

TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR
CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2
NSN 2350-01-068-4077

CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
NSN 2350-01-068-4089

CARRIER, MORTAR, 120-MM, M121; SELF-PROPELLED, M1064
NSN 2350-01-338-3116

CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM,
M1068
NSN 2350-01-354-5657

CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
NSN 2350-01-203-0188

COMBAT VEHICLE, ANTI-TANK, IMPROVED TOW VEHICLE, M901A1
NSN 2350-01-103-5641

SUPERSEDURE NOTICE — This manual supersedes TM 9-2350-261-10 dated 12 July 1990, including all changes.

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WARNING SUMMARY

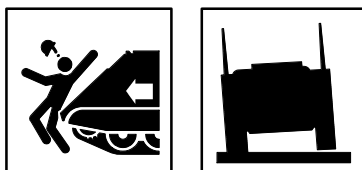
WARNING SUMMARY

This list summarizes critical WARNINGS in this manual. 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.

GENERAL WARNINGS NOT FOUND IN WP PROCEDURES

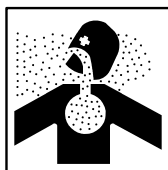
The following WARNINGS are general safety statements. They are not unique to any specific procedures and, therefore, do not appear elsewhere in this TM. All personnel operating this equipment or working near this equipment must understand and continually observe the precautions in these WARNINGS.

WARNING



Drivers below 62 inches (1.57 meters) in height may not have adequate open hatch vision while properly operating the vehicle controls. Accidents caused from loss of vehicle control could result in death or injury to personnel. Before assuming vehicle driver responsibilities, it must be verified during drivers training that without the use of aids the driver can see the feet of a ground guide 30 feet (9.14 meters) in front of the vehicle and be able to operate all driver controls to their maximum potential.

WARNING



Heater and engine exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Exhaust gases are most dangerous in places with poor air flow.

To protect yourself and other personnel from carbon monoxide poisoning, obey the following rules:

- Do not run heater or engine indoors unless you have very good air flow.**
- Do not idle engine for long periods of time unless there is very good air flow.**
- Do not drive carrier with any power plant access covers open or removed.**
- Be alert at all times. Check for the smell of exhaust fumes. If you notice any fumes, OPEN HATCH COVERS, RAMP ACCESS DOOR, OR RAMP RIGHT AWAY.**

Exhaust gas poisoning causes dizziness, headache, loss of muscle control, sleepiness, coma, and death. If anyone shows signs of exhaust gas poisoning, get ALL PERSONNEL out of the carrier. Make sure they have lots of fresh air. **KEEP THEM WARM, CALM, AND INACTIVE. GET MEDICAL HELP.** If anyone stops breathing, give artificial respiration. See FM 4-25.11 for first aid.

Remember: The best defense against exhaust gas poisoning is good fresh air flow.

WARNING SUMMARY (cont)

WARNING



Noises from carrier or weapons can damage hearing of personnel in carrier. All personnel in carrier must wear **DOUBLE HEARING PROTECTION** when guns or carrier are operated. Hearing protection devices must be properly worn to provide effective protection.

If **DOUBLE HEARING PROTECTION** is not worn, the safe level of noise exposure will be exceeded in a short time. Hearing loss occurs gradually. Each noise exposure that exceeds the ear protection guidelines below will cause a temporary hearing loss. Over time, the loss in hearing will become permanent. Plan each day's operation, and be sure all crew and riders have the required ear protectors. Spare foam earplugs must be available.

Definitions:

DH-132

The "tankers helmet," also called "CVC" helmet. Must be in good condition, with liner and earcups fitted tightly, and chin strap worn at all times.

Earplugs

Only standard issue earplugs are acceptable. All of the dismantled squad soldiers must be trained in how to use them. Since they may be removed and lost, spares must be carried.

Double Hearing Protection

Use of two hearing protection devices at the same time. For this carrier, use earplugs with the DH-132 helmet.

Ear Protection Guidelines:

Driver

Must wear DH-132 helmet at all times.

Must wear DH-132 helmet plus earplugs for operations exceeding 14 miles (23 km) in 24 hours.

Must close hatch immediately if .50 caliber machine gun is fired over front part of carrier.

Hatch may remain open and locked during carrier operation.

Commander

Must wear DH-132 helmet at all times.

Must wear DH-132 helmet plus earplugs for all operations exceeding 14 miles (23 km) in 24 hours.

Hatch may be locked open at all times.

Squad Members

Must wear helmet and ear plugs at all times.

Use of Radio with Earplugs

Wearing foam earplugs in addition to your DH-132 helmet can actually improve your ability to hear the radio in a high noise level area. DO NOT remove the earplugs to use the radio.

LIST OF WARNINGS IN WP PROCEDURES

This list includes all the critical WARNINGS in the WP procedures. Study these WARNINGS carefully. They can save your life and the lives of soldiers with whom you work.

WARNING SUMMARY (cont)

WARNING



Lowering ramp could injure personnel. Make sure not one is in ramp zone before you lower ramp.

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Check that ramp cable is connected with no slack. Ramp system and hull can get damaged if ramp unlocks when carrier is in operation. Do not operate carrier if locks do not secure ramp properly. Keep away from ramps that have come open during carrier operation.

WARNING



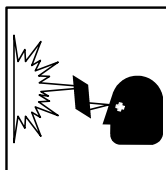
Operating carrier in reverse is dangerous due to limited vision and reversed steering. Always post ground guides before you back up.

WARNING



Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed and safety pins installed.

WARNING



Do not look directly into infrared lights. You may damage your eyes. Do not touch lens. You can burn your fingers.

WARNING SUMMARY (cont)

WARNING



HIGH VOLTAGE IN THE M19 periscope can cause serious injury or death. To avoid accidents:

ALWAYS connect power cable to periscope **BEFORE** turning **MASTER SWITCH** and **I.R.** power switch to **ON**.

Always wait at least **2 minutes** **BEFORE** you disconnect the power cable from the periscope when turning **I.R. POWER** switch and **MASTER SWITCH** **OFF**.

NEVER disconnect the power cable from the periscope until the image disappears from the periscope screen.

NEVER touch the end of the cable. Voltage could exceed 16,000 volts.

WARNING



Fire resistant hydraulic fluid (FRH) may contain Tricresyl Phosphate which, if taken internally, can produce paralysis. Hydraulic fluid may be absorbed through the skin. Wear long sleeves, gloves, goggles, and face shield. **IF** FRH gets in eyes, wash them immediately and get medical aid immediately. **IF** FRH gets on skin, thoroughly wash with soap and water. Wash hands thoroughly prior to eating or smoking.

For artificial respiration and first aid, see FM 4-25.11.

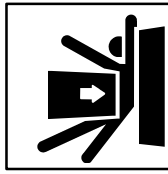
WARNING



When using external power, ensure proper grounding procedures are followed. Failure to do so may result in personal injury and/or damage to the equipment. See TM 11-7010-256-12&P for installing surface wire grounding system.

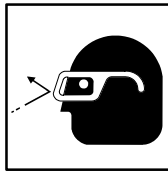
WARNING SUMMARY (cont)

WARNING



Ramp access door is heavy. It can swing and injure personnel. Do not stand behind ramp access door. Keep hands out from between handle and ramp access door.

WARNING



Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

WARNING



Vehicle operation during hot weather may result in heat stress to crew members. Crew members should limit their exposure based on TB Med 507. Ramp door should be opened to ensure ventilation is adequate, when appropriate.

WARNING



Ramp access door is heavy. It can swing and injure personnel. Stand clear when you release ramp access door hook.

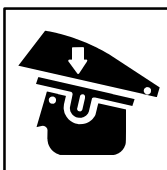
WARNING SUMMARY (cont)

WARNING



The use of the left hand to grasp and close the ramp access door will expose the thumb to being extended beyond the door's edge and possible amputation when the door is pulled closed. When using the left hand, use only the center of the handhold and be aware of thumb position.

WARNING



Commander's hatch cover could fall and injure you. Keep hands clear when you open or close commander's hatch cover.

WARNING



Unsecured hatch cover could move and hit you in the head. When hatch is closed, secure hatch with exterior locknut.

WARNING



Cargo hatch cover is heavy. It can fall and injure you. When opening or closing cover, keep your head clear of the cover and keep your hands clear of the rim.

WARNING SUMMARY (cont)

WARNING



Power plant access door could fall and injure you. Install door brace before you work under door.

WARNING



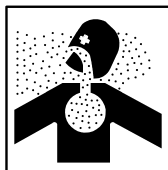
Seat can spring up and hit you when vertical control handle is released. Make sure you are sitting in the seat before releasing vertical control handle.

WARNING



Hanging loads could kill or injure you. Keep away from hanging loads and overhead equipment.

WARNING



Engine exhaust gas is deadly poison. Make sure power plant access panels are closed tight before you start engine.

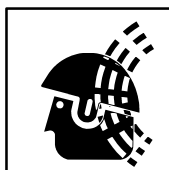
WARNING SUMMARY (cont)

WARNING



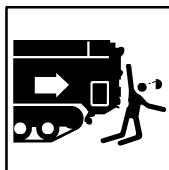
Sudden carrier movement can throw you out of seat. Wear seat belt while carrier is in motion. Do not use any seat with missing or inoperative seat belt.

WARNING



Noise levels in carrier could damage hearing. Wear ear protection. Read warning in front of this manual.

WARNING



When starting, carriers can move suddenly and crush personnel. Personnel should stay clear of area between carriers.

WARNING



Electrical slave cable can be improperly connected causing electrical spark or fire. Personnel can be killed or injured. Equipment can be damaged. Match connector guide lug and cable prongs with receptacle hole.

WARNING SUMMARY (cont)

WARNING



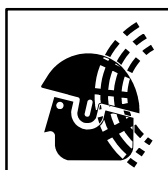
Electric sparking can burn you. Equipment can be damaged. Make sure to disconnect slave cable carefully in order to not cause any sparks.

WARNING



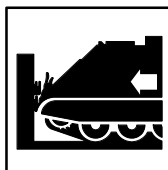
Applying brake pressure hard can cause carrier to stop suddenly. Personnel could be injured. Apply brake pressure lightly and with caution.

WARNING



Carrier noise can cause permanent hearing damage. Double hearing protection must be worn. See warning in front of manual.

WARNING



Sticking or failed linkages can cause carrier to crash. Personnel can be killed or injured. If accelerator pedal does not operate smoothly, or engine does not return to idle when accelerator pedal is released, do not drive carrier.

WARNING SUMMARY (cont)

WARNING



When a track vehicle gets out of control and overturns, it is safer to stay in the vehicle than to try to get out while the vehicle is still moving. You may receive slight injuries from being thrown against metal parts; but if you try to leave the vehicle, it may roll over and crush you. Once the vehicle stops moving, get out as fast as possible because spilled fuel and oil may catch on fire. The first thing the driver should do in such an emergency is shut off the engine and turn off the master switch to minimize the fire hazard.

WARNING



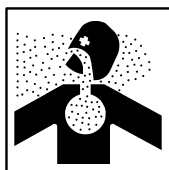
Pivot steering can kill or injure personnel and damage equipment. **STOP** vehicle and **CHECK** for clearance before operating pivot steer. Always post ground guides before you pivot when near personnel or equipment.

WARNING



Ammunition can explode and kill you. Do not start heater until ammunition and combustible/explosive materials are properly stored at least 30 inches from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of heater.

WARNING



Heater exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Be alert at all times. Check for smell of exhaust fumes. If you detect or suspect the presence of fumes, open all hatches right away. Shut heater OFF.

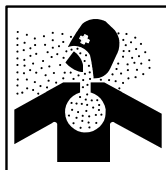
WARNING SUMMARY (cont)

WARNING



Fire extinguisher CO² can cause suffocation and/or severe burns. Handle the fire extinguisher carefully. Do not bang or drop cylinder.

WARNING



If CO² is discharged into engine compartment while engine is running, engine exhaust may be poisonous. Poisonous gas can injure you. Stop engine before you discharge CO². If CO² is discharged while engine is running, do not breathe engine exhaust.

WARNING



Engine fan can blow away CO² before fire is extinguished. Personnel can get burned. Equipment can get damaged. Stop engine before you operate fire extinguisher.

WARNING



Fire extinguisher CO² can cause suffocation and/or severe burns. Handle the fire extinguisher carefully. Do not bang or drop cylinder.

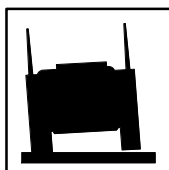
WARNING SUMMARY (cont)

WARNING



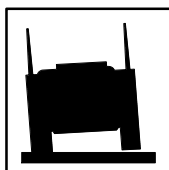
Do not touch cone when using extinguisher. Hands will be severely burned.

WARNING



Carrier can roll over and kill or injure personnel. Avoid high speeds and sudden turns when driving on hills or rough terrain. Wear seat belts.

WARNING



Carrier can roll over and kill or injure personnel. Do not drive on side slopes steeper than 30%.

WARNING



An inoperable/unsafe ramp can fall and kill you. Do not attempt to manually raise or lower an inoperable/unsafe ramp. Notify unit maintenance to raise or lower an inoperable/unsafe ramp.

WARNING



Use tow bar or two crossed tow cables and use steering levers to stop carrier, when necessary.

WARNING SUMMARY (cont)

WARNING



Steering and braking control are lost when final drive shafts are disconnected. Personnel can be killed or injured. Do not use tow cables when drive shafts have been disconnected.

WARNING



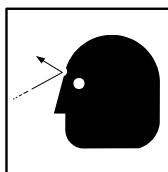
Carrier could roll and kill or injure personnel when final drive shafts are disconnected. Block carrier tracks and connect tow bar to disabled carrier and to tow vehicle before disconnecting drive shafts.

WARNING



Braking from high speeds when you tow with tow cables or tow bar can jackknife vehicles. Jackknife could injure personnel and damage vehicles. Do not tow at speeds over 10 mph (16 km/hr) with tow bar.

WARNING



Tow cables can snap and injure personnel. Close all hatch covers before you use tow cables to tow carrier. Clear personnel out of danger area.

WARNING SUMMARY (cont)

WARNING



Make sure carrier steering levers are locked and carrier tracks are blocked before removing or hooking up tow bar or removing U-joints. Personnel could be killed or injured.

WARNING



Smoke grenades can explode and kill or injure personnel. Handle grenades with care. Do not drop or throw grenades. Do not use damaged grenades. Keep grenades away from electric sparks. Keep containers sealed until you are ready to use grenades.

WARNING



Heat could set off smoke grenades and kill or injure personnel. Do not place smoke grenades on hot surfaces.

WARNING



Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before you load smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

WARNING SUMMARY (cont)

WARNING



Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before unloading smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

WARNING



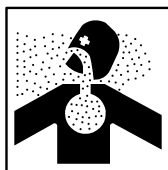
Smoke grenades explode and burn. Handle them with care. Except when using your hand to load grenade launcher, never put any part of your body in front of loaded launcher tubes. You could be killed or injured. Check that personnel are clear of firing lines when launching grenades.

WARNING



If misfired smoke grenades launch during unloading, personnel in the area could be killed or injured. Keep carrier pointed down range until grenades are removed.

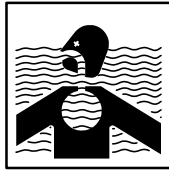
WARNING



Breathing excessive carbon monoxide gas can kill you. Keep fresh air flow. NBC kit and M42 protective mask will not protect you from carbon monoxide gas nor provide oxygen.

WARNING SUMMARY (cont)

WARNING



When water depth is unknown or deeper than 40 inches, do not attempt to ford stream. Carrier may sink and personnel could drown.



Personnel could be killed or injured if carrier moves with someone under it. Make sure engine is stopped, parking brake set, and carrier tracks blocked before crawling under carrier.

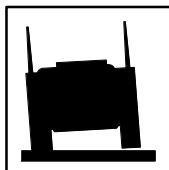
WARNING



Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn, poison soldiers, and damage equipment.

Use the approved cleaning agents. See the instructions for this section.

WARNING



If you lose a track (break a track shoe or vehicle throws a track), extreme caution must be exercised in maintaining control. Immediately release accelerator and let the vehicle coast to a stop. Do not apply braking action, i.e. laterals, pivot, or any type of steering controls. This causes the vehicle to pull to the active or good track and could result in a rollover. It is absolutely necessary to apply braking action only and we stress only, if the vehicle is approaching a ravine, a cliff, or if you perceive the outcome to be catastrophic, probably resulting in fatalities. When a rollover is imminent, all crewmembers should immediately withdraw inside the vehicle, tighten seat belts and hold onto a secure fixture, until the vehicle comes to a complete stop.

WARNING SUMMARY (cont)

WARNING



A fire can break out at any time. Personnel could be killed or injured. Equipment could be damaged. Make sure both fire extinguishers are ready to use before you operate carrier.

WARNING



When carrier is moving, pushing down on steering lever lock buttons can cause brake(s) to be locked. Personnel can be killed or injured. Perform steering and braking PMCS only when engine is stopped.

When steering and braking occur before notch 1 or after notch 4 on the quadrant, carrier can skid and crash. Personnel can be killed or injured. If steering and braking is not between notch 2 and notch 3, do not operate carrier. Notify unit maintenance.

If left and right steering lever positions are not within one notch difference when both are pulled to the fully applied position, carrier can skid and crash. Personnel can be killed or injured. Do not operate carrier. Notify unit maintenance.

WARNING



Make sure weapon is clear and safe before loading or testing, to prevent accidental firing of machine gun and injury to personnel.

WARNING SUMMARY (cont)

WARNING



All personnel within 75 feet (22.9 meters) of M1059 during operation must wear personnel hearing devices to prevent hearing damage. Contamination is likely, and loss of hearing could occur. Personnel inside carrier in motion, with smoke generator in operation, must wear double hearing protection. Limit exposure of high noise levels to six hours to prevent hearing damage. Use of yellow/white foam ear plugs is prohibited for personnel operating M1059 carrier.

WARNING



Do not operate personnel heater if any fuel leak is found in heater or in fuel lines.

WARNING



Do not use heater during operation. Injury to personnel may occur.

WARNING



Hot parts can burn you. Let hot parts cool before you start work.

WARNING SUMMARY (cont)

WARNING



Carbon monoxide gas is deadly poison. Make sure operator's power plant access panel is closed tightly.

WARNING



Fuel is flammable. Always use in area with good air flow, away from heat or flames. Do not breathe fumes. If fuel gets on hands, wash them. If fuel gets in eyes, flush with water and get medical help. Keep fire extinguisher nearby.

WARNING



Make sure carrier is properly grounded before refueling. Fuel can catch fire and burn you. Wipe up spilled fuel.

WARNING



Failure to lock the steering levers and block the road wheel can allow the carrier to move and may result in injury or death. Make sure carrier is on level surface and steering levers are locked to the rear.

WARNING SUMMARY (cont)

WARNING



Final drive housings can heat up enough to burn you.

WARNING



Roadwheel hubs and idler wheel hubs can heat up enough to burn you.

WARNING



Shock absorbers can heat up enough to burn you.

WARNING



Sparks from static electricity can cause a fire or explosion. Fuel cans should be removed before being filled. Metal nozzle must touch metal in filler neck when filling or ground wire must be attached to fuel can being filled. Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

WARNING SUMMARY (cont)

WARNING



Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.

WARNING



Battery posts and cables touched by metal objects can short circuit and burn you or injure you. Use caution when you work with tools or other metal objects. Do not wear jewelry when you work on electrical system.

WARNING



Gas from batteries can explode and injure you. Do not allow sparks near batteries. Battery acid can blind or burn you. Do not get acid on your skin or eyes.

WARNING



Failure to open ventilator, when operating carrier with all hatches closed, will result in a serious lack of oxygen.

WARNING SUMMARY (cont)

WARNING



Inspect heater fuel lines for leaks. DO NOT operate heater with a bad fuel line. You could be badly burned.

WARNING



Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

WARNING



Unsecured hatch cover could move and hit you in the head. When hatch is open, secure latch with locking pin.

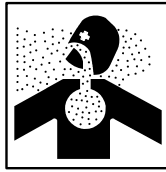
WARNING



Diesel fuel can catch fire and burn you. Do not smoke or allow open flame near carrier when refueling.

WARNING SUMMARY (cont)

WARNING



Lack of air in carrier can cause personnel serious injury or death. When operating carrier with hatch covers closed, make sure personnel compartment ventilator is open.

WARNING



Trim vane can fall and injure personnel. Make sure trim vane zone is clear when you lower or stow trim vane.

WARNING



When stowing the eave poles, secure the split sections together. The inner section can extend and be lost or cause injury to personnel.

WARNING



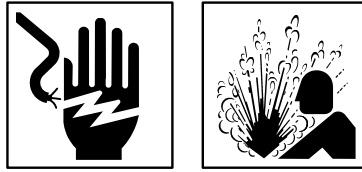
Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

If NBC exposure is suspected, all air filter medial should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.

Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed.

WARNING SUMMARY (cont)

WARNING

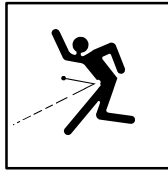


Don't smoke, have open flames, or make sparks around batteries, especially if the caps are off. Batteries can explode and cause injury or death.

Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminals, a direct short will result in instant heating of metals, damage to equipment, and injury to personnel.

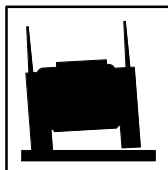
If batteries are frozen, do NOT attempt to slave start vehicle. Explosion can occur, causing injury to personnel and damage to equipment.

WARNING



You could be injured if track swings out and hits you. Do not stand in front of track being broken.

WARNING



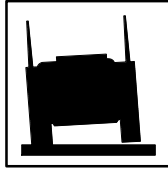
Improper number of track shoes may prevent track from being adjusted correctly, creating a safety hazard.

For carriers with new track, ensure there are 63 track shoes on the left side of carrier and 64 track shoes on the right side of carrier.

For carriers with old track, ensure there are 62 track shoes on the left side of carrier and 63 shoes on the right side of carrier.

WARNING SUMMARY (cont)

WARNING



Do not use the crowbar on the track shoe pins to get leverage. Any scratches may cause the pin to break and cause the track assembly to fall off the vehicle while operating. This may kill soldiers and damage equipment. Use the crowbar as shown to get leverage to install end connectors.

WARNING



Not getting the bolt tight enough may result in death to personnel and damage to equipment if the end connectors fall off during movement of the vehicle. Use the wrench extension over the breaker bar to achieve more leverage when tightening the end connector bolt.

WARNING



Loss of track end connector can cause track throw and loss of vehicle control. Soldiers can be killed or injured. Mark end connector bolts. Notify maintenance to torque bolts.

WARNING



Do not fill fuel can with smoke generator running, while smoking, or when near an open flame. Never overfill the fuel can or spill fuel. An explosion can be caused, and death or injury to personnel may result. If fuel is spilled, clean it up immediately.

WARNING SUMMARY (cont)

WARNING



Hot radiator coolant can burn you. Use hand to remove cap only if cool to touch. Turn cap slowly to release pressure. Replace cap by pressing down and turning cap until tight.

WARNING



Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

WARNING



Rifle bore cleaner can burn and could poison you. Use in well ventilated area. If cleaner gets on your hands, wash them. If cleaner gets in your eyes, flush with water and get medical help immediately.

WARNING



An inoperable/unsafe ramp can fall and kill you. Do not remove any device securing an inoperable/unsafe ramp. Notify unit maintenance to remove lifting equipment.

WARNING SUMMARY (cont)

WARNING



Misfired smoke grenades could kill or injure personnel if mishandled. Do not attempt to move a dud grenade.

WARNING



Failure to set parking brake and block wheels can allow carrier to move and could result in personnel injury or death. Always set parking brake and block wheels before performing PMCS.

WARNING



Not having the correct track tension during inspection can cause you to not see defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured.

Adjust track tension before inspecting track assembly and track shoes.

WARNING



Failure to perform track PMCS and not repair or report to maintenance per technical manual procedures can allow you to operate the vehicle with defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured.

Never operate a vehicle without performing the before mission PMCS track tension adjustment and track inspection per PMCS procedures in the technical manual. Repair or report problems to maintenance per technical manual instructions as outlined in PMCS.

WARNING SUMMARY (cont)

WARNING



Track shoe bushing failure can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Do not use excessive force that could damage the track shoe bushing while driving in the track pin during assembly.

WARNING



Worn or damaged track components can cause track failure and loss of vehicle control. Soldiers can be killed or injured. If track components are not in satisfactory condition, do not operate vehicle.

WARNING



Track shoe bushing failure due to improper angle of track during pin assembly can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Make sure track is assembled with the right amount of angle or lift as shown below. Properly assembled track will lay flat. Incorrectly assembled track will bulge upward.

WARNING SUMMARY (cont)

WARNING



HIGH VOLTAGE is used in the operation of this equipment.

DEATH ON CONTACT may result if personnel fail to observe safety precautions.

NEVER work on equipment unless at least one other person familiar with the operation and hazards of the equipment is nearby. That person should also be competent in giving first aid. When an operator helps a technician, that operator must be warned about dangerous areas.

SHUT OFF POWER supply to equipment before beginning work. Make sure all exterior power is off/disconnected.

BE CAREFUL not to contact high-voltage connections when installing or operating this equipment.

KEEP one hand away from the equipment to reduce the hazard of current flowing through life-sustaining organs of the body.

WARNING



Ramp access door is heavy. It can swing and injure personnel. Make sure no one is in the area of ramp access door when it is opening. Secure door in ramp door hook before you go out.

WARNING



Never touch lock buttons while carrier is moving. If you lock up the steering lever while moving, you could be injured and/or damage the carrier.

FIRST AID

For first aid information, see FM 4-25.11.

INSERT LATEST UPDATED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Note: This manual supersedes TM 9-2350-261-10 dated 12 July 1990.

Date of issue for revision is:

Original 0 (**26 August 2005**)

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 72 AND TOTAL NUMBER OF WORK PACKAGES IS 98 CONSISTING OF THE FOLLOWING:

Page/WP No.	*Change No.	Page/WP No.	*Change No.	Page/WP No.	*Change No.
Cover	0				
a – ac/ad blank	0				
A/B blank	0				
i – xi/xii blank	0				
Chapter 1 Index	0				
WP 0001 00 – 0003 00	0				
Chapter 2 Index	0				
WP 0004 00	0				
Chapter 3 Index	0				
WP 0005 00 – 0058 00	0				
Chapter 4 Index	0				
WP 0059 00 – 0071 00	0				
Chapter 5 Index	0				
WP 0072 00 – 0074 00	0				
Chapter 6 Index	0				
WP 0075 00 – 0092 00	0				
Chapter 7 Index	0				
WP 0093 00 – 0098 00	0				
Index 1 – Index 13/14 blank	0				
DA 2028 Sample/Reverse	0				
DA 2028/Reverse (3)	0				
Authentication	0				
Metric Chart	0				
Back Cover	0				

*Zero in this column indicates an original page.

TECHNICAL MANUAL**OPERATOR'S MANUAL****CARRIER, PERSONNEL, FULL TRACKED, ARMORED, M113A2
NSN 2350-01-068-4077****CARRIER, COMMAND POST, LIGHT TRACKED, M577A2
NSN 2350-01-068-4089****CARRIER, MORTAR, 120-MM, M121; SELF-PROPELLED, M1064
NSN 2350-01-338-3116****CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM, M1068
NSN 2350-01-354-5657****CARRIER, SMOKE GENERATOR, FULL TRACKED, M1059
NSN 2350-01-203-0188****COMBAT VEHICLE, ANTI-TANK, IMPROVED TOW VEHICLE, M901A1
NSN 2350-01-103-5641****REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Publications) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is <http://aeprs.ria.army.mil>. If you need a password, scroll down and click on "ACCESS REQUEST FORM." The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax, or email your letter or DA Form 2028 direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-LC-CIP-WT (Tech Pubs Control Point), Rock Island, IL 61229-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

CURRENT AS OF 5 JANUARY 2004

SUPERSEDURE NOTICE — This manual supersedes TM 9-2350-261-10 date 12 July 1990, including all changes.**DISTRIBUTION STATEMENT A** — Approval for public release; distribution is unlimited.

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HOW TO USE THIS MANUAL

HOW TO USE THIS MANUAL

This manual tells you how to use the M113A2, M1059, M1064, M1068, and M577A2 Armored Personnel Carriers.

Before starting a task or procedure, read HOW TO USE THIS MANUAL and DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS (WP 0004 00).

WHAT'S IN THE MANUAL — FRONT TO BACK

SUMMARY OF WARNINGS AND FIRST AID lists the Warnings and first aid information in this manual. The Warnings cover hazards that could kill or injure personnel. Shorter versions of these warnings may appear in the task procedure.

TABLE OF CONTENTS lists the Work Packages for each chapter.

CHAPTER 1 covers General Information. It gives a brief description of the major parts and features of the carrier.

CHAPTER 2 covers Description and Function of Controls and Indicators.

CHAPTER 3 covers Operation Under Usual Conditions Work Packages.

CHAPTER 4 covers Operation Under Unusual Conditions Work Packages.

CHAPTER 5 covers Troubleshooting Work Packages.

CHAPTER 6 covers Preventive Maintenance Checks and Services, including Lubrication Instructions and Maintenance Work Packages.

CHAPTER 7 provides supporting information for the Technical Manual. It includes the following Work Packages:

The REFERENCES Work Package (WP 0093 00) lists references to be used by personnel in operating and maintaining the carriers. These references include technical manuals and other publications.

The COEI/BII Work Package (WP 0094 00) lists Components of End Item and Basic Issue Items. Components of End Item are those items which are assembled and become a permanent part of the carrier. Basic Issue Items are items needed to put the carrier in operation, operate it, and do emergency repairs.

The AAL Work Package (WP 0095 00) lists additional authorization items required to support the carrier during operation.

The EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST Work Package (WP 0096 00) lists expendable supplies and materials that will be needed to operate and maintain the carrier.

The STOWAGE GUIDE Work Package (WP 0097 00) is a stowage guide for all removable equipment carried in and on the carriers. This work package includes a guide to identification (ID) plates on the carriers.

The STANDARD LOAD PLAN Work Package (WP 0098 00) lists standard load plans for the carriers.

The INDEX is an alphabetical listing of all the major controls, procedures, indicators, systems, and subsystems covered in this manual. Each entry is cross-referenced to the Work Package number and page number.

DA FORM 2028 is used to report errors and to recommend improvements for procedures in this manual. Three blank DA Forms 2028 are in the back of this manual. A sample is provided to show you how to fill out the DA Form 2028.

The back cover includes a METRIC CONVERSION CHART that can be used to convert U.S. customary measurements to their metric equivalents. Measurements in this manual are given in U.S. customary units with metric units in parentheses.

HOW TO USE THE WORK PACKAGES

How to find the Work Package you need

Pick a key word from the carrier part or system to be used. Look in the INDEX for this key word or the name of the action you will perform. Turn to the Work Package and page indicated.

The INDEX lists each Work Package under one or more headings. For example, the Work Package titled ADJUST DRIVER'S SEAT could be found under the two headings, "Driver," and "Seat."

HOW TO USE THIS MANUAL (cont)

How to read the Work Package

Work Packages provide either descriptive/supporting information or detailed procedures for operating and maintaining the equipment. The Work Packages in Chapter 1 include General Information only. Chapter 2 includes descriptive information on Controls and Indicators, and Operating Procedures. Chapter 3 includes Operating Procedures Under Usual Conditions; Chapter 4 covers Operating the Carrier Under Unusual Conditions. Chapter 5 includes Troubleshooting Procedures. Chapter 6 covers PMCS, including Lubrication Instructions and Maintenance Procedures. Chapter 7 includes Supporting Information.

Pay attention to all **Warnings, Cautions, and Notes**. These can appear in all types of procedures. They help you avoid harm to yourself, other personnel, and equipment. They also tell you things you should know about the procedure.

Before you start a procedure, get all the tools, supplies, and personnel you need to do the procedure. These items will be listed in the INITIAL SETUP of the Work Package.

Start with step 1 and do each step in the order given. Numbered primary steps tell you WHAT to do. Alpha substeps tell you HOW to do it.

Look at the illustrations. Locators show you where the equipment and parts are located in the carrier. Closeup illustrations show the details you need to do the procedure.

Operator and Maintenance Instructions Work Packages

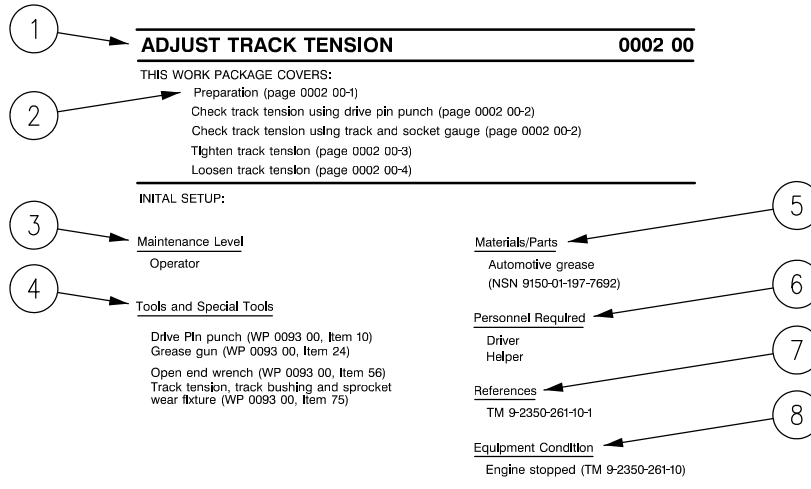
Operation Work Packages tell you how to operate the M113A2, M1059, M1064, M1068, and M577A2 carriers and the equipment. Each operation Work Package details steps which need to be performed to complete the task.

Maintenance Work Packages help the crew to keep the carrier in operating condition. Crew members are authorized to remove, clean, inspect, lubricate, and install certain parts on the carrier.

Operation and maintenance Work Packages are written in the same format. Examples of operation and maintenance Work Packages are given on the following pages.

HOW TO USE THIS MANUAL (cont)

This example shows the DESCRIPTION and INITIAL SETUP sections on the first page of a task. Key items are numbered in the example and also listed in the legend.



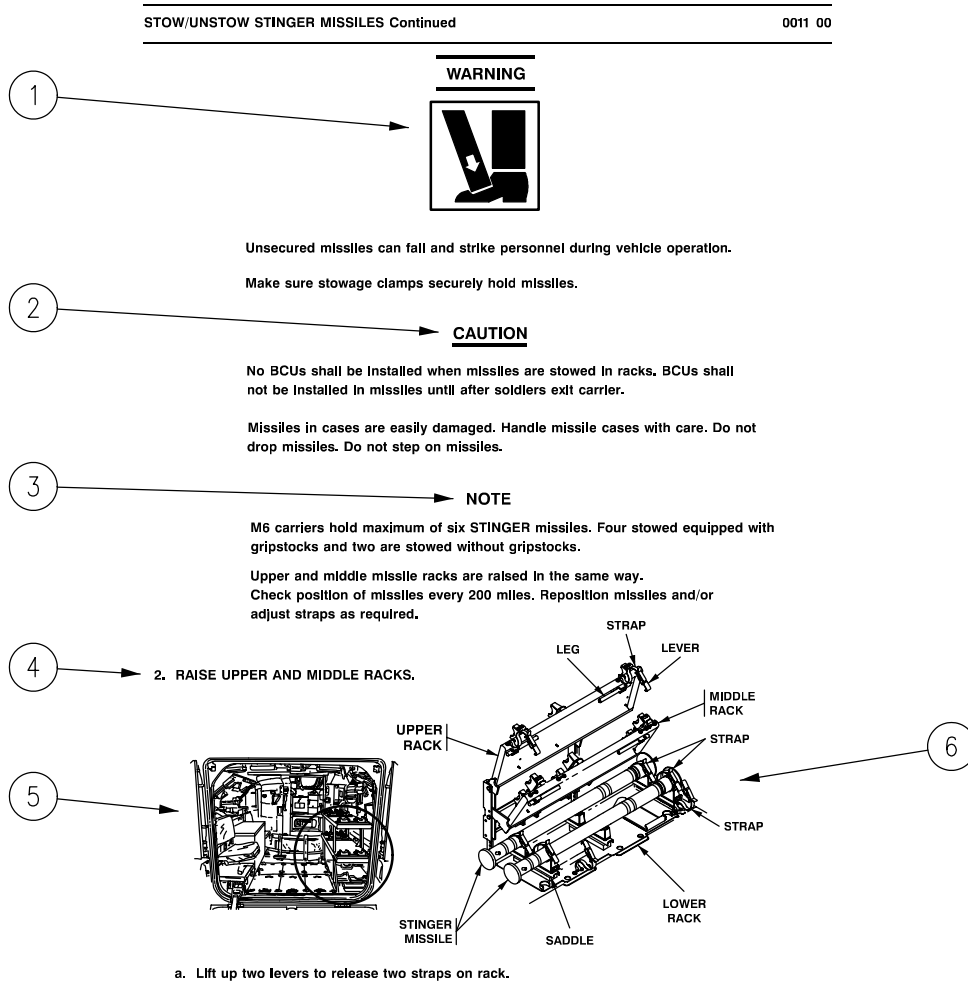
- | | |
|----------------------------------|--|
| 1 TITLE | This is the name of the task. |
| 2 SUMMARY | A listing of the general actions to be performed, cross-referenced to the page where each action begins. |
| 3 MAINTENANCE LEVEL | The level of personnel authorized to perform the procedures in the work package. |
| 4 TOOLS AND SPECIAL TOOLS | This lists tools and equipment you will need. |
| 5 MATERIALS/PARTS | These are the supplies and parts needed. They can be obtained from unit maintenance. |
| 6 PERSONNEL REQUIRED | These are the personnel needed to do the task. |
| 7 REFERENCES | These are other publications you will need. |
| 8 EQUIPMENT CONDITION | This is the condition that the equipment must be in before starting the task. You are referred to the task or technical publication needed to meet each condition. The reference is shown in parentheses after each condition. |

HOW TO USE THIS MANUAL (cont)

Some Work Packages will include all of the items shown in the example on the previous page, but other tasks will only require some of the items listed in this example.

Read the INITIAL SETUP section carefully before you start a task. Get the tools and supplies listed and the personnel needed to perform the task. Be sure that the equipment is in the condition called out under the Equipment Condition step.

The example of the task steps shows you some things to watch for when performing a task. Read all Steps, Warnings, Cautions, and Notes before starting a task. Items to watch for are listed in the legend. Match them with the example.



- | | | |
|----------|----------------|---|
| 1 | WARNING | This describes danger for you and others. |
| 2 | CAUTION | This describes possible damage to equipment. |
| 3 | NOTE | This gives you additional information that is not part of the step but is required to perform the step. |
| 4 | STEP | This tells you WHAT to do. |
| 5 | LOCATOR | This helps you find equipment in the carrier. |
| 6 | CLOSEUP | This shows you a closeup of the equipment. |

Some Work Packages will include all of the above items. Some will not.

Read all of the Work Package before starting. Follow the steps in order. END OF TASK indicates the end of the procedure.

HOW TO USE THIS MANUAL (cont)

Preventive Maintenance Checks and Services (PMCS), Including Lubrication Instructions Work Package

Preventive Maintenance Checks and Services (PMCS) must be done to keep your carrier operating correctly. Do the PMCS procedures both daily and weekly as required. There are four types of PMCS:

The BEFORE (B) PMCS must be done before you operate the carrier.

The DURING (D) PMCS must be done when you operate the carrier. Monitor the carrier systems as you perform your mission. Perform DURING (D) PMCS on a system only when the system is required to complete your mission.

The AFTER (A) PMCS must be done after completing your mission.

The WEEKLY (W) PMCS must be done weekly.

The SEMI-ANNUAL (S) PMCS must be done every six months or every 1500 miles.

Notify unit maintenance if anything seems wrong with the carrier or its systems and you cannot fix it yourself. Loose bolts or damaged welds are common things to watch for in every area. When checking hoses and fluid lines, look for wear, leaks, loose clamps, and loose fittings.

The following sample shows you what to look for when you read a PMCS procedure. For more information on PMCS, see (WP 0075 00).

PREVENTIVE MAINTENANCE CHECKS AND SERVICES Continued 0066 00							
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:		
3	48	After	1.4	Road Wheels and Idler Wheels	DRIVER	1. Try to lift each road wheel with crowbar. If any road wheel comes up easily torsion bar is broken. Notify unit maintenance.	Torsion bar #1 #2, or #6 broken.

- 1 **TITLE** Work package title.
- 2 **EQUIPMENT NOT READY/AVAILABLE IF:** This tells you what conditions make the vehicle NOT READY/AVAILABLE. These conditions will have to be corrected before you perform your mission.
- 3 **PROCEDURE** This tells you what needs to be done.
- 4 **ITEM TO BE CHECKED OR SERVICED** The name of the system or component being checked.
- 5 **MAN-HOUR** When equipment must be lubricated, this tells you the man-hours that will be required for the lubrication procedure.
- 6 **INTERVAL** This tells you when to perform the PMCS check.
- 7 **ITEM NUMBER** This is the sequence for doing the PMCS.
- 8 **CREWMEMBER** This tells you which crewmember must perform the check.

HOW TO USE THIS MANUAL (cont)

Troubleshooting Work Packages

Troubleshooting Work Packages help solve common problems and malfunctions. The Troubleshooting Symptom Index (WP 0073 00) lists malfunctions common to your carrier. The Index will guide you to the Troubleshooting Table.

The Troubleshooting Work Package example shows you things to watch for when you do a Troubleshooting Work Package. They are listed in the legend. Match them with the example.

1 → ENGINE

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2 → 1. DOES NOT CRANK WHEN START SWITCH IS PUSHED.	3 → 1. Check that master switch is set to ON. 2. Check that transmission controller is in SL position.	4 → 1. Turn master switch to ON. 2. Put transmission controller lever to SL.

- 1 **SYSTEM** This tells you which carrier system the troubleshooting task is covering.
- 2 **MALFUNCTION** This tells you the carrier malfunction.
- 3 **TEST OR INSPECTION** This tells you the test or inspection you should make.
- 4 **CORRECTIVE ACTION** This tells you how to fix the malfunction.

DEFINITION OF WORK PACKAGE TERMS

Warnings, Cautions, and Notes

Read all Warnings, Cautions, and Notes in the Work Package. Warning, Cautions, and Notes are placed just before the step for which they apply. Ignoring a Warning can cause death or injury to you or other personnel. Ignoring a Caution can cause damage to equipment. Notes have facts to make the step and Work Package easier.

WARNINGS call attention to the things that could kill or injure personnel. Warnings are also listed at the front of the manual.

WARNING



Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.

A sample WARNING is shown above.

HOW TO USE THIS MANUAL (cont)

CAUTIONs call attention to actions or material that could damage equipment.

CAUTION

Improper cable removal can cause a short circuit. Remove negative cable before you remove positive cable.

A sample CAUTION is shown above.

NOTEs contain information that makes the step and Work Package easier to do.

NOTE

When quick release pin is removed, mirror control knob will spring back into locked position.

A sample NOTE is shown above.

HELPER

Helpers are needed for Work Packages that require more than one person, such as lifting heavy objects or acting as an observer.

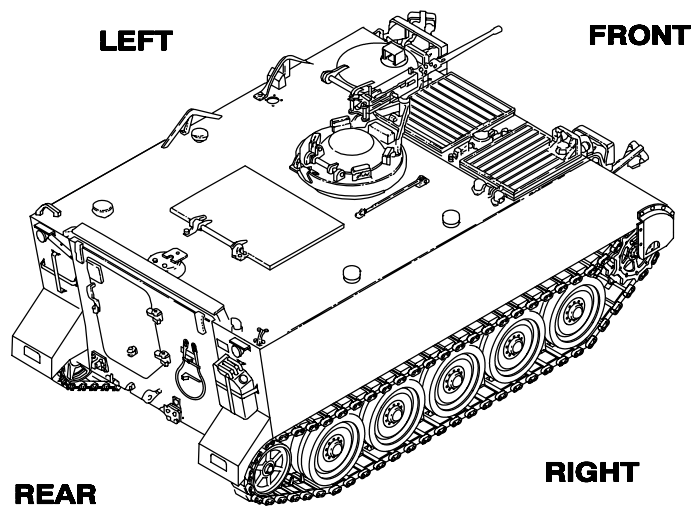
If a helper is needed to perform a procedure, the INITIAL SETUP will list “Helper” under the PERSONNEL REQUIRED heading.

If helper assists with a step, the step will include: “Have helper assist.”

If a helper performs the action alone, the step will start with “(H).”

Locational Terms

The terms FRONT, REAR, LEFT, and RIGHT are used to indicate where items are located on the carrier. Think of these locations as if you were standing on the ramp facing the inside of the carrier.



CHAPTER 1

INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
GENERAL INFORMATION.....	0001 00
EQUIPMENT DESCRIPTION.....	0002 00
THEORY OF OPERATION.....	0003 00

GENERAL INFORMATION**0001 00****SCOPE**

This manual tells how to operate and maintain the following carriers:

- M113A2 Full Tracked Armored Personnel Carrier
- M577A2 Light Tracked Command Post Carrier
- M1064 Self-propelled 120-mm Mortar Carrier
- M1059 Full Tracked Smoke Generator Carrier
- M1068 Standardized Integrated Command Post System

NOTE

The operation of the 120-mm Mortar, used on the M1064 Carrier, is covered in TM 9-1015-250-10.

MAINTENANCE FORMS, RECORDS, AND REPORTS

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

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

EIRs can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show design or list a better way to perform a procedure, just simply tell why the design is unfavorable or why a procedure is difficult. EIRs may be submitted on SF 368 (Quality Deficiency Report). Mail directly to Commander, U.S. Army Tank-Automotive Command, Attn: AMSTA-TR-QCL, Warren, MI, 48397-5000.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

See the following technical manuals for information on destruction of Army materiel:

- TM 750-244-2 Procedures for Destruction of Electronic Materiel to Prevent Enemy Use.
- TM 43-0002-33 Destruction of Conventional Ammunition and Improved Conventional Munitions (ICM) to Prevent Enemy Use.
- TM 750-244-6 Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use.
- TM 750-244-7 Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1015, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use.

NOMENCLATURE CROSS-REFERENCE

This listing includes nomenclature cross references used in this manual.

CVC helmet	DH 132 helmet
Dipstick	Liquid measure gauge rod
Track and sprocket	Track tension, track bushing and sprocket
Gauge	Wear gauge
Transmission	Transmission, hydraulic

LIST OF ABBREVIATIONS / ACRONYMS

Many abbreviations are used in this manual. They are listed below. Learn what each one means. It will make your job easier.

A	After
APU	Auxiliary Power Unit
B	Before
BATT	Battery
BO	Blackout
BRT	Bright
CVC	Combat Vehicle Communications

D	During
EFT	External Fuel Tank
ENG	Engine
GEN	Generator
HI TEMP	High Temperature
Intercom	Intercommunication
IR	Infrared
KW	Kilowatt
LO	Lubrication Order
M	Monthly
MCPS	Modular Command Post System
NBC	Nuclear, Biological, and Chemical
OVE	On Vehicle Equipment
PMCS	Preventive Maintenance Checks and Services
PRESS	Pressure
SICPS	Standardized Integrated Command Post System
TEMP	Temperature
TRANS	Transmission
Vent	Ventilation
W	Weekly

SAFETY, CARE, AND HANDLING

HEARING PROTECTION. You must use earplugs and other approved hearing protectors while you are inside the carrier. The CVC helmet does not have enough hearing protection. Make sure you know how to use the ear plugs and hearing protectors that are issued to you. Keep them clean and ready to use. Read warning in Warning Summary (page a).

EQUIPMENT DESCRIPTION

0002 00**CARRIERS**

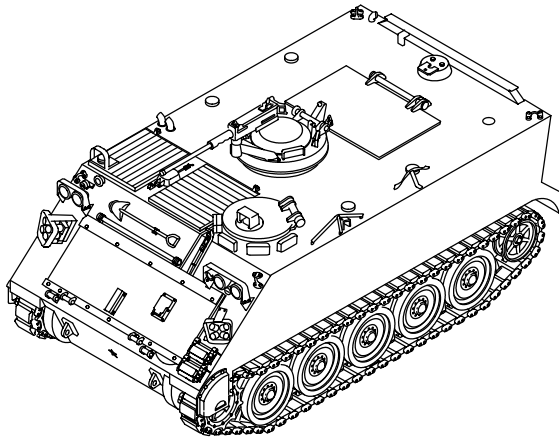
The carriers covered in this manual are built for tough cross-country travel and high speed driving on good roads. All carriers can ford water up to 40 inches deep. All carriers can be transported by cargo aircraft. All carriers except the M577A2 and M1068 can be parachute-dropped to troops in the field.

LOCATIONAL TERMS

The terms right, left, front, or rear are used in this manual to describe areas and parts of the carriers and their locations relative to each other. The terms are used the same way you would use them if you stood at the ramp end of the carrier and looked forward.

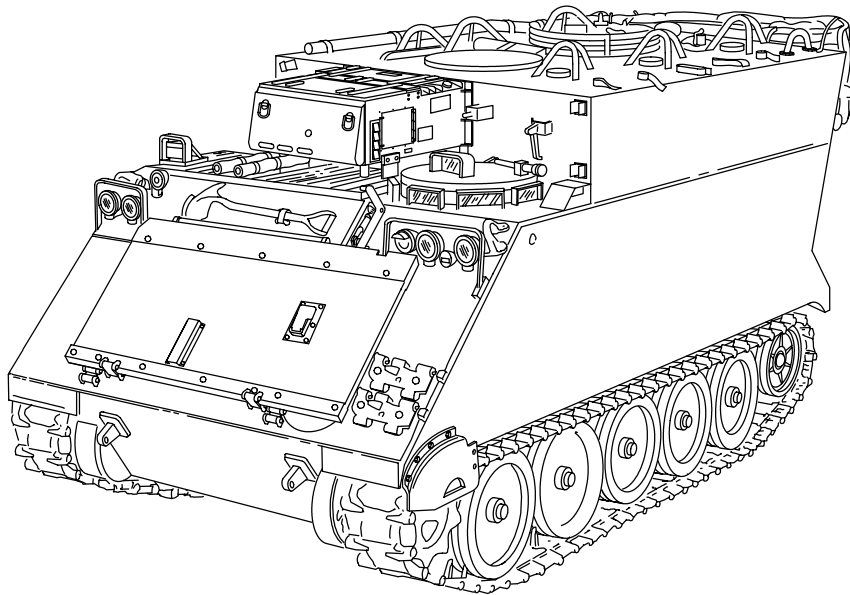
PECULIAR COMPONENTS

Components peculiar to a specific carrier are indicated within each title or illustration throughout this manual. All components and systems not indicated in this manner are common to all carriers.

M113A2 FULL TRACKED ARMORED PERSONNEL CARRIER

This carrier is designed to carry 12 troops plus the driver. It can be used for cargo, ambulance, or reconnaissance work. A caliber .50 machine gun is mounted on a cupola on top of the carrier. The M113A2's capabilities and features are:

- It travels easily over rough terrain.
- It fords water up to 40 inches deep.
- It can move at high speeds on improved roads and highways.
- It is air transportable and can be dropped by parachute to troops in the field.
- It is propelled and steered on land and in water by tracks.
- It has M17 periscopes around the driver's and commander's hatches for vision when buttoned up.
- It has an M19 infrared periscope stowed near the driver. The periscope can be installed in the driver's hatch to provide night vision under blackout conditions.
- It is equipped with smoke grenade launchers.
- It is equipped to carry an NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and personnel heater kit (for cold weather operation).
- It can be equipped to carry a hospital litter kit, marine recovery kit, capstan kit, Dragon missile system, and night observation device system.

M577A2 COMMAND POST CARRIER

The M577A2 is built from the same plans as the M113A2 except that the M577A2 has a higher personnel compartment to house a command post and staff office. The command post is equipped with mapboards, tables, blackout curtain, interior blackout light controls, power and communication cables and receptacles, and an auxiliary power unit to provide direct (DC) electrical power. A tent at the rear enlarges the command post area beyond the rear ramp when setting up a command post for an extended stay.

The M577A2 carrier is designed as a command post and staff office. It has a crew of five, including the driver. The M577A2's capabilities and features are:

- It travels easily over rough terrain.

- It fords water up to 40 inches deep.

- It can move at high speeds on improved roads and highways.

- It is air transportable, but not air droppable.

- It provides protection for field commanders in a tactical environment.

- It has a 4.2 KW generator set or 5.0 KW auxiliary power unit for communication and lighting power.

- It has a tent stowed on the rear top plate to extend the work area.

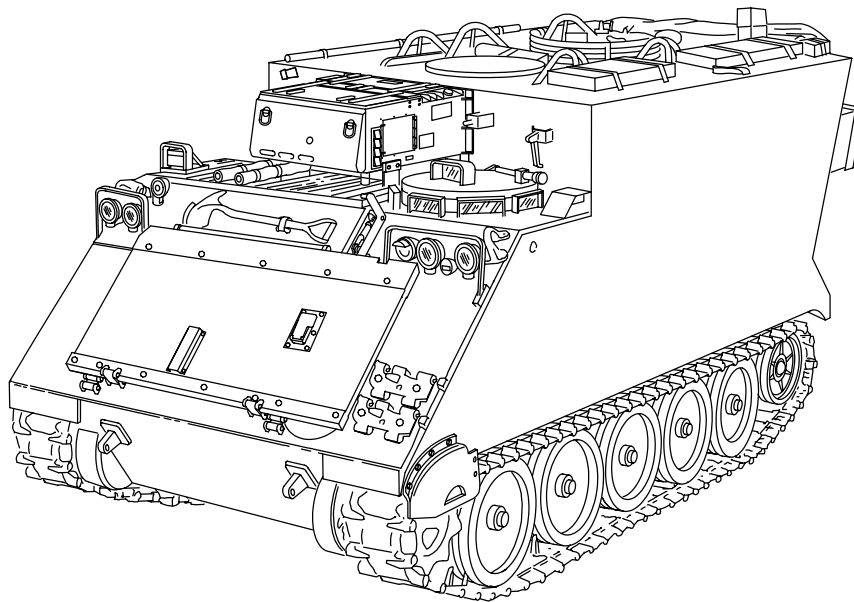
- It is propelled and steered on land and in water by tracks.

- It has M17 periscopes around the driver's hatch for vision when buttoned up.

- It has an M19 infrared periscope stowed near the driver. The periscope can be installed in the driver's hatch to provide night vision under blackout conditions.

- It can be equipped to carry an NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and electronic equipment heater kit (for cold weather operation).

- Maintenance and operating procedures for the 5.0 KW Auxiliary Power Unit are in TM 9-6115-664-13&P.

M1068 STANDARDIZED INTEGRATED COMMAND POST SYSTEM

The M1068 is a converted M577A2 and is equipped with mapboards, tables, blackout curtain, interior fluorescent and blackout light controls, power and communication cables, receptacles, power enclosure panel, and an auxiliary power unit to provide direct (DC) electrical power. The power enclosure panel controls/uses all the external power (AC or DC) supplied, as well as the generator set and vehicle engine charging system. Power is converted from AC to DC or DC to AC through two inverters and two power supplies. AC/DC outlets are positioned around the interior and exterior (Tent Interface Panel) to power equipment. Two AC outlet boxes are positioned on each side of the vehicle to supply conditioned AC power from the Uninterruptable Power Supply (UPS) to the Transportable Computer Unit (TCU), Mass Storage Expansion Unit (MSEU), and color monitors. A tent at the rear enlarges the command post area beyond the rear ramp when setting up a command post for an extended stay.

The M1068 carrier is designed as a command post and staff office. It has a crew of four, including the driver. The M1068's capabilities and features are:

- It travels easily over rough terrain.

- It fords water up to 40 inches deep.

- It can move at high speeds on improved roads and highways.

- It is air transportable, but not parachute droppable.

- It provides protection for field commanders in a tactical environment.

- It has a 4.2 KW generator set or 5.0 KW auxiliary power unit for communication and lighting power.

- It has a tent stowed on the left side top plate to extend the work area.

- It is propelled and steered on land and in water by tracks.

- It has M17 periscopes around the driver's hatch for vision when buttoned up.

- It has an M19 infrared periscope stowed near the driver. The periscope can be installed in the driver's hatch to provide night vision under blackout conditions.

- It can be equipped to carry an NBC (gas particulate filter) unit, driver's windshield kit, and engine coolant heater kit (for cold weather operation).

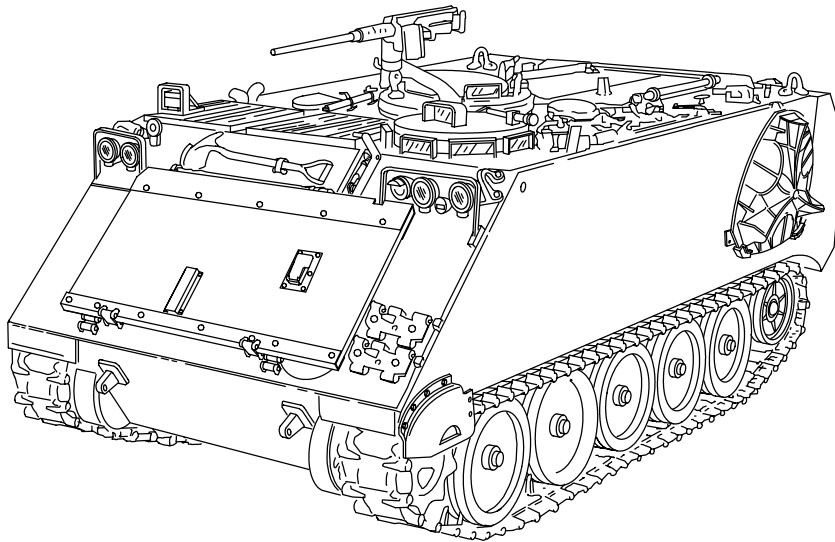
- It has a power enclosure panel to provide AC and DC power to outlets around the interior of the vehicle.

- It has an external communications entry box.

- It has an external power entry box which provides the ability to receive or supply AC power and also contains a grounding lug for the surface wire grounding kit.

- It has two internal fluorescent work lights.

Maintenance and operating procedures for the 5.0 KW Auxiliary Power Unit are in TM 9-6115-664-13&P.

M1064 MORTAR CARRIER

The M1064 is built from the same plans as the M113A2 except it has a reinforced rear hull floor for firing the mortar. A three-piece hatch cover folds back on the carrier roof and opens up the hull to fire the mortar in an elevated position. The turntable directly under the hatch allows the mortar to be fired left and right of the carrier center line. Ammunition and fuze storage racks are inside the mortar compartment.

The mortar misfire procedures, operations, maintenance, and ammunition for use on the carriers are found in operator manuals. Operation of the 120-mm, 4.7-inch mortar, M121, used on M1064 Carriers, is covered in TM 9-1015-250-10.

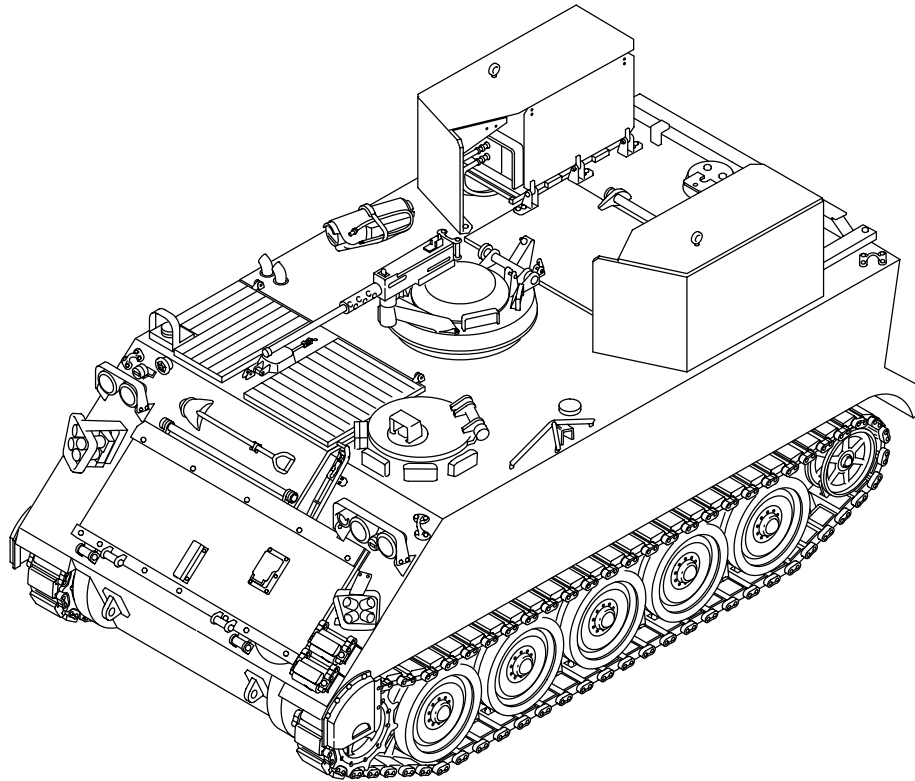
The M1064 carrier is designed to carry the 4.7-inch (120-mm) Mortar M121. The mortar can be fired from a turntable mounted in the carrier, or removed and fired from a ground baseplate. The carrier has a crew of four, including the driver.

The M1064's capabilities and features are:

- It travels easily over rough terrain.
- It fords water up to 40 inches deep.
- It can move at high speeds on improved roads and highways.
- It is air transportable and can be dropped by parachute to troops in the field.
- It has an enlarged three-piece firing hatch. This permits mortar to be fired through an arc of 90 degrees over the rear of the carrier.
- It has a cupola with a caliber .50 machine gun.
- It is propelled and steered on land and in water by tracks.
- It has M17 periscopes around the driver's and commander's hatches for vision when buttoned up.
- It has an M19 infrared periscope stowed near the driver. The periscope can be installed in the driver's hatch to provide night vision under blackout conditions.
- It can be equipped to carry an NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and personnel heater kit (for cold weather operation).

M1059 FULL TRACKED SMOKE GENERATOR CARRIER

The M1059 is built from the same plans as the M113A2 except that the M1059 has the M157A2 smoke generator system mounted. The M157A2 is a remote controlled unit which uses a pulse jet engine and fog oil to produce smoke. The system consists of six major assemblies: a control panel assembly, a fuel filter/water separator assembly, two M54A2 smoke generator assemblies, an air compressor assembly, a fog oil pump assembly, and a fog oil tank assembly.



The M1059 carrier is designed to generate a smoke screen in the battlefield environment and carries a crew of three. A caliber .50 machine gun is mounted on a cupola on top of the carrier. The M1059's capabilities and features are:

- It travels easily over rough terrain.

- It fords water up to 40 inches deep.

- It can move at high speeds on improved roads and highways.

- It is air transportable and can be dropped by parachute to troops in the field.

- It is propelled and steered on land and in water by tracks.

- It has M17 periscopes around the driver's and commander's hatches for vision when buttoned up.

- It has an M19 infrared periscope stowed near the driver. The periscope can be installed in the driver's hatch to provide night vision under blackout conditions.

- It is equipped with smoke grenade launchers.

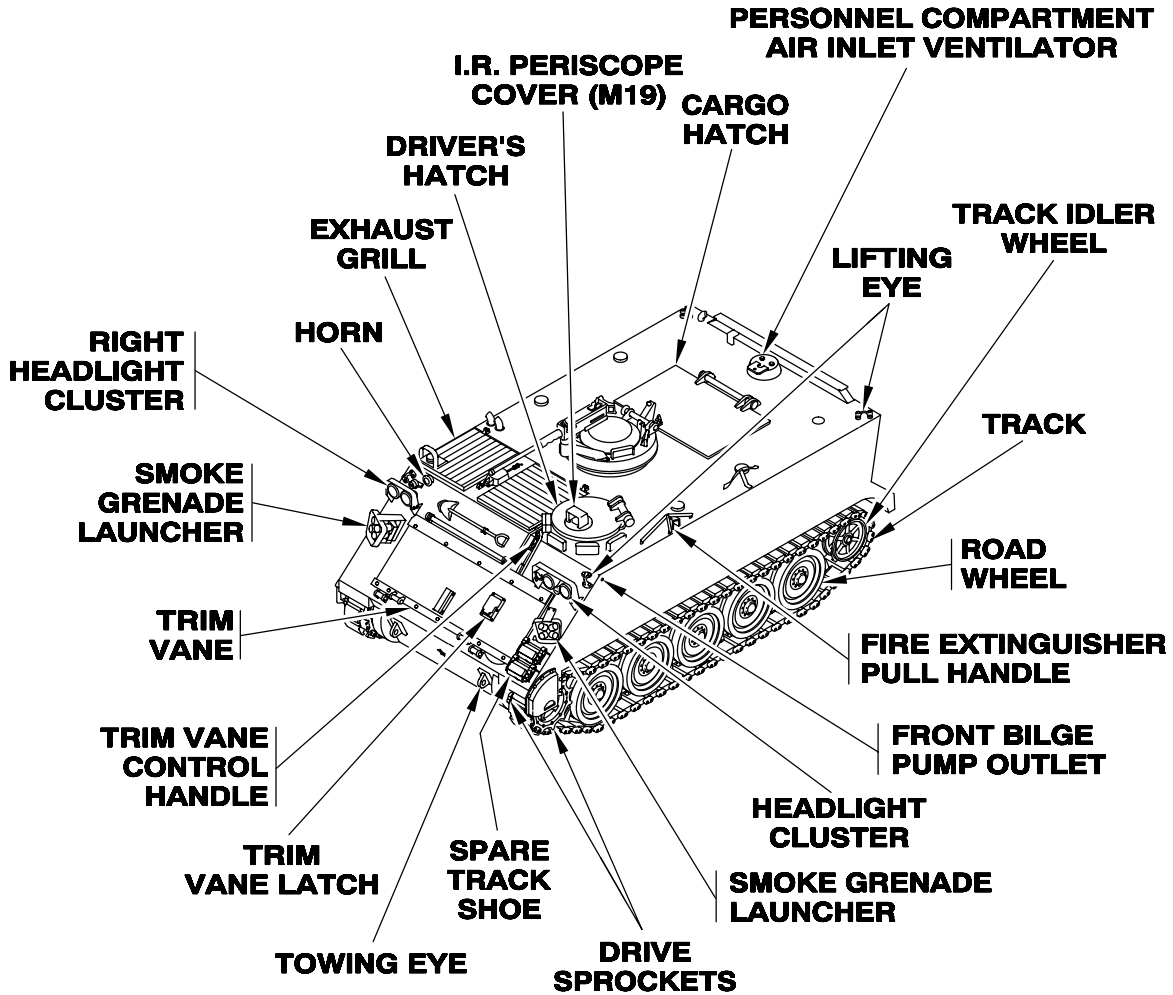
- It is equipped to carry an NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and electronic equipment heater kit (for cold weather operation).

- It is equipped with the M157A2 smoke generator system with enough fuel and fog oil for 1 hour of continuous operation.

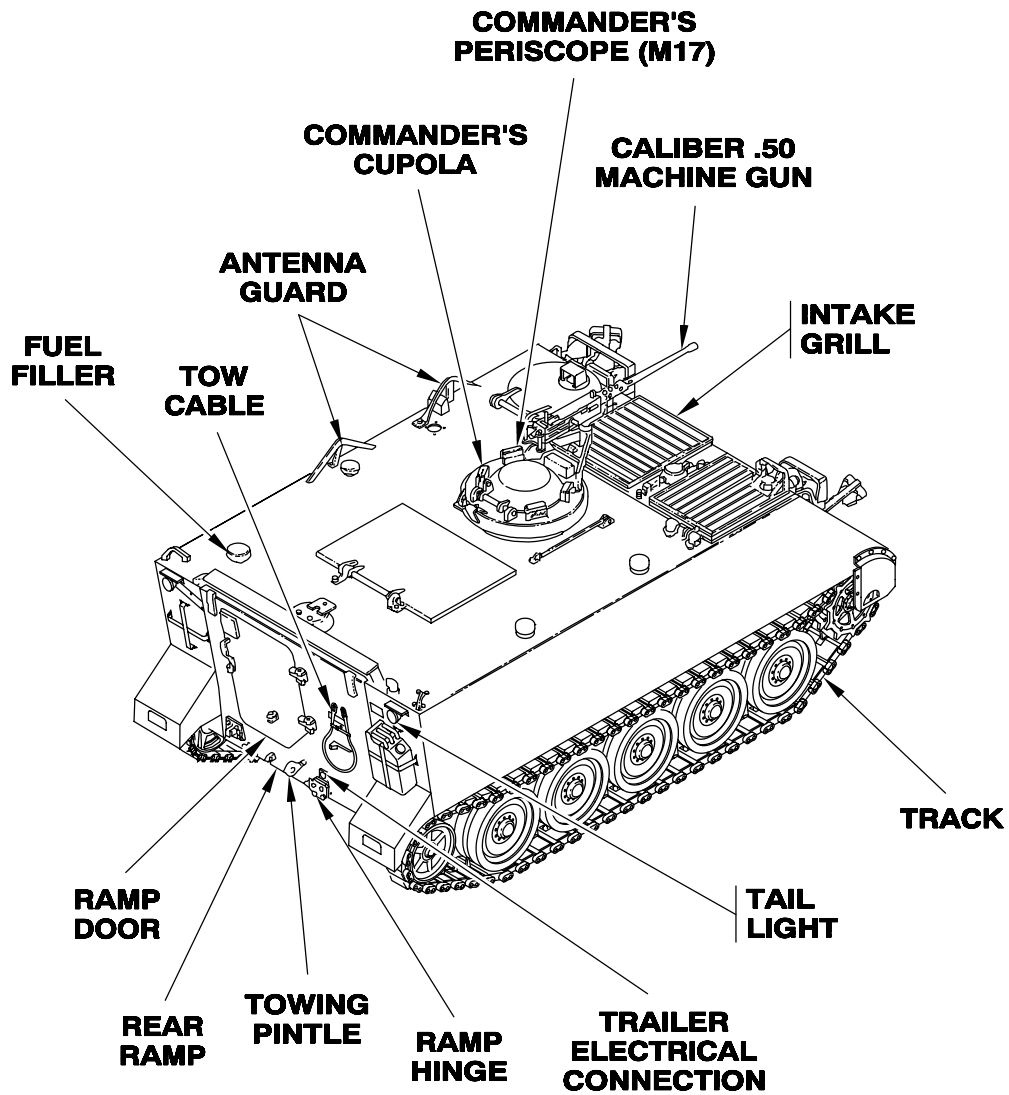
- It can be equipped to carry a marine set kit and a capstan kit.

LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS

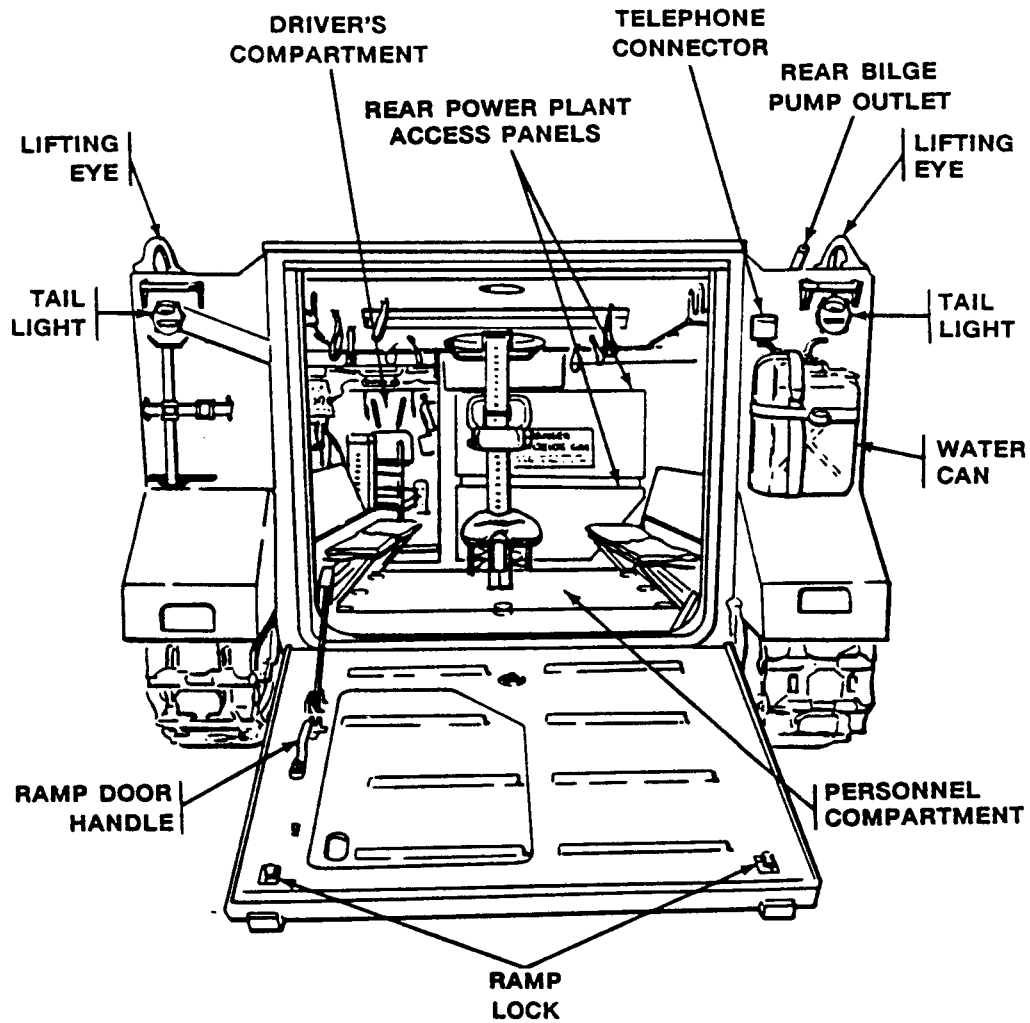
M113A2 CARRIER — LEFT FRONT VIEW



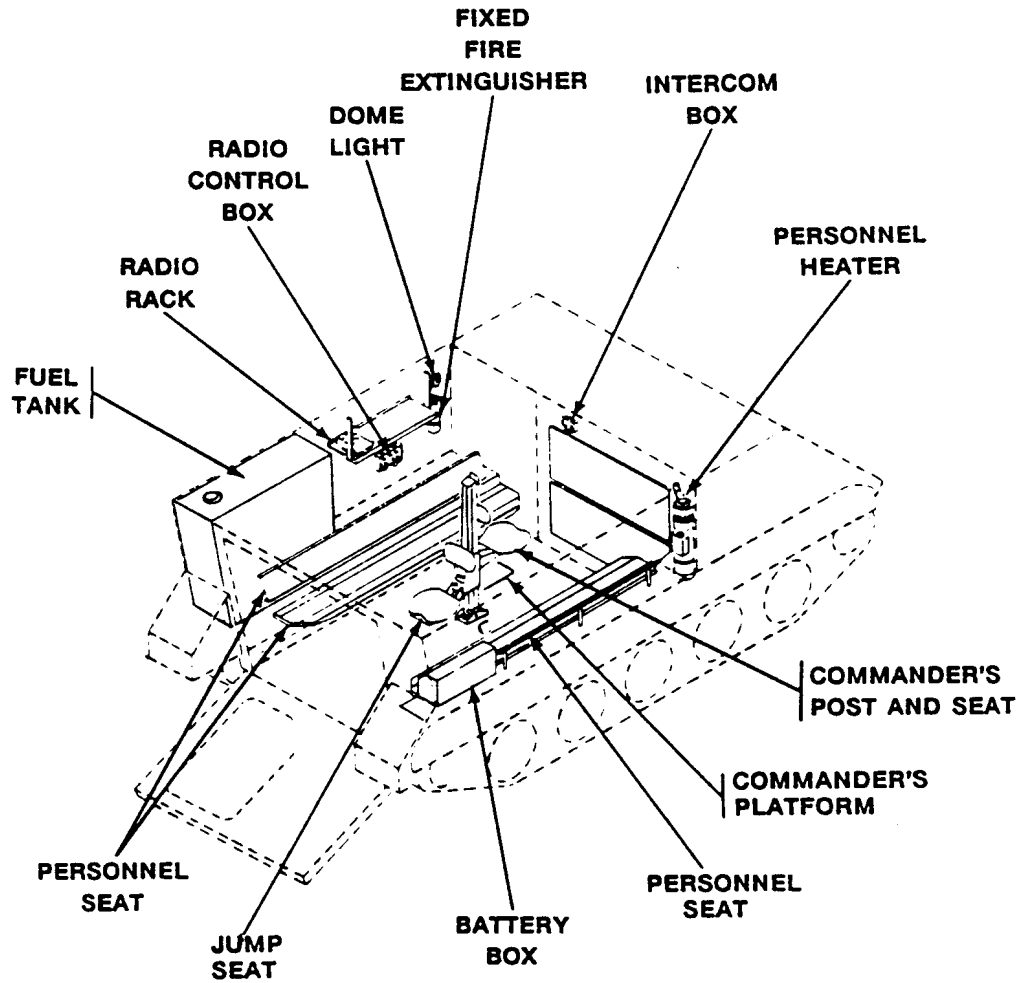
M113A2 CARRIER - RIGHT REAR VIEW



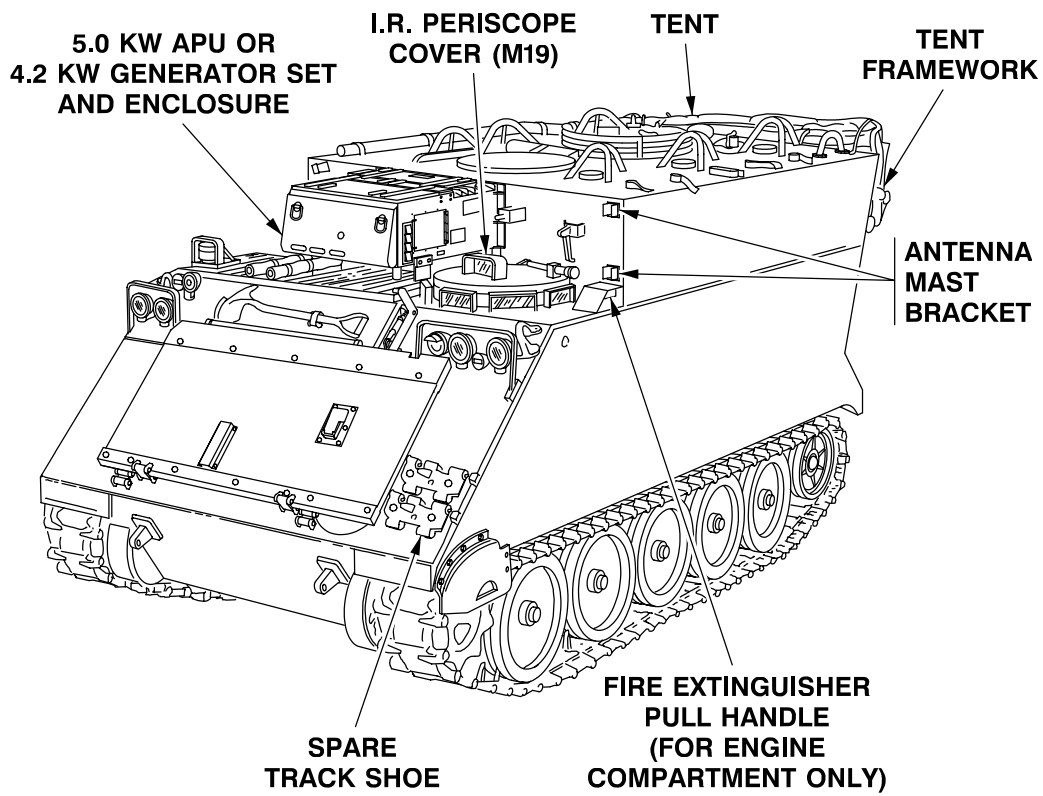
M113A2 CARRIER - REAR VIEW



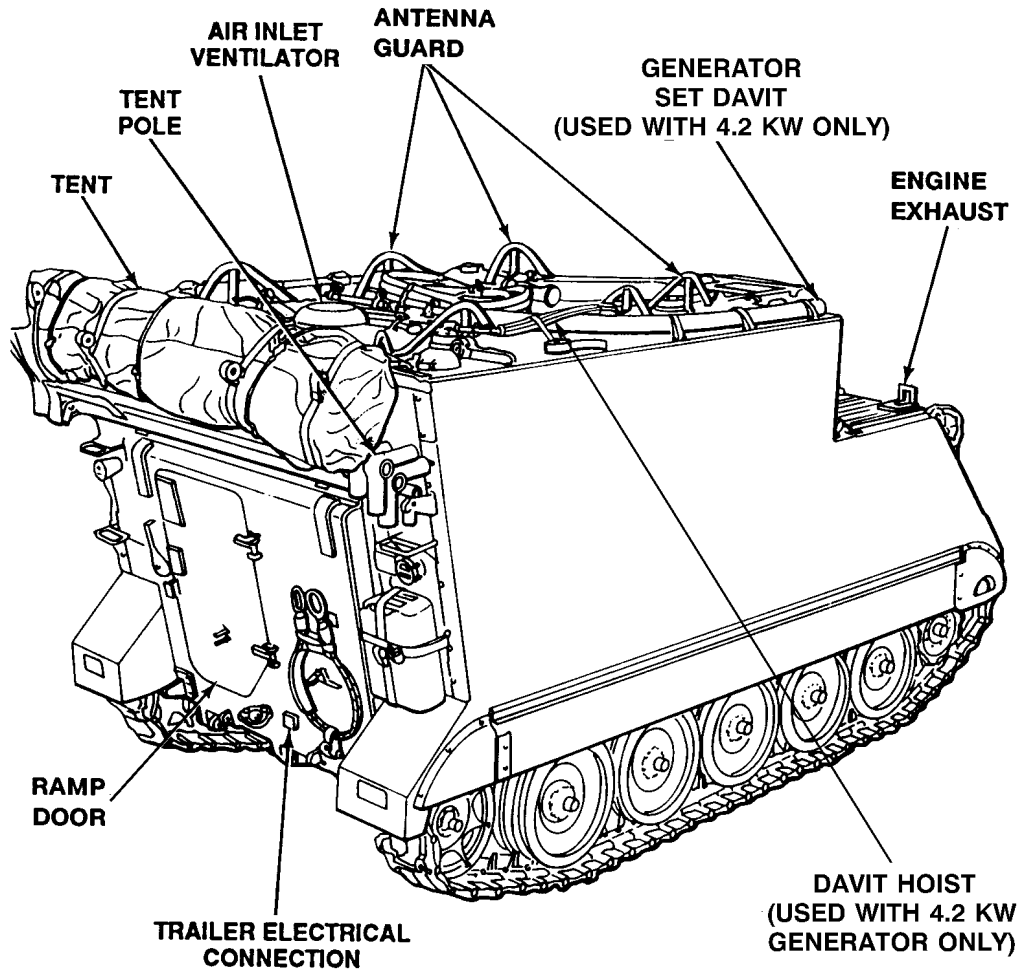
M113A2 CARRIER - PERSONNEL COMPARTMENT VIEW



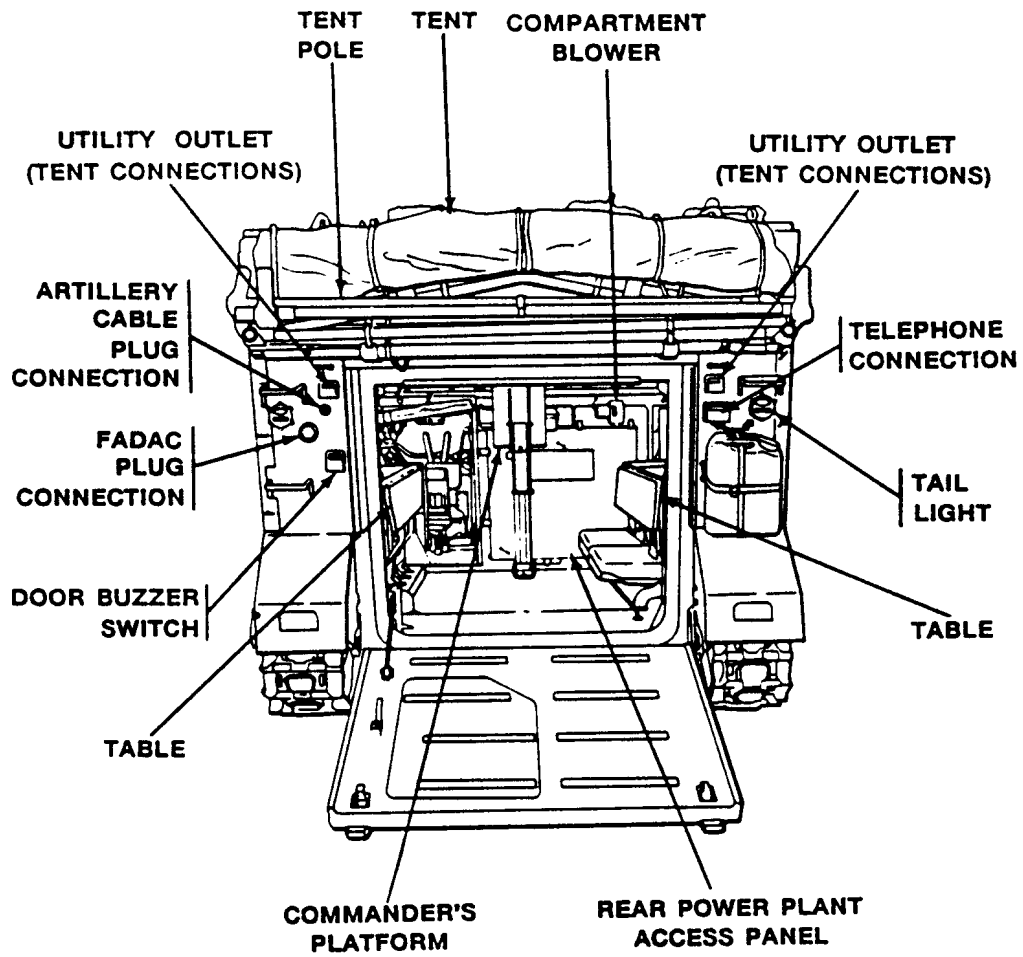
M577A2 COMMAND POST CARRIER - LEFT FRONT VIEW



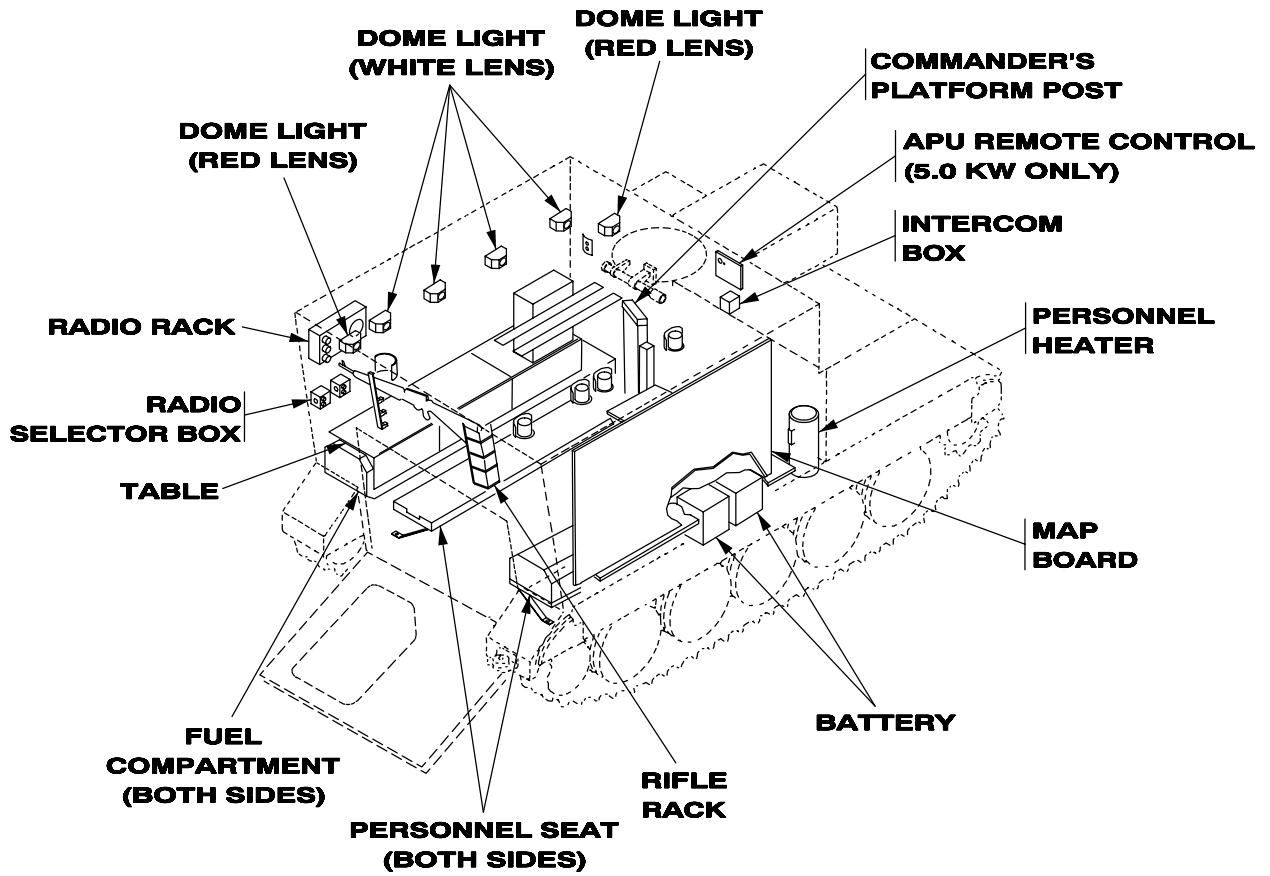
M577A2 COMMAND POST CARRIER - RIGHT REAR VIEW



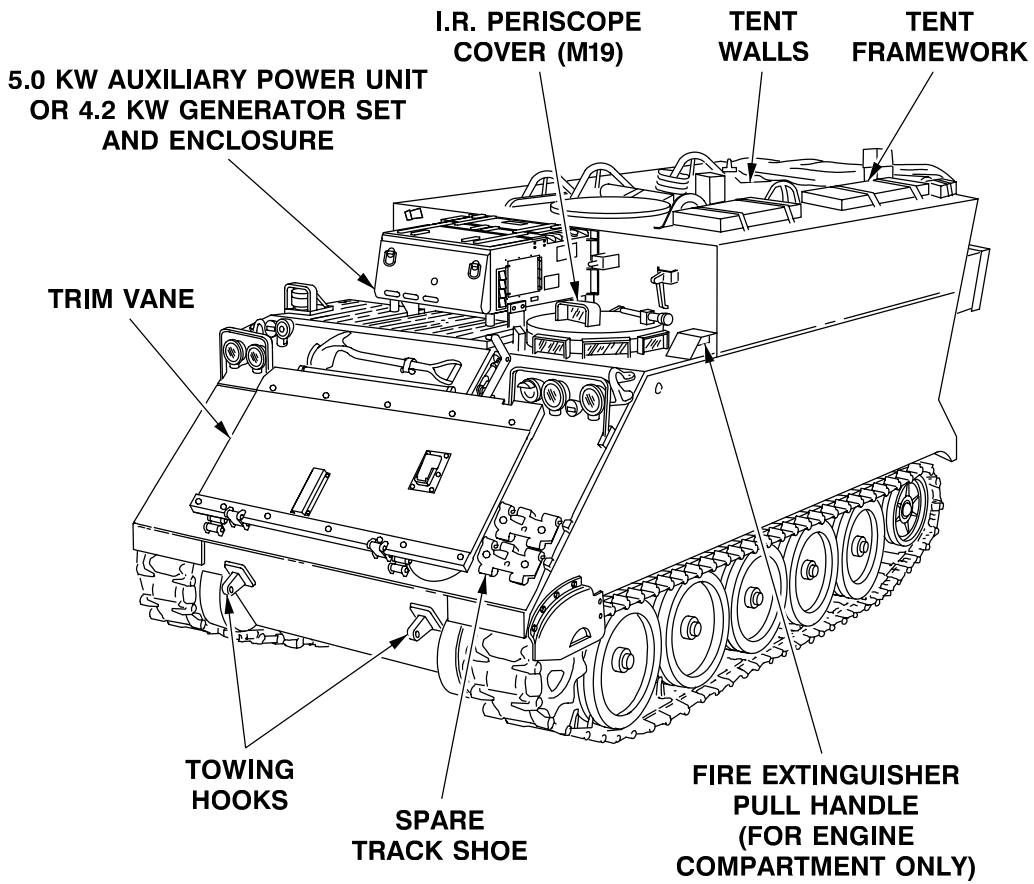
M577A2 COMMAND POST CARRIER - REAR VIEW



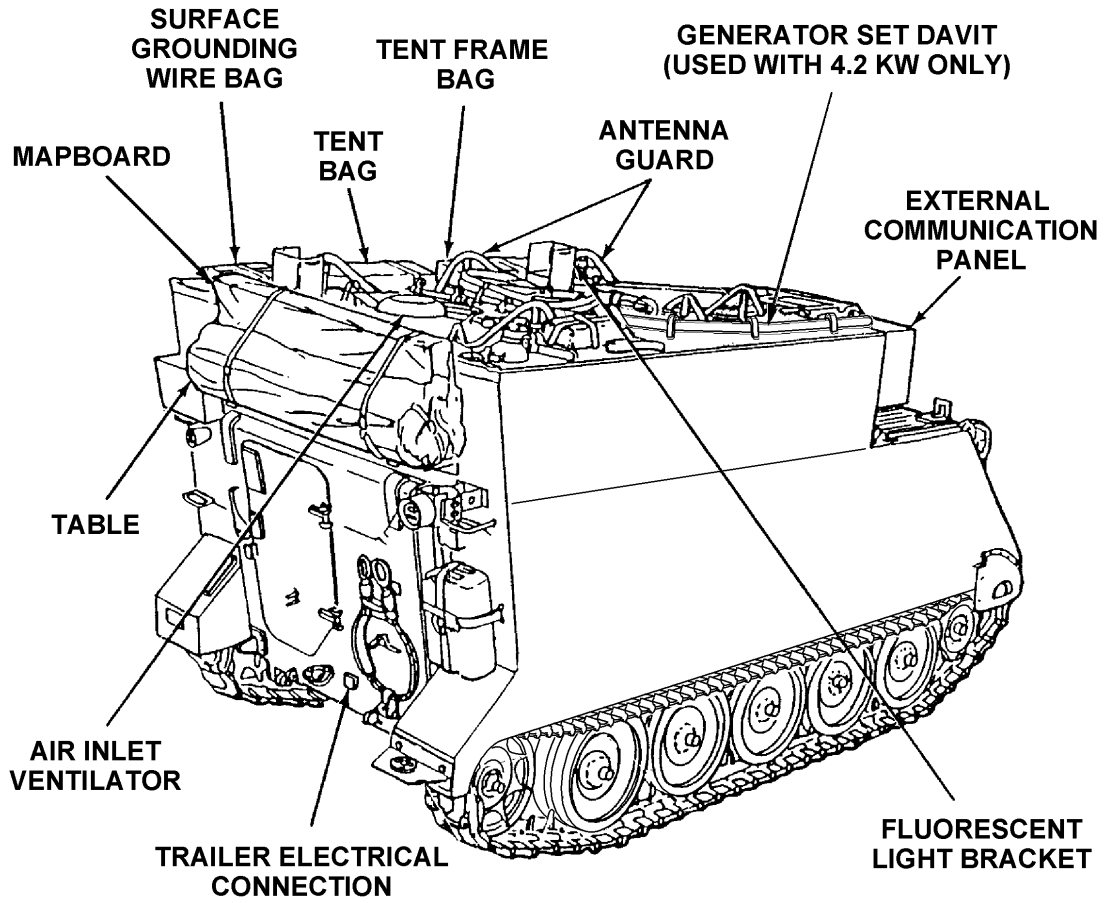
M577A2 COMMAND POST CARRIER - REAR COMPARTMENT



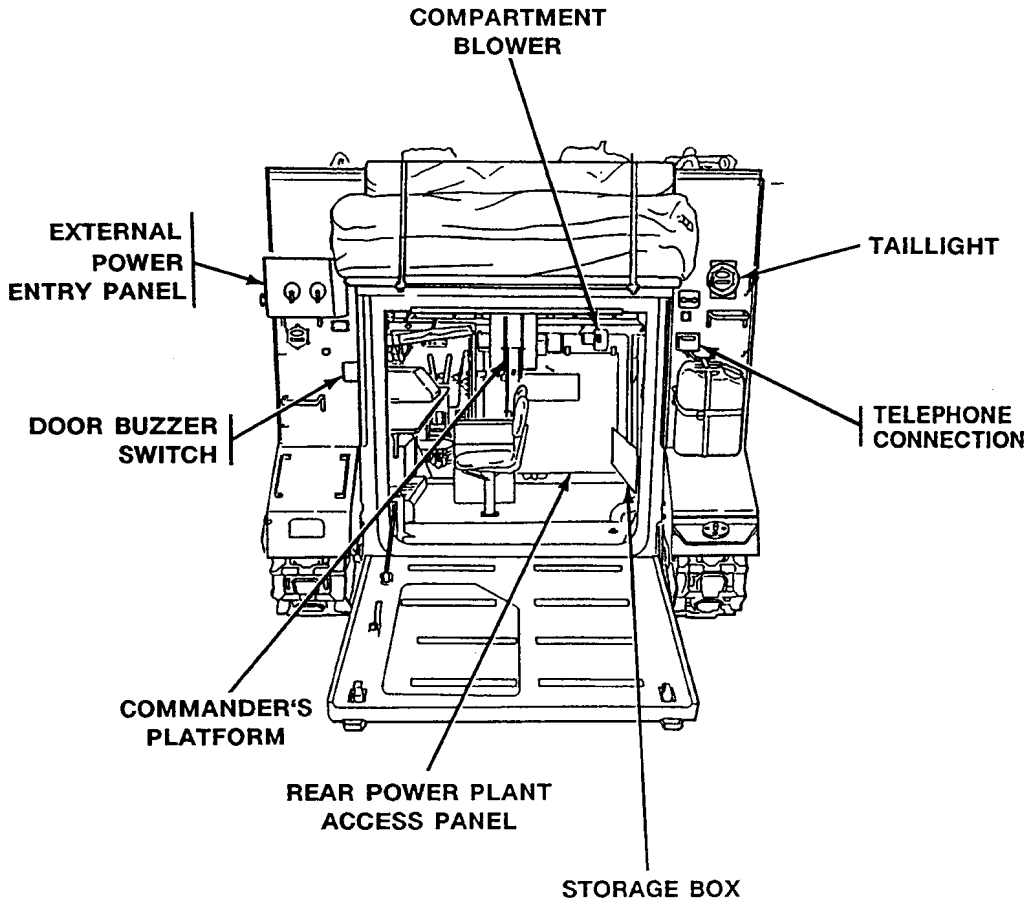
M1068 STANDARDIZED INTEGRATED COMMAND POST SYSTEM - LEFT FRONT VIEW



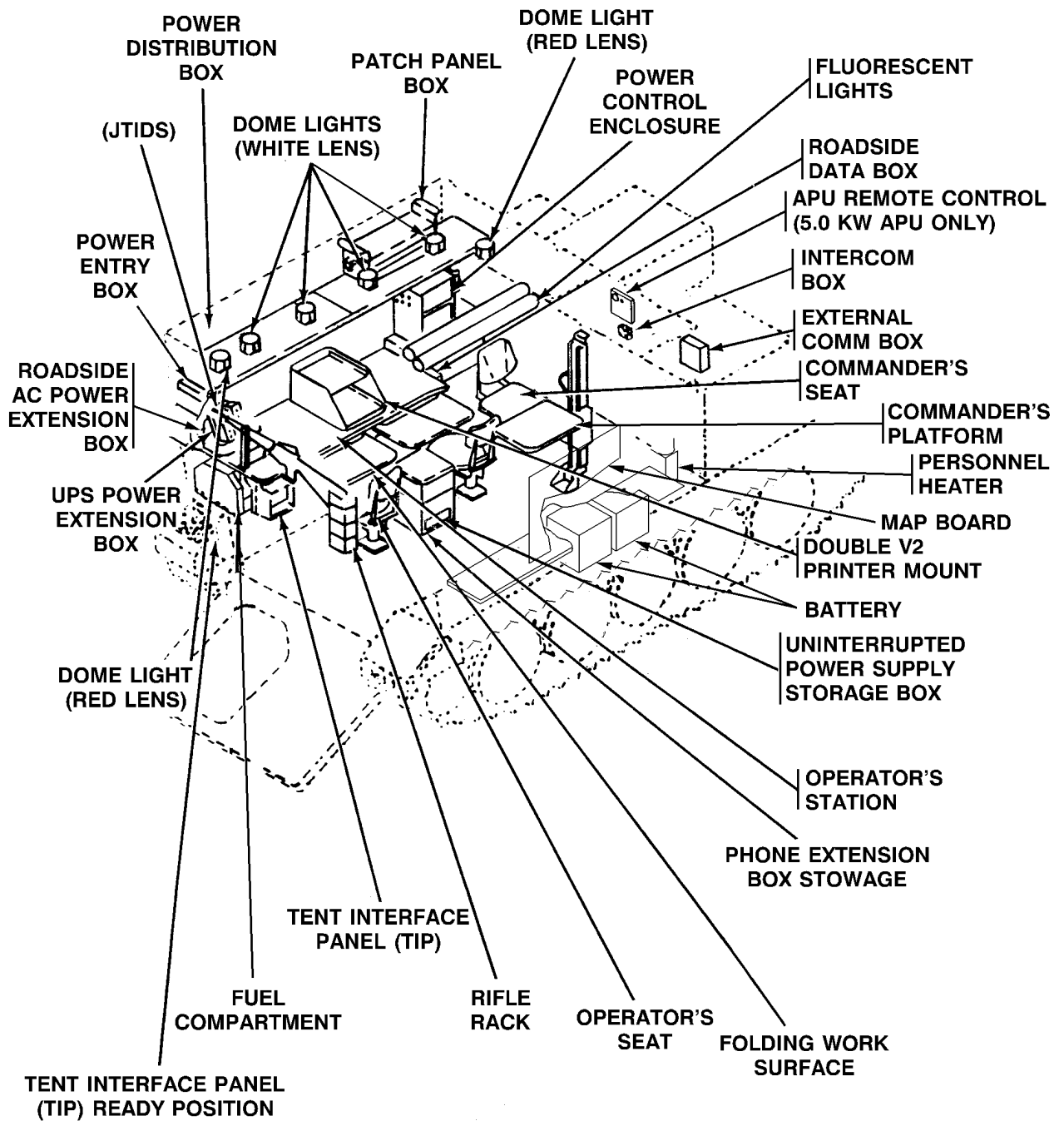
M1068 STANDARDIZED INTEGRATED COMMAND POST SYSTEM - RIGHT REAR VIEW



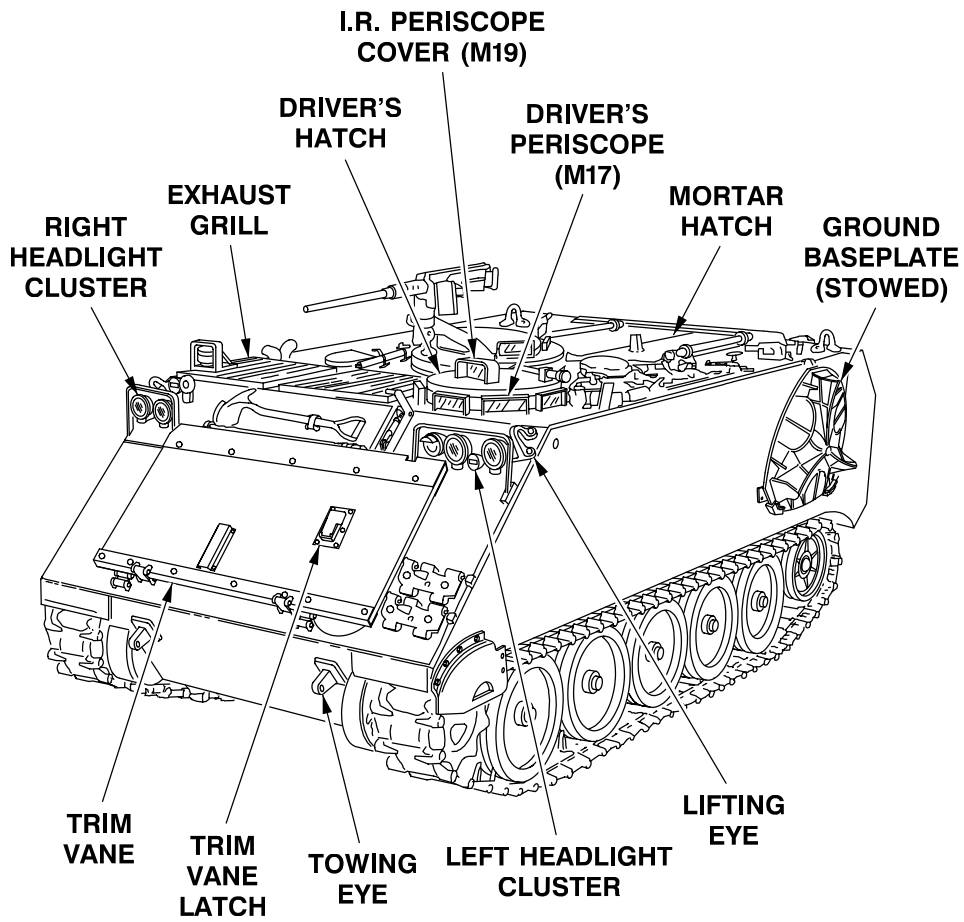
M1068 STANDARDIZED INTEGRATED COMMAND POST SYSTEM - REAR VIEW



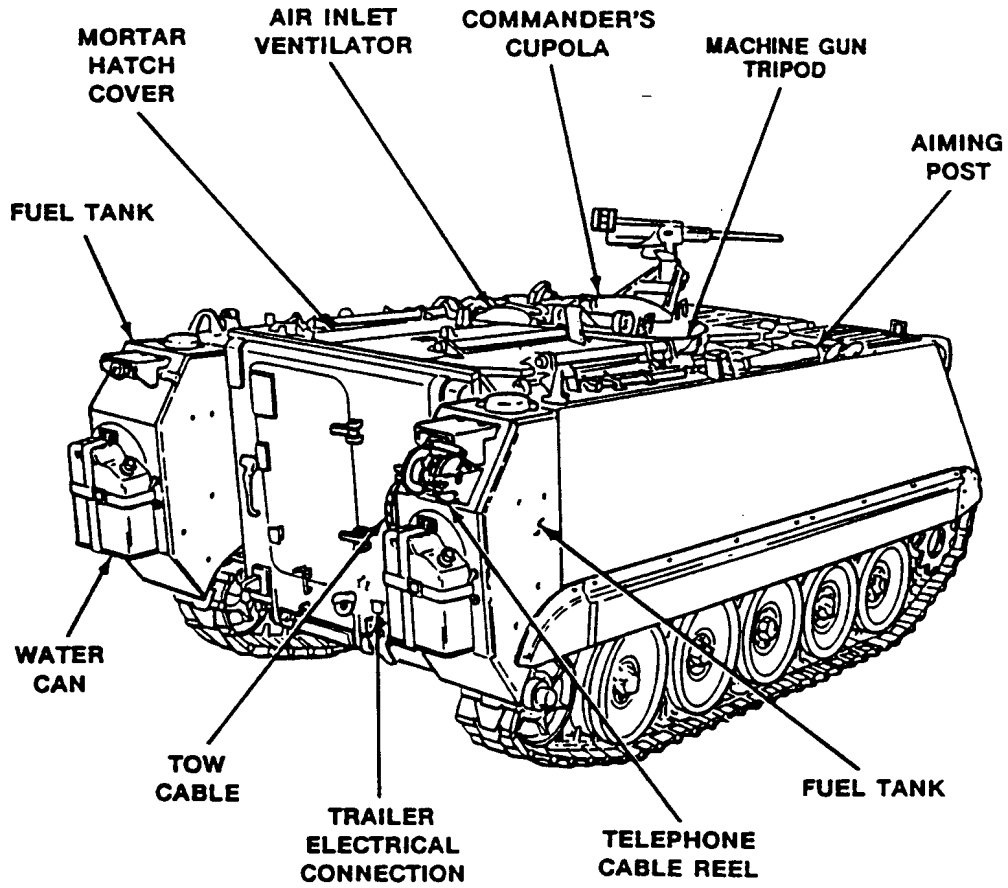
M1068 STANDARDIZED INTEGRATED COMMAND POST SYSTEM - REAR COMPARTMENT (LEFT SIDE)



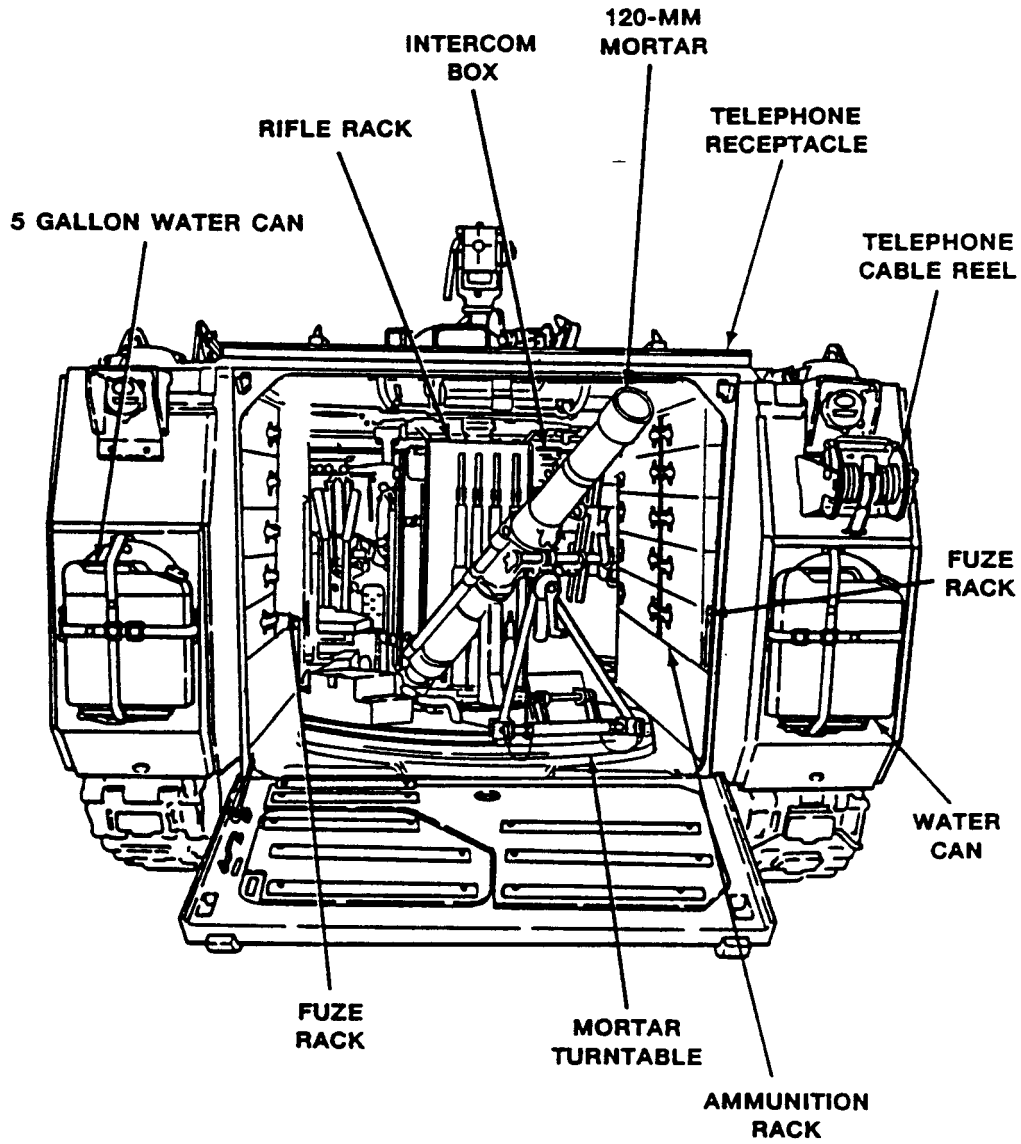
M1064 MORTAR CARRIER - LEFT FRONT VIEW



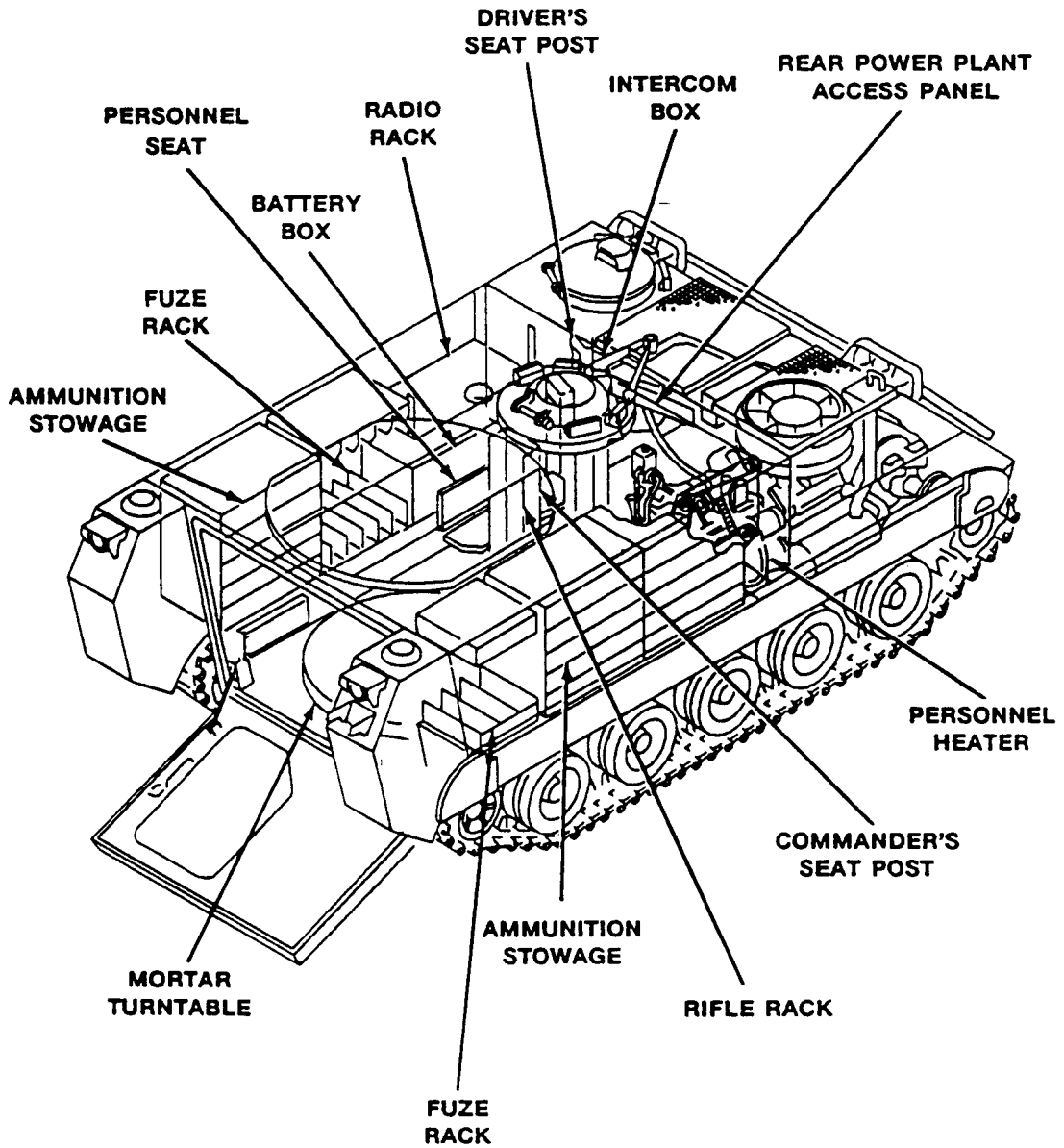
M1064 MORTAR CARRIER - RIGHT REAR VIEW



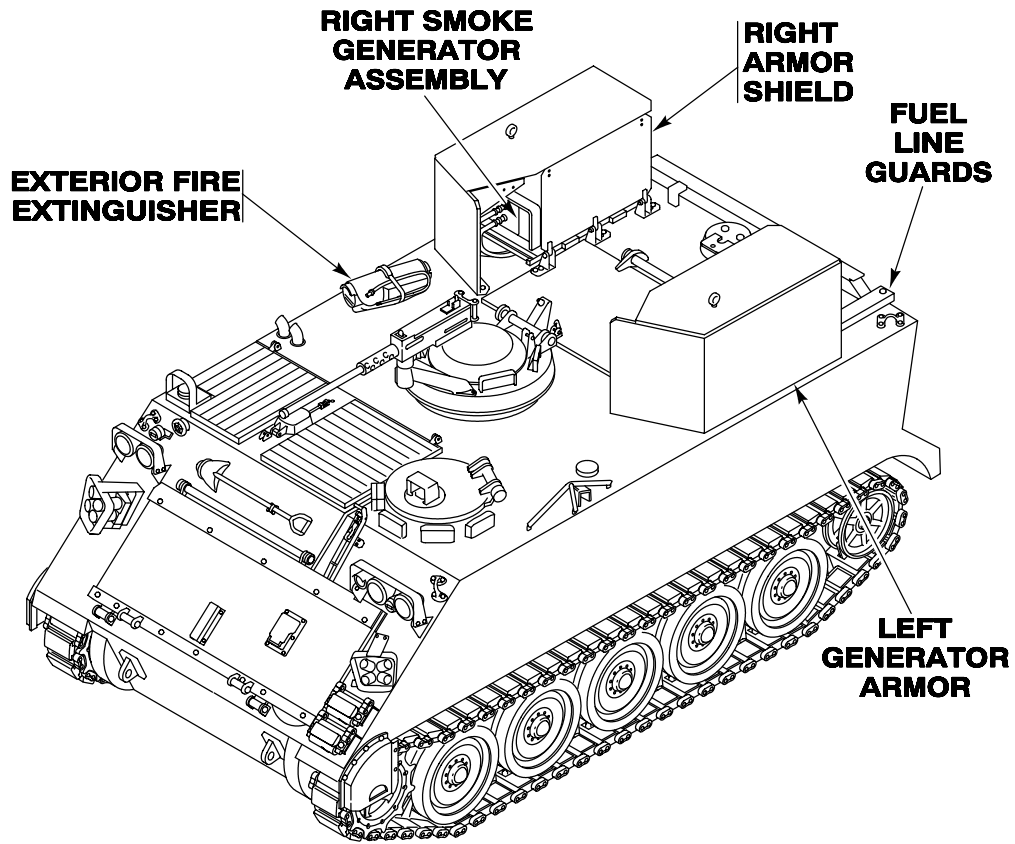
M1064 MORTAR CARRIER - REAR VIEW



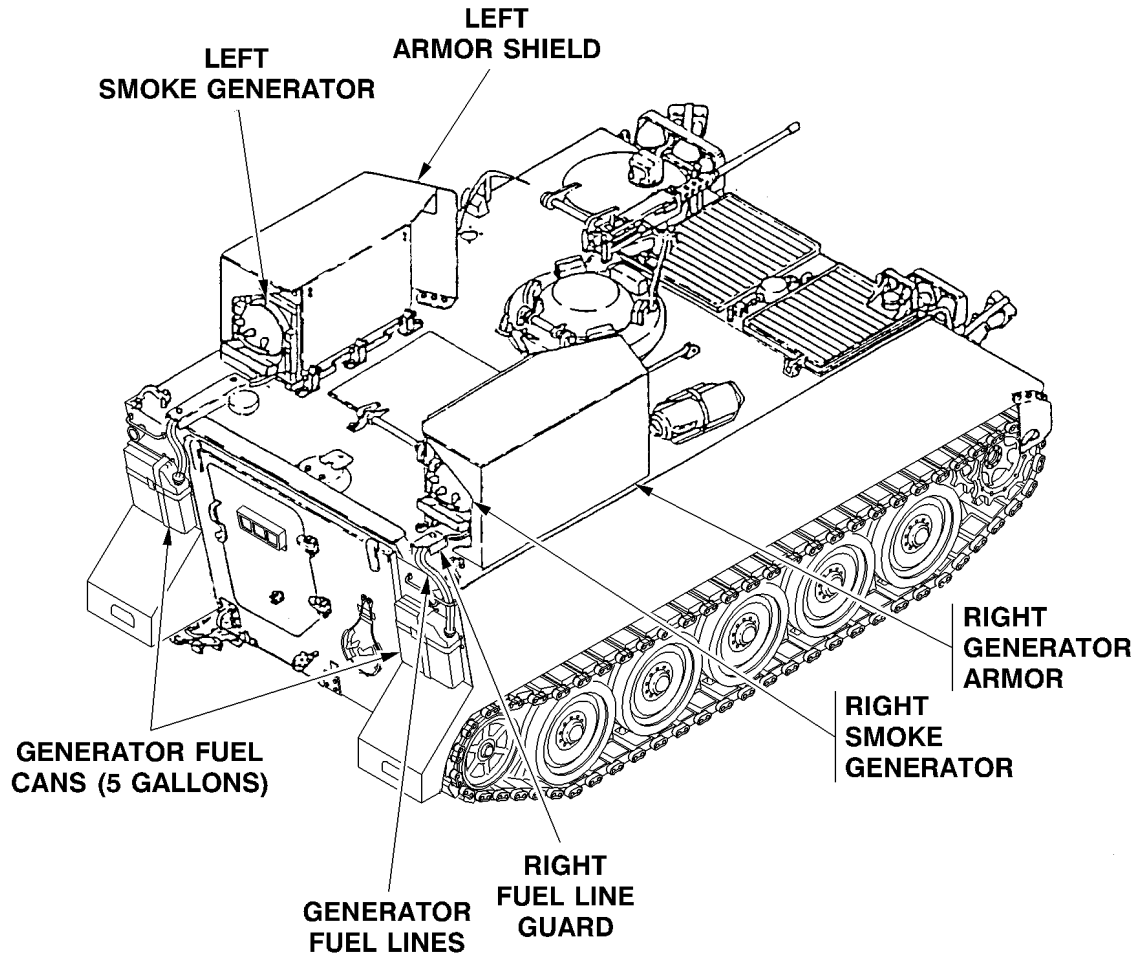
M1064 MORTAR CARRIER - REAR COMPARTMENT



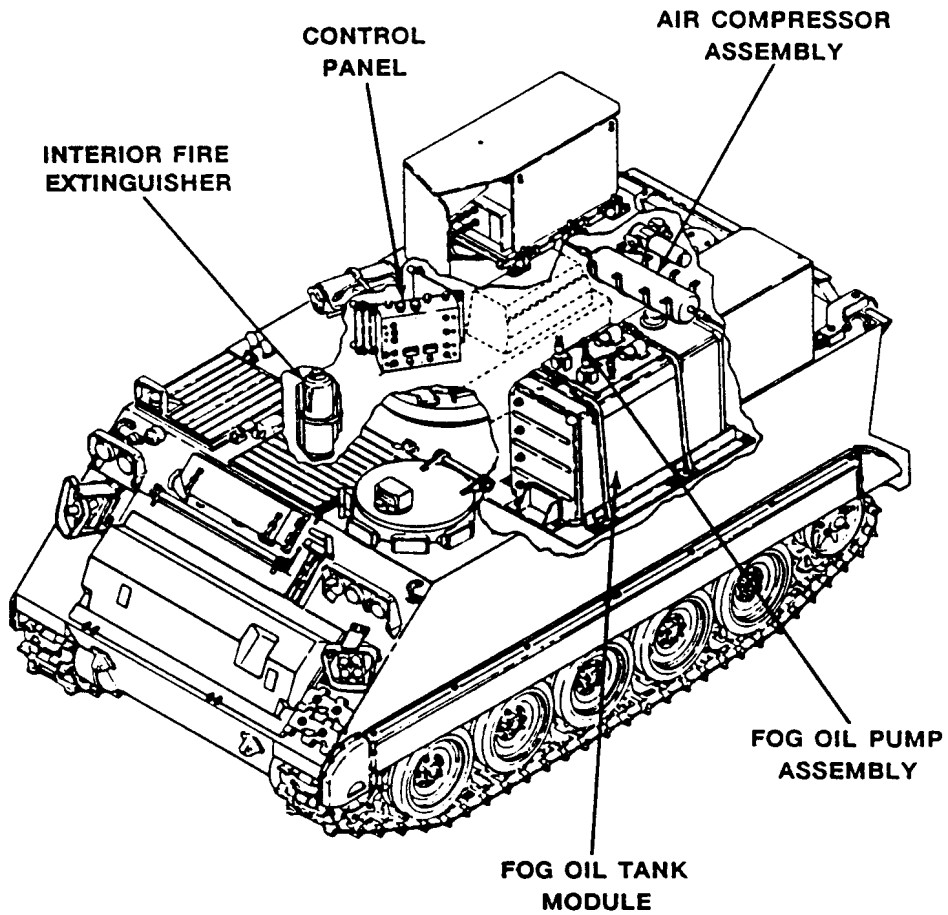
M1059 FULL TRACKED SMOKE GENERATOR CARRIER - LEFT FRONT VIEW



M1059 FULL TRACKED SMOKE GENERATOR CARRIER - RIGHT REAR VIEW



M1059 FULL TRACKED SMOKE GENERATOR CARRIER - INTERIOR ARRANGEMENT

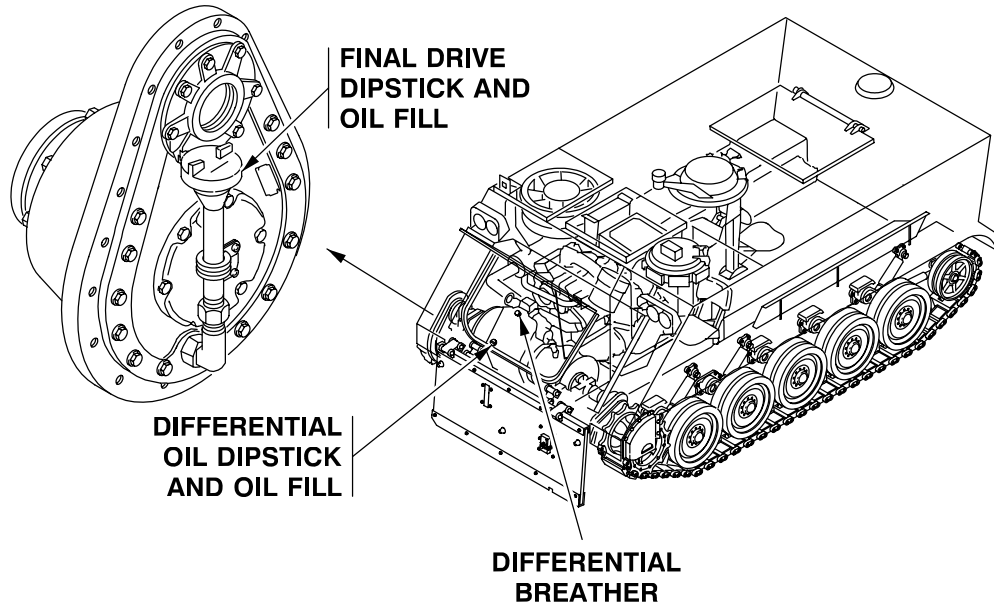


POWER PLANT COMPARTMENT - ALL CARRIERS

The power plant compartment is located in the front right of all carriers. It contains:

- Engine
- Transmission
- Transfer gearcase
- Differential

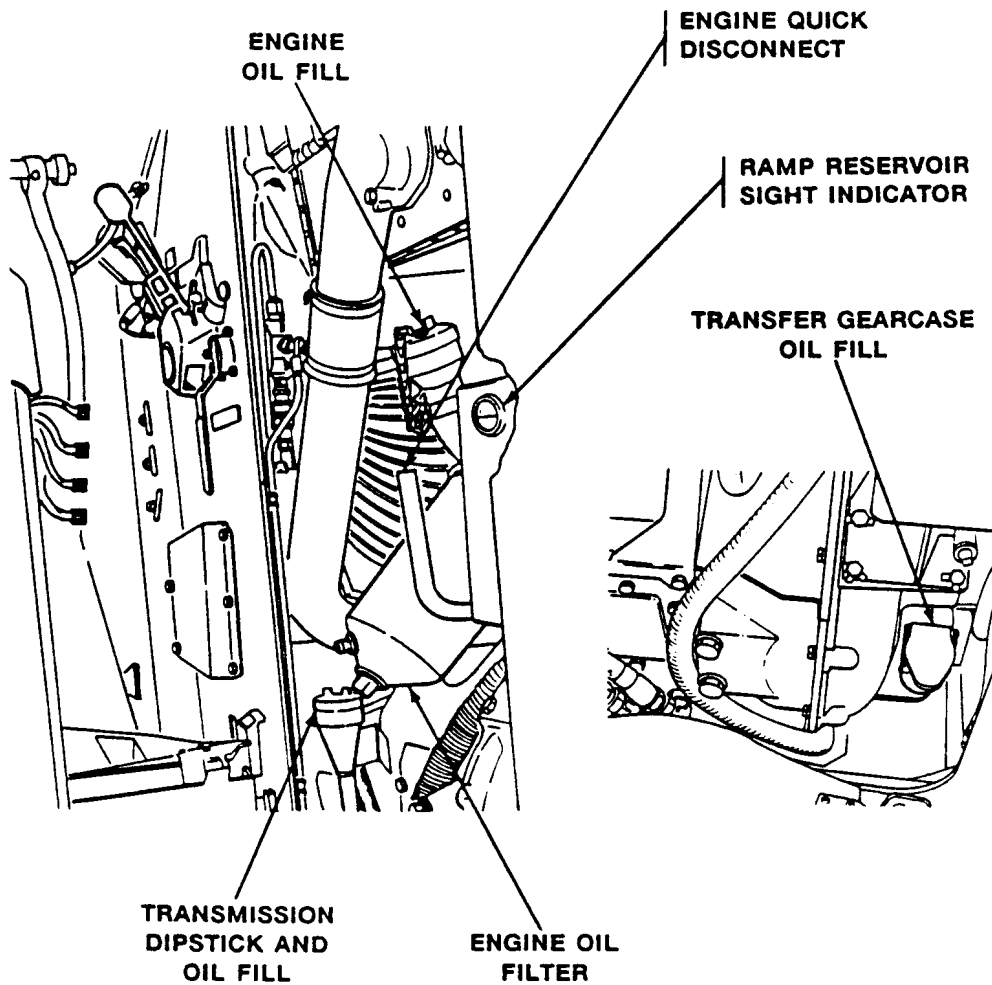
Access to the power plant is through a front door, driver's compartment access panel, and rear compartment access panel. Access the differential, final drives dipsticks, and oil fills by opening front access door.



Removing the driver's compartment access panel provides access to the following:

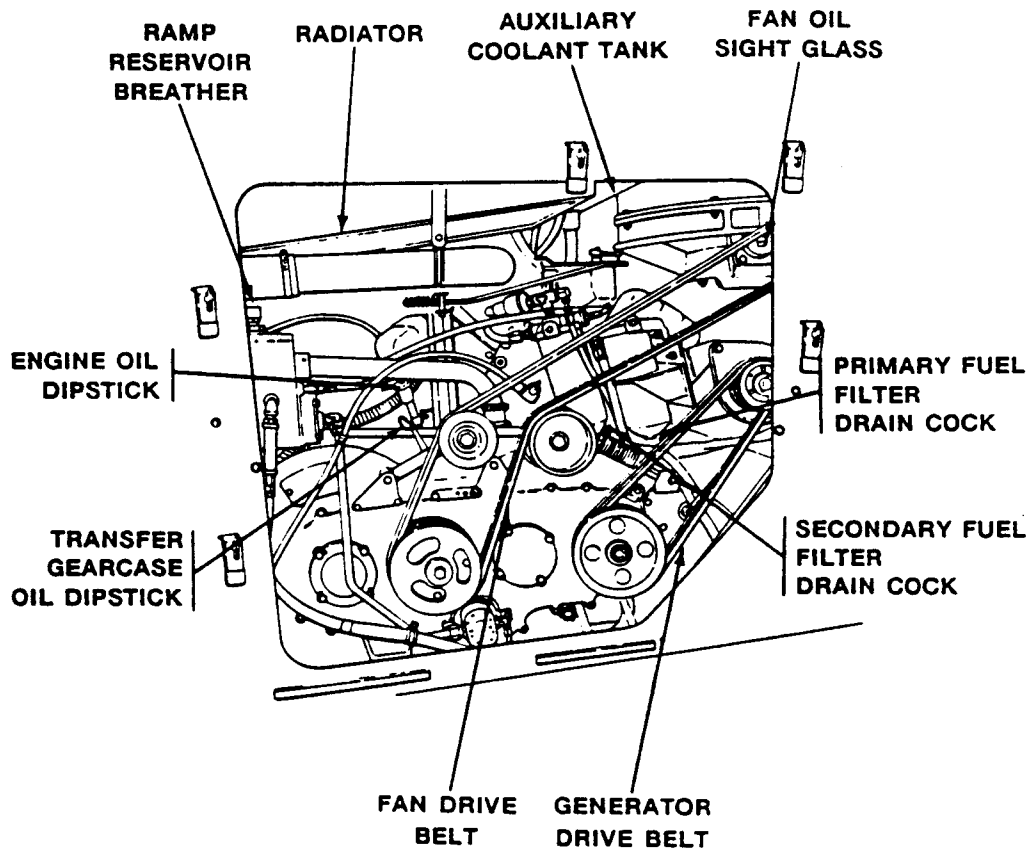
- Engine oil fill
- Engine quick disconnect
- Ramp reservoir sight indicator
- Transfer gearcase oil fill
- Engine oil filter
- Transmission dipstick and oil fill
- Engine oil dipstick

The engine oil dipstick can also be reached by removing the rear access panel.



Removing the rear compartment access panel provides access to the following:

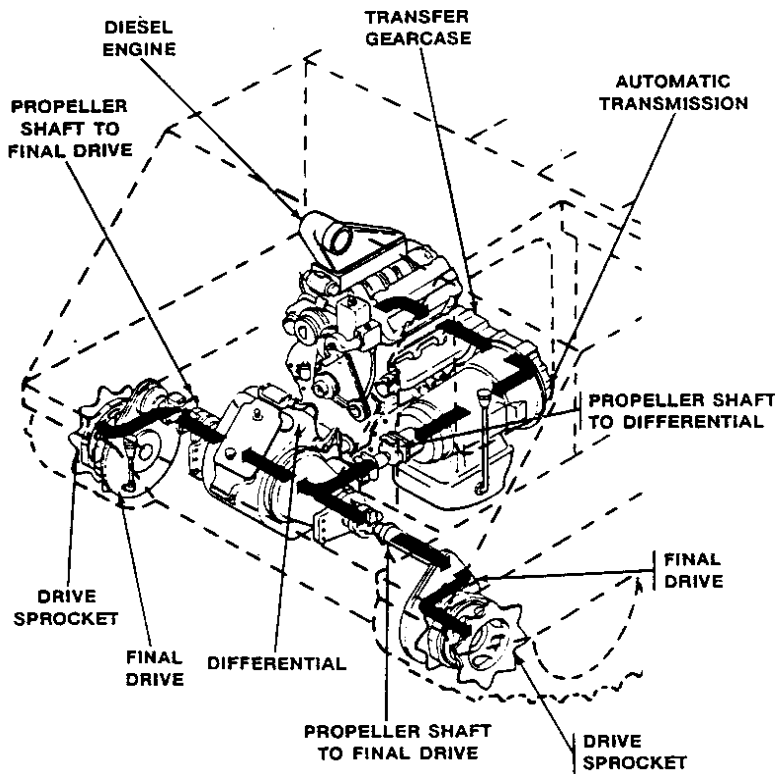
- Ramp reservoir breather
- Radiator
- Auxiliary coolant tank
- Fan oil sight glass
- Primary and secondary fuel filter drain cocks
- Generator drive belt
- Fan drive belt
- Transfer gearcase oil dipstick
- Engine oil dipstick



POWER TRAIN - ALL CARRIERS

The power train consists of several major connected components. These include:

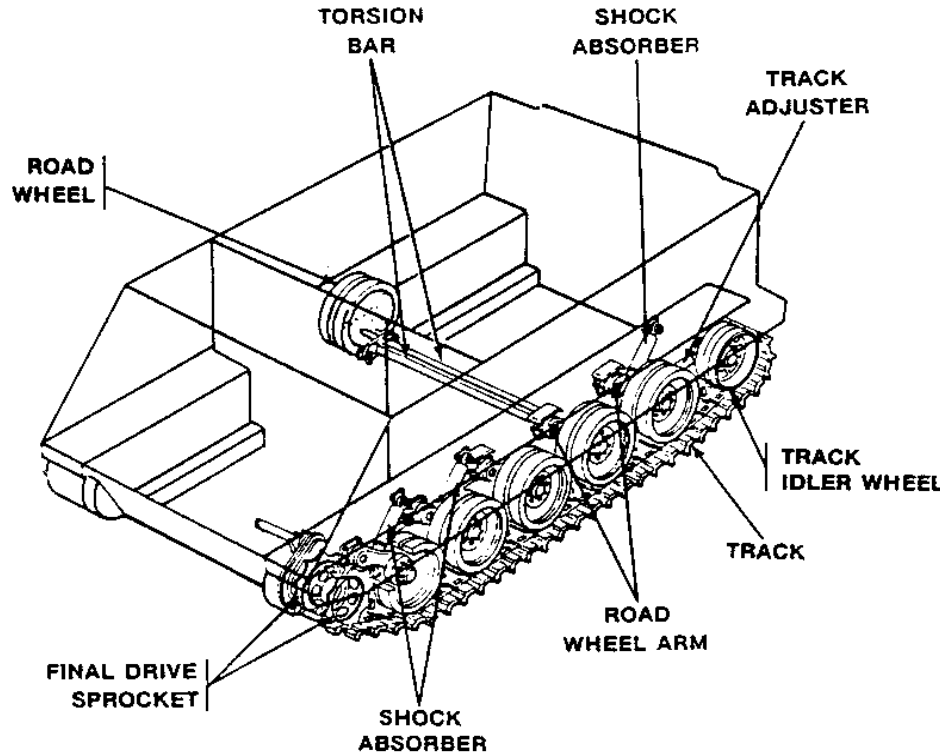
- 6V53 diesel engine - power source
- Transfer gearcase - transfers engine power to transmission
- Transmission - automatically selects correct gear range
- Propeller shaft - connects transmission to differential
- Differential - steers and brakes carrier
- Propeller shafts - connects final drives to differential
- Final drives - drive the track sprockets
- Final drive sprockets - power the tracks to move carrier



SUSPENSION SYSTEM - ALL CARRIERS

The carrier moves on its suspension system which includes the following components:

- Road wheels - ten on each side to support weight of carrier
- Road wheel arms - five on each side splined to individual torsion bars to suspend carrier
- Torsion bars - firmly anchored to carrier to keep road wheels on ground
- Tracks - on each side driven by final drive sprockets to propel carrier
- Track adjusters - secured to idler wheels to maintain track tension
- Shock absorbers - at first, second, and fifth road wheels to stabilize carrier



POWER ENTRY BOX ASSEMBLY — M1068 ONLY

WARNING

When using external power, ensure proper grounding procedures are followed. Failure to do so may result in personal injury and/or damage to the equipment. See TM 11-7010-256-12&P for installing surface wire grounding system.

WARNING

HIGH VOLTAGE is used in the operation of this equipment

DEATH ON CONTACT may result if personnel fail to observe safety precautions.

NEVER work on equipment unless at least one other person familiar with the operation and hazards of the equipment is nearby. That person should also be competent in giving first aid. When an operator helps a technician, that operator must be warned about dangerous areas.

SHUT OFF POWER supply to equipment before beginning work. Make sure all exterior power is off/disconnected.

BE CAREFUL not to contact high-voltage connections when installing or operating this equipment.

KEEP one hand away from the equipment to reduce the hazard of current flowing through life-sustaining organs of the body.

The power entry box assembly, located at the upper rear roadside exterior corner of the carrier, along with cable W1 (external power input pigtail), and cable W2 (external AC power cable) provides the ability to receive or supply AC power. A workstation can be powered by using the on-board generator, external power source, or the carrier's charging system.

The assembly has connections for AC power out and external power in. By connecting either cable W1 or W2 to the assembly connections, the carrier can act as an alternate power source or receive power from some other alternate power source.

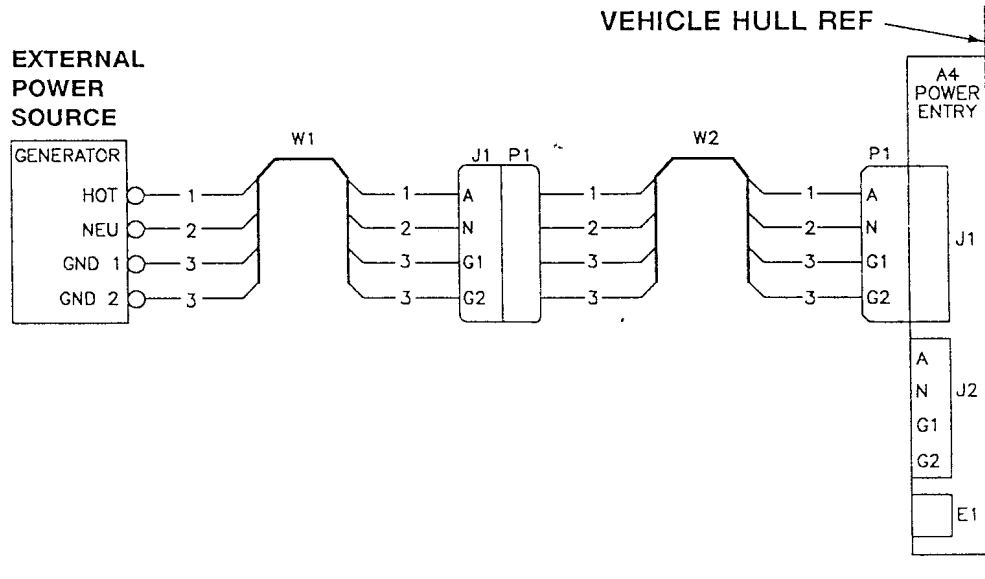
Cables W1 and W2 are located just behind the generator on top of the carrier. Cable 2 has connectors on both ends which allow it to be connected between other systems. Cable W1 has a connector on one end and pigtails (loose wires) on the other end. This allows connection to power sources other than a common system. Cables W1 and W2 can also be connected in series when additional length is required.

Connections for cable W1 pigtails are:

Items in parenthesis identify labels on each wire.

- Circuit 1 to HOT (Power)
- Circuit 2 to Neutral (Neutral)
- Circuit 3 to Ground 1 (GND 1)
- Circuit 3 to Ground 2 (GND 2)

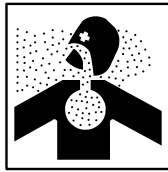
When operating on carrier power, only essential systems should be operated to avoid overloading the power requirements.



ENGINE COOLING AND AIR INDUCTION — ALL CARRIERS

Air for engine combustion and cooling is drawn through the intake grille and radiator. Air sweeps down around the power plant and out through the exhaust grille above the fan. An air control valve allows driver a choice of drawing air from the rear compartment or power plant compartment for the engine. During operation, air in the power plant compartment warms up (becomes less dense). Drawing cooler (more dense) air from the rear compartment gives the engine a boost in horsepower. When the vent is open to draw from the crew compartment, less air is being drawn through the radiator. In hot climates, it should only be opened for short periods. The air cleaner is equipped with a restriction indicator to inform the driver when the air cleaner element needs cleaning.

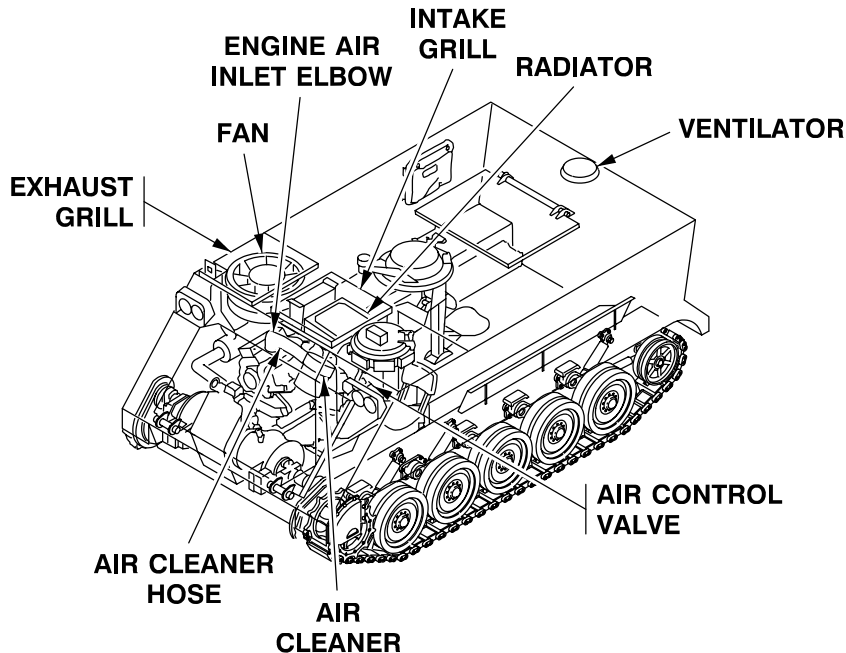
WARNING



Failure to open ventilator, when operating carrier with all hatches closed, will result in a serious lack of oxygen.

CAUTION

Avoid overheating of components during operation. Keep power plant door, access plates, and panels closed tightly for correct air flow.



MATERIAL USED WITH CARRIERS

Various kits can be applied to your carrier to prepare it for particular missions or operating conditions. Each kit is described and illustrated on the following pages. If you have one or more of these kits on board, be sure to check the PREVENTIVE MAINTENANCE CHECKS AND SERVICES (WP 0075 00). These kits include:

- Personnel Heater Kit — All Carriers (to operate, see WP 0036 00)
- Engine Coolant Heater Kit — All Carriers (to operate, see WP 0060 00)
- Electronic Equipment Heater Kit — M577A2 Only (to operate, see WP 0037 00)
- Hospital Litter Kit — M113A2 Only
- Windshield Kit — All Carriers (to operate, see WP 0034 00)
- NBC Systems M8A3, M13, and M14 (NBC Kit) — All Carriers Except M1064 (to operate, see WP 0068 00)
- Capstan and Anchor Kits — M113A2 and M1059 (to operate, see WP 0051 00)
- Smoke Grenade Launcher Kit — M113A2 and M1059 (to operate, see WP 0067 00)

PERSONNEL HEATER KIT — ALL CARRIERS. Provides heat to the rear compartment and driver's compartment during cold weather. It circulates warm air from the fresh air heater mounted in the right front corner of the rear compartment. A heat duct along the front floor is manually controlled to direct the heat. Heater intake air is drawn from outside. The exhaust is vented through the top deck. The heater control box is mounted to the left of the driver. It has a three-position RUN-OFF-START switch, HI-LO switch, and indicator light.

WARNING

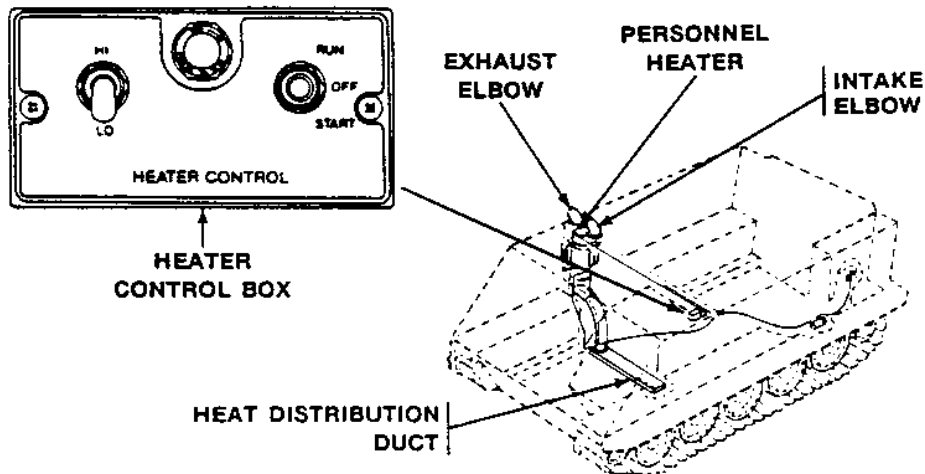


Inspect heater fuel lines for leaks. **DO NOT** operate heater with a bad fuel line. You could be badly burned.

WARNING



Heater exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Be alert at all times. Check for smell of exhaust fumes. If you detect or suspect the presence of fumes, open all hatches right away. Shut heater OFF.



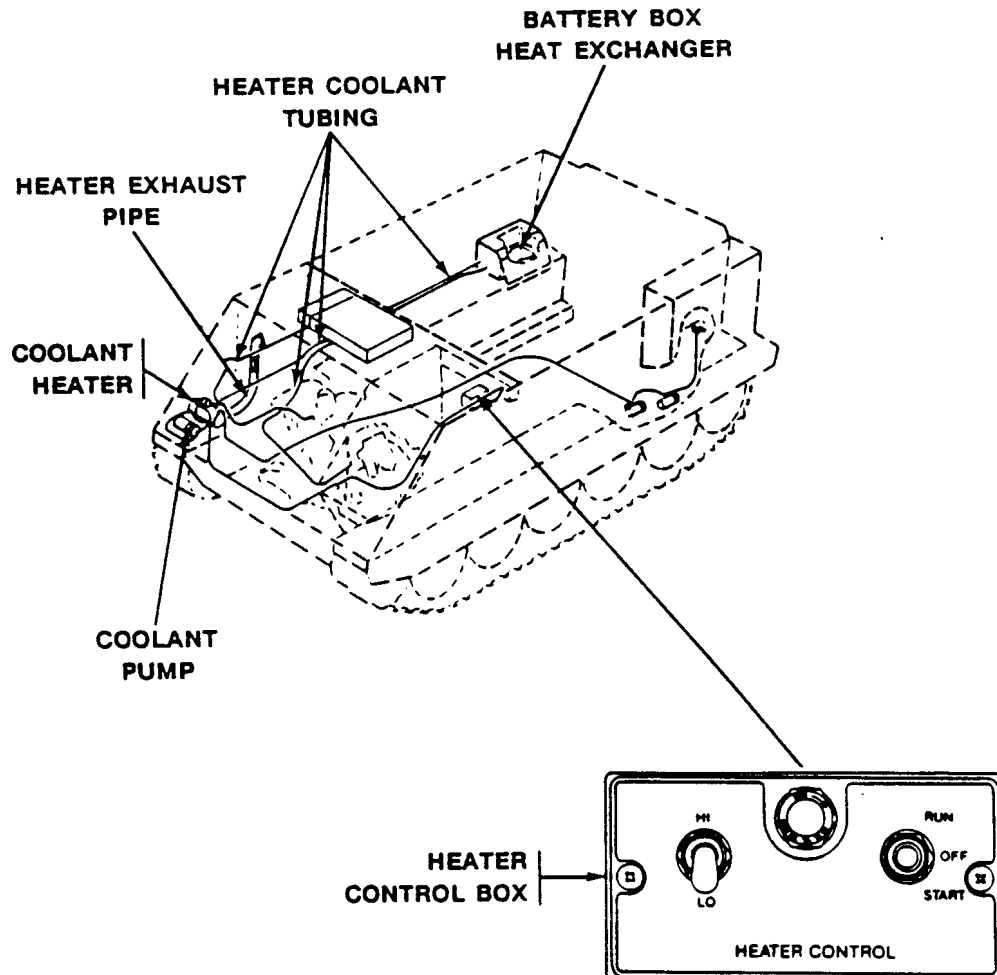
ENGINE COOLANT HEATER KIT. This section describes the engine coolant heater kit found in the M113A2 series carriers.

The coolant heater warms the coolant to make starting the engine possible during cold weather operation. The heater is required when temperature is between -25° and -65°F (-32° and -54°C). The heater is not required when temperature is above -25°F (-32°C).

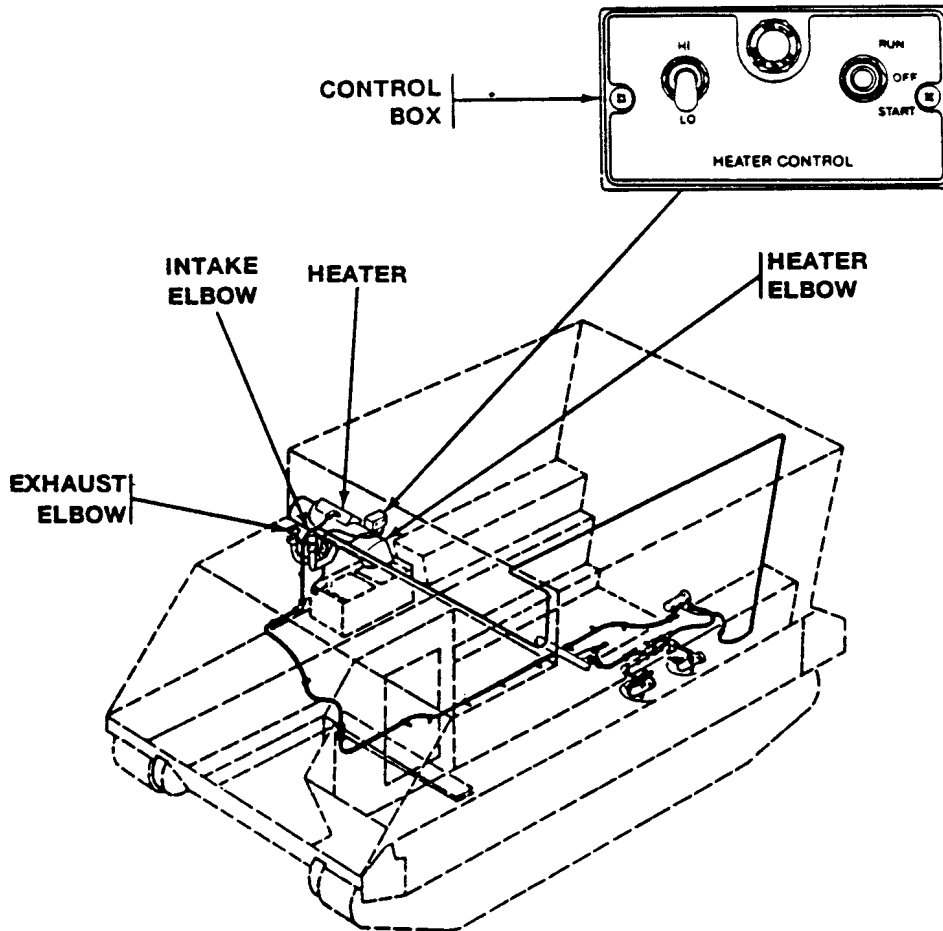
A pump circulates coolant through tubing to engine block and battery box heat exchanger to warm the engine block, engine lubricating oil, and the battery electrolyte. Fuel for the coolant heater comes from the engine fuel system. An additional fuel pump is installed to supply fuel under pressure to the heater.

The coolant heater is not intended as a quick preheat heater.

On the M577A2 and M1068 carriers, a blow torch is installed as part of the engine coolant kit to aid in starting the generator set in cold weather.



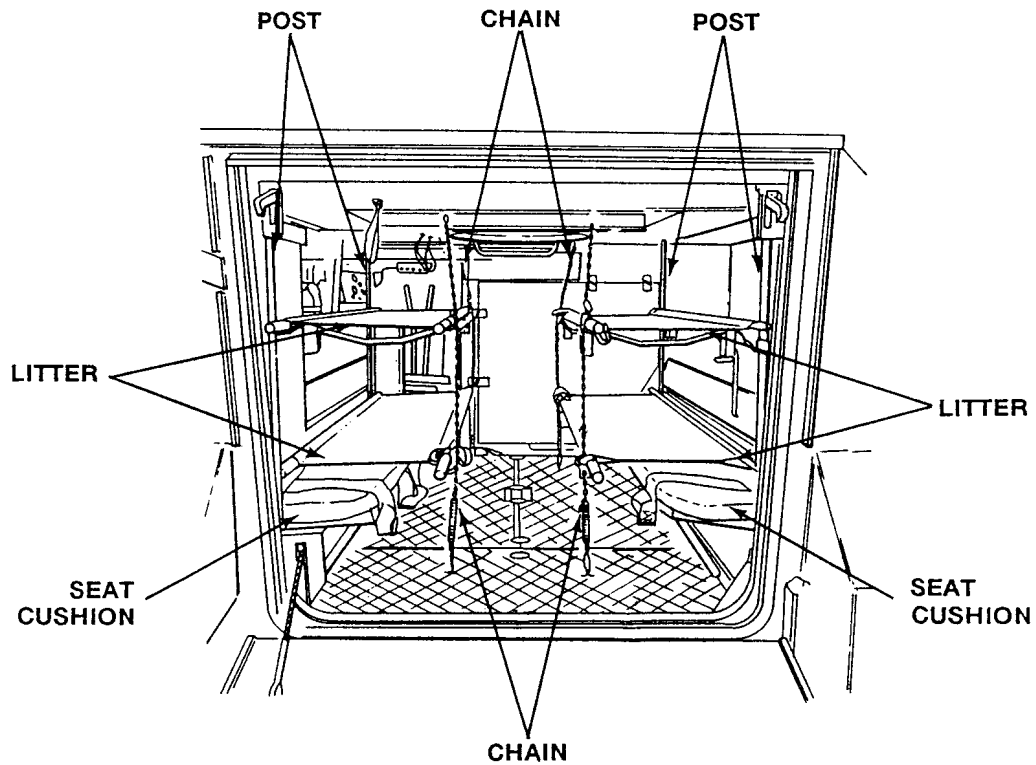
ELECTRONIC EQUIPMENT HEATER KIT — M577A2 ONLY. Provides heat to the communication equipment carried by a command post. This heater is an addition to the personnel heater on all M577A2 carriers. Both heaters help maintain compartment temperature above +40°F (+4°C). This is necessary for the electronic equipment. The heater is mounted on the underside of the right front communication rack. An elbow directs the air flow toward the equipment. The heater intake air is drawn from outside. The exhaust is vented through the top deck. The heater control box, mounted next to the heater, has a three-position RUN-OFF-START switch, HI-LO switch, and indicator light.



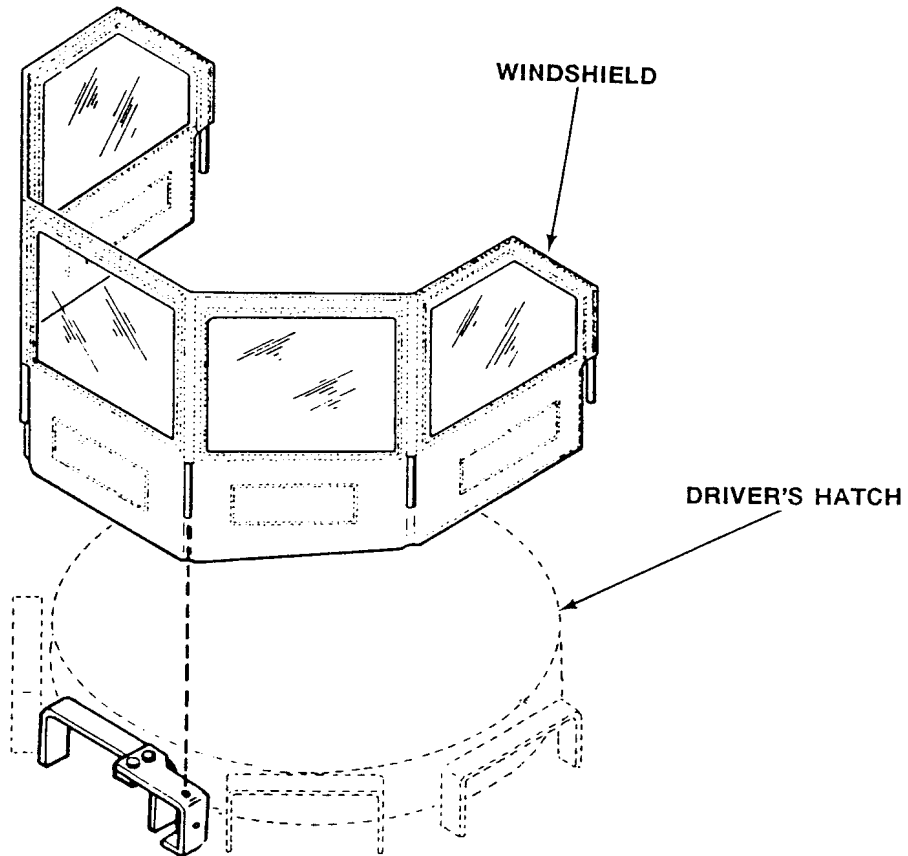
HOSPITAL LITTER KIT — M113A2 ONLY. Converts the M113A2 carrier into an ambulance to carry sick or wounded personnel. The kit has four support posts and four chains. These can be attached to brackets and eyes in the rear compartment. When in place, the posts support two litters on each side above the personnel seats.

NOTE

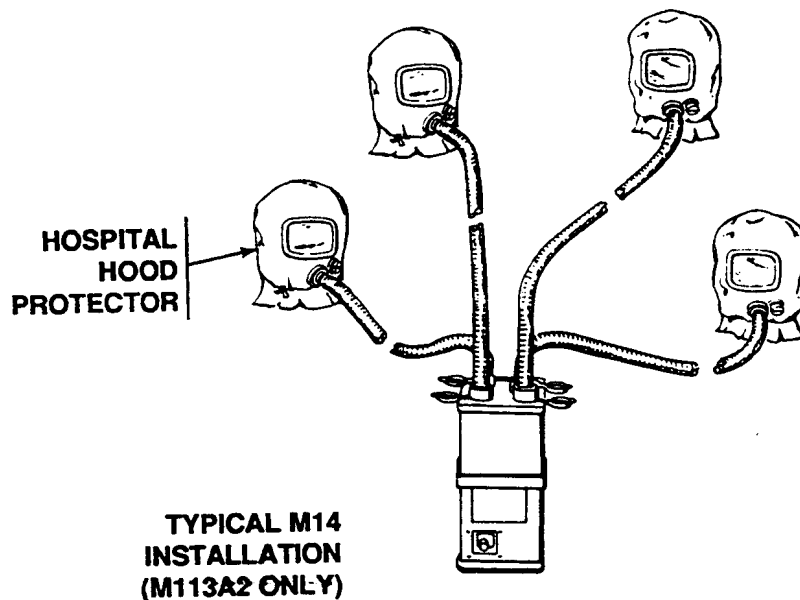
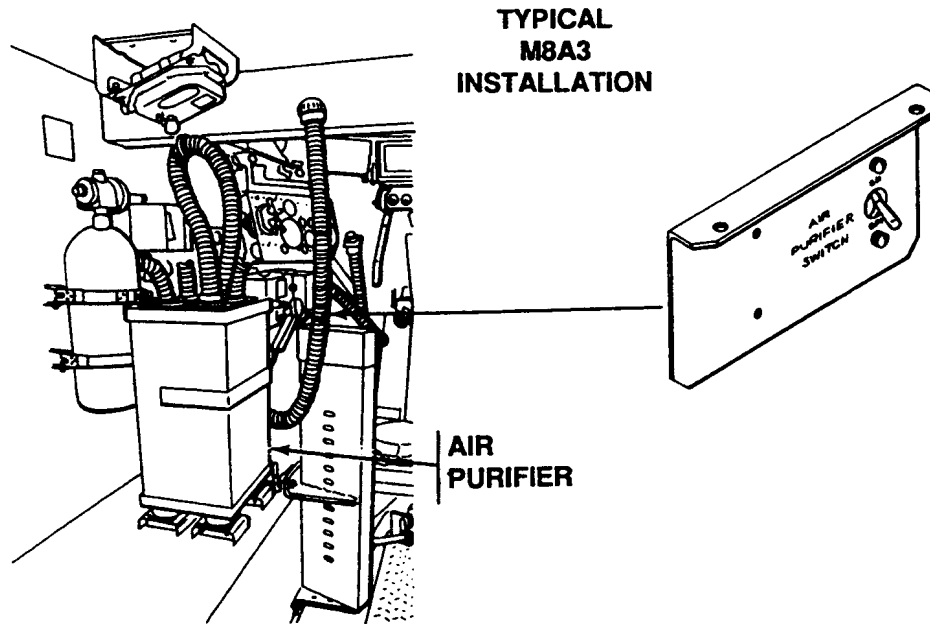
Remove machine gun and all ammunition when operating M113A2 as a litter carrier. It is also recommended that the commander's seat and platform be removed. Display a red cross symbol on outside of carrier.



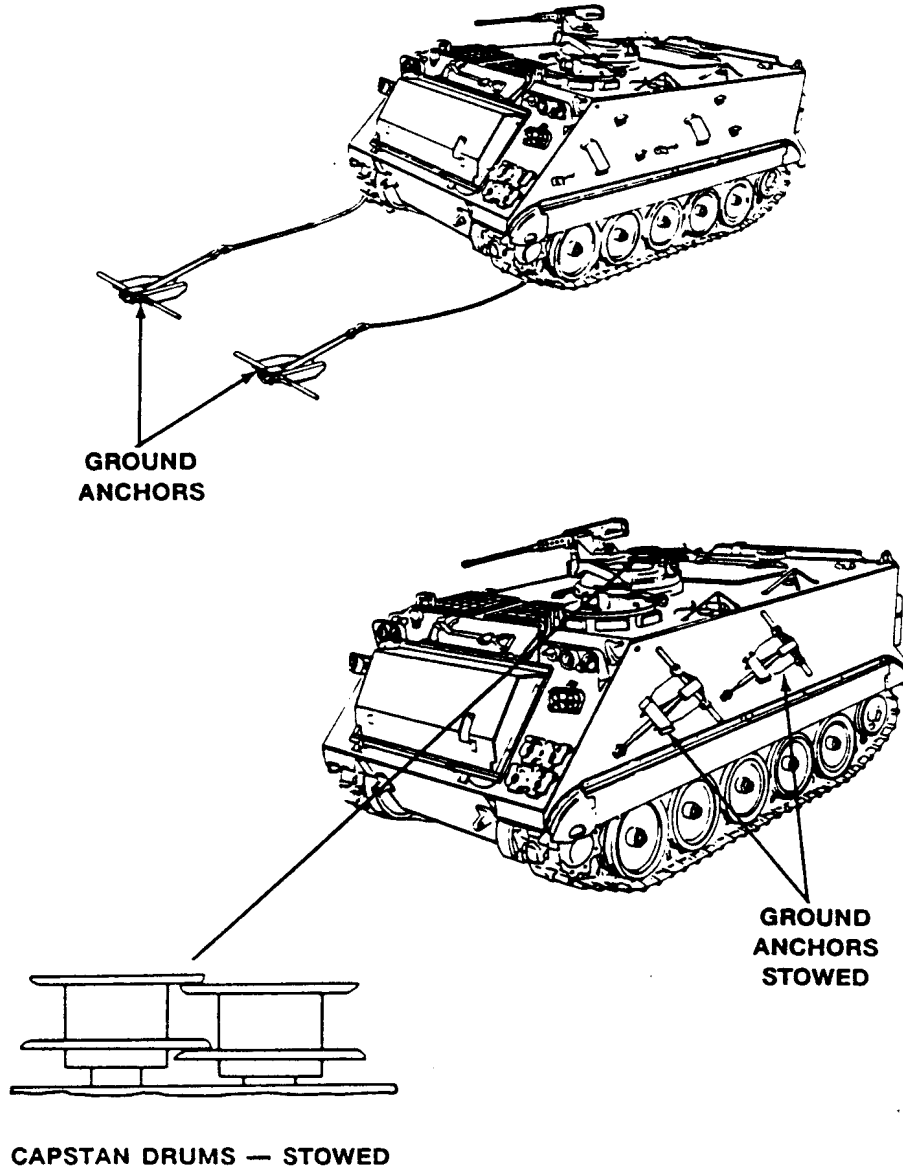
WINDSHIELD KIT — *ALL CARRIERS*. Provides driver with protection from cold winds when driving with hatch open. It has five windows curved around the driver's hatch and is removable. When not in use, kit is placed in stowage bag and stowed in carrier. See stowage diagrams, WP 0097 00.



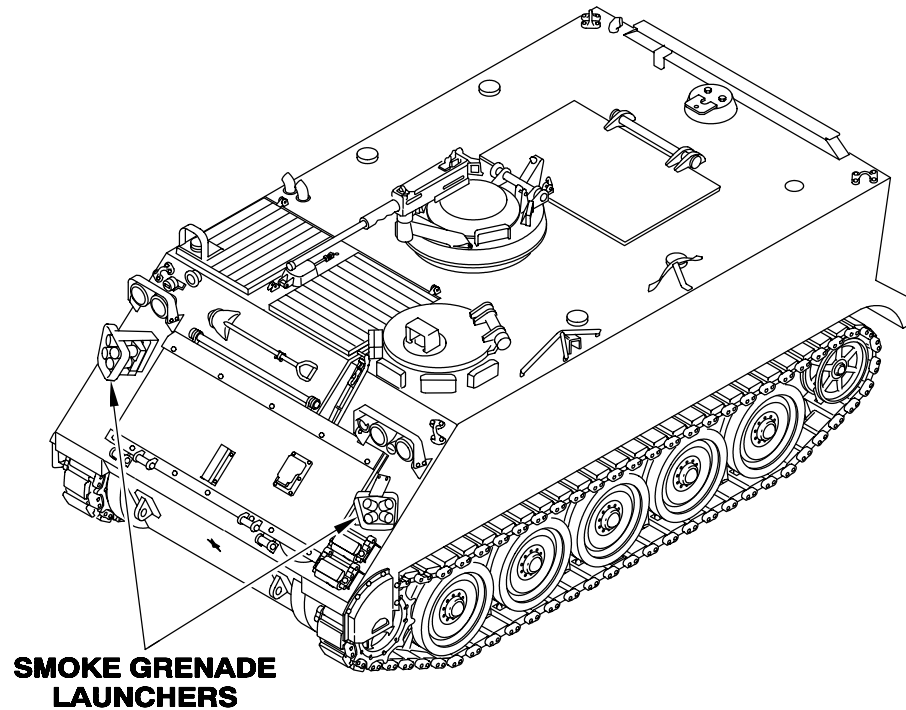
NBC SYSTEMS (M8A3, M13, and M14) — ALL CARRIERS EXCEPT M1064. Any of the NBC systems provide protection against Nuclear, Biological, and Chemical attacks. The NBC System will not filter exhaust gases and other potentially poisonous gases, nor will the air purifier provide oxygen to protect against asphyxiation. Carriers may be equipped differently. All of the NBC systems consist of an air purifier, hose assemblies, a circuit breaker, switch, and electric cables. In addition to the basic NBC system (M8A3), the M13 NBC system adds heaters to heat the purified air in cold weather, and the M14 NBC system provides hospital hood protectors for disabled patients. The M14 may also have heaters.



CAPSTAN AND ANCHOR KITS — M113A2 and M1059. Provide a system to pull carriers out of mud, soft dirt, or swampy areas. Act as a self-recovery system for the personnel carrier. The Capstan Kit has two drums that attach to the final drives. The Anchor Kit anchors are placed in the ground, then attached to nylon ropes which are wound onto the capstan drums to pull the carrier free. When not in use, the kits are stowed on the top deck and on the left side of the carrier.



SMOKE GRENADE LAUNCHER KIT — M113A2 and M1059. This kit allows installation of two smoke grenade launchers on the front of the carrier below the headlights. The smoke grenade launchers enable the carrier to generate a smoke screen to conceal the carrier from enemy observation. Each launcher contains a discharger with four launch tubes that hold one grenade each. The arming firing unit (control box) is mounted on the firewall in the crew compartment.



DIFFERENCES BETWEEN CARRIERS

DIFFERENCES BETWEEN CARRIERS

Carrier Function	M113A2	M577A2	M1059	M1064	M1068
Command Post		X			X
Mortar Carrier				X	
Personnel/Cargo Carrier	X				
Smoke Generator Carrier			X		
<u>ARMAMENT/FIRE CONTROL</u>					
Caliber .50 Machine Gun	X		X	X	
120-mm Mortar				X	
Periscope M17	X	X	X	X	X
I.R. Periscope M19	X	X	X	X	X
<u>EQUIPMENT</u>					
Capstan Kit	X		X		
Cupola Lock Kit	X				
Driver's Windshield Kit	X	X	X	X	X
Electronic Heater Kit		X			
Engine Coolant Heater Kit	X	X	X	X	X
4.2 KW Generator Set and Cover		X			X
5.0 KW Auxiliary Power Unit		X			X
Hospital Litter Kit	X				
Machine Gun Stowage Kit	X				
Marine Recovery Kit	X				
NBC Kit	X	X	X		X
Personnel Heater Kit	X	X	X	X	X
Smoke Generator System			X		
Smoke Grenade Launcher Kit	X		X		
Tent (Covered Extension)		X			
MCPS (Covered Extension)					X
Dragon Missile System	X				
Night Observation Device System	X				

TABULATED DATA

GENERAL

Crew (including driver):

M113A2	13
M577A2	5
M1059	3
M1064	4
M1068	4

SIZE

Length:

All carriers except M1064	191.00 in. (485.14 cm)
M1064	209.38 in. (531.83 cm)

Width:

Widest (overall)	105-3/4 in. (268.61 cm)
Narrowest (track covers off)	100 in. (254.00 cm)
M1064	83-3/4 in. (212.72 cm)

Height:

To top of machine gun pintle: M113A2 and M1064	87-1/2 in. (222.25 cm)
To top of antenna guards: M577A2 and M1068	106-1/2 in. (270.51 cm)
To top of smoke generator: M1059	100-3/4 in. (255.91 cm)
Clearance above ground	17-1/8 in. (43.48 cm)

WEIGHT

With full load (gross):

M113A2	25,007 lb (11,353 kg)
M577A2	25,813 lb (11,719 kg)
M1059	24,400 lb (11,077 kg)
M1064	27,635 lb (12,546 kg)
M1068	26,834 lb (12,182 kg)

Ground pressure (at gross):

M113A2	7.97 psi (54.9 kPa)
M577A2	8.22 psi (56.7 kPa)

EQUIPMENT DESCRIPTION — Continued**0002 00**

M1059	7.77 psi (53.6 kPa)
M1064	8.77 psi (55.9 kPa)
M1068	8.68 psi (59.9 kPa)

Bridge weight classification:

Combat loaded	13
Empty	12

CENTER OF GRAVITY

Above ground:

M113A2	39-3/4 in. (100.96 cm)
M577A2	44-3/8 in. (112.72 cm)
M1064	39-11/16 in. (100.81 cm)
M1059	39 in. (99.06 cm)
M1068	44-3/16 in. (112.21 cm)

Distance behind center of sprockets

M113A2	82-5/8 in. (209.86 cm)
M577A2	81-3/8 in. (206.70 cm)
M1059	79 in. (200.66 cm)
M1064	83-3/4 in. (212.72 cm)
M1068	86-11/16 in. (219.96 cm)

PERFORMANCE (LAND)

Fastest forward speed:

Range 1	10 mph (16 km/h)
Range 1-2	21 mph (34 km/h)
Range 1-3	40 mph (64 km/h)
Range 2-3	40 mph (64 km/h)

Cruising range at 25 mph average:

M113A2, M1059, M1064	300 m (480 km)
M577A2, M1068	425 m (680 km)

Steepest grade	60 percent
Steepest side slope	30 percent
Highest wall climb	2 ft (0.7 m)

EQUIPMENT DESCRIPTION — Continued**0002 00**

Widest trench	5-1/2 ft (1.67 m)
Maximum towed load	14,500 lb (6583 kg)

PERFORMANCE (WATER)

Fastest forward speed	3.6 mph (5.79 km/h)
Fording depth	40 in. (101.6 cm)

ENGINE

Type	6 cylinder, V-type, two stroke diesel
Horsepower	210 at 2800 RPM
Idle speed	650-700 RPM
Maximum governed speed:	
Full load	2800 RPM
No load	2950-3000 RPM
Normal operating temperature range	160° to 230°F (71° to 110°C)
Cooling	liquid cooled w/radiator and fan
Lubrication	forced feed
Fuel	
DF-2 (VV-F-800)	only at temperatures above 32°F (0°C)
DF-1 (VV-F-800)	only at temperatures above -10°F (-23°C)
DF-A (VV-F-800)	any temperature
CITE (MIL-F-46005)	any temperature

REFILL CAPACITIES

Coolant	14 gal (52.99 liter)
Radiator cap pressure rating	13-18 psi (89.63-124.11 kPa)
Oil	
Engine	18 qt (17 liter)
Transmission	16 qt (15.11 liter)
Differential	20 qt (18.9 liter)
Transfer gearcase	2-1/2 qt (2.4 liter)
Final drive (each)	3-1/2 qt (3.3 liter)
Fan gearbox	1/2 pt (0.23 liter)

Diesel fuel

Capacity:

M113A2, M1059, M1064	95 gal (359.6 liter)
M577A2, M1068	120 gal (456 liter)
Maximum filling rate	50 gpm (189.3 liter/m)
Ramp hydraulic system	2 qt (1.9 liter)

M157A2 SMOKE GENERATOR (M1059 ONLY)

Fuel	gasoline (MIL-G-3056)
Capacity	10 gal (36.5 liter)
Consumption	6 gal/h (15 liter/h)
Fog oil	SGF-2 (MIL-F-12070)
Capacity	120 gal (438 liter)
Consumption	60-100 gal/h (113 liter/h)
Operational temperature range	-25° to +140°F (-32° to +60°C)
Normal operating temperature	650° to 950°F (343° to 510°C)

TRACKS

Track shoes, left (when new)	63
Track shoes, right (when new)	64

THEORY OF OPERATION

0003 00**GENERAL INFORMATION M113A2 FOV**

The M113A2 FOV carrier is powered by a liquid cooled 6V53, 210 horsepower diesel engine. The engine power is converted to mechanical power and transferred to the carrier tracks and other components through a transfer gearcase, transmission, differential, and final drives.

The engine, transmission, and steering/braking system are driver controlled. Engine startup and shutdown are controlled by electrical signals and mechanical linkages connected to the accelerator pedal, the fuel shutoff cable, and the hand throttle cable. Steering/braking are controlled through linkages connected to the differential.

ENGINE AND DRIVE TRAIN

The engine converts air and diesel fuel into energy. The engine delivers this power to the transmission. A drive train transfers power from the engine to the carrier track. The drive train consists of the engine, transfer gearcase, transmission, differential, drive lines, final drive assemblies, and drive sprockets.

COOLING SYSTEM

The engine and transmission generate heat during normal operation. The cooling system transfers some of the heat to the outside to maintain a safe operating temperature. The vent fan draws air in through the radiator, circulates it around the power plant, and expels it through the grill above the vent fan. The vent fan is belt-driven from the engine crankshaft. A mixture of antifreeze and water is pumped through the cooling system to cool the engine and transmission. The engine cooling capacity is 9.5 gallons (35.96 liters). The cooling system should be checked regularly. The auxiliary radiator tank, located on the traverse beam, provides space for the separation of air and liquid coolant. Stop engine if temperature goes above 200°F (93.3°C). See Cooling System illustration in Location and Description of Major Components (WP 0002 00). Refer to Check/Fill Cooling System (WP 0088 00).

COLD START SYSTEM

The engine is equipped with a cold start system (air box heater). The air box heater heats the air entering the cylinders to assist in ignition of fuel at low ambient temperatures (below 40°F (4.4°C)). A fuel and air mixture is sprayed into the air box and spark ignites a flame. The flame heats the engine air, which is fed directly into the cylinders to make starting easier.

DIFFERENTIAL STEERING LEVERS

The differential steering levers are used to steer as well as stop the carrier. Pulling on one or both of the differential steering levers applies the brakes in the differential steering unit. To turn left, gradually pull on the left steering lever. To turn right, gradually pull on the right steering lever. To slow or stop the carrier, gradually pull both steering levers. To lock the steering levers in place, push down on the brake lock buttons, located on top of the steering levers. To release the steering levers brake-lock buttons, pull back on the steering levers and the buttons will pop up.

PIVOT STEER LEVERS

The pivot steer levers are used to turn a stopped carrier in a tight turn. To pivot steer the carrier, bring the carrier to a stop and pull on the pivot steer lever. Pulling the pivot lever applies the disc brake, which will lock up the one track and allow all of the differential power to be applied to the other track.

TRANSMISSION SHIFT CONTROLLER

The transmission shifter is used to select driving range of transmission. The transmission shifter has six positions to choose from. See Description and Use of Operator's Controls and Indicators (WP 0004 00), for a description of each position. There is a neutral safety switch to make sure the engine only starts with the transmission in neutral.

FUEL CUTOFF CONTROL

To start fuel flowing to the engine, push the fuel cutoff control all the way in. To stop fuel flow to the engine, pull the fuel cutoff control all the way out. This will shut down the engine when it is running.

HAND THROTTLE CONTROL

The hand throttle control is used to set the engine speed for various reasons. To set the engine speed, while pushing down the accelerator pedal, pull hand throttle control out until desired RPM is indicated by tachometer. Turn the hand throttle control clockwise to lock the control and counterclockwise to release the control. Once the hand throttle control is set, the engine will maintain the set speed without holding down the accelerator pedal.

MAIN LIGHT SWITCH

The main light switch is used to control all of the exterior lights and the instrument panel lights. To select lights, push up and hold the UNLOCK lever before moving desired lever to the position wanted. Refer to Operate Carrier Lights (WP 0039 00).

AIR CLEANER INDICATOR

The air cleaner indicator indicates if the air cleaner is operating properly or is plugged. When the air cleaner indicator is red, the air cleaner is plugged and needs cleaning. Press rubber dome to reset air cleaner indicator after air cleaner has been replaced or cleaned.

FIXED FIRE EXTINGUISHER

Refer to WP 0040 00 for operation of the fixed fire extinguisher.

BATTERY GENERATOR GAUGE

The battery generator gauge has the color red repeated. The first (left to right) red position indicates the batteries are dead (no power). The second red position indicates the batteries are being overcharged and could possibly blow up. During normal operation, the gauge should be in the green position. Refer to WP 0004 00 for other colors.

TACHOMETER GAUGE

The tachometer indicates engine speed and hours of operation. To read engine speed (RPM), multiply the large numbers on the gauge by 100, or add two zeros to number.

CHAPTER 2
OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS.....	0004 00

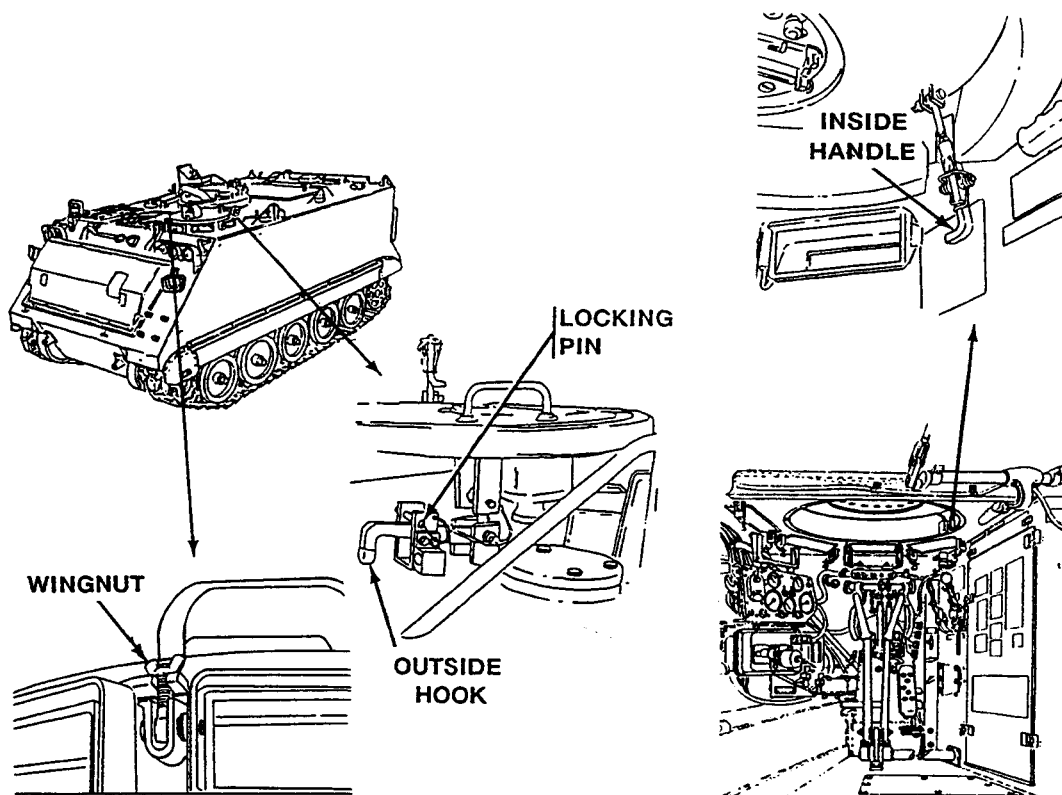


Table 1. DRIVER'S HATCH CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	OUTSIDE HOOK AND LOCKING PIN	Locks hatch cover in fully open position. Locking pin is provided to secure hook and prevent accidental release of hatch cover.
	INSIDE HANDLE	Locks and unlocks driver's hatch cover from inside the carrier. Driver's hatch cover opens slightly when unlocked.
	WINGNUT	Locks and unlocks driver's hatch cover from outside the carrier. Used when carrier is not being operated.

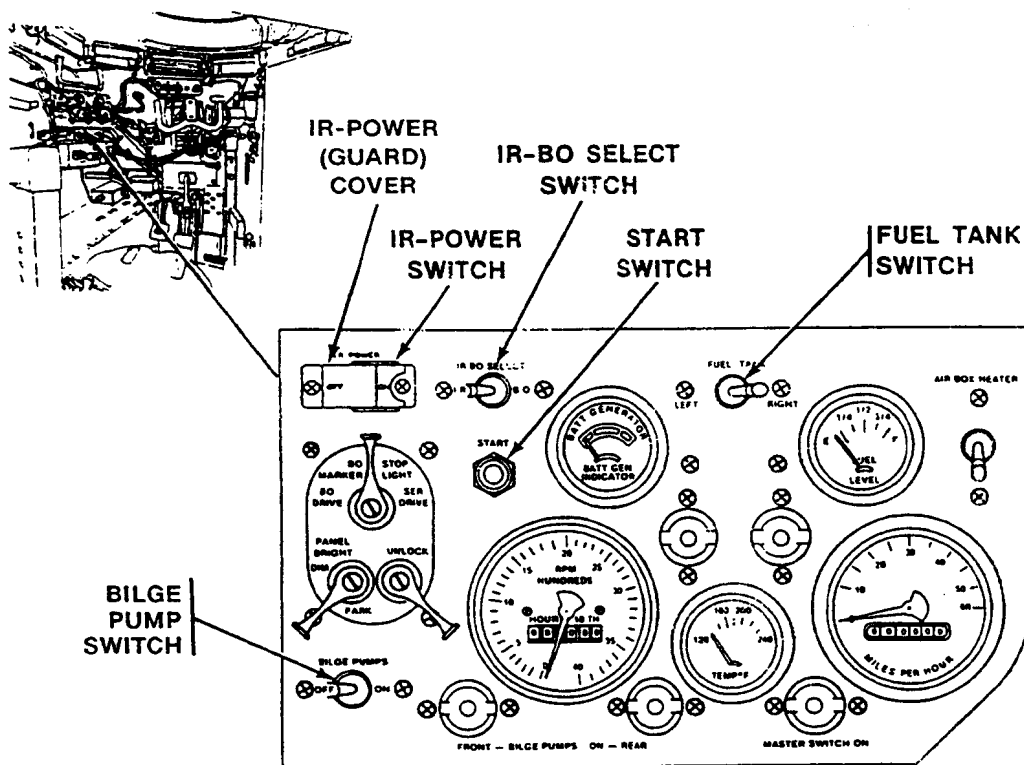


Table 2. DRIVER'S INSTRUMENT PANEL

KEY	CONTROL OR INDICATOR	FUNCTION
	IR POWER SWITCH GUARD COVER	Prevents accidental switching on the IR periscope at night.
	IR POWER SWITCH	Two-position toggle switch to turn power to the M19 periscope on or off.
	IR-BO SELECT SWITCH	Two position toggle switch to select IR (infrared) or BO (blackout) mode of lights operation.
	START SWITCH	Engages engine starter.
	BILGE PUMP SWITCH	Two-position toggle switch to turn power to front and rear bilge pumps on or off.
	FUEL TANK SWITCH (M1064 ONLY)	Two-position toggle switch allows driver to read fuel level in LEFT and RIGHT external fuel tanks.

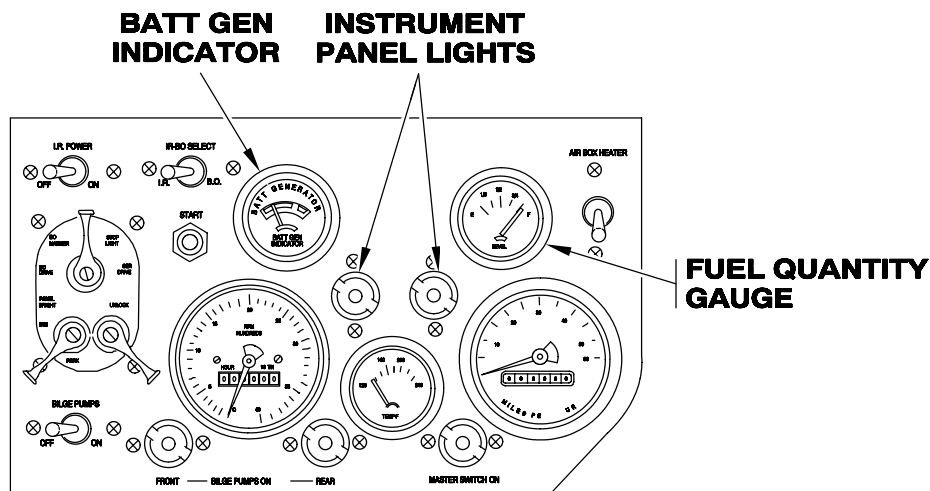


Table 2. DRIVER'S INSTRUMENT PANEL (Continued)

KEY	CONTROL OR INDICATOR	FUNCTION
	BATT GEN INDICATOR	Indicates battery and generator conditions as follows: Left red zone - Indicates low battery charge with engine off. Battery may not start engine. Yellow zone - Indicates normal battery voltage with engine off. Indicates generator not charging with engine running. Green zone - Indicates generator charging normally with engine running. Right red zone - Indicates generator overcharging with engine running.
	INSTRUMENT PANEL LIGHTS	Lights up gauges and indicators on instrument panel when panel lights are turned on.
	FUEL QUANTITY GAUGE (ALL EXCEPT M1064)	Indicates level of fuel in fuel tank.
	FUEL QUANTITY GAUGE (M1064 ONLY)	Indicates level of fuel in LEFT and RIGHT external fuel tanks as selected using the FUEL TANK switch.

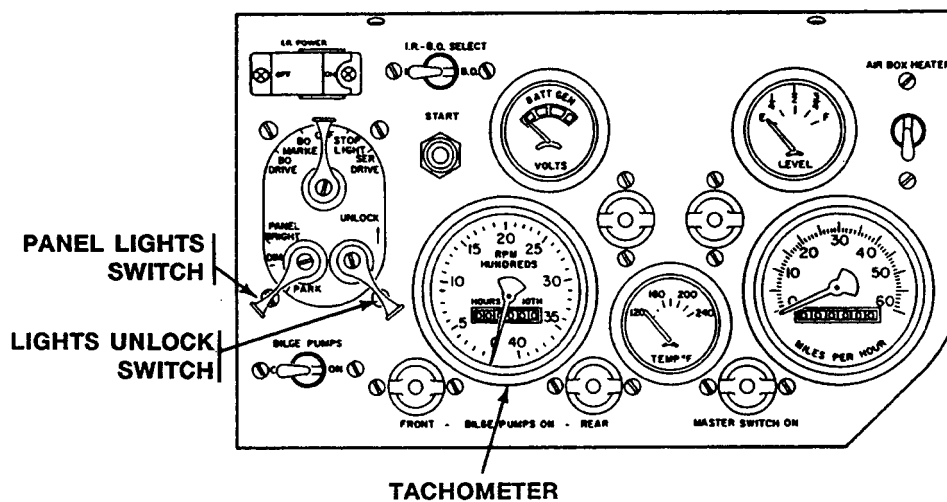


Table 2. DRIVER'S INSTRUMENT PANEL (Continued)

KEY	CONTROL OR INDICATOR	FUNCTION
	TACHOMETER	Indicates engine speed in revolutions per minute (RPM) and accumulated hours of engine operation.
	LIGHTS UNLOCK SWITCH	Spring-loaded, two-position lever. Must be held in UNLOCK position when setting driving light switch to any position other than BO MARKER. Returns to locking position when released.
	PANEL LIGHTS SWITCH	Four-position rotary switch controls panel and transmission controller lights as follows: PANEL BRIGHT - Turns panel lights to bright. DIM - Turns panel lights to dim. OFF - Turns off panel light system. PARK - Turns on stoplight-taillight.

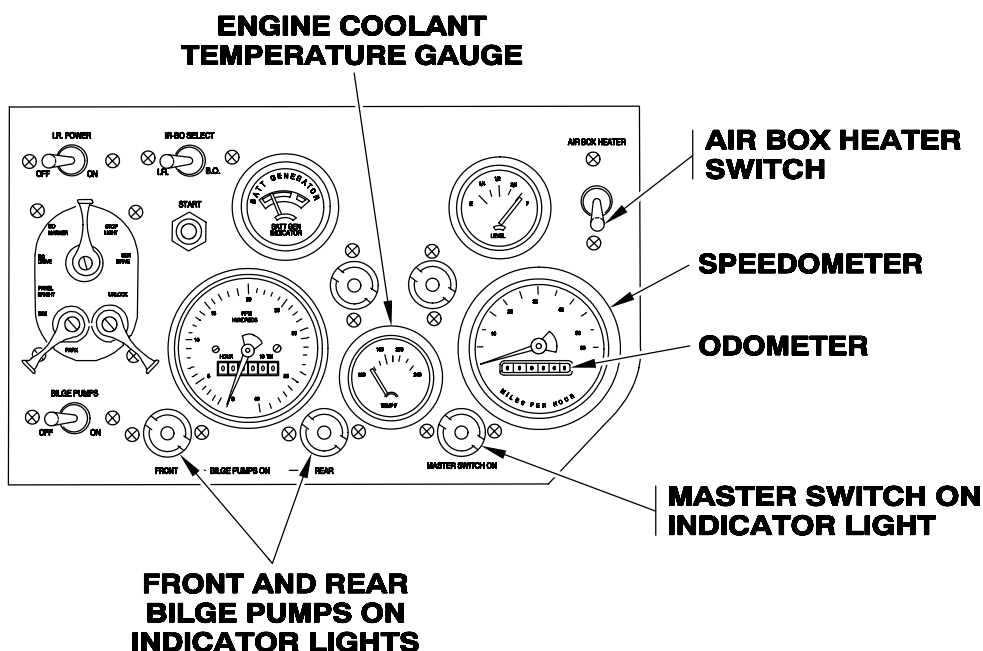


Table 2. DRIVER'S INSTRUMENT PANEL (Continued)

KEY	CONTROL OR INDICATOR	FUNCTION
	AIR BOX HEATER SWITCH	Used while starting engine during cold weather -25°F to +40°F (-31°C to +4°C). Switch is spring loaded to the off position.
	SPEEDOMETER	Indicates carrier speed in miles per hour.
	ODOMETER	Indicates total carrier distance traveled in miles.
	MASTER SWITCH ON INDICATOR LIGHT	Light comes on when MASTER SWITCH is ON.
	ENGINE COOLANT TEMPERATURE GAUGE	Indicates engine operating temperature in degrees Fahrenheit.
	FRONT AND REAR BILGE PUMPS ON INDICATOR LIGHTS	Indicator lights come on when BILGE PUMPS switch is moved to ON.

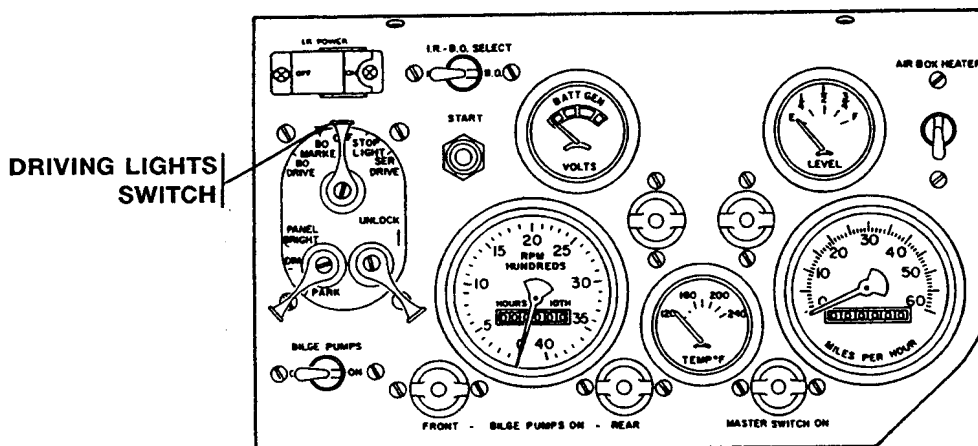


Table 2. DRIVER'S INSTRUMENT PANEL (Continued)

KEY	CONTROL OR INDICATOR	FUNCTION
	DRIVING LIGHTS SWITCH	<p>Five position rotary switch controls outside carrier lights as follows:</p> <p>BO DRIVE - With IR-BO SELECT switch in BO, blackout headlight and four blackout marker lights are on. When brakes are applied, blackout stoplight will come on. With IR-BO SELECT switch in IR, and IR POWER switch on, two infrared headlights and four blackout marker lights are on. When brakes are applied, blackout stoplight will come on.</p> <p>BO MARKER - Turns on four blackout marker lights. When brakes are applied, blackout stoplight will come on.</p> <p>OFF - Turns off all exterior lights.</p> <p>STOPLIGHT - Allows stoplight-taillight to function during daytime operation without headlights.</p> <p>SER DRIVE - Turns on headlights and allows stoplight-taillight to function.</p>

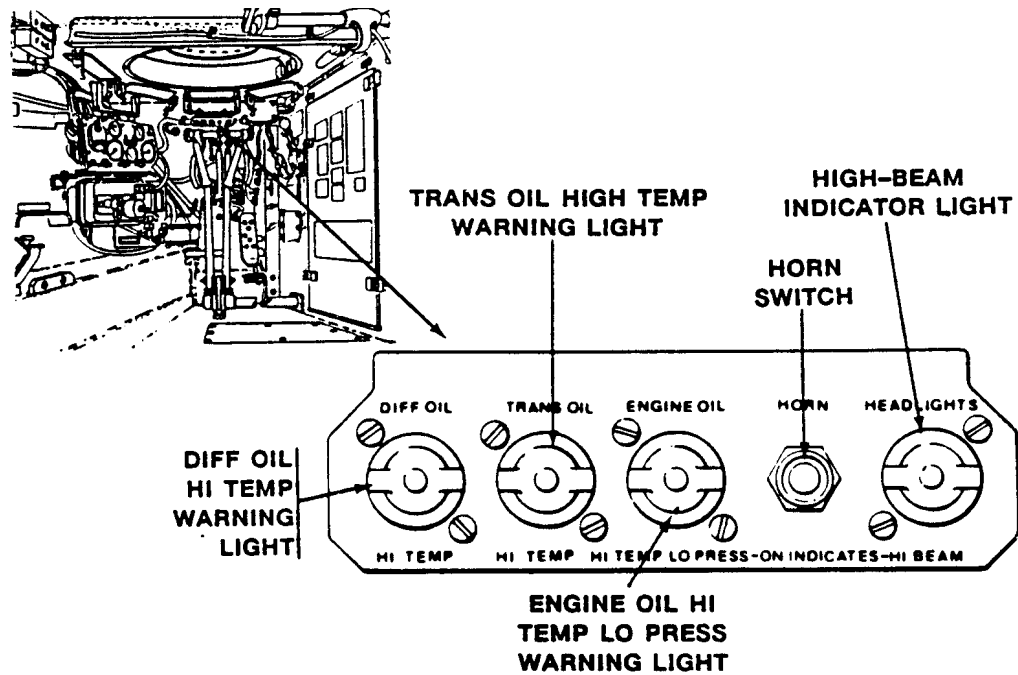


Table 3. WARNING LIGHT PANEL

KEY	CONTROL OR INDICATOR	FUNCTION
	<p>DIFF OIL HI TEMP WARNING LIGHT</p> <p>TRANS OIL HI TEMP WARNING LIGHT</p> <p>ENGINE OIL HI TEMP LO PRESS WARNING LIGHT</p> <p>NOTE</p> <p>At idle speed (650–700 RPM), the engine low oil pressure light may stay on. If light remains on when engine speed increases to 800 RPM, stop engine and notify unit maintenance.</p> <p>HORN SWITCH</p> <p>HIGH BEAM INDICATOR LIGHT</p>	<p>Light comes on when the differential oil temperature is too high for safe operation.</p> <p>Light comes on when transmission oil temperature is too high for safe operation.</p> <p>Light comes on when oil pressure is too low for safe operation or too high in temperature for safe operation. Light should go off 10 seconds after engine starts.</p> <p>Press switch to sound carrier horn.</p> <p>Light comes on when headlight high beams are on.</p>

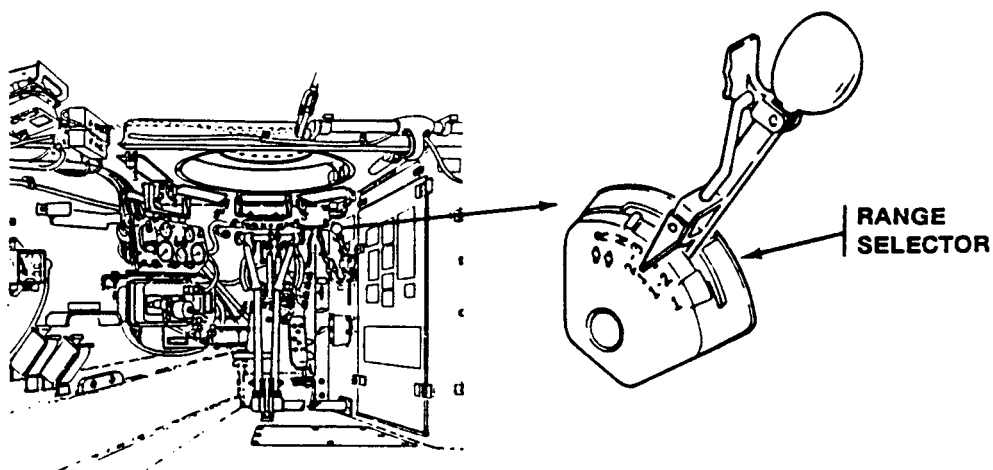


Table 4. RANGE SELECTOR

KEY	CONTROL OR INDICATOR	FUNCTION
	RANGE SELECTOR	<p>Selects driving range of transmission.</p> <p>1 RANGE - Used when going up or down steep grades, and when entering or leaving water. DO NOT DOWNSHIFT TO THIS RANGE ABOVE 10 MPH.</p> <p>1-2 RANGE - Used for rough or soft terrain, going up or down long or moderately steep grades, and driving in water. DO NOT DOWNSHIFT TO THIS RANGE ABOVE 21 MPH.</p> <p>1-3 RANGE - Used for normal driving on roads and level or rolling terrain. DO NOT DOWNSHIFT TO THIS RANGE ABOVE 40 MPH.</p> <p>2-3 RANGE - Used for high-speed driving on roads or level terrain when carrier is lightly loaded.</p> <p>N (NEUTRAL) RANGE - Used when starting, idling, and operating the auxiliary equipment.</p> <p>R (REVERSE) POSITION - Used for backing the carrier under all conditions.</p>

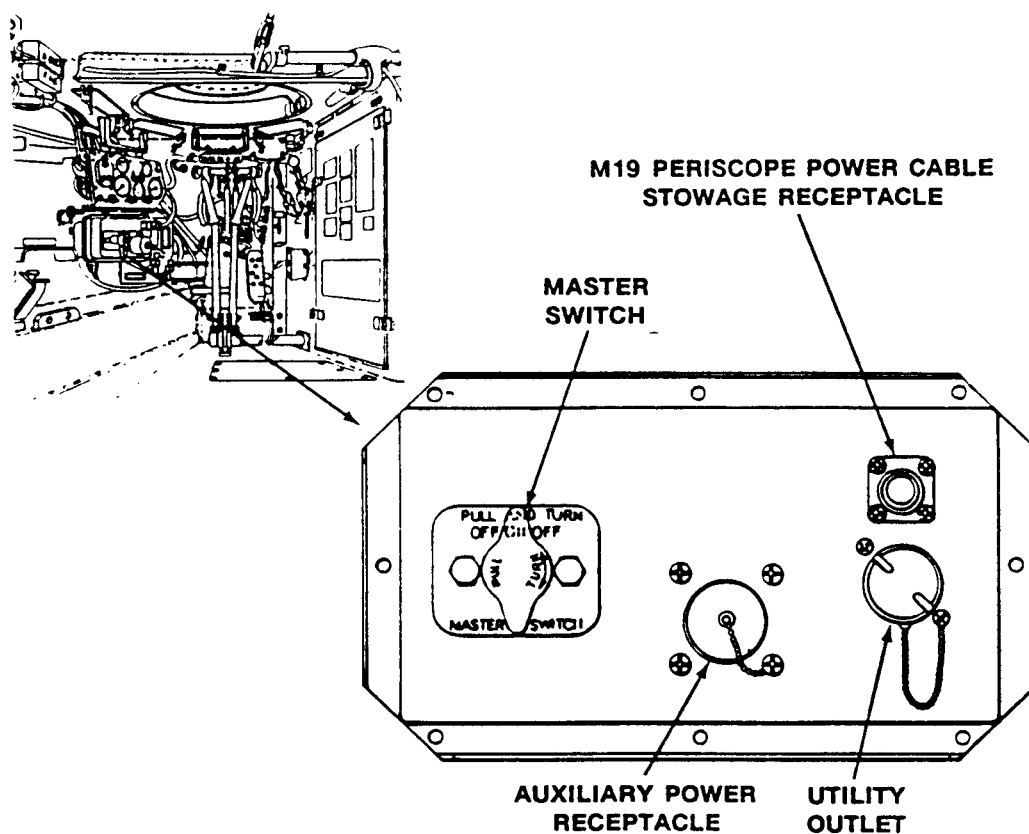


Table 5. MASTER SWITCH PANEL

KEY	CONTROL OR INDICATOR	FUNCTION
	MASTER SWITCH	Turns carrier electrical power on or off.
	AUXILIARY POWER RECEPTACLE	Used with a slave cable to start carrier engine using an outside power source.
	M19 PERISCOPE POWER CABLE STOWAGE RECEPTACLE	Used to stow M19 periscope power cable when periscope is not in use.
	UTILITY OUTLET	Provides power for 24-volt accessories.

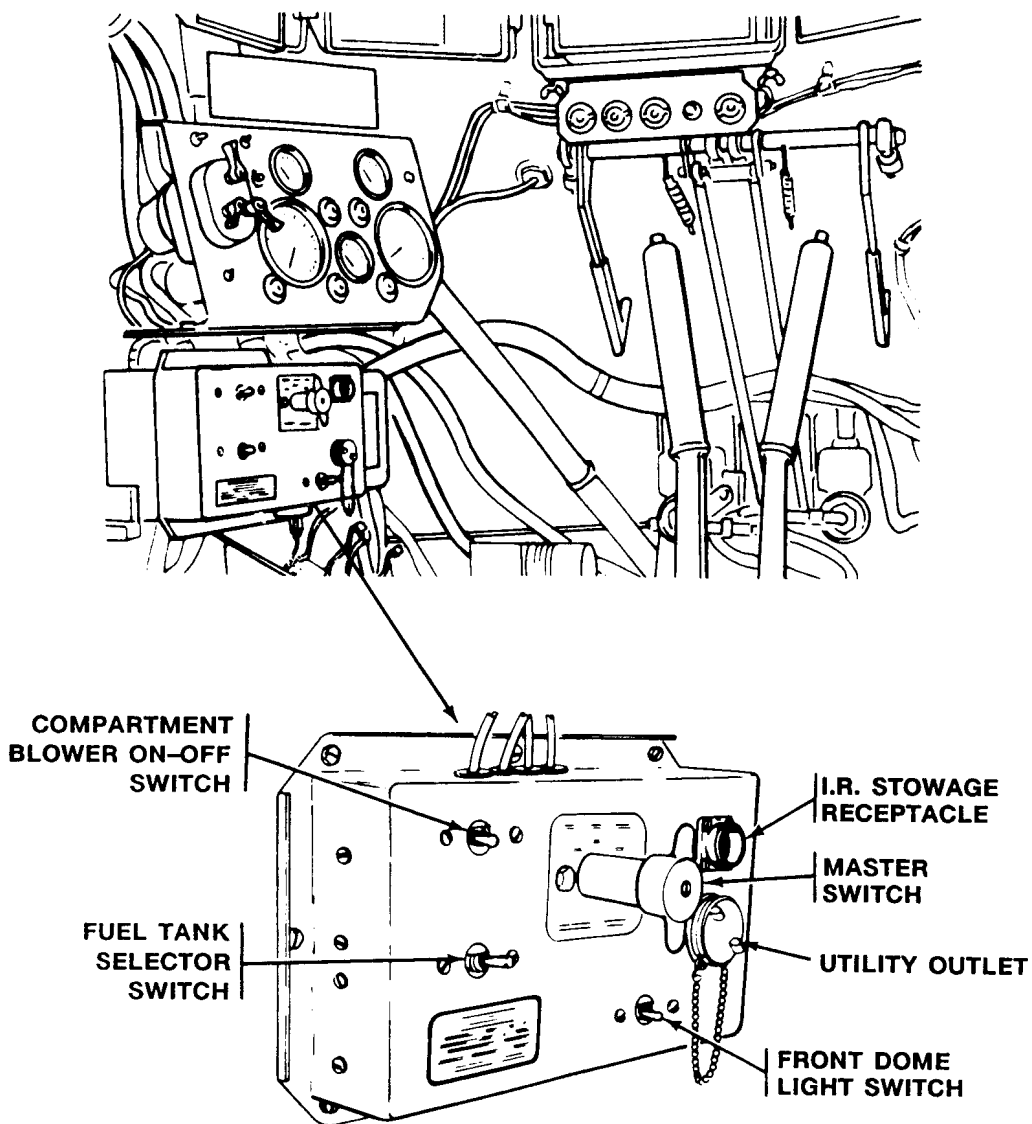


Table 6. MASTER SWITCH PANEL (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	MASTER SWITCH	Turns carrier electrical power on or off.
	IR STOWAGE RECEPTACLE	Used to stow IR power cable when infrared periscope is not in use.
	UTILITY OUTLET	Provides power for 24-volt accessories.
	FUEL TANK SELECTOR SWITCH	Used to read quantity of fuel in either tank.
	COMPARTMENT BLOWER ON-OFF SWITCH	Controls the compartment blower.
	FRONT DOME LIGHT SWITCH	Controls the dome lights.

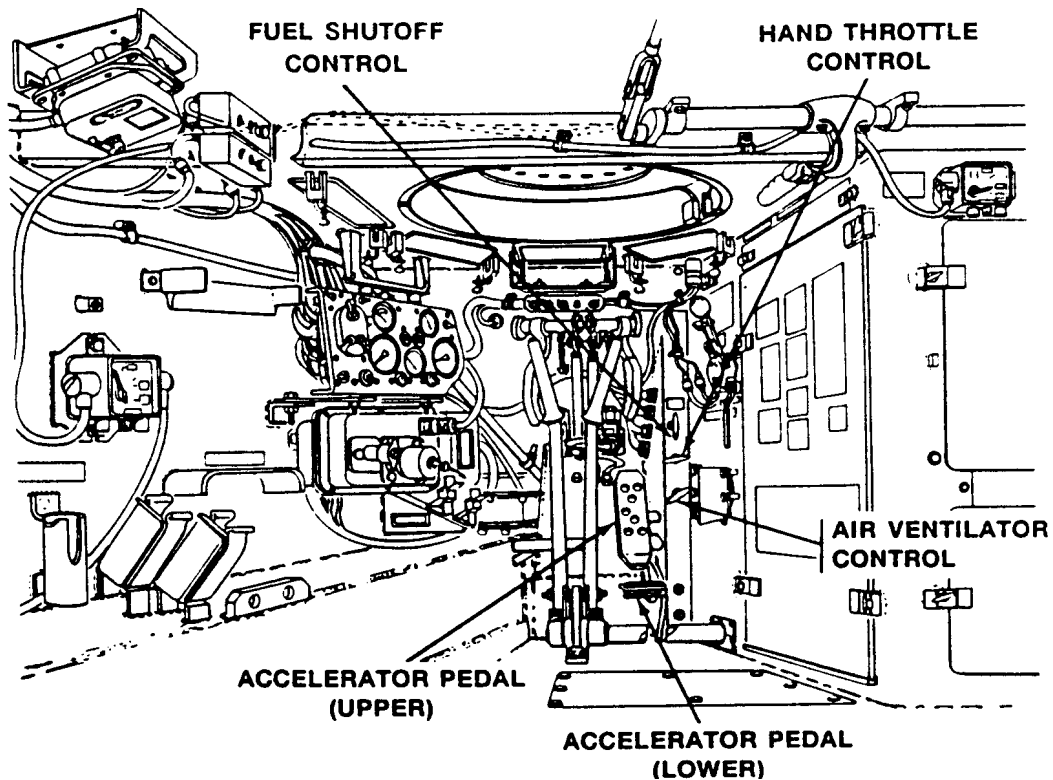


Table 7. FUEL AND THROTTLE CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	FUEL SHUTOFF CONTROL	Starts and stops fuel flow to engine.
	HAND THROTTLE CONTROL	Allows engine speed to be controlled by hand.
	ACCELERATOR PEDAL (UPPER)	Controls engine speed. Used with driver's seat in raised position.
	ACCELERATOR PEDAL (LOWER)	Controls engine speed. Used with driver's seat in lowered position.
	AIR VENTILATOR CONTROL	Allows cooler air from the rear compartment to enter engine air cleaner. Cooler air increases horsepower.

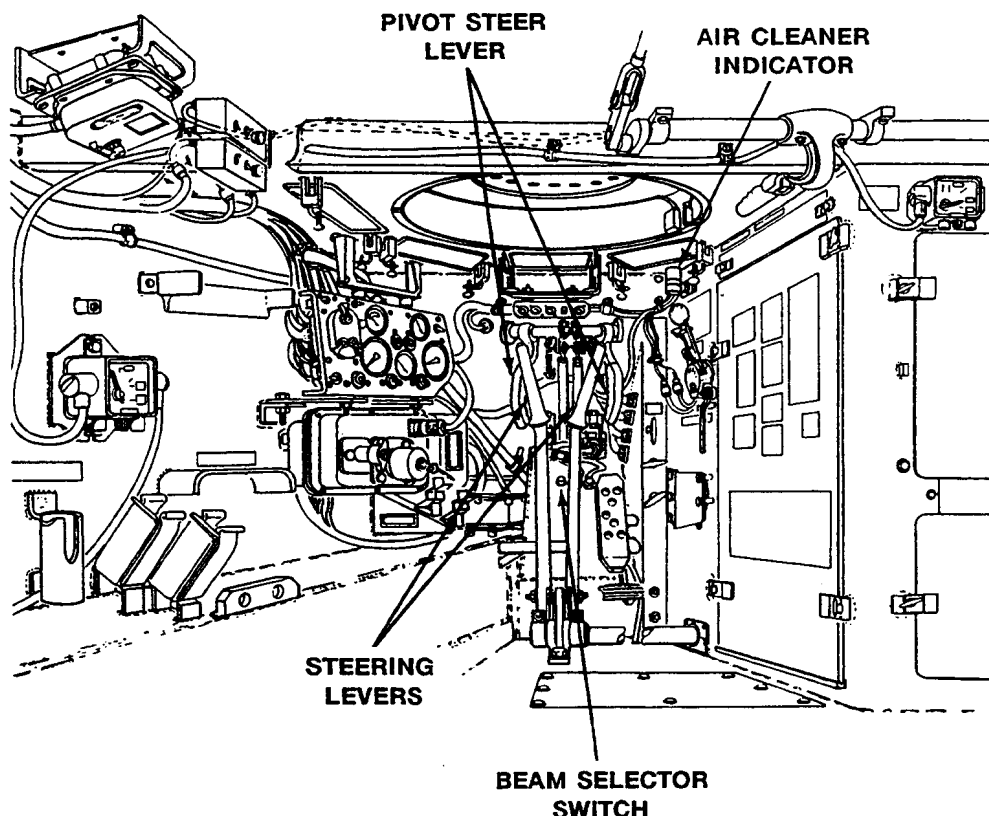


Table 8. DRIVER'S CONTROLS AND INDICATORS

KEY	CONTROL OR INDICATOR	FUNCTION
	STEERING LEVERS PIVOT STEER LEVER AIR CLEANER INDICATOR BEAM SELECTOR SWITCH	Used to steer carrier and apply parking brakes. Used for quick turns at slow speed. Indicates condition of air cleaner element. With engine off, indicator should show all green in the window. With engine running, green sleeve should go part way up. If at any time only red is seen in the window, notify unit maintenance. Selects high or low headlight beams.

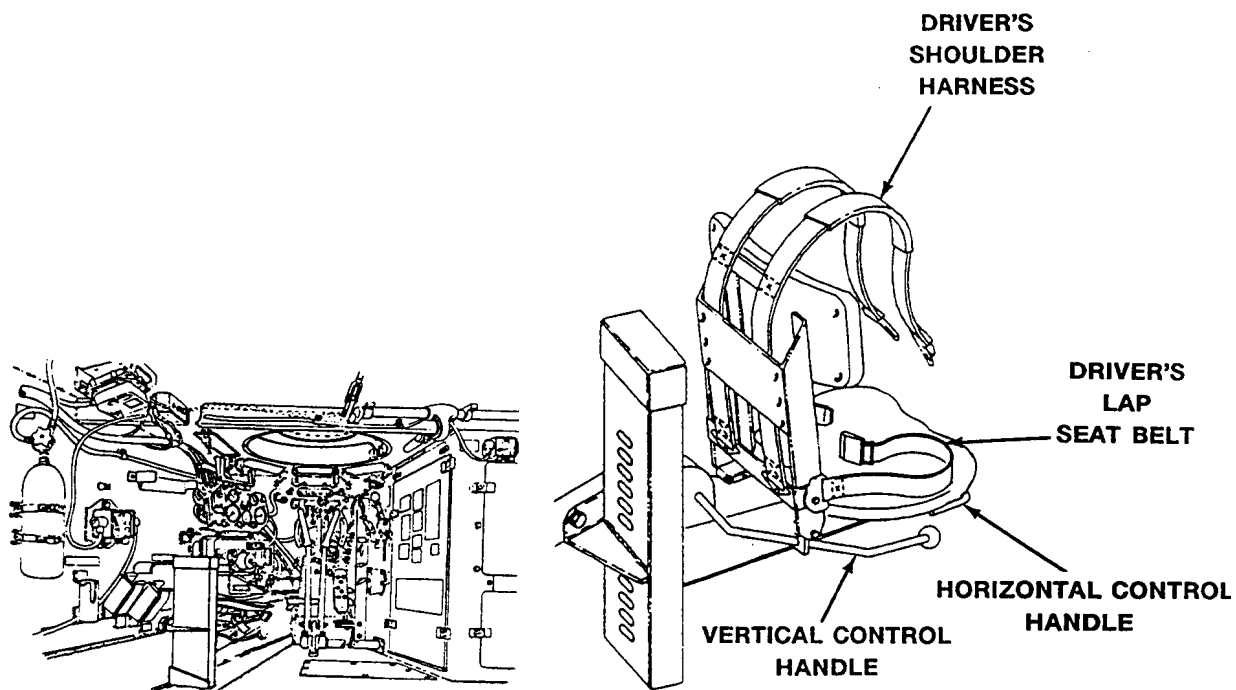


Table 9. DRIVER'S SEAT CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	HORIZONTAL CONTROL HANDLE	Locks and releases driver's seat. Allows seat to be moved to the front or rear.
	VERTICAL CONTROL HANDLE	Locks and releases driver's seat. Allows seat to be raised or lowered.
	DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS	Secures driver safely in seat. Lap and shoulder restraints are adjustable.

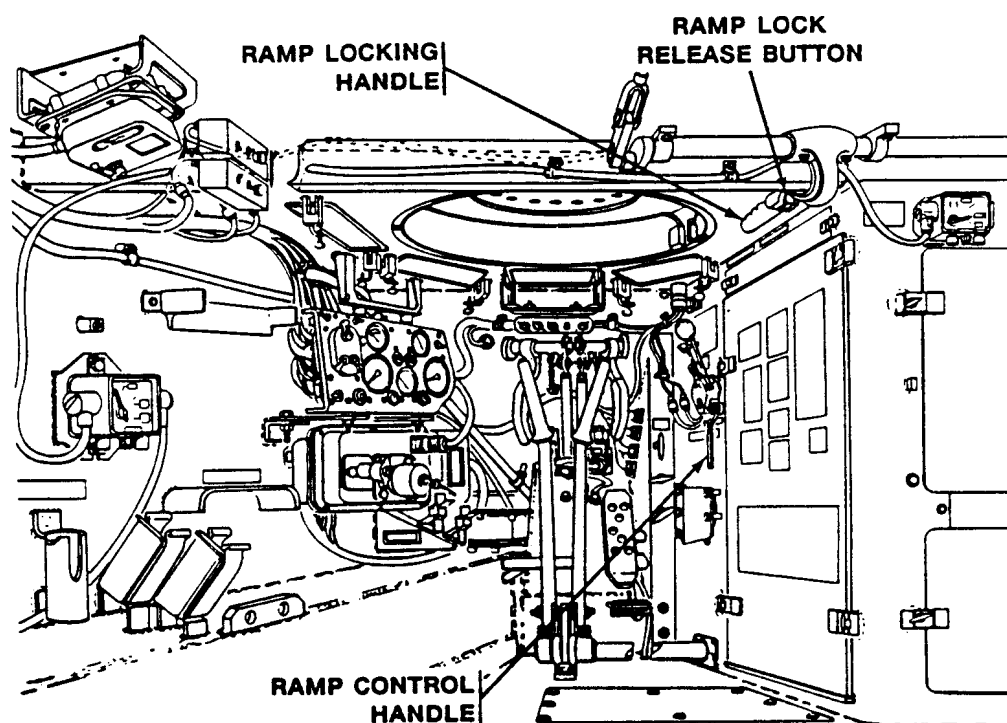


Table 10. RAMP CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	RAMP LOCK RELEASE BUTTON	Releases ramp locking handle.
	RAMP LOCKING HANDLE	Locks ramp in raised position and unlocks ramp for lowering.
	RAMP CONTROL HANDLE	Used to raise and lower ramp.

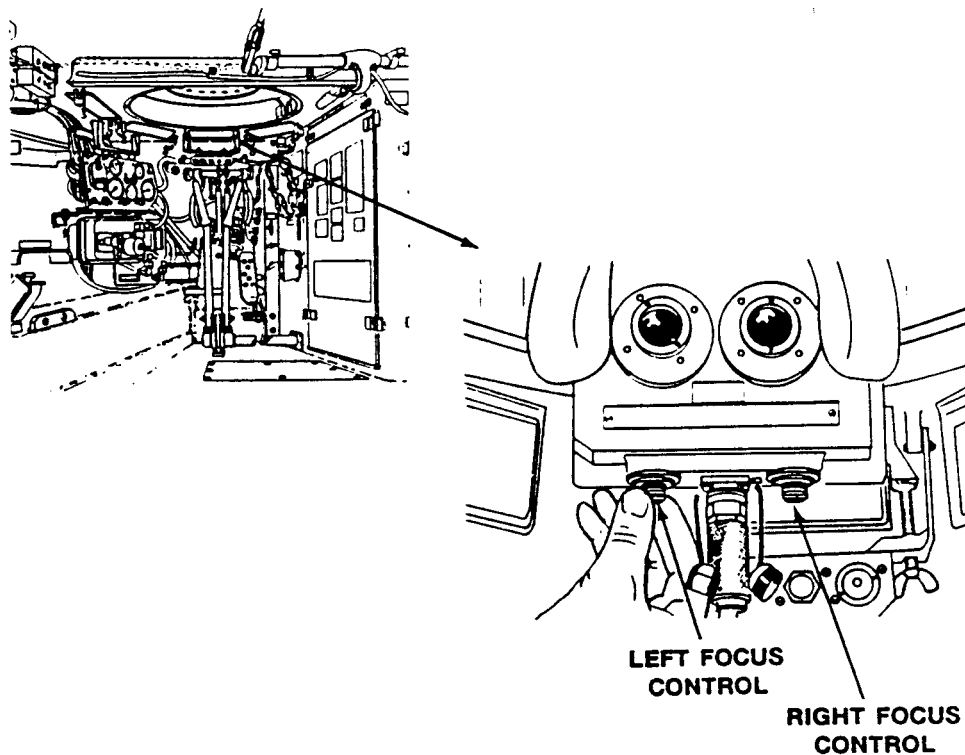


Table 11. M19 PERISCOPE

KEY	CONTROL OR INDICATOR	FUNCTION
	LEFT FOCUS CONTROL	Used to focus left eyepiece.
	RIGHT FOCUS CONTROL	Used to focus right eyepiece.

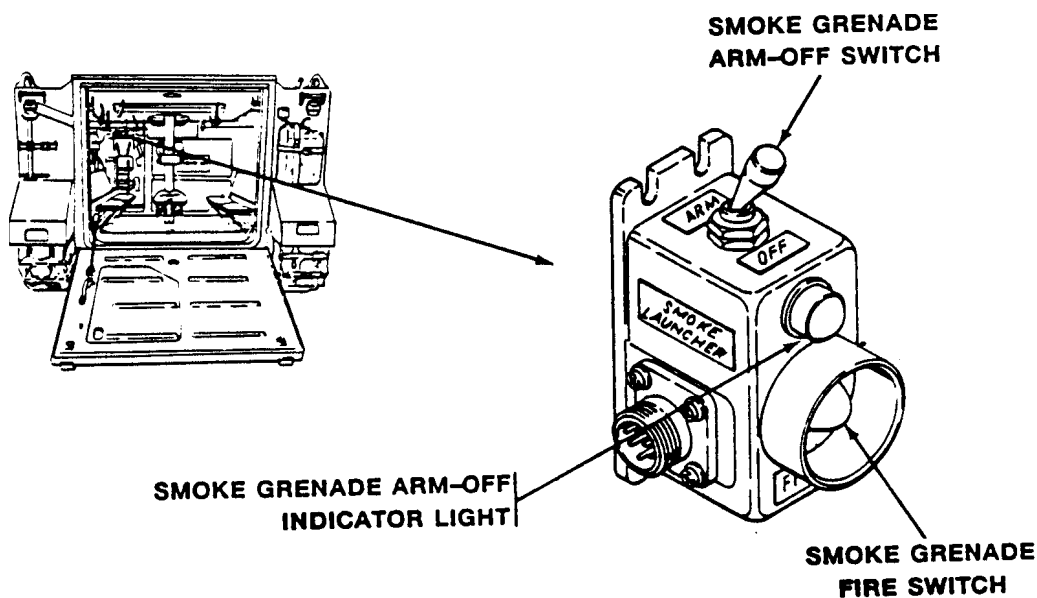
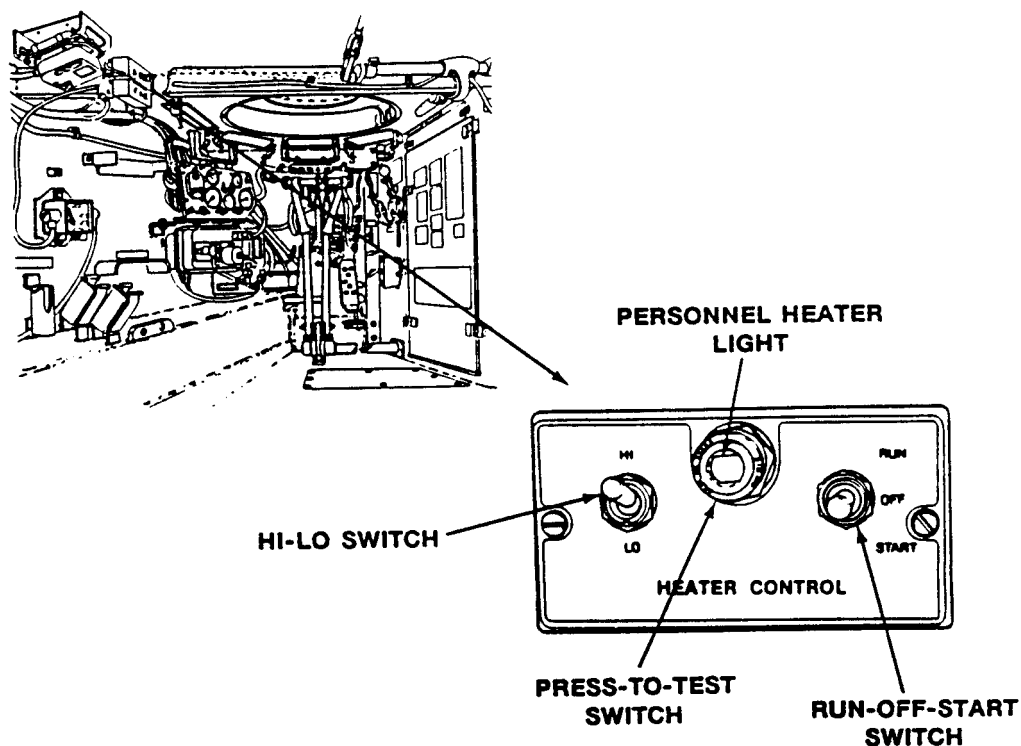


Table 12. SMOKE GRENADE ARMING FIRING UNIT

KEY	CONTROL OR INDICATOR	FUNCTION
	SMOKE GRENADE ARM-OFF SWITCH	Two-position toggle switch to arm and disarm smoke grenade FIRE switch.
	SMOKE GRENADE ARM-OFF INDICATOR LIGHT	Light comes on when smoke grenade FIRE switch is armed.
	SMOKE GRENADE FIRE SWITCH	Fires smoke grenades from discharger tubes when pushed.



NOTE

On the majority of the heater control boxes, the control light comes on dimmed during the start cycle of heater. When heater starts, the light goes to full brightness.

Table 13. PERSONNEL HEATER CONTROL BOX

KEY	CONTROL OR INDICATOR	FUNCTION
	HI-LO SWITCH	Controls personnel heater output.
	RUN-OFF-START SWITCH	Controls operation of personnel heater.
	PERSONNEL HEATER LIGHT	Indicates that personnel heater is on.
	PRESS-TO-TEST SWITCH	Test personnel heater light. When switch is pressed, light will come on if light bulb is good and if power is coming into control box.

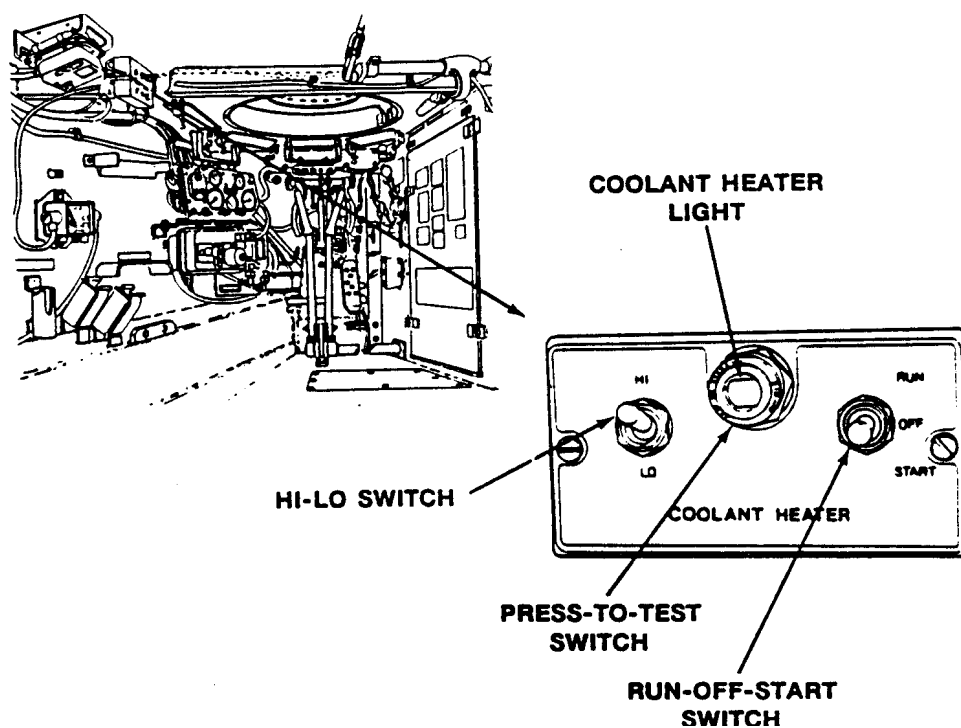


Table 14. ENGINE COOLANT HEATER CONTROL BOX

KEY	CONTROL OR INDICATOR	FUNCTION
	HI-LO SWITCH	Controls engine coolant heater output.
	COOLANT HEATER LIGHT	Indicates that coolant heater is on.
	PRESS-TO-TEST SWITCH	When switch is pressed, light will come on if light bulb is good and if power is coming into the control box.
	RUN-OFF-START SWITCH	Controls operation of coolant heater.

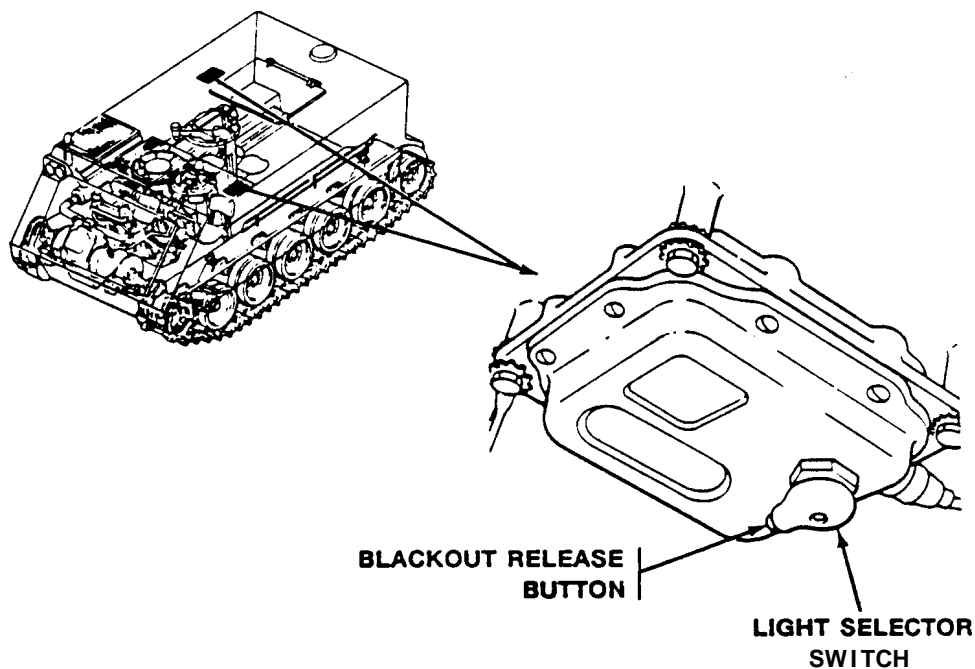


Table 15. DOME LIGHTS

KEY	CONTROL OR INDICATOR	FUNCTION
	LIGHT SELECTOR SWITCH	Selects blackout or white light.
	BLACKOUT RELEASE BUTTON	Releases light selector switch from blackout position.

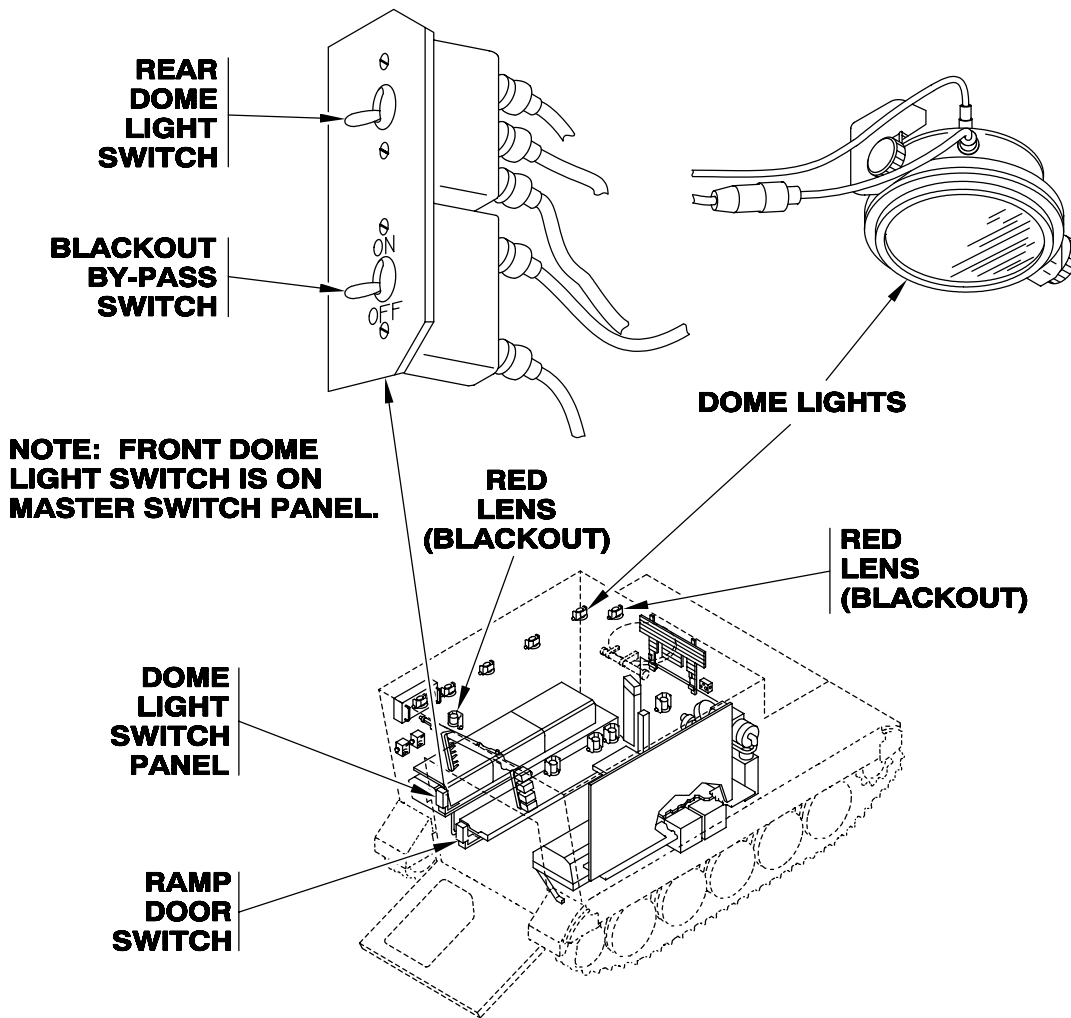


Table 16. DOME LIGHTS AND SWITCHES (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	REAR DOME LIGHT SWITCH	Turns on dome lights.
	BLACKOUT BY-PASS SWITCH	Overrides dome light switch to OFF when blackout condition exists.

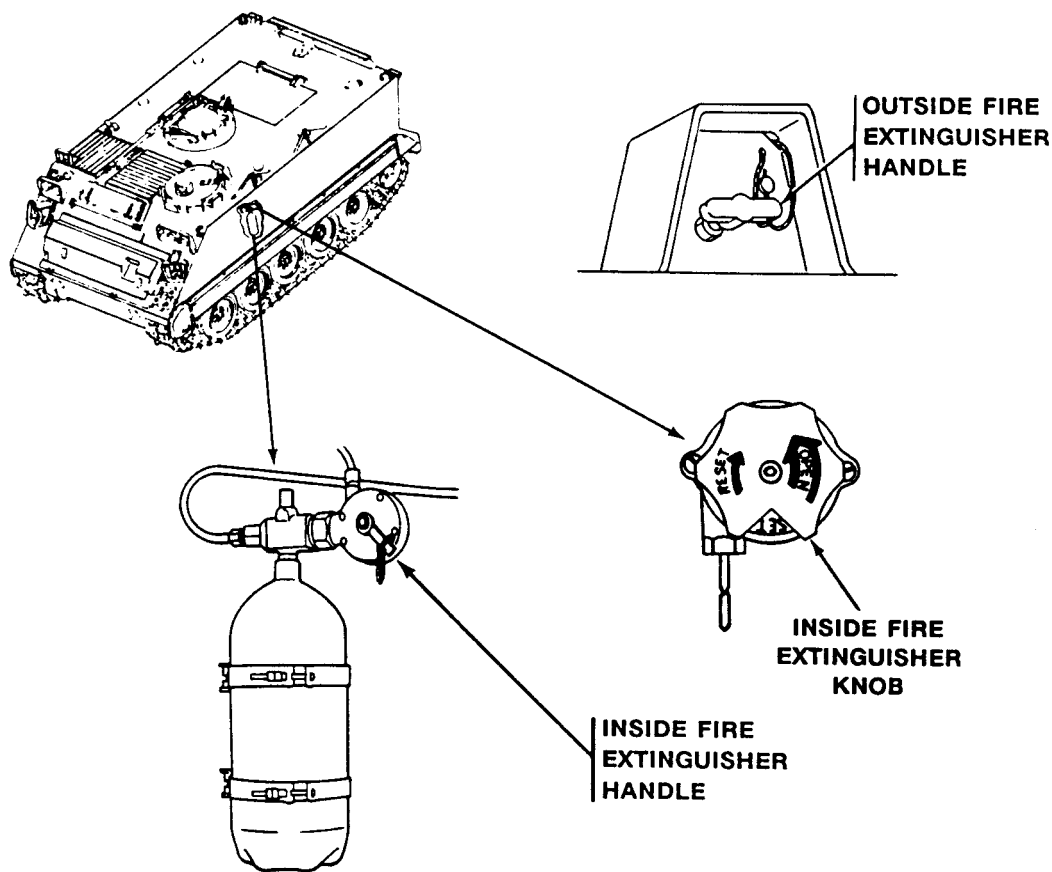


Table 17. FIXED FIRE EXTINGUISHER SYSTEM

KEY	CONTROL OR INDICATOR	FUNCTION
	OUTSIDE FIRE EXTINGUISHER HANDLE	Discharges fixed fire extinguisher manually from outside carrier.
	INSIDE FIRE EXTINGUISHER KNOB	Discharges fixed fire extinguisher manually from inside carrier.
	INSIDE FIRE EXTINGUISHER HANDLE	Discharges fixed fire extinguisher manually from inside carrier.

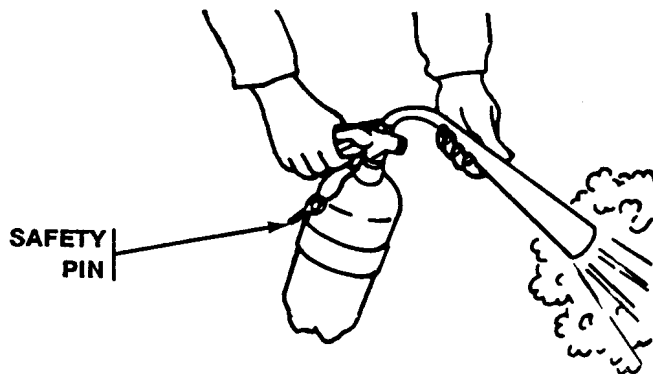
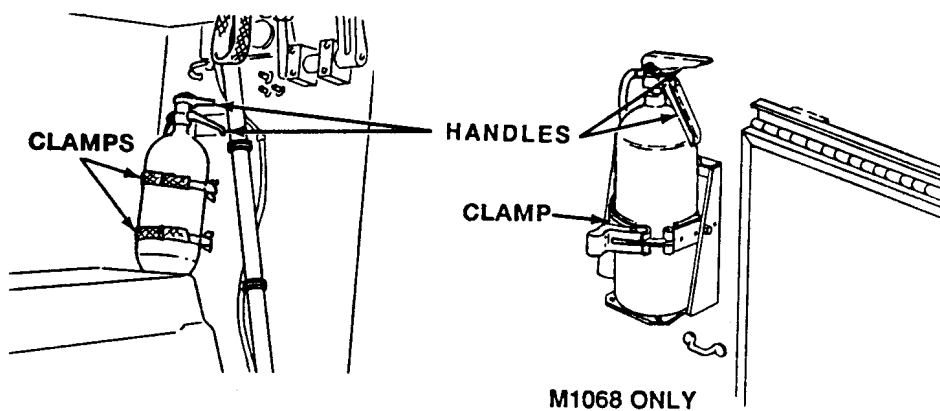


Table 18. PORTABLE FIRE EXTINGUISHER

KEY	CONTROL OR INDICATOR	FUNCTION
	CLAMPS	Hold portable fire extinguisher in right rear of personnel compartment.
	SAFETY PIN	Keeps fire extinguisher from accidentally discharging while stowed.
	HANDLES	Discharges fire extinguisher when squeezed together.

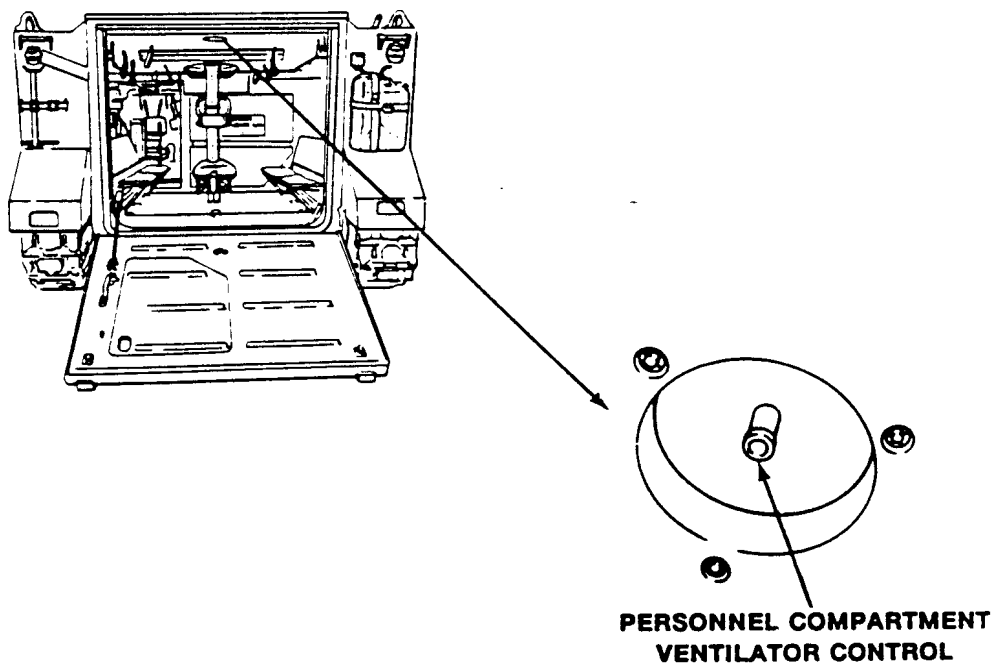


Table 19. PERSONNEL COMPARTMENT VENTILATOR CONTROL

KEY	CONTROL OR INDICATOR	FUNCTION
	PERSONNEL COMPARTMENT VENTILATOR CONTROL	Used to open and close personnel compartment ventilator.

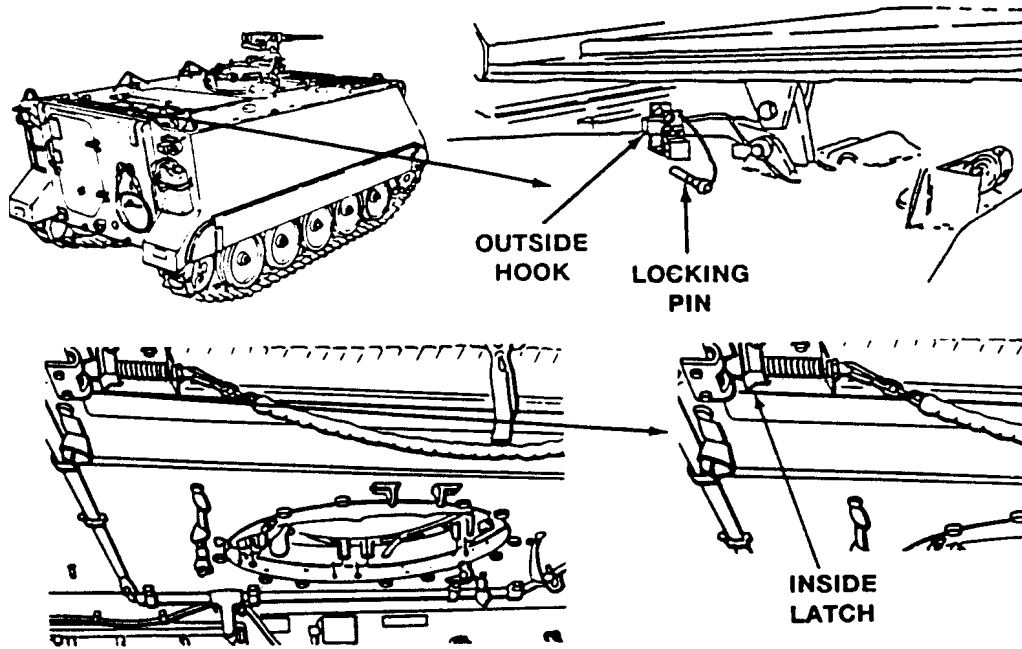


Table 20. CARGO HATCH CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	OUTSIDE HOOK AND LOCKING PIN	Locks cargo hatch cover in fully open position. Locking pin is provided to secure hook and prevent accidental release of hatch cover.
	INSIDE LATCH	Locks and unlocks cargo hatch cover from inside carrier.

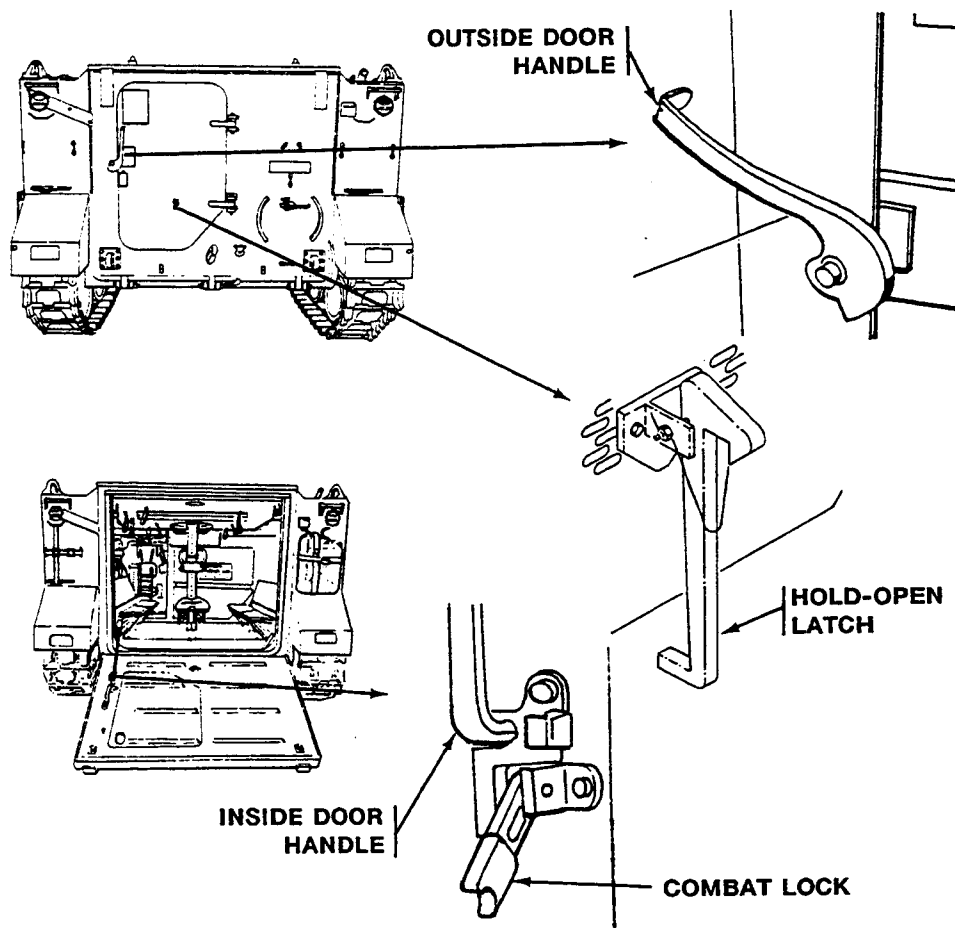


Table 21. RAMP ACCESS DOOR CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	OUTSIDE DOOR HANDLE	Latches and unlatches ramp access door from outside carrier.
	HOLD-OPEN LATCH	Secures ramp access door in open position.
	INSIDE DOOR HANDLE	Latches and unlatches ramp access door from inside carrier.
	COMBAT LOCK	Locks ramp access door from inside carrier.

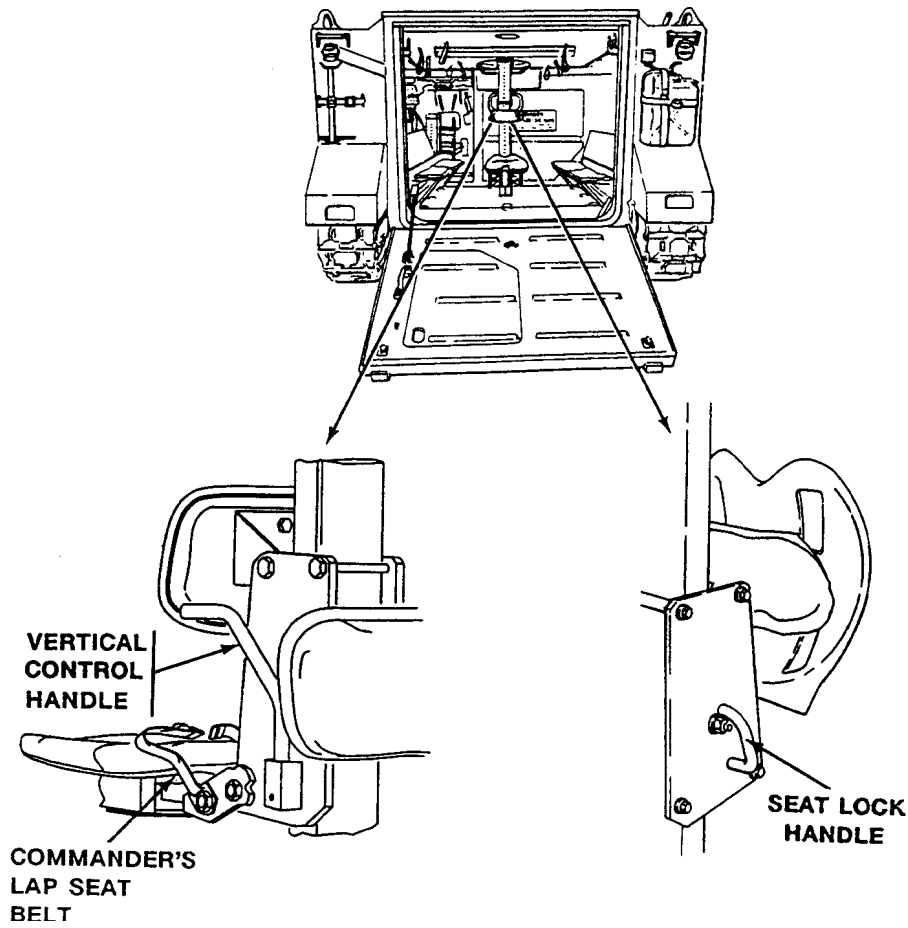


Table 22. COMMANDER'S SEAT CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	VERTICAL CONTROL HANDLE	Allows seat to be raised or lowered.
	SEAT LOCK HANDLE	Releases seat from stowed position.
	COMMANDER'S LAP SEAT BELT	Secures commander safely in seat. Lap restraint is adjustable.

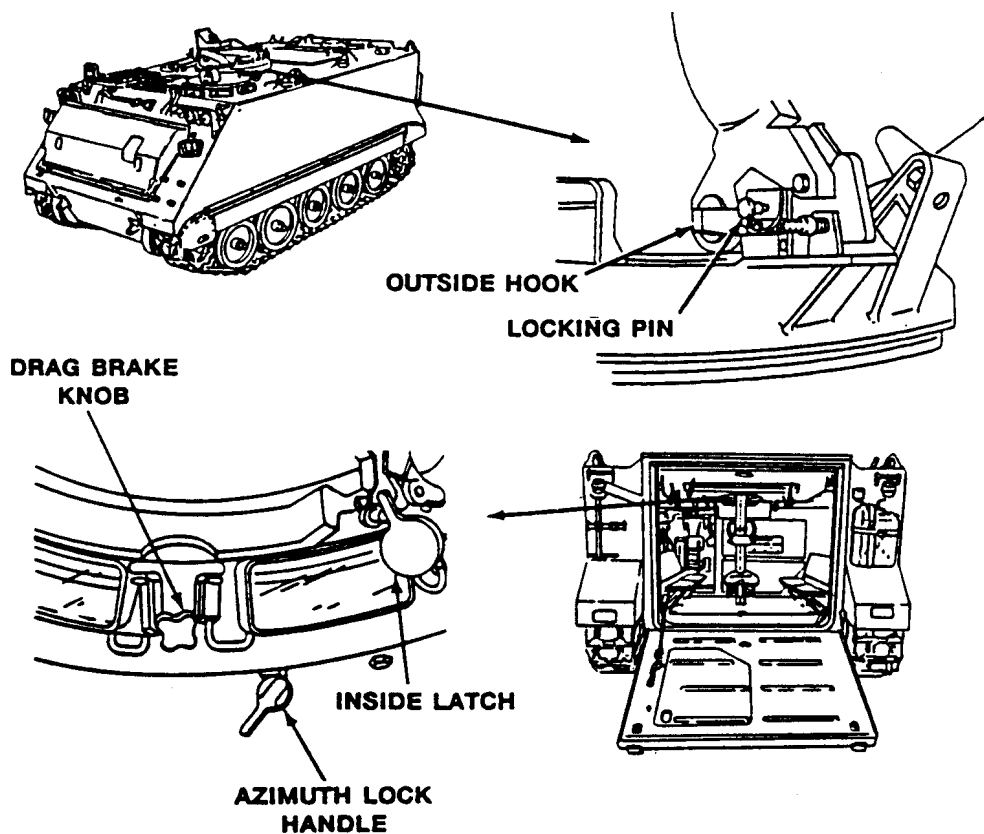


Table 23. COMMANDER'S CUPOLA CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	OUTSIDE HOOK AND LOCKING PIN	Locks commander's hatch cover in fully open position. Locking pin is provided to secure hook and prevent accidental release of hatch cover.
	AZIMUTH LOCK HANDLE	Locks the cupola at any desired position. When released, allows rotation of cupola.
	INSIDE LATCH	Locks and unlocks commander's hatch cover from inside carrier.
	DRAG BRAKE KNOB	Controls drag brake to slow and stop cupola movement.

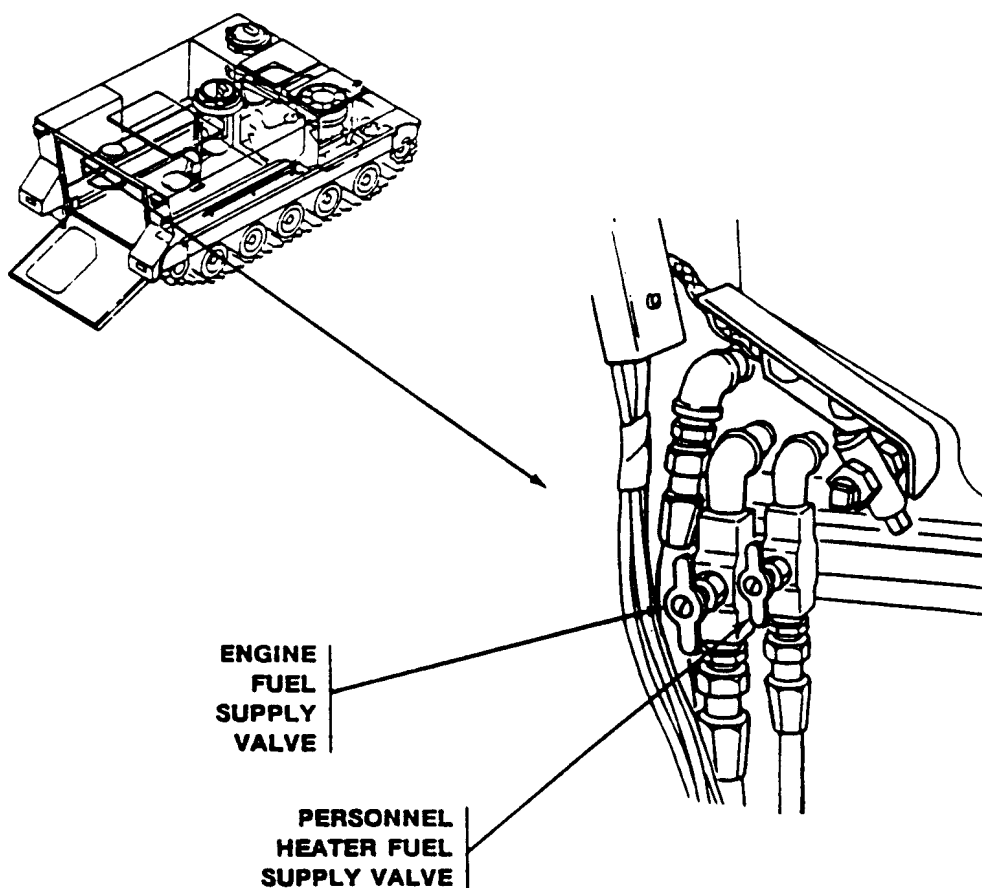


Table 24. FUEL TANK MANUAL SHUTOFF VALVES (ALL EXCEPT M1064)

KEY	CONTROL OR INDICATOR	FUNCTION
	ENGINE FUEL SUPPLY VALVE	Starts and stops fuel flow from fuel tank to engine.
	PERSONNEL HEATER FUEL SUPPLY VALVE	Starts and stops fuel flow from engine to personnel and/or coolant heater.

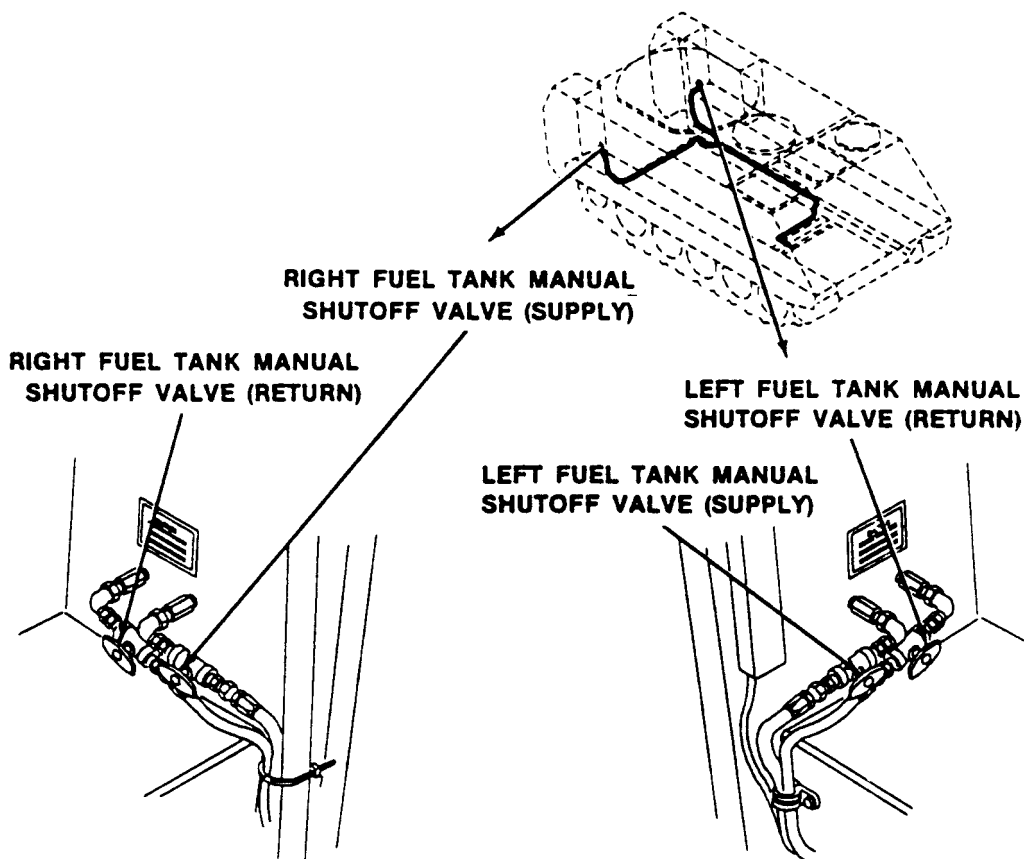


Table 25. FUEL TANK MANUAL SHUTOFF VALVES (M1064 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	LEFT FUEL TANK MANUAL SHUTOFF VALVE (SUPPLY)	Starts and stops fuel flow from left fuel tank to engine.
	LEFT FUEL TANK MANUAL SHUTOFF VALVE (RETURN)	Starts and stops fuel flow from engine to left fuel tank.
	RIGHT FUEL TANK MANUAL SHUTOFF VALVE (SUPPLY)	Starts and stops fuel flow from right fuel tank to engine.
	RIGHT FUEL TANK MANUAL SHUTOFF VALVE (RETURN)	Starts and stops fuel flow from engine to right fuel tank.

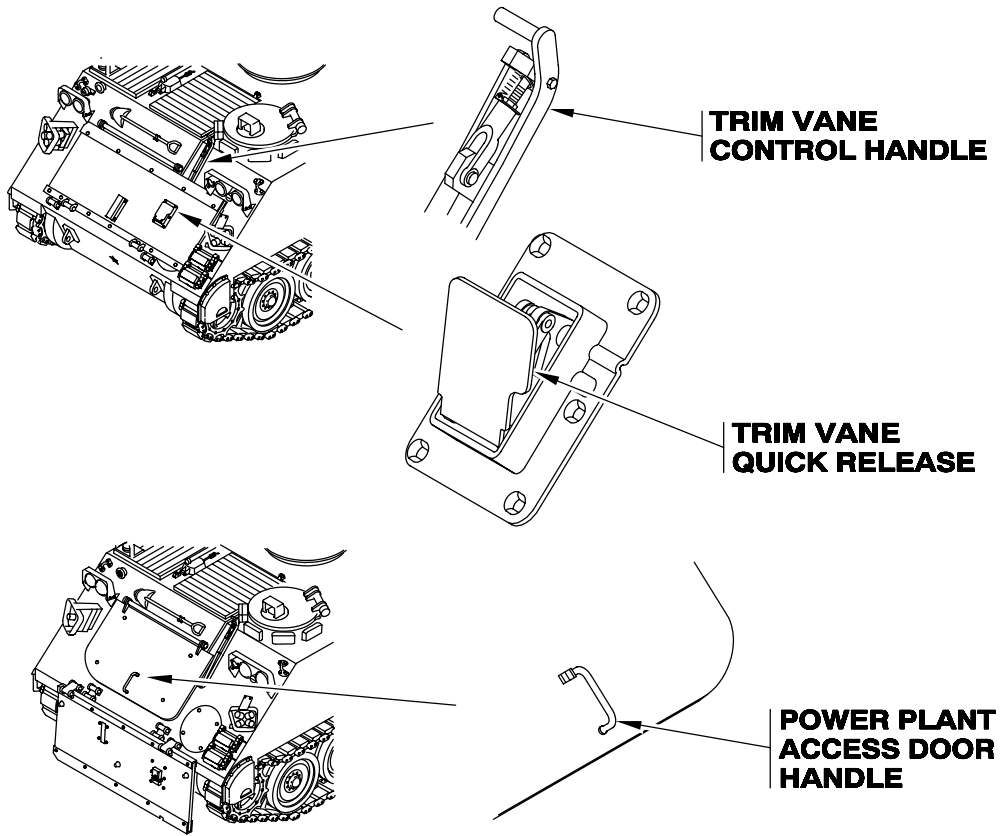


Table 26. TRIM VANE AND POWER PLANT ACCESS DOOR CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	TRIM VANE CONTROL HANDLE	Locks trim vane in position for water operation and in stowed position.
	TRIM VANE QUICK RELEASE	Locks trim vane to actuator arm and unlocks trim vane for lowering.
	POWER PLANT ACCESS DOOR HANDLE	Locks and unlocks power plant access door.

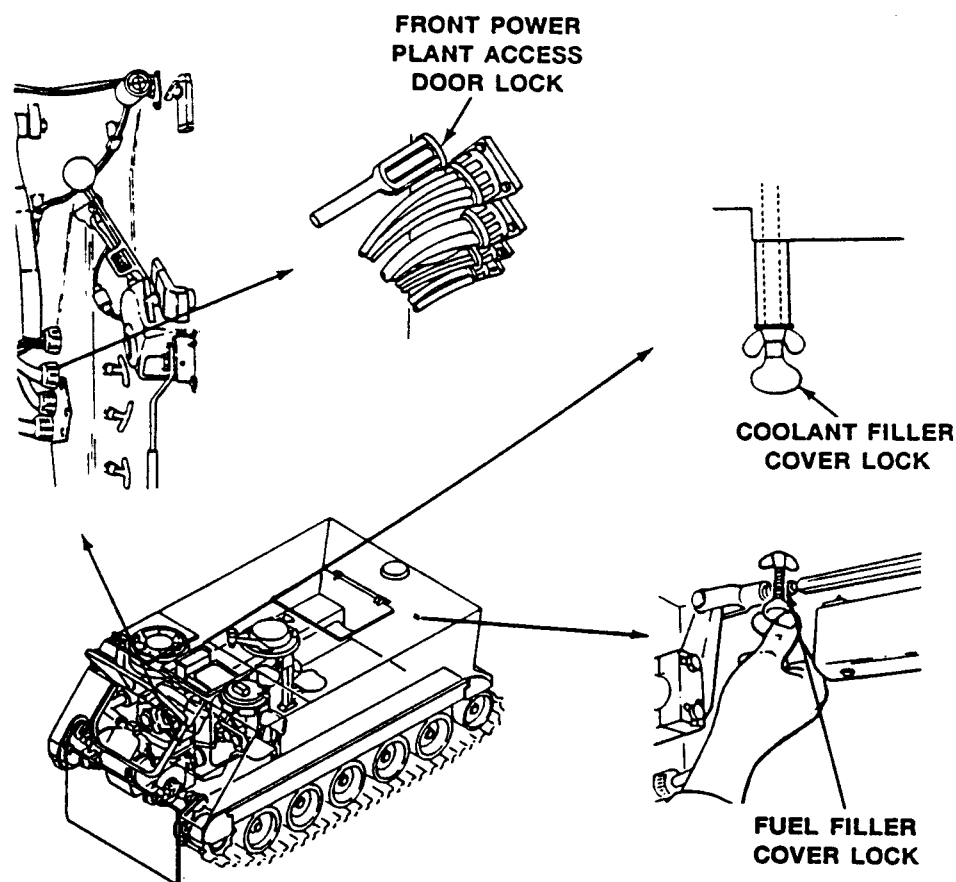
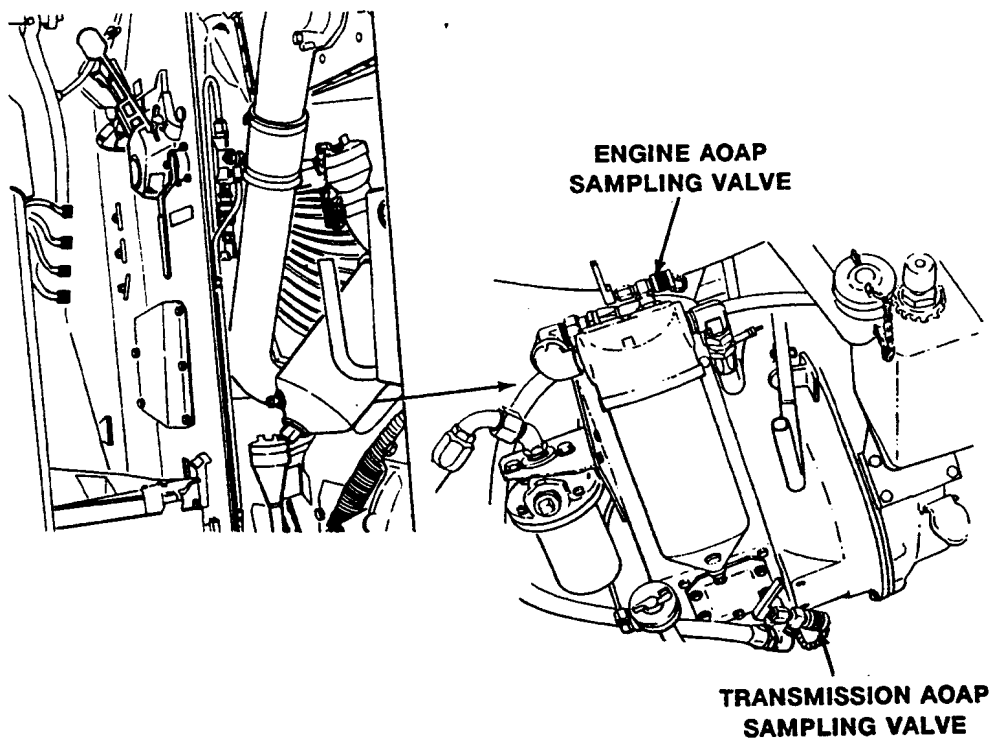


Table 27. COMBAT LOCKS

KEY	CONTROL OR INDICATOR	FUNCTION
	FRONT POWER PLANT ACCESS DOOR LOCK	Locks power plant access door from inside the carrier.
	COOLANT FILLER COVER LOCK	Locks coolant filler cover from inside the carrier.
	FUEL FILLER COVER LOCK	Locks fuel filler cover from inside the carrier.



NOTE

See WP 0075 00 for instructions on taking transmission and engine AOAP oil sample.

Table 28. ARMY OIL ANALYSIS PROGRAM (AOAP) SAMPLING VALVE

KEY	CONTROL OR INDICATOR	FUNCTION
	TRANSMISSION AOAP SAMPLING VALVE	Used to draw transmission oil sample for AOAP testing.
	ENGINE AOAP SAMPLING VALVE	Used to draw engine oil sample for AOAP testing.

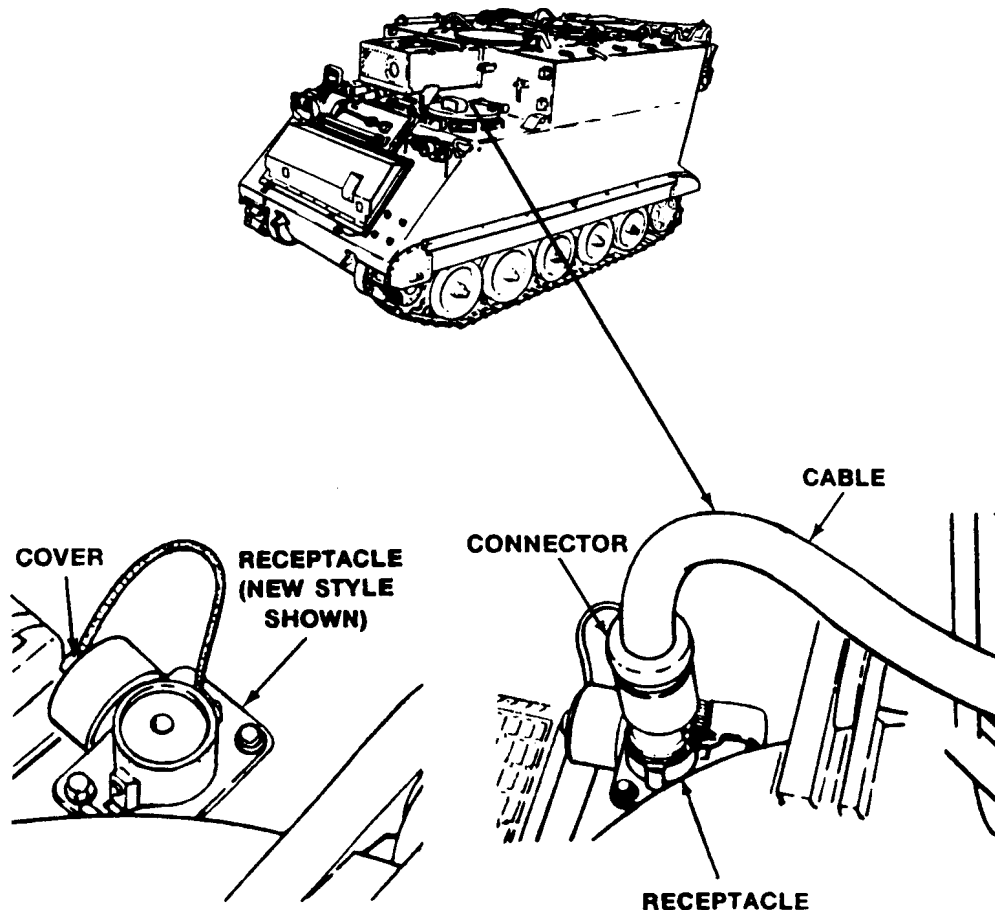


Table 29. AUXILIARY POWER RECEPTACLE (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	AUXILIARY POWER RECEPTACLE	Provides for use of 24-volt DC power from an outside source to start engine, charge batteries, and operate electrical equipment.

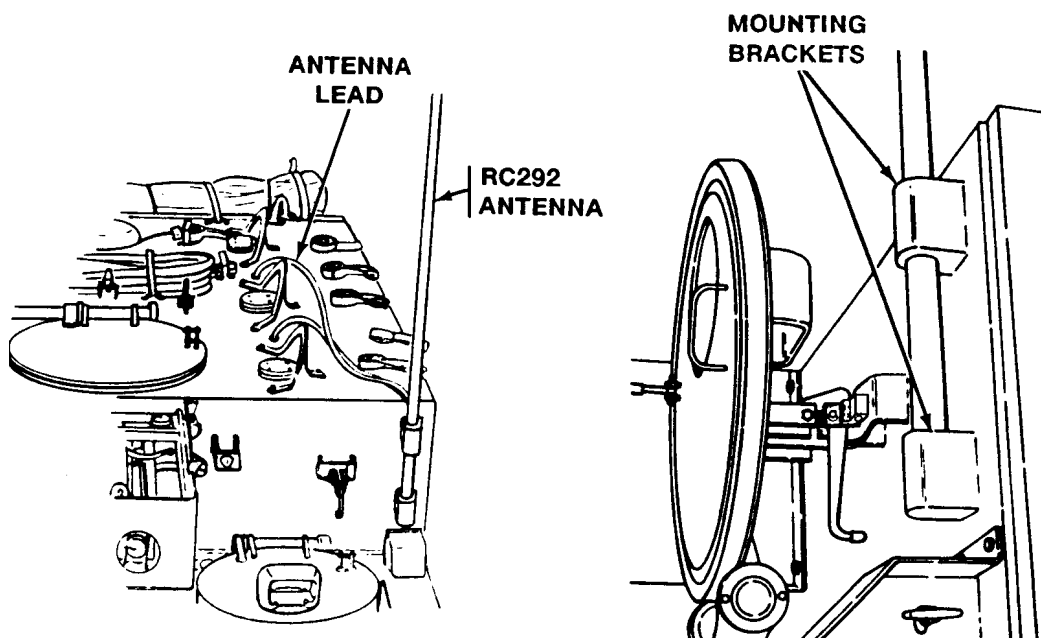


Table 30. ANTENNA MAST BRACKETS (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	ANTENNA MAST BRACKETS RC292 ANTENNA	Two antenna mast brackets are used to mount the RC292 antenna. RC292 is a ground whip antenna that increases the communication range of the radio sets.

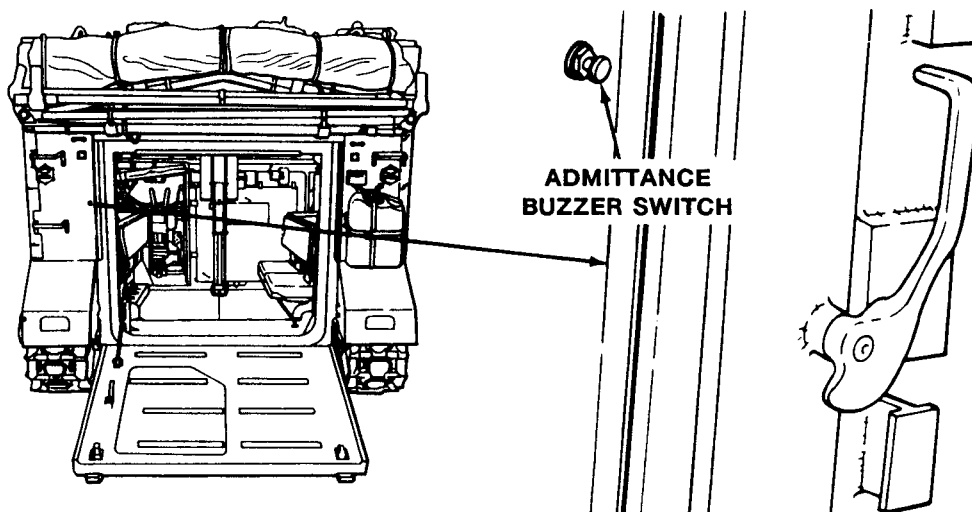


Table 31. ADMITTANCE BUZZER SWITCH (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	ADMITTANCE BUZZER SWITCH	Press to alert personnel inside carrier before entering.

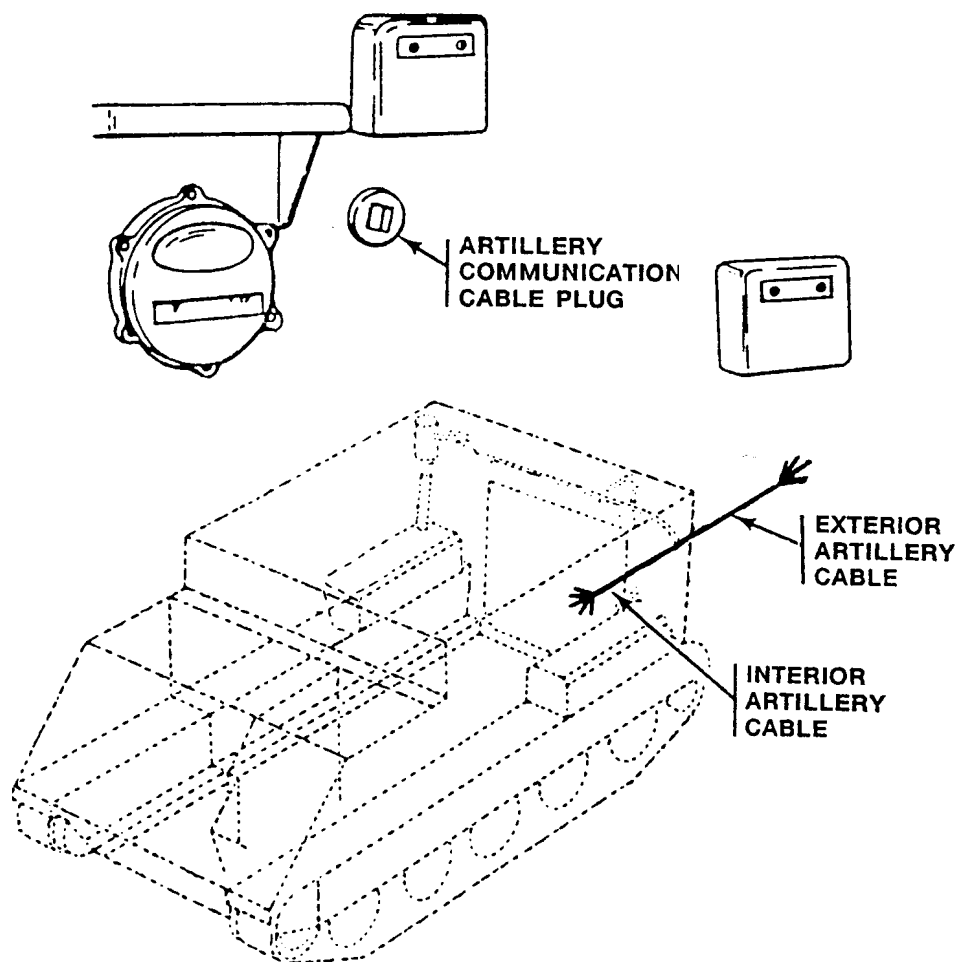


Table 32. ARTILLERY COMMUNICATION CABLES (M577A2 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	ARTILLERY COMMUNICATION CABLE PLUG	Removed when M577A2 is operated as an artillery command post.

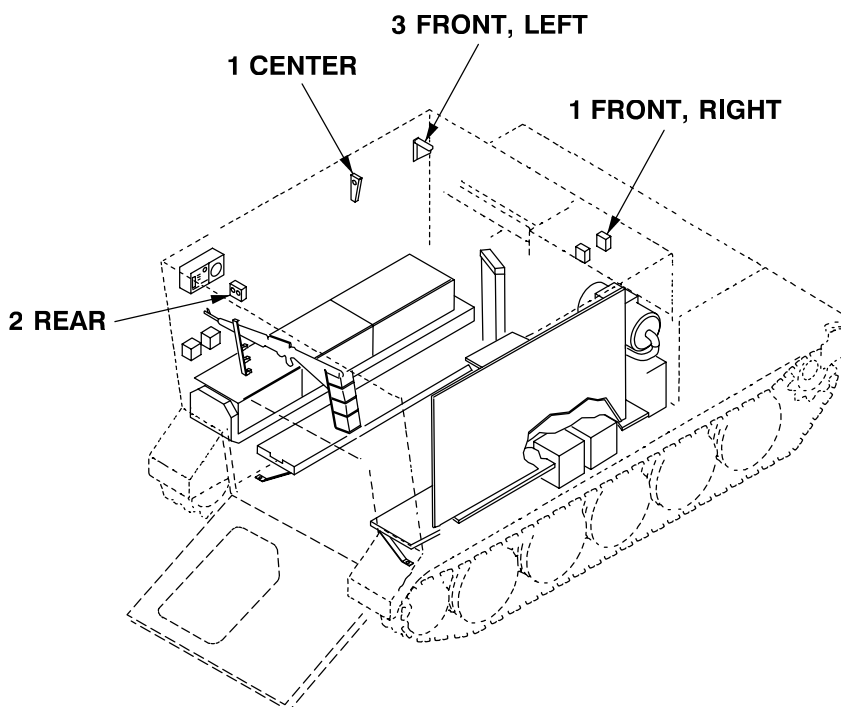


Table 33. COMMUNICATION RECEPTACLES AND UTILITY OUTLETS (M577A2 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	COMMUNICATION RECEPTACLES	Seven communication receptacles, three forward, one center, two rear, and one near the right radio rack, are used to hook up the radio and telephone lines.

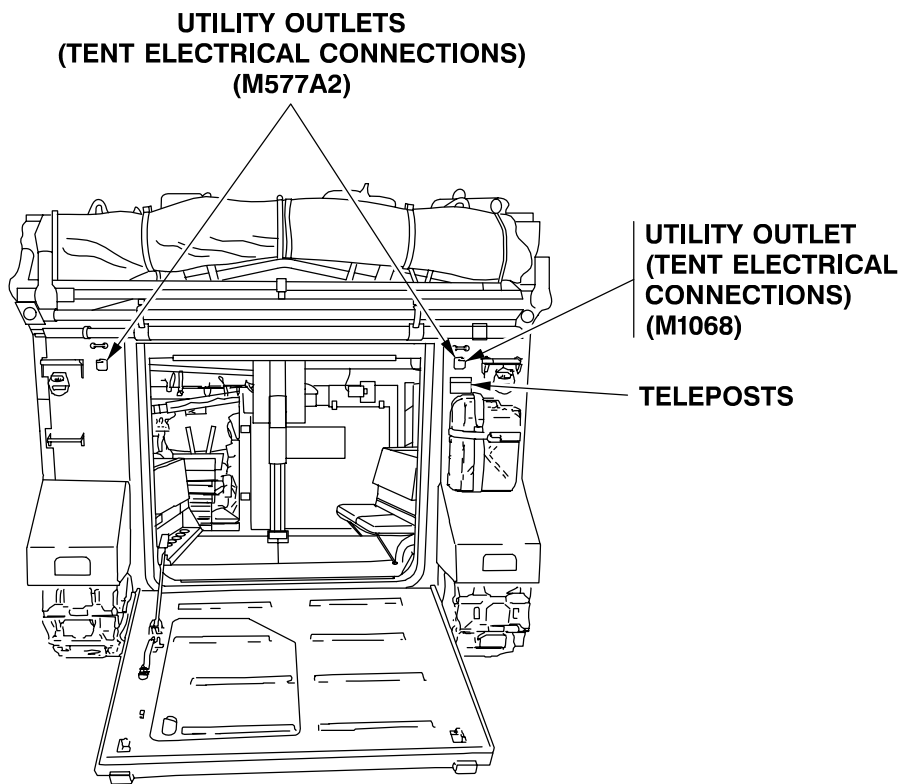


Table 34. UTILITY OUTLET (M577A2 AND M1068 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	UTILITY OUTLET	Located on right and left side and used to operate 24-volt accessories. M1068 only has outlet on right side.

CHAPTER 3

OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

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OPEN/CLOSE BATTERY DRAWER (M1064).....	.0006 00
OPEN/CLOSE DRIVER'S HATCH COVER (ALL EXCEPT M577A2 AND M1068).....	.0007 00
OPEN/CLOSE DRIVER'S HATCH COVER (M577A2 AND M1068 ONLY).....	.0008 00
OPEN/CLOSE CARGO HATCH COVER.....	.0009 00
OPEN/CLOSE COMMANDER'S HATCH COVER (ALL EXCEPT M577A2 AND M1068).....	.0010 00
OPEN/CLOSE COMMANDER'S HATCH COVER (M577A2 AND M1068 ONLY).....	.0011 00
OPEN/CLOSE MORTAR HATCH COVER (M1064 ONLY).....	.0012 00
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ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS.....	.0018 00
STOW/UNSTOW COMMANDER'S SEAT.....	.0019 00
STOW/UNSTOW JUMP SEAT.....	.0020 00
UNSTOW/STOW MAP TABLE AND BOARD (M577A2 AND M1068 ONLY).....	.0021 00
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OPERATE COMMANDER'S PLATFORM (M577A2 AND M1068).....	.0023 00
CONNECT CVC HELMET TO INTERCOM CONTROL BOX.....	.0024 00
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START ENGINE.....	.0026 00
START ENGINE WITH OUTSIDE POWER SOURCE.....	.0027 00
DRIVE CARRIER.....	.0028 00
STOP ENGINE.....	.0029 00
FUEL CARRIER (ALL EXCEPT M577A2 AND M1068).....	.0030 00
FUEL CARRIER (M577A2 AND M1068 ONLY).....	.0031 00
OPERATE 4.2 KW GENERATOR SET (M577A2 AND M1068 ONLY).....	.0032 00
OPERATE 5.0 KW AUXILIARY POWER UNIT (APU) (M577A2 AND M1068 ONLY).....	.0033 00
INSTALL/REMOVE WINDSHIELD.....	.0034 00
INSTALL/REMOVE M17 PERISCOPES.....	.0035 00
OPERATE PERSONNEL HEATER.....	.0036 00
OPERATE ELECTRONIC EQUIPMENT HEATER.....	.0037 00
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CHAPTER 3
OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX (Continued)

<u>Title</u>	<u>Sequence No.</u>
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SECURE MACHINE GUN FOR TRAVEL.....	.0045 00
STOW MACHINE GUN.....	.0046 00
LOWER/STOW TRIM VANE.....	.0047 00
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REMOVE/INSTALL REAR POWER PLANT ACCESS PANELS.....	.0049 00
BLOCK/UNBLOCK CARRIER TRACKS.....	.0050 00
CAPSTAN AND ANCHOR KITS (M113A2 ONLY).....	.0051 00
RAISE/LOWER DROP LEAF TABLES (M577A2 ONLY).....	.0052 00
INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A2 AND M1068 ONLY).....	.0053 00
SET UP COMMAND POST TENT (COVERED EXTENSION) (M577A2 ONLY).....	.0054 00
SET UP MODULAR COMMAND POST SYSTEM (MCPS) (M1068 ONLY).....	.0055 00
DISMANTLE/STOW MODULAR COMMAND POST SYSTEM (MCPS) (M1068).....	.0056 00
INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER (M577A2 ONLY).....	.0057 00
DISMANTLE/STOW COMMAND POST TENT (COVERED EXTENSION) (M577A2 ONLY).....	.0058 00

OPEN/CLOSE RAMP ACCESS DOOR

0005 00

THIS WORK PACKAGE COVERS:

- Open Ramp Access Door From Inside Carrier (page 0005 00-1).
- Close Ramp Access Door From Inside Carrier (page 0005 00-2).
- Open Ramp Access Door From Outside Carrier (page 0005 00-3).
- Close Ramp Access Door From Outside Carrier (page 0005 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked

Personnel Required

Soldier

OPEN RAMP ACCESS DOOR FROM INSIDE CARRIER

WARNING

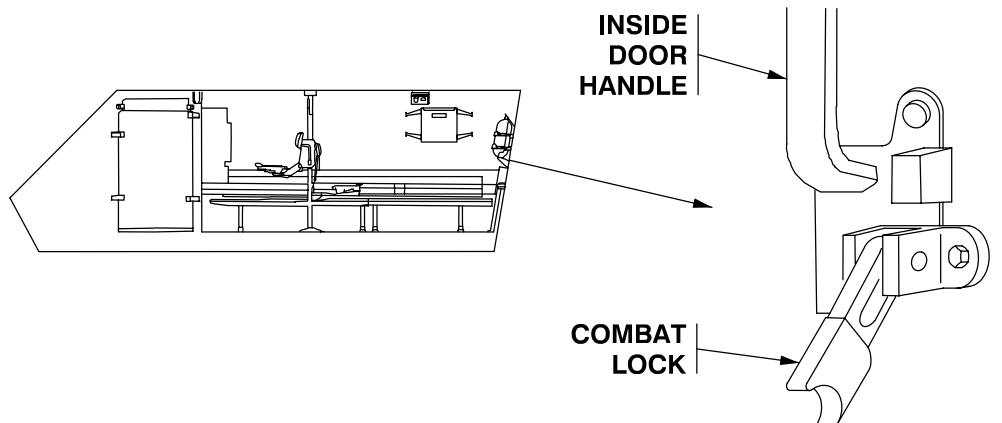


Ramp access door is heavy. It can swing and injure personnel. Make sure no one is in the area of ramp access door when it is opening. Secure door in ramp door hook before you go out.

NOTE

If mission requirements permit, allow the ramp door to remain open to ensure adequate ventilation.

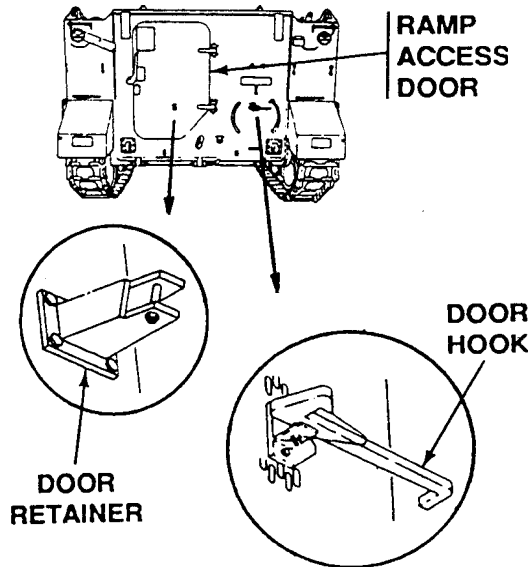
1. Release combat lock and raise inside door handle until ramp access door is released.



NOTE

Position of door hook and door retainer varies with model. M981 and M1064 are opposite as shown.

- Swing ramp access door outward until ramp access door hook engages in door retainer.



CLOSE RAMP ACCESS DOOR FROM INSIDE CARRIER

WARNING



Ramp access door is heavy. It can swing and injure personnel. Stand clear when you release ramp access door hook.

WARNING



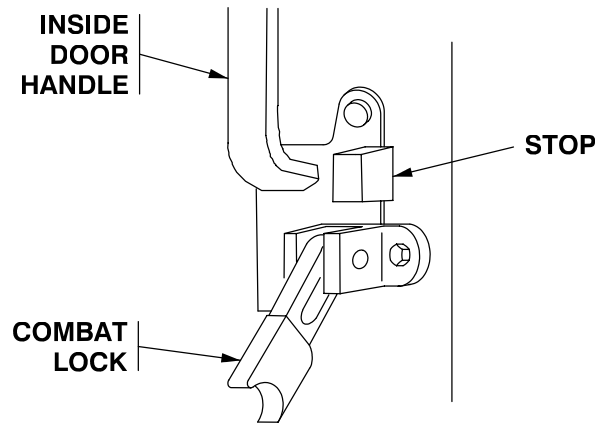
The use of the left hand to grasp and close the ramp access door will expose the thumb to being extended beyond the door's edge and possible amputation when the door is pulled closed. When using the left hand, use only the center of the handhold and be aware of thumb position.

1. Pull ramp access door hook to release ramp access door.

NOTE

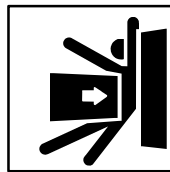
Position of door hook and door retainer varies with model. M981 and M1064 are opposite as shown.

2. Swing ramp access door closed. Lower inside door handle until it hits stop on combat lock. Set combat lock.



OPEN RAMP ACCESS DOOR FROM OUTSIDE CARRIER

WARNING



Ramp access door is heavy. It can swing and injure personnel. Do not stand behind ramp access door. Keep hands out from between handle and ramp access door.

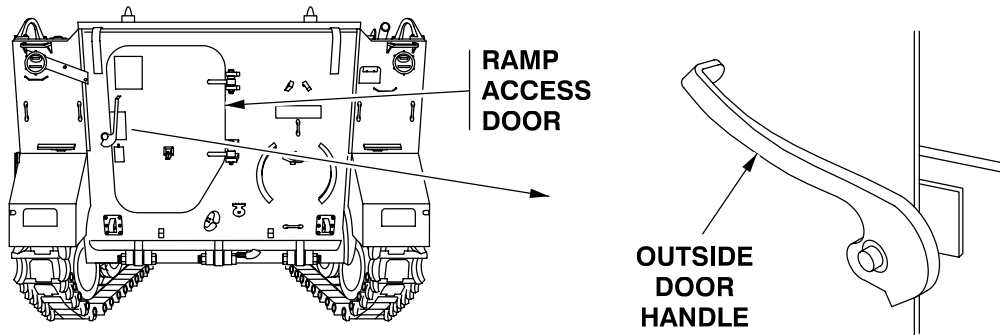
NOTE

Position of door hook and door retainer varies with model. M981 and M1064 are opposite as shown.

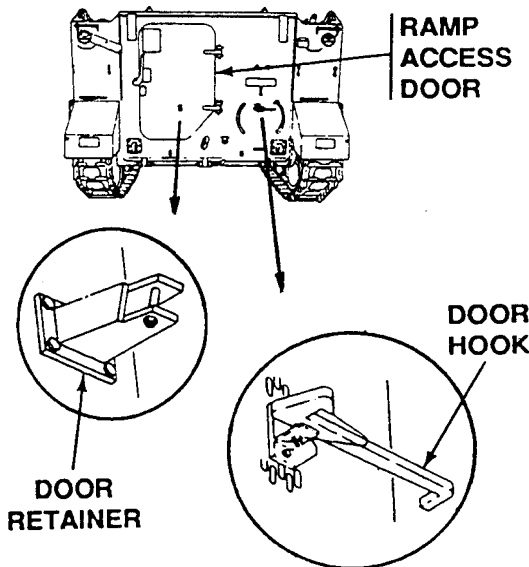
NOTE

Combat lock must be released to open ramp access door from outside carrier.

1. Pull outside door handle down until ramp access door is released.



2. Swing ramp access door outward until ramp access door hook engages in door retainer.

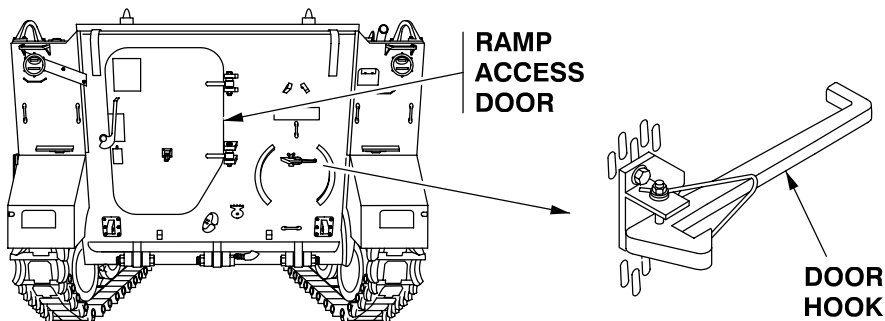


CLOSE RAMP ACCESS DOOR FROM OUTSIDE CARRIER

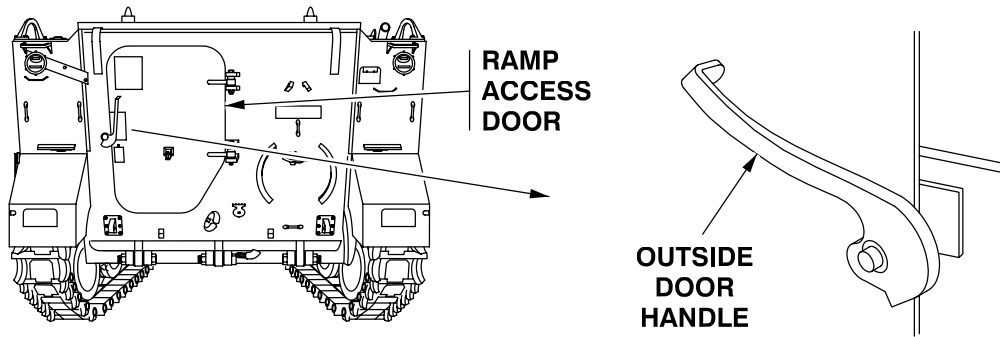
NOTE

Position of door hook and door retainer varies with vehicle model. M981 and M1064 are opposite as shown.

1. Pull ramp access door hook to release ramp access door.



- Swing ramp access door closed. Raise outside door handle to secure door closed.



END OF TASK

OPEN/CLOSE BATTERY DRAWER (M1064)

0006 00

THIS WORK PACKAGE COVERS:

- Open Battery Drawer (page 0006 00-1).
 - Close Battery Drawer (page 0006 00-2).
-

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

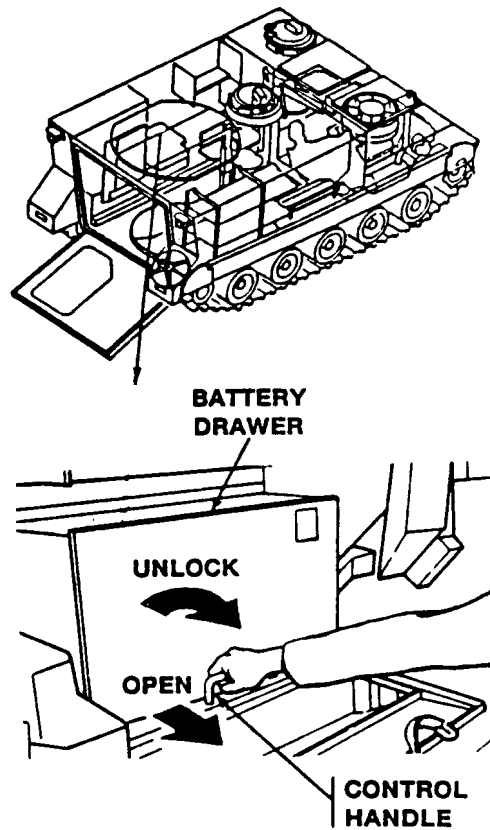
Driver

OPEN BATTERY DRAWER

NOTE

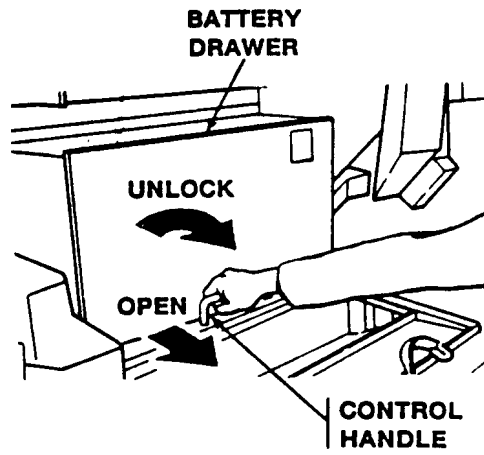
Lower the left crew seat backrest before you open battery drawer.

1. Turn control handle to the right to unlock battery drawer. Pull battery drawer out to open.



CLOSE BATTERY DRAWER

1. Push battery drawer in to close. Turn control handle to the left to lock.

**END OF TASK**

OPEN/CLOSE DRIVER'S HATCH COVER (ALL EXCEPT M577A2 AND M1068)

0007 00

THIS WORK PACKAGE COVERS:

- Open Driver's Hatch Cover (page 0007 00-1).
 - Close Driver's Hatch Cover (page 0007 00-2).
-

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked

Personnel Required

Driver

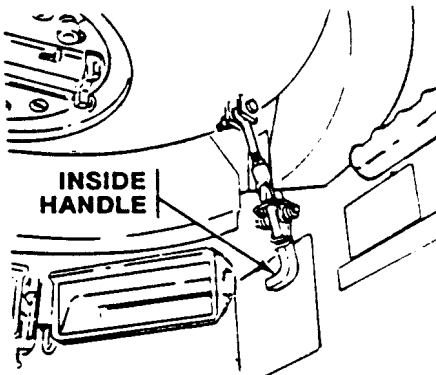
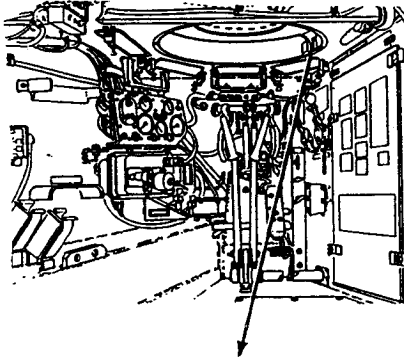
OPEN DRIVER'S HATCH COVER

WARNING



Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

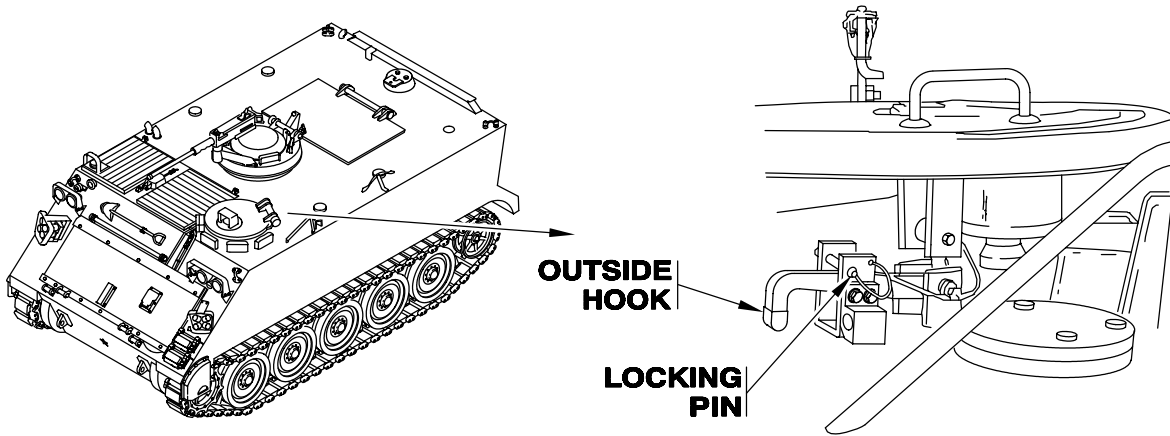
1. Lift inside handle to release driver's hatch cover.



OPEN/CLOSE DRIVER'S HATCH COVER (ALL EXCEPT M577A2 AND M1068) — Continued

0007 00

2. Swing hatch cover open until it engages outside hook.
3. Install locking pin in outside hook to secure hatch cover in fully open position.



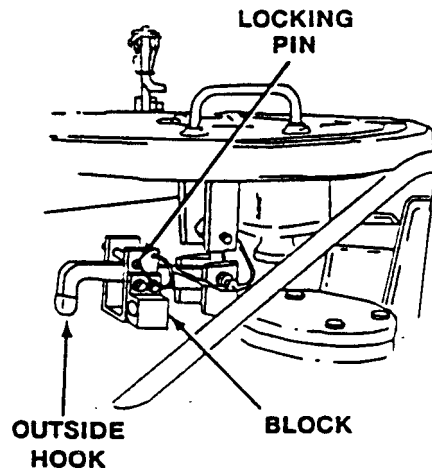
CLOSE DRIVER'S HATCH COVER

WARNING



Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

1. Remove locking pin from outside hook. Place locking pin in block.
2. Lift outside hook to release hatch cover from fully open position.



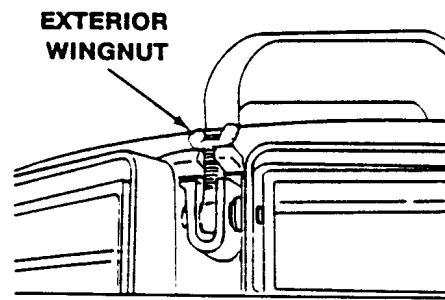
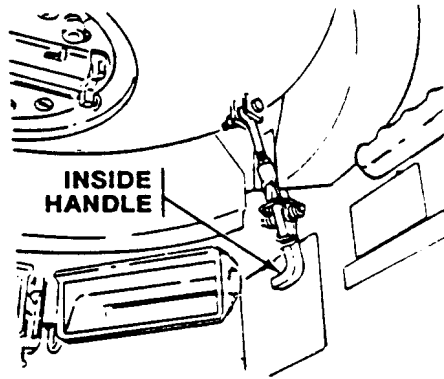
NOTE

Do not exit carrier through commander's hatch or cargo hatch after securing both driver's inside handle and ramp door combat lock. You may be locked out of carrier.

NOTE

Exterior wingnut may be used to secure hatch cover closed when carrier is not being operated.

3. Swing hatch cover closed and secure with inside handle.

**END OF TASK**

OPEN/CLOSE DRIVER'S HATCH COVER (M577A2 AND M1068 ONLY)

0008 00

THIS WORK PACKAGE COVERS:

- Open Driver's Hatch Cover (page 0008 00-1).
 - Close Driver's Hatch Cover (page 0008 00-3).
-

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked

Personnel Required

Driver

OPEN DRIVER'S HATCH COVER

WARNING

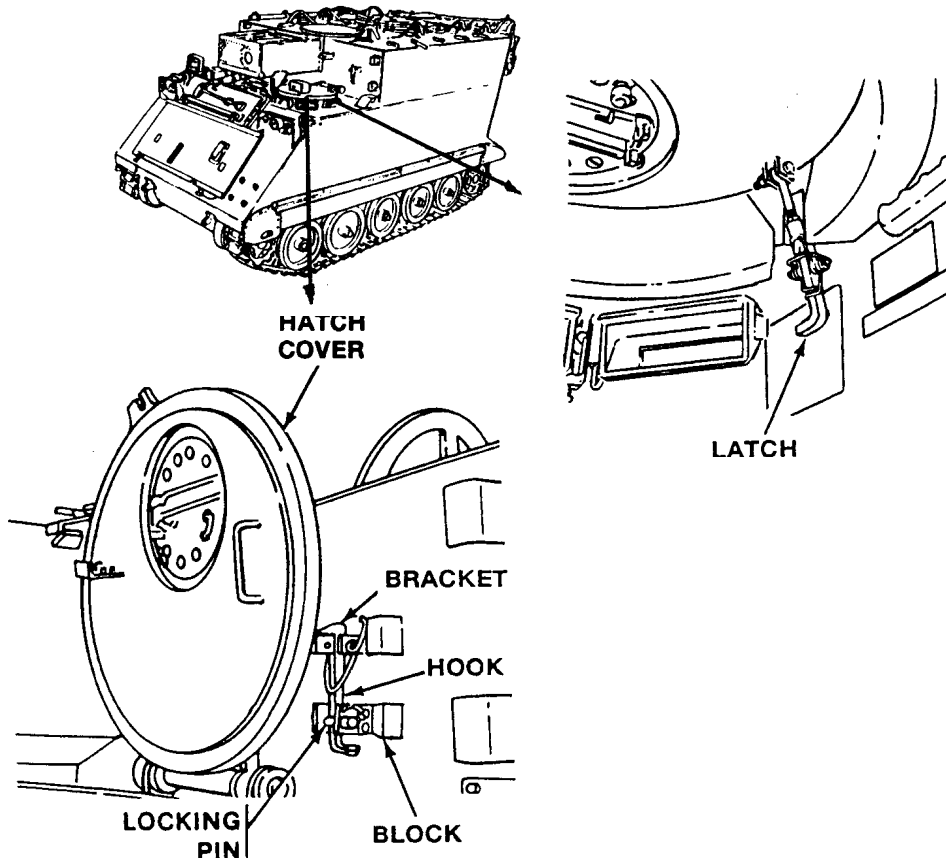


Unsecured hatch cover could move and hit you in the head. When hatch is open, secure latch with locking pin.

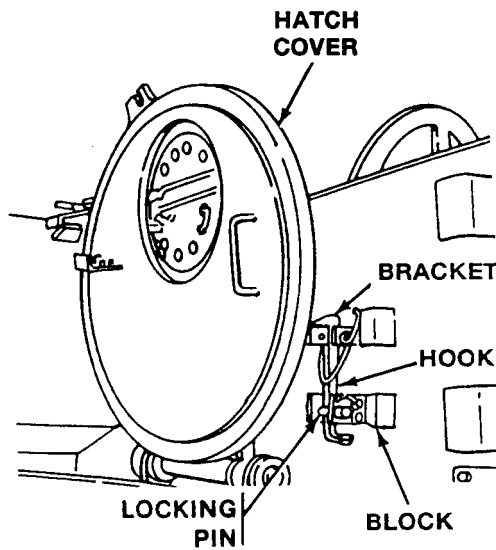
NOTE

Exterior latch is spring loaded.

1. From inside carrier, lift latch and push hatch cover back until bracket on cover is secured by hook.



2. Remove latch locking pin from block and install locking pin in bracket to secure hook.



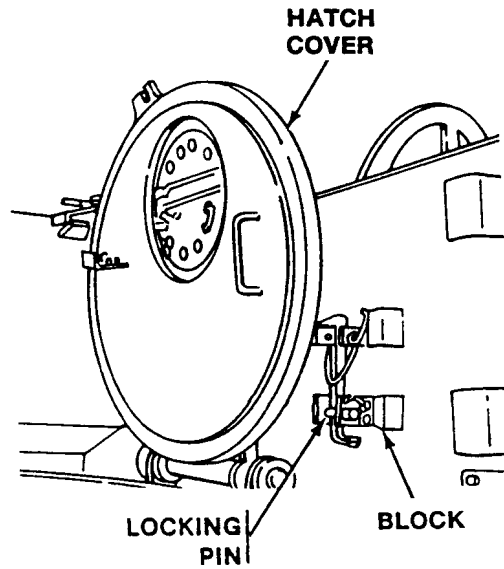
CLOSE DRIVER'S HATCH COVER

WARNING

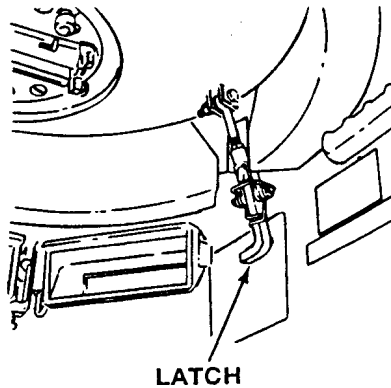


Unsecured hatch cover could move and hit you in the head. When hatch is closed, secure hatch with exterior locknut.

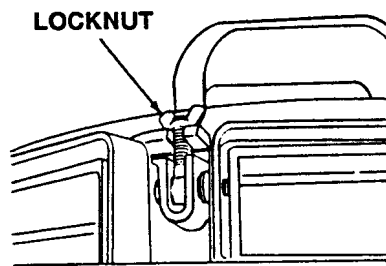
1. Remove latch locking pin and stow in block.



2. Pull latch to release hatch cover.



3. Secure hatch cover closed with exterior locknut.



END OF TASK

OPEN/CLOSE CARGO HATCH COVER

0009 00

THIS WORK PACKAGE COVERS:

- Open Cargo Hatch Cover (page 0009 00-1).
- Close Cargo Hatch Cover (page 0009 00-2).

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Soldier

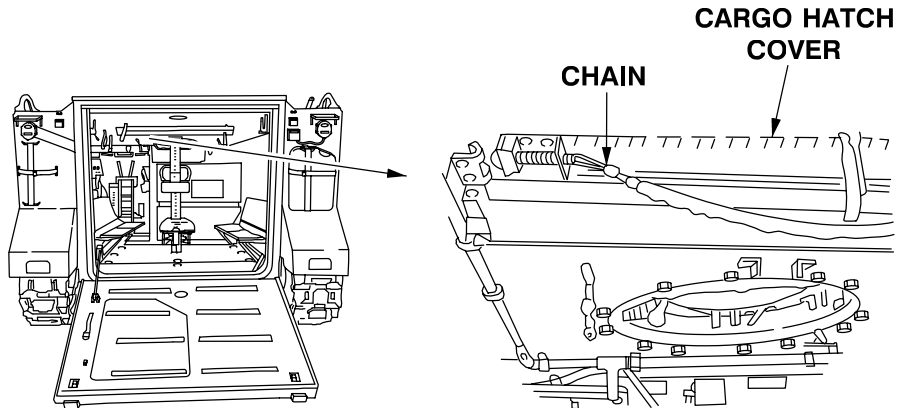
OPEN CARGO HATCH COVER

WARNING

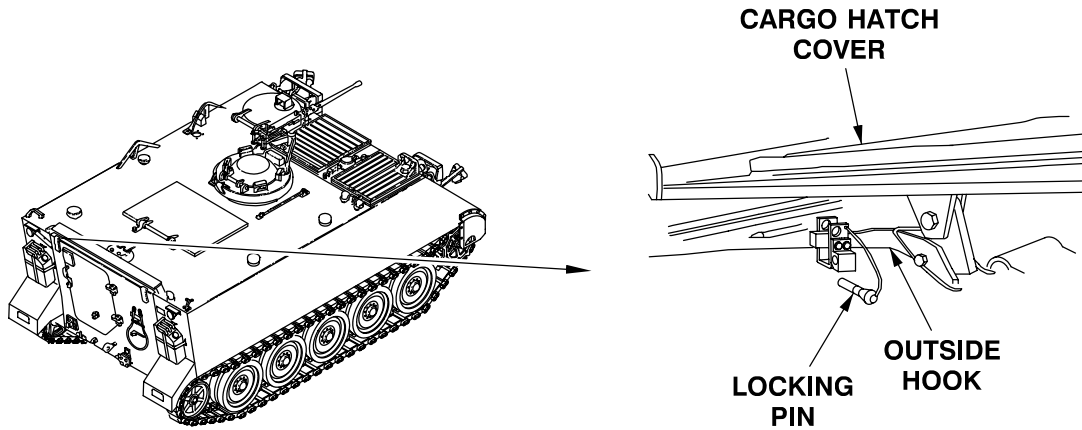


Cargo hatch cover is heavy. It can fall and injure you. When opening or closing cover, keep your head clear of the cover and keep your hands clear of the rim.

1. Pull chain to release cargo hatch cover.



2. Swing hatch cover open until it engages in outside hook.
3. Install locking pin in outside hook to secure hatch cover in fully open position.



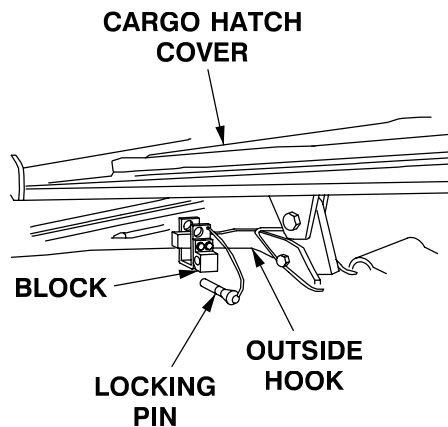
CLOSE CARGO HATCH COVER

WARNING

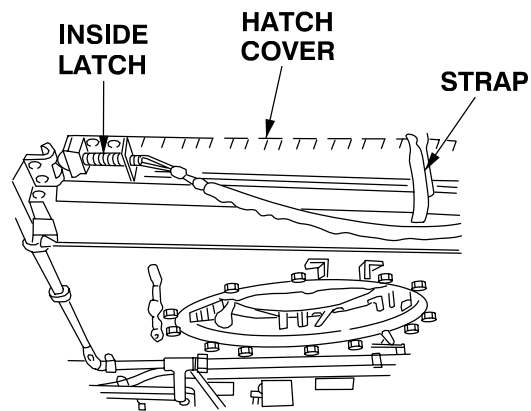


Cargo hatch cover is heavy. It can fall and injure you. When opening or closing cover, keep your head clear of the cover and keep your hands clear of the rim.

1. Remove locking pin from outside hook. Place locking pin in block.
2. Lift outside hook to release hatch cover from fully open position.



3. Swing hatch cover to closed position and pull strap until inside latch engages to secure hatch cover closed.



END OF TASK

OPEN/CLOSE COMMANDER'S HATCH COVER (ALL EXCEPT M577A2 AND M1068)

0010 00

THIS WORK PACKAGE COVERS:

- Open Commander's Hatch Cover (page 0010 00-1).
- Close Commander's Hatch Cover (page 0010 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier stopped

Personnel Required

Soldier

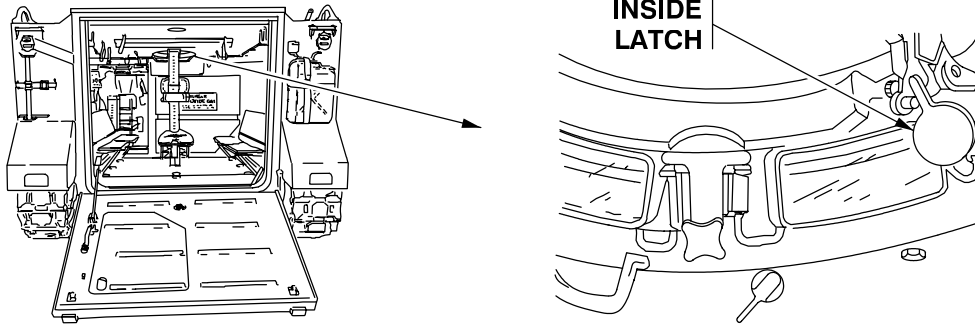
OPEN COMMANDER'S HATCH COVER

WARNING

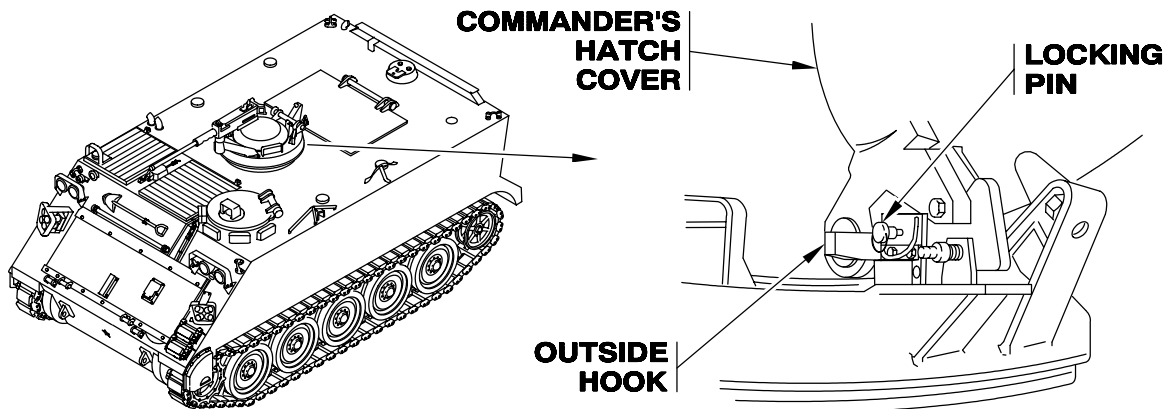


Commander's hatch cover could fall and injure you. Keep hands clear when you open or close commander's hatch cover.

1. Press inside latch to release commander's hatch cover.

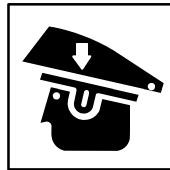


2. Swing hatch cover open until it engages in outside hook.
3. Install locking pin in outside hook to secure hatch cover in fully open position.



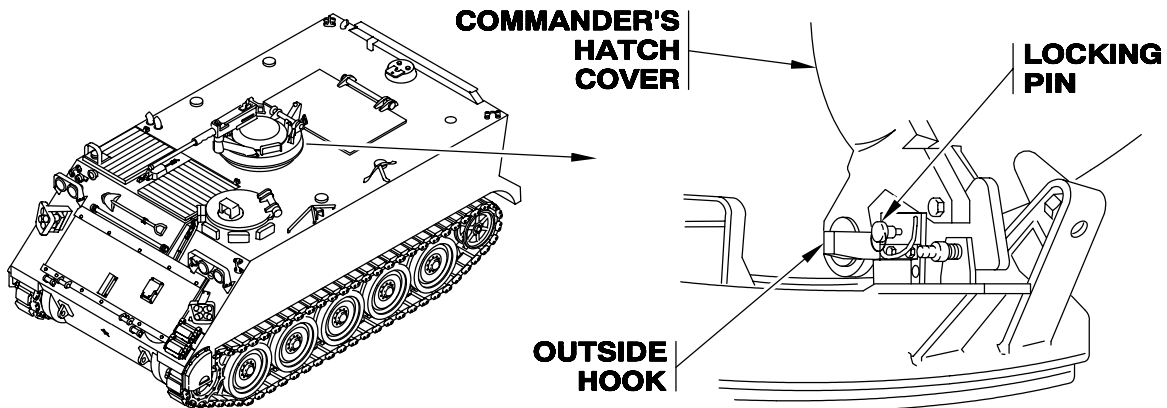
CLOSE COMMANDER'S HATCH COVER

WARNING

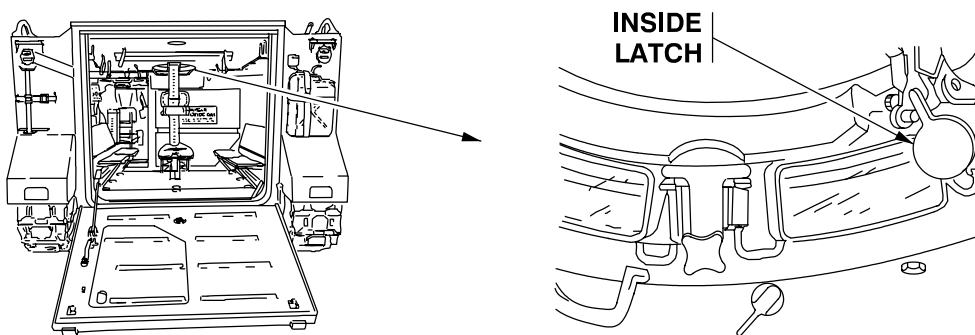


Commander's hatch cover could fall and injure you. Keep hands clear when you open or close commander's hatch cover.

1. Remove locking pin from outside hook.
2. Lift outside hook to release hatch cover from fully open position.



3. Swing hatch cover to closed and secure with inside latch.



END OF TASK

OPEN/CLOSE COMMANDER'S HATCH COVER (M577A2 AND M1068 ONLY)

0011 00

THIS WORK PACKAGE COVERS:

- Open Commander's Hatch Cover (page 0011 00-1).
- Close Commander's Hatch Cover (page 0011 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked

Personnel Required

Driver

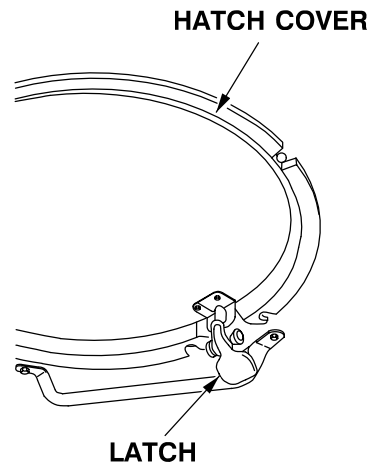
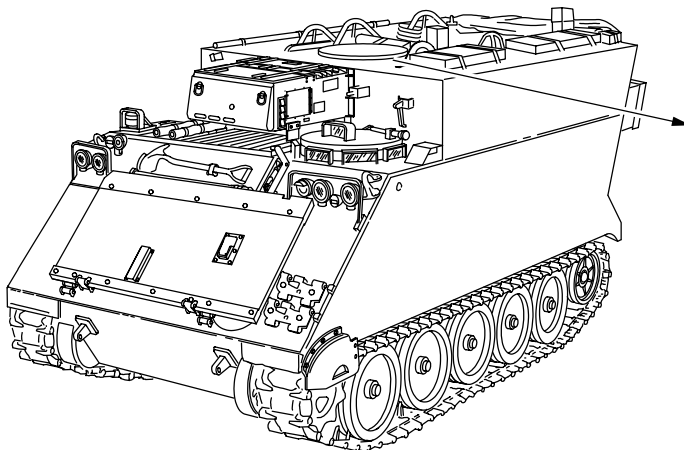
OPEN COMMANDER'S HATCH COVER

WARNING

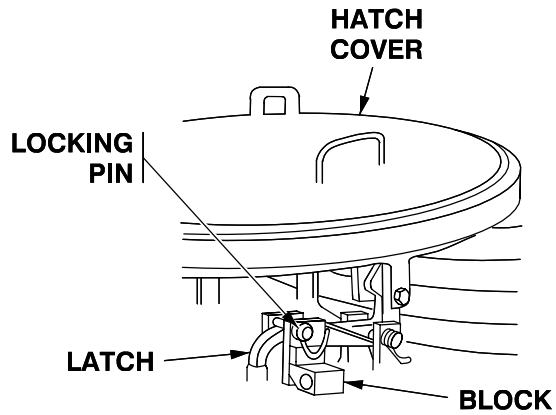


Unsecured hatch cover could move and hit you in the head. When hatch is open, secure latch with locking pin.

1. From inside carrier, press latch to release spring and open hatch cover.



2. Push hatch cover all the way back. Make sure it is secured by hold-open latch.
3. Remove locking pin from block. Secure hatch with locking pin.



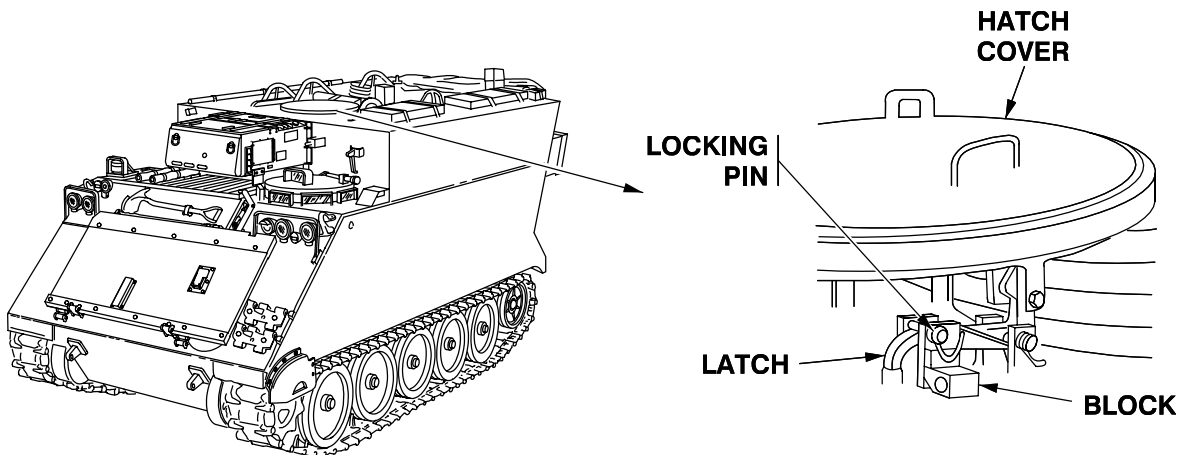
CLOSE COMMANDER'S HATCH COVER

WARNING



Unsecured hatch cover could move and hit you in the head. When hatch is closed, secure hatch with locking pin.

1. Remove latch locking pin and stow in block.
2. Lift latch to release cover and close hatch.



END OF TASK

OPEN/CLOSE MORTAR HATCH COVER (M1064 ONLY)

0012 00

THIS WORK PACKAGE COVERS:

- Open Mortar Hatch Cover (page 0012 00-1).
- Close Mortar Hatch Cover (page 0012 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

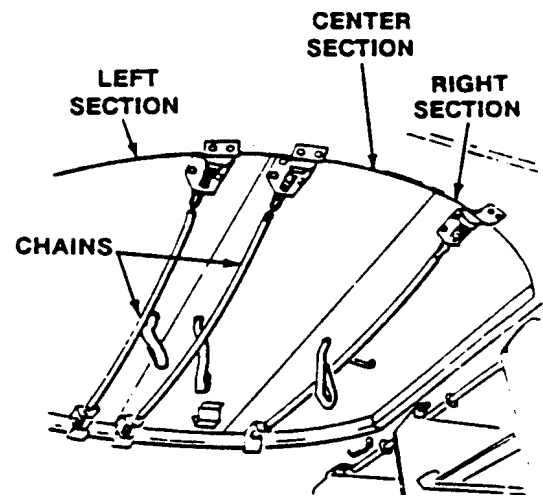
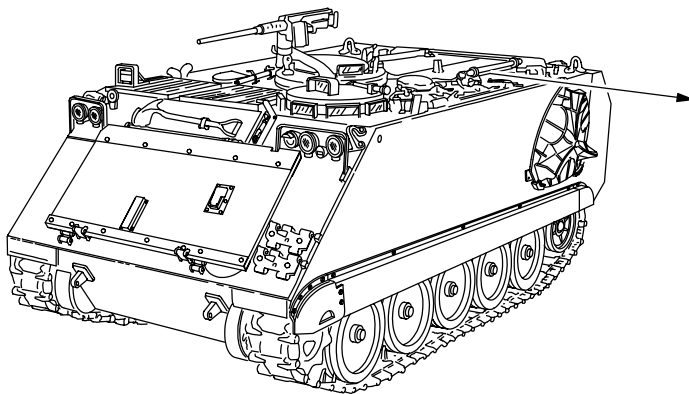
Engine stopped (WP 0029 00)

Personnel Required

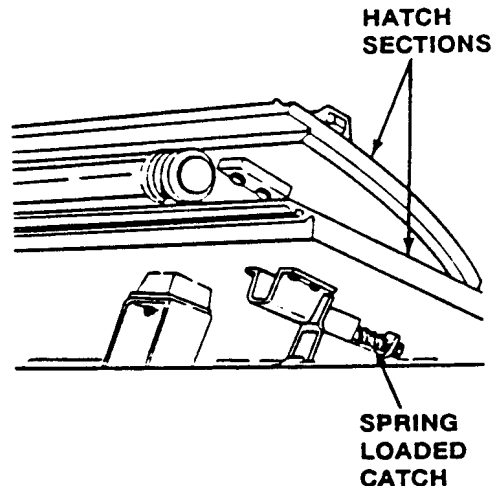
Indirect Fire Infantryman 11C10

OPEN MORTAR HATCH COVER

1. Position commander's cupola sideways so it does not interfere with hatch cover opening.
2. Pull chains to release the inside door catches. Push hatch upward with free hand to open.
3. Fold center section back on the right section until it locks. Then push both sections back on the top deck.
4. Push left section and fold back on the top deck.



5. Make sure the hatch sections are locked in the spring loaded catches on the top deck. One catch secures center section to right section.



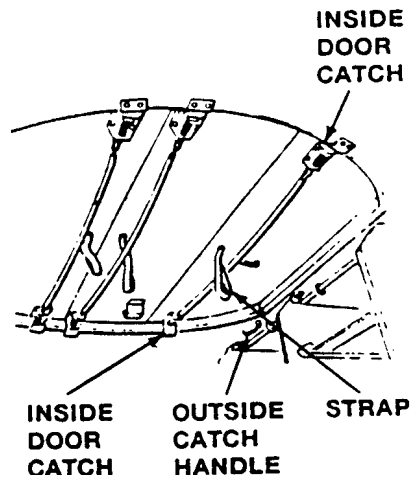
CLOSE MORTAR HATCH COVER

1. Turn outside catch handle to release catch holding right section to top deck.

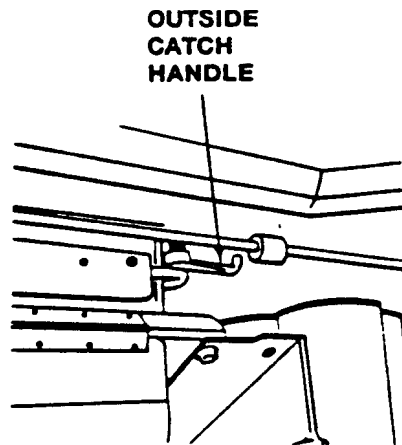
NOTE

Use hatch straps to pull down hatches. Use chains to lock.

2. Pull on strap to close right section of hatch and engage the inside door catches.

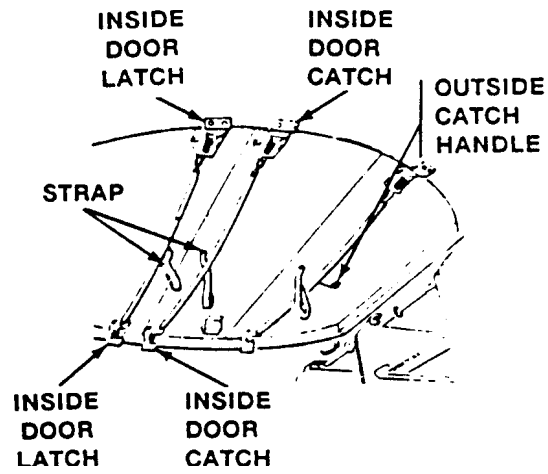


3. Turn outside catch handle to release catch holding left section to top deck.



4. Pull on strap to close left section and engage inside door latches.
5. Turn outside catch handle to release catch holding center section of hatch to right section.

6. Pull strap to close center section and engage inside door catches.



END OF TASK

OPERATE COMMANDER'S CUPOLA

0013 00

THIS WORK PACKAGE COVERS:

Operate (page 0013 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

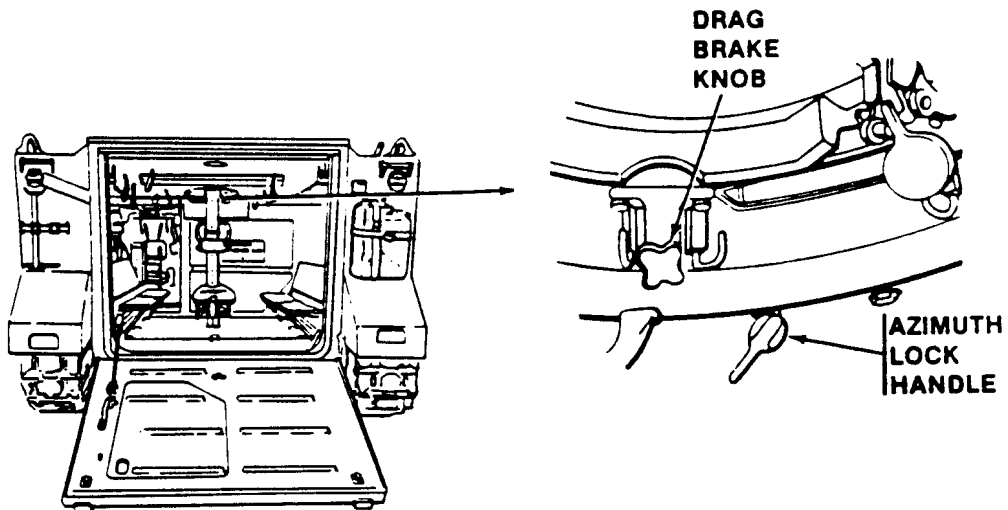
Commander's hatch open (WP 0010 00)

Personnel Required

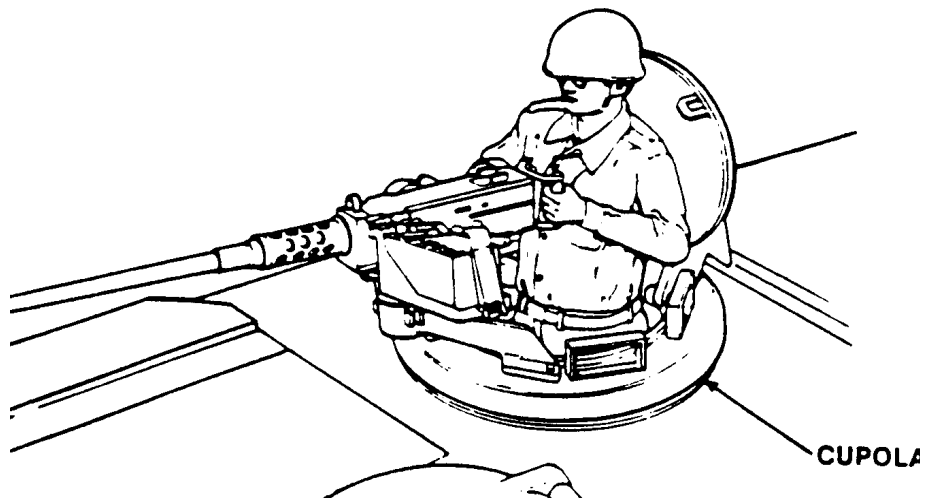
Commander

OPERATE

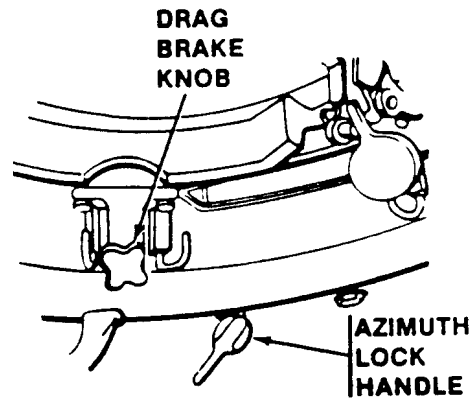
1. Turn azimuth lock handle straight down to allow cupola to rotate.



2. Rotate cupola to aim machine gun.



3. Turn drag brake knob to the right to slow cupola movement.
4. Turn azimuth lock handle to lock position to lock cupola at desired position.



END OF TASK

OPEN/CLOSE POWER PLANT ACCESS DOOR

0014 00

THIS WORK PACKAGE COVERS:

- Open Power Plant Access Door (page 0014 00-1).
 - Close Power Plant Access Door (page 0014 00-2).
-

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Soldier

References

WP 0047 00

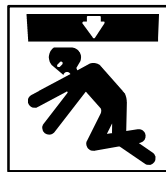
Equipment Condition

Engine stopped (WP 0029 00)

Trim vane lowered (WP 0047 00)

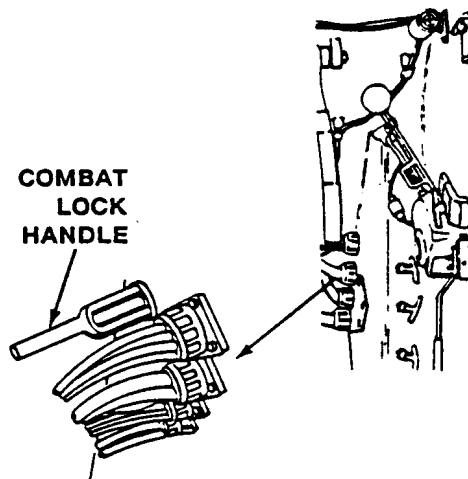
OPEN POWER PLANT ACCESS DOOR

WARNING

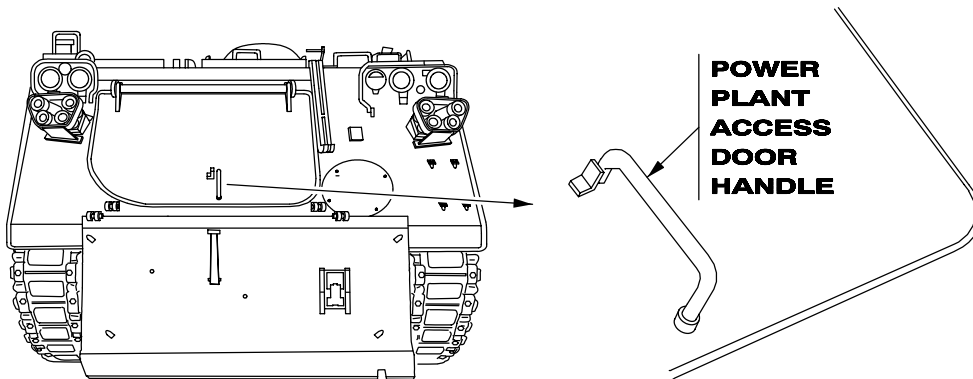


Power plant access door could fall and injure you. Install door brace before you work under door.

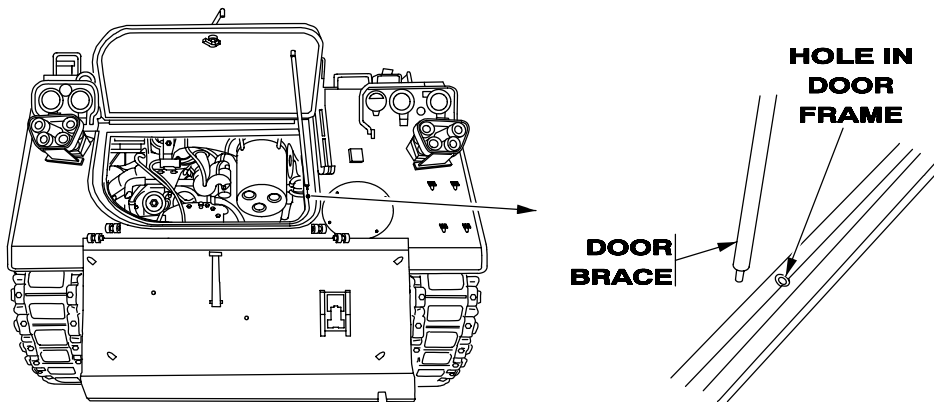
1. Release combat lock handle to unlock power plant access door.



- Turn handle to the right, and raise power plant access door.

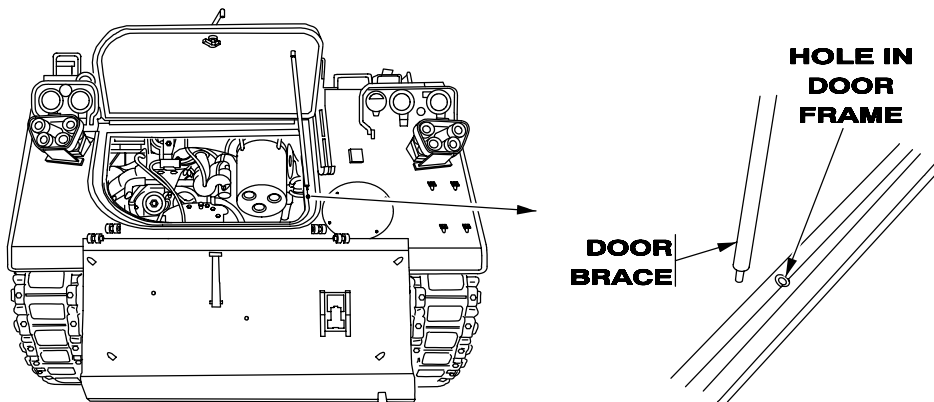


- Place end of door brace in hole in door frame to secure power plant access door open.

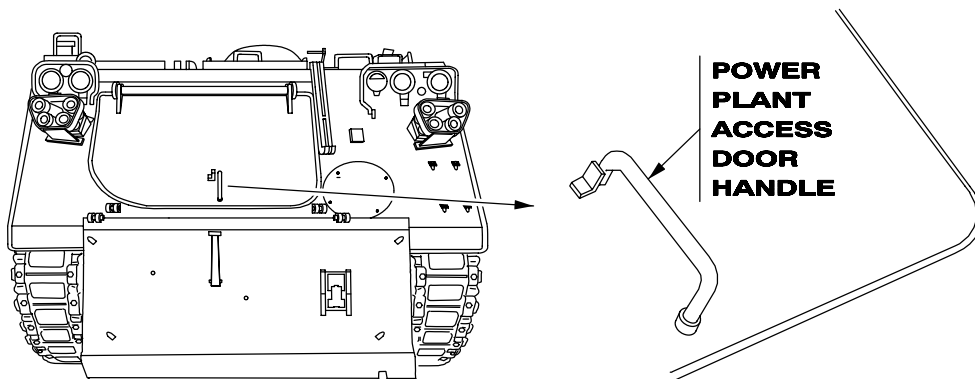


CLOSE POWER PLANT ACCESS DOOR

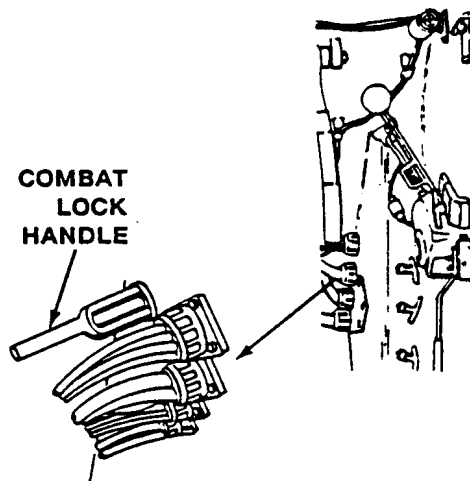
- Raise power plant access door to remove brace from hole in door frame. Stow brace in clip on door.



- Lower power plant access door to closed position and secure with handle.



- Rotate combat lock handle to lock power plant access door.



- Stow trim vane (WP 0047 00).

END OF TASK

LOWER/RAISE RAMP

0015 00

THIS WORK PACKAGE COVERS:

Lower Ramp (page 0015 00-1).
 Raise Ramp (page 0015 00-2).

INITIAL SETUP:

Maintenance Level
 Operator

Personnel Required
 Driver

Equipment Condition
 Carrier parked
 Engine started (WP 0026 00)
 Ramp access door closed (WP 0005 00)

LOWER RAMP

WARNING



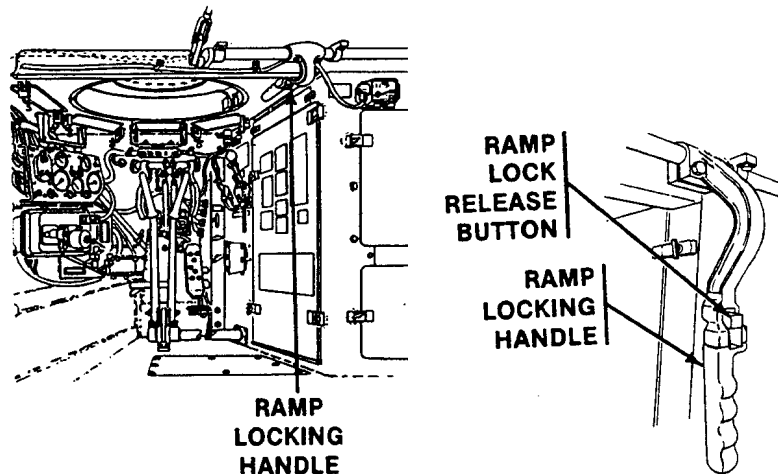
Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp.

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Check that ramp cable is connected with no slack. Ramp system and hull can get damaged if ramp unlocks when carrier is in operation. Do not operate carrier if locks do not secure ramp properly. Keep away from ramps that have come open during carrier operation.

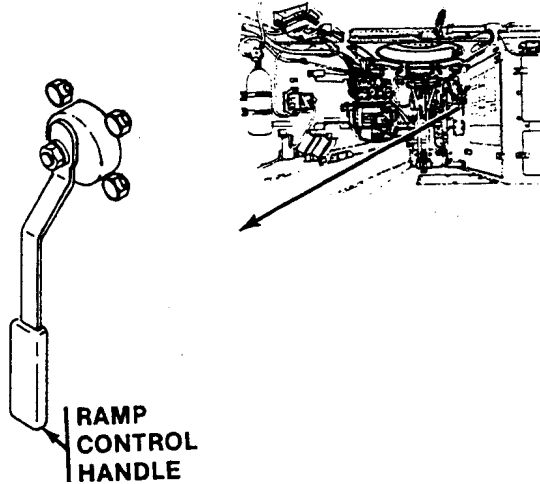
NOTE

Ramp may be lowered with the engine started or with the engine stopped. Engine must be started to raise ramp. Sound horn before lowering ramp if tactical situation permits.

1. Push ramp lock release button and move ramp locking handle to the rear as far as it will go.



2. Push ramp control handle forward to lower ramp. The farther you push, the faster the ramp will drop.
3. Release ramp control handle to stop ramp.

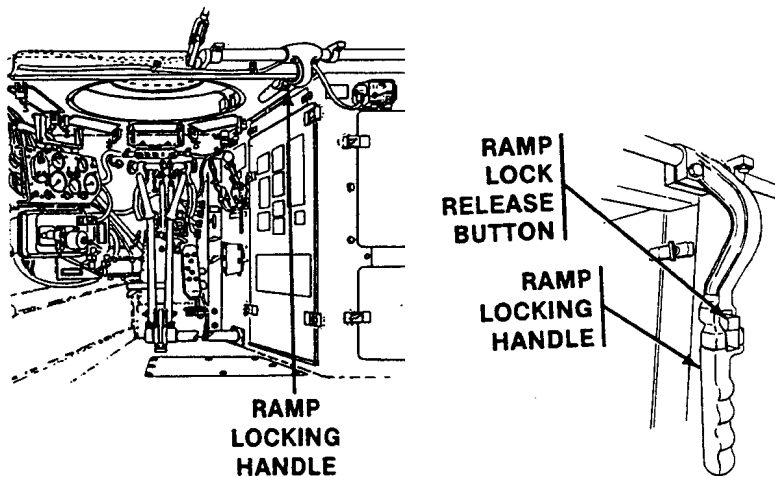


RAISE RAMP

NOTE

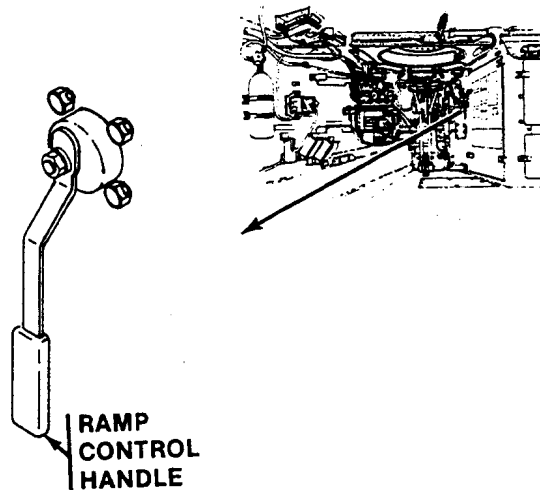
Horn should be sounded before raising ramp if tactical situation permits.

1. Move ramp locking handle to the rear as far as it will go.

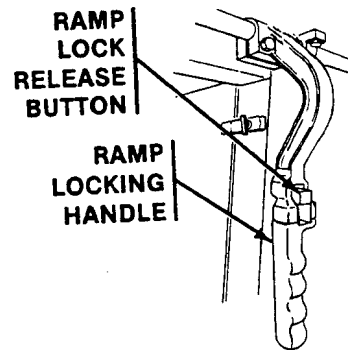


2. Increase engine speed to 1200 RPM.

3. Pull ramp control handle to the rear and hold it until ramp is closed.



4. Push ramp locking handle forward until it locks in place.



END OF TASK

ADJUST DRIVER'S SEAT

0016 00

THIS WORK PACKAGE COVERS:

Raise or Lower Driver's Seat (page 0016 00-1).
Move Driver's Seat to Front or Rear (page 0016 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier stopped

Personnel Required

Driver

RAISE OR LOWER DRIVER'S SEAT

WARNING



Seat can spring up and hit you when vertical control handle is released. Make sure you are sitting in the seat before releasing vertical control handle.



Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed and safety pins installed.

NOTE

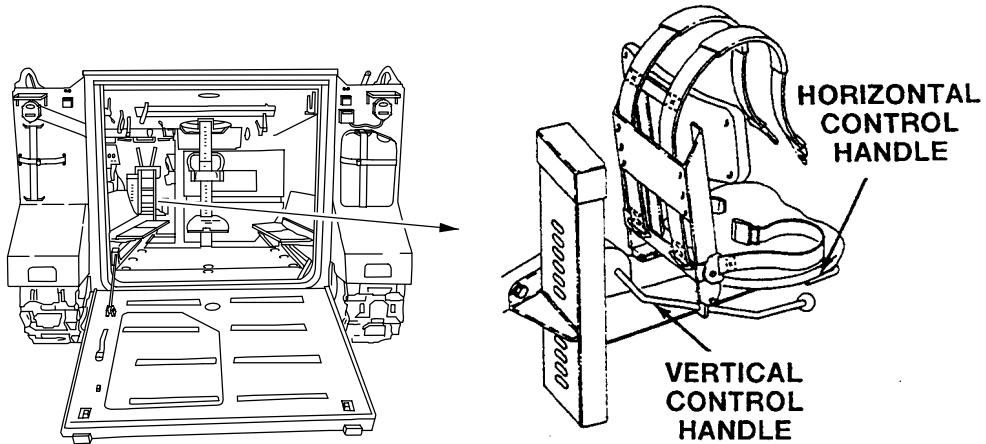
When adjusting seat to the up position, make sure the hatch has the securing pin in place.

1. Sit in driver's seat.

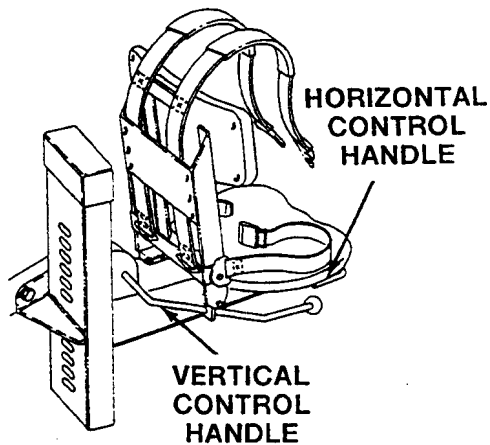
ADJUST DRIVER'S SEAT — Continued

0016 00

2. Pull up vertical control handle and let your weight control the up and down movement of the seat.
3. When positioned, release vertical control handle to lock seat in place.

**MOVE DRIVER'S SEAT TO FRONT OR REAR**

1. Pull up horizontal control handle and move driver's seat to front or rear.
2. When positioned, release horizontal control handle to lock seat in place.

**END OF TASK**

ADJUST COMMANDER'S SEAT AND LAP SEAT BELT

0017 00

THIS WORK PACKAGE COVERS:

Adjust (page 0017 00-1).

INITIAL SETUP:Maintenance Level

Operator

Equipment Condition

Carrier stopped

Personnel RequiredSoldier

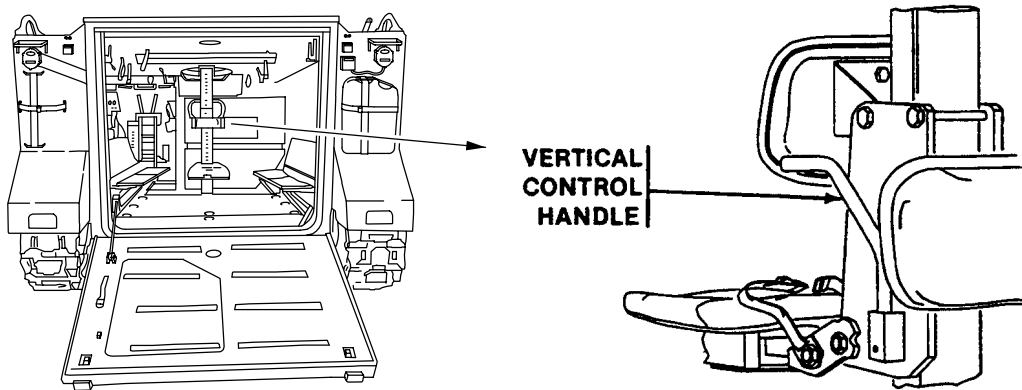
ADJUST

WARNING

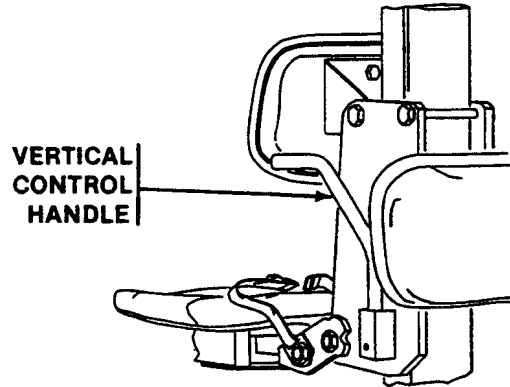


Seat can spring up and hit you when vertical control handle is released. Make sure you are sitting in the seat before releasing vertical control handle.

1. Sit in the seat.
2. Adjust lap seat belt so that belt buckle is centered over your lap and fasten belt together.



3. To go up or down, push in vertical control handle and let your weight control the up or down movement.
4. When positioned, release vertical control handle to lock commander's seat in place.



END OF TASK

ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS

0018 00

THIS WORK PACKAGE COVERS:

Adjust (page 0018 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier stopped

Personnel Required

Driver

ADJUST

WARNING

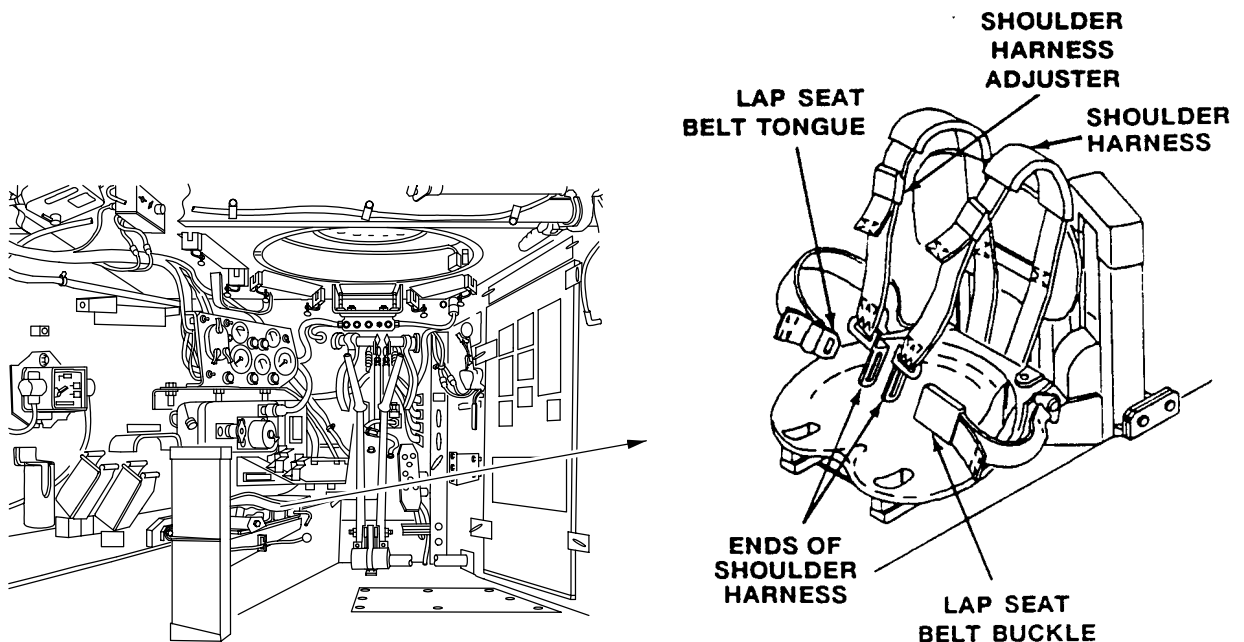


Sudden carrier movement can throw you out of seat. Wear seat belt while carrier is in motion. Do not use any seat with missing or inoperative seat belt.

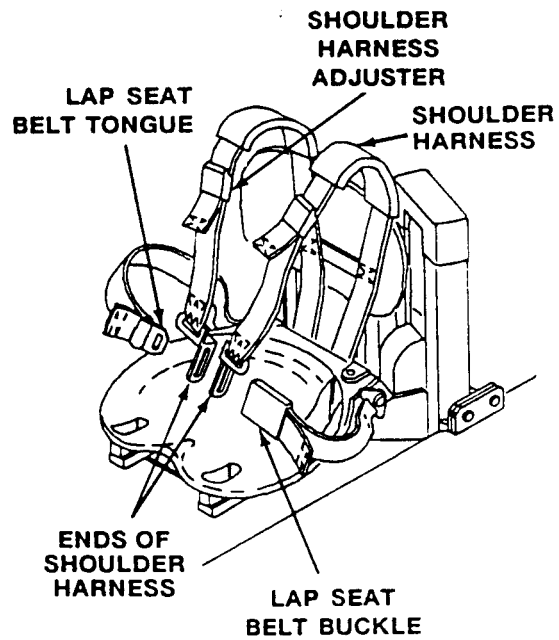
NOTE

If seat is not equipped with a shoulder harness, do Steps 1 - 2, and Step 5 only.

1. Sit in driver's seat.
2. Adjust lap seat belt so that lap seat belt buckle is centered over your lap.
3. Position shoulder harness over your shoulders.



4. Slide ends of shoulder harness over lap seat belt tongue.
5. Fasten lap seat belt.
6. Adjust shoulder harness using shoulder harness adjusters, as needed.



END OF TASK

STOW/UNSTOW COMMANDER'S SEAT

0019 00

THIS WORK PACKAGE COVERS:

- Stow Commander's Seat (page 0019 00-1).
- Unstow Commander's Seat (page 0019 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

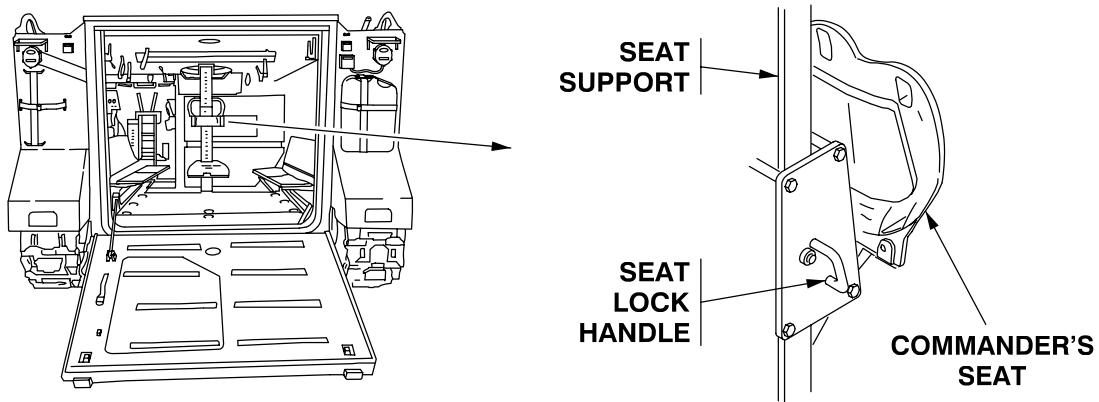
Carrier stopped

Personnel Required

Soldier

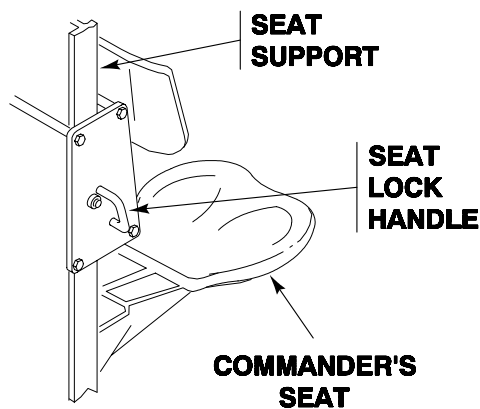
STOW COMMANDER'S SEAT

1. Lift commander's seat toward seat support until it locks in stowed position.



UNSTOW COMMANDER'S SEAT

1. Pull seat lock handle forward to release commandeer's seat from stowed position. Lower seat until it locks in down position.



END OF TASK

STOW/UNSTOW JUMP SEAT

0020 00

THIS WORK PACKAGE COVERS:

- Stow Jump Seat (page 0020 00-1).
- Unstow Jump Seat (page 0020 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

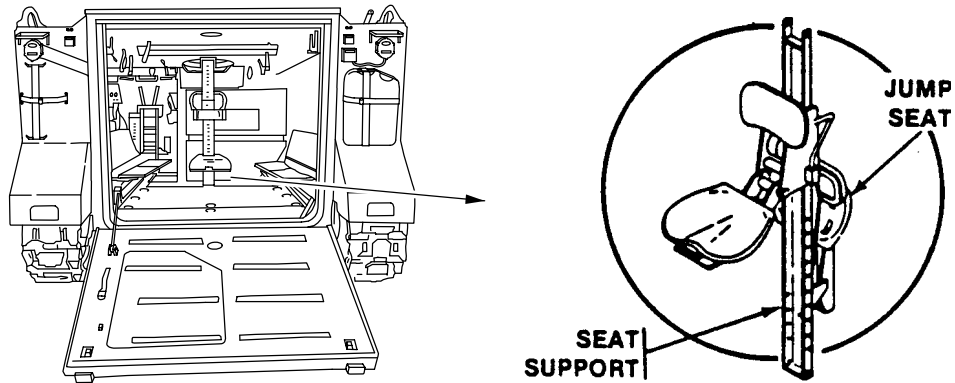
Carrier stopped

Personnel Required

Soldier

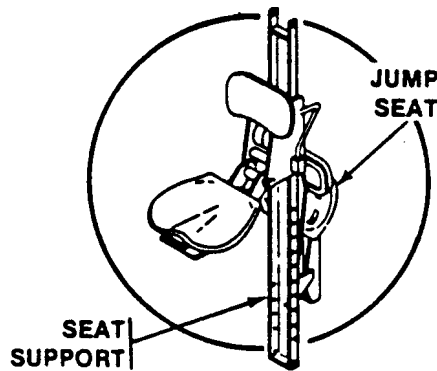
STOW JUMP SEAT

1. Pull jump seat up towards seat support until it locks in stowed position.



UNSTOW JUMP SEAT

1. Pull jump seat up and to the rear to release seat from stowed position. Lower seat to down position.



END OF TASK

UNSTOW/STOW MAP TABLE AND BOARD (M577A2 AND M1068 ONLY)

0021 00

THIS WORK PACKAGE COVERS:

Unstow (page 0021 00-1).
 Stow (page 0021 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier stopped

Personnel Required

Crew

UNSTOW

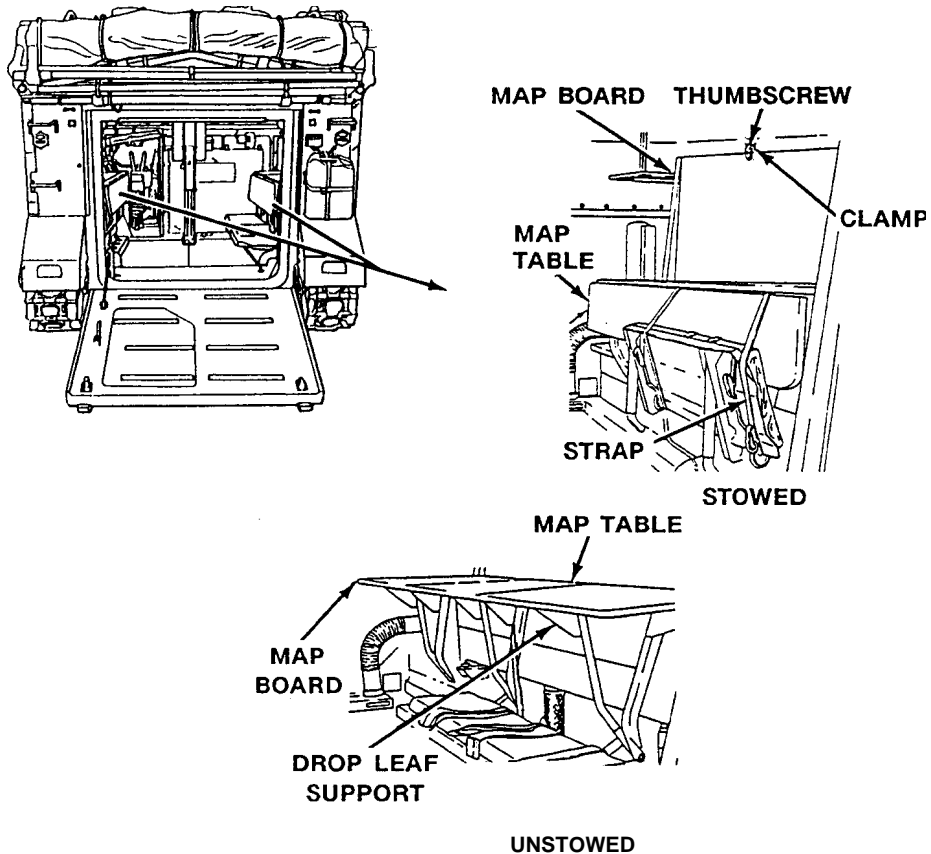
NOTE

Do Steps 1 - 2 to unstow map table (M577A2 only).

Do Step 3 to unstow map board (M577A2 only).

Map board can be removed and used in tent. Chains on back make it easy to hang.

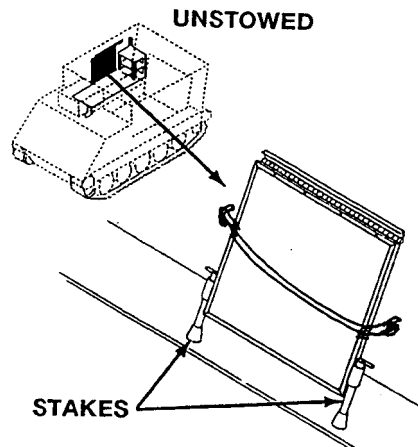
1. Remove straps securing personnel seat to map table.
2. Open drop leaf supports on map table. Lock table in position directly below map board on right wall.
3. Loosen thumbscrews, release clamps, and lower map board.



NOTE

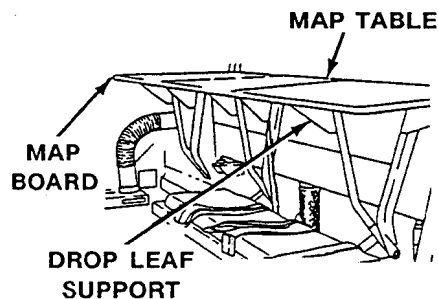
Do Steps 4 - 6 to unstow map board (M1068 only).

4. Remove strap securing map board.
5. Raise two stakes and swing bottom end of map board out.
6. Slide two stakes down until they secure map board in desired position.

**STOW****NOTE**

Do Steps 1 - 2 to stow map table (M577A2 only).

1. Close drop leaf supports on map table.



UNSTOWED

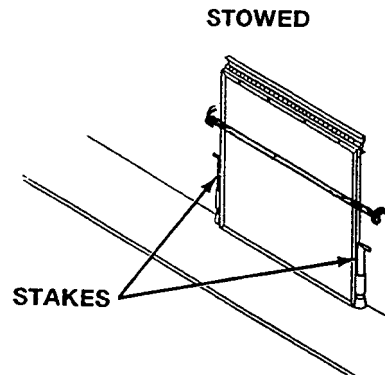
2. Install straps to secure personnel seat to map table.

NOTE

Do Steps 3 - 5 to stow map board (M1068 only).

3. Pull bottom end of map board up and slide two stakes up.
4. Swing map board against hull and slide two stakes down to secure in stowed position.

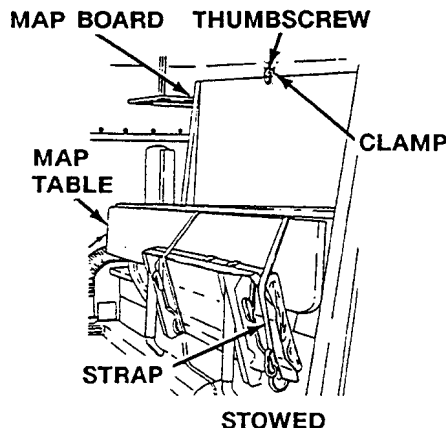
5. Install strap to secure map board to stowed position.



NOTE

Do Steps 6 - 7 to stow map board (M577A2 only).

6. Raise map board to stowed position.



7. Tighten thumbscrews on clamps to secure map board.

END OF TASK

ADJUST COMMANDER'S PLATFORM

0022 00**THIS WORK PACKAGE COVERS:**

Adjust Commander's Platform (page 0022 00-1).

INITIAL SETUP:Maintenance Level

Operator

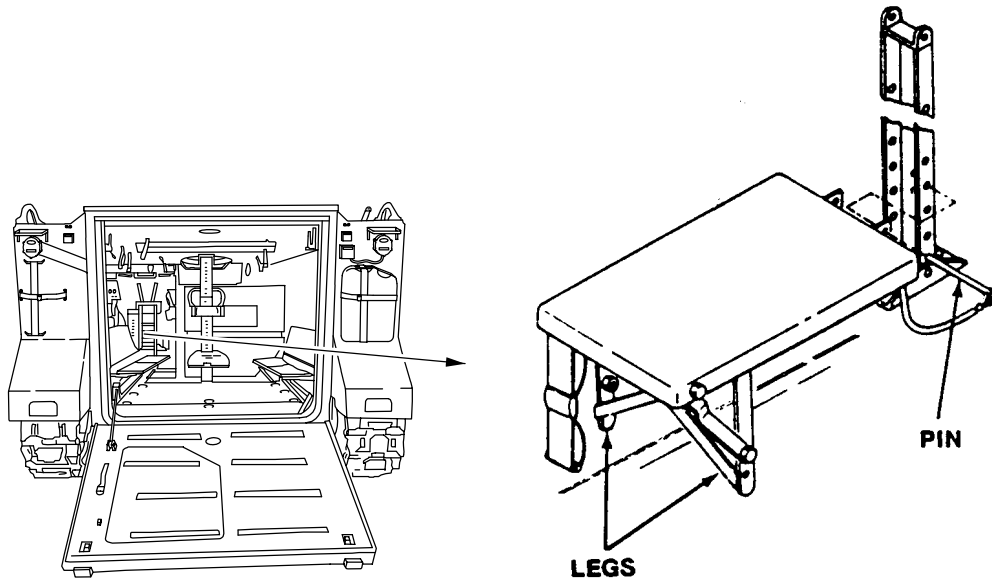
Equipment Condition

Carrier stopped

Personnel RequiredSoldier

ADJUST COMMANDER'S PLATFORM

1. Remove pin.



2. Move platform either up or down to desired height.
3. Adjust legs.
4. Install pin.

END OF TASK

OPERATE COMMANDER'S PLATFORM (M577A2 AND M1068)

0023 00

THIS WORK PACKAGE COVERS:

- Adjust Platform (page 0023 00-1).
- Stow Platform (page 0023 00-2).
- Lower Platform (page 0023 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

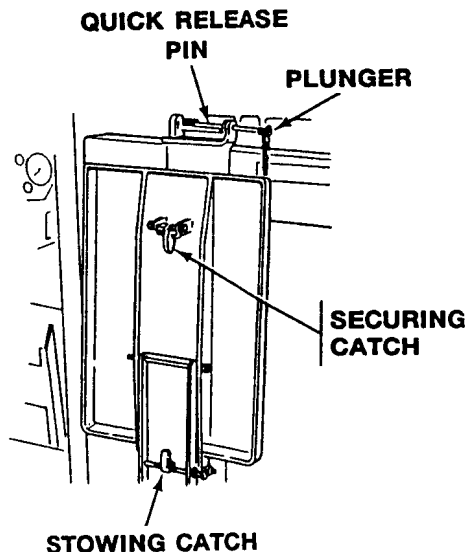
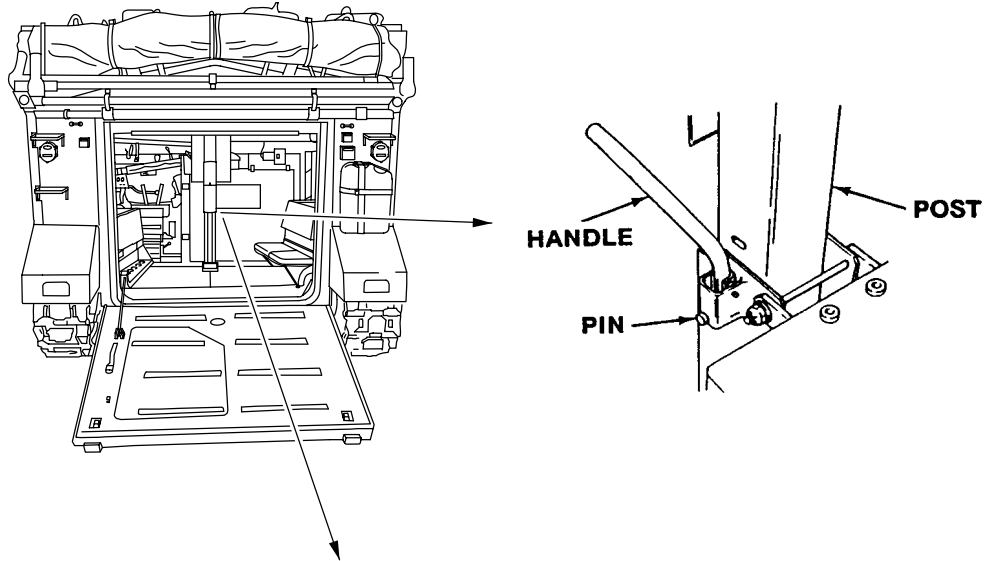
Engine stopped (WP 0029 00)

Personnel Required

Soldier

ADJUST PLATFORM

1. Move handle toward post to disengage pin from hole in post. Release handle when platform is at desired height. The securing catch will hold platform in position.

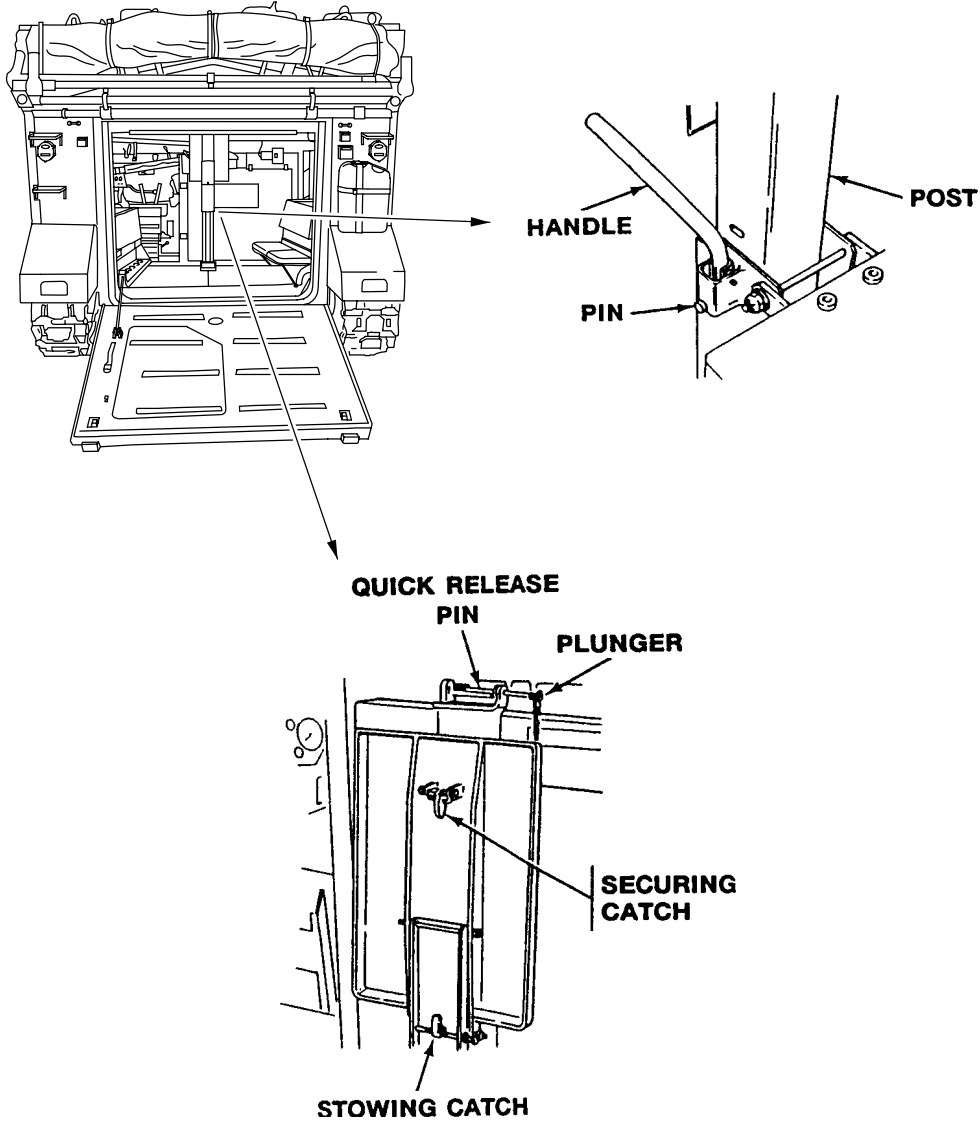


STOW PLATFORM

1. Fold platform against post. The stowing catch will secure platform against post.

LOWER PLATFORM

1. Depress plunger in pin and remove pin. Lower platform to floor.



END OF TASK

CONNECT CVC HELMET TO INTERCOM CONTROL BOX

0024 00

THIS WORK PACKAGE COVERS:

Connect CVC Helmet to Intercom Control Box (page 0024 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

TM 11-5820-498-12

Personnel Required

Driver

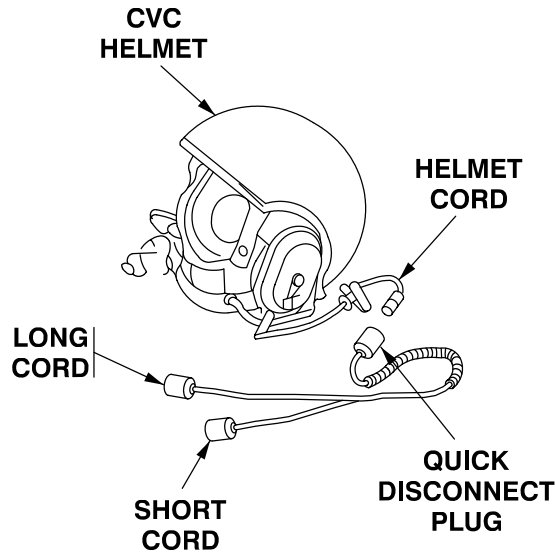
Commander

CONNECT CVC HELMET TO INTERCOM CONTROL BOX

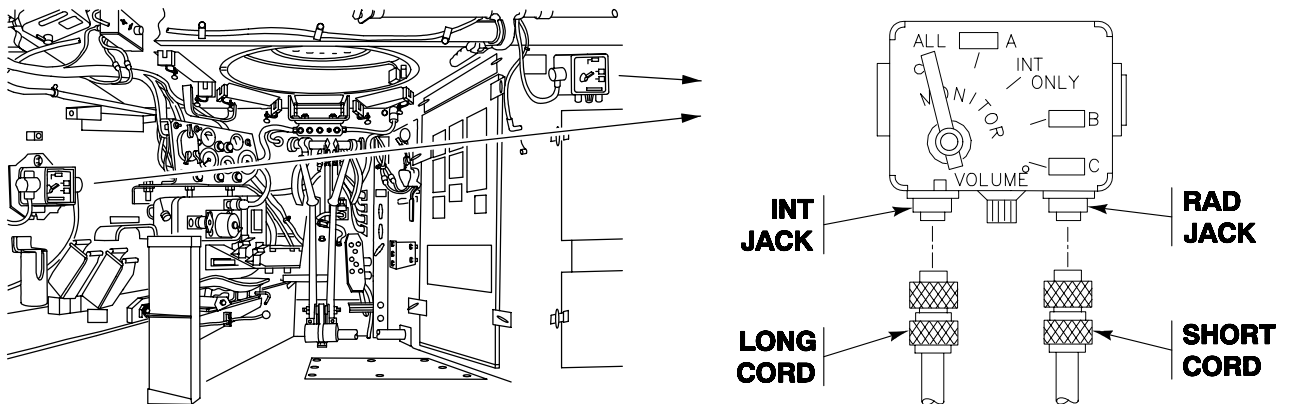
NOTE

Procedure is the same at both driver's and commander's station.

1. Connect helmet cord to quick disconnect plug. See TM 11-5820-498-12.



2. Connect long cord to INT jack on intercom control box.
3. Connect short cord to RAD jack on intercom control box.



END OF TASK

REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A2 AND M1068 ONLY)

0025 00

THIS WORK PACKAGE COVERS:

Removal (page 0025 00-1).
 Installation (page 0025 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier stopped

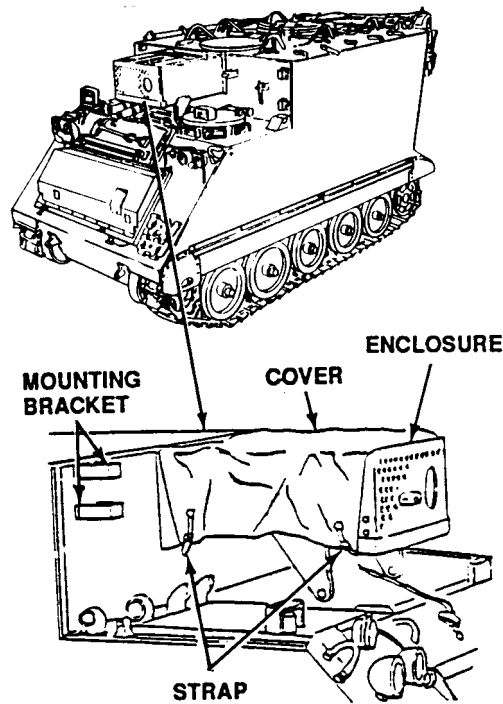
Personnel Required

Driver

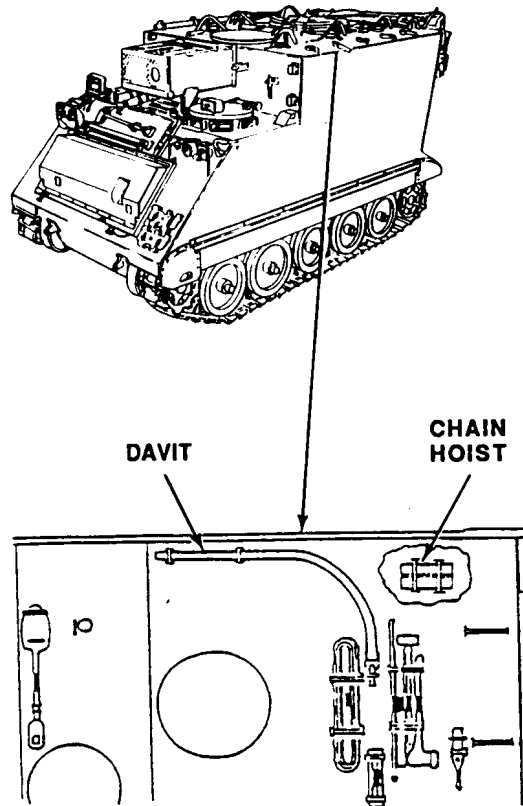
Crew

REMOVAL

1. Remove waterproof cover if generator set is to be removed from enclosure.
2. Loosen thumbscrews and clamps securing generator set to enclosure. Turn clamps 90 degrees.



3. Remove davit and chain hoist from stowed position on top deck.



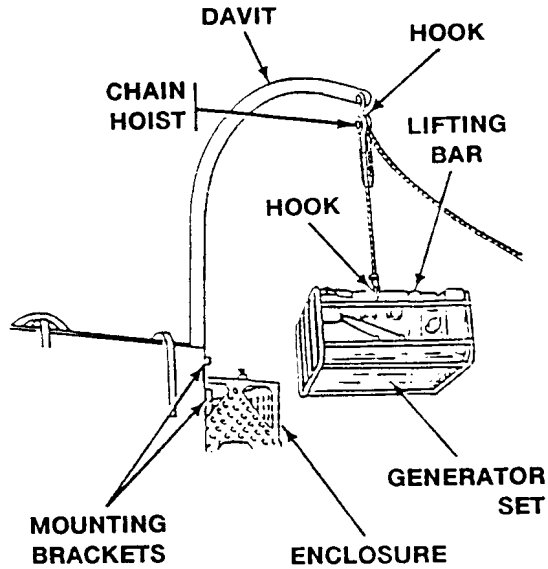
4. Position davit in mounting brackets. Attach chain hoist hooks to davit and lifting bar on generator set.

WARNING

Hanging loads could kill or injure you. Keep away from hanging loads and overhead equipment.

5. Hoist generator set enough to clear enclosure. Swing generator set clear of carrier and lower it to the ground.

6. Stow davit on top deck. Stow chain hoist in bag inside carrier, right side sponson.

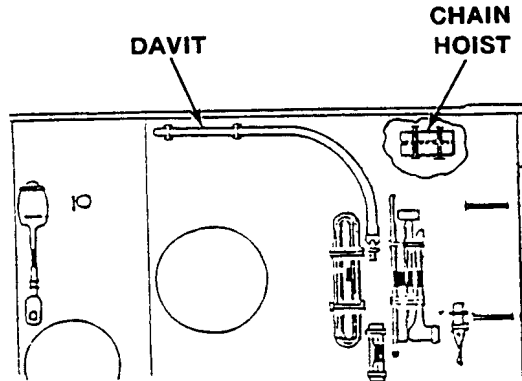


INSTALLATION

CAUTION

Use only 83 octane gasoline in M577A2 and M1068 generator sets.

1. Remove davit from stowed position on top deck of carrier and chain hoist from bag.

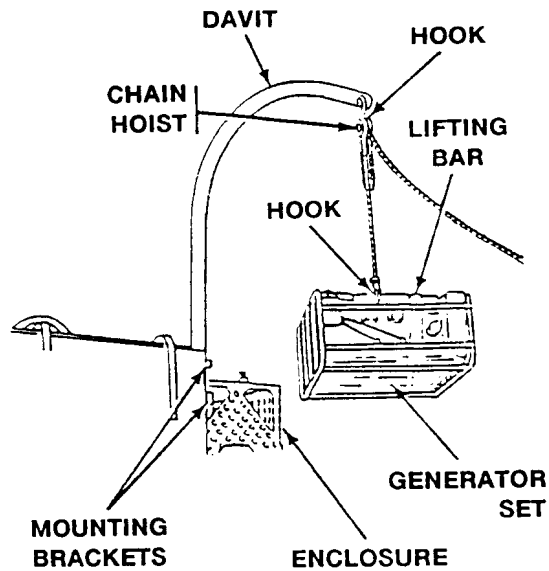


2. Position davit in mounting brackets. Attach chain hoist hooks to davit and lifting bar on generator set.

WARNING

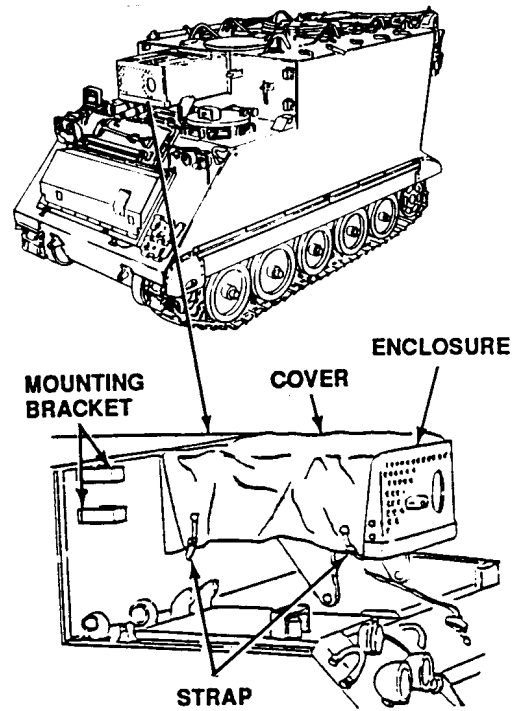
Hanging loads could kill or injure you. Keep away from hanging loads and overhead equipment.

3. Hoist generator set enough to clear enclosure. Swing generator set over enclosure and lower slowly into enclosure.

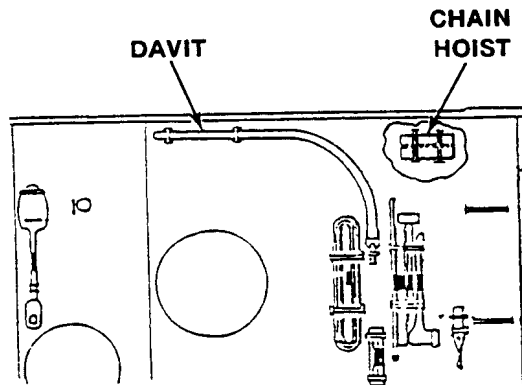


4. Tighten thumbscrews and clamps securing generator set to enclosure. Turn clamps 90 degrees.

5. Install waterproof cover on generator set.



6. Stow davit on top deck. Stow chain hoist in bag inside carrier, right side sponson.



END OF TASK

START ENGINE

0026 00

THIS WORK PACKAGE COVERS:

- Prepare to Start Engine (page 0026 00-1).
- Start Engine (above +40°F (+4°C)) (page 0026 00-4).
- Start Engine (-25° to +40°F (-32° to +4°C)) (page 0026 00-6).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

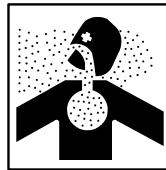
- TM 11-5820-498-12
- WP 0016 00
- WP 0018 00
- WP 0024 00
- WP 0028 00
- WP 0048 00
- WP 0049 00
- WP 0075 00
- WP 0088 00

Equipment Condition

Engine stopped (WP 0029 00)

PREPARE TO START ENGINE

WARNING



Engine exhaust gas is deadly poison. Make sure power plant access panels are closed tight before you start engine.

CAUTION

Do not start vehicle if batteries are frozen.

1. Check that power plant compartment access panels are closed tight (WP 0048 00) and (WP 0049 00).

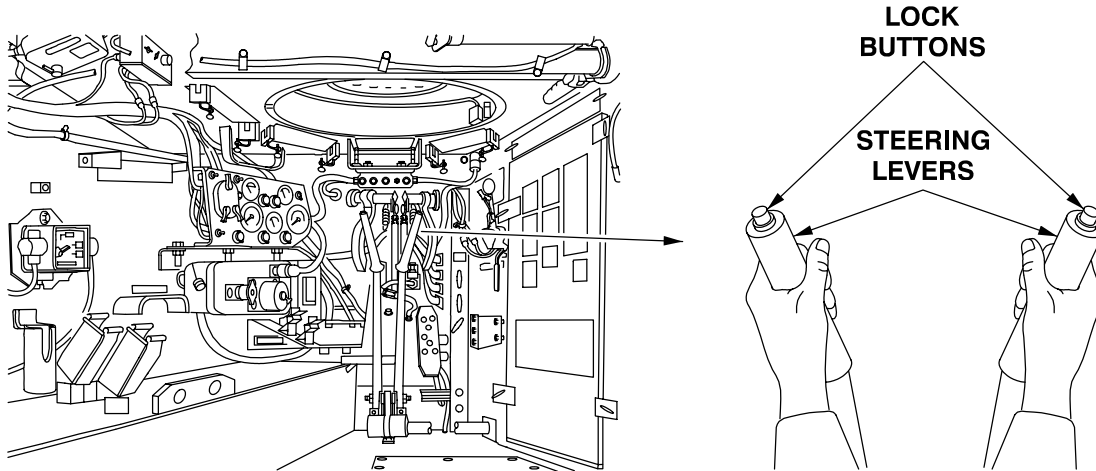
WARNING



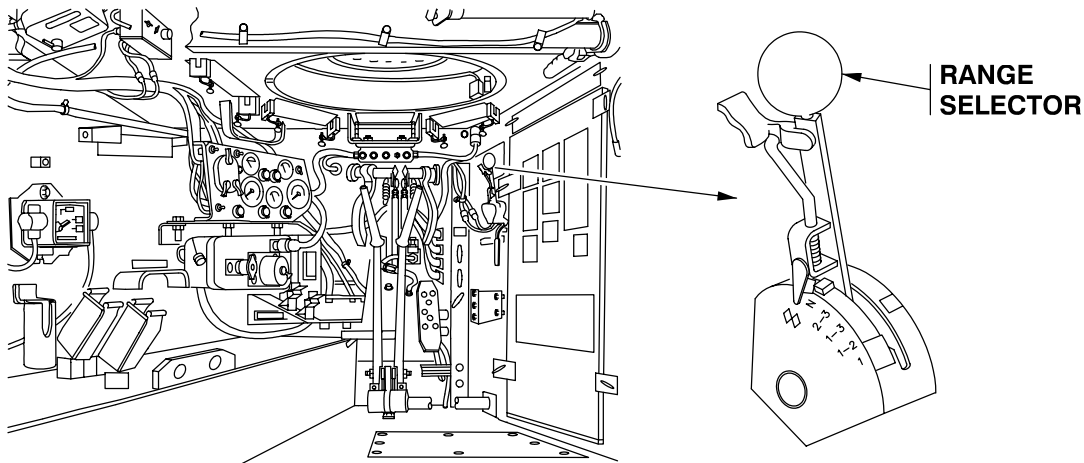
Sudden carrier movement can throw you out of seat. Wear seat belt while carrier is in motion. Do not use any seat with missing or inoperative seat belt.

2. Fasten driver's lap seat belt and shoulder harness (WP 0018 00).

3. Adjust driver's seat (WP 0016 00).
4. Lock steering levers. Pull back on both levers and press lock buttons down.



5. Shift range selector to N range.



WARNING



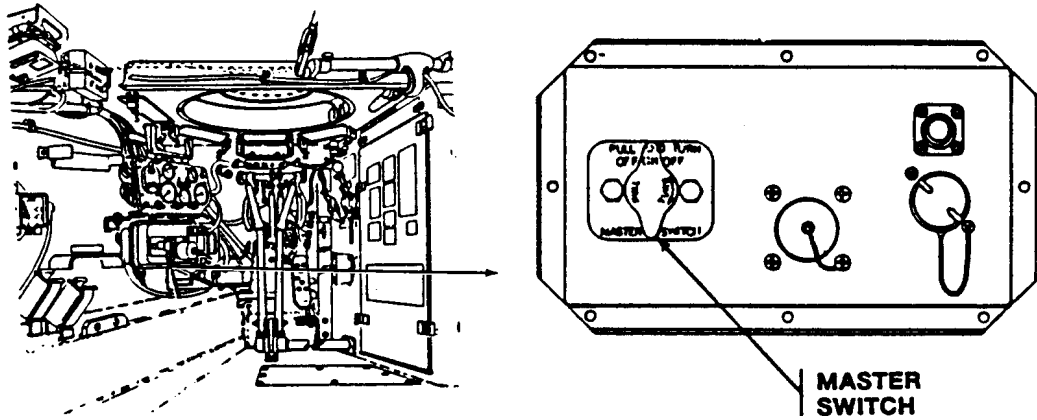
Noise levels in carrier could damage hearing. Wear ear protection. Read warning in front of this manual.

CAUTION

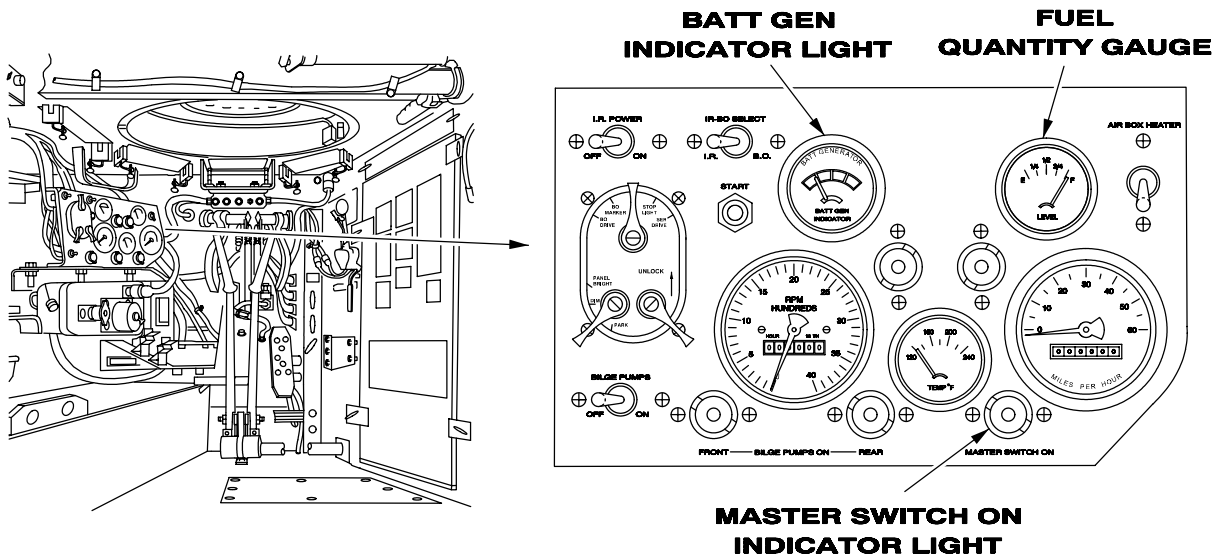
During engine start, damage to radio components can occur. Make sure that radio power switch is OFF before starting engine. See TM 11-5820-498-12.

6. Put on CVC helmet and connect to intercom control box (WP 0024 00).

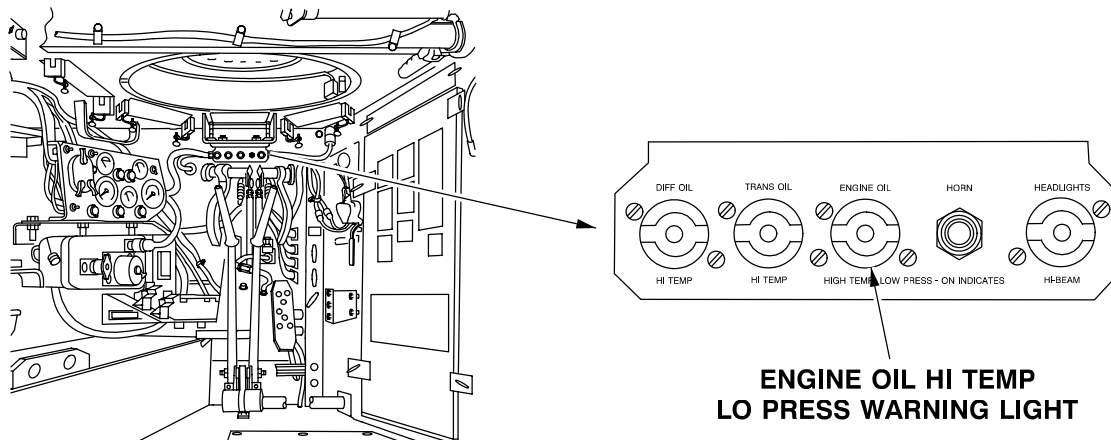
- Turn MASTER SWITCH to ON.



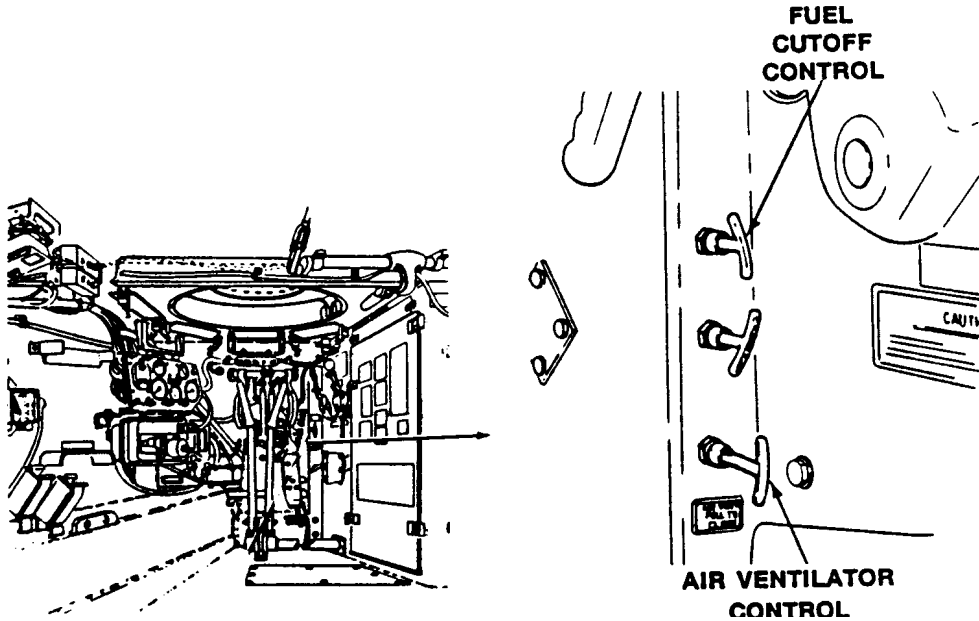
- Check that MASTER SWITCH ON indicator light is on.
- Check that BATT GEN indicator points to yellow or green zone.
- Check that FUEL QUANTITY gauge indicates amount of fuel in fuel tanks.



- Check that ENGINE OIL HI TEMP LO PRESS warning light is on.



12. Push fuel cutoff control in.
13. Pull air ventilator control out.



NOTE

Go to page 0026 00-4, Step 1 for procedure to start engine when air temperature is above +40°F (+4°C).

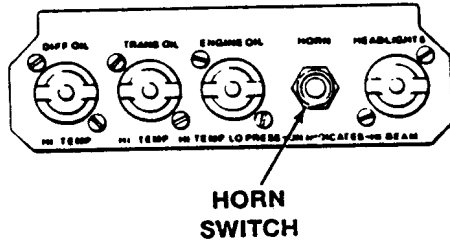
Go to page 0026 00-6, Step 1 for procedure to start engine when air temperature is -25° to +40°F (-32° to +4°C).

START ENGINE (ABOVE +40°F (+4°C))

NOTE

If tactical situation permits, horn should be sounded to warn personnel that engine is about to be started.

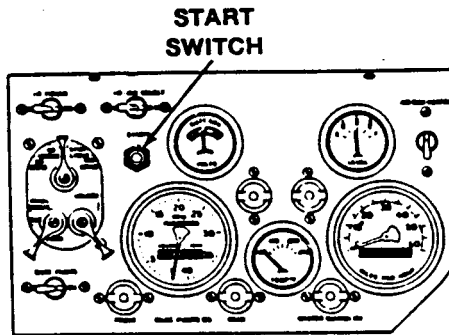
1. Press HORN switch.



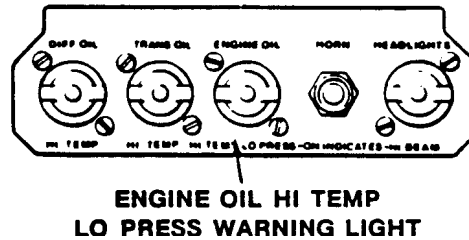
CAUTION

Pressing START switch for more than 15 seconds at temperatures above +40°F can damage starter. Do not press START switch for more than 15 seconds at a time. If engine does not start on first try, wait at least 30 seconds and try again.

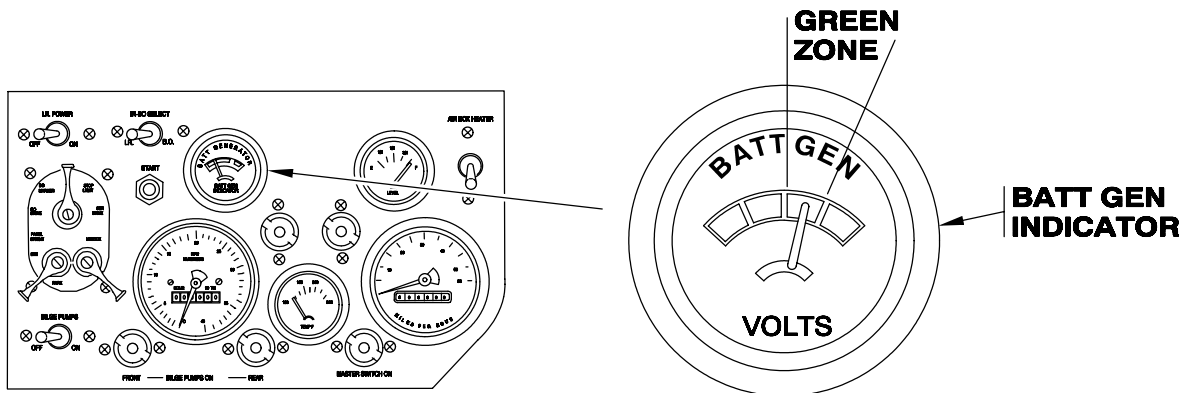
- Press START switch and hold until engine starts, but no longer than 15 seconds.



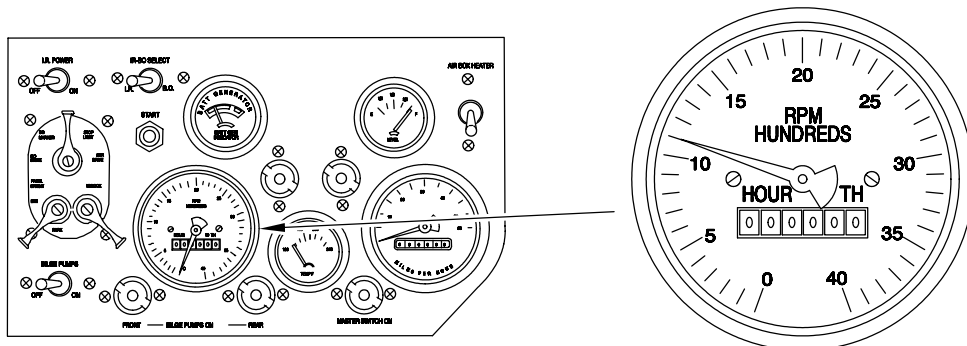
- If engine does not start on first try, wait 30 seconds and try again. If engine does not start after three tries, notify unit maintenance.
- Check that ENGINE OIL HI TEMP LO PRESS warning light goes off within 10 seconds after engine starts.



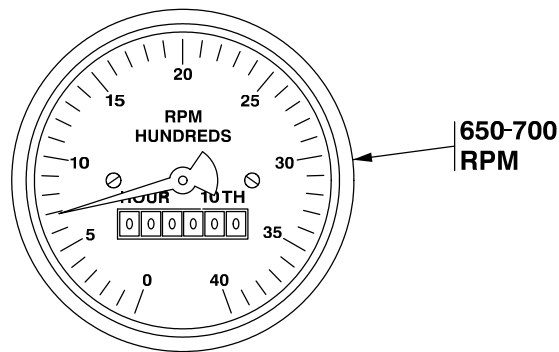
- Check that BATT GEN indicator points to green zone.



- Run engine at 800-1000 RPM for 3-5 minutes.



- Reduce engine to idle speed (650-700 RPM). Drive carrier (WP 0028 00).

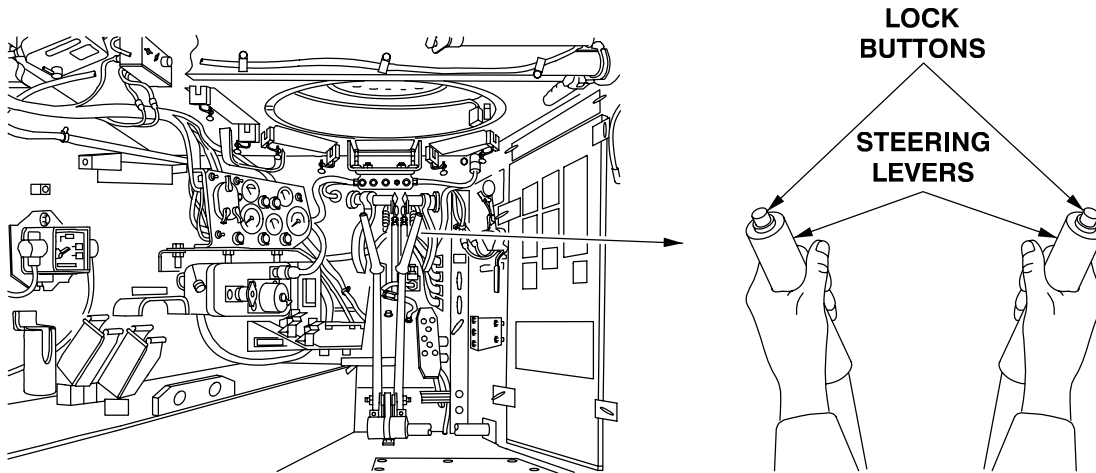


START ENGINE (-25° to +40°F (-32° to +4°C))

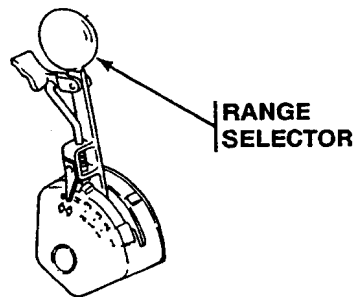
NOTE

If temperature is below -25°F (-32°C) and engine coolant heater was used to warm coolant prior to engine start procedures, turn coolant heater off (WP 0060 00).

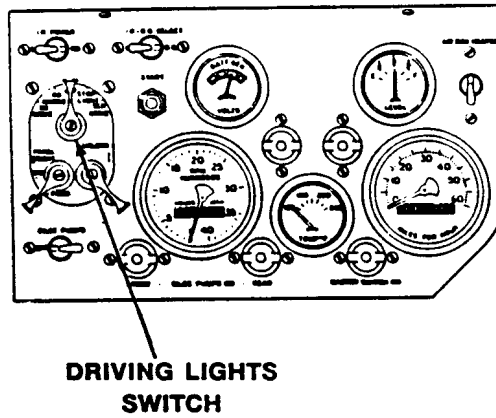
- Do your preventive maintenance checks and services (WP 0075 00).
- Lock steering levers. Pull back on both levers and press the lock buttons down.



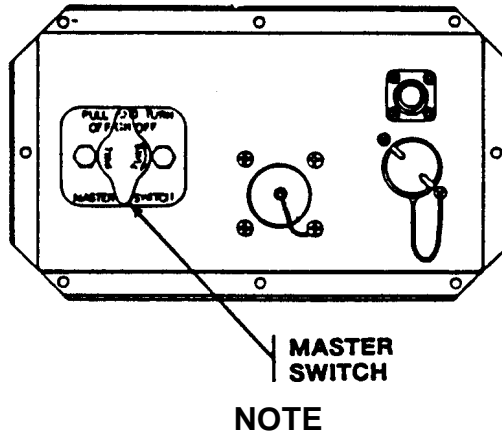
- Shift range selector lever to N range.



4. Make sure driving lights switch is OFF.

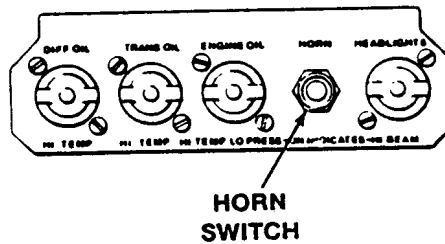


5. Turn MASTER SWITCH to ON.



If tactical situation permits, horn should be sounded to warn personnel that engine is about to be started.

6. Press HORN switch.

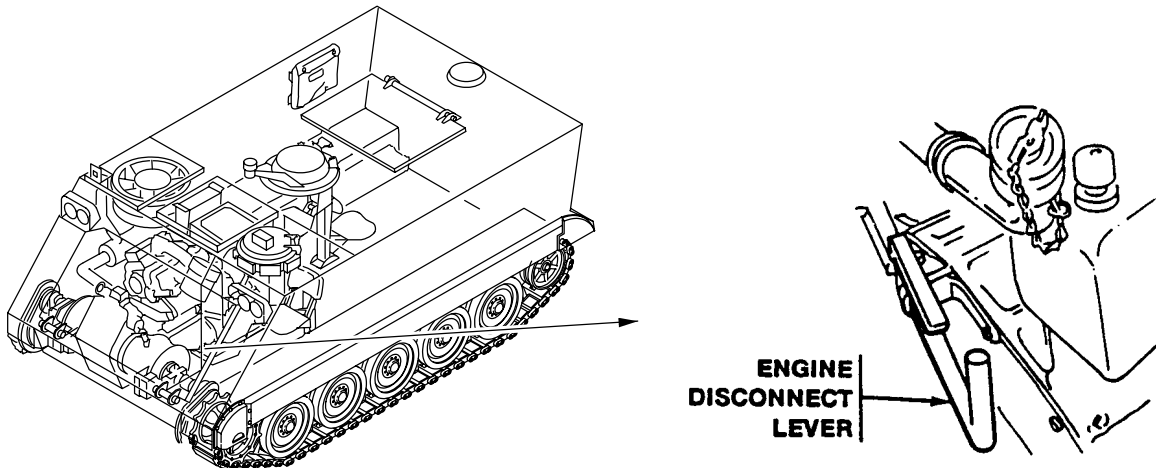


7. Remove driver's power plant access panel (WP 0048 00).

CAUTION

Never try to move the engine disconnect lever when the engine is running. Do not leave engine disengaged more than 10 minutes while engine is running. Damage to the transfer gearcase can result.

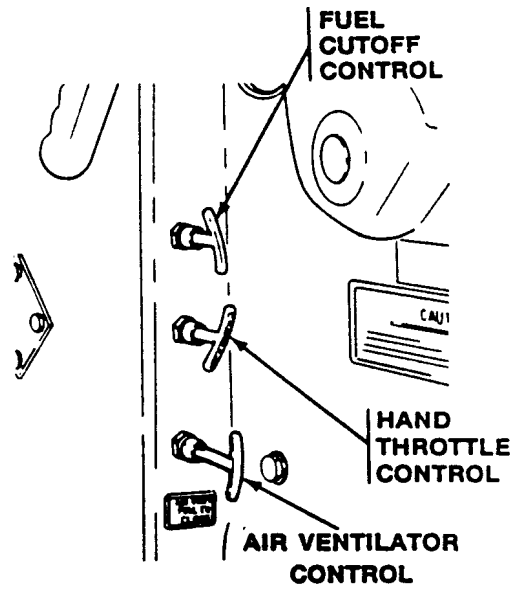
8. Lift lock on disconnect lever and push lever in as far as it will go to disengage engine from transfer gearcase.

**WARNING**

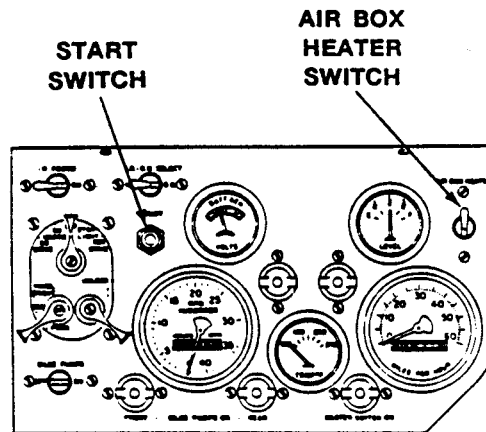
Engine exhaust gas is deadly poison. Make sure power plant access panels are closed tight before you start the engine.

9. Install driver's power plant access panel (WP 0048 00).
10. Push in engine fuel cutoff and hand throttle controls.

11. Pull out air ventilator control.



12. Press and hold START switch.
13. Press and hold AIR BOX HEATER switch.
14. Hold both START and AIR BOX HEATER switches for approximately 45 seconds.

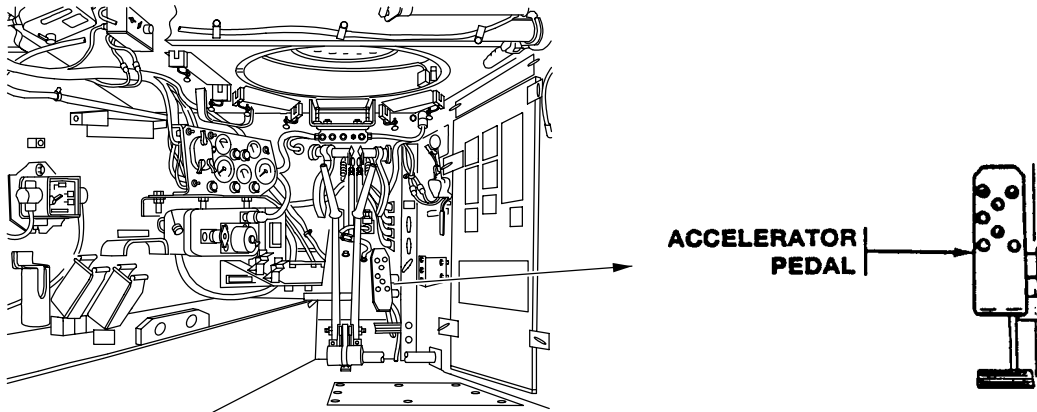


NOTE

Within the first 10 seconds engine should give signs of “firing up” or trying to start. When this happens, continue to hold the START and AIR BOX HEATER switches for another 25 seconds. This adds up to the total of 45 seconds for pre-start.

If within the first 20 seconds engine does not give signs of “firing up” or trying to start, stop starting procedures and go to Step 19.

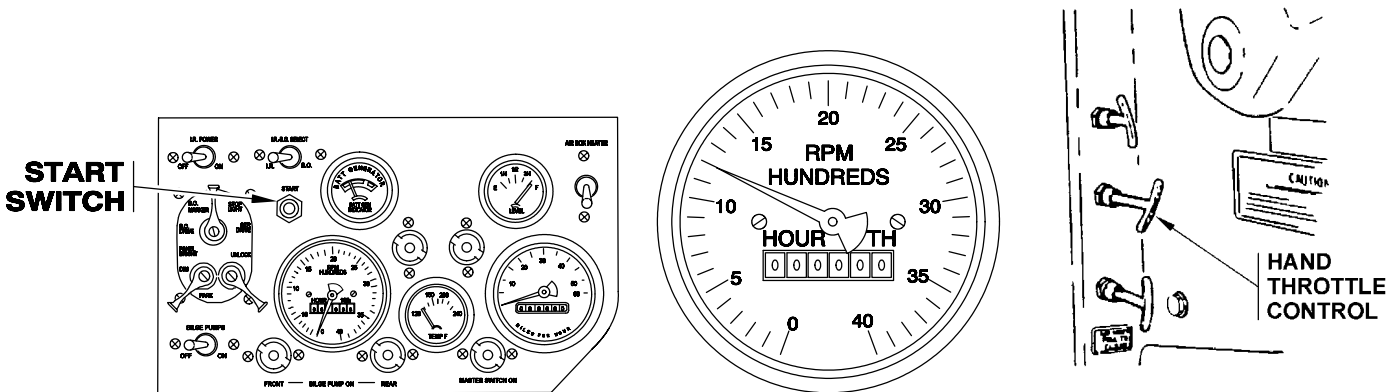
- After the 45 seconds of pre-start, release AIR BOX HEATER switch and depress accelerator pedal approximately half way.



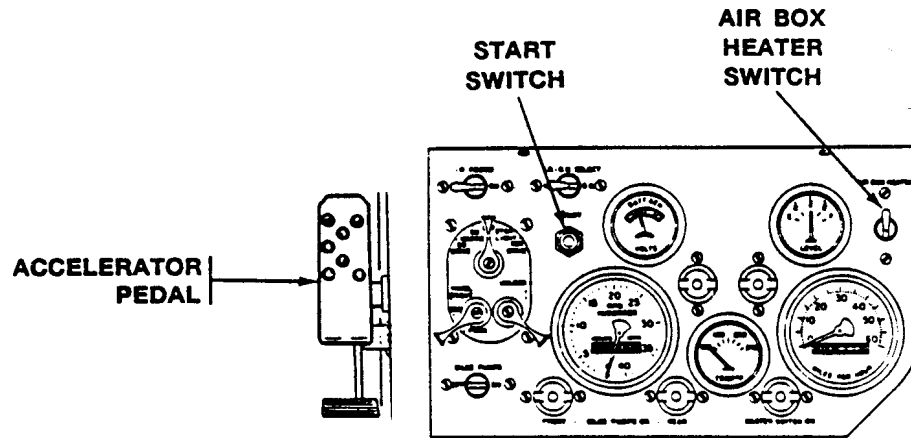
NOTE

If you do not release the AIR BOX HEATER switch, engine will not start or run.

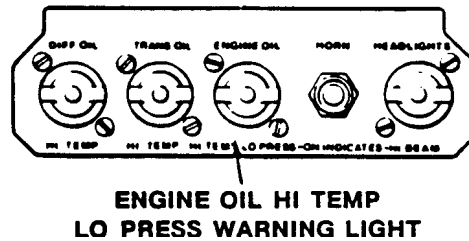
- If engine starts, release START switch. Immediately set hand throttle to adjust engine speed to 1200-1500 RPM and go to Step 20.



17. If engine does not start, return accelerator pedal to idle position. Press and hold both START and AIR BOX HEATER switches.



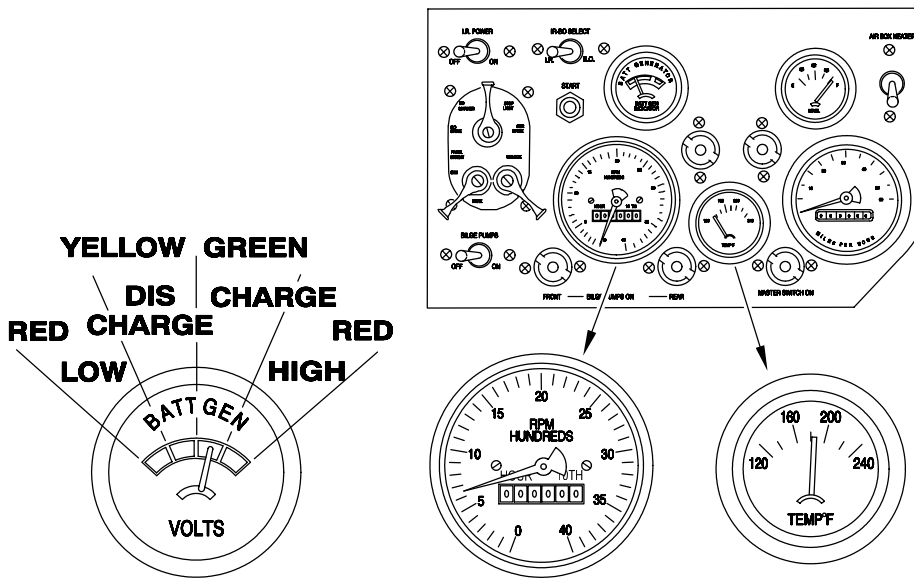
18. Hold AIR BOX HEATER switch for 10 seconds, then release for 3-4 seconds. The engine should start within two of these attempts. If engine starts, go to Step 20.
19. If engine does not start, release AIR BOX HEATER and START switches. Notify unit maintenance that AIR BOX HEATER and/or engine should be checked.
20. Check that ENGINE OIL HI TEMP LO PRESS warning light goes off within 10 seconds after engine starts.



NOTE

All lights on warning panel should be OFF. If not, troubleshoot engine (WP 0074 00).

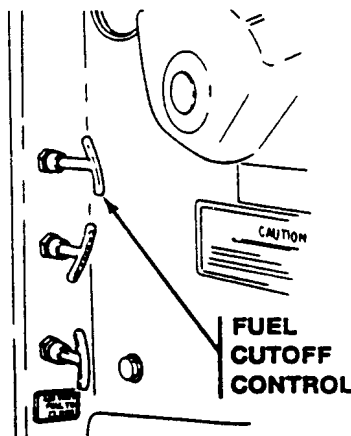
21. LOW (red zone): Dead battery or short circuit.
22. DISCHARGE (yellow zone) engine OFF: OK if in upper half, LOW battery if in lower half.
23. CHARGE (green zone) engine ON: OK if in lower half, high charge if in upper half.
24. HIGH (red zone) engine ON: Overcharge. Shut down engine. Report it to organizational maintenance.
25. Check that BATT GEN indicator points to green zone.
26. Run engine at 1200 to 1500 RPM for about 5 minutes or until engine coolant temperature gauge indicates 185°F (85°C).
27. Reduce engine to idle speed (650-700 RPM).



NOTE

If the engine started without disengaging the engine disconnect lever, skip Steps 28 - 32, and go directly to Step 33.

28. Pull fuel cutoff control out and stop engine.

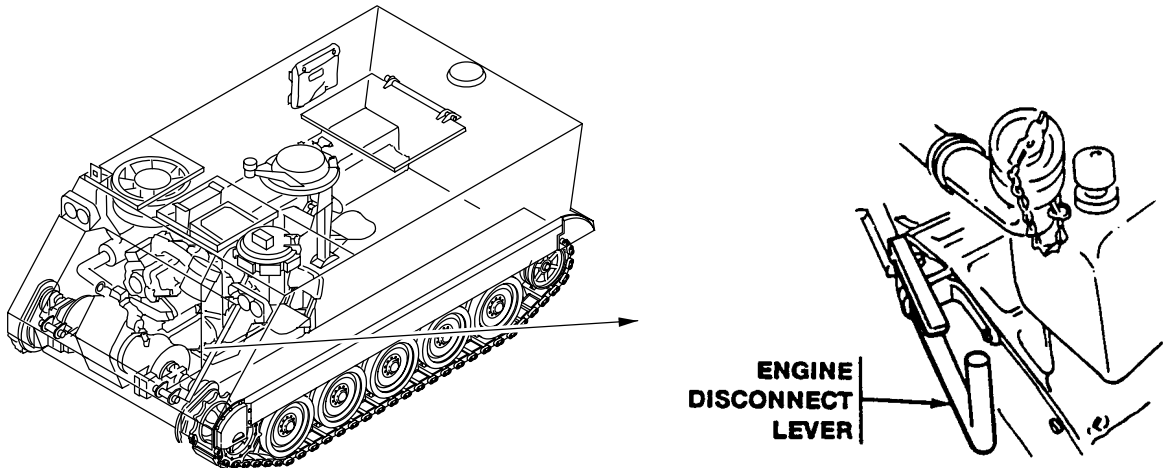


29. Remove driver's power plant access panel (WP 0048 00).

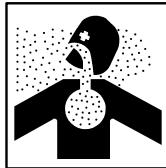
CAUTION

Never try to move the engine disconnect lever when the engine is running. Do not leave engine disengaged more than 10 minutes while engine is running. Damage to the transfer gearcase can result.

30. Pull engine disconnect lever out as far as it will go to connect the engine to the rest of the power plant. If the disconnect lever is hard to move, press the START switch for a moment to turn the engine a little.



WARNING



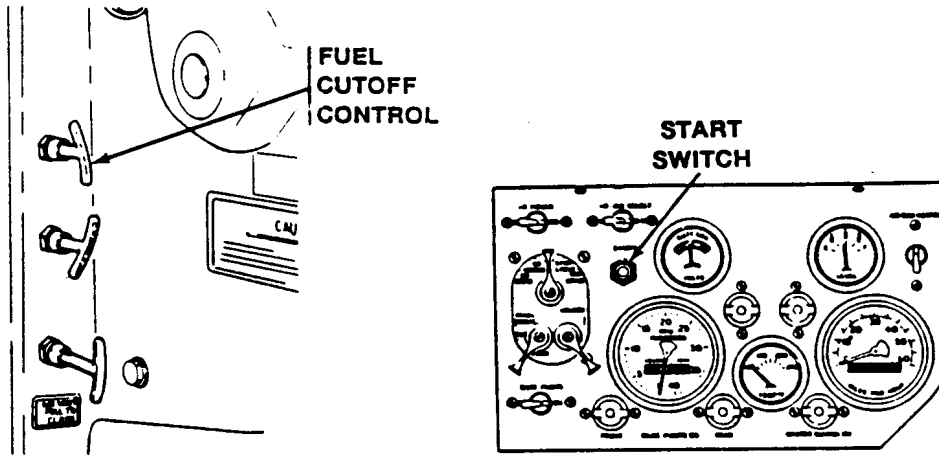
Engine exhaust gas is deadly poison. Make sure power plant access panels are closed tight before you start engine.

31. Install driver's power plant access panel (WP 0048 00).

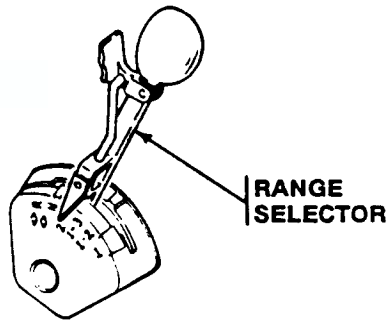
CAUTION

If the engine doesn't start after 30 seconds of cranking, release the START switch and let the starter cool for 30 seconds before you try again. If you can't restart the engine in five tries, troubleshoot it (WP 0074 00).

32. Push fuel cutoff control in and press START switch to restart engine.

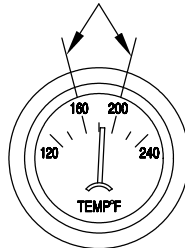


33. With brakes firmly engaged, shift the range selector lever to 2-3 range, and position hand throttle control to run the engine at 800 to 1000 RPM for about 10 minutes to warm up transmission.



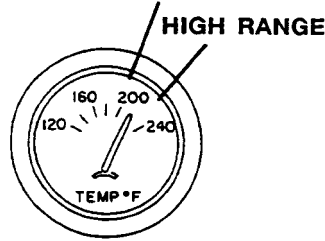
34. ENG COOL TEMP GAUGE. The coolant temperature gauge, during normal ambient temperatures, may show a normal operating temperature between 160° and 200°F (71.1° and 93.3°C). Any temperature in this range is OK.

NORMAL RANGE

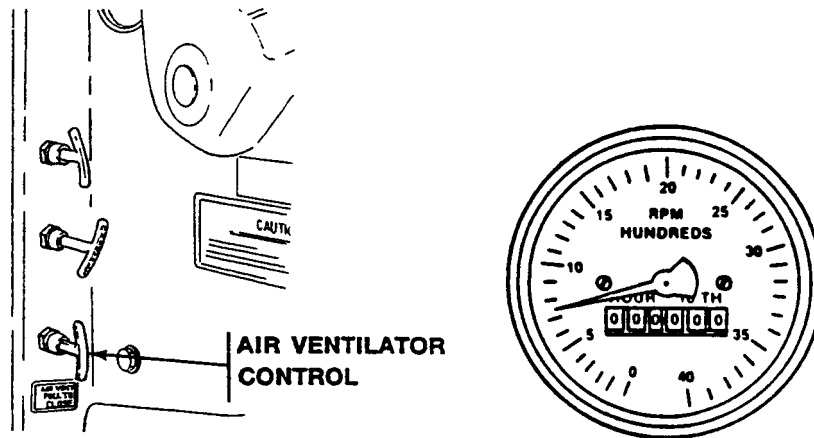


**ENGINE COOLANT
TEMPERATURE
GAUGE**

35. During conditions of high ambient temperatures (85°F (29°C) or above), the coolant temperature may exceed 200°F (93°C). If the coolant temperature exceeds 200°F (93°C) under these conditions, the operator will reduce vehicle speed to determine if the high ambient temperature is causing the higher engine coolant temperature.



36. If, after operating the vehicle at reduced speed, the engine coolant temperature does not decrease, stop the engine, check the coolant level (WP 0088 00), and follow overheating troubleshooting procedures (WP 0074 00). Normally the temperature won't go below 160°F (71.1°C) once the engine warms up, unless you have to idle in arctic temperatures (below -25°F (-32°C)).
37. If the coolant temperature drops to 140°F (60°C), run the engine at 1200-1500 RPM until it warms up. If the temperature gauge doesn't work, report it to organizational maintenance.
38. Push air ventilator control in to allow cooler air from rear compartment to enter engine.



39. Drive carrier (WP 0028 00).

END OF TASK

START ENGINE WITH OUTSIDE POWER SOURCE

0027 00

THIS WORK PACKAGE COVERS:

Start Engine with Outside Power Source (page 0027 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0026 00

Tools and Special Tools

Slave Cable
Source Carrier

Equipment Condition

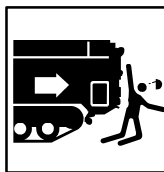
Carrier unable to start under own power
Source carrier parked alongside of disabled carrier
Source carrier engine stopped (WP 0029 00)

Personnel Required

Driver (2)

START ENGINE WITH OUTSIDE POWER SOURCE

WARNING

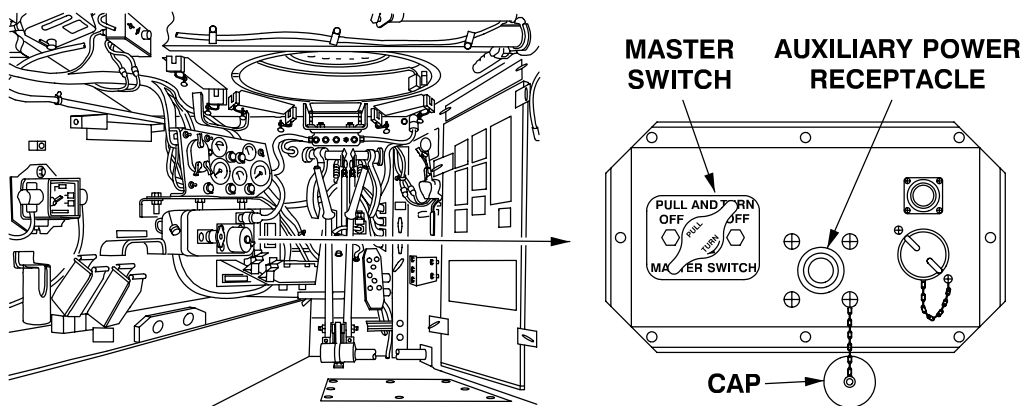


When starting, carriers can move suddenly and crush personnel. Personnel should stay clear of area between carriers.

CAUTION

Do not start vehicle if batteries are frozen.

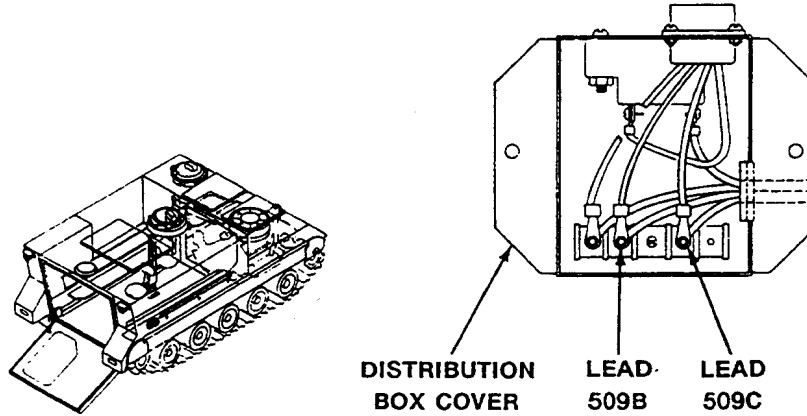
1. Check that MASTER SWITCH is OFF on both carriers.
2. Remove cap from auxiliary power receptacle on both carriers.



NOTE

Do Step 3 if your carrier is equipped with an M8 alarm system. If you do Step 3, connect leads and install distribution box cover after starting problem has been corrected.

3. Remove distribution box cover and disconnect M182 mount cable leads 509B and 509C before jump-starting.

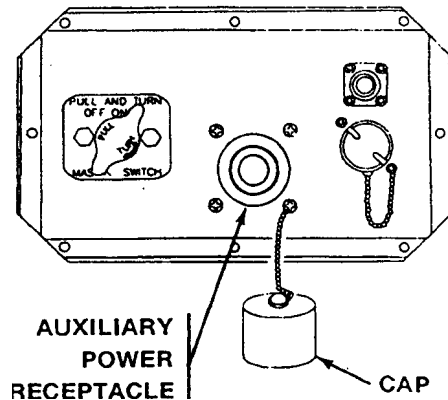


WARNING



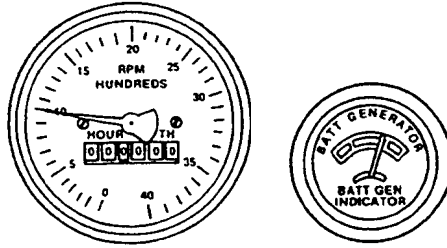
Electrical slave cable can be improperly connected causing electrical spark or fire. Personnel can be killed or injured. Equipment can be damaged. Match connector guide lug and cable prongs with receptacle hole.

4. Connect slave cable to auxiliary power receptacle on disabled carrier.
5. Connect slave cable to auxiliary power receptacle on source carrier.



6. Start engine of source carrier (WP 0026 00).
7. Turn MASTER SWITCH to ON in disabled vehicle.

8. Run engine on source carrier at a fast idle (1000-1200 RPM) to show charging on BATT GEN indicator.



9. Run engine on source carrier at fast idle for 3-5 minutes before starting disabled vehicle.

NOTE

In cold weather areas, air box heater can be switched on to heat engine on disabled carrier before attempting to start it.

10. Start engine on disabled carrier (WP 0026 00).

WARNING



Electric sparking can burn you. Equipment can be damaged. Make sure to disconnect slave cable carefully in order to not cause any sparks.

11. Disconnect slave cable from auxiliary power receptacle on both carriers.
12. Install cap on auxiliary power receptacle on both carriers.

END OF TASK

DRIVE CARRIER

0028 00

THIS WORK PACKAGE COVERS:

Driving Precautions (page 0028 00-2).
 Drive Carrier (page 0028 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

TB Med 507
 WP 0015 00
 WP 0026 00
 WP 0029 00
 WP 0074 00

Equipment Condition

Driver's hatch cover secured open or closed
 (WP 0007 00)
 Commander's hatch cover secured open or closed
 (WP 0010 00)
 Cargo hatch cover closed (WP 0009 00)

WARNING



Applying brake pressure hard can cause carrier to stop suddenly. Personnel could be injured. Apply brake pressure lightly and with caution.

WARNING



Noise levels in carrier could damage hearing. Wear ear protection. Read warning in front of this manual.

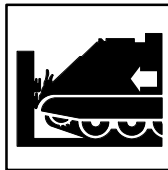
WARNING



Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed and safety pins installed.

WARNING

Vehicle operation during hot weather may result in heat stress to crew members. Crew members should limit their exposure based on TB Med 507. Ramp door should be opened to ensure ventilation is adequate, when appropriate.

WARNING

Sticking or failed linkages can cause carrier to crash. Personnel can be killed or injured. If accelerator pedal does not operate smoothly, or engine does not return to idle when accelerator pedal is released, do not drive carrier.

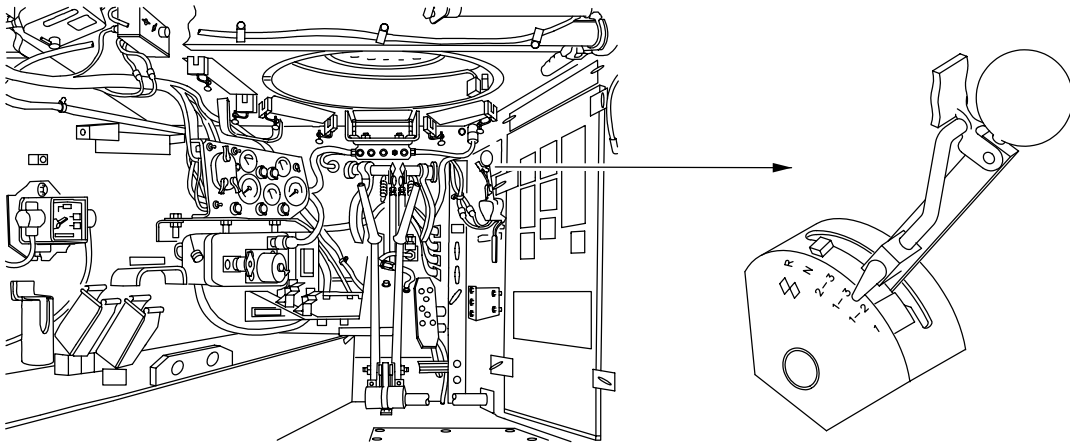
WARNING

Sudden carrier movement can throw you out of seat. Wear seat belt while carrier is in motion. Do not use any seat with missing or inoperative seat belt.

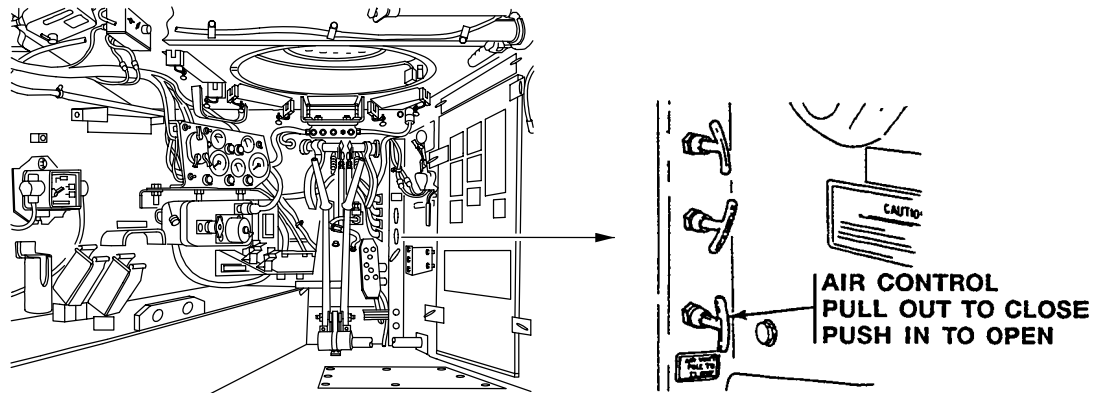
DRIVING PRECAUTIONS

1. Start engine (WP 0026 00).
2. Raise and lock ramp (WP 0015 00).
3. Ensure that all personnel are in their proper positions secured with seat belts and wearing protective headgear. Check that the intercom is connected to the Track Commander (TC). Prior to moving, ensure personnel in hatches are not exposed more than head and shoulders to the level of their name tags. Exception is made when firing weapons.

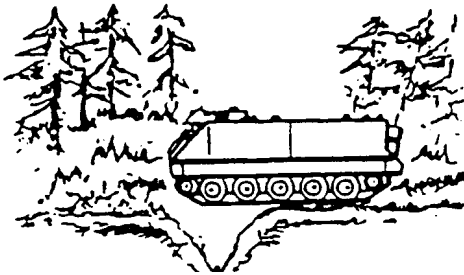
4. Use the 1-2 range until you get used to driving the carrier.



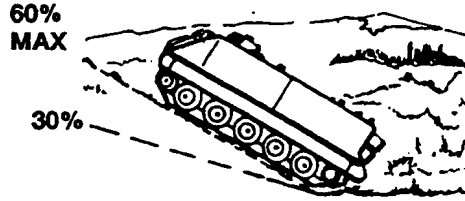
5. Take care not to oversteer or go too fast, especially on hard pavement. You could lose control of the carrier.
6. Push the air control in to open the valve and let the engine breathe cooler air from the rear compartment. This will give the engine a boost in horsepower.



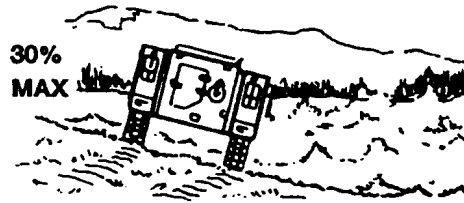
7. Decelerate as the carrier approaches the edge of a ditch or trench. Use gear range 1 or 1-2. Just as carrier bottoms out in a ditch or trench, accelerate and use full power as the carrier starts to climb. Maximum width of trench safely crossed is 5-1/2 feet (1.67 m).



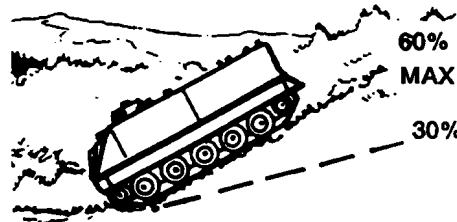
8. Accelerate as the carrier climbs a grade. Decelerate at the top of the grade and during descent. Use 1 range for 30% to 60% grades and 1-2 range for up to 30% grades.



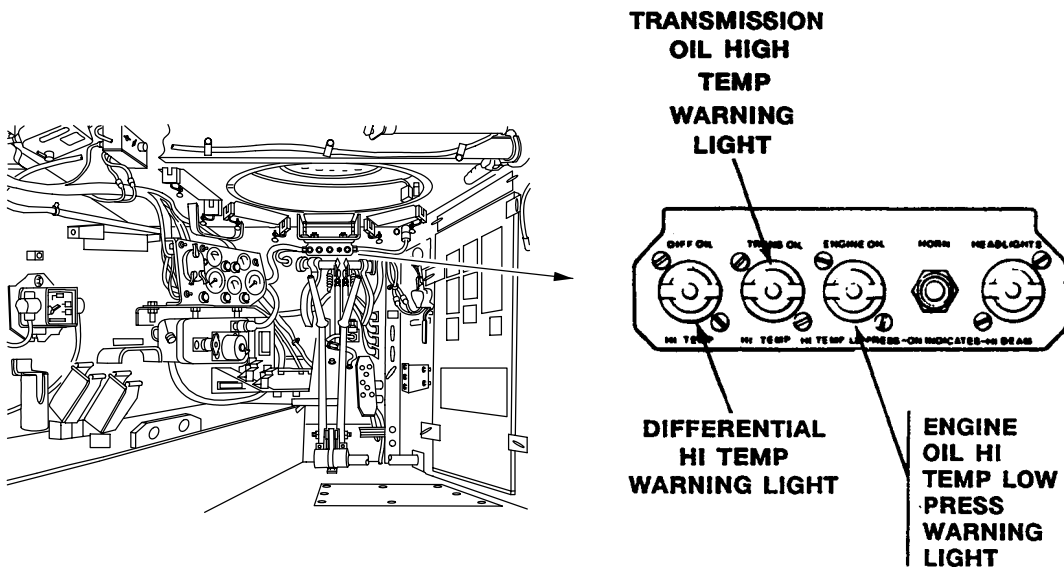
9. Steer in a series of short turns on side slopes rather than one long even turn. This allows debris to feed out of the tracks. Use gear range 1 or 1-2.



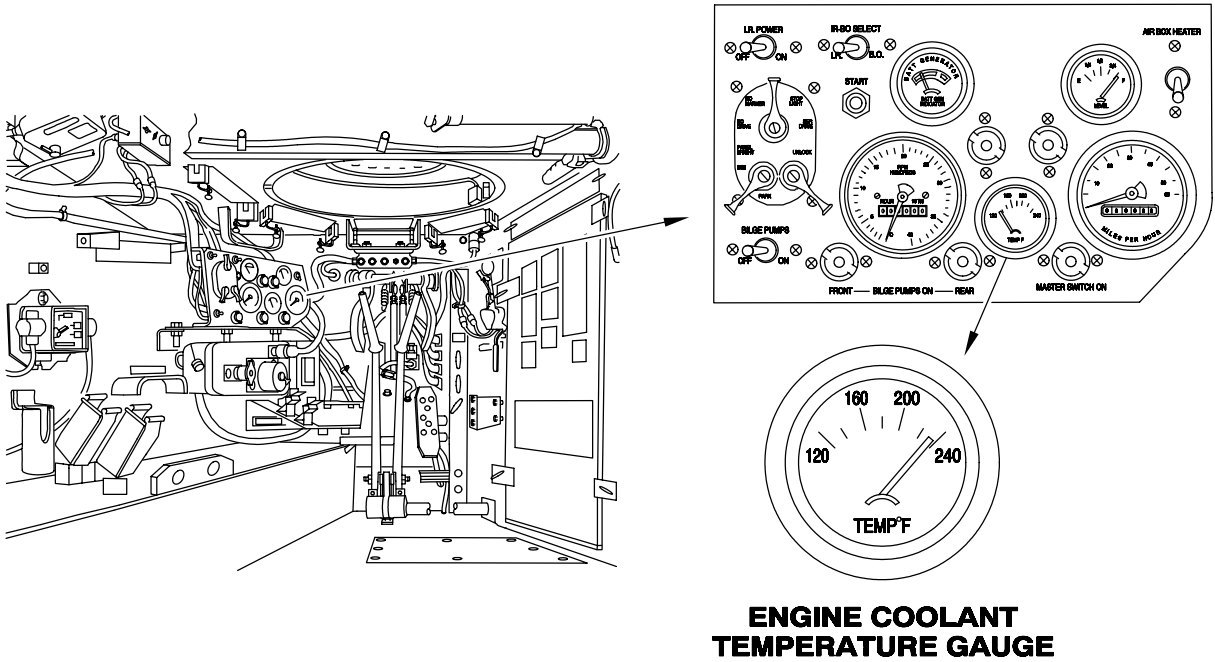
10. Descend grades slowly. Shift to a lower range before starting down. Approach bottom cautiously to avoid digging. Use 1 range for 30% to 60% grades and 1-2 range for up to 30% grades. Do not use engine and transmission to hold carrier on a slope.



11. If any warning light comes on, stop engine (WP 0029 00) and troubleshoot problem (WP 0074 00).

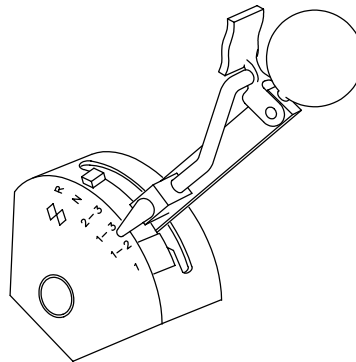


12. Check engine coolant temperature gauge. If temperature rises above 230°F (110°C), stop engine (WP 0029 00) and troubleshoot problem (WP 0074 00).



DRIVE CARRIER

1. Shift the range selector lever to the driving range you want. RANGE SELECTOR selects driving range of transmission.

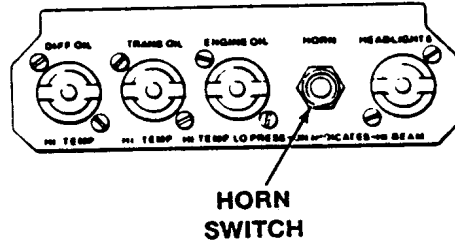


- a. R (REVERSE) RANGE: Used for backing the carrier under all conditions.
- b. N (NEUTRAL) RANGE: Used when starting, idling, and operating the auxiliary equipment.
- c. 2-3 RANGE: Used for high-speed driving on roads or level terrain when carrier is lightly loaded.
- d. 1-3 RANGE: Used for normal driving on roads and level or rolling terrain. DO NOT DOWNSHIFT TO THIS RANGE FROM ABOVE 40 MPH.
- e. 1-2 RANGE: Used for rough or soft terrain, going up or down long or moderately steep grades, and driving in water. DO NOT DOWNSHIFT TO THIS RANGE FROM ABOVE 21 MPH.
- f. 1 RANGE: Used when going up or down steep grades, and when entering or leaving water. DO NOT DOWNSHIFT TO THIS RANGE FROM ABOVE 10 MPH.

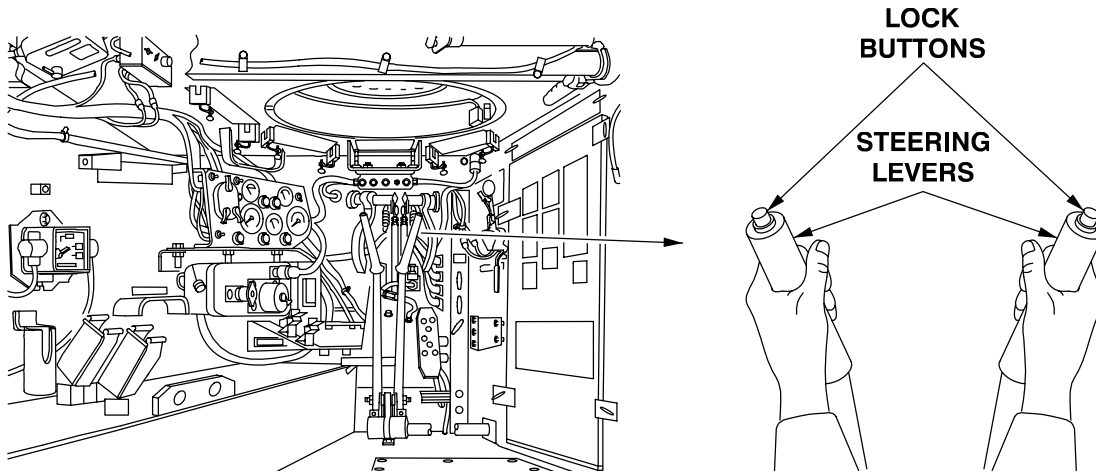
NOTE

If tactical situation permits, sound horn to warn personnel carrier is about to move.

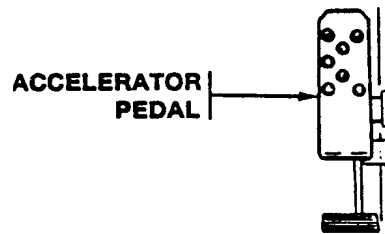
2. Press HORN switch.



3. Release steering levers. Pull back on both levers so the lock buttons pop up, then let levers go forward.



4. Step on the accelerator pedal. Go easy. Take off nice and smooth. Push on the pedal to control the speed. The transmission will shift automatically within the range you set for it. To hold in a range past the normal shift point for a few seconds, or to shift down for extra power, push the pedal all the way to the floor.



WARNING

When a track vehicle gets out of control and overturns, it is safer to stay in the vehicle than to try to get out while the vehicle is still moving. You may receive slight injuries from being thrown against metal parts; but if you try to leave the vehicle, it may roll over and crush you. Once the vehicle stops moving, get out as fast as possible because spilled fuel and oil may catch on fire. The first thing the driver should do in such an emergency is shut off the engine and turn off the master switch to minimize the fire hazard.

WARNING

Never touch lock buttons while carrier is moving. If you lock up the steering lever while moving, you could be injured and/or damage the carrier.

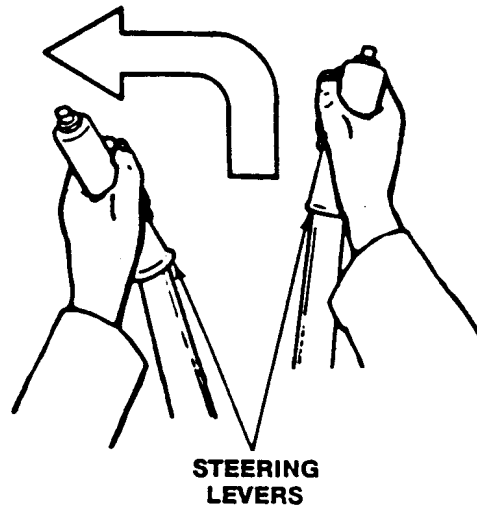
CAUTION

The full-throttle transmission detent (pedal to the floor) is not a trade-off for selecting the proper range. Use the detent for short bursts of power, not as a way to gear down for heavy hauling.

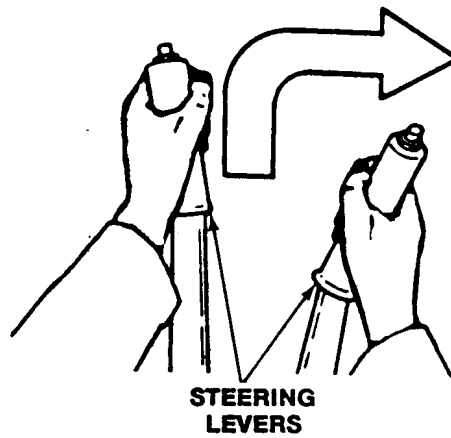
NOTE

Going in forward or reverse, the carrier will always turn toward the track that is moving slower.

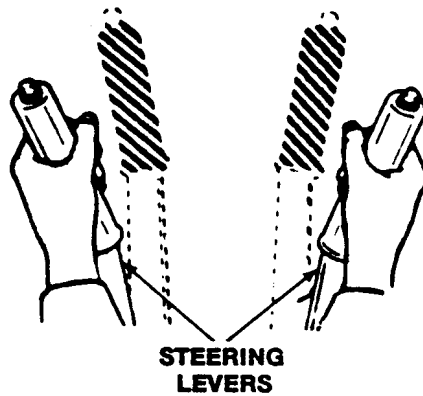
5. Pull back on the left-hand steering lever to turn left.



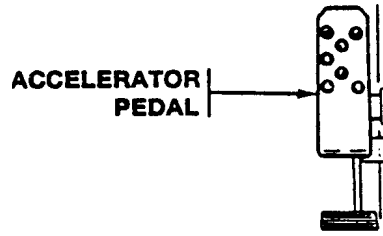
6. Pull back on the right-hand steering lever to turn right.



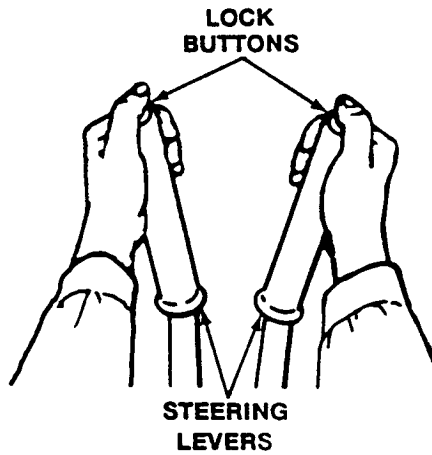
7. To slow the carrier, slowly pull both levers back.



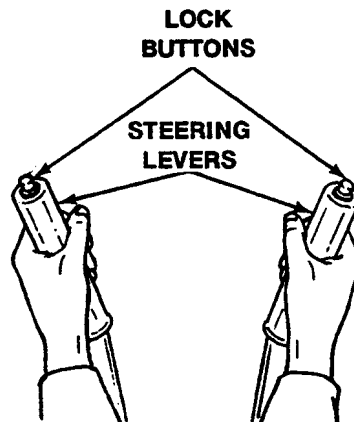
8. To stop the carrier, pull both levers at once using a pumping movement and remove your foot from the accelerator pedal.



9. To lock the brakes for parking, pull back hard on both levers and press the lock buttons down.



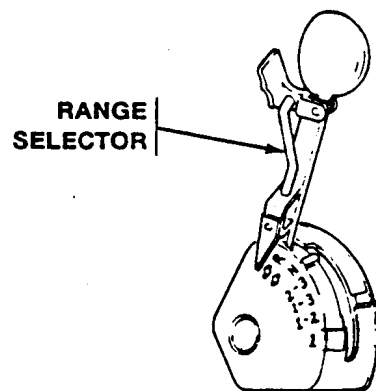
10. To unlock the brakes, pull back on the levers without touching the lock buttons. The buttons will pop up and release the levers.



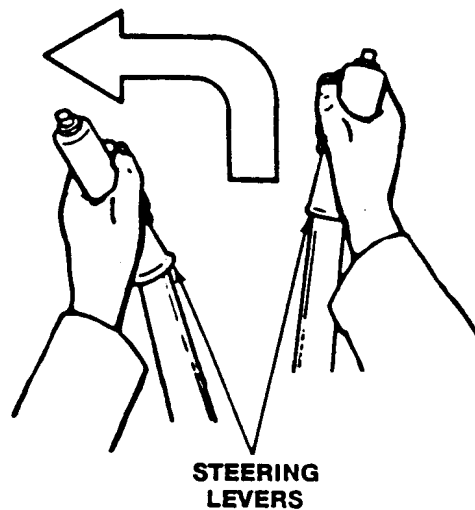
WARNING

Operating carrier in reverse is dangerous due to limited vision and reversed steering. Always post ground guides before you back up.

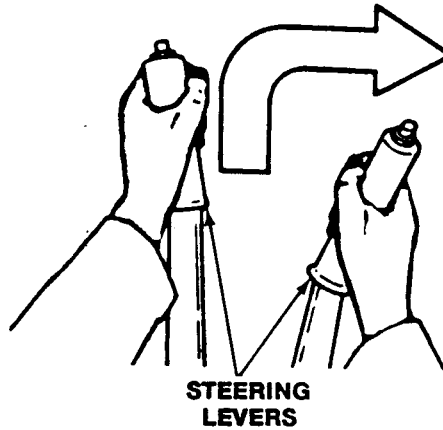
11. Shift range selector lever to R range.



12. Pull back on the left-hand steering lever to turn left.



13. Pull back on the right-hand steering lever to turn right.



WARNING



Pivot steering can kill or injure personnel and damage equipment. **STOP** vehicle and **CHECK** for clearance before operating pivot steer. Always post ground guides before you pivot when near personnel or equipment.

CAUTION

NEVER use the pivot steer brakes and differential brakes at the same time, you could injure yourself and damage the differential.

CAUTION

Avoid pivot steering on soft soil or gravel. Tracks may come off. After pivoting, drive ahead at least one carrier length to clear track.

CAUTION

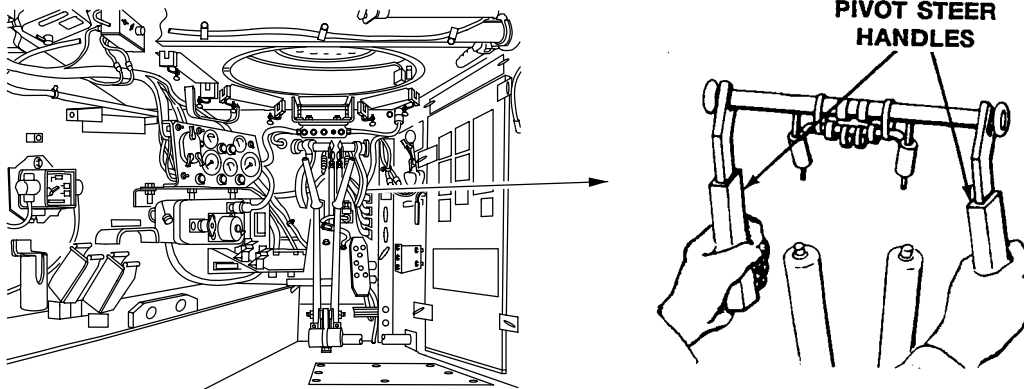
Power plant can be damaged. Do not pivot steer when carrier is moving.

NOTE

Use pivot steer only when normal turn cannot be made in close areas. Stop carrier before making pivot steer.

The pivot steer brakes work like the differential brakes, only quicker because they are disk brakes. When you pull the handle, they lock up immediately.

14. Pull the left handle to pivot left.
15. Pull the right handle to pivot right.
16. Pull both handles to make a sudden stop from a slow speed.

**END OF TASK**

STOP ENGINE

0029 00

THIS WORK PACKAGE COVERS:

Stop Engine (page 0029 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

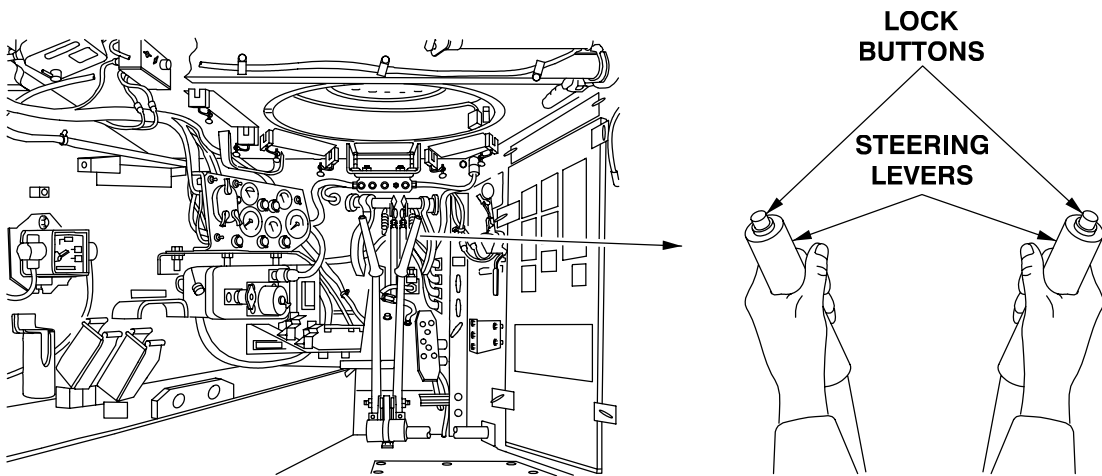
Engine running (WP 0026 00)

Personnel Required

Driver

STOP ENGINE

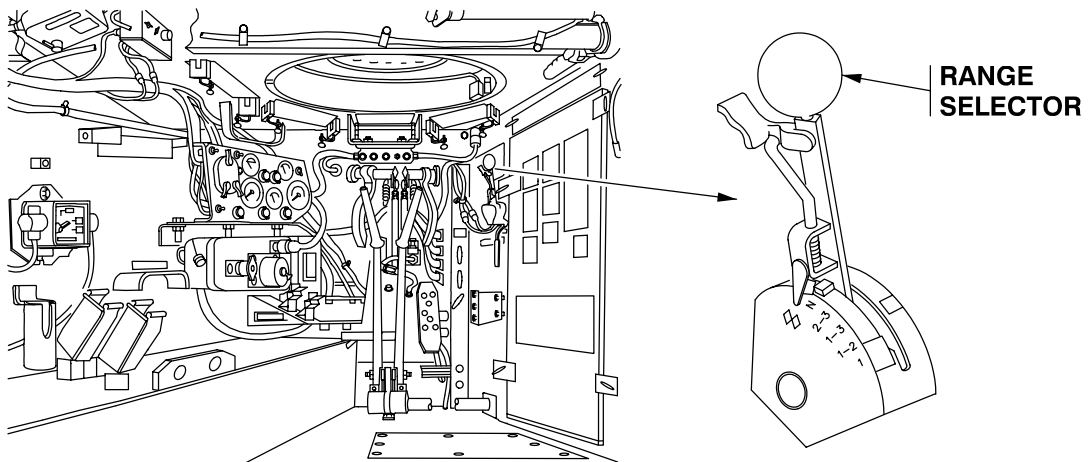
1. Lock steering levers. Pull back on both levers and press the lock buttons down.



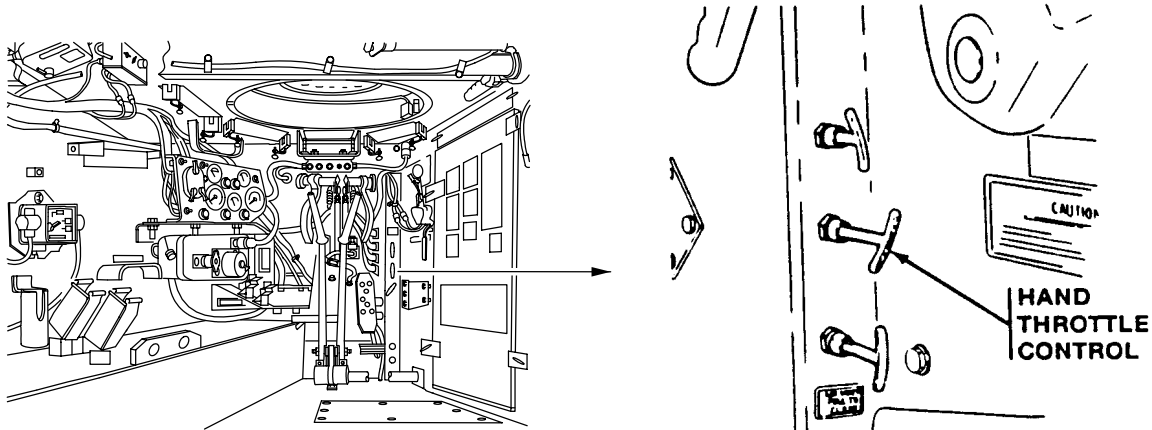
CAUTION

In cold weather, do not leave brakes locked when you park. Brakes should be locked only long enough to allow you to safely block the carrier tracks. Release brakes after blocking tracks. Brakes could freeze if left locked in cold weather.

2. Shift range selector lever to N range.



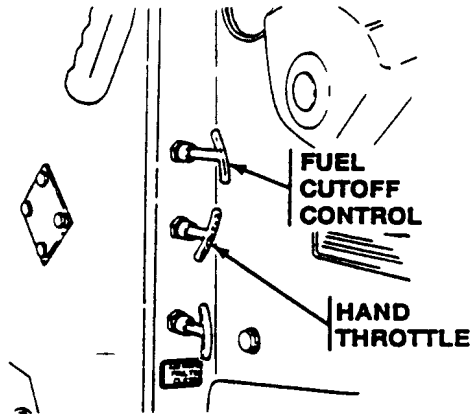
3. Pull out hand throttle and run engine at 800-1000 RPM until normal idle temperature of 160°F to 185°F (71°C to 85°C) is indicated on temperature gauge.



CAUTION

In cold weather, do not shut off engine until coolant temperature is 180°F (82°C) or lower.

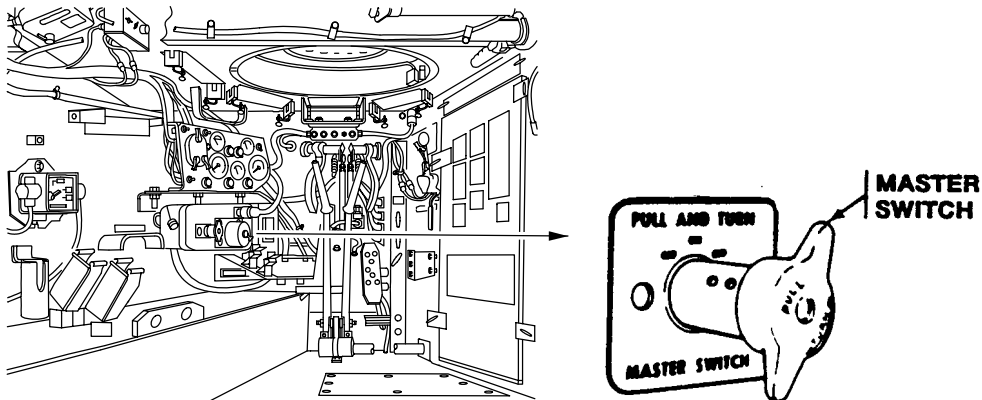
4. Push hand throttle in and allow engine to idle for a few seconds. Then, pull fuel cutoff control out to shut the engine off.



NOTE

If air temperature is below -25°F (-32°C), start engine coolant heater (WP 0060 00).

5. Turn MASTER SWITCH to OFF.



END OF TASK

FUEL CARRIER (ALL EXCEPT M577A2 AND M1068)

0030 00

THIS WORK PACKAGE COVERS:

Fuel Carrier (page 0030 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Materials/Parts

Wiping rag (WP 0096 00, Item 10)

Equipment Condition

Engine stopped (WP 0029 00)

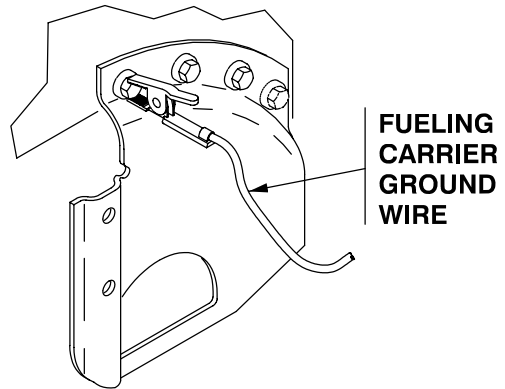
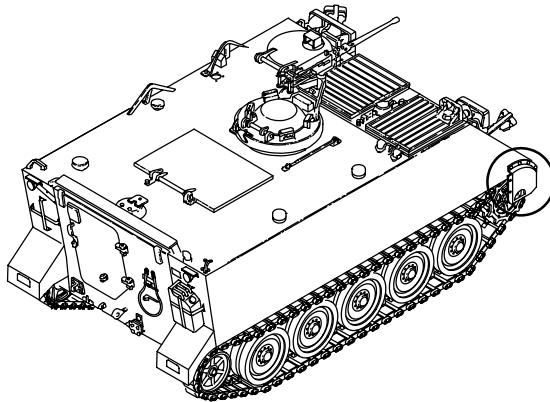
FUEL CARRIER

WARNING

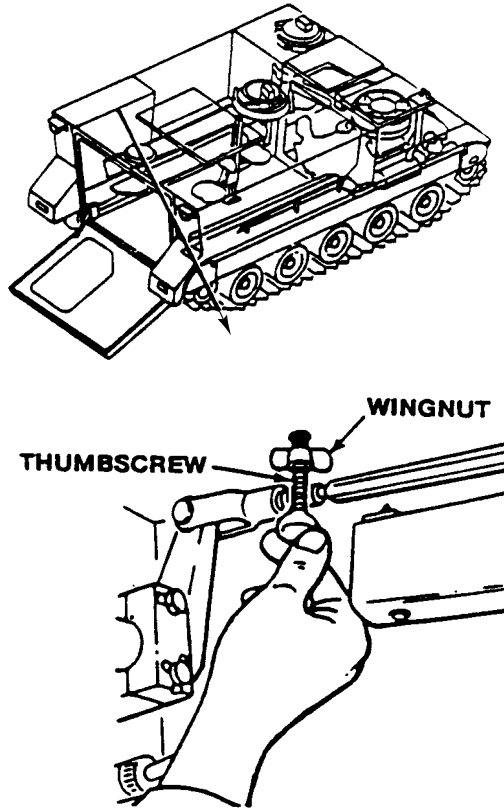


Fuel can catch fire and burn you. Do not smoke or allow open flame near carrier when refueling.

1. Scrape paint from screw on carrier to be fueled and install fueling carrier ground wire to screw.



- From inside carrier, unlock fuel filler combat cover by loosening wingnut and turning thumbscrew counterclockwise.



- From outside carrier, open combat cover.

CAUTION

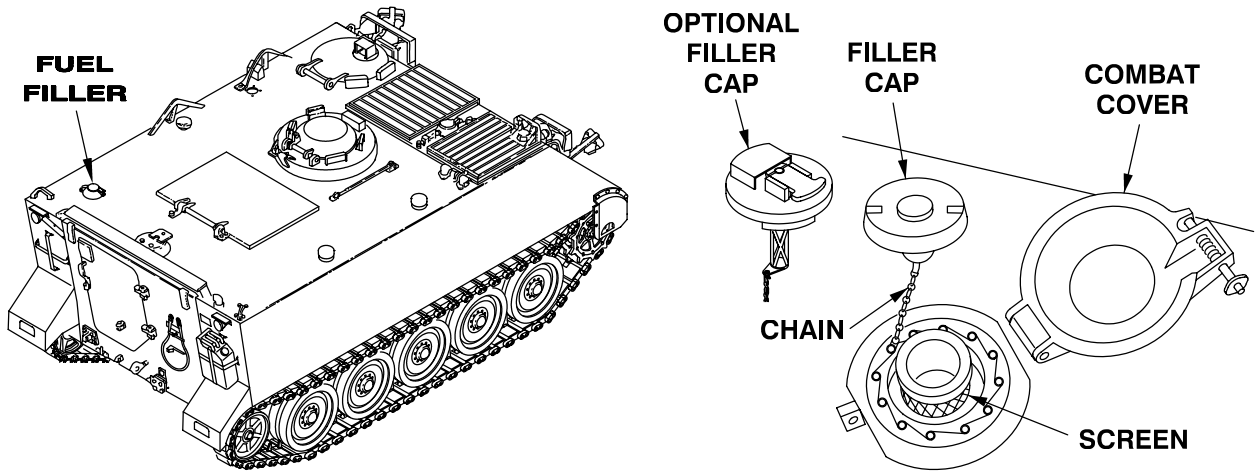
Contamination can damage fuel system. Remove dirt and water from fuel filler area before opening fuel filler cap.

NOTE

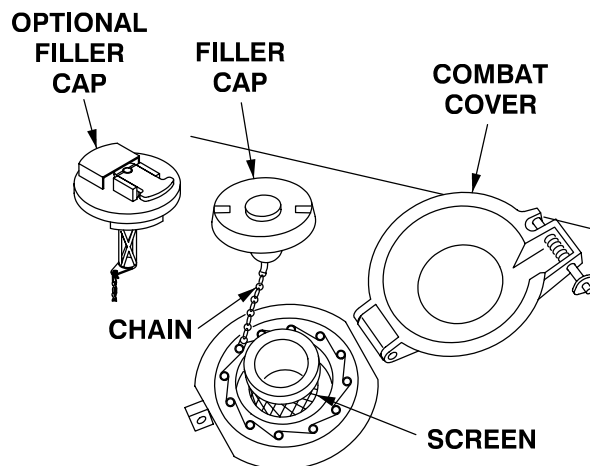
Carrier may have optional cap with pressure relief valve.

- Clean off any dirt and water that could get into filler neck. Use wiping rag.

5. Unscrew filler cap. If fuel cap has pressure relief valve, cap is removed by lifting pressure relief handle on fuel cap and turn cap counterclockwise.



6. Check screen in filler neck. If there is any dirt in screen, take screen out and clean it. Install screen before refueling.



WARNING



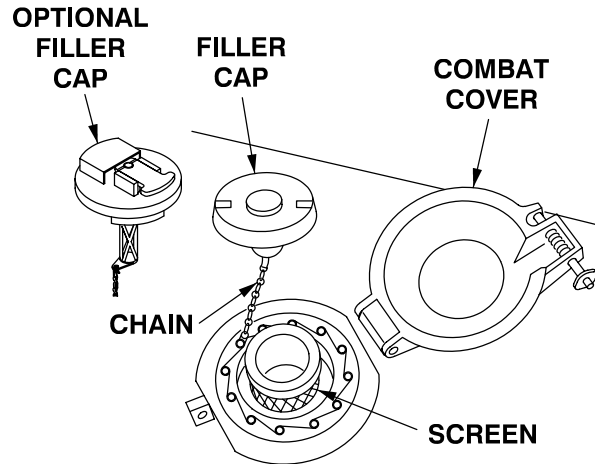
Sparks from static electricity can cause a fire or explosion. Fuel cans should be removed before being filled. Metal nozzle must touch metal in filler neck when filling or ground wire must be attached to fuel can being filled. Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

7. Insert nozzle in fuel filler neck. Fill fuel tank, allowing 5 inches in fuel filler neck for expansion.
8. Remove fuel nozzle from fuel filler neck.

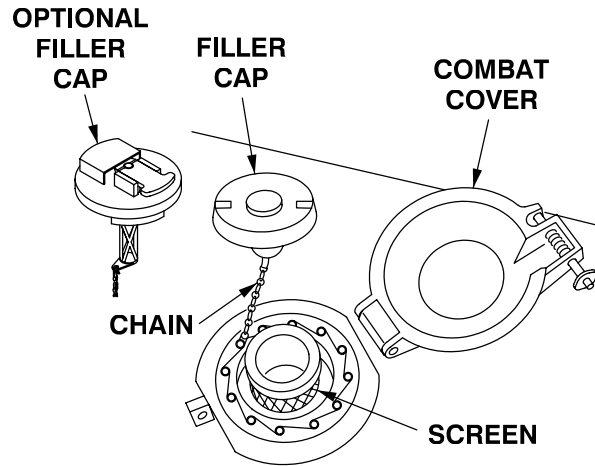
NOTE

Carrier may have optional cap with pressure relief valve.

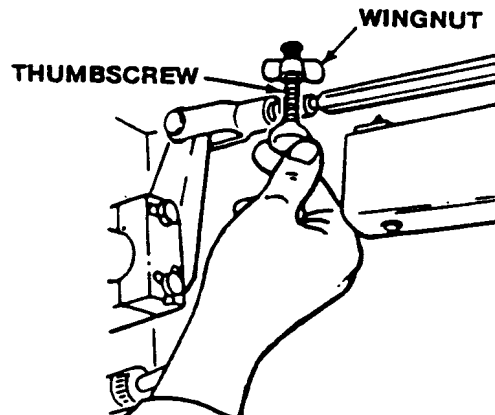
9. Install fuel filler cap. If fuel cap has pressure relief valve, cap is installed by turning clockwise until tight, then push pressure relief handle down. Make sure keeper chain is all inside so cap goes on tight.



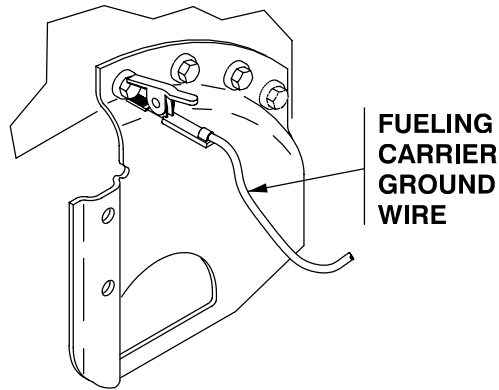
10. Close combat cover.



11. Lock combat cover from inside carrier by turning thumbscrew clockwise. Tighten wingnut.



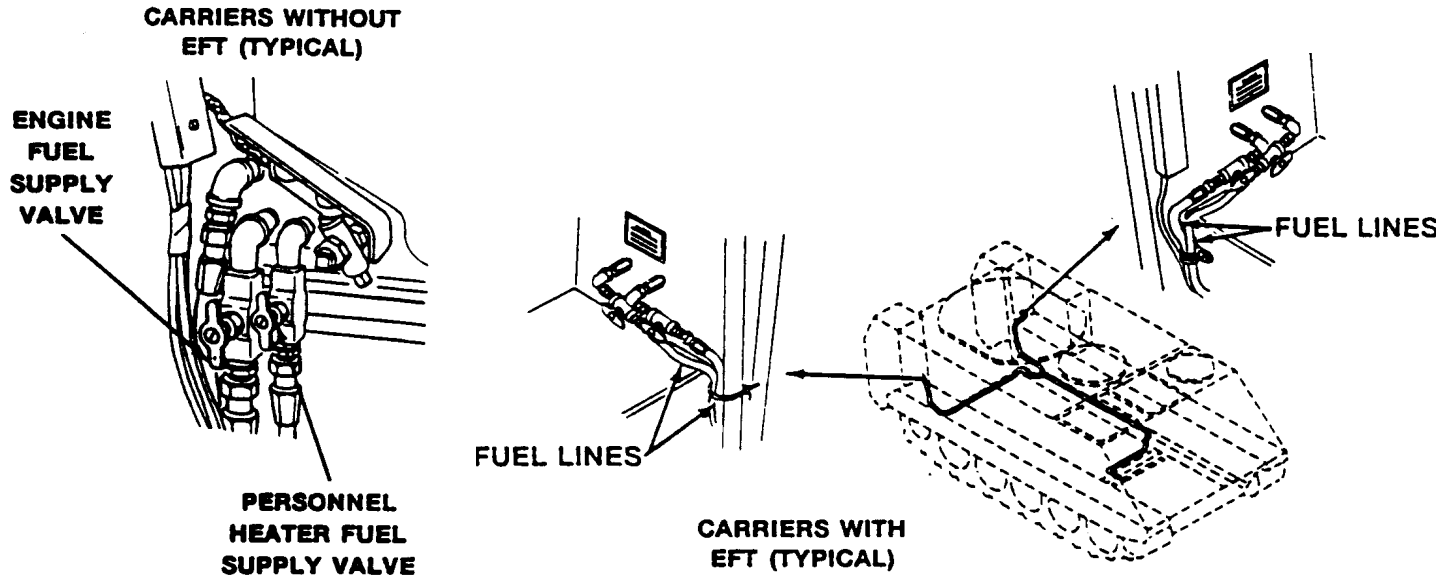
12. Remove fueling carrier ground wire from carrier.



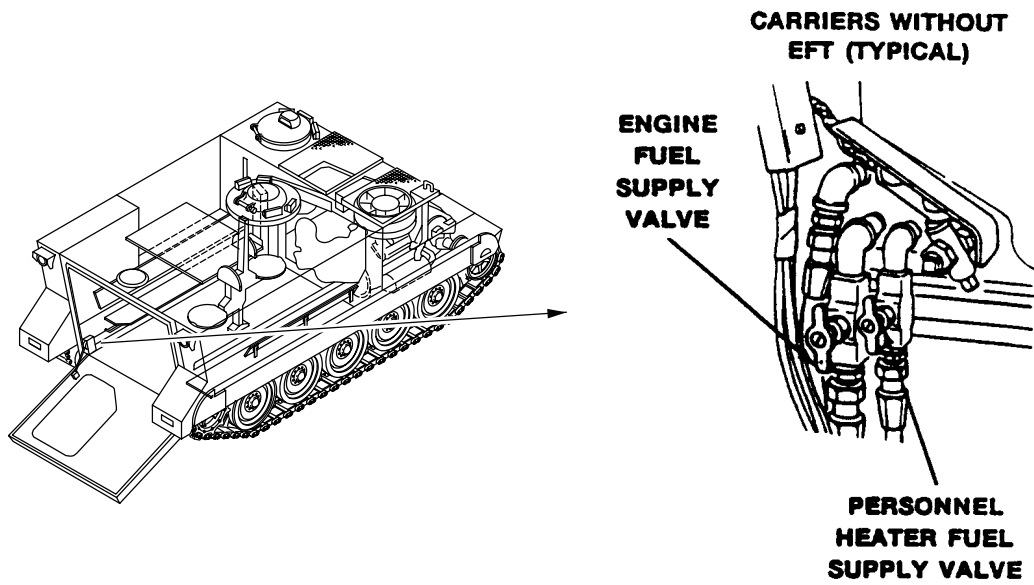
CAUTION

If fuel supply valve is not fully open, it will leak fuel. When you open valve, make sure it is open all the way. When you close valve, make sure you close it tight.

13. Make sure engine fuel supply valve is open all the way.



14. If carrier has a personnel heater, make sure the heater supply valve is open all the way.



END OF TASK

FUEL CARRIER (M577A2 AND M1068 ONLY)

0031 00

THIS WORK PACKAGE COVERS:

- Fuel Carrier (page 0031 00-1).
- Fuel 4.2 KW Generator Set (page 0031 00-4).

INITIAL SETUP:

Maintenance Level

Operator

References

TM 5-6115-596-14

Materials/Parts

Wiping rag (WP 0096 00, Item 10)

Equipment Condition

Engine stopped (WP 0029 00)

Carrier blocked (WP 0050 00)

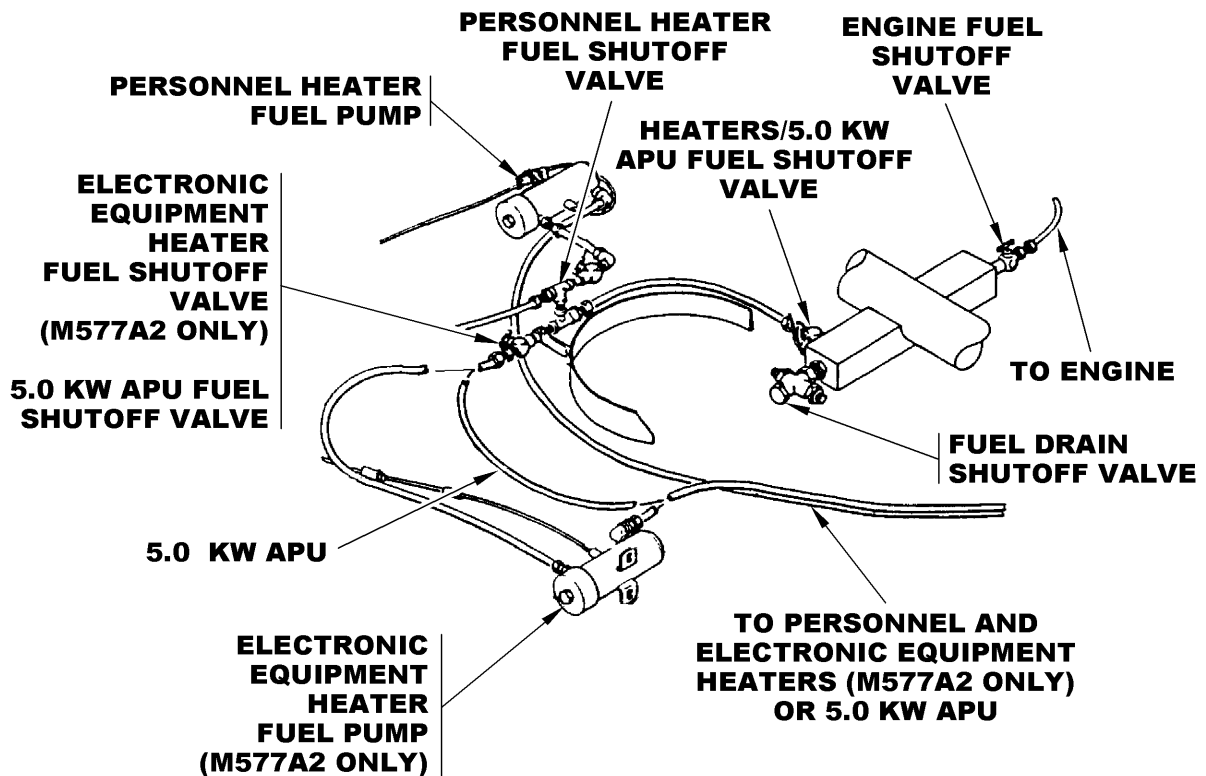
Personnel Required

Driver

FUEL CARRIER

NOTE

The engine fuel shutoff valve, personnel heater shutoff valve, electronic equipment heater shutoff valve, and fuel drain shutoff valve are all located beneath the floor plates on the M577A2 and M1068. If your M577A2 or M1068 has a 5.0 KW auxiliary power unit (APU) the electronic equipment heater and fuel pump are removed permanently.

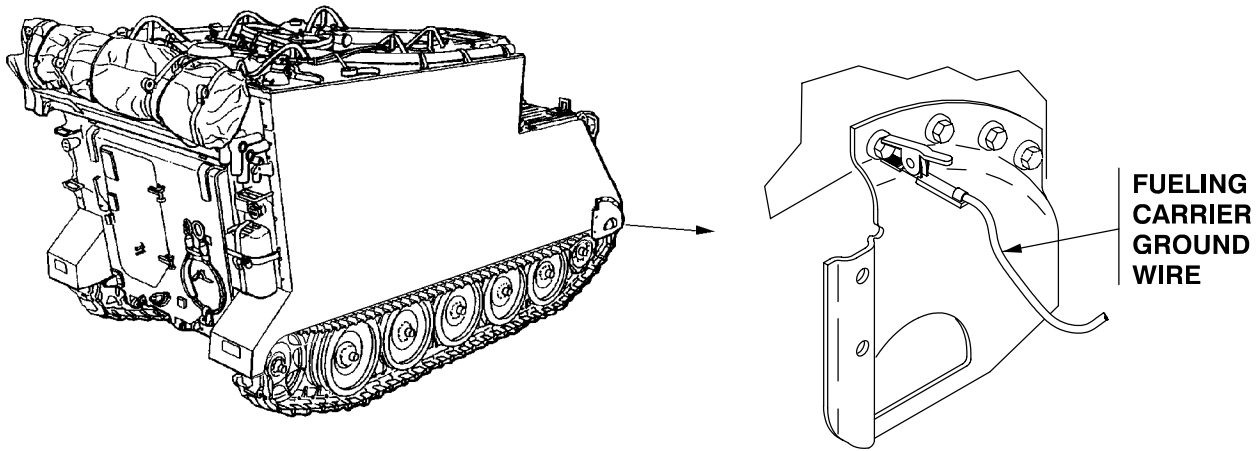


WARNING

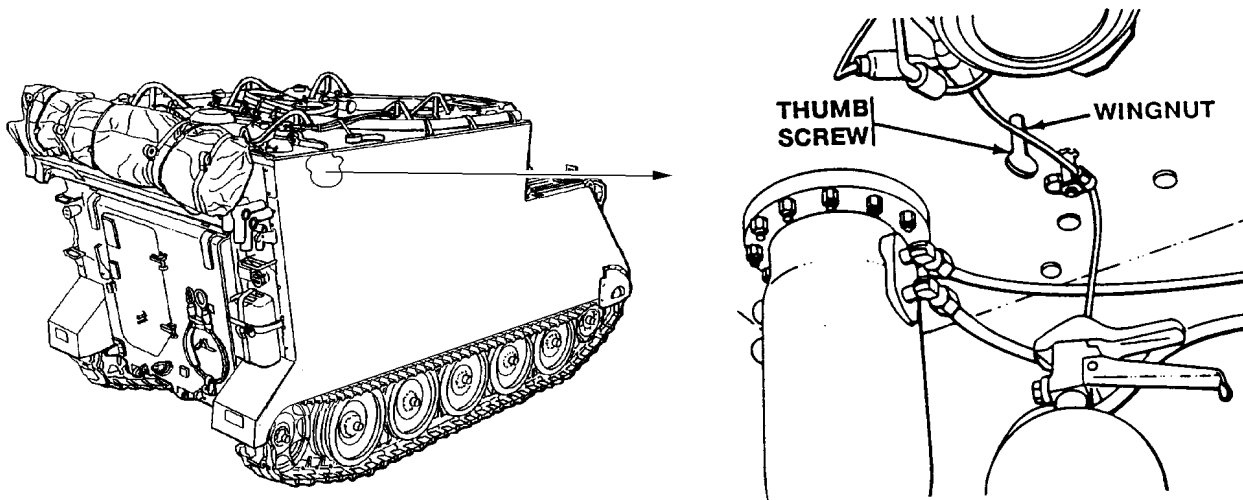


Diesel fuel can catch fire and burn you. Do not smoke or allow open flame near carrier when refueling.

1. Install fueling carrier ground wire to bare metal on carrier to be fueled.



2. From inside carrier, unlock fuel filler combat cover by loosening wingnut and turning thumbscrew counterclockwise.



3. From outside carrier, open combat cover.

CAUTION

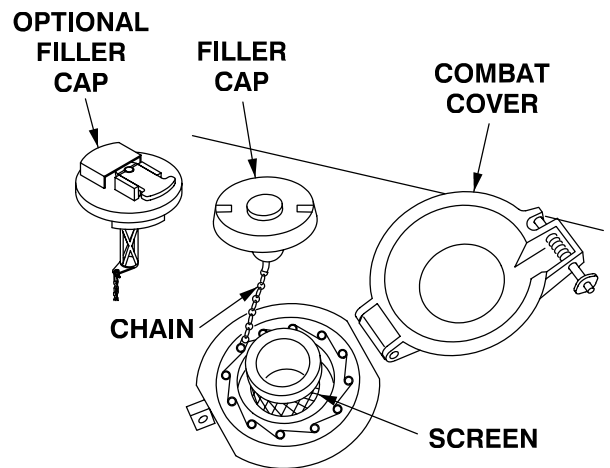
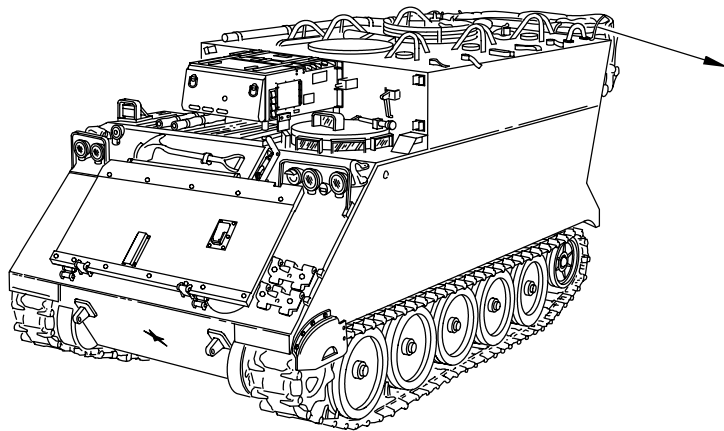
Contamination can damage fuel system. Remove dirt and water from fuel filler area before opening fuel filler cap.

4. Clean off any dirt and water that could get into filler neck. Use wiping rag.

NOTE

Carrier may have optional cap with pressure relief valve.

5. Unscrew filler cap. If fuel cap has pressure relief valve, remove by lifting pressure relief valve handle on fuel cap and turn cap counterclockwise.
6. Check screen in filler neck. If there is any dirt in screen, take screen out and clean it. Install screen before fueling.



WARNING



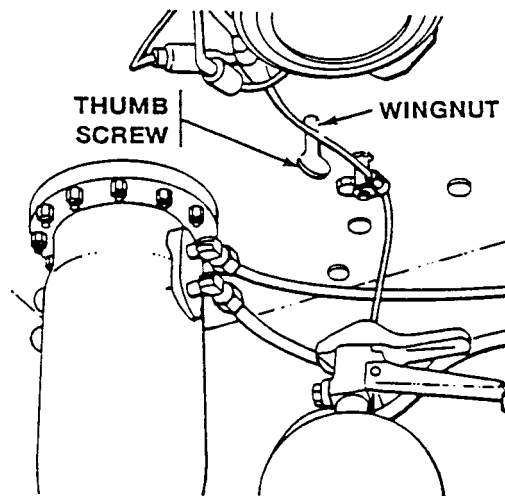
Sparks from static electricity can cause a fire or explosion. Fuel cans should be removed before being filled. Metal nozzle must touch metal in filler neck when filling or ground wire must be attached to fuel can being filled. Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

7. Insert nozzle in fuel filler neck. Fill fuel tank, allowing 5 inches in fuel filler neck for expansion.
8. Remove fuel nozzle from fuel filler neck.

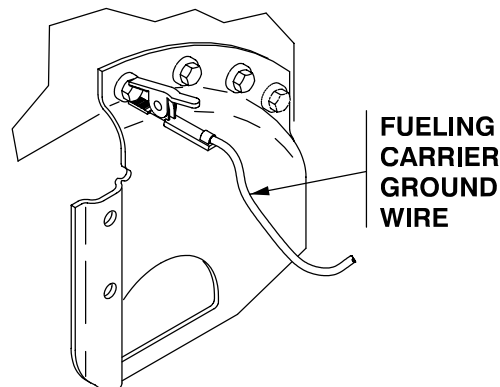
NOTE

Carrier may have optional cap with pressure relief valve.

9. Install fuel filler cap. If fuel cap has pressure relief valve, install cap by turning clockwise until tight, then push pressure relief valve handle down. Make sure keeper chain is all inside so cap goes on tight.
10. Close combat cover.
11. Lock combat cover from inside carrier by turning thumbscrew clockwise. Tighten wingnut.



12. Remove fueling carrier ground wire from carrier.

**FUEL 4.2 KW GENERATOR SET****CAUTION**

Use only 83 octane gasoline in M577A2 and M1068 4.2 KW generator sets.

1. See TM 5-6115-596-14 to fuel 4.2 KW generator set.

END OF TASK

OPERATE 4.2 KW GENERATOR SET (M577A2 AND M1068 ONLY)

0032 00

THIS WORK PACKAGE COVERS:

Operate 4.2 KW Generator Set (page 0032 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

TM 5-6115-596-14

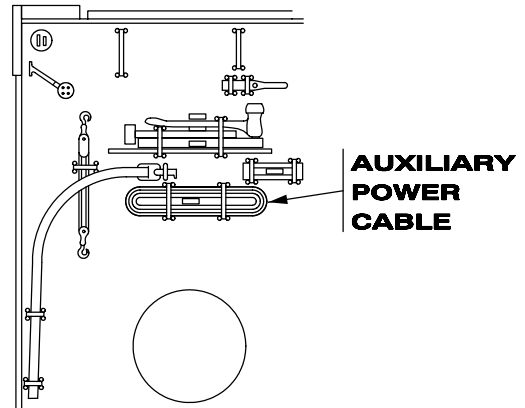
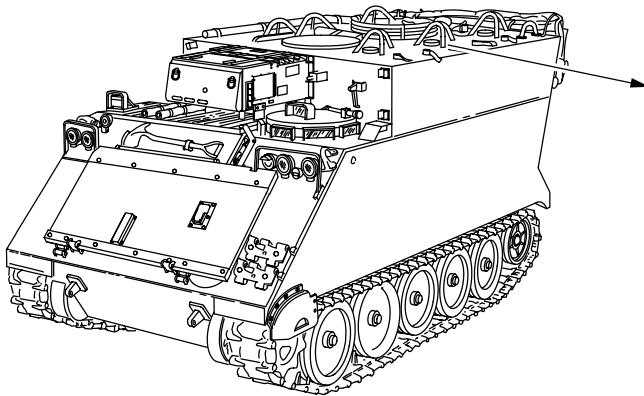
Equipment Condition

Engine stopped (WP 0029 00)

4.2 KW generator set removed and on level ground
(WP 0025 00)

OPERATE 4.2 KW GENERATOR SET

1. Turn MASTER SWITCH to OFF.
2. Remove auxiliary power cable from its stowed position on top deck of carrier.

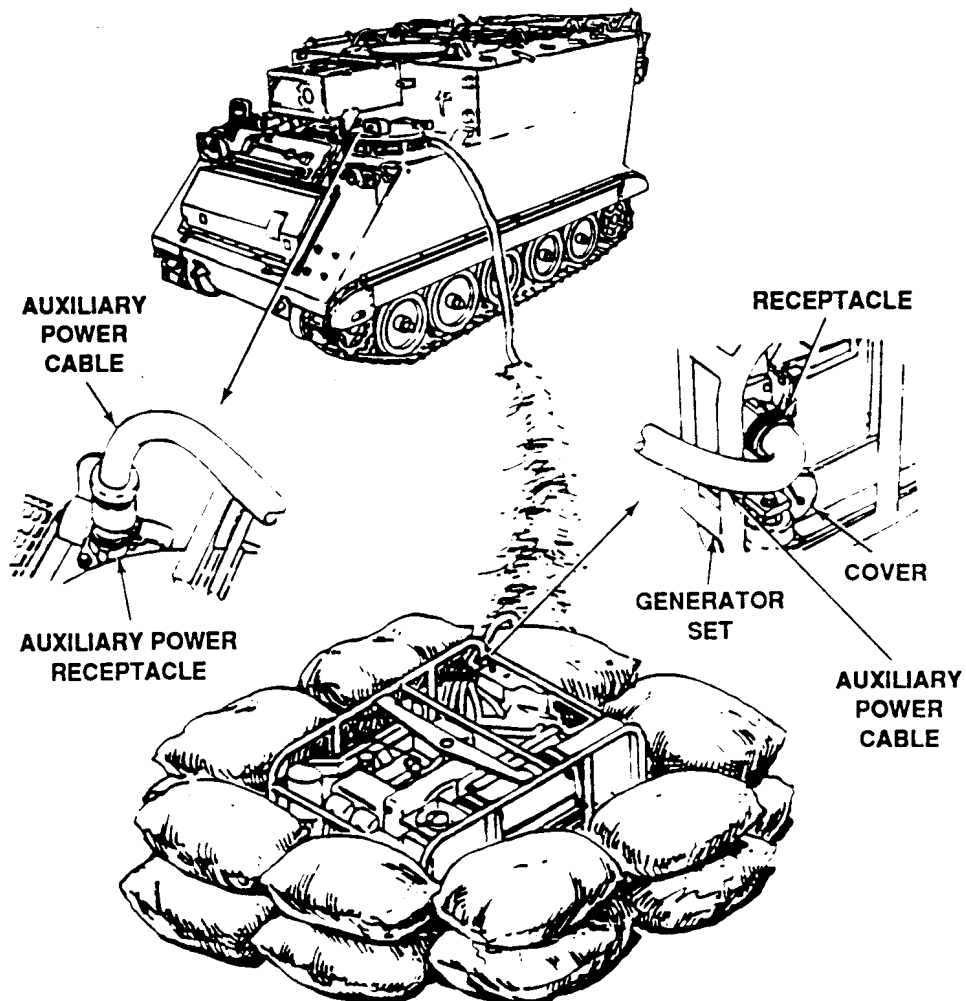


3. Connect auxiliary power cable to auxiliary power receptacle on top deck of carrier near driver's hatch.
4. Unroll auxiliary power cable to its full length.

NOTE

Generator must be level to operate properly.

5. Locate a good position to set up generator set. Dig a shallow hole large enough for generator set. Keep bottom of hole level.
6. Set generator set in hole. Place sand bags around hole to camouflage generator set and help reduce noise during operation. Have crew help.
7. Connect auxiliary power cable to either receptacle on generator set. Make sure auxiliary power cable is concealed and out of the way of personnel.

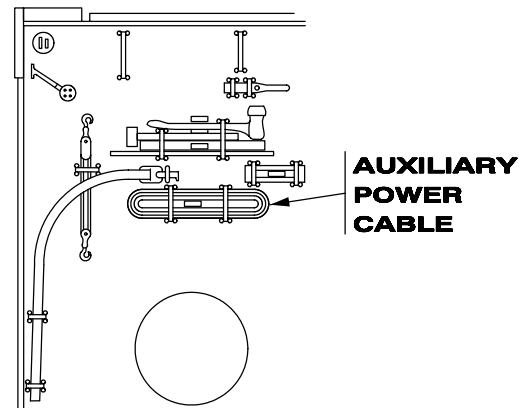
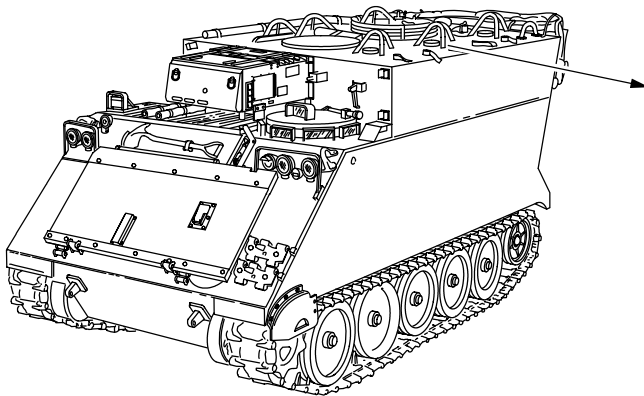


8. Turn MASTER POWER SWITCH to ON.

CAUTION

Use only 83 octane gasoline in the M577A2 and M1068 generator sets.

9. Start and operate the generator set, as described in TM 5-6115-596-14.
10. Shut down generator set, as described in TM 5-6115-596-14.
11. Turn MASTER SWITCH to OFF.
12. Disconnect and stow auxiliary power cable.



END OF TASK

**OPERATE 5.0 KW AUXILIARY POWER UNIT (APU) (M577A2
AND M1068 ONLY)**

0033 00

THIS WORK PACKAGE COVERS:

Operate (page 0033 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

TM 9-6115-664-13&P

Personnel Required

Driver

Crew

Equipment Condition

Engine stopped (WP 0029 00)

OPERATE

1. Turn carrier MASTER SWITCH to ON.
2. Start and operate the APU, as described in TM 9-6115-664-13&P.
3. Shut down APU, as described in TM 9-6115-664-13&P.
4. Turn carrier MASTER SWITCH to OFF.

END OF TASK

INSTALL/REMOVE WINDSHIELD

0034 00

THIS WORK PACKAGE COVERS:

Installation (page 0034 00-1).
Removal (page 0034 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

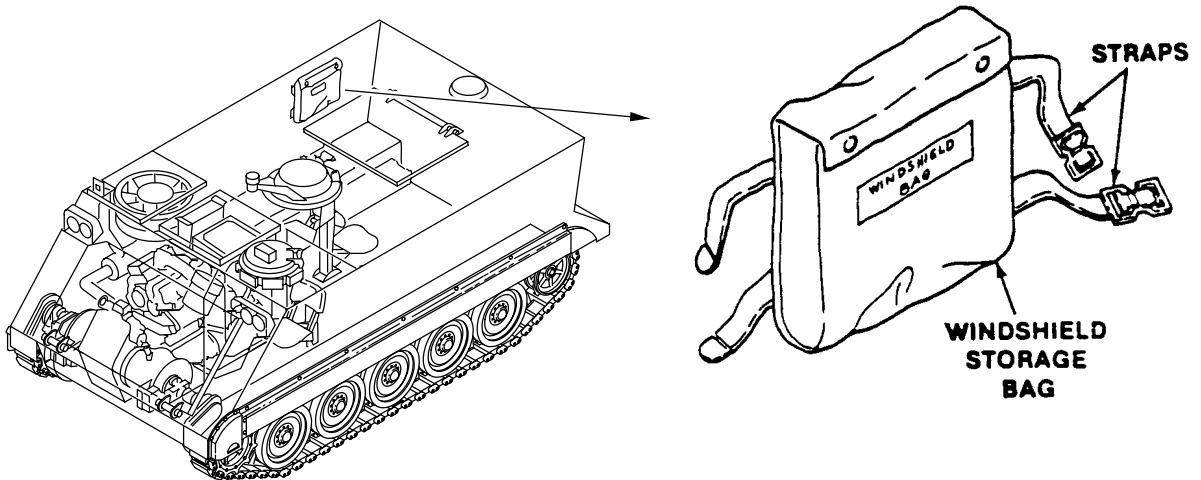
Driver

INSTALLATION

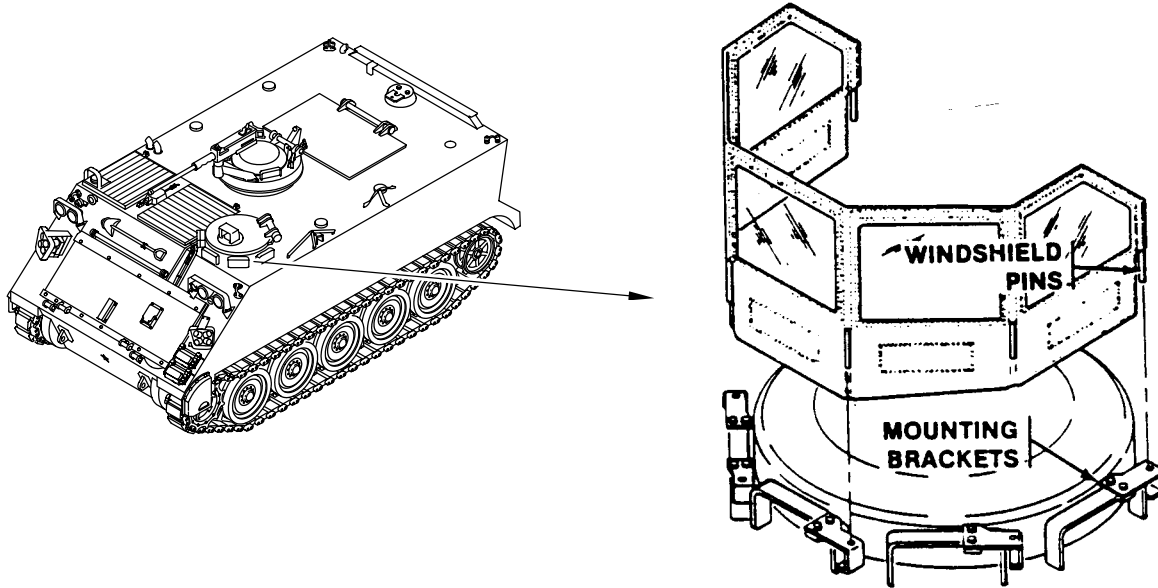
CAUTION

Windshield panels are easily scratched. Handle windshield with care.

1. Loosen two straps and remove windshield storage bag from rear bulkhead.



2. Remove windshield from storage bag.
3. Install windshield pins in mounting brackets. Tuck skirt of windshield between driver's hatch and periscope guards.

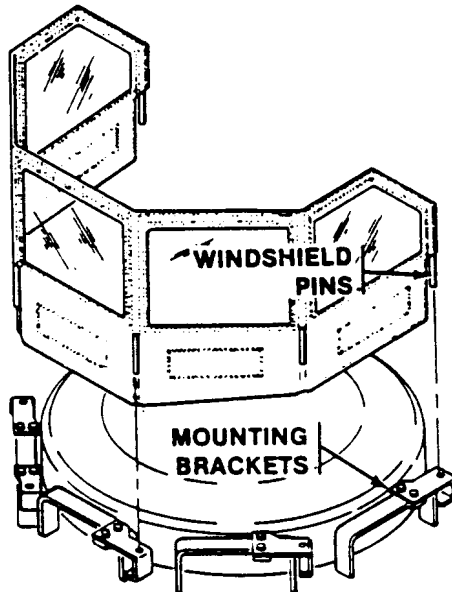


REMOVAL

CAUTION

Window panels will crack if folded after use in extreme cold weather. Warm windshield before folding.

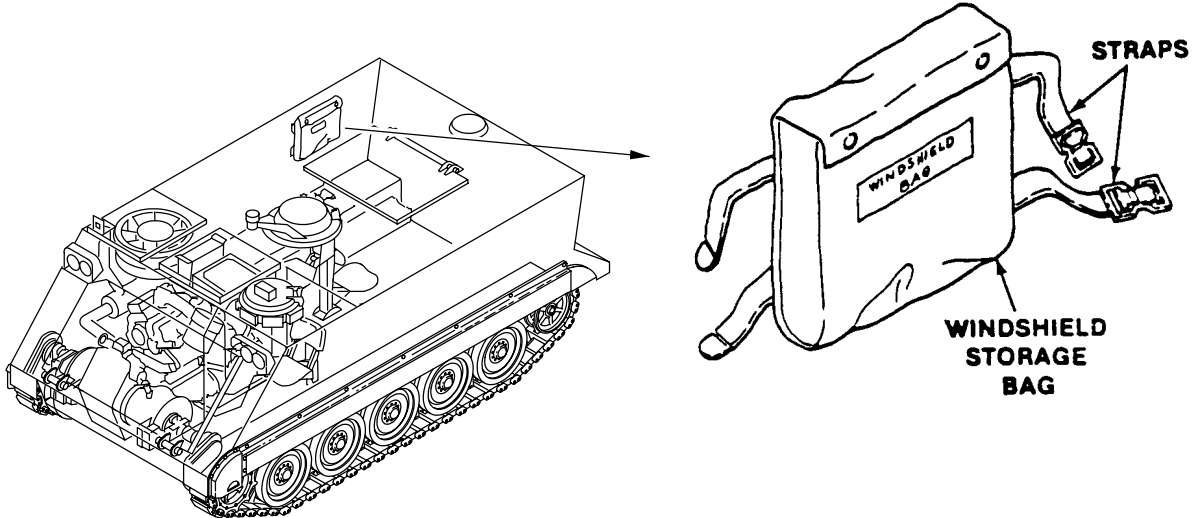
1. Remove windshield pins from mounting brackets.



INSTALL/REMOVE WINDSHIELD — Continued

0034 00

2. Fold windshield and stow in storage bag.
3. Return storage bag to rear bulkhead and secure with two straps.

**END OF TASK**

INSTALL/REMOVE M17 PERISCOPES

0035 00

THIS WORK PACKAGE COVERS:

- Installation (page 0035 00-1).
- Removal (page 0035 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

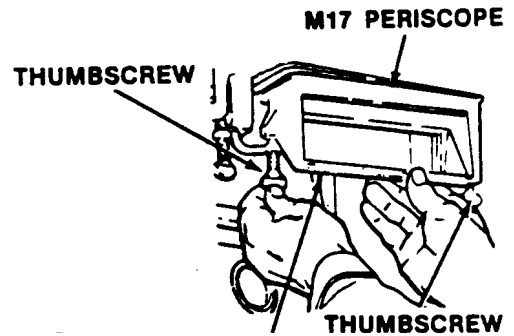
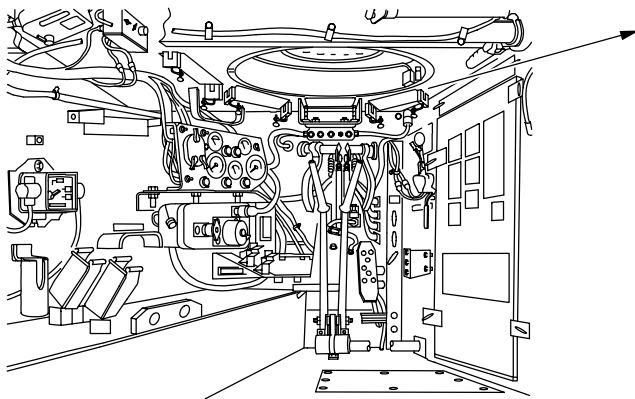
Driver

INSTALLATION

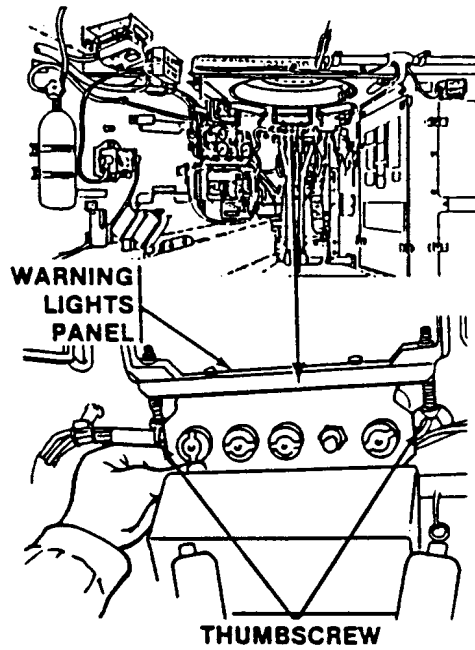
NOTE

All M17 periscopes are installed the same way except the periscope mounted over the warning lights panel. Steps 3 - 5 tell how to install periscope over warning lights panel.

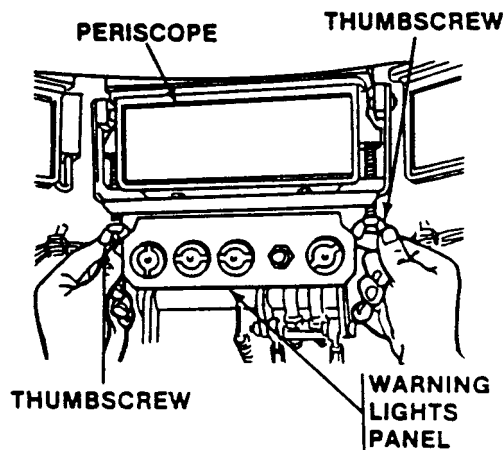
1. Push M17 periscope straight up into channel in driver's bulkhead or commander's cupola.
2. Tighten two thumbscrews to secure periscope in place.



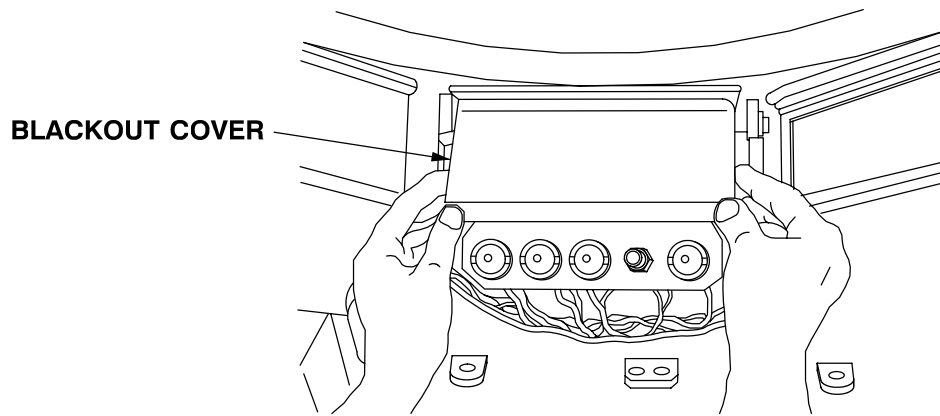
3. Loosen two thumbscrews. Swing and hold warning lights panel out of the way.



4. Install periscope in channel.
5. Return warning lights panel to normal position. Tighten two thumbscrews to secure periscope and warning lights panel in place.



- During blackout operations, cover periscope window with blackout cover located behind each periscope.

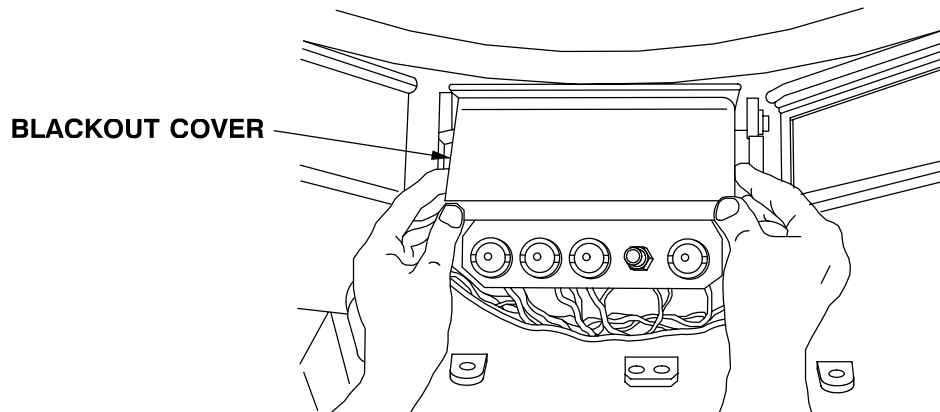


REMOVAL

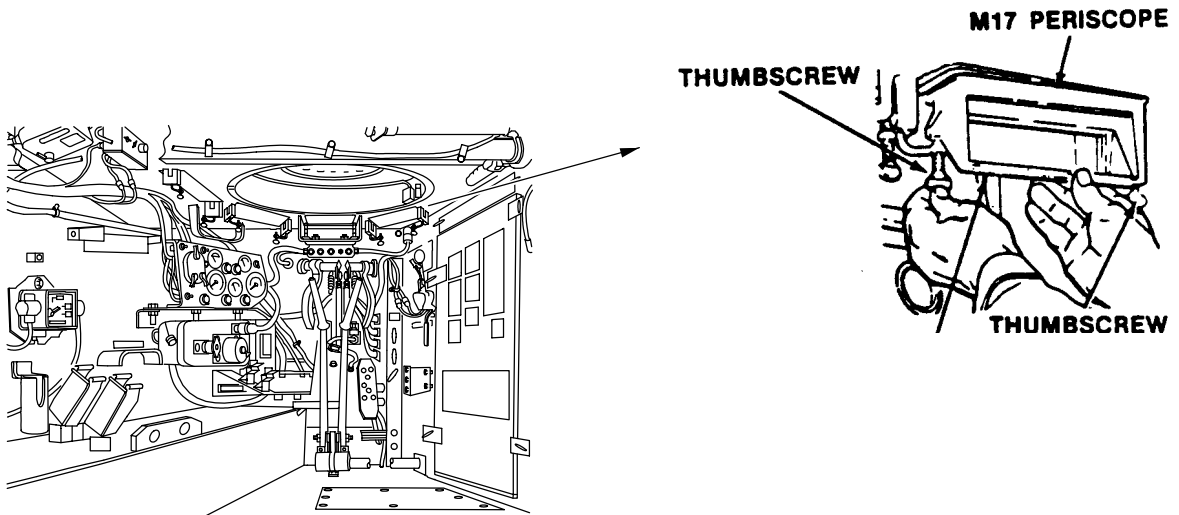
NOTE

All M17 periscopes are removed the same way except the periscope mounted over the warning lights panel. Steps 3 - 4 tell how to remove periscope from over warning lights panel.

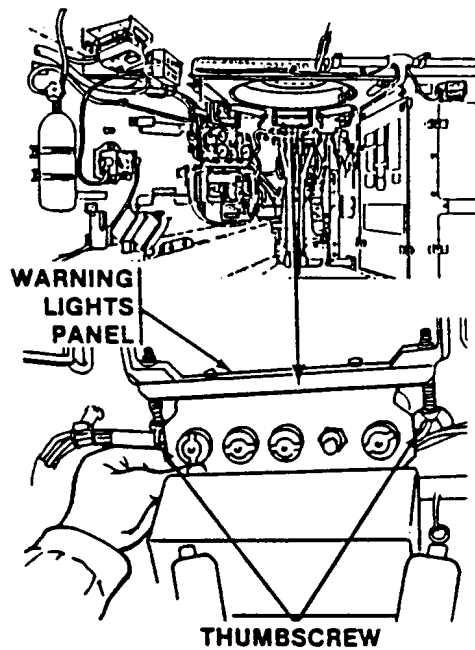
- If installed, remove blackout cover from periscope window and stow on back of periscope.



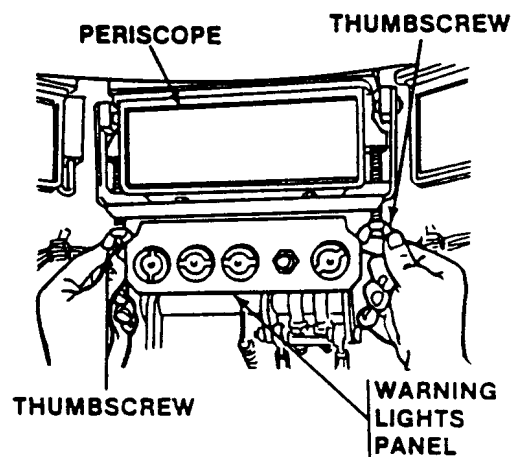
- Loosen two thumbscrews and remove periscope from channel in driver's bulkhead or commander's cupola.



3. Loosen two thumbscrews. Swing warning lights panel out of the way and remove periscope from channel.



4. Return warning lights panel to normal position.



END OF TASK

OPERATE PERSONNEL HEATER

0036 00

THIS WORK PACKAGE COVERS:

- Turn Personnel Heater On (page 0036 00-1).
 - Turn Personnel Heater Off (page 0036 00-4).
-

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Cold weather

Personnel Required
Driver

WARNING



Heater exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Be alert at all times. Check for smell of exhaust fumes. If you detect or suspect the presence of fumes, open all hatches right away. Shut heater OFF.

WARNING



Ammunition can explode and kill you. Do not start heater until ammunition and combustible/explosive materials are properly stored at least 30 inches from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of heater.

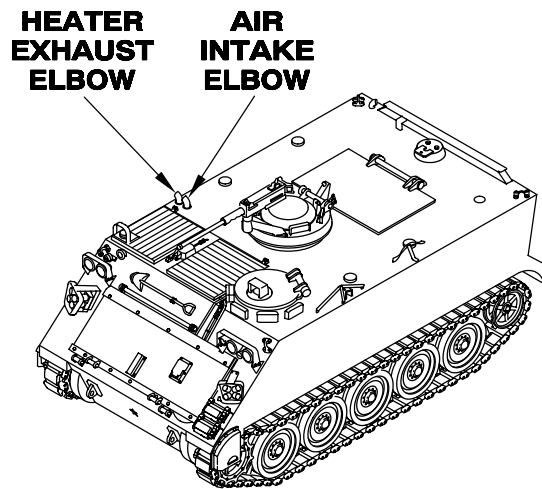
TURN PERSONNEL HEATER ON

NOTE

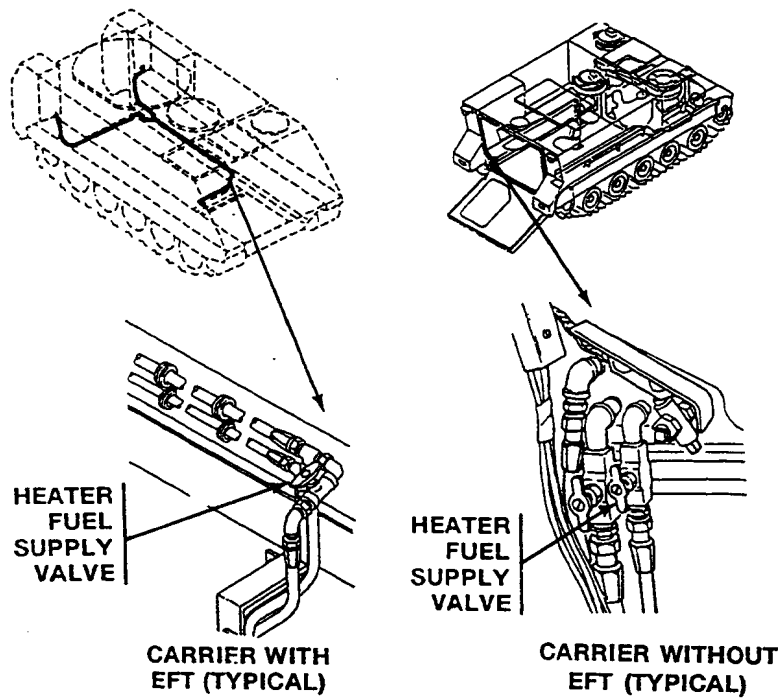
Heater startup varies with the type of heater (Stewart Warner or Hupp) installed in your carrier. Steps 1 - 3 and Step 9 apply to both heaters. Steps 5 - 6 apply if your carrier is equipped with a Stewart Warner (South Wind) heater. Steps 7 - 8 and apply if your carrier is equipped with a Hupp (Perfection) heater.

For heater P/N 5000-30178 (Model A20), see Steps 10 - 11 and Step 11 and also TM 9-2540-207-14&P.

1. Check air intake elbow and heater exhaust elbow to make sure they are clear of debris.

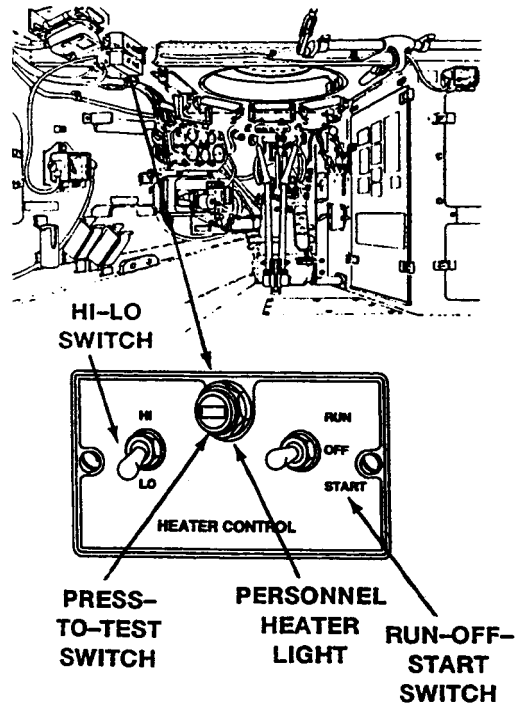


2. Make sure heater fuel supply valve is open.



3. Press PRESS-TO-TEST switch. Check that HEATER light comes on.

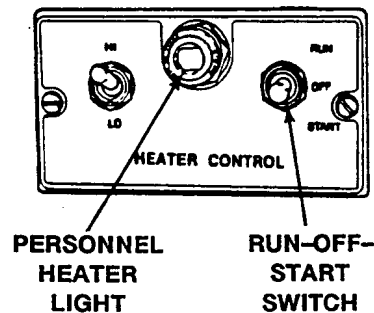
4. Make sure HI-LO switch is set to LO before starting.



NOTE

On the majority of the heater control boxes, the control light comes on dimmed during start cycle of the heater. When heater starts the light goes to full brightness.

5. Move RUN-OFF-START switch to START for 2 minutes. If HEATER light does not come on, move RUN-OFF-START switch to OFF for 10 seconds. Move RUN-OFF-START switch to START for 1 minute. If HEATER light does not come on, move RUN-OFF-START switch to OFF for 10 seconds. Move RUN-OFF-START switch to START for 1 minute. If heater fails to start after third try, troubleshoot heater (WP 0074 00).
6. Move RUN-OFF-START switch to RUN as soon as HEATER light comes on. Do not stop in OFF position.



7. Move RUN-OFF-START switch to START for 4 minutes. If HEATER light does not come on, move RUN-OFF-START switch to OFF. Wait at least 15 minutes. Move RUN-OFF-START switch to START for 4 minutes. If heater fails to start after second try, troubleshoot heater (WP 0074 00).
8. Move RUN-OFF-START switch to RUN as soon as HEATER light comes on. Do not stop in OFF position.

NOTE

Personnel heater always starts at low heat. It changes to high heat if HI-LO switch is set at HI.

9. Move HI-LO switch to HI or LO.

NOTE

Steps 10 - 11 apply to heater Model A20 P/N 5000-310178 only.

10. Move the RUN-OFF-START switch momentarily to START for at least four (4) seconds, and then move the switch to RUN. The heater will now run automatically and does not require any further actions by the operator.
11. Control box warning indicator light. If the control box lamp begins to flash the heater is signaling that an abnormal condition is present. See TM 9-2540-207-14&P for diagnostic display codes and corrective action.

TURN PERSONNEL HEATER OFF**NOTE**

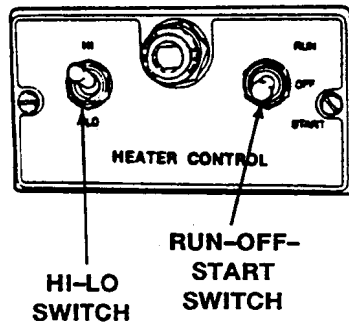
If you operate heater for an extended time, start engine to keep batteries charged (WP 0026 00).

NOTE

When personnel heater is turned off, blower will run until personnel heater cools off. **HEATER** light will go off when personnel heater cools off.

Driver should stay in carrier until blower stops.

1. Move RUN-OFF-START switch to OFF.



2. Let personnel heater purge itself.

END OF TASK

OPERATE ELECTRONIC EQUIPMENT HEATER

0037 00**THIS WORK PACKAGE COVERS:**

Turn Heater On (page 0037 00-1).
Turn Heater Off (page 0037 00-3).

INITIAL SETUP:Maintenance Level

Operator

Personnel Required

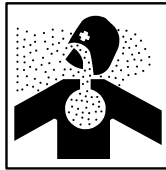
Driver

NOTE

The electronic equipment heater helps maintain personnel compartment temperature above +40°F (4°C), which is necessary for operation of electronic equipment.

TURN HEATER ON

WARNING

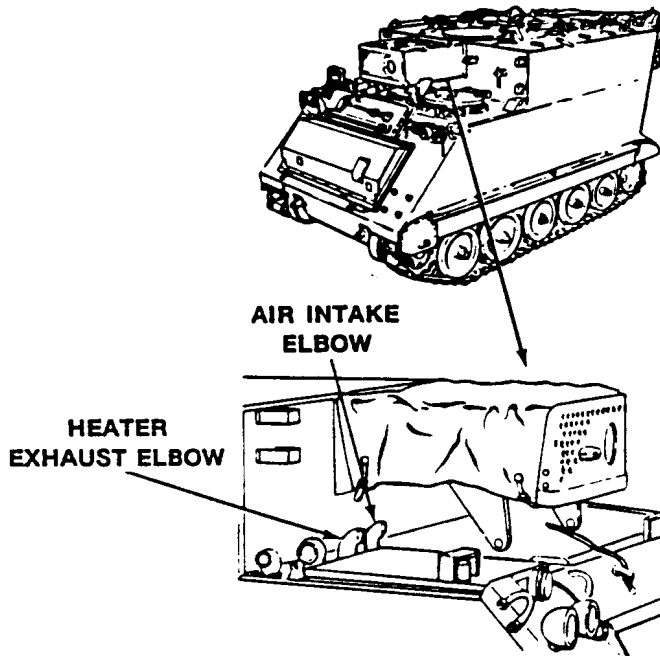


Heater exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Be alert at all times. Check for smell of exhaust fumes. If you detect or suspect the presence of fumes, open all hatches right away. Shut heater OFF.

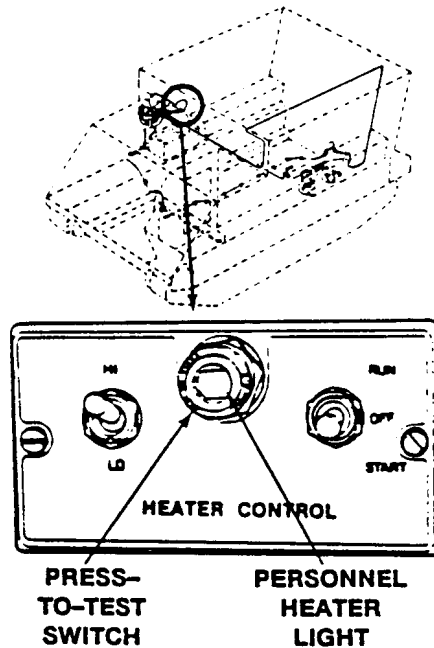
NOTE

If you operate heater for an extended time, start engine (WP 0026 00), or use the 4.2 KW generator to keep batteries charged.

1. From outside carrier, check heater exhaust elbow and air intake elbow to make sure they are not blocked.



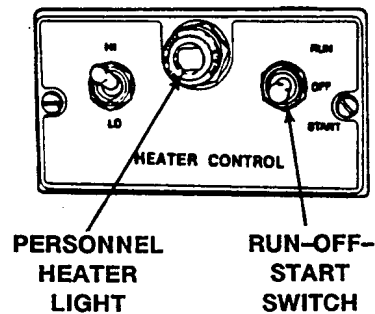
2. From inside carrier, press PRESS-TO-TEST switch. If light comes on, you have power. If light does not come on, troubleshoot heater (WP 0074 00).



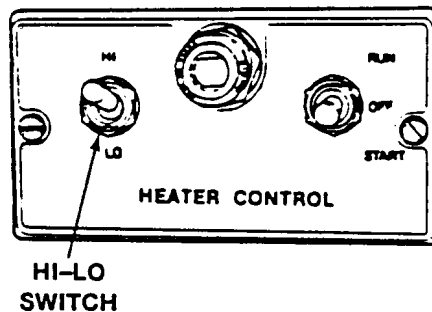
NOTE

On the majority of heater control boxes, the control light comes on dimmed during the start cycle of the heater. When heater starts the light goes to full brightness.

3. Hold RUN-OFF-START switch to START until indicator light comes on. Then move switch to RUN, without stopping in OFF position.



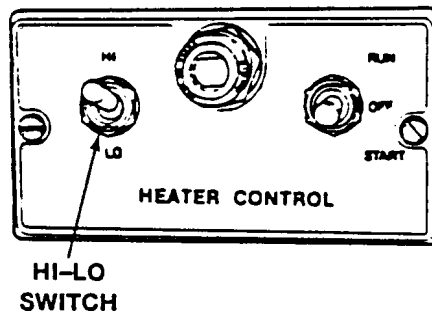
4. Select high or low heat with HI-LO switch. Heater will always start on low heat no matter where switch is set. It will go to high after it starts if switch is at HI.



5. If heater doesn't start, try again. If it doesn't start in three tries, troubleshoot heater (WP 0074 00).

TURN HEATER OFF

1. Move RUN-OFF-START switch to OFF. Heater will continue to operate for a few minutes until fuel is burned. Then it will shut itself off.



END OF TASK

OPERATE PERSONNEL COMPARTMENT VENTILATOR

0038 00**THIS WORK PACKAGE COVERS:**

Operate Ventilator (page 0038 00-1).

INITIAL SETUP:Maintenance Level

Operator

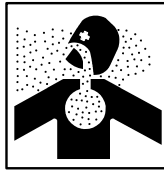
Equipment Condition

All hatch covers closed

Personnel RequiredSoldier

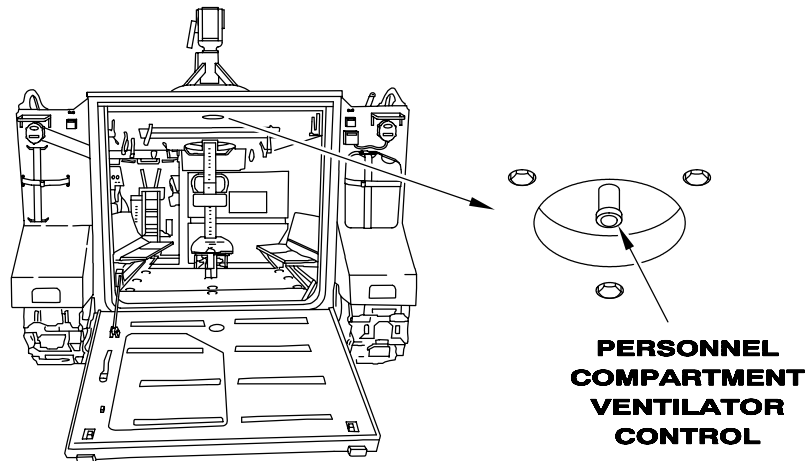
OPERATE VENTILATOR

WARNING



Lack of air in carrier can cause personnel serious injury or death. When operating carrier with hatch covers closed, make sure personnel compartment ventilator is open.

1. Push up on personnel compartment ventilator control until ventilator locks in open position.
2. Pull down on personnel compartment ventilator control to close ventilator.

**END OF TASK**

OPERATE CARRIER LIGHTS

0039 00

THIS WORK PACKAGE COVERS:

- Operate Headlights (page 0039 00-1).
- Operate Blackout Marker (page 0039 00-2).
- Operate Blackout Marker and Blackout Driving Lights (page 0039 00-2).
- Operate Stoplight (page 0039 00-3).
- Operate Infrared Headlights (page 0039 00-3).
- Operate Panel Lights (page 0039 00-4).
- Operate White Dome Lights (page 0039 00-4).
- Operate Blackout Dome Lights (page 0039 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

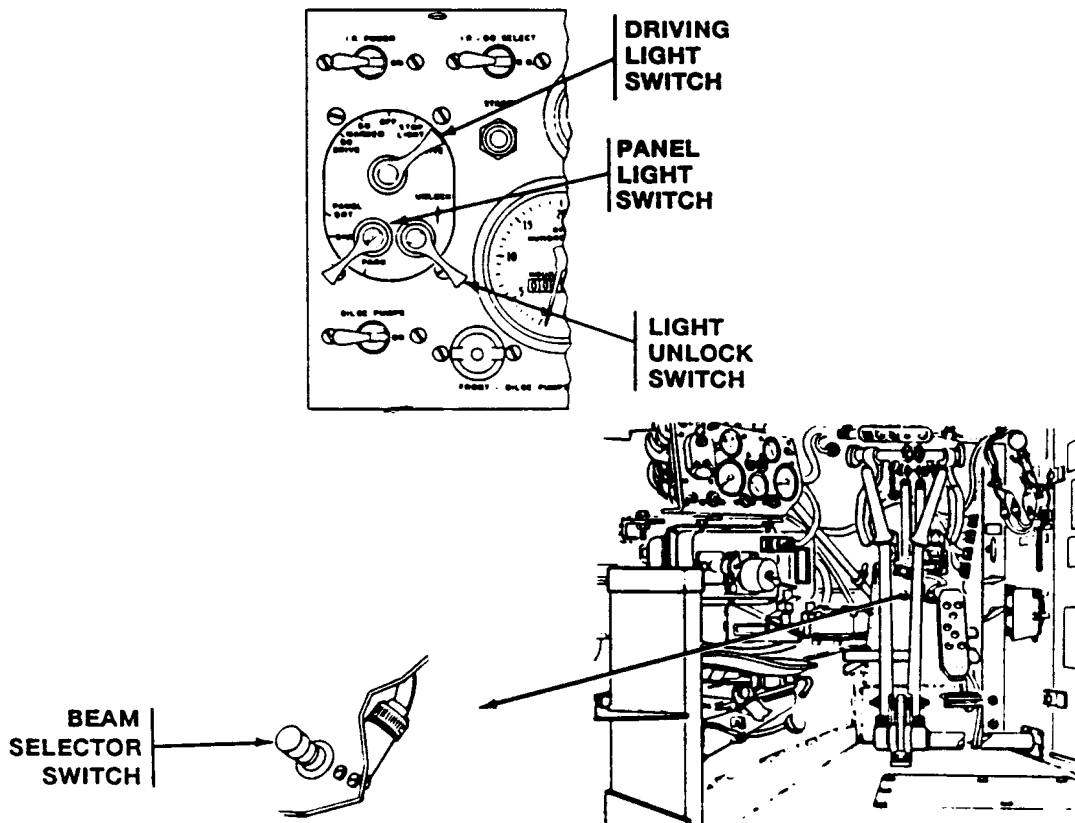
MASTER SWITCH to ON (WP 0004 00)

Personnel Required

Driver

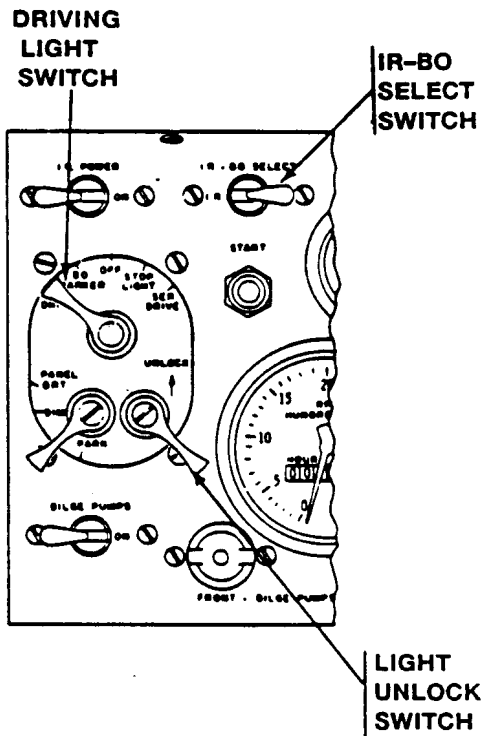
OPERATE HEADLIGHTS

1. Move light UNLOCK switch to UNLOCK, and hold.
2. Move panel light switch to OFF.
3. Move driving light switch to SER DRIVE.
4. Press beam selector switch for high or low beam.
5. Release light UNLOCK switch.
6. Move driving light switch to OFF.



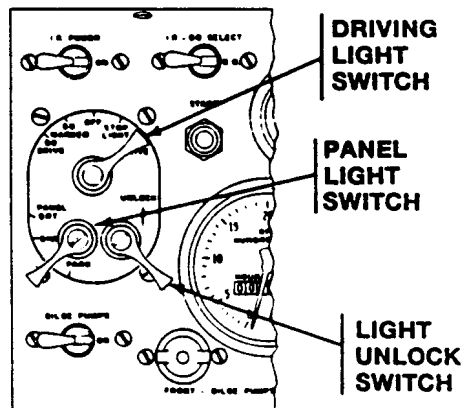
OPERATE BLACKOUT MARKER

1. Move driving light switch to BO MARKER.
2. Move panel light switch to OFF.
3. Move driving light switch to OFF.



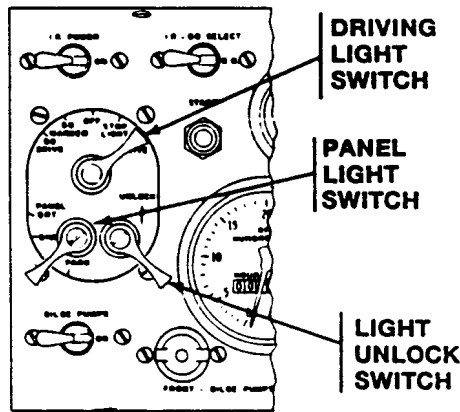
OPERATE BLACKOUT MARKER AND BLACKOUT DRIVING LIGHTS

1. Move light UNLOCK switch to UNLOCK, and hold.
2. Move panel light switch to OFF.
3. Move driving light switch to BO DRIVE.
4. Release light UNLOCK switch.
5. Move IR-BO SELECT switch to BO.
6. Move driving light switch to OFF.



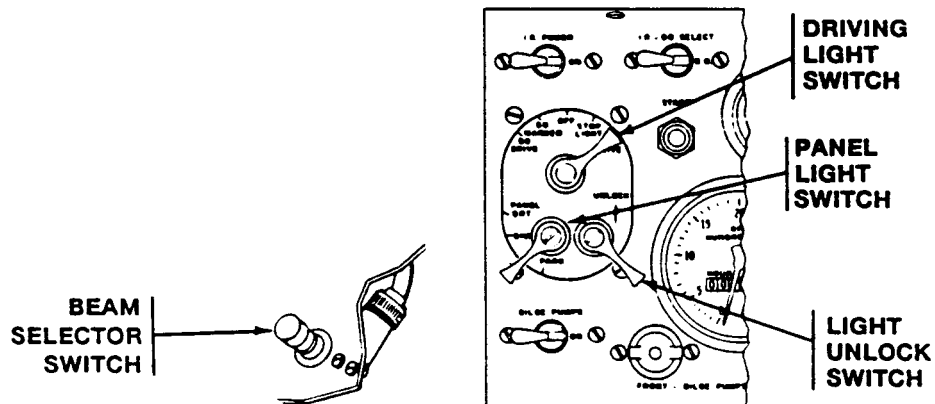
OPERATE STOPLIGHT

1. Move light UNLOCK switch to UNLOCK, and hold.
2. Move panel light switch to OFF.
3. Move driving light switch to STOPLIGHT.
4. Release light UNLOCK switch.
5. Press brake pedal.
6. Release brake pedal.
7. Move driving light switch to OFF.



OPERATE INFRARED HEADLIGHTS

1. Move light UNLOCK switch to UNLOCK, and hold.
2. Move panel light switch to OFF.
3. Move driving light switch to BO DRIVE.
4. Release light UNLOCK switch.
5. Move IR-BO SELECT switch to IR.
6. Press beam selector switch for high or low beam.
7. Move driving light switch to OFF.

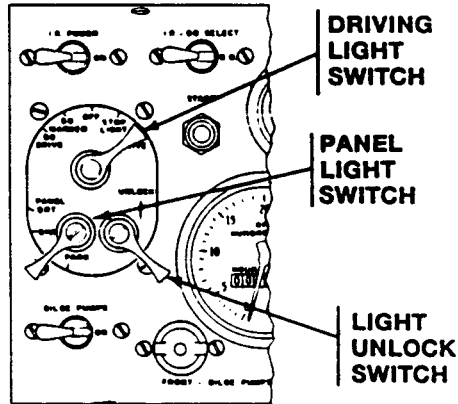


OPERATE PANEL LIGHTS

NOTE

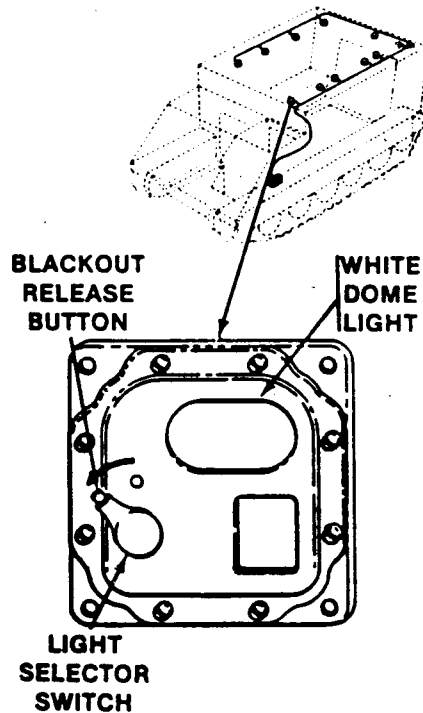
To operate panel light, driving light switch can be in any position except OFF.

1. Move panel light switch to DIM or to PANEL BRT.
2. Move panel light switch to OFF.
3. Move driving light switch to OFF.



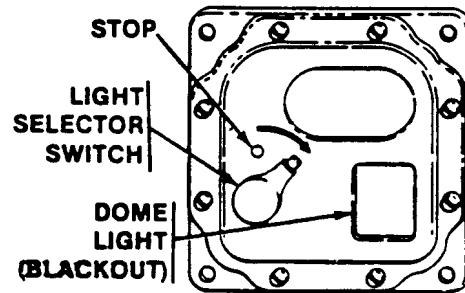
OPERATE WHITE DOME LIGHTS

1. Press blackout release button. Turn light selector switch past stop toward edge of dome light.
2. Press blackout release button. Turn light selector switch past stop to off position.



OPERATE BLACKOUT DOME LIGHTS

1. Turn light selector switch toward center of dome light.
2. Turn light selector switch to off position.

**END OF TASK**

OPERATE FIXED FIRE EXTINGUISHER SYSTEM

0040 00

THIS WORK PACKAGE COVERS:

- Operate Fixed Fire Extinguisher (Outside) (page 0040 00-1).
 - Operate Fixed Fire Extinguisher (Inside) (page 0040 00-2).
-

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0029 00

Personnel Required

Driver or soldier

Equipment Condition

Fire extinguisher installed and seal unbroken

OPERATE FIXED FIRE EXTINGUISHER (OUTSIDE)

WARNING



If CO² is discharged into engine compartment while engine is running, engine exhaust may be poisonous. Poisonous gas can injure you. Stop engine before you discharge CO². If CO² is discharged while engine is running, do not breathe engine exhaust.



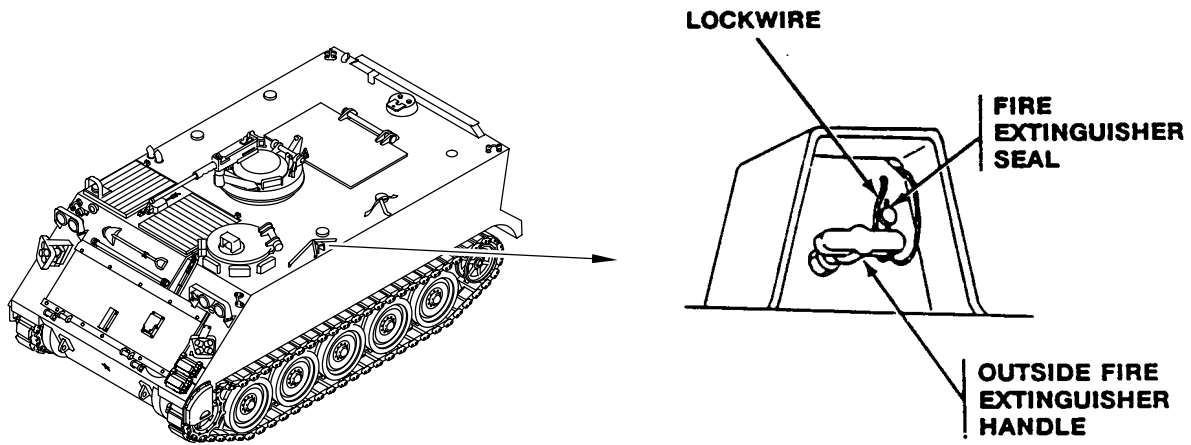
Engine fan can blow away CO² before fire is extinguished. Personnel can get burned. Equipment can get damaged. Stop engine before you operate fire extinguisher.

NOTE

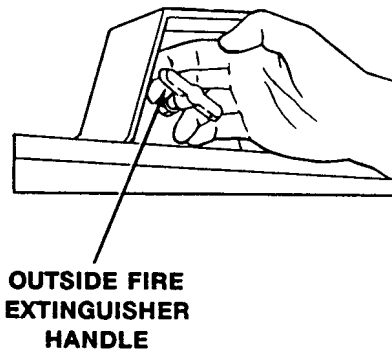
Unit maintenance should be notified after fixed fire extinguisher is discharged.

1. Stop engine (WP 0029 00).

2. Break fire extinguisher seal and remove lockwire from outside fire extinguisher handle.



3. Pull outside fire extinguisher handle to activate fire extinguisher.



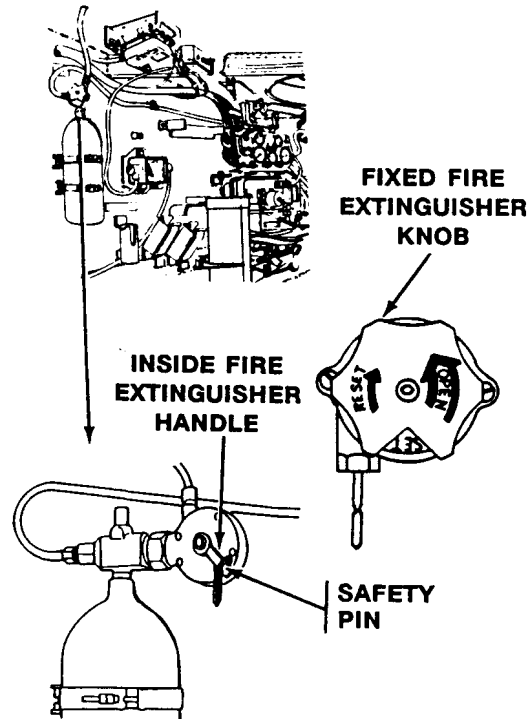
OPERATE FIXED FIRE EXTINGUISHER (INSIDE)

1. Stop engine (WP 0029 00).

NOTE

Fixed fire extinguisher inside release is not the same in all carriers. If your carrier has a release handle, go to Step 2. If your carrier has a release knob, go to Step 3.

2. Remove safety pin and rotate inside fire extinguisher handle upward to activate fire extinguisher.



3. Turn fixed fire extinguisher knob to the left to activate fire extinguisher.

END OF TASK

OPERATE PORTABLE FIRE EXTINGUISHER

0041 00

THIS WORK PACKAGE COVERS:

Operate (page 0041 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver or soldier

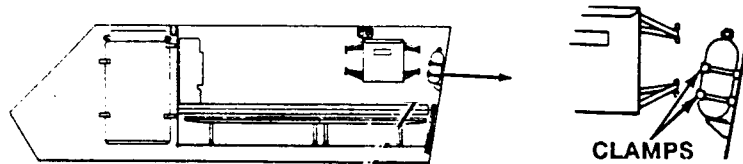
OPERATE

WARNING

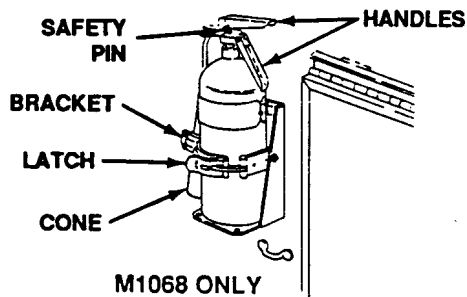


Fire extinguisher CO² can cause suffocation and/or severe burns. Handle the fire extinguisher carefully. Do not bang or drop cylinder.

1. Open two clamps and remove portable fire extinguisher from stowed position in personnel compartment.



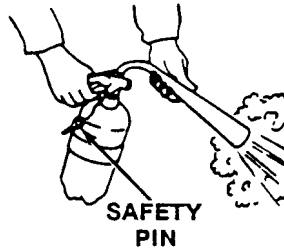
2. For M1068 only, pull latch and remove fire extinguisher from the bracket.



WARNING

Do not touch cone when using extinguisher. Hands will be severely burned.

3. To operate fire extinguisher:
 - a. Break fire extinguisher seal and remove safety pin from handle.
 - b. Point nozzle at base of fire and squeeze trigger.



4. Return empty fire extinguisher to unit maintenance.

END OF TASK

INSTALL/REMOVE M19 PERISCOPE

0042 00

THIS WORK PACKAGE COVERS:

Installation (page 0042 00-1).
Removal (page 0042 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Equipment Condition

Engine stopped (WP 0029 00)

Driver's hatch cover closed (WP 0007 00)

Carrier blocked (WP 0050 00)

INSTALLATION

WARNING



HIGH VOLTAGE IN THE M19 periscope can cause serious injury or death. To avoid accidents:

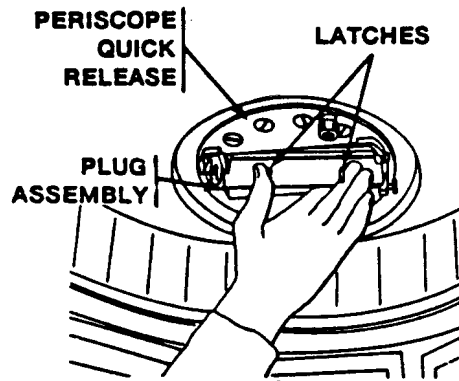
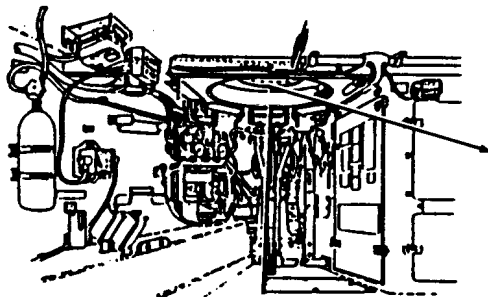
ALWAYS connect power cable to periscope **BEFORE** turning **MASTER SWITCH** and **I.R.** power switch to **ON**.

Always wait at least **2 minutes** **BEFORE** you disconnect the power cable from the periscope when turning **I.R. POWER** switch and **MASTER SWITCH** **OFF**.

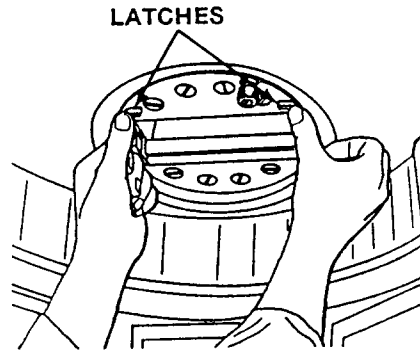
NEVER disconnect the power cable from the periscope until the image disappears from the periscope screen.

NEVER touch the end of the cable. Voltage could exceed 16,000 volts.

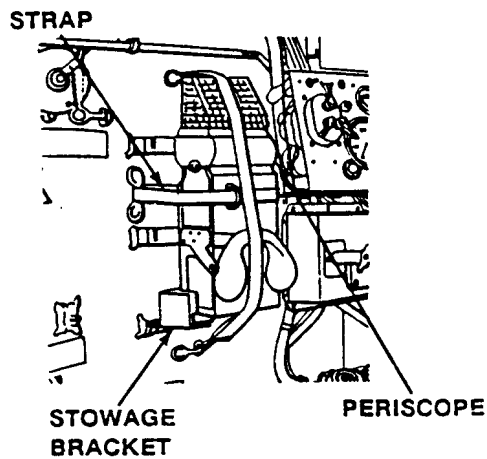
1. Squeeze latches and push up on plug assembly to release plug assembly from quick release. Tilt plug assembly to remove through opening in quick release.



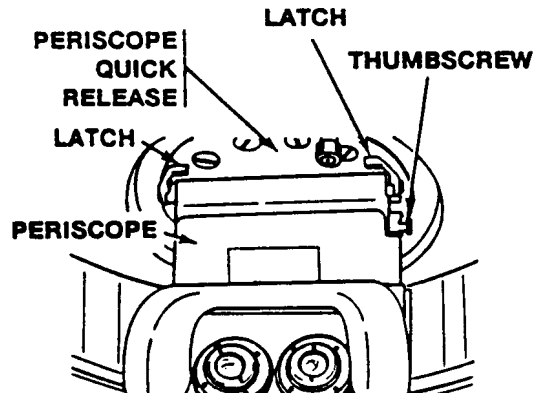
2. Push two latches upward and lock in position with thumbscrews.



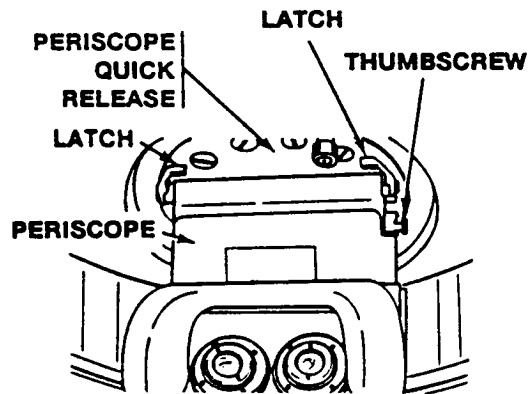
3. Remove straps securing M19 periscope to stowage bracket and remove periscope.



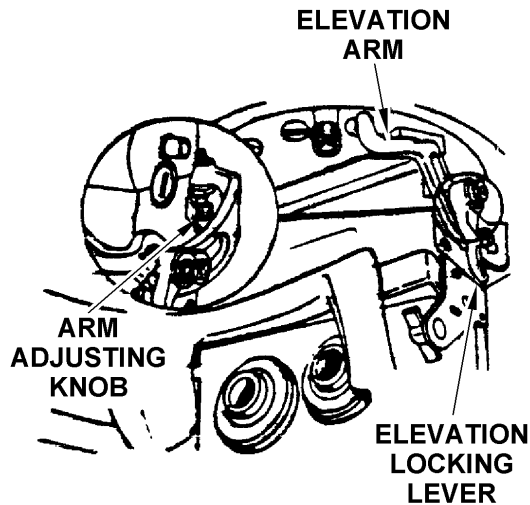
4. Carefully insert periscope in opening in periscope quick release and push upward.



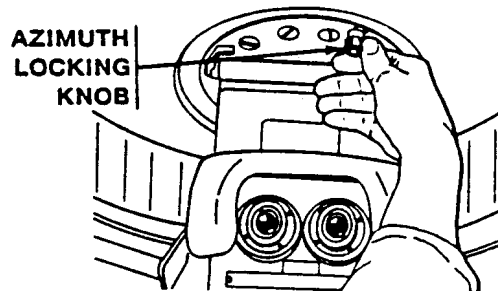
5. Turn thumbscrew to the right to secure periscope to periscope quick release.



6. Turn periscope to locate arm adjusting knob. Loosen elevation locking lever and set arm adjusting knob so both ends of elevation arm contact periscope quick release.

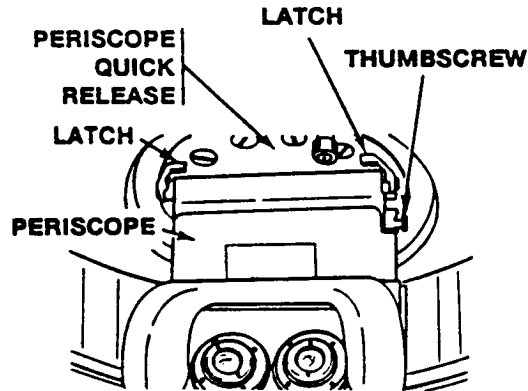


7. Loosen azimuth locking knob and rotate periscope to check for proper movement.

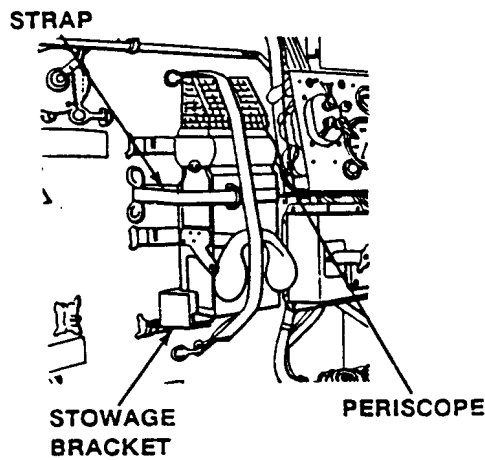


REMOVAL

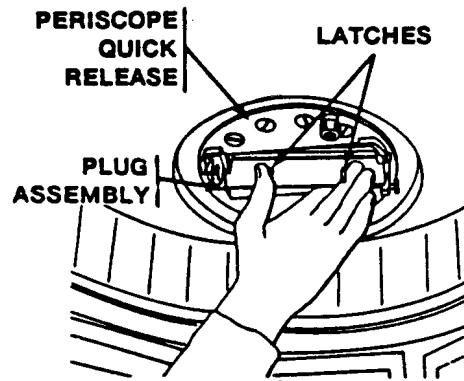
1. Loosen thumbscrew and grip periscope with both hands. Disengage latches and remove periscope from quick release.



2. Place M19 periscope in stowage bracket and secure with straps.



3. Insert plug assembly through top of opening in periscope quick release.
4. Squeeze latches on plug assembly and align pins in plug assembly with opening in periscope quick release. Release latches to secure plug assembly in periscope quick release.



END OF TASK

OPERATE M19 PERISCOPE

0043 00

THIS WORK PACKAGE COVERS:

Operate M19 Periscope (page 0043 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

M19 periscope installed (WP 0042 00)

Personnel Required

Driver

OPERATE M19 PERISCOPE

WARNING



HIGH VOLTAGE IN THE M19 periscope can cause serious injury or death. To avoid accidents:

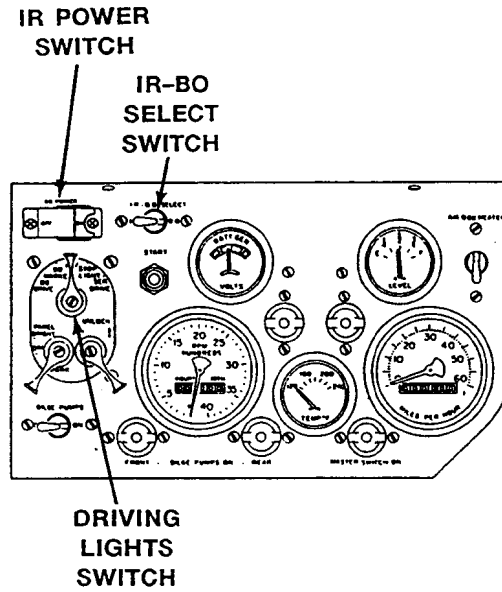
ALWAYS connect power cable to periscope **BEFORE** turning **MASTER SWITCH** and **I.R.** power switch to **ON**.

Always wait at least **2 minutes** **BEFORE** you disconnect the power cable from the periscope when turning **I.R. POWER** switch and **MASTER SWITCH** **OFF**.

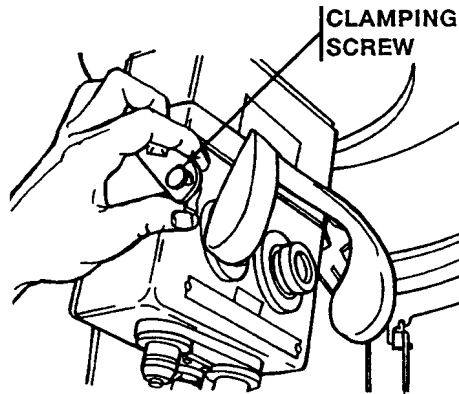
NEVER disconnect the power cable from the periscope until the image disappears from the periscope screen.

NEVER touch the end of the cable. Voltage could exceed **16,000 volts**.

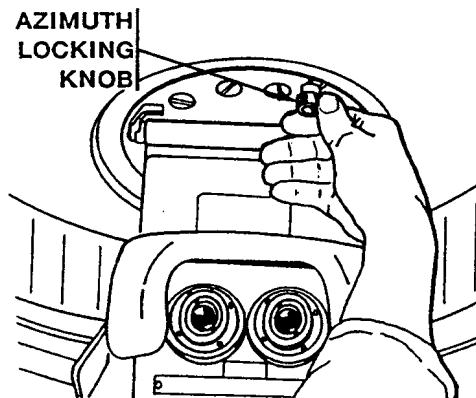
5. Move driving lights switch to BO DRIVE.
6. Move I.R.-BO SELECT switch to I.R.



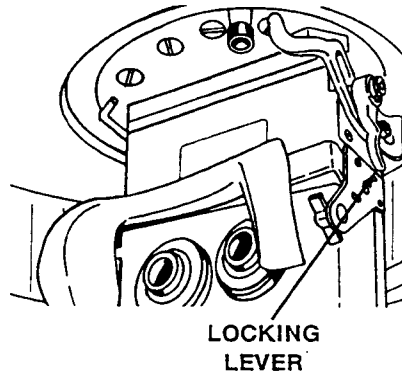
7. Loosen clamping screw and adjust headrest.



8. Turn periscope to the right or left, as needed, and tighten azimuth locking knob.



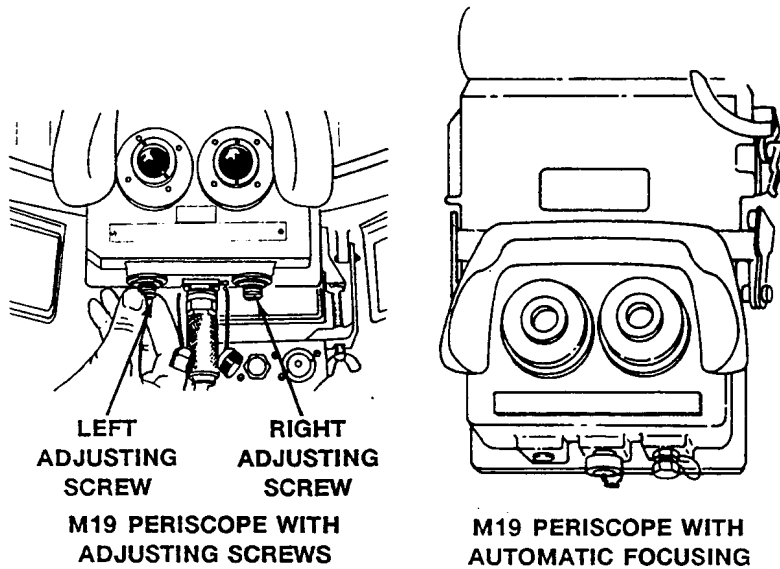
9. Adjust periscope in elevation and tighten locking lever.



NOTE

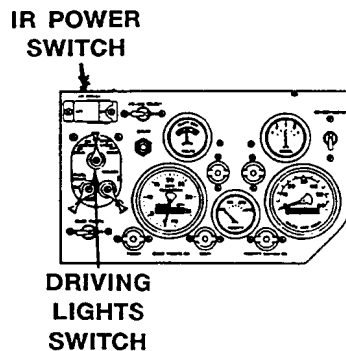
Some M19 periscopes have adjusting screws to focus eyepiece. Others have automatic focusing. Both are shown below.

10. Focus eyepiece with right and left adjusting screws.

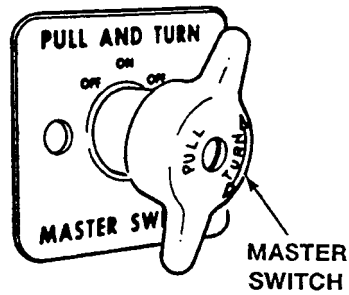


11. Move driving lights switch to OFF.

12. Move I.R. POWER switch to OFF.



13. Turn MASTER SWITCH to OFF.



WARNING



HIGH VOLTAGE IN THE M19 periscope can cause serious injury or death. To avoid accidents:

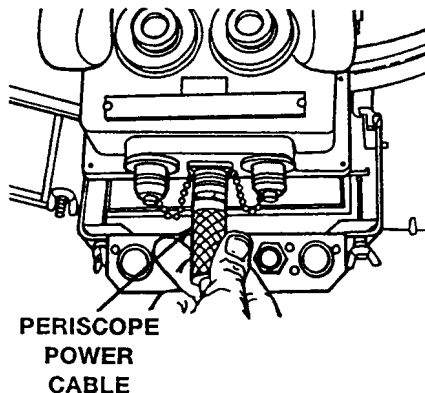
ALWAYS connect power cable to periscope **BEFORE** turning **MASTER SWITCH** and **I.R.** power switch to **ON**.

Always wait at least 2 minutes **BEFORE** you disconnect the power cable from the periscope when turning **I.R. POWER** switch and **MASTER SWITCH OFF**.

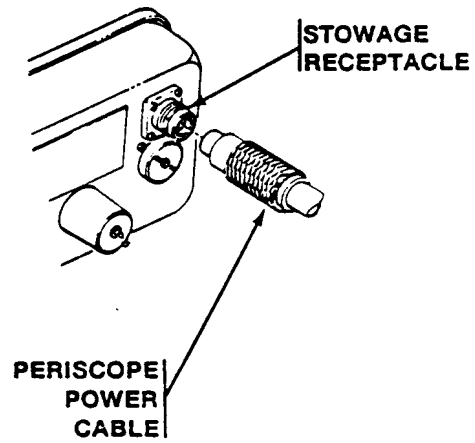
NEVER disconnect the power cable from the periscope until the image disappears from the periscope screen.

NEVER touch the end of the cable. Voltage could exceed 16,000 volts.

14. Remove periscope power cable from periscope.



15. Connect periscope power cable to stowage receptacle on master switch panel. Stow excess cable against bulkhead behind fixed fire extinguisher tube.



END OF TASK

INSTALL/REMOVE MACHINE GUN

0044 00

THIS WORK PACKAGE COVERS:

Installation (page 0044 00-1).
Removal (page 0044 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Soldier

Equipment Condition

Engine stopped (WP 0029 00)

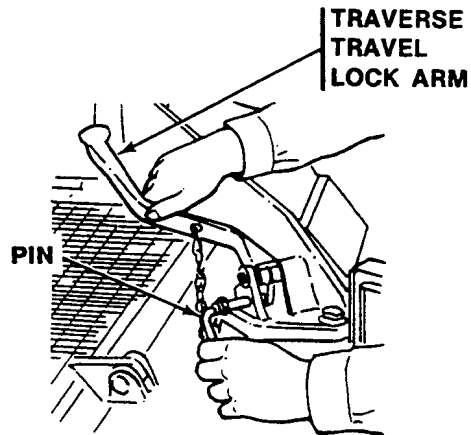
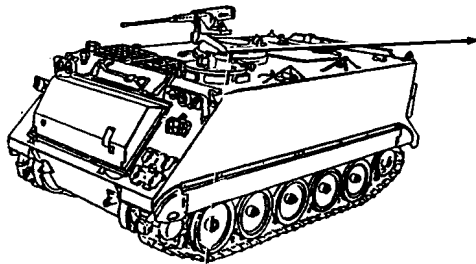
Commander's cupola locked at desired position
(WP 0013 00)

INSTALLATION

NOTE

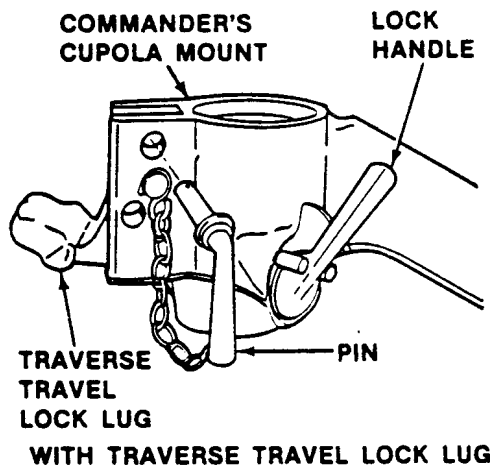
On some carriers the traverse travel lock is an arm on left side of machine gun mount. On other carriers the traverse travel lock is a hinged lug on right side of machine gun pintle. Both are shown. If your carrier is equipped with traverse travel lock arm, go to Step 1. If it is equipped with traverse travel lock lug, go to Step 2.

1. Remove pin from commander's cupola mount to release traverse travel lock arm.

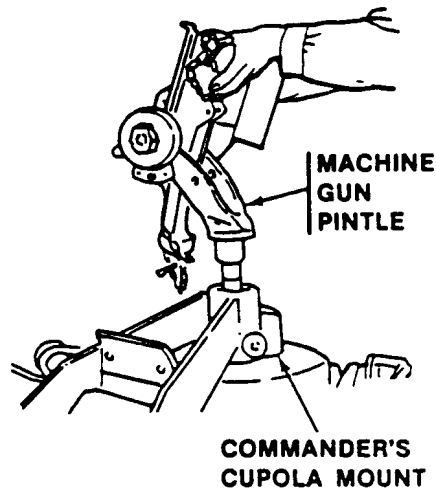


WITH TRAVERSE TRAVEL LOCK ARM

- Remove pin from commander's cupola mount to release traverse travel lock lug.



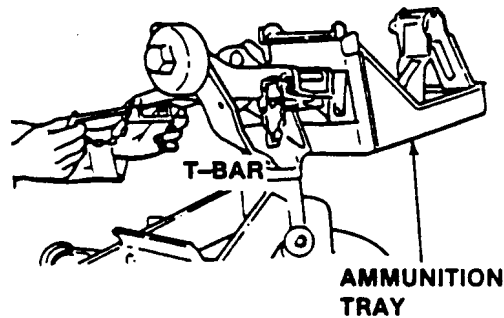
- Push lock handle down and install machine gun pintle in commander's cupola mount.



NOTE

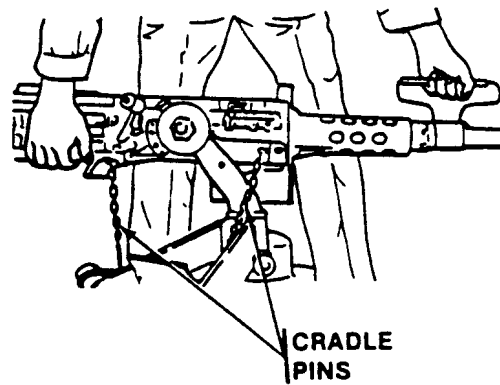
If lock handle did not come up when you installed machine gun pintle in Step 3 above, push lock handle up.

- Install ammunition tray on T-bar.



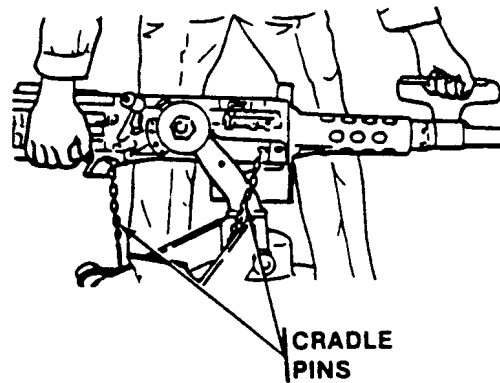
- Remove cradle pins from machine gun pintle.

6. Align front and rear holes in machine gun with holes in cradle and install cradle pins.

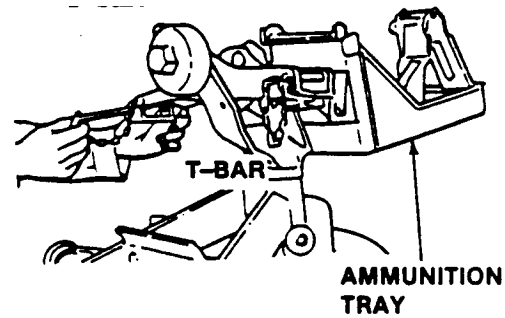


REMOVAL

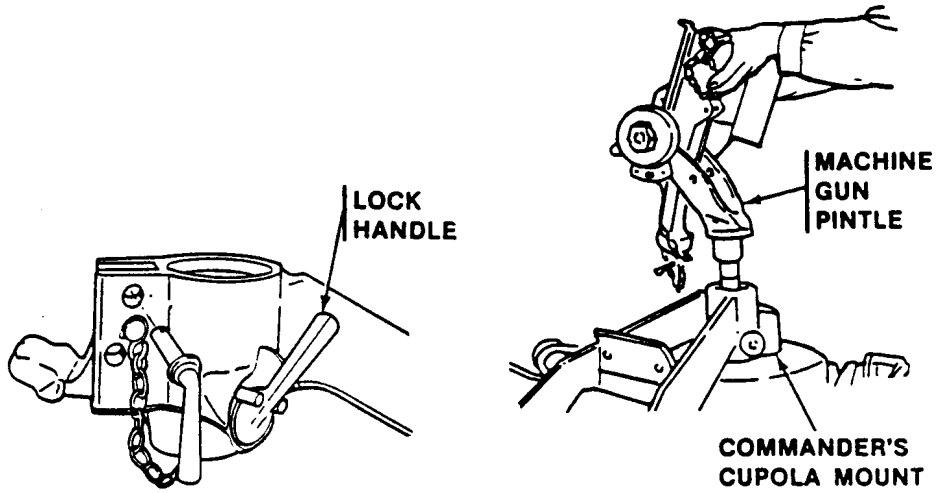
1. Remove cradle pins and lift machine gun out of pintle.



2. Remove ammunition tray from T-bar.



3. Push lock handle down and remove machine gun pintle from commander's cupola mount.



END OF TASK

SECURE MACHINE GUN FOR TRAVEL

0045 00

THIS WORK PACKAGE COVERS:

Secure Machine Gun (page 0045 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Machine gun installed (WP 0044 00)

Personnel Required

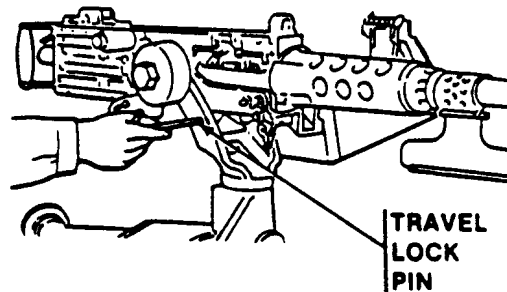
Soldier

SECURE MACHINE GUN

NOTE

On some carriers the traverse travel lock is an arm on left side of machine gun mount. On other carriers the traverse travel lock is a hinged lug on right side of machine gun pintle. Both are shown.

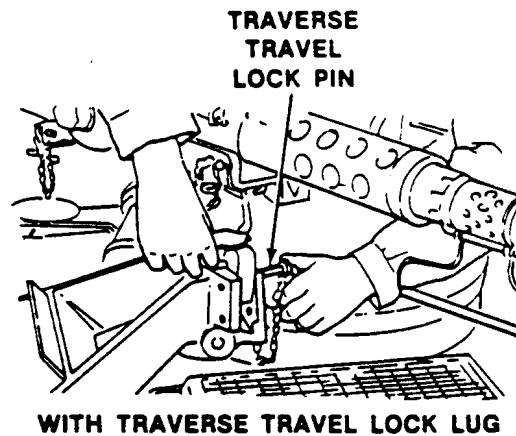
1. Install travel lock pin in machine gun pintle.



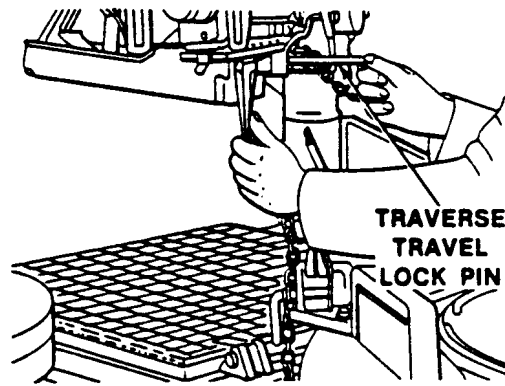
NOTE

If carrier is equipped with traverse travel lock lug, go to Step 2. If carrier is equipped with traverse travel lock arm, go to Step 3.

2. Install traverse travel lock pin in machine gun mount.



3. Install traverse travel lock pin in machine gun mount.



WITH TRAVERSE TRAVEL LOCK ARM

END OF TASK

STOW MACHINE GUN

0046 00

THIS WORK PACKAGE COVERS:

Stow Machine Gun (page 0046 00-1).

INITIAL SETUP:

Maintenance Level

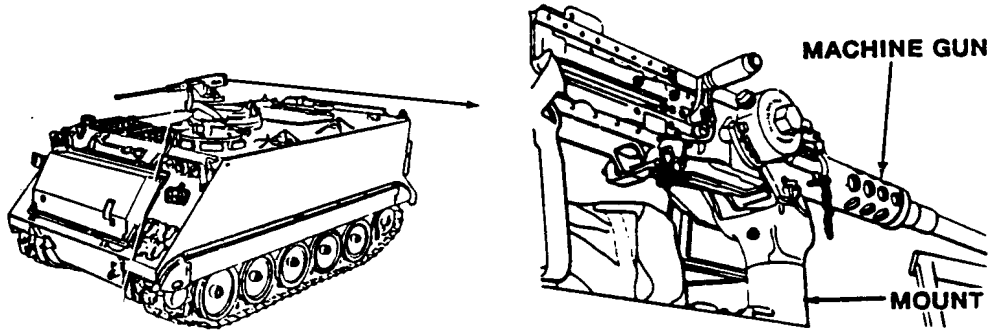
Operator

Personnel Required

Driver

STOW MACHINE GUN

1. Stow caliber .50 machine gun on pintle mount located on right side of carrier.



END OF TASK

LOWER/STOW TRIM VANE

0047 00

THIS WORK PACKAGE COVERS:

- Lower Trim Vane (page 0047 00-1).
- Stow Trim Vane (page 0047 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

- Soldier
- Helper (H)

Equipment Condition

Carrier stopped

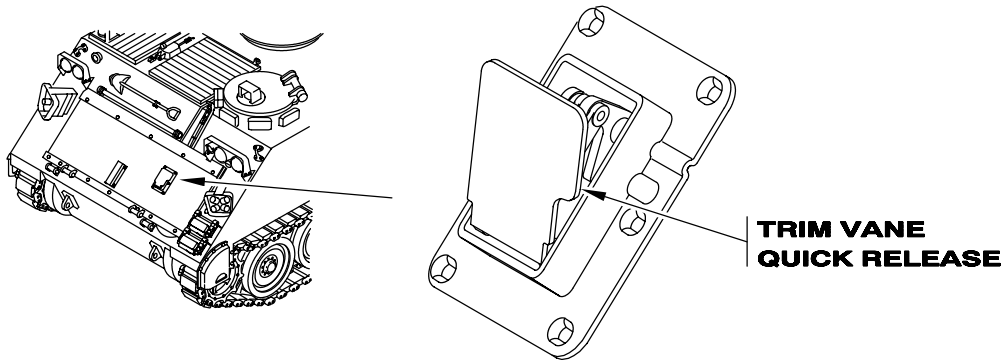
LOWER TRIM VANE

WARNING

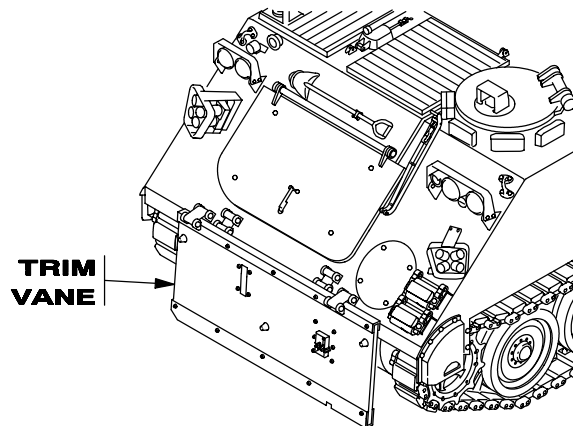


Trim vane can fall and injure personnel. Make sure trim vane zone is clear when you lower or stow trim vane.

1. Pull trim vane quick release handle to disengage quick release from extension linkage.

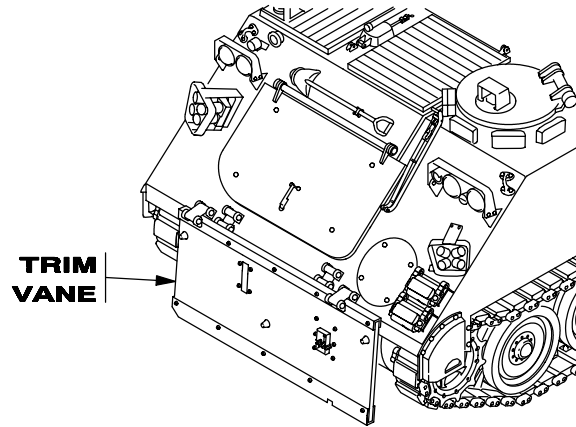


2. Lower trim vane. Have helper assist.

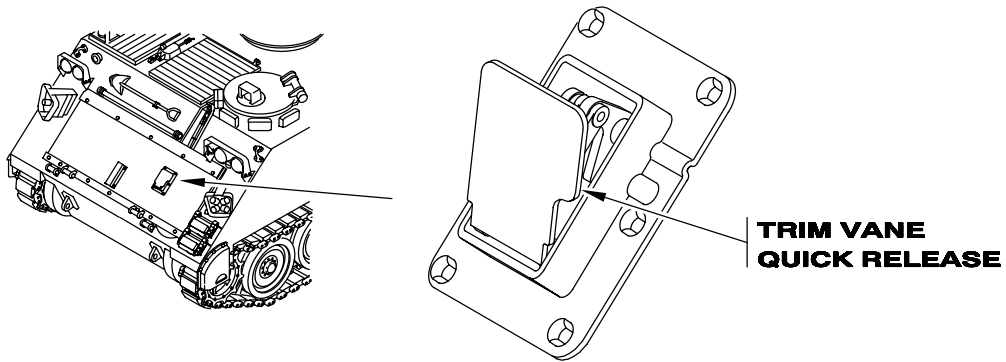


STOW TRIM VANE

1. Raise and hold trim vane in stowed position. Have helper assist.



2. Pull trim vane quick release handle. Align quick release with extension linkage.
3. Release quick release handle to secure trim vane in stowed position.

**END OF TASK**

REMOVE/INSTALL DRIVER'S POWER PLANT ACCESS PANELS

0048 00

THIS WORK PACKAGE COVERS:

Removal (page 0048 00-1).
 Installation (page 0048 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

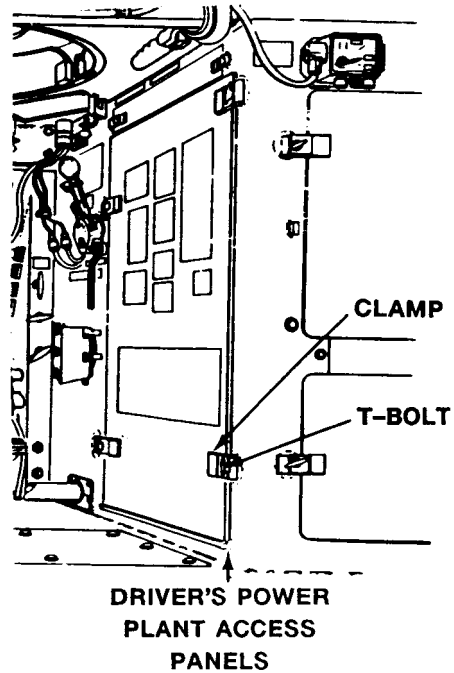
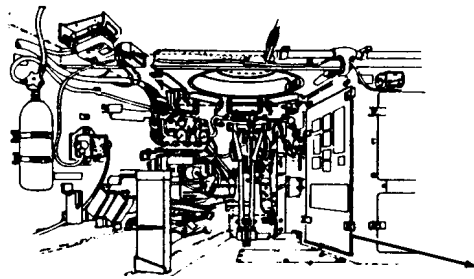
Engine stopped (WP 0029 00)

Personnel Required

Driver

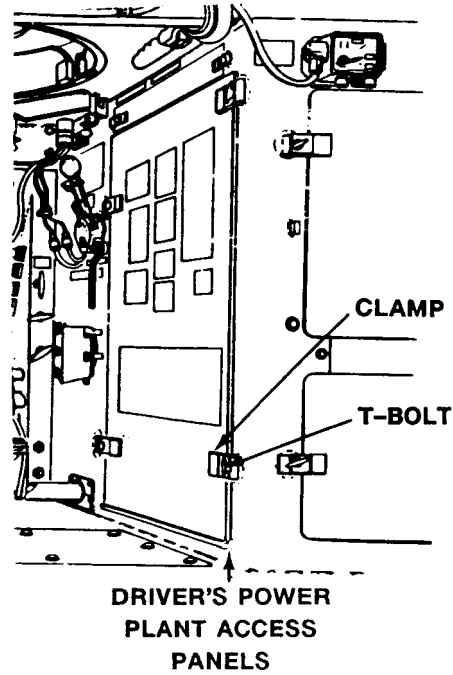
REMOVAL

1. Loosen T-bolts and clamps securing power plant access panels to bulkhead.
2. Remove power plant access panels from bulkhead supports.



INSTALLATION

1. Place power plant access panels in bulkhead supports and center between vertical stops.
2. Position clamps over power plant access panels and tighten T-bolts.

**END OF TASK**

REMOVE/INSTALL REAR POWER PLANT ACCESS PANELS

0049 00

THIS WORK PACKAGE COVERS:

Removal (page 0049 00-1).
 Installation (page 0049 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

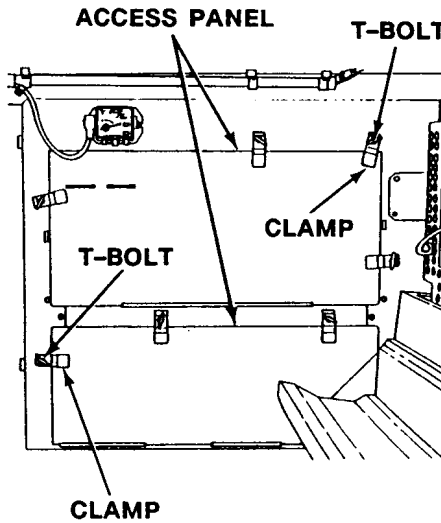
Engine stopped (WP 0029 00)

Personnel Required

Driver

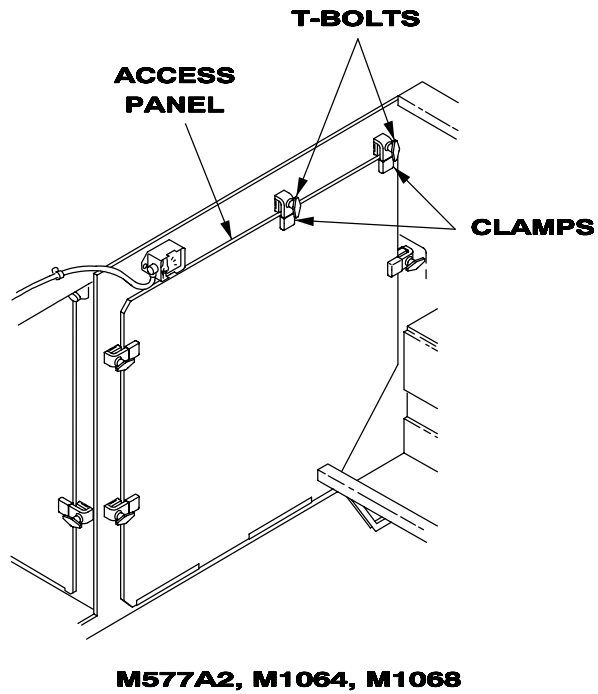
REMOVAL

1. Loosen four T-bolts and clamps securing access panel to bulkhead. Turn clamps.



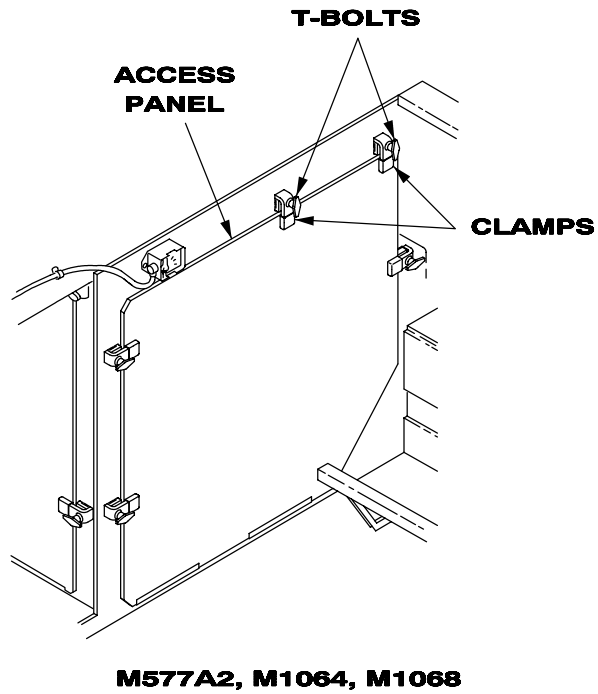
M113A2, M1059

2. Remove access panel from bulkhead.

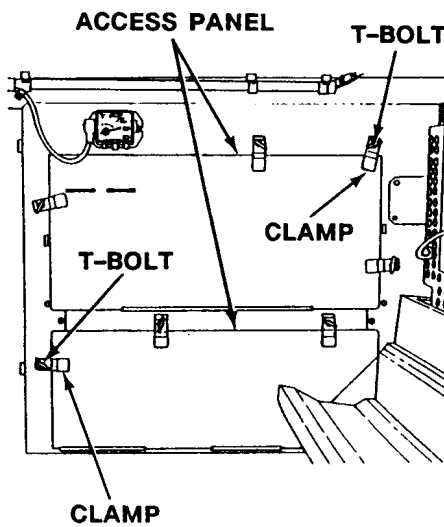


INSTALLATION

1. Install access panel on bulkhead.



- Secure with four T-bolts and clamps.



M113A2, M1059

END OF TASK

BLOCK/UNBLOCK CARRIER TRACKS

0050 00

THIS WORK PACKAGE COVERS:

- Block Carrier Tracks (page 0050 00-1).
 - Unblock Carrier Tracks (page 0050 00-1).
-

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

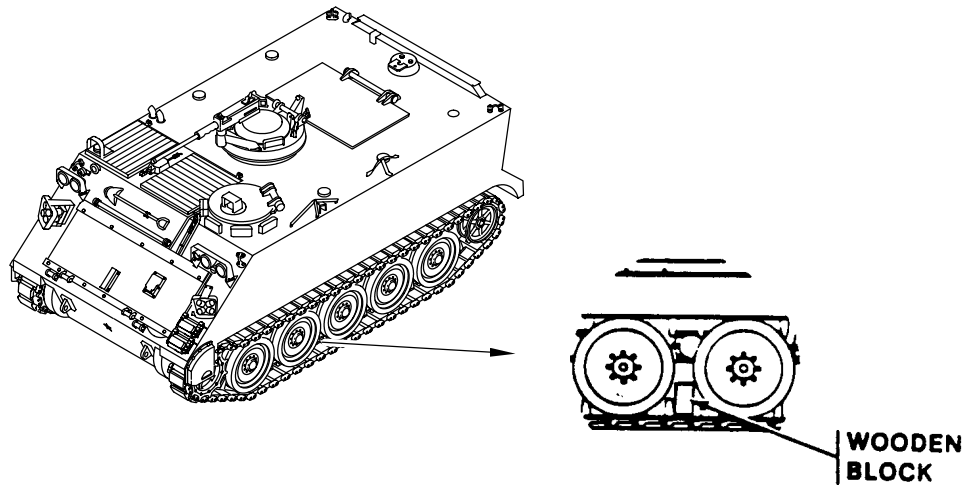
Carrier stopped

Personnel Required

Driver

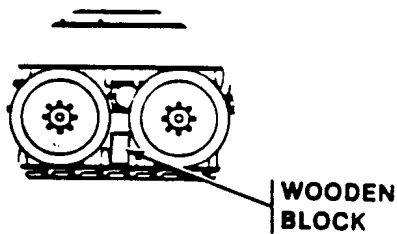
BLOCK CARRIER TRACKS

1. Place a block of wood or other suitable object between track guides and two sets of road wheels. Make sure object extends full width of both road wheels.



UNBLOCK CARRIER TRACKS

1. Remove block of wood or other object from between track guides and road wheels.



END OF TASK

CAPSTAN AND ANCHOR KITS (M113A2 ONLY)

0051 00

THIS WORK PACKAGE COVERS:

- Prepare Carrier Before Operation (page 0051 00-1).
- Recover Immobile Carrier (page 0051 00-3).
- Recover Anchors (page 0051 00-5).
- Stow Kit (page 0051 00-7).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

WP 0004 00

WP 0026 00

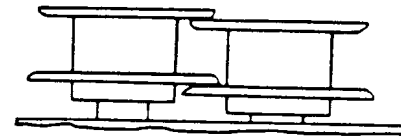
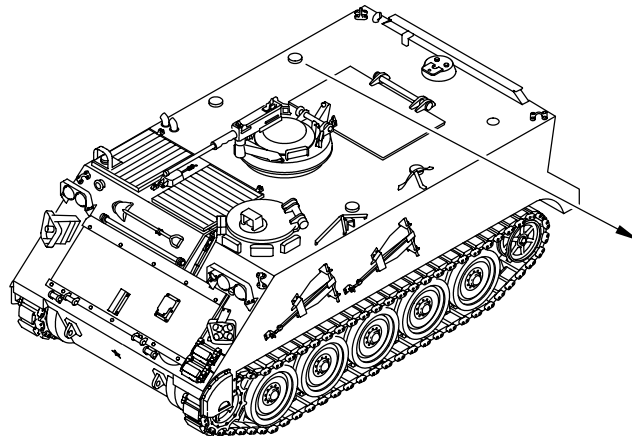
WP 0029 00

Equipment Condition

Engine stopped (WP 0029 00)

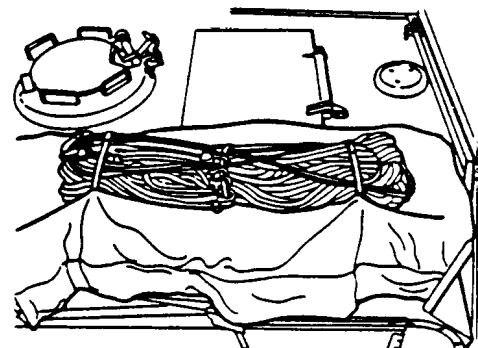
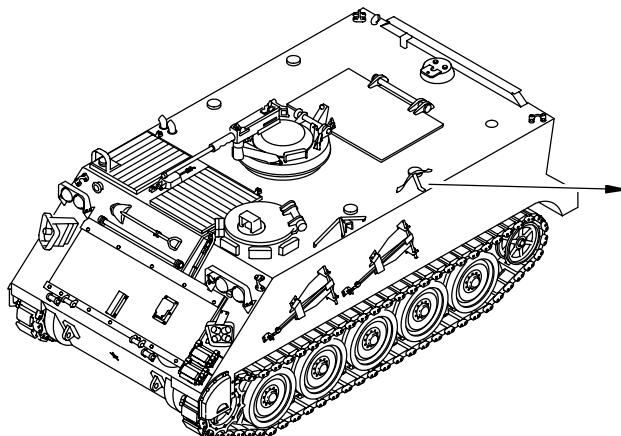
PREPARE CARRIER BEFORE OPERATION

1. Remove two capstan drums stowed on top deck of carrier.



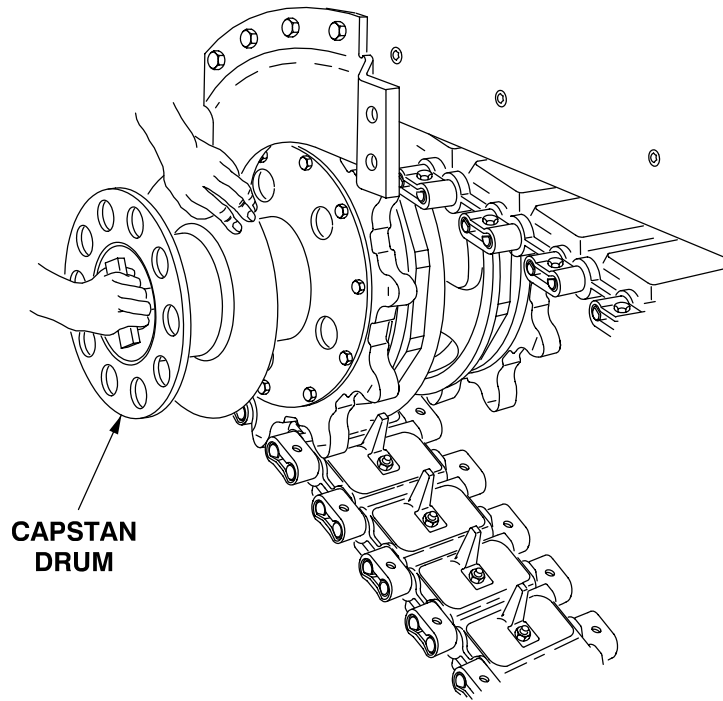
CAPSTAN DRUMS STOWED

2. Loosen four straps securing anchor kit and stowage tarpaulin to top deck of carrier.
3. Loosen three stowage straps and remove nylon ropes and two shackles.
4. Fasten three stowage straps and close tarpaulin.
5. Secure tarpaulin to carrier top deck with four straps.

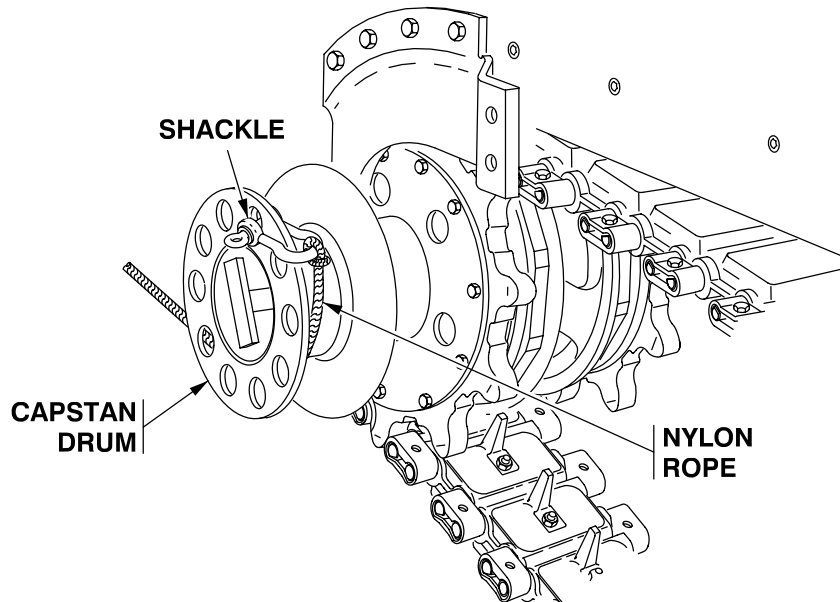


ANCHOR KIT STOWED

6. Attach and tighten capstan drums to adapters.

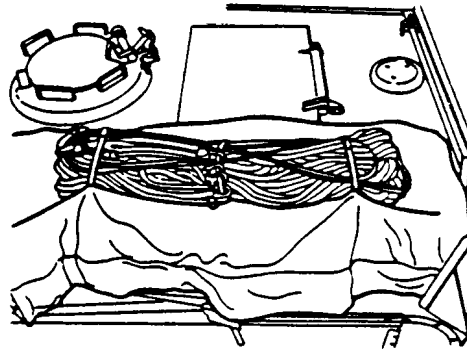


7. Wrap nylon ropes around capstan drums. Make sure ropes will extend from the underside of each drum.
8. Secure nylon rope ends to capstan drums with two shackles.

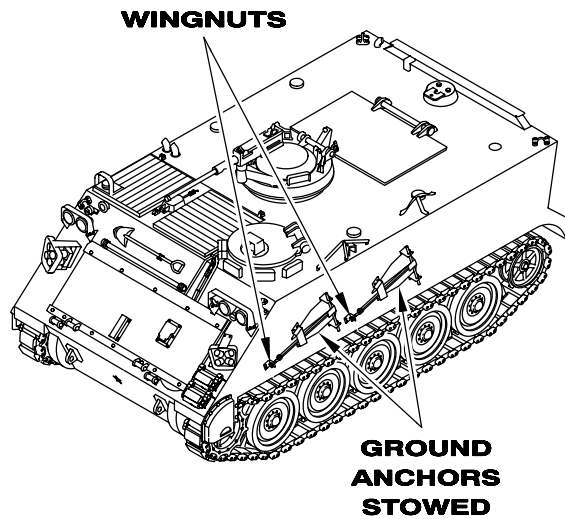


RECOVER IMMOBILE CARRIER

1. Loosen four straps securing anchor kit stowage tarpaulin to carrier top deck.
2. Loosen three stowage tarpaulin straps and remove two cable assemblies, four shackles, and one rounded pin (fid) from tarpaulin.

**ANCHOR KIT STOWED**

3. Loosen two wingnuts and remove two anchors from left side of carrier.

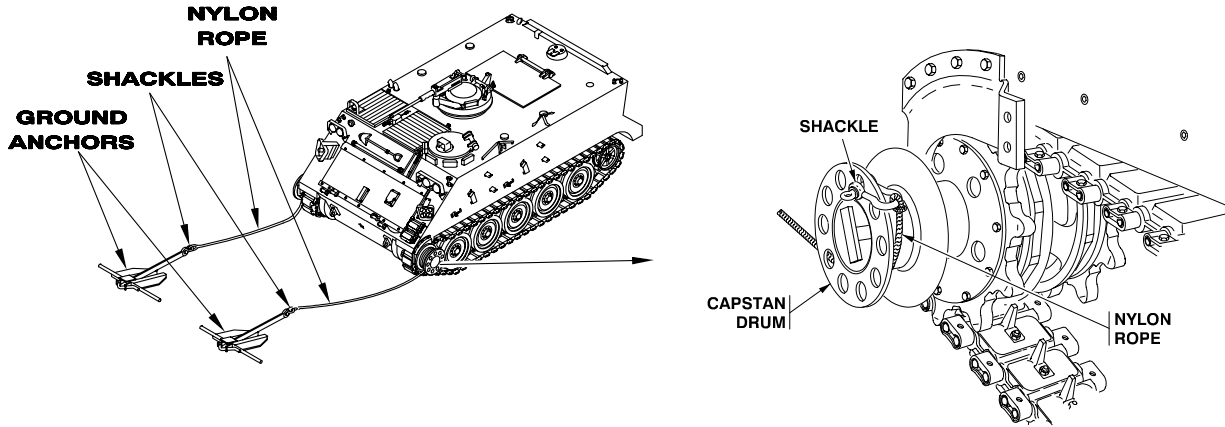
**WINGNUTS****GROUND
ANCHORS
STOWED**

4. Position two anchors in line with two capstan drums at a suitable location from the carrier.
5. Remove two shackles and unwind nylon ropes from capstan drum.

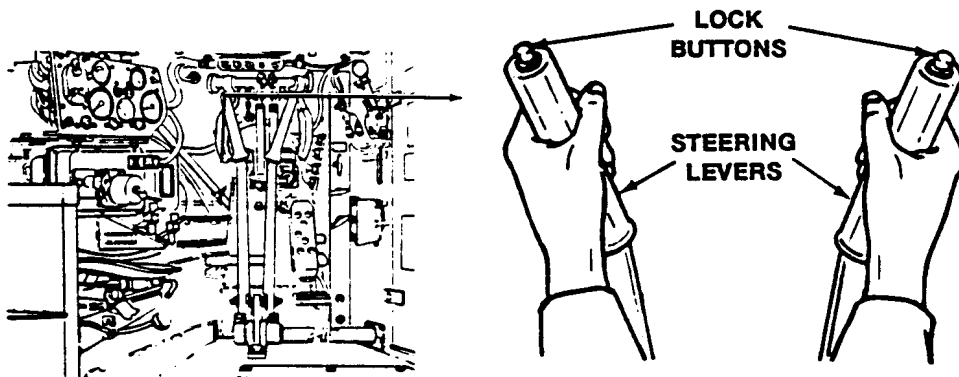
NOTE

Ropes must be pulled tight and kept away from capstan drum to prevent winding into drum or catching in carrier track.

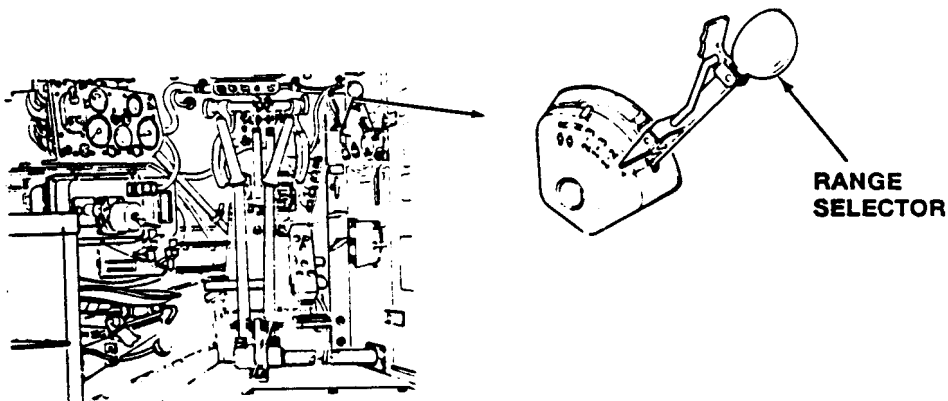
6. Secure nylon ropes to two anchors with two shackles.



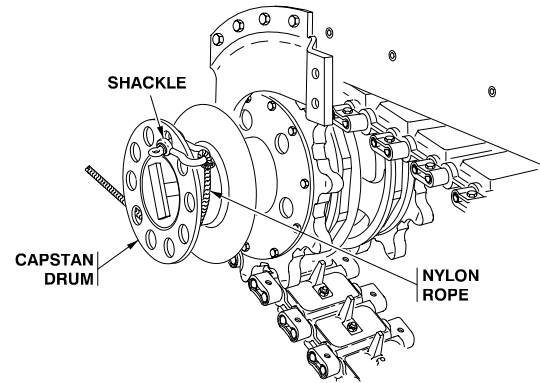
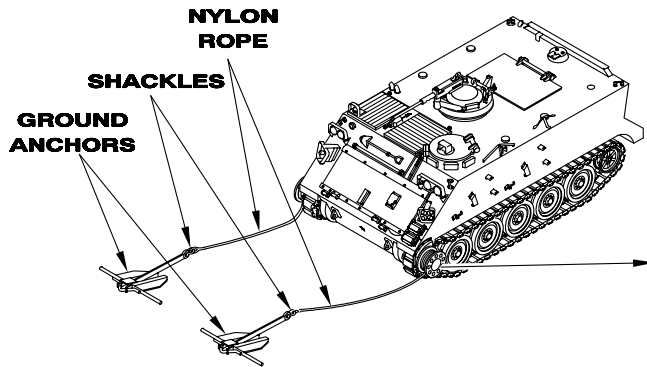
7. Start engine (WP 0026 00).
8. Release steering levers. Pull back on both levers so lock buttons pop up, then ease the levers all the way forward.



9. Shift range selector to 1 range (WP 0004 00).

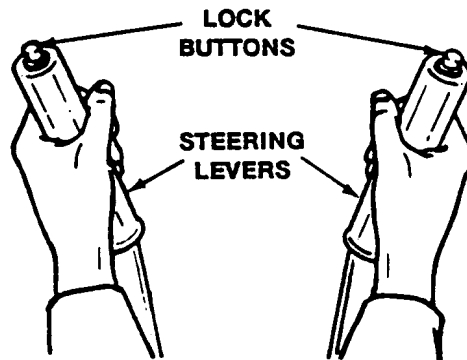


10. Apply power slowly until ground anchors are embedded and carrier starts forward motion.
11. Continue forward motion until carrier is clear and mobile.
12. After carrier is clear and mobile, steer to the right or left to create slack in the opposite rope to be removed.
13. Stop carrier (WP 0029 00).
14. Remove two shackles and nylon ropes from ground anchors.
15. Remove nylon ropes from capstan drums.

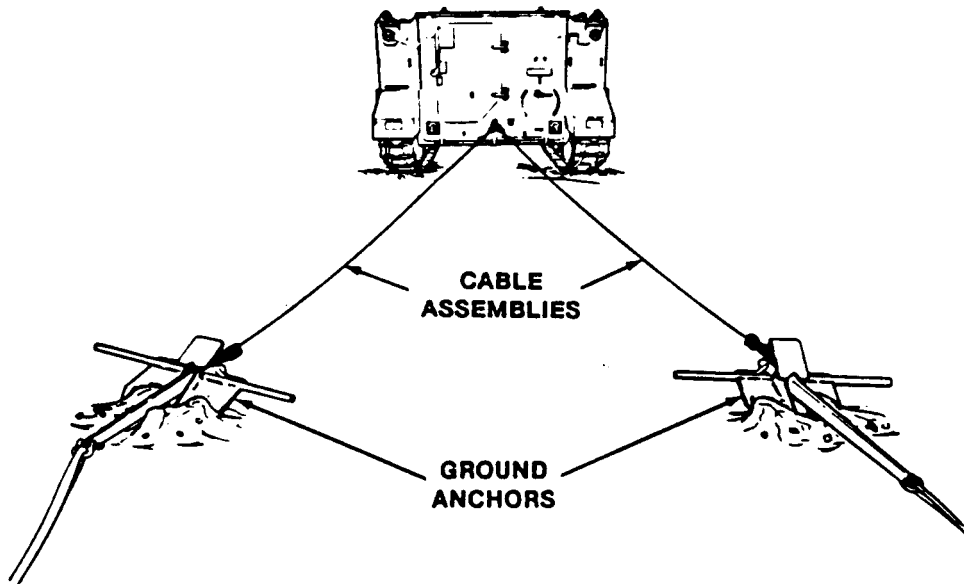


RECOVER ANCHORS

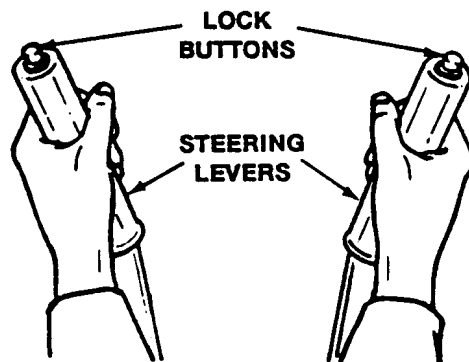
1. Start engine (WP 0026 00).
2. Release steering levers. Pull back on both levers so lock buttons pop up, then ease the levers all the way forward.



3. Move carrier behind embedded anchors.
4. Stop engine (WP 0029 00).
5. Attach two cable assemblies to two ground anchors with two shackles.
6. Attach two cable assemblies to carrier towing pintle with two shackles.



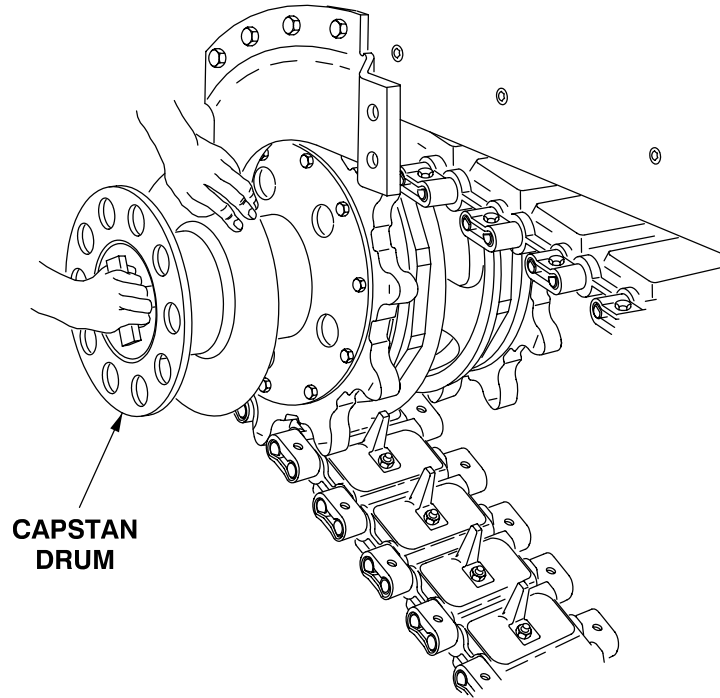
7. Start engine (WP 0026 00).
8. Release steering levers. Pull back on both levers so the lock buttons pop up, then ease the levers all the way forward.



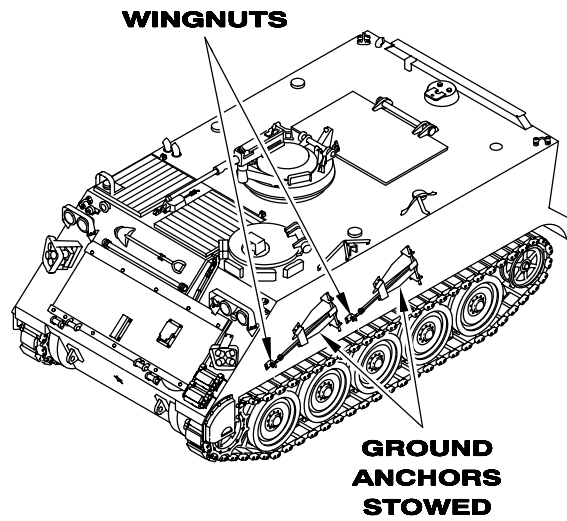
9. Move carrier forward until ground anchors are dislodged from embedded position.
10. Stop engine (WP 0029 00).

STOW KIT

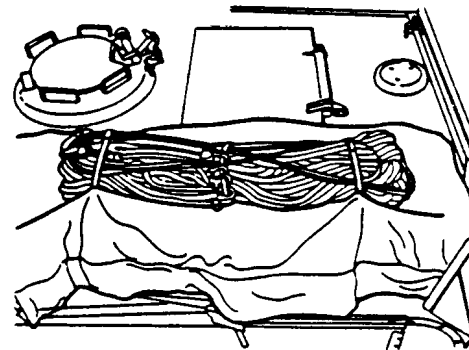
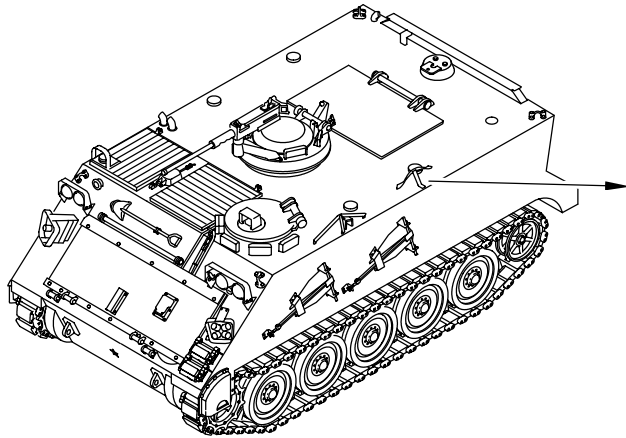
1. Remove two capstan drums from two capstan adapters.



2. Stow two capstan drums on carrier top deck.
3. Stow ground anchors on left side of carrier and tighten two wingnuts to secure.



4. Stow two cable assemblies, six nylon ropes, six shackles, and one round tapered pin (fid) in stowage tarpaulin on carrier top deck.
5. Fasten three stowage tarpaulin straps and use tapered pin (fid) to tuck nylon ropes into stowage tarpaulin.
6. Secure stowage tarpaulin to top deck of carrier with four straps.



END OF TASK

RAISE/LOWER DROP LEAF TABLES (M577A2 ONLY)

0052 00

THIS WORK PACKAGE COVERS:

- Raise Tables (page 0052 00-1).
 - Lower Tables (page 0052 00-1).
-

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

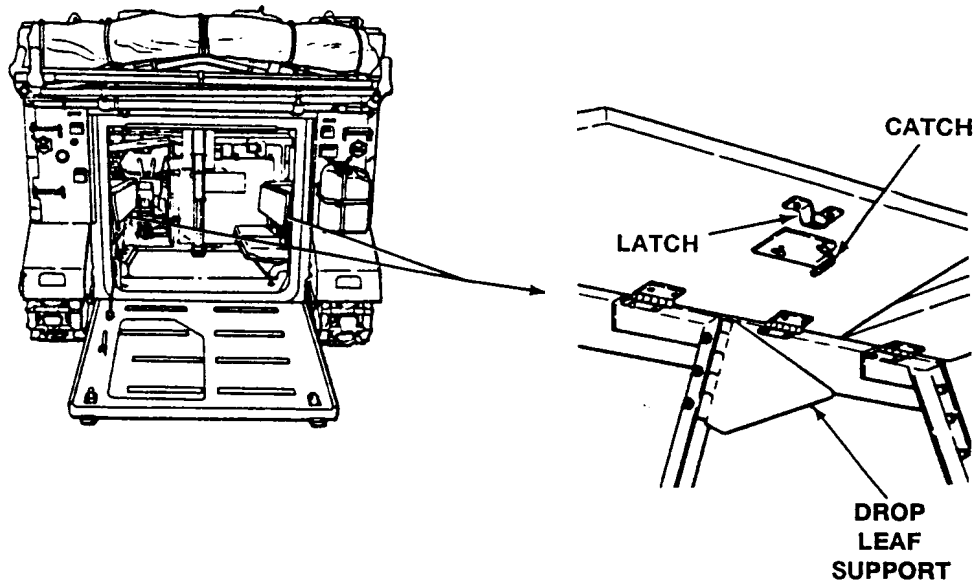
Carrier stopped

Personnel Required

Crew

RAISE TABLES

1. Raise tables and secure by turning supports 90 degrees from the stowed position. Support should rest against catch.



LOWER TABLES

NOTE

The section of table over the battery box is raised to provide access to the battery box.

1. Rotate supports 90 degrees toward stowed position, and lower tables.

END OF TASK

INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A2 AND M1068 ONLY)

0053 00

THIS WORK PACKAGE COVERS:

- Installation (page 0053 00-1).
- Removal (page 0053 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

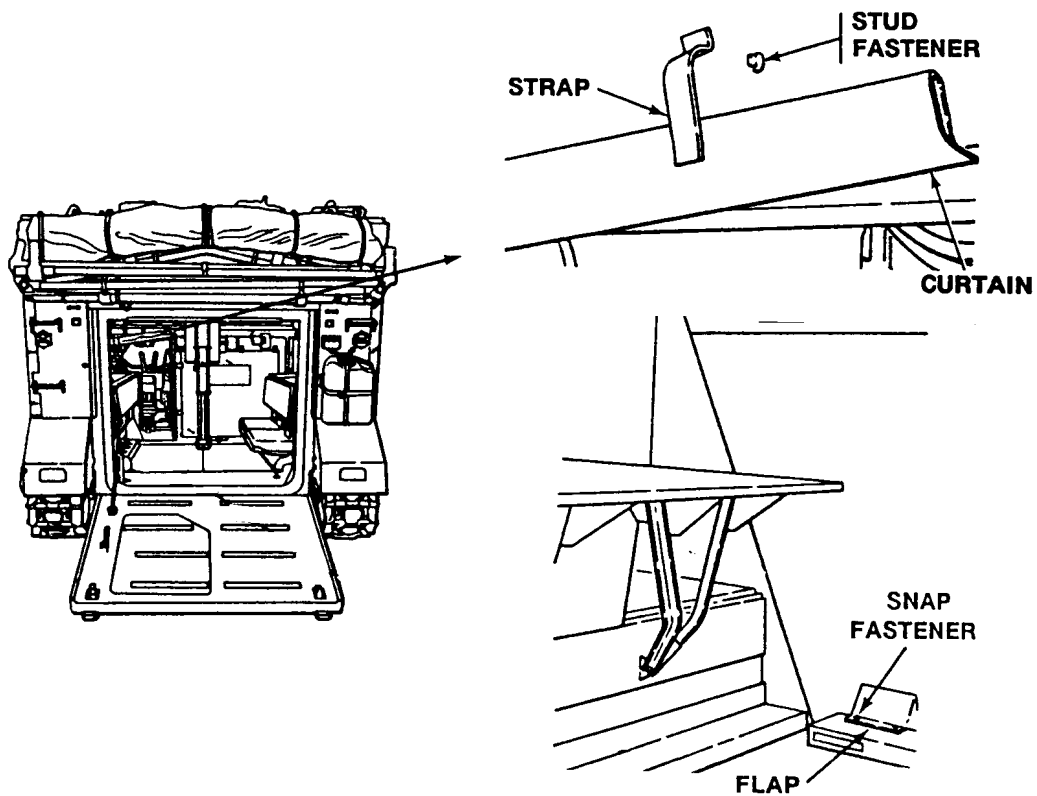
Carrier stopped

Personnel Required

Crew

INSTALLATION

1. Unsnap straps from stud fasteners above entrance to driver's compartment.
2. Let curtain fall to bottom of opening. Secure with snap fasteners on heater duct.

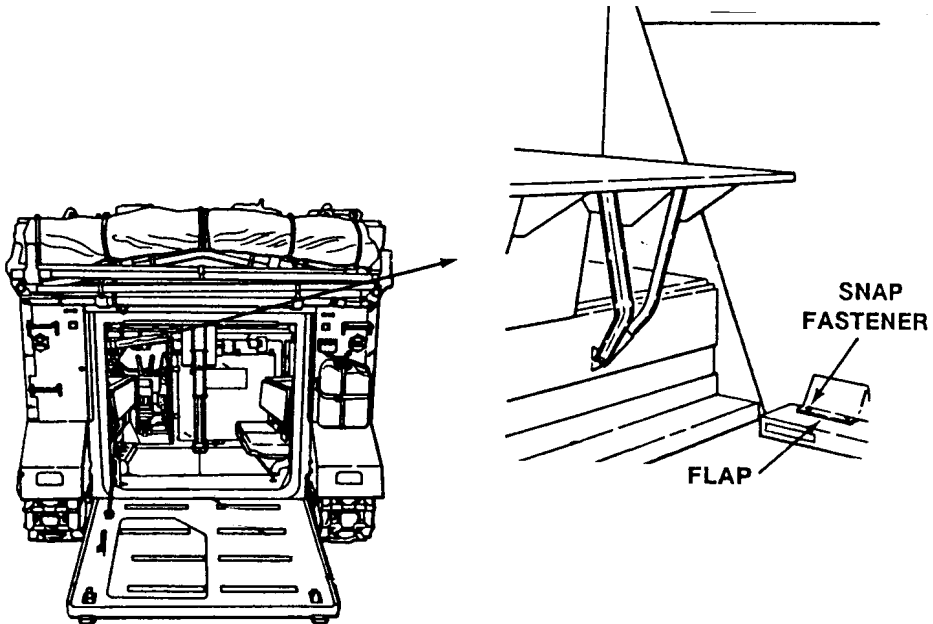


INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A2 AND M1068 ONLY) — Continued

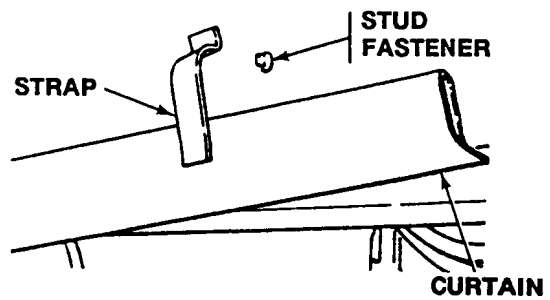
0053 00

REMOVAL

1. Unsnap fasteners on heater duct.



2. Fold curtain up and snap straps to stud fasteners above entrance to driver's compartment.

**END OF TASK**

SET UP COMMAND POST TENT (COVERED EXTENSION) (M577A2 ONLY)

0054 00

THIS WORK PACKAGE COVERS:

- Set Up Tent (page 0054 00-1).
- Add Additional Tents (page 0054 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

WP 0015 00

WP 0057 00

Equipment Condition

Carrier stopped

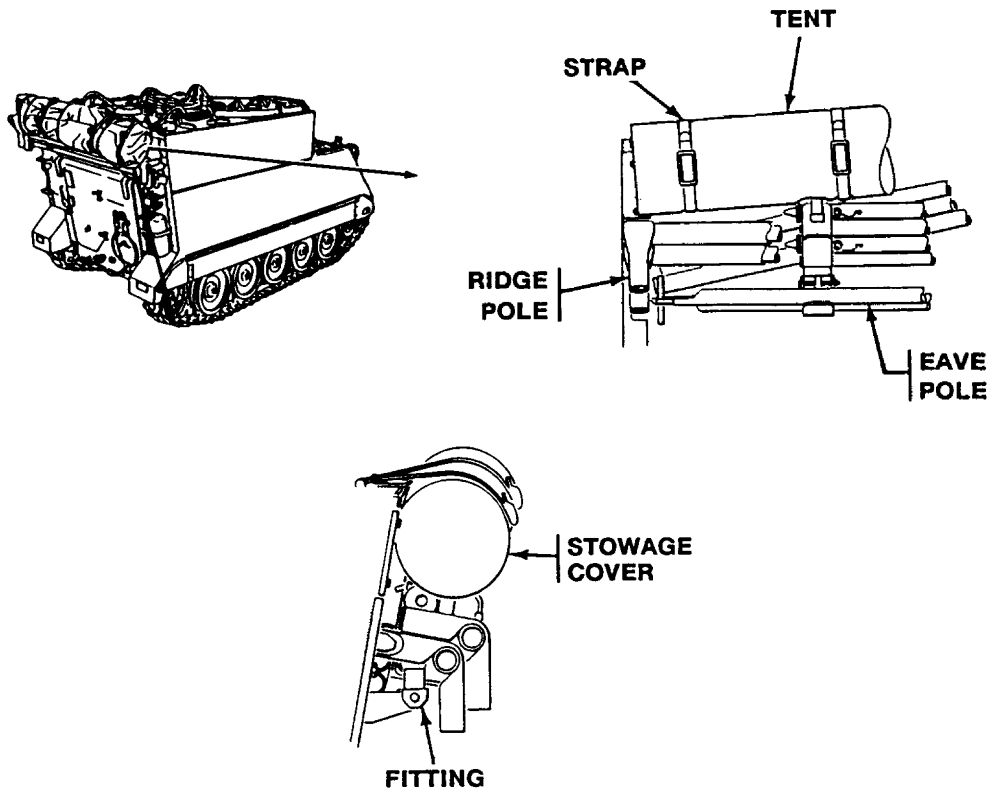
SET UP TENT

1. Lower ramp until it is level with carrier floor (WP 0015 00).

NOTE

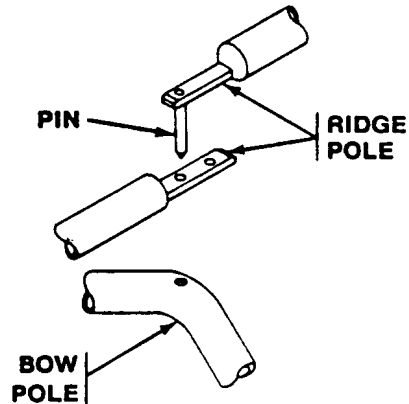
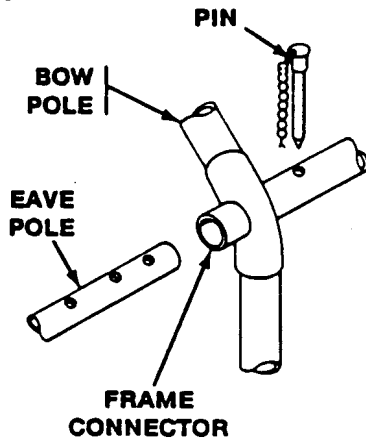
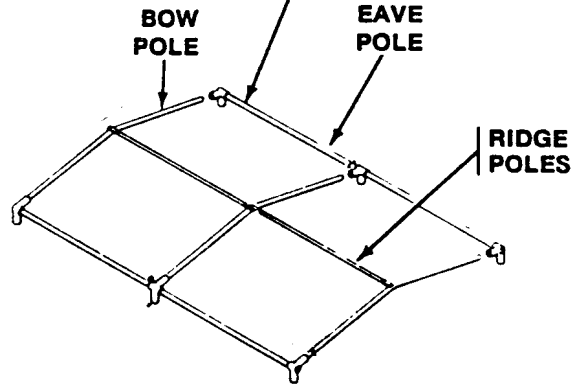
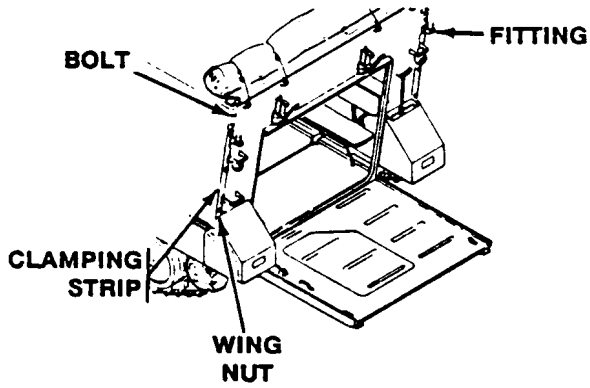
Get the staking pins and tent lights from their stowed position under the left forward table and set them outside.

2. Unfasten four straps securing tent to top of carrier.
3. Remove framework poles and legs from stowed position at rear of carrier.



4. Arrange poles on ground.
5. Extend eave poles, insert pins, and partially assemble framework.
6. Insert ridge pole pins into bow poles.

NOTE: PREASSEMBLE AND ATTACH THIS SECTION LAST.



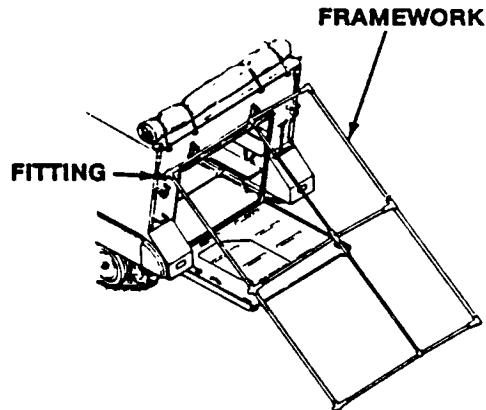
NOTE

Two men are required on each side of frame to lift it into position on carrier.

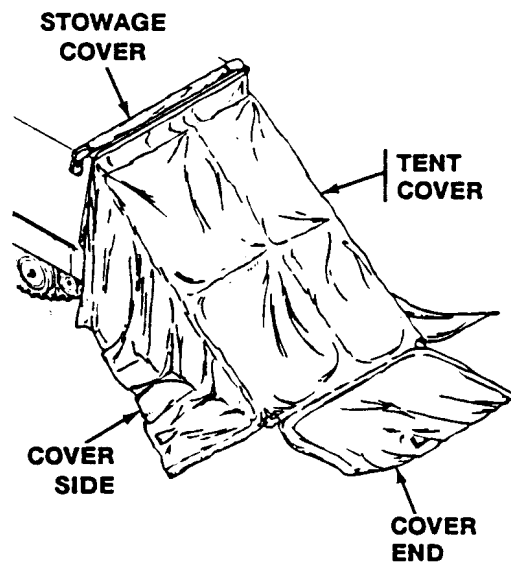
NOTE

If you need protection against extreme cold weather, install tent liner (WP 0057 00).

7. Attach frame to carrier at two fittings.

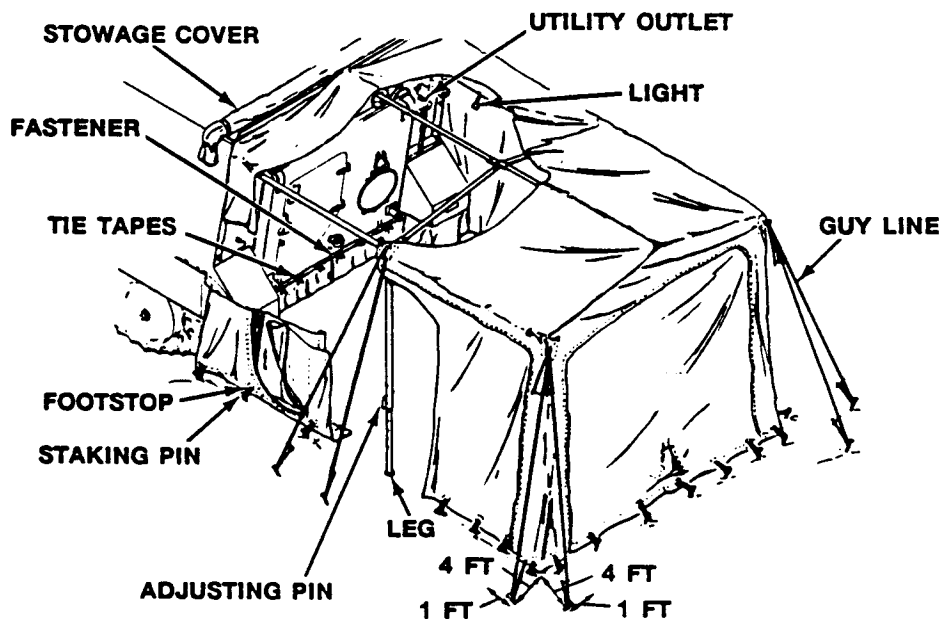


8. Unroll tent cover along framework, and unfold sides and end.



9. Lift rear of frame assembly and insert both rear legs at the same time.
10. Install two center legs in frame assembly.
11. Adjust all four legs to contour of ground.
12. Loosen the three wingnuts securing clamping strips to hull at each side of ramp.
13. Insert beaded edge of cover under clamping strip. Tighten wingnuts. Two soldiers are required (one on top of carrier and one on ground).
14. Raise and lock ramp (WP 0015 00).

15. Zip fastener and tie curtain under carrier.
16. Drive 34 staking pins through 34 footstops.
17. Drive eight staking pins for guy lines.
18. Secure and tighten guy lines.
19. Tie tapes around frame assembly legs.
20. Tie storage cover to top edge of carrier and to sides of tent.
21. Unlock and lower ramp to ground (WP 0015 00).
22. Install electric light assembly and secure with tie.
23. Connect light assembly to one of two utility outlets on either side of ramp.
24. Secure eight straps inside enclosure, along junction of top and side, to frame.



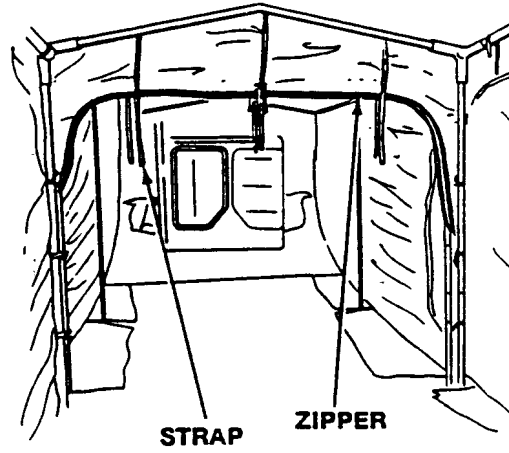
ADD ADDITIONAL TENTS

NOTE

Many additional tents may be erected and attached as required for tactical operation.

1. Align and erect additional tents to any of three entrances of previously erected tent.

2. Remove entrance covers. Attach tents by zipping entranceways together. Secure with straps.



END OF TASK

SET UP MODULAR COMMAND POST SYSTEM (MCPS) (M1068 ONLY)

0055 00

THIS WORK PACKAGE COVERS:

- Set Up MCPS (page 0055 00-1).
 - Add Additional Tents (page 0055 00-1).
-

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

TM 10-5410-229-13&P
WP 0015 00

Equipment Condition

Carrier stopped

SET UP MCPS

1. Lower ramp until it is level with carrier floor (WP 0015 00).
2. To set up MCPS, see TM 10-5410-229-13&P.

ADD ADDITIONAL TENTS

NOTE

Many additional tents may be erected and attached as required for tactical operation.

1. To add additional tents, see TM 10-5410-229-13&P.

END OF TASK

DISMANTLE/STOW MODULAR COMMAND POST SYSTEM (MCPS) (M1068)

0056 00

THIS WORK PACKAGE COVERS:

Dismantle/Stow MCPS (page 0056 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

TM 10-5410-229-13&P

Equipment Condition

Carrier stopped

DISMANTLE/STOW MCPS

1. To dismantle/stow MCPS, see TM 10-5410-229-13&P.

END OF TASK

INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER (M577A2 ONLY)

0057 00

THIS WORK PACKAGE COVERS:

Installation (page 0057 00-1).
Removal (page 0057 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

WP 0054 00

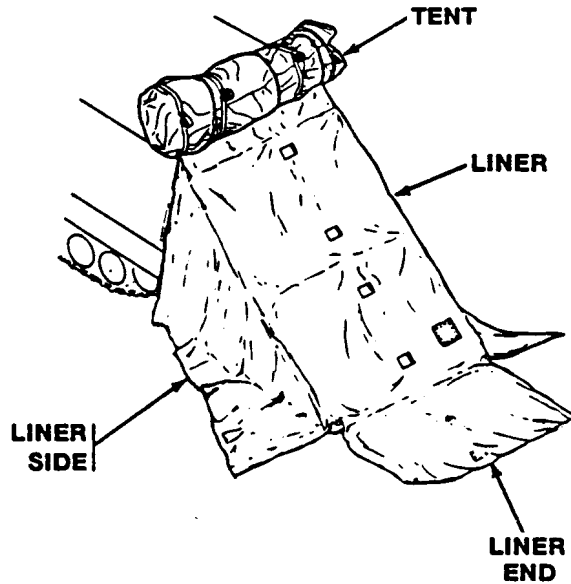
WP 0058 00

Equipment Condition

Carrier stopped

INSTALLATION

1. Partially set up tent (WP 0054 00, Steps 1 - 6).
2. Place rolled up liner over front of tent framework and unroll. Unfold sides and end of liner.
3. Unroll tent along framework. Unfold sides and end of tent over liner.

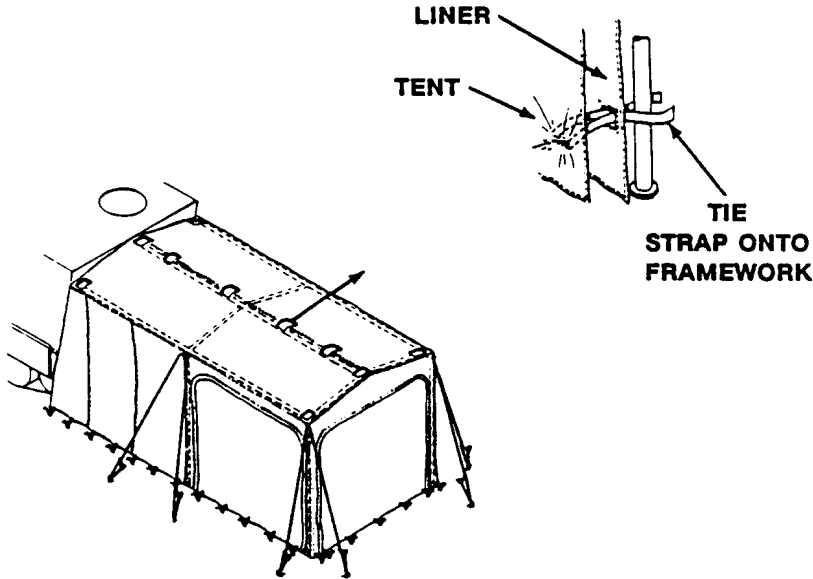


4. Tie liner to tent by securing six top tapes to six small loops at front and rear tent underside.

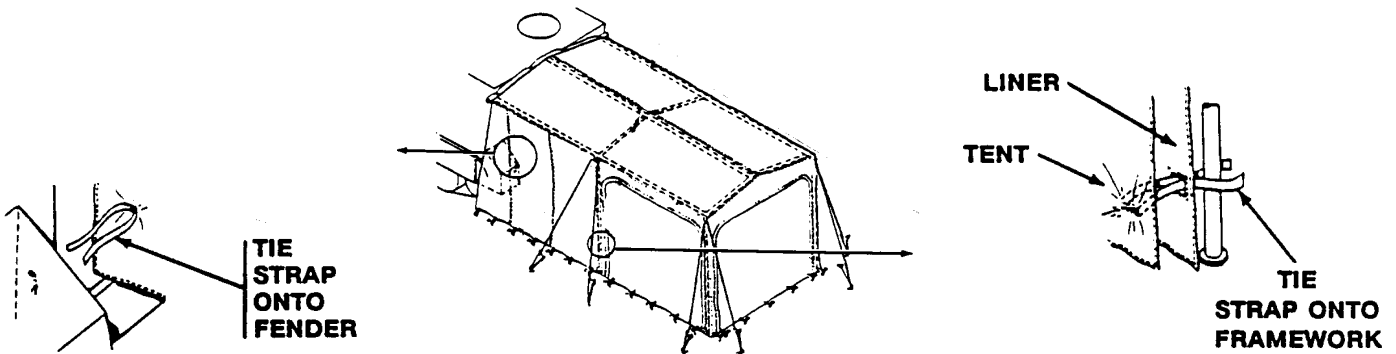
**INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER
(M577A2 ONLY) — Continued**

0057 00

5. Pull tent roof support straps through four square holes in liner and tie straps.



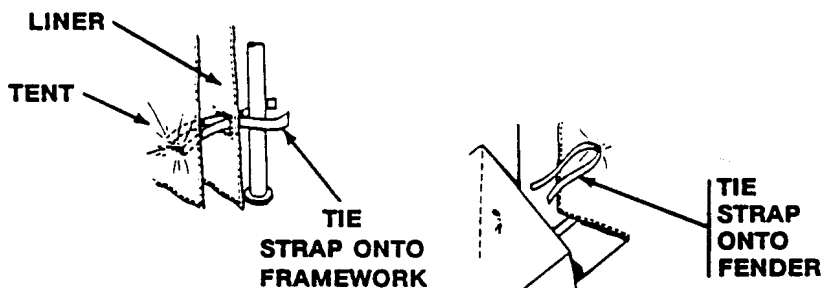
6. Unfold sides and ends of tent and liner, and continue setting up tent (WP 0054 00, Steps 7 - 9).
7. Tie two liner tapes, one on each side above carrier fender, to tapes on tent.
8. Pull cover leg tapes through square holes in liner and tie to framework.



9. Continue setting up tent (WP 0054 00, Steps 10 - 24)

REMOVAL

1. Untie liner tapes at fenders and from top and legs of framework.



**INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER
(M577A2 ONLY) — Continued**

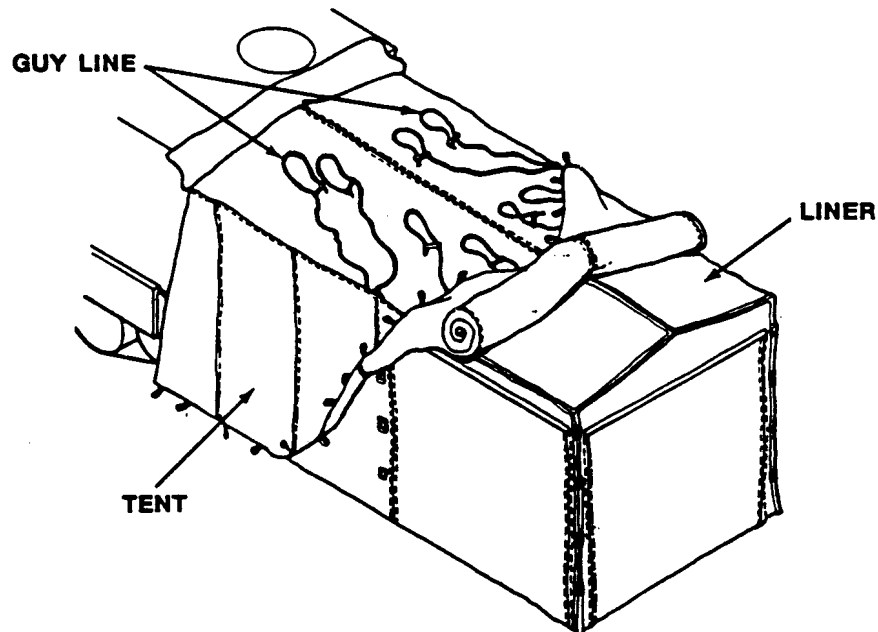
0057 00

2. Dismantle and stow tent (WP 0058 00).
3. Fold tent sides and end over center section of tent. Leave liner in place and carefully withdraw tent leg tapes from square holes of liner.
4. Fold tent guy lines into center section of tent.
5. Roll tent up framework, leaving liner in place. Carefully withdraw tent roof support straps from square holes in liner.
6. Fold liner sides and end over top of liner, roll liner up framework, and remove.

NOTE

If tent liner will be needed again, roll it up and stow it with tent.

7. Return liner to unit maintenance for stowage.

**END OF TASK**

DISMANTLE/STOW COMMAND POST TENT (COVERED EXTENSION) (M577A2 ONLY)

0058 00

THIS WORK PACKAGE COVERS:

Dismantle Tent (page 0058 00-1).
 Stow Tent (page 0058 00-2).

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0054 00

Personnel Required

Driver

Crew

Equipment Condition

Carrier stopped

DISMANTLE TENT

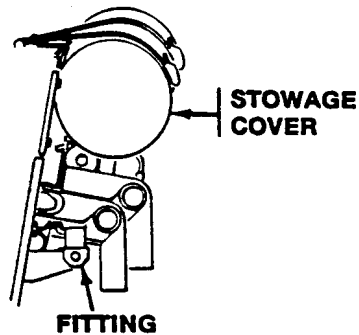
CAUTION

Do not stow or fold fabric cover when it is wet. Do not fold pins and poles in with fabric.

NOTE

Put staking pins and light assemblies in their stowed position under the left forward table.

1. Remove tent in reverse order from which it was set up (WP 0054 00).



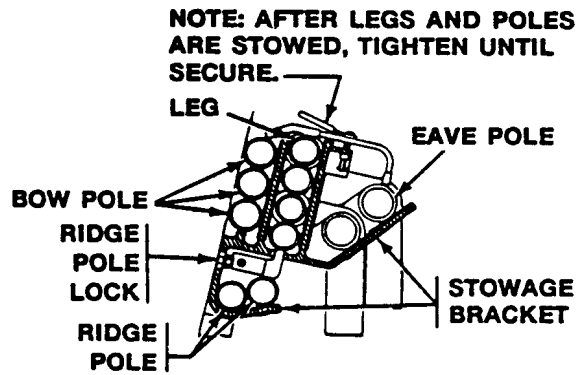
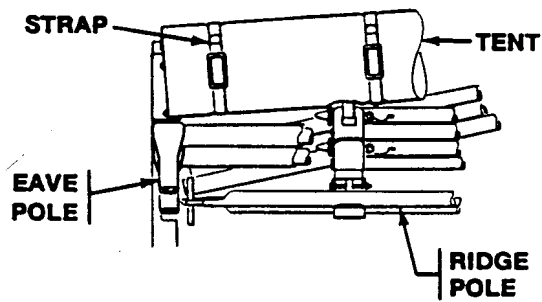
STOW TENT

WARNING



When stowing the eave poles, secure the split sections together. The inner section can extend and be lost or cause injury to personnel.

1. Stow cover, poles, and legs in travel position as shown.



END OF TASK

CHAPTER 4
OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
OPERATE IN EXTREME COLD: BELOW -25°F (-31°C).....	0059 00
OPERATE ENGINE COOLANT HEATER BELOW -25°F (-31°C).....	0060 00
OPERATE CARRIER OVER ROUGH TERRAIN.....	0061 00
OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS.....	0062 00
SECURING INOPERABLE/UNSAFE RAMP.....	0063 00
TOWING DISABLED CARRIER WITH A RECOVERY VEHICLE.....	0064 00
TOW START DISABLED CARRIER.....	0065 00
TOWING TRAILER WITH CARRIER.....	0066 00
OPERATE SMOKE GRENADE LAUNCHERS.....	0067 00
OPERATE NBC KIT.....	0068 00
COVER/UNCOVER INTAKE AND EXHAUST GRILLS.....	0069 00
FORD WATER UP TO 40 INCHES DEEP.....	0070 00
AFTER WATER OPERATIONS.....	0071 00

OPERATE IN EXTREME COLD: BELOW -25°F (-31°C)

0059 00

THIS WORK PACKAGE COVERS:

- Prepare Carrier for Extreme Cold (page 0059 00-1).
 - Do's for Operation in Extreme Cold (page 0059 00-2).
 - Don'ts for Operation in Extreme Cold (page 0059 00-2).
 - Operate Carrier in Extreme Cold (page 0059 00-2).
 - Shutdown Carrier in Extreme Cold (page 0059 00-4).
-

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

- TC 21-306
- WP 0004 00
- WP 0007 00
- WP 0009 00

References

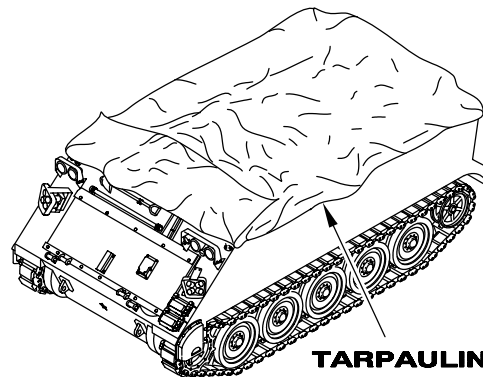
- WP 0010 00
- WP 0015 00
- WP 0026 00
- WP 0028 00
- WP 0029 00
- WP 0048 00
- WP 0060 00
- WP 0069 00
- WP 0075 00

Equipment Condition

Engine coolant heater kit installed

PREPARE CARRIER FOR EXTREME COLD

1. Check that driver's hatch cover is closed (WP 0007 00).
2. Check that cargo hatch cover is closed (WP 0009 00).
3. Check that commander's hatch cover is closed (WP 0010 00).
4. Check that ramp is raised (WP 0015 00).
5. Cover the intake grill and exhaust grill (WP 0069 00).
6. Place tarpaulin over carrier.



DO'S FOR OPERATION IN EXTREME COLD

1. Do be alert for the effects of cold on the carrier.
2. Do install air inlet and exhaust grill covers and adjust for conditions.
3. Do start engine coolant heater as soon as you stop for more than a few hours.
4. Do read TC 21-306 to learn about the methods and special hazards of driving on snow, ice, and unusual terrain.
5. Do park in shelter whenever you can. If there's no shelter, park so the carrier doesn't face the wind.
6. Do, if you can't park in shelter, put a footing of planks or brush under the tracks so they won't get frozen in. Clean off snow, ice, or mud as soon as you can.
7. Do drain fuel filters as soon as you can. Close valves when clean fuel appears.
8. Do fill the fuel tank as soon as you can. Water collects in an empty tank when it cools down. Ice will block fuel flow.
9. Do keep the carrier covered as much as you can. Use tarpaulins or anything available to protect the carrier. Cover machine gun when you're not using it. Keep gun clean and lightly lubed.
10. Do remove drain plugs when water collects in hull.
11. Do your AFTER operation preventive maintenance checks and services (PMCS) (WP 0075 00).

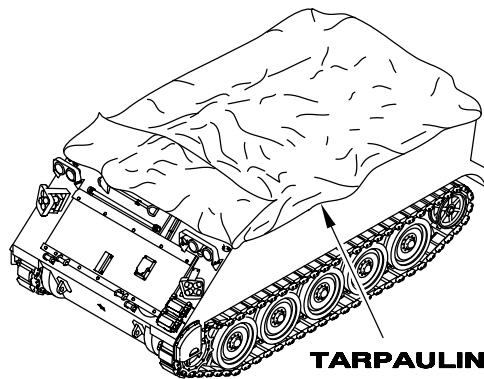
DON'TS FOR OPERATION IN EXTREME COLD

1. Don't operate lights or electrical equipment for very long when coolant heater is ON.
2. Don't run engine while coolant heater is operating.
3. Don't let the ends of tarpaulins touch the ground. They could freeze in place.
4. Don't touch external metal surfaces with bare hands. Hands could freeze to the metal surface.
5. Don't leave the brakes locked when you stop. If water is present, it could freeze them in the locked position.

OPERATE CARRIER IN EXTREME COLD**NOTE**

The DO'S and DON'TS tasks above must be read before operation in extreme cold.

1. Fold tarpaulin back to uncover exhaust grill.



NOTE

If carrier has been shutdown for a long period in extreme cold weather it may be necessary to use external source to warm-up engine prior to starting.

2. Operate engine coolant heater (WP 0060 00).
3. Stop engine coolant heater when engine temperature gauge reads above 120°F (49°C) (WP 0060 00).

CAUTION

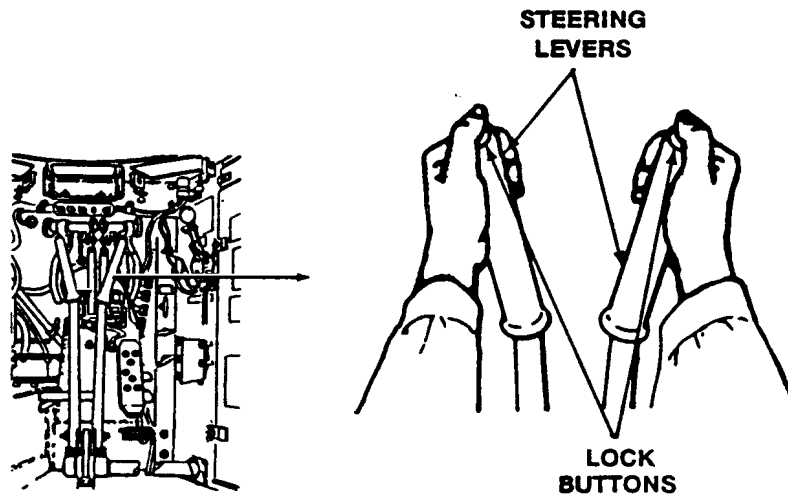
Running engine at high speed after cold start could damage engine. Do not race engine when cold.

NOTE

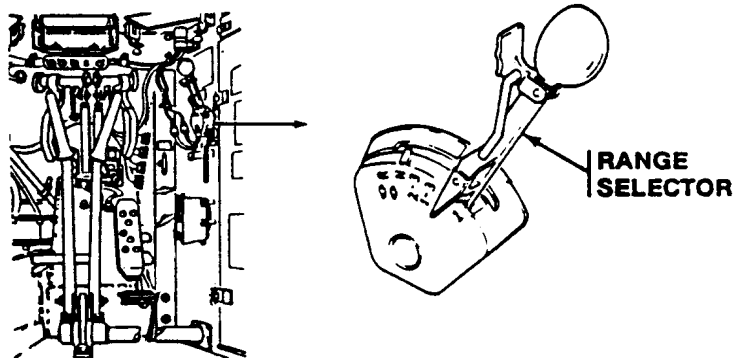
Exhaust grill should be uncovered and intake grill covered when starting engine.

Both personnel and winterization heaters should be turned off before trying to start engine.

4. Start engine. Let engine run for 15 minutes (WP 0026 00).
5. Set steering levers. Pull back on steering levers and press lock buttons down to lock brakes for parking.

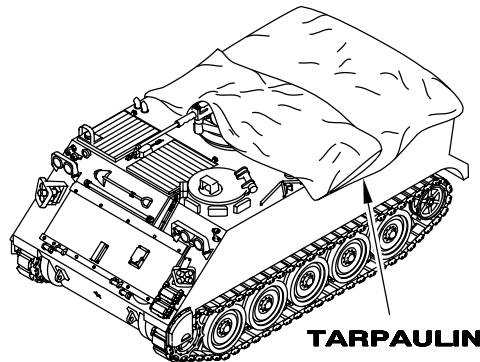


6. Shift range selector to 1-2 range (WP 0004 00) and hold for 5 minutes while slowly raising engine idle. Raise idle until engine runs smoothly.
7. Lower engine idle to slow and shift range selector to N.



8. Open one or more flaps on intake grill (WP 0069 00).

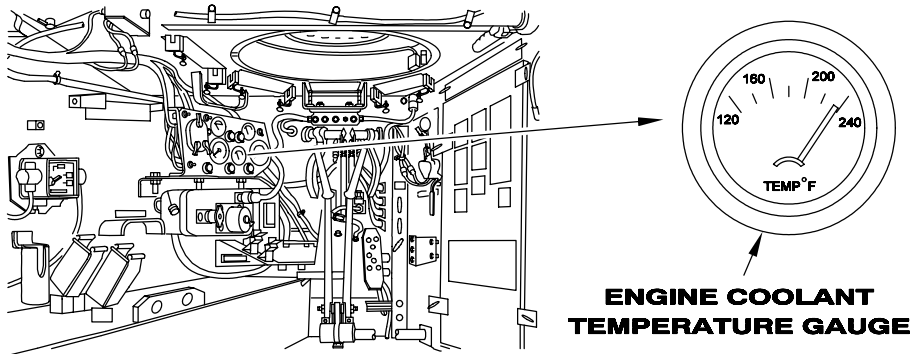
- Remove tarpaulin from carrier.



CAUTION

Both personnel and winterization heaters should be turned off before trying to start engine.

- Drive carrier and perform mission (WP 0028 00).
- If engine coolant temperature gauge is above 230°F (110°C) during mission, do Operate Carrier in Extreme Cold, Step 7 and Step 12.



- Remove cover from intake grill (WP 0069 00).

SHUTDOWN CARRIER IN EXTREME COLD

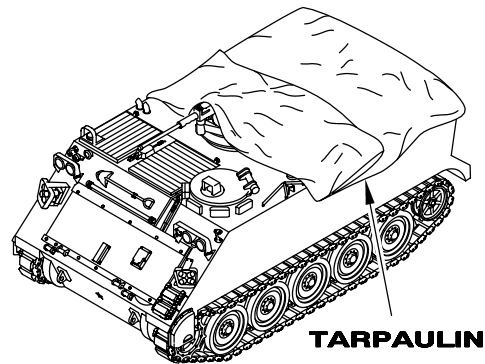
- Stop engine (WP 0029 00).
- Remove driver's power plant access panel (WP 0048 00).

CAUTION

Condensation in fuel tanks and lines can freeze. Fuel lines can get blocked. Drain water from fuel filters and keep fuel tanks full.

- Drain fuel filters of water (WP 0075 00).
- Install driver's power plant access panel (WP 0048 00).
- Cover intake grill (WP 0069 00).
- Check that driver's hatch cover is closed (WP 0007 00).
- Check that cargo hatch cover is closed (WP 0009 00).
- Check that commander's hatch cover is closed (WP 0010 00).
- Check that ramp is raised (WP 0015 00).

10. Place tarpaulin over carrier, but leave exhaust grill uncovered.



11. If carrier will be shutdown for more than a few hours, start engine coolant heater (WP 0060 00) or run engine periodically to keep engine warm and batteries charged (WP 0026 00).

END OF TASK

OPERATE ENGINE COOLANT HEATER BELOW -25°F (-31°C)

0060 00

THIS WORK PACKAGE COVERS:

- Turn Coolant Heater On (page 0060 00-1).
- Turn Coolant Heater Off (page 0060 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

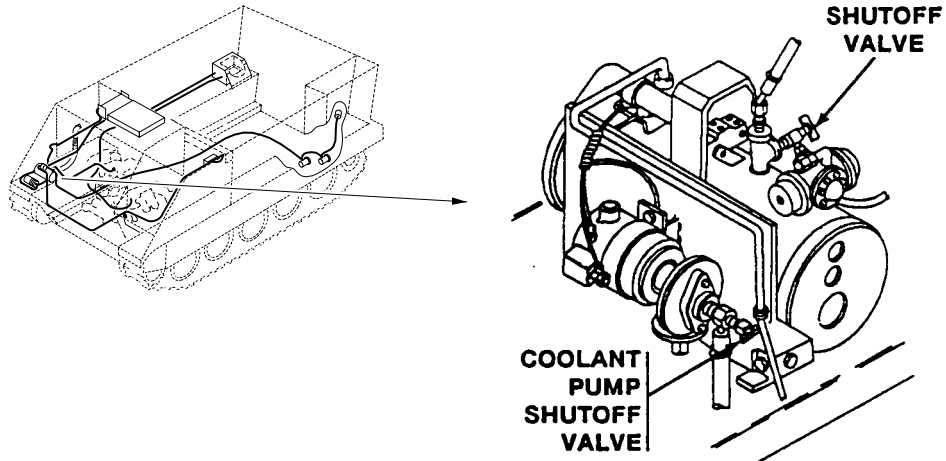
- WP 0014 00
- WP 0047 00

Equipment Condition

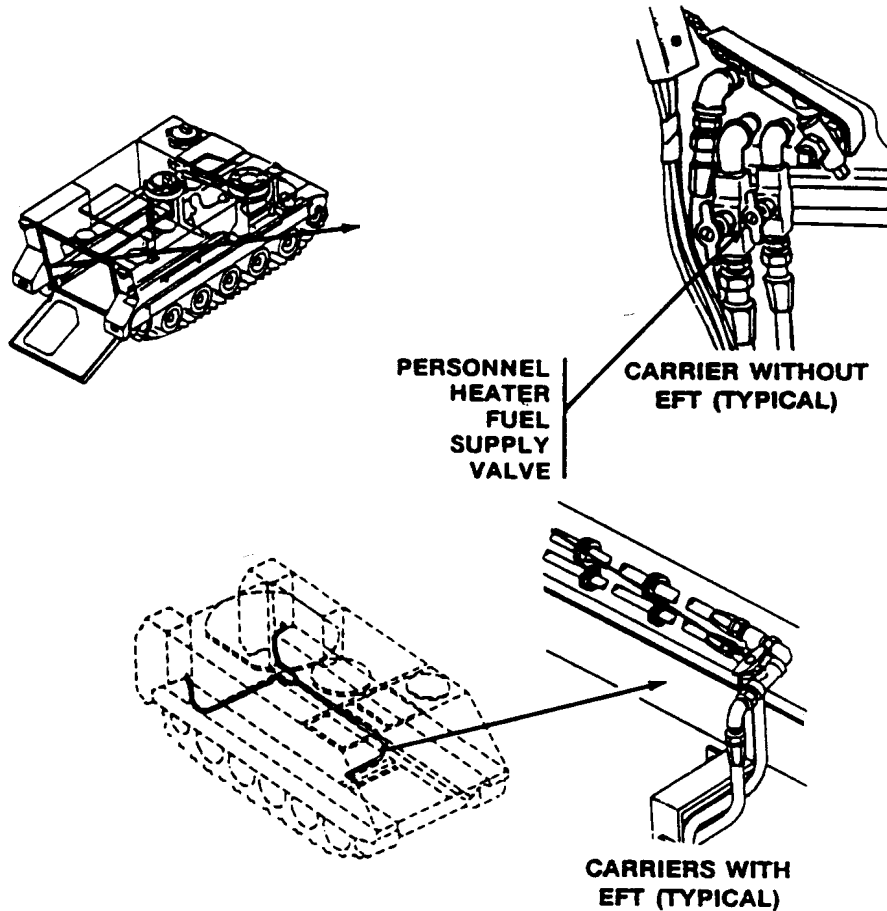
- Engine coolant heater kit installed
- Trim vane lowered (WP 0047 00)
- Power plant access door opened (WP 0014 00)
- Personnel heater fuel supply valve open (WP 0004 00)

TURN COOLANT HEATER ON

1. Open coolant pump shutoff valve and coolant heater shutoff valve.



2. Open coolant heater fuel supply valve.
3. Check to make sure personnel heater fuel supply valve is open.



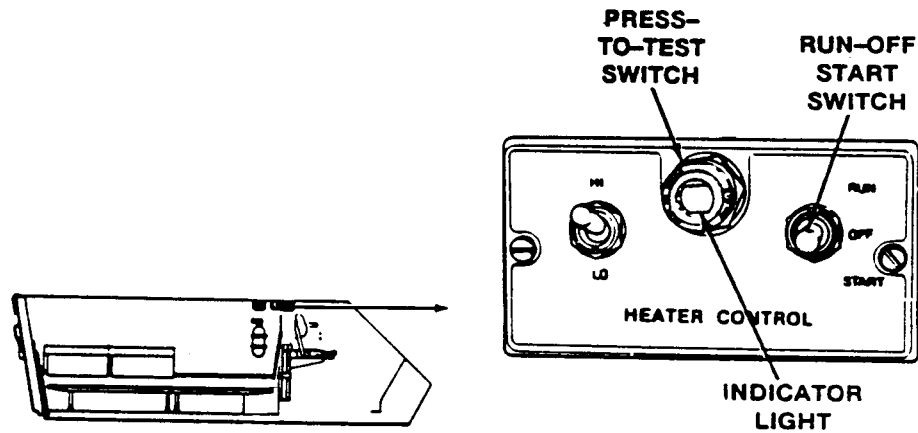
CAUTION

Overheating will damage batteries. Do not use coolant heater if temperature is above -25°F (-31°C).

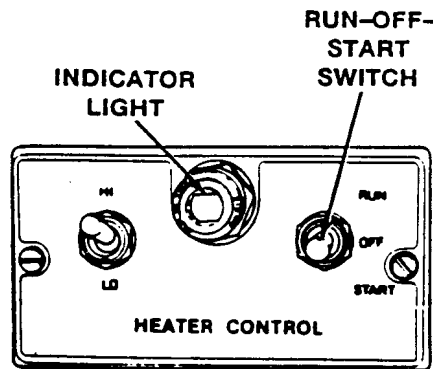
Carrier batteries can discharge. Do not operate carrier lights, radios, or other electrical equipment while coolant heater is running.

4. Press PRESS-TO-TEST switch. Check that indicator light comes on.

5. Move RUN-OFF-START switch to START. Hold switch in START until indicator light comes on.



6. Move RUN-OFF-START switch to RUN as soon as indicator light comes on. Do not stop in OFF position.



7. If coolant heater does not start, repeat Steps 4 - 5 above. If coolant heater does not start after three tries, troubleshoot heater (WP 0074 00).

NOTE

Coolant heater always starts at low heat. It switches to high heat if HI-LO switch is set at HI.

8. Move HI-LO switch to HI or LO.

NOTE

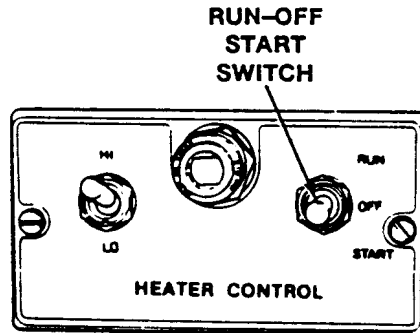
When HI-LO switch is at HI, heater will automatically go to low heat if coolant temperature reaches 190°F (88°C). It will go back to high heat if coolant temperature drops to 120°F (49°C). If coolant reaches a temperature of 245° to 260°F (118° to 126°C), heater will stop and must be restarted.

TURN COOLANT HEATER OFF

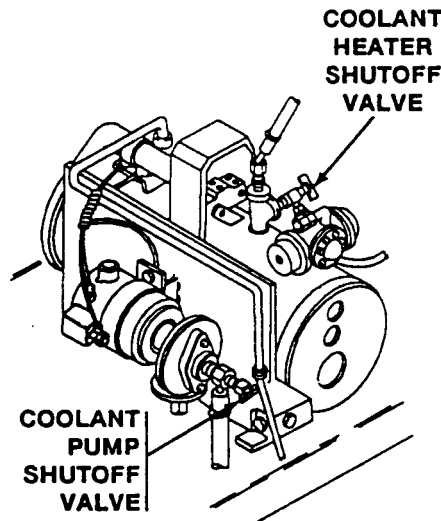
NOTE

When coolant heater is turned off, blower will run until heater is purged of fuel and burner is cool. Indicator light will stay on until blower stops. Driver should stay in carrier until blower stops.

1. Move RUN-OFF-START switch to OFF.



2. Allow coolant heater to purge itself.
3. Close coolant pump shutoff valve and coolant heater shutoff valve.



4. Close power plant access door (WP 0014 00).

CAUTION

Carrier batteries can discharge. If carrier is not to be driven after 12 hours of running coolant heater, start and run engine until batteries are fully charged.

NOTE

Always turn coolant heater off and close coolant shutoff valves before starting engine.

5. Stow trim vane (WP 0047 00).

END OF TASK

OPERATE CARRIER OVER ROUGH TERRAIN

0061 00

THIS WORK PACKAGE COVERS:

- Drive Carrier Over Trenches (page 0061 00-1).
 - Drive Carrier Over Obstacles (page 0061 00-2).
 - Drive Carrier On Grades (page 0061 00-3).
 - Drive Carrier On Side Slopes (page 0061 00-3).
 - Drive Carrier On Snow, Ice, or Mud (page 0061 00-4).
 - Park Carrier On Snow, Ice, or Mud (page 0061 00-5).
-

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0004 00

Personnel Required

Driver

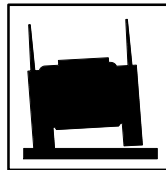
Crew

Equipment Condition

Engine started (WP 0026 00)

DRIVE CARRIER OVER TRENCHES

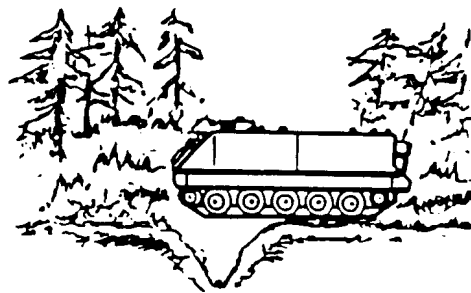
WARNING



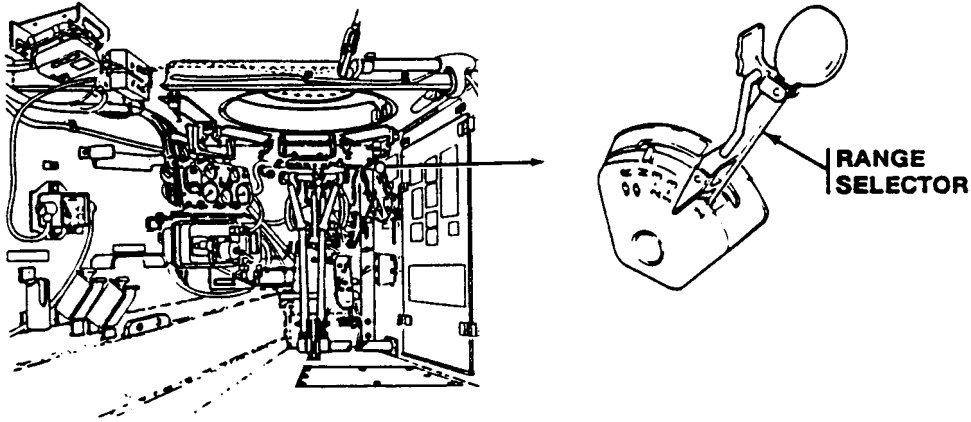
Carrier can roll over and kill or injure personnel. Avoid high speeds and sudden turns when driving on hills or rough terrain. Wear seat belts.

CAUTION

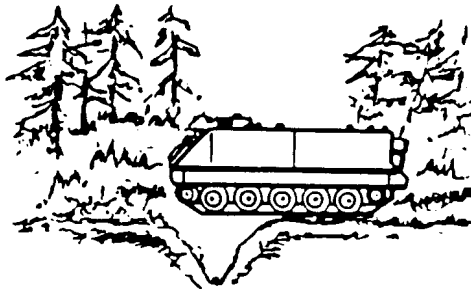
Carrier will get stuck in trenches wider than 5-1/2 feet (1.67 m). Do not cross trenches wider than 5-1/2 feet (1.67 m).



1. Shift range selector to 1 or 1-2 range (WP 0004 00).



2. Approach trench straight on and drive slowly over trench. Accelerate when track contacts far side of trench.

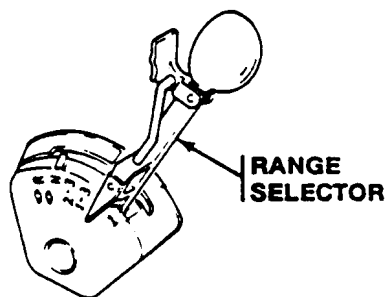


DRIVE CARRIER OVER OBSTACLES

CAUTION

Obstacles higher than 24 inches (61 cm) can damage carrier. Do not drive over obstacles higher than 24 inches (61 cm).

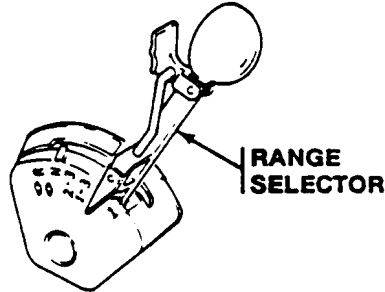
1. Shift range selector to 1 or 1-2 range (WP 0004 00).



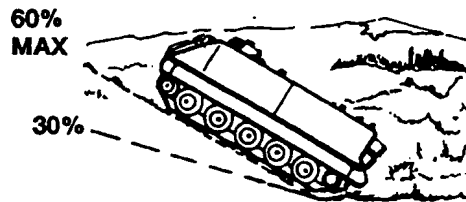
2. Approach obstacle straight on and drive slowly over obstacle.

DRIVE CARRIER ON GRADES

1. Shift range selector to 1-2 range for grades up to 30% and 1 range for grades from 30% to 60%.

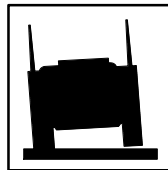


2. Accelerate as carrier climbs a grade. Decelerate when you reach top of grade and during descent.



DRIVE CARRIER ON SIDE SLOPES

WARNING



Carrier can roll over and kill or injure personnel. Do not drive on side slopes steeper than 30%.

1. Shift range selector to 1 or 1-2 range (WP 0004 00).
2. Steer in a series of small wide turns rather than one sharp turn.



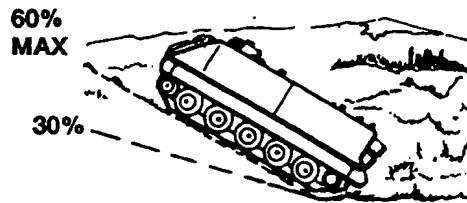
DRIVE CARRIER ON SNOW, ICE, OR MUD

CAUTION

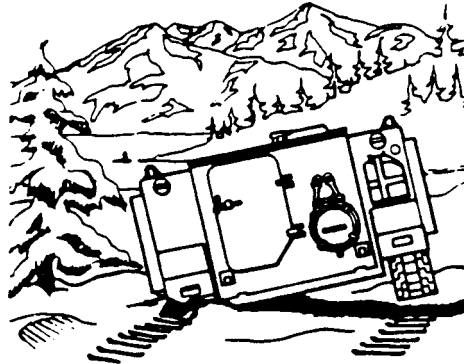
Sharp turns on snow, ice, or mud can cause carrier to throw a track. Make a series of small wide turns instead of one sharp turn.

NOTE

Do not drive on snow-covered grades unless you have to. If you do, go as straight up and down the slope as you can.

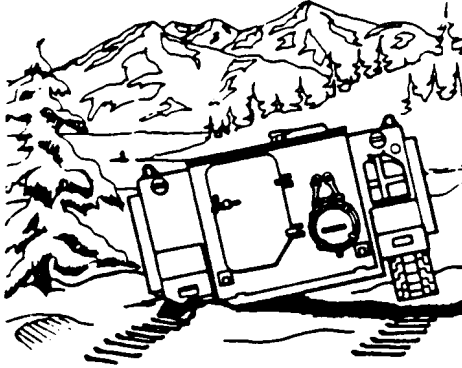


1. Use a low transmission range that moves carrier smoothly without digging in. Drive slowly to avoid skidding.
2. Slow carrier smoothly before making a turn.
3. If carrier breaks through crust of deep snow or soft soil, steer carrier straight to get back on crust.



PARK CARRIER ON SNOW, ICE, OR MUD

1. If possible, stop carrier on firm surface.
2. When mission is completed, park carrier in a sheltered area with front of carrier faced away from the wind.
3. Clear snow, ice, and mud off road wheels and tracks after parking.



4. If carrier is parked in low area where water may freeze under tracks, put brush or branches under tracks.

END OF TASK

OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS

0062 00

THIS WORK PACKAGE COVERS:

Operate Carrier (page 0062 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

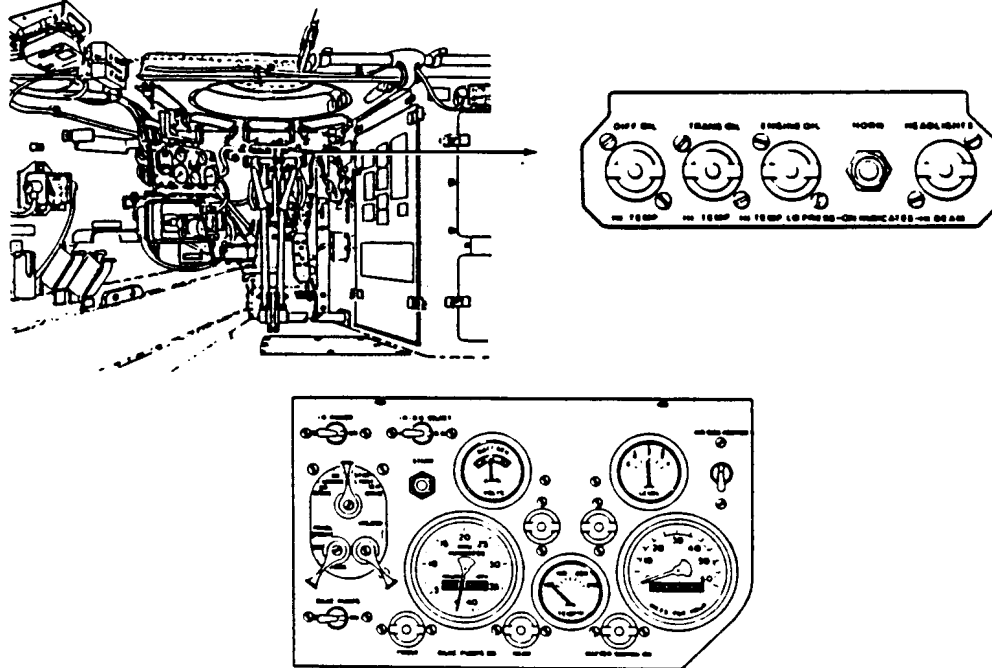
Driver

References

- TB Med 507
- WP 0029 00
- WP 0069 00
- WP 0074 00
- WP 0075 00
- WP 0085 00
- WP 0088 00

OPERATE CARRIER

1. Check gauges and warning lights often when driving. If any warning light comes on, stop engine (WP 0029 00) troubleshoot problem (WP 0074 00).

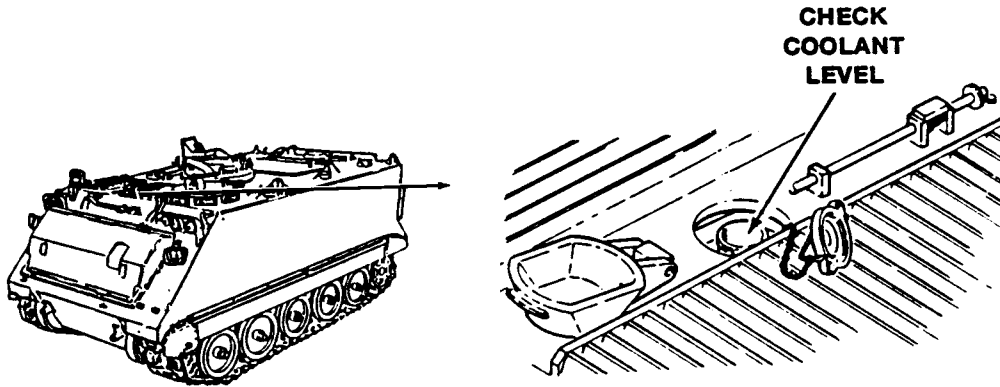


WARNING

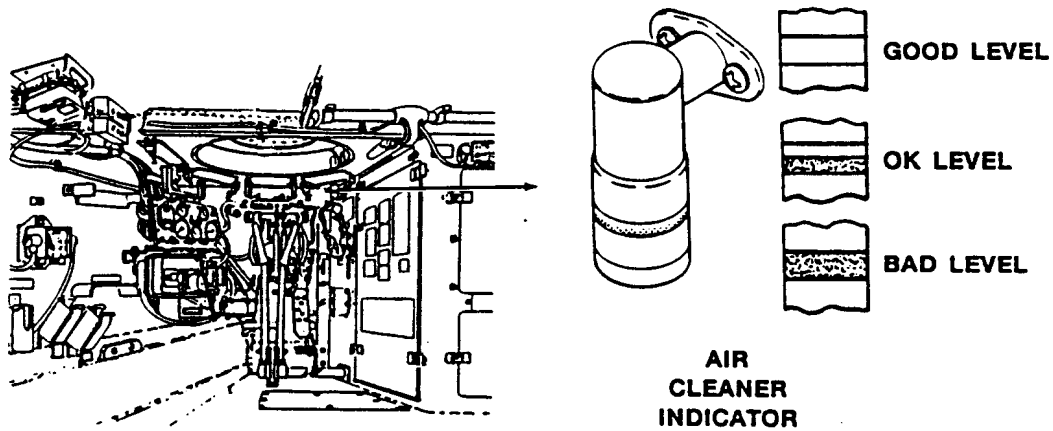


Vehicle operation during hot weather may result in potential heat stress to crew members. Crew members should limit their exposure based on TB Med 507. Ramp door should be opened to ensure ventilation is adequate, when appropriate.

2. Check engine coolant level often (WP 0088 00).



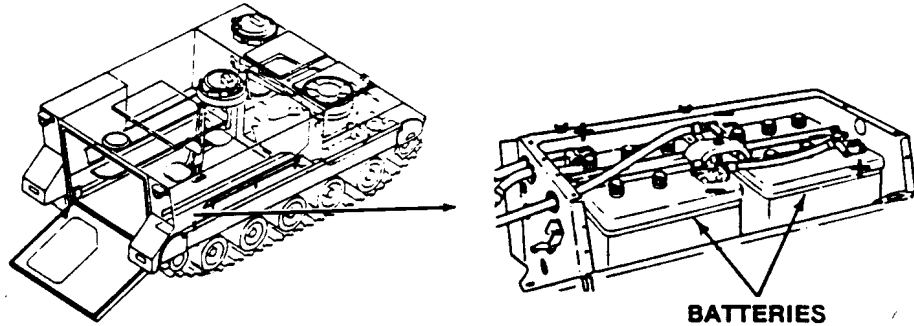
3. Check air cleaner indicator often. If at any time only red shows in the window, notify unit maintenance.



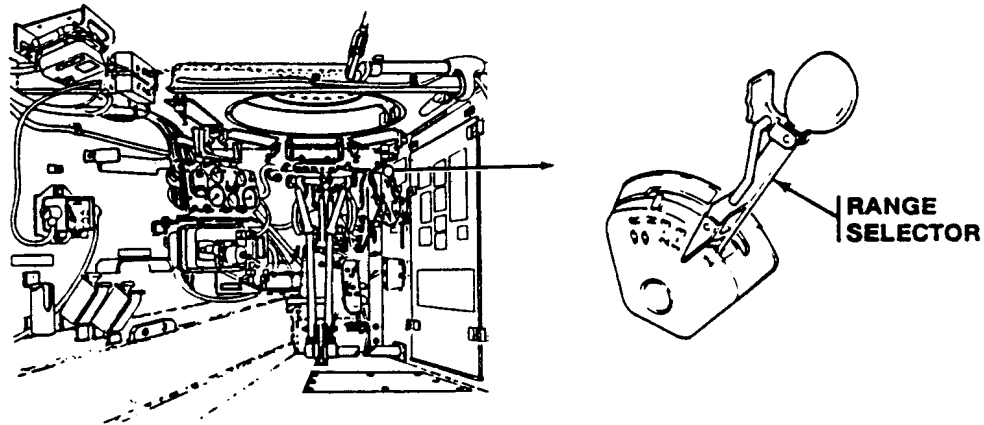
**OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY
CONDITIONS — Continued**

0062 00

4. Check level of water in batteries (WP 0085 00).



5. Don't drive in any transmission range below 1-3 when you don't have to.

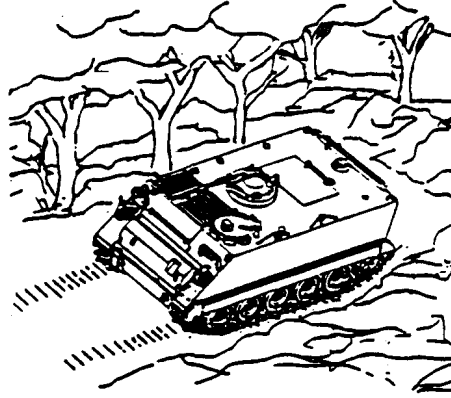


6. Don't let dirt, sand, or bugs build up in the radiator fins. Have unit maintenance clean fins with water pressure.
7. Lubricate frequently. Heat, sand, dust, humidity, and salt all have a bad effect on lubricants and moving parts (WP 0075 00).
8. Stop and fix any problem as soon as it comes up, or as soon as tactical situation allows.
9. Keep carrier clean. Fungus and mildew can grow fast in conditions of high heat and humidity. Look carrier over and clean it often.

**OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY
CONDITIONS — Continued**

0062 00

10. Keep carrier in shelter or shade as much as possible. Cover carrier with tarpaulins when it is parked. If you cannot cover entire carrier, at least cover intake and exhaust grills (WP 0069 00).

**END OF TASK**

SECURING INOPERABLE/UNSAFE RAMP

0063 00

THIS WORK PACKAGE COVERS:

Securing Inoperable/Unsafe Ramp (page 0063 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

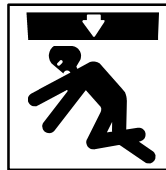
- DA Form 2404
- WP 0005 00
- WP 0015 00

Equipment Condition

- Engine stopped (WP 0029 00)
- Carrier tracks blocked (WP 0050 00)
- Ramp inoperable

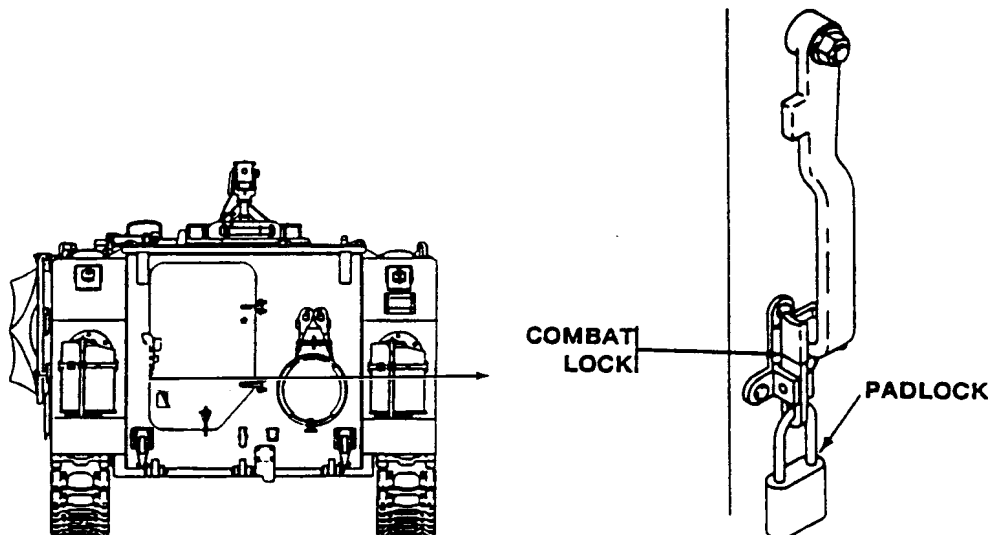
SECURING INOPERABLE/UNSAFE RAMP

WARNING



An inoperable/unsafe ramp can fall and kill you. Do not attempt to manually raise or lower an inoperable/unsafe ramp. Notify unit maintenance to raise or lower an inoperable/unsafe ramp.

1. Close ramp access door and secure with combat lock (WP 0005 00).
2. Secure combat lock using padlock in tool bag.
3. Notify unit maintenance to raise inoperable ramp using powered lifting equipment.
4. Secure ramp closed using ramp lock (WP 0015 00).



WARNING

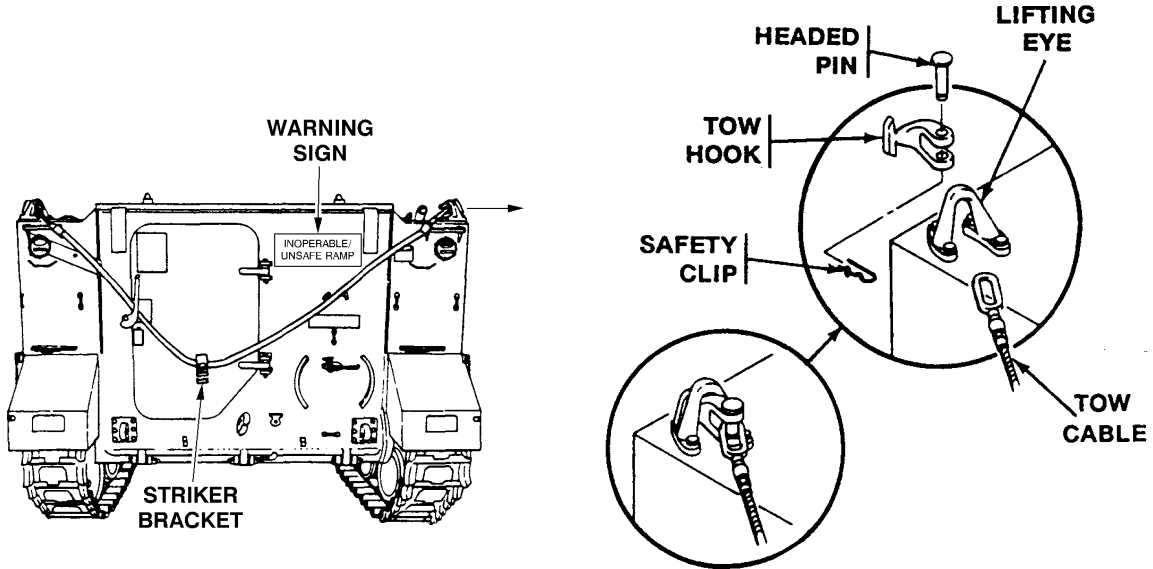


An inoperable/unsafe ramp can fall and kill you. Do not remove any device securing an inoperable/unsafe ramp. Notify unit maintenance to remove lifting equipment.

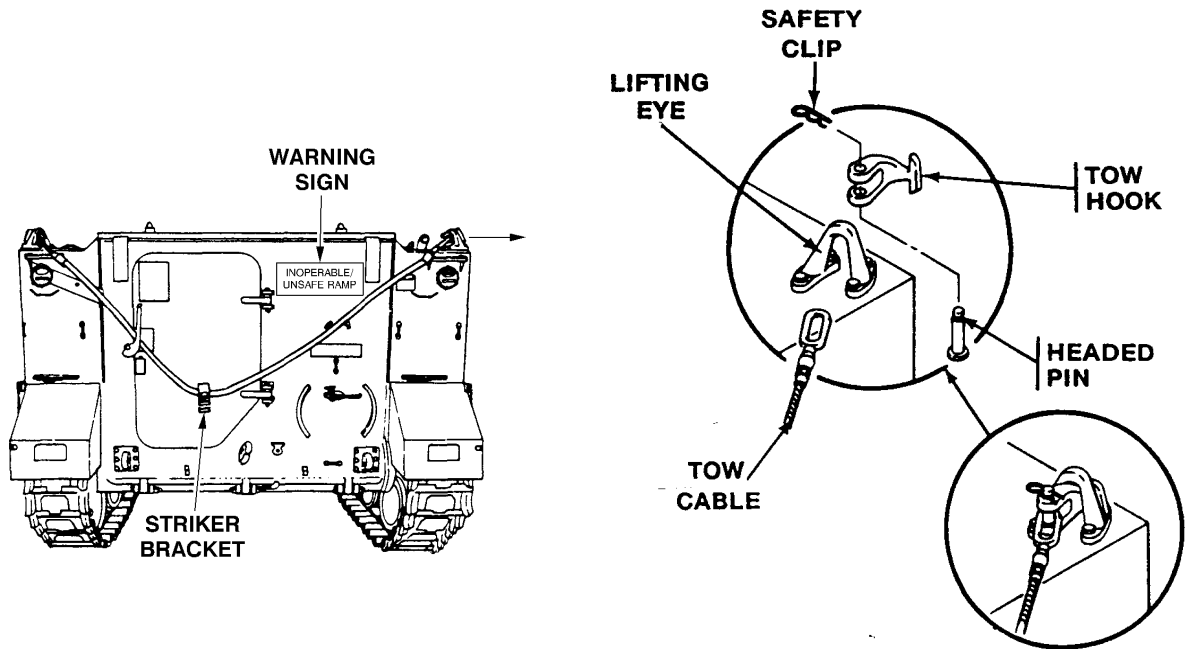
NOTE

Steps 5 - 6 are for M113A2 and M1059 only.

5. With ramp lock engaged and lifting equipment holding ramp up, install tow hooks in both rear lifting eyes.



6. Connect tow cable to both tow hooks with headed pins and safety clips. Secure tow cable to ramp door striker bracket with screw, washer, and nut.



WARNING



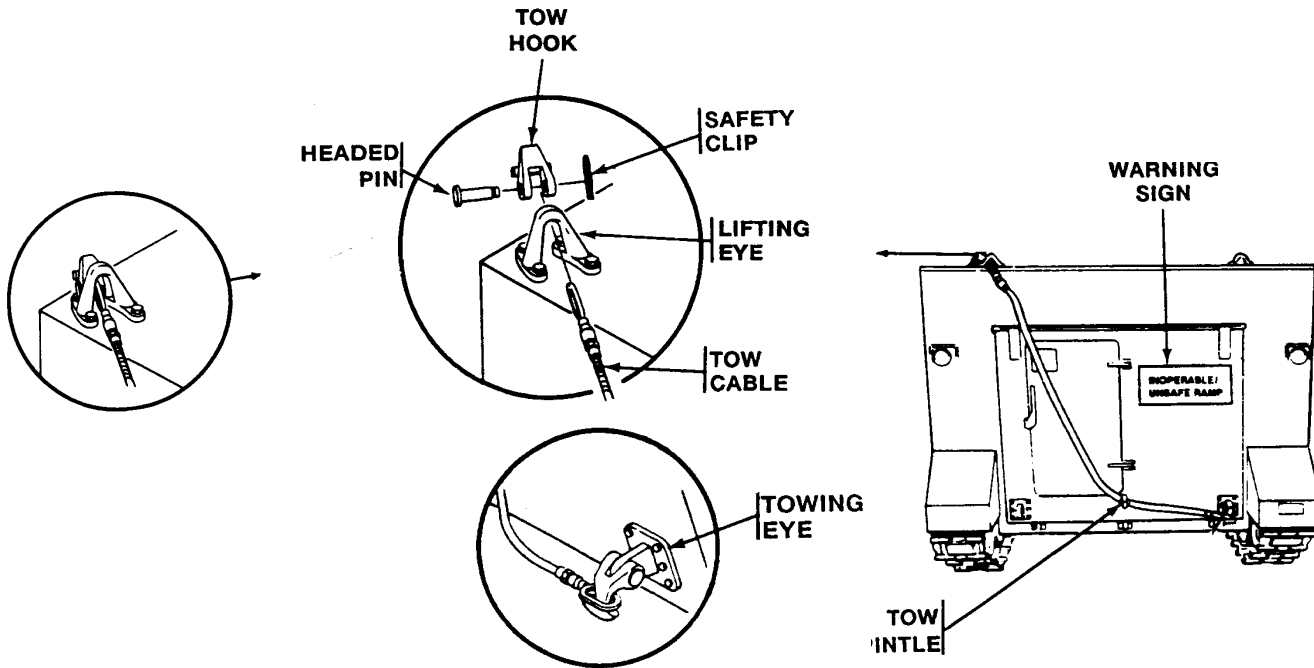
An inoperable/unsafe ramp can fall and kill you. Do not remove any device securing an inoperable/unsafe ramp. Notify unit maintenance to remove lifting equipment.

NOTE

Steps 7 - 8 are for M577A2 and M1068 only.

7. With ramp lock engaged and lifting equipment holding ramp up, install tow hooks in right-hand towing eye and rear left-hand lifting eye.

8. Route tow cable through tow pintle and connect to both tow hooks with headed pins and safety clips.



WARNING



An inoperable/unsafe ramp can fall and kill you. Do not remove any device securing an inoperable/unsafe ramp. Notify unit maintenance to remove lifting equipment.

NOTE

Steps 9 - 11 are for carriers with external fuel tanks.

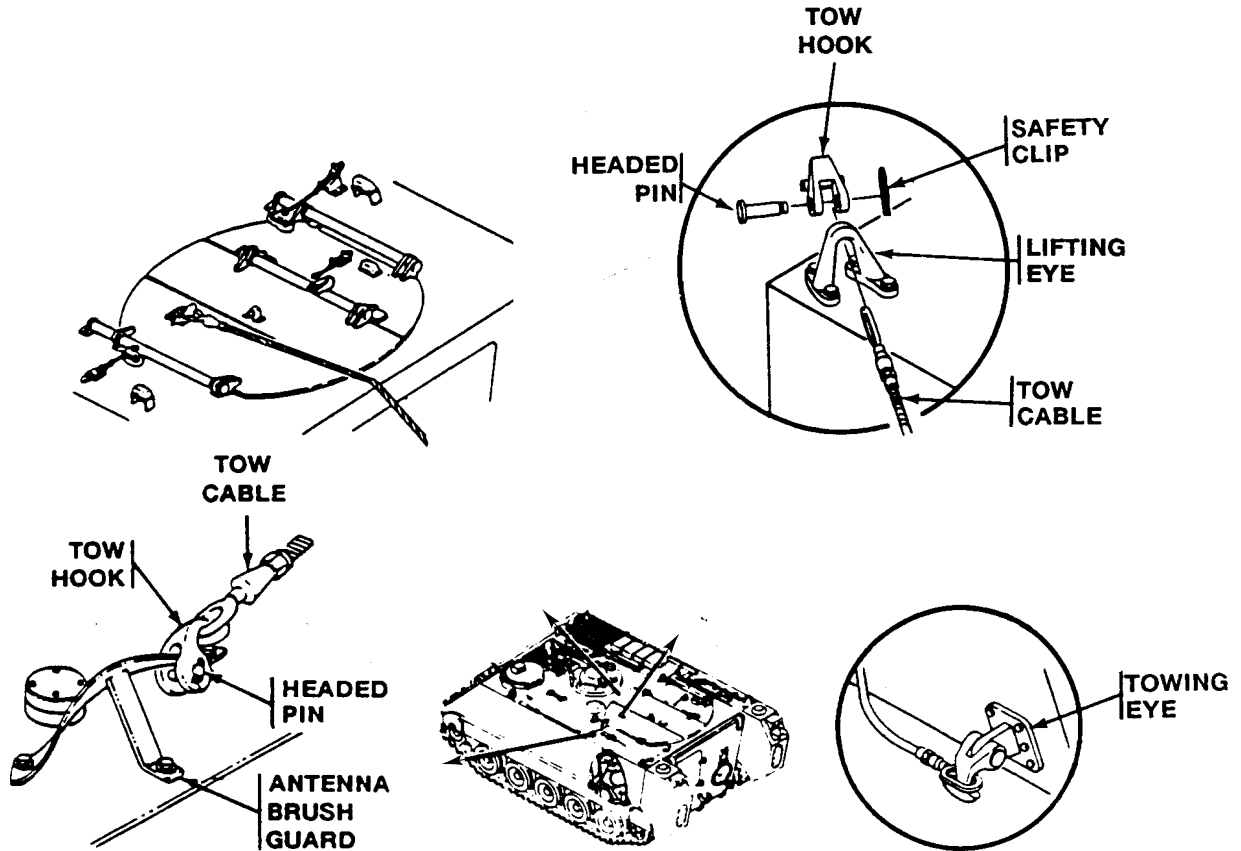
9. With ramp lock engaged and lifting equipment holding ramp up, install tow hook in right towing eye. Secure tow hook with headed pin and safety clip.
10. Secure tow cable to tow hook and route cable toward driver's hatch.
11. Connect tow cable to antenna brush guard or mortar hatch catch with tow hook. Secure tow hook with headed pin and safety clip.

12. Post a warning sign on ramp as follows:

WARNING

This inoperable/unsafe ramp can fall and kill you. Do not remove any cable unless proper lifting equipment is attached.

13. Record fault on DA Form 2404 and report it to unit maintenance.



END OF TASK

TOWING DISABLED CARRIER WITH A RECOVERY VEHICLE

0064 00

THIS WORK PACKAGE COVERS:

- Install Tow Bar (page 0064 00-1).
 - Install Tow Cables (page 0064 00-3).
 - Tow Disabled Carrier (page 0064 00-4).
 - Remove Tow Bar From Disabled Carrier and Recovery Vehicle (page 0064 00-6).
 - Remove Tow Cables (page 0064 00-6).
-

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

- Crowbar (WP 0094 00, Table 2, Item 11)
- Tow Cable (WP 0094 00, Table 2, Item 7)

Personnel Required

- Driver (2)
- Helper (H) (4)

References

- WP 0004 00
- WP 0050 00

Equipment Condition

- Recovery vehicle
 - Disabled carrier
-

INSTALL TOW BAR

WARNING



Use tow bar or two crossed tow cables and use steering levers to stop carrier, when necessary.

WARNING



Steering and braking control are lost when final drive shafts are disconnected. Personnel can be killed or injured. Do not use tow cables when drive shafts have been disconnected.

WARNING

Carrier could roll and kill or injure personnel when final drive shafts are disconnected. Block carrier tracks and connect tow bar to disabled carrier and to tow vehicle before disconnecting drive shafts.

CAUTION

To prevent damage to ramp, do not tow a disabled carrier with another carrier.

You will damage transmission and/or differential if you tow at speeds higher than 10 mph (16 km/hr), or for a distance of more than 30 miles. Have unit maintenance disconnect drive shaft between differential and final drives if you MUST tow faster than 10 mph (16 km/hr) or farther than 30 miles.

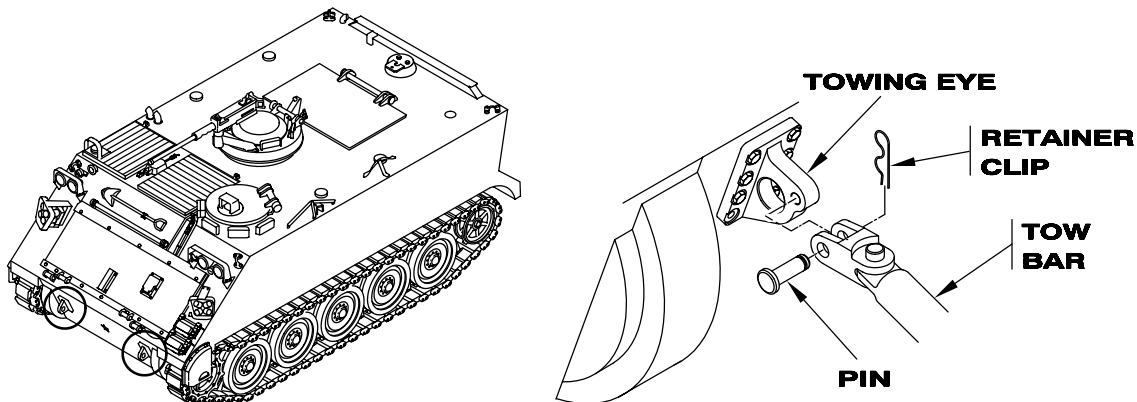
NOTE

A small vehicle will not tow a larger one. Tow vehicle must be same size or larger than disabled carrier.

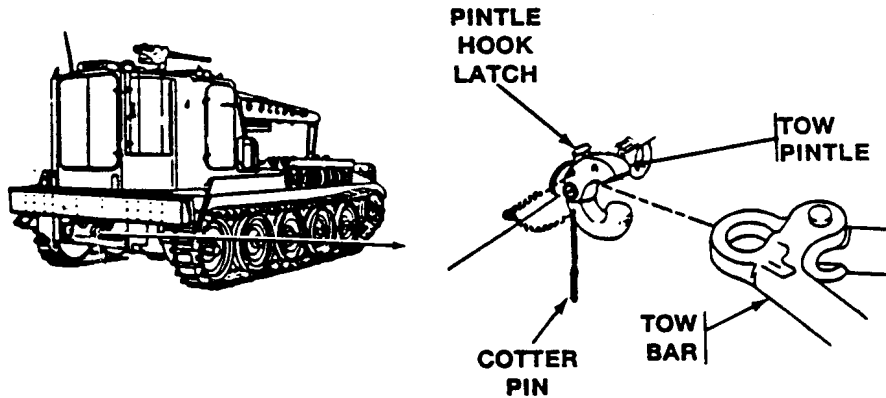
Personnel will disembark disabled carrier before towing operation begins when using tow bar. When using tow cables, driver will remain with carrier during towing operations.

Two helpers, one at left front and one at left rear of recovery vehicle, act as road guides. Two other helpers install tow bar.

1. Align rear of recovery vehicle with front of disabled carrier.
2. Remove two retainer clips and pins from tow bar.
3. Connect tow bar to towing eyes of disabled carrier and secure with two pins and retainer clips.



4. Remove cotter pin from tow pintle on recovery vehicle.
5. Pull up on pintle hook latch and open pintle.
6. Connect tow bar to tow pintle. Close tow pintle over tow bar. Check that tow pintle latches closed.
7. Install cotter pin to secure pintle hook latch closed.

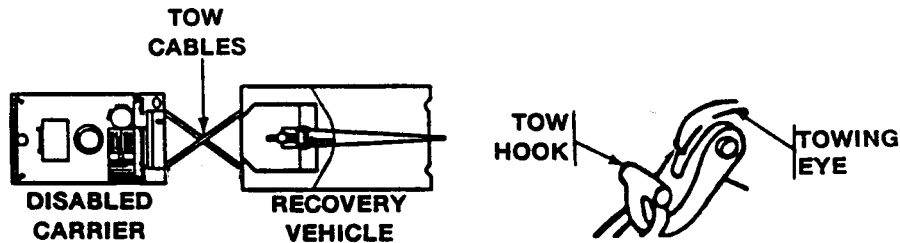


INSTALL TOW CABLES

NOTE

Left rear of recovery vehicle is connected to right front of disabled carrier. Right rear of recovery vehicle is connected to left front of disabled carrier.

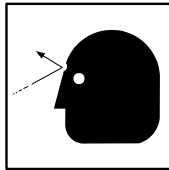
1. Install two tow cables to tow hooks on front of disabled carrier and to tow hooks on rear of recovery vehicle in an X pattern.



TOW DISABLED CARRIER

WARNING

Braking from high speeds when you tow with tow cables or tow bar can jackknife vehicles. Jackknife could injure personnel and damage vehicles. Do not tow at speeds over 10 mph (16 km/hr) with tow bar.

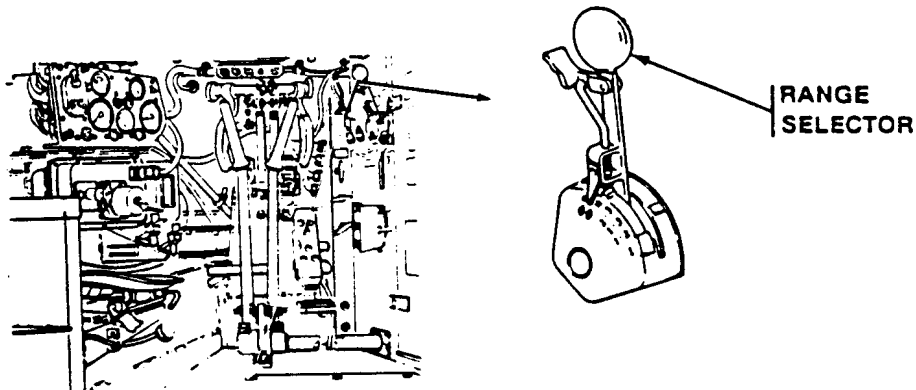
WARNING

Tow cables can snap and injure personnel. Close all hatch covers before you use tow cables to tow carrier. Clear personnel out of danger area.

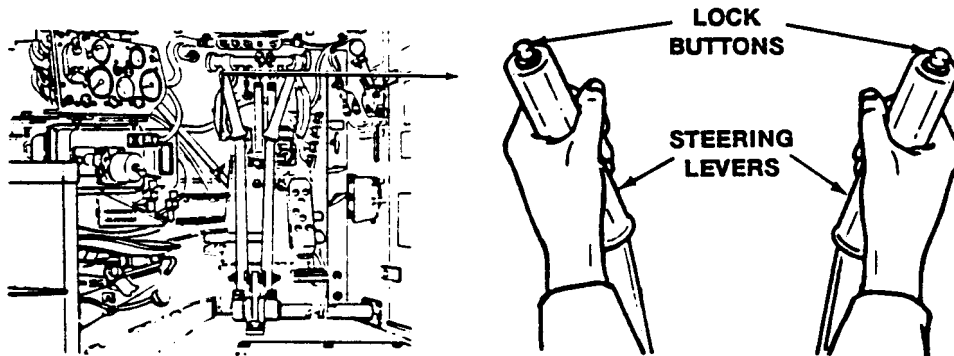
CAUTION

When towing with tow cables, do not disconnect disabled carrier's drive shafts between differential and final drives. Also, do not use cables to tow a carrier more than 30 miles or faster than 10 mph (16 km/hr).

1. If blocked, unblock carrier tracks (WP 0050 00).
2. Shift range selector of disabled carrier to N range (WP 0004 00).



3. Release steering levers in disabled carrier. Pull back on both levers so the lock buttons pop up, then ease the levers all the way forward.



4. Start engine in recovery vehicle.

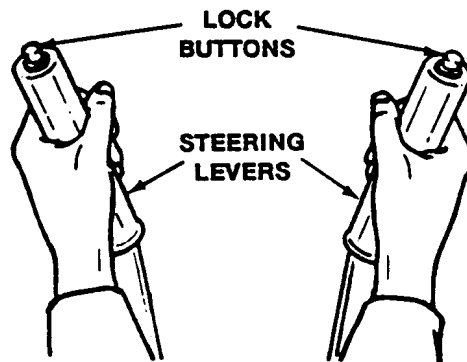
CAUTION

You will damage transmission and/or differential if you tow at speeds higher than 10 mph (16 km/hr) or for a distance of more than 30 miles. Have unit maintenance disconnect drive shaft between differential and final drives if you MUST tow faster than 10 mph (16 km/hr) or farther than 30 miles.

NOTE

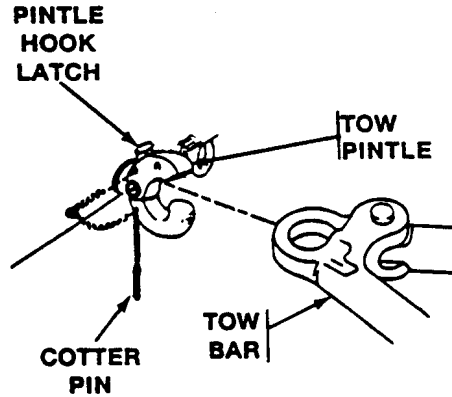
Constant speed must be maintained while towing carrier.

5. Tow the carrier slowly. Do not exceed 10 mph (16 km/hr). Do not tow more than 30 miles.
6. Slowly bring both vehicles to a stop by releasing accelerator pedal in recovery vehicle.
7. Lock steering levers in disabled carrier. Pull back on both levers and push the lock buttons down.

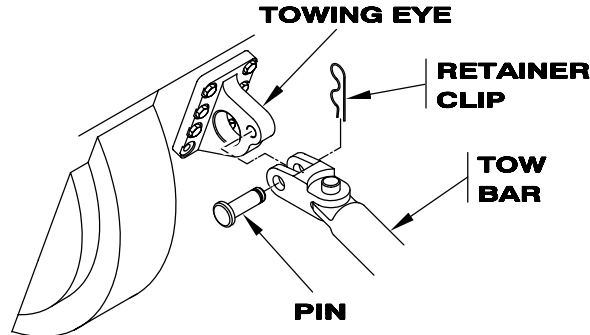


REMOVE TOW BAR FROM DISABLED CARRIER AND RECOVERY VEHICLE

1. Stop engine on recovery vehicle.
2. Remove cotter pin from tow pintle on recovery vehicle.
3. Pull up on pintle hook latch and open pintle.
4. Remove tow bar from tow pintle. Close tow pintle and check that tow pintle latches closed.
5. Install cotter pin to secure pintle hook latch closed.

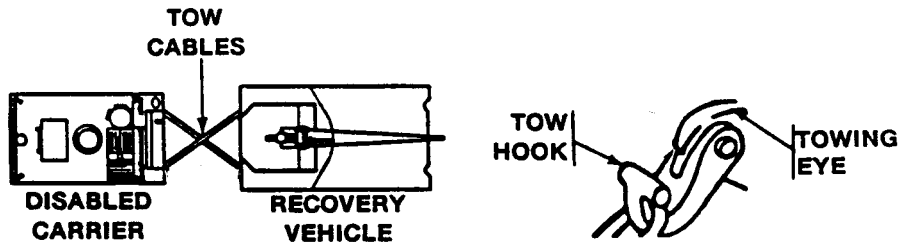


6. Remove two retainer clips and pins securing tow bar to towing eyes of disabled carrier. Remove tow bar.
7. Install two pins in tow bar and secure with retainer clips.



REMOVE TOW CABLES

1. Drive recovery vehicle backward until tow cables are slack.
2. Stop engine on recovery vehicle.
3. Remove two tow cables from tow hooks on front of disabled carrier and from tow hooks on rear of recovery vehicle.



END OF TASK

TOW START DISABLED CARRIER

0065 00

THIS WORK PACKAGE COVERS:

- Install Tow Bar on Disabled Carrier and Recovery Vehicle (page 0065 00-1).
 - Tow Start Disabled Carrier (page 0065 00-3).
 - Remove Tow Bar From Disabled Carrier and Recovery Vehicle (page 0065 00-5).
-

INITIAL SETUP:

Maintenance Level

Operator

References

TM 11-5820-498-12

WP 0004 00

WP 0072 00

WP 0075 00

Tools and Special Tools

Crowbar (WP 0094 00, Table 2, Item 11)

Tow Cable (WP 0094 00, Table 2, Item 7)

Equipment Condition

Recovery vehicle

Disabled carrier

Personnel Required

Driver (2)

Helper (H) (4)

INSTALL TOW BAR ON DISABLED CARRIER AND RECOVERY VEHICLE

WARNING



Make sure carrier steering levers are locked and carrier tracks are blocked before removing or hooking up tow bar or removing U-joints. Personnel could be killed or injured.

WARNING



Never touch lock buttons while carrier is moving. If you lock up the steering lever while moving, you could be injured and/or damage the carrier.

CAUTION

To prevent damage to ramp, do not tow a disabled carrier with another carrier.

NOTE

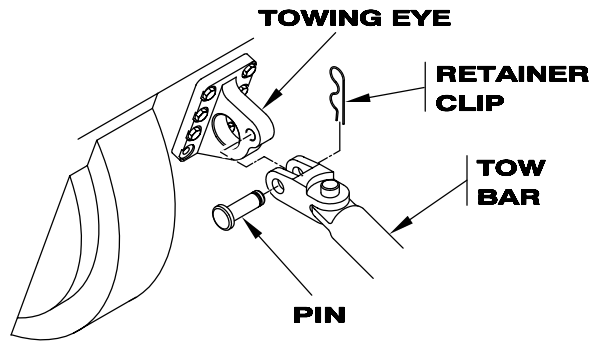
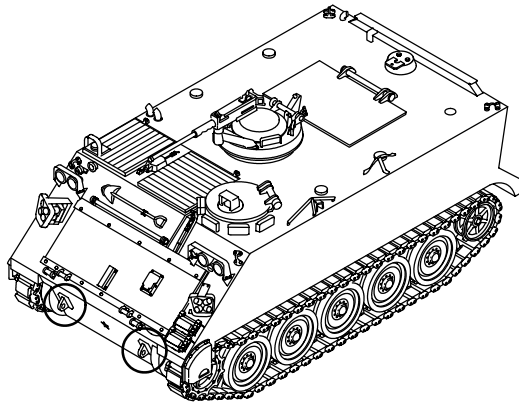
The method for tow starting a carrier is to use a tow bar. All personnel except driver will disembark disabled carrier before towing operation begins.

Thoroughly inspect towing equipment before towing operation begins.

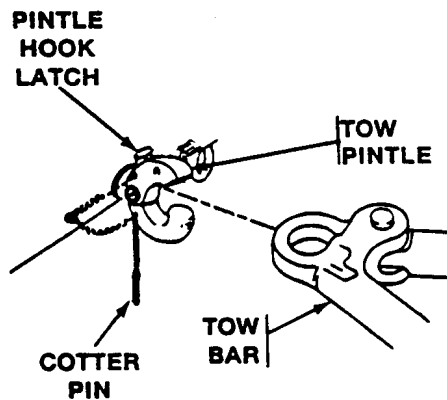
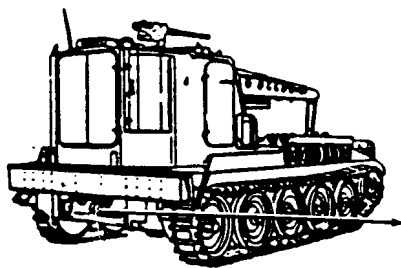
Two helpers, one at left front and one at left rear of recovery vehicle, act as road guides. Two other helpers install tow bar.

If batteries are dead after tow start, the radios and lights will not work. Engine and transmission will be able to function properly.

1. Align rear of recovery vehicle with front of disabled carrier.
2. Remove two retainer clips and pins from tow bar.
3. Connect tow bar to towing eyes of disabled carrier and secure with two pins and retainer clips.

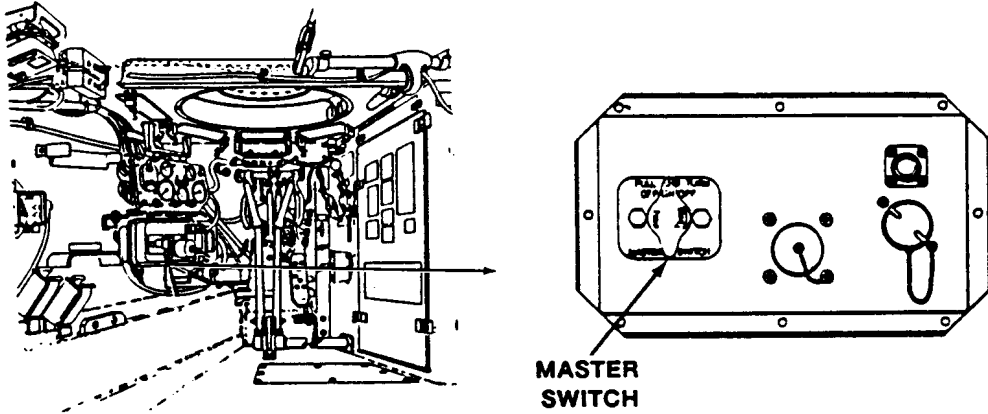


4. Remove cotter pin from tow pintle on recovery vehicle.
5. Pull up on pintle hook latch and open pintle.
6. Connect tow bar to tow pintle. Close tow pintle over tow bar. Check that tow pintle latch is closed.
7. Install cotter pin to secure pintle hook latch closed.



TOW START DISABLED CARRIER

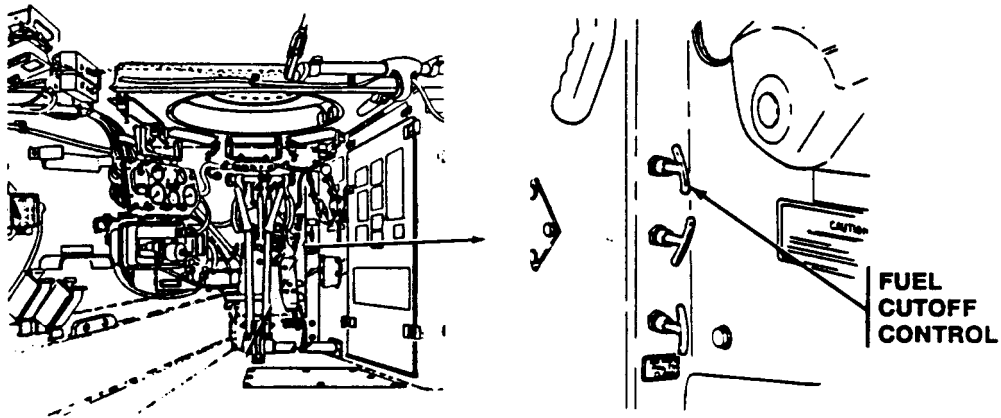
1. Do Before (B) Preventive Maintenance Checks and Services on disabled carrier (WP 0075 00).
2. Turn MASTER SWITCH in disabled carrier to ON.



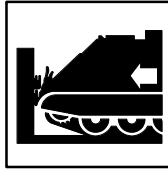
CAUTION

During engine start damage to radio components can occur. Make sure radio power switch is OFF before starting engine. See TM 11-5820-498-12.

3. Push fuel cutoff control in all the way.

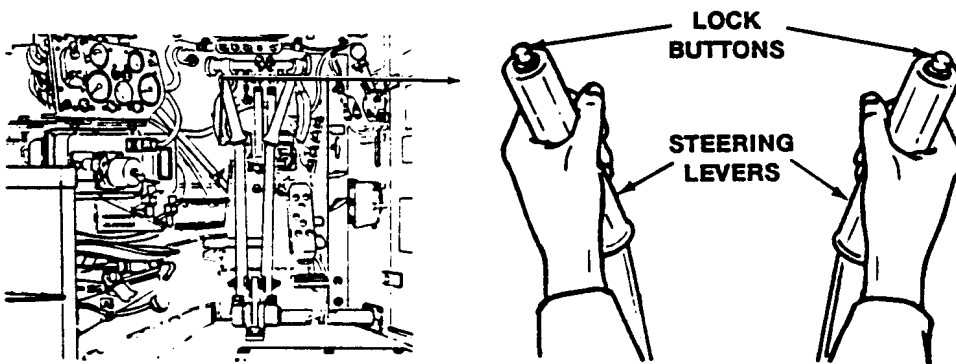


WARNING

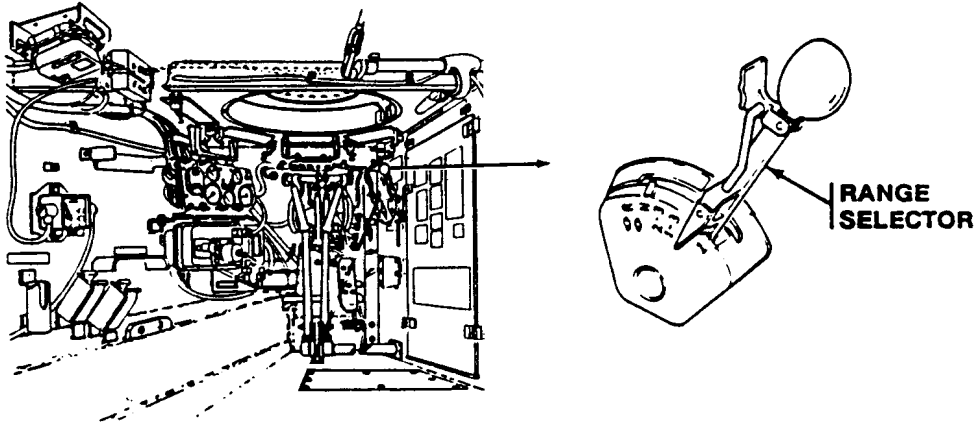


Never touch lock buttons while carrier is moving. If you lock up the steering lever while moving, you could be injured and/or damage the carrier.

4. Release the steering levers. Pull back on both levers so the lock buttons pop up, then ease the levers all the way forward.



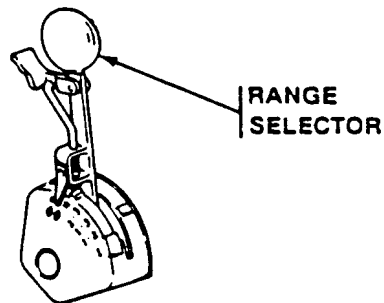
5. Start engine of recovery vehicle.
6. Move out. Find a straight, flat stretch of road or ground and have the tow vehicle pull you at 20 to 25 mph. When you get up to about 20 mph, shift the range selector to 1-3 range (WP 0004 00).



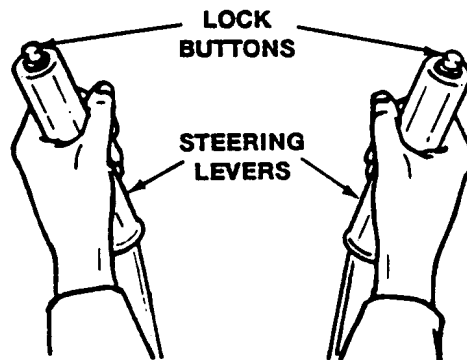
CAUTION

Don't leave the range selector in any driving range for more than about 5 seconds under tow. If the engine doesn't start, shift back to N range and let the transmission rest for a few seconds.

7. When engine starts, shift the range selector to N range. Pull back a little on both steering levers to slightly brake the towed carrier. Signal the towing driver to stop. If you don't get a start in three tries, stop and troubleshoot the engine, (WP 0072 00).
8. After disabled carrier starts, slowly bring both vehicles to a stop.
9. Shift range selector in disabled carrier to N range.

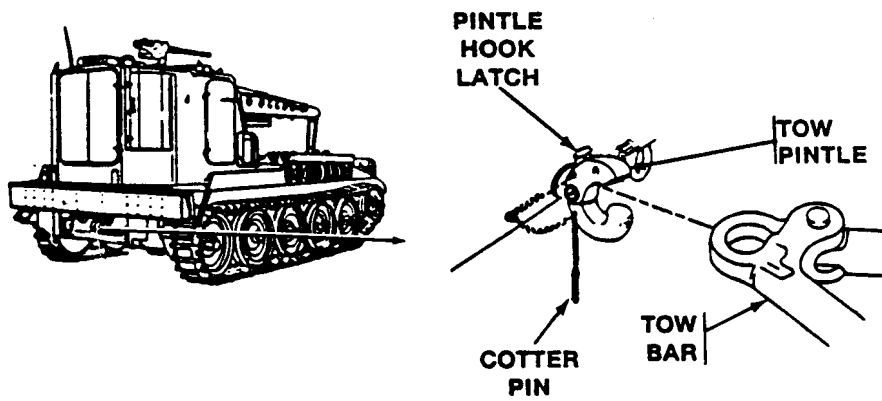


10. Lock steering levers in disabled carrier. Pull back on both levers and press the lock buttons down.

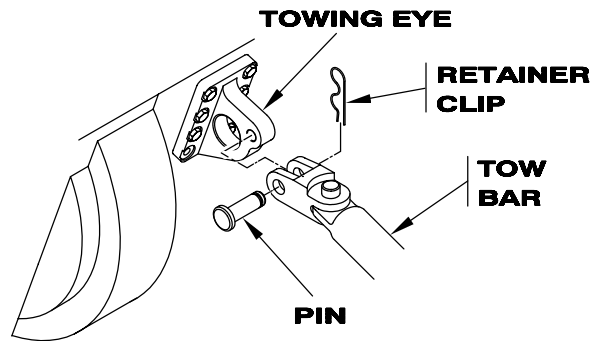
**REMOVE TOW BAR FROM DISABLED CARRIER AND RECOVERY VEHICLE**

1. Stop engine on recovery vehicle.
2. Remove cotter pin from tow pintle on recovery vehicle.
3. Pull up on pintle hook latch and open pintle.
4. Remove tow bar from tow pintle. Close tow pintle and check that tow pintle latch is closed.

5. Install cotter pin to secure pintle hook latch closed.



6. Remove two retainer clips and pins securing tow bar to towing eyes of disabled carrier. Remove tow bar.
7. Install two pins in tow bar and secure with retainer clips.



END OF TASK

TOWING TRAILER WITH CARRIER

0066 00

THIS WORK PACKAGE COVERS:

- Connect Trailer to Carrier (page 0066 00-1).
- Disconnect Trailer from Carrier (page 0066 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

WP 0026 00

WP 0028 00

WP 0029 00

Equipment Condition

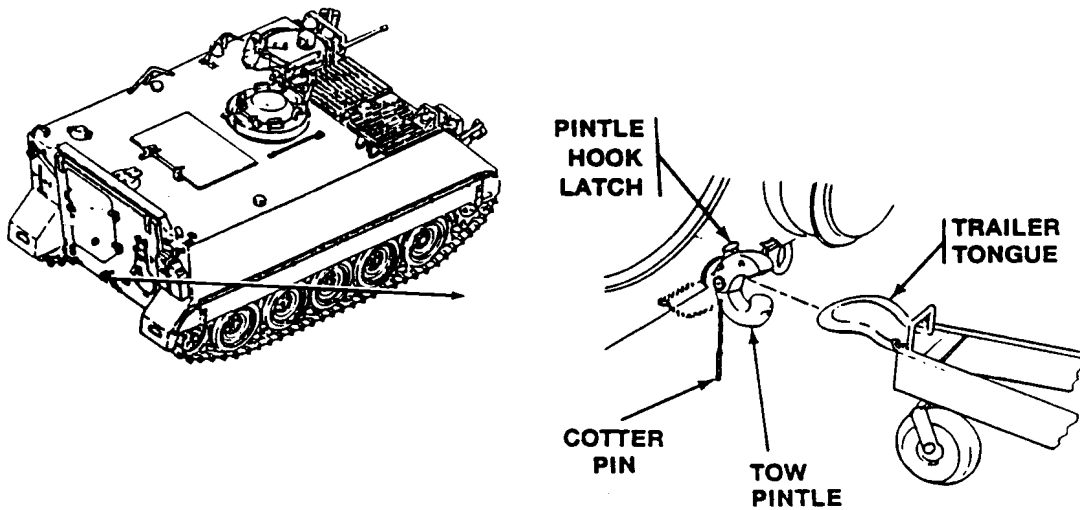
Engine stopped (WP 0029 00)

CONNECT TRAILER TO CARRIER

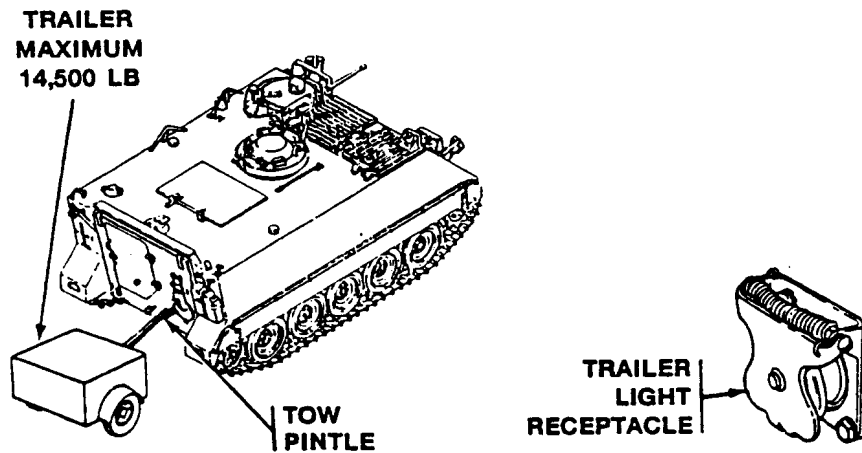
CAUTION

Carrier ramp could be damaged. Maximum weight of towed load is 14,500 pounds (6,583 kg).

1. Position trailer so tongue lines up with tow pintle on carrier.
2. Remove cotter pin. Pull up on pintle hook latch and open pintle.
3. Hook trailer tongue on carrier tow pintle.
4. Close tow pintle. Check that pintle latches closed. Install cotter pin to secure latch closed.



5. If trailer has an electrical connector, plug connector into carrier's trailer light receptacle. This will allow trailer's taillight and stoplight to work with carrier lights.



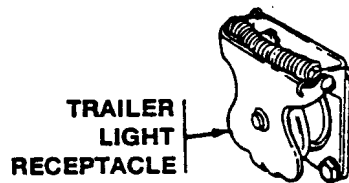
CAUTION

You could damage trailer or carrier if you pivot or make sharp turns at high speeds when towing a trailer. Go slow. Use caution when making turns.

6. Start engine (WP 0026 00).
7. Drive carrier (WP 0028 00).

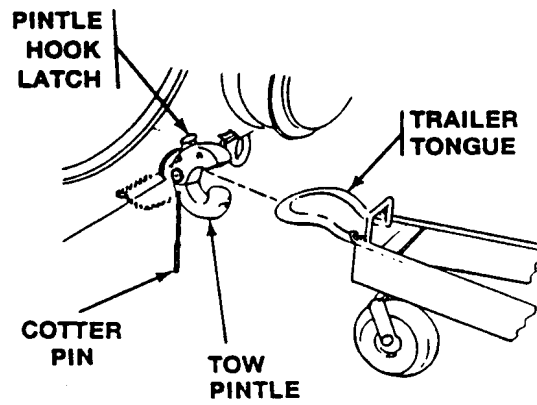
DISCONNECT TRAILER FROM CARRIER

1. Stop engine (WP 0029 00).
2. If connected, unplug trailer electrical connector from carrier trailer light receptacle.



3. Remove cotter pin. Pull up on pintle hook latch and open pintle.
4. Remove trailer tongue from carrier tow pintle.

5. Close tow pintle. Check that tow pintle latches closed. Install cotter pin to secure latch.



END OF TASK

OPERATE SMOKE GRENADE LAUNCHERS

0067 00

THIS WORK PACKAGE COVERS:

- Loading Smoke Grenade Launchers (page 0067 00-1).
- Launching Smoke Grenades (page 0067 00-5).
- Misfires (page 0067 00-7).
- Duds (page 0067 00-8).
- Unloading Smoke Grenade Launchers (page 0067 00-8).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Commander

References

WP 0007 00

WP 0009 00

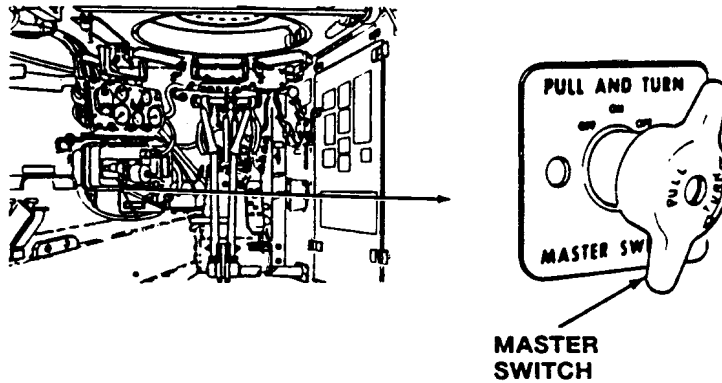
WP 0010 00

Equipment Condition

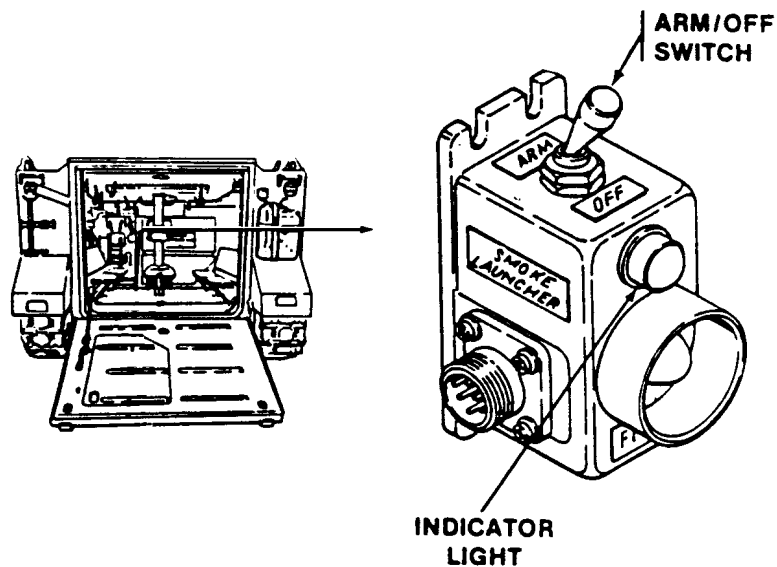
Carrier parked

LOADING SMOKE GRENADE LAUNCHERS

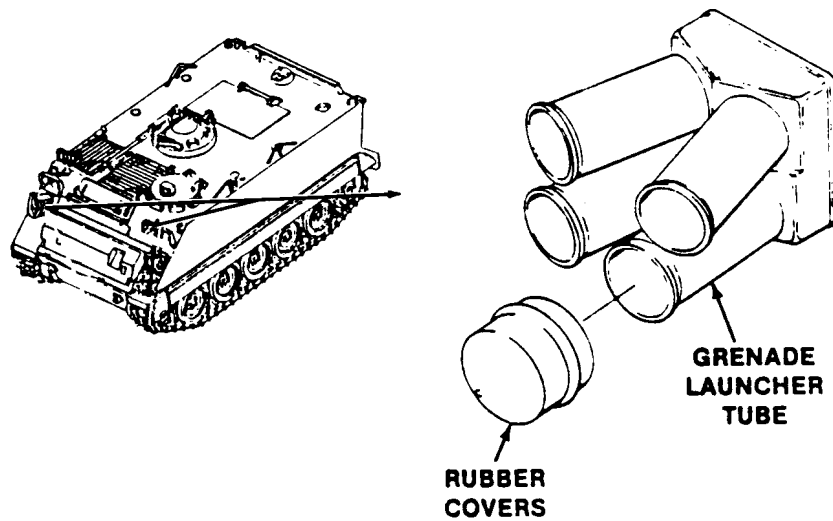
1. Turn MASTER SWITCH to OFF.



2. Place ARM/OFF switch to OFF. Check that indicator light is off.



3. Remove rubber covers from launcher tubes and check that tubes are free of damage and debris. Retain rubber covers.

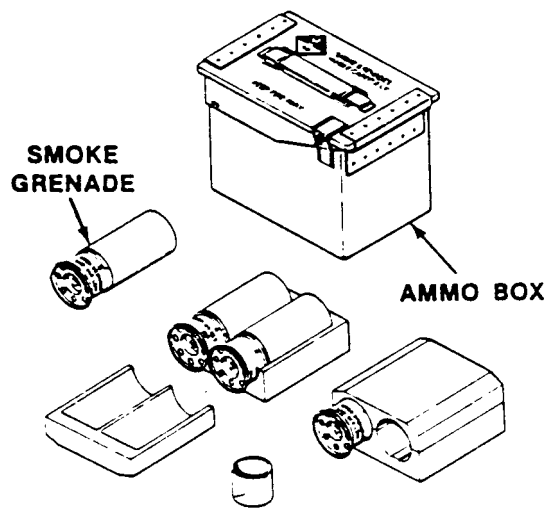
**WARNING**

Smoke grenades can explode and kill or injure personnel. Handle grenades with care. Do not drop or throw grenades. Do not use damaged grenades. Keep grenades away from electric sparks. Keep containers sealed until you are ready to use grenades.

WARNING

Heat could set off smoke grenades and kill or injure personnel. Do not place smoke grenades on hot surfaces.

4. Remove and unpack eight smoke grenades from ammo box.



WARNING

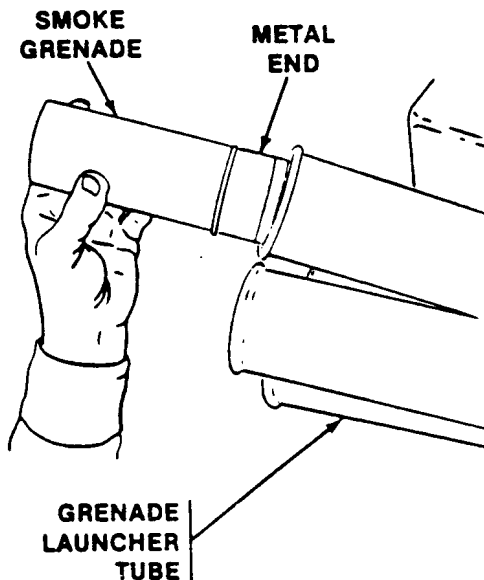


Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before you load smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

CAUTION

Smoke grenades can fail to fire. Keep grenades free of dirt and grease. Do not let firing contacts be damaged.

5. Grip top of grenade and insert grenade into launcher tube with metal end down. With palm of hand, gently push grenade down into launcher tube so that spring clip at base of grenade engages tip plug at bottom of tube.



6. Rotate grenade 1/2 turn to ensure good electrical contact.



LAUNCHING SMOKE GRENADES

WARNING

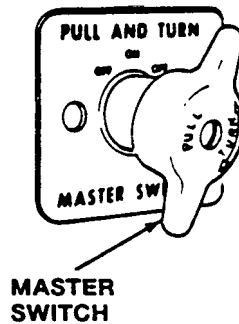
Smoke grenades explode and burn. Handle them with care. Except when using your hand to load grenade launcher, never put any part of your body in front of loaded launcher tubes. You could be killed or injured. Check that personnel are clear of firing lines when launching grenades.

1. Close driver's hatch cover (WP 0007 00).
2. Close commander's hatch cover (WP 0010 00).
3. Close cargo hatch cover (WP 0009 00).
4. Point front of carrier directly at area where smoke is desired to conceal the maneuver of the carrier from enemy observation.

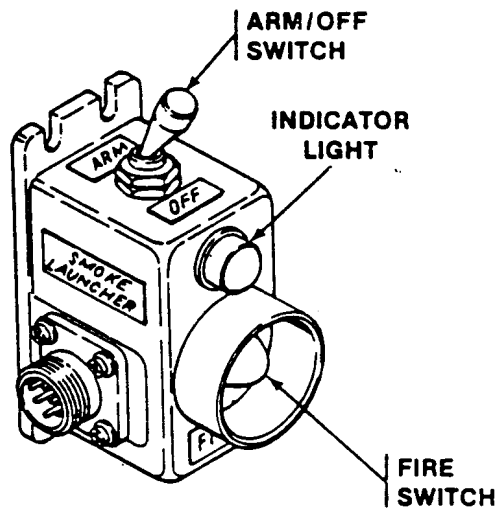
NOTE

Before launching grenades, make sure there are no obstacles directly in front of carrier.

5. Turn MASTER SWITCH to ON.

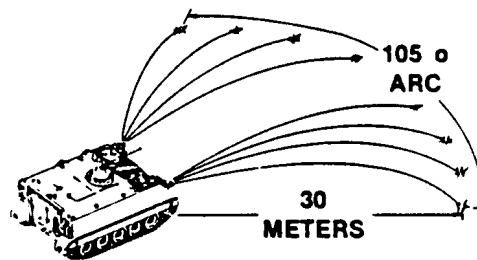


6. Place ARM/OFF switch to ARM. Check that indicator light comes on.

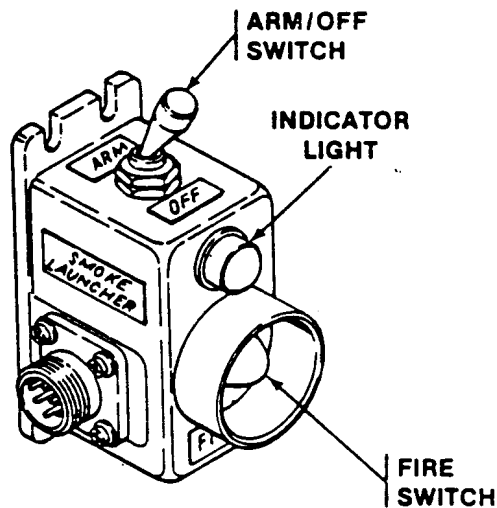


NOTE

When fire switch is pressed, eight grenades will detonate around a 105 degree arc, 98 feet (30 meters) from carrier. The smoke cloud will be approximately 30 feet (9 meters) high and will last about 1 to 3 minutes, depending on wind conditions.



7. Press FIRE switch to launch smoke grenades.
8. Place ARM/OFF switch to OFF. Check that indicator light goes off.



9. As soon as tactical situation permits, check that all eight smoke grenades have been launched. If any of the smoke grenades did not fire, see below for procedure on MISFIRES.

NOTE

Smoke grenade launchers must be cleaned and inspected daily when smoke grenades have been launched. Notify unit maintenance.

10. If all smoke grenades have fired, reload smoke grenade launchers as required by mission. Do Steps 1 - 2 and Steps 4 - 6 of procedure on LOADING SMOKE GRENADE LAUNCHERS.

MISFIRES

WARNING

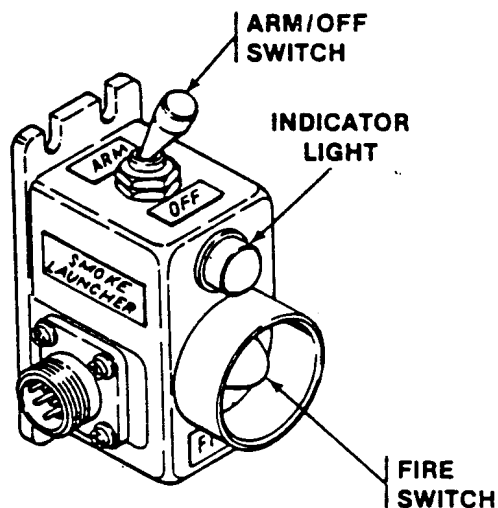


If misfired smoke grenades launch during unloading, personnel in the area could be killed or injured. Keep carrier pointed down range until grenades are removed.

NOTE

A misfire is the failure of a smoke grenade to launch from grenade launcher tube.

1. Place ARM/OFF switch to ARM and press FIRE switch.
2. If grenade does not fire, place ARM/OFF switch OFF. Check that grenade is firmly seated in launcher tube.
3. Place ARM/OFF switch to ARM and press FIRE switch.
4. If grenade does not fire, attempt to fire grenade from another launcher tube. If grenade fires, notify unit maintenance of defective launcher tube.
5. If grenade still does not fire, treat as a dud, see below.



DUDS

WARNING

Misfired smoke grenades could kill or injure personnel if mishandled. Do not attempt to move a dud grenade.

NOTE

In a training situation when a grenade fails to ignite after being launched, wait 15 minutes; then notify EOD personnel. Give type, quantity, and precise location of dud.

UNLOADING SMOKE GRENADE LAUNCHERS

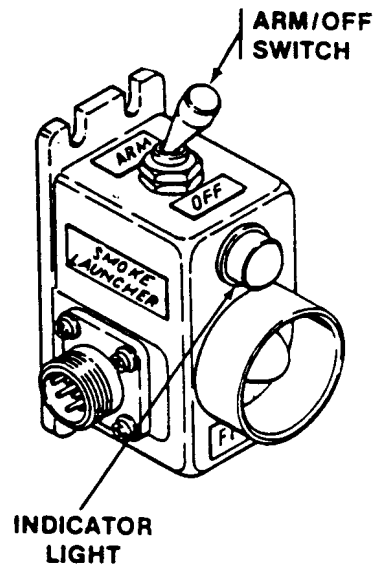
WARNING

Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before unloading smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

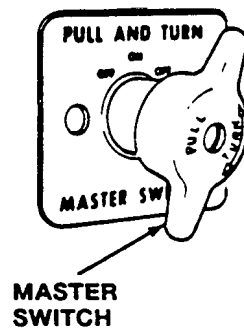
WARNING

Heat could set off smoke grenades and kill or injure personnel. Do not place smoke grenades on hot surfaces.

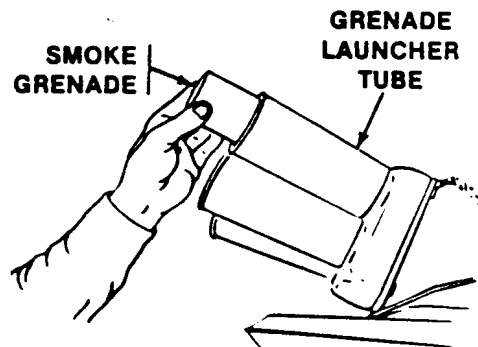
1. Place ARM/OFF switch to OFF.



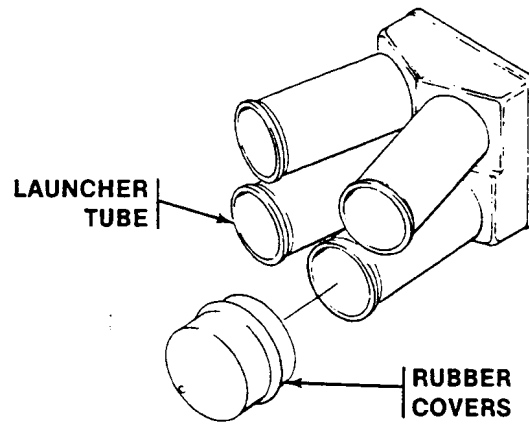
2. Turn MASTER SWITCH to OFF.



3. Remove smoke grenades from launcher tubes and place in ammo box.



4. Install rubber covers on launcher tubes.



5. Secure grenades in accordance with unit SOP.

END OF TASK

OPERATE NBC KIT

0068 00

THIS WORK PACKAGE COVERS:

- Turn NBC Kit On In Ambulance With Litter Kit (page 0068 00-1).
- Turn NBC Kit Off In Ambulance With Litter Kit (page 0068 00-2).
- Turn NBC Kit On In Carrier Without Litter Kit (page 0068 00-3).
- Turn NBC Kit Off In Carrier Without Litter Kit (page 0068 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

NBC kit installed

Personnel Required

Soldier

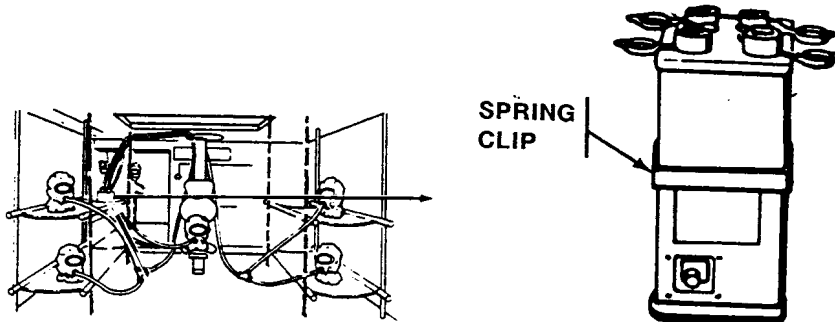
TURN NBC KIT ON IN AMBULANCE WITH LITTER KIT

WARNING



Breathing excessive carbon monoxide gas can kill you. Keep fresh air flow. NBC kit and M42 protective mask will not protect you from carbon monoxide gas nor provide oxygen.

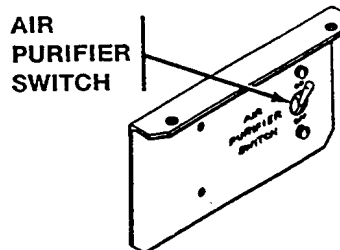
1. Remove spring clip from air intake openings on air purifier.



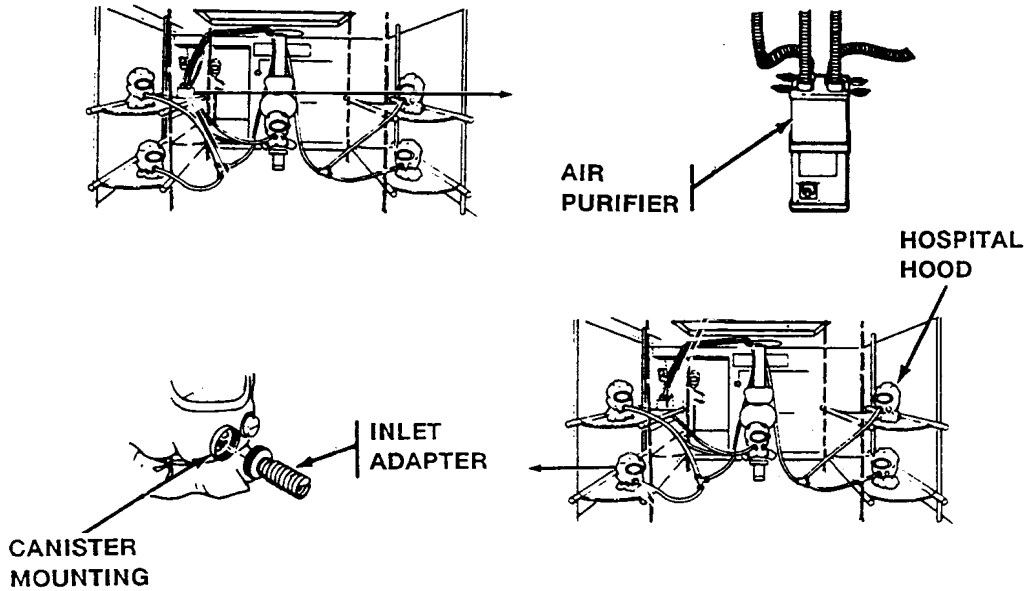
NOTE

Air purifier switches are located in various places, such as the instrument panel, transverse beam, near driver's seat, and in the rear compartment.

2. Turn AIR PURIFIER SWITCH ON.



3. Assist patients in putting on their hospital hoods. Adjust the facepieces, tie the strap, and attach hoses to inlet adapter on hood.

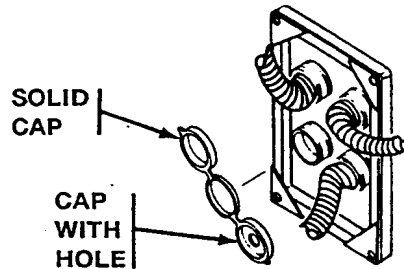


4. Make sure each patient is supplied with air.

NOTE

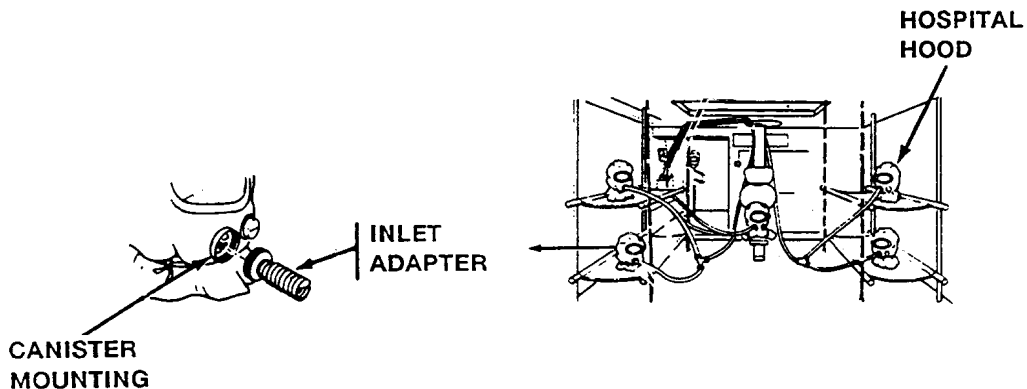
Attach a hospital hood, with its bottom folded, to any open hose to prevent too much air loss.

5. If only three outlets are used, cover the fourth with a solid cap. When less than three are used, cover one of the unused outlets with a solid cap and the other with a cap with a hole.

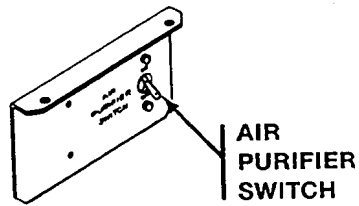


TURN NBC KIT OFF IN AMBULANCE WITH LITTER KIT

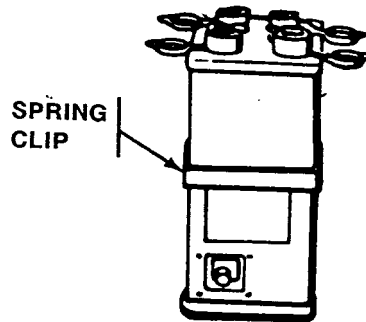
1. Help patients in removing their hospital hoods. Uncouple hoses from the inlet adapters on the hoods.



2. Turn AIR PURIFIER SWITCH OFF.



3. Stow hoses connected to Y connectors out of the way.
4. Install spring clip over air intake openings on the air purifier.



5. Clean air purifier housing with a clean cloth as soon as possible after operation.

TURN NBC KIT ON IN CARRIER WITHOUT LITTER KIT

WARNING

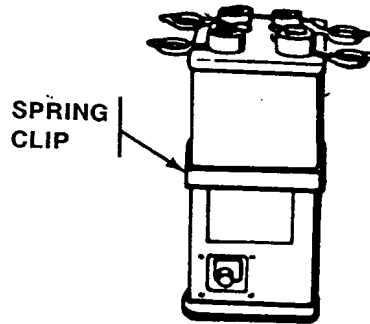


Breathing excessive carbon monoxide gas can kill you. Keep fresh air flow. NBC kit and M42 protective mask will not protect you from carbon monoxide gas nor provide oxygen.

1. All crew members must put on their M42 protective masks. Adjust facepieces.



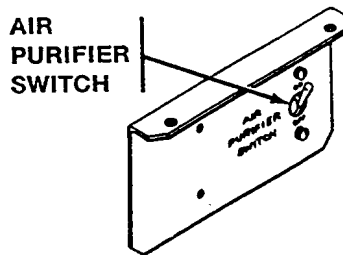
- Remove spring clip from air intake openings on air purifier.



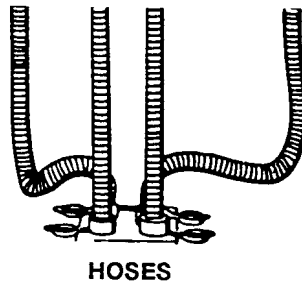
NOTE

Air purifier switches are located in various places, such as the instrument panel, transverse beam, near the driver's seat, and in the rear compartment.

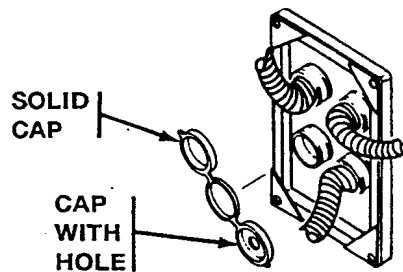
- Turn AIR PURIFIER SWITCH ON.



- Couple the hoses leading from the air purifier to the canisters of the M42 protective mask.

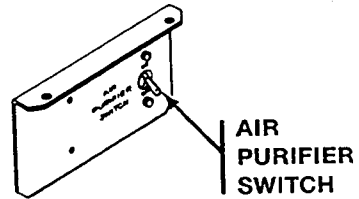


- If only three outlets are used, cover the fourth with a solid cap. When less than three outlets are used, cover one of the unused outlets with a solid cap and the other with a cap with a hole.

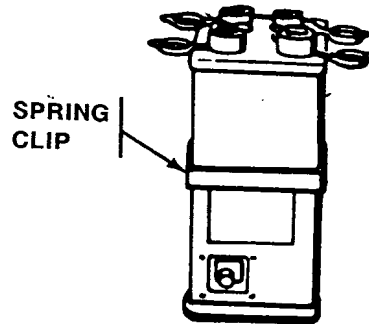


TURN NBC KIT OFF IN CARRIER WITHOUT LITTER KIT

1. Uncouple hoses from the mask canisters.
2. Turn the AIR PURIFIER SWITCH OFF.



3. Remove and stow mask and hoses.
4. Install spring clip over air intake openings on the air purifier.



5. Clean air purifier housing with a clean cloth as soon as possible after operation.

END OF TASK

COVER/UNCOVER INTAKE AND EXHAUST GRILLS

0069 00

THIS WORK PACKAGE COVERS:

- Cover Exhaust Grill (page 0069 00-1).
- Cover Intake Grill (page 0069 00-2).
- Uncover Exhaust Grill (page 0069 00-3).
- Uncover Intake Grill (page 0069 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

Driver

COVER EXHAUST GRILL

CAUTION

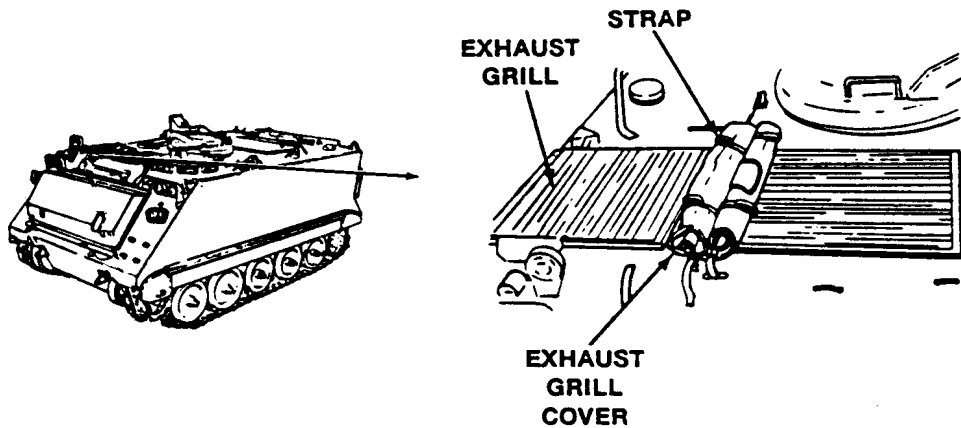
Extended operation with intake and exhaust grills covered can cause engine to overheat and be damaged. Uncover exhaust grill and open one or more flaps on intake grill before starting engine. Avoid extended operation with intake grill covered.

NOTE

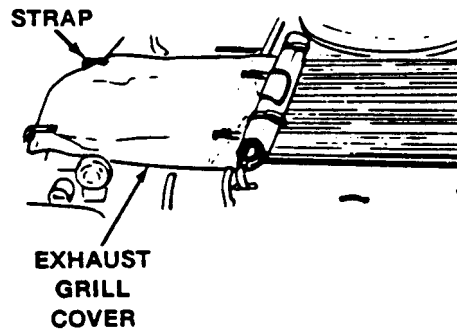
Intake and exhaust grill covers prevent ice, snow and other debris from entering power plant compartment and exhaust well when carrier is not in use.

When not in use, intake and exhaust grill covers are rolled up and secured to area between intake and exhaust grills.

1. Release two straps and unroll exhaust grill cover over exhaust grill.

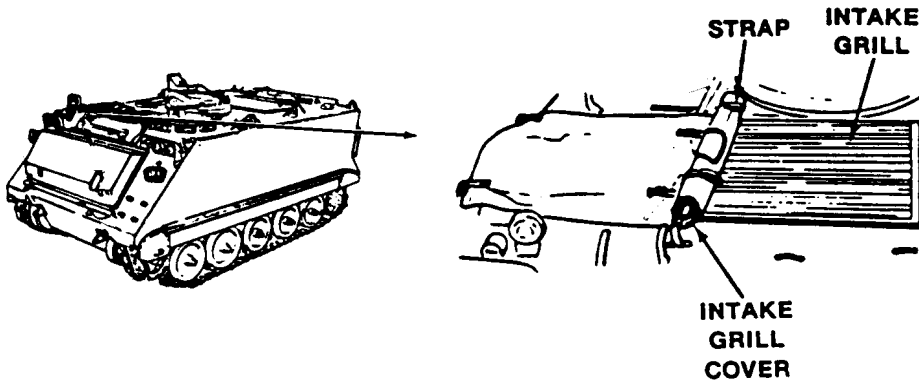


- Secure two straps to footman loops on right side of exhaust grill.

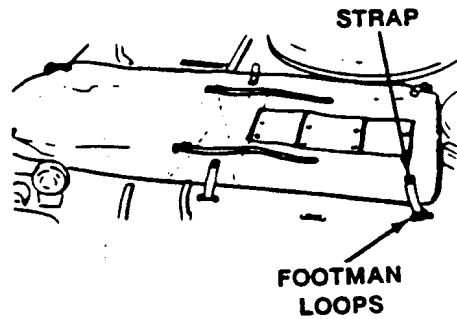


COVER INTAKE GRILL

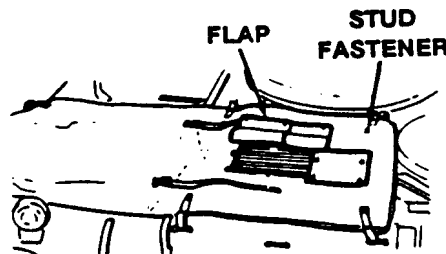
- Release two straps and unroll intake grill cover over intake grill.



- Secure two straps to footman loops on left side of intake grill.

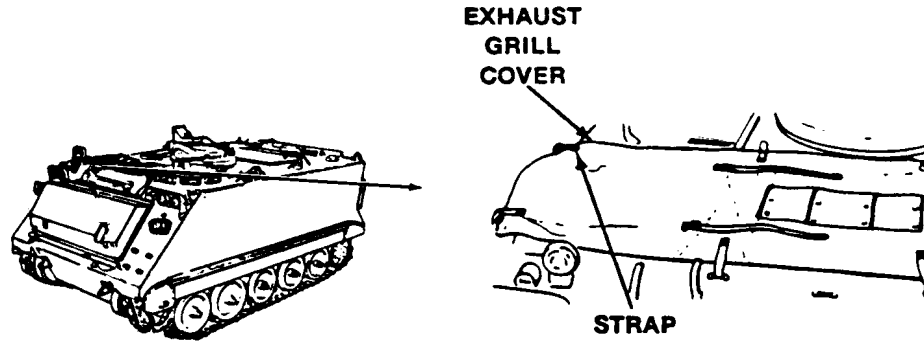


- To open one or more flaps on intake grill cover, release stud fasteners and fold flap open. Secure flap open with stud fasteners.

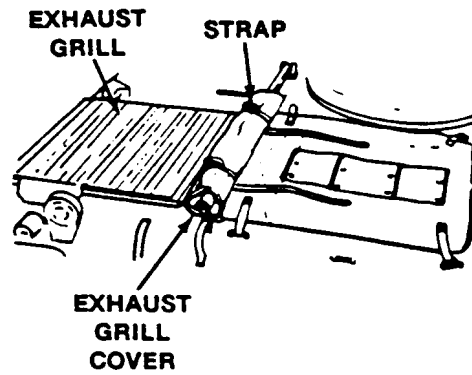


UNCOVER EXHAUST GRILL

1. Release two straps from footman loops on right side of exhaust grill.

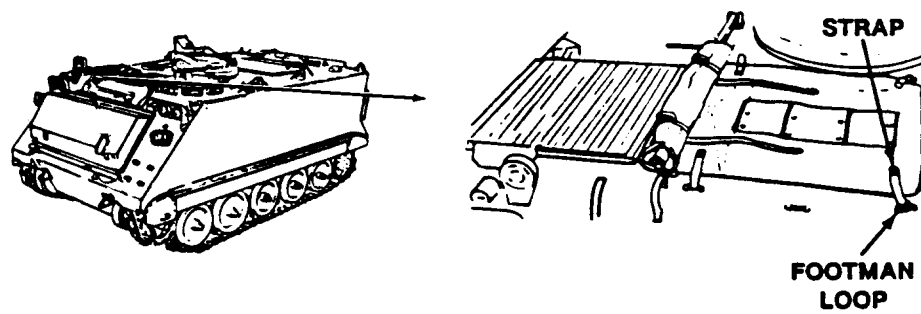


2. Roll exhaust grill cover toward area between intake and exhaust grills and secure with two straps.

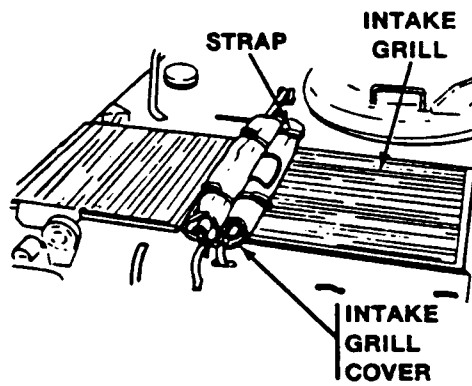


UNCOVER INTAKE GRILL

1. Release two straps from footman loops on left side of intake grill.



- Roll intake grill cover toward area between intake and exhaust grills and secure with two straps.



END OF TASK

FORD WATER UP TO 40 INCHES DEEP

0070 00

THIS WORK PACKAGE COVERS:

Ford Water Up to 40 Inches Deep (page 0070 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Socket Wrench Adapter (WP 0094 00, Table 2, Item 1)

Socket Wrench Handle (WP 0094 00, Table 2, Item 28)

Personnel Required

Driver

References

WP 0004 00

WP 0026 00

WP 0050 00

WP 0086 00

Equipment Condition

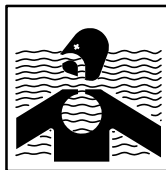
Engine stopped (WP 0029 00)

Carrier tracks blocked (WP 0050 00)

Power control enclosure turned off (M1068 only)
(TM 11-7010-256-12&P)

FORD WATER UP TO 40 INCHES DEEP

WARNING



When water depth is unknown or deeper than 40 inches, do not attempt to ford stream. Carrier may sink and personnel could drown.

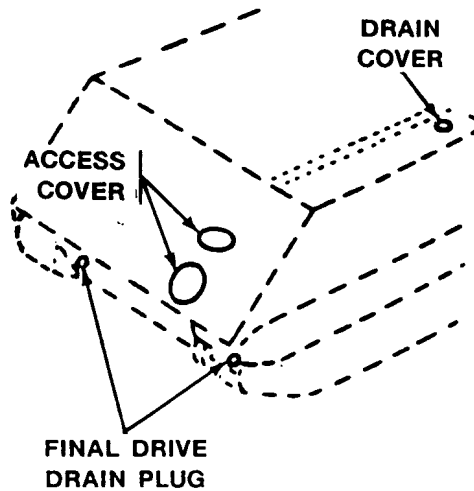


Personnel could be killed or injured if carrier moves with someone under it. Make sure engine is stopped, parking brake set, and carrier tracks blocked before crawling under carrier.

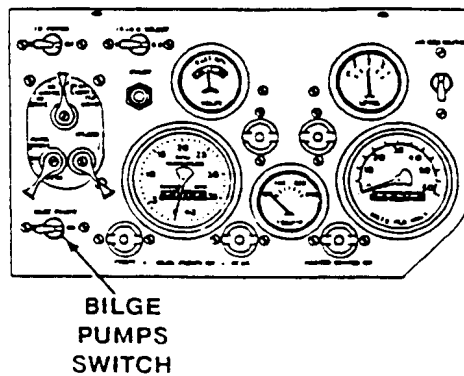
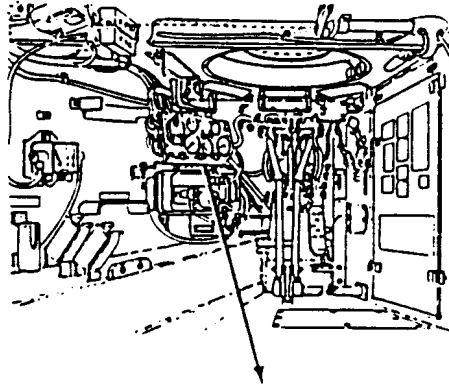
NOTE

The following fording procedures apply to the M113A2, M1068, M577A2, M1064, and M1059 carriers.

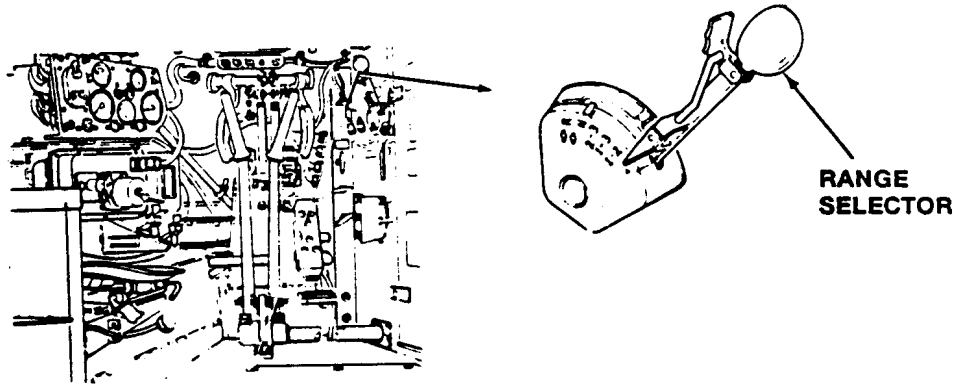
1. Check that access covers, drain covers, and final drive drain plugs are in place, straight, and tight. Use socket wrench handle and adapter to check or install final drive drain plugs.



2. Check bilge pumps operation (WP 0086 00).
3. Choose spot to enter and exit water. Look for firm ground without rocks, stumps, or other obstacles. Avoid steep slopes and soft ground.
4. Unblock carrier tracks (WP 0050 00).
5. Start engine (WP 0026 00).
6. Place BILGE PUMPS switch ON.



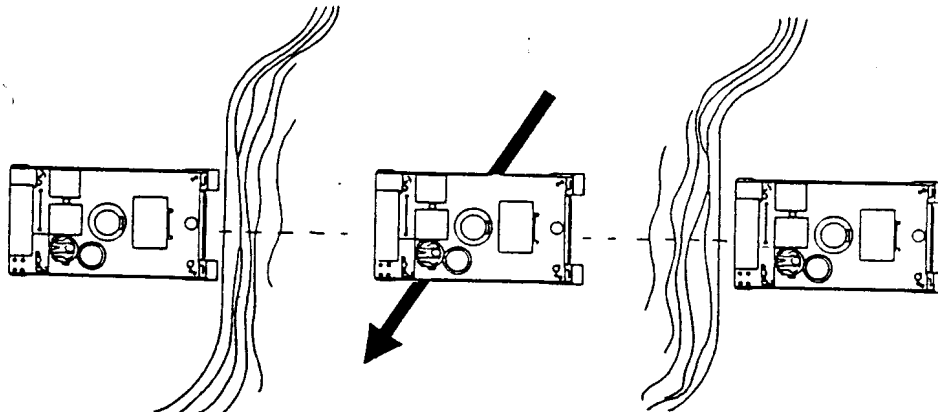
7. Shift range selector to 1 range (WP 0004 00).



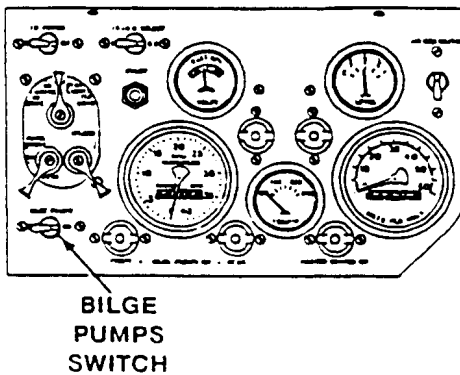
8. Enter water at crawl speed.

NOTE

Carrier crawl speed is equal to a slow walk. When entering water at crawl speed, stop carrier, as required, to make sure all conditions are safe.



9. Proceed slowly. Watch out for obstacles under water.
10. Exit water. After bilges empty, move BILGE PUMPS switch to OFF.



END OF TASK

AFTER WATER OPERATIONS

0071 00

THIS WORK PACKAGE COVERS:

After Water Operations (page 0071 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Crew

References

WP 0028 00

WP 0029 00

WP 0047 00

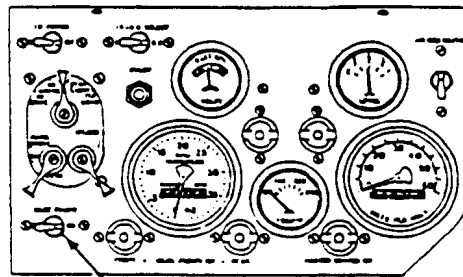
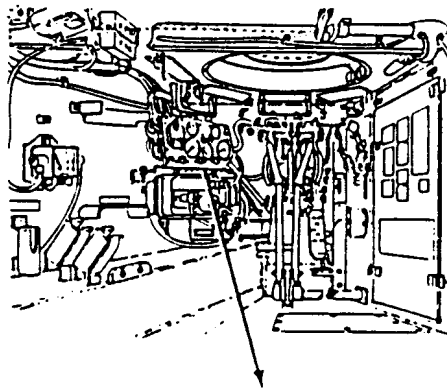
WP 0075 00

Equipment Condition

Carrier has been driven in water (WP 0070 00)

AFTER WATER OPERATIONS

1. Drive carrier to firm, level ground (WP 0028 00).
2. Place BILGE PUMPS switch OFF when water stops coming out bilge outlets.



**BILGE
PUMPS
SWITCH**

3. Stop engine (WP 0029 00).
4. Check trim vane for damage. Stow trim vane (WP 0047 00).
5. Check for water in final drive oil (WP 0075 00). If bubbles or white color are seen on dipstick, oil has water in it. Notify unit maintenance.
6. Lubricate carrier chassis (WP 0075 00) as soon as tactical situation permits.

CAUTION

Heater can be damaged during flushing if water gets into inlet or exhaust pipes. Cover heater inlet and exhaust pipes before flushing carrier.

7. If carrier has been in salt water, flush outside with fresh water. Have unit maintenance remove all drain plugs and flush bilges with fresh water. Keep water away from radios and all electrical wiring. Install drain plugs.

END OF TASK

CHAPTER 5

TROUBLESHOOTING PROCEDURES
FOR TROUBLESHOOTING

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
INTRODUCTION TO TROUBLESHOOTING.....	0072 00
TROUBLESHOOTING SYMPTOM INDEX.....	0073 00
TROUBLESHOOTING TABLE.....	0074 00

INTRODUCTION TO TROUBLESHOOTING

0072 00**GENERAL**

The troubleshooting table lists common malfunctions found while operating or servicing the M113A2 FOV and its components. The troubleshooting table is divided into sections. Each section covers malfunctions common to the different systems of the carrier (e.g., engine, track and suspension, etc.).

The troubleshooting table has three divisions: malfunction, test or inspection, and corrective action. The malfunctions are numbered in sequence through the troubleshooting table. The malfunction is what will bring you to the troubleshooting table.

Test or inspection is a step you take to isolate the malfunction. Each test or inspection has a corrective action. You should perform the test or inspection and corrective action in the order listed.

Troubleshooting tables for the M577A2, M1068, and M1064 are listed in the symptom index as Command Post (M577A2, M1068) or Mortar Carrier (M1064).

The manual cannot list all possible malfunctions, nor all tests or inspections and corrective actions. It is essential that you record all faults on DA Form 2404 and report them to unit maintenance. If a malfunction is not listed, or is not corrected by the listed corrective action, notify unit maintenance.

The troubleshooting symptom index is in WP 0073 00.

TROUBLESHOOTING SYMPTOM INDEX

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5.0 KW AUXILIARY POWER UNIT (M577A2 AND M1068)SEE TM 9-6115-664-13&P

TROUBLESHOOTING TABLE

0074 00

INITIAL SETUP:

Maintenance Level

Operator

ENGINE

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE DOES NOT CRANK WHEN YOU PRESS START SWITCH.	1. Check to see if MASTER SWITCH is OFF.	Turn MASTER SWITCH to ON (WP 0026 00).
	2. Check to see if range selector controller is in N position.	Place range selector in N position (WP 0026 00).
	3. Check to see if batteries are in good condition.	Troubleshoot electrical system (page 0074 00-15).
2. ENGINE CRANKS BUT DOES NOT START.	1. Check to see if fuel cutoff control is pulled out.	Push fuel cutoff control in (WP 0026 00).
	2. Check to see if there is enough fuel in fuel tanks.	Refuel carrier; M113A2, M1064, and M1059 (WP 0030 00), M577A2 and M1068 (WP 0031 00).
	3. Check to see if fuel tank manual shutoff valve is closed.	Open fuel tank manual shutoff valve (WP 0004 00).
	4. If temperature is colder than +40° F (+4° C), check to see if AIR BOX HEATER switch is ON.	Use air box heater (WP 0026 00).
	5. Check to see if there is water in the fuel.	Drain primary and secondary fuel filters (WP 0090 00).
	6. Check to see if engine is getting enough air. Check air cleaner restriction indicator (WP 0004 00). If indicator shows only red in the window, notify unit maintenance.	Clear intake grill of any debris. If engine still does not start, notify unit maintenance.
3. ENGINE CRANKS BUT DOES NOT START WHEN THE TEMPERATURE IS BELOW +40° F (+4° C) AND AIR BOX HEATER IS USED.	1. Have unit maintenance check to see if air box heater system is operating properly.	
	2. Have unit maintenance check to see if air box heater fuel and air lines and electrical connections are tight.	Tighten any loose connections.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>4. ENGINE CRANKS TOO SLOW TO START.</p>	<p>1. Check to see if battery cable connections are clean and tight, and battery water is up to correct level (WP 0085 00).</p> <p>2. If temperature is colder than -25°F (32°C) check to see if engine disconnect lever is engaged (WP 0026 00).</p> <p style="text-align: center;">CAUTION</p> <p>Never try to move the engine disconnect lever when the engine is running. Do not leave engine disconnected more than 10 minutes. Damage to the transfer gearcase can result.</p>	<p>Use outside power source (WP 0027 00) or tow start (WP 0065 00) the carrier. If the cause of slow cranking is not obvious, have unit maintenance troubleshoot the electrical system.</p> <p>Disengage the engine disconnect lever (WP 0026 00).</p> <p>If engine still cranks too slowly, record fault on DA Form 2404 and notify unit maintenance.</p>
<p>5. ENGINE LABORS, RUNS ROUGH, STALLS, OR DOES NOT PUT OUT FULL POWER.</p>	<p>1. Check to see if engine is getting enough air.</p> <p>2. Check to see if there is water in the fuel.</p> <p>3. High elevation operation.</p>	<p>Check air cleaner restriction indicator (WP 0004 00). If indicator shows only red in the window, notify unit maintenance.</p> <p>Drain primary and secondary fuel filters (WP 0090 00).</p> <p>The carrier will normally lose power at high elevations (mountain passes or high plateaus). If carrier runs rough or has a power loss, push air control valve in (WP 0028 00) to draw cooler air from rear compartment and increase horsepower.</p> <p>If carrier runs rough or without much power, notify unit maintenance.</p>
<p>6. ENGINE OVERHEATS.</p>	<p>1. Check to see if all power plant access panels are in place and mounting clamps are tight.</p> <p style="text-align: center;">CAUTION</p> <p>Driving carrier with an overheated engine can damage engine. When ENGINE COOLANT TEMPERATURE GAUGE indicates above 230°F (110°C), stop carrier and run engine at 1000–1200 RPM until coolant temperature drops below 230°F (110°C).</p>	<p>Install panels (WP 0048 00 and WP 0049 00).</p>

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>7. ENGINE OIL LOW PRESS WARNING LIGHT COMES ON</p>	<p>2. Hard running in hot weather.</p>	<p>Follow the precautions for driving in extreme heat (WP 0062 00). When engine overheats, stop carrier and run engine at 1000 to 1200 RPM until coolant temperature drops below 230°F (110°C).</p>
	<p>3. Check to see if coolant level is low.</p>	<p>Add coolant as needed (WP 0088 00). Check for coolant leaks. If you find any leaks, notify unit maintenance.</p>
	<p>4. Check to see if radiator cap is sealed right.</p>	<p>Make sure cap is on straight and tight (WP 0088 00). If cap is damaged or seal is broken, notify unit maintenance.</p>
	<p>5. Check to see if there is enough air moving through intake grill and radiator.</p>	<p>Remove any debris from intake grill, exhaust grill, and radiator fins.</p>
	<p>6. Check to see if coolant fan is working properly.</p>	<p>Look for loose or broken fan belts (WP 0075 00). If any belt is broken, worn, or loose, notify unit maintenance.</p>
	<p>7. Check to see if engine oil level is low.</p>	<p>Add oil as needed (WP 0075 00).</p>
	<p>8. Check coolant fan drive system.</p>	<p>Stop engine (WP 0029 00). Remove top rear power plant access panel (WP 0049 00). Pull on coolant fan drive belt to see if coolant fan will turn (WP 0075 00). If coolant fan does not turn, coolant fan drive system is broken. Do not operate carrier. Notify unit maintenance.</p>
	<p>1. Check to see if engine oil level is low.</p> <p style="text-align: center;">CAUTION</p> <p>Operating carrier with an ENGINE OIL LOW PRESS warning light on can damage engine. If ENGINE OIL LOW PRESS warning light does not go off within 10 seconds after engine starts, stop engine.</p> <p>2. Check to see if engine is overheating.</p>	<p>Add oil as needed (WP 0075 00).</p> <p>See ENGINE OVERHEATS (page 0074 00-1).</p>

INITIAL SETUP:

Maintenance Level

Operator

TRANSMISSION

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>1. TRANSMISSION DOES NOT DRIVE IN ANY RANGE.</p>	<p>1. Transmission to final drive shafts have been disconnected.</p> <p>2. Check for low transmission oil level.</p> <p>3. Check for broken track.</p> <p>4. Defective range selector.</p> <p>5. Check to see if engine disconnect lever is engaged.</p> <p style="text-align: center;">CAUTION</p> <p>Never try to move engine disconnect lever when the engine is running. Do not leave engine disconnected more than 10 minutes. Damage to transfer gearcase can result.</p>	<p>Notify unit maintenance.</p> <p>Add oil as needed (WP 0075 00).</p> <p>Repair track (WP 0078 00 or WP 0079 00).</p> <p>Notify unit maintenance.</p> <p>Engage the engine disconnect lever (WP 0026 00).</p>
<p>2. TRANS OIL HI TEMP WARNING LIGHT COMES ON.</p>	<p>1. Bad driving habits.</p> <p style="text-align: center;">CAUTION</p> <p>Operating carrier with TRANS OIL HI TEMP warning light on can damage transmission. Do not operate carrier with TRANS OIL HI TEMP warning light on.</p> <p>2. Check to see if transmission oil level is low.</p> <p>3. Check to see if coolant level is low.</p>	<p>Do not drive with range selector in range 1 any longer than you have to.</p> <p>Add oil as needed (WP 0075 00).</p> <p>Add coolant as needed (WP 0088 00). Check for coolant leaks. If leaks are found, notify unit maintenance.</p>

INITIAL SETUP:

Maintenance Level

Operator

DIFFERENTIAL

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. DIFFERENTIAL HIGH OIL TEMPERATURE WARNING LIGHT COMES ON.	1. Check to see if differential oil level is low. <p style="text-align: center;"><u>CAUTION</u></p> <p>Do not operate the carrier if the warning light comes on.</p> 2. Check to see if coolant level is low.	Add oil as needed (WP 0075 00). Add coolant as needed (WP 0088 00). Check for coolant leaks. If leaks are found, record fault on DA Form 2404 and notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

FINAL DRIVE

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. FINAL DRIVE RUNS HOT.	1. Check to see if final drive oil level is low.	Add oil as needed (WP 0075 00).

INITIAL SETUP:

Maintenance Level

Operator

TRACKS AND SUSPENSION

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. CARRIER PULLS TO ONE SIDE.	1. Crowned road or sloping ground. 2. Check to see if track tension is equal on both sides. 3. Check to see if mud, dirt, debris, or snow have built up on one track.	The carrier will normally pull to one side of any slope. Adjust track tension (WP 0076 00) for T130 track or (WP 0077 00) for T150 track. Clear track of debris.
2. CARRIER THROWS TRACK	1. Check to see if track is loose or worn. 2. Bad driving habits. 3. Check to see if dirt, mud, or other material have built up in the track.	Adjust track tension (WP 0076 00) for T130 track or (WP 0077 00) for T150 track. Do not use pivot steer when carrier is moving. Avoid sharp turns at high speed or in soft ground. Keep the track clear. On soft ground or in heavy brush, turn in a series of short turns so track can clear itself.
3. TOO MUCH NOISE IN TRACK OR SUSPENSION.	1. Check to see if wrong tension is on track. 2. Check to see if track shoes are badly worn. 3. Check to see if track pads are loose, worn, or missing. 4. Cushions are worn (WP 0082 00).	Adjust track tension (WP 0076 00) for T130 track or (WP 0077 00) for T150 track. If shoes are worn, notify unit maintenance. Tighten loose pads. If any pads are worn or missing, notify unit maintenance. If sprockets or cushions are worn, notify unit maintenance.
4. CARRIER RIDES TOO HARD.	1. Check to see if carrier has one or more faulty shock absorbers. 2. Check to see if carrier has any broken torsion bars (WP 0075 00).	Check shock absorbers for leaks. If shock absorbers leak, notify unit maintenance. Feel the shocks after running. Good shocks will be noticeably warmer than the hull. A cool shock is a faulty one. Notify unit maintenance. If carrier has broken torsion bar, notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

ELECTRICAL SYSTEM

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>1. BATTERIES DISCHARGED.</p>	<p>1. Check to see if battery water level is low (WP 0085 00).</p> <p>2. Too much use of electrical equipment when the engine is not running.</p> <p>3. Check to see if battery cable connectors are loose, disconnected, or corroded.</p> <p>4. Check generator drive belt.</p>	<p>If water level is low, notify unit maintenance.</p> <p>Notify unit maintenance to install disconnected connectors or tighten loose connectors. If connectors are corroded, notify unit maintenance.</p> <p>If belt is loose, broken, or missing, notify unit maintenance.</p>
<p>2. NO BATTERY CURRENT.</p>	<p>1. Check to see if battery cables are loose, disconnected, or corroded.</p>	<p>Notify unit maintenance to install disconnected connectors or tighten loose connectors. If connectors are corroded, notify unit maintenance.</p>
<p>3. FUEL LEVEL GAUGE FAILS TO REGISTER.</p>	<p>1. Check to see if there is fuel in the fuel tank.</p> <p>2. Check to see if MASTER SWITCH is in OFF position.</p> <p>3. Check for disconnected or faulty fuel level quantity gauge lead.</p>	<p>Refuel carrier; M113A2, M1064, and M1059 (WP 0030 00) M577A2 and M1068 (WP 0031 00).</p> <p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Connect disconnected lead. If lead is faulty, notify unit maintenance.</p>
<p>4. WITH MASTER SWITCH ON, MASTER SWITCH ON INDICATOR LIGHT DOES NOT COME ON.</p>	<p>1. Lamp may be burned out or there are loose connections in the lamp leads.</p> <p>2. Check battery indicator gauge to see if batteries are dead. Check for faulty or loose battery connectors.</p>	<p>If battery gauge shows normal reading (WP 0075 00) and other electrical equipment and lights are operating properly, lamp is faulty. You can drive carrier, but be sure to turn MASTER SWITCH to OFF when you shut down carrier. Notify unit maintenance of faulty lamp.</p> <p>Notify unit maintenance to tighten loose battery cable connectors. If you have to operate carrier with dead batteries, tow start (WP 0065 00) or use outside power source (WP 0027 00) to start the engine. Notify unit maintenance.</p>

INITIAL SETUP:

Maintenance Level

Operator

BILGE PUMPS

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>1. BILGE PUMPS DO NOT OPERATE WITH BILGE PUMPS SWITCH ON.</p>	<p>1. Check to see if MASTER SWITCH is OFF.</p> <p>2. Check to see if bilge pump strainers or outlets are clogged.</p> <p>3. Check to see if bilge pump vents are blocked.</p>	<p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Clean bilge pump strainers or outlets (WP 0086 00).</p> <p>Clean bilge pump vents (WP 0086 00). If you cannot get to the bilge pump to clean it because of a load in the personnel compartment, cycle the BILGE PUMP switch ON and OFF (WP 0086 00) a few times. That will usually start the pump.</p>

INITIAL SETUP:

Maintenance Level

Operator

PERSONNEL HEATER

NOTE

For troubleshooting model A20 personnel heater with P/N 5000-30178 see TM 9-2540-207-14&P. For troubleshooting personnel heater with P/N D55350-G1 and 10560M24B1 use table below.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. HEATER DOES NOT START WITH RUN-OFF-START SWITCH HELD IN START POSITION. HEATER MOTOR RUNS.	1. Check to see if fuel tank manual shutoff valve is closed.	Open fuel tank manual shutoff valve (WP 0036 00).
2. HEATER DOES NOT START WITH RUN-OFF-START SWITCH HELD IN START POSITION. HEATER MOTOR DOES NOT RUN.	1. Push PRESS-TO-TEST switch on personnel heater control box to test for electrical power. If light does not light, check for loose electrical connections at control box and heater. 2. Check to see if battery connections are tight.	Tighten loose connections. Notify unit maintenance to tighten loose battery connections.
3. HEATER OVERHEATS AND STOPS	1. Check to see if heater air intake elbow, exhaust elbow, or warm air outlet is blocked.	Remove whatever is blocking the heater system (WP 0036 00).
4. HEATER OVERHEATS AND DOES NOT STOP.	1. Check to see if personnel heater fuel supply valve is OFF. 2. Disconnect electrical connector from heater.	Turn personnel heater fuel supply valve OFF (WP 0036 00). Allow heater to run for 2-3 minutes to burn off fuel in heater. Heated air should change to cool air if fuel burns off. Notify unit maintenance.
5. HEATER DOES NOT PUT OUT ENOUGH HEAT.	1. Check to see if HI-LO switch is in LO position.	Move HI-LO switch to HI position (WP 0036 00).

INITIAL SETUP:

Maintenance Level

Operator

ENGINE COOLANT HEATER

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. HEATER DOES NOT START WITH RUN-OFF-START SWITCH HELD IN START POSITION. HEATER MOTOR RUNS.	1. Check to see if fuel tank manual shutoff valve is closed.	Open fuel tank manual shutoff valve (WP 0004 00).
2. HEATER DOES NOT START WITH RUN-OFF-START SWITCH HELD IN START POSITION. HEATER MOTOR DOES NOT RUN.	1. Push PRESS-TO-TEST switch on engine coolant heater control box to test for electrical power. If light does not light, check for loose electrical connections at control box and heater. 2. Check to see if battery connections are tight.	Tighten loose connections. Notify unit maintenance to tighten loose battery connections.
3. COOLANT HEATER OVERHEATS.	1. Check to see if one or both coolant shutoff valves are closed.	Open coolant shutoff valves (WP 0060 00).
4. COOLANT HEATER OUTPUT IS TOO LOW.	1. Check to see if the HI-LO switch is in LO position.	Move HI-LO switch to HI position (WP 0060 00).
5. BATTERIES OVERHEAT.	1. Air temperature is too warm to need engine coolant heater 2. Engine is running at same time as engine coolant heater. 3. Batteries are overcharged and boiling out liquid.	Turn off engine coolant heater (WP 0060 00). You do not need to use engine coolant heater if temperature is above -25°F (-32°C). Turn off engine coolant heater (WP 0060 00) as soon as engine starts. Record faults on DA Form 2404 and notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

NBC KIT

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. INSUFFICIENT AIR FLOW AT ALL STATIONS.	1. Check to see if spring clip is down over air intake openings on air purifier. 2. Check to see if air hoses are kinked or pinched. 3. Check to see if there are any loose hose connections.	Raise spring clip from air intake openings on air purifier (NBC Kit) (WP 0068 00). Straighten or replace air hoses (WP 0068 00). Tighten loose connections (WP 0068 00).
2. AIR FLOW TOO HIGH AT ALL STATIONS.	1. Check to see if air purifier is out of adjustment.	If air purifier is out of adjustment, notify unit maintenance.
3. GAS PARTICULATE FILTER WILL NOT OPERATE WHEN SWITCH IS IN ON POSITION.	1. Check to see if AIR PURIFIER SWITCH is in OFF position. 2. Check to see if ground wire is loose or missing. 3. Check to see if electrical cable assemblies are loose or missing.	Turn AIR PURIFIER SWITCH ON (WP 0068 00). Notify unit maintenance of loose or missing ground wire. Notify unit maintenance of loose or missing cables.

INITIAL SETUP:

Maintenance Level

Operator

COMMAND POST (M577A2 AND M1068)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BLOWER FAILS TO OPERATE.	<ol style="list-style-type: none"> 1. Check to see if MASTER SWITCH is in OFF position. 2. Check for faulty or disconnected blower or electrical circuit leads. 	<p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Record disconnected lead on DA Form 2404 and notify unit maintenance.</p>
2. REAR ENTRANCE BUZZER DOES NOT SOUND.	<ol style="list-style-type: none"> 1. Check to see if MASTER SWITCH is in OFF position. 2. Check for faulty or disconnected switch, buzzer, or electrical circuit leads. 	<p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Connect any disconnected leads.</p> <p>Record faulty items on DA Form 2404 and notify unit maintenance.</p>
3. DOME LIGHTS FAIL TO COME ON.	<ol style="list-style-type: none"> 1. Check to see if MASTER SWITCH is in OFF position. 2. Check for faulty lamps or disconnected electrical lead. 	<p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Connect disconnected lead.</p> <p>Record faulty items on DA Form 2404 and notify unit maintenance.</p>
4. BLACKOUT LIGHTS FAIL TO COME ON.	<ol style="list-style-type: none"> 1. Check to see if MASTER SWITCH is in OFF position. 2. Check for incorrect position of the blackout bypass switch and dome light switch. 3. Check for faulty bulbs, or loose or faulty switch or electrical leads. 	<p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Open the rear door and place the blackout bypass switch in the OFF position (WP 0004 00). Move the dome light switch; blackout lights should come on.</p> <p>Connect disconnected leads.</p> <p>Record faulty items on DA Form 2404 and notify unit maintenance.</p>
5. FLUORESCENT LIGHTS FAIL TO COME ON.	<ol style="list-style-type: none"> 1. Check power source. 2. Check to make sure all connectors are properly connected. 3. Check for bad fuse (glass enclosed wire will be broken/burnt). 	<p>Select proper power source (110V AC 50/60 HZ).</p> <p>Connect electrical connectors.</p> <p>Replace fuse, if necessary, as described in TM 10-5410-229-13&P.</p>

TROUBLESHOOTING TABLE — Continued

0074 00

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
<p>6. TENT (COVERED EXTENSION) LIGHTS FAIL TO COME ON.</p>	<p>4. Check for burnt-out fluorescent lamp (lamp will be gray/black).</p> <p>1. Check to see if MASTER SWITCH is in OFF position.</p> <p>2. Check for loose connection of light cord at receptacle on rear of carrier (M577A2 only).</p> <p>3. Check for faulty bulbs or loose or faulty switches or electrical leads (M577A2 only).</p> <p>4. See TM 10-5410-229-13&P for troubleshooting tent light set (M1068 only).</p>	<p>Replace lamp as described in TM 10-5410-229-13&P.</p> <p>Record faulty items on DA Form 2404 and notify unit maintenance.</p> <p>Turn MASTER SWITCH to ON (WP 0026 00).</p> <p>Tighten connector.</p> <p>Connect disconnected leads.</p> <p>Record faulty items on DA Form 2404 and notify unit maintenance.</p>
<p>7. COMMANDER'S PLATFORM DOES NOT POSITION RIGHT.</p>	<p>1. Check for bent handle, broken spring, or damaged pin (WP 0023 00).</p>	<p>If any item is damaged, record it on DA Form 2404 and notify unit maintenance.</p>
<p>8. COMMANDER'S PLATFORM CANNOT BE STOWED.</p>	<p>1. Check for faulty latch or spring (WP 0023 00).</p>	<p>If platform is faulty, record it on DA Form 2404 and notify unit maintenance.</p>
<p>9. SEE TM 10-5410-229-13&P TO TROUBLESHOOT MCPS.</p>		

INITIAL SETUP:Maintenance Level

Operator

MORTAR CARRIER (M1064)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BATTERY DRAWER DOES NOT STAY CLOSED.	1. Check to see if locking handle is out of adjustment (WP 0006 00).	Record fault on DA Form 2404 and notify unit maintenance.
2. BATTERY DRAWER DOES NOT OPEN OR CLOSE FREELY.	1. Check to see if drawer slides are faulty or out of adjustment (WP 0006 00).	Record fault on DA Form 2404 and notify unit maintenance.
3. MORTAR HATCH COVERS DO NOT STAY LOCKED IN CLOSED POSITION.	1. Check to see if interior latch is bent, broken, jammed, or out of adjustment (WP 0012 00).	If latch is faulty, record it on DA Form 2404 and notify unit maintenance.
4. MORTAR HATCH COVERS DO NOT STAY LOCKED IN OPEN POSITION.	1. Check to see if exterior latch is bent, broken, jammed, or out of adjustment (WP 0012 00).	If latch is faulty, record it on DA Form 2404 and notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

**ELECTRONIC EQUIPMENT HEATER KIT
(M577A2)**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ELECTRONIC EQUIPMENT HEATER KIT (M577A2).	<p style="text-align: center;">NOTE</p> <p>Heater is same as personnel heater.</p> 1. Use page 0074 00-19 (Personnel Heater) for troubleshooting electronic equipment heater kit.	

CHAPTER 6

MAINTENANCE INSTRUCTIONS
FOR MAINTENANCE OF CARRIER

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
PREVENTIVE MAINTENANCE CHECKS AND SERVICES.....	0075 00
ADJUST T130 TRACK TENSION.....	0076 00
ADJUST T150 TRACK TENSION.....	0077 00
BREAK/JOIN T130 TRACK.....	0078 00
BREAK/JOIN T150 TRACK.....	0079 00
REMOVE/INSTALL T130 TRACK SHOE.....	0080 00
REMOVE/INSTALL T150 TRACK SHOE.....	0081 00
TRACK SHOE WEAR LIMITS.....	0082 00
MEASURING SPROCKET WEAR.....	0083 00
ASSEMBLE T130 TRACK SHOE SECTIONS OFF VEHICLE.....	0084 00
CHECK CARRIER BATTERIES.....	0085 00
SERVICE BILGE PUMPS.....	0086 00
SERVICE SMOKE GENERATOR FUEL CAN/FOG OIL TANK (M1059).....	0087 00
CHECK/FILL COOLING SYSTEM.....	0088 00
MAINTENANCE OF AIR CLEANER.....	0089 00
DRAIN FUEL FILTERS.....	0090 00
CLEAN/INSPECT SMOKE GRENADE LAUNCHER AND TUBES.....	0091 00
REPLACE WEBBING STRAP (TYPICAL).....	0092 00

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

0075 00

THIS WORK PACKAGE COVERS:

- Before (Table 3, page 0075 00-10).
- During (Table 4, page 0075 00-41).
- After (Table 5, page 0075 00-52).
- Weekly (Table 6, page 0075 00-98).
- Semi-annually (Table 7, page 0075 00-127).

INITIAL SETUP:

Maintenance Level

Operator

References

- DA Form 2404
- DA PAM 738-750
- DD Form 2026
- FM 9-207
- TB 43-0211
- TM 3-1040-283-10
- TM 5-6115-596-14
- TM 9-1005-213-10
- TM 9-1015-250-10
- TM 9-6115-664-13&P
- TM 9-6140-200-14
- TM 11-5820-401-10-1
- TM 11-5820-401-10-2
- TM 11-5820-498-12
- TM 11-5820-890-10-8
- TM 11-5830-263-12
- TM 11-5965-286-14
- WP 0013 00
- WP 0015 00
- WP 0026 00
- WP 0028 00
- WP 0029 00
- WP 0048 00
- WP 0050 00
- WP 0074 00
- WP 0076 00
- WP 0077 00
- WP 0085 00
- WP 0086 00
- WP 0094 00
- WP 0096 00

Tools and Special Tools

- Grease Gun Adapter (WP 0094 00, Table 2, Item 15)
- Track and Sprocket Gauge (WP 0094 00, Table 2, Item 22)
- Track Gauge (WP 0094 00, Table 2, Item 23)
- Industrial Goggles (WP 0095 00)

Materials/Parts

- Cleaning Compound (WP 0096 00, Item 4)
- Cleaning Compound (WP 0096 00, Item 3)
- Cloth (WP 0096 00, Item 5)
- Grease (WP 0096 00, Item 7)
- Wiping Rag (WP 0096 00, Item 10)

Personnel Required

- Commander
- Driver
- Gunner
- Generator Operator

Equipment Condition

Engine stopped (WP 0029 00)

Scope

This section details preventive maintenance checks and services (PMCS), including lubrication instructions, required for the carrier. Your PMCS table has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

Maintenance Forms and Records

Every mission begins and ends with paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have many uses. They are a permanent record of the services, repairs, and changes made to your carrier. They are reports to unit maintenance and to your track commander. They are checklists that tell you whether those faults have been repaired. For information on forms and records, see DA PAM 738-750.

Warnings and Cautions

Always observe the WARNINGS and CAUTIONS appearing in your PMCS table BEFORE, DURING, and AFTER you operate the equipment. The WARNINGS and CAUTIONS appear before certain procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

Explanation of Table Entries

- (1) **Item Number Column** — Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.
- (2) **Interval Column** — This column tells you when you must do the procedure in the *PROCEDURE* column.
 - BEFORE procedures must be performed prior to the equipment leaving its containment area or performing its mission.
 - DURING checks are performed by the track commander/gunner per the PMCS table to monitor and identify faults in equipment performance during the mission.
 - AFTER procedures are performed per the PMCS table at the conclusion of the mission to identify and correct faults which will preclude the next mission.
 - WEEKLY procedures are performed once each week. WEEKLY as well as BEFORE procedures must be performed if:
 - You are the assigned crewmember and have not operated the hull since the last WEEKLY.
 - You are operating the carrier for the first time.
 - When a check or service procedure is required for both WEEKLY and BEFORE intervals, it is not necessary to do the procedure twice.
 - MONTHLY procedures are performed each month.
 - SEMI-ANNUALLY procedures are performed every six months or every 1500 miles.
- (3) **Man-hour Column** — Man-hours required to complete all prescribed lubrication are shown to the nearest tenth of an hour.
- (4) **Item To Be Checked or Serviced Column** — This column lists the item to be checked or serviced.
- (5) **Crewmember/Procedure Column** — This column gives the procedure you must do to check or service the item listed in the *ITEM TO BE CHECKED OR SERVICED* column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the *INTERVAL* column. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have unit maintenance do the work.
- (6) **Equipment Not Ready/Available If: Column** — Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If a check/service finds any of the faults listed in column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

If you find something wrong when performing PMCS, fix it if you can by using Troubleshooting Procedures (WP 0074 00) or maintenance procedures. Notify unit maintenance if you can't fix it.

PMCS General Instructions

Tools/Materials

When you do your PMCS, take along the tools you will need to make all the checks. You will always need wiping rags.

Basic Issue Items

Tools and equipment that you need to use when you drive or maintain your carrier are listed in WP 0094 00. These items are issued with the carrier, and they must be turned in with the carrier. Keep them on your carrier at all times. You can't take proper care of the carrier without the basic issue items, so keep them clean and in good shape. Don't use the tools for jobs they are not designed to do. You won't get the job done right, and you could break the tools.

Expendable/Consumable Maintenance Supplies

Supplies that you need to take care of your carrier are listed in WP 0096 00. These supplies are items that you normally will use up or wear out when you use them. Maintenance supplies work for you. Try to get the most out of them.

Cleaning

Keep the hull clean. Dirt, grease, oil, and debris only get in the way, and may cover up a serious problem. Clean your carrier as you work and as needed. If you clean the carrier or weapons, be sure to observe all information in the following paragraph.

WARNING



Benzene (benzol), paint thinner, gasoline, and diesel fuel oil can burn, poison soldiers, and damage equipment.

Use the approved cleaning agents. See the instructions for this section.

CAUTION

Steam, water, or air under pressure can damage sighting and fire control equipment gears and bearings.

CAUTION

Water entering engine exhaust system can damage engine. Do not allow water to enter engine exhaust system.

CAUTION

Petroleum products will damage rubber that is not resistant to petroleum. Do not get petroleum products on rubber parts.

Use cleaning compound (WP 0096 00, Item 4) on all metal surfaces.

General Inspection

Hardware: Check bolts, nuts, and screws for looseness and missing, bent, or broken parts. If you find a loose one, tighten it. If you can't tighten it, notify unit maintenance. Look for chipped paint, bare metal, or rust around bolt heads.

Welds: Look for loose or chipped paint, rust, cracks, or gaps where parts are welded together. If you find a bad weld, notify unit maintenance.

Electrical wires and connectors: Look for cracked or broken insulation, bare wires, and loose or broken connectors.

Tighten loose connectors. Make sure wires are in good shape. If you find cracked or broken insulation, bare wires, or broken connectors, notify unit maintenance.

Straps: Look for rubber hold-down straps that are cracked, broken, or hardened. Look for webbing stowage straps that are frayed, worn, or have missing metal ends. If you find any bad straps, notify unit maintenance.

Hoses and fluid lines: Look for wear, damage, and leaks. Make sure clamps and fittings are tight. Wet spots show leaks. A stain around a fitting or connector can also mean there is a leak. If a leak comes from a loose fitting or connector, tighten each fitting or connector. If something is broken or worn out, notify unit maintenance.

Fluid Leaks

You need to know how fluid leaks affect your carrier. Definitions of the types and classes of leaks are given below. You need to know them to determine the condition of your carrier. Learn them. REMEMBER: WHEN IN DOUBT, NOTIFY UNIT MAINTENANCE!

NOTE

You are allowed to operate equipment with minor leaks (Class I or II). How much fluid each item or system being checked or inspected can hold must be considered. When in doubt, notify unit maintenance. When operating equipment with Class I or II leaks, continue to check fluid levels as required in your PMCS. Report Class III leaks to unit maintenance for corrective action right away.

Any fuel leak will make the carrier NOT READY/AVAILABLE.

CLASS I	Seepage of fluid is not great enough to form drops, but is shown by wetness or color changes.
CLASS II	Leakage of fluid is great enough to form drops, but drops do not drip from the item being checked or inspected.
CLASS III	Leakage of fluid is great enough to form drops that fall from the item being checked or inspected.

LUBRICATION

Service Intervals — Normal Conditions

For safer, more trouble-free operation, see to it that your carrier is serviced when it needs it.

Service Intervals — Unusual Conditions

Your carrier will often need extra service and care when you operate under unusual conditions. High or low temperatures, long periods of hard use, continued use in sand, water, mud, or snow, will break down the lubricant, then you have to add or change lubricant more often. During periods when the carrier isn't used, the service intervals can be stretched out.

Army Oil Analysis Program (AOAP)

AOAP is an effective maintenance diagnostic tool and is not a maintenance substitute. TB 43-0211 must not be interpreted to mean AOAP minimizes, in any way, the need to employ good maintenance practices and strong maintenance disciplines.

Sampling Requirements: Samples may be taken without warming a component to operating temperature if equipment has been operated within the last 30 days. If equipment has not been operated within the last 30 days, the components must be brought to operating temperature. These requisites apply to both routine and special sampling. Oil samples must not be taken immediately after oil is added. When oil sampling valve is not available to take oil sample, use a vampire pump.

Frequency of AOAP Sample: Every 60 days obtain samples of engine and transmission oil and send to the nearest AOAP Laboratory (TB 43-0211). Take samples as near the prescribed interval as possible. If sampling at the prescribed interval is not possible, a 10 percent variance before or after the scheduled interval date or miles is permissible. The need for on-condition oil changes will be determined by the AOAP Laboratory.

NOTE

If AOAP laboratory support is not available, notify unit maintenance to drain oil and change filter element/gasket every 1,500 miles or semi-annually. The hard time interval may be shortened if equipment is operated under adverse conditions.

Engine and transmission filters need to be replaced every 150 hours/1,500 miles or semi-annually, even when following AOAP procedures.

Sampling procedures:

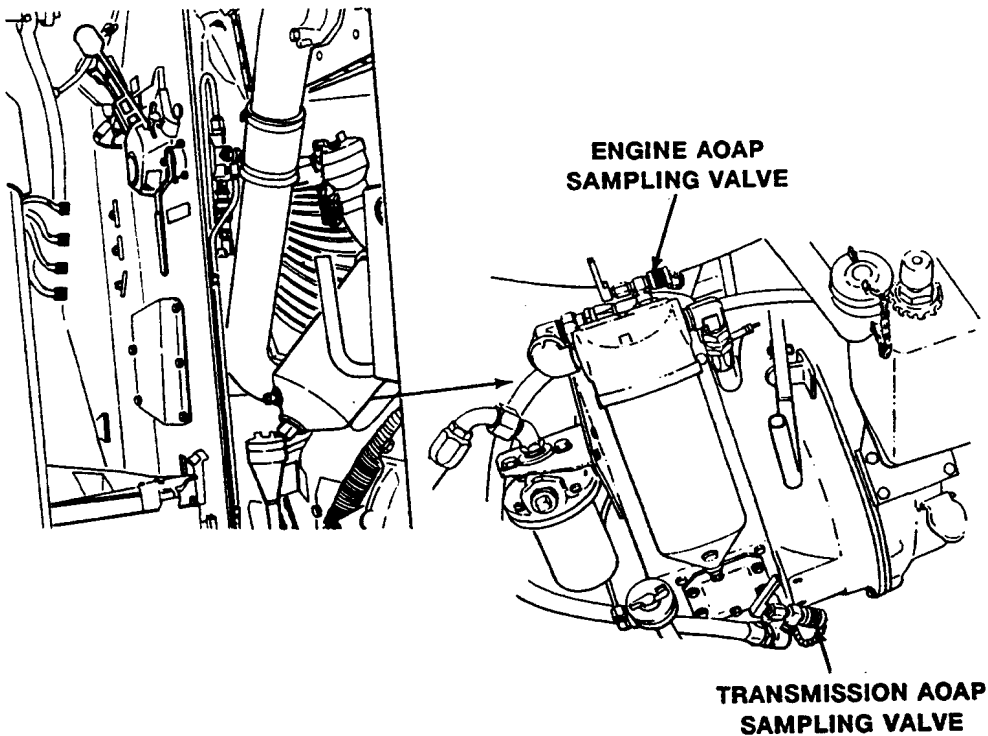
1. Perform DAILY operation checks and services.

NOTE

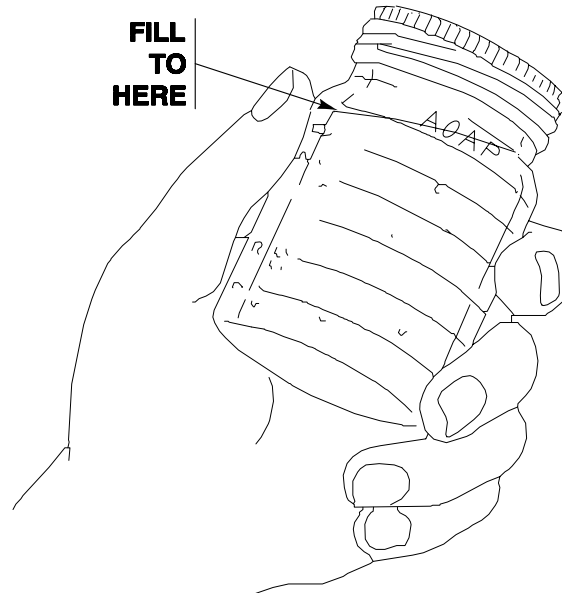
DO NOT ADD OIL immediately prior to taking oil samples. When operation checks and services indicate the need to replenish oil level, WAIT until after taking samples. New oil added immediately prior to taking samples or before prolonged operation of components will adversely affect oil analysis results.

2. Obtain two sample bottles (NSN 8125-01-082-9697) and two DD Form 2026s from the unit AOAP monitor.
3. Start engine (WP 0026 00). If required (refer to Sampling Requirements paragraph above), operate carrier (WP 0028 00) to bring engine and transmission up to normal operating temperatures.
4. Stop carrier and set the brakes.
5. Shift range selector to N (neutral) and keep engine running.
6. Remove driver's power plant access panel (WP 0048 00).

7. With engine running, remove dust caps from engine and transmission oil sampling valves.



8. Open sampling valve on engine oil filter and drain a small amount of oil into a container to clear valve of grit and contamination. (Properly dispose of container and oil upon completion of sample taking.) Fill sampling bottle to the neck shoulder and seal it. Attach DD Form 2026 to sample bottle.



9. Close oil sample valve and install dust cap.
10. Take oil sample from transmission in the same manner (Steps 7 - 9).
11. Stop engine (WP 0029 00).
12. Install driver's power plant access panel (WP 0048 00) and secure carrier.

13. Deliver sample bottles to unit AOAP monitor.

NOTE

For location of nearest AOAP Laboratory and complete information about AOAP, refer to TB 43-0211.

Preservation Oil

If engine/transmission has been filled with preservation engine oil, leave this oil in engine/transmission until first scheduled oil change. Maintain operating oil level by adding applicable grade oil (OE/HDO or OEA). When first scheduled oil change is due, notify unit maintenance to refill engine/transmission with applicable grade of oil. See Lubrication Tables below.

Lubrication Tables

The following tables provide lubrication data for PMCS lubrication checks.

Table 1. LUBRICANT SYMBOLS

SYMBOL	NOMENCLATURE	SPECIFICATION
DF	Diesel Fuel	A-A-52557
FRH	Hydraulic Fluid, Rust Inhibited, Fire Retardant	MIL-PRF-46170C
GAA	Grease, Automotive and Artillery	MIL-PRF-10924G
GIA	Grease, Aircraft and Instrument, Gear and Actuator Screw	MIL-PRF-23827C(1)
	Grease, Wire Rope and Exposed Gear	MIL-PRF-18458C
OE/HDO	Lubricating Oil, Internal Combustion Engine	MIL-PRF-2104G
OEA	Lubricating Oil, Internal Combustion Engine, Arctic	MIL-PRF-46167C
PE	Preservation Oil	MIL-PRF-21260E
PL-M	Lubricating Oil, General Purpose (Medium)	MIL-PRF-3150D(2)
PL-S	Lubricating Oil, General Purpose (Special)	MIL-PRF-2105E

Table 2. LUBRICANT USAGE

COMPONENTS	CAPACITIES (APPROX)	LUBRICANTS TO USE AT EXPECTED TEMPERATURES*			INTERVALS
		ABOVE 32°F (ABOVE 0°C)	+40°F TO -10°F (+5°C TO -23°C)	0°F TO -65°F (-18°C TO -54°C)	
Engine	18 qts.	OE/HDO-15/40	OE/HDO-15/40	OEA	Daily - Check and Fill On Condition - Sample
		PE-30-1	PE-30-1		Leave in engine until first scheduled oil change
Fuel System M113A2, M1059, M1064	95 gal	DF-2	DF-1	DF-A	Daily - Drain filters
Fuel System M577A2, M1068	120 gal	DF-2	DF-1	DF-A	Daily - Drain filters
Transmission	Initial fill - 16 qts	OE/HDO-15/40	OE/HDO-15/40	OEA	Daily - Check and Fill On Condition - Sample
		PE-10-1	PE-10-1		Leave in transmission until first scheduled oil change
Ramp System	2 qts	FRH			Daily - Check and Fill


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

COMPONENTS	CAPACITIES (APPROX)	LUBRICANTS TO USE AT EXPECTED TEMPERATURES*			INTERVALS
		ABOVE 32°F (ABOVE 0°C)	+40°F TO -10°F (+5°C TO -23°C)	0°F TO -65°F (-18°C TO -54°C)	
Final Drives	3 1/2 qts or 7 pt (FULL mark on gauge rod)	OE/HDO-15/40	OE/HDO-15/40	OEA	Weekly - Check and Fill
Fan Gearbox	1 pt	OE/HDO-15/40	OE/HDO-15/40	OEA	Monthly - Check and Fill
Tow Cable	As required	Grease MIL-PRF-18458C			Semi-annually or every 1500 miles - Clean and Lube
Ramp Wire Rope	As required	OE/HDO-15/40	OE/HDO-15/40	OEA	Semi-annually or every 1500 miles - Clean and Lube
		PL-M	PL-M	PL-S	
Machine Gun Mount	As required	PL-M	PL-M	PL-S	Semi-annually or every 1500 miles - Clean and Lube
Transfer Gearcase	2.5 qt	OE/HDO-15/40	OE/HDO-15/40	OEA	Daily - Check and Fill Semi-annually or every 1500 miles - Drain and fill
Oil Can Points	As Required	OE/HDO 15/40	OE/HDO-15/40	OEA	Semi-annually or every 1500 miles - Clean and lube
Idler Wheel Support Arm Bearings	As Required	GAA			Semi-annually or every 1500 miles - Clean and lube
Road and Idler Wheel Hub Bearings	As Required	GAA			Semi-annually or every 1500 miles - Clean and lube
Road Wheel Support Arm Bearings	As Required	GAA			Semi-annually or every 1500 miles - Clean and lube


*For Arctic operation, refer to FM 9-207.


Table 3. Preventive Maintenance Checks and Services for Model M113A2 FOV, Before

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Carrier Exterior	<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Failure to set parking brake and block wheels can allow carrier to move and could result in personnel injury or death. Always set parking brake and block wheels before performing PMCS.</p> <p style="text-align: center;">NOTE</p> <p>Perform your WEEKLY as well as BEFORE PMCS if: You are the assigned operator but have not operated the carrier since your last weekly inspection or you are operating the carrier for the first time.</p> <p>THINK SAFETY Inspect and work safely. Protect yourself and your crew members. Read and observe all warnings.</p> <p>DRIVER</p> <p>a. Walk around vehicle, check for leaks, tampering, damage, or missing parts.</p>	Any Class III leak or fuel leak identified. Any damage that would prevent operation.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued


0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before		5.0 KW Auxiliary Power Unit (APU) (M577A2 and M1068 only)	DRIVER a. See TM 9-6115-664-13&P for PMCS procedures.	Fault listed in "NOT FULLY MISSION CAPABLE IF:" column of APU TM.
3	Before		Generator Set (M577A2 and M1068 only)	DRIVER a. See TM 5-6115-596-14 for PMCS procedures.	Fault listed in "NOT FULLY MISSION CAPABLE IF:" column of Generator TM.
4	Before		Track Tension	DRIVER <div style="text-align: center;"> <p>WARNING</p>  <p>Not having the correct track tension during inspection can cause you to not see defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured. Adjust track tension before inspecting track assembly and track shoes.</p> </div>	

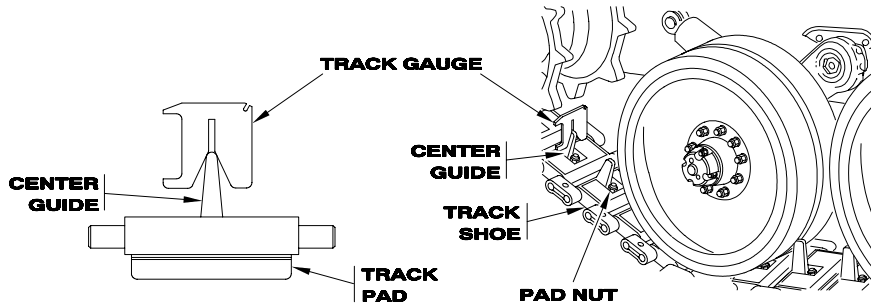
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before		Track Shoes and Bushings (T150 Track only)	<p style="text-align: center;">NOTE</p> <p>Perform adjustment after vehicle is fully loaded.</p> <p>a. Adjust track tension as necessary (T130) (WP 0076 00) or (T150) (WP 0077 00).</p> <p>DRIVER</p> <div style="text-align: center;"> <p>WARNING</p>  </div> <p>If you lose a track (break a track shoe or vehicle throws a track), extreme caution must be exercised in maintaining control. Immediately release accelerator and let the vehicle coast to a stop. Do not apply braking action, i.e. laterals, pivot, or any type of steering controls. This causes the vehicle to pull to the active or good track and could result in a rollover. It is absolutely necessary to apply braking action only, and we stress only, if the vehicle is approaching a ravine, a cliff, or if you perceive the outcome to be catastrophic, probably resulting in fatalities. When a rollover is imminent, all crewmembers should immediately withdraw inside the vehicle, tighten seat belts, and hold onto a secure fixture, until the vehicle comes to a complete stop.</p>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

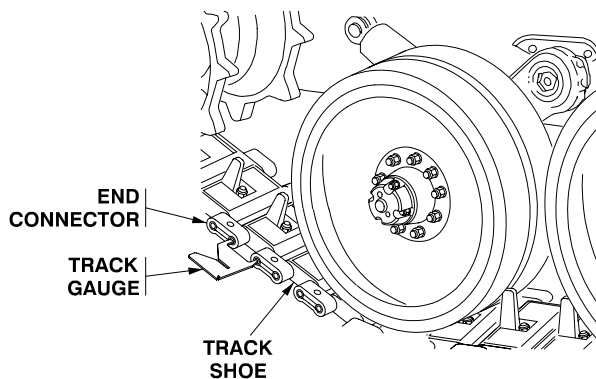
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Failure to perform track PMCS and not repair or report to maintenance per technical manual procedures can allow you to operate the vehicle with defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured.</p> <p>Never operate a vehicle without performing the before mission PMCS track tension adjustment and track inspection per PMCS procedures in the technical manual. Repair or report problems to maintenance per technical manual instructions as outlined in PMCS.</p> <p style="text-align: center;">NOTE</p> <p>Move carrier one track length to inspect entire track.</p> <p>a. Check for any broken track shoes (cracked or broken shoe body) bent, broken, or missing center guides, chunked or missing road wheel path. If one or more track shoes or three or more center guides in a row are broken, notify unit maintenance.</p>	<p>One or more broken track shoes. Three or more broken center guides in a row.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>b. Check center guide wear. Use track wear gauge (WP 0094 00, Table 2, Item 23). If three or more center guides in a row show excessive wear, notify unit maintenance.</p> <p style="text-align: center;">NOTE</p> <p>Worn or missing track shoe pads will cause track shoe to wear out prematurely and mark road surface.</p> <p>c. Check track shoe for worn or missing track pads/pad nuts.</p>	<p>Three or more center guides in a row show excessive wear.</p>




d. Check track shoe for cracked, missing, or loose end connectors/bolts. Tighten loose end connectors. If one or more end connectors/bolts are loose or show any cracks or damage or are missing, notify unit maintenance.

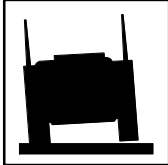
One or more end connectors/bolts are missing.



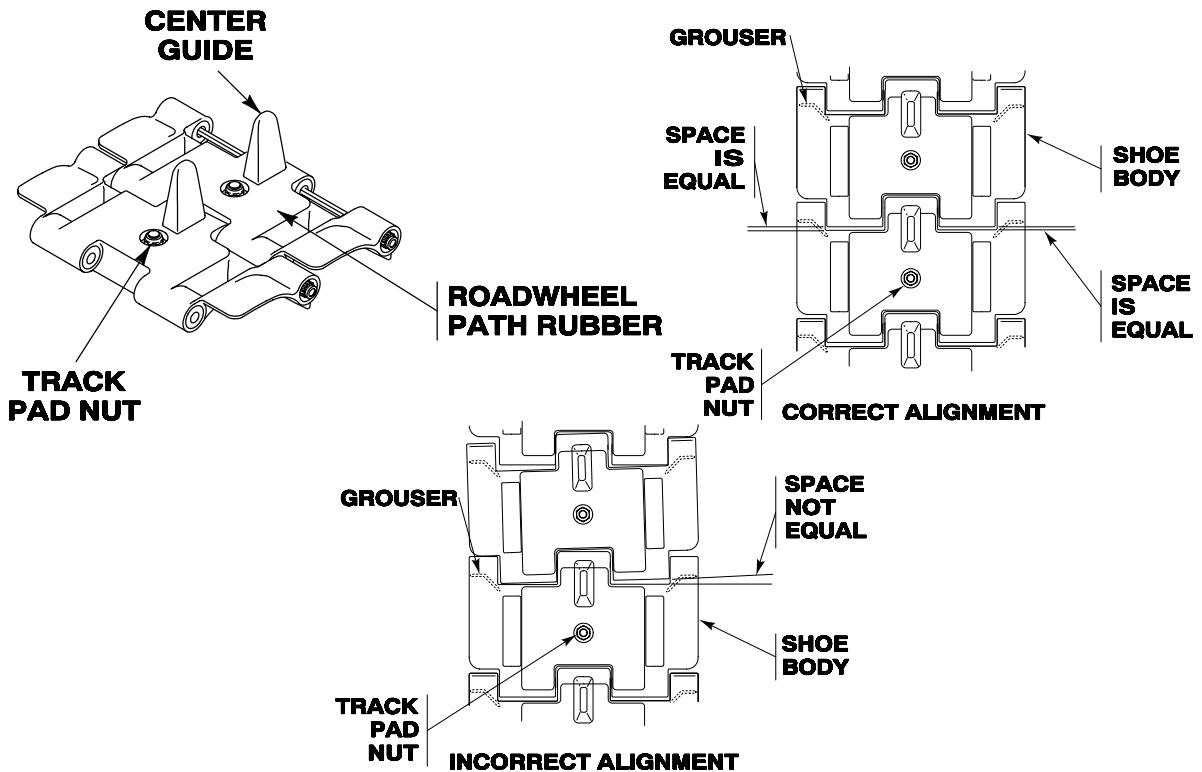
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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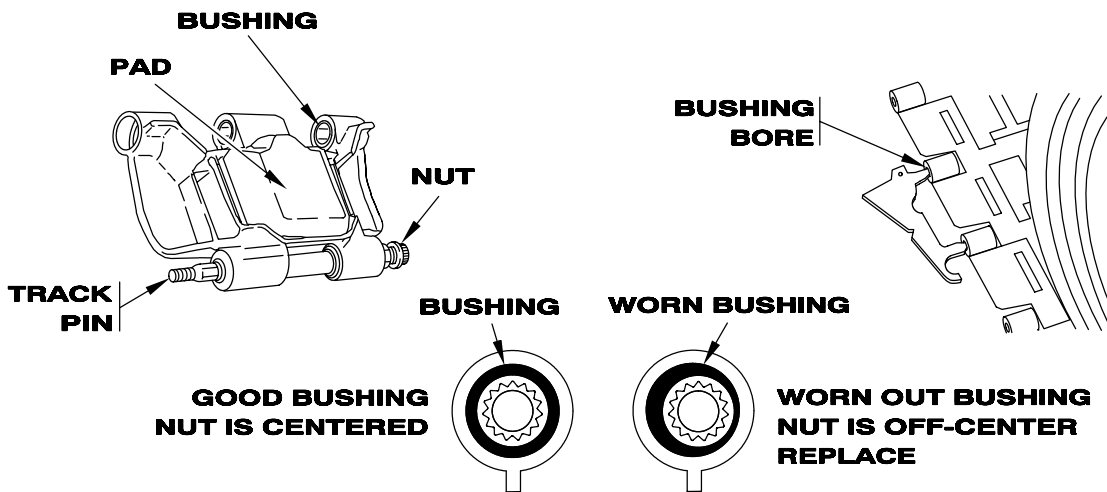
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Before		Track Shoes and Bushings (T130 Track Only)	<p>e. Check for track pin bushing wear. Use track wear gauge (WP 0094 00, Table 2, Item 23) when worn bushings are visible. If track gauge does not move freely inside track pin, notify unit maintenance.</p> <p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Failure to perform track PMCS and not repair or report to maintenance per technical manual procedures can allow you to operate the vehicle with defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured.</p> <p>Never operate a vehicle without performing the before mission PMCS track tension adjustment and track inspection per PMCS procedures in the technical manual. Repair or report problems to maintenance per technical manual instructions as outlined in PMCS.</p>	Track gauge does not move freely inside track pin.

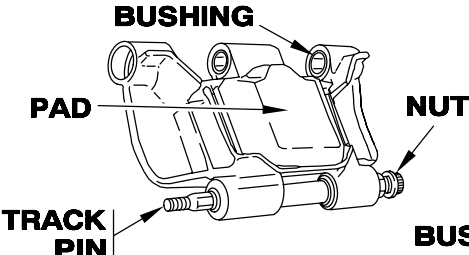
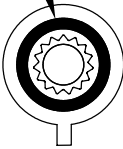
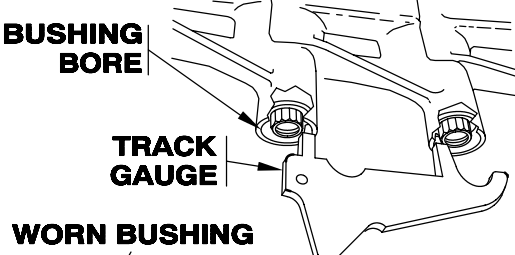
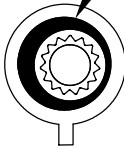
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>If you lose a track (break a track shoe or vehicle throws a track), extreme caution must be exercised in maintaining control. Immediately release accelerator and let the vehicle coast to a stop. Do not apply braking action, i.e. laterals, pivot, or any type of steering controls. This causes the vehicle to pull to the active or good track and could result in a rollover. It is absolutely necessary to apply braking action only, and we stress only, if the vehicle is approaching a ravine, a cliff, or if you perceive the outcome to be catastrophic, probably resulting in fatalities. When a rollover is imminent, all crewmembers should immediately withdraw inside the vehicle, tighten seat belts, and hold onto a secure fixture, until the vehicle comes to a complete stop.</p> <p style="text-align: center;">NOTE</p> <p>Move carrier one track length to inspect entire track.</p> <p>a. Visually check for unusual or uneven gaps between two adjacent shoes. Check any suspect bushing using the track and sprocket gauge (WP 0094 00, Table 2, Item 22). If a “NO/GO” reading is obtained on either the inside or outside of the block, the unserviceable shoe/shoes must be replaced.</p>	<p>Any unserviceable shoe.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>b. Check track shoes for damage. Damage includes cracked or broken shoe body, bent, broken, or missing center guides, chunked or missing roadwheel path rubber (WP 0082 00).</p> <p style="text-align: center;">NOTE</p> <p>Worn or missing track pads will cause the track shoe to mark the road surface.</p> <p>c. Replace worn or missing track pads and track pad nuts.</p>	<p>Any one track shoe body bent, cracked, or broken. Any one track pin bent, broken, or missing. Any chunking 1/2 inch or more deep on 10 percent or more of shoe's surface.</p>

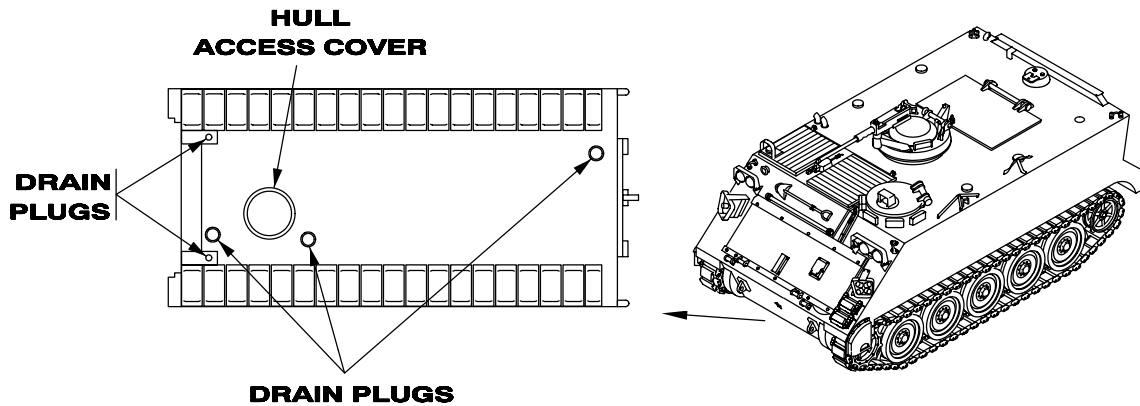


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>d. Check track shoe for damaged pins, missing pin nuts, and any unusual or uneven gaps between two adjacent track shoes which indicate worn bushings.</p> <p style="text-align: center;">NOTE</p> <p>Worn bushings are very difficult to locate. Worn bushings may cause the track pin to appear off-center; it may have protruding track pin or track pin nut, unusual gaps between two adjacent shoes.</p>	<p>Any one shoe with worn bushing, protruding track pin, missing track pin nut, or pad height is less than 1/16" above grouser. Any one bushing deemed unserviceable.</p>

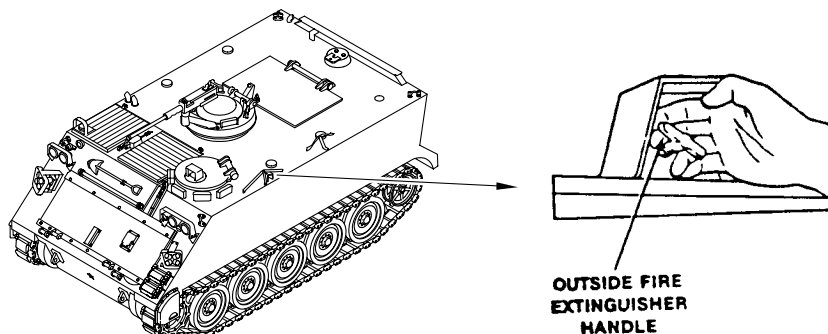



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>Check left and right side of vehicle for damage to track shoes.</p> <p>e. Check for any suspect bushings which should be tested with the track and sprocket gauge. Gauge pins must be fully inserted into bushing bore. Any track shoe failing track gauge inspection is unserviceable. Replace any worn shoe bushing with shoe.</p>	<p>Any one track shoe with worn bushing, protruding track pin, or missing track pin nut. Any one bushing deemed unserviceable. Pad height is less than 1/16" above grouser.</p>
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>GOOD BUSHING NUT IS CENTERED</p>  </div> <div style="text-align: center;">  <p>WORN BUSHING NUT IS OFF-CENTER REPLACE</p>  </div> </div>					

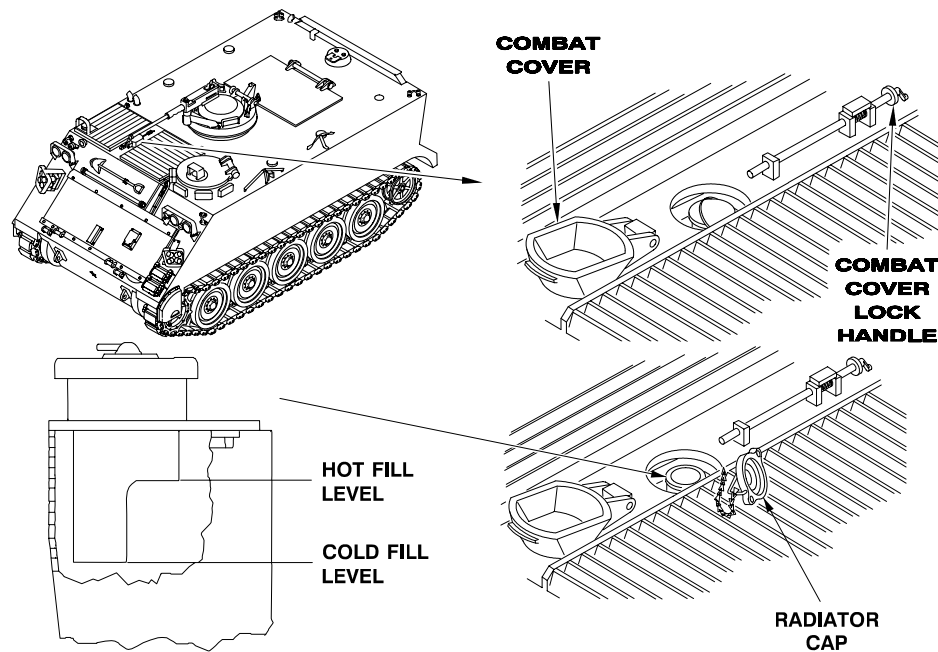
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Before		Carrier Exterior (Ground Level) Final Drive and Hull Plugs	<p>DRIVER</p> <p>a. Check beneath carrier for loose or missing hull access cover and drain plugs (five plugs). Tighten loose hull access cover and drain plugs.</p>	Any Class III leak. One or more hull access covers, drain plugs or seals missing. Any fuel leak.




8	Before		Fire Extinguisher Exterior Pull Handle	<p>COMMANDER</p> <p>a. Check seal on exterior pull handle. Make sure seal or lockwire is not broken. Report broken seal or lockwire to unit maintenance.</p>	Seal or locking wire missing or broken.
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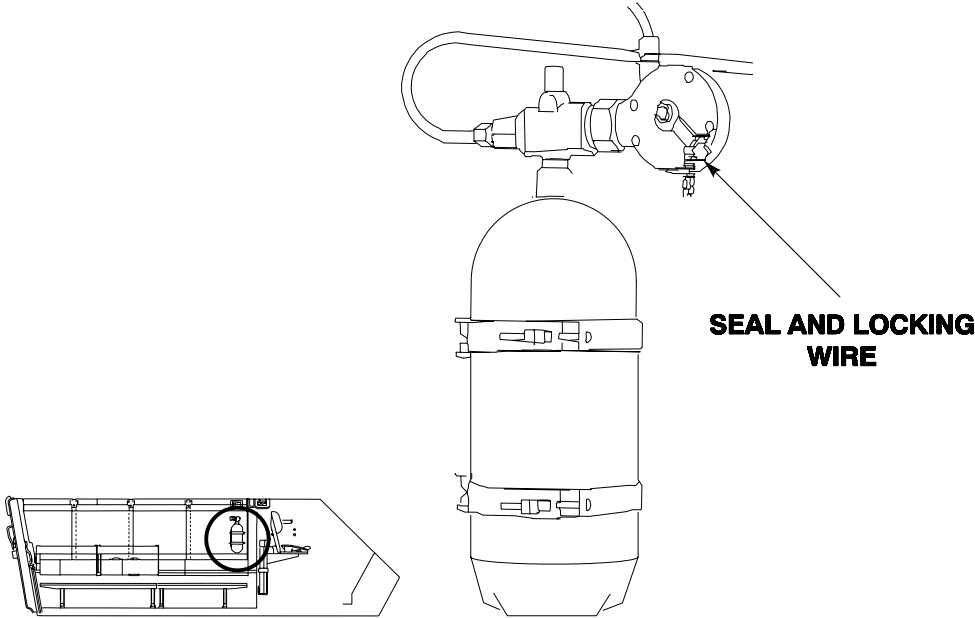
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Radiator (on deck) Coolant Level	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Hot radiator coolant can burn you. Use hand to remove cap only if cool to touch. Turn cap slowly to release pressure. Replace cap by pressing down and turning cap until tight.</p> <p>a. Remove radiator cap. Check that coolant level is within 1/2 inch of bottom of filler neck. Add coolant as needed.</p>	Any Class III leak. Cap damaged or missing.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Before		Fixed Fire Extinguisher	<p>DRIVER</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>A fire can break out at any time. Personnel could be killed or injured. Equipment could be damaged. Make sure both fire extinguishers are ready to use before you operate carrier.</p> <p style="text-align: center;">CAUTION</p> <p>Inspect cylinder/bottle data to ensure the latest hydrostatic test was performed within the past 5 years. Any bottle/cylinder beyond the test time limit shall be declared unserviceable and replaced.</p> <ol style="list-style-type: none"> a. Inspect fire extinguisher cylinder data plate to ensure that a hydrostatic test has been performed within the past 5 years. Faulty extinguishers or those beyond the test time limit (5 years) shall be declared unserviceable and replaced. b. Check fixed extinguisher control seal. c. Make sure seal or lockwire is not broken. Report broken seal to unit maintenance. d. Check for full charge. 	<p>Cylinders/ bottles are overdue for a hydrostatic test.</p> <p>Extinguisher missing.</p> <p>Seal or lockwire missing or broken.</p>

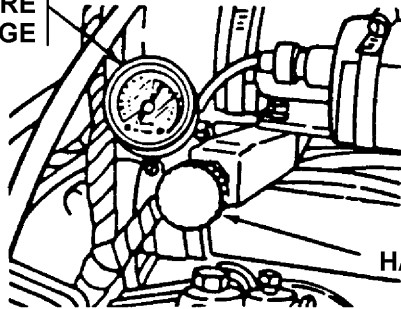
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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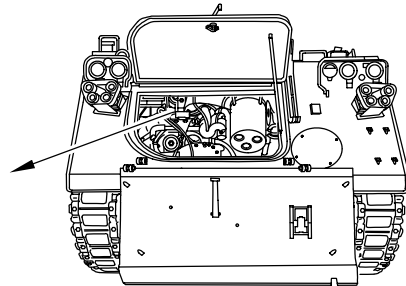
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	Before		Air Box	<p style="text-align: center;">NOTE</p> <p>Air box heater accumulator (below 40°F (+4°C) only).</p> <p style="text-align: center;">NOTE</p> <p>Skip this check if carrier has the electrical air pump.</p> <p>a. Check accumulator pressure gauge each day before you use air box. If gauge reads in red zone, use hand pump to pump up system. Keep pumping until gauge reads in yellow zone. If gauge reads below green mark in red zone, you've lost precharge pressure. If so, notify unit maintenance.</p>	Gauge reads below green mark in red zone.

ACCUMULATOR PRESSURE GAUGE




HAND PUMP



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

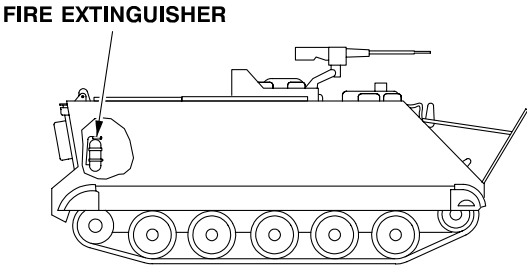
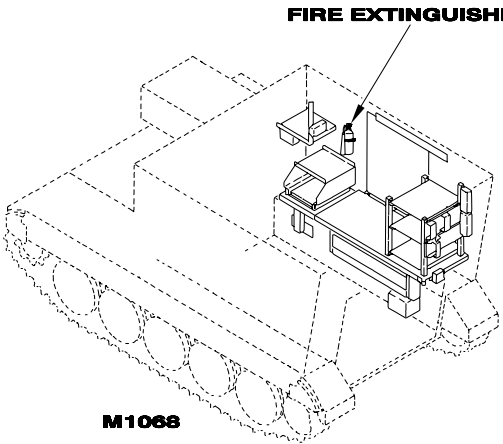
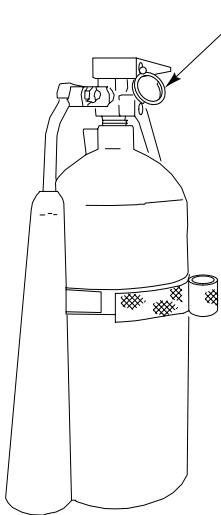
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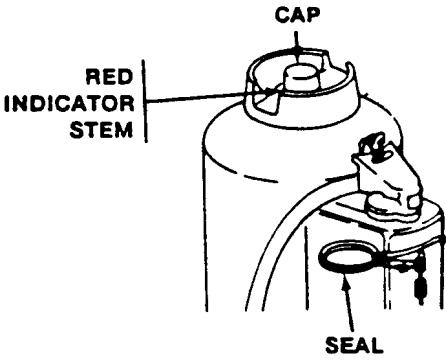
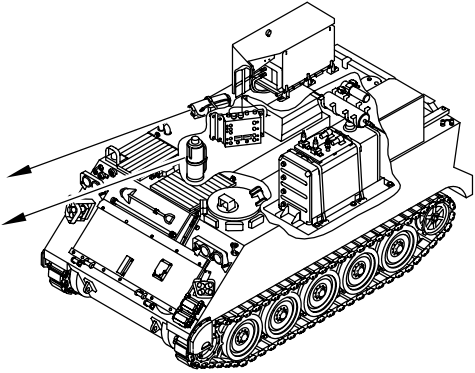
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before		Portable Fire Extinguishers	<p style="text-align: center;">WARNING</p>  <p>A fire can break out at any time. Personnel could be killed or injured. Equipment could be damaged. Make sure both fire extinguishers are ready to use before you operate carrier.</p>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

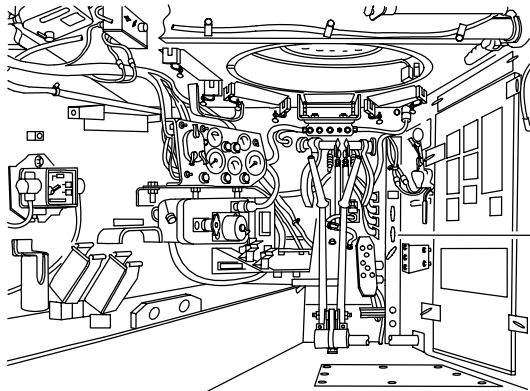
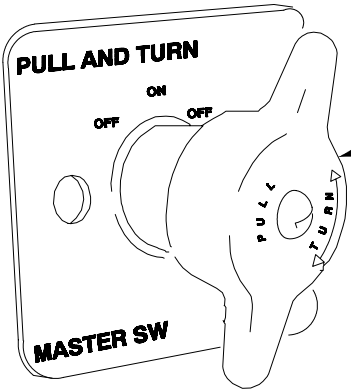
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>On all carriers except M1068, portable fire extinguisher is located against curbside rear plate.</p> <p>On M1068, portable fire extinguisher is located against curbside wall next to the map board.</p> <p style="text-align: center;">NOTE</p> <p>Manually lower ramp before proceeding with PMCS.</p> <p>a. Check portable fire extinguisher control seal. Make sure seal or locking wire is not broken. Report broken seal to unit maintenance.</p> <p>b. Check fire extinguisher for security of mounting hardware and missing hardware.</p> <p>c. Check for full charge.</p>	<p>Fire extinguisher missing. Seal or lockwire missing or broken.</p> <p>Pressure gauge indicates discharge or seal is broken. Extinguisher feels light or seal is broken, if no gauge.</p>

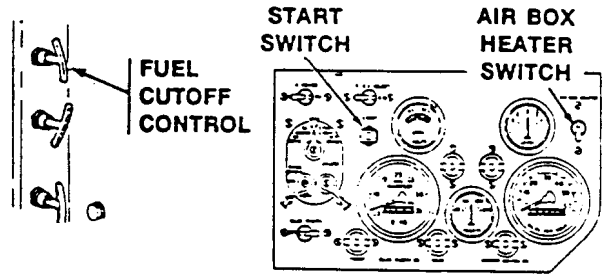
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			<p>FIRE EXTINGUISHER</p>  <p>M113A2, M1059, M1064, M577A2</p> <p>FIRE EXTINGUISHER</p>  <p>M1068</p> <p>SEAL AND LOCKING PIN</p> 		

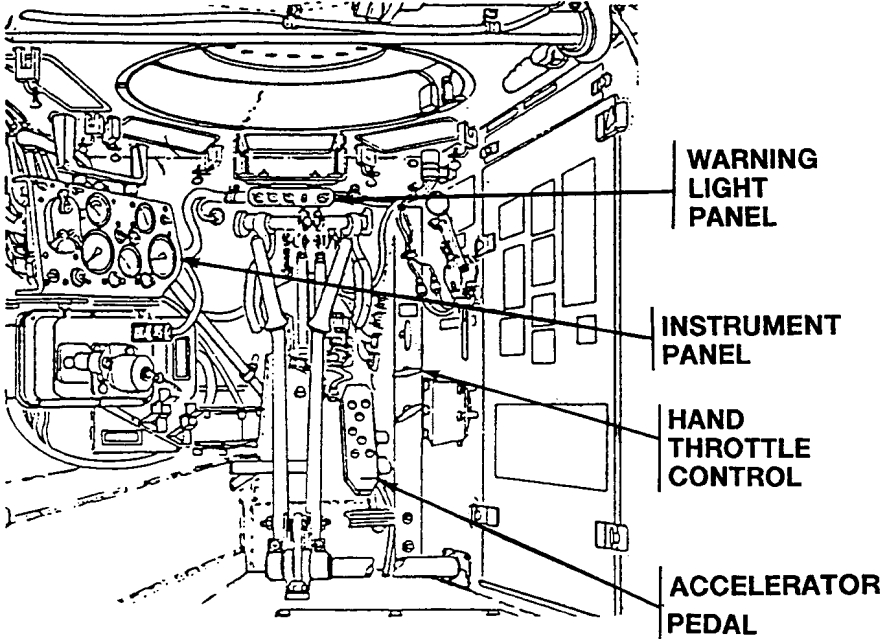
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Before		Portable Fire Extinguishers (M1059 only)	<p>COMMANDER</p> <p>a. Check exterior hand-held fire extinguisher seals. Check that red indicator stem on cap is not popped up.</p> <p>b. Check for availability and a full charge.</p>	<p>Fire extinguisher is missing or seal is broken. Red stem popped up.</p> <p>Fire extinguisher is missing or seal is broken.</p>
					
14	Before		Instrument Panel Warning Lights	<p>DRIVER</p> <p>NOTE</p> <p>Air box heater (below 40°F (+4°C) only).</p> <p>NOTE</p> <p>Skip this check if your carrier has air box heater accumulator.</p>	

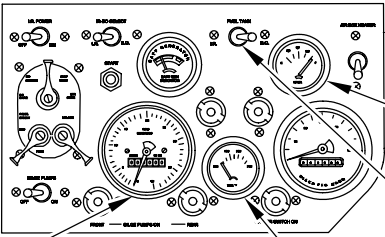
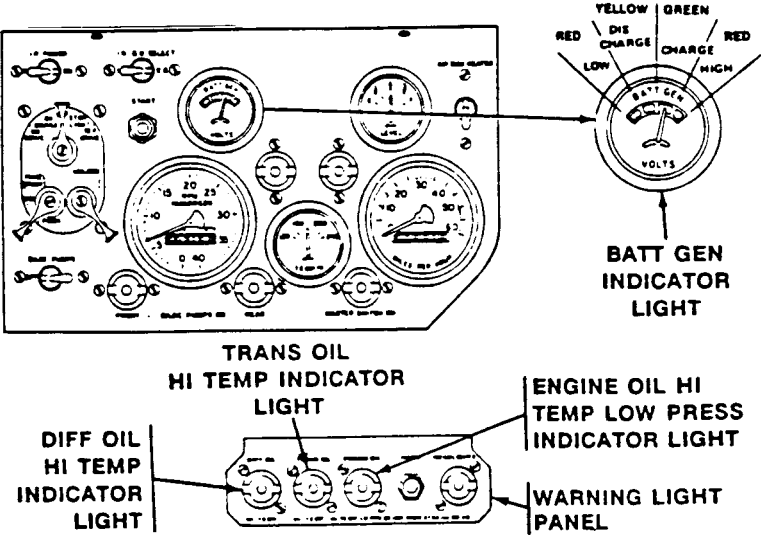
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>a. Turn MASTER SWITCH to ON, check air box heater as follows:</p> <ol style="list-style-type: none"> 1) Pull out fuel shutoff control. Press START switch. 2) Turn AIR BOX HEATER switch to ON. 3) Look for puffs of black smoke from engine exhaust. If you see smoke, the heater is OK. Notify unit maintenance if no smoke appears. 	
				<p>b. Check binding and sticking of throttle linkage by depressing and releasing the accelerator pedal.</p>	<p>Linkage binding and/or sticking.</p>



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>c. Start engine (WP 0026 00).</p> <p>1) While pressing on throttle pedal to run engine at 800 to 1000 RPM and let engine warm up for 3 to 5 minutes. Release hand throttle.</p>  <p style="text-align: center;">CAUTION</p> <p>If temperature goes above 230°F (110°C), turn off engine and notify unit maintenance.</p> <p>d. Check instrument panel gauges. Watch FUEL QUANTITY gauge to see that it is operating properly. Check both positions for M1064.</p> <p>e. Watch TACHOMETER to see that it is operating properly. Check that idle speed is normal at 650 to 700 RPM.</p>	<p>Engine will not start or runs rough.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>f. Watch ENGINE COOLANT TEMPERATURE gauge to see that it is operating properly. Check that coolant temperature is normal at 160° to 225°F (71 to 110°C).</p>  <p>INSTRUMENT PANEL FUEL QUANTITY GAUGE FUEL TANK SWITCH (M1064) TACHOMETER (RPM GAUGE) ENGINE COOLANT TEMPERATURE GAUGE</p> <p>g. Check BATT GEN indicator. Indicator should read in green zone. Notify unit maintenance if indicator reads in yellow zone or in the red zone.</p> <p>h. Check warning light panel lights. Watch DIFF OIL HI TEMP, TRANS OIL HI TEMP, and ENGINE OIL HI TEMP LO PRESS warning lights for red warning.</p>  <p>BATT GEN INDICATOR LIGHT TRANS OIL HI TEMP INDICATOR LIGHT DIFF OIL HI TEMP INDICATOR LIGHT ENGINE OIL HI TEMP LO PRESS INDICATOR LIGHT WARNING LIGHT PANEL</p>	<p>ENGINE COOLANT TEMP gauge is missing or not operating properly.</p> <p>Gauge is not in green zone.</p> <p>Any oil warning light comes on.</p>


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

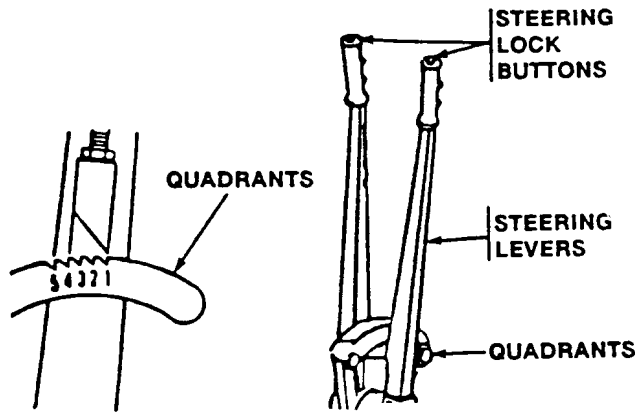
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	Before		Ramp	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>Leave ramp lowered to perform “Before” checks.</p> <p>a. Check ramp operation by raising and lowering (WP 0015 00).</p>	<p>Ramp will not raise or lower under power. Ramp lock will not hold ramp in closed position.</p>
16	Before		Ramp door	<p>DRIVER</p> <p>a. Check ramp door operation. Make sure hinges work right and that door can be tightly secured by lock.</p>	<p>Lock will not secure door. Hinges broken or missing.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
17	Before		Steering and Braking Controls	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>When carrier is moving, pushing down on steering lever lock buttons can cause brake(s) to be locked. Personnel can be killed or injured. Perform steering and braking PMCS only when engine is stopped.</p> <p>When steering and braking occur before notch 1 or after notch 4 on the quadrant, carrier can skid and crash. Personnel can be killed or injured. If steering and braking is not between notch 2 and notch 3, do not operate carrier. Notify unit maintenance.</p> <p>If left and right steering lever positions are not within one notch difference when both are pulled to the fully applied position, carrier can skid and crash. Personnel can be killed or injured. Do not operate carrier. Notify unit maintenance.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>a. Inspect for proper installation of steering lever assemblies.</p> <p>b. Check that mounting bracket screws are tight.</p> <p>c. Check that quadrants are securely mounted and screws and nuts are tight.</p> <p>d. Inspect for proper operation of steering levers.</p> <p style="text-align: center;">NOTE</p> <p>Get to know the feel of your carrier's steering levers. If your carrier's steering levers do not feel right to you, notify unit maintenance.</p>	<p>Any screws or nuts are loose or missing.</p> <p>Quadrants loose or missing.</p> <p>Resistance is felt at notch 1 of quadrants.</p>

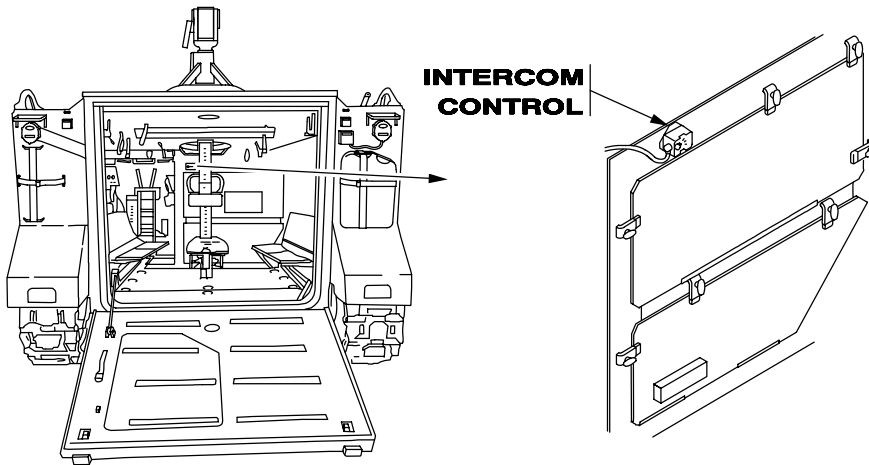



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

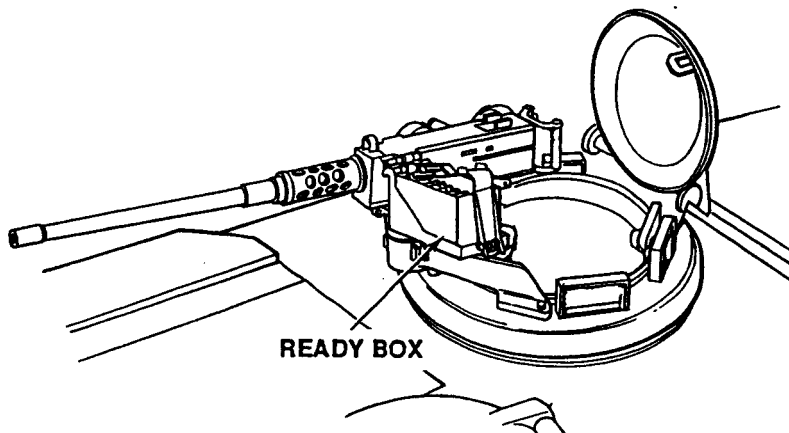
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
18	Before		Throttle/ Accelerator Pedal	<p>e. Unlock levers.</p> <ol style="list-style-type: none"> 1) Push down on lock buttons and pull both levers rearward. If levers are properly adjusted, resistance will be felt in both levers between notch 2 and notch 3 of quadrants. 2) Pull back and release levers several times. <p>DRIVER</p> <ol style="list-style-type: none"> a. Prior to start of engine check operation of accelerator pedal, push pedal all the way to the floor. If accelerator pedal sticks, notify maintenance immediately. 	<p>Resistance is not felt until levers are at notch 4 of quadrants.</p> <p>Difference between left and right steering lever is greater than one notch when fully applied.</p> <p>Accelerator pedal sticks.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
19	Before		Carrier Communications Equipment Radio	<p>DRIVER</p> <p>a. Check radio equipment for proper operation. See TM 11-5820-498-12, and/or TM 11-5820-401-10-2. See TM 11-5965-286-14 for headset microphone.</p> <p style="text-align: center;">NOTE</p> <p>M577A2 and M1068 carriers may be equipped with the Vehicle Intercommunication System (VIS). See TM 11-5830-263-12 for proper operation.</p> <p>b. Check intercom system for proper operation.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of radio TM. Will not transmit or receive.</p> <p>No intercom between commander and driver.</p>



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
20	Before		Machine Gun .50 Cal M2 (M113A2, M1059, and M1064)	<p>COMMANDER</p> <p style="text-align: center;">WARNING</p>  <p>Make sure weapon is clear and safe before loading or testing, to prevent accidental firing of machine gun and injury to personnel.</p> <ol style="list-style-type: none"> a. Check mounting of machine gun in mount. b. Check headspace and timing per TM 9-1005-213-10 and PMCS. 	<p>Machine gun missing or unserviceable.</p> <p>Fault listed in "Equipment Not Ready/ Available If:" column of machine gun TM.</p>




PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Before		Mortar Cannon Tube Assembly (M1064 only)	<p>GUNNER</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Make sure mortar tube is clean and dry before firing. Damage to equipment may occur.</p> <p>a. See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm Mortar.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of mortar gun TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
22	Before		Smoke Generator System (M1059 only)	<p>GENERATOR OPERATOR</p> <p style="text-align: center;">WARNING</p>  <p>All personnel within 75 feet (22.9 meters) of M1059 during operation must wear personnel hearing devices to prevent hearing damage. Contamination is likely, and loss of hearing could occur. Personnel inside carrier in motion, with smoke generator in operation, must wear double hearing protection. Limit exposure of high noise levels to six hours to prevent hearing damage. Use of yellow/white foam ear plugs is prohibited for personnel operating M1059 carrier.</p> <p>a. For PMCS procedures see TM 3-1040-283-10.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of smoke generator TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
23	Before		Commander's Seat (All Except M577A2, M1068, M981, or M901A1)	<p>COMMANDER</p> <p>a. Check for smooth operation of seat and vertical locking mechanism. Lubricate as needed with OE/HDO.</p>	Any missing, broken, or cracked seat hardware, less seat cushions, or cut or frayed seat belts, or missing seat and post assembly.

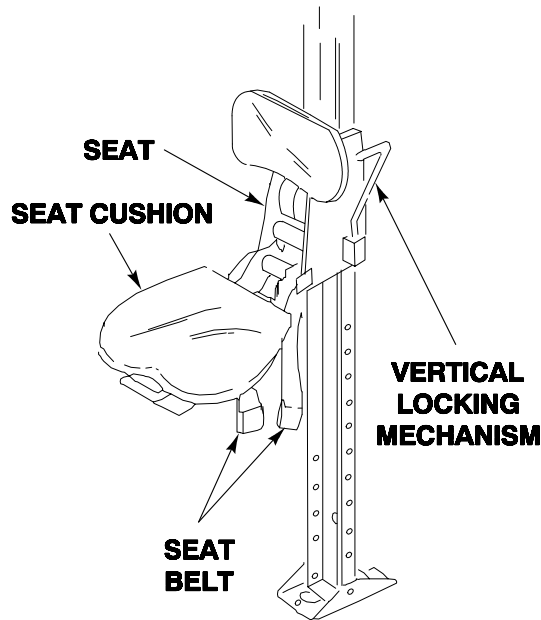


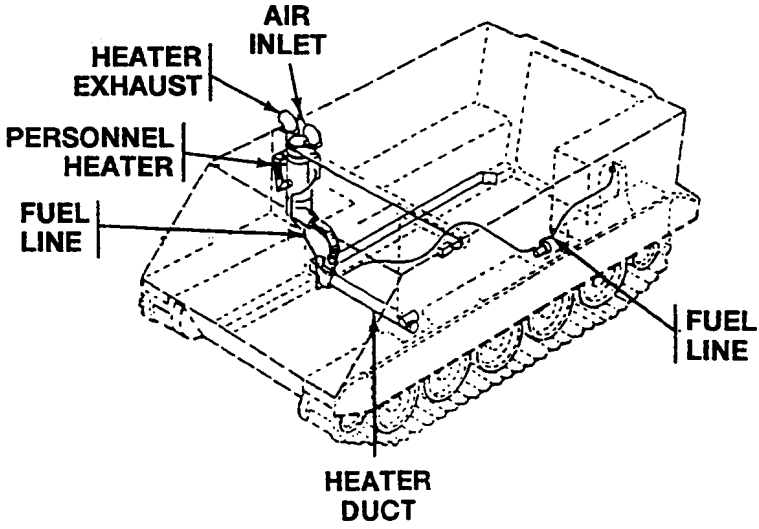
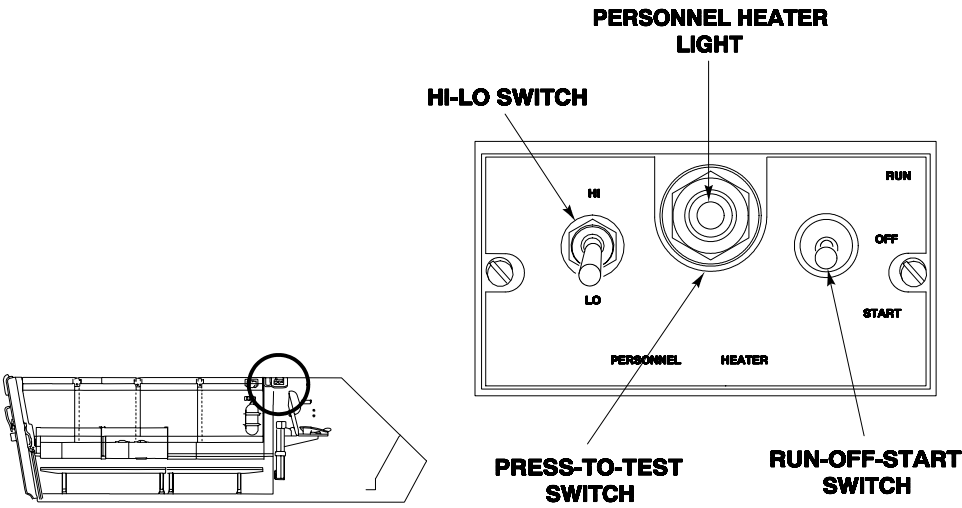



Table 4. Preventive Maintenance Checks and Services for Model M113A2 FOV, During

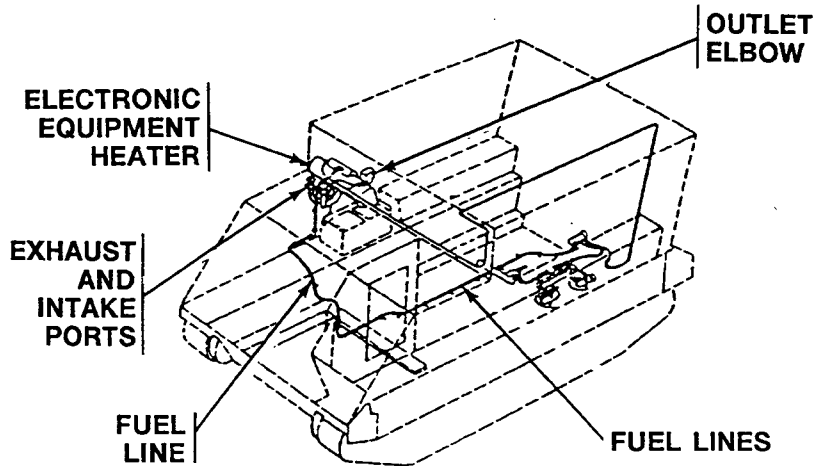
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
24	During		Controls and Indicators	<p>COMMANDER</p> <p>a. Monitor all gauges and warning lights during operation.</p>	Warning light or any gauge indicates a system problem.
25	During		Seatbelts	<p>COMMANDER</p> <p>a. Ensure all personnel are buckled in their seats. Personnel sitting in open hatch area must not expose more than head and shoulders to name tag level, except when firing weapons.</p>	Personnel sitting in open hatch area must not expose more than head and shoulders to name tag level, except when firing weapons.
26	During		RPM Gauge	<p>COMMANDER</p> <p style="text-align: center;">NOTE</p> <p>During long engine idling periods, the engine coolant temperature will fall below normal operating range.</p> <p>a. Monitor gauge during prolonged engine idle and maintain 1000 RPM.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
27	During		Personnel Heater	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>Item checked only if heater is to be used during operation and vehicle is being used as an ambulance.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Ammunition can explode and kill you. Do not start heater until ammunition and combustible/explosive materials are properly stored at least 30 inches from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of heater.</p> <p style="text-align: center;">NOTE</p> <p>During long idling periods, the engine coolant temperature will fall below normal operating temperature.</p> <p>a. Check personnel heater fuel lines for leaks, especially near connections. If any fuel leak is found, notify unit maintenance of leaks immediately after operation.</p>	<p>Any fuel leaks in fuel lines.</p>

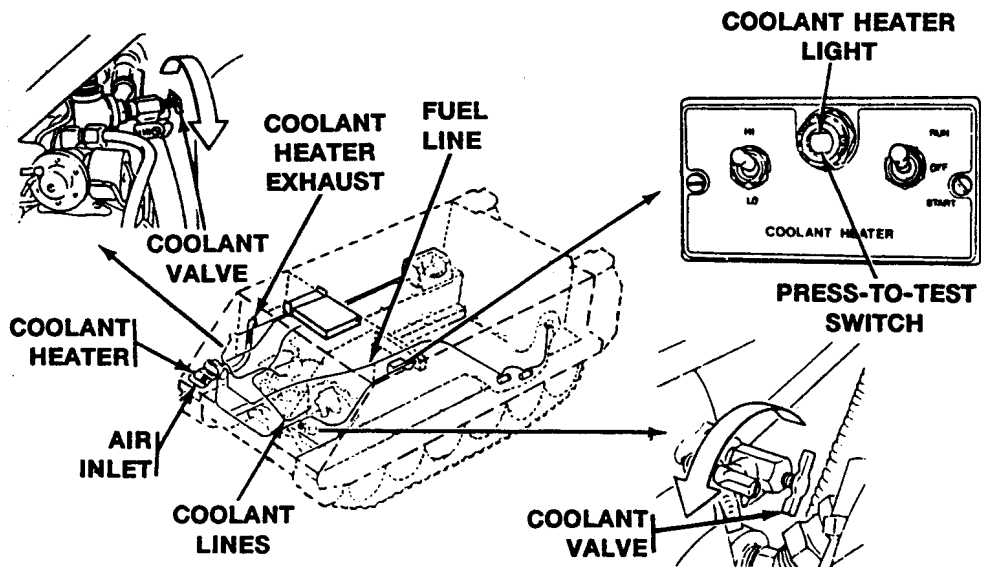
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Do not use heater during operation. Injury to personnel may occur.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Make sure nothing is blocking the personnel heater exhaust, air inlet, or heater ducts.</p> <div style="text-align: center;">  </div> <p>b. Check operation of personnel heater electrical circuits.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>On the majority of the heater control boxes, the control light comes on dimmed during the start cycle of the heater. When heater starts the light goes to full brightness.</p> <p>c. Push the PRESS-TO-TEST light cover. Make sure indicator light comes ON before you start heater. Make sure HI-LO switch is on before you start heater.</p> <div style="text-align: center;">  <p>The diagram shows a rectangular control panel for a personnel heater. On the left is a 'HI-LO SWITCH' with 'HI' and 'LO' positions. In the center is a large circular 'PERSONNEL HEATER LIGHT'. On the right is a 'RUN-OFF-START SWITCH' with 'RUN', 'OFF', and 'START' positions. Below the panel, a 'PRESS-TO-TEST SWITCH' is indicated. An inset diagram on the left shows a seat with the control panel mounted on it, circled in black.</p> </div>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
28	During		Personnel Heater (Electronic Equipment Heater M577A2)	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Do not operate personnel heater if any fuel leak is found in heater or in fuel lines.</p> <ol style="list-style-type: none"> a. Check operation of electronic equipment heater. b. Check exhaust and intake ports for blockage. c. Check air outlet elbow for blockage. d. Check for leaks in fuel lines. 	Any Class III fuel leaks.



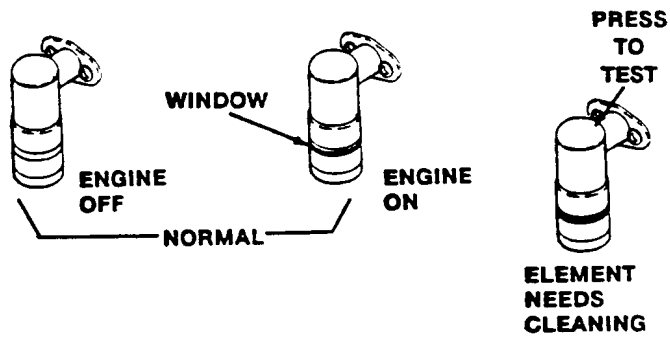
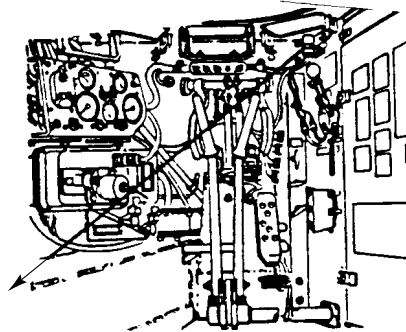
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
29	During		Coolant Heater	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>Item checked only if heater is to be used during operation.</p> <ol style="list-style-type: none"> a. Check for leaks in fuel lines and coolant lines. Make sure coolant valves are open before you start heater. b. Push the PRESS-TO-TEST light cover. Make sure indicator light comes ON before you start heater. Make sure nothing is blocking coolant heater exhaust or air inlet. c. Check operation of coolant heater electrical circuits. 	Any fuel or coolant leak.





PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
30	During		Air Cleaner Indicator	<p>DRIVER</p> <ol style="list-style-type: none"> Check air cleaner restriction indicator. Watch air cleaner window. Any time sleeve is locked up so you can see only red in window, clean air cleaner element. When element is clean, press rubber dome to reset air cleaner restriction indicator. Check hose at back of indicator and air cleaner. If hose is loose, damaged, broken, or missing, notify unit maintenance. 	<p>Air remains restricted after resetting.</p> <p>Hose or indicator cracked or damaged.</p>



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
31	During		Steering, Braking, Shifting, and Throttle Controls	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Sudden carrier movement can throw you out of seat. Wear seat belt while carrier is in motion. Do not use any seat with missing or inoperative seat belt.</p> <ul style="list-style-type: none"> a. Check steering levers, pivot steer levers, range selector, hand throttle and accelerator. b. Operate steering levers, pivot steer levers, range selector (in all ranges), hand throttle, and accelerator pedal. 	Binding, grabbing, unusual noise or vibration is felt during operation of any of these items.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
32	During		M157A2 Smoke Generator System (M1059 only)	<p>GENERATOR OPERATOR</p> <p style="text-align: center;">WARNING</p>  <p>All personnel within 75 feet (22.9 meters) of M1059 during operation must wear personnel hearing devices to prevent hearing damage. Contamination is likely, and loss of hearing could occur. Personnel inside carrier in motion, with smoke generator in operation, must wear double hearing protection. Limit exposure of high noise levels to six hours to prevent hearing damage. Use of yellow/white foam ear plugs is prohibited for personnel operating M1059 carrier.</p> <p>a. For PMCS procedures, see TM 3-1040-283-10.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of smoke generator TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
33	During		Mortar Carrier Tube Assembly (M1064 only)	<p>GUNNER</p> <p>a. See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm mortar.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of mortar TM.</p>
34	During		4.2 KW Generator Set (M577A2 and M1068)	<p>CREWMEMBER</p> <p>a. See TM 5-6115-596-14 for PMCS procedures.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of generator TM.</p>
34	During		5.0 KW Auxiliary Power Unit (APU) (M577A2 and M1068)	<p>CREWMEMBER</p> <p>a. See TM 9-6115-664-13&P for PMCS procedures.</p>	<p>Fault listed in "Equipment Not Ready/ Available If:" column of APU TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
35	During		Carrier Communications Equipment	<p>COMMANDER</p> <p>a. Check radio equipment for proper operation. See TM 11-5820-498-12, TM 11-5820-401-10-1, TM 11-5820-401-10-2, and/or TM 11-5820-890-10-8 as needed.</p> <p style="text-align: center;">NOTE</p> <p>M577A2 and M1068 carriers may be equipped with the Vehicle Intercommunication System (VIS). See TM 11-5830-263-12 for proper operation.</p> <p>b. Check intercom controls for proper operation.</p>	<p>Radios do not transmit or receive.</p> <p>No intercom between commander and driver.</p>


Table 5. Preventive Maintenance Checks and Services for Model M113A2 FOV, After

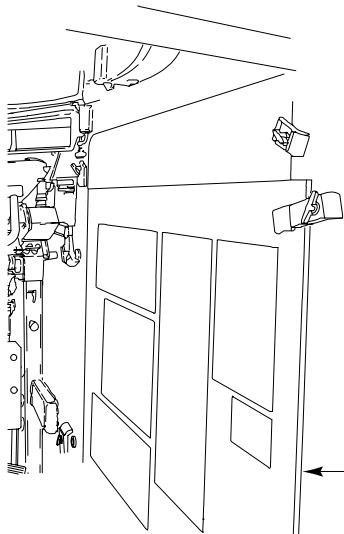
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
36	After		Neutral Start Switch	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>“After” PREVENTIVE MAINTENANCE begins the moment the carrier engine shuts off after mission mode is completed.</p> <p>a. Check for proper operation of neutral start switch. Engine should only start with range selector in N range.</p> <p>b. Check range selector mounting screws. If screws are loose or missing, report it to unit maintenance.</p>	<p>Switch missing. Engine can be started in any forward or reverse range.</p> <p>Mounting screws loose or missing.</p>
37	After		Engine Shutdown	<p>DRIVER</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Hot parts can burn you. Let hot parts cool before you start work.</p> <p>a. Stop engine (WP 0029 00).</p> <p>b. Check engine for proper shutdown.</p> <p>1) Pull out hand throttle and run engine at 800 to 1000 RPM until normal idle temperature of 160° to 185°F (71° to 85°C) is reached as indicated by temperature gauge.</p>	<p>Engine won't shut down.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

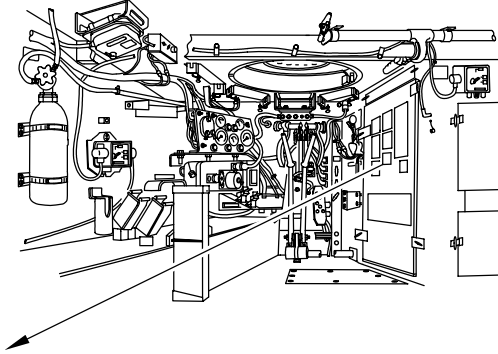
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>2) Push throttle handle in and let engine idle for a few seconds, then pull the fuel cutoff control out to shut engine off.</p> <p>3) Turn MASTER SWITCH to OFF.</p> <p>c. Check fuel shut-off cable for any binding, grabbing, or looseness that would prevent engine from being shut down. Notify unit maintenance if engine will not shut down.</p> <div style="text-align: center;"> </div>	<p>Fuel shut-off cable unserviceable.</p>

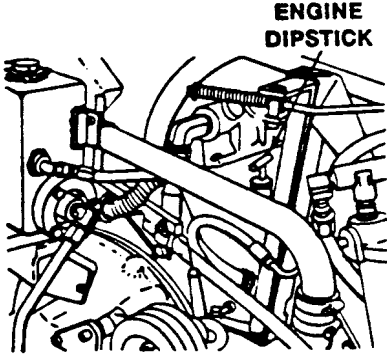
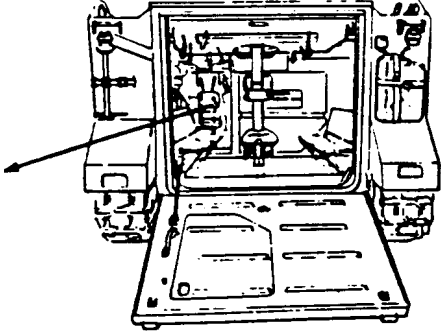

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
38	After		Driver's Power Plant Compartment	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Carbon monoxide gas is deadly poison. Make sure operator's power plant access panel is closed tightly.</p> <p>a. Remove driver's power plant access panel and check for signs of leaks in fuel lines, coolant hoses, oil lines, and air intake ducts. Report Class I and II fluid leaks after operation.</p>	Any Class III oil or coolant leak or any fuel leak. Any holes or tears in flexible ducts.



← ACCESS PANEL



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
39	After	0.3	Engine Oil Level	<p>DRIVER</p> <p style="text-align: center;">CAUTION</p> <p>Engine can be damaged if filled above F (Full) mark. Do not add oil unless below Low mark. Do NOT mix OE/HDO-15/W40 with single grade lubricants.</p> <p style="text-align: center;">NOTE</p> <p>Carrier must be on level surface when checking oil level.</p> <p style="text-align: center;">NOTE</p> <p>Visual inspection of engine oil should not be justification to replace oil. Diesel engine oil may appear black due to additives. Notify unit maintenance to change oil and oil filters when converting from OE/HDO to OEA, PE-30-1 to OE/HDO, etc.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
40	After	0.2	Transmission Oil Level (Hot Check)	<p>a. Check engine oil level. Oil level on engine dipstick should be between L (Low) and F (Full) marks. Add oil as needed. Do not overfill. Oil level should not be above F (Full) mark (Table 2, page 0075 00-8). Tighten cap on dipstick after oil check.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Failure to lock the steering levers and block the road wheel can allow the carrier to move and may result in injury or death. Make sure carrier is on level surface and steering levers are locked to the rear.</p> <p>a. Park carrier on level surface and lock steering levers to the rear.</p> <p>b. Check transmission oil level while engine is running at normal operating temperature of 160° to 230°F (71° to 110°C).</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<div> </div> <p>TRANSMISSION DIPSTICK AND OIL FILL</p> <ul style="list-style-type: none"> <li>c. Shift range selector to 2-3 range. Run engine at 1000 RPM for 3 to 5 minutes. <li>d. Reduce engine speed to idle (650 to 700 RPM). Shift range selector through all ranges. <li>e. Shift range selector to N range. Set hand throttle to run engine at 1500 RPM. 	

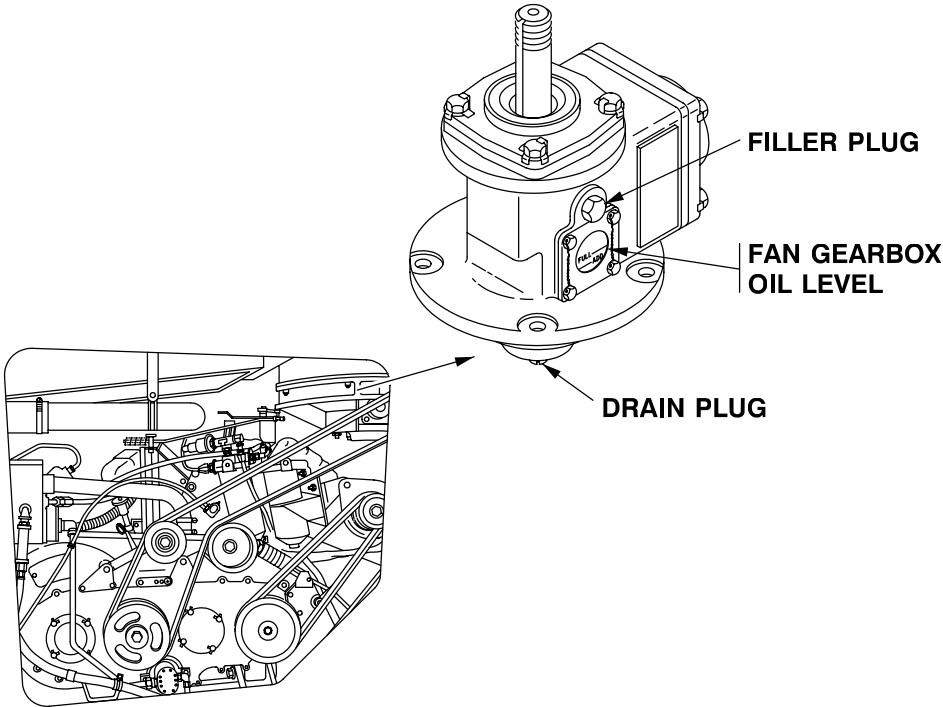
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued


0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
41	After		Transfer Gearcase Oil Level	<p>DRIVER</p> <p style="text-align: center;"><u>CAUTION</u></p> <p style="text-align: center;">Do not add oil unless below ADD mark.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Carrier must be on level surface when checking oil.</p> <p>a. Remove gauge rod and check oil level. Level should be between FULL and ADD marks on gauge rod. Add oil as needed.</p>	Any sign of Class II or III leaks.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

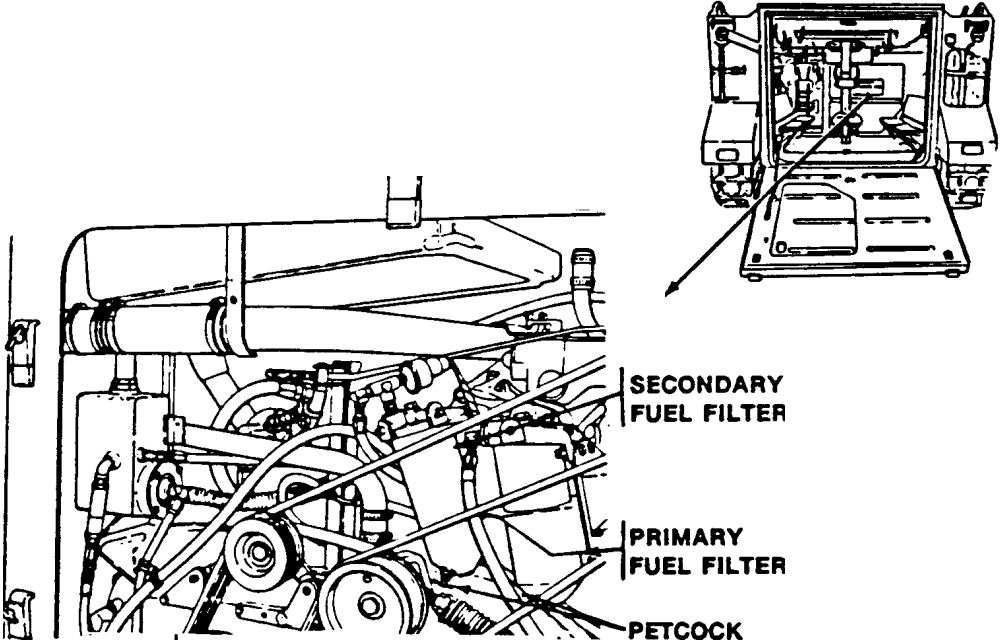
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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
42	After	0.3	Fan Gearbox Oil Level	<p>DRIVER</p> <p>a. Check oil level in sight glass of fan gearbox. Oil level must be center of sight glass. Add oil as needed (Table 2, page 0075 00-8).</p> <div style="text-align: center;">  </div>	

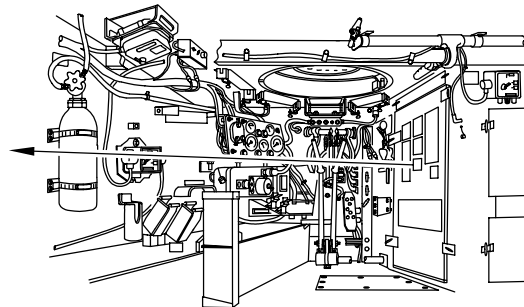
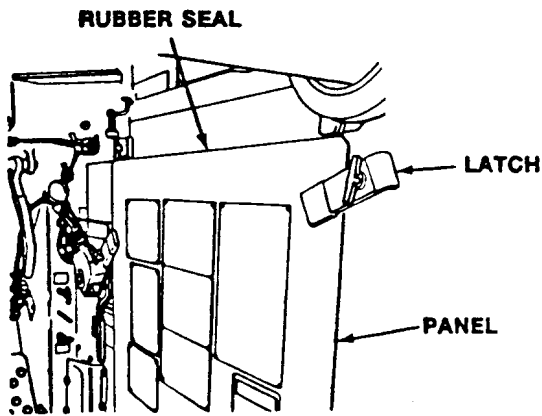
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
43	After	0.3	Fuel Filter	<p>DRIVER</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Fuel is flammable. Always use in area with good air flow, away from heat or flames. Do not breathe fumes. If fuel gets on hands, wash them. If fuel gets in eyes, flush with water and get medical help. Keep fire extinguisher nearby.</p> <ol style="list-style-type: none"> a. Drain water and sediment from engine primary and secondary fuel filters as follows: <ol style="list-style-type: none"> 1) Place suitable container under primary fuel filter. Open drain cock to drain water and sediment from primary fuel filter. When clean fuel starts to drain out, close drain cock. 2) Repeat step above for secondary fuel filter. If sediment or water is found when draining secondary fuel filter, notify unit maintenance. b. Check for fuel leaks at primary and secondary fuel filters while engine is running. If leak is found, notify unit maintenance. 	Any fuel leak.


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

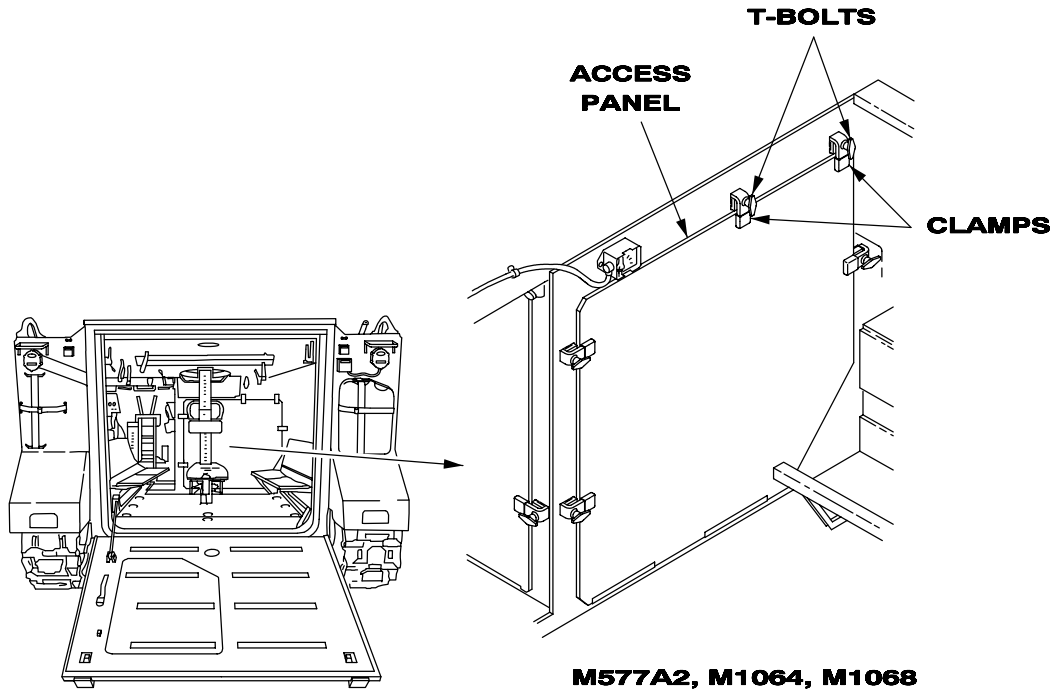
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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			 <p>SECONDARY FUEL FILTER</p> <p>PRIMARY FUEL FILTER</p> <p>PETCOCK</p>		

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
44	After		Driver's Power Plant Access Panel	<p>DRIVER</p> <p style="text-align: center;">CAUTION</p> <p>Unsealed or missing panels may cause coolant system to overheat because air does not flow through the radiator but instead will flow through unsealed or missing panels. Damage to the power train components due to overheating may occur.</p> <ol style="list-style-type: none"> a. Check driver's power plant access panel to make sure it seals tightly. b. Check panel for damage or warps. c. Check panel latches for looseness. Tighten loose latches. Report missing latches to unit maintenance. d. Check rubber seals for breaks, brittleness, cracks, or poor seating. 	

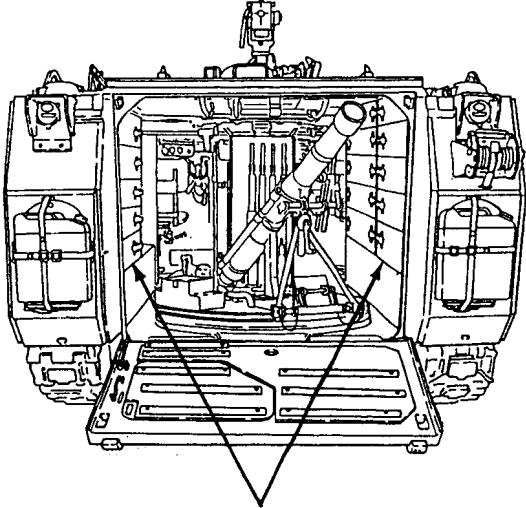


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
45	After		Rear Power Plant Compartment	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Carbon monoxide gas is deadly poison. Make sure rear power plant access panel is closed tightly.</p> <p>a. Remove rear power plant access panel and check for signs of leaks in fuel lines, coolant hoses, oil lines, and air intake ducts. Report Class I and II fluid leaks after operation.</p>	Any Class III oil or coolant leaks, holes, or tears in flexible ducts. Any fuel leak.





PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

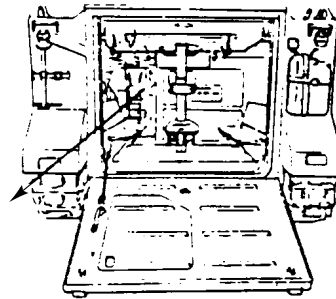
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
46	After		Crew Compartment (M1064 only)	<p>GUNNER</p> <p>a. Check ammo storage racks, door, post, and hinges for damage. Report damaged or missing parts to unit maintenance.</p> <div style="text-align: center;">  <p>AMMO STORAGE RACKS</p> </div>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
47	After	0.2	Carrier Ramp	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.</p> <p>a. Lower ramp.</p> <p style="text-align: center;">WARNING</p>  <p>Fire resistant hydraulic fluid (FRH) may contain Tricresyl Phosphate which, if taken internally, can produce paralysis. Hydraulic fluid may be absorbed through the skin. Wear long sleeves, gloves, goggles, and face shield. IF FRH gets in eyes, wash them immediately and get medical aid immediately. If FRH gets on skin, thoroughly wash with soap and water. Wash hands thoroughly prior to eating or smoking.</p> <p>For artificial respiration and first aid, see FM 4-25.11.</p>	Ramp will not lower or raise.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">CAUTION</p> <p>Use only FRH hydraulic fluid. Do not mix different types of fluid. Do NOT overfill.</p> <p>b. Check ramp hydraulic fluid level with ramp down and carrier on level ground. Fluid level must be visible halfway up in ramp hydraulic fluid level sight glass. To add FRH, remove fill plug and preformed packing from top of tank. Add FRH as needed (Table 2, page 0075 00-8). Install fill plug with new preformed packing.</p>	<p>Fluid is not visible half-way up in sight glass. Breather cap is missing.</p>

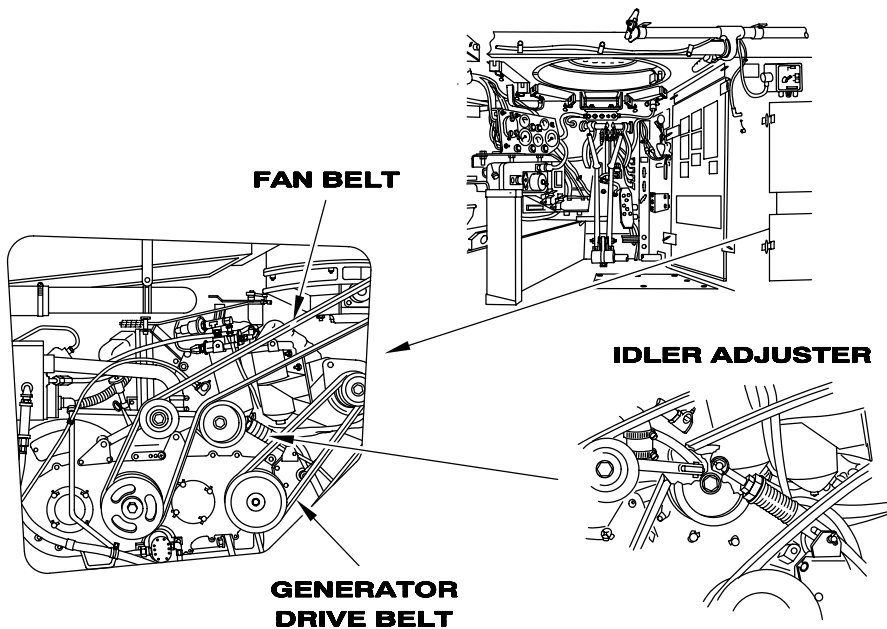


RAMP
HYDRAULIC
FLUID
SIGHT
GLASS

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
48	After		Drive Belts	<p>COMMANDER</p> <ol style="list-style-type: none"> a. Check generator, coolant pump, and coolant fan drive belts for looseness, wear, damage, dry rot, excessive fraying, and cracks. b. Check generator and fan belts for 1/2 inch to 5/8 inch adjustment. c. Check idler adjuster for proper adjustment (between operating range marks). If idler is not in operating range and coolant fan drive belt has more than 1/2 inch deflection between pulleys, notify unit maintenance. 	<p>Any drive belt missing, broken, cracks to the belt fiber, has more than one crack (1/8 inch in depth or 50% of belt thickness), or has frays more than 2 inches long.</p> <p>Fan assembly grinding or squeaking. Loose or missing idler adjuster and/or hardware.</p>



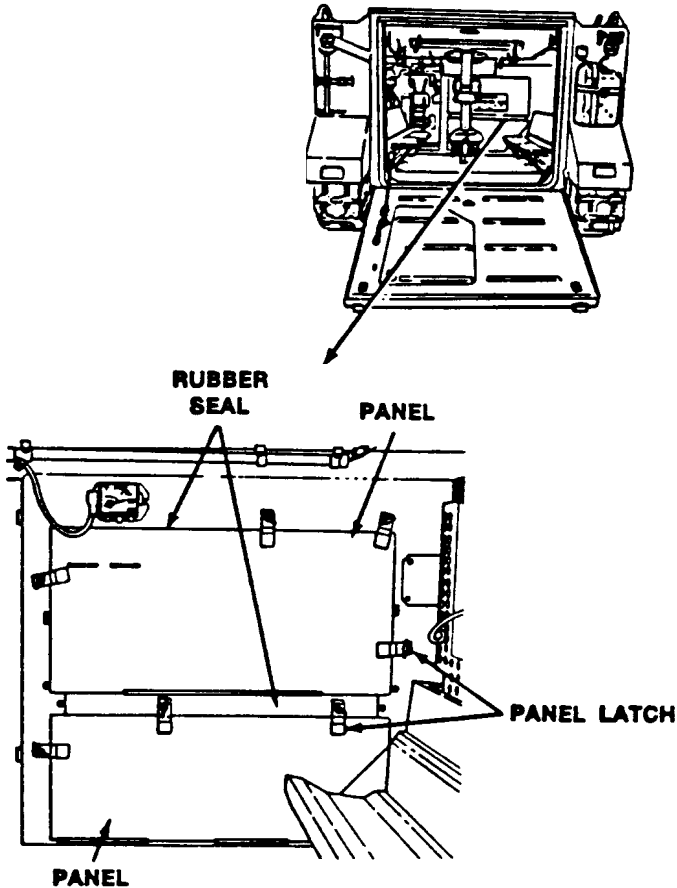
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
49	After		Rear Power Plant Access Panel	<p>DRIVER</p> <p style="text-align: center;"><u>CAUTION</u></p> <p>Make sure rear power plant access panel is closed tightly before continuing your PMCS or operating carrier.</p> <ol style="list-style-type: none"> a. Check rear compartment access panel for good sealing. b. Check panel for damage or warps. c. Check panel latches for looseness. Tighten loose latches. Report missing latches to unit maintenance. d. Check rubber seals for breaks, brittleness, cracks, or poor seating. 	Latch is missing or will not tighten.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:		
			 <p>The diagram consists of two parts. The upper part is a perspective view of the vehicle's interior floor area, showing the location of a rectangular equipment panel. An arrow points from this panel to a larger, detailed technical drawing below. This detailed drawing shows the panel's frame and components. Labels with arrows point to the 'RUBBER SEAL' along the top edge, the 'PANEL' itself, and the 'PANEL LATCH' mechanism on the right side. A hatched area at the bottom of the panel indicates a specific material or finish.</p>				

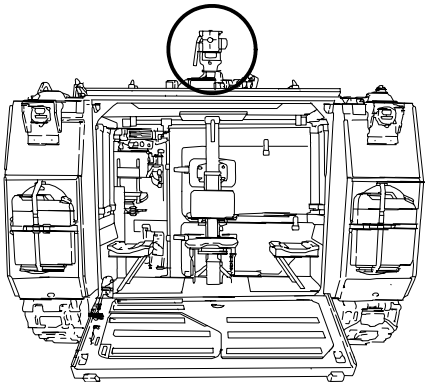
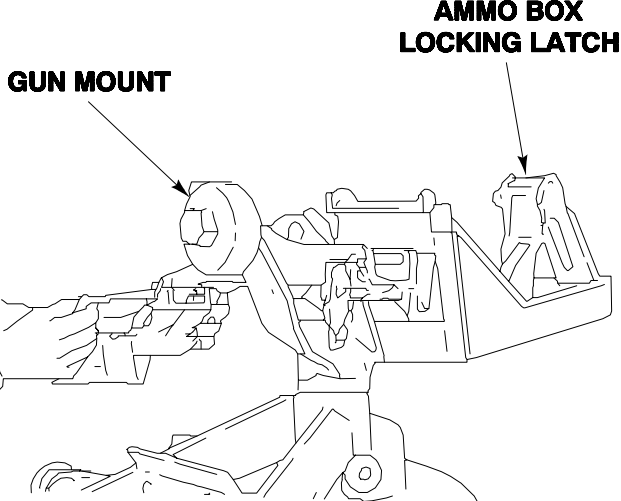
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

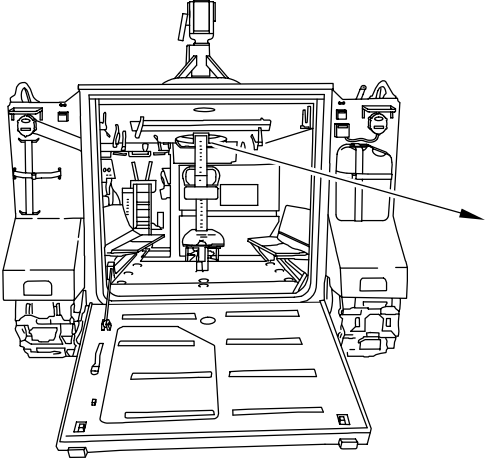
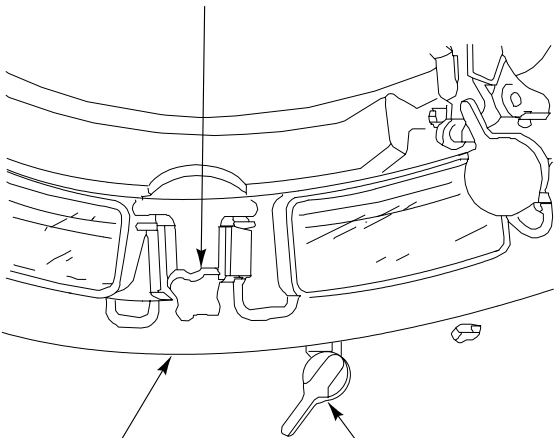
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
50	After		50 Cal. Machine Gun and Mount (M113A2, M1059, and M1064)	<p>COMMANDER</p> <p style="text-align: center;">NOTE</p> <p>Make sure machine gun is clear and locked and barrel is free of obstructions.</p> <p>a. Perform PMCS per machine gun manual TM 9-1005-213-10.</p>	<p>Fault listed in "Not Fully Mission Capable If" column of machine gun TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

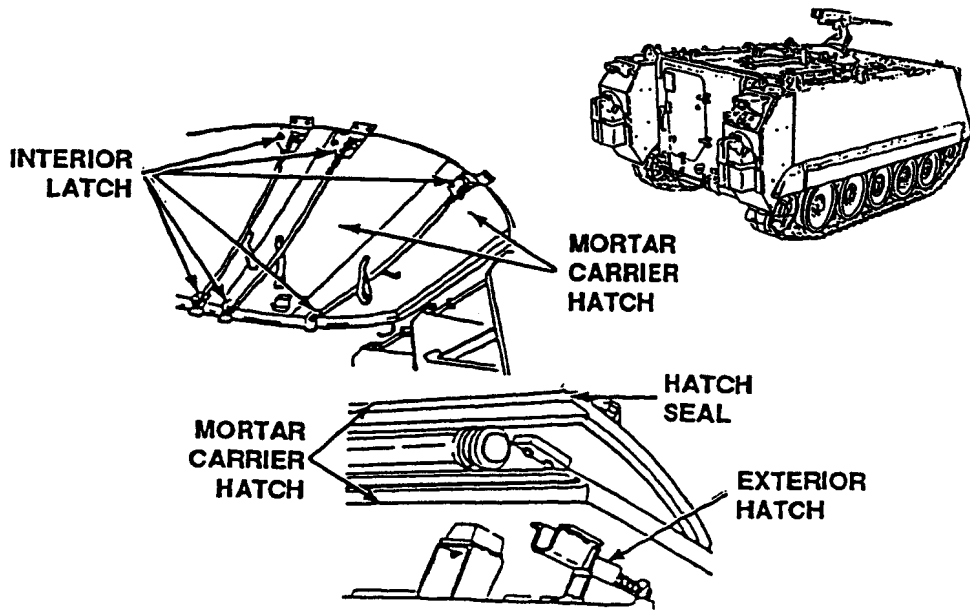
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
51	After		Machine Gun Mount 50 Cal, M2 (M113A2, M1059, and M1064)	<p>COMMANDER</p> <p>a. Check gun mount for missing pins. Check for tightness of all fasteners and operating parts. Operate ammo box locking latch. When locked, ammo box must be sturdy and secure.</p>	Damaged, binding, or missing parts or pin.
<div style="display: flex; justify-content: space-around; align-items: center;">   </div>					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
52	After		Commander's Cupola (M113A2, M1059, and M1064)	<p>COMMANDER</p> <ol style="list-style-type: none"> a. Check that cupola lock locks movement of the cupola. Release lock and test cupola for ease of movement (WP 0013 00). b. Check operation of drag brake (WP 0013 00). Report damaged lock or drag brake to unit maintenance. 	
<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <p>DRAG BRAKE</p>  <p>CUPOLA AZIMUTH LOCK</p> </div> </div>					

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

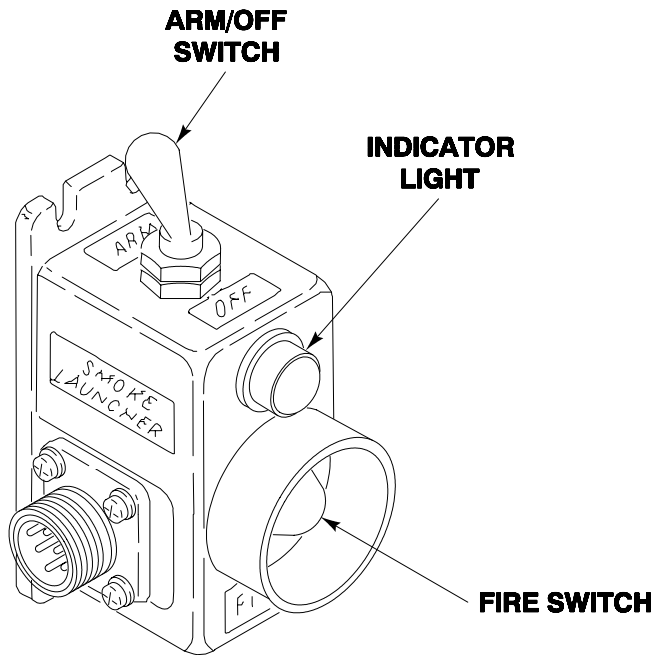
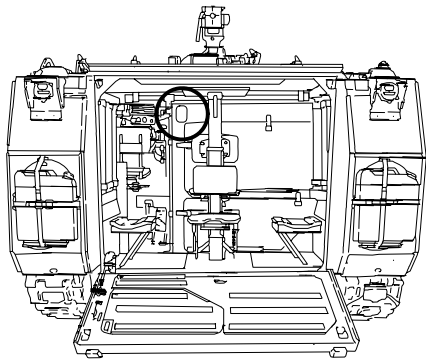
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
53	After		Hatches (M1064 only)	<p>GUNNER</p> <ul style="list-style-type: none"> a. Check mortar carrier latches. b. Check operation of exterior catches on all hatches. Check interior latches. c. Check hatch seals for breaks, brittleness, cracks, and poor sealing. Report any damaged hatch, seal, catches, or missing or inoperable locking pins to unit maintenance. 	Latches on any hatch that do not hold the latch in open or closed position. Any hatch locking pins missing or inoperable.



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
54	After		Smoke Grenade Launcher (M113 and M1059)	<p>COMMANDER</p> <ol style="list-style-type: none"> a. Indicator light comes on when ARM/OFF switch is set to on. b. Check electrical connector to launcher control for bent pins, frayed wires, tears, or any damage rendering the cable unserviceable. 	

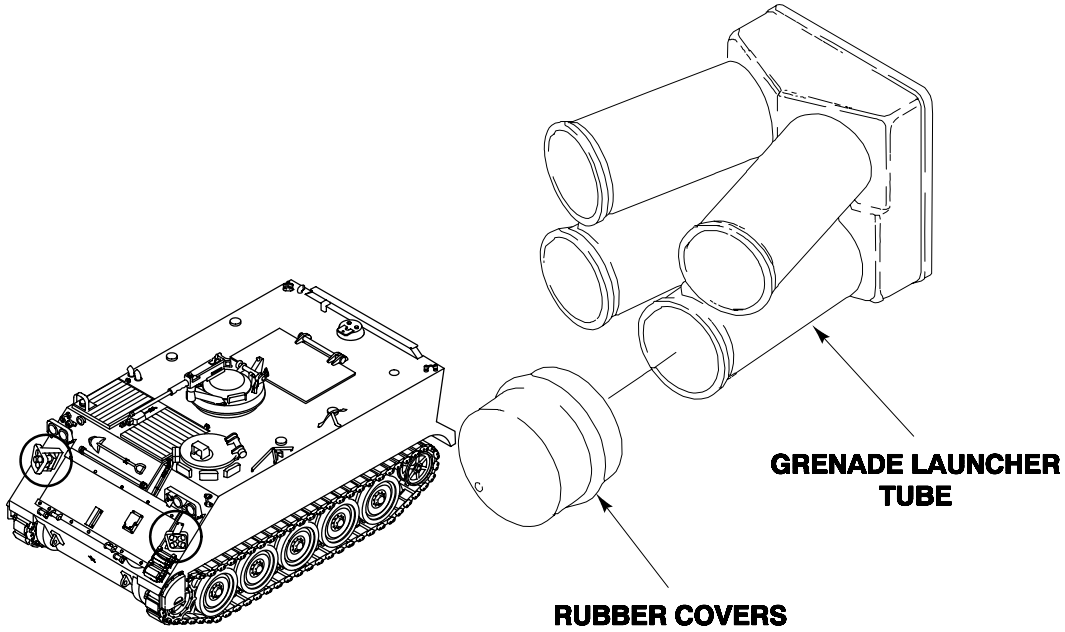


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

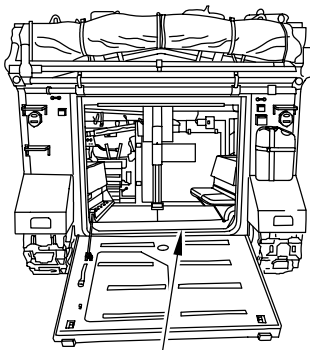
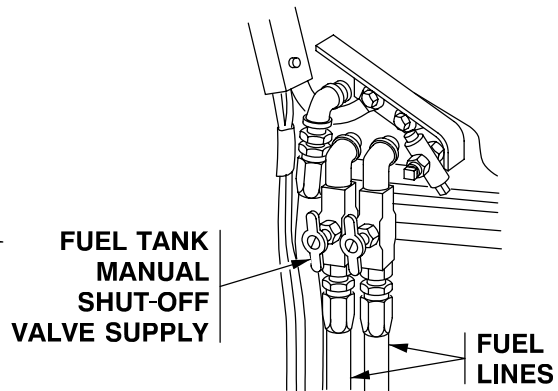
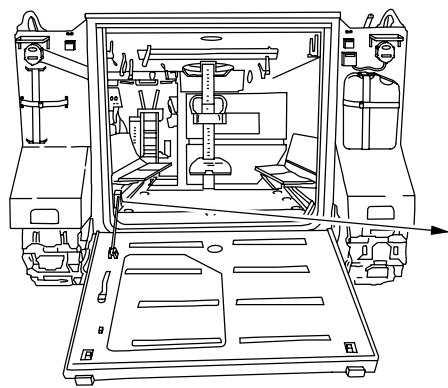
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">CAUTION</p> <p>Do not use wire brush to clean launcher tubes. Brush may cause damage to tubes.</p> <p>c. Clean smoke grenade launcher tubes.</p> <ol style="list-style-type: none"> 1) During continued firing, clean tubes with cleaning compound (WP 0096 00, Item 3). Do not wipe dry or lubricate. 2) Clean debris from barrel drain holes by inserting stiff wire, if necessary. 3) Be sure that no residue remains around tip plugs located at bottom center in each barrel. 4) Immediately after firing and for two consecutive days thereafter, thoroughly clean tubes with cleaning compound (WP 0096 00, Item 3). Make sure all surfaces are well coated. Do not wipe dry. 5) Three days after last firing, clean tubes with cleaning compound (WP 0096 00, Item 3). Wipe dry with clean cloth (WP 0096 00, Item 5). 	

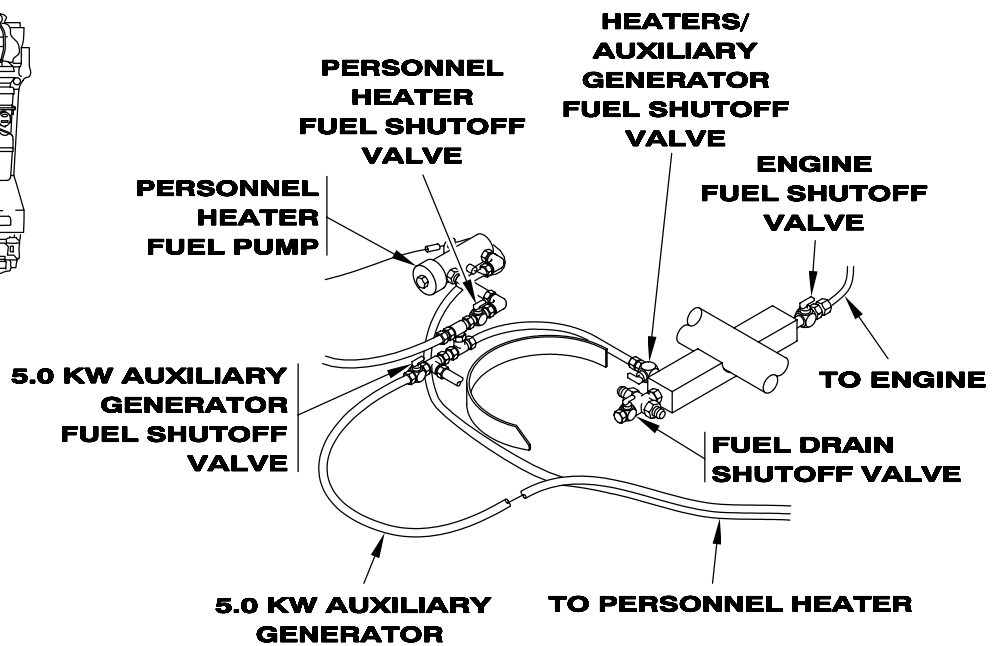
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				d. Covering Launchers. 1) After each cleaning, install rubber covers on launcher tubes.	


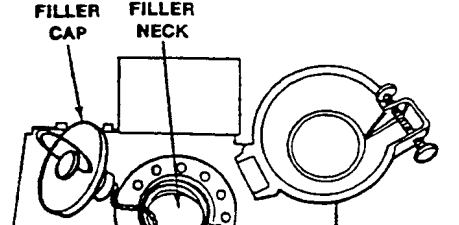
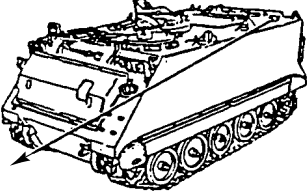


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
55	After		Fuel Lines (M577A2 and M1068 only)	<p>DRIVER</p> <p>a. Check carrier fuel lines for leaks. Report any leaks to unit maintenance.</p> <p>b. Check carrier fuel lines for leaks. Report any leaks to unit maintenance.</p>	Any fuel leak.



UNDER REAR FLOOR PLATE



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
56	After		Fuel Tank and Filler Cap	<p>DRIVER</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Make sure carrier is properly grounded before refueling. Fuel can catch fire and burn you. Wipe up spilled fuel.</p> <p style="text-align: center;">NOTE</p> <p>M577A2 and M1068 have only one fuel filler cap located on right rear hull.</p> <ol style="list-style-type: none"> a. Fill fuel tank after operation. Allow about 5 inches of space in filler neck for fuel expansion. b. Make sure filler screen is clean and in good shape. If the screen needs cleaning, do it before you fill up on fuel. Install screen before refueling. Make sure filler cap is OK and seals tightly on filler neck. <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
57	After		Front Access Power Plant Compartment	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>Make sure you check all flexible air intake ducts for damage. Do not operate carrier with any holes or tears in flexible ducts.</p> <p>a. Check inside power plant compartment for leaks and damage.</p> <p>b. Check air intake ducts and fuel lines for signs of damage and loose fittings.</p> <p>c. Check air intake ducts and fuel lines for signs of damage and loose fittings.</p>	<p>Any Class III oil or coolant leaks. Any fuel leaks.</p> <p>Any holes or tears in flexible air intake.</p> <p>Any holes or tears in flexible air intake.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

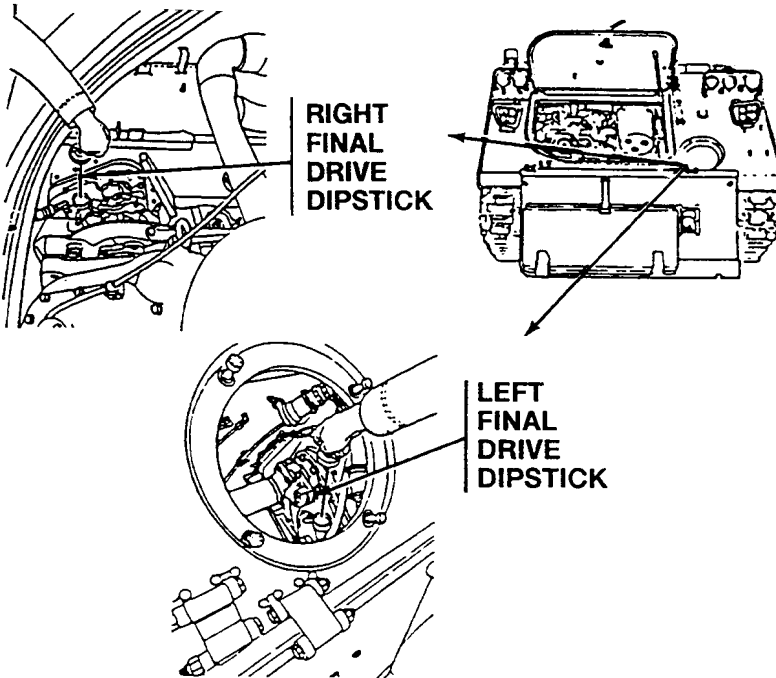
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
58	After		Final Drive Housings	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Final drive housings can heat up enough to burn you.</p> <ul style="list-style-type: none"> a. Check final drive housings for overheating. Feel each final drive housing. If it is too hot to touch, report overheating final drive housing to unit maintenance. b. Check drain plugs. 	<p>Any overheating drive housing.</p> <p>Drain plug missing.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

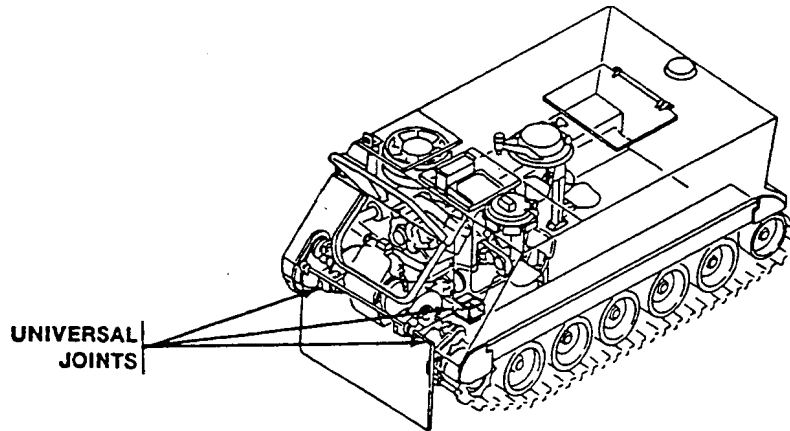
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
59	After		Final Drives Oil Level	<p>DRIVER</p> <p style="text-align: center;">NOTE</p> <p>Oil level of final drive dipstick should be between ADD and FULL. Add oil as needed. Do not overfill.</p> <p>a. Check oil level of the left and right final drives.</p>	Missing dipstick.



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

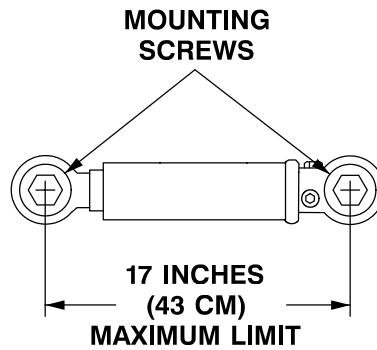
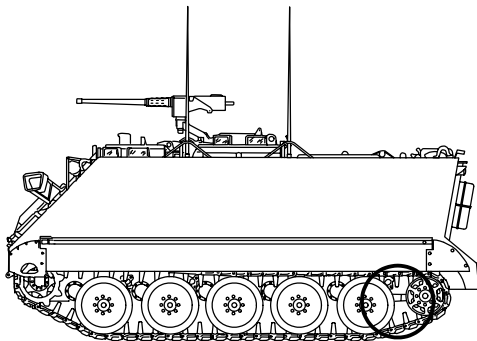
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
60	After		Propeller Shafts, Universal Joints	<p>DRIVER</p> <p>a. Check propeller shafts, universal joints, mating coupling, and yokes for loose or missing mounting hardware, corrosion, and evidence of wear/damage.</p>	Any damaged, loose, or missing mounting hardware or parts.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
61	After		Differential Oil Level	<p>DRIVER</p> <p style="text-align: center;">CAUTION</p> <p>Make sure differential is closed after level inspection.</p> <p style="text-align: center;">NOTE</p> <p>If engine has been running, wait 10 or 15 minutes after stopping engine before checking differential oil level. Oil level on old style dipstick should be between ADD and FULL. Oil level on new dipstick should be in the SAFE RANGE.</p> <p>a. Check differential oil level. Add oil as needed. Do not overfill. Oil level between ADD and FULL or in SAFE RANGE is OK.</p> <div style="text-align: center;"> </div>	

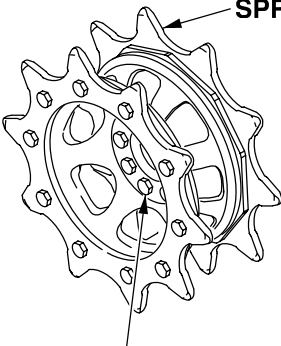
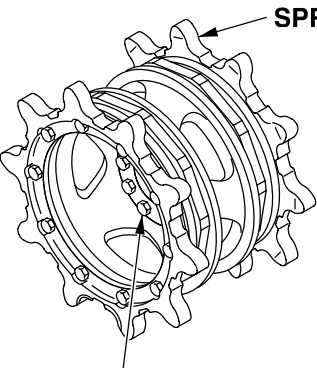
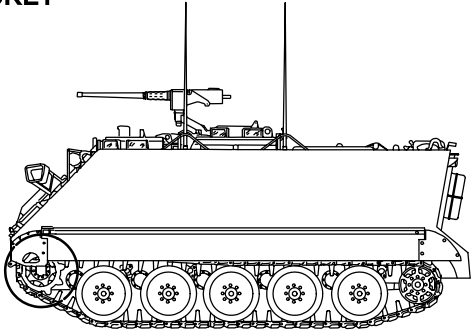
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
62	After		Track Tension	<p>DRIVER</p> <p>a. Check for missing or damaged track adjusters.</p> <p style="text-align: center;">CAUTION</p> <p>Track adjuster extended too far may buckle and become damaged during operation. Do not extend track adjuster beyond 17 inches (maximum), as measured between centers of track adjuster and mounting screws. Adjust track after vehicle has been unloaded of equipment.</p> <p style="text-align: center;">NOTE</p> <p>For T130 track, use track pin punch for measurement. If longer than punch remove track shoe.</p> <p>b. Adjust track tension as necessary (T130) (WP 0076 00) or (T150) (WP 0077 00).</p>	Track adjuster missing or unserviceable.



MEASURING TRACK ADJUSTER LIMIT

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
63	After		Sprockets and Cushions	<p>DRIVER</p> <p>a. Check sprocket carrier and sprocket for cracks, breaks, or missing teeth, and for loose or missing mounting bolts.</p> <p>b. Report cracked, broken, or missing sprocket teeth, and missing mounting bolts to unit maintenance. Tighten loose mounting bolts as needed. Mark bolts and notify unit maintenance to torque.</p>	<p>Any sprocket tooth is cracked, broken, or missing. Any sprocket to carrier mounting bolt missing. Two or more carrier to hub mounting bolts missing.</p>
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>T130 TRACK</p> </div> <div style="text-align: center;">  <p>T150 TRACK</p> </div> <div style="text-align: center;">  </div> </div>					

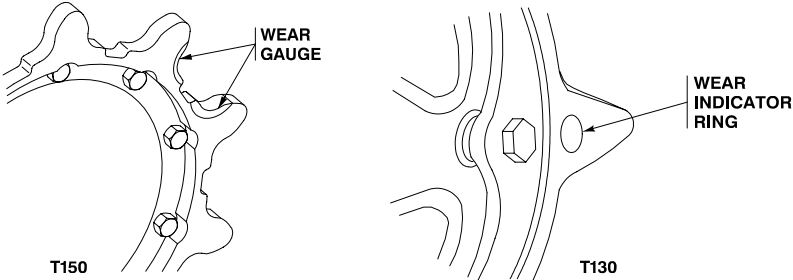
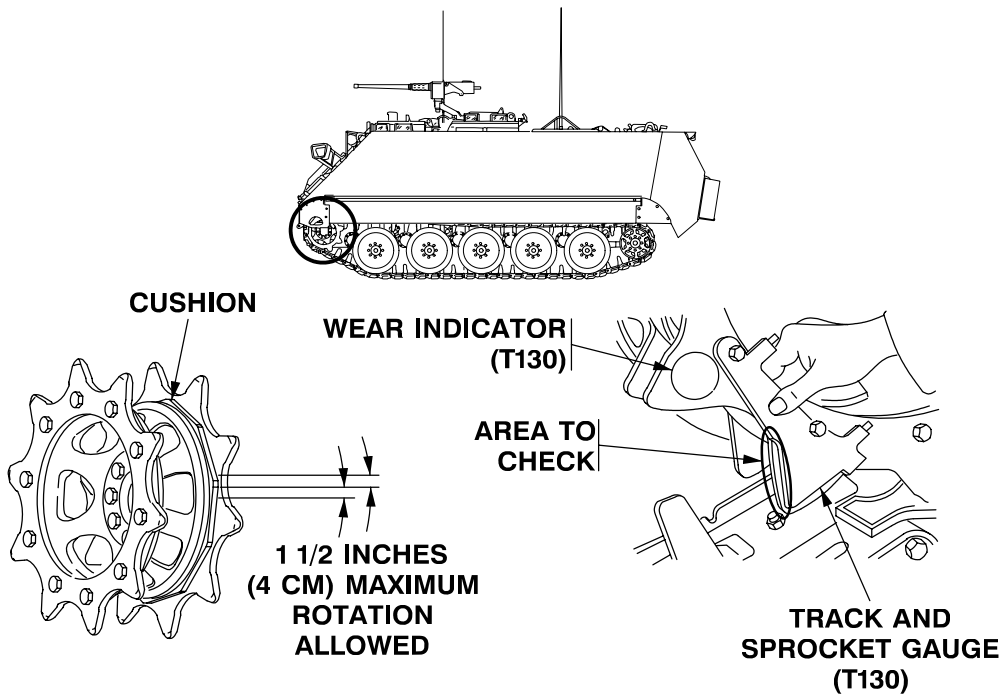
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued


0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>New style drive sprockets (T150) have a round circle for a wear indicator and do not require track and sprocket gauge to measure sprocket tooth wear. The old drive sprockets (T130) require the use of the track and sprocket gauge to measure the sprocket teeth.</p> <p>c. Check sprocket teeth for wear. Use track and sprocket gauge (WP 0094 00, Table 2, Item 22) on old style drive sprockets (T130) to measure sprocket teeth. If any of the sprocket tooth does not extend beyond gauge or wear indicator (on newer sprockets), notify unit maintenance. New style (T150) sprocket teeth have a wear gauge as a part of the sprocket. If only one side of sprocket shows wear, notify unit maintenance to reverse sprocket.</p> <p>d. For both styles (T130 or T150), check cushions for wear and damage. If cushions appear to be moving on sprocket hub, notify unit maintenance. If track shoes are contacting sprocket hub flange, a thumping sound will be heard. Cushions should be replaced. Notify unit maintenance.</p>	<p>Any sprocket tooth fails gauge test or is worn to the wear indicator.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

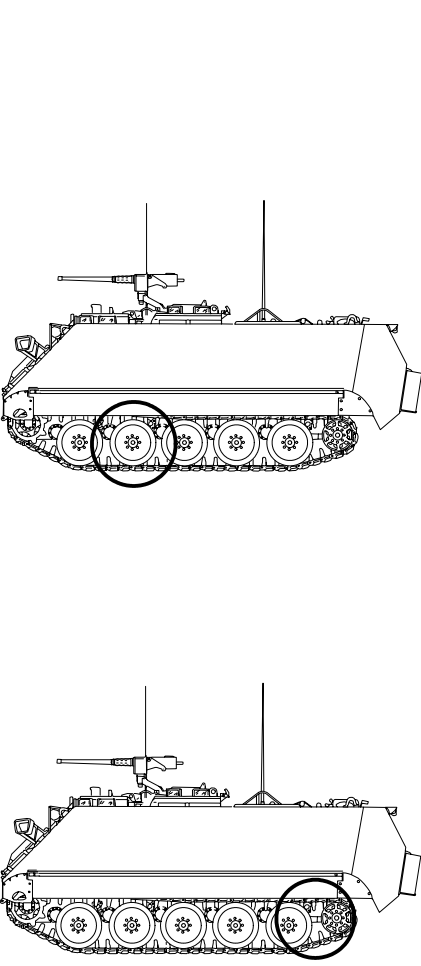
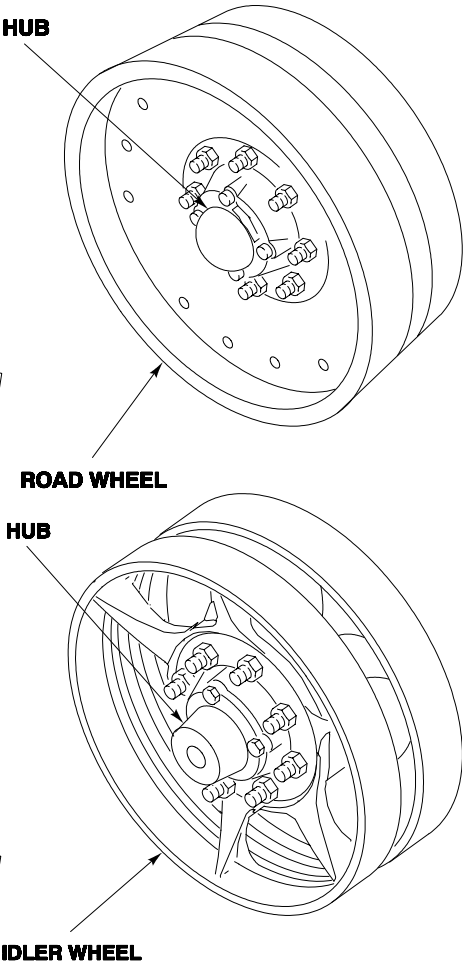
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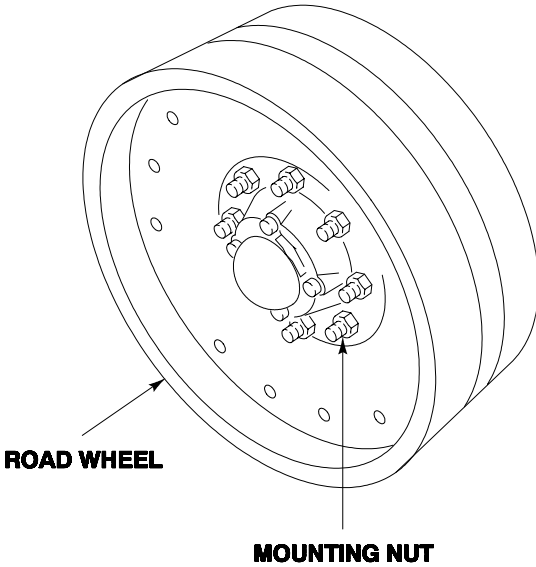
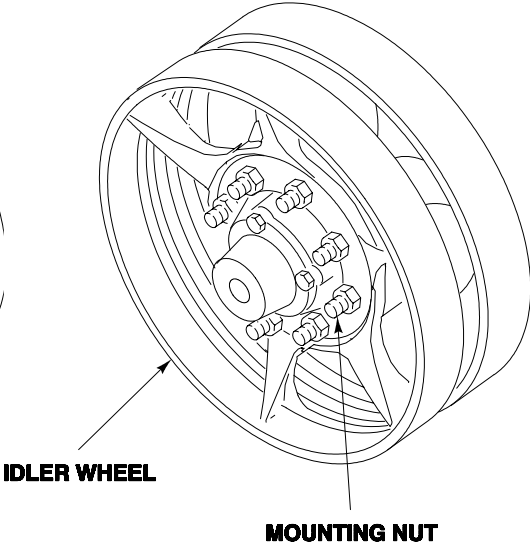
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					

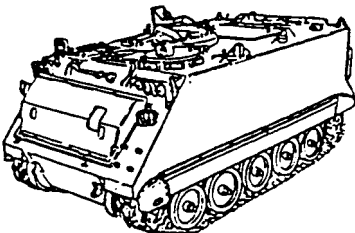
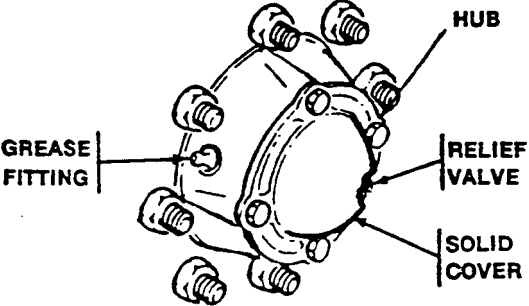
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
64	After		Roadwheels and Idler Wheels	<p>DRIVER</p> <p style="text-align: center;">WARNING</p>  <p>Roadwheel hubs and idler wheel hubs can heat up enough to burn you.</p> <ul style="list-style-type: none"> a. Check roadwheels for separation of rubber from metal. b. Check for missing, bent, or cracked roadwheels or idler wheels. 	<p>Separation of one-half of rubber contact from the wheel. Chunking across one-half width of outer rubber surface.</p> <p>Missing, bent, warped, or cracked roadwheel or idler wheel. Mounting holes elongated.</p>


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

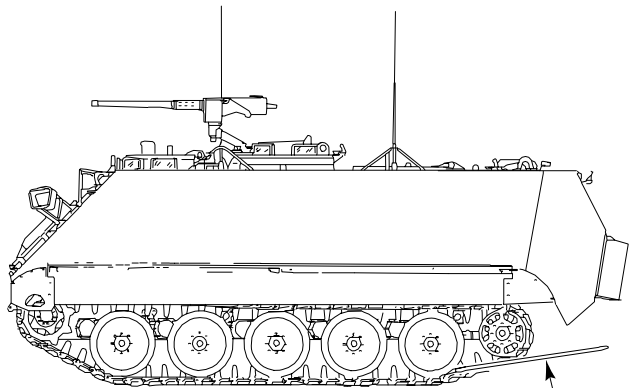
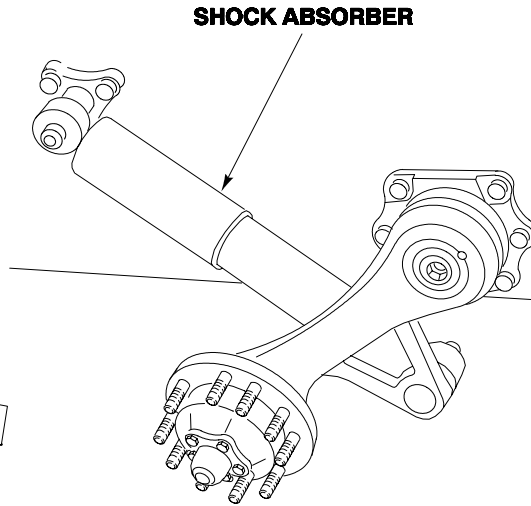
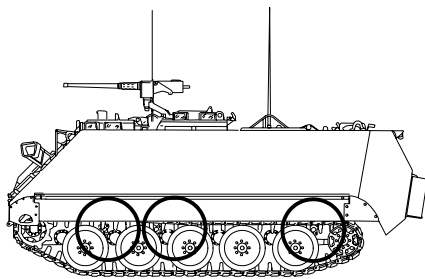
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>If a hub feels hotter than any other, or is hotter than normal, you may have a bearing that needs service.</p> <p>c. Feel roadwheel hubs and idler wheel hubs. Report any hub that feels hotter than others to unit maintenance.</p> <p>d. Check roadwheels and idler wheels for worn mounting holes by looking for a shiny area around mounting holes.</p>	<p>Any stud or nut loose or missing or holes elongated.</p>
					
				<p>e. Check roadwheel and idler wheel hubs for lubricant leakage from around outer hub cap and between rear of hub and support arm.</p>	<p>Any damaged hub or Class III leak.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">NOTE</p> <p>See if your carrier has reworked hubs or new grease filled hubs.</p> <p style="text-align: center;">NOTE</p> <p>If you see bubbles in the grease or if the grease looks milky, there is water in it. Report it to maintenance.</p> <p>f. The reworked hub will have a sight glass in the middle of the cover, a grease fitting and relief valve in the hub. Make sure glass is not broken or cracked.</p> <p style="text-align: center;">NOTE</p> <p>The new grease fitted hub will have a grease fitting, a relief valve, and a solid cover.</p> <p>g. Check this type of hub by adding grease to fitting until it comes out of pressure relief valve. Service grease filled hubs.</p>	Cracked or broken sight glass allowing a Class III leak. Any grease fitting or relief valve missing.
					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
65	After		Shock Absorbers	<p>DRIVER</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Shock absorbers can heat up enough to burn you.</p> <p style="text-align: center;">NOTE</p> <p>Small dents in shock absorber should not affect its performance. Feel all shock absorbers after use. A cold shock is defective and should be replaced.</p> <ul style="list-style-type: none"> a. Check for leaks. If shock is cold or has a Class III leak, report it to unit maintenance. b. Check shock absorbers. After a good run on rough terrain or bumpy course, shock absorbers should be warm enough so you can tell they have been operating properly. <p style="text-align: center;">CAUTION</p> <p>Do not perform water operations if roadwheel arm or shock absorber mounting bolts are loose or missing.</p> <ul style="list-style-type: none"> c. Check for missing or loose roadwheel arm or shock absorber mounting bolts. 	<p>Any shock absorber is broken or cold after operation. Any Class III leak. Any shock absorber missing.</p> <p>Any bolt loose or missing.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
66	After		Torsion Bars and Roadwheel Arms	<p>DRIVER</p> <ol style="list-style-type: none"> a. Check for bent, broken, or missing roadwheel arms and torsion bars. With crowbar, try to lift each roadwheel. If any roadwheel comes up easily, you have a broken or missing torsion bar. Report any broken or missing torsion bar to unit maintenance. 	Torsion bar or roadwheel arm is bent, broken, or missing.


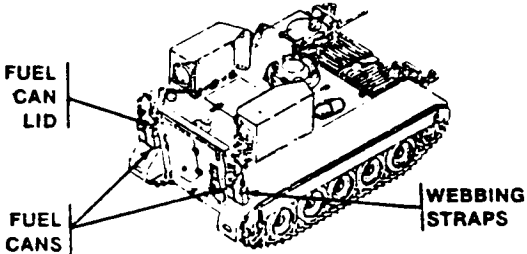


CROWBAR

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

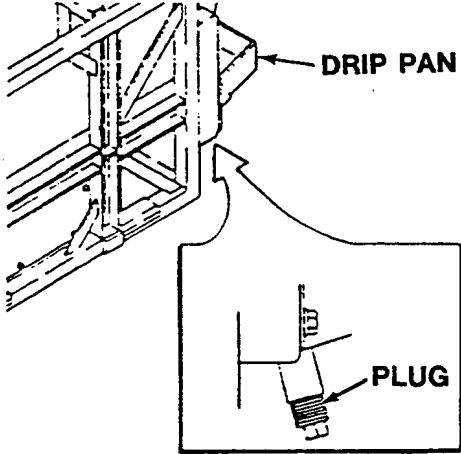
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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
67	After		Seat Belts	<p>COMMANDER</p> <p>a. Check that all seat belts operate properly and are serviceable.</p>	
68	After		Mortar Carrier (M1064 only)	<p>CREWMEMBER</p> <p>a. See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm mortar.</p>	<p>Fault listed in "Not Fully Mission Capable If:" column of mortar TM.</p>
69	After		Ammo Racks, Door, Posts, and Hinges (M1064 only)	<p>CREWMEMBER</p> <p>a. Check racks, door, posts, and hinges for cracks and breaks. Report damaged racks, hinges, doors, or posts to unit maintenance.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
70	After		Smoke Generator System (M1059 only)	<p>GENERATOR OPERATOR</p> <p>a. For PMCS procedures, see TM 3-1040-283-10.</p> <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Sparks from static electricity can cause a fire or explosion. Fuel cans should be removed before being filled. Metal nozzle must touch metal in filler neck when filling or ground wire must be attached to fuel can being filled. Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.</p> <p>b. Check generator fuel cans.</p> <p>c. Check fuel supply of fog tank and fuel cans and fill as required.</p> <p>d. Using indicator sights on fog oil tank, check fog oil level and replenish if not full.</p> <div style="text-align: center;">  </div>	<p>Fault listed in "Not Fully Mission Capable If:" column of smoke generator TM.</p>

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>e. Check strainer element and clean if required.</p> <p>f. Check fuel can lids for leaks.</p> <p>g. Check serviceability of webbing straps.</p> <p>h. Check all fuel, air, and fog oil hoses, electric cable assembly connectors, mount bolts, and clamps. Ensure they are not loose, damaged, twisted, torn, or leaking.</p> <p>i. Check for security of fuel cans to carrier.</p> <p>j. Drain waste oil from drip pan by removing and reinstalling plug.</p> 	<p>Fuel cans cannot be secured to carrier.</p> <p>Any leak of fuel, Class III oil, or air from any component of smoke generator system, or any electric wire damaged.</p>

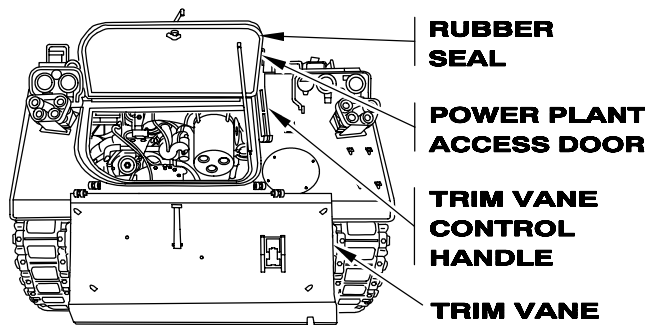
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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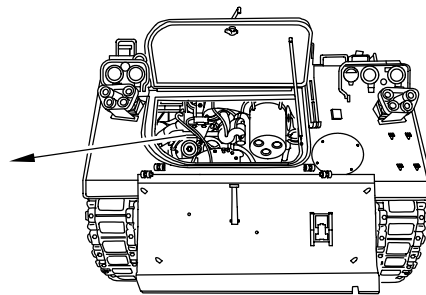
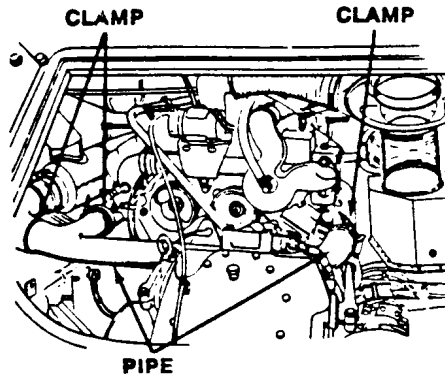
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
71	After		4.2 KW Generator System (M577A2 and M1068 only)	<p>CREWMEMBER</p> <p>a. Refer to TM 5-6115-596-14 for PMCS procedures.</p>	<p>Fault listed in "Not Fully Mission Capable If:" column of generator TM.</p>
72	After		5.0 KW Auxiliary Power Unit (APU) (M577A2 and M1068 only)	<p>CREWMEMBER</p> <p>a. Refer to TM 9-6115-664-13&P for PMCS procedures.</p>	<p>Fault listed in "Not Fully Mission Capable If:" column of APU TM.</p>


Table 6. Preventive Maintenance Checks and Services for Model M113A2 FOV, Weekly

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
73	Weekly		Power Plant Access Door and Trim Vane	<p style="text-align: center;">NOTE</p> <p>Do PREVENTIVE MAINTENANCE steps each week or before operation if you are operating the carrier for the first time. Carrier commander will direct and assist in weekly and semi-annual PMCS.</p> <ol style="list-style-type: none"> a. Check that access door, door seal, and trim vane are serviceable. b. Check rubber seal for breaks, brittleness, cracks, and poor seating. c. Check access door for watertight fit. Make sure door locks. d. Check trim vane for cracks, warps, and separation of plywood. e. Operate trim vane control handle. Make sure adjustment is right in both the stowed and open position. 	<p>Rubber seal damaged, worn, or poorly seated.</p> <p>Rubber seal damaged, worn, or poorly seated.</p> <p>Access door will not close, seal, and lock.</p> <p>Trim vane missing or not operating properly.</p>



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
74	Weekly		Engine Exhaust System	<p style="text-align: center;">NOTE</p> <p>Check for exhaust leaks only after engine reaches normal operating temperature of 160° to 230°F (71.1° to 110°C). Carrier leaks exhaust gas when cold. For this reason, carbon will be present around joints and exhaust pipe connecting clamps. This is normal. The exhaust system joints will seal after pipes heat up.</p> <p>a. Check complete exhaust system for deterioration, damage, or evidence of exhaust leakage at connection points. Look for weld failures and loose or missing hardware. Notify unit maintenance of defects.</p>	Any part missing, damaged, improperly aligned, or insecurely mounted.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
75	Weekly		Air Cleaner	<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.</p> <p>If NBC exposure is suspected, all air filter medial should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.</p> <p>Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed.</p> <p style="text-align: center;">CAUTION</p> <p>Operating carrier with air cleaner missing or damaged can cause extensive engine damage. Do not operate carrier if air cleaner element is missing or door or gasket is missing or damaged.</p> <p style="text-align: center;">CAUTION</p> <p>Do not drop or rap filter element when cleaning it.</p>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

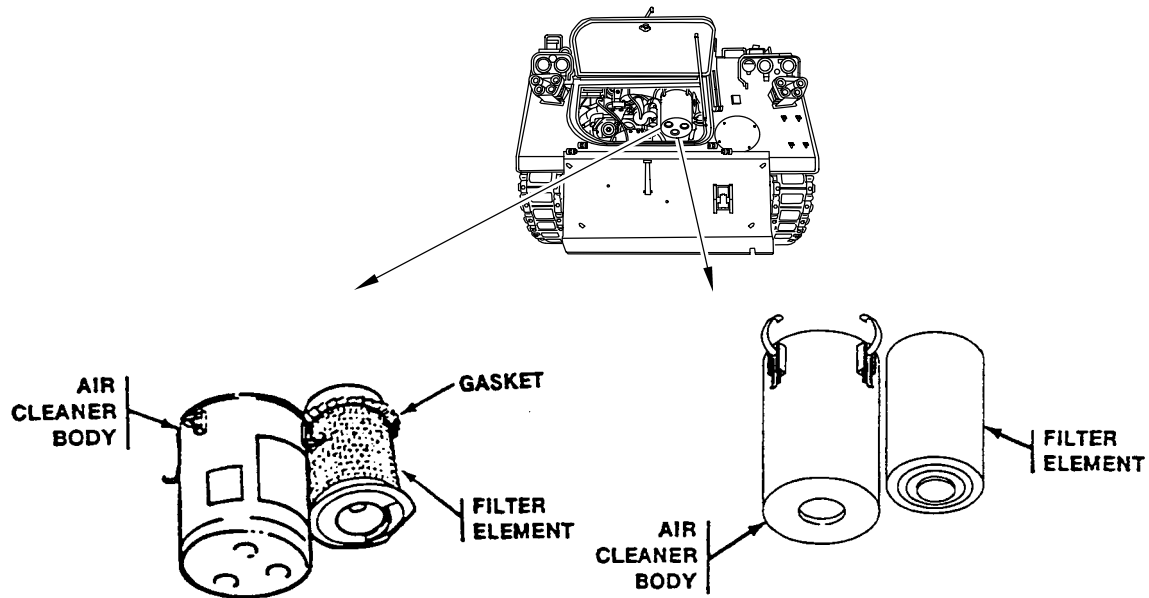
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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>a. Check air cleaner as follows:</p> <p>b. Service air cleaner weekly or when the engine seems to loose power. Also, service element whenever air cleaner restriction indicator stays in red zone after resetting.</p> <p>c. Check latch for proper operation. Release latch at top of air cleaner housing. Swing door up and remove door.</p> <p>d. Check door for missing or damaged gasket.</p> <p>e. Check that air cleaner element is installed in air cleaner housing.</p> <p style="text-align: center;">NOTE</p> <p>You will have one of two air cleaner configurations. Body and elements are not interchangeable, except as sets.</p>	<p>Indicator in red zone after cleaning.</p> <p>Air cleaner element, door, or gasket is missing or damaged.</p>

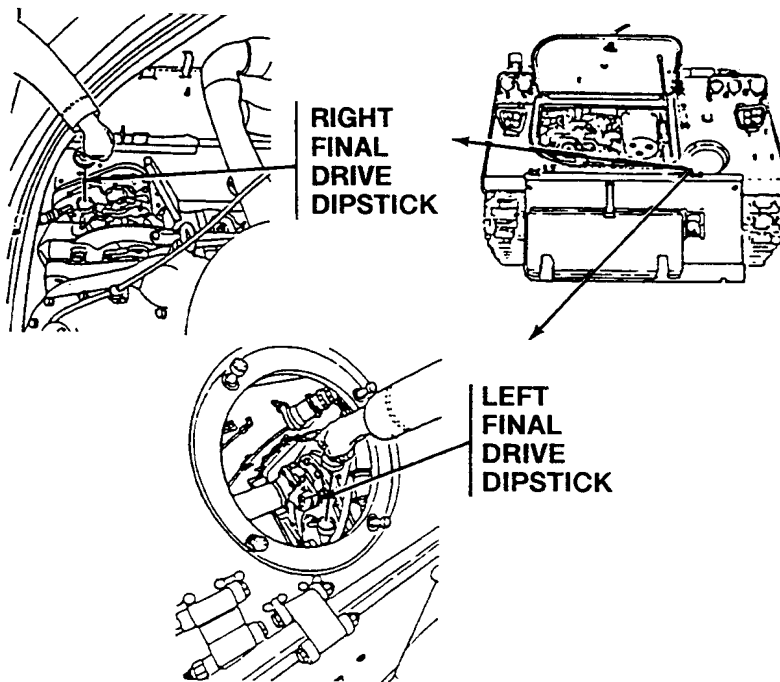
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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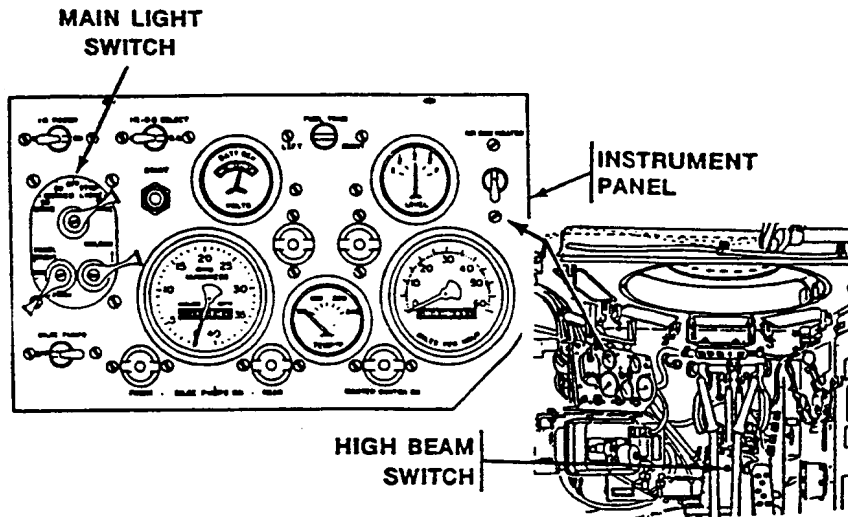
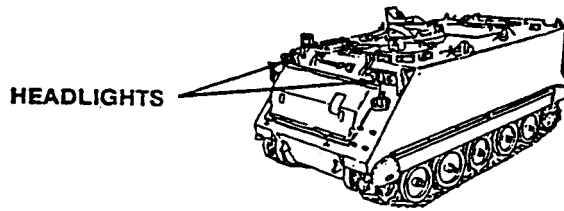
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
76	Weekly		Air Cleaner Element	<p>a. Remove air cleaner container with element inside.</p> <p>b. Take out element. Clean.</p> <p>c. Check rubber gasket on element. If damaged, notify unit maintenance.</p> <p>d. Install container with element inside.</p>	<p>Container, latches, or element is missing, damaged, or broken.</p> <p>Gasket torn or separated from filter element.</p>

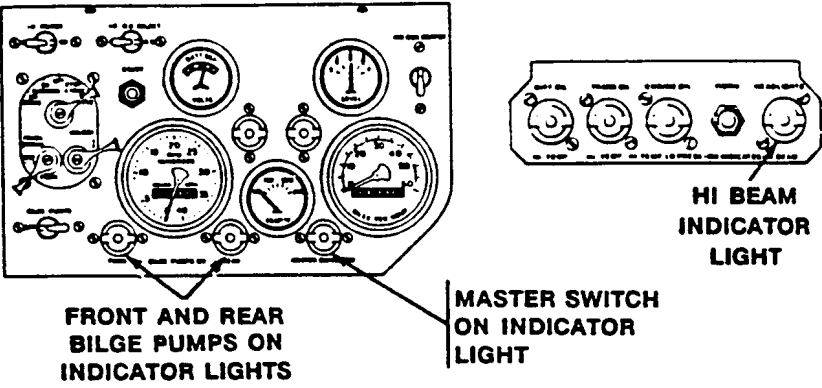
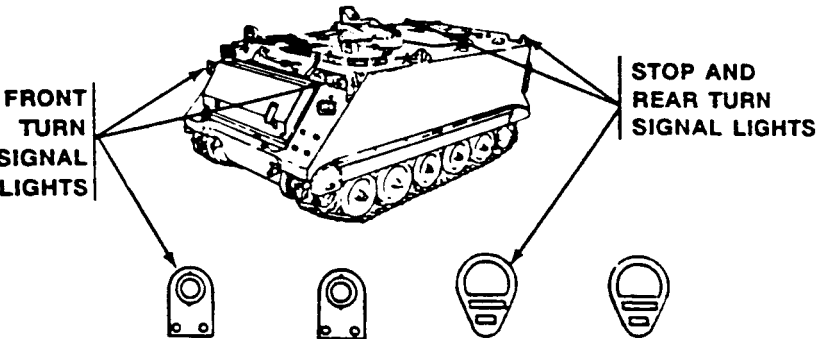


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
77	Weekly	0.2	Final Drives Oil Level	<p style="text-align: center;">CAUTION</p> <p>Carrier must be on level surface when checking oil.</p> <p style="text-align: center;">NOTE</p> <p>Remove hull front access cover for access to left drive gauge rod.</p> <p>a. Check oil in both final drives for level between ADD and FULL marks on gauge rod. Add applicable OE/HDO or OEA (Table 2, page 0075 00-8). Do not overfill.</p>	Any Class III leak.



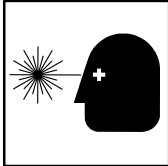
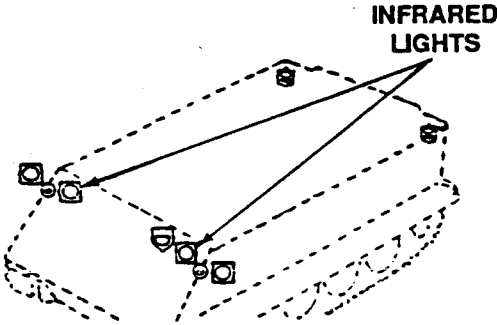
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
78	Weekly		Lights	<p style="text-align: center;">NOTE</p> <p>Driver will turn on lights and crewmember will check for operation.</p> <ol style="list-style-type: none"> a. Turn MASTER SWITCH to ON and lift up on safety lock lever. b. Check service lights by turning driving lights switch on. Depress high-beam switch to make sure lights operate properly on high and low beams. 	



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>c. Check HI BEAM indicator light. Check MASTER SWITCH ON indicator light.</p>	
			 <p>The diagram shows an instrument panel with several gauges and indicator lights. Two arrows point from the text 'FRONT AND REAR BILGE PUMPS ON INDICATOR LIGHTS' to two specific indicator lights on the panel. Another arrow points from 'MASTER SWITCH ON INDICATOR LIGHT' to a light on the right side of the panel. To the right of the panel is a separate rectangular panel with five indicator lights. An arrow points from the text 'HI BEAM INDICATOR LIGHT' to the rightmost light on this panel.</p>		
				<p>d. Check that turn signals operate properly on both sides of carrier.</p>	
			 <p>The diagram shows a side view of a tracked carrier. Two arrows point from the text 'FRONT TURN SIGNAL LIGHTS' to the front of the carrier. Two other arrows point from 'STOP AND REAR TURN SIGNAL LIGHTS' to the rear of the carrier. Below the carrier are four individual light symbols: two smaller circular lights on the left and two larger, more complex light symbols on the right.</p>		

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>e. Check stoplight and taillights to see that they operate properly. Make sure lights brighten during braking.</p> <div> </div> <p>f. Check blackout drive lights by turning switch lever to B.O. DRIVE and moving I.R.-B.O. SELECT switch to B.O. Blackout headlights and four blackout marker lights will light.</p> <p style="text-align: center;">NOTE</p> <p>Blackout stoplight will light when brakes are applied.</p>	

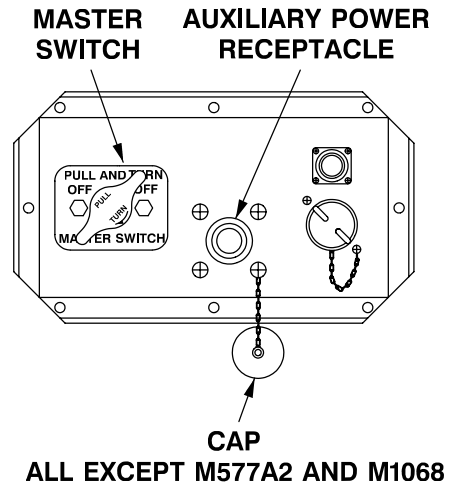
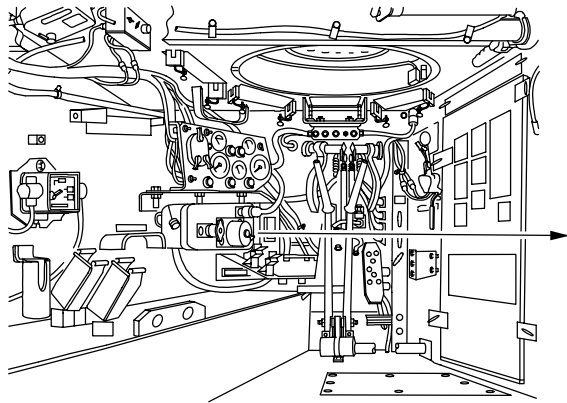
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p style="text-align: center;">I.R.-B.O. SELECT SWITCH</p> <p style="text-align: center;">B.O. DRIVE</p> <p style="text-align: center;">BLACKOUT HEAD LIGHT</p> <p style="text-align: center;">BLACKOUT STOP LIGHT</p> <p style="text-align: center;">BLACKOUT MARKER LIGHT</p> <p style="text-align: center;">BLACKOUT MARKER LIGHT</p>					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <p>Do not look directly into infrared lights. You can damage your eyes. Do not touch lens. You can burn your fingers.</p> <p>g. Check infrared lights on both high and low beam. Do this by HOLDING YOUR HANDS OVER THE LENS, but do not touch the lens. If the light is operating properly, you will feel heat.</p> <div style="text-align: center;">  </div>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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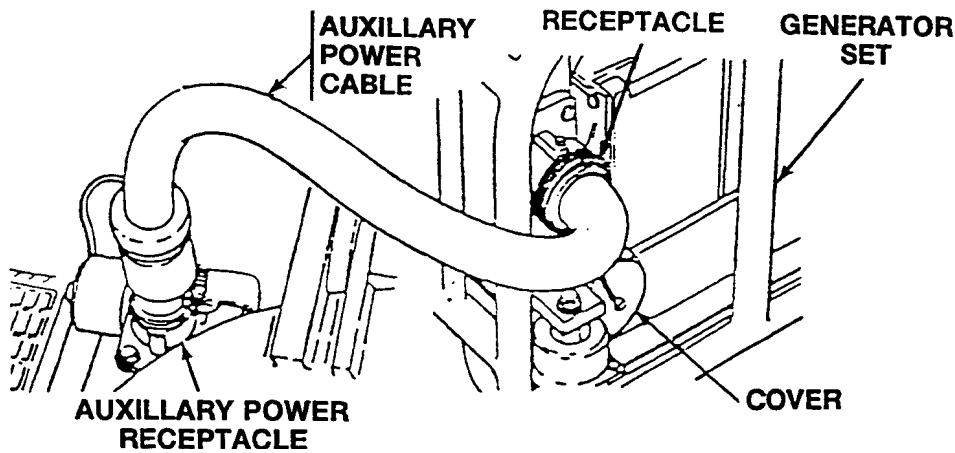
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
79	Weekly		Slave Cable Receptacle	a. Check slave cable receptacle and cap for damage, burnt-out condition, and corrosion.	



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued


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ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
80	Weekly		Slave Receptacle, Cable and Generator (M577A2 and M1068 only)	<ol style="list-style-type: none"> a. Make sure slave receptacle cap on M577A2 and M1068 is secure. Report damage to unit maintenance. b. Check receptacle and cable for damage, burn-out condition, and corrosion. c. Operate generator to get correct voltage readings. d. Check that correct voltage is provided by generator. e. Check generator set for mud, dirt, and excess oil and grease. Clean as required. 	<p>Receptacle or cable damaged, burnt out, or missing.</p> <p>Battery generator indicator gauge is NOT in the green zone.</p> <p>Generator set missing or inoperative.</p>

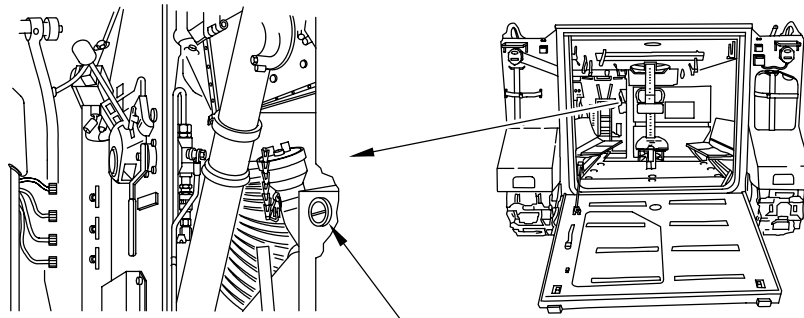


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
81	Weekly		Ramp and Ramp Door	<p style="text-align: center;">WARNING</p>  <p>Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.</p> <ul style="list-style-type: none"> a. Check ramp and ramp door for proper operation and seal. Check rear door operation. Make sure hinges operate properly and door can be tightly secured by lock. b. Check ramp door seal for breaks, brittleness, cracks, or poor seating. c. Check ramp wire rope for frayed or broken strands. d. Check ramp-to-hull seals for breaks, brittleness, cracks, or poor seating. 	<p>Ramp or ramp door will not seal. Ramp will not raise or lower under power. Ramp lock will not hold ramp in closed position.</p> <p>Ramp wire rope is frayed or broken.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>e. Check ramp hydraulic fluid level with ramp down. Fluid must be visible halfway up in ramp hydraulic fluid level sight glass.</p> <p>f. Fill to halfway if fluid is not visible at least halfway up in sight glass when ramp is down. Check for leaks.</p> <p>g. Check for missing breather cap.</p>	<p>Fluid is not visible halfway up in sight glass.</p> <p>Any Class III leak.</p> <p>Breather cap is missing.</p>
82	Weekly		Tow Pintle and Nut	<p>a. Check that cotter pin on tow pintle is present and properly secured. Check tow pintle for looseness, lube, and safety pin.</p>	

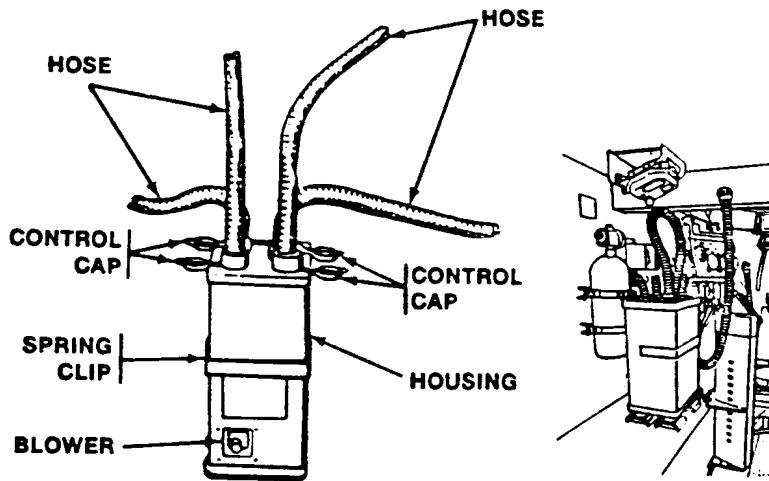


**RAMP HYDRAULIC
FLUID SIGHT GLASS**

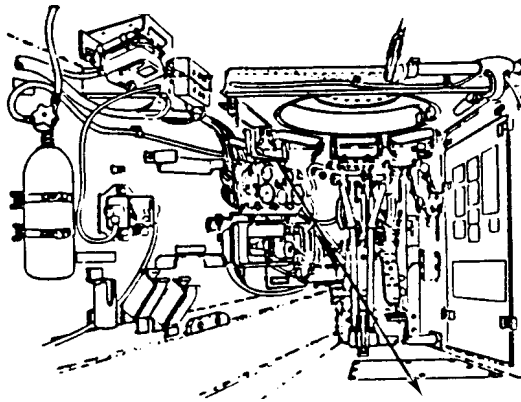
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

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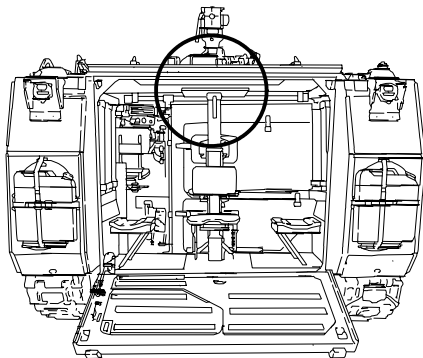
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
83	Weekly		Gas Particulate Units	<p style="text-align: center;">NOTE</p> <p>Applies only to carriers equipped with gas particulate unit.</p> <p style="text-align: center;">NOTE</p> <p>Location of gas particulate units varies for each vehicle.</p> <p>a. Check gas particulate units as follows:</p> <p>b. Check air purifier housing for damage. Make sure spring clip is there. Check hoses for wear, cracks, and holes. Operate air purifier blower to make sure it operates properly. After blower is operating, place hand over air flow control cap. You should feel a flow of air at center hole.</p>	Blower does not operate properly. Air flow at any station is restricted.



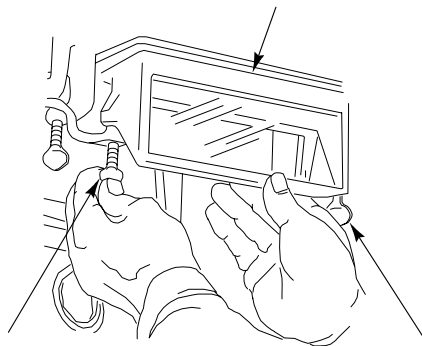
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
84	Weekly		M17 Periscope	<p style="text-align: center;">CAUTION</p> <p>Handle periscope carefully during removal to avoid damaging the frame and glass of the periscope.</p> <p style="text-align: center;">NOTE</p> <p>There are no periscopes on the M577A2 and M1068 commander's hatch.</p> <ol style="list-style-type: none"> a. Remove periscope by loosening two thumbscrews. b. Check between carrier wall and periscope for dirt or moisture. 	



M17 PERISCOPE




THUMBSCREW

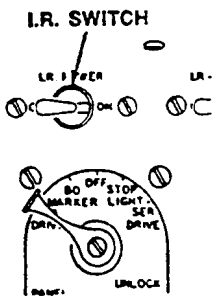
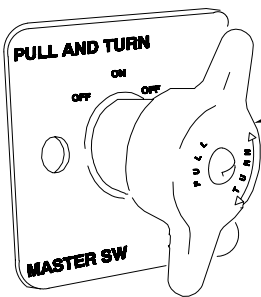
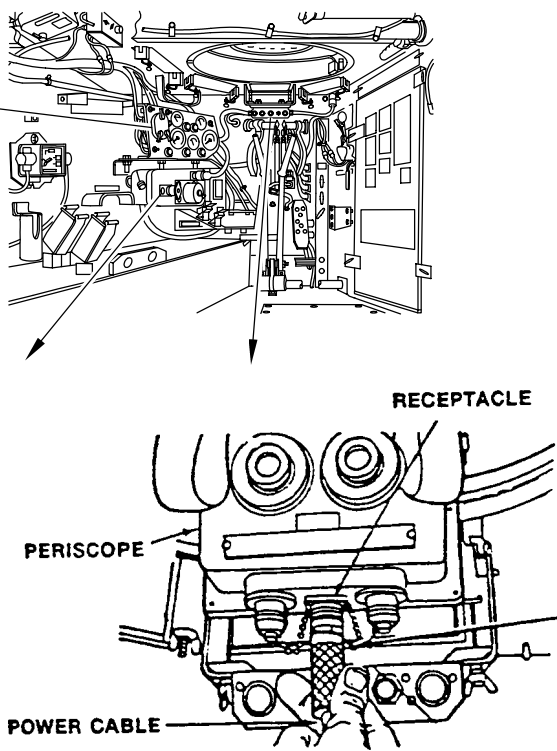


THUMBSCREW

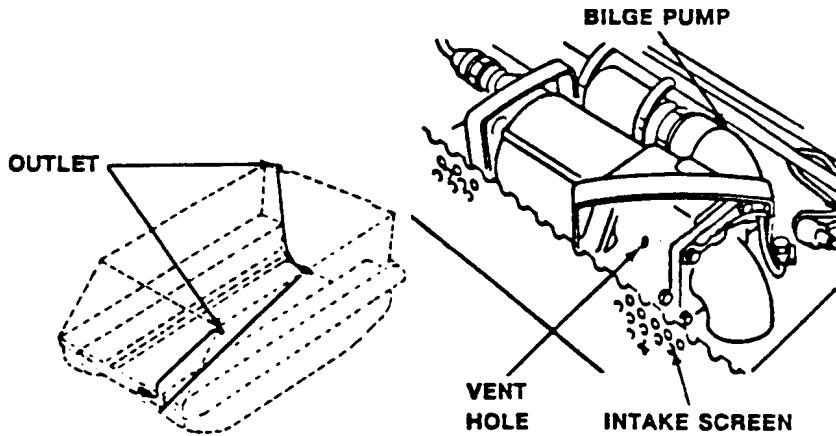
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
85	Weekly		M19 Periscope	<p style="text-align: center;">WARNING</p>  <p>HIGH VOLTAGE IN THE M19 periscope can cause serious injury or death. To avoid accidents:</p> <p>ALWAYS connect power cable to periscope BEFORE turning MASTER SWITCH and I.R. power switch to ON.</p> <p>Always wait at least 2 minutes BEFORE you disconnect the power cable from the periscope when turning I.R. POWER switch and MASTER SWITCH OFF.</p> <p>NEVER disconnect the power cable from the periscope until the image disappears from the periscope screen.</p> <p>NEVER touch the end of the cable. Voltage could exceed 16,000 volts.</p>	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">CAUTION</p> <p>Do not expose this instrument to direct sunlight during inspection. Direct sunlight or large amounts of light will damage the M19 periscope.</p> <ol style="list-style-type: none"> a. Check periscope for damage. Make sure periscope operates properly. Make sure you can see through periscope b. Make sure MASTER SWITCH and I. R. POWER switch are in OFF position. 	<p>Inoperative and no other night sight available.</p>
			 		
				<ol style="list-style-type: none"> c. Check power cable electrical connector for bent or missing pins or bare wires. Report damaged connector to unit maintenance. Attach power cable to periscope receptacle. d. Make sure connection is tight. Stow excess cable behind fixed fire extinguisher line. 	



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
86	Weekly		Bilge Pumps	<p>e. Turn MASTER SWITCH and I. R. POWER switch to ON. Test periscope operation.</p> <p style="text-align: center;">NOTE</p> <p>Rear bilge pump is below rear floor plate. Front bilge pump is in left front corner of power plant compartment.</p> <p>a. Check bilge pumps weekly and before any water operations as follows:</p> <ol style="list-style-type: none"> 1) Turn MASTER SWITCH to ON. 2) Turn BILGE PUMPS switch to ON. Make sure front and rear bilge pump lights are on. 	Inoperative and no other night sight available.



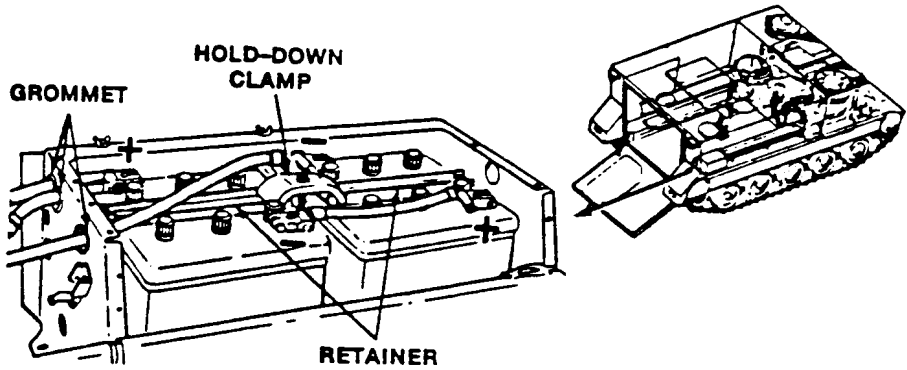
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

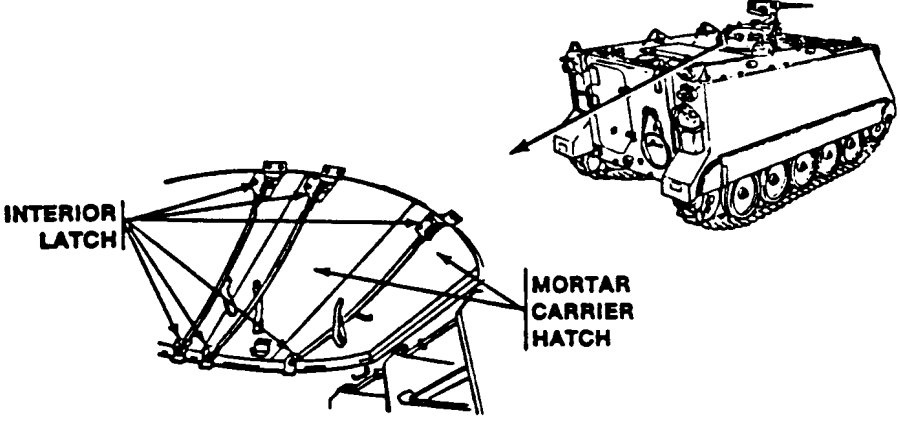
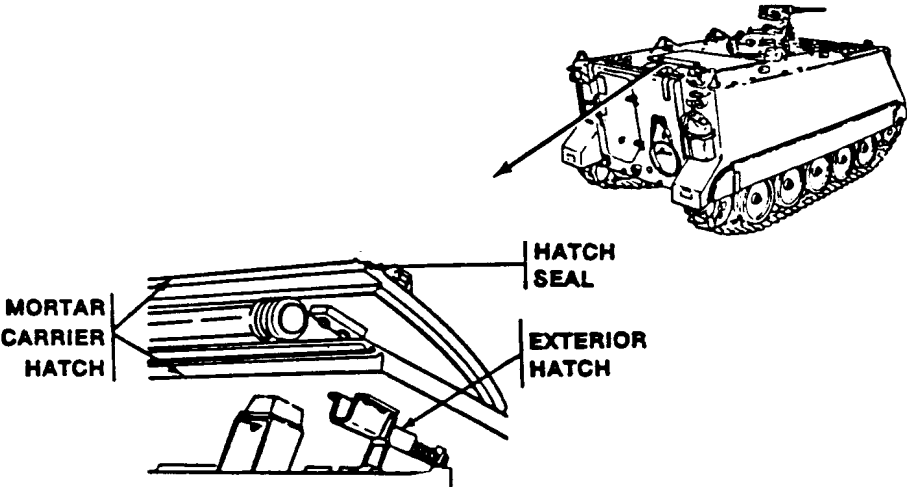
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>3) Feel bilge pump outlet for a stream of water if there is water in the carrier, or feel for a stream of air if water is absent.</p> <p>4) Check bilge pump intake screens and pump vent holes for clogging. Clear screen of all trapped debris. Clear pump vent holes by running a wire in and out.</p> <p>5) Check pumps and areas around each pump for fuel leaks in bilge.</p> <div> <p>The diagram consists of two parts. On the left, a rectangular mesh screen is shown in a perspective view, with a dashed line indicating its depth. An arrow points to the top edge of the screen, labeled 'OUTLET'. On the right, a cross-sectional view of a bilge pump housing is shown. An arrow points to a circular opening in the side of the housing, labeled 'VENT HOLE'. Inside this opening, a mesh screen is visible, and a wire is shown passing through it.</p> </div>	<p>Pumps do not operate properly. Any Class III leak.</p>

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
87	Weekly		Batteries	<p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p>Don't smoke, have open flames, or make sparks around batteries, especially if the caps are off. Batteries can explode and cause injury or death.</p> <p>Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry contacts battery terminals, a direct short will result in instant heating of metals, damage to equipment, and injury to personnel.</p> <p>If batteries are frozen, do NOT attempt to slave start vehicle. Explosion can occur, causing injury to personnel and damage to equipment.</p> <p style="text-align: center;">CAUTION</p> <p>In cold weather, unit maintenance must charge batteries immediately after adding water. This allows water to combine with electrolyte and prevent freezing.</p> <ol style="list-style-type: none"> a. Check electrolyte level in carrier batteries (WP 0085 00). b. Check that vent holes in caps are clear before installing caps. 	Battery missing or damaged.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>c. Check that battery cables and terminals are clean and connections are tight.</p> <p>d. Check that hold-down clamps and retainer are tight (WP 0085 00).</p> <p>e. Check that rubber grommets are on battery compartments. Notify unit maintenance if grommets are missing. See TM 9-6140-200-14 for weekly battery preventative maintenance.</p>	<p>Obvious damage or looseness to battery, terminal, cable, or retainer.</p>

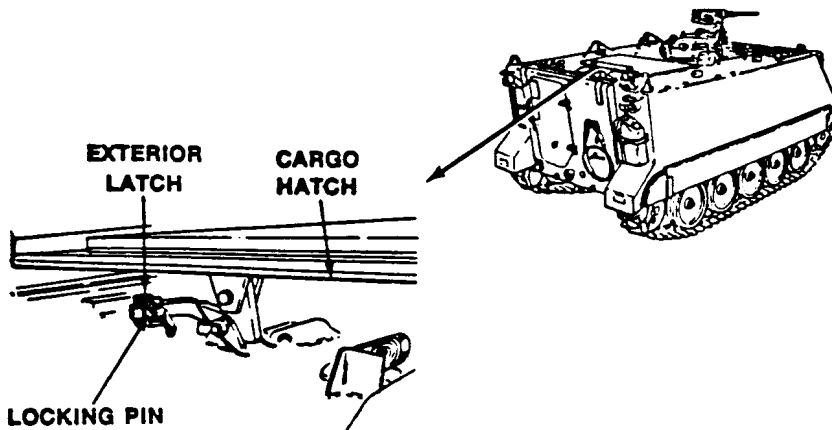


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
88	Weekly		Hatches	<p>a. Check operation and security of driver's and commander's hatches.</p> <p>b. Check mortar carrier latches.</p>  <p>The diagram shows two views of the mortar carrier hatches. The top view is a perspective drawing of the mortar carrier with arrows pointing to the hatches. The bottom view is a detailed line drawing of the hatches, with labels: 'INTERIOR LATCH' pointing to the internal locking mechanism, and 'MORTAR CARRIER HATCH' pointing to the hatch cover.</p> <p>c. Check operation of exterior catches on all hatches. Check interior latches.</p> <p>d. Check hatch seals for breaks, brittleness, cracks, and poor sealing. Report any damaged hatch, seal, catches, or missing or inoperable locking pins to unit maintenance.</p>  <p>The diagram shows a perspective view of the mortar carrier with an arrow pointing to the hatch seal area. Below it is a detailed line drawing of the hatch seal assembly, with labels: 'MORTAR CARRIER HATCH' pointing to the hatch cover, 'HATCH SEAL' pointing to the rubber seal strip, and 'EXTERIOR HATCH' pointing to the hatch frame.</p>	Latches on any hatch that do not hold hatch in open or closed position. Any hatch locking pins missing or inoperable.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

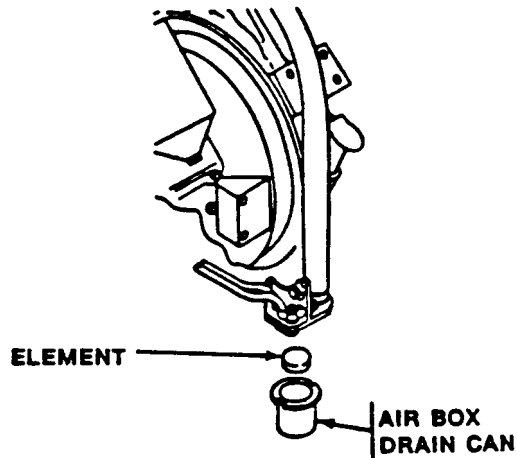
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p>e. Check carrier hatches for movement, locking and sealing.</p> <p>f. Check personnel carrier cargo hatch. Make sure hatch opens and closes smoothly and can be tightly secured in both open and closed positions.</p>	<p>Latches on any hatch that do not hold hatch in open or closed position. Any hatch locking pins missing or inoperable.</p>



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

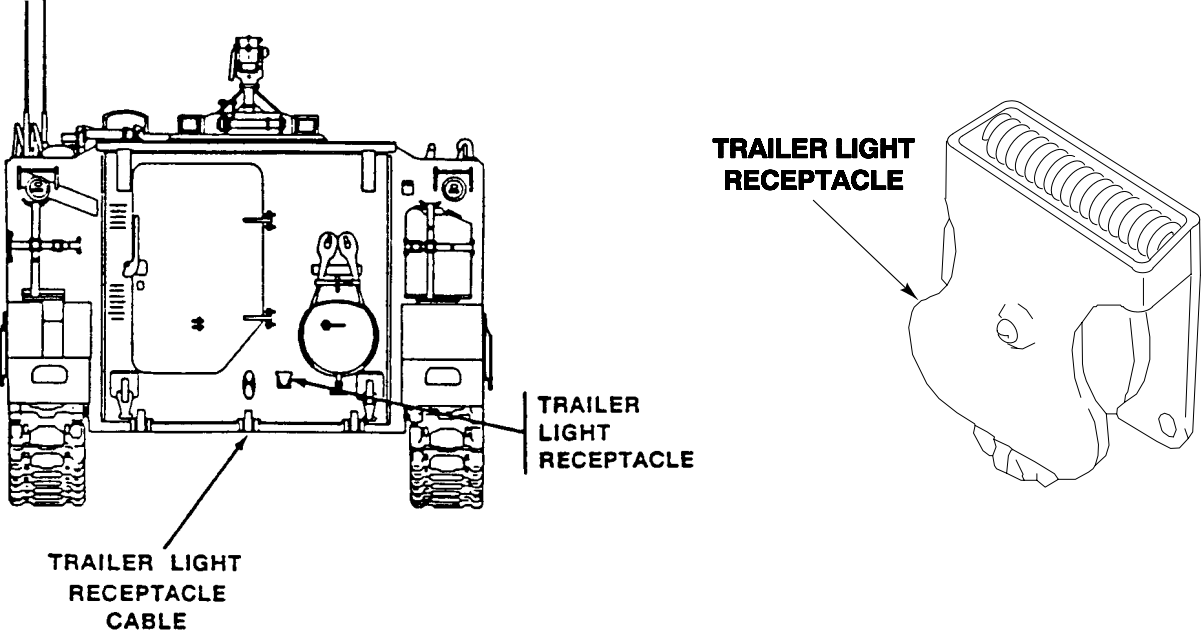
0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
89	Weekly		Air Box Drain	<p>a. Remove engine access cover and empty receptacle.</p> <ol style="list-style-type: none"> 1) Remove two thumbscrews and lower receptacle slowly. 2) Empty receptacle and remove element. 3) Clean element and inside of receptacle with cleaning compound (WP 0096 00, Item 4). 4) Install element and receptacle with two thumbscrews. <p>b. Check air box drain can and plastic element.</p> <ol style="list-style-type: none"> 1) Remove air box drain can. Dump waste and element out of can. Clean element as needed. Put element in can and install on bracket. 	



PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
90	Weekly		Trailer Light Receptacle	a. Check trailer light receptacle cable for damage. Check receptacle for damage and corrosion.	
 <p>The diagram illustrates the location of the trailer light receptacle cable and receptacle on a trailer chassis. The main view shows the chassis with a central tank and various components. Labels with arrows point to the 'TRAILER LIGHT RECEPTACLE CABLE' at the bottom left, the 'TRAILER LIGHT RECEPTACLE' on the right side of the chassis, and another 'TRAILER LIGHT RECEPTACLE' on the right side of the chassis. A detailed view of the 'TRAILER LIGHT RECEPTACLE' is shown to the right, highlighting its rectangular shape and the cable connection points.</p>					
Empty space for notes or additional information					

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
91	Weekly		External Power Entry Box (M1068 only)	<p>a. Check to ensure plug caps are secure and chains are not broken.</p> <p>b. Check for external damage.</p> <p>c. Make sure unit locks properly.</p> <div> <p>The diagram shows a rectangular metal box with a hinged lid. The lid is open, revealing internal components. An arrow points to the lid with the label 'EXTERNAL POWER ENTRY BOX'. Another arrow points to a small cap on the lid with the label 'CAP'. A third arrow points to two metal chains attached to the bottom of the box with the label 'CHAINS'.</p> </div>	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
92	Weekly		Dome Lights (M113A2, M577A2, M1068) and Floor Plates (All)	a. Check operation of dome lights. b. Check floor plates for cracks and missing bolts. c. Report inoperable dome lights or damaged floor plates to unit maintenance.	

DOME LIGHT

FLOOR PLATES

DOME LIGHT (WHITE LENS)

DOME LIGHT (RED LENS)

DOME LIGHT (RED LENS)

FLOOR PLATES

Table 7. Preventive Maintenance Checks and Services for Model M113A2 FOV, Semi-annually

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
93	Semi-annually or every 1500 miles	0.4	Idler Wheel Support Arm Bearings	<ul style="list-style-type: none"> a. Clean fittings with cleaning compound (WP 0096 00, Item 4). b. Fill arms with lubricant (GAA) until lubricant escapes through relief valve. Use grease gun with flexible adapter. 	Missing or damaged grease fitting or plug.
94	Semi-annually or every 1500 miles	0.4	Road Wheel and Idler Wheel Hub Bearings	<ul style="list-style-type: none"> a. Clean fittings with cleaning compound (WP 0096 00, Item 4). b. Fill hubs with lubricant (GAA) until lubricant escapes through relief valve. Use grease gun with flexible adapter. 	
95	Semi-annually or every 1500 miles	0.4	Road Wheel Support Arm Bearings	<ul style="list-style-type: none"> a. If support arm has plugs installed, remove plugs and install grease fitting and relief valve. b. Clean fittings/plugs with cleaning compound (WP 0096 00, Item 4). c. Fill support arms with lubricant (GAA) until lubricant escapes through relief valve. Use grease gun with flexible adapter. d. If support arm had plugs installed, remove grease fittings and relief valve and install plugs. 	Bubbles in grease or if grease looks milky. Report to unit maintenance.
96	Semi-annually or every 1500 miles and after each use	0.3	Tow Cable	<ul style="list-style-type: none"> a. Clean and lubricate tow cable with wire brush and grease MIL-PRF-18458C (Table 2, page 0075 00-8). Wipe off excessive grease. 	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued

0075 00

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
97	Semi-annually or every 1500 miles	0.3	Ramp Wire Rope	a. Clean and lubricate ramp wire rope as follows: <ol style="list-style-type: none"> 1) Lower ramp. Clean and lubricate exposed portion of wire rope with grease MIL-PRF-18458C (Table 2, page 0075 00-8). 2) Remove rear floor plate and raise ramp. Clean and lubricate concealed portion of wire rope with grease MIL-PRF-18458C (Table 2, page 0075 00-8). 	
98	Semi-annually or every 1500 miles	0.3	Machine Gun Mount	a. Clean machine gun mount with cleaning compound (WP 0096 00, Item 4), and lubricate all moving parts with PL-M or PL-S as appropriate.	

ADJUST T130 TRACK TENSION

0076 00

THIS WORK PACKAGE COVERS:

Adjust Track Tension (page 0076 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0026 00

WP 0028 00

WP 0029 00

WP 0050 00

WP 0080 00

Tools and Special Tools

Drive Pin Punch (WP 0094 00, Table 2, Item 37)

Grease Gun (WP 0094 00, Table 2, Item 24)

Open End Wrench, 5/8 inch (WP 0094 00, Table 2, Item 56)

Track and Sprocket Gauge (WP 0094 00, Table 2, Item 22)

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

Driver

ADJUST TRACK TENSION

WARNING



Not having the correct track tension during inspection can cause you to not see defective track parts that could cause track failure and loss of vehicle control. Soldiers can be killed or injured.

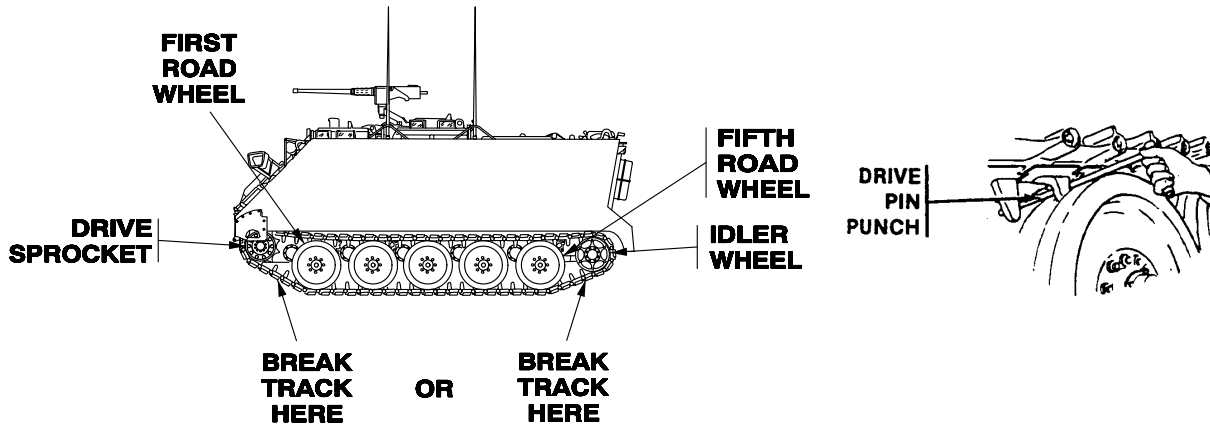
Adjust track tension before inspecting track assembly and track shoes.

1. Start engine (WP 0026 00).
2. Drive carrier slowly to firm level ground (WP 0028 00).
3. Let carrier coast to a stop. Do not use steering levers to stop carrier.
4. Stop engine (WP 0029 00).
5. Block track (WP 0050 00).

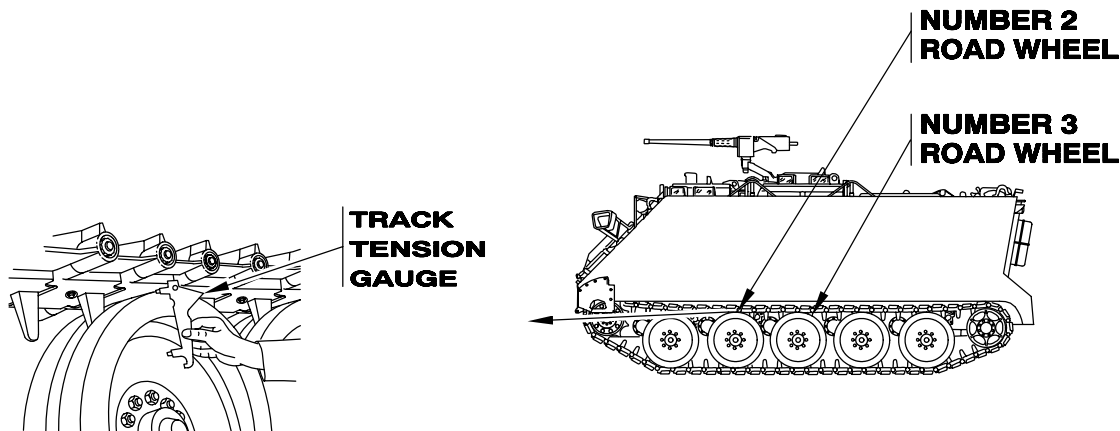
NOTE

Either drive pin punch or track and sprocket gauge may be used to check track tension. If using drive pin punch, do Steps 6 - 7. If using track and sprocket gauge, do Steps 8 - 9.

6. To check track tension using drive pin punch, insert drive pin punch between top of number two road wheel and bottom of track. If drive pin punch can be inserted freely and track touches top of number three road wheel, track tension is correct.
7. If drive pin punch can be inserted freely but track does not touch top of number three road wheel, track tension is too tight. Loosen track tension, see Step 11. If drive pin punch cannot be inserted freely, track tension is too loose. Tighten track tension, see Step 10.



8. To check track tension using track and sprocket gauge, position gauge lightly against bottom of track at centerline of second road wheel. Look through hole in gauge. If top of second road wheel can be seen (3/8 to 5/8 inch) and track touches number three road wheel, track tension is correct.
9. If top of second road wheel cannot be seen or track does not touch third road wheel, track needs adjusting. To tighten track tension, see Step 10. To loosen track tension, see Step 11.



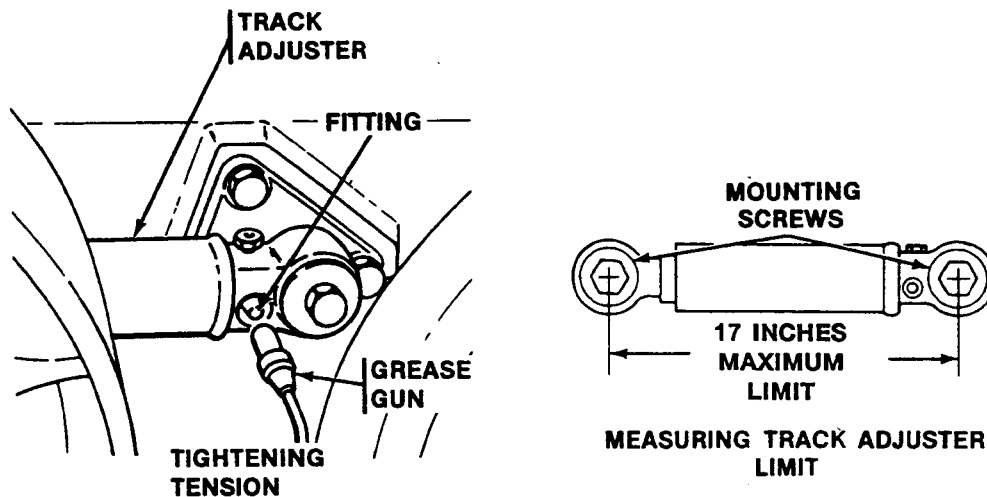
CAUTION

Dirt can damage fitting and cylinder. Clean all dirt from fitting on track tension adjuster.

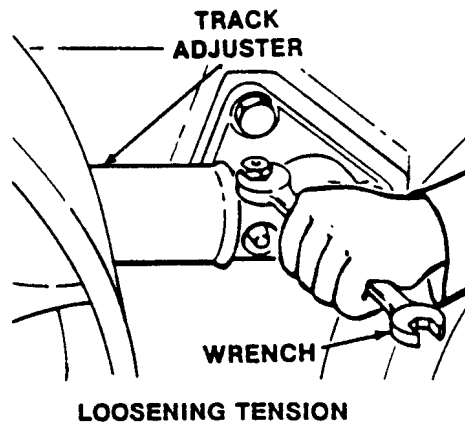
Servicing the fitting can damage the track adjuster, idler wheel, and final drive bearings. Track adjuster fitting is not a true lubrication point. Do not service when lubricating the carrier.

Track adjuster can be damaged during carrier operation. Do not extend adjuster beyond 17 inches.

10. To tighten track tension, add grease through fitting on track tension adjuster. If track adjuster is extended to its maximum limit of 17 inches and the track is still too loose, remove one track shoe (WP 0080 00). Readjust the track tension, Steps 6 - 9.



11. To loosen track tension, slowly open bleed valve on track tension adjuster to let grease out. Wipe up excess grease. If track adjuster is in as far as it will go, and track is still too tight, add one track shoe (WP 0080 00). Check track tension, Steps 6 - 9.



END OF TASK

ADJUST T150 TRACK TENSION

0077 00

THIS WORK PACKAGE COVERS:

Adjust Track Tension (page 0077 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0026 00

WP 0028 00

WP 0029 00

WP 0050 00

WP 0081 00

Tools and Special Tools

Grease Gun (WP 0094 00, Table 2, Item 24)

Open End Wrench, 5/8 inch (WP 0094 00, Table 2, Item 56)

Track Gauge (WP 0094 00, Table 2, Item 23)

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

Driver

Crew

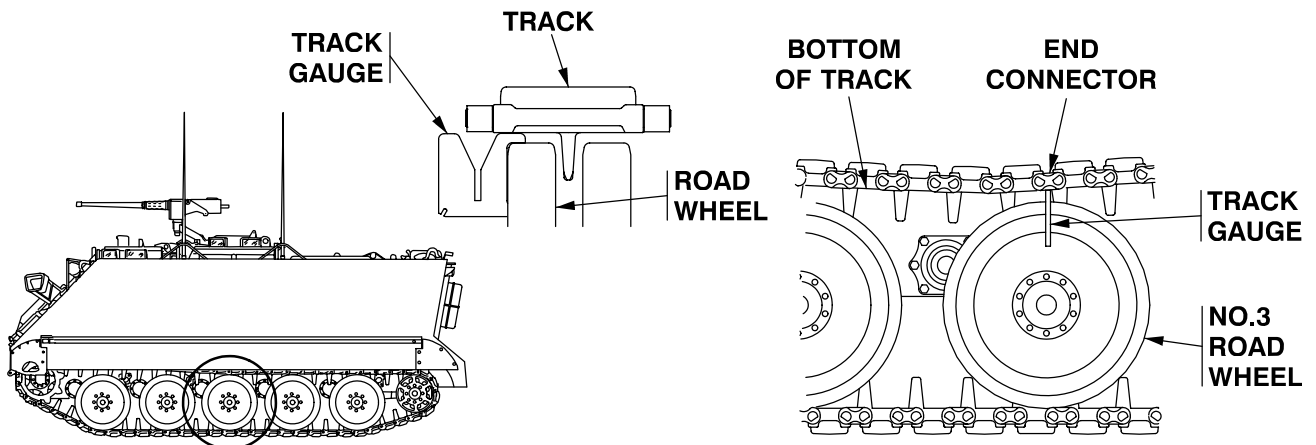
ADJUST TRACK TENSION

1. Start engine (WP 0026 00).
2. Drive carrier slowly to firm level ground (WP 0028 00).

NOTE

Tension needs to be adjusted after mission when vehicle is completely unloaded of equipment and before mission after vehicle has been fully loaded.

3. Let carrier coast to a stop. Do not use steering levers to stop carrier. Place transmission selector in N (Neutral) position to coast to a stop.
4. Stop engine (WP 0029 00).
5. Block track (WP 0050 00).
6. To check track tension, position track gauge (WP 0094 00, Table 2, Item 23) lightly between bottom of track and the third road wheel. Gauge should fit between bottom of track and top of road wheel.

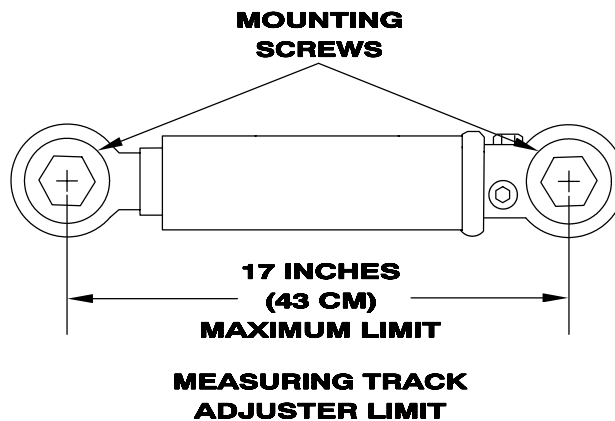
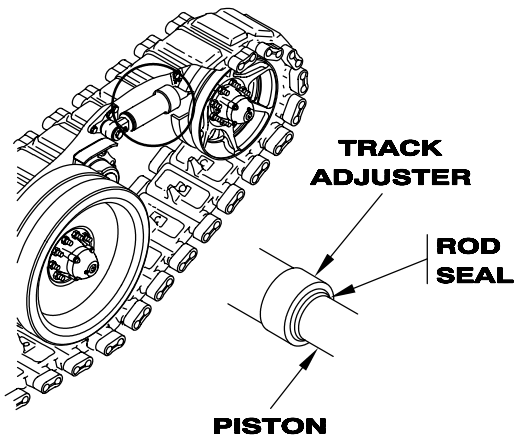
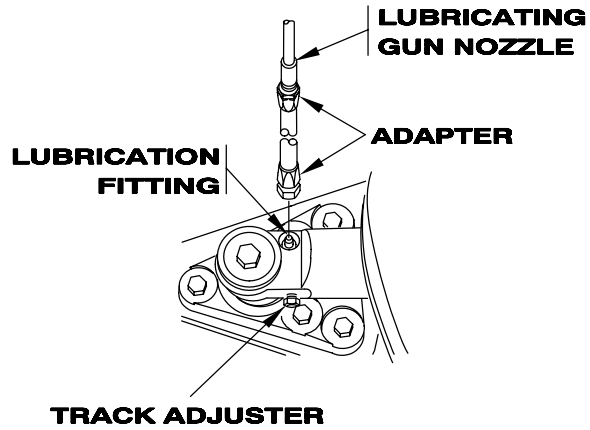
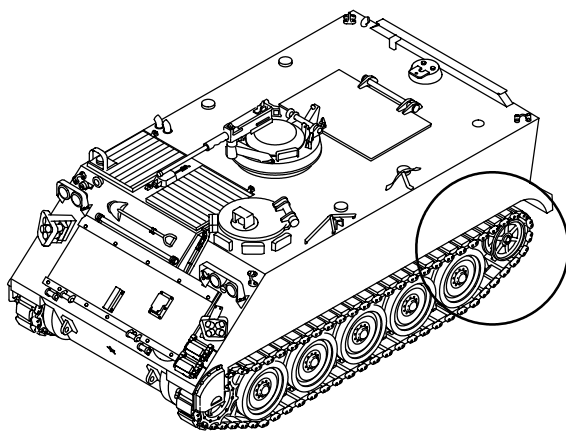


7. If gauge does not fit between bottom of track and top of road wheel, track tension is too loose; if gauge fits between track and road wheel, but is not touching both at the same time, track tension is too tight. To tighten track tension, go to Step 8. To loosen track tension, go to Step 9.

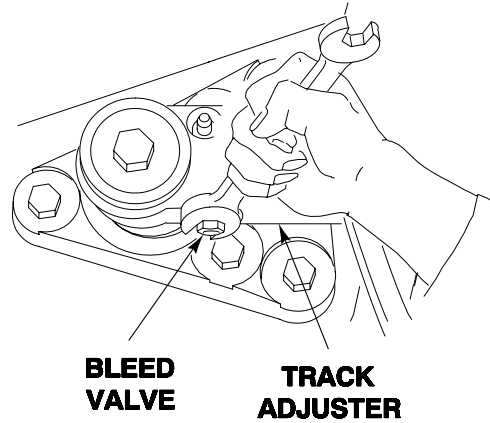
CAUTION

Dirt can damage fitting and cylinder. Clean all dirt from fittings on track tension adjuster. Servicing the fitting can damage the track adjuster, idler wheel, and final drive bearings. Track adjuster fitting is not a true lubrication point. Do not service when lubricating the carrier.

8. To tighten track tension, add grease through fitting on track adjuster. If track adjuster is extended to its maximum limit of 17 inches and the track is still loose, remove one track shoe (WP 0081 00) and readjust track tension, Steps 5 - 9.



9. To loosen track tension, slowly open bleed valve on track tension adjuster to let grease out. Wipe up excess grease. If track adjuster is in as far as it will go, and track is still too tight, add one track shoe (WP 0081 00) and readjust track tension, Steps 5 - 9.



END OF TASK

BREAK/JOIN T130 TRACK

0078 00

THIS WORK PACKAGE COVERS:

- Break T130 Track (page 0078 00-1).
- Join T130 Track (page 0078 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Crew

Tools and Special Tools

- Crowbar (WP 0094 00, Table 2, Item 11)
- Drive Pin Punch (WP 0094 00, Table 2, Item 37)
- Grease Gun (WP 0094 00, Table 2, Item 24)
- Hammer, 2 lb (WP 0094 00, Table 2, Item 25)
- Socket, 11/16 inch (WP 0094 00, Table 2, Item 43)
- Socket Handle, Wrench 1/2 inch drive (WP 0094 00, Table 2, Item 28)
- Track Fixture (2) (WP 0094 00, Table 2, Item 21)
- Wrench, Adjustable, 1-5/16 inch (WP 0094 00, Table 2, Item 57)

References

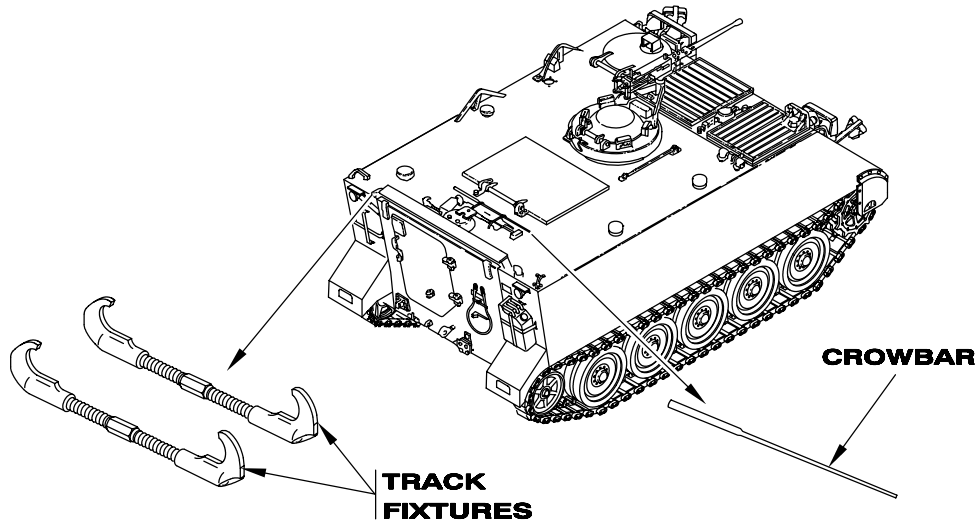
- DA Form 2404
- WP 0026 00
- WP 0028 00
- WP 0029 00
- WP 0050 00
- WP 0076 00

Equipment Condition

Engine stopped (WP 0029 00)

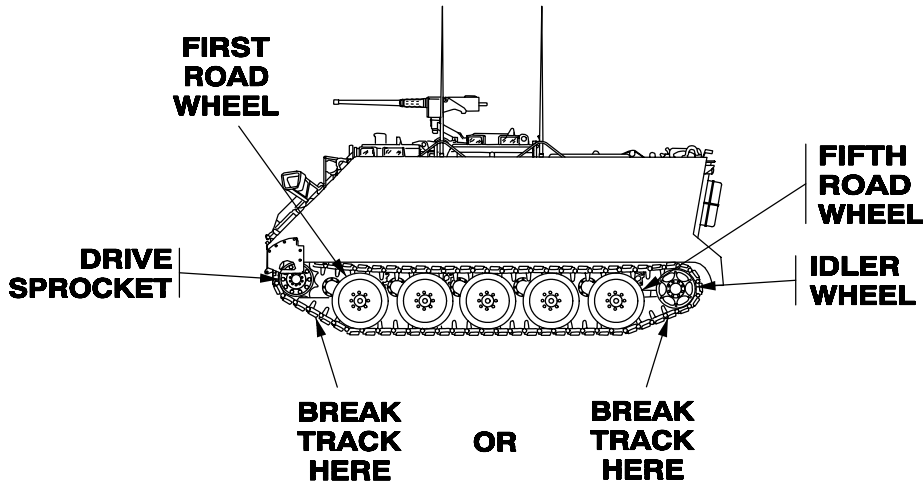
BREAK T130 TRACK

1. Unstow crowbar and track fixtures from rear top deck. Remove hammer from tool bag.



2. Start engine (WP 0026 00).
3. Drive carrier to firm level ground (WP 0028 00).

4. Drive carrier slowly so the track pin to be removed is about halfway between the first road wheel and the drive sprocket or halfway between the idler wheel and fifth road wheel. Do not use steering levers to stop carrier.

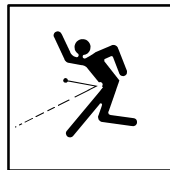


NOTE

Block track with suitable object.

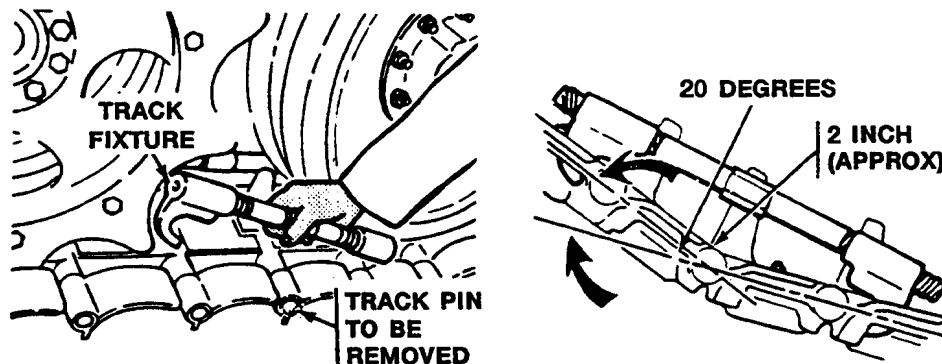
5. Block track on side which is not being broken (WP 0050 00).
6. Stop engine (WP 0029 00).
7. Release track tension all the way on track to be broken (WP 0076 00).

WARNING

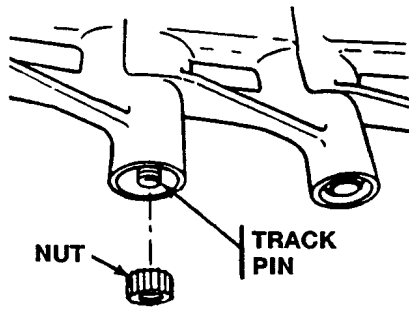


You could be injured if track swings out and hits you. Do not stand in front of track being broken.

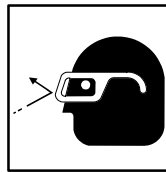
8. Install two track fixtures across the pin to be removed. Tighten track fixtures evenly to about a 20 degree angle between the shoes to be disconnected. There should be about 2 inches between the fixtures and the track at the pin. Use 1-5/16 inch adjustable wrench.



9. Remove track pin nut from track pin to be removed. Use 1/2 inch drive socket handle and 11/16 inch socket.



WARNING

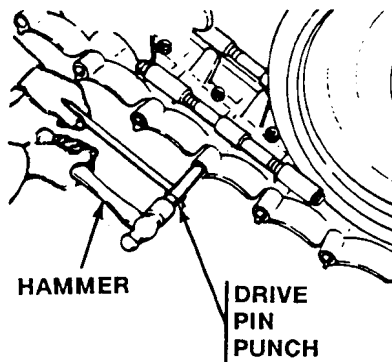


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

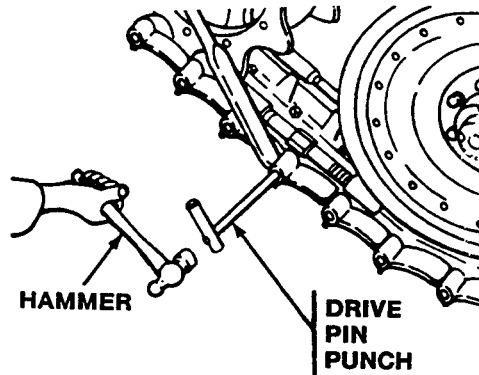
CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

10. Drive track pin part way out with short end of drive pin punch. Use hammer. Remove drive pin punch.



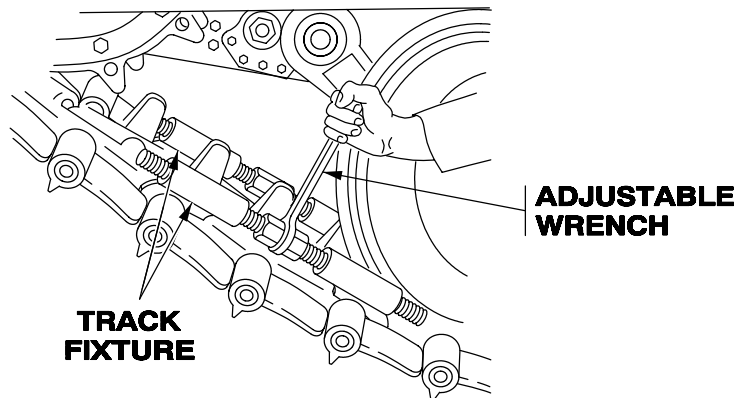
11. Drive track pin all the way out with long end of drive pin punch.



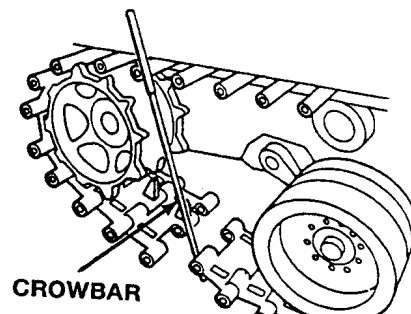
NOTE

Inside track fixture is removed first.

12. If you're planning to add or remove a track shoe, remove two track fixtures. Use 1-5/16 inch adjustable wrench.



13. Disconnect track. Use crowbar to break track apart.



14. If replacing T130 track assembly, see WP 0084 00.
15. Clean up old track assembly and turn it in to maintenance.

JOIN T130 TRACK

CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

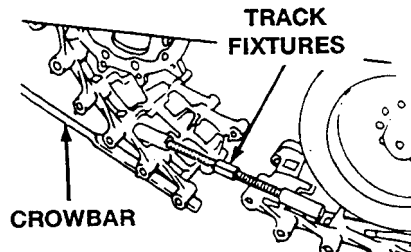
NOTE

If track is difficult to join, use the track fixtures to pull the track together and open the track adjuster relief valve (WP 0076 00) to relieve any track tension from the track adjuster.

NOTE

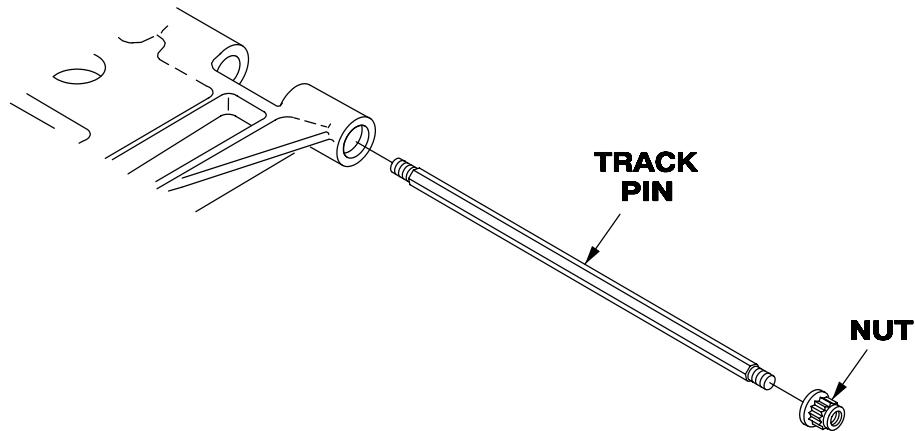
As track pin moves through track bushing the track pin will push the drive pin punch out ahead of it.

1. Install two track fixtures across place where track is to be connected. Install track fixture on outside track first. Use 1-5/16 inch adjustable wrench.
2. Move ends of track together with crowbar.

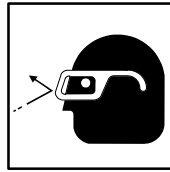
**CAUTION**

Oil or grease will destroy the rubber bushings in track shoes over time. Do not coat track pin with oil or grease.

3. Install a nut flush with one end of the track pin.

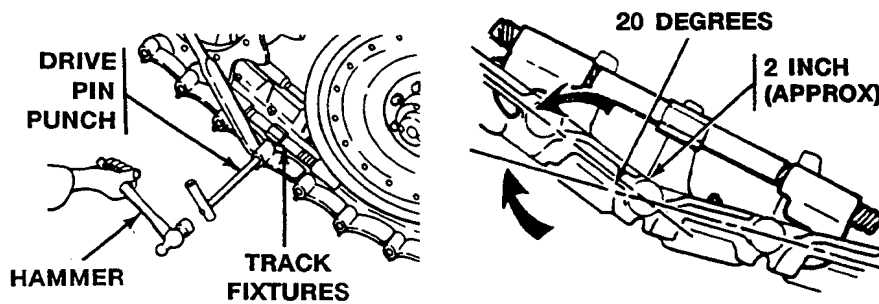


WARNING



Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

4. Tighten each track fixture an equal amount to line up track pin holes. Tap long end of drive pin punch through track pin holes to other side of track. Use hammer. Tighten track fixture as needed to obtain 20 degree angle between shoes to be connected. Use 1-5/16 inch adjustable wrench.



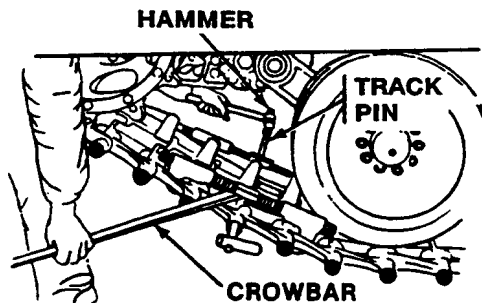
WARNING



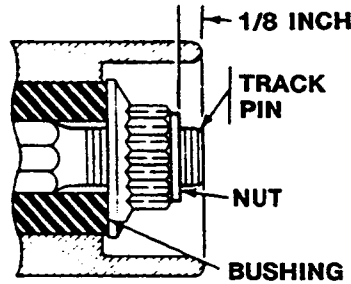
Track shoe bushing failure can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Do not use excessive force that could damage the track shoe bushing while driving in the track pin during assembly.

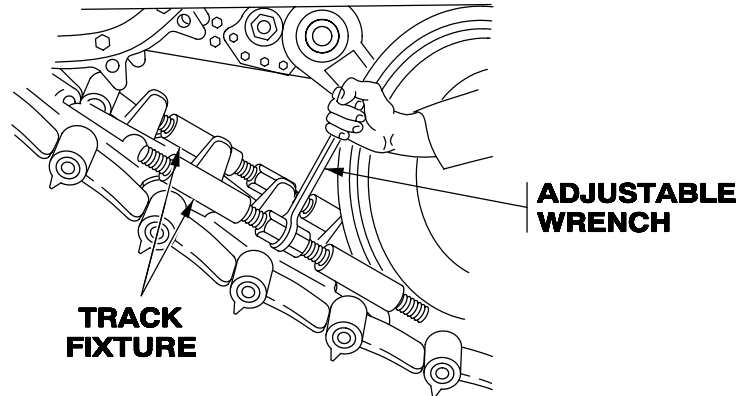
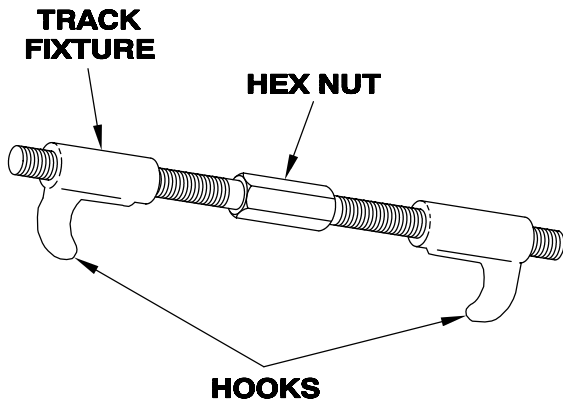
5. From inside of track, install track pin in track pin hole. As helper aligns track pin holes with crowbar, lightly tap in track pin. Drive track pin all the way through track. Use hammer.



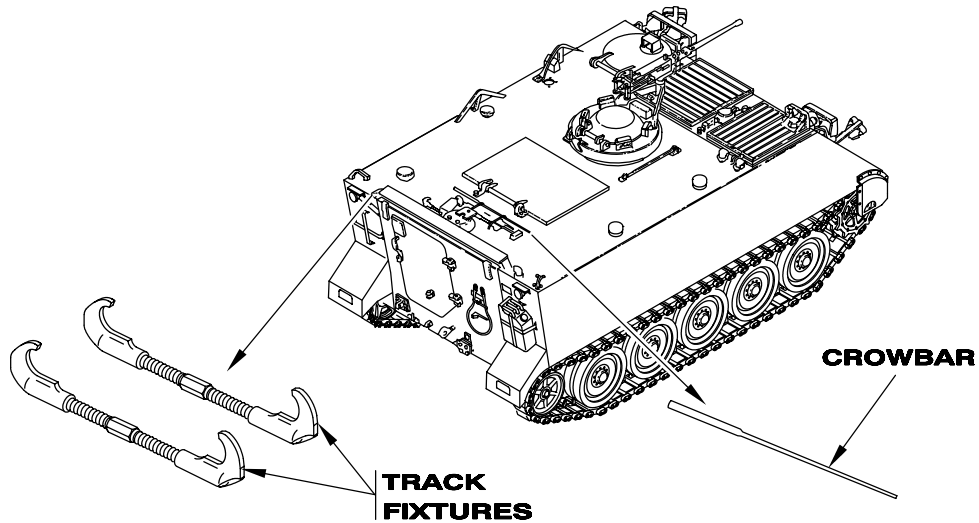
6. Install a nut on the other end of the track pin. Tighten both nuts until 2 or 3 threads show between the nuts and the ends of the pin or about 1/8 of an inch. Use 1/2 inch drive socket handle and 11/16 inch socket.



7. Mark nut so unit maintenance can torque it.
8. Remove two track fixtures. Use 1-5/16 inch adjustable wrench.
9. Adjust track tension (WP 0076 00).



10. Stow crowbar and track fixtures on rear top deck. Stow hammer in tool bag.



11. Unblock carrier tracks (WP 0050 00).
12. Fill out DA Form 2404 and notify unit maintenance to torque marked track pin nut.

END OF TASK

BREAK/JOIN T150 TRACK

0079 00

THIS WORK PACKAGE COVERS:

- Break T150 Track (page 0079 00-1).
- Join T150 Track (page 0079 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Crew

Tools and Special Tools

- Crowbar (WP 0094 00, Table 2, Item 11)
- End Connector Remover (WP 0094 00, Table 2, Item 38)
- Grease Gun (WP 0094 00, Table 2, Item 24)
- Hammer, 2 lb (WP 0094 00, Table 2, Item 25)
or Hammer, 4 lb (WP 0095 00)
- Handle Extension Wrench (WP 0094 00, Table 2, Item 17)
- Handle, Socket Wrench, 3/4 inch drive (WP 0094 00, Table 2, Item 29)
- Socket, 1-1/8 inch, 3/4 inch drive (WP 0094 00, Table 2, Item 44)
- Tool, Track Pin Alignment (2) (WP 0094 00, Table 2, Item 54)
- Track Fixture (2) (WP 0094 00, Table 2, Item 21)
- Wrench, Adjustable, 1-5/16 inch (WP 0094 00, Table 2, Item 57)
- Industrial Goggles (WP 0095 00)

References

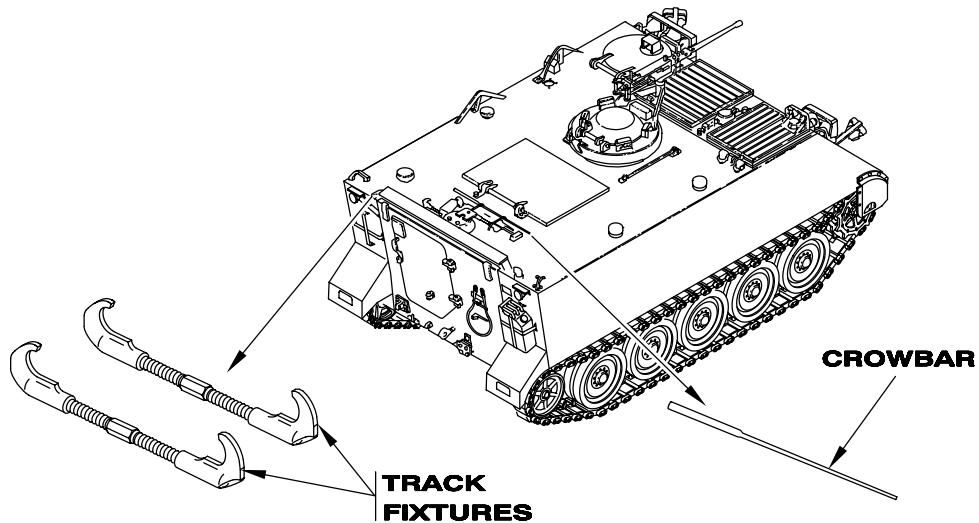
- DA 2404
- DA 5988-E
- WP 0026 00
- WP 0028 00
- WP 0029 00
- WP 0050 00
- WP 0077 00

Equipment Condition

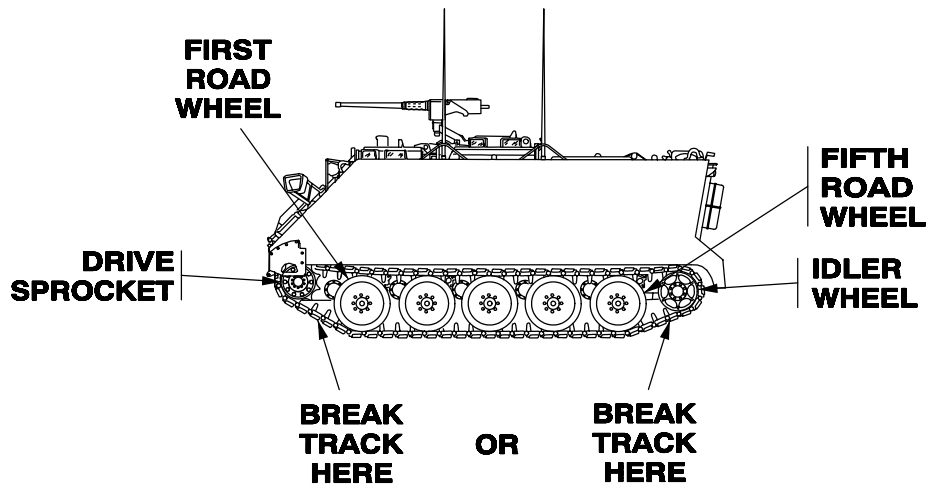
Engine stopped (WP 0029 00)

BREAK T150 TRACK

1. Unstow crowbar and track fixtures. Remove industrial goggles and hammer from tool bag.



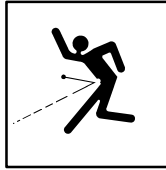
2. Start engine (WP 0026 00).
3. Drive carrier to firm level ground (WP 0028 00).
4. Drive carrier slowly so the track pin to be removed is about halfway between the first road wheel and the drive sprocket or halfway between the idler wheel and fifth road wheel.



NOTE

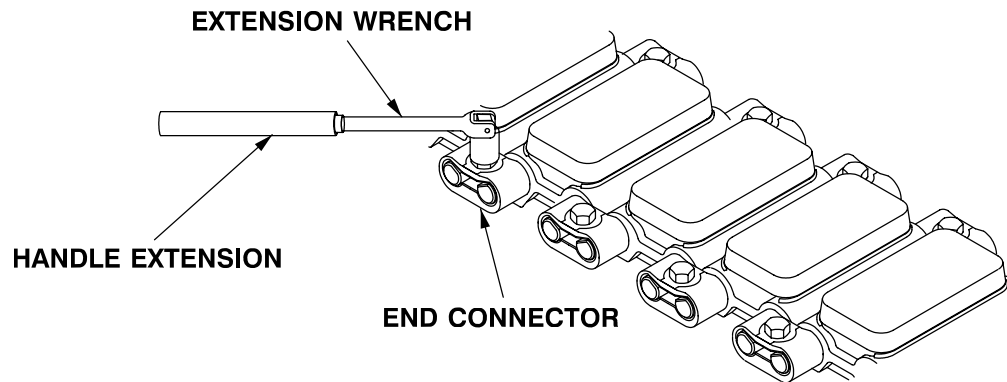
Block track with suitable object.

5. Block track (WP 0050 00) on side which is not being broken.
6. Stop engine (WP 0029 00).
7. Release track tension all the way on track to be broken (WP 0077 00).

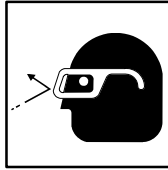
WARNING

You could be injured if track swings out and hits you. Do not stand in front of track being broken.

- Using 3/4 inch drive handle wrench, 1-1/8 inch socket, and wrench extension to get more leverage, remove the end connector bolts to the track shoes that need to be removed to break the track.

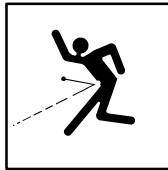


WARNING



Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

WARNING



You could be injured if track swings out and hits you. Do not stand in front of track being broken.

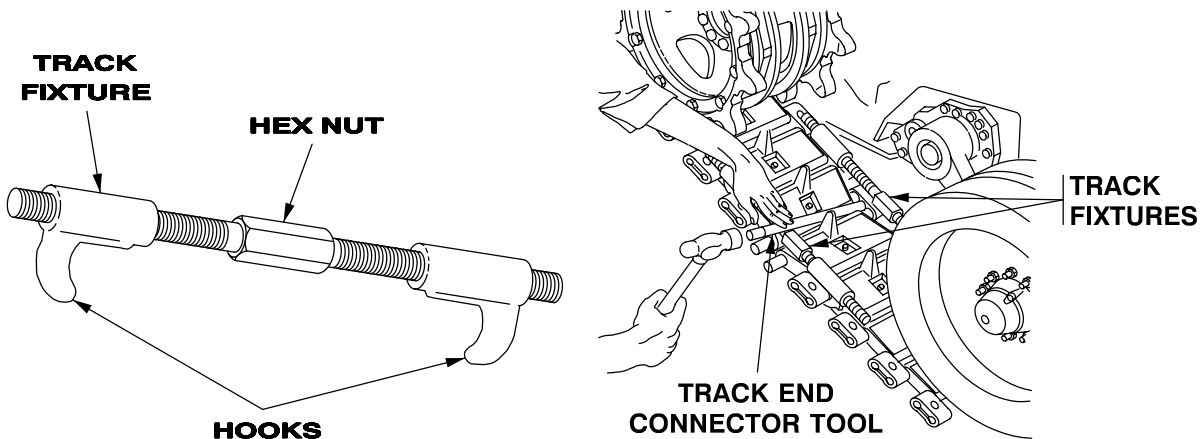
CAUTION

Keep personnel clear when removing the end connectors to avoid being hit when they are knocked free from the track shoe pins.

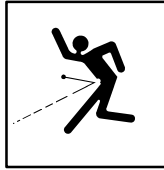
NOTE

Remove outside end connector first, then inside end connector.

9. Install two track fixtures on both sides of the track and tighten to pull track shoes together. Use the track end connector tool and hammer to remove the end connector. Repeat using the track end connector tool to remove the opposite end connector.



WARNING

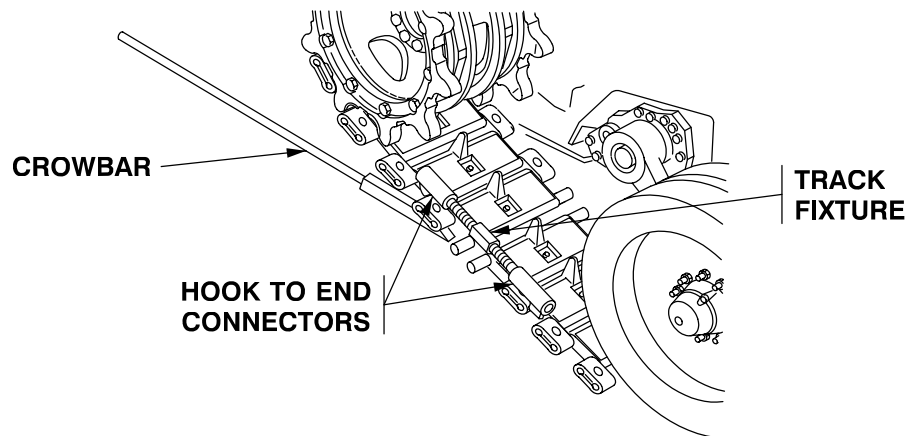


You could be injured if track swings out and hits you. Do not stand in front of track being broken.

NOTE

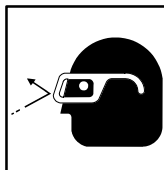
Inside track fixture is removed first.

10. Support track. Use crowbar. Remove inside, then outside track fixtures.



JOIN T150 TRACK

WARNING



Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

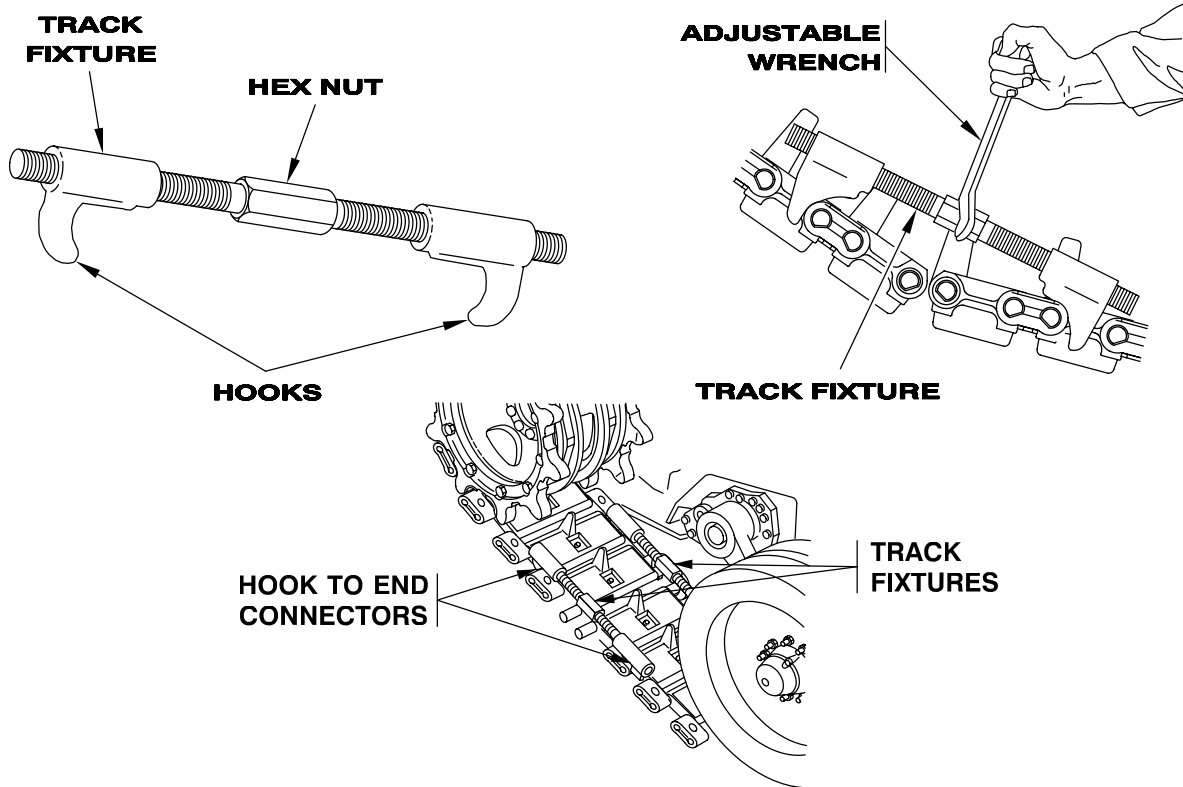
NOTE

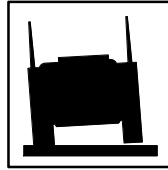
Center hex nut between hooks on track fixture.

NOTE

Outside track fixtures can be positioned from bottom side to aid in installing track alignment tool.

1. Hold track in position and install two track fixtures across place where track is to be connected. Install outside fixture first.
2. Tighten two track fixtures evenly until ends of track are close enough to install end connectors.



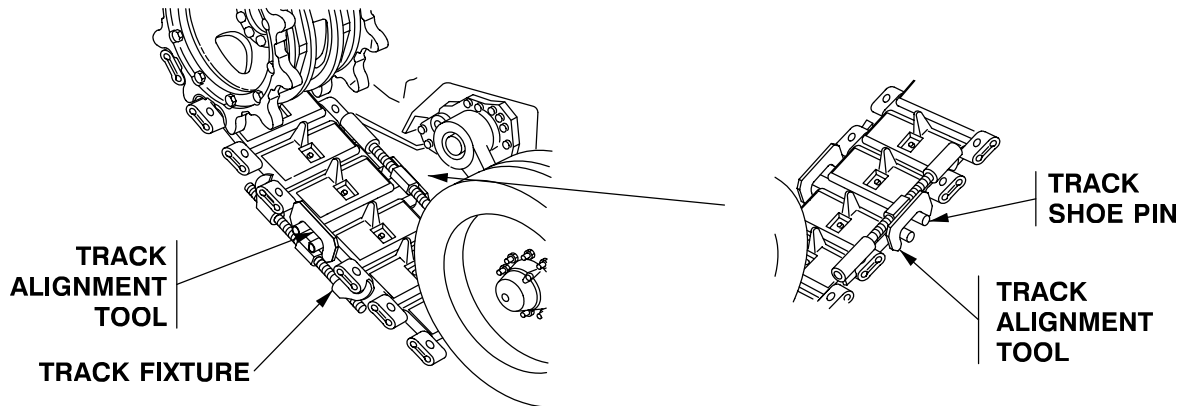
WARNING

Improper number of track shoes may prevent track from being adjusted correctly, creating a safety hazard.

For carriers with new track, ensure there are 63 track shoes on the left side of carrier and 64 track shoes on the right side of carrier.

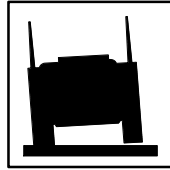
For carriers with old track, ensure there are 62 track shoes on the left side of carrier and 63 shoes on the right side of carrier.

- Place the track alignment tool over one pin on the outside shoe and rest it on the other pin. Tighten both track fixtures evenly to pull the track assembly together until the track alignment tool fits over and seats fully on both track shoe pins. Install the second track alignment tool on the inside track shoe pins, leave on the inside track fixture.



- Remove the outside track fixture. Both track alignment tools will hold the track together. Leave the track fixture on the inside of the track assembly.

WARNING

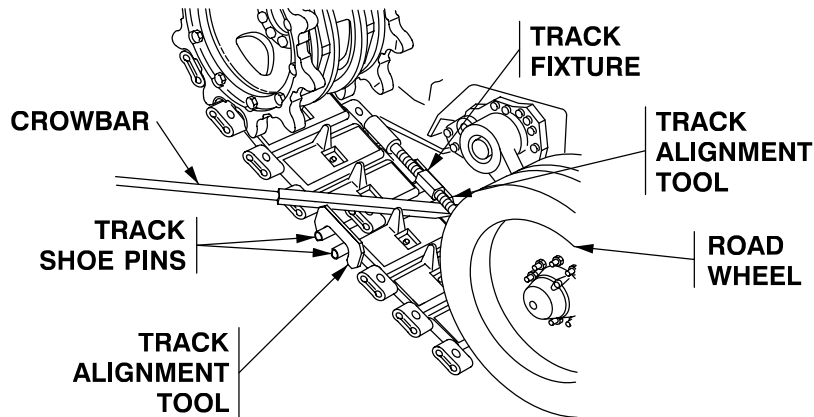


Do not use the crowbar on the track shoe pins to get leverage. Any scratches may cause the pin to break and cause the track assembly to fall off the vehicle while operating. This may kill soldiers and damage equipment. Use the crowbar as shown in Steps 2 - 5 to get leverage to install end connectors.

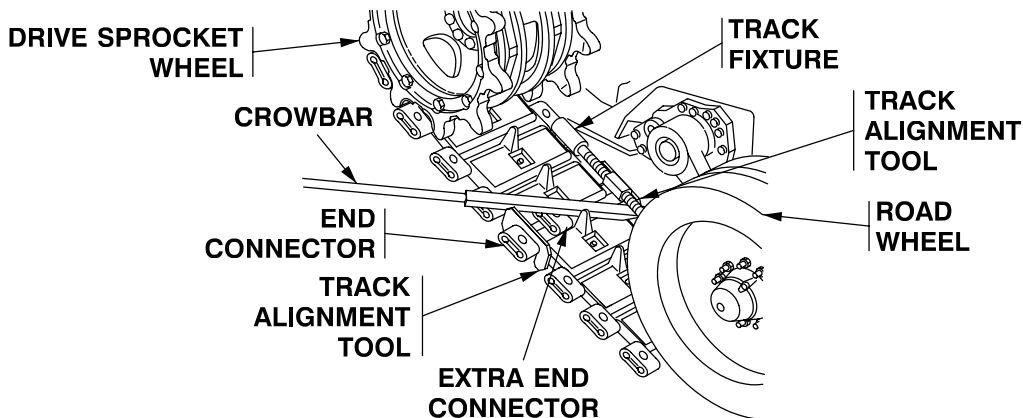
NOTE

Place end connector or similar size block on top of the two track shoes being joined. Use the crowbar under the track fixture connected to the inside track shoes end connectors and press down on the block to get the right angle to install the end connector.

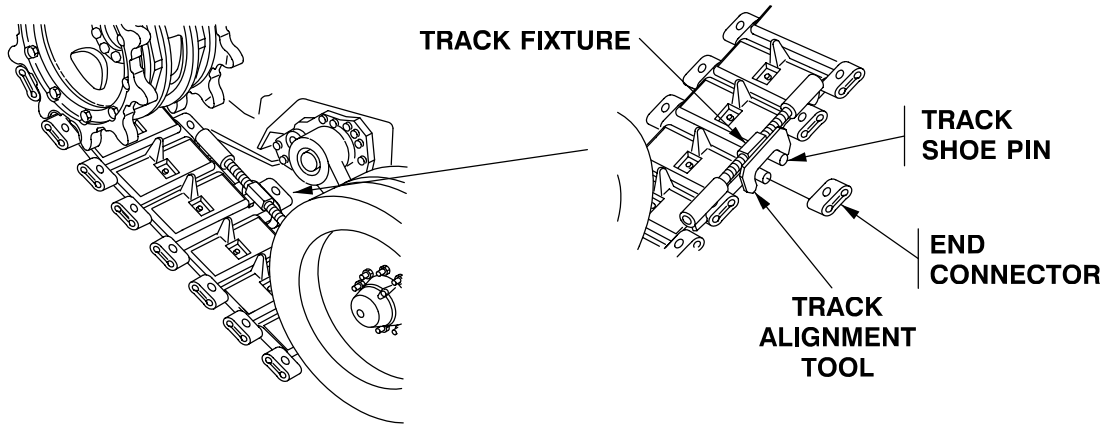
5. Make sure the inside track fixture is tight enough to allow the helper to use the crowbar under it with enough pressure to get a slight degree of angle between the two shoes to allow installing the outside end connector.



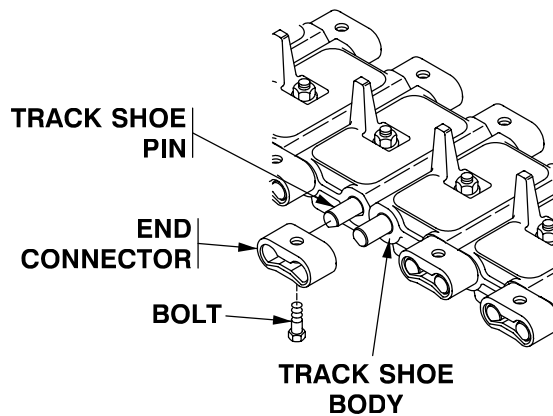
6. Install the end connector on the outside track shoe pins. Get the angle needed to allow the end connector to fit on the track shoe pins. Tap on the end connector close to the alignment tool. Remove the track alignment tool. Tap the end connector fully onto track shoe pins. Make sure it touches both track shoe bodies.



7. Install inside end connector. Only a slight amount or no leverage is needed to install the second connector if the outside end connector is already installed.



8. Once the end connector is installed halfway on the inside of the track assembly, remove the track fixture and track alignment tool. Finish installing the end connector all the way on the track shoe pins until it touches the track shoe body.



WARNING



Not getting the bolt tight enough may result in death to personnel and damage to equipment if the end connectors fall off during movement of the vehicle. Use the wrench extension over the breaker bar to achieve more leverage when tightening the end connector bolt.

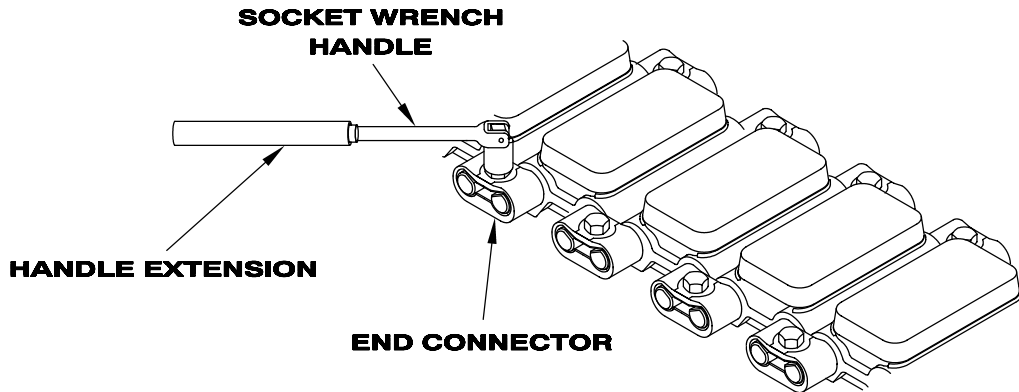
NOTE

Move vehicle far enough to position end connectors that need to be tightened on top.

NOTE

Mark the location of the end connectors so unit maintenance can torque them properly. Take the vehicle to unit maintenance as soon as possible to have the end connector bolts torqued to the proper value.

9. Secure both end connector bolts using the socket wrench handle and extension wrench to get enough torque until you can get it to unit maintenance to torque it properly. Mark the end connectors you have loosened and retightened so unit maintenance can tighten to the right torque value. Fill out form DA 2404 or DA 5988-E to notify unit maintenance.



10. Adjust track tension (WP 0077 00).

END OF TASK

REMOVE/INSTALL T130 TRACK SHOE

0080 00

THIS WORK PACKAGE COVERS:

Removal (page 0080 00-1).
 Installation (page 0080 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
 Helper (H)

Tools and Special Tools

Crowbar (WP 0094 00, Table 2, Item 11)
 Drive Pin Punch (WP 0094 00, Table 2, Item 37)
 Grease Gun, (WP 0094 00, Table 2, Item 24)
 Hammer, 2 lb (WP 0094 00, Table 2, Item 25)
 Socket Handle, Wrench 1/2 inch drive (WP 0094 00, Table 2, Item 28)
 Socket, 11/16 inch (WP 0094 00, Table 2, Item 43)
 Socket, 3/4 inch (WP 0094 00, Table 2, Item 43)
 Track Fixture (WP 0094 00, Table 2, Item 21)
 Wrench, Adjustable, 1-5/16 inch (WP 0094 00, Table 2, Item 57)

References

DA Form 2404
 WP 0076 00
 WP 0078 00

Equipment Condition

Carrier on level surface
 Engine stopped (WP 0029 00)

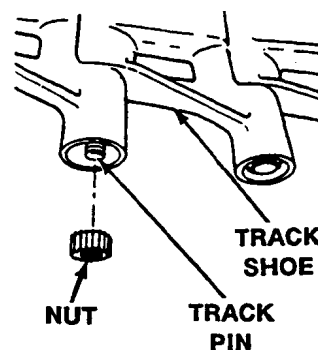
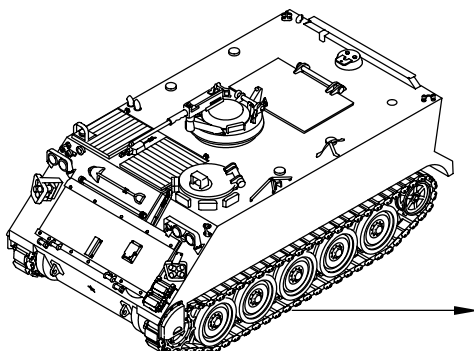
REMOVAL

WARNING

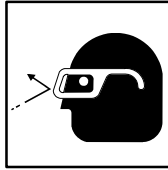


Worn or damaged track components can cause track failure and loss of vehicle control. Soldiers can be killed or injured. If track components are not in satisfactory condition, do not operate vehicle.

1. Break track to remove track shoe (WP 0078 00).
2. Remove nut from track pin of shoe to be removed. Use 1/2 inch drive socket handle and 11/16 inch socket.



WARNING

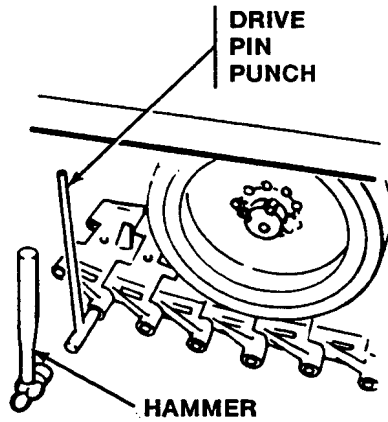


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

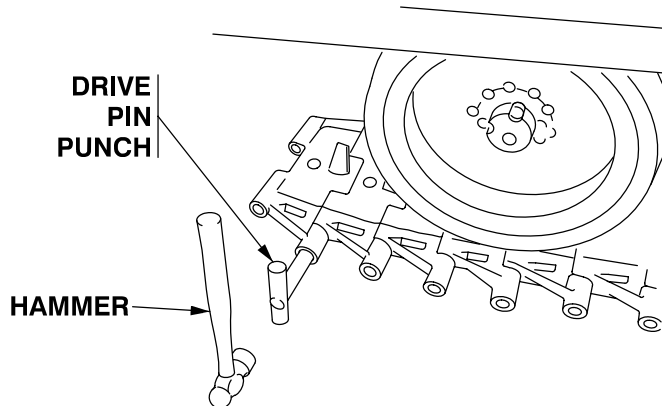
CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

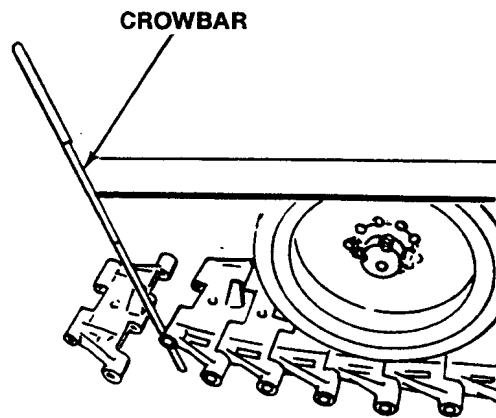
3. Drive track pin part way out with short end of drive pin punch. Use hammer. Remove drive pin punch.



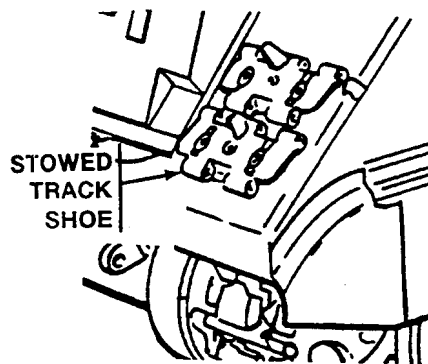
4. Drive track pin all the way out with long end of drive pin punch. Keep short end up and remove drive pin punch.



5. Remove track shoe from track. Use crowbar.

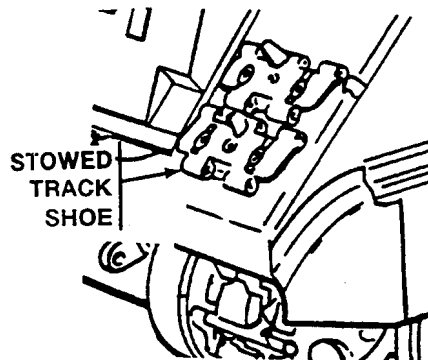


6. If removed shoe is not serviceable, return to unit maintenance. If removed shoe is serviceable, install the pin and nuts in the shoe. Stow shoe on left front of carrier just above the track. Use 1/2 inch drive socket handle and 3/4 inch socket.

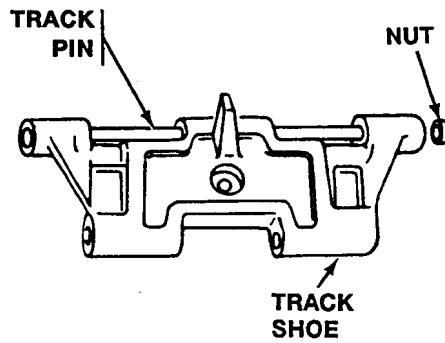


INSTALLATION

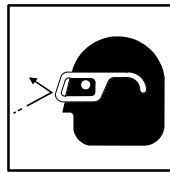
1. Unstow a spare track shoe from left front of carrier. Use 1/2 inch drive socket handle and 3/4 inch socket.



- Remove nut from track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



WARNING

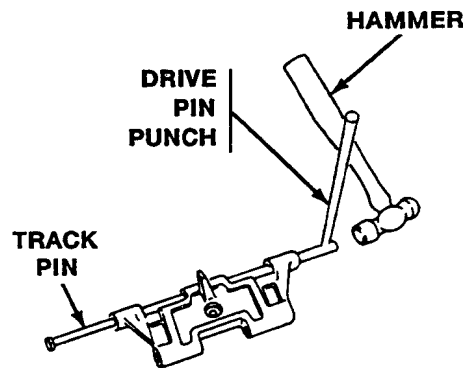


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

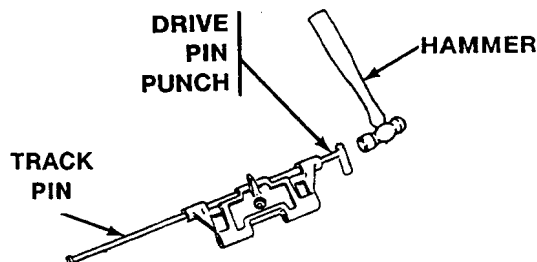
CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

- Drive track pin part way out with short end of drive pin punch. Use hammer. Remove drive pin punch.



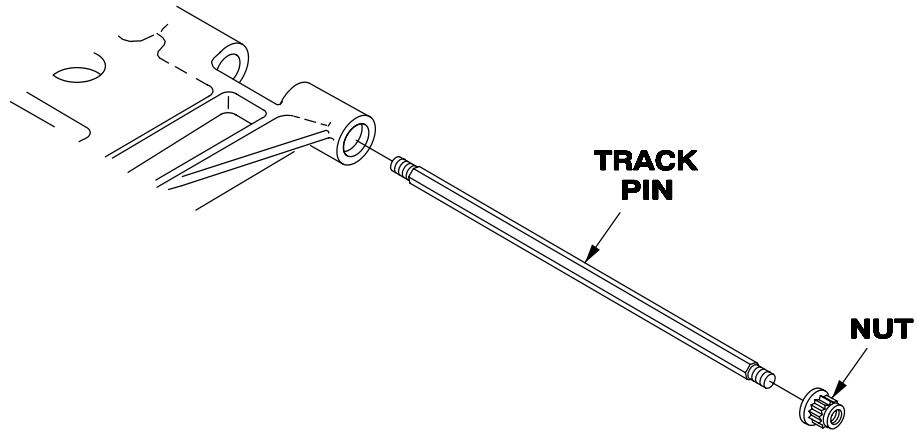
- Drive track pin all the way out. Use hammer and long end of drive pin punch.



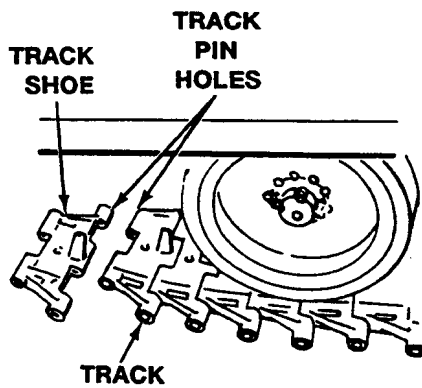
CAUTION

Oil or grease will destroy the rubber bushings in track shoes over time. Do not coat track pin with oil or grease.

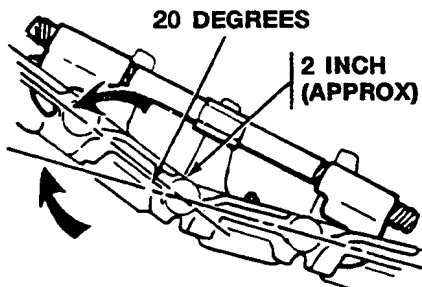
5. Install nut flush on track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



6. Place track shoe in lower part of track. Align track pin holes.



7. Obtain 20 degree angle between track shoes to be connected.

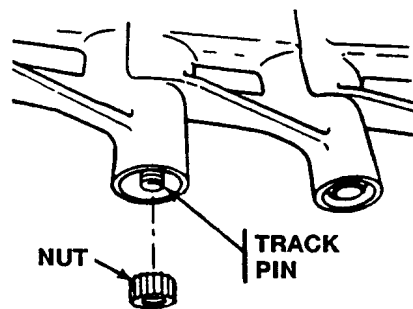


WARNING

Track shoe bushing failure can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Do not use excessive force that could damage the track shoe bushing while driving in the track pin during assembly.

8. Install track pin in track shoe.
9. Join track (WP 0078 00).
10. Install nut on track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



11. Adjust track tension (WP 0076 00).
12. Mark nut so unit maintenance can torque it. Fill out DA Form 2404 to notify unit maintenance to torque marked track pin nuts.

END OF TASK

REMOVE/INSTALL T150 TRACK SHOE

0081 00

THIS WORK PACKAGE COVERS:

Removal (page 0081 00-1).
 Installation (page 0081 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Helper (H)

Tools and Special Tools

End Connector Remover (WP 0094 00, Table 2, Item 38)
 Extension, Wrench Handle (WP 0094 00, Table 2, Item 17)
 Hammer, Hand, 2 lb. (WP 0094 00, Table 2, Item 25)
 Hammer, Hand, 4 lb. (WP 0095 00)
 Handle, Socket Wrench, 3/4 inch Drive (WP 0094 00, Table 2, Item 29)
 Socket, 3/4 inch Drive, 1 1/8 inch Opening, 6 pt. (WP 0094 00, Table 2, Item 44)
 Tool, Track Pin Alignment (2) (WP 0094 00, Table 2, Item 54)

References

WP 0079 00

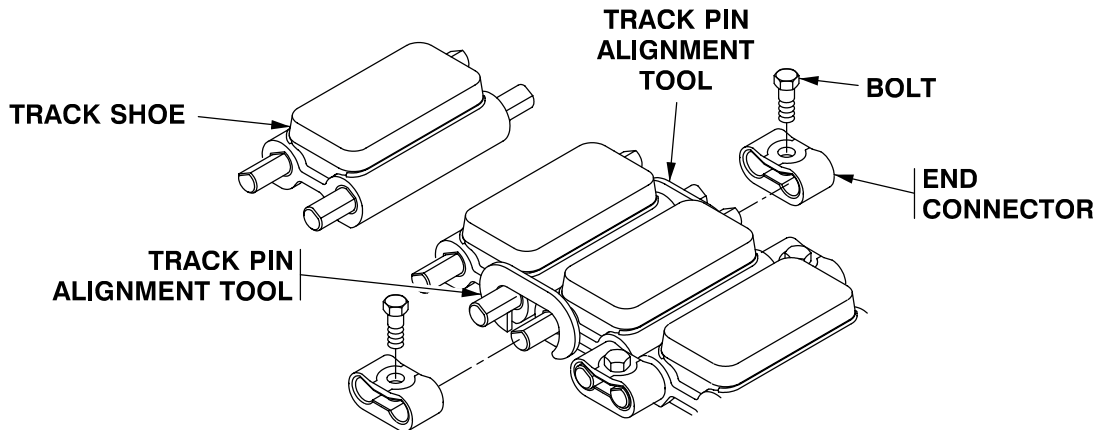
Equipment Condition

Carrier on level surface

Engine stopped (WP 0029 00)

REMOVAL

1. Remove spare track from stowage.
2. Break track (WP 0079 00).
3. Remove track shoe from track.
 - a. Remove two bolts from inside and outside end connectors.
 - b. Remove two end connectors from track shoes.



INSTALLATION

WARNING

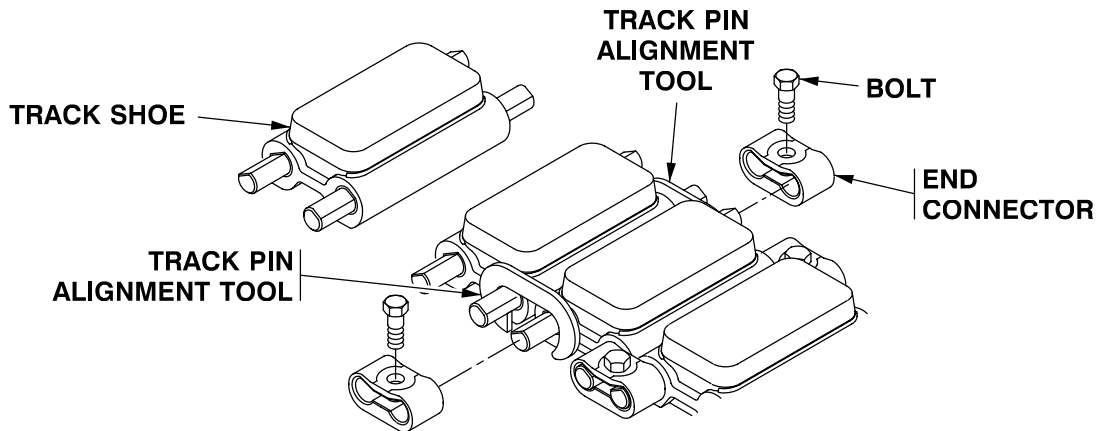


Loss of track end connector can cause track throw and loss of vehicle control. Soldiers can be killed or injured. Mark end connector bolts. Notify maintenance to torque bolts.

NOTE

Position track shoes at slight angle to install end connectors on both shoe pins. Proper tightening of end connector bolts keeps them from coming loose. Have unit maintenance properly torque as soon as possible.

1. Install new track shoe on track.
 - a. Install two track pin alignment tools over track shoe pins. Install two track end connectors on track shoes. Remove track pin alignment tools before driving end connectors flush with pin ends.
 - b. Drive end connectors flush with pin ends and install bolts on each end connector.
 - c. Tighten bolts using extension wrench on handle with socket.



2. Mark track that was replaced so bolts can be torqued later.
3. Join track (WP 0079 00).
4. Stow spare track shoe.
5. Notify unit maintenance to torque bolts.

END OF TASK

TRACK SHOE WEAR LIMITS

0082 00

THIS WORK PACKAGE COVERS:

Track Shoe Wear Limits (page 0082 00-1).

INITIAL SETUP:

Maintenance Level

Operator

References

WP 0080 00

WP 0081 00

Tools and Special Tools

Track and Sprocket Gauge (T130) (WP 0094 00, Table 2, Item 22)

Track Tension and Sprocket Wear Gauge (T150) (WP 0094 00, Table 2, Item 23)

Equipment Condition

Carrier parked on level ground

Engine stopped (WP 0029 00)

Personnel Required

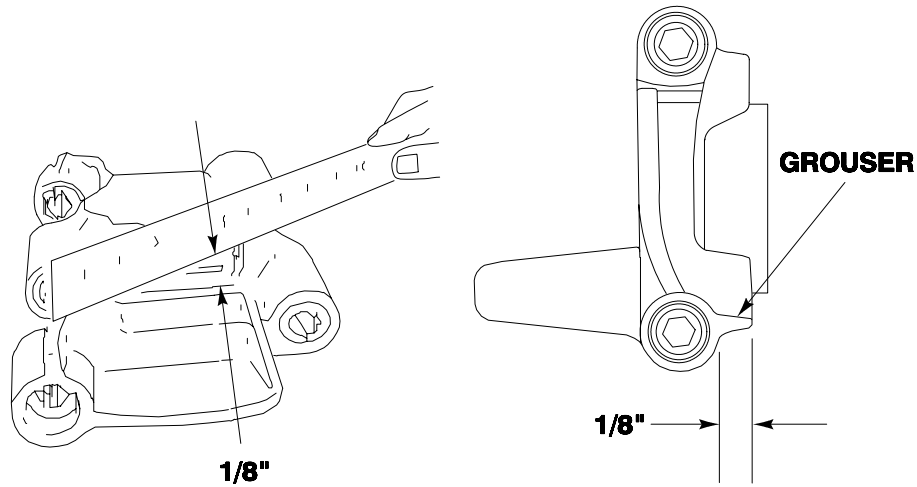
Soldier

TRACK SHOE WEAR LIMITS

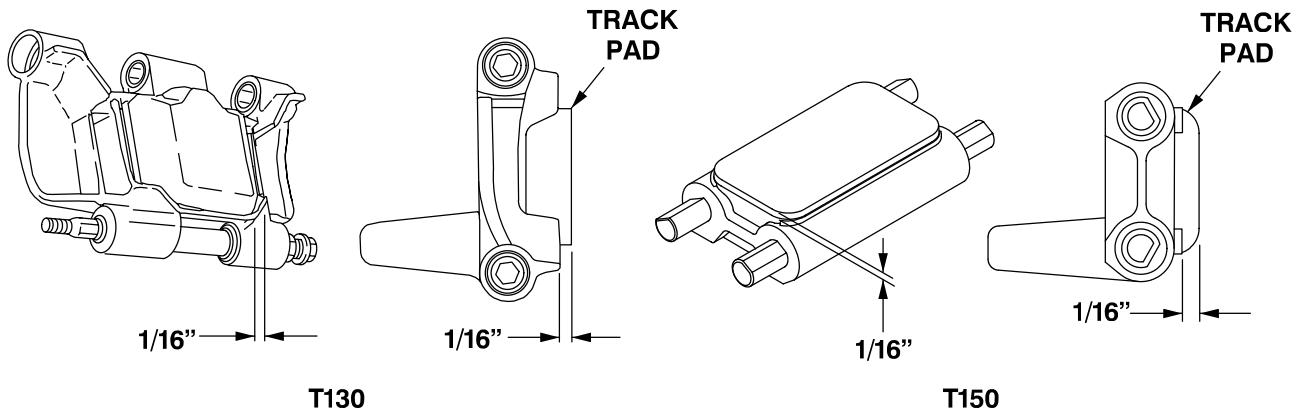
NOTE

All M113A2 family carriers were built with the T130E1 track shoe assembly. However, your carrier may have a T130 or T150 track shoe assembly installed as a replacement for the original. A track assembly should be made up of all T130E1 pads, all T130 pads, or all T150 pads. Mixing these pads in a track assembly should NOT be done.

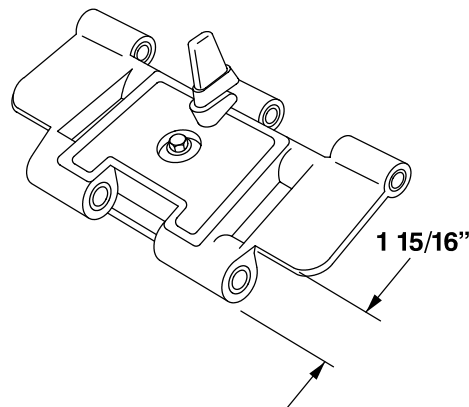
1. **Grouser height (T130 only).** Measure the height of the top edge of the grouser above the bushing housing. If the shoe has less than 1/8 inch of grouser height left, it must be replaced.



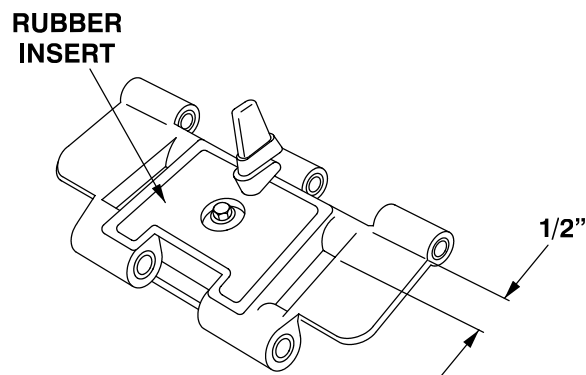
2. **Track shoe pad (both T130 and T150).** Measure the height of the top of the track shoe pad above the top of the grouser. If this is less than 1/16 inch, the pad is too worn. Have unit maintenance replace the pad.



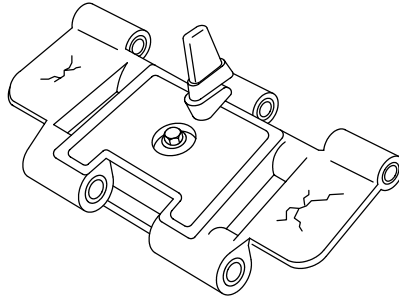
3. **Drive sprocket flange (leading) (T130 only).** On the two bushing end of the shoe, measure the distance from the edge of the sprocket drive hole to the outside of the bushing housing. If the distance is less than 1-15/16 inch, the shoe must be replaced.



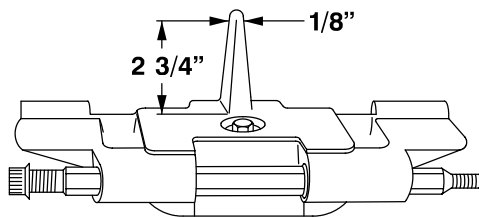
4. **Drive sprocket flange (trailing) (T130 only).** At the three bushing end of the shoe, measure from the edge of the sprocket drive hole to the nearest outside edge of the shoe. If it's less than 1/2 inch, the shoe must be replaced.



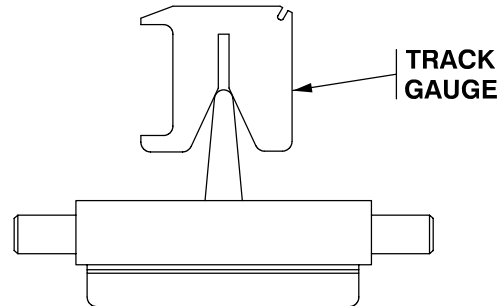
5. **Track shoe forging (T130 only).** Look for cracks in the grousers, pad recess, the ears (track web area outside the grousers and sprocket drive holes), and the sides of the sprocket drive holes. If the cracks are less than 1 inch long in these plates, get the cracks welded. If cracks are 1 inch or longer, or in any other place, the shoe must be replaced.



6. **Center guide (T130 and T150).** The center guide has to be 1/8 inch thick or more, measured 2 3/4 inch from the face of the track. The center guide must be at least 2 3/4 inches long. Report to unit maintenance to replace the track shoe. Use track gauge (WP 0094 00, Table 2, Item 23) as shown for T150. If gauge touches track shoe it is bad. Replace shoe.

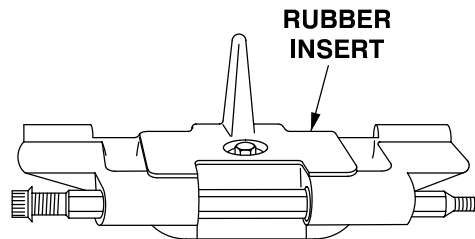


T130



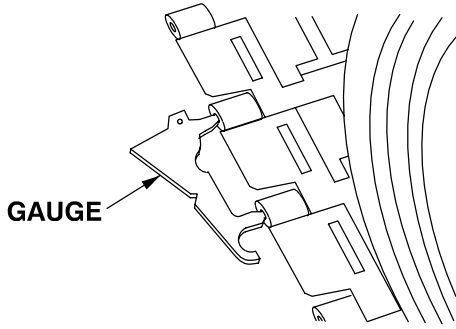
T150

7. **Rubber inserts (T130 only).** Look at the rubber inserts that bear on the road wheels. If there is 3/8 inch or more separation between the rubber and metal all the way around, the shoe must be replaced. If the insert shows chunking 1/2 inch or more deep on 10 percent or more of its surface, the shoe must be replaced.

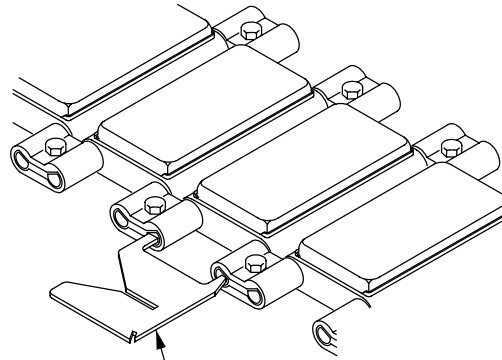


T130

8. **Bushing wear (T130 and T150).** With the track on the carrier and under normal tension, insert pins of track and sprocket gauge into track shoes (T130). If pins of track gauge (WP 0094 00, Table 2, Item 22) enter both track shoes freely, track bushings are OK; if pins do not enter both track shoes freely, bushings are worn. Report any worn bushings to unit maintenance. (T150) If track gauge (WP 0094 00, Table 2, Item 23) enters both end connector pins, bushings are worn. Notify unit maintenance to replace track shoe.

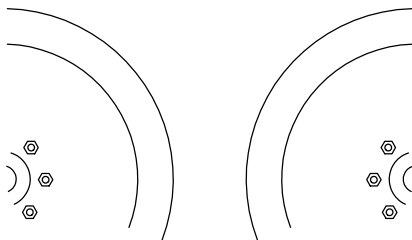
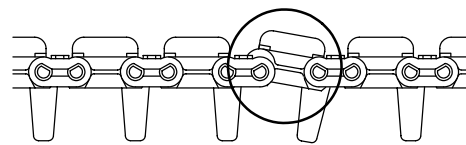
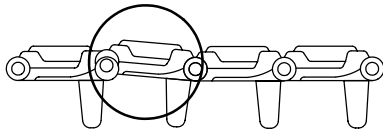


T130

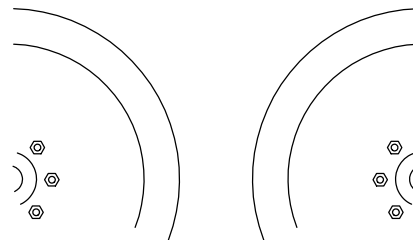


T150

9. **Dead shoes (T130 and T150).** Look for shoes with one end that sticks up above the same side of the next shoes on upper side of track. This is caused by the rubber bushing rotating in the shoe. Record fault on DA Form 2404 and report to unit maintenance. If carrier has extra shoes stowed on front of carrier, replace dead shoes. See task: REMOVE/INSTALL T130 TRACK SHOE (WP 0080 00) or REMOVE/INSTALL T150 TRACK SHOE (WP 0081 00).

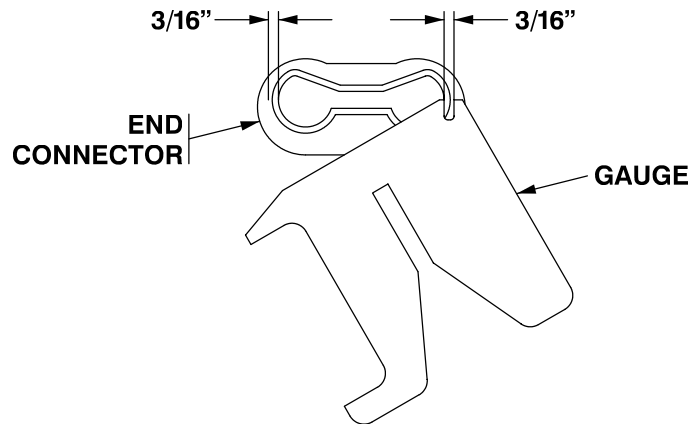


T130



T150

10. **End Connectors (T150 only).** Visually look at the outside edge thickness of the end connectors. If any end connector appears to be worn where the sprocket teeth make contact more than the rest of the end connectors, the end connector must be removed to measure it with the track gauge (WP 0094 00, Table 2, Item 23). The inside portion is generally where it will wear out and can only be checked when it is removed from the track shoe. If you remove the end connector to measure it and reinstall it, make sure you have unit maintenance torque it properly before operating the carrier for any length of time or going on any missions. Measure the outside edge thickness of end connector. If the track gauge fits over the end connector edge, end connector is worn. Have unit maintenance replace end connector.



END OF TASK

MEASURING SPROCKET WEAR

0083 00

THIS WORK PACKAGE COVERS:

Measuring Sprocket Wear (page 0083 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Soldier

Tools and Special Tools

Track and Sprocket Gauge (WP 0094 00, Table 2, Item 22)

Equipment Condition

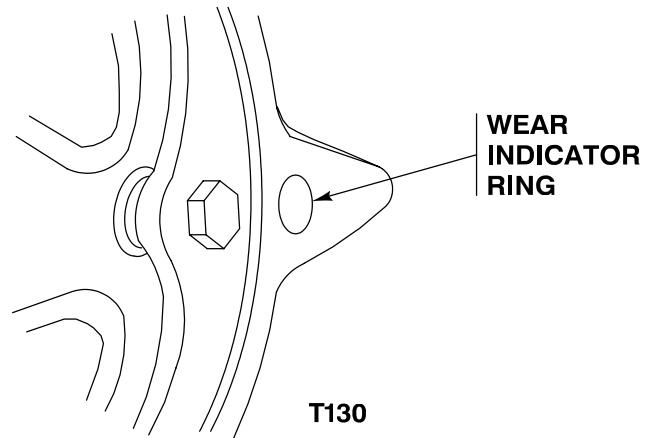
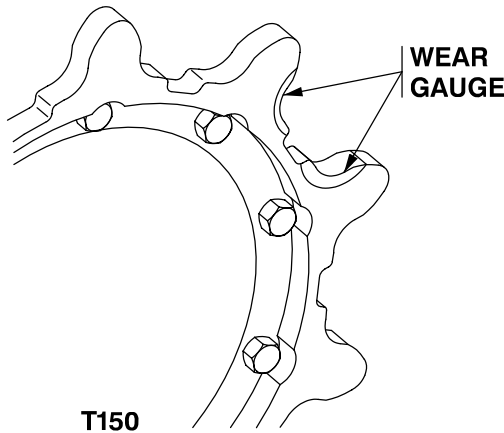
Carrier parked on level ground
Engine stopped (WP 0029 00)

MEASURING SPROCKET WEAR

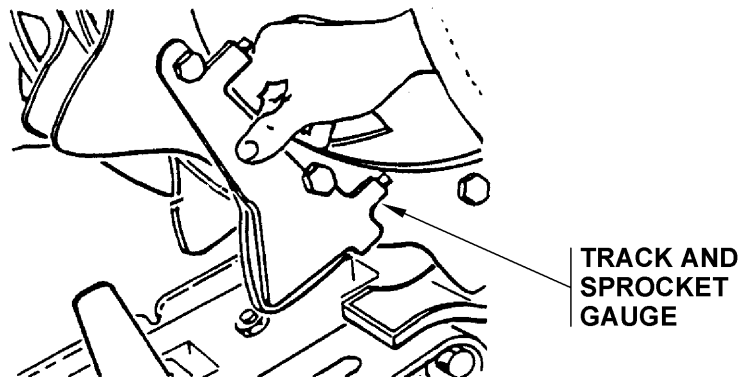
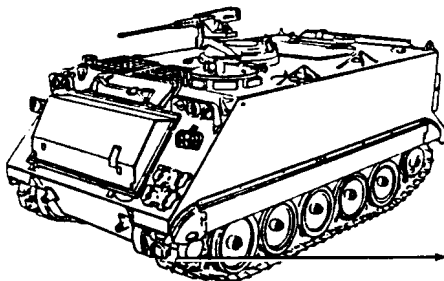
NOTE

New style drive sprockets (T150) have a round circle for a wear indicator and do not require track and sprocket gauge to measure sprocket tooth wear. Old drive sprockets (T130) require track and sprocket gauge to measure sprocket teeth; late style sprockets have a wear indicator.

1. If carrier throws the track, or the tracks make excessive noise it could be due to worn track drive sprockets.



2. To check, use track and sprocket gauge to measure sprocket teeth.



3. If gauge indicates wear on teeth, report it to unit maintenance.

END OF TASK

ASSEMBLE T130 TRACK SHOE SECTIONS OFF VEHICLE

0084 00

THIS WORK PACKAGE COVERS:

Assembly (page 0084 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Helper (H)

Tools and Special Tools

Crowbar (WP 0094 00, Table 2, Item 11)

Drive Pin Punch (WP 0094 00, Table 2, Item 37)

Grease Gun (WP 0094 00, Table 2, Item 24)

Hammer, 2 lb (WP 0094 00, Table 2, Item 25)

Industrial Goggles (WP 0095 00)

Open End Wrench, Adjustable (WP 0094 00, Table 2, Item 57)

Socket Wrench, 11/16 inch (WP 0094 00, Table 2, Item 43)

Track Fixtures (WP 0094 00, Table 2, Item 21)

Wrench Handle (WP 0094 00, Table 2, Item 28)

Equipment Condition

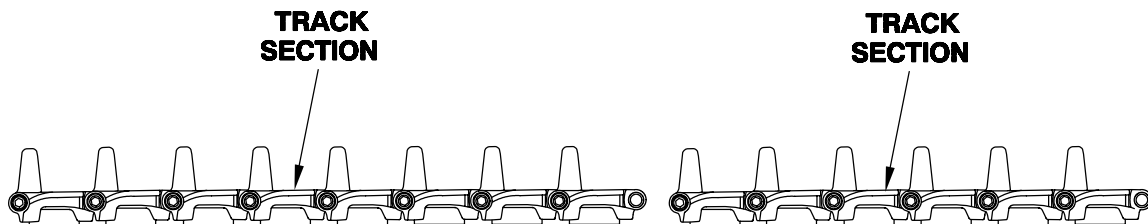
Track on level surface

ASSEMBLY

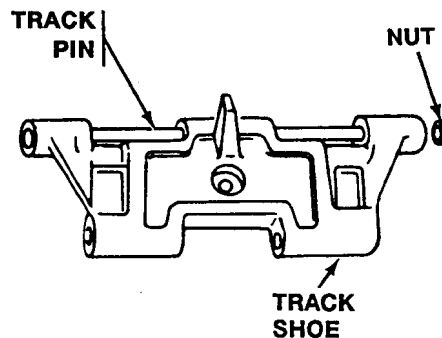
NOTE

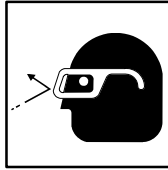
Track shoe sections may come in 7 or 8 shoes per section. Make sure to count the number of shoes during assembly. For all M113A2 FOV there are 63 track shoes required for the left side and 64 track shoes required for the right side. Inspect each track shoe to see if anything is wrong before it is assembled.

1. Match two sections of track. Have helper assist.



2. Remove nut from track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



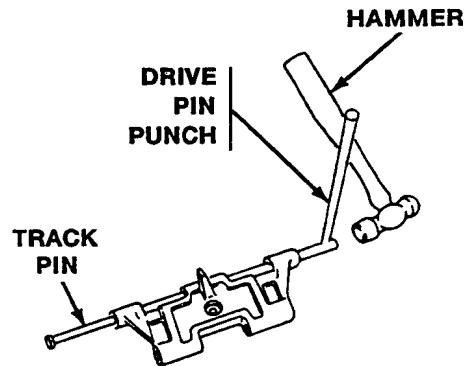
WARNING

Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

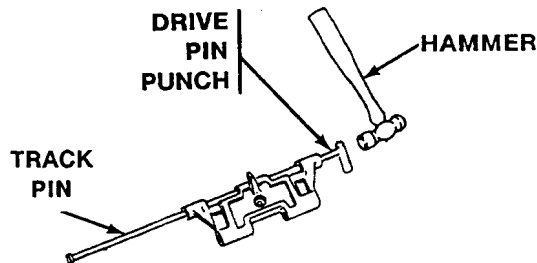
CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

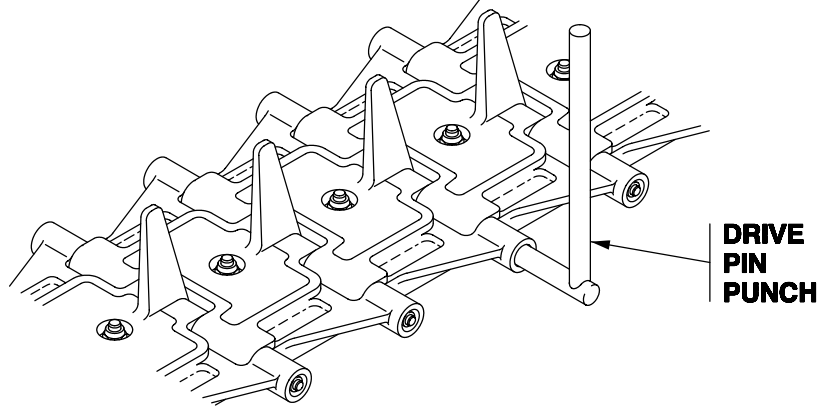
3. Drive track pin part way out with short end of drive pin punch. Use hammer. Remove drive pin punch.



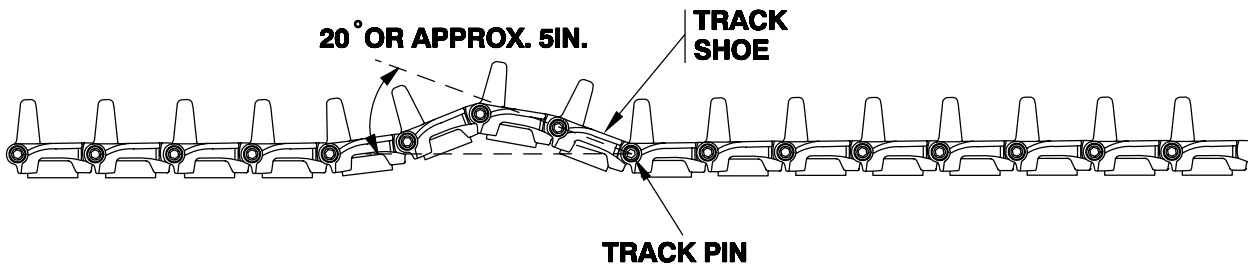
4. Drive track pin all the way out. Use hammer and long end of drive pin punch.



5. Insert drive pin punch into track shoes to keep sections together.



6. Insert crowbar in first track shoe slot. Lift or tilt track to obtain the 20 degrees or approximately 5-inch lift as shown below to get the right angle for installing the track pin through both track shoes. Adjust crow bar angle to help allow the track pin to be driven smoothly into place.



WARNING

Track shoe bushing failure can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Do not use excessive force that could damage the track shoe bushing while driving in the track pin during assembly.

WARNING

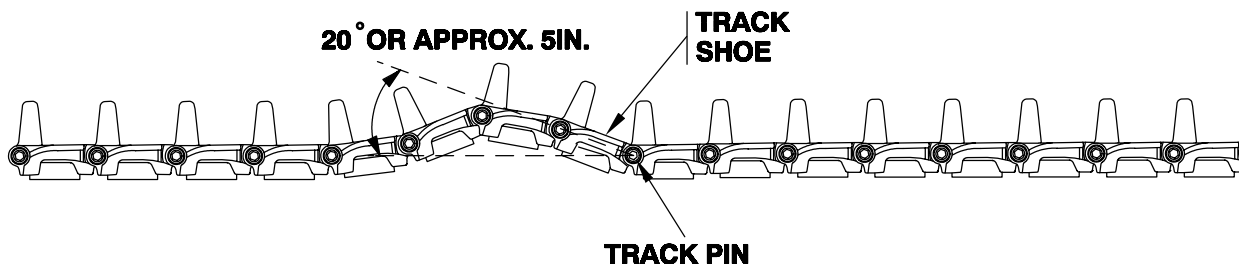
Track shoe bushing failure due to improper angle of track during pin assembly can cause track assembly failure and loss of vehicle control. Soldiers can be killed or injured.

Make sure track is assembled with the right amount of angle or lift as shown below. Properly assembled track will lay flat. Incorrectly assembled track will bulge upward.

CAUTION

Oil or grease will damage the track shoe bushing over time. Do not use oil or grease on track pin during assembly. Track pins have a coating to protect them from rusting that does not need to be removed.

7. Insert track pin into track shoe. Use 2 lb hammer. Adjust crowbar angle to obtain 20 degrees or approximately 5-inch angle as shown.
8. Install and tighten nut until one full thread shows on track nut. Use 1/2 inch drive socket wrench handle and 11/16 inch socket.
9. Scribe a mark with a screwdriver above the nut on the metal surface of shoe, for torquing by unit maintenance. Contact unit maintenance.



10. Repeat Steps 1 - 9 until you have 63 or 64 track shoes in one assembly.

END OF TASK

CHECK CARRIER BATTERIES

0085 00

THIS WORK PACKAGE COVERS:

Check Carrier Batteries (page 0085 00-1)

INITIAL SETUP:

Maintenance Level

Operator

References

TM 9-6140-200-14

Materials/Parts

Flashlight (WP 0096 00, Item 6)

Wiping rag (WP 0096 00, Item 10)

Equipment Condition

Engine stopped (WP 0029 00)

Personnel Required

Driver

CHECK CARRIER BATTERIES

WARNING



Battery posts and cables touched by metal objects can short circuit and burn you or injure you. Use caution when you work with tools or other metal objects. Do not wear jewelry when you work on electrical system.

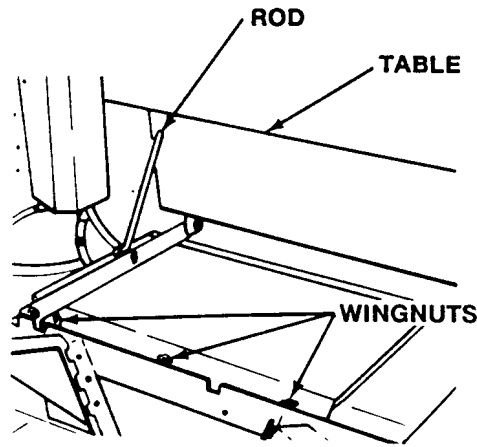
WARNING



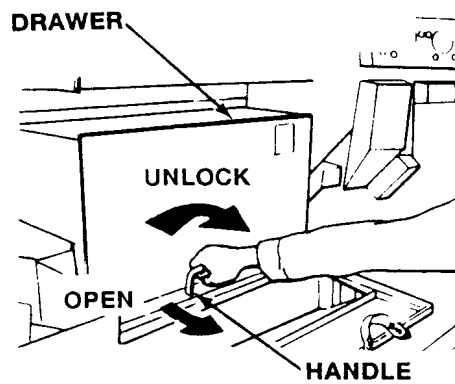
Gas from batteries can explode and injure you. Do not allow sparks near batteries. Battery acid can blind or burn you. Do not get acid on your skin or eyes.

1. To access battery connections:
 - a. On M113A2 and M1059, release two latches on side of box. Lift and slide cover from battery box.

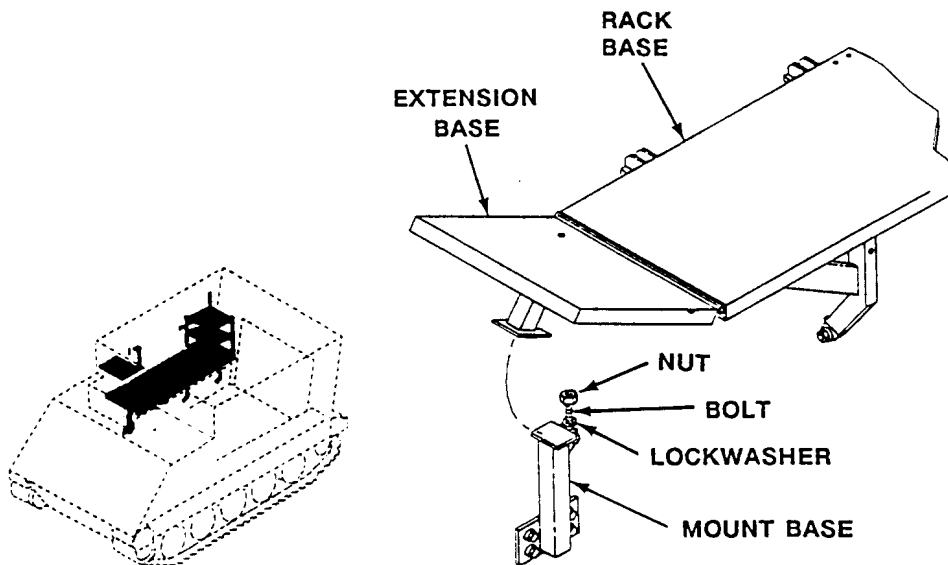
- b. On M577A2, raise right forward table or extension. Secure table with support rod and remove three wingnuts. Lift and slide cover from battery box.



- c. On M1064, lower left crew seat back rest and turn handle. Then pull drawer out.



- d. On the M1068, raise extension base by loosening nut. Pivot bolt to free extension base.
- e. Raise extension base and rest on rack base.

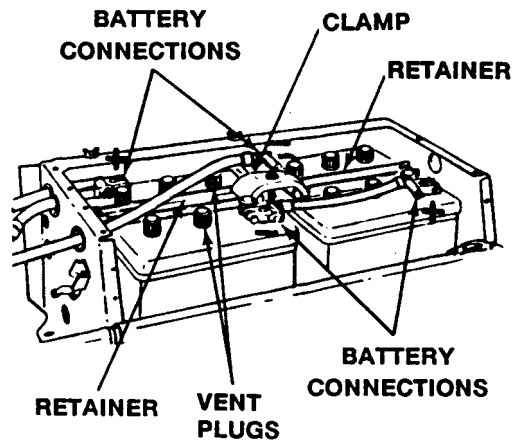


2. Check battery retainers and clamp with both hands and try to move them. If batteries move or seem loose, report it to unit maintenance.
3. Check battery connections. Try to twist clamp with thumb and first two fingers. Check to see if cables are securely connected to clamp. If clamp or connection is loose, report it to unit maintenance.

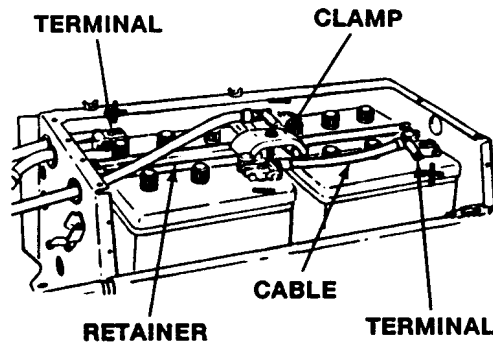
NOTE

Check the water level more frequently in hot weather.

4. Remove vent plugs from batteries and check battery electrolyte level. Use a flashlight. Look down into each battery cell. The electrolyte level should be covering the plates and to the lower edge of the vent. If battery cells are low or dry, add distilled water. Install vent plugs on battery cells.

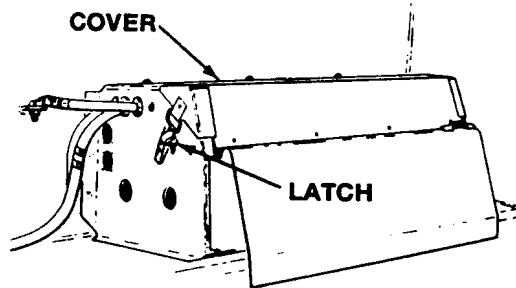


5. Clean battery. Wipe off battery casing and surrounding metal parts. Use clean dry wiping rag. Check terminals, clamp, cables, and retainers for corrosion. If wiping rag will not remove dirt, notify unit maintenance.
6. Coat terminals with a small amount of grease (GAA).

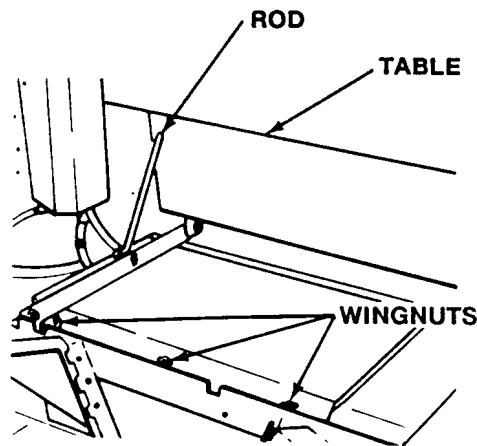


7. To install battery box covers:

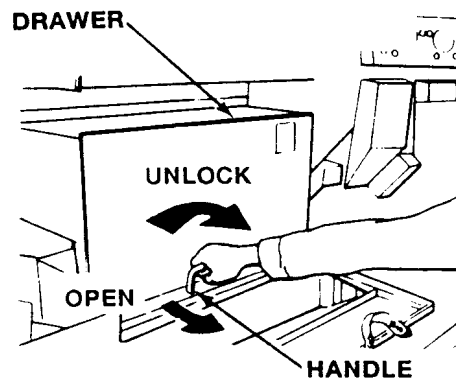
- a. On M113A2 and M1059, slide cover onto battery box and secure two latches on side of box.



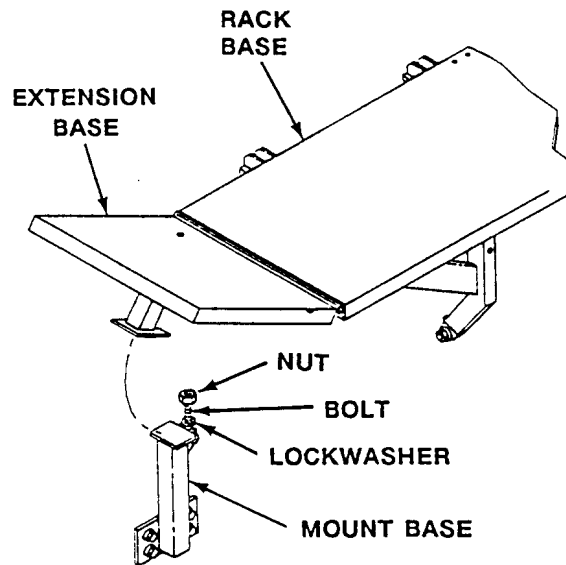
- b. On M577A2, slide cover onto battery box and install three wing nuts. Remove support rod and lower table.



- c. On M1064, install drawer on battery box and turn handle. Raise left crew seat back rest.



- d. On the M1068, position the extension base on mount base and secure with bolt, lockwasher, and nut.



8. For more information on batteries, see TM 9-6140-200-14.

END OF TASK

SERVICE BILGE PUMPS

0086 00

THIS WORK PACKAGE COVERS:

- Front Bilge Pump (page 0086 00-1).
- Rear Bilge Pump (page 0086 00-3).
- Bilge Pumps Operation Check (page 0086 00-5).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

- Driver
- Helper (H)

Tools and Special Tools

- Cross Tip Screwdriver (WP 0094 00, Table 2, Item 39)
- Socket Wrench, 1/2 x 3/4 (WP 0094 00, Table 2, Item 43)
- Socket Wrench Handle, 1/2 inch Drive (WP 0094 00, Table 2, Item 28)

References

- WP 0014 00
- WP 0015 00
- WP 0047 00

Materials/Parts

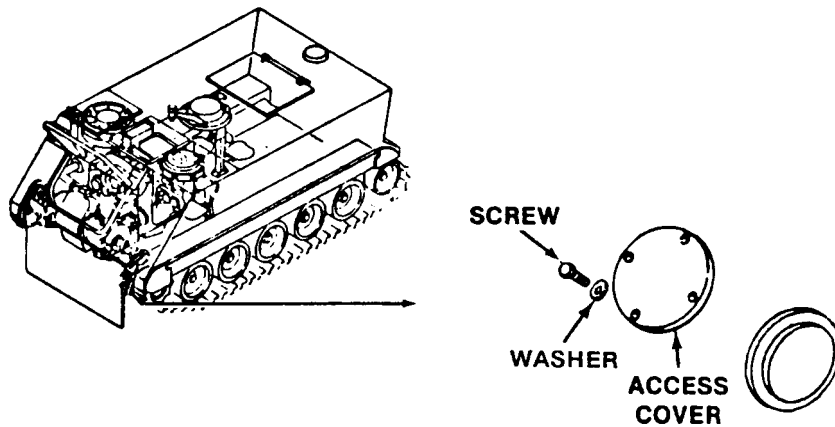
- Flashlight (WP 0096 00, Item 6)

Equipment Condition

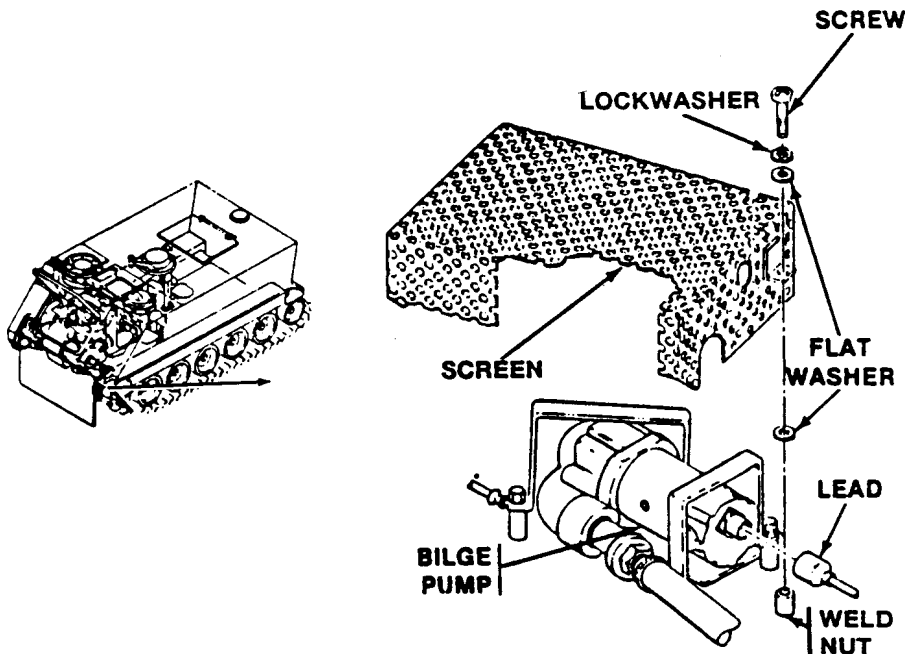
- Engine stopped (WP 0029 00)

FRONT BILGE PUMP

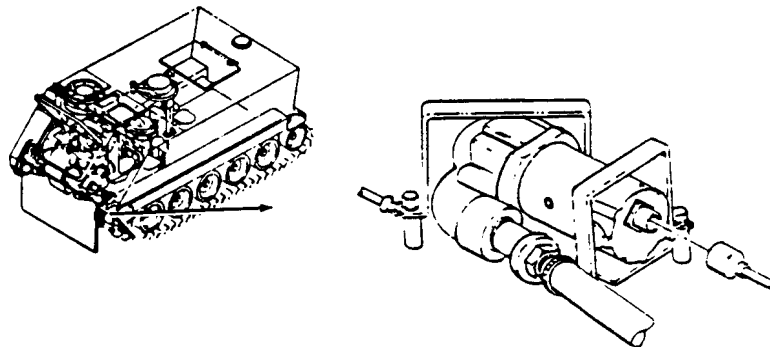
1. Lower trim vane (WP 0047 00).
2. Open power plant access door (WP 0014 00).
3. Remove four screws, washers, and front access cover from hull. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.



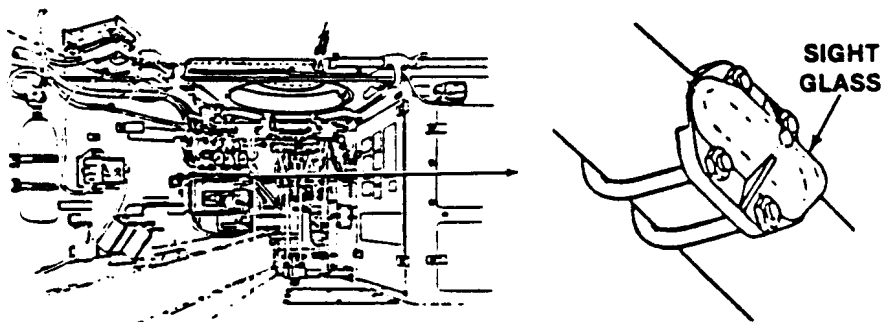
4. Service front bilge pump. Use flashlight.
5. Disconnect lead from bilge pump.
6. Remove two screws, lockwashers, and flat washers securing bilge pump screen to weld nuts. Remove screen. Use cross tip screwdriver.
7. Remove mud and debris from bilge pump and screen. If bilge pump needs additional cleaning, notify unit maintenance.



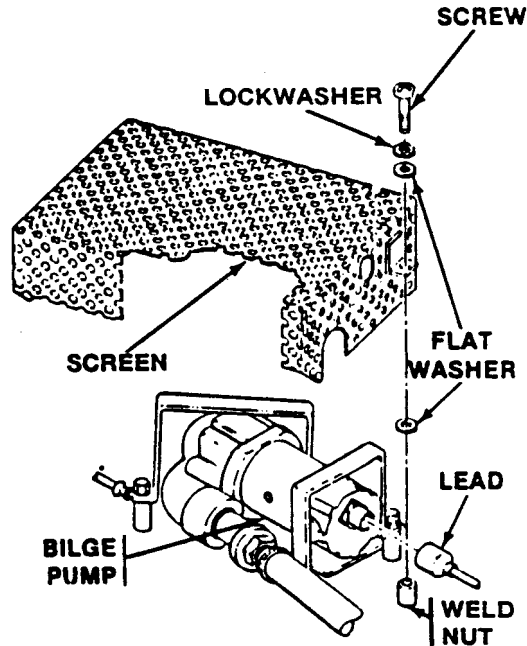
8. Clean vent hole. Use a wire and run it back and forth in vent hole a few times.



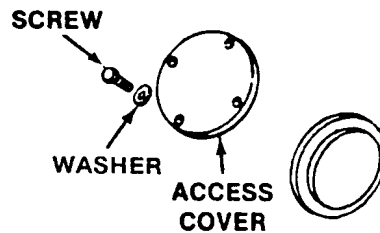
9. Clean front bilge pump outlet line sight glass as needed. If sight glass must be removed to get it clean, notify unit maintenance.



10. Position bilge pump screen on weld nuts and secure with two flat washers, lockwashers, and screws. Use cross tip screwdriver.
11. Connect lead to bilge pump.



12. Install front access cover on hull and secure with four washers and screws. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.

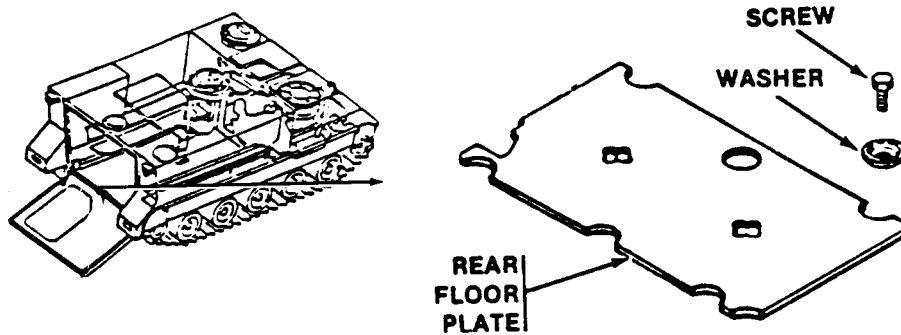


13. Close power plant access door (WP 0014 00).
14. Stow trim vane (WP 0047 00).

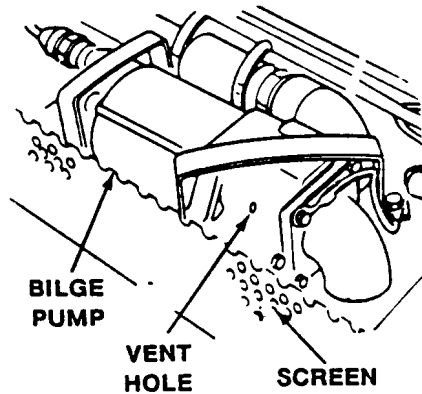
REAR BILGE PUMP

1. Lower ramp (WP 0015 00).

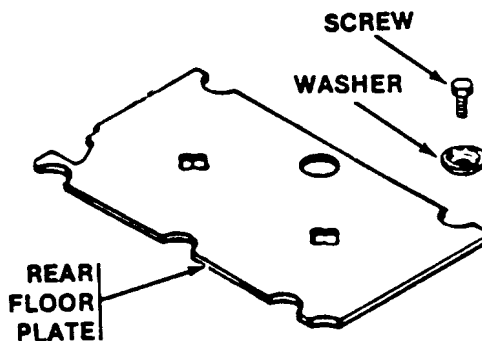
2. Remove six screws, washers, and rear floor plate from floor supports. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.



3. Service rear bilge pump. Use flashlight.
4. Remove mud and debris from bilge pump and screen. If bilge pump needs additional cleaning, notify unit maintenance.
5. Clean vent hole. Use a wire and run it back and forth in vent hole a few times.

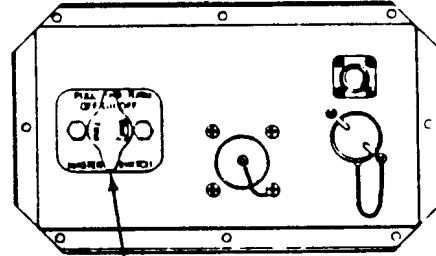
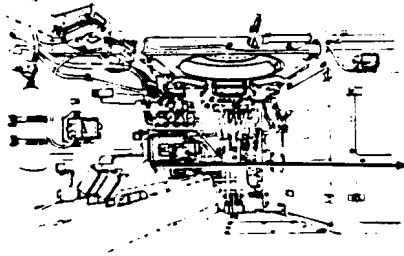


6. Install rear floor plate on floor supports and secure with six washers and screws. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.
7. Raise ramp (WP 0015 00).



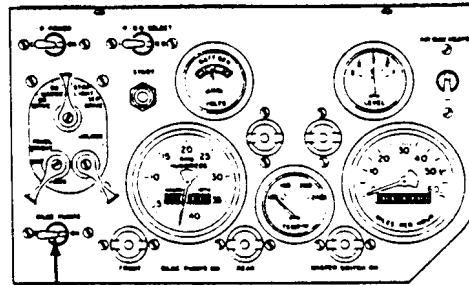
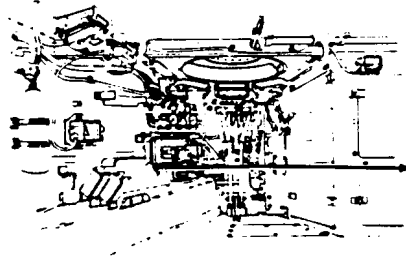
BILGE PUMPS OPERATION CHECK

1. Move MASTER SWITCH to ON.

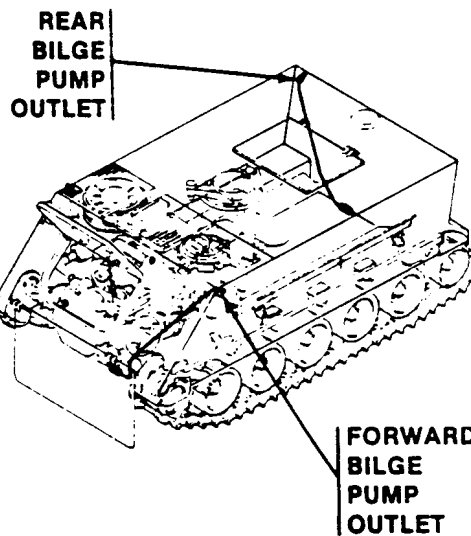


MASTER SWITCH

2. Move BILGE PUMPS switch to ON.
3. (H) Check for air flow at forward and rear bilge pump outlets.



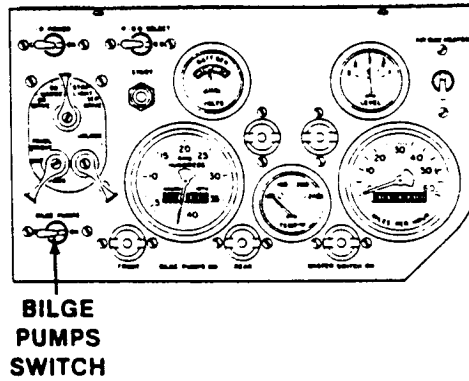
BILGE PUMPS SWITCH



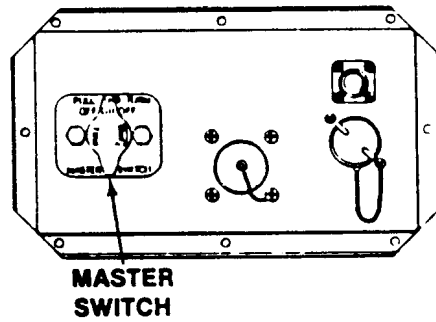
REAR BILGE PUMP OUTLET

FORWARD BILGE PUMP OUTLET

4. Move BILGE PUMPS switch to OFF.



5. Move MASTER SWITCH to OFF.



6. If faulty bilge pump(s) is (are) found, notify unit maintenance.

END OF TASK

SERVICE SMOKE GENERATOR FUEL CAN/FOG OIL TANK (M1059)

0087 00

THIS WORK PACKAGE COVERS:

- Removal (page 0087 00-1).
 - Service Smoke Generator Fuel Can (page 0087 00-2).
 - Installation (page 0087 00-3).
 - Service Fog Oil Tank (page 0087 00-3).
-

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Driver

References

TM 3-1040-283-20&P

Equipment Condition

Engine stopped (WP 0029 00)

Carrier blocked (WP 0050 00)

REMOVAL

WARNING



Fuel is flammable. Always use in area with good air flow, away from heat or flames. Do not breathe fumes. If fuel gets on hands, wash them. If fuel gets in eyes, flush with water and get medical help. Keep fire extinguisher nearby.

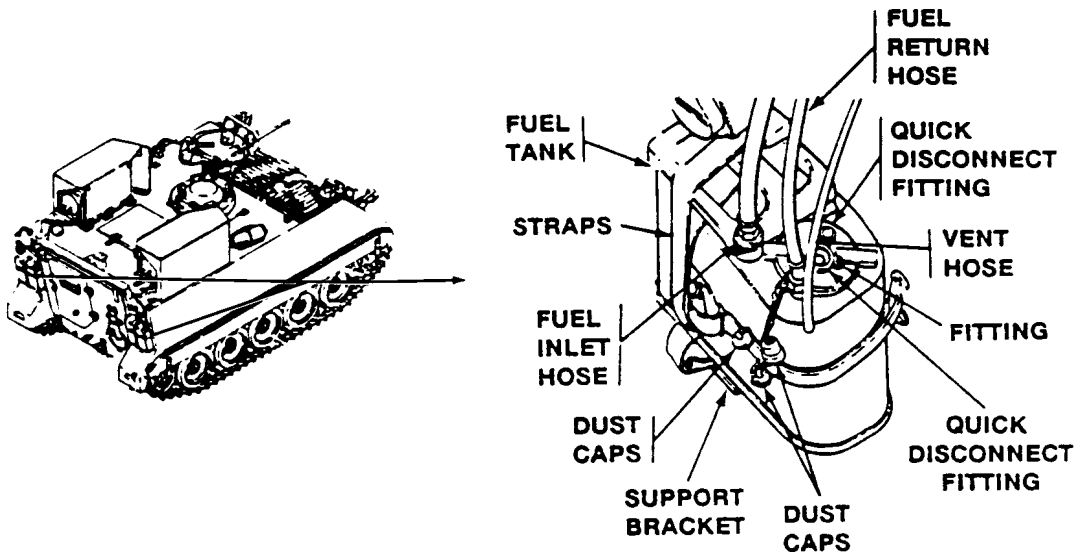
CAUTION

Fuel cans, hoses, and fittings should be cleaned prior to removal and installation or damage to equipment may result.

NOTE

There are two smoke generator fuel tanks. Procedures for servicing the right and left fuel tanks are the same.

1. Disconnect fuel return and supply hoses from tube adapters.
2. Disconnect fuel vent hose from tube adapter.
3. Release fuel can straps and lift fuel can off support bracket on hull.
4. Remove fuel can lid assembly from fuel can.



SERVICE SMOKE GENERATOR FUEL CAN

WARNING

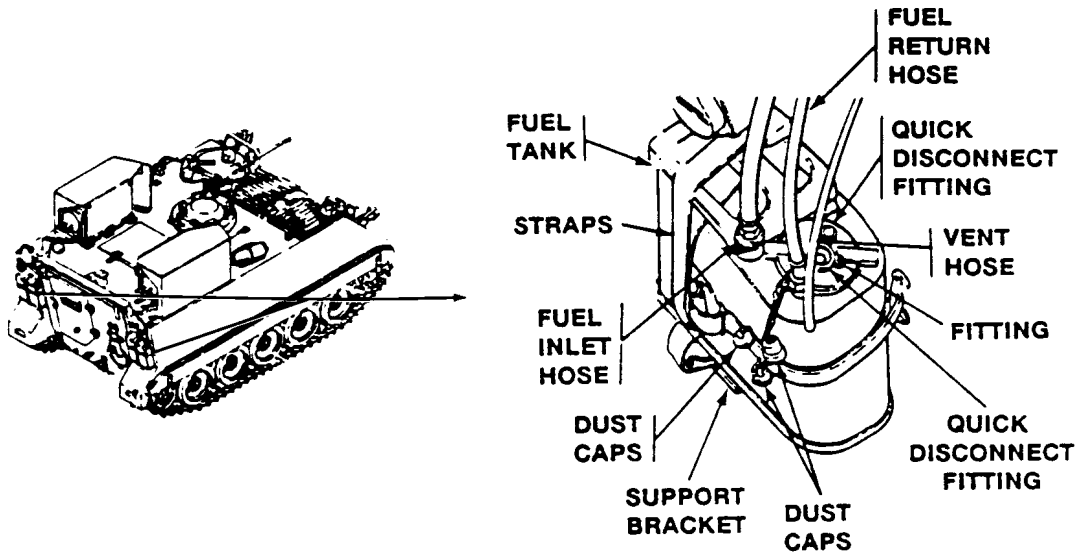


Do not fill fuel can with smoke generator running, while smoking, or when near an open flame. Never overfill the fuel can or spill fuel. An explosion can be caused, and death or injury to personnel may result. If fuel is spilled, clean it up immediately.

1. Fill fuel tank with fuel (multifuel) as required.

INSTALLATION

1. Install fuel can lid assembly on fuel can.
2. Position fuel can on support bracket on hull and secure with fuel tank straps.
3. Connect fuel vent hose to tube adapter.
4. Connect fuel return and supply hoses to tube adapters.



SERVICE FOG OIL TANK

1. See TM 3-1040-283-20&P for proper servicing.

END OF TASK

CHECK/FILL COOLING SYSTEM

0088 00

THIS WORK PACKAGE COVERS:

Check/Fill Cooling System (page 0088 00-1).

INITIAL SETUP:

Maintenance Level

Unit

References

WP 0049 00

Personnel Required

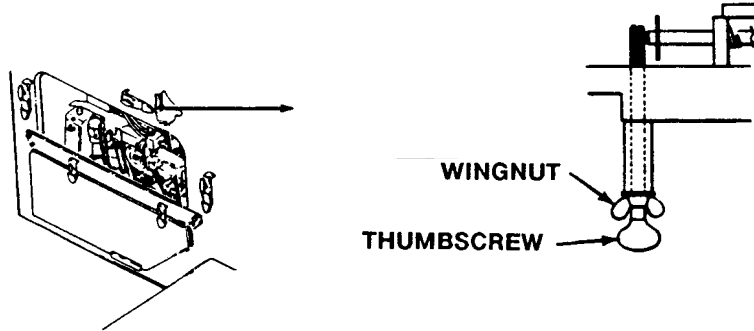
Driver

Equipment Condition

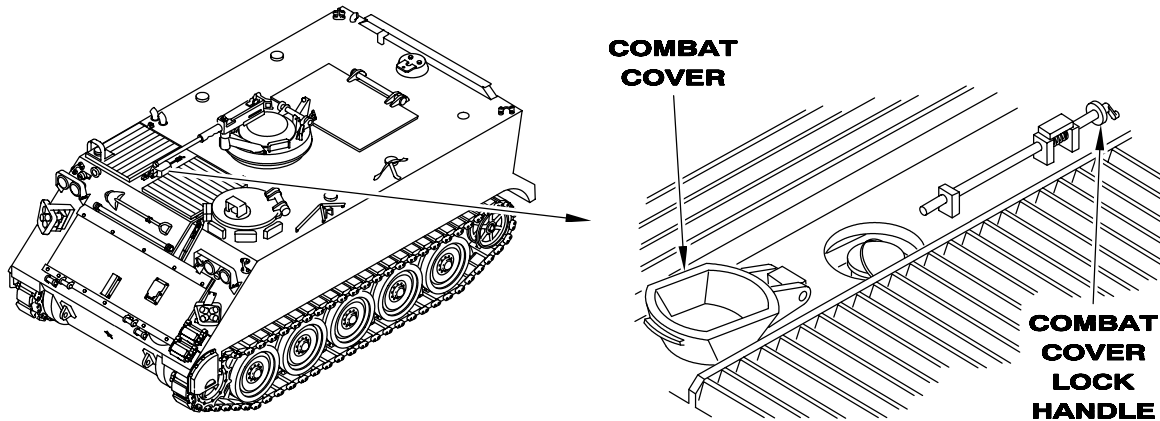
Engine stopped (WP 0029 00)

CHECK/FILL COOLING SYSTEM

1. Remove top rear power plant access panel (WP 0049 00).
2. Reach into power plant compartment and loosen wingnut. Turn thumbscrew to your left to unlock radiator cap combat cover.



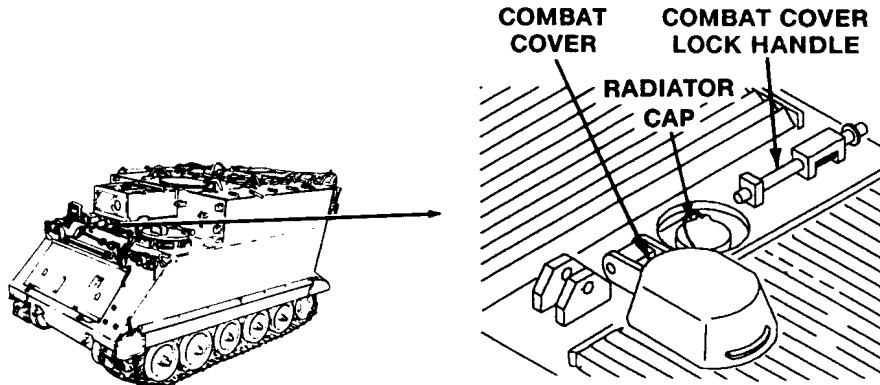
3. Pull combat cover lock handle and open combat cover.



NOTE

Do Step 4 for M577A2 and M1068 only.

4. Pull combat cover lock handle. Rotate combat cover to the left or right to access radiator cap.



WARNING



Hot radiator coolant can burn you. Use hand to remove cap only if cool to touch. Turn cap slowly to release pressure. Replace cap by pressing down and turning cap until tight.

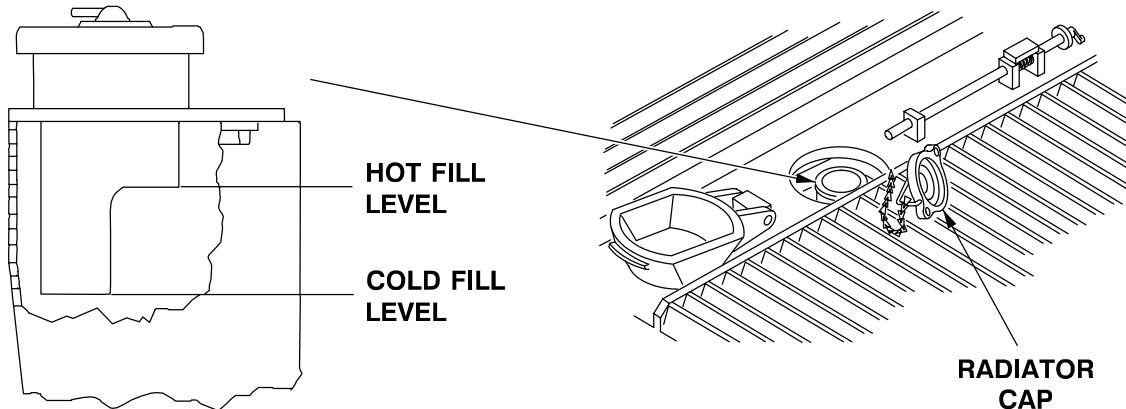
CAUTION

Adding coolant to an overheated engine could damage engine. Do not add coolant to an overheated engine unless engine is running.

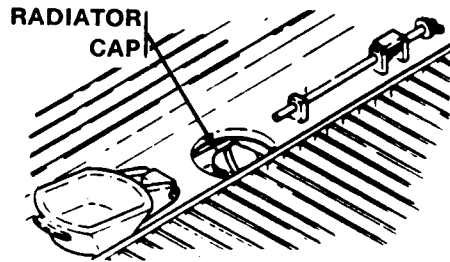
NOTE

Approved antifreeze coolant only may be added to radiator. In an emergency, water may be added if specified coolant is not available.

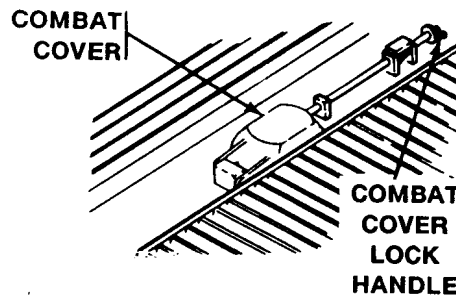
5. Remove radiator cap and check level of coolant. If coolant is hot, check that coolant reaches HOT FILL LEVEL in filler neck. If coolant is cold, check that coolant reaches COLD FILL LEVEL in filler neck. Add coolant as needed.



6. If water was added, ask unit maintenance to check antifreeze protection level.
7. Install radiator cap.



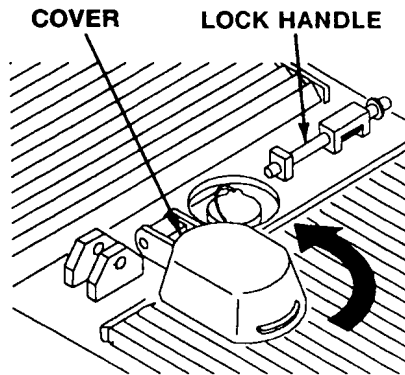
8. Close combat cover. Secure combat cover closed with combat cover lock handle.



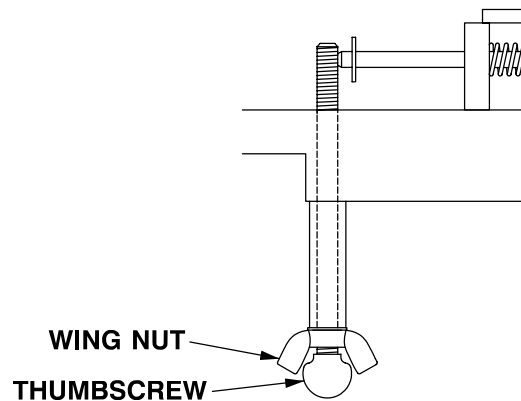
NOTE

Do Step 9 for M577A2 and M1068 only.

9. Rotate combat cover over radiator cap. Secure combat cover closed with combat cover lock handle.



10. Reach into power plant compartment and turn thumbscrew to your right until tight. Secure with wingnut.

**WARNING**

Engine exhaust gas is deadly poison. Make sure power plant access panels are closed tight before you start engine.

11. Install top rear power plant access panel (WP 0049 00).

END OF TASK

MAINTENANCE OF AIR CLEANER

0089 00

THIS WORK PACKAGE COVERS:

- Removal (page 0089 00-1).
 - Cleaning (page 0089 00-2).
 - Installation (page 0089 00-3).
-

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Driver

References

- DA Form 2404
- WP 0014 00
- WP 0047 00

Equipment Condition

Engine stopped (WP 0029 00)

REMOVAL

WARNING



Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

If NBC exposure is suspected, all air filter medial should be handled by personnel wearing protective equipment. Consult your unit NBC officer or NBC NCO for appropriate handling or disposal instructions.

Unlatched hatch covers can swing and injure personnel. Make sure hatches are latched open or closed.

CAUTION

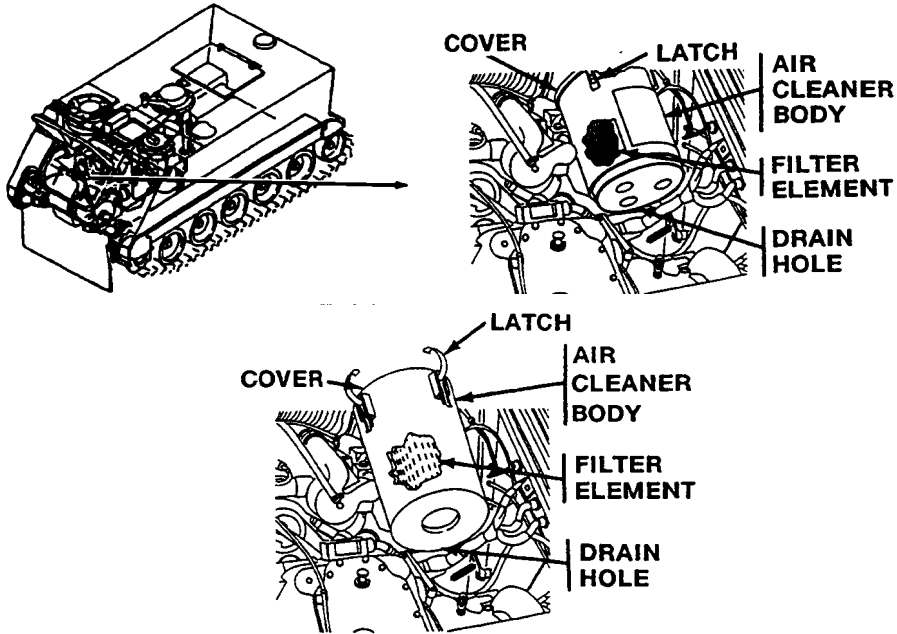
Operating carrier with air cleaner missing or damaged can cause extensive engine damage. Do not operate carrier if air cleaner element is missing or door or gasket is missing or damaged.

NOTE

You will have one of two air cleaner configurations. Body and elements are not interchangeable except as sets.

1. Lower trim vane (WP 0047 00).
2. Open power plant access door (WP 0014 00).

3. Release four latches. Remove air cleaner body and filter element from cover.
4. Remove filter element from air cleaner body.

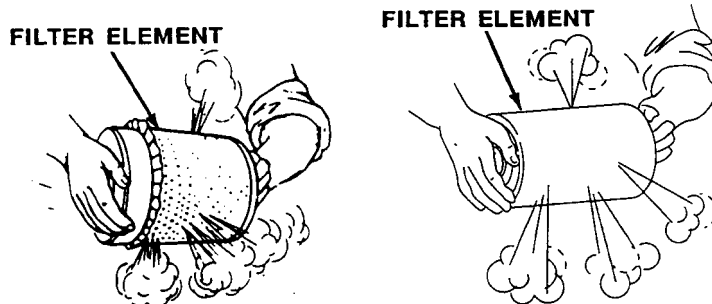


CLEANING

CAUTION

You will damage the element if you clean it in gasoline or dry cleaning solvent.

1. Clean filter element by jarring. Tap sides of filter element gently with your hands.

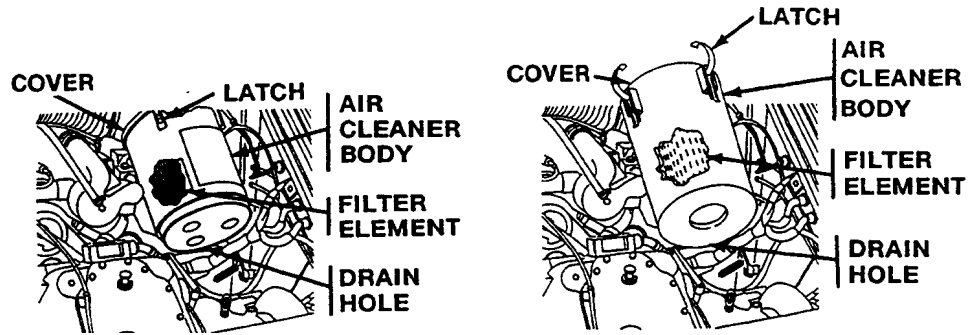


INSTALLATION

NOTE

If filter element cannot be cleaned satisfactorily by jarring, record fault on DA Form 2404 and report it to unit maintenance. Unit maintenance will clean the filter element by either the recommended air hose or washing method.

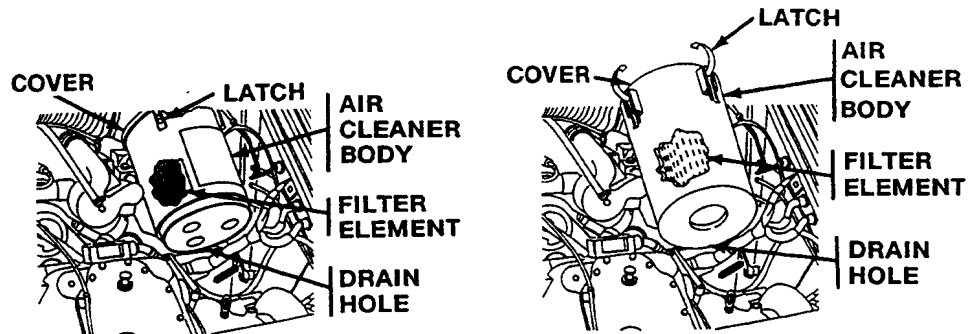
1. Install filter element in air cleaner body. Turn the filter element until the slot on the bottom is between stops in the air cleaner body.



NOTE

Drain hole in air cleaner body must be positioned as shown to align latches.

2. Secure air cleaner body to cover with four latches.



3. Close power plant access door (WP 0014 00).
4. Stow trim vane (WP 0047 00).

END OF TASK

DRAIN FUEL FILTERS

0090 00

THIS WORK PACKAGE COVERS:

Drain (page 0090 00-1).

INITIAL SETUP:

Maintenance Level

Unit

References

WP 0049 00

Personnel Required

Driver

Equipment Condition

Engine stopped (WP 0029 00)

Materials/Parts

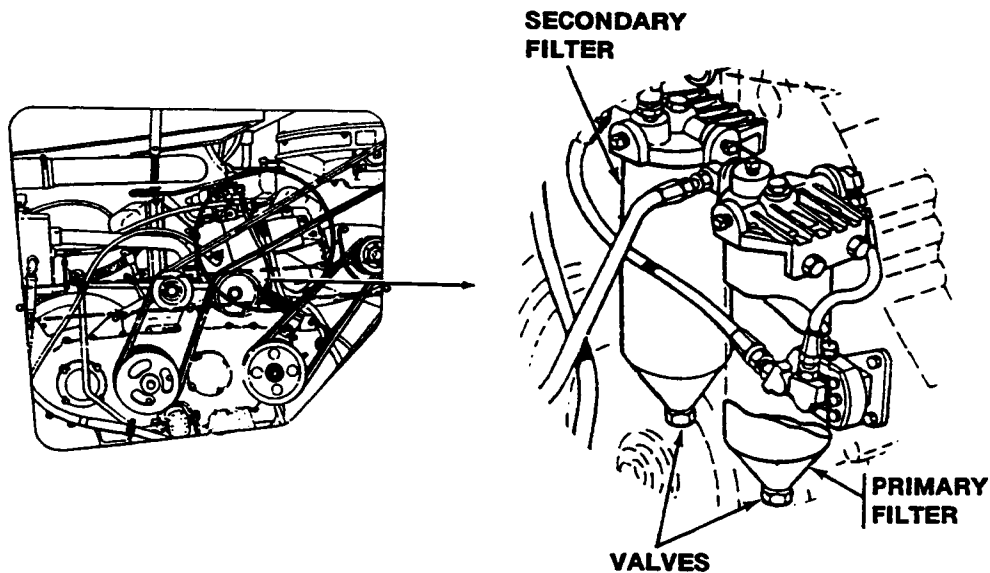
Wiping rag (WP 0096 00, Item 10)

Hose, 1/4 inch, 2 feet long

Suitable container

DRAIN

1. Remove power plant rear access panels (WP 0049 00).
2. Place a 2-foot length of 1/4 inch or other suitable bulk hose past the drive belts and idlers, and slip one end of the hose over the drain valve. Run the other end of hose into a suitable container resting on the crew compartment floor in order to catch the drained fuel. Open drain valve and remove bleed plug to drain filter.

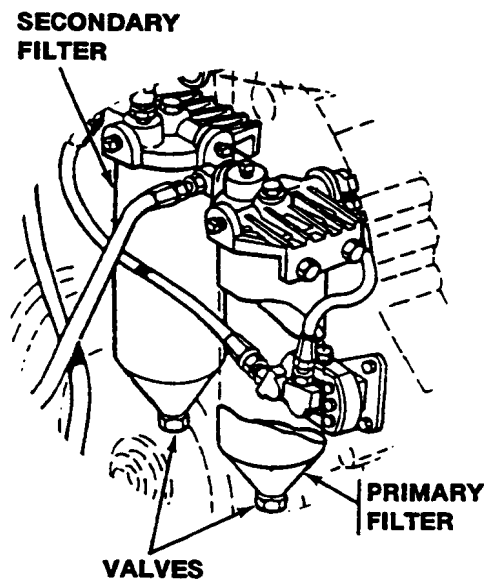


CAUTION

Open drain valves slowly so you do not spill fuel on the power plant.

3. Slowly open valve and let it run until all water is drained. When clean fuel starts to run from the fuel filter, close the valve.

4. Drain secondary fuel filter the same way.



5. Install power plant rear access panels (WP 0049 00).

END OF TASK

CLEAN/INSPECT SMOKE GRENADE LAUNCHER AND TUBES

0091 00

THIS WORK PACKAGE COVERS:

Clean/Inspect Smoke Grenade Launcher and Tubes (page 0091 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Materials/Parts

- Pipe cleaner (WP 0096 00, Item 2)
- Rifle bore cleaner (WP 0096 00, Item 3)
- Wiping rag (WP 0096 00, Item 10)

Equipment Condition

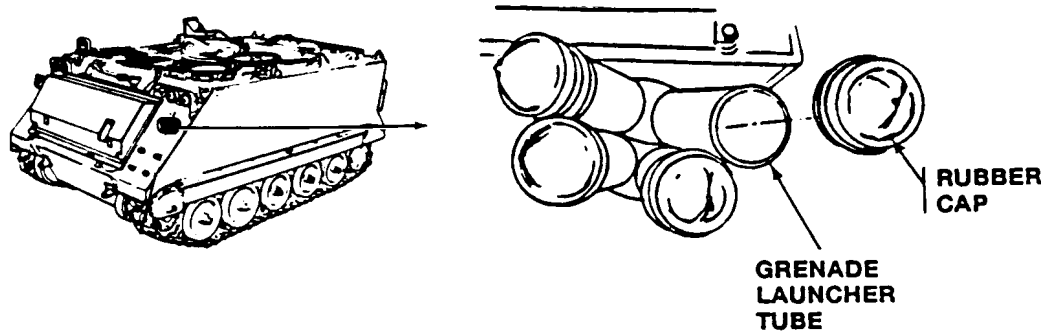
- Engine stopped (WP 0029 00)
- Carrier blocked (WP 0050 00)

CLEAN/INSPECT SMOKE GRENADE LAUNCHER AND TUBES

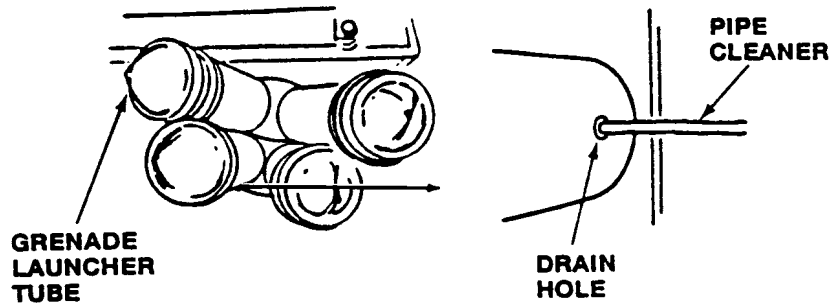
NOTE

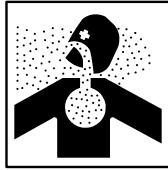
Report any damaged grenade launcher tubes to unit maintenance.

1. Remove rubber caps from smoke grenade launcher tubes.



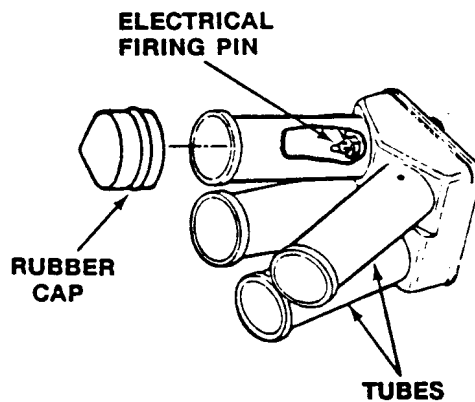
2. Use pipe cleaner to clean drain hole at bottom of each grenade launcher tube.
3. Loosen and push out any dirt or debris from drain holes.



WARNING

Rifle bore cleaner can burn and could poison you. Use in well ventilated area. If cleaner gets on your hands, wash them. If cleaner gets in your eyes, flush with water and get medical help immediately.

4. Put rifle bore cleaner on appropriate cleaner brush.
5. Clean inside of smoke grenade launcher tubes with brush.
6. Dry with clean wiping rag.
7. Check smoke grenade launcher assembly for crushed or bent grenade launcher tubes.
8. Check that electrical firing pin is not corroded.
9. Check for secureness of grenade launcher tubes on smoke grenade launcher assembly.
10. Install rubber caps on tubes.



END OF TASK

REPLACE WEBBING STRAP (TYPICAL)

0092 00

THIS WORK PACKAGE COVERS:

Removal (page 0092 00-1).
 Installation (page 0092 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Soldier

References

WP 0097 00

Equipment Condition

Engine stopped (WP 0029 00)

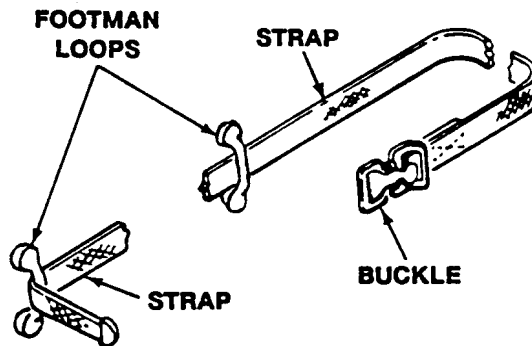
Carrier Blocked (WP 0050 00)

REMOVAL

NOTE

Webbing straps are normally belted on footman loops. See WP 0097 00 for strap locations.

1. Release buckle and remove strap from footman loop.



INSTALLATION

1. Pass strap through footman loops and secure with buckle.

END OF TASK

CHAPTER 7
SUPPORTING INFORMATION

WORK PACKAGE INDEX

<u>Title</u>	<u>Sequence No.</u>
REFERENCES.....	0093 00
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS.....	0094 00
ADDITIONAL AUTHORIZATION LIST (AAL).....	0095 00
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST	0096 00
STOWAGE AND SIGN GUIDE.....	0097 00
STANDARD LOAD PLAN.....	0098 00

REFERENCES

0093 00

SCOPE

This work package lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual. Also listed are some manuals that will be helpful in the operation and maintenance of this carrier.

FORMS

- Recommended Changes to Equipment Technical Publications.....DA Form 2028
- Equipment Inspection and Maintenance Worksheet.....DA Form 2404
- Equipment Inspection Maintenance Worksheet.....DA Form 5988-E
- Quality Deficiency Report.....SF 368

FIELD MANUALS

- First Aid for Soldiers.....FM 4-25.11
- Operation and Maintenance of Ordnance Materiel in Cold Weather (0 deg F to -65 deg F).....FM 9-207
- Tracked Combat Vehicle Driver Training.....TC 21-306

TECHNICAL MANUALS

- Destruction of Conventional Ammunition and Improved Conventional Munitions (ICM) to Prevent Enemy Use.....TM 43-0002-33
- Operator’s Manual for Generator Set, Smoke, Mechanical: Pulse Jet, M157A2.....TM 3-1040-283-10
- Generator Set, Smoke, Mechanical; Pulse Jet, M157A2, W/120 Gallon Fog Oil Tank (NSN 1040-01-406-7401).....TM 3-1040-283-20&P
- Operator’s, Organizational, Direct Support, and General Support Maintenance Manual for Generator Set; Gasoline Driven 4.2 KW, 28V DC.....TM 5-6115-596-14
- Operator’s Manual, Mortar 120 MM, 4.7 inch, M121.....TM 9-1015-250-10
- Operator’s, Organizational, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Vehicular Compartment (NSN 2540-01-396-2826) Model: A-20.....TM 9-2540-207-14&P
- Operator, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List for 5 KW, 28V DC Auxiliary Power Unit (APU) MED 952B (NSN 6115-01-452-6513).....TM 9-6115-664-13&P
- Operator’s Manual: Machine Gun, Cal .50; Browning, M2, Heavy Barrel Flexible.....TM 9-1005-213-10
- Operator’s Manual: Mortar, 120 MM, 4.7 inch, M121.....TM 9-1015-250-10
- Operator’s, Organizational, Direct Support, and General Support Maintenance Manual for Lead-Acid Storage Batteries; 4HN, 24 volt (dry) (6140-00-059-3528) M11188/2-24V; 4HN, 24 volt (wet) (6140-01-396-1968) M11188/2-24V; 2HN, 12 volt (dry) (6140-00-057-2553) MS35000-2; 2HN, 12 volt (wet) (6140-01-390-1969) MS35000-2; 6TN, 12 volt (dry) (6140-01-210-1064) MS35000-1; 6TL, 12 volt (dry) (6140-00-057-2554) MS35000-3; 6TL, 12 volt (wet) (6140-00-051-4900) MS83149-1; 6TLFP, 12 volt (dry) (6140-01-431-1172) 6TLFP; 12 volt (wet) (6140-01-441-1697) 6TLFP; 6TMF, 12 volt (dry) (6140-01-446-9498) 6TMF; 6TMF, 12 volt (wet) (6140-01-446-9506) 6TMF; 6TGEL, 12 volt (gel) (6140-01-444-2545) 6TGEL; NBB248, 12 volt (gel) (6140-12-190-9024) NBB248; NBB248GTW, 12 volt (gel) (6140-01-439-0616) NGB248.....TM 9-6140-200-14

REFERENCES — Continued

0093 00

Operator’s, Unit, and Direct Support Maintenance Manual Including Repair Parts and Special Tools List for Modular Command Post System (MCPS).....TM 10-5410-229-13&P

Operator’s Manual: Radio Sets AN/VRC-12 (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), AN/VRC-49 (5820-00-223-7437), AN/VRC-54 (5820-00-223-7567); Mounting Kit, MT-1029/VRC (5820-00-893-1323) and MT 1898/VRC (5820-00-893-1324), Antenna Kit, AT-912/VRC (5820-00-897-6357); Control, Frequency Selector, C-2742/VRC (5820-00-892-3343) and Control, Radio Set, C-2299/VRC (5820-00-892-3340)TM 11-5820-401-10-1

Operator’s Manual: Radio Sets AN/VRC-12 (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), AN/VRC-49 (5820-00-223-7437), AN/VRC-54 (5820-00-223-7567); Mounting Kit, MT-1029/VRC (5820-00-893-1323) and MT 1898/VRC (5820-00-893-1324), Antenna Kit, AT-912/VRC (5820-00-897-6357); Control, Frequency Selector, C-2742/VRC (5820-00-892-3343) and Control, Radio Set, C-2299/VRC (5820-00-892-3340)TM 11-5820-401-10-2

Operator’s and Organizational Maintenance Manual: Radio Sets AN/VRC-53, AN/VRC-64, and AN/GRC-160.....TM 11-5820-498-12

Operation of Battery Computer System AN/GYK-29 with SINCGARS Ground Radio Set.....TM 11-5820-890-10-8

Operator’s and Unit Maintenance Manual for Vehicle Intercommunications System (VIS).....TM 11-5830-263-12

Operator’s, Organizational, Direct Support, and General Support Maintenance Manual for Headset-Microphone Kit, MK-1697/G (NSN 5965-00-313-8958).....TM 11-5965-286-14

Operator’s and Organizational Maintenance Manual (Including Repair Parts and Special Tools Lists): M1068 Command Post System.....TM 11-7010-256-12&P

Procedures for Destruction of Electronics Materiel to Prevent Enemy Use.....TM 750-244-2

Destruction of Conventional Ammunition and Improved Conventional Munitions (ICM) to Prevent Enemy Use.....TM 43-0002-33

Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command).....TM 750-244-6

Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1015, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use.....TM 750-244-7

MISCELLANEOUS PUBLICATIONS

Army Oil Analysis Program (AOAP).....TB 43-0211

Heat Stress Control and Heat Casualty Management.....TB Med 507

The Army Maintenance Management System (TAMMS).....DA PAM 738-750

Expendable/Durable Items.....CTA 50-970

Expendable/Durable Items.....CTA-8

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS**0094 00****SCOPE**

This work package lists COEI and BII for the M113A2 FOV carriers to help you inventory items required for safe and efficient operation of the equipment.

The COEI and BII lists for subordinate systems are contained in the following TMs:

<u>System</u>	<u>TM</u>
M1064 120-mm Mortar M121	TM 9-1015-250-10
M1068 MCPS	TM 10-5410-229-13&P
M1068 SICPS	TM 11-7010-256-12&P
M1059 Smoke Generator	TM 3-1040-283-10

General

The COEI and BII information is divided into the following lists:

Components of End Item. This list is for information purposes only and is not authority to requisition replacements. These items are part of the M113A2 FOV carrier. 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. These essential items are required to place the M113A2 FOV carrier in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the M113A2 FOV carrier during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) — Illus Number. Gives you the number of the item illustrated.

Column (2) — National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (3) — Description, CAGEC, and Part Number. 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 column. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

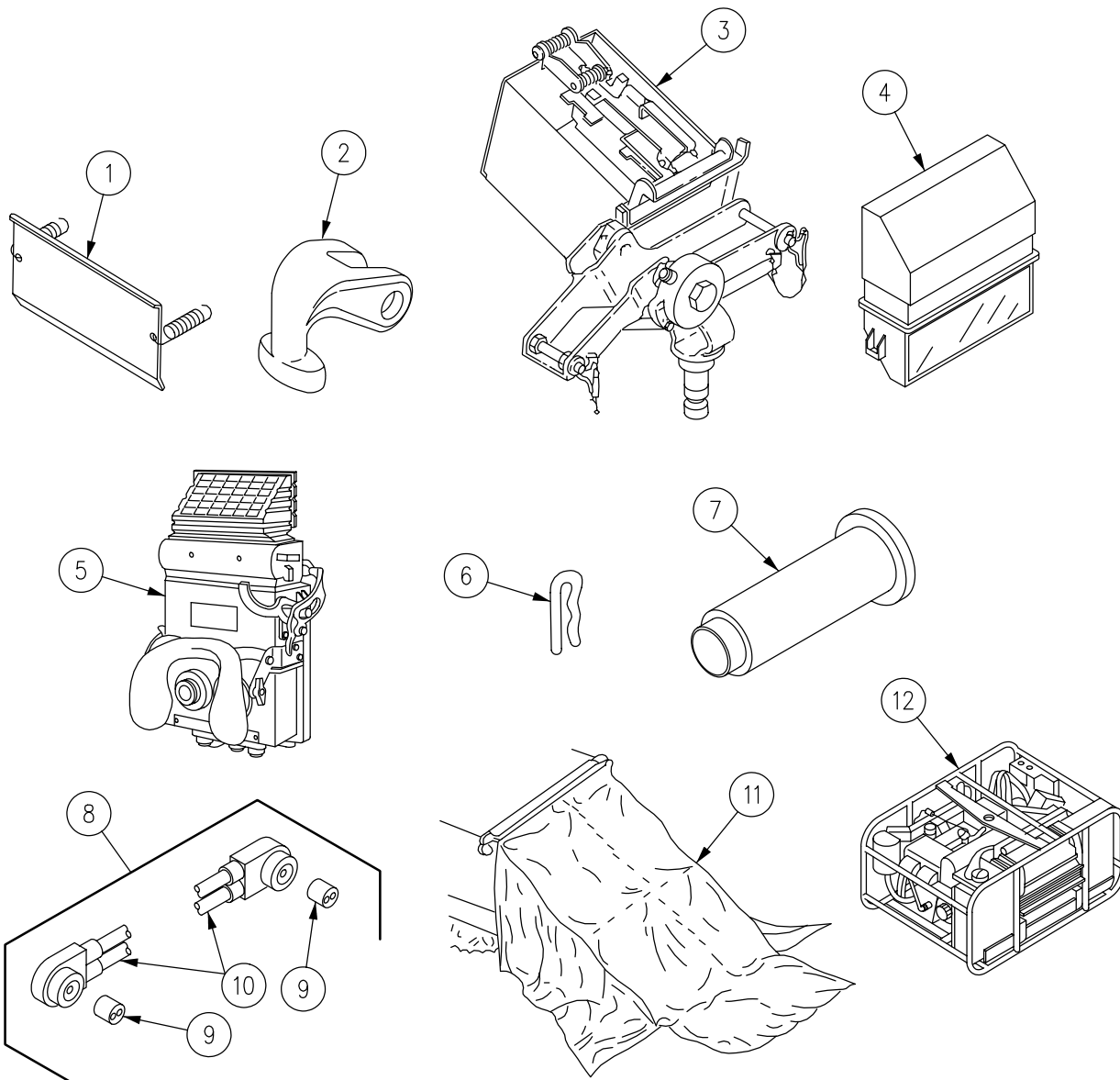
Column (4) — Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

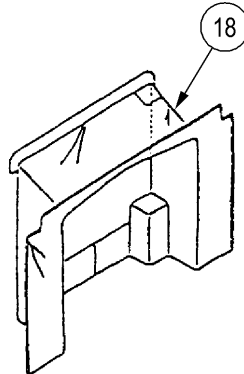
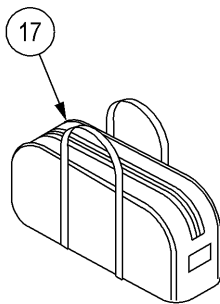
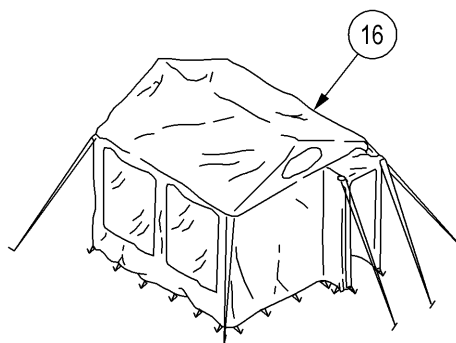
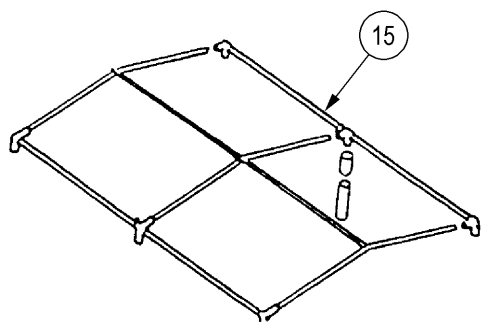
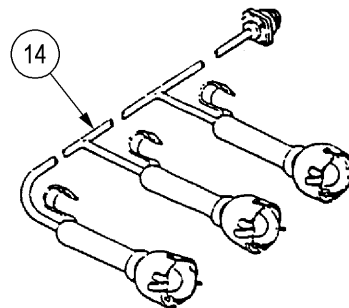
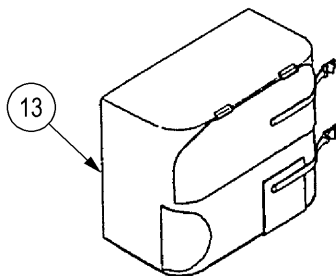
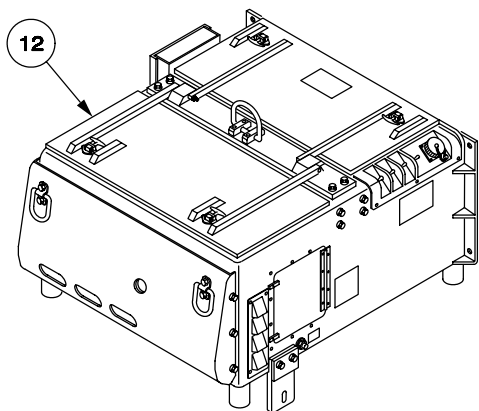
<u>Code</u>	<u>Used On</u>
V35	M113A2
V37	M577A2
O56	M1059
120	M1064
ACP	M1068
ALL	Common to all the above listed vehicles

Column (5) — Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) — Qty Rqr. Indicates the quantity required.

COMPONENTS OF END ITEM (COEI) LIST





COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

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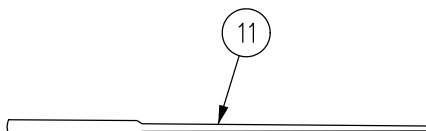
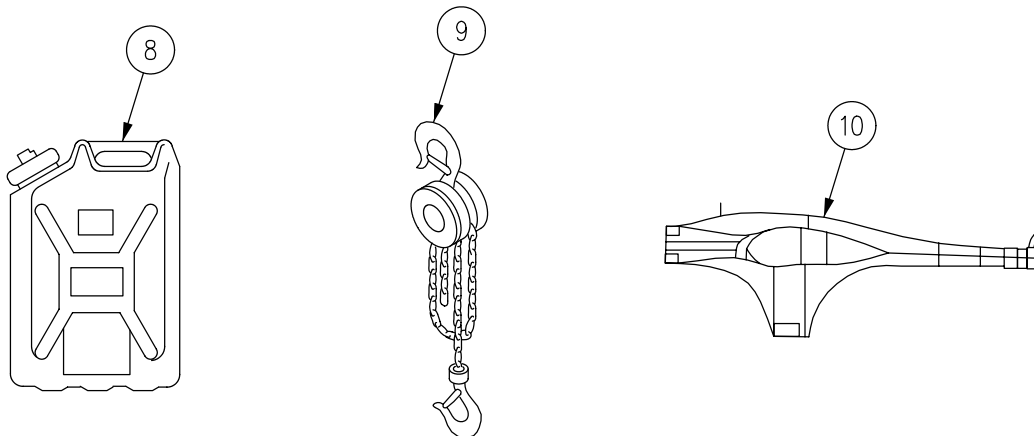
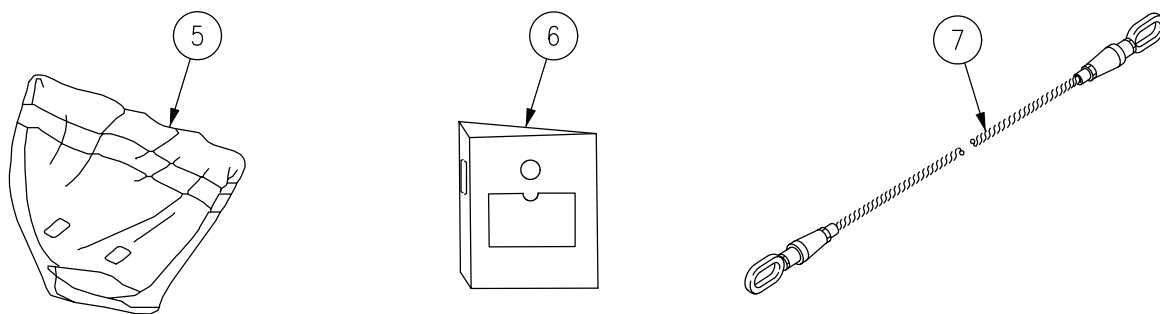
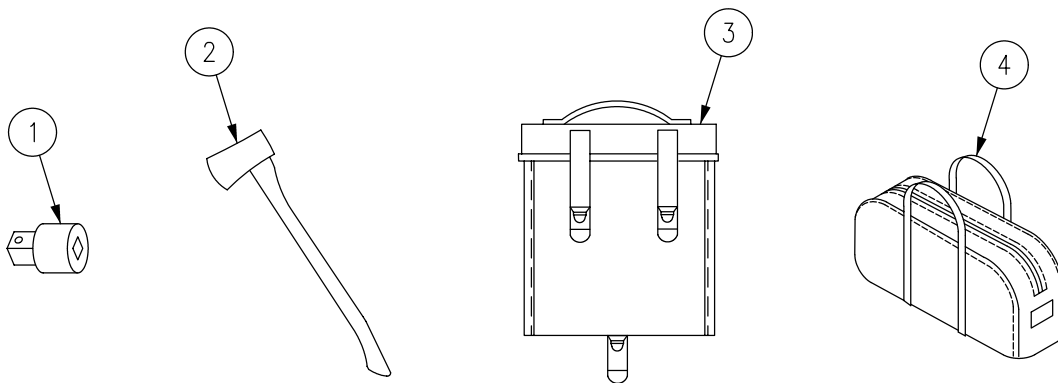
Table 1. Components of End Item List

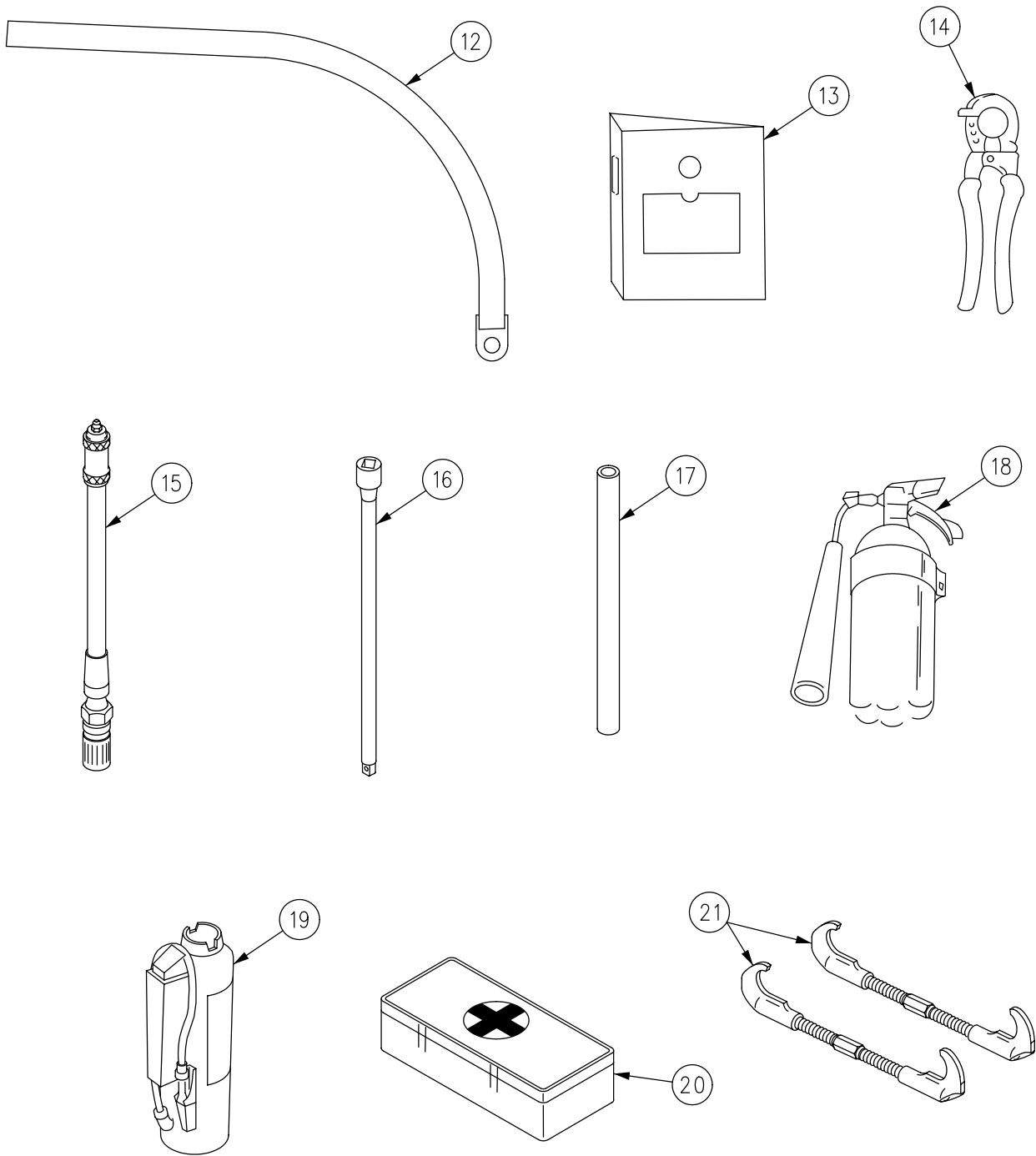
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	V35, 056, 120	EA	9
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	V37, ACP	EA	4
2	2540-00-679-8035	HOOK, TOW (ON FRONT TOWING EYES) (19207) 10861607	ALL	EA	2
3	1005-00-704-6650 OR	MOUNT, MACHINE GUN (ON COMMANDER'S CUPOLA) (19204) 7046650	V35, 056, 120	EA	1
3	1005-00-836-7286	MOUNT, MACHINE GUN (ON COMMANDER'S CUPOLA) (19207) 83672862	V35, 056, 120	EA	1
4	6550-01-317-9138	PERISCOPE, M17 (LASER PROTECTION) (19207) 12357918-2	V37, 056, 120	EA	10
4	6550-01-317-9138 OR	PERISCOPE, M17 (ON DRIVER'S STATION) (19207) 12357918-2	V37, ACP	EA	4
4	6650-00-704-3549 OR	PERISCOPE, M17 (9) AROUND DRIVER'S AND COMMANDER'S STATION (1) ON RIGHT REAR WALL (19200) 7043549	V37, APC	EA	4
4	6650-00-704-3549	PERISCOPE, M17 (9) AROUND DRIVER'S AND COMMANDER'S STATION (1) ON SPONSON, RIGHT REAR (19200) 7043549	120	EA	10
5	1240-00-765-2971	PERISCOPE, M19 (ON WALL LEFT OF DRIVER) (19200) 7652971		EA	1
5	1240-01-005-6035 OR	PERISCOPE, M19A1 (19200) 11747126	ALL	EA	1
6	5315-00-598-5808	PIN, LOCK, TOW HOOK/CABLE (ON TOW HOOKS) (19207) 7752865		EA	2
7	5315-00-862-2683	PIN, STRAIGHT, TOW HOOK (ON TOW HOOK) (19207) 10890323	ALL	EA	2
8	6150-00-363-7102	CABLE KIT (NATO, ON TOP DECK) (19207) 11682379-2	V37, ACP	EA	1
9	5935-00-322-8959	ADAPTER (19207) 11677570	V37, ACP	EA	2
10	6150-01-310-1829	CABLE ASSEMBLY (NATO, ON TOP DECK) (19207) 11682336-2 SEE TM 9-2350-277-24P FOR REPAIR PARTS	V37, ACP	EA	1
11	8340-00-134-7512	COVER, TENT (19207) 11617260	V37	EA	1

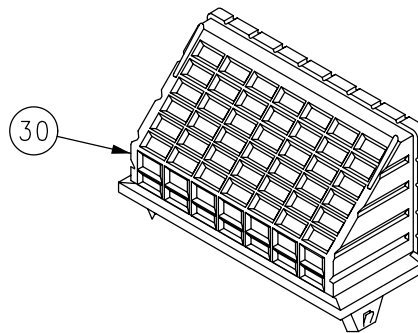
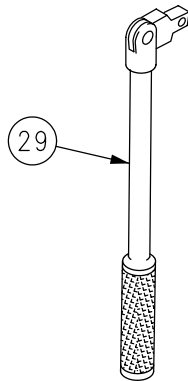
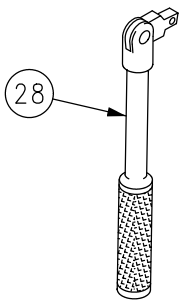
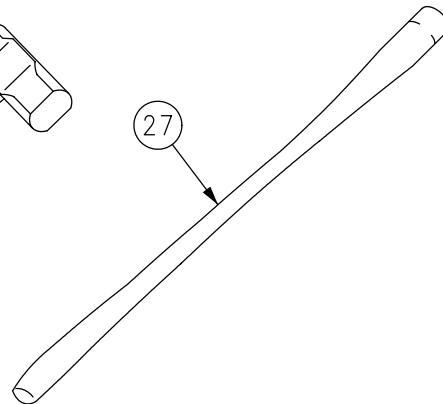
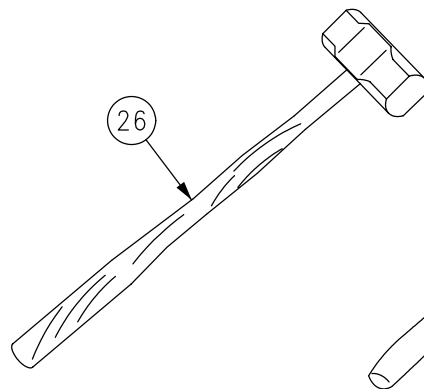
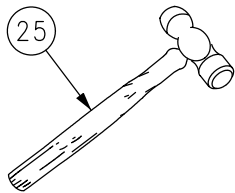
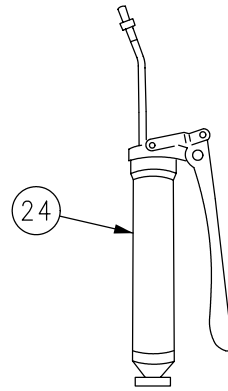
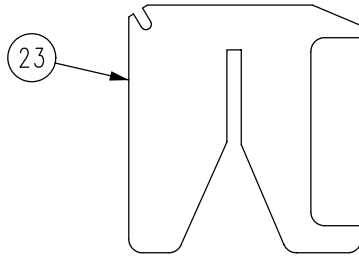
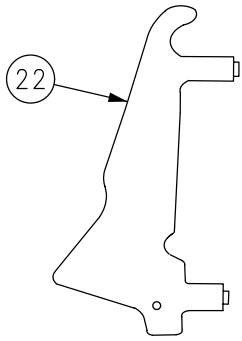
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

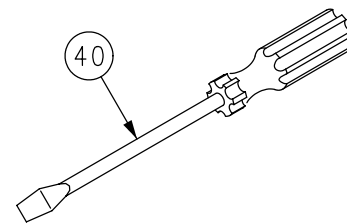
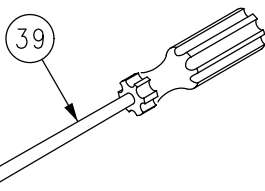
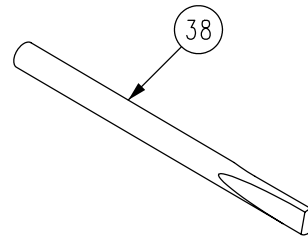
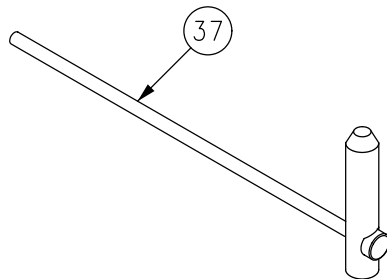
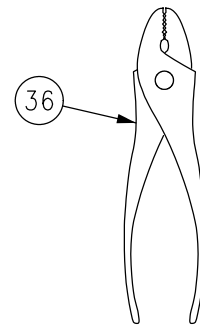
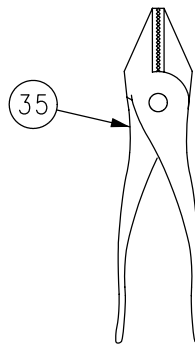
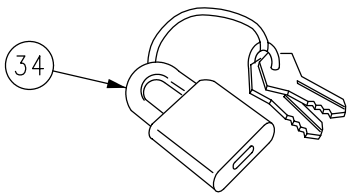
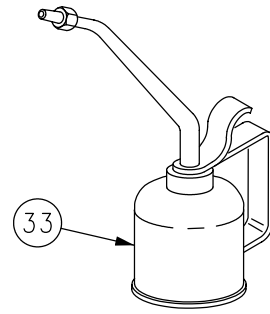
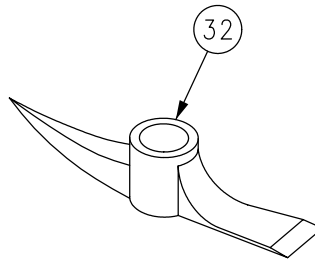
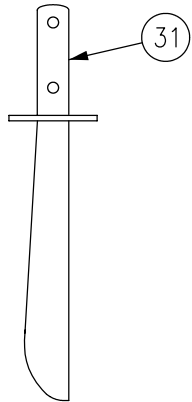
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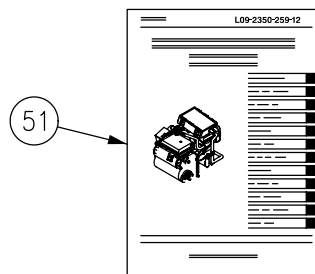
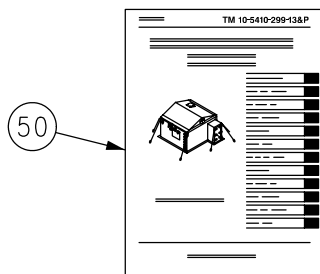
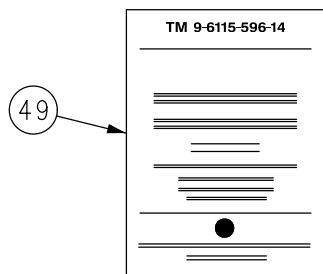
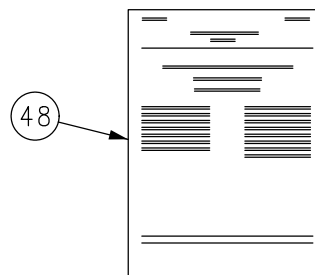
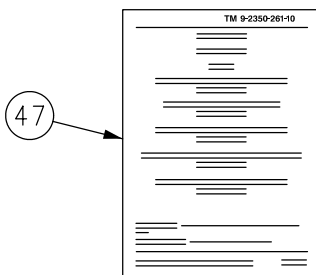
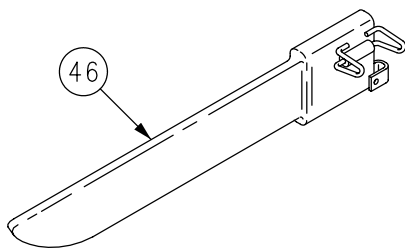
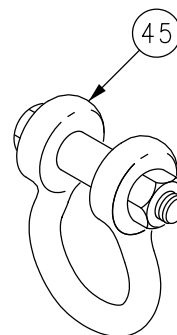
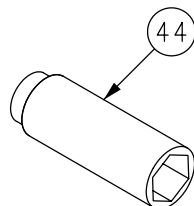
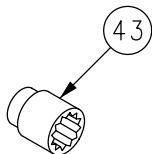
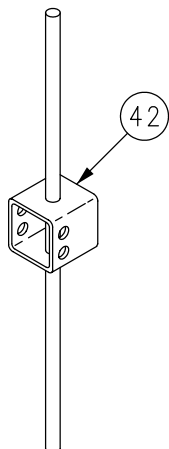
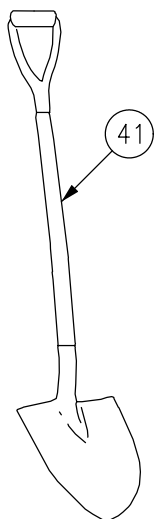
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
12	6115-00-857-1397 OR	4.2 KW GENERATOR SET AND COVER (19207) 10919300	V37, ACP	EA	1
12	6115-01-452-6513	5.0 KW AUXILIARY POWER UNIT (APU) (30554) MEP-952B	V37, ACP	EA	1
13	2540-00-066-4281	COVER ASSEMBLY, AUXILIARY GENERATOR (FOR 4.2 KW ONLY) (19207) 10932720	V37, ACP	EA	1
14	6250-00-933-6964	LAMP HOLDER ASSEMBLY (IN TOOL BAG) (19207) 10918129	V37	EA	2
15	2540-00-003-8339	TENT FRAME (19207) 10918155	V37	EA	1
16	5410-00-323-2454 OR	GREEN MODULAR COMMAND POST SYSTEM (81337) 5-4-6340-1	ACP	EA	1
16	5410-00-334-7529	TAN MODULAR COMMAND POST SYSTEM (81337) 5-4-6340-2	ACP	EA	1
17	5820-01-263-1760	GROUNDING KIT (80063) SC-D-681610	ACP	EA	1
18	8340-01-378-8301 OR	BOOTWALL ASSEMBLY (GREEN) (81337) 5-4-7484-1	ACP	EA	1
18	8340-01-300-2241	BOOTWALL ASSEMBLY (TAN) (81337) 5-4-7484-2	ACP	EA	1

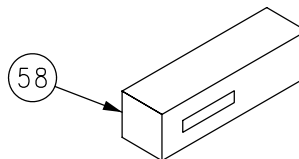
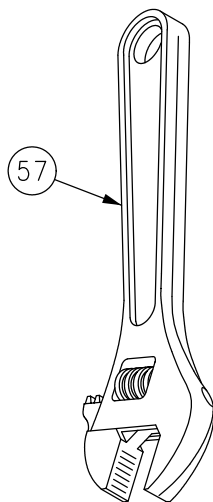
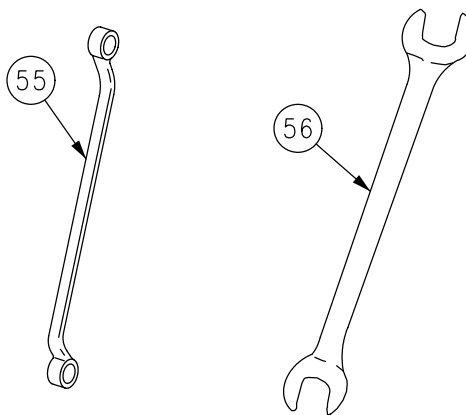
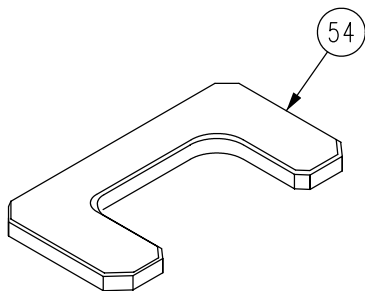
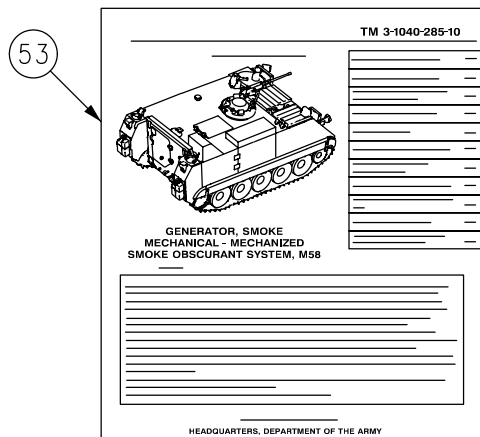
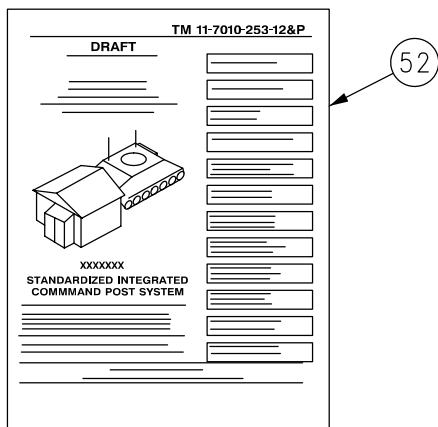












COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

0094 00

Table 2. Basic Issues Item (BII) List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1	5120-00-144-5207	ADAPTER, SOCKET WRENCH, 3/4 IN. MALE END × 1/2 IN. FEMALE END (IN TOOL BAG) (19207) 11655788-3	ALL	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB (ON TOP REAR DECK) (19207) 6150925	ALL	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB (ON TOP DECK RIGHT SIDE) (19207) 6150925	120	EA	1
3	2540-00-670-2459 OR	BAG, PAMPHLET (ON DRIVER'S POWER PLANT ACCESS PANEL) (GREEN) (19207) 7961712	V35, 056, 120	EA	1
3	2540-00-670-2459 OR	BAG, PAMPHLET (TAN) (19207) 7961712-1	V35, 056, 120	EA	1
3	2540-00-670-2459 OR	BAG, PAMPHLET (WHITE) (19207) 7961712-2	V35, 056, 120	EA	1
3	2540-00-670-2459 OR	BAG, PAMPHLET (BEHIND DRIVER ON WALL) (GREEN) (19207) 7961712	V35, ACP	EA	11
3	2540-00-670-2459 OR	BAG, PAMPHLET (TAN) (19207) 7961712-1	V35, ACP	EA	1
3	2540-00-670-2459	BAG, PAMPHLET (WHITE) (19207) 7961712-2	V35, ACP	EA	1
4	8105-01-420-4178	BAG, TOOL CHAIN HOIST (ON RIGHT REAR SPONSON) FOR 4.2KW GENERATOR SET ONLY (19207) 12381815	V35, ACP	EA	1
5	5140-00-473-6256	BAG, TOOL (ON RIGHT SPONSON) (19207) 11655979	V35, 056, V37, ACP	EA	1
5	5140-00-473-6256	BAG, TOOL (LEFT SPONSON, REAR) (19207) 11655979	120	EA	1
6	7510-00-889-3494	BINDER, LOOSE LEAF (IN PAMPHLET BAG) (19207) 11677003	ALL	EA	1
7	4010-00-767-3149	CABLE, TOW (ON RAMP, ON OUTSIDE) (19207) 10861718	ALL	EA	1
8	7240-00-089-3827	CAN, WATER (ON BACK OF CARRIER) (81349) MIL-C-43613	A35, V37, 056, ACP	EA	1
8	7240-00-089-3827	CAN, WATER (ON LEFT REAR, OUTSIDE) (81349) MIL-C-43613	120	EA	1
9	3950-00-889-8722	CHAIN HOIST (IN TOOL BAG) FOR 4.2 KW GENERATOR SET ONLY (19207) 12381800	V37, ACP	EA	1

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

0094 00

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
10	1005-00-487-4100	COVER, .50 CALIBER MACHINE GUN (ON .50 CALIBER MACHINE GUN OR ON TOP OF BATTERY BOX) (19204) 11631791	V35, 056, 120	EA	1
11	5120-00-240-6040	CROWBAR, PINCH (ON TOP REAR DECK) (19207) 11677049	V35, V37, 056, ACP	EA	1
11	5120-00-240-6040	CROWBAR, PINCH (ON TOP DECK, RIGHT) (19207) 11677049	120	EA	1
12	2590-00-953-2172	DAVIT (ON TOP DECK) FOR 4.2 KW GENERATOR SET APU ONLY (19207) 10917960	V37, ACP	EA	1
13	7510-01-065-0166	FOLDER, EQUIPMENT RECORD (IN PAMPHLET BAG) (72094) 43986-1	ALL	EA	1
14	5110-00-595-8229	CUTTER, WIRE, M1938 (IN TOOL BAG) (19207) 11655981	ALL	EA	1
15	4930-00-288-1511	EXTENSION, ADAPTER, GREASE GUN (IN TOOL BAG) (19207) 6300333	ALL	EA	1
16	5120-00-227-8074	EXTENSION, BAR, 1/2 IN. × 10 IN. (IN TOOL BAG) (19207) 11655788-1	ALL	EA	1
17	5120-00-473-6320	EXTENSION, WRENCH HANDLE (SECURED UNDER TOOL BAG) (T150 ONLY) (55719) 36A	ALL	EA	1
18	4210-00-270-4512 OR	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR BULKHEAD) (99251) 3304695-1	V35, V37, 056	EA	1
18	4210-01-107-9912 OR	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR BULKHEAD) (19207) 7359703	V35, V37, 056	EA	1
18	4210-00-270-4512 OR	EXTINGUISHER, FIRE, 5 LB (ON RIGHT SIDE WALL) (19207) 7714780	ACP	EA	1
18	4210-01-107-9912 OR	EXTINGUISHER, FIRE, 5 LB (ON RIGHT SIDE WALL) (19207) 7359703	ACP	EA	1
18	4210-00-270-4512 OR	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR FUEL CELL WALL) (19207) 7714780	120	EA	1
18	4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR FUEL CELL WALL) (19207) 7359703	120	EA	1
19	4210-01-251-6275	EXTINGUISHER, FIRE, PORTABLE (ON TOP OF CARRIER)/(ON RIGHT MIDPOINT WALL) (19207) 12313974	056	EA	2
20	6545-00-922-1200	FIRST AID KIT (IN DRIVER'S COMPARTMENT) (19207) 11677011	ALL	EA	1

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

0094 00

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
21	5120-01-041-4624	FIXTURE, TRACK (ON TOP DECK, REAR) (19207) 12253183	ALL	EA	2
21	5120-01-041-4624	FIXTURE, TRACK (ON TOP DECK, FRONT) (19207) 12253183	AP2	EA	2
22	5220-01-041-9920	GAUGE, TRACK TENSION, TRACK BUSHING, AND SPROCKET WEAR (IN TOOL BAG) (T130 TRACK ONLY) (19207) 12253280	ALL	EA	1
23	5220-01-496-3692	GAUGE, TRACK (IN TOOL BAG) (T150 TRACK ONLY) (19207) 12474849	ALL	EA	1
24	4930-01-022-4876	GREASE GUN, HAND (IN TOOL BAG) (19207) 10915142	ALL	EA	1
25	5120-00-061-8546	HAMMER, HAND, BALL PEEN, 2 LB (IN TOOL BAG) (19207) 11677028-3	ALL	EA	1
26	5120-00-265-7462	HAMMER, HAND, SLEDGE, 6 LB (ON TOP DECK, REAR CENTER) (19172) 41796	V37, ACP	EA	1
27	5120-00-288-6574	HANDLE, MATTOCK PICK (ON TOP DECK, REAR) (19207) 11677021	ALL	EA	1
27	5120-00-288-6574	HANDLE, MATTOCK PICK (ON TOP DECK, RIGHT SIDE) (19207) 11677021	120	EA	1
28	5120-00-236-7590	HANDLE, SOCKET WRENCH, 1/2 IN. DRIVE (IN TOOL BAG) (19207) 11655786-1	ALL	EA	1
29	5120-00-709-4072	HANDLE, SOCKET WRENCH, 3/4 INCH DRIVE (UNDER TOOL BAG) (T150 ONLY) (55179) L52BH	ALL	EA	1
30	1240-00-768-8707	HEAD ASSEMBLY, SPARE INFRARED PERISCOPE M19 OR M19A1 (ON LEFT SPONSON, LEFT OF DRIVER) (19200) 7688707	V35, 056	EA	1
31	5110-00-813-1286	MACHETE (ON RIGHT PLATE, BEHIND CREW SEAT) (80204) 5110-00-813-1286	120	EA	1
32	5120-00-243-2395	MATTOCK, PICK TYPE (ON TOP DECK REAR) (19207) 11677022	ALL	EA	1
32	5120-00-243-2395	MATTOCK, PICK TYPE (ON TOP DECK, LEFT SIDE) (19207) 11677022	120	EA	1
33	4930-00-262-8868	OILER, HAND PUMP TYPE (IN POWER PLANT COMPARTMENT, FRONT SLOPE LEFT SIDE) (19207) 6169931	ALL	EA	1
34	5340-00-682-1645 OR	PADLOCK, KEY OPERATED (ON DRIVER'S HATCH) (96906) MS35647-6	ALL	EA	1

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

0094 00

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
34	5340-00-682-1508	PADLOCK, KEY OPERATED (ON DRIVER'S HATCH) (96906) MS35644-3	ALL	EA	1
35	5120-00-239-8251	PLIERS, LINEMANS, W/SIDE CUTTER (IN TOOL BAG) (95683) 41P1839	ALL	EA	1
36	5120-00-223-7397	PLIERS, SLIPJOINT STRAIGHT NOSE W/CUTTER (IN TOOL BAG) (19207) 11655775-3	ALL	EA	1
37	5120-01-006-8847	PUNCH, DRIVE PIN (IN TOOL BAG) (T130 TRACK ONLY) (19207) 11678718	ALL	EA	1
38	5120-01-496-3689	REMOVER, END CONNECTOR (IN TOOL BAG) (T150 TRACK) (19207) 12474798	ALL	EA	1
39	5120-00-234-8913	SCREWDRIVER, CROSS TIP, NO. 2 (IN TOOL BAG) (19207) 11655777-12	ALL	EA	1
40	5120-00-278-1283	SCREWDRIVER, FLAT TIP (IN TOOL BAG) (19207) 11655777-11	ALL	EA	1
41	5120-00-293-3336	SHOVEL, HAND (ON FRONT SLOPE) (19207) 11655784	ALL	EA	1
42	5120-01-233-1938	SPANNER WRENCH (IN TOOL BAG) (81361) 31-15-2715	056	EA	1
43	5120-00-189-7932	SOCKET, WRENCH, 1/2 IN. × 9/16 IN. (IN TOOL BAG) (19207) 11677025-1	ALL	EA	1
43	5120-00-189-7946	SOCKET, WRENCH, 1/2 IN. × 5/8 IN. (IN TOOL BAG) (19207) 11677025-2	ALL	EA	1
43	5120-00-235-5870	SOCKET, WRENCH, 1/2 IN. × 11/16 IN. (IN TOOL BAG) (19207) 11677025-3	ALL	EA	1
43	5120-00-189-7985	SOCKET, WRENCH, 1/2 IN. × 3/4 IN. (IN TOOL BAG) (19207) 11677025-4	ALL	EA	1
43	5120-00-189-7934	SOCKET, WRENCH, 1/2 IN. × 7/8 IN. (IN TOOL BAG) (19207) 11677025-5	ALL	EA	1
43	5120-00-189-7935	SOCKET, WRENCH, 1/2 IN. × 15/16 IN. (IN TOOL BAG) (19207) 11677025-6	ALL	EA	1
44	5130-00-227-6681	SOCKET, WRENCH, 1 1/8 IN. (IN TOOL BAG) (55719) IM 362	ALL	EA	1
45	4030-01-369-7612	SHACKLE (IN TOOL BAG) (NOT REQUIRED IF VEHICLE HAS THE TWO NEW STYLE FRONT TOWING EYES) (19207) 12381884	ALL	EA	2
46	8465-00-926-4932	SHEATH, MACHETE (ON MACHETE) (81349) MIL-S-2329	120	EA	1

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS — Continued

0094 00

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
47		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 9-2350-261-10	ALL	EA	1
48		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 9-6115-664-13&P (5.0 KW AUXILIARY POWER UNIT, APU)	V37, ACP	EA	1
48	OR	TECHNICAL MANUAL (IN PAMPHLET BAG) TM 5-6115-596-14 (4.2 KW GENERATOR SET, GENERATOR)	V37, ACP	EA	1
49		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 5-2805-262-14 (4.2 KW GENERATOR SET, ENGINE)	V37, ACP	EA	1
50		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 10-5410-229-13&P (MODULAR COMMAND POST SYSTEM)	ACP	EA	1
51		LUBRICATION ORDER (IN PAMPHLET BAG) LO 9-2805-262-12	V37, ACP	EA	1
52		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 11-5985-426-12&P (ANTENNA MAST)	ACP	EA	1
53		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 11-7010-256-12&P (STANDARD INTEGRATED COMMAND POST SYSTEM)	ACP	EA	1
54	5220-01-504-2610	TRACK PIN ALIGNMENT TOOL (IN TOOL BAG) (T150 ONLY) (19207) 12474881	ALL	EA	1
55	5120-00-224-3141	WRENCH, BOX, DOUBLE OFFSET, 5/8 × 11/16 IN. (IN TOOL BAG) (19207) 11655785-2	ALL	EA	1
56	5120-00-277-2342	WRENCH, OPEN END, FIXED, 3/8 IN. × 7/16 IN. (IN TOOL BAG) (19207) 11655789-1	ALL	EA	1
56	5120-00-187-7126	WRENCH, OPEN END, FIXED, 9/16 IN. × 5/8 IN. (IN TOOL BAG) (19207) 11655789-2	ALL	EA	1
56	5120-00-277-8300	WRENCH, OPEN END, FIXED, 11/16 IN. × 13/16 IN. (IN TOOL BAG) (19207) 11655789-3	ALL	EA	1
57	5120-00-264-3796	WRENCH, OPEN END ADJUSTABLE, 1-5/16 IN. × 12 IN. (IN TOOL BAG) (19207) 11655778-5	ALL	EA	1
58	5120-00-935-4654	WRENCH, DRAIN PLUG (IN TOOL BAG) (19207) 11595203	V37, ACP	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)

0095 00

SCOPE

This work package lists additional items you are authorized for the support of the M113A2 FOV carriers.

AALs for subordinate systems are contained in the following TMs:

<u>System</u>	<u>TM</u>
M1064 4.7 inch, 120-mm Mortar M121	TM 9-1015-250-10
M1068 Modular Command Post System (MCPS)	TM 10-5410-229-13&P
M1068 Standard Integrated Command Post System (SICPS)	TM 11-7010-256-12&P

General

This list identifies items that do not have to accompany the M113A2 FOV carrier, 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, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

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. These codes are identified below:

<u>Code</u>	<u>Used On</u>
V35	M113A2
V37	M577A2
056	M1059
120	M1064
ACP	M1068
ALL	Common to all the above listed vehicles

Column (4) — Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) — Qty Recm. Indicates the quantity recommended.

ADDITIONAL AUTHORIZATION LIST (AAL) — Continued

0095 00

Table 1. Additional Authorization List

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
4930-00-204-2550	ADAPTER, GREASE GUN (81349) MIL-L-4387	ALL	EA	1
5120-00-926-5175	BRUSH, CLEANING, BATTERY (36540) BT1	ALL	EA	1
5120-01-105-0770	COVER, GRILLE: (19207) 12269299	V35, 056, 120	EA	1
2540-01-125-9326	COVER, GRILLE: (GREEN) (19207) 12269326	V37, ACP	EA	1
2540-01-396-2473	COVER, GRILLE: (TAN) (19207) 12269326-T	V37, ACP	EA	1
4230-01-133-4124	DECONTAMINATING APPARATUS, PORTABLE, M13 (81361) E5-51-527	ALL	EA	1
1331-01-020-0504	GRENADE, SMOKE SCREENING, RP, UK/L8A (K7312) TW74GF	V35, 056	EA	12
4240-00-052-3776	GOGGLES, INDUSTRIAL (58536) A-A-1110	ALL	PR	1
5120-01-399-9254	HAMMER, HAND, 4 LB (1CV05) 1435G	ALL	EA	1
5120-00-265-7462	HAMMER, HAND, SLEDGE: 6 LB (90172) 41796	V35, 056, 120	EA	1
1055-01-107-7501	LAUNCHER, GRENADE, AR (M259) (81361) B13-12-150	V35, 056	EA	1
2590-01-107-9696	LIGHT, AMBER ROTATING WARNING (90172)	ALL	EA	1
7240-00-255-8113	MEASURE, LIQUID, OIL CAN (74640) N202	ALL	EA	1
8340-00-841-6456 OR	TARPAULIN, 12 FT X 17 FT (GREEN) (81349) K-P-146	ALL	EA	1
2540-01-330-8062	TARPAULIN, 12 FT X 17 FT (TAN) (19207) 10936264-1T	ALL	EA	1
2540-00-936-7801	TOW BAR (19207) 11660660	V35, 056	EA	1
5120-00-224-3154	WRENCH, BOX: 1/2 X 9/16 IN. (19207) 11655785-1	ALL	EA	1
5120-00-224-3141	WRENCH, BOX: 5/8 X 11/16 IN. (19207) 11655785-3	ALL	EA	1
5120-00-240-5609	WRENCH, OPEN END, FIXED: 3/4 X 7/8 IN. (19207) 11655789	ALL	EA	1
5120-00-277-7025	WRENCH, OPEN END, FIXED: 15/16 X 1 IN. (19207) 11655789-5	ALL	EA	1
5140-00-261-4994	CARRIER, WIRE CUTTER M1938 (19207) 11655787	V37, ACP	EA	1
2540-01-125-9653	COVER ASSEMBLY, PROTECTIVE: (GREEN) (19207) 12269299	V37, ACP	EA	1
2510-01-105-0779	COVER ASSEMBLY, PROTECTIVE: (TAN) (19207) 12269299-T	V37, ACP	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL) — Continued

0095 00

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
1080-01-266-1826	CAMOUFLAGE SCREEN SYSTEM, LIGHTWEIGHT, SNOW, RADAR SCATTERING, TYPE IV (97403) 13228E593	ALL	EA	2
1080-01-266-1827	CAMOUFLAGE SCREEN SYSTEM, LIGHTWEIGHT, WOODLAND, RADAR SCATTERING, TYPE IV (97403) 13228E932	ALL	EA	2
1080-01-266-1828	CAMOUFLAGE SCREEN SYSTEM, LIGHTWEIGHT, DESERT, RADAR SCATTERING, TYPE IV (97403) 13228E933	ALL	EA	2
1080-01-179-0625	CAMOUFLAGE SUPPORT SYSTEM, LIGHTWEIGHT, WOODLAND/DESERT, TYPE II (19099) MILC57265, TYPE 1 AND CLASS 2	ALL	EA	2
1080-01-179-0624	CAMOUFLAGE SUPPORT SYSTEM, LIGHTWEIGHT, SNOW, TYPE II (19099) MILC57265, TYPE 1 AND CLASS 1	ALL	EA	2
1005-00-726-5636	ARMAMENT: MACHINE GUN, CAL .50, M2 (FLEX) (19205) 7265363	V35, 056, 120	EA	1
	EQUIPMENT, PARTS, AND TOOLS FOR MACHINE GUN, M2:			
8105-00-921-5821	BAG, SMALL ARMS, ACCESSORIES (19204) 11686430	V35, 056, 120	EA	1
1005-00-726-6131	BARREL, SPARE, MACHINE GUN, CAL .50 (19205) 7269027	V35, 056, 120	EA	1
1005-00-322-9716	MOUNT, TRIPOD, MACHINE GUN (19204) 8403398	V35, 056, 120	EA	1
8415-01-092-0039	MITTEN, HEAT PROTECTIVE (81349) MIL-M-11198F	V35, 056, 120	EA	1
	COMMUNICATIONS EQUIPMENT:			
3895-00-498-8343	CABLE, TELEPHONE, WD-1/DR-8 (WITH REELING MACHINE RL-39) (80036) SM-D-333571	120	EA	1
	HELMET, CVC (72724) DH132	ALL	EA	3
8415-00-094-2679	SMALL (GREEN) (81337) LP/P DES 5-78 BASIC			
8415-00-094-2691	MEDIUM (GREEN) (81337) LP/P DES 5-78 BASIC			
8415-00-094-2684	LARGE (GREEN) (81337) LP/P DES 5-78 BASIC			
	OR			
8470-01-130-8180	SMALL (SAND) (81349) MIL-H-44117	ALL		
8470-01-130-3794	MEDIUM (SAND) (81349) MIL-H-44117	ALL		

ADDITIONAL AUTHORIZATION LIST (AAL) — Continued

0095 00

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
8470-01-130-3795	LARGE (SAND) (81349) MIL-H-44117	ALL		
	MISCELLANEOUS EQUIPMENT:			
1240-01-207-5787	BINOCULAR, M22 (IN CASE) (19200) 12599242	ALL	EA	1
5855-00-150-1820	GOGGLES, NIGHT VISION, AN/PVS-5 (IN CASE) (31550) 8112270G1	ALL	EA	1
8970-01-297-2895	MEAL, READY-TO-EAT (81349) MIL-M-44074	ALL	CASE	3
5855-00-629-5334	SIGHT, NIGHT VISION, INDIV WPN, AN/PVS-4 (80063) SM-D-850300-1	ALL	EA	3
6230-00-264-8261	FLASHLIGHT, ELECT., HAND, 2-CELL (21108) MX-991/U	ALL	EA	1
2540-01-458-4846	PARTS KIT, PINTLE HOOK (19207) 57K3383	120	EA	1

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

0096 00

SCOPE

This work package lists expendable/durable supplies and materials you need to operate and maintain the M113A2, M577A2, M1068, M1064, and M1059 carriers. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA-8, Army Medical Department Expendable/Durable items.

See TM 9-1015-250-10 for expendable/durable supplies and materials list for the 120-mm, M121 Mortar, used on the M1064.

EXPLANATION OF COLUMNS

- (1) *Column (1) - Item Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., “Use eight batteries (WP 0096 00, Item 1)”).
- (2) *Column (2) - Level.* This column identifies the lowest level of maintenance that requires the listed item (e.g., C - Operator/Crew).
- (3) *Column (3) - National Stock Number.* This is the national stock number assigned to the item; use it to request or requisition the item.
- (4) *Column (4) - Item Name, Description, CAGEC, and Part Number.* This column provides the other information you need to identify the item.
- (5) *Column (5) - Unit of Measure (U/M).* This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
1	C	6135-00-835-7210	BATTERY, DRY, 1.5 VOLT (80204) (L90)	EA
2	C	9920-00-292-9946	CLEANER, PIPE	BX
3	C	6859-00-224-6657	CLEANING COMPOUND, SOLVENT (FOR BORE OF SMALL ARMS AND AUTOMATIC WEAPONS) (81349) MIL-PRF-372	OZ
4	C	6850-01-277-0595	CLEANING COMPOUND SOLVENT (59557) 134 HI SOLV	GL
5	C	8305-00-267-3015	CLOTH, CHEESECLOTH, COTTON, BLEACHED AND UNBLEACHED (81348) CCC-C-440, TYPE II, CLASS 2	LB
6	C	6230-00-264-8261	FLASHLIGHT, 2-CELL (1CSX9) MX 991/U	EA
7	C	9150-01-197-7690	GREASE, AUTOMOTIVE, 1.75 LB CAN (81349) MIL-PRF-10924	CN
8	C	9150-01-197-7689	GREASE, AUTOMOTIVE, 6.5 LB CAN (81349) MIL-PRF-10924	CN
9	C	6640-00-285-4694	PAPER, LENS, 7 X 11 IN. (81348) NNN-P-40	BLK
10	C	7920-00-205-1711	RAG, WIPING (80244) 7920-00-205-1711	LB

STOWAGE AND SIGN GUIDE

0097 00**SCOPE**

This work package shows the location for stowage of equipment and materiel required to be carried on the M113A2, M577A2, M1068, M1064, and M1059 carriers.

GENERAL

The pictures on the following pages show where the equipment is stowed, and the decals, stencils, and straps at each position.

WARNING

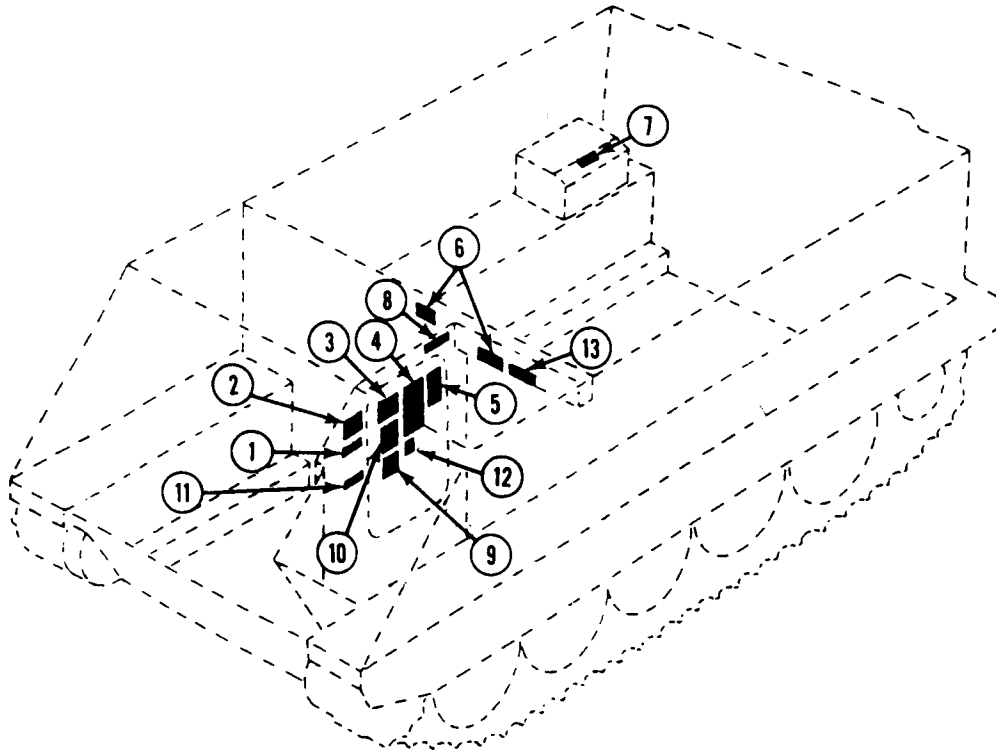


Ammunition can explode and kill you. Do not start heater until ammunition and combustible/explosive materials are properly stored at least 30 inches from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of heater.

NOTE

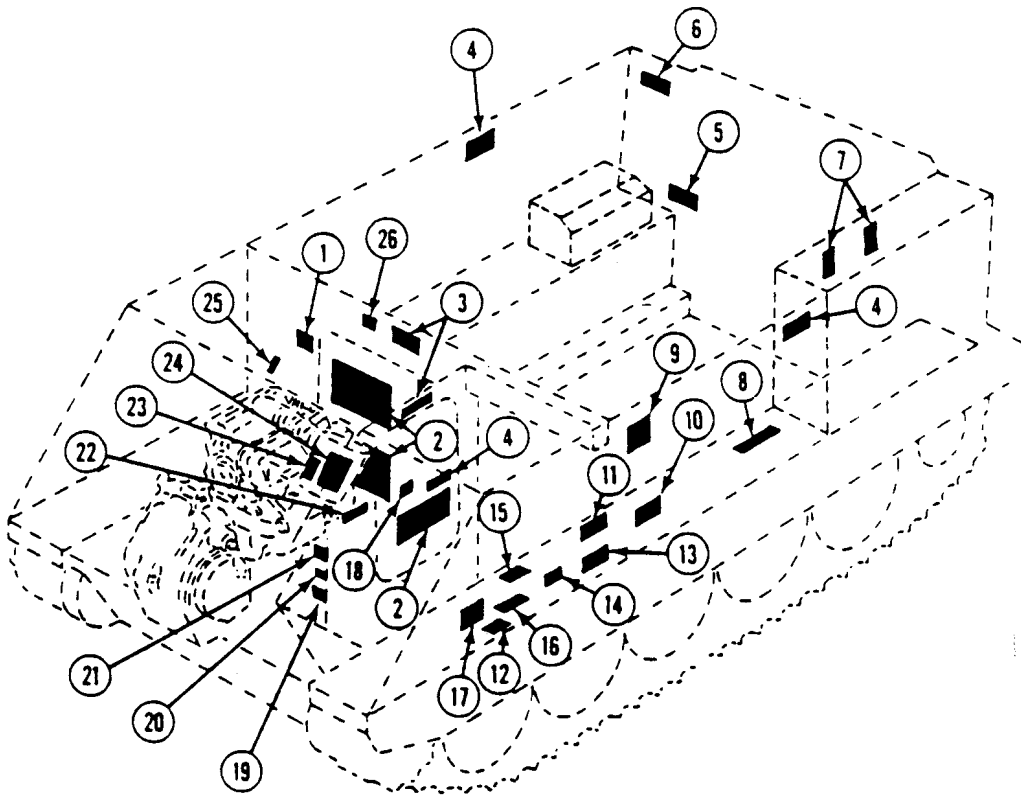
You can stow either 5.56 mm ammunition or 7.62 mm ammunition in storage spaces that have decals for 7.62 mm ammunition.

STOWAGE GUIDE - M113A2 ARMORED PERSONNEL CARRIER DATAPLATE AND MARKER LOCATIONS



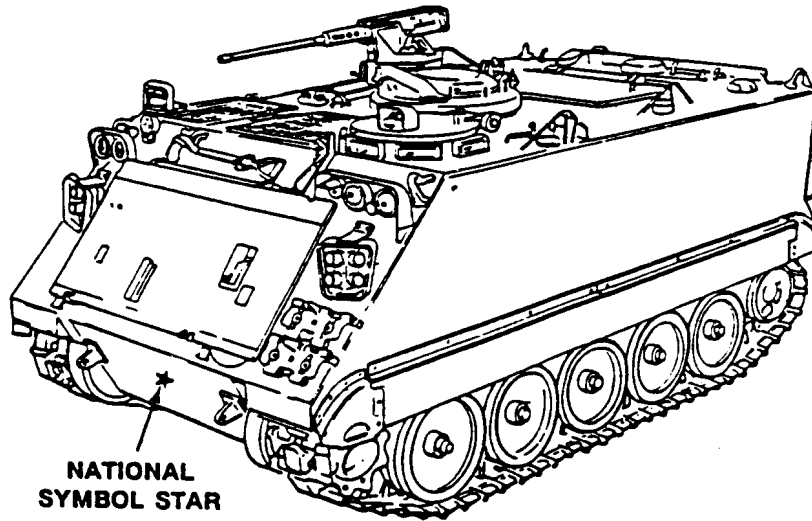
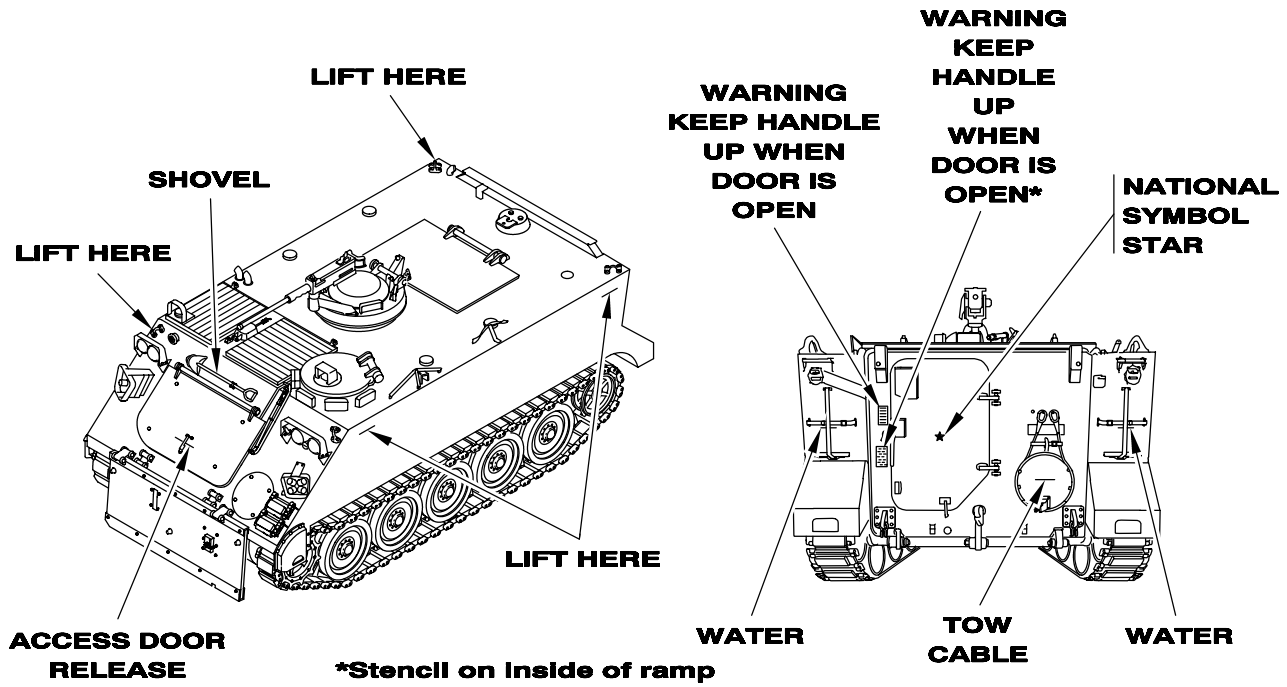
1. Stall check WARNING
2. Vehicle plate
3. Speed shift limit
4. Vehicle operation
5. Power train maintenance
6. Ramp lock WARNING
7. Battery service
8. Ramp lock lever
9. Vehicle shipping data
10. Ramp
11. Ramp actuating lever
12. Engine idle RPM
13. Warranty information

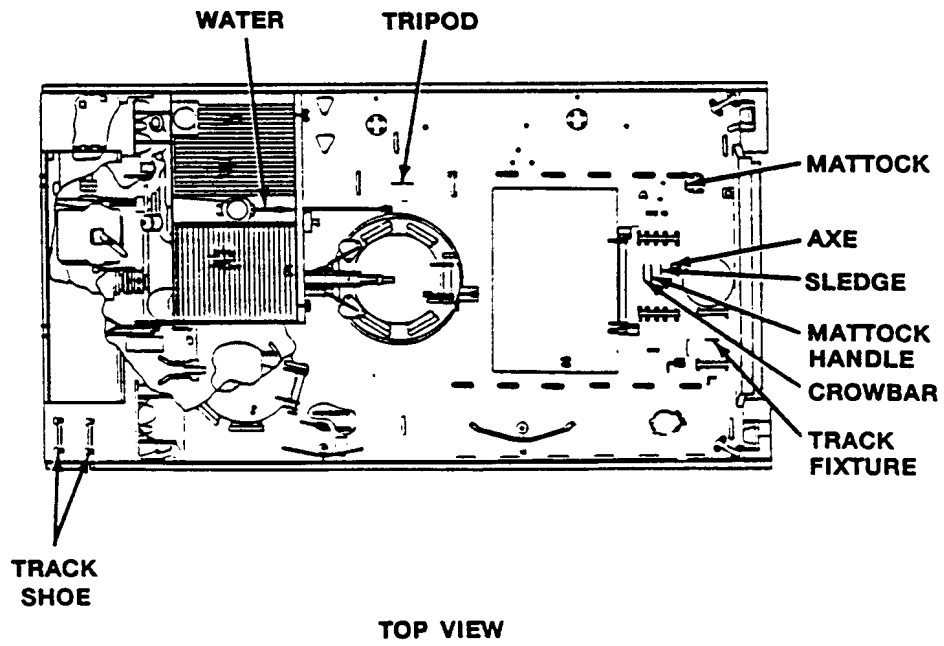
STOWAGE GUIDE - M113A2 ARMORED PERSONNEL CARRIER MARKER AND DECAL LOCATIONS



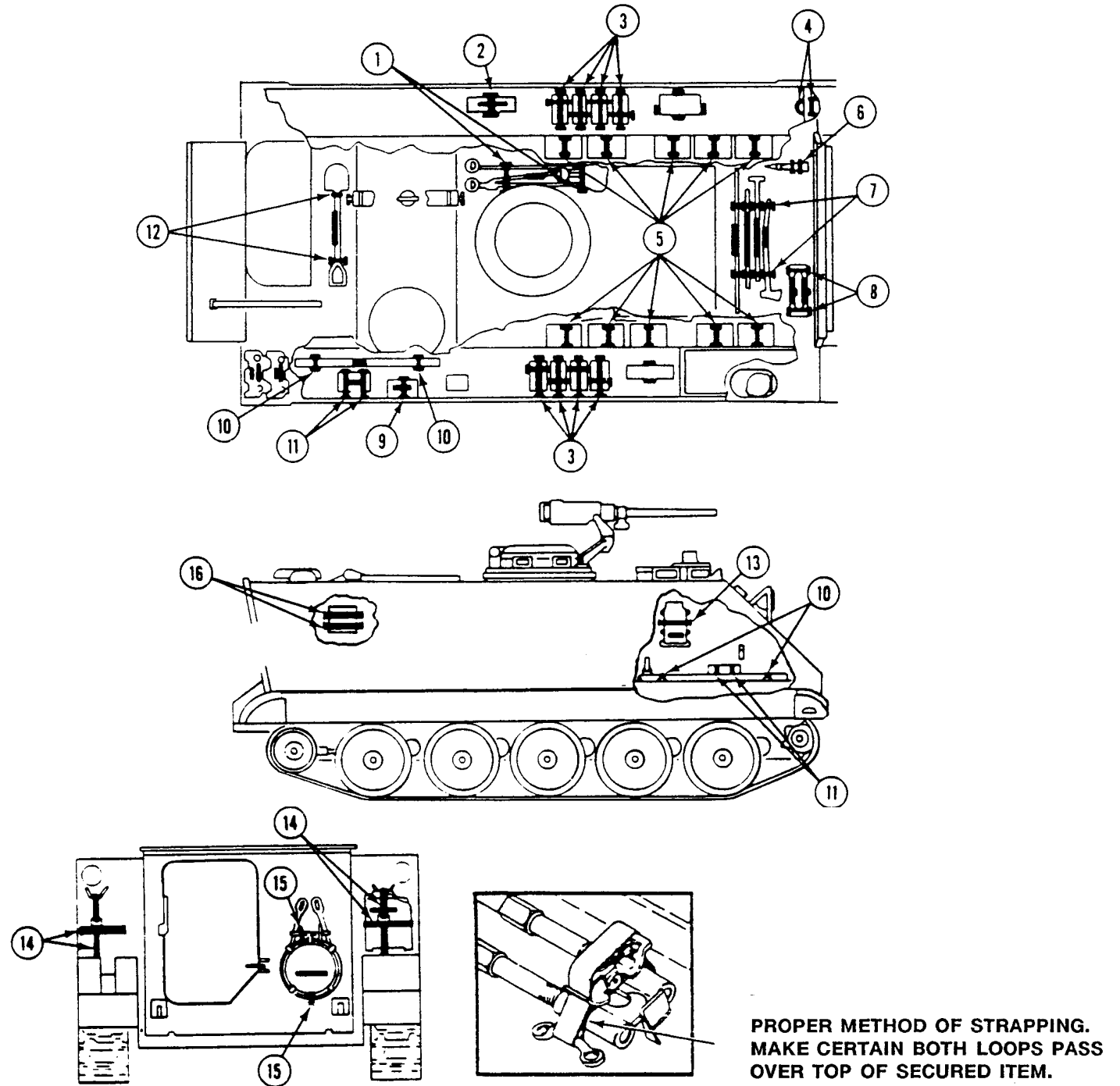
1. Personnel/equipment heater WARNING
2. Carbon monoxide WARNING (large)
3. Carbon monoxide WARNING (small)
4. Noise WARNING
5. Tools
6. Fire extinguisher
7. Spring adjustment
8. Periscope
9. Fire extinguisher safety wire CAUTION
10. Flashlight
11. Infrared periscope M19
12. Spare head
13. First aid kit
14. Rifle
15. Spare barrel
16. 7.62 ammunition
17. Master switch CAUTION
18. Engine disconnect
19. Air vent
20. Throttle
21. Fuel shutoff
22. Pivot steer CAUTION
23. NBC engine air cleaner WARNING
24. Engine air cleaner
25. Fan oil gauge and fill
26. CARC paint

STOWAGE GUIDE - M113A2 ARMORED PERSONNEL CARRIER STENCIL LOCATIONS





STOWAGE GUIDE - M113A2 ARMORED PERSONNEL CARRIER STRAPPING DIAGRAM

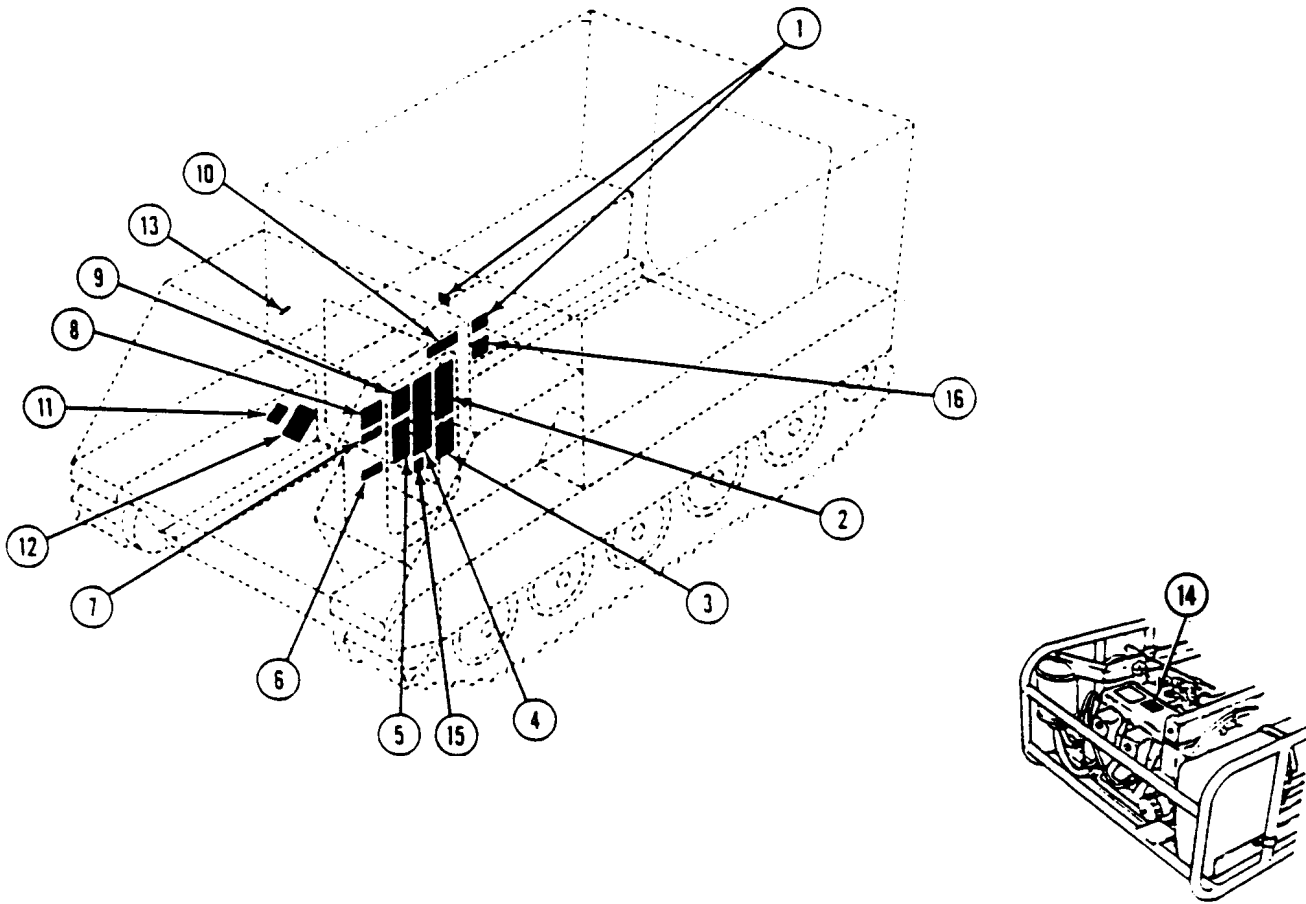


STOWAGE AND SIGN GUIDE — Continued

0097 00

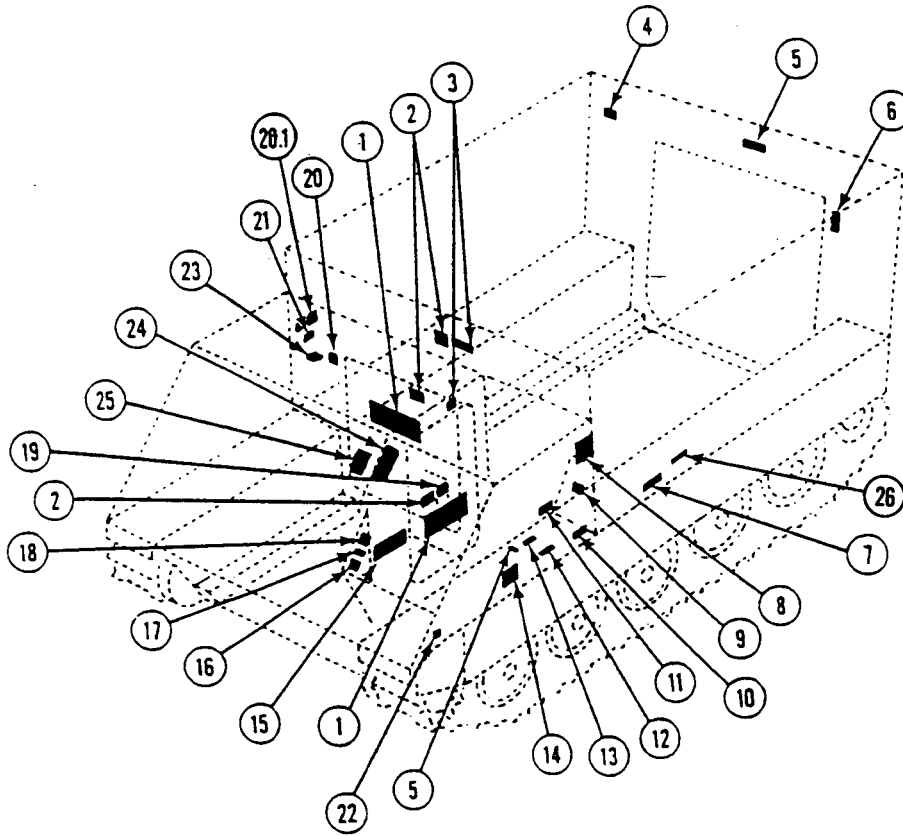
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tripod	2	36
2	Tool bag	1	48
3	Ammunition box, caliber .50	Suggested use only, no straps furnished	
4	Fire extinguisher	2	24
5	Miscellaneous stowage	10	39
6	Mattock	1	24
7	Pioneer tools	2	36
8	Track fixture	2	28
9	First aid kit	1	24
10	Spare barrel, caliber .50	2	24
11	Ammunition cases, rifle	2	45
12	Shovel	2	33, 20
13	Infrared periscope M19	2	20, 24
14	Water can or M13 decon can	4	72
15	Tow cable	2	18, 30
16	Driver's windshield bag	2	68

STOWAGE GUIDE - M577A2 COMMAND POST CARRIER DATAPLATE AND MARKER LOCATIONS



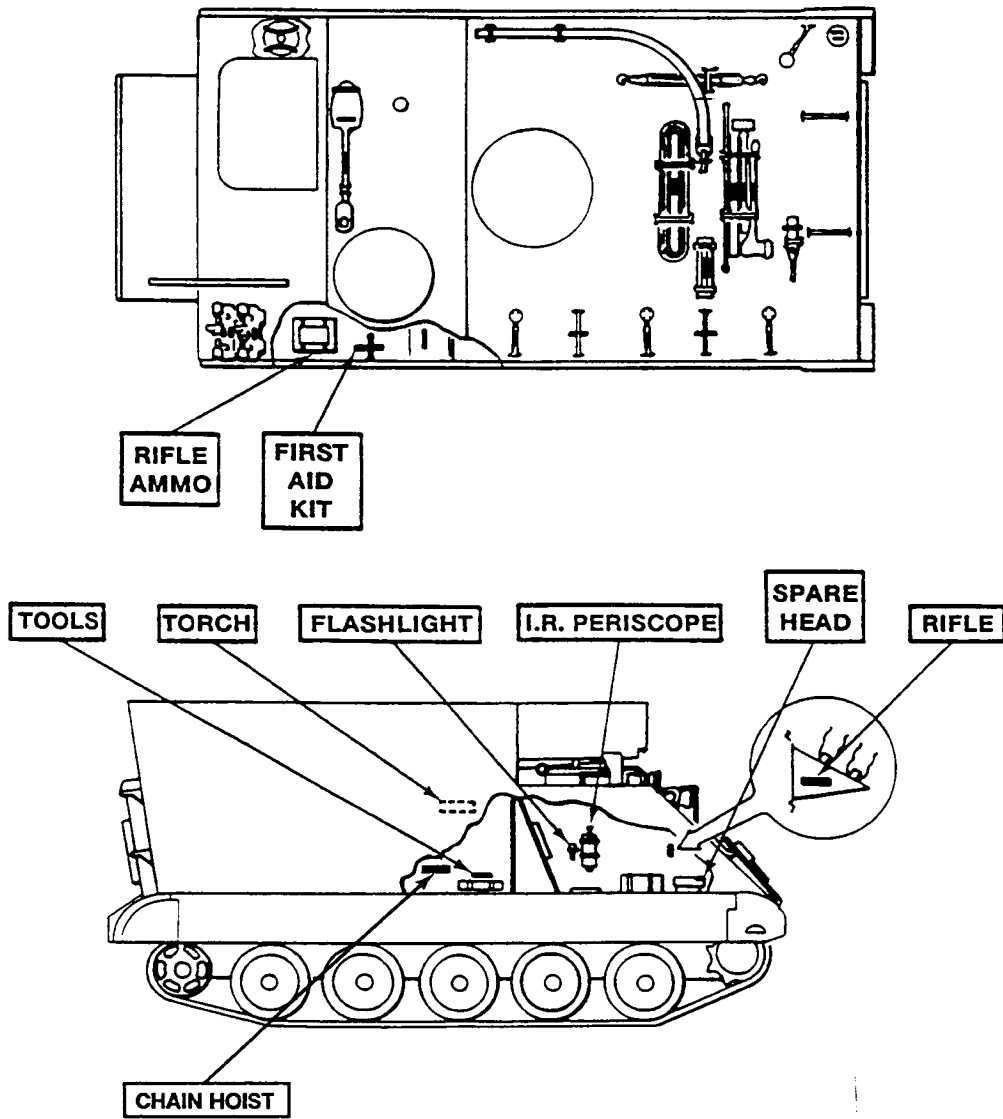
1. Ramp lock WARNING
2. Power train maintenance
3. Vehicle shipping data
4. Vehicle operation
5. Ramp instruction
6. Ramp actuating lever
7. Stall check WARNING
8. Vehicle identification
9. Speed shift limit
10. Ramp lock lever
11. Engine air cleaner
12. Engine idle RPM
13. Warranty information
14. Equipment heater WARNING
15. Engine idle RPM
16. CARC paint
17. Marker, identification, ramp lock lever
18. Decal, WARNING, carbon monoxide (large)

STOWAGE GUIDE - M577A2 ARMORED PERSONNEL CARRIER MARKER AND DECAL LOCATIONS

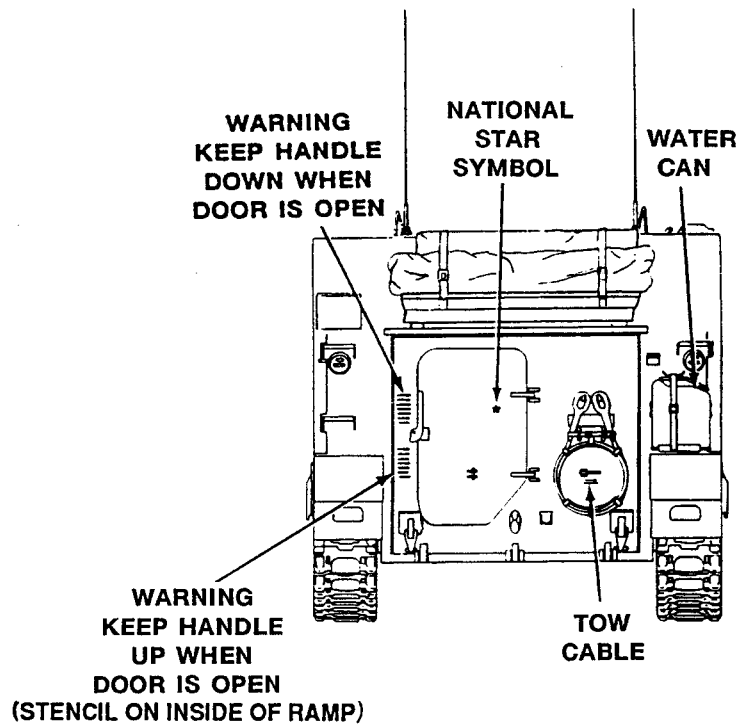
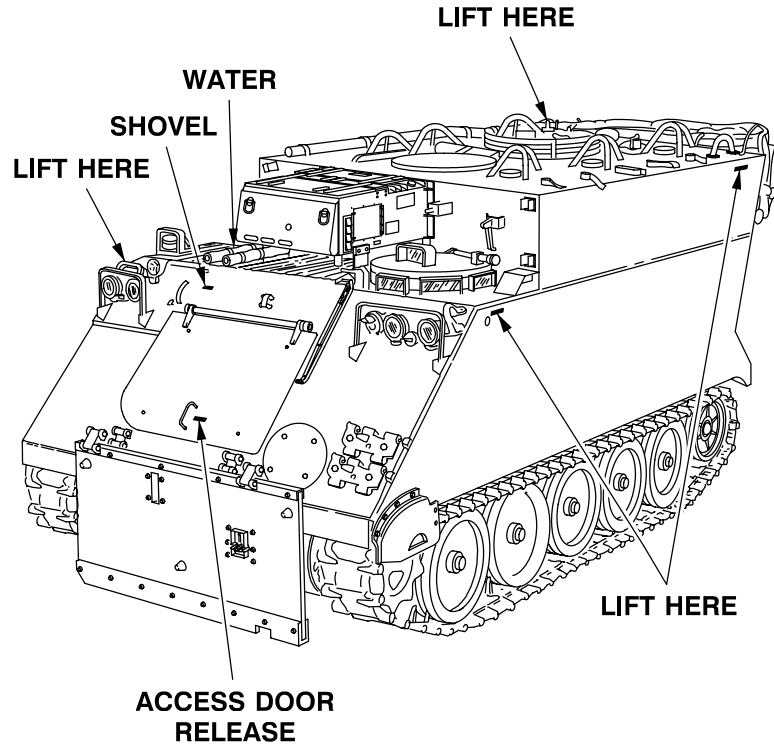


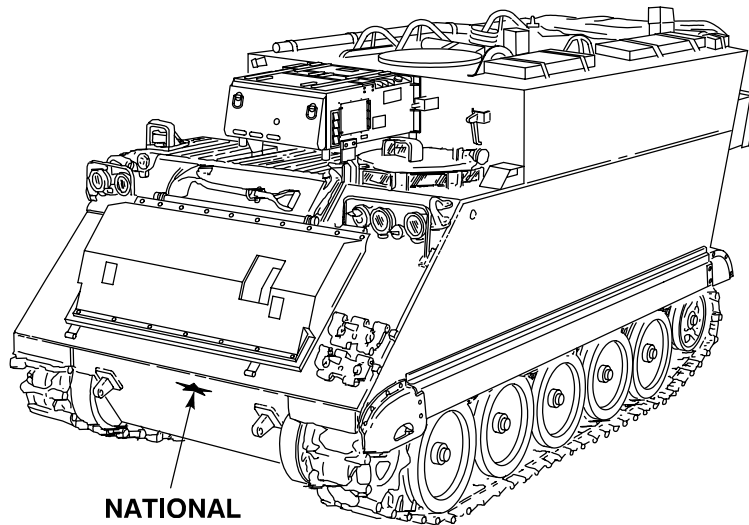
1. Carbon monoxide WARNING (large)
2. Noise WARNING
3. Carbon monoxide WARNING (small)
4. Fire extinguisher
5. Rifle
6. Wall switch
7. Tools
8. Fire extinguisher safety wire CAUTION
9. Pamphlet bag
10. Flashlight
11. Infrared periscope, M19
12. First aid kit
13. 7.62 ammunition
14. Master switch CAUTION
15. Pivot steer CAUTION
16. Air vent
17. Throttle
18. Fuel shutoff
19. Engine disconnect
20. Personnel/equipment heater WARNING
21. Blowtorch
22. Spare head
23. NBC engine air cleaner WARNING
24. NBC generator set, air cleaner WARNING
25. Fan oil gauge and fill
26. Chain hoist tool bag

STOWAGE GUIDE - M577A2 COMMAND POST CARRIER DECALS

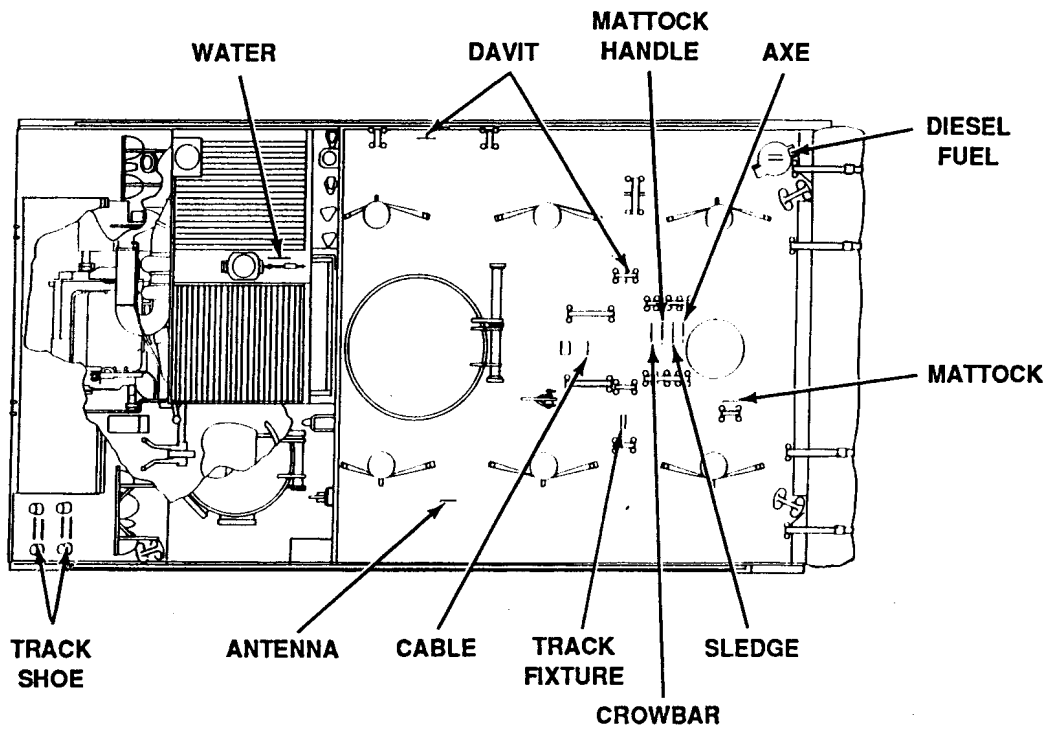


STOWAGE GUIDE - M577A2 COMMAND POST CARRIER STENCIL LOCATIONS

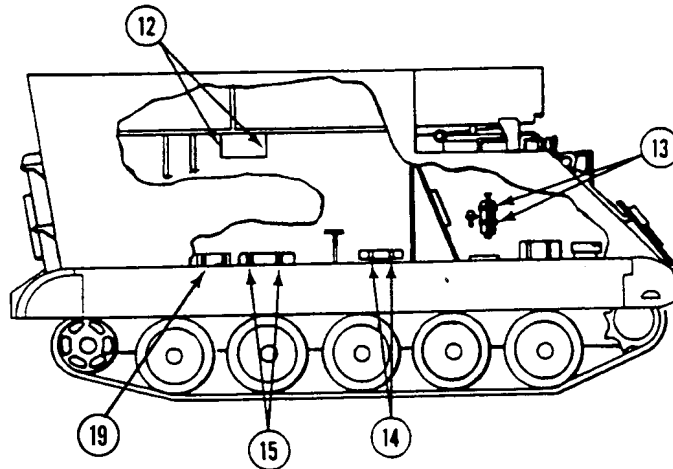
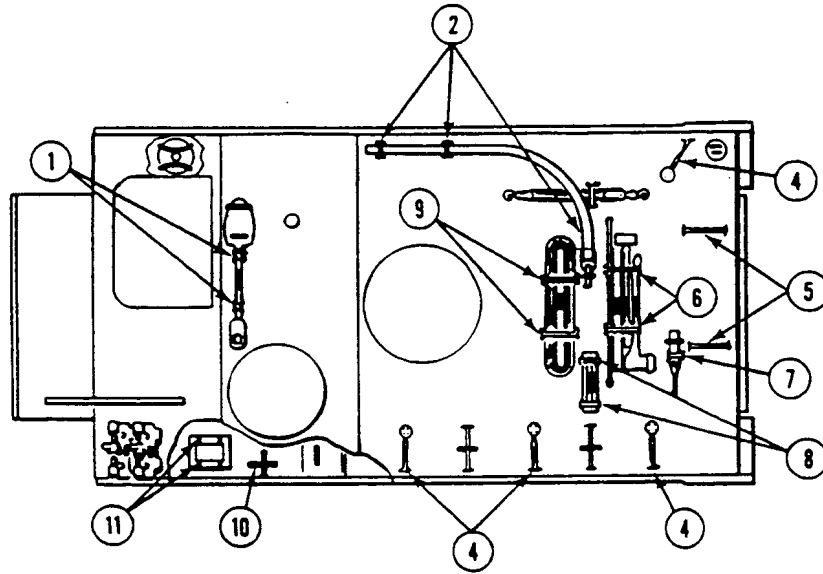


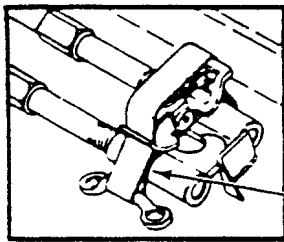
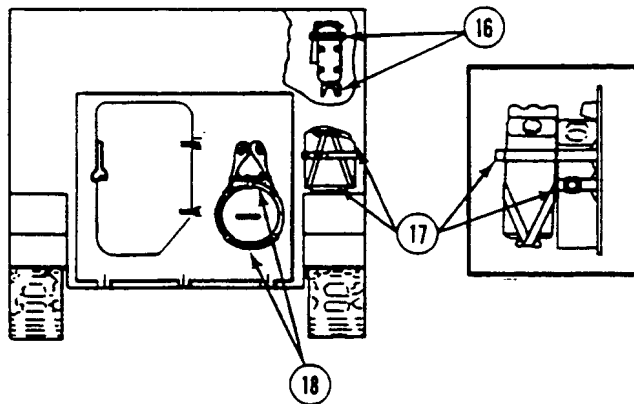


NATIONAL
SYMBOL
STAR



STOWAGE GUIDE - M577A2 COMMAND POST CARRIER STRAPPING DIAGRAM





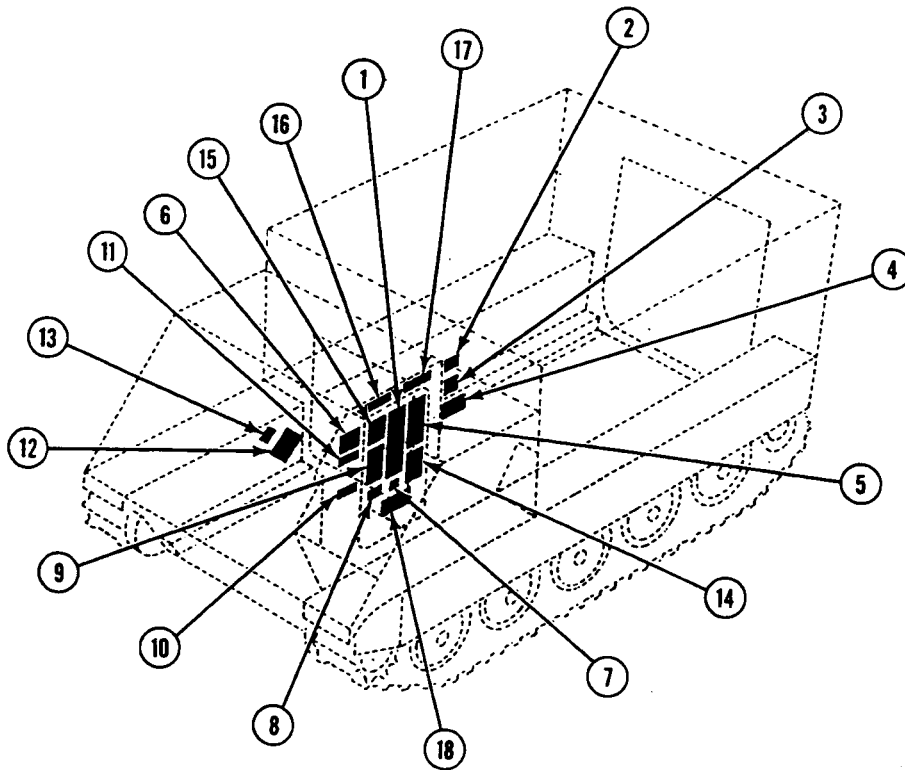
**PROPER METHOD OF STRAPPING.
MAKE CERTAIN BOTH LOOPS PASS
OVER TOP OF SECURED ITEM.**

STOWAGE AND SIGN GUIDE — Continued

0097 00

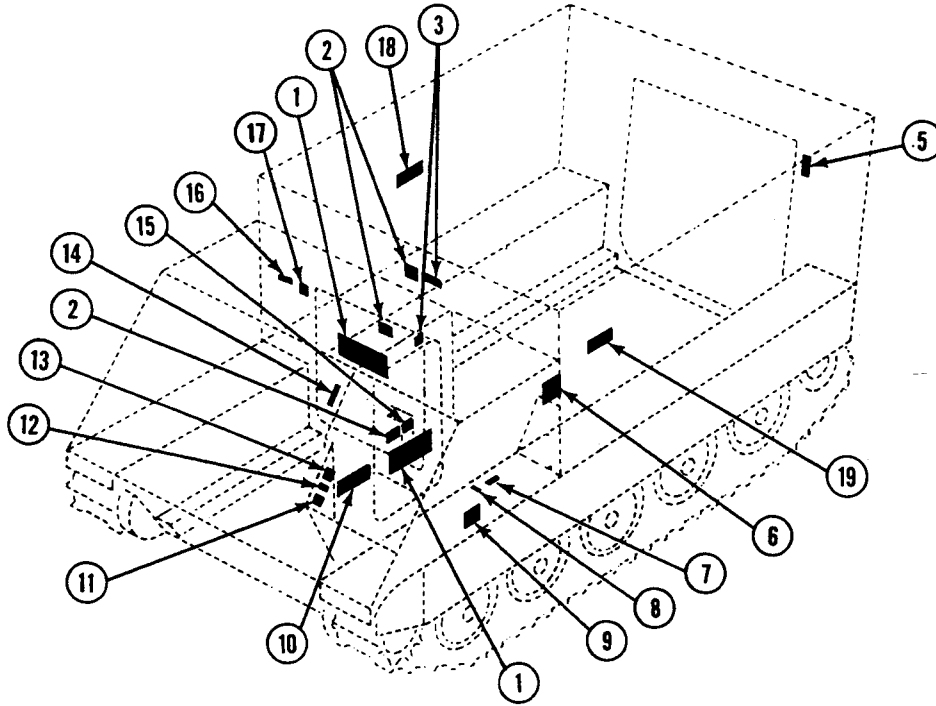
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Shovel	2	33, 20
2	Davit (4.2 KW Generator Set Only)	3	22
3	Chain host tool bag (4.2 KW Generator Set Only)	1	36
4	Sleeping bag	4	72, 96
5	Pack	2	72
6	Pioneer tools	2	36
7	Mattock	1	36
8	Track fixture	2	28
9	Cable	2	36
10	First aid kit	1	24
11	Ammunition case, rifle	2	45
12	Radio	2	45
13	Infrared periscope, M19	2	24, 20
14	Tool bag	2	36
15	Driver's windshield bag	2	68
16	Fire extinguisher	2	24
17	Water can	3	72, 88, 108
18	Tow cable	2	18, 30

STOWAGE GUIDE - M1068 STANDARD INTEGRATED COMMAND POST SYSTEM DATAPLATE AND MARKER LOCATIONS



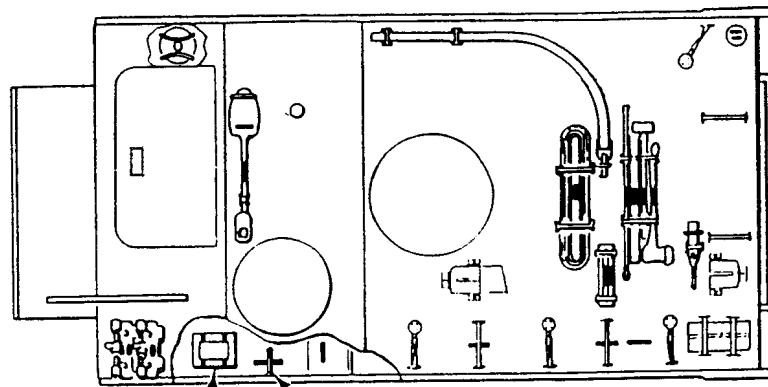
1. Marker, instruction, vehicle operation
2. Marker, instruction, ramp lock WARNING
3. Plate, warranty information
4. Marker, CARC paint
5. Marker, instruction, power train maintenance
6. Marker, identification, vehicle shipping data
7. Plate, instruction, engine idle RPM
8. Marker, noise
9. Marker, instruction, ramp
10. Marker, instruction, ramp actuating lever
11. Marker, WARNING, stall check
12. Marker, instruction, engine air cleaner
13. Decal, WARNING, NBC, generator set, air cleaner
14. Plate, identification, vehicle
15. Marker, instruction, speed shift limit
16. Decal, WARNING, carbon monoxide (small)
17. Marker, identification, ramp lock lever
18. Decal, WARNING, carbon monoxide (large)

STOWAGE GUIDE - M1068 STANDARD INTEGRATED COMMAND POST SYSTEM MARKER AND DECAL LOCATIONS



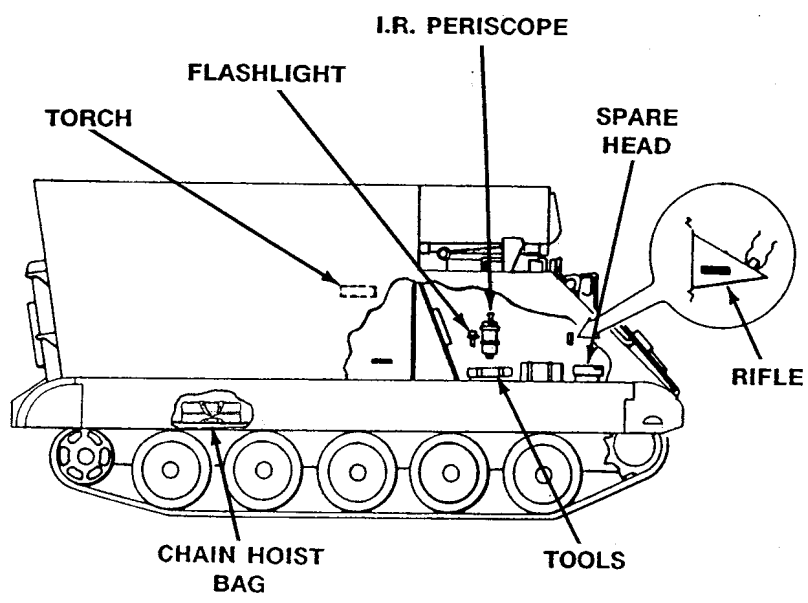
1. Decal WARNING, carbon monoxide (large)
2. Decal, WARNING, noise
3. Decal, WARNING, carbon monoxide (small)
4. Marker, instruction, ramp lock warning
5. Decal, wall switch
6. Decal, CAUTION, fire extinguisher safety wire
7. Decal, tools
8. Decal, 5.56 ammunition
9. Decal, CAUTION, master switch
10. Decal, CAUTION, pivot steer
11. Marker, air vent
12. Marker, throttle
13. Decal, fuel shutoff
14. Marker, engine disconnect
15. Decal, identification, fan oil gauge and fill
16. Decal, WARNING, NBC, engine air cleaner
17. Marker, WARNING, personnel heater
18. Decal, fire extinguisher
19. Marker, WARNING, electrical hazard

STOWAGE GUIDE - M1068 STANDARD INTEGRATED COMMAND POST SYSTEM DECALS



RIFLE
AMMO
5.56

FIRST
AID
KIT



TORCH

FLASHLIGHT

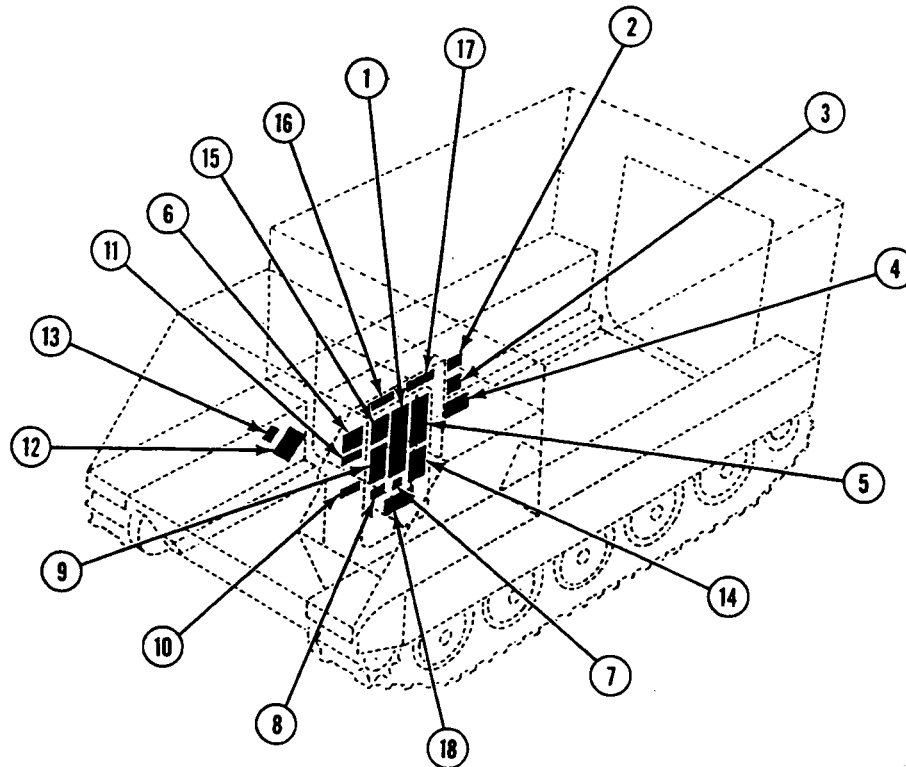
I.R. PERISCOPE

SPARE
HEAD

RIFLE

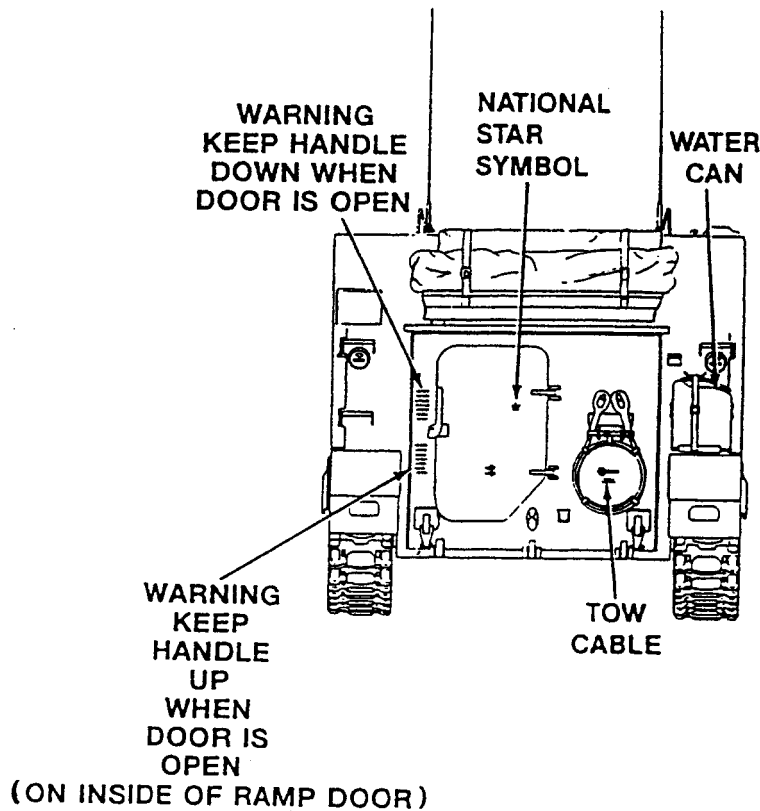
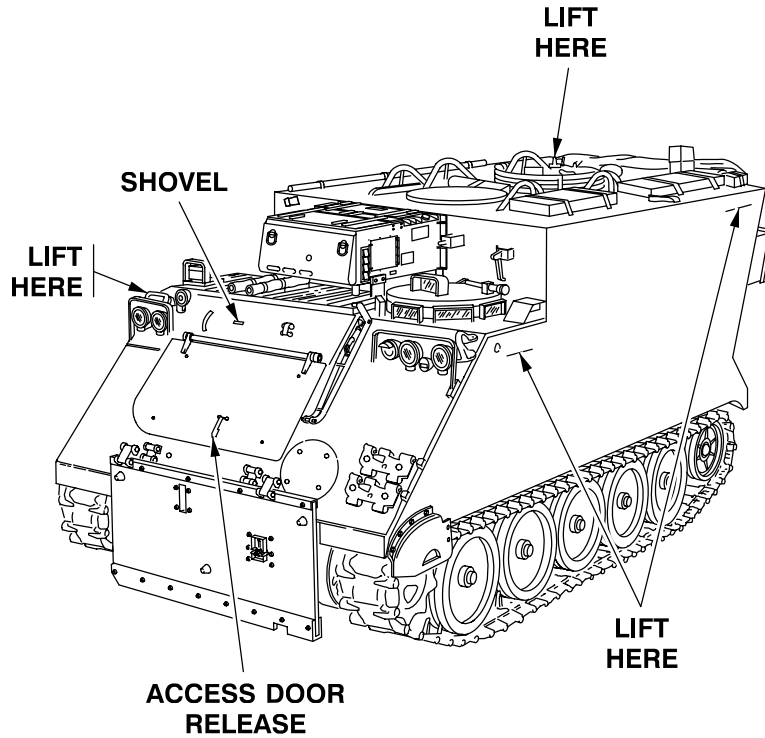
CHAIN HOIST
BAG

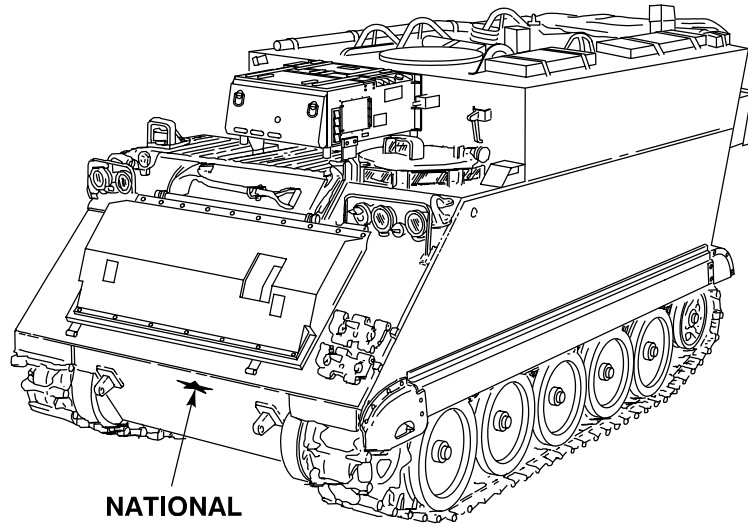
TOOLS



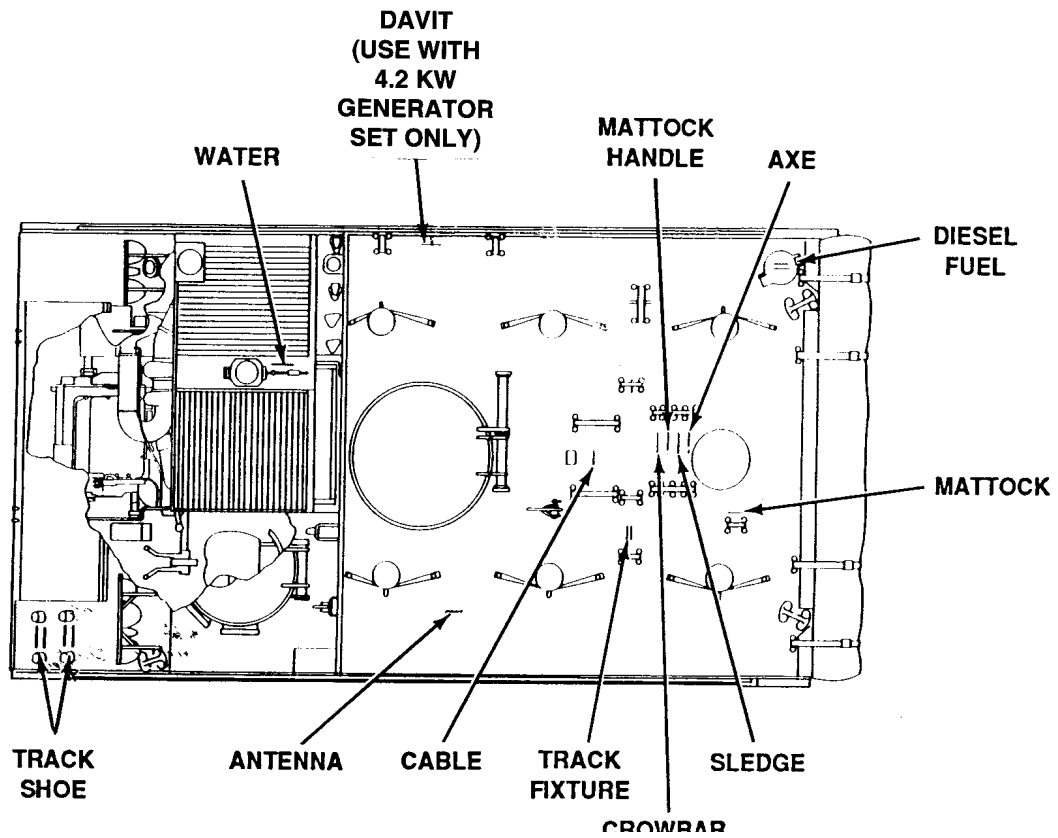
1. Marker, instruction, vehicle operation
2. Marker, instruction, ramp lock warning
3. Plate, warranty information
4. Marker, CARC paint
5. Marker, instruction, power train maintenance
6. Marker, identification, vehicle shipping data
7. Plate, instruction, engine idle RPM
8. Marker, noise
9. Marker, instruction, ramp
10. Marker, instruction, ramp actuating lever
11. Marker, WARNING, stall check
12. Marker, instruction, engine air cleaner
13. Decal, WARNING, NBC, generator set, air cleaner
14. Plate, identification, vehicle
15. Marker, instruction, speed shift limit
16. Decal, WARNING, carbon monoxide (small)
17. Marker, identification, ramp lock lever
18. Decal, WARNING, carbon monoxide (large)

STOWAGE GUIDE - M1068 STANDARD INTEGRATED COMMAND POST SYSTEM STENCIL LOCATIONS





NATIONAL
SYMBOL
STAR



TRACK
SHOE

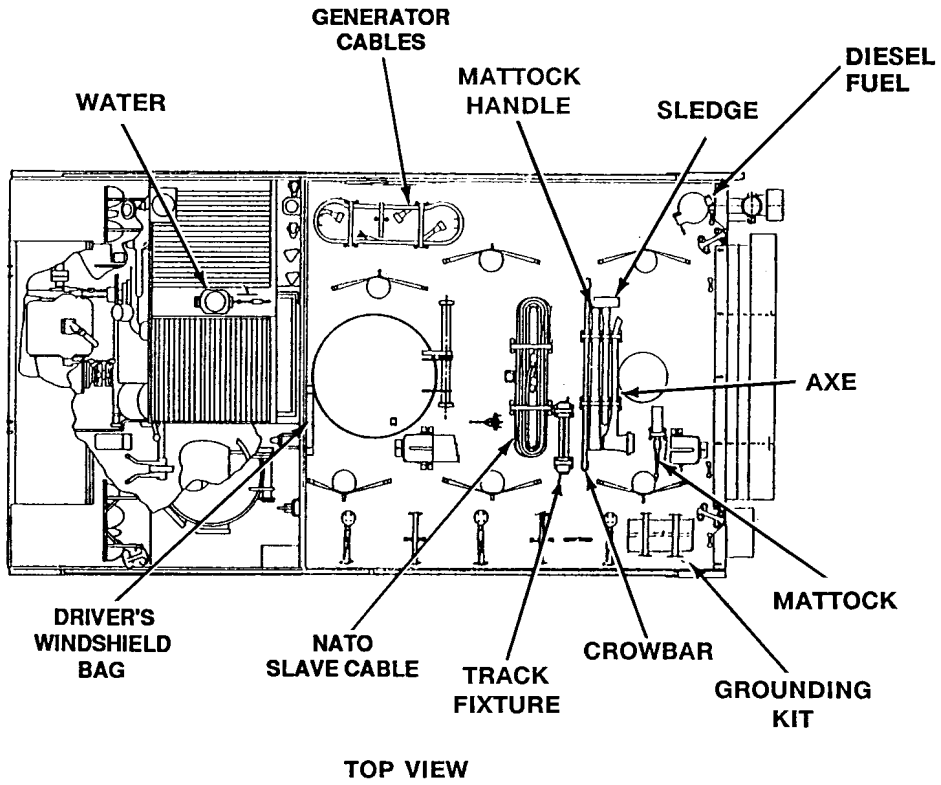
ANTENNA

CABLE

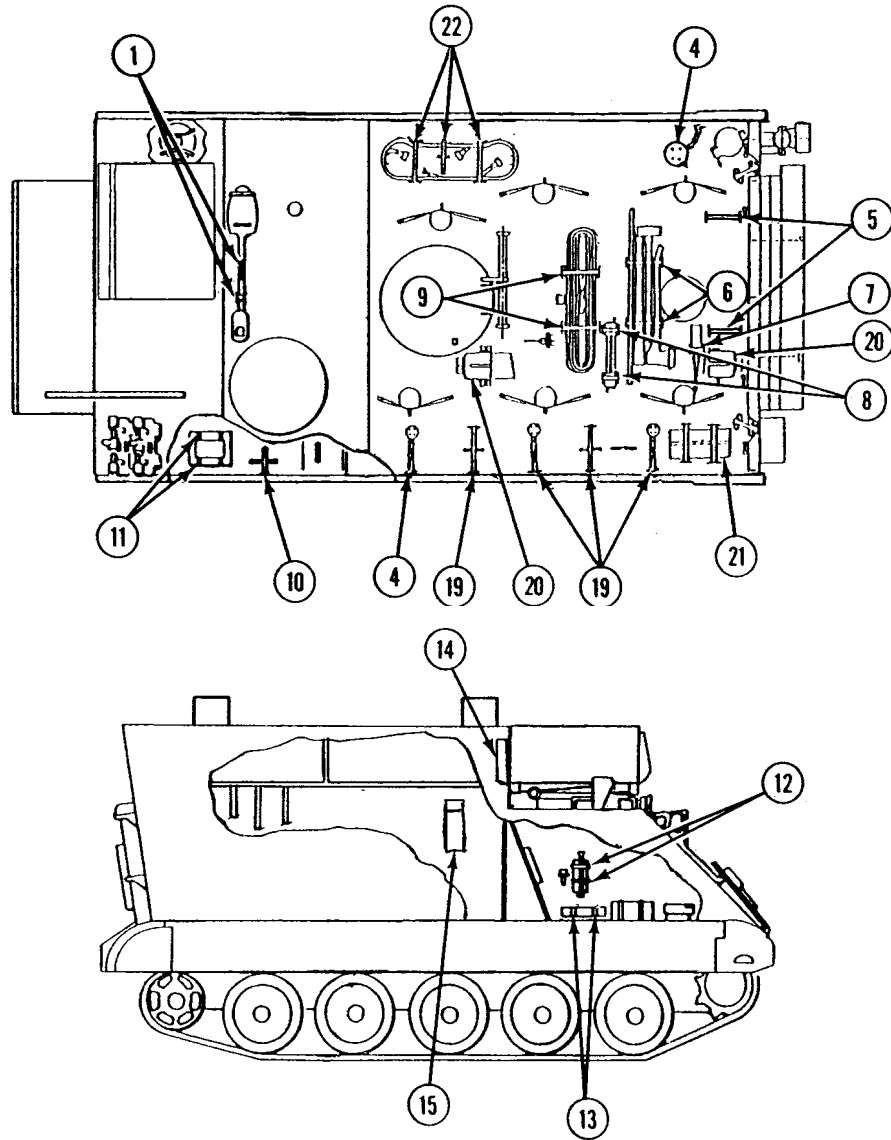
TRACK
FIXTURE

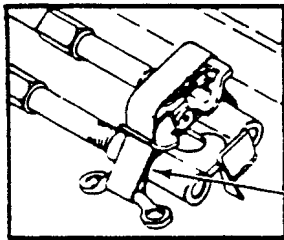
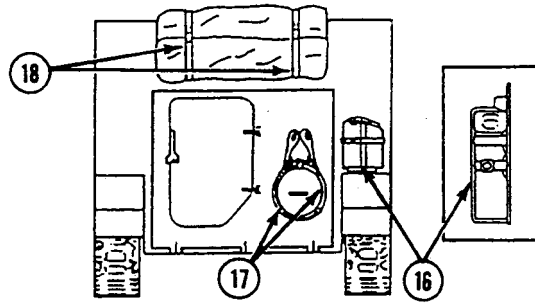
SLEDGE

CROWBAR



STOWAGE GUIDE - M1068 STANDARD INTEGRATED COMMAND POST SYSTEM STRAPPING DIAGRAM





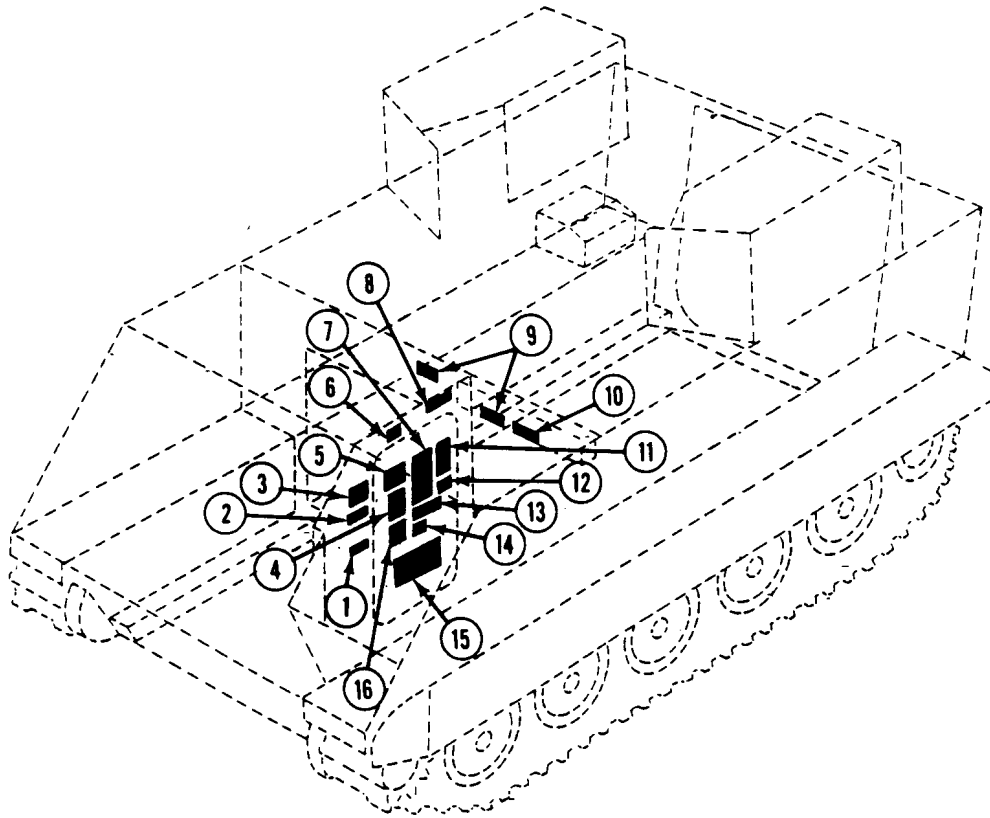
**PROPER METHOD OF STRAPPING.
MAKE CERTAIN BOTH LOOPS PASS
OVER TOP OF SECURED ITEM.**

STOWAGE AND SIGN GUIDE — Continued

0097 00

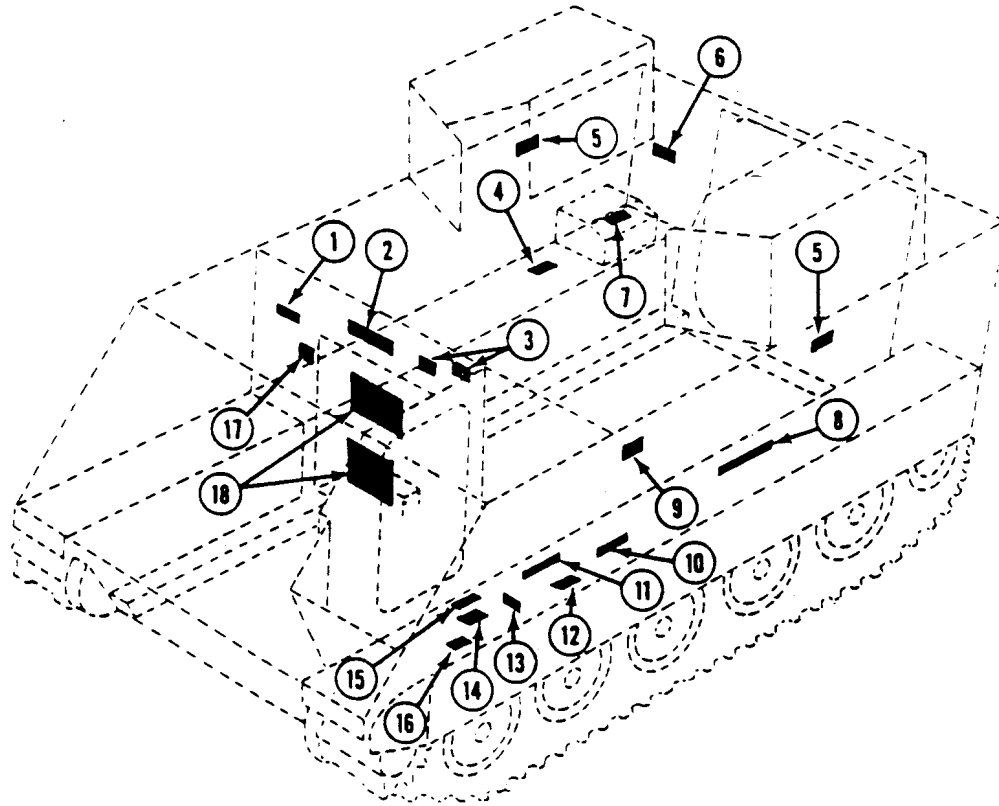
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Shovel	2	33, 20
2	Davit (4.2 KW Generator Set Only)	3	22
3	Chain Hoist Bag (4.2 KW Generator Set Only)	1	39
4	Duffle bag/pack	4	72, 84
5	Pack	2	72
6	Pioneer tools	2	36
7	Mattock	1	36
8	Track fixture	2	28
9	Cable	2	36
10	First aid kit	1	24
11	Ammunition case, rifle	2	45
12	Infrared periscope, M19	2	24, 20
13	Tool bag	2	36
14	Driver's windshield bag	2	68
15	Fire extinguisher	2	24
16	M13 decon can	2	72
17	Tow cable	2	18, 30
18	Mapboard and table	2	114
19	Tent frame and fabric bags	4	100
20	Light set	2	45
21	Grounding kit	2	76
22	Generator cables (W1 and W2)	3	39, 45

STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER DATAPLATE AND MARKER LOCATIONS



1. Ramp actuating lever
2. Stall check WARNING
3. Vehicle identification
4. Ramp
5. Speed shift limit
6. Carbon monoxide WARNING (small)
7. Vehicle operation
8. Ramp lock lever
9. Ramp lock WARNING
10. Warranty information
11. Power train maintenance
12. Noise WARNING
13. Multiple WARNING
14. Engine idle RPM
15. Carbon monoxide WARNING (large)
16. Vehicle shipping data

STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER DATAPLATE AND DECAL LOCATIONS

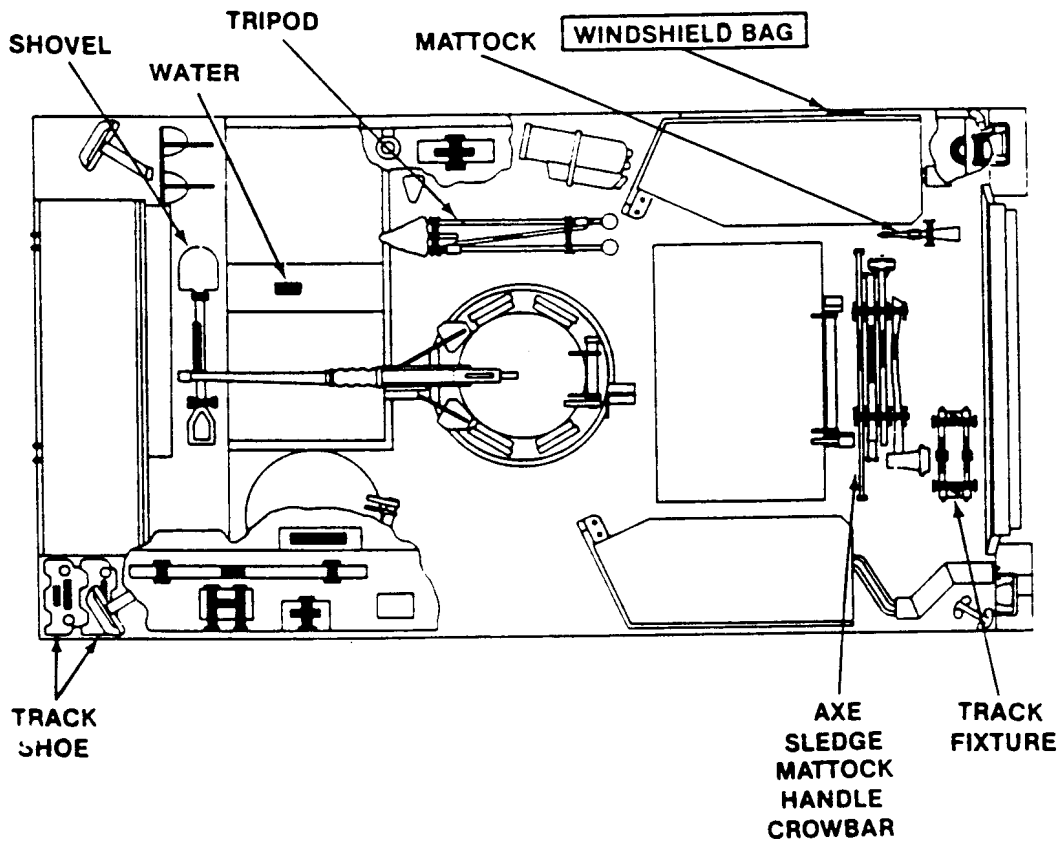


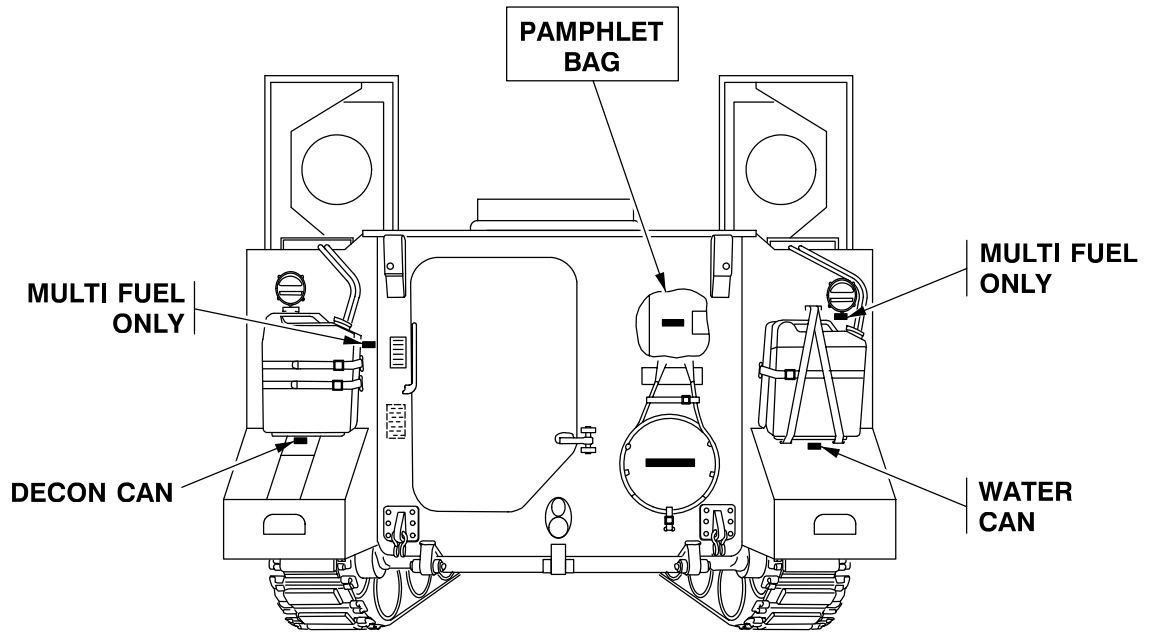
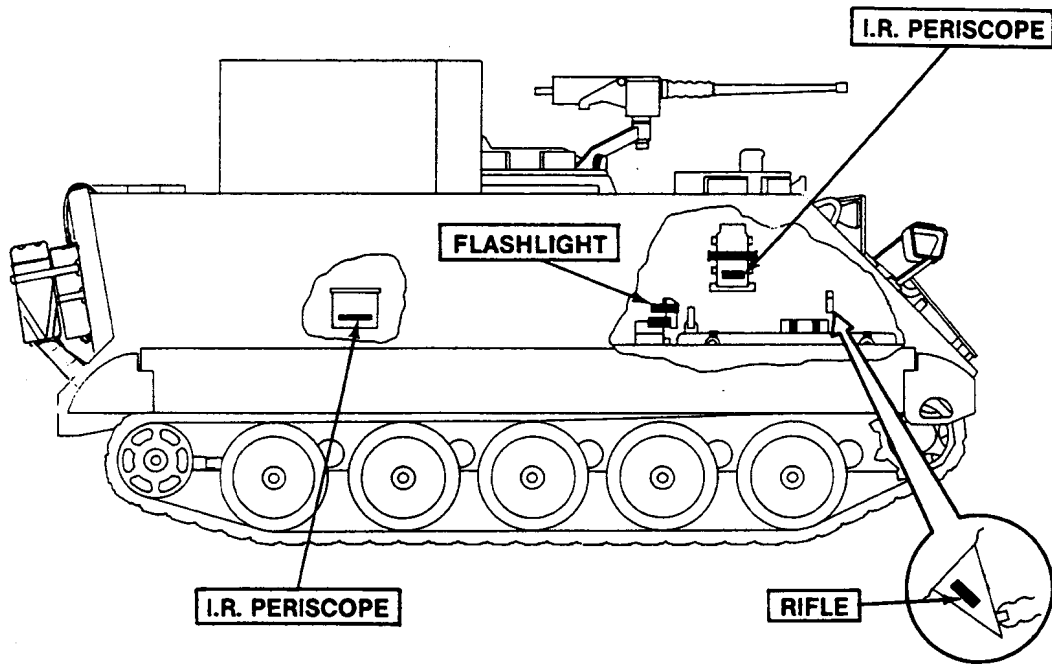
1. Carbon monoxide WARNING
2. Multiple WARNING
3. Ramp lock
4. Tools
5. Noise WARNING
6. Fire extinguisher
7. Battery service
8. Periscope
9. Fire extinguisher
10. Flashlight
11. Infrared periscope, M19
12. First aid
13. Rifle
14. 7.62 ammunition
15. Spare barrel
16. Spare head
17. Personnel/equipment heater WARNING
18. Carbon monoxide WARNING (large)

STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER DECALS AND STENCILS

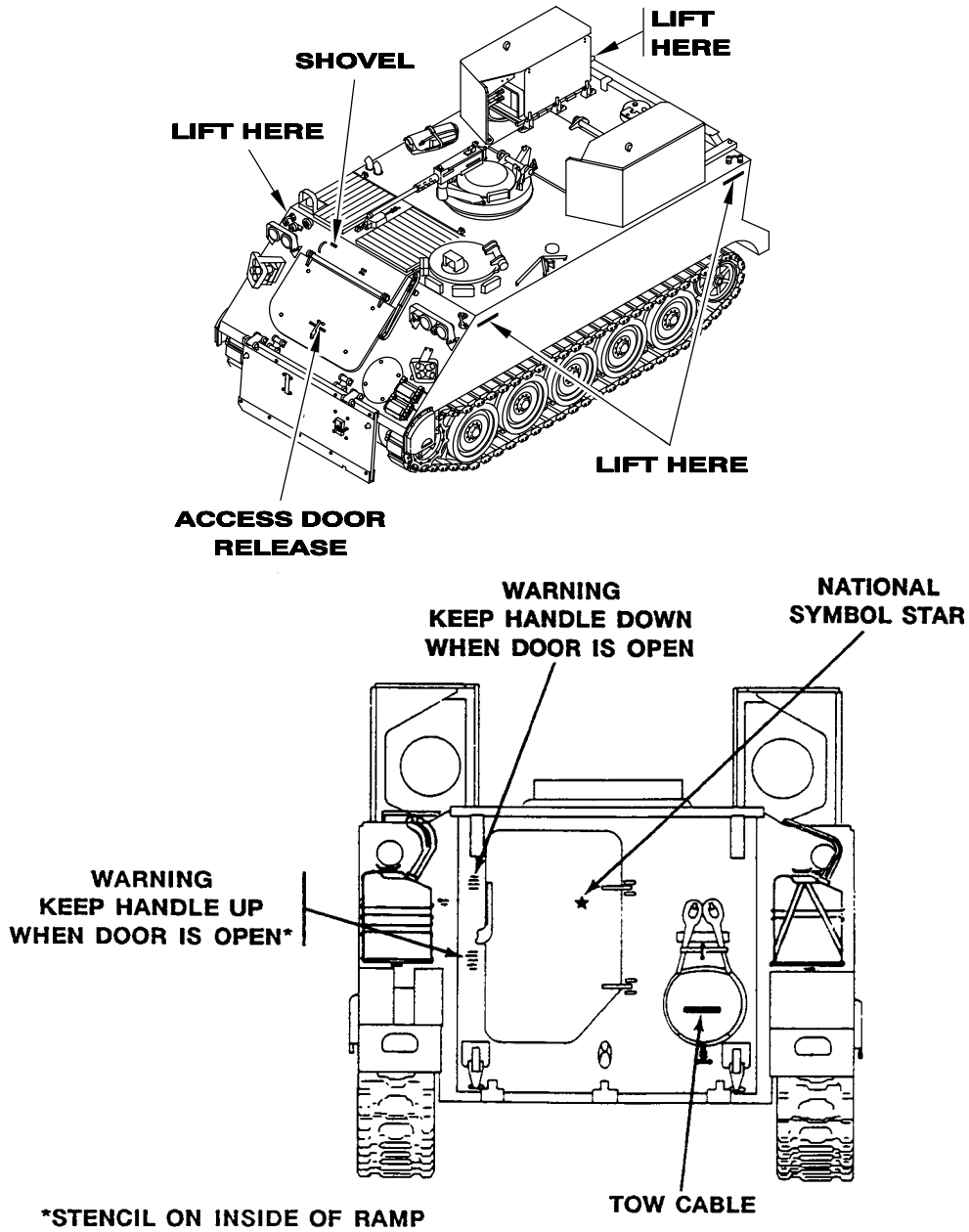
NOTE

Signs outlined with boxes are decals applied in locations shown. Signs not outlined with boxes are stencils.

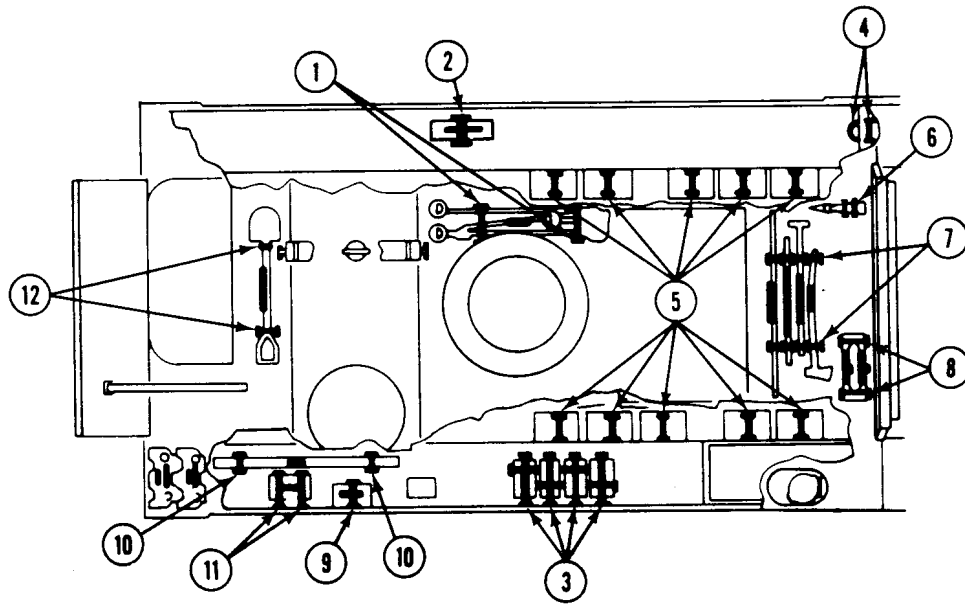




STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER STENCILS

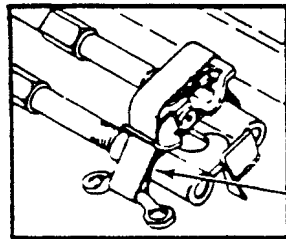
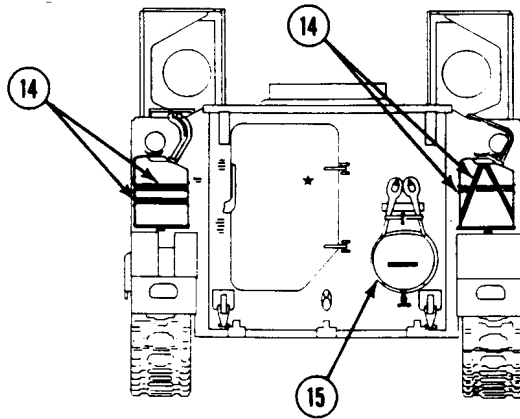
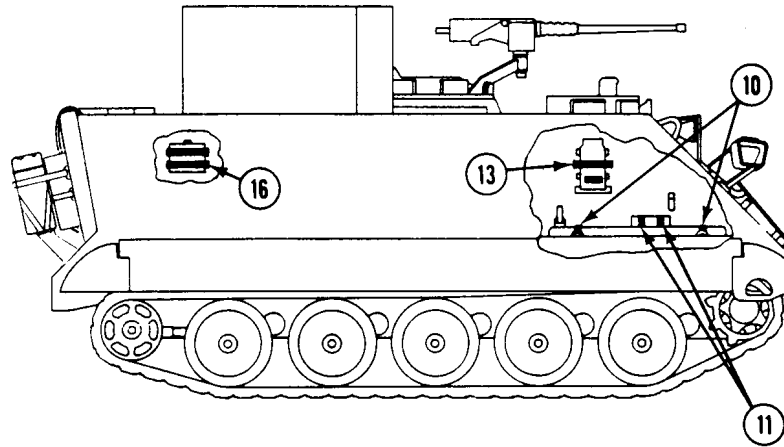


STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER STRAPPING DIAGRAM



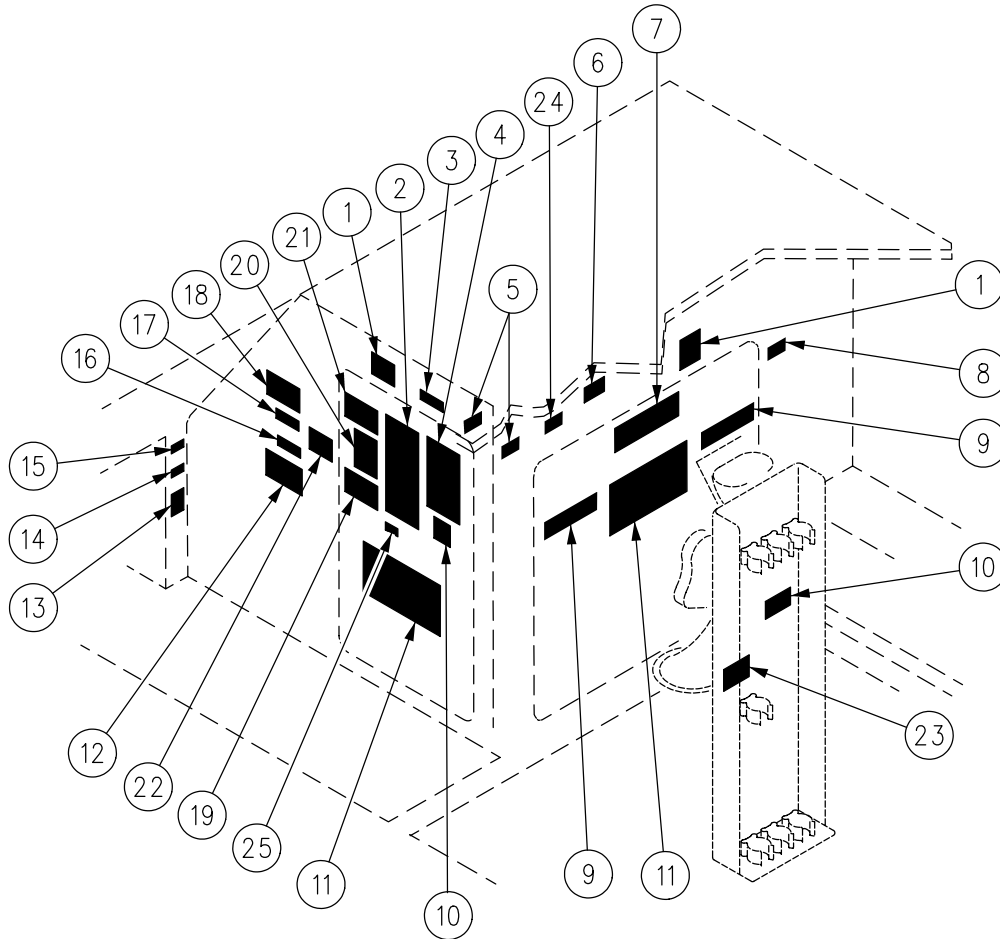
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tripod	2	36
2	Tool bag	1	48
3	Ammunition box, caliber .50	Suggested use only, no straps furnished	
4	Fire extinguisher	2	24
5	Miscellaneous stowage	10	39
6	Mattock	1	24
7	Pioneer tools	2	36
8	Track fixture	2	28
9	First aid kit	1	24
10	Spare barrel, caliber .50	2	24
11	Ammunition cases, rifle	2	45
12	Shovel	2	33, 20
13	Infrared periscope M19	2	20, 24
14	MOGAS, M13 decon or water cans	6	72, 88, 108
15	Tow cable	2	18, 30
16	Driver's windshield bag	2	68

STOWAGE GUIDE - M1059 FULL TRACKED SMOKE GENERATOR CARRIER STRAPPING DIAGRAM (CONT)

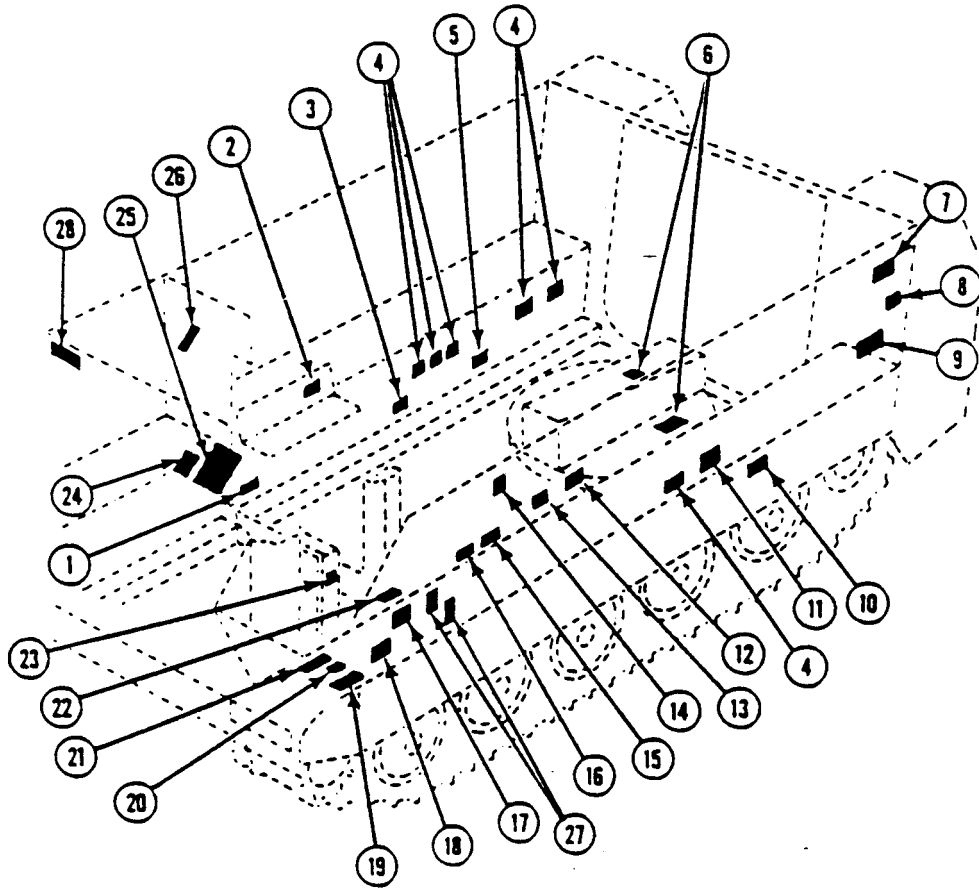


**PROPER METHOD OF STRAPPING.
MAKE CERTAIN BOTH LOOPS PASS
OVER TOP OF SECURED ITEM.**

STOWAGE GUIDE - M1064 120-MM SELF-PROPELLED MORTAR PLATE, MARKER, AND DECAL LOCATIONS



1. Carbon monoxide WARNING
2. Vehicle operation
3. Ramp lock
4. Power train maintenance
5. Ramp lock
6. Mortar alignment
7. Water operation WARNING
8. Curtain air grille
9. Personnel/equipment heater WARNING
10. Pamphlet bag
11. Rifle
12. Carbon monoxide WARNING (large)
13. Pivot steer CAUTION
14. Air vent
15. Throttle
16. Fuel shutoff
17. Ramp actuating lever
18. Stall check WARNING
19. Vehicle identification
20. Vehicle shipping data
21. Ramp
22. Speed shift limit
23. Engine idle RPM
24. Sight unit
25. CARC paint

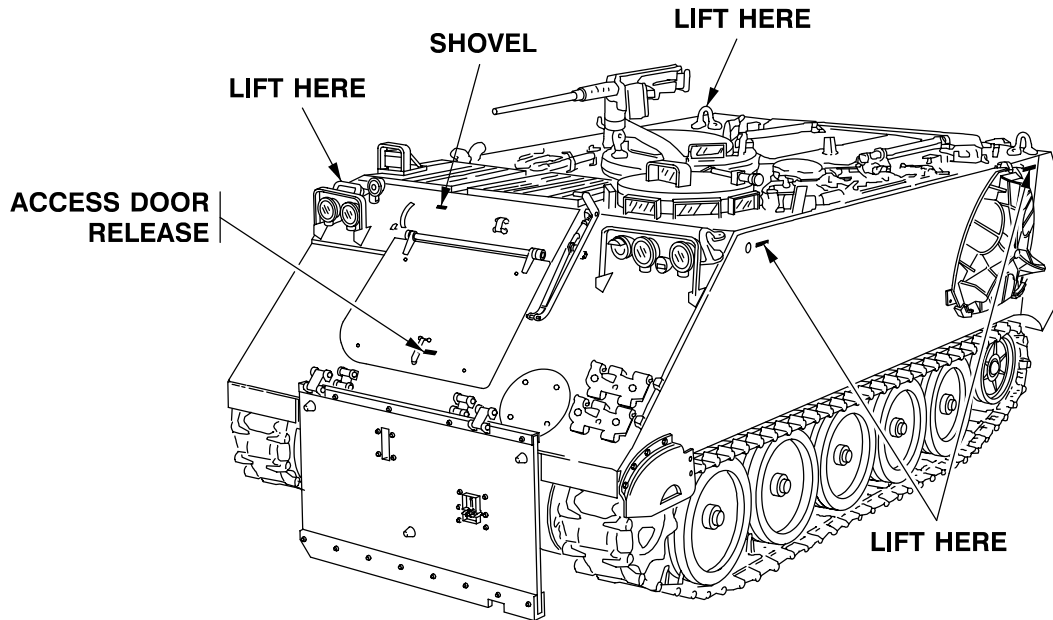


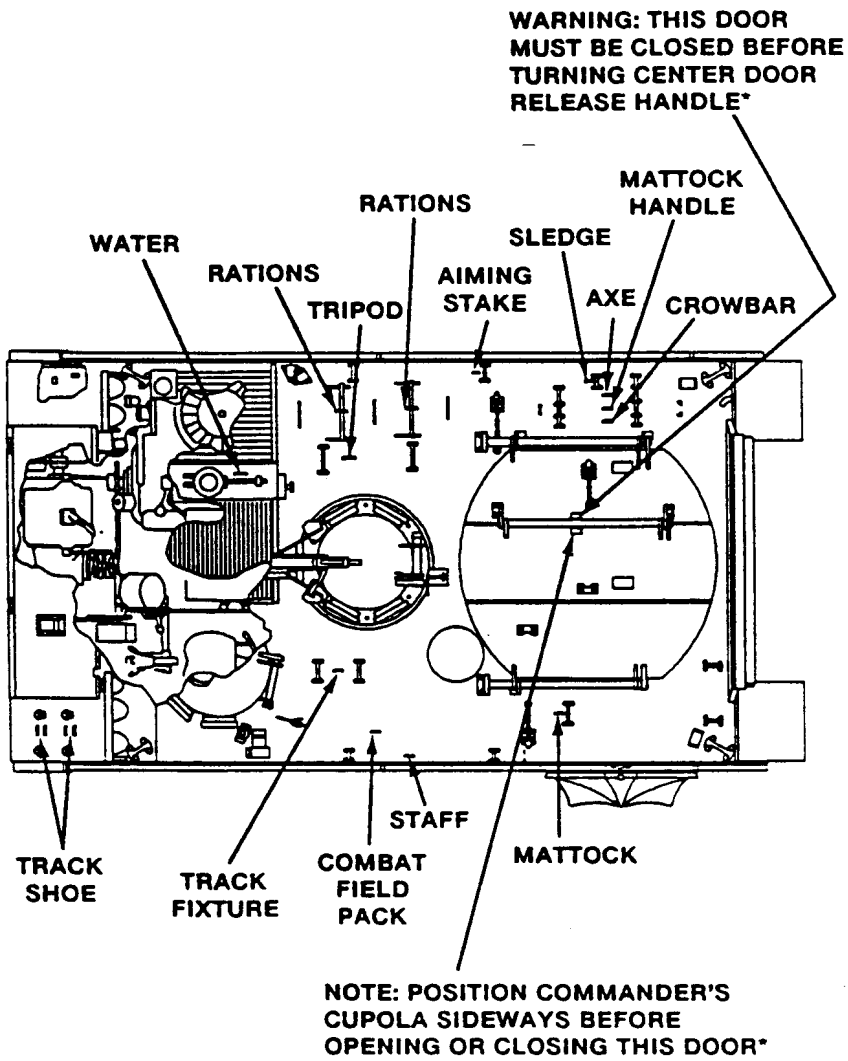
STOWAGE AND SIGN GUIDE — Continued

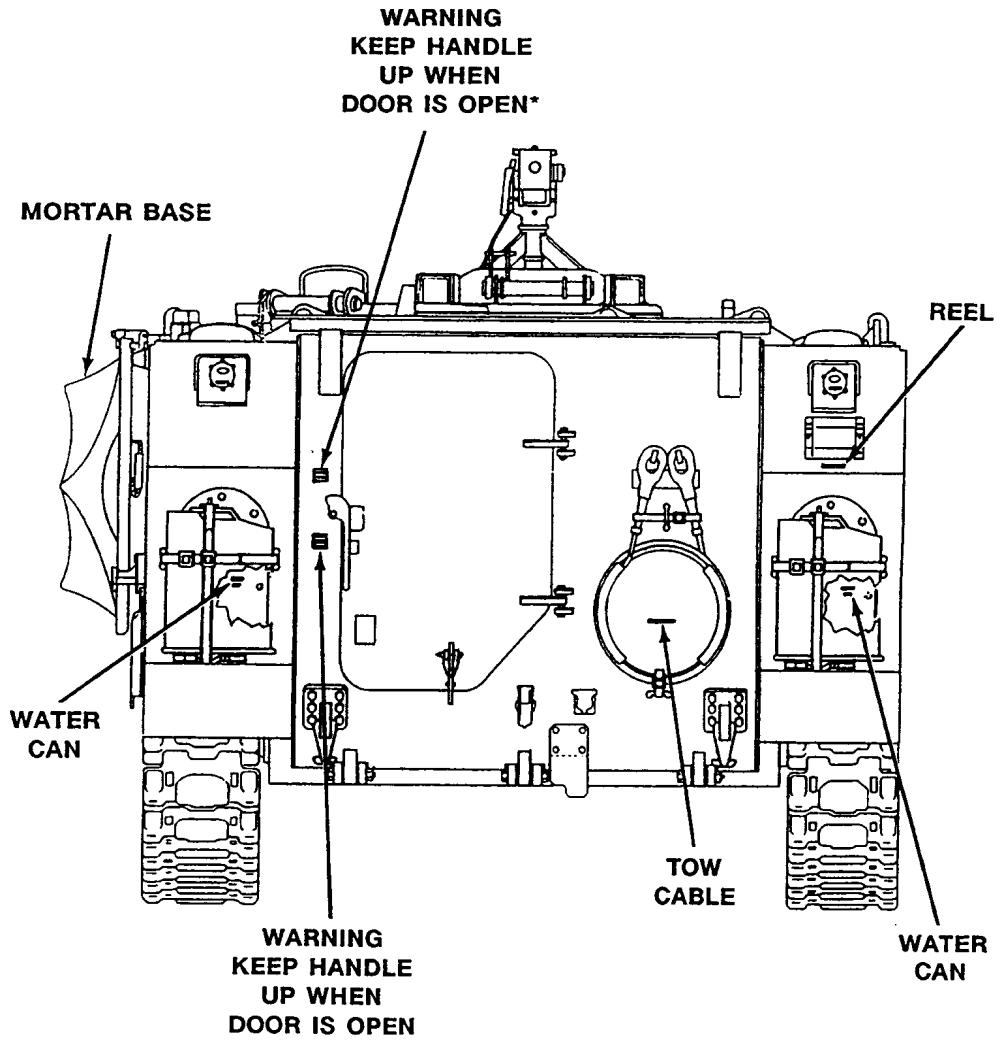
0097 00

1. Machete
2. Panel set
3. Sight unit
4. 50 cal ammunition
5. Gun tool kit
6. 5.56 ammunition
7. Radio spare parts
8. Marker, rifle
9. Rifle
10. Boresight
11. Reflector case
12. Noise WARNING
13. Battery service
14. Fire extinguisher
15. Flashlight
16. Infrared periscope, M19
17. Master switch CAUTION
18. Tools
19. Spare barrel
20. First aid kit
21. Periscope
22. Spare head
23. Engine disconnect
24. NBC engine air cleaner WARNING
25. Engine air cleaner
26. Fan oil gauge and fill
27. Grenades
28. Personnel heater WARNING

STOWAGE GUIDE - M1064 120-MM SELF-PROPELLED MORTAR STENCIL LOCATIONS

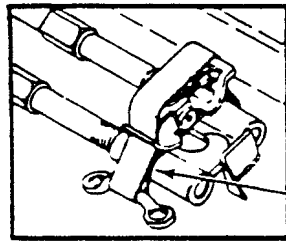
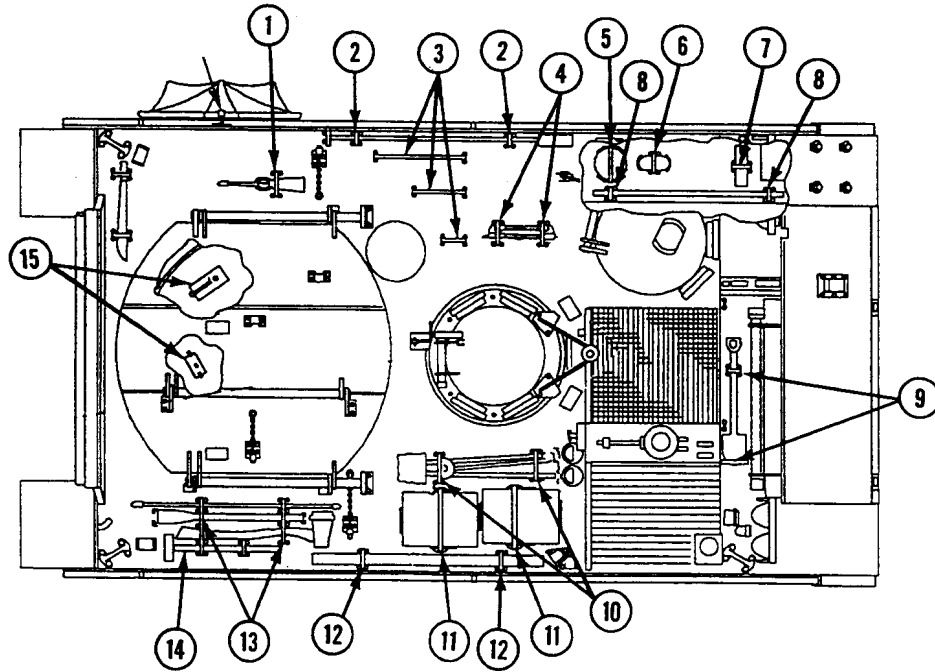






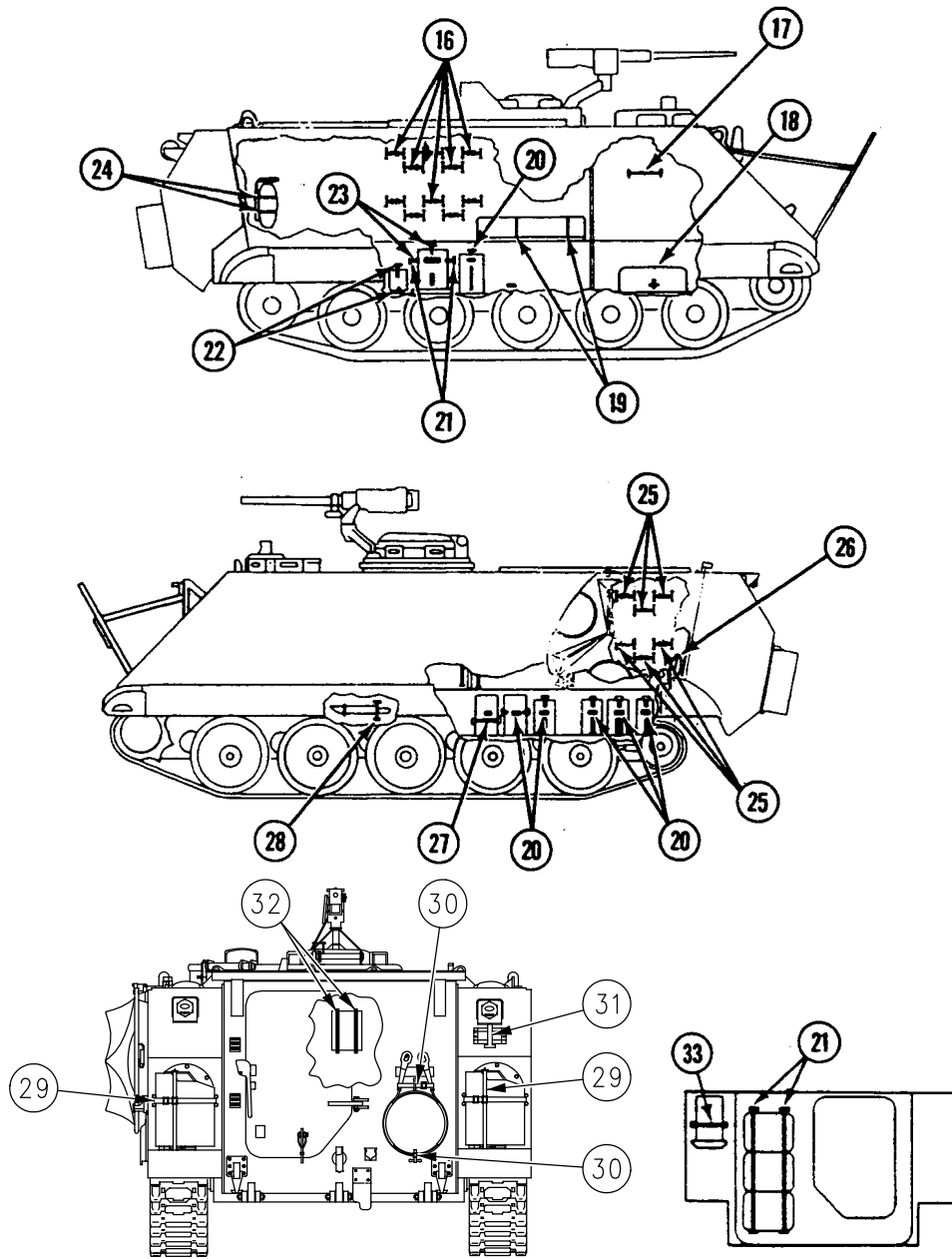
*STENCIL ON INSIDE OF RAMP

STOWAGE GUIDE - M1064 120-MM SELF-PROPELLED MORTAR STRAPPING DIAGRAM



**PROPER METHOD OF STRAPPING.
MAKE CERTAIN BOTH LOOPS
PASS OVER TOP OF SECURED
ITEM.**

STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Mattock	1	24
2	Cleaning staff	2	12
3	Field packs	3	80, 64, 48
4	Track fixture	2	18
5	Cook set	1	36
6	Binoculars	1	48
7	First aid kit	1	39
8	Machine gun spare barrel, caliber .50	2	14
9	Shovel	2	20, 33
10	Tripod	2	36
11	Field rations	2	64
12	Aiming stake, M1A2	2	16
13	Pioneer tools	2	30, 39
14	Sledge hammer	1	12
15	Ammunition, rifle	2	51, 57



STRAP KEY (cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
16	Mortar ammo cartridges	10	80
17	Infrared periscope M19	2	20, 24
18	Tool bag	1	36
19	Panel set	2	20
20	Ammo boxes, caliber .50	6	42, 45
21	Sleeping bags	2	174
22	Boresight	1	28
23	Lighting chest	2	39, 54
24	Fire extinguisher	2	24
25	Mortar ammo cartridges	6	80
26	Driver's windshield bag	1	36
27	Sight unit carrying case	1	51
28	Machete	1	16
29	Water can/M13 decon kit	4	72
30	Tow cable	2	30, 18
31	Reel	1	48
32	Pamphlet bag	2	30
33	Portable radio set	1	36

STANDARD LOAD PLAN

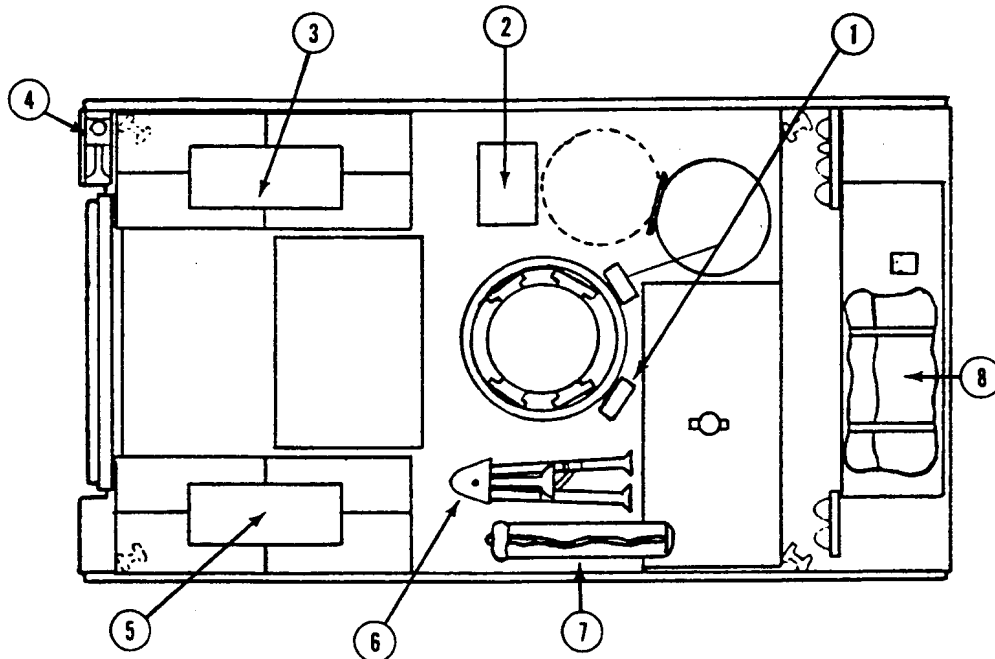
0098 00

This load plan supersedes all previously published versions.

This work package provides load plans for the M113A2, M1059, and M1064 carriers. These standard load plans are designed to supplement the stowage guide contained in WP 0097 00 of this manual. These standard load plans include selected items of personal and unit equipment. These items are issued to most units within the Army equipped with various M113A2 family vehicles. Equipment not shown in either this work package or WP 0097 00 may be loaded in accordance with local command policy.

Standard Load Plan Proponent
 Commandant
 U.S. Army Infantry School
 Fort Benning, GA 31905

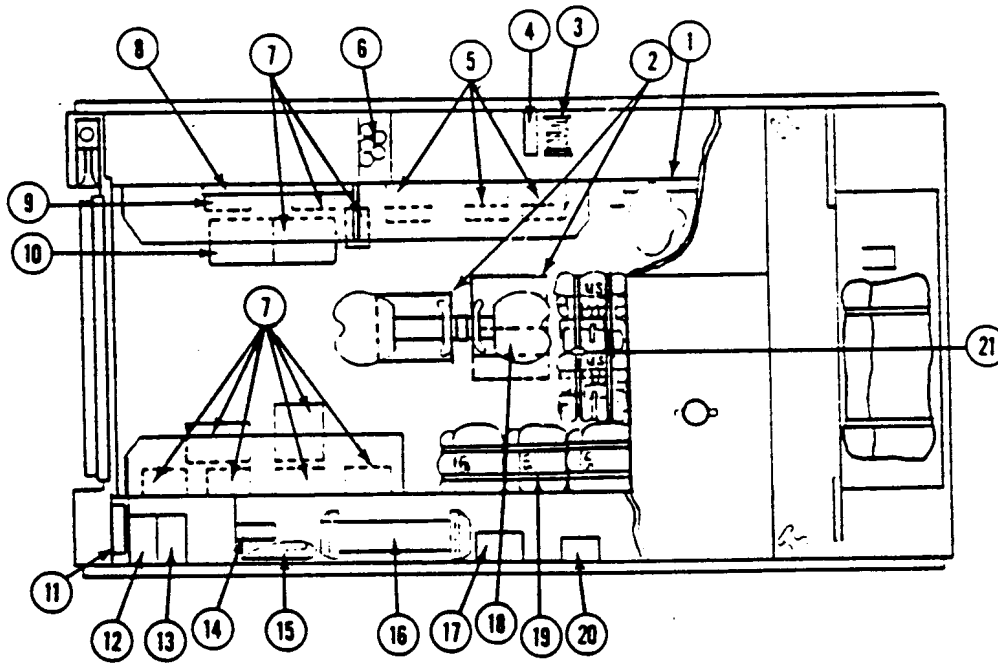
STANDARD LOAD PLAN — M113A2 PERSONNEL CARRIER



EXTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Ammo cans, cal .50 (2 ea)
2	MRE ration cases (2 ea)
3	Duffel bags (5 ea)
4	Water can
5	Duffel bags (5 ea)
6	Tripod, cal .50
7	Camouflage support system
8	Camouflage screen

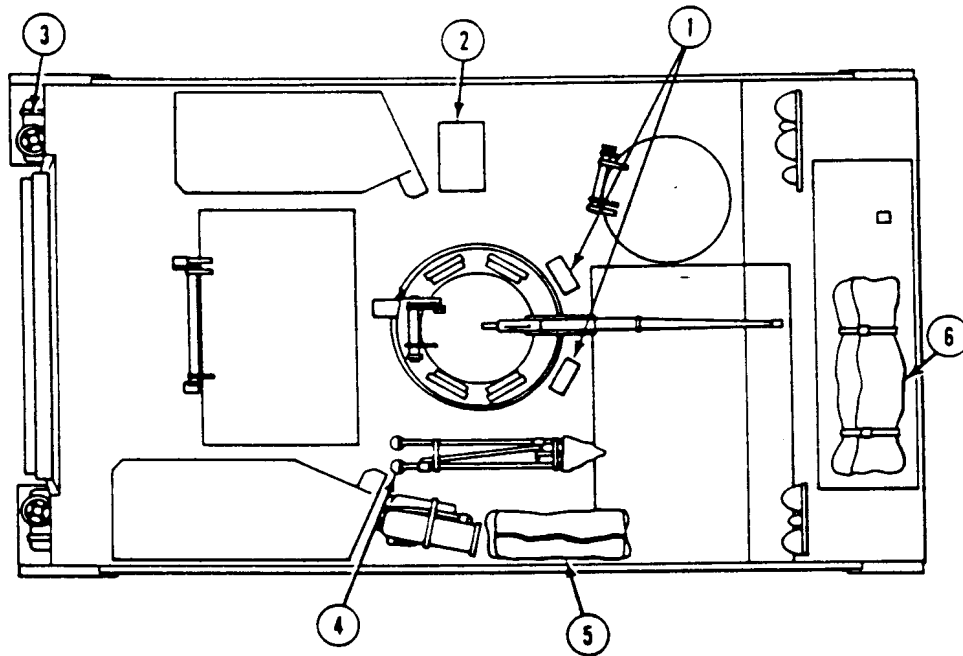
STANDARD LOAD PLAN — M113A2 PERSONNEL CARRIER



INTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Map canister
2	MRE ration cases (4 ea), 3 under TC seat and 1 under SL seat
3	WD-1/TT, DR-8, 1320 ft
4	Binoculars
5	Ammo cans, cal .50 and 7.62 (3 ea)
6	Laws (5 ea)
7	Ammo cans, cal .50 (6 ea); cases (3 ea)
8	Flag set
9	Ammo can, 5.56 (1 ea)
10	Ammo case, 7.62 (1 ea)
11	Telephone set, TA-1 or TA-312
12	Night vision sight, AN/TVS-2B
13	Night vision sight
14	Ammo can w/cal .50 cleaning rod and case: T&E mech, cal .50
15	M60 spare barrel bag w/T&E mech
16	Dragon w/M202A1 rocket launcher or 4 laws
17	M21 mine box (for mines, flares, booby traps)
18	Night vision goggles (PVS-5)/sight (PSV-4)
19	Rucksacks (6 ea)
20	Dragon tracker and device box
21	Rucksacks (4 ea)

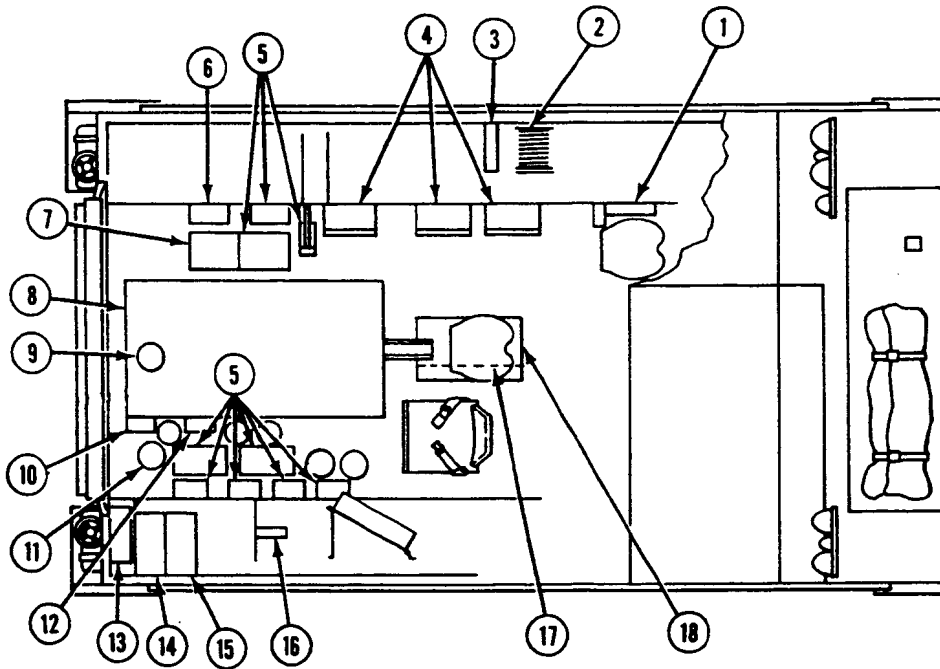
STANDARD LOAD PLAN — M1059 SMOKE GENERATOR CARRIER



EXTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Ammo cans, cal .50 (2 ea)
2	MRE ration cases (2 ea)
3	Smoke generator fuel (MOGAS)
4	Tripod, cal .50
5	Camouflage support system
6	Camouflage screen

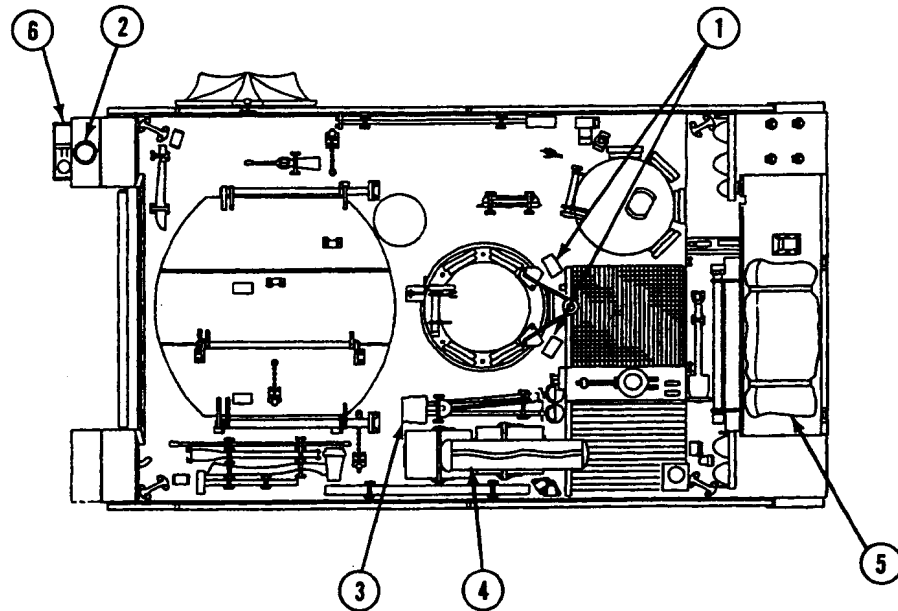
STANDARD LOAD PLAN — M1059 SMOKE GENERATOR CARRIER



INTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Map canister
2	WD-1/TT, DR-8, 1320 ft
3	Binoculars
4	Ammo cans, cal .50 and 5.56 (3 ea)
5	Ammo cans, cal .50 (6 ea); cases (3 ea)
6	Ammo case, 5.56 (1 ea)
7	Ammo can, 5.56 (1 ea)
8	Fog oil tank (120 gal)
9	Fill port
10	M13 decon kit
11	Duffel bags (6 ea)
12	Water can
13	Telephone set, TA-1 or TA-312
14	Night vision sight, AN/TVS5
15	Night vision sight, AN/PVS4
16	Ammo can w/cal .50 cleaning rod and case: T&E mech, cal .50
17	Night vision goggles (PVS-5)
18	MRE ration cases (4 ea) under TC seat

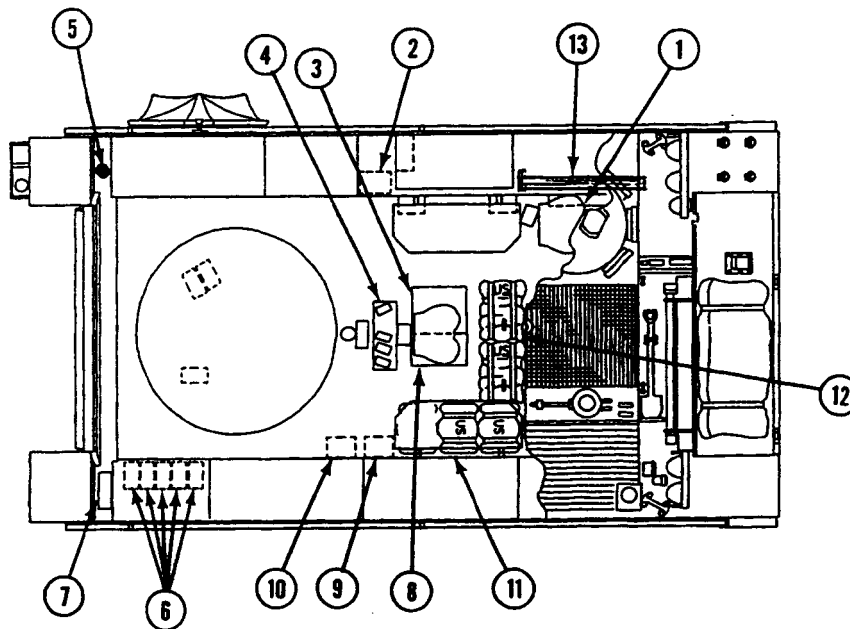
STANDARD LOAD PLAN — M1064 MORTAR CARRIER



EXTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Ammo cans, cal .50 (2 ea)
2	WD-1/TT, DR-8, 1320 ft
3	Tripod, cal .50
4	Camouflage support system
5	Camouflage screen
6	M13 decon kit

STANDARD LOAD PLAN — M1064 MORTAR CARRIER



INTERNAL

<u>Item No.</u>	<u>Item Name</u>
1	Map canister
2	Ammo can, 5.56/cal .45 (1 ea)
3	MRE ration cases (3 ea)
4	Tripod, aiming circle
5	Flag set
6	Ammo can, cal .50 (8 ea)
7	Telephone set, TA-1 or TA-312
8	Night vision goggles, (PVS-5)/sight (PSV-4)
9	Ammo can w/cal .50 cleaning rod and case: T&E mech, cal .50
10	M67 or M53 sight gear
11	Duffle bags (2 ea)
12	Duffle bags (2 ea)
13	Spare barrel, cal .50

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Power Plant	
Close Power Plant Access Door	0014 00-2
Open Power Plant Access Door	0014 00-1
Ramp	
Close Ramp Access Door From Inside Carrier	0005 00-2
Close Ramp Access Door From Outside Carrier	0005 00-4
Open Ramp Access Door From Inside Carrier	0005 00-1
Open Ramp Access Door From Outside Carrier	0005 00-3
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Installation	0053 00-1
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ITEM	PAGE	PARA	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON
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General, United States Army
Chief of Staff

Official:


SANDRA R. RILEY
Administrative Assistant to the
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0520103

DISTRIBUTION: To be distributed in accordance with the initial distribution requirements for IDN: 371200, requirements for TM 9-2350-261-10.

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 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

$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212 $^{\circ}$ Fahrenheit is equivalent to 100 $^{\circ}$ Celsius
 90 $^{\circ}$ Fahrenheit is equivalent to 32.2 $^{\circ}$ Celsius
 32 $^{\circ}$ Fahrenheit is equivalent to 0 $^{\circ}$ Celsius
 $(9/5 \times ^{\circ}\text{C}) + 32 = ^{\circ}\text{F}$

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	Millimeters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

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

