TECHNICAL MANUAL

OPERATOR'S MANUAL

FOR
CARRIER, PERSONNEL, FULL TRACKED, ARMORED M113A3
2350–01–219–7577 (EIC AEY)

CARRIER, COMMAND POST, LIGHT TRACKED M577A3
2350–01–369–6085 (EIC AE7)

CARRIER, ANTI-TANK (TOW), FULL TRACKED, ARMORED M901A3
2350–01–369–7253 (EIC AFD)

CARRIER, FIRE SUPPORT PERSONNEL, FULL TRACKED, ARMORED M981A3
2350–01–369–6079 (EIC AFB)

CARRIER, SMOKE GENERATOR, FULL TRACKED M1059A3
2350–01–369–6083 (EIC AFA)

CARRIER, MORTAR, 120–MM M121, SELF-PROPELLED M1064A3
2350–01–369–6082 (EIC AE8)

CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM (SICPS) M1068A3
2350–01–369–6086 (EIC AFC)

CARRIER, MECHANIZED SMOKE OBSCURANT M58
2350–01–418–6654 (EIC 5CG)

SUPERSEDURE NOTICE — This manual supersedes TM 9-2350-277-10 dated 25 July 1994, including all changes.

DISTRIBUTION STATEMENT A — Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

2 January 2001

WARNING SUMMARY

WARNING SUMMARY

This section provides a summary of all critical safety information in this TM. It includes general WARNINGS not found in the Work Package (WP) procedures, hazardous materials WARNINGS, and a list of critical WARNINGS extracted from the WPs.

Prior to starting any WP procedure, the WARNINGS included in the text for that WP must be reviewed and understood.

Also review the materials list in the INITIAL SETUP of the WP for hazardous materials used during maintenance of the equipment. Then refer to the detailed WARNINGS for hazardous materials listed separately in this WARNING SUMMARY under the heading HAZARDOUS MATERIALS WARNINGS.

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



Engine and personnel heater exhaust fumes are toxic. Severe exposure can kill or seriously injure personnel. NBC mask will not protect personnel from engine exhaust and carbon monoxide.

Symptoms of exhaust fume poisoning include dizziness, drowsiness, headache, and loss of muscle control. If anyone shows signs of exhaust poisoning, evacuate all personnel from vehicle to an area with fresh air. Immediately seek medical help. Keep personnel warm, calm, and inactive. Provide artificial respiration to anyone who stops breathing.

The smoke from smoke generators is not acutely toxic and does not contain significant carbon monoxide. However, diesel fuel particulates that make up smoke will make personnel nauseous. The NBC mask will filter out diesel particulates and may help to reduce nausea. However, NBC mask will also filter out diesel exhaust, which is the only warning of carbon monoxide hazard from engine or personnel heater exhaust exposure. Exposure to high levels of carbon monoxide can kill personnel within minutes. Whenever personnel are affected by diesel exhaust or vapors, remove all personnel to an area with fresh air as soon as tactical situation permits.

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 start engine or personnel heater if any power plant access covers, plates, or doors are open.**
- **Be alert at all times for smell of exhaust fumes. If fumes are noticed inside vehicle, immediately turn on vent fans and open all hatch covers and ramp access door.**

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

WARNING SUMMARY (cont)

WARNING



Noise from vehicle or weapons can damage hearing of soldiers in vehicle. All personnel in vehicle must wear DOUBLE HEARING PROTECTION when guns, missile, or vehicle is 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 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 dismounted 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 earplugs 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 level noise area. DO NOT remove the earplugs to use the radio.

WARNING SUMMARY (cont)

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



Rapid starts, sudden stops, and sharp turns can throw riders off carrier. Riders thrown from carrier can be killed or injured. Riders must sit inside carrier on seats that are provided. Riders must secure seat belts and wear cvc or regular helmet.

WARNING



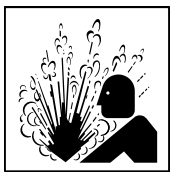
Gas from batteries can explode and injure you. Do not have open flames, make sparks, or smoke near batteries. Battery acid can burn or blind you. Do not get acid on your skin or in your eyes.

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



Remove 2.7 volt battery from battery compartment before connecting driver's night vision power cable. The 2.7 volt battery may explode if not removed before the connection is made. Personnel may be injured if battery explodes.

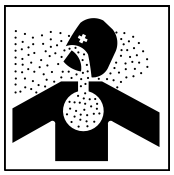
WARNING SUMMARY (cont)

WARNING



Sparks from static electricity can cause a fire or explosion. Metal nozzle must touch metal in filler neck when fueling carrier or ground wire must be installed to carrier being refueled. Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel. Starting engine right after a fire can restart fire. Do not move MASTER SWITCH to ON until cause of fire has been repaired or removed.

WARNING



Exposure to CO2 can cause dizziness, shortness of breath, muscular weakness. Stop engine before you discharge CO2. If CO2 is discharged, open hatch covers, or get all personnel out of carrier.

WARNING



Discharging CO2 gas can freeze your skin. Keep away from discharging gas.

WARNING



If fire occurs due to equipment malfunctions or damage, personnel can be killed or injured and equipment can be damaged. If fire extinguishers are empty, and there is a possibility of fire occurring, offload all ammunition.

WARNING SUMMARY (cont)

WARNING



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

WARNING



Hot oil and coolant can burn you. Let power unit cool before you start work.

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.

WARNING



Carrier can pivot steer when transmission controller is in SL position and steering lock pin is not engaged. Personnel can be killed or injured. Make sure transmission controller is in SL and steering wheel is centered to engage steering lock pin (steering locked indicator light should be ON) unless carrier is to be steered.

WARNING SUMMARY (cont)

WARNING



Vehicle operation during hot weather may result in heat stress to crew members. Crew members should limit their exposure based to TB MED 507, using PHEL Chart (Appendix C) as a guide.

WARNING

Fuel lines may vibrate loose or crack during mortar firing. Fuel leaks can cause fumes or fires which cause serious bodily harm or death to personnel. If fuel leaks, STOP FIRING. Repair leaks or cracks, wipe up any excess fuel before you resume firing.

WARNING

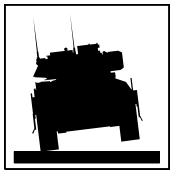
If mission requirements permit, allow the ramp door to remain open, to ensure adequate ventilation.

WARNING



Personnel may be injured if they come in contact with the inner container or touch the inside of the heater. After the heater has been in operation, the inner container will be very hot. Use care when removing inner container. Wear your gloves.

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 SUMMARY (cont)

WARNING



If TRANS OIL LOW PRESS warning light stays on, personnel can be injured and equipment can be damaged from erratic vehicle movement. Ensure all ground personnel are clear of the vehicle before engaging transmission. Apply and hold brakes before engaging transmission.

WARNING



When adjusting track, ensure there are 63 track shoes on the left side track, and 64 track shoes on the right side track. Improper number of track shoes may prevent track from being properly adjusted, creating a safety hazard.

FIRST AID

For first aid information, see FM 21-11.

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

LIST OF EFFECTIVE PAGES / WORK PACKAGES

NOTE: Updates to all portions of this TM are indicated by a vertical bar in the outer margin of the page.

Dates of issue for original and updated pages / work packages are:

Original 0 (2 January 2001)

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 38 AND TOTAL NUMBER OF WORK PACKAGES IS 107 CONSISTING OF THE FOLLOWING:

Page / WP No.	* Change No.	Page / WP No.	* Change No.	Page / WP No.	* Change No.
Title	0				
a-g/h	0				
A/B	0				
i-vii/viii	0				
WP 0001 00 – 0107 00	0				
1-10	0				
DA 2028-2/Back	0				
Authentication	0				
Blank	0				
Metric Chart	0				
Back Cover	0				

* Zero in this column indicates an original page or work package.

TECHNICAL MANUAL

OPERATOR'S MANUAL

CARRIER, PERSONNEL, FULL TRACKED, ARMORED M113A3
NSN 2350–01–219–7577
(EIC AEY)

CARRIER, COMMAND POST, LIGHT TRACKED M577A3
NSN 2350–01–369–6085
(EIC AE7)

CARRIER, ANTI-TANK (TOW), FULL TRACKED, ARMORED M901A3
NSN 2350–01–369–7253
(EIC AFD)

CARRIER, FIRE SUPPORT PERSONNEL, FULL TRACKED, ARMORED M981A3
NSN 2350–01–369–6079
(EIC AFB)

CARRIER, SMOKE GENERATOR, FULL TRACKED M1059A3
NSN 2350–01–369–6083
(EIC AFA)

CARRIER, MORTAR, 120–MM M121, SELF-PROPELLED M1064A3
NSN 2350–01–369–6082
(EIC AE8)

CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM (SICPS) M1068A3
NSN 2350–01–369–6086
(EIC AFC)

CARRIER, MECHANIZED SMOKE OBSCURANT M58
NSN 2350–01–418–6654
(EIC 5CG)

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 2028–2 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax, or email your letter, DA Form 2028 or DA Form 2028–2 direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-LC-CIP-WT (Tech Pubs Control Point), Rock Island, IL 61299–7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793–0726 or Commercial (309) 782–0726.

SUPERSEDURE NOTICE — This manual supersedes TM 9-2350-277-10 dated 25 July 1994, including all changes.

DISTRIBUTION STATEMENT A — Approved for public release; distribution is unlimited.

TABLE OF CONTENTS

WP Sequence No.

WARNING SUMMARY

HOW TO USE THIS MANUAL

CHAPTER 1 — UNIT INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

GENERAL INFORMATION....0001 00
EQUIPMENT DESCRIPTION....0002 00
THEORY OF OPERATION....0003 00

CHAPTER 2 — OPERATOR INSTRUCTIONS

DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS....0004 00
OPEN/CLOSE RAMP ACCESS DOOR....0005 00
OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0006 00
OPEN/CLOSE DRIVER'S HATCH (M901A3/M981A3 ONLY)....0007 00
OPEN/CLOSE CARGO HATCH COVER (M113A3, M901A3, M981A3, AND M1059A3 ONLY)....0008 00
OPEN/CLOSE COMMANDER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0009 00
OPERATE COMMANDER'S CUPOLA (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0010 00
OPEN/CLOSE POWER PLANT ACCESS DOOR....0011 00
LOWER/RAISE RAMP....0012 00
ADJUST DRIVER'S SEAT....0013 00
ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS....0014 00
ADJUST COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0015 00
STOW/UNSTOW COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0016 00
STOW/UNSTOW JUMP SEAT (M113A3 AND M1059A3)....0017 00
CONNECT CVC HELMET TO INTERCOM CONTROL BOX....0018 00
CONNECT CVC HELMET TO VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS)....0019 00
SET/RELEASE PARKING BRAKE....0020 00
START ENGINE....0021 00
START ENGINE WITH OUTSIDE POWER SOURCE....0022 00
DRIVE CARRIER....0023 00
STOP ENGINE....0024 00
FUEL CARRIER....0025 00
REFUEL CARRIER (M577A3 AND M1068A3 ONLY)....0026 00
INSTALL/REMOVE WINDSHIELD....0027 00

TABLE OF CONTENTS (cont)

WP Sequence No.

OPERATE PERSONNEL HEATER....0028 00
OPERATE PERSONNEL COMPARTMENT VENTILATOR....0029 00
OPERATE CARRIER LIGHTS....0030 00
OPERATE FIXED FIRE EXTINGUISHER SYSTEM....0031 00
OPERATE PORTABLE FIRE EXTINGUISHER....0032 00
INSTALL/REMOVE M17 PERISCOPES....0033 00
INSTALL/REMOVE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58)....0034 00
OPERATE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58)....0035 00
INSTALL/REMOVE MACHINE GUN (M2, .50 CAL) (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0036 00
SECURE MACHINE GUN (M2, .50 CAL) FOR TRAVEL (M113A3, M1059A3, M1064A3, AND M58 ONLY)....0037 00
SECURE MACHINE GUN (M2, .50 CAL) TO ARMOR SHIELD FOR TRAVEL (M113A3, M1059A3, AND M1064A3 ONLY)....0038 00
LOWER/STOW TRIM VANE....0039 00
REMOVE/INSTALL POWER PLANT ACCESS PANELS....0040 00
POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (M113A3 ONLY)….....0041 00
BLOCK/UNBLOCK CARRIER TRACKS....0042 00
INSTALL/REMOVE WATER/RATION HEATER....0043 00
OPERATE WATER/RATION HEATER....0044 00
OPERATE AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3 ONLY)....0045 00
OPEN/CLOSE COMMANDER'S HATCH (M577A3 AND M1068A3 ONLY)....0046 00
OPERATE COMMANDER'S PLATFORM (M577A3 AND M1068A3 ONLY)....0047 00
OPEN/CLOSE DRIVER'S HATCH (M577A3 AND M1068A3 ONLY)....0048 00
RAISE/LOWER DROP LEAF TABLES (M577A3 ONLY)....0049 00
INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A3 AND M1068A3 ONLY)....0050 00
UNSTOW/STOW MAP TABLE AND BOARD (M577A3 AND M1068A3 ONLY)....0051 00
OPEN/CLOSE MORTAR HATCH COVER (M1064A3 ONLY)....0052 00
INSTALL AIR GRILLE CURTAIN (M1064A3)....0053 00
REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A3 AND M1068A3 ONLY)....0054 00
OPERATE GENERATOR SET (M577A3 AND M1068A3 ONLY)....0055 00
SET UP COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY)....0056 00
DISMANTLE/STOW MODULAR COMMAND POST SYSTEM (MCPS) (M1068A3 ONLY)....0057 00
INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER (M577A3 ONLY)....0058 00
DISMANTLE/STOW COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY)....0059 00
REFUEL GENERATOR SET (M577A3 AND M1068A3 ONLY)....0060 00
OPERATE IN EXTREME COLD: BELOW -25°F (-31°C)....0061 00
OPERATE ENGINE COOLANT HEATER (BELOW –25°F (–31°C))....0062 00
ERECT/STOW WATER BARRIER (ALL EXCEPT M981A3 AND M1064A3)....0063 00

TABLE OF CONTENTS (cont)

WP Sequence No.

FORD WATER UP TO 40 INCHES DEEP....0064 00
PERFORM POST-FORDING OPERATIONS....0065 00
PREPARATION BEFORE WATER OPERATION....0066 00
CARRIER DIP CHECK (ALL EXCEPT M981A3)....0067 00
WATER OPERATION: ENTERING THE WATER (ALL EXCEPT M981A3)....0068 00
STEERING CARRIER IN THE WATER....0069 00
STOPPING CARRIER IN THE WATER....0070 00
LEAVING THE WATER....0071 00
AFTER WATER OPERATIONS....0072 00
OPERATE CARRIER OVER ROUGH TERRAIN....0073 00
OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS....0074 00
BYPASS DEFECTIVE TRANSMISSION CONTROLLER....0075 00
SECURING INOPERABLE/UNSAFE RAMP....0076 00
TOWING DISABLED CARRIER....0077 00
TOW START DISABLED CARRIER....0078 00
TOWING TRAILER WITH CARRIER....0079 00
OPERATE NBC KIT....0080 00
OPERATE NBC SYSTEM....0081 00
OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3)....0082 00
COVER/UNCOVER INTAKE AND EXHAUST GRILLES....0083 00
EMERGENCY OPERATION OF VEHICLE AND CHARGING ALL BATTERIES (M981A3 ONLY)....0084 00
OPERATE PANORAMIC TELESCOPE (M901A3/M981A3 ONLY)....0085 00
OPERATE GLOW PLUG COLD START SYSTEM (MANUAL OVERRIDE)....0086 00

CHAPTER 3 — OPERATOR TROUBLESHOOTING PROCEDURES
INTRODUCTION TO TROUBLESHOOTING....0087 00
TROUBLESHOOTING SYMPTOM INDEX....0088 00
TROUBLESHOOTING TABLES....0089 00

CHAPTER 4 — OPERATOR MAINTENANCE INSTRUCTIONS
PREVENTIVE MAINTENANCE CHECKS AND SERVICES....0090 00
ADJUST TRACK TENSION....0091 00
BREAK/JOIN TRACK....0092 00
REMOVE/INSTALL TRACK SHOE....0093 00
TRACK SHOE WEAR LIMITS....0094 00
CHECK CARRIER BATTERIES....0095 00
SERVICE BILGE PUMPS....0096 00
CHECK/FILL COOLING SYSTEM....0097 00
MAINTENANCE OF AIR CLEANER....0098 00
CHECK/REPLACE MISSING PLUG (M113A3 ONLY)....0099 00
SERVICE SMOKE GENERATOR FUEL CAN/FOG OIL TANK (M1059A3)....0100 00

CHAPTER 5 — OPERATOR SUPPORTING INFORMATION
REFERENCES....0101 00
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS....0102 00
ADDITIONAL AUTHORIZATION LIST (AAL)....0103 00
EXPENDABLE AND DURABLE ITEMS LIST....0104 00
STOWAGE AND SIGN GUIDE....0105 00
STANDARD LOAD PLAN....0106 00
PLUG/SETSCREW GUIDE FOR ARMOR MOUNTING PROVISION HOLES....0107 00

HOW TO USE THIS MANUAL

HOW TO USE THIS MANUAL

This manual tells you to use the M113A3, M1059A3, M1064A3, M1068A3, M577A3, M981A3, M901A3, and M58 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 procedures.

The TABLE OF CONTENTS lists the WPs in each chapter.

CHAPTER 1 covers General Information, Equipment Description, and Technical Principles of Operation. It briefly describes the major parts and features of the carrier.

CHAPTER 2 covers Descriptions and Use of Operator's Controls and Indicators, Operation under Usual Conditions Work Packages, Operation of Auxiliary Equipment Work Packages, and Operation under Unusual Conditions Work Packages.

CHAPTER 3 covers Troubleshooting Work Packages.

CHAPTER 4 covers Preventive Maintenance Checks and Services, including Lubrication Instructions, and Maintenance Work Packages.

CHAPTER 5 provides supporting information for the TM. It includes the following WPs:

- The REFERENCES WP (WP 0101 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 WP (WP 0102 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 WP lists additional items required to support the carrier during operation (WP 0103 00).
- The EXPENDABLE/DURABLE SUPPLIES AND MATERIALS WP (WP 0104 00) lists expendable supplies and materials that will be needed to operate and maintain the carrier.
- The STOWAGE AND SIGN GUIDE WP (WP 0105 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 WP (WP 0106 00) lists standard load plans for the M113A3 and M901A3 carriers.
- The PLUG/SETSCREW GUIDE FOR ARMOR MOUNTING PROVISION HOLES WP (WP 0107 00) shows location of plugs and setscrews in armor mounting provisions holes on the M113A3 carrier only.

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 WP number and page number.

DA FORM 2028–2 is used to report errors and to recommend improvements for procedures in this manual. Three blank DA Forms 2028–2 are in the back of this manual. A sample is provided to show you how to fill out the DA Form 2028–2.

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 unit with metric units in parentheses.

HOW TO USE THE WORK PACKAGES

How to find the WP 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 WP and page indicated.

The INDEX lists each WP under one or more headings. For example, the WP 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 WP

WPs provide either descriptive/supporting information or detailed procedures for operating and maintaining the equipment. The WPs in Chapter 1 include General Information only. Chapter 2 includes descriptive information on Controls and Indicators, and Operating Procedures. Chapter 3 includes Troubleshooting Procedures. Chapter 4 covers PMCS, including Lubrication Instructions and Maintenance Procedures. Chapter 5 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 WP.

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 WPs

Operator Instructions WPs tell you how to operate the M113A3, M1059A3, M1064A3, M1068A3, M577A3, M981A3, M901A3, and M58 carriers and the equipment. Each operation WP gives you detailed steps which must be followed to complete the task.

Maintenance WPs tell you how to keep the carrier in operating condition. Crew members are authorized to remove, clean, inspect, lubricate, and install certain parts on the carrier.

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.

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

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

Preventive Maintenance Checks and Services (PMCS) must be done to keep your carrier operating correctly. Do the PMCS procedures required (WP 0090 00). There are six 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 MONTHLY (M) PMCS must be done monthly.
The SEMI-ANNUALLY (S) must be done semi-annually.

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.

Troubleshooting WPs

Troubleshooting WPs help solve common problems and malfunctions. The Troubleshooting Symptom Index (WP 0088 00) lists malfunctions common to your carrier and the Index will guide you to the Troubleshooting Table.

DEFINITION OF WP TERMS

WARNINGS, CAUTIONS, AND NOTES

Read all Warnings, Cautions and Notes in the WP. 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 WP easier.

HOW TO USE THIS MANUAL (cont)

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.

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 WP 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 WPs that require more that one person such as lifting heavy objects or acting as an observer.

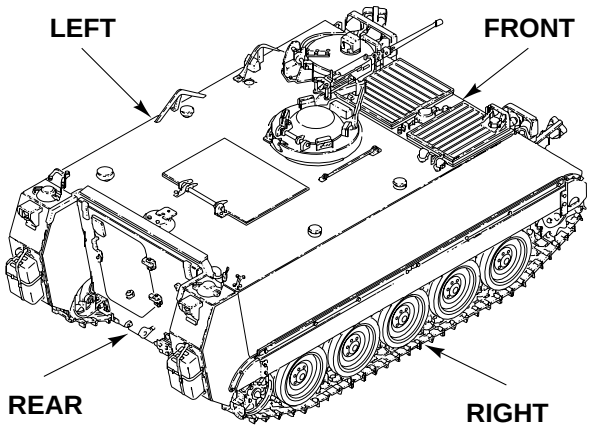
If a helper is needed to perform a procedure, the INITIAL SETUP will list “Helper” under the PERSONNEL REQUIRED heading.

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

UNIT INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

WORK PACKAGE INDEX

Title	Sequence No.
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:

M113A3 Full Tracked Armored Personnel Carrier
M577A3 Light Tracked Command Post Carrier
M901A3 Armored Antitank (TOW) Carrier
M981A3 Full Tracked Armored Fire Support Personnel Carrier
M1064A3 Self-propelled 120–mm Mortar Carrier
M1059A3 Full Tracked Smoke Generator Carrier
M1068A3 Standardized Integrated Command Post System
M58 Full Tracked Mechanized Smoke Obscurant Carrier

NOTE

For subordinate systems, see the following TMs:

- **M901A3 Weapon System — TM 9-2350-259-10.**
- **M981A3 Fire Support System — TM 9-2350-266-10.**
- **M1064A3 120-mm Mortar — TM 9-1015-250-10.**
- **M1059A3 Smoke System — TM 3-1040-283-10.**
- **M1068A3 SICPS — TM 11-7010-256-10.**
- **M58 Smoke System — TM 3-1040-285-10.**

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)

EIR 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. EIR 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 750-244-5-1	Procedures for Destruction of Conventional Ammunition and Improved Conventional Munitions 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, 1010, 1520, 2530, 5590, 5595 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
M25A1 Mask	Mask, Chemical-Biological: Tank, M25A1
Track and sprocket	Track tension, track bushing and sprocket
Gauge	Wear gauge
Transmission	Transmission, Cross Drive
M981A3 Vehicle	Carrier, Personnel, Full Tracked, Armored, Fire Support, M981A3
Slave Cable	Adapter Cable Assembly
Vehicle Power Cable	Cable, Vehicle, W2

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
CB	Circuit Breaker or common battery
COEIL	Components of end item list
CVC	Combat Vehicle Communications
D	During
DVE	Driver’s vision enhancer
ENG	Engine
FOV	Family of vehicles
GEN	Generator
HI-TEMP	High Temperature
Intercom	Intercommunication
IR	Infrared
KW	Kilowatt
LO	Lubrication Order
MCPS	Modular Command Post System
NBC	Nuclear, Biological and Chemical
N2	Nitrogen gas

OVE	On Vehicle Equipment
PMCS	Preventive Maintenance Checks and Services
PRESS	Pressure
SICPS	Standardized Integrated Command Post System
TEMP	Temperature
TRANS	Transmission
TSCD	Targeting station control and display
Vent	Ventilation
VIS	Vehicle intercommunication system
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. The M113A3, M1059A3, M1064A3, and M58 carriers 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.

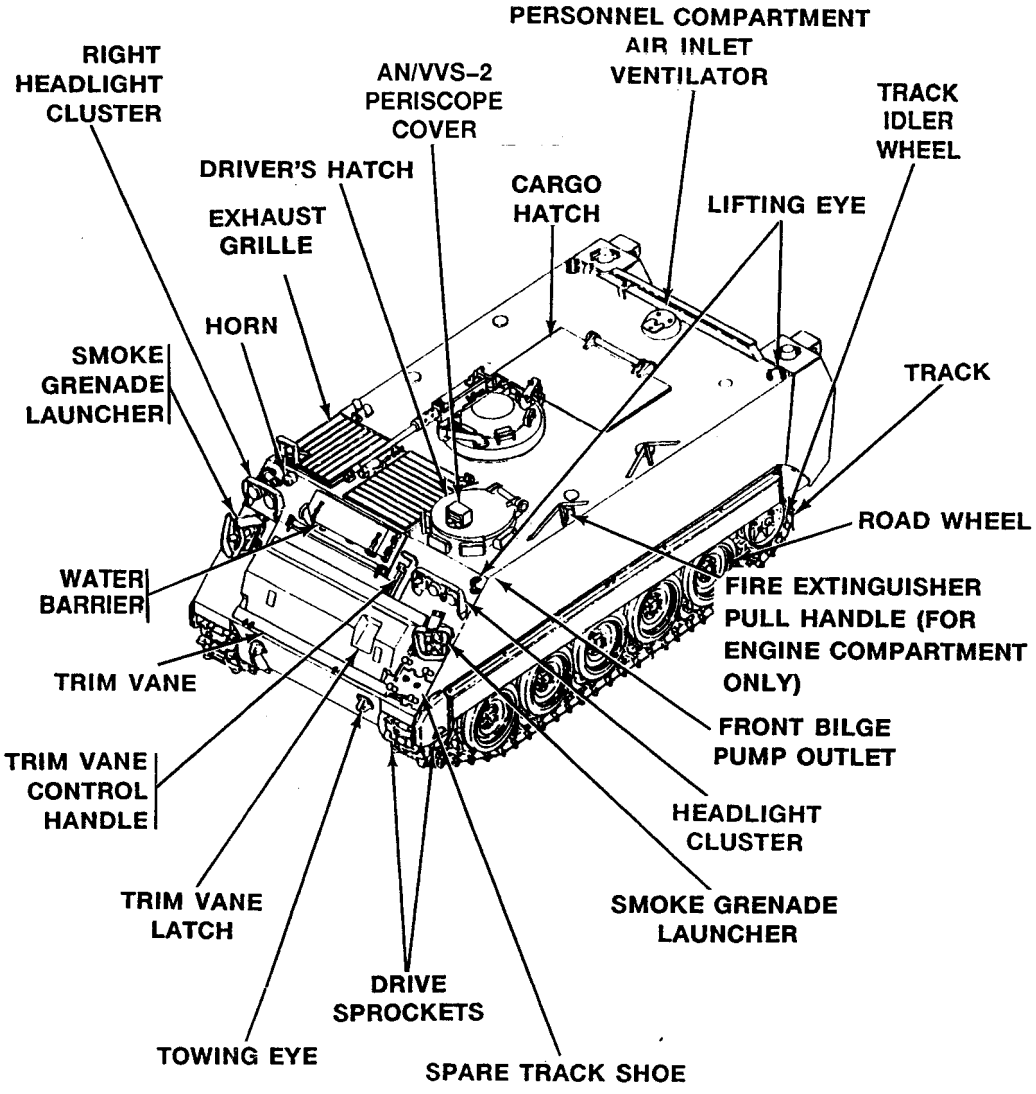
M113A3 FULL TRACKED ARMORED PERSONNEL CARRIER

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 M113A3's capabilities and features are:

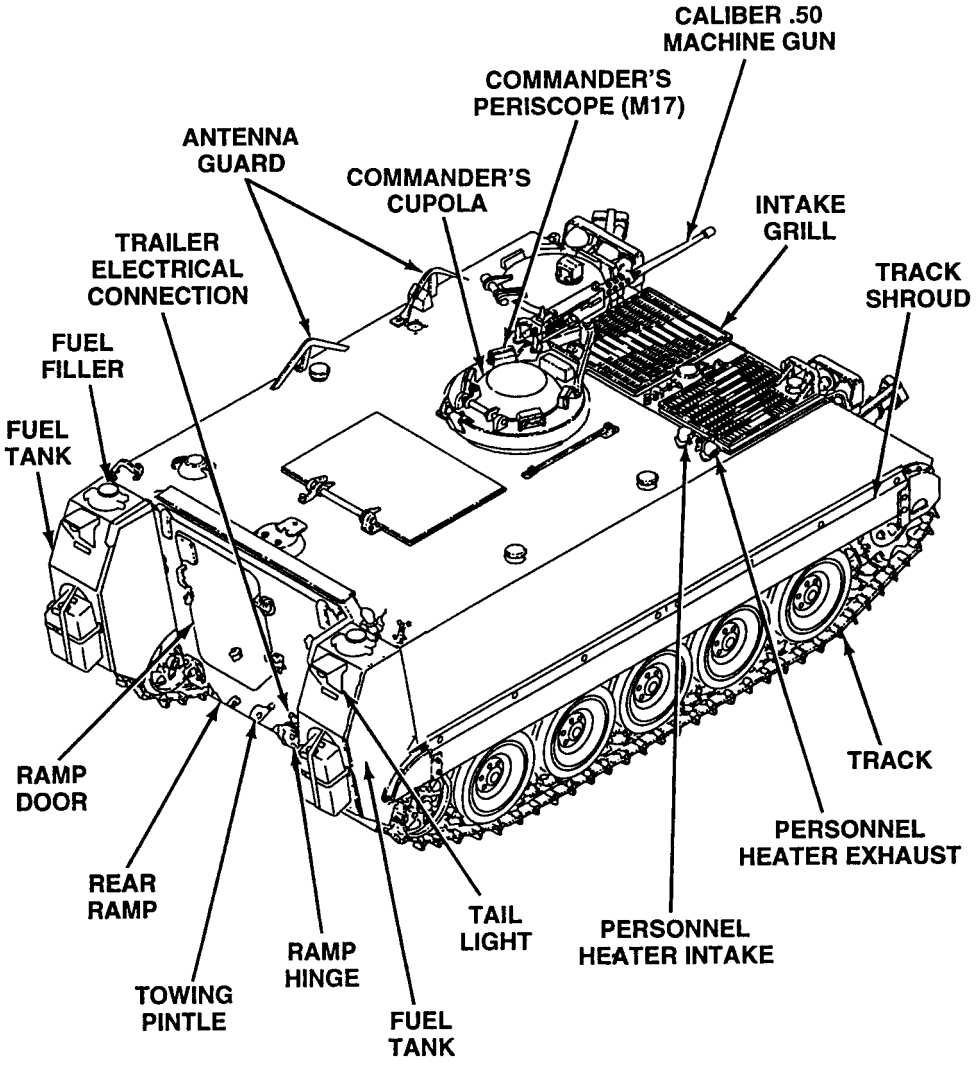
- It travels easily over rough terrain.
- It fords water up to 40 inches deep.
- It can move at high speeds on improved roads and highways.
- It is air transportable and can be dropped by parachute to troops in the fields.
- It is propelled and steered on land and in water by tracks.
- It has M17 periscopes around the driver's and commander's hatches for vision when buttoned up.
- It has an AN/VV-S 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 with a M8A3 NBC system (with heaters).
- It is equipped to carry a 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.

EQUIPMENT DESCRIPTION — Continued 0002 00

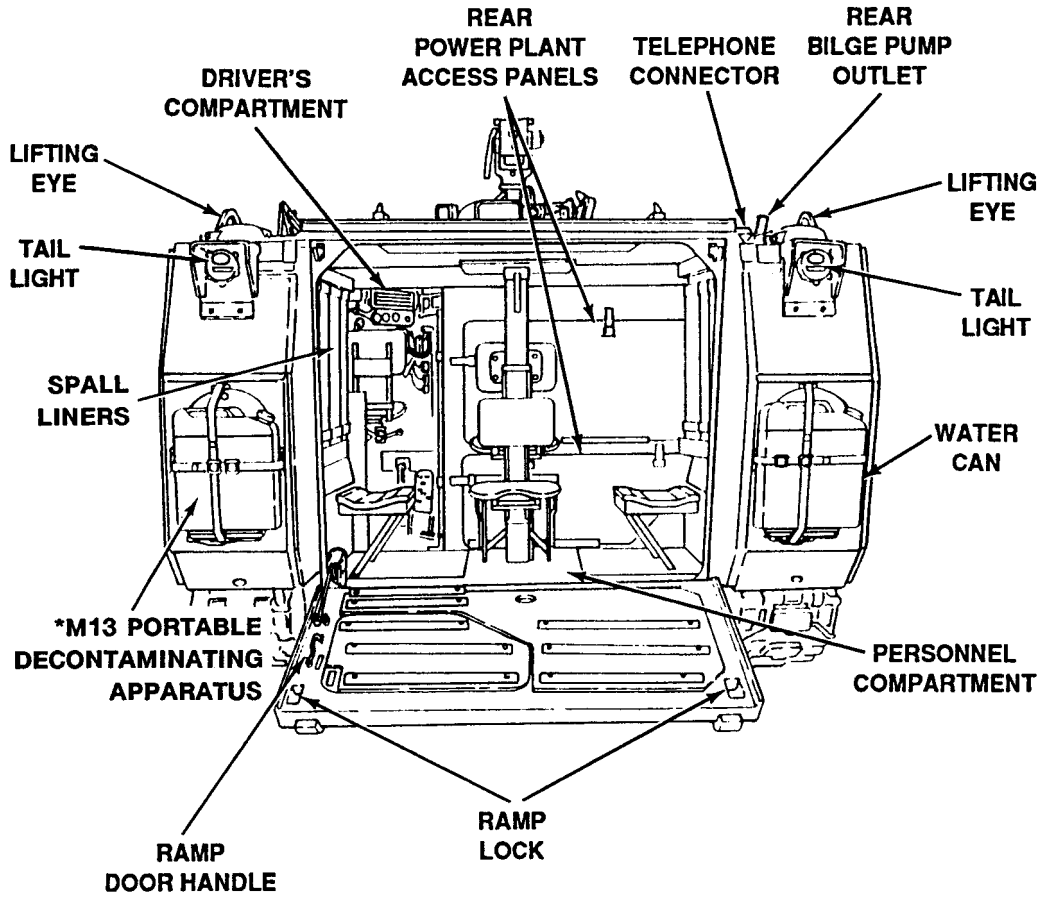
M113A3 CARRIER — LEFT FRONT VIEW



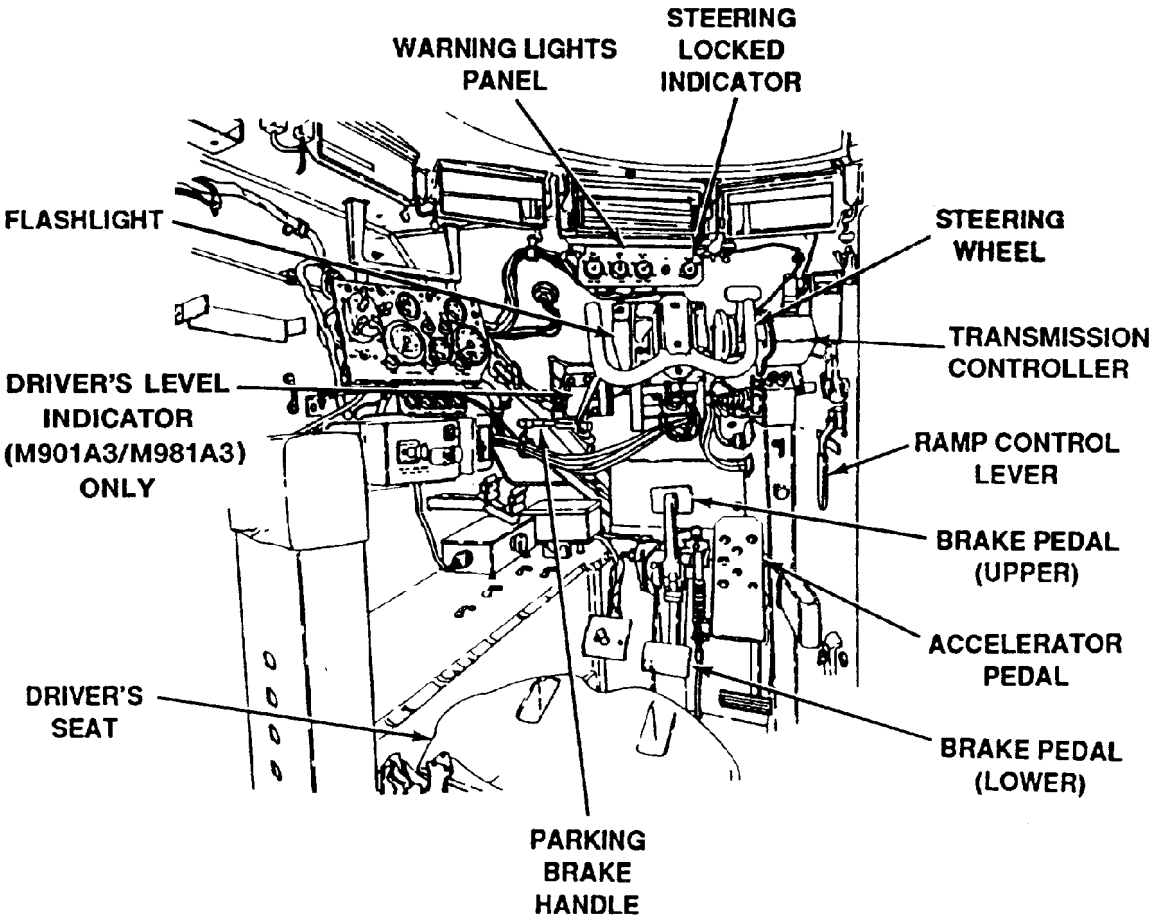
M113A3 CARRIER — RIGHT REAR VIEW



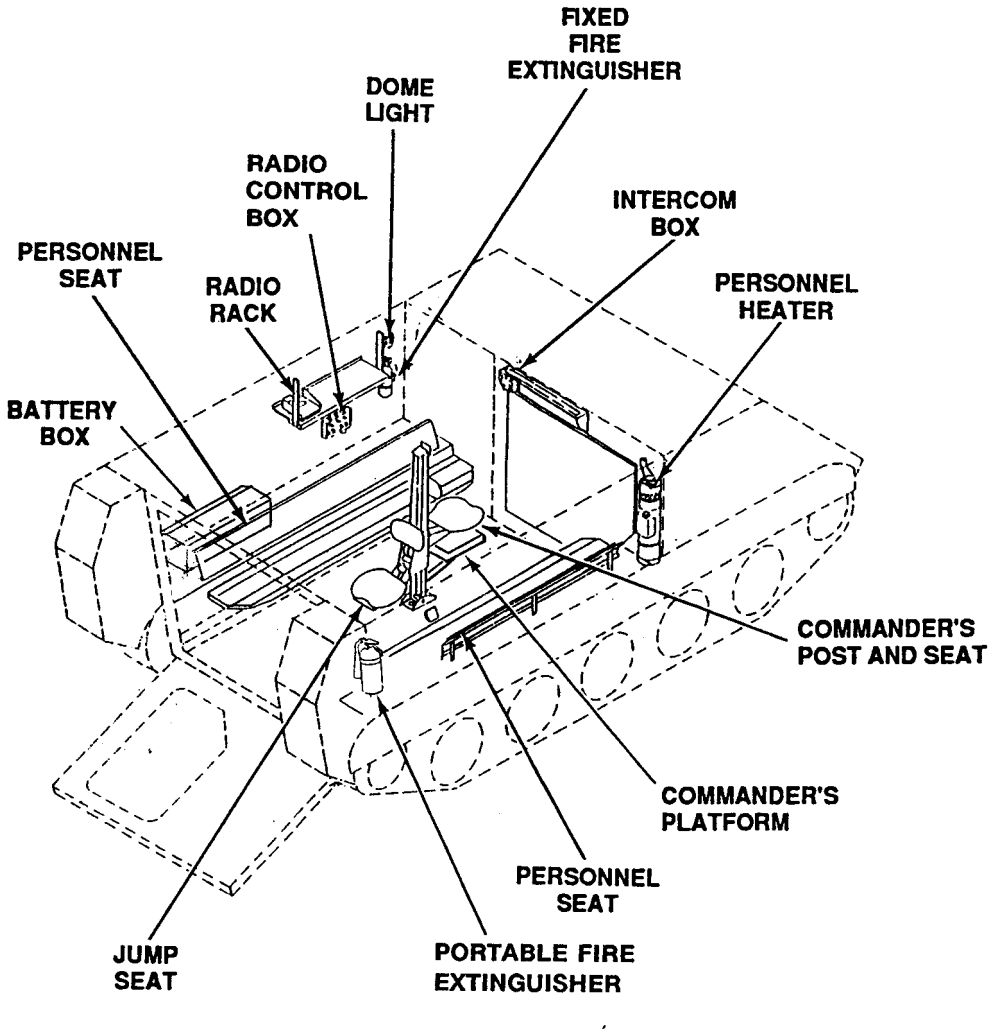
M113A3 CARRIER — REAR VIEW



M113A3 PERSONNEL CARRIER (FOV) — INTERIOR VIEW



M113A3 CARRIER — PERSONNEL COMPARTMENT VIEW



M577A3 COMMAND POST CARRIER

This carrier is designed as a command post and staff office. It has a crew of five, including the driver. The M577A3's capabilities and features are:

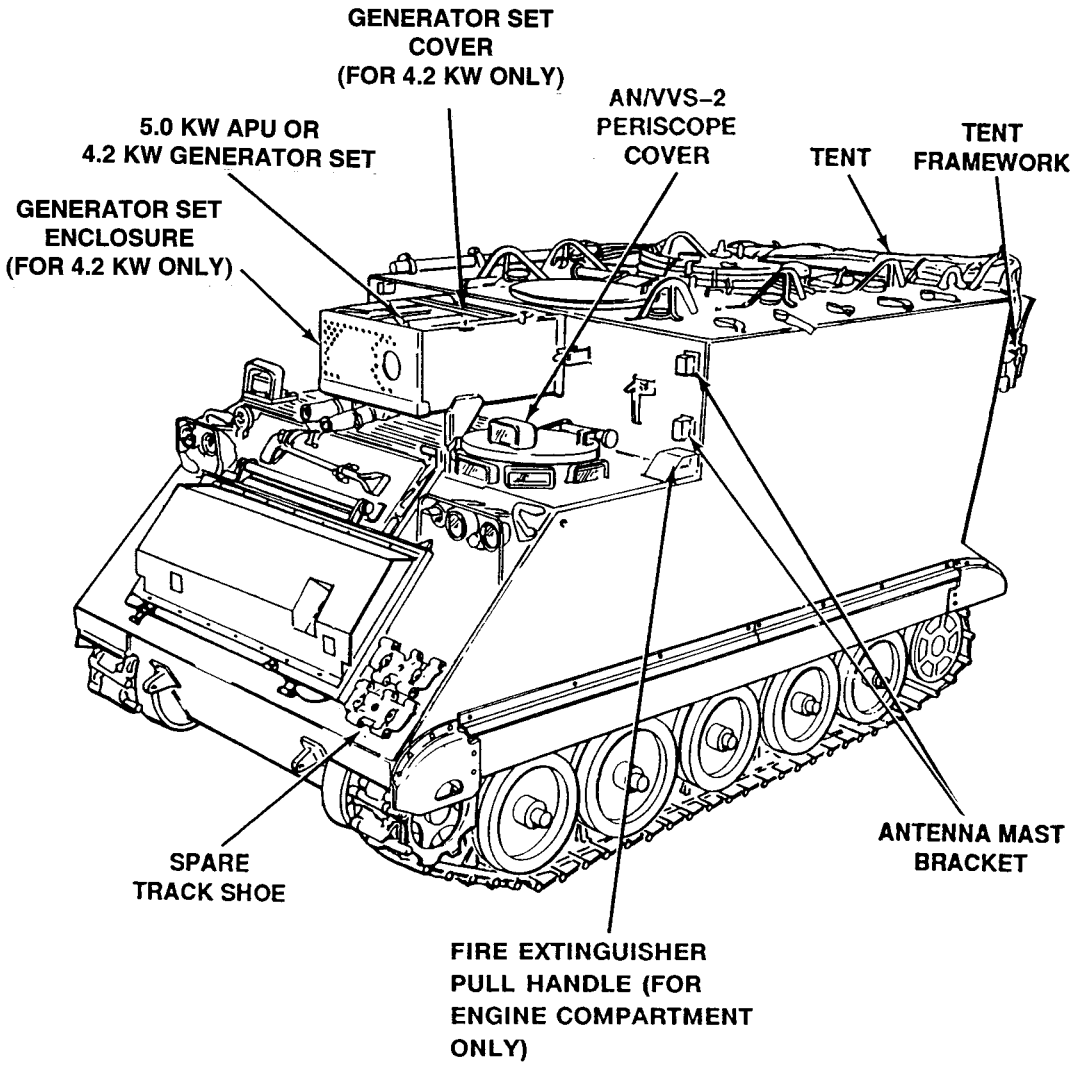
- It travels easily over rough terrain.
- It fords water up to 40 inches deep.
- It can move at high speeds on improved roads and highways.
- It is air transportable, but not air droppable.
- It provides protection for field commanders in a tactical environment.
- It has a 5.0 KW auxiliary power unit for communication and lighting power. (The 4.2 KW generator set will be used until the 5.0 KW APU is available.)
- 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 M19A1 periscope stowed near the driver. The periscope can be installed in driver's hatch to provide night vision under blackout conditions.
- It can be equipped to carry a NBC (gas particulate filter) unit, driver's windshield kit, and engine coolant heater kit (for cold weather operation).

The M577A3 is built from the same plans as the M113A3 except that the M577A3 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.

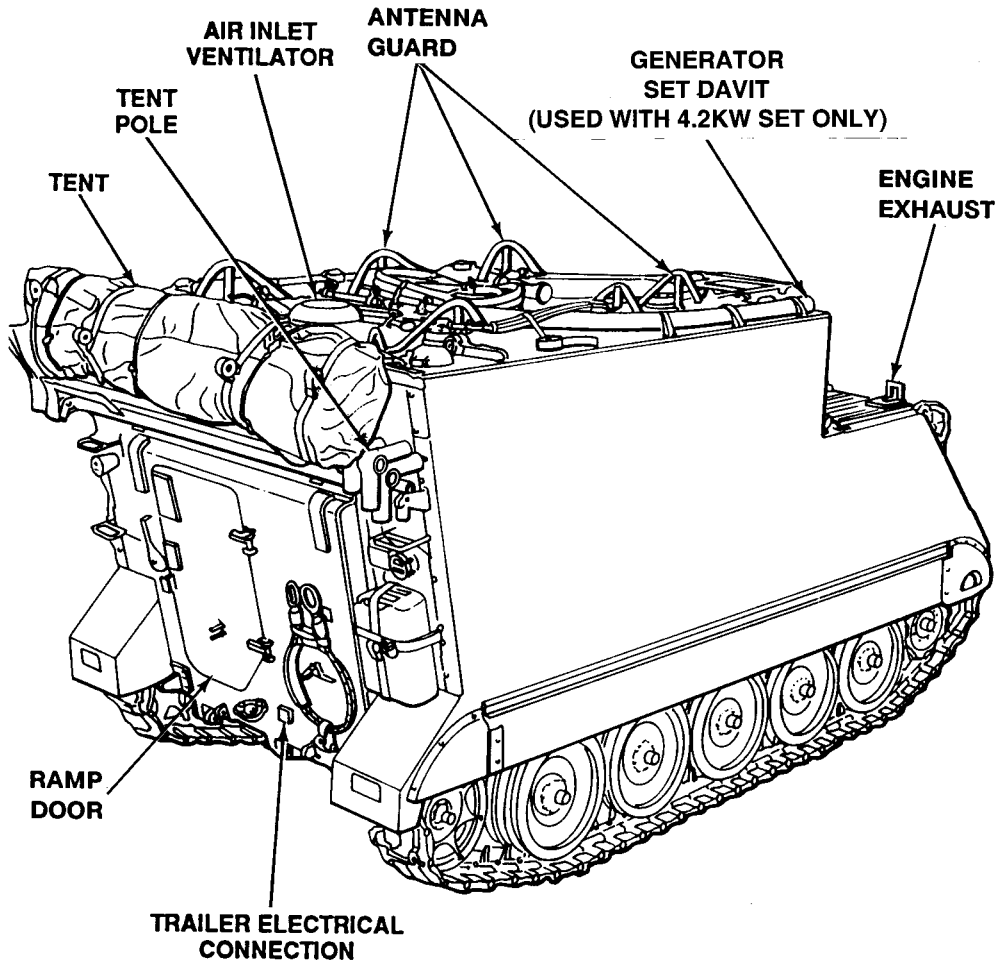
Operating procedures peculiar to M577A3 Command Post Carrier are covered in Chapter 4.

Maintenance and operating procedures for the 5.0 KW Auxiliary Power Unit are in TM9-6115-664-13&P.

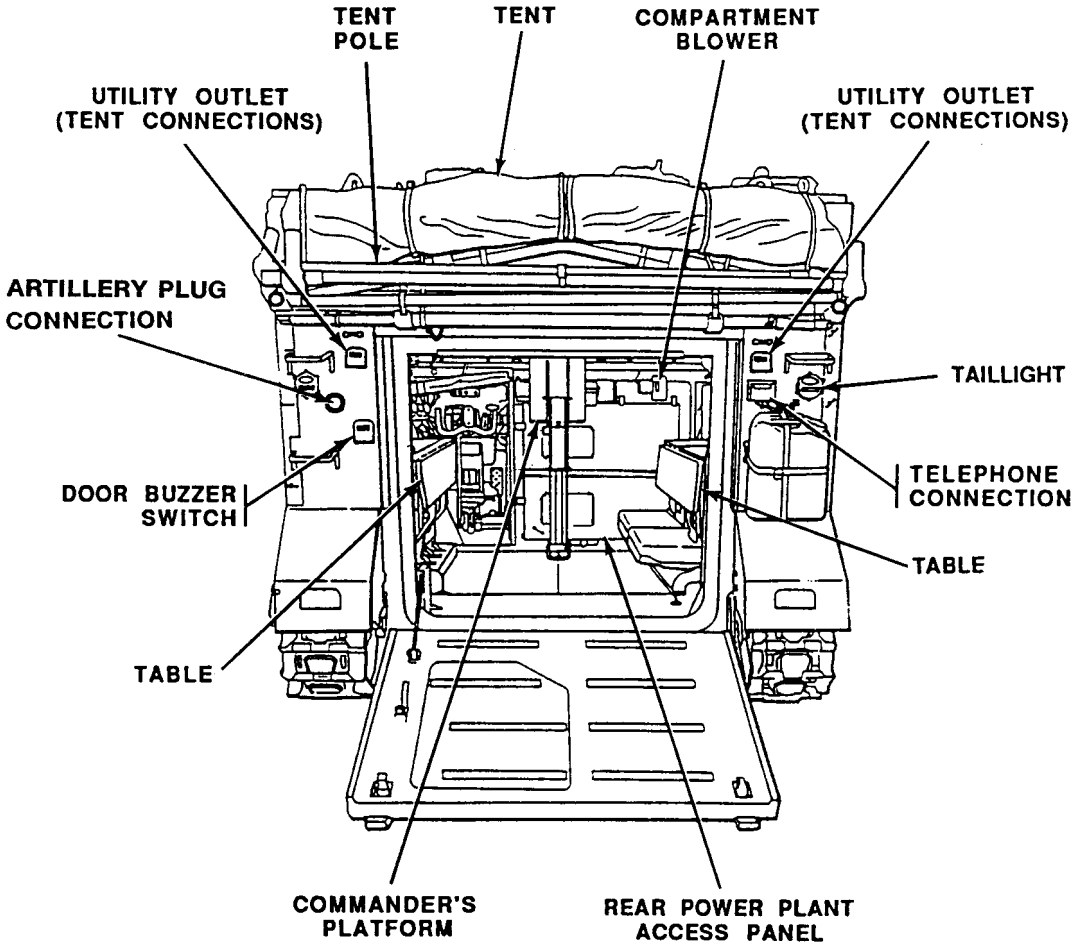
M577A3 COMMAND POST CARRIER — LEFT FRONT VIEW



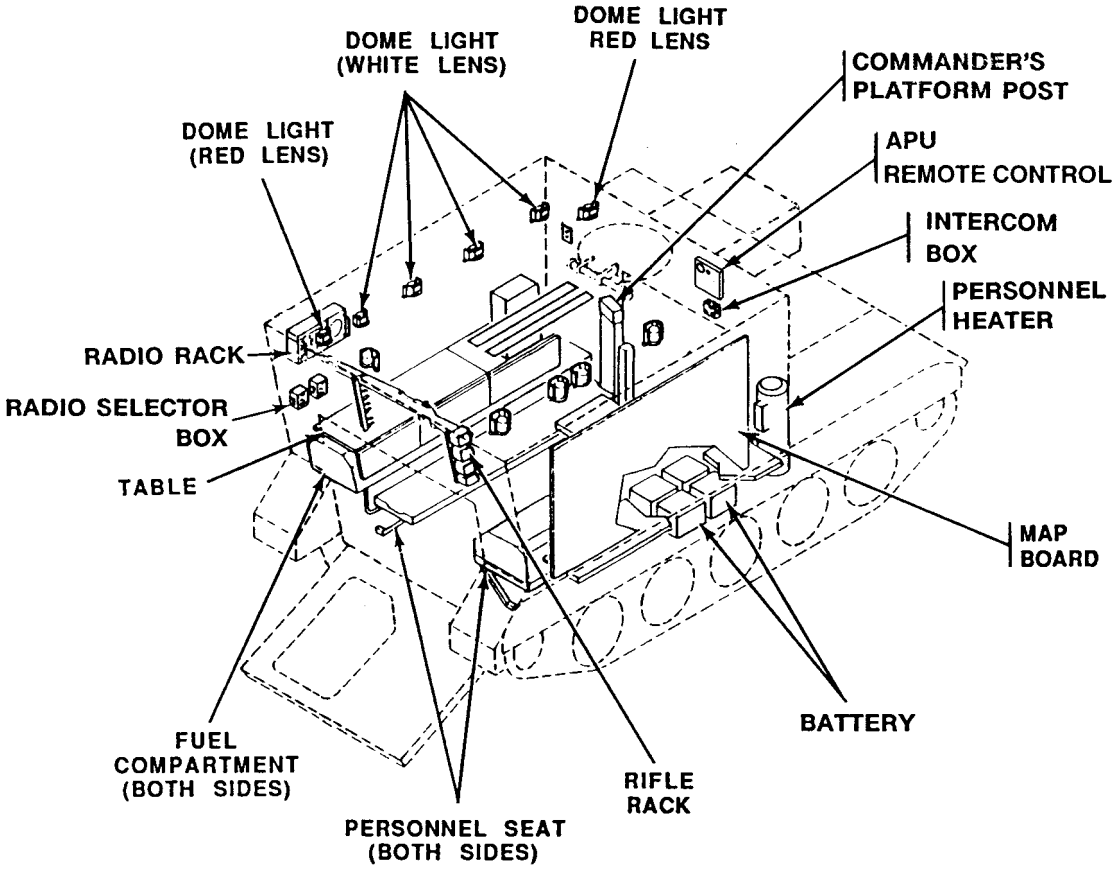
M577A3 COMMAND POST CARRIER — RIGHT REAR VIEW



M577A3 COMMAND POST CARRIER — REAR VIEW



M577A3 COMMAND POST CARRIER — REAR COMPARTMENT



M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM

This carrier is designed as a command post and staff office. It has a crew of four, including the driver. The M1068A3'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 5.0 KW auxiliary power unit for communication, lighting power, and charging carrier batteries.
- It has a tent stowed on the left side top plate to extend the work area. A table, map board, and fluorescent lights are part of the modular command post system.
- 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 AN/VVS-2 driver's night vision periscope stowed near the driver. The periscope can be installed in driver's hatch to provide night vision under blackout conditions.
- It can be equipped to carry a 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 & DC power to outlets around the interior of the carrier.
- 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.

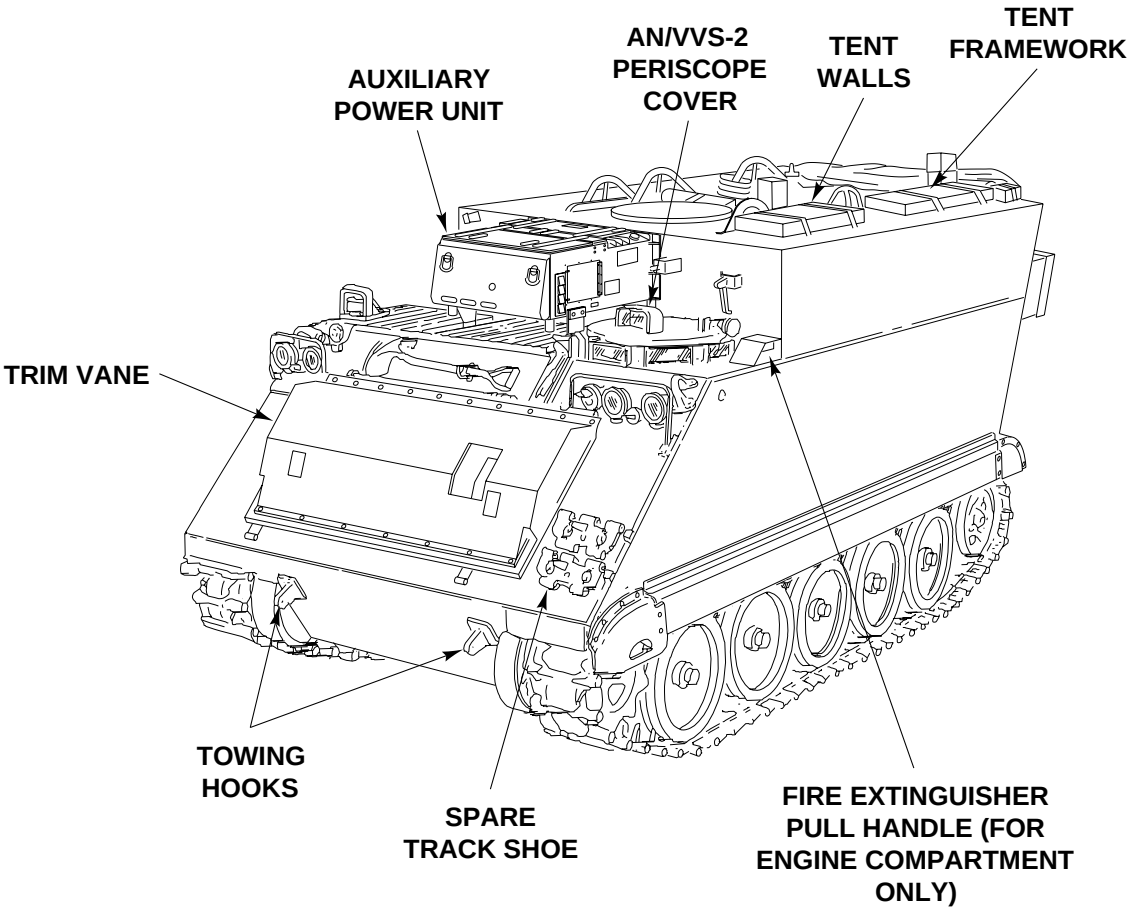
The M1068A3 is a converted M577A2 with a M113A3 power train and driver's controls. The M1068A3 is equipped with mapboards, tables, blackout curtain, interior fluorescent and blackout light controls, power and communication cables, receptacles, power enclosure panel, and an auxiliary power unit to provide 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.

For operating procedures peculiar to the M1068A3, see TM 11-7010-256-12&P, Operator's Manual on Communication Hardware/Common Hardware and Software (CHS).

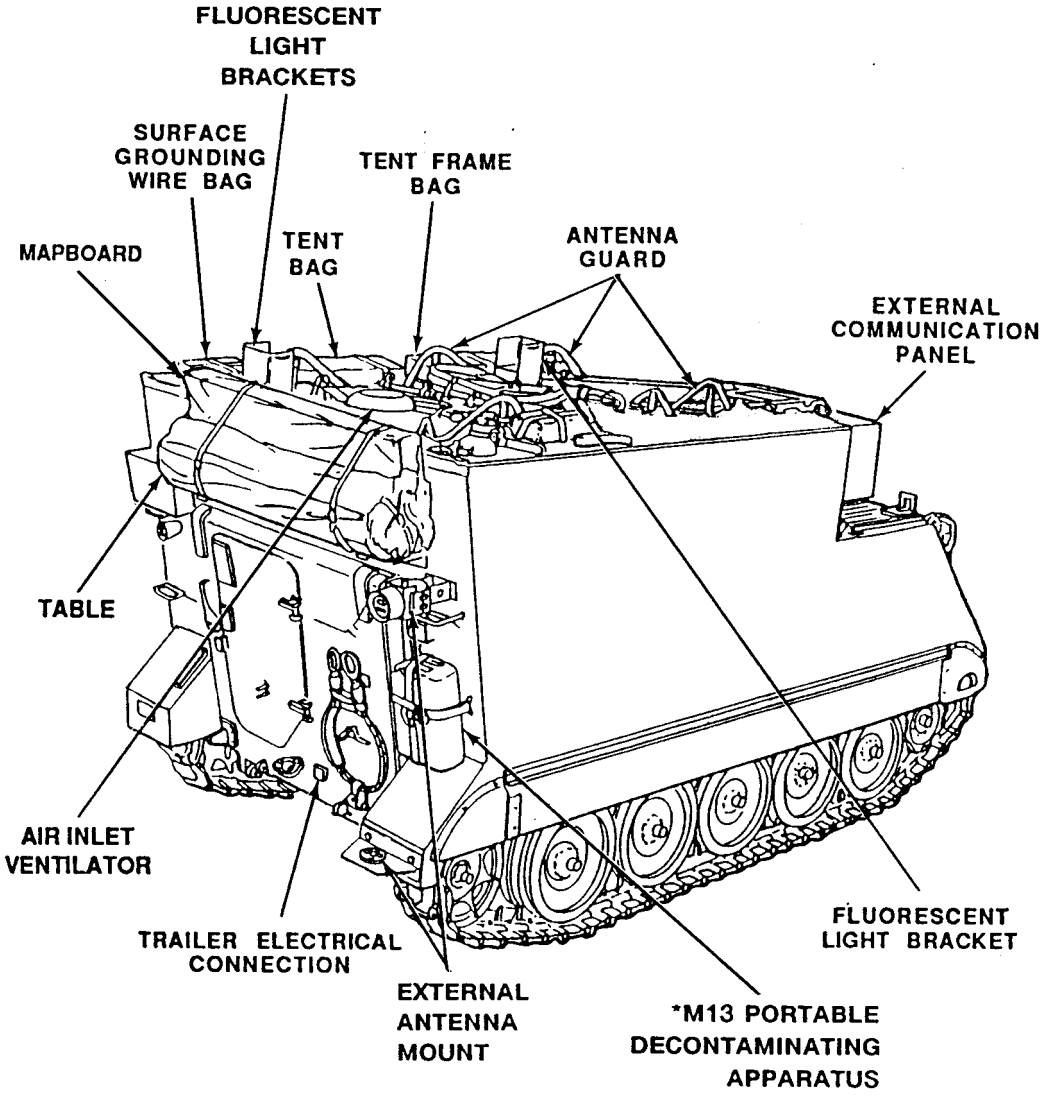
Operating procedures for the Modular Command Post System are in TM 10-5410-229-13&P.

Maintenance and operating procedures for the 5.0 KW Auxiliary Power Unit are in TM9-6115-664-13&P.

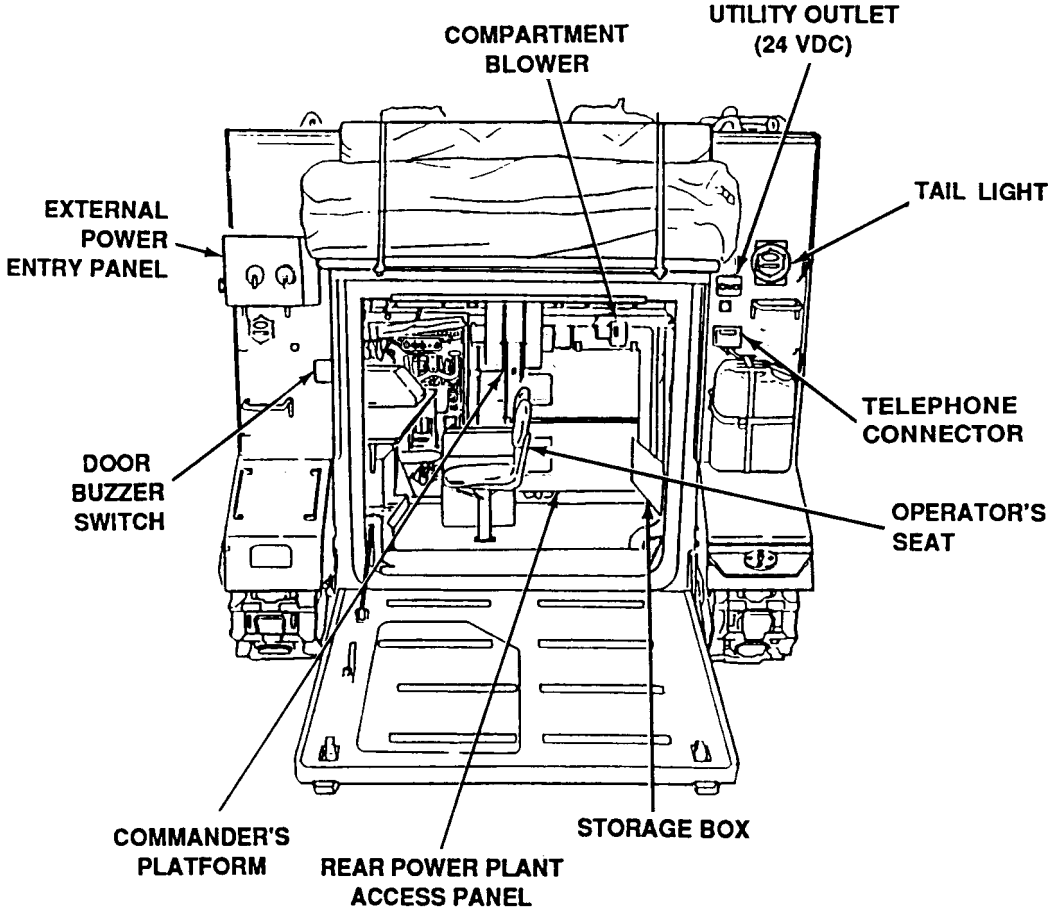
M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM — LEFT FRONT VIEW



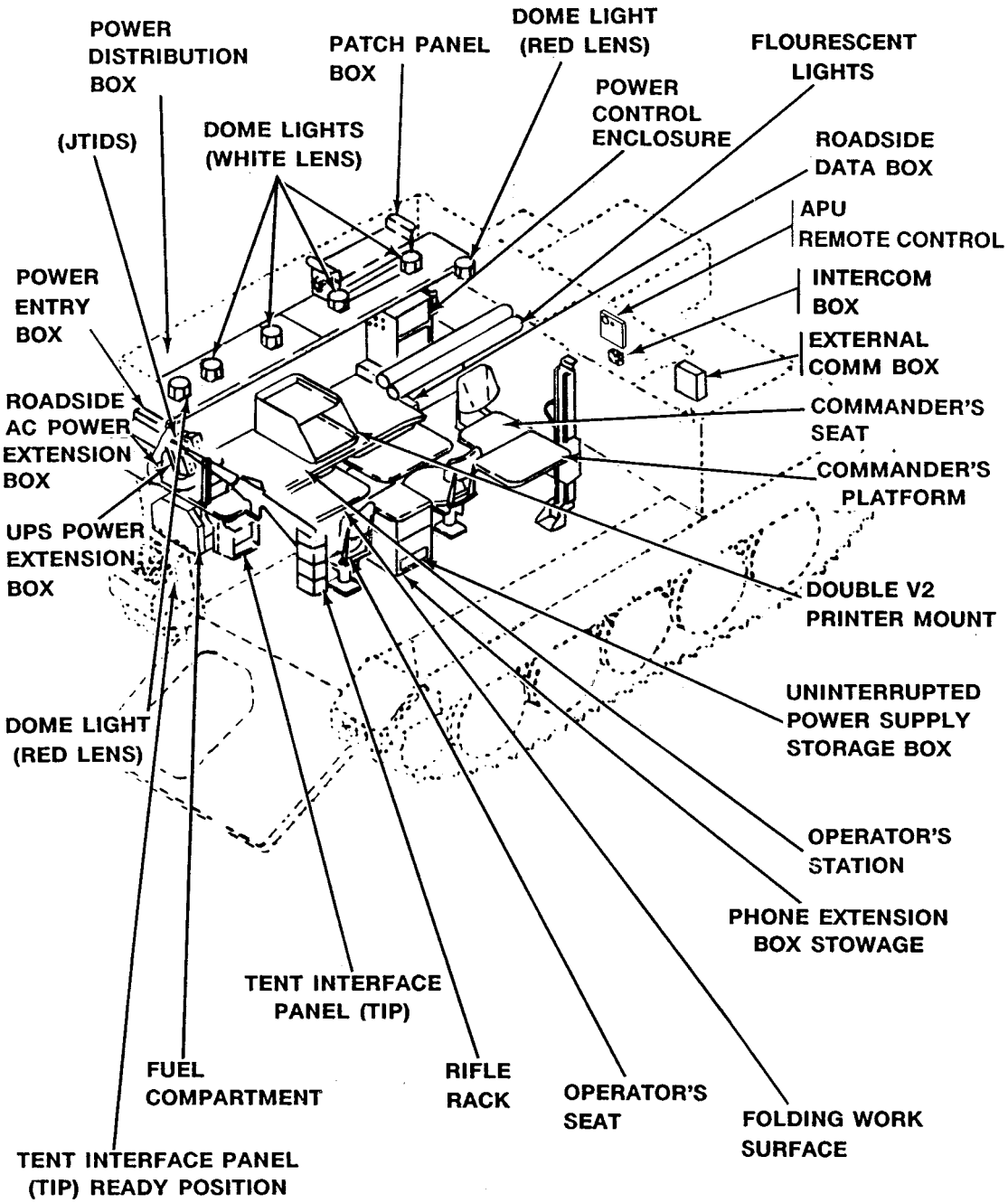
M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM — RIGHT REAR VIEW



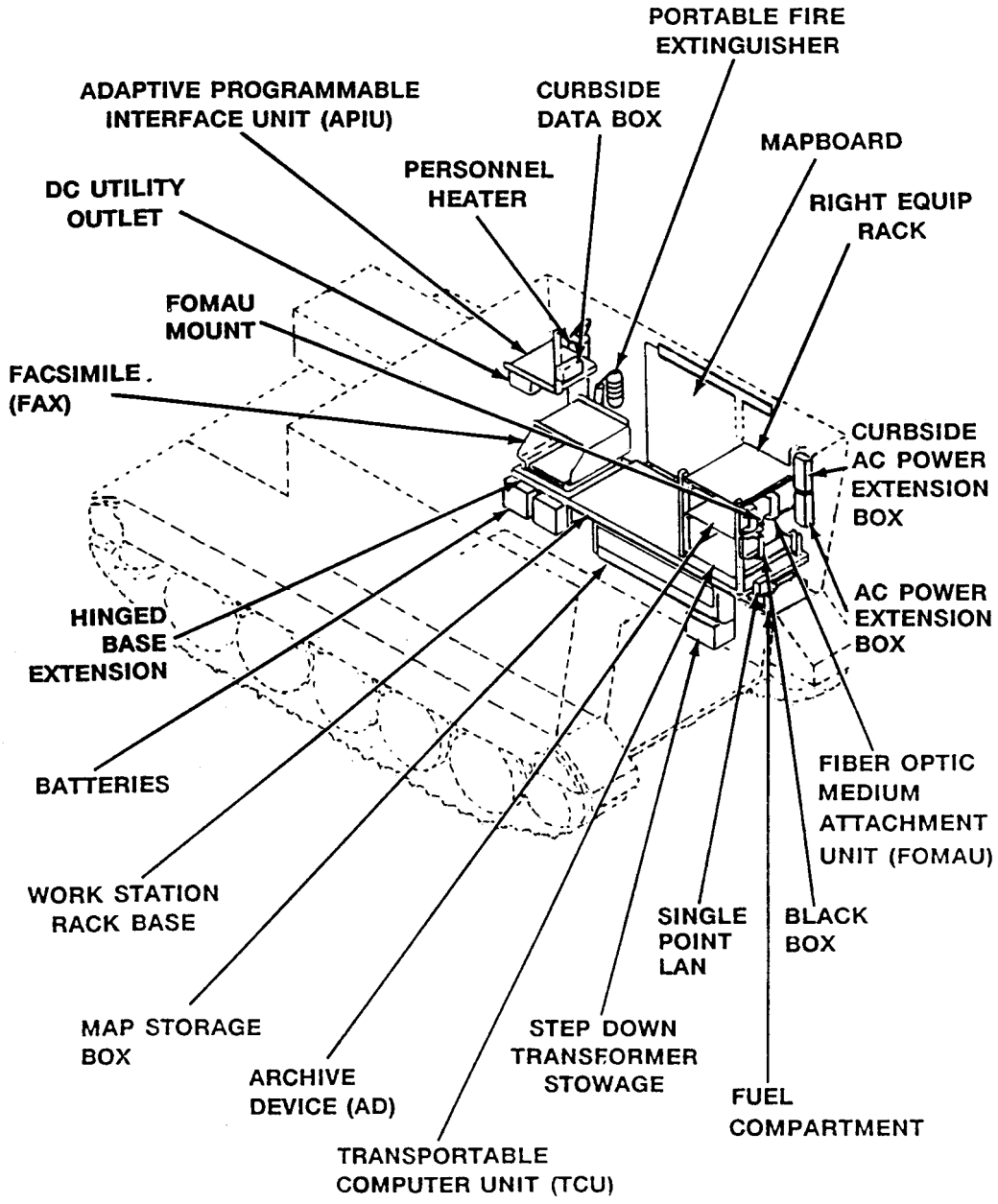
M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM — REAR VIEW



M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM — REAR COMPARTMENT (LEFT SIDE)

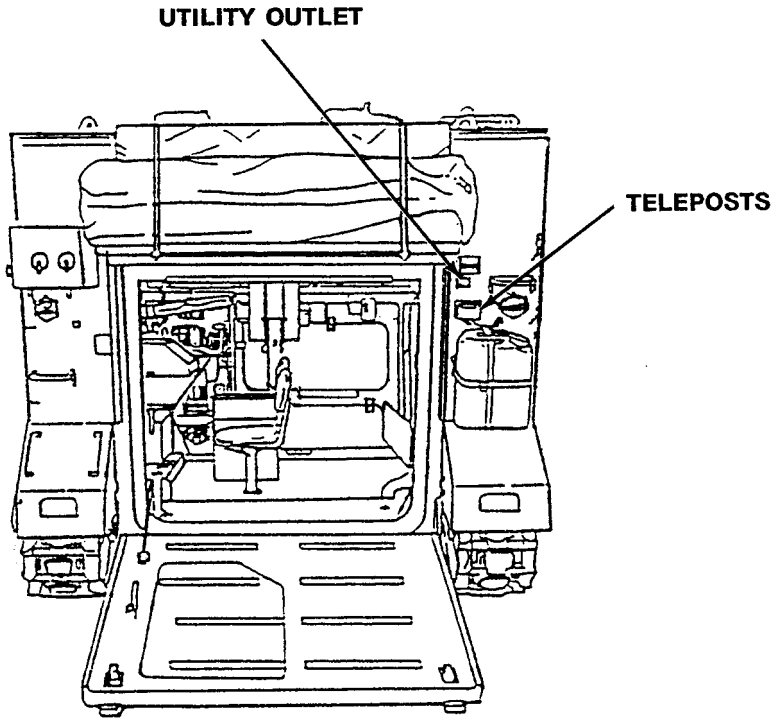


M1068A3 STANDARDIZED INTEGRATED COMMAND POST SYSTEM — REAR COMPARTMENT (RIGHT SIDE)



UTILITY OUTLET (M1068A3 ONLY)

The utility outlet located on the right side is used to operate 24–volt accessories.



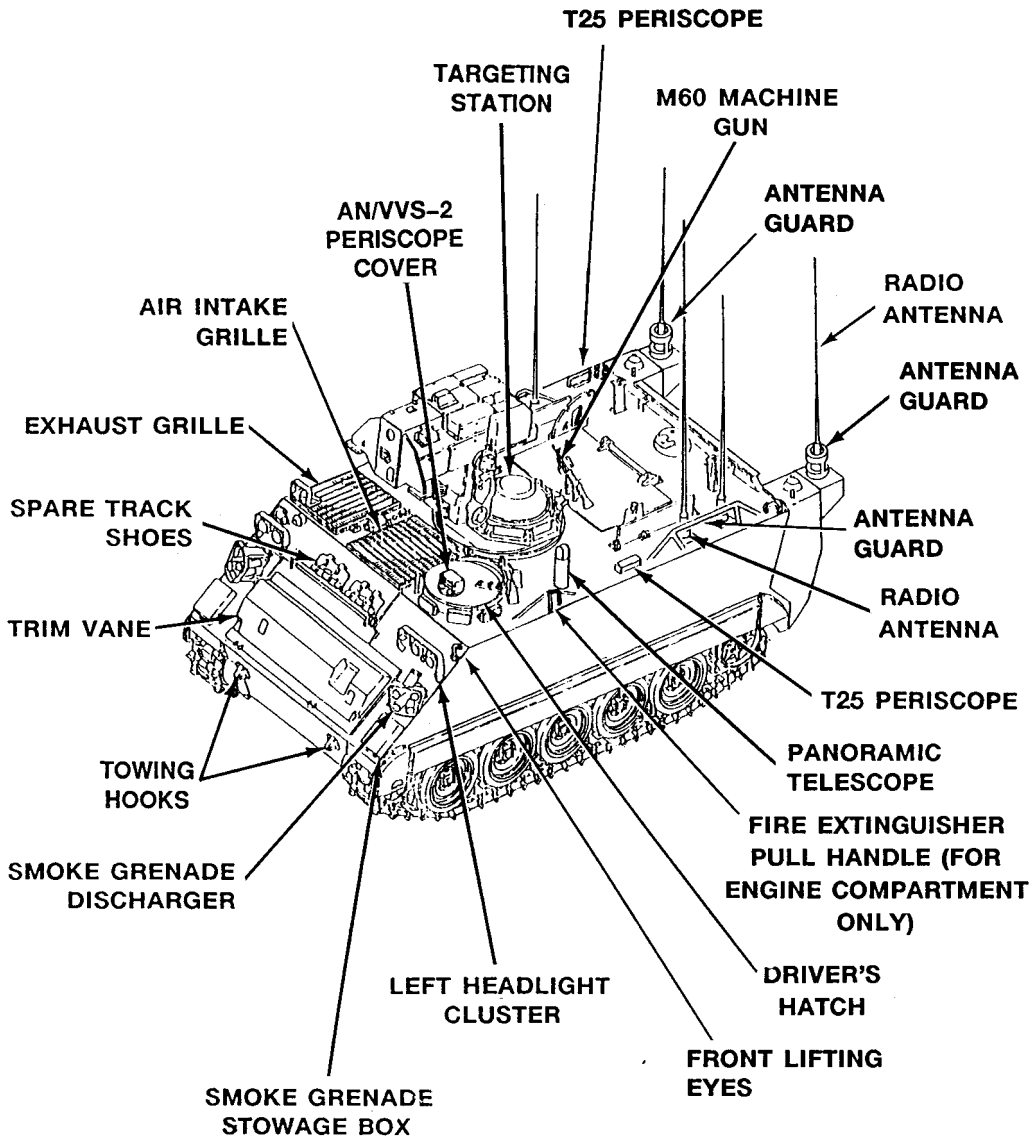
M981A3 FIRE SUPPORT PERSONNEL CARRIER

The M981A3 carrier serves as a mobile operating base for target location, designation, and communication performed by a fire support team in support of a maneuver company. Some of the important capabilities of the M981A3 carrier are as follows:

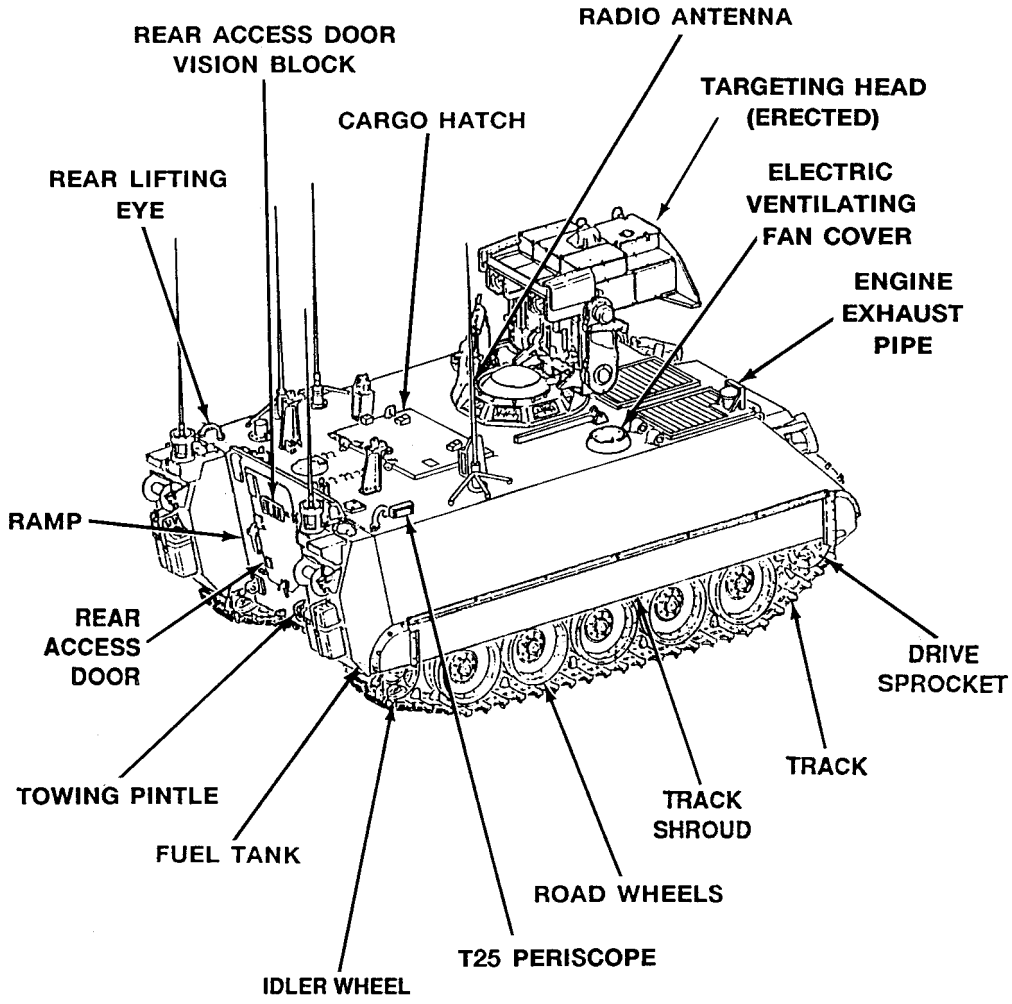
- It fords water up to 40 inches (102 cm) deep.
- Crew and equipment protection from small arms fire and artillery fragments.
- It has an observation station providing field-of-view of 360 degrees (6400 mils) through panoramic telescope.
- It can operate from full hull defilade positions.
- It has stowage provisions provided for selected ground-mode components. Ground system can be dismounted and set up in less than 3 minutes.
- It is air transportable, but not air droppable.
- It has day or night acquisition and tracking of targets.
- It travels easily over rough terrain.
- It can move at high speeds on improved roads and highways.
- 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 AN/VVS-2 driver's night vision 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 a NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and personnel heater kit (for cold weather operation).

EQUIPMENT DESCRIPTION — Continued 0002 00

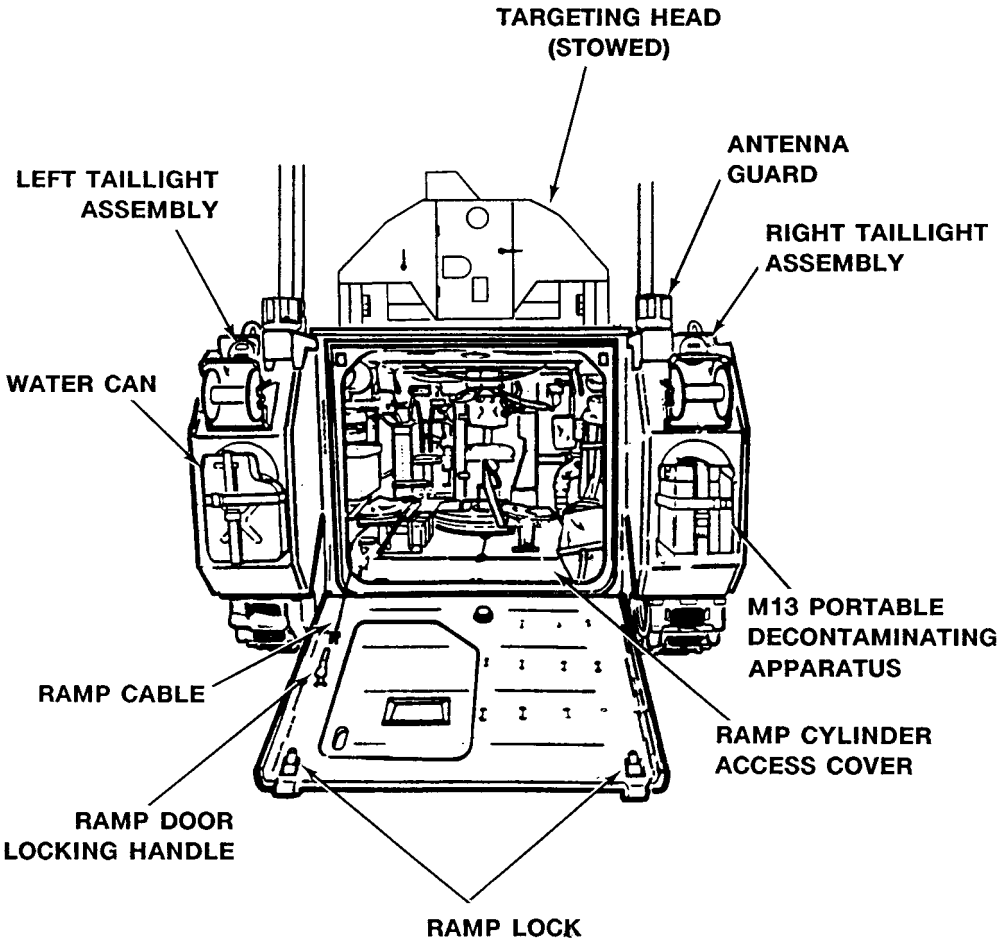
M981A3 FIRE SUPPORT PERSONNEL CARRIER — LEFT FRONT VIEW



M981A3 FIRE SUPPORT PERSONNEL CARRIER — RIGHT REAR VIEW



M981A3 FIRE SUPPORT PERSONNEL CARRIER — REAR VIEW

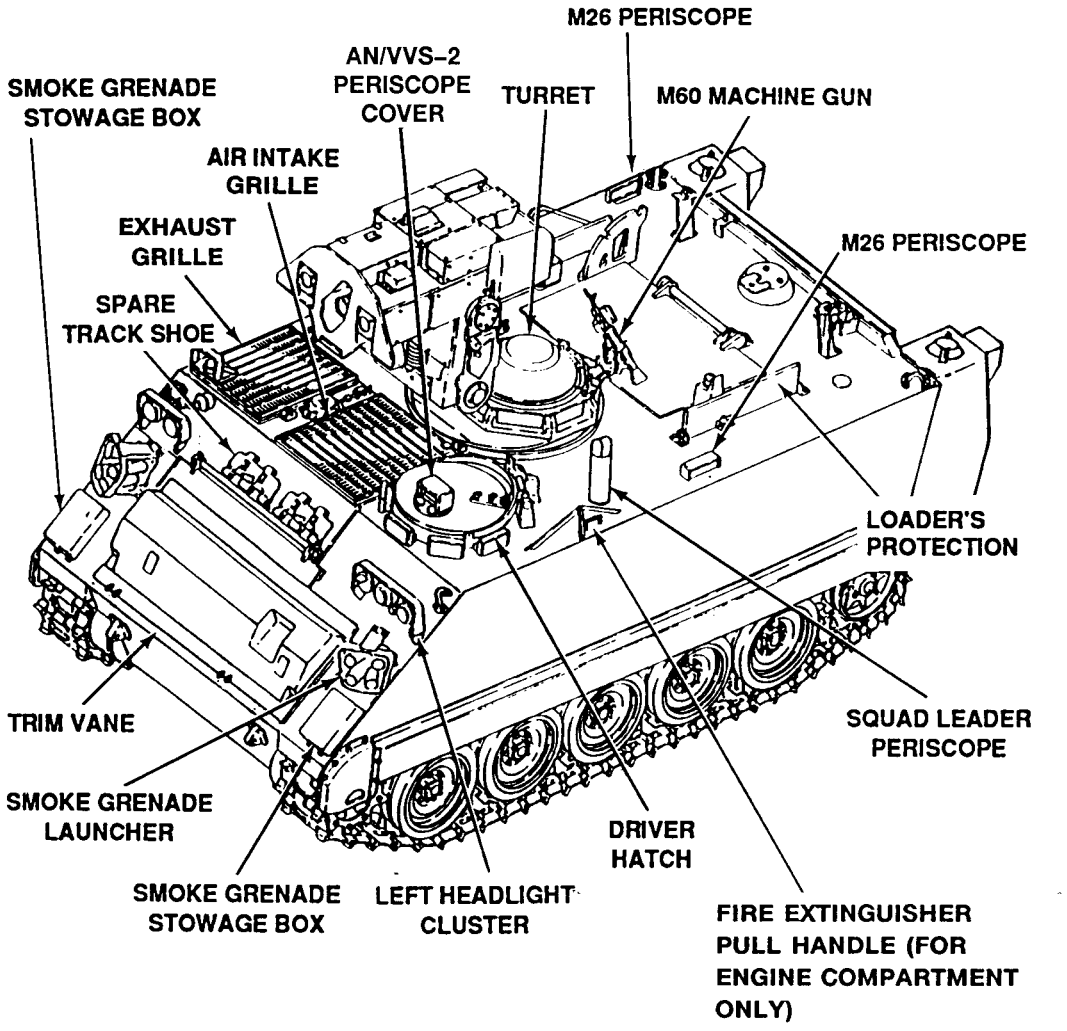


M901A3 ARMORED ANTI-TANK (TOW) CARRIER

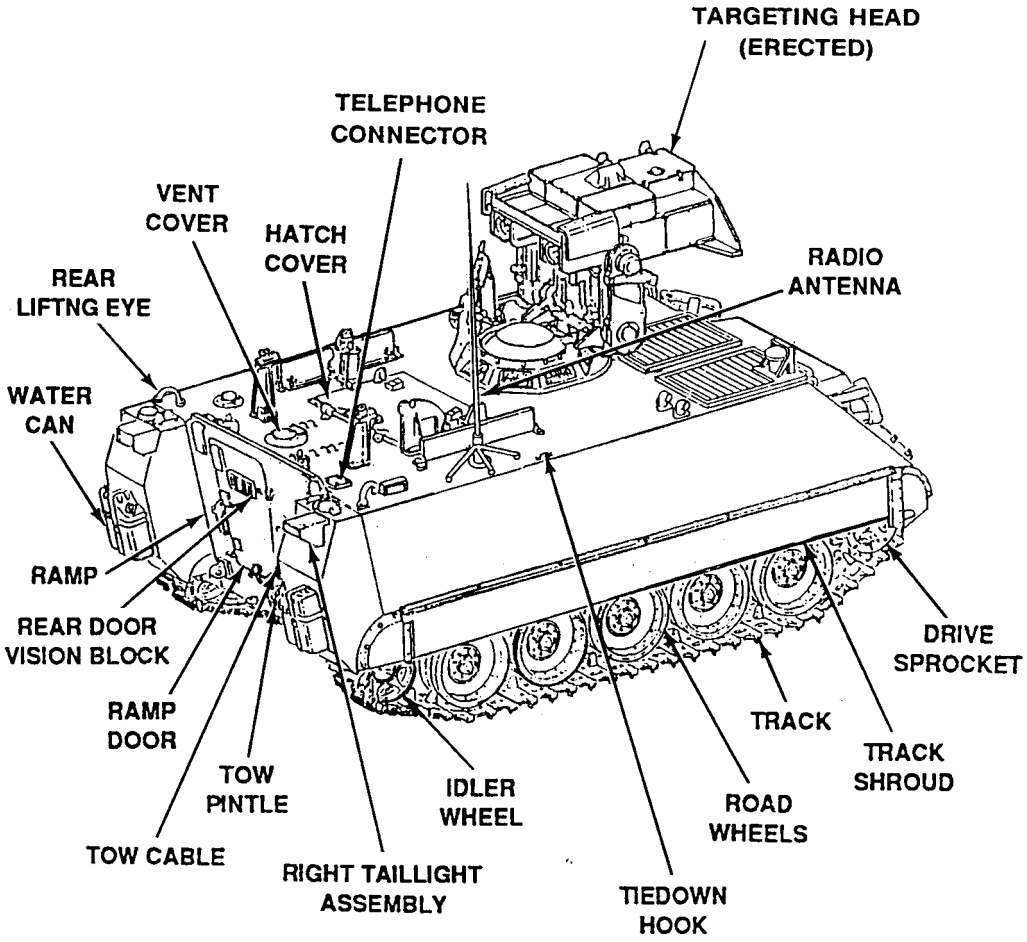
The M901A3 Armored Anti-Tank (TOW) Carrier is a highly mobile, anti-tank weapon designed and built to attack and defeat armored carriers, and other targets such as field fortifications while providing maximum protection to the crew. The carrier is normally used by armored cavalry and mechanized infantry units. For Turret/Weapons Operation and Capabilities see TM 9-2350-259 Series Manuals. Some of the important capabilities of the M901A3 carrier are as follows:

- It has a high first-round hit probability.
- Crew and weapon protection from small arms fire and artillery fragments.
- Rapid engagement rate. A second round can be selected, armed and fired as soon as the first round impacts. Additional rounds can be loaded and fired in less than 40 seconds.
- Squad leader has 360 degrees viewing through squad leader periscope.
- It can operate from full hull defilade positions.
- Firing coverages of 360 degrees in azimuth and + 35 to -30 degrees in elevation.
- Stowage provisions have been provided for ground-mode components. Ground system can be dismounted and set up in less than 3 minutes.
- It is air transportable.
- It has day or night acquisition and tracking of targets.
- 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 propelled and steered on land and in water by tracks.
- It has an AN/VVS-2 driver's night vision 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 a NBC (gas particulate filter) unit, driver's windshield kit, engine coolant heater kit, and personnel heater kit (for cold weather operation).

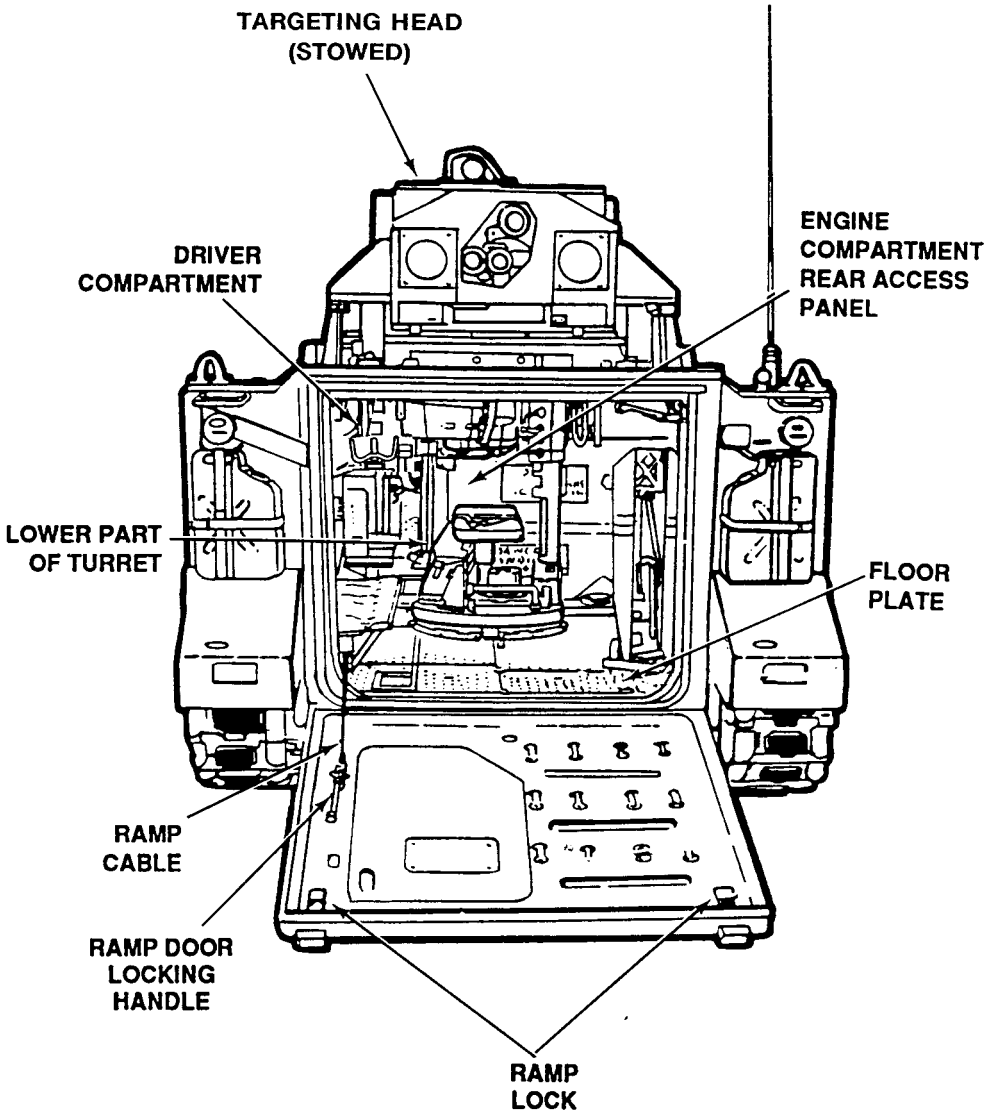
M901A3 ARMORED ANTI-TANK (TOW) CARRIER — LEFT FRONT VIEW



M901A3 ARMORED ANTI-TANK (TOW) CARRIER — RIGHT REAR VIEW



M901A3 ARMORED ANTI-TANK (TOW) CARRIER — REAR VIEW



M1064A3 MORTAR CARRIER

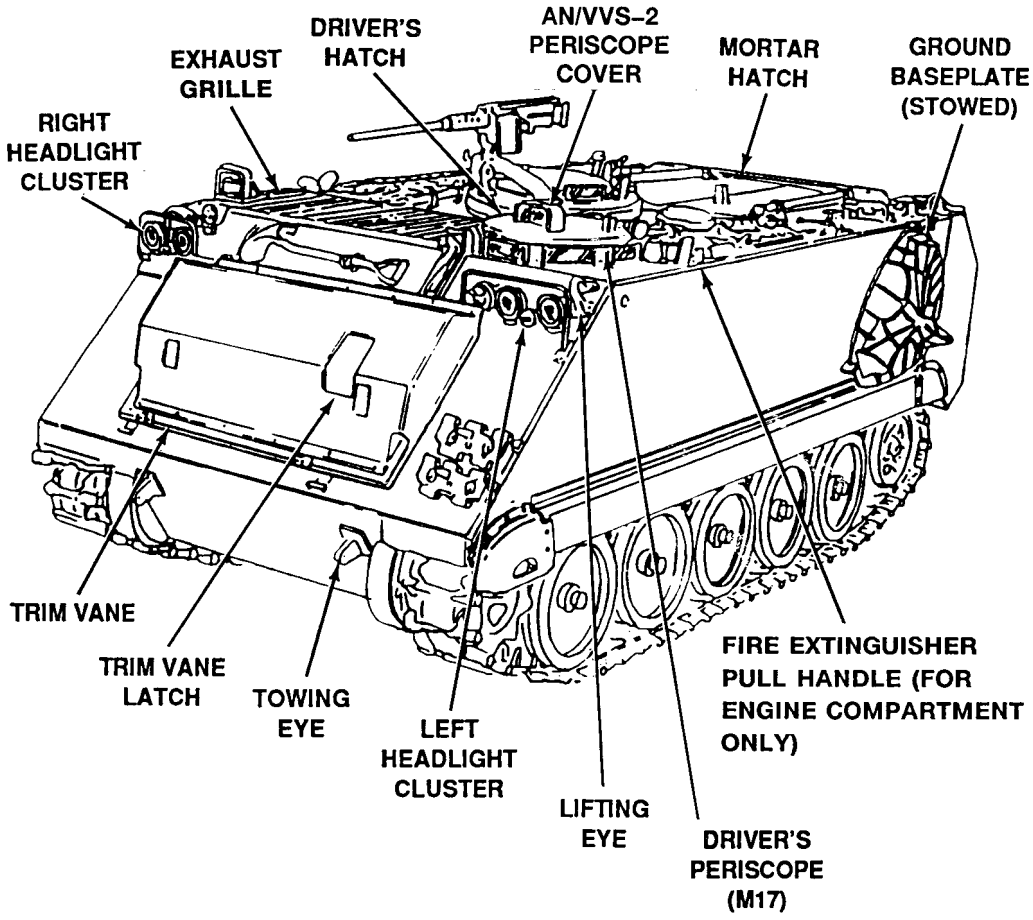
This carrier is designed to carry the 4.7 inch (120-mm) Mortar M121. The mortar can be fired from a turntable in the carrier, or removed and fired from a ground baseplate. The carrier has a crew of four, including the driver. The M1064A3's capabilities and features are:

- 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 AN/VVS-2 driver's night vision 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 a NBC (gas particulate filter) unit, a driver's windshield kit, an engine coolant heater kit and personnel heater kit (for cold weather operation).

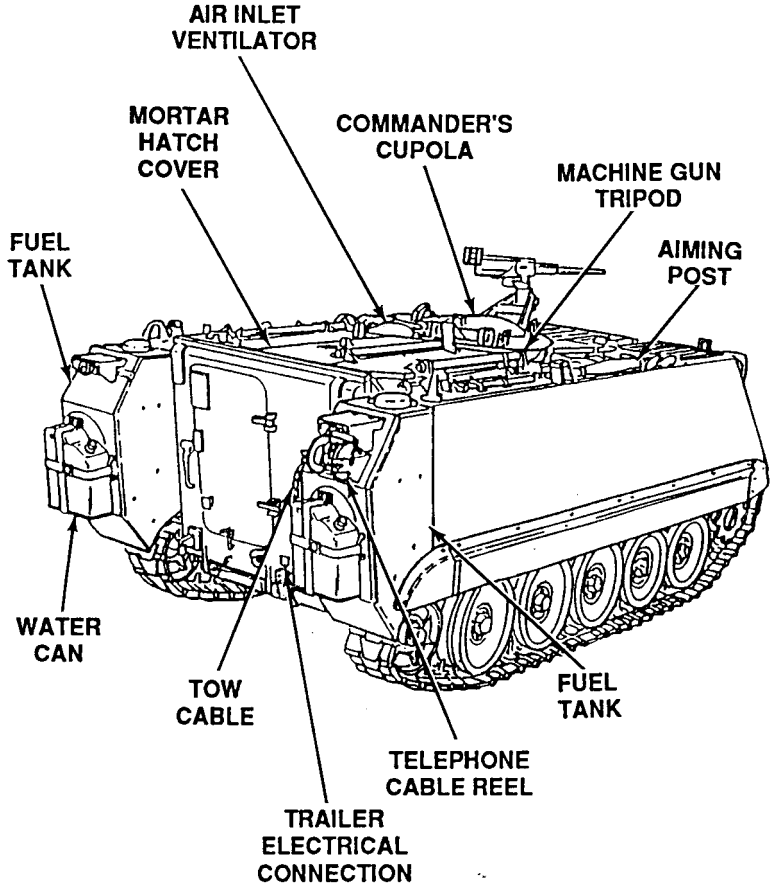
The M1064A3 is built from the same plans as the M113A3 except it has a reinforced rear hull floor for firing the mortar. A three-piece hatch cover folds back on the carrier roof and opens up the hull to fire the mortar in an elevated position. The turntable directly under the hatch allows the mortar to be fired left and right of the carrier center line. Ammunition and fuze stowage racks are inside the mortar compartment.

Operation of the 120-mm, 4.7-inch mortar, M121, used on M1064A3 Carriers, is covered in TM 9-1015-250-10.

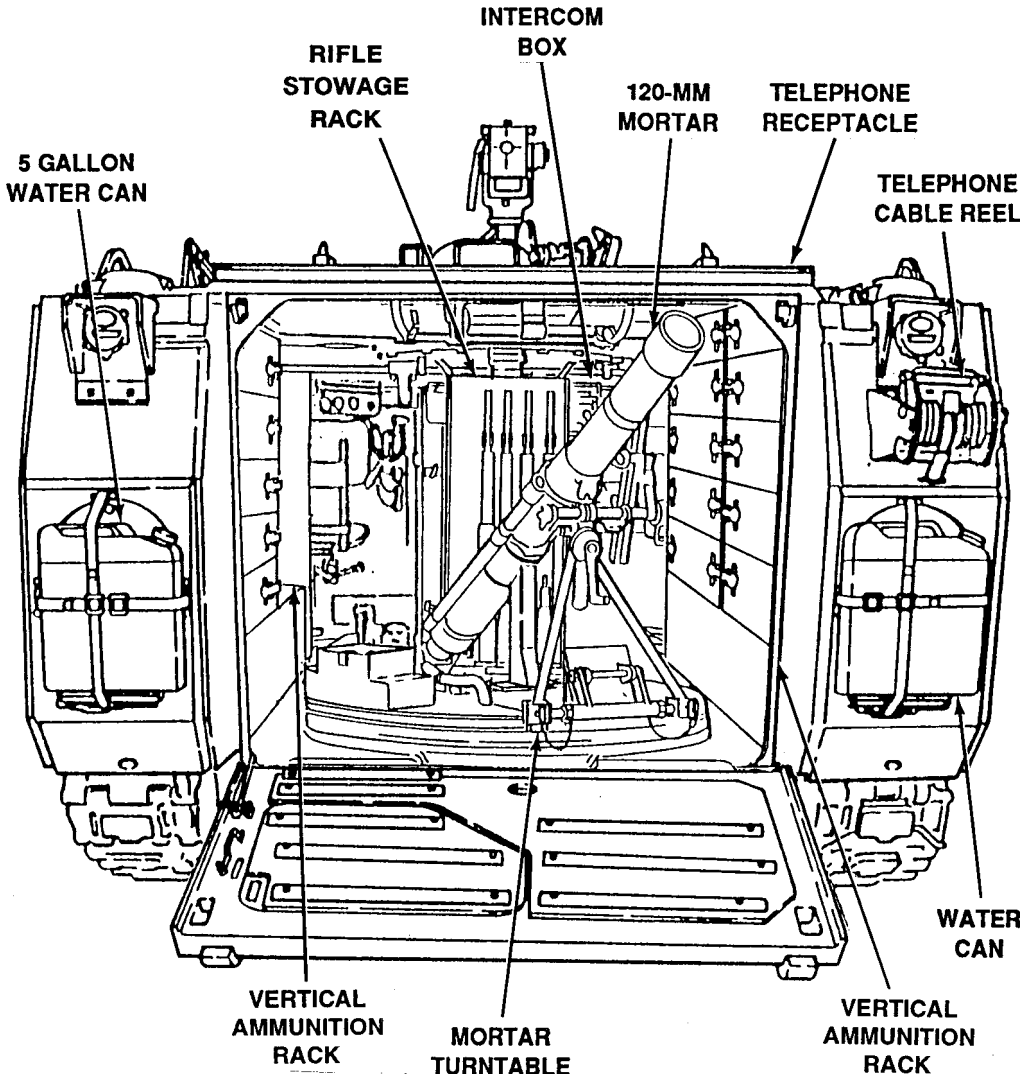
M1064A3 MORTAR CARRIER — LEFT FRONT VIEW



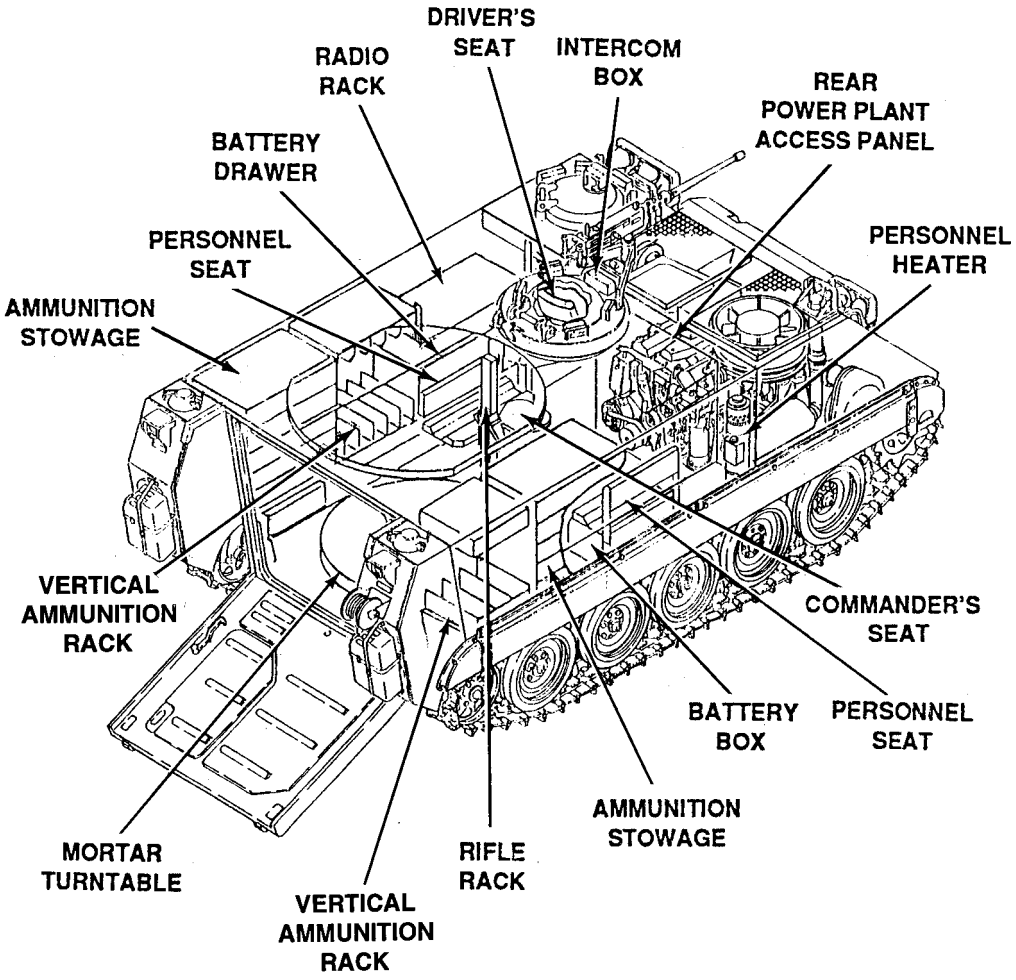
M1064A3 MORTAR CARRIER — RIGHT REAR VIEW



M1064A3 MORTAR CARRIER — REAR VIEW



M1064A3 MORTAR CARRIER — REAR COMPARTMENT



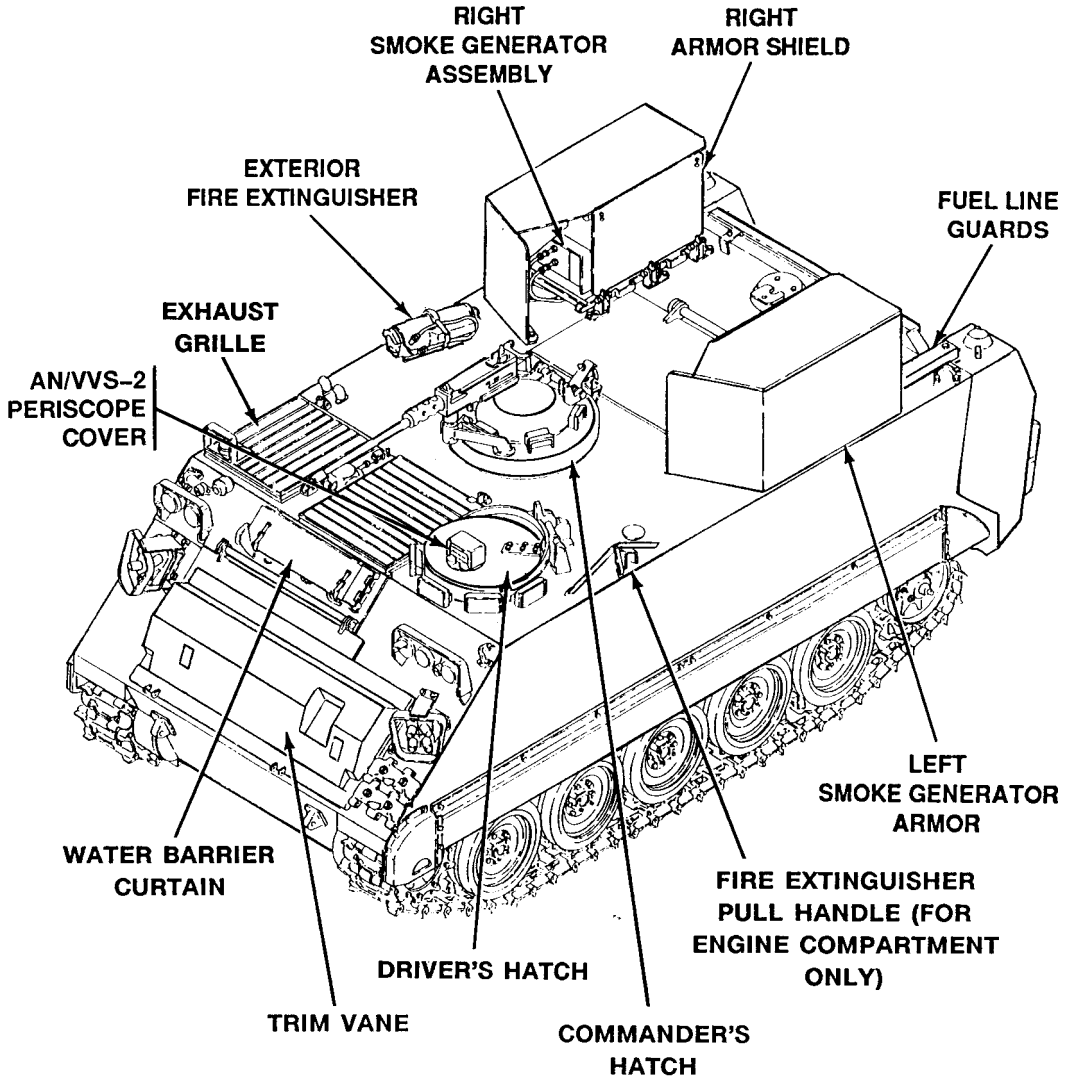
M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER

This carrier is designed to generate a smoke screen in the battlefield environment. The M1059A3 carries a crew of three. A caliber .50 machine gun is mounted on a cupola on top of the carrier. The M1059A3's capabilities and features are:

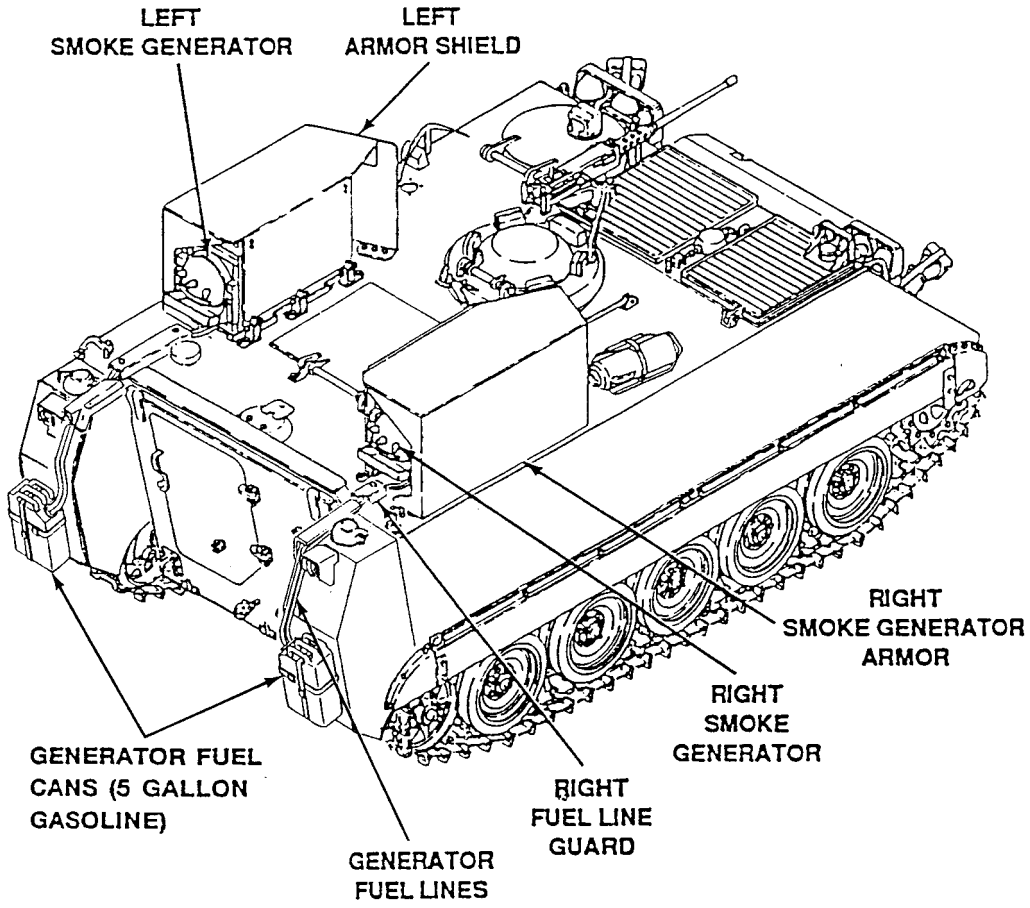
- It travels easily over rough terrain.
- It fords water up to 40 inches deep.
- It can move at high speeds on improved roads and highways.
- It is air transportable and can be dropped by parachute to troops in the field.
- It is propelled and steered on land and in water by tracks.
- It has M17 periscopes around the driver's and commander's hatches for vision when buttoned up.
- It has an AN/VVS-2 driver's night vision 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, a driver's windshield kit, engine coolant heater kit, and personnel heater kit (for cold weather operation).
- It is equipped with the M157 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.

The M1059A3 is built from the same plans as the M113A3 except the M1059A3 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: two M54A1E1 smoke generator assemblies, a control panel assembly, a fog oil pump/tank assembly, an air compressor assembly, and two 5-gallon fuel cans with special plugs.

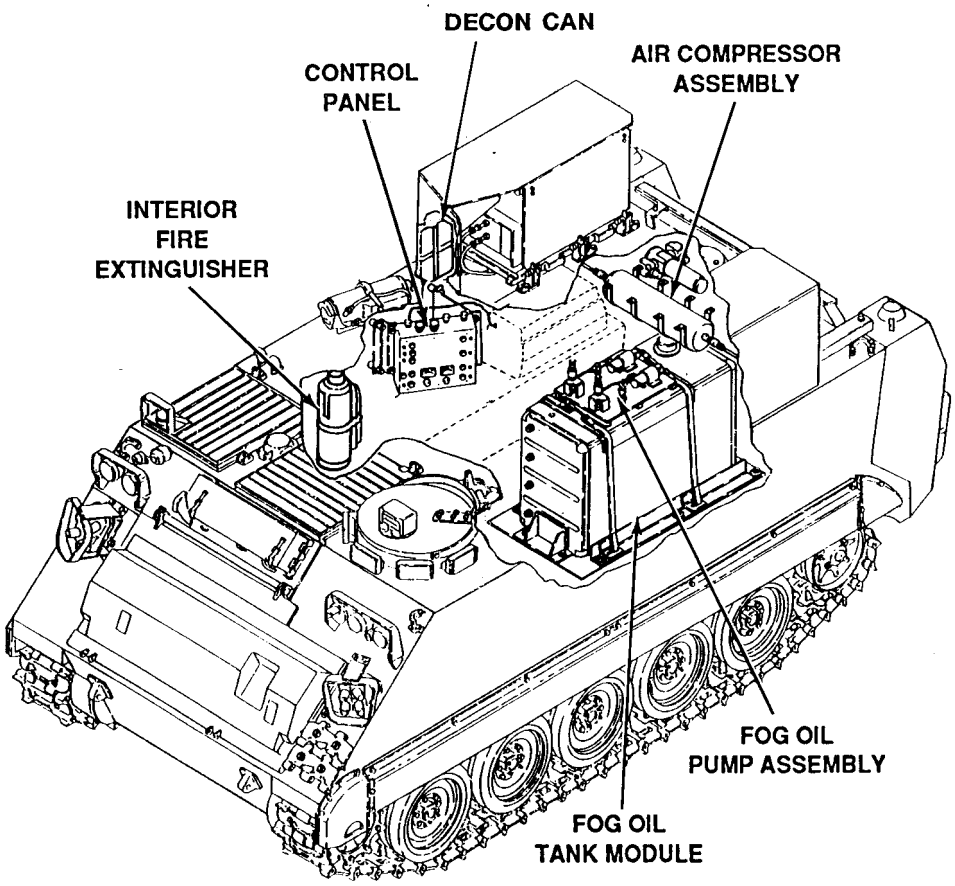
M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER — LEFT FRONT VIEW



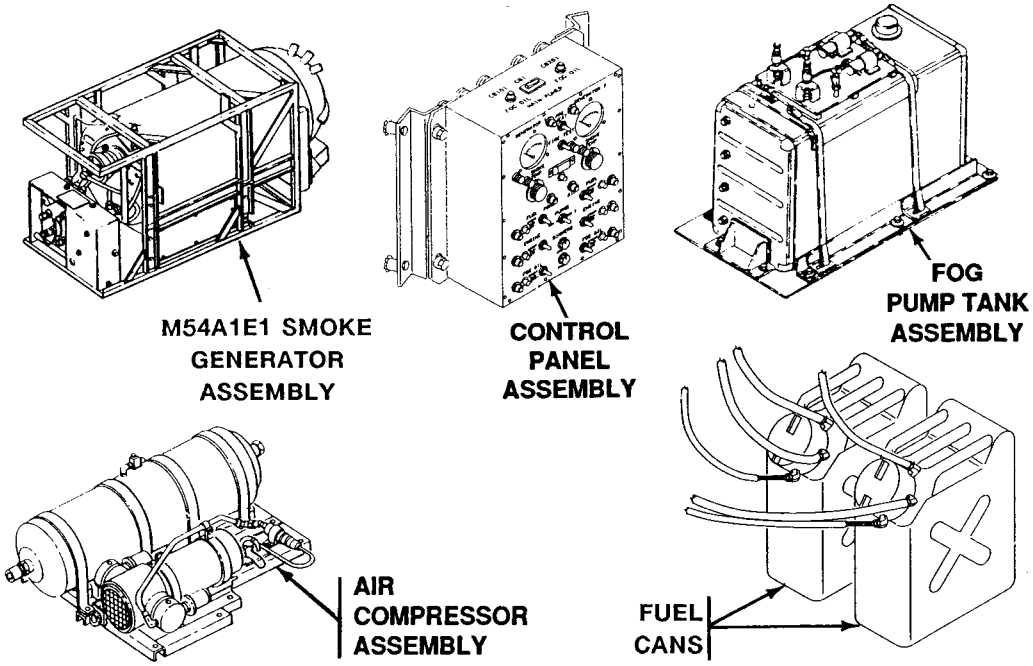
M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER — RIGHT REAR VIEW



M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER — INTERIOR ARRANGEMENT



M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER — SMOKE GENERATOR SYSTEM M157A2

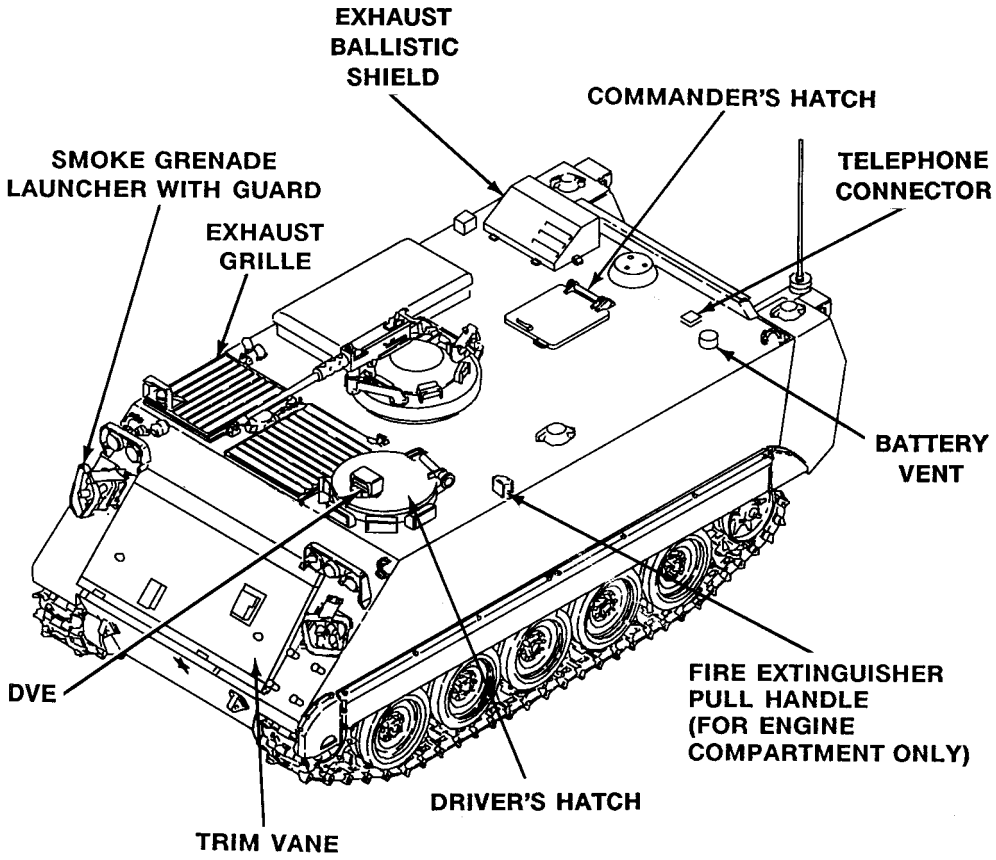


M58 CARRIER FULL TRACKED CHASSIS

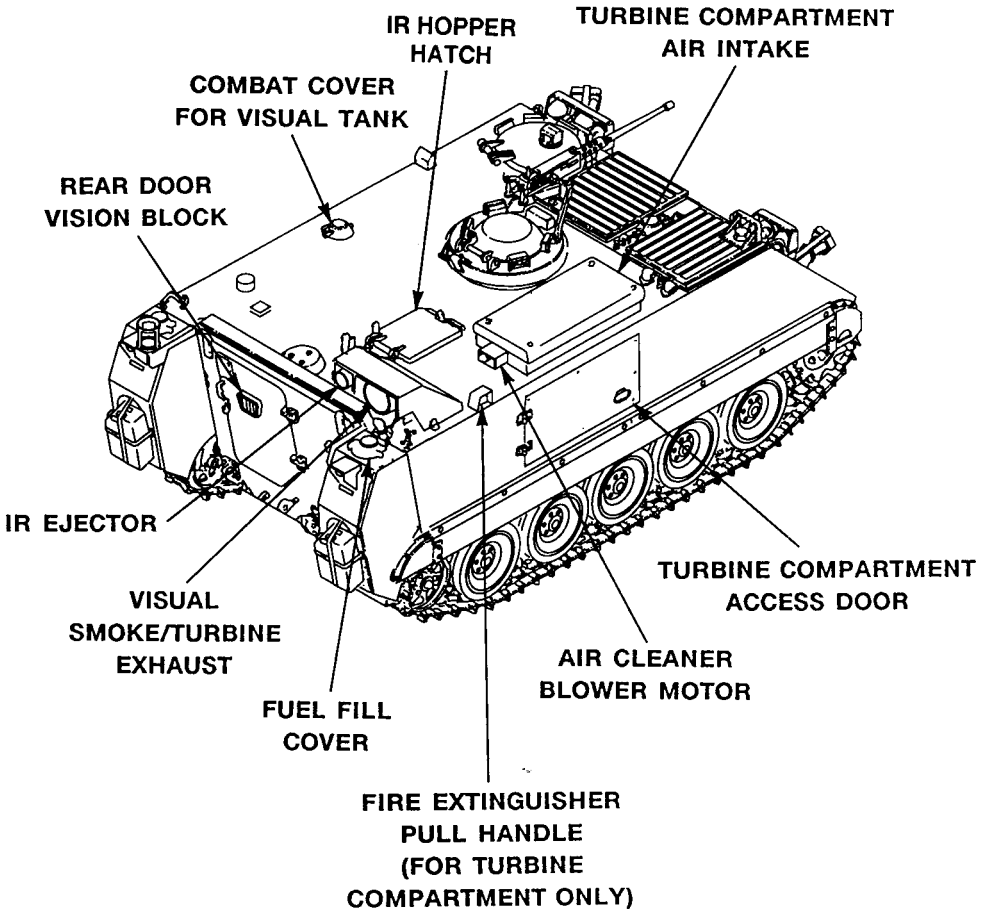
This carrier is designed to generate a smoke screen in the battlefield environment. The M58 carries a crew of three. A caliber .50 machine gun is mounted on a cupola on top of the carrier. See TM 3-1040-285-10 for operation of the Smoke Obscurant System. The M58's capabilities and features are:

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 a Driver's Vision Enhancer (DVE) stowed near the driver. The viewer can be installed in the driver's hatch to provide night vision under blackout conditions.
It is equipped with smoke grenade launchers, NBC (gas particulate filter) unit and personnel heater installation kit (for cold weather operation).
It is equipped to carry a driver's windshield kit and an engine coolant heater kit (for cold weather operation).
It is equipped with a smoke obscurant system with enough IR for 30 minutes and fog oil for 1 1/2 hours of continuous operation.

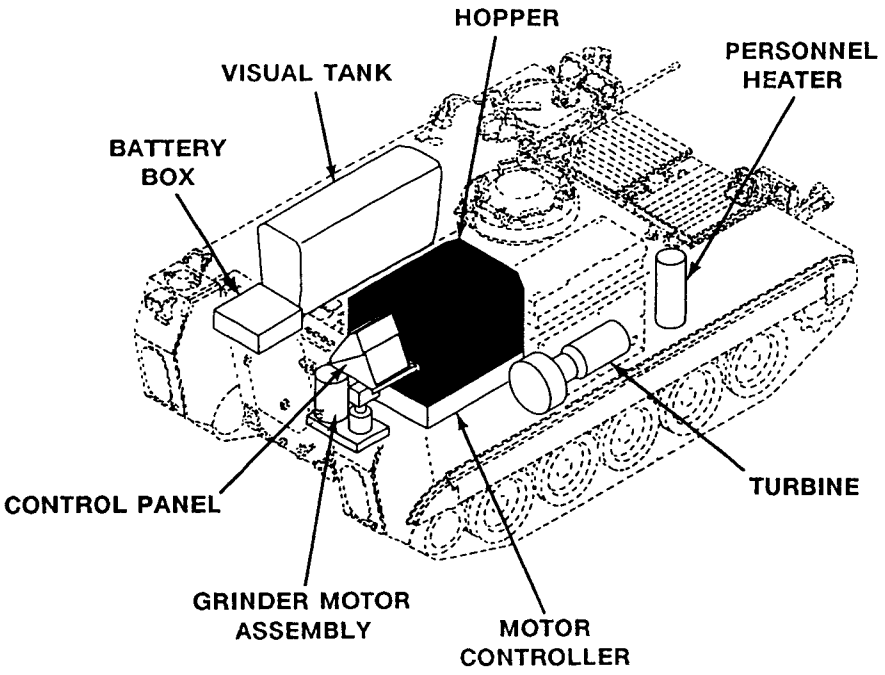
M58 CARRIER FULL TRACKED CHASSIS — LEFT FRONT VIEW



M58 CARRIER FULL TRACKED CHASSIS — RIGHT REAR VIEW



M58 CARRIER FULL TRACKED CHASSIS — INTERIOR ARRANGEMENT



NOTE

See TM 3-1040-285-10 for full description and operation.

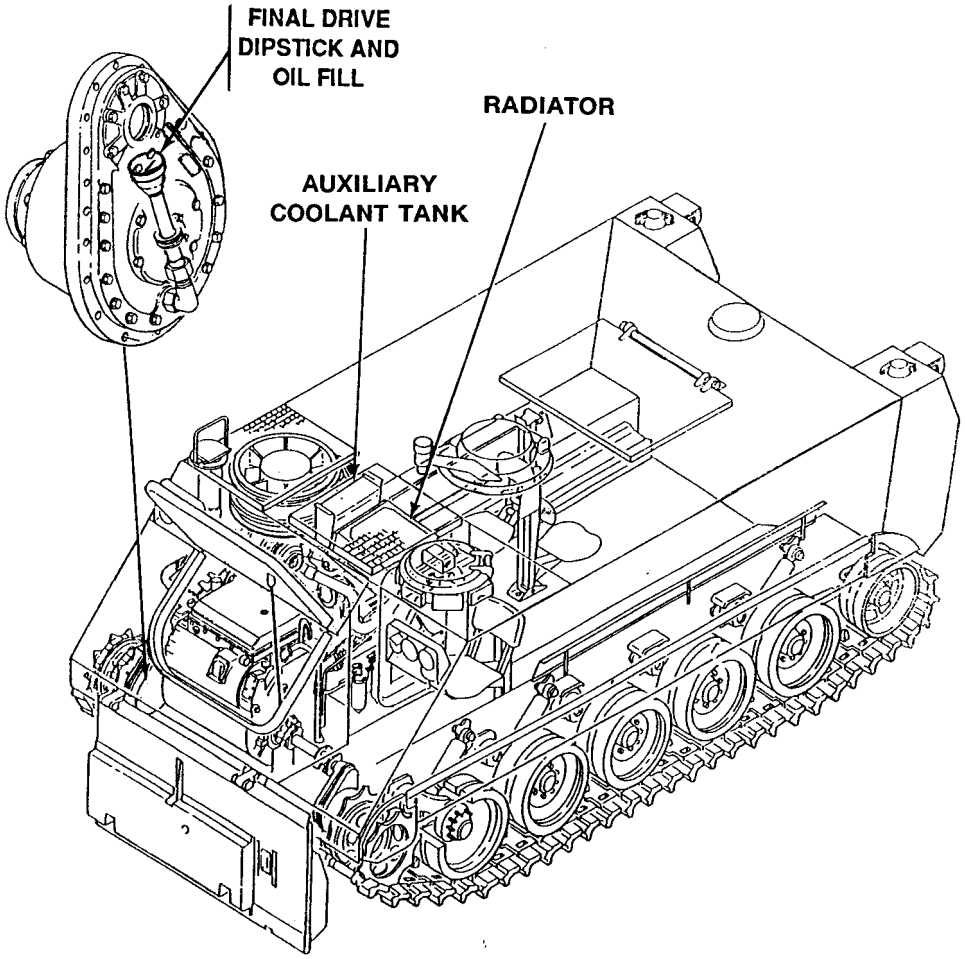
LOCATION AND DESCRIPTIONS OF MAJOR COMPONENTS

POWER PLANT COMPARTMENT — ALL CARRIERS

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

Auxiliary coolant tank and fill for coolant/water to radiator
Radiator
Final drive dipstick and oil fill

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.

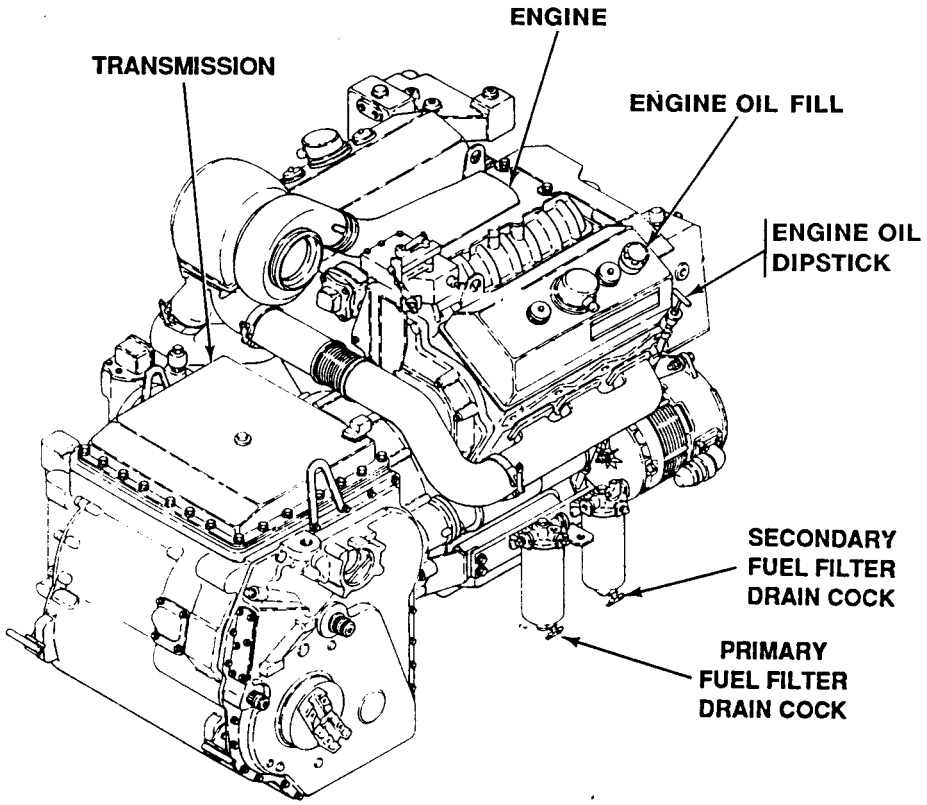


EQUIPMENT DESCRIPTION — Continued **0002 00**

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

- Engine
- Engine oil fill
- Engine oil dipstick
- Primary and secondary fuel filter drain cocks
- Transmission

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

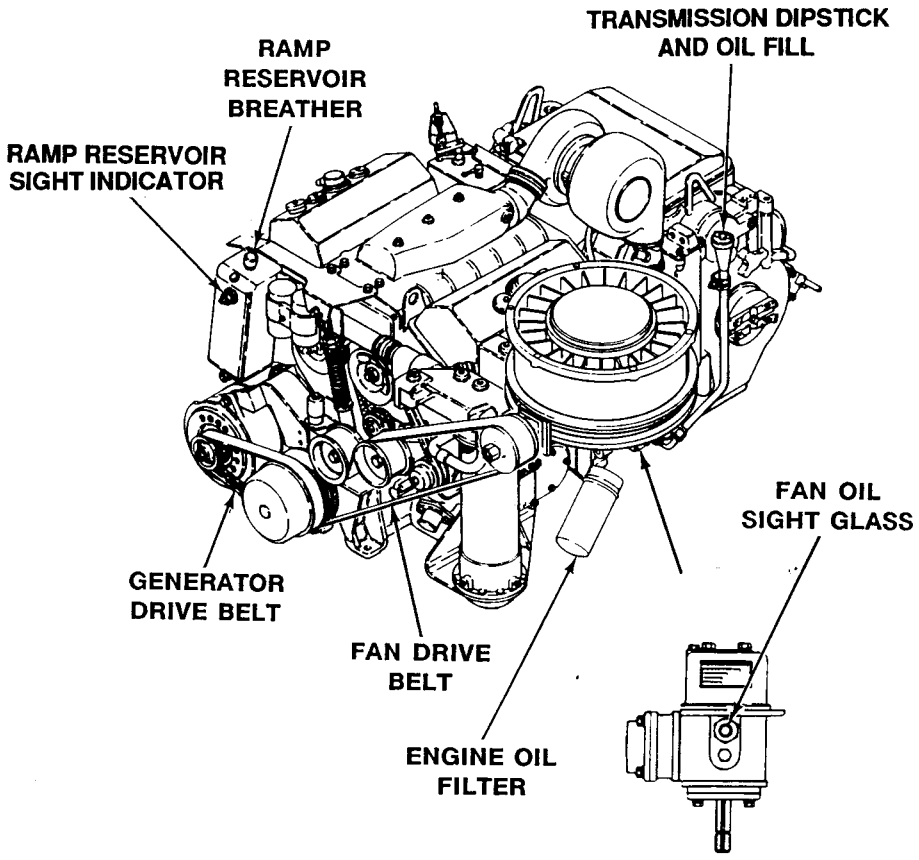


Removing the rear compartment access panel provides access to the following:

NOTE

There are two configurations for the transmissions. X2004 is shown. X2004a has a different dipstick configuration and a separate fuel tube.

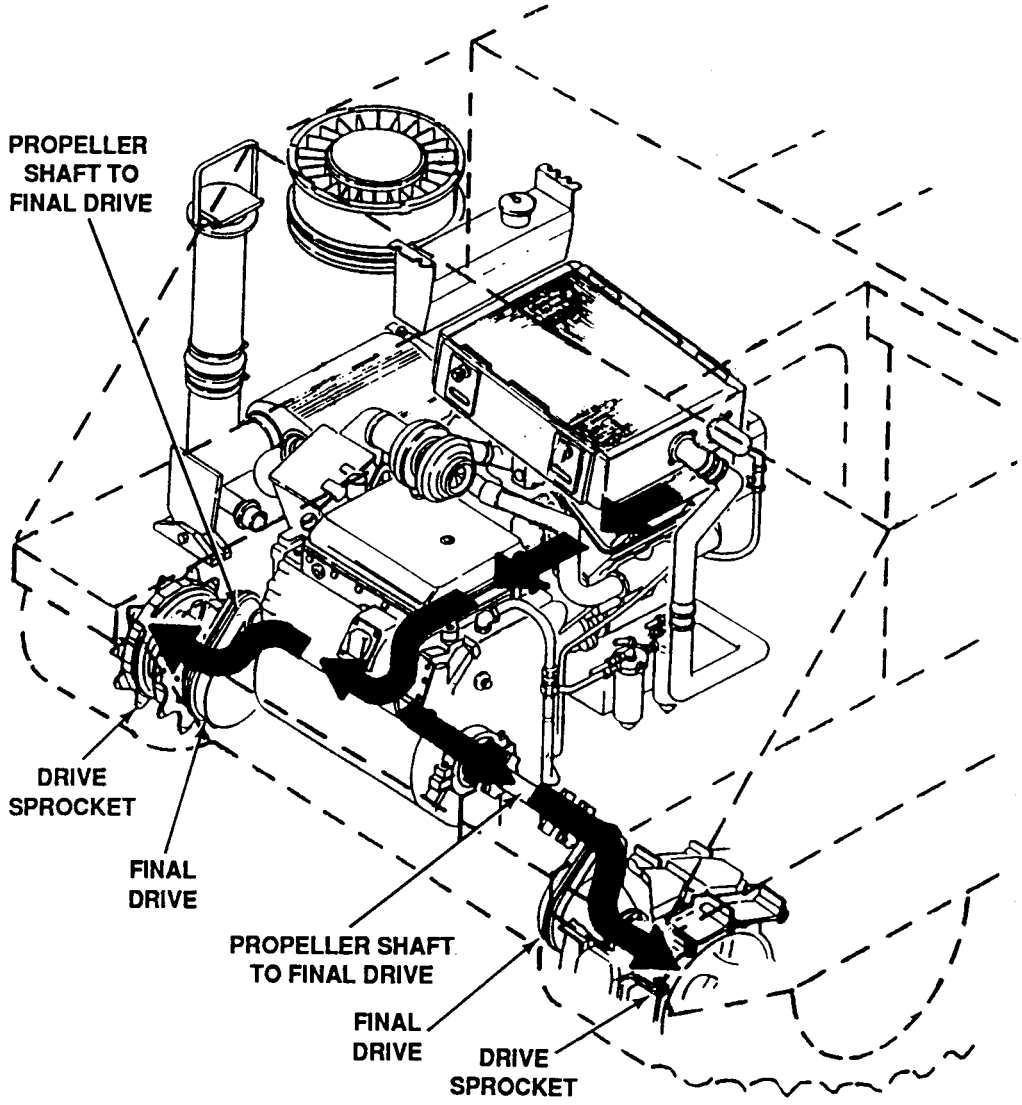
Transmission dipstick and oil fill
Ramp reservoir breather
Radiator
Fan oil sight glass
Generator drive belt
Fan drive belt
Ramp reservoir sight indicator
Engine oil filter



EQUIPMENT DESCRIPTION — Continued **0002 00**

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

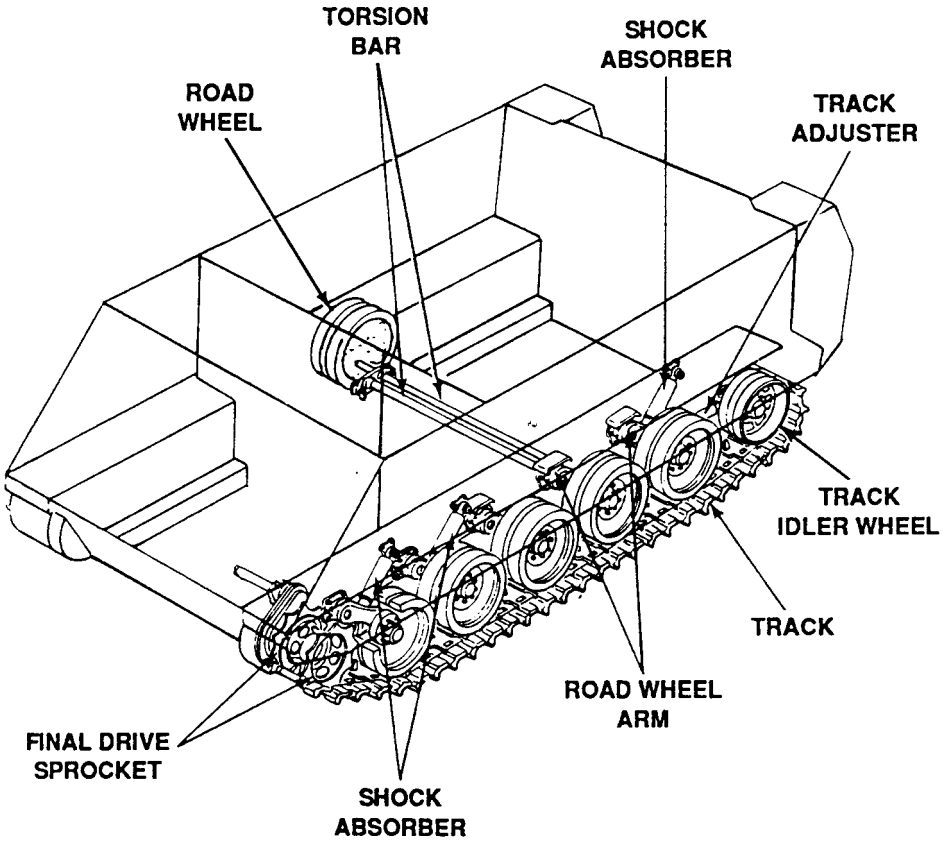
6V53T diesel engine — power source
Transmission — automatically selects correct gear range
Propeller shafts — connect final drives to transmission
Final drives — drive the track drive sprockets
Drive sprockets — power the tracks to move carrier



SUSPENSION SYSTEM — ALL CARRIERS

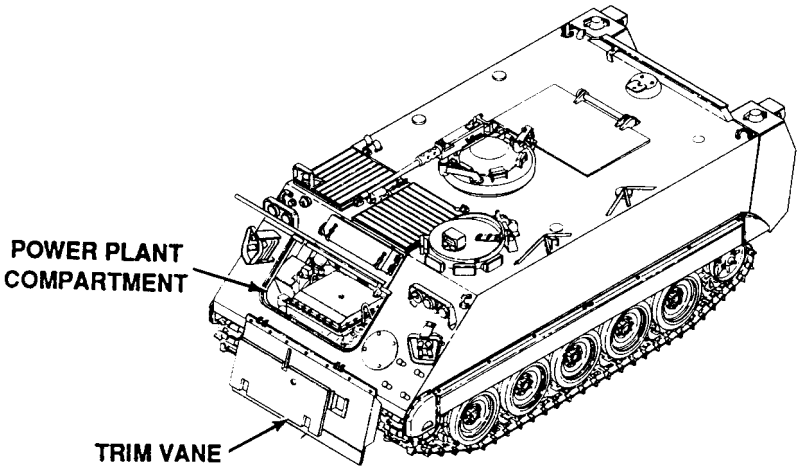
The carrier moves on its suspension system which includes the following components:

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
Track idler wheel — adds tension to track when grease is pumped into track adjusters
Final drive sprocket — power the tracks to move the carrier



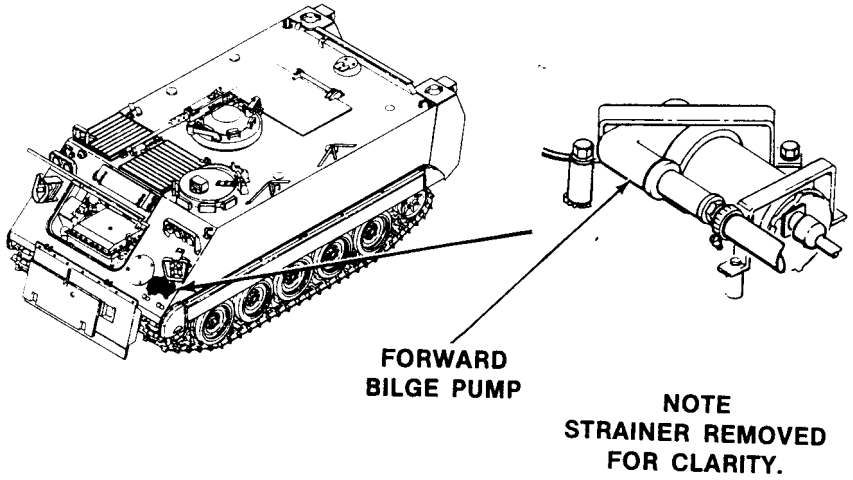
TRIM VANE

When extended, the trim vane helps stabilize the carrier during fording operations in small bodies of water.



BILGE PUMPS

There are two bilge pumps. The forward pump is in the left front corner of the power plant compartment. The rear pump is under the floor plates on the right rear side of the carrier. When turned on, they remove water that may leak in during fording operations.



RAMP

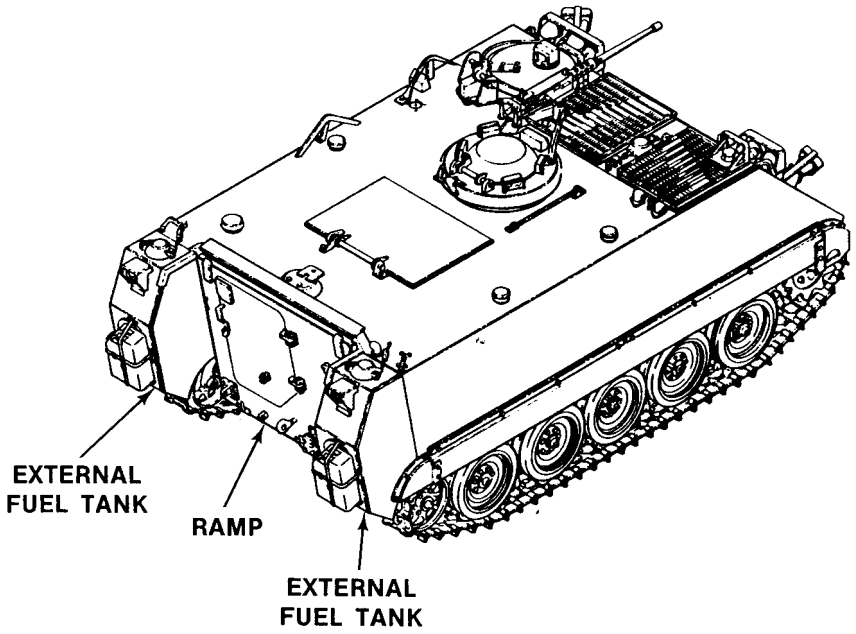
The ramp is located at the rear of the carrier to permit rapid entry and exit.

FUEL TANK EXTERNAL

The external fuel tanks for the M113A3, M901A3, M981A3, M1059A3, and M1064A3 carriers are mounted on the left and right rear corners of the carrier. Both tanks supply diesel fuel to the engine through a single main fuel line.

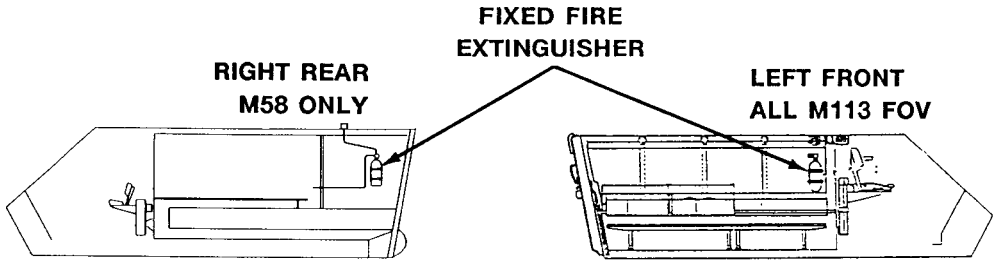
FUEL TANKS INTERNAL

The internal fuel tanks for the M577A3 and M1068A3 carriers are mounted on the left and right sponsons with tables on top of them. Both tanks supply diesel fuel to the engine through a single main fuel line. The shutoff valve is under the rear floor plate.



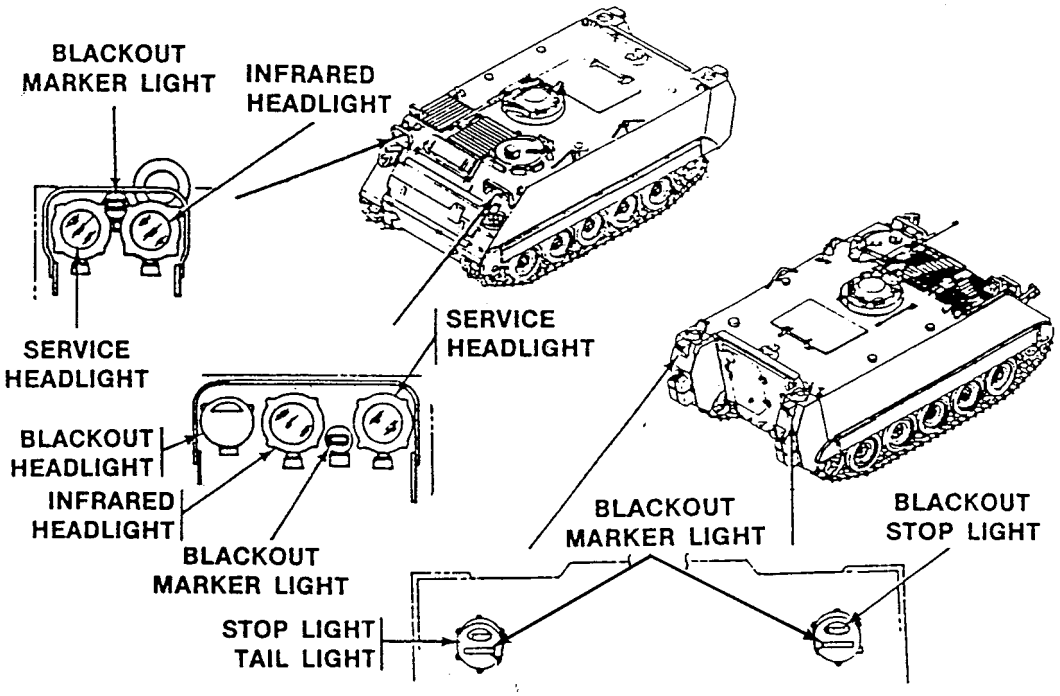
FIXED FIRE EXTINGUISHERS

The fixed fire extinguisher releases CO2 to quickly put out fires in the power plant compartment. It can be manually activated by a control on the fire extinguisher bottle or by the handle on the carrier left top deck, on all M113A3 FOV vehicles. The M58 has a second fixed fire extinguisher located on the right side of the vehicle to put out fires in the turbine compartment. It can be manually activated by a control on the fire extinguisher bottle or by the handle on the carrier right top deck.



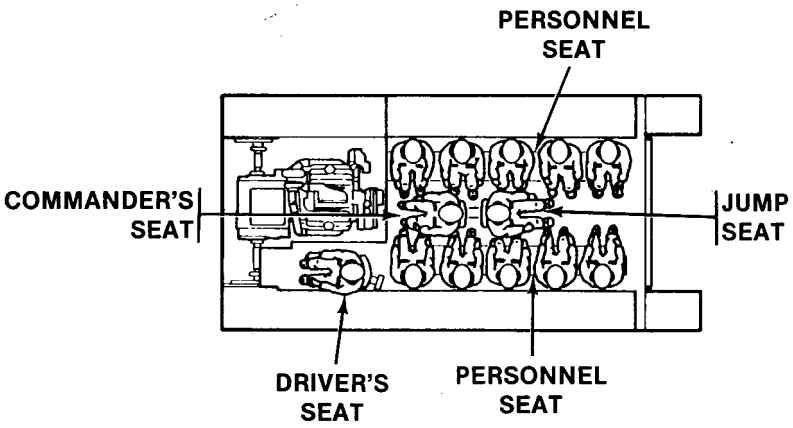
EXTERIOR LIGHTING

Exterior lights include service headlights, infrared headlights, blackout marker lights, blackout headlight, and tail light-stop light.



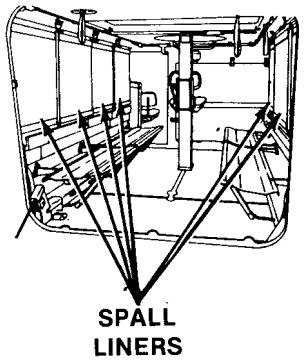
SEATS

The M113A3 is equipped with separate seats for the driver and the commander. A jump seat is located adjacent to the commander's seat. Personnel seats located on either side of the personnel compartment provide seating for 10 combat equipped soldiers.



SPALL LINERS

The M113A3 only is equipped with spall liners to protect against the effects of armor piecing rounds that may penetrate the exterior armor plate. Acting as a barrier against flying metallic chips, the liners improve the survivability of the personnel and the carrier.



ENGINE COOLING AND AIR INDUCTION — ALL CARRIERS

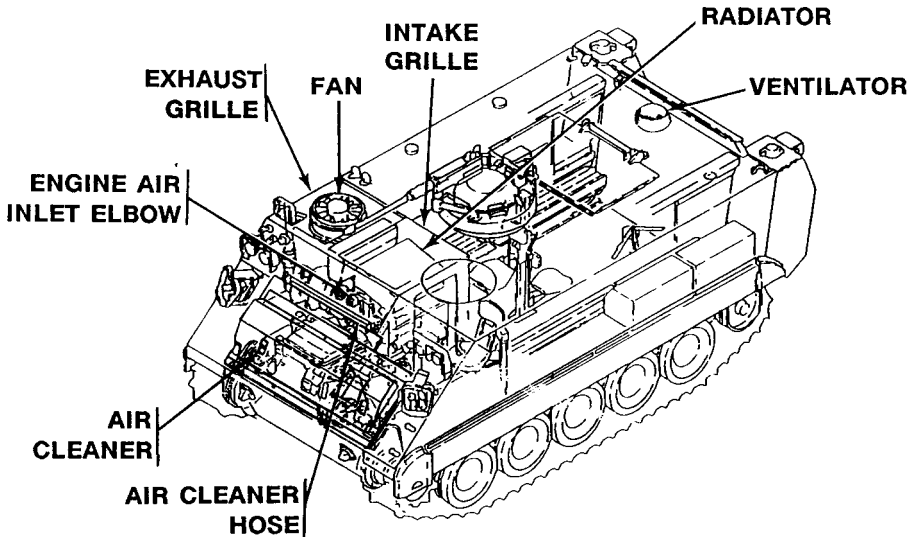
Air for engine combustion and cooling is drawn through the intake grille and radiator. Air sweeps down around the power plant and out through the exhaust grille above the fan. Fresh air is drawn through the intake grille for the air cleaner. Keep the intake grille clear of debris to help the radiator get all the air it can get. The same applies for the air cleaner which supplies fresh clean air to the engine. 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

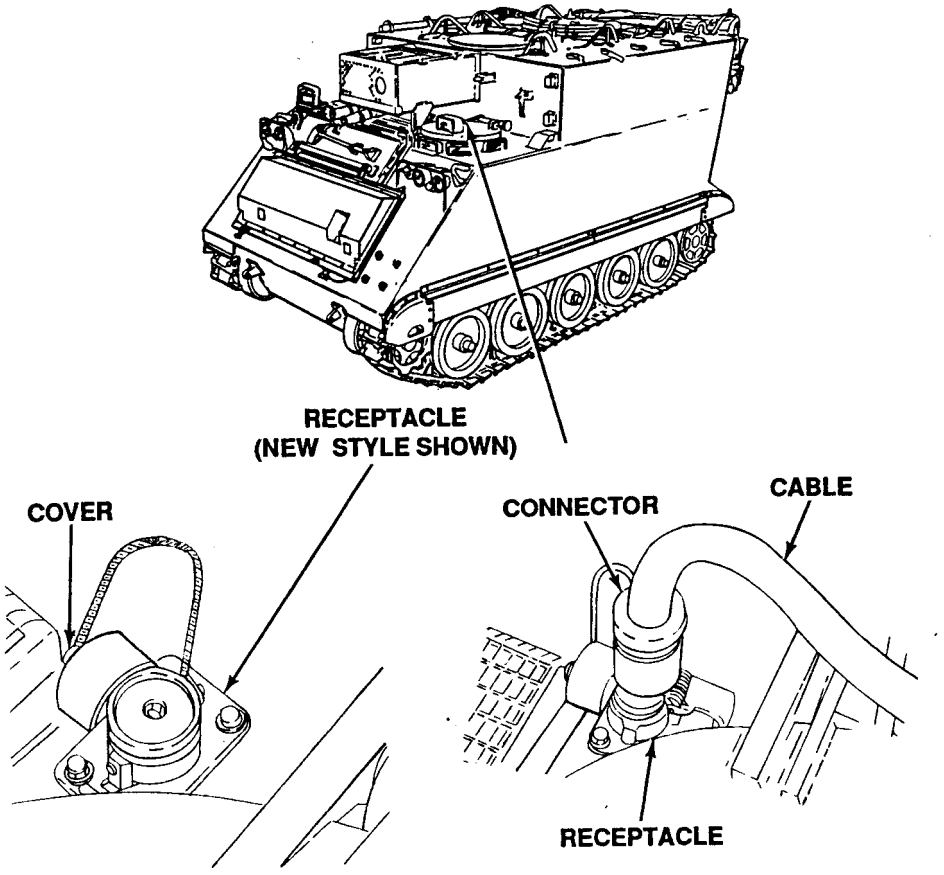
Avoid overheating of components during operation. Keep power plant door, access plates, and panels closed tightly for correct air flow.



M577A3 AND M1068A3 PECULIAR COMPONENTS

AUXILIARY POWER RECEPTACLE (M577A3 AND M1068A3 ONLY)

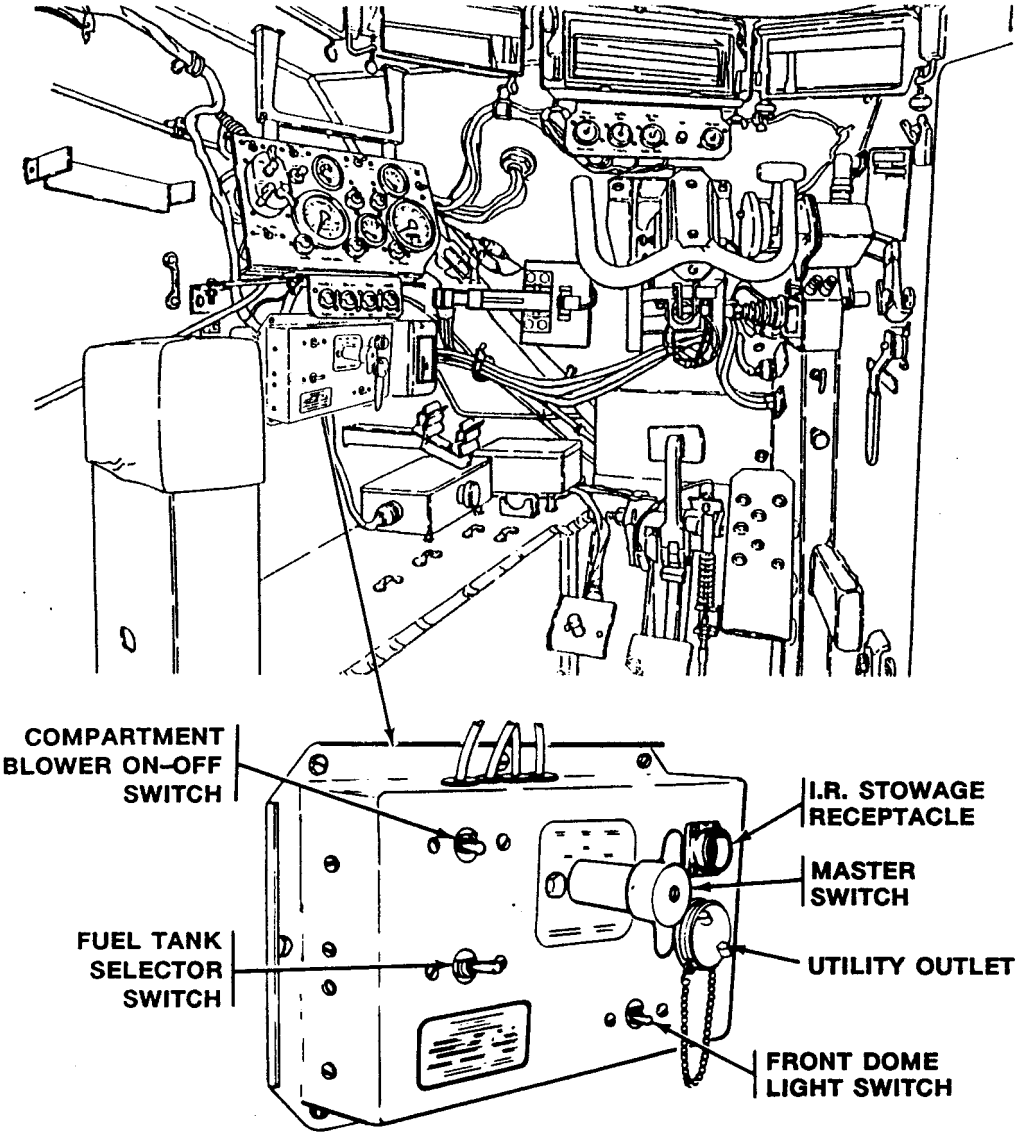
The auxiliary power receptacle, on top deck new driver's hatch, provides for use of 24–volt power dc from an outside source to start engine, charge batteries, and operate electrical equipment. See task: START ENGINE WITH OUTSIDE POWER SOURCE (WP 0022 00).



MASTER SWITCH PANEL (M577A3 AND M1068A3 ONLY)

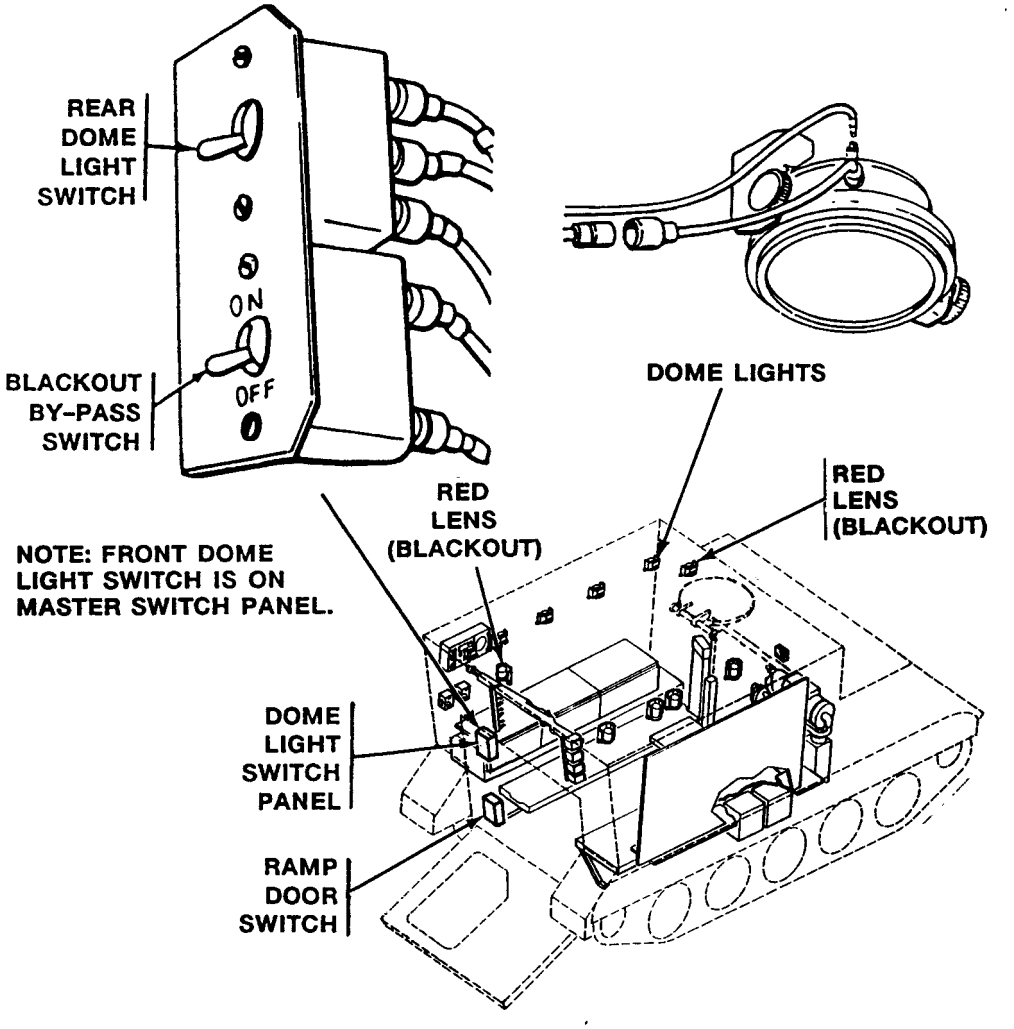
The master switch panel is located below the instrument panel and mounts the master switch, infrared (I.R.) stowage receptacle, utility outlet, fuel tank selector switch, compartment blower ON-OFF switch, and front dome light switch.

The fuel selector switch is set left or right to read the quantity of fuel in either tank. The compartment blower ON-OFF switch controls the compartment blower. The front dome light switch controls the dome lights.



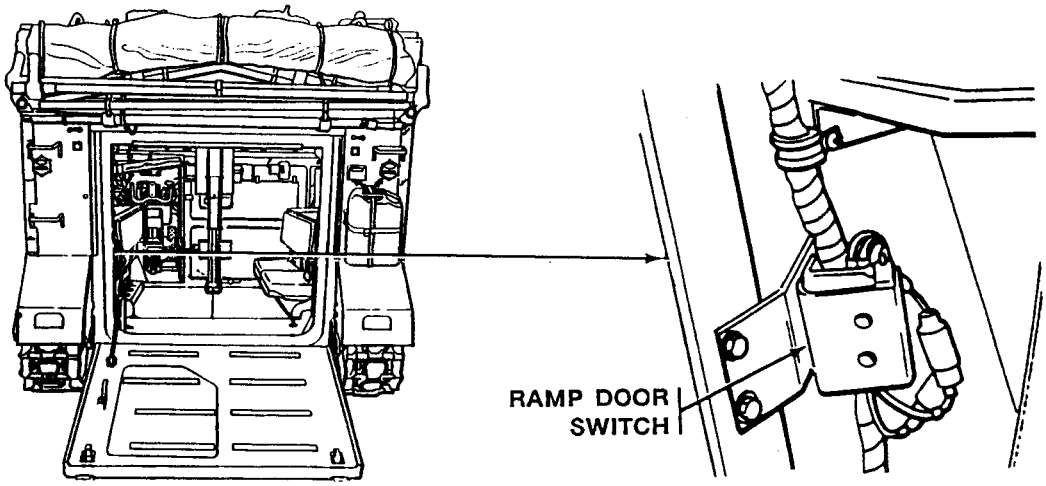
DOME LIGHTS AND SWITCHES (M577A3 AND M1068A3 ONLY)

The command post has nine dome lights (white lens) and two blackout dome lights (red lens) mounted on the ceiling. Each light can be adjusted individually.



Turn on dome lights from either the front dome light switch (on master switch panel) or at the rear dome light switch near the ramp. To do this, the blackout by-pass switch must be OFF, the ramp up, and the rear door closed.

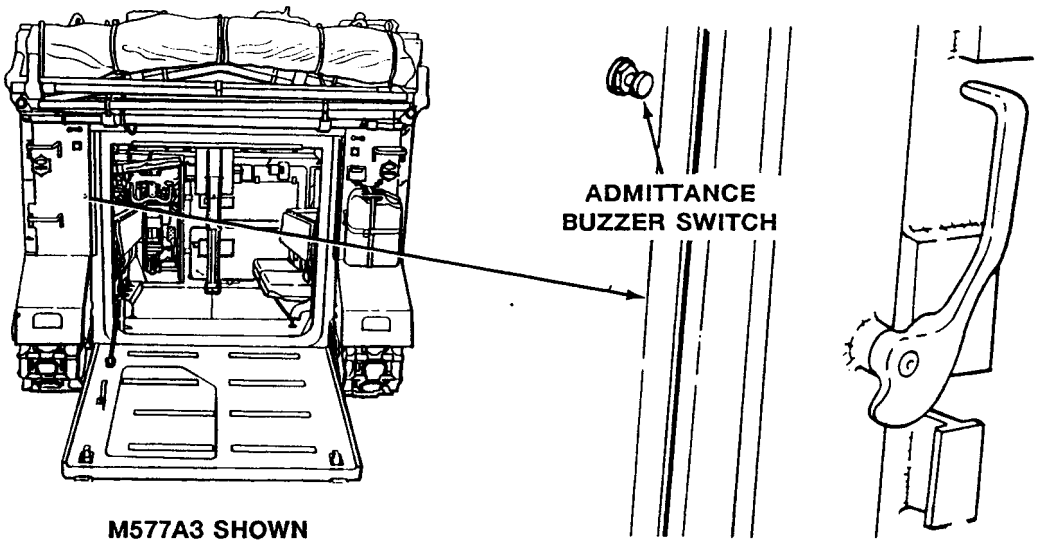
If the rear door is open, or the ramp door switch automatically cuts off current to the nine dome lights (white lens) and directs current to the two blackout dome lights (red lens). The two blackout dome lights will then turn on or off depending upon the position of the dome light switch.



M577A3 SHOWN

ADMITTANCE BUZZER SWITCH (M577A3 AND M1068A3 ONLY)

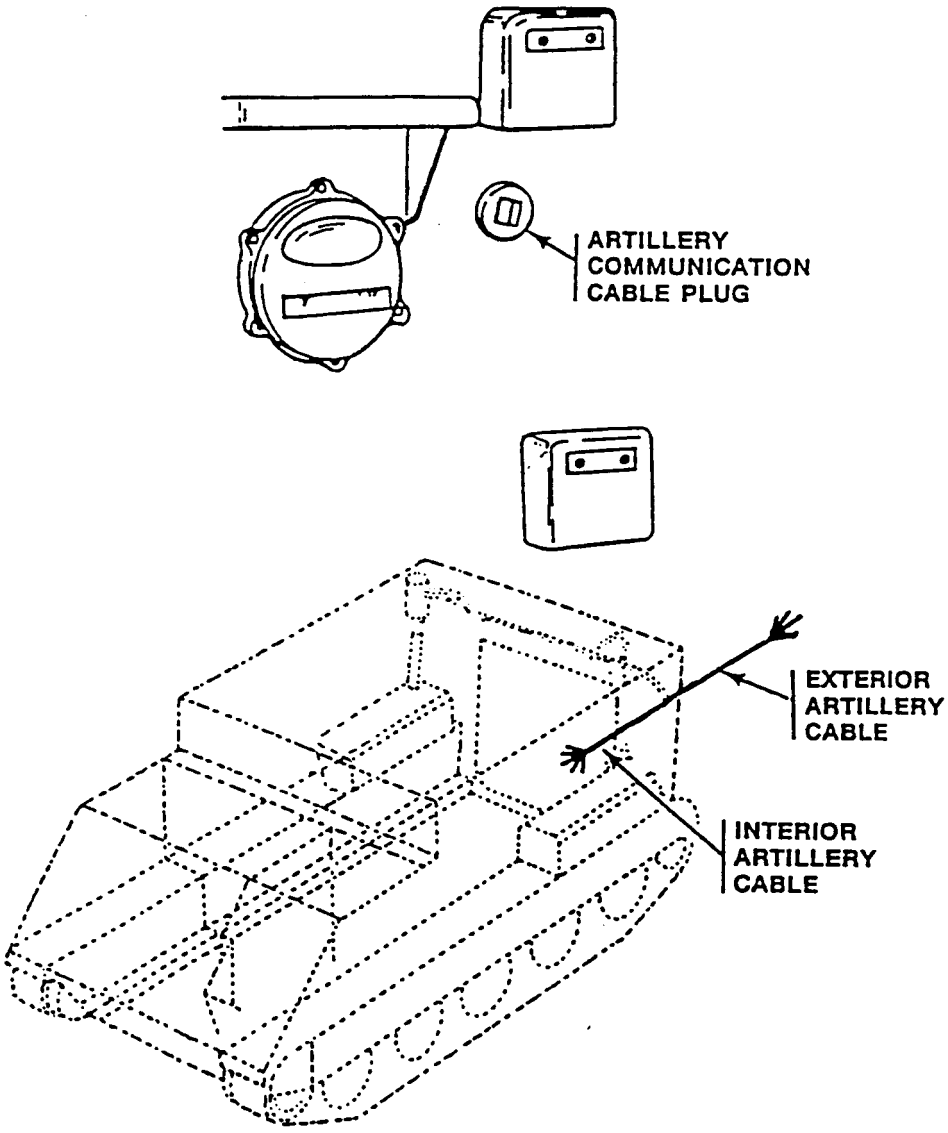
Press the admittance buzzer switch to alert personnel inside the carrier so they can make sure the blackout lights are on before you enter the carrier.



M577A3 SHOWN

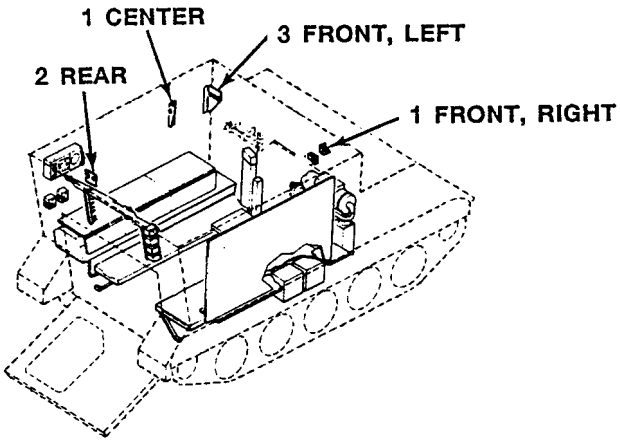
ARTILLERY COMMUNICATION CABLES (M577A3 ONLY)

When the M577A3 is operated as an artillery command post, the artillery communication cable plug on left rear hull plate is removed. Two cables (one inside carrier, one outside) connect with terminal boards to complete the communication network.

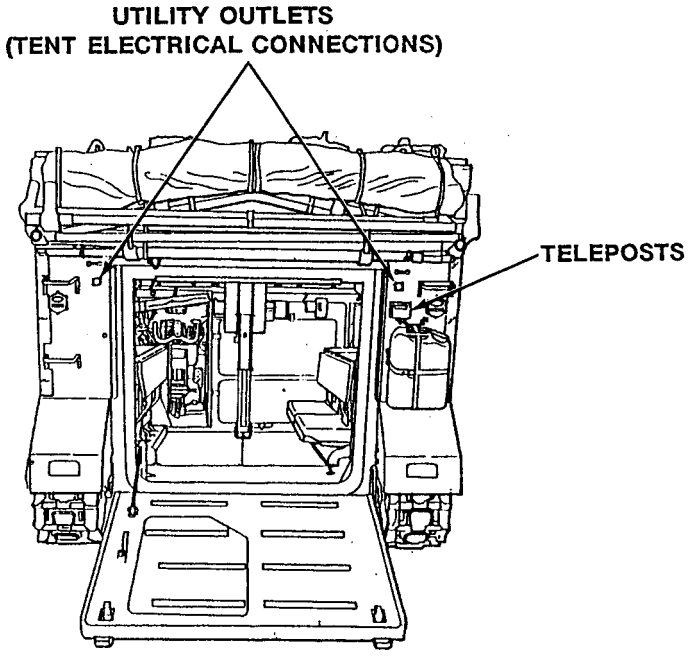


COMMUNICATION RECEPTACLES AND UTILITY OUTLETS (M577A3 ONLY)

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.



Two utility outlets, one on each side of the ramp, are used to operate 24–volt accessories or to light the tent.



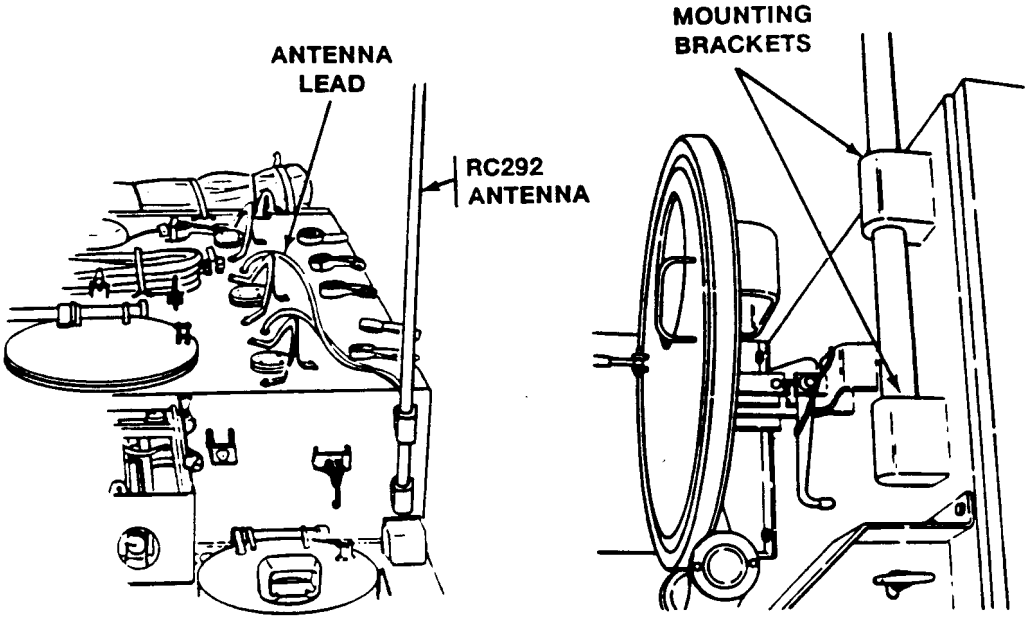
ANTENNA MAST BRACKETS (M577A3 AND M1068A3 ONLY)

The antenna mast brackets mounted behind the driver's hatch are used to mount the RC292 antenna. The RC292 is a ground plane whip antenna that will increase the communication range of the radio sets. It consists of a 30-foot mast, a 68-foot, 50-ohm lead-in cable, and antenna sections.

WARNING

If antennas touch electric power lines, you could be electrocuted. Make sure radio antennas have clearance when carrier is operating near electric power lines.

Place antenna in mounting brackets. Remove and stop pipe plug from top deck, and insert antenna lead through hole. Connect lead to radio as shown in TM 11-5820-348-15.



POWER ENTRY BOX ASSEMBLY — M1068A3 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. When working inside equipment with power off, take special care to ground every capacitor likely to hold a dangerous potential.

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 A.C. power cable) provides the ability to receive or supply A.C. 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 A.C. 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.

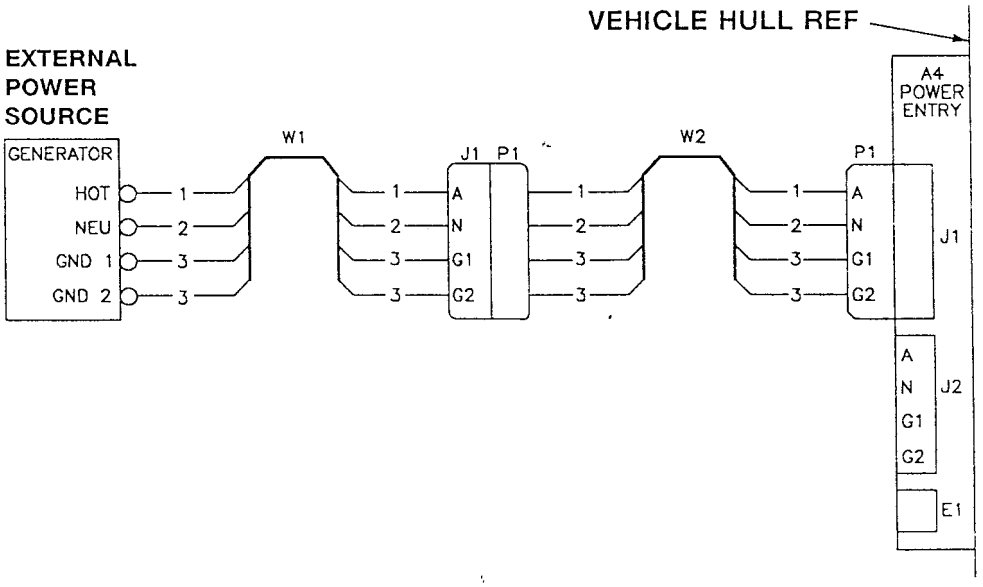
Cable W1 and W2 are located just behind the generator on top of the carrier. Cable 2 has connectors on both ends which allow it to be connected between other systems. Cable W1 has a connector on one end and pigtails (loose wires) on the other end. This allows connection to power sources other than a 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 parentheses 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.



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 0090 00). See chapters 2, 4, 5, and 6 for operation of kits peculiar to the M113A3, M981A3, M901A3, M58, M577A3, M1068A3, M1064A3, and M1059A3. These kits include:

Personnel Heater Kit — All Carriers
Engine Coolant Heater Kit — All Carriers
Hospital Litter Kit — M113A3 Only
Windshield Kit — All Carriers
Gas Particulate Filter Unit M8A3 (NBC Kit) — All Carriers
Capstan and Anchor Kits — M1059A3
Smoke Grenade Launcher Kit — M113A3, M901A3, M981A3, M1059A3, and M58

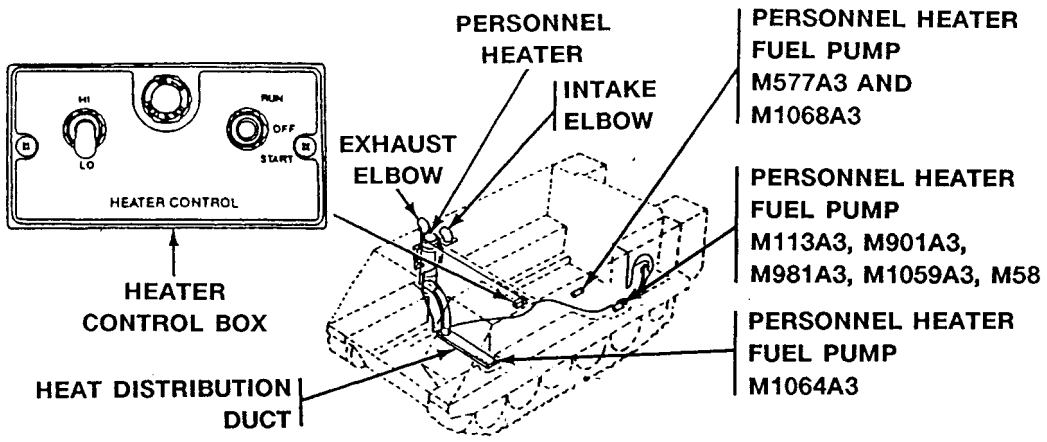
PERSONNEL HEATER KIT — ALL CARRIERS. Provides heat to the rear compartment and driver's compartment during cold weather. It circulates warm air from the fresh air heater mounted in the right front corner of the rear compartment. A heat duct along the front floor is manually controlled to direct the heat. 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. Location of the fuel pump for the personnel heater varies with each vehicle. The M113A3, M901A3, M981A3, M1059A3, and M58 fuel pump is located as shown below. The M577A3 and M1068A3 fuel pump is located in the rear center under the floor plate. The M1064A3 fuel pump is located in the left front of the rear compartment under the floor plate.

WARNING

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

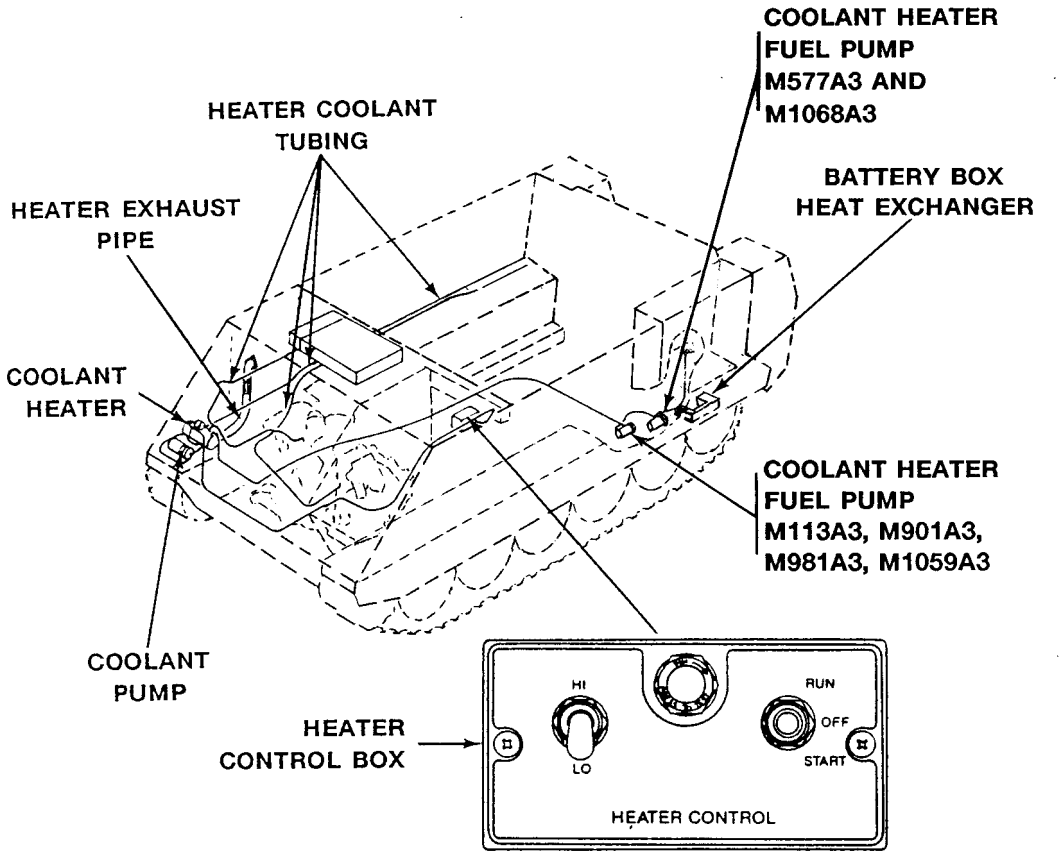
WARNING

Heater exhaust fumes contain deadly poisonous gases. Severe exposure can cause death or permanent brain damage. Turn heater off if you smell or suspect exhaust gas inside personnel compartment.



EQUIPMENT DESCRIPTION — Continued **0002 00**

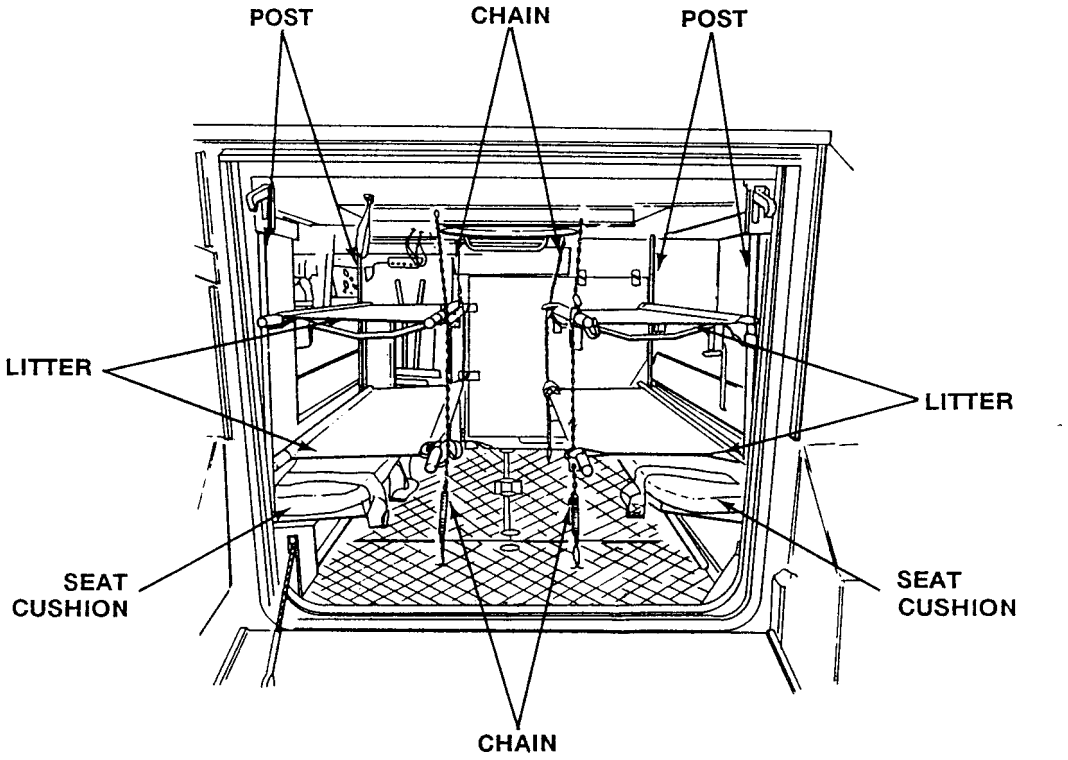
ENGINE COOLANT HEATER KIT — ALL CARRIERS. Heats and circulates coolant through the engine and battery box heat exchanger. After stopping a warm engine, the heater is started. It will keep engine oil, engine block, and batteries warm for 12 hours and permit restarting engine. The coolant heater is mounted in the power plant compartment. A coolant pump circulates coolant through tubing to the engine and battery box heat exchanger. The 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. Coolant shutoff valves, at heater and engine block, control flow of coolant into heater.



HOSPITAL LITTER KIT — M113A3 ONLY. Converts the M113A3 carrier into an ambulance to carry sick or wounded personnel. The kit has four support post 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.

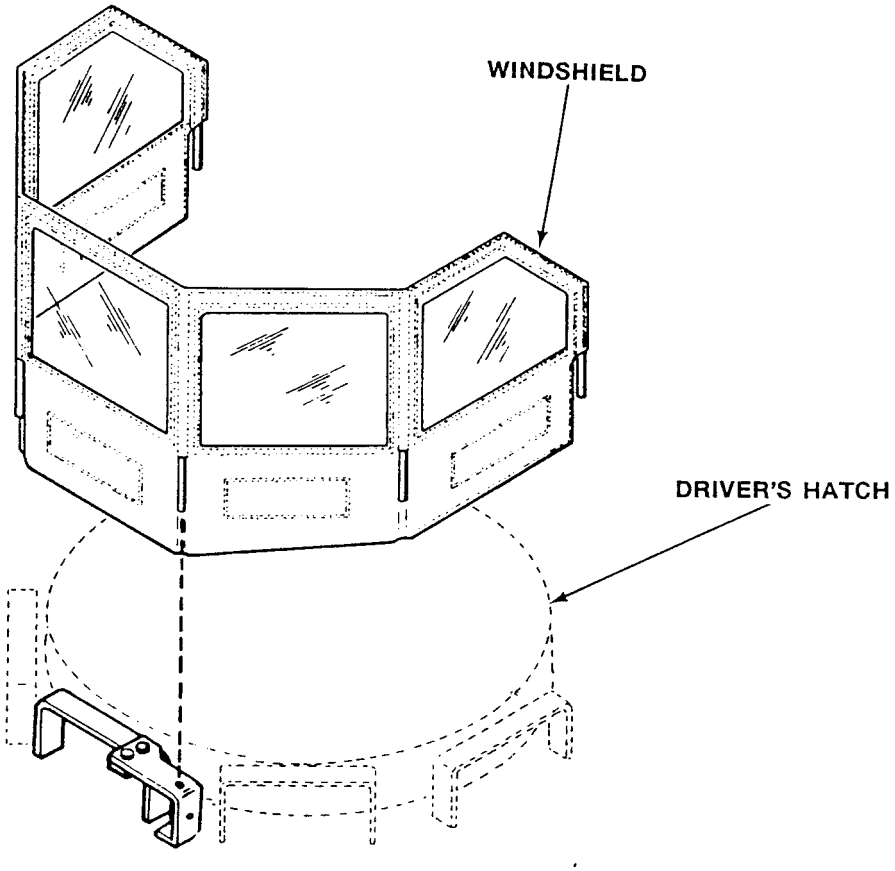
WARNING

Remove machine gun and all ammunition when operating M113A3 as litter carrier. It is also recommended that the commander's seat and platform be removed. Display a red cross symbol on outside of carrier.



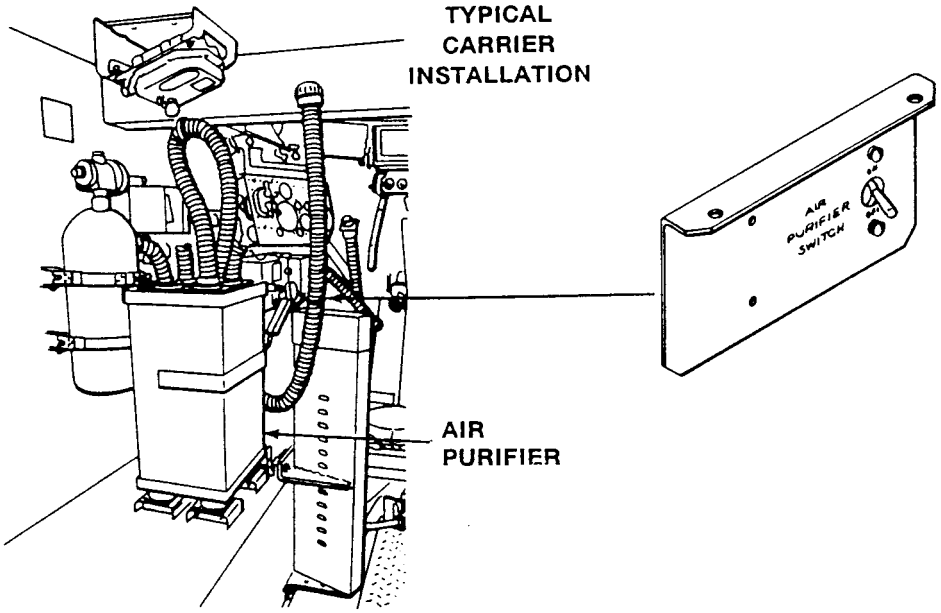
EQUIPMENT DESCRIPTION — Continued **0002 00**

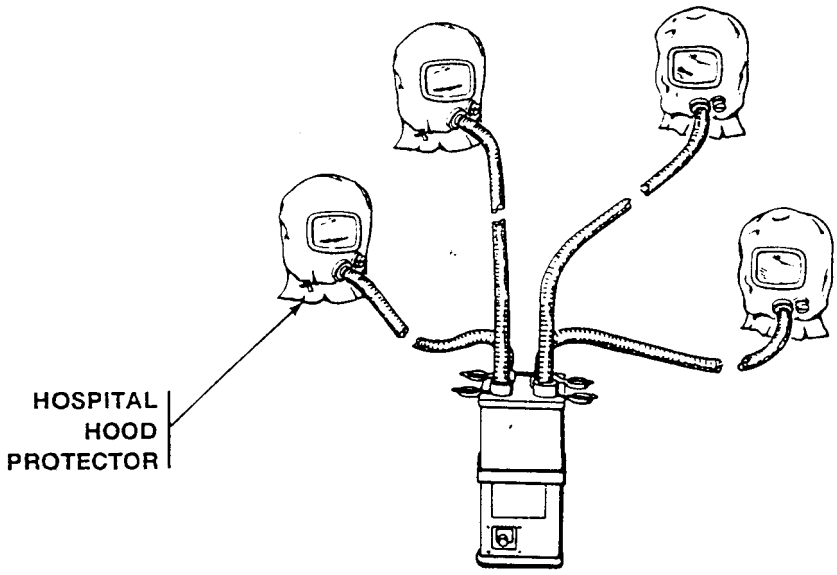
WINDSHIELD KIT — ALL CARRIERS. Provides driver with protection from cold winds when driving with hatch open. It has five windows curved around the driver's hatch and is removable. When not in use, kit is placed in stowage bag and stowed in carrier. See stowage diagrams, Appendix E.



EQUIPMENT DESCRIPTION — Continued **0002 00**

GAS PARTICULATE FILTER UNIT M8A3 (NBC KIT) — ALL CARRIERS. Provides a filter unit and gas masks for protection against Nuclear, Biological, and Chemical attacks. All carriers have resilient rubber mounts on which to mount the purifier unit. The M8A3 filter kit consists of an M2A2 air purifier, four hose assemblies carry purified air to the gas mask (or hospital hood protector headpiece for M113A3 only). The circuit breaker and switch assembly are connected between the carrier power source and the motor in the air purifier. For further information, see TM 3-6680-316-10.

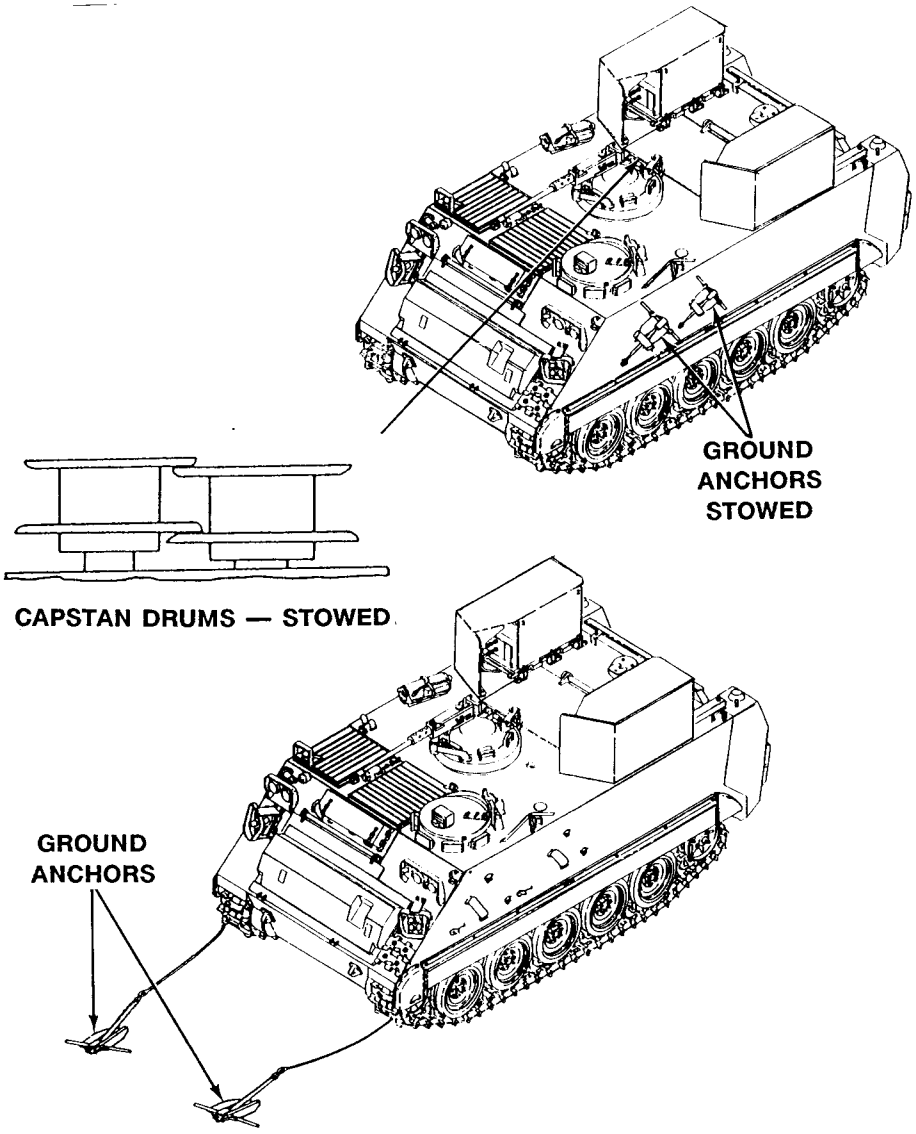




TYPICAL LITTER KIT INSTALLATION (M113A3 ONLY)

EQUIPMENT DESCRIPTION — Continued **0002 00**

CAPSTAN AND ANCHOR KITS — M1059A3. Provide a system to pull carriers out of mud, soft dirt, or swampy areas. Act as 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.

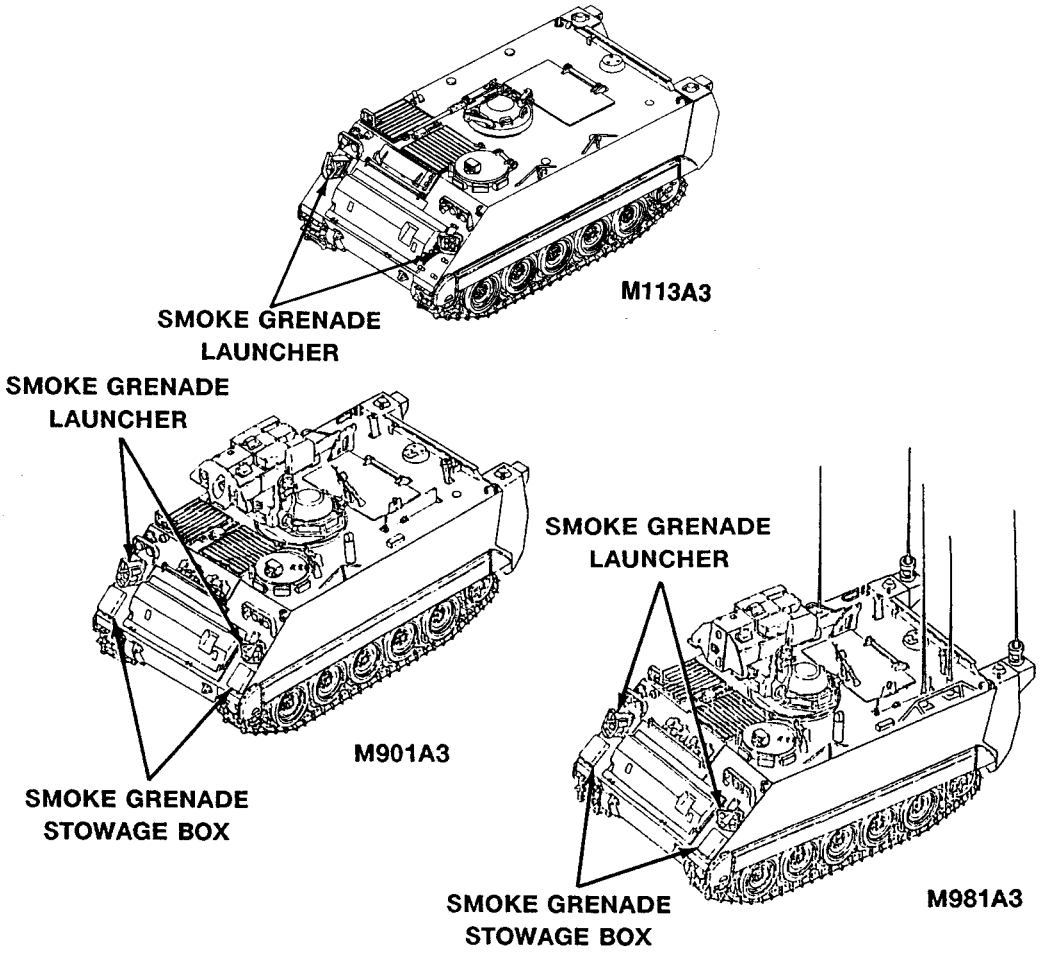


EQUIPMENT DESCRIPTION — Continued **0002 00**

SMOKE GRENADE LAUNCHER — M113A3, M901A3, M981A3, M1059A3, AND M58. 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. The M901A3 and M981A3 have two stowage boxes for eight grenades to be stored externally on front slope of carrier.

NOTE

The M113A3, M901A3, and M981A3 carriers are shown.



DIFFERENCES BETWEEN CARRIERS

The following table lists the major differences between carriers.

DIFFERENCES BETWEEN CARRIERS

Difference	M113A3	M577A3	M981A3	M901A3	M1059A3	M1064A3	M1068A3	M58
Carrier Function								
Anti-Tank TOW				X				
Command Post		X					X	
Fire Support			X					
Mortar						X		
Personnel/Cargo Carrier	X							
Smoke Generator					X			X
Armament								
Machine Gun 50 Caliber	X				X	X		X
Machine Gun M60 (7.62)			X	X				
Mortar 120-mm						X		
TOW Launcher				X				
Vision Devices								
Driver's Vision Enhancer								X
Driver's Night Vision	X	X	X	X	X	X	X	X
Periscope M17	X	X	X	X	X	X	X	X
Mission Equipment								
Air Grill Curtain	X	X		X	X	X	X	
5.0 KW Auxiliary Power Unit		X					X	
4.2 KW Generator Set & Cover		X					X	
Modular Cmd Post Sys							X	
Smoke Generator					X			X
Tent (Covered Extension)		X						
NBC M8A3	X							
Kits								
Ammo Stowage Adapter				X				
Capstan					X			
Cupola Lock	X				X			
Driver's Windshield	X	X	X	X	X	X	X	X
Engine Coolant Heater	X	X	X	X	X	X	X	X
Hospital Litter	X							
Machine Gun Stowage	X							
Marine Recovery					X			
NBC		X	X	X			X	X
Personnel Heater	X	X	X	X	X	X	X	X
Smoke Grenade Launcher	X		X	X	X			X
Water/Ration Heater	X							

EQUIPMENT DATA

GENERAL

Crew (including driver):	
M113A3	2 plus 11 Troops
M577A3	5
M981A3	4
M901A3	5
M1059A3	3
M1064A3	4
M1068A3	4
M58	3

SIZE

Length:	
All carriers except M577A3, M1068A3, M981A3, and M901A3	209-3/8 in. (531.83 cm)
M577A3	191 in. (435.14 cm)
M1068A3	202 in. (513.08 cm)
M981A3 and M901A3	213 in. (541 cm)
Width:	
Widest (overall)	105-3/4 in. (268.61 cm)
Narrowest (shrouds off)	100 in. (254 cm)
Height:	
To top of machine gun pintle M113A3 and M1064A3	87-1/2 in. (222.25 cm)
To top of antenna guards M577A3 and M1068A3	106-1/2 in. (270.51 cm)
M981A3 and M901A3	134-1/4 in. (341 cm)
To top of smoke generator: M1059A3	100-3/4 in. (255.91 cm)
To top of smoke guard: M58	91 in. (231.14 cm)
Clearance above ground	17-1/8 in. (43.48 cm)

WEIGHT

With full load (gross):	
M113A3	27,200 lb (12,349 kg)
M577A3	26,000 lb (11,804 kg)
M981A3	27,268 lb (12,380 kg)

M901A3	28,608lb (12,988 kg)
M1059A3	26,600 lb (12,076 kg)
M1064A3	28,240 lb (12,821 kg)
M1068A3	27,000 lb (12,258 kg)
M58	27,200 lb (12,349 kg)
Ground pressure (at gross):	
M113A3 and M58	8.67 psi (59.8 kPa)
M577A3	8.26 psi (57 kPa)
M981A3	8.54 psi (58.9 kPa)
M901A3	9.08 psi (62.6 kPa)
M1059A3	7.34 psi (50.6 kPa)
M1064A3	14.0 psi (96.5 kPa)
M1068A3	9.38 psi (64.7 kPa)
Bridge weight classification:	
Combat loaded	13
Empty	12

CENTER OF GRAVITY

Above ground:	
M113A3	40-13/16 in. (104.7 cm)
M577A3	43-1/2 in. (110.5 cm)
M1064A3	40 in. (102 cm)
M981A3, M901A3	45 in. (114.3 cm)
M1059A3	40-13/16 in. (104.7 cm)
M1068A3	43-5/8 in. (110.8 cm)
M58	39-35/64 in. (100.5 cm)
Distance behind center of sprockets:	
M113A3	95-5/16 in. (242.1 cm)
M577A3	79.25 in. (201.3 cm)
M981A3, M901A3	94-15/16 in. (241.14 cm)
M1059A3	95-13/32 in. (242.3 cm)
M1064A3	85-3/4 in. (217.8 cm)
M1068A3	78-7/8 in. (200.3 cm)
M58	83-35-64 in. (212.2 cm)

PERFORMANCE (LAND)

Fastest forward speed	40 mph (65.5 kph)
Fastest reverse speed	6 mph (9.7 kph)
Number of road wheels	5 pairs per side
Cruising range at 25 mph average:	
M113A3, M981A3, M901A3, M1059A3, M1064A3, M58	300 m (480 km)
M577A3, M1068A3	425 m (680 km)
Steepest grade	60 percent
Steepest side slope	30 percent
Highest wall climb	2 ft. (0.7 m)
Widest trench	5-1/2 ft (1.67 m)
Maximum towed load	14,500 lb (6583 kg)
Track width	21 in. (53.3 cm)

PERFORMANCE (WATER)

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

ENGINE

Type	6 cylinder, V-type turbocharged, 2 cycle Diesel
Horsepower	275 at 2800 rpm
Idle speed	650-700 rpm
Maximum governed speed:	
Full load	2800 rpm
No load	2950-3000 rpm
Normal operating temperature range	190° to 230°F (87.8° 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	13.3 gal (50.34 liter)
Radiator cap pressure rating	13-18 psi (89.63-124.11 kPa)
Oil:	
Engine	22 qt (20.8 liter)
Transmission	36 qt (34.1 liter)
Final drive (each)	3-1/2 qt (3.3 liter)
Fan gearbox	18 oz (0.53 liter)
Diesel fuel:	
Capacity: M113A3, M981A3, M901A3, M1059A3, M1064A3, M58	95 gal (359.6 liter)
M577A3, M1068A3	120 gal (456 liter)
Maximum filling rate	50 gpm (189.3 liter/m)
Ramp hydraulic system	2 qt (1.9 liter)

M157 SMOKE GENERATOR (M1059A3 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)

M58 SMOKE OBSCURANT SYSTEM (M58 ONLY)

For Equipment Data	see TM 3-1040-285-10

TRACKS

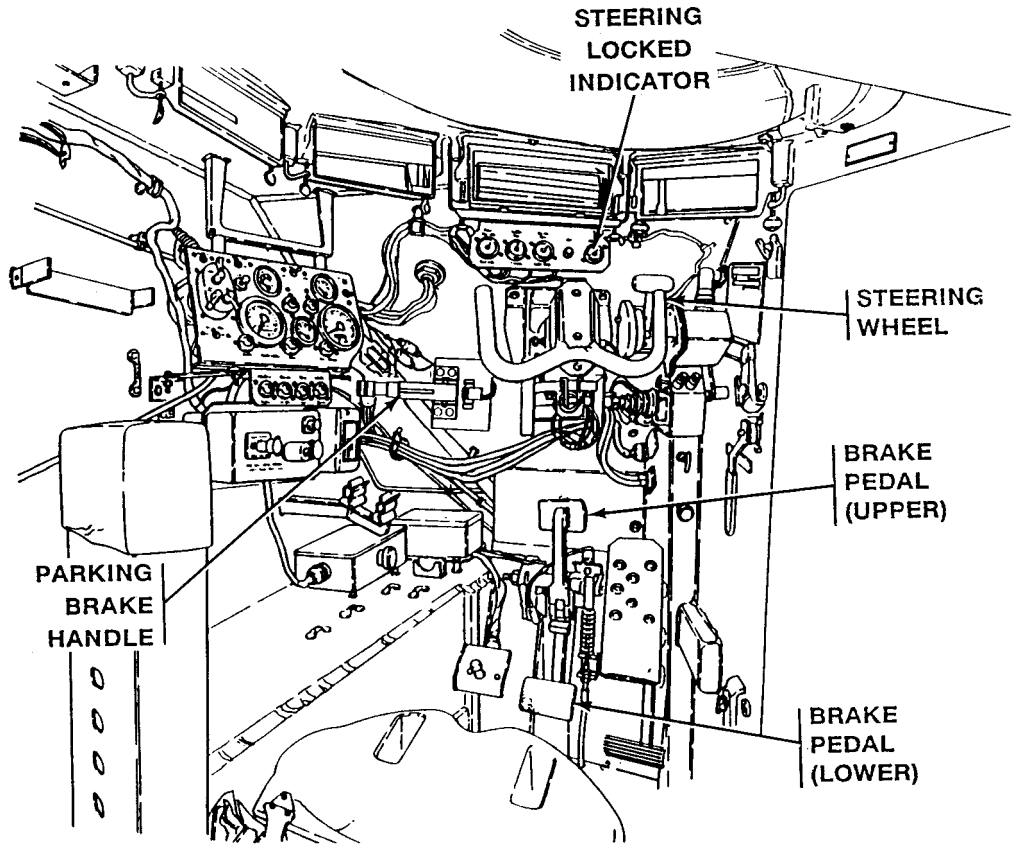
Track shoes, left (when new)	63
Track shoes, right (when new)	64

THEORY OF OPERATION 0003 00

HULL

STEERING AND BRAKING SYSTEM

The steering and braking systems are an integral part of the crossdrive transmission. The main controls are located in the driver's compartment. Center the steering wheel and set the transmission controller to the SL (steering lock) position whenever the carrier is being started, idling, or shutdown. When the steering wheel is centered and locked, the STEERING LOCKED indicator will light. If the steering wheel is not centered and locked, the carrier will turn (pivot) regardless of the position of the transmission controller. To pivot the carrier, the transmission controller should be set to PV (pivot vehicle) position. The service brakes are operated similar to any automobile. The lower pedal is for normal operations, the upper pedal is used when driving with the seat in the raised position. To operate the parking brake, apply pressure to the service brake and then pull up on parking brake handle.



DRIVER'S CONTROLS

The engine, transmission, steering system, and 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 and braking are controlled through linkages connected to the transmission. The hand brake is hand controlled.

ENGINE AND DRIVE TRAIN

The engine converts air and diesel fuel into energy. The engine delivers this power to the transmission, variable speed alternator, and fan drive. The variable speed alternator, and fan drive, drives the alternator and cooling fan. Air for combustion flows through the air cleaner, turbocharger, and the engine. Fuel flows from the fuel tanks to fuel injectors which inject the fuel into the combustion chambers. A drive train transfers power from the engine to the carrier tracks. The drive train consists of the engine transmission, 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. A mixture of antifreeze and water is pumped through the cooling system to cool the engine and transmission. The engine cooling system has a capacity of 13.3 gallons (50.3 liters).

HULL ELECTRICAL SYSTEM

The electrical system operates on four wet cell batteries connected in series/parallel arrangement. Electrical power flows from the batteries through the distribution box, cables, subsystems assemblies, and to the hull. The hull is a ground.

RAMP

The ramp is located at the rear of the carrier to permit rapid entry and exit. The ramp is hinged at the bottom and has two locks at the top. The ramp is raised or lowered by a hydraulic system. This system consists of a pump attached to the engine, a single action cylinder, and a fluid reservoir.

The M981A3, M901A3, and M58 have a direct vision port in the ramp door.

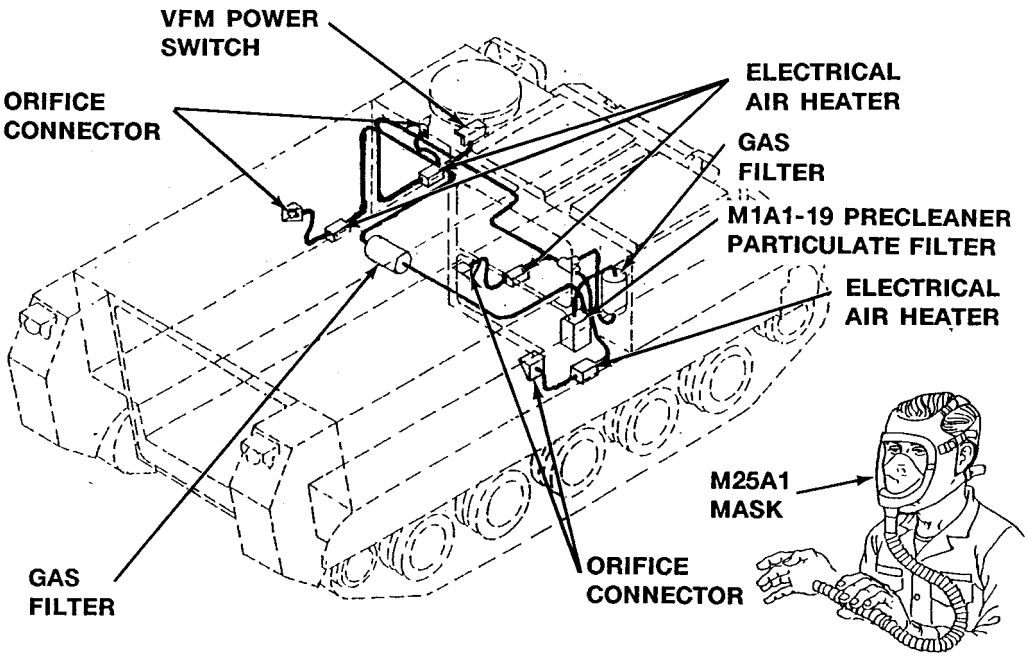
VENTILATED FACE MASK SYSTEM (M981A3 ONLY)

NOTE

Other carriers use the same parts but in different locations. Also, kits are added as required.

NOTE

Other carriers call this system the NBC kits.



VFM POWER SWITCH turns on blower that draws contaminated air into the system.

M1A1–19 PRECLEANER AND PARTICULATE FILTER remove dust and chemical/biological particles.

GAS FILTERS remove chemical agent gases.

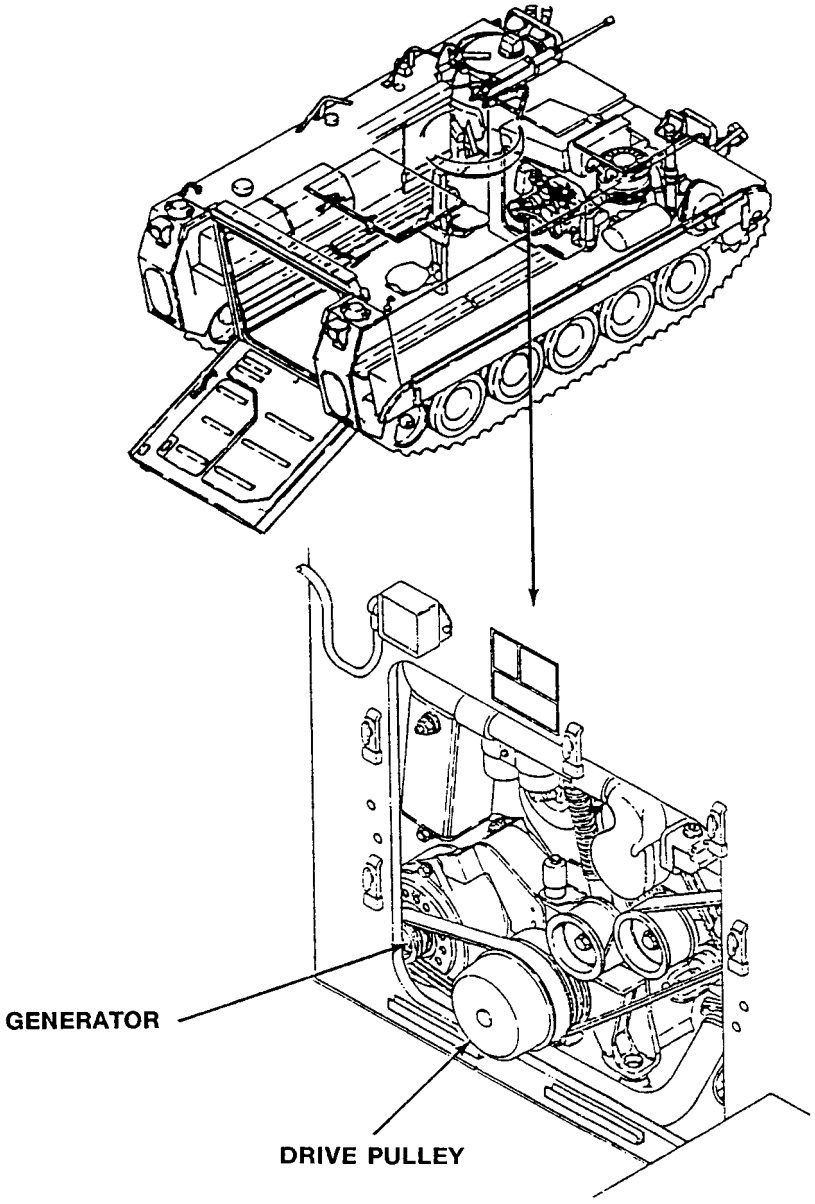
ELECTRICAL AIR HEATERS allow the individual to electrically heat purified air entering his mask.

ORIFICE CONNECTORS are connectors for masks that also control air flow and closes, when not in use, to keep out dirt.

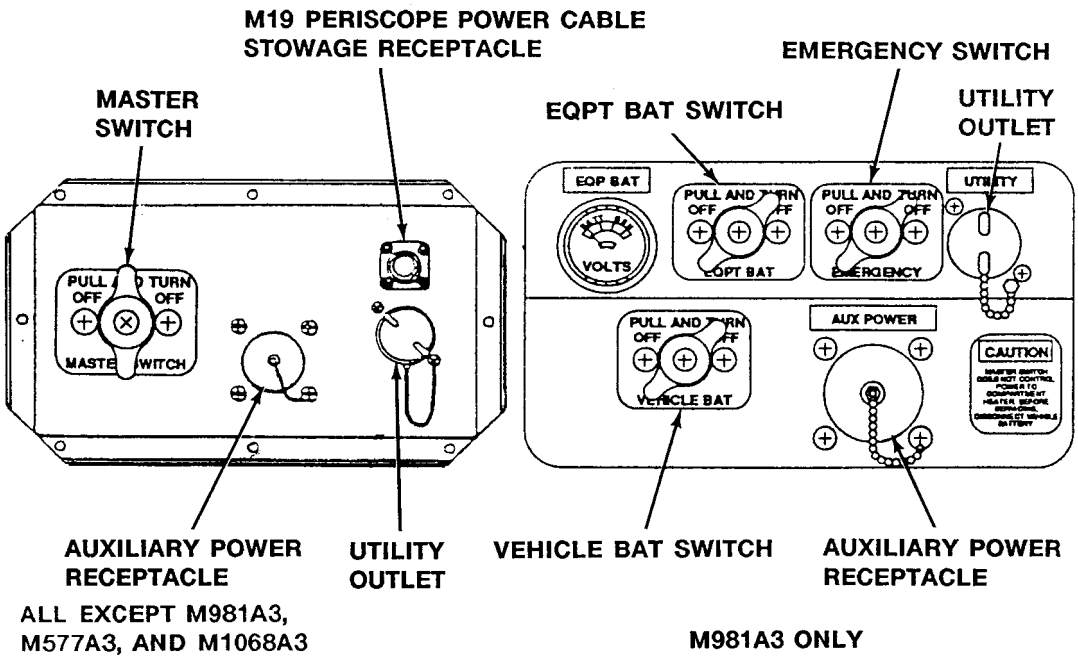
M25A1 MASK connects to orifice and is worn by crewmembers.

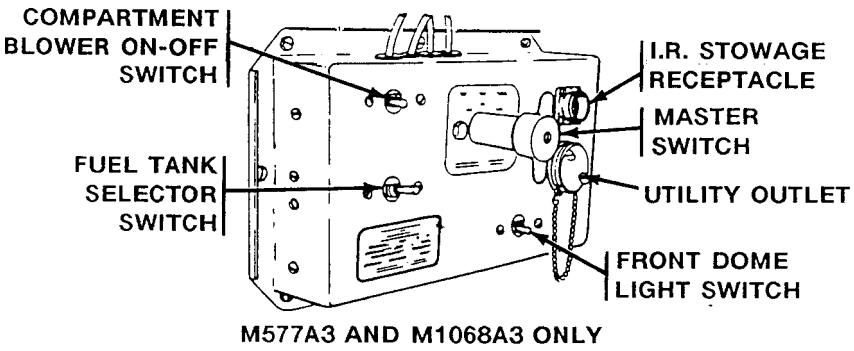
GENERATOR

The generator provides electrical power for all electrical loads and charging the battery. The generator is driven by a drive pulley located on the engine.



MASTER SWITCH PANEL





MASTER SWITCH allows electrical power to flow from the batteries through the distribution box, cabled, subsystems assemblies, and to the hull.

AUXILIARY POWER RECEPTACLE is used with a slave cable to start carrier engine using an outside power source.

AN/VVS-2 DRIVER'S NIGHT VISION POWER CABLE STOWAGE RECEPTACLE is used to stow DNV periscope power cable when driver's night vision is not in use.

UTILITY OUTLET provides power for 24-volt accessories.

VEHICLE BAT SWITCH (M981A3 ONLY) allow power to flow from the vehicle batteried through the distribution box, cables, and to the hull.

EMERGENCY SWITCH (M981A3 ONLY) The EMERGENCY switch, when turned ON with EQPT BAT switch, allows equipment batteries to power the vehicles. When turned on with VEHICLE BAT switch, allows vehicle batteries to power equipment. Turning all three switches ON enables both sets of batteries to be used together.

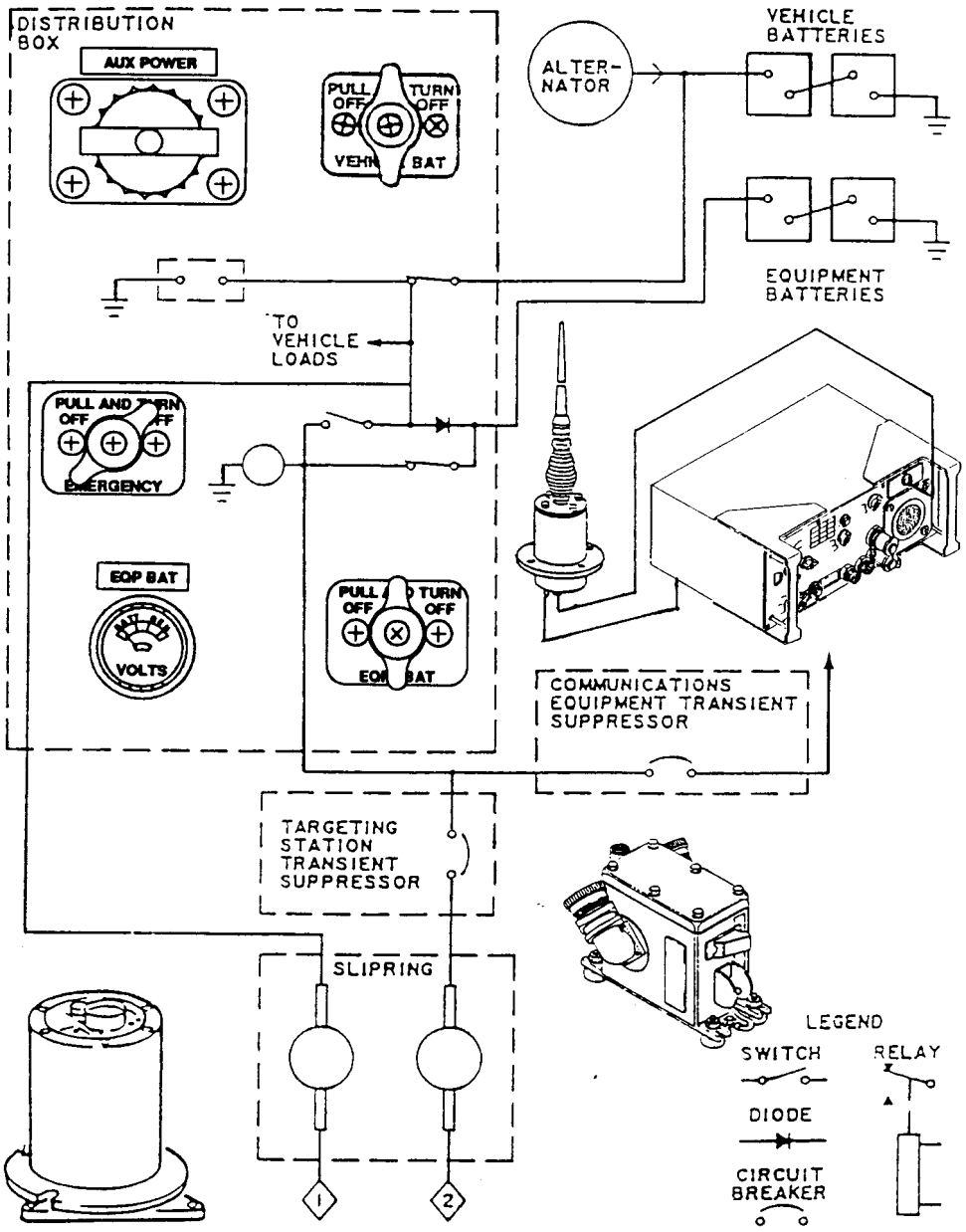
EQPT BAT SWITCH (M981A3 ONLY) Allows equipment batteries to provide power directly to the equipment.

COMPARTMENT BLOWER SWITCH (M577A3 and M1068A3 ONLY) Controls the compartment blower.

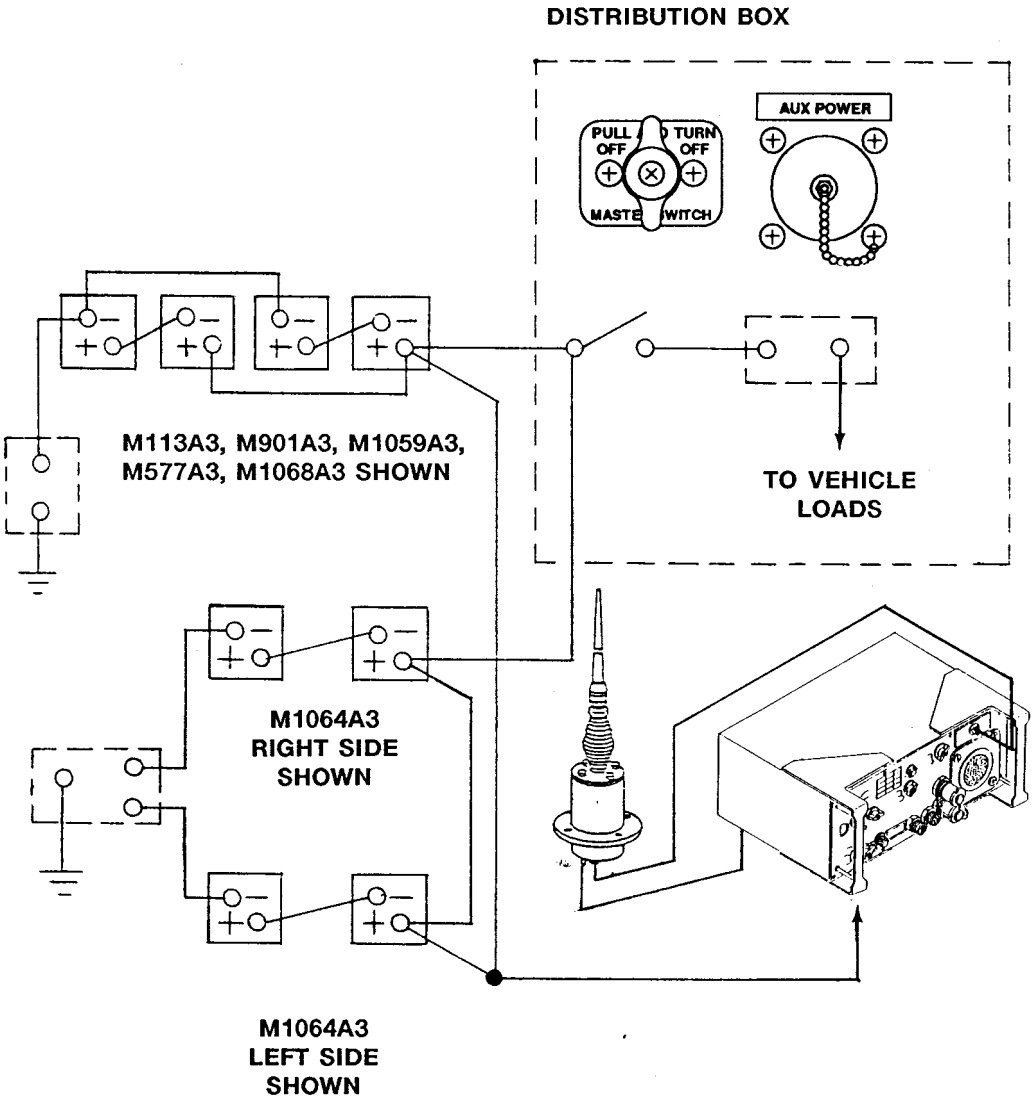
FUEL TANK SELECTOR SWITCH (M577A3 and M1068A3 ONLY) When moved left or right reads quantity of fuel in selected tank.

FRONT DOME LIGHT SWITCH (M577A3 and M1068A3 ONLY) Controls the dome lights.

HULL ELECTRICAL SYSTEM (M981A3 ONLY)



HULL ELECTRICAL SYSTEM



CHAPTER 2

OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX

Title	Sequence No.
DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS	0004 00
OPEN/CLOSE RAMP ACCESS DOOR	0005 00
OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0006 00
OPEN/CLOSE DRIVER'S HATCH (M901A3/M981A3 ONLY)	0007 00
OPEN/CLOSE CARGO HATCH COVER (M113A3, M901A3, M981A3, AND M1059A3 ONLY)	0008 00
OPEN/CLOSE COMMANDER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0009 00
OPERATE COMMANDER'S CUPOLA (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0010 00
OPEN/CLOSE POWER PLANT ACCESS DOOR	0011 00
LOWER/RAISE RAMP	0012 00
ADJUST DRIVER'S SEAT	0013 00
ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS	0014 00
ADJUST COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0015 00
STOW/UNSTOW COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0016 00
STOW/UNSTOW JUMP SEAT (M113A3 AND M1059A3)	0017 00
CONNECT CVC HELMET TO INTERCOM CONTROL BOX	0018 00
CONNECT CVC HELMET TO VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS)	0019 00
SET/RELEASE PARKING BRAKE	0020 00
START ENGINE	0021 00
START ENGINE WITH OUTSIDE POWER SOURCE	0022 00
DRIVE CARRIER	0023 00
STOP ENGINE	0024 00
FUEL CARRIER	0025 00
REFUEL CARRIER (M577A3 AND M1068A3 ONLY)	0026 00
INSTALL/REMOVE WINDSHIELD	0027 00
OPERATE PERSONNEL HEATER	0028 00
OPERATE PERSONNEL COMPARTMENT VENTILATOR	0029 00
OPERATE CARRIER LIGHTS	0030 00
OPERATE FIXED FIRE EXTINGUISHER SYSTEM	0031 00
OPERATE PORTABLE FIRE EXTINGUISHER	0032 00
INSTALL/REMOVE M17 PERISCOPES	0033 00
INSTALL/REMOVE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58)	0034 00
OPERATE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58)	0035 00
INSTALL/REMOVE MACHINE GUN (M2, .50 CAL) (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0036 00
SECURE MACHINE GUN (M2, .50 Cal) FOR TRAVEL (M113A3, M1059A3, M1064A3, AND M58 ONLY)	0037 00

CHAPTER 2

OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
SECURE MACHINE GUN (M2, .50 Cal) TO ARMOR SHIELD FOR TRAVEL (M113A3, M1059A3, AND M1064A3 ONLY)	0038 00
LOWER/STOW TRIM VANE	0039 00
REMOVE/INSTALL POWER PLANT ACCESS PANELS	0040 00
POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (M113A3 ONLY)	0041 00
BLOCK/UNBLOCK CARRIER TRACKS	0042 00
INSTALL/REMOVE WATER/RATION HEATER	0043 00
OPERATE WATER/RATION HEATER	0044 00
OPERATE AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3 ONLY)	0045 00
OPEN/CLOSE COMMANDER'S HATCH (M577A3 AND M1068A3 ONLY)	0046 00
OPERATE COMMANDER'S PLATFORM (M577A3 AND M1068A3 ONLY)	0047 00
OPEN/CLOSE DRIVER'S HATCH (M577A3 AND M1068A3 ONLY)	0048 00
RAISE/LOWER DROP LEAF TABLES (M577A3 ONLY)	0049 00
INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A3 AND M1068A3 ONLY)	0050 00
UNSTOW/STOW MAP TABLE AND BOARD (M577A3 AND M1068A3 ONLY)	0051 00
OPEN/CLOSE MORTAR HATCH COVER (M1064A3 ONLY)	0052 00
INSTALL AIR GRILLE CURTAIN (M1064A3)	0053 00
REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A3 AND M1068A3 ONLY)	0054 00
OPERATE GENERATOR SET (M577A3 AND M1068A3 ONLY)	0055 00
SET UP COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY)	0056 00
DISMANTLE/STOW MODULAR COMMAND POST SYSTEM (MCPS) (M1068A3 ONLY)	0057 00
INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER (M577A3 ONLY)	0058 00
DISMANTLE/STOW COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY)	0059 00
REFUEL GENERATOR SET (M577A3 AND M1068A3 ONLY)	0060 00
OPERATE IN EXTREME COLD: BELOW -25°F (-31°C)	0061 00
OPERATE ENGINE COOLANT HEATER (BELOW –25°F (–31°C))	0062 00
ERECT/STOW WATER BARRIER (ALL EXCEPT M981A3 AND M1064A3)	0063 00
FORD WATER UP TO 40 INCHES DEEP	0064 00
PERFORM POST-FORDING OPERATIONS	0065 00
PREPARATION BEFORE WATER OPERATION	0066 00
CARRIER DIP CHECK (ALL EXCEPT M981A3)	0067 00
WATER OPERATION: ENTERING THE WATER (ALL EXCEPT M981A3)	0068 00
STEERING CARRIER IN THE WATER	0069 00
STOPPING CARRIER IN THE WATER	0070 00
LEAVING THE WATER	0071 00
AFTER WATER OPERATIONS	0072 00
OPERATE CARRIER OVER ROUGH TERRAIN	0073 00
OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS	0074 00

CHAPTER 2

OPERATOR INSTRUCTIONS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
BYPASS DEFECTIVE TRANSMISSION CONTROLLER	0075 00
SECURING INOPERABLE/UNSAFE RAMP	0076 00
TOWING DISABLED CARRIER	0077 00
TOW START DISABLED CARRIER	0078 00
TOWING TRAILER WITH CARRIER	0079 00
OPERATE NBC KIT	0080 00
OPERATE NBC SYSTEM	0081 00
OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3)	0082 00
COVER/UNCOVER INTAKE AND EXHAUST GRILLES	0083 00
EMERGENCY OPERATION OF VEHICLE AND CHARGING ALL BATTERIES (M981A3 ONLY)	0084 00
OPERATE PANORAMIC TELESCOPE (M901A3/M981A3 ONLY)	0085 00
OPERATE GLOW PLUG COLD START SYSTEM (MANUAL OVERRIDE)	0086 00

DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS 0004 00

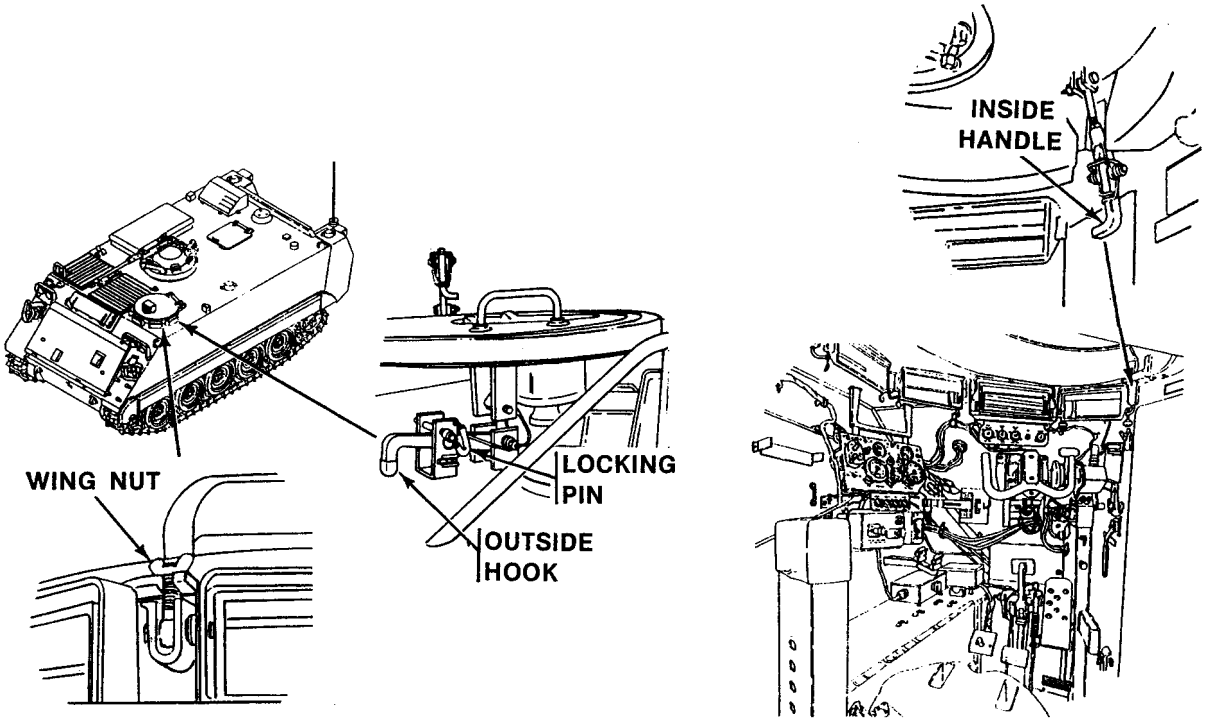


Table 1. DRIVER'S HATCH CONTROLS (M113A3, M1059A3, M1064A3, AND M58 ONLY)

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.
	WING NUT	Locks and unlocks driver's hatch cover from outside the carrier. Used when carrier is not being operated.

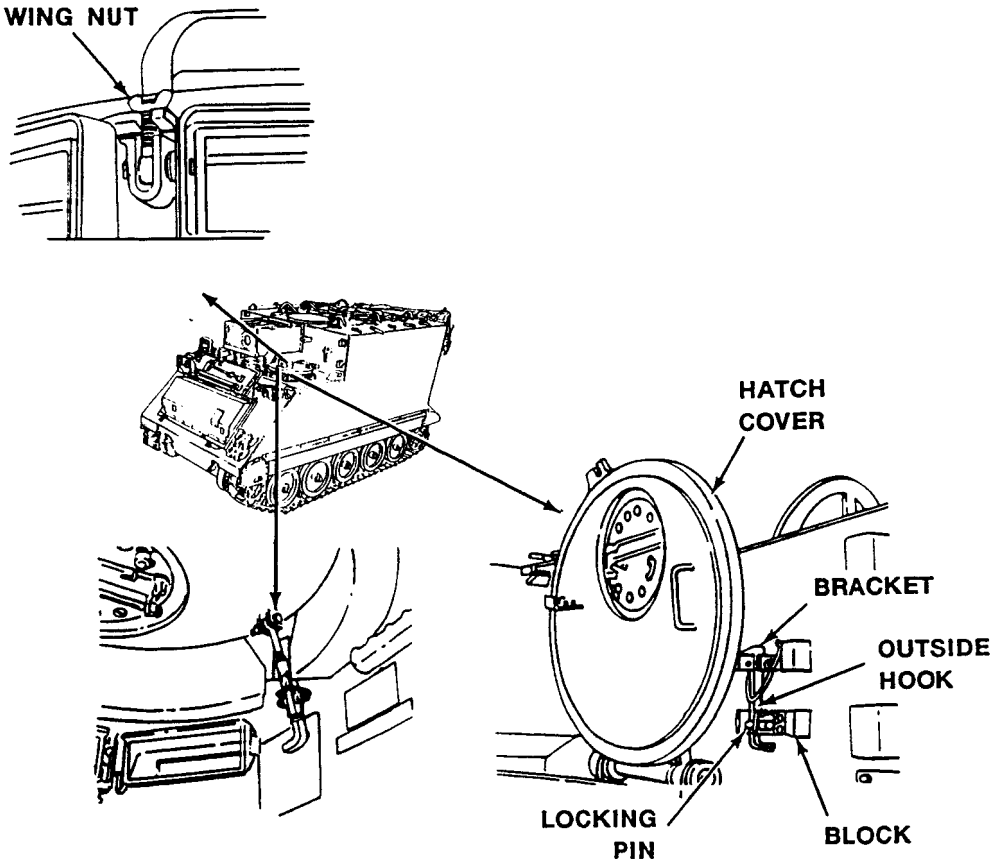
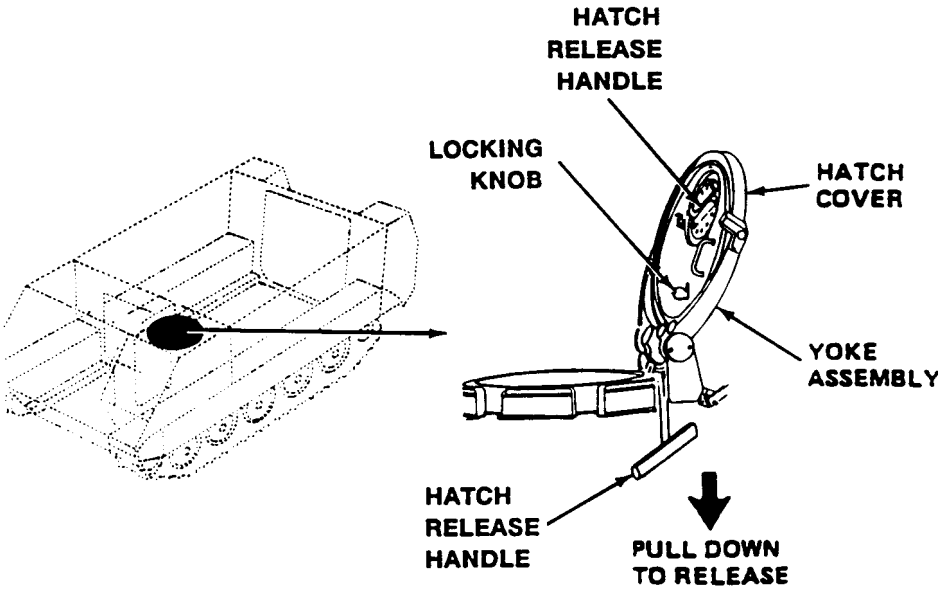


Table 2. DRIVER'S HATCH CONTROLS (M577A3 AND M1068A3 ONLY)

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.
	WING NUT	Locks and unlocks driver's hatch cover from outside the carrier. Used when carrier is not being operated.



NOTE

Driver's hatch can be locked in two open positions - FULL OPEN or POP-UP (partially open).

Table 3. DRIVER'S HATCH CONTROLS (M901A3 AND M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	HATCH RELEASE HANDLE	When pulled, releases catch to allow driver to close hatch from the FULL OPEN position to the POP-UP (partially open) position.
	LOCKING KNOB	Secures hatch cover to yoke assembly when hatch is open. Pull out and slide toward center to release when hatch is to be fully closed.
	LATCHING HANDLE	Locks hatch cover in closed position.
	LOCKING PIN	Prevents actuation of hatch cover release mechanism when hatch cover is in full open or pop-up position. Push pin in after hatch cover is opened to either position. Pin must be pulled out to unlock hatch release handle to close hatch cover.

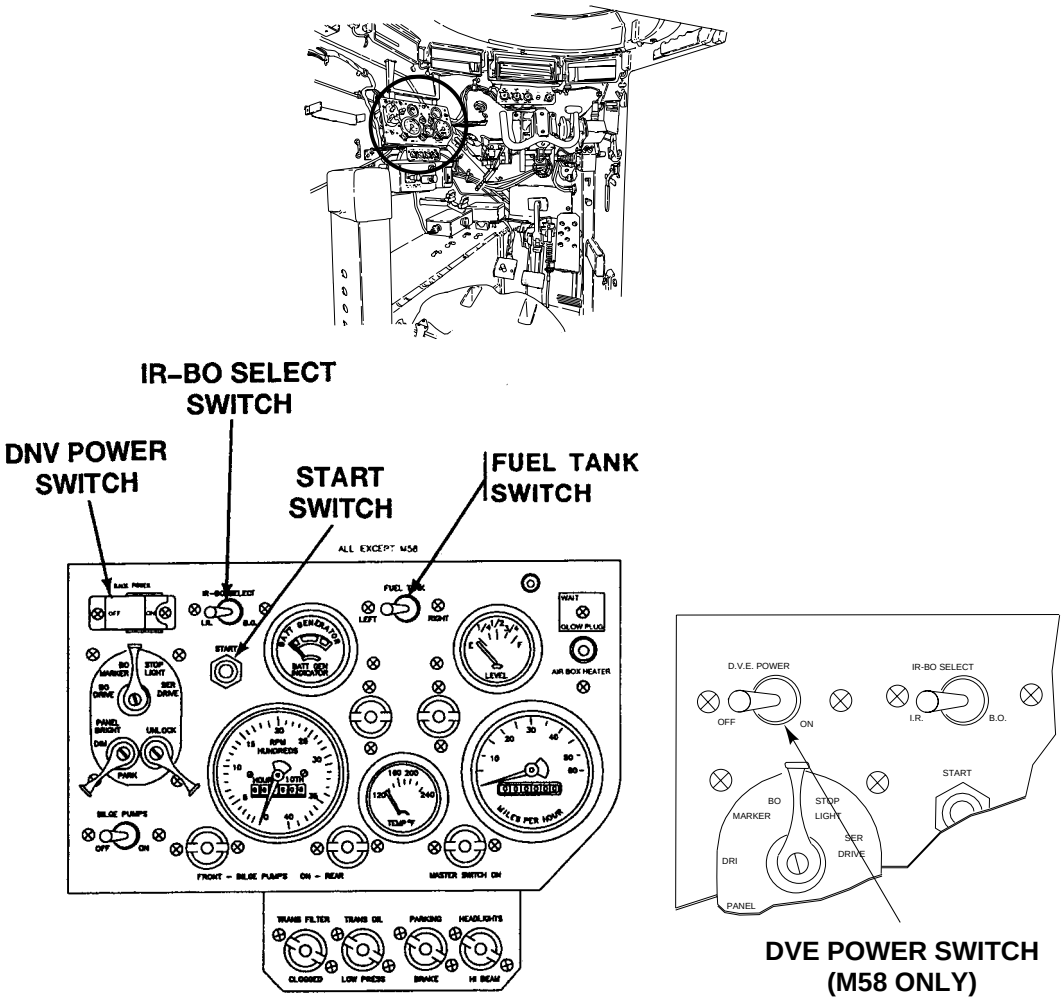
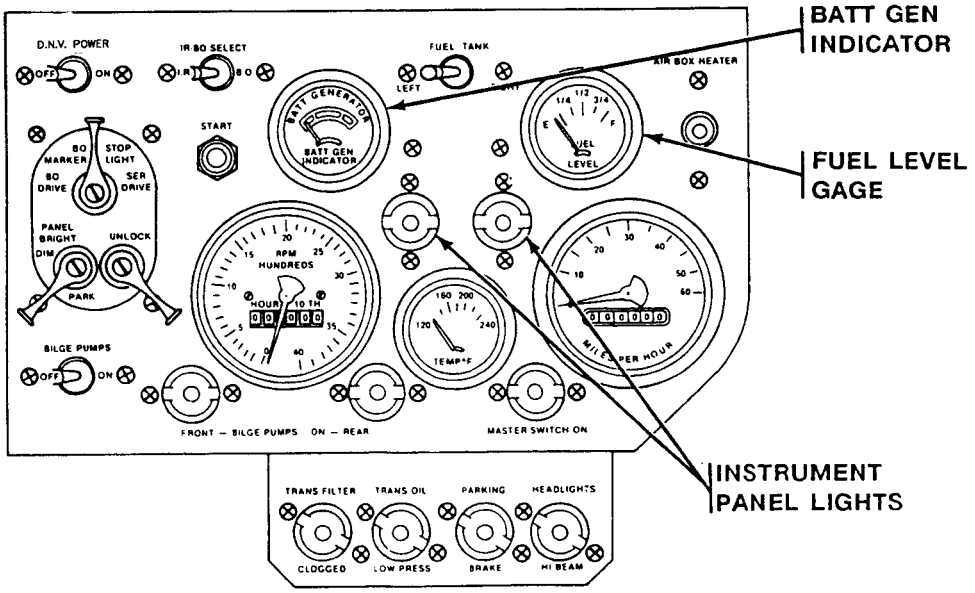
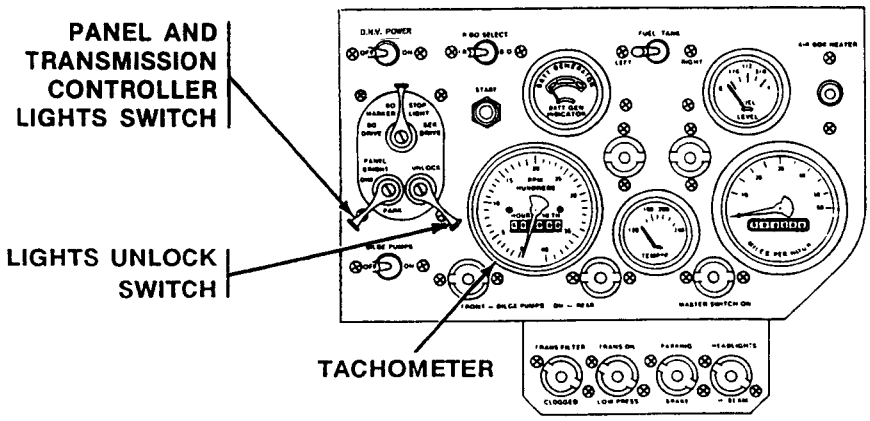


Table 4. DRIVER'S INSTRUMENT PANEL

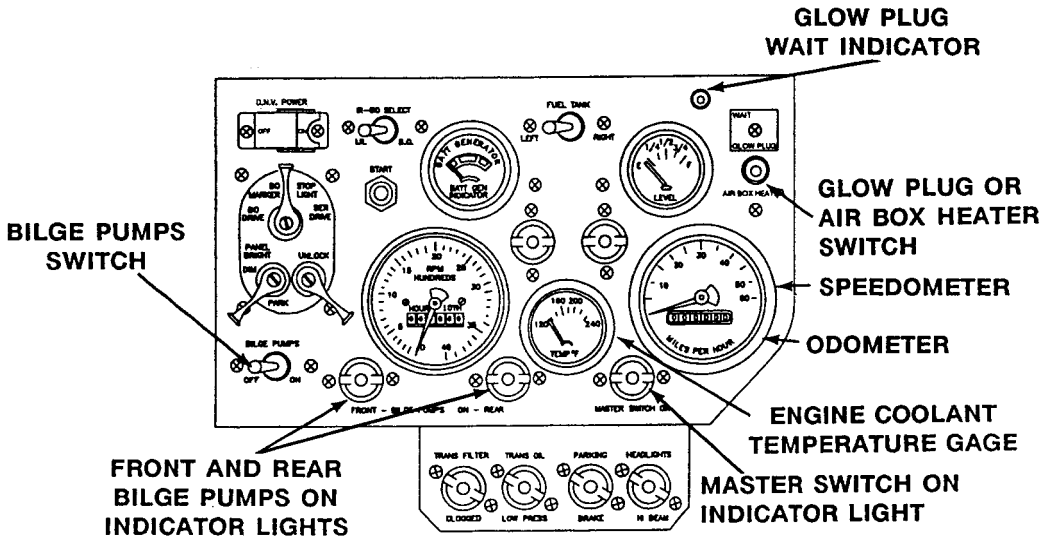
KEY	CONTROL OR INDICATOR	FUNCTION
	DVE POWER SWITCH (M58 ONLY)	Two position toggle switch to turn power to the DRIVER'S VISION ENHANCER on or off.
	DNV POWER SWITCH (ALL EXCEPT M58)	Two position toggle switch to turn power to the AN/VVS-2 periscope on or off. Late model vehicles have a guard on DNV (driver's night vision) power switch.
	IR-BO SELECT SWITCH	Two position toggle switch to select IR or BO (blackout) mode of lights operation.
	START SWITCH	Engages engine starter.
	FUEL TANK SWITCH	Two position toggle switch allows driver to read fuel level in LEFT and RIGHT external fuel tanks.



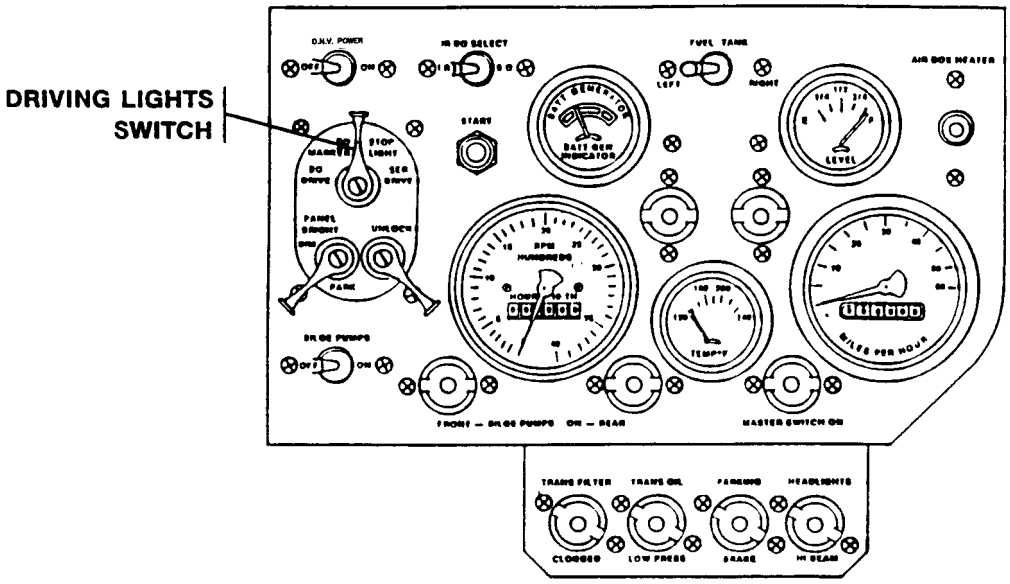
KEY	CONTROL OR INDICATOR	FUNCTION
	BATT GEN INDICATOR	Indicates battery and generator conditions as follows: Left red zone - Indicates low battery charge with engine off. Battery may not start engine. Yellow zone - Indicates normal battery voltage with engine off. Indicates generator not charging with 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 LEVEL GAUGE	Indicates level of fuel in LEFT and RIGHT external fuel tanks as selected using the FUEL TANK SWITCH.



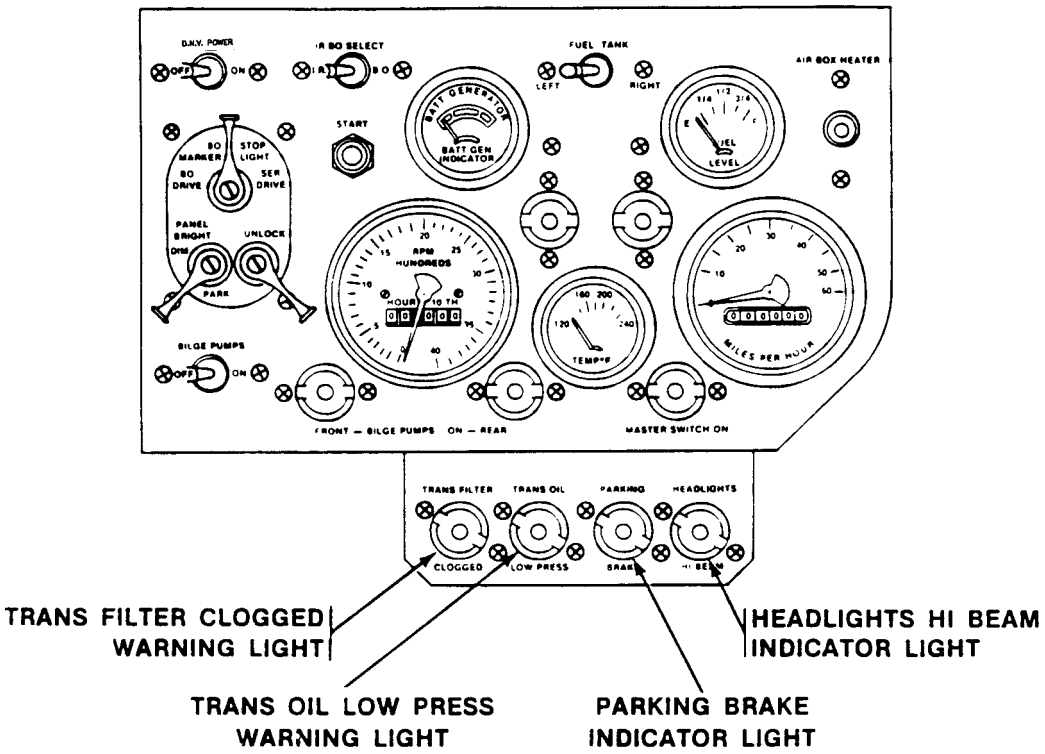
KEY	CONTROL OR INDICATOR	FUNCTION
	TACHOMETER	Indicates engine speed in revolutions per minute (RPM) and accumulated hours of engine operation.
	LIGHTS UNLOCK SWITCH	Spring-loaded, two-position lever. Must be held in UNLOCK position when setting driving light switch to any position other than BO MARKER.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



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.
	GLOW PLUG 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.
	BILGE PUMPS SWITCH	Turns front and rear bilge pumps ON and OFF.
	GLOW PLUG WAIT INDICATOR	Indicates both glow plug controller operation and 35-second warmup period.



KEY	CONTROL OR INDICATOR	FUNCTION
	DRIVING LIGHTS SWITCH	Five position rotary switch controls outside carrier lights as follows: **CAUTION** **Damage can occur to DNV power supply if DNV periscope is not connected.** BO DRIVE - with IR-BO SELECT switch in BO, blackout headlight and four blackout marker lights are on. When brakes are applied, blackout stop light will come on. With IR-BO SELECT switch in IR, and DNV POWER switch on, two infrared headlights and four blackout marker lights are on. When brakes are applied, blackout stop light will come on. BO MARKER - Turns on four blackout marker lights. When brakes are applied, blackout stop light will come on. OFF - Turns off all exterior lights. STOP LIGHT - Allows stop light-tail light to function during daytime operation without headlights. SER DRIVE - Turns on headlights and allows stop light-tail light to function.



KEY	CONTROL OR INDICATOR	FUNCTION
	TRANS FILTER CLOGGED WARNING LIGHT	Light comes on when transmission filter is clogged and engine is running.
	TRANS OIL LOW PRESS WARNING LIGHT	Light comes on when transmission oil pressure is low.
	PARKING BRAKE INDICATOR LIGHT	Light comes on when parking brake is set.
	HEADLIGHTS HI BEAM INDICATOR LIGHT	Light comes on when headlight high beams are on.

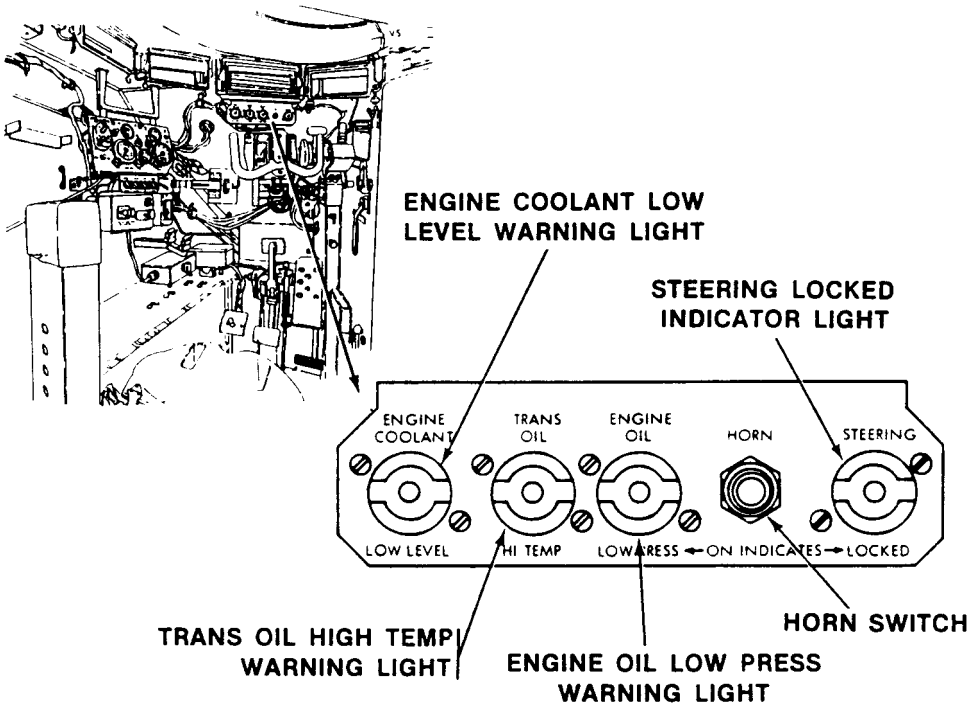


Table 5. WARNING LIGHT PANEL

KEY	CONTROL OR INDICATOR	FUNCTION
	ENGINE COOLANT LOW LEVEL WARNING LIGHT	Light comes on when coolant level is too low for safe operation.
	TRANS OIL HIGH TEMP WARNING LIGHT	Light comes on when transmission oil temperature is too high for safe operation.
	ENGINE OIL LOW PRESS WARNING LIGHT	Light comes on when oil pressure is too low for safe operation. Light should go off 10 seconds after engine starts.
	HORN SWITCH	Press switch to sound carrier horn.
	STEERING LOCKED INDICATOR LIGHT	Light comes on when steering wheel is locked in center position. To lock steering wheel, center wheel to engage locking pin. Move transmission controller to SL position and place MASTER SWITCH ON.

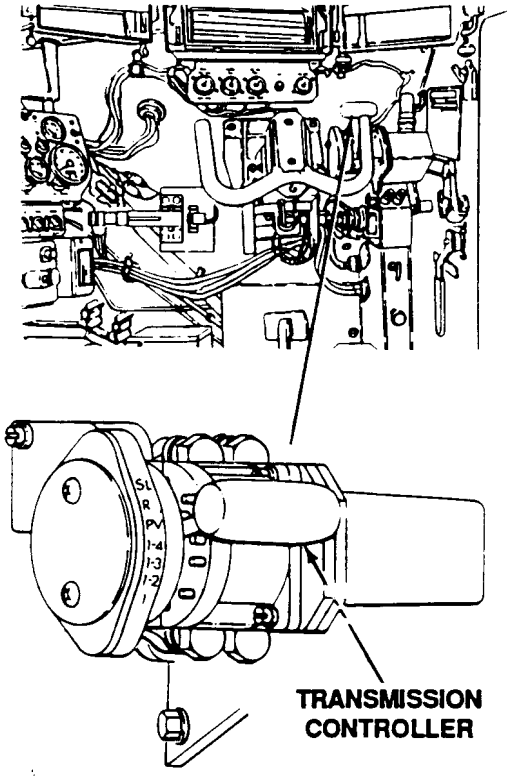


Table 6. ELECTRICAL TRANSMISSION CONTROLLER

KEY	CONTROL OR INDICATOR	FUNCTION
	TRANSMISSION CONTROLLER	Selects driving RANGE of automatic transmission. RANGE 1 - Used when climbing or going down steep grades, and when entering or leaving water. This range provides maximum traction, low speed maneuvering, and engine braking. RANGE 1-2 - Used when climbing or going down medium grades, driving cross country at slow speeds, and while in the water. RANGE 1-3 - Used when climbing or going down slight grades, driving cross country at high speeds, and driving on roads at moderate speeds. RANGE 1-4 - Used to drive carrier in normal forward operation. PV (PIVOT VEHICLE) POSITION - Used to turn carrier on its own center. R (REVERSE) POSITION - Used for backing the carrier on land or in the water. SL (STEERING LOCK) POSITION - Locks steering wheel in center position. Used during starting, idling and engine shut down.

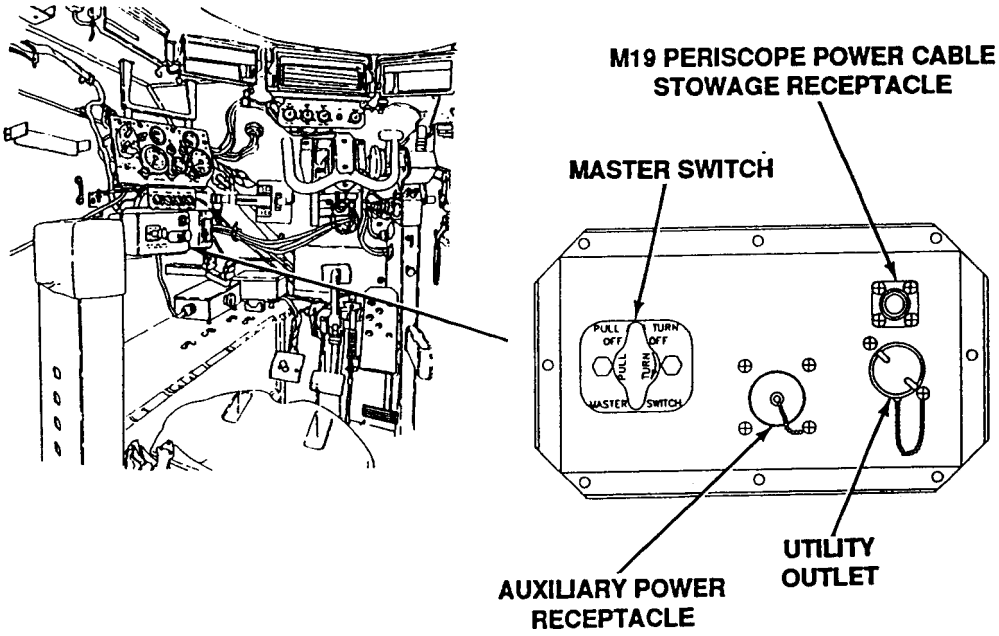


Table 7. MASTER SWITCH PANEL (M113A3, M901A3, M1059A3, M1064A3, AND M58 ONLY)

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.

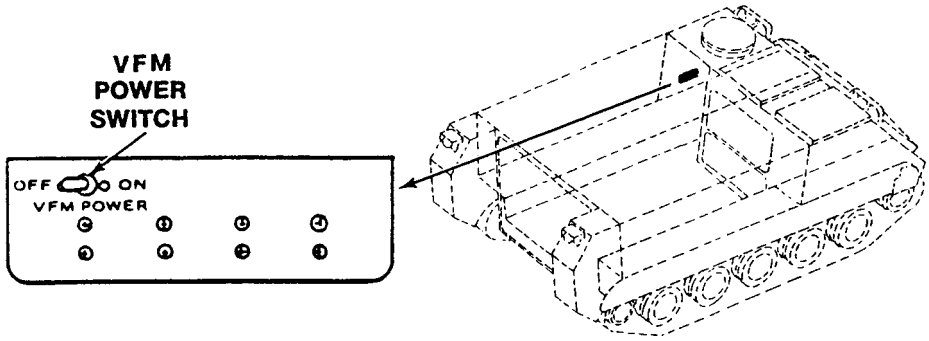


Table 8. VENTILATED FACE MASK (VFM) CIRCUIT BREAKER PANEL CONTROL (M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	VFM POWER SWITCH	Turns blower in precleaner and particulate filter assembly on and off.

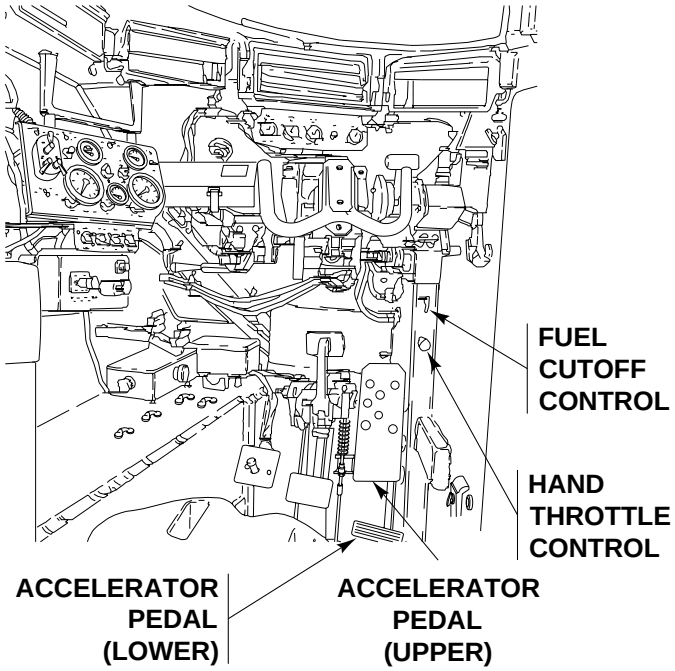


Table 9. FUEL AND THROTTLE CONTROLS

KEY	CONTROL OR INDICATOR	FUNCTION
	FUEL CUTOFF 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.

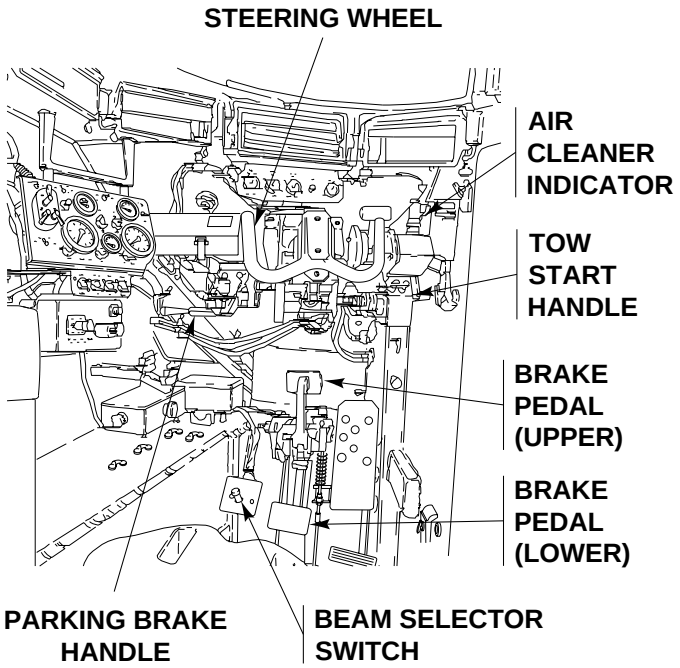


Table 10. DRIVER'S CONTROLS AND INDICATORS

KEY	CONTROL OR INDICATOR	FUNCTION
	STEERING WHEEL	Steers carrier.
	AIR CLEANER INDICATOR	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.
	TOW START HANDLE	Used only when attempting to start the engine by towing the carrier.
	BRAKE PEDAL (UPPER)	Slows and stops carrier. Used with driver's seat in raised position.
	BRAKE PEDAL (LOWER)	Slows and stops the carrier. Used with driver's seat in lowered position.
	BEAM SELECTOR SWITCH	Selects high or low headlight beams.
	PARKING BRAKE HANDLE	Engages parking brake.

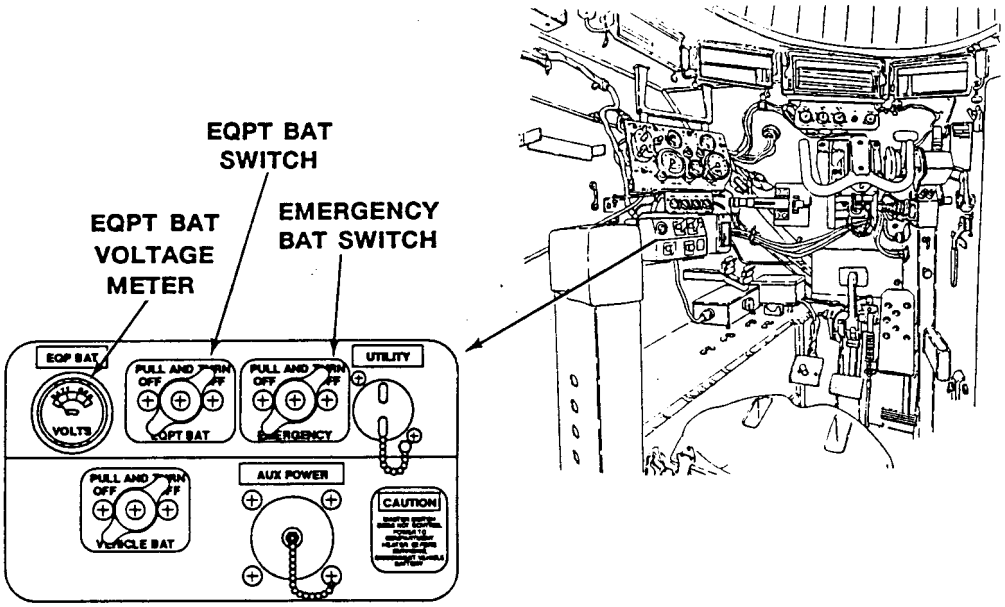
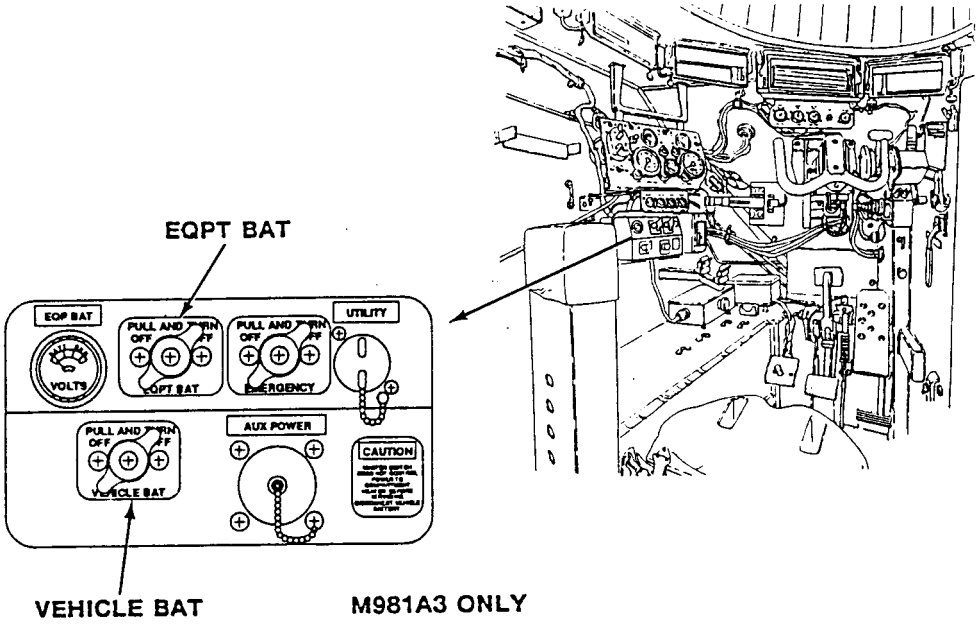


Table 11. DISTRIBUTION BOX (M981A3)

KEY	CONTROL OR INDICATOR	FUNCTION
	EQPT BAT VOLTAGE METER	Indicates voltage of equipment batteries when EQPT BAT switch is ON and VEHICLE BAT switch is OFF. Indicates alternator output voltage when engine is running. RED (left side) - Low voltage YELLOW - Intermediate voltage GREEN - Operating voltage, 24 Vdc RED (right side) - Excessive voltage **NOTE** **Battery voltage is not an indication of battery charge condition unless voltage is checked while load is applied.**
	EQPT BAT SWITCH	When set to ON, switch connects equipment batteries to electric circuits for powering the communications equipment and the targeting station. To set to ON or OFF, pull switch out and turn. **NOTE** **During normal operation, the EMERGENCY switch should be OFF for the equipment batteries to work properly.**
	EMERGENCY SWITCH	With EQPT BAT switch set to ON, setting the EMERGENCY switch to ON allows the equipment batteries to be used for emergency starting of vehicle with the VEHICLE BAT switch OFF. It also allows the equipment batteries to be added to the vehicle batteries for increased starting capacity in cold weather with the VEHICLE BAT and EQPT BAT switch ON. To set to ON or OFF, pull switch out and turn.



KEY	CONTROL OR INDICATOR	FUNCTION
	UTILITY OUTLET	Provides 24 Vdc for powering accessories from vehicle electrical system. Has protective cap which is removed prior to connecting 24 volt accessory cable.
	AUX POWER RECEPTACLE	24 Vdc power receptacle. Used with slave cable to jump start vehicles, or with 1.5 kW 28 Vdc generator power supply to maintain battery charge.
	VEHICLE BAT SWITCH	When set to ON, switch connects vehicle batteries to electric circuits for powering vehicle loads. Switch must be ON to allow vehicle alternator to charge equipment batteries. To set to ON or OFF, pull switch out and turn.

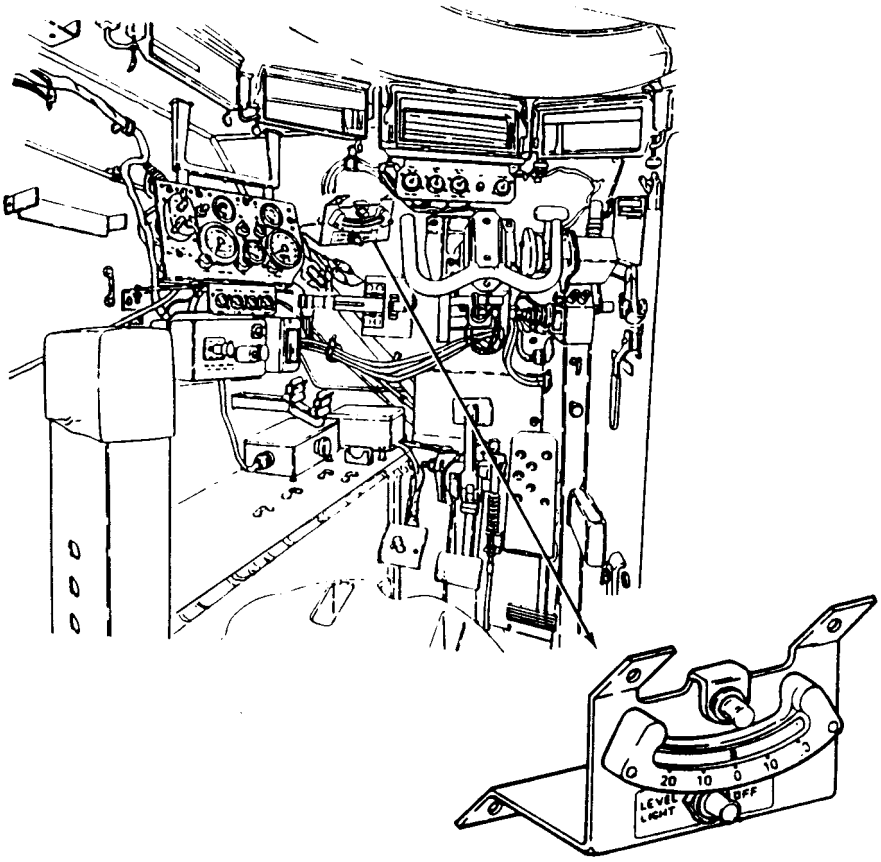


Table 12. DRIVER'S LEVEL INDICATOR (M901A3 AND M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	DEGREE SCALE AND DIAL	Indicates sideward slope of vehicle up to 20 degrees.
	LIGHT SWITCH	Push-pull switch used to turn light above degree scale and dial on and off.

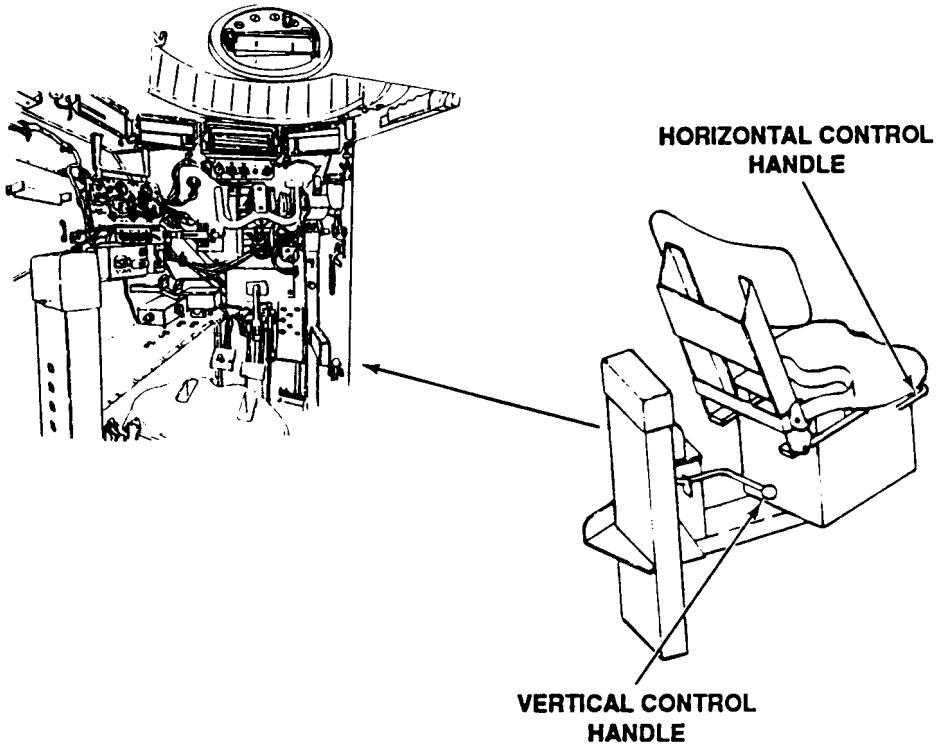


Table 13. DRIVER'S SEAT CONTROLS

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.

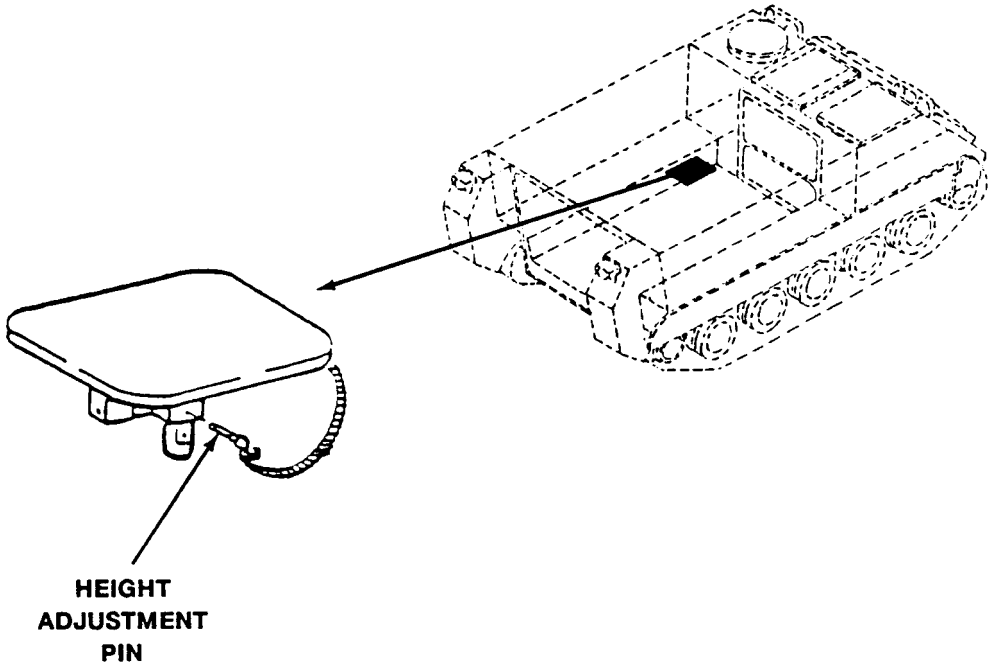


Table 14. OPERATOR'S SEAT CONTROLS (M901A3 AND M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	HEIGHT ADJUSTMENT PIN	Locks seat in any five different heights.

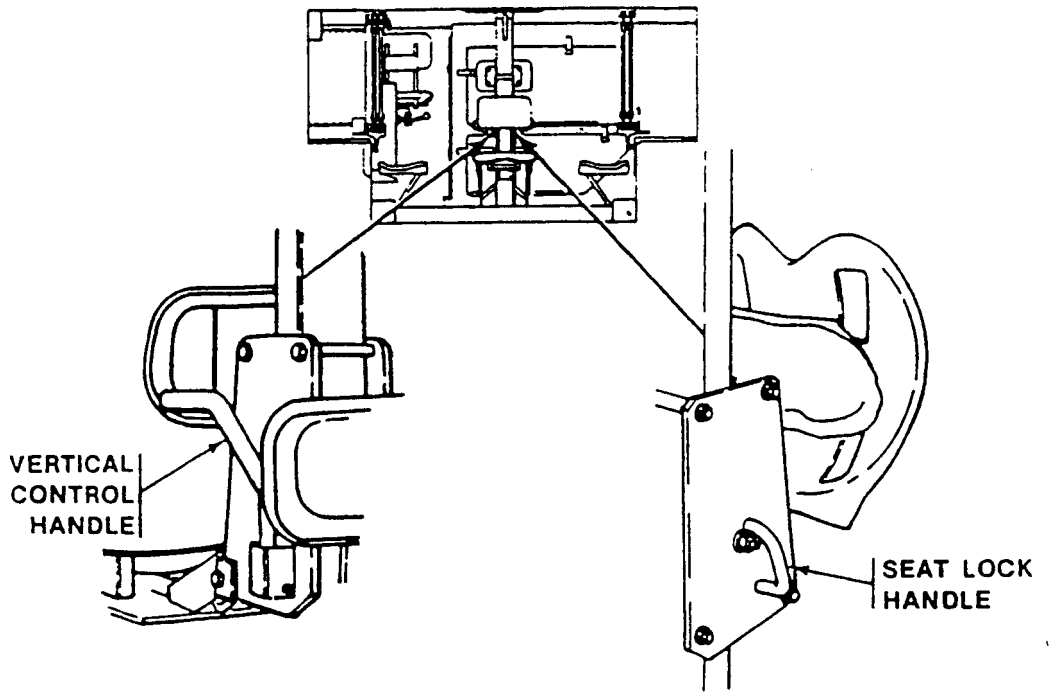
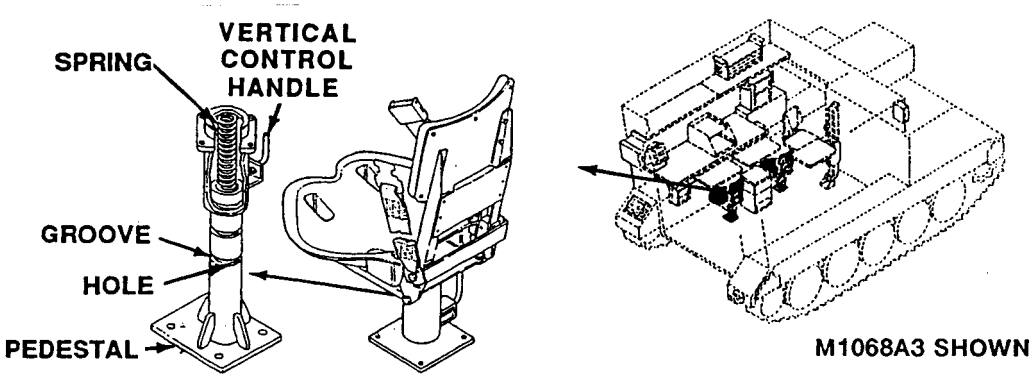


Table 15. COMMANDER'S SEAT CONTROLS (M113A3, M1059A3, M1064A3 AND M58 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	VERTICAL CONTROL HANDLE	Allows seat to be raised or lowered.
	SEAT LOCK HANDLE	Releases seat from stowed position.



NOTE

Do not apply full body weight to seat unless vertical control handle is engaged in one of the holes in the pedestal. If vertical control handle is not properly engaged, seat could fall and personnel could be injured.

Table 16. RADIO/SMOKE OPERATOR'S SEAT (M981A3, M1068A3, AND M58 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	VERTICAL CONTROL HANDLE	Allows seat to be locked in three heights and two viewing angles (seat facing front or right side of vehicle). To raise seat, partially remove body weight from seat and pull out handle allowing spring to raise seat. To lower seat, pull out handle and use body to force seat down. When seat is near desired height, release handle and continue moving seat until spring-loaded handle engages groove in pedestal. Then, turn seat right or left until handle engages hole in pedestal to lock seat in place. To change viewing angle, reduce body weight exerted on seat, pull out handle, and turn seat toward the viewing angle desired. Release handle when seat is near desired viewing angle and continue turning seat until handle engages hole in pedestal.
	HORIZONTAL CONTROL HANDLE	Allows horizontal adjustment of seat. To operate, push up handle and slide seat forward or rearward as necessary. To lock in position, release handle and slide seat slightly forward or rearward until spring-loaded handle engages detent nearest desired position.

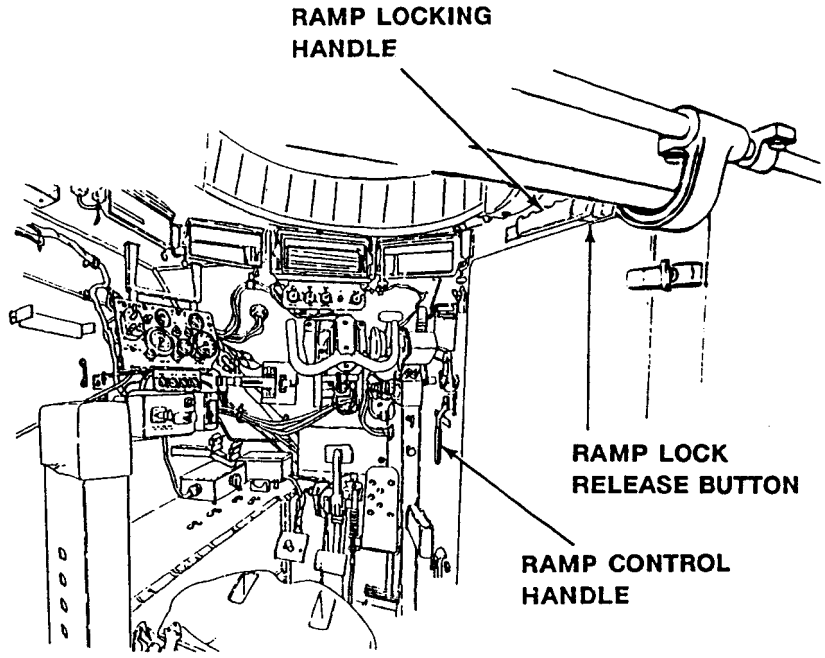


Table 17. RAMP CONTROLS

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.

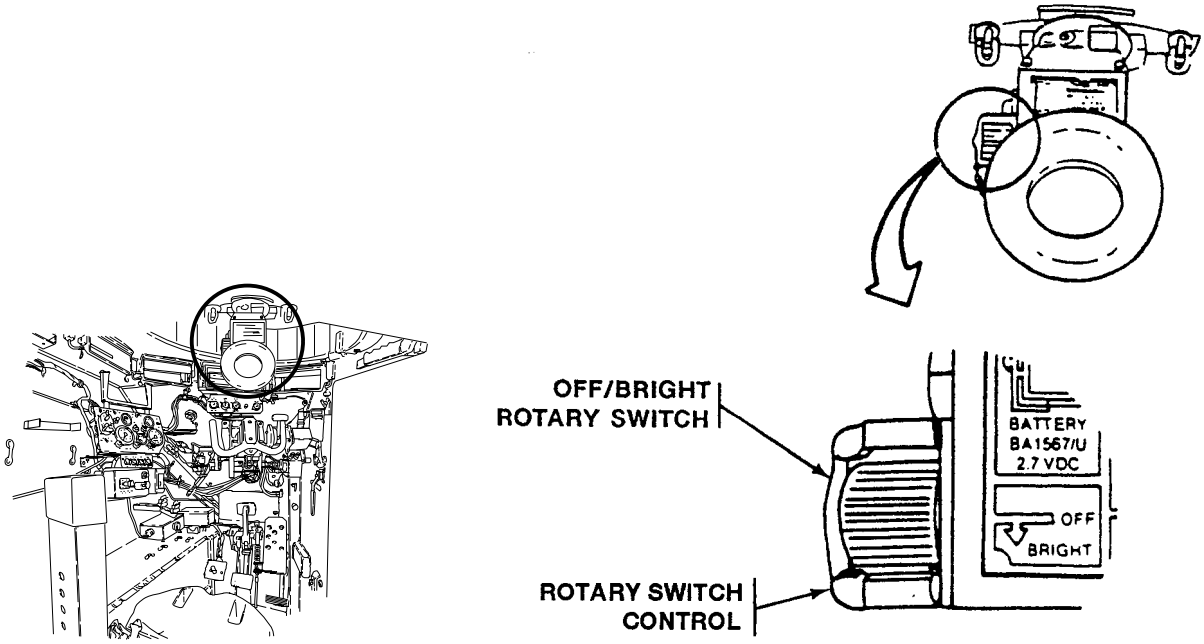
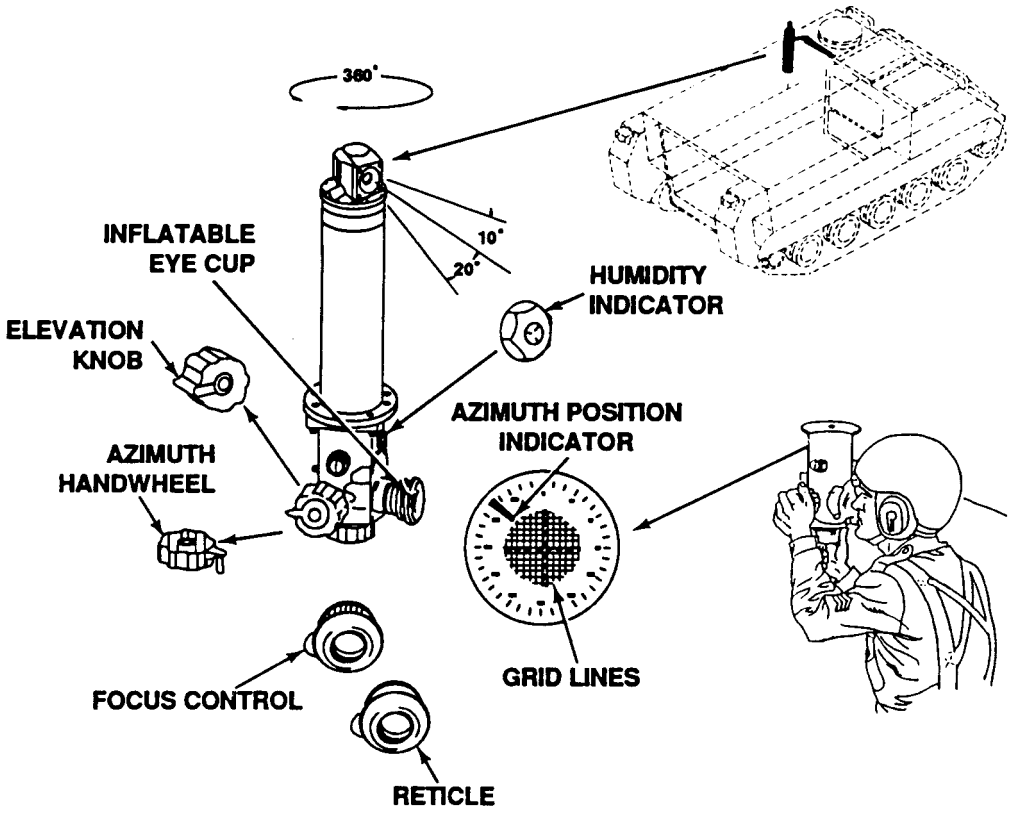


Table 18. AN/VVS-2 DRIVER'S NIGHT VISION

KEY	CONTROL OR INDICATOR	FUNCTION
	ROTARY SWITCH CONTROL	Used to adjust image brightness and to turn power on/off.



NOTE

The observation station controls and indicators are those controls and indicators which are located nearest and most accessibly to the observation station operator.

Table 19. OBSERVATION STATION CONTROLS AND INDICATORS (M901A3 AND M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
		PANORAMIC TELESCOPE
	HUMIDITY INDICATOR	Turn pink when desiccant needs replacing.
	FOCUS CONTROL	Located directly behind inflatable eye cup, and can be turned to properly focus image.
	INFLATABLE EYE CUP	Protect eye of operator during use.
	RETICLE	Azimuth position relative to front of vehicle is indicated in degrees within viewing field. The azimuth position indicator rotates when azimuth control is turned. Grid lines are graduated in 10 mil divisions to provide elevation and azimuth reference.
	AZIMUTH HANDWHEEL	Rotates sight in azimuth. Turn handwheel right to rotate line-of-sight to right; turn left for left rotation.
	ELEVATION KNOB	Rotate arrow upward to raise line-of-sight; down to lower line-of-sight. Full rage is 10 degrees above horizontal and 20 degrees below horizontal.

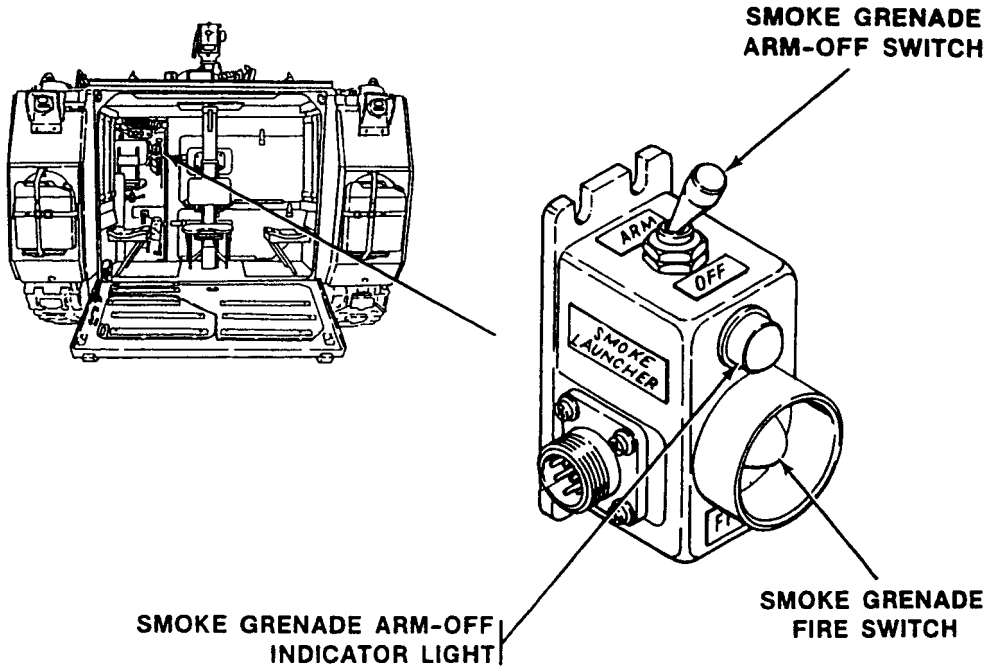


Table 20. SMOKE GRENADE ARMING FIRING UNIT (M113A3, M901A3, M981A3, M1059A3, AND M58 ONLY)

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.

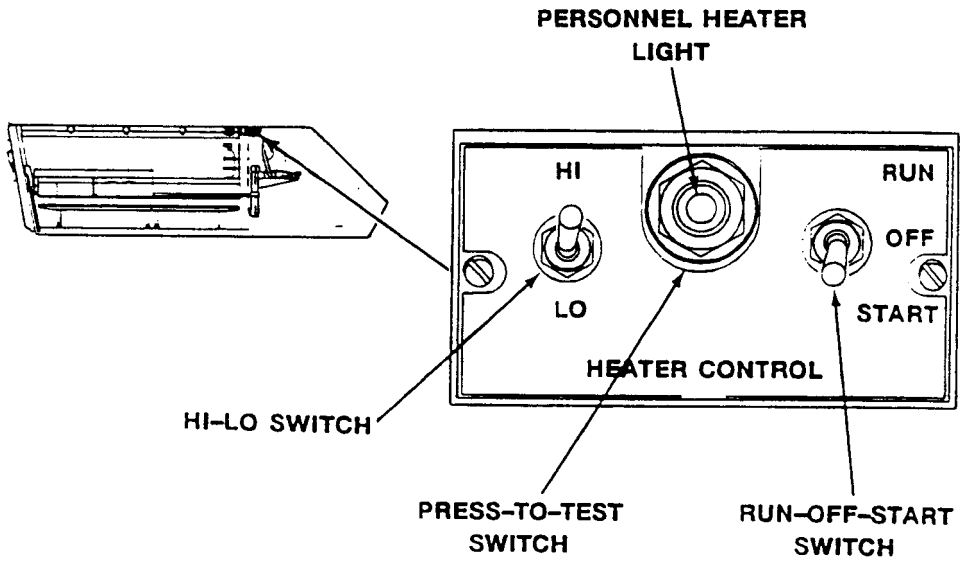


Table 21. PERSONNEL HEATER CONTROL BOX

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.

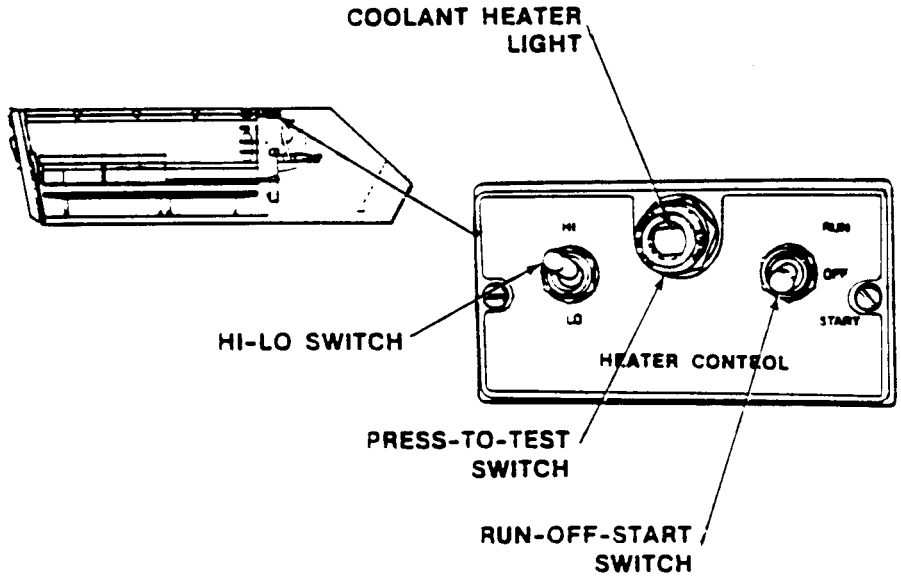


Table 22. ENGINE COOLANT HEATER CONTROL BOX

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.

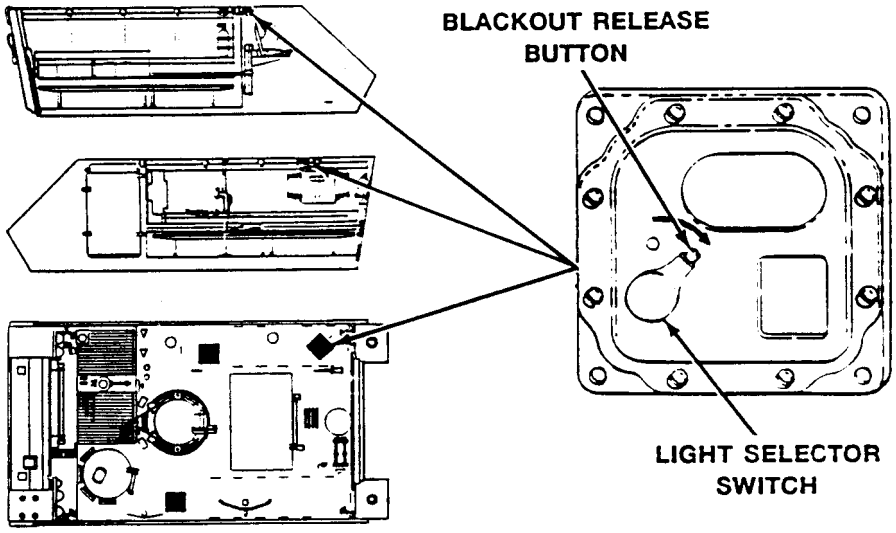


Table 23. DOME LIGHTS (ALL EXCEPT M577A3 AND M1068A3)

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

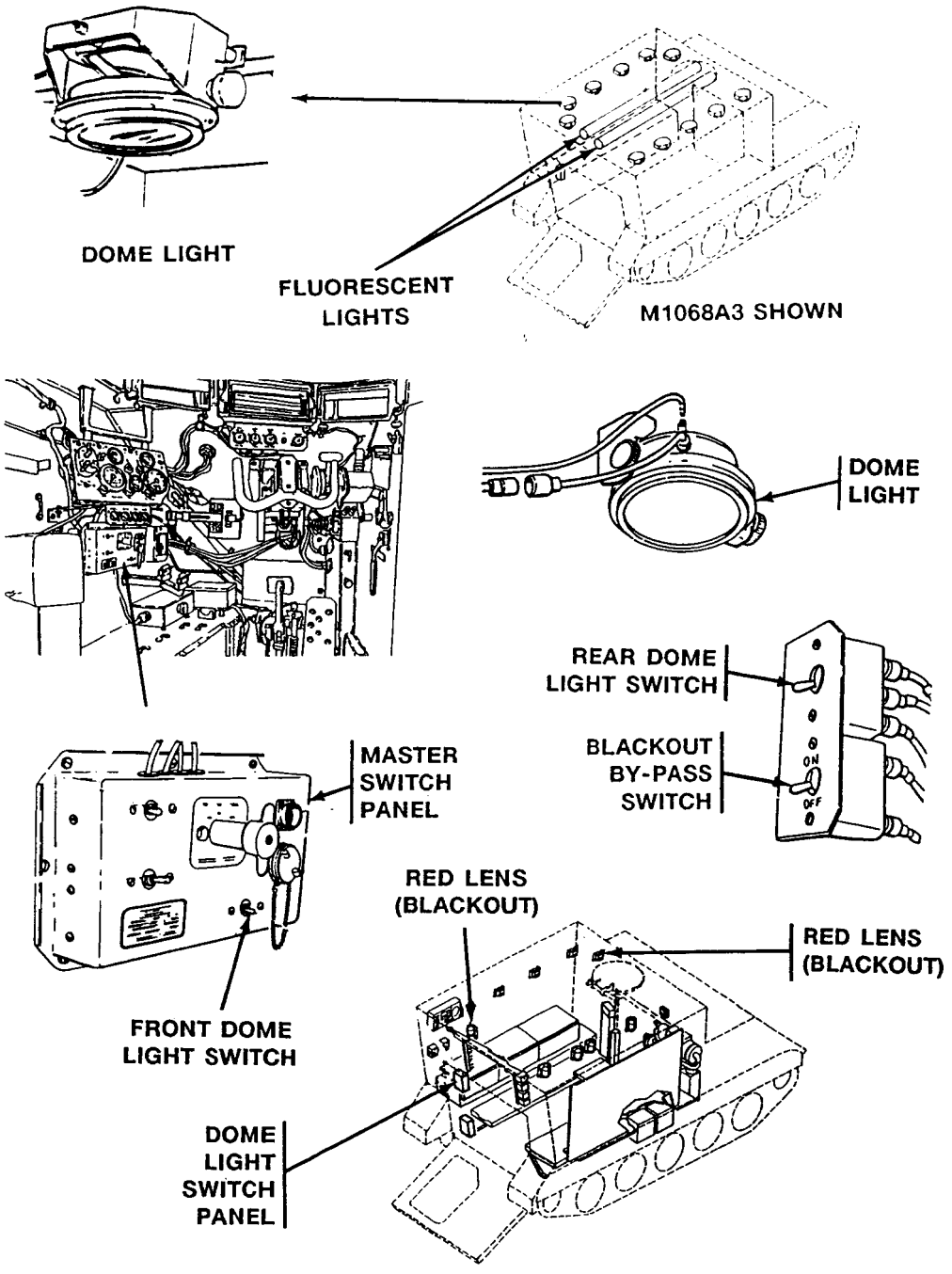

DOME LIGHT
FLUORESCENT LIGHTS
M1068A3 SHOWN
DOME LIGHT
REAR DOME LIGHT SWITCH
BLACKOUT BY-PASS SWITCH
ON
OFF
MASTER SWITCH PANEL
RED LENS (BLACKOUT)
RED LENS (BLACKOUT)
FRONT DOME LIGHT SWITCH
DOME LIGHT SWITCH PANEL

Table 24. DOME AND FLUORESCENT LIGHTS (M577A3 AND M1068A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	DOME LIGHT	Is mounted on ceiling. There are nine dome lights (white lens) and two blackout dome lights (red lens).
	FRONT DOME LIGHT SWITCH	Controls the dome lights from the master switch panel.
	REAR DOME LIGHT SWITCH	Controls the dome lights from the rear dome light switch panel near the ramp.
	BLACKOUT BY-PASS SWITCH	Located on dome light switch panel. Must be in OFF position to control dome lights. See WP 0030 00 for operation.

NOTE

For dome light operation procedures, see WP 0030 00. For fluorescent light operation procedures, see TM 11-7010-256-12&P.

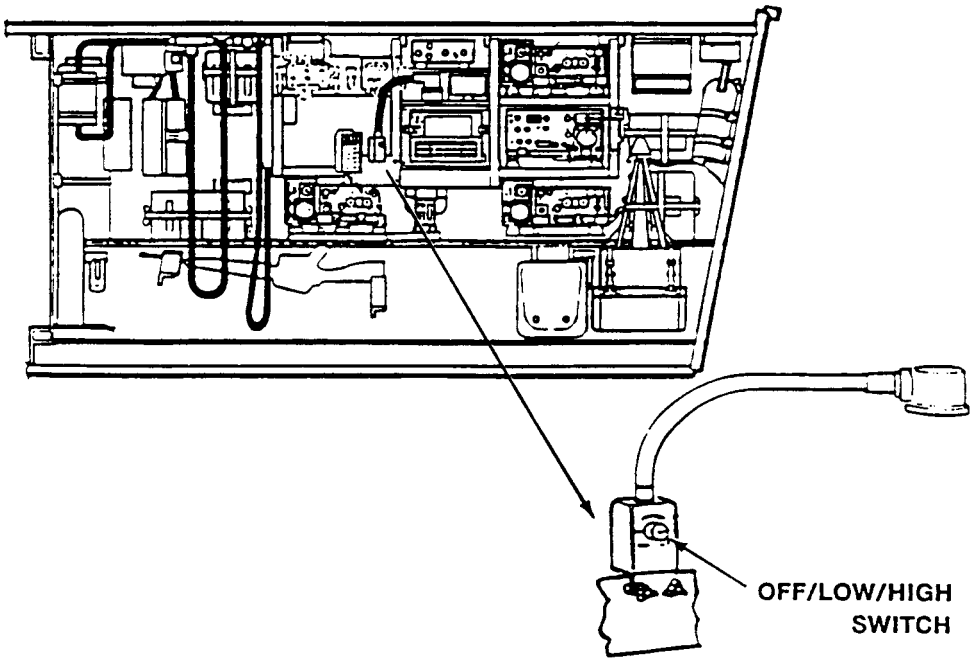


Table 25. COMMUNICATIONS STATION UTILITY LIGHT (M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	OFF/LOW/HIGH SWITCH	Use to turn light on and off and to control brightness.

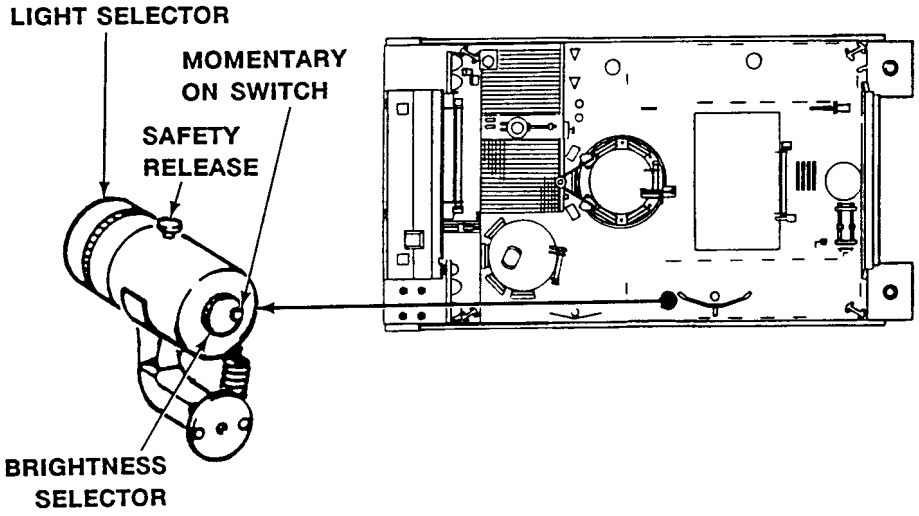
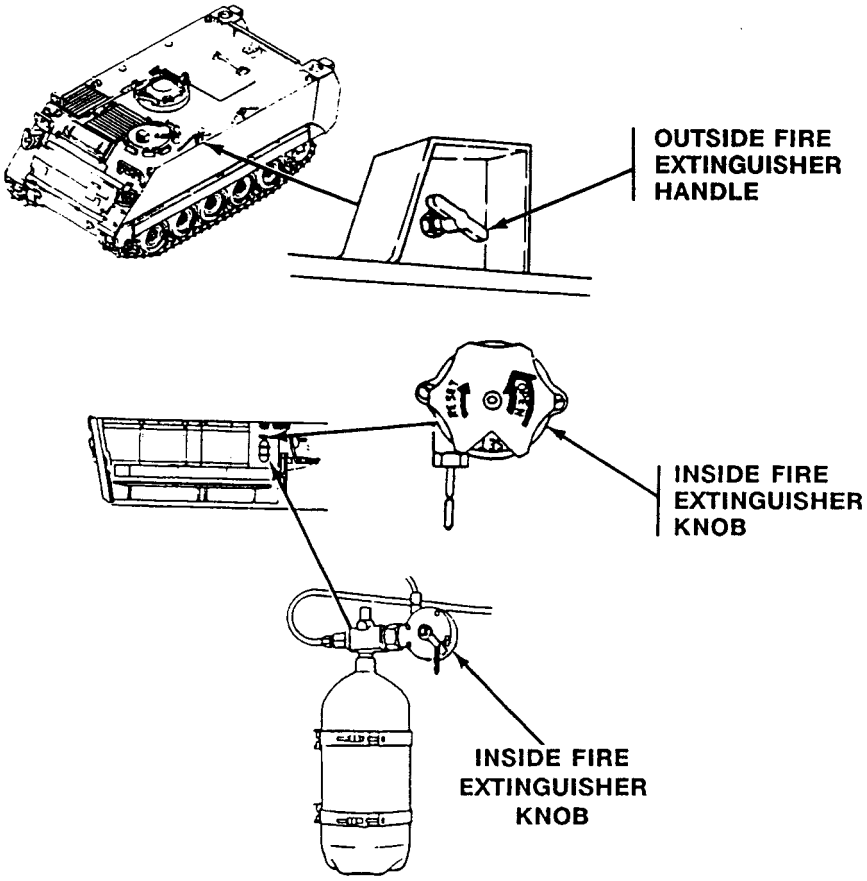


Table 26. CEILING UTILITY LIGHT (M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	BRIGHTNESS SELECTOR	Selects brightness of light. Continuously variable from OFF (maximum ccw position) to BRT (maximum cw position).
	MOMENTARY ON SWITCH	Spring-loaded switch which, while depressed, turns on light at maximum brightness regardless of setting of brightness selector.
	LIGHT SELECTOR	Selects type of light desired. To operate, rotate light selector to align one of four colored circles on light selector with mark on light housing. Larger white circle indicates white floodlight. Smaller white circle indicates white spotlight. Smaller red circle indicates red spotlight. Larger red circle indicates red floodlight.
	SAFETY RELEASE	When depressed, allows light selector to be rotated from red spotlight position to white spotlight position. Prevents accidental selection of white light during blackout conditions.

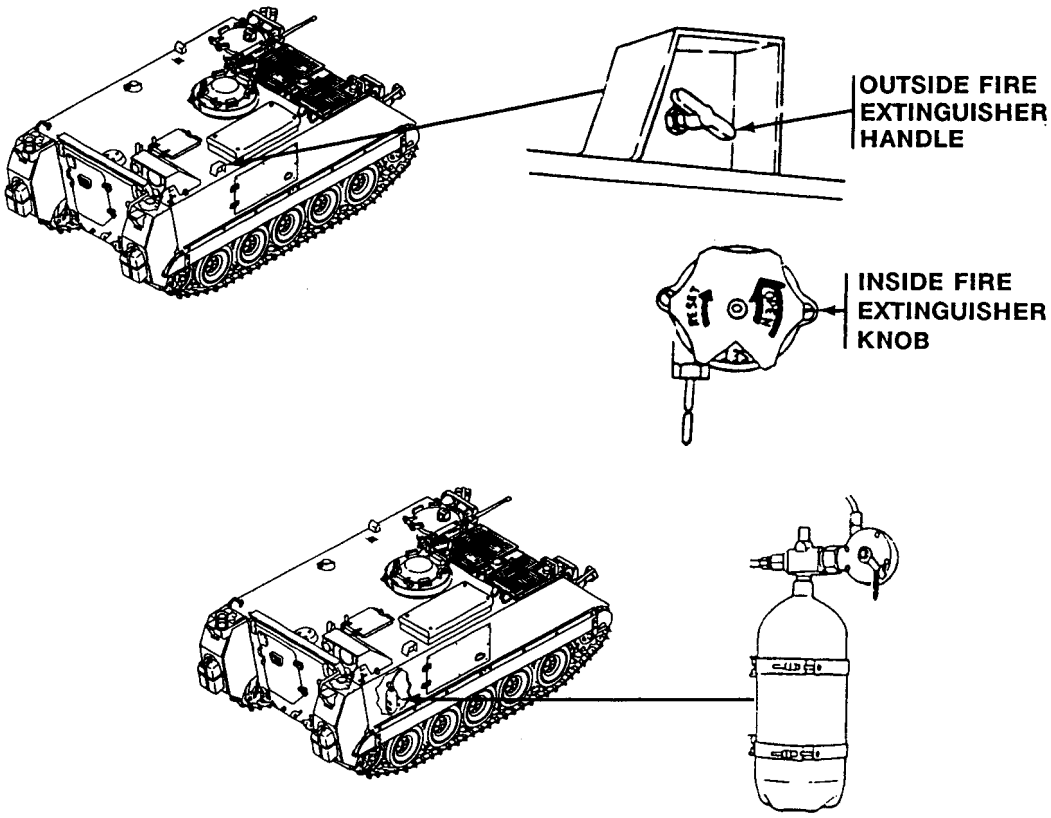


NOTE

Fixed fire extinguisher located behind driver discharges into the engine compartment only.

Table 27. 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.

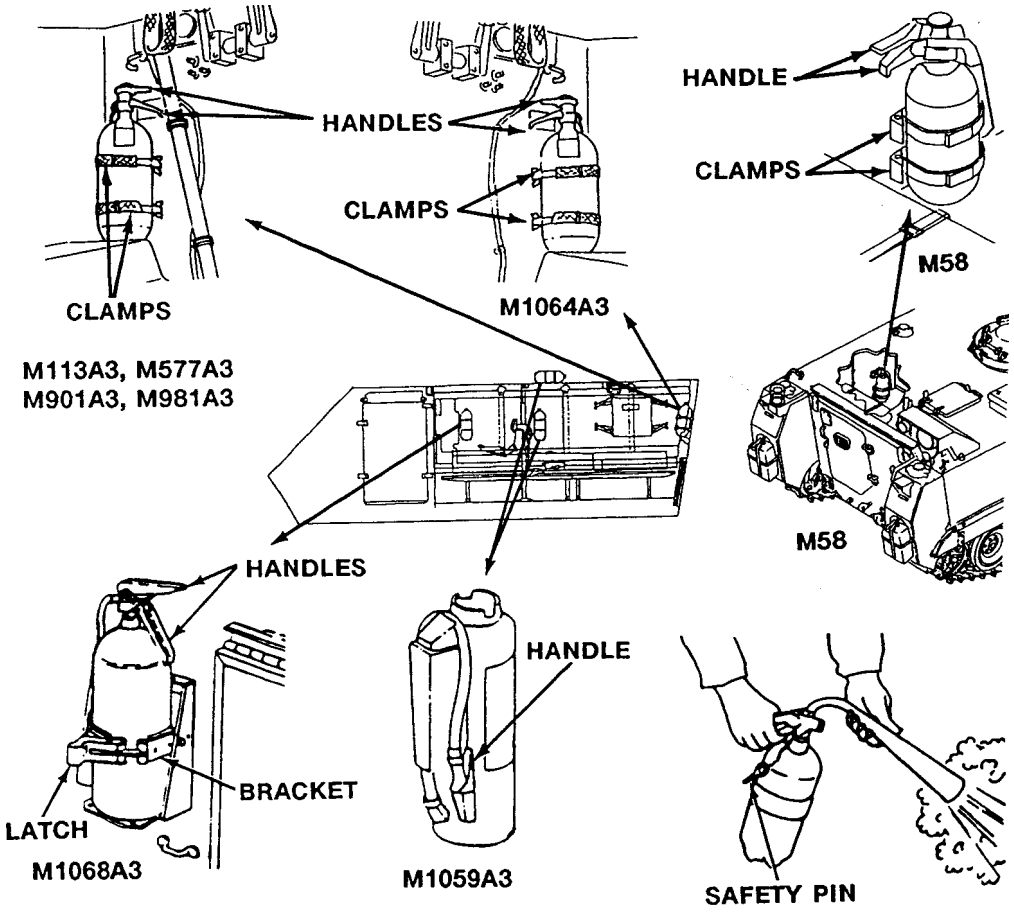


NOTE

Fixed fire extinguisher located on right side discharges into the turbine compartment only.

Table 28. FIXED FIRE EXTINGUISHER SYSTEM (M58 ONLY)

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.

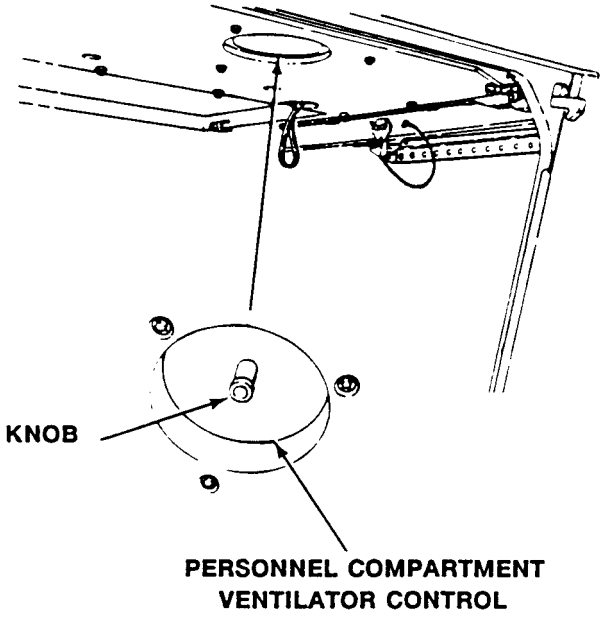


NOTE

M1064A3 portable fire extinguisher is located on left rear wall. M58 portable fire extinguisher is located on left side wall.

Table 29. PORTABLE FIRE EXTINGUISHER

KEY	CONTROL OR INDICATOR	FUNCTION
	CLAMPS (M113A3, M901A3, M981A3, M577A3, M1064A3, M1059A3, and M58)	Hold portable fire extinguisher in right rear of personnel compartment.
	LATCH AND BRACKET (M1068A3)	Hold portable fire extinguisher in front of personnel compartment.
	SAFETY PIN	Keep fire extinguisher from accidentally discharging while stowed.
	HANDLES	Discharges fire extinguisher when squeezed together.



NOTE

This ventilator is located in the ceiling of the personnel compartment and is used with the front ventilator and the ventilating fan to let fresh air into the personnel compartment.

Table 30. PERSONNEL COMPARTMENT VENTILATOR CONTROL

KEY	CONTROL OR INDICATOR	FUNCTION
	KNOB	Push knob up to ventilate; pull knob down to close ventilator valve.

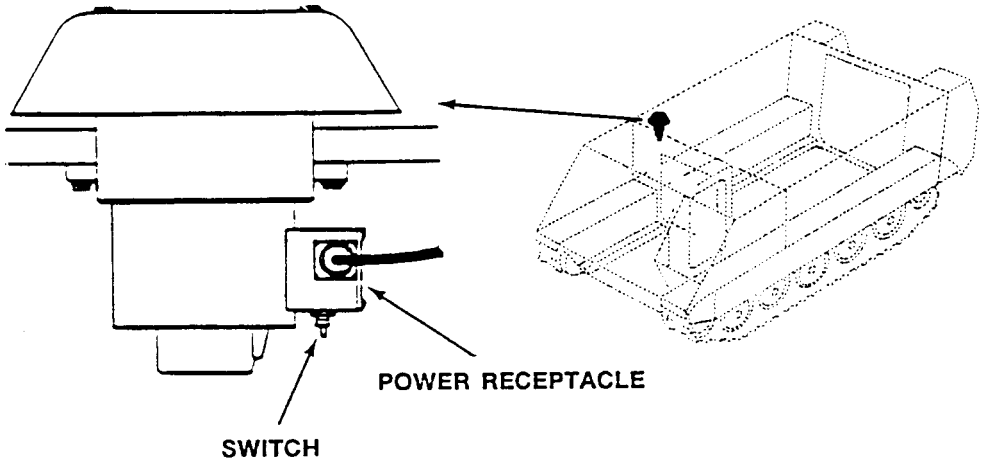
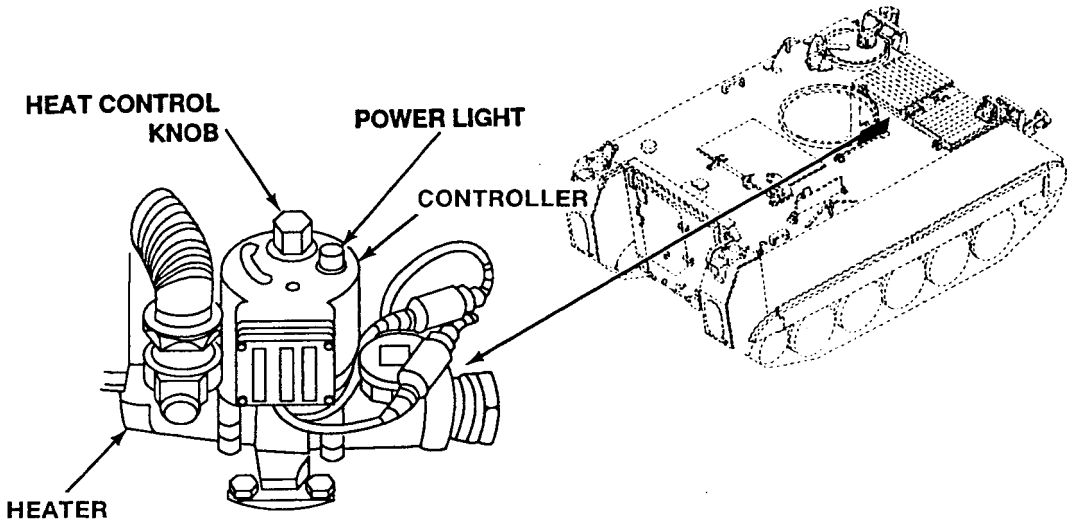


Table 31. VENTILATING FAN (M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	POWER RECEPTACLE	Provides hookup for power cable.
	ON/OFF SWITCH	Used to turn ventilating fan on and off.



NOTE

In some vehicles the electric air heater's controller is located separate from the heater.

Table 32. ELECTRIC AIR HEATER

KEY	CONTROL OR INDICATOR	FUNCTION
	HEAT CONTROL KNOB	Allows operator to turn heater on and off and select desired amount of heat.
	POWER LIGHT	Lights when heating element is on.

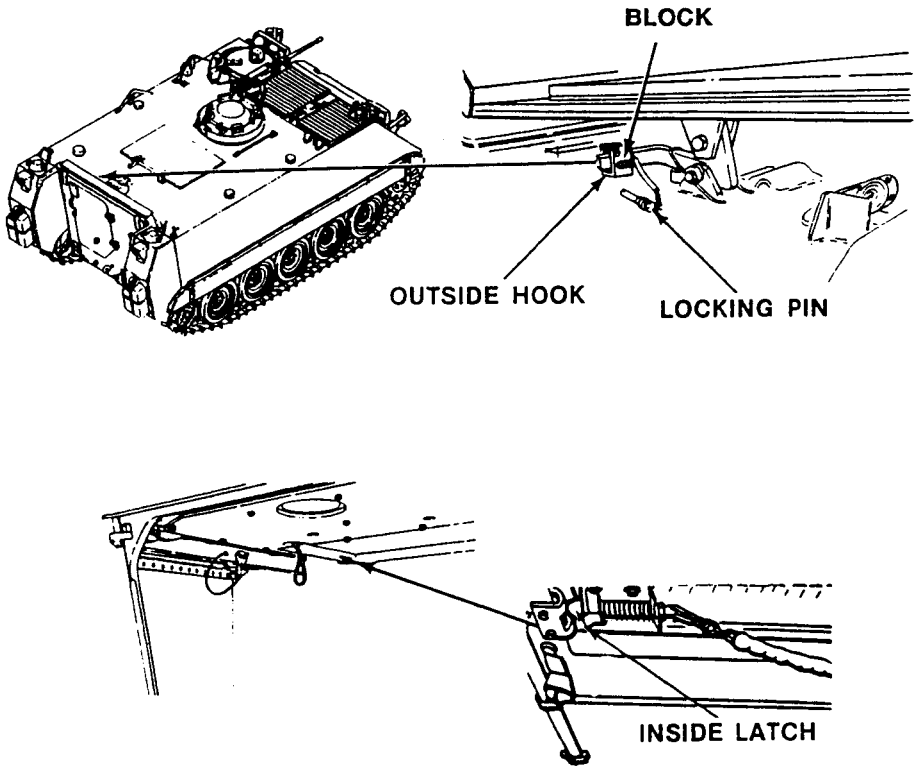


Table 33. CARGO HATCH CONTROLS (M113A3, M901A3, M981A3, AND M1059A3 ONLY)

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.
	BLOCK	Stowed location for locking pin when cargo hatch is closed. Block prevents pin from breaking away from chain.

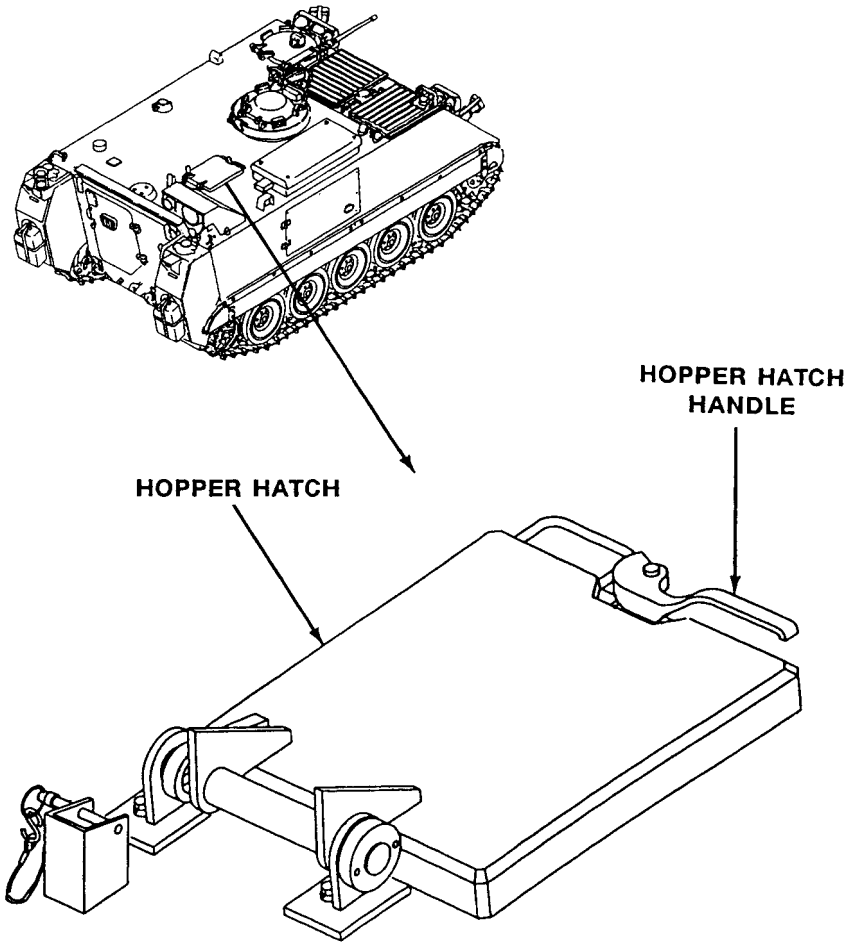


Table 34. HOPPER HATCH CONTROLS (M58 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	HOPPER HATCH HANDLE	Latches and unlatches hopper hatch from top of carrier.

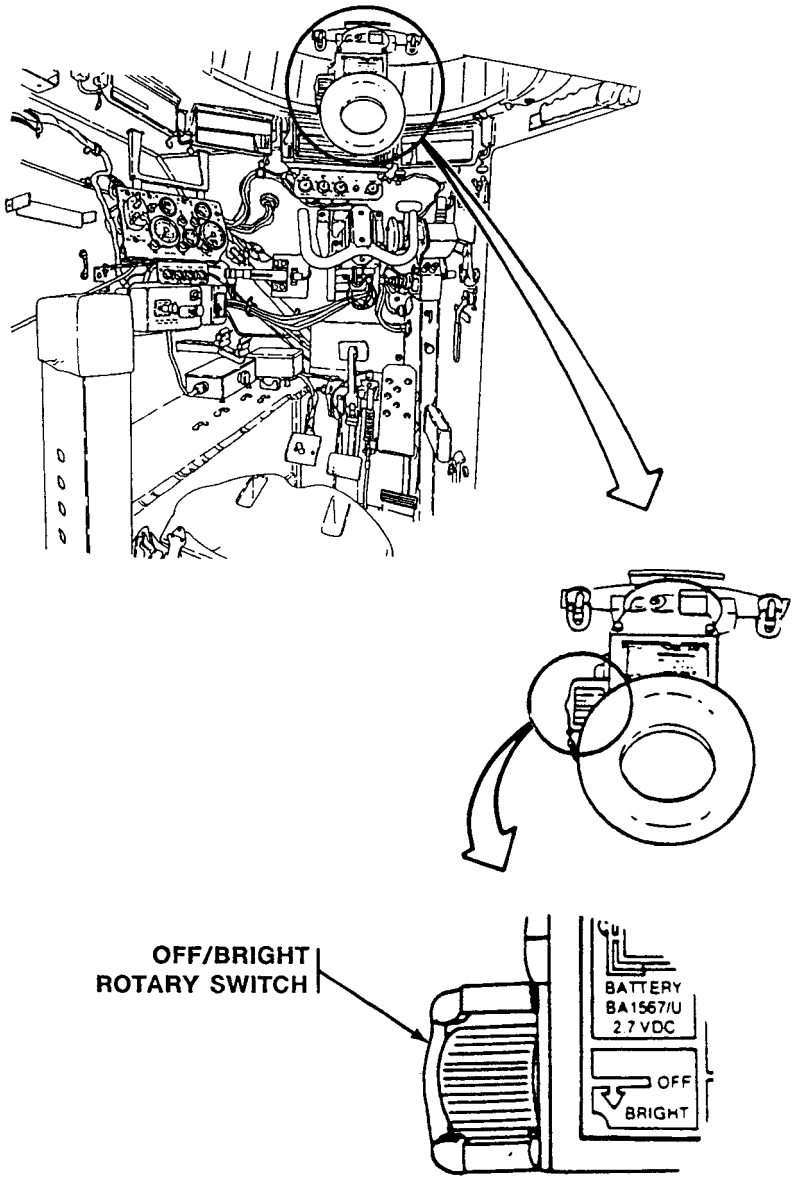


Table 35. DRIVER'S NIGHT VIEWER (ALL EXCEPT M58)

KEY	CONTROL OR INDICATOR	FUNCTION
	OFF/BRIGHT ROTARY SWITCH	Turns on driver's night viewer and adjusts brightness of view.

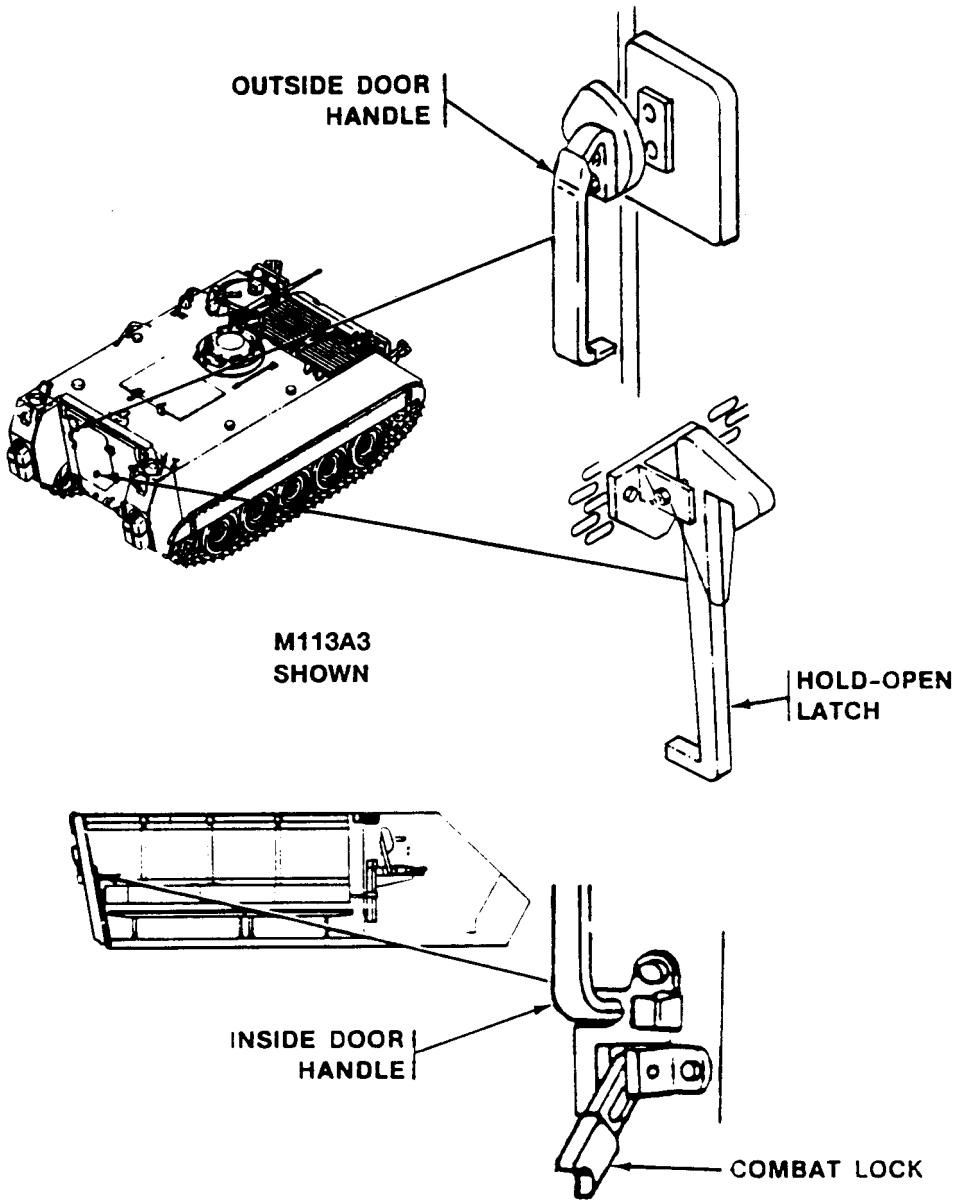


Table 36. RAMP ACCESS DOOR CONTROLS

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.

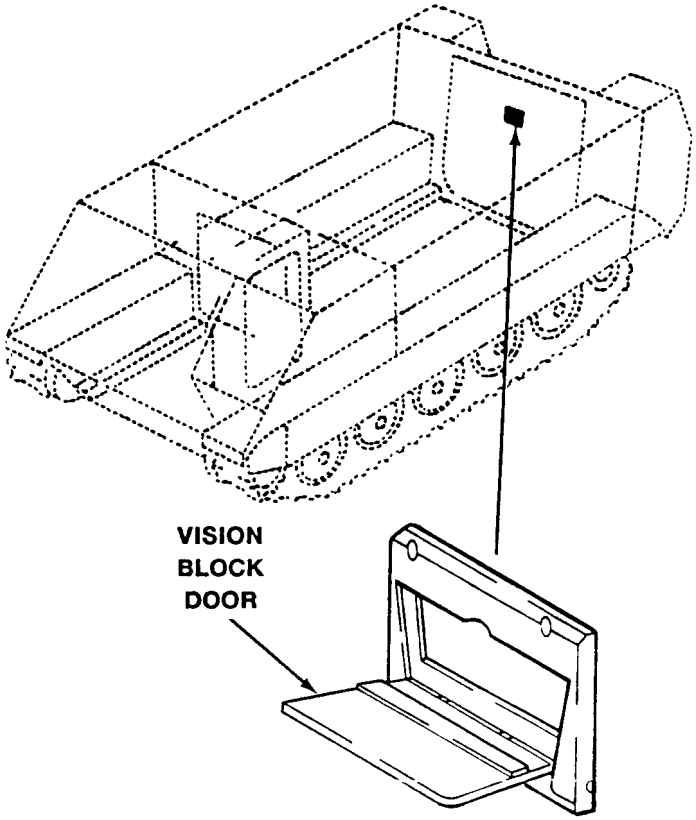


Table 37. RAMP DOOR INTERIOR CONTROLS (M901A3 AND M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	VISION BLOCK DOOR	Swings open to allow viewing through ramp door direct vision block.

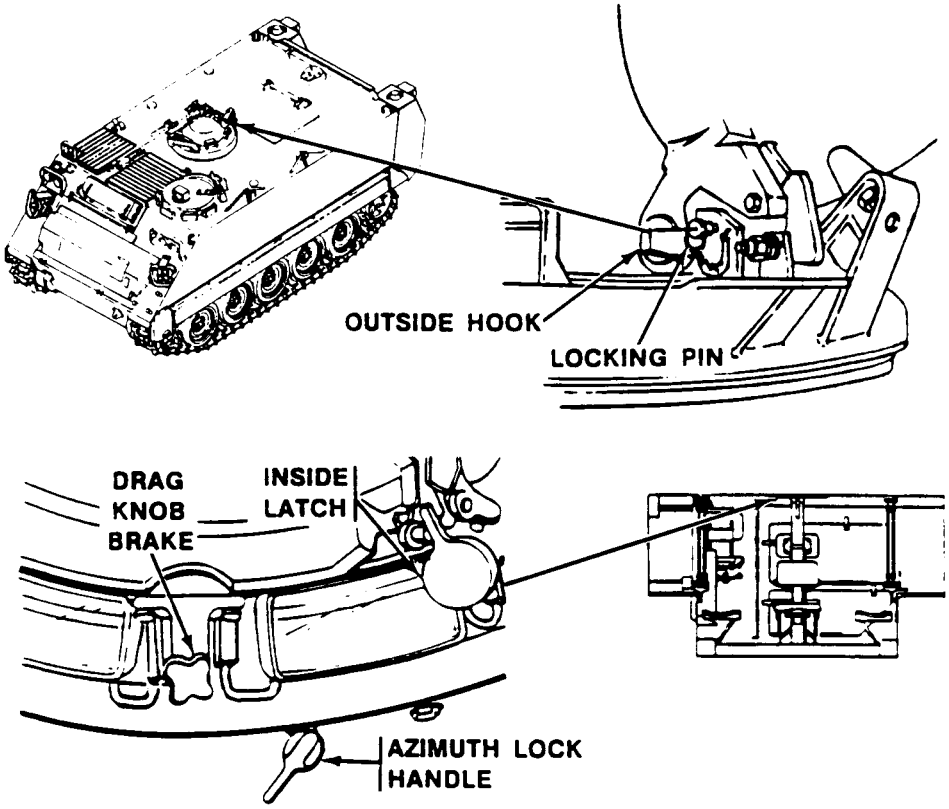


Table 38. COMMANDER'S CUPOLA CONTROLS (M113A3, M1059A3, M1064A3 ONLY)

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.
	INSIDE LATCH	Locks and unlocks commander's hatch cover from inside carrier.
	DRAG BRAKE KNOB	Controls drag brake to slow and stop cupola movement.

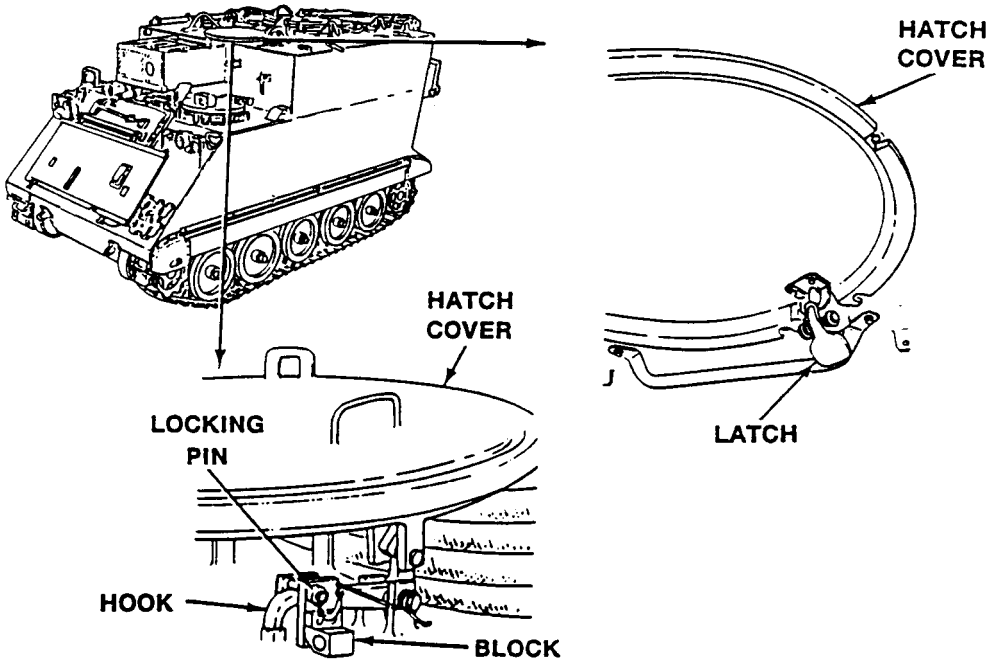


Table 39. COMMANDER'S HATCH CONTROLS (M577A3 AND M1068A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	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. Stored in block to prevent getting lost.
	BLOCK	Stores locking pin when commander's hatch cover is closed.
	LATCH	To open and secure closed the commander's hatch cover.
	OUTSIDE LATCH HOOK	To secure commander's hatch cover open, the locking pin ensures it stays locked.

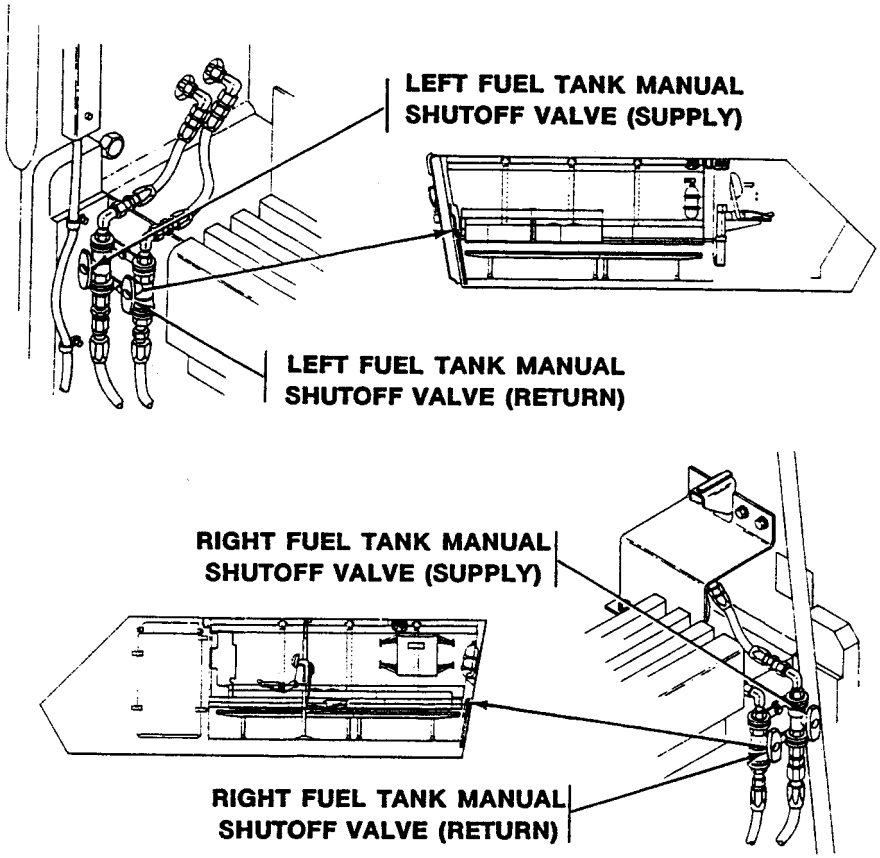


Table 40. FUEL TANKS MANUAL SHUTOFF VALVES (ALL EXCEPT M577A3 AND M1068A3)

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.

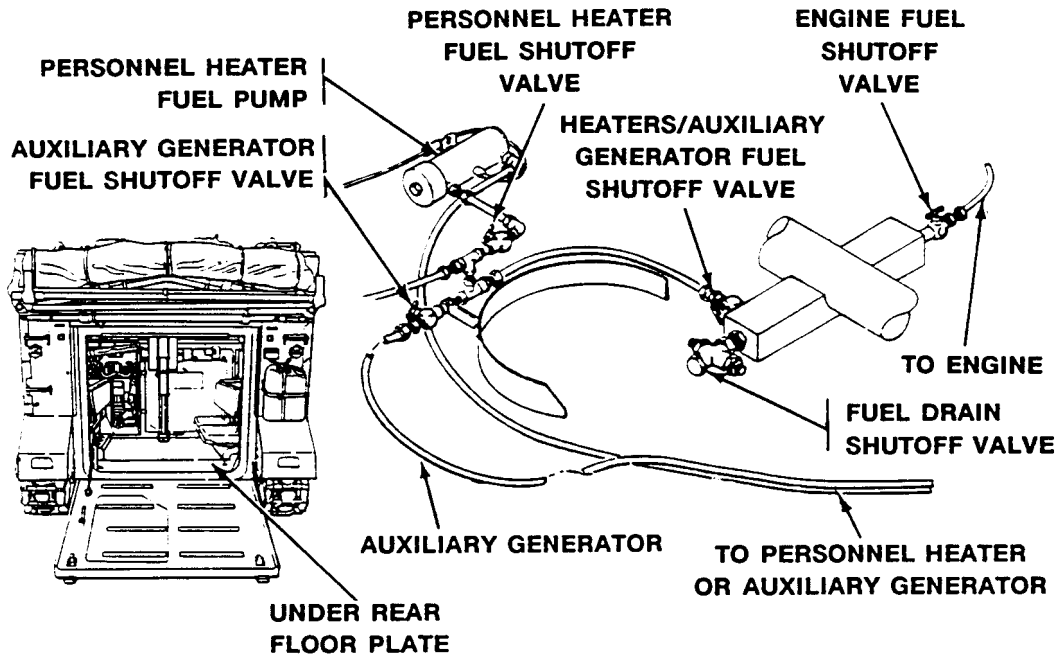


Table 41. FUEL TANKS MANUAL SHUTOFF VALVES (M577A3 AND M1068A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	ENGINE FUEL SHUTOFF VALVE (SUPPLY)	Starts and stops fuel flow from both fuel tanks to engine.
	HEATER/AUXILIARY GENERATOR FUEL SHUTOFF VALVE	Starts and stops fuel flow from both fuel tanks to personnel heater, auxiliary generator, and coolant heater.
	PERSONNEL HEATER FUEL SHUTOFF VALVE	Starts and stops fuel flow to personnel heater fuel pump.
	AUXILIARY GENERATOR FUEL SHUTOFF	Starts and stops fuel flow to auxiliary generator.
	FUEL DRAIN SHUTOFF VALVE	Allows for hose to be connected and draining fuel into proper container for reuse or proper disposal.

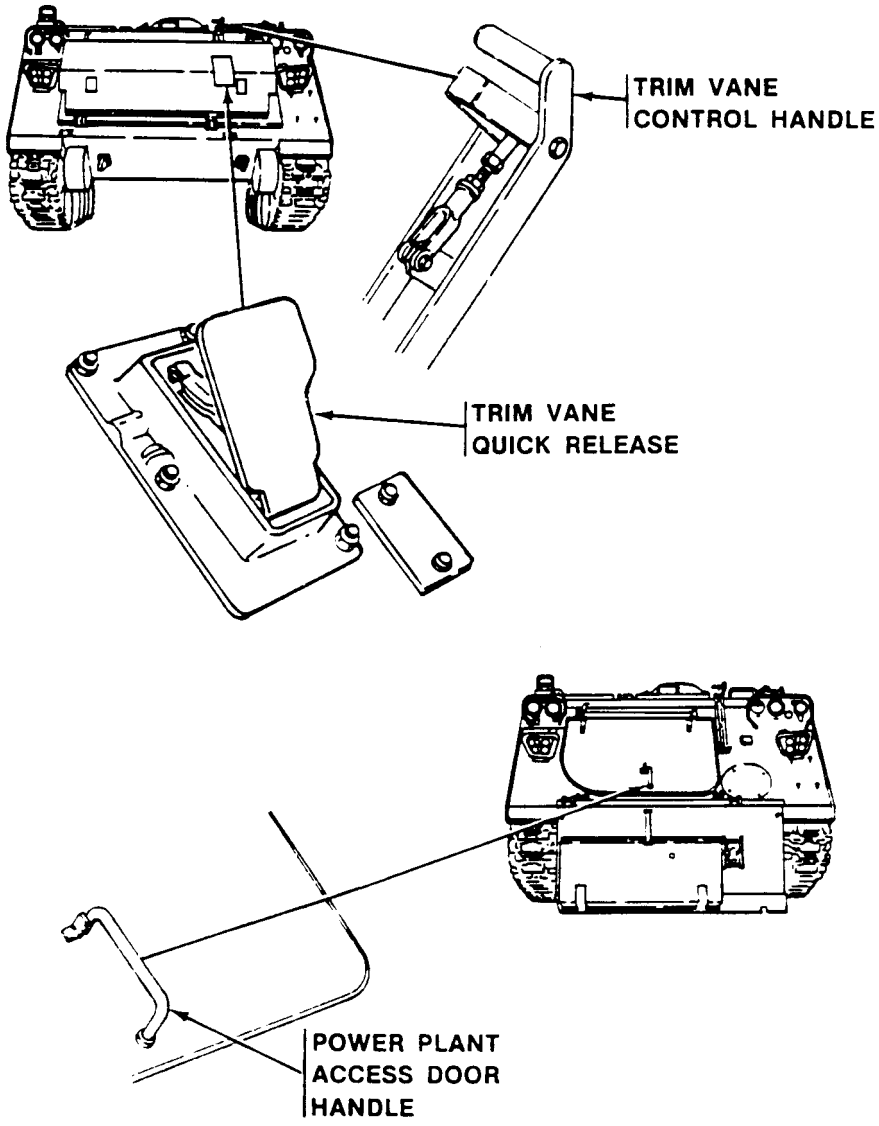


Table 42. TRIM VANE AND POWER PLANT ACCESS DOOR CONTROLS

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.

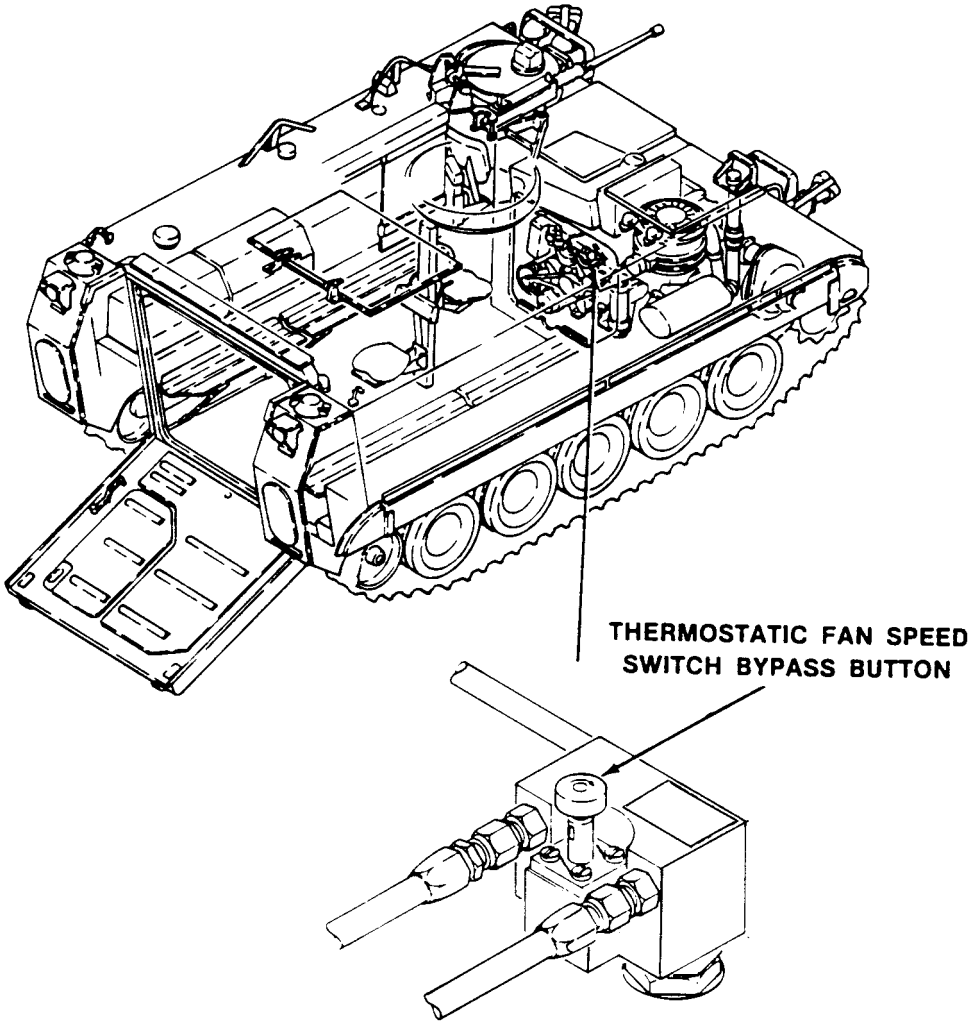
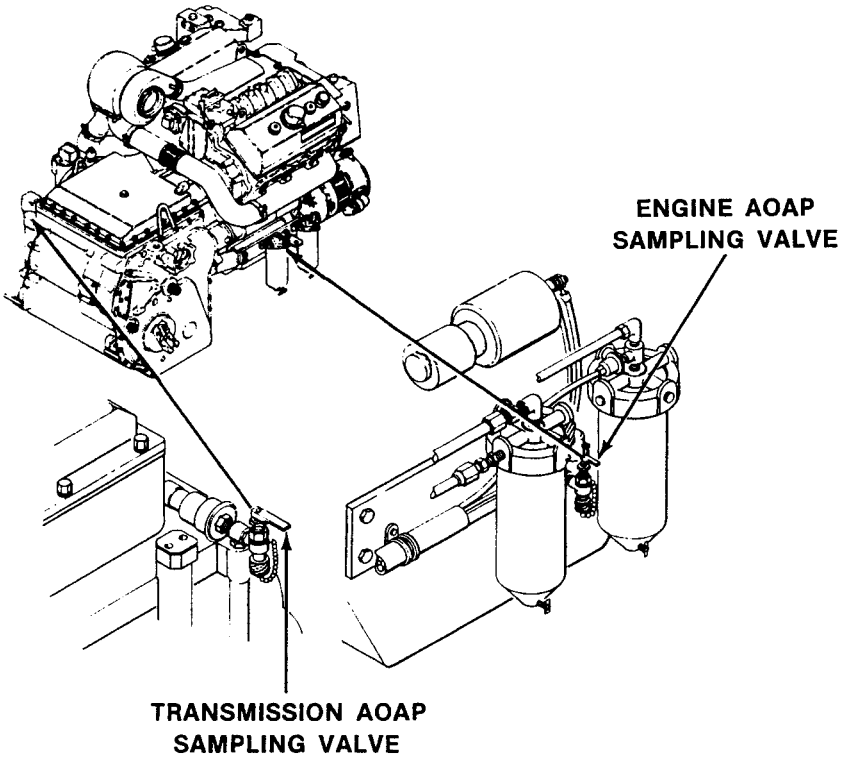


Table 43. THERMOSTATIC FAN SPEED SWITCH BYPASS BUTTON

KEY	CONTROL OR INDICATOR	FUNCTION
	THERMOSTATIC FAN SPEED SWITCH BYPASS BUTTON	Allows you to change the variable speed coolant fan drive to a constant speed coolant fan drive by bypassing the thermostatic fan speed switch.



NOTE

See WP 0090 00 for instructions on taking transmission and engine AOAP oil sample.

Table 44. 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.

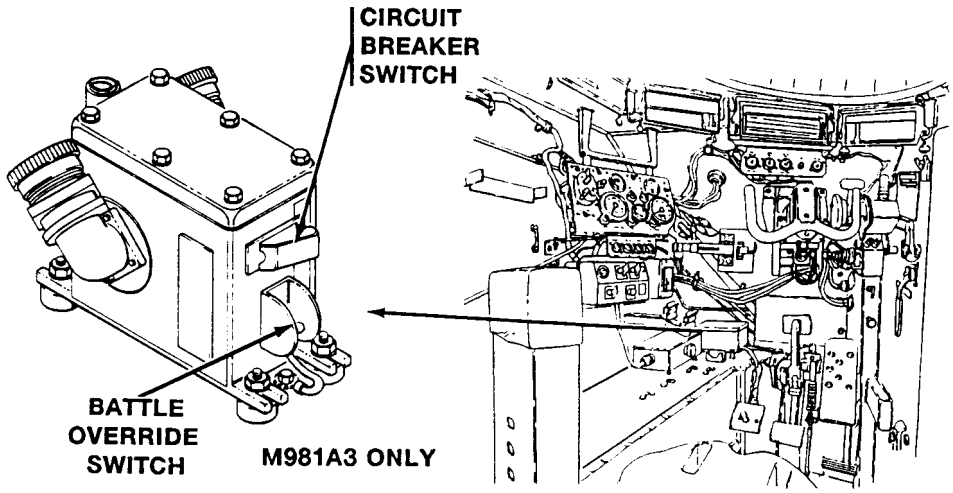


Table 45. ELECTRICAL TRANSIENT SUPPRESSOR (M981A3 ONLY)

KEY	CONTROL OR INDICATOR	FUNCTION
	CIRCUIT BREAKER SWITCH	Protects electronic equipment in targeting station from damage due to excessive voltage transients or reversing of dc power leads.
	BATTLE OVERRIDE SWITCH	Overrides circuit breaker to keep targeting station system on in an emergency condition when circuit breaker has tripped.

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 00-3).
Open Ramp Access Door From Outside Carrier (page 0005 00-4).
Close Ramp Access Door From Outside Carrier (page 0005 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier parked

Personnel Required
Soldier

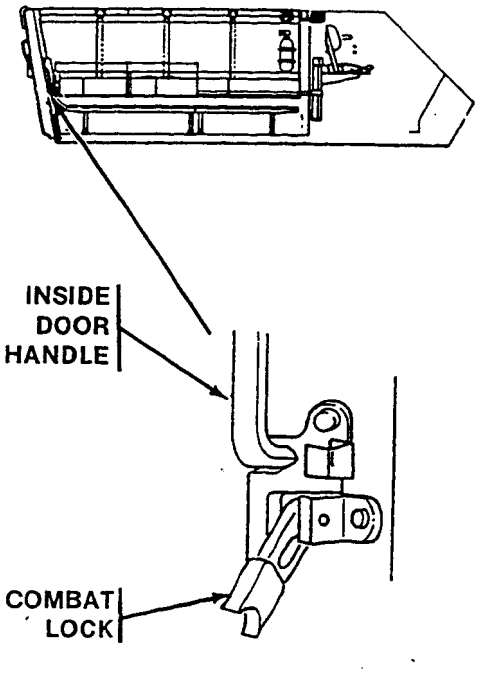
OPEN RAMP ACCESS DOOR FROM INSIDE CARRIER

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.

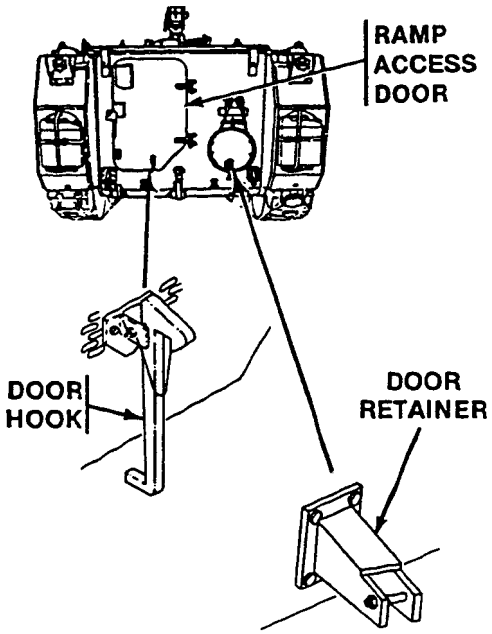
1. Release combat lock and raise inside door handle until ramp access door is released.



NOTE

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

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



CLOSE RAMP ACCESS DOOR FROM INSIDE CARRIER

WARNING



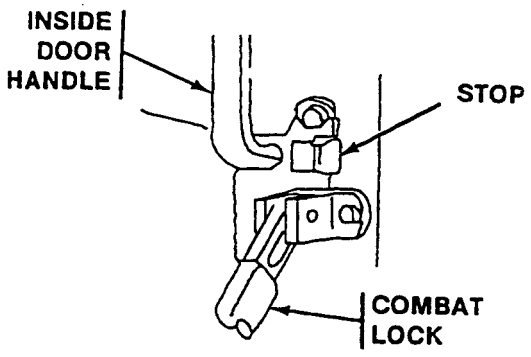
Ramp access door is heavy. It can swing and injure personnel. Stand clear when you release ramp access door hook.

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.
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

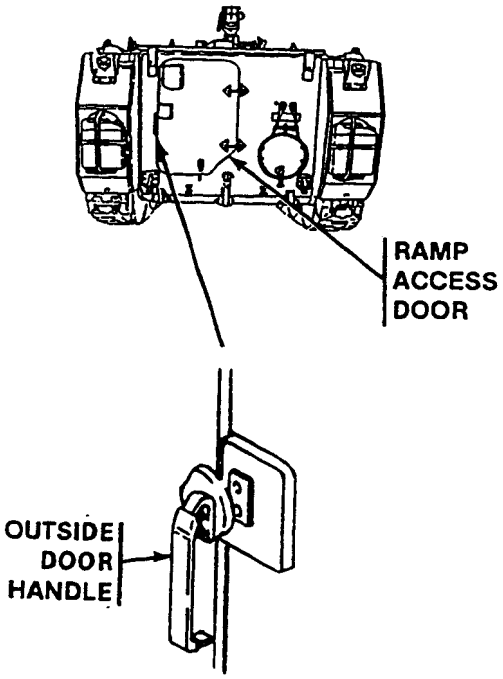


Ramp access door is heavy. It can swing and injure personnel. Do not stand behind ramp access door. Keep hands out from between handle and ramp access door.

NOTE

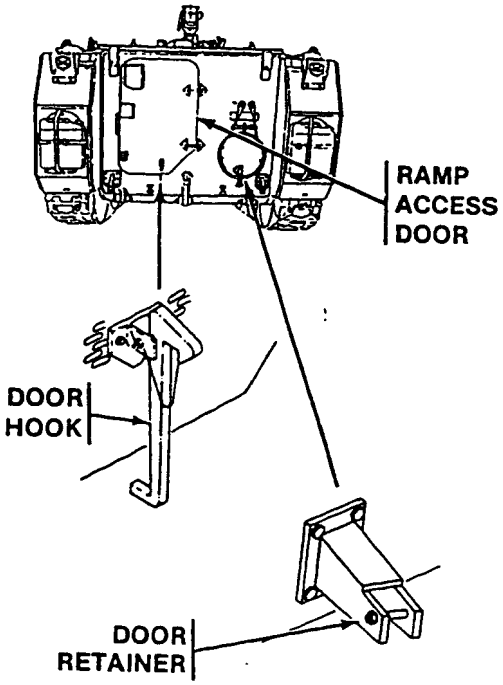
Combat lock must be released to open ramp access door from outside carrier.

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

1. Pull ramp access door hook to release ramp access door.
2. Swing ramp access door closed. Raise outside door handle to secure door closed.



END OF TASK

OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0006 00

THIS WORK PACKAGE COVERS:

Open Driver's Hatch Cover (page 0006 00-1).
Close Driver's Hatch Cover (page 0006 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Equipment Condition

Carrier parked
Parking brake set (WP 0020 00)

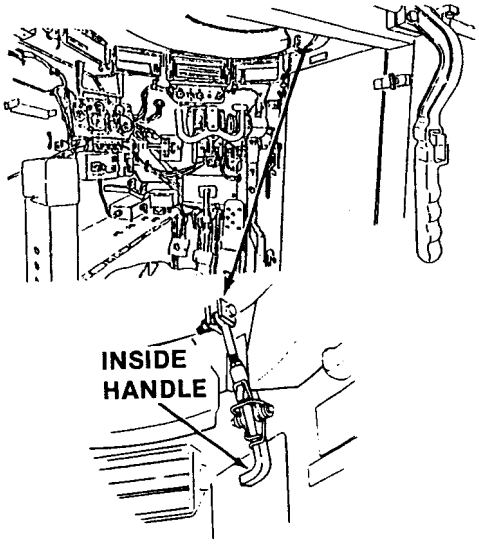
OPEN DRIVER'S HATCH COVER

WARNING



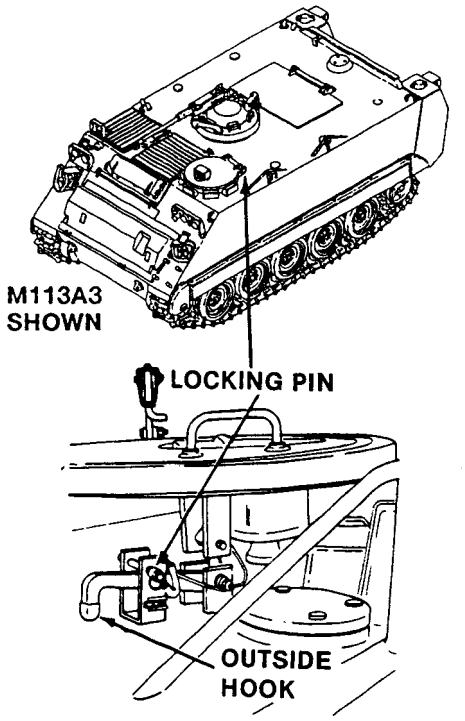
Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

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



OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0006 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.



OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0006 00**

CLOSE DRIVER'S HATCH COVER

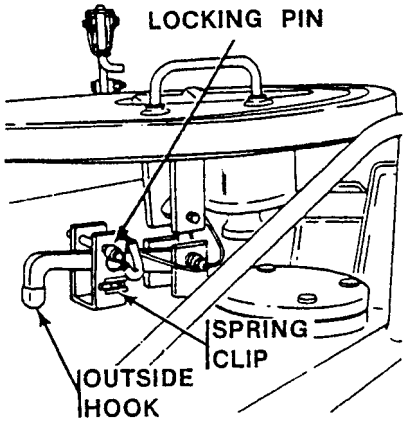
WARNING



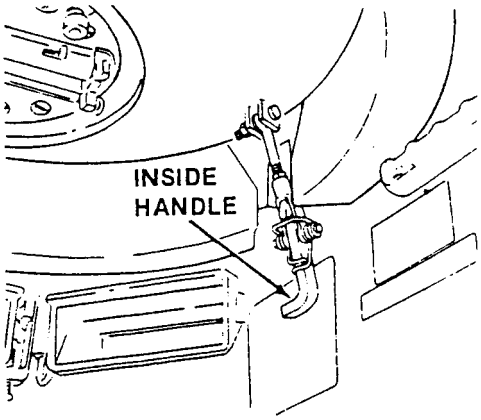
Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

1. Remove locking pin from outside hook. Place locking pin in spring clip.

2. Lift outside hook to release hatch cover from fully open position.



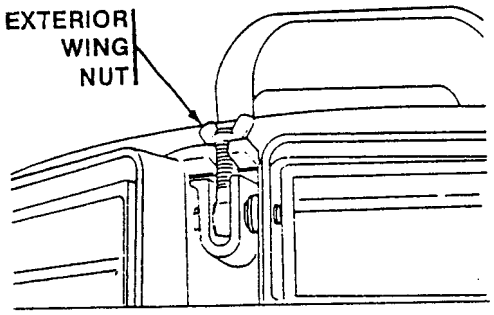
3. Swing hatch cover closed and secure with inside handle.



OPEN/CLOSE DRIVER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0006 00**

NOTE

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



END OF TASK

OPEN/CLOSE DRIVER'S HATCH (M901A3/M981A3 ONLY) 0007 00

THIS WORK PACKAGE COVERS:

Open Driver's Hatch Cover (page 0007 00-1).
Close Driver's Hatch Cover (page 0007 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked
Parking brake set (WP 0020 00)

Personnel Required

Driver

OPEN DRIVER'S HATCH COVER

WARNING



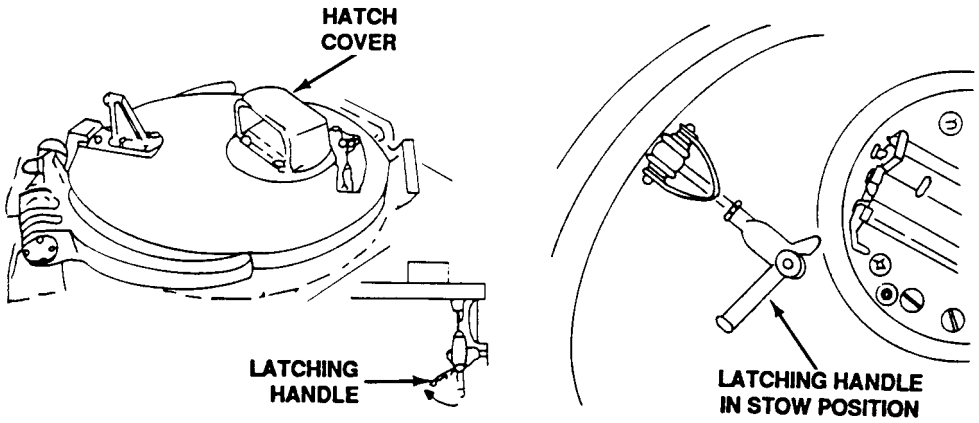
Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

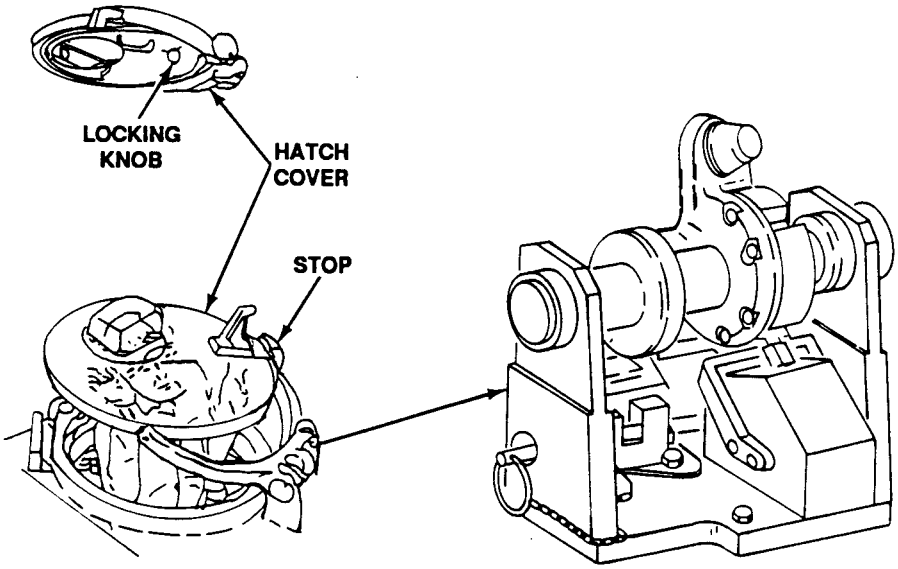
To prevent the hatch cover from rotating while open and injuring the driver, do not move the locking knob toward the center of the hatch cover unless the hatch is to be closed. When closing the hatch, always hold the hatch cover with hand before moving the locking knob.

When vehicle is moving OPEN HATCH TO POP-UP POSITION ONLY, never to full open position. If hatch is opened fully with vehicle in motion, injury to personnel and damage to hatch will result. Full open position should be used for exit from vehicle only.

1. Pull latching handle to unlock hatch cover.
2. Move latching handle to stow position (folded up against hatch cover).
3. Pull down on locking knob and slide knob toward center of hatch to release cover from hull.
4. Rotate back of hatch cover upward to stop.

5. Pull down on locking knob and slide knob toward stop until slide bolt engages hole in stop. Release locking knob.

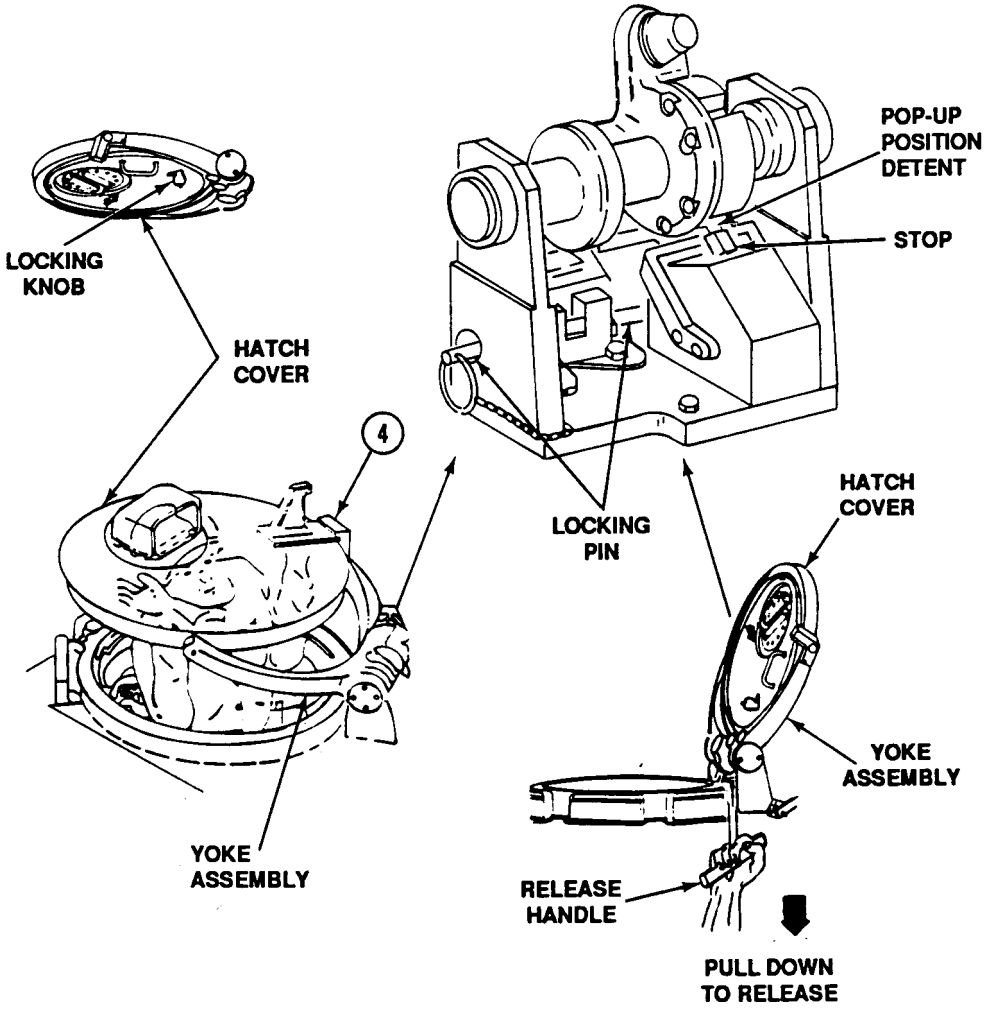




6. While supporting front and back of hatch cover, raise hatch cover and yoke assembly until stop engages pop-up position detent in yoke assembly. Push in locking pin to secure hatch cover and yoke assembly.

7. To go to full-open position, pull locking pin to retracted position, push up on hatch cover, and pull down on hatch release handle. Release hatch release handle when stop is clear of pop-up position detent and continue raising hatch cover and yoke assembly until stop engages full-open position detent.

8. Push in locking pin to secure hatch cover and yoke assembly.



CLOSE DRIVER'S HATCH COVER

WARNING



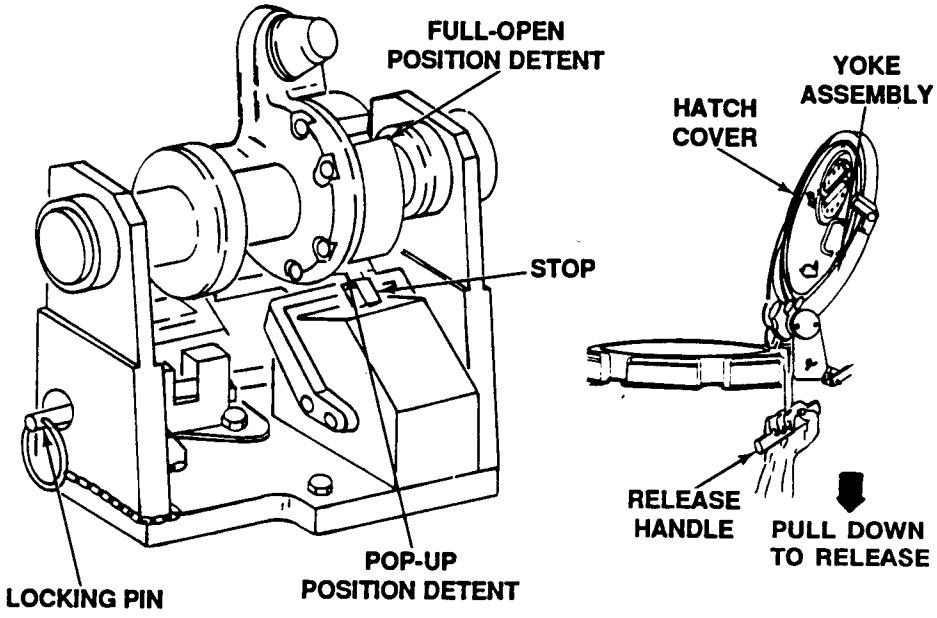
Driver's hatch cover could fall and injure you. Keep your head and hands clear when you open or close driver's hatch cover.

To prevent the hatch cover from rotating while open and injuring the driver, do not move the locking knob toward the center of the hatch cover unless the hatch is to be closed. When closing the hatch, always hold the hatch cover with hand before moving the locking knob.

NOTE

If going from full-open to pop-up position, release hatch release handle when stop is clear of full-open position detent. Release hatch release handle and continue lowering hatch cover and yoke assembly until stop engages pop-up position detent. If going from full-open to closed position, do not release hatch release handle until stop is clear of pop-up detent.

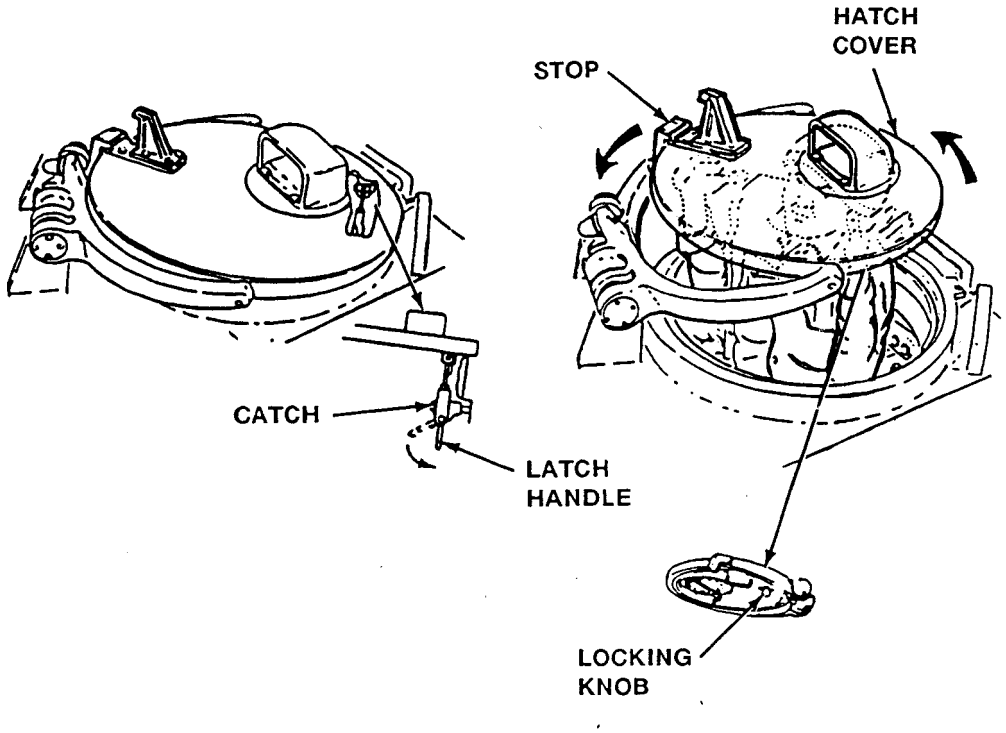
1. Pull locking pin to retracted position.



2. When hatch cover is nearly closed, pull down on locking knob and slide knob away from stop. Rotate front of hatch cover up and pull hatch cover closed.

3. Pull down on locking knob and slide knob away from center of hatch until cover is secured to hull.

4. Move latch handle from stow position and position under catch. Push bottom of latching handle until catch is engaged.



END OF TASK

OPEN/CLOSE CARGO HATCH COVER (M113A3, M901A3, M981A3, AND M1059A3 ONLY) 0008 00

THIS WORK PACKAGE COVERS:

Open Cargo Hatch Cover (page 0008 00-1).
Close Cargo Hatch Cover (page 0008 00-2).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Soldier

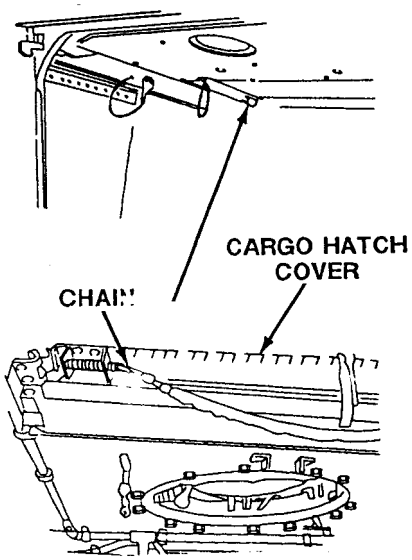
OPEN CARGO HATCH COVER

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.

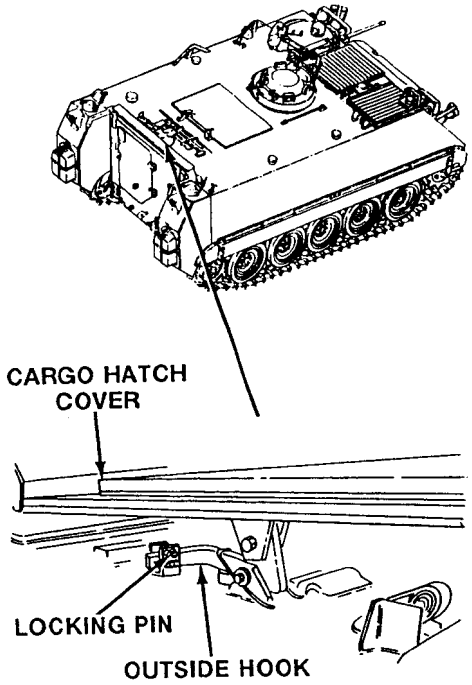
1. Pull chain to release cargo hatch cover.



2. Swing hatch cover open until it engages in outside hook.

OPEN/CLOSE CARGO HATCH COVER (M113A3, M901A3, M981A3, AND M1059A3 ONLY) — Continued **0008 00**

3. Install locking pin in outside hook to secure hatch cover in fully open position.

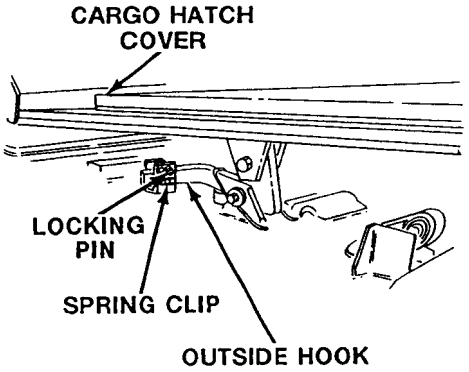


CLOSE CARGO HATCH COVER

WARNING

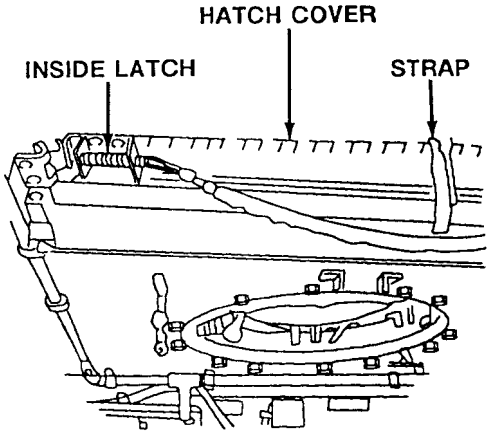
Cargo hatch cover is heavy. It can fall and injure you. When opening or closing cover, keep your head clear of the cover and keep your hands clear of the rim.

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



OPEN/CLOSE CARGO HATCH COVER (M113A3, M901A3, M981A3, AND M1059A3 ONLY) — Continued **0008 00**

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 (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0009 00

THIS WORK PACKAGE COVERS:

Open Commander's Hatch Cover (page 0009 00-1).
Close Commander's Hatch Cover (page 0009 00-2).

INITIAL SETUP:

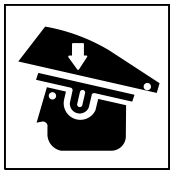
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

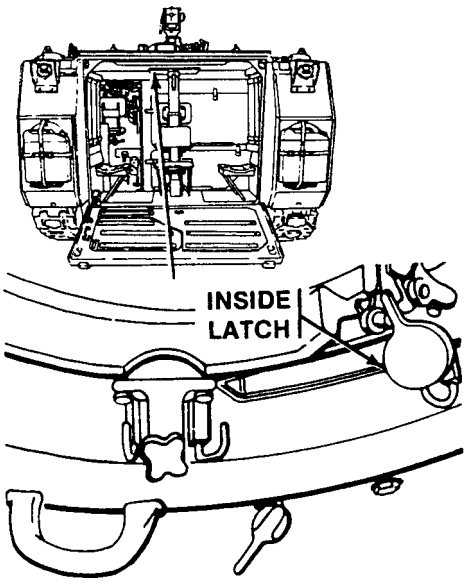
OPEN COMMANDER'S HATCH COVER

WARNING



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

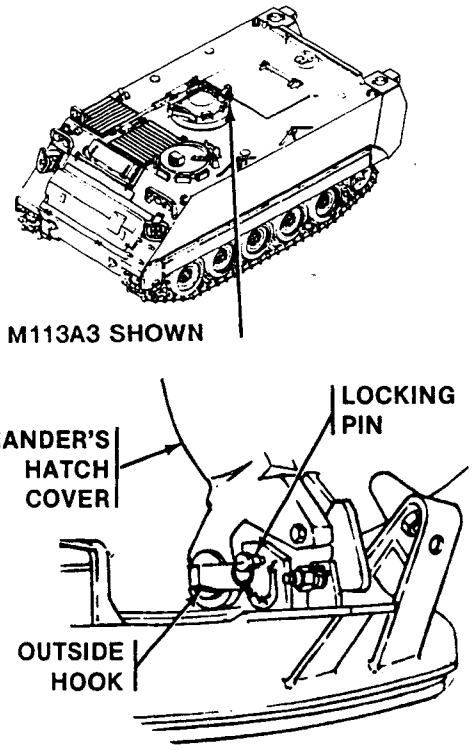
1. Press inside latch to release commander's hatch cover.



2. Swing hatch cover open until it engages outside hook.

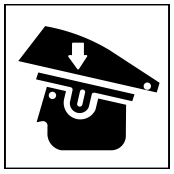
OPEN/CLOSE COMMANDER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0009 00**

3. Install locking pin in outside hook to secure hatch cover in fully open position.



CLOSE COMMANDER'S HATCH COVER

WARNING

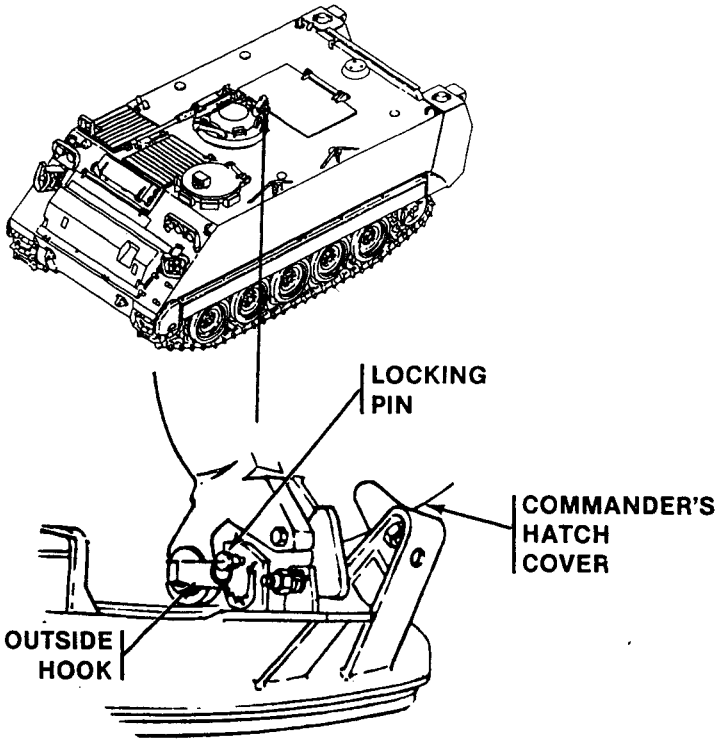


Commander's hatch cover could fall and injure you. Keep hands clear when you open or close commander's hatch cover.

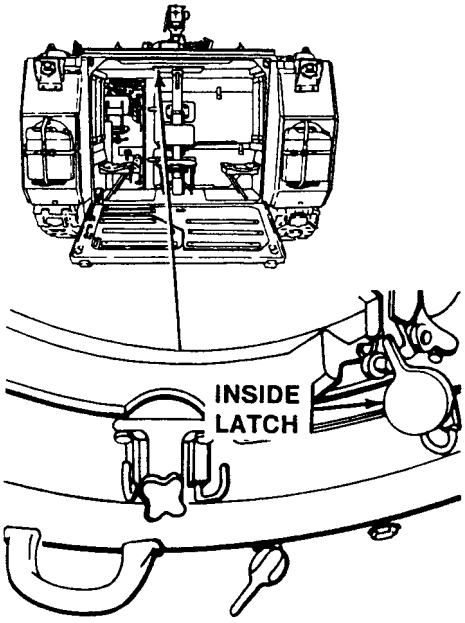
1. Remove locking pin from outside hook.

OPEN/CLOSE COMMANDER'S HATCH COVER (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0009 00**

2. Lift outside hook to release hatch cover from fully open position.



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



END OF TASK

OPERATE COMMANDER'S CUPOLA (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0010 00

THIS WORK PACKAGE COVERS:

Operate Commander's Cupola (page 0010 00-1).

INITIAL SETUP:

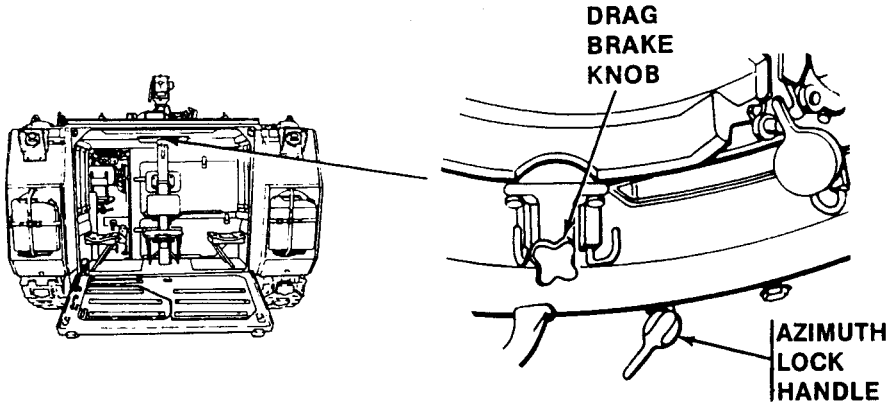
Maintenance Level
Operator

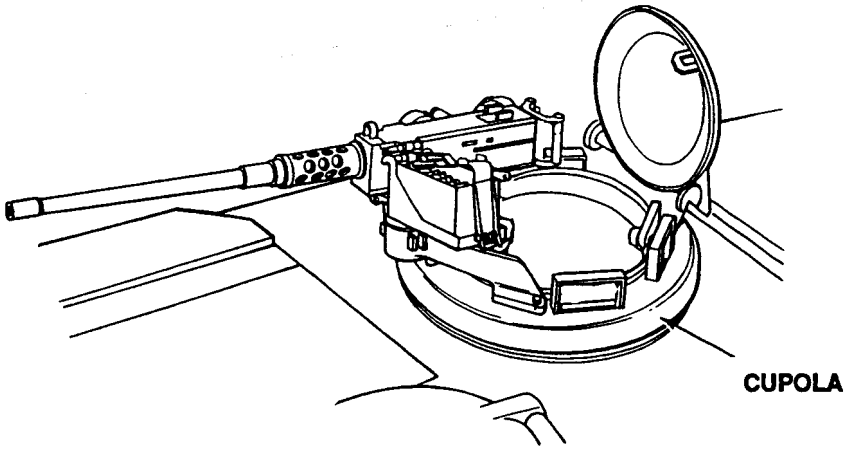
Personnel Required
Commander

Equipment Condition
Commander's hatch open (WP 0009 00)

OPERATE COMMANDER'S CUPOLA

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 0011 00

THIS WORK PACKAGE COVERS:

Open Power Plant Access Door (page 0011 00-1).
Close Power Plant Access Door (page 0011 00-3).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Soldier

Equipment Condition

Engine stopped (WP 0023 00)
Trim vane lowered (WP 0039 00)

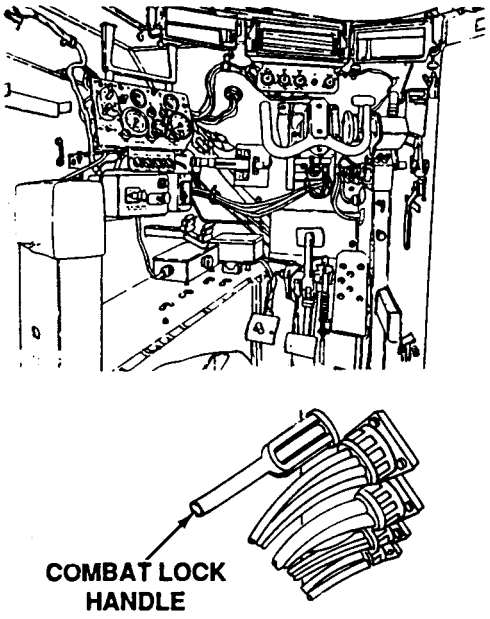
OPEN POWER PLANT ACCESS DOOR

WARNING

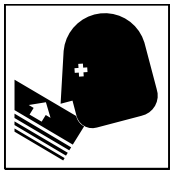


Power plant access door could fall and injure you. Install door brace before you work under door.

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

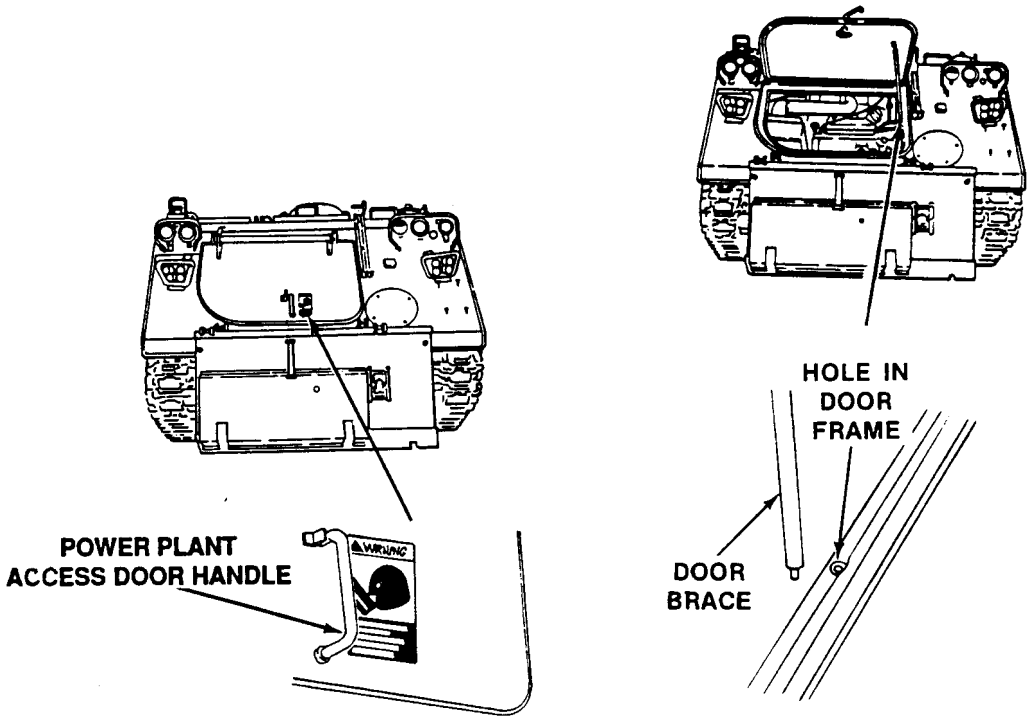


WARNING



Power plant access door may spring open. Soldiers can be injured. When opening, stay out of door path.

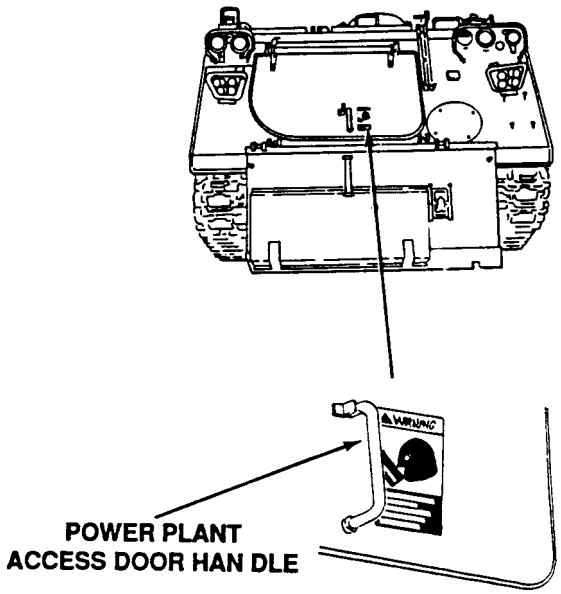
2. Turn handle to the right, and raise power plant access door.
3. Place end of door brace in hole in door frame to secure power plant access door open.



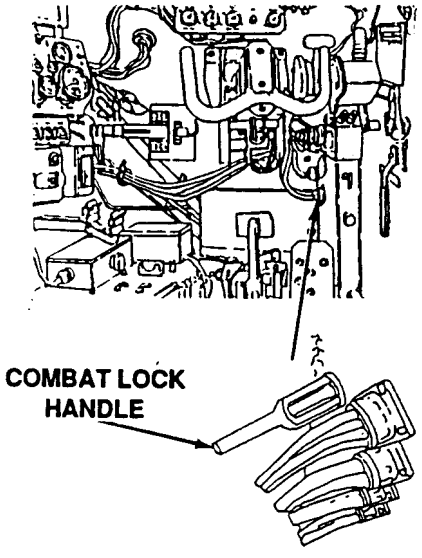
CLOSE POWER PLANT ACCESS DOOR

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

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



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



4. Stow trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).

END OF TASK

LOWER/RAISE RAMP 0012 00

THIS WORK PACKAGE COVERS:

Lower Ramp (page 0012 00-1).
Raise Ramp (page 0012 00-3).

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Driver

Equipment Condition
Carrier parked
Engine started (WP 0021 00)
Ramp access door closed (WP 0005 00)

LOWER RAMP

WARNING

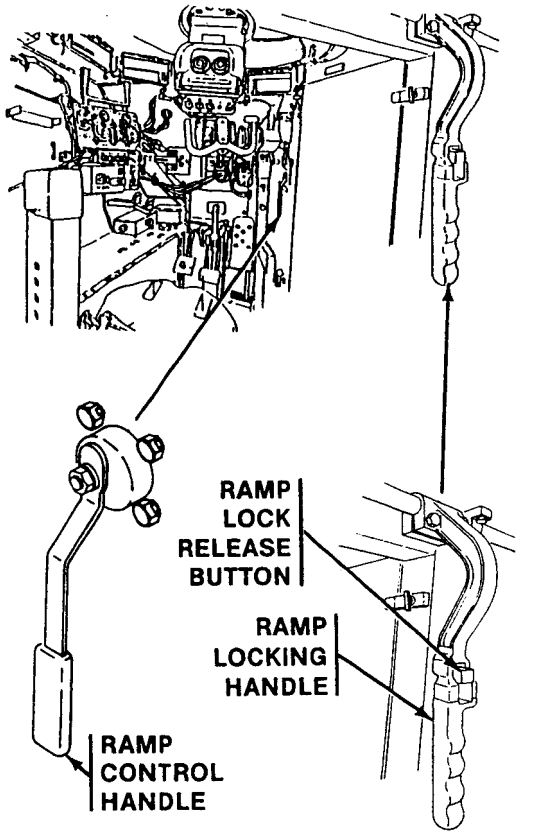


Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp.

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.

LOWER/RAISE RAMP — Continued **0012 00**

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

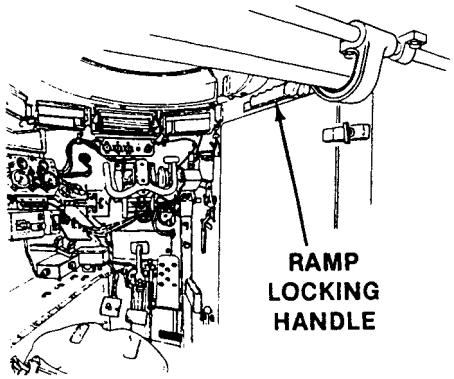
NOTE

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

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 0013 00

THIS WORK PACKAGE COVERS:

Raise or Lower Driver's Seat (page 0013 00-1).
Move Driver's Seat to Front or Rear (page 0013 00-3).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver

RAISE OR LOWER DRIVER'S SEAT

WARNING



Do not step on service brake while entering and exiting carrier. Failure to do so could cause personnel inside and outside the carrier to get injured or killed.

WARNING



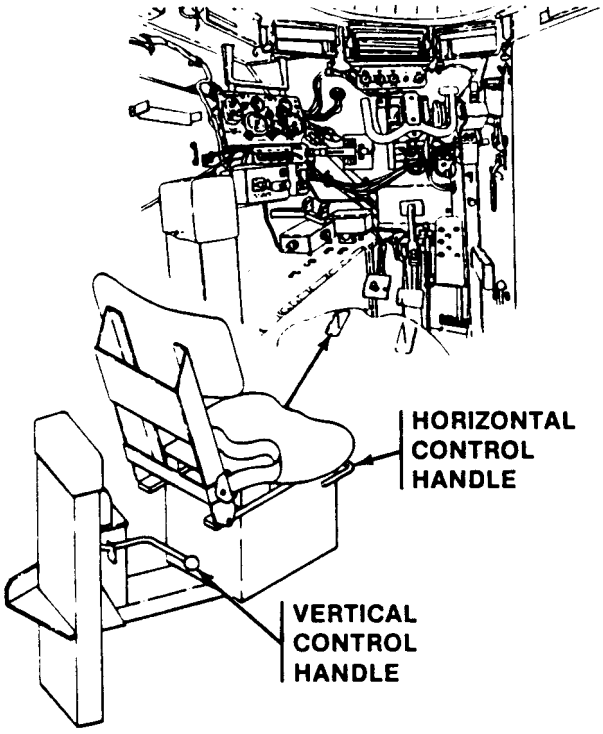
Seat can spring up and hit you when vertical control handle is released. Make sure you are sitting in the seat before releasing vertical control handle.

CAUTION

Do not step on seat back when entering or exiting vehicle. Damage to the seat back will result.

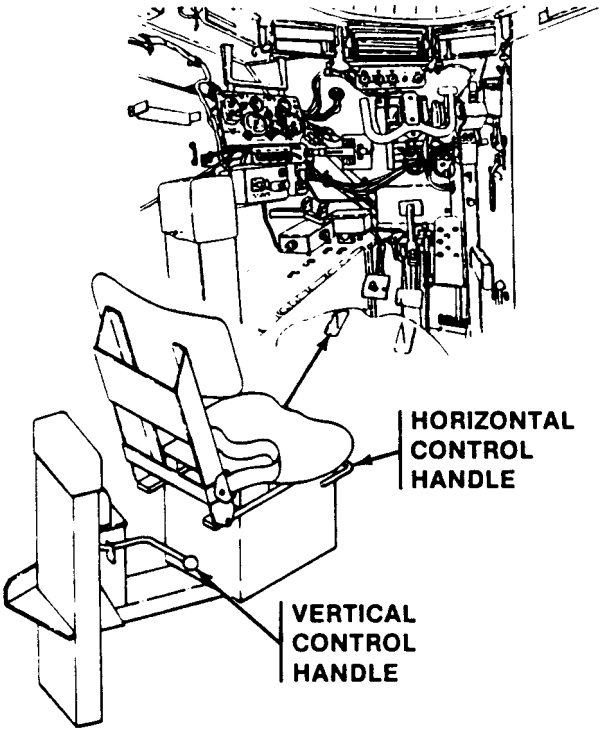
ADJUST DRIVER'S SEAT — Continued **0013 00**

1. Sit in driver's seat.
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 DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS 0014 00

THIS WORK PACKAGE COVERS:

Adjust Driver's Lap Seat Belt and Shoulder Harness (page 0014 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver

ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS

WARNING



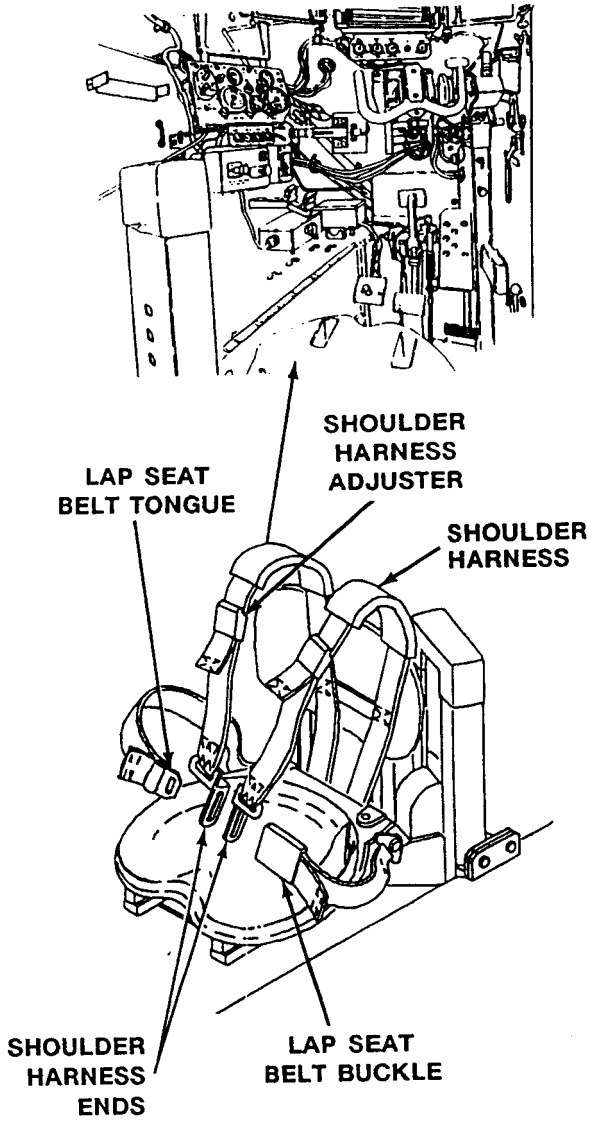
Sudden carrier movement can throw you out of your seat. Wear seat belt while carrier is in motion. Do not use seat with missing or inoperative seat belt.

NOTE

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

ADJUST DRIVER'S LAP SEAT BELT AND SHOULDER HARNESS — Continued 0014 00

1. Sit in driver's seat.
2. Adjust lap seat belt so lap buckle is centered on your lap.
3. Position shoulder harness over your shoulders.
4. Insert lap seat belt tongue through left and right shoulder harness ends.
5. Fasten lap seat belt.
6. Adjust shoulder harness using shoulder harness adjusters as needed.



END OF TASK

ADJUST COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0015 00

THIS WORK PACKAGE COVERS:

Adjust Commander's Seat (page 0015 00-1).

INITIAL SETUP:

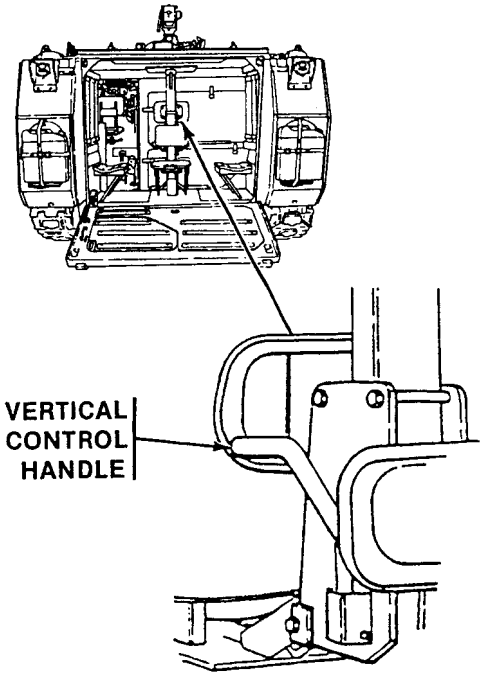
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

ADJUST COMMANDER'S SEAT

1. Push in vertical control handle and raise or lower commander's seat.
2. When positioned, release vertical control handle to lock commander's seat in place.



END OF TASK

STOW/UNSTOW COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0016 00

THIS WORK PACKAGE COVERS:

Stow Commander's Seat (page 0016 00-1).
Unstow Commander's Seat (page 0016 00-2).

INITIAL SETUP:

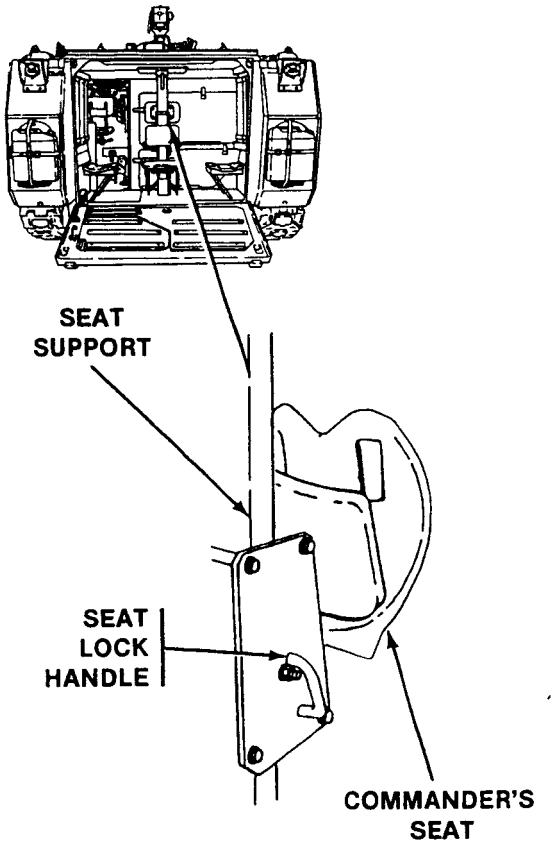
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

STOW COMMANDER'S SEAT

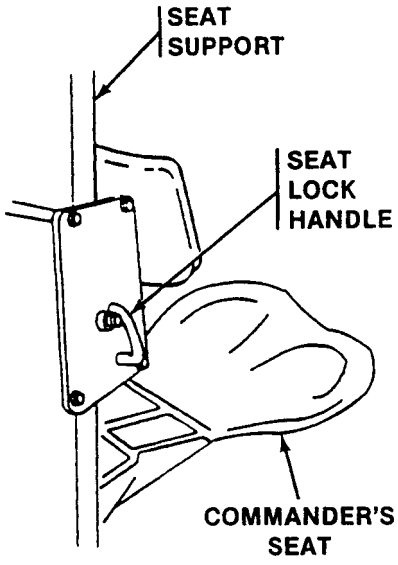
1. Lift commander's seat toward seat support until it locks in stowed position.



STOW/UNSTOW COMMANDER'S SEAT (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0016 00**

UNSTOW COMMANDER'S SEAT

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



END OF TASK

STOW/UNSTOW JUMP SEAT (M113A3 AND M1059A3) 0017 00

THIS WORK PACKAGE COVERS:

Stow Jump Seat (page 0017 00-1).
Unstow Jump Seat (page 0017 00-2).

INITIAL SETUP:

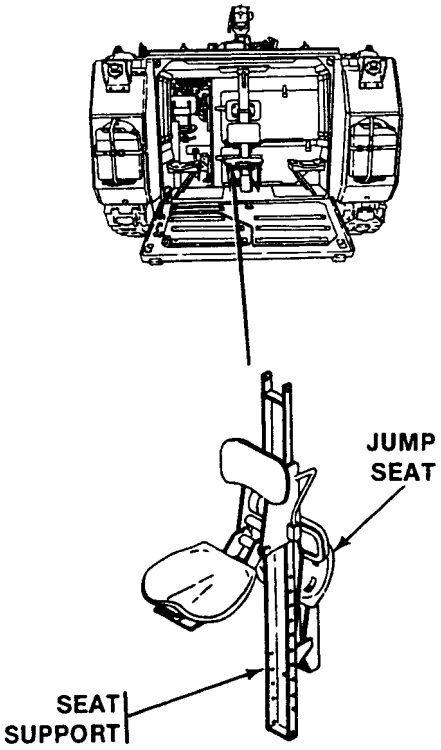
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

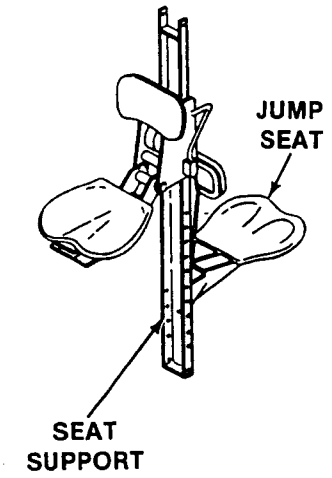
STOW JUMP SEAT

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

CONNECT CVC HELMET TO INTERCOM CONTROL BOX 0018 00

THIS WORK PACKAGE COVERS:

Connect CVC Helmet to Intercom Control Box (page 0018 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Commander

References

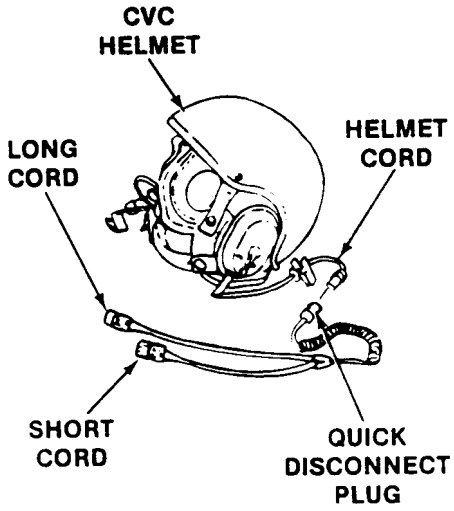
TM 11-5820-498-12
TM 11-5915-224-14

CONNECT CVC HELMET TO INTERCOM CONTROL BOX

NOTE

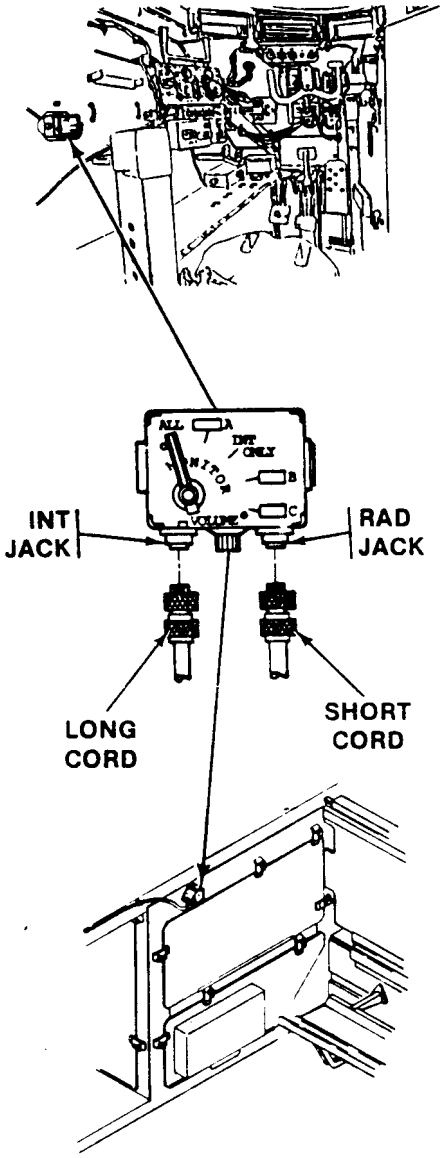
Procedure is the same at both driver's and commander's station.

1. Connect helmet cord to quick disconnect plug.



CONNECT CVC HELMET TO INTERCOM CONTROL BOX — Continued 0018 00

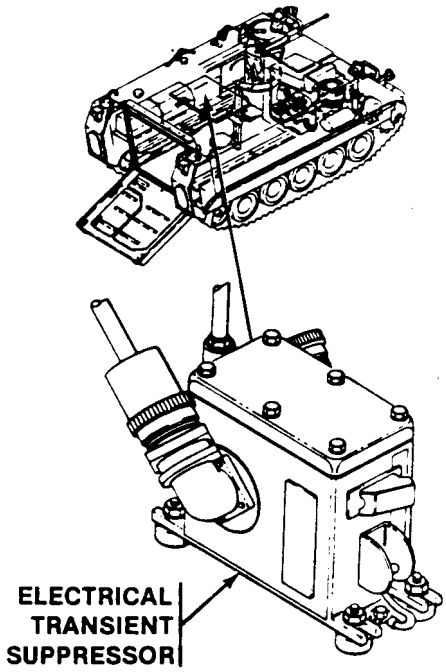
2. Connect long cord to INT jack on intercom control box.
3. Connect short cord to RAD jack on intercom control box.



NOTE

See TM 11-5820-498-12 for more information on radio equipment.

See TM 11-5915-224-14 for operation of electrical transient suppressor.



END OF TASK

CONNECT CVC HELMET TO VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS) 0019 00

THIS WORK PACKAGE COVERS:

Connect CVC Helmet to Vehicle Intercommunications System (VIS) (page 0019 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Commander

References

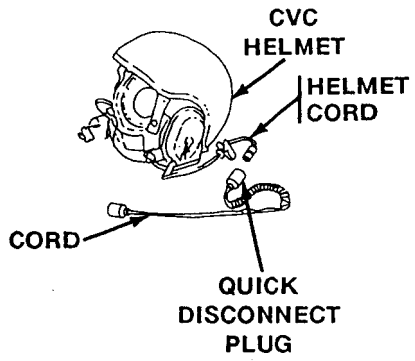
TM 11-5820-890-10-1
SB 11-131

CONNECT CVC HELMET TO VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS)

NOTE

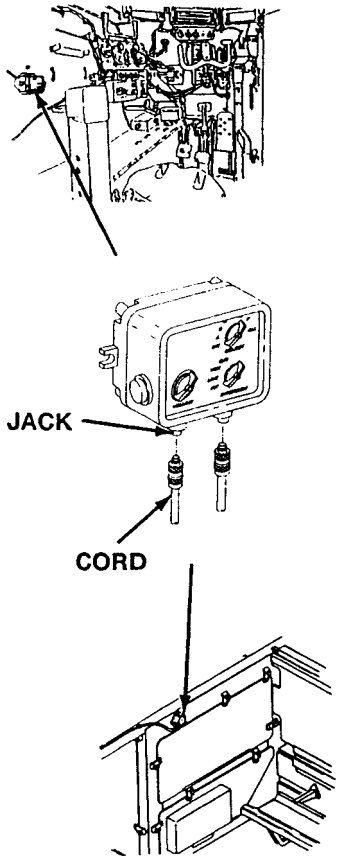
Procedure is the same at both driver's and commander's station.

1. Connect helmet cord to quick disconnect plug.



CONNECT CVC HELMET TO VEHICLE INTERCOMMUNICATIONS SYSTEM (VIS) — Continued **0019 00**

2. Connect cord to left jack on intercom control box.



NOTE

For applicable vehicle radio sets and authorized installations, refer to SB 11-131. See TM 11-5820-890-10-1 for references for radio operation.

END OF TASK

SET/RELEASE PARKING BRAKE 0020 00

THIS WORK PACKAGE COVERS:

Set Parking Brake (page 0020 00-1).
Release Parking Brake (page 0020 00-2).

INITIAL SETUP:

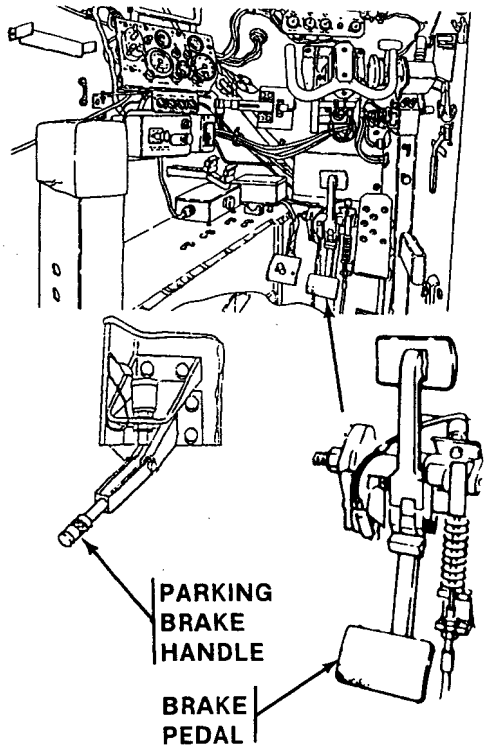
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver

SET PARKING BRAKE

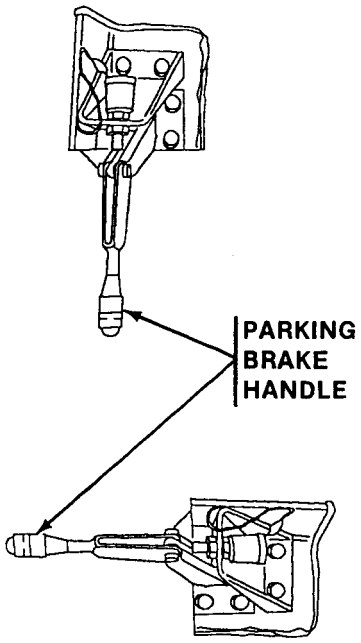
1. Depress and hold brake pedal.
2. Pull up on parking brake handle to set parking brake.
3. Release brake pedal.



EARLY
MODEL

RELEASE PARKING BRAKE

1. Depress and hold brake pedal.
2. Push down on parking brake handle to release parking brake.
3. Let up on brake pedal.



LATE
MODEL

END OF TASK

START ENGINE 0021 00

THIS WORK PACKAGE COVERS:

Prepare to Start Engine (page 0021 00-1).
Start Engine (above +40°F (+4°C)) (page 0021 00-9).
Start Engine (-25° to +40°F) (-32° to +4°C) (page 0021 00-11).

INITIAL SETUP:

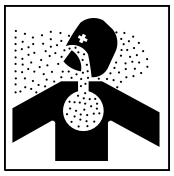
Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver

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 operate vehicle while both fuel return lines are closed. Engine damage will result.

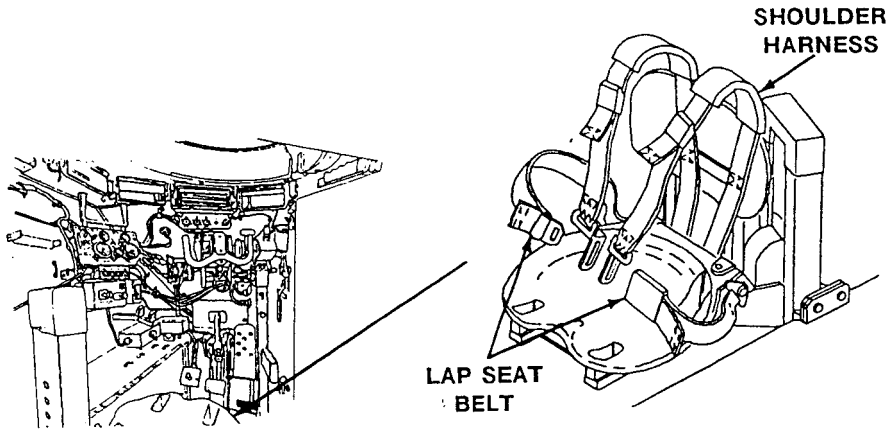
1. Check that power plant compartment access panels are closed tight. See task: REMOVE/INSTALL POWER PLANT ACCESS PANELS (WP 0040 00).

WARNING



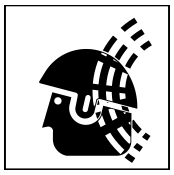
Sudden carrier movement can throw you out of seat. Wear lap seat belt and shoulder harness while carrier is in motion. Do not use any seat with missing or inoperative lap seat belt.

2. Position shoulder harness over your shoulders. Adjust lap seat belt. Insert lap seat belt tongue through left and right shoulder harness ends and fasten lap seat belt. Adjust shoulder harness fit.



3. Check that parking brake is set. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

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.

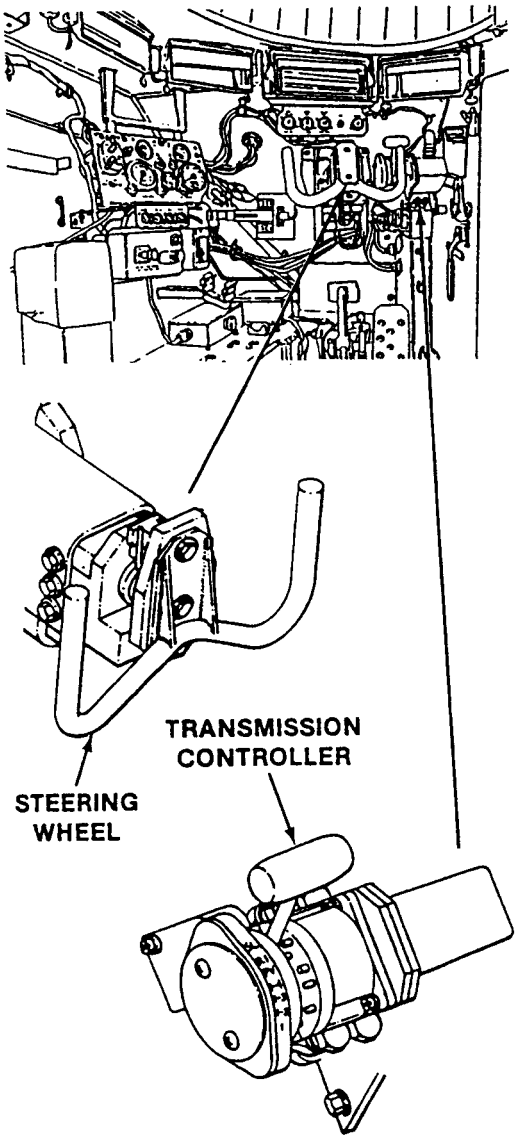
4. Put on cvc helmet and connect to intercom control box. See task: CONNECT CVC HELMET TO INTERCOM CONTROL BOX (WP 0018 00).

WARNING



If transmission controller is set to SL position, and steering wheel is not centered to engage locking pin, carrier may pivot steer and injure personnel. Steering wheel must be centered when starting engine.

5. Center steering wheel and place transmission controller in SL position to lock steering wheel.

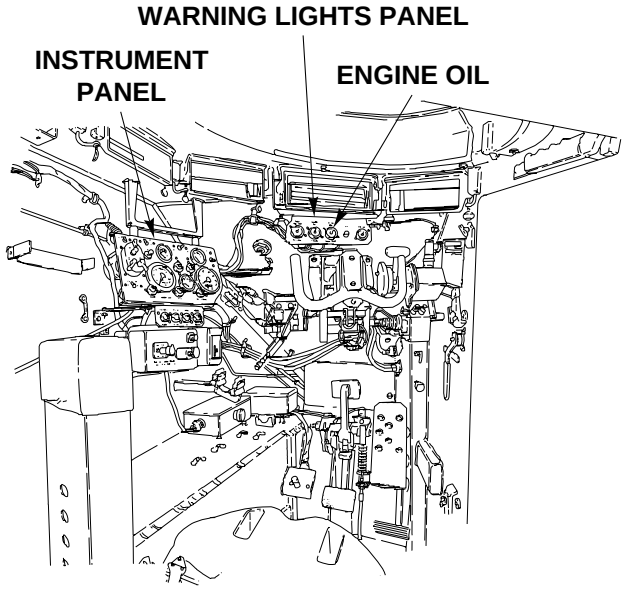


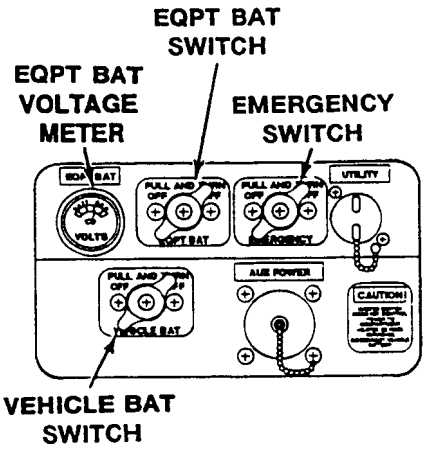
NOTE

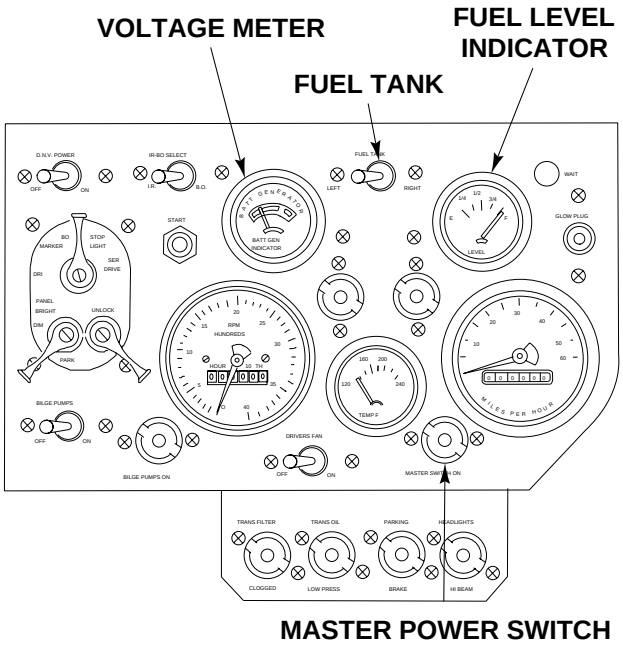
For M981A3, ensure PUMP switch on Targeting Station Controls and Display (TSCD) is set to DISABLE (targeting station hydraulic pump is off) before starting engine.

Do Steps 6 - 9 for M981A3 only.

6. Ensure that all switches on driver's instrument panel are off, PUMP switch on TSCD is set to DISABLE, and all communications equipment is off. For more information, see TM 9-2350-266-10.
7. Turn EQPT BAT switch to ON position and check that needle of the EQPT BAT voltage meter is in green or yellow zone and voltage meter shows no voltage (needle to extreme left).
8. Turn EQPT BAT switch OFF, turn VEHICLE BAT switch to ON position.
9. Check instrument panel and warning lights panel for unusual readings. Indicators should read as follows:
   MASTER SWITCH ON light - ON
   ENGINE OIL warning light - ON
   Voltage meter - needle in green or yellow zone
   FUEL LEVEL indicator - indicates amount of fuel in right or left fuel tank, depending on setting of FUEL TANK switch.
   All other lights and indicators should be off.



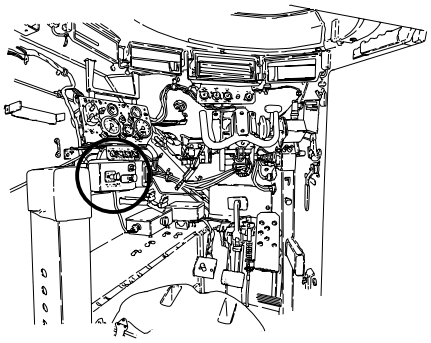


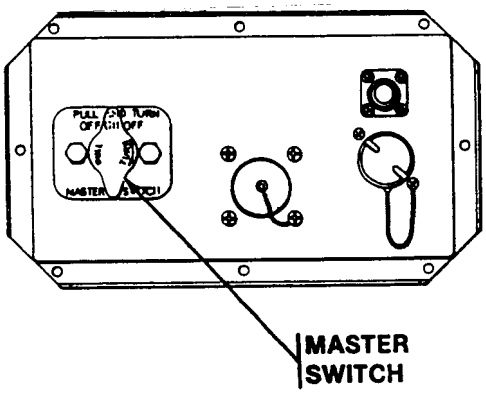


NOTE

Do Steps 10 - 19 for all vehicles except M981A3.

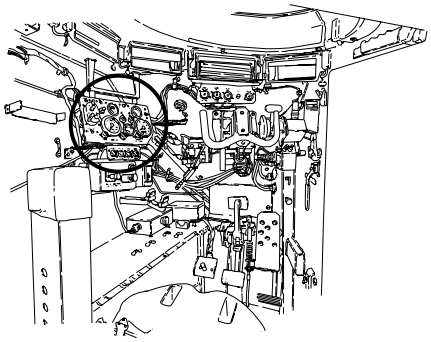
10. Turn MASTER SWITCH ON.

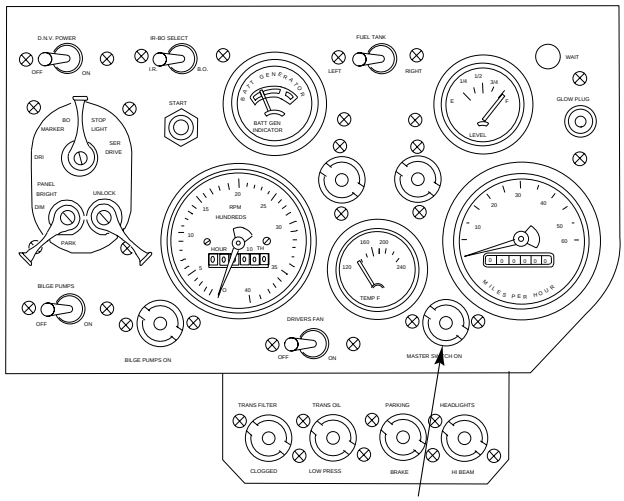




START ENGINE — Continued **0021 00**

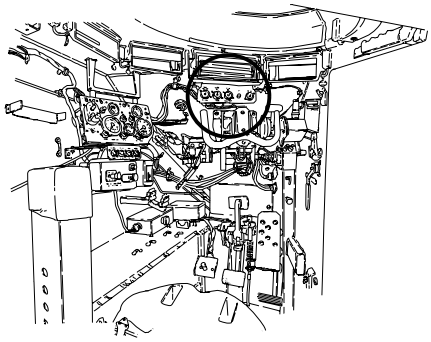
11. Check that MASTER SWITCH ON indicator light is on.

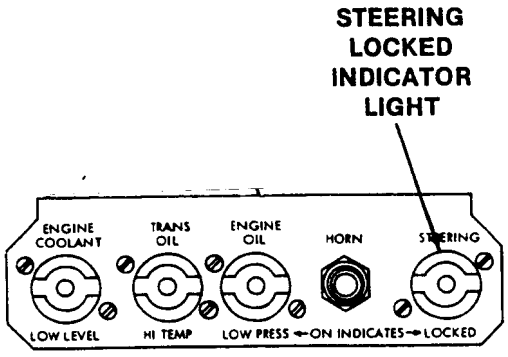




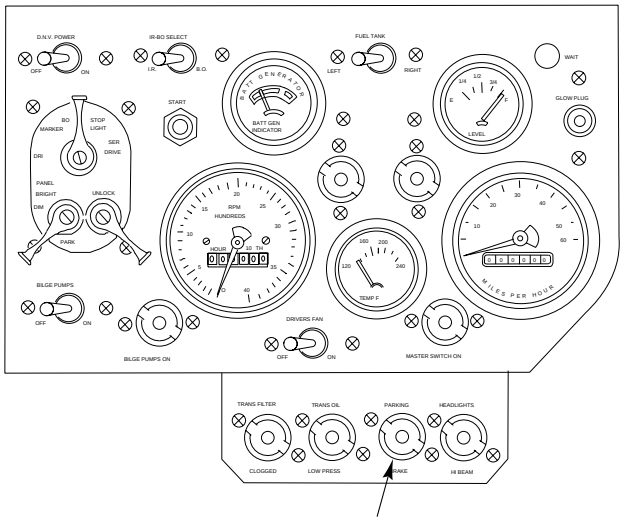
MASTER SWITCH ON INDICATOR LIGHT

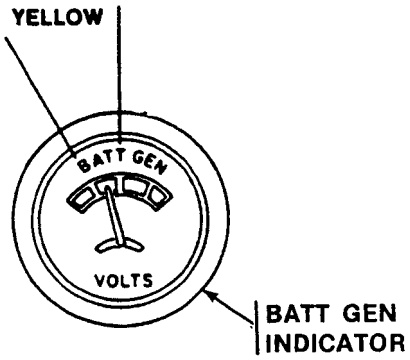
12. Check that STEERING LOCKED indicator light is on.



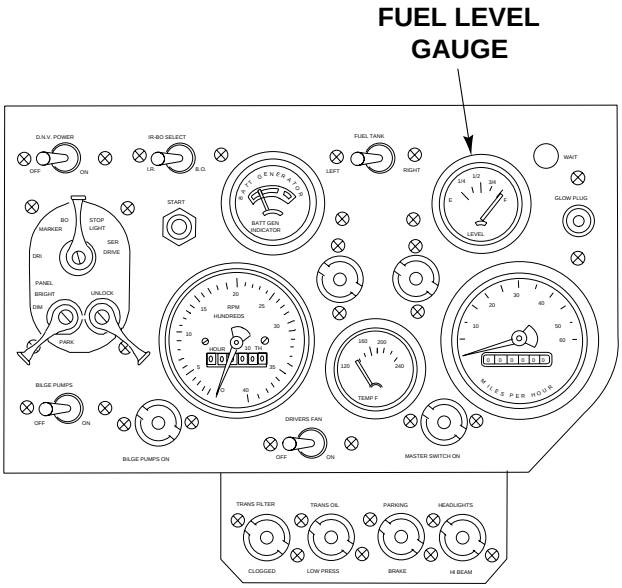


13. Check that PARKING BRAKE indicator light is on.
14. Check that BATT GEN indicator points to yellow zone.



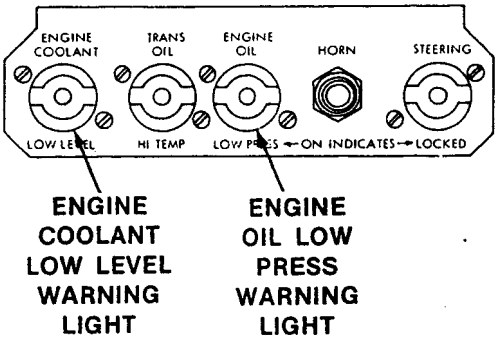


15. Check that FUEL LEVEL gauge indicates amount of fuel in fuel tanks.

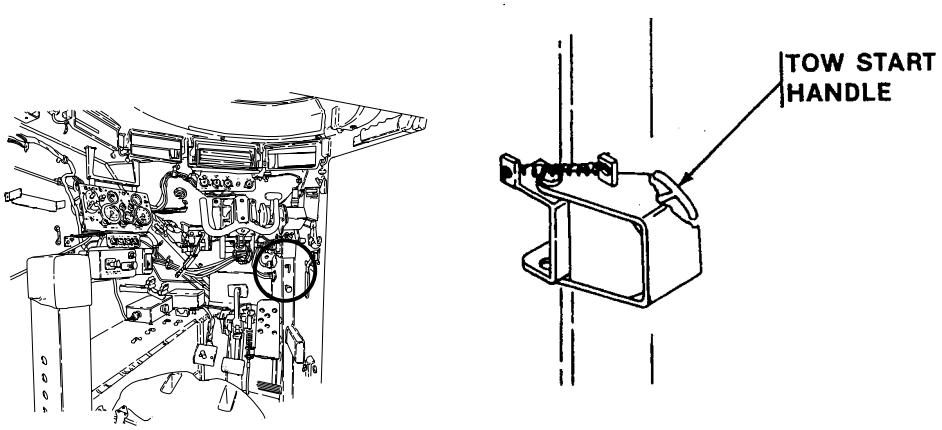


16. Check that ENGINE OIL LOW PRESS warning light is on.

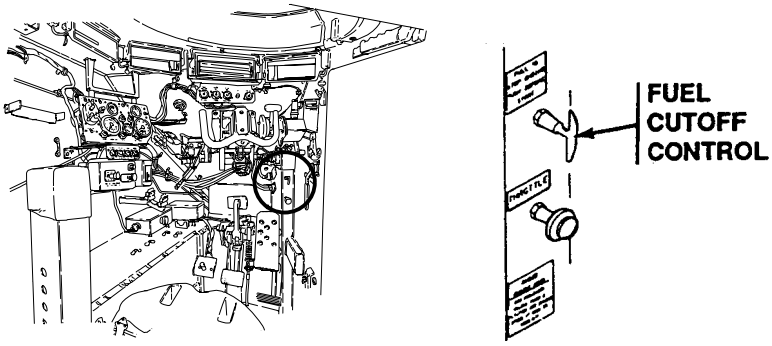
17. Check that ENGINE COOLANT LOW LEVEL warning light is not on.



18. Check that tow start handle is pushed in all the way.



19. Push in fuel cutoff control.



NOTE

See following procedure to start engine when air temperature is above +40°F (+4°C).

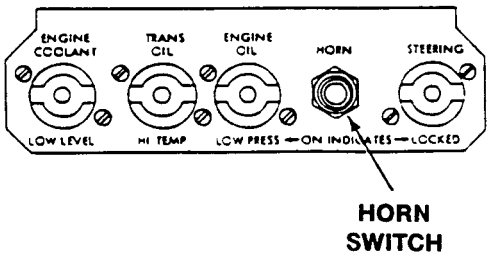
Go to page 0021 00-11 for procedure to start engine when air temperature is -25° to +40°F (-32° to +4°C).

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.

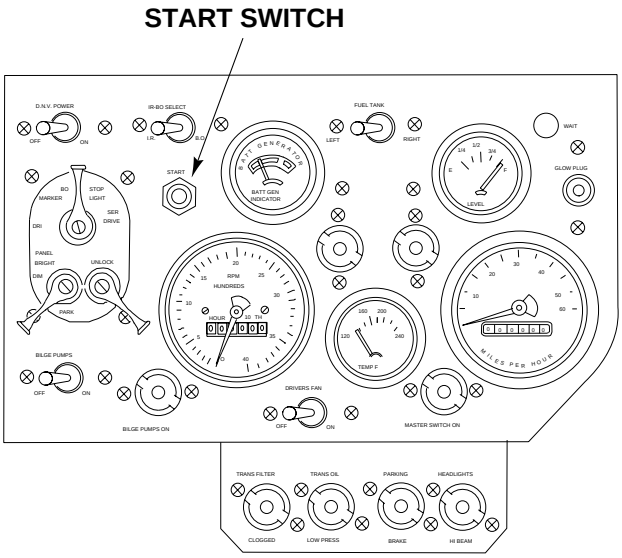
1. Press HORN switch.



CAUTION

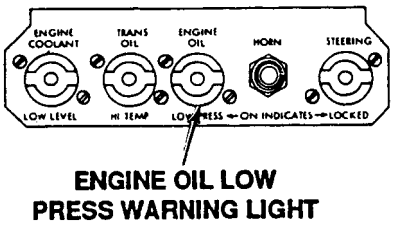
Pressing START switch for more than 15 seconds at temperatures above +40°F can damage starter. Do not press START switch for more than 15 seconds at a time. If engine does not start on first try, wait at least 30 seconds and try again.

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



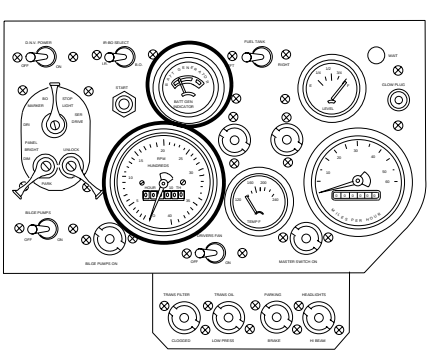
3. If engine does not start on first try, wait 30 seconds and try again. If engine does not start after three times, notify unit maintenance.

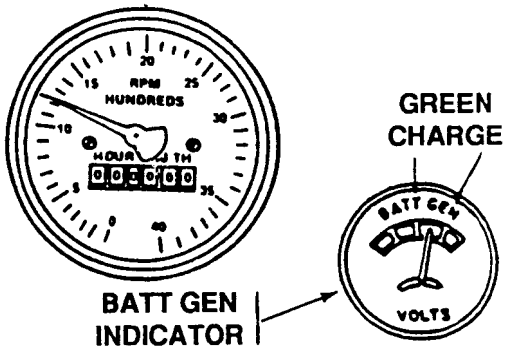
4. Check that ENGINE OIL LOW PRESS warning light goes off within 10 seconds after engine starts.



ENGINE OIL LOW PRESS WARNING LIGHT

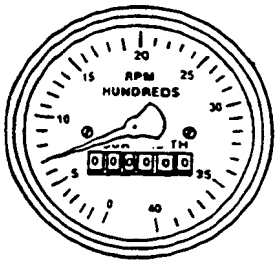
5. Check that BATT GEN indicator points to green zone.





BATT GEN INDICATOR

6. Run engine at 1000-1200 rpm for 3-5 minutes.
7. Reduce engine to idle speed (650-700 rpm). To drive carrier, see task: DRIVE CARRIER (WP 0023 00).



IDLE RPM

NOTE

Do Step 8 for M981A3 only.

8. If equipment is needed, turn EQPT BAT switch to ON.
9. For M901A3/M981A3, see targeting station operator set PUMP switch on TSCD to ON. For more information, see TM 9-2350-266-10.

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

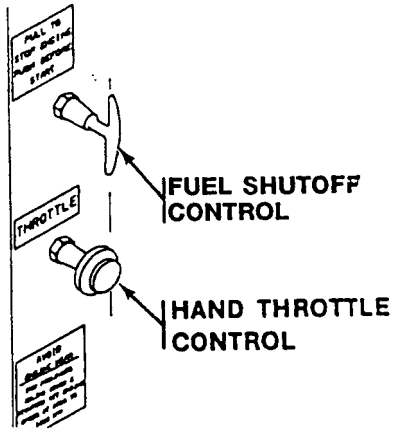
NOTE

If temperature is below -25°F and engine coolant heater was used to warm coolant prior to engine start procedures, shut down engine coolant heater. See task: OPERATE ENGINE COOLANT HEATER (WP 0062 00).

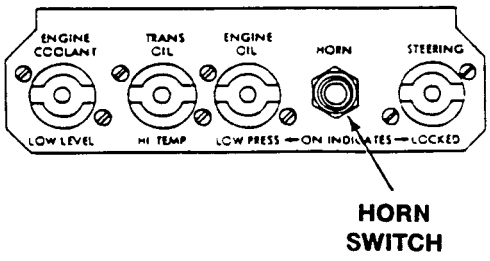
If tactical situation permits, horn should be sounded to warn personnel that engine is about to be started.

Do Steps 1 - 4 for all carriers except M981A3.

1. Turn MASTER POWER switch ON.
2. Check that MASTER POWER indicator switch is ON.
3. Push FUEL SHUTOFF CONTROL in.



4. Press HORN switch.



CAUTION

For the M981A3 only, operation of the vehicle communications equipment and the targeting station electronics equipment may be degraded while the EMERGENCY switch is ON.

NOTE

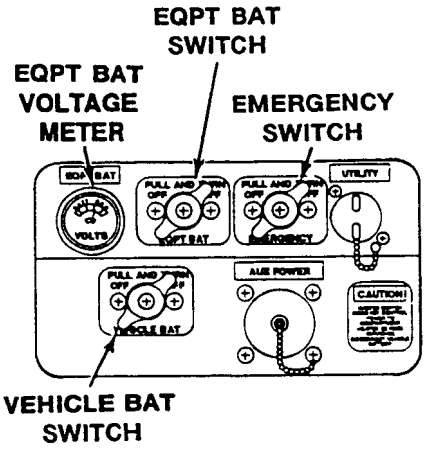
For M901A3/M981A3, emergency starting of the vehicle using the EMERGENCY switch may cause loss of NSG and TSCD data. Record vehicle coordinates before emergency starting.

NOTE

For M981A3, turning the EMERGENCY switch to ON (with the VEHICLE BAT and EQPT BAT switches also ON) adds the equipment batteries to the starting circuit for increased starting capacity.

Do Steps 5 - 8 for M981A3 only.

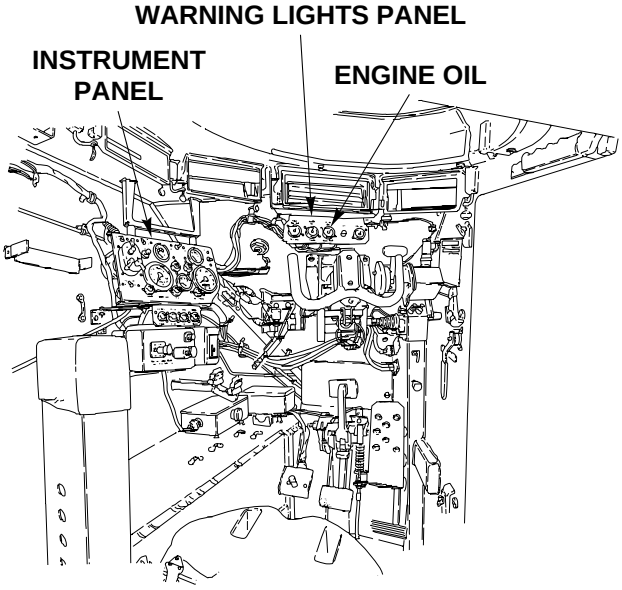
5. Place hand throttle at idle position.
6. Ensure that all switches on driver's instrument panel are off, PUMP switch on TSCD is set to DISABLE, and all communications equipment is off. For more information, see TM 9-2350-266-10.
7. Turn EQPT BAT switch to on position and check that needle of the EQPT BAT voltage meter is in green or yellow zone and voltage meter shows no voltage (needle to extreme left).
8. With EQPT BAT switch still on, turn VEHICLE BAT switch to ON position.

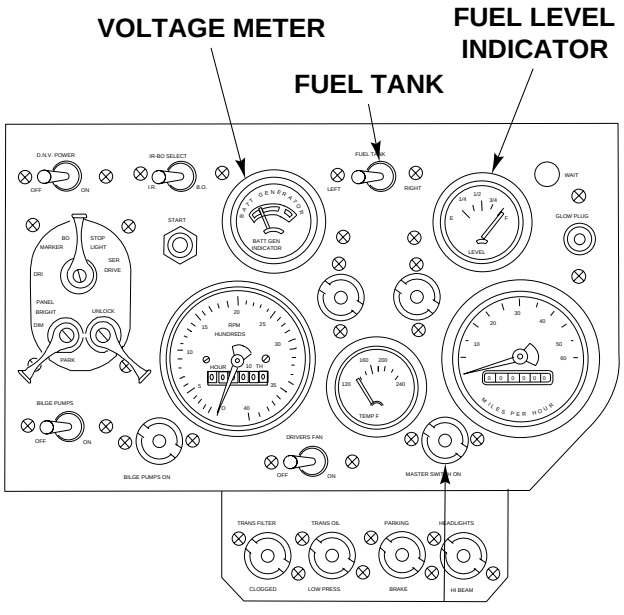


NOTE

Step 9 refers to all vehicles.

9. Check instrument panel and warning lights panel for unusual readings. Indicators should read as follows:
   MASTER SWITCH ON light - ON
   ENGINE OIL warning light - ON
   EQPT BAT voltage meter - needle in green or yellow zone
   Voltage meter - needle in green or yellow zone
   FUEL LEVEL indicator - indicates amount of fuel in right or left fuel tank, depending on setting of FUEL TANK switch.
   All other lights and indicators should be off.





CAUTION

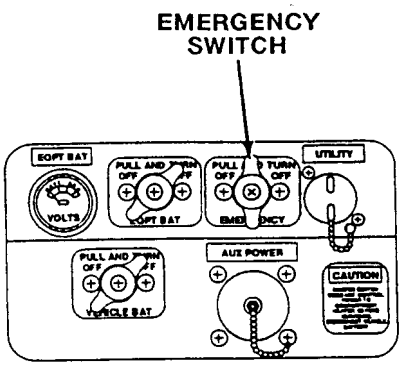
For M981A3, operation of the vehicle communications equipment and the targeting station electronics equipment may be degraded while the EMERGENCY switch is ON.

NOTE

Turning the EMERGENCY switch to ON (with the VEHICLE BAT and EQPT BAT switches also ON) adds the equipment batteries to the starting circuit for increased starting capacity.

Do Step 10 for M981A3 only.

10. Turn EMERGENCY switch to ON position.



NOTE

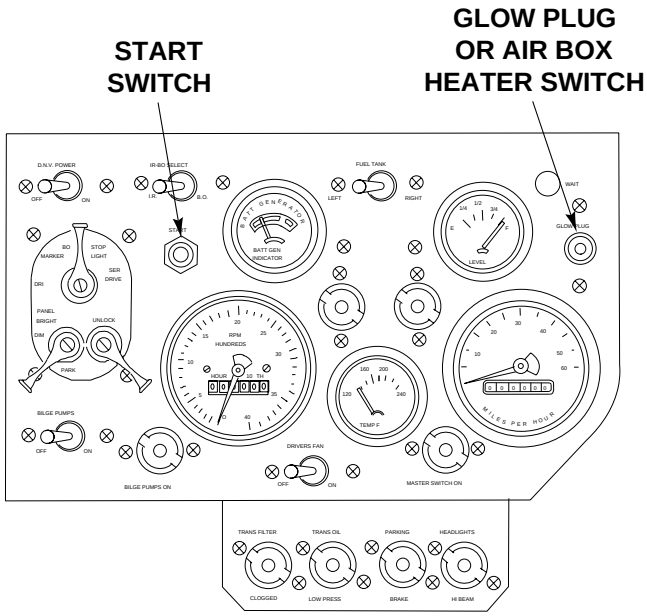
Within the first 20 seconds engine should give signs of "firing up" or trying to start. When this happens, continue to hold the START and AIR BOX HEATER switches for another 25 seconds. This adds up to the total of 45 seconds for pre-start.

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 16.

Do Steps 11 - 34 for all vehicles.

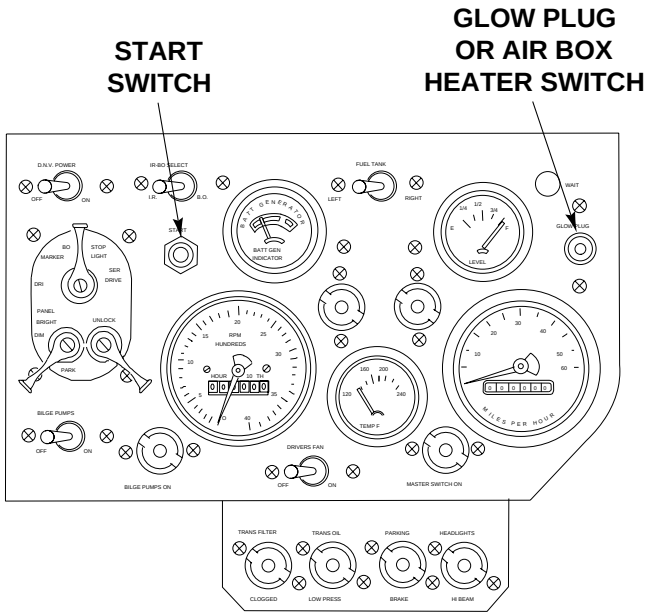
11. Press and hold START switch.
12. Press and hold AIR BOX HEATER switch.

13. Hold both START and AIR BOX HEATER switches for approximately 45 seconds.



14. If engine does not start, press and hold both START and AIR BOX HEATER switches.

15. 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 25.

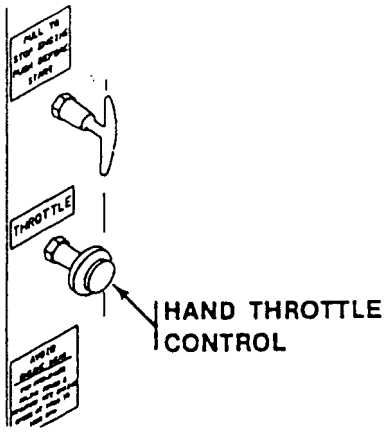


16. If engine does not start, release AIR BOX HEATER and START switches. Notify unit maintenance that AIR BOX HEATER and/or engine should be checked.

NOTE

Steps 17 - 24 are for vehicles equipped with glow plugs only.

17. Push hand throttle in.



NOTE

GLOW PLUG switch is spring loaded to off position. Do not hold the GLOW PLUG switch in the on position.

18. Momentarily move GLOW PLUG switch up and release.
19. Wait for glow plug WAIT indicator to come on and begin flashing (approximately 35 seconds).

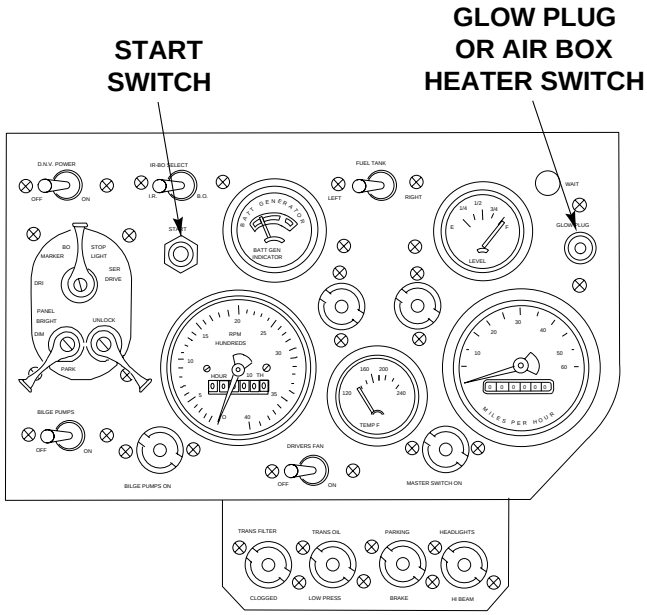
CAUTION

Do not engage START switch for more than five seconds at a time. Do not move engine throttle.

NOTE

If engine START switch is not pushed within one minute after glow plug WAIT indicator begins flashing, glow plug WAIT indicator will go off.

20. Push START switch and hold until engine starts, but no longer than five seconds at a time.



21. If engine does not start on first attempt, wait 10 seconds and try again.

CAUTION

If engine fails to start after four attempts, or when glow plug WAIT indicator goes out, stop start procedure.

22. Repeat Step 21 two more times if necessary. If engine still has not started, notify unit maintenance.

NOTE

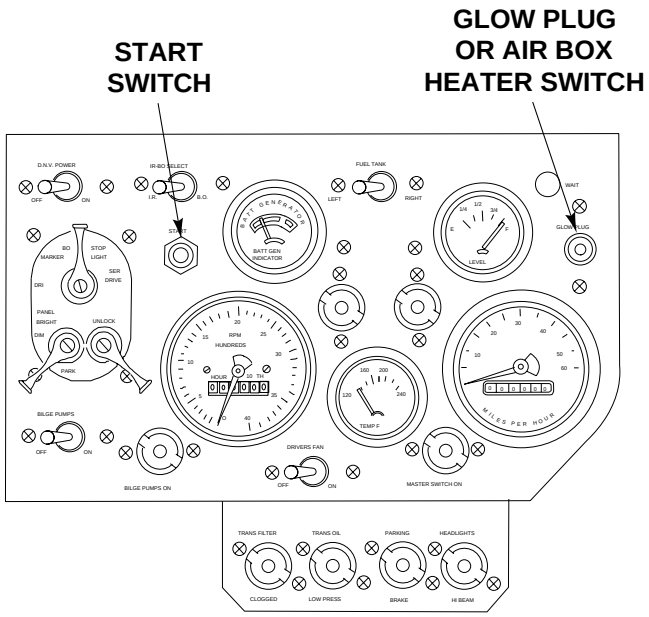
After engine starts, WAIT indicator will stop flashing and stay on steady for one minute after START switch is released.

23. After engine starts, slowly increase engine speed until engine has reached a minimum speed of 1200 RPM. Do not exceed 1800 RPM.

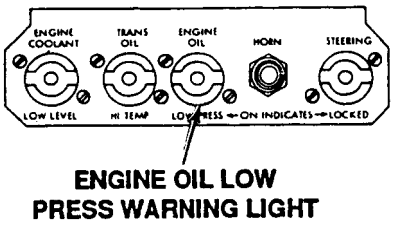
CAUTION

If WAIT indicator does not go out after engine starts, or if WAIT indicator flashes during first 35 seconds, notify unit maintenance.

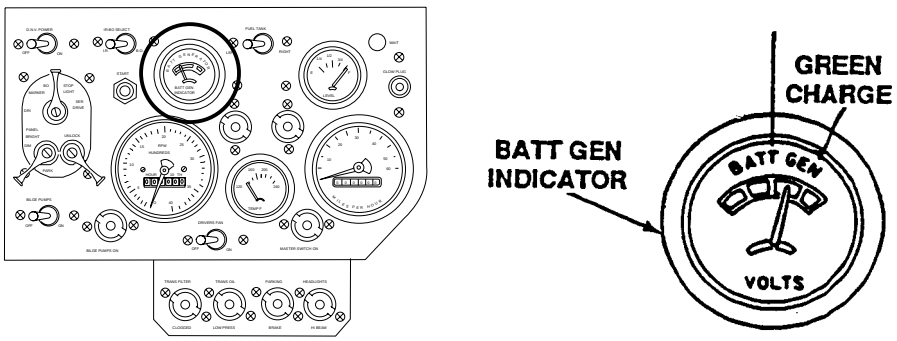
24. Reduce engine speed to 1000-1200 RPM. Maintain this speed until engine reaches normal operating temperature (190°-230°F).



25. Check that ENGINE OIL LOW PRESS warning light goes off within 10 seconds after engine starts.



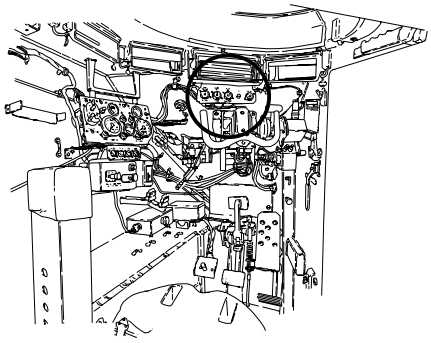
26. Check that BATT GEN indicator points to green zone.

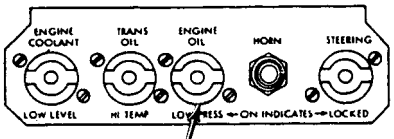


NOTE

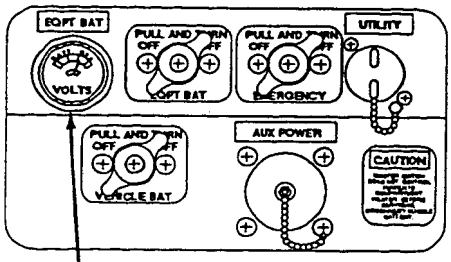
For M981A3, EQPT BAT voltage meter should be in the green zone.

27. Run engine for 3 to 5 minutes at a normal idle.
28. Set hand throttle control to idle engine at 1200 to 1500 rpm for 5 minutes.
29. Stop engine by pulling out fuel cutoff control.





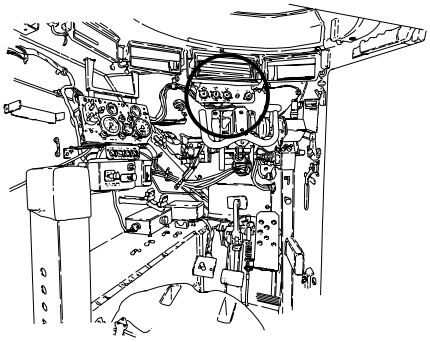
ENGINE OIL LOW PRESS WARNING LIGHT



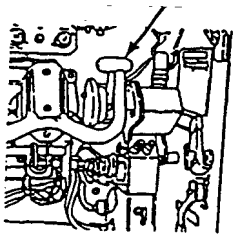
M981A3 ONLY

EQPT BAT VOLTAGE METER

30. Perform a normal mild-temperature start.
31. Place transmission controller in the 2-3 range.

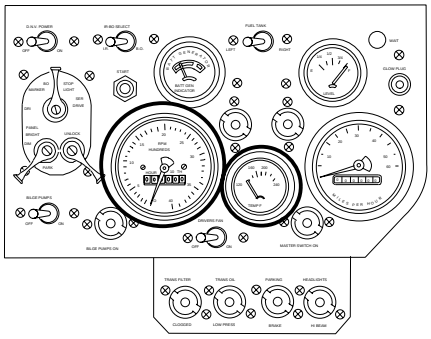


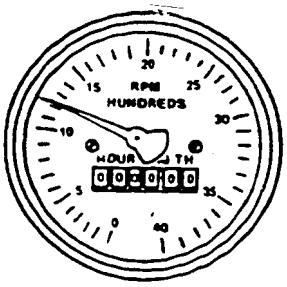
TRANSMISSION CONTROLLER



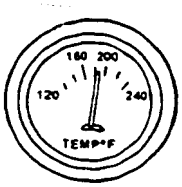
START ENGINE — Continued **0021 00**

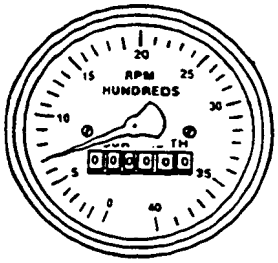
32. Set hand throttle control for 800 to 1000 rpm, and run engine for at least 10 minutes to warm up transmission.
33. Run engine at 1000 to 1200 rpm for about 5 minutes or until ENGINE COOLANT TEMPERATURE GAGE indicates 185° F.
34. Reduce engine to idle speed (650-700 rpm). To drive carrier, see task: DRIVE CARRIER (WP 0023 00).





WARM UP RPM





IDLE RPM

END OF TASK

START ENGINE WITH OUTSIDE POWER SOURCE 0022 00

THIS WORK PACKAGE COVERS:

Start Engine With Outside Power Source (page 0022 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Slave Cable
Source Carrier

Personnel Required

Driver (2)

Equipment Condition

Carrier unable to start under own power
Source carrier parked next to disabled carrier
Source carrier engine stopped(WP 0024 00)

START ENGINE WITH OUTSIDE POWER SOURCE

WARNING



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

WARNING

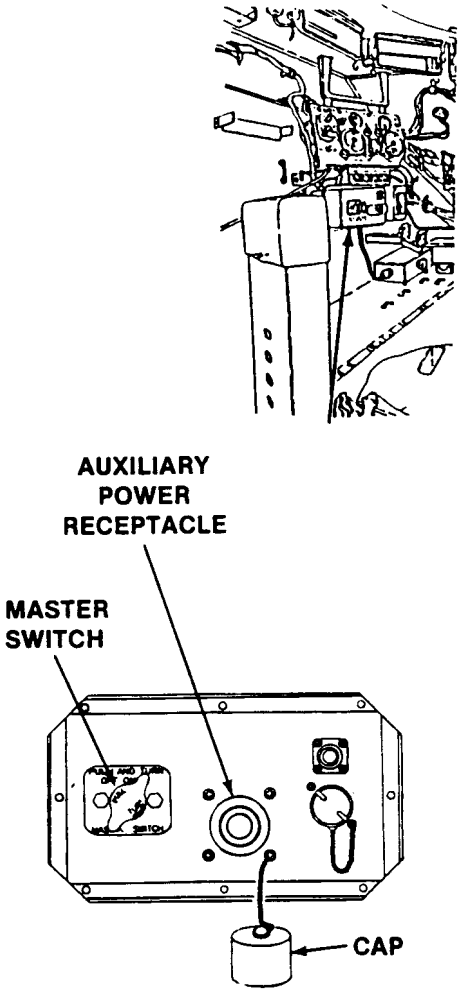


Do not park live vehicle head to head with dead vehicle. Either vehicle could jump forward. Stay clear of area between vehicles during starting operations.

NOTE

For M577A3 and M1068A3, the 4.2 KW generator can be used.

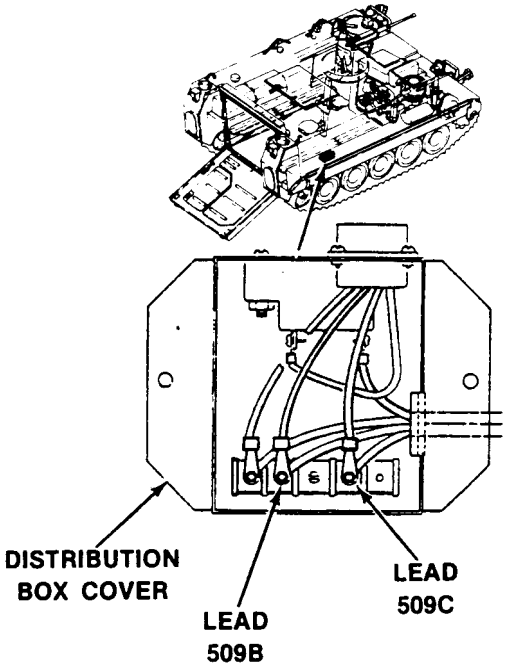
1. Check that MASTER SWITCH is OFF on both carriers.
2. Remove cap from auxiliary power receptacle on both carriers.

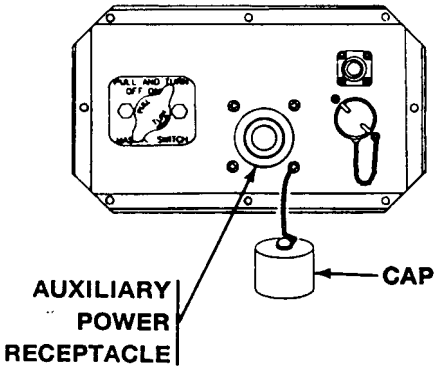


NOTE

Step 3 should be done if your M113A3 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.



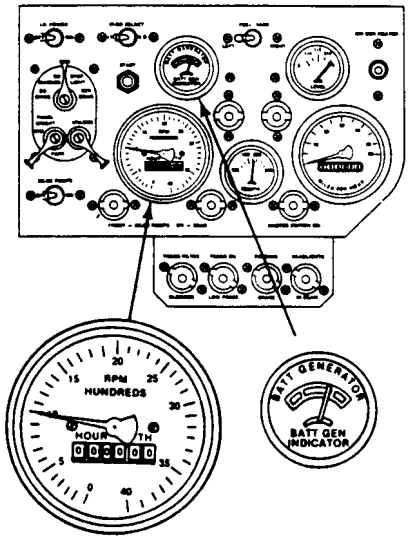


WARNING



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. See task: START ENGINE (WP 0021 00).
7. Run engine on source carrier at a fast idle (1000 rpm) for 5-10 minutes to show charging on BATT GEN indicator.



NOTE

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

8. Start engine on disabled carrier. See task: START ENGINE (WP 0021 00).

WARNING



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

9. Disconnect slave cable from auxiliary power receptacle on both carriers.
10. Install cap on auxiliary power receptacle on both carriers.

END OF TASK

DRIVE CARRIER 0023 00

THIS WORK PACKAGE COVERS:

Driving Precautions (page 0023 00-3).
Drive Carrier (page 0023 00-7).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Equipment Condition

Engine started (WP 0021 00)
Ramp raised and locked (WP 0012 00)
Driver's hatch cover secured open or closed (WP 0006 00)
Commander's hatch cover secured open or closed (WP 0009 00)
Cargo hatch cover closed (WP 0008 00)

WARNING



Carrier movement can throw you from your seat and injure you. Use of seat belts is mandatory. See warning in front of manual.

WARNING



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

WARNING



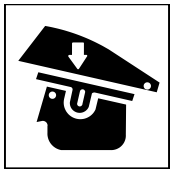
Vehicle operation during hot weather may result in heat stress to crew members. Crew members should limit their exposure to high temperature and humidity based on TB MED 507, using PHEL Chart (Appendix C) curve as a guide.

WARNING



Sticking or failed linkages can cause carrier 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



Unlatched hatch cover could swing and injure personnel. Make sure hatches are latched and secure.

WARNING



Do not attempt to change carrier forward or reverse movement by shifting until carrier comes to a complete stop. Above four miles per hour, if you attempt to shift into reverse (or forward), the carrier will continue in the direction you are moving when you attempted to make the change. Failure to follow the above instructions could result in injury or death to personnel and destruction of equipment or property.

WARNING



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

CAUTION

Avoid engine wear. For prolonged idling (over 5 minutes) set engine speed at 1000 to 1200 rpm.

Do not operate vehicle with the TRANS OIL LOW PRESS warning light on. Operating the vehicle with the TRANS OIL LOW PRESS warning light on can damage the transmission and may result in unpredictable vehicle operation.

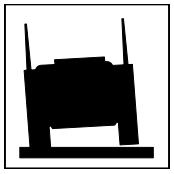
TRANS OIL LOW PRESS warning light may come on when brakes are released. Light should go out when engine speed reaches about 1200-1300 rpm. If it does not, stop engine and notify unit maintenance.

NOTE

The crossdrive transmission is designed not to change direction of movement at speeds above four miles per hour. If you attempt to shift into reverse while moving forward, above four miles per hour, the transmission will not go into reverse even with the shift lever set to "R" (reverse), and the carrier will continue to move forward when you accelerate. Likewise, if you attempt to shift into a forward gear while moving above four miles per hour in reverse, the carrier will continue to move in reverse when you accelerate.

DRIVING PRECAUTIONS

WARNING



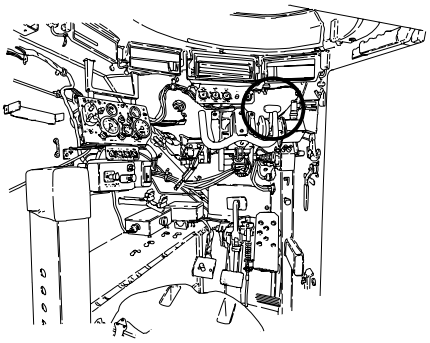
If a track vehicle gets out of control and overturns, it is safer to stay in the vehicle than to try to get out while the vehicle is still moving. You may receive slight injuries from being thrown against metal parts; but if you try to leave the vehicle, it may roll over and crush you. Once the vehicle 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.

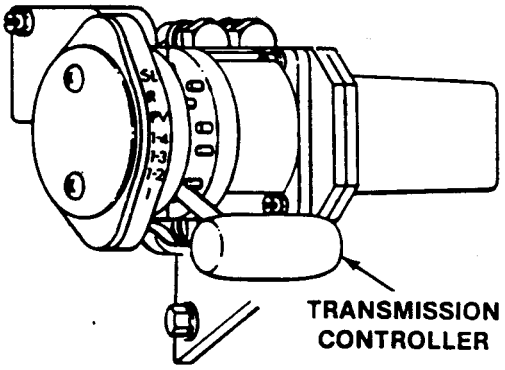
CAUTION

Do not drive vehicles M981A3 or M901A3 more than 5 mph with launcher in erect position.

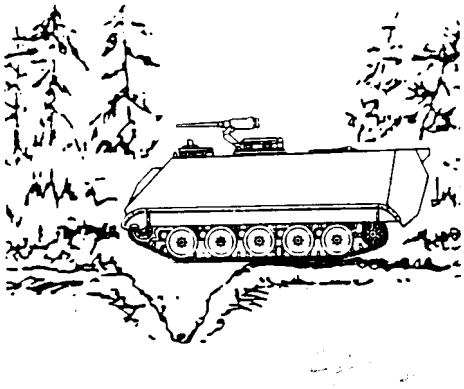
Do not operate launcher while vehicle is in motion.

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

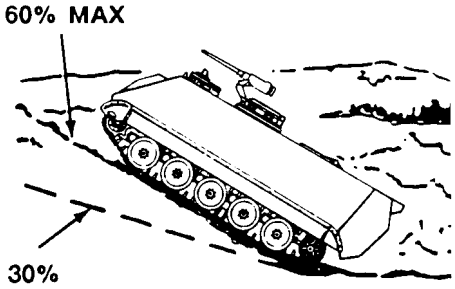




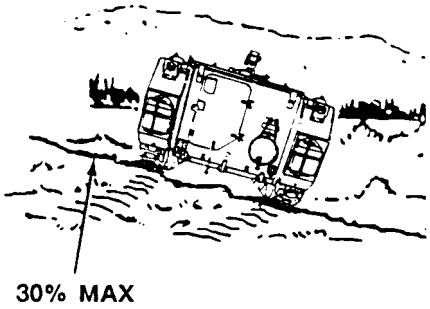
2. Take care not to oversteer or go too fast, especially on hard pavement. You could lose control of the carrier.
3. Decelerate as the carrier approaches the edge of a ditch or trench. Use gear range 1 or 1-2. Just as carrier bottoms out in a ditch or trench, accelerate and use full power as the carrier starts to climb. Maximum width of trench safely crossed is 5 1/2 feet (1.6 m).



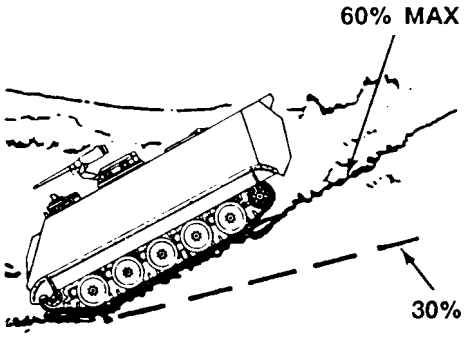
4. Accelerate as the carrier climbs a grade. Decelerate at the top of the grade and during descent. Use l range for 30% to 60% grades and 1-2 range for up to 30% grades.



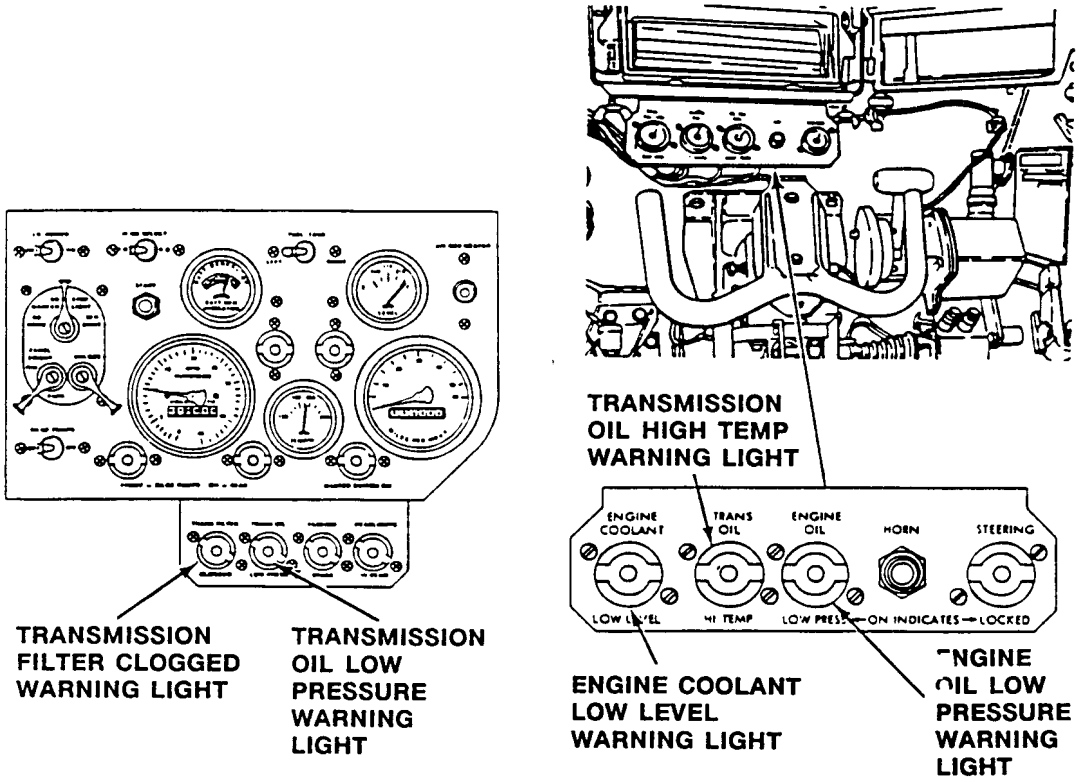
5. Steer in a series of short turns on side slopes rather than one long even turn. This allows debris to feed out of the tracks. Use gear range 1 or 1-2.



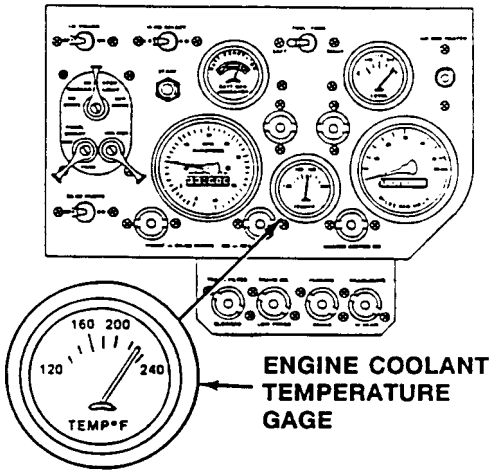
6. Descend grades slowly. Shift to a lower range before starting down. Approach bottom cautiously to avoid digging. Use 1 range for 30% to 60% grades and 1-2 range for up to 30% grades. Don't use engine and transmission to hold carrier on a slope.



7. If any warning light comes on, STOP ENGINE (WP 0024 00). Troubleshoot problem, see WP 0088 00.



8. Check engine coolant temperature gauge. If temperature rises above 230 °F (110 °C), STOP ENGINE (WP 0024 00). Troubleshoot problem, see WP 0088 00.



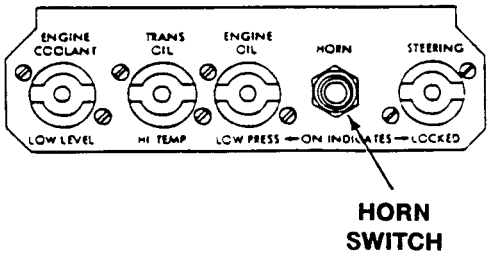
DRIVE CARRIER

1. Release parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

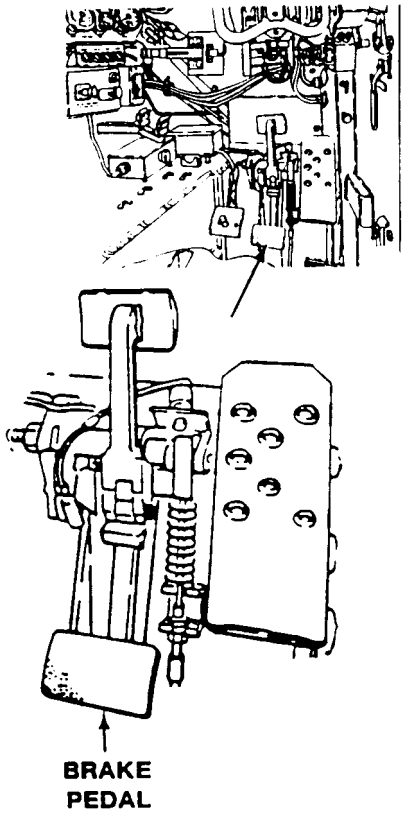
NOTE

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

2. Press HORN switch.

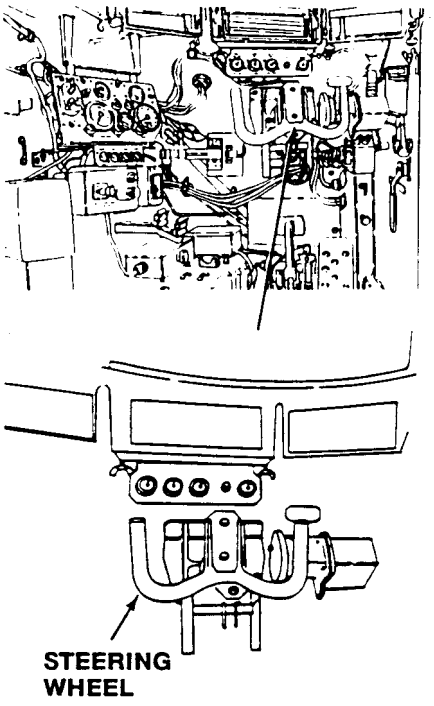


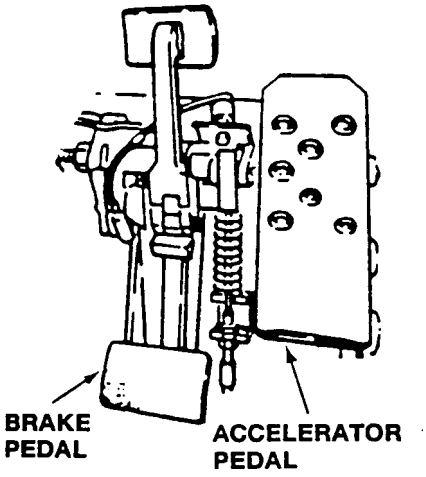
3. Depress and hold brake pedal.



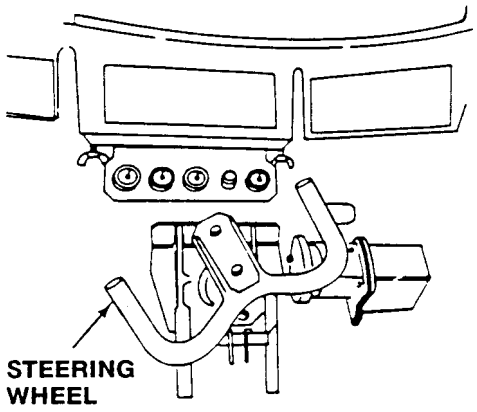
4. Select driving range desired. See WP 0004 00.

5. With steering wheel centered, release brake pedal and slowly press accelerator pedal until carrier moves straight ahead.

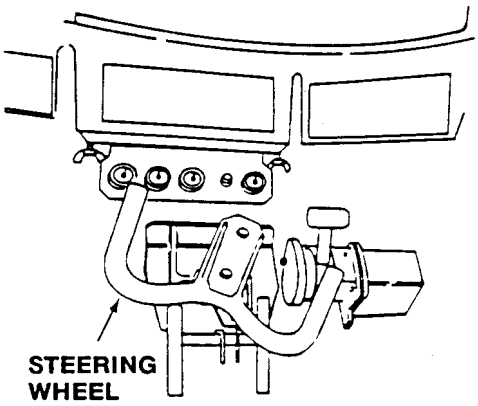




6. Turn steering wheel to the left to turn carrier left when driving forward.



7. Turn steering wheel to the right to turn carrier right when driving forward.

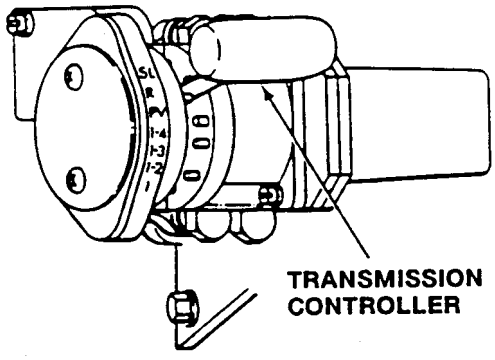


WARNING

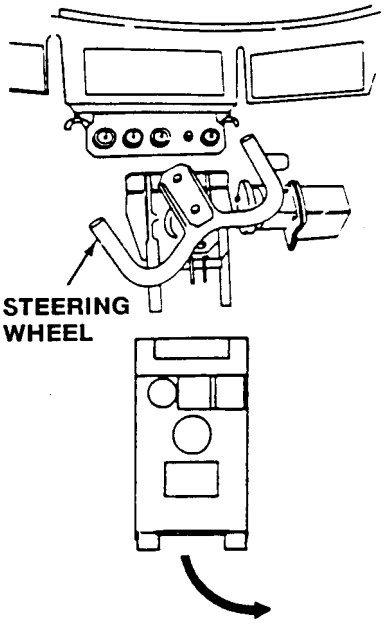


Operating carrier in reverse is dangerous due to limited vision and reversed steering. Always post ground guides before you back up.

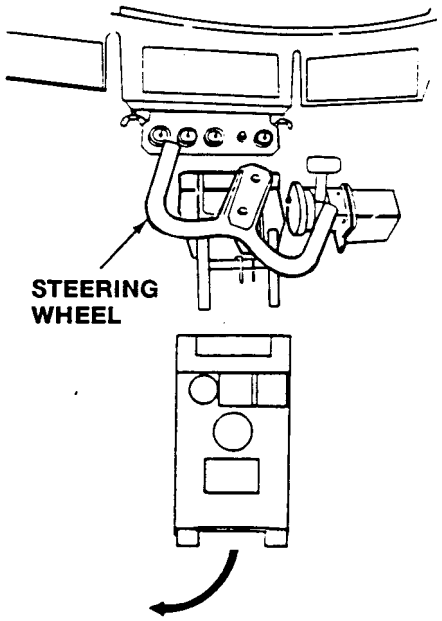
8. Place transmission controller in R position.



9. Turn steering wheel to the left to turn rear of carrier right when backing up.



10. Turn steering wheel to the right to turn rear of carrier left when backing up.



CAUTION

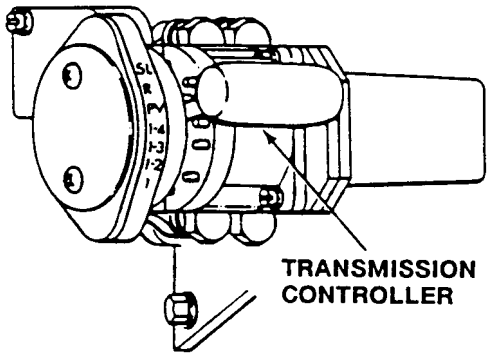
Avoid pivot steering on soft soil or gravel. Track may come off. After pivoting, drive ahead at least one carrier length to clear track.

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

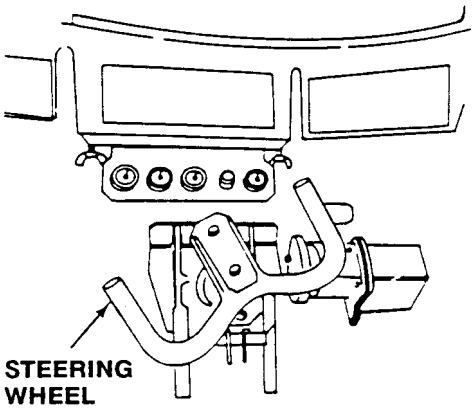
NOTE

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

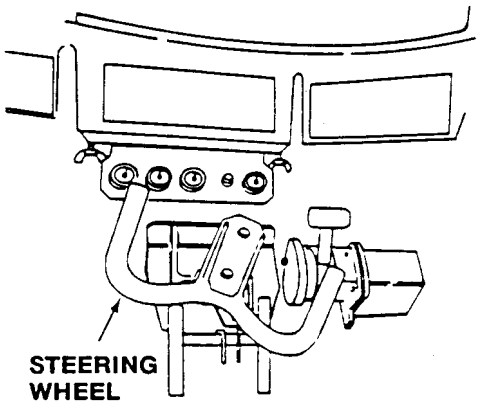
11. Place transmission controller in PV position.



12. Turn steering wheel to the left and press accelerator pedal to pivot carrier left.



13. Turn steering wheel to the right and press accelerator pedal to pivot carrier right.



14. To stop carrier, press down on brake pedal with smooth, gradual pressure.

END OF TASK

STOP ENGINE 0024 00

THIS WORK PACKAGE COVERS:

Stop Engine (page 0024 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine started (WP 0021 00)

Personnel Required

Driver

STOP ENGINE

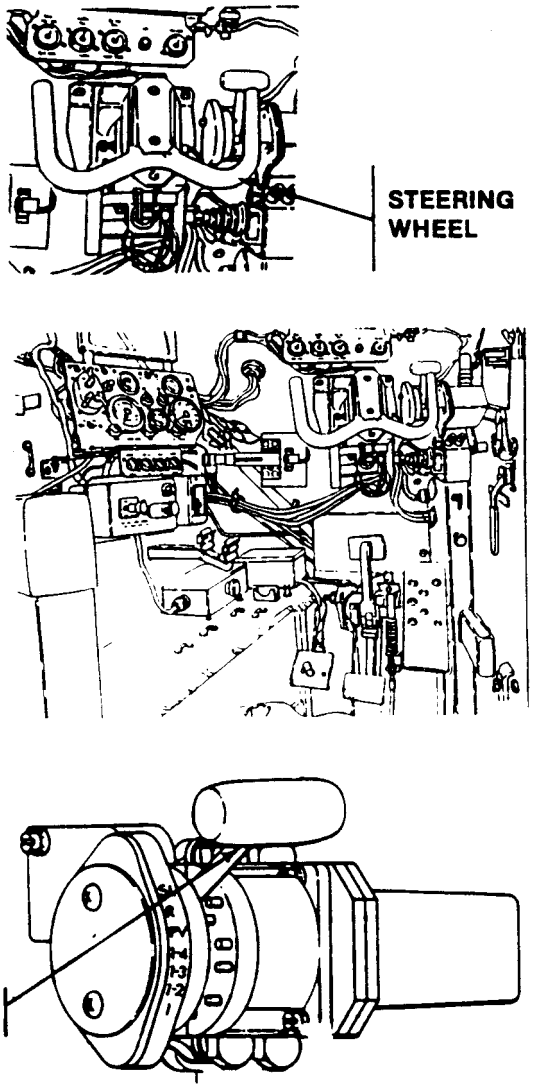
1. Bring carrier to a complete stop.

WARNING



Carrier can pivot steer when transmission controller is in SL position and steering lock pin is not engaged. Personnel can be killed or injured. Make sure transmission controller is in SL and steering wheel is centered to engage steering lock pin (steering locked indicator light should be ON) unless carrier is to be steered.

2. Turn steering wheel to center position and place transmission controller in SL position to lock steering wheel.

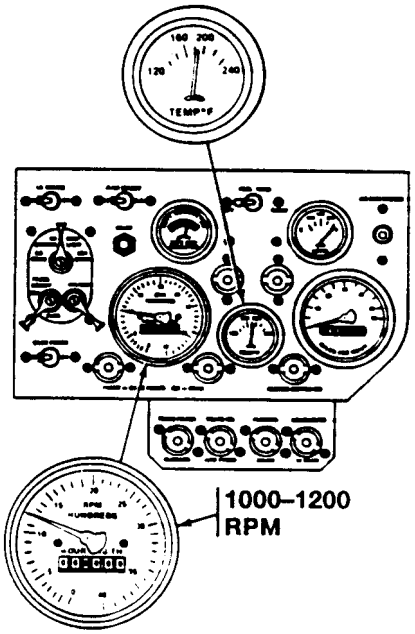


3. Set parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

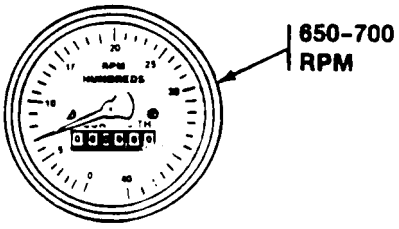
CAUTION

In cold weather, stopping engine without a cooling down period can damage engine. Do not stop engine before coolant temperature reaches 185°F (85°C) or lower.

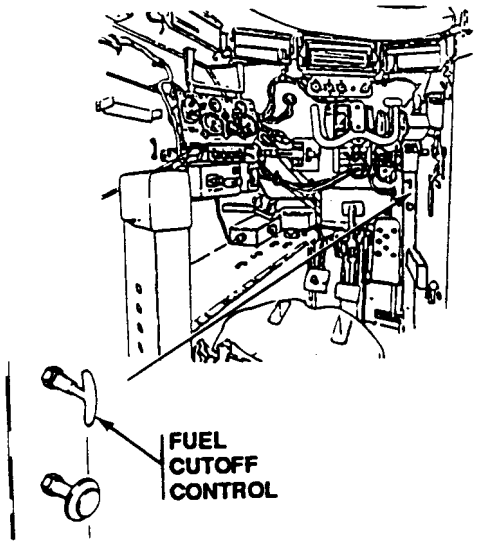
4. Run engine at 1000-1200 rpm for 3 to 5 minutes.



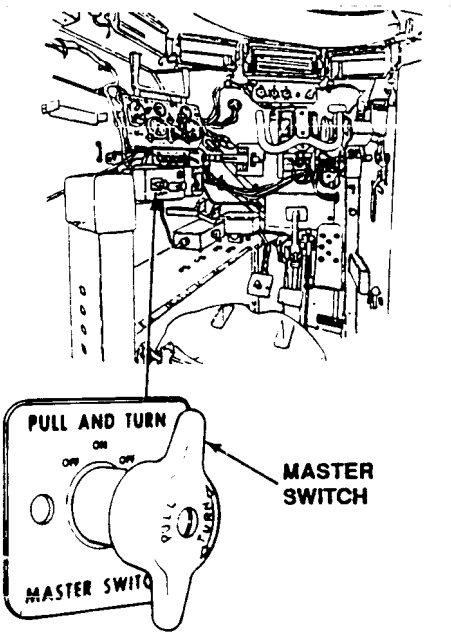
5. Return engine to idle speed (650-700 rpm).



6. Pull fuel cutoff control all the way out to stop engine.



7. Turn MASTER SWITCH OFF.



NOTE

If temperature is below -25°F (-31.7°C), start engine coolant heater. See task: OPERATE ENGINE COOLANT HEATER (WP 0062 00).

STOP ENGINE — Continued **0024 00**

8. If equipment is to be operated with the engine shut down, leave VEHICLE BAT and EQPT BAT switches ON (M981A3 only).
9. If no further operation of equipment is desired, proceed as follows:

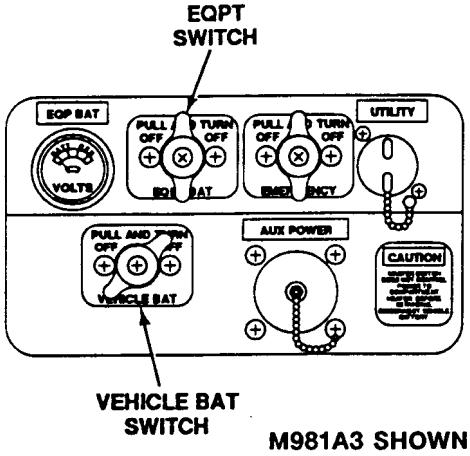
CAUTION

Always shut the engine off before turning the VEHICLE BAT switch to the OFF position (M981A3 only).

a. Turn off lights, radio, and any other electrical equipment that is on. If you have a personnel heater kit that has been running, wait for heater to stop itself after you turn it off.

b. Set PUMP switch on TSCD to DISABLE position (M981A3 only).

c. Turn VEHICLE BAT and EQPT BAT switches to OFF position (M981A3 only).



M981A3 SHOWN

END OF TASK

FUEL CARRIER 0025 00

THIS WORK PACKAGE COVERS:

Fuel Carrier (page 0025 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Driver

Materials/Parts
Wiping rag (WP 0104 00, Item 15)

Equipment Condition
Engine stopped (WP 0024 00)

FUEL CARRIER

WARNING



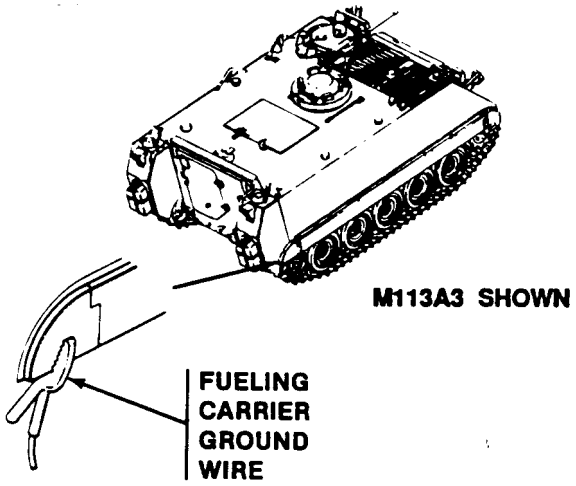
Fuel can catch fire and burn you. Do not smoke or allow open flame near carrier when refueling.

NOTE

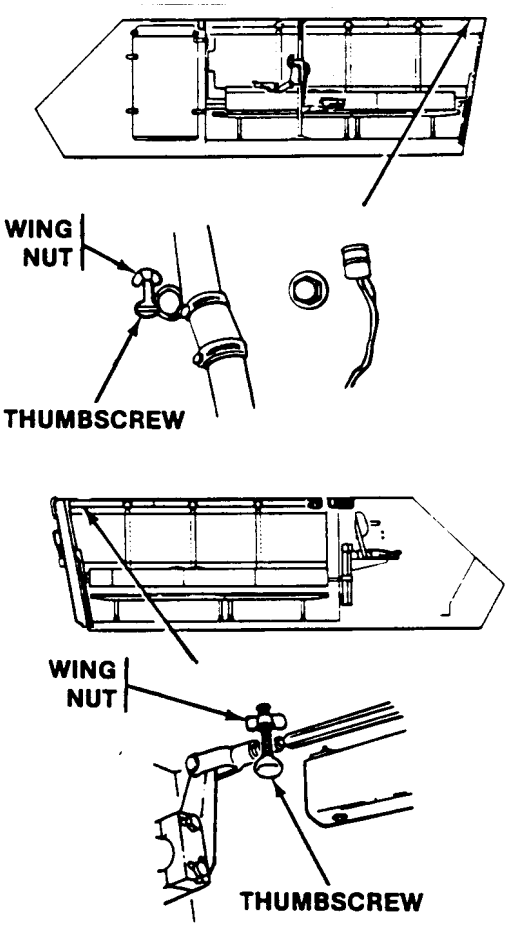
Procedure for fueling left and right fuel tanks is the same.

The location for fueling the M577A3 and M1068A3 carriers is on the right side. See WP 0026 00 for refueling M577A3 and M1068A3.

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

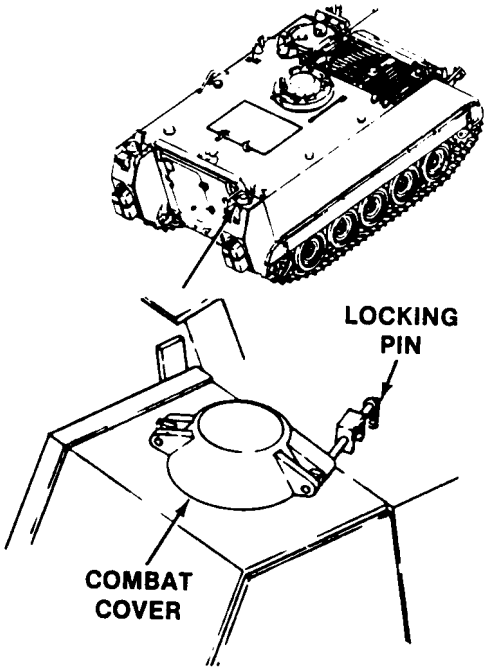


2. Release combat cover lock by loosening wing nut and turning thumbscrew to the left.



ALL EXCEPT M577A3 AND M1068A3

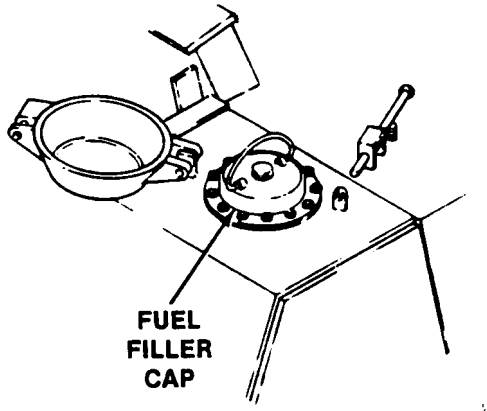
3. Pull locking pin and open combat cover.



CAUTION

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

4. Remove any dirt and water from around fuel filler cap. Use wiping rag.



5. Remove fuel filler cap.

6. Remove fuel filler neck screen from fuel filler neck.

7. Check fuel filler neck screen for damage and remove any dirt and debris. If fuel filler neck screen is damaged, notify unit maintenance.

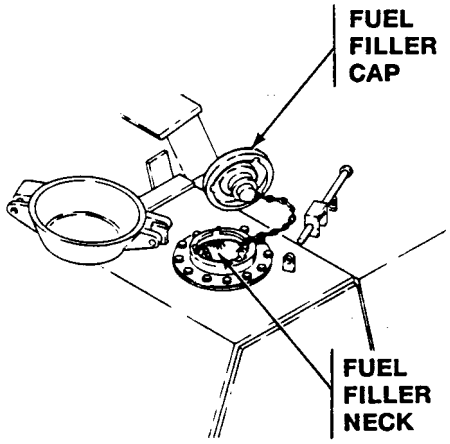
8. Install fuel filler neck screen in fuel filler neck.

WARNING

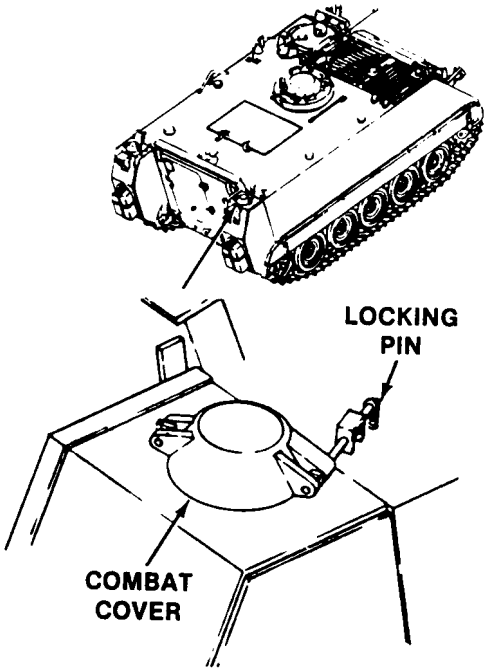


Sparks from static electricity could cause a fire or explosion. Metal nozzle must touch metal in fuel filler neck when fuel is running.

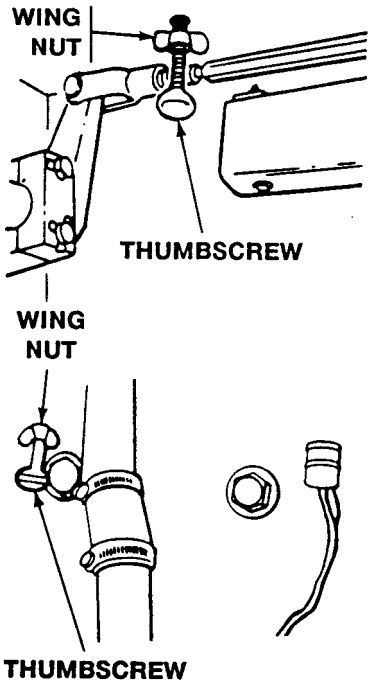
9. Insert fuel nozzle in fuel filler neck. Fill fuel tank allowing 5 inches in fuel filler neck for expansion.
10. Remove fuel nozzle from fuel filler neck.
11. Install fuel filler cap.



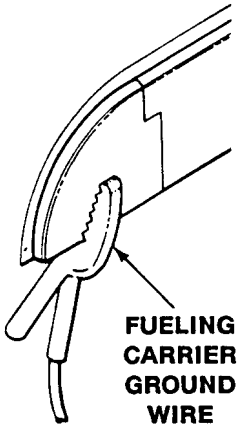
12. Pull locking pin and close combat cover. Release locking pin.



13. Secure combat cover lock by turning thumbscrew to the right. Tighten wing nut.



14. Remove fueling carrier ground wire from carrier.



END OF TASK

REFUEL CARRIER (M577A3 AND M1068A3 ONLY) 0026 00

THIS WORK PACKAGE COVERS:

This task covers:
Refuel (page 0026 00-2).

INITIAL SETUP:

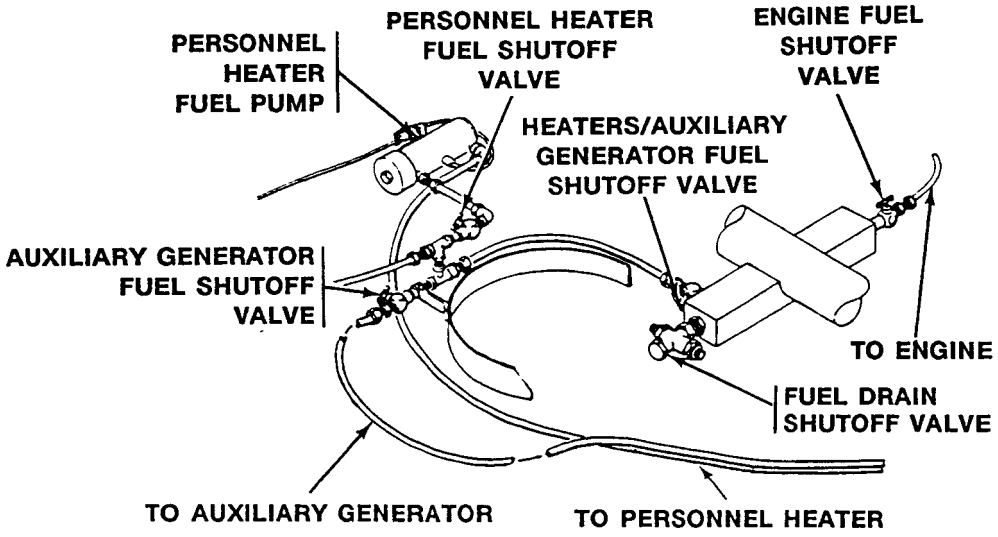
Maintenance Level
Operator

Personnel Required
Driver

Equipment Condition
Engine stopped (WP 0024 00)
Carrier blocked (WP 0042 00)
Floor plates removed

NOTE

The engine fuel shutoff valve, personnel heater shutoff valve, auxiliary generator shutoff valve, and fuel drain shutoff valve are all located beneath the floor plates on the M577A3 and M1068A3.



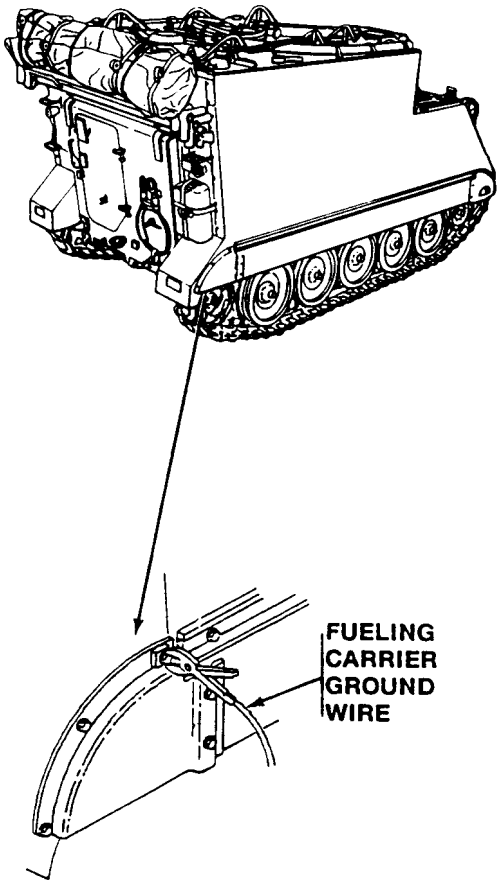
REFUEL CARRIER

WARNING

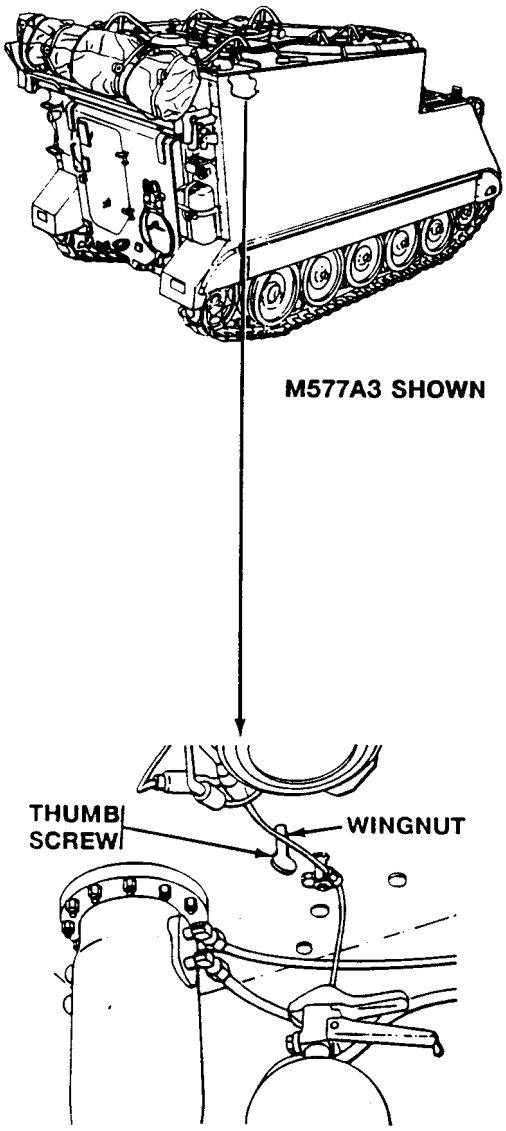


Diesel fuel can catch fire and burn you. Do not smoke or allow open flame near carrier when you are refueling.

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 to the left.



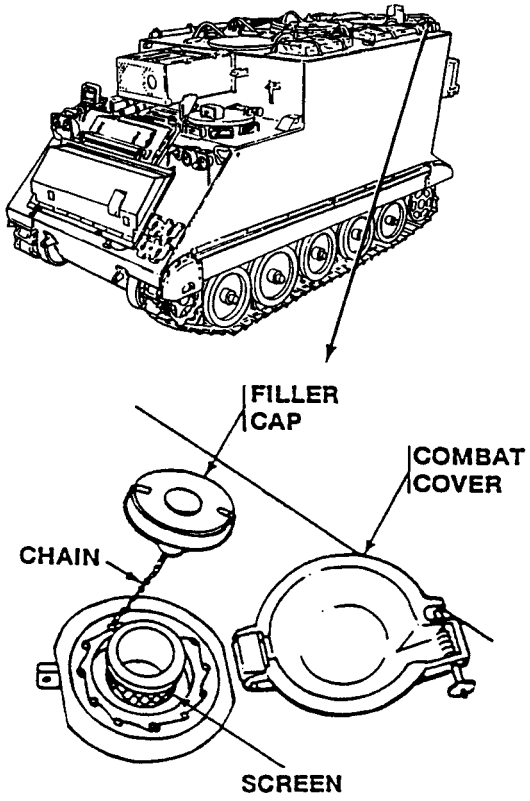
3. From outside carrier, open combat cover.

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.
5. Unscrew filler cap.

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



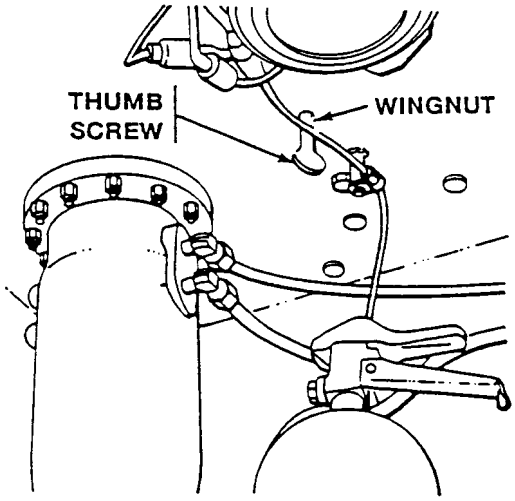
WARNING



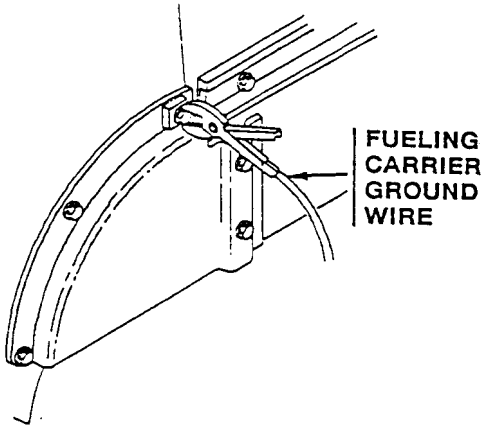
Sparks from static electricity could cause a fire or explosion. Metal nozzle must touch metal in fuel filler neck when fuel is running.

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.
9. Install fuel filler cap. 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 to the right. Tighten wingnut.



12. Remove fueling carrier ground wire from carrier.



END OF TASK

INSTALL/REMOVE WINDSHIELD 0027 00

THIS WORK PACKAGE COVERS:

Install Windshield (page 0027 00-1).
Remove Windshield (page 0027 00-3).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver

INSTALL WINDSHIELD

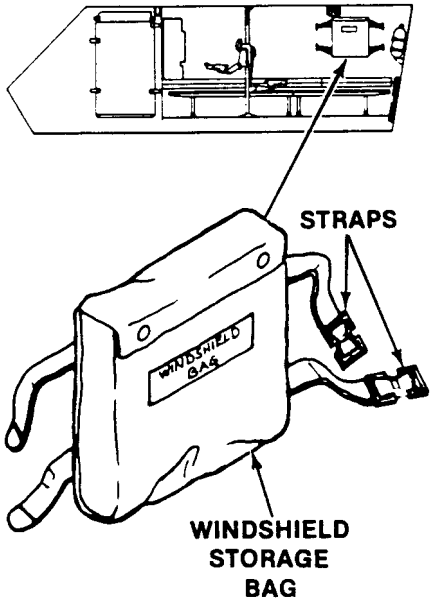
CAUTION

Windshield panels are easily scratched. Handle windshield with care.

NOTE

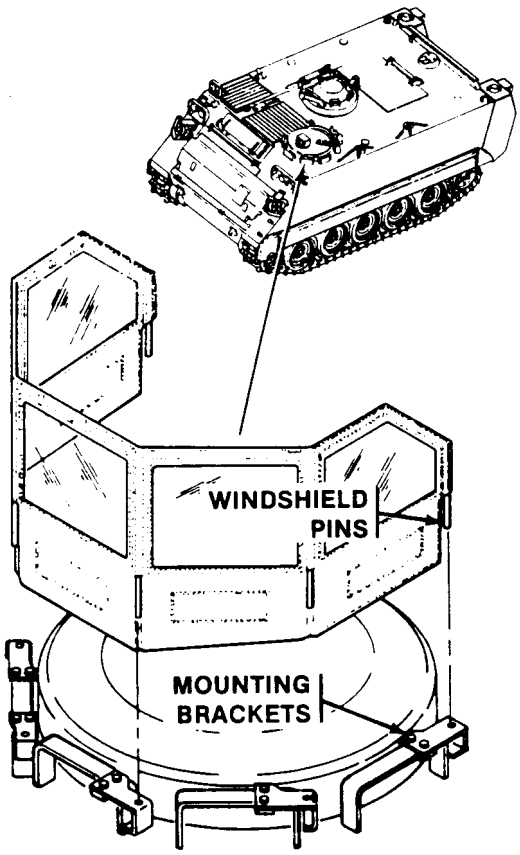
Location varies by model of carrier. See stowage guide WP 0107 00.

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.

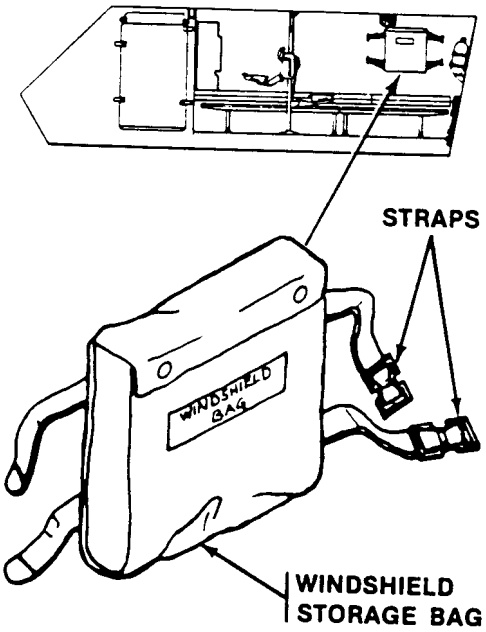


REMOVE WINDSHIELD

CAUTION

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

1. Remove windshield pins from mounting brackets.
2. Fold windshield and stow in storage bag.
3. Return storage bag to rear bulkhead and secure with two straps.



END OF TASK

OPERATE PERSONNEL HEATER 0028 00

THIS WORK PACKAGE COVERS:

Turn Personnel Heater On (page 0028 00-2).
Turn Personnel Heater Off (page 0028 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
MASTER SWITCH ON

Personnel Required
Driver

WARNING



Exhaust from personnel heater can kill you. Do not breathe exhaust gases. If you detect or suspect fumes, turn heater off and open all hatches right away. See warning in the front of this manual.

WARNING



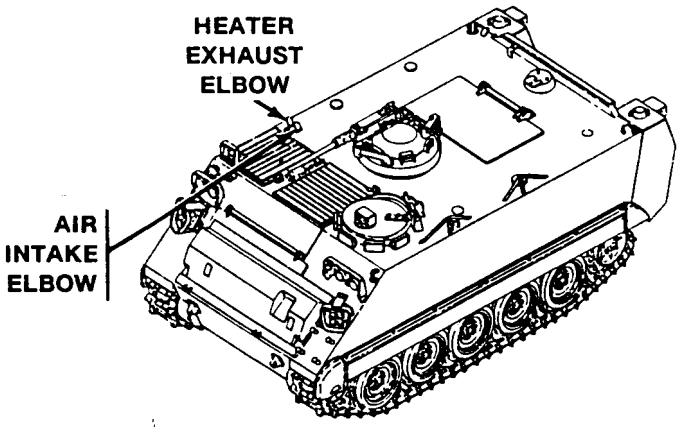
Ammunition can explode and kill you. Do not start heater until ammunition and combustible/ explosive materials are properly stored at least 30 inches from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of heater.

TURN PERSONNEL HEATER ON

NOTE

Heater startup varies with the type of heater installed in your carrier. Step 5 and Step 6 apply if your carrier is equipped with heater P/N 10560M24B. Step 7 and Step 8 apply if your carrier is equipped with heater P/N MF510B or P/N MF510C. Step 9 and Step 10 apply if your carrier is equipped with heater P/N MIL-H-62550/2.

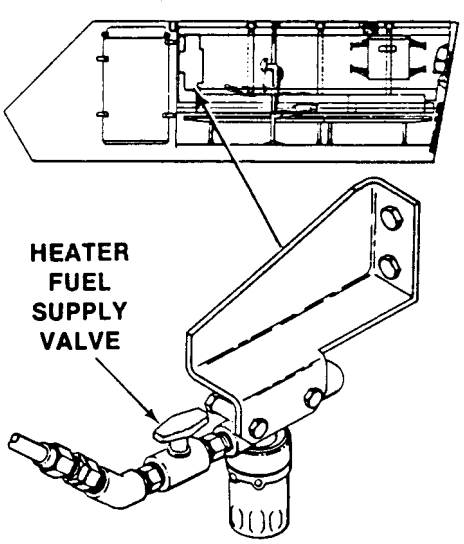
1. Check air intake elbow and heater exhaust elbow to make sure they are clear of debris.



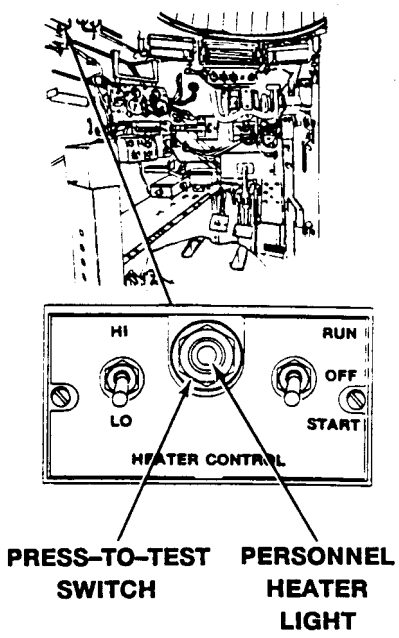
NOTE

Location of heater fuel supply valve varies between models.

2. Make sure heater fuel supply valve is open.



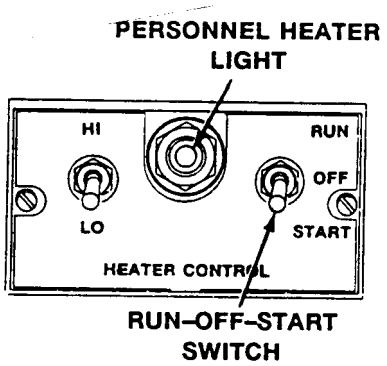
3. Press PRESS-TO-TEST switch. Check that HEATER light comes on.
4. Move HI-LO switch to LO.



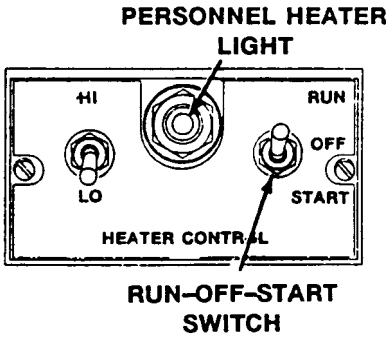
NOTE

Step 5 and Step 6 apply to heater P/N 10560M24B only.

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, see WP 0088 00.



6. Move RUN-OFF-START switch to RUN as soon as HEATER light comes on. Do not stop in OFF position.



NOTE

Step 7 and Step 8 apply to heater P/N MF510B or P/N MF510C only.

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, see WP 0088 00.

8. Move RUN-OFF-START switch to RUN as soon as HEATER light comes on. Do not stop in OFF position.

NOTE

Step 9 and Step 10 apply to heater P/N MIL-H-62550/2 only.

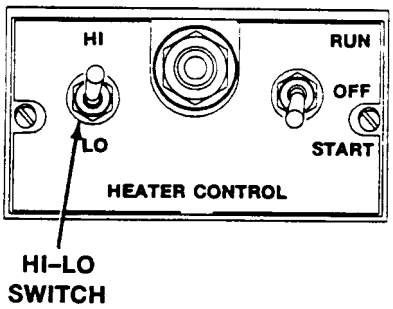
9. Move the RUN/OFF/START switch momentarily to START for at least four (4) seconds, and then move the switch to RUN. The heater will now run automatically and does not require any further actions by the operator.

10. If the control box warning indicator light begins to flash, the heater is signaling that an abnormal condition is present. Read diagnostic display codes at the heater and take appropriate action.

NOTE

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

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



NOTE

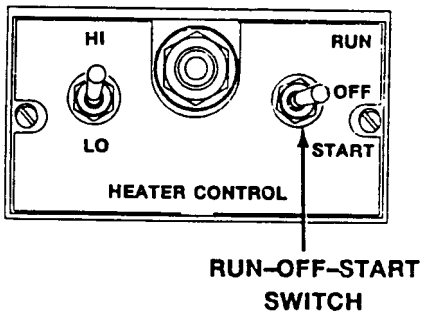
If you operate heater for an extended time, start engine to keep batteries charged. See task: START ENGINE (WP 0021 00).

TURN PERSONNEL HEATER OFF

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 PERSONNEL COMPARTMENT VENTILATOR 0029 00

THIS WORK PACKAGE COVERS:

Operate Personnel Compartment Ventilator (page 0029 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

All hatch covers closed

Personnel Required

Soldier

OPERATE PERSONNEL COMPARTMENT VENTILATOR

WARNING

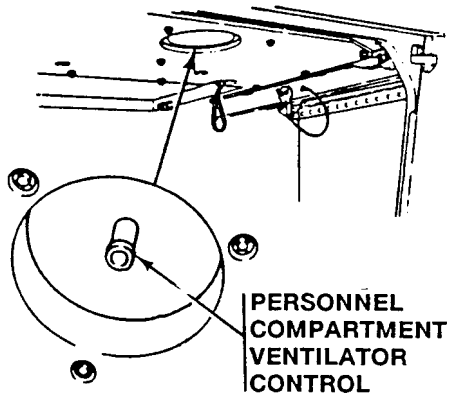


Lack of air in carrier can make personnel dizzy. When operating carrier with hatch covers closed, make sure personnel compartment ventilator is open.

NOTE

Location of ventilator may vary in each vehicle.

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.



WARNING

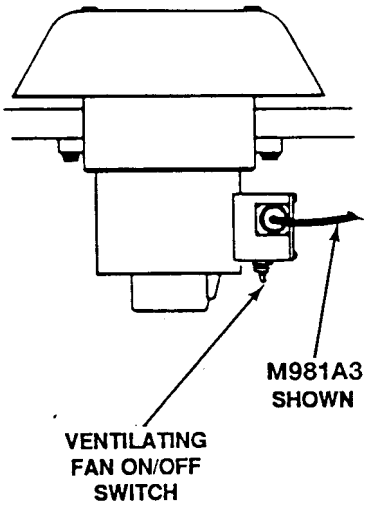


To avoid sucking exhaust from personnel heater into vehicle, do not operate ventilating fan when personnel heater is ON.

NOTE

Step 3 applies to the M981A3.

3. For the M981A3 only, ventilating fan ON/OFF switch controls fan operation.



END OF TASK

OPERATE CARRIER LIGHTS 0030 00

THIS WORK PACKAGE COVERS:

Operate Headlights (page 0030 00-1).
Operate Blackout Marker (page 0030 00-2).
Operate Blackout Marker and Blackout Driving Lights (page 0030 00-3).
Operate Stop Light (page 0030 00-4).
Operate Infrared Headlights (page 0030 00-5).
Operate Panel and Transmission Controller Lights (page 0030 00-6).
Operate White Dome Lights (page 0030 00-7).
Operate Blackout Dome Lights (page 0030 00-7).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

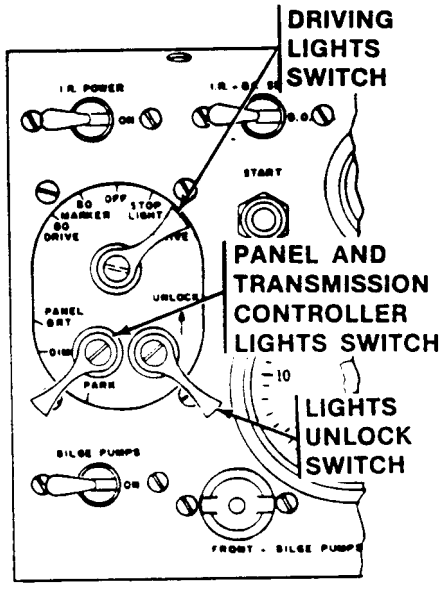
MASTER SWITCH ON

Personnel Required

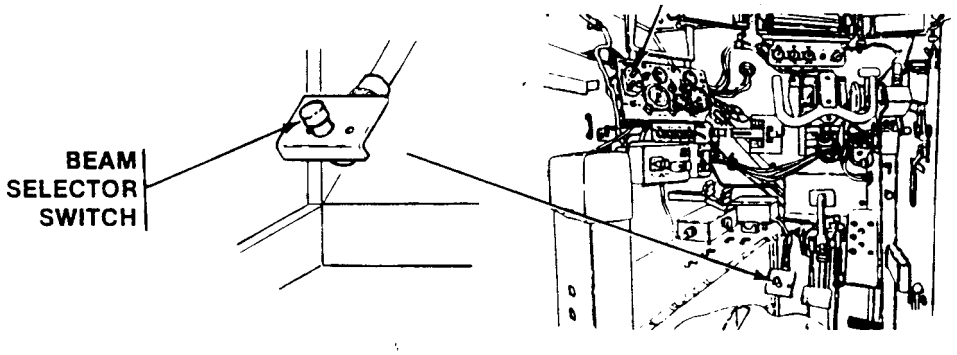
Driver

OPERATE HEADLIGHTS

1. Move LIGHTS UNLOCK switch to UNLOCK, and hold.
2. Move panel and transmission controller lights switch to OFF.
3. Move DRIVING LIGHTS switch to SER DRIVE.



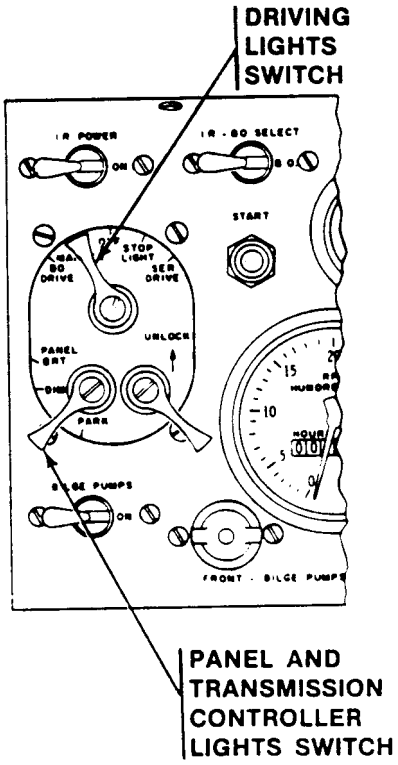
4. Press beam selector switch for high or low beam.



5. Release LIGHTS UNLOCK switch.
6. Move DRIVING LIGHTS switch to OFF.

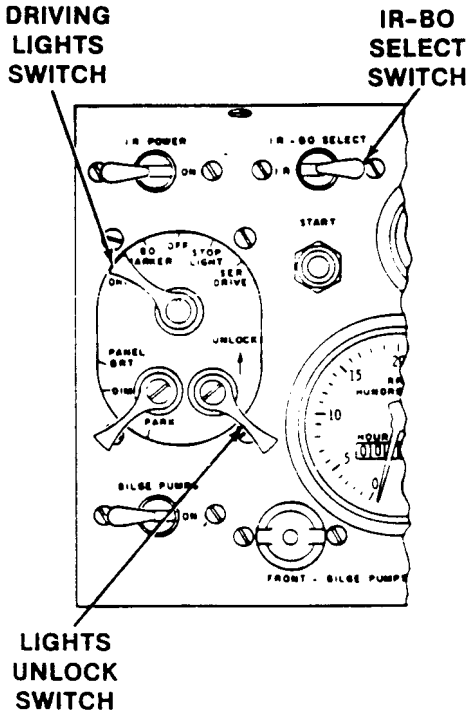
OPERATE BLACKOUT MARKER

1. Move DRIVING LIGHTS switch to BO MARKER.
2. Move panel and transmission controller lights switch to OFF.
3. Move DRIVING LIGHTS switch to OFF.



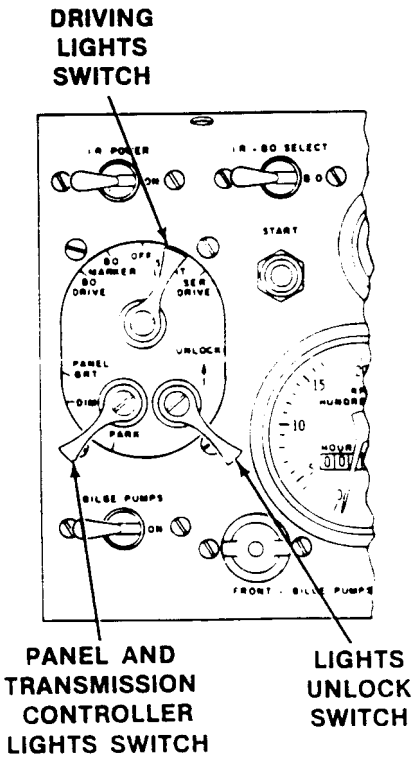
OPERATE BLACKOUT MARKER AND BLACKOUT DRIVING LIGHTS

1. Move LIGHTS UNLOCK switch to UNLOCK, and hold.
2. Move panel and transmission controller lights switch to OFF.
3. Move DRIVING LIGHTS switch to BO DRIVE.
4. Release LIGHTS UNLOCK switch.
5. Move IR-BO SELECT switch to BO.
6. Move DRIVING LIGHTS switch to OFF.



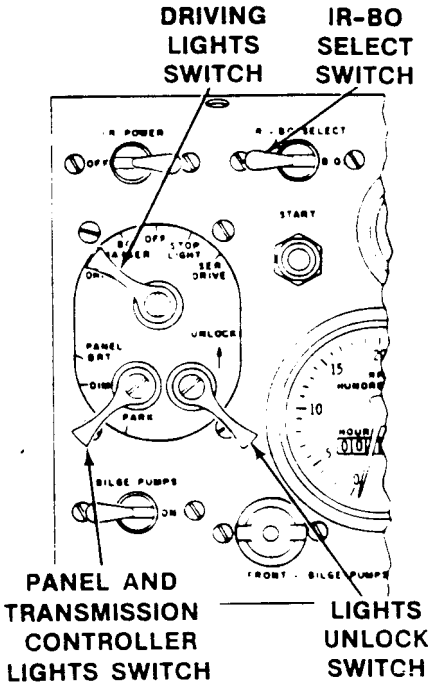
OPERATE STOP LIGHT

1. Move LIGHTS UNLOCK switch to UNLOCK, and hold.
2. Move panel and transmission controller lights switch to OFF.
3. Move DRIVING LIGHTS switch to STOP LIGHT.
4. Release LIGHTS UNLOCK switch.
5. Press brake pedal.
6. Release brake pedal.
7. Move DRIVING LIGHTS switch to OFF.



OPERATE INFRARED HEADLIGHTS

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

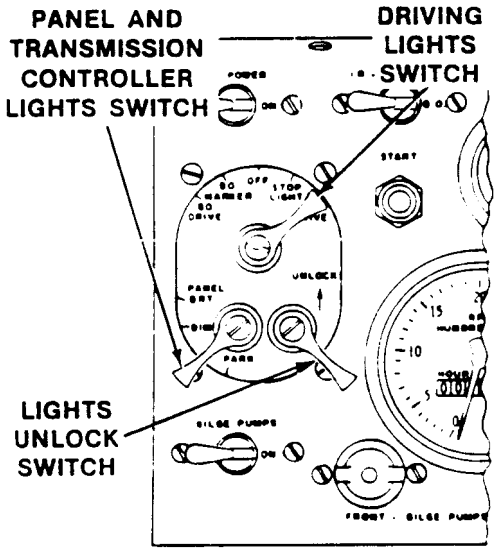


OPERATE PANEL AND TRANSMISSION CONTROLLER LIGHTS

NOTE

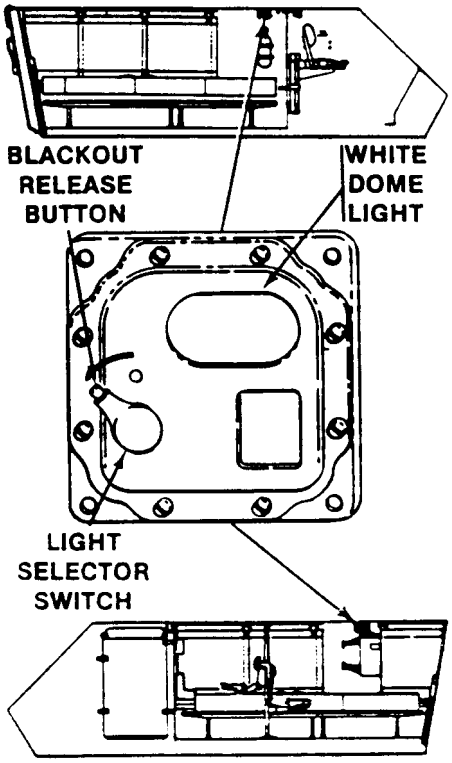
To operate panel and transmission controller lights, DRIVING LIGHTS switch can be in any position except OFF.

1. Move panel and transmission controller lights switch to DIM or to PANEL BRT.
2. Move panel and transmission controller lights switch to OFF.
3. Move DRIVING LIGHTS switch to OFF.



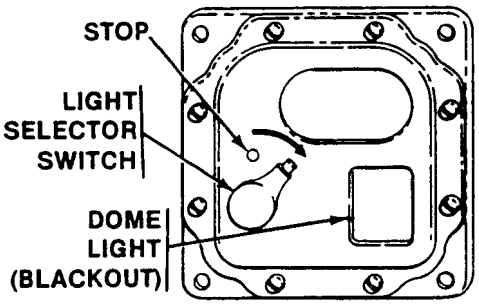
OPERATE WHITE DOME LIGHTS

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 0031 00

THIS WORK PACKAGE COVERS:

Operate Fixed Fire Extinguisher (Outside) (page 0031 00-2).
Operate Fixed Fire Extinguisher (Inside) (page 0031 00-3).

INITIAL SETUP:

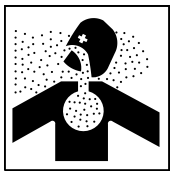
Maintenance Level
Operator

References
TM 3-1040-285-10

Personnel Required
Driver or soldier

Equipment Condition
Fire extinguisher installed and seal unbroken

WARNING



If CO_2 is discharged into engine compartment while engine is running, engine exhaust may be poisonous. Poisonous gas can injure you. Stop engine before you discharge CO_2. If CO_2 is discharged while engine is running, do not breathe engine exhaust.

WARNING



Engine fan can blow away CO_2 before fire is extinguished. Personnel can get burned. Equipment can get damaged. Stop engine before you operate fire extinguisher.

NOTE

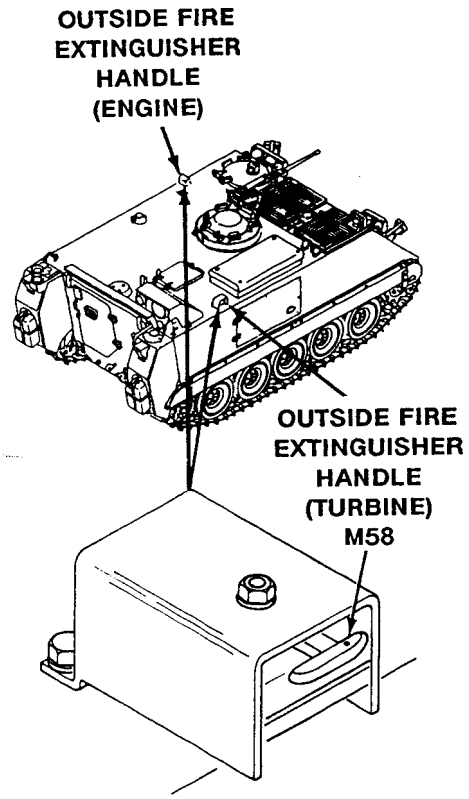
Notify unit maintenance after fixed fire extinguisher is discharged.

OPERATE FIXED FIRE EXTINGUISHER (OUTSIDE)

NOTE

There are two fixed fire extinguishers; one for the engine compartment in all vehicles and one for the turbine compartment in the M58. Both outside fire extinguishers are operated the same way.

1. Shut down operating equipment if possible. See WP 0024 00 or TM 3-1040-285-10.
2. Pull outside fire extinguisher handle to activate fire extinguisher.



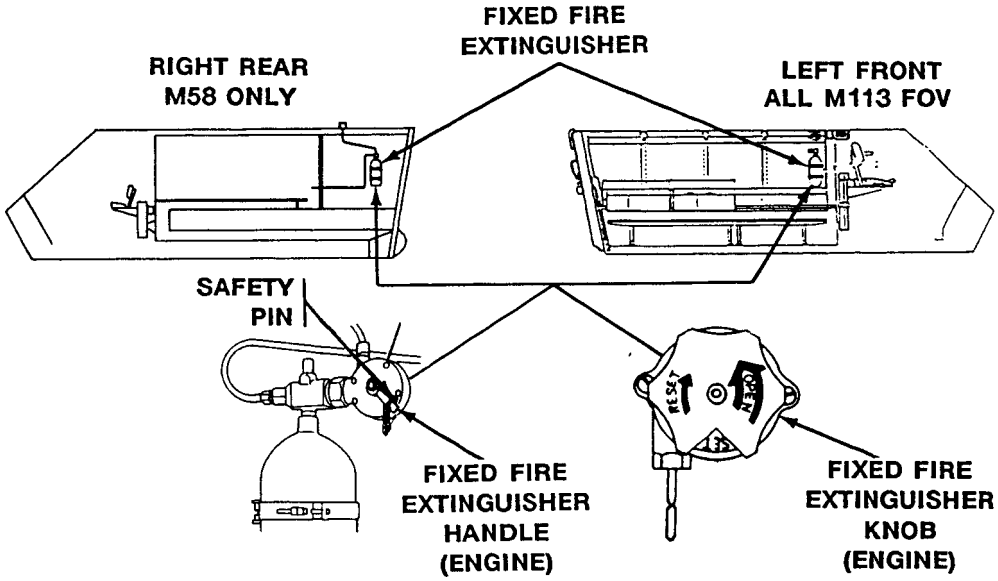
OPERATE FIXED FIRE EXTINGUISHER (INSIDE)

1. Shut down operating equipment if possible. See WP 0024 00 or TM 3-1040-285-10.

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 fixed 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 0032 00

THIS WORK PACKAGE COVERS:

Operate Portable Fire Extinguisher (page 0032 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	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.

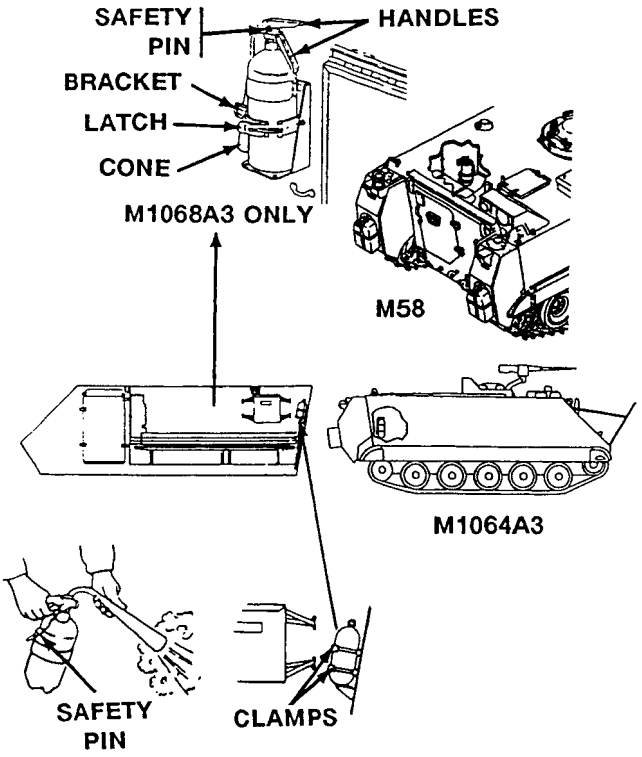
1. For all except M1068A3, open two clamps and remove portable fire extinguisher from stowed position in personnel compartment.
2. For M1068A3 only, pull latch and remove fire extinguisher from the bracket.

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 cone at base of fire.
   c. Squeeze handles.
4. Return empty fire extinguisher to unit maintenance.


SAFETY PIN
HANDLES
BRACKET
LATCH
CONE
M1068A3 ONLY
M58
M1064A3
SAFETY PIN
CLAMPS

END OF TASK

INSTALL/REMOVE M17 PERISCOPES 0033 00

THIS WORK PACKAGE COVERS:

Install M17 Periscopes (page 0033 00-1).
Remove M17 Periscopes (page 0033 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver

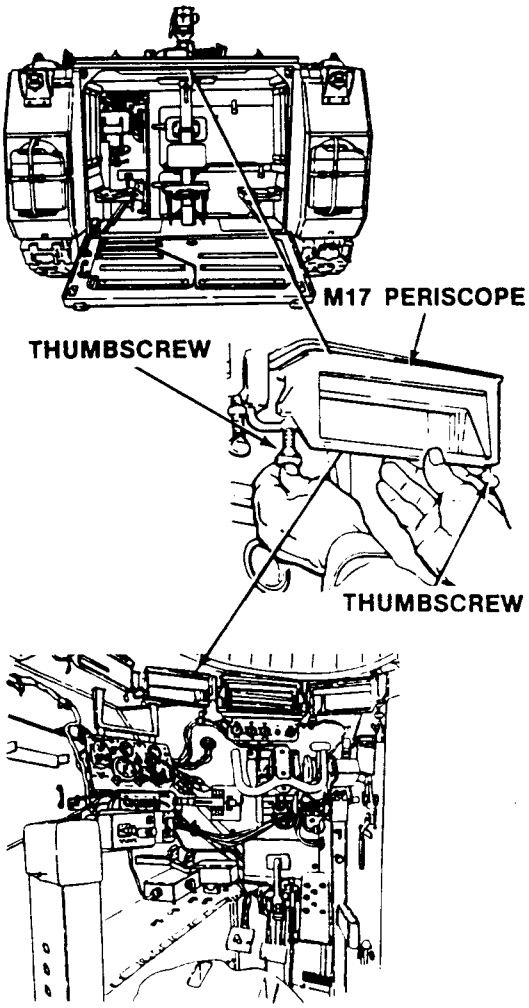
INSTALL M17 PERISCOPES

NOTE

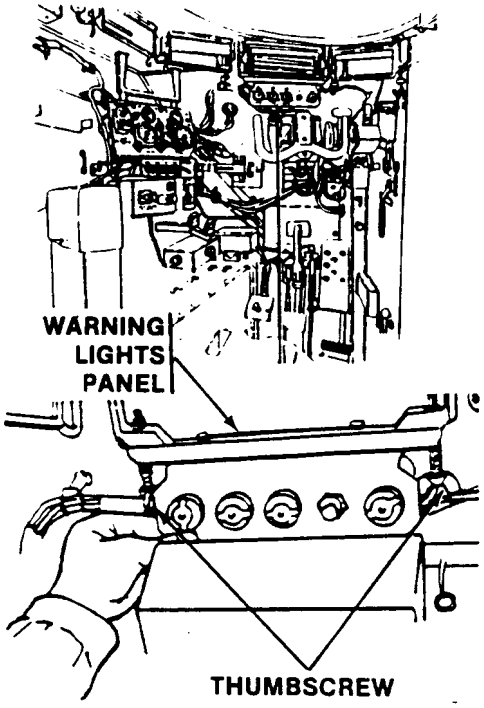
All M17 periscopes are installed the same way except the periscope mounted over the warning lights panel. Steps 3 - 5 tell how to install periscope over warning lights panel.

INSTALL/REMOVE M17 PERISCOPES — Continued **0033 00**

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.

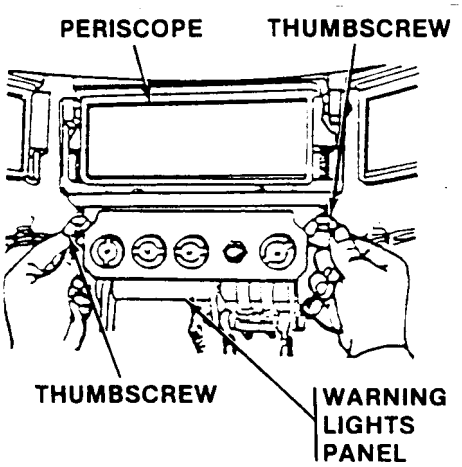


3. Loosen two thumbscrews. Swing and hold warning lights panel out of the way.

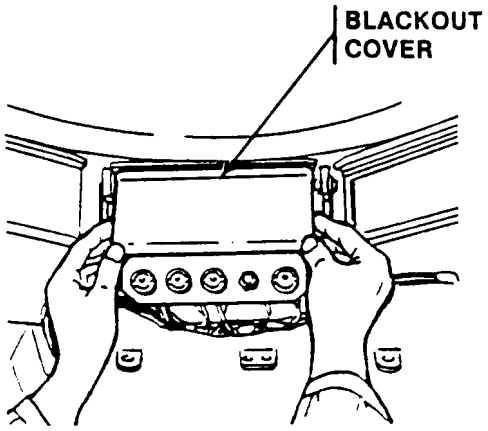


4. Install periscope in channel.

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



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

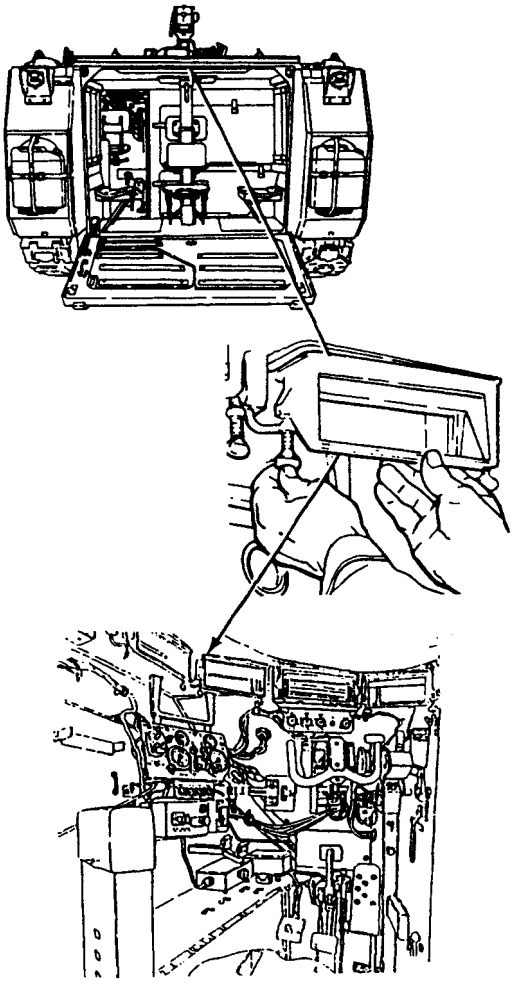


REMOVE M17 PERISCOPES

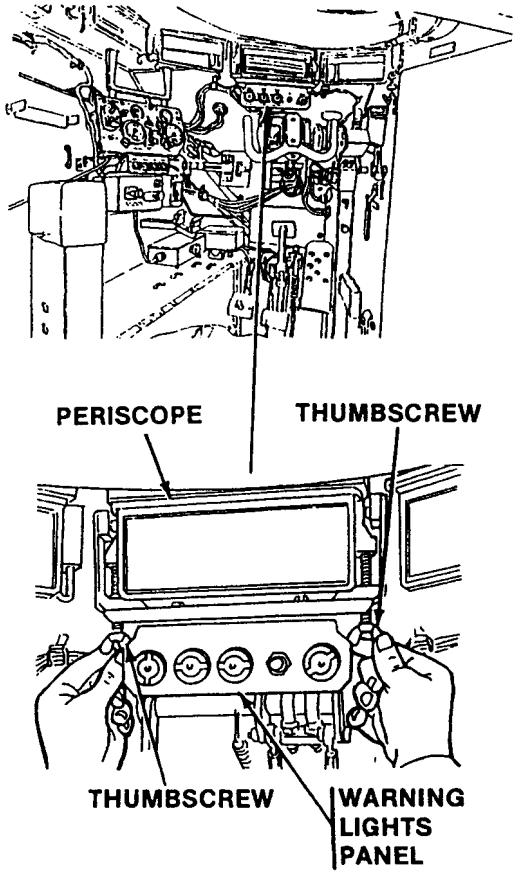
NOTE

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

1. If installed, remove blackout cover from periscope window and stow on back of periscope.
2. 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

INSTALL/REMOVE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58) 0034 00

THIS WORK PACKAGE COVERS:

Install AN/VVS-2 Driver's Night Vision (page 0034 00-1).
Remove AN/VVS-2 Driver's Night Vision (page 0034 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Materials/Parts
Wiping rag (WP 0104 00, Item 15)

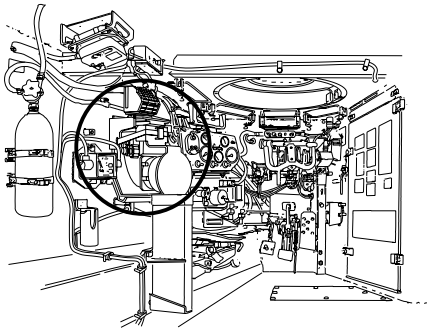
Personnel Required
Driver

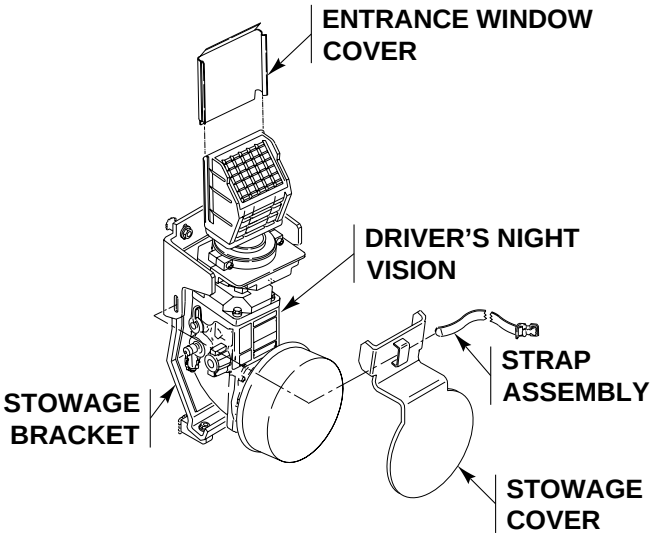
References
TM 11-5855-249-10

Equipment Condition
Carrier stopped

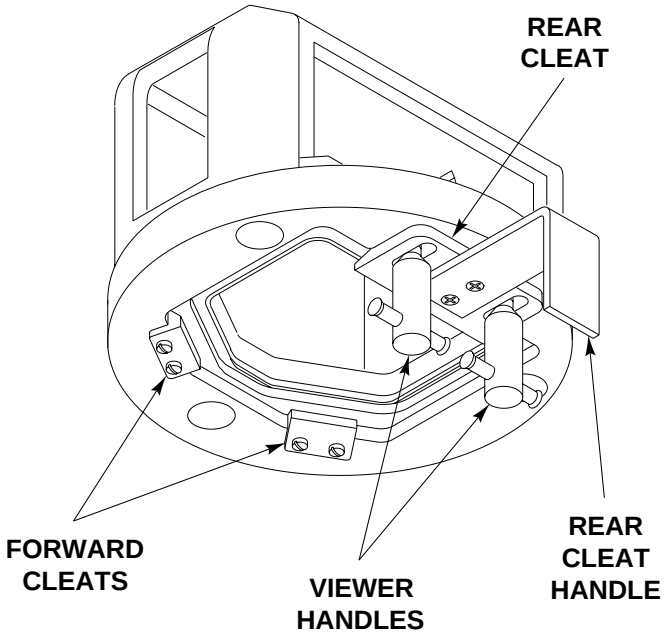
INSTALL

1. Remove strap assembly, stowage cover, entrance window cover, and driver's night vision (AN/VVS-2) from stowage bracket.



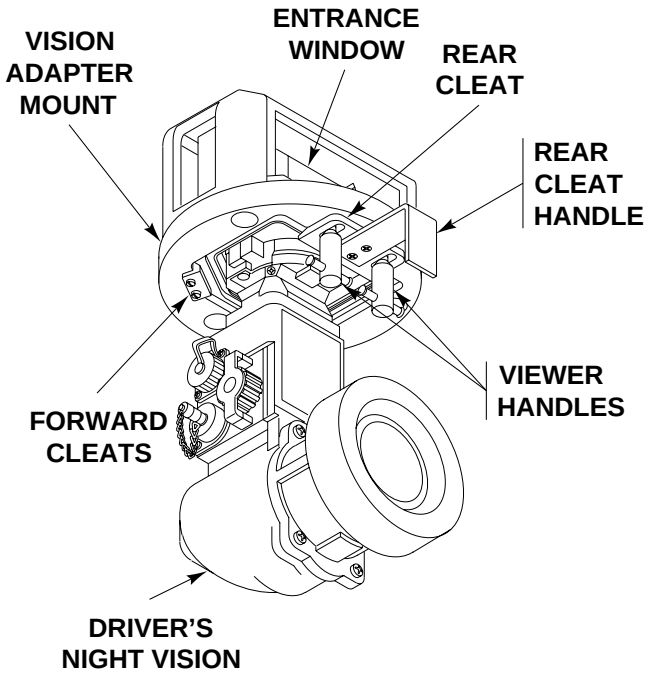


2. Loosen two viewer handles on viewer adapter mount and slide rear cleat by pulling back handle. Tilt plug assembly to remove from viewer adapter mount in hatch.
3. Stow plug in Basic Issue Items bag. Stow bag in a suitable place in the vehicle.
4. Install strap assembly, stowage cover, and entrance window cover on stowage bracket.

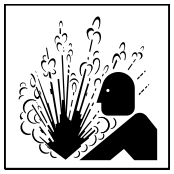


5. Check to see that driver's night vision is in center detent position so that mount assembly is square with the side of the entrance window housing. If not, rotate it in its mount until it stops in center detent position.
6. Hold driver's night vision in an upright position with the window pointing forward and then push entrance window carefully through viewer adapter mount in hatch.

7. Engage forward edge of driver's night vision mount into forward cleats on forward edge of the viewer adapter mount on the driver's hatch.
8. Push driver's night vision forward and firmly while tilting rear edge up.
9. Slide rear cleat forward by pushing handle as far as it will go and hand tighten two viewer handles.
10. Check for secure mounting by simultaneously twisting and pulling down on driver's night vision.
11. Check for free rotation of driver's night vision.

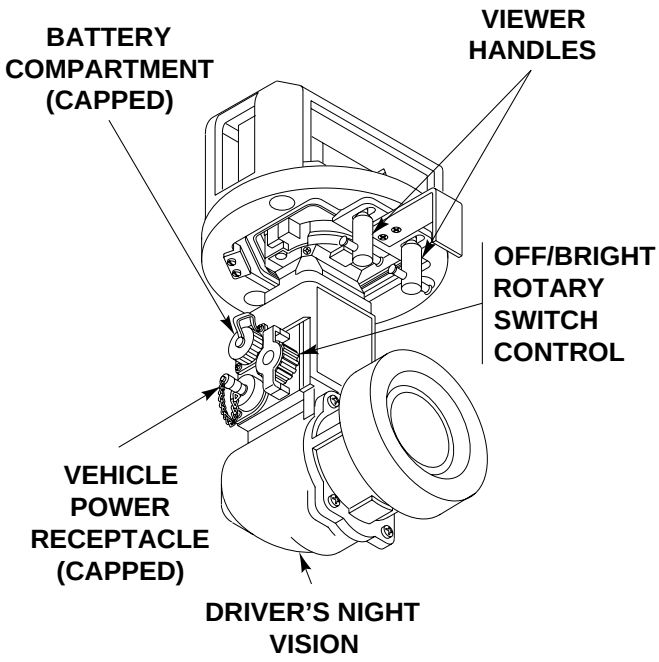


WARNING

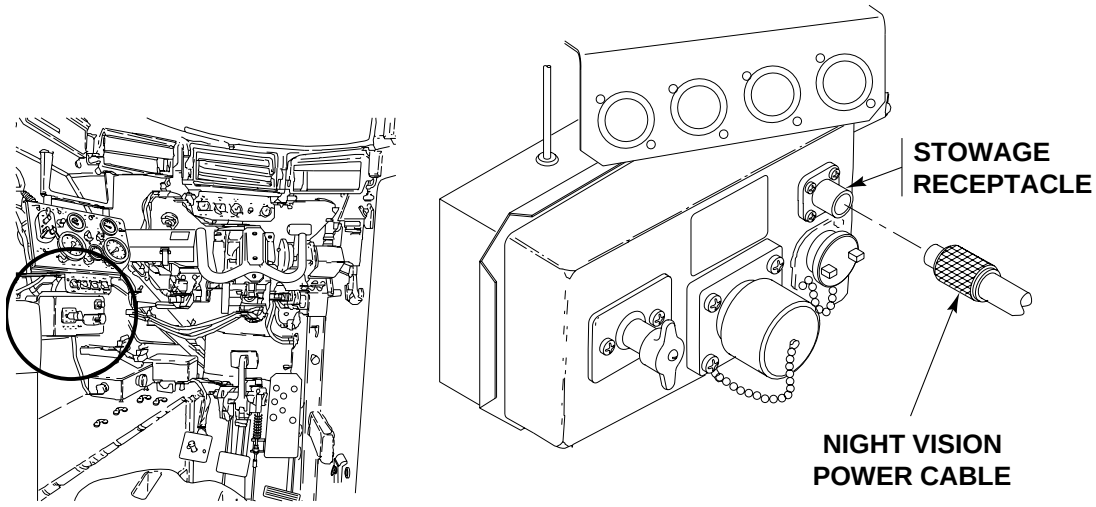


Remove 2.7 volt battery from battery compartment before connecting driver's night vision power cable. The 2.7 volt battery may explode if not removed before the connection is made. Personnel may be injured if battery explodes.

12. Rotate OFF/BRIGHT rotary switch to OFF.
13. Unscrew battery compartment cap and remove 2.7 volt battery. Reinstall battery compartment cap.

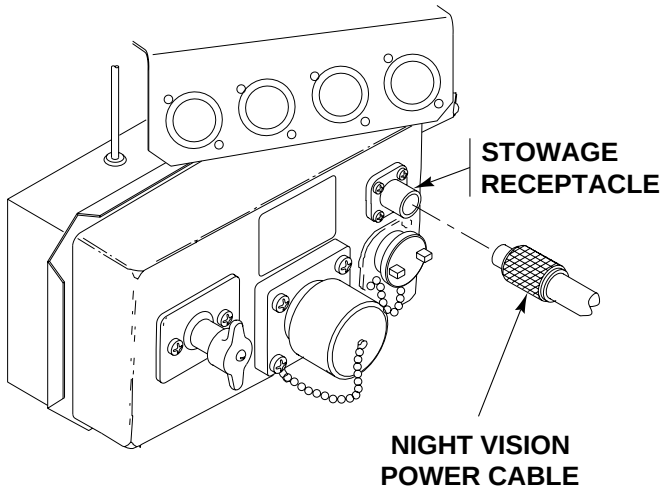


14. Remove night vision power cable from stowage receptacle on master switch panel.
15. Remove cap from driver's night vision power receptacle and connect vision power cable plug to power receptacle.

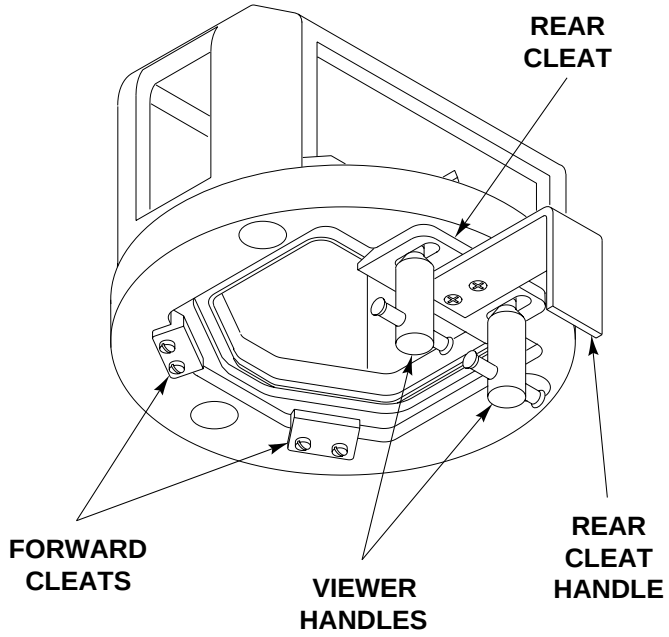


REMOVE

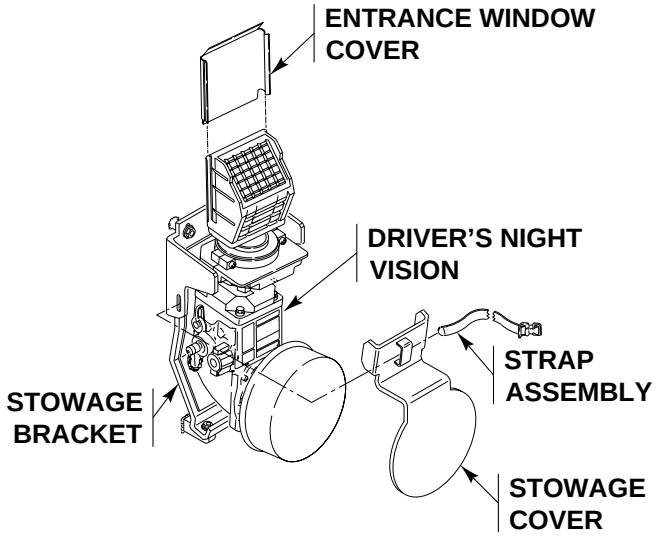
1. Rotate OFF/BRIGHT rotary switch to OFF.
2. Disconnect vision power cable from driver's night vision and reinstall power cable connector cap.
3. Connect night vision power cable to stowage receptacle on master switch panel.



4. Stow excess cable behind fixed fire extinguisher tubing.
5. Rotate driver's night vision to straight-ahead (detent) position.
6. Hold driver's night vision firmly, while loosening two viewer handles, slide rear cleat back.



7. Tilt the eyepiece end forward and carefully lower driver's night vision.
8. Carefully wipe off any dirt or moisture from driver's night vision.
9. Remove strap assembly, plug, stowage cover, and entrance window cover from stowage bracket.
10. Install driver's vision in stowage bracket and secure with strap assembly stowage cover and entrance window cover.
11. Install plug assembly in vision adapter mount and secure with rear cleat and two viewer handles.



END OF TASK

OPERATE AN/VVS-2 DRIVER'S NIGHT VISION (ALL EXCEPT M58) 0035 00

THIS WORK PACKAGE COVERS:

Operate AN/VVS-2 Driver's Night Vision With Carrier Power (page 0035 00-1).
Operate AN/VVS-2 Driver's Night Vision With 2.7 Volt Battery (page 0035 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Driver

Materials/Parts
Lens tissue
Lens cleaning solution
2.7 volt battery

References
TM 11-5855-249-10

Equipment Condition
Driver's night viewer installed (WP 0034 00)

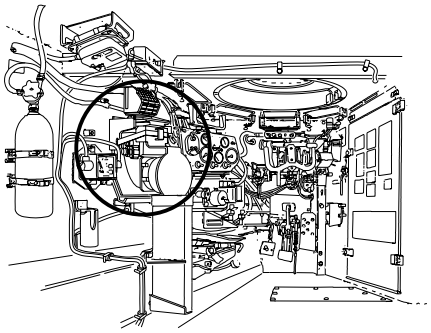
OPERATE DRIVER'S NIGHT VISION WITH CARRIER POWER

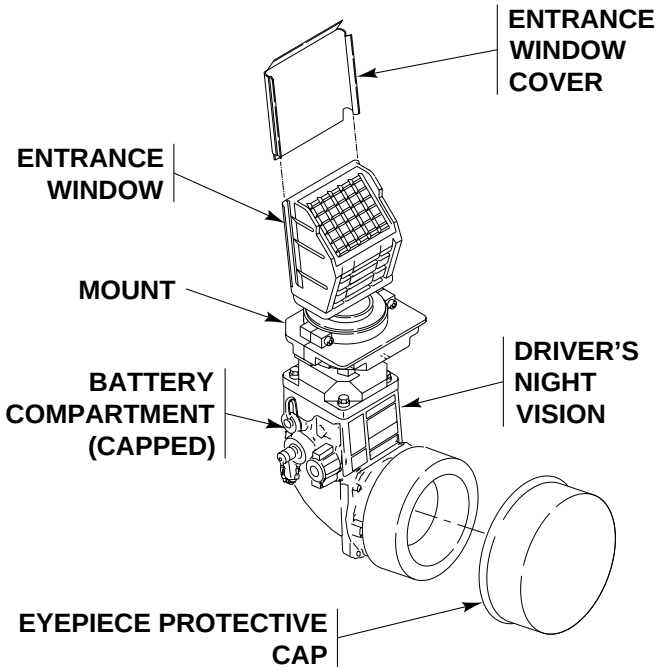
CAUTION

Reinstall entrance window protective cover during bright light conditions (daylight, stopped in lighted staging area).

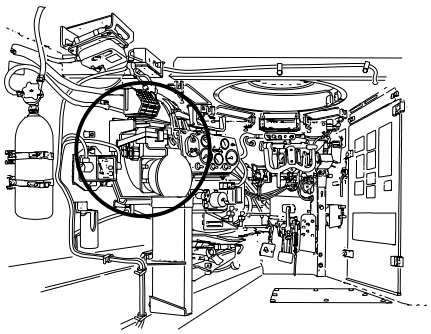
Be aware that 2.7 volt battery can explode and damage driver's night viewer. Check that 2.7 volt battery is removed from driver's night vision before operating driver's night vision with carrier power.

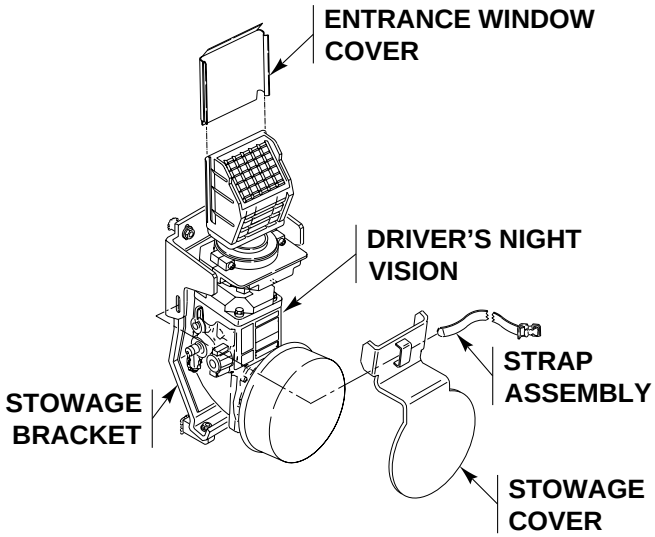
1. Remove entrance window cover and eyepiece protective cap.



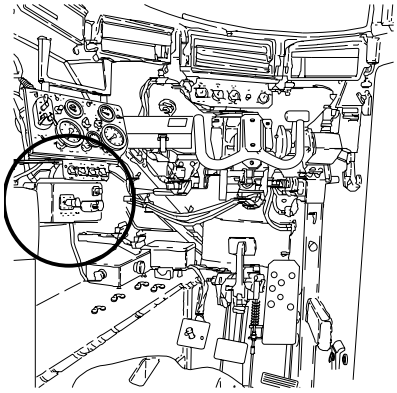


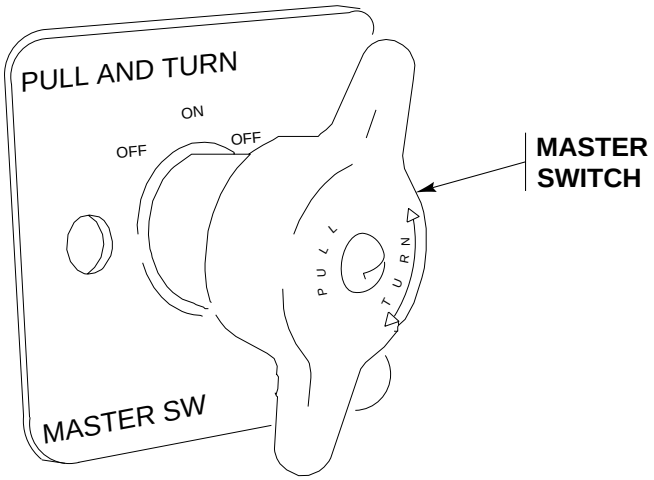
2. Return eyepiece protective cap and entrance window cover to stowage bracket.





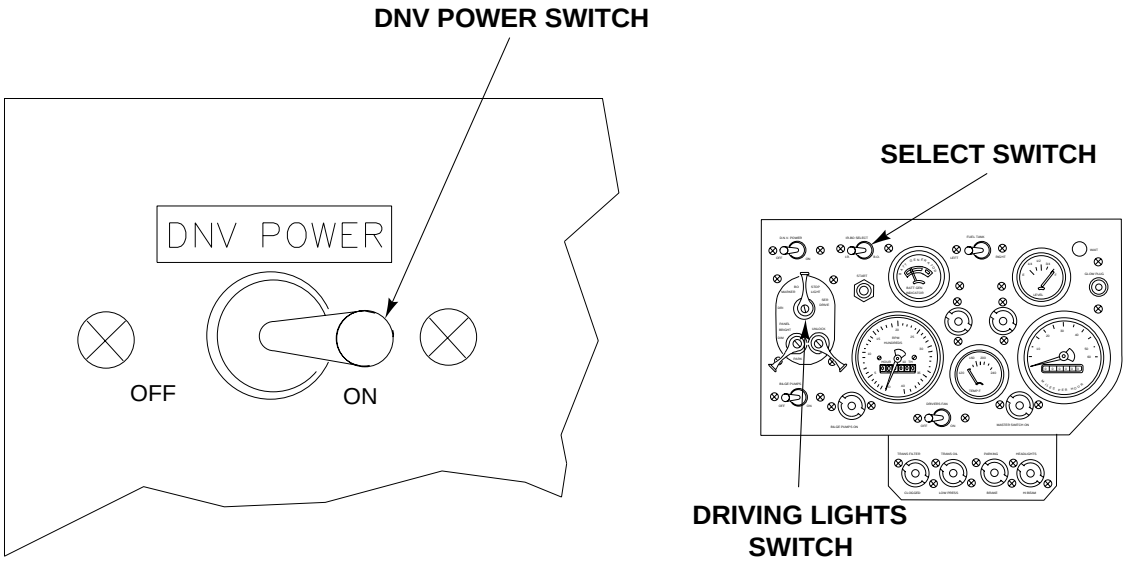
3. Adjust driver's seat for comfortable viewing at eyepiece (WP 0013 00).
4. Turn MASTER SWITCH ON.





5. Move DNV POWER switch to ON.
6. Move driving lights switch to BO DRIVE.
7. Move BO SELECT switch to OFF.

8. Rotate OFF/BRIGHT rotary switch to maximum clockwise bright (ON) position and note that a green image is visible in the eyepiece.



NOTE

The OFF/BRIGHT rotary switch normally is set to maximum clockwise bright (ON) position when viewing dim images. However, if the image display is too bright, contrast will be degraded. Therefore, adjust brightness for best contrast.

9. Set driver's night vision in straight-ahead (detent) position for normal driving.
10. When slowly turning carrier or when turning it from a stopped position, driver's night vision can be rotated out of detent position by twisting it firmly.
11. If operator normally wears reading glasses, use them while operating driver's night vision, because image appears 20 inches away which is normal reading distance.
12. If light outside increases, reinstall entrance window protective cover.

CAUTION

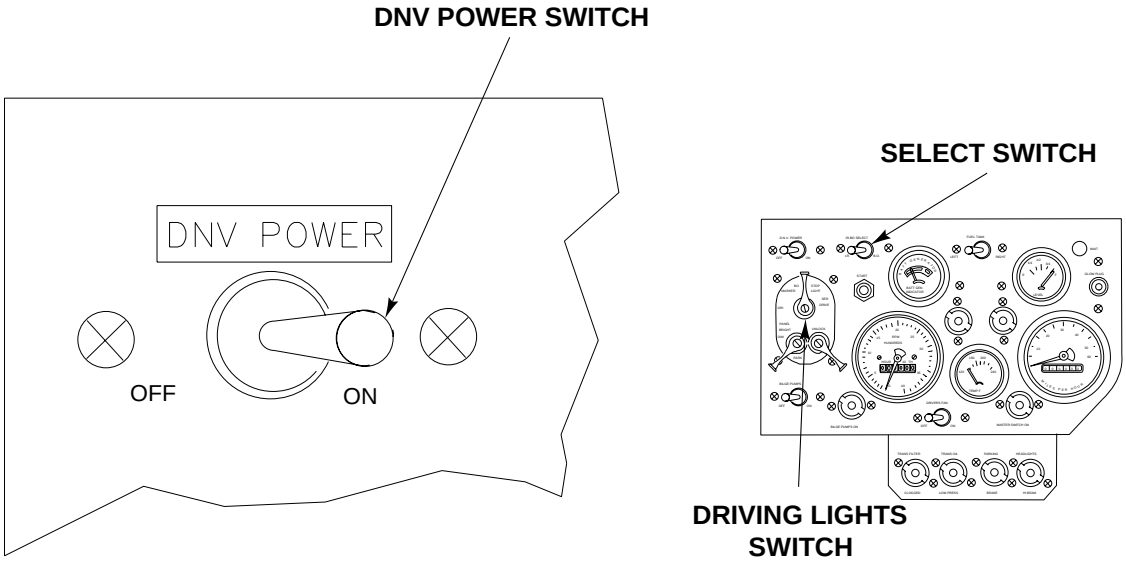
Do not open driver's hatch with vision power connected. The driver's night vision power cable is not long enough.

NOTE

Before cleaning entrance window with lens tissue and lens cleaner, gently remove excess dirt and dust from entrance window.

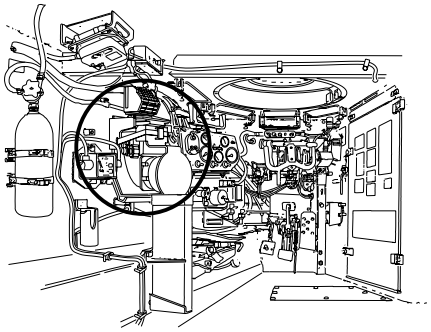
13. If entrance window becomes rain spotted or dusty, maintain good visibility by first removing driver's night vision from carrier mount.
14. Clean entrance window with lens tissue folded into a swab and moistened with lens cleaner, using circular motion.
15. Dry entrance window with a clean dry lens tissue, using circular motion.
16. Move driving lights switch to OFF.
17. Move DNV POWER switch to OFF.

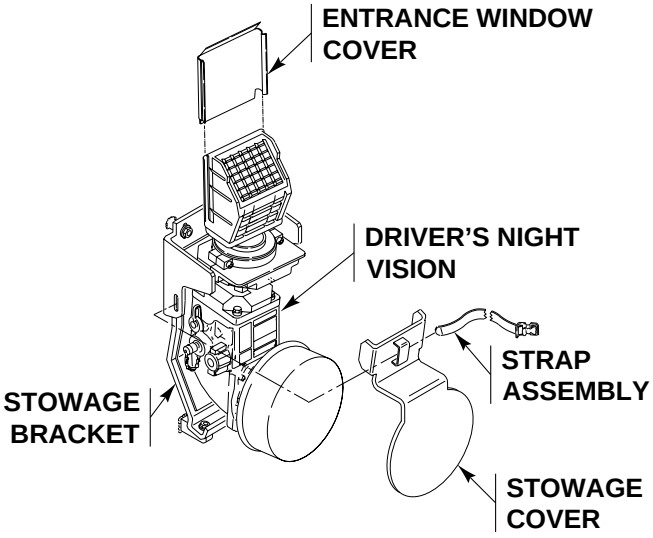
18. Turn MASTER SWITCH OFF.
19. Install entrance window cover and eyepiece protective cap on driver's night vision.



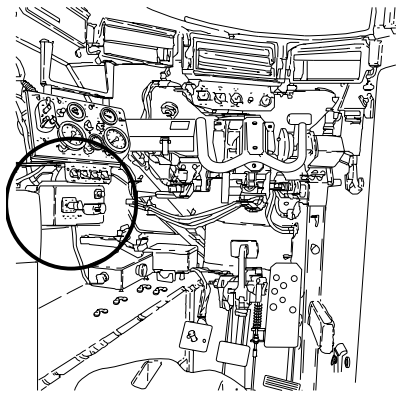
OPERATE DRIVER'S NIGHT VISION WITH 2.7 VOLT BATTERY

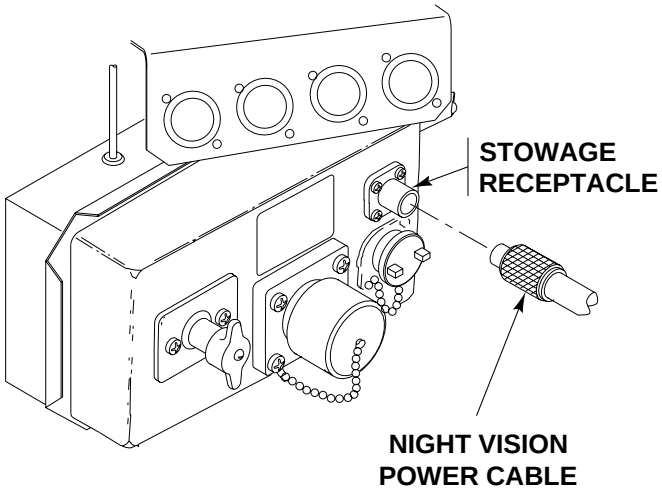
1. Remove entrance window cover and eyepiece protective cap.
2. Return eyepiece protective cap and entrance window cover to stowage bracket.





3. Remove driver's night vision power cable from driver's night vision.
4. Connect driver's night vision power cable to stowage receptacle on master switch panel.
5. Install power cable receptacle cap on driver's night vision.
6. Remove battery compartment cap and insert 2.7 volt battery with recessed end (+) first into battery compartment.





NOTE

The recessed end of the 2.7 volt battery is the positive end (+). Finger-tighten battery compartment cap securely to ensure firm contact with battery.

7. Finger tighten battery compartment cap securely to ensure firm contact with 2.7 volt battery.
8. Adjust driver's seat for comfortable viewing at eyepiece.

9. Rotate OFF/BRIGHT rotary switch to maximum clockwise bright (ON) position and note that a green image is visible in the eyepiece. Adjust driver's seat for comfortable viewing at eyepiece.

NOTE

The OFF/BRIGHT rotary switch normally is set to the maximum clockwise bright (ON) position when viewing dim images. However, if the image display is too bright, contrast will be degraded. Therefore, adjust brightness for best contrast.

10. Set driver's night vision in straight-ahead (detent) position for normal driving.
11. When slowly turning carrier or when turning it from a stopped position, driver's night vision can be rotated out of detent position by twisting it firmly.
12. If operator normally wears reading glasses, use them while operating driver's night vision because image appears 20 inches away, which is normal reading distance.
13. If light outside increases, reinstall entrance window protective cover.

NOTE

Before cleaning entrance window with lens tissue and lens cleaner, gently remove excess dirt and dust from entrance window.

14. If entrance window becomes rain spotted or dusty, maintain good visibility by first removing driver's night vision from carrier mount.
15. Clean entrance window with lens tissue folded into a swab and moistened with lens cleaner, using circular motion.
16. Dry entrance window with a clean dry lens tissue, using circular motion.
17. Rotate OFF/BRIGHT rotary switch to OFF.
18. Install entrance window cover and eyepiece protective cap on driver's night vision.
19. Unscrew battery compartment cap and remove 2.7 volt battery from driver's night vision.

NOTE

Normal battery life is 6 to 8 hours. Discard 2.7 volt battery after each night's operation.

20. Replace battery compartment cap on driver's night vision.

END OF TASK

INSTALL/REMOVE MACHINE GUN (M2, .50 CAL) (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0036 00

THIS WORK PACKAGE COVERS:

Install Machine Gun (page 0036 00-1).
Remove Machine Gun (page 0036 00-3).

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Soldier

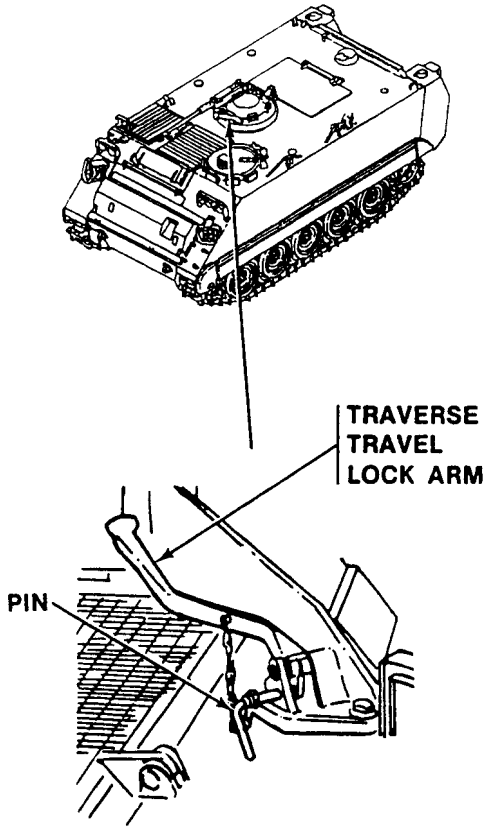
Equipment Condition
Engine stopped (WP 0024 00)
Commander's cupola locked at desired position (WP 0010 00)

INSTALL

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.

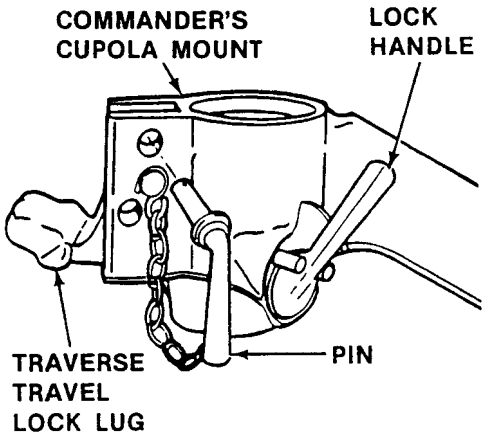
1. Remove pin from commander's cupola mount to release traverse travel lock arm.



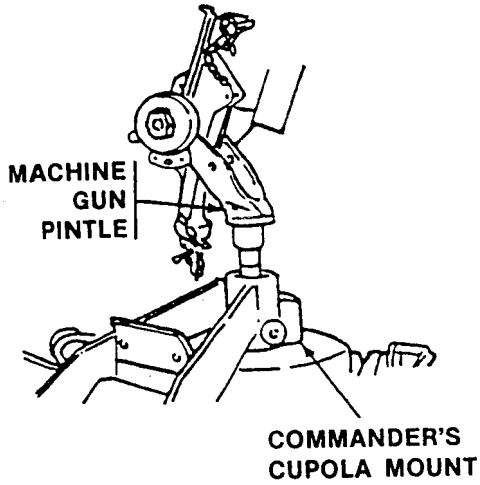
WITH TRAVERSE TRAVEL LOCK ARM

INSTALL/REMOVE MACHINE GUN (M2, .50 CAL) (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0036 00**

2. Remove pin from commander's cupola mount to release traverse travel lock lug.



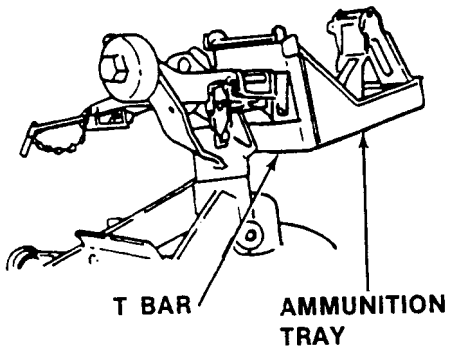
3. Push lock handle down and install machine gun pintle in commander's cupola mount.



NOTE

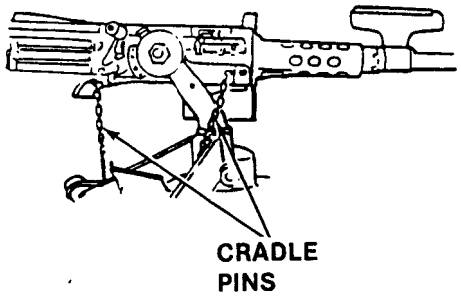
If lock handle did not come up when you installed machine gun pintle in Step 3 above, push lock handle up.

4. Install ammunition tray on T bar.



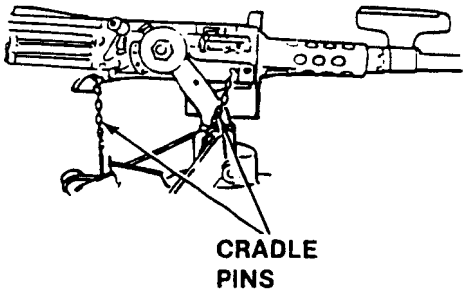
5. Remove cradle pins from machine gun pintle.

6. Align front and rear holes in machine gun with holes in cradle and install cradle pins.

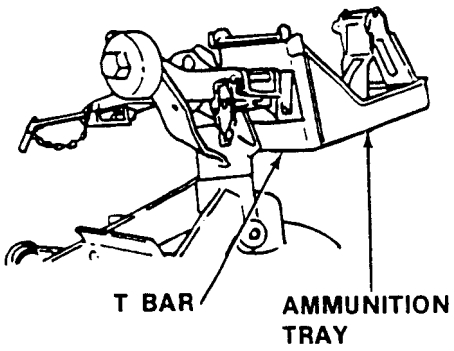


REMOVE

1. Remove cradle pins and lift machine gun out of pintle.

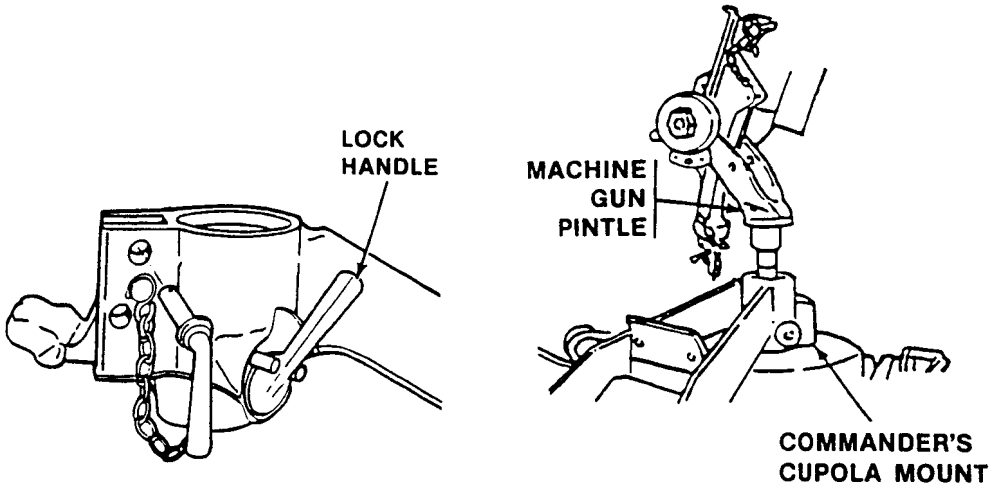


2. Remove ammunition tray from T bar.



INSTALL/REMOVE MACHINE GUN (M2, .50 CAL) (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0036 00**

3. Push lock handle down and remove machine gun pintle from commander's cupola mount.



END OF TASK

SECURE MACHINE GUN (M2, .50 CAL) FOR TRAVEL (M113A3, M1059A3, M1064A3, AND M58 ONLY) 0037 00

THIS WORK PACKAGE COVERS:

Secure Machine Gun (page 0037 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Machine gun installed (WP 0036 00)

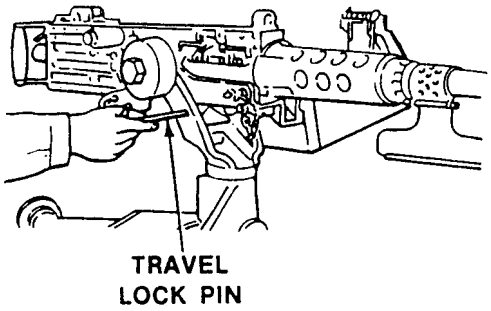
Personnel Required
Soldier

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.

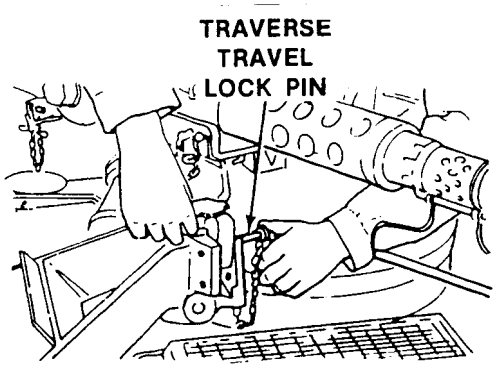
1. Install travel lock pin in machine gun pintle.



NOTE

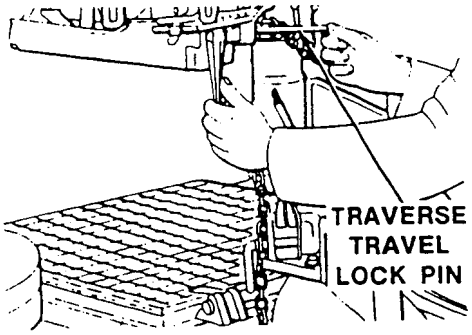
If carrier is equipped with traverse travel lock lug, go to Step 2. If carrier is equipped with traverse travel lock arm, go to Step 3.

2. Install traverse travel lock pin in machine gun mount.



SECURE MACHINE GUN (M2, .50 CAL) FOR TRAVEL (M113A3, M1059A3, M1064A3, AND M58 ONLY) — Continued **0037 00**

3. Install traverse travel lock pin in machine gun mount.



END OF TASK

SECURE MACHINE GUN (M2, .50 CAL) TO ARMOR SHIELD FOR TRAVEL (M113A3, M1059A3, AND M1064A3 ONLY) 0038 00

THIS WORK PACKAGE COVERS:

Secure Machine Gun (page 0038 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

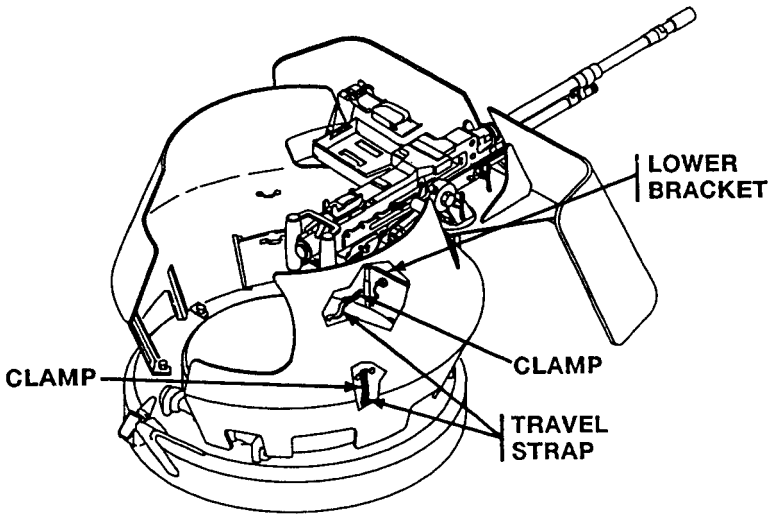
Machine gun installed (WP 0036 00)

Personnel Required

Soldier

SECURE MACHINE GUN

1. Loosen travel strap and remove clamp from cupola opening.
2. Install clamp on machine gun lower bracket.
3. Tighten travel strap.



END OF TASK

LOWER/STOW TRIM VANE 0039 00

THIS WORK PACKAGE COVERS:

Lower Trim Vane (page 0039 00-1).
Stow Trim Vane (page 0039 00-2).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier (2)

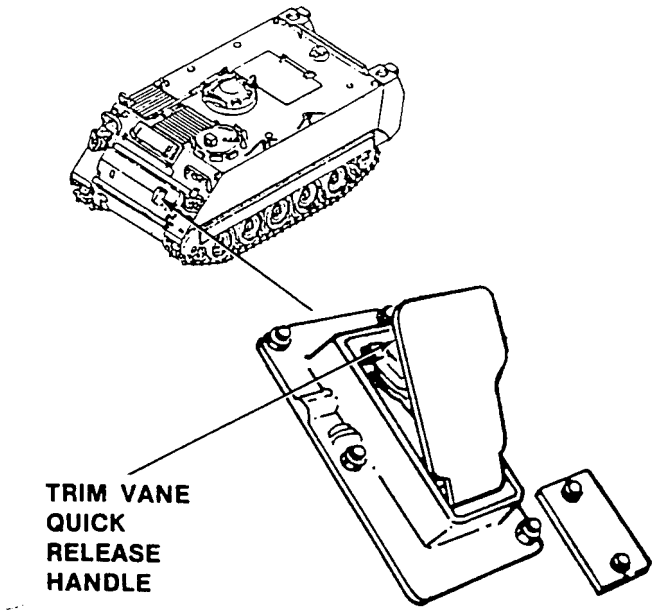
WARNING



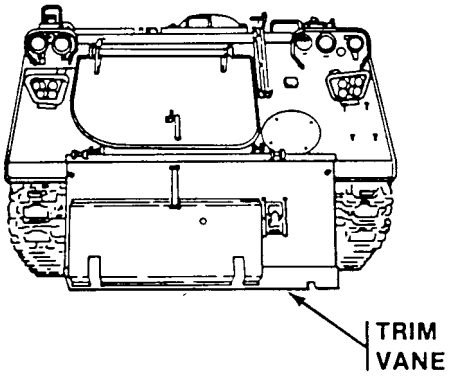
Trim vane is heavy. Personnel can be injured and equipment damaged. Have helper assist. Open and lower trim vane slowly. Avoid being caught between trim vane and hull or ground.

LOWER

1. Pull trim vane quick release handle to disengage quick release from extension linkage.



2. Lower trim vane.



STOW

1. Raise and hold trim vane in stowed position.
2. Pull trim vane quick release handle. Aline quick release with extension linkage.
3. Release quick release handle to secure trim vane in stowed position.

END OF TASK

REMOVE/INSTALL POWER PLANT ACCESS PANELS 0040 00

THIS WORK PACKAGE COVERS:

Remove Power Plant Access Panels (page 0040 00-2).
Install Power Plant Access Panels (page 0040 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0024 00)

Personnel Required

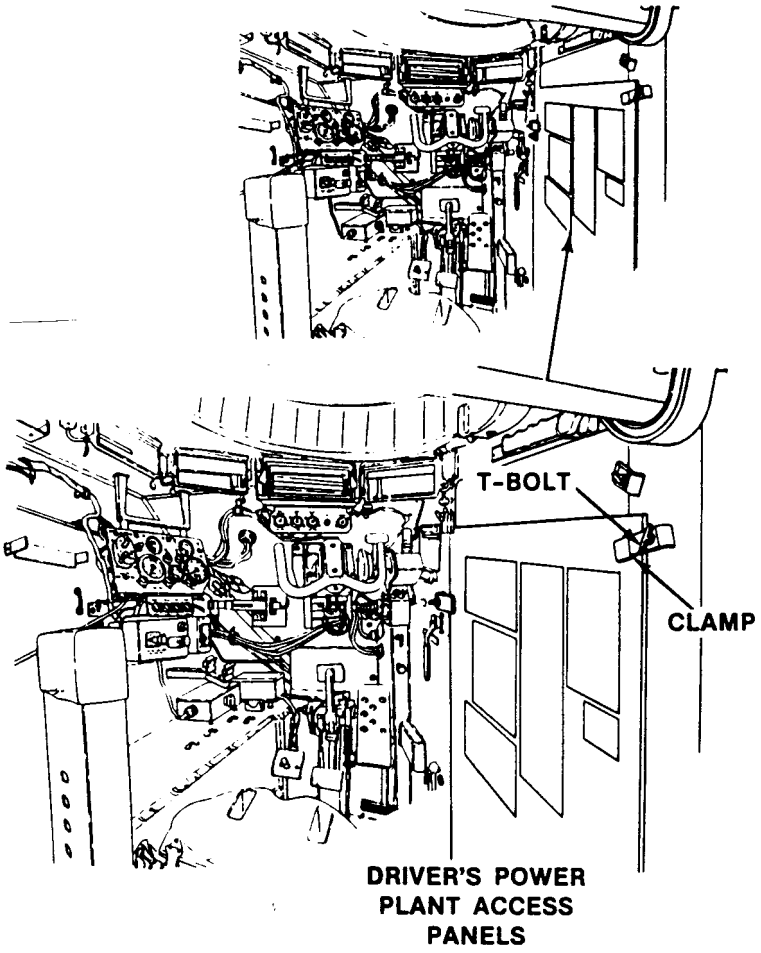
Driver

NOTE

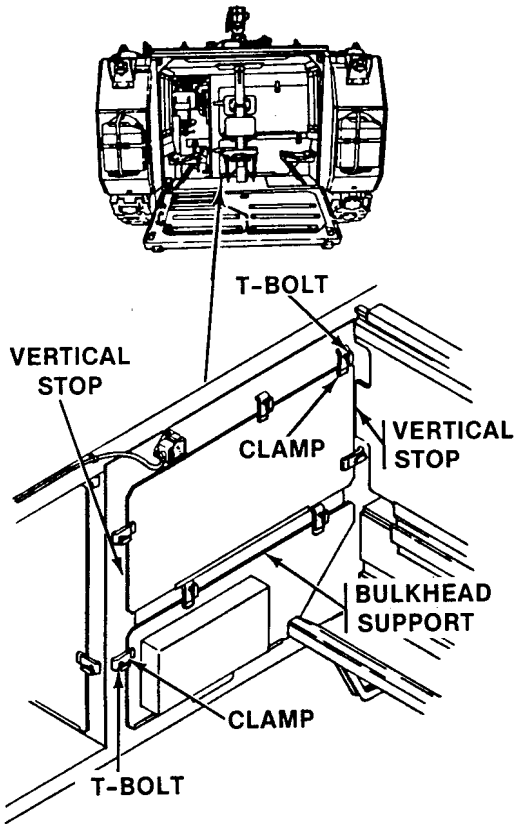
Driver's power plant access panel and rear power plant access panels are removed and installed the same way.

REMOVE

1. Loosen t-bolts and clamps securing power plant access panels to bulkhead.



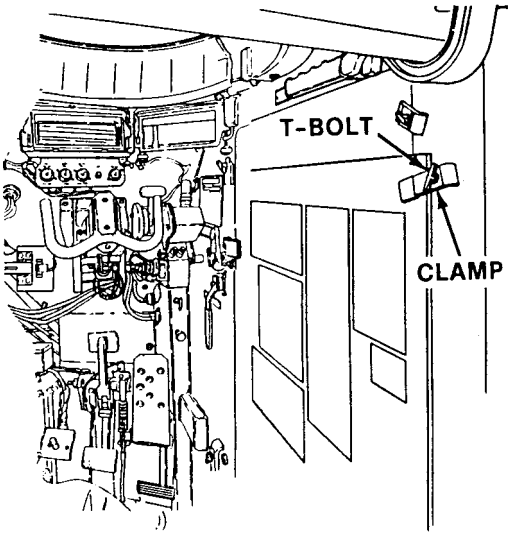
2. Remove power plant access panels from bulkhead supports.



REAR POWER PLANT ACCESS PANELS

INSTALL

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

POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (M113A3 ONLY) 0041 00

THIS WORK PACKAGE COVERS:

Positioning spall liners for access to equipment (page 0041 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Soldier

Equipment Condition

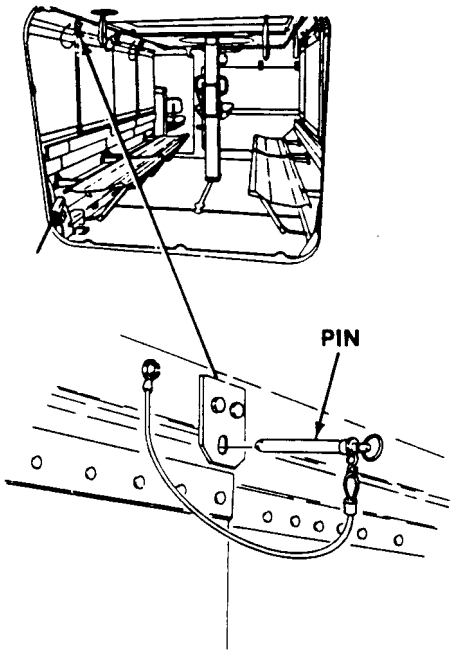
Carrier stopped
Spall liners secured in fully closed position

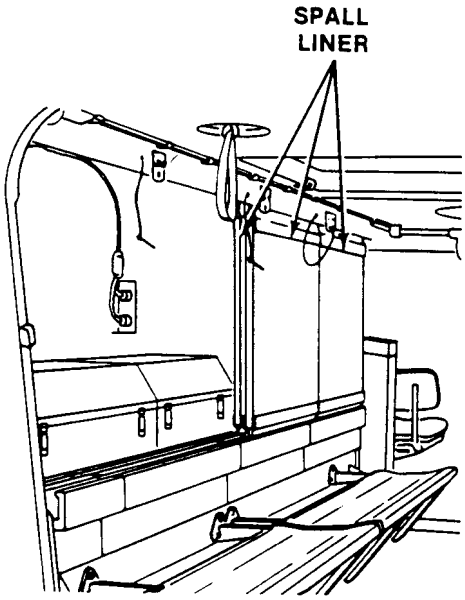
POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT

NOTE

Four right side spall liners and four left side spall liners open and close the same way.

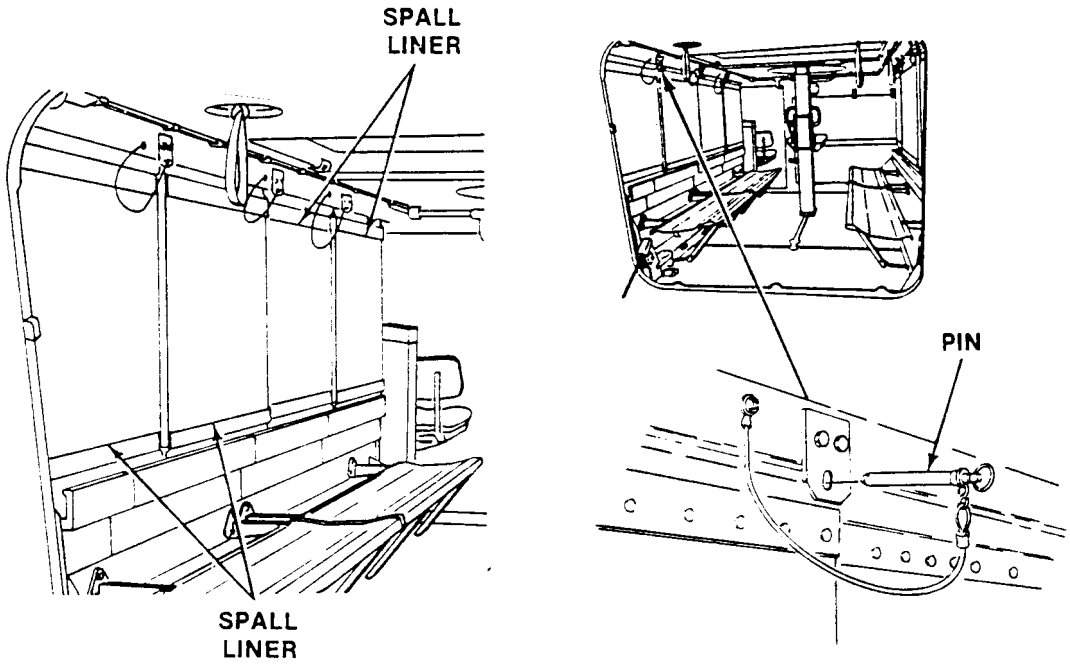
1. Remove three pins securing spall liners in closed position.
2. Slide spall liners to the front or rear as needed to gain access to equipment.





POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (M113A3 ONLY) — Continued **0041 00**

3. Reposition spall liners to fully closed position and aline mounting holes in spall liners with mounting holes in brackets.
4. Install three pins to secure spall liners in place.



END OF TASK

BLOCK/UNBLOCK CARRIER TRACKS 0042 00

THIS WORK PACKAGE COVERS:

Block carrier tracks (page 0042 00-1).
Unblock carrier tracks (page 0042 00-1).

INITIAL SETUP:

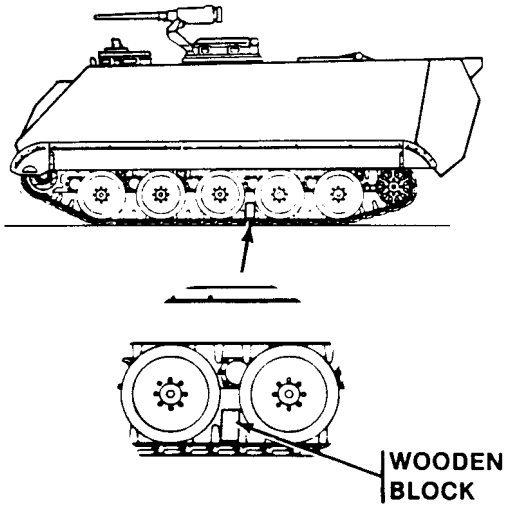
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver

BLOCK

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 between road wheels.



UNBLOCK

1. Remove block of wood or other object from between track guides and road wheels.

END OF TASK

INSTALL/REMOVE WATER/RATION HEATER 0043 00

THIS WORK PACKAGE COVERS:

Install water/ration heater (page 0043 00-1).
Remove water/ration heater (page 0043 00-2).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

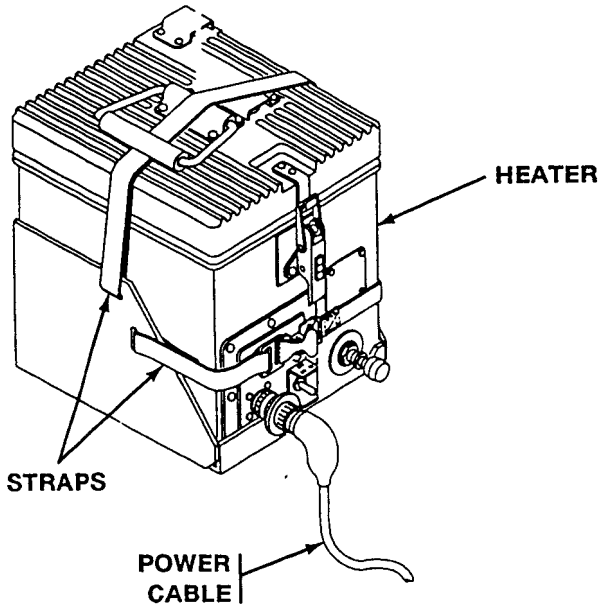
Carrier stopped

Personnel Required

Driver

INSTALL WATER/RATION HEATER

1. Locate heater mounting bracket on right rear crew compartment bulkhead.

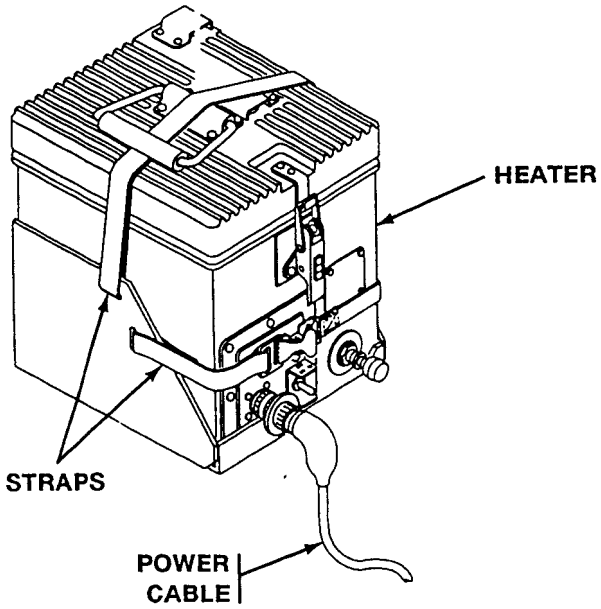


2. Place heater on bracket and secure with two straps, as shown.

3. Connect accessory power cable to receptacle on heater.

REMOVE WATER/RATION HEATER

1. Remove accessory power cable from receptacle on heater.



2. Remove two straps securing heater to heater mounting bracket.
3. Remove heater from mounting bracket.

END OF TASK

OPERATE WATER/RATION HEATER 0044 00

THIS WORK PACKAGE COVERS:

INITIAL SETUP:

Maintenance Level
Operator

References
TM 10-7310-241-12&P

Personnel Required
Driver

Equipment Condition
MASTER SWITCH ON (WP 0004 00)

1. For troubleshooting, operation, maintenance, and repair parts see TM 10-7310-241-12&P.

END OF TASK

OPERATE AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3 ONLY) 0045 00

THIS WORK PACKAGE COVERS:

Operate (page 0045 00-1).

INITIAL SETUP:

Maintenance Level
Operator

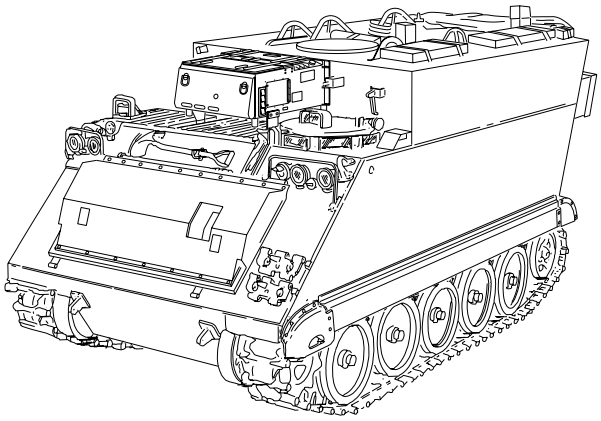
References
TM 9-6115-664-13&P

Personnel Required
Driver
Crew

Equipment Condition
Carrier stopped
Engine stopped (WP 0024 00)

OPERATE

1. Turn carrier MASTER SWITCH 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 OFF.



END OF TASK

OPEN/CLOSE COMMANDER'S HATCH (M577A3 AND M1068A3 ONLY) 0046 00

THIS WORK PACKAGE COVERS:

Open (page 0046 00-1).
Close (page 0046 00-2).

INITIAL SETUP:

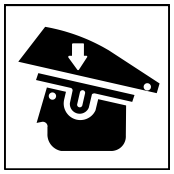
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

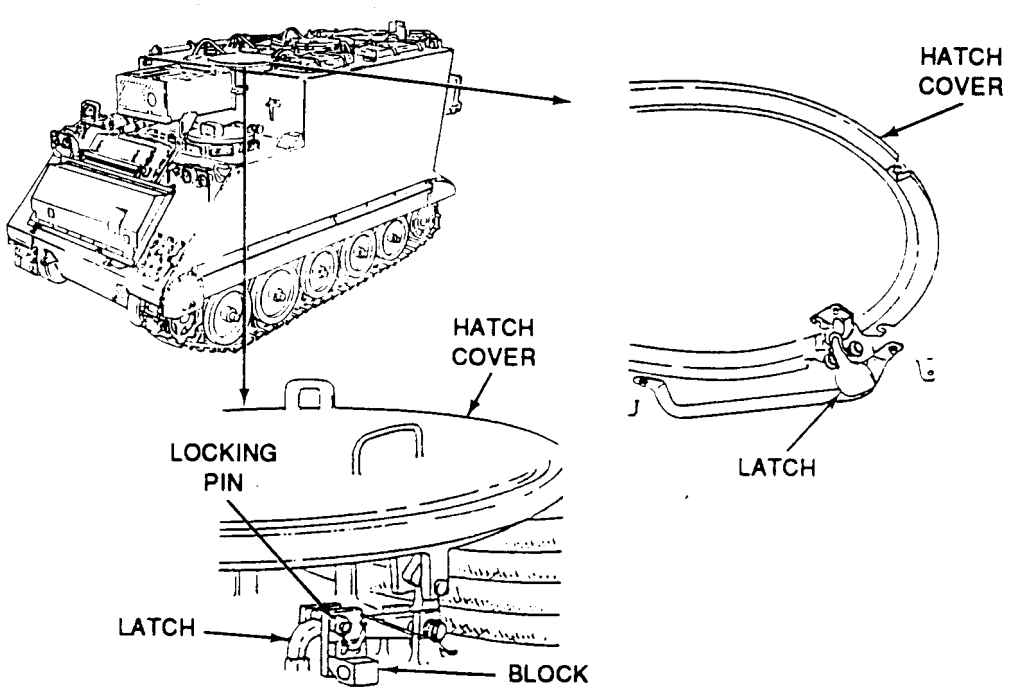
OPEN

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 HATCH

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

END OF TASK

OPERATE COMMANDER'S PLATFORM (M577A3 AND M1068A3 ONLY) 0047 00

THIS WORK PACKAGE COVERS:

Adjust (page 0047 00-1).
Stow (page 0047 00-2).
Lower (page 0047 00-2).

INITIAL SETUP:

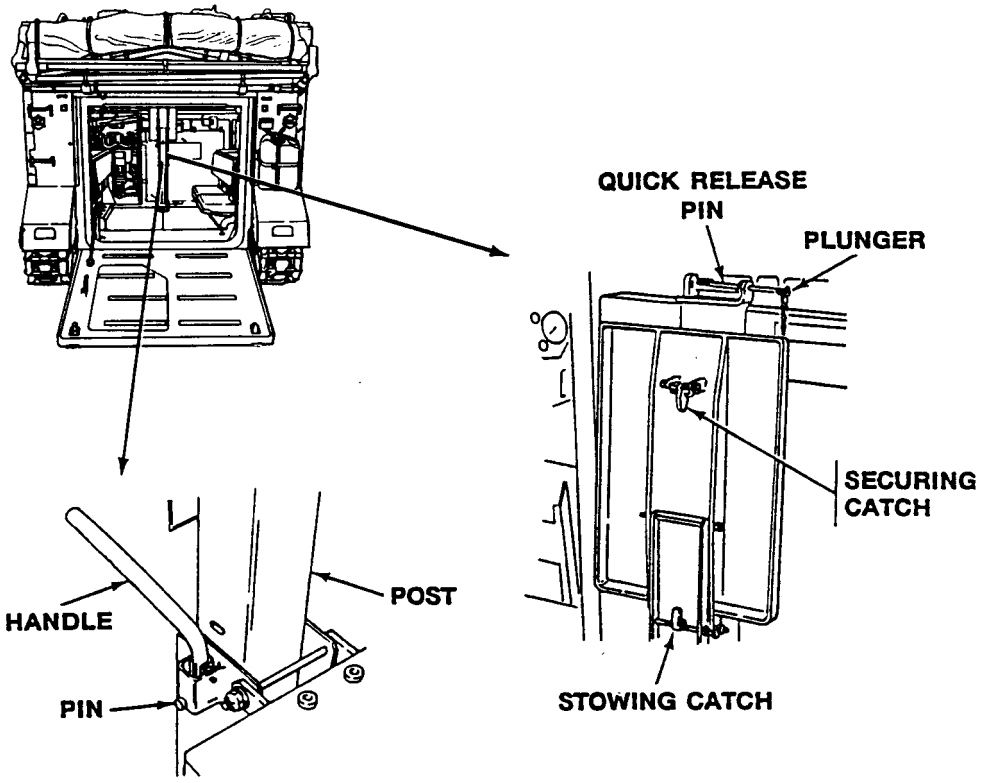
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Soldier

ADJUST PLATFORM

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



OPERATE COMMANDER'S PLATFORM (M577A3 AND M1068A3 ONLY) — Continued **0047 00**

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

OPEN/CLOSE DRIVER'S HATCH (M577A3 AND M1068A3 ONLY) 0048 00

THIS WORK PACKAGE COVERS:

Open (page 0048 00-1).
Close (page 0048 00-3).

INITIAL SETUP:

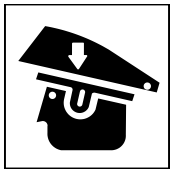
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver

OPEN HATCH

WARNING



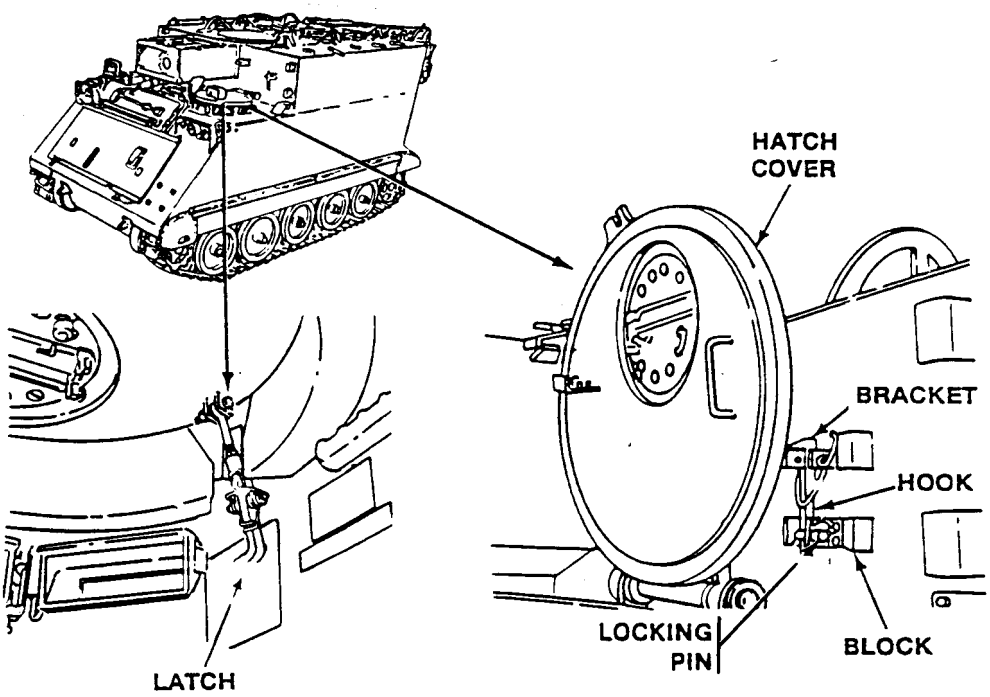
Unsecured hatch cover could move and hit you in the head. When hatch is open, secure hatch with locking pin.

NOTE

Exterior latch is spring loaded.

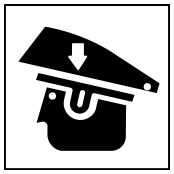
OPEN/CLOSE DRIVER'S HATCH (M577A3 AND M1068A3 ONLY) — Continued 0048 00

1. OPEN HATCH.
   a. From inside carrier, lift latch and push hatch cover back until bracket on cover is secured by hook.
   b. Remove latch locking pin from block and install locking pin in bracket to secure hook.



CLOSE HATCH

WARNING

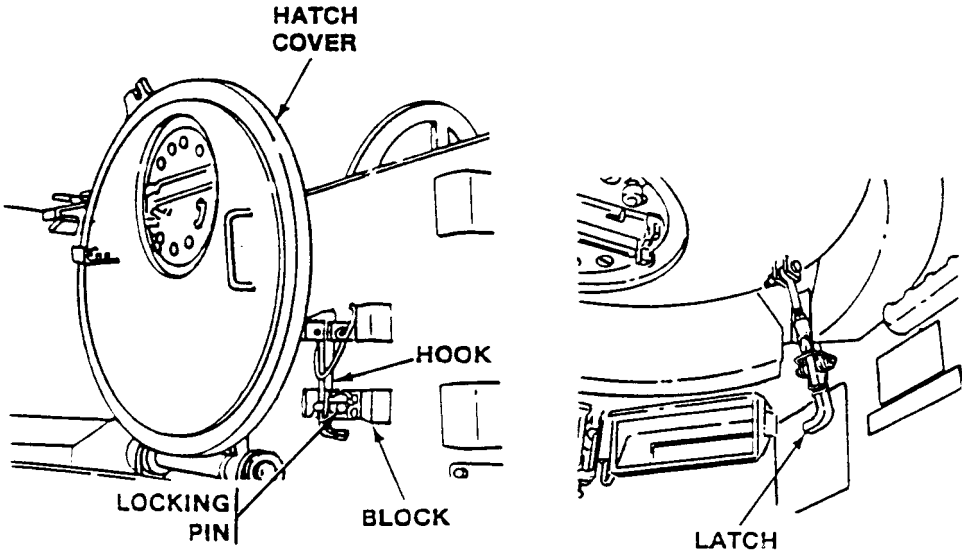


Unsecured hatch cover could move and hit you in the head. When hatch is closed, secure hatch with exterior locknut.

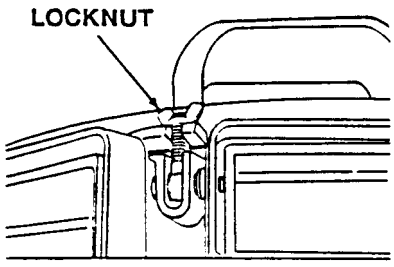
1. CLOSE HATCH.

   a. Remove latch locking pin and stow in block.

   b. Pull latch to release hatch cover.



   c. Secure hatch cover closed with exterior locknut.



END OF TASK

RAISE/LOWER DROP LEAF TABLES (M577A3 ONLY) 0049 00

THIS WORK PACKAGE COVERS:

Raise (page 0049 00-1).
Lower (page 0049 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

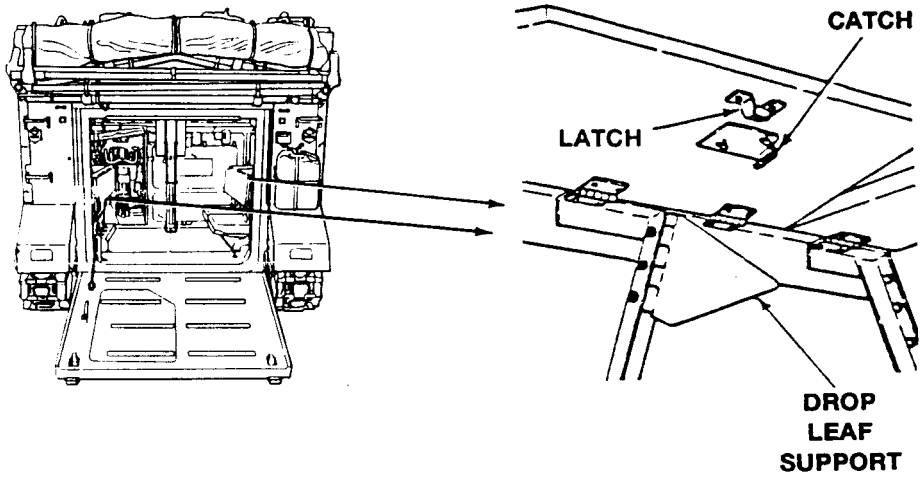
Personnel Required
Driver

RAISE TABLES

NOTE

The section of table over the battery box is raised to provide access to the battery box.

1. RAISE TABLES.
   a. Raise tables and secure by turning supports 90 degrees from the stowed position. Support should rest against catch.



LOWER TABLES

1. LOWER TABLES.
   a. Rotate supports 90 degrees towards stowed position, and lower tables.

END OF TASK

INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A3 AND M1068A3 ONLY) 0050 00

THIS WORK PACKAGE COVERS:

Install (page 0050 00-1).
Remove (page 0050 00-2).

INITIAL SETUP:

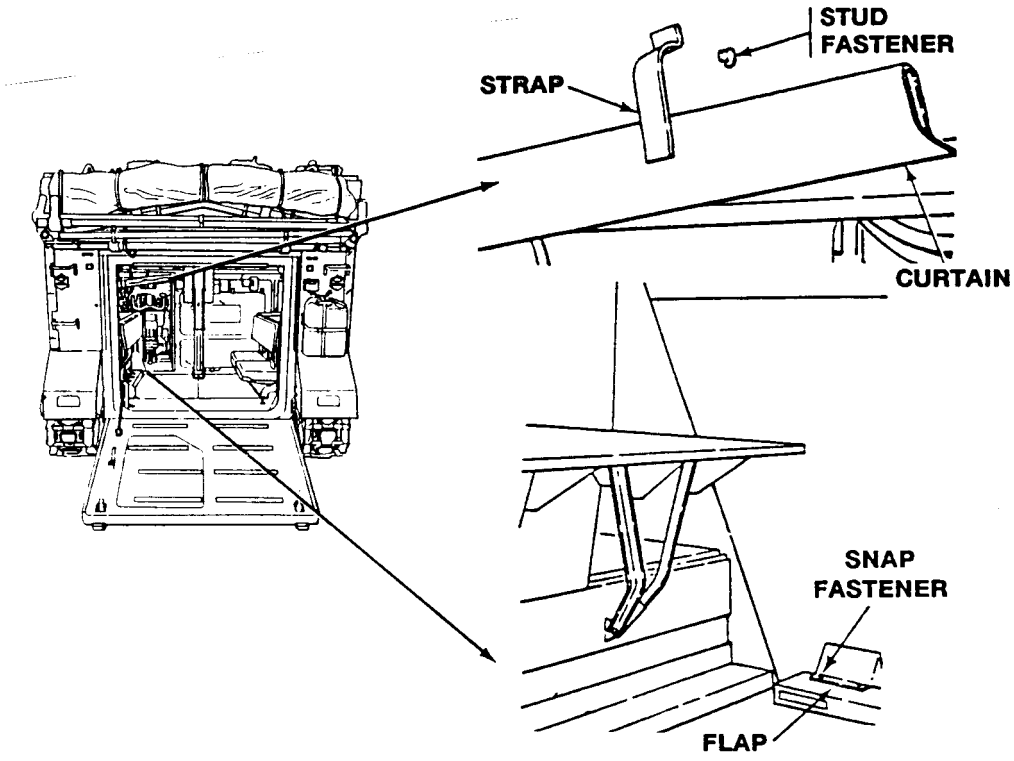
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Crew

INSTALL CURTAIN

1. INSTALL CURTAIN.



a. Unsnap straps from stud fasteners above entrance to driver's compartment.

b. Let curtain fall to bottom of opening. Secure with snap fasteners on heater duct.

INSTALL/REMOVE DRIVER'S BLACKOUT CURTAIN (M577A3 AND M1068A3 ONLY) — Continued **0050 00**

REMOVE CURTAIN

1. REMOVE CURTAIN.
    a. Unsnap fasteners on heater duct.
    b. Fold curtain up and snap straps to stud fasteners above entrance to driver's compartment.

END OF TASK

UNSTOW/STOW MAP TABLE AND BOARD (M577A3 AND M1068A3 ONLY) 0051 00

THIS WORK PACKAGE COVERS:

Unstow map table (M577A3) (page 0051 00-1).
Unstow map board (M577A3) (page 0051 00-2).
Stow map table (M577A3) (page 0051 00-3).
Stow map board (M577A3) (page 0051 00-3).
Unstow map board (M1068A3) (page 0051 00-4).
Stow map board (M1068A3) (page 0051 00-4).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

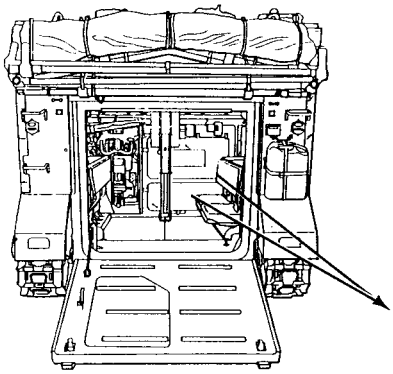
Personnel Required
Crew

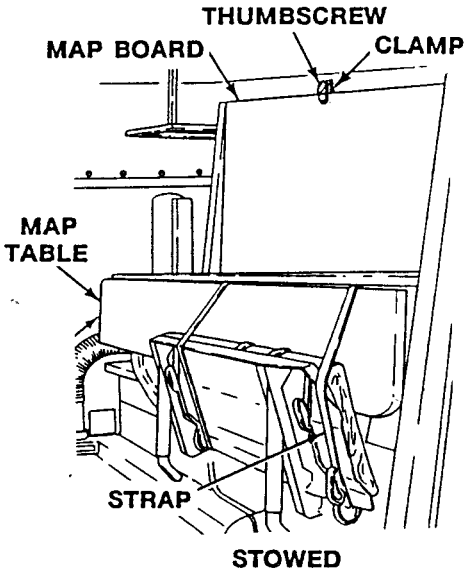
UNSTOW MAP TABLE (M577A3 ONLY)

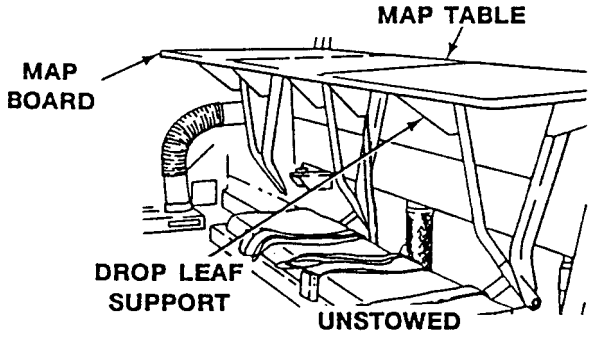
1. UNSTOW MAP TABLE.

   a. Remove straps securing personnel seat to map table.

   b. Open drop leaf supports on map table. Lock table in position directly below map board on right wall.





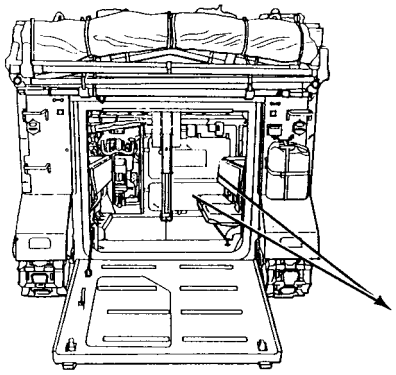


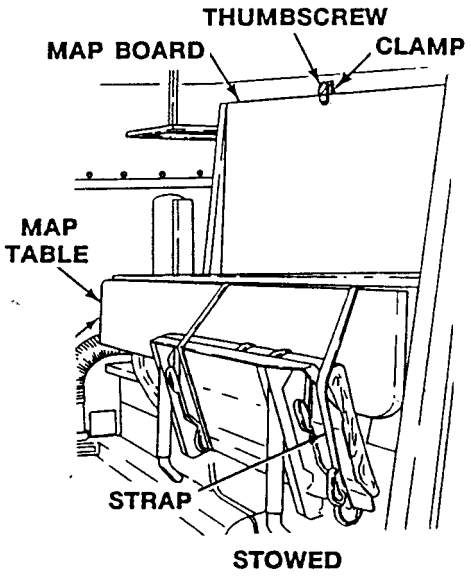
UNSTOW MAP BOARD (M577A3 ONLY)

NOTE

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

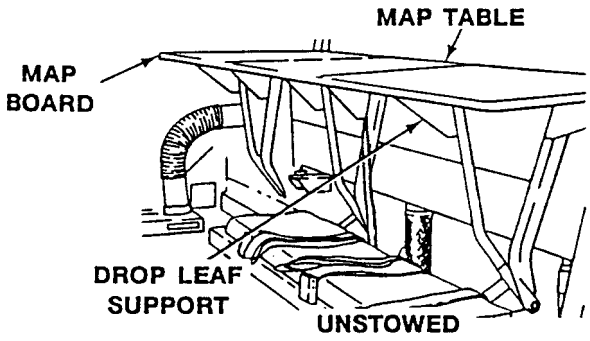
1. LOOSEN THUMBSCREWS, RELEASE CLAMPS, AND LOWER MAP BOARD.





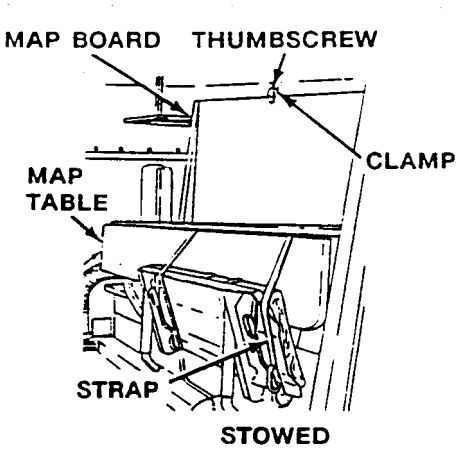
STOW MAP TABLE (M577A3 ONLY)

1. STOW MAP TABLE.
   a. Close drop leaf supports on map table.
   b. Install straps to secure personnel seat to map table.



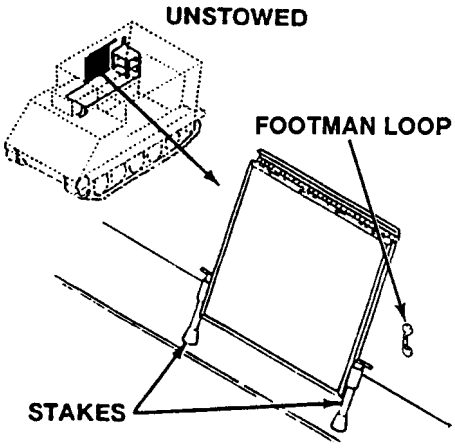
STOW MAP BOARD (M577A3 ONLY)

1. STOW MAP BOARD.
   a. Raise map board to stowed position.
   b. Tighten thumbscrews on clamps to secure map board.



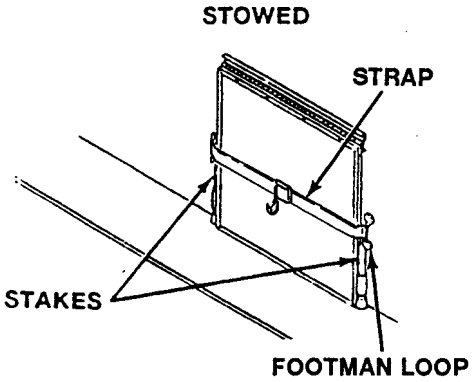
UNSTOW MAP BOARD (M1068A3 ONLY)

1. UNSTOW MAP BOARD.
   a. Remove strap from two footman loops securing map board.
   b. Raise two stakes and swing bottom end of map board out.
   c. Slide two stakes down until they secure map board in desired position.



STOW MAP BOARD (M1068A3 ONLY)

1. STOW MAP BOARD.
   a. Pull bottom end of map board up and slide two stakes up.
   b. Swing map board against hull and slide two stakes down to secure in stowed position.
   c. Install strap through footman loops to secure map board.



END OF TASK

OPEN/CLOSE MORTAR HATCH COVER (M1064A3 ONLY) 0052 00

THIS WORK PACKAGE COVERS:

Open (page 0052 00-1).
Close (page 0052 00-2).

INITIAL SETUP:

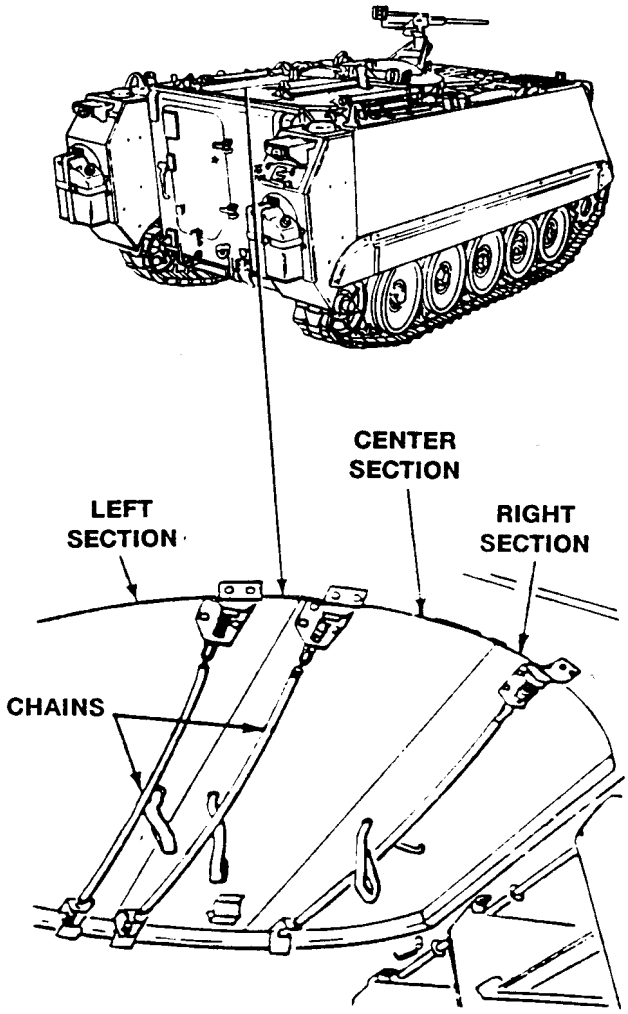
Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

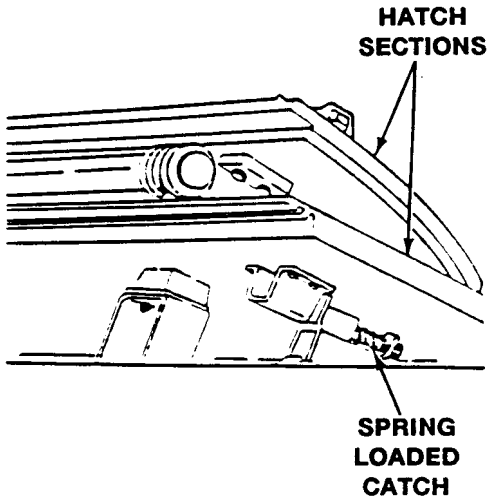
Personnel Required
Crewmember

OPEN

1. Position commander's cupola sideways so the machine gun does not interfere with hatch cover opening.
2. Pull chains to release the inside door catches. Push hatch upward with free hand to open.

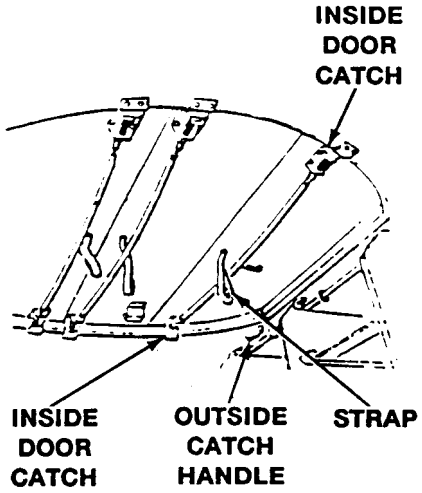


3. Fold center section back on the right section until it locks. Then push both sections back on the top deck.
4. Push left section and fold back on the top deck.
5. Make sure the hatch sections are locked in the spring loaded catches on the top deck. One catch secures center section to right section.



CLOSE

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

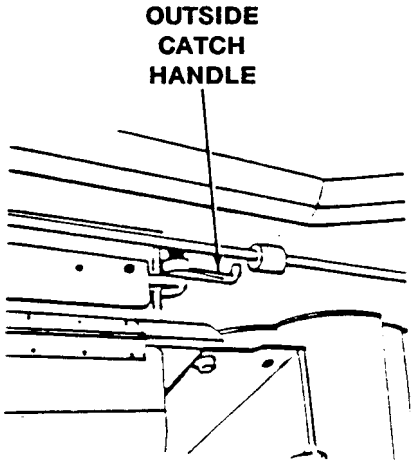


NOTE

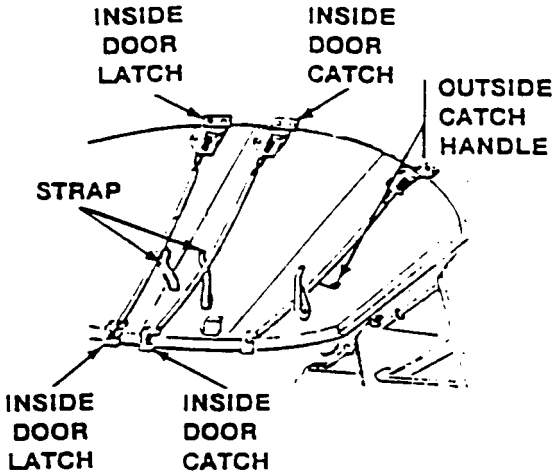
Use hatch straps to pull down hatches. Use chains to lock.

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

INSTALL AIR GRILLE CURTAIN (M1064A3) 0053 00

THIS WORK PACKAGE COVERS:

Install Air Grille Curtain (page 0053 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped (WP 0024 00)

Personnel Required

Driver

INSTALL AIR GRILLE CURTAIN

WARNING



Carrier can sink and personnel can drown if carrier is not balanced before it enters the water.
Balance carrier by placing mortar ammo as follows:

- **With full combat load, shifting of ammo is not required.**
- **Without full combat load, balance vehicle by placing equal amount of rounds on left and right sides.**

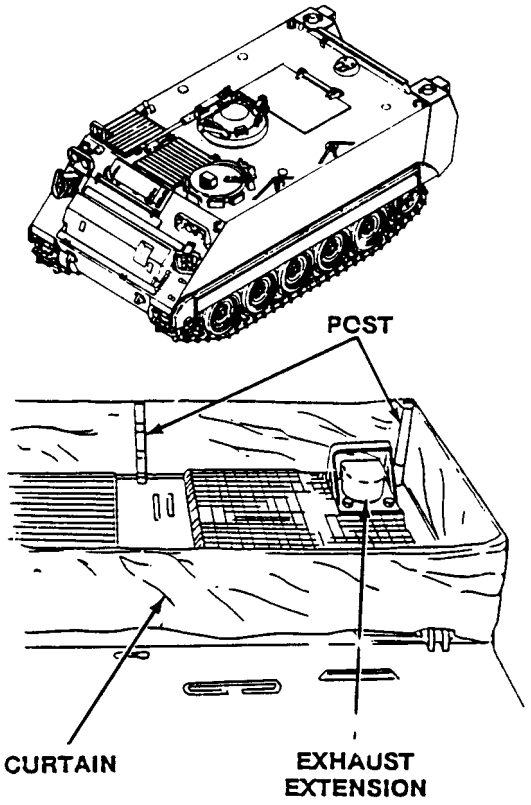
After entering water, shift ammo or personnel to balance vehicle.

NOTE

Air grille curtain must be installed before fording water.

INSTALL AIR GRILLE CURTAIN (M1064A3) — Continued **0053 00**

1. Install posts on studs around air grilles. Stretch the curtain on the posts.
2. Fit the edge of the curtain into the recess under the posts.



END OF TASK

REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A3 AND M1068A3 ONLY) 0054 00

THIS WORK PACKAGE COVERS:

Removal (page 0054 00-1).
Installation (page 0054 00-3).

INITIAL SETUP:

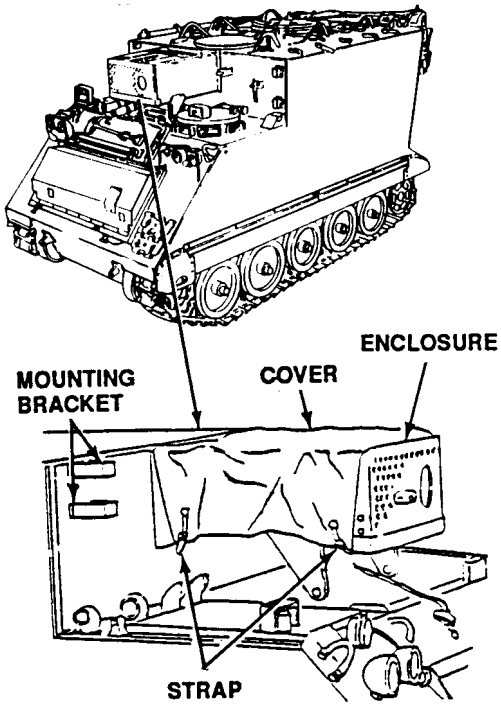
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver
Crew

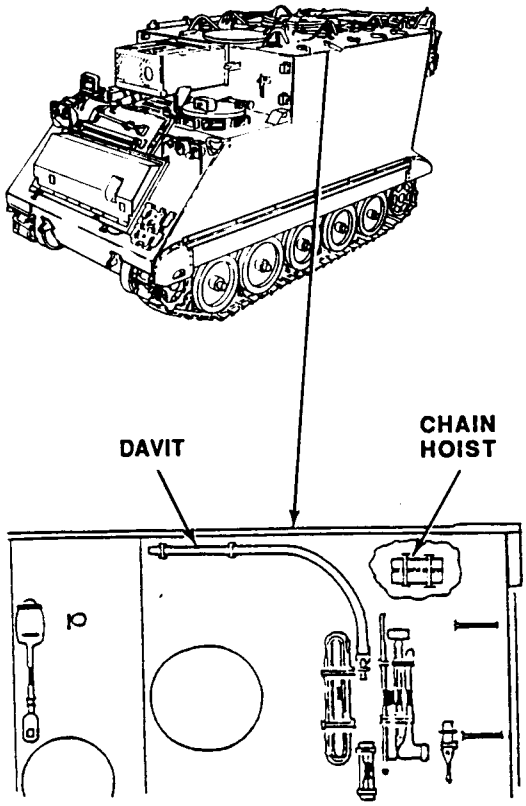
REMOVE

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



REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A3 AND M1068A3 ONLY) — Continued **0054 00**

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



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

WARNING

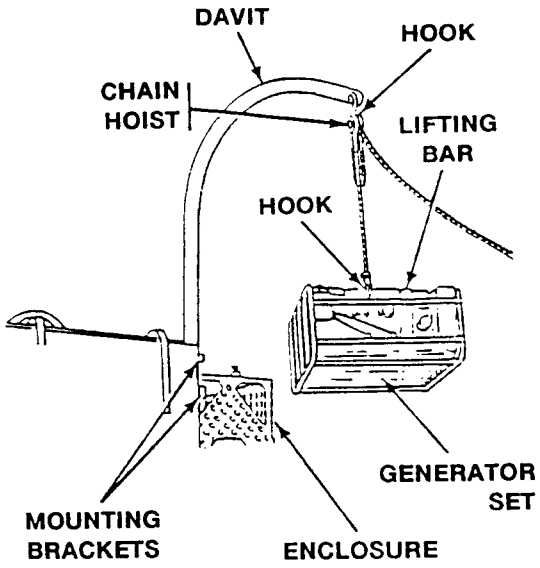


Hanging loads, heavy parts, and overhead equipment can fall unexpectedly and kill or injure you.

Stay clear of hanging loads, heavy parts, and overhead equipment. Use correct lifting devices. Always have helper guide heavy parts and equipment.

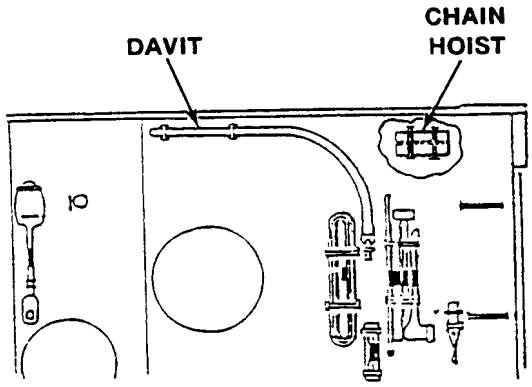
5. Hoist generator set enough to clear enclosure. Swing generator set clear of carrier and lower it to the ground.

6. Stow davit and chain hoist on top deck.



INSTALL

1. Remove davit from stowed position on top deck of carrier. Remove chain hoist from bag on inside of carrier, right side sponson.



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

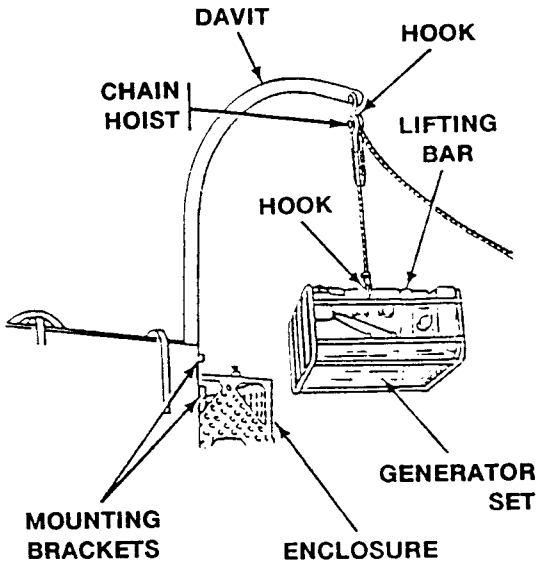
WARNING



Hanging loads, heavy parts, and overhead equipment can fall unexpectedly and kill or injure you.

Stay clear of hanging loads, heavy parts, and overhead equipment. Use correct lifting devices. Always have helper guide heavy parts and equipment.

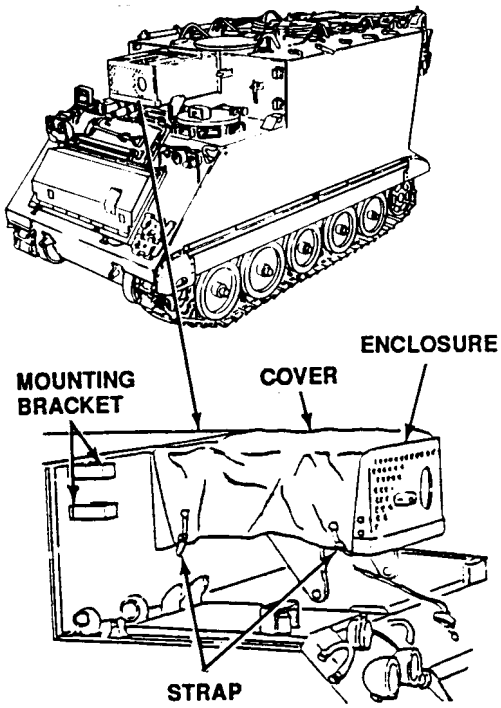
3. Hoist generator set enough to clear enclosure. Swing generator set over enclosure and lower slowly into enclosure.



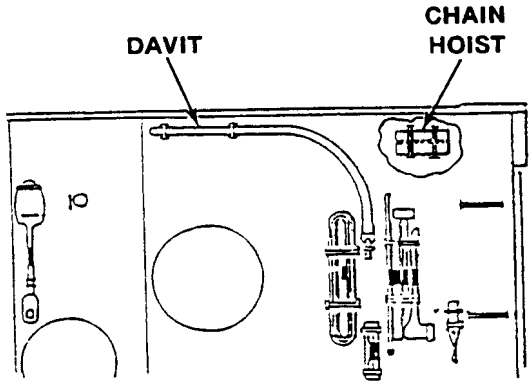
4. Tighten thumbscrews and clamps securing generator set to enclosure. Turn clamps 90 degrees.

REMOVE/INSTALL 4.2 KW GENERATOR SET (M577A3 AND M1068A3 ONLY) — Continued **0054 00**

5. Install waterproof cover on generator set.



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



END OF TASK

OPERATE GENERATOR SET (M577A3 AND M1068A3 ONLY) 0055 00

THIS WORK PACKAGE COVERS:

Operate (page 0055 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Crew

References

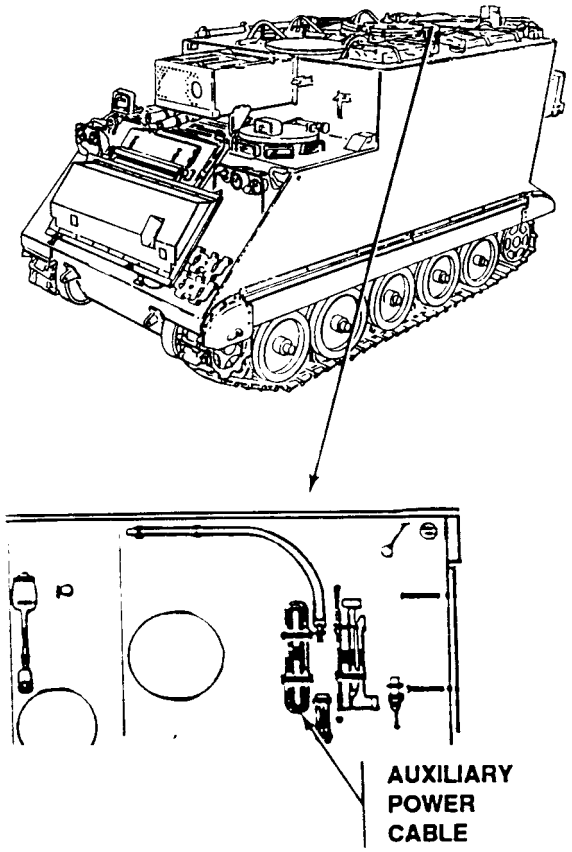
TM 5-6115-596-14

Equipment Condition

Carrier stopped
Engine stopped (WP 0024 00)
Generator set removed and on level ground (WP 0054 00)

OPERATE

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

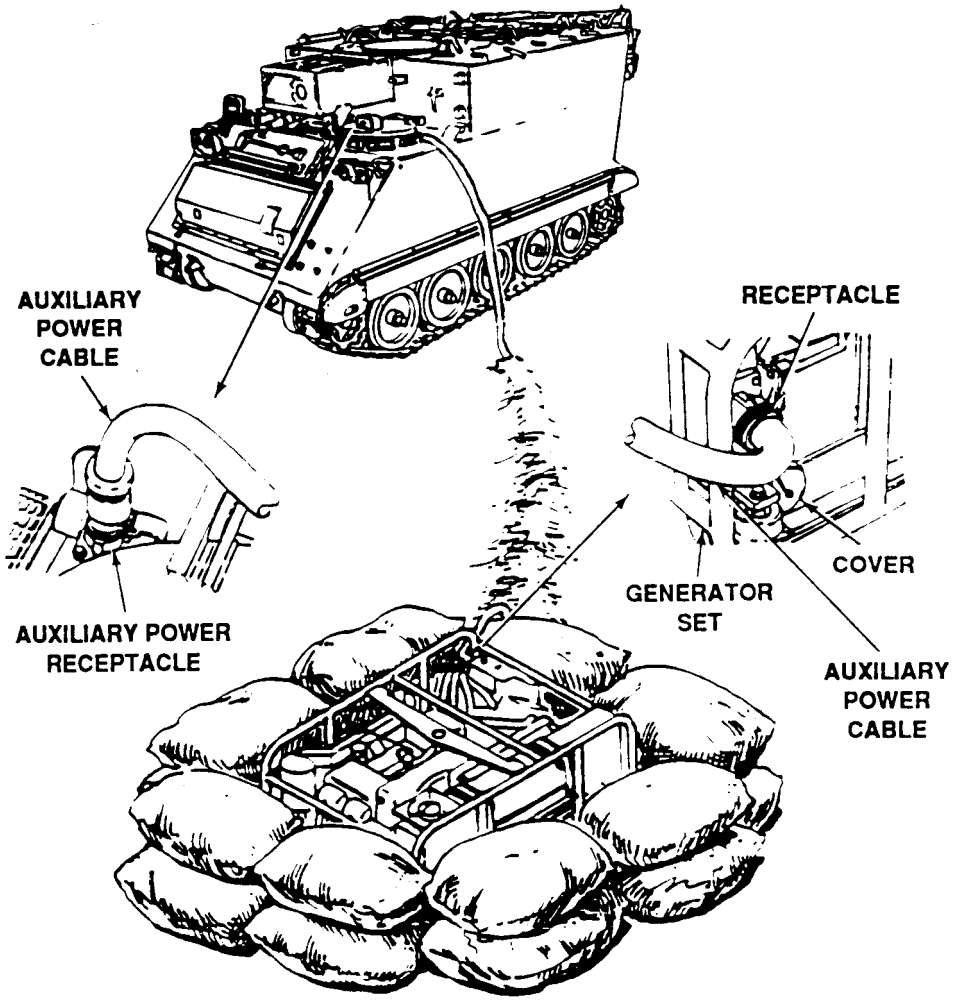


3. Connect auxiliary power cable to auxiliary power receptacle on top deck of carrier near driver's hatch.
4. Unroll auxiliary power cable to its full length.

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.



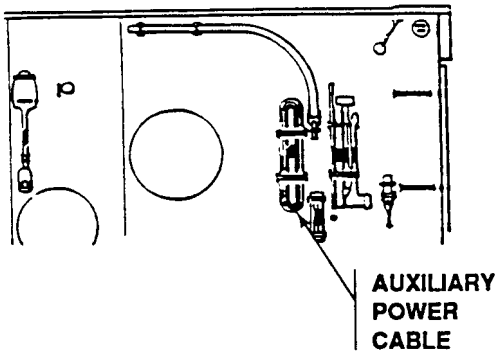
6. Set generator set in hole. Place sand bags around hole to camouflage generator set and help reduce noise during operation. Have crew help.
7. Connect auxiliary power cable to either receptacle on generator set. Make sure auxiliary power cable is concealed and out of the way of personnel.
8. Turn carrier MASTER SWITCH ON.

CAUTION

Use only 83 octane gasoline in the M577A3 and M1068A3 generator sets. Diesel fuel will damage generator.

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 OFF.
12. Disconnect and stow auxiliary power cable.



END OF TASK

SET UP COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY) 0056 00

THIS WORK PACKAGE COVERS:

Set Up Tent (page 0056 00-1).
Add Additional Tents (page 0056 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver
Crew

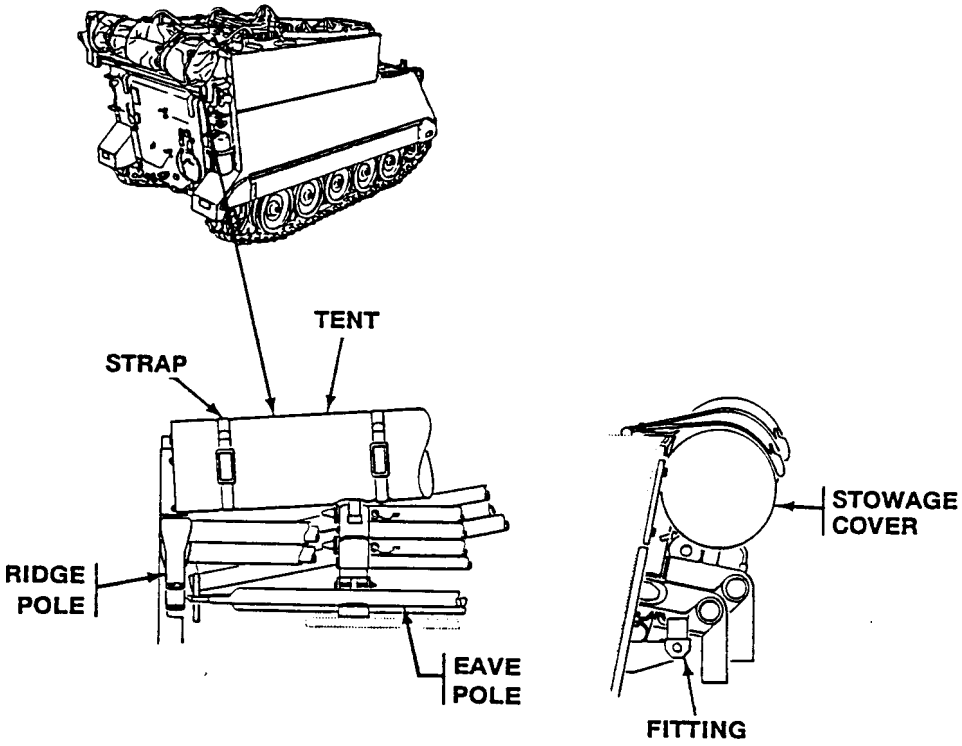
SET UP TENT

1. Lower ramp until it is level with carrier floor (WP 0012 00).

NOTE

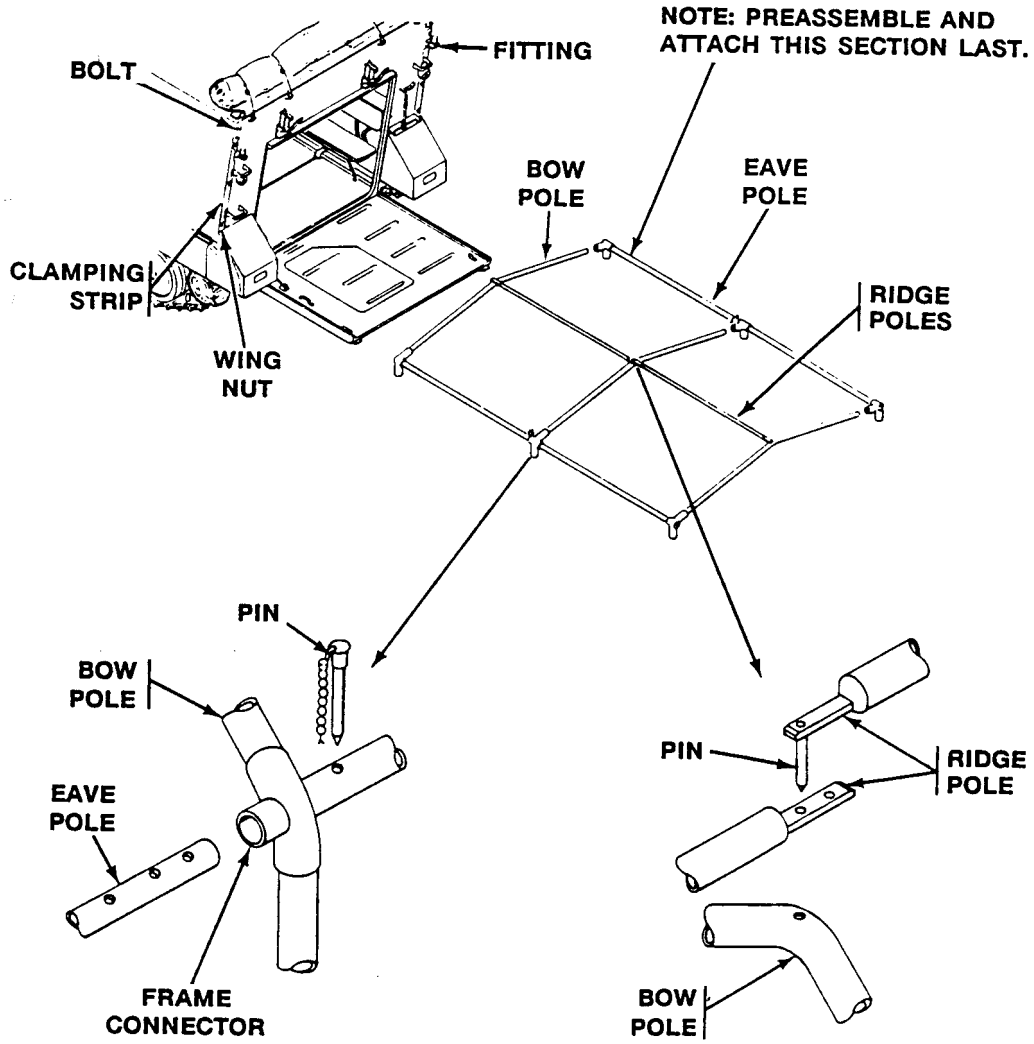
Get the staking pins and tent lights from their stowed position under the left forward table and set them outside.

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.

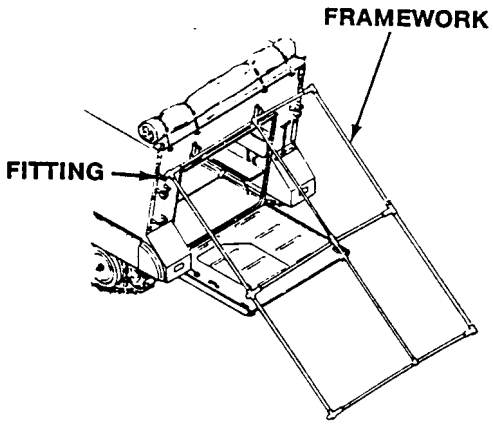


6. Insert ridge pole pins into bow poles.

NOTE

Two men are required on each side of frame to lift it into position on carrier.

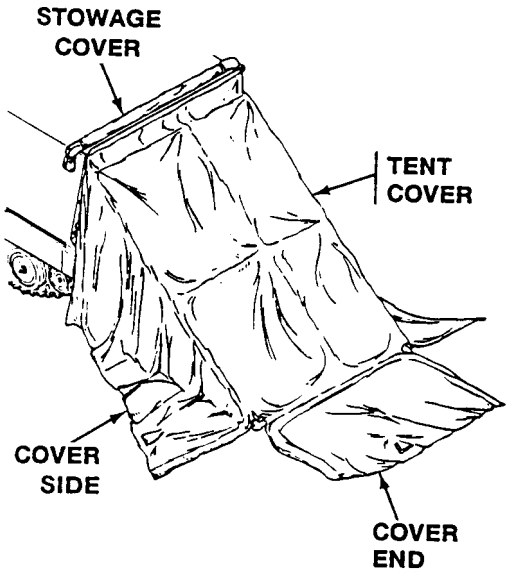
7. Attach frame to carrier at two fittings.



NOTE

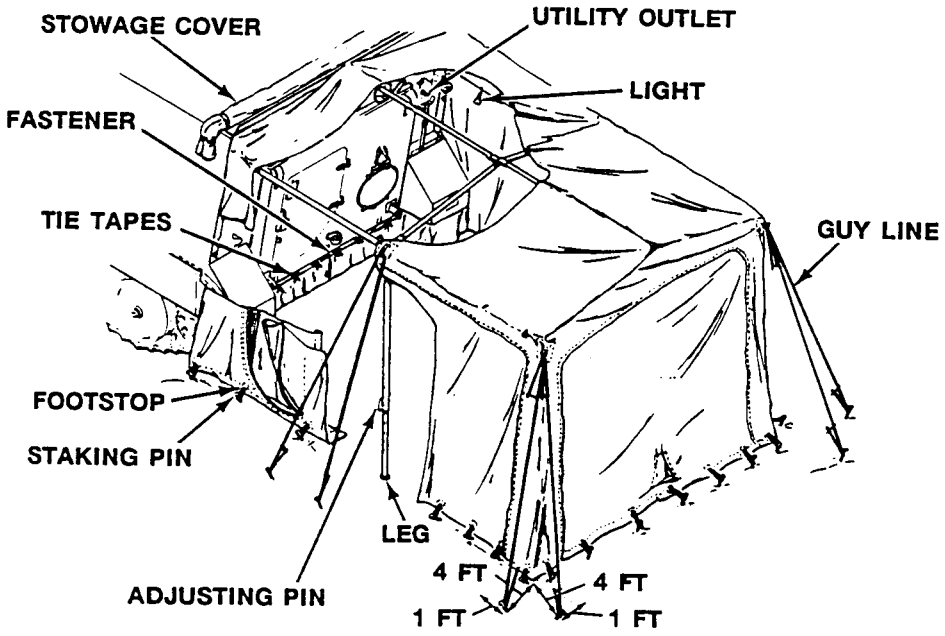
If you need protection against extreme cold weather, install tent liner. See task: INSTALL/ REMOVE TENT LINER FOR EXTREME COLD WEATHER (WP 0058 00).

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 0012 00).
15. Zip fastener and tie curtain under carrier.



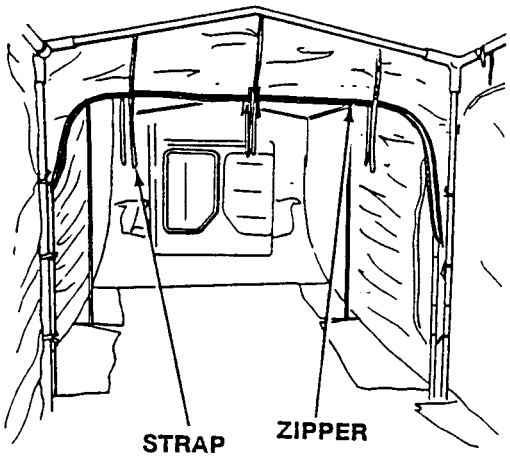
16. Drive 34 staking pins through 34 footstops.
17. Drive eight staking pins for guy lines.
18. Secure and tighten guy lines.
19. Tie tapes around frame assembly legs.
20. Tie stowage cover to top edge of carrier and to sides of tent.
21. Unlock and lower ramp to ground (WP 0012 00).
22. Install electric 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

DISMANTLE/STOW MODULAR COMMAND POST SYSTEM (MCPS) (M1068A3 ONLY) 0057 00

THIS WORK PACKAGE COVERS:

Set up MCPS (page 0057 00-1)
Add additional tents (page 0057 00-1)
Dismantle/stow MCPS (page 0057 00-1)

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Driver
Crew

References
TM 10-5410-229-12&P

Equipment Condition
Carrier stopped

SET UP MCPS

1. Lower ramp until it is level with carrier floor (WP 0012 00).
2. To set up MCPS, see TM 10-5410-229-13&P.

ADD ADDITIONAL TENTS

NOTE

Additional tents may be erected and attached as required for tactical operation.

1. To add additional tents, see TM 10-5410-229-13&P.

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 (M577A3 ONLY) 0058 00

THIS WORK PACKAGE COVERS:

Install Tent Liner (page 0058 00-1).
Remove Tent Liner (page 0058 00-3).

INITIAL SETUP:

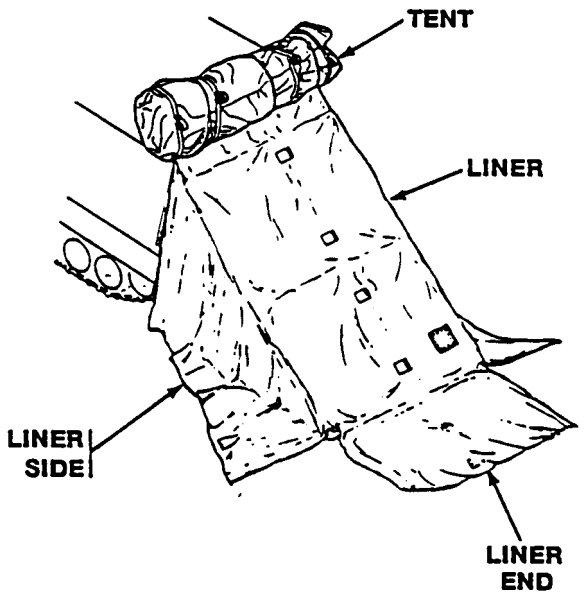
Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver
Crew

INSTALL TENT LINER

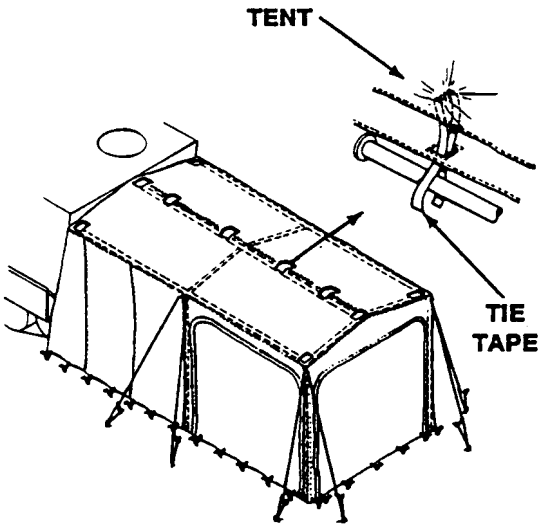
1. Partially set up tent (WP 0056 00, Steps 1 - 6).
2. Place rolled up liner over front of tent framework and unroll. Unfold sides and end of liner.



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 (M577A3 ONLY) — Continued **0058 00**

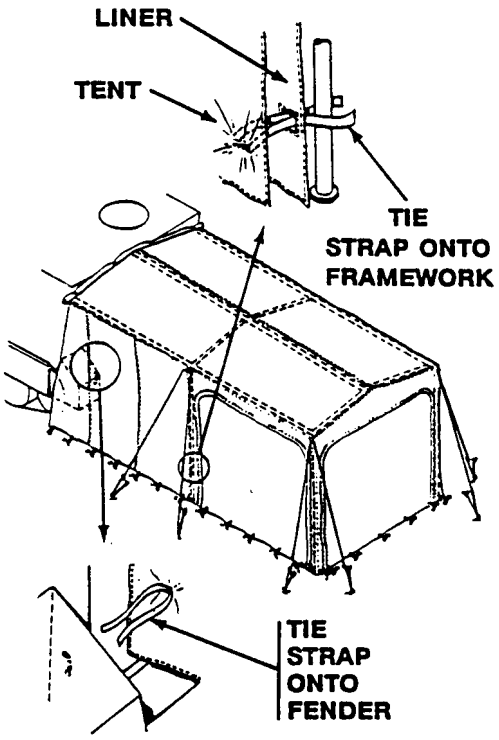
5. Pull tent roof support straps through four square holes in liner and tie straps.



6. Unfold sides and ends of tent and liner, and continue setting up tent (WP 0056 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.

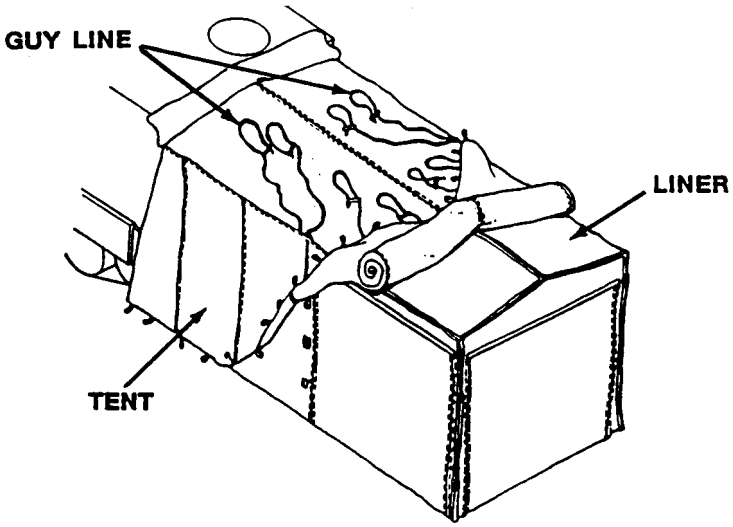


9. Continue setting up tent (WP 0056 00, Steps 10 - 24).

INSTALL/REMOVE TENT LINER FOR EXTREME COLD WEATHER (M577A3 ONLY) — Continued **0058 00**

REMOVE TENT LINER

1. Untie liner tapes at fenders and from top and legs of framework.
2. Dismantle and stow tent (WP 0059 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) (M577A3 ONLY) 0059 00

THIS WORK PACKAGE COVERS:

Dismantle (page 0059 00-1).
Stow (page 0059 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Carrier stopped

Personnel Required
Driver
Crew

DISMANTLE TENT

1. Remove tent in reverse order from which it was set up (WP 0056 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.

CAUTION

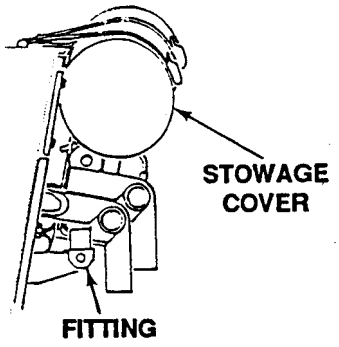
Do not stow or fold fabric cover when it is wet. Do not fold pins and poles in with fabric cover.

NOTE

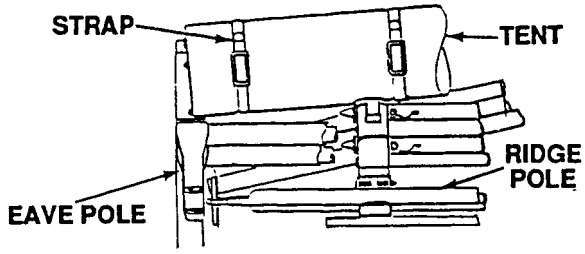
Put the staking pins and light assemblies in their stowed position under the left forward table.

DISMANTLE/STOW COMMAND POST TENT (COVERED EXTENSION) (M577A3 ONLY) — Continued **0059 00**

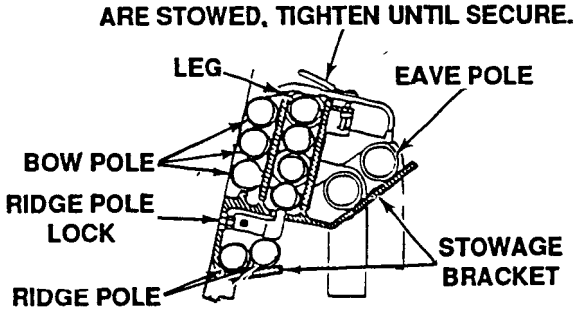
1. Stow cover, poles, and legs in travel position as shown.



NOTE: PUT THE STAKING PINS AND LIGHT ASSEMBLIES IN THEIR STOWED POSITION UNDER THE LEFT FORWARD TABLE.



NOTE: AFTER LEGS AND POLES ARE STOWED, TIGHTEN UNTIL SECURE.



END OF TASK

REFUEL GENERATOR SET (M577A3 AND M1068A3 ONLY) 0060 00

THIS WORK PACKAGE COVERS:

Refuel Generator Set (page 0060 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

TM 5-6115-596-14

Equipment Condition

Engine stopped (WP 0024 00)
Carrier blocked (WP 0042 00)

REFUEL GENERATOR SET

CAUTION

Use only 83 octane gasoline in M577A3 and M1068A3 generator sets.

1. To refuel generator set, see TM 5-6115-596-14.

NOTE

This task applicable to 4.2 KW generator only.

END OF TASK

OPERATE IN EXTREME COLD: BELOW -25°F (-31°C) 0061 00

THIS WORK PACKAGE COVERS:

Prepare to Operate Carrier in Extreme Cold (page 0061 00-1).
Operate Carrier in Extreme Cold (page 0061 00-2).
Do's and Don'ts for Operation in Extreme Cold (page 0061 00-5)

INITIAL SETUP:

Maintenance Level
Operator

References
FM 21-306

Personnel Required
Driver

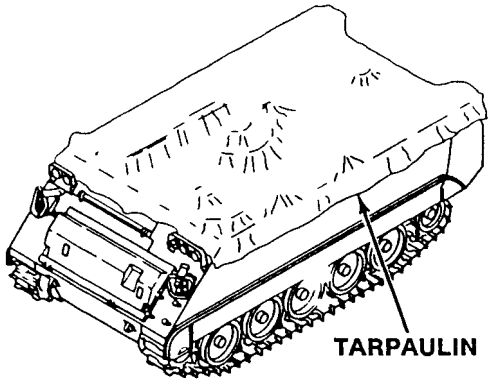
Equipment Condition
Engine coolant heater kit installed

PREPARE TO OPERATE CARRIER IN EXTREME COLD

NOTE

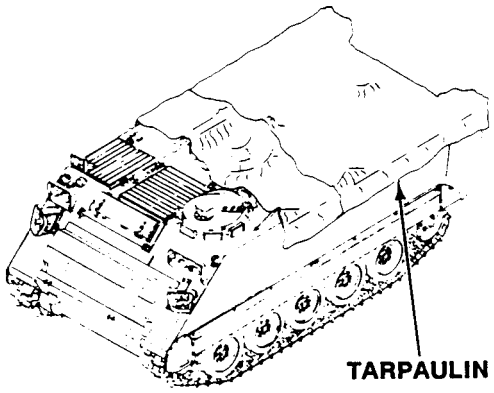
DO'S and DON'TS at end of task must be read for operation in extreme cold.

1. Check that driver's hatch cover is closed. See task: OPEN/CLOSE DRIVER'S HATCH COVER (WP 0006 00 or WP 0007 00).
2. Check that cargo hatch cover is closed. See task: OPEN/CLOSE CARGO HATCH COVER (WP 0008 00).
3. Check that commander's hatch cover is closed. See task: OPEN/CLOSE COMMANDER'S HATCH COVER (WP 0009 00).
4. Check that ramp is raised. See task: LOWER/RAISE RAMP (WP 0012 00).
5. Cover the exhaust grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).
6. Cover intake grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).
7. Place tarpaulin over carrier.



OPERATE CARRIER IN EXTREME COLD

1. Fold tarpaulin back to uncover intake and exhaust grills.

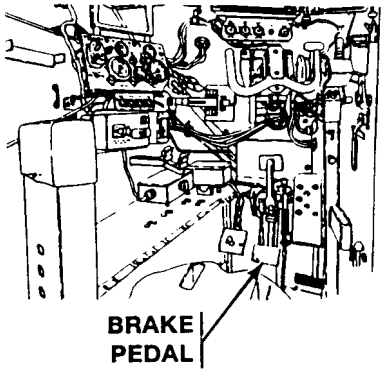


2. OPERATE ENGINE COOLANT HEATER. See task: OPERATE ENGINE COOLANT HEATER BELOW -25°F (-31°C) (WP 0062 00).

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.

3. Cold start engine. Let engine run for l5 minutes. See task: START ENGINE (WP 0021 00).
4. Release parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).
5. Press down brake pedal and hold thru Step 6.

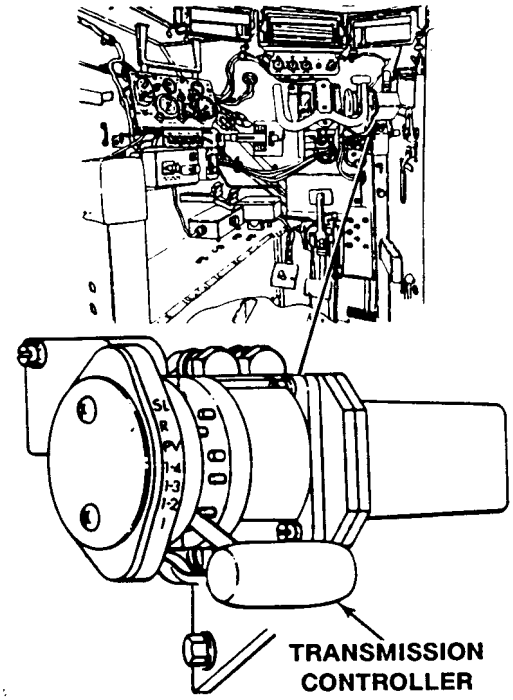


WARNING



Sudden carrier movement can injure personnel. Do not remove foot from brake.

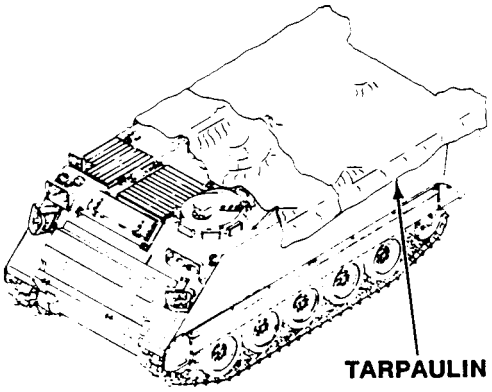
6. Move transmission controller to range 1-2 and hold for 5 minutes while slowly raising engine idle. Raise idle until engine runs smoothly.



7. Lower engine idle to slow and move transmission controller to SL.
8. Set parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).
9. Open one or more flaps on intake grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).

OPERATE IN EXTREME COLD: BELOW -25°F (-31°C) — Continued **0061 00**

10. Remove tarpaulin from carrier.

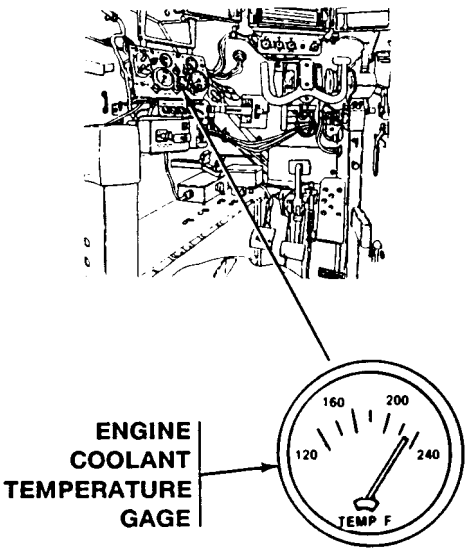


11. Repeat Steps 4 - 6.

CAUTION

Running engine at high speed after cold start could damage engine. Drive carrier slowly for first kilometer.

12. Perform mission. See task: DRIVE CARRIER (WP 0023 00).
13. If engine coolant temperature gage is above 230°F during mission, do Step 7, Step 8, and Step 14.

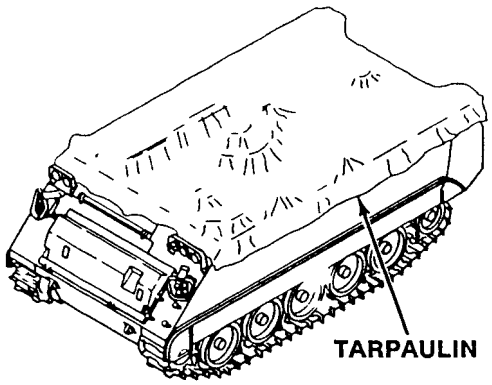


14. Remove cover from intake grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).
15. Stop engine. See task: STOP ENGINE (WP 0024 00).
16. Remove driver's power plant access panel. See task: REMOVE/INSTALL POWER PLANT ACCESS PANELS (WP 0040 00).

CAUTION

Condensation in fuel tanks and lines can freeze. Fuel lines can get blocked. Drain water from filters and keep fuel tanks full.

17. Drain fuel filters of water (WP 0004 00).
18. Install driver's power plant access panel. See task: REMOVE/INSTALL POWER PLANT ACCESS PANELS (WP 0040 00).
19. If intake grill was uncovered in Step 14, cover intake grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).
20. Cover exhaust grill. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).
21. Place tarpaulin over carrier.



22. Check that driver's hatch cover is closed. See task: OPEN/CLOSE DRIVER'S HATCH COVER (WP 0006 00 or WP 0007 00).
23. Check that cargo hatch cover is closed. See task: OPEN/CLOSE CARGO HATCH COVER (WP 0008 00).
24. Check that commander's hatch cover is closed. See task: OPEN/CLOSE COMMANDER'S HATCH COVER (WP 0009 00).
25. Check that ramp is raised. See task: LOWER/RAISE RAMP (WP 0012 00).

DO'S AND DON'TS FOR OPERATION IN EXTREME COLD

DO'S:

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 FM 21-306 to learn about the methods and special hazards of driving on snow, ice, and unusual terrain.

OPERATE IN EXTREME COLD: BELOW -25°F (-31°C) — Continued **0061 00**

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 tanks 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).

DON'TS:

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 or your tongue. They could freeze to the metal surface.

END OF TASK

OPERATE ENGINE COOLANT HEATER (BELOW –25°F (–31°C)) 0062 00

THIS WORK PACKAGE COVERS:

Turn Coolant Heater On (page 0062 00-1).
Turn Coolant Heater Off (page 0062 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

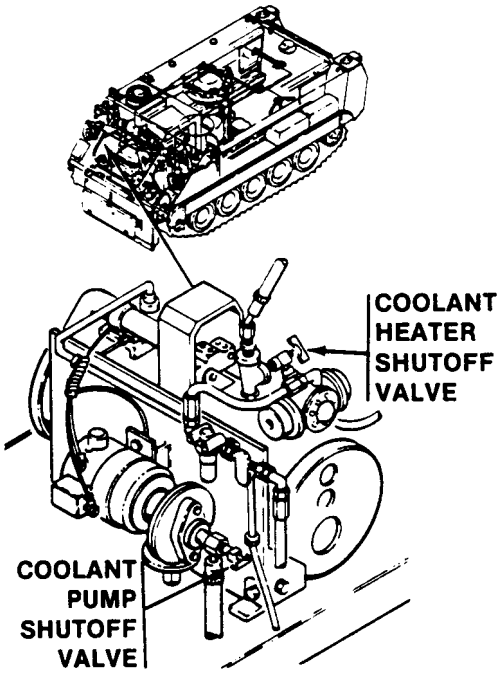
Driver

Equipment Condition

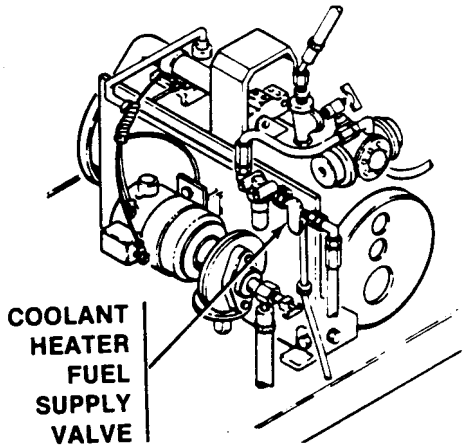
Engine coolant heater kit installed
Trim vane lowered (WP 0039 00)
Power plant access door opened (WP 0011 00)
Fuel tanks manual shutoff valves open (WP 0004 00)

TURN COOLANT HEATER ON

1. Open coolant pump shutoff valve and coolant heater shutoff valve.



2. Open coolant heater fuel supply valve.

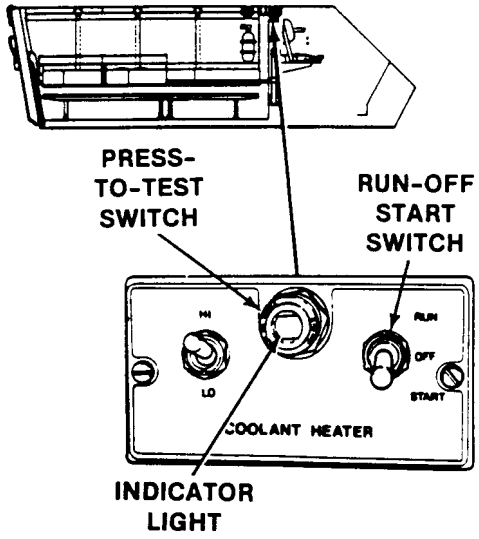


CAUTION

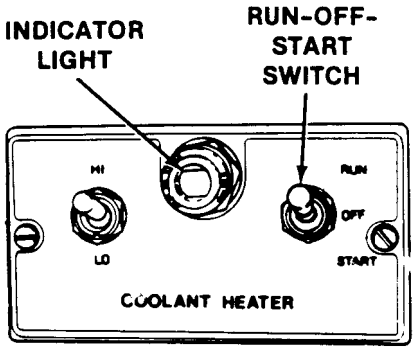
Overheating will damage batteries. Do not use coolant heater if temperature is above –25°F (–31°C).

Carrier batteries can discharge. Do not operate carrier lights, radios, or other electrical equipment while coolant heater is running.

3. Press PRESS-TO-TEST switch. Check that indicator light comes on.
4. Move RUN-OFF-START switch to START. Hold switch in START until indicator light comes on.



5. Move RUN-OFF-START switch to RUN as soon as indicator light comes on. Do not stop in OFF position.

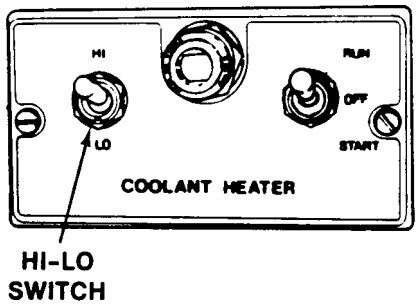


6. If coolant heater does not start, repeat Step 4 and Step 5. If coolant heater does not start after three tries, troubleshoot heater (WP 0089 00).

NOTE

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

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



NOTE

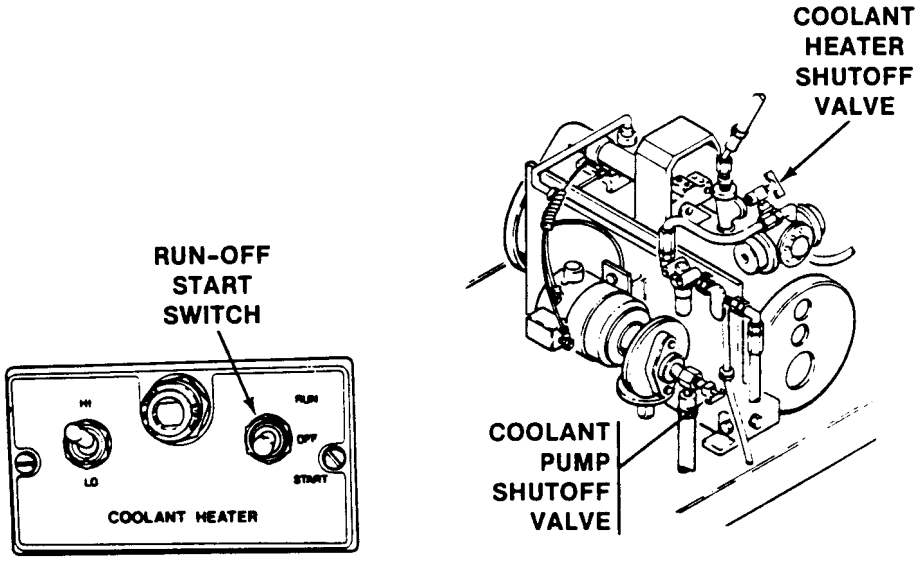
When HI-LO switch is at HI, heater will automatically go to low heat if coolant temperature reaches 190°F (88°C). It will go back to high heat if coolant temperature drops to 120°F (49°C). If coolant reaches a temperature of 245°F to 260°F (118° to 126°C), heater will stop and must be restarted.

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. See task: OPEN/CLOSE POWER PLANT ACCESS DOOR (WP 0011 00).
5. Stow trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 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 all batteries are fully charged.

NOTE

Always turn coolant heater off and close coolant shutoff valves before starting engine.

6. If needed, start and run engine to charge batteries. See task: START ENGINE (WP 0021 00).

END OF TASK

ERECT/STOW WATER BARRIER (ALL EXCEPT M981A3 AND M1064A3) 0063 00

THIS WORK PACKAGE COVERS:

Erect Water Barrier (page 0063 00-1).
Stow Water Barrier(page 0063 00-2).

INITIAL SETUP:

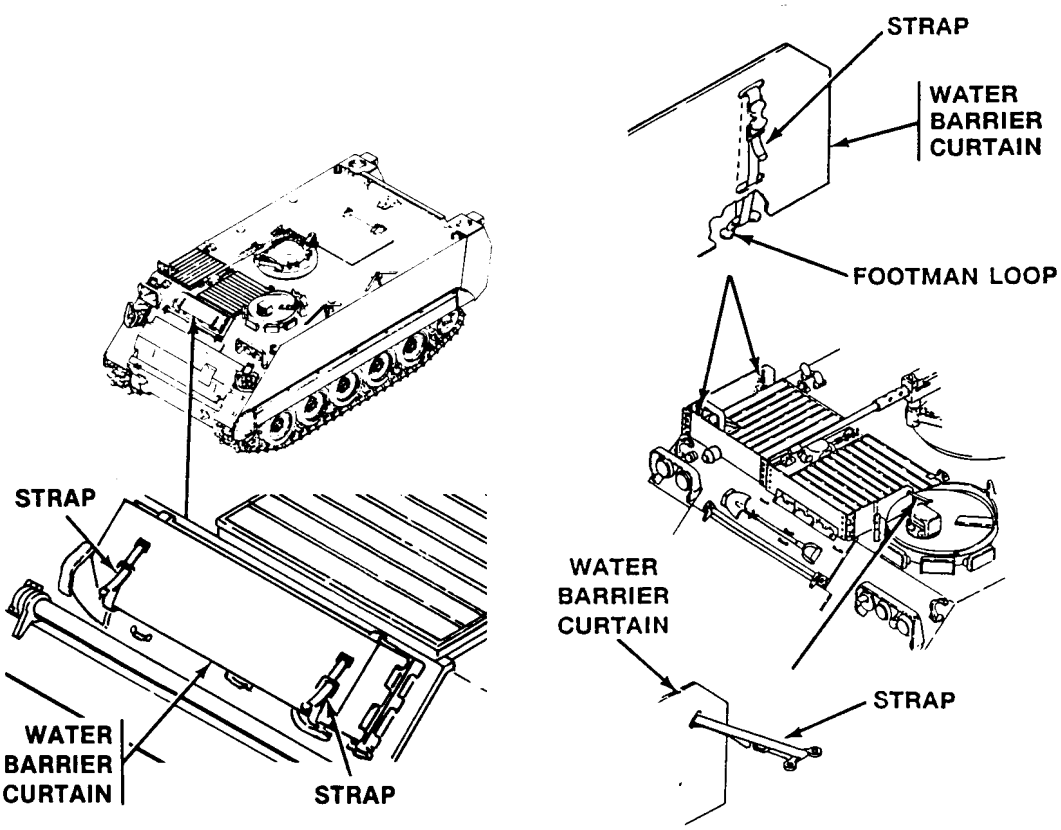
Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver

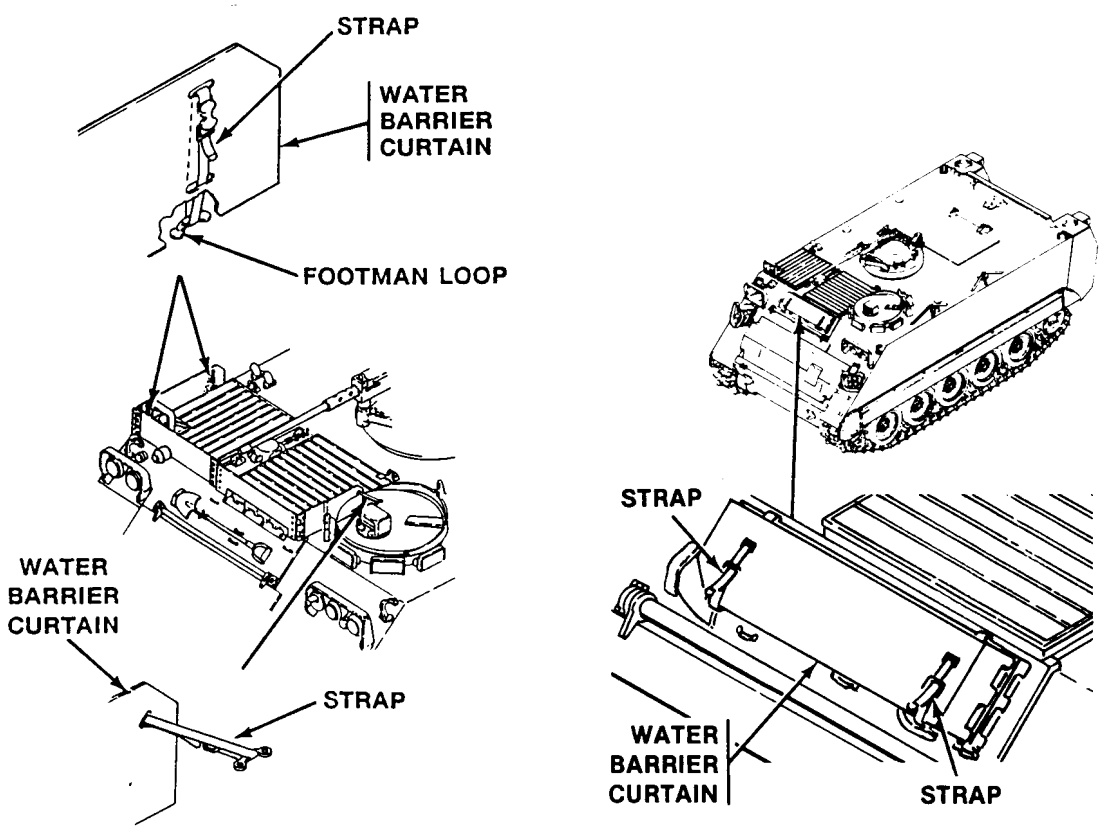
ERECT WATER BARRIER

1. Release two straps securing water barrier curtain in stowed position.
2. Unfold water barrier curtain and place in upright position on top of carrier.
3. Fasten three straps to footman loops to secure water barrier curtain to top of carrier.



STOW WATER BARRIER

1. Release three straps securing water barrier curtain to top of carrier.
2. Fold water barrier curtain to stowed position and secure with two straps.



END OF TASK

FORD WATER UP TO 40 INCHES DEEP 0064 00

THIS WORK PACKAGE COVERS:

Ford Water Up To 40 Inches Deep (page 0064 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Socket Wrench Adapter (WP 0102 00, Item 1)
Socket Wrench Handle (WP 0102 00, Item 30)
Socket Wrench, 1/2 × 3/4 inch (WP 0102 00, Item 49)

Personnel Required

Driver
Crew

Equipment Condition

Engine stopped (WP 0024 00)
Carrier tracks blocked (WP 0042 00)

FORD WATER UP TO 40 INCHES DEEP

WARNING



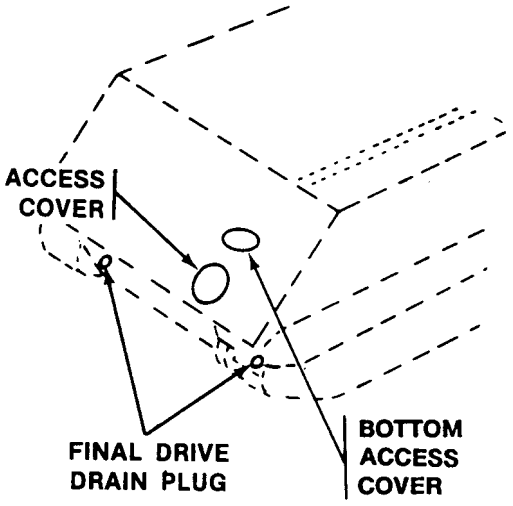
When water depth is unknown or deeper than 40 inches (3.4 feet), do not attempt to ford stream. Carrier may sink and personnel could drown. See task: PREPARATION BEFORE WATER OPERATION (WP 0066 00).

WARNING

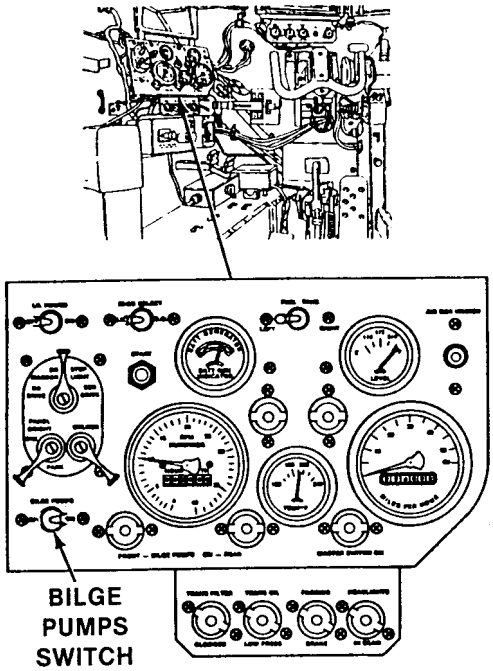


Personnel could be killed or injured if carrier moves with someone under it. Make sure engine is stopped, parking brake set, and carrier tracks blocked before crawling under carrier.

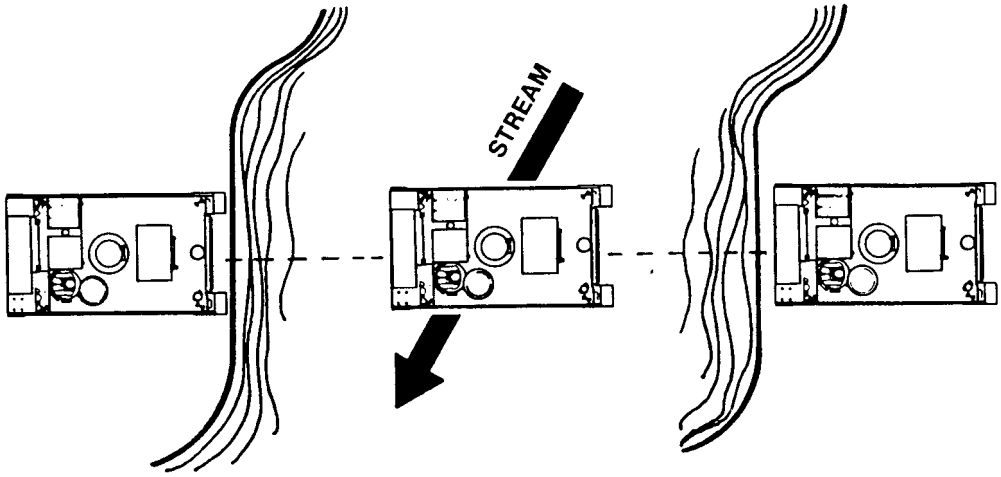
1. Check that access covers, drain covers, and final drive drain plugs are in place, straight, and tight. Use socket wrench handle and adapter to check or install final drive drain plugs.



2. Check bilge pumps operation. See task: SERVICE BILGE PUMPS (WP 0096 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. See task: BLOCK/UNBLOCK CARRIER TRACKS (WP 0042 00).
5. START ENGINE (WP 0021 00).
6. Place BILGE PUMPS switch ON.



7. Place transmission controller in 1-2 range and enter water. See task: DRIVE CARRIER (WP 0023 00).



8. Proceed slowly. Watch out for obstacles under water.
9. Exit water. After bilges empty, place BILGE PUMPS switch to OFF.

END OF TASK

PERFORM POST-FORDING OPERATIONS 0065 00

THIS WORK PACKAGE COVERS:

Perform Post-Fording Operations (page 0065 00-1).

INITIAL SETUP:

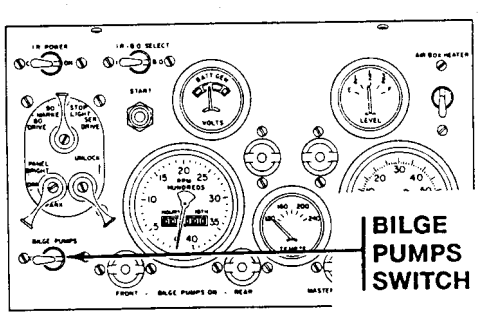
Maintenance Level
Operator

Equipment Condition
Carrier has been driven in water (WP 0064 00)

Personnel Required
Driver
Crew

PERFORM POST-FORDING OPERATIONS

1. Drive carrier to firm, level ground. See task: DRIVE CARRIER (WP 0023 00).
2. Place BILGE PUMPS switch OFF when water stops coming out bilge outlets.



3. STOP ENGINE (WP 0024 00).
4. Check trim vane for damage. Stow trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).
5. Check for water in final drive oil (WP 0090 00). If bubbles or white color are seen on dipstick, oil has water in it. Notify unit maintenance.
6. Lubricate carrier chassis (WP 0090 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.

Do not directly or indirectly wash power enclosure, power supplies, computer equipment, or electrical outlets on M1068A3. Electrical shorts may occur when operated next time.

Do not directly or indirectly wash the weapon station, external or internal radio equipment, power enclosure, or computer equipment on the M981A3, M901A3, or M1068A3.

7. If carrier has been in salt water, flush outside with fresh water. 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

PREPARATION BEFORE WATER OPERATION 0066 00

THIS WORK PACKAGE COVERS:

Preparation Before Water Operation (page 0066 00-1).

INITIAL SETUP:

Maintenance Level
Operator

References
FM 7-7

Tools and Special Tools
Socket Wrench Adapter (WP 0102 00, Item 1)
Socket Wrench Handle (WP 0102 00, Item 30)
Socket Wrench, 1/2 × 3/4 inch (WP 0102 00, Item 49)

Equipment Condition
Engine stopped
Carrier tracks blocked

Personnel Required
Driver
Crew

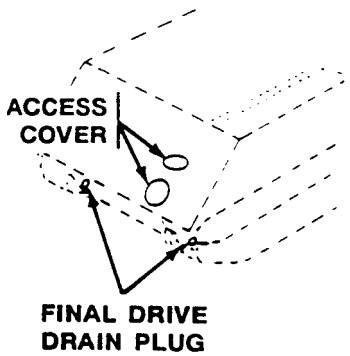
PREPARATION BEFORE WATER OPERATION

WARNING

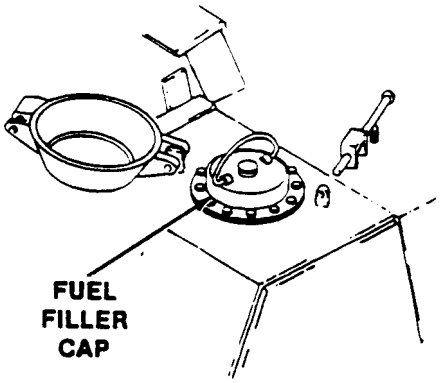


Do not perform water operations without flotation bag properly secured and opened. Before starting water operations, perform all carrier PMCS and the Preparation Before Water Operation. Pay particular attention to drain plugs and access covers which must be in place, straight and tight. Failure to do this could result in carrier sinking and loss of life.

1. Check that engine is off, brakes are set, and carrier is blocked.
2. Check that access covers, drain covers, and final drive drain plugs are in place, straight, and tight. Use socket wrench handle, socket wrench, and adapter to check or install final drive drain plugs.



3. Check that both fuel filler caps are snug and not held out of place by keeper chains.



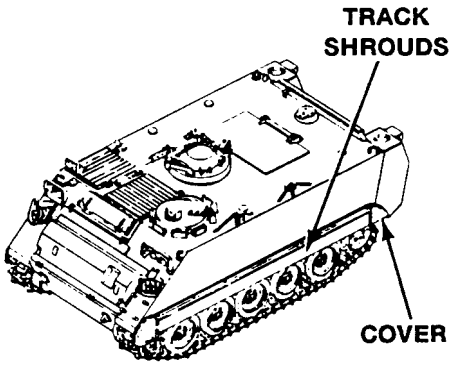
4. Check that all periscopes are installed (WP 0033 00).

WARNING



Carrier could sink and personnel could drown without track shrouds secured in place. Carrier can have loss of steering without track shrouds. Do not attempt water operation without them.

5. Check that track shrouds and covers are in good condition and secured to carrier.

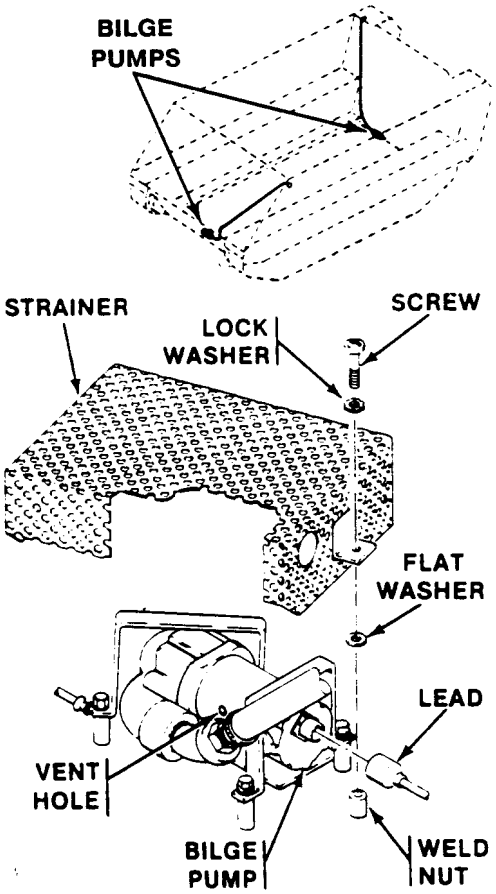


6. Check front and rear bilge pumps for debris or obstructions.
7. Clean bilge pump screens of debris or obstructions.

NOTE

To clean vent hole in front bilge pump, remove strainer.

8. Clean bilge pump vent holes of obstructions:



   a. Disconnect lead from front bilge pump.

   b. Remove two screws, lockwashers, and washers securing bilge pump strainer to weld nuts.

   c. Clean vent hole. Use a wire and run it back and forth in vent hole a few times.

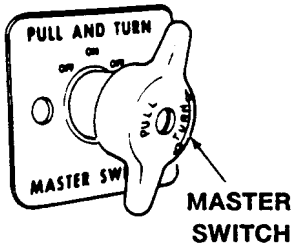
   d. Install bilge pump strainer. Secure with two washers, lockwashers, and screws.

NOTE

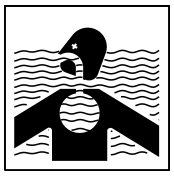
Do Step 9 for M981A3 only.

9. Turn VEHICLE BAT switch ON.

10. Turn MASTER SWITCH ON.

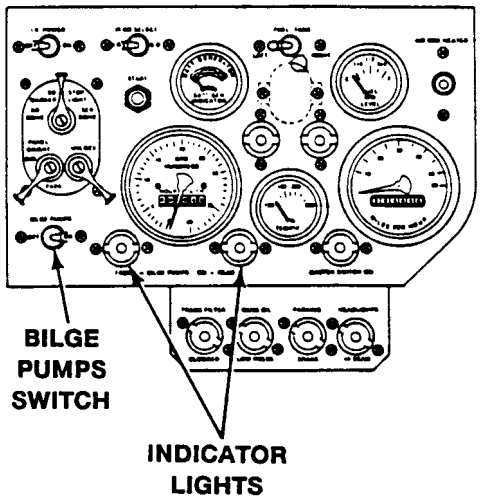


WARNING



If bilge pumps do not work during water operations, carrier can sink; personnel can be killed. Do not attempt water operations if bilge pumps do not operate.

11. Check bilge pumps operation:

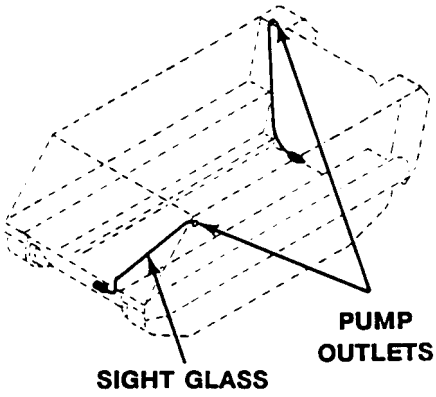


a. Turn bilge pumps switch ON.

b. Check that front and rear bilge pump indicator lights are ON.

c. If water is in bilge, check bilge pump outlets for discharge of water.

d. Check sight glass.



NOTE

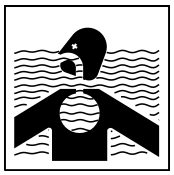
If carrier bilges are dry, test bilge pumps using alternate air method below. Do not enter water unless bilge pumps are operational.

12. **ALTERNATE AIR METHOD:**
Check bilge pumps operation:

a. Place your hand over bilge pump outlets. Feel for a stream of air. If air is not present, repeat Step 6.

b. Turn bilge pumps switch OFF.

WARNING

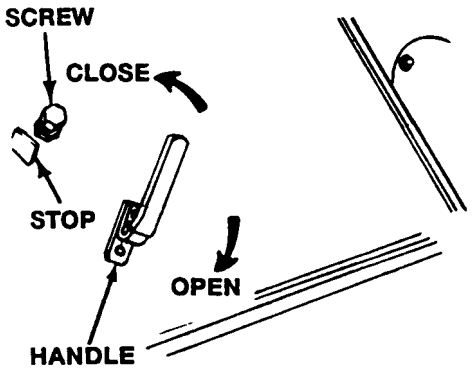


When power plant door detent screw is missing or does not rub against handle when handle is moved to closed position, power plant door can open and take in water during water operation. Carrier can sink and personnel can drown. Do not attempt water operations when detent screw is missing or improperly adjusted.

NOTE

If detent screw is missing or does not rub against the handle, notify unit maintenance to have screw replaced/adjusted or handle replaced.

13. Secure power plant door.
    a. Rotate handle past detent screw to vertical position between screw and metal stop.
    b. Check power plant door seals for breaks, brittleness, cracks, or poor seating.



14. From inside the driver's compartment, push the combat lock handle down to lock the power plant door (WP 0011 00).

WARNING



Unsecured stowage/load can shift or fall during carrier motion. Personnel can be injured. Secure all stowage/load to eliminate movement regardless of carrier attitude, including inverted position.

Carrier can sink and personnel can drown when maximum load (weight of personnel, fuel and/or cargo) is exceeded and/or not properly distributed. Distribute weight of cargo and/or personnel evenly before entering water, per load plan in WP 0106 00.

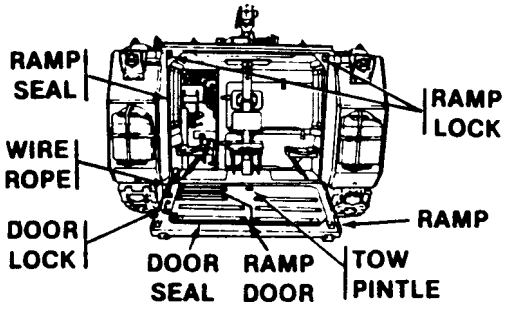
15. Stow carrier in accordance with load plan (WP 0106 00).

WARNING



Displaced or damaged ramp and personnel door seals may let water leak into cargo area. Personnel can drown. Check door ramp and seals before closing doors. Do not attempt water operation if there is leakage.

16. Check ramp and ramp door for proper operation and seal.



a. Check ramp door operation. Make sure hinges work right and that door is tightly secured when locked.

b. Check ramp door seals for breaks, brittleness, cracks or poor seating.

c. Check ramp wire rope for frayed or broken strands.

d. Check ramp seals for breaks, brittleness, cracks, or poor seating.

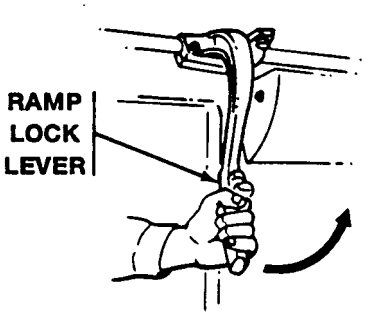
e. Check ramp locks for proper operation and missing parts.

f. Make sure cotter pin on tow pintle nut is present and properly secured.

g. If ramp is not operating properly or parts are faulty, notify unit maintenance.

17. Raise and lock ramp (WP 0012 00).

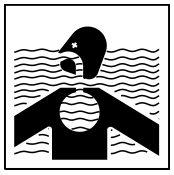
18. Make sure ramp lock lever rotates forward so ramp is latched tight and secure against seal.



19. Close and lock ramp personnel door. Make sure ramp door is tight and secured against seal.

20. Turn interior dome lights ON (WP 0030 00).

WARNING



If hatches are closed during water operations, carrier can sink and personnel can be trapped inside and drown. All hatches must be in open position with locking pins installed before water operations.

21. Open driver's hatch and install locking pin (WP 0006 00).

22. Open commander's cupola cover. Install locking pin (WP 0009 00).

23. Open cargo hatch and install locking pin (WP 0008 00).

WARNING

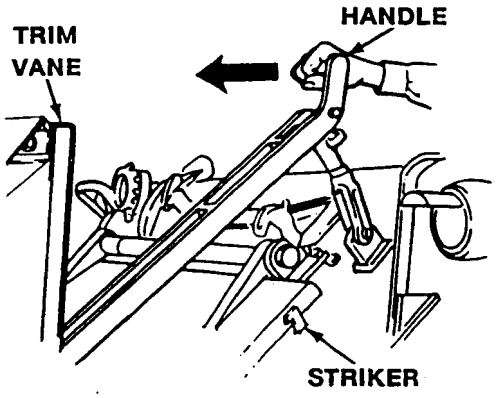


Carrier can sink during water operations when trim vane is not extended and locked in place and flotation bag is not open. Personnel can be killed. Before entering water, extend and lock trim vane in position for water operations. Open and properly secure flotation bag.

NOTE

Carriers can float, however, swimming is not allowed. Since the bottom, beneath the surface of the water may have holes, gullies, soft spots and other hazards, carriers must be prepared to float and move away from dangerous areas.

24. Extend and lock trim vane by lifting handle and pushing trim vane forward until handle catches in the striker on the hull.

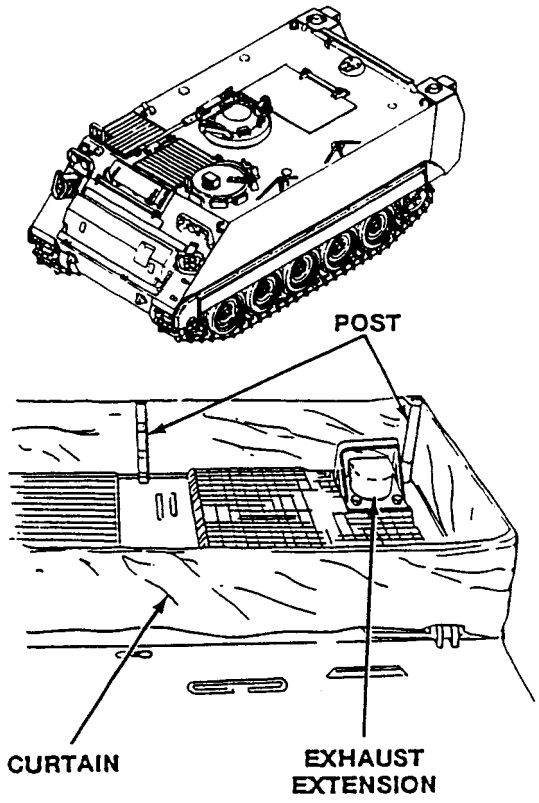


25. Erect engine grille water barrier (WP 0063 00).

NOTE

Do Step 26 for M1064A3 only.

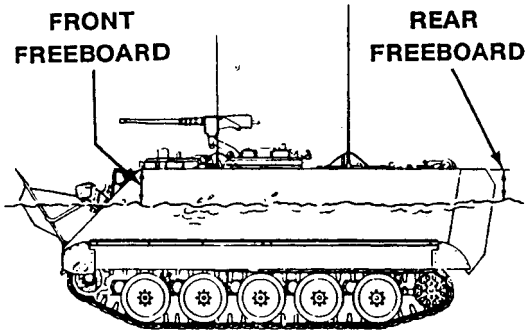
26. Erect air grille curtain (WP 0053 00).



NOTE

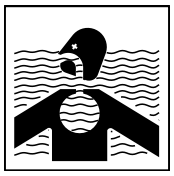
Freeboard is determined by measuring the distance from hull top plate (lowest portion) to the water level. Freeboard will change when carrier is traveling in the water.

Rear freeboard will be high with low fuel tanks.



FRONT FREEBOARD M113A3	REAR FREEBOARD M113A3
TBD	TBD

WARNING



If carrier sinks, personnel can drown when safety belts are fastened. Release safety belts before starting water operations.

27. Insure that seat belts remain unfastened.

28. Perform final safety check using WATER OPERATIONS SAFETY CHECKLIST below before starting water operations.

WATER OPERATIONS SAFETY CHECKLIST

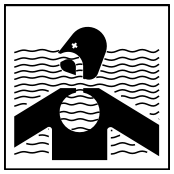
Track shrouds and covers. Installed; not damaged.
Power plant door. Closed; seals are tight.
Hull access plates, drain covers, and final drive plugs. Installed.
Trim vane. Extended forward and locked.
Engine grille water barrier. Swimming position, and secured.
Bilge pumps. ON and operating.
Front and rear bilge pump. Indicator lights ON.
Ramp. Closed. Ramp lock lever handle locked.
Ramp personnel door. Closed. Handle locked.
Hatches. Open. Locking pins installed.
Interior dome lights. ON (except in blackout conditions).
Cargo and personnel. Distributed per load plan (WP 0106 00).
Cargo and equipment. Secured.

NOTE

Life vests (NSN 4220-00-542-2110 or NSN 4220-00-555-9006) will be worn by all personnel participating in water operations. To obtain life vests, see Transportation Officer.

29. Obtain life vests for all personnel.

WARNING



If carrier sinks, personnel can drown when safety belts are fastened. Release safety belts before starting water operations.

30. Keep safety belts unfastened during water operations.
31. Remove all web gear and packs. Do not wear web gear and packs during water operations.
32. If water rises above floor plates, instruct personnel to climb to top of carrier.
33. Specify an emergency order of exit for each person in the carrier. Practice emergency exit procedures before starting water operations.

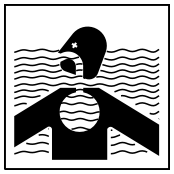
WARNING



Exceeding terrain and water obstacle limits greatly increases chance of sinking. Entering the carrier in water containing a large amount of debris or ice, water moving faster than 2 mph or with waves above 6 inches is high risk. Do not enter the carrier in water containing large amounts of debris, water current greater than 2 mph, or with waves over 6 inches high. Do not exceed limits. The carrier could sink and personnel can drown.

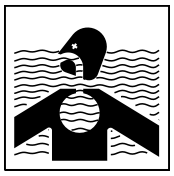
34. See WP 0068 00, Steps 3 - 7, for terrain and water obstacle limits for water operation.

WARNING



Do not jump the carrier into the water. This could cause the carrier to sink and result in injury or death to personnel. Do not stay in the water if carrier bilge pumps are pumping a steady stream for more than 30 seconds.

WARNING



Personnel in the carrier should remain still and not move during water operations. Movement may upset the balance of the carrier, causing death or injury.

35. For good operating tips before starting water operations, see FM 7-7.

END OF TASK

CARRIER DIP CHECK (ALL EXCEPT M981A3) 0067 00

THIS WORK PACKAGE COVERS:

Carrier Dip Check (All Except M981A3) (page 0067 00-1).

INITIAL SETUP:

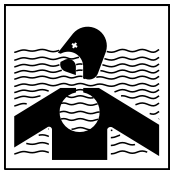
Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver
Crew

CARRIER DIP CHECK (ALL EXCEPT M981A3)

WARNING



Carrier can sink and personnel can drown if dip (trial water operation) exercise is not conducted before actual water operation in streams or rivers with personnel aboard.

WARNING



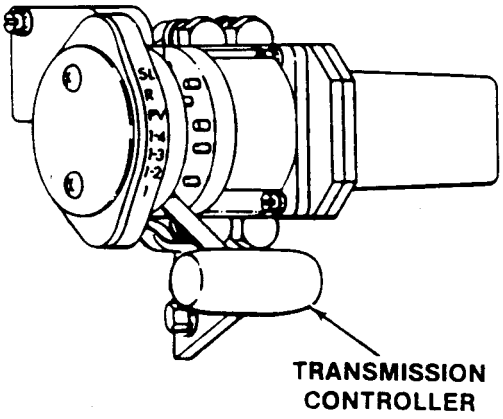
Carrier can sink during water operations when trim vane is not extended and locked in place, and engine grille water barrier is not erected. Personnel can be killed. Before entering water, extend and lock trim vane in proper position for water operations with flotation bag secure. Erect engine grille water barrier.

NOTE

Conduct dip exercise in calm waters with the actual water operation load. Adjusted load represents the required payload for actual water operating condition.

1. Perform PREPARATION BEFORE WATER OPERATION (WP 0066 00) before entering water.
2. Practice emergency exit procedures with personnel riding in carrier before entering the water.
3. Attach one or more marker buoys to carrier.
4. Attach a recovery carrier winch cable to carrier towing eyes. Play out winch as carrier enters the water.
5. Turn both bilge pumps ON.

6. Place transmission controller in range 1 and enter water at crawl speed (slow walk). Once carrier is floating, move range selector lever to range 1-2.



7. During dip exercise, check carrier for leaks. When bilge pumps provide a steady stream of water for more than 30 seconds, steer carrier to nearest exit. Notify unit maintenance.

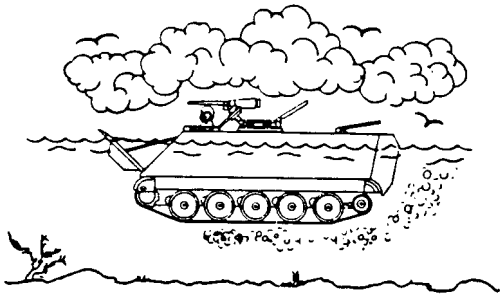
WARNING



Carrier can sink and personnel can drown when maximum load (weight of personnel and/or cargo) is exceeded and/or not properly distributed. Do not operate carrier in water if water is above water level strip on trim vane.

8. Operate the carrier in water for a minimum of 20 minutes before exiting from the water.

FRONT FREEBOARD M113A3	REAR FREEBOARD M113A3
TBD	TBD



9. Play in winch cable from recovery vehicle as carrier exits water.

10. After carrier is on level ground, detach winch cable leading from recovery vehicle.

END OF TASK

WATER OPERATION: ENTERING THE WATER (ALL EXCEPT M981A3) 0068 00

THIS WORK PACKAGE COVERS:

Entering the water (page 0068 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

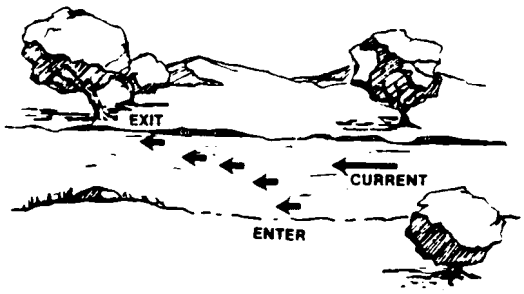
Personnel Required
Driver
Crew

ENTERING THE WATER

NOTE

Use carrier loaded as determined from dip check (WP 0067 00).

1. Perform PREPARATION BEFORE WATER OPERATION (WP 0066 00) and DIP CHECK (WP 0067 00).
2. Measure speed of the water current prior to water operation as follows:
   a. Position two personnel (or objects) at least 100 feet apart near the stream bank. (Position at entry point is A and position 100 feet downstream is point B).
   b. Toss in any object which will float to point B.
   c. Measure the time it takes the floating object to go from point A to point B. When object takes less than 35 seconds, stream is too fast – DO NOT ENTER WATER.
   d. Test the stream near the bank, along the edges of the stream, and in the middle of the stream.



NOTE

The maximum speed of the water in which the carrier can safely cross depends on such factors as water chop, amount of ice or other debris, overhanging tree limbs, underwater obstacles and the maximum acceptable downstream drift distance.

3. Water must be free of ice and debris. Use the terrain and water obstacle limits below before entering the water.

Current ..... 2.0 mph (Maximum)
Waves ..... 6 inches (Maximum)

WARNING



Carrier can sink and personnel could be injured or killed if carrier enters or exits on a slope greater than 30% grade. Do not exceed a 30% entry/exit slope.

4. Enter water on an slope no greater than a 30% grade. Enter water at crawl speed. Slope should be firm with no drop-off for at least one carrier length under or above water.
5. Exit slope must be clear, gradual and firm. Do not exceed a 30% exit slope.

NOTE

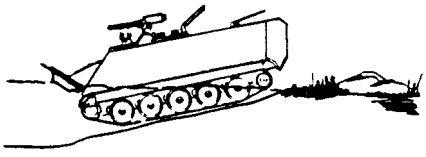
Before slope percentage is measured using plumb line, be sure that carrier is completely on the slope and squared to water line.

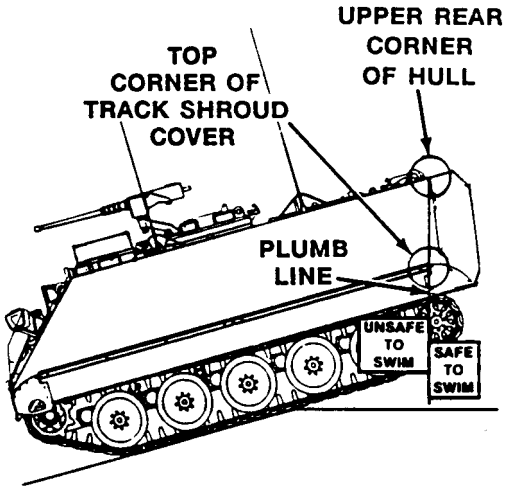
6. Measure slope percentage using plumb line as follows:
   a. Drive carrier onto slope to be measured.
   b. Set brakes and block carrier.

NOTE

Do this step for M113A3, M1059A3, M1064A3, and M901A3.

   c. Tie a plumb bob or any heavy object to the end of a long string. Hold other end of the string at left upper rear corner of carrier.

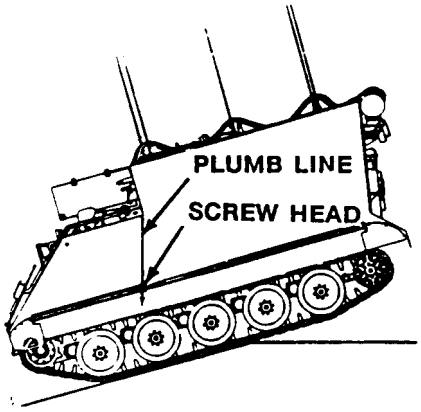




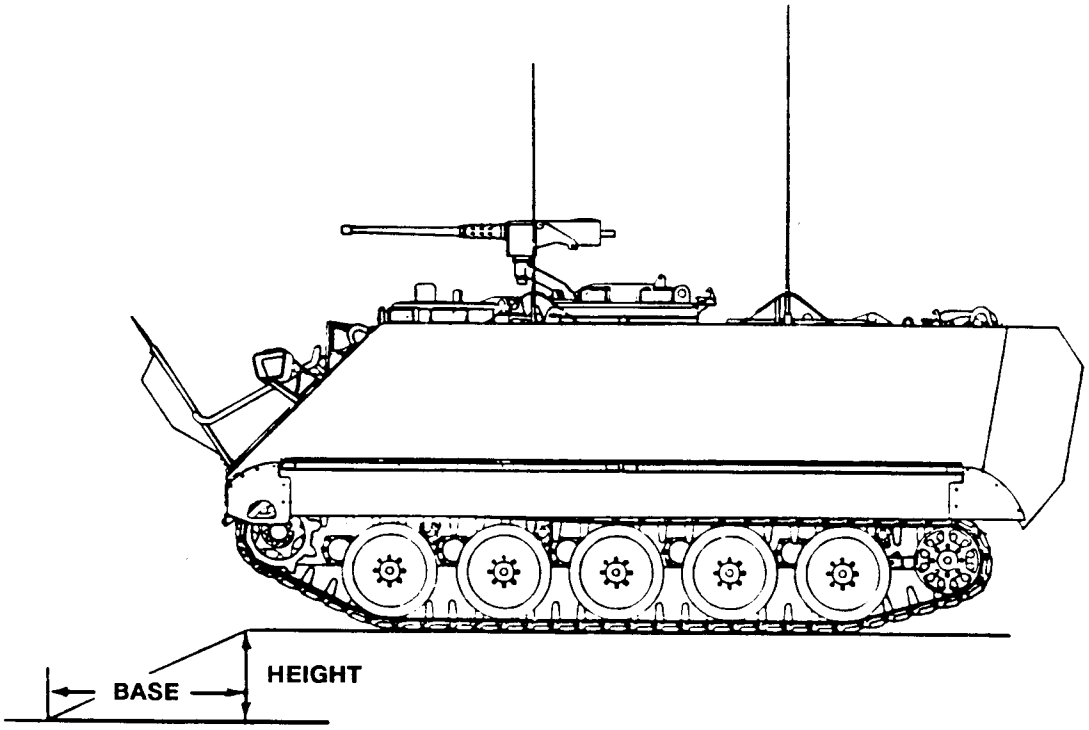
NOTE

Do this step for M577A3 and M1068A3.

d. Tie a plumb bob or any heavy object to the end of a long string. Hold other end of the string at intersection of side plate and extension plate behind driver's hatch.



7. Determine slope percentage by measurement as follows:
   a. Height of slope. Measure vertically from top of slope to base of slope.
   b. Length of slope's base. Measure horizontally from base of slope to point where slope starts.
   c. Divide base into height then multiply answer by 100 to obtain slope percentage.



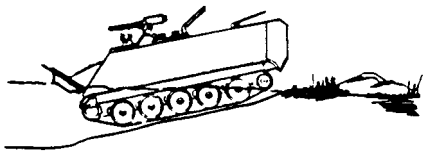
$$\frac{\text{HEIGHT OF SLOPE}}{\text{LENGTH OF SLOPE BASE}} \times 100 = \% \text{ SLOPE}$$

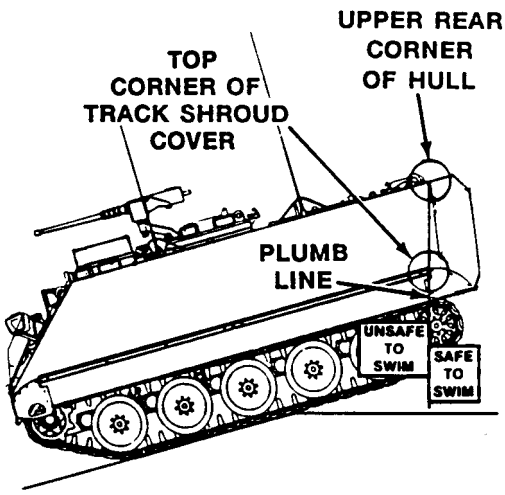
8. Driver must combine the carrier capabilities with the current flow and distance to cross rivers and streams and keep in mind the following:
   a. Select water entry and exit points.
   b. Current flow can carry carrier downstream.
   c. The fastest way across is to attempt to steer straight across; however, allow current to carry you downstream to an acceptable exit point.
   d. The carrier has limited capability to traverse upstream.
   e. Avoid steering excessively upstream (above 2 mph) as carrier may tailspin.
   f. Do not attempt to cross a stream with a current greater than 2 mph.

NOTE

Do this step for M113A3, M1059A3, M1064A3, and M901A3.

   g. If plumb line aligns with the top corner of the track shroud cover, slope is about 30%. This is maximum slope. Entry is OK at crawl speed. If plumb line falls to rear of the top corner of the track shroud cover, slope is less than 30% and entry is OK.

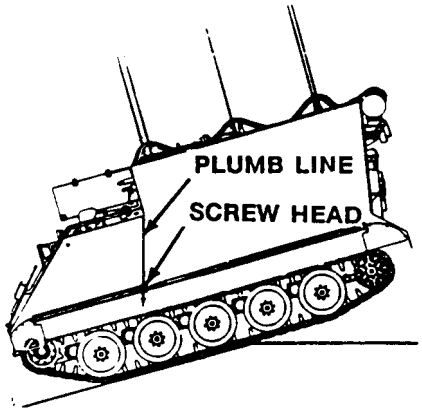




NOTE

Do this step for M577A3 and M1068A3.

h. If plumb line aligns with third track shroud cover screw, slope is about 30%. This is maximum slope. Entry is OK at crawl speed. If plumb line falls to rear of screw, slope is less than 30% and entry is OK.



9. Place the range selector lever in range 1.

WARNING



Enter water head on. Do not attempt to back-up into water. Personnel could be injured or killed.

WARNING



Personnel should not move during water operations. Personnel movement may upset the balance of the carrier causing death or injury.

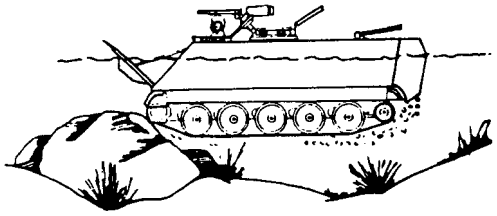
10. When entering water, select a firm spot. Avoid rocks, stumps, and deep drop-offs. Enter water head on; not at an angle. Crawl carrier into water.

NOTE

If you are entering water from a steep slope (up to 30%) or a slope with obstacles, enter slowly and be sure water does not get into intake and exhaust grilles.

11. Periodically check bilge pumps. If bilge pumps do not pump water or air stream cannot be felt, a pump could be air locked. Turn the bilge pump switch OFF, then ON again to get the pump working. If the bilge pumps will not work properly, DO NOT ENTER WATER.

12. If water appears to be flooding the carrier and it is not fully into the water, back out.
13. Try to avoid underwater obstacles. If carrier hits an unforeseen slope, gradually increase throttle to raise the front end to get the carrier waterborne again, then reduce throttle while controlling carrier. Do not reduce throttle abruptly.



NOTE

Position personnel and/or cargo toward rear of carrier and on left and right sides (maximum of 2 inches list (tilt)) so that freeboard is below the water level strip on the trim vane.

14. Check trim water level strip and freeboard after entering water.
15. Shift personnel or cargo to meet freeboard requirements.
16. Once carrier is floating, move range selector lever to the 1-2 range for all water operations except for stopping or backing up. Keep the freeboard at the water level strip near the level maintained during the dip check at all times.

END OF TASK

STEERING CARRIER IN THE WATER 0069 00

THIS WORK PACKAGE COVERS:

Steering carrier in the water (page 0069 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver Crew

STEERING CARRIER IN THE WATER

WARNING



Sudden responses to acceleration and deceleration due to throttle, brakes, or opposite travel direction, may cause water to break over front of carrier and enter intake grill or open hatches. Personnel can be killed. Always accelerate and decelerate carrier smoothly and gradually.

1. Always increase or decrease throttle, brakes, and reverse travel direction in a gradual manner.
2. For improved response, always steer carrier with steer wheel. Response is slow in the water. To avoid overshooting turn, turn steering wheel a little before the turn is completed. The carrier will continue to travel in the same direction.
3. If carrier strikes an underwater obstacle or snag, apply brakes, back-off, and find a path around the obstacle.
4. When the carrier is in danger of flooding, steer toward the nearest shore. You can speed up if that will help, but do it smoothly.

END OF TASK

STOPPING CARRIER IN THE WATER 0070 00

THIS WORK PACKAGE COVERS:

Stopping carrier in the water (page 0070 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver
	Crew

STOPPING CARRIER IN THE WATER

WARNING



Sudden responses to acceleration and deceleration due to throttle, brakes, or opposite travel direction, may cause water to break over front of carrier and enter intake grill or open hatches. Personnel can be killed. Always accelerate and decelerate carrier smoothly and gradually.

1. To stop carrier in water while moving forward:

   a. Slowly ease up on the accelerator pedal.

   b. Place transmission controller in range R.

   c. Gradually step on the accelerator pedal to reverse drive tracks until carrier stops.

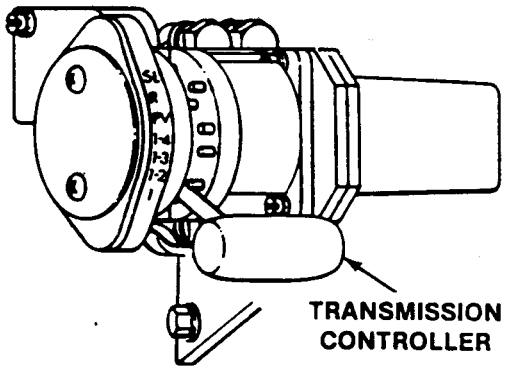
WARNING



Sudden responses to acceleration and deceleration due to throttle, brakes, or opposite travel direction, may cause water to break over front of carrier and enter intake grill or open hatches. Personnel can be killed. Always accelerate and decelerate carrier smoothly and gradually.

STOPPING CARRIER IN THE WATER — Continued **0070 00**

2. To stop carrier in water while moving in reverse:
   a. Slowly ease up on the accelerator pedal.
   b. Place transmission controller in range 1-2.
   c. Gradually step on the accelerator pedal to drive tracks forward until carrier stops.



END OF TASK

LEAVING THE WATER 0071 00

THIS WORK PACKAGE COVERS:

Leaving the water (page 0071 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver
	Crew

LEAVING THE WATER

WARNING



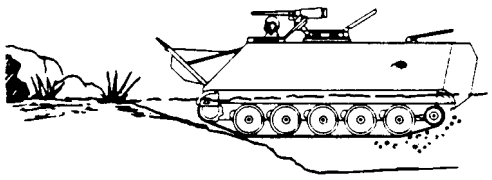
Do not attempt to exit the water at an angle. The carrier may overturn and sink. Personnel could be killed. Always exit straight up the slope.

NOTE

Exit straight up a slope of 30% or less and then only if the ground is firm, smooth, free of obstacles and adequate traction will be provided. On soft soil and/or rough surfaces with poor traction, do not exit on a slope steeper than 20%.

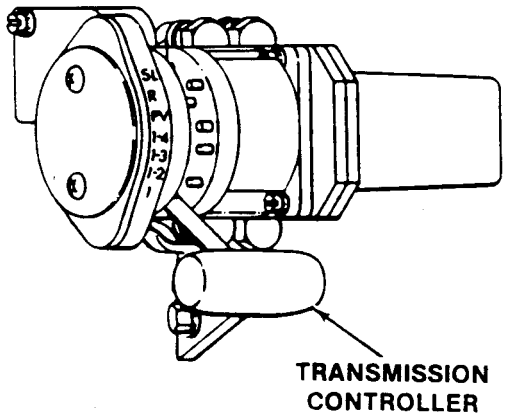
When one track is grounded and other is not grounded, the carrier may be hard to steer. Go easy until both tracks are evenly pulling.

1. To exit the water, head for the shore as square as you can. Just before the tracks touch ground, ease up on the accelerator pedal.



LEAVING THE WATER — Continued **0071 00**

2. When both tracks hit the ground, move the transmission controller to range l. Maneuver a little if you have to so both tracks get a good bite on the ground, then depress the accelerator pedal.



END OF TASK

AFTER WATER OPERATIONS 0072 00

THIS WORK PACKAGE COVERS:

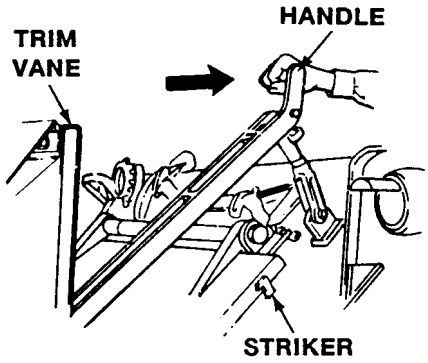
After water operations (page 0072 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver Crew

AFTER WATER OPERATIONS

1. After the carrier is clear of the water and no more water is coming out of the bilge pump outlets, turn bilge pumps OFF.
2. Stow engine grill water barrier (WP 0063 00).
3. Retract trim vane by disengaging the catch from the striker and lifting up on the handle. Pull the handle back as far as possible until the handle locks.

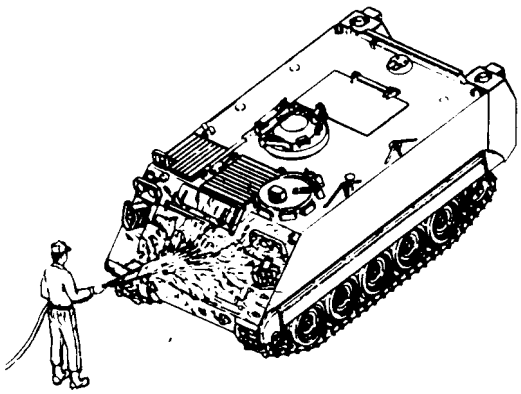


CAUTION

Heater can be damaged during flushing if water gets into inlet or exhaust pipes. Cover heater inlet and exhaust pipes before flushing carrier.

Washing or getting equipment wet in the M901A3, M981A3, or M1068A3 can damage sensitive equipment.

4. If you have been in salt water, flush areas with fresh water as soon as you can.



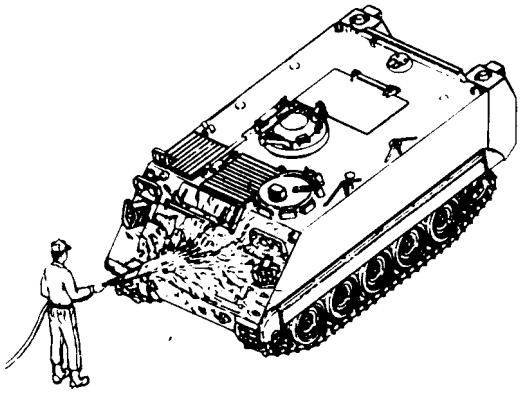
5. If tactical situation permits, perform after water maintenance as soon as possible.

CAUTION

Heater can be damaged during flushing if water gets into inlet or exhaust pipes. Cover heater inlet and exhaust pipes before flushing carrier.

Do not directly or indirectly wash power enclosure, power supplies, computer equipment, or electrical outlets on M1068A3. Electrical shorts may occur when operated next time.

Do not directly or indirectly wash the weapon station, external or internal radio equipment, power enclosure, or computer equipment on the M981A3, M901A3, or M1068A3.



6. If carrier has been in salt water, flush outside with fresh water. 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

OPERATE CARRIER OVER ROUGH TERRAIN 0073 00

THIS WORK PACKAGE COVERS:

Drive Carrier Over Trenches (page 0073 00-2)
Drive Carrier Over Obstacles (page 0073 00-3).
Drive Carrier On Grades (page 0073 00-4)
Drive Carrier On Side Slopes (page 0073 00-4).
Drive Carrier On Snow, Ice, Or Mud (page 0073 00-5)
Park Carrier On Snow, Ice, Or Mud (page 0073 00-6)

INITIAL SETUP:

Maintenance Level

Operator

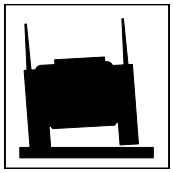
Equipment Condition

Engine started (WP 0021 00)

Personnel Required

Driver
Crew

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



Do not attempt to change carrier forward or reverse movement by shifting until carrier comes to a complete stop. Above four miles per hour, if you attempt to shift into reverse (or forward), the carrier will continue in the direction you are moving when you attempted to make the change. Failure to follow the above instructions, could result in injury or death to personnel, and destruction of equipment or property.

NOTE

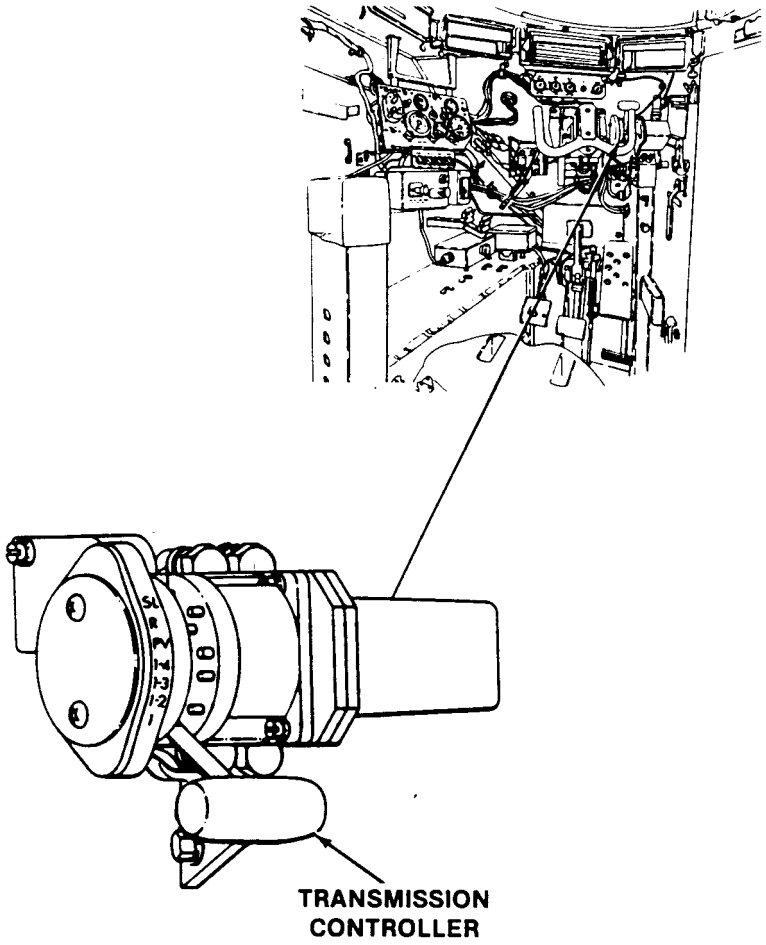
The crossdrive transmission is designed not to change direction of movement at speeds above four miles per hour. If you attempt to shift into reverse while moving forward above four miles per hour the transmission will not go into reverse even with the shift lever set to "R" (reverse), and the carrier will continue to move forward when you accelerate. Likewise, if you attempt to shift into a forward gear while moving above four miles per hour in reverse, the carrier will continue to move in reverse when you accelerate.

DRIVE CARRIER OVER TRENCHES

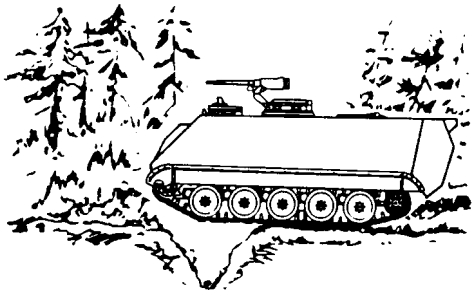
CAUTION

Carrier will get stuck in trenches wider than 5 1/2 ft (1.67m). Do not cross trenches wider than 5 1/2 ft (1.67m).

1. Place transmission controller in range 1 or 1-2.



2. Approach trench straight on and drive slowly over trench. Accelerate when track contacts far side of trench.

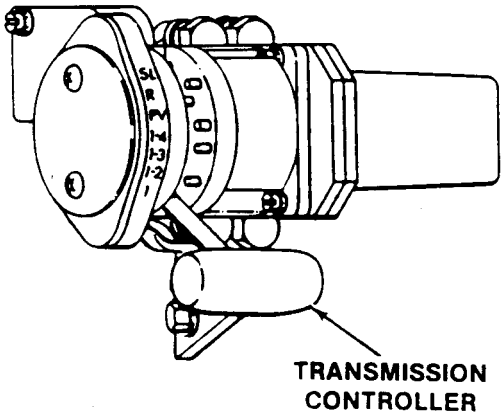


DRIVE CARRIER OVER OBSTACLES

CAUTION

Obstacles higher than 24 inches (61 cm) can damage carrier. Do not drive over obstacles higher than 24 inches.

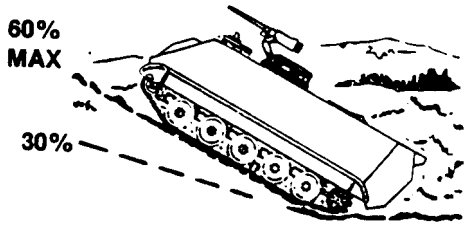
1. Place transmission controller in range 1 or 1-2.

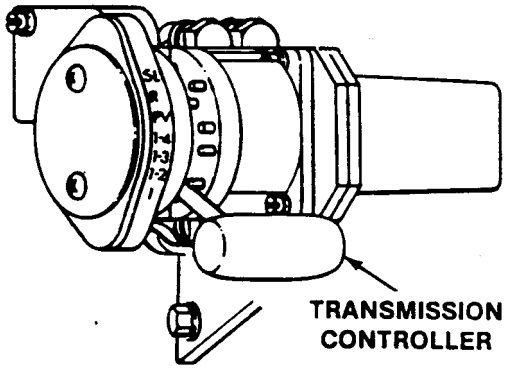


2. Approach obstacle straight on and drive slowly over obstacle.

DRIVE CARRIER ON GRADES

1. Place transmission controller in range 1-2 for grades up to 30% and range 1 for grades from 30% to 60%.

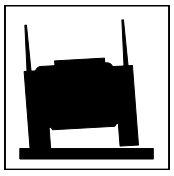




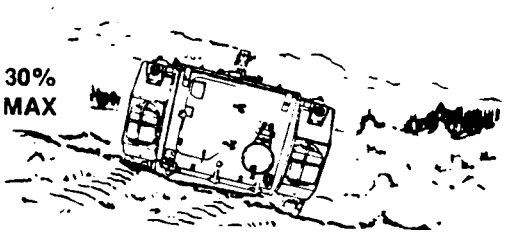
2. Accelerate as carrier climbs a grade. Decelerate when you reach top of grade and during descent.

DRIVE CARRIER ON SIDE SLOPES

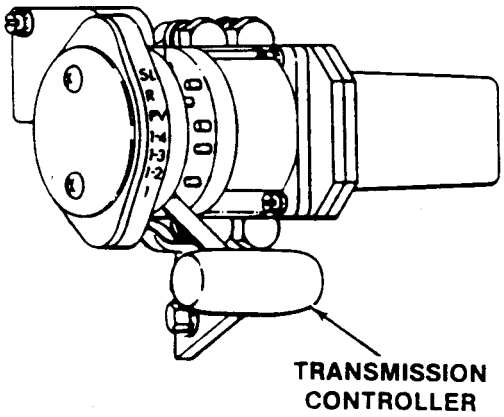
WARNING



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



1. Place transmission controller in range 1 or 1-2.



2. Steer in a series of small wide turns rather than one sharp turn.

DRIVE CARRIER ON SNOW, ICE, OR MUD

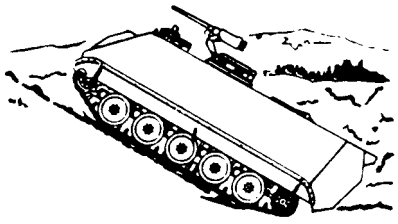
CAUTION

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

If you operate often in snow, ice, mud or heavy brush, have unit maintenance remove the track shrouds.

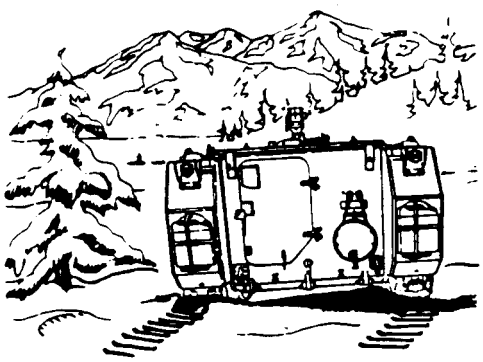
Do not drive on snow covered grades unless you have to. If you do, go as straight up and down the slope as you can.



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 crest of deep snow or soft soil, steer carrier straight to get back on crest.



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 0074 00

THIS WORK PACKAGE COVERS:

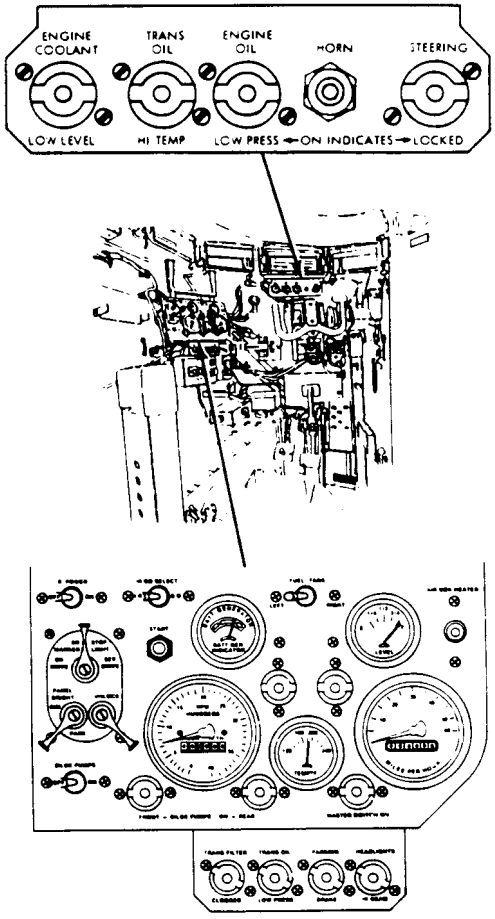
Operate Carrier (page 0074 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver

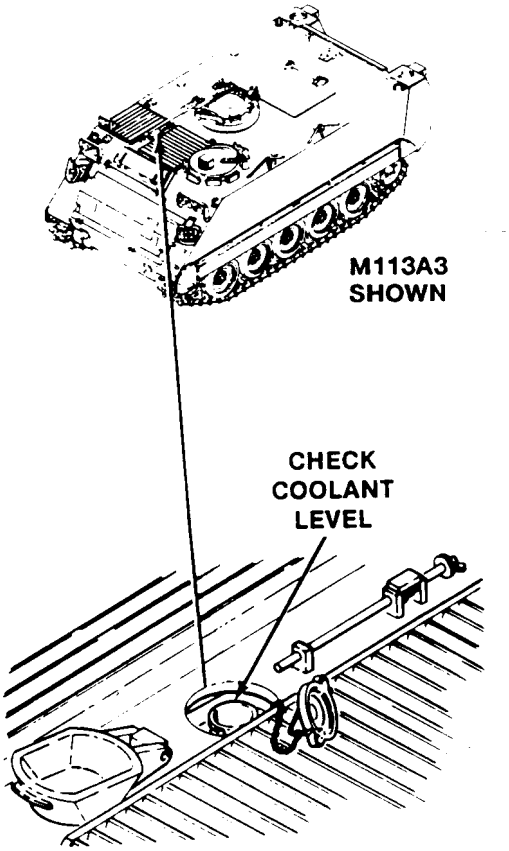
OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS

1. Check gages and warning lights often when driving. If any warning light comes on, STOP ENGINE (WP 0024 00). Troubleshoot problem (WP 0089 00).



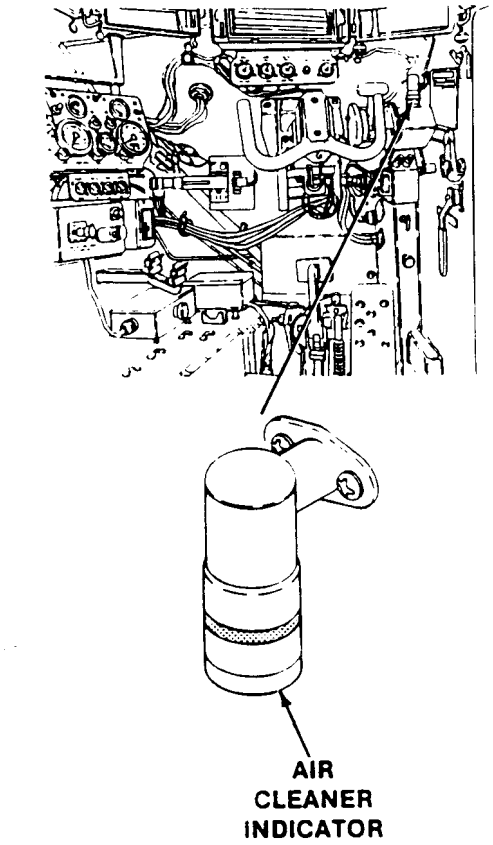
OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS — Continued **0074 00**

2. Check engine coolant level often. See task: CHECK/FILL COOLING SYSTEM (WP 0097 00).

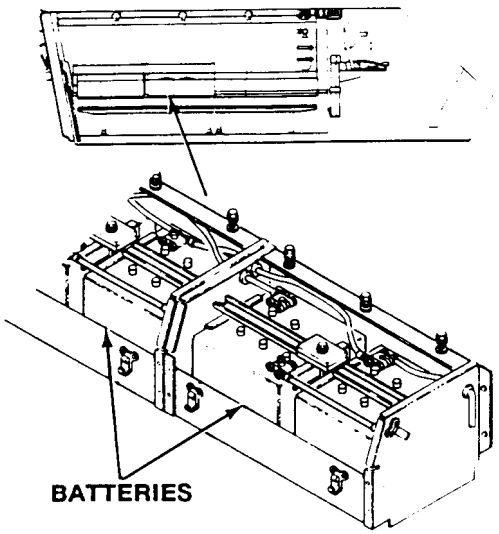


OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS — Continued **0074 00**

3. Check air cleaner indicator often. If at any time only red shows in the window, notify unit maintenance.



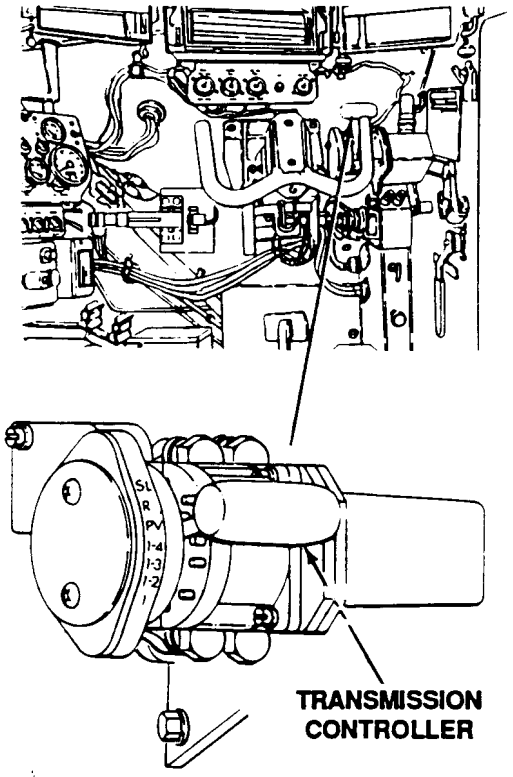
4. Check level of water in batteries. See task: CHECK CARRIER BATTERIES (WP 0095 00).



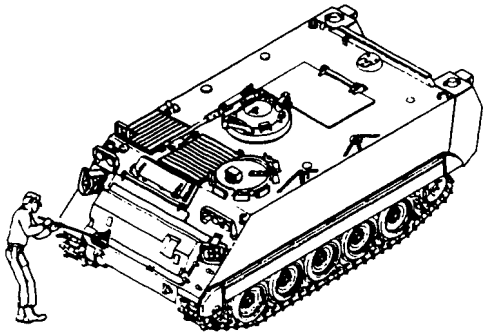
M113A3, M1059A3
M901A3 SHOWN

OPERATE CARRIER IN EXTREME HEAT, HUMIDITY, OR SALTY CONDITIONS — Continued **0074 00**

5. Don’t drive in any transmission range below 1-4 when you don’t have to.

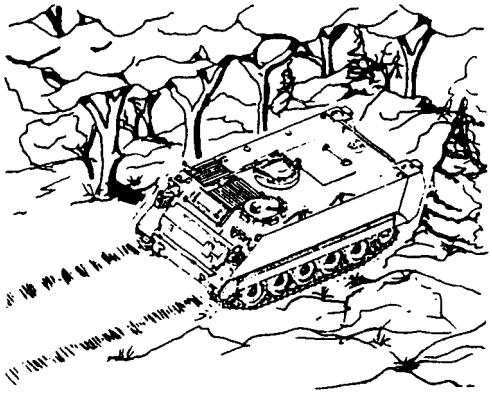


6. Don’t let dirt, sand, or bugs build up in the radiator fins. Have unit maintenance clean fins with water pressure.
7. Lubricate frequently (WP 0090 00). Heat, sand, dust, humidity, and salt all have a bad effect on lubricants and moving parts.
8. Stop and fix any problem as soon as it comes up, or 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 **0074 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. See task: COVER/UNCOVER INTAKE AND EXHAUST GRILLS (WP 0083 00).



END OF TASK

BYPASS DEFECTIVE TRANSMISSION CONTROLLER 0075 00

THIS WORK PACKAGE COVERS:

Bypass defective transmission controller (page 0075 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Equipment Condition

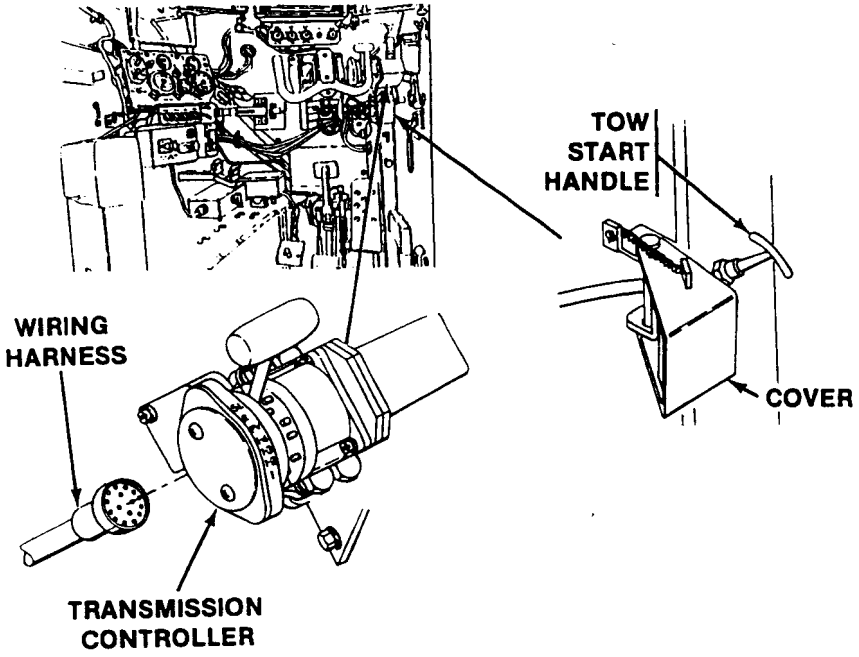
Parking brake set (WP 0020 00)
Engine started (WP 0021 00)

BYPASS DEFECTIVE TRANSMISSION CONTROLLER

NOTE

If carrier does not move in any shift lever position, transmission controller may be defective. Do Steps 1 - 5 below to bypass defective transmission controller allowing you to drive carrier.

1. Disconnect wiring harness from transmission controller.



2. Open tow start handle cover.

NOTE

With transmission controller wiring harness disconnected, transmission will shift to 1-4 range when tow start handle is pulled. Carrier will move if parking brake is not set.

3. Pull tow start handle momentarily and release to engage transmission. Release parking brake (WP 0020 00), close cover, and drive carrier to required destination.

4. Stop engine (WP 0024 00).
5. Notify unit maintenance of defective transmission controller as soon as tactical situation permits.

END OF TASK

SECURING INOPERABLE/UNSAFE RAMP 0076 00

THIS WORK PACKAGE COVERS:

Securing inoperable/unsafe ramp (page 0076 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

Equipment Condition

Engine stopped (WP 0024 00)
Carrier tracks blocked (WP 0042 00)

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.

NOTE

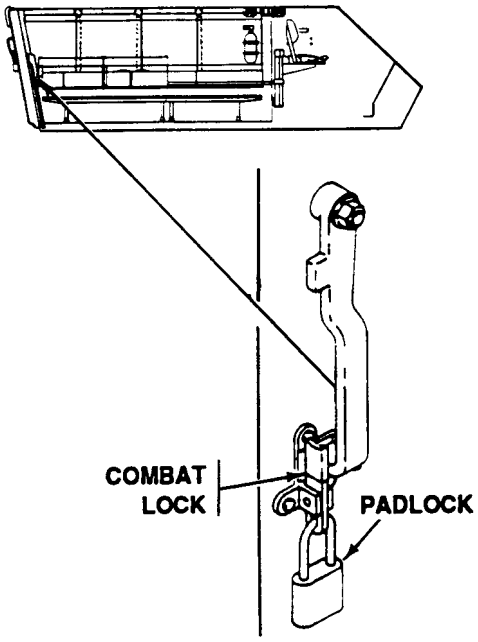
This task is for all carriers, except A3, with armor.

1. Close ramp access door and secure with combat lock. See task: OPEN/CLOSE RAMP ACCESS DOOR (WP 0005 00).

NOTE

Only the M981A3 and M901A3 will be locked on the exterior of the carrier.

2. Secure combat lock using padlock in tool bag.



3. If ramp is lowered when it becomes inoperable, notify unit maintenance to raise inoperable ramp using powered lifting equipment.
4. Secure ramp closed using ramp lock. See task: LOWER/RAISE RAMP (WP 0012 00).

WARNING

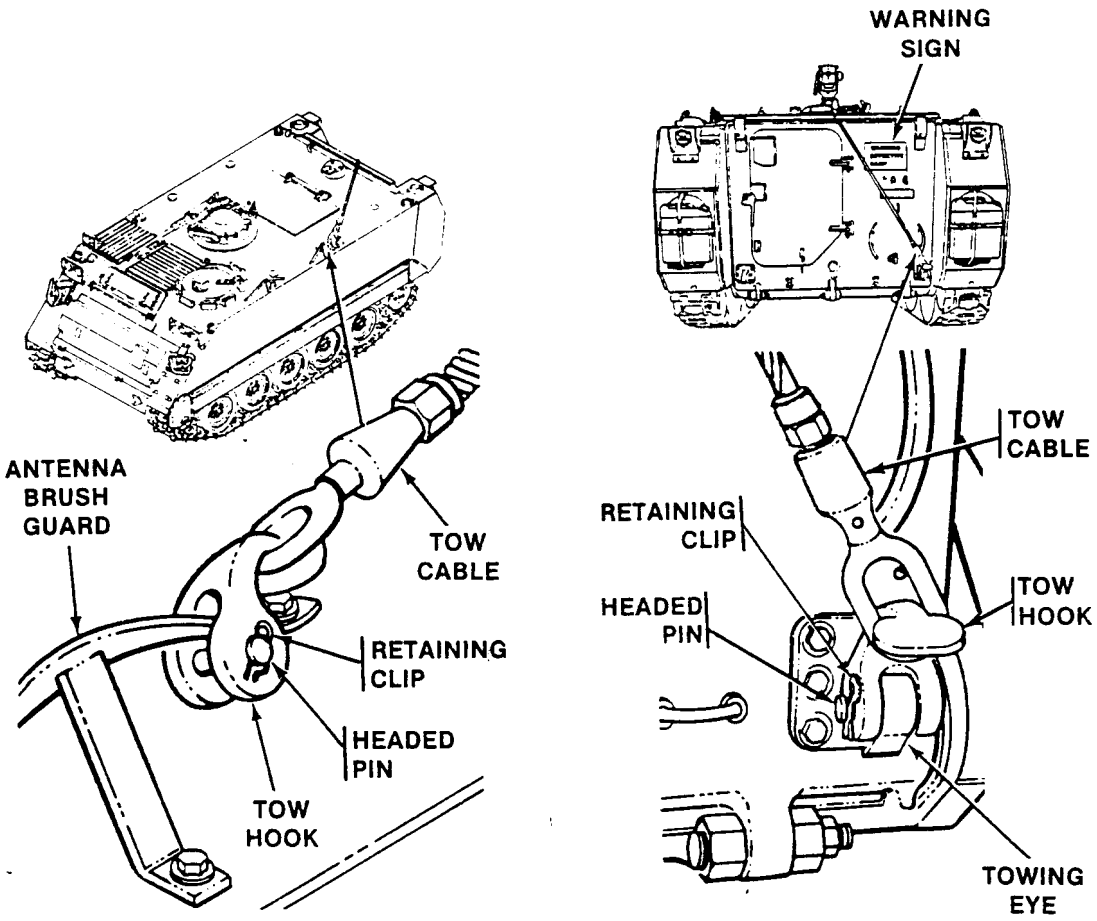


An inoperable/unsafe ramp can fall and kill you. Do not remove any device securing an inoperable/unsafe ramp. Notify unit maintenance to remove lifting equipment.

NOTE

Steps 5 - 6 are for M113A3, M1064A2, M981A3, and M901A3 only.

5. With ramp lock engaged and lifting equipment holding ramp up, install tow hook on antenna brush guard and secure with headed pin and retaining clip. Install tow cable on tow hook.
6. Install opposite end of tow cable on tow hook. Install tow hook with tow cable attached to right rear towing eye and secure with headed pin and retaining clip.

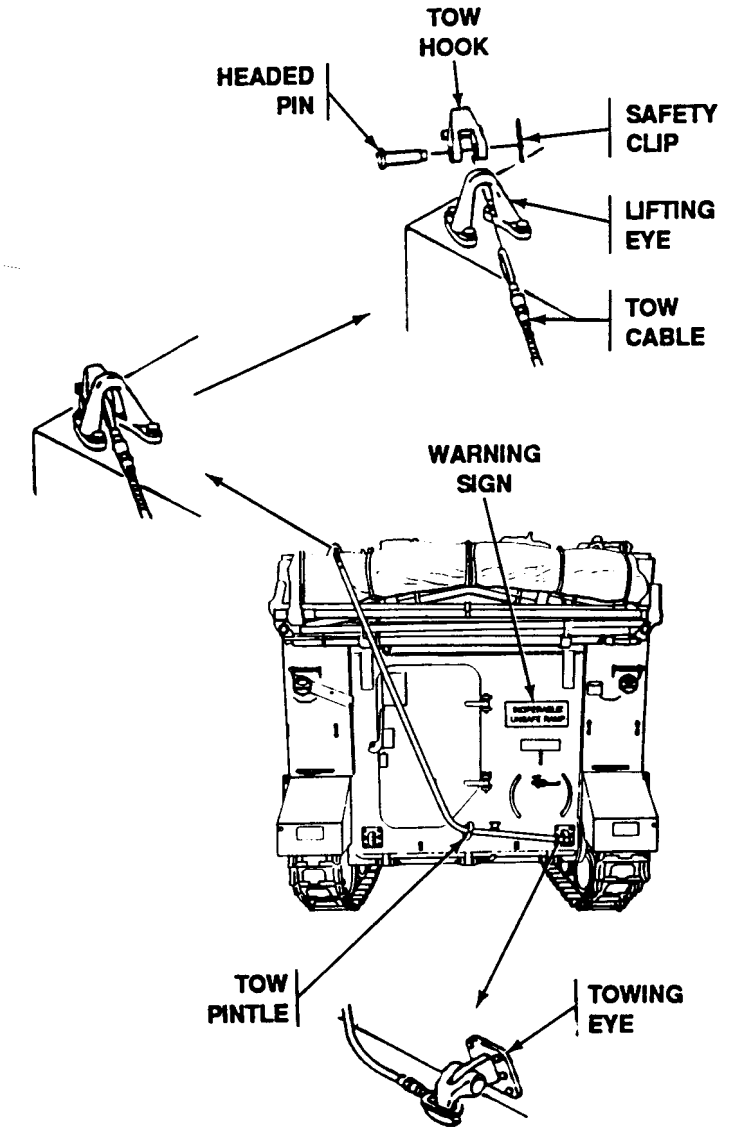


NOTE

Steps 7 - 8 are for M577A3 and M1068A3 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.



9. If possible, post a warning sign on ramp identifying hazardous condition.

10. Record fault. Notify unit maintenance.

END OF TASK

TOWING DISABLED CARRIER 0077 00

THIS WORK PACKAGE COVERS:

Install Tow Bar on Disabled Carrier and Recovery Vehicle (page 0077 00-2).
Install Tow Cables on Disabled Carrier and Recovery Vehicle (page 0077 00-3).
Tow Disabled Carrier (page 0077 00-4).
Remove Tow Bar From Disabled Carrier and Recovery Vehicle (page 0077 00-5).
Remove Tow Cables From Disabled Carrier and Recovery Vehicle (page 0077 00-7).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver (2)
Helper (H) (4)

Tools and Special Tools

Crowbar (WP 0102 00, Item 13)
Tow Cable (WP 0102 00, Item 7)
Recovery vehicle

WARNING



A towed carrier does not have steering until it reaches 3 mph plus. Personnel can be killed or injured. Use tow bar or two tow cables and use brakes 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

If transmission is inoperable, or if final drive or track assembly is missing, the transmission oil pumps will not operate. Serious damage will occur inside the transmission. Do not tow carrier with drive shafts connected. Unit maintenance should disconnect drive shafts before towing carrier.

CAUTION

Carrier may be towed backwards a maximum of 1/4 mile at 5 mph or less when final drive to transmission drive shafts are connected. Damage to transmission will result if carrier is towed backwards faster than 5 mph or further than 1/4 mile.

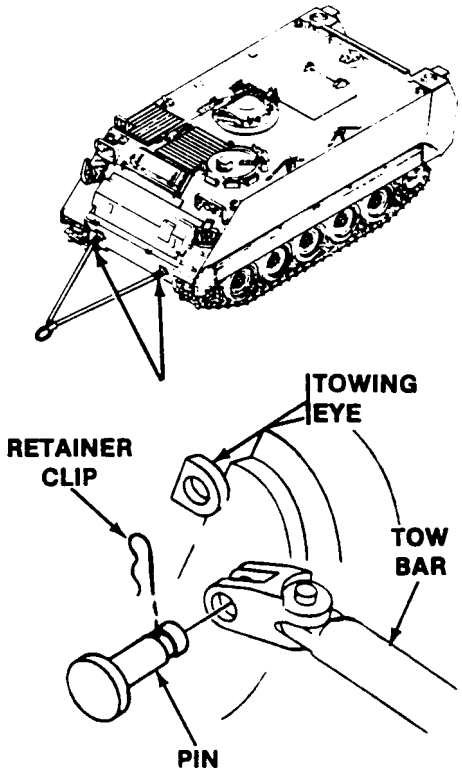
NOTE

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.

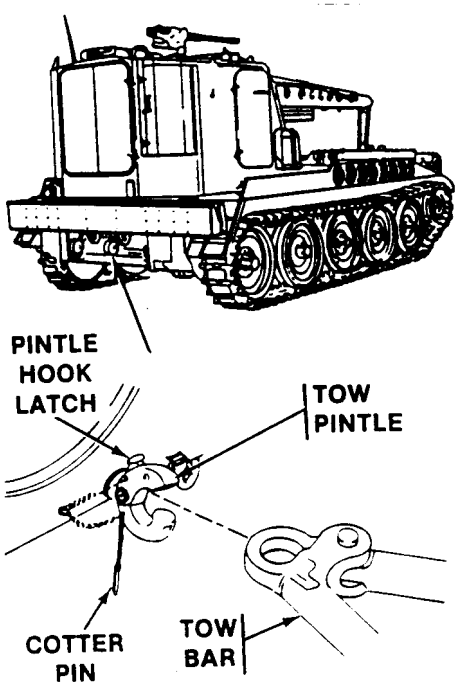
Two helpers, one at left front and one at left rear of recovery vehicle, act as road guides. Two other helpers install tow bar.

INSTALL TOW BAR ON DISABLED CARRIER AND RECOVERY VEHICLE

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.

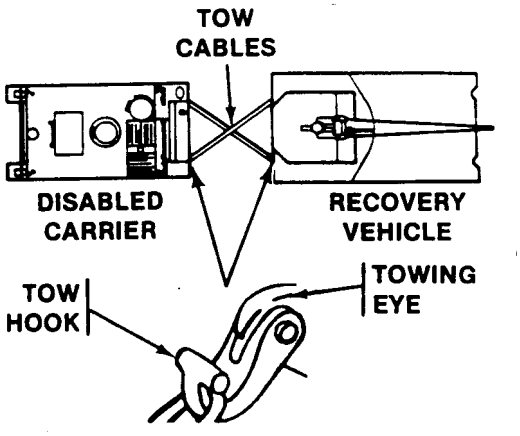


INSTALL TOW CABLES ON DISABLED CARRIER AND RECOVERY VEHICLE

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.



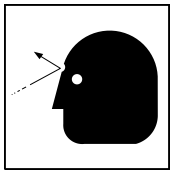
TOW DISABLED CARRIER

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 15 mph (25 km/hr) with tow bar. Do not tow at speeds over 5 mph (8 km/hr) when in rough terrain, towing backward, or towing with tow cables.

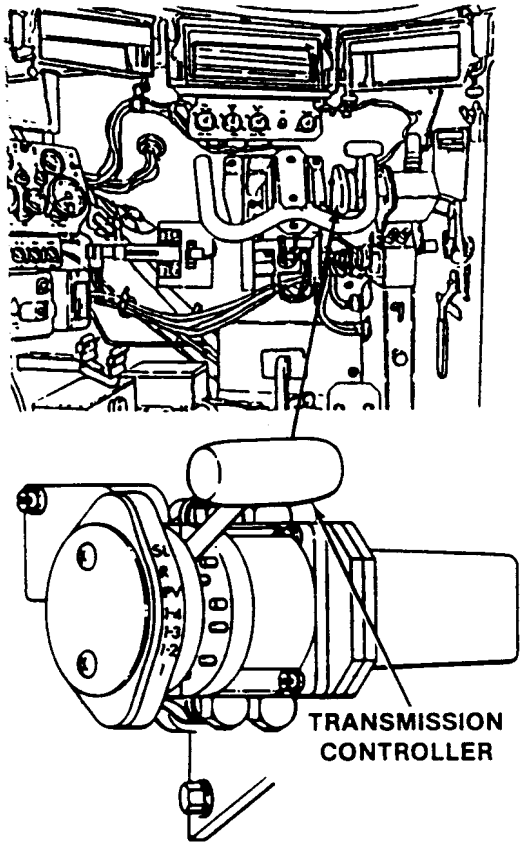
WARNING



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.

1. If blocked, unblock carrier tracks. See task: BLOCK/UNBLOCK CARRIER TRACKS (WP 0042 00).

2. Place transmission controller in disabled carrier to SL.



3. Release parking brake in disabled carrier. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

4. Start engine in recovery vehicle.

NOTE

Constant speed must be maintained while towing carrier.

5. Drive recovery vehicle.

6. Slowly bring both vehicles to a stop by releasing accelerator pedal in recovery vehicle.

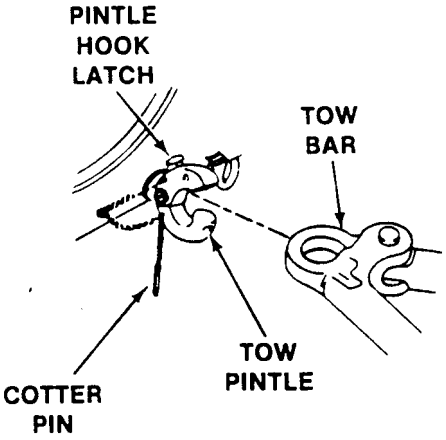
7. Set parking brake in disabled carrier. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

REMOVE TOW BAR FROM DISABLED CARRIER AND RECOVERY VEHICLE

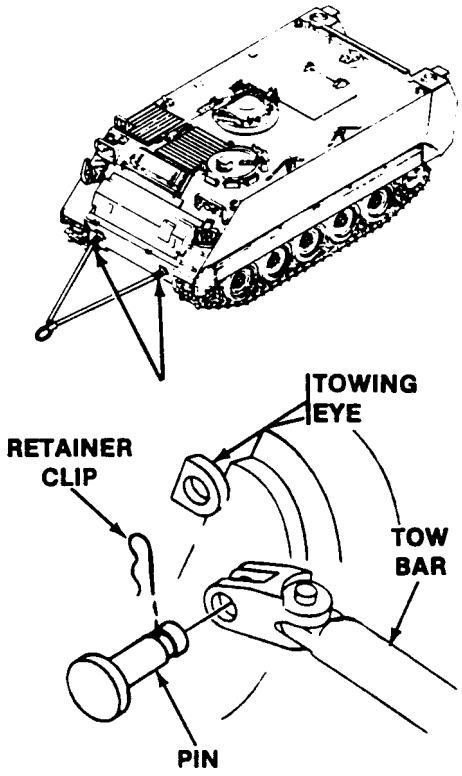
1. Stop engine on recovery vehicle.

TOWING DISABLED CARRIER — Continued **0077 00**

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.

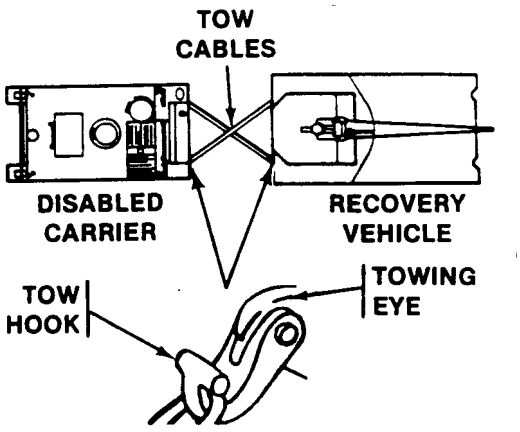


6. Remove two retainer clips and pins securing tow bar to towing eyes of disabled carrier. Remove tow bar.
7. Install two pins in tow bar and secure with retainer clips.



REMOVE TOW CABLES FROM DISABLED CARRIER AND RECOVERY VEHICLE

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 0078 00

THIS WORK PACKAGE COVERS:

Install Tow Bar on Disabled Carrier and Recovery Vehicle (page 0078 00-2).
Install Tow Cables on Disabled Carrier and Recovery Vehicle (page 0078 00-4).
Tow Start Disabled Carrier (page 0078 00-4).
Remove Tow Bar From Disabled Carrier and Recovery Vehicle (page 0078 00-8).
Remove Tow Cables From Disabled Carrier and Recovery Vehicle (page 0078 00-9).

INITIAL SETUP:

Maintenance Level
Operator

Tools and Special Tools
Crowbar (WP 0102 00, Item 13)
Tow Cable (WP 0102 00, Item 7)
Recovery vehicle

Personnel Required
Driver (2)
Helper (H) (4)

Equipment Condition
Disabled carrier

WARNING



A towed carrier does not have steering until it reaches 3 mph plus. Personnel can be killed or injured. Use tow bar or two tow cables and use brakes to stop carrier, when necessary.

NOTE

The preferred method for tow starting a carrier is to use a tow bar. If tow bar is not available, you can use tow cables.

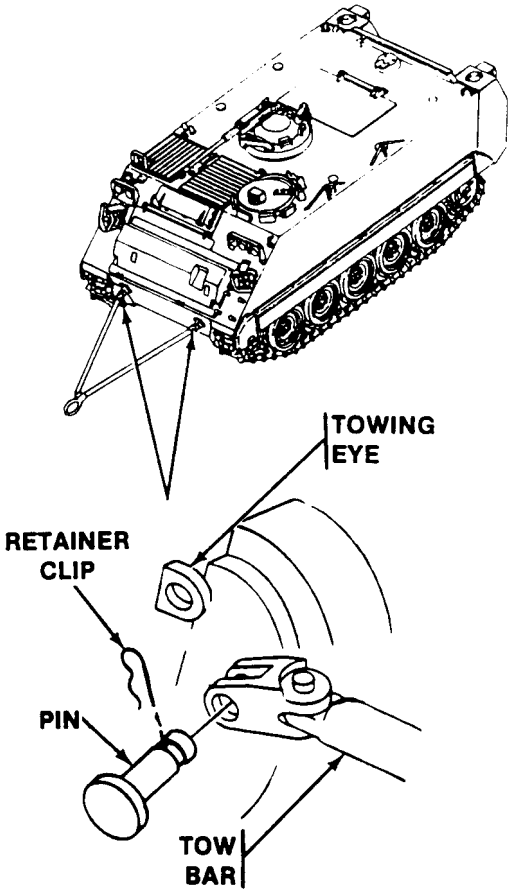
All personnel except driver will disembark disabled carrier before towing operation begins. Thoroughly inspect towing equipment before towing operation begins.

Two helpers, one at left front and one at left rear of recovery vehicle, act as road guides. Two other helpers install tow bar.

TOW START DISABLED CARRIER — Continued **0078 00**

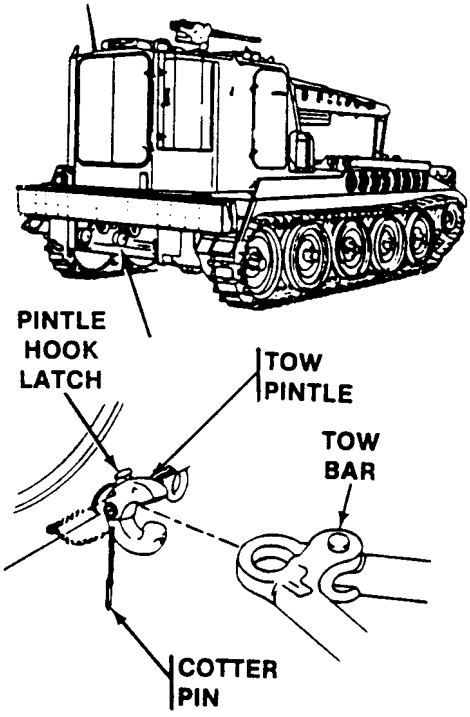
INSTALL TOW BAR ON DISABLED CARRIER AND RECOVERY VEHICLE

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.



TOW START DISABLED CARRIER — Continued **0078 00**

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.

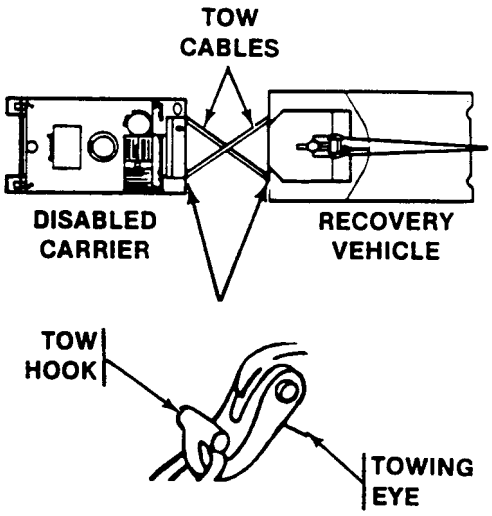


INSTALL TOW CABLES ON DISABLED CARRIER AND RECOVERY VEHICLE

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.

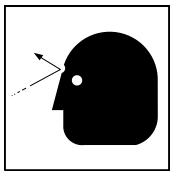
1. Install two tow cables to tow hooks on front of disabled carrier and to tow hooks on rear of recovery vehicle in an X pattern.



TOW START DISABLED CARRIER

1. Do Before (B) Preventive Maintenance Checks and Services on disabled carrier.

WARNING



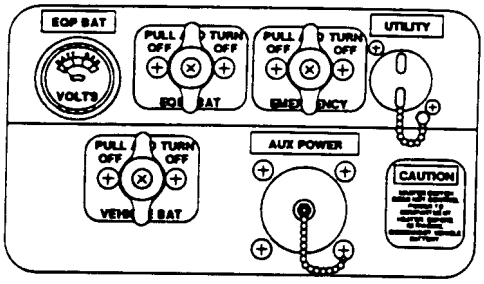
Tow cables can snap and injure personnel. Close all hatch covers before you use tow cables to tow carrier. Clear personnel out of danger area.

NOTE

If using tow bar, it is not necessary to close driver's hatch.

2. If using tow cables, close driver's hatch cover. See task: OPEN/CLOSE DRIVER'S HATCH COVER (WP 0006 00).

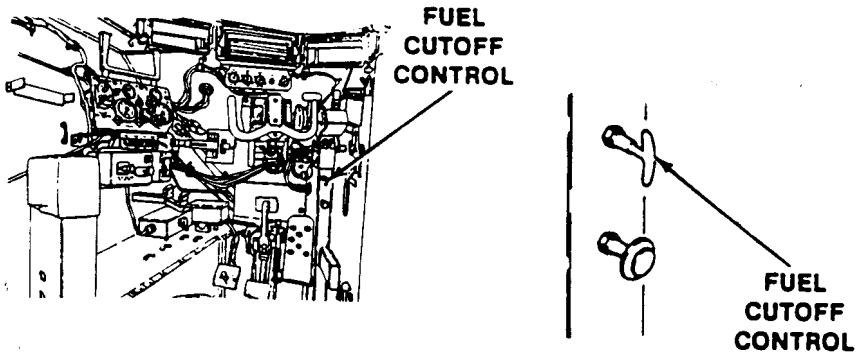
3. Place MASTER SWITCH in disabled carrier ON. For M981A3 only, turn vehicle battery switch to ON position.



CAUTION

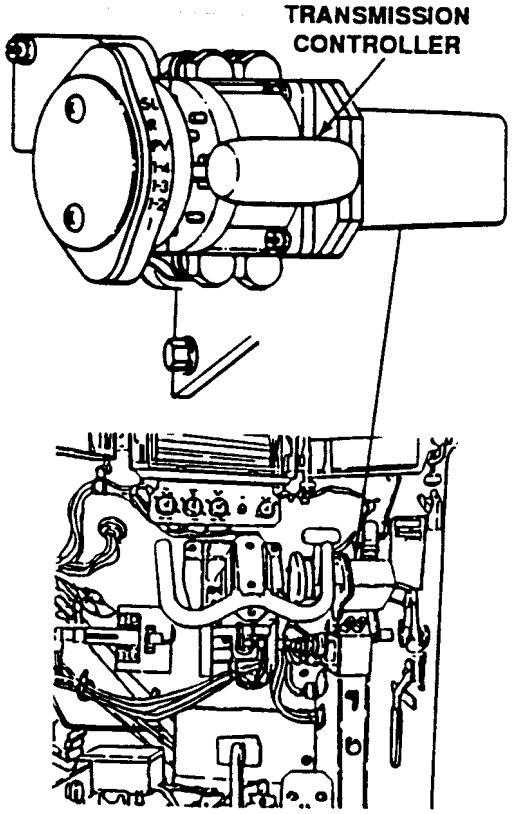
During engine start, damage to radio components can occur. Make sure radio power switch is OFF before starting engine. SeeTM 11-5820-498-12 .

4. Push fuel cutoff control in all the way.



5. Release parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

6. Place transmission controller in 1–4 range.



7. Start engine of recovery vehicle.

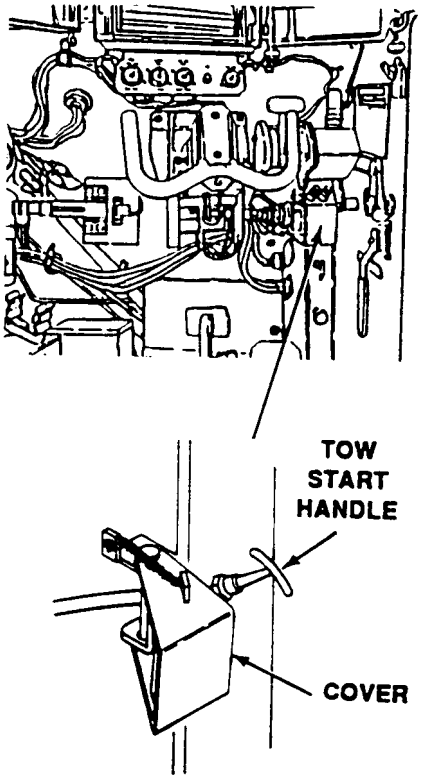
CAUTION

Failure to pull tow start handle when carrier begins to move could cause engine to start up in reverse and can damage carrier. Check that tow start handle is pulled out.

NOTE

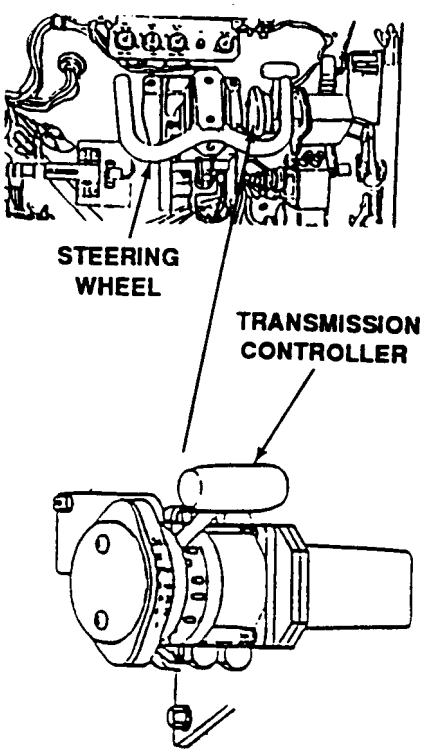
If tow start handle is released during tow, it will return to normal position. No harm will result, but transmission will drop out of second gear lockup, and engine will not turn over.

8. Open cover, pull and hold tow start handle of disabled carrier. Signal driver of recovery vehicle to start.



9. Hold tow start handle while carrier is being towed. Find a straight level stretch of ground and tow disabled carrier at a speed between 9 and 15 mph to start the engine.
10. When disabled carrier starts, release tow start handle and close cover.
11. Slowly bring both vehicles to a stop.

12. Center steering wheel and place transmission controller in SL on disabled carrier.

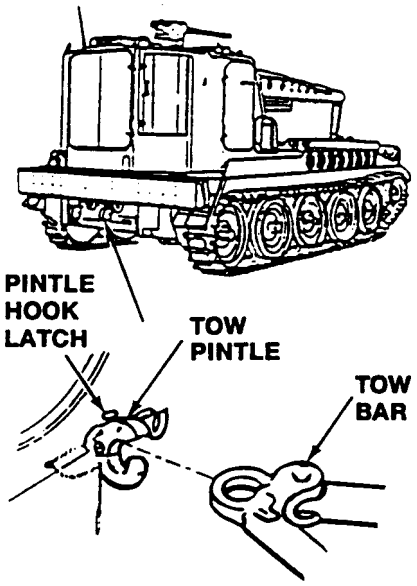


13. Set parking brake on disabled carrier. See task: SET/RELEASE PARKING BRAKE (WP 0020 00).

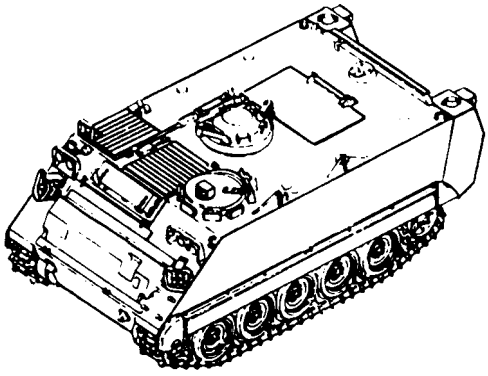
REMOVE TOW BAR FROM DISABLED CARRIER AND RECOVERY VEHICLE

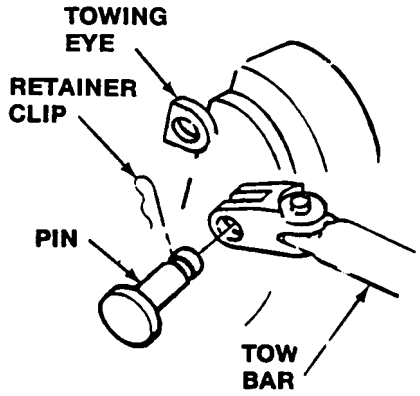
1. Stop engine on recovery vehicle.
2. Remove cotter pin from tow pintle on recovery vehicle.
3. Pull up on pintle hook latch and open pintle.
4. Remove tow bar from tow pintle. Close tow pintle and check that tow pintle latch is closed.

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.





REMOVE TOW CABLES FROM DISABLED CARRIER AND RECOVERY VEHICLE

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

TOWING TRAILER WITH CARRIER 0079 00

THIS WORK PACKAGE COVERS:

Connect Trailer to Carrier (page 0079 00-1).
Disconnect Trailer From carrier (page 0079 00-4).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Engine stopped (WP 0024 00)

Personnel Required
Driver

NOTE

Use trailer only when mission requires one.

CONNECT TRAILER TO CARRIER

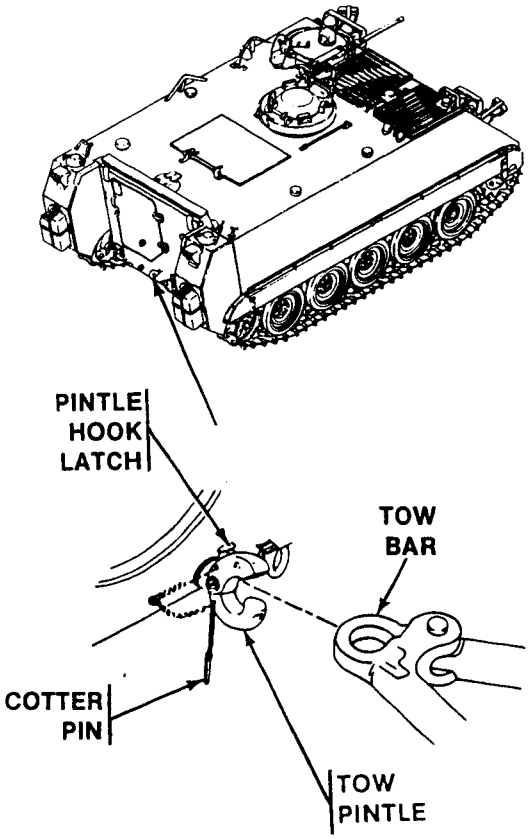
CAUTION

Carrier ramp could be damaged. Maximum weight of towed load is 14,500 pounds (6,577 kg).

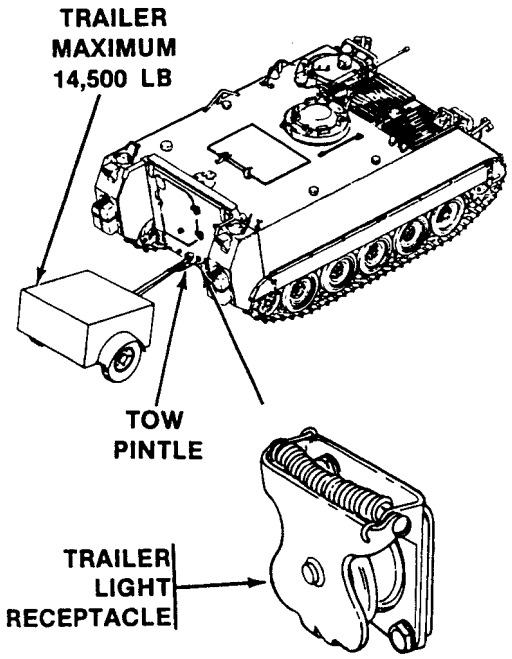
1. Position trailer so its tow bar lines up with tow pintle on carrier.

TOWING TRAILER WITH CARRIER — Continued **0079 00**

2. Remove cotter pin. Pull up on pintle hook latch and open pintle.
3. Hook trailer tow bar on carrier tow pintle.
4. Close tow pintle over trailer tow bar. 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 tail light and stop light to work with carrier lights.



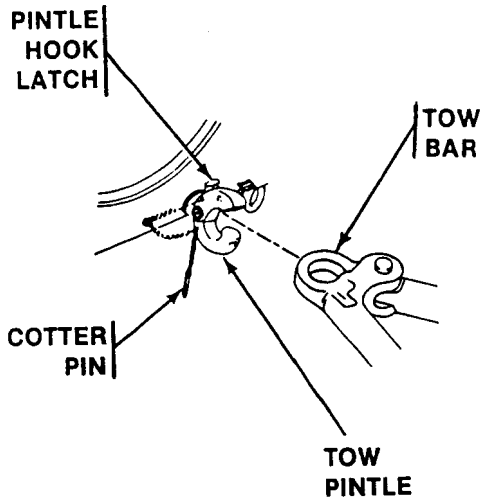
CAUTION

You will damage trailer or carrier if you pivot or make sharp turns at any speed when towing a trailer. (Use trailer only when mission requires one.) Use caution when making turns.

6. START ENGINE (WP 0021 00).
7. DRIVE CARRIER (WP 0023 00).

DISCONNECT TRAILER FROM CARRIER

1. STOP ENGINE (WP 0024 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 tow bar from carrier tow pintle.
5. Close tow pintle. Check that tow pintle latches closed. Install cotter pin to secure latch.



END OF TASK

OPERATE NBC KIT 0080 00

THIS WORK PACKAGE COVERS:

Turn NBC Kit On In Ambulance With Litter Kit (page 0080 00-1).
Turn NBC Kit Off In Ambulance With Litter Kit (page 0080 00-3).
Turn NBC Kit On In Carrier Without Litter Kit (page 0080 00-4).
Turn NBC Kit Off In Carrier Without Litter Kit (page 0080 00-7).

INITIAL SETUP:

Maintenance Level
Operator

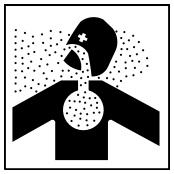
References
TM 3-4240-280-10

Personnel Required
Soldier

Equipment Condition
NBC Kit installed

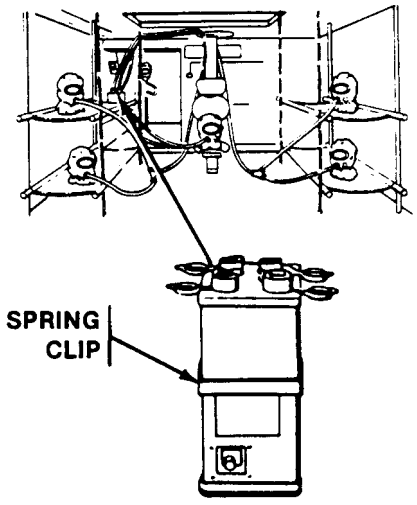
TURN NBC KIT ON IN AMBULANCE WITH LITTER KIT

WARNING



Filters and masks of the NBC system will not protect you against carbon monoxide, ammonia, acid, or solvent fumes. Be sure the carrier is properly ventilated. Do not let any filters of the NBC system get wet. Water will destroy their ability to take the deadly chemical and biological agents out of the air. Contaminated filters must be handled using adequate precautions (FM 21-40) and must be disposed of by trained personnel. If it is very cold outside, there is danger of frostbitten lungs from inhaling the cold air. Do not connect the hoses to your M25A1 mask canister until NBC system has been operating at least 15 minutes with the heater turned on.

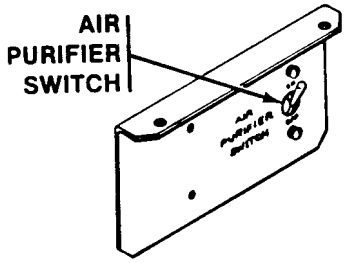
1. Remove spring clip from air intake openings on air purifier.



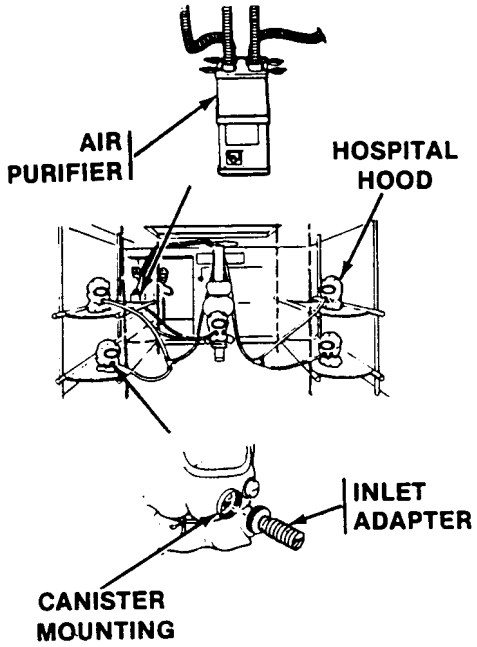
NOTE

Air purifier switches are located near the driver's seat and in the rear compartment.

2. Turn air purifier switches ON.

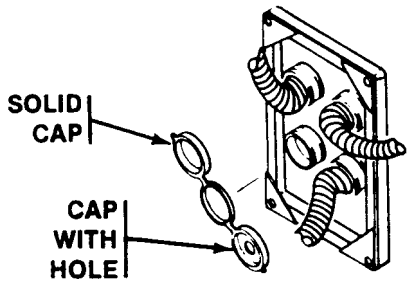


3. Assist patients in putting on their hospital hoods. Adjust the mask, tie the strap and attach hoses to inlet adapter on hood.



4. Make sure each patient is supplied with air.

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.

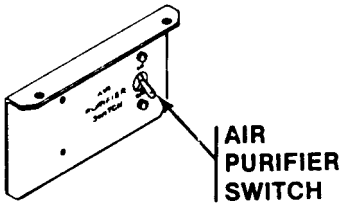


NOTE

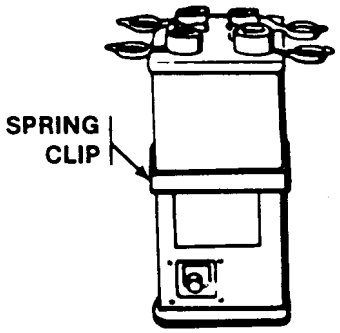
Attach a hospital hood, with its bottom folded, to any open hose to prevent too much air loss.

TURN NBC KIT OFF IN AMBULANCE WITH LITTER KIT

1. Help the patients to remove their hospital hoods. Uncouple the hoses from the inlet adapters on the hoods.
2. Turn the air purifier switches OFF.



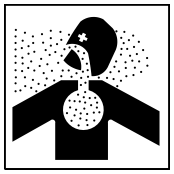
3. Stow hoses connected to Y connectors out of the way.
4. Install spring clip over air intake openings on the air purifier.



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

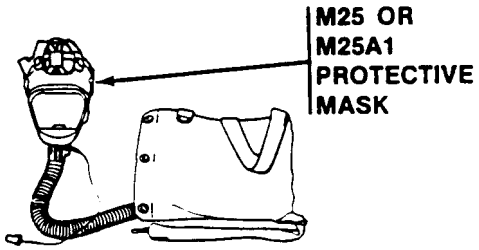


Filters and masks of the NBC system will not protect you against carbon monoxide, ammonia, acid, or solvent fumes. Be sure the carrier is properly ventilated. Do not let any filters of the NBC system get wet. Water will destroy their ability to take the deadly chemical and biological agents out of the air. Contaminated filters must be handled using adequate precautions (FM 21-40) and must be disposed of by trained personnel. If it is very cold outside, there is danger of frostbitten lungs from inhaling the cold air. Do not connect the hoses to your M25A1 mask canister until NBC system has been operating at least 15 minutes with the heater turned on.

NOTE

For operation of M25 or M25A1 protective mask, refer to TM 3-4240-280-10.

1. All crew members must put on their M25 or M25A1 protective mask. Adjust the mask.

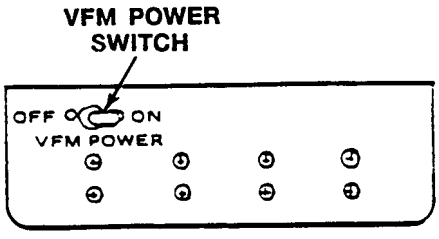


2. Remove spring clip from air intake openings on air purifier.

NOTE

Do Steps 3 - 11 for M981A3 ONLY.

3. Turn blower on by setting NBC power switch to ON.

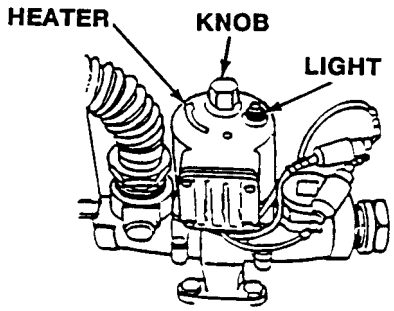


4. Turn on heater to warm air coming into M25A1 mask by turning knob clockwise from OFF until light comes ON.

NOTE

Light may go on and off by itself during operation. This is normal; the light is lit only when heating element is on.

5. Adjust to desired warmth by turning knob clockwise to increase heat and counterclockwise to decrease heat.



WARNING

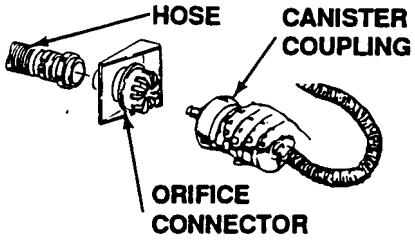


If it is very cold outside, there is danger of frostbitten lungs from inhaling cold air. Do not connect the hoses to your M25A1 mask canister until heater has run for at least 15 minutes.

6. Disconnect hose from orifice connector at your duty station.

7. Connect canister coupling to hose.

8. When through with NBC system, disconnect canister coupling from hose and connect hose to orifice connector.



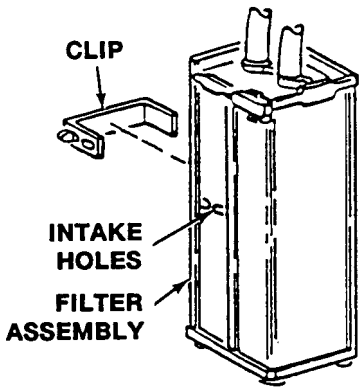
9. Turn off heater by turning knob counterclockwise to OFF.

NOTE

Light should extinguish. If not, notify unit maintenance.

10. Turn blower off by setting NBC power switch to OFF.

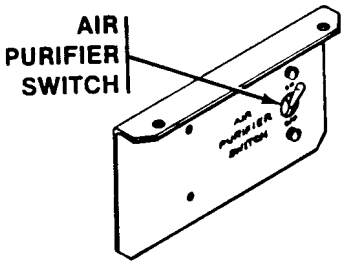
11. Slide spring clip over air intake holes on precleaner and particulate filter assembly.



NOTE

Air purifier switches are located near the driver's seat and in the rear compartment.

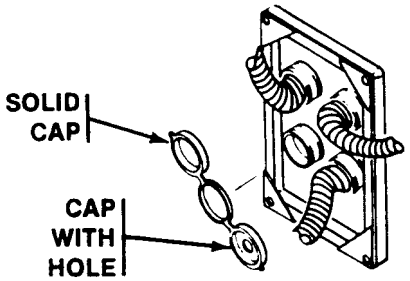
12. Turn air purifier switches ON.



13. Couple the hoses leading from the air purifier to the canisters of the M25 or M25A1 protective mask.



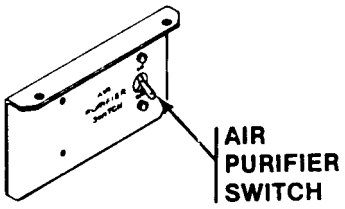
14. If only three outlets are used, cover the fourth with a solid cap. When less than three outlets are used, cover one of the unused outlets with a solid cap and the other with a cap with a hole.



TURN NBC KIT OFF IN CARRIER WITHOUT LITTER KIT

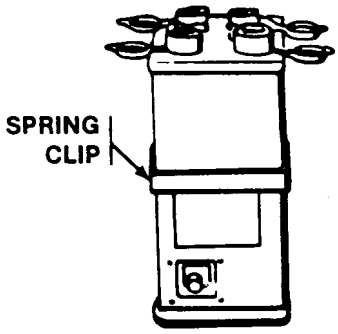
1. Uncouple hoses from the mask canisters.

2. Turn the air purifier switches 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

OPERATE NBC SYSTEM 0081 00

THIS WORK PACKAGE COVERS:

Operate NBC System (page 0081 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
NBC systems installed

Personnel Required
Soldier

References
FM 21-40
TM 3-4240-300-10-2

OPERATE NBC SYSTEM

WARNING



Filters and masks of the NBC system will not protect you against carbon monoxide, ammonia, acid, or solvent fumes. Be sure the vehicle is properly ventilated. Do not let any filters of the NBC system get wet. Water will destroy their ability to take the deadly chemical and biological agents out of the air. Contaminated filters must be handled using adequate precautions (FM 21-40) and must be disposed of by trained personnel. If it is very cold outside, there is danger of frostbitten lungs from inhaling the cold air. Do not connect the hoses to your M42 mask canister until NBC system has been operating at least 15 minutes with the heater turned on.

1. Put on M42 mask.



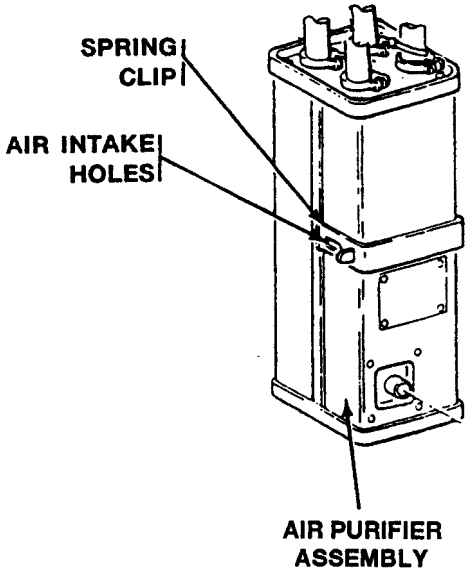
NOTE

For operation of the M42 mask, refer to TM 3-4240-300-10-2.

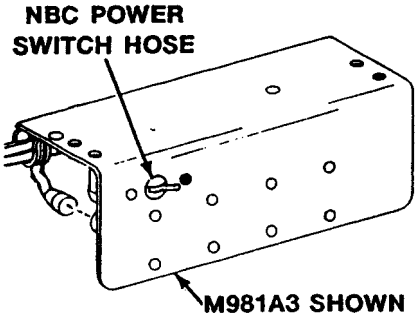
NOTE

Loosen two frame assembly clamps on air purifier assembly to open or close the spring clip. Tighten frame assembly clamps immediately when done.

2. Slide spring clip away from air intake holes on air purifier assembly.



3. Turn blower on by setting NBC POWER switch to ON.

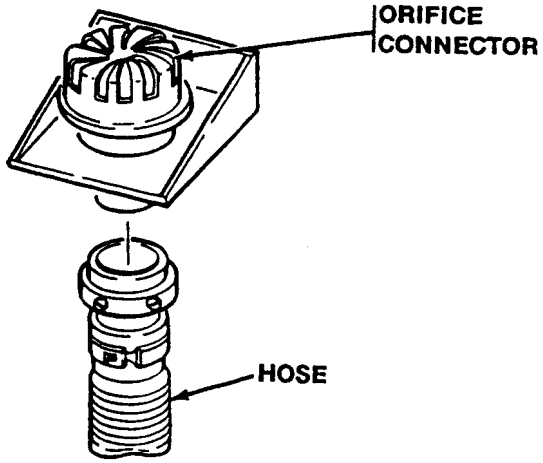


WARNING

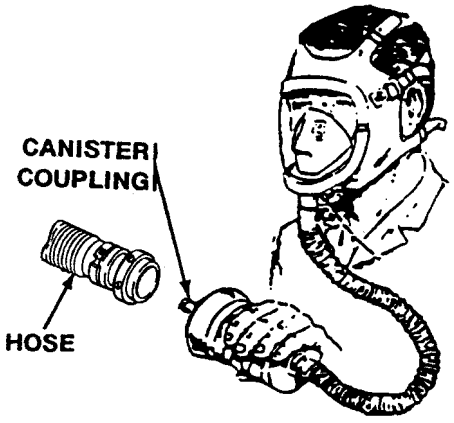


If it is very cold outside, there is danger of frost bitten lungs from inhaling the cold air. Do not connect the hoses to your M42 mask canister until heater has run for at least 15 minutes. Follow the cold weather operating procedures.

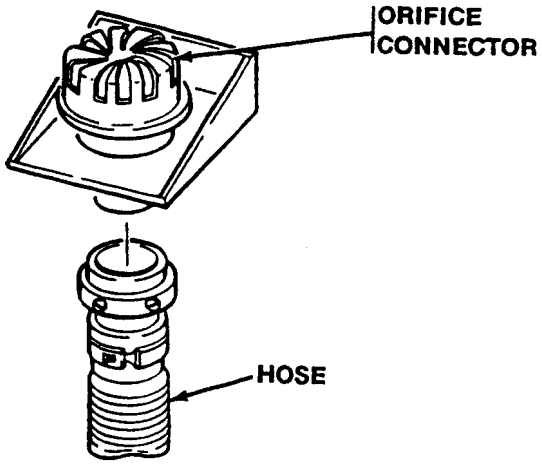
4. Disconnect hose from orifice connector at your duty station.



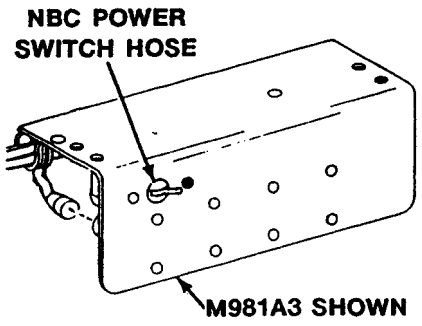
5. Connect canister coupling to hose.



6. When through with NBC system, disconnect canister coupling from hose and connect hose to orifice connector.



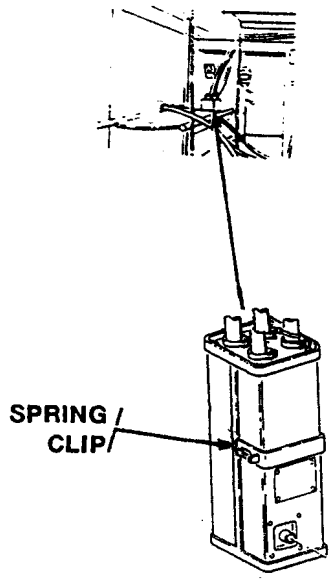
7. Turn blower off by setting air purifier VFM (NBC) POWER switch to OFF.



NOTE

Loosen two frame assembly clamps on air purifier assembly to open or close the spring clip. Tighten frame assembly clamps immediately when done.

8. Slide spring clip over air intake holes on air purifier filter assembly.



END OF TASK

OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) 0082 00

THIS WORK PACKAGE COVERS:

Loading Smoke Grenade Launchers (page 0082 00-1).
Launching Smoke Grenades (page 0082 00-6).
Misfires (page 0082 00-9).
Duds (page 0082 00-10).
Unloading Smoke Grenade Launchers (page 0082 00-10).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

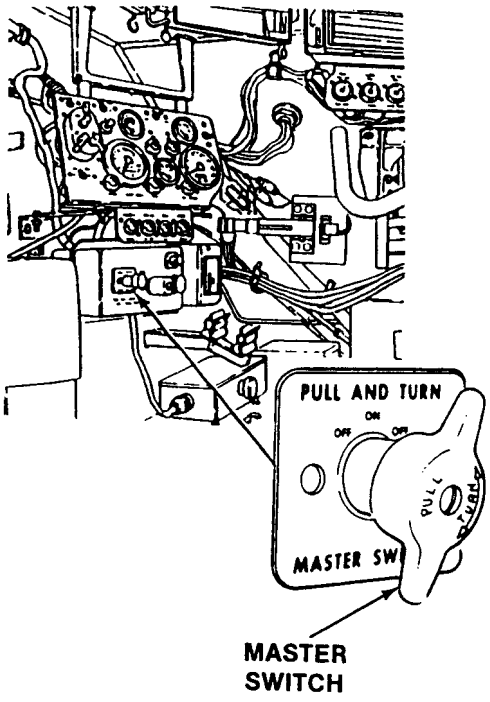
Carrier parked

Personnel Required

Commander

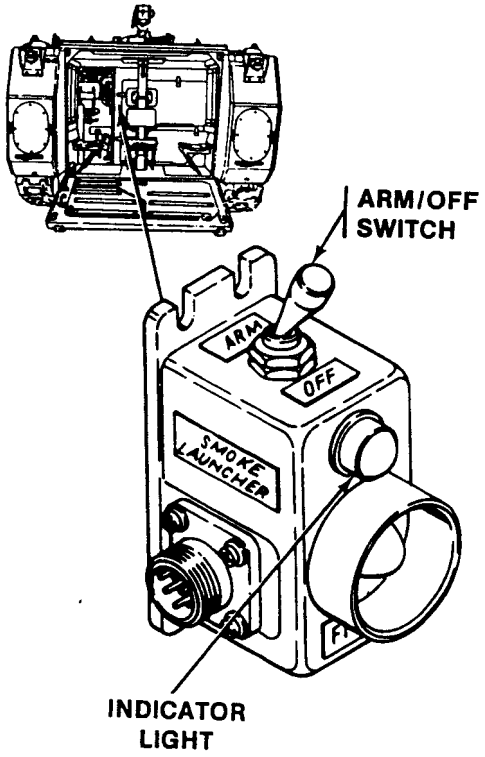
LOADING SMOKE GRENADE LAUNCHERS

1. Turn MASTER SWITCH OFF.



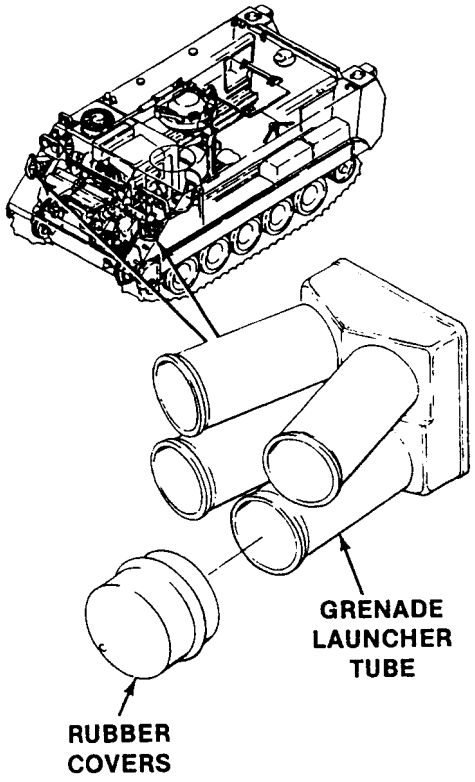
OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued **0082 00**

2. Place ARM/OFF switch to OFF. Check that indicator light is off.



OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued **0082 00**

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

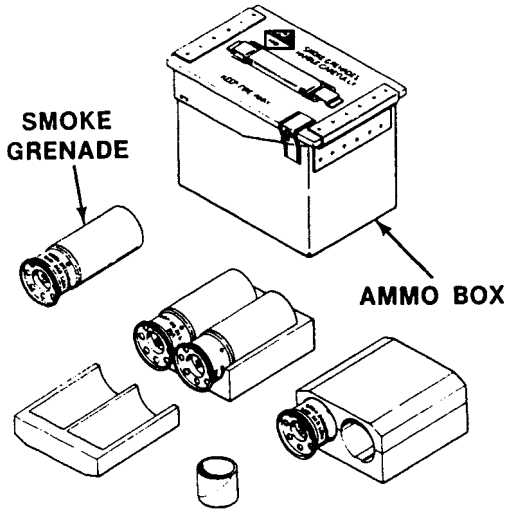


Heat could set off smoke grenades and kill or injure personnel. Do not place smoke grenades on hot surfaces.

NOTE

M981A3 and M901A3 have stowage boxes on front slope of carrier to stow eight smoke grenades.

4. Remove and unpack eight smoke grenades from ammo box.



OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued **0082 00**

WARNING

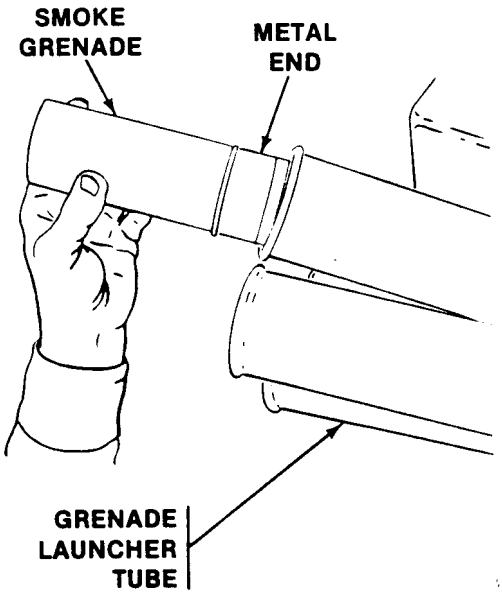


Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before you load smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

CAUTION

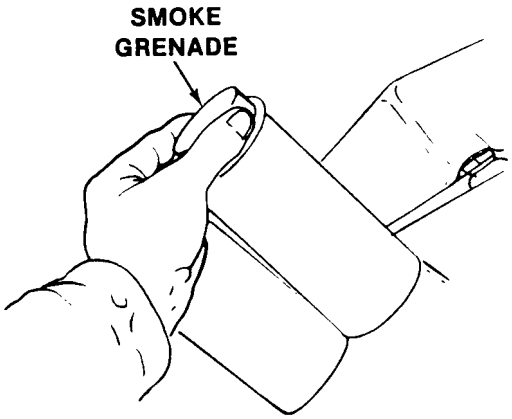
Smoke grenades can fail to fire. Keep grenades free of dirt and grease. Do not let firing contacts be damaged.

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.



OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued **0082 00**

6. Rotate grenade 1/2 turn to insure 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.

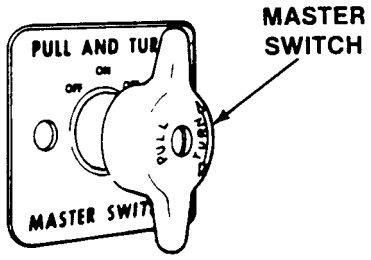
1. Close driver's hatch cover. See task: OPEN/CLOSE DRIVER'S HATCH COVER (WP 0006 00).
2. Close commander's hatch cover. See task: OPEN/CLOSE COMMANDER'S HATCH COVER (WP 0009 00).
3. Close cargo hatch cover. See task: OPEN/CLOSE CARGO HATCH COVER (WP 0008 00).
4. Point front of carrier directly at area where smoke is desired to conceal the maneuver of the carrier from enemy observation.

OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued **0082 00**

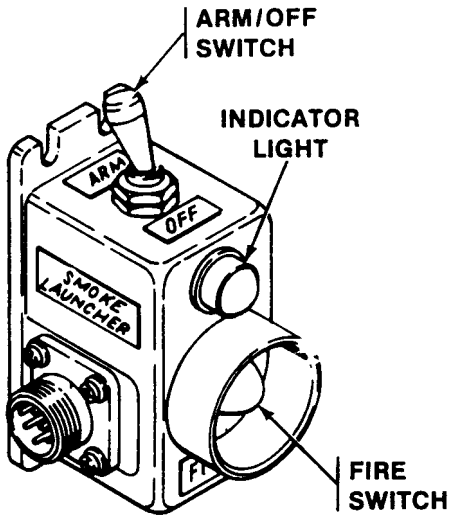
NOTE

Before launching grenades, make sure there are no obstacles directly in front of carrier.

5. Turn MASTER SWITCH ON.

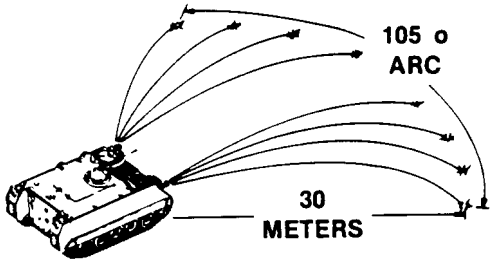


6. Place ARM/OFF switch to ARM. Check that indicator light comes on.



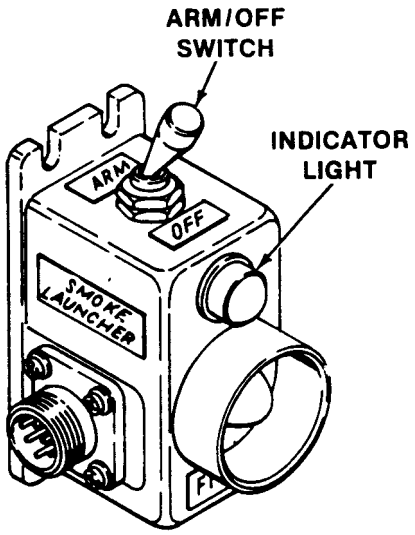
NOTE

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 Step 1, Step 2, and Steps 4 - 6 of procedure on LOADING SMOKE GRENADE LAUNCHERS.

OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued

0082 00

MISFIRES

WARNING

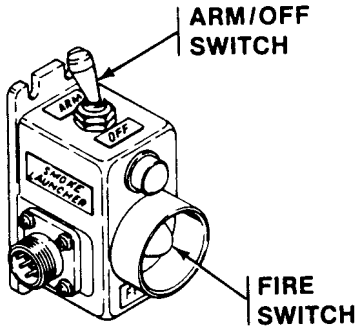


If misfired smoke grenades launch during unloading, personnel in the area could be killed or injured. Keep carrier pointed down range until grenades are removed.

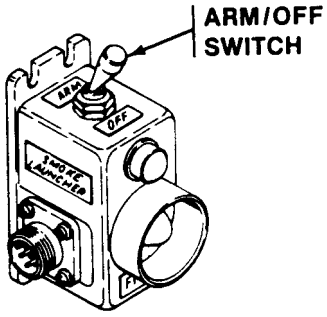
NOTE

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 following procedure.

OPERATE SMOKE GRENADE LAUNCHERS (ALL EXCEPT M577A3, M1064A3, AND M1068A3) — Continued

0082 00

DUDS

WARNING



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

1. In a training situation when a grenade fails to ignite after being launched, wait 15 minutes; then notify Explosive Ordnance Disposal (EOD) personnel. Give type, quantity and precise location of dud.

UNLOADING SMOKE GRENADE LAUNCHERS

WARNING



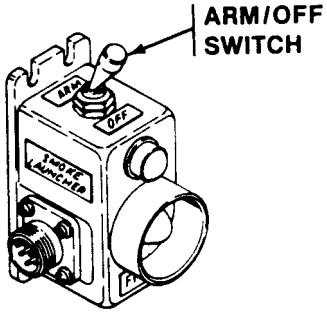
Electrical trouble could cause smoke grenades to launch and kill or injure personnel. Make sure ARM/OFF switch is OFF before unloading smoke grenades. Do not place any part of your body in front of smoke grenade launchers.

WARNING

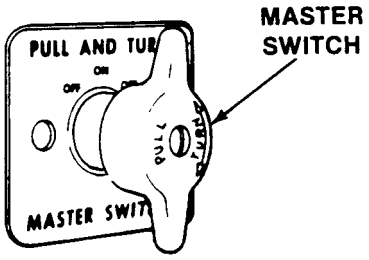


Heat could set off smoke grenades and kill or injure personnel. Do not place smoke grenades on hot surfaces.

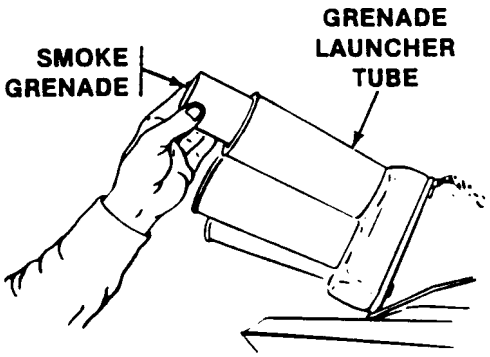
1. Place ARM/OFF switch to OFF.



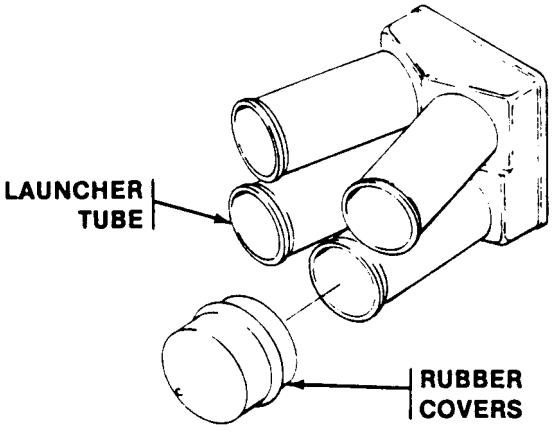
2. Turn MASTER SWITCH OFF.



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

COVER/UNCOVER INTAKE AND EXHAUST GRILLES 0083 00

THIS WORK PACKAGE COVERS:

Cover Exhaust Grille (page 0083 00-2).
Cover Intake Grille (page 0083 00-3).
Uncover Exhaust Grille (page 0083 00-4).
Uncover Intake Grille (page 0083 00-5).

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Engine stopped

Personnel Required
Driver

CAUTION

Extended operation with intake and exhaust grilles covered can cause engine to overheat and be damaged. Uncover exhaust grille and open one or more flaps on intake grille before starting engine. Avoid extended operation with intake grille covered.

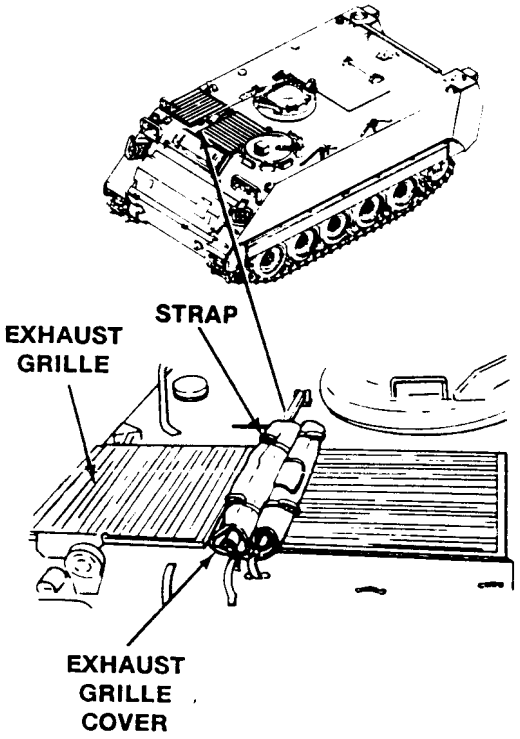
NOTE

Intake and exhaust grille covers prevent ice, snow and other debris from entering power plant compartment and exhaust well when carrier is not in use.

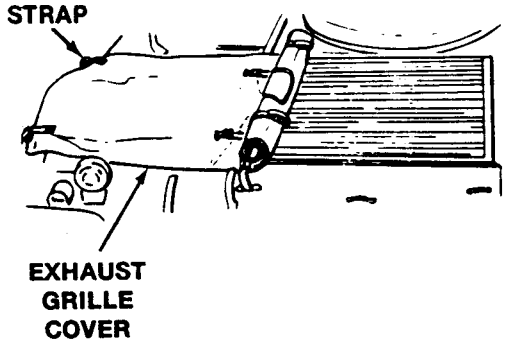
When not in use, intake and exhaust grille covers are rolled up and secured to area between intake and exhaust grilles.

COVER EXHAUST GRILLE

1. Release two straps and unroll exhaust grille cover over exhaust grille.

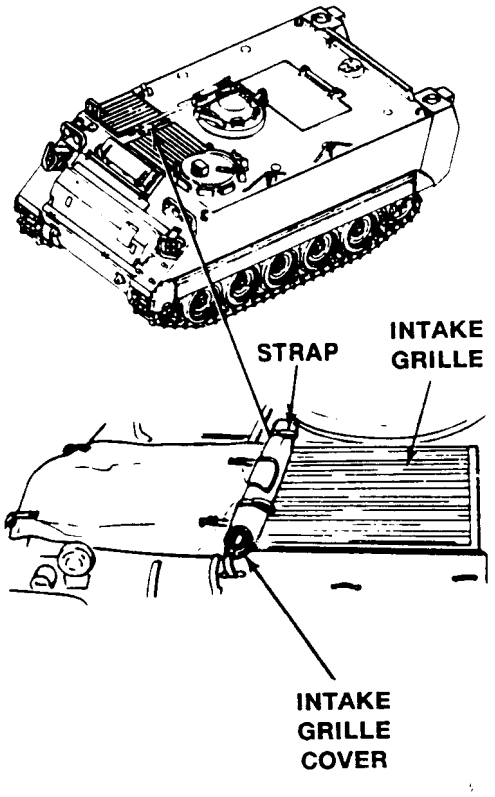


2. Secure two straps to footman loops on right side of exhaust grille.

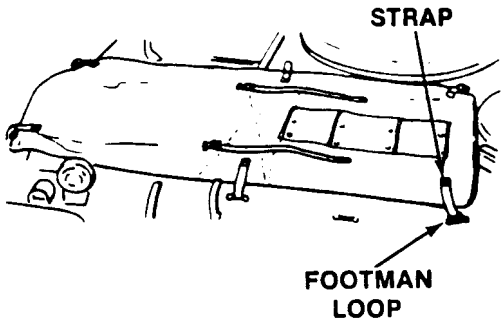


COVER INTAKE GRILLE

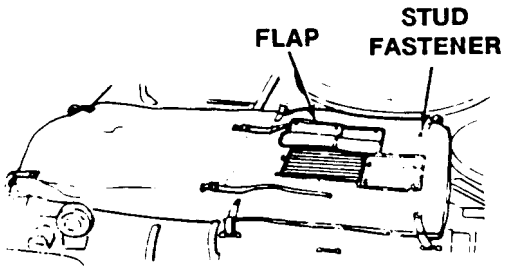
1. Release two straps and unroll intake grille cover over intake grille.



2. Secure two straps to footman loops on left side of intake grille.

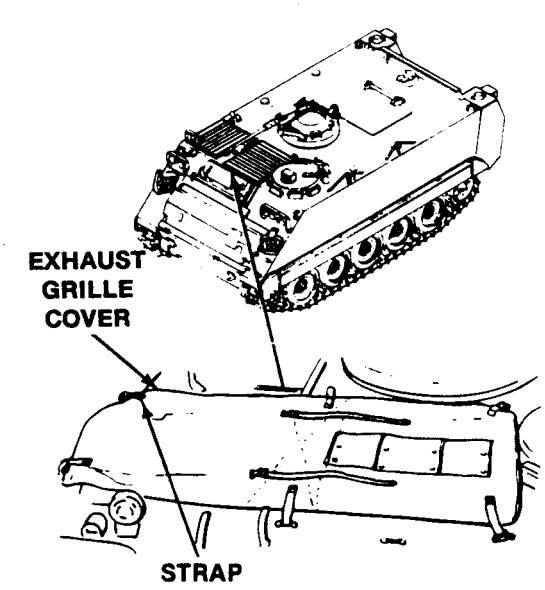


3. To open one or more flaps on intake grille cover, release stud fasteners and fold flap open. Secure flap open with stud fasteners.

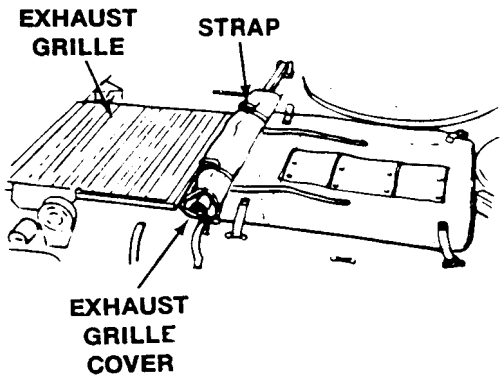


UNCOVER EXHAUST GRILLE

1. Release two straps from footman loops on right side of exhaust grille.

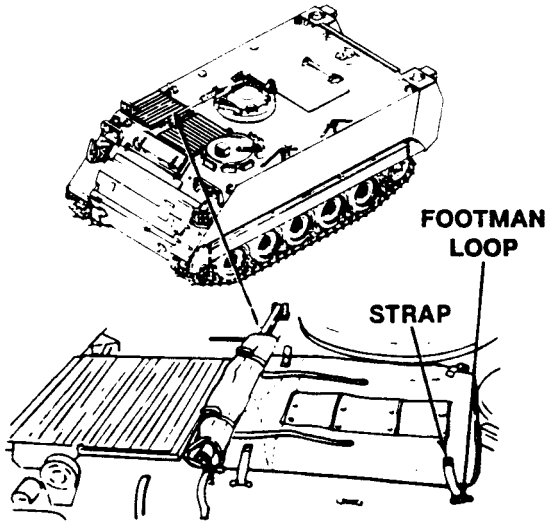


2. Roll exhaust grille cover toward area between intake and exhaust grilles and secure with two straps.

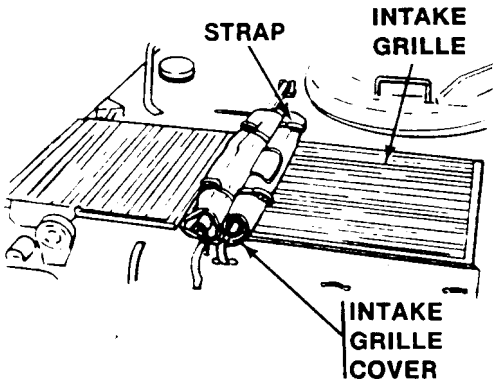


UNCOVER INTAKE GRILLE

1. Release two straps from footman loops on left side of intake grille.



2. Roll intake grille cover toward area between intake and exhaust grilles and secure with two straps.



END OF TASK

EMERGENCY OPERATION OF VEHICLE AND CHARGING ALL BATTERIES (M981A3 ONLY) 0084 00

THIS WORK PACKAGE COVERS:

Starting engine with equipment batteries (page 0084 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Soldier

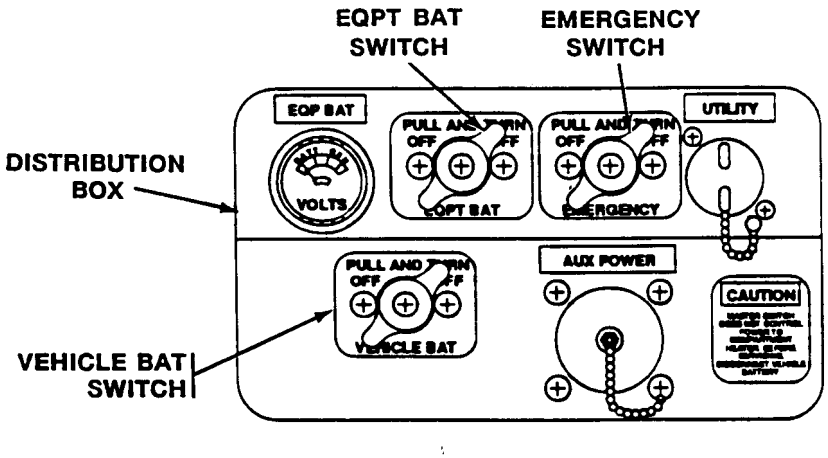
STARTING ENGINE WITH EQUIPMENT BATTERIES

NOTE

The M981A3 vehicle can be started when vehicle batteries are dead by using equipment batteries.

Emergency starting of the vehicle using the EMERGENCY switch may cause loss of NSG and TSCD data. Record vehicle coordinates before emergency starting.

1. On distribution box, place VEHICLE BAT switch to OFF, EMERGENCY switch to ON, and EQPT BAT switch to ON.



2. Perform normal engine start-up procedure (WP 0021 00).
3. After engine is started, place EMERGENCY switch to OFF, and turn VEHICLE BAT switch to ON. This will allow both dead vehicle batteries and equipment batteries to charge.

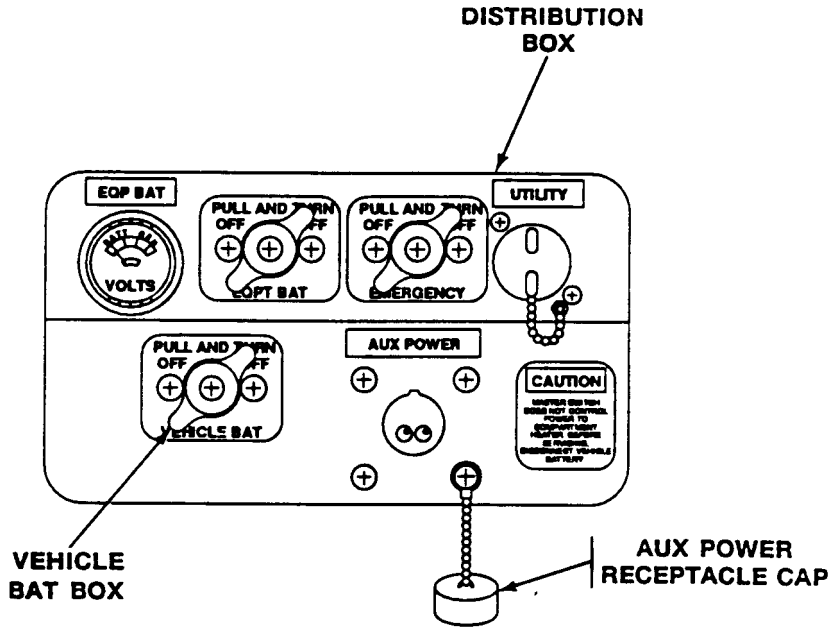
NOTE

Run engine long enough to allow vehicle batteries to fully charge.

4. Unscrew cap from the AUX POWER receptacle on distribution box.
5. Connect one end of slave cable to AUX POWER receptacle on M981A3 vehicle to be started. Connect other end of slave cable to auxiliary power receptacle on source vehicle.
6. On TSCD, set PUMP switch to DISABLE.
7. Set TSCD and TURRET CIRCUIT BRKR switches on cupola circuit breaker box to OFF.

EMERGENCY OPERATION OF VEHICLE AND CHARGING ALL BATTERIES (M981A3 ONLY) — Continued **0084 00**

8. Start source vehicle.
9. Turn VEHICLE BAT switch on distribution box to ON on the dead vehicle and go ahead with a normal start (WP 0021 00). Make sure engine of source vehicle is running fast enough to show charging on source vehicle's voltage meter.
10. After engine starts, disconnect slave cable from both vehicles and slide cap back onto AUX POWER receptacle of both vehicles.



END OF TASK

OPERATE PANORAMIC TELESCOPE (M901A3/M981A3 ONLY) 0085 00

THIS WORK PACKAGE COVERS:

Area Search and Target Acquisition (page 0085 00-1).

INITIAL SETUP:

Maintenance Level
Operator

References
TM 9-2350-266-10

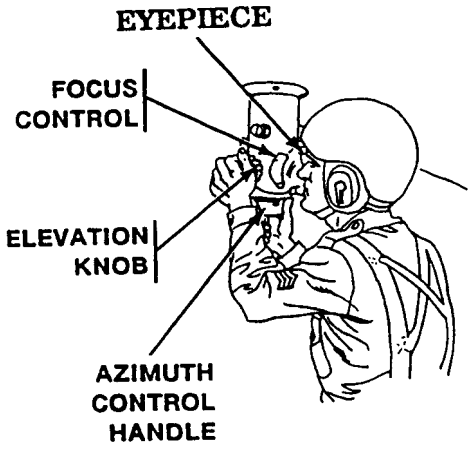
Personnel Required
Soldier

AREA SEARCH AND TARGET ACQUISITION

NOTE

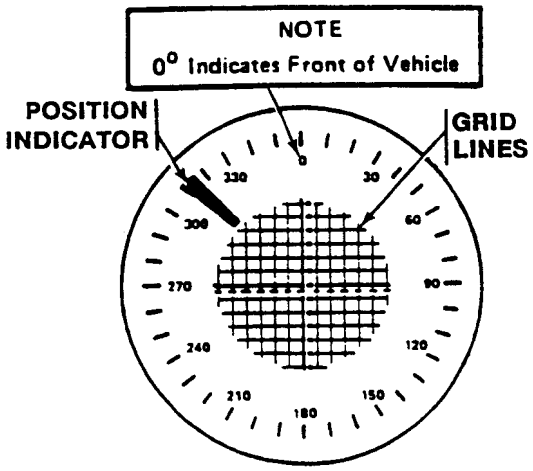
See TM 9-2350-266-10 for laser firing safety.

1. Look into eyepiece. Focus telescope by adjusting focus control for a clear image of an object at edge of the field.



NOTE

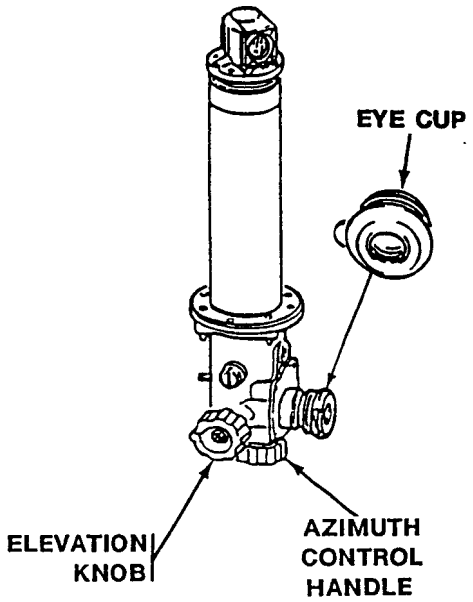
The panoramic telescope contains degree reference lines and numbers, a position indicator, and grid lines. The grid lines are graduated in 10 mil divisions to provide elevation and azimuth reference.



2. Turn azimuth control handle clockwise or counterclockwise to search area for enemy activity (three rotations of handwheel cause the line of sight to rotate 360 degrees in azimuth).

3. Turn elevation knob clockwise to raise the line of sight, and counterclockwise to lower the line of sight.

4. Identify target to targeting station operator. To do this, determine direction to the target by position of indicator; determine target azimuth and elevation, using grid lines.



END OF TASK

OPERATE GLOW PLUG COLD START SYSTEM (MANUAL OVERRIDE) 0086 00

THIS WORK PACKAGE COVERS:

Operate (page 0086 00-1).

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Driver

OPERATE

NOTE

If engine does not start during cold weather (engine temperature below 50°F), and glow plug WAIT indicator does not come on, this manual override procedure may be used.

1. Refer to Prepare To Start Engine (WP 0021 00), and Start Engine (-25° to +45°F) (WP 0021 00), and observe all pre-start steps and precautions.

CAUTION

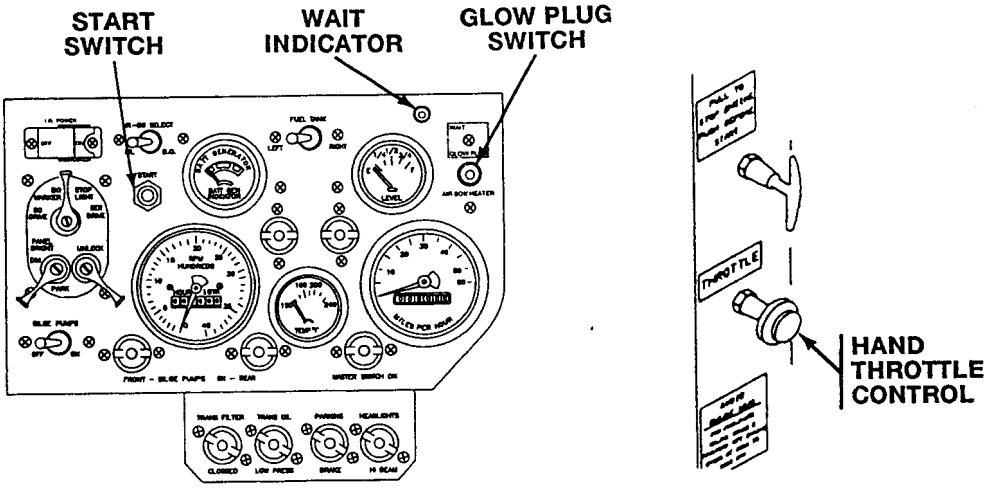
Do not hold GLOW PLUG switch in ON position for more than two minutes.

2. Ensure that engine hand throttle is all the way in (idle position).

NOTE

Do not press accelerator pedal.

3. With power applied to carrier, push GLOW PLUG switch up (ON position) and hold for 35 seconds.



CAUTION

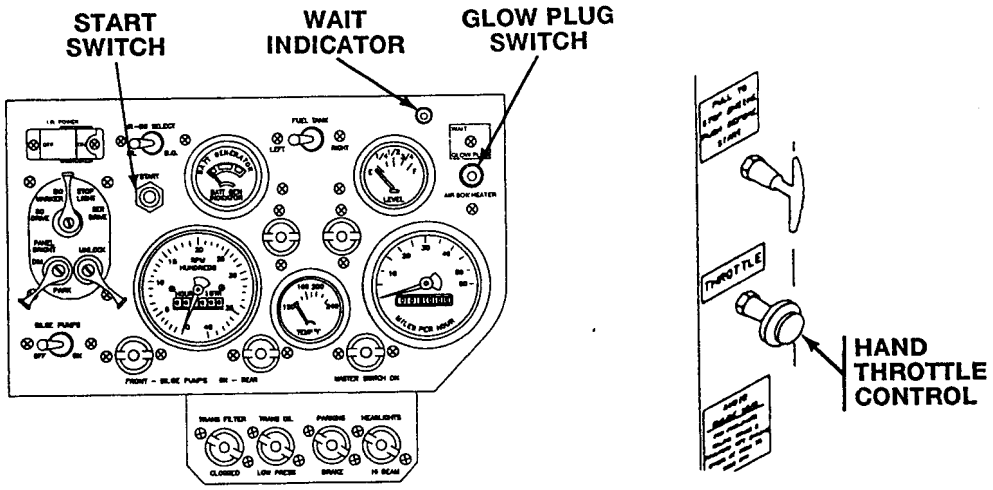
Do not engage START switch for more than five seconds (maximum) at a time.

4. Continue to hold GLOW PLUG switch while pushing START switch.

NOTE

If engine does not start, wait 10 seconds and repeat above procedure. If engine fails to start after four attempts, stop manual override procedure and notify unit maintenance.

5. After engine starts, release START switch. Continue to hold GLOW PLUG switch while slowly pressing throttle.
6. Release GLOW PLUG switch when engine is running. Raise engine speed until engine reaches 1200 RPM. Do not exceed 1800 RPM (maximum).



7. Reduce engine speed to 1000-1200 RPM. Hold until engine reaches normal operating temperature (190°-230°F).

END OF TASK

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES

WORK PACKAGE INDEX

Title	Sequence No.
INTRODUCTION TO TROUBLESHOOTING	0087 00
TROUBLESHOOTING SYMPTOM INDEX	0088 00
TROUBLESHOOTING TABLES	0089 00

INTRODUCTION TO TROUBLESHOOTING 0087 00

TROUBLESHOOTING SYMPTOM INDEX

The Troubleshooting Symptom Index (WP 0088 00) lists common malfunctions that may occur during operation or crew servicing of the carrier and its components.

The Troubleshooting Symptom Index is divided into sections. Each section covers malfunctions common to the different systems of the carrier (e.g., engine, transmission, suspension, etc.).

Identify the malfunction that best describes your problem and turn to the appropriate Troubleshooting Table in WP 0089 00.

TROUBLESHOOTING TABLES

The Troubleshooting Tables work package (WP 0089 00) contains tables listing the malfunctions, tests or inspections, and corrective actions required to return the systems to normal operation. Perform the steps in the order they appear in the tables.

Each table is headed by an initial setup. This setup outlines what is needed as well as certain conditions which must be met before starting the task.

The Troubleshooting Tables have three columns — MALFUNCTION, TEST OR INSPECTION, and CORRECTIVE ACTION.

The MALFUNCTIONs (symptoms) are numbered in sequence through the Troubleshooting Table.

The TEST OR INSPECTION is a step you take to isolate the fault that causes the MALFUNCTION. Each TEST OR INSPECTION has a CORRECTIVE ACTION.

The CORRECTIVE ACTIONs are the statements which tell you what to do to correct the fault.

This manual cannot list all possible malfunctions, nor all the tests or inspections and corrective actions. It is essential that you record all faults on DA Form 2404 and report it to unit maintenance. If a malfunction is not listed, or is not corrected by the listed corrective action, notify unit maintenance.

TROUBLESHOOTING SYMPTOM INDEX 0088 00

NOTE

For turret troubleshooting of M981A3, see TM 9-2350-266-10.

For turret troubleshooting of M901A3, see TM 9-2350-259-10.

For Smoke Obscurant System troubleshooting of M58, see TM 3-1040-285-10.

For SICPS troubleshooting of M1068A3, see TM 11-7010-256-12&P.

For MCPS troubleshooting of M1068A3, see TM 10-5410-229-13&P.

For Smoke Generator troubleshooting of M1059A3, see TM 3-1040-279-12&P.

BILGE PUMPS

Bilge pump does not work with BILGE PUMPS switch ON....0089 00-15

ELECTRICAL SYSTEM

Batteries discharged....0089 00-11
No battery current....0089 00-11
Fuel level gage fails to register....0089 00-11
With MASTER SWITCH ON, MASTER SWITCH ON indicator light does not come on....0089 00-11
No image through driver's night viewer (carrier power used)....0089 00-11
No image through driver's night viewer (2.7 volt battery used)....0089 00-12
Image too bright through driver's night viewer....0089 00-12
Image dim (carrier power used)....0089 00-12
Image dim (2.7 volt battery used)....0089 00-13
Poor image quality through driver's night viewer....0089 00-13

ENGINE

Engine does not crank when you press START switch....0089 00-1
Engine cranks but does not start....008900-1
Engine cranks but does not start when temperature is below +40°F (+4°C) and air box heater is used....0089 00-1
Engine cranks too slow to start....008900-2
Engine labors, runs rough, stalls, or does not put out full power....008900-2
Engine overheats....008900-2
ENGINE OIL LOW PRESS warning light comes on....008900-4
ENGINE COOLANT LEVEL LOW warning light comes on....008900-4

ENGINE COOLANT HEATER

Heater does not start with RUN-OFF-START switch held in START position. Heater motor runs....0089 00-19
Heater does not start with RUN-OFF-START switch held in START position. Heater motor does not run....0089 00-19
Coolant heater overheats....0089 00-19
Coolant heater output is too low....0089 00-19
Batteries overheat....0089 00-19

FINAL DRIVE

Final drive runs hot....0089 00-7

NBC KIT

Insufficient air flow at all stations....0089 00-21
Air flow too high at all stations....0089 00-21
Gas particulate filter will not operate when switch is in ON position....0089 00-21

PERSONNEL HEATER

Heater does not start with RUN-OFF-START switch held in START position.
Heater motor runs....0089 00-17
Heater does not start with RUN-OFF-START switch held in START position.
Heater motor does not run....0089 00-17
Heater overheats and stops....0089 00-17
Heater overheats and does not stop....0089 00-17
Heater does not put out enough heat....0089 00-17

TRACKS AND SUSPENSION

Carrier pulls to one side....0089 00-9
Carrier throws track....0089 00-9
Too much noise in track or suspension....0089 00-9
Carrier rides too hard....0089 00-9

TRANSMISSION

Transmission does not drive in any range....0089 00-5
TRANS OIL LOW PRESS warning light comes on....0089 00-5
TRANS OIL HI TEMP warning light comes on....0089 00-6
TRANS FILTER CLOGGED warning light comes on....0089 00-6

TROUBLESHOOTING TABLES 0089 00

INITIAL SETUP:

Maintenance Level

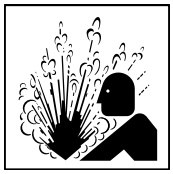
Operator

ENGINE

Table 1. Troubleshooting Procedures.

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 ON.
	2. Check to see if transmission controller is in SL position.	Place transmission controller in SL position (WP 0004 00).
	3. Check to see if batteries are in good condition.	Troubleshoot electrical system (Table 5, page 0089 00-11).
2. ENGINE CRANKS BUT DOES NOT START.	1. Check to see if fuel cutoff control is pulled out.	Push fuel cutoff control in (WP 0021 00).
	2. Check to see if there is enough fuel in fuel tanks.	Refuel carrier (for all except M577A3 and M1068A3, see WP 0025 00; for M577A3 and M1068A3, see WP 0026 00).
	3. Check to see if fuel tank manual shutoff valves are closed.	Open fuel tank manual shutoff valves (WP 0004 00).
	4. If air temperature is colder than +40°F (+4°C), check to see if AIR BOX HEATER switch is ON or glow plug switch is operated.	Use air box heater or glow plug (WP 0021 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.	Clear intake grille of any debris.
	7. Check air cleaner restriction indicator (WP 0098 00).	If indicator shows only red in the window, notify unit maintenance.
		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 THE AIR BOX HEATER IS USED.	1. Check to see if there are any loose connections.	Tighten any loose connections.
		Notify unit mechanic.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. ENGINE CRANKS TOO SLOW TO START.	1. Check to see if battery cable connections are clean and tight, and battery water is up to correct level (WP 0095 00).	Use outside power source (WP 0022 00) or tow start (WP 0078 00) the carrier. If the cause of slow cranking is not obvious, have unit maintenance troubleshoot the electrical system.
5. ENGINE LABORS, RUNS ROUGH, STALLS, OR DOES NOT PUT OUT FULL POWER.	1. Check to see if engine is getting enough air. Check engine air cleaner restriction indicator (WP 0098 00).	If indicator shows only red in the window, notify unit maintenance.
	2. Check to see if there is water in the fuel.	Drain primary and secondary fuel filters (WP 0090 00).
	3. Check elevation.	The carrier will normally lose power at high elevations (mountain passes or high plateaus). If carrier runs rough or power loss is bad, notify unit maintenance.
6. ENGINE OVERHEATS.	**CAUTION** **Driving carrier with an overheated engine can damage engine. When ENGINE COOLANT TEMPERATURE GAGE indicates above 230°F (110°C), stop carrier and run engine at 1000–1200 rpm until coolant temperature drops below 230°F (110°C).**	
	1. Check to see if all power plant access panels are in place and mounting clamps are tight.	Install power plant access panels (WP 0040 00).
	2. If hard running in hot weather, follow the precautions for driving in extreme heat (WP 0074 00).	When engine overheats, stop carrier and run engine at 1000 to 1200 rpm until coolant temperature drops below 230°F (110°C).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	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.**	
	3. Check to see if coolant level is low. (ENGINE COOLANT LOW LEVEL warning light should indicate low coolant level. If coolant level is low and warning light did not come on, notify unit maintenance.)	Add coolant as needed (WP 0097 00). Check for coolant leaks. If you find any, notify unit maintenance.
	4. Check to see if radiator cap is sealed right.	Make sure cap is on straight and tight (WP 0097 00). If cap is damaged or seal is broken, notify unit maintenance.
	5. Check to see if there is enough air moving through intake grille and radiator.	Remove any debris from intake grille, exhaust grille, and radiator fins.
	6. Check to see if coolant fan is working right.	Look for any loose or broken fan belts (WP 0090 00). If any belt is broken, worn, or loose, notify unit maintenance.
	7. Check to see if engine oil level is low.	Add oil as needed (WP 0090 00).

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	8. Check coolant fan drive system: a. Stop engine (WP 0024 00). b. Remove top rear power plant access panel (WP 0040 00). c. Pull on coolant fan drive belt to see if coolant fan will turn (WP 0090 00).	If coolant fan does not turn, coolant fan drive system is broken. Do not operate carrier. Notify unit maintenance. If coolant fan turns, push in and turn thermostatic fan speed switch bypass button to the left (WP 0004 00). Install top rear power plant access panel (WP 0040 00). Start engine (WP 0021 00). Drive carrier under similar conditions of reported overheat. If engine does not overheat, notify unit maintenance that thermostatic fan speed switch bypass button has been activated. If engine still overheats, stop engine immediately (WP 0024 00). Notify unit maintenance.
7. ENGINE OIL LOW PRESS WARNING LIGHT COMES ON	**CAUTION** **Operating carrier with and 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.**	
	1. Check to see if engine oil level is low.	Add oil as needed (WP 0090 00).
	2. Check to see if engine is overheating.	See ENGINE OVERHEATS (page 0089 00-2).
8. ENGINE COOLANT LOW LEVEL WARNING LIGHT COMES ON.	1. Check to see if coolant level is low.	Add coolant as needed (WP 0097 00). Check for coolant leaks. If you find any leaks, notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

TRANSMISSION

Table 2. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. TRANSMISSION DOES NOT DRIVE IN ANY RANGE.	1. Check transmission to final drive shafts to see if they have been disconnected.	If disconnected, notify unit maintenance.
	2. Check for low transmission oil level.	Add oil as needed (WP 0090 00).
	3. Check for broken track.	Repair track (WP 0092 00) and (WP 0093 00).
	4. Check transmission controller.	If defective, notify unit maintenance.
2. TRANS OIL LOW PRESS WARNING LIGHT COMES ON.	**CAUTION** **Operating carrier with TRANS OIL LOW PRESS warning light on can damage transmission and may result in unpredictable carrier operation. DO NOT OPERATE carrier with TRANS OIL LOW PRESS warning light on.**	
	1. Reduce throttle to idle and stop vehicle on level ground. With transmission oil at operating temperature (engine coolant temp gage at 200°F), set shift control to SL and release brakes.	
	2. Check TRANS FILTER CLOGGED warning light.	If TRANS FILTER CLOGGED warning light is lit, shut down engine and notify unit maintenance. If TRANS FILTER CLOGGED warning light is not lit, go to next step.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	3. Check transmission oil level.	If transmission oil level is low, add oil as needed (WP 0090 00). Then go to Step 5 If transmission oil level is OK, go to next step.
	4. Increase engine speed to 1200-1300 rpm.	
	5. Check warning light.	If TRANS OIL LOW PRESS warning light goes off, continue normal operation. If TRANS OIL LOW PRESS warning light stays lit or lights again, shut down engine and notify unit maintenance.
3. TRANS OIL HI TEMP WARNING LIGHT COMES ON.	**CAUTION** **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.**	
	1. Check for bad driving habits.	Do not drive with transmission controller in range 1 any longer than you have to.
	2. Check to see if transmission oil level is low.	Add oil as needed (WP 0090 00).
	3. Check to see if coolant level is low.	Add coolant as needed (WP 0097 00). Check for coolant leaks. If leaks are found, notify unit maintenance.
4. TRANS FILTER CLOGGED WARNING LIGHT COMES ON.		Notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

FINAL DRIVE

Table 3. Troubleshooting Procedures.

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 0090 00).

INITIAL SETUP:

Maintenance Level

Operator

TRACKS AND SUSPENSION

Table 4. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. CARRIER PULLS TO ONE SIDE.	1. Check for crowned road or sloping ground.	The carrier will normally pull to one side of any slope.
	2. Check to see if track tension is equal on both sides.	Adjust track tension (WP 0091 00).
	3. Check to see if mud, dirt, debris, or snow has built up on one track.	Clear track of debris.
2. CARRIER THROWS TRACK	1. Check to see if track is loose or worn.	Adjust track tension (WP 0091 00).
	2. Check for bad driving habits.	Do not use pivot steer when carrier is moving. Avoid sharp turns at high speed or in soft ground.
	NOTE **Keep track clear. If you have to run through mud or snow, have unit maintenance remove track shrouds. On soft ground or in heavy brush, turn in a series of short turns so track can clear itself.**	
	3. Check to see if dirt, mud, or other material has built up in the track.	Clear track of debris.
3. TOO MUCH NOISE IN THE TRACK OR SUSPENSION.	1. Check to see if wrong tension is on track.	Adjust track tension (WP 0091 00).
	2. Check to see if track shoes are badly worn.	If shoes are worn, notify unit maintenance.
	3. Check to see if track pads are loose, worn, or missing.	Tighten loose pads. If any pads are worn or missing, notify unit maintenance.
	4. Check to see if sprockets or cushions are worn (WP 0090 00).	If sprockets or cushions are worn, notify unit maintenance.
4. CARRIER RIDES TOO HARD.	1. Check shock absorbers for leaks.	If shock absorbers leak, notify unit maintenance.

TROUBLESHOOTING TABLES—Continued **0089 00**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	2. Feel shock absorbers after running.	Good shocks will be noticeably warmer than the hull. A cool shock is a faulty one. Notify unit maintenance
	3. Check to see if carrier has any broken torsion bars (WP 0090 00).	If carrier has broken torsion bars, notify unit maintenance.

TROUBLESHOOTING TABLES—Continued **0089 00**

INITIAL SETUP:

Maintenance Level

Operator

ELECTRICAL SYSTEM

Table 5. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BATTERIES DISCHARGED.	1. Check to see if battery water level is low (WP 0095 00).	Add distilled water.
	2. Too much use of electrical equipment when the engine is not running.	Run the engine periodically to recharge the batteries.
	3. Check to see if battery cables are loose, disconnected, or corroded.	Notify unit maintenance.
	4. Check engine generator drive belt.	If belt is loose, broken, or missing, notify unit maintenance.
2. NO BATTERY CURRENT.	1. Check to see if battery cables are loose, disconnected, or corroded.	Notify unit maintenance.
3. FUEL LEVEL GAGE FAILS TO REGISTER.	1. Check to see if there is fuel in the fuel tanks.	Refuel carrier (for all except M577A3 and M1068A3, see WP 0025 00; for M577A3 and M1068A3, see WP 0026 00).
	2. Check to see if MASTER SWITCH is in OFF position.	Turn MASTER SWITCH ON.
	3. Check for disconnected or faulty fuel level gage lead.	Connect disconnected lead. If lead is faulty, notify unit maintenance.
4. WITH MASTER SWITCH ON, MASTER SWITCH ON INDICATOR LIGHT DOES NOT COME ON.	1. Check to see if lamp is burned out or there are loose connections in the lamp leads.	If battery gage shows normal reading (WP 0090 00) and other electrical equipment and lights are working, lamp is faulty. You can drive carrier, but be sure to turn MASTER SWITCH OFF when you shut down carrier. Notify unit maintenance.
	2. Check battery indicator gage to see if batteries are dead. Check for faulty or loose battery connectors.	Notify unit maintenance to tighten loose battery cable connectors. If you have to operate carrier with dead batteries, tow start (WP 0078 00) or use outside power source (WP 0022 00) to start the engine.
5. NO IMAGE THROUGH DRIVER'S NIGHT VIEWER (CARRIER POWER USED).	1. Check to see if OFF/BRIGHT rotary switch is set on OFF.	Rotate OFF/BRIGHT rotary switch to maximum BRIGHT position.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	2. Check to see if MASTER SWITCH and D.N.V. switch are ON.	Turn MASTER SWITCH and D.N.V. switch ON. Turn MASTER SWITCH and D.N.V. switch OFF. Disconnect driver's night viewer power cable and operate driver's night viewer using 2.7 volt battery.
	3. Check to see if entrance window cover is installed. **NOTE** **If outside light is too bright, driver's night viewer will not operate and entrance window cover should be installed.**	Remove entrance window protective cover.
	4. Check light conditions outside. If too bright, driver's night viewer will not operate.	Point driver's night viewer at darker scene.
6. NO IMAGE THROUGH DRIVER'S NIGHT VIEWER (2.7 VOLT BATTERY USED).	1. Check to see if OFF/BRIGHT rotary switch is set to OFF.	Rotate OFF/BRIGHT rotary switch to maximum BRIGHT position.
	2. Check to see if battery compartment cap is loose.	Secure battery compartment cap.
	3. Check to see if 2.7 volt battery is dead. **NOTE** **If outside light is too bright, driver's night viewer will not operate and entrance window cover should be installed.**	Replace 2.7 volt battery.
	4. Check light conditions outside. If too bright, driver's night viewer will not operate.	Point driver's night viewer at darker scene.
	5. Check 2.7 volt battery for proper installation.	Install 2.7 volt battery with recessed end (+) first into battery compartment.
	6. Check to see if entrance window protective cover is installed.	Remove entrance window protective cover.
7. IMAGE TOO BRIGHT THROUGH DRIVER'S NIGHT VIEWER.	1. Check to see if OFF/BRIGHT rotary switch is correctly adjusted.	Adjust OFF/BRIGHT switch.
8. IMAGE DIM (CARRIER POWER USED).	1. Check OFF/BRIGHT rotary switch position.	Adjust OFF/BRIGHT rotary switch for best image.

TROUBLESHOOTING TABLES—Continued **0089 00**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	2. Check if carrier battery has a charge.	Start engine (WP 0021 00) to charge carrier batteries.
9. IMAGE DIM (2.7 VOLT BATTERY USED).	1. Check OFF/BRIGHT rotary switch position.	Adjust OFF/BRIGHT rotary switch for best image.
	2. Check if 2.7 volt battery has a charge.	Replace 2.7 volt battery.
10. POOR IMAGE QUALITY THROUGH DRIVER'S NIGHT VIEWER.	1. Check to see if entrance window or eyepiece lens is dirty or foggy.	Clean entrance window and eyepiece lens.
	2. Check to see if carrier batteries are charged.	Start engine (WP 0021 00) to charge batteries. Or disconnect driver's night viewer power plug and install 2.7 volt battery.
	3. Check to see if 2.7 volt battery is damaged.	Replace 2.7 volt battery.

INITIAL SETUP:

Maintenance Level

Operator

BILGE PUMPS

Table 6. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BILGE PUMP DOES NOT WORK WITH THE BILGE PUMPS SWITCH ON.	1. Check to see if MASTER SWITCH is OFF.	Turn MASTER SWITCH ON.
	2. Check to see if bilge pump strainers or outlets are clogged.	Clean bilge pump strainers or outlets (WP 0096 00).
	3. Check to see if bilge pump vents are blocked.	Clean bilge pump vents (WP 0096 00). If you cannot get to the bilge pump to clean it because of a load in the personnel compartment, cycle the BILGE PUMPS switch ON and OFF (WP 0004 00) a few times. That will usually start the pump.

INITIAL SETUP:

Maintenance Level

Operator

PERSONNEL HEATER

Table 7. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. HEATER DOES NOT START WITH THE RUN-OFF-START SWITCH HELD IN START POSITION. HEATER MOTOR RUNS.	1. Check to see if fuel tanks manual shutoff valves are closed.	Open fuel tanks manual shutoff valves (WP 0004 00).
	2. Check diagnostic display on heater for diagnostic fault code.	Notify unit maintenance.
2. HEATER DOES NOT START WITH THE 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 work, check for loose electrical connections at control box and heater.	Tighten loose connections.
	2. Check to see if battery connections are tight.	Notify unit maintenance.
	3. Check diagnostic display on heater for diagnostic fault code.	Notify unit maintenance.
3. HEATER OVERHEATS AND STOPS.	1. Check to see if heater intake elbow, exhaust elbow, or warm air outlet is blocked.	Remove whatever is blocking the heater system (WP 0028 00).
	2. Check diagnostic display on heater for diagnostic fault code.	Notify unit maintenance.
4. HEATER OVERHEATS AND DOES NOT STOP.	1. Check to see if personnel heater fuel supply valve is OFF.	Turn personnel heater fuel supply valve OFF (WP 0028 00). Allow heater to run for 2–3 minutes to burn off fuel in heater. Then disconnect electrical connector from heater.
	2. Check diagnostic display on heater for diagnostic fault code.	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 0028 00).
	2. Check diagnostic display on heater for diagnostic fault code.	Notify unit maintenance.

INITIAL SETUP:

Maintenance Level

Operator

ENGINE COOLANT HEATER

Table 8. Troubleshooting Procedures.

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 tanks manual shutoff valves are closed.	Open fuel tanks manual shutoff valves (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 work, check for loose electrical connections at control box and heater.	Tighten loose connections.
	2. Check to see if battery connections are tight.	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 0062 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 0062 00).
5. BATTERIES OVERHEAT.	1. Check if air temperature is too warm to need the engine coolant heater	Turn off engine coolant heater (WP 0062 00). You do not need to use engine coolant heater if temperature is above –25°F (-32°C).
	2. Check if engine is running at the same time as the engine coolant heater.	Turn off engine coolant heater (WP 0062 00) as soon as the engine starts.

INITIAL SETUP:

Maintenance Level

Operator

NBC KIT

Table 9. Troubleshooting Procedures.

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.	Raise spring clip from air intake openings on air purifier (WP 0081 00).
	2. Check to see if air hoses are kinked or pinched.	Straighten or replace air hoses (WP 0081 00).
	3. Check to see if it there are any loose air hose connections.	Tighten loose hose connections (WP 0081 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.	Turn AIR PURIFIER SWITCH ON.
	2. Check to see if ground wire is loose or missing.	Notify unit maintenance of loose or missing ground wire.
	3. Check to see if electrical cable assemblies are loose or missing.	Notify unit maintenance.

CHAPTER 4

OPERATOR MAINTENANCE INSTRUCTIONS

WORK PACKAGE INDEX

Title	Sequence No.
PREVENTIVE MAINTENANCE CHECKS AND SERVICES	0090 00
ADJUST TRACK TENSION	0091 00
BREAK/JOIN TRACK	0092 00
REMOVE/INSTALL TRACK SHOE	0093 00
TRACK SHOE WEAR LIMITS	0094 00
CHECK CARRIER BATTERIES	0095 00
SERVICE BILGE PUMPS	0096 00
CHECK/FILL COOLING SYSTEM	0097 00
MAINTENANCE OF AIR CLEANER	0098 00
CHECK/REPLACE MISSING PLUG (M113A3 ONLY)	0099 00
SERVICE SMOKE GENERATOR FUEL CAN/FOG OIL TANK (M1059A3)	0100 00

PREVENTIVE MAINTENANCE CHECKS AND SERVICES 0090 00

THIS WORK PACKAGE COVERS:

Before (Table 1, page 0090 00-9)
During (Table 2, page 0090 00-40)
After (Table 3, page 0090 00-52)
Weekly (Table 4, page 0090 00-93)
Monthly (Table 5, page 0090 00-128)
Semi-annually (Table 6, page 0090 00-129)

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Grease gun adapter
(WP 0103 00, Item)
Industrial goggles
(WP 0103 00, Item)

Materials/Parts

Cleaning compound (WP 0104 00, Item 6)
Lens cleaning solution (WP 0104 00, Item 16)
Cloth (WP 0104 00, Item 7)
Grease (WP 0104 00, Item 10)
Wiping rag (WP 0104 00, Item 15)

Personnel Required

Commander
Driver
Gunner
Generator Operator

References

FM 9-207
TB 43-0210
TM 9-2300-422-23&P
TM 11-5820-498-12
TM 11-5820-401-10-2
TM 11-5820-890-10-8
TM 11-5965-286-14
TM 11-5830-263-12
TM 9-1005-213-10
TM 9-1015-250-10
TM 3-1040-283-10
TM 3-1040-285-10
TM 5-6115-596-14
TM 11-5820-401-12
TM 11-5820-498-12
TM 9-1010-230-10

Equipment Condition

Engine stopped (WP 0024 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

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.

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/driver/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 carrier 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 procedures twice.

MONTHLY procedures are performed each month.

SEMI-ANNUALLY procedures are performed every six months or every 1500 miles.

Man-hour Column — Man-hours required to complete all prescribed lubrication are shown to the nearest tenth of an hour.

Item To Be Checked or Serviced Column — This column lists the item to be checked or serviced.

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.

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 this 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 0087 00) or maintenance procedures. Notify unit maintenance if you can’t fix it.

PMCS GENERAL INSTRUCTIONS

Tools and 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 0102 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 0104 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 carrier 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. When 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 below.

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 0104 00, Item 6) on all metal surfaces. Use soap and water when you clean rubber or plastic surfaces. Use clean water or lens cleaning solution (WP 0104 00, Item 16) when you clean optical 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. But 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 43-0210 and TM 9-2300-422-23&P 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 43-0210 and TM 9-2300-422-23&P). 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.

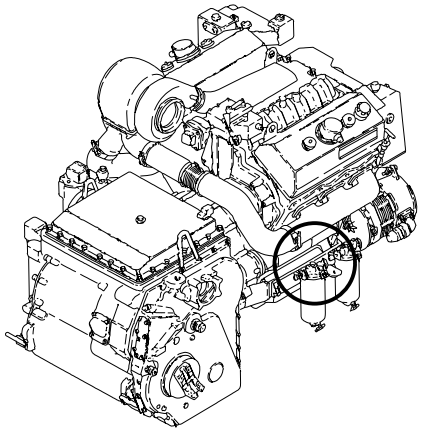
Sampling Procedures:

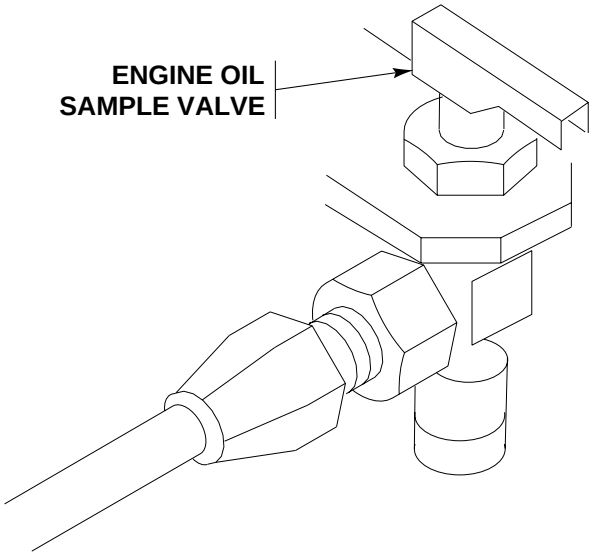
1. Perform DAILY operation checks and services.

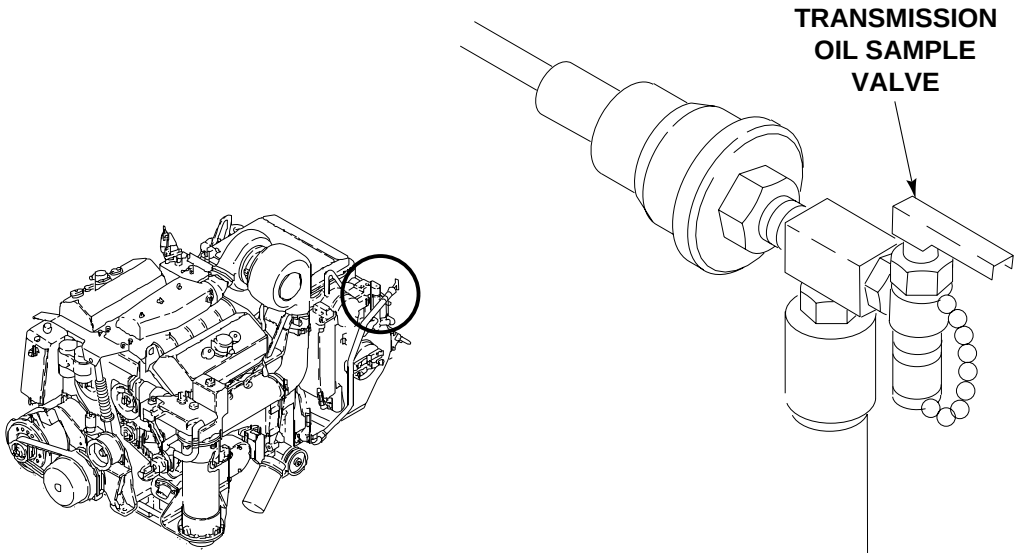
NOTE

DO NOT ADD OIL immediately prior to taking oil samples. When operation checks and services indicate the need to replenish oil levels, 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.

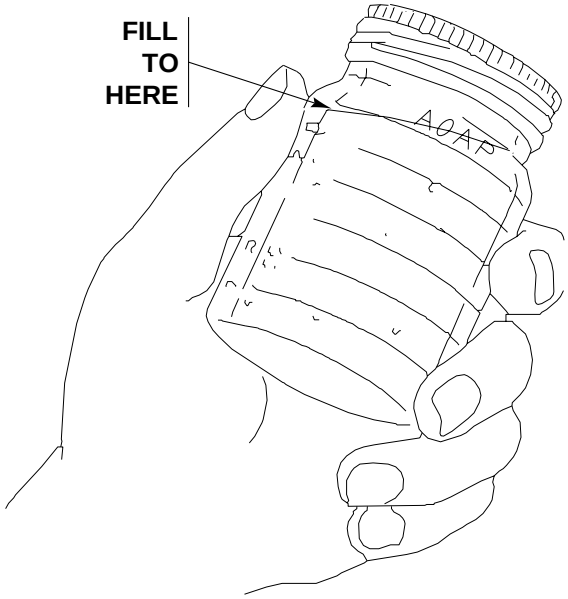
2. Obtain two sample bottles (NSN 8125-01-082-9697) and two DA Form 2026s from the unit AOAP monitor.
3. Start engine. If required (refer to Sampling Requirements paragraph above), operate carrier to bring engine and transmission up to normal operating temperatures.
4. Stop carrier and set the brakes.
5. Place range selector in SL position (steering lock) and keep engine running.
6. Remove driver's power plant access panel.
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 DA 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.

12. Install driver’s power plant access panel 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 43-0210.

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 the PMCS lubrication checks.

LUBRICANT SYMBOLS

SYMBOL	NOMENCLATURE	SPECIFICATION
DF	Diesel Fuel	VV-F-800
FRH	Hydraulic Fluid, Rust Inhibited, Fire Resistant	MIL-H-46170
GAA	Grease, Automotive and Artillery	MIL-G-10924
	Grease, Wire Rope and Exposed Gear	MIL-G-18458
OE/HDO	Lubricating Oil, Internal Combustion Engine	MIL-L-2104D
OEA	Lubricating Oil, Internal Combustion Engine	MIL-L-46167
PE	Preservation Oil	MIL-L-21260
PL-M	Lubricating Oil, General Purpose (Medium)	MIL-L-3150
PL-S	Lubricating Oil, General Purpose (Special)	VV-L-800

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	100 gal	DF-2	DF-1	DF-A	Daily — Drain filters

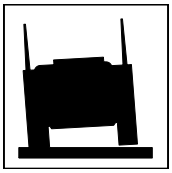
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

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)	
Transmission	Initial fill — 12 gal or 57 qts Refill after oil change — approx 36 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	3 1/2 qts or 7 pints	FRH			Daily — Check and Fill
Final Drives	3 1/2 qts or 7 pints (FULL mark on gauge rod)	OE/HDO-15/40	OE/HDO-15/40	OEA	Weekly — Check and Fill
Fan Gearbox	18 oz or 3/4 pt	OE/HDO-15/40	OE/HDO-15/40	OEA	Monthly — Check and Fill
Tow Cable	As required	Grease MIL-G-18458			Semi-annually or every 1500 miles — Clean and Lube
Ramp Wire Rope	As required	Grease MIL-G-18458			Semi-annually or every 1500 miles — Clean and Lube
Machine Gun Mount	As required	PL-M	PL-M	PL-S	Semi-annually or every 1500 miles — Clean and Lube

*For arctic operation, refer to FM 9-207.

Table 1. Preventive Maintenance Checks and Services for Model M113A3 FOV, Before

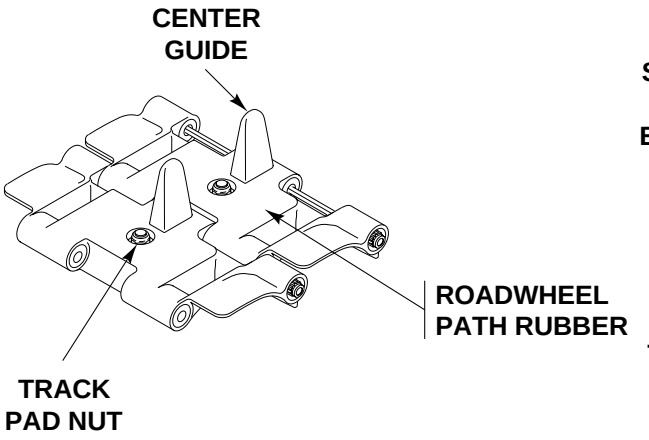
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				WARNING  **Failure to set parking brake and block wheels can allow carrier to move and could result in personnel injury or death. Always set parking brake and block wheels before performing PMCS.** **NOTE** **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.** **THINK SAFETY** Inspect and work safely. Protect yourself and your crew members. Read and observe all warnings.	
1	Before		Carrier Exterior	**DRIVER** Walk around vehicle, check for leaks, tampering, damage or missing parts.	Any Class III leak or fuel leak identified. Any damage that would prevent operation.

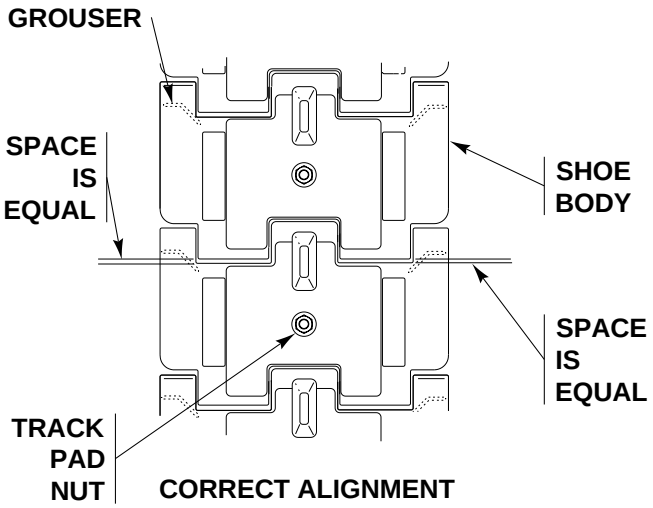
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before		Auxiliary Power Unit (APU) (M577A3 and M1068A3 Only)	**DRIVER** See TM9-6115-664-13&P for PMCS procedures.	Fault listed in "NOT FULLY MISSION CAPABLE IF:" column of APU TM.
3	Before		Track Shoes and Bushings	**DRIVER** **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. brake pedal, 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.** **NOTE** **Move carrier one track length to inspect entire track.**	

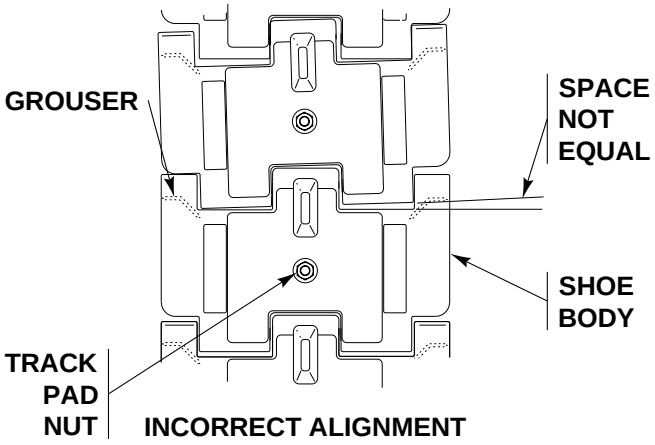
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				a. Visually check for unusual or uneven gaps between two adjacent shoes. Check any suspect bushing using the track and sprocket gauge. If a "NO/GO" reading is obtained on either the inside or outside of the block, the unserviceable shoe/shoes must be replaced.	Any unserviceable shoe.
				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.	Any one track shoe body bent, cracked, or broken. Any one track pin bent, broken, or missing.

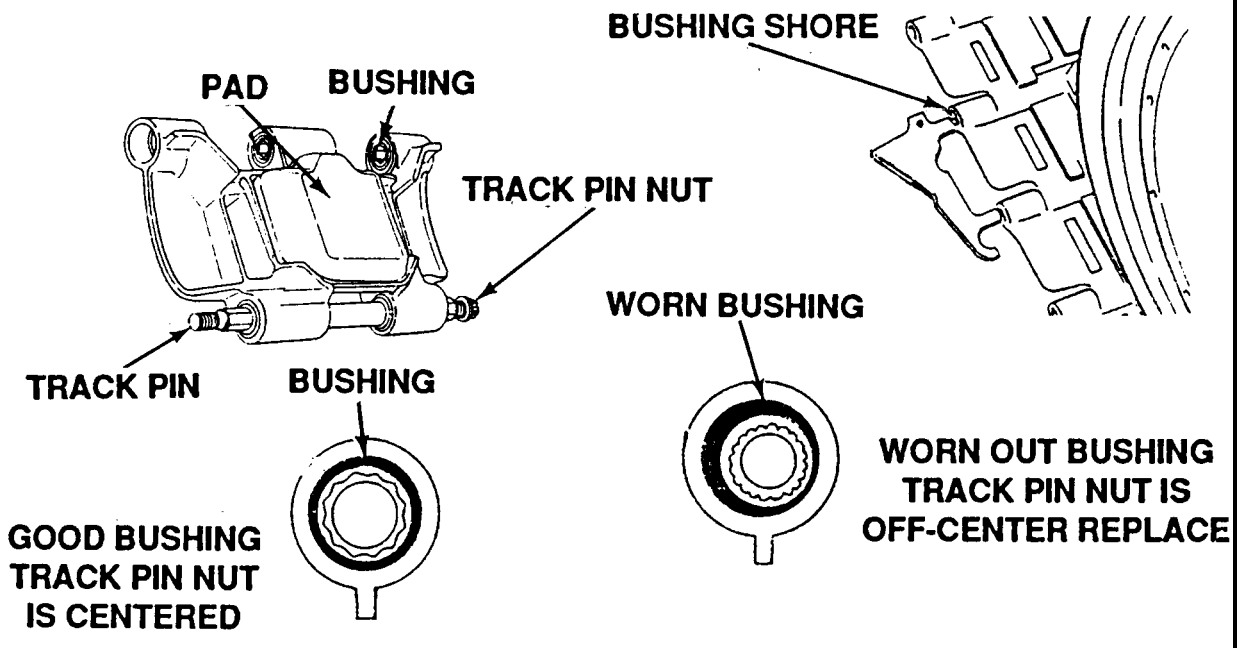
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE **Worn or missing track pads will cause the track shoe to mark the road surface.** c. Replace worn or missing track pads and track pad nuts.	



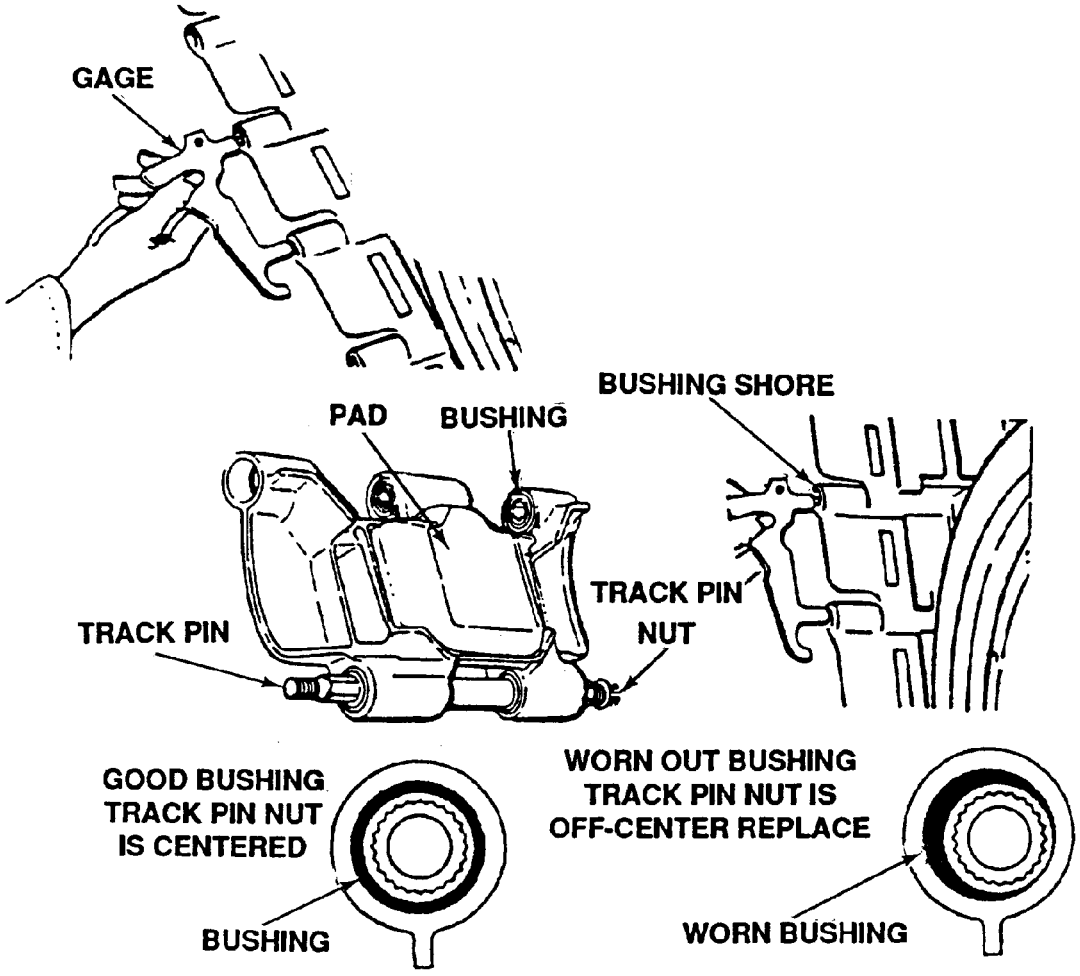


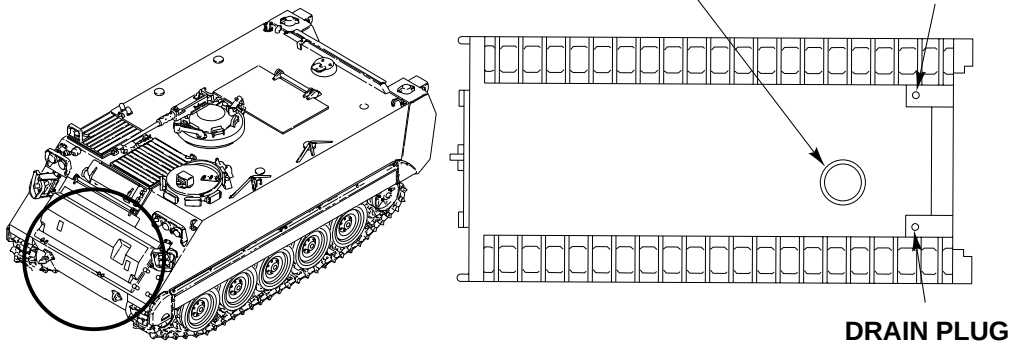


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				d. Check track shoe for damaged pins, missing pin nuts, and any unusual or uneven gaps between two adjacent track shoes which indicate worn bushings. **NOTE** **Worn bushings are very 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.**	Any one shoe with worn bushing, protruding track pin, missing track pin nut, or pad height is less than 1/16 inch above grouse. Any one bushing deemed unserviceable.

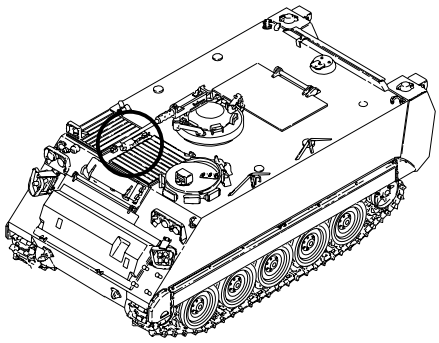


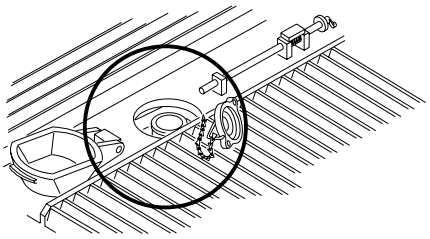
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE **Check left and right side of vehicle for damage to track shoes.**	
				e. Check for any suspect bushings which should be tested with the track and sprocket gauge. Gauge pins must be fully inserted into bushing bore. Any track shoe failing track gauge inspection is unserviceable. Replace any worn shoe bushing with shoe.	Any one track shoe with worn bushing, protruding track pin or missing track pin nut. Any one bushing deemed unserviceable.

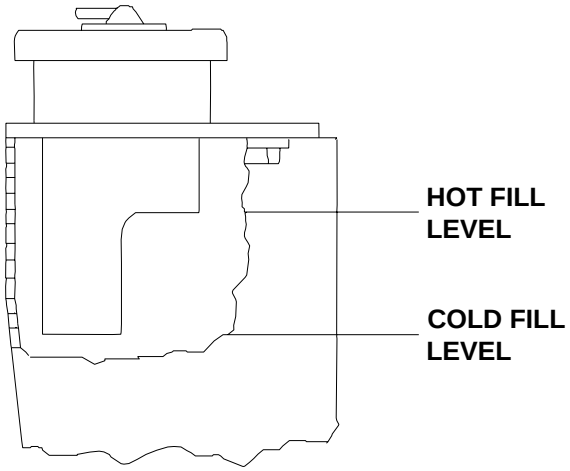


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Carrier Exterior (Ground Level) Final Drive and Hull Plugs	**DRIVER** Check beneath carrier for loose or missing hull access cover and drain plugs (three plugs). Tighten loose hull access cover and drain plugs.	Any Class III leak. One or more hull access covers, drain plugs or seals missing. Any fuel leak.
					
5	Before		Fire Extinguisher Exterior Pull Handle	**COMMANDER** Check seal on exterior pull handle. Make sure seal or lockwire is not broken. Report broken seal or lockwire to unit maintenance.	Seal or locking wire missing or broken.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Before		Radiator (on deck) Coolant Level	**DRIVER** **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.** Remove radiator cap. Check coolant level.	Any Class III leak. Cap damaged or missing.



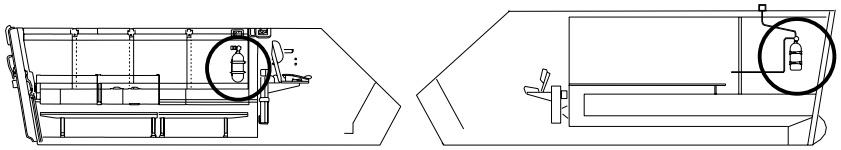


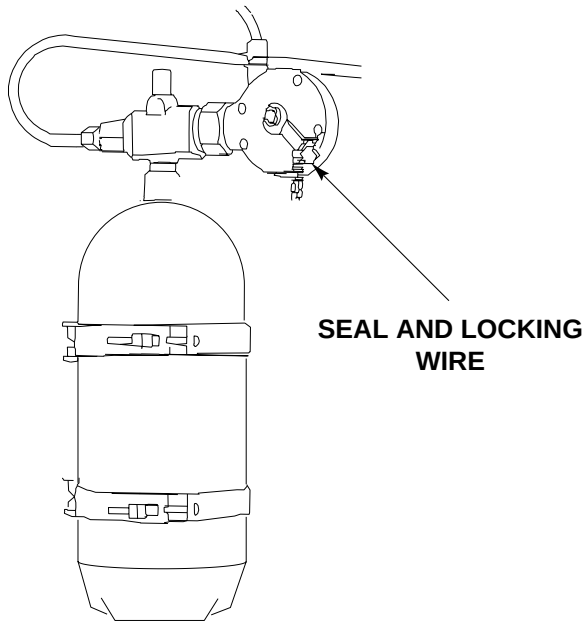


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Before		Fixed Fire Extinguisher	**DRIVER** **WARNING**  **A fire can break out at any time. Personnel could be killed or injured. Equipment could be damaged. Make sure all fire extinguishers are ready to use before you operate carrier.** a. Check fixed extinguisher control seal. b. Make sure seal or lockwire is not broken. Report broken seal to unit maintenance.	Extinguisher missing. Seal or lockwire missing or broken.

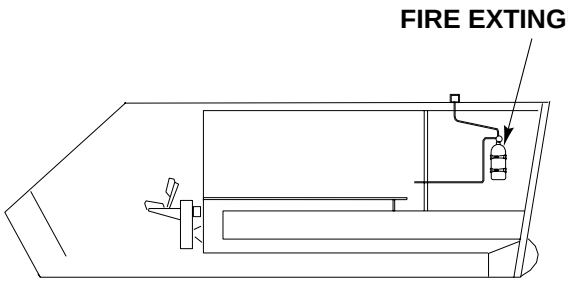
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:





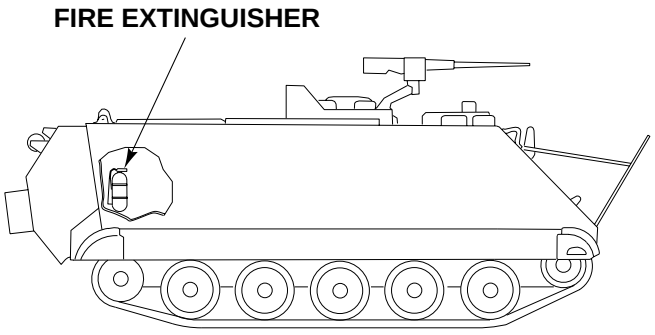
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before		Portable Fire Extinguishers	**CREWMEMBER** **WARNING**  **A fire can break out at any time. Personnel could be killed or injured. Equipment could be damaged. Make sure both fire extinguishers are ready to use before you operate carrier.** **NOTE** **On M113A3, portable fire extinguisher is located against curbside rear plate behind spall liner panels.** **On M577A3, M901A3, and M981A3, portable fire extinguisher is located against curbside rear plate.** **On M1064A3, portable fire extinguisher is located against roadside rear plate.** **On M1068A3, portable fire extinguisher is located against curbside wall next to the map board.** **On M58, portable fire extinguisher is located against roadside wall between the battery box and the visual tank.**	



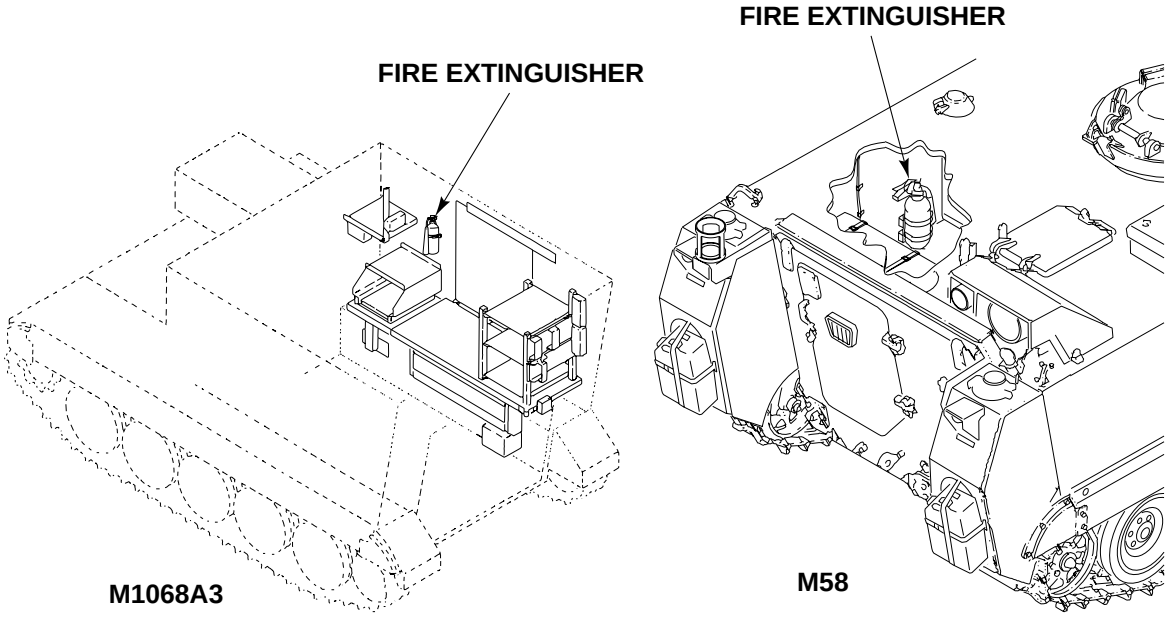
M113A3, M577A3, M901A3, M981A3

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:



M1064A3

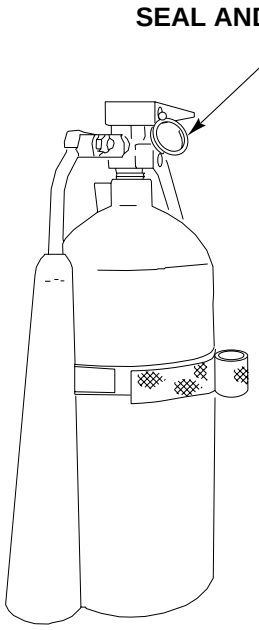


M1068A3

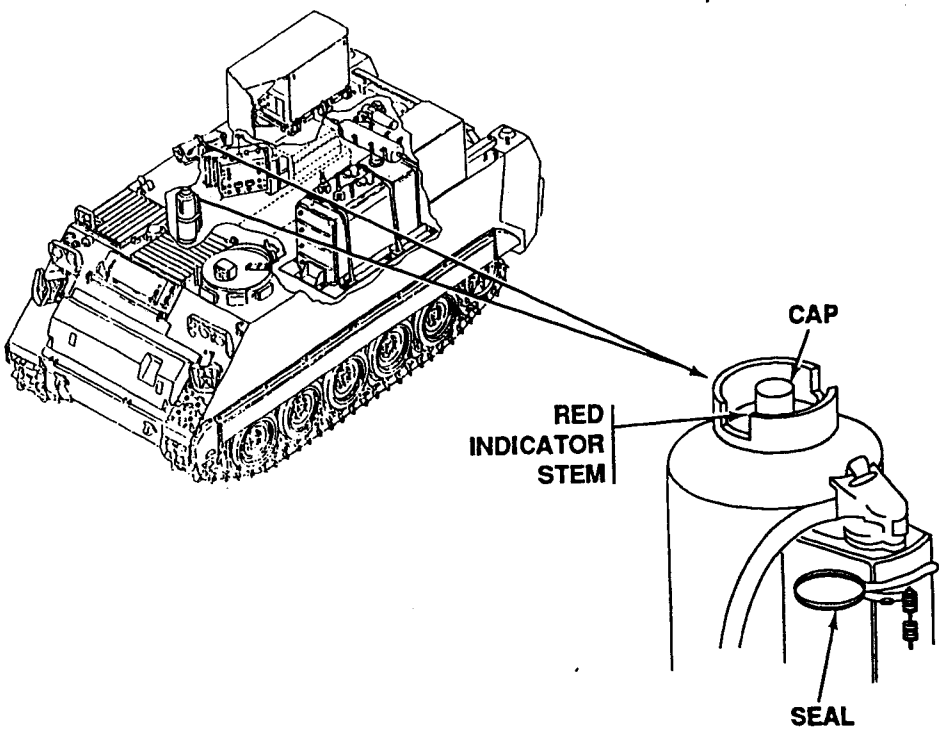
M58

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

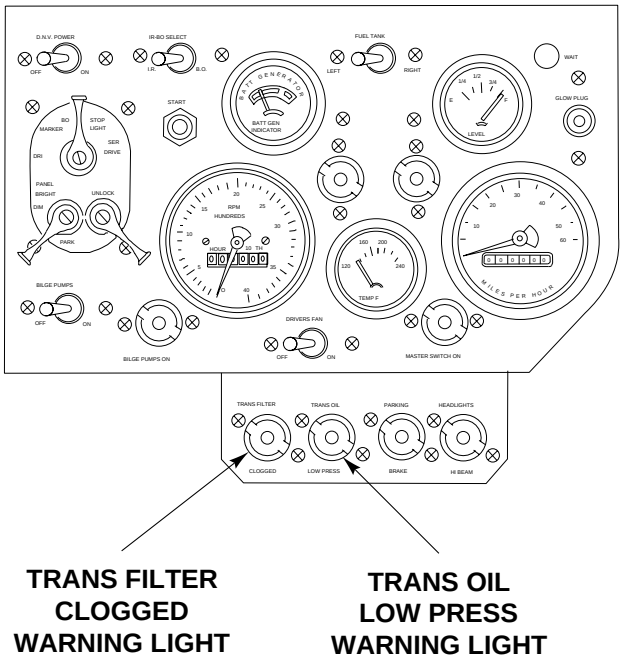
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				a. Check portable fire extinguisher control seal. Make sure seal or locking wire is not broken. Report broken seal to unit maintenance.	Fire extinguisher missing. Seal or lockwire missing or broken.
				b. Check fire extinguisher for security of mounting hardware and missing hardware.	
				c. Check for full charge.	Pressure gauge indicates discharge or seal is broken. Extinguisher feels light or seal is broken, if no gauge.

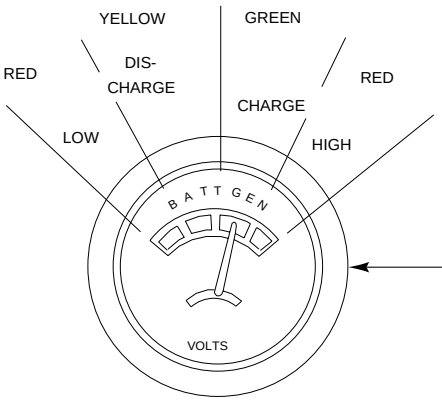


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				COMMANDER	
				M1059A3 ONLY	
				d. Check exterior hand-held fire extinguisher seals. Check that red indicator stem on cap is not popped up.	Fire extinguisher is missing or seal is broken. Red stem popped up.
				e. Check for availability and a full charge.	Fire extinguisher is missing or seal is broken.

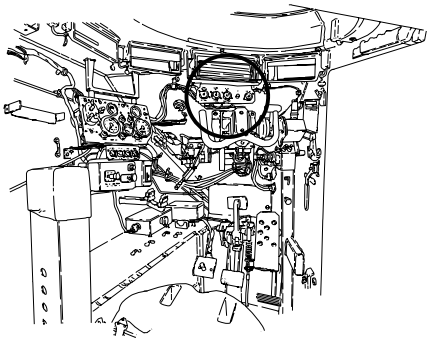


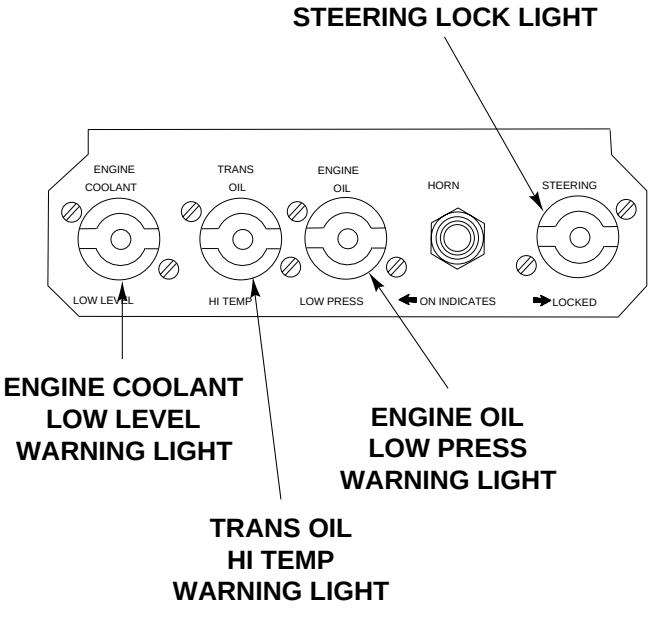
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Driver's Instrument Panel and Warning Lights Panel	**DRIVER** a. Start engine (WP 0021 00). Check that BATT GEN INDICATOR points to green zone.	Any binding, chattering, or unusual noise. Engine will not start. BATT GEN INDICATOR does not point to green zone. Indicator is missing or broken.
				b. Check that TRANS FILTER CLOGGED warning light is off.	Warning light is on, missing or broken.



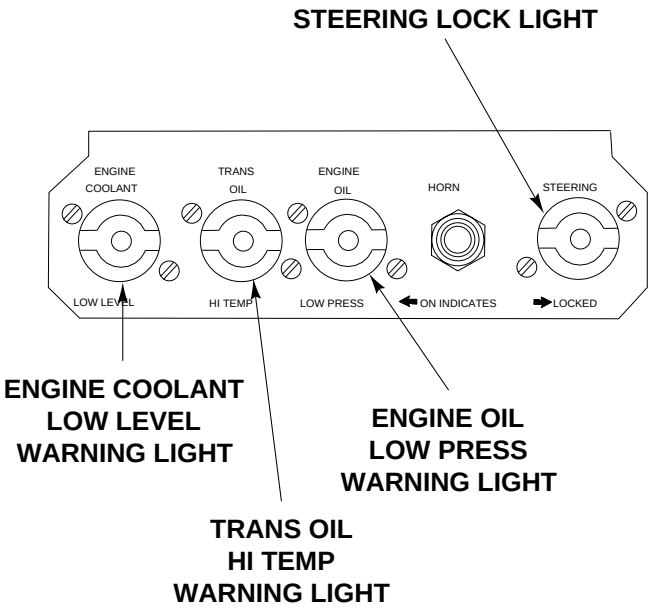


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				CAUTION **Do not operate vehicle with the TRANS OIL LOW PRESS warning light on. Operating the vehicle with the TRANS OIL LOW PRESS warning light on can damage the transmission and may result in unpredictable vehicle operation.**	
				c. Check that TRANS OIL LOW PRESS warning light is off. Light should go off. Light should go out when engine speed reaches 1200-1300 rpm.	Light does not go out at 1200-1300 rpm.
				d. Check tachometer to see that it is operating properly. Check the idle speed is normal at 650 to 700 rpm.	
				e. Check that ENGINE COOLANT LOW LEVEL warning light is off.	Warning light is on. Light is missing or broken.

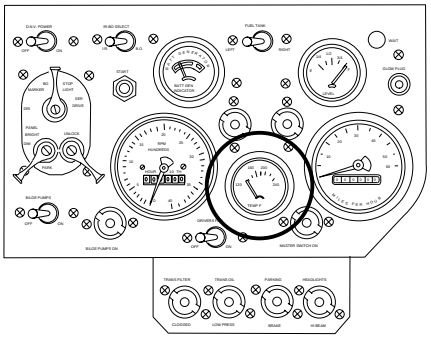


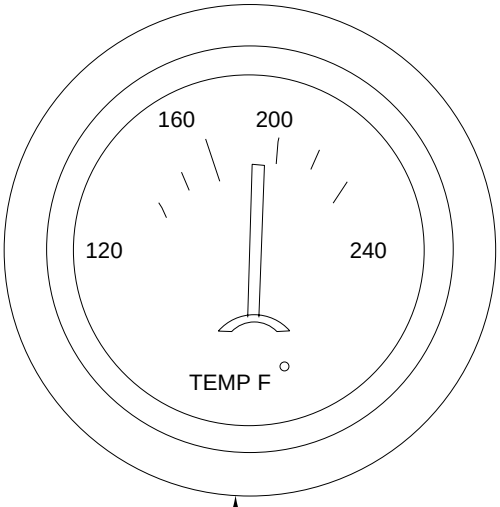


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				f. Check that ENGINE OIL LOW PRESS warning light is off.	Warning light is on, missing or broken.
				g. Check that TRANS OIL HIGH TEMP warning light is off.	Warning light is on, missing, or broken.
				h. Check steering lock indicator light.	



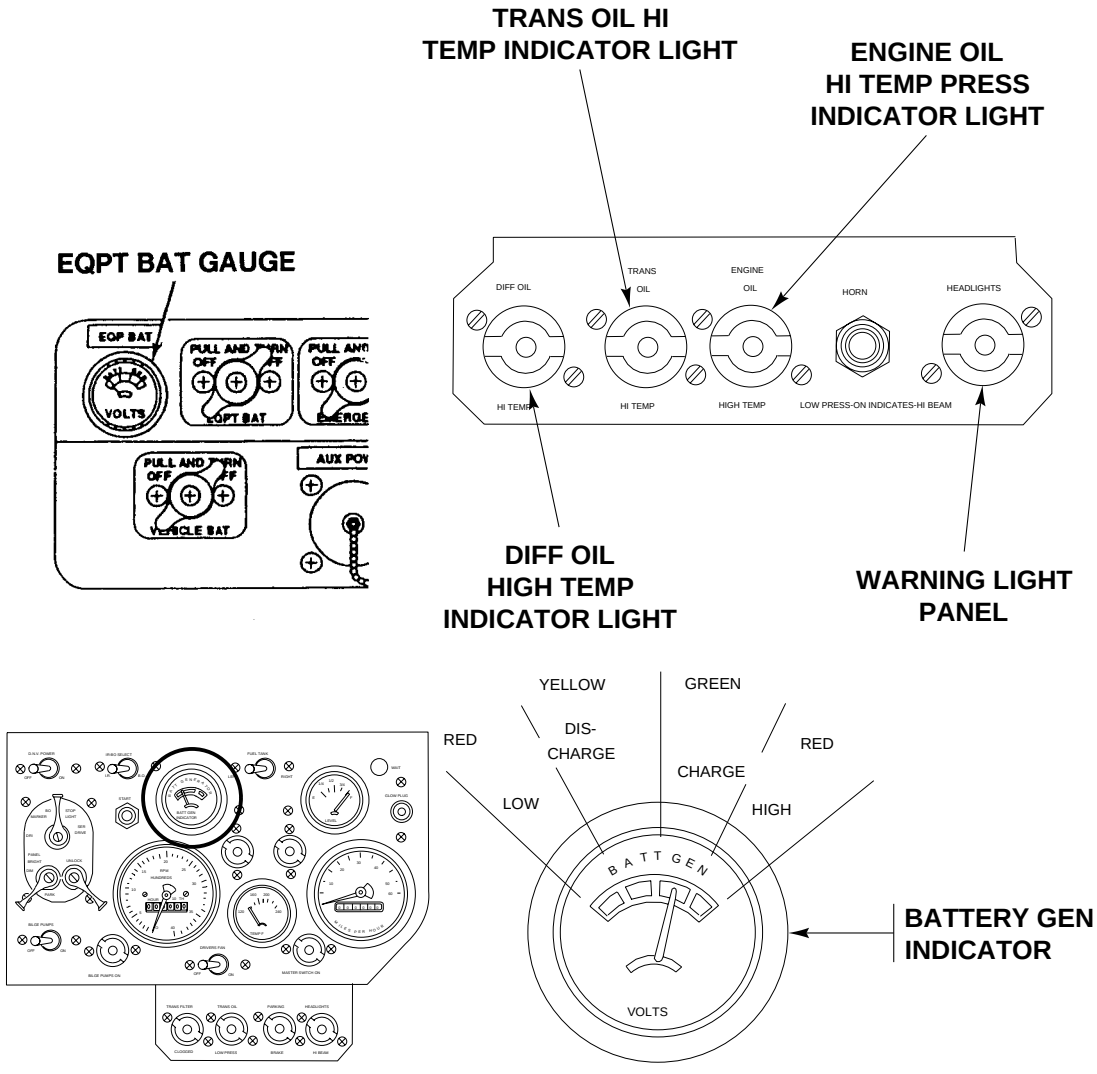
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				i. Check ENGINE COOLANT TEMPERATURE GAUGE. If outside air temperature is less that 85°F, normal operating temperature should be 160°F to 200°F. If outside air temperature is greater than 85°F, normal operating temperature should be 160°F to 225°F. Report any abnormal reading to unit maintenance.	Outside air temperature is less than 85°F and gauge is above 200°F. Outside air temperature is above 85° F and gauge is above 225°F. Gauge is missing or broken.





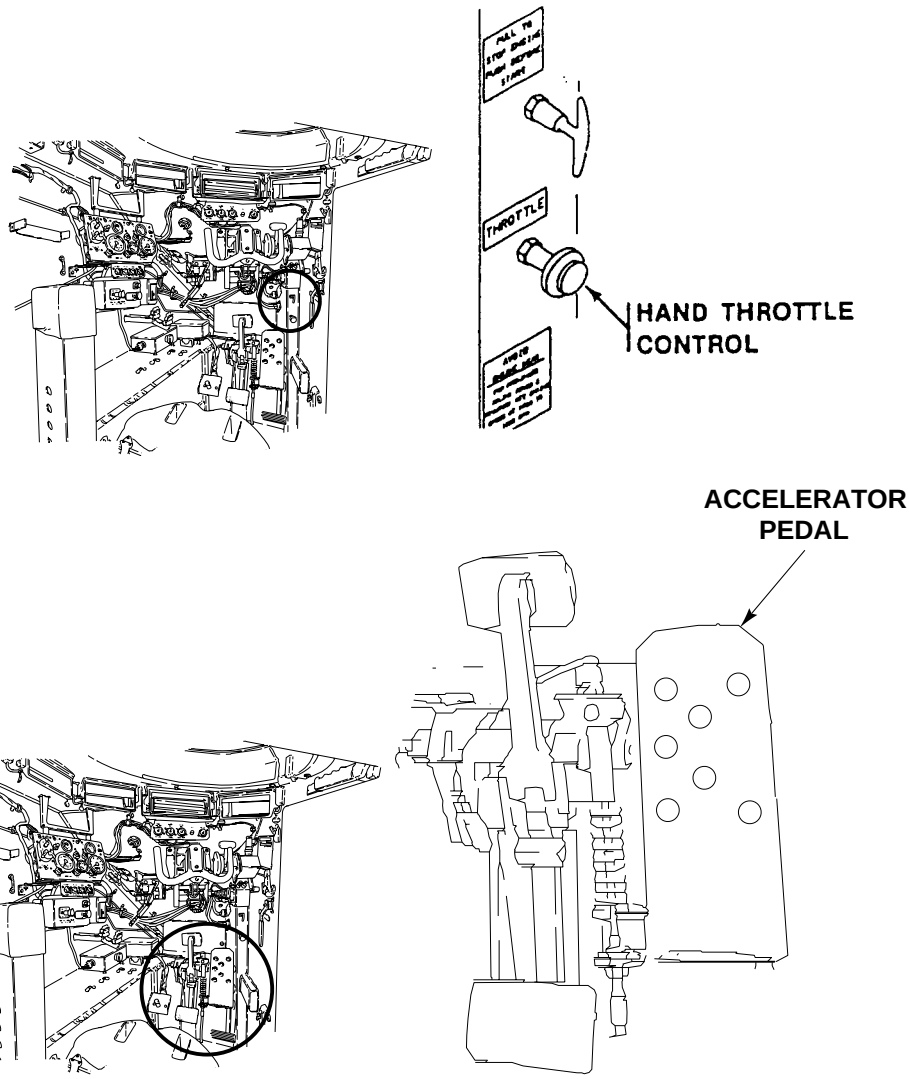
ENGINE COOLANT TEMPERATURE GAUGE

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				M981A3 ONLY	
				j. Check both EQPT BAT and vehicle battery BATT GEN indicator. Indicator should read in green zone.	Gauge is not in green zone.
				k. 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.	Any oil warning light comes on.

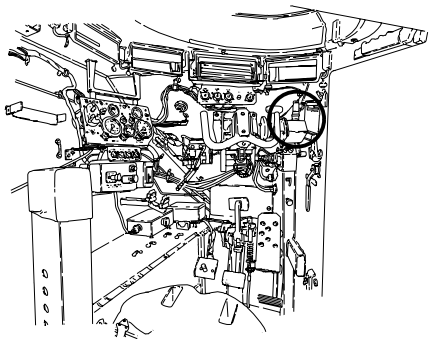


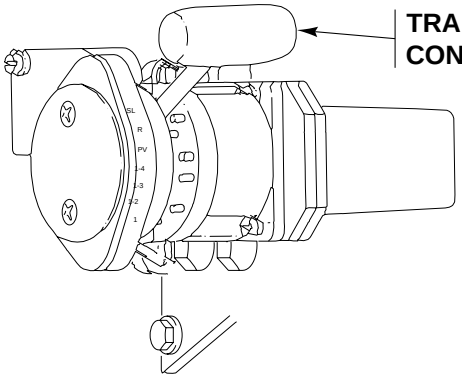
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Before		Ramp	**DRIVER** **NOTE** **Leave ramp lowered to perform before checks.** Check ramp operation by raising and lowering (WP 0012 00).	Ramp will not raise or lower under power. Ramp lock will not hold ramp in closed position.
11	Before		Ramp door	**DRIVER** Check ramp door operation. Make sure hinges work right and that door can be tightly secured by lock.	Lock will not secure door. Hinges broken or missing.
12	Before		Throttle Controls	**DRIVER** **WARNING**  **Sticking or damaged 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.** **Loss of carrier control can cause carrier to crash. Personnel can be killed or injured. Avoid over steering at high speeds to prevent skidding or carrier upset. Use caution when turning on hills or side slopes.**	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				Check hand throttle and accelerator pedal operation.	Accelerator pedal or hand throttle binds. Engine does not return to idle when accelerator pedal or hand throttle is released.

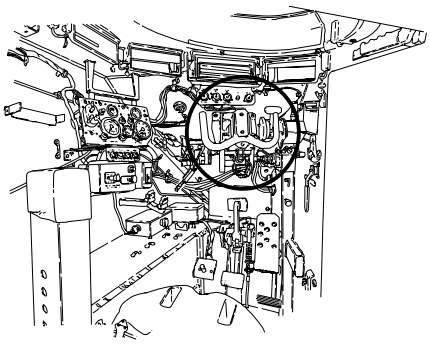


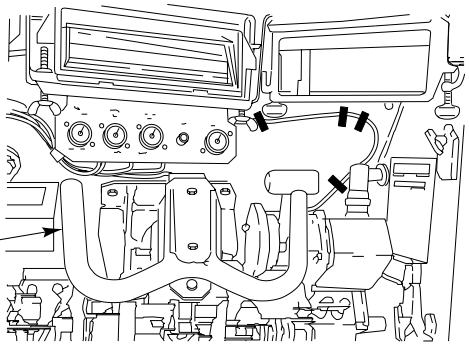
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Before		Shifting Controls	**DRIVER** Check transmission controller operation.	Transmission controller binds when moved. Transmission does not engage when transmission controller is put in gear.



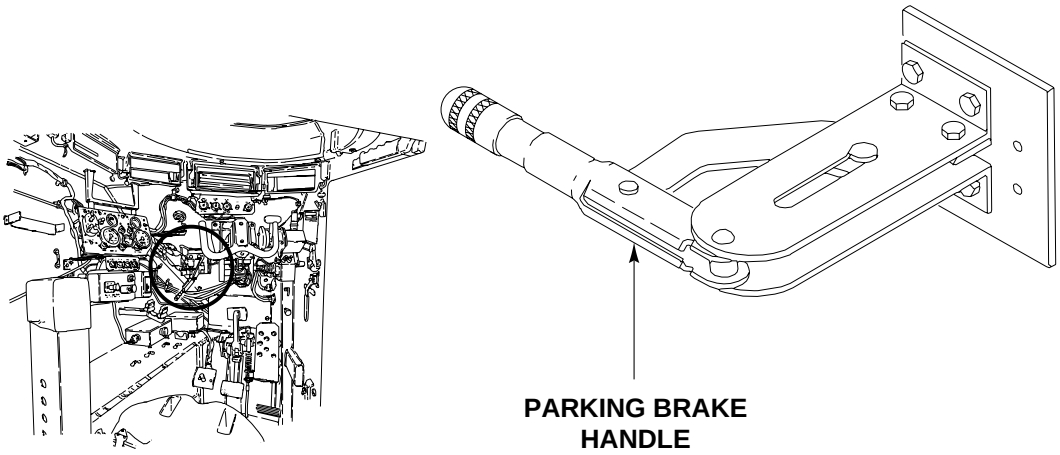


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
14	Before		Steering Controls	**DRIVER** **WARNING**  **Carrier can pivot steer when transmission controller is in SL position and steering lock pin is not engaged. Personnel can be killed or injured. Make sure transmission controller is in SL and steering wheel is centered to engage steering lock pin (steering locked indicator light should be ON) unless carrier is to be steered.** Check steering wheel operation.	Steering lock pin will not engage. Carrier wanders to right or left when steering wheel is centered. Steering wheel does not return to center when released.

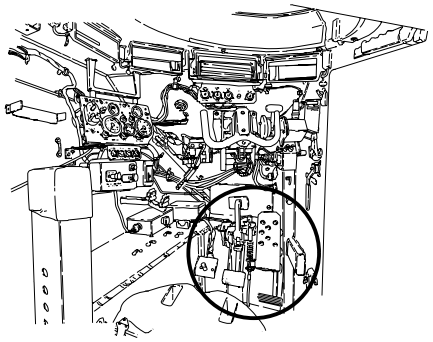
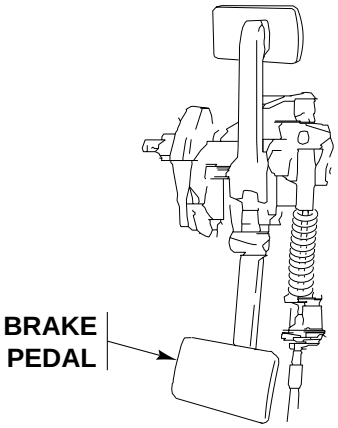




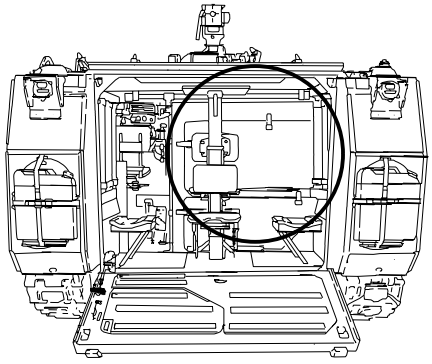
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	Before		Braking Controls	**DRIVER** a. Check carrier brakes. **NOTE** **Parking brake handle only supplies enough force to lock service brake pedal. It will not supply enough force to actuate service.** b. Check brake pedal while setting parking brake. See task: SET/RELEASE PARKING BRAKE (WP 0020 00). If brake pedal is held firmly or moves downward slightly, parking brake adjustment is ok. If any upward movement of brake pedal is noticed, parking brake must be adjusted. If parking brake will not hold or parking brake handle can be moved very easily, notify unit maintenance.	Brake pedal touches floor when pushed down, or brake does not return freely to off position when released.

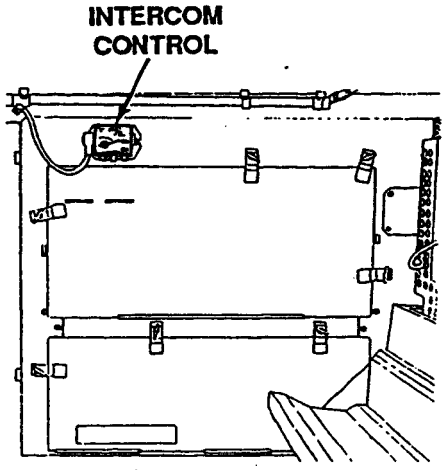


PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

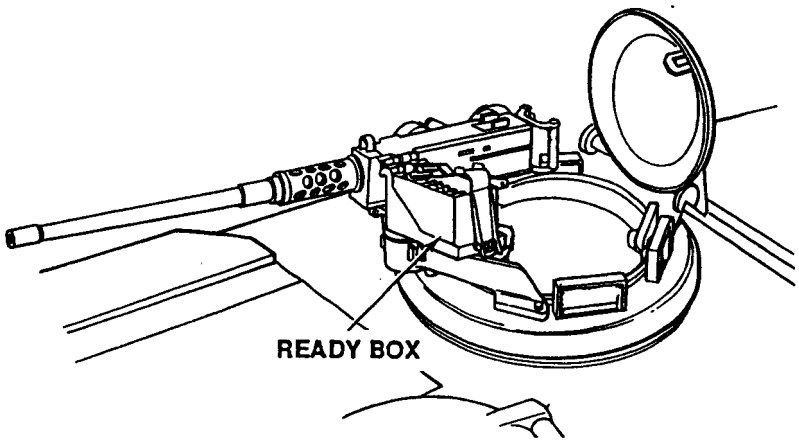
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				 	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
16	Before		Carrier Communications Equipment Radio	**DRIVER** a. Check radio equipment for proper operation. See TM 11-5820-498-12, TM 11-5820-401-10-2, and/or TM 11-5820-890-10-8, as needed. See TM 11-5965-286-14 for headset microphone. **NOTE** **M577A3 and M1068A3 carriers may be equipped with the Vehicle Intercommunication System (VIS). See TM 11-5830-263-12 for proper operation.** b. Check intercom system for proper operation.	Fault listed in "Equipment Not Ready/ Available If:" column of radio TM. Will not transmit or receive. No intercom between commander and driver.



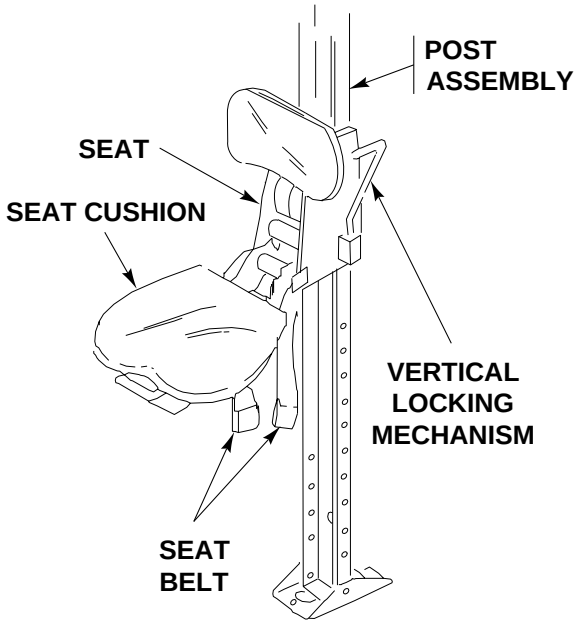


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
17	Before		Machine Gun .50 Cal M2	**COMMANDER** **M113A3, M1059A3, M1064A3, AND M58** **WARNING**  **Make sure weapon is clear and safe before loading or testing, to prevent accidental firing of machine gun and injury to personnel.** a. Check mounting of machine gun in mount. b. Check headspace and timing (TM 9-1005-213-10) and PMCS.	Machine gun missing or unserviceable. Fault listed in "Equipment Not Ready/ Available If:" column of machine gun TM.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
18	Before		Mortar Cannon Tube Assembly	**GUNNER** **M1064A3 ONLY** **CAUTION** **Make sure mortar tube is clean and dry before firing. Damage to equipment may occur.** See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm Mortar.	Fault listed in "Equipment Not Ready/ Available If:" column of mortar gun TM.
19	Before		M157A2 Smoke Generator System	**GENERATOR OPERATOR** **M1059A3 ONLY** **WARNING**  **All personnel within 75 feet (22.9 meters) of M1059A3 and M58 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 M1059A3 and M58 carrier.**	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				For PMCS procedures, see TM 3-1040-283-10.	Fault listed in "Equipment Not Ready/ Available If:" column of smoke generator TM.
20	Before		Commander's Seat (All Except M577A3, M1068A3, M981A3, or M901A3)	**COMMANDER**	
				a. Check for smooth operation of seat and vertical locking mechanism as needed with OE/HDO.	Any missing, broken or cracked seat hardware, less seat cushions or cut, frayed seat belts, or missing seat and post assembly.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Before		Smoke Obscurant System	**GENERATOR OPERATOR** **M58 ONLY** **WARNING**  **All personnel within 75 feet (22.9 meters) of M1059A3 and M58 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 M1059A3 and M58 carrier.** For PMCS procedures, see TM 3-1040-285-10.	Fault listed in "Equipment Not Ready/ Available If:" column of smoke obscurant system TM.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
22	Before		Engine Glow Plug Test	**DRIVER** **NOTE** **Perform check whenever ambient temperature is expected to be below 40°F.** a. At engine temperature greater than 50°F, glow plug WAIT indicator comes on for one second and goes out. b. At engine temperature less than 50°F, glow plug WAIT indicator comes on for about 35 seconds and then begins to flash for approximately 60 seconds and then goes out.	WAIT indicator does not come on. WAIT indicator flashes during the first 35 seconds of test below engine temperature of 50°F.

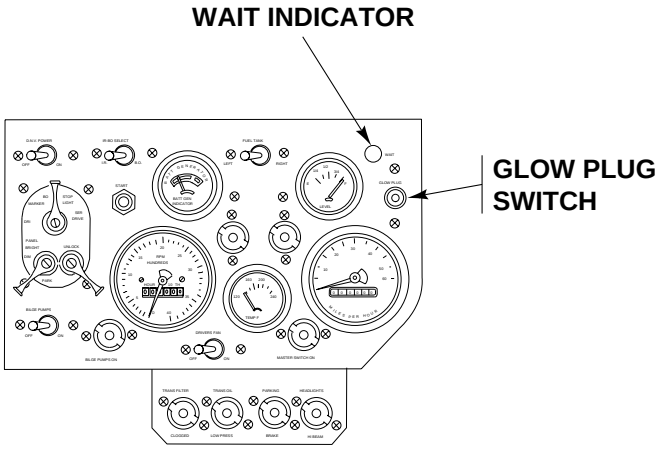
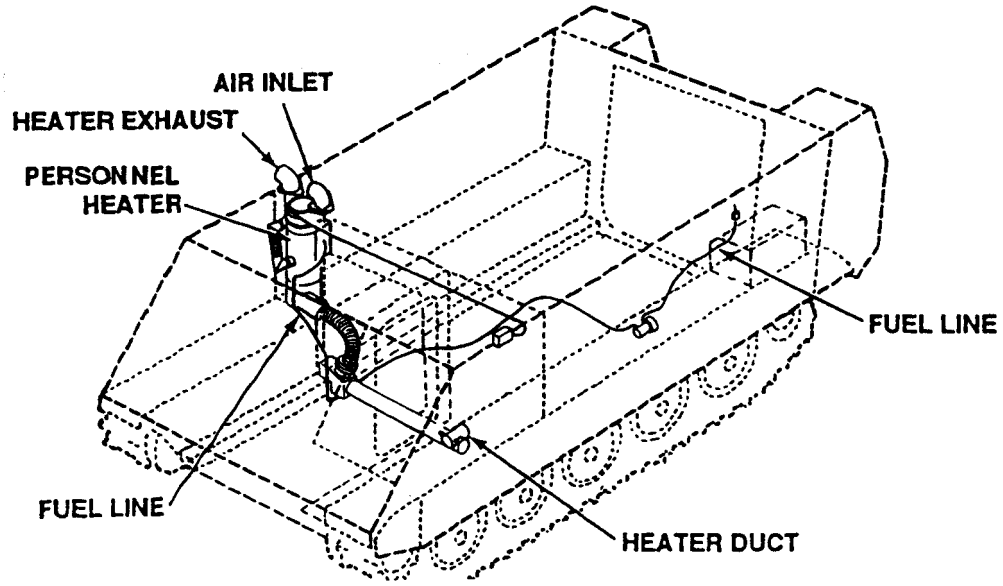


Table 2. Preventive Maintenance Checks and Services for Model M113A3 FOV, During

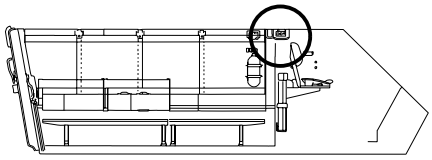
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
23	During		Instrument Panel Warning Lights and Gauges	**DRIVER** **WARNING**  **If TRANS OIL LOW PRESS warning light stays on, personnel can be injured and equipment can be damaged from erratic vehicle movement. Ensure all ground personnel are clear of the vehicle before engaging transmission. Apply and hold brakes before engaging transmission.** **CAUTION** **Do not operate vehicle with the TRANS OIL LOW PRESS warning light on. Operating the vehicle with the TRANS OIL LOW PRESS warning light on can damage the transmission and may result in unpredictable vehicle operation.** **CAUTION** **If the TRANS OIL LOW PRESS comes on or if erratic movement occurs at any time during operation; cease operation immediately. The driver shall shut down the vehicle in accordance with the vehicle operator's manual instructions below:** • **Bring vehicle to a stop.** • **Place transmission controller in "SL" position.** • **Set parking brake.** • **Pull fuel shutoff control.** • **Turn off master switch.** • **Secure the vehicle.** • **Notify unit maintenance for proper disposition.**	

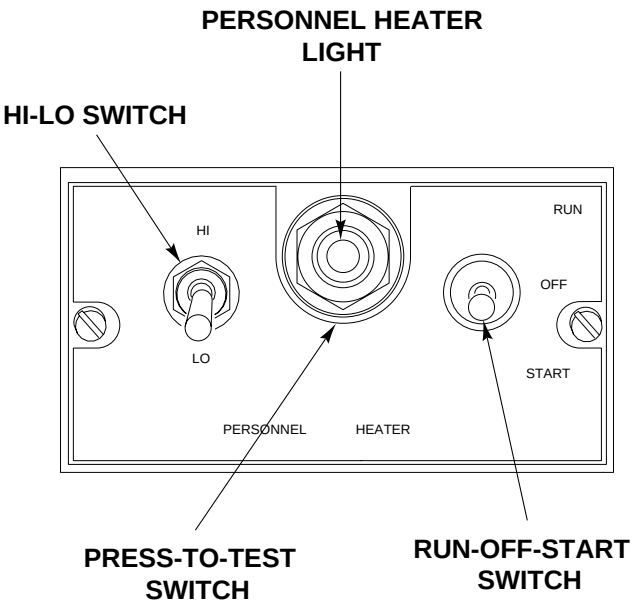
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE **TRANS OIL LOW PRESS warning light may come on when brakes are released, but light should go off when engine speed reaches 1200-1300 rpm.**	
				During carrier operation, check instrument panel warning lights and gauges periodically for possible carrier malfunctions. Panel indicators should read as follows:	Any erratic vehicle movement or TRANS OIL LOW PRESS warning light stays on.
				• Warning Lights — all OFF.	Any warning light comes on.
				• Battery Generator Indicator — in green zone.	Gauge is not in green zone.
				CAUTION **Damage to the engine will occur if the temperature gauge exceeds 230°F.**	
				• Coolant temperature gauge — If outside air temperature is less than 85°F, normal coolant temperature should be 160-230°F.	Outside air temperature is less than 85°F and gauge is above 200°F. If outside air temperature is greater than 85°F and gauge is above 230°F, notify unit maintenance immediately.
				Report any abnormal indications to unit maintenance. For a complete description of warning lights and gauges, see WP 0004 00.	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
24	During		Personnel Heater	**DRIVER** **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 material must be stored 12 inches or more from metal surfaces of heater.** **Do not operate personnel heater if any fuel leak is found in heater or in fuel lines.** 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. **WARNING**  **Do not use heater during operation. Injury to personnel may occur.** **NOTE** **Make sure nothing is blocking the personnel heater exhaust, air inlet, or heater ducts.**	Any fuel leaks in heater or fuel lines.

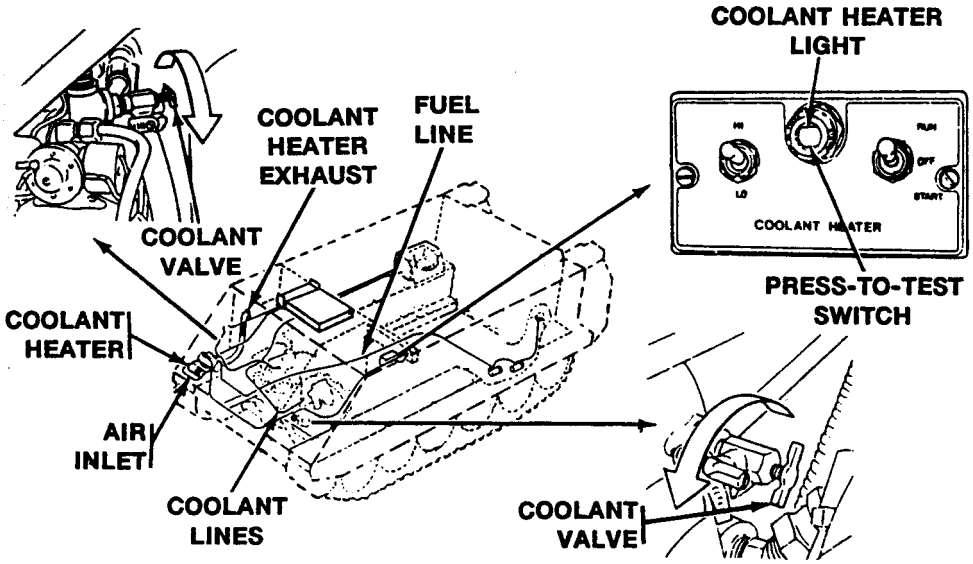
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
				b. Check operation of personnel heater electrical circuits.	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. Push the PRESS-TO-TEST light cover. Make sure indicator light comes ON before you start heater.	

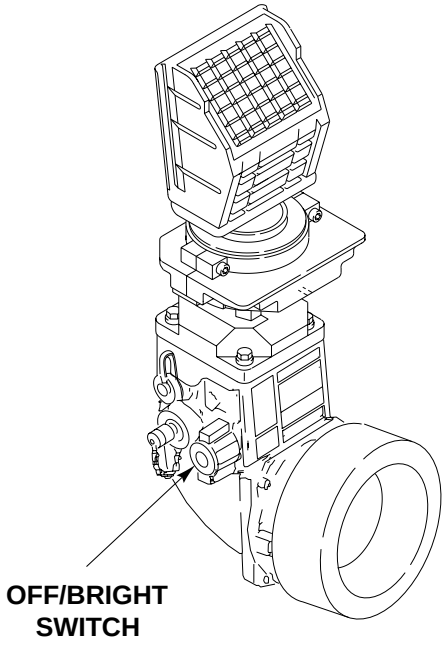




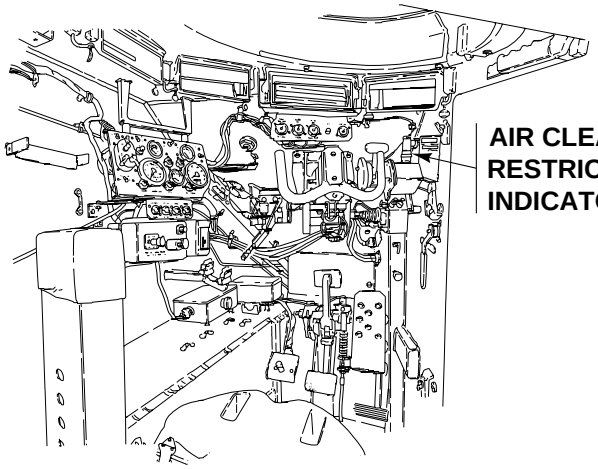
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
25	During		Coolant Heater	**DRIVER** a. Check for leaks in fuel lines and coolant lines. Make sure coolant valves are open before you start heater. b. Push the PRESS-TO-TEST light cover. 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.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
26	During		Driver's Night Viewer Off/ Bright Rotary Switch Control	**DRIVER** Rotate OFF/BRIGHT rotary switch control and brightness control. Report deficiencies to Unit Maintenance.	



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
27	During		Air Cleaner Restriction Indicator	**DRIVER** Check air cleaner restriction indicator. If at any time you see only red in the window and button does not reset when pushed in, stop engine. Clean air cleaner. Recheck.	Air restriction indicator remains red after cleaning filter and resetting. Hose or indicator cracked or damaged.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
28	During		M157A2 Smoke Generator System	**GENERATOR OPERATOR** **M1059A3 ONLY** **WARNING**  **All personnel within 75 feet (22.9 meters) of M1059A3 and M58 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 M1059A3 and M58 carrier.** For PMCS procedures, see TM 3-1040-283-10.	Fault listed in "Equipment Not Ready/ Available If:" column of smoke generator TM.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
29	During		Smoke Obscurant System	**GENERATOR OPERATOR** **M58 ONLY** **WARNING**  **All personnel within 75 feet (22.9 meters) of M1059A3 and M58 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 M1059A3 and M58 carrier.** For PMCS procedures, see TM 3-1040-285-10.	Fault listed in "Equipment Not Ready/ Available If:" column of smoke obscurant system TM.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
30	During		Mortar Carrier Tube Assembly	**GUNNER** **M1064A3 ONLY** See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm mortar.	Fault listed in "Equipment Not Ready/ Available If:" column of mortar TM.
31	During		Generator Set	**CREWMEMBER** **M577A3 AND M1068A3** See TM 5-6115-596-14 for PMCS procedures.	Fault listed in "Equipment Not Ready/ Available If:" column of generator TM.
32	During		Auxiliary Power Unit (APU)	**CREWMEMBER** **M577A3 AND M1068A3** See TM 9-6115-664-13&P for PMCS procedures.	Fault listed in "Equipment Not Ready/ Available If:" column of APU TM.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
33	During		Carrier Communications Equipment	**COMMANDER** a. Check radio equipment for proper operation. See TM 11-5820-498-12, TM 11-5820-401-12, and/or TM 11-5820-890-10-8 as needed. **NOTE** **M577A3 and M1068A3 carriers may be equipped with the Vehicle Intercommunication System (VIS). See TM 11-5830-263-12 for proper operation.** b. Check intercom controls for proper operation.	Radios do not transmit or receive. No intercom between commander and driver.

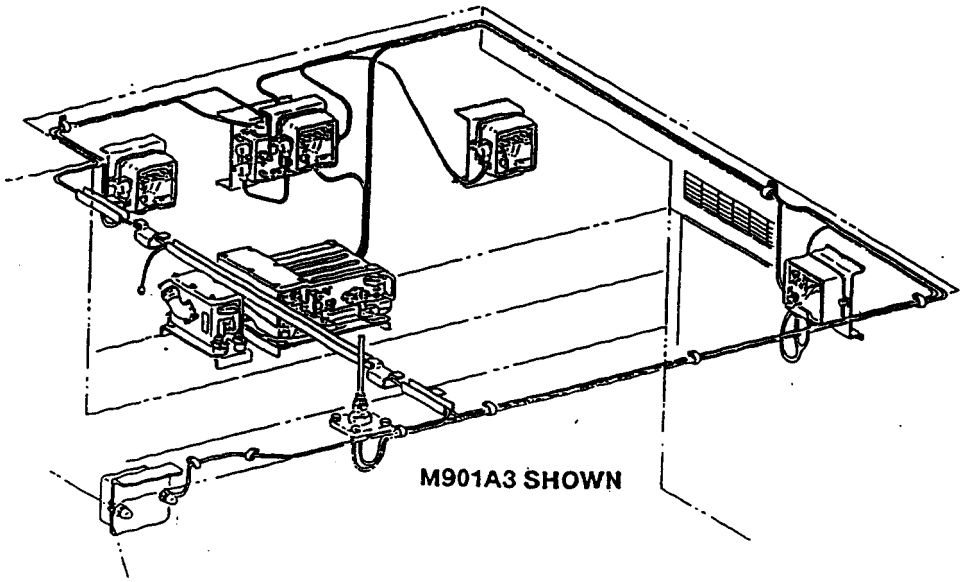
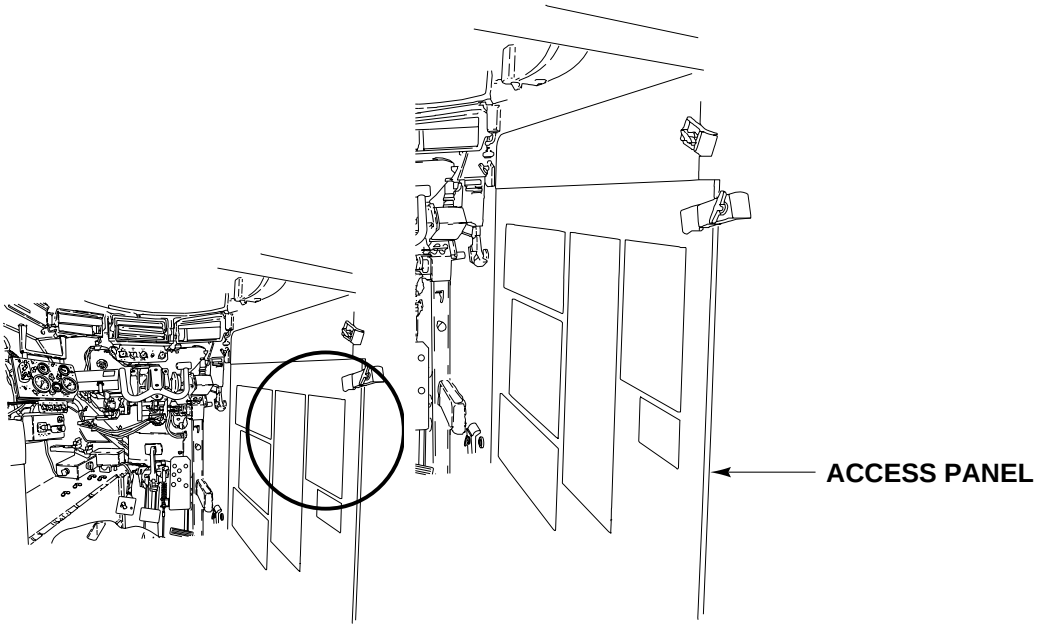


Table 3. Preventive Maintenance Checks and Services for Model M113A3 FOV, After

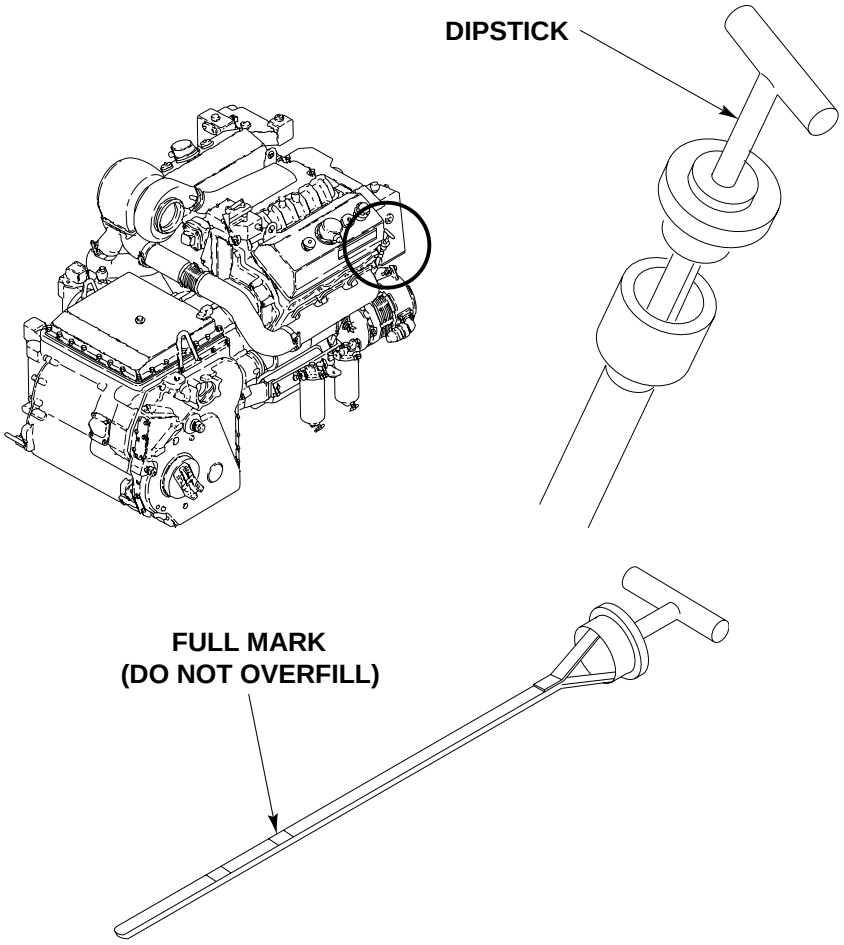
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
34	After		Engine Shutdown	**DRIVER** **WARNING**  **Hot parts can burn you. Let hot parts cool before you start work.** Stop Engine (WP 0024 00).	Engine won't shut down.
35	After		Driver's Power Plant Compartment	**DRIVER** Remove operator'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.	Any Class III oil or coolant leak or any fuel leak. Any holes or tears in flexible ducts.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
36	After	0.3	Engine Oil Level	**DRIVER** **CAUTION** **Engine can be damaged if filled above F (Full) mark.** **Do not add oil unless below Low mark.** **Do NOT mix OE/HDO-15W40 with single grade lubricants.** **NOTE** **Carrier must be on level surface when checking oil level.** 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. See Lubrication Tables (page 0090 00-7). **NOTE** **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.** **For AOAP sampling requirements and procedures, see page 0090 00-4.**	Any sign of Class III leak. Any fuel leak.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

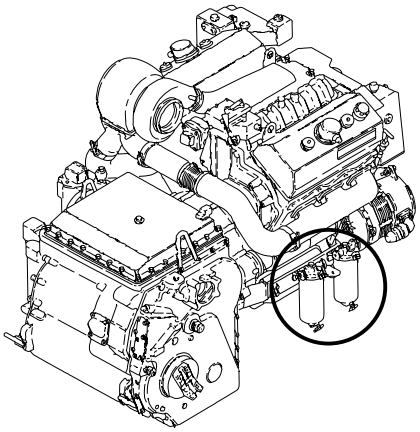
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

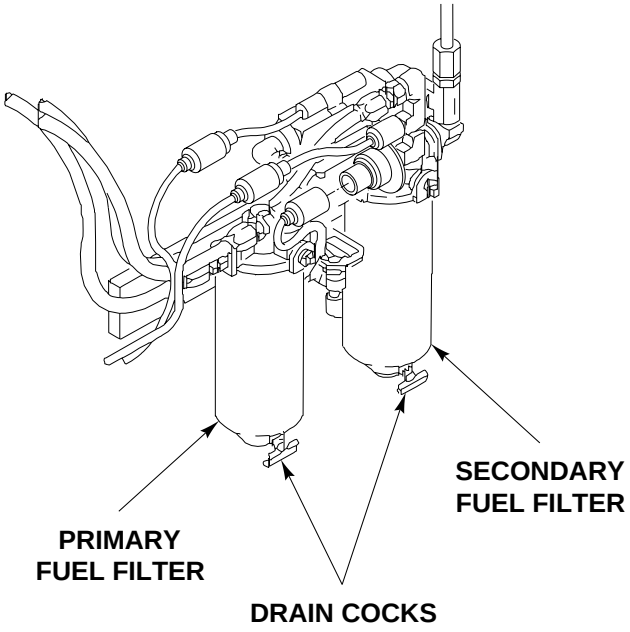


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
37	After	0.3	Fuel Filter	**DRIVER** **WARNING**  **Fuel is flammable. Always use in area with good air flow, away from heat or flames. Do not breathe fumes. If fuel gets on hands, wash them. If fuel gets in eyes, flush with water and get medical help. Keep fire extinguisher nearby.** Drain water and sediment from engine primary and secondary fuel filters as follows: 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. Check for fuel leaks at primary and secondary fuel filters. If leak is found, notify unit maintenance.	Any fuel leak.

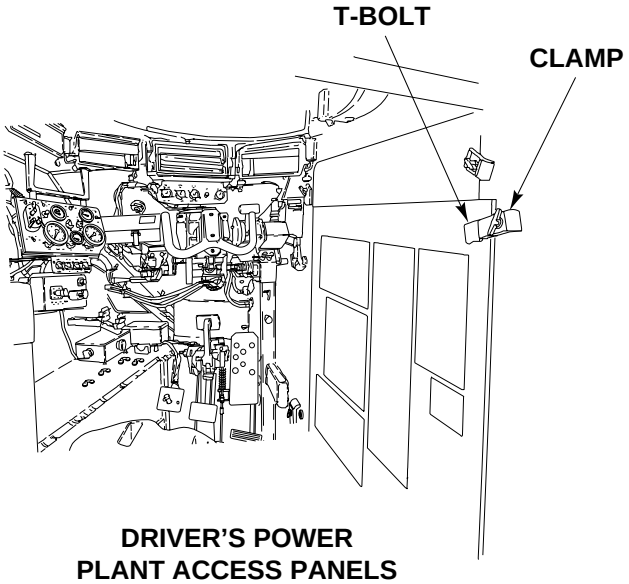
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:



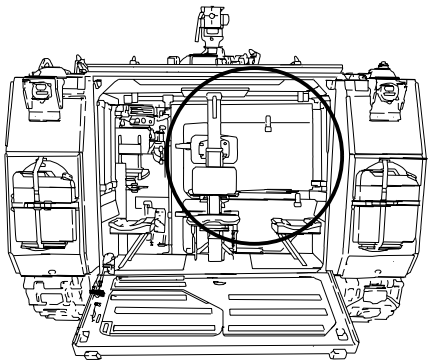


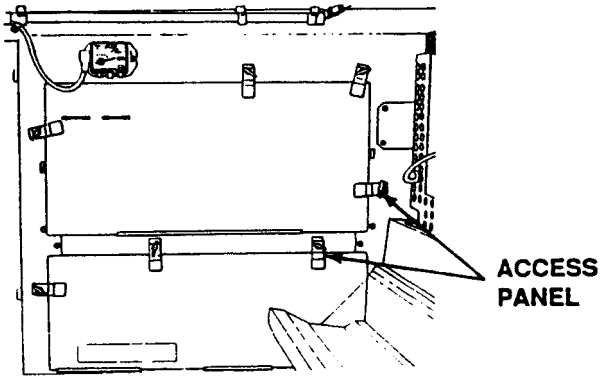
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
38	After		Driver's Power Plant Access Panel	**DRIVER** **CAUTION** **Unsealed or missing panels may cause coolant system to overheat because air does not flow through the radiator, but instead will flow through unsealed or missing panels. Damage to the power train components due to overheating may occur.** 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.	Latch missing or will not tighten.



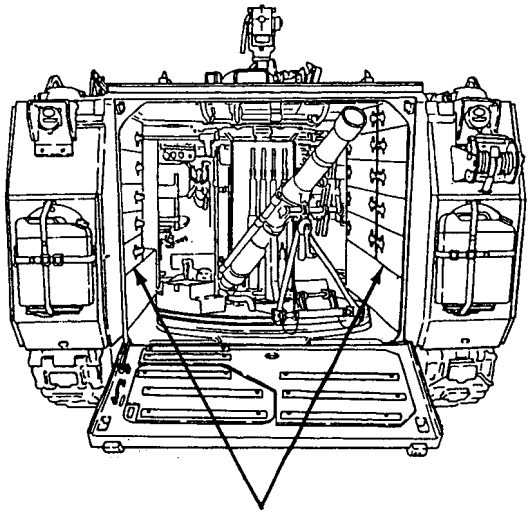
DRIVER'S POWER PLANT ACCESS PANELS

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
39	After		Rear Power Plant Compartment	**DRIVER** 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.	Any Class III oil or coolant leaks, holes, or tears in flexible ducts. Any fuel leak.



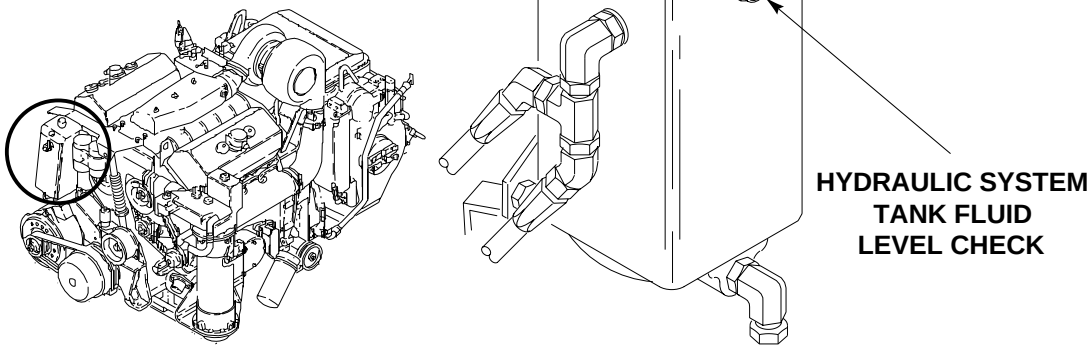


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
40	After		Crew Compartment	**GUNNER** **M1064A3 ONLY** Check ammo storage racks, door, post, and hinges for damage. Report damaged or missing parts to unit maintenance.	

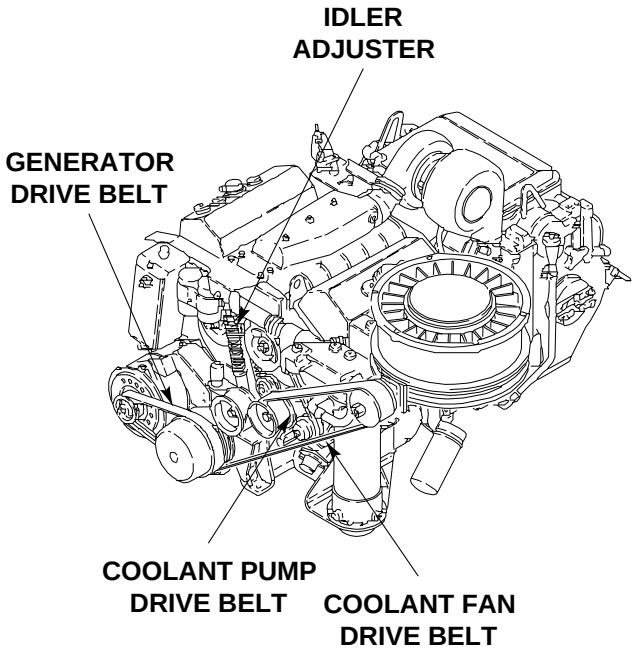


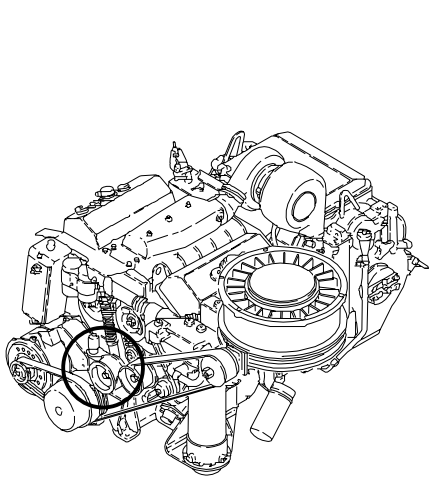
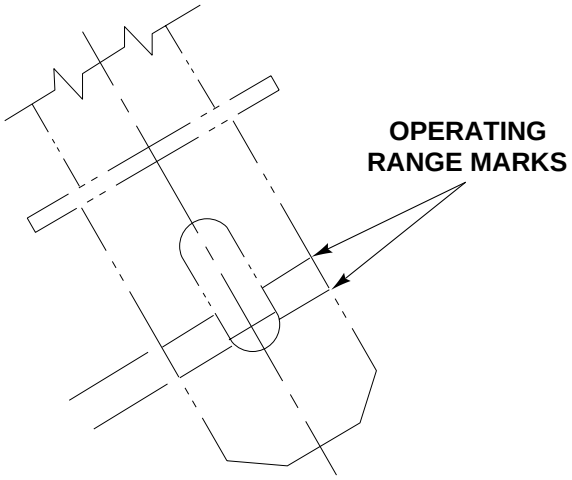
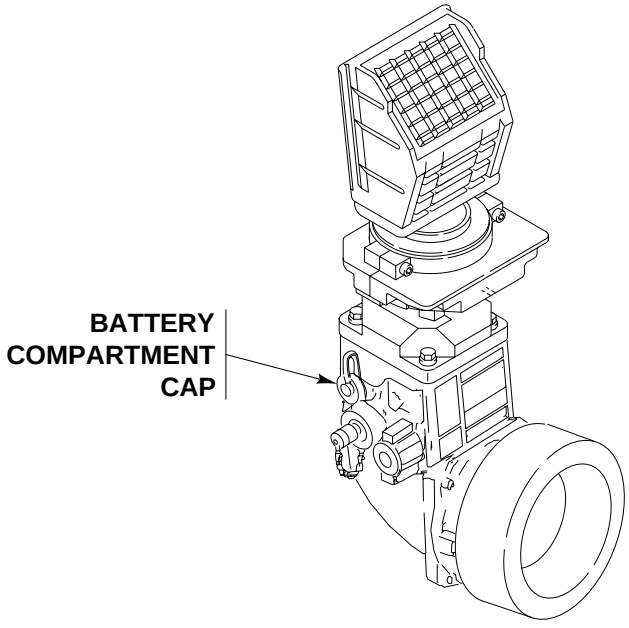
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
41	After	0.2	Carrier Ramp	**DRIVER** **WARNING**  **Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.** a. Lower ramp. **WARNING**  **Fire resistant hydraulic (FRH) fluid 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 your skin, thoroughly wash with soap and water. Wash hands thoroughly prior to eating or smoking. Application of these measures is considered an effective control of the hazard.** **CAUTION** **Use only FRH hydraulic fluid. Do not mix different types of fluid. Do NOT overfill.**	Ramp will not lower or raise.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				b. Check ramp hydraulic fluid level with ramp down and carrier on level ground. Fluid level must be visible halfway up in hydraulic tank sight glass. To add FRH, remove fill plug and preformed packing from top of tank. Add FRH as needed. See Lubrication Tables (page 0090 00-7). Install fill plug and new preformed packing.	Fluid is not visible half way up in sight glass. Breather cap is missing.

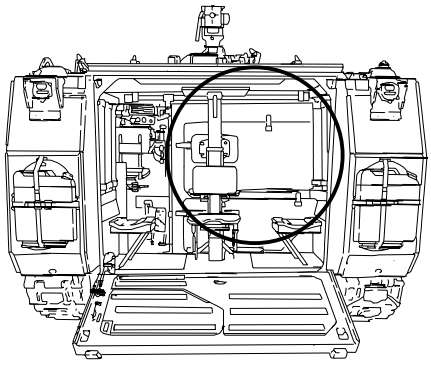


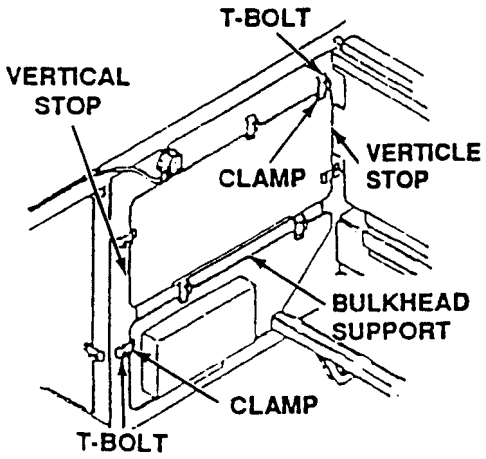
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
42	After		Drive Belts	**DRIVER**	
				a. Check generator, coolant pump, and coolant fan drive belts for looseness, wear, and damage.	Any drive belt missing, broken, cracks to the belt fiber, has more than one crack (1/8 inch in depth or 50% of belt thickness) or has frays more than 2 inches long.
				b. 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.	Fan assembly grinding or squeaking. Loose or missing idler adjuster and/or hardware.

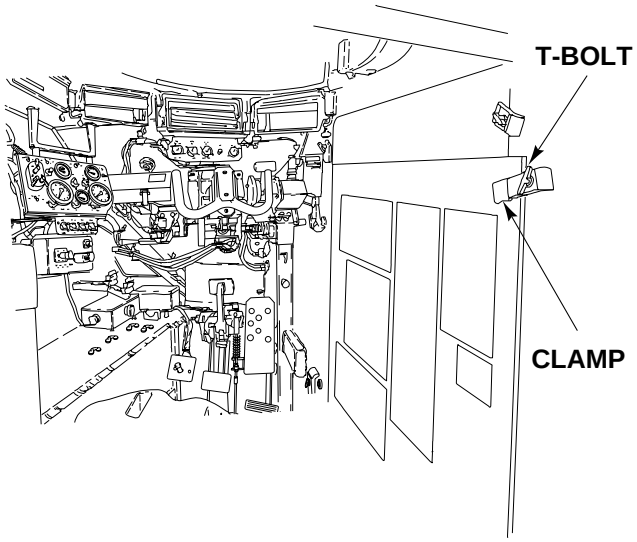


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				 	
43	After		Driver's Night Viewer Battery	**DRIVER** Remove battery compartment cap and remove battery after operation. Replace battery compartment cap.	
					

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
44	After		Driver's Night Viewer	**DRIVER** Inspect the exterior surface. They should be clean, free of dust, dirt, grease, and fungus.	
45	After		Rear Power Plant Access Panel	**DRIVER** **CAUTION** **Make sure rear power plant access panel is closed tightly before continuing your PMCS or operating carrier.** 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.

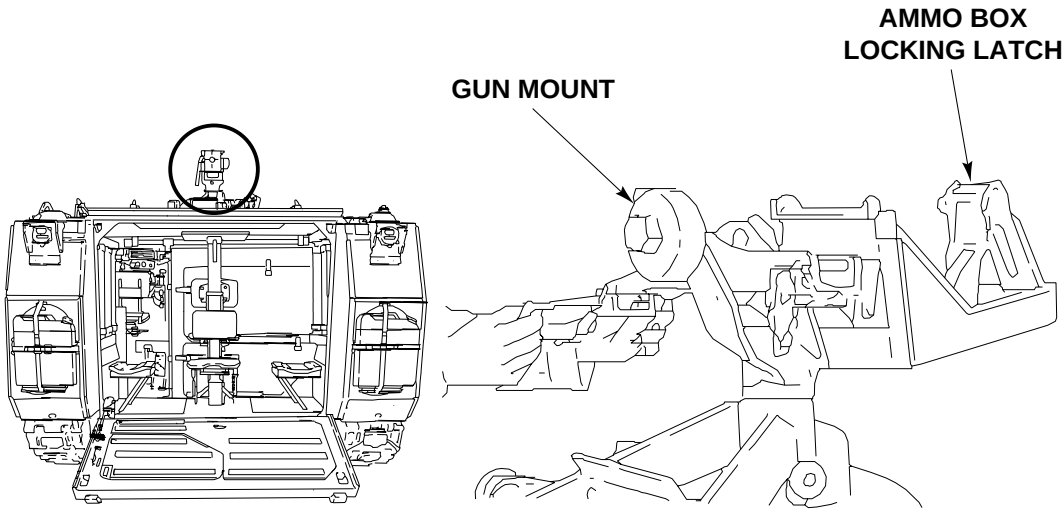




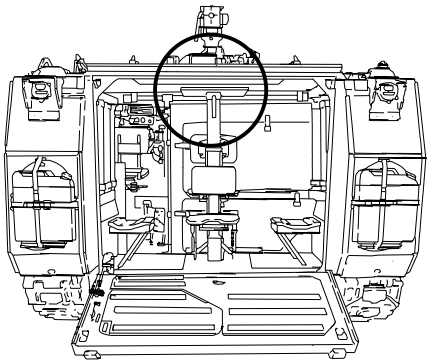
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
46	After		50 Cal. Machine Gun or 40mm MK19 Machine Gun	**COMMANDER** **M113A3, M1059A3, M1064A3, AND M58** Perform PMCS per Machine Gun manual (TM 9-1005-213-10 or TM 9-1010-230-10).	

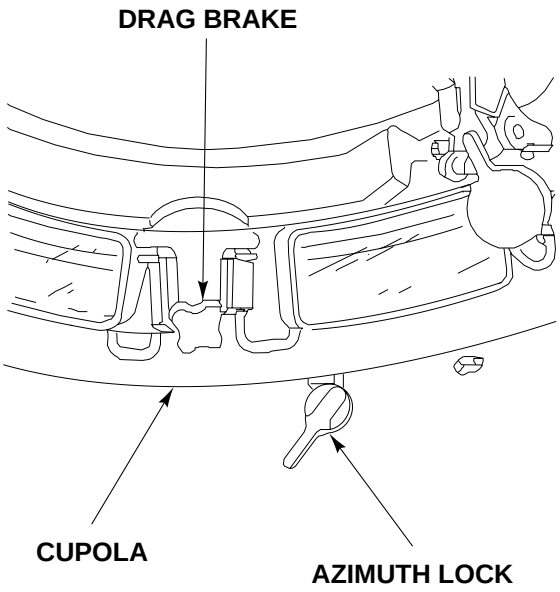
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
47	After		Machine Gun Mount 50 Cal, M2	**COMMANDER** **M113A3, M1059A3, M1064A3, AND M58** 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.	Damaged, binding, or missing parts or pin.

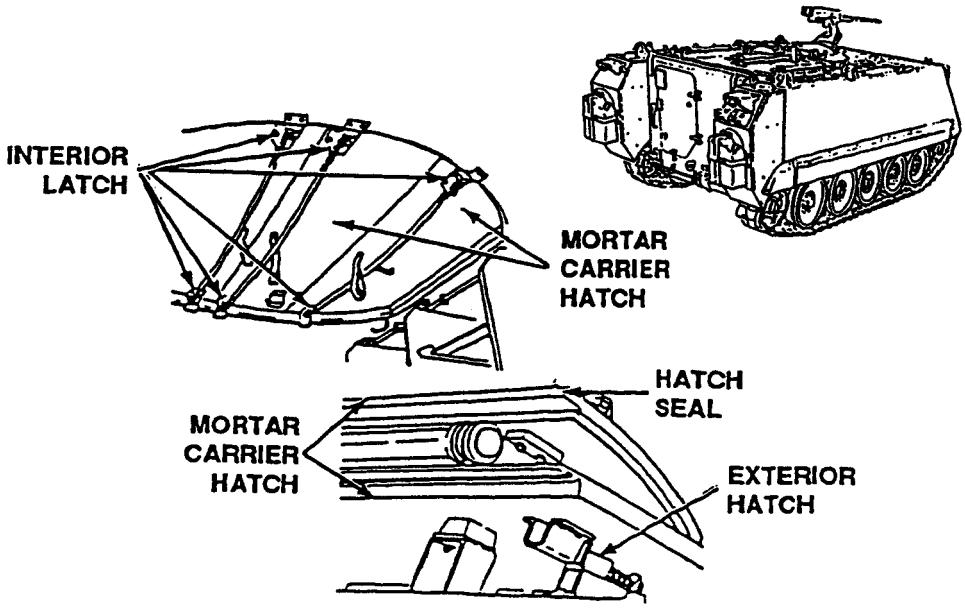


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
48	After		Commander's Cupola	**CARRIER COMMANDER** **M113A3, M1059A3, M1064A3, AND M58** a. Check that cupola lock locks movement of the cupola. Release lock and test cupola for ease of movement. See task: OPERATE COMMANDER'S CUPOLA (WP 0010 00). b. Check operation of drag brake. See task: OPERATE COMMANDER'S CUPOLA (WP 0010 00). Report damaged lock or drag brake to unit maintenance.	

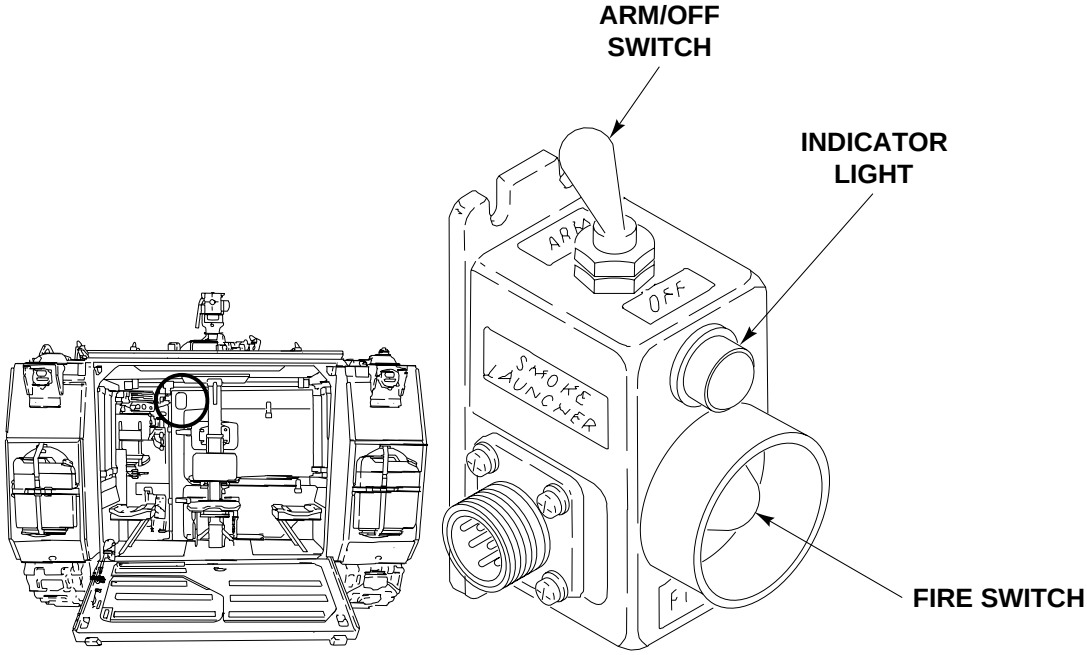




ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
49	After		Hatches	**GUNNER** **M1064A3 ONLY** a. Check mortar carrier latches. b. Check operation of exterior catches on all hatches. Check interior latches. c. Check hatch seals for breaks, brittleness, cracks, and poor sealing. Report any damaged hatch, seal, catches, missing or inoperable locking pins to unit maintenance.	Latches on any hatch that do not hold the hatch in open or closed position. Any hatch locking pins missing or inoperable.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
50	After		Smoke Grenade Launcher	**COMMANDER** **M113A3, M901A3, M981A3, M1059A3, AND M58** 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.	



CAUTION

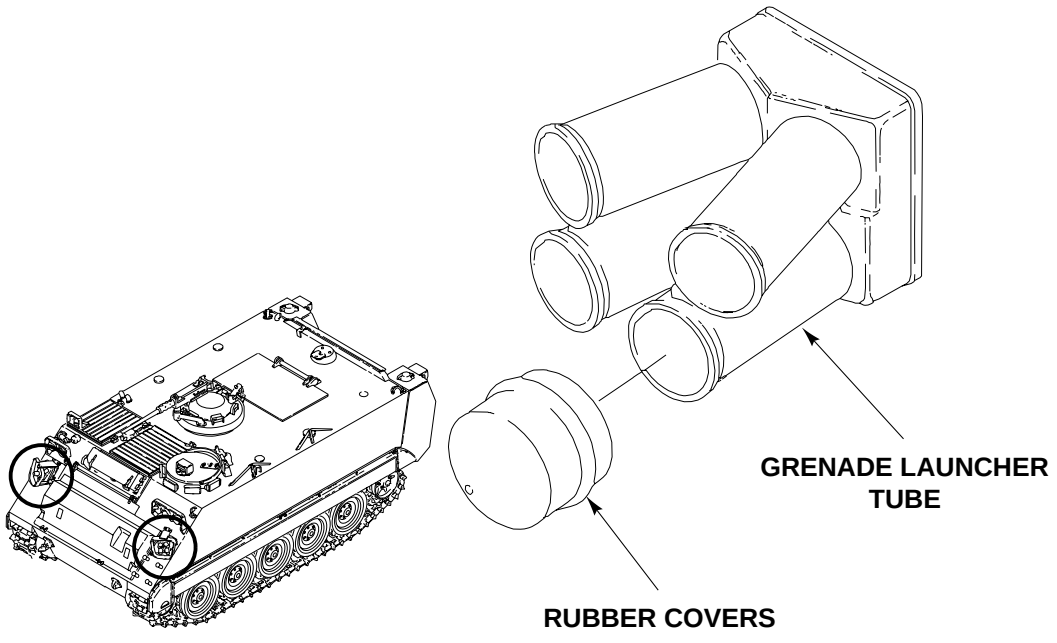
Do not use wire brush to clean launcher tubes. Brush may cause damage to tubes.

c. Clean smoke grenade launcher tubes.

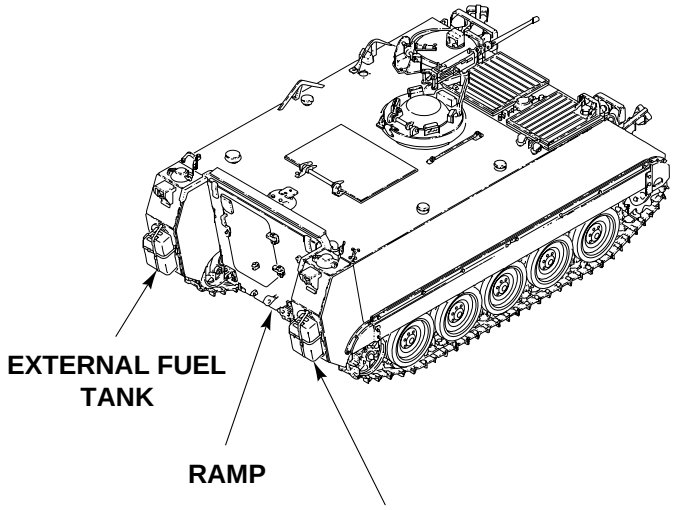
1) During continued firing, clean tubes with cleaning compound (WP 0104 00, Item 5). Do not wipe dry or lubricate.

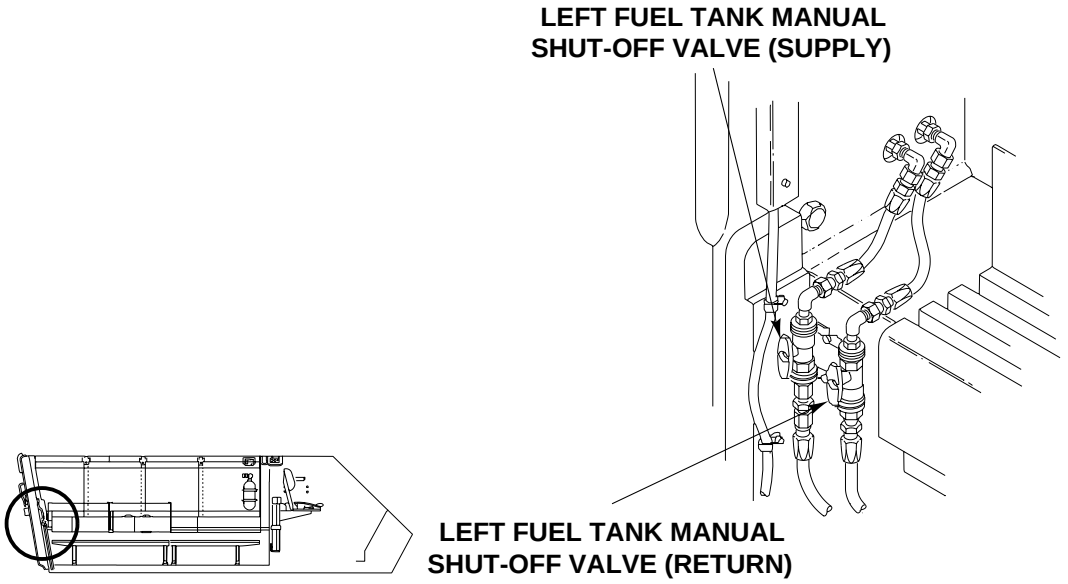
2) Clean debris from barrel drain holes by inserting stiff wire, if necessary.

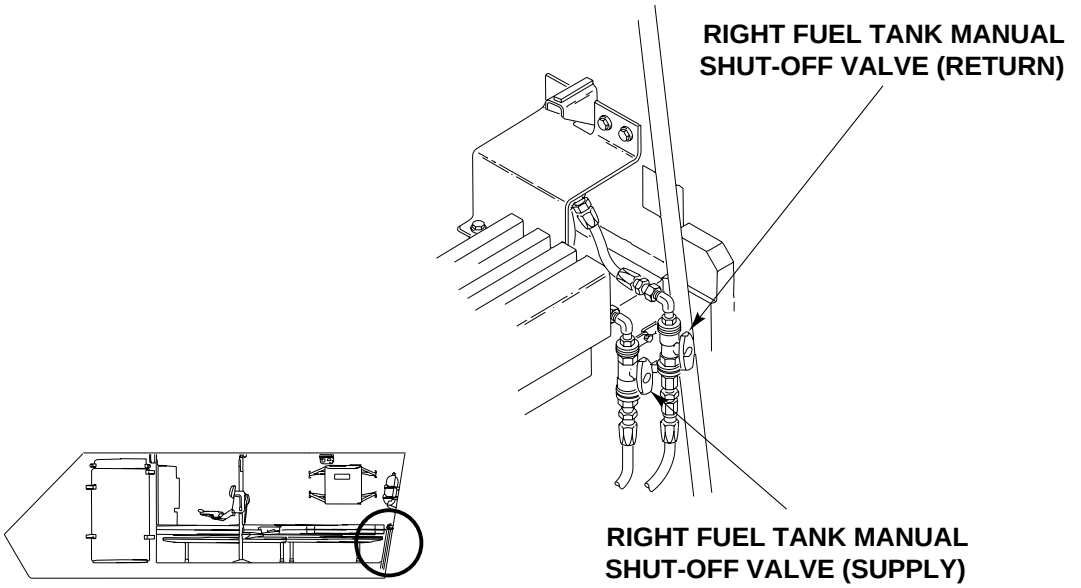
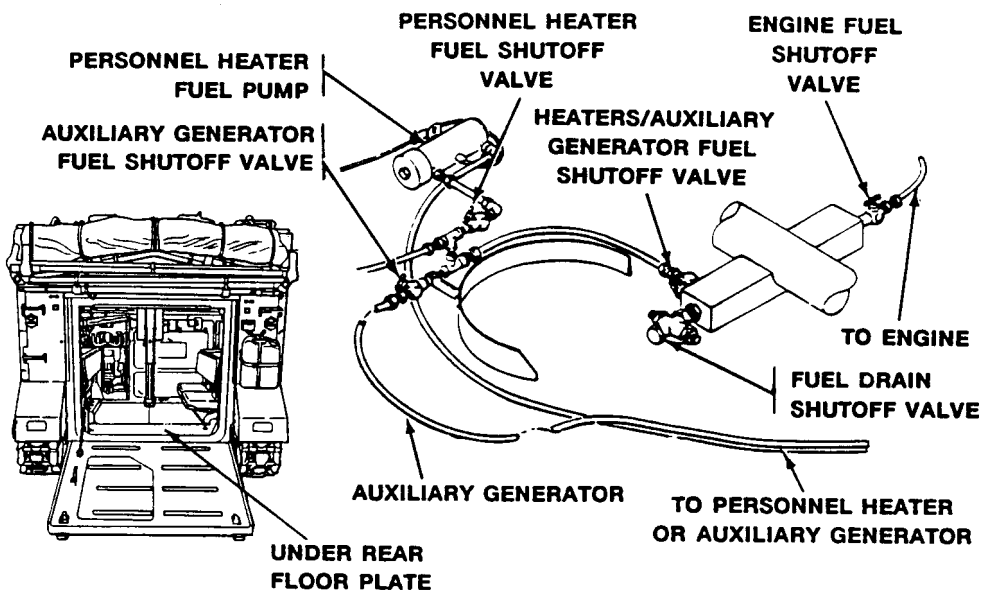
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				3) Be sure that no residue remains around tip plugs located at bottom center in each barrel. 4) Immediately after firing and for two consecutive days thereafter, thoroughly clean tubes with cleaning compound (WP 0104 00, Item 5). Make sure all surfaces are well coated. Do not wipe dry. 5) Three days after last firing, clean tubes with cleaning compound (WP 0104 00, Item 5). Wipe dry with clean cloth (WP 0104 00, Item 7). d. Covering Launchers. 1) After each cleaning, install rubber covers on launcher tubes.	



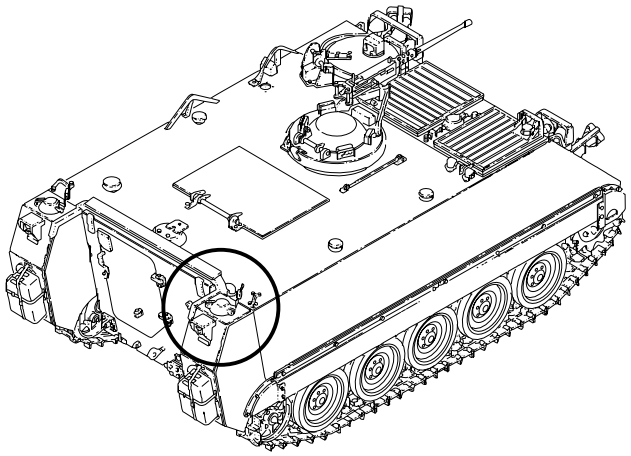
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
51	After		Fuel Lines	**DRIVER** **ALL EXCEPT M577A3 AND M1068A3** Check carrier fuel lines for leaks. Report any leaks to unit maintenance.	Any fuel leak.



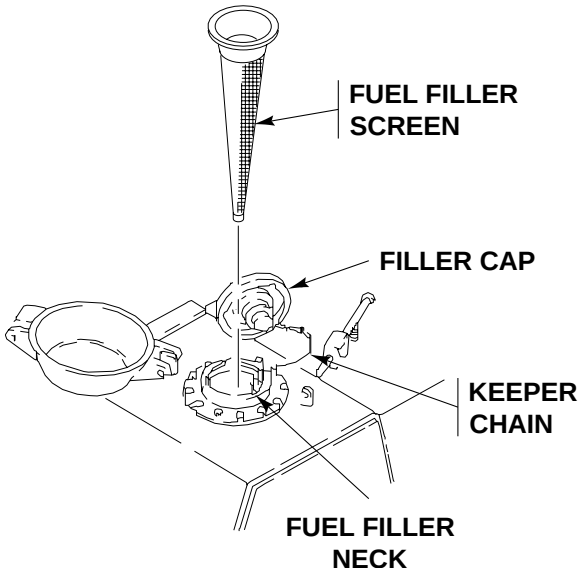


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
				M577A3 AND M1068A3 ONLY Check carrier fuel lines for leaks. Report any leaks to unit maintenance.	Any fuel leak.
					

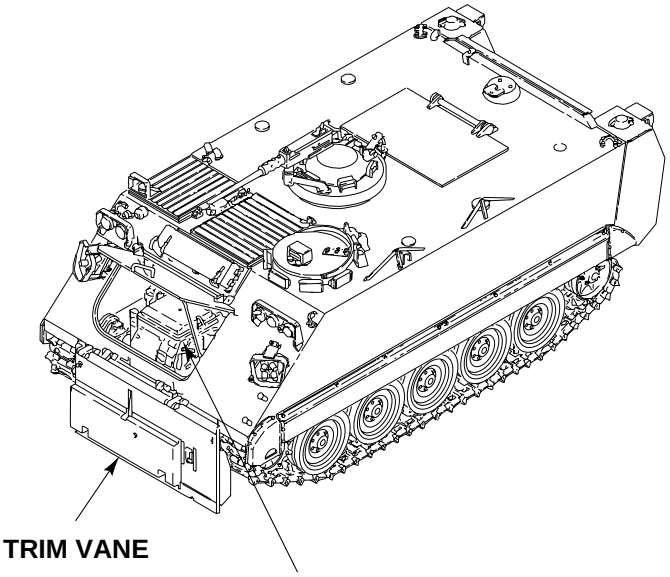
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
52	After		Fuel Tank and Filler Cap	**DRIVER** **WARNING**  **Make sure carrier is properly grounded before refueling. Fuel can catch fire and burn you. Wipe up spilled fuel.** Make sure filler 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. **NOTE** **M577A3 and M1068A3 have only one fuel filler cap located on right rear hull.**	



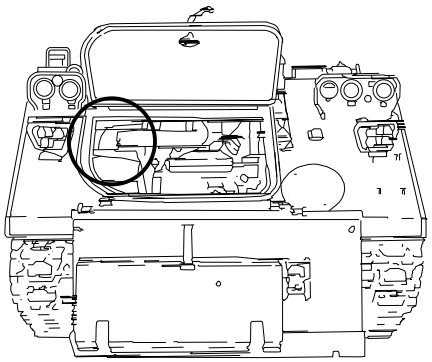
M113A3 SHOWN

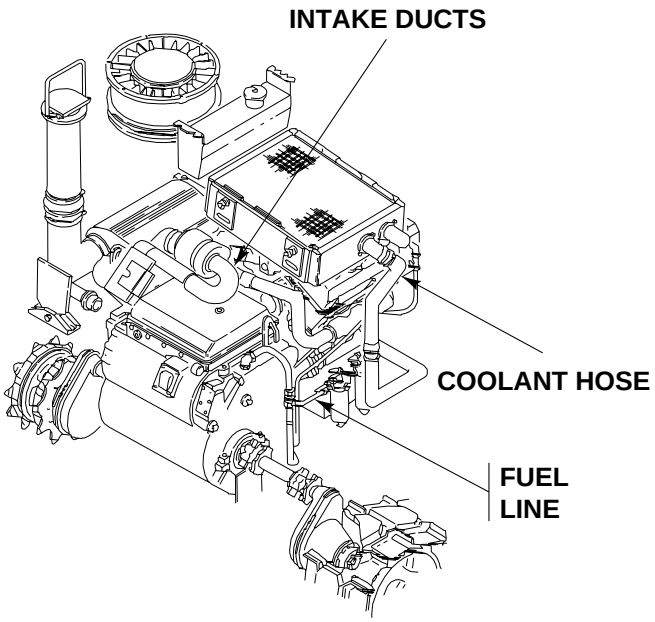


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
53	After		Front Access Power Plant Compartment	**DRIVER** **NOTE** **Make sure you check all flexible air intake ducts for damage. Do not operate carrier with any holes or tears in flexible ducts.** a. Check inside power plant compartment for leaks and damage.	Any Class III oil or coolant leaks. Any fuel leaks.



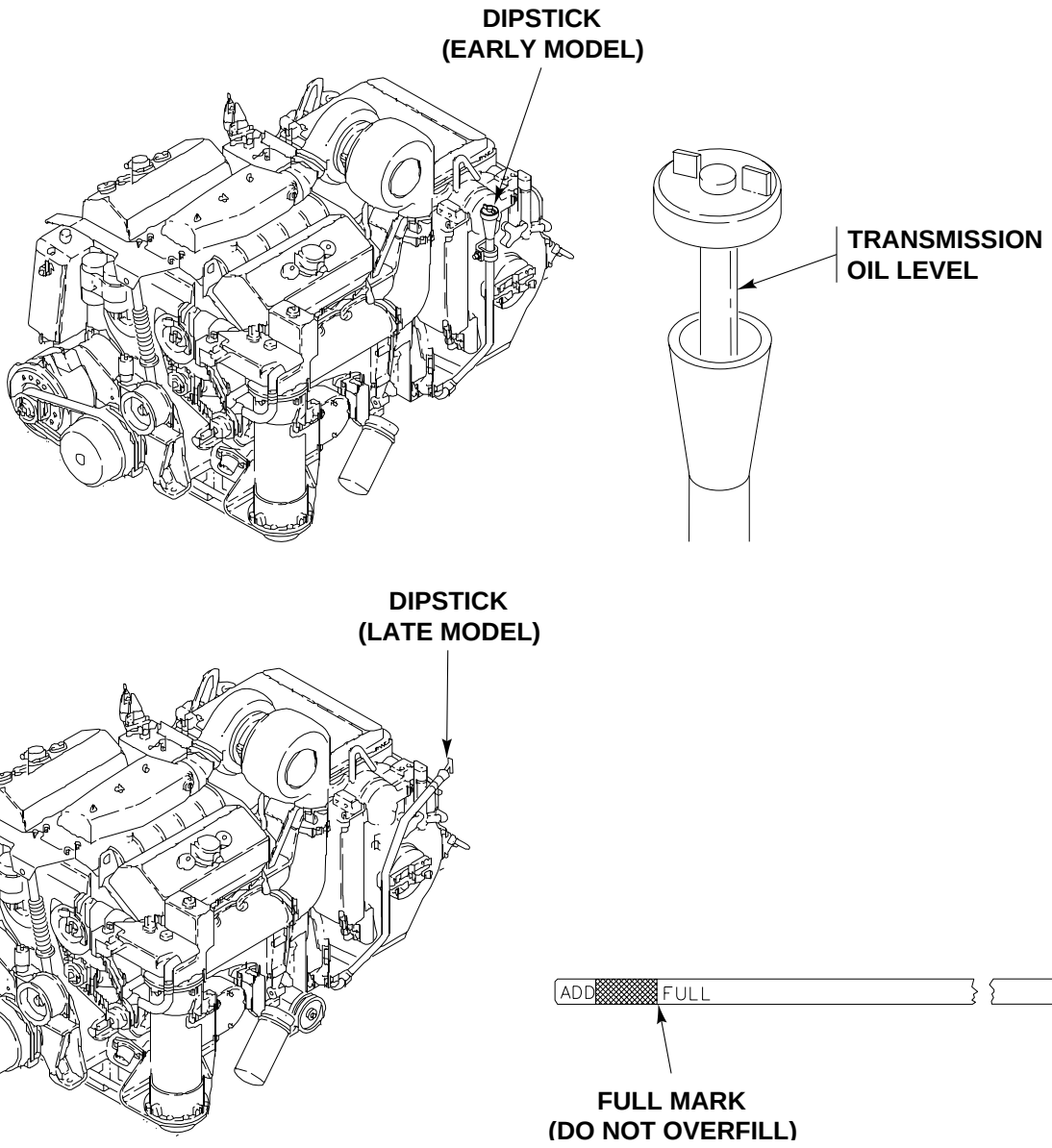
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				b. Check air intake ducts and fuel lines for signs of damage and loose fittings.	Any holes or tears in flexible air intake.





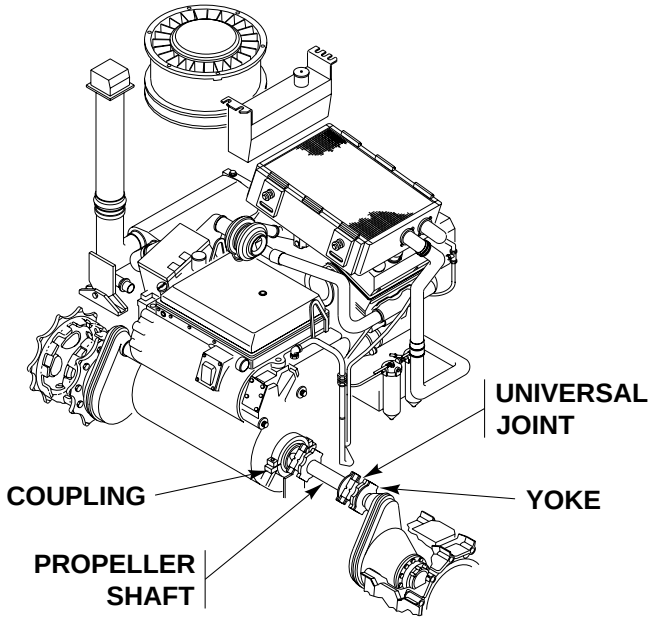
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
54	After	0.2	Transmission Oil Level	**DRIVER** **CAUTION** **Transmission can be damaged if filled above FULL mark on gauge rod.** **Do NOT mix OE/HDO-15W40 with single grade lubricants.** **NOTE** **Carrier must be on level surface when checking oil level. For early model transmissions, the dipstick is also the fill tube. On late model transmissions, the fill tube is on the brake cover and the dipstick is separate.** Check transmission oil level. Before operation, oil level should be at FULL mark on gauge rod. Just after carrier operation when oil is warm, oil level should be at or just above ADD mark on gauge rod. Add oil as needed. Do not overfill. See Lubrication Tables (page 0090 00-7). **NOTE** **Visual inspection of transmission oil should not be justification to replace oil. Detergent transmission oils may appear dark in color due to additives.** **Notify unit maintenance to change oil and oil filters when converting from OE/HDO to OEA, PE-10-1 to OE/HDO, etc.** **For AOAP sampling requirements and procedures, see page 0090 00-4.**	Any sign of Class III leak. Any fuel leak.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

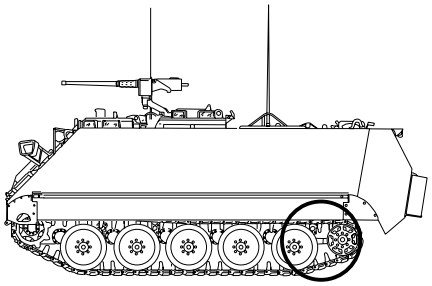


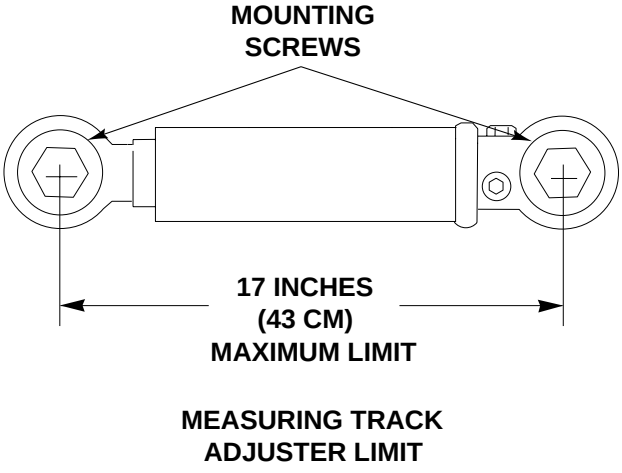
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
55	After		Final Drives Housings	**DRIVER** **WARNING**  **Final drive housings can heat up enough to burn you.** a. Check final drive housings for overheating. Feel each final drive housing. If it is too hot to touch, report overheated final drive housing to unit maintenance. b. Check drain plugs.	Any overheated drive housing. Drain plug missing.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
56	After		Propeller Shafts, Universal Joints	**DRIVER** Check propeller shafts, universal joints, mating coupling and yokes for loose or missing mounting hardware corrosion and evidence of wear/damage.	Any damaged, loose, or missing mounting hardware or parts. Any bolts or washers loose, broken, or missing mounting hardware.



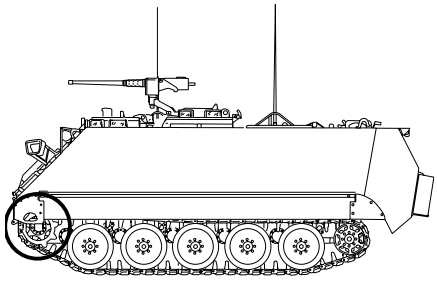
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
57	After		Track Tension	**DRIVER** a. Check for missing or damaged track adjusters. **CAUTION** **Track adjuster extended too far may buckle and become damaged during operation. Do not extend track adjuster beyond 17 inches (maximum), as measured between centers of track adjuster and mounting screws.** b. Adjust track tension as necessary (WP 0091 00).	Track adjuster missing or unserviceable.

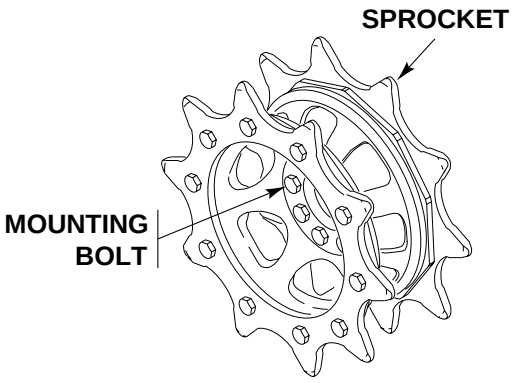




PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

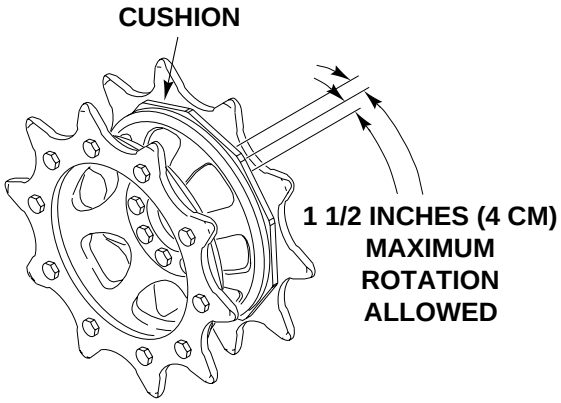
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
58	After		Sprockets and Cushions	**DRIVER** a. Check sprockets for cracked, broken, or missing teeth and loose or missing mounting bolts. Report cracked, broken, or missing sprocket tooth and missing mounting bolts to unit maintenance. Tighten loose mounting bolts as needed.	Any sprocket tooth is cracked, broken, or missing. Any sprocket to carrier mounting bolt missing. Two or more carrier to hub mounting bolts missing.

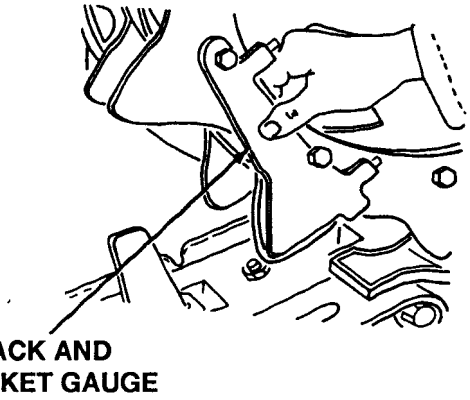




PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

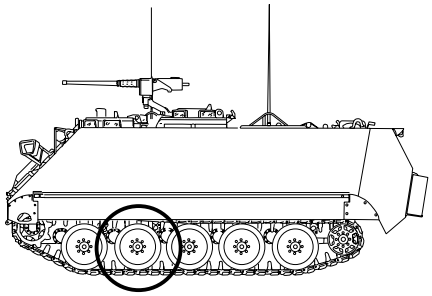
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				b. Check sprocket teeth for wear. Use track and sprocket gauge to measure sprocket teeth. If any part of sprocket tooth does not extend beyond gauge, notify unit maintenance. Check cushions 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.	Any sprocket tooth fails gauge test.

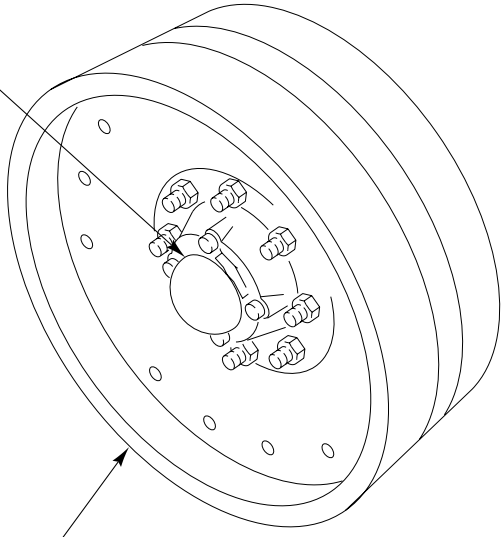


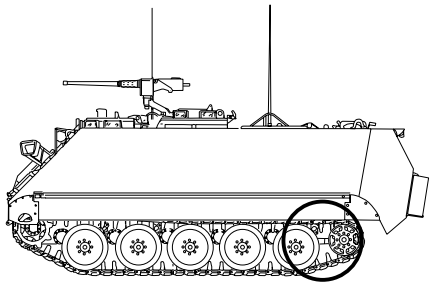


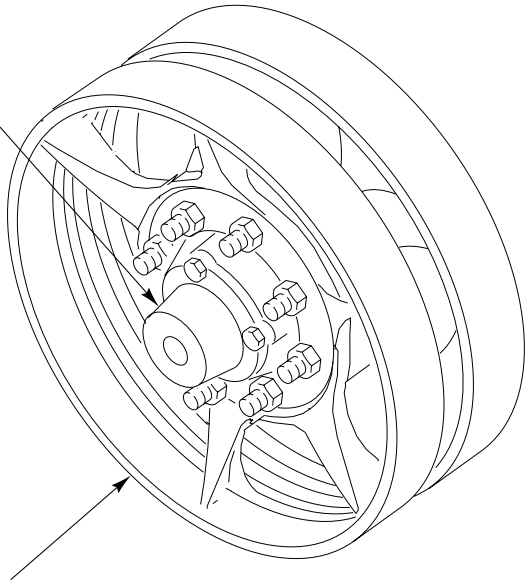
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
59	After		Roadwheels and Idler Wheels	**DRIVER** **WARNING**  **Roadwheel hubs and idler wheel hubs can heat up enough to burn you.**	
				a. Check roadwheels for separation of rubber from metal.	Separation of one-half of rubber contact from the wheel. Chunking across one-half width of outer rubber surface.
				b. Check for missing, bent, or cracked roadwheels or idler wheels.	Missing, bent, warped or cracked roadwheel or idler wheel. Mounting holes elongated.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:





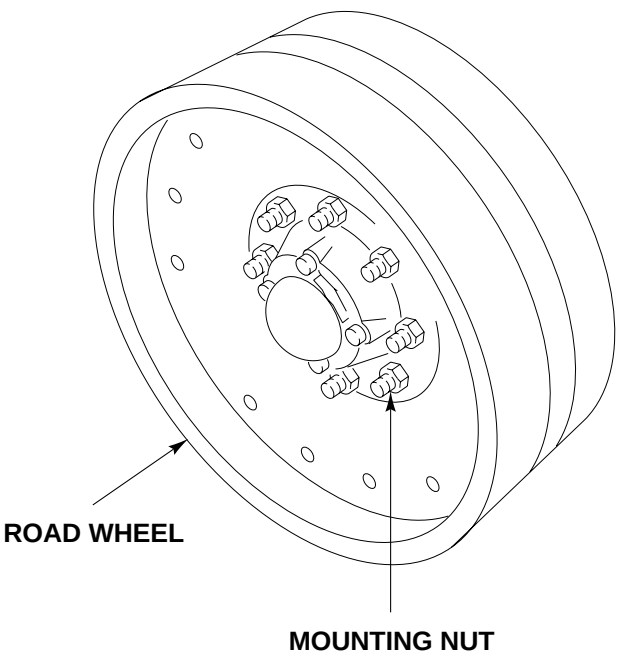


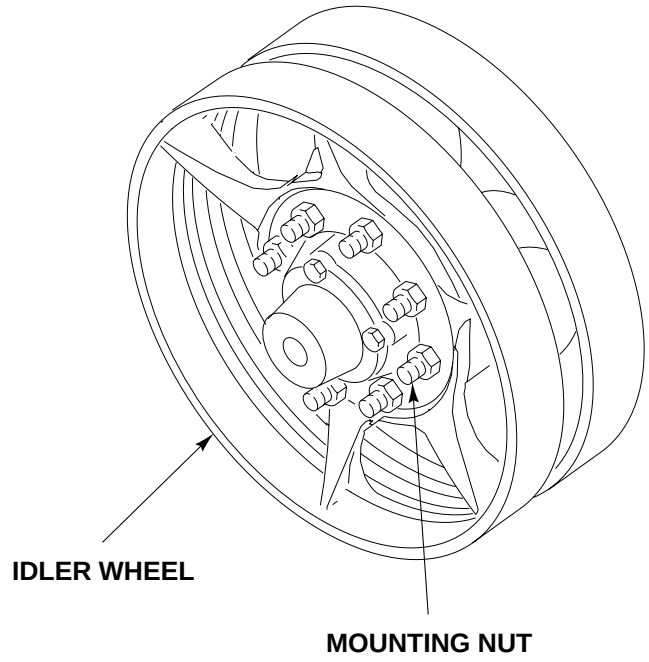


NOTE

If a hub feels hotter than any other or is hotter than normal, you may have a bearing that needs service.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. Feel roadwheel hubs and idler wheel hubs. Report any hub that feels hotter than others to unit maintenance.	
				d. Check roadwheels and idler wheels for worn mounting holes by looking for a shiny area around mounting holes.	Any stud or nut loose or missing or holes elongated.



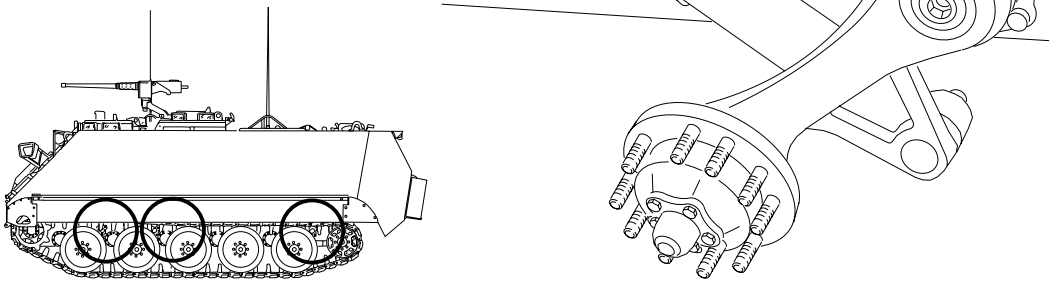


				e. Check roadwheel and idler wheel hubs for lubricant leakage from around outer hub cap and between rear of hub and support arm.	

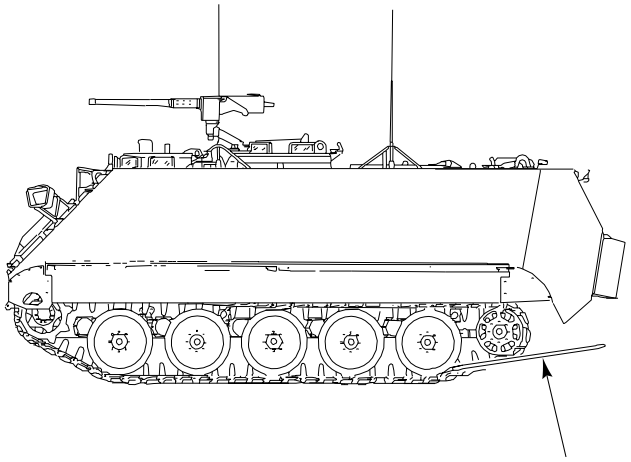
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
60	After		Shock Absorbers	**DRIVER** **WARNING**  **Shock absorbers can heat up enough to burn you.** **NOTE** **Small dents in shock absorber should not affect its performance. Feel all shock absorbers after use. A cold shock is defective and should be replaced.** 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. c. Check for missing or loose roadwheel arm or shock absorber mounting bolts.	Any shock absorber is broken or cold after operation. Any Class III leak. Any shock absorber missing. Any bolt loose or missing.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

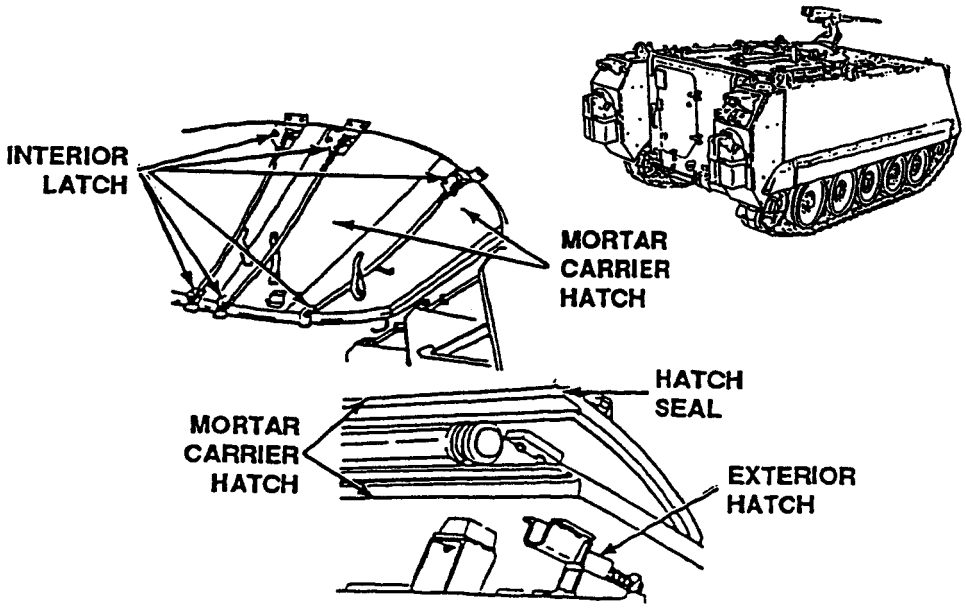
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
61	After		Torsion Bars and Roadwheel Arms	**DRIVER** 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.
62	After		Seat Belts	**COMMANDER** Check that all seat belts operate properly and are serviceable.	

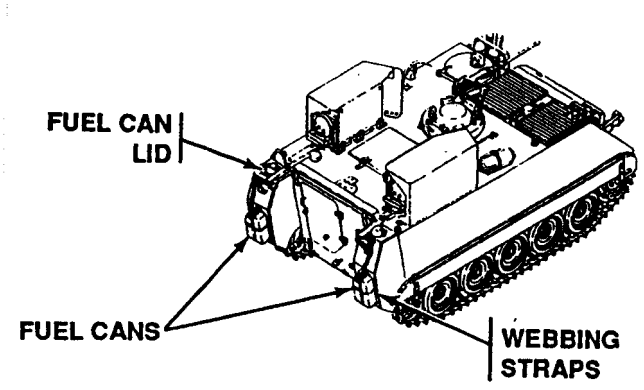


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
63	After		Hatches	**CREWMEMBER** **M1064A3 ONLY** a. Check mortar carrier latches. b. Check operation of exterior catches on all hatches. Check interior latches. c. Check hatch seals for breaks, brittleness, cracks, and poor sealing. Report any damaged hatch, seal, catches, missing or inoperable locking pins to unit maintenance.	Latches on any hatch that do not hold the hatch in open or closed position. Any hatch locking pins missing or inoperable.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
64	After		Mortar Carrier	**CREWMEMBER** **M1064A3 ONLY** See TM 9-1015-250-10 to conduct PMCS for 4.7 inch, 120-mm mortar.	Fault listed in "Not Fully Mission Capable If:" column of mortar TM.
65	After		Ammo Racks, Door, Posts and Hinges	**CREWMEMBER** **M1064A3 ONLY** **WARNING**  **Fuel lines may vibrate loose or crack during mortar firing. Fuel leaks can cause fumes or fires which cause serious bodily harm or death to personnel. If fuel leaks, STOP FIRING. Repair leaks or cracks and wipe up any excess fuel before you resume firing.** Check racks, door, posts and hinges for cracks and breaks. Report damaged racks, hinges, doors or posts to unit maintenance.	

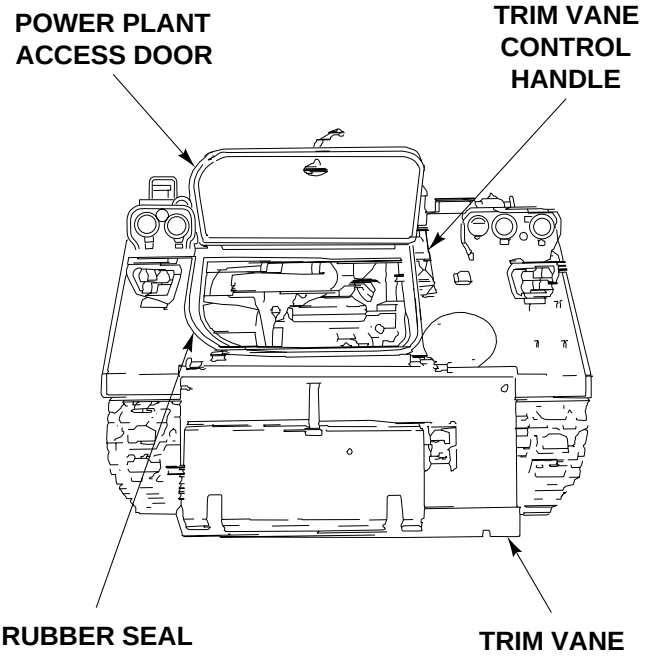
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
66	After		M157A2 Smoke Generator System	**GENERATOR OPERATOR** **M1059A3 ONLY** For PMCS procedures see TM 3-1040-283-10. **WARNING**  **Sparks from static electricity can cause a fire or 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.** Check generator fuel cans.	Fault listed in "Not Fully Mission Capable If:" column of smoke generator TM.



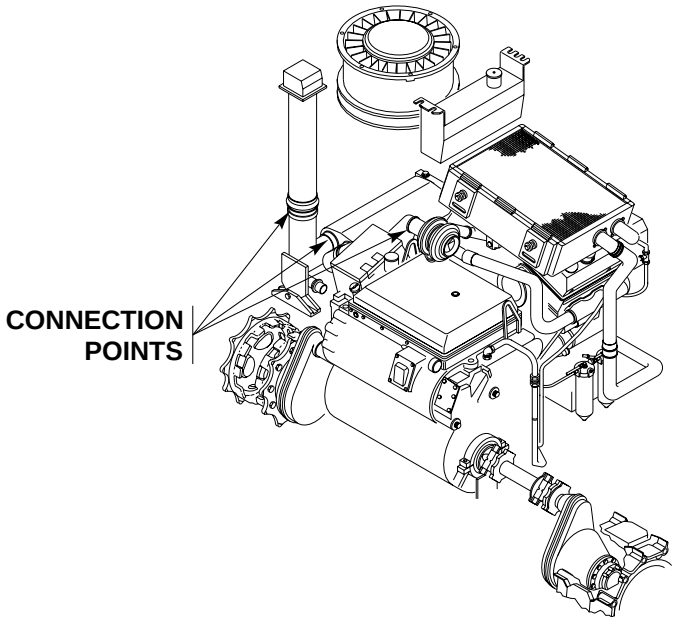
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
67	After		Smoke Obscurant System	**GENERATOR OPERATOR** **M58 ONLY** For PMCS procedures, see TM 3-1040-285-10.	Fault listed in "Not Fully Mission Capable If:" column of smoke obscurant system TM.
68	After		4.2 KW Generator System	**CREWMEMBER** **M577A3 AND M1068A3 ONLY** Refer to TM 5-6115-596-14 for PMCS procedures.	Fault listed in "Not Fully Mission Capable If:" column of generator TM.
69	After		5.0 KW Auxiliary Power Unit (APU)	**CREWMEMBER** **M1068A3 ONLY** Refer to TM 9-6115-664-13&P for PMCS procedures.	Fault listed in "Not Fully Mission Capable If:" column of APU TM.

Table 4. Preventive Maintenance Checks and Services for Model M113A3 FOV, Weekly

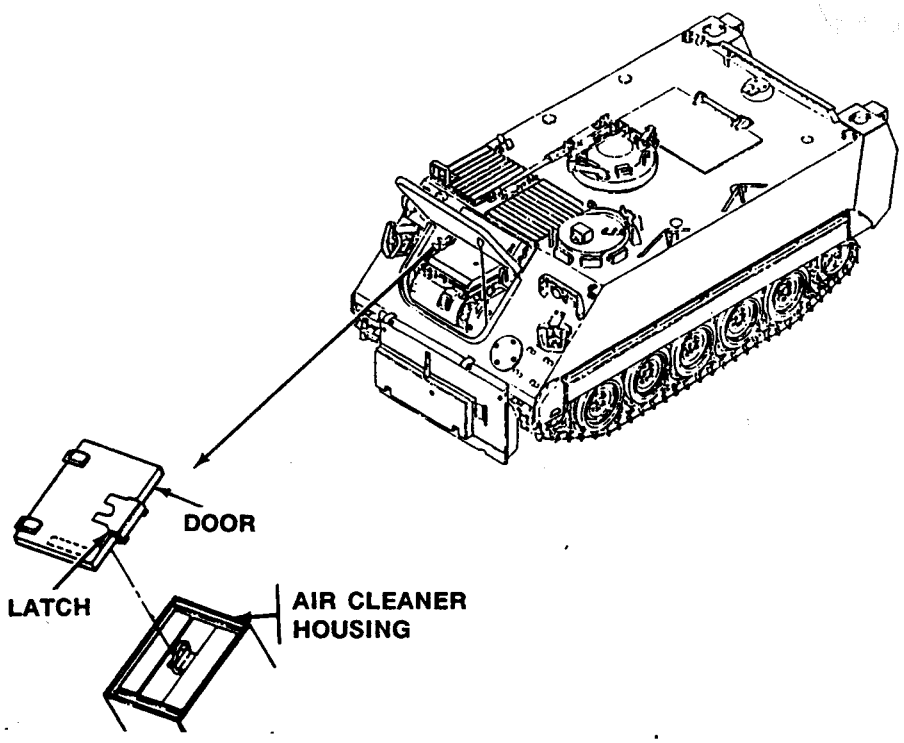
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
70	Weekly		Power Plant Access Door and Trim Vane	**NOTE** **Do PREVENTIVE MAINTENANCE steps each week or before operation if you are operating the carrier for the first time.** **Carrier commander will direct and assist in weekly, monthly, and semi-annually PMCS.** 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. Operate trim vane control handle. Make sure adjustment is right in both the stowed and open position.	Access door will not close and lock.



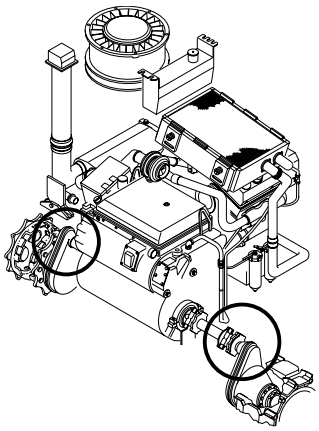
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
71	Weekly		Engine Exhaust System	**NOTE** **Check for exhaust leaks only after engine reaches normal operating temperature of 160° to 200°F (71.1° to 93.3°C). Carrier leaks exhaust gas when 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.** 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.	Any part missing, damaged, improperly aligned, or insecurely mounted.



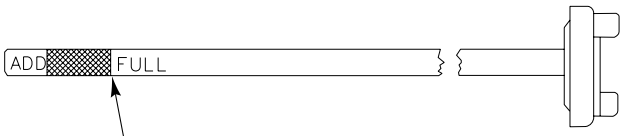
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
72	Weekly		Air Cleaner	**WARNING**  **Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner 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.** Check air cleaner as follows: a. Check latch for proper operation. Release latch at top of air cleaner housing. Swing door up and remove door. b. Check door for missing or damaged gasket. c. Check that air cleaner element is installed in air cleaner housing.	Air cleaner element, door, or gasket is missing or damaged.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
73	Weekly	0.2	Final Drives Oil Level	**CAUTION** **Carrier must be on level surface when checking oil level.** **For access to left drive gauge rod, remove hull front access cover.** Check oil in both final drives for level between ADD and FULL marks on gauge rod. Add applicable OE/HDO or OEA as specified in Lubrication Tables (page 0090 00-7). Do not overfill.	Any Class III leak.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

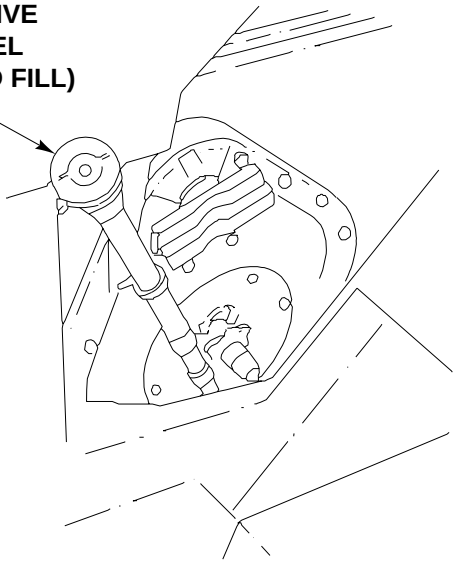


FINAL DRIVE GAUGE ROD

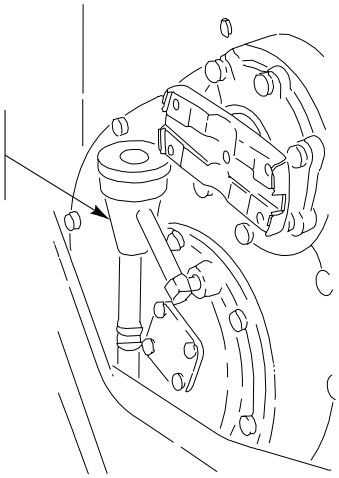


FULL MARK

FINAL DRIVE OIL LEVEL (CHECK AND FILL)



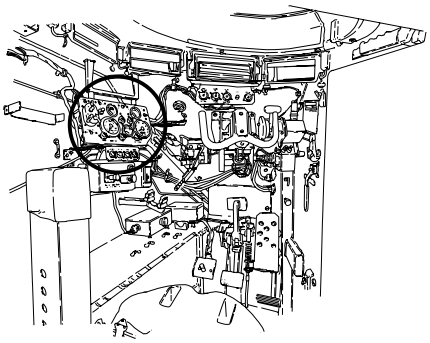
FINAL DRIVE OIL LEVEL (CHECK AND FILL)

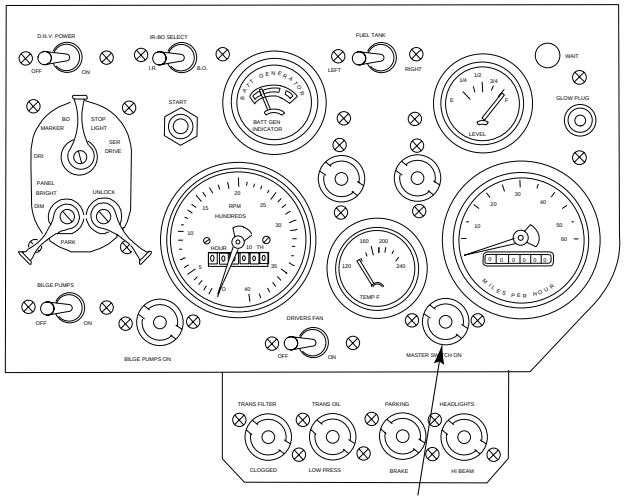


RIGHT FINAL DRIVE FILLER TUBE

LEFT FINAL DRIVE FILLER TUBE

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
74	Weekly		Lights	**NOTE** **Driver will turn on lights and crewmember will check for operation.** 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.	

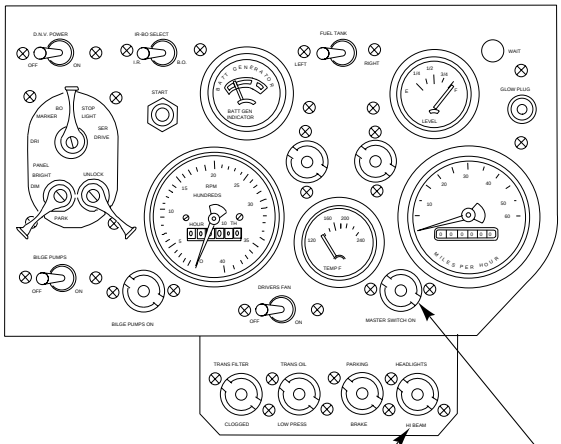


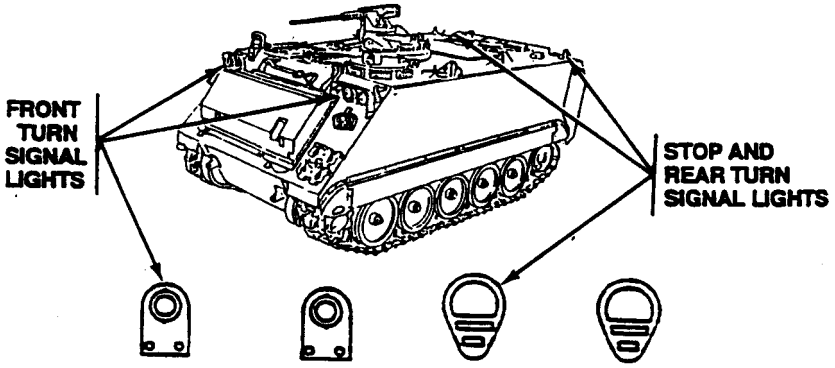


MASTER SWITCH ON INDICATOR LIGHT

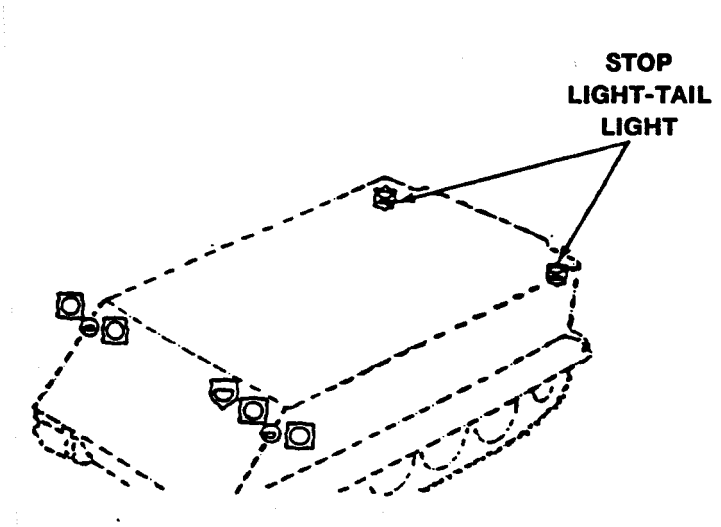
				c. Check HI BEAM indicator light and MASTER SWITCH ON indicator light.	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				d. Check that turn signals operate properly on both sides of carrier.	

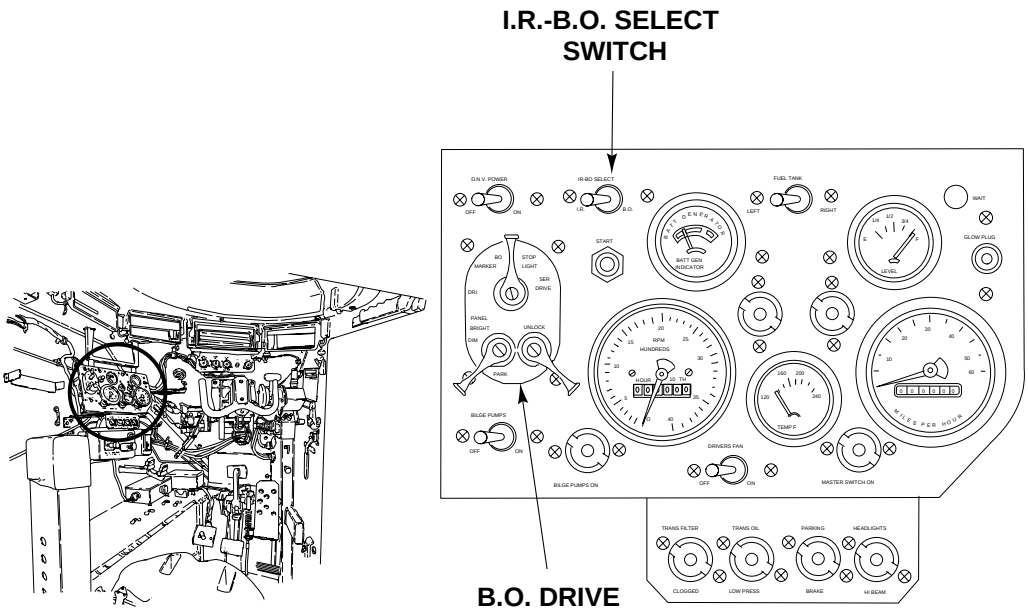


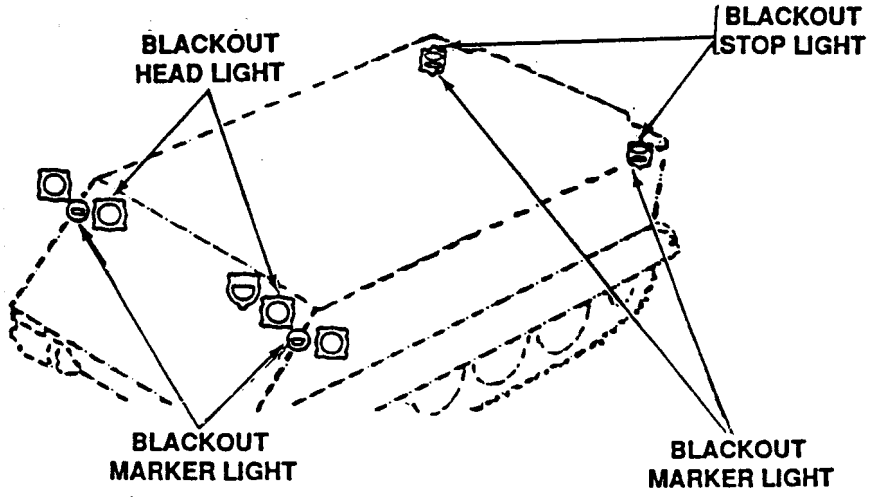


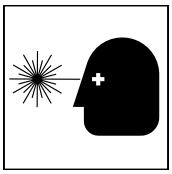
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				e. Check stoplight and taillights to see that they operate properly. Make sure lights brighten during braking.	
				f. Check blackout drive lights by turning light switch lever to B.O. DRIVE and moving I.R.-B.O. SELECT switch to B.O. Blackout headlights and four blackout marker lights will light. **NOTE** **Blackout stoplight will light when brakes are applied.**	

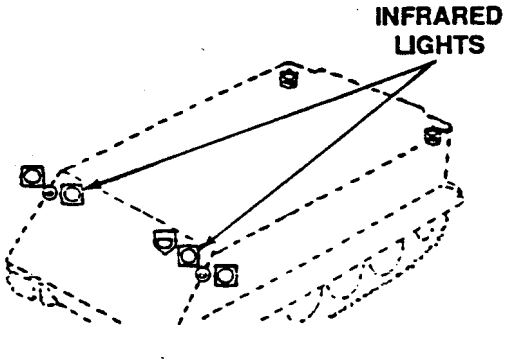


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

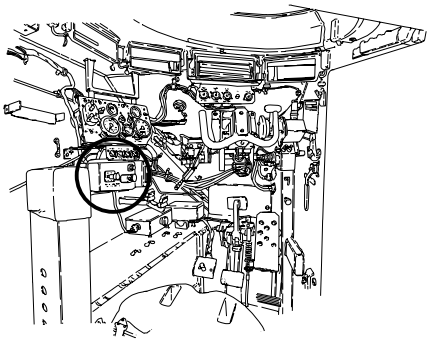


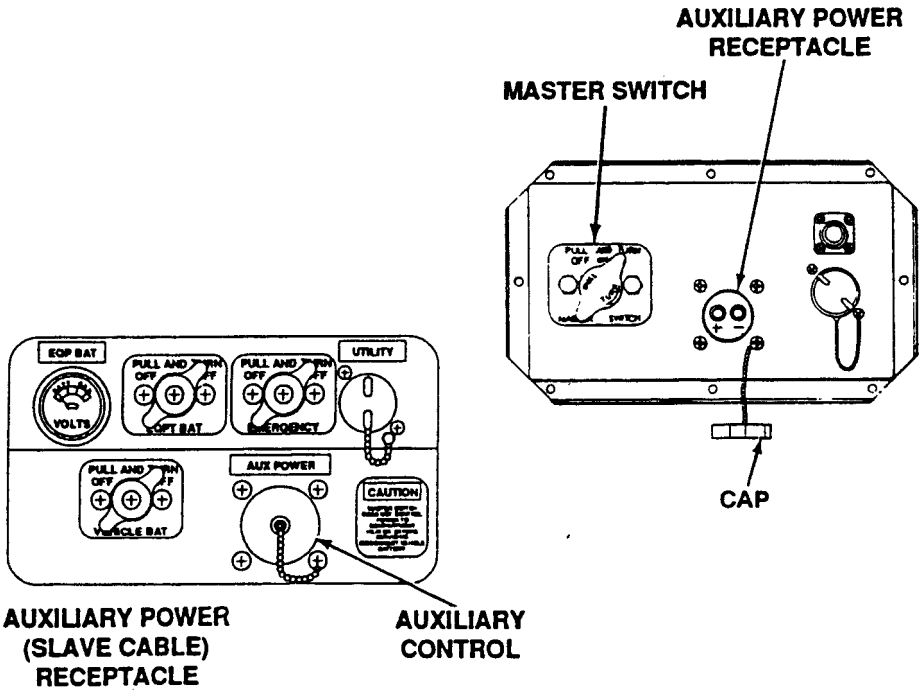


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				WARNING  **Do not look directly into infrared lights. You can damage your eyes. Do not touch lens. You can burn your fingers.** g. Check infrared lights on both high and low beam. Do this by HOLDING YOUR HANDS OVER THE LENS, but do not touch the lens. If the light is operating properly, you will feel heat.	

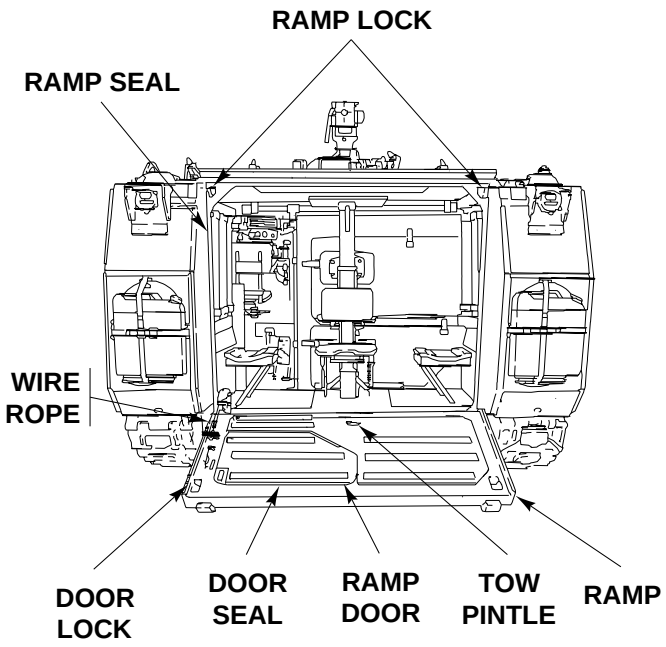


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
75	Weekly		Slave Cable and Receptacle	Check slave cable, receptacle, and cap for damage, burnt-out condition, and corrosion.	

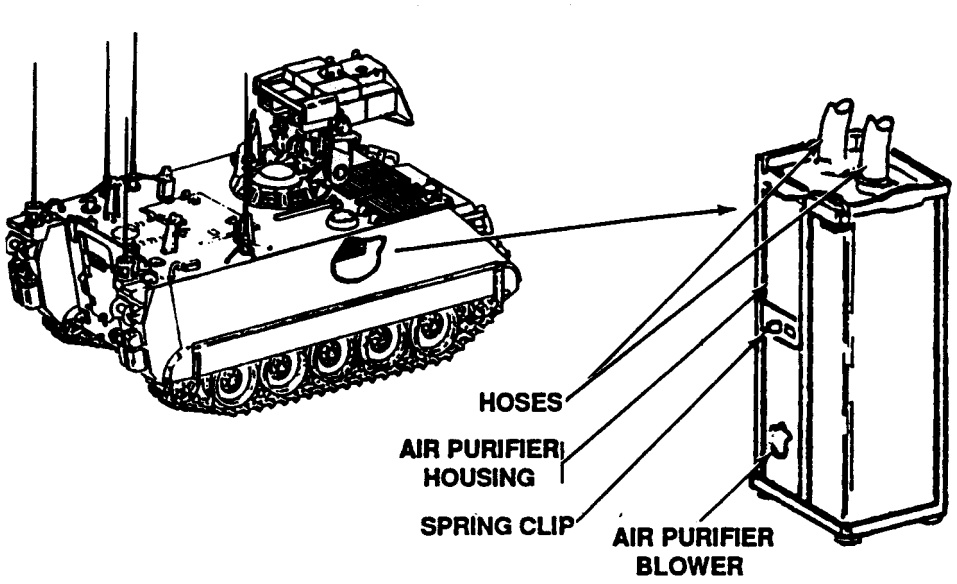




ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
76	Weekly		Ramp and Ramp Door	**WARNING**  **Lowering ramp could injure personnel. Make sure no one is in ramp zone before you lower ramp. If tactical situation permits, sound horn before lowering ramp.**	
				a. Check ramp and ramp door for proper operation and seal.	Ramp or ramp door will not seal.
				b. Make sure vision block is not missing or damaged enough to allow water into vehicle.	
				c. Check ramp door seal for breaks, brittleness, cracks, or poor seating.	
				d. Check ramp wire rope for frayed or broken strands.	Ramp wire rope is frayed or broken.
				e. Check ramp-to-hull seals for breaks, brittleness, cracks, or poor seating.	
				f. Check ramp locks for proper operation and missing parts.	
				M901A3 AND M981A3 ONLY	
				g. Make sure vision block is not missing or damaged enough to allow water into vehicle.	
				h. Check frame and glass for cracks and scratches that impairs vision and damage.	

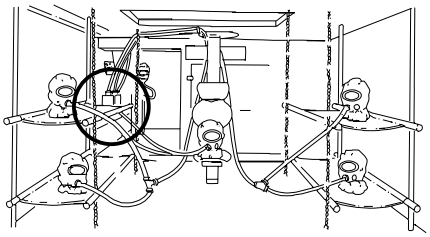
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
77	Weekly		Tow Pintle and Nut	Check that cotter pin on tow pintle is present and properly secured.	

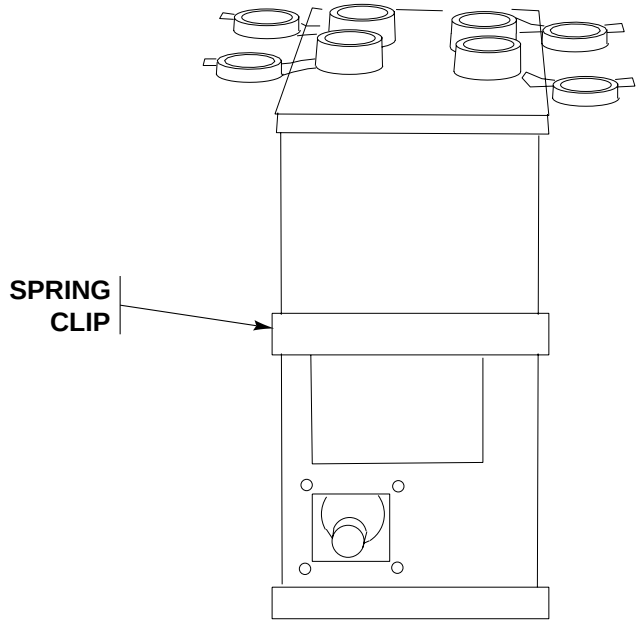
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
78	Weekly		Gas Particulate Units	**NOTE** **Applies only to carriers equipped with gas particulate unit.** Check gas particulate units as follows: a. Check air purifier housing for damage. 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.	

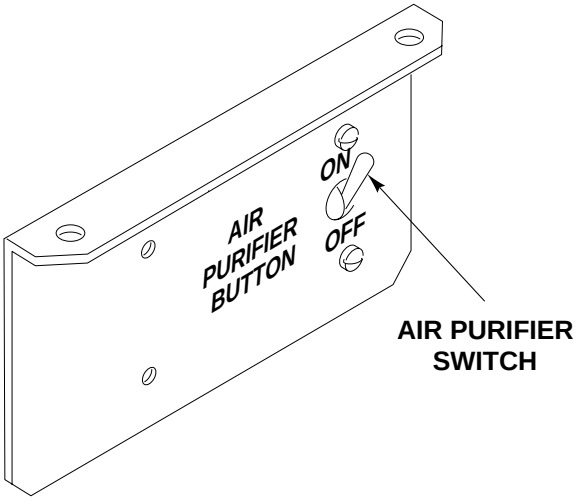


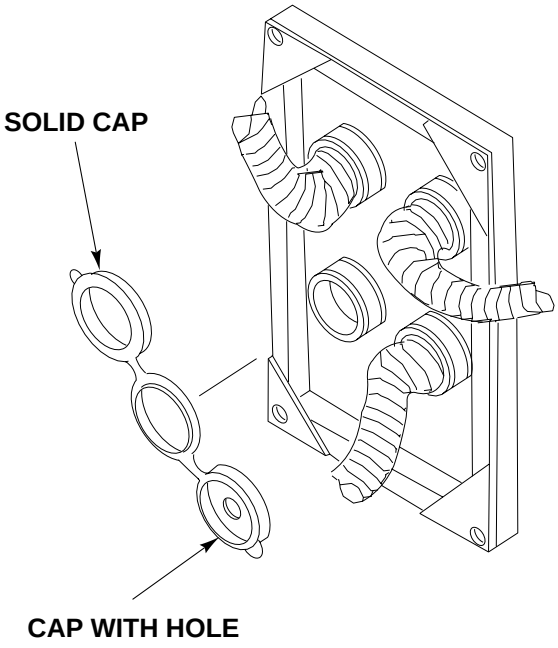
				NOTE **Location of gas particulate units vary for each vehicle.** b. Check air purifier housing for damage. Make sure spring clip is there	Blower does not operate properly. Air flow at any station is restricted.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				c. Check hoses for wear, cracks, and holes. Operate air purifier blower to make sure it operates properly (WP 0004 00). After blower is operating, place hand over air flow control cap. You should feel a flow of air at center hole.	Any hole in hose or hoses.

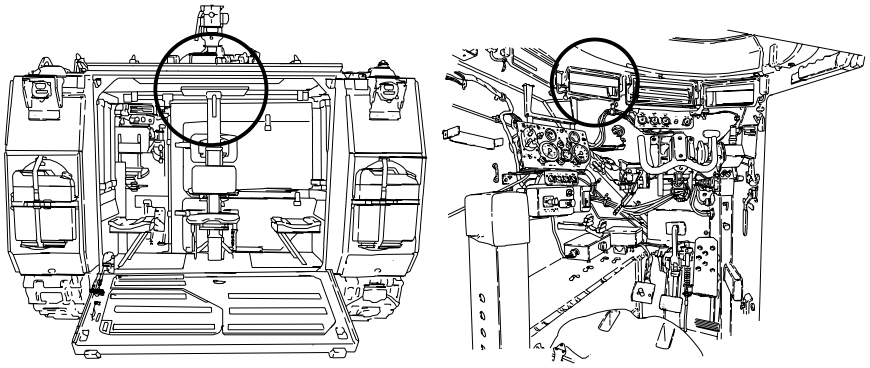


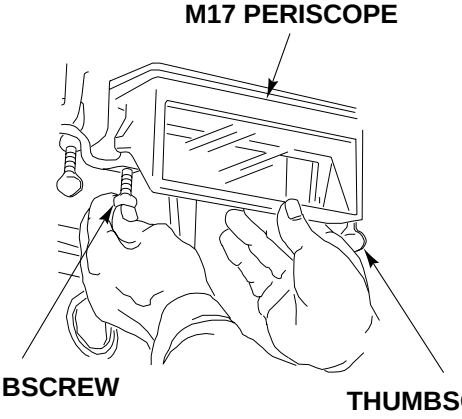






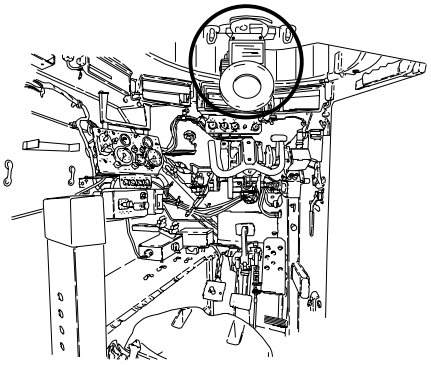
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
79	Weekly		M17 Periscope	**CAUTION** **Handle periscope carefully during removal to avoid damaging the frame and glass of the periscope.** **NOTE** **There are no periscopes on the M577A3 and M1068A3 commander's hatch.** a. Remove periscope by loosening two thumbscrews. b. Check between carrier wall and periscope for dirt or moisture.	Over 50% vision obstructed.

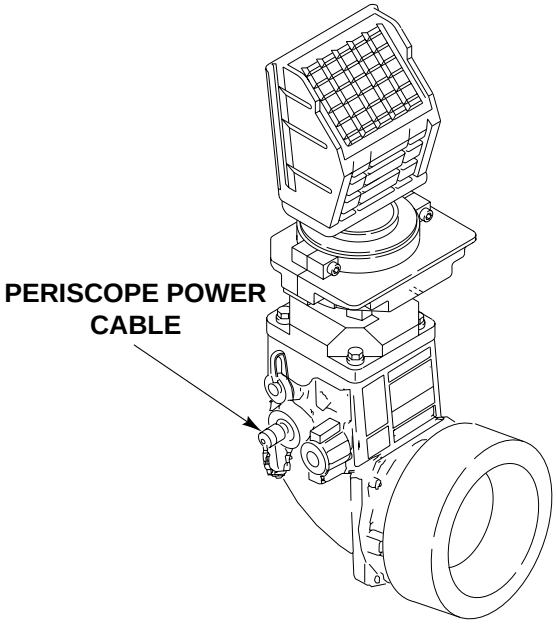


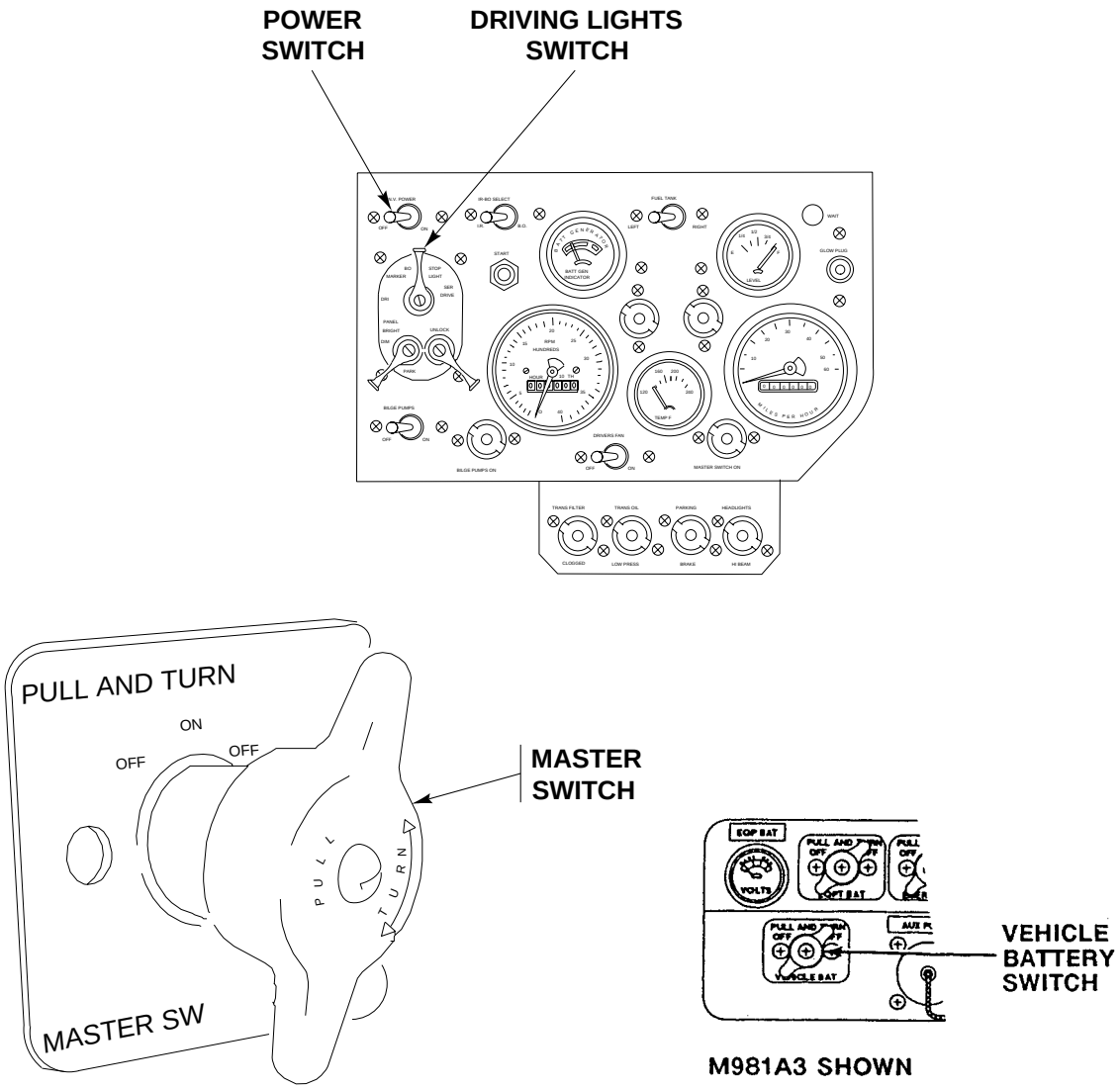


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
80	Weekly		AN/VVS-2 Driver's Night Vision (DNV)	**WARNING**  **HIGH VOLTAGE in the AN/VVS-2 can cause serious injury or death. To avoid accidents:** **ALWAYS connect power cable to DNV BEFORE turning VEHICLE BAT switch (M981A3) and DNV POWER switch to ON.** **ALWAYS connect power cable to DNV BEFORE turning MASTER SWITCH and DNV POWER switch to ON.** **ALWAYS wait at least two minutes BEFORE you disconnect power cable from periscope when turning DNV POWER switch and MASTER SWITCH to OFF.** **NEVER disconnect power cable from DNV until image disappears from periscope screen.** **NEVER touch end of cable. Voltage could exceed 16,000 volts.** **CAUTION** **Do not expose this instrument to direct sunlight during inspection. Direct sunlight or large amounts of light will damage the AN/VVS-2 DNV.** Check AN/VVS-2 Driver's Night Vision as follows: a. Check DNV for damage. Make sure DNV operates properly. Make sure you can see through DNV. Make sure MASTER SWITCH and DNV POWER switch are in off position.	Inoperative and no other night sight available.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				NOTE **The Master Switch applies to all vehicles. The Vehicle Battery Switch applies to M981A3 only.** b. Make sure VEHICLE BAT switch and DNV POWER switch are in OFF position.	

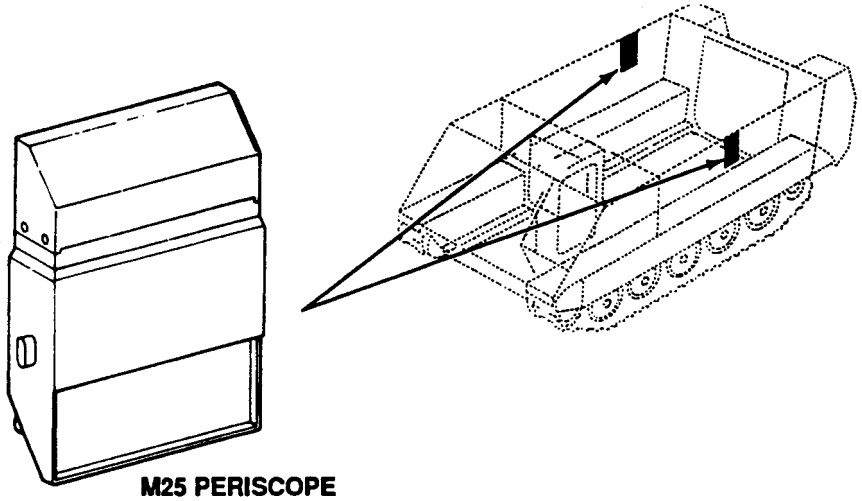




ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				 M981A3 SHOWN c. Check power cable electrical connector for bent or missing pins or bare wires. Report damaged connector to unit maintenance. Attach power cable to DNV receptacle.	

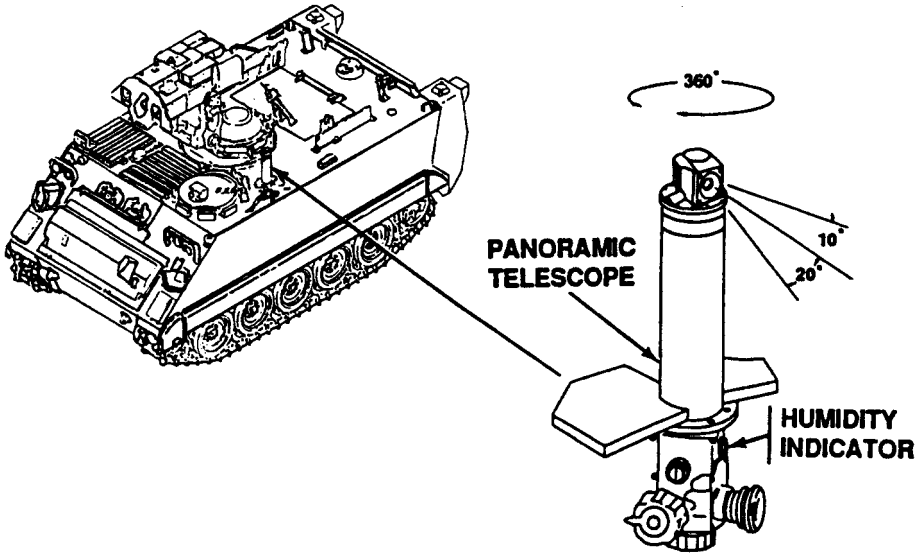
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
81	Weekly		T25 or M26 Periscopes	**M901A3 AND M981A3 ONLY** **CAUTION** **Handle periscope carefully during removal to avoid damaging the frame and glass of periscope.** a. Check frame and glass for cracks, scratches, and damage. b. Remove periscope and check for moisture and dirt between periscope and carrier wall.	

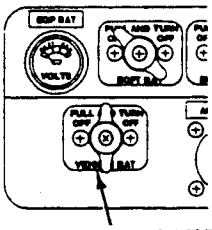


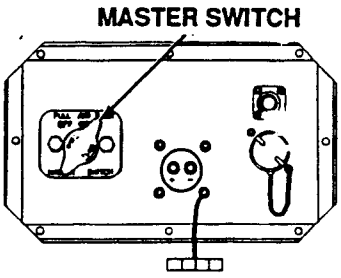
M25 PERISCOPE

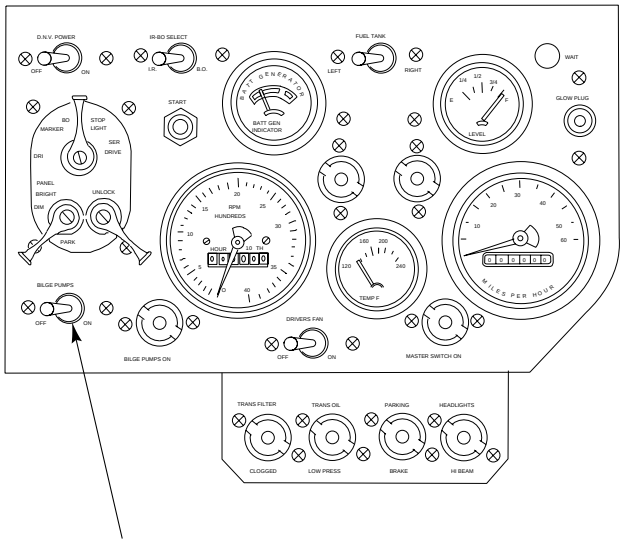
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
82	Weekly		Panoramic Telescope	**M901A3 AND M981A3 ONLY** Check panoramic telescope for cleanliness and secure mounting. Check that telescope traverses throughout 360°, elevates approximately 10°, and depresses approximately 20°. Check that humidity indicator is not pink.	Panoramic telescope will not securely mount. Will not traverse 360° or binds during traversing. Humidity indicator is pink.

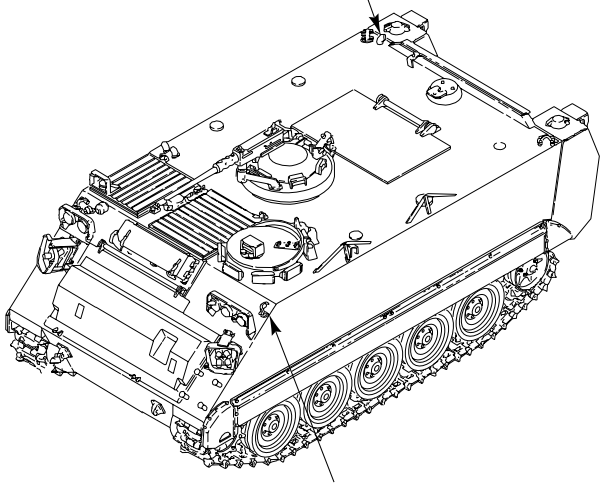


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
83	Weekly		Bilge Pumps	**NOTE** **Rear bilge pump is below rear floor plate. Front bilge pump is in left front corner of power plant compartment.** Check bilge pumps weekly and before any water operations as follows: a. Turn MASTER SWITCH to ON. **M901A3 AND M981A3 ONLY** b. Turn VEHICLE BAT switch to ON. c. Turn BILGE PUMPS switch to ON. Make sure front and rear bilge pump lights are on.	

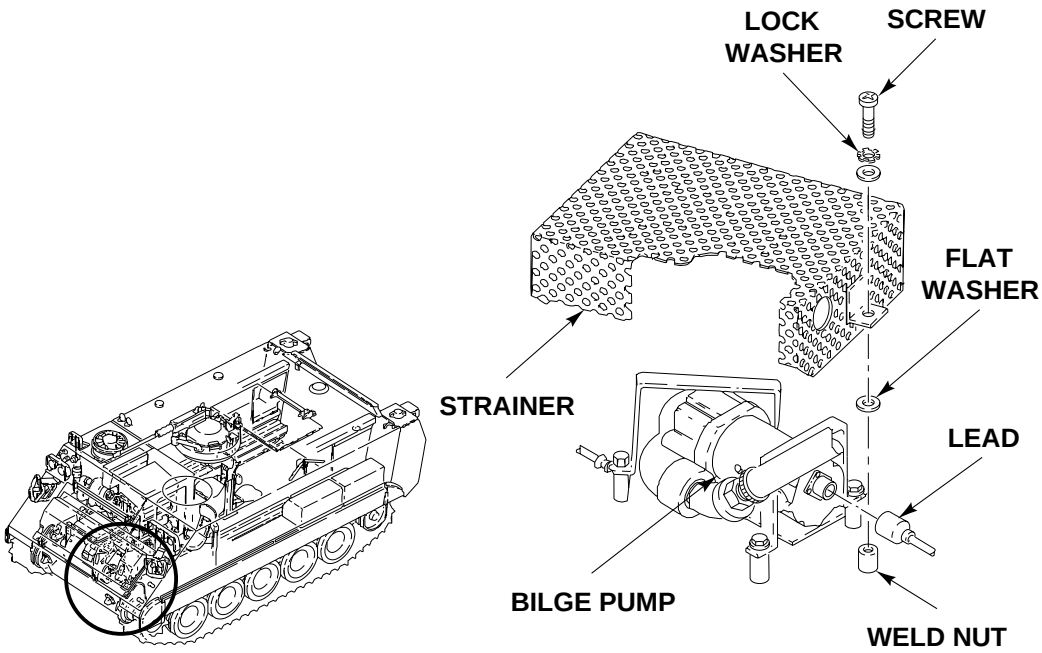


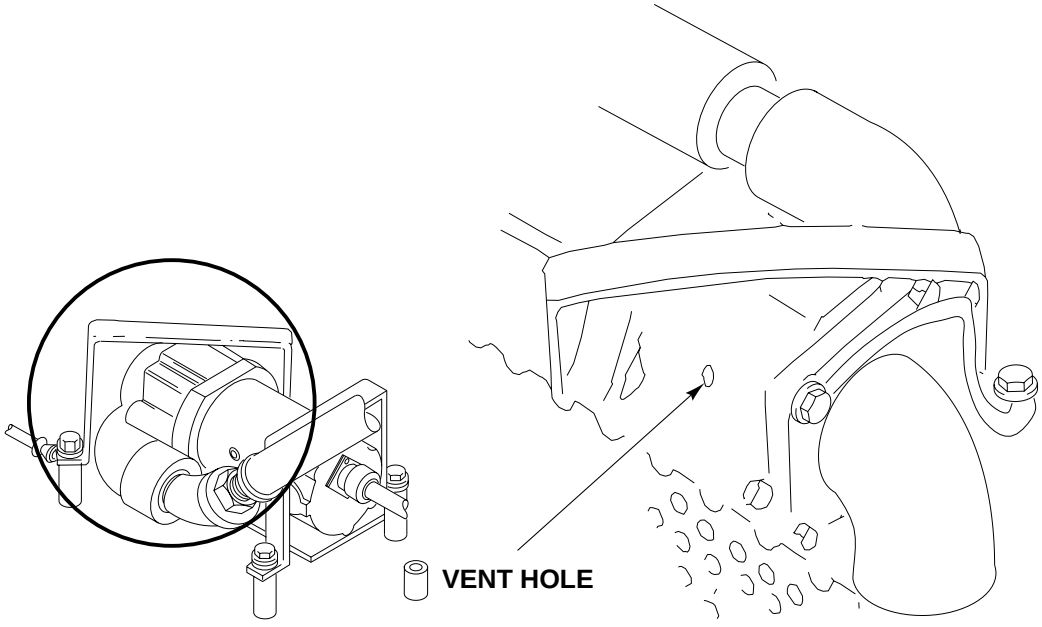


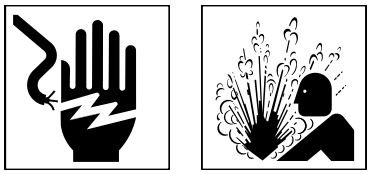


ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				REAR BILGE PUMP OUTLET  **FORWARD BILGE PUMP OUTLET**	
				d. Feel bilge pump outlet for a stream of water if there is water in the carrier, or feel for a stream of air if water is absent.	Pumps do not operate properly. Any Class III leak.
				e. 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.	

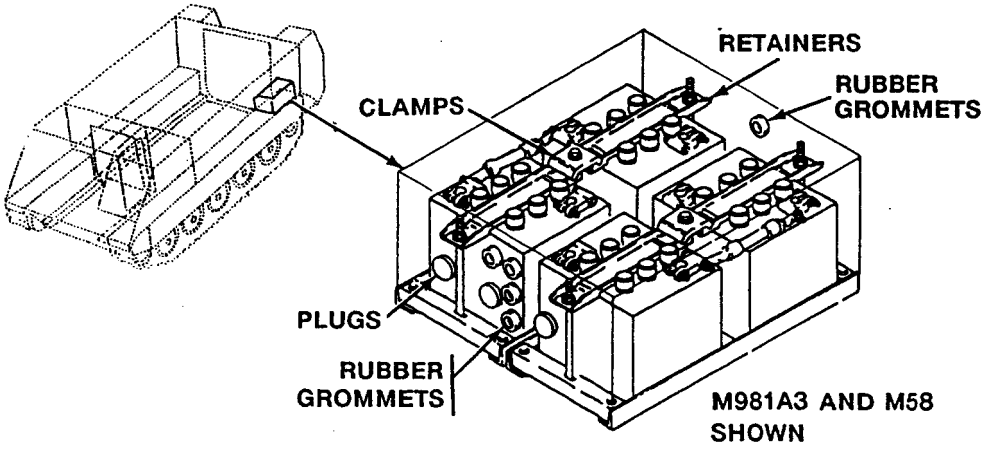
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:



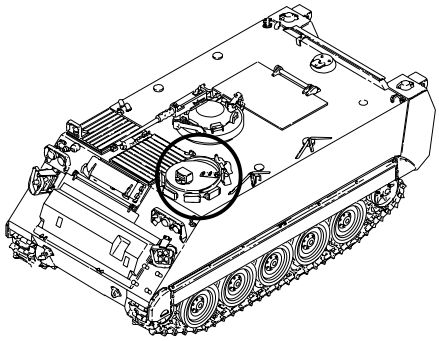


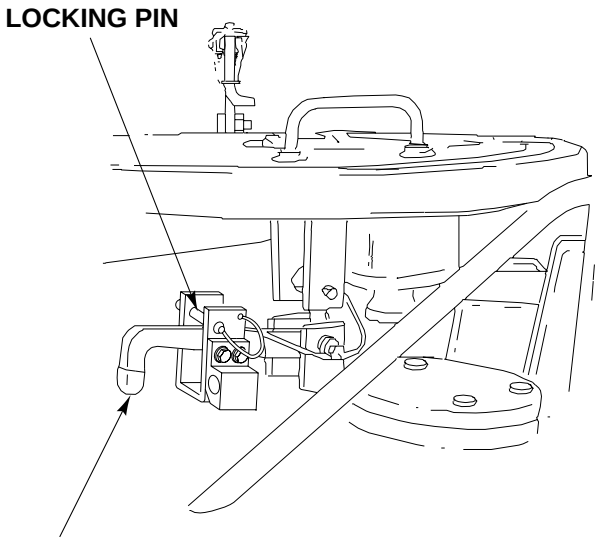
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
84	Weekly		Batteries	**WARNING**  **Don't smoke, have open flames, or make sparks around batteries, especially if the caps are off. Batteries can explode and cause injury or death.** **Remove 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.** **CAUTION** **In cold weather, unit maintenance must charge batteries immediately after adding water. This allows water to combine with electrolyte and prevent freezing.**	
				a. Check electrolyte level in carrier batteries. See task: CHECK CARRIER BATTERIES (WP 0095 00).	Battery missing or damaged.
				b. Check that vent holes in caps are clear before installing caps.	
				c. Check that battery cables and terminals are clean and connections are tight.	Obvious damage or looseness to battery, terminal, cable, or retainer.
				d. Check that hold-down clamps and retainer are tight. See task: CHECK CARRIER BATTERIES (WP 0095 00).	

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				e. Check that rubber grommets are on battery compartments. Notify unit maintenance if grommets are missing.	



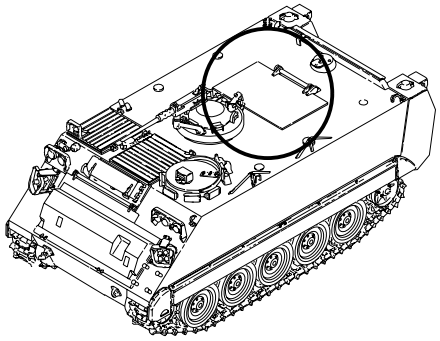
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
85	Weekly		Hatch	a. Check carrier hatches for movement, locking, and sealing. b. Check personnel carrier cargo hatch. Make sure hatch opens and closes smoothly and can be tightly secured in both open and closed positions.	Latches on any hatch that do not hold hatch in open or closed position. Any hatch locking pins missing or inoperable.

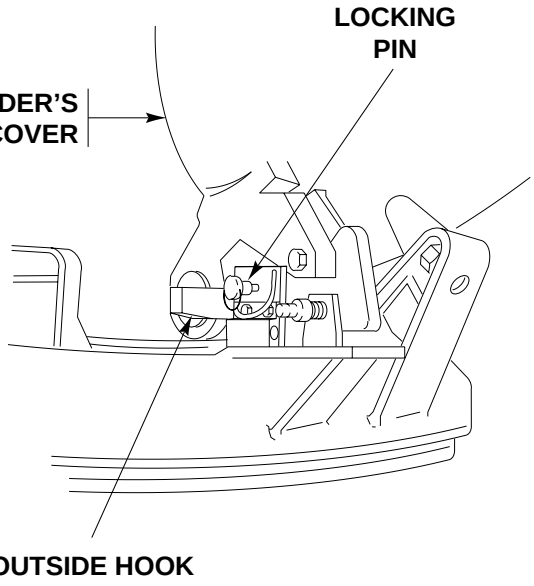


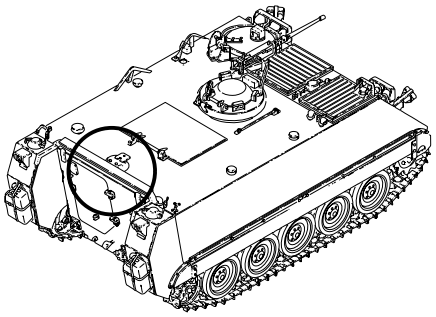


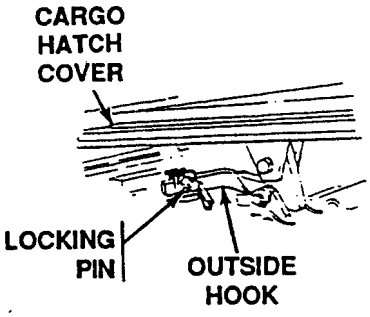
PREVENTIVE MAINTENANCE CHECKS AND SERVICES — Continued **0090 00**

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:

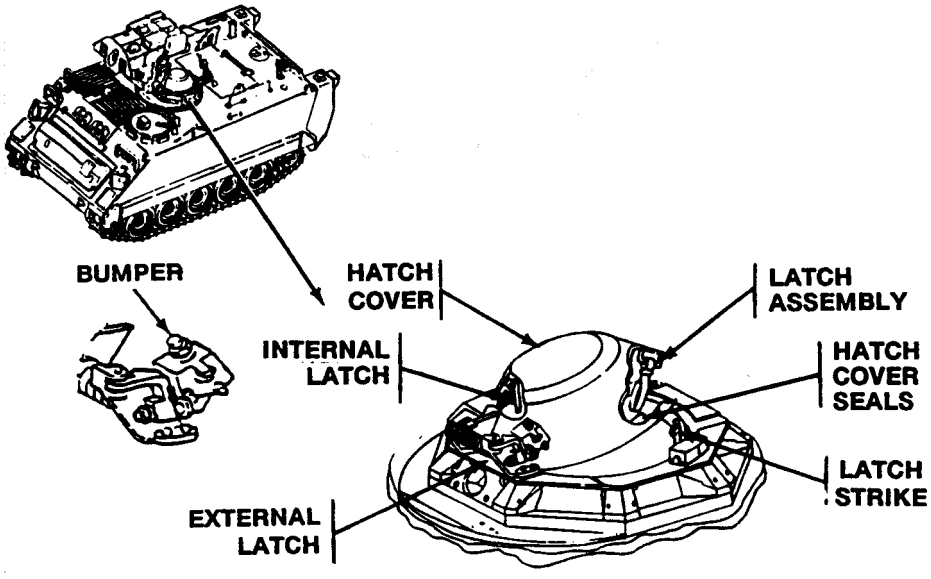




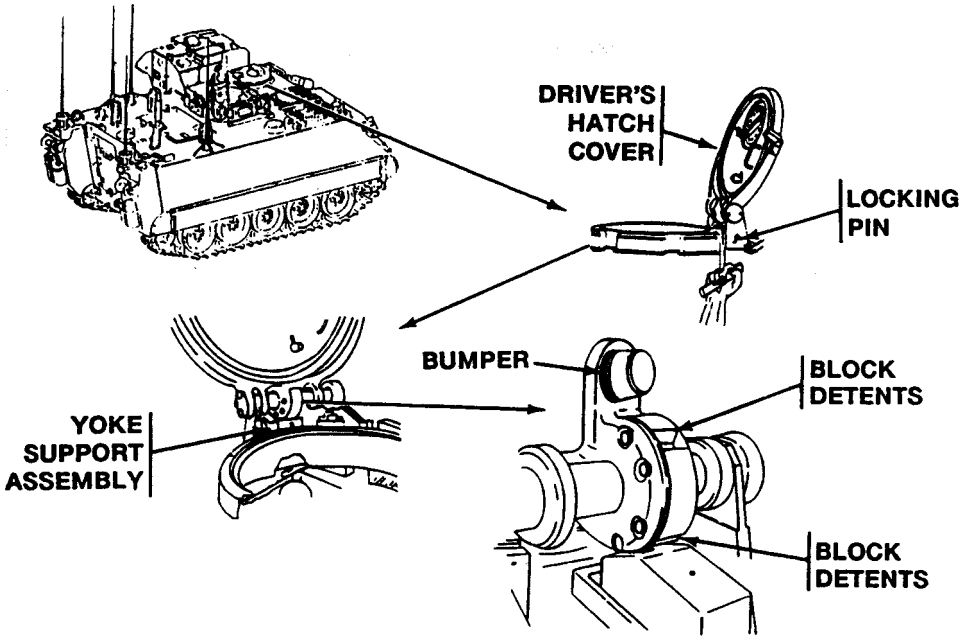




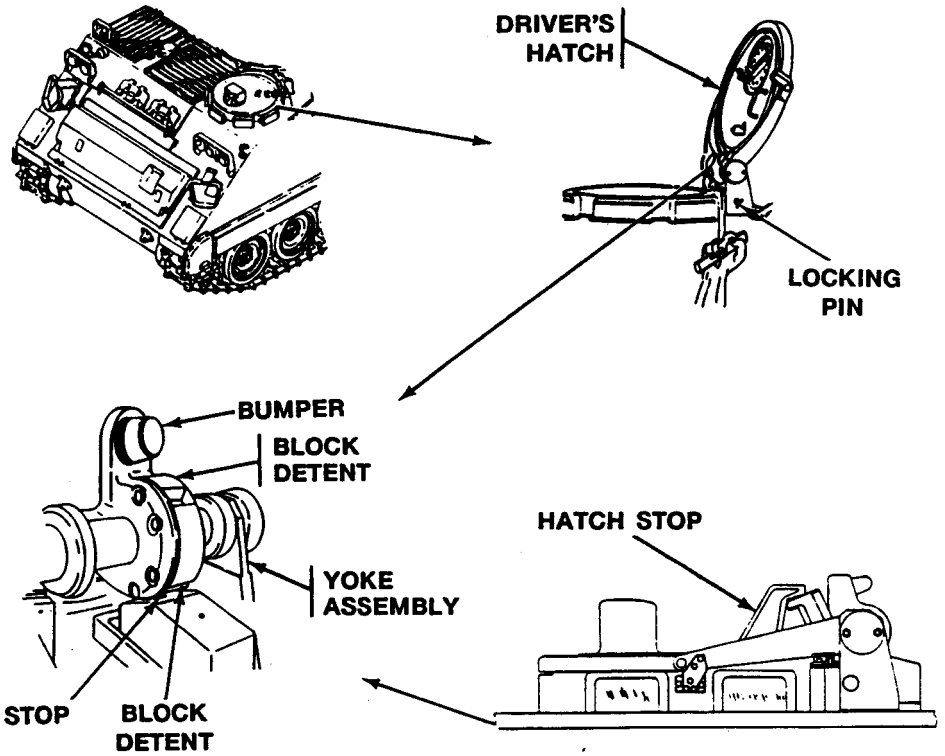
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				M901A3 AND M981A3 ONLY	
				c. Check operation and security of the targeting station hatch cover as follows:	
				1) Make sure the hatch cover opens and closes smoothly and can be secured in the closed, partially open, and fully open positions.	External latch does not hold hatch cover in fully open position. Latch assembly and latch strike do not lock hatch cover in closed position.
				2) Check that bumper is securely in place.	
				3) Check operation of external latch, internal latch, latch assembly and latch strike.	
				4) Inspect hatch cover seals for breaks, brittleness, cracks and proper sealing.	
				5) Report any damage to unit maintenance.	



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				M901A3 AND M981A3 ONLY d. Check operation and security of driver's hatch as follows: 1) Inspect the yoke support assembly and insert block detents. 2) Check that bumper is securely in place. 3) While driver's hatch cover is closed and latched, inspect yoke support assembly and insert block detents for mud, dirt, and any debris that could interfere with smooth operation of the assembly.	



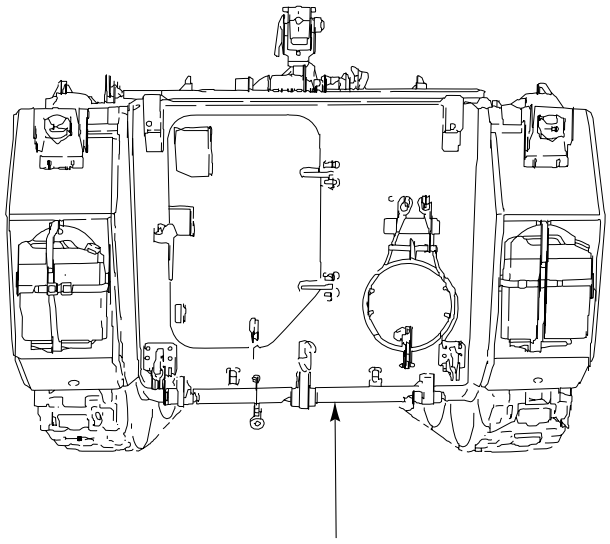
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				4) Clean, if necessary. 5) Check that driver's hatch stop is securely in place.	



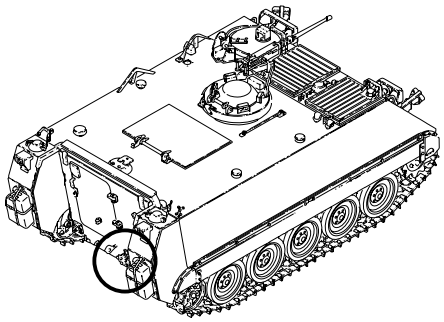
M901A3 AND M981A3 SHOWN

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				WARNING  **If the hatch release handle gets caught on the ledge directly behind it, the yoke support assembly could fail to operate, causing the hatch cover to fall, injuring personnel. Watch for this any time the hatch release handle is operated.** 6) Check operation of yoke support assembly. 7) Raise the driver's hatch cover to the first detent (pop-up) and the second detent (full-up) positions. Make sure stop fully engages insert block detents and in each position. Verify that hatch cover cannot be released from either position when locking pin is fully inserted. 8) Check operation of hatch release handle for smooth operation.	

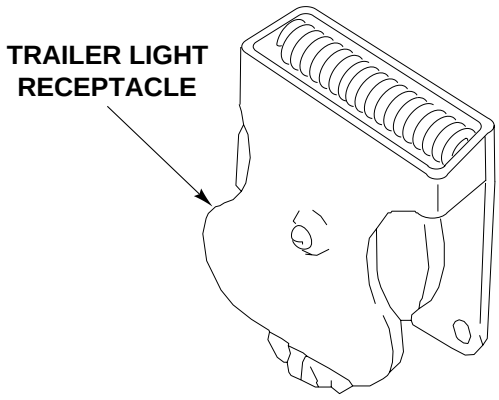
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
86	Weekly		Trailer Light Receptacle	Check trailer light receptacle cable for damage. Check receptacle for damage and corrosion.	



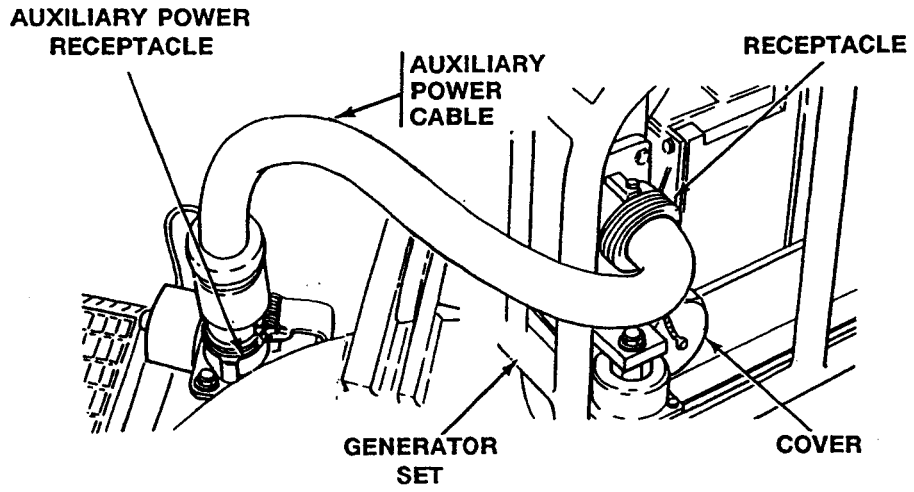
TRAILER LIGHT RECEPTACLE CABLE



TRAILER LIGHT RECEPTACLE



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
87	Weekly		Slave Receptacle, Cable, and Generator	**NOTE** **Make sure slave receptacle cap on M577A3 and M1068A3 is secure. Report damage to unit maintenance.**	
				a. Check receptacle and cable for damage, burn-out condition, and corrosion.	Receptacle or cable damage burnt out, or missing.
				b. Check that volts are in the green zone of voltmeter.	Voltage meter not in the green zone.
				c. Check generator set for mud, dirt, and excess oil and grease. Clean as required.	Generator set missing or inoperative.



ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
88	Weekly		External Power Entry Box	**M1068A3 ONLY** a. Check to ensure plug caps are secure and chains are not broken. b. Check for external damage. c. Make sure unit locks properly.	

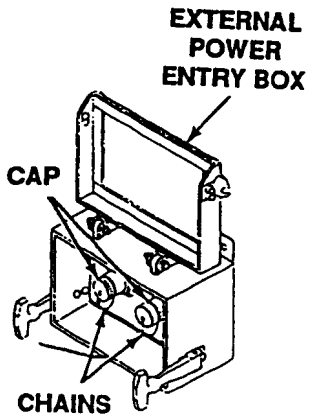


Table 5. Preventive Maintenance Checks and Services for Model M113A3 FOV, Monthly

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
89	Monthly	0.3	Fan Gearbox Oil Level	Check oil level in sight glass of fan gearbox. Oil level must be to center of sight glass. Add oil as needed. See Lubrication Tables (page 0090 00-7).	Any sign of Class III leak. No sign of oil in sight glass, or oil is contaminated.

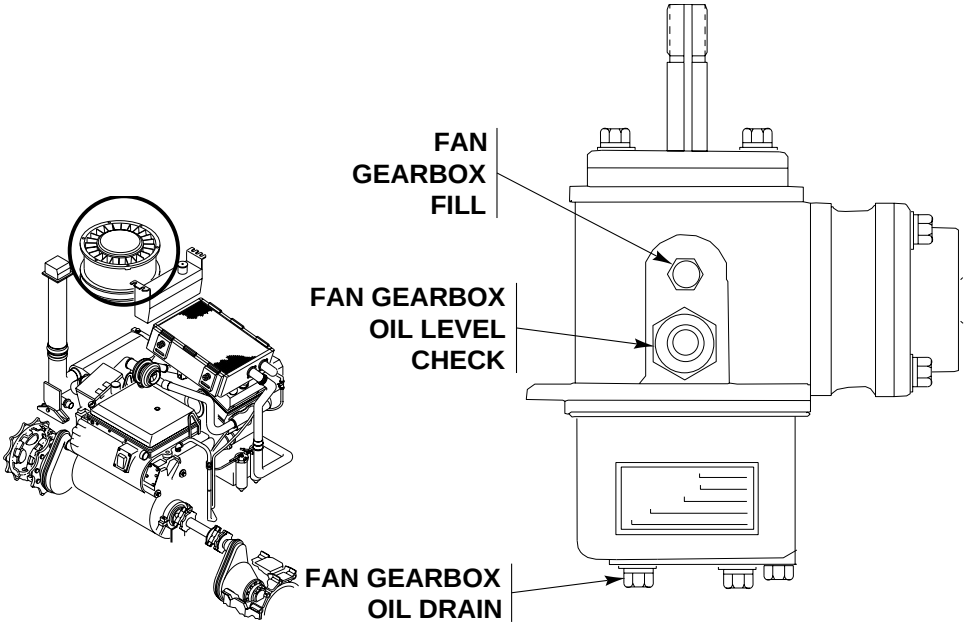


Table 6. Preventive Maintenance Checks and Services for Model M113A3 FOV, Semi-annually

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
90	Semi-annually	0.3	Tow Cable	Every 1500 miles or semi-annually and after each use, clean and lubricate tow cable with wire brush and Grease MIL-G-18458. See Lubrication Tables (page 0090 00-7). Wipe off excess grease.	
91	Semi-annually	0.3	Ramp Wire Rope	Every 1500 miles or semi-annually, clean and lubricate ramp wire rope as follows: a. Lower ramp. Clean and lubricate exposed portion of wire rope with Grease MIL-G-18458. See Lubrication Tables (page 0090 00-7). b. Remove rear floor plate and raise ramp. Clean and lubricate concealed portion of wire rope with Grease MIL-G-18458.	
92	Semi-annually	0.3	Machine Gun Mount	Every 1500 miles or semi-annually, clean machine gun mount with cleaning compound (WP 0104 00, Item 6) and lubricate all moving parts with PL-M or PL-S as appropriate. See Lubrication Tables (page 0090 00-7).	

ADJUST TRACK TENSION 0091 00

THIS WORK PACKAGE COVERS:

Adjust Track Tension (page 0091 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Tools and Special Tools
Drive Pin Punch (WP 0102 00, Item 44)
Lubrication Gun (WP 0102 00, Item 25)
Open End Wrench, 5/8 inch (WP 0102 00, Item 63)
Track and Sprocket Gauge (WP 0102 00, Item 24)

Personnel Required
Driver
Soldier

Equipment Condition
Engine stopped (WP 0024 00)

ADJUSTMENT

ADJUST TRACK TENSION

1. Start engine (WP 0021 00).
2. Drive carrier slowly to firm level ground (WP 0023 00).

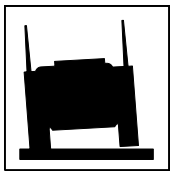
WARNING



Do not shift to SL (Steering Lock) position at speeds above 5 mph. Loss of control at speeds above 5 mph could cause vehicle to crash.

3. Let carrier coast to a stop. Do not use steering wheel or press brake pedal to stop carrier. Place transmission controller in SL (Steering Lock) position to coast to a stop.
4. Stop engine (WP 0024 00).

WARNING



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

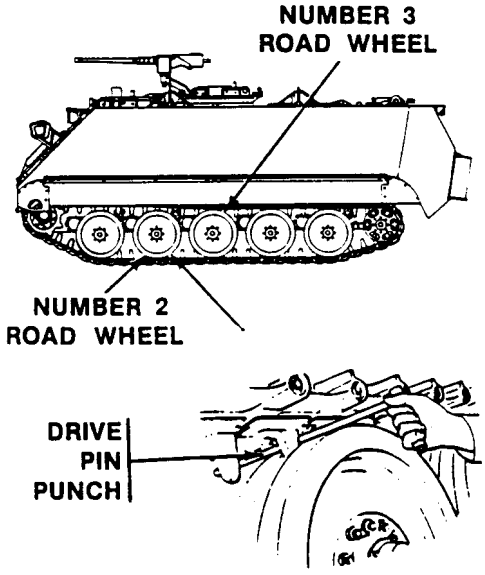
For carriers with new track, ensure there are 63 track shoes on the left side of carrier and 64 track shoes on the right side of carrier.

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

NOTE

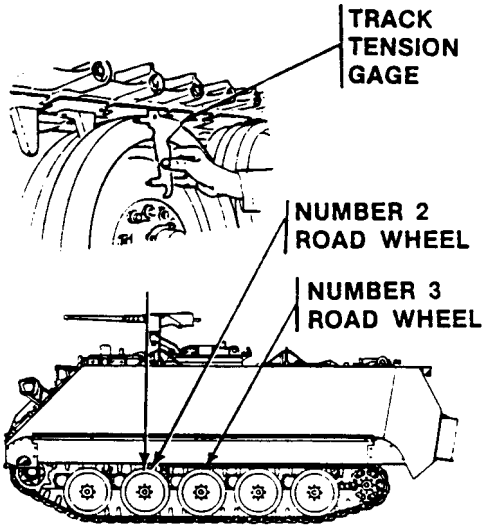
Either drive pin punch or track and sprocket gauge may be used to check track tension. If using drive pin punch, perform Step 5 and Step 6. If using track and sprocket gauge, perform Step 7 and Step 8.

5. 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.



6. If drive pin punch can be inserted freely but does not touch top of number three road wheel, track tension is too tight. Loosen track tension (Step 10). If drive pin punch cannot be inserted freely but does not touch top of number three road wheel, track tension is too loose. Tighten track tension (Step 9).

7. 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 and track touches number three road wheel, track tension is correct.



8. If top of second road wheel cannot be seen or track does not touch number three road wheel, track needs adjusting. To tighten track tension, go to Step 9. To loosen track tension, go to Step 10.

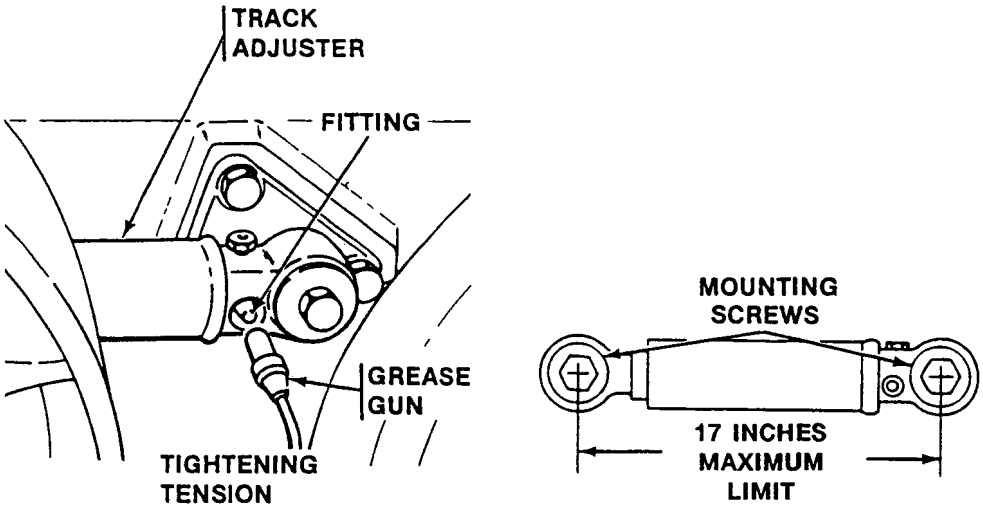
CAUTION

Dirt can damage fitting and cylinder. Clean all dirt from fittings on track tension adjuster.

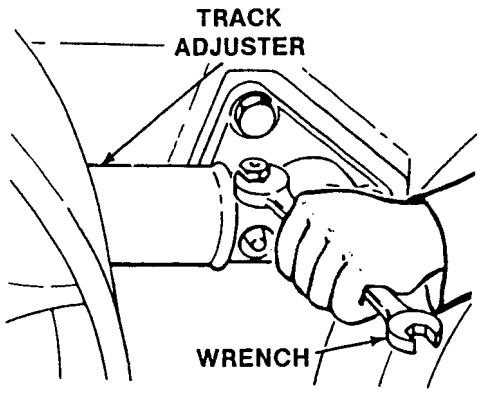
Servicing the fitting can damage the track adjuster, idler wheel and final drive bearings. Track adjuster fitting is not a true lubrication point. Do not service when lubricating the carrier.

Track adjuster can be damaged during carrier operation. Do not extend adjuster beyond 17 inches.

9. To tighten track tension add grease through fitting on track adjuster. If track adjuster is extended to its maximum limit of 17 inches and track is still too loose, remove one track shoe. See WP 0093 00 and readjust track tension (Steps 5 - 9).



10. 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. See WP 0093 00 and readjust track tension (Steps 5 - 9).



LOOSENING TENSION

END OF TASK

BREAK/JOIN TRACK 0092 00

THIS WORK PACKAGE COVERS:

Break Track (page 0092 00-1).
Join Track (page 0092 00-6).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Crew

Tools and Special Tools

Crowbar (WP 0102 00, Item 13)
Drive Pin Punch (WP 0102 00, Item 44)
Grease Gun (WP 0102 00, Item 25)
Hammer, 2 lb (WP 0102 00, Item 26)
Open End Wrench, 1-5/16 inch (WP 0102 00, Item 64)
Socket Handle, 1/2 inch drive (WP 0102 00, Item 30)
Socket, 11/16 inch (WP 0102 00, Item 49)
Track Fixture (2) (WP 0102 00, Item 23)
Industrial Goggles
(WP 0103 00, Item NSN 4240-00-052-3776)

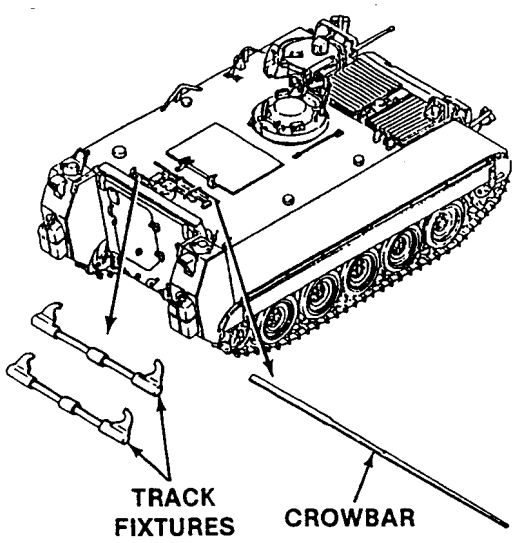
Equipment Condition

Engine stopped (WP 0024 00)

REPAIR OR REPLACEMENT

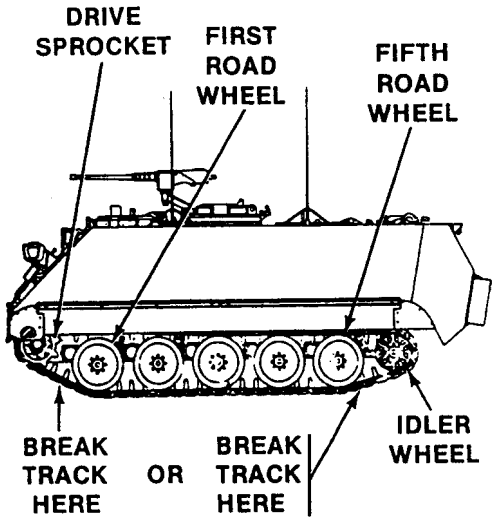
BREAK TRACK

1. Unstow crowbar and track fixtures from rear top deck. Remove industrial goggles and hammer from tool bag.



2. START ENGINE (WP 0021 00).
3. Drive carrier to firm level ground. See task: DRIVE CARRIER (WP 0023 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 wheel or press brake pedal to stop carrier.

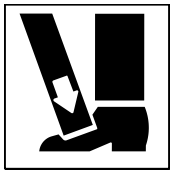


NOTE

Block track with suitable object.

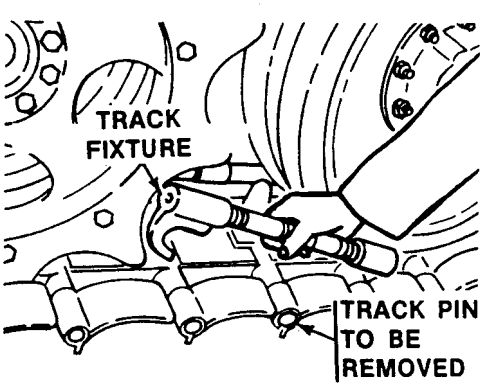
5. Block track on side which is not being broken. See task: BLOCK/UNBLOCK CARRIER TRACKS (WP 0042 00).
6. STOP ENGINE (WP 0024 00).
7. Release track tension all the way on track to be broken. See task: ADJUST TRACK TENSION (WP 0008 00).

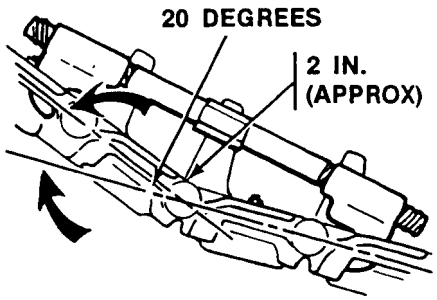
WARNING



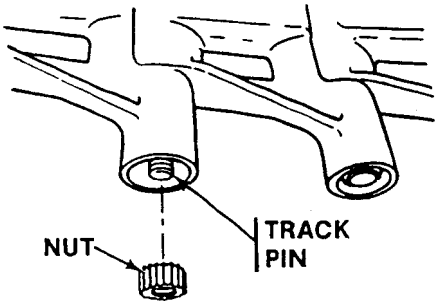
You could be injured if track swings out and hits you. Do not stand in front of track being broken.

8. Install two track fixtures across the pin to be removed. Tighten track fixtures 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 open end wrench.

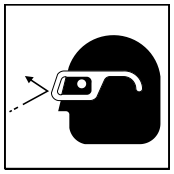




9. Remove track pin nut from track pin to be removed. Use 1/2 inch drive socket handle and 11/16 inch socket.

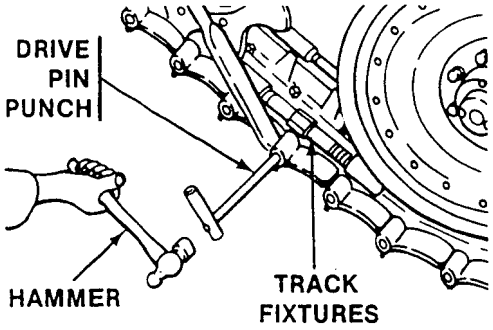


WARNING

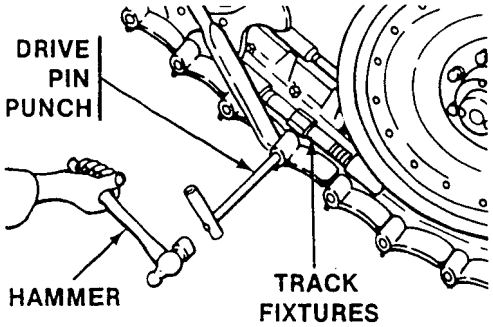


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

10. Drive track pin part way out with short end of drive pin punch. Wear industrial goggles and use hammer. Remove drive pin punch.



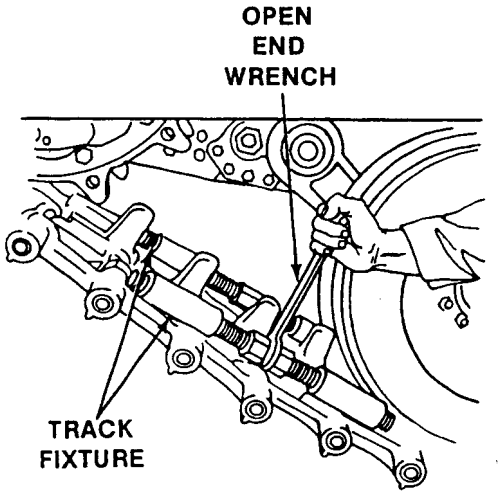
11. Drive track pin all the way out with long end of drive pin punch.



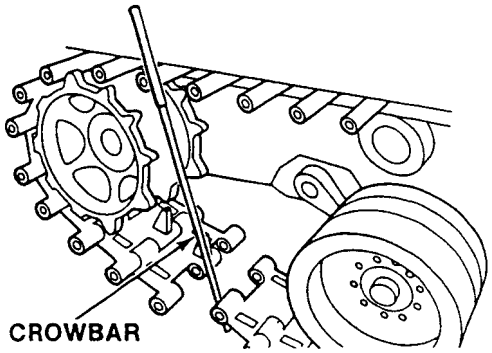
NOTE

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 open end wrench.

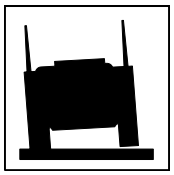


13. Disconnect track. Use crowbar to break track apart.



JOIN TRACK

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 track shoes on the right side of carrier.

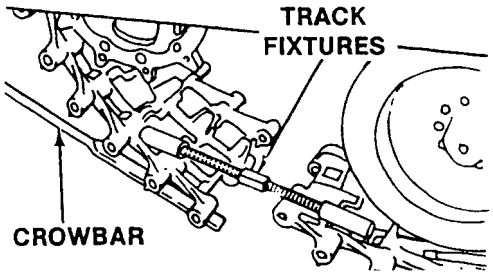
CAUTION

Track pin threads are easily damaged. Do not force track pin. Tap track pin lightly with hammer.

NOTE

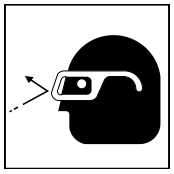
If track is difficult to join, Step 8 can be repeated to release more track tension. As track pin moves through track hole, track pin will push drift pin out ahead of it.

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 open end wrench.
2. Move ends of track together with crowbar.



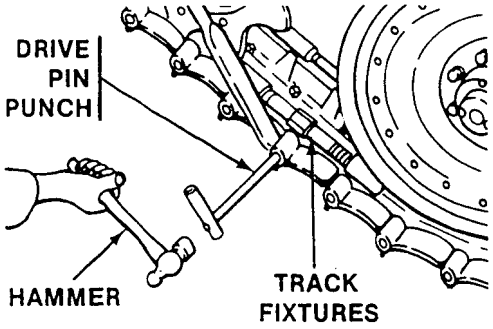
3. Coat the track pin with oil or grease. Install a nut flush with one end of the pin.

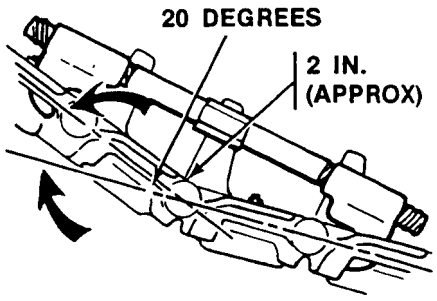
WARNING



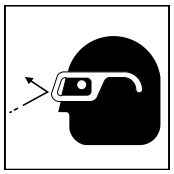
Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

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. Wear industrial goggles and use hammer. Tighten track fixture as needed to obtain 20 degree angle between shoes to be connected. Use 1-5/16 inch open end wrench.



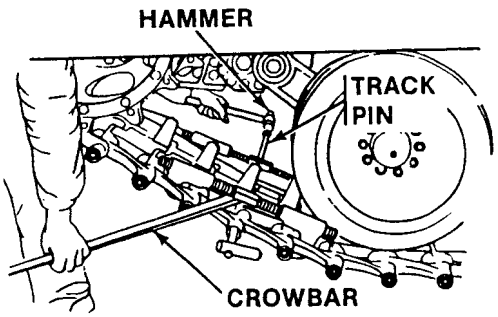


WARNING

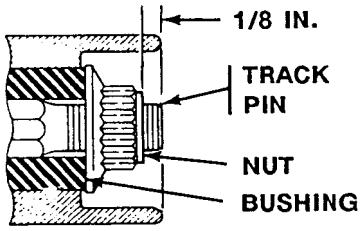


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

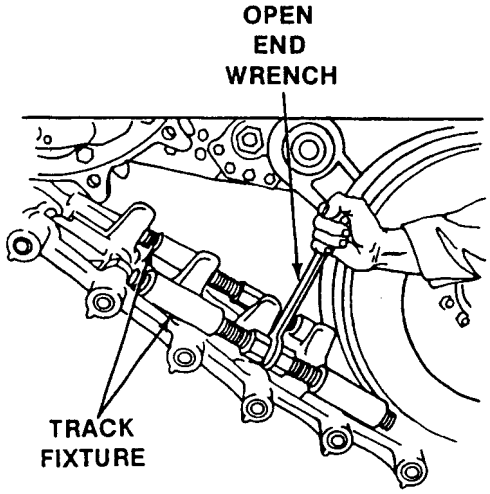
5. From inside of track, install track pin in track pin hole. As helper aligns track pin holes with crowbar, lightly tap in track pin. Drive track pin all the way through track. Wear industrial goggles and use hammer.



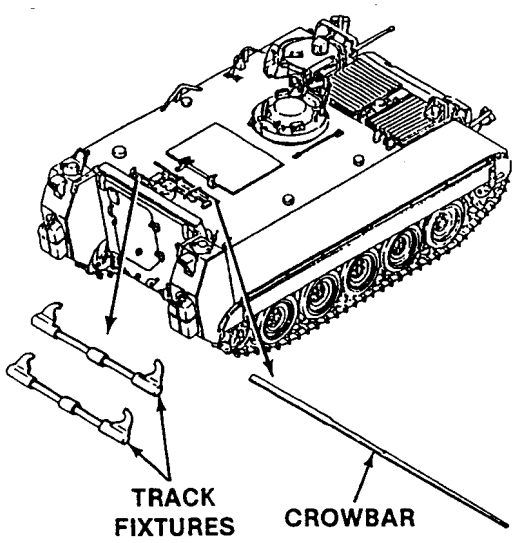
6. Install a nut on the other end of the track pin. Tighten both nuts until 2 or 3 threads show between the nuts and the ends of the pin or about 1/8 of an inch. Use 1/2 inch drive socket handle and 11/16 inch socket.



7. Mark nut so unit maintenance can torque it.
8. Remove two track fixtures. Use 1-5/16 inch open end wrench.
9. ADJUST TRACK TENSION (WP 0091 00).



10. Stow crowbar and track fixtures on rear top deck. Stow hammer and industrial goggles in tool bag.



11. Unblock carrier tracks. See task: BLOCK/UNBLOCK CARRIER TRACKS (WP 0042 00).

12. Fill out DA Form 2404 to notify unit maintenance to torque marked track pin nut.

END OF TASK

REMOVE/INSTALL TRACK SHOE 0093 00

THIS WORK PACKAGE COVERS:

Removal (page 0093 00-1).
Installation (page 0093 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver
Helper

Tools and Special Tools

Crowbar (WP 0102 00, Item 13)
Drive Pin Punch (WP 0102 00, Item 44)
Grease Gun (WP 0102 00, Item 25)
Hammer, 2 lb (WP 0102 00, Item 26)
Open End Wrench, 1-5/16 inch (WP 0102 00, Item 64)
Socket Handle, 1/2 inch drive (WP 0102 00, Item 30)
Socket, 11/16 inch (WP 0102 00, Item 49)
Socket, 3/4 inch (WP 0102 00, Item 49)
Track Fixture (2) (WP 0102 00, Item 23)
Industrial Goggles
(WP 0103 00, Item NSN 4240-00-052-3776)

Equipment Condition

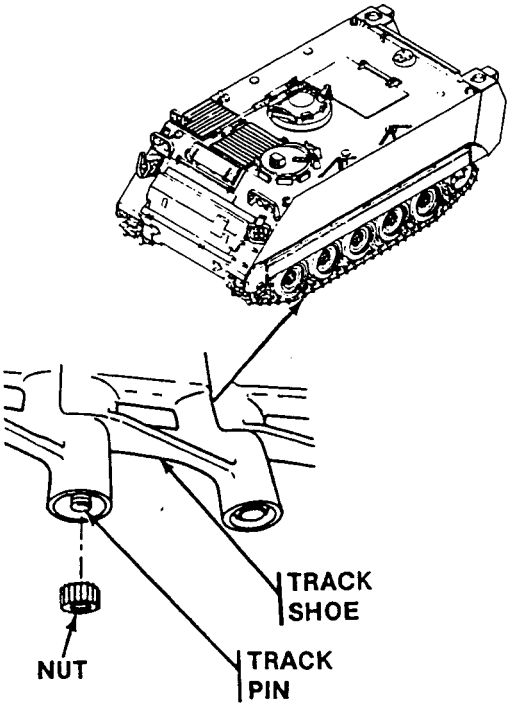
Carrier on level surface
Engine stopped (WP 0024 00)

REMOVAL

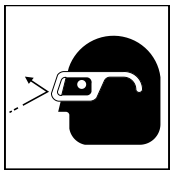
REMOVE TRACK SHOE

1. Break track to remove track shoe. See task: BREAK/JOIN TRACK (WP 0092 00).

2. Remove nut from track pin of shoe to be removed. Use 1/2 inch drive socket handle and 11/16 inch socket.

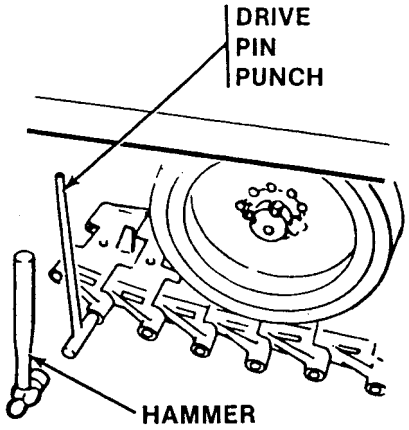


WARNING

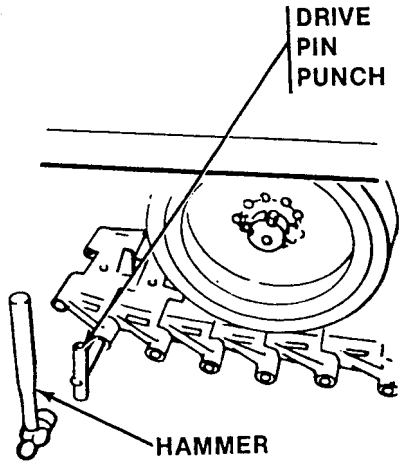


Always wear eye protection when using a hammer. Eye injury may result if metal chips contact eyes.

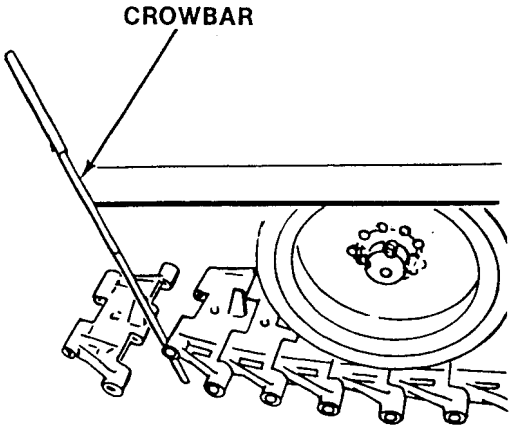
3. Drive track pin part way out with short end of drive pin punch. Wear industrial goggles and use hammer. Remove drive pin punch.



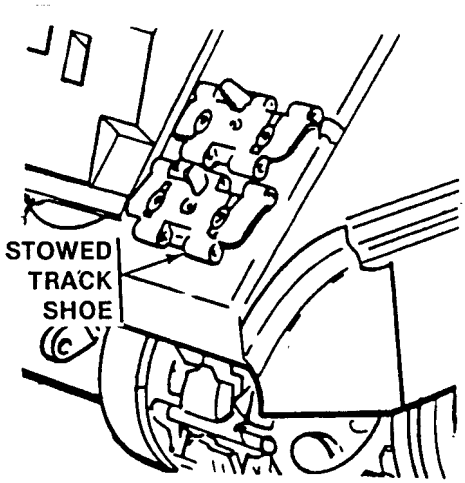
4. Drive track pin all the way out with long end of drive pin punch. Keep short end up and remove drive pin punch.



5. Remove track shoe from track. Use crowbar.



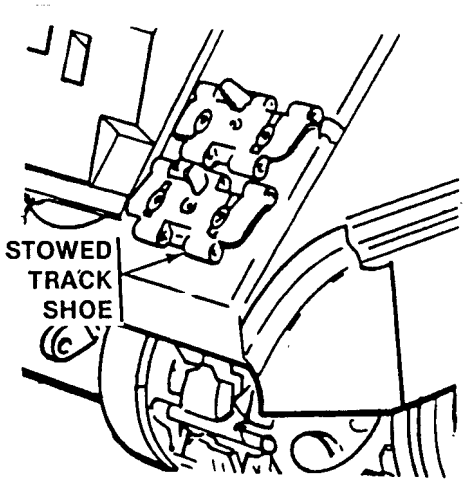
6. If removed shoe is not serviceable, discard shoe. If removed shoe is serviceable, install the pin and nuts in the shoe. Stow shoe on left front of carrier just above the track. Use 1/2 inch drive socket handle and 3/4 inch socket.



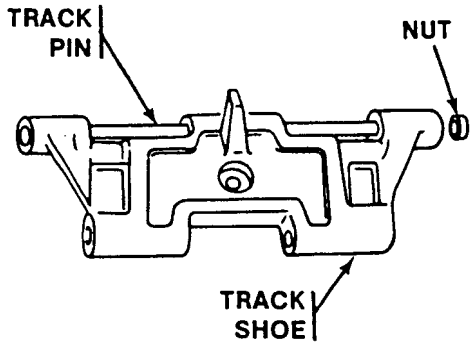
INSTALLATION

INSTALL TRACK SHOE

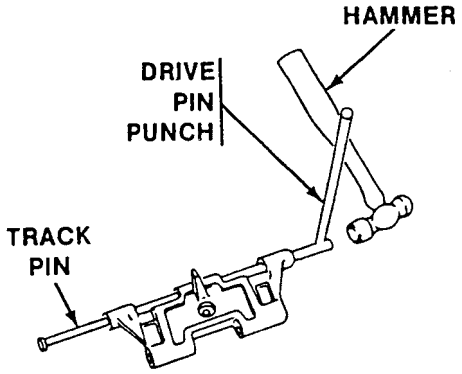
1. Unstow a spare track shoe from left front of carrier. Use 1/2 inch drive socket handle and 3/4 inch socket.



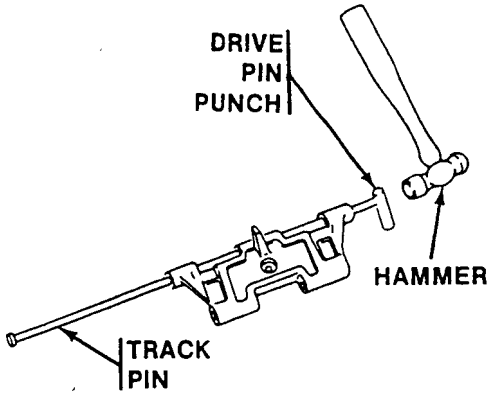
2. Remove nut from track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



3. Drive track pin part way out with short end of drive pin punch. Wear industrial goggles and use hammer. Remove drive pin punch.

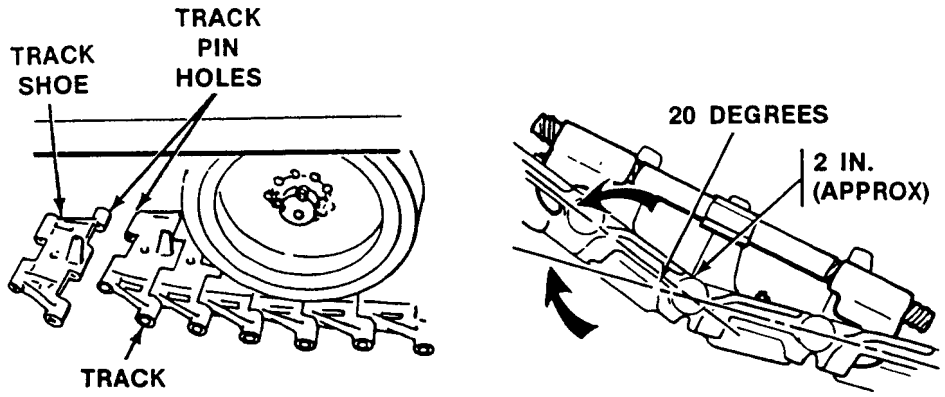


4. Drive track pin all the way out. Wear industrial goggles. Use hammer and long end of drive pin punch.



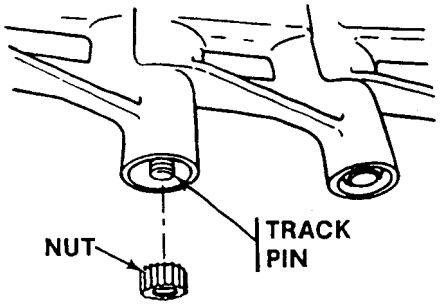
5. Coat track pin with oil or grease. Install nut flush on track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.
6. Place track shoe in lower part of track. Align track pin holes.
7. Obtain 20 degree angle between track shoes to be connected.

8. Install track pin in track shoe.



9. JOIN TRACK. See task: BREAK/JOIN TRACK (WP 0092 00).

10. Install nut on track pin. Use 1/2 inch drive socket handle and 11/16 inch socket.



11. ADJUST TRACK TENSION (WP 0091 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

TRACK SHOE WEAR LIMITS 0094 00

THIS WORK PACKAGE COVERS:

Track shoe wear limits (page 0094 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Carrier parked on level ground
Engine stopped (WP 0024 00)

Tools and Special Tools

Track and Sprocket Gauge (WP 0102 00, Item 24)

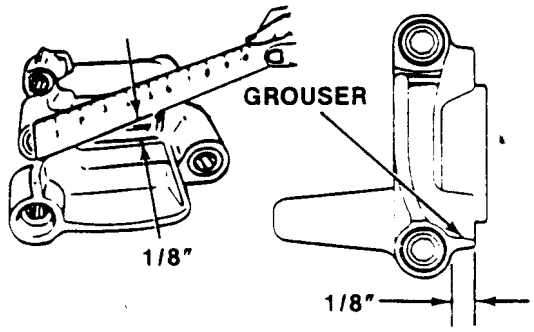
Personnel Required

Soldier

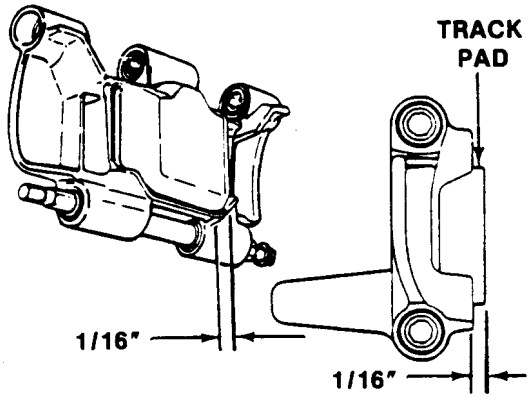
INSPECTION OF INSTALLED ITEMS

TRACK SHOE WEAR LIMITS

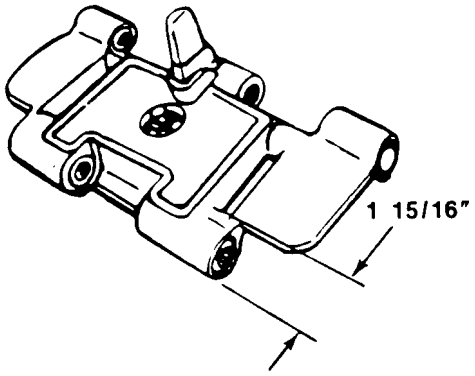
1. **Grouser height.** Measure the height of the top edge of the grouser above the bushing housing. If the shoe has less than 1/8 inch of grouser height left, it must be replaced.



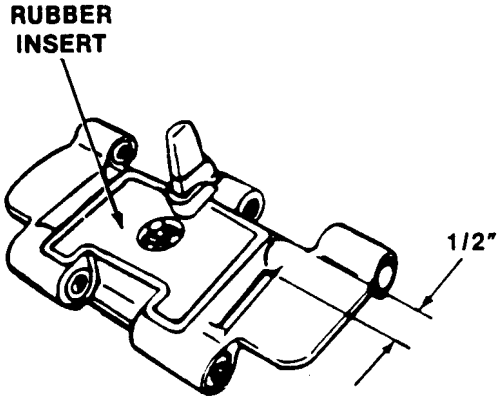
2. **Track shoe pad.** Measure the height of the top of the track shoe pad above the top of the grouser. If this is less than 1/16 inch, the pad is too worn. Have unit maintenance replace the pad.



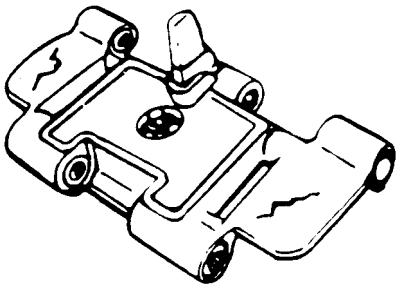
3. **Drive sprocket flange (leading).** On the two bushing end of the shoe, measure the distance from the edge of the sprocket drive hole to the outside of the bushing housing. If the distance is less than 1-15/16 inch, the shoe must be replaced.



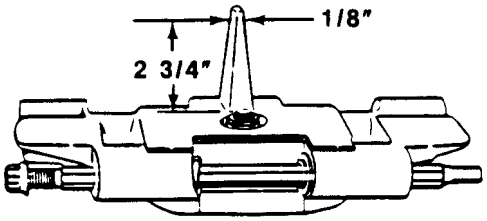
4. **Drive sprocket flange (trailing).** At the three bushing ends of the shoe, measure from the edge of the sprocket drive hole to the nearest outside edge of the shoe. If it's less than 1/2 inch, the shoe must be replaced.



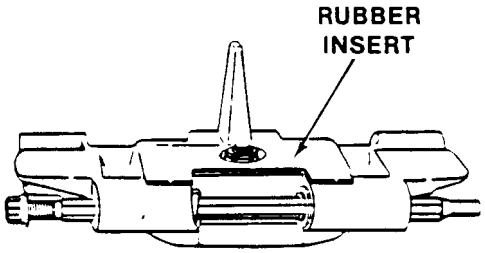
5. **Track shoe forging.** Look for cracks in the grousers, pad recess, the ears (track web area outside the grousers and sprocket drive holes), and the sides of the sprocket drive holes. If the cracks are less than 1 inch long in these plates, get the cracks welded. If cracks are one inch or longer, or in any other place, the shoe must be replaced.



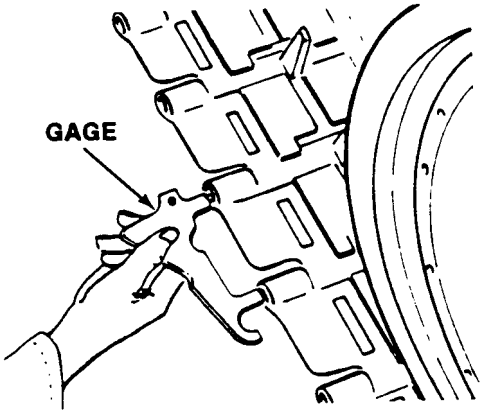
6. **Center guide.** The center guide has to be 1/8 inch thick or more, measured 2 3/4 inch from the face of the track. The center guide must be at least 2 3/4 inches long.



7. **Rubber inserts.** 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.

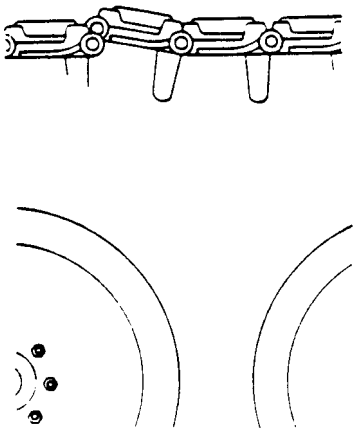


8. **Bushing wear.** With the track on the carrier and under normal tension, insert pins of track and sprocket gauge into track shoes. If pins enter both track shoes freely, track bushings are OK; if pins do not enter both track shoes freely, bushings are worn. Report any worn bushings to unit maintenance.



TRACK SHOE WEAR LIMITS — Continued **0094 00**

9. **Dead shoes.** 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 TRACK SHOE (WP 0093 00).



END OF TASK

CHECK CARRIER BATTERIES 0095 00

THIS WORK PACKAGE COVERS:

Operational Check (page 0095 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Flashlight (WP 0104 00, Item 9)

Materials/Parts

Grease (WP 0104 00, Item 10)

Personnel Required

Driver

References

TM 9-6140-200-14
TM 11-7010-256-12&P

Equipment Condition

Engine stopped (WP 0024 00)
M1068A3 only — CHS Equipment removed (TM 11-7010-256-12&P)
M1068A3 only — All external power disconnected (TM 11-7010-256-12&P)

OPERATIONAL CHECK

NOTE

Do Step 1 for M113A3 only.

1. Slide spall liners to the front or rear to access batteries. See task: POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (WP 0041 00).

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

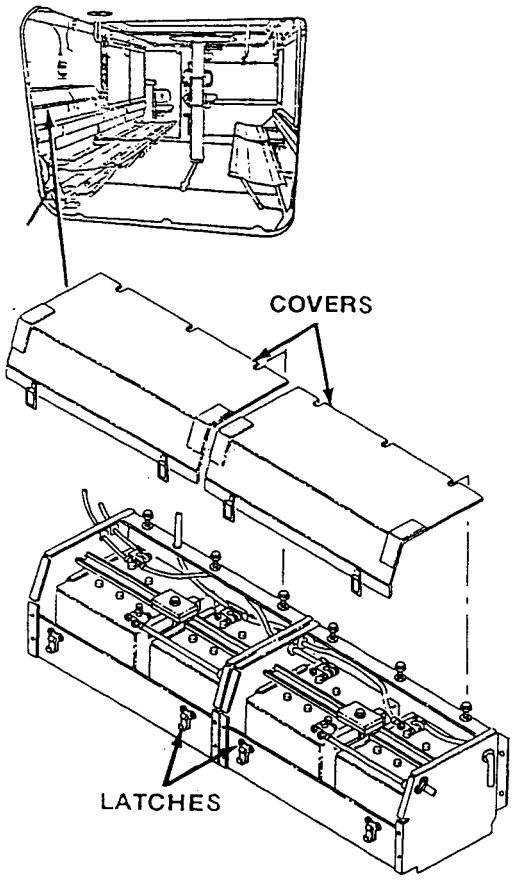


Gas from batteries can explode and injure you. Do not allow sparks near batteries. Battery acid can blind or burn you. Do not get acid on your skin or eyes.

NOTE

Do Step 2 for M113A3, M1059A3, and M901A3.

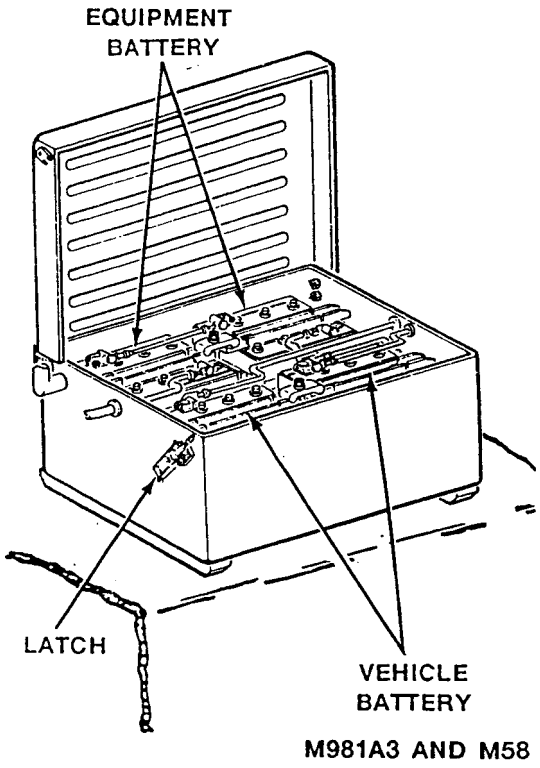
2. Unlatch six latches and remove two covers from battery boxes.



NOTE

Do Step 3 for M981A3 and M58 only.

3. Release two latches and lift battery box cover. (Battery box is located on left sponson.)

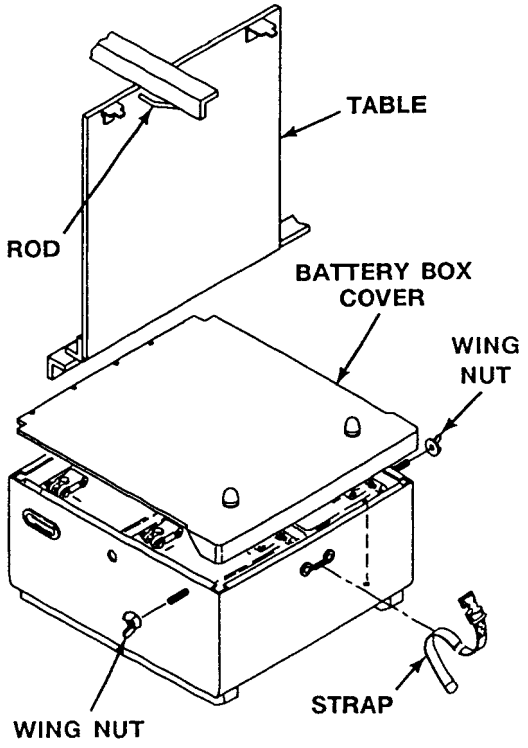


M981A3 AND M58

NOTE

Do Step 4 and Step 5 for M577A3 only.

4. Remove strap from table top and battery box. Pull rod downward from securing clip. Raise table top and use rod to secure table top up while performing any maintenance or inspection of batteries.
5. Remove two wing nuts that secure battery box cover to battery box. Remove battery box cover.

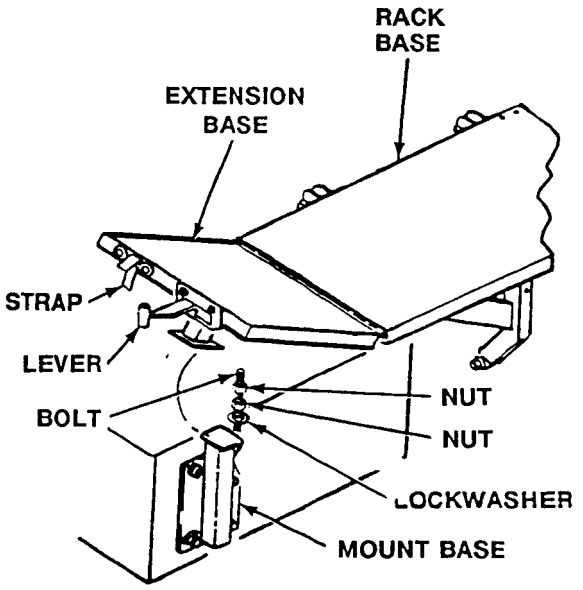


NOTE

Do Steps 6 - 8 for M1068A3 only.

6. Loosen two nuts and swivel bolt off extension base bracket.
7. Push lever towards the right side wall and put lever in latch position. Raise extension base and secure with strap. The guide has a position for the lever in the locked position and in the released position.

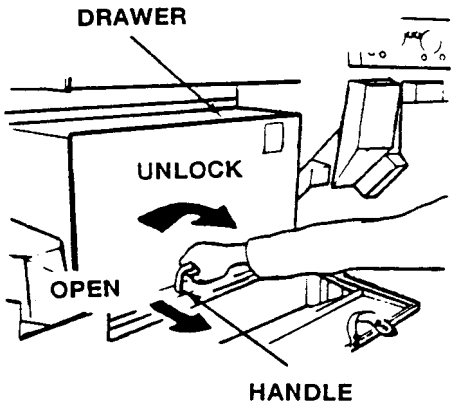
8. Open two latches that secure battery box cover to battery box. Remove battery box cover.



NOTE

Do Step 9 for batteries on left side M1064A3 only.

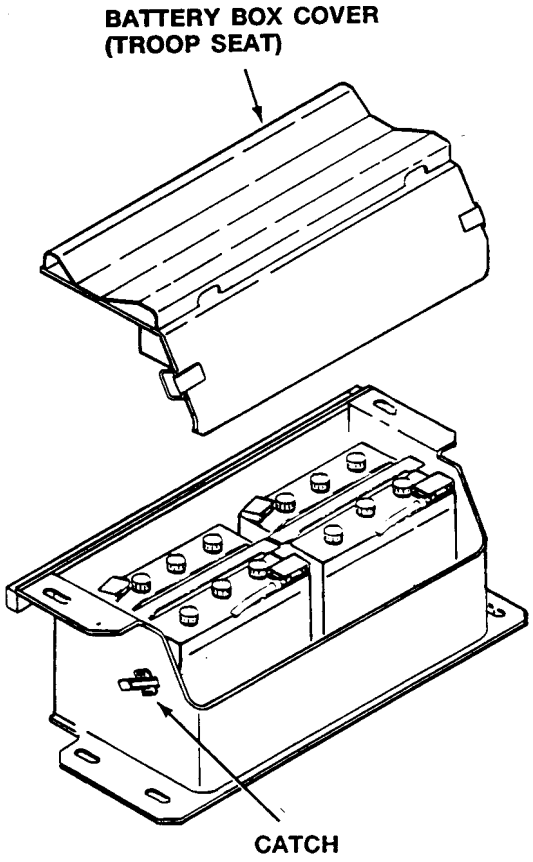
9. Lower left crew seat back rest and turn handle. Pull drawer out.



NOTE

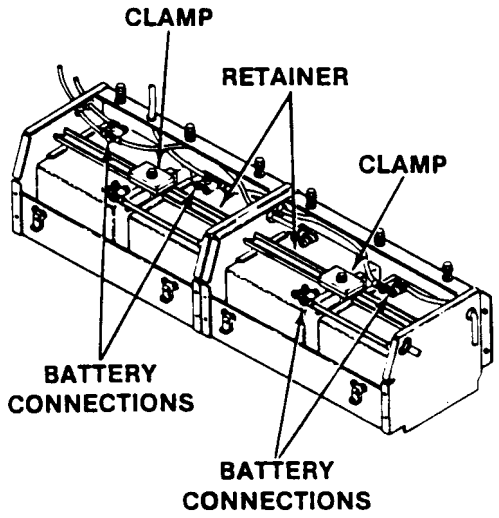
Do Step 10 for batteries on right side M1064A3 only.

10. Release catches on each side of battery box/seat support. Remove battery box cover/seat.



11. Check battery retainers and clamps with both hands and try to move them. If batteries move or seem loose, report it to unit maintenance.

12. Check battery connections. Try to twist each clamp with thumb and first two fingers. Check to see if cables are securely connected to clamp. If any clamp or connection is loose, report it to unit maintenance.



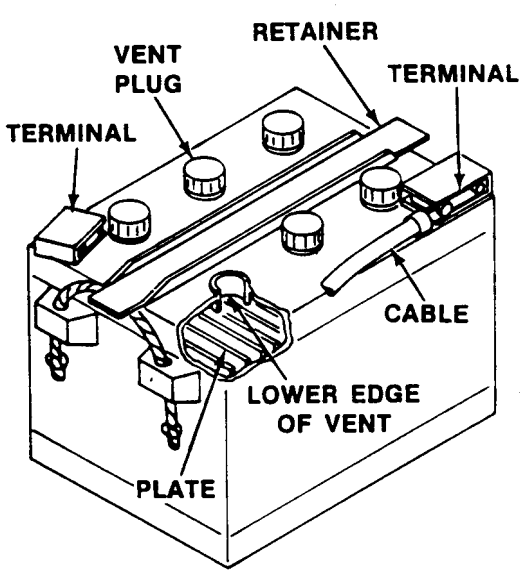
NOTE

Check the water level more frequently in hot weather.

13. 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. Check that vent holes are clear in caps (plugs) before installation. Install vent plugs on battery cells.

14. Clean battery. Wipe off battery casing and surrounding metal parts. Use clean dry wiping rag. Check terminals, clamps, cables and retainers for corrosion.

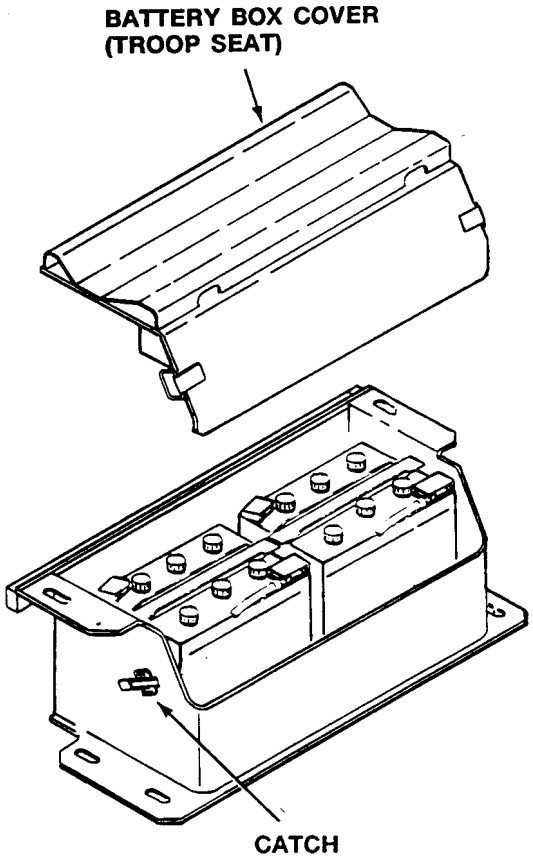
15. Coat terminals with a small amount of grease (GAA).



NOTE

Do Step 16 for batteries on right side M1064A3 only.

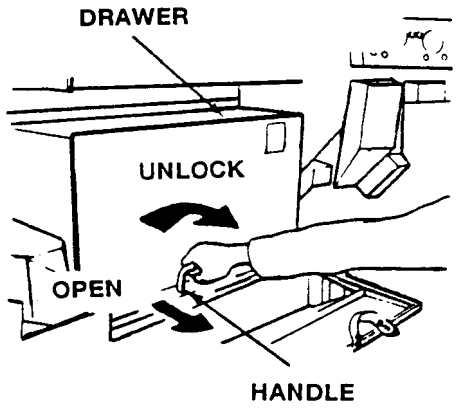
16. Position battery box cover/seat on battery box support. Latch catches to secure battery box cover/seat.



NOTE

Do Step 17 for batteries on left side M1064A3 only.

17. Install drawer on battery box and turn handle. Raise left crew seat back rest.



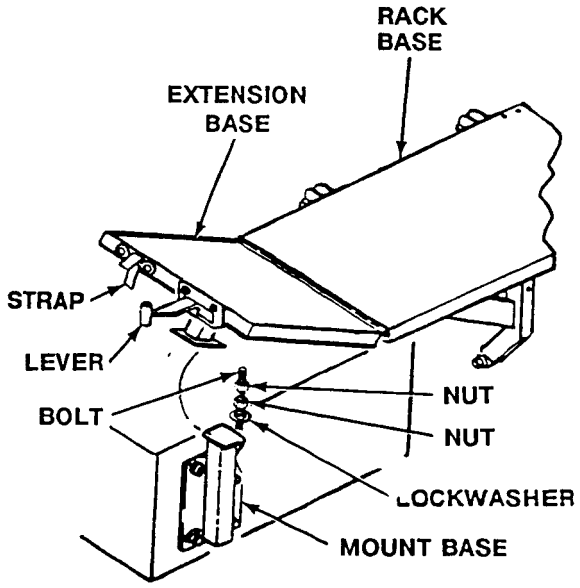
NOTE

Do Steps 18 - 20 for M1068A3 only.

18. Slide battery box cover onto battery box. Secure cover with two catches.

19. Hold extension base and remove strap. Secure strap back in place. Lower extension base and push lever towards the wall to release latch, then leave lever in latch locked position to keep end of extension base secure.

20. Swivel bolt with washer and two nuts on top of extension base bracket. Tighten first nut to secure bracket to support. Then tighten second nut securely against first nut.

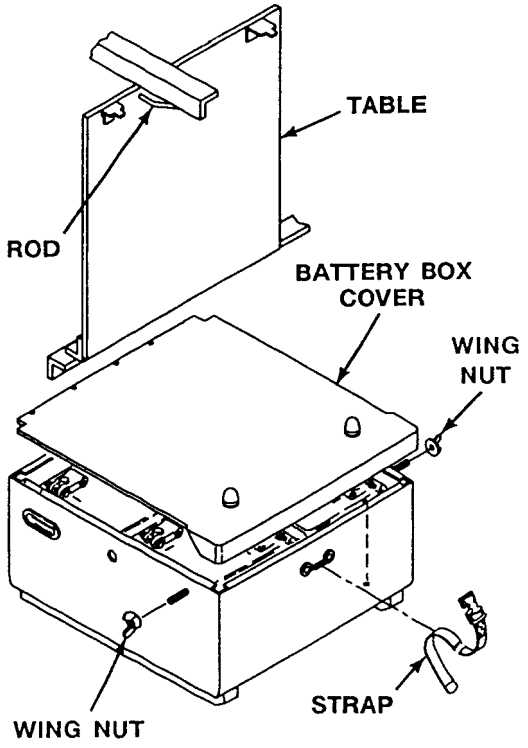


NOTE

Do Step 21 and Step 22 for M577A3 only.

21. Slide battery box cover onto battery box. Secure cover with two wing nuts.

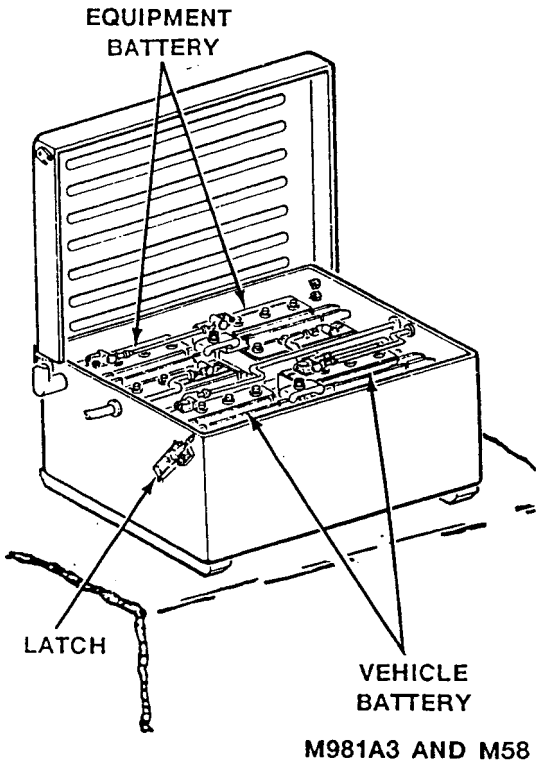
22. Push table top against wall to release rod. Swing rod out of the way and lower table top down. Secure rod in clip. Secure table top to battery box with strap.



NOTE

Do Step 23 for M981A3 and M58 only.

23. Close battery box cover and fasten both latches.

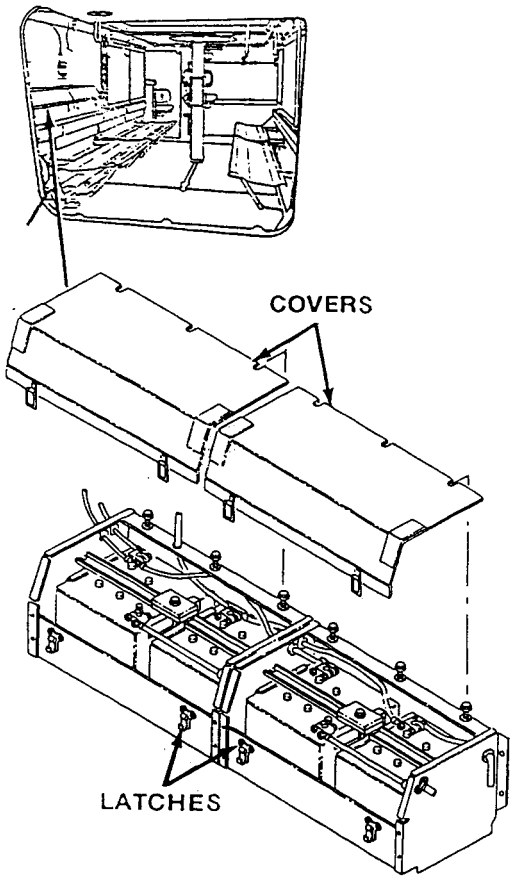


M981A3 AND M58

NOTE

Do Step 24 for M113A3, M1059A3, and M901A3.

24. Install battery box covers and latch six latches securely.



NOTE

Do Step 25 for M113A3 only.

25. Slide spall liners to the closed position. See task: POSITIONING SPALL LINERS FOR ACCESS TO EQUIPMENT (WP 0041 00).

26. For more information on batteries, see TM 9-6140-200-14.

END OF TASK

SERVICE BILGE PUMPS 0096 00

THIS WORK PACKAGE COVERS:

Servicing Front Bilge Pump (page 0096 00-1).
Servicing Rear Bilge Pump (page 0096 00-5).
Operational Check (page 0096 00-6).

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Cross Tip Screwdriver (WP 0102 00, Item 45)
Flashlight (WP 0104 00, Item 9)
Socket Wrench Handle, 1/2 inch drive (WP 0102 00, Item 30)
Socket Wrench, 1/2 x 3/4 (WP 0104 00, Item 49)

Personnel Required

Driver

Helper (H)

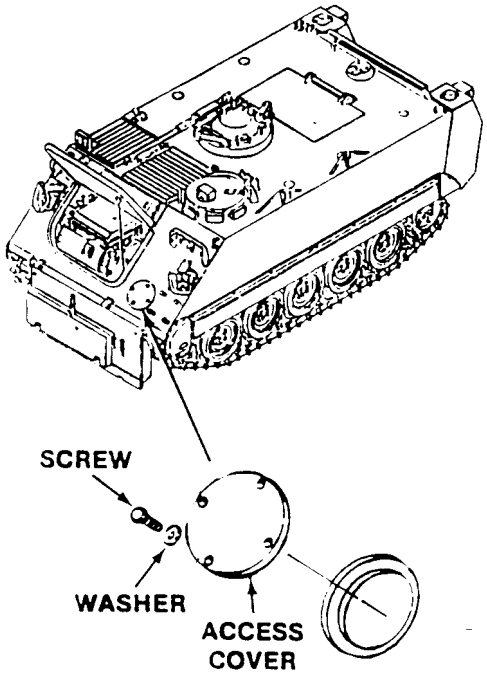
Equipment Condition

Engine stopped

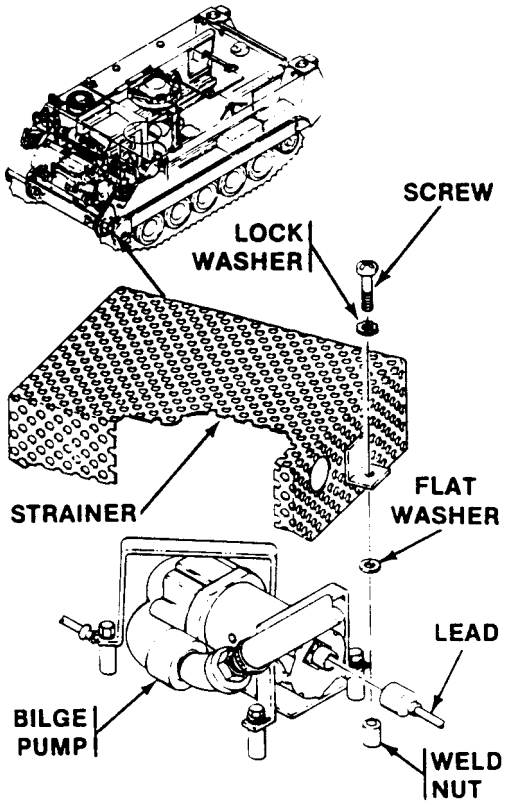
SERVICING

FRONT BILGE PUMP

1. Lower trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).
2. Open power plant access door. See task: OPEN/CLOSE POWER PLANT ACCESS DOOR (WP 0011 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.

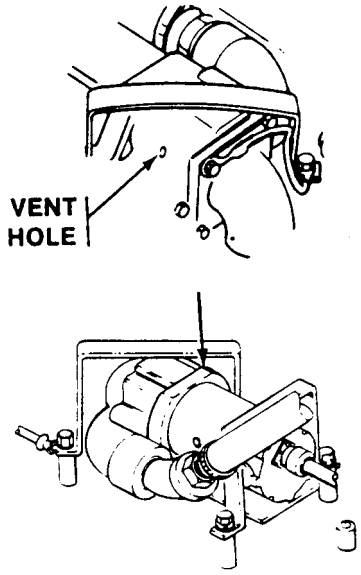


4. Service front bilge pump. Use flashlight.
5. Disconnect lead from bilge pump.
6. Remove two screws, lockwashers, and flat washers securing bilge pump strainer to weld nuts. Remove strainer. Use cross tip screwdriver.

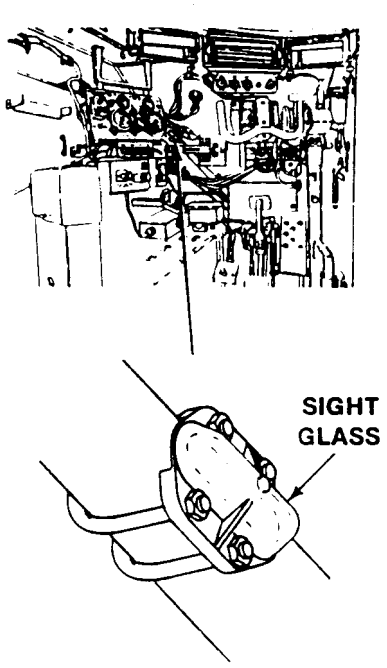


7. Remove mud and debris from bilge pump and strainer. If bilge pump needs additional cleaning, notify unit maintenance.

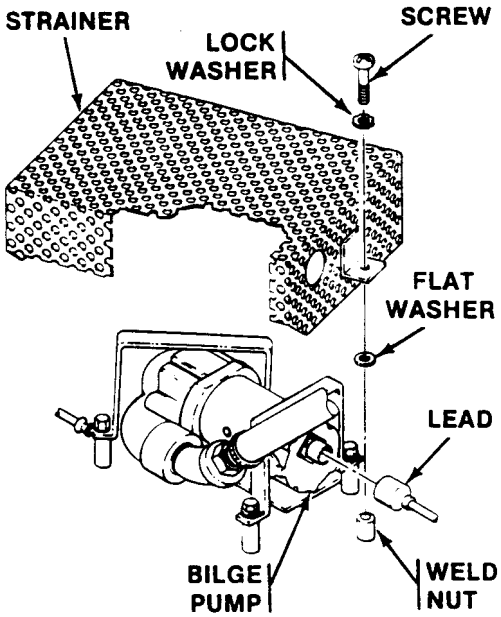
8. Clean vent hole. Use a wire and run it back and forth in vent hole a few times.



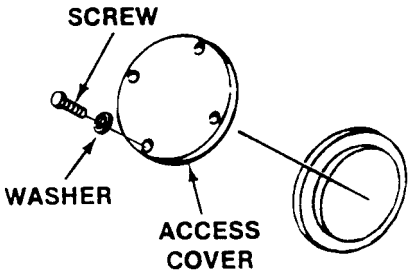
9. Clean front bilge pump outlet line sight glass as needed. If sight glass must be removed to get it clean, notify unit maintenance.



10. Position bilge pump strainer on weld nuts and secure with two flat washers, lockwashers and screws. Use cross tip screwdriver.
11. Connect lead to bilge pump.



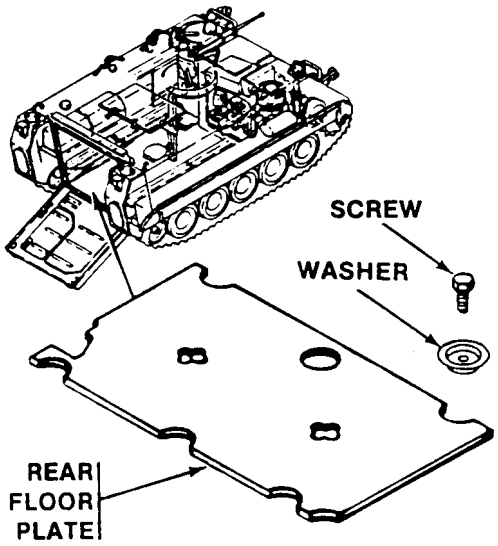
12. Install front access cover on hull and secure with four washers and screws. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.



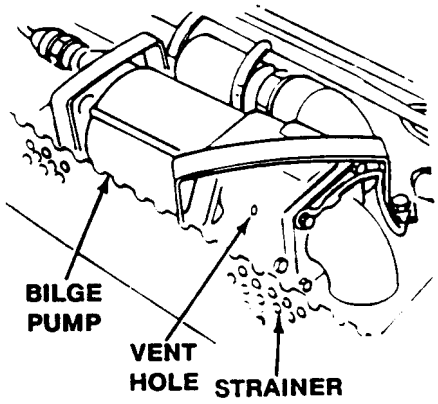
13. Close power plant access door. See task: OPEN/CLOSE POWER PLANT ACCESS DOOR (WP 0011 00).
14. Stow trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).

REAR BILGE PUMP

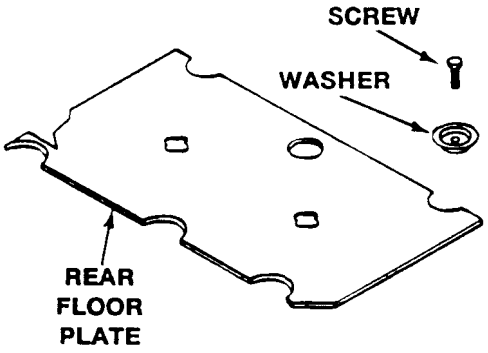
1. Lower ramp. See task: LOWER/RAISE RAMP (WP 0012 00).
2. Remove six screws, washers and rear floor plate from floor supports. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.



3. Service rear bilge pump. Use flashlight.
4. Remove mud and debris from bilge pump and strainer. 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.



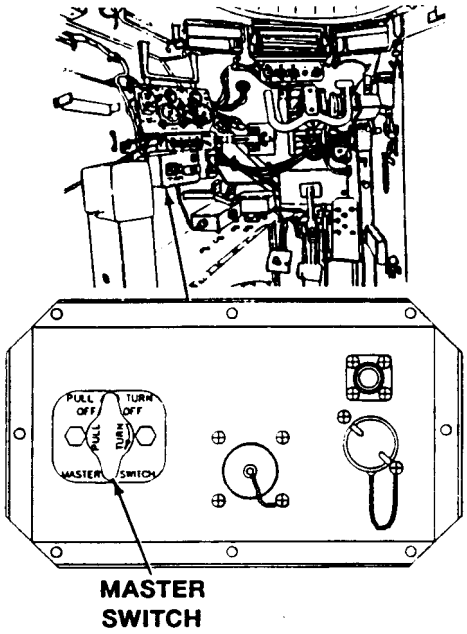
6. Install rear floor plate on floor supports and secure with six washers and screws. Use 1/2 inch drive socket wrench handle and 3/4 inch socket.

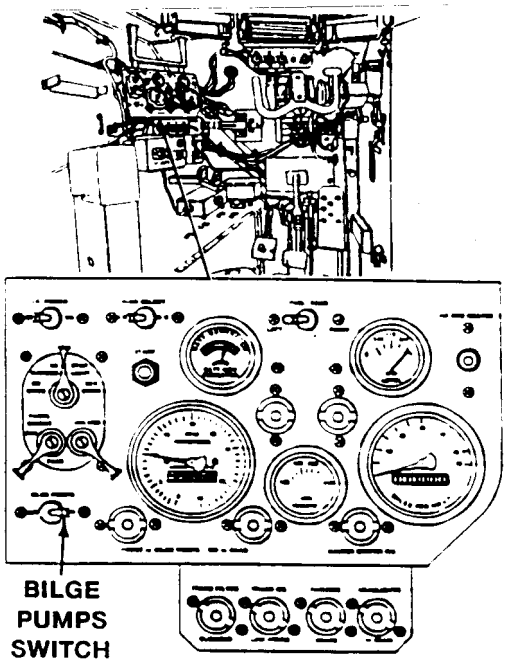


7. Raise ramp. See task: LOWER/RAISE RAMP (WP 0012 00).

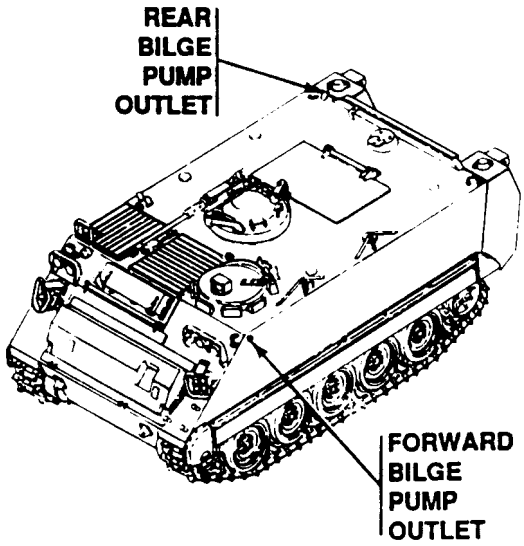
OPERATIONAL CHECK

1. Move MASTER SWITCH to ON.
2. Move BILGE PUMPS switch to ON.



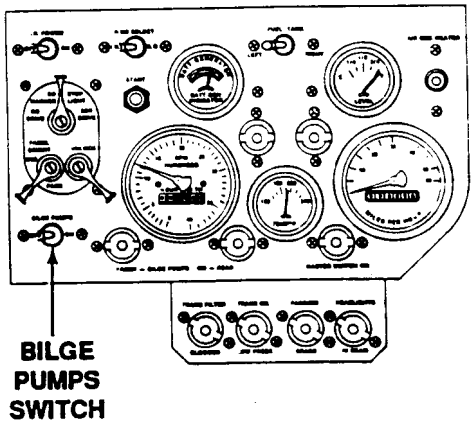


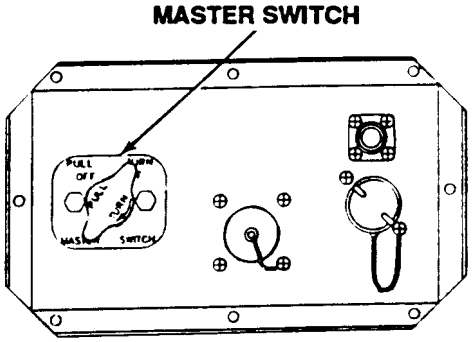
3. (H) Check for air flow at forward and rear bilge pump outlets.



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

CHECK/FILL COOLING SYSTEM 0097 00

THIS WORK PACKAGE COVERS:

Operational Check (page 0097 00-1).

INITIAL SETUP:

Maintenance Level

Operator

Equipment Condition

Engine stopped

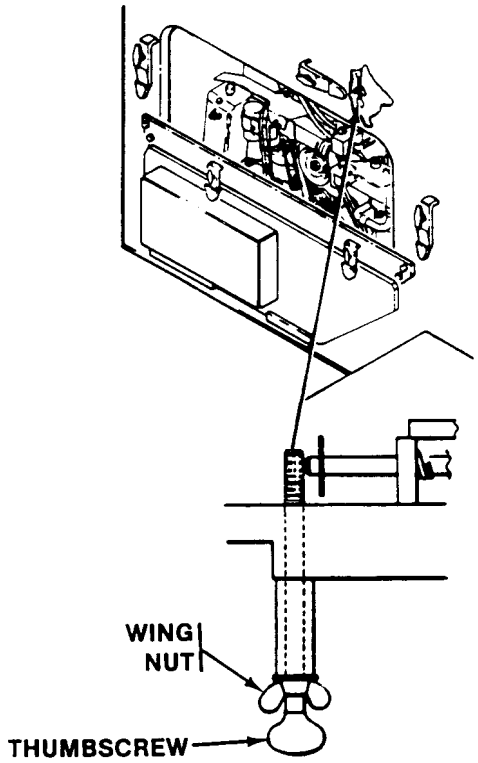
Personnel Required

Driver

OPERATIONAL CHECK

1. Remove top rear power plant access panel. See task: REMOVE/INSTALL POWER PLANT ACCESS PANELS (WP 0040 00).

2. Reach into power plant compartment and loosen wing nut. Turn thumbscrew to your left to unlock radiator cap combat cover.

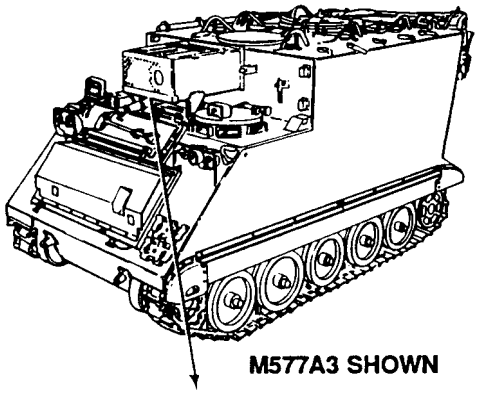


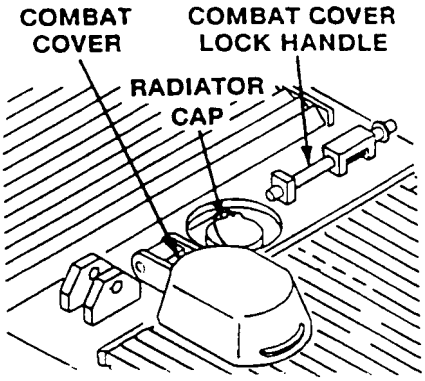
3. Pull combat cover lock handle and open combat cover.

NOTE

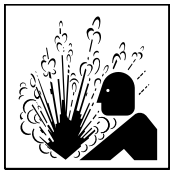
Do Step 4 for M577A3 and M1068A3 only.

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.

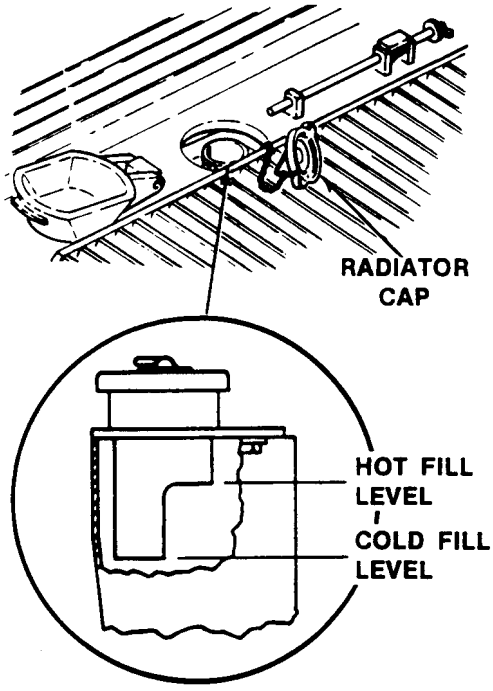
CAUTION

Adding coolant to an overheated engine could damage engine. Do not add coolant to an overheated engine unless engine is running.

NOTE

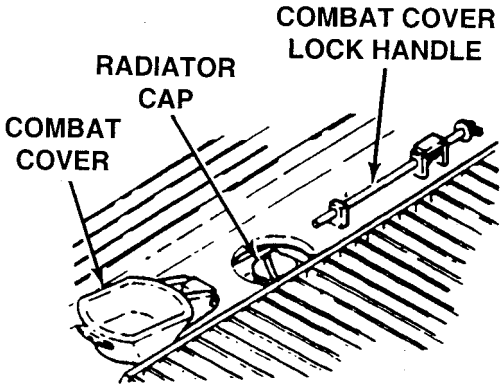
Approved antifreeze coolant only may be added to radiator. In an emergency, water may be added if specified coolant is not available.

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.

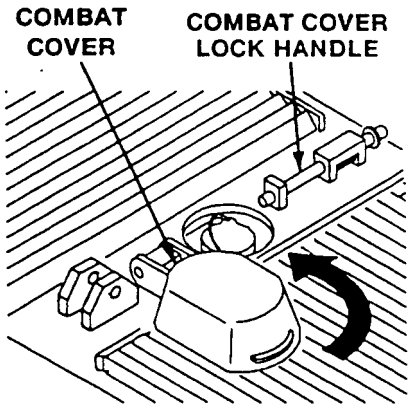


8. Close combat cover. Secure combat cover closed with combat cover lock handle.

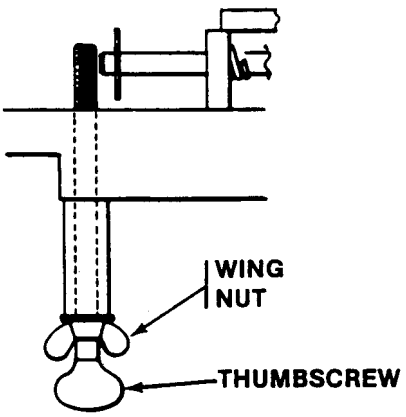
NOTE

Do Step 9 for M577A3 and M1068A3 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 wing nut.



WARNING



Engine exhaust fumes can kill you. Do not operate the carrier with access panels off. Make sure the panels are sealed tight. See warning in the front of this manual.

11. Install the top rear power plant access panel. See task: REMOVE/INSTALL POWER PLANT ACCESS PANELS (WP 0040 00).

END OF TASK

MAINTENANCE OF AIR CLEANER 0098 00

THIS WORK PACKAGE COVERS:

Operational Check (page 0098 00-1).

INITIAL SETUP:

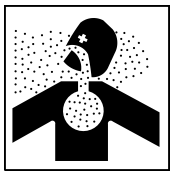
Maintenance Level
Operator

Equipment Condition
Engine stopped

Personnel Required
Driver

OPERATIONAL CHECK

WARNING



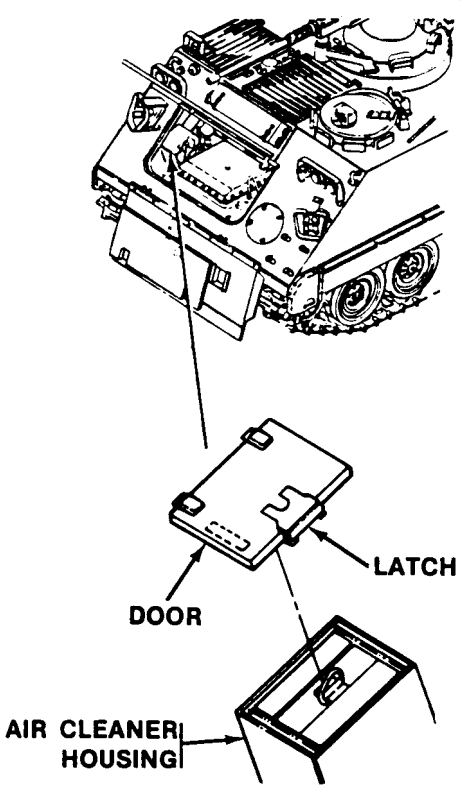
Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

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.

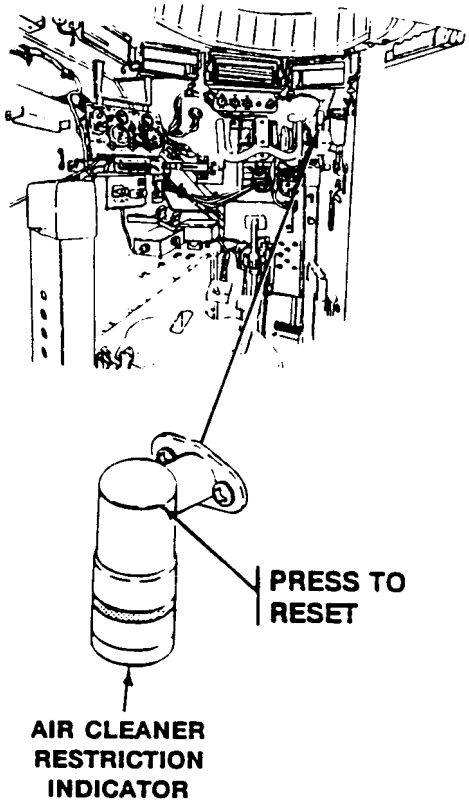
1. Lower trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).
2. Open power plant access door. See task: OPEN/CLOSE POWER PLANT ACCESS DOOR (WP 0011 00).

3. Release latch at top of air cleaner housing. Swing door up and remove door. Check latch for proper operation.



4. Check door for missing or damaged gasket.
5. Check that air cleaner element is installed in air cleaner housing.
6. Install door on air cleaner housing and secure with latch.

7. Check air cleaner restriction indicator. If at any time you see only red in the window and button does not reset when pushed in, notify unit maintenance.



8. Close power plant access door. See task: OPEN/CLOSE POWER PLANT ACCESS DOOR (WP 0011 00).
9. Stow trim vane. See task: LOWER/STOW TRIM VANE (WP 0039 00).

END OF TASK

CHECK/REPLACE MISSING PLUG (M113A3 ONLY) 0099 00

THIS WORK PACKAGE COVERS:

Removal (page 0099 00-1).
Installation (page 0099 00-1).

INITIAL SETUP:

Maintenance Level
Operator

Tools and Special Tools
Flat tip screwdriver (WP 0102 00, Item 46)

Materials/Parts
Cleaning compound solvent (WP 0104 00, Item 6)

Personnel Required
Soldier

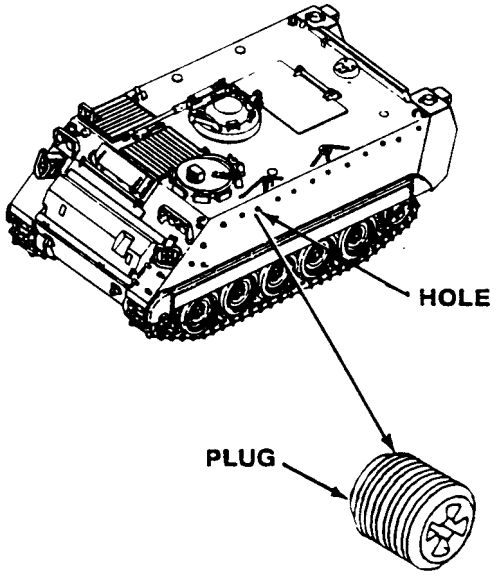
Equipment Condition
Engine stopped (WP 0024 00)

REMOVAL

NOTE

Armor mounting provision holes must be free of dust and dirt before plugs are installed.

1. Remove plug from armor mounting provision hole. Use flat tip screwdriver.



2. Clean armor mounting provision hole. If necessary, use cleaning compound solvent. Let surface air dry.

INSTALLATION

1. Install new plug in armor mounting provision hole. Use flat tip screwdriver.

END OF TASK

SERVICE SMOKE GENERATOR FUEL CAN/FOG OIL TANK (M1059A3) 0100 00

THIS WORK PACKAGE COVERS:

Remove Smoke Generator Fuel Can (page 0100 00-2).
Service Smoke Generator Fuel Can (page 0100 00-3).
Install Smoke Generator Fuel Can (page 0100 00-4).
Service Fog Oil Tank (page 0100 00-4).

INITIAL SETUP:

Maintenance Level

Operator

Personnel Required

Driver

References

TM 3-1040-283-10

Equipment Condition

Engine stopped (WP 0024 00)
Carrier blocked (WP 0042 00)

WARNING



Fuel is highly flammable and can catch fire quickly. Use extreme caution when working around fuel and keep all flames and sparks a minimum of 25 feet away. If fuel gets on your skin it can cause burns or rashes. Wash skin immediately with soap and water and seek medical attention.

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 cans. Procedures for servicing the right and left fuel cans are the same.

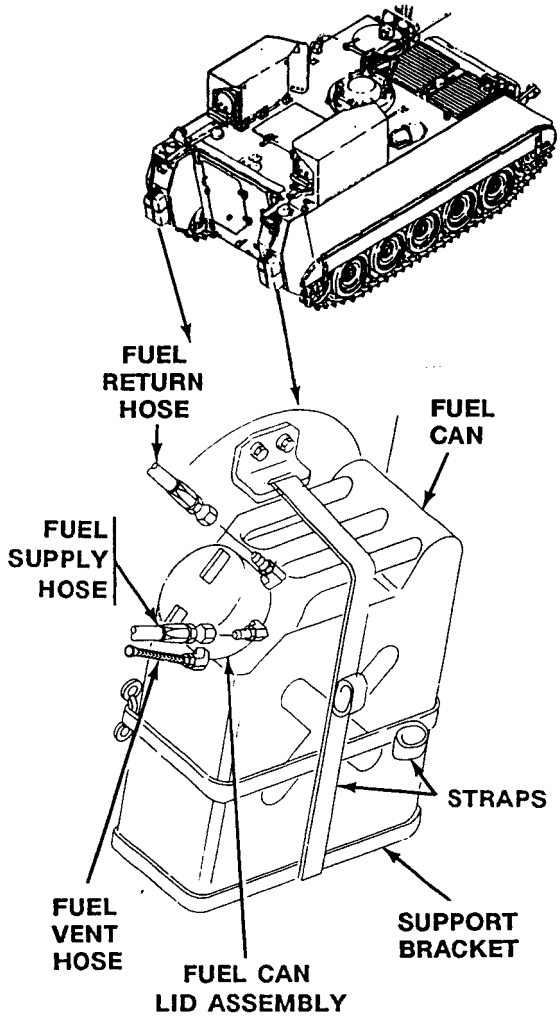
SERVICING

REMOVE SMOKE GENERATOR FUEL CAN

CAUTION

Fuel cans, hoses, and fittings should be cleaned prior to removal and installation or damage to equipment may result.

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.

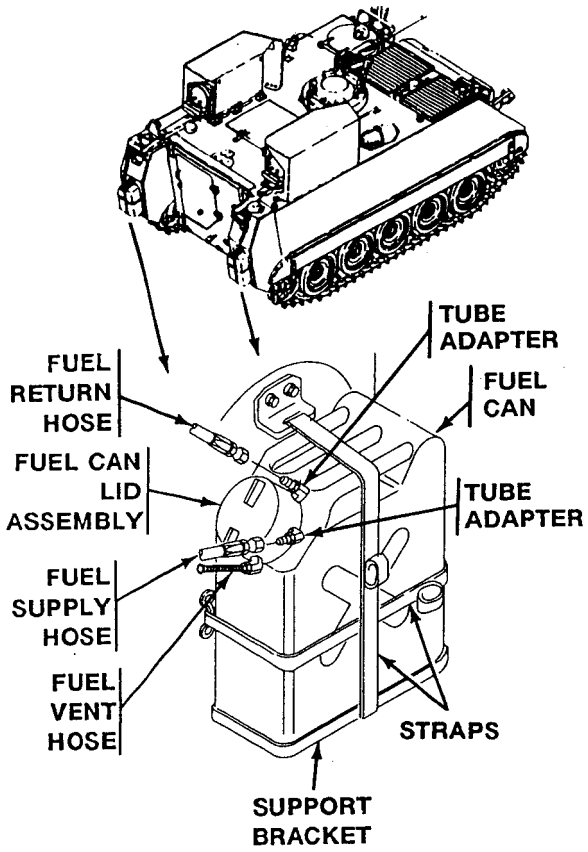
1. Fill fuel can with fuel (gasoline) as required.

INSTALL SMOKE GENERATOR FUEL CAN

CAUTION

Fuel cans, hoses, and fittings should be cleaned prior to removal and installation or damage to equipment may result.

1. Install fuel can lid assembly on fuel can.
2. Position fuel can on support bracket on hull and secure with fuel can 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 3-1040-283-10 for proper servicing.

END OF TASK

CHAPTER 5

OPERATOR SUPPORTING INFORMATION

WORK PACKAGE INDEX

Title	Sequence No.
REFERENCES	0101 00
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS	0102 00
ADDITIONAL AUTHORIZATION LIST (AAL)	0103 00
EXPENDABLE AND DURABLE ITEMS LIST	0104 00
STOWAGE AND SIGN GUIDE	0105 00
STANDARD LOAD PLAN	0106 00
PLUG/SETSCREW GUIDE FOR ARMOR MOUNTING PROVISION HOLES	0107 00

REFERENCES 0101 00

SCOPE

This work package lists all forms, field manuals, technical manuals and miscellaneous publications referred to 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

Maintenance Request.....DA Form 2407

Vehicle Accident Report.....SF 91

Quality Deficiency Report.....SF 368

LUBRICATION

Lubrication Order, Combat Vehicle, Anti-tank, Improved TOW Vehicle, M901A1 (NSN 2350-01-6085).....LO 9-2350-259-12

Carrier, Personnel, Full Tracked, Armored Fire Support, M981 (NSN 2350-01-085-3792).....LO 9-2350-266-12

Lubrication Order for Full Tracked Armored Personnel Carrier, M113A3 FOV.....LO 9-2350-277-12

FIELD MANUALS

Infantry Platoons, Infantry Squads, Mechanized Field Operations in Cold Weather (0°F to -65°F).....FM 7-7

Operation and Maintenance of Ordnance Materiel in Cold Weather (0°F to -65°F).....FM 9-207

Vehicle Recovery Operations.....FM 20-22

Field Hygiene and Sanitation.....FM 21-10

First Aid for Soldiers.....FM 21-11

Desert Operations (How to Fight).....FM 90–3

Driver Selection, Training, and Supervision, Tracked Combat Vehicles.....FM 21-17

Chemical, Biological, Radiological, and Nuclear Defense.....FM 21-40

Machine Gun 7.62MM, M60.....FM 23-67

Basic Cold Weather Manual.....FM 31-70

Northern Operations.....FM 31-71

Mountain Operations.....FM 90-6

Manual for Tracked Combat Vehicle Driver.....FM 21-306

REFERENCES—Continued **0101 00**

TECHNICAL MANUALS

Operator Manual, Combat Vehicle, Anti-tank, Improved TOW Vehicle, M901 (NSN 2350-01-369-6085).....TM 9-2350-259-10

Carrier, Personnel, Full Tracked, Armored Fire Support, M981 (NSN 2350-01-085-3792).....TM 9-2350-266-10

Care, Handling, Preservation, and Destruction of Ammunition.....TM-1300-206

Care, Handling, Preservation, and Destruction of Rigging.....TM-5-725

Operator and Organizational Maintenance Manual for TOW 2 Weapon System, Guided Missile System M220E4.....TM 9-1425-450-12

Operator's Manual: Laser Infrared Observation Set, AN/GVS-5 (NSN 5860-01-062-3543).....TM 11-5860-201-10

Operator's Manual for Chemical-Biological Mask: Combat Vehicle M42 (NSN 4240-01-258-0064) small, (4240-01-258-0065) medium (4240-01-258-0066) large (Reprinted with Basic Incl C1-3).....TM 3-4240-300-10-2

Operator's Manual: Tester, Airflow, Gas-Particulate Filter Unit: M39 (NSN 6680-00-436-4212).....TM 3-6680-316-10

Operator's Manual: M60, 7.62mm Machine Gun (NSN 1005-00-605-7710).....TM 9-1005-224-10

Operator's Manual for Night Vision Goggles, AN/PVS-5 and AN/PVS-5A (NSN 5855-00-150-1820).....TM 11-5855-238-10

Operator's Manual for Night Vision Sight Crew Served Weapons AN/TVS-5 (NSN 5855-00-629-5327).....TM 11-5855-214-10

Operator's Manual for Viewer, Driver's Night Vision AN/VVS-2(V)1 (NSN 5855-00-629-5278).....TM 11-5855-249-10

Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Driver's Vision Enhancer, AN/VAS-5 (V) 1 (NSN 5855–01–394–7125), AN/VAS-5 (V) 2 (NSN 5855–01–452–1406), and AN/VAS-5 (V) 3 (NSN 5855–01–450–8108).....TM 11–5855–304–12&P

Operator's Manual for Generator Set, Smoke, Mechanical: Pulse Jet, M157A2.....TM 3-1040-283-10

Operator's Manual for Generator, Smoke, Mechanical: Mechanized Smoke Obscurant System, M58.....TM 3-1040-285-10

Operator's, Organizational, Direct Support and General Support Maintenance Manual: for Antenna Group, OE-254/GRC (NSN 5985-01-063-1574).....TM 11-5985-357-13

Operator's, Organizational, Direct Support and General Support Maintenance Manual, Including Repair Parts and Special Tools List (including Depot Maintenance Repair Parts and Special Tools): Various Machine Gun Mounts and Combinations Used on Tactical Armored Vehicles.....TM 9-1005-245-14

Operator's, Organizational, DS and GS Maintenance Manual for Lead-Acid Storage Batteries.....TM 9-6140-200-14

Operator's Manual: Machine Gun, Cal .50; Browning, M2, Heavy Barrel Flexible.....TM 9-1005-213-10

Operator's Manual: Machine Gun, 40-MM, MK19, Mod3 (NSN 1010-01-126-9063.....TM 9-1010-230-10

REFERENCES—Continued **0101 00**

Operator's and Organizational Maintenance Manual: Radio Set AN/PRC-77 (NSN 5820-00-930-3724) (Including Receiver-Transmitter, Radio Rt-841/PRC-77)(NSN 5820-00-930-3725).....TM 11-5820-667-12

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 Sets.....TM 11-5820-890-10-8

Operator's and Unit Maintenance Manual for Telephone Sets TA 312/PT (NSN 5805-00-543-0012) and TA-312A/PT (NSN 5805-01-217-7310) (TO 21W1-2PT-291).....TM 11-5805-201-12

Operator's, Organizational, Direct Support and General Support Maintenance Manual: Suppressor, Electrical Transient MX-7778A/GRC (NSN 5915-00-413-6718).....TM 11-5915-224-14

Operator's and Organizational Maintenance Manual (including Repair Parts and Special Tools List) Generator Set, Smoke, Mechanical: Pulse Jet M157.....TM 3-1040-279-12&P

Operator's and Organizational Maintenance Manual (including Repair Parts and Special Tools List) Decontaminating Apparatus, Portable, 14 Liter, M13 (NSN 4230-01-133-4124).....TM 3-4230-214-12&P

Operator's and Organizational Maintenance Manual (including Repair Parts and Special Tools List) Decontaminating Apparatus, Portable, DS2, 1 1/2 Quart, NBC-M11 (NSN 4230-00-720-1618).....TM 3-4230-204-12&P

Organizational Maintenance: (including repair parts and special tools list) Installation Kits for Alarm Chemical Agent, Automatic.....TM 3-6665-274-20

Organizational Maintenance Manual: Carrier, Personnel, Full Tracked, Armored M113A3.....TM 9-2350-277-20

Procedures for Destruction of Electronics Materiel to Prevent Enemy Use.....TM 750-244-2

Destruction of Conventional Ammunition and Improved Conventional Munitions to Prevent Enemy Use.....TM 750-244-5-1

Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use.....TM 750-244-6

Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1010, 1520, 2530, 5590, 5595 to Prevent Enemy Use.....TM 750-244-7

Operator, Organizational, DS and GS Maintenance Manual, for Generator Set; Gasoline Driven 4.2 KW, +28VDC.....TM 5-6115-596-14

Operator, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List, 5 KW, 28 VDC Auxiliary Power Unit.....TM9-6115-664-13&P

Use and Care of Hand Tools and Measuring Tools.....TM 9-243

Operator's Manual, Mortar, 120 mm, 4.7 inch, M121.....TM 9-1015-250-10

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, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48, AN/VRC-49 (Used without intercom system).....TM 5820-401-10-1

Operator's Manual: Radio Sets AN/VRC-12, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48, AN/VRC-49 (Used with intercom system).....TM 5820-401-2

REFERENCES—Continued **0101 00**

Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List): Radio Sets AN/VRC-12, AN/VRC-43, AN/VRC-44, AN/VRC-45, AN/VRC-46, AN/VRC-47, AN/VRC-48, AN/VRC-49, AN/VRC-54, AN.\/VRC-55; Mounting MT-1029/VRC and Mounting MT-1898/VRC; Antenna AT-912/VRC Control, Frequency Selector C2742 and Control Radio Set C2299/VRC.....TM 11-5820-401-12

Operator's and Unit Maintenance Manual for Vehicle Intercommunications System (VIS).....TM 11-5830-263-12

Organizational, Direct Support, General Support, and Depot Maintenance Manual: Antenna Equipment, RC-292 (NSN 5985-00-497-8554).....TM 11-5820-348-15

Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual (Including Repair Parts and Special Tools Lists) for Mast, AB-903/G (NSN 5965-00-933-2197).....TM 11-5985-263-15

Operator and Organizational Maintenance Manual (Including Repair Parts and Special Tools Lists) M1068 Command Post System.....TM 11-7010-256-12&P

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

OTHER PUBLICATIONS

Army Oil Analysis Program (AOAP).....TB 43-0211

Use of Antifreeze Solutions, Antifreeze Extender, Cleaning Compounds, and Test Kit in Engine Cooling Systems.....TB 750-651

Equipment Improvement Report and Maintenance Digest: Tank Automotive Equipment.....TB 43-0001-39 Series

Equipment Improvement Report and Maintenance Summary for TARCOM Equipment.....TB 43-0143

Occupational and Environmental Health Preventive, Treatment, and Control of Heat Injury.....TB MED 507

Occupational and Environmental Health: Food Service Sanitation.....TB MED 530

Occupational and Environmental Health: Sanitary Control and Surveillance of Field Water Supplies.....TB MED 577

Prevention of Motor Vehicle Accidents.....AR 385-55

Prevention Medicine.....AR 40-5

Hand Portable Fire Extinguishers Approved for Army Users.....TB 5-4200-200-10

The Army Maintenance Management System (TAMMS).....DA PAM 738-750

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS 0102 00

INTRODUCTION

Scope

This work package lists COEI and BII for the M113A3 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:

System	*TM*
M901A3 Weapon System	TM 9-2350-259-10
M981A3 Fire Support System	TM 9-2350-266-10
M1064A3 120-mm Mortar M121	TM 9-1015-250-10
M1068A3 MCPS	TM 10-5410-229-13&P
M1068A3 SICPS	TM 11-7010-256-12&P
M58 Smoke Obscurant System	TM 3-1040-285-10

NOTE

Some of the BII items covered by TM 3-1040-285-10 will be located in the tool bag which is part of BII in this appendix.

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 M113A3 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 M113A3 FOV carrier in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the M113A3 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:

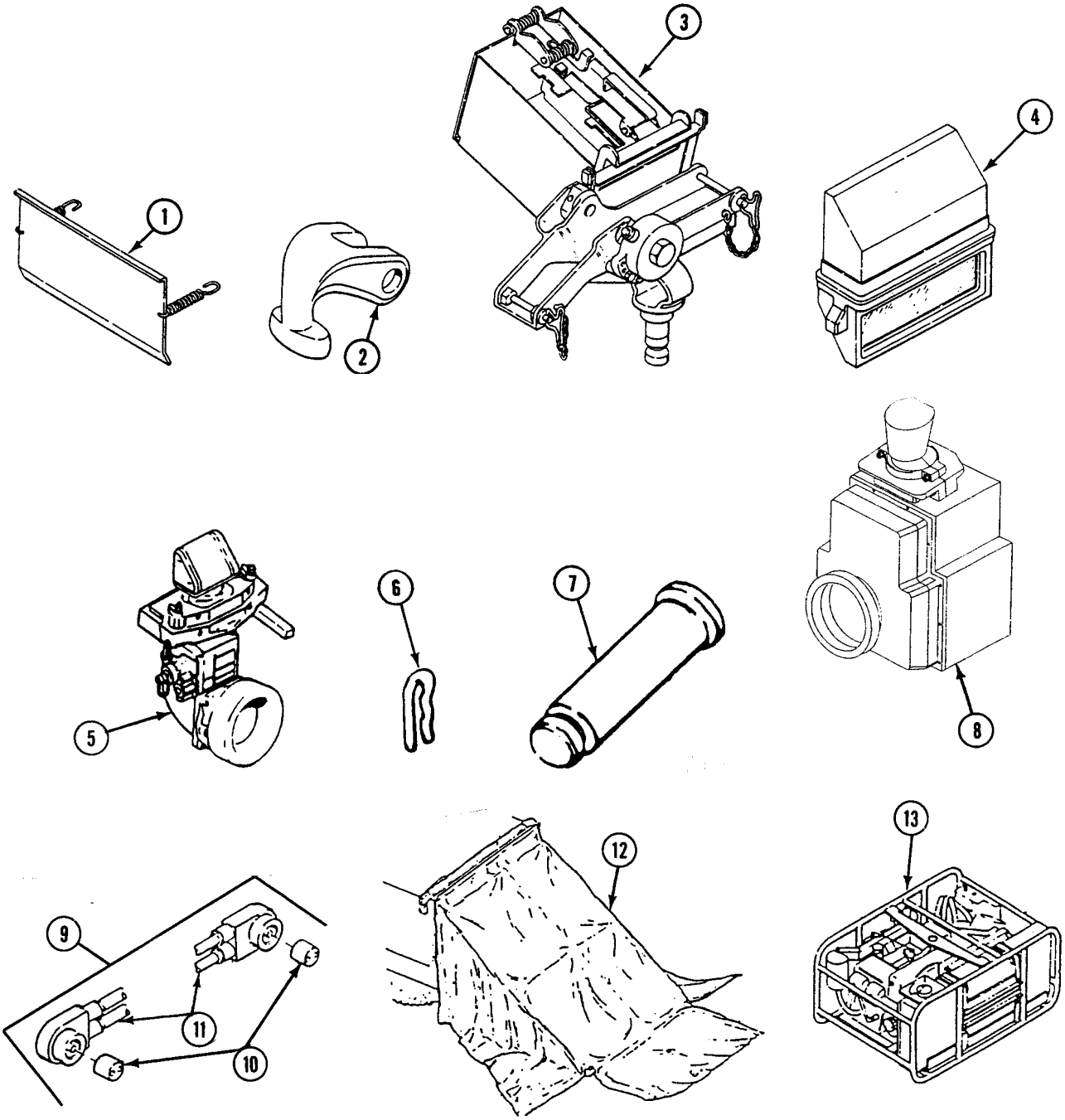
Code	*Used On*
APC	M113A3
AP1	M981A3
AP2	M1064A3
AP3	M1068A3

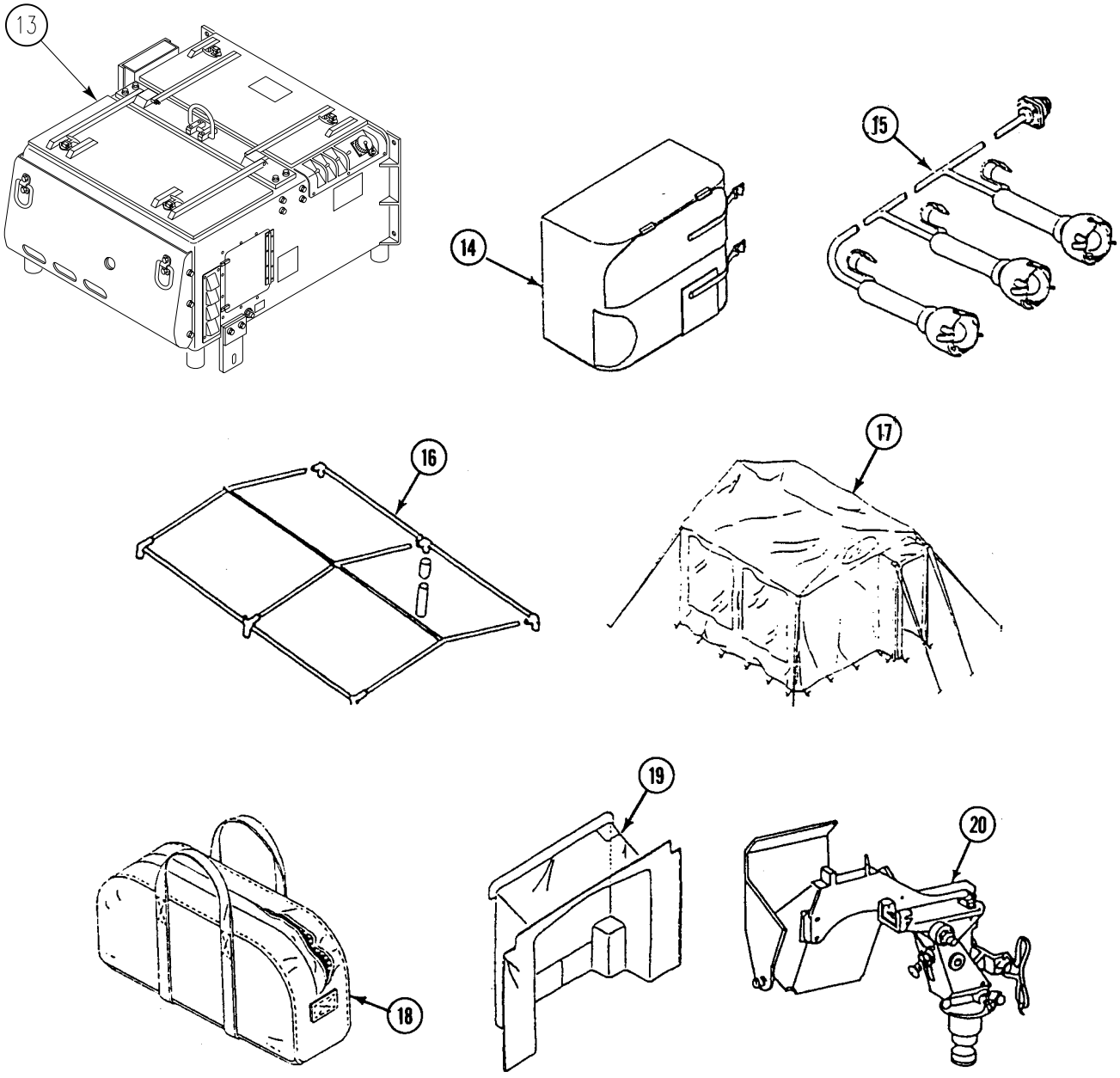
Code	*Used On*
AP5	M577A3
AP6	M1059A3
AP7	M901A3
AP8	M58

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




13
14
15
16
17
18
19
20

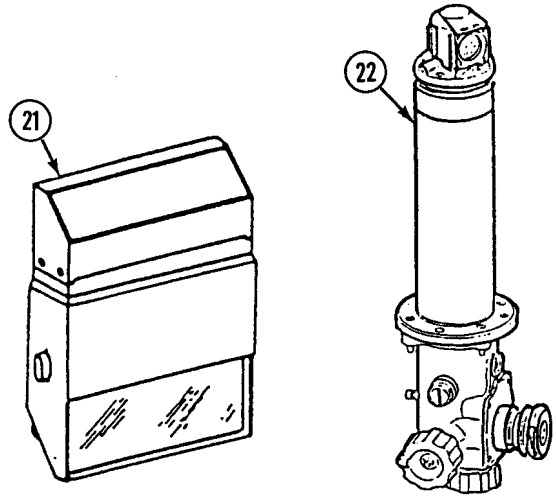

21
22

Table 1. Components of End Item List

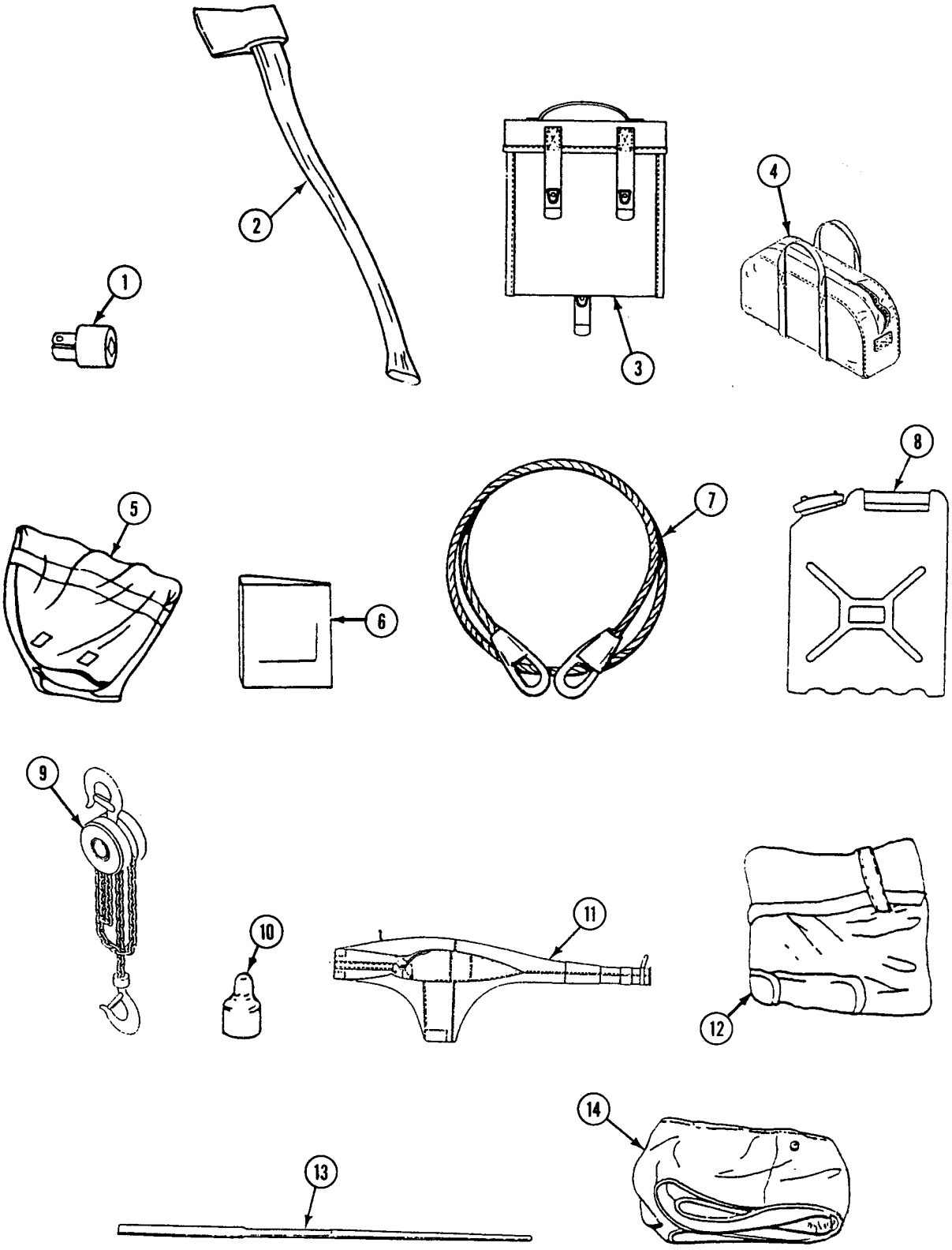
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	APC, AP2, AP6, AP8	EA	9
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	AP5	EA	4
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	AP3	EA	1
1	2590-00-898-6771	COVER, PERISCOPE (ON M17 PERISCOPE) (19207) 10866115	AP7, AP1	EA	5
2	2540-00-679-8035	HOOK, TOW (ON FRONT AND REAR TOWING EYES) (19207) 10861607	APC, AP2, AP6, AP8	EA	2
2	2540-00-679-8035	HOOK, TOW (ON REAR TOWING EYES) (19207) 10861607	AP5, AP3	EA	2
2	2540-00-679-8035	HOOK, TOW (ON REAR SLOPE) (19207) 10861607	AP7	EA	2
2	2540-00-679-8035	HOOK, TOW (ON FRONT OF VEHICLE) (19207) 10861607	AP1	EA	2
3	1005-00-704-6650	MOUNT, MACHINE GUN, (ON COMMANDER'S CUPOLA) (19204) 7046650	APC, AP2, AP6, AP8	EA	1
3	OR 1005-00-836-7286	MOUNT, MACHINE GUN, (ON COMMANDER'S CUPOLA) (19207) 83672862	APC, AP2, AP6, AP8	EA	1
4	6550-01-317-9138	PERISCOPE, M17 (LASER PROTECTION) (19207) 12357918-2	APC, AP2, AP6, AP8	EA	10
4	6550-01-317-9138	PERISCOPE, M17 (ON DRIVER'S STATION) (19207) 12357918-2	AP5, AP3	EA	4
4	OR 6650-00-704-3549	PERISCOPE, M17 (9) AROUND DRIVER'S AND COMMANDER'S STATION (1) ON RIGHT REAR WALL (19200) 7043549	APC	EA	10

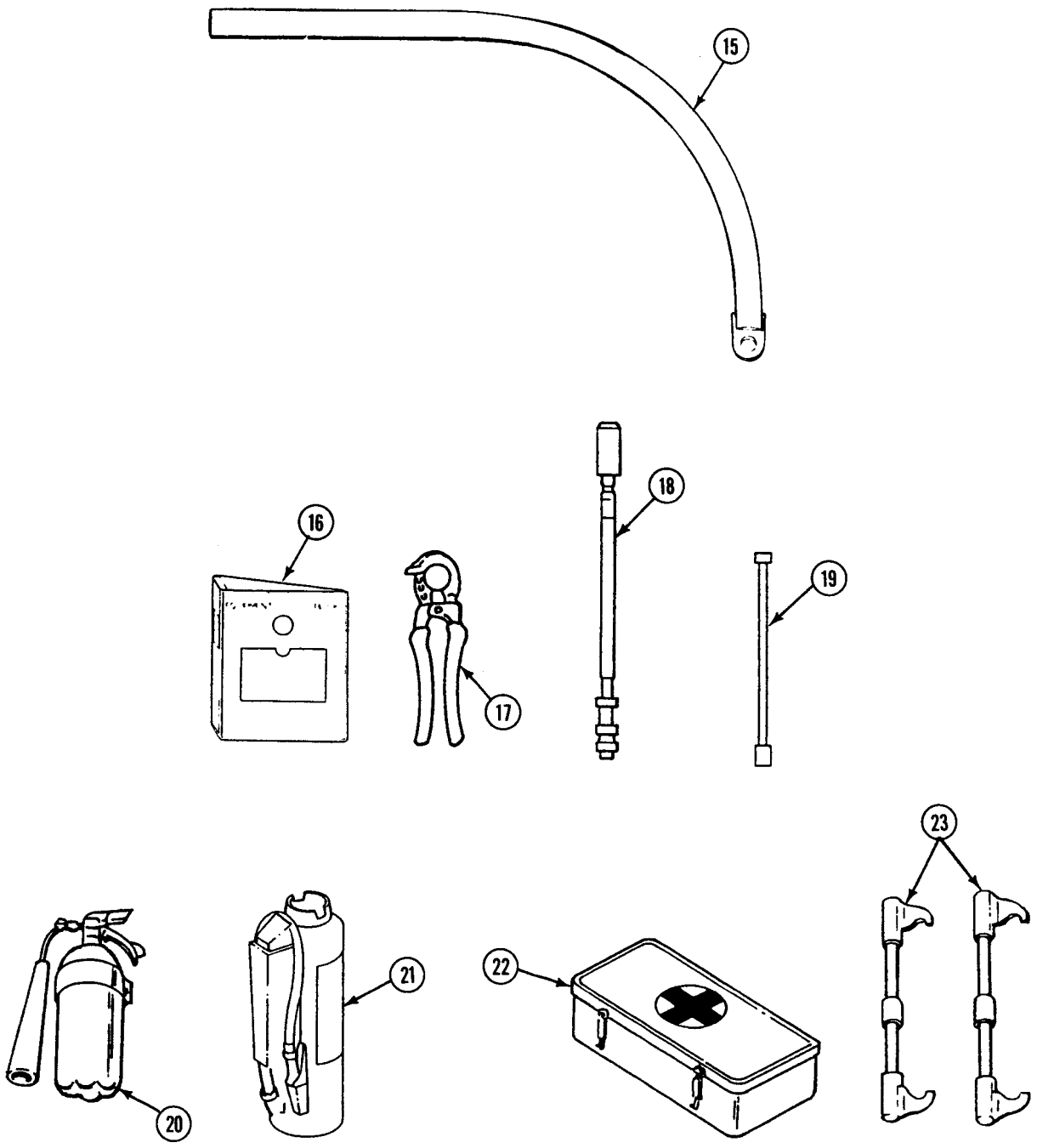
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
4	OR 6650-00-704-3549	PERISCOPE, M17 (9) AROUND DRIVER'S AND COMMANDER'S STATION (1) ON SPONSON, RIGHT REAR (19200) 7043549	AP2	EA	10
4	OR 6650-00-704-3549	PERISCOPE, M17 (9) AROUND DRIVER'S AND COMMANDER'S STATION (1) ON SPONSON, RIGHT REAR (19200) 7043549	AP8	EA	10
4	OR 6550-00-704-3549	PERISCOPE, M17 (IN DRIVER'S STATION) (19207) 7043549	AP7	EA	5
4	OR 6550-00-704-3549	PERISCOPE, M17 (4) AROUND DRIVER'S HATCH (1) SPARE STORED ON SIDE OF LEFT SPONSON (19207) 12357918	AP1	EA	5
5	5855-01-096-0871	VIEWER, DRIVER'S NIGHT VISION (ON WALL LEFT OF DRIVER) (80063) AN/VVS-2(V)1A	APC, AP2, AP6, AP5, AP3, AP7, AP1	EA	1
6	5315-00-598-5808	PIN, LOCK, TOW HOOK/CABLE (ON TOW HOOKS) (19207) 7752865	APC, AP2, AP6, AP8, AP5, AP3, AP7, AP1	EA	2
7	5315-00-862-2683	PIN, STRAIGHT, TOW HOOK (ON TOW HOOK) (19207) 10890323	APC, AP2, AP6, AP8, AP5, AP3, AP7, AP1	EA	2
7	5315-00-862-2683	PIN, STRAIGHT, TOW CABLE (ON TOW HOOK) (19207) 10890323	AP7, AP1	EA	2
8		DRIVER'S THERMAL VIEWER (ON WALL LEFT OF DRIVER) (19207) 12408504	AP8	EA	1
9	6150-00-363-7102	CABLE KIT (NATO, ON TOP DECK) (19207) 11682379-2	AP5	EA	1
10	5935-00-322-8959	ADAPTER (19207) 11677570	AP5, AP3	EA	2

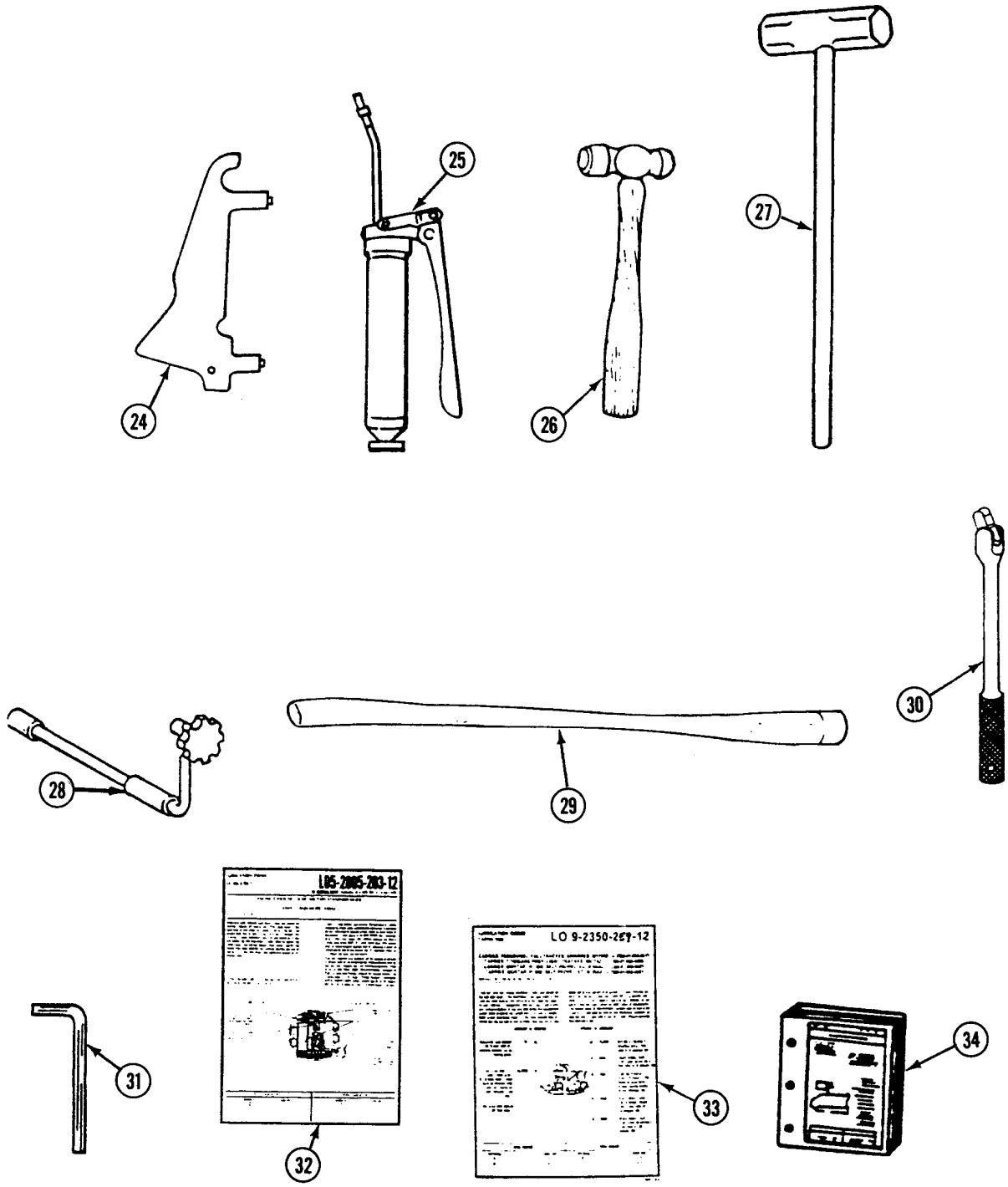
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
11	6150-01-310-1829	CABLE ASSEMBLY (NATO, ON TOP DECK) (19207) 11682336-2 SEE TM 9-2350-277-24P FOR REPAIR PARTS	AP5, AP3	EA	1
12	8340-00-134-7512	COVER, TENT (19207) 11617260	AP5	EA	1
13	6115-00-857-1397	4.2 KW GENERATOR SET AND COVER (19207) 10919300	AP5, AP3	EA	1
	6115-01–452–6513	OR 5.0 KW AUXILIARY POWER UNIT (APU) (30554) MEP-952B	AP5, AP3	EA	1
14	2540-00-066-4281	COVER ASSEMBLY, AUXILIARY GENERATOR (FOR 4.2 KW ONLY) (19207) 10932720	AP5, AP3	EA	1
15	6250-00-933-6964	LAMP HOLDER ASSEMBLY (IN TOOL BAG) (19207) 10918129	AP5	EA	2
16	2540-00-003-8339	TENT FRAME (19207) 10918155	AP5	EA	1
17	5410-00-323-2454	GREEN MODULAR COMMAND POST SYSTEM (81337) 5-4-6340-1	AP3	EA	1
17	OR 5410-00-334-7529	TAN MODULAR COMMAND POST SYSTEM (81337) 5-4-6340-2	AP3	EA	1
18	5820-01-263-1760	GROUNDING KIT (80063) SC-D-681610	AP3	EA	1
19		BOOTWALL ASSEMBLY (81337) 5-4-7484	AP3	EA	1
20	1005-01-050-2105	MOUNT, MACHINE GUN ARM ASSEMBLY (GUNNER’S STATION) (19207) 12266287	AP7	EA	1
20	1005-01-050-2105	MOUNT, MACHINE GUN ARM (ON MACHINE GUN PINTLE MOUNT AT TARGETING STATION) (19207) 12266287	AP1	EA	1
21	6650-01-768-8875	PERISCOPE, T25 (ONE IN TOP DECK LEFT SIDE ONE IN RIGHT SIDE) (19200) 7688875	AP7	EA	2

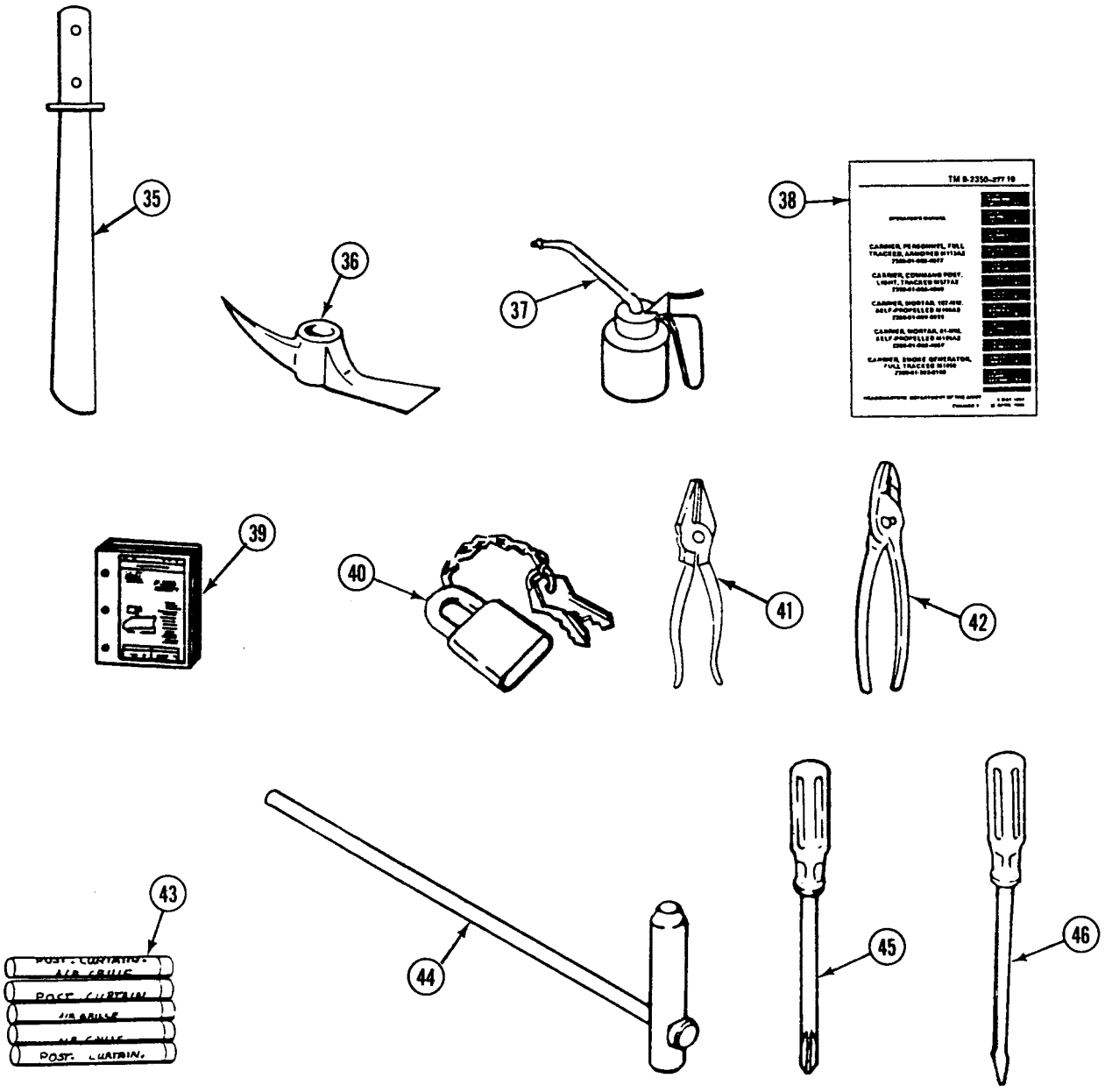
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
21	OR 6650-01-370-3675	PERISCOPE, M26 (19207) 12357850	AP7	EA	2
21	6650-01-370-3675	PERISCOPE, T25 (ONE IN TOP DECK LEFT SIDE ONE IN RIGHT SIDE) (19200) 12357850	AP1	EA	2
22	1240-01-348-4417	PERISCOPE, SQUAD LEADER'S (IN DECK REAR OF DRIVER) (19207) 12352412	AP1	EA	1

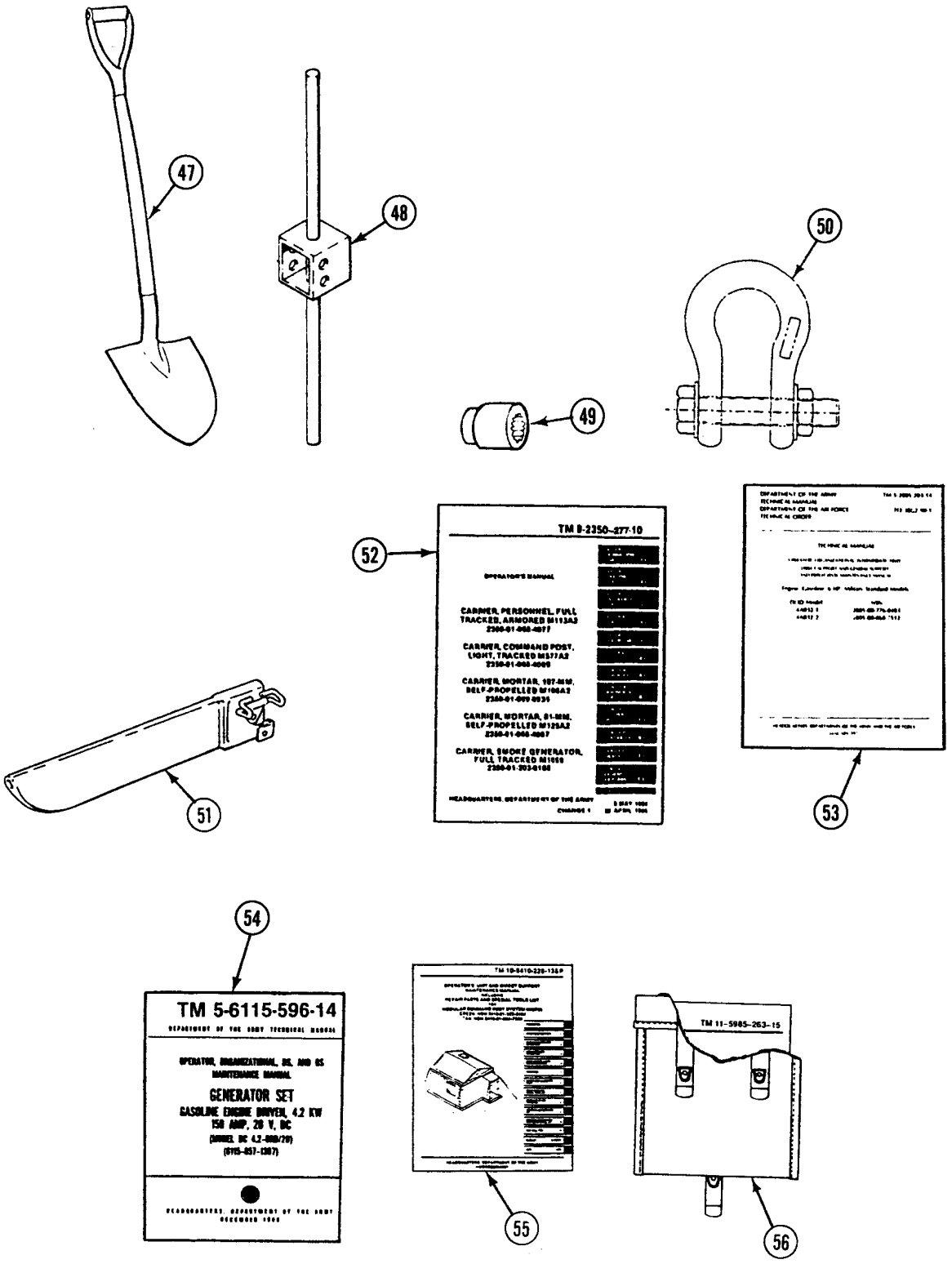
BASIC ISSUE ITEMS (BIII) LIST




15
16
17
18
19
20
21
22
23


24
25
26
27
28
29
30
31
32
33
34
LO 9-2350-277-12


35
36
37
38
39
40
41
42
43
44
45
46


47
48
49
50
51
52
TM 9-2350-277-10
OPERATOR'S MANUAL
CARRIER, PERSONNEL, FULL TRACKED, ARMORED M113A2
CARRIER, COMMAND POST, LIGHT, TRACKED M577A2
CARRIER, MORTAR, 107-MM, SELF-PROPELLED M106A2
CARRIER, MORTAR, 81-MM, SELF-PROPELLED M125A2
CARRIER, SMOKE GENERATOR, FULL TRACKED M1059
HEADQUARTERS, DEPARTMENT OF THE ARMY
53
54
TM 5-6115-596-14
OPERATOR, ORGANIZATIONAL, DS, AND GS MAINTENANCE MANUAL
GENERATOR SET
GASOLINE ENGINE DRIVEN, 4.2 KW
150 AMP, 28 V, DC
55
TM 11-5985-263-15
56

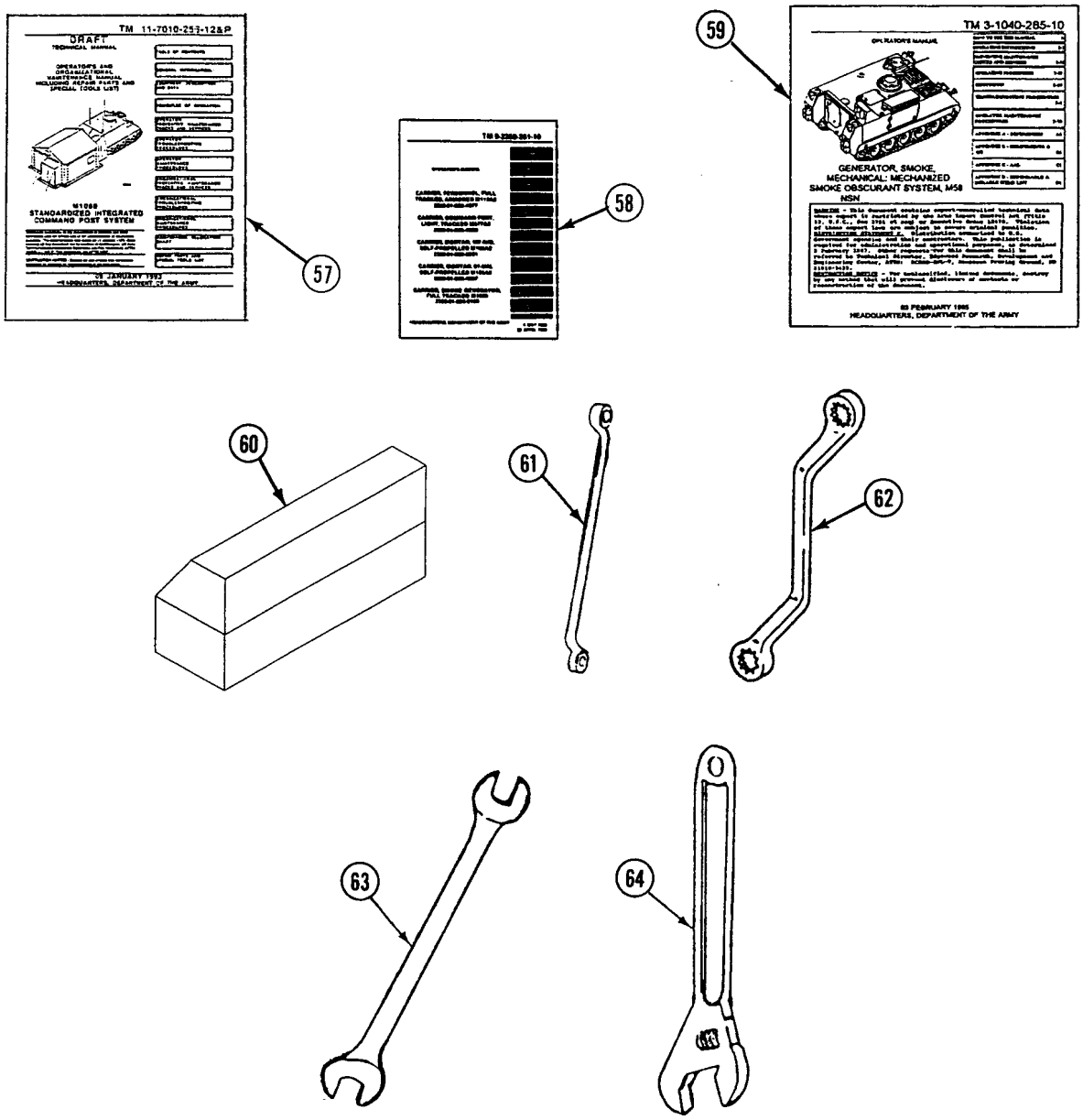

TM 11-7010-257-12&P
DRAFT
57
58
59
TM 3-1040-285-10
GENERATOR, SMOKE, MECHANICAL: MECHANIZED SMOKE OBSCURANT SYSTEM, M58
NSN
60
61
62
63
64

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	APC, AP6, AP5, AP3, AP2, AP8	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB, (ON TOP REAR DECK) (19207) 6150925	APC, AP6, AP5, AP3, AP1	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB, (ON TOP DECK RIGHT SIDE) (19207) 6150925	AP2	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB, (ON TOP REAR DECK) (19207) 61509252	AP7	EA	1
2	5110-00-293-2336	AXE, SINGLE BIT, 4 LB, (ON TOP DECK, REAR CENTER) (19207) 6150925	AP8	EA	1
3	2540-00-670-2459	BAG, PAMPHLET, (ON DRIVER'S POWER PLANT ACCESS PANEL) (GREEN) (19207) 7961712	APC, AP6	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (TAN) (19207) 7961712-1	APC, AP6	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (WHITE) (19207) 7961712-2	APC, AP6	EA	1
3	2540-00-670-2459	BAG, PAMPHLET, (BEHIND DRIVER ON WALL) (GREEN) (19207) 7961712	AP5, AP3	EA	11
3	2540-00-670-2459	OR BAG, PAMPHLET (TAN) (19207) 7961712-1	AP5, AP3	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (WHITE) (19207) 7961712-2	AP5, AP3	EA	1
3	2540-00-670-2459	BAG, PAMPHLET, (ON POWER PLANT REAR PANEL) (GREEN) (19207) 7961712	AP2	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (TAN) (19207) 7961712-1	AP2	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (WHITE) (19207) 7961712-2	AP2	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
3	2540-00-670-2459	BAG, PAMPHLET, (ON ENGINE REAR ACCESS DOOR) (GREEN) (19207) 7961712	AP7, AP1	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (TAN) (19207) 7961712-1	AP7, AP1	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (WHITE) (19207) 7961712-2	AP7, AP1	EA	1
3	2540-00-670-2459	BAG, PAMPHLET, (ON LOWER REAR POWER PLANT ACCESS PANEL) (GREEN) (19207) 7961712	AP8	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (TAN) (19207) 7961712-1	AP8	EA	1
3	2540-00-670-2459	OR BAG, PAMPHLET (WHITE) (19207) 7961712-2	AP8	EA	1
4	8105-01-420-4178	BAG, TOOL CHAIN HOIST (ON RIGHT REAR SPONSON) FOR 4.2 KW GENERATOR SET ONLY (19207) 12381815	AP5, AP3	EA	1
5	5140-00-473-6256	BAG, TOOL (ON RIGHT SPONSON) (19207) 11655979	AP6, AP5, AP3	EA	1
5	5140-00-473-6256	BAG, TOOL (ON FRONT BULKHEAD) (19207) 11655979	AP1	EA	1
5	5140-00-473-6256	BAG, TOOL (LEFT OF DRIVER ON SPONSON) (19207) 11655979	AP8	EA	1
6	7510-00-889-3494	BINDER, LOOSE LEAF (IN PAMPHLET BAG) (19207) 11677003	AP7, AP8	EA	1
7	4010-00-767-3149	CABLE, TOW (ON RAMP) (19207) 10861718	APC, AP6, AP5, AP3	EA	1
7	4010-00-767-3149	CABLE, TOW (ON RAMP, OUTSIDE) (19207) 10861718	AP2, AP7, AP8	EA	1
7	4010-00-767-3149	WIRE ROPE ASSEMBLY (TOWING CABLE) (ON RAMP EXTERIOR) (19207) 10861718	AP1	EA	1
8	7240-00-089-3827	CAN, WATER (ON BACK OF CARRIER) (81349) MIL-C-43613	APC, AP6, AP5, AP3	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
8	7240-00-089-3827	CAN, WATER (ON LEFT REAR, OUTSIDE) (81349) MIL-C-43613	AP2	EA	1
8	7240-00-242-6153	CAN, WATER (OUTSIDE, RIGHT OR LEFT SIDE) (19207) 11655980	AP7	EA	1
8	7240-00-242-6153	CAN, WATER (ON EXTERNAL FUEL TANK) (19207) 11655980	AP1	EA	1
8	7240-01-365-5317	CAN, WATER (2 ON RIGHT EXTERNAL FUEL TANK, 1 ON LEFT EXTERNAL FUEL TANK) (81349) MIL-C-43613	AP8	EA	3
9	3950-00-889-8722	CHAIN HOIST (IN TOOL BAG 6) (19207) 12381800	AP5, AP3	EA	1
10	4930-00-200-1841	COUPLING, GREASE GUN (IN TOOL BAG) (96906) MS24203-1	AP7	EA	1
10	4930-00-200-1841	COUPLING, GREASE GUN (IN TOOL BAG) (96906) MS24203-1	AP1	EA	1
11	1005-00-487-4100	COVER, .50 CALIBER MACHINE GUN (ON .50 CALIBER MACHINE GUN OR ON TOP OF BATTERY BOX) (19204) 11631791	APC, AP6, AP2	EA	1
11	1005-00-487-4100	COVER, .50 CALIBER MACHINE GUN (ON .50 CALIBER MACHINE GUN) (19204) 11631791	AP8	EA	1
12	2540-01-105-0779	COVER, GRILLE (ON TOP DECK, FRONT) (19207) 12269299	AP7	EA	1
13	5120-00-240-6040	CROWBAR, PINCH (ON TOP REAR DECK) (19207) 11677049	APC, AP6, AP5, AP3, AP7, AP1	EA	1
13	5120-00-240-6040	CROWBAR, PINCH (ON TOP DECK, RIGHT) (19207) 11677049	AP2	EA	1
13	5120-00-240-6040	CROWBAR, PINCH (ON TOP DECK, REAR CENTER) (19207) 11677049	AP8	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
14	2540-00-923-4250	CURTAIN, AIR GRILL (ON ENGINE BULKHEAD, UPPER RIGHT) (19207) 10950064	AP2	EA	1
15	2590-00-953-2172	DAVIT (ON TOP DECK) FOR 4.2 KW GENERATOR SET APU ONLY (19207) 10917960	AP5, AP3	EA	1
16	7510-01-065-0166	FOLDER, EQUIPMENT RECORD (IN PAMPHLET BAG) (72094) 43986-1	APC, AP6, AP2, AP7, AP1, AP8	EA	1
16	7510-00-065-0166	FOLDER, EQUIPMENT RECORD (IN PAMPHLET BAG) (72094) 43986-1	AP5, AP3	EA	1
17	5110-00-595-8229	CUTTER, WIRE, M1938 (IN TOOL BAG) (19207) 11655981	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
18	4930-00-288-1511	EXTENSION, ADAPTER, GREASE GUN (IN TOOL BAG) (19207) 6300333	APC, AP6, AP5, AP3, AP7, AP1	EA	1
18	4930-00-288-1511	EXTENSION, ADAPTER, GREASE GUN (IN TOOL BAG) (19207) 8300333	AP2	EA	1
18	4930-00-288-1511	EXTENSION, ADAPTER, GREASE GUN (IN TOOL BAG) (81349) MIL-L-42387	AP8	EA	1
19	5120-00-227-8074	EXTENSION, BAR, 1/2 IN. × 10 IN. (IN TOOL BAG) (19207) 11655788-1	APC, AP6, AP5, AP3, AP8	EA	1
19	5120-00-227-8074	EXTENSION, BAR, SQ. DR., 10 IN. (IN TOOL BAG) (19207) 11655788-1	AP2, AP1	EA	1
19	5120-00-227-8074	EXTENSION, SQ. DR., 10 IN. (IN TOOL BAG) (96906) MS16243-10	AP7	EA	1
20	4210-00-270-4512	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR BULKHEAD) (19207) 7714780	APC, AP6, AP7, AP1	EA	1
20	OR 4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR BULKHEAD) (19207) 7359703	APC, AP6, AP7, AP1	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
20	4210-00-270-4521	EXTINGUISHER, FIRE, 5 LB (ON RIGHT SIDE WALL) (19207) 7714780	AP3	EA	1
20	OR 4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON RIGHT SIDE WALL) (19207) 7359703	AP3	EA	1
20	4210-00-270-4521	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR WALL) (19207) 7714780	AP5	EA	1
20	OR 4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON RIGHT REAR WALL) (19207) 7359703	AP5	EA	1
20	4210-00-270-4512	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR FUEL CELL WALL) (19207) 7714780	AP2	EA	1
20	OR 4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR FUEL CELL WALL) (19207) 7359703	AP2	EA	1
20	4210-00-270-4521	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR WALL BETWEEN BATTERY BOX AND FOG OIL TANK) (19207) 7714780	AP8	EA	1
20	OR 4210-01-107-9912	EXTINGUISHER, FIRE, 5 LB (ON LEFT REAR WALL BETWEEN BATTERY BOX AND FOG OIL TANK) (19207) 7359703	AP8	EA	1
21	4210-01-251-6275	EXTINGUISHER, FIRE, PORTABLE, (ON TOP OF CARRIER)/(ON RIGHT MIDPOINT WALL) (19207) 12313974	AP6	EA	2
22	6545-00-922-1200	FIRST AID KIT (IN DRIVER'S COMPARTMENT) (19207) 11677011	APC, AP6	EA	1
22	6545-00-922-1200	FIRST AID KIT (ON SPONSON, LEFT OF DRIVER) (19207) 11677011	AP5, AP3, AP2, AP7, AP8	EA	1
22	6545-00-922-1200	FIRST AID KIT (ON LEFT WALL, FORWARD) (19207) 11677011	AP1	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
23	5120-01-041-4624	FIXTURE, TRACK (ON TOP DECK, REAR) (19207) 12253183	APC, AP6, AP5, AP3, AP7, AP1, AP8	EA	2
23	5120-01-041-4624	FIXTURE, TRACK (ON TOP DECK, FRONT) (19207) 12253183	AP2	EA	2
24	5220-01-041-9920	GAUGE, TRACK TENSION, TRACK BUSHING, AND SPROCKET WEAR (IN TOOL BAG) (19207) 12253280	APC, AP6, AP2, AP7, AP1, AP8	EA	1
24	5220-01-041-9920	GAUGE, TRACK TENSION AND SPROCKET WEAR (IN TOOL BAG) (19207) 12253280	AP5, AP3	EA	1
25	4930-00-253-2478	GREASE GUN, HAND (IN TOOL BAG) (19207) 10915142	APC, AP6, AP2, AP7, AP8	EA	1
25	4930-00-253-2478	GREASE GUN, HAND, 15 OZ. (IN TOOL BAG) (19207) 10915142	AP8	EA	1
25	4930-01-022-4876	GREASE GUN, HAND (IN TOOL BAG) (19207) 10915142	AP5, AP3, AP1	EA	1
26	5120-00-061-8546	HAMMER, HAND, BALL PEEN, 2 LB (IN TOOL BAG) (19207) 11677028-3	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
26	5120-00-061-8546	HAMMER, HAND, BALL PEEN, 2 LB (IN TOOL BAG) (19207) BPN32A	AP8	EA	1
27	5120-00-265-7462	HAMMER, HAND, SLEDGE, 6 LB (ON TOP DECK, REAR CENTER) (19172) 41796	AP5, AP3	EA	1
28	5340-01-276-9852	HANDLE, CRANK, ERECTION (IN TOOL BAG) (19207) 12327975	AP7, AP1	EA	1
29	5120-00-288-6574	HANDLE, MATTOCK PICK (ON TOP DECK, REAR) (19207) 11677021	APC, AP6, AP5, AP3, AP7, AP1	EA	1
29	5120-00-288-6574	HANDLE, MATTOCK PICK (ON TOP DECK, LEFT SIDE) (19207) 11677021	AP2	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
29	5120-00-288-6574	HANDLE, MATTOCK PICK (ON TOP DECK, REAR CENTER) (19207) 11677021	AP8	EA	1
30	5120-00-236-7590	HANDLE, SOCKET WRENCH, 1/2 IN. DRIVE (IN TOOL BAG) (19207) 11655786-1	APC, AP6, AP3, AP5, AP2, AP7, AP1, AP8	EA	1
31	5120-00-240-5300	KEY, SOCKET HEAD SCR (IN TOOL BAG) (94697) A05522-011	AP1	EA	1
31	5120-00-198-5113	KEY, SOCKET HEAD SCR (IN TOOL BAG) (18876) 9191414	AP1	EA	1
31	5120-00-198-5390	KEY, SOCKET HEAD SCR (IN TOOL BAG) (81348) GGG-D-275	AP1	EA	1
32		LUBRICATION ORDER (IN PAMPHLET BAG) LO 5-2805-203-12	AP5, AP3	EA	1
33		LUBRICATION ORDER (IN PAMPHLET BAG) LO-9-2350-259-12	AP7	EA	1
34		LUBRICATION ORDER (IN PAMPHLET BAG) LO-9-2350-266-12	AP1	EA	1
35	5110-00-813-1286	MACHETE (ON RIGHT PLATE, BEHIND CREW SEAT) 2-9-128GGG-M45	AP2	EA	1
36	5120-00-243-2395	MATTOCK, PICK TYPE (ON TOP DECK REAR) (19207) 11677022	APC, AP6, AP5, AP3, AP7, AP1	EA	1
36	5120-00-243-2395	MATTOCK, PICK TYPE (ON TOP DECK, RIGHT SIDE) (19207) 11677022	AP2	EA	1
36	5120-00-243-2395	MATTOCK, PICK TYPE (ON TOP DECK REAR CENTER) (19207) 11677022	AP8	EA	1
37	4930-00-262-8868	OILER, HAND PUMP TYPE (IN POWER PLANT COMPARTMENT, FRONT SLOPE LEFT SIDE) (19207) 6169931	APC, AP6	EA	1
37	4930-00-262-8868	OILER, HAND PUMP TYPE (IN POWER PLANT COMPARTMENT, LEFT SIDE) (19207) 6169931	AP5, AP3	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
37	4930-00-262-8868	OILER, HAND PUMP TYPE (IN POWER PLANT COMPARTMENT) (19207) 6169931	AP2, AP7	EA	1
37	4930-00-169-8275	OILER, HAND PUMP TYPE (IN TOOL BAG) (19207) 6169931	AP1	EA	1
37	4930-00-262-8868	OILER, HAND PUMP TYPE (IN POWER PLANT COMPARTMENT, LOWER RIGHT SIDE) (19207) 6169931	AP8	EA	1
38		OPERATOR'S MANUAL TM 9-2350-259-10	AP7	EA	1
39		OPERATOR'S MANUAL TM 9-2350-266-10	AP1	EA	1
40	5340-00-682-1645	PADLOCK, KEY OPERATED, (ON DRIVER'S HATCH) (96906) MS35647-6	APC, AP6, AP5, AP3, AP2	EA	1
40	5340-00-682-1508	PADLOCK, KEY OPERATED, (ON DRIVER'S HATCH) (96906) MS35644-3	APC, AP6	EA	1
40	5340-00-682-1645	PADLOCK, KEY OPERATED, (ON RAMP DOOR) (96906) MS35647-10	AP7	EA	1
40	5340-00-158-3805	PADLOCK, KEY OPERATED, (ON RAMP DOOR) (96906) MS35647-10	AP1	EA	1
40	5340-00-682-1645	PADLOCK, KEY OPERATED, (ON DRIVER'S HATCH) (96906) MS35647-6	AP8	EA	1
40	OR 6340-00-682-1508	PADLOCK, KEY OPERATED, (ON DRIVER'S HATCH) (96906) MS35647-3	AP8	EA	1
41	5120-00-239-8251	PLIERS, LINEMANS, W/SIDE CUTTER (IN TOOL BAG) (95683) 41P1839	APC, AP6	EA	1
41	5120-00-239-8251	PLIERS, LINEMANS, CUTTER (IN TOOL BAG) (19207) 11655790	AP1	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
41	5120-00-239-8251	PLIERS, LINEMANS, CUTTER (IN TOOL BAG) (95683) 41P1839	AP7	EA	1
41	5120-00-239-8251	PLIERS, LINEMANS, W/SIDE CUTTER (IN TOOL BAG) (19207) 11655790	AP8	EA	1
42	5120-00-223-7397	PLIERS, SLIPJOINT STRAIGHT NOSE W/ CUTTER (IN TOOL BAG) (19207) 11655775-3	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
42	5120-00-223-7397	PLIERS, SLIPJOINT STRAIGHT NOSE W/ CUTTER (IN TOOL BAG) (19207) 11655775-3	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
43	2540-00-923-4249	POST, CURTAIN (IN POCKET OF CURTAIN) (19207) 10950078	AP2	EA	5
44	5120-01-006-8847	PUNCH, DRIVE PIN (IN TOOL BAG) (19207) 11678718	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
45	5120-00-234-8913	SCREWDRIVER, CROSS TIP, NO. 2 (IN TOOL BAG) (19207) 11655777-12	APC, AP6, AP5, AP3, AP2, AP1	EA	1
45	5120-00-234-8913	SCREWDRIVER, CROSS TIP, NO. 2 (IN TOOL BAG) (96906) MS15224-5	AP7	EA	1
45	5120-00-234-8913	SCREWDRIVER, CROSS TIP, NO. 2 (IN TOOL BAG) (19207) MS15224-5	AP8	EA	1
45	5120-00-240-8716	SCREWDRIVER, CROSS TIP, NO. 1 (IN TOOL BAG) (96906) MS15224-4	AP7	EA	1
45	5120-00-234-8912	SCREWDRIVER, CROSS TIP, NO. 3 (IN TOOL BAG) (96906) 1165577-9	AP7, AP1	EA	1
46	5120-00-278-1283	SCREWDRIVER, FLAT TIP (IN TOOL BAG) (19207) 11655777-11	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
47	5120-00-293-3336	SHOVEL, HAND (ON FRONT SLOPE) (19207) 11655784	APC, AP6, AP5, AP3, AP2, AP7, AP1	EA	1
47	5120-00-293-3336	SHOVEL, HAND (ON TOP DECK, FRONT CENTER) (19207) 11655784	AP8	EA	1
48	5120-01-233-1938	SOCKET (IN TOOL BAG) (81361) 31-15-2715	AP6	EA	1
49	5120-00-189-7932	SOCKET, WRENCH, 1/2 IN. × 9/16 IN. (IN TOOL BAG) (19207) 11677025-1	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
49	5120-00-189-7946	SOCKET, WRENCH, 1/2 IN. × 5/8 IN. (IN TOOL BAG) (19207) 11677025-2	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
49	5120-00-235-5870	SOCKET, WRENCH, 1/2 IN. × 11/16 IN. (IN TOOL BAG) (19207) 11677025-3	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
49	5120-00-189-7985	SOCKET, WRENCH, 1/2 IN. × 3/4 IN. (IN TOOL BAG) (19207) 11677025-4	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
49	5120-00-189-7934	SOCKET, WRENCH, 1/2 IN. × 7/8 IN. (IN TOOL BAG) (19207) 11677025-5	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
49	5120-00-189-7935	SOCKET, WRENCH, 1/2 IN. × 15/16 IN. (IN TOOL BAG) (19207) 11677025-6	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
50	4030-01-369-7612	SHACKLE (IN TOOL BAG) (19207) 12381884	APC, AP6, AP5, AP3, AP2, AP8	EA	2
50	4030-01-369-7612	SHACKLE (IN TOOL BAG) (19207) 12381884	AP7	EA	1
51	8465-00-926-4932	SHEATH, MACHETE ON MACHETE (81349) MIL-S-2329	AP2	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
52		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 9-2350-277-10	APC, AP6, AP5, AP3, AP7, AP1	EA	1
53		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 5-2805-203-14 (4.2 KW GENERATOR SET, ENGINE)	AP5, AP3	EA	1
54		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 5-6115-596-14 (4.2 KW GENERATOR SET, GENERATOR)	AP5, AP3	EA	1
		OR TECHNICAL MANUAL (IN PAMPHLET BAG) TM 9-6115-664-13&P (5.0 KW AUXILIARY POWER UNIT, APU)	AP3	EA	1
55		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 10-5410-229-13&P (MODULAR COMMAND POST SYSTEM)	AP3	EA	1
56		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 11-5985-263-15 (ANTENNA MAST)	AP3	EA	1
57		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 11-7010-256-12&P (STANDARD INTEGRATED COMMAND POST SYSTEM)	AP3	EA	1
58		TECHNICAL MANUAL (IN PAMPHLET BAG) TM 9-1015-250-10	AP7	EA	1
59		TECHNICAL MANUAL (OPERATOR'S) GENERATOR, SMOKE, MECHANICAL: MECHANIZED, SMOKE OBSCURANT SYSTEM, M58 (IN PAMPHLET BAG) TM 3-1040-285-10	AP8	EA	1
60	9905-01-148-9546	WARNING DEVICE KIT: PORTABLE, TRIANGULAR-SHAPED WITH OPEN CENTER, 3 DEVICES PER SET, IN CONTAINER (TO RIGHT OF CARRIER COMMANDER) (19207) 11669000	AP8	EA	1
61	5120-00-224-3141	WRENCH, BOX, DOUBLE OFFSET, 5/8 × 11/16 IN. (IN TOOL BAG) (19207) 11655785-2	APC, AP6, AP5, AP3, AP2, AP1, AP8	EA	1

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION,CAGEC,AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
62	5120-00-224-3154	WRENCH, BOX, DOUBLE OFFSET DOUBLE HEAD, 12-POINT, 45 DEGREE HEAD, 1/2 IN. × 9/16 (IN TOOL BAG) (96906) MS16370-4	AP1	EA	1
63	5120-00-277-2342	WRENCH, OPEN END, FIXED, 3/8 IN. × 7/16 IN. (IN TOOL BAG) (19207) 11655789-1	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
63	5120-00-187-7126	WRENCH, OPEN END, FIXED, 9/16 IN. × 5/8 IN. (IN TOOL BAG) (19207) 11655789-2	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
63	5120-00-277-8300	WRENCH, OPEN END, FIXED, 11/16 IN. × 13/16 IN. (IN TOOL BAG) (19207) 11655789-3	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1
64	5120-00-264-3796	WRENCH, OPEN END, ADJUSTABLE, 1-5/16 IN. × 12 IN. (IN TOOL BAG) (19207) 11655778-5	APC, AP6, AP5, AP3, AP2, AP7, AP1, AP8	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL) 0103 00

INTRODUCTION

Scope

This work package lists additional items you are authorized for the support of the M113A3 FOV carriers.

AALs for subordinate systems are contained in the following TMs:

System	*TM*
M901A3 Weapon System	TM 9-2350-259-10
M981A3 Fire Support System	TM 9-2350-266-10
M1064A3 120-mm Mortar M121	TM 9-1015-250-10
M1068A3 MCPS	TM 10-5410-229-13&P
M1068A3 SICPS	TM 11-7010-256-12&P
M58 Smoke Obscurant System	TM 3-1040-285-10

General

This list identifies items that do not have to accompany the M113A3 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:

Code	*Used On*
APC	M113A3
AP1	M981A3
AP2	M1064A3
AP3	M1068A3
AP5	M577A3
AP6	M1059A3
AP7(AC)	M901A3 Armored Cavalry
AP7(MI)	M901A3 Mechanized Infantry
AP7(CI)	M901A3 Armored Cavalry and Mechanized Infantry
AP8	M58

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.

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	APC, AP2, AP3, AP5, AP6, AP8	EA	1
5120-00-926-5175	BRUSH, CLEANING, BATTERY (36540) BT1	APC, AP2, AP3, AP5, AP6, AP8	EA	1
5120-01-105-0770	COVER, GRILLE (19207) 12269299	APC, AP2, AP6, AP8	EA	1
2540-01-125-9326	COVER, GRILLE: (GREEN) (19207) 12269326	AP3, AP5, AP7(CI)	EA	1
2540-01-396-2473	COVER, GRILLE: (TAN) (19207) 12269326-T	AP3, AP5, AP7(CI)	EA	1
4230-00-720-1680	DECONTAMINATING APPARATUS, PORTABLE, ABC-M11 (81361) D5-51-269	AP1	EA	1
4230-01-133-4124	DECONTAMINATING APPARATUS, PORTABLE, M13 (81361) E5-51-527	APC, AP1, AP2, AP3, AP5, AP6, AP8	EA	1
1331-01-020-0504	GRENADE, SMOKE SCREENING, RP, UK/L8A (EXCEPT M1064A3) (K7312) TW74GF	APC, AP6, AP8	EA	12
	(FOR SMOKE GRENADE LCHR XM243) (X7313)	AP1, AP7(CI)	EA	16
4240-00-052-3776	GOGGLES, INDUSTRIAL (58536) A-A-1110		PR	1
5120-00-265-7462	HAMMER, HAND, SLEDGE: 6 LB (90172) 41796		EA	1
1055-01-107-7501	LAUNCHER, GRENADE, AR (M259) (EXCEPT M1064A3) (81361) B13-12-150	APC, AP2, AP6, AP8	EA	1
2590-01-107-9696	LIGHT, AMBER ROTATING WARNING (90172)	APC, AP2, AP6, AP8	EA	1
7240-00-255-8113	MEASURE, LIQUID, OIL CAN (74640) N202	APC, AP2, AP3, AP5, AP6, AP8	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
8340-00-841-6456	TARPAULIN, 12 FT X 17 FT, (GREEN) (81349) K-P-146	APC, AP2, AP3, AP5, AP6, AP7(CI), AP8	EA	1
2540-00-587-2532	TARPAULIN, 12 FT X 17 FT (19767) 10936264	AP1	EA	1
2540-01-330-8062	TARPAULIN, 12 FT X 17 FT, (TAN) (19207) 10936264-1T		EA	1
2540-00-936-7801	TOW BAR (M113A3 AND M1059A3) (19207) 11660660	APC, AP6	EA	1
5120-00-224-3154	WRENCH, BOX: 1/2 X 9/16 IN. (19207) 11655785-1	APC, AP2, AP3, AP5, AP6, AP8	EA	1
5120-00-224-3141	WRENCH, BOX: 5/8 X 11/16 IN. (19207) 11655785-3	APC, AP2, AP6, AP8	EA	1
5120-00-935-4654	WRENCH, DRAIN PLUG (19207) 11599203	AP3, AP5	EA	1
5120-00-240-5609	WRENCH, OPEN END, FIXED: 3/4 X 7/8 IN. (19207) 11655789	APC, AP2, AP3, AP5, AP6, AP8	EA	1
5120-00-277-7025	WRENCH, OPEN END, FIXED: 15/16 X 1 IN. (19207) 11655789-5	APC, AP2, AP3, AP5, AP6, AP8	EA	1
5140-00-261-4994	CARRIER, WIRE CUTTER M1938 (19207) 11655787	AP3, AP5	EA	1
2540-01-125-9653	COVER ASSEMBLY, PROTECTIVE: (GREEN) (19207) 12269299	AP3, AP5	EA	1
2510-01-105-0779	COVER ASSEMBLY, PROTECTIVE: (TAN) (19207) 12269299-T	AP3, AP5	EA	1
1080-00-108-1173	CAMOUFLAGE SCREENING SUPPORT SYSTEM (53119) 170212	AP1, AP7(CI), AP8	EA	2
	(19099) MIL-C-52765	AP8	EA	1
1080-00-103-1246	SCREEN, CAMOUFLAGE (97403) 170191	AP1, AP7(CI)	EA	2
	13228E5932	AP8	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
	AMMUNITION:			
8140-00-960-1699	BOX, AMMO, METAL (FOR CRTG 5.56 MM, 1080 RD CAP) ON FLOOR UNDER SEAT (19200) 7553296	AP7(CI)	BOX	1
	BOX, AMMO, METAL (FOR MINES AND GRENADES)	AP7(CI)	BOX	1
	CHEST, AMMUNITION (EMPTY)	AP8	EA	1
	BOX, AMMO, METAL, M2A1 (FOR CRTG .50 CAL LINKED, 105 RD CAP)	AP8	BOX	11
8140-00-828-2938	BOX, AMMO, METAL, (FOR CRTG 7.62 MM, 200 RD CAP) (19200) 7553315	AP7(MI)	BOX	10
	(FOR CRTG 7.62 MM, 200 RD CAP)	AP7(AC)	BOX	3
	7.62 MM, 200 RD CAP FOR FLARES AND GRENADES)	AP7(CI)		3
	CASE, AMMO, WOOD/WIRE (FOR AMMO BOX 7.62 MM, 4 BOX CAP)	AP7(AC)	CASE	5
1305-00-926-3930	CARTRIDGE, CAL 5.56 MM (FOR RIFLE M16A1/A2) (19200) 10523632	AP7(CI)	EA	720
	CARTRIDGE, CAL 5.56 MM, M196, C/CLIPS, MAGAZINE FILLERS, AND BANDOLIERS (FOR RIFLE M16A1/A2) 840 RD CANS (STOWED) (19200) 10523632	AP8	CAN	6
1305-00-892-2330	CARTRIDGE, CAL 7.62 MM, (19200) 10521998	AP7(MI)	EA	2000
	(FOR MACHINE GUN M60)	AP7(AC)	EA	4600
	GUIDED MISSILE, SURFACE ATTACK (FOR TOW LCHR):	AP7(CI)	EA	10
1410-00-087-1521	BGM-71A (18876) 10189999			
1410-01-007-2501	BGM-71A-1 (18876) 11500160			
	GUIDED MISSILE, PRACTICE:	AP7(CI)	EA	1
1410-00-087-1527	BTM-71A-1 (18876) 10190149			
1410-01-007-2508	BTM-71A-1 (18876) 11500162			

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
	FLARE, SURFACE, TRIP	AP7(CI)	EA	6
	GRENADE, HAND FRAG	AP7(AC)	EA	10
	GRENADE, HAND, INCND	AP7(CI)	EA	4
	GRENADE, HAND, SMOKE, COLOR	AP7(CI)	EA	4
	GRENADE, HAND, SMOKE, HC	AP7(CI)	EA	2
	MINE, AP, M16A1	AP7(CI)	EA	3
	MINE, AP, M18	AP7(CI)	EA	2
	ROCKET, HE, 66 MM LAW, M72A2	AP7(CI)	EA	3
	SIGNAL, ILLUM, GROUND, M158	AP7(CI)	EA	4
	ARMAMENT:			
1005-00-726-5636	MACHINE GUN, CAL .50, M2 (FLEX) (19205) 7265363	AP8	EA	1
	EQUIPMENT, PARTS, AND TOOLS FOR MACHINE GUN M2:			
8105-00-921-5821	BAG, SMALL ARMS, ACCESSORIES (19204) 11686430	AP8	EA	1
1005-00-726-6131	BARREL, SPARE, MACHINE GUN, CAL .50 (19205) 7269027	AP8	EA	1
1005-00-322-9716	MOUNT, TRIPOD, MACHINE GUN (19204) 8403398	AP8	EA	1
1005-00-605-7710	MACHINE GUN, 7.62 MM, M60 (19204) 8413999	AP7(CI)	EA	1
	EQUIPMENT, PARTS, AND TOOLS FOR MACHINE GUN M60:			
1005-00-608-5001	BARREL, SPARE, MACHINE GUN, 7.62 MM (19204) 7269027	AP1, AP7(CI)	EA	1
1005-00-312-7177	SLING, SMALL ARMS (19204) 12002983	AP7(CI)	EA	1
1005-00-714-9749	SLING (19204) 7149749	AP1	EA	1
1005-00-791-5420	CASE, CARRYING, BARREL ASSY AND EQUIP (19205) 7791009	AP1, AP7(CI)	EA	1
4933-00-652-9950	EXTRACTOR, CARTRIDGE (19205) 7290352	AP1, AP7(CI)	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5340-00-793-6761	HANDLE ASSEMBLY, CLEANING ROD (19204) 7266115	AP1, AP7(CI)	EA	1
8415-01-092-0039	MITTEN (81349) MIL-M-11198F	AP1, AP7(CI), AP8	EA	1
1005-00-710-5599	MOUNT, TRIPOD, M122 USED ON M60 MACHINE GUN (19205) 7790723	AP1, AP7(CI)	EA	1
1005-00-726-6109	ROD, CLEANING (5 SECTIONS) (19204) 7266109	AP1, AP7(CI)	EA	1
1005-00-726-6110	HOLDER, SWAB (19204) 7266109	AP1, AP7(CI)	EA	1
5120-00-461-1075	WRENCH, SCREWDRIVER AND REAMER (19204) 8448458	AP1, AP7(CI)	EA	1
9150-01-079-6124	CLEANER, LUBRICANT (81349) MIL-L-63460	AP1, AP7(CI)	EA	6
1005-00-556-4174	BRUSH, BORE M60 MACHINE GUN (19204) 5564174	AP1, AP7(CI)	EA	1
1005-00-350-4100	BRUSH, RECEIVER M60 MACHINE GUN (19204) 8448466	AP1, AP7(CI)	EA	1
1005-00-690-3115	BRUSH, CHAMBER (19205) 7790452	AP1, AP7(CI)	EA	1
1005-00-650-4508	BRUSH, CLEANING (19205) 7790342	AP1	EA	1
1005-00-694-1662	BUFFER, CLEANING ROD (19205) 7168275	AP1	EA	1
1005-00-073-6110	RIFLE, 5.56 MM, M16A1 (19200) 8448500	AP7(MI)	EA	2
		AP1	EA	3
1005-01-128-9936	RIFLE, 5.56 MM, M16A2 (19200) 9349000	AP7(CI)	EA	5
		AP1	EA	3
	TOW HEAVY ANTI-TANK/ASSUALT WEAPON SYSTEM CONSISTING OF THE FOLLOWING:	AP7(CI)		
6140-00-454-8261	BATTERY ASSEMBLY (18876) 10189465	AP7(CI)	EA	2
1440-00-196-0038	TUBE, GUIDED MISSILE LAUNCHER, M22 (18876) 11486778	AP7(CI)	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
1430-01-143-9408	MISSILE, GUIDED, SET, AN/TSQ-136 (18876) 13099890	AP7(CI)	EA	1
1440-00-140-1529	SIGHT, OPTICAL, GUIDED MISSILE LAUNCHER, MX-9155/TSQ (18876) 10085145	AP7(CI)	EA	1
5855-01-119-9575	SIGHT, VISION, NIGHT AN/TAS-4A, INFRARED (18876) 2428262-1	AP7(CI)	EA	1
1440-01-115-3405	TRAVERSING UNIT, GUIDED MISSILE LAUNCHER, M83 (18876) 131949721	AP7(CI)	EA	1
1440-00-456-1731	MOUNT, TRIPOD, GUIDED MISSILE LAUNCHER, M159E1 (18876) 10224837	AP7(CI)	EA	1
	EQUIPMENT FOR TOW HEAVY ANTI-TANK/ ASSUALT WEAPON SYSTEM:	AP7(CI)		
6135-01-144-2921	NIGHTSIGHT BATTERY POWER CONDITIONER (80063) SM-D-969145	AP7(CI)	EA	1
6135-01-036-3495	BATTERIES, NIGHTSIGHT BATTERY POWER CONDITIONER (80058) BA-5590/U	AP7(CI)	EA	4
5855-01-029-8730	COLLIMATOR, BORESIGHT, NIGHTSIGHT (IN CASE) (80063) SM-C-775087	AP7(CI)	EA	1
	COMMUNICATIONS EQUIPMENT:			
5820-00-223-7473	RADIO SET, (80036) AN/GRC-160	AP7(MI)	EA	1
5820-00-223-7475	RADIO SET (80036) AN/VRC-64	AP7(AC)	EA	1
5820-01-054-7176	INSTALLATION HARNESS, RADIO SET, AN/ GRC-160 (80036) PPL5236	AP7(MI)	EA	2
8130-00-407-7859	CABLE REEL, TELEPHONE, DR-8 (80036) SC-DL-90889	AP1	EA	2
3895-00-498-8343	CABLE, TELEPHONE, WD-1/DR-8 (WITH REELING MACHINE RL-39) (80036) SM-D-333571	AP7(CI), AP8	EA	1
		AP1	EA	2

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5805-00-521-1320	TELEPHONE SET, TA-1/PT (80036) SM-C-168900	AP7(AC)	EA	1
8451-00-543-0012	TELEPHONE SET, TA-1/PT (80036) SM-D-283351	AP7(MI)	EA	1
5805-00-543-0012	TELEPHONE SET, TA-312 (80036) SM-D-283351	AP1	EA	2
	HELMET, CVC, DH132	AP8	EA	3
	HELMET, CVC, DH132	AP1, AP7(AC)	EA	5
	HELMET, CVC, DH132	AP7(MI)	EA	4
8415-00-094-2679	SMALL (GREEN)			
8415-00-094-2691	MEDIUM (GREEN)			
8415-00-094-2684	LARGE (GREEN)			
	OR			
	HELMET, COMBAT (81349)	AP1, AP7(MI)	EA	4
		AP7(AC)	EA	5
		AP8	EA	3
8470-01-130-8180	SMALL (SAND) MIL-H-4417S			
8470-01-130-3794	MEDIUM (SAND) MIL-H-4417M			
8470-01-130-3795	LARGE (SAND) MIL-H-4417L			
	MISCELLANEOUS EQUIPMENT:			
1240-01-207-5787	BINOCULAR, M22 (IN CASE) (19200) 12599242	AP1, AP7(CI), AP8	EA	1
8645-01-117-8699	DUFFLE BAG (WITH PERSONNEL EQUIPMENT)	AP7(CI)	EA	1
		AP1	EA	4
5855-00-150-1820	GOGGLES, NIGHT VISION, AN/PVS-5 (IN CASE) (31550) 8112270G1	AP1, AP7(CI), AP8	EA	1
4240-00-258-2054	GOGGLES, LASER SAFETY, FM-630 (16561) LGA	AP1, AP7(CI)	EA	4
5860-01-062-3543	LASER INFRARED OBSERVATION SETAN/ GVS-5 (80058)	AP1	EA	1

ADDITIONAL AUTHORIZATION LIST (AAL)—Continued **0103 00**

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
5855-00-629-5327	SIGHT, NIGHT VISION, CREW SERVED, AN/TVS-5 (80063) SM-D-850100-1	AP1	EA	1
8345-00-174-6865	PANEL MARKER, AERIAL LIAISON, 6 FT X 2 FT (WITHOUT CASE) (64067)	AP7(CI)	EA	1
8970-01-297-2895	MEAL, READY-TO-EAT (81349) MIL-M-44074	AP1, AP7(CI)	CASE	2
		AP8	CASE	3
5855-00-629-5334	SIGHT, NIGHT VISION, INDIV WPN, AN/PVS-4 (80063) SM-D-850300-1	AP7(CI), AP8	EA	3
5855-01-154-1402	SIGHT, NIGHT VISION, AN/TAS-4B (18876) 13220201	AP1	EA	1
7310-00-281-2215	STOVE, COOKING, GASOLINE, M1950 (WITH CASE) (81349) MIL-S-10736	AP1, AP7(CI)	EA	1
6665-00-903-4767	CHEMICAL AGENT DETECTION KIT M256 (81361) E5-77-2092	AP1	EA	1
6230-00-264-8261	FLASHLIGHT (81361) MIL-B-829	AP1	EA	4
	FLASHLIGHT, ELECT., HAND, 2-CELL (21108) MX-991/U	AP8	EA	1
	OPERATOR'S MANUAL (TM 9-1005-224-10)	AP1	EA	1

EXPENDABLE AND DURABLE ITEMS LIST 0104 00

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the M113A3 FOV carriers. This list is for information only and is not an 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 8-100, *Army Medical Department Expendable/Durable Items*.

Explanation of Columns in the Expendable/Durable Items List

Column (1) — Item Number. This number is assigned to the entry in the list, and is referenced in the narrative instructions to identify the item (e.g. "Use cleaning compound (WP 0104 00, Item 6)").

Column (2) — Level. This column identifies the lowest level of maintenance that requires the listed item.
C = Operator/Crew

Column (3) — National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) — Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This column provides the other information you need to identify the item.

Column (5) — Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon (GL), pound (LB), dozen (DZ), etc.

EXPENDABLE AND DURABLE ITEMS LIST

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	6810-00-201-0906	ALCOHOL, DENATURED (81348) O-E-760, GRADE III	PT
2	C	6810-00-983-8551	ALCOHOL, ISOPROPYL (81348) TT-I-735A	PT
3	C	6850-00-127-7193	ANTIFOGGING KIT, M1 (81361) B5-16-1	EA
4	C	6135-00-120-1020	BATTERY, DRY: 1.5 VOLT (96906) MS75059	EA
5	C	6859-00-224-6657	CLEANING COMPOUND, SOLVENT (FOR BORE OF SMALL ARMS AND AUTOMATIC WEAPONS) (81349) MIL-C-372	OZ
6	C	6850-01-277-0595	CLEANING COMPOUND (59557) 134H1–SOLV	GAL
7	C	8305-00-267-3015	CLOTH, CHEESECLOTH, COTTON, BLEACHED AND UNBLEACHED (81348) CCC-C-440, TYPE II, CLASS 2	LB

EXPENDABLE AND DURABLE ITEMS LIST—Continued **0104 00**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
8	C	7930-00-282-9699	DETERGENT (81349) MIL-D-16791	GAL
9	C	6230-00-264-8261	FLASHLIGHT, ELECTRIC: HAND, 2-CELL (80063) MX991U	EA
10	C	9150-00-190-0905	GREASE, (GAA), AUTOMOTIVE AND ARTILLERY (81349) MIL-G-10924	LB
11	C	1440-01-050-4911	INFLATABLE EYE CUP (18876) 10692258	EA
12	C	9150-00-292-9689	LUBRICATING OIL, WEAPONS, LOW, TEMPERATURE (81349) MIL-L-14107	QT
13	C	6640-00-285-4694	TISSUE, LENS: 7 x 11 IN. (81348) NNN-P-40	BLK
14	C	6640-00-285-4694	TISSUE, LENS (81348) NNN-P-40	SH
15	C	7920-00-205-1711	RAG, WIPING, COTTON AND COTTON SYNTHETIC (81348) DDD-R-30, GRADE B (58536) A-A-531	LB
16	C	7930-00-880-4454	SOLUTION, LENS CLEANING (81348) P-D-410	GAL
17	C	1005-00-288-3565	SWAB, SMALL ARMS CLEANING (19204) 5019316	EA
18	C	5970-00-955-9976	TAPE, INSULATION, ELECTRICAL	FT

STOWAGE AND SIGN GUIDE 0105 00

INTRODUCTION

SCOPE

This work package shows the location of stowage of equipment and materiel required to be carried on the M113A3, M577A3, M1068A3, M1064A3, M1059A3, M901A3, M981A3, and M58 carriers.

GENERAL

The pictures on the following pages show where the equipment is stowed, and the decals, stencils, and straps at each position. Numbered callout pictures are for strap keys.

WARNING

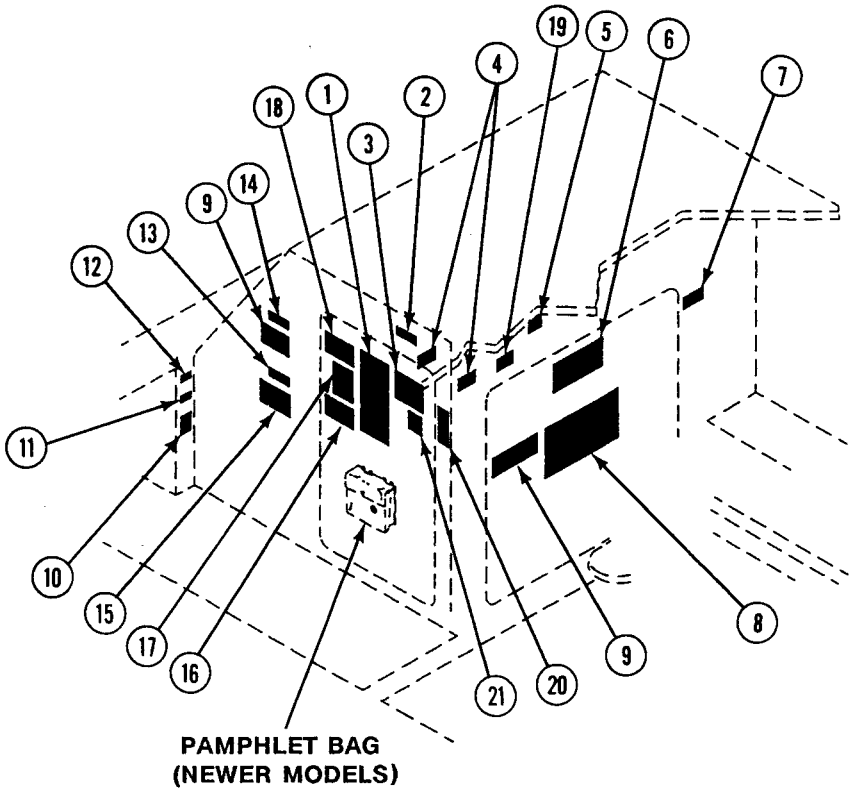


Ammunition can explode and kill you. Make certain ammunition and all other combustible/ explosive materials are properly stored 30 inches or more from heater vents. Combustible materials must be stored 12 inches or more from metal surfaces of the heater.

NOTE

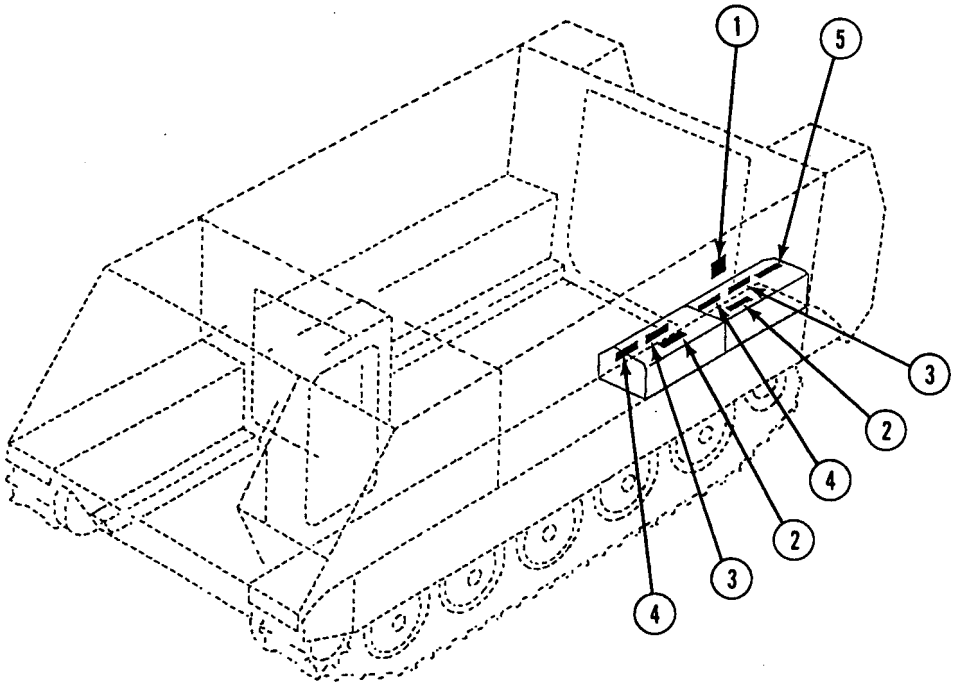
You can stow either 5.56 mm ammunition or 7.62 mm ammunition in storage spaces that have decals for 7.62 mm ammunition.

STOWAGE GUIDE - M113A3 ARMORED PERSONNEL CARRIER DATAPLATE AND MARKER LOCATIONS



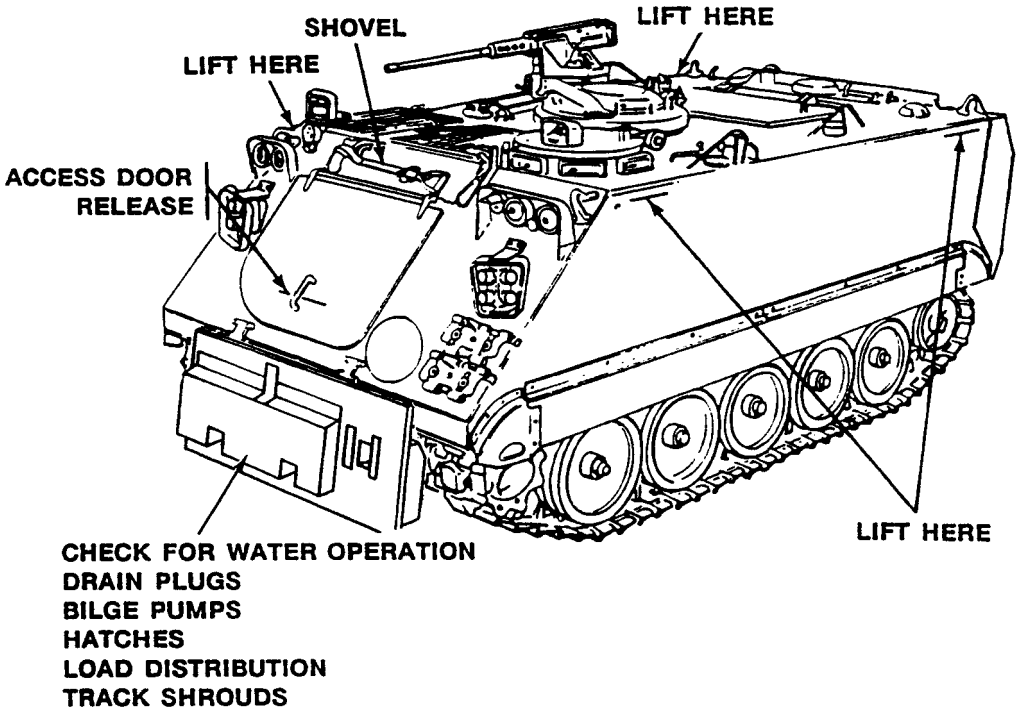
1. Marker, instruction, vehicle operation
2. Marker, WARNING, ramp lock
3. Marker, instruction, power train maintenance
4. Marker, instruction, ramp lock
5. Marker, WARNING, mortar alignment
6. Marker, WARNING, water operation
7. Marker, WARNING, personnel/equipment heater
8. Decal, WARNING, carbon monoxide (LARGE)
9. Decal, WARNING, pivot steer
10. Marker, engine idling
11. Marker, throttle
12. Decal, fuel shutoff
13. Marker, instruction, ramp actuating lever
14. Marker, WARNING, stall check
15. Plate, identification, vehicle
16. Plate, identification, vehicle shipping data
17. Marker, instruction, ramp operation
18. Marker, instruction, speed shift limit
19. Marker, identification, carc paint
20. Marker, WARNING, exhaust gas
21. Marker, CAUTION, noise

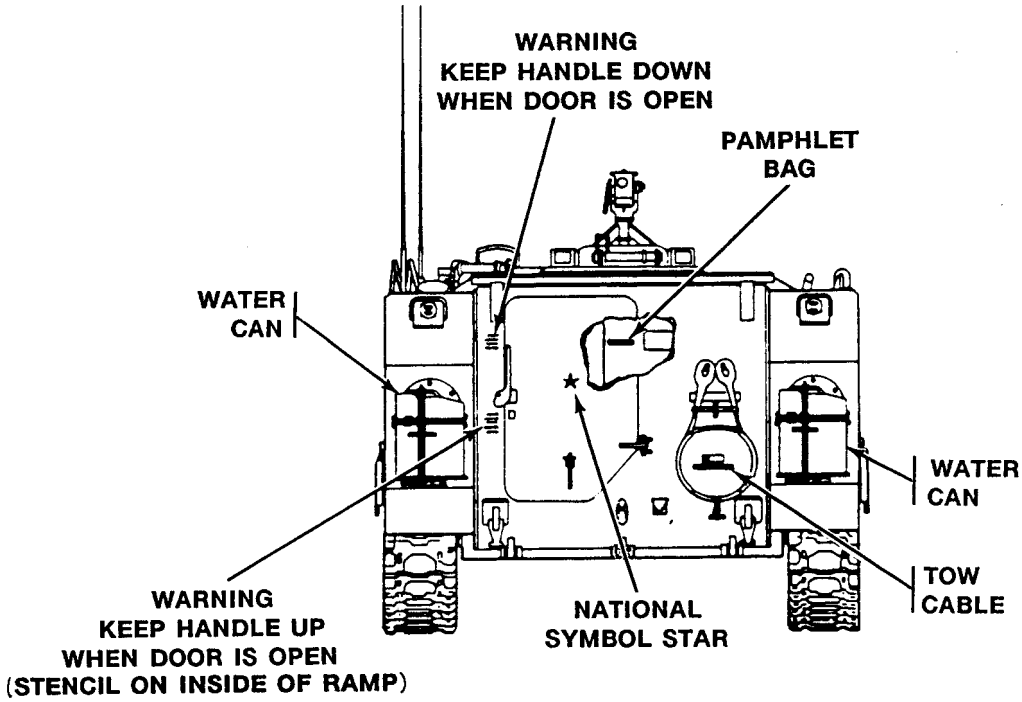
STOWAGE GUIDE - M113A3 ARMORED PERSONNEL CARRIER MARKER AND DECAL LOCATIONS

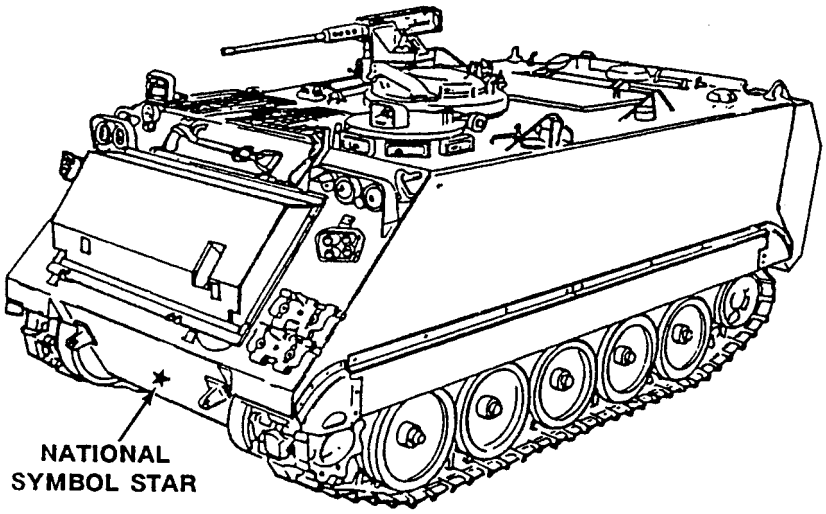


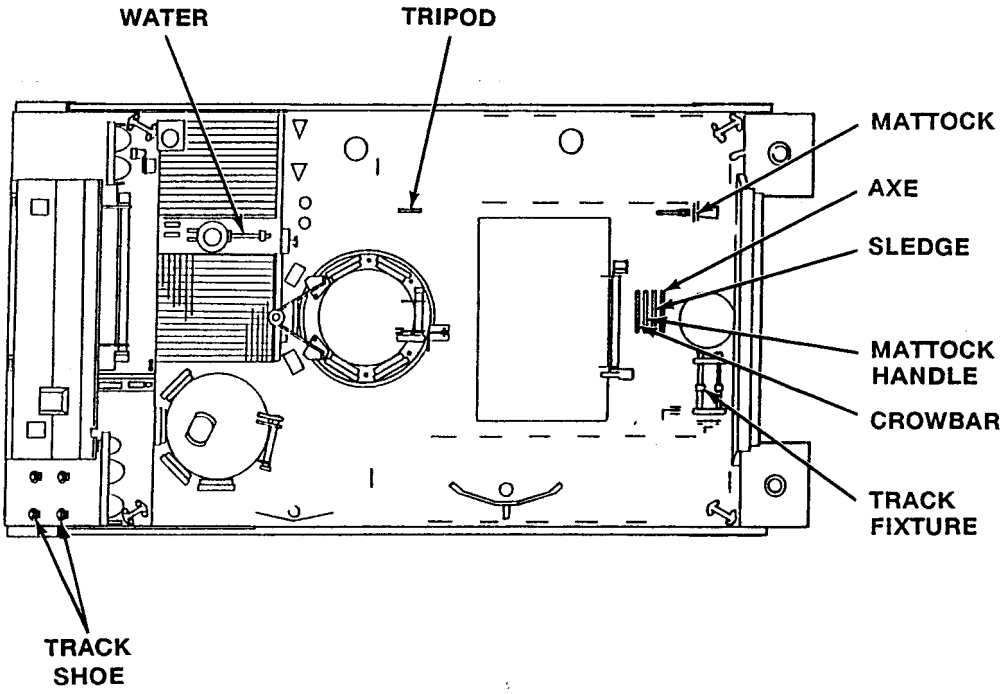
1. Marker, CAUTION, fuel supply and return (on spall liner)
2. Marker, instruction, battery service
3. Marker, WARNING, battery gas
4. Marker, WARNING, battery acid
5. Decal, tool bag

STOWAGE GUIDE - M113A3 ARMORED PERSONNEL CARRIER STENCIL LOCATIONS





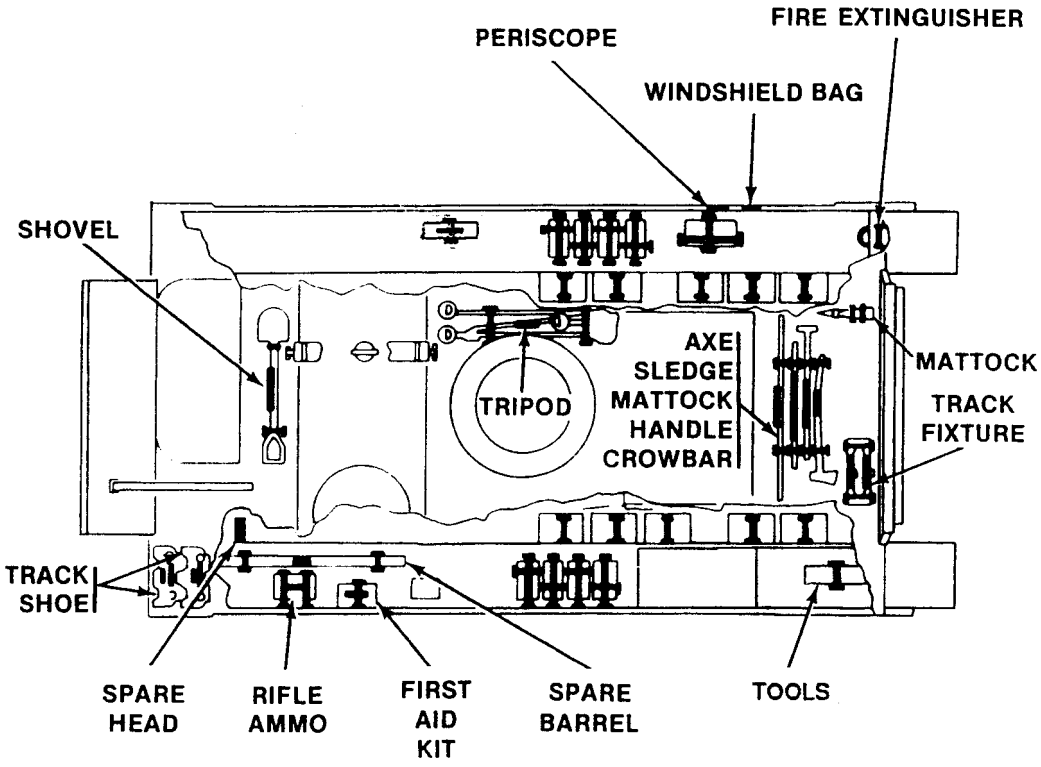

NATIONAL
SYMBOL STAR

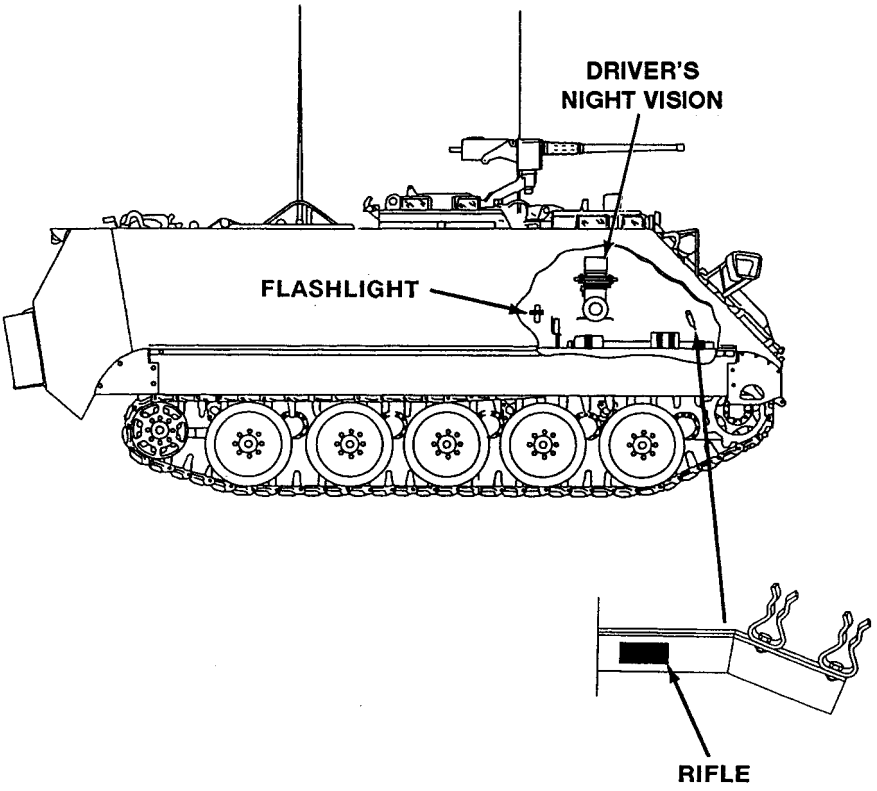

WATER
TRIPOD
MATTOCK
AXE
SLEDGE
MATTOCK
HANDLE
CROWBAR
TRACK
FIXTURE
TRACK
SHOE

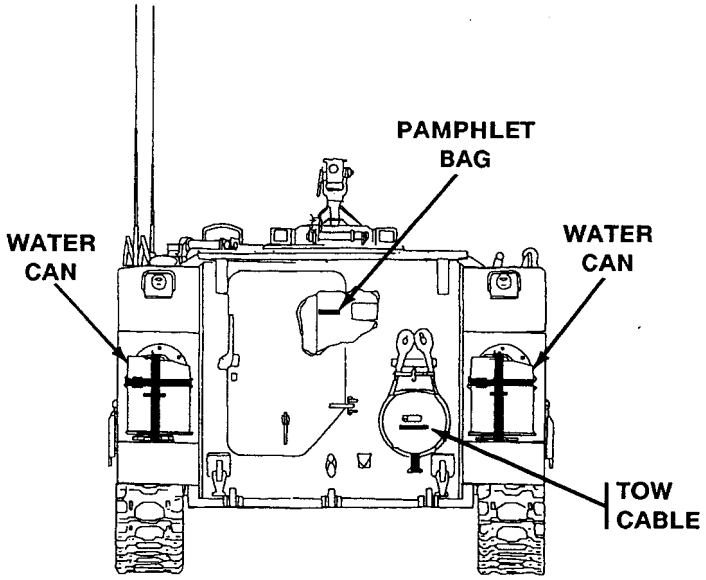
STOWAGE GUIDE - M113A3 ARMORED PERSONNEL CARRIER DECALS AND STENCILS

NOTE

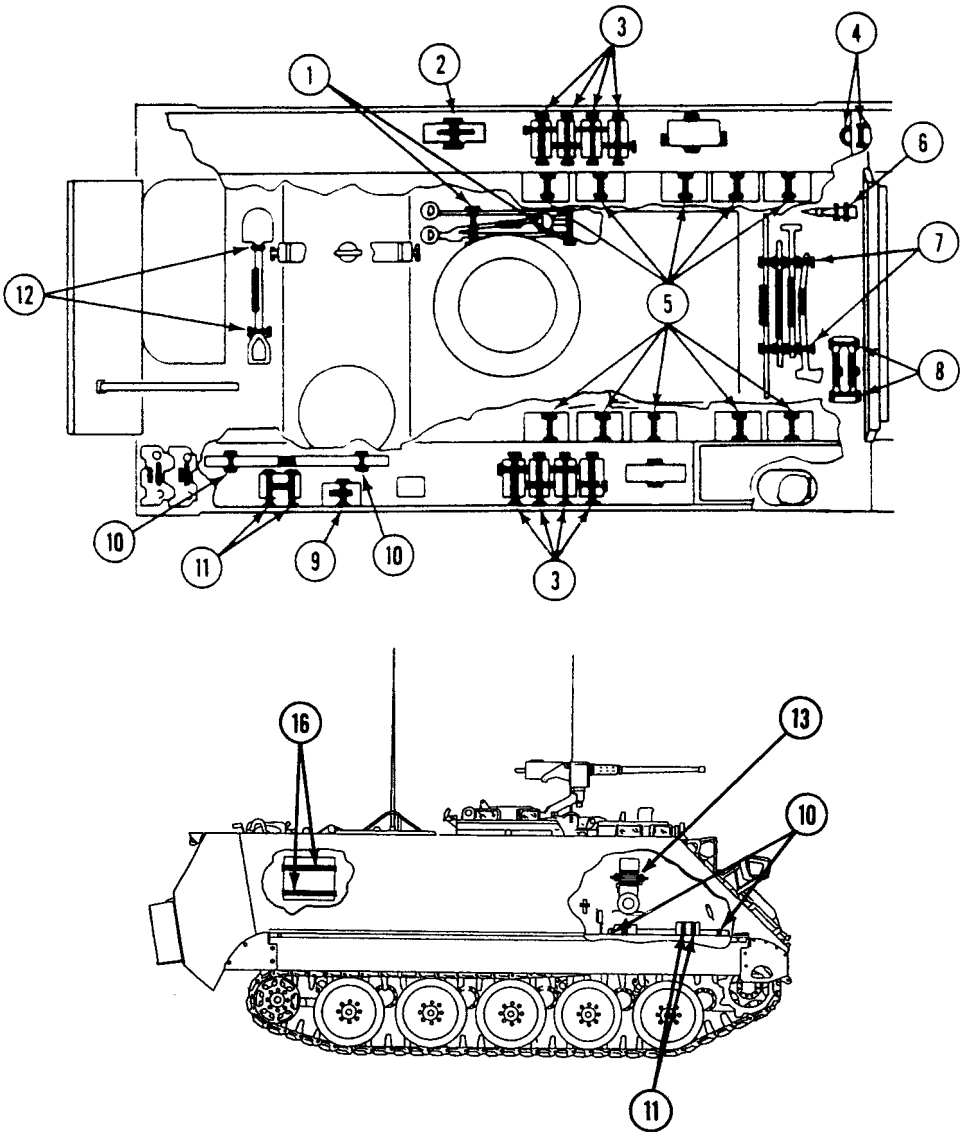
Signs outlined with boxes are decals applied in locations shown. Signs not outlined with boxes are stencils.

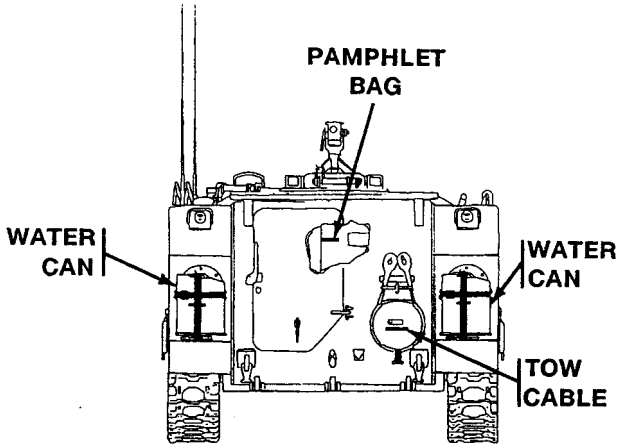


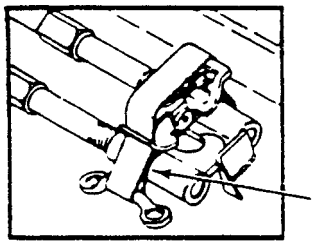

DRIVER'S
NIGHT VISION
FLASHLIGHT
RIFLE


PAMPHLET
BAG
WATER
CAN
WATER
CAN
TOW
CABLE

STOWAGE GUIDE - M113A3 ARMORED PERSONNEL CARRIER STRAPPING DIAGRAM



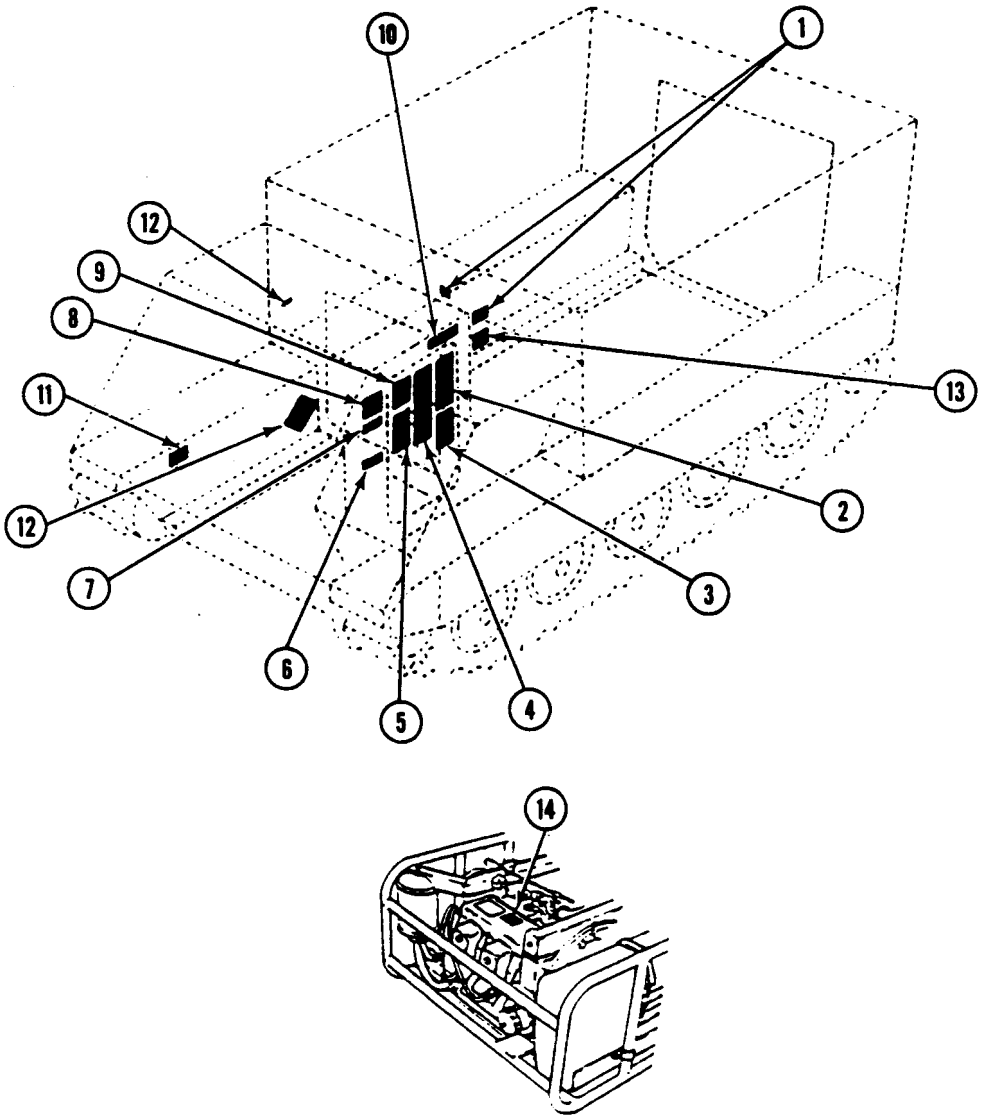




PROPER METHOD OF STRAPPING. MAKE CERTAIN BOTH LOOPS PASS OVER TOP OF SECURED ITEM.

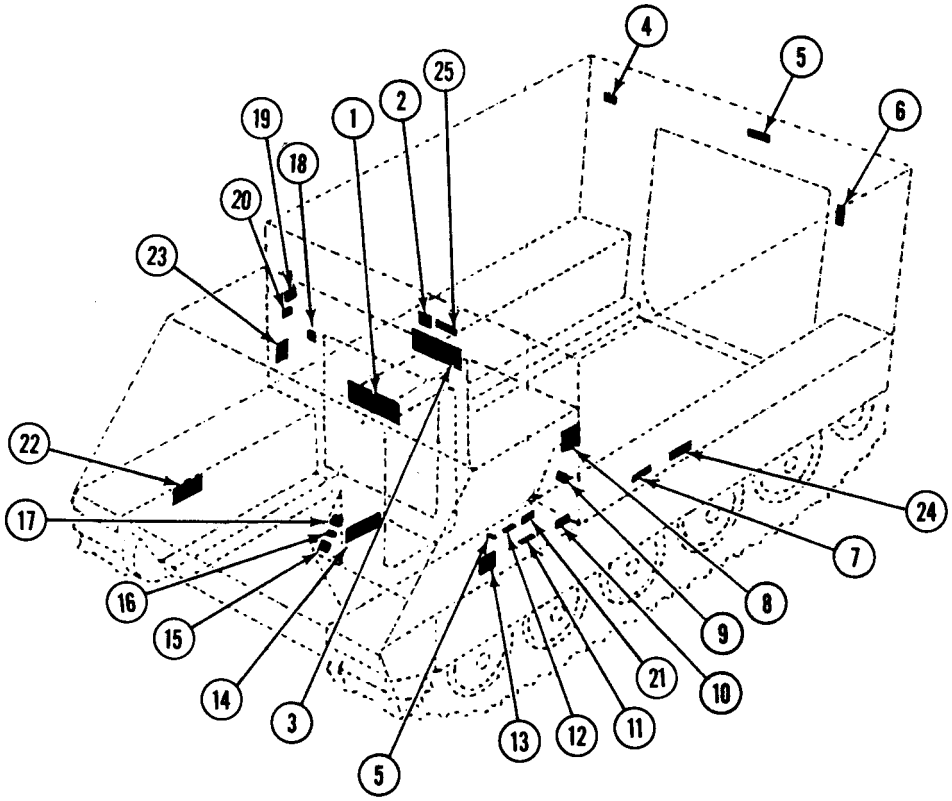
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tripod	2	36
2	Tool bag	1	48
3	Ammunition box, caliber .50	Suggested use only, no straps furnished	
4	Fire extinguisher	2	24
5	Miscellaneous stowage	10	39
6	Mattock	1	24
7	Pioneer tools	2	36
8	Track fixture	2	28
9	First aid kit	1	24
10	Spare barrel, caliber .50	2	24
11	Ammunition cases, rifle	2	45
12	Shovel	2	33, 20
13	Drivers night vision viewer AN/VVS-2	1	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 - M577A3 COMMAND POST CARRIER DATAPLATE AND MARKER LOCATIONS



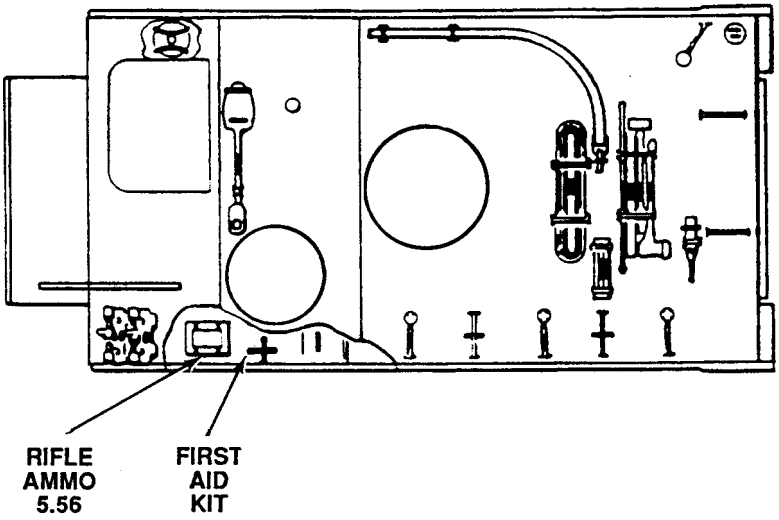
1. Marker, WARNING, ramp lock
2. Marker, instruction, power train maintenance
3. Marker, identification, vehicle shipping data
4. Marker instruction, vehicle operation
5. Marker, instruction, ramp
6. Marker, instruction, ramp actuating lever
7. Marker, WARNING, stall check
8. Plate, identification, vehicle
9. Marker, instruction, speed shift limit
10. Marker, instruction, ramp lock lever
11. Plate, instruction, engine air cleaner
12. Plate, warranty information
13. Marker, identification, carc paint
14. Marker, WARNING, NBC generator set, air cleaner

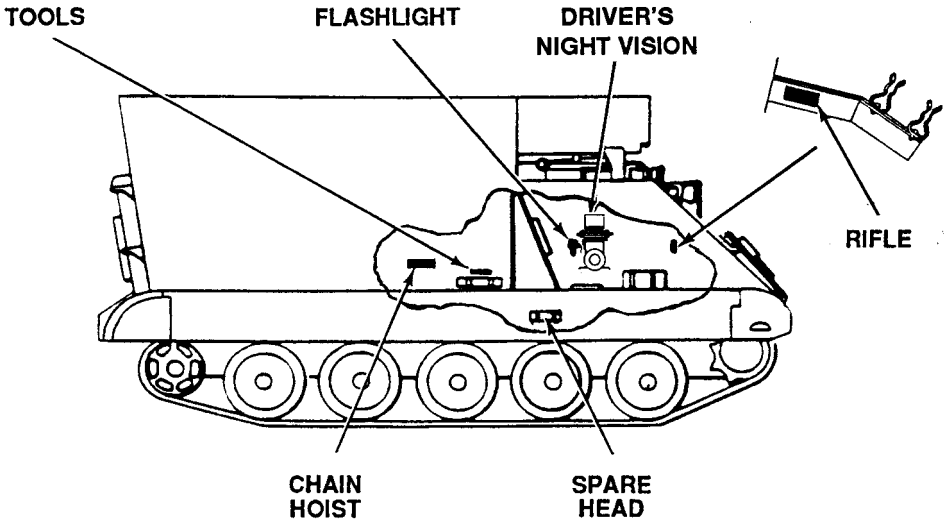
STOWAGE GUIDE - M577A3 ARMORED PERSONNEL CARRIER MARKER AND DECAL LOCATIONS



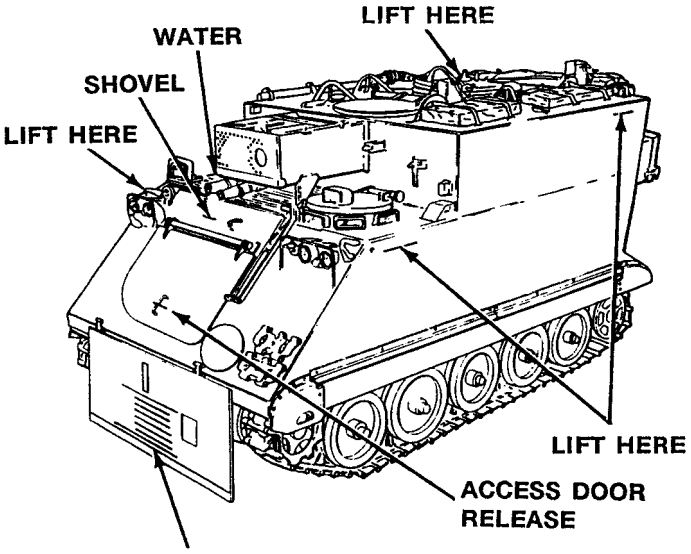
1. Decal, WARNING, carbon monoxide (LARGE)
2. Decal, CAUTION, hearing
3. Decal, WARNING, carbon monoxide (SMALL)
4. Decal, fire extinguisher
5. Decal, rifle
6. Decal, wall switch
7. Decal, tools
8. Decal, CAUTION, fire extinguisher safety wire
9. Decal, pamphlet bag
10. Decal flashlight
11. Decal, first aid kit
12. Decal, 5.56 ammunition
13. Decal, CAUTION, master switch
14. Decal, CAUTION, pivot steer
15. Marker, engine idling
16. Marker, throttle
17. Decal, fuel shutoff
18. Marker, WARNING, personnel/equipment heater
19. Marker, WARNING, blowtorch
20. Decal, blowtorch
21. Decal, spare head
22. Decal, WARNING, NBC, engine air cleaner
23. Decal, identification, fan oil gauge and fill
24. Decal, chain hoist and bag
25. Marker, WARNING, ramp lock

STOWAGE GUIDE - M577A3 COMMAND POST CARRIER DECALS

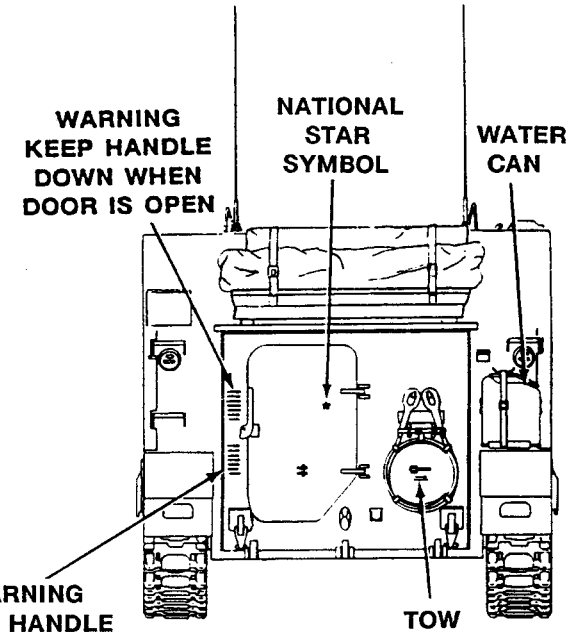


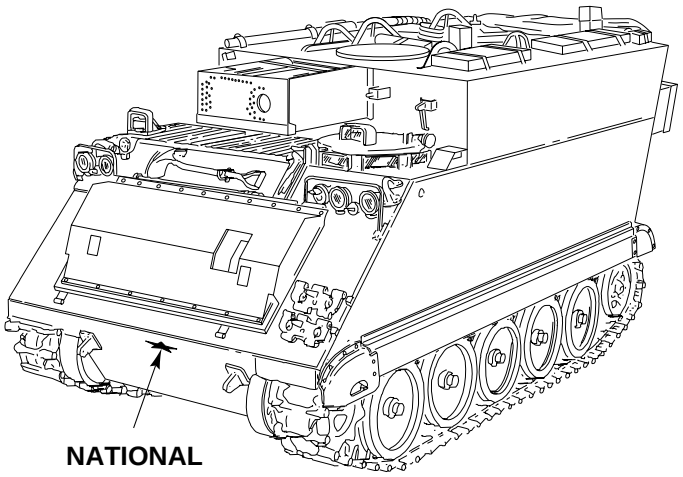


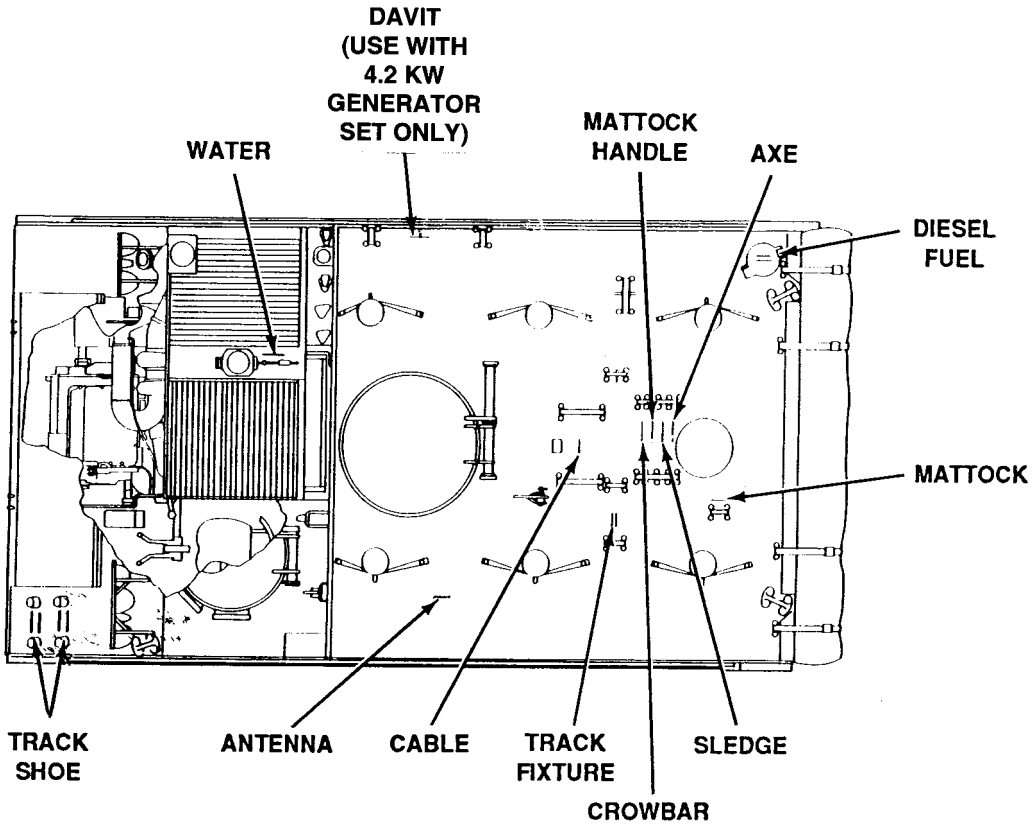
STOWAGE GUIDE - M577A3 COMMAND POST CARRIER STENCIL LOCATIONS



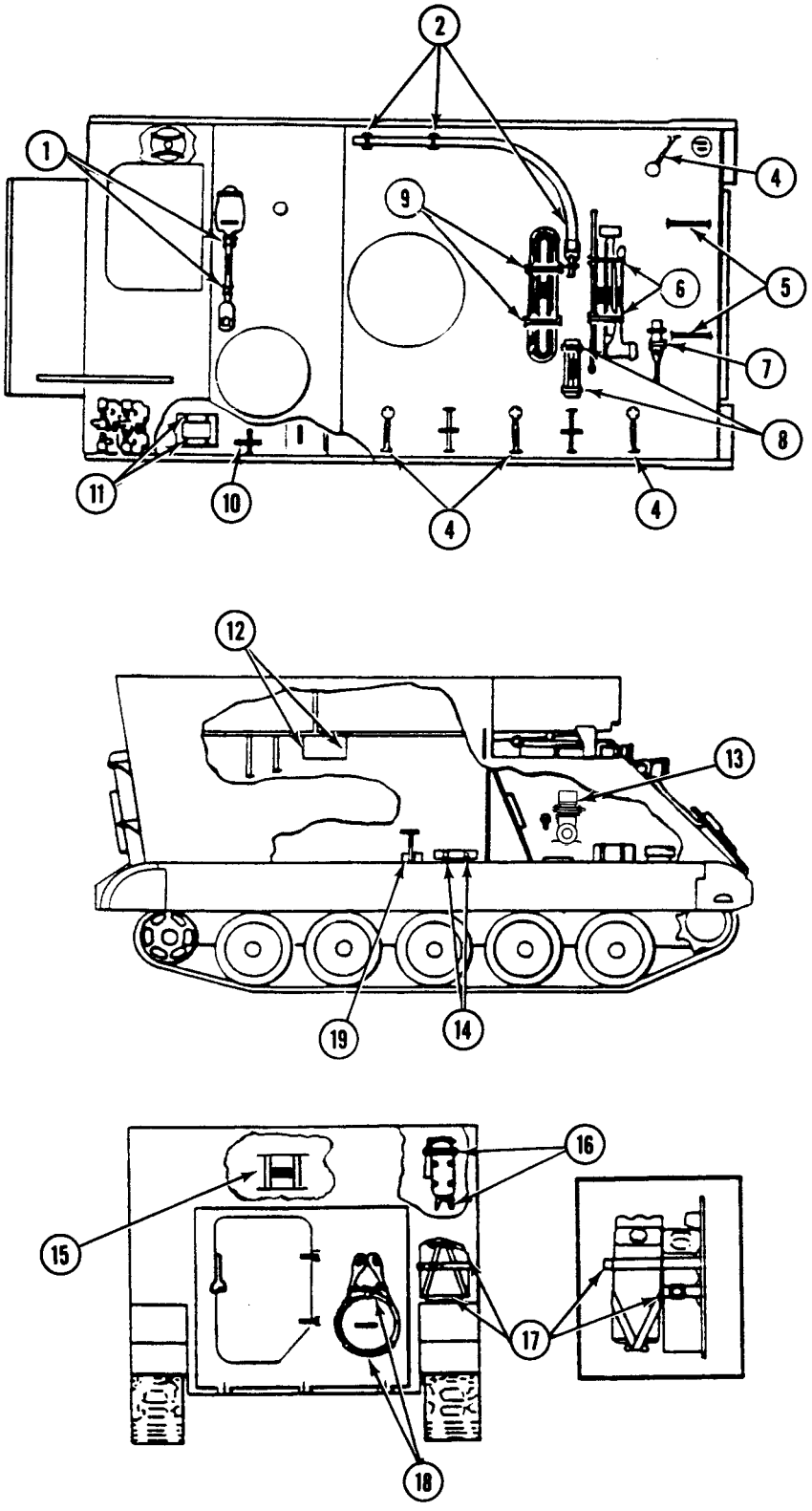
CHECK FOR WATER OPERATION
- DRAIN PLUGS
- BILGE PUMPS
- HATCHES
- LOAD DISTRIBUTION
- TRACK SHROUDS

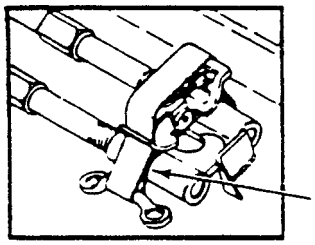



NATIONAL
SYMBOL
STAR


DAVIT
(USE WITH
4.2 KW
GENERATOR
SET ONLY)
WATER
MATTOCK
HANDLE
AXE
DIESEL
FUEL
MATTOCK
TRACK
SHOE
ANTENNA
CABLE
TRACK
FIXTURE
SLEDGE
CROWBAR

STOWAGE GUIDE - M577A3 COMMAND POST CARRIER STRAPPING DIAGRAM

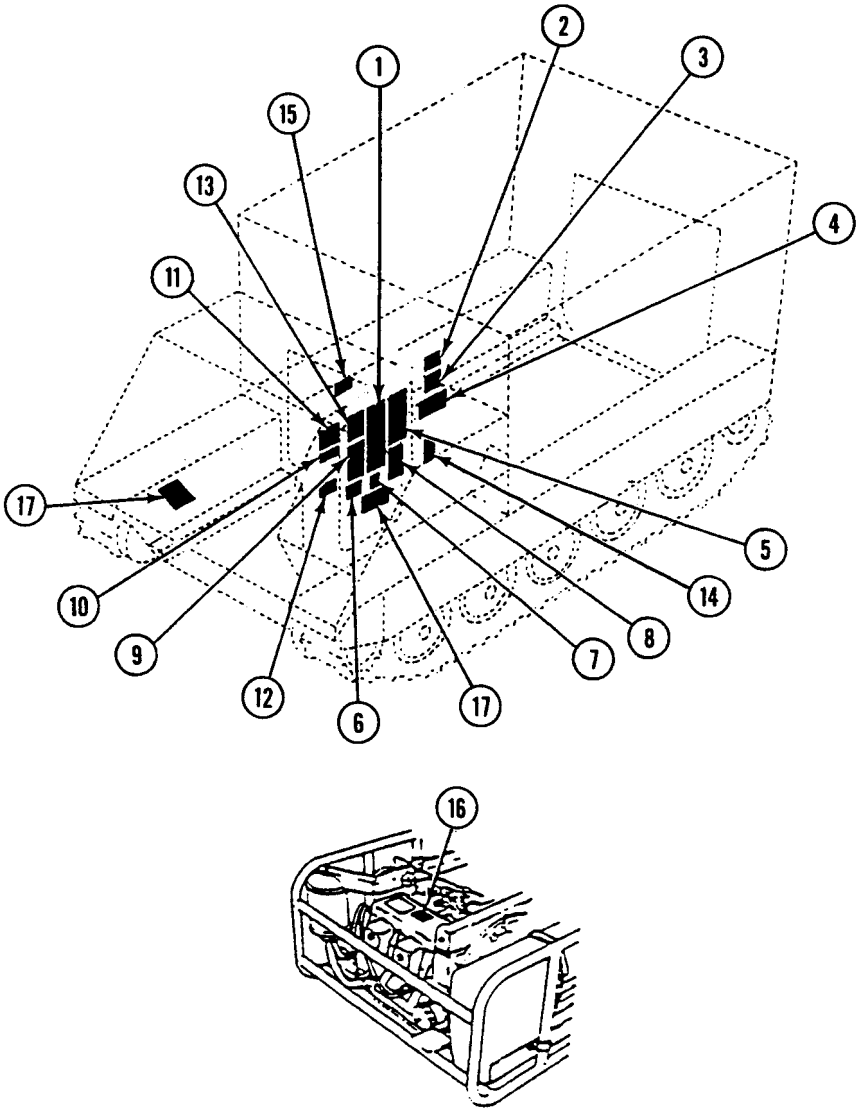




PROPER METHOD OF STRAPPING. MAKE CERTAIN BOTH LOOPS PASS OVER TOP OF SECURED ITEM.

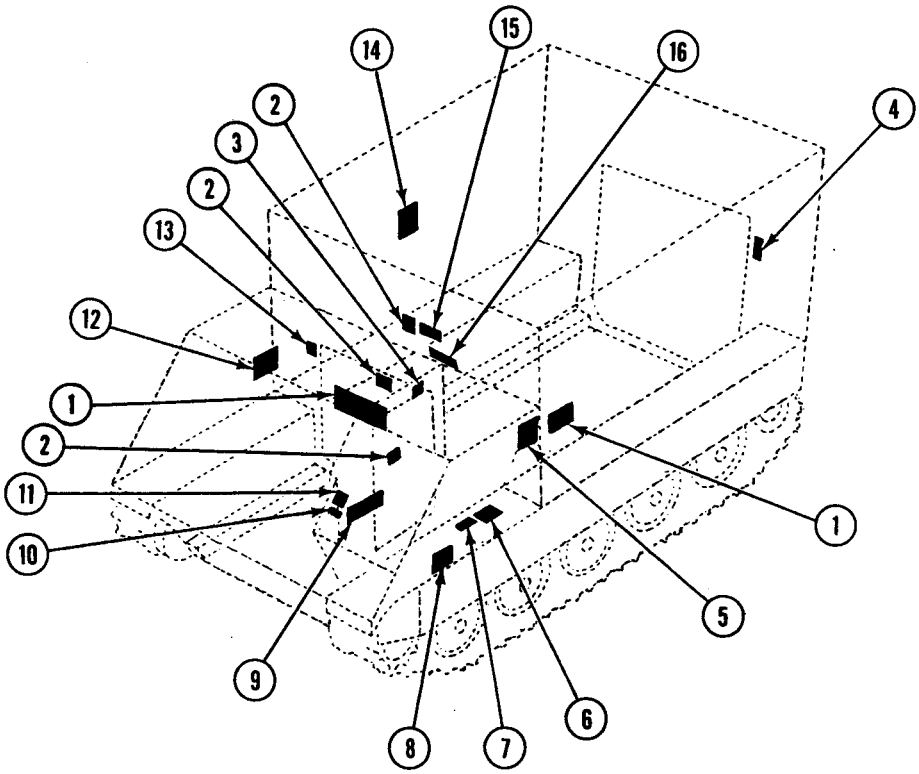
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Shovel	2	33, 20
2	Davit (for 4.2 KW generator set only)	3	22
3	Chain hoist and bag	1	30
4	Duffle bag/field pack	4	72, 96
5	Duffle bag/field pack	2	72
6	Pioneer tools	2	36
7	Mattock	1	36
8	Track fixture	2	28
9	Nato slave cable	2	36
10	First aid kit	1	24
11	Ammunition cases, rifle 5.56	2	45
12	Radio	2	45
13	Drivers night vision viewer AN/VVS-2	1	24
14	Tool bag	2	36
15	Driver’s windshield bag	2	68
16	Fire extinguisher	2	24
17	Water can or M13 decon can	3	72, 88, 108
18	Tow cable	2	18, 30
19	Chain host and bag (for 4.2 KW generator set only)	1	36

STOWAGE GUIDE - M1068A3 STANDARD INTEGRATED COMMAND POST SYSTEM DATAPLATE AND MARKER LOCATIONS



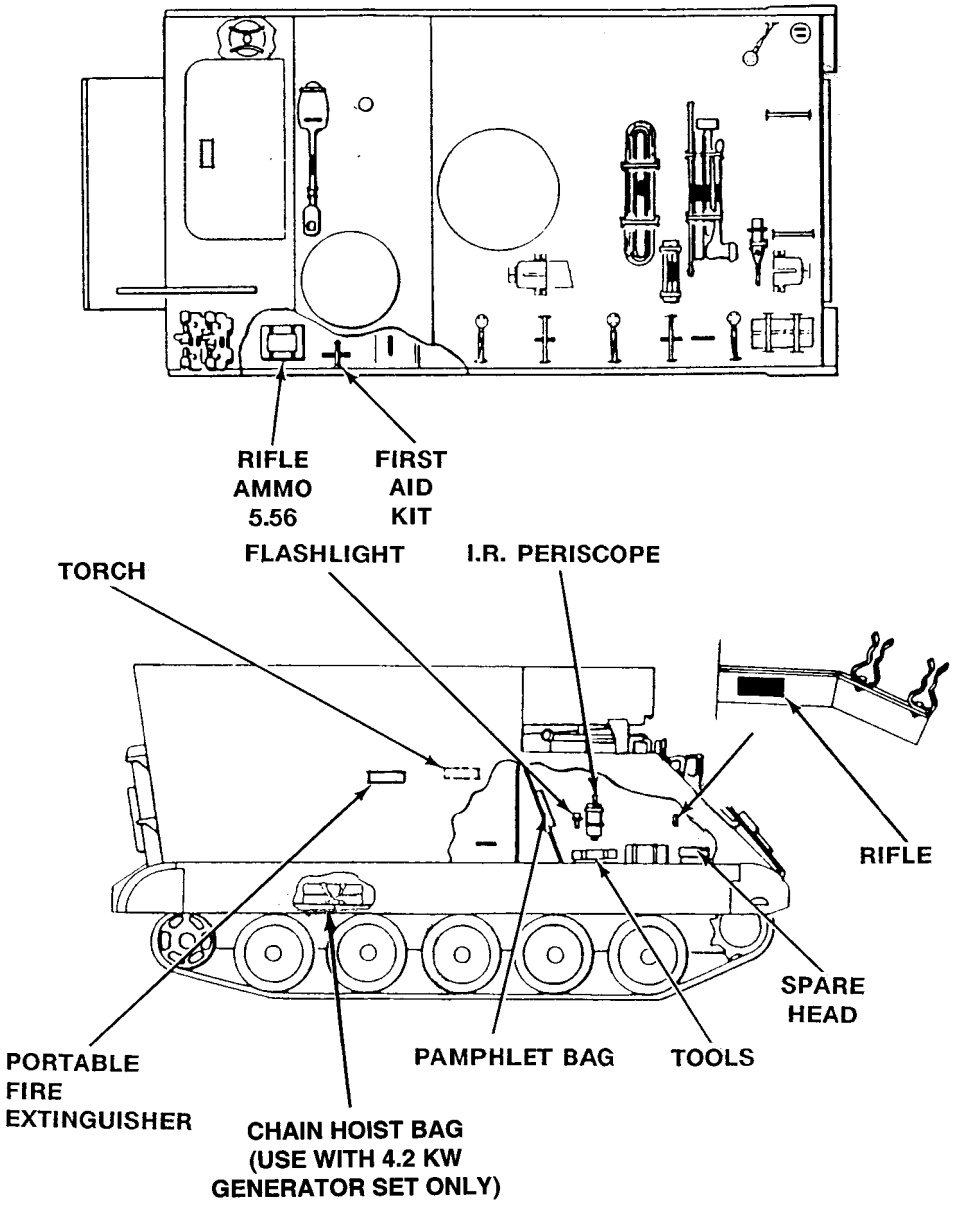
1. Marker, instruction, carrier operation
2. Marker, WARNING, ramp lock
3. Plate, warranty information
4. Marker, identification, carc paint
5. Marker, instruction, power train maintenance
6. Marker, identification, vehicle shipping data
7. Plate, instruction, engine idle RPM
8. Marker, WARNING, noise
9. Marker, instruction, ramp
10. Marker, instruction, ramp actuating lever
11. Marker, WARNING, stall check
12. Plate, identification, vehicle
13. Marker, instruction, speed shift limit
14. Decal, WARNING, exhaust gas (smell)
15. Marker, identification, ramp lock lever
16. Decal, WARNING, NBC generator set, engine air cleaner (for 4.2 KW generator set only)
17. Decal, WARNING, NBC, engine air cleaner

STOWAGE GUIDE - M1068A3 STANDARD INTEGRATED COMMAND POST SYSTEM MARKER AND DECAL LOCATIONS

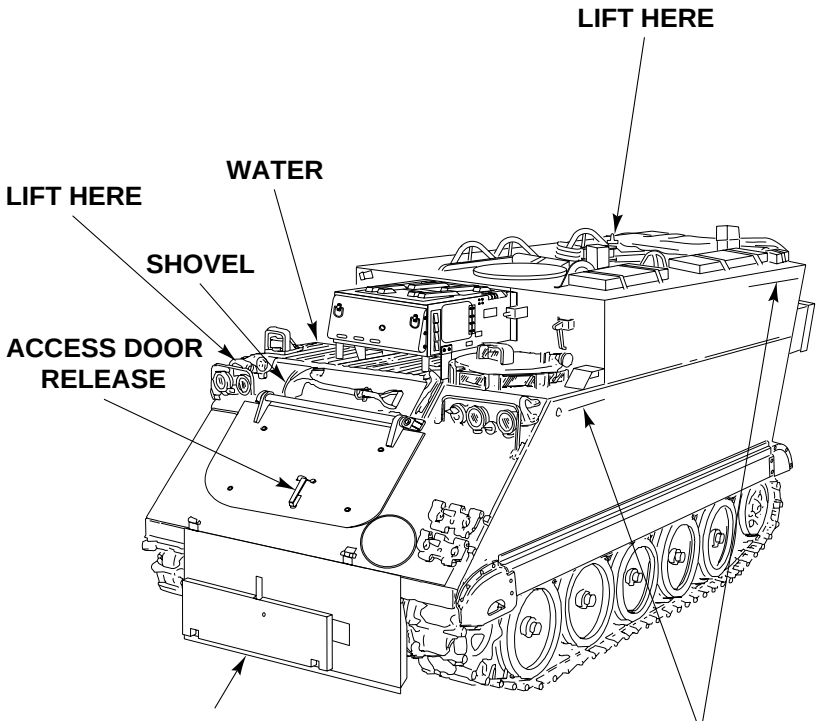


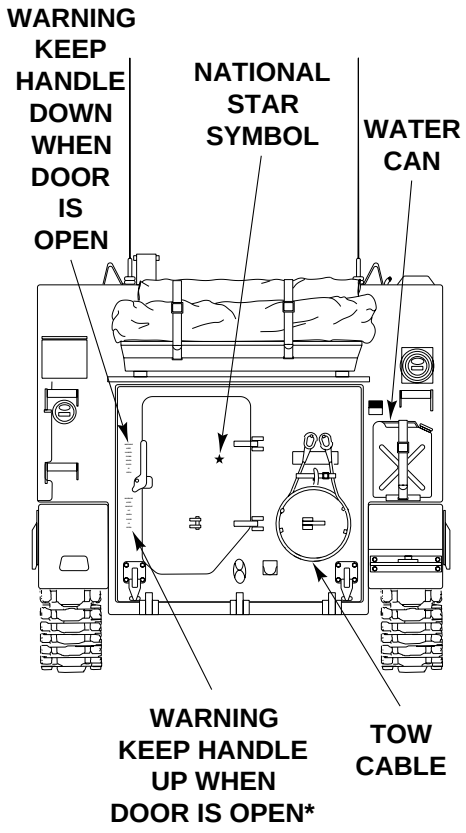
1. Power enclosure WARNING
2. Decal, WARNING, noise
3. Decal, WARNING, carbon monoxide (SMALL)
4. Decal, wall switch
5. Decal, CAUTION, fire extinguisher safety wire
6. Decal, tools
7. Decal, 5.56 ammunition
8. Decal, CAUTION, master switch
9. Decal, CAUTION, pivot steer
10. Marker, throttle
11. Decal, fuel shutoff
12. Decal, identification, fan oil gauge and fill
13. Marker, WARNING, personnel heater
14. Marker, identification, fire extinguisher
15. Marker, WARNING, carbon monoxide
16. Marker, WARNING, ramp lock instruction

STOWAGE GUIDE - M1068A3 STANDARD INTEGRATED COMMAND POST SYSTEM DECALS

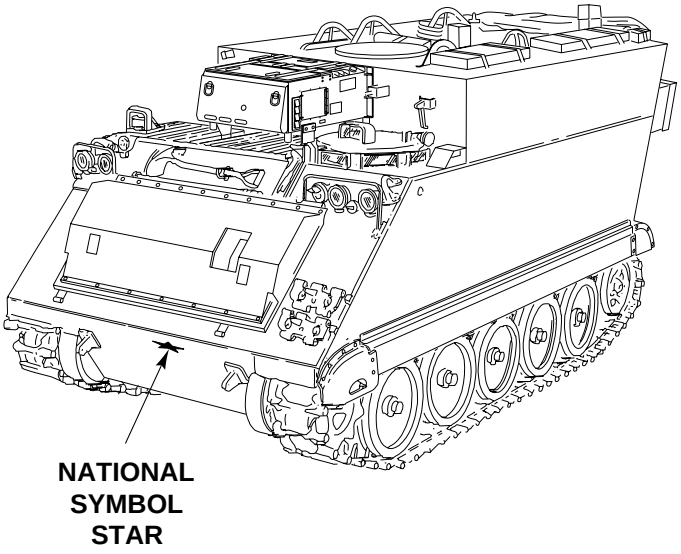


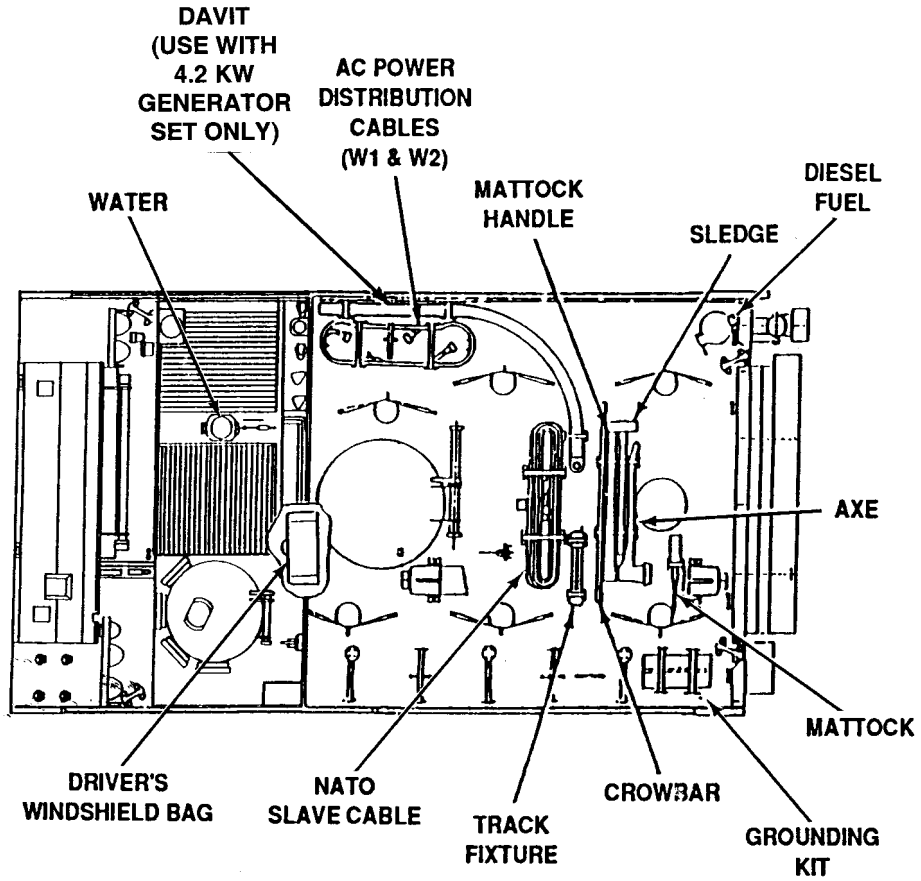
STOWAGE GUIDE - M1068A3 STANDARD INTEGRATED COMMAND POST SYSTEM LOCATIONS





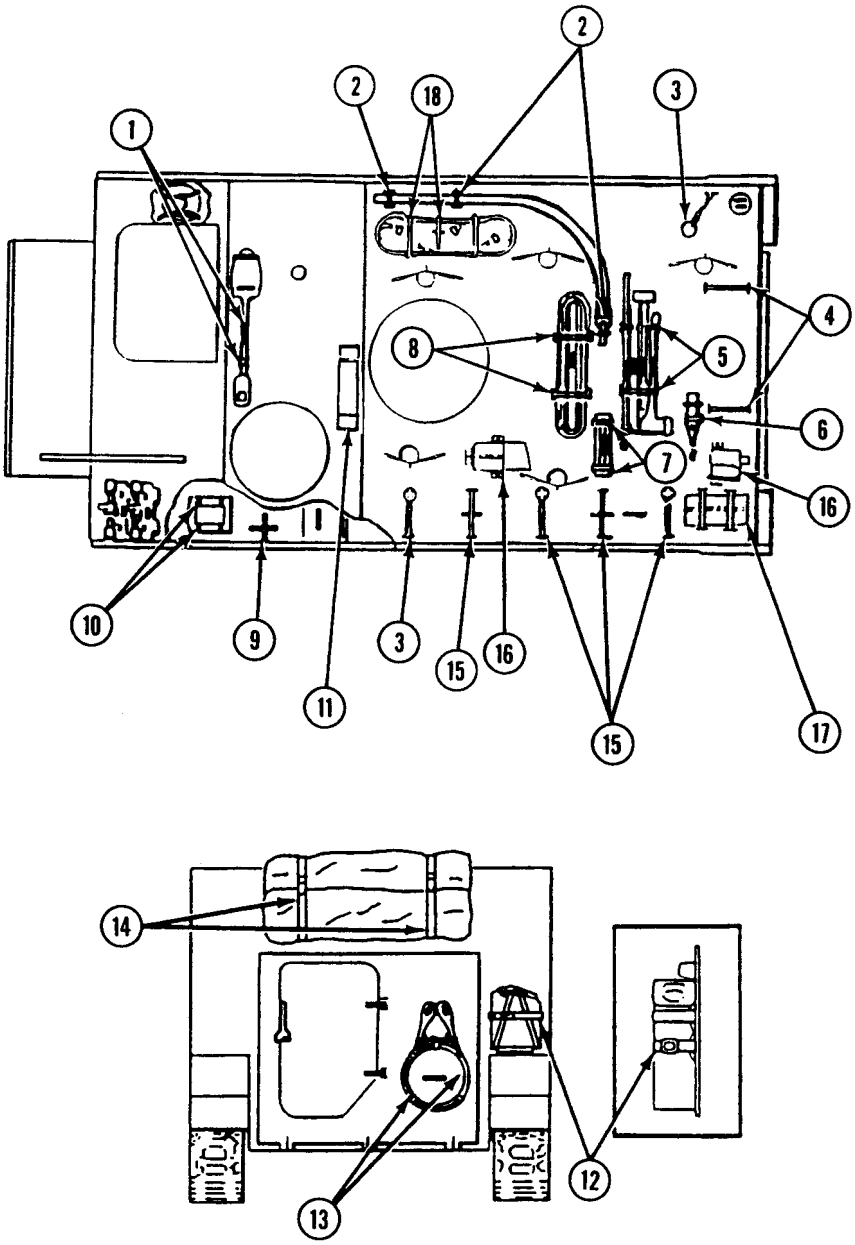
*STENCIL ON INSIDE OF RAMP

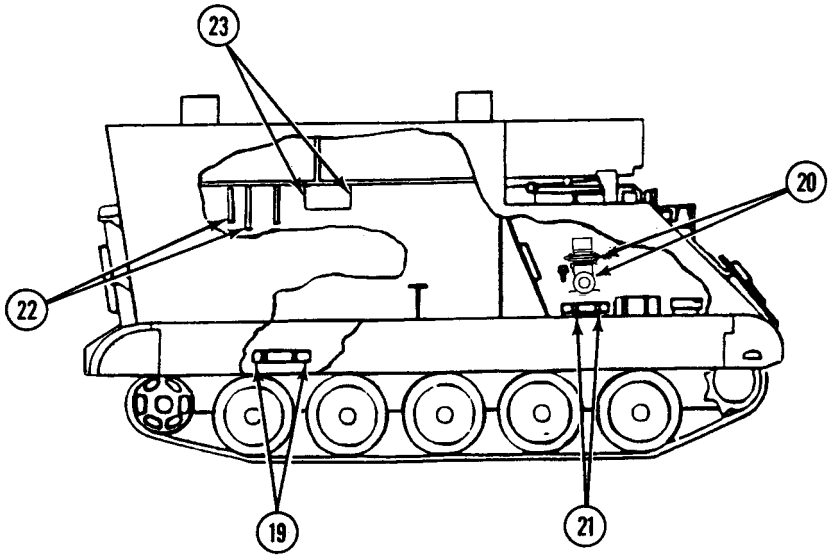


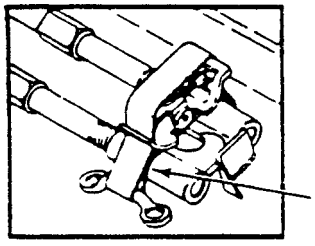

DAVIT (USE WITH 4.2 KW GENERATOR SET ONLY)
AC POWER DISTRIBUTION CABLES (W1 & W2)
WATER
MATTOCK HANDLE
DIESEL FUEL
SLEDGE
AXE
MATTOCK
DRIVER'S WINDSHIELD BAG
NATO SLAVE CABLE
TRACK FIXTURE
CROWBAR
GROUNDING KIT

TOP VIEW

STOWAGE GUIDE - M1068A3 STANDARD INTEGRATED COMMAND POST SYSTEM STRAPPING DIAGRAM



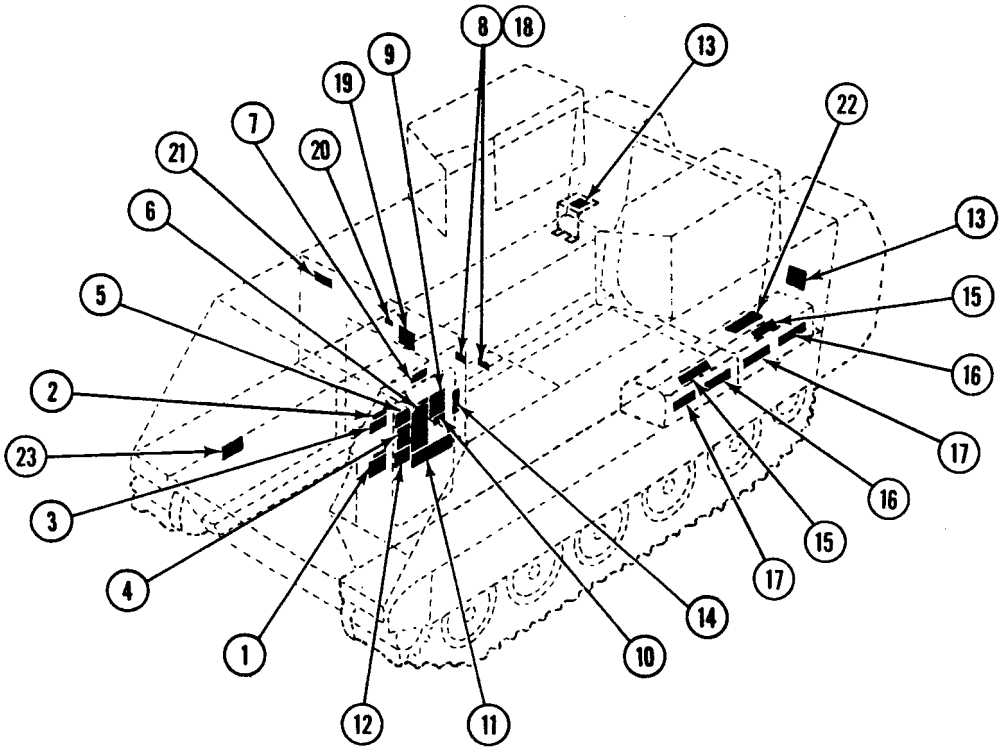




PROPER METHOD OF STRAPPING. MAKE CERTAIN BOTH LOOPS PASS OVER TOP OF SECURED ITEM.

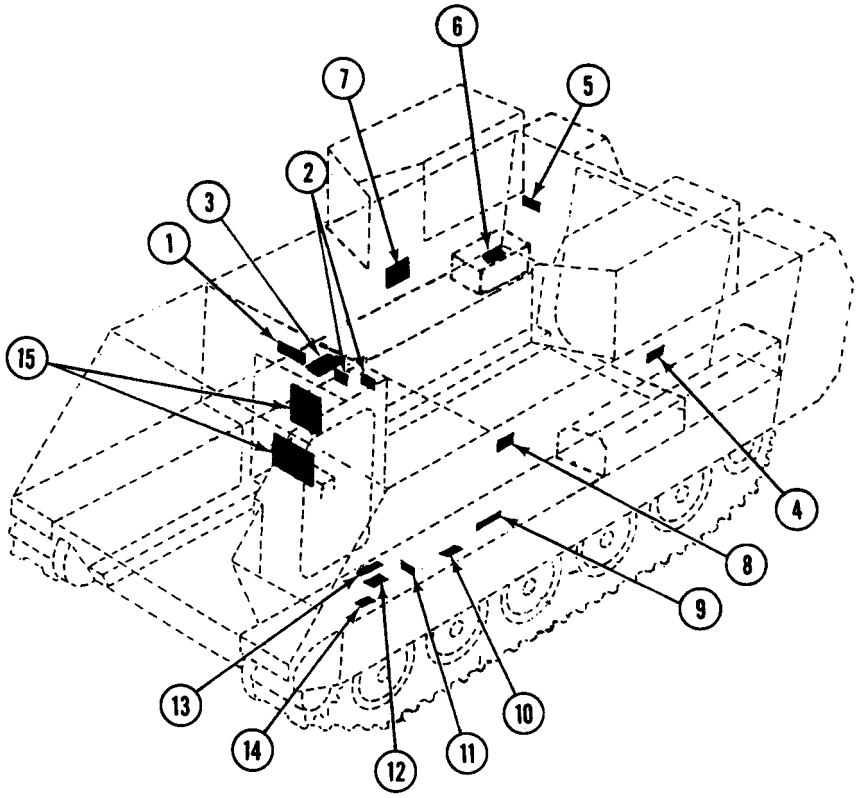
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Shovel	2	33, 20
2	Davit (used for 4.2 KW generator set only)	3	22
3	Duffle bag/field pack	4	72, 84
4	Duffle bag/field pack	2	72
5	Pioneer tools	2	36
6	Mattock	1	36
7	Track fixture	2	28
8	Nato slave cable	2	36
9	First aid kit	1	24
10	Ammunition case, rifle 5.56	2	45
11	Driver’s windshield bag	2	68
12	M13 Devon can	2	72
13	Tow cable	2	18, 30
14	Mapborad and table	2	114
15	Tent frame and fabric bags	4	100
16	Light set	2	45
17	Grounding kit	2	76
18	Generator cables (W1 and W2)	3	39, 45
19	Chain hoist bag (used for 4.2 KW generator set only)	1	39
20	Driver’s night vision viewer AN/VVS-2	1	24
21	Tool bag	2	36
22	For radio set AN/PRC 8, 9 or 10	2	45
23	Alternate location for radio set AN/PRC-25	2	45

STOWAGE GUIDE - M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER DATAPLATE AND MARKER LOCATIONS



1. Marker, instruction, ramp actuating lever
2. Marker, WARNING, stall check
3. Plate, identification, vehicle
4. Marker, instruction, ramp operation
5. Marker, instruction, speed shift limit
6. Marker, instruction, vehicle operation
7. Marker, instruction, ramp lock lever
8. Marker, WARNING, ramp lock
9. Marker, instruction, power train maintenance
10. Marker, WARNING, noise
11. Marker, WARNING, multiple
12. Marker, identification, vehicle shipping data
13. Marker, CAUTION, fuel supply and return
14. Marker, WARNING, exhaust gas
15. Marker, instruction, battery service
16. Marker, WARNING, battery gas
17. Marker, WARNING, battery acid
18. Decal, WARNING, ramp
19. Decal, WARNING, exhaust gases
20. Marker, identification, paint
21. Marker, WARNING, personnel/equipment heater
22. Decal, tool bag
23. Marker, WARNING, NBC Air Cleaner

STOWAGE GUIDE - M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER DATAPLATE AND DECAL LOCATIONS

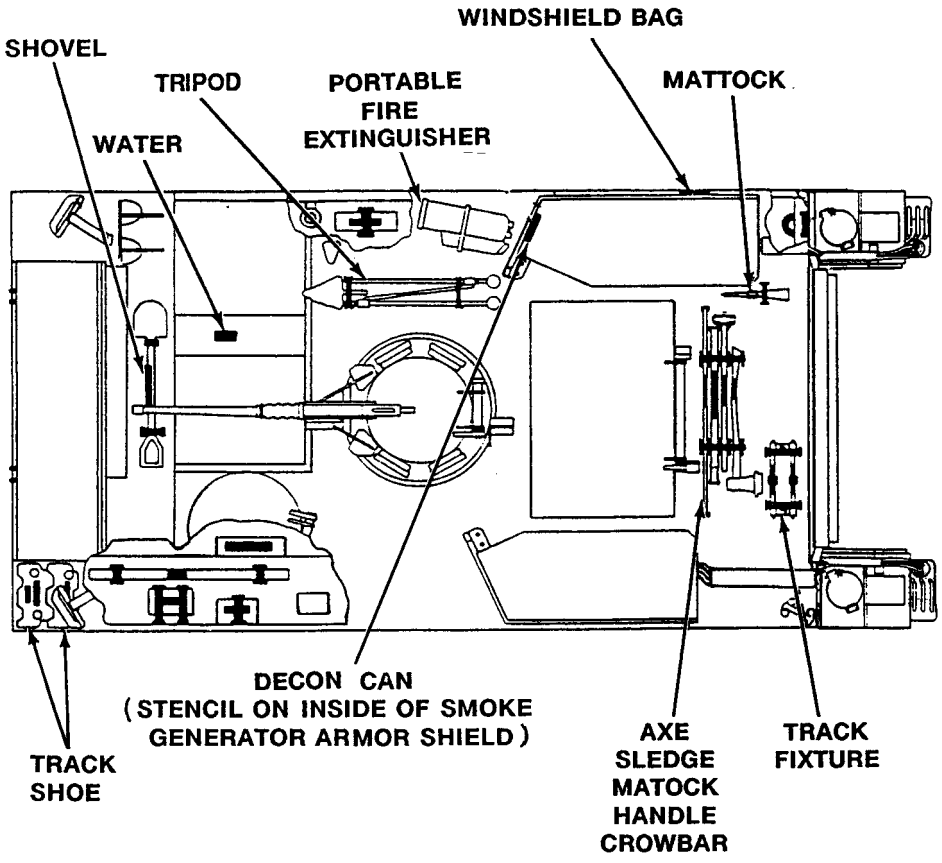


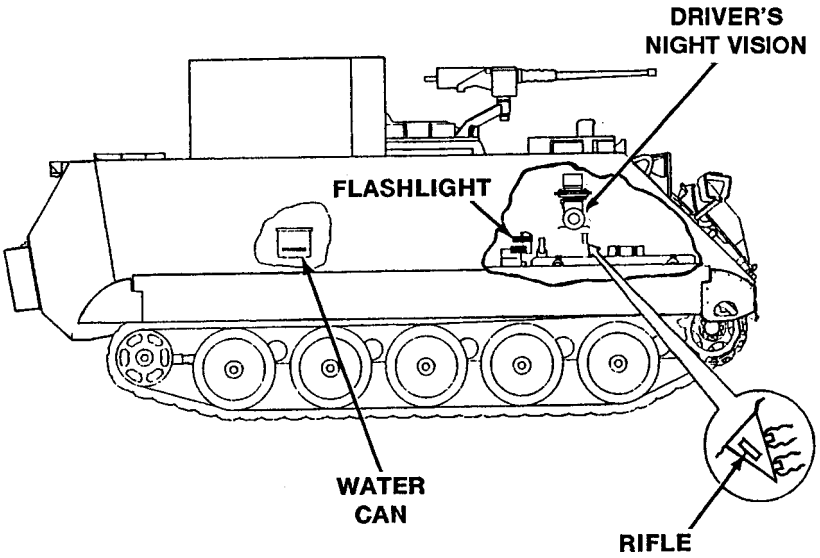
1. Decal, WARNING, multiple
2. Decal, WARNING, ramp lock
3. Decal, information, tools
4. Decal, WARNING, noise
5. Plate, identification, fire extinguisher
6. Plate, instruction, battery service
7. Decal, identification, periscope, M17
8. Plate, identification, fire extinguisher
9. Decal, identification, flashlight
10. Plate, identification, first aid kit
11. Plate, identification, rifle
12. Plate, identification, 5.56 ammunition
13. Plate, identification, spare barrel
14. Plate, identification, spare head
15. Decal, WARNING, carbon monoxide (LARGE)

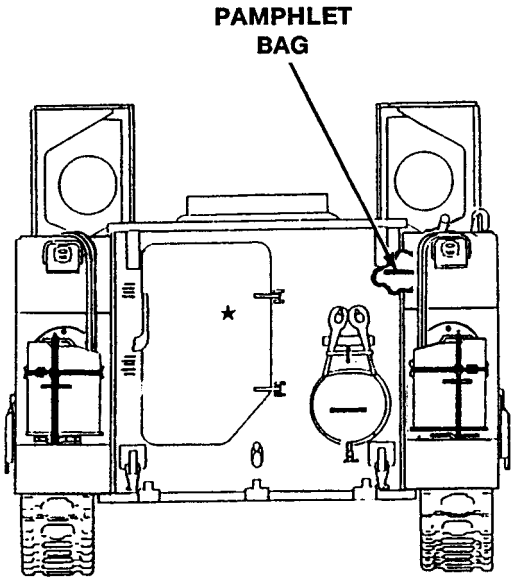
STOWAGE GUIDE - M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER DECALS AND STENCILS

NOTE

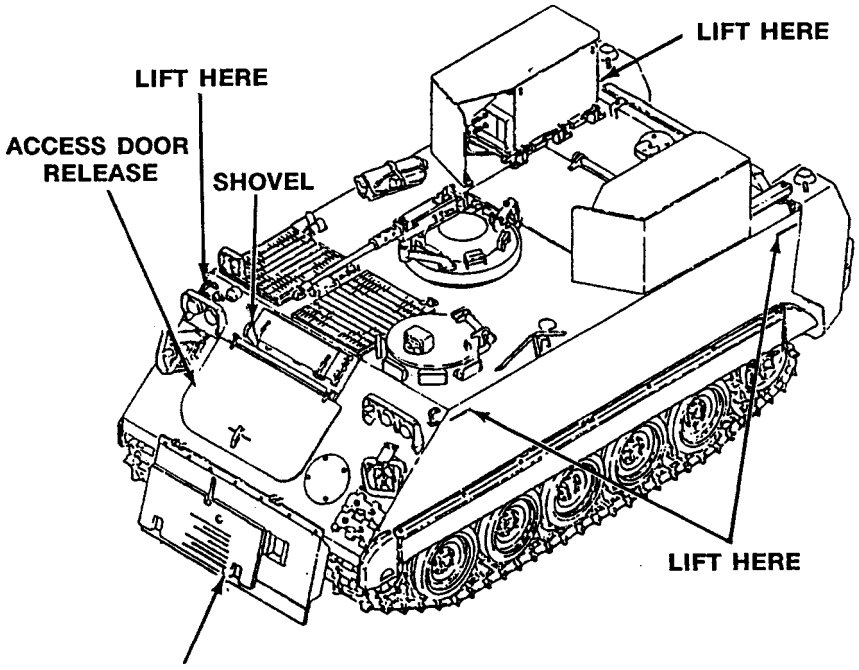
Signs outlined with boxes are decals applied in locations shown. Signs not outlined with boxes are stencils. Signs underlined are information.



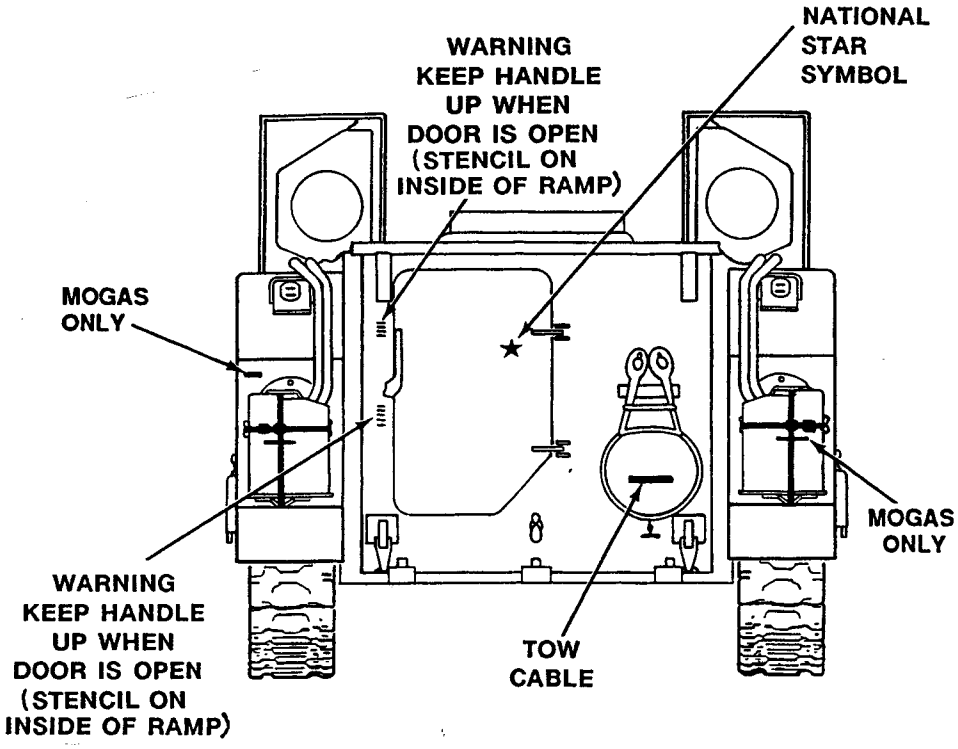

DRIVER'S
NIGHT VISION
FLASHLIGHT
WATER
CAN
RIFLE


PAMPHLET
BAG

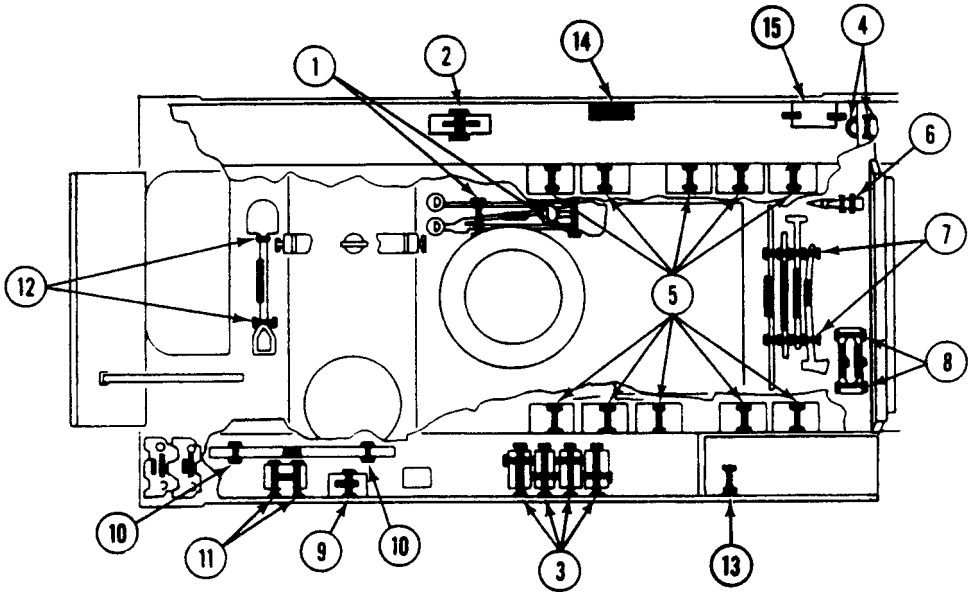
STOWAGE GUIDE - M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER STENCILS



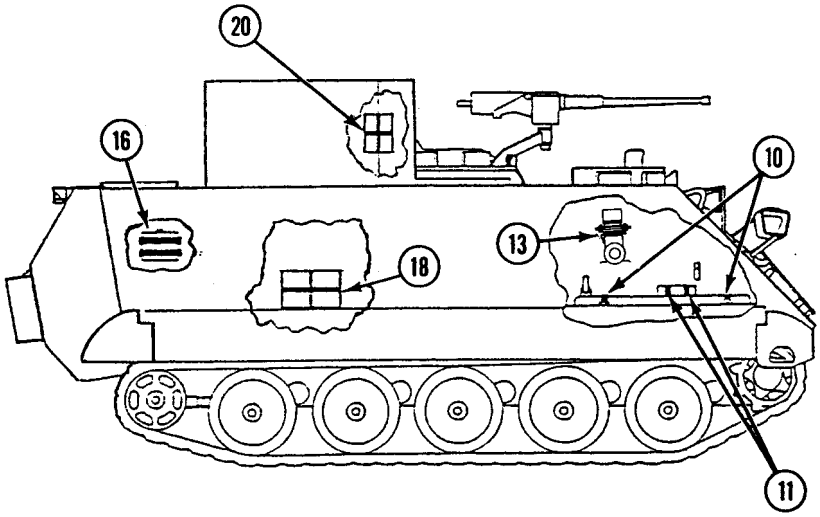
CHECK FOR WATER OPERATION
DRAIN PLUGS
BILGE PUMPS
HATCHES
LOAD DISTRIBUTION
TRACK SHROUDS

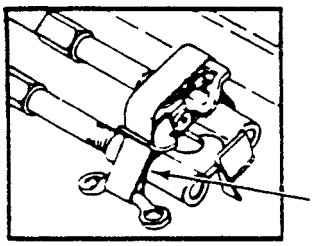

NATIONAL STAR SYMBOL
WARNING KEEP HANDLE UP WHEN DOOR IS OPEN (STENCIL ON INSIDE OF RAMP)
MOGAS ONLY
MOGAS ONLY
WARNING KEEP HANDLE UP WHEN DOOR IS OPEN (STENCIL ON INSIDE OF RAMP)
TOW CABLE

STOWAGE GUIDE - M1059A3 FULL TRACKED SMOKE GENERATOR CARRIER STRAPPING DIAGRAM

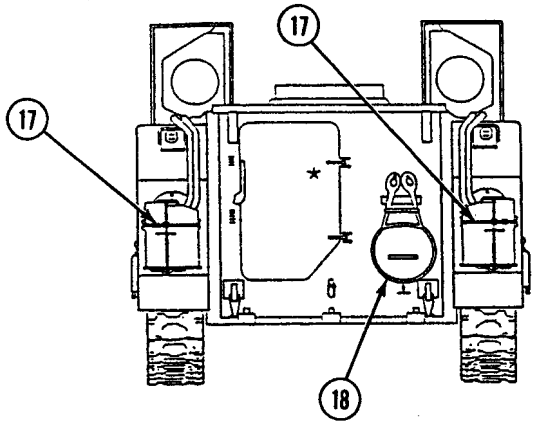


STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tripod	2	36
2	Tool bag	1	48
3	Ammunition box, caliber .50	Suggested use only, no straps furnished	
4	Fire extinguisher	2	24
5	Miscellaneous stowage	10	39
6	Mattock	1	24
7	Pioneer tools	2	36
8	Track fixture	2	28
9	First aid kit	1	24
10	Spare barrel, caliber .50	2	24
11	Ammunition cases, rifle, 5.56 mm	2	45
12	Shovel	2	33, 20
13	Miscellaneous stowage	1	48
14	Water can	2	72
15	Spare M17 periscope	0	-



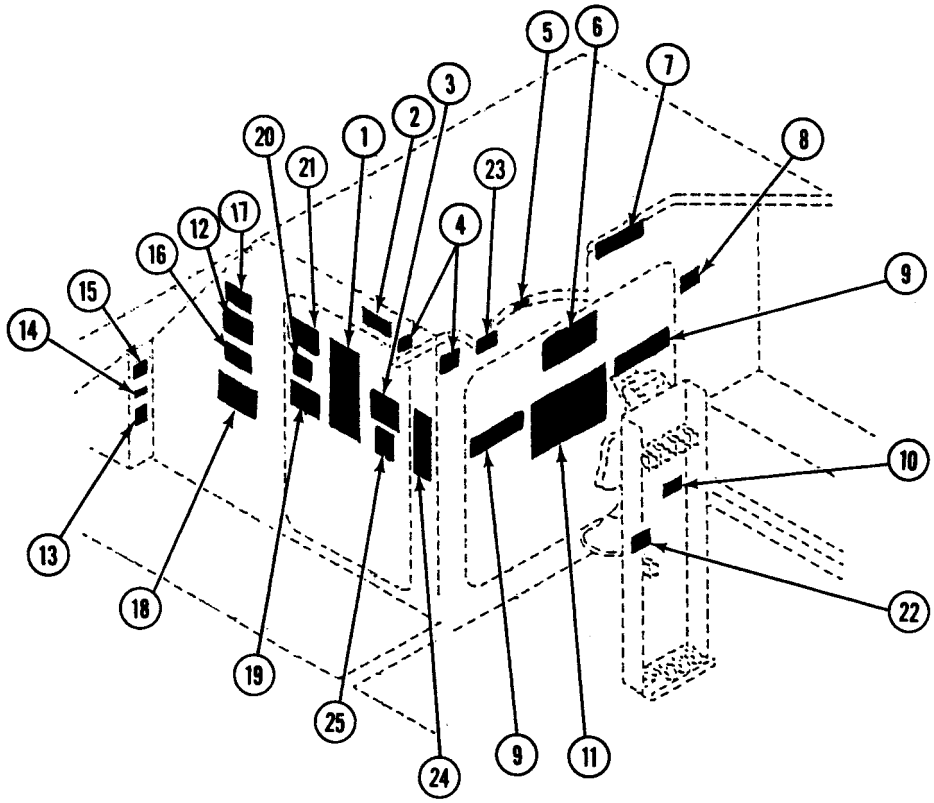


PROPER METHOD OF STRAPPING. MAKE CERTAIN BOTH LOOPS PASS OVER TOP OF SECURED ITEM.

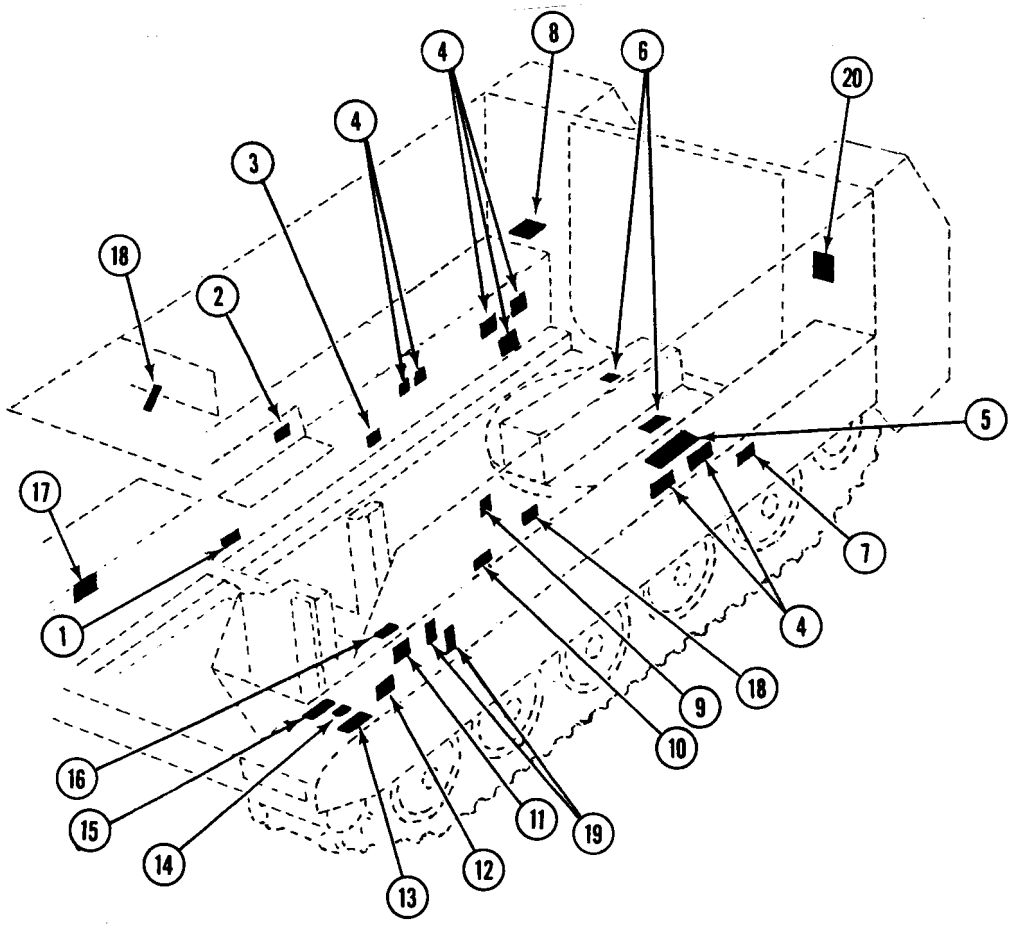


STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
16	Driver's night vision viewer AN/VVS-2	1	24
17	MOGAS	4	72, 88, 108
18	Tow cable	2	18, 30
19	Driver's windshield bag	3	68
20	Decon can M13	2	72

STOWAGE GUIDE - M1064A3 120-MM SELF PROPELLED MORTAR PLATE, MARKER, AND DECAL LOCATIONS

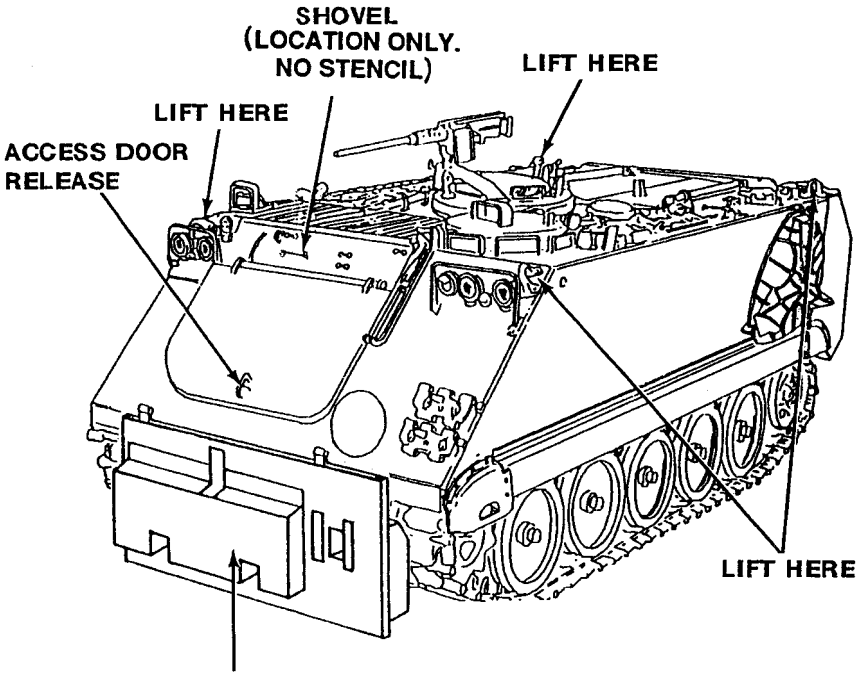


1. Marker, instruction, vehicle operation
2. Marker, WARNING, ramp lock
3. Marker, instruction, power train maintenance
4. Marker, instruction, ramp lock
5. Marker, WARNING, mortar alignment
6. Marker, WARNING, water operation
7. Marker, identification, curtain air grille
8. Marker, WARNING, personnel/equipment heater
9. Marker, identification, pamphlet bag
10. Marker, identification, rifle
11. Decal, WARNING, carbon monoxide (LARGE)
12. Decal, WARNING, pivot steer
13. Marker, engine idling
14. Marker, throttle
15. Decal, fuel shutoff
16. Marker, instruction, ramp actuating lever
17. Marker, WARNING, stall check
18. Plate, identification, vehicle
19. Plate, identification, vehicle shipping data
20. Marker, instruction, ramp operation
21. Marker, instruction, speed shift limit
22. Decal, identification, sight unit
23. Marker, identification, carc unit
24. Marker, WARNING, exhaust gas
25. Marker, CAUTION, noise

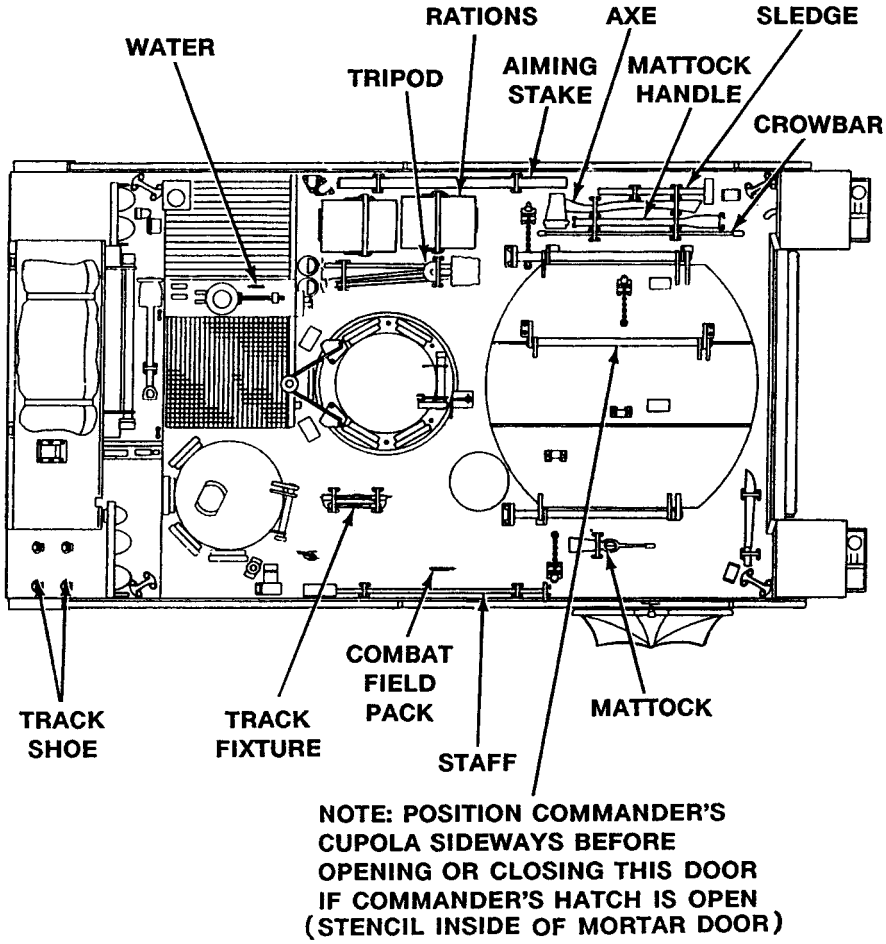

8
4
6
20
4
3
18
2
5
17
7
1
4
18
9
10
16
15
11
19
14
12
13

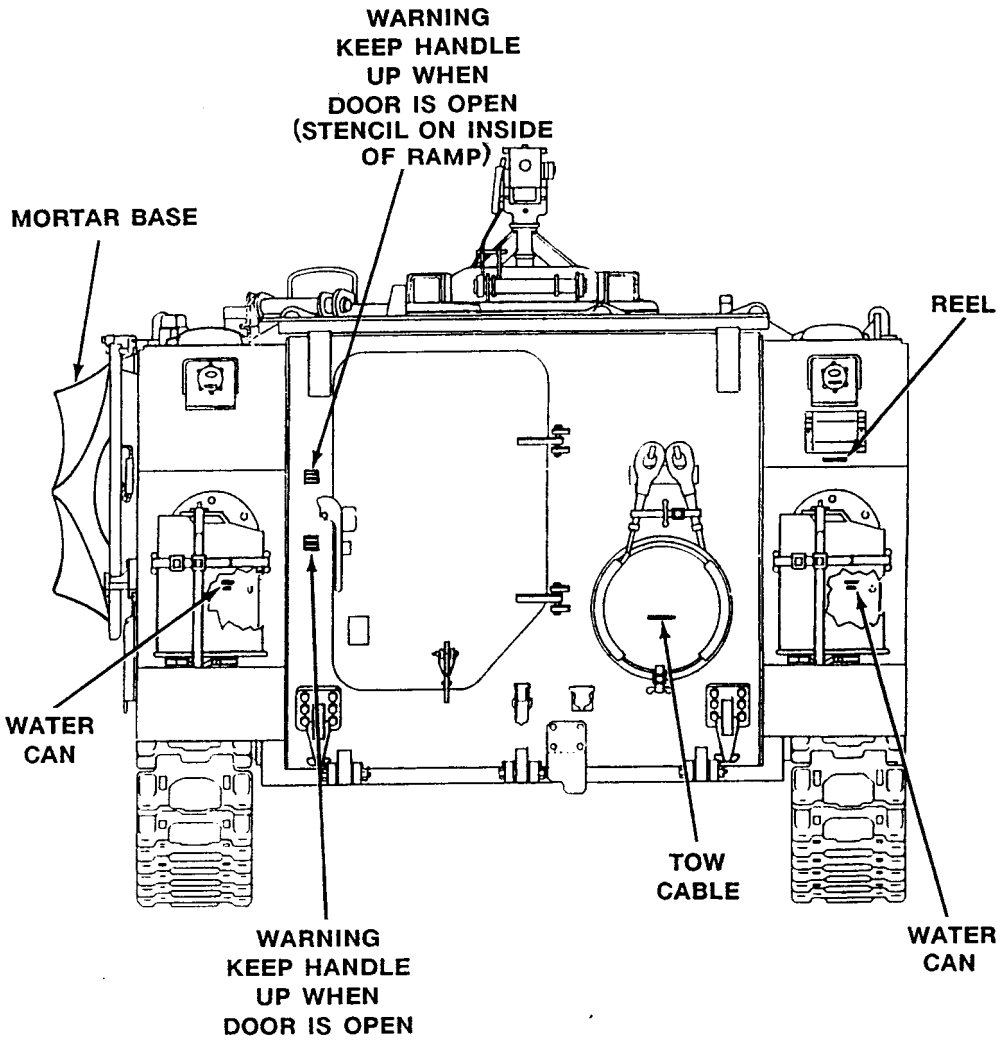
1. Decal, machete
2. Decal, panel set
3. Decal, sight unit
4. Decal, 50 cal ammunition
5. Decal, gun tool kit
6. Decal, 5.56 mm ammunition
7. Decal, boresight
8. Marker, driver's windshield
9. Decal, CAUTION, fire extinguisher safety wire
10. Decal, flashlight
11. Decal, CAUTION, master switch
12. Decal, tools
13. Decal, spare barrel
14. Decal, first aid kit
15. Decal, periscope
16. Decal, spare head
17. Decal, WARNING, NBC, engine air cleaner
18. Decal, identification, fan oil gauge and fill
19. Decal, CAUTION, grenades
20. Marker, identification, fuel supply/return

STOWAGE GUIDE - M1064A3 120-MM SELF PROPELLED MORTAR STENCIL LOCATIONS

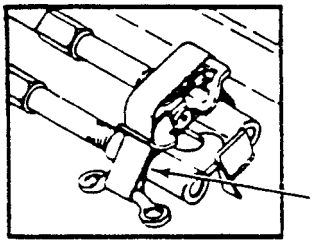


CHECK FOR WATER OPERATION
- DRAIN PLUGS
- BILGE PUMPS
- HATCHES
- LOAD DISTRIBUTION
- TRACK SHROUDS
- AIR GRILLE CURTAIN

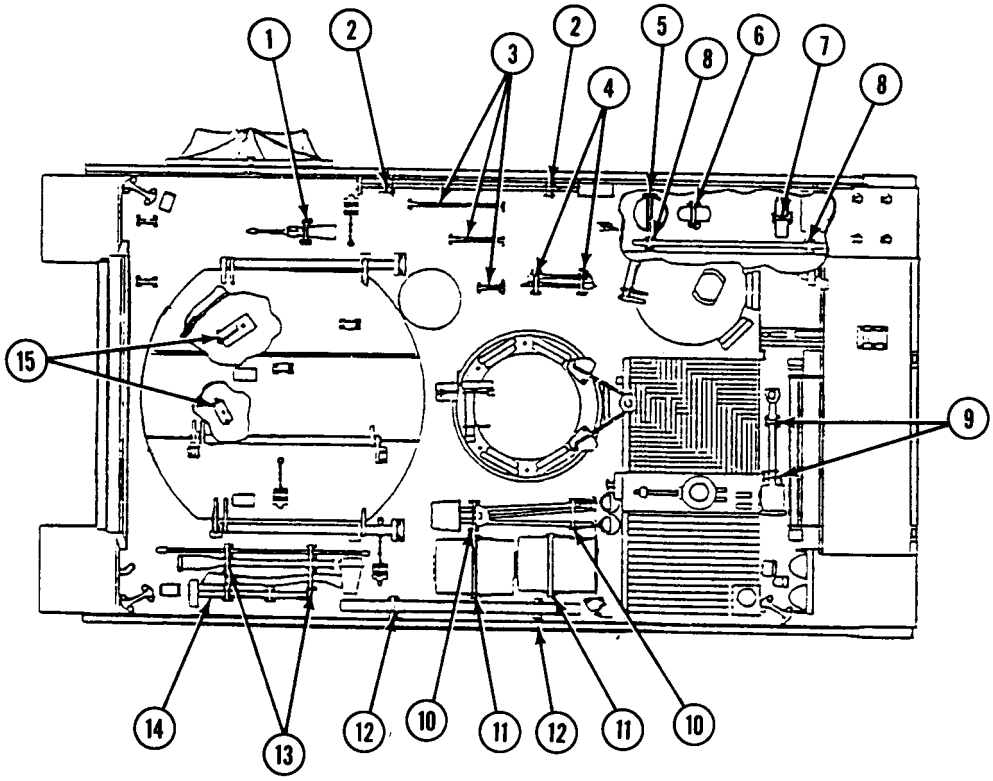

WATER
TRIPOD
RATIONS
AIMING STAKE
AXE
MATTOCK HANDLE
SLEDGE
CROWBAR
TRACK SHOE
TRACK FIXTURE
COMBAT FIELD PACK
STAFF
MATTOCK
NOTE: POSITION COMMANDER'S CUPOLA SIDEWAYS BEFORE OPENING OR CLOSING THIS DOOR IF COMMANDER'S HATCH IS OPEN (STENCIL INSIDE OF MORTAR DOOR)


WARNING
KEEP HANDLE
UP WHEN
DOOR IS OPEN
(STENCIL ON INSIDE
OF RAMP)
MORTAR BASE
REEL
WATER
CAN
TOW
CABLE
WARNING
KEEP HANDLE
UP WHEN
DOOR IS OPEN
WATER
CAN

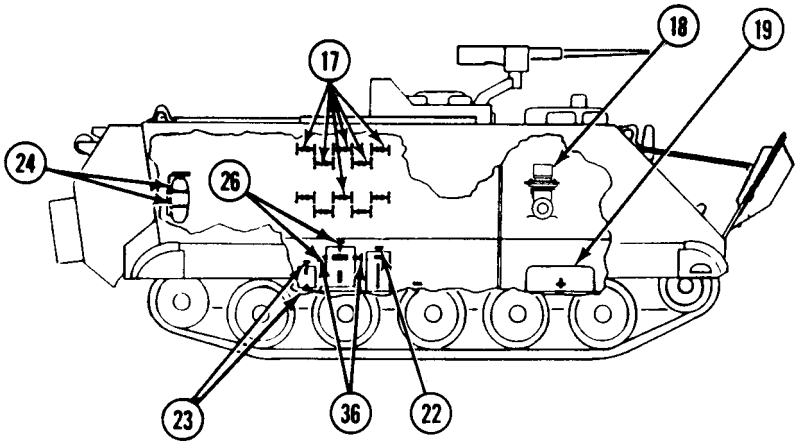
STOWAGE GUIDE - M1064A3 120-MM SELF PROPELLED MORTAR STRAPPING DIAGRAM

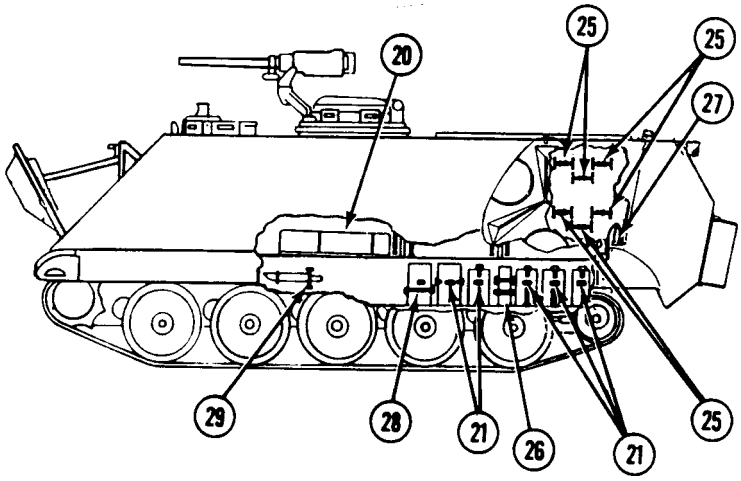


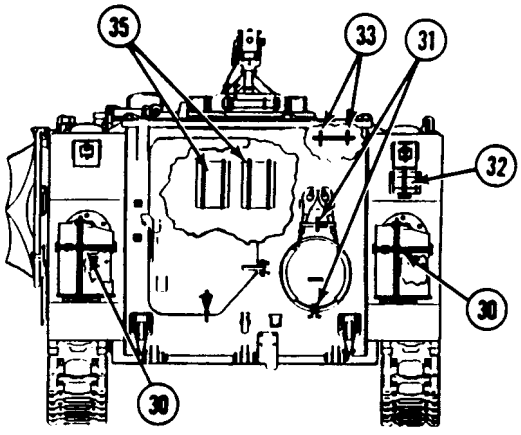
PROPER METHOD OF STRAPPING. MAKE CERTAIN BOTH LOOPS PASS OVER TOP OF SECURED ITEM.

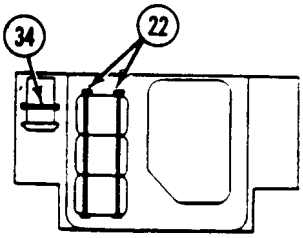


STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Mattock	1	24
2	Cleaning staff	2	12
3	Field packs	3	80, 64, 48
4	Track fixture	2	18
5	Cock set	1	36
6	Binoculars	1	48
7	First aid kit	1	39
8	Machine gun, spare barrel, .50 cal	2	14
9	Shovel	2	20, 33
10	Tripod	2	36
11	Field rations	2	64
12	Aiming post M1A3	2	16
13	Pioneer tools	2	30, 39
14	Sledge hammer	1	12
15	Ammunition boxes, rifle 5.56	2	51, 57


18
19
17
24
26
23
36
22


25
25
20
27
29
28
21
26
21
25


35
33
31
32
30
30


34
22

STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
17	Mortar ammo cartridges	10	80
18	Driver's night vision viewer AN/VVS-2	1	24
19	Tool bag	1	36
20	Panel set	2	20
21	Ammo boxes, .50 cal	6	42, 45
22	Lighting chest	2	39, 54
23	Boresight	1	28
24	Fire extinguisher	2	24
25	Mortar ammo cartridges	6	80
26	Roll gun parts and tools	1	28
27	Driver's windshield bag	1	36
28	Sight unit carrying case	1	51
29	Machete	1	16
30	Water can	4	72
31	Tow cable	2	30, 18
32	Reel	1	48
33	Air grille curatin	2	30
34	Portable radio set	1	36
35	Pamphlet bag	4	30
36	Sleeping bags/duffle bags	2	174

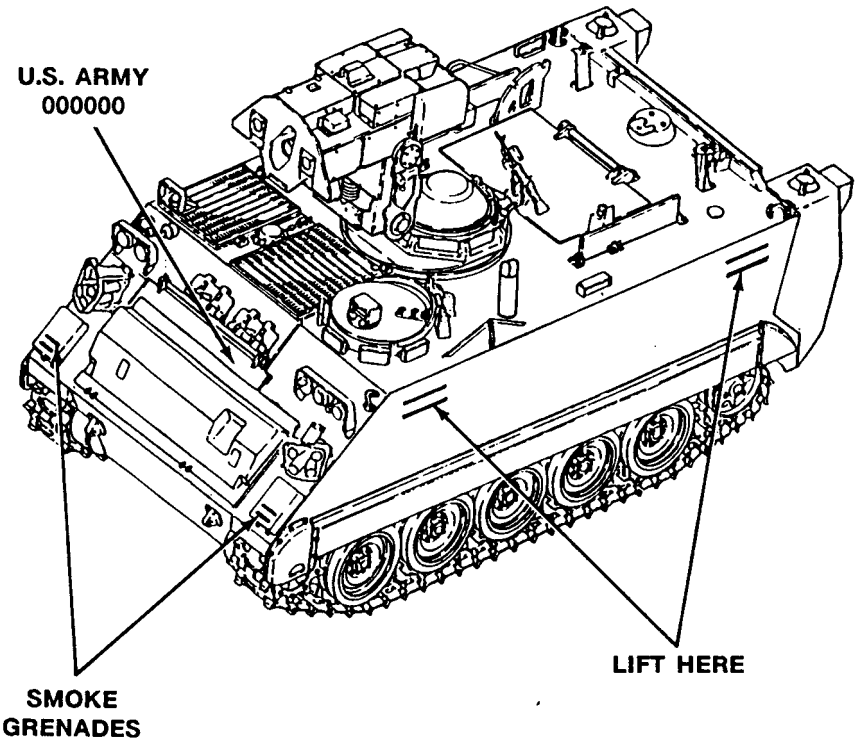
STOWAGE GUIDE - M901A3 EXTERNAL SIGNS, DECALS, AND DATA PLATES

NOTE

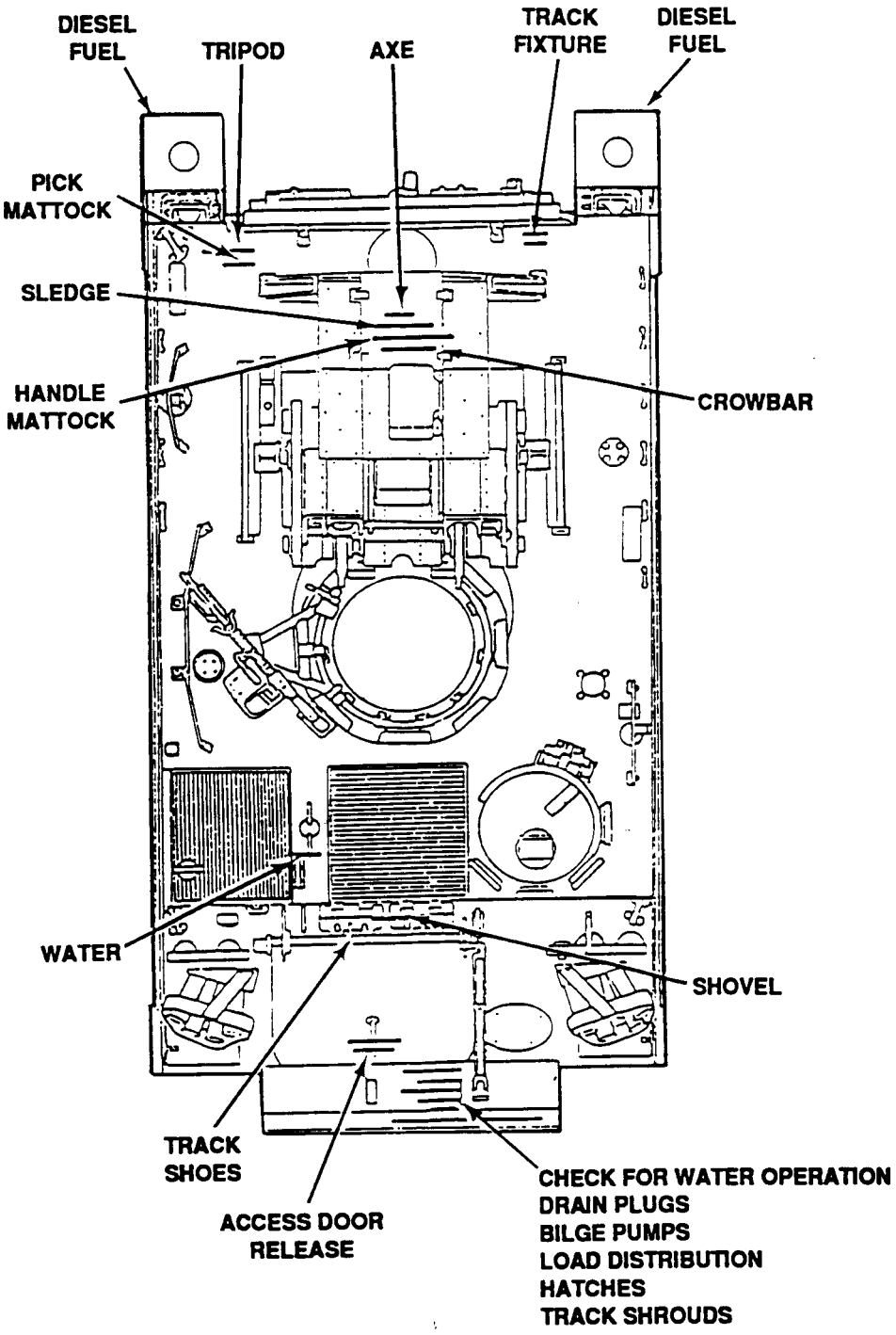
The locations of, types of, and information about the decals and signs on the M901A3 vehicle are provided. Many of these decals and signs mark places where equipment should be stowed. Some are cautions, warnings, or instructions needed to operate the M901A3 vehicle.

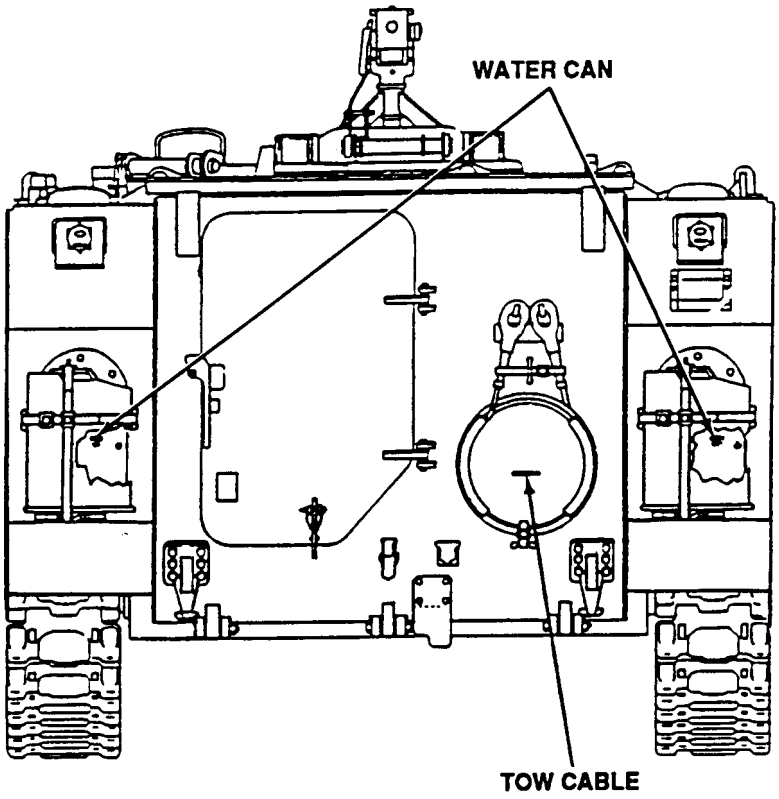
NOTE

Signs outlined with boxes are decals. Signs not outlined with boxes are stencils.

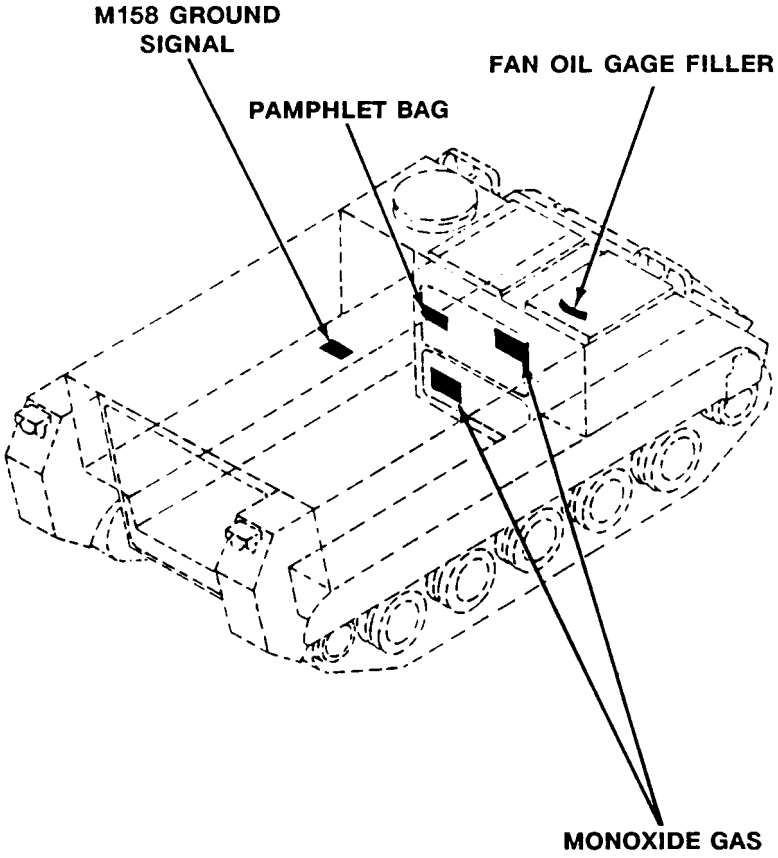


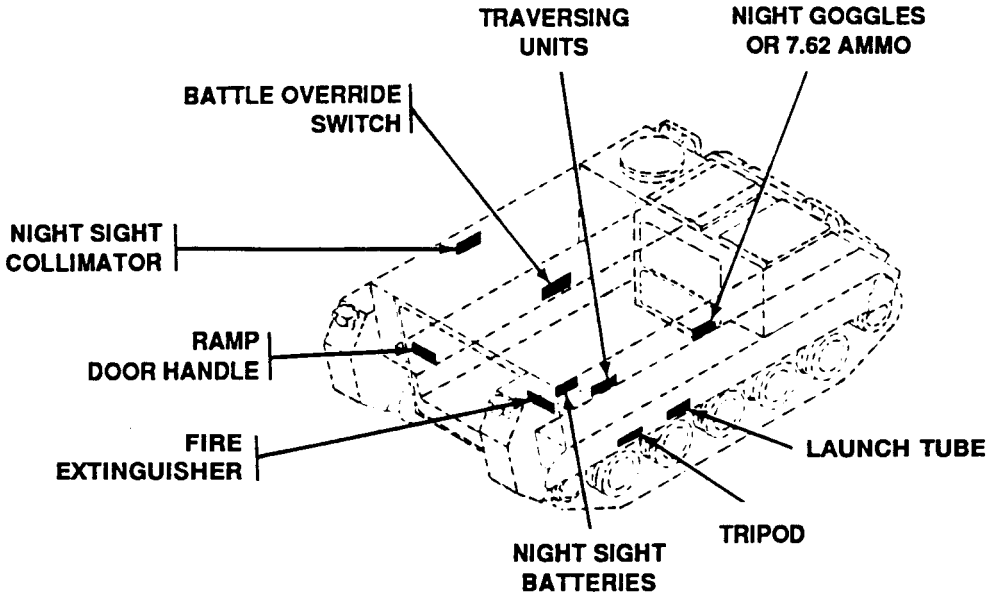
STOWAGE AND SIGN GUIDE—Continued 0105 00

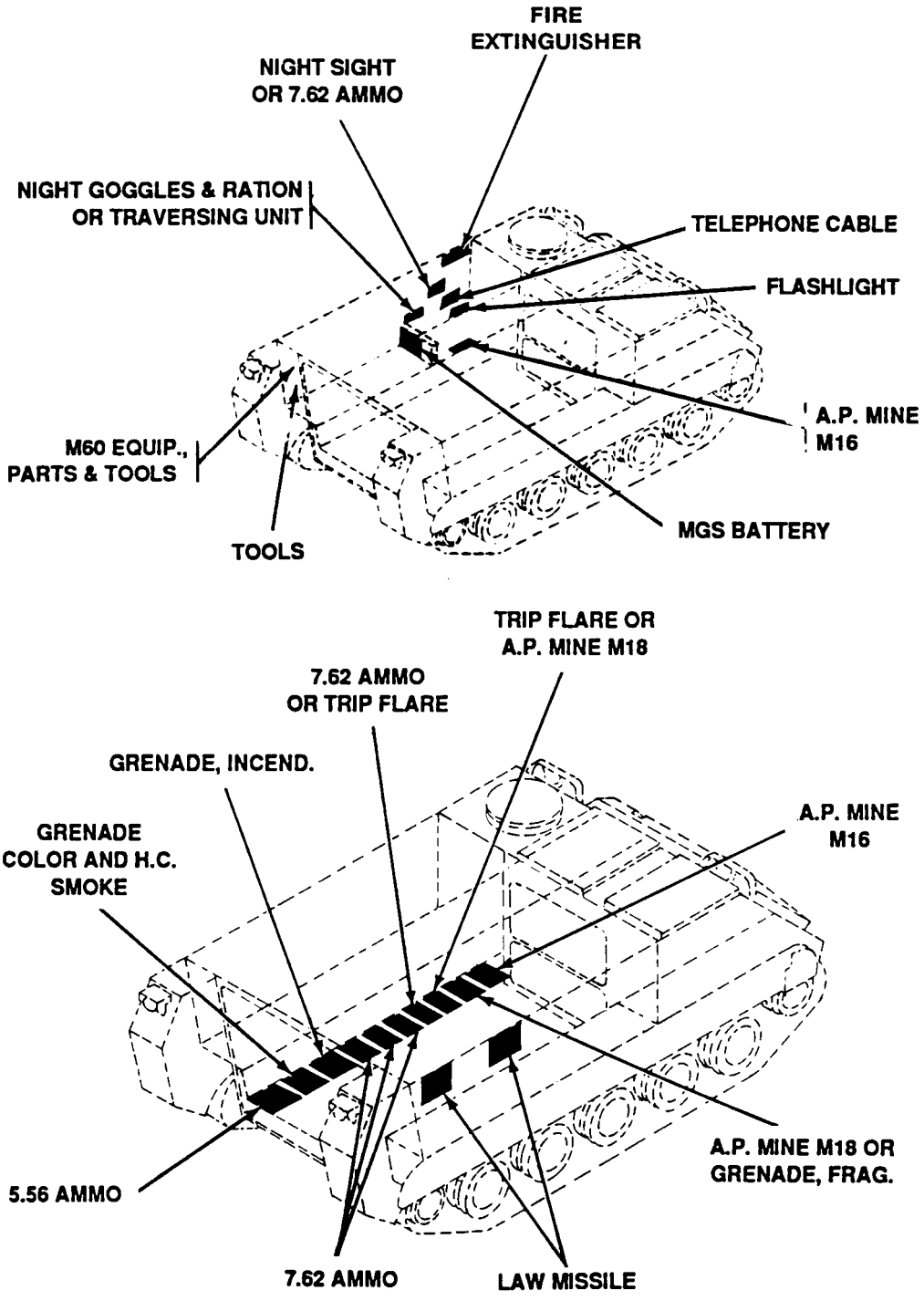


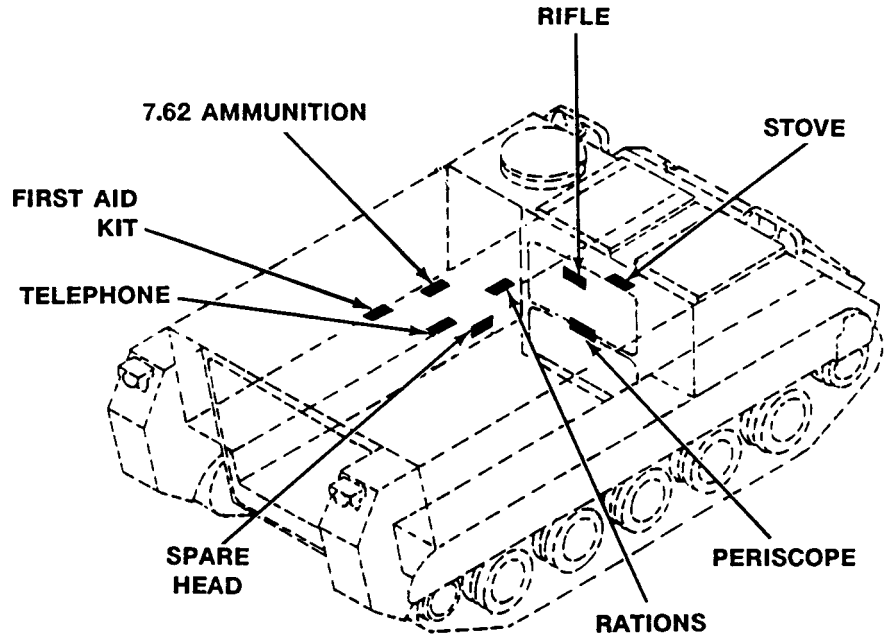

WATER CAN
TOW CABLE

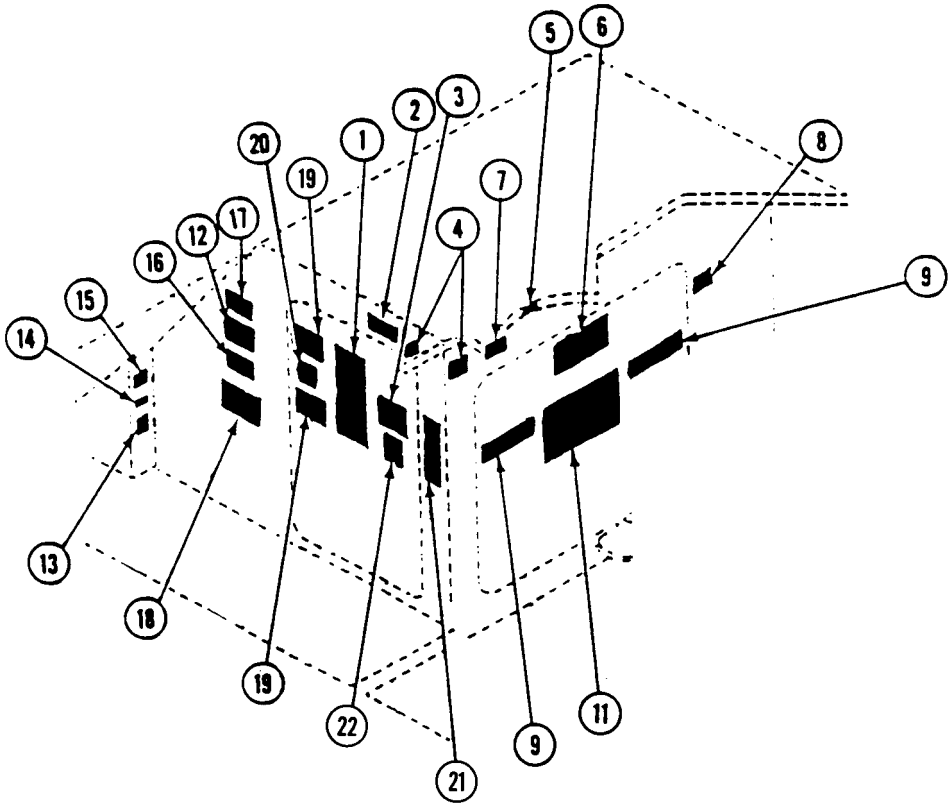
STOWAGE GUIDE - M901A3 INTERNAL SIGNS, DECALS, AND DATA PLATES





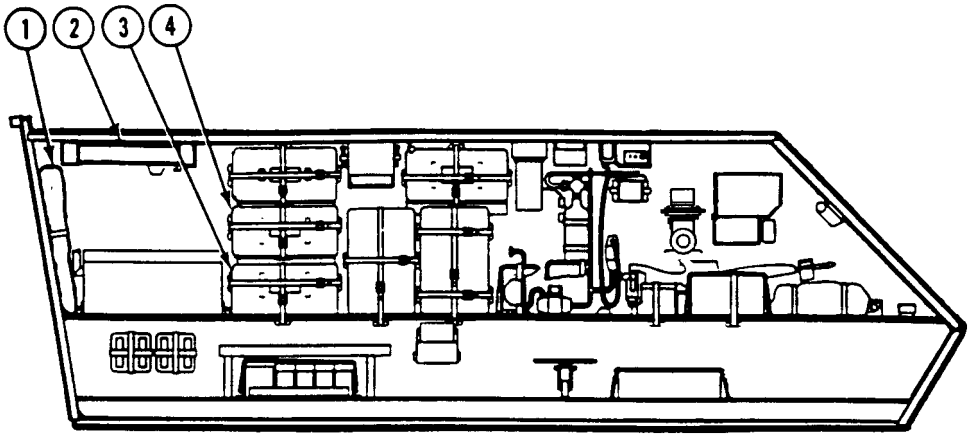

FIRE EXTINGUISHER
NIGHT SIGHT OR 7.62 AMMO
NIGHT GOGGLES & RATION OR TRAVERSING UNIT
TELEPHONE CABLE
FLASHLIGHT
A.P. MINE M16
M60 EQUIP., PARTS & TOOLS
TOOLS
MGS BATTERY
TRIP FLARE OR A.P. MINE M18
7.62 AMMO OR TRIP FLARE
GRENADE, INCEND.
A.P. MINE M16
GRENADE COLOR AND H.C. SMOKE
A.P. MINE M18 OR GRENADE, FRAG.
5.56 AMMO
7.62 AMMO
LAW MISSILE


RIFLE
7.62 AMMUNITION
STOVE
FIRST AID KIT
TELEPHONE
SPARE HEAD
PERISCOPE
RATIONS

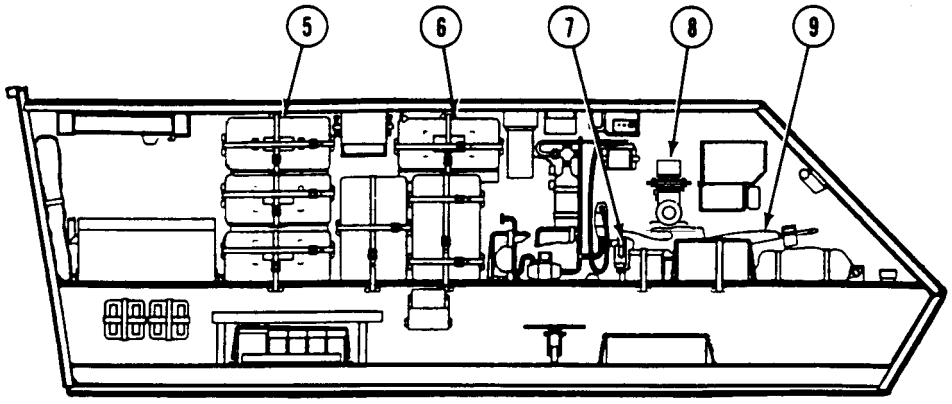

1
2
3
4
5
6
7
8
9
11
12
13
14
15
16
17
18
19
20
21
22

1. Marker, instruction, vehicle operation
2. Marker, WARNING, ramp lock
3. Marker, instruction, power train maintenance
4. Marker, instruction, ramp lock
5. Marker, WARNING, mortar alignment
6. Marker, WARNING, water operation
7. Marker, WARNING, personnel/equipment heater
8. Marker, identification, pamphlet bag
9. Decal, WARNING, carbon monoxide (LARGE)
10. Decal, WARNING, pivot steer
11. Marker, engine idling
12. Marker, throttle
13. Decal, fuel shutoff
14. Marker, instruction, ramp actuating lever
15. Marker, WARNING, stall check
16. Plate, identification, vehicle
17. Plate, identification, vehicle shipping data
18. Marker, instruction, ramp operation
19. Marker, instruction, speed shift limit
20. Marker, identification, carc paint
21. Marker, WARNING, exhaust gas
22. Marker, CAUTION, noise

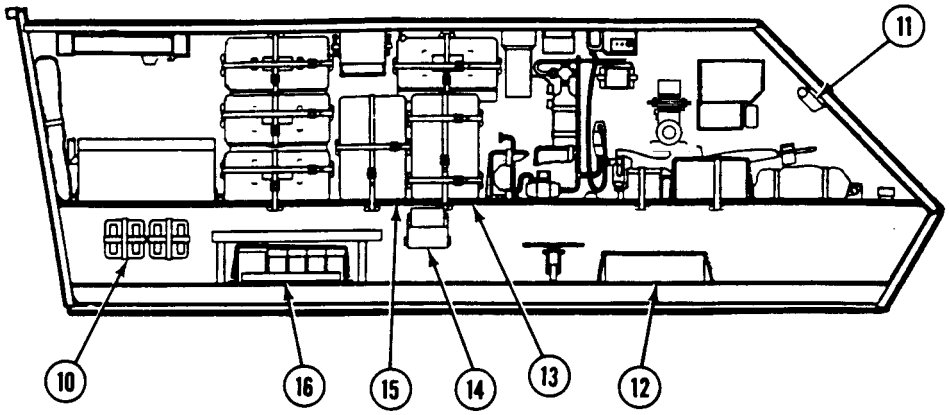
STOWAGE GUIDE - M981A3 FIRE SUPPORT TEAM VEHICLE (FISTV) STRAPPING DIAGRAM



STRAP KEY			
NO.	**ITEM**	**QUANTITY**	**LENGTH (INCHES)**
1	Spare barrel and cleaning equipment for M-60 machine gun	1	42
2	155 mm canister (for stowage)	2	42
3	Boresight collimator (with case)	1	108, 64
4	Boresight collimator (with case)	1	108, 84

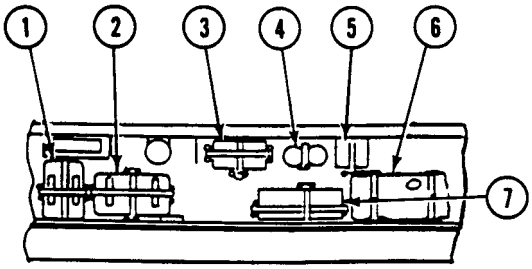


STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
5	AN/TAS-4 nightsight field handling case (with lens cleaning kit and battery)	1	100, 45
6	AN/TVS-5 crew served weapon night vision sight (with case and accessories)	1	104, 45
7	XM991 flashlight	0	-
8	Drivers night vision viewer AN/VVS-2	1	24
9	M16A1/A2 rifle	0	-

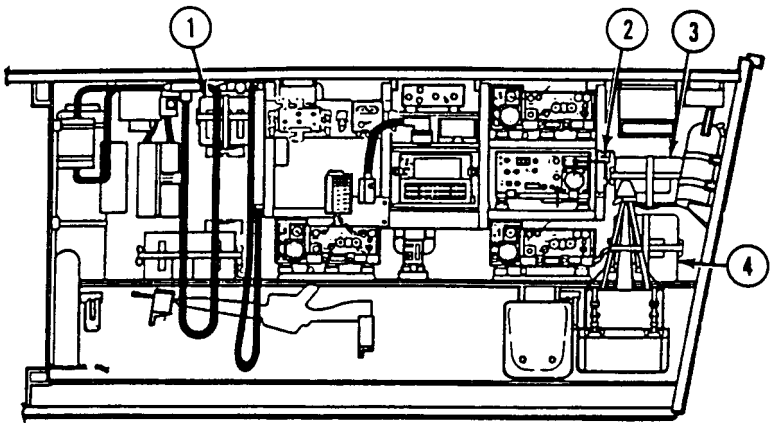


STRAP KEY (Cont)			
NO.	**ITEM**	**QUANTITY**	**LENGTH (INCHES)**
10	Night sight coolant	2	57, 64
11	XM991 flashlight	0	-
12	Individual meals (MRE)	1	80
13	LD/R backpack (with battery, external optics cleaning kit, vehicle cable, and cable assembly adapter)	2	100, 92
14	M17 periscope (spare)	0	-
15	Ancillary equipment transit assembly	1	92, 88
16	Ammo cans (4 ea 7.62 mm and 1 ea 5.56 mm)	2	76

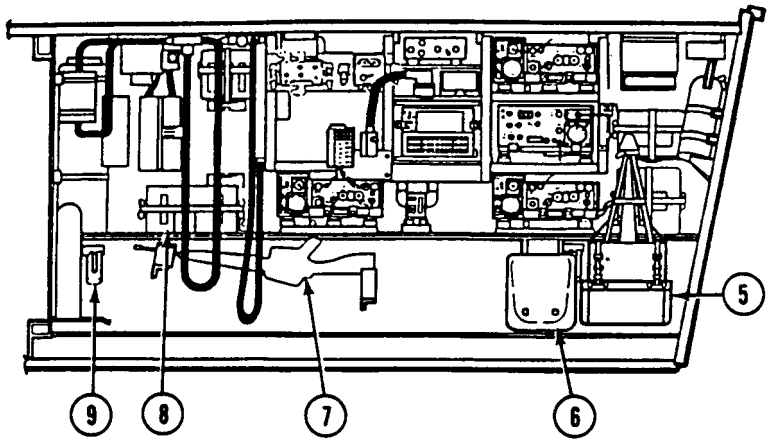
STOWAGE GUIDE - M981A3 FIRE SUPPORT TEAM VEHICLE (FISTV) STRAPPING DIAGRAM INTERNAL EQUIPMENT



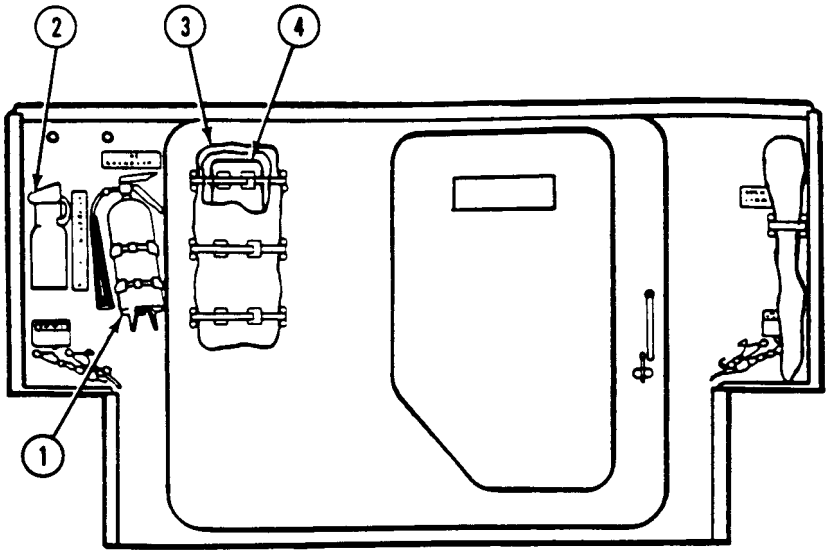
STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	AN/PVS-5 night vision goggles	1	60, 64
2	AN/GVS-5 laser infrared observation set (with case and accessories)	1	68, 64
3	First aid kit	1	39, 28
4	Binoculars (with case)	1	28
5	Stove	1	33
6	Tools (with case)	2	45
7	TA-312/PT telephone set (with case)	1	51, 45



STRAP KEY			
NO.	**ITEM**	**QUANTITY**	**LENGTH (INCHES)**
1	Nightsight batteries (with case)	1	64, 45
2	XM991 flashlight	0	-
3	Digital message device carrying case assembly (with accessories)	1	54, 45
4	AN/GRA-39 radio set control group	1	72, 54

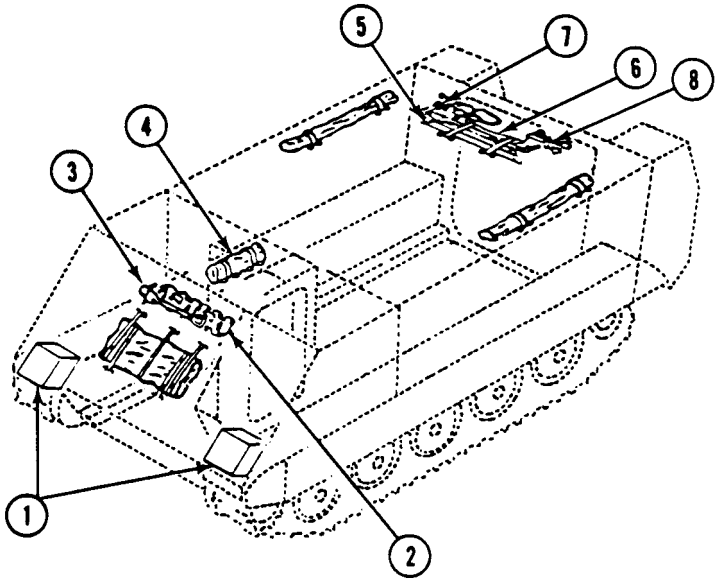


STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
5	Tripod/TU backpack (with tripod, TU, and BB-704/U battery)	2	64, 100
6	Map bag	0	-
7	M16A1/A2 rifle	0	-
8	TA-312/PT telephone set (with case)	1	64, 36
9	XM991 flashlight	0	-

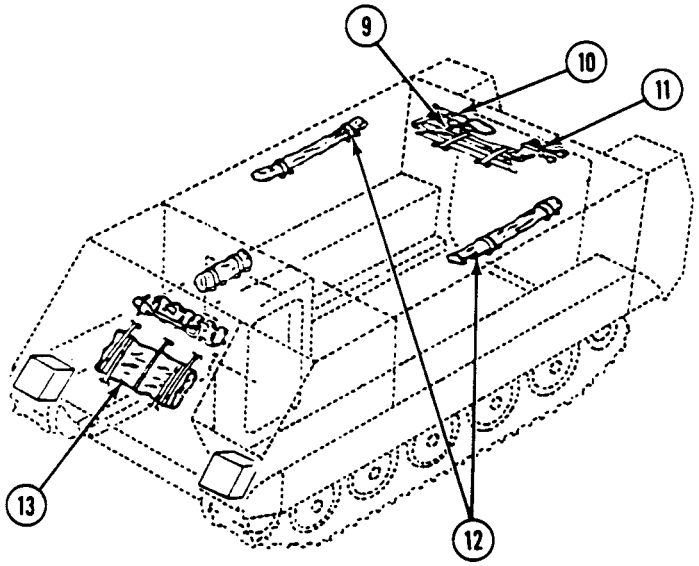


STRAP KEY			
NO.	**ITEM**	**QUANTITY**	**LENGTH (INCHES)**
1	Fire extinguisher	2 (with clamps, and 8 pins)	-
2	ABC-M11 portable decontaminating apparatus	0	-
3	Screen, camouflage	3	100
4	OE-254/GRC antenna group and AT-98/G antenna	3	57

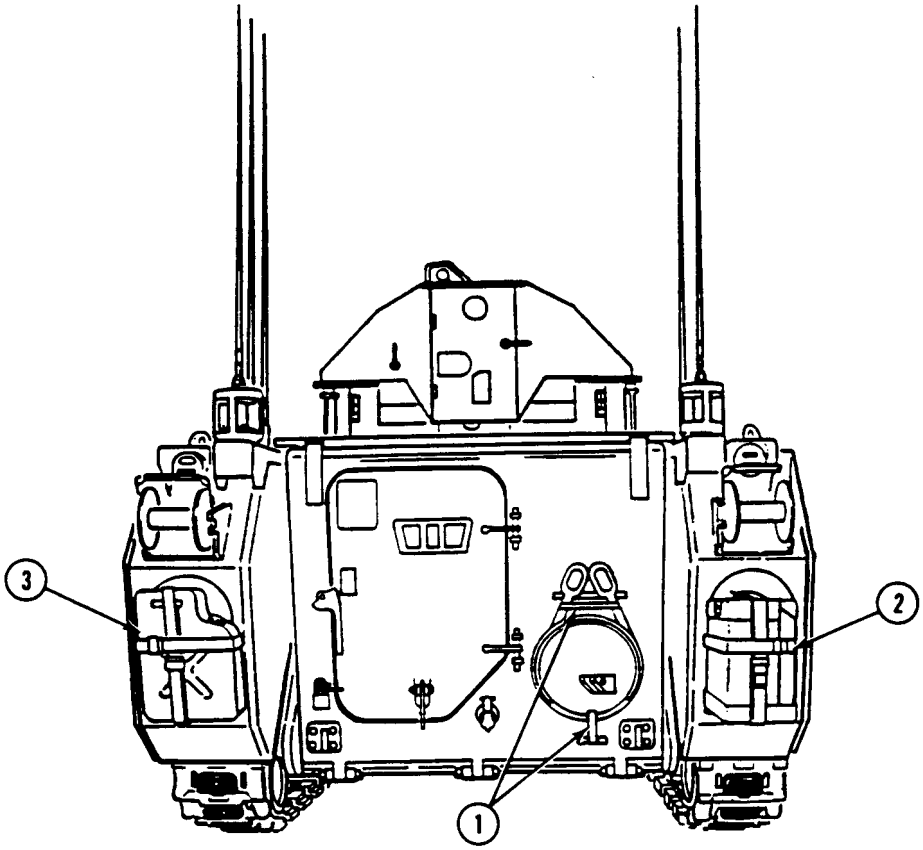
STOWAGE GUIDE - M981A3 FIRE SUPPORT TEAM VEHICLE (FISTV) STRAPPING DIAGRAM EXTERNAL EQUIPMENT



STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Smoke grenades (8 ea)	0	-
2	Spare track shoes (2 ea)	0	-
3	Shovel	1	26
4	Grille cover	0	-
5	Crowbar	0	-
6	Mattock handle	0	-
7	Sledge hammer	1	45
8	Axe	Note-Sledge hammer secured with 2 straps	45, 6



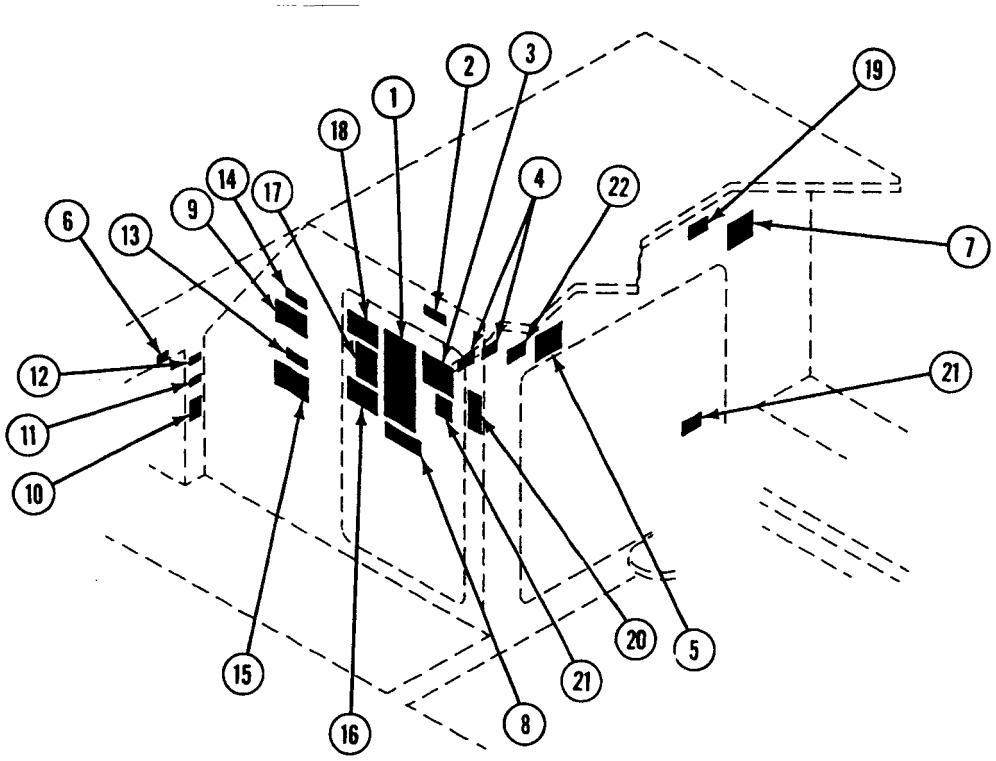
STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
9	Mattock	1	18
10	Tripod, machine gun	2	24
11	Track fixtures	2	28
12	Camouflage screen support system (with poles, 2 ea)	4	68
13	Screen , camouflage	5	104



STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tow cable	1	18*, 30*
2	Decontamination Apparatus for Vehicles (DAV) M13	2	72*
3	Water can	2	72*

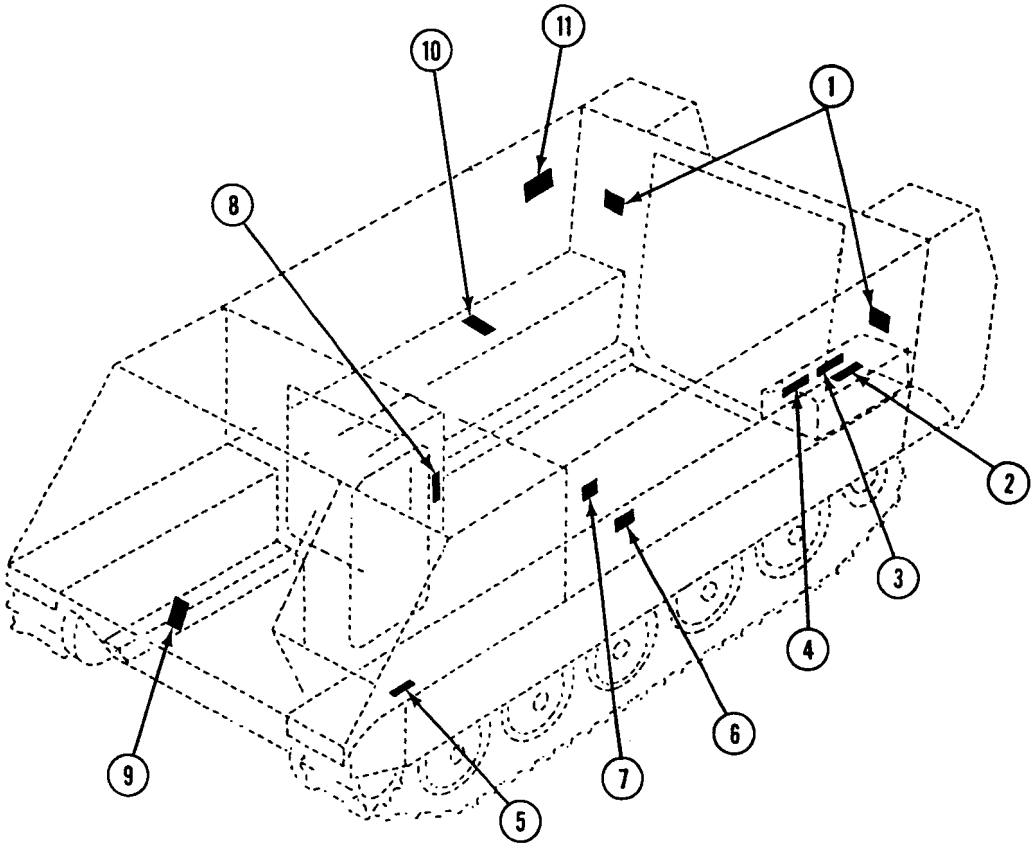
* Strap is 1-1/2 inches wide.

STOWAGE GUIDE - M58 FULL TRACKED MECHANIZED SMOKE OBSCURANT CARRIER DATAPLATE AND MARKER LOCATIONS



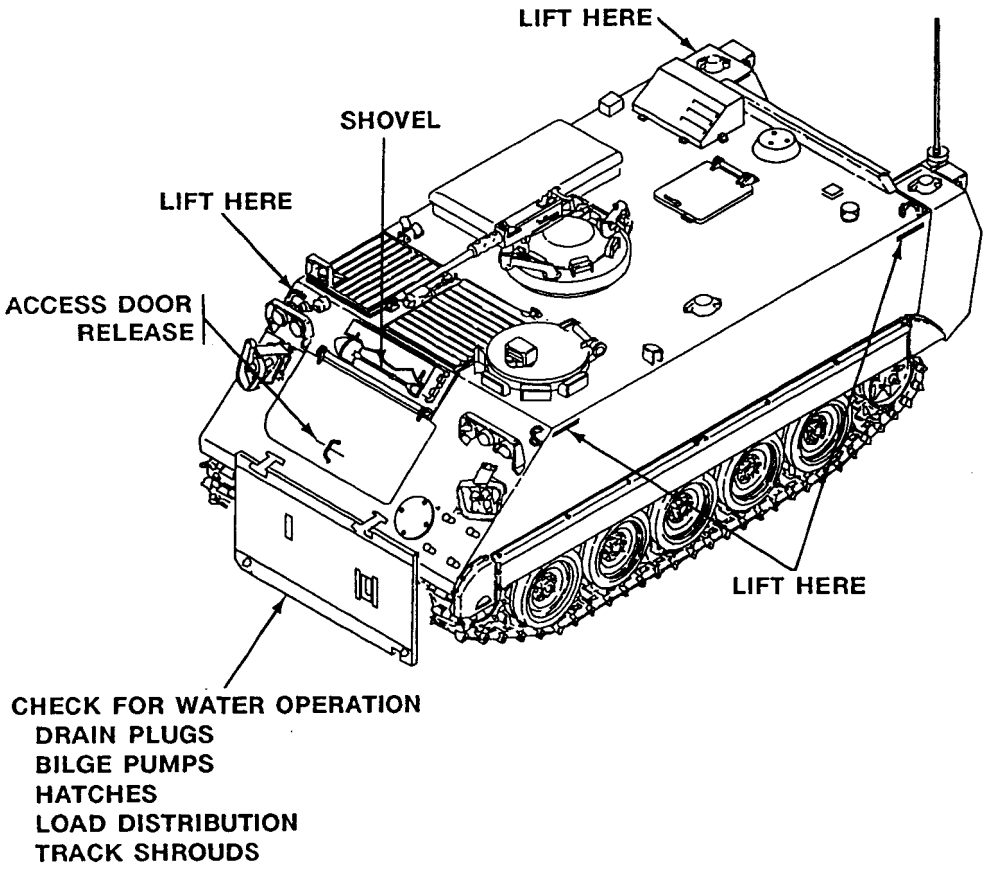
1. Marker, instruction, vehicle operation
2. Marker, instruction, ramp lock
3. Marker, instruction, power train maintenance
4. Marker, WARNING, ramp lock
5. Plate, information, warranty
6. Marker, tow start
7. Marker, WARNING, personnel/equipment heater
8. Marker, WARNING, multiple
9. Decal, WARNING, pivot steer
10. Plate, engine idling
11. Decal, throttle
12. Decal, fuel shutoff
13. Marker, instruction ramp actuating lever
14. Marker, WARNING, stall check
15. Plate, identification, vehicle
16. Plate, identification, vehicle shipping data
17. Marker, instruction, ramp operation
18. Marker, instruction, speed shift limit
19. Marker, identification, carc paint
20. Marker, WARNING, exhaust gas
21. Marker, CAUTION, noise
22. Marker, WARNING, exhaust gas

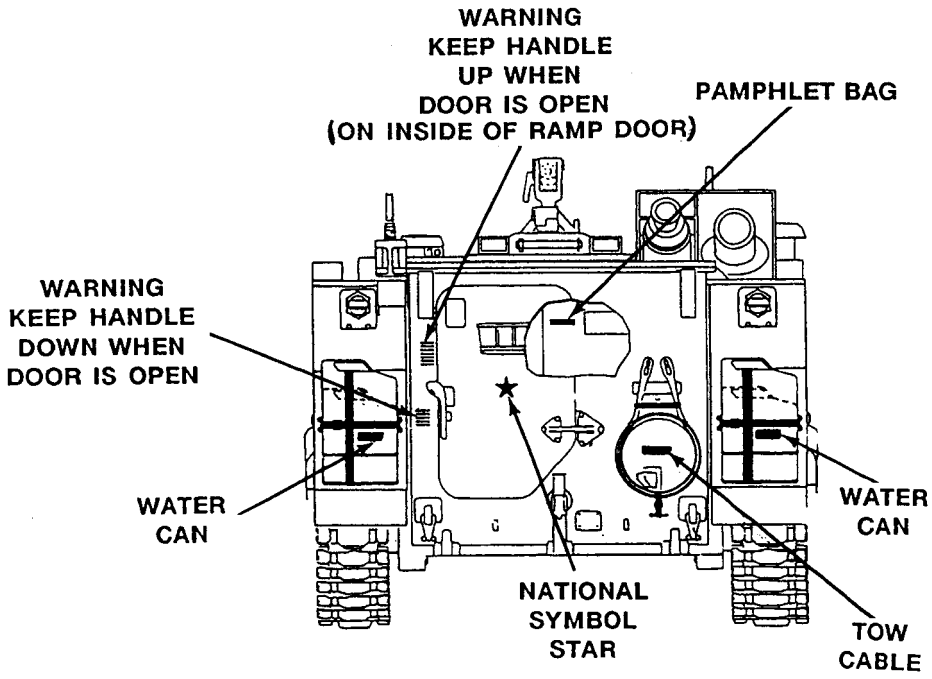
STOWAGE GUIDE - M58 FULL TRACKED MECHANIZED SMOKE OBSCURANT CARRIER MARKER AND DECAL LOCATIONS

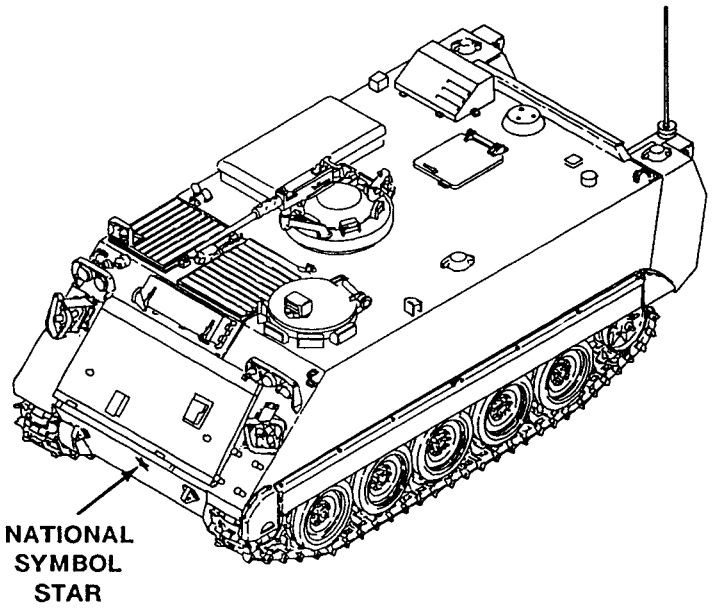


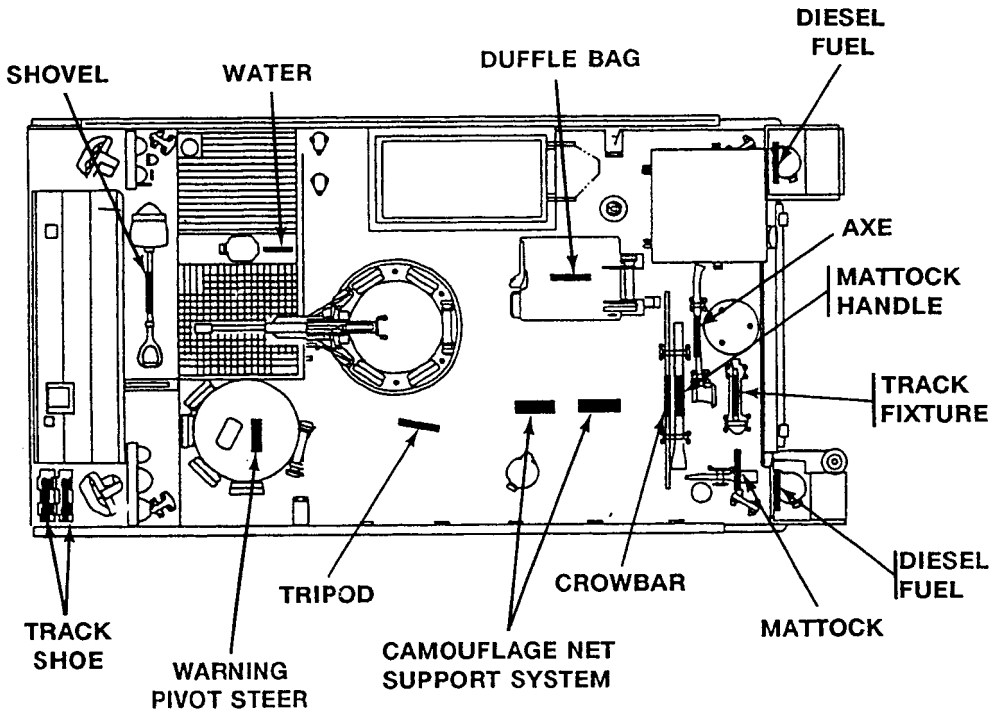
1. Marker, CAUTION, fuel supply and return
2. Marker, instruction, battery service
3. Marker, WARNING, battery gas
4. Marker, WARNING, battery acid
5. Decal, tool bag
6. Marker, WARNING, NBC system
7. Decal, CAUTION, fire extinguisher
8. Marker, WARNING, pivot steer
9. Marker, WARNING, power plant door (inside driver's hatch)
10. Marker, WARNING, hot surface
11. Marker, CAUTION, noise

STOWAGE GUIDE - M58 FULL TRACKED MECHANIZED SMOKE OBSCURANT CARRIER STENCIL LOCATIONS




WARNING
KEEP HANDLE
UP WHEN
DOOR IS OPEN
(ON INSIDE OF RAMP DOOR)
PAMPHLET BAG
WARNING
KEEP HANDLE
DOWN WHEN
DOOR IS OPEN
WATER
CAN
WATER
CAN
NATIONAL
SYMBOL
STAR
TOW
CABLE


NATIONAL
SYMBOL
STAR

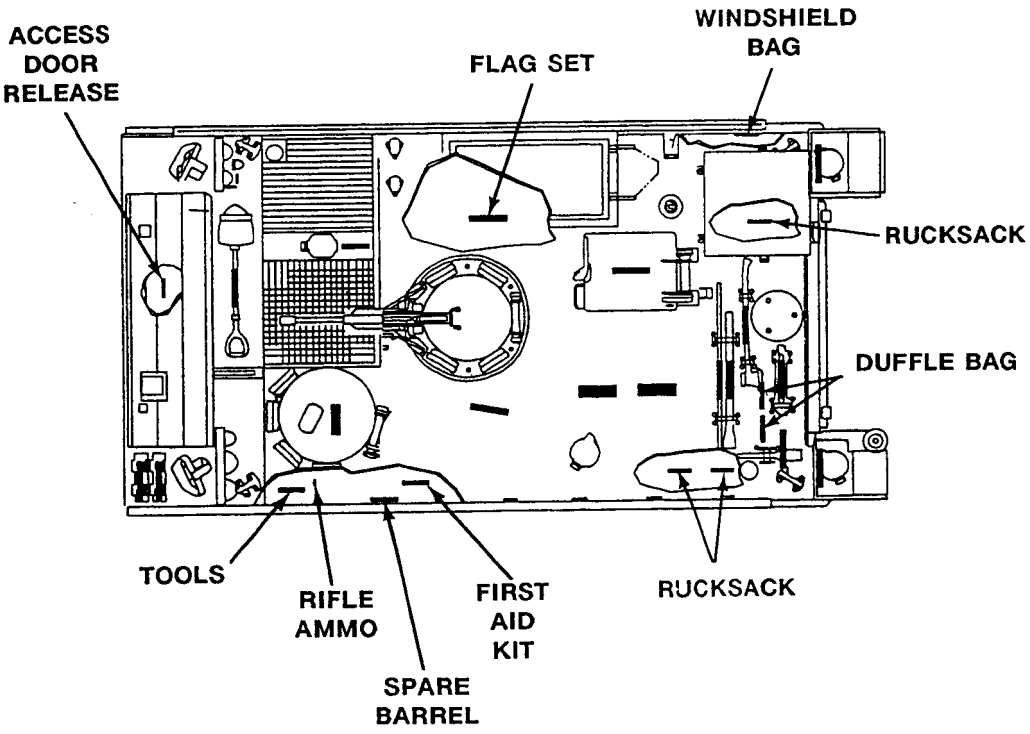

SHOVEL
WATER
DUFFLE BAG
DIESEL FUEL
AXE
MATTOCK HANDLE
TRACK FIXTURE
DIESEL FUEL
MATTOCK
CROWBAR
TRIPOD
CAMOUFLAGE NET SUPPORT SYSTEM
WARNING PIVOT STEER
TRACK SHOE

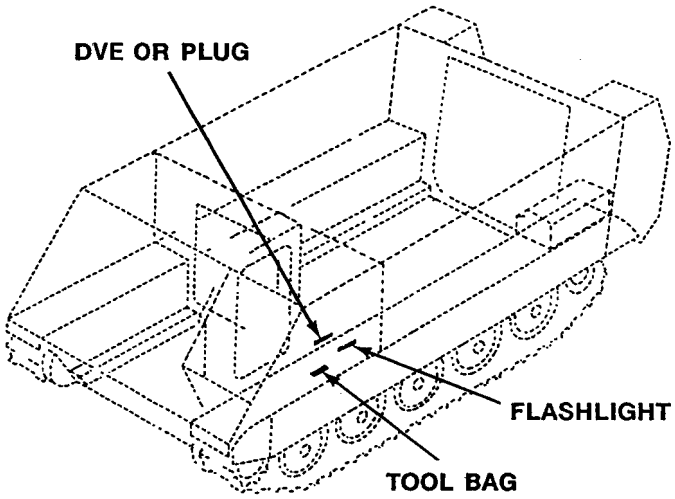
TOP VIEW

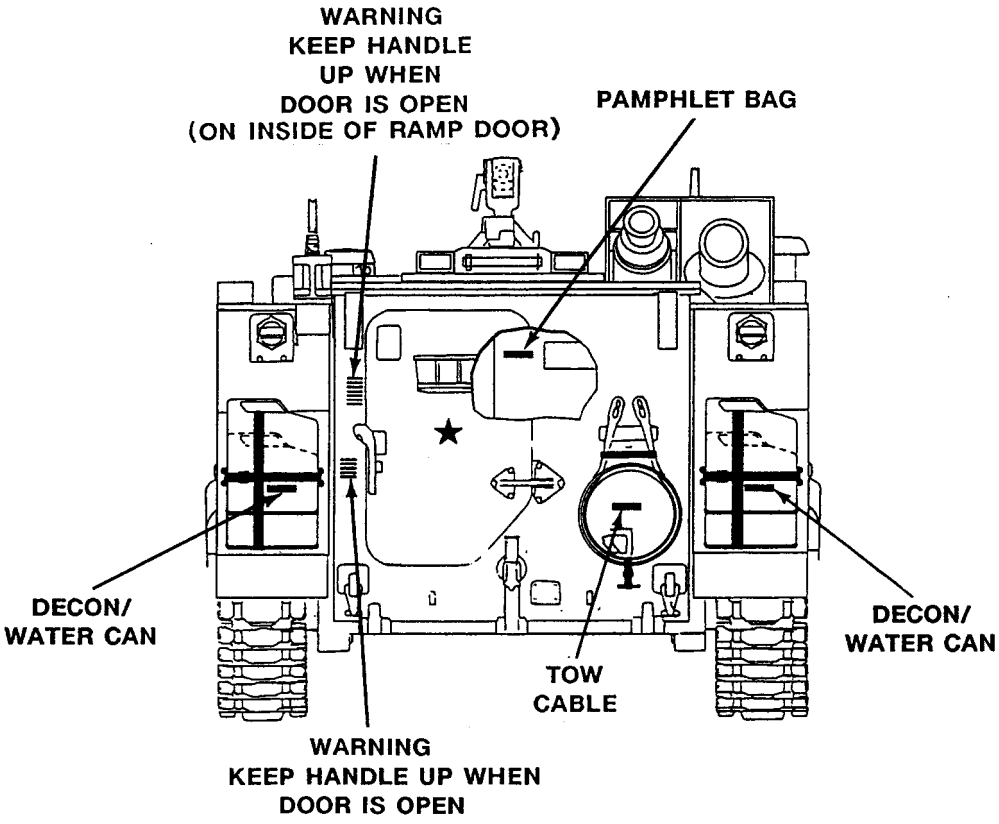
STOWAGE GUIDE - M58 FULL TRACKED MECHANIZED SMOKE OBSCURANT CARRIER DECALS AND STENCILS

NOTE

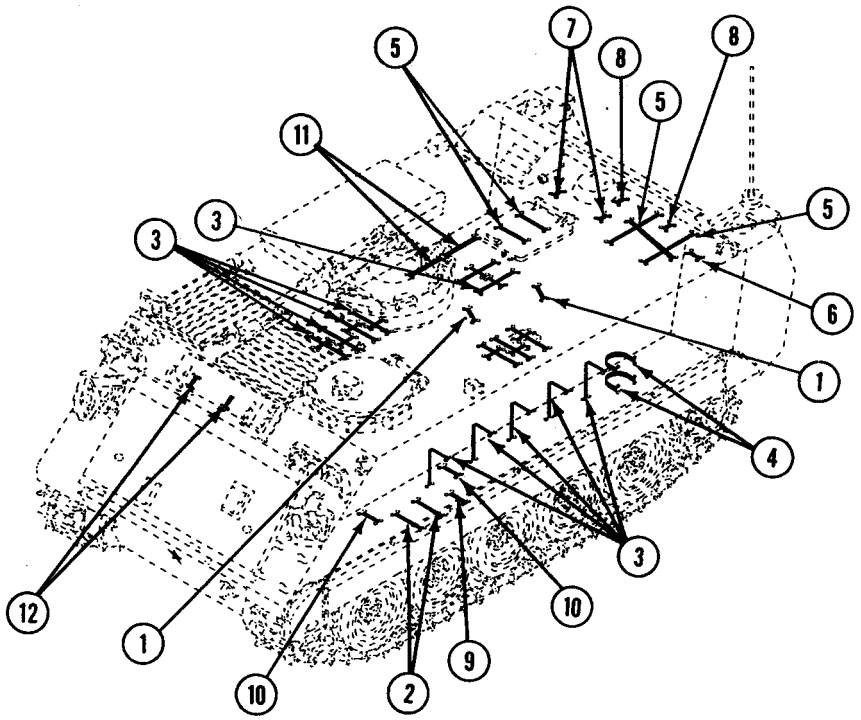
Signs outlined with boxes are decals applied in locations shown. Signs not outlined with boxes are stencils.



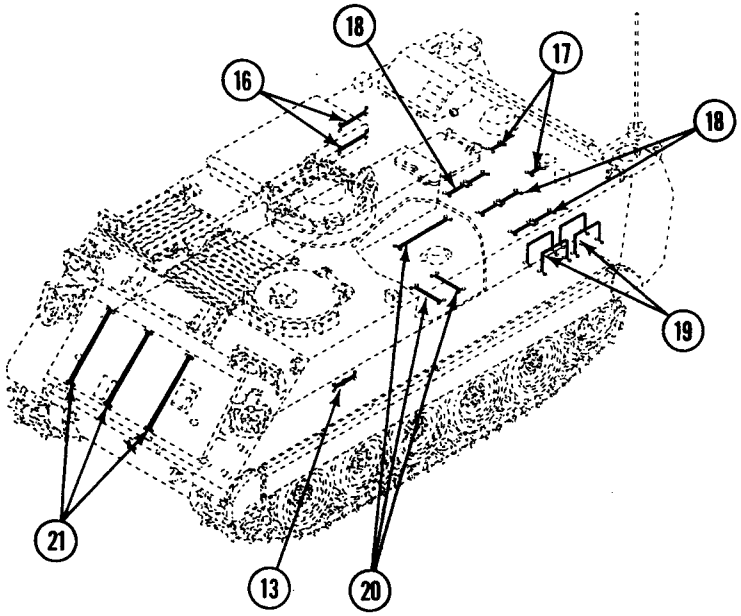


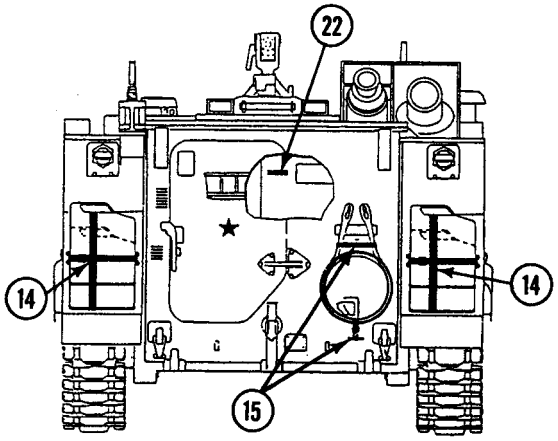

WARNING
KEEP HANDLE
UP WHEN
DOOR IS OPEN
(ON INSIDE OF RAMP DOOR)
PAMPHLET BAG
DECON/
WATER CAN
DECON/
WATER CAN
TOW
CABLE
WARNING
KEEP HANDLE UP WHEN
DOOR IS OPEN

STOWAGE GUIDE - M58 FULL TRACKED MECHANIZED SMOKE OBSCURANT CARRIER STRAPPING DIAGRAM



STRAP KEY			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
1	Tripod	2	24
2	Tool bag	1	45
3	Ammunition box, caliber .50	11	48, 60
4	Fire extinguisher	2	24
5	Dufflle bags	6	100, 132
6	Mattock	1	24
7	Pioneer tools	2	30
8	Track fixture	2	28
9	First aid kit	1	24
10	Spare barrel, caliber .50	2	24
11	Ammunition cases, rifle	6	39, 60
12	Shovel	2	33, 20


18
17
16
18
19
21
13
20


22
14
14
15

STRAP KEY (Cont)			
NO.	ITEM	QUANTITY	LENGTH (INCHES)
13	Driver’s vision enhancer	2	20, 24
14	MOGAS, M13 decon or water	6	64, 100
15	Tow cable	2	18, 30
16	Driver’s windshield bag	2	68
17	Axe	2	24
18	Camouflage net support	6	42
19	Rucksack	7	96
20	MRE	3	76
21	Camouflage net	3	126
22	Pamphlet bag	2	30

STANDARD LOAD PLAN 0106 00

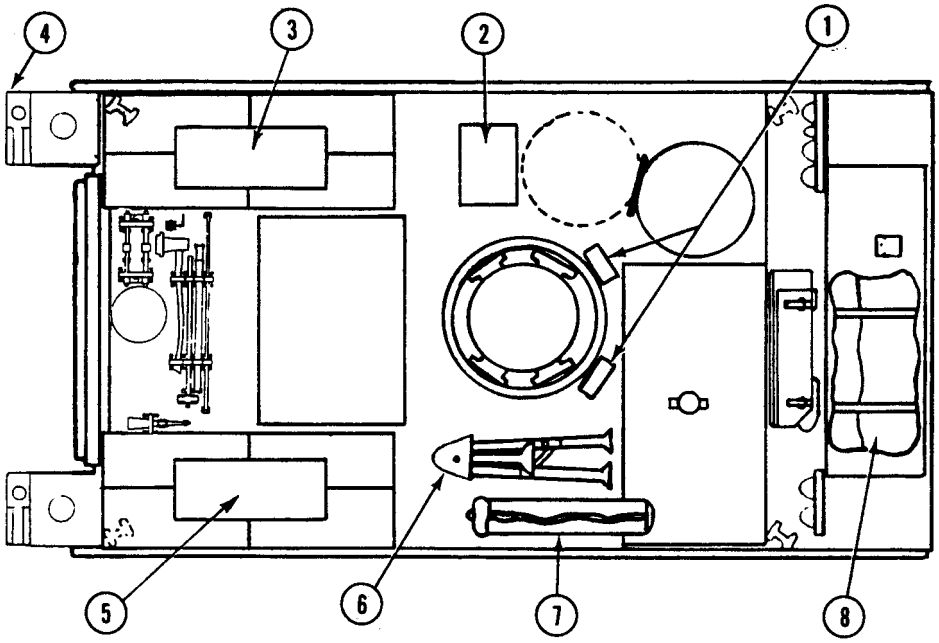
INTRODUCTION

NOTE

This load plan supersedes all previously published versions.

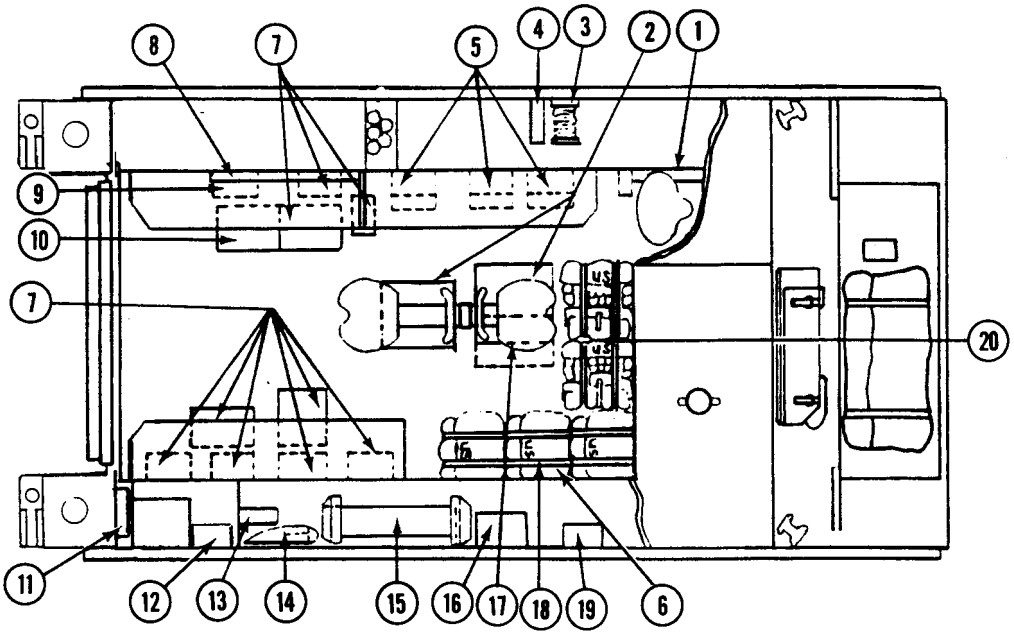
This work package provides load plans for the M113A3, M901A3, and M1064A3 carriers. This standard load plan is designed to supplement the Stowage and Sign Guide (WP 0105 00). This standard load plan includes selected items of personal and unit equipment. These items are issued to most units within the Army equipped carriers. Equipment not shown in either this work package or in the Stowage and Sign Guide (WP 0105 00) may be loaded in accordance with local command policy.

STANDARD LOAD PLAN — M113A3 CARRIERS



EXTERNAL

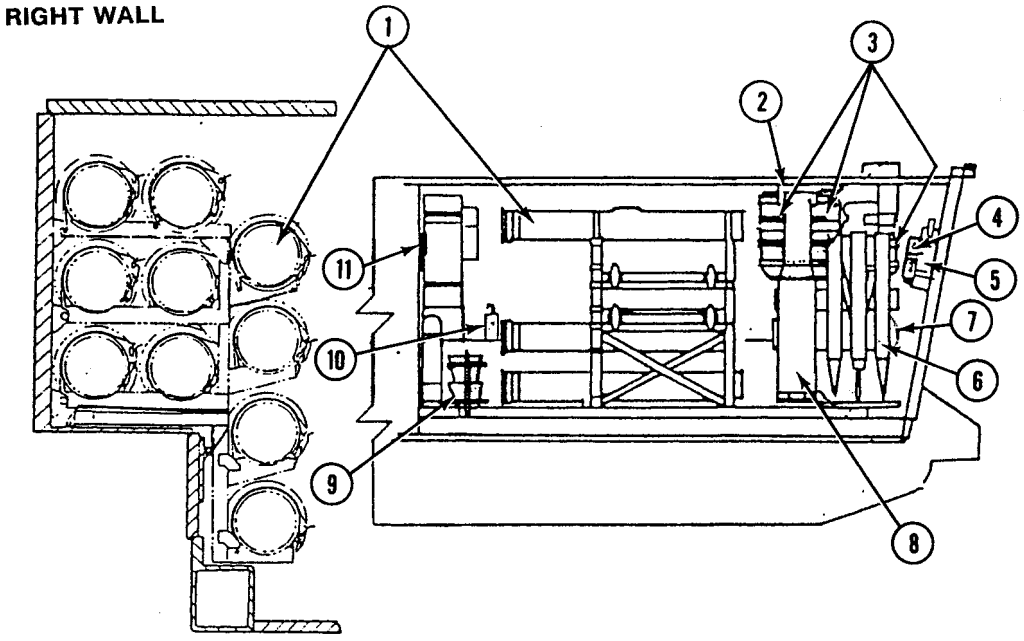
1. Marker, instruction, vehicle operation
1. Ammo cans, cal .50 (2 ea)
2. MRE (2 ea)
3. Duffel bags (5 ea)
4. Water can
5. Duffel bags (5 ea)
6. Tripod, cal .50
7. Camouflage support system
8. Camouflage screen



INTERNAL

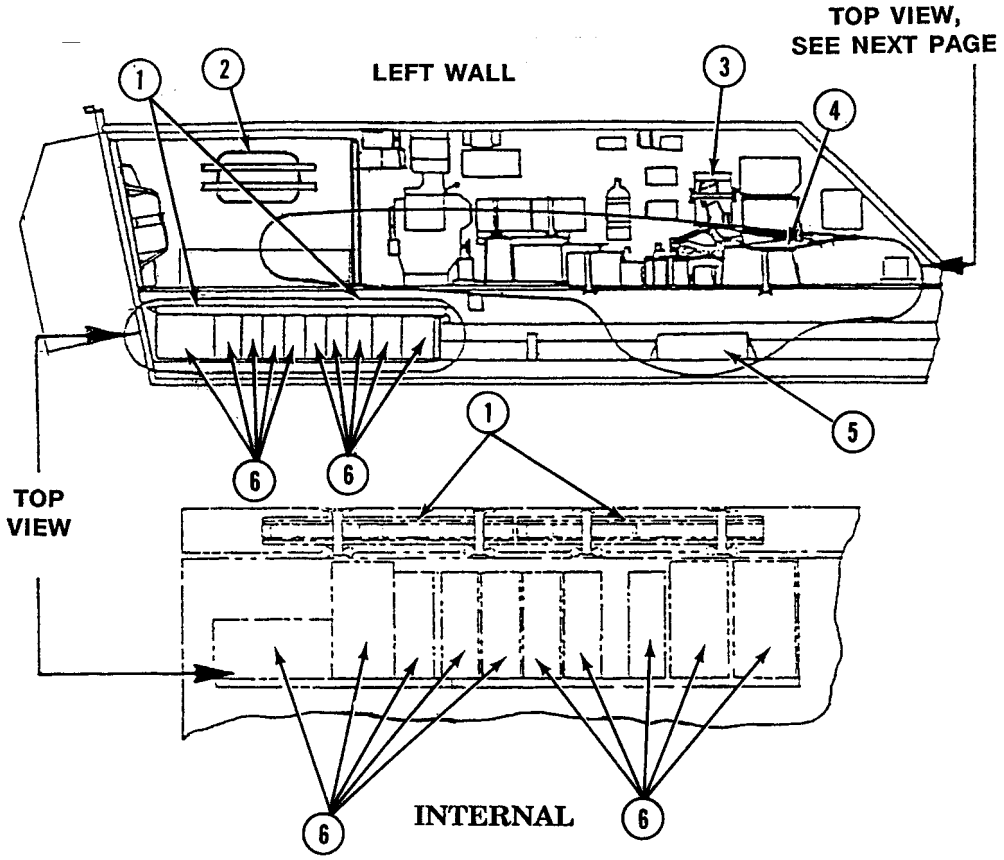
1. Map canister
2. MRE (4 ea), 3 under TC seat and 1 under SL seat
3. WD-1/TT, DR-8, 1320 ft
4. Binoculars
5. Ammo cans, cal .50 & 7.62 (3 ea)
6. AT4 (3 ea)
7. Ammo cans, cal .50 (6 ea); cases (3 ea)
8. Flag set
9. Ammo can, 5.56 (1 ea)
10. Ammo case, 7.62 (1 ea)
11. Telephone set, TA-1 or TA-312
12. Night vision sight, AN/VVS-2
13. Ammo can w/cal .50 cleaning rod and case: T&E mech, cal .50
14. M60 spare barrel bag W/T&E mech
15. Javelin missile or 4 LAWs
16. M21 mine box (for mines, flares, booby traps)
17. Night vision goggles (PVS-5) sight (PVS-4)
18. Rucksacks (6 ea)
19. Dragon tracker and device box
20. Rucksacks (4 ea)

STANDARD LOAD PLAN — M901A3

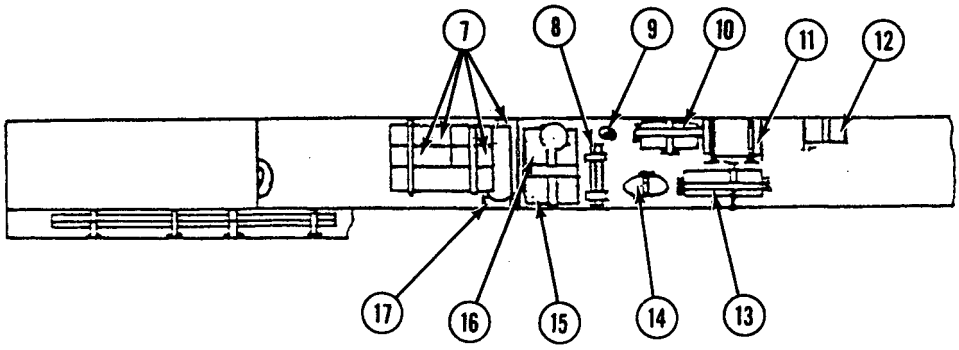


INTERNAL

1. Encased missile (10 ea)
2. TOW traversing unit (1 ea)
3. Nightsight battery Power Conditioner
4. Nightsight battery Power Conditioner Batteries
5. Fire extinguisher, portable (1 ea)
6. Tripod, M159E1
7. Ammo cans (4 ea.)
8. Launch tube, M21
9. Night vision goggles (with case) (2 cases) or ammo
10. M17 periscope
11. Pamphlet bag

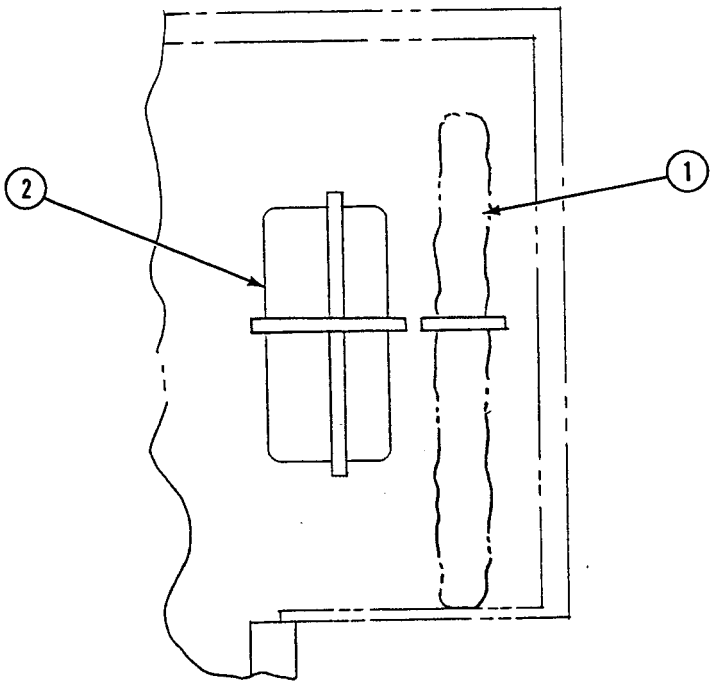


1. LAW missile (3 ea)
2. Nightsight (1 ea)
3. Night vision, driver's AN/VVS-2
4. M16 rifle (2 ea)
5. MRE
6. Ammo cans (under seat) (10 cases)



INTERNAL

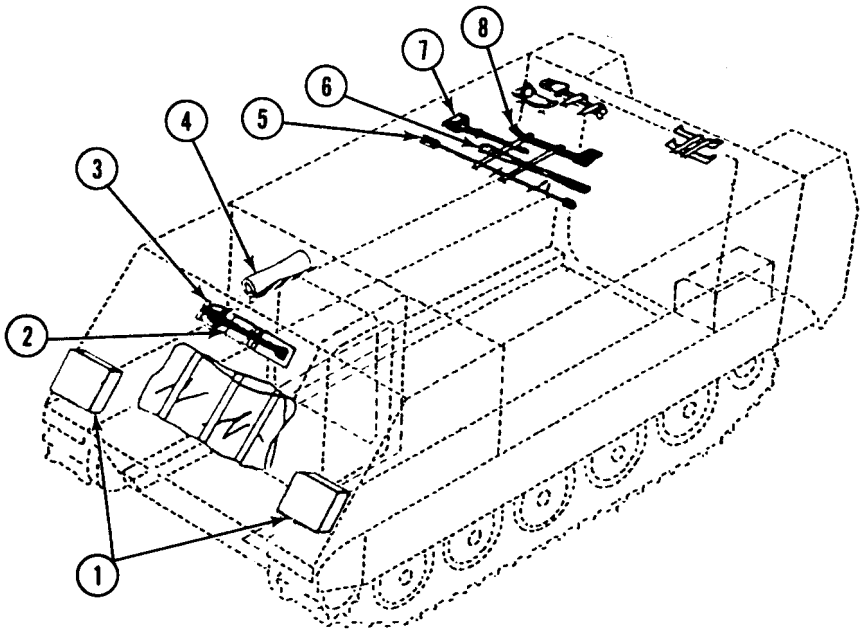
7. Ammo box (4 ea) or nightsight
8. Flares, ground signal M158 (4 ea)
9. Flashlight
10. First aid kit
11. Ammo box
12. Field stove
13. Telephone set
14. Binoculars
15. A.P. mine M18
16. Cable reel (with wire) for telephone
17. Spare MGS battery



INTERNAL

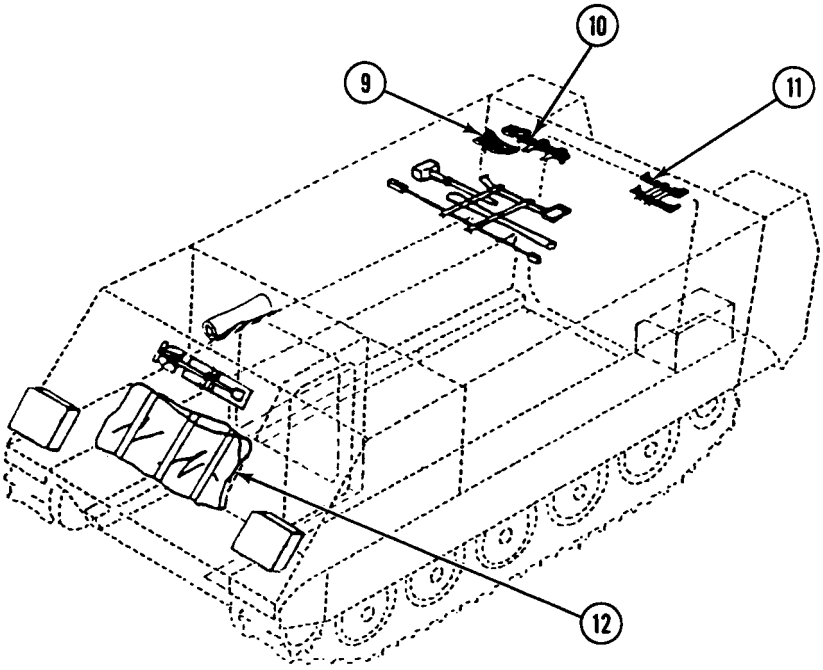
1. Spare barrel and cleaning equipment for M60 machine gun
2. Tool bag

MECHANIZED INFANTRY AND ARMORED CAVALRY



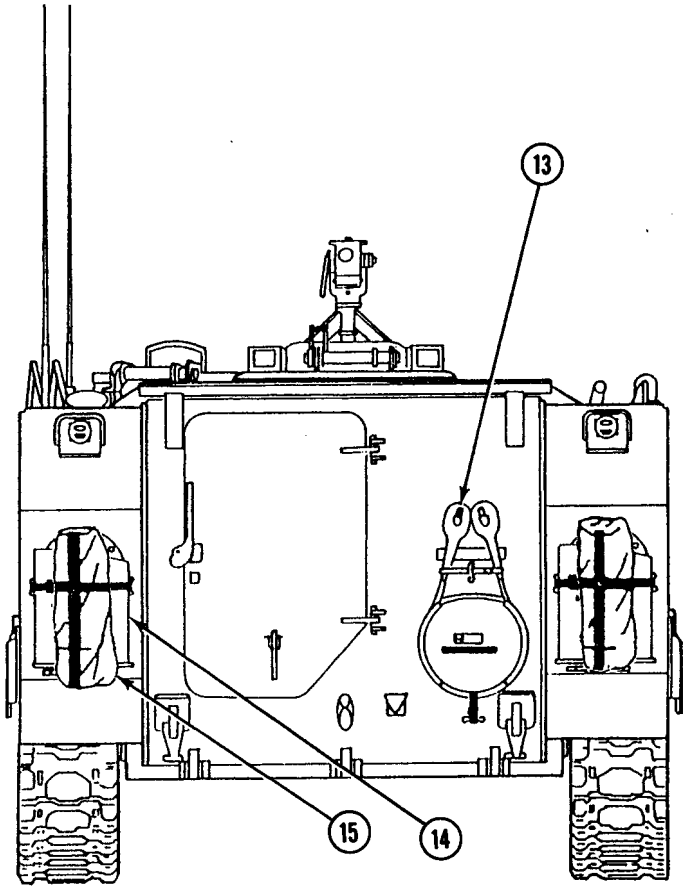
EXTERNAL

1. Smoke grenade (8 ea)
2. Spare track shoes (2 ea)
3. Shovel
4. Grille cover
5. Crowbar
6. Mattock handle
7. Sledge hammer
8. Axe



EXTERNAL

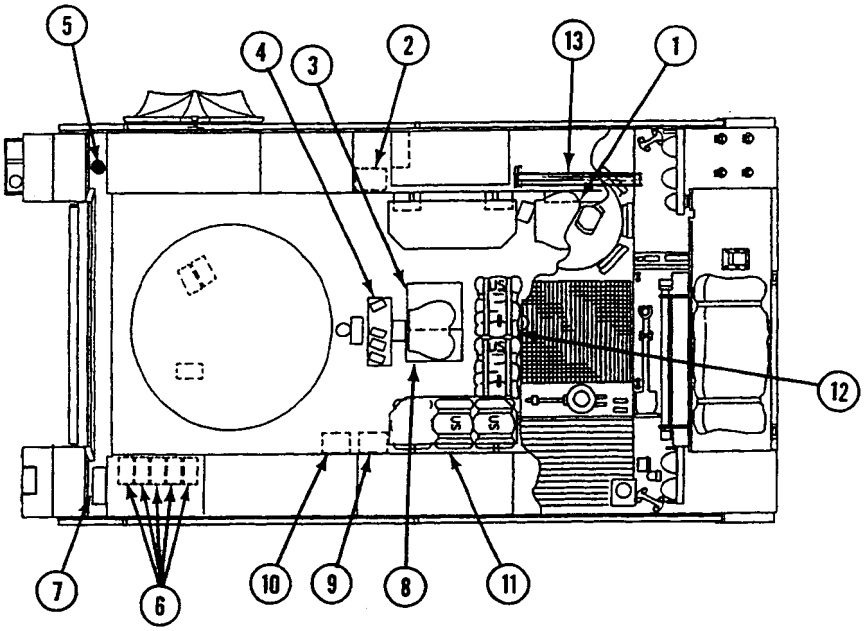
9. Mattock
10. Tripod, machine gun
11. Track fixtures (2 ea)
12. Screen, camouflage



EXTERNAL

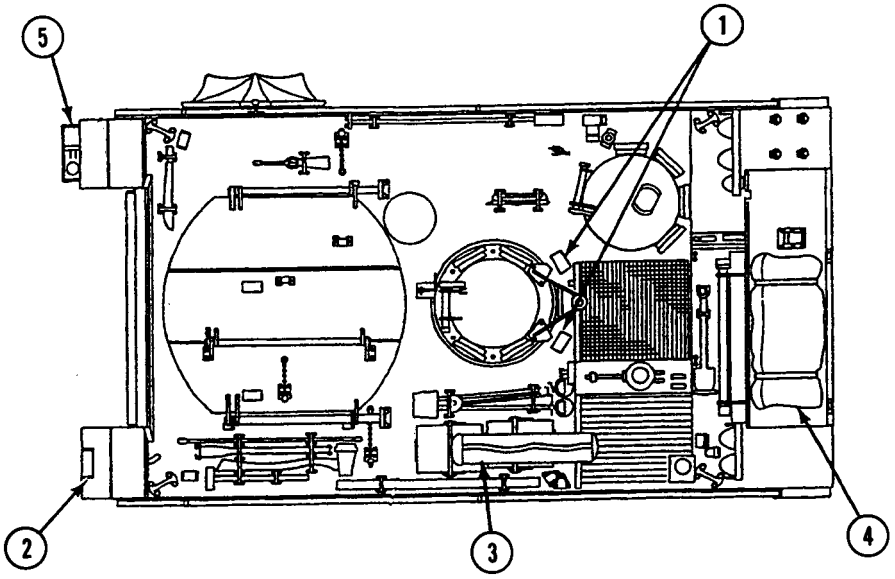
13. Tow Cable
14. Water can (2 ea)
15. Duffle bag (2 ea)

STANDARD LOAN PLAN — M1064A3 MORTAR CARRIER



INTERNAL

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 (6 ea)
7. Telephone set, TA-1 or TA-312
8. Night vision goggles, (PVS-5)/sight (PSV-4)
9. Ammo can v/cal .50 cleaning rod and case: T&E mech, cal .50
11. Duffle bags (2 ea)
12. Duffle bags (2 ea)
13. Spare barrel, cal .50



EXTERNAL

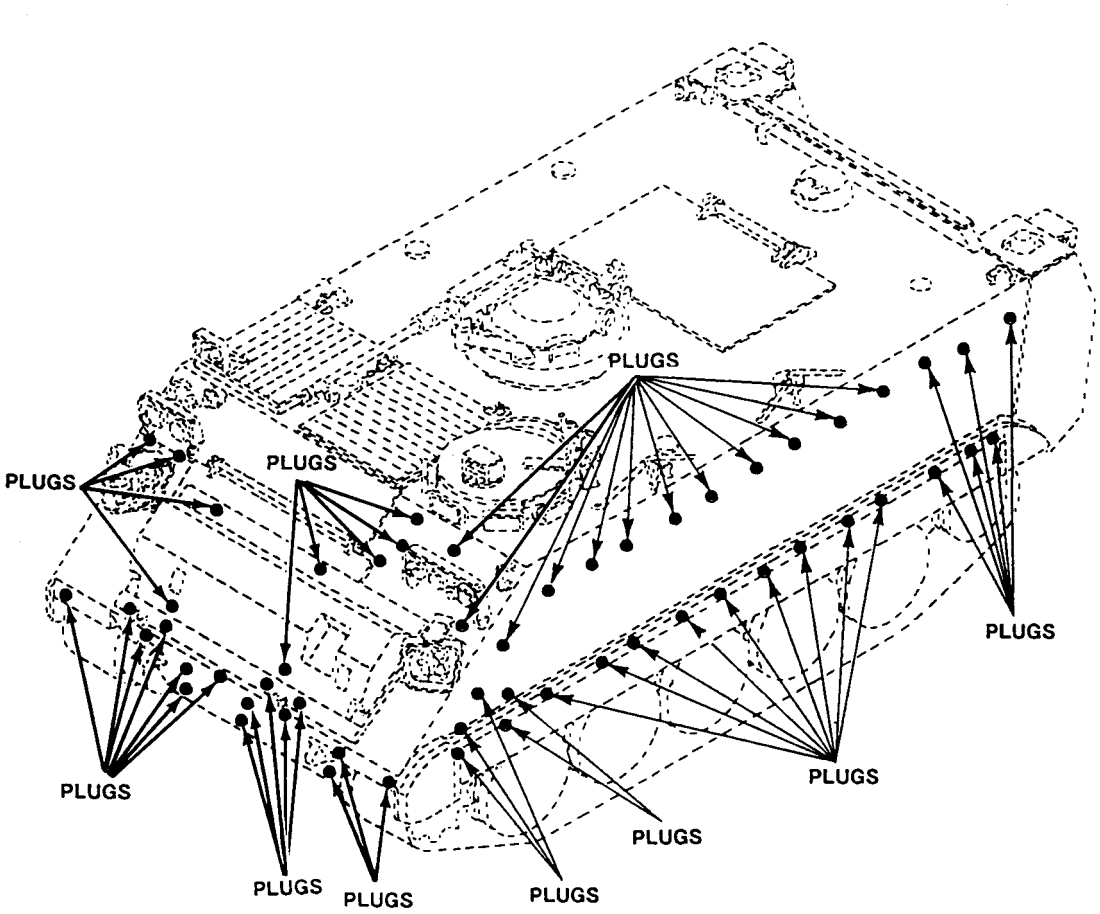
1. Ammo cans, cal .50 (2 ea)
2. WD-1/TT, DR-8, 1320 ft
3. Camouflage support system
4. Camouflage screen
5. M13 Decon kit

PLUG/SETSCREW GUIDE FOR ARMOR MOUNTING PROVISION HOLES 0107 00

INTRODUCTION

This work package shows the location of plugs and setscrews in armor mounting provision holes in the M113A3 carrier.

PROTECTIVE PLUGS FOR ARMOR MOUNTING PROVISION HOLES

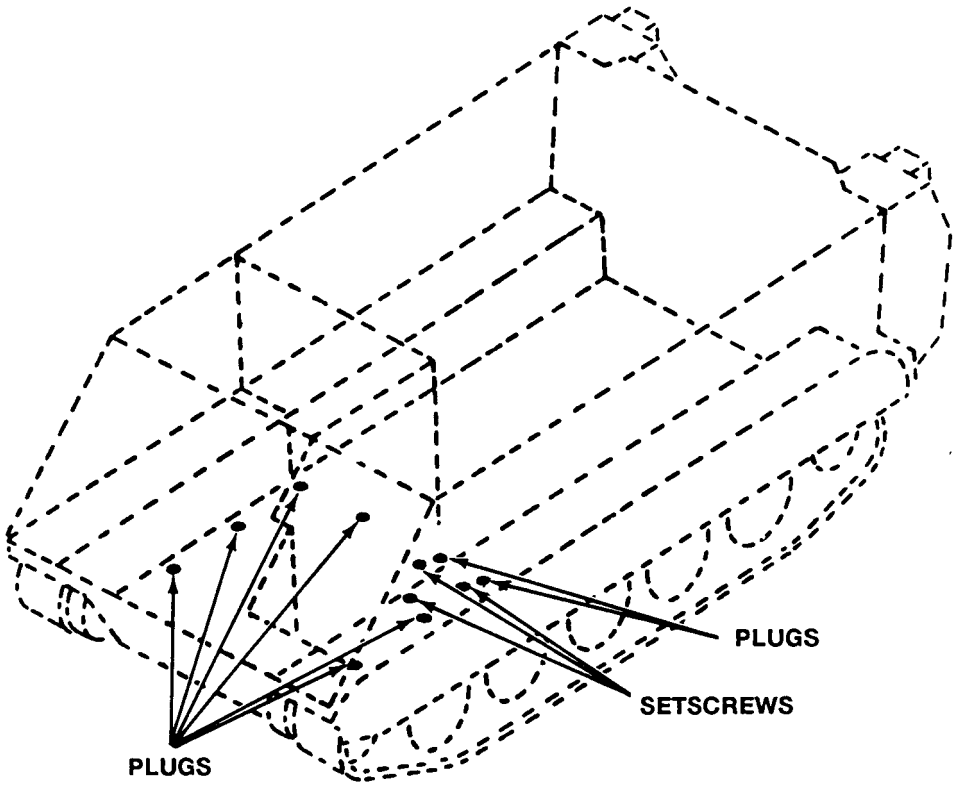


CARRIER FRONT AND SIDES

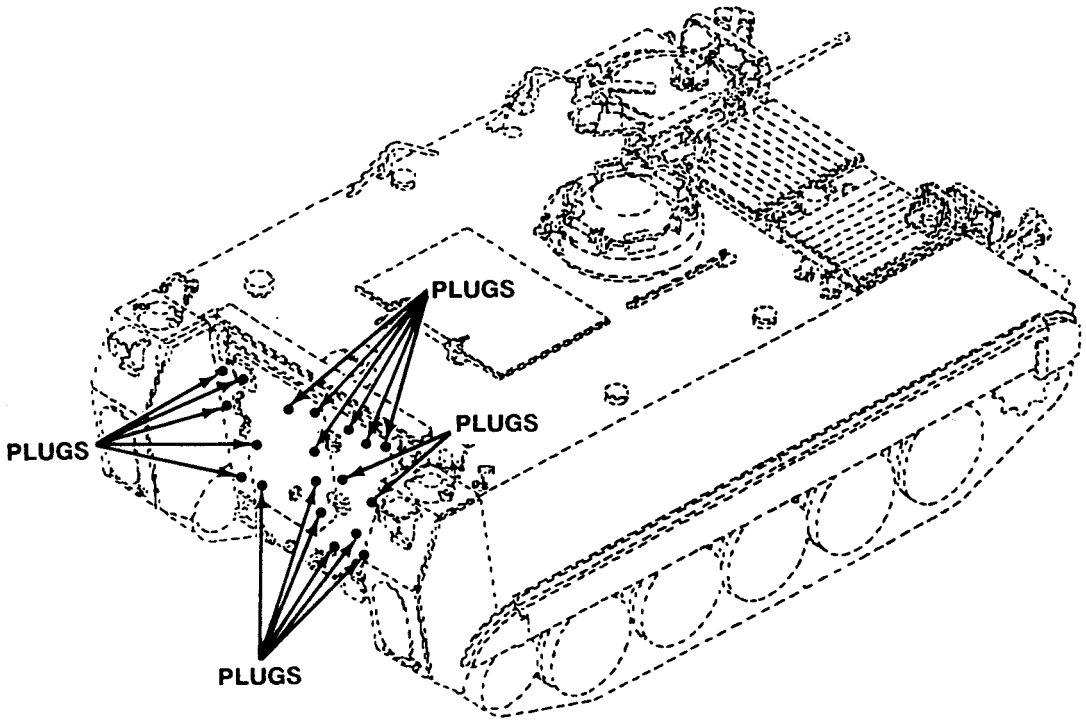
NOTE

The left side of the carrier is shown. There are corresponding plugs on the right side of the carrier.

PLUG/SETSCREW GUIDE FOR ARMOR MOUNTING PROVISION HOLES—Continued **0107 00**



CARRIER BOTTOM



CARRIER BACK

INDEX

Subject — WP Sequence No.-Page No.

4.2 KW Generator Set
M577A3 and M1068A3
Installation 0054 00-1

A

Additional Authorization List (AAL) 0103 00-1
After Water Operations 0072 00-1
Air Cleaner
Maintenance 0098 00-1
Air Grille Curtain
Installation 0053 00-1
AN/VVS-2 Driver's Night Vision
Install/Remove 0034 00-1
AN/VVS-2 Driver's night vision
All except M58
Operate 0035 00-1
Auxiliary power unit
Operate 0045 00-1

B

Basic issue items and end items, components of 0102 00-1
Batteries
M981A3
Charging 0084 00-1
Batteries, Carrier
Check 0095 00-1
Below –25°F (–31°C)
Operate in extreme cold 0061 00-1
Bilge Pumps
Service 0096 00-1
Troubleshooting Table 0089 00-15
Bilge Pumps, Troubleshooting
Symptom Index
M113 Carrier 0088 00-1
Blackout Curtain, Driver's
Installation 0050 00-1
Removal 0050 00-1
Break Track 0092 00-1

C

Carrier
Drive 0023 00-1
Fuel 0025 00-1
Refuel 0026 00-1

INDEX, cont'd

Subject	WP Sequence No.-Page No.
Carrier Batteries	
Check	0095 00-1
Carrier Lights	
Operate	0030 00-1
Charging Batteries	
M981A3	0084 00-1
Cold Start System (Manual Override)	
Glow Plug	
Operate	0086 00-1
Command Post System, Modular	
Dismantle	0057 00-1
Stow	0057 00-1
Command Post Tent	
Dismantle	0059 00-1
Set Up	0056 00-1
Stow	0059 00-1
Commander's Hatch	
Close	0046 00-1
Open	0046 00-1
Open/Close (M113A3, M1059A3, M1064A3, and M58 Only)	0009 00-1
Commander's Platform	
Operate	0047 00-1
Commander's Seat	
Adjust	0015 00-1
Stow	0016 00-1
Unstow	0016 00-1
Cooling System	
Check	0097 00-1
Fill	0097 00-1
Cupola, Commander's	
Operate (M113A3, M1059A3, M1064A3, and M58 Only)	0010 00-1
Curtain, Air Grille	
Installation	0053 00-1
CVC Helmet	
Connect to Intercom Control Box	0018 00-1
Connect to Vehicle Intercommunications System (VIS)	0019 00-1
D	
Defective Transmission Controller	
Bypass	0075 00-1
Description and Use of Operator's Controls and Indicators	0004 00-1
Disabled Carrier	
Tow	0077 00-1
Tow Start	0078 00-1

INDEX, cont'd

Subject — WP Sequence No.-Page No.

Door, Ramp Access
Open/Close . . . 0005 00-1
Driver's Blackout Curtain
Installation . . . 0050 00-1
Removal . . . 0050 00-1
Driver's Hatch
Close . . . 0048 00-1
Open . . . 0048 00-1
Driver's Hatch Cover
Open/Close (M901A3/M981A3 Only) . . . 0007 00-1
Open/Close, M113A3, M1059A3, M1064A3, and M58 . . . 0006 00-1
Driver's Lap Seat Belt
Shoulder Harness
Adjust . . . 0014 00-1
Driver's night vision
AN/VVS-2
All except M58
Operate . . . 0035 00-1
Driver's Seat
Adjust . . . 0013 00-1
Drop Leaf Tables
Close . . . 0049 00-1
Raise . . . 0049 00-1

E

Electrical System
Troubleshooting Table . . . 0089 00-11
Electrical System, Troubleshooting
Symptom Index
M113 Carrier . . . 0088 00-1
End item and basic issue items, components of . . . 0102 00-1
Engine
Start . . . 0021 00-1
Stop . . . 0024 00-1
Troubleshooting Table . . . 0089 00-1
Engine Coolant Heater
Troubleshooting Table . . . 0089 00-19
Engine Coolant Heater, Troubleshooting
Symptom Index
M113 Carrier . . . 0088 00-1
Engine With Outside Power Source
Start . . . 0022 00-1
Engine, Troubleshooting
Symptom Index

INDEX, cont'd

Subject — WP Sequence No.-Page No.

M113 Carrier 0088 00-1
Equipment Description 0002 00-1
Carriers 0002 00-1
Locational Terms 0002 00-1
Exhaust Grille
Cover 0083 00-1
Uncover 0083 00-1
Expendable and durable items list 0104 00-1

F

Final Drive
Troubleshooting Table 0089 00-7
Final Drive, Troubleshooting
Symptom Index
M113 Carrier 0088 00-2
Fixed Fire Extinguisher System
Operate 0031 00-1
Fog Oil Tank, Smoke Generator
Service 0100 00-1
Fuel Can, Smoke Generator
Service 0100 00-1

G

Gas Particulate Filter Unit (NBC System)
Operate 0081 00-1
Gas Particulate Filter Unit M8A3 (NBC Kit)
Operate 0080 00-1
General Information 0001 00-1
Destruction Of Army Material To Prevent Enemy Use 0001 00-1
List Of Abbreviations 0001 00-1
Maintenance Forms And Records 0001 00-1
Nomenclature Cross Reference List 0001 00-1
Reporting Equipment Improvement Recommendations 0001 00-1
Scope 0001 00-1
Generator Set
4.2 KW
M577A3 and M1068A3
Installation 0054 00-1
Removal 0054 00-1
M577A3 and M1068A3
Refuel 0060 00-1
Operate 0055 00-1
Glow Plug
Cold Start System (Manual Override)

INDEX, cont'd

Subject	WP Sequence No.-Page No.
Operate	0086 00-1
Grenade Launchers, Smoke	
Operate	0082 00-1
Gun, Machine	
Install/Remove	0036 00-1
Secure for Travel	0037 00-1, 0038 00-1
H	
Hatch Cover, Commander's	
Open/Close (M113A3, M1059A3, M1064A3, and M58 Only)	0009 00-1
Hatch Cover, Cargo	
Open/Close	0008 00-1
Hatch Cover, Driver's	
Open/Close (M901A3/M981A3 Only)	0007 00-1
Hatch Cover, Mortar	
Close	0052 00-1
Open	0052 00-1
Hatch, Commander's	
Close	0046 00-1
Open	0046 00-1
Hatch, Driver's	
Close	0048 00-1
Open	0048 00-1
Heater	
Operate Water/Ration	0044 00-1
I	
Inoperable Ramp	
Securing	0076 00-1
Intake Grille	
Cover	0083 00-1
Uncover	0083 00-1
Intercom Control Box	
Connect CVC Helmet to	0018 00-1
J	
Join Track	0092 00-1
Jump Seat	
Stow	0017 00-1
Unstow	0017 00-1
L	
Leaving the Water	0071 00-1
M	

INDEX, cont'd

Subject	WP Sequence No.-Page No.
M17 Periscopes	
Install/Remove	0033 00-1
Machine Gun, M2-.50 Cal	
Secure for Travel	0038 00-1
Machine Gun, M2-.50 Cal.	
Install/Remove	0036 00-1
Secure for Travel	0037 00-1
Map Board (M1068A3)	
Stow	0051 00-1
Unstow	0051 00-1
Map Board (M577A3)	
Stow	0051 00-1
Unstow	0051 00-1
Map Table (M1068A3)	
Stow	0051 00-1
Unstow	0051 00-1
Map Table (M577A3)	
Stow	0051 00-1
Unstow	0051 00-1
Modular Command Post System	
Dismantle	0057 00-1
Stow	0057 00-1
Mortar Hatch Cover	
Close	0052 00-1
Open	0052 00-1
N	
NBC Kit	
Troubleshooting Table	0089 00-21
NBC Kit (Gas Particulate Filter Unit M8A3)	
Operate	0080 00-1
NBC Kit, Troubleshooting	
Symptom Index	
M113 Carrier	0088 00-2
NBC System (Gas Particulate Filter Unit)	
Operate	0081 00-1
O	
Operate Carrier in Extreme Heat	0074 00-1
Operate Carrier in Extreme Humidity	0074 00-1
Operate Carrier in Extreme Salty Conditions	0074 00-1
Operate Carrier over Rough Terrain	0073 00-1
Operate in extreme cold	0061 00-1
P	

INDEX, cont'd

Subject — WP Sequence No.-Page No.

Panoramic Telescope
Operate . . . 0085 00-1
Parking Brake
Release . . . 0020 00-1
Set . . . 0020 00-1
Personnel Compartment Ventilator
Operate . . . 0029 00-1
Personnel Heater
Operate . . . 0028 00-1
Troubleshooting Table . . . 0089 00-17
Personnel Heater, Troubleshooting
Symptom Index
M113 Carrier . . . 0088 00-2
Platform, Commander's
Operate . . . 0047 00-1
Plug
Check . . . 0099 00-1
Plug, Missing
Replace . . . 0099 00-1
PMCS
After . . . 0090 00-1
Before . . . 0090 00-1
During . . . 0090 00-1
General . . . 0090 00-2
Weekly . . . 0090 00-1
Portable Fire Extinguisher
Operate . . . 0032 00-1
Power Plant Access Door
Open/Close . . . 0011 00-1
Preventive Maintenance Checks and Services (PMCS) . . . 0090 00-1
Pumps, Bilge
Service . . . 0096 00-1

R

Ramp
Lower/Raise . . . 0012 00-1

S

Shoulder Harness
Driver's Lap Seat Belt
Adjust . . . 0014 00-1
Smoke Generator Fog Oil Tank
Service . . . 0100 00-1
Smoke Generator Fuel Can

INDEX, cont'd

Subject — WP Sequence No.-Page No.

Service 0100 00-1
Smoke Grenade Launcher
Operate 0082 00-1
Standard Loan Plan 0106 00-1
Steering Carrier in the Water 0069 00-1
Stopping Carrier in the Water 0070 00-1
Stowage and Sign Guide 0105 00-1
Symptom Index, Troubleshooting
M113 Carrier . . . . -, 0086 00-1, 0088 00-1, 0088 00-2
Bilge Pumps 0088 00-1
Electrical System 0088 00-1
Engine 0088 00-1
Engine Coolant Heater 0088 00-1
Final Drive 0088 00-2
NBC Kit 0088 00-2
Personnel Heater 0088 00-2
Tracks and Suspension 0088 00-2
Transmission 0088 00-2

T

Tables, Drop Leaf
Close 0049 00-1
Raise 0049 00-1
Telescope
Panoramic
Operate 0085 00-1
Tent Liner
Install 0058 00-1
Remove 0058 00-1
Tent, Command Post
Dismantle 0059 00-1
Set Up 0056 00-1
Stow 0059 00-1
Theory of Operation 0003 00-1
Hull 0003 00-1
Hull Electrical System 0003 00-1
(M981A3 ONLY) 0003 00-1
Master Switch Panel 0003 00-1
Ventilated Face Mask System
(M981A3 only) 0003 00-1
Tow Bar
Disabled Carrier
Recovery Vehicle
Install 0077 00-1

INDEX, cont'd

Subject	WP Sequence No.-Page No.
Remove	0077 00-1
Tow Cables	
Disabled Carrier	
Recovery Vehicle	
Install	0077 00-1
Remove	0077 00-1
Tow Start Disabled Carrier	0078 00-1
Towing	
Trailer with Carrier	0079 00-1
Track Shoe	
Install	0093 00-1
Remove	0093 00-1
Wear Limits	0094 00-1
Tracks and Suspension	
Troubleshooting Table	0089 00-9
Tracks and Suspension, Troubleshooting	
Symptom Index	
M113 Carrier	0088 00-2
Trailer, Towing, with Carrier	0079 00-1
Transmission	
Troubleshooting Table	0089 00-5
Transmission, Troubleshooting	
Symptom Index	
M113 Carrier	0088 00-2
Trim Vane	
Lower/Stow	0039 00-1
Troubleshooting	
Bilge Pumps	0089 00-15
Electrical System	0089 00-11
Engine	0089 00-1
Engine Coolant Heater	0089 00-19
Final Drive	0089 00-7
NBC Kit	0089 00-21
Personnel Heater	0089 00-17
Symptom Index	
M113 Carrier	-, 0086 00-1, 0088 00-1, 0088 00-2
Bilge Pumps	0088 00-1
Electrical System	0088 00-1
Engine	0088 00-1
Engine Coolant Heater	0088 00-1
Final Drive	0088 00-2
NBC Kit	0088 00-2
Personnel Heater	0088 00-2
Tracks and Suspension	0088 00-2

INDEX, cont'd

Subject	WP Sequence No.-Page No.
Transmission	0088 00-2
Tracks and Suspension	0089 00-9
Transmission	0089 00-5
Troubleshooting Procedures	
M113 Vehicle	-, 0086 00-1, 0087 00-1, 0087 00-2
U	
Unsafe Ramp	
Securing	0076 00-1
V	
Vehicle	
M981A3	
Emergency Operation	0084 00-1
Vehicle Intercommunications System (VIS)	
Connect CVC Helmet to	0019 00-1
W	
Water Operation	
Entering the Water (all except M981A3)	0068 00-1
Water/Ration	
Heater	
Operate	0044 00-1
Wear Limits	
Track Shoe	0094 00-1
Windshield	
Install/Remove	0027 00-1

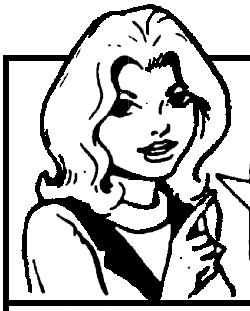
By Order of the Secretary of the Army:

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

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
9913201

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)
COMMANDER
COMPANY A, 216 CAV
FORT KNOX, KY 40121

DATE SENT
23 July 99

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2350-277-10	15 SEP 00	OPERATOR'S MANUAL FOR M113 FOV

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
001400 -2			
002300 -34		5 (SH 15)	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

STEP b. THE SCREWS (4) ON BRACKET (1) MUST BE TORQUED.
PLEASE ADD TORQUE INFORMATION.

THERE ARE FOUR CLAMPS (144) ON WIRING HARNESS (217), NOT THREE AS SHOWN.
PLEASE CORRECT.

SAMPLE

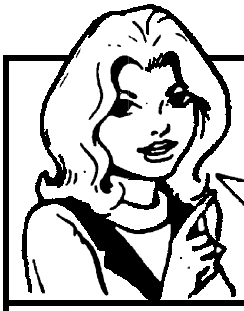
PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE
JOHN DOE, PFC DSN 344-1776	John Doe

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE

PS: IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION, MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2350-277-10	15 SEP 00	OPERATOR'S MANUAL FOR M113 FOV

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE

PS: IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION, MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

REVERSE OF DA FORM 2028-2 AMSMC OP-103-85

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE. $300

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

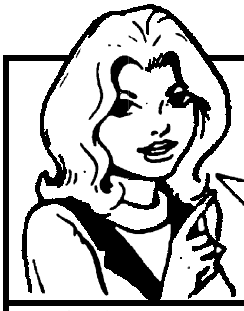
BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 82 ROCK ISLAND, IL

POSTAGE WILL BE PAID BY ROCK ISLAND ARSENAL

COMMANDER
U.S. Army Tank-automotive and Armaments Command
ATTN: AMSTA-LC-CIP-WT (Tech Pubs Control Point)
Rock Island, IL 61299-7630

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2350-277-10	15 SEP 00	OPERATOR'S MANUAL FOR M113 FOV

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE

PS: IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION, MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

REVERSE OF DA FORM 2028-2 AMSMC OP-103-85

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE. $300

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

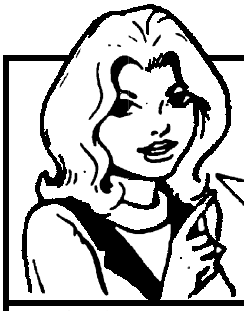
BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 82 ROCK ISLAND, IL

POSTAGE WILL BE PAID BY ROCK ISLAND ARSENAL

COMMANDER
U.S. Army Tank-automotive and Armaments Command
ATTN: AMSTA-LC-CIP-WT (Tech Pubs Control Point)
Rock Island, IL 61299-7630

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2350-277-10	15 SEP 00	OPERATOR'S MANUAL FOR M113 FOV

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE

PS: IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION, MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

REVERSE OF DA FORM 2028-2 AMSMC OP-103-85

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE. $300

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 82 ROCK ISLAND, IL

POSTAGE WILL BE PAID BY ROCK ISLAND ARSENAL

COMMANDER
U.S. Army Tank-automotive and Armaments Command
ATTN: AMSTA-LC-CIP-WT (Tech Pubs Control Point)
Rock Island, IL 61299-7630

METRIC CONVERSION CHART

APPROXIMATE CONVERSION FACTORS

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

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Centimeters	Cubic Inches	0.060
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

TEMPERATURE CONVERSIONS

$5/9\ (^{\circ}F - 32) = {}^{\circ}C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$9/5\ C^{\circ} + 32 = F^{\circ}$

PIN: 062157-000