

ARMY TM 9-1025-211-34

MARINE CORPS TM 08198A-34/3

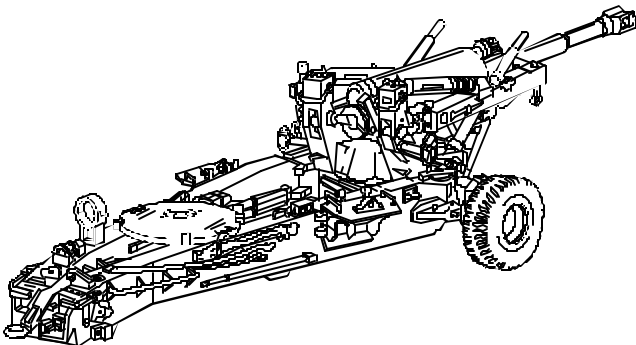
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TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

FOR

HOWITZER, MEDIUM, TOWED:
155-MM, M198
(1025-01-026-6648) (EIC:3EL)



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HEADQUARTERS, DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. MARINE CORPS

MAY 1991

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

FOR
 HOWITZER, MEDIUM, TOWED: 155-MM, M198
 (1025-01-026-6648)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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HOW TO USE THIS MANUAL

GENERAL

- a. Whenever the masculine gender (i.e., crewman, repairman) is used in the manual, it includes both masculine and feminine genders.
- b. References in this manual are to pages or to other publications.
- c. Throughout this manual, the text is keyed to the illustrations by numbered callouts. When an item is called out in a procedure, a number in parentheses in the text corresponds with a circled number on the illustration.
- d. In most illustrations for the maintenance procedures, the howitzer is shown with the ballistic shields removed (for clarity).
- e. Procedures for unmodified howitzers, where applicable, are provided before procedures for modified howitzers.

INDEXES

- a. **Front Cover Index.** A page reference index of often used portions of the manual.
- b. **Table of Contents.** Lists all chapters and their sections, the appendixes, and an alphabetical index and gives page references to where they begin.
- c. **Official Names, Nomenclature, and Designations.** Throughout this manual, most items are referred to by their official nomenclatures. On page 1-3, the items referred to by their common names are listed alphabetically, followed by their official nomenclature.
- d. **Chapter Indexes.** Lists each section contained in the chapter and a page reference to the first page of the section.
- e. **Section Indexes.** Lists each paragraph contained in the section and a page reference to the first page of the paragraph.
- f. **Symptom Index.** This quick guide to troubleshooting lists common malfunctions in alphabetical order with a page reference to test or inspection and corrective action.
- g. **Alphabetical Index.** This index at the back of the book tells you where in the manual to find a particular subject.

MAINTENANCE PROCEDURES

There are two maintenance chapters. Chapter 2 contains direct support maintenance instructions and is divided into four individual maintenance sections covering the cannon, recoil mechanism, carriage, and auxiliary equipment. Chapter 3 covers instructions for general support maintenance. Each maintenance section contains detailed procedures for the maintenance tasks.

- a. **Initial Setup.** Is a list of everything needed in order to do the maintenance task:

- (1) **Special tools** — Lists tools that are contained in TM 9-1025-211-34P.

HOW TO USE THIS MANUAL (cont)

MAINTENANCE PROCEDURES (cont)

(2) **Materials/parts** — Lists 100 percent replaceable parts and expendable/durable items.

(3) **Personnel required** — Lists the number of personnel needed if more than one.

(4) **References** — Lists other publications containing necessary information.

(5) **Equipment conditions** — Lists conditions to be met before starting the procedures. The reference on the left of the condition is a page reference to instructions for setting up the condition.

b. Step-By-Step Procedures. Are illustrated procedures for maintenance authorized in the MAC (TM 9-1025-211-20&P). To replace parts, see TM 9-1025-211-34P.

CHAPTER 1 INTRODUCTION

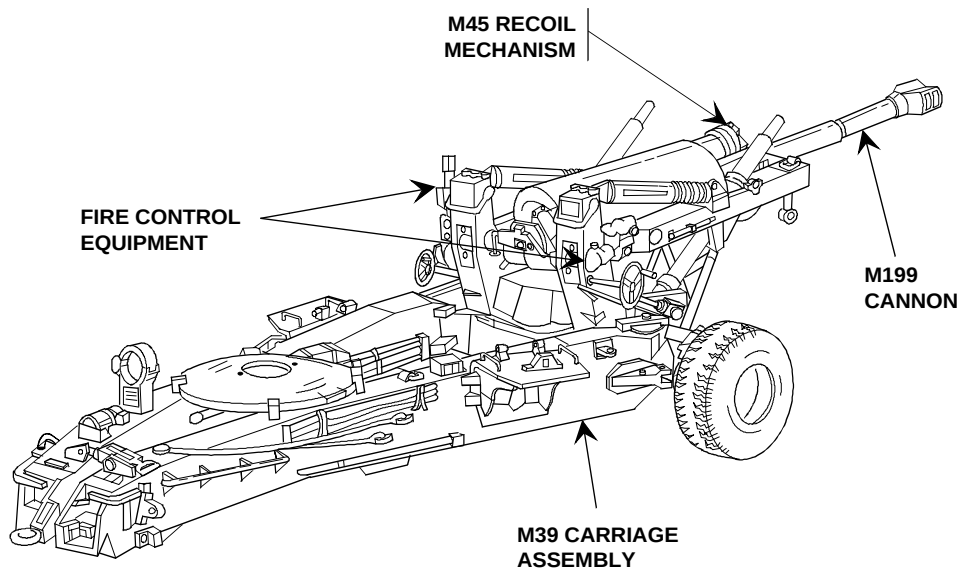
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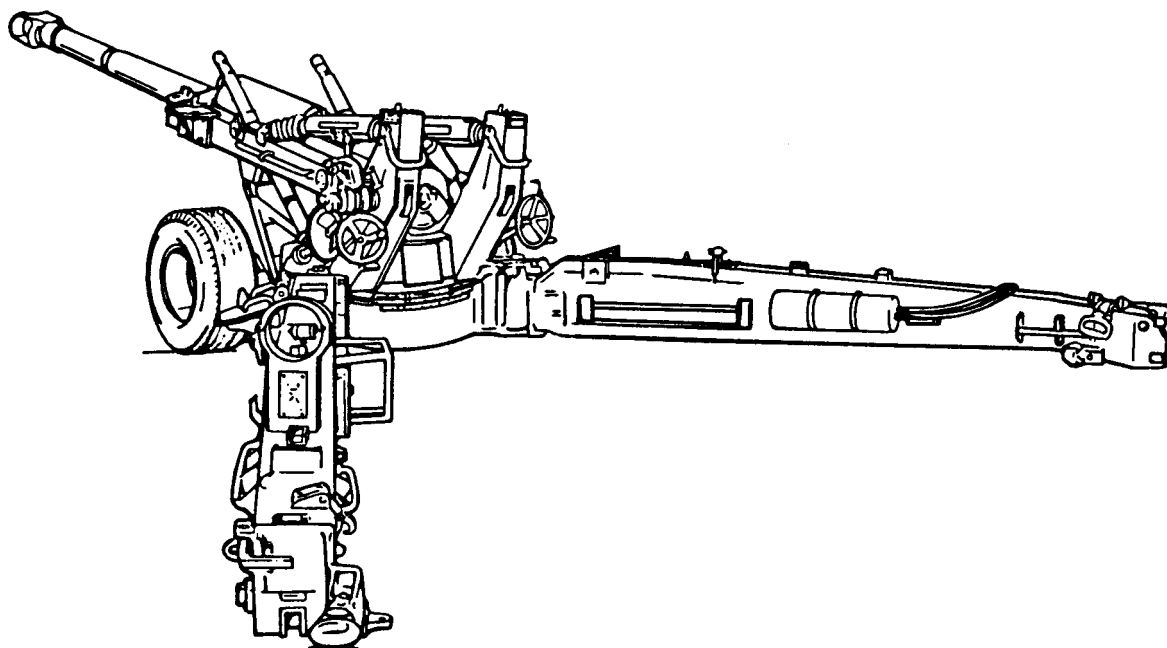
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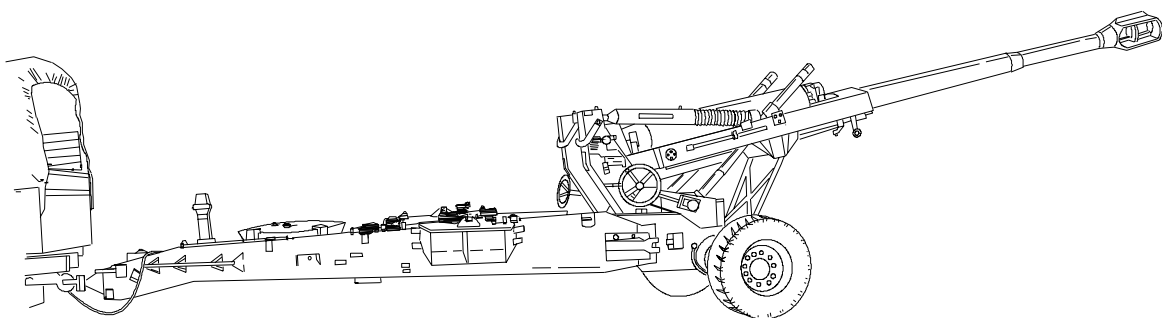
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FULL EXTERNAL VIEW OF M198 155-MM MEDIUM TOWED HOWITZER



LEFT REAR VIEW



TOWED POSITION

1-1. SCOPE

- a. **Type of Manual.** Direct support and general support maintenance manual.
- b. **Model Number and Equipment Name.** Howitzer, Medium, Towed: 155-mm, M198.
- c. **Purpose of Equipment.** To provide artillery fire in support of ground-gaining troops.

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. Marine Corps personnel will use TM 4700-15/1, Equipment Record Procedures.

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 9-1025-211-20&P.

1-4. PREPARATION FOR STORAGE OR SHIPMENT

Refer to TM 9-1025-211-20&P.

1-5. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS

This listing includes nomenclature cross-references used in this manual.

Common Name	Official Nomenclature
Bearing seat.....	Ball socket seat
Bleed valve assembly.....	Angle safety-relief-assembly valve
Bushing	Self-aligning bearing
Bushing clamp.....	Flange
Clevis assembly	Shackle
Capscrew	Internal wrench bolt
Dipstick.....	Liquid gage rod cap
Emergency relay valve	Automatic-bleed-down direct emergency linear valve
Flat washer.....	Non-metallic grommet
Linear baseplate.....	Speed shift base assembly
Oil reserve indicator	Pressure indicator
Paint	Polyurethane coating
Rest.....	Hand screw jack cap
Sensing bulb.....	Thermal sensing element

1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your M198 howitzer 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 368, Product Quality Deficiency Report. Mail it to us at ATTN: AMSTA-AR-QAW-C, TACOM-ARDEC, 1 Rock Island Arsenal, Rock Island, IL 61299-7300. FAX: Commercial (309) 782-6653, DSN 793-6653. E-mail: qawqdrs@ria.army.mil. Marine Corps personnel are encouraged to submit SF 368 in accordance with MCO 4855.10, Quality Deficiency report. We'll send you a reply.

1-7. CORROSION PREVENTION AND CONTROL (CPC)

- a. Corrosion prevention and control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.
- b. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and 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 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. Submit the form to: ATTN: AMSTA-AR-QAW-C, TACOM-ARDEC, 1 Rock Island Arsenal, Rock Island, IL 61299-7300. FAX: Commercial (309) 782-6653, DSN 793-6653. E-Mail: qawqdrs@ria.army.mil. Marine Corps users submit Product Quality Deficiency Report to: Commander, ATTN: (Code 822-2), Marine Corps Logistics Bases, 814 Radford Blvd., Albany, GA 31704-1128.

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1-8. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

- a. The purpose of the M198 howitzer is to provide general support field artillery firing for the light division by providing both nuclear and non-nuclear firing.
- b. The M198 howitzer is a medium weight, low profile, split trail, extended range weapon. It may be displaced rapidly and has a 6400-mil speed shift. The howitzer may be towed by a vehicle or airlifted by a CH47D helicopter. The carriage has retractable wheels. The top carriage assembly can be rotated 180 degrees to decrease the overall length for shipment or storage.
- c. The fire control equipment is operated by a gunner on the left side controlling direction (deflection) adjustments and an assistant gunner on the right side controlling elevation settings. It can also be operated by a gunner on the left side controlling both elevation and direction (deflection) settings. All light vials, reticles, and counters on the fire control and accessory equipment are radioactively illuminated.

1-9. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Refer to TM 9-1025-211-20&P.

1-10. MODIFICATION AND SYSTEM IMPROVEMENT PACKAGE

NOTE

This manual covers both modified and unmodified M198 howitzers. Illustrations and procedures are for the modified howitzer, unless procedures for both modified and unmodified components or assemblies are required for clarity. Procedures that are for the modified howitzer and do not pertain to the unmodified howitzer can be ignored.

All US Army and US Marine Corps M198 howitzers are scheduled to be equipped with a system improvement package (MWO 9-1025-211-50-3). This MWO will affect the M39 carriage assembly only. The following is a brief description of the MWO and areas affected.

a. Top Carriage Assembly.

- (1) **Equilibrators:** Warnings on ballistic shields telling repairmen that nitrogen pressure must be bled to zero PSI before performing maintenance.
- (2) **Equilibrator adjustment screw:** Improved adjustment screw components which make adjustment of equilibrators easier, and covers to keep debris from the screw and slide area.
- (3) **Adjustment scales and pointers:** Moved to inside of top carriage uprights to eliminate entanglement of camouflage nets.
- (4) **Top carriage:** Self-contained automatic traverse lock which is easier to engage and eliminates damage to hydraulic brake line.
- (5) **Traverse mechanism shim:** Eliminates interference between traversing angle drive unit and actuator arm.
- (6) **Universal joint bellows:** Help contain lubricants where they belong.
- (7) **Cradle assembly:** Gussets welded to travel lock area to strengthen the travel lock struts.

b. Bottom Carriage Assembly.

- (1) **Suspension:** New axle bushings help eliminate excessive friction when raising the howitzer to the towed position.
- (2) **Firing baseplate:** New lock mechanism makes it easier to lock base plate in position.
- (3) **Hydraulic brake system:** The brake precheck system is a more efficient way to check brake condition prior to towing howitzer.
- (4) **Snorkel breather system:** Connects power booster to trail to eliminate water intake into the power booster during fording operations.
- (5) **Drain cock:** Provides crew easier access to bleed pressure in the emergency air tank.
- (6) **Covers and standoffs for brake lines, and brake hose assembly hookup diagram:** Help keep howitzer brake system operable.
- (7) **Lifting handle assemblies:** Located on either trail to provide extended lifting capacity to the howitzer.
- (8) **Retention assemblies:** Positive hold-downs for spade keys and airlift clevis assemblies, and receptacles for spade key and trail lock pins.