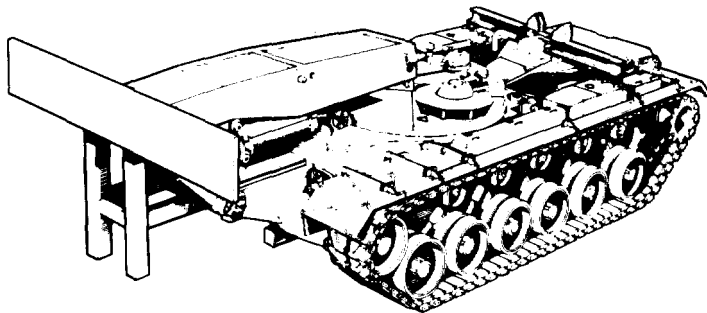


TECHNICAL MANUAL

ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL



LAUNCHER
M48A5 TANK CHASSIS,
TRANSPORTING:
FOR BRIDGE,
ARMORED-VEHICLE-LAUNCHED
SCISSORING TYPE, CLASS 60
(NSN 5420-01-076-6096)

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TECHNICAL MANUAL

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., 15 October 1981

**Organizational, Direct Support and General Support
Maintenance Manual**

**LAUNCHER AND HYDRAULIC SYSTEM
M48A5 TANK CHASSIS, TRANSPORTING: FOR BRIDGE,
ARMORED-VEHICLE-LAUNCHED SCISSORING TYPE, CLASS 60
(5420-01476-6096)**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, directly to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

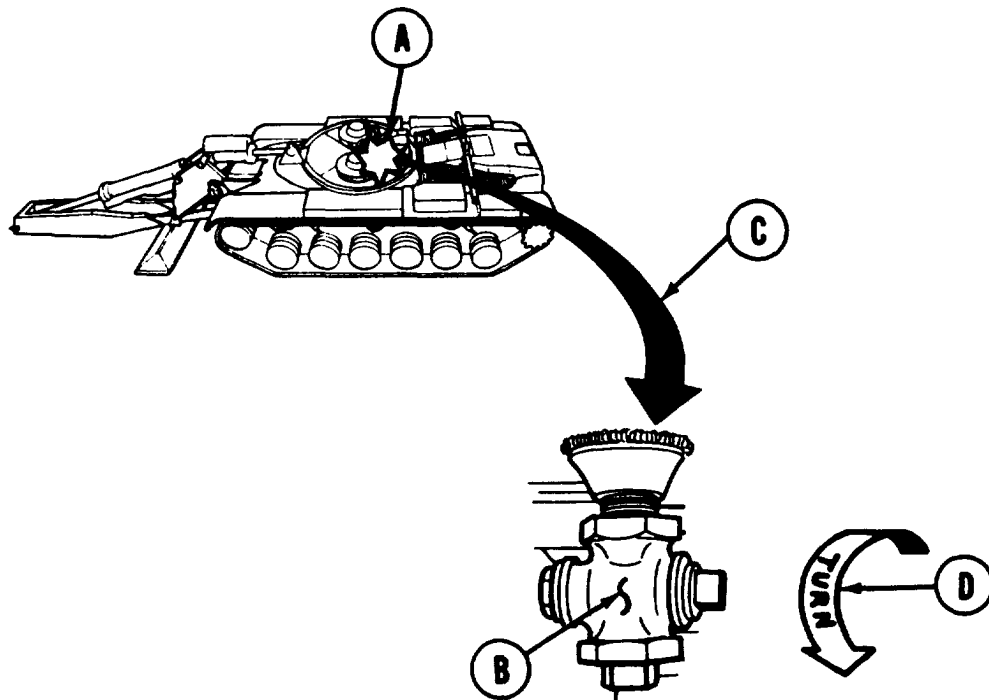
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HOW TO USE THIS MANUAL:

- Manual is divided into chapters.
- Chapters are by functional group code and presented in same order as the RPSTL (Repair Parts and Special Tool List).
- All manual references refer to page numbers.
- Steps are numbered and are to be performed in that order.
- Be sure to read all NOTES, WARNINGS, and CAUTIONS.
- Locator views are included wherever necessary. These will help you locate the item which the procedure is describing.
- Callouts on art are shown by a circle with a letter inside.
- Jagged circle (⌘) on locator (A) indicates a cutout and item is inside of tank.
- A (⌒) symbol represents the outside surface (B) of a piece of equipment.
- Locator arrows (C) are black and motion arrows (D) are white.



HOW TO USE THIS MANUAL - Continued

- Bridge will not be shown on vehicle on locator views.
- Locator views will show tongue in travel position (folded on top of vehicle) unless maintenance procedure requires it in another position.
- MASTER BATTERY switch should be in OFF position prior to performance of any maintenance procedures.
- Diagrams of the hydraulic system with reference designators, part numbers, and related maintenance tasks will be found on pages 3-61 thru 3-63. A schematic diagram of the hydraulic system (FO-3) is located at the back of this manual.
- All torque values are dry torques unless otherwise specified.
- A maintenance information index lists all maintenance tasks. It provides the location of all maintenance tasks related to a component in this manual.
- As a general maintenance practice, throw away all removed lockwashers, locknuts, and cotter pins and replace with new lockwashers, locknuts, and cotter pins at installation.
- LO 5-5420-226-12, M48A5 AVLB lubrication order, has been rescinded. All crew lubrication tasks have been incorporated into TM 5-5420-226-10 PMCS and are to be performed as required or as a part of crew PMCS. All organizational maintenance lubrication tasks have been incorporated into PMCS contained in this manual and in TM 5-5420-226-20-1 and are to be performed as required and as a part of organizational maintenance PMCS. Any reference to LO 5-5420-226-12 must be considered a reference to either the crew PMCS or organizational PMCS and must be performed in accordance with instructions provided in the applicable PMCS.

CHAPTER 1

INTRODUCTION

Section L GENERAL INFORMATION

SCOPE

Type of Manual: Organizational, Direct Support, and General Support Maintenance.

Model Number and Equipment Name: Launcher, for M48A5 Tank Chassis, Transporting: for Bridge, Armored-Vehicle-Launched, Scissoring Type, Class 60.

Purpose of Equipment: To launch, retrieve, and transport a class 60 scissoring type bridge.

MAINTENANCE FORMS, RECORDS, AND REPORTS

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

DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE

Refer to TM 750-244-6 for instructions on destruction of material to prevent enemy use.

ADMINISTRATIVE STORAGE

Refer to TM 740-90-1 for instructions on administrative storage.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

- a. No particular quality assurance or quality control manual pertains specifically to this vehicle.
- b. Defective material received through the supply system should be reported on Quality Deficiency Report (QDR) SF 368. Instructions for preparing QDR's are provided in DA PAM 738-750, Reporting of Quality Deficiency Data. QDR's should be mailed to Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-Q, Warren, MI 48397-5000. A reply will be furnished directly to you.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S)

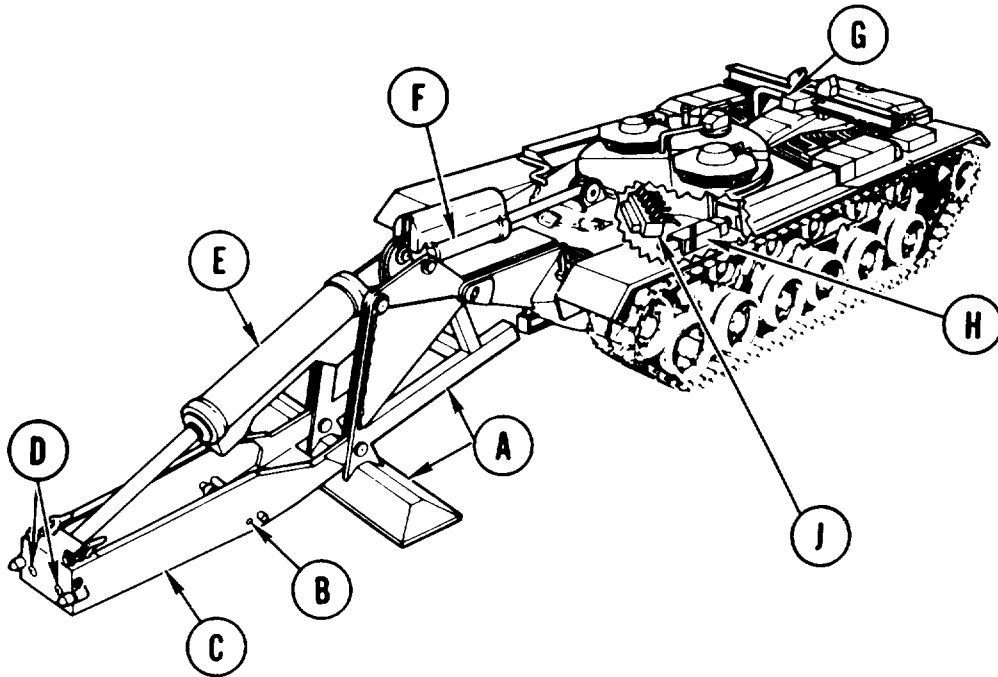
EIR's must be submitted by anyone who knows of an unsatisfactory condition with equipment design or use. You do not have to show a new design or list a better way to do a procedure, just tell why the design is unfavorable or why a procedure is hard. EIR's may be submitted on SF 368 (Quality Deficiency Report). Instructions for preparing SF 368 are provided in DA PAM 738-750. Mail directly to Commander, U.S. Army Tank-Automotive Command, AMSTA-Q, Warren, MI 48397-5000. A reply will be sent directly to you.

Section II EQUIPMENT DESCRIPTION AND DATA

PERFORMANCE DATA

Refer to TM 5-5420-226-10 for performance data.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



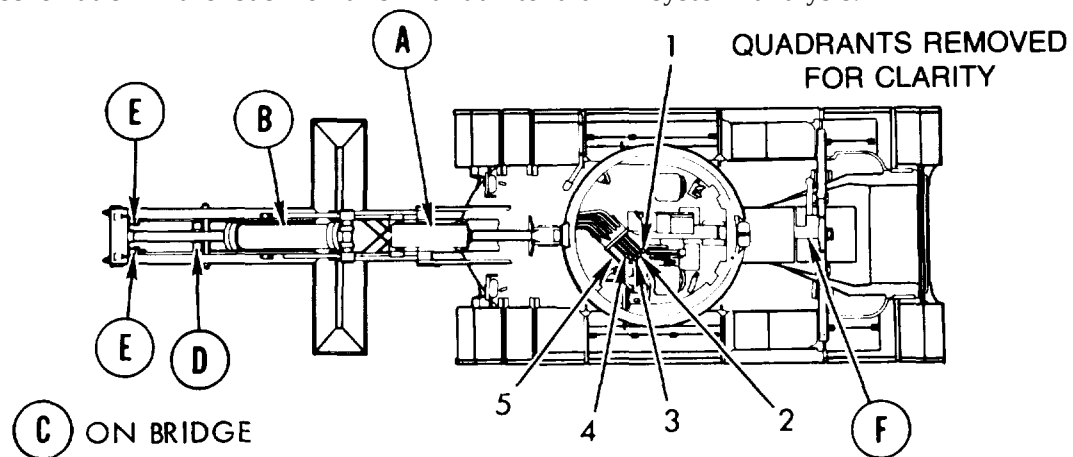
- (A) BOOM AND OUTRIGGER. Provides firm support for tongue to pivot on.
- (B) LOCKING CYLINDER. Locks scissoring bridge to the launcher tongue.
- (C) TONGUE. Contains hydraulics and provides necessary components to connect and disconnect scissoring bridge.
- (D) EJECTION CYLINDERS. Provides capability to push bridge loose from vehicle after locking cylinders are retracted.
- (E) TONGUE CYLINDER. Controls tongue and bridge movement from 90 degrees vertical to the ground.
- (F) OVERHEAD CYLINDER. Controls tongue and bridge movement from transport position to 90 degrees vertical.
- (G) HOLDDOWN CYLINDER. Provides capability to lock scissoring bridge at rear end of vehicle. It automatically unlocks when overhead cylinder operating lever is raised.
- (H) PUMP-CLUTCH. Provides hydraulic pressure for entire system.
- (J) VALVE BANK. Provides manual levers to actuate entire system.

IDENTIFICATION, LOCATION, AND INSTRUCTION INFORMATION

Refer to TM 5-5420-226-10 for identification, location, and instruction name plates, decals, and stencil information under "Stowage and Sign Guides."

Section III. PRINCIPLES OF OPERATION

Hydraulic pressure is used to actuate various components to launch and retrieve a bridge. A hydraulic pump is driven by the vehicle engine through a power take-off and a manually actuated clutch. Hydraulic pressure is delivered by the hydraulic pump to the manually operated valve bank. The valve bank in turn delivers pressure to either the cap end or the rod end of the various cylinders, to either extend or retract them. Pressure relief valves, flow regulators, and check valves are located in the system to provide protection to component parts. A master relief valve is in the pressure line from the hydraulic pump, located under the hydraulic reservoir, which protects the entire system. You will find a system diagram and a hydraulic schematic in the back of this manual to aid in system analysis.



- (A) OVERHEAD CYLINDER. This cylinder is actuated by lever (1) which will shut off or allow pressure to flow to either the cap end (lever up) or the rod end (lever down) of the cylinder.
- (B) TONGUE CYLINDER. This cylinder is actuated by lever (2) which will shut off or allow pressure to flow to either the cap end (lever up) or the rod end (lever down) of the cylinder.
- (C) SCISSORS CYLINDER. This cylinder (not illustrated, is on bridge) is actuated by lever (3) which will shut off or allow pressure to flow to either the rod end (lever up) or the cap end (lever down) of the cylinder.
- (D) LOCKING CYLINDER. This cylinder is actuated by lever (4) which will shut off or allow pressure to flow to either the rod end (lever up) or the cap end (lever down) of the cylinder.
- (E) EJECTION CYLINDERS. These cylinders are activated by lever (5), (for these cylinders to operate lever (4) must be held in the up position) which will allow pressure to flow to the cap end (lever up) or the rod end (lever down) of the cylinders.
- (F) HOLDDOWN CYLINDER. This cylinder is actuated by overhead cylinder lever (1) which will shut off or allow pressure to flow to either the rod end (lever up) or the cap end (lever down) of the cylinder.

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CHAPTER 2

MAINTENANCE INSTRUCTIONS

Section L REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Special tools for organizational, direct support, and general support maintenance are listed in TM 5-5420-226-20P and TM 5-5420-226-34P, which are the authority for requisitioning replacements.

SPARE AND REPAIR PARTS

Spares and repair parts are listed and illustrated in TM 5-5420-226-20P and TM 5-5420-226-34P which are the authority for requisitioning replacements.

Section IL SERVICE UPON RECEIPT

1. This section contains information on services to be performed upon issue of the vehicle to the using organization. Where practicable, the crew will assist in services described. For services to be performed on the vehicle hull components, refer to TM 5-5420-226-34. Some of the services contained herein may not be required, depending upon the degree of preservation provided by the shipper and the planned use of the vehicle.
2. Cut hold-down straps and remove wooden boxes, containers of equipment, and any other tank components secured to the exterior or interior of the vehicle.
 - a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on Standard Form 364 (Report of Discrepancy) (ROD).
 - b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.
 - c. Check to see whether the equipment has been modified. Reference shall be made to the authorized equipment configuration changes list in chapter 1.
3. Conduct service upon receipt of the vehicle in accordance with the procedures specified in the following table.

Step/Location	Item	Action	Remarks
1. Launcher	Exterior	Check launcher components for dam age.	—
2. Hull	Hatches	Remove wrapping, barrier material, and tape.	—
3. Hull	Periscope shields	Remove wrapping, barrier material, and tape.	—
4. Hull	Optical glass	Remove wrapping, barrier material, and tape.	—

PRELIMINARY SERVICING AND ADJUSTMENT

WARNING

Dry Cleaning Solvent P-D-680 is toxic and flammable. To avoid injury, wear protective goggles and gloves and use in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open fire or excessive heat. The flash point for Type I Dry Cleaning Solvent is 100°F (38°C), and for Type II is 138°F (50°C). If you become dizzy while using Dry Cleaning Solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

1. If any exterior surfaces of the launcher components are coated with rust preventative compound, remove the coating with dry cleaning solvent.
2. Paint the equipment in accordance with unit camouflage requirements.
3. Follow instructions specified on tag DD Form1397 regarding processing record and stowage of the vehicle and its equipment if the vehicle is not to be placed into immediate service. Tag DD Form 1397 will be found in the driver's compartment, attached to the steering control or transmission shift lever. If the using organization plans to place the tank into immediate service:
 - a. Open each wooden box and container. Inventory contents with packing list. Record missing items.
 - b. Check packing list against Basic Issue Items list (BII) in TM 5-5420-226-10 to make sure all items have been received.
 - c. Open inner packs and remove material.
 - d. Degrease equipment such as tools and hardware as necessary.

4. Stow basic issue items as indicated in TM 5-5420-226-10.
5. Check hydraulic level in reservoir in accordance with TM 5-5420-226-10. While filling, check for leaks at filter connections, drain plugs, link quick disconnects, and valves.
6. Ensure parking brake is set, Start engine. Check hydraulic system for leaks, Shut down engine and correct leaks if any are found.
7. Check operation of all controls (TM 5-5420-226-10).
8. Perform preventive maintenance checks and services (PMCS) (page 2-4).
9. Equipment faults found during preliminary servicing or during the break-in period will be corrected by the using organization or by the supporting maintenance unit as appropriate, depending upon the nature of the fault.
10. Serious equipment faults which appear to involve unsatisfactory design or material will be reported using SF 368 (Quality Deficiency Report), as prescribed in DA PAM 738-750, The Army Maintenance Management System (TAMMS).

SECTION III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), LUBRICATION INSTRUCTIONS, AND MANDATORY REPLACEMENT PARTS

INTRODUCTION

a. General.

Preventive maintenance is the systematic care, inspection, and service of the M48A5 AVLB launcher to keep it in serviceable condition and to detect faults and failures before extensive and time consuming repairs or replacement are required. Maintenance checks are services performed by organizational maintenance and are described below.

This section contains the procedures and instructions to perform M48A5 AVLB launcher organizational preventive maintenance checks and services. These services are performed by organizational maintenance personnel assisted by the vehicle crew. Ensure that all crew level hull PMCS procedures have been completed prior to performing organizational PMCS. Refer to DA PAM 738-750 for instructions on the use of forms pertaining to PMCS.

Organizational services are defined by, and restricted to, the procedures outlined in this section and Appendix B, Maintenance Allocation Chart, unless approval to perform higher category services has been given by the support maintenance unit.

Knowledge of operating and maintenance procedures outlined in TM 5-5420-226-10 is essential to the performance of organizational PMCS. Organizational mechanics must be familiar with these procedures so that they can apply them in the performance of their duties.

The driver of the vehicle is often unaware of gradually developing defects. Therefore, the vehicle must be road tested by organizational maintenance personnel during preventive maintenance checks and services. Any repairs or adjustments necessary to ensure safe operation should be made prior to road test. All faults and corrective actions will be noted on DA Form 2404. The item number recorded in column "a" of DA Form 2404 must correspond to the PMCS item number. After deficiencies have been corrected and the tactical situation permits, an additional road test must be made for a distance of not less than three nor more than five miles.

The preventive maintenance checks and services listed in this section are to be performed on condition and semiannually.

Hard (fixed) time intervals and the related man-hour times are based on normal operation. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse conditions, including longer-than-usual operating hours. The interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken.

PMCS items and intervals have been determined by using Reliability Centered Maintenance (RCM) logic.