

TM 9-2350-256-20

**UNIT
MAINTENANCE MANUAL
RECOVERY VEHICLE,
FULL-TRACKED:
MEDIUM, M88A1
(NSN 2350-00-122-6826)**

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NO. 9-2350-256-20

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REPORTING OF 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 direct to: Commander, US Army Tank-automotive and Armaments Command, ATTN: AMSTA-IM-OPIT, Warren, MI 48397-5000. A reply will be furnished to you. You may also provide DA Form 2028-2 information to TACOM via datafax or e-mail. TACOM's datafax number for AMSTA-IM-MMAA is (810) 574- 6323 and the e-mail address is: tacom-tech-pubs@cc.army.mil

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THIS MANUAL SUPERSEDES TM9-2350-256-20 DATED 1 MAY 1986 AND ALL CHANGES.

Approved for public release; distribution is unlimited.

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HOW TO USE THIS MANUAL

GENERAL

This manual contains unit maintenance instructions for the M88A1 Medium Full-Track Recovery Vehicle.

The front matter in this manual consists of a cover index, general warnings, and table of contents.

This manual is divided into 17 chapters and 9 appendixes. Each chapter and appendix starts on a right-hand page with the page number of 1. Pages are numbered after the chapter number or appendix letter. For example, I-14 means Chapter 1, page 14, and A-2 means Appendix A, page 2.

At the end of this manual are an alphabetical index, schematic, DA Form 20287 and metric conversion chart

a. FRONT MATTER

The front cover has an index for the major divisions in this manual. The first page of the associated major division has a black edge that lines up with the applicable cover boxed-in area.

There are general warnings that start on the first right-hand page immediately after the cover that should be read before performing any maintenance on the M88A1.

The table of contents has the page where each chapter, appendix, and section starts

b. CHAPTERS

- Chapter 1 provides general information, equipment description, and principles of operation of the M88A1
- Chapter 2 covers troubleshooting the vehicle.
- Chapter 3 provides unit maintenance instructions for the powerplant.
- Chapter 4 provides unit maintenance instructions for the fuel, air intake, and exhaust systems.
- Chapter 5 provides unit maintenance instructions for the engine cooling system.
- Chapter 6 provides unit maintenance instructions for the electrical systems and circuits.
- Chapter 7 provides unit maintenance instructions for the transmission and output reduction drives.
- Chapter 8 provides unit maintenance instructions for the suspension system.
- Chapter 9 provides unit maintenance instructions for the hull- and cab-related components.
- Chapter 10 provides unit maintenance instructions for the personnel heater and connection components, and fixed fire extinguisher system.
- Chapter 11 provides unit maintenance instructions for main winch, hoist winch, and related components.
- Chapter 12 provides unit maintenance instructions for the main hydraulic system.
- Chapter 13 provides unit maintenance instructions for the APU.
- Chapter 14 provides unit maintenance instructions for the M8AA13 gas/particulate filter unit.
- Chapter 15 provides unit maintenance instructions for the M239 smoke grenade launcher system.
- Chapter 16 provides unit maintenance instructions for the exhaust smoke generating system.
- Chapter 17 covers preparation for storage and shipment.

c. APPENDIXES

- Appendix A provides titles of documents and publications referenced in this manual
- Appendix B provides the MAC and special tools list.
- APPENDIX C provides a tool ID list.
- Appendix D provides an expendable and durable items list.
- Appendix E provides an illustrated list of the manufactured item.
- Appendix F provides torque limits.

- Appendix G provides a list of the mandatory replacement parts necessary to perform the unit maintenance procedures.
- Appendix H provides unit maintenance instructions for the USAREUR safety lighting modification kit.
- Appendix I provides unit maintenance instructions for the deep water fording kit.
- Appendix J provides unit maintenance lubrication instructions.

d. ALPHABETICAL INDEX

The alphabetical index is located after the last appendix and provides an alphabetical listing of information contained in this manual.

e. SCHEMATIC

There are three schematics in the form of foldouts located at the end of this manual. One schematic for the hydraulic system and two for the electrical system (one schematic for the dual voltage system and one schematic for the single voltage system).

f. DA FORM 2028-2

DA Form 2028-3 is used to report errors and to recommend improvements for the tasks in this manual.

g. METRIC CONVERSION CHART

The metric conversion chart converts English measurements to metric equivalents. Measurements in this manual are provided in both English and metric units.

WARNINGS, CAUTIONS, AND NOTES

Warnings, cautions, and notes are provided throughout this manual: A warning is provided where injury may occur to personnel on or near the vehicle. A caution is provided where equipment may be damaged, but no injuries to personnel should result. A note provides information, but no personnel injury or equipment damage should result.

INITIAL SET-UPS

Before starting a task, you must obtain all the tools, supplies, and personnel listed in the initial set-up. Be sure to read the task before performing the maintenance. If any other tasks are referenced, you must go to the initial set-up page for each of those tasks to find out what tools, supplies, and personnel will be needed.

REFERENCING

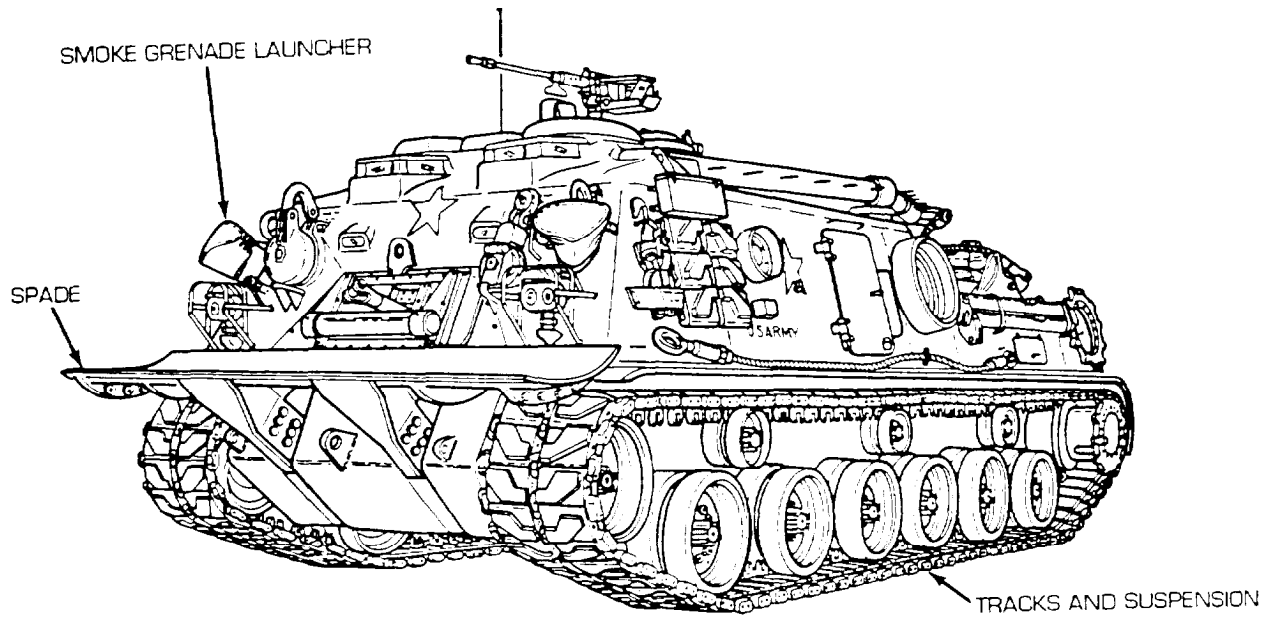
In this manual, internal referencing is done by chapter, appendix, paragraph, section, or task. For example, (see paragraph 8-15) refers you to Chapter 6, paragraph 15.

Referencing outside this manual is done by the military document or publication number. For example, (refer to TM 9-256-311-10) refers you to that manual.

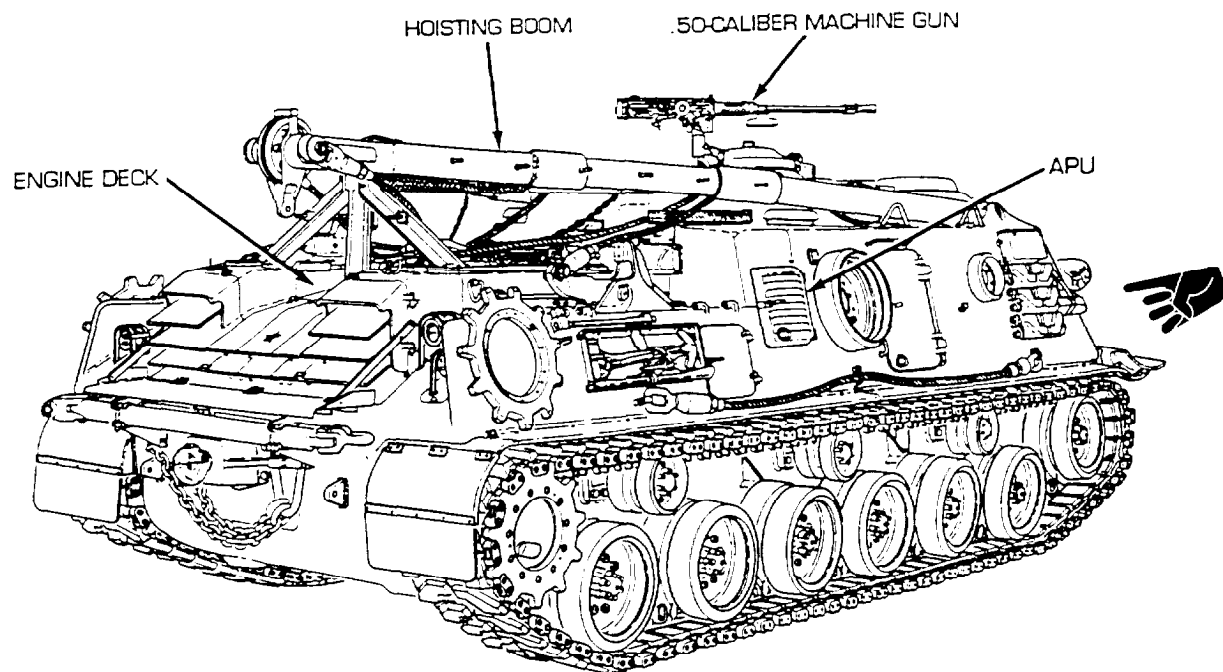
LOCATING INFORMATION

This manual provides six ways by which you can locate information quickly:

- The cover index lists most frequently used major division by name and starting page number.
- The table of contents.
- The chapter and appendix indexes list the paragraphs (if only one section in that chapter) or sections (if more than one section in that chapter) that are in those chapters/appendices.
- The section indexes list the paragraphs that are in those sections.
- The malfunction index (Chapter 3) provides a quick guide to troubleshooting malfunctions.
- The alphabetical index provides an alphabetical listing of information contained in this manual.



LEFT-FRONT VIEW



RIGHT-REAR VIEW

CHAPTER 1**INTRODUCTION****CHAPTER OVERVIEW**

The purpose of this chapter is to familiarize the technician with the M88A1 hull, powerplant, tracks, suspension, drive controls, and other related components. The familiarization is provided through a physical description of major components that the technician is required to inspect, service, replace, or repair at unit level.

This chapter consists of the following sections	Page
Section I: General Information	1-1
Section II: Equipment Description and Data	1-2
Section III: Principles of Operation	1-15

SECTION I: GENERAL INFORMATION

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1-2	Maintenance Forms, Records, and Reports	1-1
1-3	Destruction of Army Materiel to Prevent Enemy Use.	1-1
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1-6	Reporting Equipment Improvement Recommendations (EIRs)	1-2
1-7	Corrosion Prevention and Control (CPC)	1-2

1-1 SCOPE

This Unit Maintenance manual is for your use in maintaining the M88A1, Full-Track, Medium, Recovery Vehicle. The M88A1 is designed for towing, hoisting, and winching; its purpose is to provide for battlefield recovery of medium and light combat vehicles.

1-2 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).

1-3 DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

For information and conditions under which destruction of the M88A1 should be undertaken to prevent enemy use and for other methods of destruction, refer to TM 9-2350-256-10 and TM 750-244-6.

1-4 PREPARATION FOR STORAGE OR SHIPMENT

The requirements for storage and shipment are covered in Chapter 17.

1-5 OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS

Throughout this manual, parts and component assemblies are referred to by their official nomenclature. In the following list, parts and component assemblies are identified by their official nomenclature followed by their common names.

1-5 OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS-Continued

<u>OFFICIAL NOMENCLATURE</u>	<u>COMMON NAME</u>
Hexagonal nut	Jamnut
Incandescent lamp	Bulb
Liquid level gage rod	Dipstick
Nonelectrical wire	Lockwire
Parking brake handle	Hand brake
Pipe plug	Drain plug
Quick-coupling half	Quick disconnect
Self-locking nut	Locknut
Self-locking washer	Lockwasher
Socket head screw key	Hex key
Spacer	Shim

1-6 REPORTING EIRs

If your M88A1 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF Form 368, Product Quality Deficiency Report. Mail it to Commander, U.S. Army Tank-automotive and Armaments Command, Attn: AMSTA-QRT, Warren, MI 48397-5000. We will send you a reply.

1-7 CPC

CPC of Army materiel is a continuing concern. It is important that any corrosion problem with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber or plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF Form 368, Product Quality Deficiency Report. Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem. The form should be submitted to Commander, U.S. Army Tank-automotive and Armaments Command, Attn: AMSTA-QRT, Warren, MI 48397-5000.

SECTION II: EQUIPMENT DESCRIPTION AND DATA

Para.	Task	Page
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1-9	Location and Description of Major Components.....	1-3
1-10	Differences Between Models	1-12
1-11	Equipment Data	1-12

1-8 EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The M88A1 is an armored vehicle used to perform battlefield recovery of medium and light combat vehicles. The vehicle is powered by a Continental, V-type, air-cooled, 12-cylinder, fuel-injected, turbosupercharged, diesel engine, model AVDS-1790-2DR, through an Allison cross-drive transmission, model XT-1410-4. The vehicle is designed for towing, hoisting, and winching. An armored, turret-type cupola with a caliber .50 machine gun is mounted on top of the vehicle cab. The vehicle is equipped with a hydraulically powered and controlled spade, hoisting boom, main winch, and hoist winch.