

TM 9-2350-222-10-1

VOLUME 1 OF 3

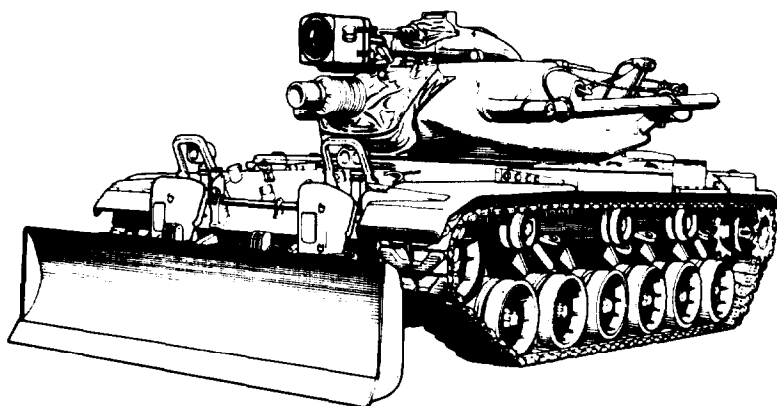
CHECK FOR CURRENT CHANGES

OPERATOR'S MANUAL OPERATOR CONTROLS AND PMCS

OPERATING
INSTRUCTIONS
PAGE 2-1

This copy is a reprint which includes current pages from Changes 1 through 6.

PMCS
PAGE 2-29



VEHICLE, COMBAT ENGINEER FULL TRACKED: M728 (2350-00-795-1797)

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HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1981

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Technical Manual
No. 9-2350-222-10-1

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DEPARTMENT OF THE ARMY
Washington, D. C., 12 January 1981

OPERATOR'S MANUAL
OPERATOR CONTROLS AND PMCS
VEHICLE, COMBAT ENGINEER
FULL-TRACKED: M728
(2350-00-795-1797)

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 direct 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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*This manual, together with TM 9-2350-222-10-2, 12 January 1981, and TM 9-2350-222-10-3, 12 January 1981, supersedes TM 9-2350-222-10, August 1965 and TM 9-2350-222-ESC, 16 October 1972.

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HOW TO USE THIS MANUAL

- This manual (TM 9-2350-222-10) is divided into 3 volumes, with volume number indicated on the cover by -1, -2 or -3 after the basic TM number. The manual is further divided into chapters and sections. For a specific volume, chapter or section; refer to TABLE OF CONTENTS (page i).
- The TABLE OF CONTENTS lists the titles of each chapter and section and the page number on which each chapter and section begins. Also listed in the TABLE OF CONTENTS are the APPENDIXES and the SUBJECT INDEX.
- Section I and II of Chapter 1 and Section I of Chapter 2 will introduce the vehicle, giving General Information, Equipment Description, description and use of operator's controls and indicators for the inexperienced as well as serving as a reference for the experienced.
- Section II of Chapter 2 is the Preventative Maintenance Checks and Services (PMCS). This PMCS table lists all required checks and services. There are before, during, after operations, weekly and monthly checks and services. The PMCS contains the conditions under which you report your vehicle not ready/available.
- Section III and IV of Chapter 2 provides instructions for operating your vehicle under usual and unusual conditions. Each of the sections has its own OPERATIONAL INDEX for quick reference to the procedures by title.
- Section I, II, and III of Chapter 3 provides lubrication, troubleshooting, and maintenance instructions for keeping your vehicle fully operational. A feature of TROUBLESHOOTING (Chapter 3, Section II) is the SYMPTOM INDEX. This index provides an easy way to find the troubleshooting procedure needed by looking up the symptom.
- Chapter 4 provides information on the types of ammunition authorized. In addition identification, care, handling and preservation of ammunition is described.
- The APPENDIXES which follow Chapter 4 provide information on equipment, tools, and supplies needed to keep the vehicle fully operational.

HOW TO USE THIS MANUAL - Continued

- The SUBJECT INDEX is an alphabetical listing of subjects you are likely to look for. You are able to find information on procedures by looking for either the equipment name or operation to be performed on the equipment in the index. Example: "Boresight caliber .50 machine gun" can be found in the index by looking under any of the following subjects.

Boresight
Caliber .50 machine gun
Machine gun
M85 caliber .50 machine gun

- The pages of each chapter are numbered consecutively, using two-part arabic numerals separated by a hyphen. The first part is the chapter number and the second part is the order within the chapter.
- When more than one crewmember is required to perform a procedure, the number of persons required will be stated in a NOTE at the beginning of that procedure.
- Tools, equipment, and/or supplies needed for a procedure, along with their stowage locations, are listed at the beginning of the procedure.
- Condition listed under Make Sure should always be met before beginning to perform procedure.

Example

Make Sure:

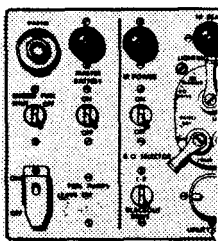
- Turret traverse lock is set to LOCKED (page 2-568).

Operator should check that the turret traverse lock is locked. If not, operator should lock it according to procedure on page 2-568.

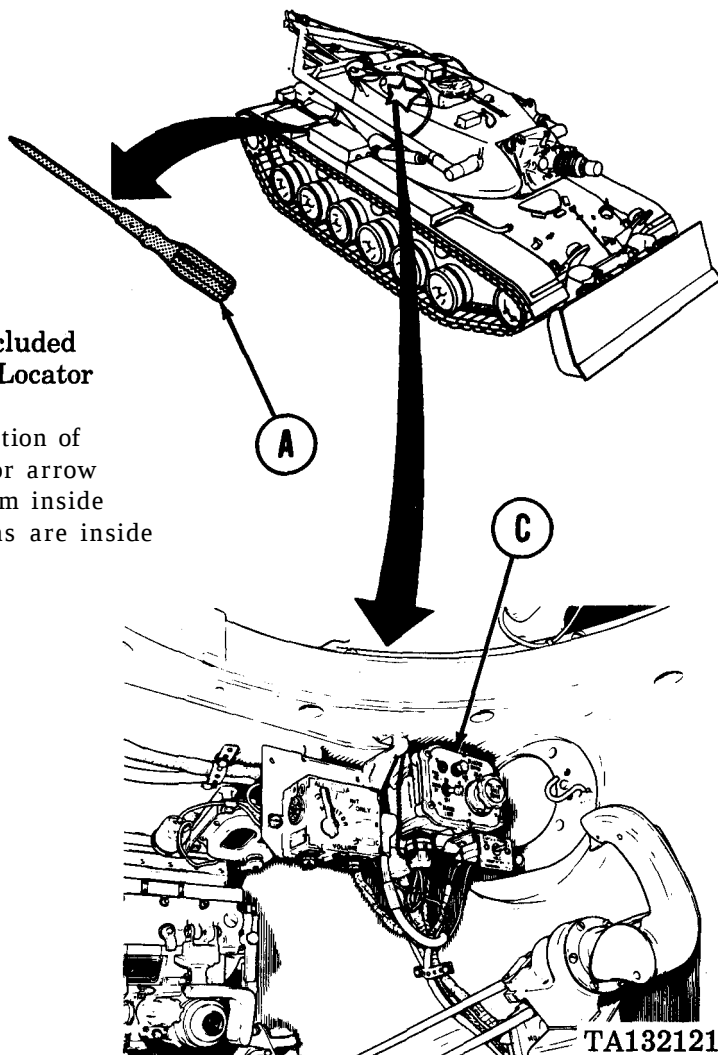
- Numbered steps are to be performed in the order they are numbered.

HOW TO USE THIS MANUAL - Continued

- WARNINGS, CAUTIONS, and NOTES appear before the step to which they apply. Be sure to read and follow all WARNINGS and CAUTIONS before performing any procedure or step that follows.
- When a procedure is listed, followed by a page number in parenthesis, go to that page for instructions on how to do that procedure.
- Names of switches, switch positions, and equipment descriptions that appear on decals, signs, or stencils will appear in the text in CAPITAL LETTERS. Example: The words MASTER BATTERY appears on the drivers control panel above the switch. When called out as MASTER BATTERY switch, the words MASTER BATTERY will always be capitalized.



- **Locator views are included wherever necessary.** Locator arrows are solid and started from the location of an item. When locator arrow is shown starting from inside jagged circle, locations are inside the vehicle.



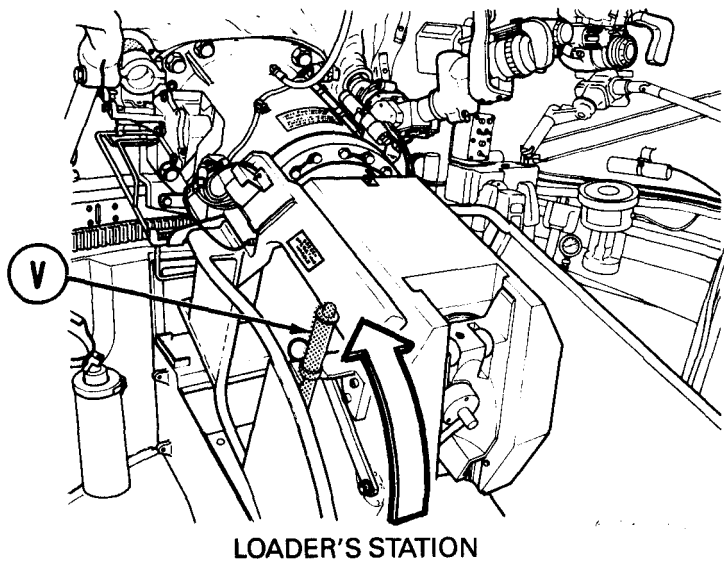
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HOW TO USE THIS MANUAL - Continued

- Callout letters identifying equipment in illustrations will appear in a callout balloon on art and in parenthesis in the text. See example.

Example

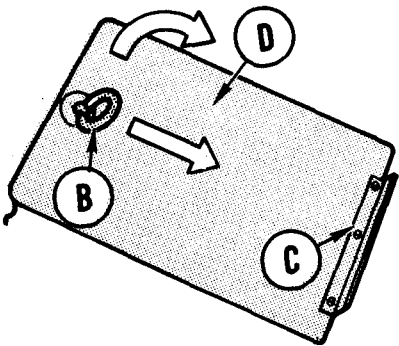
13. Rotate operating handle (V)
forward to latched position.



- Mechanical motion arrows are white and show the direction of movement of an item. See example.

TURRET FLOOR

Example



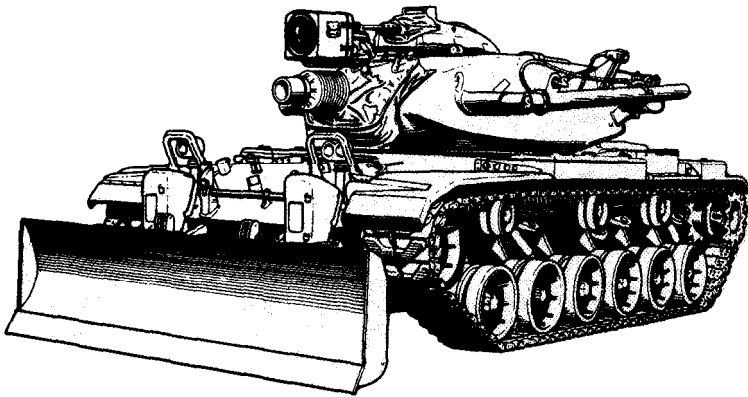
CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

Scope

This manual is for your use in operating and maintaining the CEV (Combat Engineer Vehicle). The vehicle is operated by a four-man crew. The crew consists of a commander, gunner, loader, and driver.

**Maintenance Forms and Records**

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). ■

Reporting Equipment Improvement Recommendations (EIR)

EIR's 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 a new design or list a better way to perform a procedure. Just simply tell why the design is unfavorable or why a procedure is difficult. EIRs may be submitted on SF 368, Quality Deficiency Report. Mail directly to Commander, U.S. Army-Tank Automotive Command, AMSTA-QR, Warren, MI 48397-5000. A ■
reply will be furnished to you.

NOMENCLATURE CROSS REFERENCE LIST

Common Name	Official Nomenclature and General Application
Amplifier	Amplifier, Audio Frequency AM-1780/VRC
Azimuth indicator	Indicator, Azimuth M28E2
CVC helmet	Combat Vehicle Crewmember Helmet with headset and microphone installed
Daylight periscope (driver's)	Periscope M27
Elevation Quadrant	Quadrant, Fire Control M13A3
External handset box	Control, Intercommunication set C-2296/VRC
Instrument light (for M105F telescope)	Light, Instrument M50
Intercom	Intercommunication Set AN/ VIC-1 (V)
Intercom control box (crew members)	Control, Intercommunication Set C-2298/VRC
Intercom control box (driver's)	Control, Intercommunication Set C-2297/VRC
IR periscope (driver's)	Periscope M24
Light source control (for M36 or M36E1)	Control, Light Source 861959
Light source control (for M105F)	Control, Light Source 8619165-1
Light source control (for M13A3)	Control, Light Source 8620860
Night vision viewer (driver's)	Viewer Assembly AN/ VVS-2
Periscope (commander's)	Periscope M36
Periscope (commander's)	Periscope M36E1
Periscope (gunner's)	Periscope M32CE1
Periscope (loader's), Receiver-Transmitter	Periscope M37 Receiver-Transmitter RT-524/ VRC used with AN/VRC-46
Receiver-Transmitter	Receiver-Transmitter RT505/ VRC used with AN/VRC-53
Receiver-Transmitter	Receiver-Transmitter RT-841/ VRC used with AN/VRC-64
Searchlight	Searchlight AN/VSS-2
Searchlight	Searchlight AN/VSS-3A

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Section II. EQUIPMENT DESCRIPTION

Purpose

A combat engineer vehicle is designed to remove, destroy, or make obstacles while providing movable weapons. ■

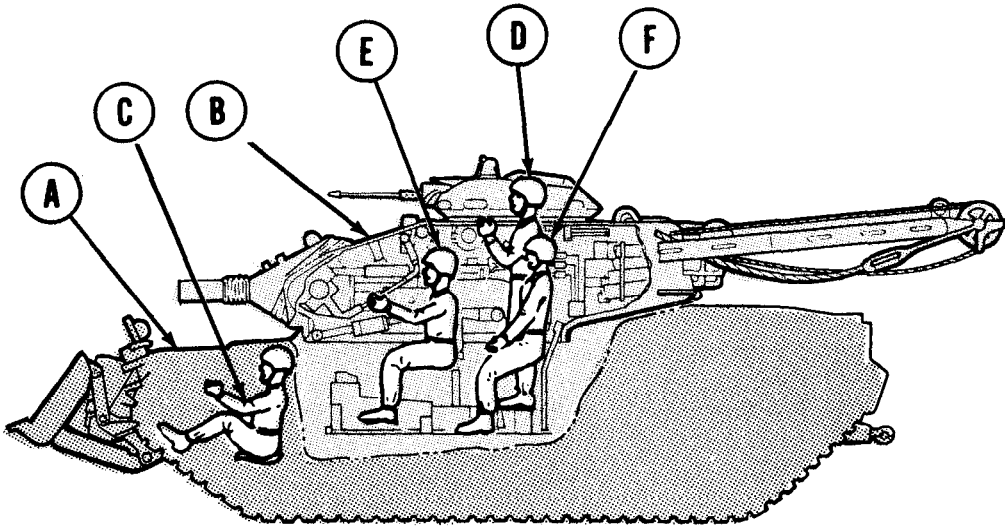
Capability and Features

- Operates within a nuclear-biological-chemical environment
- Moves rapidly over cross country terrains
- Moldboard provides capability of clearing obstacles
- Hoists up to 17,500 pounds (7999 kilograms)
- Winches up to 25,000 pounds (11,340 kilograms)
- Provides instant heavy demolition capability
- Fords water up to 48 inches (1.2 meters) deep without water fording kit
- Fords water up to 8 feet (2.4 meters) deep with kit installed
- Provides night sighting during low light levels
- Provides choice of white searchlight or security infrared searchlight
- Provides limited smoke screen from choice of two smoke grenade launchers or engine smoke generator

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Change 1 1-3

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

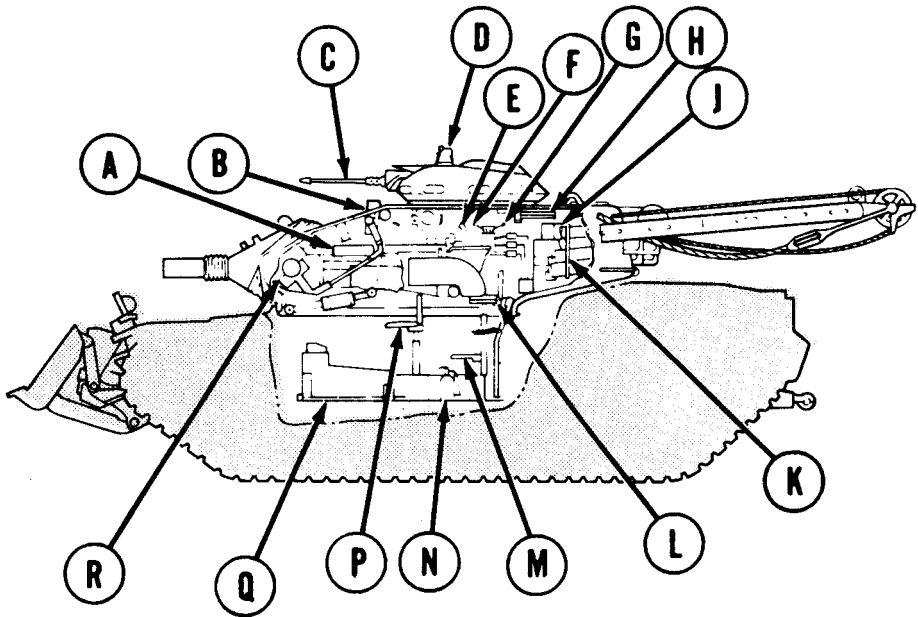


General

The vehicle is divided into two sections, hull (A) and turret (B). The hull front contains the driver's (C) compartment, controls and instruments. The hull rear contains engine, transmission, fuel tanks, and related automotive parts. The turret (B) has positions for commander (D), gunner (E), and loader (F). It also contains the armament, ammunition, communications, and sighting and fire control equipment. The following pages locate and briefly describe major components. For more information refer to index for page number.

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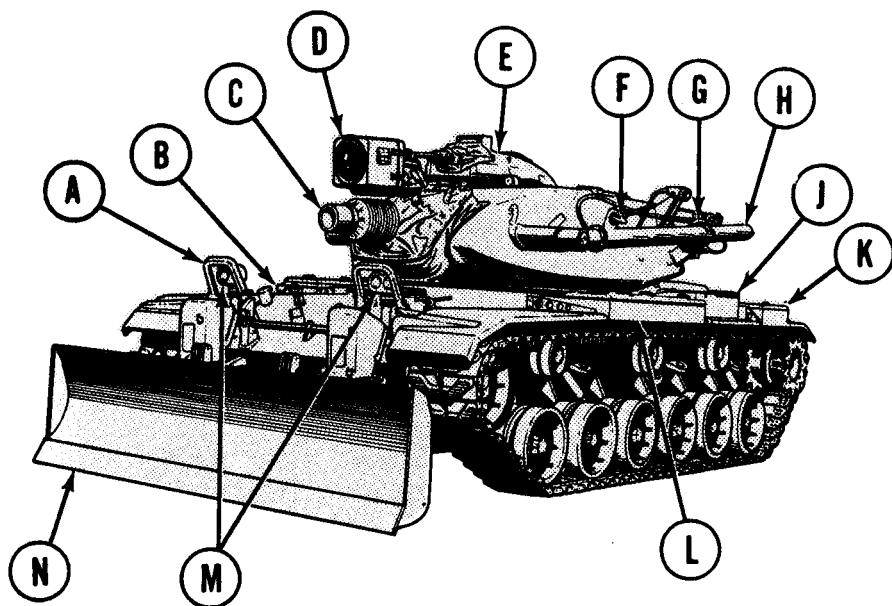
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



LEFT VIEW

- | | |
|---|------------------------------|
| A 7.62-mm machine gun | J Radio equipment |
| B Gunner's periscope | K Ammunition stowage rack |
| C Caliber .50 machine gun barrel | L Commander's seat |
| D Commander's periscope | M Commander's platform |
| E Commander's gun elevating and turret traversing control | N Portable fire extinguisher |
| F Winch control | P Gunner's seat |
| G Boom control | Q Turret platform |
| H Commander's observation seat | R M150 gun mount |

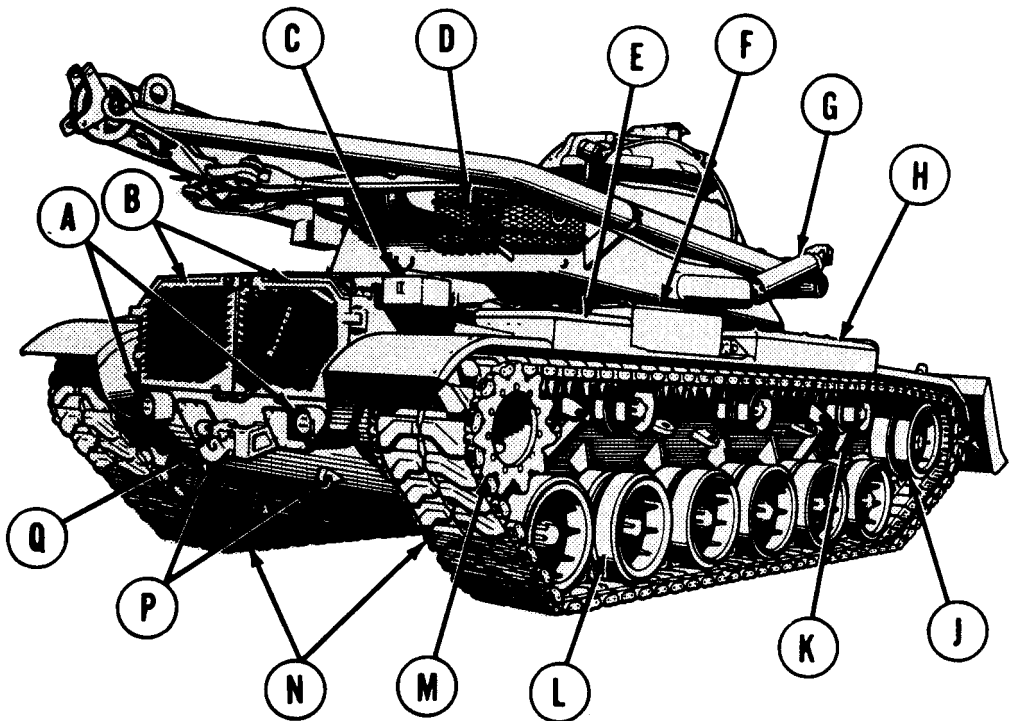
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



LEFT VIEW

- | | | | |
|---|---------------------------------|---|--------------------------|
| A | Brush guard, headlight | G | Boom travel lock |
| B | Personnel heater exhaust outlet | H | Boom |
| C | 165-mm gun tube | J | Engine air cleaner |
| D | Searchlight | K | Rear fender stowage box |
| E | M19 commander's cupola | L | Front fender stowage box |
| F | Hook, winch cable | M | Headlight |
| | | N | Moldboard |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued



RIGHT VIEW

- | | |
|----------------------------------|----------------------------|
| A Taillight | J Compensating idler wheel |
| B Rear grille doors | K Track support roller |
| C External handset box | L Roadwheel and hub |
| D Bustle rack, stowage | M Drive sprocket |
| E Rear fender stowage box | N Track |
| F Engine air cleaner | P Tow eye |
| G Boom linear actuating cylinder | Q Tow pintle |
| H Front fender stowage box | |

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