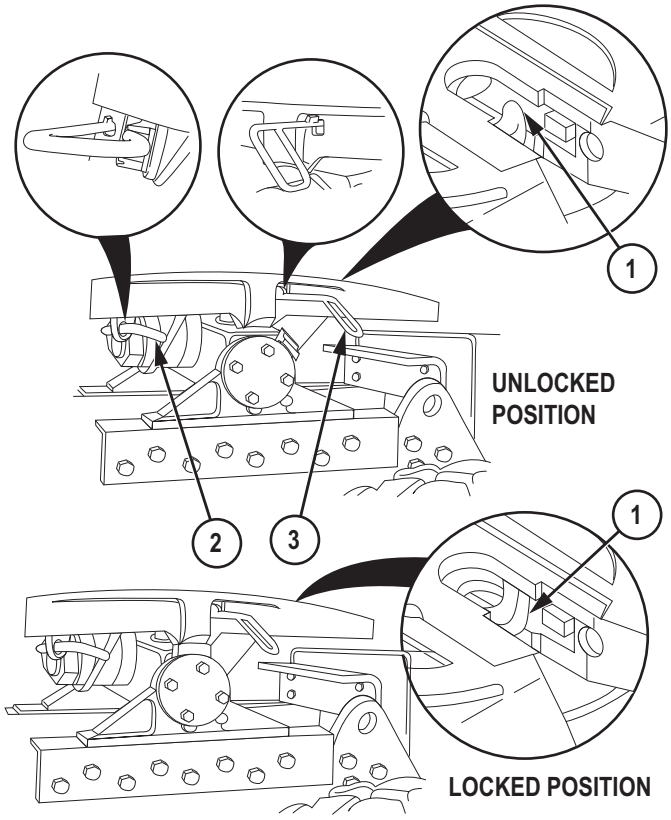


Figure 8. Fifth Wheel.

		2. Check secondary release handle linkage (3) and locking plunger (1) for damage and proper operation.	Mechanism is damaged or will not operate properly.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			3. Check that both release handles (2) and (3) are completely in. **WARNING** Wear leather gloves when checking winch cable. Failure to comply may result in serious injury or death to personnel.	
12	After	Winch Cables	1. Clean winch cables (1) and oil with OE/HDO after each use (refer to Lubrication Instructions). (WP 0106)	

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Table 1. PMCS - AFTER - Continued

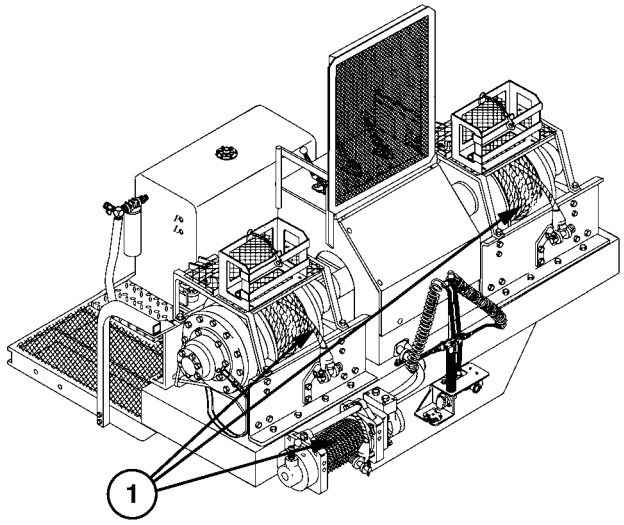
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 9. Winch Cables.

			WARNING  Prolonged contact with lubricating oil may cause skin rash. Immediately wash skin and clothing that come in contact with lubricating oil thoroughly and remove saturated clothing. Keep area well-ven-	

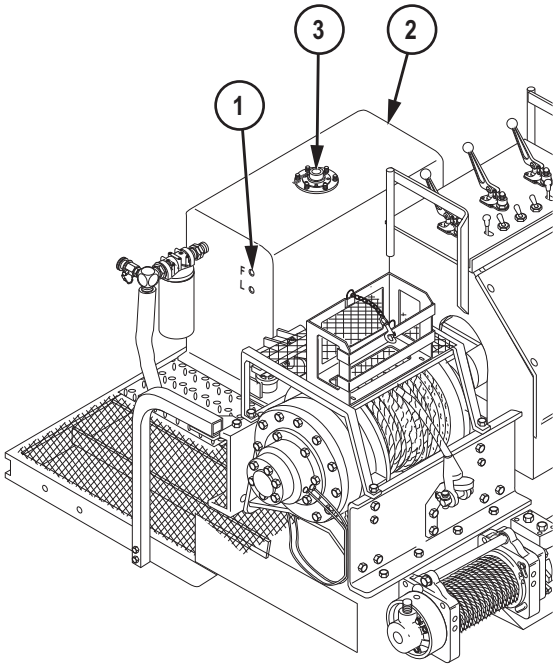
https://truckmanualshub.com/

Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			tilated to keep fumes at a minimum. Failure to comply may result in serious injury or death to personnel. **CAUTION** Do not fill hydraulic reservoir past FULL COLD mark. Failure to comply may result in damage to equipment. **NOTE** • Hydraulic oil expands when heated, which may give the operator false (high) fluid level readings if the vehicle has been recently operated. • If possible, wait until hydraulic reservoir is completely cooled down (minimum of 2 hours) prior to adding hydraulic oil, otherwise fill reservoir to FULL COLD mark.	
13	After	Hydraulic Fluid Reservoir	1. Check that hydraulic fluid level in sight glass (1) on hydraulic fluid reservoir (2) is at FULL COLD mark (may be above FULL COLD mark if vehicle has been recently operated). If low, add hydraulic oil to FULL COLD mark. (WP 0106)	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			 *Figure 10. Hydraulic Fluid Reservoir.*	
			a. Remove cap (3) from hydraulic reservoir (2). b. Fill hydraulic reservoir (2) with lubricating oil until sight glass (1) reads at FULL COLD mark. c. Install cap (3) on hydraulic reservoir (2). Check appearance of hydraulic fluid in sight glass (1). Make sure	Fluid appears milky or foamy.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			it is clear and not milky or foamy. **WARNING**  Planetary hubs get hot enough to burn. Use caution when checking hubs. Failure to comply may result in serious injury or death to personnel.	
14	After	Passenger Side Wheels	1. Check planetary hubs (1) by feeling for warmth.	One or more hubs are noticeably warmer than the others.

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Table 1. PMCS - AFTER - Continued

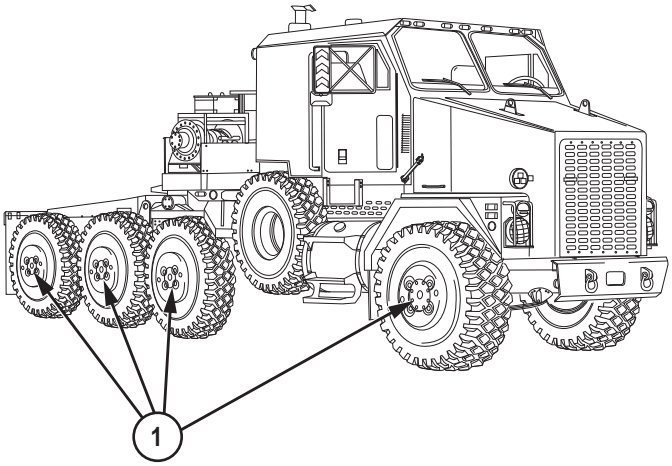
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				
			2. Check for obvious damage.	
			3. Check wheels for broken, cracked, and bent surfaces.	Wheel is broken, cracked, or bent.
			4. Check lugnuts and wheel studs for obvious looseness and damage. If loose, tighten and report to maintenance as soon as practical.	Two or more lug-nuts or studs on the same wheel are missing, broken, or bent.

Figure 11. Passenger Side Wheels.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
15	After	Passenger Side Tires	1. Check tires for cuts, gouges, cracks, or scratches. Remove any sharp objects.	Tires have cuts, gouges, or cracks that would result in tire failure during operation. One or more tires are missing or unserviceable and no spare available.
16	After	Spare Tire	1. Check that spare tire (1) is securely mounted.	

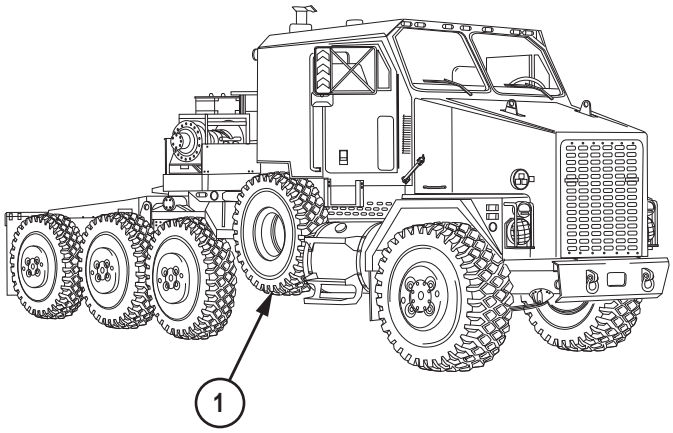


Figure 12. Spare Tire.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Inspect spare tire for cuts, gouges, cracks, or scratches. Remove any sharp objects.	Tire has cuts, gouges, or cracks that would result in tire failure during operation. Tire is missing or unserviceable.
			3. Check wheel for broken, cracked, and bent surfaces.	Wheel is broken, cracked, or bent.
17	After	Passenger Side Shock Absorbers	1. Check passenger side shock absorbers for leaks and damage.	Damaged or class III leak present.
18	After	Passenger Side Air Reservoirs	1. With HET Tractor parked and engine off, listen for sound of air system leaks around reservoirs.	Any air leakage is detected.
			2. Pull two cables (1) by fuel tank (2) to drain reservoirs until no water comes out of system.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

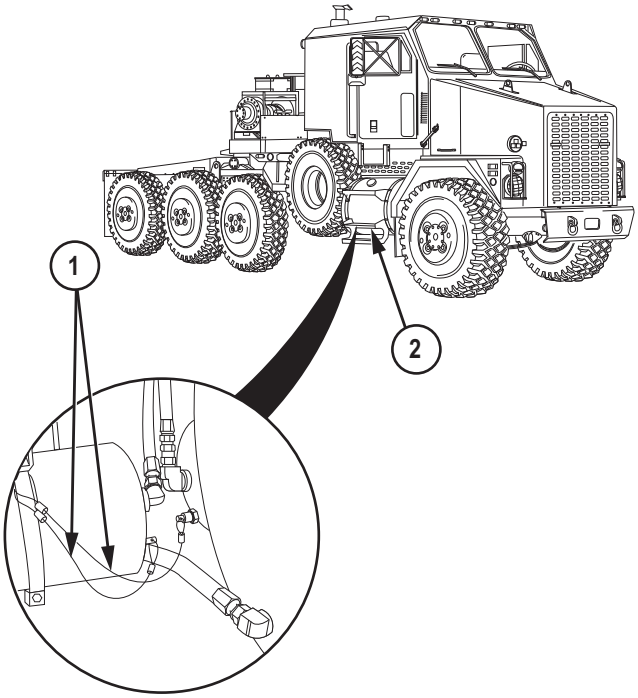


Figure 13. Passenger side Shock Absorbers.

			NOTE Operation of vehicle with broken/missing mirrors may violate AR 385-10.	
19	After	Mirrors	1. Check condition of mirrors.	Mirror(s) broken or missing.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE Operation of vehicle with damaged or missing windshield may violate AR 385-10.	
20	After	Windshield and Wiper Arms/ Blades	1. Check windshield glass for presence and condition.	Windshield glass broken or missing.
			NOTE Operation of vehicle with damaged wiper arms/blades may violate AR 385-10.	
			2. Check condition of wiper arms and blades.	Wiper arm or blade broken or missing.
21	After	Power Steering Reservoir	1. Open hood. (WP 0111)	
			CAUTION Ensure all power steering hoses are routed/secured as close to firewall as possible and do not come in contact with turbocharger exhaust pipe. Failure to comply may result in damage to equipment.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE If leakage is detected, further investigation is needed to determine the location and cause. If there is any doubt, contact supervisor or Field Maintenance.	
			2. Check power steering reservoir (1), hoses, lines, and fittings for leaks or obvious damage.	Class III leakage is evident.

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Table 1. PMCS - AFTER - Continued

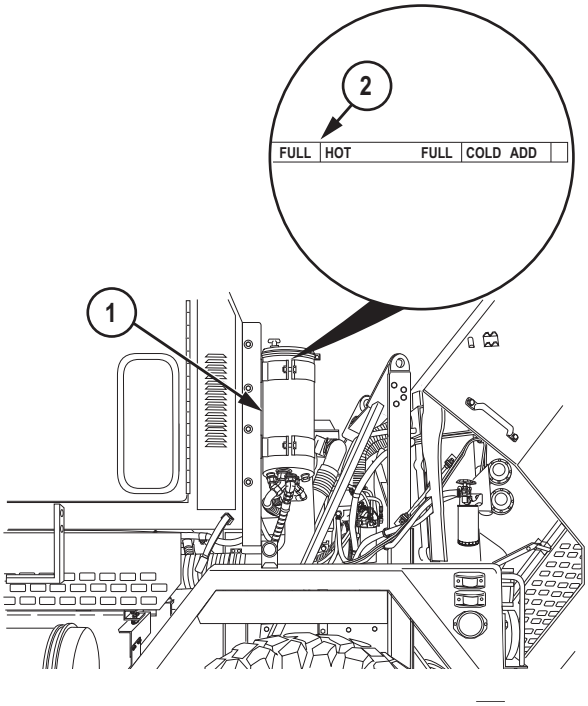
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 14. Power Steering Reservoir.

			3. Check steering reservoir fluid. a. Level should be between ADD and FULL HOT mark on dipstick (2) if HET Tractor was just used.	Fluid level is low or too high.

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			4. Level should be between ADD and FULL COLD mark on dipstick (2) if HET Tractor has been sitting.	
			5. Add oil if level is at or below ADD mark (refer to Lubrication Instructions). (WP 0106)	Oil level is overfull. Notify Field Maintenance.
			6. Close hood. (WP 0111)	
			NOTE • Light checks will require assistance. • Operation of vehicle with malfunctioning turn signal control may violate AR 385-10.	
22	After	Turn Signal Control	1. Check turn signal control for proper operation.	
23	After	Turn Signal Indicators	1. Check turn signal indicators for proper operation.	
24	After	Instrument Panel	1. Check DEF/CAB (1), RECIRC/F/A (2), and OFF/HEAT (3) controls for proper operation.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

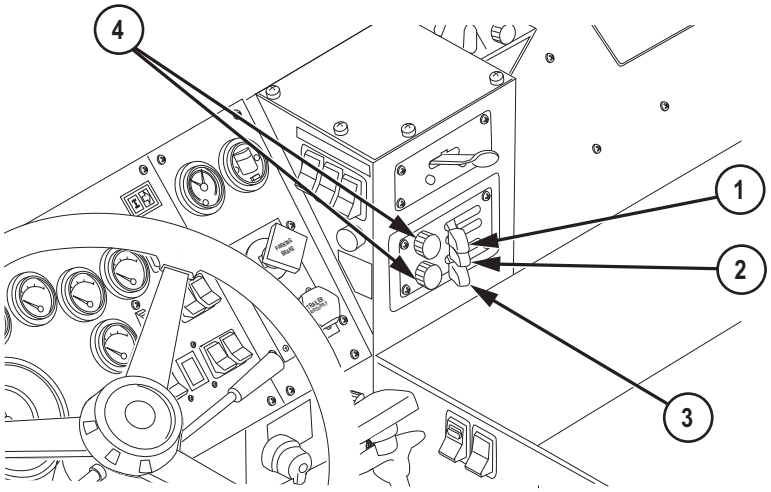


Figure 15. Instrument Panel.

			2. Check FRONT and REAR fan switches (4) for proper operation in speeds 1, 2, and 3. 3. Check cab temperature controls for proper operation. **NOTE** Checking condition of horns is a safety task that would not be performed in a combat mission. See AR 385-10.	
25	After	Horns	1. Check city horn (1) and country horn (2) for proper operation.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE Operation of vehicle with malfunctioning windshield wiper may violate AR 385-10.	
26	After	Windshield Wiper/ Washer Switches	1. Check windshield wiper switch (1) for proper operation.	

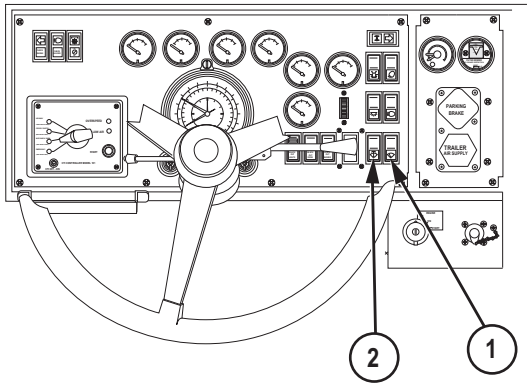


Figure 16. Windshield Wiper/Washer Switches.

			2. Check windshield washer switch (2) for proper operation. **NOTE** Engine must be running to perform this check.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
27	After	PTO ENGAGE Switch	1. Set PTO ENGAGE switch to ON position. PTO ENGAGED indicator should illuminate.	PTO ENGAGE switch and/ or PTO ENGAGED indicator does not operate.
28	After	Ventilator	1. Check fresh air/recirculated air control (1) for proper operation.	

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Table 1. PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

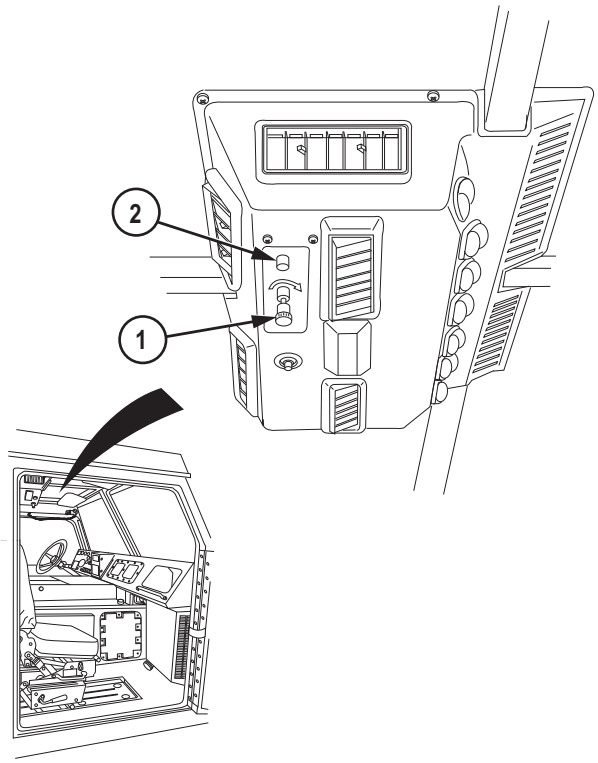


Figure 17. Ventilator.

			2. Check blower control switch (2) for proper operation in speeds low (L), medium (M), and high (H).	

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END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
WEEKLY - PREVENTIVE MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Gloves, Leather (WP 0115, Table 2)

References
AR 385-10
FM 4-25.11

Table 1. PMCS - WEEKLY

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel. **WARNING**  Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in serious injury or death to personnel. **NOTE** Perform Operator's Before, After, and Weekly PMCS checks if:	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• You are the assigned driver but have not operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. **NOTE** • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with solvent cleaning compound and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Always refer to lubrication instructions to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environments as prescribed in lubrication instructions.	
1	Weekly	Engine Compartment (driver side)	1. Open hood. (WP 0111)	
			2. Check radiator hoses (1) for rotting, leakage, and loose clamps.	Any Class III leakage evident.

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Table 1. PMCS - WEEKLY - Continued

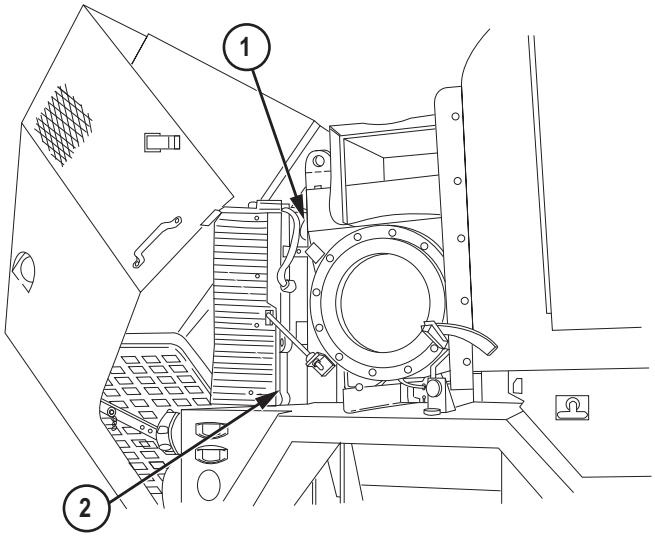
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 1.

			3. Check radiator (2) for leaks, damaged fins, and missing baffles.	Any Class III leakage evident.
			4. Check fan drive belts (3) and 24-volt alternator drive belts (4) for cracking, fraying, and breaks.	Any drive belt is missing, broken, cracked to the belt fiber, has more than one crack (1/8 in. in (0.31 cm) depth or 50% of belt

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				thickness), or has frays more than 2 in. (5 cm) long.

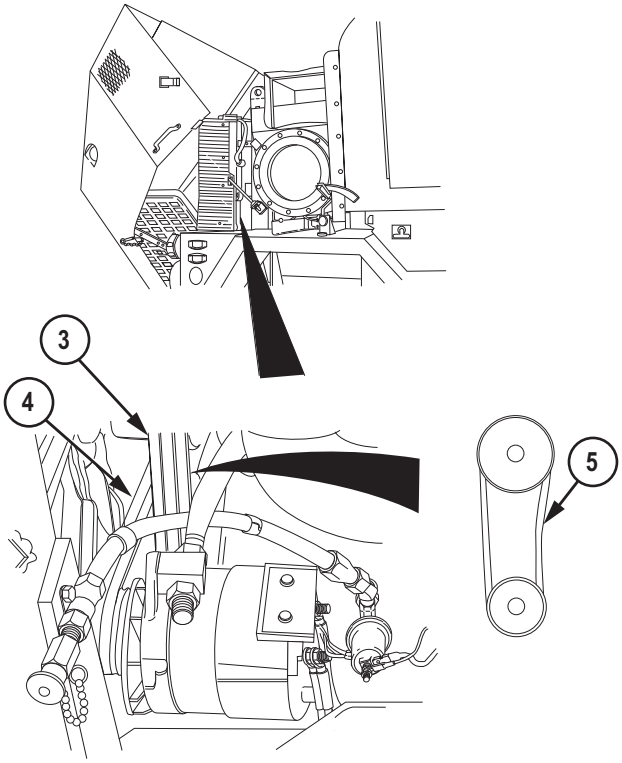


Figure 2.

		5. Check drive belts for tightness. There should be approximately 1/2 in. (1.25 cm) of play when	Belts are out of adjustment.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			pushing on belts in center (5) between pulleys.	
			6. Check fan clutch (6) for leaks and missing or loose mounting hardware.	Class III leakage is evident or missing or loose mounting hardware is found.

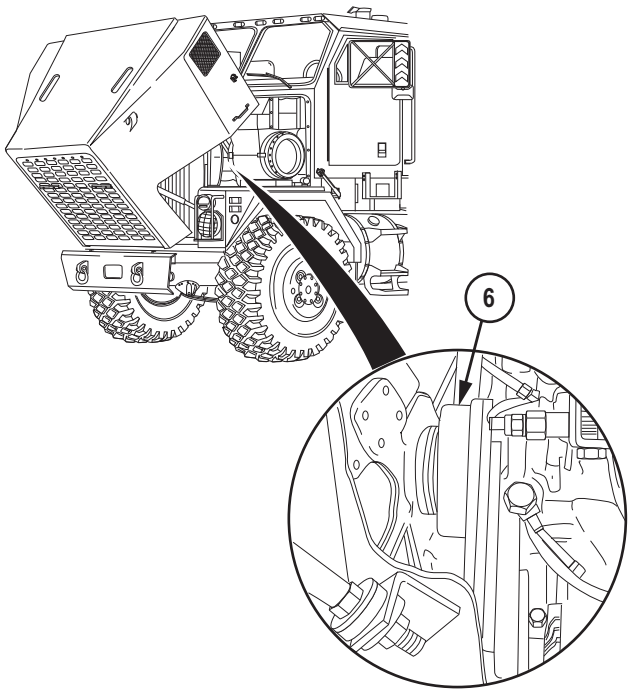


Figure 3.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			7. Check fan and pulleys for cracks and damage.	Fan or any pulley is cracked or damaged.
			8. Check air intake system for loose clamps (7) and damaged air intake tube (8). Tighten clamps (7) as needed.	Any air intake hose has a hole or is torn.

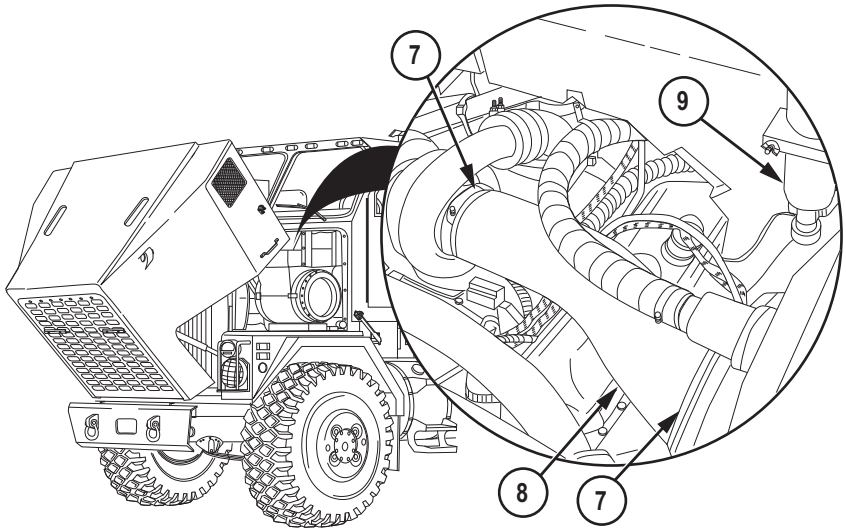


Figure 4.

			9. Check air cleaner housing for loose hand knobs. Tighten as needed.	
			10. Check ether starting aid (9) for loose or damaged mounts and	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			hardware. Check canister for damage. **NOTE** Operation of vehicle with damaged/malfunctioning air compressor may violate AR 385-10.	
2	Weekly	Air Compressor	1. Check air compressor for loose screws, damaged mounting flange and air hoses, and loose fittings/connections.	Screws missing, mounting flange broken, air hoses damaged or fittings/connections loose.
3	Weekly	Stowage Boxes	1. Check inside tool box (1) and stowage box (2) for torn or damaged seals (3), water in bottom, missing hardware, or other obvious damage. If damage is present or water is found in box, notify Supervisor.	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

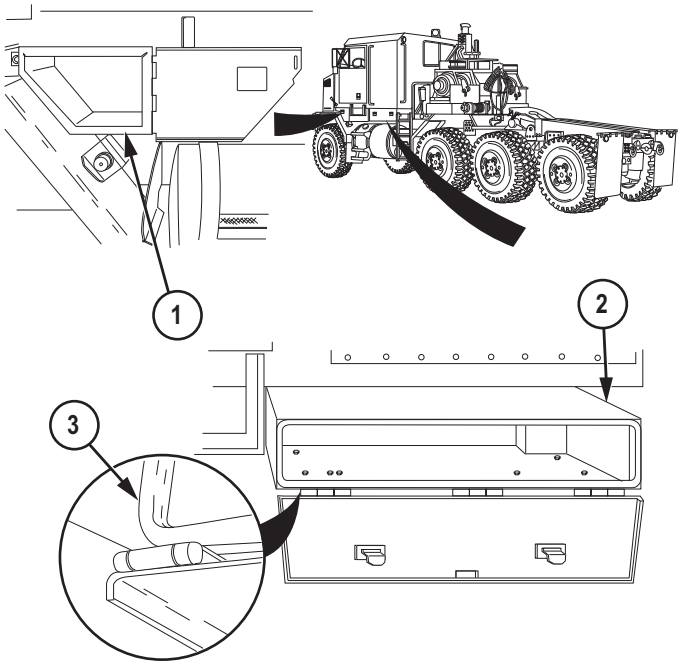
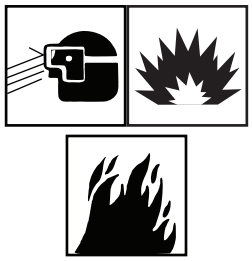


Figure 5.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING  Fuel is very flammable and can explode easily. Keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited when engine is hot. When working with fuel, wear proper eye protection and post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE. Failure to comply may result in serious injury or death to personnel.	
4	Weekly	Driver Side Fuel Tank	1. Check fuel filler cap (1) for dirt and that chain is attached.	

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Table 1. PMCS - WEEKLY - Continued

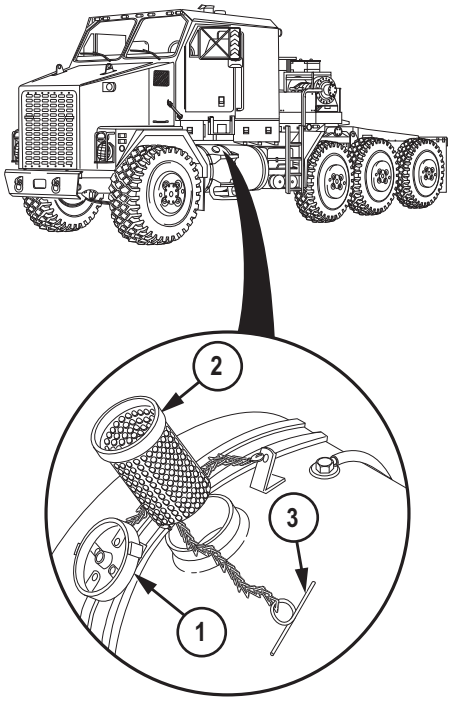
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 6.

			a. Remove fuel filler cap (1). b. Pull strainer (2) out of fuel tank and release retaining wire (3). Clean with dry rag.	
			2. Check fuel tank (4), fuel hoses (5), and connections (6) for leaks and/or damage. Ensure all connections are secure.	Any Class III leakage of fuel.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

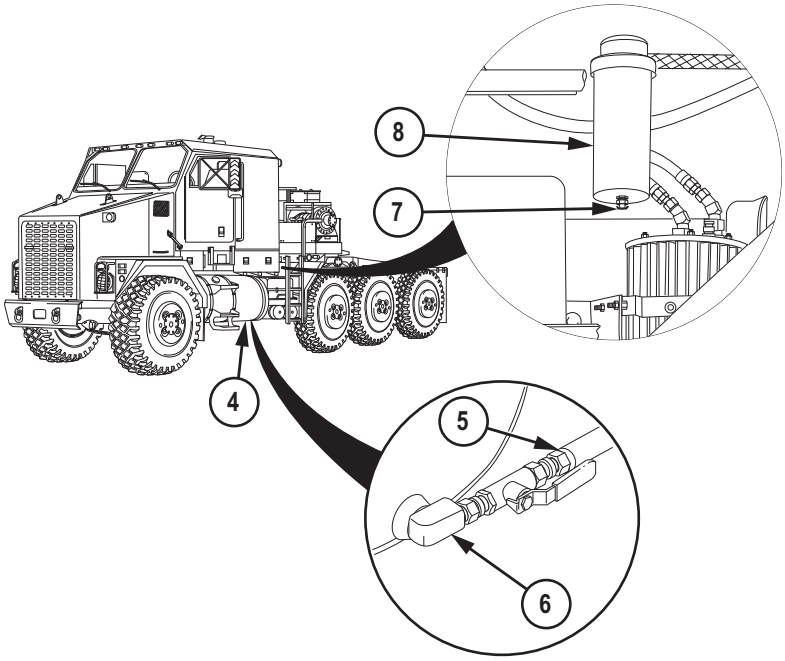
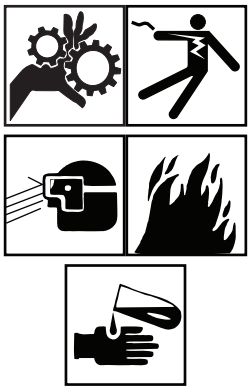


Figure 7.

			CAUTION Do not overtighten drain when closing. **NOTE** A small amount of oil and water dripping out of drain is normal. If a steady stream of oil and water is observed, or if there is doubt, notify Supervi-

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			sor or Field-Level maintenance. 3. Open drain (7) and drain coalescing filter (8). Close drain. **WARNING**  Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc., prior to working on or around HET Tractor. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Do not smoke or use open flame around batteries. Batteries may explode from a spark. Battery acid is harmful to skin and eyes. Gloves, eye protection, and proper clothing should be	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			worn when working with batteries. Failure to comply may result in serious injury or death to personnel. For first aid procedures, refer to FM 4-25.11 . **CAUTION** To reduce battery damage, do not remove batteries from vehicle battery box unless battery box is corroded or damaged or during battery replacement. Do not jerk or pull on battery cables during visual inspection. Battery replacement will be performed by field maintenance personnel. Failure to comply may result in damage to equipment.	
5	Weekly	Batteries	1. Remove two clevis pins (1) from ladder (2). Swing out ladder (2).	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

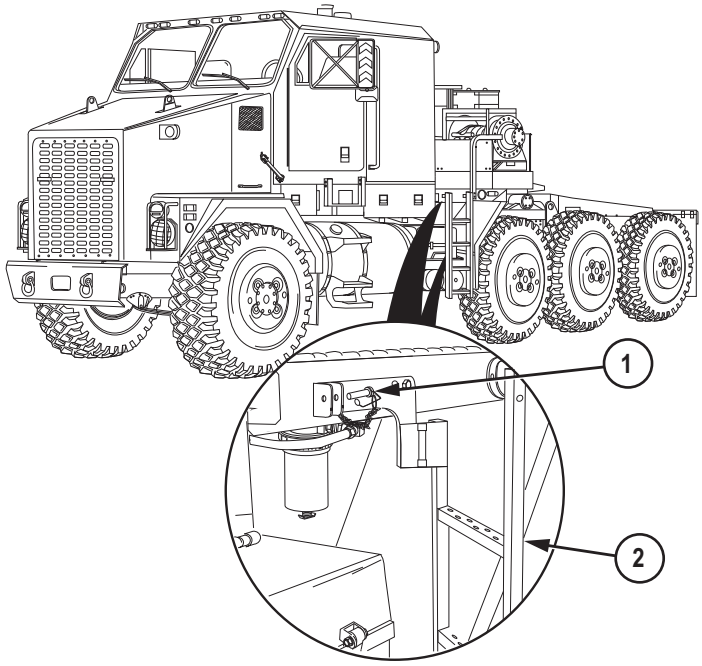


Figure 8.

			2. Remove two clevis pins (3) from bracket (4). Pull handle (5) and slide battery box (6) out.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

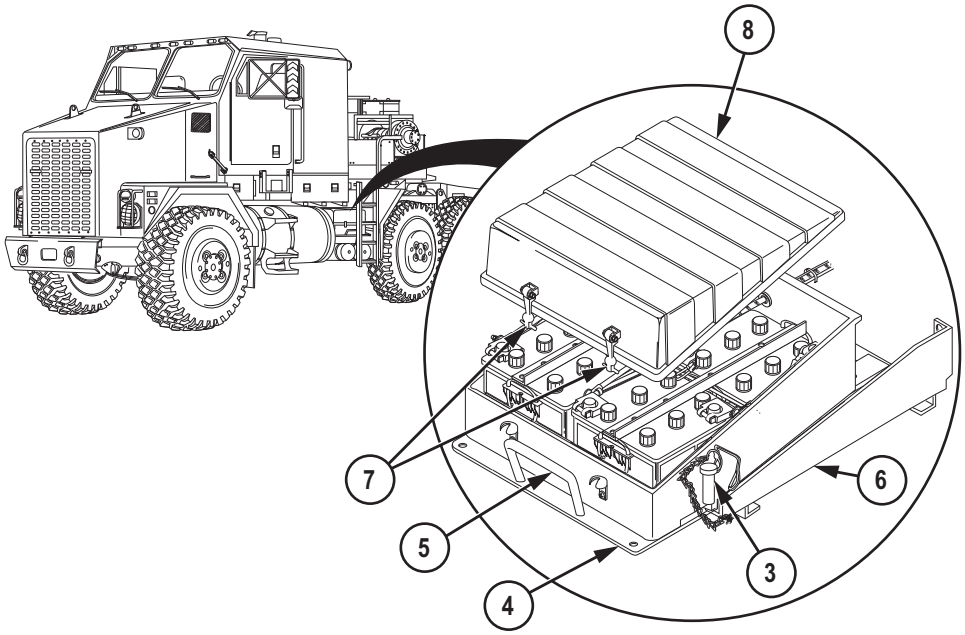


Figure 9.

			3. Remove two rubber hood latches (7) from brackets. Remove battery box cover (8). 4. Check battery box (6) and cover (8) for damage.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

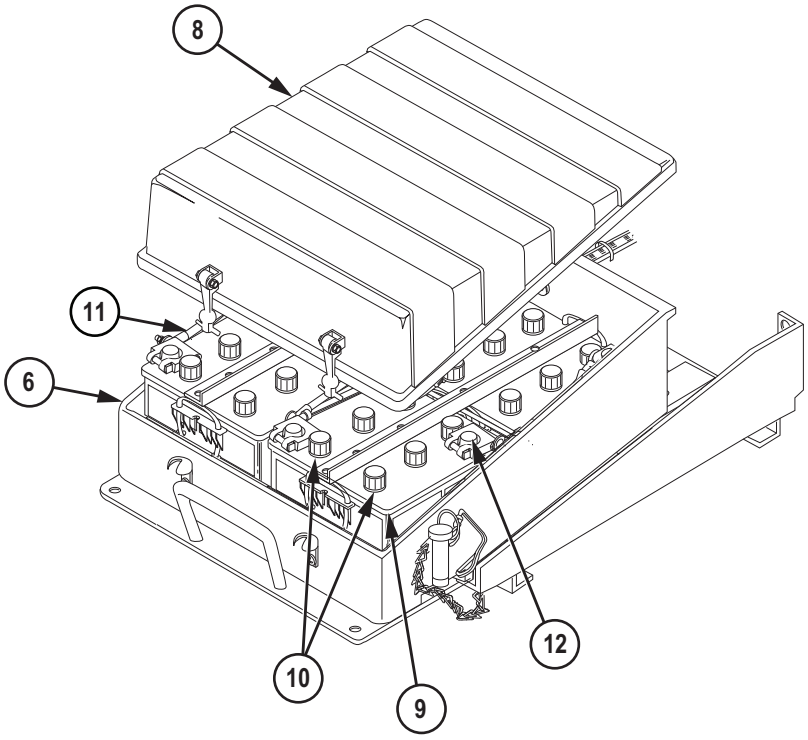


Figure 10.

			5. Inspect batteries (9) for presence and damage.	Battery(s) missing or unserviceable. is damaged.
			6. Inspect for damage or missing filler caps (10).	Filler caps damaged or missing.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			7. Inspect for broken, split, frayed or missing cables (11).	Cable(s) missing, broken, split, or frayed.
			8. Inspect for damaged terminal posts (12).	Terminal posts damaged.
			9. Inspect for rust/corrosion.	Rust/corrosion present.
			10. Inspect for cleanliness.	Batteries/ battery box dirty.
			11. Check condition of slave receptacle (13).	

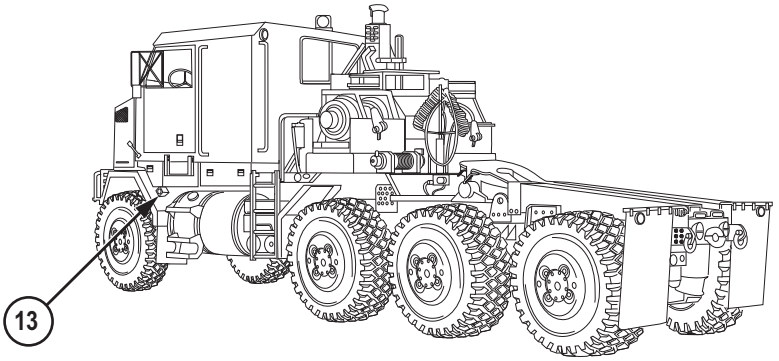


Figure 11.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
6	Weekly	Driver Side Tire Assembly	1. Remove four nuts (1) and wheel cover (2) from each wheel.	

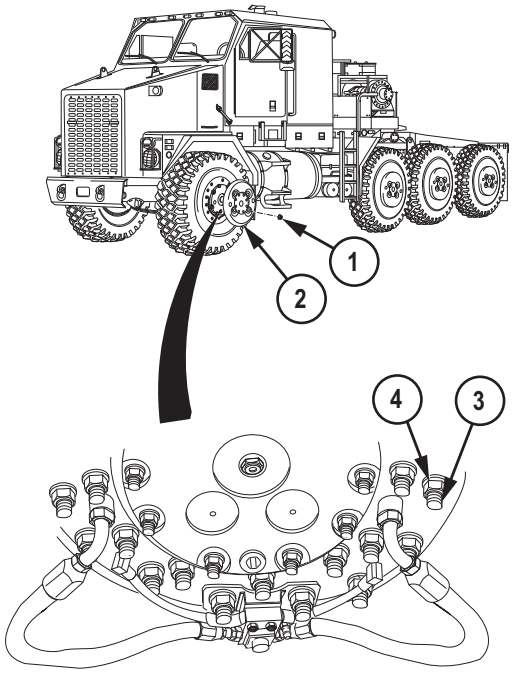


Figure 12.

			2. Check wheel covers (2) for damage.	
			3. Check wheel studs (3) and nuts (4) for obvious looseness. Check for bent or broken studs and missing or loose nuts.	Any hub has two or more nuts or studs miss-

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				ing, broken or bent.

WARNING



Wear approved hearing protection when working in high noise level areas. Failure to comply may result in permanent hearing loss.

WARNING

Tire pressure must be checked properly. Failure to comply may result in serious injury or death to personnel.

NOTE

Run engine at approximately 1500 rpm.

4. Check tire pressures at each CTIS setting starting at the emergency setting after deflating and inflating.

Table 2. Cold Tire Pressure (PSI) CTIS Setting.

Highway	75 (517 kPa)

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Table 1. PMCS - WEEKLY - Continued

<table>
<tr><th>Item No.</th><th>Interval</th><th>Item to be Checked or Serviced</th><th>Procedure</th><th>Equipment Not Ready/ Available If:</th></tr>
<tr><td></td><td></td><td></td><td>Table 2. Cold Tire Pressure (PSI) CTIS Setting. - Continued<table><tr><td>Cross Country</td><td>55 (379 kPa)</td></tr><tr><td>Mud, Sand, & Snow</td><td>40 (276 kPa)</td></tr><tr><td>Emergency</td><td>30 (207 kPa)</td></tr></table>5. Install wheel cover (2) and four nuts (1) on each wheel.</td><td></td></tr>
<tr><td>7</td><td>Weekly</td><td>Propeller Shafts and U-Joints</td><td>1. Check propeller shafts and U-joints for excessive movement, obvious damage, and loose, missing or broken nuts and screws.
NOTE
• When vehicle is operating under severe conditions, lubricate propeller shafts and lubricate propeller shafts and universal joints every 50 hours of vehicle operation.</td><td>Propeller shaft or U-joint has excessive movement, obvious damage, or one or more nuts or screws are loose, missing, or damaged.</td></tr>
</table>

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Complete Step (2) only if vehicle is operating under severe conditions. 2. Lubricate all propeller shafts, transmission to transfer case propeller shaft, and U-joints with GAA as required (refer to Lubrication Instruction (WP 0106)).	
8	Weekly	Axle Breathers	1. Check four axle breathers for damage and free movement of vent caps on breather body.	Any axle breather caps are damaged or vent caps do not move freely on breather body.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

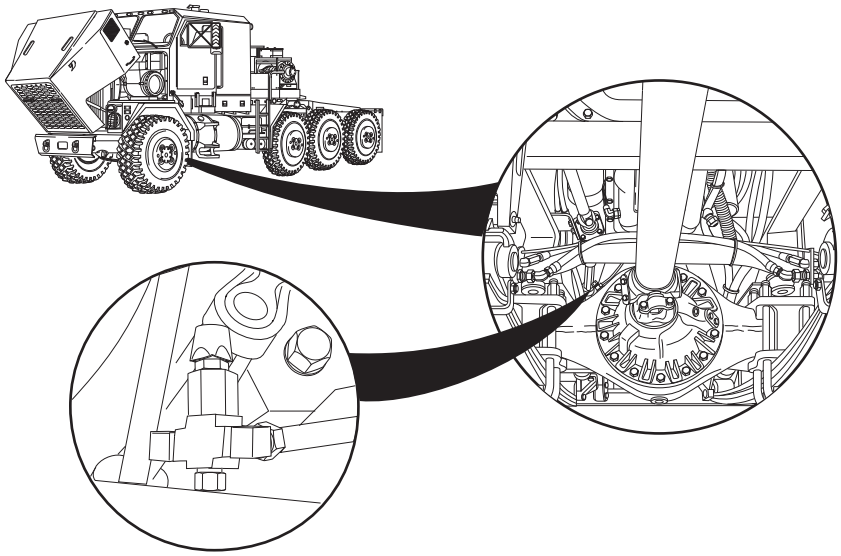


Figure 13.

9	Weekly	Front and Rear Trailer Receptacle and Gladhands	1. Check 12-volt receptacle (1) and seal for damage.	Damage that would impair operation.

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Table 1. PMCS - WEEKLY - Continued

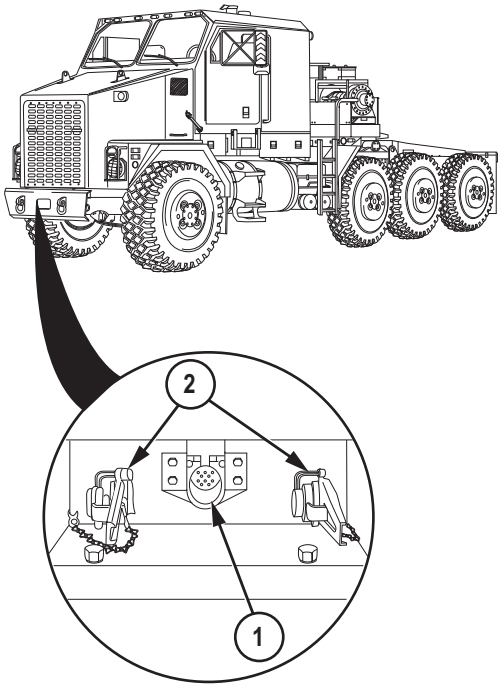
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 14.

			2. Check HET Tractor gladhands (2): a. Remove dummy couplings from gladhands (2) and check condition of seals.	Damaged or leaking seals.

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Table 1. PMCS - WEEKLY - Continued

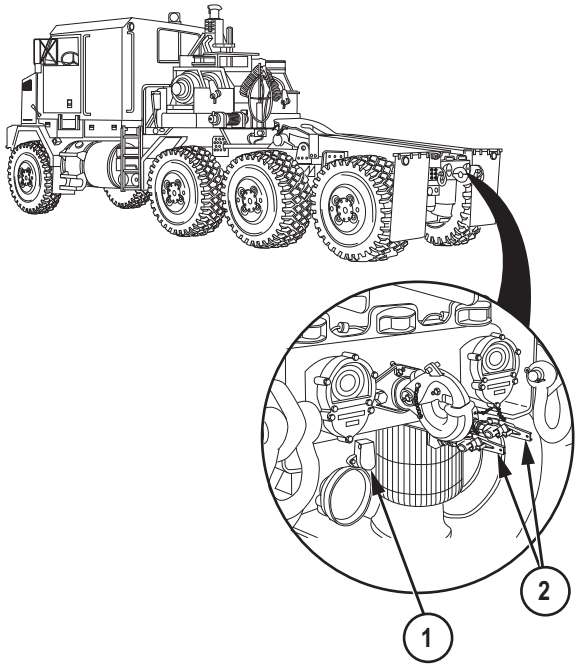
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 15.

10	Weekly	Towing Shackles	1. Check towing shackles for serviceability. **NOTE** Proper installation includes a properly tightened pintle mounting nut. Pintle mounting nut should be tightened only	Damage that would impair operation.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			enough to allow installation of the cotter pin, leaving the pintle hook loose enough to be rotated by hand with medium to hard force.	
11	Weekly	Pintle Hook	1. Check pintle hook (1) for proper installation and damaged locking mechanism or locking pin.	Pintle hook is not properly installed, locking pin is missing and/or locking mechanism is damaged and equipment is required for mission.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

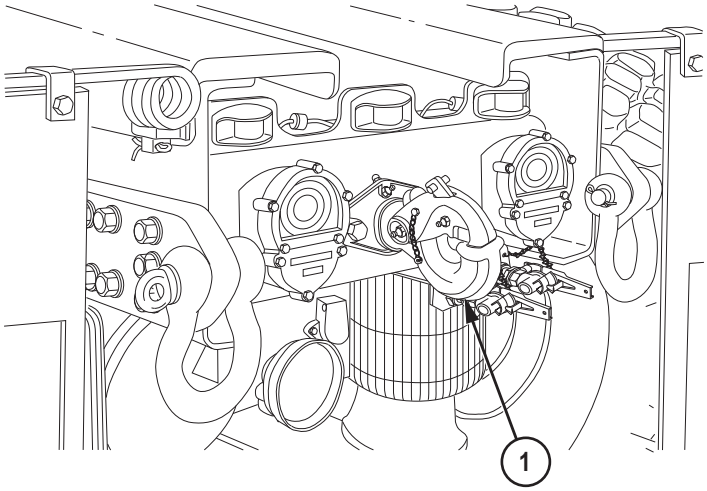


Figure 16.

			2. Clean pintle hook and coat with GAA. (WP 0106) **NOTE** Clean and coat fifth wheel more often when HET Tractor is operated in sandy or dusty conditions. Lubricate daily under severe conditions.	
12	Weekly	Fifth Wheel	1. Clean top surface of fifth wheel (1), fifth wheel jaws (2), and fifth wheel ramps (3), and coat with GAA. (WP 0106)	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

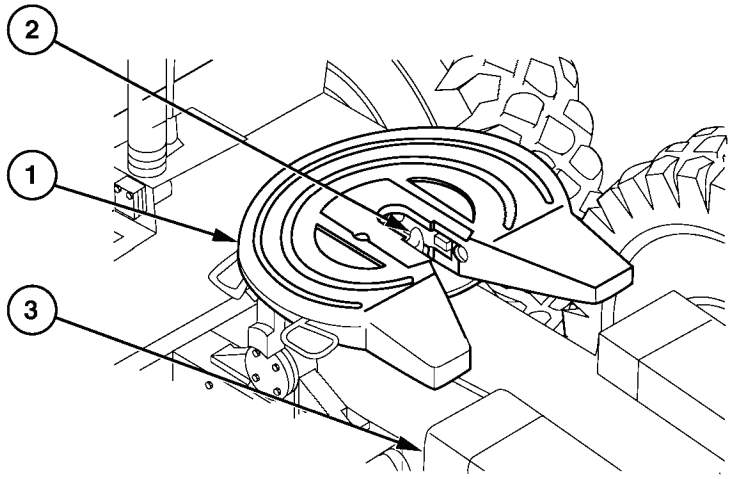


Figure 17.

			2. Oil all pivot points, springs, and locking linkage with OE/HDO (refer to Lubrication Instructions). (WP 0106) 3. Clean fifth wheel jaws (2) and coat with GAA. (WP 0106)	
13	Weekly	Winch Hydraulic System	1. Check all hydraulic hoses (1) for obvious damage, rotting, chafing, loose fittings, and leaks.	Any Class III leakage evident.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

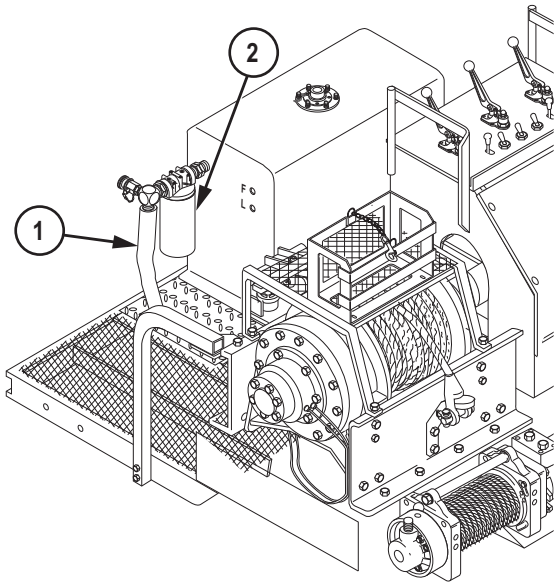


Figure 18.

			2. Check filter (2) for leaks.	Any Class III leakage evident.
			3. Remove access grate (3) and check hydraulic pump (4) for loose bolts or damage. Check for loose hose fittings.	Any Class III leak present or any mounting screw is loose or missing.

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Table 1. PMCS - WEEKLY - Continued

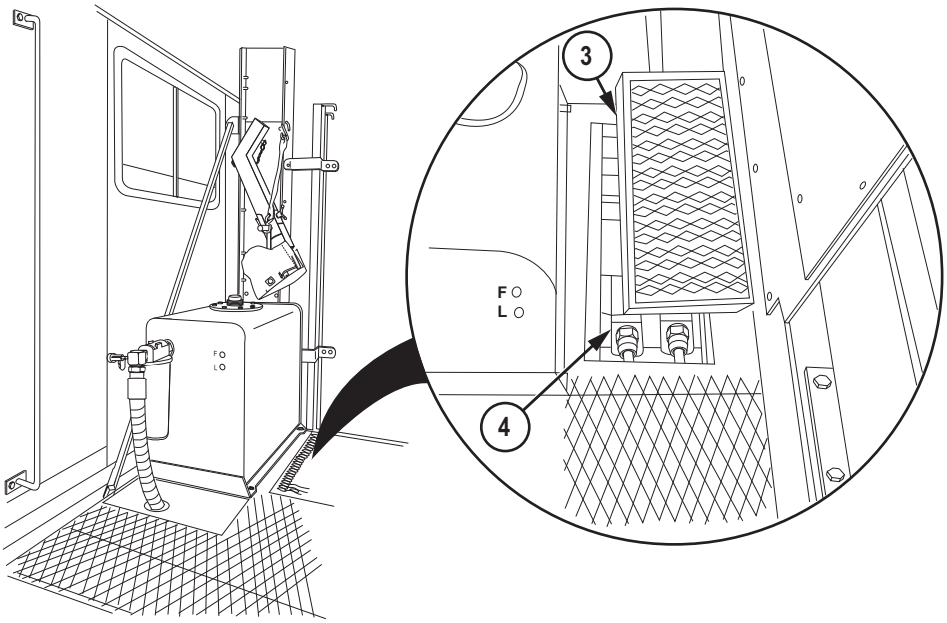
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 19.

			4. Install access grate (5).	
14	Weekly	Winches	1. Check ENGINE SPEED CONTROL and LOCK switches for proper operation. **WARNING** Wear leather gloves when checking winch cable. Failure to comply may result in seri-	Engine speed does not increase to 1450 to 1500 rpm.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			ous injury or death to personnel.	
			2. Pay winch cables (1) out completely and check for kinks, frays, and breaks.	Winch cables are kinked, frayed, or unserviceable and both are required for mission. Winch cable has more than three broken wires per inch on same strand or more than six broken wires on all strands in a one inch running length of cable. Maximum number of broken wires shall not occur in any two consecutive inches of cable; that is, if six wires are broken in

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				one inch of cable, none would be allowed in the next consecutive inch.

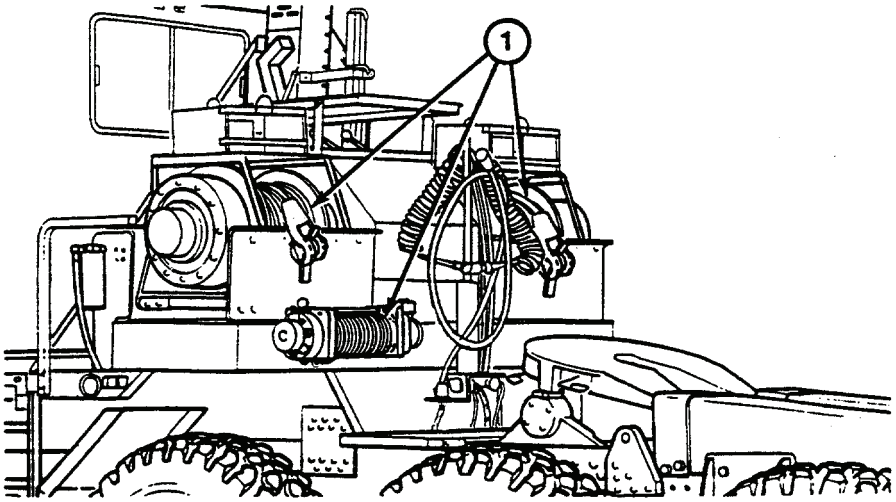


Figure 20.

		3. Check winch controls for proper operation.	One or both winches inoperative and both winches are required for mission.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
15	Weekly	Chock Block Stowage Box	1. Check chock block stowage box (1) for looseness.	

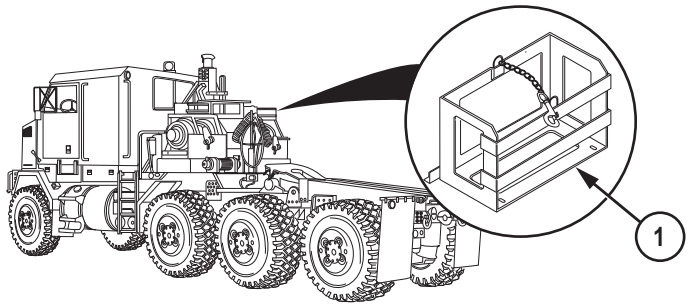


Figure 21.

16	Weekly	Passenger Side Tire Assembly	1. Remove four nuts (1) and wheel cover (2) from each wheel.	

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Table 1. PMCS - WEEKLY - Continued

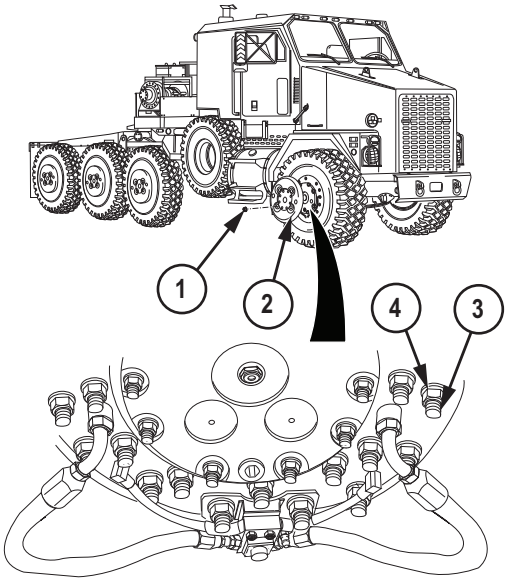
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 22.

			2. Check wheel covers (2) for damage.	
			3. Check wheel studs (3) and nuts (4) for obvious looseness. Check for bent or broken studs and missing or loose nuts.	Any hub has two or more nuts or studs missing, broken, or bent.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING  Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB or greater. Wear approved hearing protection devices when working in high noise level areas. Hearing loss occurs gradually, but becomes permanent over time. Failure to comply may result in serious injury or death to personnel. **WARNING** Tire pressure must be checked properly. Failure to comply may result in serious injury or death to personnel. **NOTE** Run engine at approximately 1500 rpm. 4. Check tire pressures at each CTIS setting starting at the emergency setting after deflating and inflating.	CTIS does not reach or maintain desired pressures.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			Table 3. Cold Tire Pressure (PSI) CTIS Setting.	

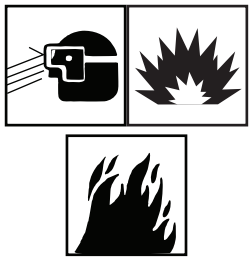
Highway	75 (517 kPa)
Cross Country	55 (379 kPa)
Mud, Sand, & Snow	40 (276 kPa)
Emergency	30 (207 kPa)

NOTE

Tire pressures must be able to go back to highway pressures at 1500 rpm. (WP 0028)

5. Install wheel cover (2) and four nuts (1) on each wheel.

WARNING



Fuel is very flammable and can explode easily. Keep fuel away from open fire and keep fire extinguisher within easy

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited when engine is hot. When working with fuel, wear proper eye protection and post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE. Failure to comply may result in serious injury or death to personnel.	
17	Weekly	Passenger Side Fuel Tank	1. Check fuel filler cap (1) for dirt and that chain is attached.	

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Table 1. PMCS - WEEKLY - Continued

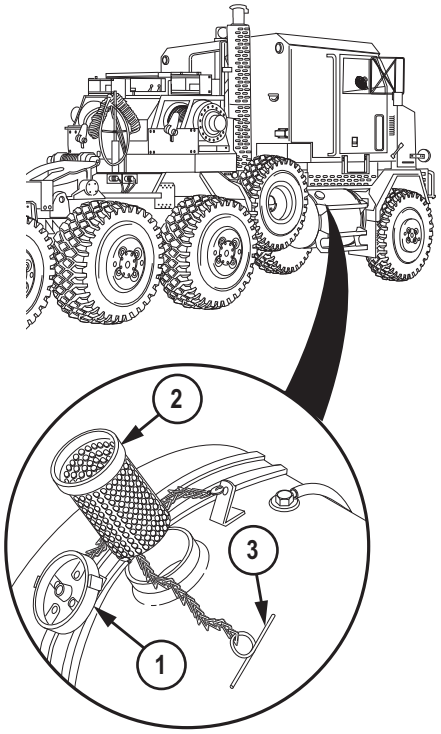
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 23.

			a. Remove fuel filler cap (1).	
			b. Pull strainer (2) out of fuel tank and release retaining wire (3). Clean with dry rag.	
			c. Check fuel tank (4), fuel hoses (5), and connections (6) for leaks and/or damage.	Any Class III leakage

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				of fuel evident.

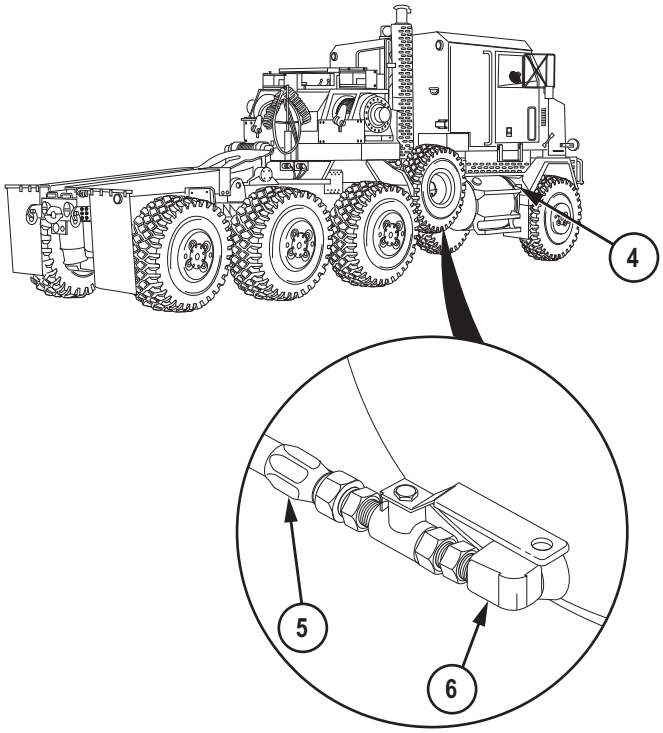
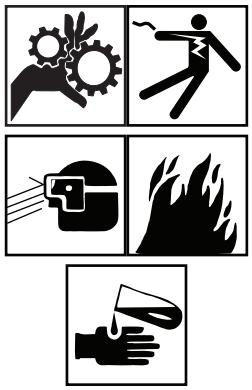


Figure 24.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING  Use extreme care not to short out battery terminals. Remove all jewelry such as rings, ID tags, bracelets, etc., prior to working on or around HET Tractor. Jewelry and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Do not smoke or use open flame around batteries. Batteries may explode from a spark. Battery acid is harmful to skin and eyes. Gloves, eye protection, and proper clothing should be worn when working with batteries. Failure to comply may result in serious injury or death to personnel. For first	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			aid procedures, refer to FM 4-25.11 . **NOTE** When Swingfire arctic kit is installed, batteries are on passenger side of HET Tractor, in front of main winch.	
18	Weekly	Swingfire Arctic Kit Batteries	1. Remove two rubber hood latches (1) from brackets. Remove battery box cover (2).	

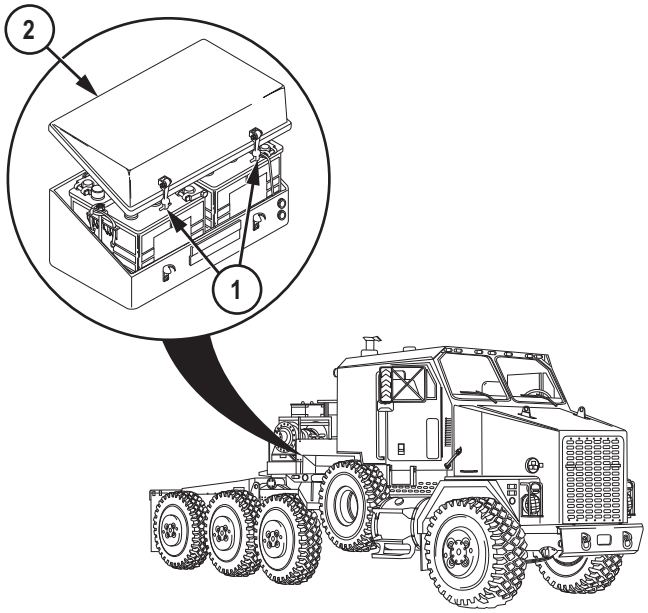


Figure 25.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Check battery box (3) and cover (2) for damage.	

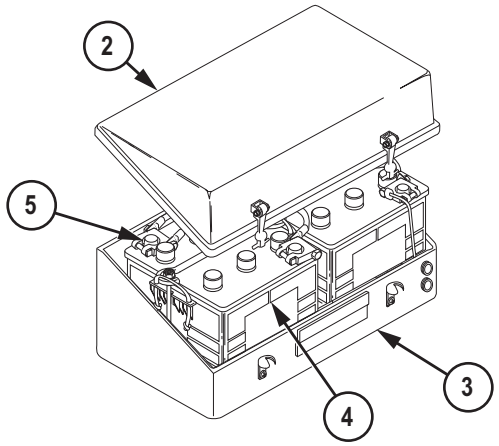


Figure 26.

			3. Inspect batteries (4) for cracks or leaks, and for broken or burned terminal posts (5). **NOTE** • Flashlight may be required to check fluid level.	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• If fluid stays low, or fluid is boiling, notify Supervisor. When ambient temperature is below 32°F (0°C), run engine for 15 minutes to allow water added to mix with electrolyte.	
			4. Remove battery caps (6) and check fluid level of each cell. Fluid level should be 1/8 in. (3.2 mm) below split ring.	Any battery missing or damaged.

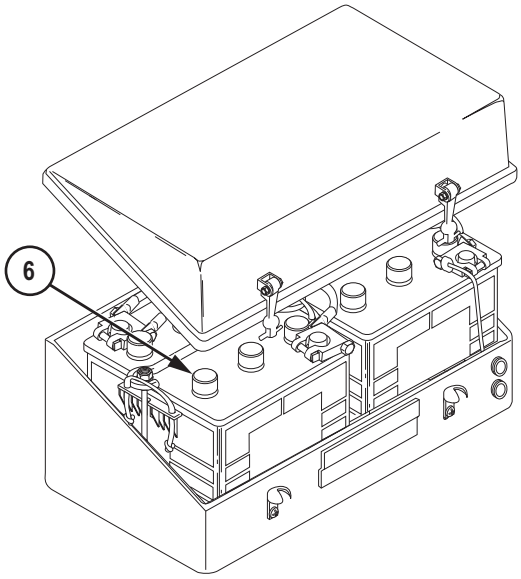


Figure 27.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			5. If fluid is low, fill with distilled water.	
19	Weekly	Exhaust Systems	1. Check exhaust pipe (1), muffler (2), heat guards (3), tailpipe (4), and raincap (5) for loose clamps, damaged mountings, and obvious damage.	Any exhaust pipe is damaged or missing.

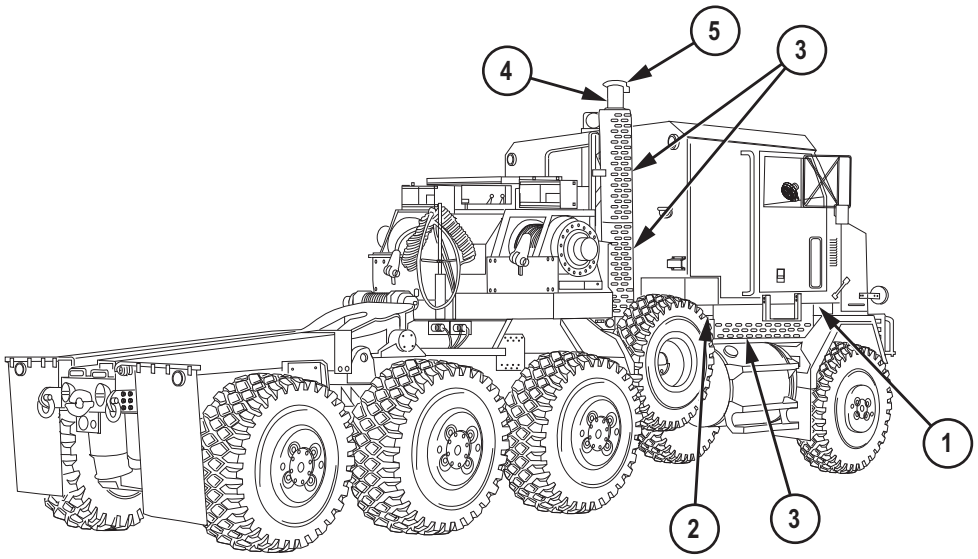


Figure 28.

20	Weekly	Spare Tire Davit	1. Check spare tire davit (1) for obvious damage.	

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Table 1. PMCS - WEEKLY - Continued

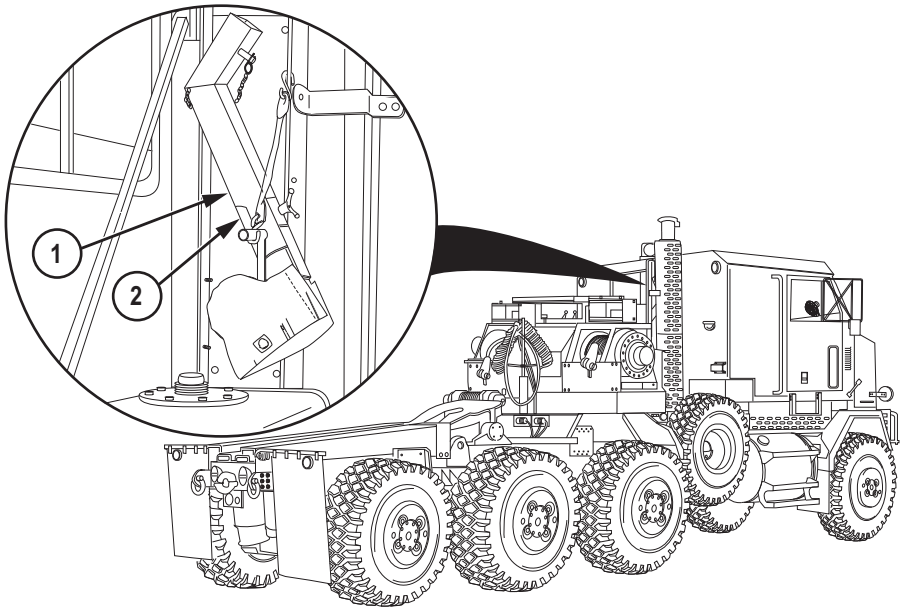
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 29.

			WARNING Wear leather gloves when checking winch cable. Failure to comply may result in serious injury or death to personnel.	
			2. Check spare tire davit winch cable for kinks, frays, and breaks.	Spare tire davit winch cable is unserviceable.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			3. Check spare tire davit mount (2) for loose or missing hardware.	Hardware is loose or missing.
21	Weekly	Spare Tire	1. Check spare tire (1) for correct air pressure. Inflate tire to 75 psi (517 kPa) if air pressure is low. (WP 0109)	

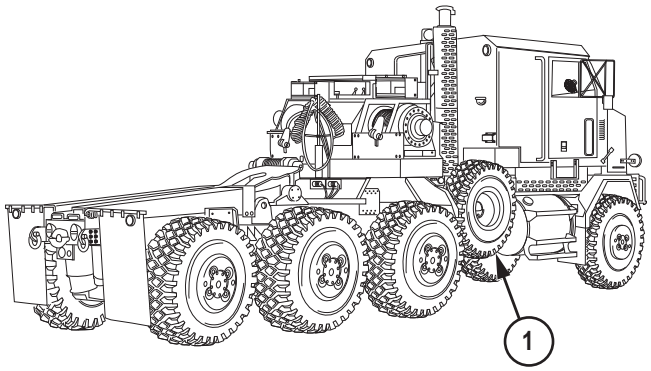


Figure 30.

22	Weekly	Engine Compartment (passenger side)	1. Open hood. (WP 0111) 2. Check steering reservoir (1) fluid.	

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Table 1. PMCS - WEEKLY - Continued

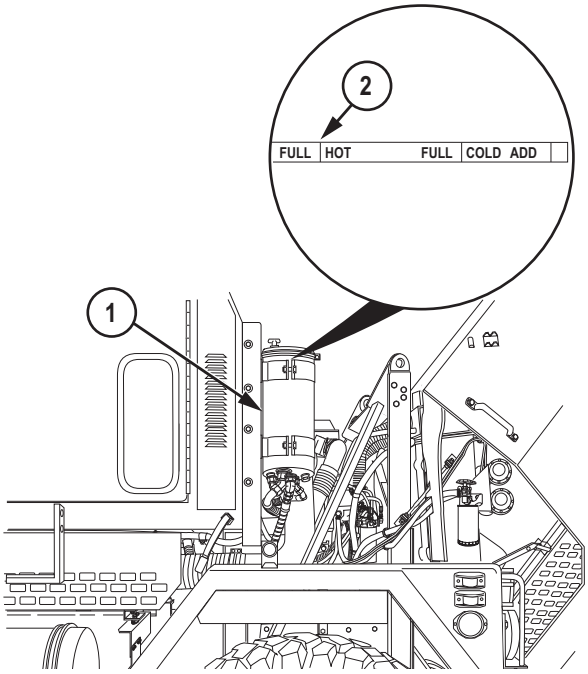
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 31.

			a. Level should be between ADD and FULL HOT mark on dipstick (2) if HET Tractor was just used. b. Level should be between ADD and FULL COLD mark on dipstick (2) if HET Tractor has been sitting.	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			3. Add oil if oil level is at or below ADD mark.	If oil level is overfull. Notify Supervisor.
			4. Check secondary fuel filter (3) for leaks or damage.	Class III leakage of fuel evident.

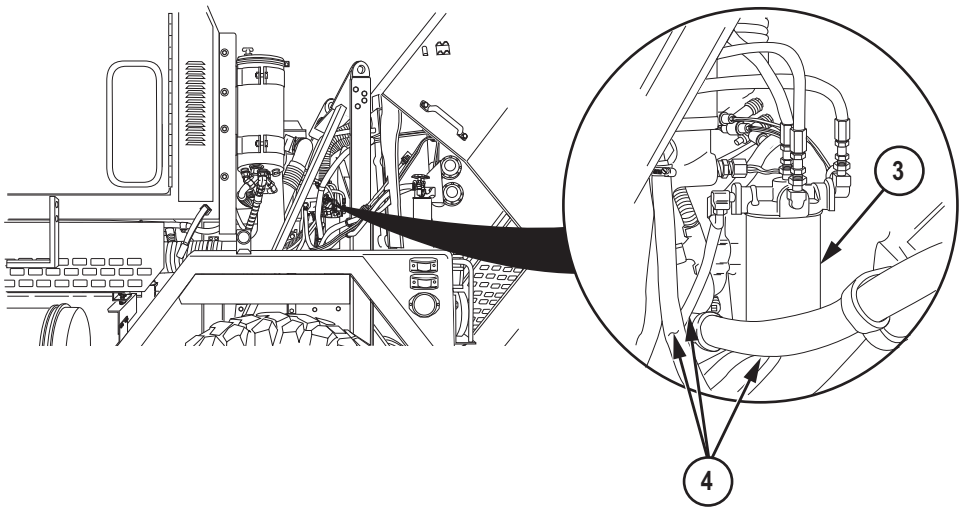


Figure 32.

			5. Ensure no lines or hoses (4) come within 2 in. (5 cm) of exhaust manifold or turbocharger piping. If faulty, secure lines/ hoses out of way with tie down straps.	Lines/hoses within 2 in. (5 cm) of exhaust manifold or turbocharger piping.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			6. Check pipe (5) between turbocharger and right exhaust manifold for cracks. Check for loose or missing clamps.	Any exhaust pipe damaged, cracked, or missing.

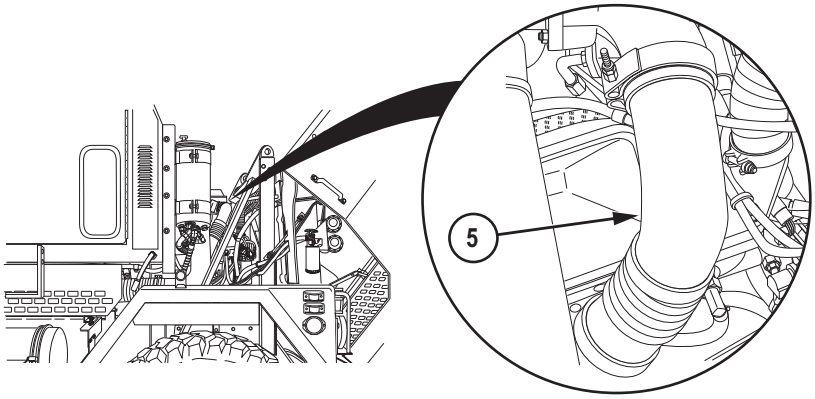


Figure 33.

			7. Check radiator hoses (6) for rotting, leakage, and loose clamps.	Any Class III leakage evident.
			8. Check radiator (7) for leaks, damaged fins, and missing baffles.	Any Class III leakage evident.

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Table 1. PMCS - WEEKLY - Continued

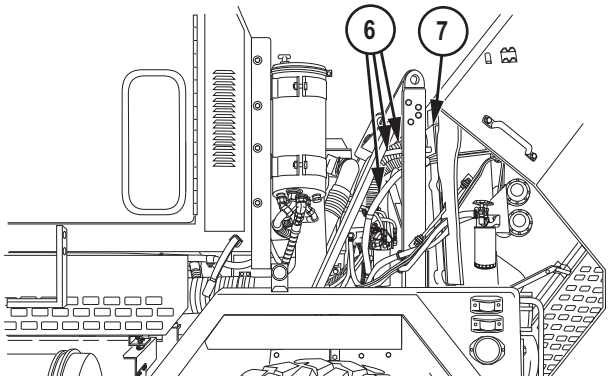
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 34.

			9. Check blower lubrication line for wear on oil line.	Any Class III leakage evident.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

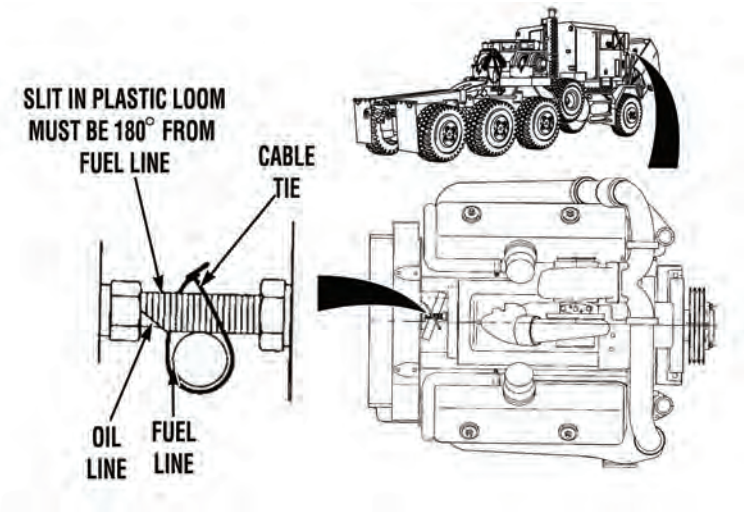


Figure 35.

			10. Close hood. (WP 0111)	
23	Weekly	Undercarriage	1. Check undercarriage for obvious damage to propeller shafts.	Propeller shaft or U-joint has excessive movement, obvious damage, or one or more nuts or screws are loose, missing, or damaged.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Check universal joints for obvious damage or missing hardware.	Any hardware is missing or broken.
			3. Check steering lines and shafts for obvious damage or missing hardware.	Any hardware is missing or broken.
			4. Check PTO shaft for obvious damage or missing hardware.	Any hardware is missing or broken.
			5. Check front and rear steering gears for obvious damage or missing hardware.	Any hardware is missing or broken.
			NOTE Some looseness of the front spring clip is permissible. The clip may rotate on the rivet.	
			6. Check front leaf springs for obvious damage or missing hardware.	Any hardware is missing or broken.
			7. Check frame crossmembers for obvious damage or missing hardware.	Any hardware is missing or broken.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			8. Check tie rods for obvious damage or missing hardware.	Any hardware is missing or broken.
			9. Check torque rods for obvious damage or missing hardware.	Any hardware is missing or broken.
			10. Check engine and transmission cradle (1) for obvious damage or missing hardware.	Any hardware is missing or broken.

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Table 1. PMCS - WEEKLY - Continued

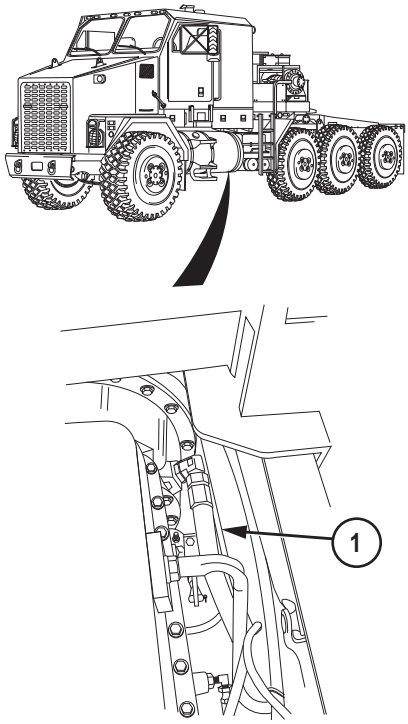
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 36.

			11. Check engine and transmission for obvious damage or missing hardware. **NOTE** Pressurize air system prior to performing this check.	Any hardware is missing or broken.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			12. Check air lines and hoses for obvious damage.	Any leaks, kinks, or damage to lines, hoses, or fittings are found.
			13. Check for chafed wiring.	Any wires are chafed or frayed.
			14. Check transfer case and mounts for obvious damage.	Any Class III leakage evident. Damage is found that would limit operation. Transfer case mount is loose or damaged or mounting biscuits are missing.
			15. Check air dryers (2) for loose screws and connections (3).	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

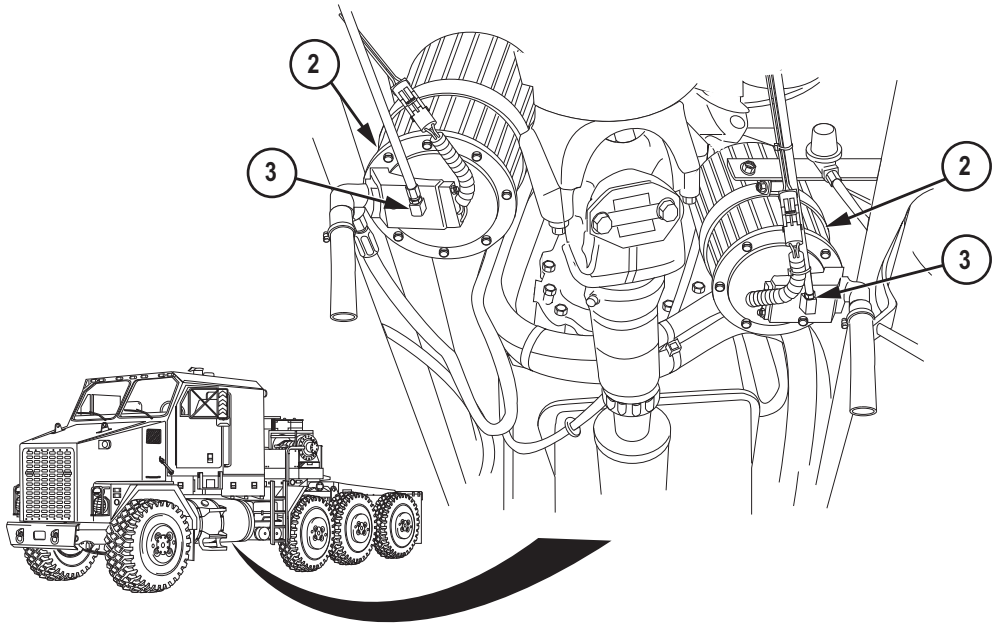


Figure 37.

			16. Check air springs (bags) for obvious damage.	Any air leaks or obvious damage is found.
			17. Check rear spring/parking brake chambers to ensure dust covers are in place and secure.	
24	Weekly	Exterior	1. Check all data plates to ensure legibility.	

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE Operation of vehicle with damaged doors or windows may violate AR 385-10.	
25	Weekly	Cab	1. Check condition and operation of door, handles, and windows.	
			NOTE Not all HET Tractors are equipped with antenna masts.	
			2. Check antenna mast for obvious damage and loose or missing hardware.	
26	Weekly	Seats and Seat Belts	1. Check front seats, rear seats, and seat belts for loose or missing mounting hardware.	Loose or missing mounting hardware is found.

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Table 1. PMCS - WEEKLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

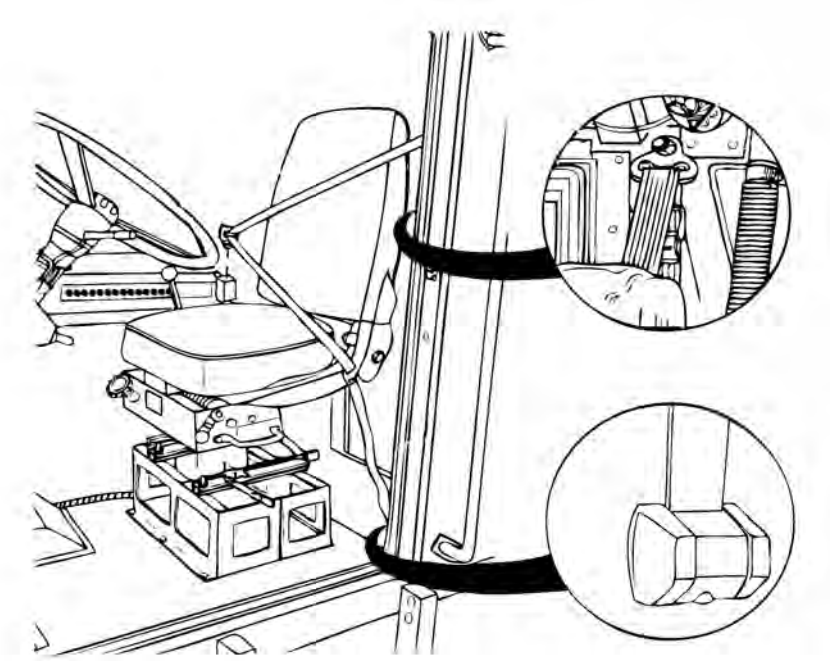


Figure 38.

			2. Ensure seat belts function properly and lock securely.	Seat belts do not adjust properly or lock securely.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
MONTHLY - PREVENTIVE MAINTENANCE

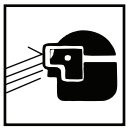
INITIAL SETUP:

Tools and Special Tools
Gloves, Leather (WP 0115, Table 2)

References
FM 3-11.4

References - Continued
FM 3-11.5
TM 3-4230-214-12&P

Table 1. PMCS - MONTHLY

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel. **WARNING**  Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in serious injury or death to personnel.	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			NOTE Perform Operator's Before, After, and Weekly PMCS checks if: • You are the assigned driver but have not operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. **NOTE** • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with solvent cleaning compound and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Always refer to Lubrication Instructions (WP 0106) to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environments as prescribed in Lubrication Instructions.	
1	Monthly	Damage and Corrosion Check	1. Check entire vehicle for obvious damage and/or corrosion.	Any broken, cracked, bent frame rails, cross-members, or screws are found.
2	Monthly	Lubricate Oil Can Points	1. Lubricate cabin door latching mechanisms and hinges with OE/HDO (refer to Lubrication Instructions). (WP 0106) 2. Lubricate all side panel and engine cover hinges, locks, and latches with OE/HDO (refer to Lubrication Instructions). (WP 0106)	
3	Monthly	Swingfire Arctic Kit (if	1. Check water jacket (1) and coolant pump (2) for cracks, leaks, and missing mounting	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		equipped)	hardware. If faults are found, contact Field Maintenance.	

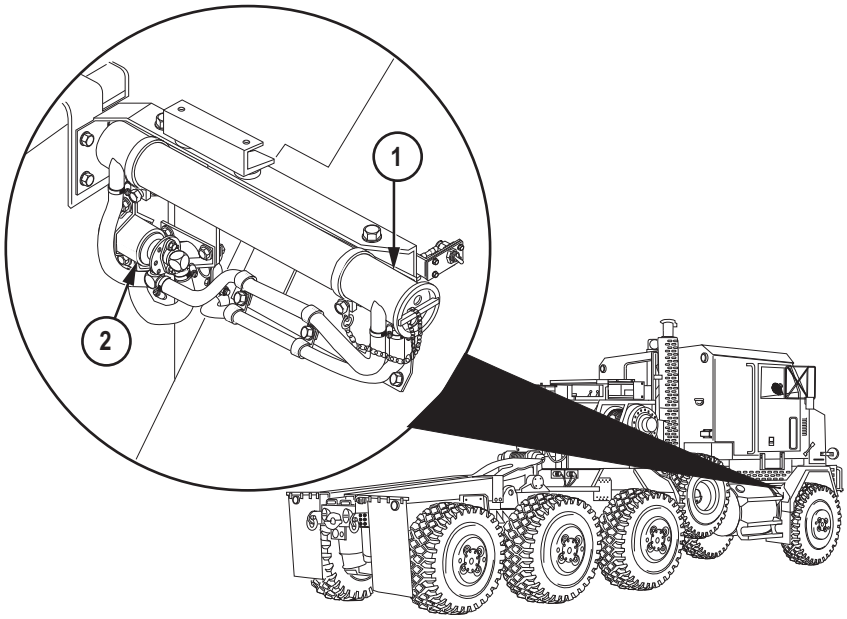


Figure 1.

			2. Run Swingfire arctic engine heater for a minimum of 15 minutes at least once a month.	
4	Monthly	M12 EMI Arctic Heater (if equipped)	1. Check M12 EMI Arctic Heater hoses (1), valves (2), and fittings (3) for cracks, damage, rubbing and leaks. If faults are found, contact Field Maintenance.	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

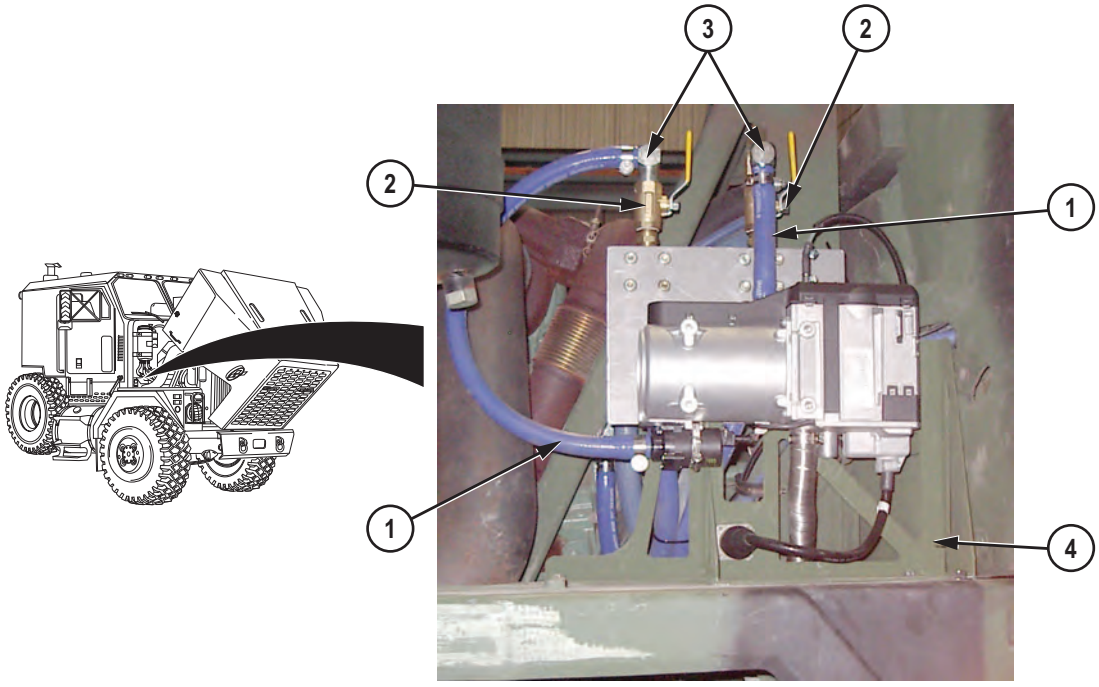


Figure 2.

			2. Check mounting bracket (4) for damage and missing hardware. If faults are found, contact Field Maintenance. 3. Run M12 EMI Arctic Heater for a minimum of 15 minutes at least monthly.	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING CBRN-contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. (See FM 3-11.4 andFM 3-11.5.) Failure to comply may result in serious injury or death to personnel.	
5	Monthly	Gas Particulate Filter Unit	1. Check hoses (1) for cuts, tears, cracks, or holes.	Filter assembly is defective.

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

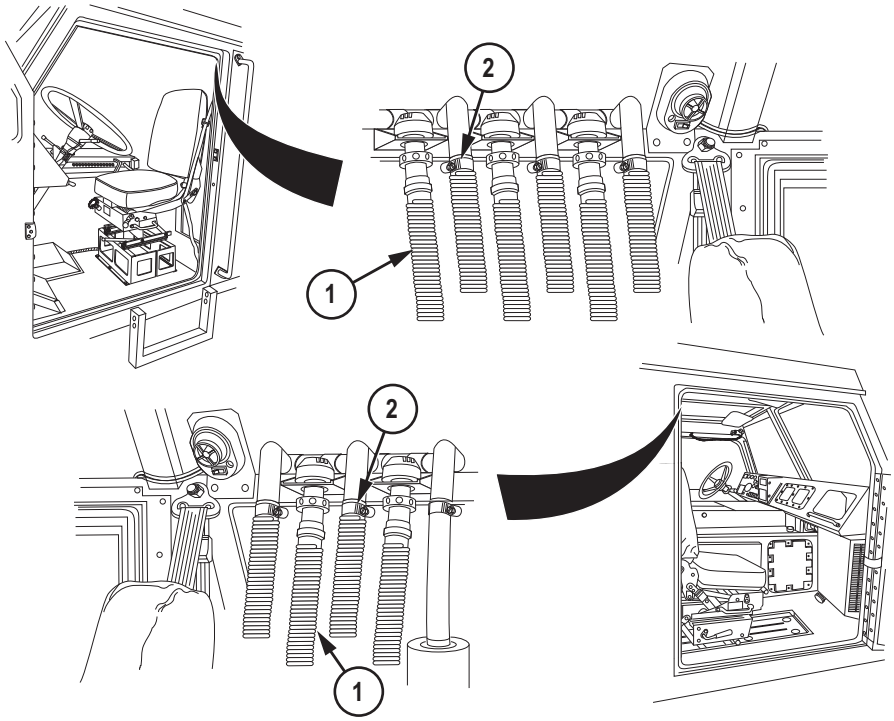


Figure 3.

		2. Make sure hose clamps (2) are secure. 3. Check operation of gas particulate filter unit. (WP 0045) 4. Disconnect five air duct breakaway sockets (3) from	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			mount (4) and feel for steady airflow.	

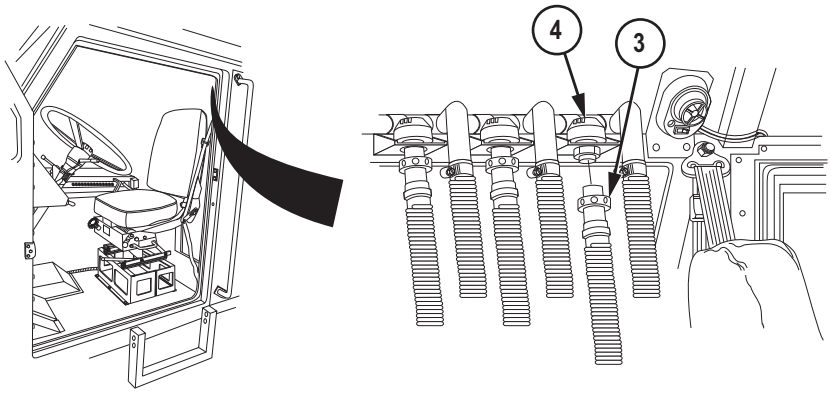
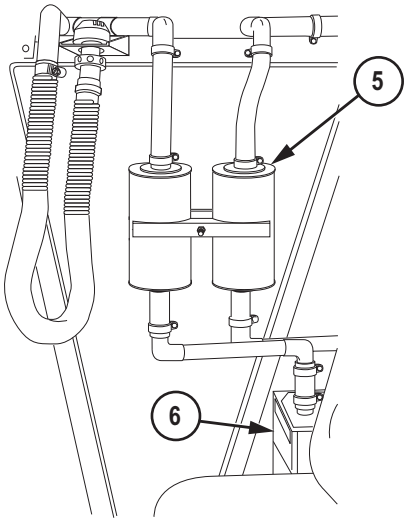


Figure 4.

			5. Check precleaner (5) and particulate filter housings (6) for cracks, dents, or breaks. Wipe with clean cloth.	Housing cracked or broken.

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			 *Figure 5.*	
6	Monthly	Rifle Stowage Mount	1. Check that mounting bolts on rifle mount bracket (1) and lower support (2) are not broken or missing.	

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Table 1. PMCS - MONTHLY - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

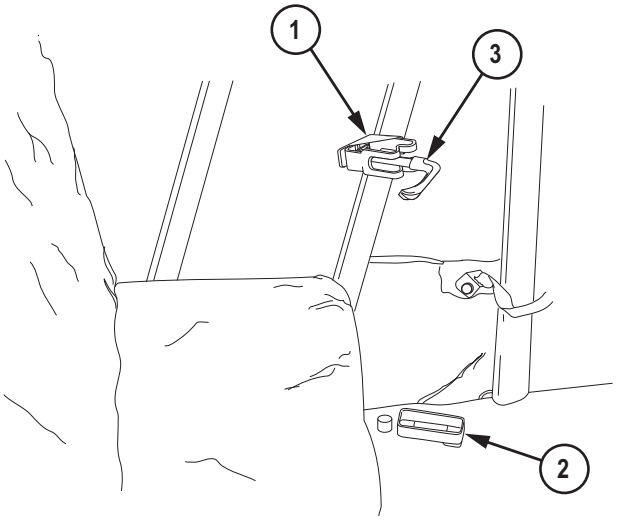


Figure 6.

7	Monthly	M-13 Decontamination Unit	1. Refer to TM 3-4230-214-12&P for preventive maintenance checks and services.	
8	Monthly	M-42 Chemical Alarm	1. Refer to TM 3-4230-214-12&P for preventive maintenance checks and services.	

END OF TASK

END OF WORK PACKAGE

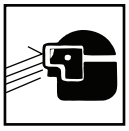
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OPERATOR MAINTENANCE
SEMIANNUAL - PREVENTIVE MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Gloves, Leather (WP 0115, Table 2)

Table 1. PMCS - SEMIANNUAL

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Do not start engine or move HET Tractor when anyone is under HET Tractor or working on brake lines. Failure to comply may result in serious injury or death to personnel. **WARNING**  Ensure engine is OFF and eye protection is worn when checking for leaks. Failure to comply may result in serious injury or death to personnel. **NOTE** Perform Operator's Before, After, and Weekly PMCS checks if: • You are the assigned driver but have not	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			operated the vehicle since the last weekly inspection. • You are operating the vehicle for the first time. **NOTE** • Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions. • Clean all lubrication points with solvent cleaning compound and allow to dry prior to servicing. • When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Always refer to Lubrication Instructions to ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in Lubrication Instructions.	
1	Semian nual	Brake System	1. Lubricate axles No. 1, No. 2, No. 3, and No. 4 brake camshafts and slack adjusters (four fittings per axle) with GAA. (WP 0106)	Fitting will not purge old lubricant out of com-ponent.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

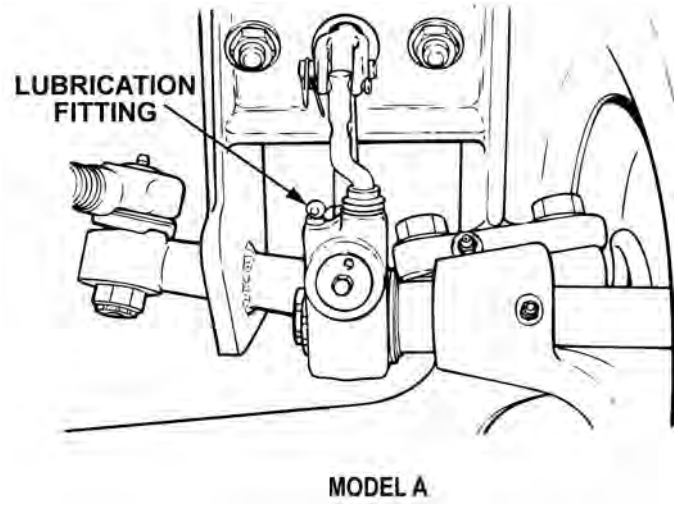


Figure 1.

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Table 1. PMCS - SEMIANNUAL - Continued

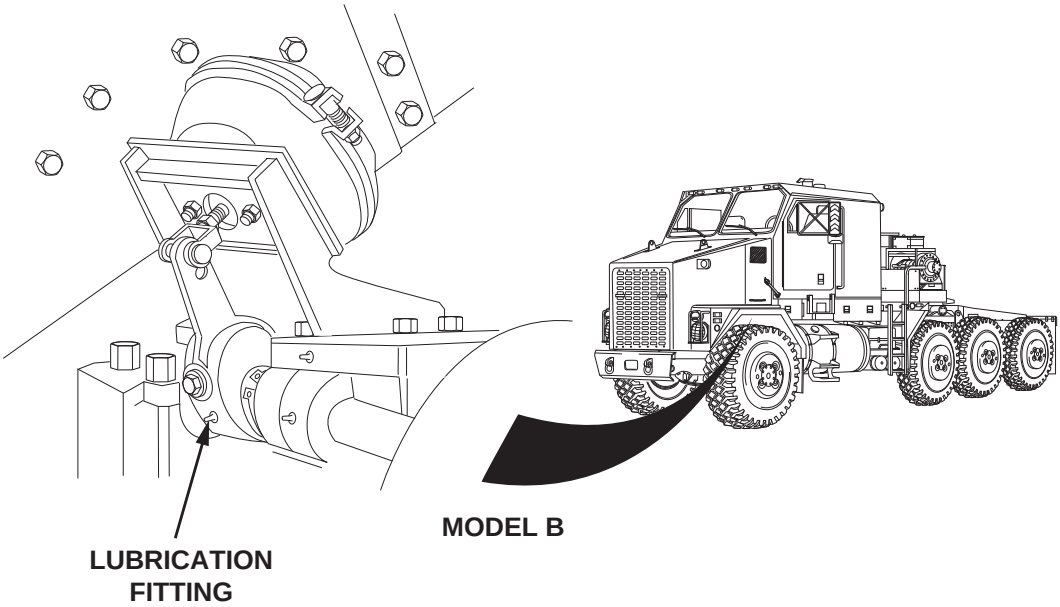
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 2.

			NOTE • When vehicle is operating under severe conditions, lubricate propeller shafts and universal joints every 50 hours of vehicle operation.	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Use the proper lubricant to purge all four bearing seals of each universal joint. This flushes abrasive contaminants from each bearing and assures all four bearings are filled properly. Pop the seals, these seals are made to be popped. Popping refers to pushing old lubricant out of seal. • If any seals fail to purge, move propeller shaft from side-to-side while applying gun pressure. This allows greater clearance on thrust end of bearing that is not purging. If seals still do not purge, rock vehicle by releasing the parking brake, start engine, put transmission in D (drive) or R (reverse), and allow vehicle to roll. This removes windup in the drive line and allows for a greater clearance on the thrust end of universal joint.	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			• Because of the design of the universal joint seal, there will occasionally be one or more bearing seals of a joint that may not purge. If this occurs, notify Supervisor. • Universal joint may have one or two grease fittings. If there are two grease fittings, either fitting can be greased. It is not necessary to grease both fittings.	
2	Semian nual	Propeller Shafts and U-Joints	1. Lubricate all axle propeller shafts (1), transmission to transfer case propeller shaft, and U-joints (2) with GAA. (WP 0106)	Fitting will not purge old lubricant out of com-ponent.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

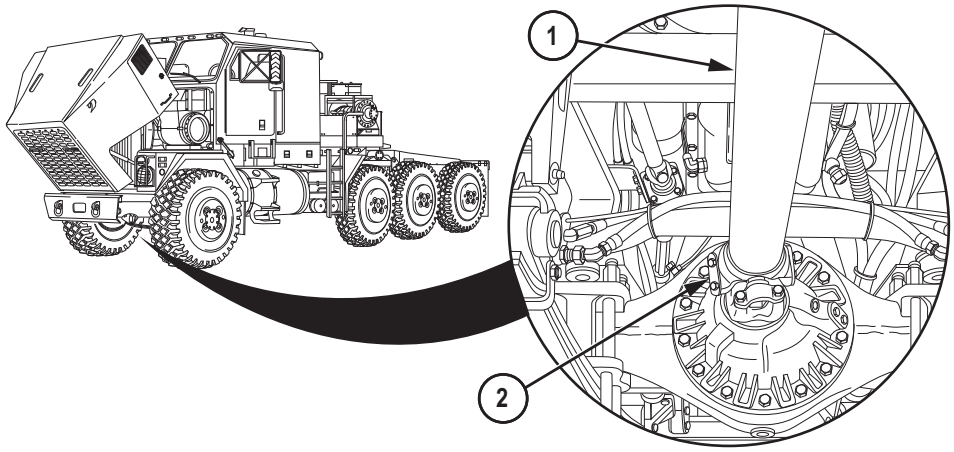


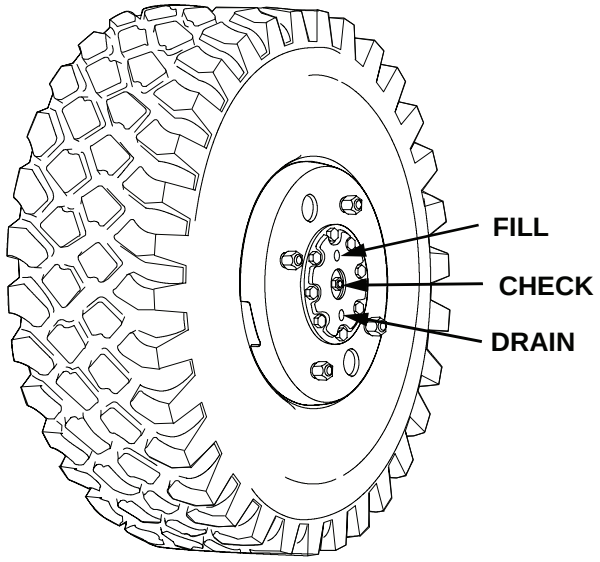
Figure 3.

			a. Apply GAA (WP 0106) to spline fitting until lubricant appears at pressure relief hole. b. Cover pressure relief hole with finger and continue adding grease until it appears at sleeve yoke seal.	
3	Semian nual	Axles	1. Check/fill wheel ends with OE/ HDO. (WP 0106)	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:



PLANETARY WHEEL END

Figure 4.

		2. Lubricate axle No. 3 output shaft bearings (1) with GAA. (WP 0106)	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

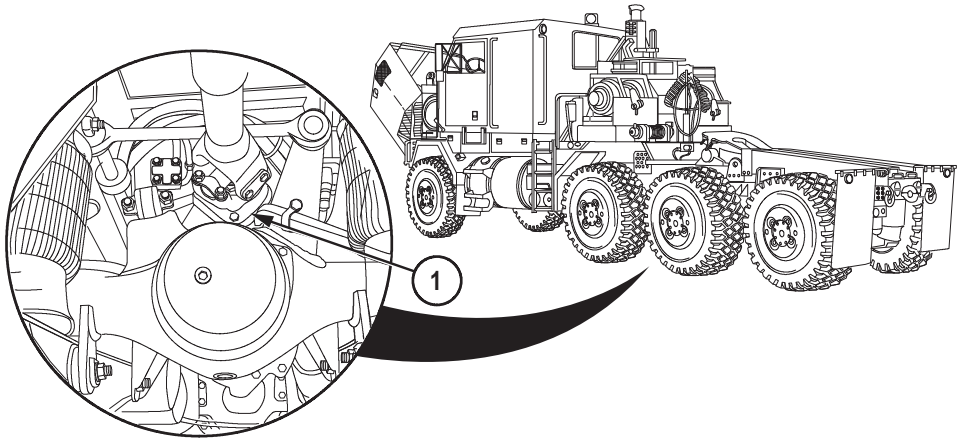


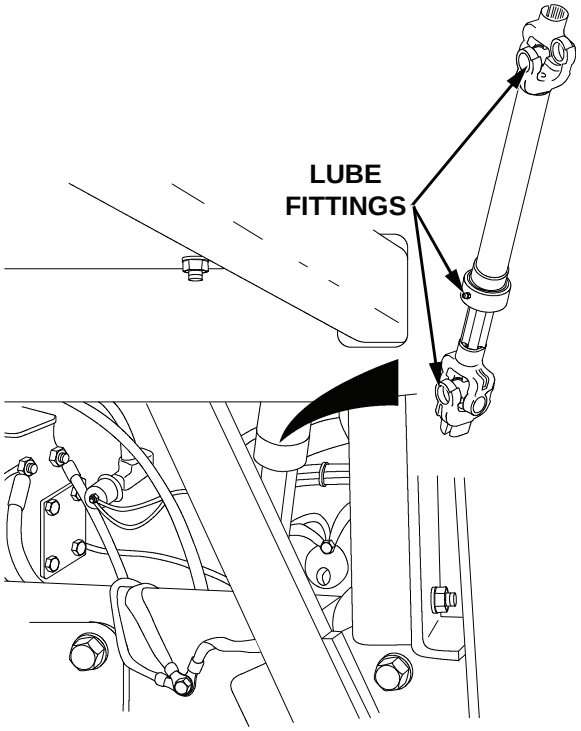
Figure 5.

4	Semian nual	Steering System	1. Lubricate top steering shaft (3 fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant out of com-ponent.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:



TOP STEERING SHAFT

Figure 6.

			2. Lubricate steering shaft bearing (four fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

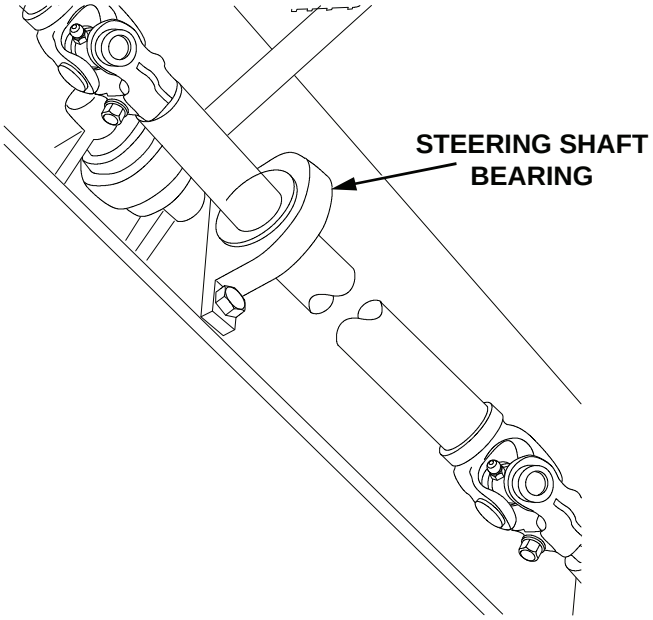
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				

Figure 7.

			3. Lubricate No. 1 and No. 4 axles drag links (4 fittings) with GAA (WP 0106) every 1,500 miles (2 414 km) or semiannually, whichever comes first.	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

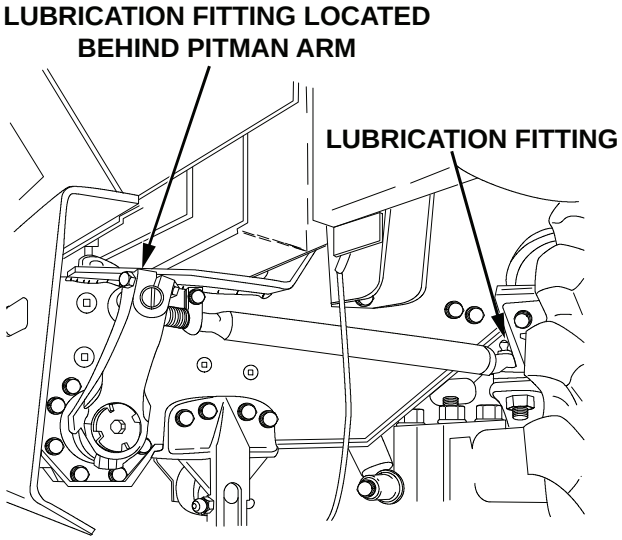


Figure 8.

			4. Lubricate front steering shaft (3 fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

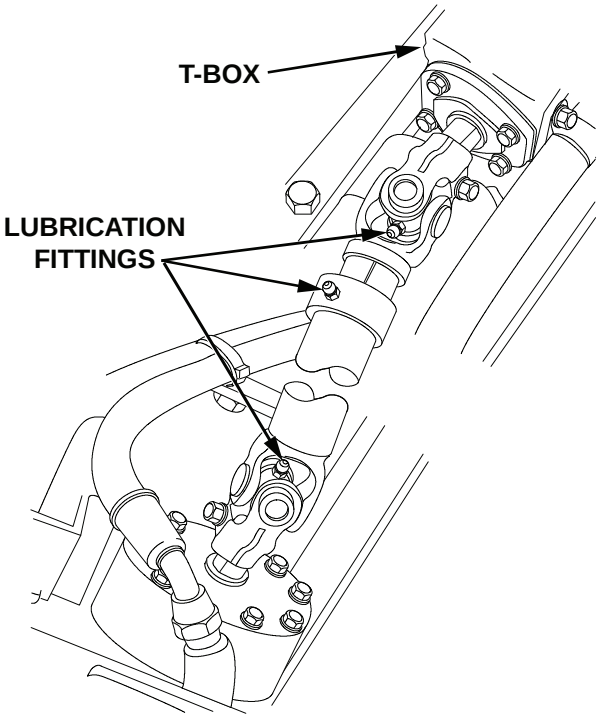


Figure 9.

			5. Lubricate rear steering shafts No. 1 (3 fittings), No. 3 (2 fittings), No. 4 (3 fittings), and No. 5 (3 fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

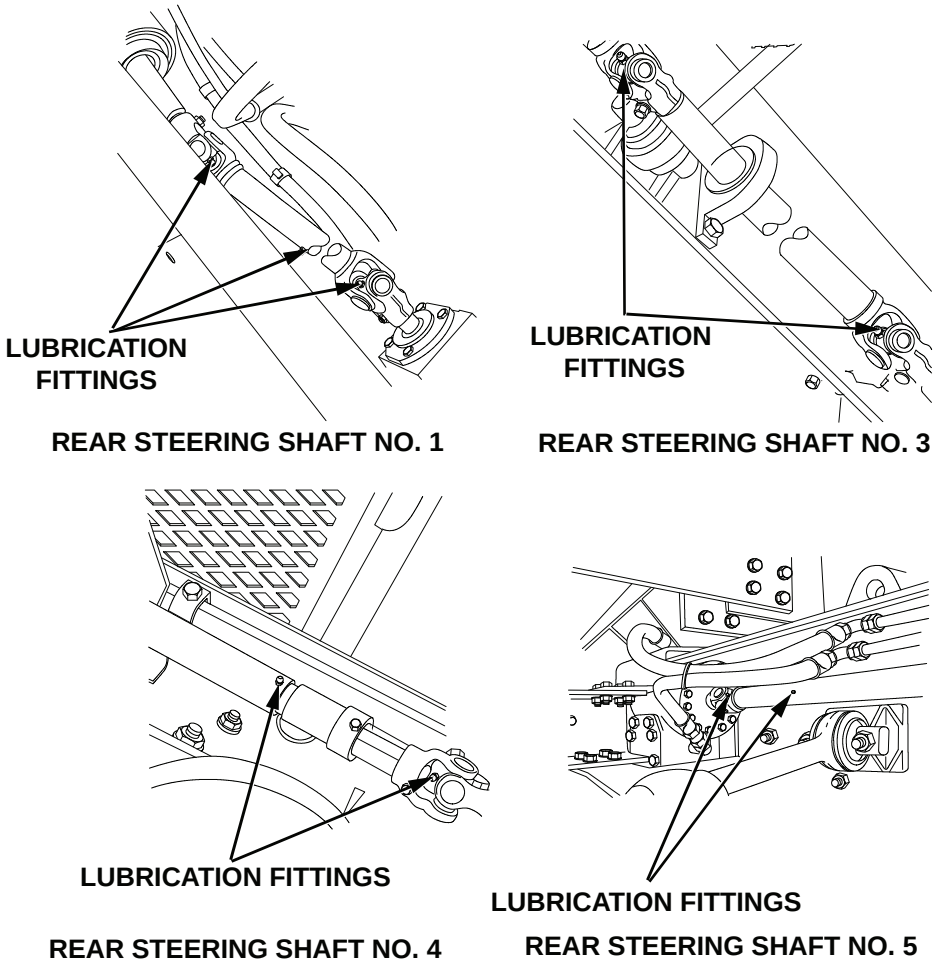


Figure 10.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			6. Lubricate front and rear steering gear boxes with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

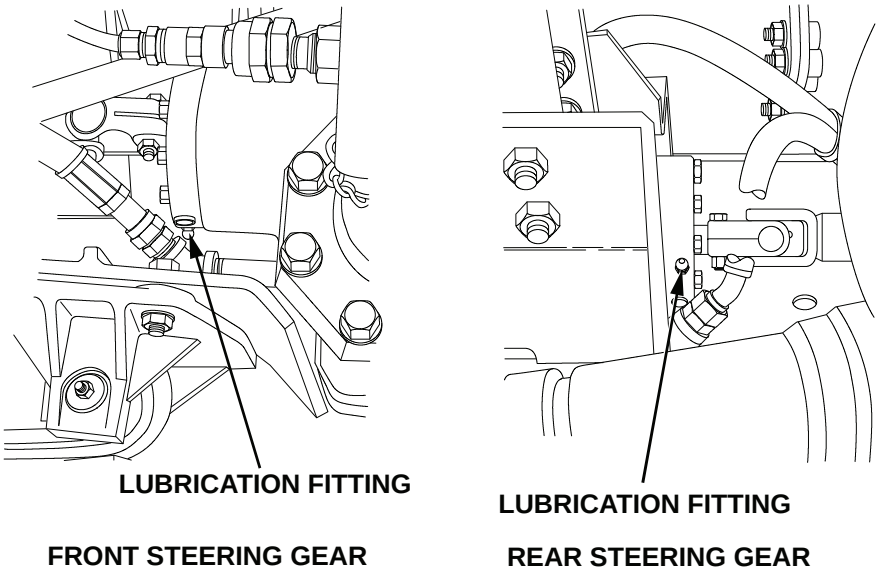


Figure 11.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			7. Lubricate axle No. 1 and No. 4 link kits (king pins) with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

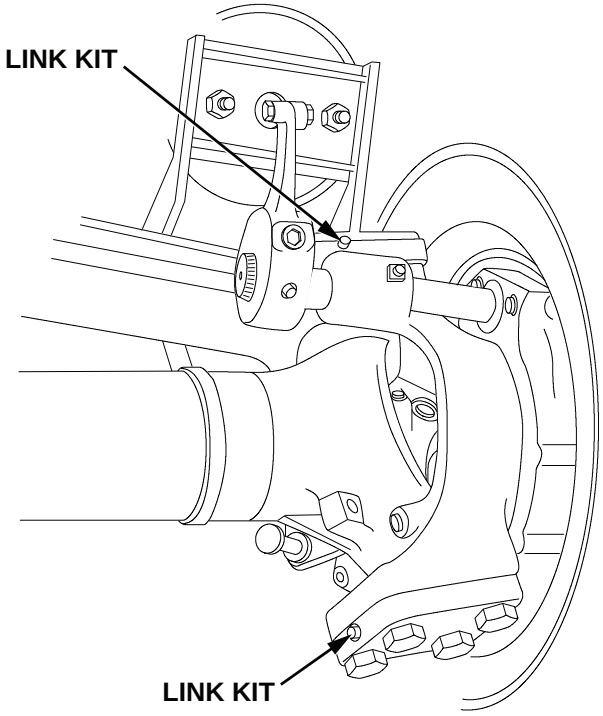


Figure 12.

			8. Lubricate axle No. 1 and No. 4 tie rod ends with GAA (WP 0106) every 1,500 miles (2 414 km) or	Fitting will not purge old lubricant

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			semiannually, whichever comes first.	out of component.

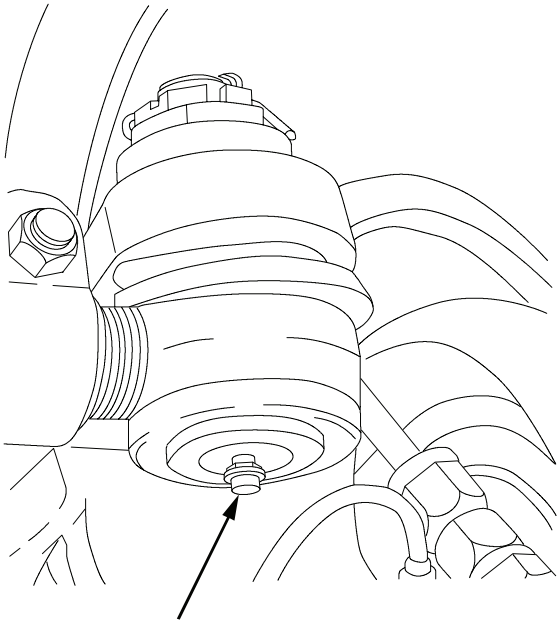


Figure 13.

			9. Lubricate axle No. 1 and No. 4 constant velocity joints with GAA. (WP 0106)	Fitting will not purge old lubricant out of component.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

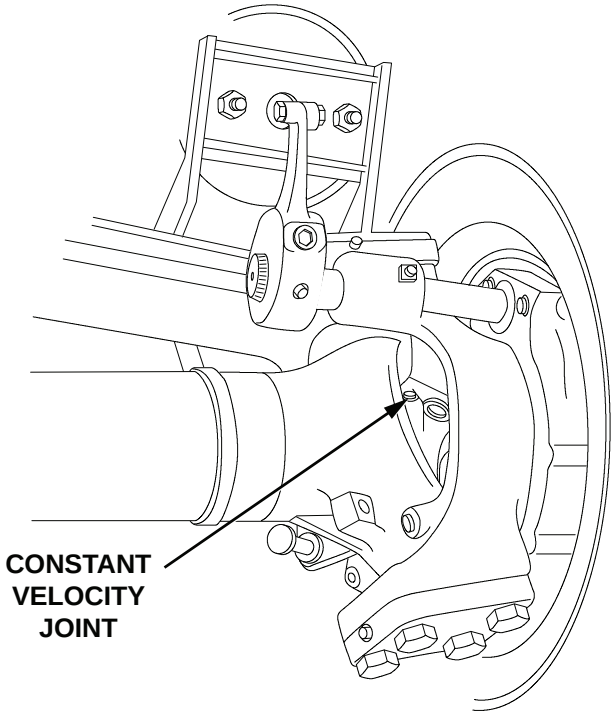


Figure 14.

			10. Check oil level in steering reduction gear box and fill as necessary.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

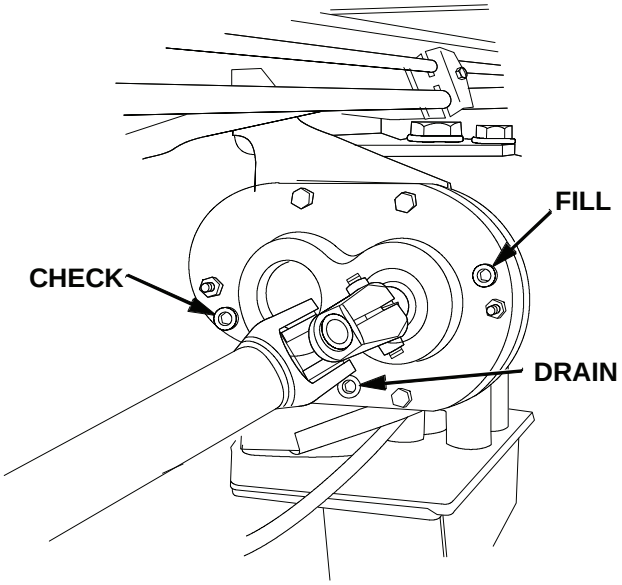


Figure 15.

5	Semian nual	Front Suspensi on	1. Lubricate spring link tube (1 fitting per pivot) with GAA. (WP 0106)	Fitting will not purge old lubricant out of com-ponent.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

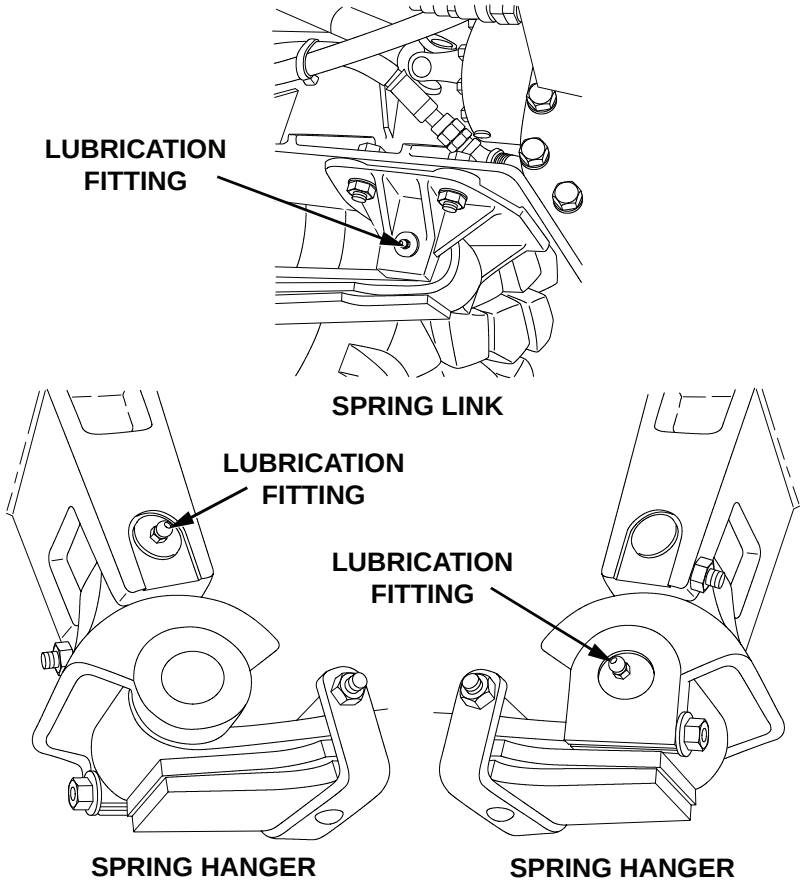


Figure 16.

			2. Lubricate spring hanger tube (2 fittings per pivot) with GAA. (WP 0106)	Fitting will not purge old lubricant

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				out of component.
6	Semiannual	Exterior	1. Open hood.	
			2. Check that fasteners (1), hinges (2), grille (3), and hood (4) are in place and serviceable. If faults are found, notify Supervisor.	Hinges or fasteners are broken.

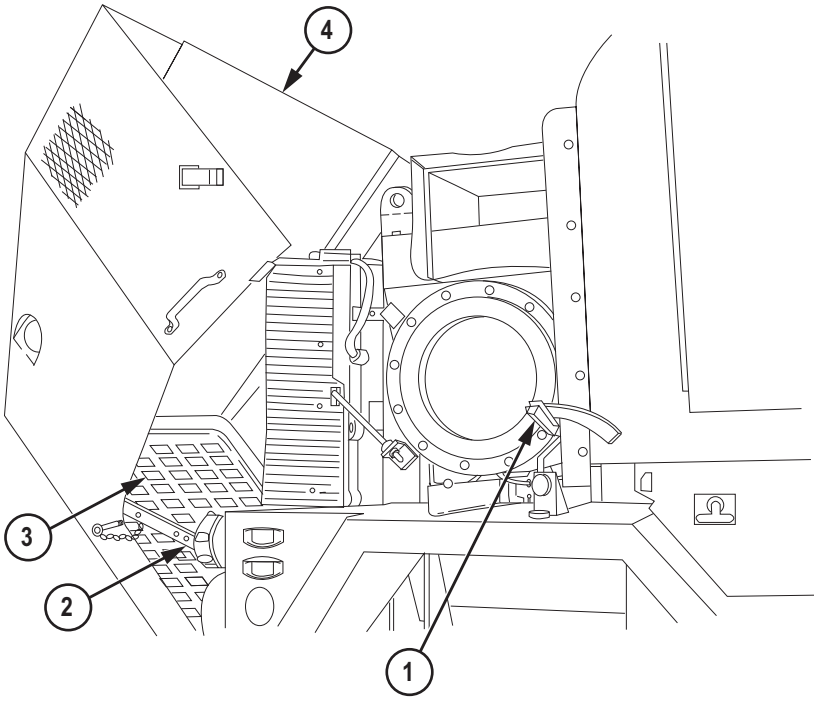


Figure 17.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			3. Check door hinge for damage and loose or missing mounting hardware. If fault is found, notify Supervisor. 4. Check driver side rear fender (1) for cracks and loose or missing mounting hardware. If faults are found, notify Supervisor.	Hinge missing or not functional.

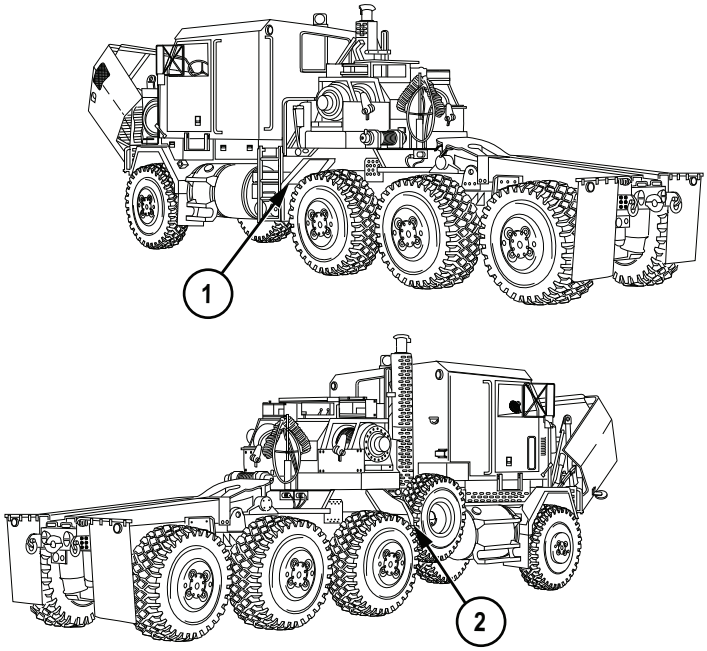


Figure 18.

			5. Check passenger side rear fender (2) for cracks and loose or	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			missing mounting hardware. If faults are found, notify Supervisor. 6. Lubricate doors, side panels, hood hinges, locks, latches, and pivot points with OE/HDO. (WP 0106) 7. Lubricate mirror assembly swivel joints with GAA. (WP 0106) 8. Lubricate oil can lubrication points with OE/HDO. (WP 0106)	
7	Semian nual	Battery Electrical System	1. Coat slave receptacle with corrosion preventive compound.	
8	Semian nual	Fifth Wheel	1. Lubricate fifth wheel (9 fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant out of com-ponent.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

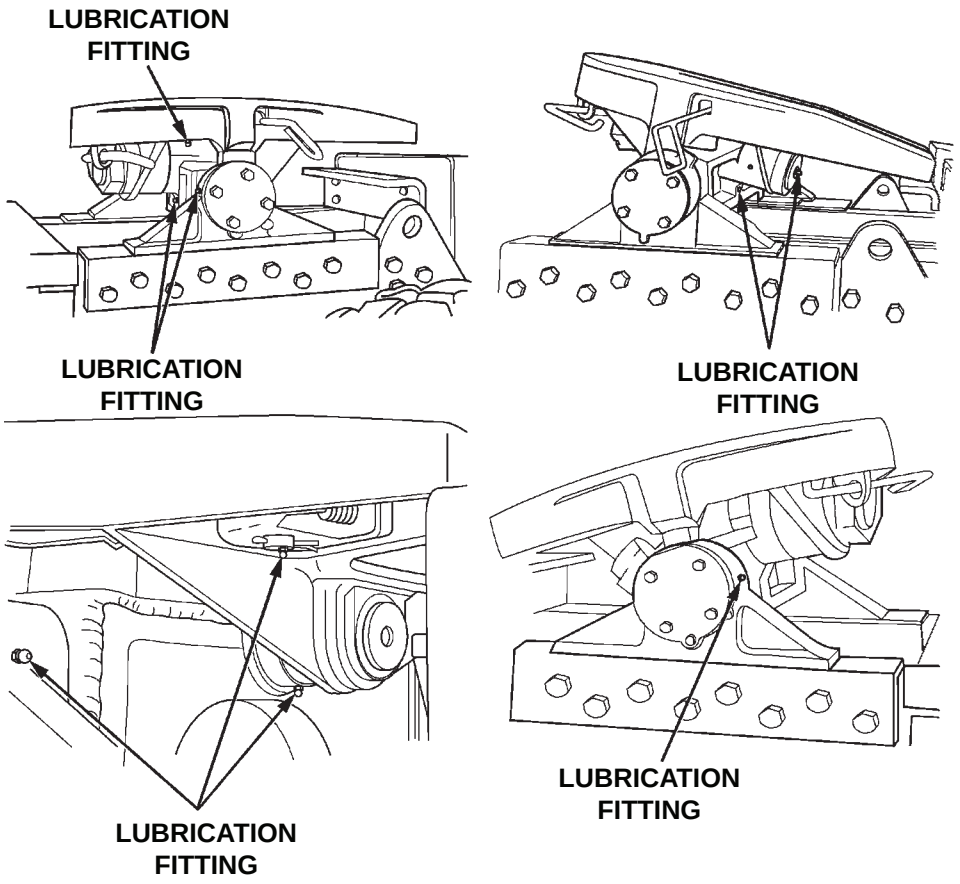


Figure 19.

9	Semian nual	Pintle Hook	1. Lubricate pintle hook (4 fittings) with GAA. (WP 0106)	Fitting will not purge old lubricant

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				out of component.

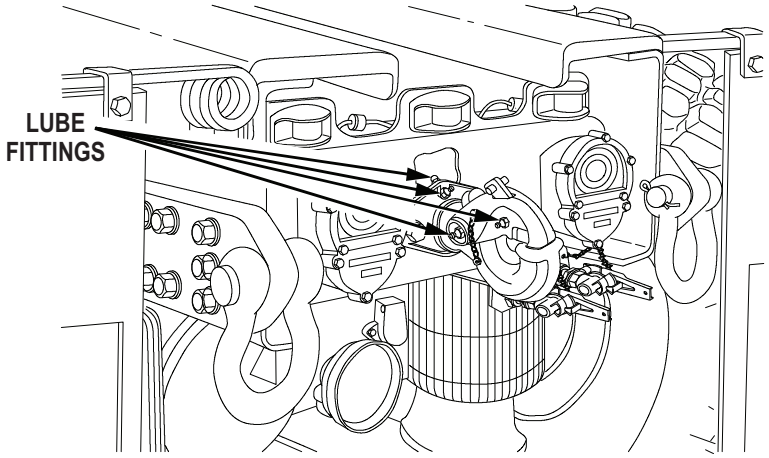


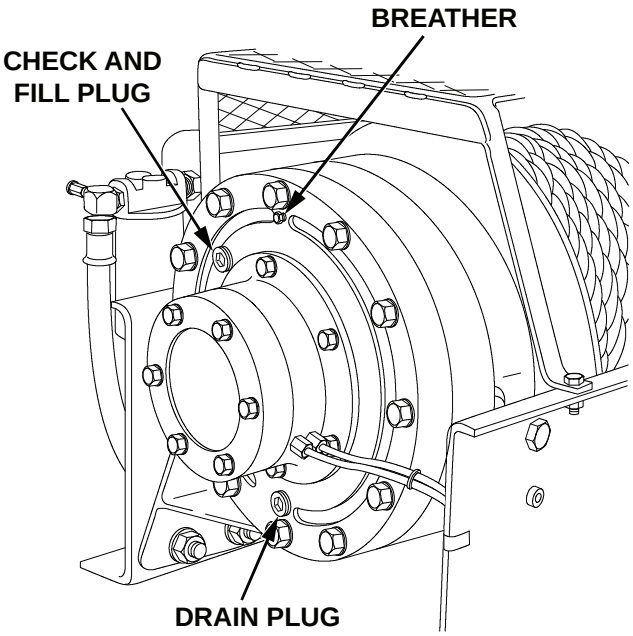
Figure 20.

10	Semiannual	Main Winches	1. Check main winches' gear boxes oil levels and fill with OE/HDO. (WP 0106)	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:



DRUM GEAR BOXES

Figure 21.

		2.	Lubricate main winches' cable hold downs with GAA. (WP 0106)

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

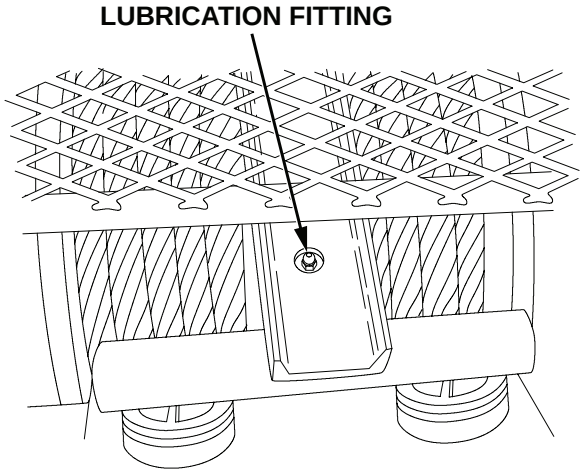


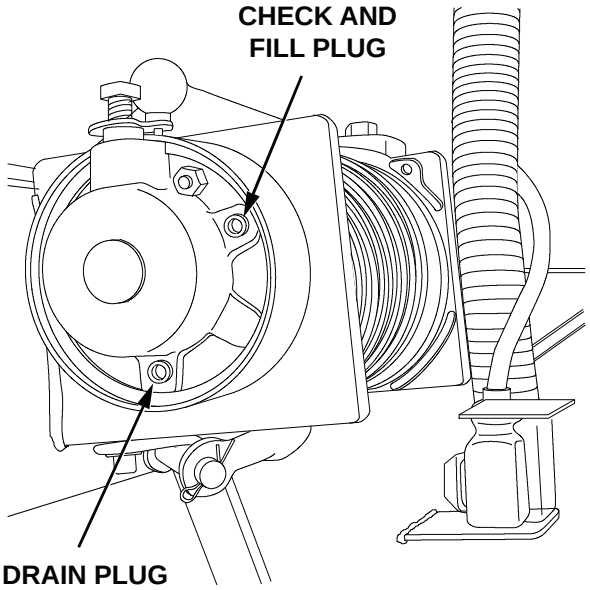
Figure 22.

			WARNING Wear leather gloves when checking winch cable. Failure to comply may result in serious injury or death to personnel. 3. Unreel, clean, and lubricate main winch cables with OE/HDO. (WP 0106) 4. Reel in main winch cables.	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
11	Semian nual	Auxiliary Winch	1. Check auxiliary winch gear box oil level and fill with OE/HDO. (WP 0106)	



AUXILIARY WINCH

Figure 23.

		WARNING Wear leather gloves when checking winch cable. Failure to comply may result in serious injury or death to personnel.

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			2. Unreel, clean and lubricate auxiliary winch cable with OE/ HDO. (WP 0106) 3. Reel in auxiliary winch cable. 4. Lubricate auxiliary winch manual kickout lever with OE/HDO. (WP 0106)	
12	Semian nual	Spare Tire Davit	1. Lubricate pulley with OE/HDO. (WP 0106)	

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Table 1. PMCS - SEMIANNUAL - Continued

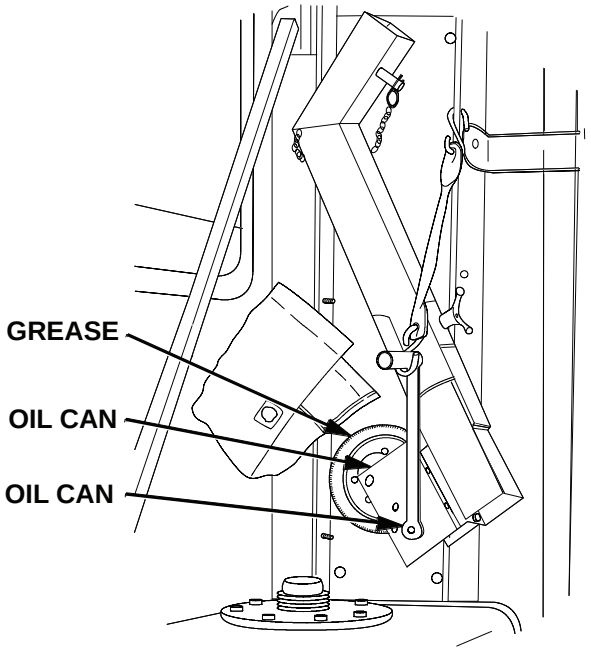
Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			 **SPARE TIRE DAVIT**	

Figure 24.

			2. Lubricate cable with OE/HDO. (WP 0106) 3. Lubricate reel and reel shaft with OE/HDO. (WP 0106) 4. Lubricate reel and ratchet gears with GAA. (WP 0106)	

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Table 1. PMCS - SEMIANNUAL - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			5. Lubricate crank bushings and ratchet shaft with OE/HDO. (WP 0106)	

END OF TASK

END OF WORK PACKAGE

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CHAPTER 5

MAINTENANCE INSTRUCTIONS

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OPERATOR MAINTENANCE
LUBRICATION INSTRUCTIONS

INITIAL SETUP:

NOTE

- The lowest level of maintenance authorized to lubricate a specific point is indicated by where that lubrication point falls within the PMCS tables. Operator/crew are only authorized to lubricate those points within the operator PMCS tables. Field level maintenance personnel are authorized to lubricate all points regardless of which tables (operator or field level) those lubrication points are listed.
- Refer to PMCS tables for specific lubrication points and localized views.
- Lubrication intervals are for normal operating conditions. Intervals may be shortened as required for severe operating conditions.
- Clean all lubrication points with solvent cleaning compound, and allow to dry prior to servicing.
- When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.
- Apply grease to universal joints until old grease is expelled from all edges of universal joint end cap. Wipe away excess grease.
- After a thorough high pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle.
- If vehicle fords water obstacle, service all lubrication points below fording depth and check submerged gear boxes for presence of water.
- Ensure equipment has correct lubricants appropriate to operating environment (expected continuous temperatures). If not, remove/drain and reapply/refill equipment with appropriate lubricants for operating environment as prescribed in these lubrication instructions.

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Table 1. Engine Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Desert Conditions	Interval
Engine Oil	With filter: 28 qt. (26.5 L) Without filter: 26 qt. (24.6 L)	OE/ HDO-15W /40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104	OE/ HDO-15W/ 40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 or OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Notes 1 and 2)	OE/ HDO-15W/ 40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 or OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Notes 1 and 2)	OE/ HDO-40 (WP 0116, Table 1, Item 44) MIL-PRF-2104	A-Annual (1 year)

NOTE

1. OEA must be used when temperatures are consistently below 0°F (-18°C).
2. OE/HDO-15W/40 must be used when temperatures are consistently above 0°F (-18°C).

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Table 2. Transmission and Transfer Case Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Transmission Oil	With filter: 35.5 qt. (33.6 L) Without filter: 31 qt. (29.3 L)	OE/HDO–15W/40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104	OE/HDO–15W/40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 (Note 2)	OE/HDO–15W/40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 (Note 2)	A-Annual (1 year)
Transfer Case	6.5 qt. (6.1 L)	OE/HDO-40 (WP 0116, Table 1, Item 44) MIL-PRF-2104	OE/HDO-40 (WP 0116, Table 1, Item 44) MIL-PRF-2104 or OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Notes 1 and 2)	OE/HDO-40 (WP 0116, Table 1, Item 44) MIL-PRF-2104 or OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Notes 1 and 2)	A-Annual (1 year)
All Other Transmission and Transfer Case Lubrication Points	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 2)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 2)	As Required (Note 3)

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Table 2. Transmission and Transfer Case Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
NOTE 1. OE/HDO-40 must be used when temperatures are consistently above 0°F (-18°C). 2. Refer to FM 9-207 (WP 0113) for arctic operation. 3. Refer to PMCS tables for specific lubrication intervals.					

Table 3. Axle Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Axle No. 1	17 qt. (16 L)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-L-2105	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 2 and 3)	B-Biennial (2 Years) (Note 4)
Axle No. 2 (and Power Divider)	20 qt. (19 L)	GO-80/90 (WP 0116,	GO-80/90 (WP 0116,	GO-80/90 (WP 0116,	B-Biennial (2 Years) (Note 4)

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Table 3. Axle Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		Table 1, Item 32) MIL-L-2105	Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	
Axle No. 3 (and Power Divider)	19 qt. (18 L)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-L-2105	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	B-Biennial (2 Years) (Note 4)
Axle No. 4	16 qt. (15 L)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-L-2105	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or	B-Biennial (2 Years) (Note 4)

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Table 3. Axle Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	
Planetary Wheel Ends	1.75 qt. (1.65 L)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-L-2105	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 or GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Notes 1 and 3)	B-Biennial (2 Years)
All Other Axle Lubrication Points	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 3)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 3)	As Required (Note 5)

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Table 3. Axle Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
NOTE 1. GO-85/140 must be used when temperatures are consistently above 30°F (-1°C). 2. GO-80/90 must be used when temperatures are consistently above -15°F (-26°C). 3. Refer to FM 9-207 (WP 0113) for arctic operation. 4. An initial lubrication change on new or rebuilt axles should occur between 500 mi. (805 km) and 1,000 miles (1 609 km). Refer to Field Level Annual PMCS for more information. 5. Refer to PMCS tables for specific lubrication intervals.					

Table 4. Hydraulic Reservoir Servicing.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Winch Hydraulic Reservoir	178.5 qt. (168.9 L)	OE/ HDO-15W-40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 or OE/HDO-30 (WP 0116, Table 1, Item 39, 40, 41) MIL-PRF-2104	OE/HDO-10 (WP 0116, Table 1, Item 39, 40, 41) MIL-PRF-2104 (Note 2)	OE/HDO-10 (WP 0116, Table 1, Item 39, 40, 41) or OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167	A-Annual (1 year)

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Table 4. Hydraulic Reservoir Servicing. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		(Note 1)		(Notes 2 and 3)	
Power Steering Reservoir	31 qt. (29 L)	OE/HDO-10 (WP 0116, Table 1, Item 36, 37, 38) MIL-PRF-2104 or OE/HDO-15W/40 (WP 0116, Table 1, Item 42, 43) MIL-PRF-2104 (Note 1)	OE/HDO-10 (WP 0116, Table 1, Item 39, 40, 41) MIL-PRF-2104 (Note 2)	OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Notes 2 and 3)	A-Annual (1 year)

NOTE

1. OE/HDO-30 must be used only when temperatures are consistently above 60°F (16°C).
2. Refer to FM 9-207 (WP 0113) for arctic operation.
3. OEA must be used when temperatures are consistently below 0°F (-18°C).

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Table 5. Radiator Servicing.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Antifreeze (CID A-A-52624) (Note 1)	92.5 qt. (87.5 L)	92.5 qt. (87.5 L) 50% Ethylene Glycol (WP 0116, Table 1, Item 2, 3, 4) Type IC (Recycled) (Notes 1 and 2)	92.5 qt. (87.5 L) 50% Ethylene Glycol (WP 0116, Table 1, Item 2, 3, 4) Type IC (Recycled) (Notes 1 and 2)	92.5 qt. (87.5 L) 60% Ethylene Glycol (WP 0116, Table 1, Item 1) Arctic Type IB (Recycled) (Notes 1, 2, and 3)	A-Annual (1 year) (Note 4)
Antifreeze (CID A-A-52624) (Note 1)	92.5 qt. (87.5 L)	46.25 qt. (43.8 L) 100% Ethylene Glycol (WP 0116, Table 1, Item 2, 3, 4) Type IA (Recycled) plus 46.25 qt. (43.8 L) water (Notes 1 and 5)	46.25 qt. (43.8 L) 100% Ethylene Glycol (WP 0116, Table 1, Item 2, 3, 4) Type IA (Recycled) plus 46.25 qt. (43.8 L) water (Notes 1 and 5)	55.5 qt. (52.5 L) 100% Ethylene Glycol (WP 0116, Table 1, Item 1) Type IA (Recycled) plus 37 qt. (35 L) water (Notes 1, 3, and 6)	A-Annual (1 year) (Note 4)
Antifreeze (CID A-A-52624) (Note 1)	92.5 qt. (87.5 L)	46.25 qt. (43.8 L) 100% Propylene Glycol (WP 0116,	46.25 qt. (43.8 L) 100% Propylene Glycol (WP 0116,	55.5 qt. (52.5 L) 100% Propylene Glycol (WP 0116,	A-Annual (1 year) (Note 4)

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Table 5. Radiator Servicing. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		Table 1, Item 2, 3, 4) Type IIA (virgin) plus 46.25 qt. (43.8 L) water (Notes 1 and 7)	Table 1, Item 2, 3, 4) Type IIA (virgin) plus 46.25 qt. (43.8 L) water (Notes 1 and 7)	Table 1, Item 1) Type IIA (virgin) plus 37 qt. (35 L) water (Notes 1, 3, and 8)	

NOTE

1. Refer to TB 750-651 (WP 0113) for more information on antifreeze and additives used in the HET Tractor engine cooling system, and TM 750-254 (WP 0113) for detailed instructions for draining, cleaning, and flushing cooling systems.
2. Type 1C (normal) and Type 1B (arctic) antifreeze is premixed, and DOES NOT REQUIRE the addition of water. Never add water or inhibitor to Type 1B antifreeze.
3. Refer to FM 9-207 (WP 0113) for arctic operation.
4. Engine coolant contaminant level is checked annually. Engine coolant does not need to be changed until it fails check.
5. A mixture of 50% Ethylene Glycol (EG) antifreeze to 50% water will provide freeze protection down to -34°F (-37°C).
6. A mixture of 50% Propylene Glycol (PG) antifreeze to 50% water will provide freeze protection down to -27°F (-33°C).
7. A mixture of 60% Ethylene Glycol (EG) antifreeze to 40% water will provide freeze protection down to -62°F (-52°C).
8. A mixture of 60% Propylene Glycol (PG) antifreeze to 40% water will provide freeze protection down to -56°F (-49°C).

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Table 6. Winch Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Main Winches Gear Box	17 qt. (16 L)	GO-85/140 (WP 0116, Table 1, Item 45, 46) MIL-PRF-2105	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 or GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 (Note 1)	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Note 1)	A-Annual (1 year)
Auxiliary Winch Gear Box	4 qt. (3.8 L)	GO-85/140 (WP 0116, Table 1, Item 45, 46) MIL-PRF-2105	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 or GO-80/90 (WP 0116, Table 1, Item 32) MIL-PRF-2105 (Note 1)	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-PRF-2105 (Note 1)	A-Annual (1 year)
Winch Cable	As Required	OE/HDO-30 (WP 0116, Table 1, Item 39, 40, 41) MIL-PRF-2104	OE/HDO-10 (WP 0116, Table 1, Item 36, 37, 38) MIL-PRF-2104	OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167	S-Semiannual (WP 0105) (6 Months)

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Table 6. Winch Lubrication. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			(Note 1)	(Note 1)	
All Other Winch Lubrication Points	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	As Required (Note 2)

NOTE

1. Refer to FM 9-207 (WP 0113) for arctic operation.
2. Refer to PMCS tables for specific lubrication intervals.

Table 7. Steering Lubrication.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Steering Reduction Gear Box	0.5 pt. (0.24 L)	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-L-2105	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-L-2105 (Notes 1 and 3)	GO-75 (WP 0116, Table 1, Item 30, 31) MIL-L-2105 (Notes 2 and 3)	B-Biennial (2 Years) (Note 4)

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Table 8. Oil Can Point Lubrication.

Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Intervals
As Required	OE/HDO-15W/ 40 (WP 0116, Table 1, Item 42, 43) MIL-L-2104	OE/HDO-15W/ 40 (WP 0116, Table 1, Item 42, 43) MIL-L-2104 (Note 1)	OEA (WP 0116, Table 1, Item 33, 34, 35) MIL-PRF-46167 (Note 1)	As Required (Note 2)

NOTE

1. Refer to FM 9-207 (WP 0113) for arctic operation.
2. Refer to PMCS tables for specific oil can lubrication intervals.

Table 9. Miscellaneous Lubrication Points.

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
Propeller Shafts and U-Joints	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 4)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Notes 1 and 4)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Notes 1 and 4)	S-Semiannual (WP 0105) (6 Months)
Link Kits (King Pin)	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29)	S-Semiannual (WP 0105) (6 Months)

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Table 9. Miscellaneous Lubrication Points. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		MIL-PRF-10924	MIL-PRF-10924 (Note 1)	MIL-PRF-10924 (Note 1)	
Brake Camshafts and Slack Adjusters	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0105) (6 Months)
Spring Eye Pins	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	
Pintle Hook	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	W-Weekly (WP 0102) S-Semiannual (WP 0105) (6 Months) (service fittings)
Steering System	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	S-Semiannual (WP 0105) (6 Months)

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Table 9. Miscellaneous Lubrication Points. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
		MIL-PRF-10924	(Note 1)	(Note 1)	
Spare Tire Davit	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0105) (6 Months)
Fifth Wheel Plate/ Ramps	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	W-Weekly (WP 0102)
Fifth Wheel Lubrication Fittings	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924 (Note 1)	S-Semiannual (WP 0105) (6 Months)
Tie Rod Ends	As Required	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	GAA (WP 0116, Table 1, Item 25, 26, 27, 28, 29) MIL-PRF-10924	S-Semiannual (WP 0105) (6 Months)

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Table 9. Miscellaneous Lubrication Points. - Continued

Item	Capacities	Expected Temperatures Above +15°F (-9°C)	Expected Temperatures +40 to -15°F (+4 to -26°C)	Expected Temperatures +40 to -50°F (+4 to -46°C)	Interval
			(Note 1)	(Note 1)	

NOTE

1. Refer to FM 9-207 (WP 0113) for arctic operation.
2. When vehicle is operating under severe conditions, lubricate propeller shafts and universal joints every 50 hours of vehicle operation.
3. Refer to PMCS tables for specific lubrication intervals.
1. Apply grease until old grease is expelled from all edges of universal joint end cap. Wipe away excess grease.

Table 10. Vehicle Cleaning.

Item	Capacities	Expected Temperature	Intervals
Cleaning Compound, Solvent (WP 0116, Table 1, Item 7, 8, 9, 10, 11, 12) (Note 1)	As Required	SD All Temperatures (Note 2)	As Required

NOTE

1. After a thorough high pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle.
2. Refer to FM 9-207 (WP 0113) for arctic operation.

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Table 11. Miscellaneous Capacities.

Item	Capacities	Expected Temperature	Intervals
Fuel Tank No. 1	150 gal (568 L)	All Temperatures	As Required
Fuel Tank No. 2	100 gal (379 L)	All Temperatures	As Required
Windshield Washer Fluid	3 qt (2.8 L)	All Temperatures	As Required

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
HET TRACTOR CLEANING INSTRUCTIONS

INITIAL SETUP:

Materials/Parts
Rags, Wiping (WP 0116, Table 1, Item 48)

Equipment Condition
Engine OFF. (WP 0042)
Wheels chocked. (WP 0064)

CLEAN EXTERIOR

CAUTION

Do not wipe dirt off vehicle when vehicle is dry. Dirt, stones, or debris may scratch and damage vehicle.

NOTE

After a thorough high-pressure washing, lubricate all grease fittings and oil can points outside and underneath vehicle (refer to lubrication instructions (WP 0106) for more information).

1. Wash vehicle often with cool or warm water. Do not use strong detergent or abrasives.

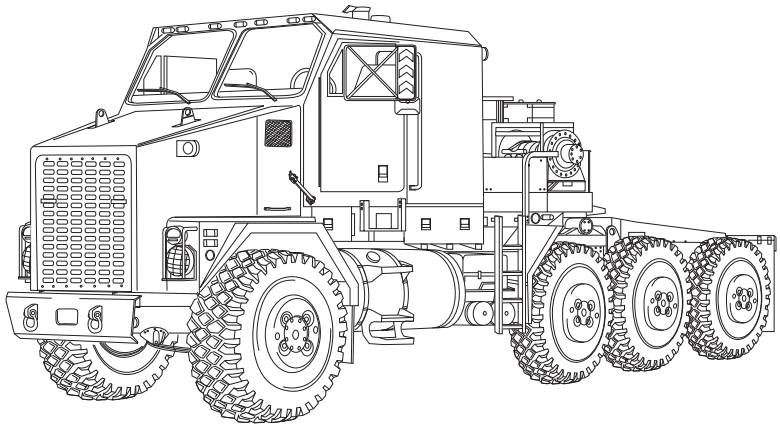


Figure 1.

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CLEAN EXTERIOR - Continued

2. While cleaning vehicle, look closely for rust, corrosion, bare metal, or other damage. Report any damage to unit level maintenance.

END OF TASK

CLEAN INTERIOR

CAUTION

Accelerator pedal and CTIS manifold have electrical components. Do not get water on these parts. Damage to accelerator pedal and CTIS manifold may result.

1. Remove loose dirt and dust from cab interior components (1).

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CLEAN INTERIOR - Continued

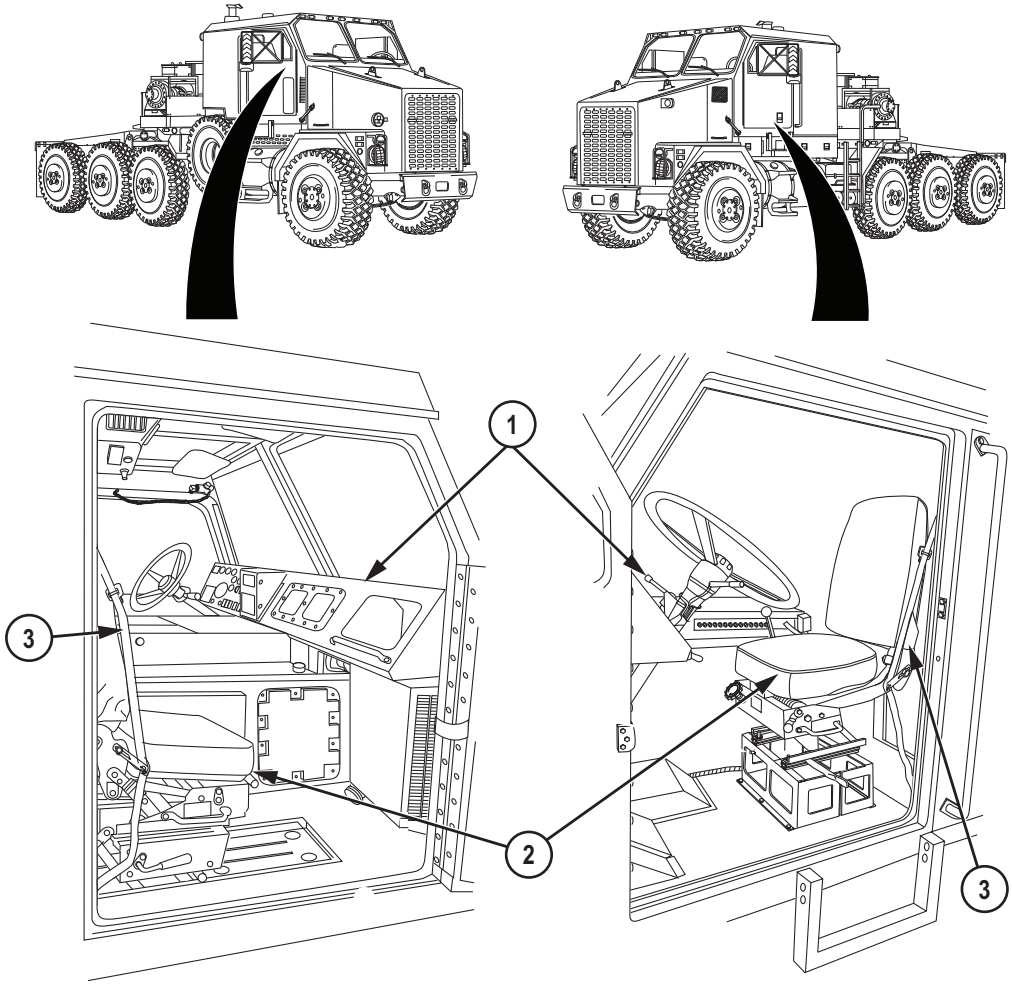


Figure 2.

2. Clean seat cushions (2), seat belts (3), and shoulder harnesses with warm soapy water. Do not use abrasives or solvents.
3. Wipe seat cushions (2) and seat belts (3) dry.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
CHANGING TIRE/WHEEL ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
- Adapter (WP 0114, Table 3, Item 1)
- Chocks, Wheel (2) (WP 0114, Table 3, Item 11)
- Extension, Wrench (WP 0114, Table 3, Item 14)
- Gloves, Leather (WP 0115, Table 2)
- Handle, Extension (WP 0114, Table 3, Item 17)
- Handle, Extension, 40 In. (WP 0114, Table 3, Item 18)
- Handle, Sliding, 3/4 in. Square Drive (WP 0114, Table 3, Item 20)
- Hose Assembly, Air (WP 0114, Table 3, Item 22)
- Jack, Hydraulic with Handle (2) (WP 0114, Table 3, Item 23)
- Pin, Adapter (2) (WP 0114, Table 3, Item 30)
- Plate, Jack (WP 0114, Table 3, Item 27)
- Socket, Impact, 1 1/2 in. (WP 0114, Table 3, Item 36)
- Socket, Impact, 33 mm (WP 0114, Table 3, Item 37)
- Warning Device Kit (WP 0114, Table 3, Item 40)

Tools and Special Tools - Continued
- Wrench, Adjustable, 8 in. (WP 0114, Table 3, Item 42)
- Wrench, Air Powered (WP 0114, Table 3, Item 44)
- Wrench, Open-End (WP 0114, Table 3, Item 45)
- Wrench, Tube, 3/4 in. (WP 0114, Table 3, Item 46)

Materials/Parts
- Rags, Wiping (WP 0116, Table 1, Item 48)

Personnel Required
- Operator and Assistant - - - (2)

Equipment Condition
- Shut off engine. (WP 0042)
- Parking brake applied. (WP 0043)
- Emergency marker kit set out. (WP 0077)
- Emergency flashers on. (WP 0054)
- CTIS shut off. (WP 0028)

HET TRACTOR PREPARATION

WARNING

Park HET Tractor in safe area, out of traffic, where there is no danger to personnel changing tire assembly. Park HET Tractor on hard, level surface where jacks will have a stable surface. Attempting to change the tire assembly on unlevel or soft surface may result in HET Tractor falling. Failure to comply may result in serious injury or death to personnel.

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HET TRACTOR PREPARATION - Continued

WARNING



Tire assembly is very heavy. Do not try to lift or catch tire assembly. Failure to comply may result in serious injury or death to personnel.

WARNING

The two piece handle supplied with the hydraulic jack must not be used. Only use the 40 in. (102 cm) extension handle to operate the jack. Failure to comply may result in serious injury or death to personnel.

1. Remove boot (1) from winch (2).

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HET TRACTOR PREPARATION - Continued

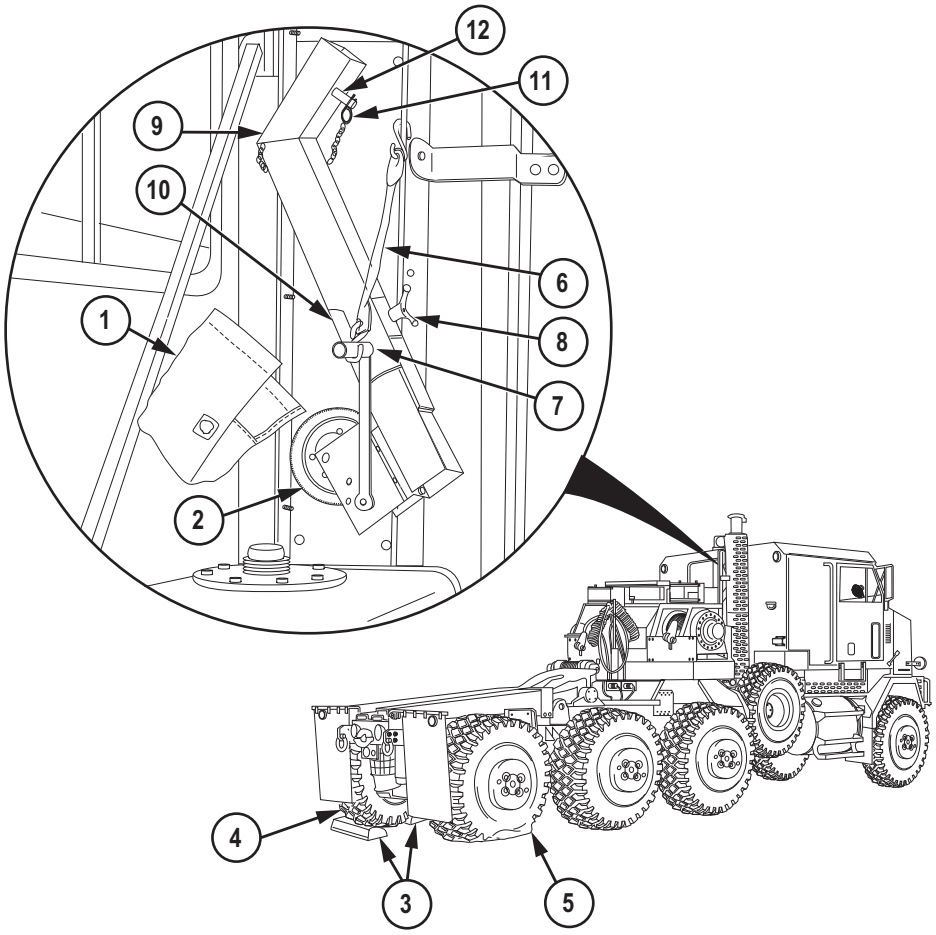


Figure 1.

2. Install two chocks (3) against tire (4) directly across from flat tire (5).
3. Remove rubber strap (6) from handcrank (7).
4. Remove T-handle (8) and tire lift arm (9) from mounting bracket (10).
5. Remove safety pin (11) from pin (12). Remove pin (12) from tire lift arm (9).
6. Install tire lift arm (9) in mount (13) and align holes.

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HET TRACTOR PREPARATION - Continued

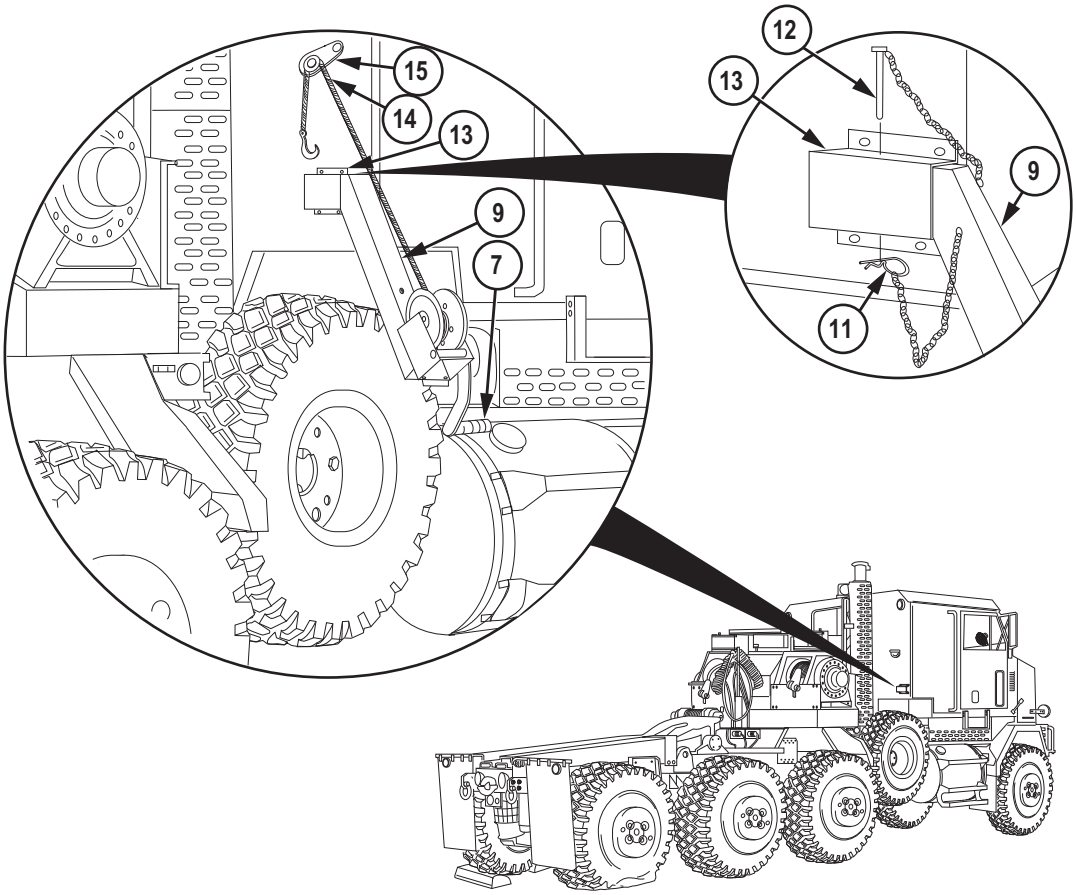


Figure 2.

7. Insert pin (12) through holes. Insert safety pin (11) through pin (12).

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

8. Turn handcrank (7). Route cable (14) around pulley (15).

END OF TASK

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SPARE TIRE REMOVAL

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

1. Turn handcrank (1) of tire davit (2) to let out enough cable (3) to route through wheel (4) and wrap around spare tire assembly (5).

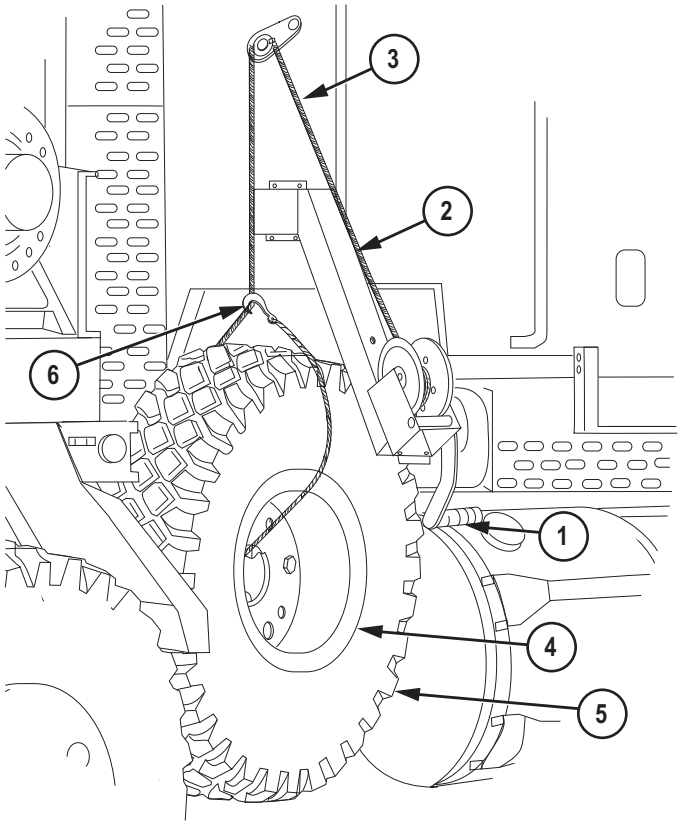


Figure 3.

2. Push hook (6) through wheel (4). Wrap cable (3) once around spare tire assembly (5).
3. Secure hook (6) to cable (3) at top of tire assembly (5).
4. Turn handcrank (1) to put light tension on cable (3).

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SPARE TIRE REMOVAL - Continued

NOTE

- If air powered wrench is used, HET Tractor air system will be depleted. Engine must be running to provide air to components. If air powered wrench is used, do Steps (5) through (7). If not, go to Step (8).
- If engine is started during tire change, CTIS on/off switch must be in the off position.

5. Remove air wrench (7) and air hose (8) from stowage box (9).

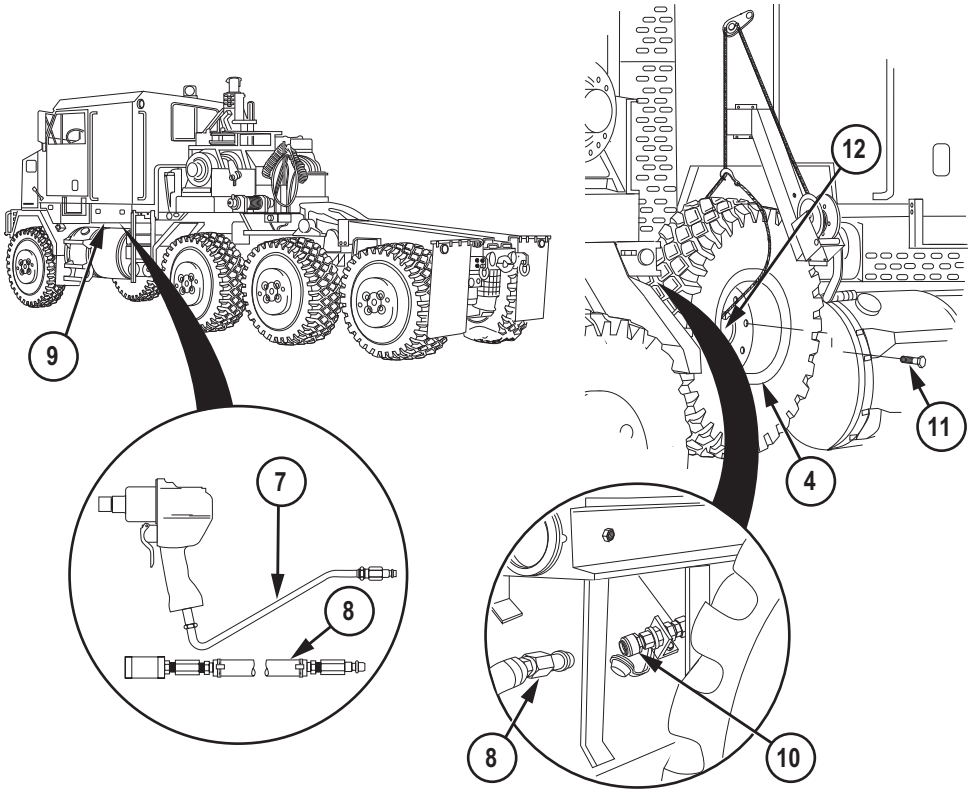


Figure 4.

6. Install air hose (8) in air supply coupling (10).
7. Install air hose (8) on air wrench (7).

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SPARE TIRE REMOVAL - Continued

WARNING

Cable must be secure and taut around wheel before removing screws. Failure to comply may result in serious injury or death to personnel.

8. Remove three screws (11) from wheel (4) and bracket (12).

WARNING



Tire is very heavy. Place tire on carrier or on ground as soon as possible. Failure to comply may result in serious injury or death to personnel.

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

CAUTION

Use care when lowering tire. Failure to comply may result in damage to equipment.

9. Turn handcrank (1) to lift spare tire assembly (5) just above bracket (12).

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SPARE TIRE REMOVAL - Continued

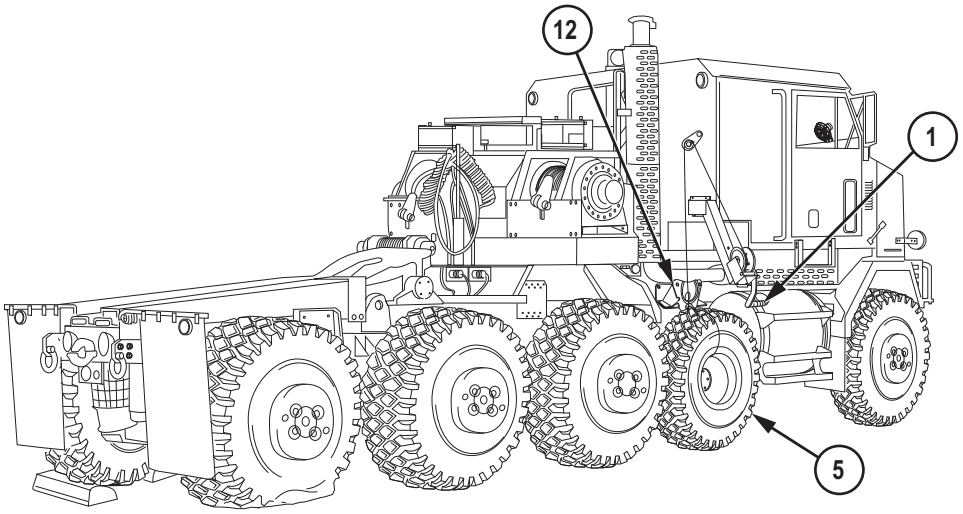


Figure 5.

10. With assistant pulling spare tire away from bracket (12), turn handcrank (1) to lower spare tire assembly (5) to ground.

WARNING

Do not remove cable at this time. Tire could fall over. Failure to comply may result in serious injury or death to personnel.

11. With the aid of an assistant, lean spare tire assembly (5) against HET Tractor.

END OF TASK

FLAT TIRE REMOVAL

WARNING



Never go under equipment when supported only by jack. Keep clear of equipment when raising or lowering. Failure to comply may result in serious injury or death to personnel.

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FLAT TIRE REMOVAL - Continued

WARNING

Never go under HET Tractor with engine running. HET Tractor may move unexpectedly. Failure to comply may result in serious injury or death to personnel.

NOTE

If changing a tire on the front axle, start at Step (1). If changing a tire on one of the rear axles, start at Step (10).

1. Position jack plate (1) under spring saddle (2) so that both jacks can be placed on jack plate.

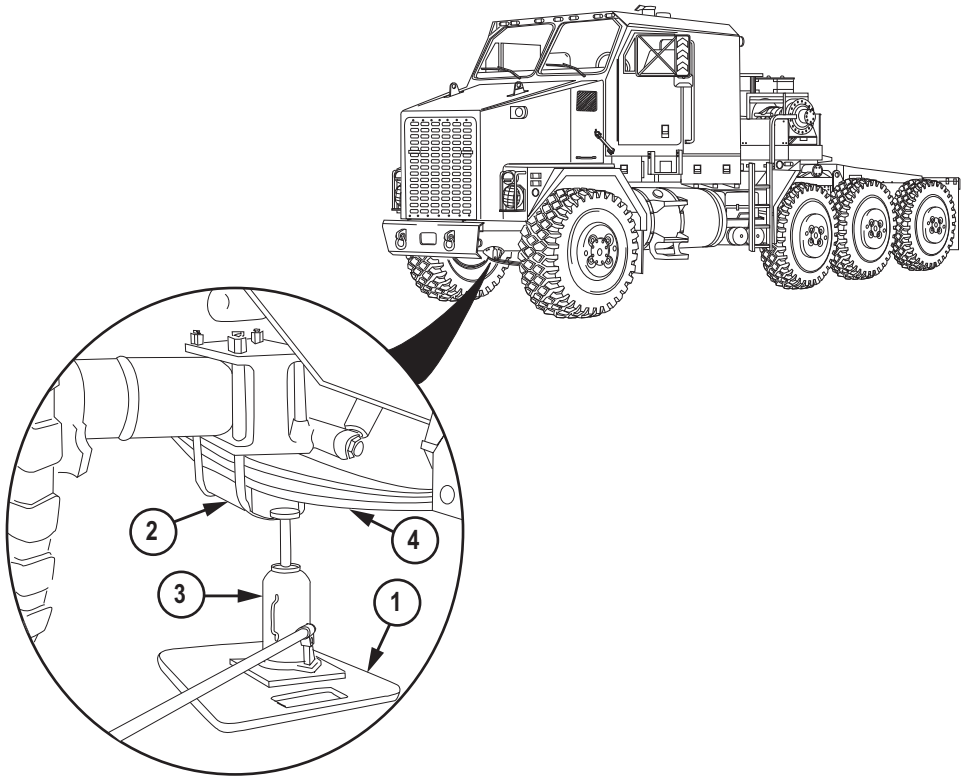


Figure 6.

NOTE

Position jack No. 1 approximately 2 in. (5.08 cm) in front of spring saddle. Ensure jack cylinder is completely compressed.

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FLAT TIRE REMOVAL - Continued

2. Position jack No. 1 (3) on jack plate (1), under spring (4) and in front of spring saddle (2).
3. Unscrew ram (5) of jack No. 1 (3) until it touches spring (4).

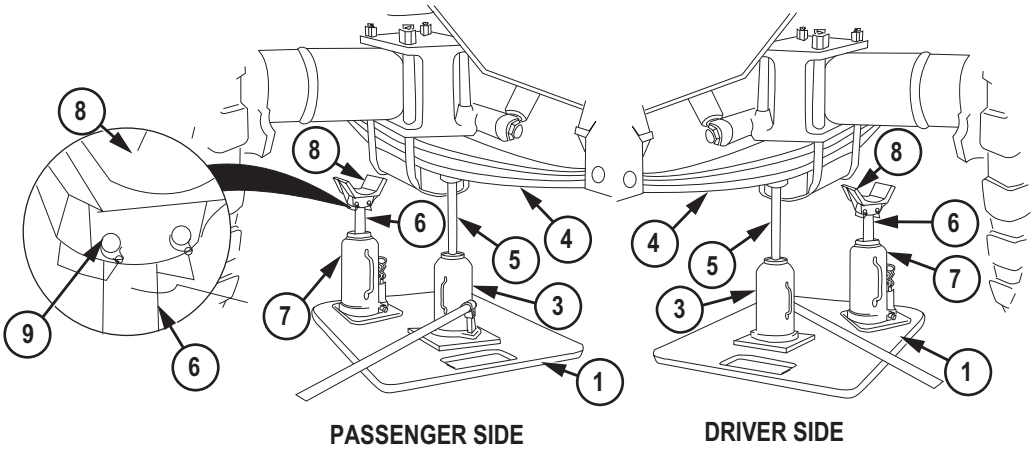


Figure 7.

4. Unscrew ram (6) of jack No. 2 (7) approximately 3 in. (7.62 cm).

NOTE

Adapter must be centered on jack.

5. Install adapter (8) on ram (6) of jack No. 2 (7) with two locking pins (9) and position jack on jack plate (1).
6. Raise jack No. 1 (3) to its maximum height.

WARNING

Jack must be positioned using only the extension handle . Do not attempt to crawl under the HET Tractor to position jack. Failure to comply may result in serious injury or death to personnel.

7. Move jack No. 2 (7) directly under spring saddle (2).

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FLAT TIRE REMOVAL - Continued

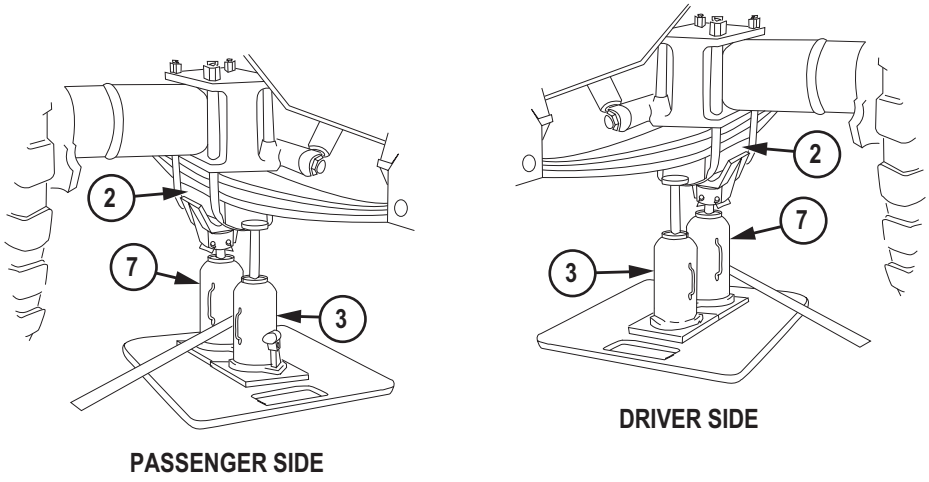


Figure 8.

8. Raise jack No. 2 (7) until jack No. 1 (3) can be removed.
9. Move jack No. 1 (3) clear of spring saddle (2) and spring (4) and go to Step (17).

WARNING



Never go under equipment when supported only by jack. Keep clear of equipment when raising or lowering. Failure to comply may result in serious injury or death to personnel.

WARNING

Never go under HET Tractor with engine running. HET Tractor may move unexpectedly. Failure to comply may result in serious injury or death to personnel.

10. Position jack plate (1) under axle housing (10) and trailing arm (11) so both jacks can be placed on jack plate.

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FLAT TIRE REMOVAL - Continued

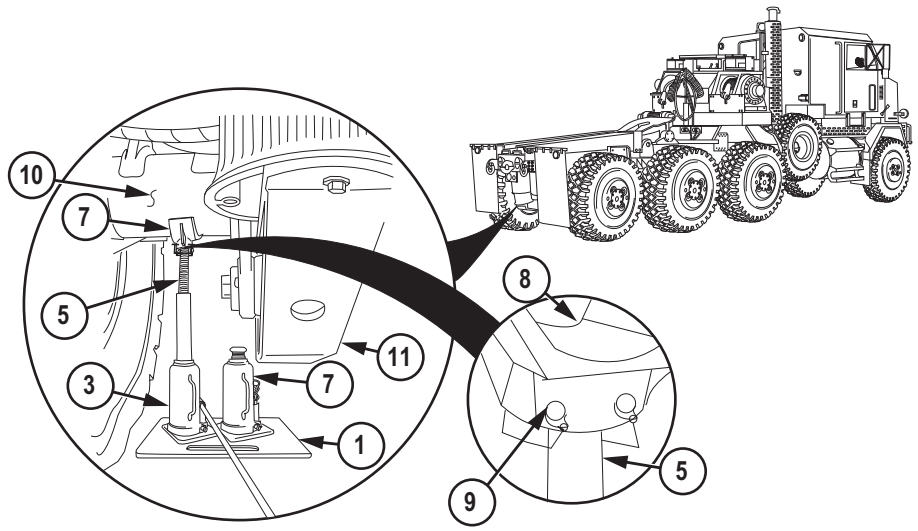


Figure 9.

11. Install adapter (8) on ram (5) of jack No. 1 (3) with two locking pins (9) and position jack on plate (1) under axle housing (10).
12. Position jack No. 2 (7) on jack plate (1).
13. Unscrew ram (5) of jack No. 1 (3) until adapter (8) touches axle housing (10).
14. Raise jack No. 1 (3) to its maximum height.
15. Move jack No. 2 (6) under trailing arm (11) and raise until jack No. 1 (3) can be removed.

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FLAT TIRE REMOVAL - Continued

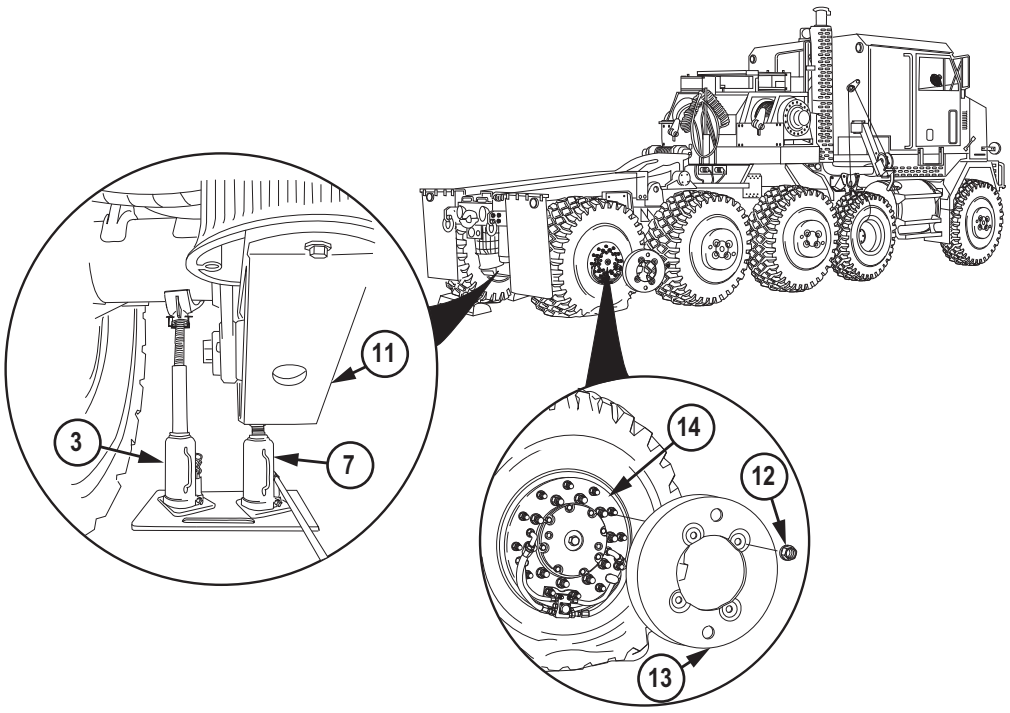


Figure 10.

16. Remove jack No. 1 (3).

NOTE

Wheel and tire assembly is removed from front and rear axles the same way. Axle No. 4 is shown.

17. Remove four nuts (12) and wheel cover (13) from flat tire assembly (14).

CAUTION

Keep hoses clean and dry when removing from CTIS wheel valve. Failure to comply may result in damage to equipment.

18. Remove two hoses (15) from hub (16) and wheel valve (17).

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FLAT TIRE REMOVAL - Continued

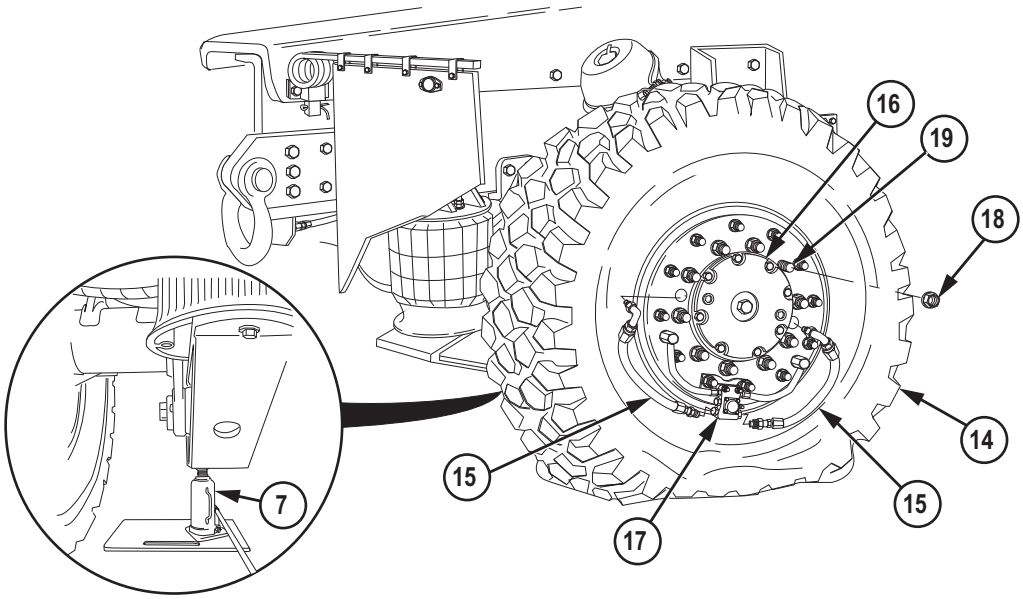


Figure 11.

WARNING

Do not remove nuts. Tire assembly could pop off. Failure to comply may result in serious injury or death to personnel.

WARNING

Never loosen or remove the 12 smaller nuts around the outside of the rim assembly. Rim could separate. Failure to comply may result in serious injury or death to personnel.

19. Loosen 10 nuts (18) on flat tire assembly (14). Do not remove nuts.
20. Raise jack No. 2 (7) until flat tire assembly (14) is off ground.

WARNING



Wheel/tire assembly weighs 523 lbs (237 kg). Attach suitable lifting device prior to moving to prevent possible injury to personnel. Use caution

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FLAT TIRE REMOVAL - Continued

when handling wheel/tire assembly to keep it from tipping over. Failure to comply may result in serious injury or death to personnel.

21. With assistant holding flat tire assembly (14), remove 10 nuts (18) from studs (19).

WARNING

Always wear heavy gloves when handling flat tire assembly. Failure to comply may result in serious injury or death to personnel.

CAUTION

Use care when removing flat tire assembly. Dragging tire assembly across studs may result in damage to studs.

22. With the aid of an assistant, walk flat tire assembly (14) from HET Tractor.

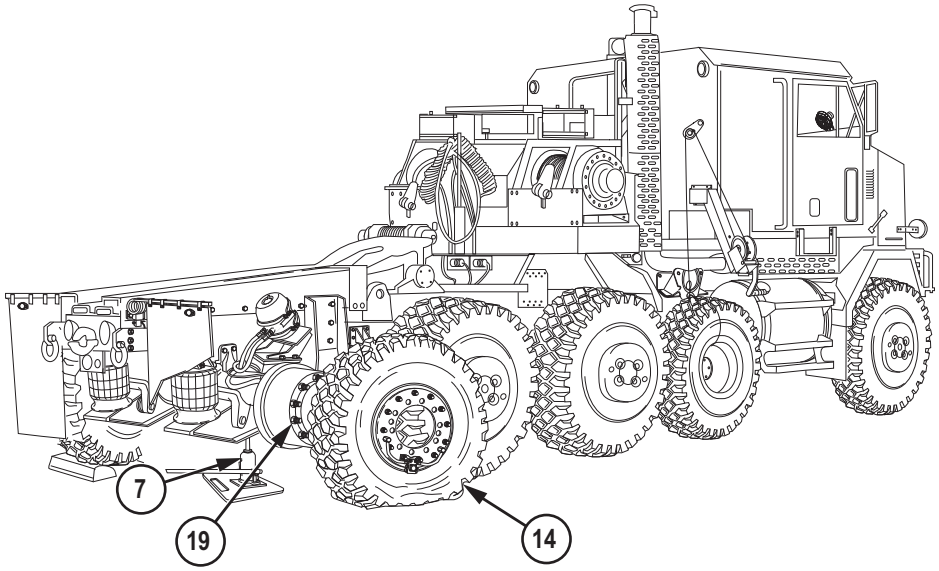


Figure 12.

23. With the aid of an assistant, lean flat tire assembly (14) against HET Tractor.

END OF TASK

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SPARE TIRE INSTALLATION

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

1. With the aid of an assistant, remove cable (1) from spare tire assembly (2).

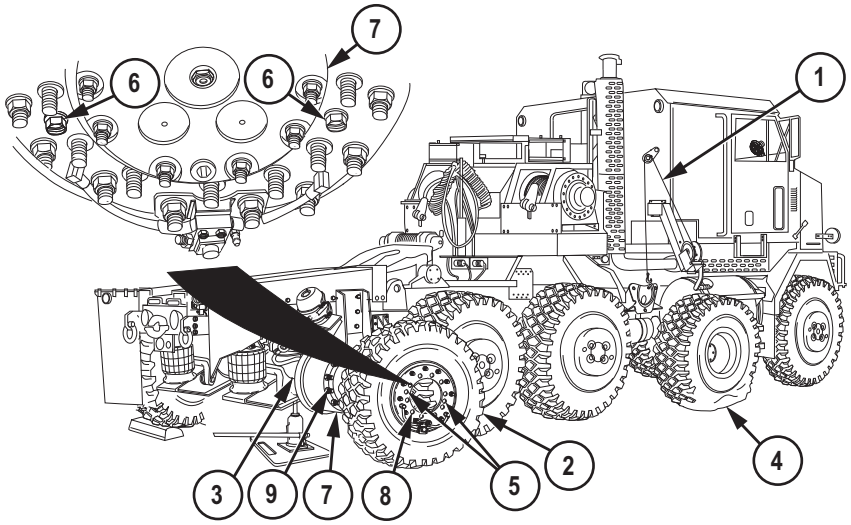


Figure 13.

2. With the aid of an assistant, roll spare tire assembly (2) up to axle (3) from which flat tire assembly (4) was removed.

CAUTION

Position spare tire assembly so that two larger holes in spare tire assembly are aligned with CTIS fittings. Damage to CTIS fittings and wheel may result if spare tire assembly is not correctly installed.

NOTE

Spare tire assembly should have CTIS valve facing out.

3. With the aid of an assistant, line up two holes (5) in spare tire assembly (2) with CTIS fittings (6) in hub (7).
4. With the aid of an assistant, line up 10 holes (8) in spare tire assembly (2) with studs (9) on hub (7).

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SPARE TIRE INSTALLATION - Continued

WARNING



Tire assembly is very heavy. Do not try to lift or catch tire assembly. Failure to comply may result in serious injury or death to personnel.

5. With the aid of an assistant, lean top of spare tire assembly (2) against hub (7) and axle (3).

WARNING

Use caution when operating jack. Personal injury or death may result if jack slips out from under HET Tractor.

WARNING

Never go under HET Tractor with engine running. HET Tractor may move unexpectedly. Failure to comply may result in serious injury or death to personnel.

CAUTION

Use care when installing spare tire assembly and nuts. Dragging tire assembly across studs or cross-threading nuts may result in damage to studs.

NOTE

It may be necessary to raise jack to get inflated spare tire on wheel hub.

6. Slide spare tire assembly (2) onto studs (9) with tire extension handle (WP 0114, Table 3, Item 17). Bottom of spare tire assembly (2) should swing toward HET Tractor.

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SPARE TIRE INSTALLATION - Continued

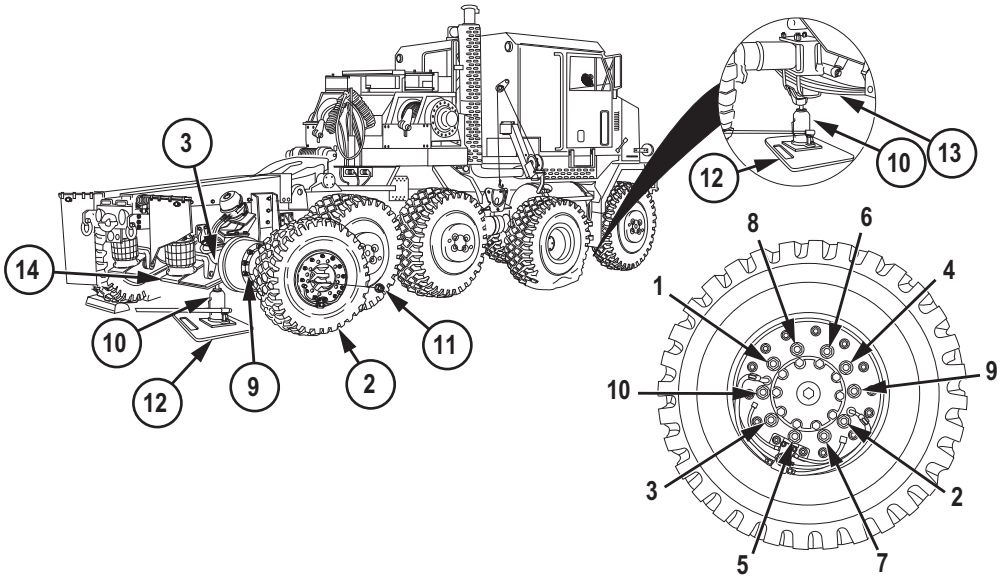


Figure 14.

7. Install 10 nuts (11) on studs (9). Tighten until spare tire assembly (2) is seated.
8. Lower HET Tractor with jack (10) until spare tire assembly (2) just touches ground.
9. Tighten 10 nuts (11) as tight as possible in order shown.
10. Lower HET Tractor to ground with jack (10).
11. Remove jack (10) and jack plate (12) from under saddle (13) or trailing arm (14).
12. Remove CTI plugs (15) from spare tire assembly (2) and install in flat tire assembly (4).

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SPARE TIRE INSTALLATION - Continued

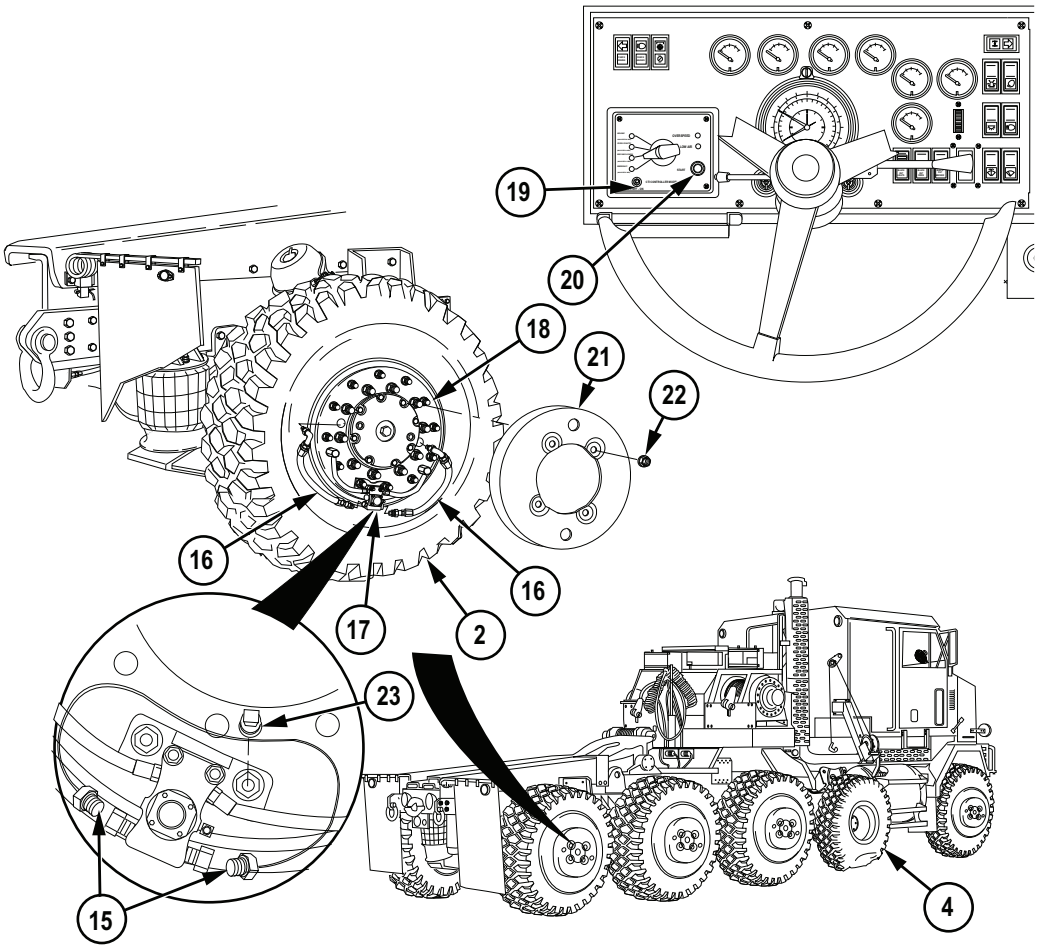


Figure 15.

CAUTION

Keep hoses clean and dry when removing from CTIS wheel valve. Failure to comply may result in damage to CTIS wheel valve.

13. Install two hoses (16) on wheel valve (17) and hub (18).
14. Start engine (WP 0037).
15. Turn CTIS (19) to on position and push start switch (20).
16. Check two hoses (16) for leaks.

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SPARE TIRE INSTALLATION - Continued

17. Shut engine OFF (WP 0042).
18. Install wheel cover (21) on spare tire assembly (2) with four nuts (22).
19. Remove two nuts (23) from spare tire assembly (2) and install in flat tire assembly (4).

END OF TASK

FLAT TIRE STOWAGE

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

1. Roll flat tire assembly (1) under tire davit (2) so valve stem (3) is down and the deep side of wheel (4) is facing out from HET Tractor.

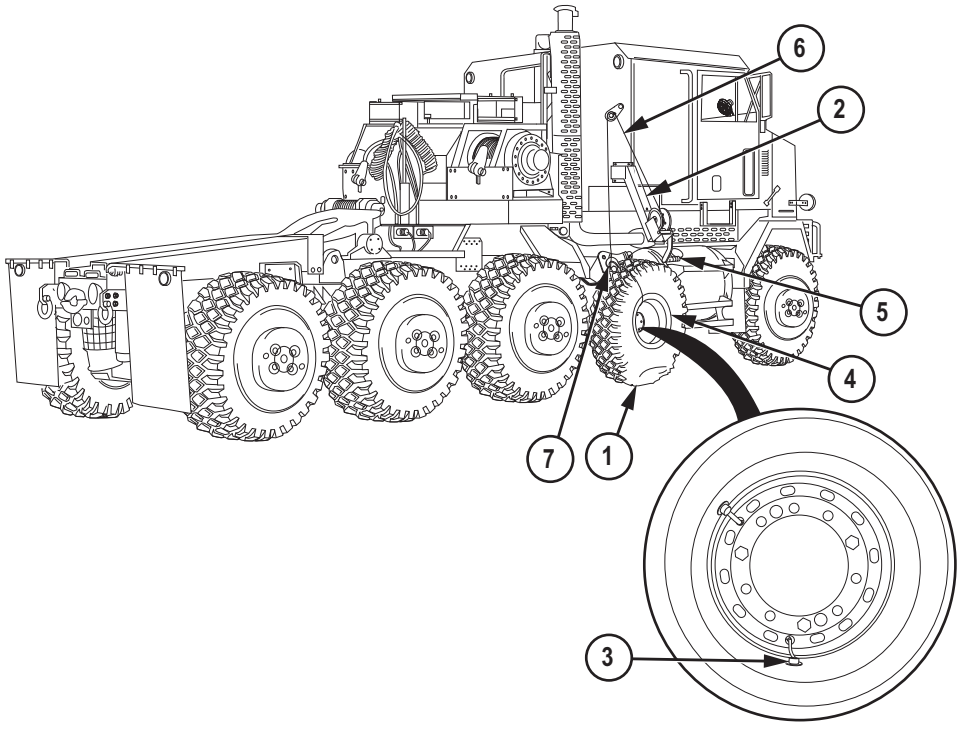


Figure 16.

2. Turn handcrank (5) to let out cable (6).

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FLAT TIRE STOWAGE - Continued

3. Pull hook (7) through flat tire assembly (1) and attach hook (7) to cable (6) at top of flat tire assembly (1).

WARNING



Wheel/tire assembly weighs 523 lbs (237 kg). Attach suitable lifting device prior to moving to prevent possible injury to personnel. Use caution when handling wheel/tire assembly to keep it from tipping over. Failure to comply may result in serious injury or death to personnel.

WARNING

Always wear heavy gloves when handling winch cable. Never let cable run through hands. Frayed cables can cut severely. Failure to comply may result in serious injury or death to personnel.

CAUTION

- Use care when raising tire to prevent damage to CTIS wheel valve.
- Do not attempt to mount spare tire with CTIS wheel valve on top. Failure to comply will result in damage to CTIS wheel valve.

4. With assistant pulling flat tire assembly away from bracket (8), turn handcrank (5) to raise flat tire assembly (1) just above bracket (8).

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FLAT TIRE STOWAGE - Continued

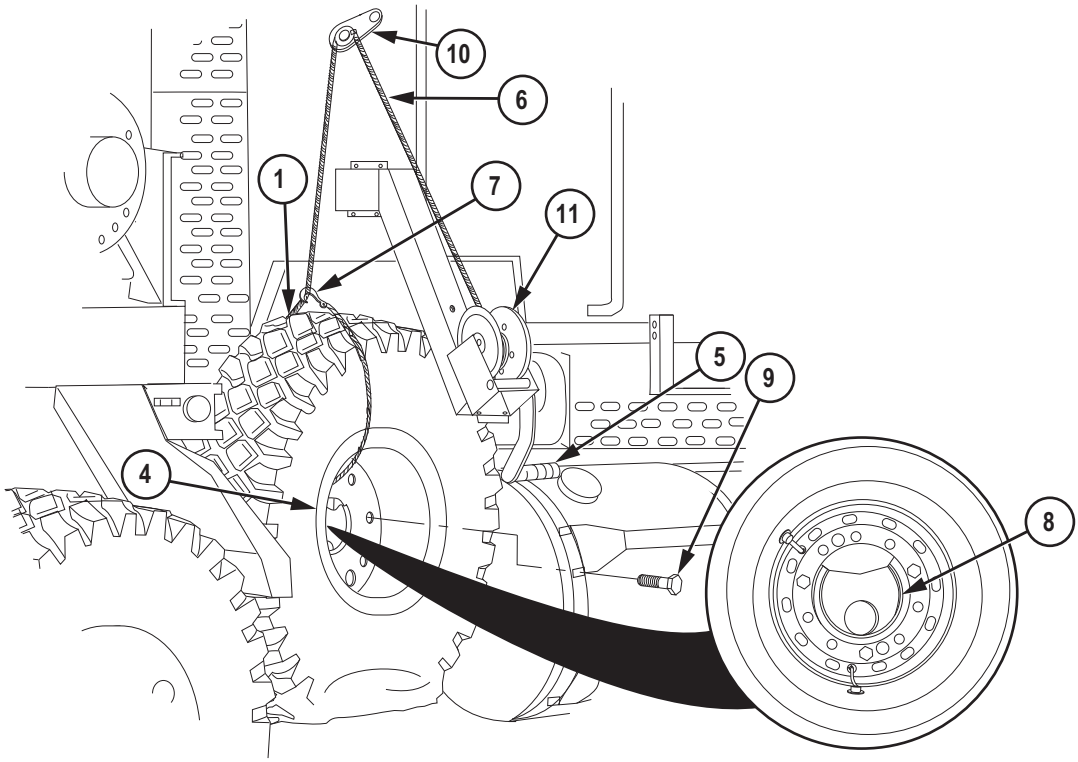


Figure 17.

5. Turn handcrank (5) to lower flat tire assembly (1) onto bracket (8).
6. With aid of assistant, install three screws (9) through wheel (4) and in bracket (8).
7. Remove hook (7) and cable (6) from flat tire assembly (1) and pulley (10).
8. Turn handcrank (5) to return cable (6) onto winch (11).

END OF TASK

TIRE DAVIT WINCH STOWAGE

1. Remove safety pin (1) from pin (2). Remove pin (2) from tire lift arm (3) and mount (4).

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TIRE DAVIT WINCH STOWAGE - Continued

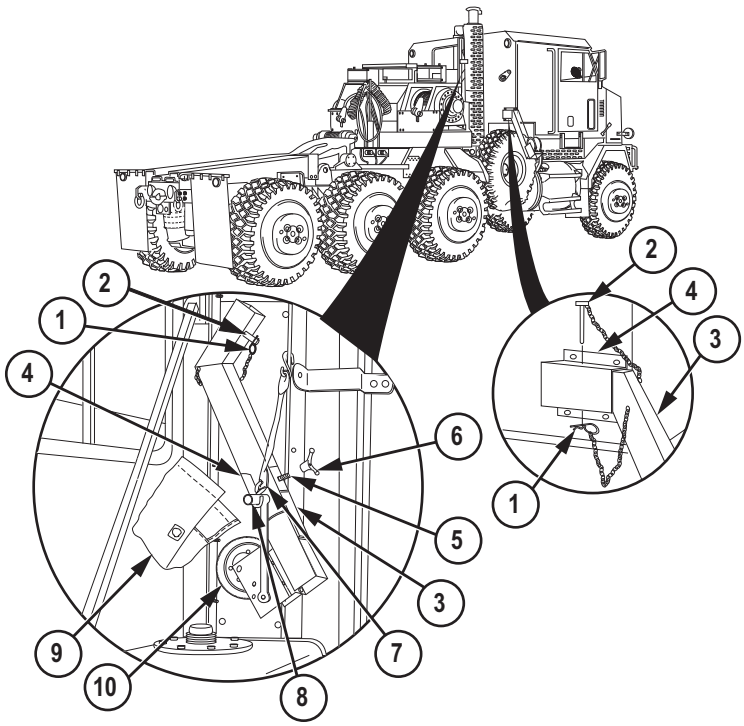


Figure 18.

2. Remove tire lift arm (3) from mount (4).
3. Install tire lift arm (3) on stud (5) with T-handle (6).
4. Install pin (2) in tire lift arm (3). Install safety pin (1) in pin (2).
5. Hook rubber strap (7) on handcrank (8).
6. Install boot (9) on winch (10).

END OF TASK

Follow-On Maintenance

1. Turn on CTIS. (WP 0028)
2. Turn emergency flashers off. (WP 0054)
3. Retrieve and stow emergency marker kit. (WP 0077)
4. Start engine. (WP 0037)

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Follow-On Maintenance - Continued

5. Release parking brake. (WP 0043)
6. Notify field maintenance to tighten nuts to proper torque values as soon as possible.
7. Notify field maintenance to repair flat tire assembly as soon as possible.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
SERVICING TIRES

INITIAL SETUP:

Tools and Special Tools
Hose Assembly, Air (WP 0114, Table 3, Item 22)
Tire Inflator/Gauge (WP 0114, Table 3, Item 39)

Equipment Condition
Shut engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

MANUALLY CHECKING, INFLATING AND DEFLATING TIRES

1. Remove air hose assembly (1) and tire inflator/gauge (2) from stowage box (3).

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

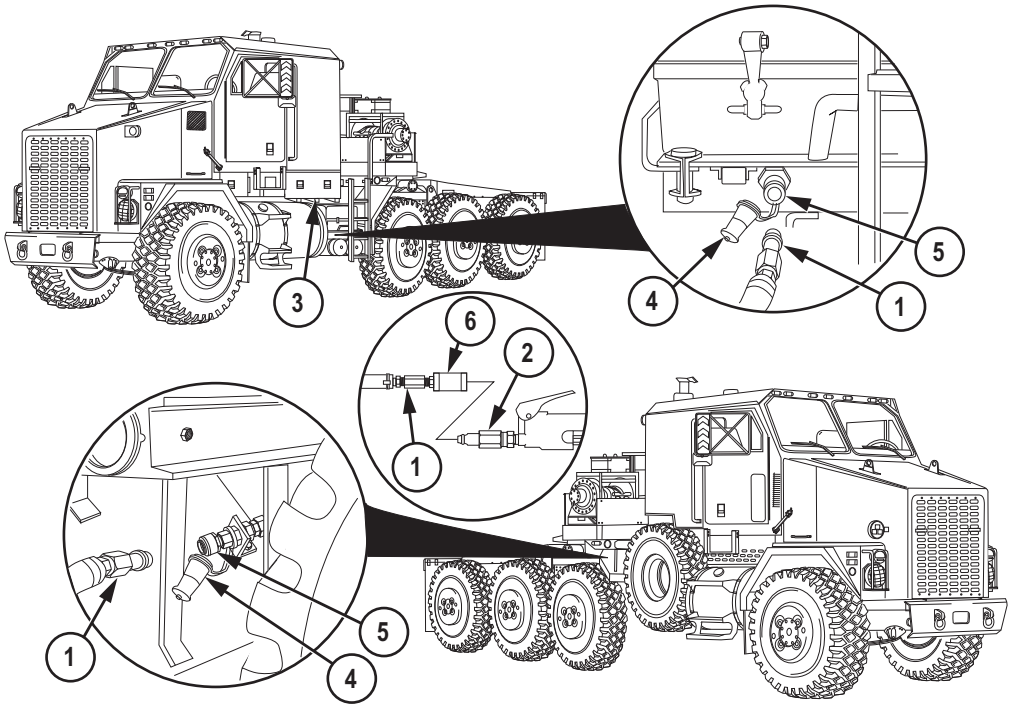


Figure 1.

2. Remove cover (4) from quick-disconnect coupling (5).
3. Connect air hose assembly (1) to quick-disconnect coupling (5).
4. Connect tire inflator/gauge (2) to quick-disconnect coupling (6) on air hose assembly (1).
5. Start engine. (WP 0037)
6. Remove cap (7) from air valve (8).

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

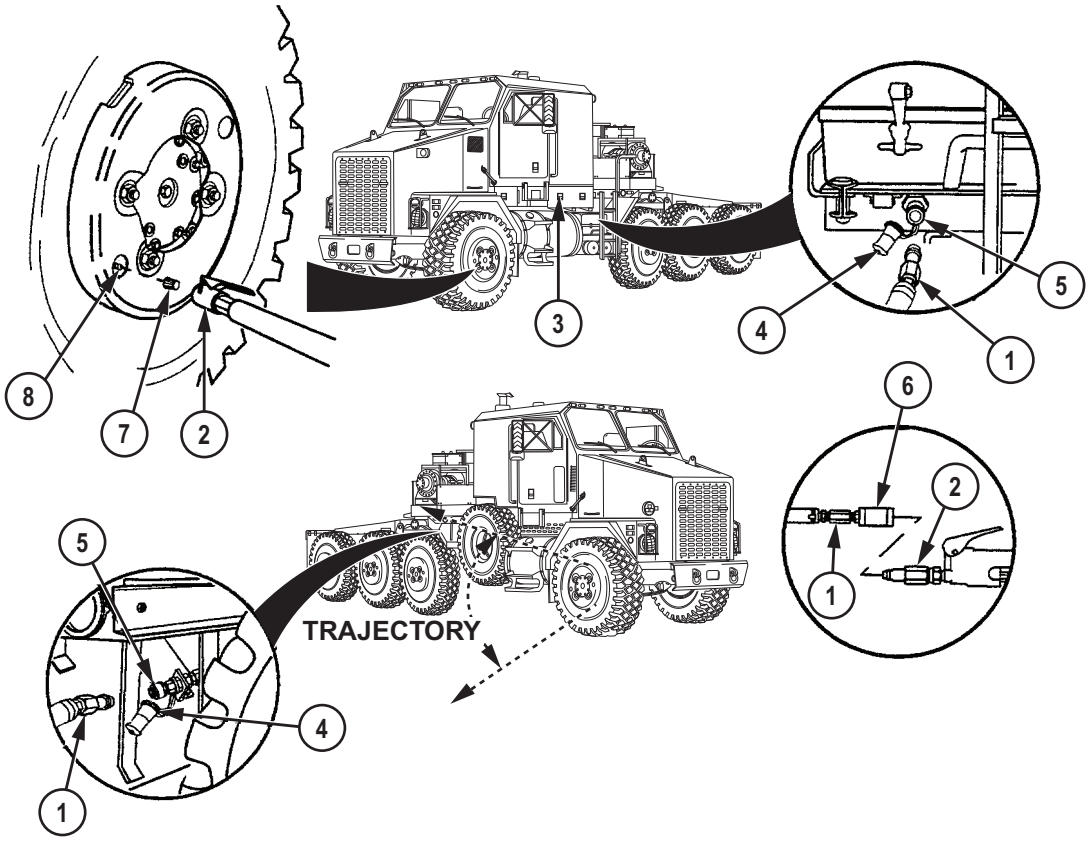


Figure 2.

WARNING

Prior to inflating or deflating tire, stand clear of trajectory area. Failure to comply may result in serious injury or death to personnel.

WARNING

If tire is under-inflated, over-inflated, or if wheel or tire has obvious or suspect damage, tire must be completely deflated by removing valve core from valve stem. Failure to comply may result in serious injury or death to personnel.

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

NOTE

- Tire inflator/gauge must clamp securely to air valve with no leaks for pressure reading to be accurate.
- Trajectory area as shown applies to all wheel/tire assemblies.

7. Push latch handle (9) on tire inflator/gauge (2) inward while pushing onto air valve (8). Release latch handle, and immediately step out of the trajectory area. Read tire air pressure on tire inflator/gauge and compare to Table below.

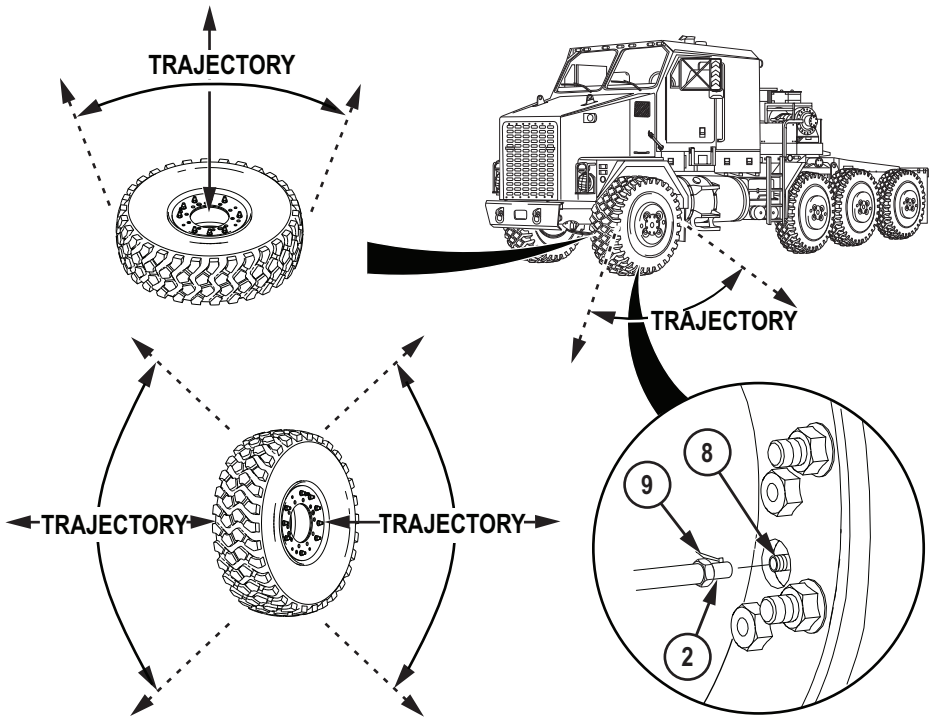


Figure 3.

Table 1. Unsafe Inflation Pressures.

	Front Tires are:	Rear Tires are:	Front Tires are:	Rear Tires are:
	Over-inflated.Tire pressure measured is 25% or more above	Over-inflated.Tire pressure measured is 25% or more above	Under-inflated.Tire pressure measured is 80%	Under-inflated.Tire pressure measured is 80%

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

Table 1. Unsafe Inflation Pressures. - Continued

	Front Tires are:	Rear Tires are:	Front Tires are:	Rear Tires are:
	standard pressure.	standard pressure.	or less than standard pressure.	or less than standard pressure.
	Do not adjust pressure if above pressure shown below.	Do not adjust pressure if above pressure shown below.	Do not adjust pressure if below pressure shown below.	Do not adjust pressure if below pressure shown below.
Highway	94 psi (648 kPa)	94 psi (648 kPa)	60 psi (414 kPa)	60 psi (414 kPa)
Cross Country	69 psi (476 kPa)	69 psi (476 kPa)	44 psi (303 kPa)	44 psi (303 kPa)
Mud, Sand, and Snow	50 psi (345 kPa)	50 psi (345 kPa)	32 psi (221 kPa)	32 psi (221 kPa)
Emergency	38 psi (262 kPa)	38 psi (262 kPa)	30 psi (207 kPa)	30 psi (207 kPa)

WARNING

It is not safe to adjust tire pressure if tire has been run flat, or is over or under-inflated when tire is compared to Table 1, or if wheel/tire assembly has obvious or suspected damage. Completely deflate tire and remove tire from axle. Failure to comply may result in serious injury or death to personnel.

WARNING

Use caution when inflating tire. Over-inflation may cause tire to blow apart which may result in serious injury or death to personnel.

NOTE

If CTIS is not working, tires may be inflated manually. Inflate tires only when they are cool. Inflate to proper pressure for terrain conditions.

8. Inflate tire to proper pressure (see Table 2 below).

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

Table 2. Tire Pressure.

TERRAIN	MPH (km/h) MAX	FRONT (2) PSI (kPa)	REAR (6) PSI (kPa)
Highway	45 (72)	75 (517)	75 (517)
Cross Country	30 (48)	55 (379)	55 (379)
Mud, Sand, Snow	15 (24)	40 (276)	40 (276)
Emergency	5 (8)	30 (207)	30 (207)

9. Disconnect tire inflator/gauge (2) from air valve (8).

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

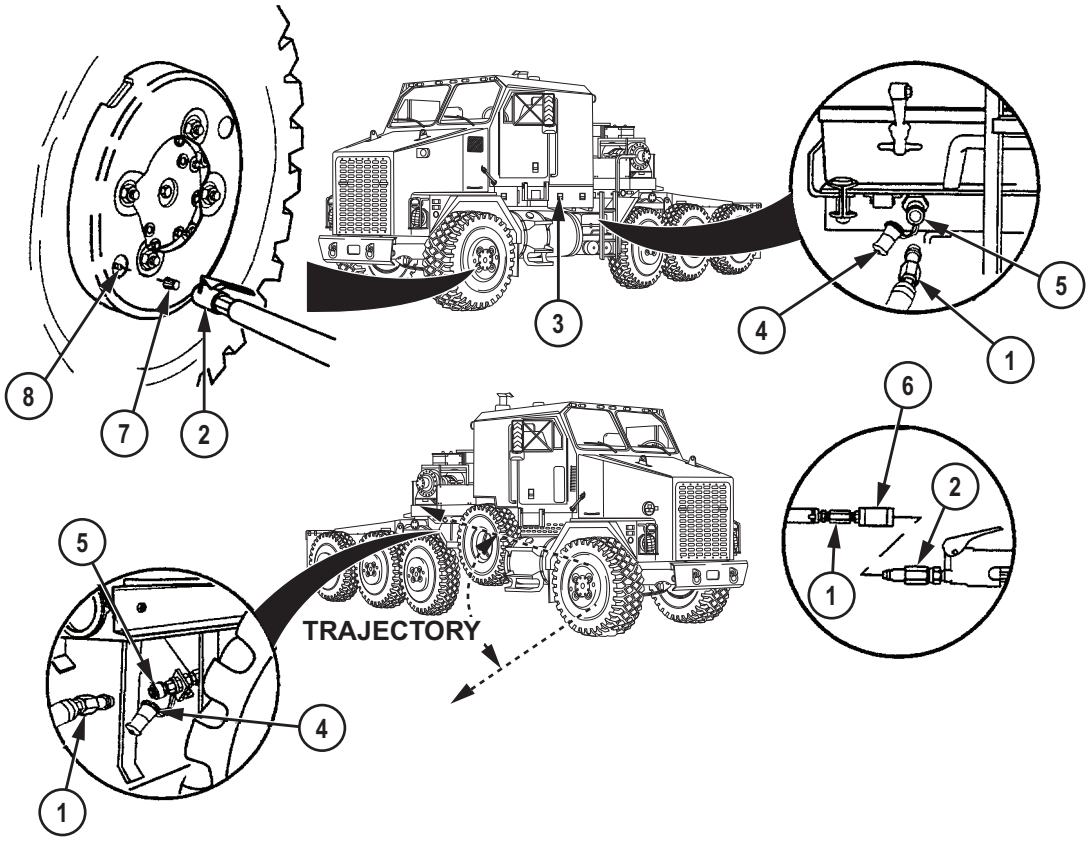
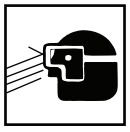


Figure 4.

10. Install cap (7) on air valve (8).

WARNING



Air hose is under pressure and can fly out at fast rate of speed. Wear proper eye protection. Hold end of air hose when disconnecting from quick-disconnect coupling. Failure to comply may result in serious injury or death to personnel.

11. Remove tire inflator/gauge (2) from quick-disconnect coupling (5).

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MANUALLY CHECKING, INFLATING AND DEFLATING TIRES - Continued

12. Install cover (4) on quick-disconnect coupling (5).
13. Remove tire inflator/gauge (2) from quick-disconnect coupling (6) on air hose assembly (1).
14. Stow air hose assembly (1) and tire inflator/gauge (2) in stowage box (3).
15. Shut engine OFF (WP 0042).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (WP 0064).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
DIPSTICK REMOVAL/INSTALLATION

INITIAL SETUP:

Materials/Parts
Rags, Wiping (WP 0116, Table 1, Item 48)

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

REMOVAL

CAUTION

Do not attempt to remove dipstick without first loosening handle. Failure to comply may damage dipstick.

NOTE

Engine, transmission, and power steering reservoir dipsticks are removed and installed the same way.

1. Loosen dipstick (1) by turning handle (2) counterclockwise until disc (3) turns freely.

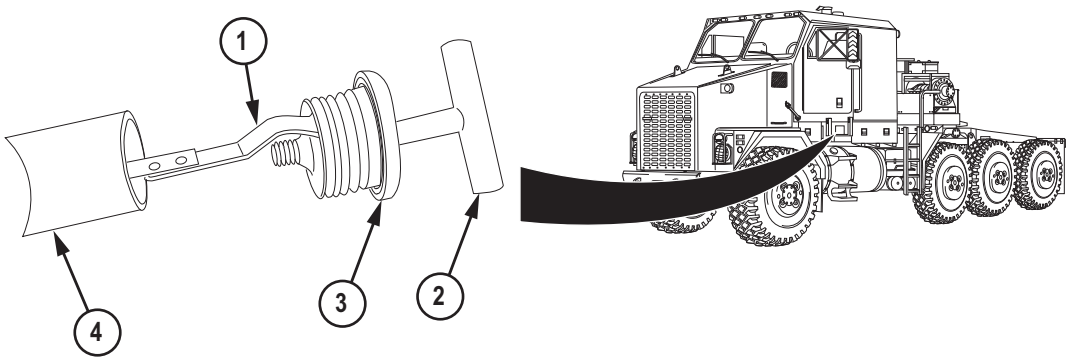


Figure 1.

2. Remove dipstick (1) from dipstick tube (4).

END OF TASK

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INSTALLATION

1. Install dipstick (1) in dipstick tube (4).

NOTE

Maintain inward pressure on dipstick while tightening.

2. Turn handle (2) clockwise until disc (3) does not turn freely.
3. Turn handle (2) clockwise an additional two turns to secure dipstick (1) in tube.

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (WP 0064).

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPENING/CLOSING HOOD

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

OPENING HOOD

1. Pull down latch (1) on each side of hood (2).

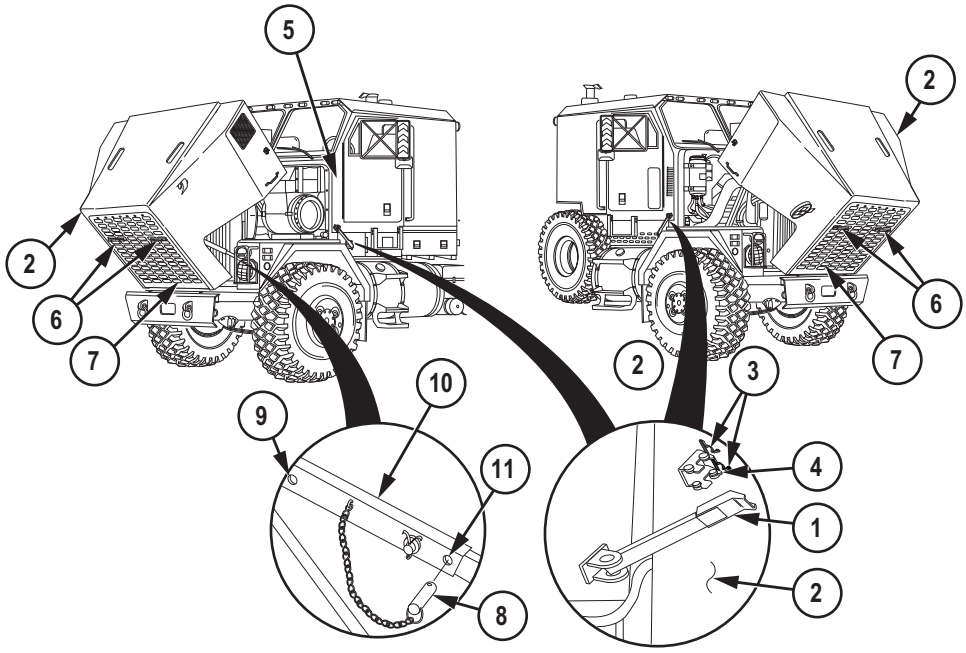


Figure 1.

2. Unhook latch (1) from spring clip (3) and hook (4) on each side of hood (2).

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OPENING HOOD - Continued

WARNING



Pin must be installed to lock hood in open position. Hood may accidentally close. Failure to comply may result in serious injury or death to personnel.

3. Pull hood (2) away from cab (5) and open using grab handles (6) on grille (7).
4. Remove pin (8) from hole (9) in hood support (10).
5. Install pin (8) in hole (11) in hood support (10).

END OF TASK

CLOSING HOOD

CAUTION

Pin tethering chain must be routed under hood support when stowing pin. Failure to comply may result in damage to chain.

1. Remove pin (8) from hole (11) in hood support (10).

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CLOSING HOOD - Continued

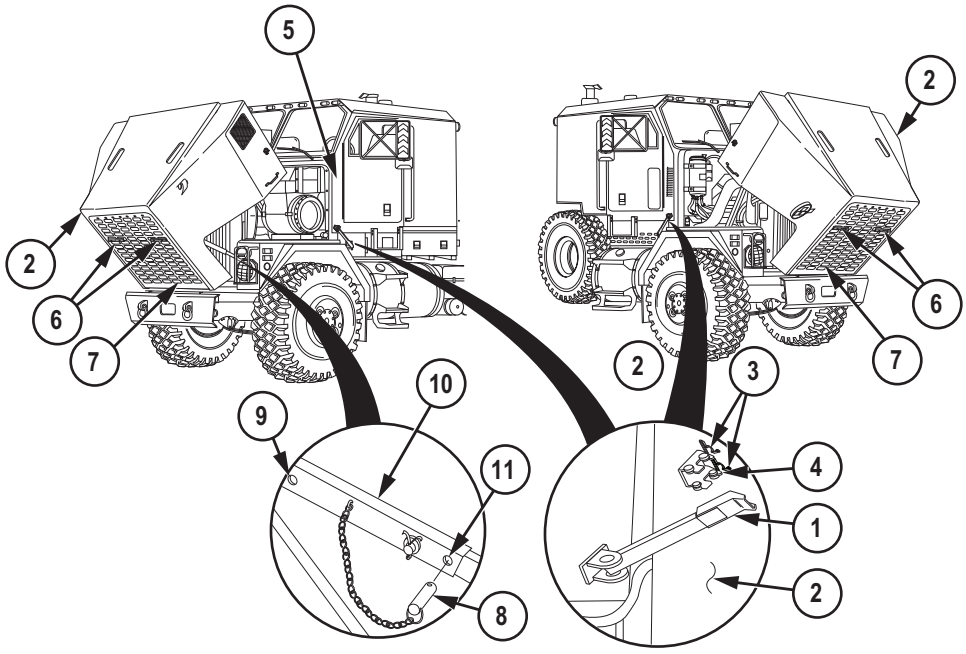


Figure 2.

2. Install pin (8) in hole (9) in hood support (10).
3. Push up on hood support (10) and push hood (2) toward cab (5) using grab handles (6) on grille (7).
4. Connect two latches (1) to hooks (4) on each side of hood (2).
5. Push up on each latch (1) to engage latch in hook (4) and spring clip (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks.

END OF TASK

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
OPENING/CLOSING BATTERY BOX

INITIAL SETUP:

Equipment Condition
Engine OFF. (WP 0042)

Equipment Condition - Continued
Parking brake applied. (WP 0043)
Wheels chocked. (WP 0064)

OPENING BATTERY BOX

1. Remove two clevis pins (1) from ladder supports (2) and ladder (3).

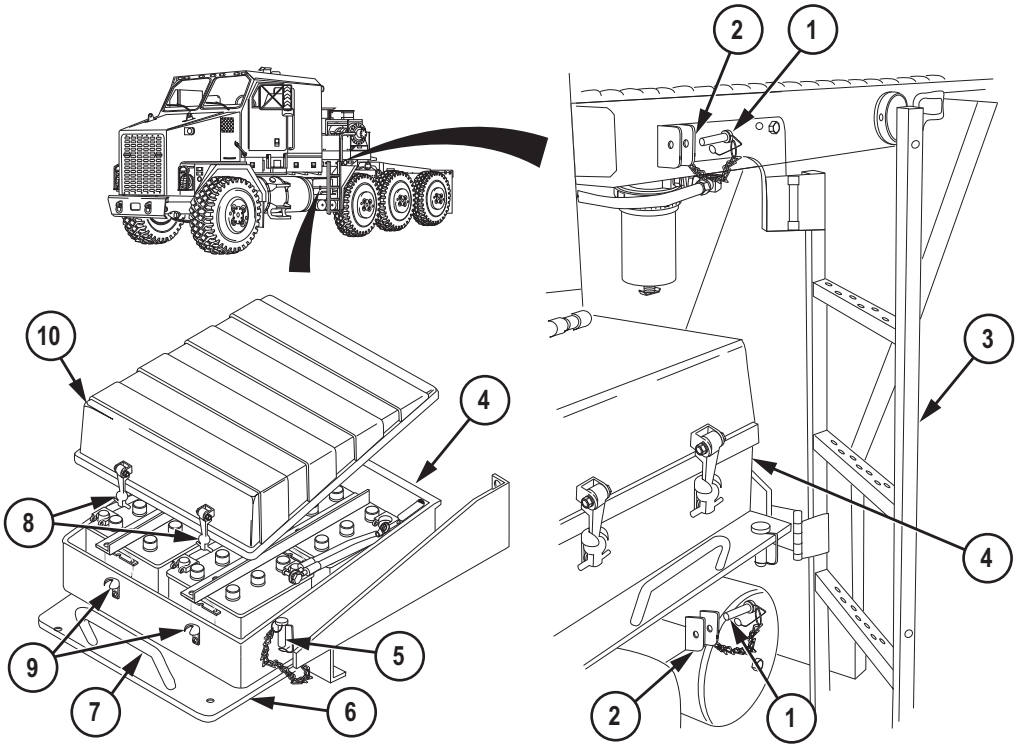


Figure 1.

2. Swing ladder (3) clear of battery box (4).

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OPENING BATTERY BOX - Continued

3. Remove two clevis pins (5) from battery box tray (6).
4. Pull on handle (7) and slide battery box (4) out.
5. Disconnect two rubber hooks (8) from brackets (9).
6. Remove cover (10) from battery box (4).

END OF TASK

CLOSING BATTERY BOX

NOTE

Retaining lip on inside of cover must hook over rear lip on battery box.

1. Install cover (10) on battery box (4).

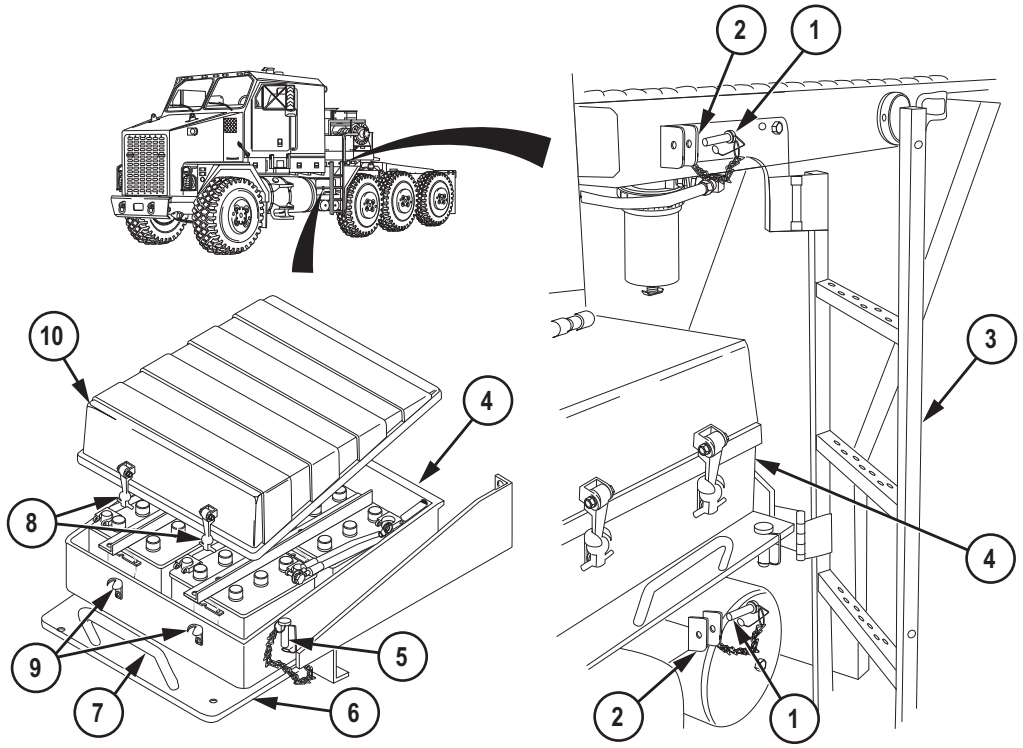


Figure 2.

2. Attach two rubber latches (8) on brackets (9).

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CLOSING BATTERY BOX - Continued

3. Push on handle (7) and slide battery box (4) in.
4. Install two clevis pins (5) in battery box tray (6). Hook pin bails over pins.
5. Swing ladder (3) into ladder supports (2).
6. Install two clevis pins (1) through ladder supports (2) and ladder (3). Hook pin bails over pins.

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks. (WP 0064)

END OF TASK

END OF WORK PACKAGE

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CHAPTER 6

SUPPORTING INFORMATION

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FIELD MAINTENANCE
REFERENCES

SCOPE

This work package lists all pamphlets, forms, field manuals, technical manuals, and other publications referenced in this manual. Also, those publications that should be consulted for additional information about vehicle operations are listed.

DEPARTMENT OF ARMY PAMPHLETS

The following indexes should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual
DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System (TAMMS-A)

FORMS

The following forms pertain to this manual. See DA Pam 25-30 for index of blank forms. See DA Pam 750-8 , The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

DA FORM 2028	Recommended Changes to Publications and Blank Forms
DA FORM 2404	Equipment Inspection and Maintenance Worksheet
DA FORM 2407	Maintenance Request
DA FORM 2408-9	Equipment Control Record
STANDARD FORM 368	Product Quality Deficiency Report
DD FORM 250	Materiel Inspection and Receiving Report
DD FORM 1149	Requisition and Invoice/Shipping Document
DD FORM 1348-1	DOD Single Line Item Release/Receipt Document
DD FORM 1397	Processing and Deprocessing Record for Shipping, Storage, and Issue of Vehicles and Spare Engines
DA FORM 2407-1	Maintenance Request Continuation Sheet
DA FORM 2402	Maintenance Exchange Tag
DA FORM 2062	Hand Receipt

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FORMS - Continued

DA FORM 5504	Maintenance Request
DA FORM 5504-1	Maintenance Request Continuation Sheet
DA FORM 5988-E	Equipment Maintenance and Inspection Worksheet
SF 361	Transportation Discrepancy Report
SF 364	Report of Discrepancy (ROD)
SF 4895	Equipment Preservation Data Sheet (EPDS)

FIELD MANUALS

FM 3-11.4	Multiservice Tactics, Techniques, and Procedures For Chemical, Biological, Radiological, and Nuclear Decontamination
FM 3-11.5	Multiservice Tactics, Techniques, and Procedures For Chemical, Biological, Radiological, and Nuclear Decontamination
FM 4-25.11	First Aid
FM 4-30.31	Recovery and Battle Damage Assessment and Repair
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather
FM 20-22	Vehicle Recovery Operations
FM 21-10	Field Hygiene and Sanitation
FM 21-40	Nuclear, Biological, and Chemical (NBC) Defense
FM 21-305	Manual for the Wheeled Vehicle Driver
FM 31-70	Basic Cold Weather Manual
FM 31-71	Northern Operations
FM 55-21	Railway Operating and Safety Rules
FM 90-3	Desert Operations

TECHNICAL BULLETINS

TB ORD 1030	Manufacture of Data Plates
TB 9-2300-281-35	Standards for Oversea Shipment or Domestic Issue of Special Purpose Vehicles, Combat, Tactical, Construction, and Selected Industrial and Troop Support US Army Tank-Automotive Materiel Readiness Command Managed Items
TB 9-2300-422-20	Security of Tactical Wheeled Vehicles

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TECHNICAL BULLETINS - Continued

TB 9-2320-360-13 & P-2	Operator's, Unit and Direct Support Maintenance Manual, Installation Instructions, and Repair Parts and Special Tools Lists (RPSTL) for Crew Protection Kit for Truck, Tractor, M1070P1, 8 x 8 Heavy Equipment Transporter (HET)
TB 43-0001-62-SERIES	Equipment Improvement Report and Maintenance Digest for Tank, Automotive, Armament and Chemical Equipment
TB 43-0142	Safety Inspection and Testing of Lifting Devices
TB 43-0209	Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment, and Material Handling Equipment
TB 43-0212	Purging, Cleaning, and Coating Interior Ferrous and Terne Sheet Vehicle Fuel Tanks
TB 43-0216	Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment
TB 750-254	Radiator Servicing and Repair
TB 750-651	Use of Antifreeze Solutions, Antifreeze Extender, Cleaning Compounds and Test Kit in Engine Cooling Systems
TB 9-289	Reconditioning of Type I and Type II Reusable Metal Containers

TECHNICAL MANUALS

TM 3-4230-214-12&P	Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontamination Apparatus
TM 3-4240-280-10	Operator's Manual for Mask, Chemical-Biological: Aircraft, ABC-M24 and Accessories and Mask, Chemical-Biological, Tank, M25A1 and Accessories
TM 3-6665-225-12	Operator's and Organizational Maintenance Manual for Alarm Chemical
TM 9-214	Inspection, Care and Maintenance of Antifriction Bearings
TM 9-243	Use and Care of Hand Tools and Measuring Tools
TM 9-1005-245-13&P	Operator’s, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Machine Gun Mounts and Combinations for Tactical/Armored Vehicles
TM 9-1440-600-10	Operator’s Manual, Launching Station, M901 Guided Missile, Semitrailer Mount
TM 9-2320-360-10-HR	Hand Receipt Manual for Truck, Tractor, M1070, 8x8, Heavy Equipment Transporter
TM 9-2320-427-10-HR	Hand Receipt Manual for Truck, Tractor, M1070 A1, 8x8, Heavy Equipment Transporter
TM 9-2610-200-14	Operator's, Unit, Direct Support, and General Support Maintenance Manual for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes

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TECHNICAL MANUALS - Continued

TM 9-2330-366-14&P	Operator's, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools Lists For Semitrailer, Lowbed, 12-Ton, XM974 (NSN 2330-01-116-0288)
TM 9-247	Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Materials including Chemicals
TM 9-4910-571-12&P	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Simplified Test Equipment for Internal Combustion Engines (STE/ICE-R)
TM 9-4910-783–13&P	Operator's, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Standard Automotive Test Set (SATS)
TM 9-4940-468-13	Operator's, Unit, and Direct Support Maintenance Manual for Tool Outfit, Hydraulic Systems Test and Repair Unit (HSTRU)
TM 9-4940-568-10	Operator's Maintenance Manual for Forward Repair System (FRS)
TM 9-6140-200-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Lead-Acid Storage Batteries
TM 9-8000	Principles of Automotive Vehicles
TM 11-5820-498-12	Operator's and Organizational Maintenance Manual: Radio Sets
TM 11-5820-498-35	Direct Support, General Support, and Depot Maintenance Manual for Radio Sets
TM 38-250	Preparing Hazardous Materials for Military Air Shipments
TM 43-0139	Painting Instructions for Army Materiel
TM 43-0158	General Shop Practice Requirements for the Repair, Maintenance, and Test of Electrical Equipment - Cadmium Batteries
TM 55-2200-001-12	Transportability Guidance for Application of Blocking, Bracing and Tiedown Materials for Rail Transport
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command)
TM 750-244-6	Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command)
TM 750-254	Cooling Systems: Tactical Vehicles
TM 5-2330-378-14&P	Operator's, Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Semitrailer, Lowbed: 40-Ton Construction Equipment Transporter, M870, and M870A1
TM 5-2330-325-14&P	Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Trailer, Medium Heavy Equipment Transporter (MHET), 40-Ton, M870A3

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TECHNICAL MANUALS - Continued

TM 9-2330-213-14&P	Operator's, Unit, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools Lists) For Trailer, Chassis: 1-1/2-Ton, 2-Wheel M103A1 (NSN 2330-00-835-8629) M103A3 (NSN 2330-00-141-8052) Trailer, Cargo: 1-1/2-Ton, 2-Wheel M105A1 (NSN 2330-00-835-8631) M105A2 (NSN 2330-00-141-8050) M105A2C (NSN 2330-00-542-5689) Trailer, Tank, Water: 1-1/2-Ton, 2-Wheel, 400-Gallon M107A1 (NSN 2330-00-835-8633) M107A2 (NSN 2330-00-141-8049) M107A2C (NSN 2330-00-542-5688) Trailer, Van, Shop: Folding Sides, 1-1/2-Ton, 2-Wheel M448 (NSN 2330-00-631-5692)
TM 9-2330-231-14&P	Manual Operator's, Organizational, Direct Support, And General Support Maintenance (Including Repair Parts and Special Tools List) Trailer, Ammunition: 1 1/2-Ton, 2-Wheel, M332 (NSN 2330-00-200-1785)
TM 9-2330-368-14&P	Operator's, Field and Sustainment Maintenance Manual, Including Repair Parts and Special Tools List For Trailer, Ammunition, Heavy Expanded Mobility, 11-Ton, M989 (NSN 2330-01-109-4258)
TM 9-2330-381-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Semitrailer, Transporter, Heavy Equipment, 70 ton, M1000
TM 11-5820-401-10-1	Operator's Manual for Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435), and AN/VRC-49 (5820-00-223-7437); (used without intercom set)
TM 11-5820-890-10-1	Operator's Manual for SINCGARS Ground Combat Net Radio, ICOM Manpack Radio AN/PRC-119A (NSN 5820-01-267-9482) (L2Q) Short Range Vehicular Radio AN/VRC-87A (5820-01-267-9480) (Short Range Vehicular Radio with Single Radio Mount AN/VRC-87C (5820-01-304-2045) (GDC) Short Range Vehicular Radio with Dismount AN/VRC-88A (5820-01-267-9481) (L23) Short Range Vehicular Radio with Dismount and Single Radio Mount AN/VRC-88C (5820-01-304-2044) (GDD) Short Range/Long Range Vehicular Radio AN/VRC-89A (5820-01-267-9479)

MISCELLANEOUS PUBLICATIONS

AR 200-1	Environmental Protection and Enhancement
AR 385-10	Army Safety Program
AR 700-139	Army Warranty Program

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MISCELLANEOUS PUBLICATIONS - Continued

AR 750-1	Army Materiel Maintenance Policy
AR 750-10	Army Modification Program
MIL-S-3785 (series)	Starters Engine, Electrical, 24-Volt D.C.
MIL-STD-3003 (series)	Vehicles, Wheeled: Preparation For Shipment and Storage of
TC 9-237	Operator's Circular Welding Theory and Application

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

INTRODUCTION

Scope

This work package lists COEI and BII for the HET series vehicles to help you inventory items required for safe and efficient operation.

General

The Components of End Item and Basic Issue Items Lists are divided into the following lists:

Components of End Item (COEI) This listing is for informational purposes only and is not authority to requisition replacements. These items are part of the HET series vehicle. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII) These are the minimum essential items required to place the HET series vehicle in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the vehicle during operation and when it is transferred between property accounts. Listing these items is your authority to request/ requisition them for replacement based on your authorization of the end item by the TOE/ MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Entries in the COEI List and BII List

The following provides an explanation of columns found in the tabular listings:

Item Number Gives you the reference number of the item listed.

National Stock Number (NSN) and Illustration Identifies the stock number of the item to be used for requisitioning purposes and provides an illustration of the item.

Description, Part Number/(CAGEC) Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this entry. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Usable On Code When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

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INTRODUCTION - Continued

Table 1. List of Usable On Codes

Code	Used On
MTH	Truck, Tractor, M1070

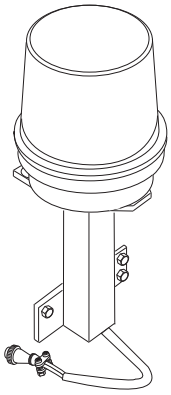
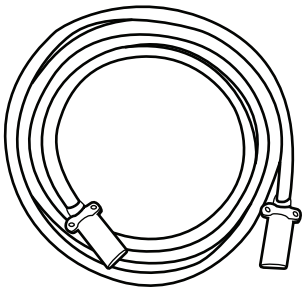
Column (5) - U/I Unit of Issue (U/I) Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty Indicates the quantity required.

COMPONENTS OF END ITEM

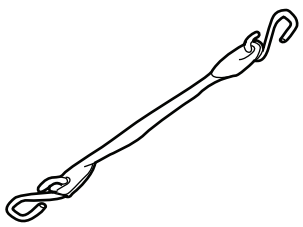
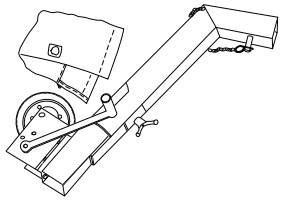
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Table 2. Components of End Item

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
1	6220-01-449-1239 	BEACON LIGHT ASSY 2050100U(45152)		EA	1
2	5995-00-772-8813 	CABLE, INTERVEHICULAR 12-PIN, 24-VOLT (located in driver side stowage box) 7728813(19207)		EA	1

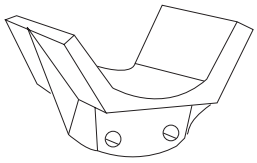
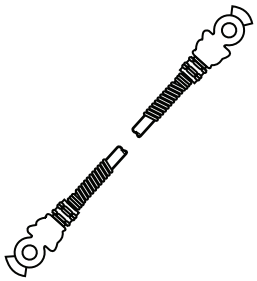
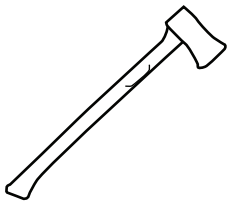
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Table 2. Components of End Item - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
3	5340-01-231-6015 	STRAP, RUBBER (secures tire davit handle) 2025(60848)		EA	1
4	2590-01-416-3267 	TIRE LIFT ARM ASSEMBLY (mounts on vertical exhaust stack) 193917OU(45152)		EA	1

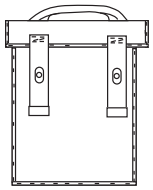
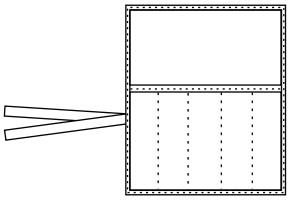
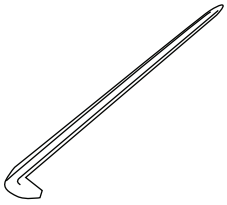
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Table 3. Basic Issue Items

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
1	5120-01-422-8775 	ADAPTER: SADDLE, HYDRAULIC JACK (located in driver side stowage box) 2067070(45152)		EA	1
2	4720-01-254-0189 	HOSE ASSEMBLY, NONMETALLIC: Intervehicular (in stowage box) MS39325-9-140-B(96906)		EA	1
3	5110-00-293-2336 	AXE, SINGLE BIT (located in driver side stowage box) 6150925(19207)		EA	1

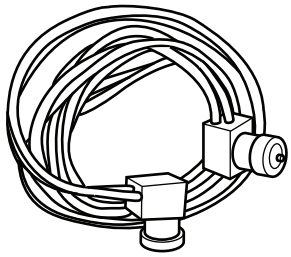
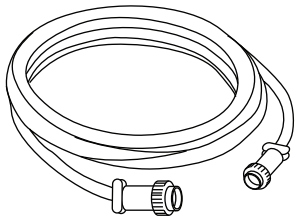
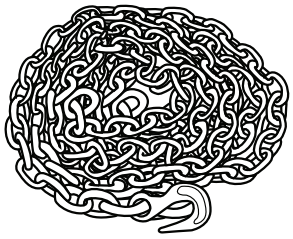
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
4	8105-01-353-2497 	BAG, PAMPHLET (located in driver side stowage box) 1362710(45152)		EA	1
5	5140-01-167-1541 	BAG, TOOL (located in driver side toolbox) 1350190(45152)		EA	1
6	5120-00-224-1389 	BAR, PRY, 15 IN. (located in driver side stowage box) 8041183(72915)		EA	1

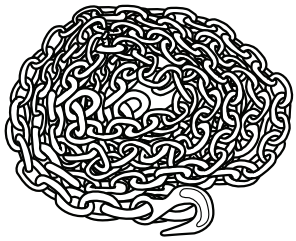
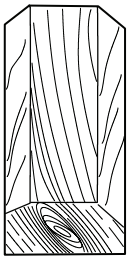
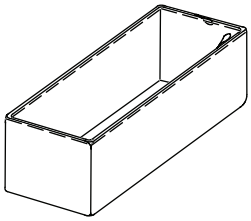
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
7	6150-01-022-6004 	CABLE, SLAVE, NATO (located in driver side stowage box) 11682336-1(19207)		EA	1
8	6150-01-353-3201 	CABLE, TRAILER LIGHT, 7-PIN, 12-VOLT (in stowage box) 7742-168(06721)		EA	1
9	4010-01-351-5676 	CHAIN, UTILITY, 7/8 IN. X 20 FT (located in driver side stowage box) 1839610(45152)		EA	1

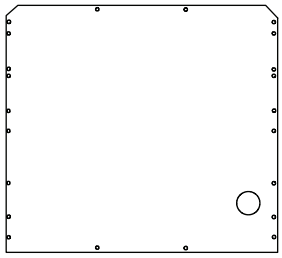
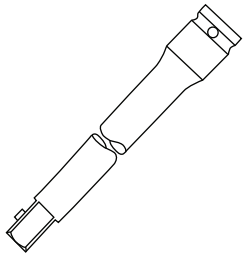
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
10	4010-01-249-0548 	CHAIN, UTILITY, 5/8 X 14 FT (located in driver side stowage box) 00044-9973(80535)		EA	1
11	2540-01-165-6136 	CHOCK, WHEEL (in stowage boxes on main winches) 1350250(45152)		EA	4
12	3830-01-478-8769 	COVER, AUXILIARY WINCH (located on auxiliary winch) 2084960(0NPD5)		EA	1

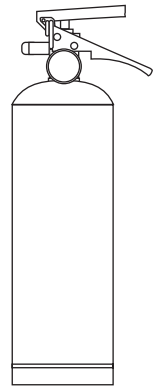
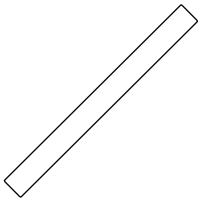
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
13	2540-01-351-5965 	COVER, GRILL (in stowage box) 1805550(45152)		EA	1
14	5130-01-400-0129 	EXTENSION, WRENCH, 13 IN. (located in driver side stowage box) 07569(1CV05)		EA	1

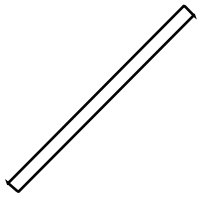
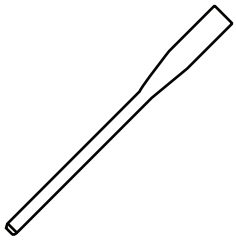
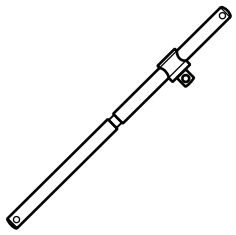
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
15	4210-00-165-4703 	FIRE EXTINGUISHER (located under dash panel, driver side) AA393-A1B(58536)		EA	1
16	6545-00-922-1200 	FIRST AID KIT (in glove box) 11677011(19207)		EA	1
17	5340-01-209-7841 	HANDLE, EXTENSION (located in driver side stowage box) 1347720(45152)		EA	1

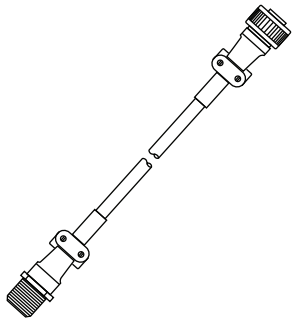
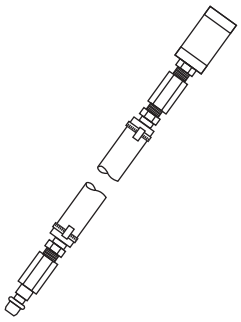
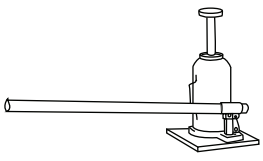
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
18	5120-01-423-6463 	HANDLE, HYDRAULIC JACK, EXTENSION, 40 IN. (located in driver side stowage box) 2073170(45152)		EA	1
19	5120-00-288-6574 	HANDLE, MATTOCK PICK (located in driver side stowage box) 11677021(19207)		EA	1
20	5120-01-242-7218 	HANDLE, SLIDING, 3/4 IN. SQUARE DRIVE (in stowage front box) 1505380(45152)		EA	1

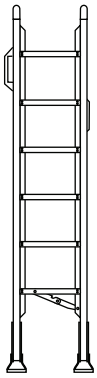
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
21	6210-01-354-5929 	HARNESS, WORKLAMP (in stowage front box) 1858760(45152)		EA	2
22	4720-01-386-3455 	HOSE ASSEMBLY, AIR, 60 FT (in stowage box) FK1780GGG7200(01276)		EA	1
23	5120-01-146-8096 	JACK, HYDRAULIC WITH HANDLE (in stowage box) JH-12(26952)		EA	2

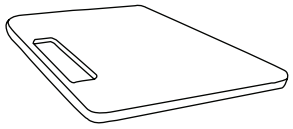
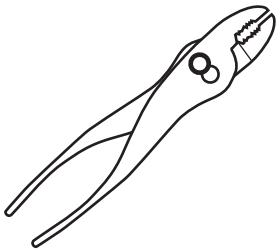
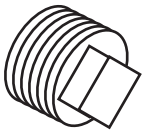
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
24	5440-01-342-0700 	LADDER (on tail pipe support) 2019940(45152)		EA	1
25	5120-00-243-2395 	MATTOCK, PICK TYPE, 5 LB (in stowage box) 11677022(19207)		EA	1
26	5340-00-158-3805 	PADLOCK WITHOUT CHAIN (for stowage and tool boxes) MS35647-10(96906)		EA	4

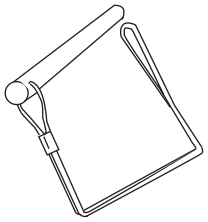
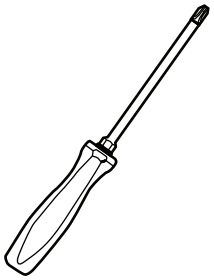
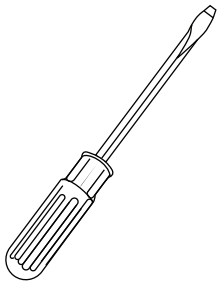
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
27	5340-01-350-0872 	PLATE, MOUNTING: JACK (located in driver side stowage box) 1731070(45152)		EA	1
28	5120-00-278-0352 	PLIERS, SLIP JOINT (in tools and accessories roll) 8195590(18876)		EA	1
29	4730-00-221-2139 	PLUG, LIMP HOME (in stowage box) MS20913-4S(96906)		EA	2

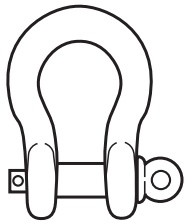
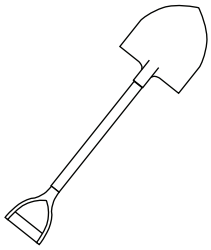
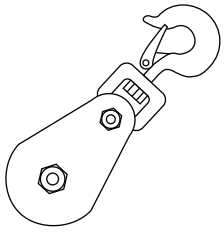
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
30	5315-01-358-3736 	PIN, ADAPTER (in adapter) 28-07(96652)		EA	2
31	5120-01-367-3799 	SCREWDRIVER, CROSS-TIP, 10 IN. (in tools and accessories roll) SDD P63(55719)		EA	1
32	5120-00-293-3309 	SCREWDRIVER, STANDARD, NO. 6 (in tools and accessories roll) DR.30(65184)		EA	1

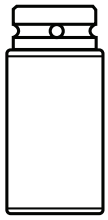
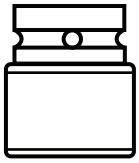
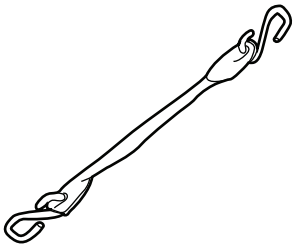
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
33	4030-01-408-2774 	SHACKLE, TOWING (in stowage box) M0666(90202)		EA	4
34	5120-01-515-7117 	SHOVEL, D-HANDLE, ROUND POINT (located in driver side stowage box) 3453866(45152)		EA	1
35	3940-01-353-2214 	SNATCH BLOCK (located in driver side stowage box) 420000(95975)		EA	1

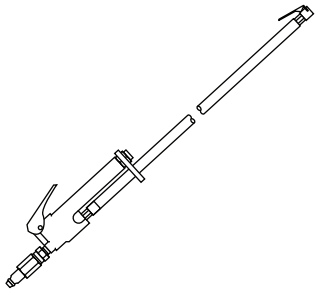
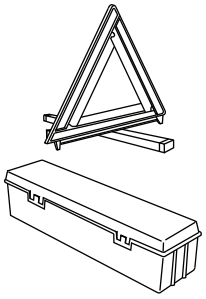
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
36	5130-00-541-7839 	SOCKET, IMPACT, 1 1/2 (located in driver side stowage box) DDP486A(1DJ82)		EA	1
37	5130-01-366-0376 	SOCKET, IMPACT, 33 MM (in stowage box) 07533M(1CV05)		EA	1
38		STRAP, RETAINING, RUBBER (in stowage box) 54850-BX(45152)		EA	1

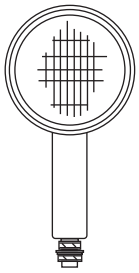
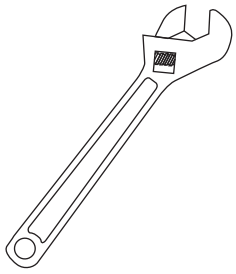
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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
39	5340-01-231-6015 	TIRE INFLATOR/ GAUGE (in stowage box) I-405-10M(63900)		EA	1
40	9905-01-480-0644 	WARNING DEVICE KIT (located in driver side stowage box) 64326BX(45152)		EA	1

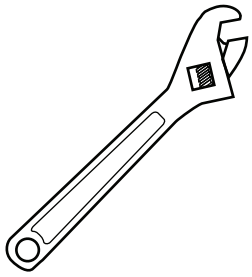
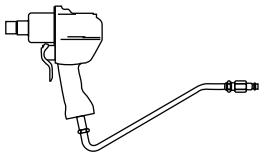
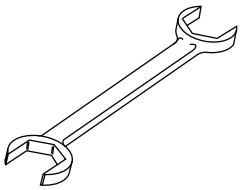
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
41	6230-01-354-1204 	WORK LIGHT, PORTABLE (in front stowage box) NOTE: Replacement bulb NSN is 6240-01-341-3771 1401272(78422)		EA	2
42	5120-00-240-5328 	WRENCH, ADJUSTABLE, 8 IN. (in tools and accessories roll) 11655778-3(19207)		EA	1

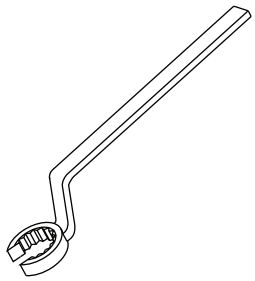
https://truckmanualshub.com/

Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
43	5120-00-264-3796 	WRENCH, ADJUSTABLE, 12 IN. (in tools and accessories roll) 5323324(19207)		EA	1
44	5130-01-428-3751 	WRENCH, AIR-POWERED, 3/4 IN. SQUARE DRIVE (located in driver side stowage box) 1789100U(45152)		EA	1
45	5120-01-373-8833 	WRENCH, OPEN END (in tools and accessories roll) BW-731A(82799)		EA	1

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Table 3. Basic Issue Items - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
46	5120-01-387-0055 	WRENCH, TUBE, 3/4 IN. (in tools and accessories roll) 2022970(45152)		EA	1

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
ADDITIONAL AUTHORIZATION LIST (AAL)

Introduction

Scope

This work package lists additional authorization items that are needed to operate and maintain the HET Series Vehicles.

General

This list identifies items that do not have to accompany the HET Series Vehicles and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL

Column (1) - National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) - Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) - Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Table 1. List of Usable On Codes

Code	Used On
MTH	Truck, Tractor, M1070

Column (4) - U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number.

Column (5) - Qty Recm. Indicates the quantity recommended.

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Table 2. Additional Authorization List

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
2540-01-152-7813	Chain, Tire, Emergency 2624-10-8(46156)	MTH	PR	2
4230-01-220-3221	Decontaminating Apparatus: M13 5705588(19207)	MTH	EA	1
4730-01-356-0340	Gas Particulate Kit 1795950U(45152)	MTH	EA	1
8415-00-634-4658	Gloves, Leather 37G2940(90142)	MTH	PR	2
1730-00-906-1352	Hand Operated Hoist 302L(94933)	MTH	EA	1
6665-01-220-3220	Kit, Chemical Alarm 5705589(19207)	MTH	KT	1
	M12 EMI Arctic Heater Kit, Engine 3815131(45152)	MTH	KT	1
5120-00-892-5709	Mirror, Inspection UH1487(11676)	MTH	EA	1
3940-01-209-6008	Sling and Wire Rope Assembly Set AC 2000 00331(94658)	MTH	EA	1
2815-01-426-7837	Swingfire Arctic Kit, Engine 1787700U(45152)	MTH	KT	1

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Table 2. Additional Authorization List - Continued

(1) National Stock Number (NSN)	(2) Description, Part Number/ (CAGEC)	(3) Usable On Code	(4) U/I	(5) Qty Recom
2540-01-538-4848	Ventilator, Air Circulating 073365681(5N978)	MTH	EA	1

END OF WORK PACKAGE

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OPERATOR MAINTENANCE
EXPENDABLE AND DURABLE ITEMS LIST

Introduction

Scope

This work package lists expendable supplies and materials that are needed to operate and maintain the HET Series Vehicles. This list is for information only and is not authority to requisition the listed items. These items are authorized by CTA 50-970, Expendable/ Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expandable/Durable Items.

Explanation of Entries in the Expendable/Durable Items List

Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (Expendable/Durable Items List)).

Level. This column identifies the lowest level of maintenance that requires the listed item.
- C = Operator/Crew
- F = Maintainer or ASB
- H = General Support or TASMG
- D = Depot

National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

(U/I). Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

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Table 1. Expendable and Durable Items List

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Antifreeze, Arctic Type	
1	O	6850-01-464-9096	Antifreeze, Arctic Type 55-gal drum A-A-52624 (58536)	DR
			Antifreeze, Permanent, Glycol, Inhibited	
2	O	6850-01-464-9125	Antifreeze, Permanent, Glycol, Inhibited 1-gal container AA52624 (58536)	GL
3	O	6850-00-464-9137	Antifreeze, Permanent, Glycol, Inhibited 5-gal container MILA46153 (81349)	CO
4	O	6850-01-464-9152	Antifreeze, Permanent, Glycol, Inhibited 55-gal drum A-A-52624 TY I RECYCLED (58536)	DR
			Chips, Soap, P-S-579	
5	O	7930-00-634-3935	Chips, Soap, P-S-579 200-pound drum ASTM D 496 (81346)	DR
6	O	7930-00-579-8532	Chips, Soap, P-S-579 100-pound drum P-S-1792 (81348)	DR
			Cleaning Compound, Solvent	
7	O	6850-01-474-2319	Cleaning Compound, Solvent 1 gallon can MIL-PRF-680 Type II (81349)	GL
8	O	6850-01-474-2317	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type II (81349)	CO

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
9	O	6850-01-474-2316	Cleaning Compound, Solvent 55 gallon drum MIL-PRF-680 Type II (81349)	DR
10	O	6850-01-474-2318	Cleaning Compound, Solvent 1 gallon can MIL-PRF-680 Type III (81349)	GL
11	O	6850-01-474-2320	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type III (81349)	BX
12	O	6850-01-474-2321	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type III (81349)	DR
			Compound, Cleaning Windshield	
13	O	6850-00-926-2275	Compound, Cleaning Windshield 1-pt can 0854-000 (0FTT5)	BX
			Fuel, DF-1, Winter	
14	O	9140-01-413-7511	Fuel, DF-1, Winter Bulk VV-F-800 (81348)	GL
15	O	9140-00-286-5286	Fuel, DF-1, Winter Bulk ASTM D 975 (81346)	GL
16	O	9140-00-286-5287	Fuel, DF-1, Winter 5-gal can ASTM D 975 (81346)	CN
17	O	9140-00-286-5288	Fuel, DF-1, Winter 55-gal drum, 16 gauge ASTM D 975 (81346)	DR

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
18	O	9140-00-286-5289	Fuel, DF-1, Winter 55-gal drum, 18 gauge ASTM D 975 (81346)	DR
			Fuel	
19	O	9130-01-031-5816	Fuel, JP8 Bulk MILT83133 GR JP8 (81349)	GL
20	O	9140-01-412-1311	Fuel, DF-2, Regular Bulk VV-F-800 (81348)	GL
21	O	9140-00-286-5294	Fuel, DF-2, Regular Bulk ASTM D 975 (81346)	GL
22	O	9140-00-286-5295	Fuel, DF-2, Regular 5-gal can ASTM D 975 (81346)	CN
23	O	9140-00-286-5296	Fuel, DF-2, Regular 55-gal drum, 16 gauge ASTM D 975 (81346)	DR
24	O	9140-00-286-5297	Fuel, DF-2, Regular 55-gal drum, 18 gauge ASTM D 975 (81346)	DR
			Grease, Automotive and Artillery GAA	
25	O	9150-01-197-7688	Grease, Automotive and Artillery GAA 2-1/2 oz tube M-10924-A (81349)	TU
26	O	9150-01-197-7693	Grease, Automotive and Artillery GAA 14-oz cartridge M-10924-B (81349)	CA
27	O	9150-01-197-7690	Grease, Automotive and Artillery GAA 1-lb can M-10924-C (81349)	CN

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
28	O	9150-01-197-7689	Grease, Automotive and Artillery GAA 5-lb can M-10924-D (81349)	CN
29	O	9150-01-197-7692	Grease, Automotive and Artillery GAA 35-lb can M-10924-E (81349)	CN
			Oil, Lubricating Gear, GO 75	
30	O	9150-01-035-5390	Oil, Lubricating Gear, GO 75 1-qt can M2105-1-75W (81349)	QT
31	O	9150-01-035-5391	Oil, Lubricating Gear, GO 75 55-gal drum M2015-3-75W (81349)	CN
			Oil, Lubricating Gear, GO 80W/90	
32	O	9150-01-048-4593	Oil, Lubricating Gear, GO 80W/90 5-gal can J2360 (81343)	CN
			Oil, Lubricating OEA Ice, Subzero	
33	O	9150-00-402-4478	Oil, Lubricating OEA Ice, Subzero 1-qt can EMERY3908D (33358)	QT
34	O	9150-00-402-2372	Oil, Lubricating OEA Ice, Subzero 5-gal can MIL-PRF-46167 (81349)	CN

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
35	O	9150-00-491-7197	Oil, Lubricating OEA Ice, Subzero 55-gal drum, 16 gauge MIL-PRF-46167 (81349)	DR
			Oil, Lubricating OE/HDO 10	
36	O	9150-01-518-9471	Oil, Lubricating OE/HDO 10 1-qt can M2104-1-10W (81349)	QT
37	O	9150-00-186-6668	Oil, Lubricating OE/HDO 10 5-gal can M2104-3-10W (81349)	CN
38	O	9150-00-191-2772	Oil, Lubricating OE/HDO 10 55-gal drum, 18 gauge M2104-4-10W (81349)	DR
			Oil, Lubricating OE/HDO 30, (SAE 30)	
39	O	9150-00-186-6681	Oil, Lubricating OE/HDO 30, (SAE 30) 1-qt can M2104-1-30W (81349)	QT
40	O	9150-00-188-9858	Oil, Lubricating OE/HDO 30, (SAE 30) 5-gal can M2104-3-30W (81349)	CN
41	O	9150-00-189-6729	Oil, Lubricating OE/HDO 30, (SAE 30) 55-gal drum, 18 gauge M2104-4-30W (81349)	DR
			Oil, Lubricating, OE/HDO-15W/40	
42	O	9150-01-152-4118	Oil, Lubricating, OE/HDO-15W/40 5-gal can A-A-52306 (58536)	CO

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
43	O	9150-01-152-4119	Oil, Lubricating OE/HDO 15W/40 55-gal drum, 18 gauge M2104-4-15W40 (81349)	DR
			Oil, Lubricating, OE/HDO 40	
44	O	9150-00-188-9862	Oil, Lubricating, OE/HDO 40 55-gal drum 40 GRADE (81343)	DR
			Oil, Lubricating, Gear GO 85W/140 (MIL-L-2105)	
45	O	9150-01-035-5395	Oil, Lubricating, Gear GO 85/140 (MIL-L-2105) 5-gallon can J2360 (81343)	CN
46	O	9150-01-035-5396	Oil, Lubricating, Gear GO 85/140 (MIL-L-2105) 55-gallon drum J2360 (81343)	DR
			Plug, Ear or Equivalent	
47	O	6515-00-442-4821	Plug, Ear or Equivalent 28-14-01 (0VTP4)	PG
			Rag, Wiping	
48	O	7920-00-205-1711	Rags, Wiping 50-pound bale 7920-00-205-1711 (80244)	BE
			Solvent, Biodegradable	
49	O	6850-01-181-0273	Solvent, Biodegradable 1 Gallon Can MIL-C-87936 (81349)	GL

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Table 1. Expendable and Durable Items List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
50	O	6850-01-184-7453	Solvent, Biodegradable 5 Gallon Can MIL-C-87936A (81349)	CN

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OPERATOR MAINTENANCE
ON-VEHICLE EQUIPMENT LOADING PLAN

SCOPE

This appendix shows stowage locations for equipment necessary to support the HET Tractor.

GENERAL

Stowage locations are given for equipment that must accompany the HET Tractor at all times. The following equipment is covered in this appendix.

ON-VEHICLE EQUIPMENT LOADING PLAN

NO.	ITEM
1	Adapter
2	Air Hose, Coiled
3	Axe, Single Bit
4	Bag, Pamphlet
5	Bag, Tool
6	Bar, Pinch, 15 in. (38 cm)
7	Binder, Loose-Leaf
8	Cable, Slave, NATO
9	Cable, Trailer Light, 7–Pin, 12 Volt
10	Chain, Utility, 7/8 in. x 20 ft. (22 mm x 6.1 m)
11	Chain, Utility, 5/8 in. x 14 ft. (16 mm x 4.3 m)
12	Chock, Wheel
13	Cover, Grill

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ON-VEHICLE EQUIPMENT LOADING PLAN - Continued

14	Cover, Auxiliary Winch
15	Extension, Wrench, 13 in. (33 cm)
16	Fire Extinguisher
17	First Aid Kit
18	Hand Receipt, Truck, Tractor, M1070
19	Handle, Extension
20	Handle, Extension, 40 in. (102 cm)
21	Handle, Mattock Pick
22	Handle, Sliding, 3/4 in. Square Drive
23	Harness, Worklamp
24	Hose Assembly, Air, 60 ft. (18 m)
25	Jack, Hydraulic with Handle
26	Ladder
27	Lubrication Order, Truck, Tractor, M1070
28	Mattock, Pick-Type, 5 lbs (2.3 kg)
29	Operator's Manual, Truck, Tractor, M1070
30	Padlock Without Chain
31	Plate, Jack
32	Plug, Limp Home
33	Shackle, Towing
34	Shovel, D-Handle, Round

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ON-VEHICLE EQUIPMENT LOADING PLAN - Continued

35	Snatch Block
36	Socket, Impact, 1.5 in. (38 mm)
37	Socket, Impact, 33 mm (1.3 in.)
38	Strap, Retaining, Rubber
39	Tire Inflator/Gauge
40	Warning Device Kit
41	Work Light, Portable
42	Wrench, Air-Powered, 3/4 in. Square Drive

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ON-VEHICLE EQUIPMENT LOADING PLAN - Continued

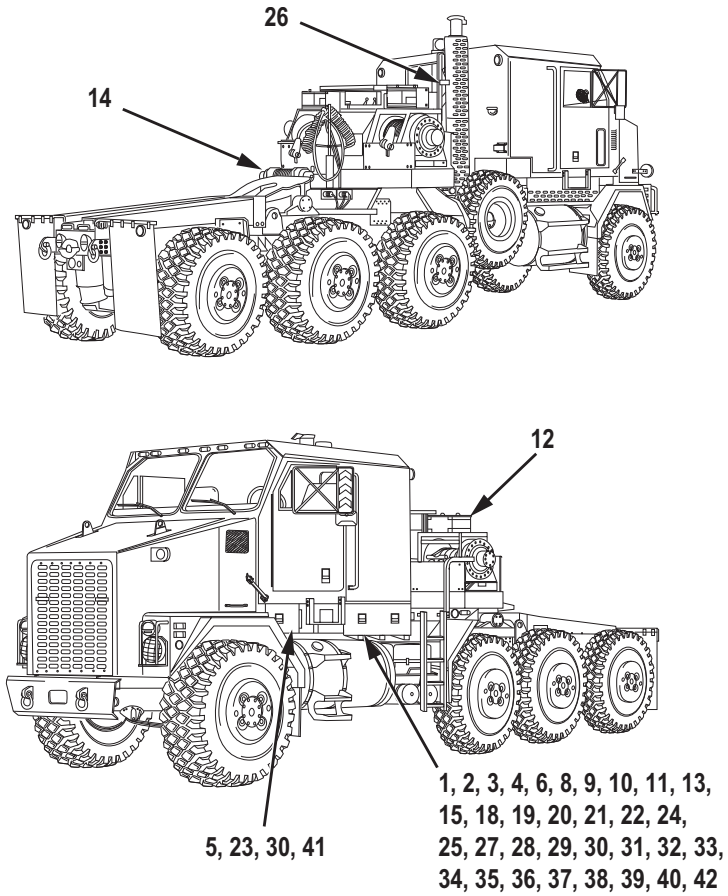


Figure 1.

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ON-VEHICLE EQUIPMENT LOADING PLAN - Continued

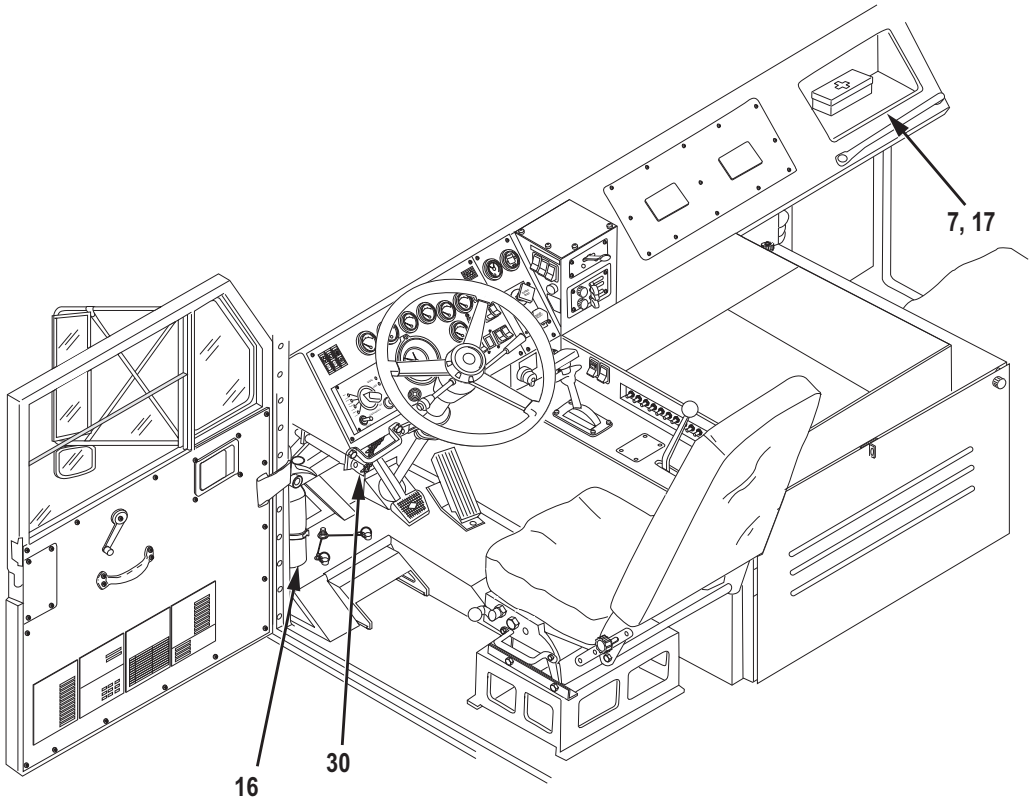


Figure 2.

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PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Exact wording of recommended change must be given)*

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPROTED	RECOMMENDED ACTION

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.)*

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Exact wording of recommended change must be given)*

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPROTED	RECOMMENDED ACTION

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TO: *(Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Exact wording of recommended change must be given)*

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2320-360-10	31 MARCH 2010	OPERATOR'S MANUAL TRUCK, TRACTOR, 8X8, M1070

PAGE NO.	COLM NO.	LINE NO.	FEDERAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPROTED	RECOMMENDED ACTION

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.)*

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GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0927902

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS
1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

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

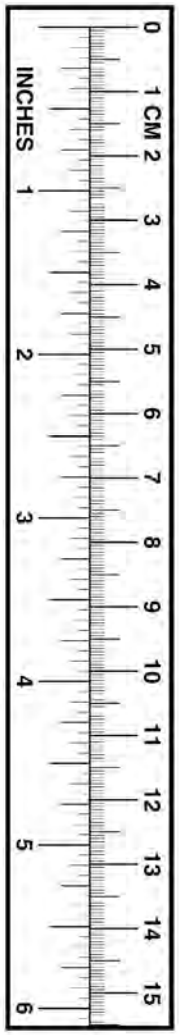
CUBIC MEASURE
1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

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

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/Sq 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
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq 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
Metrication	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



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