

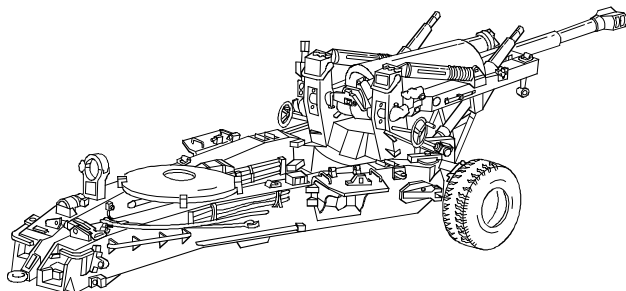
ARMY TM 9-1025-211-10 MARINE CORPS TM 08198A-10/1

SUPERSEDES COPY DATED 1 OCT 1979

TECHNICAL MANUAL
OPERATOR'S 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
JANUARY 1991

**OPERATOR'S MANUAL
 FOR
 HOWITZER, MEDIUM, TOWED: 155-MM, M198 (EIC: 3EL)
 (1025-01-026-6648)**

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This manual supersedes TM 9-1025-211-10, dated 1 October 1979, including all changes in their entirety.

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HOW TO USE THIS MANUAL

GENERAL

- a. Whenever the masculine gender (i.e., crewman) is used in this manual, it includes both masculine and feminine genders.
- b. 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.
- c. Some illustrations of the howitzer may have equilibrator ballistic shields and the recoil mechanism ballistic shield removed for clarity.
- d. The preventive maintenance checks and services table (p 2-10) includes equipment serviceability criteria. The information normally found in the For readiness reporting ... column is in the Procedures column.
- 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, appendixes, and alphabetical index in order and gives page references to where they begin.
- c. **Chapter Indexes.** All chapters contain indexes with page references.
- d. **Section Indexes.** Lists each paragraph contained in the section and a page reference to the first page of the paragraph.
- e. **Symptom Index.** This quick guide to troubleshooting lists common malfunctions in alphabetical order with a page reference to the test or inspection and corrective action.
- f. **Alphabetical Index.** At the back of the book tells you where in the manual to find a particular subject.

NOMENCLATURE CROSS-REFERENCE LIST

Throughout this manual, most items are referred to by their official nomenclature. On page 1-2, the items referred to by their common names are listed alphabetically and are followed by their official nomenclature.

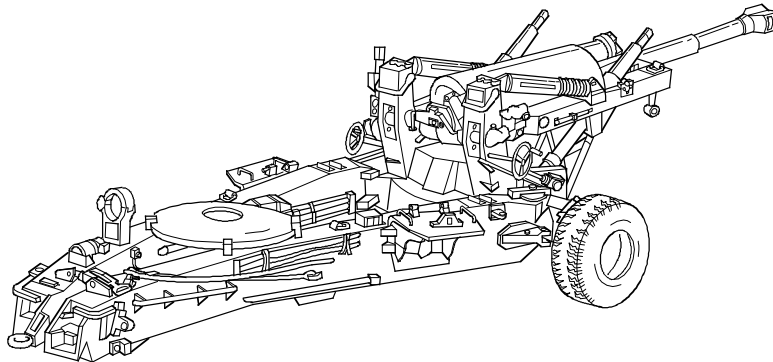
CHAPTER 1 INTRODUCTION

Chapter Index

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Section I. GENERAL INFORMATION

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**FULL EXTERNAL VIEW OF M198, 155MM,
MEDIUM, TOWED HOWITZER**

1-1. SCOPE

This manual tells the howitzer crew how to operate and maintain the howitzer in the field. It also includes training procedures.

- a. **Type of Manual.** Operator's 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.
- d. **Special Inclusions in Manual.** This manual includes section drill procedures on page 1-18.

1-2. 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). Marine Corps personnel will use TM 4700-15/1, Equipment Record Procedures.

1-3. HAND RECEIPT (HR) MANUALS

This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). The TM 9-1025-211-10-HR consists of pre-printed hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, BII, and AAL) you must account for. As an aid to property accountability, additional -HR manuals may be requisitioned from the following source in accordance with procedures in Chapter 3, AR 25-30:

Commander
US Army Publications Distribution
Center-St. Louis
ATTN: SFIS-APC-S-OC
1655 Woodson Road
St. Louis, MO 63114-6181

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR's)

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 or performance. 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: gawqdrs@ria.army.mil). Marine Corps users submit a Product Quality Deficiency Report (SF 368) in accordance with MCO 4855.10, Product Quality Deficiency Report, and TM 4700-15/1, Equipment Record Procedures, to: Commanding General, ATTN: Code (808-1), Marine Corps Logistics Base, 814 Radford Blvd, Albany, GA 31704-1128. We'll send you a reply.

1-5. CORROSION PREVENTION AND CONTROL

- 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 assure 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: gawqdrs@ria.army.mil). Marine Corps users submit Product Quality Deficiency Report to: Commanding General, ATTN: Code (808-1), Marine Corps Logistics Base, 814 Radford Blvd, Albany, GA 31704-1128.

1-6. NOMENCLATURE CROSS-REFERENCE LIST

This listing includes the nomenclature cross-reference list, list of abbreviations/acronyms, and explanation of terms (glossary) used in this manual.

COMMON NAME

OFFICIAL NOMENCLATURE

Dipstick.....	Liquid gage rod-cap
Emergency hose assembly.....	Hose assembly
Handbrakes.....	Left and right manual brake assemblies
Pantel.....	M137/M137A3 panoramic telescope
Service hose assembly.....	Hose assembly
Spade key.....	Machine key
SPEEDSHIFT lever.....	Selector valve handle
WHEELS lever.....	Selector valve handle

1-7. LIST OF ABBREVIATIONS/ACRONYMS

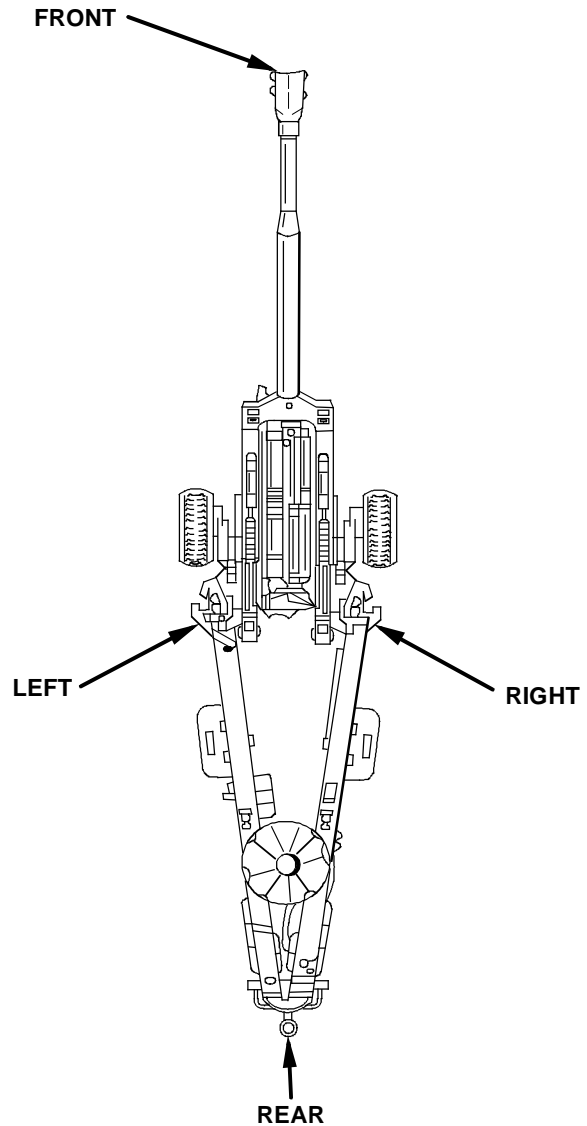
The following alphabetical list gives definitions for the abbreviations and acronyms used in this manual.

ADAM	Area denial artillery munition
BCS	Battery computer system
BE	Base ejection
BFS	Brake fluid, automotive, silicone
CHG	Charge
CLGP	Cannon-launched, guided projectile
CLP	Cleaner, lubricant and preservative
comp	Composition
CP	Concrete-piercing
CTA	Common table of allowances
DF	Deflection
ERLS	Elimination of Radioactive Light Sources
EFC	Equivalent full charge
EOD	Explosive ordnance disposal
ET	Electronic time
FZ	Fuze
GB	Green bag
GMD	Grease, molybdenum disulfide
H	Mustard gas
HC	White chemical smoke mixture
HD	Distilled mustard gas
HE	High-explosive
HEAT	High-explosive, anti-tank
HERA	High-explosive, rocket-assisted
HyPAK	Hydraulic power assist kit
ICM	Improved conventional munitions
JTA	Joint table of allowance
LED	Light Emitting Diode
MT	Mechanical time
MTOE	Modified tables of organization and equipment
MTSQ	Mechanical time and superquick
N-m	Newton meters
OHT	Hydraulic fluid, petroleum base
P	Requires removal of supplementary if present
PD	Point detonating
PL-S	Lubricating oil, general purpose, special preservative
prop	Propelling
prox	Proximity
QE	Quadrant elevation
RAAMS	Remote anti-armor mine system
RB	Red bag
RMK	Remarks
RPO	Radiological protection officer
SOP	Standard operating procedure
SQ	Superquick
suppl	Supplementary
TDA	Tables of distribution and allowances
TI	Time
TOE	Tables of organization and equipment
TWD	Thermal warning device
VT	Variable time
VX	Persistent toxic casualty nerve gas
WB	White bag
WP	White phosphorous
wpn	Weapon
WTR	Grease, aircraft, general purpose, wide temperature range

1-8. GLOSSARY

The following is an alphabetical listing of terms with definitions used in this manual. These terms need explanation and are not defined within the text.

- a. **Front of Weapon.** The muzzle end of the howitzer.
- b. **Howitzer Section.** Those personnel specified by the current table of organization and equipment that make up a howitzer section.
- c. **Left Side of Weapon.** At a person's left-hand side when standing at the breech end of the weapon, facing toward the cannon muzzle.
- d. **Rear of Weapon.** The breech end of the howitzer.
- e. **Right Side of Weapon.** At a person's right-hand side when standing at the breech end of the weapon, facing toward the cannon muzzle.



Section II. EQUIPMENT DESCRIPTION

Section Index

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1-10.	Location and Description of Major Components	1-5
1-11.	Modification and System Improvement Package	1-10
1-11.1.	Elimination of Radioactive Light Sources (ERLS) System Improvement	1-10.1
1-12.	Data Plates	1-11
1-13.	Equipment Data	1-15

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. The M198 howitzer provides general support field artillery firing for the light divisions by providing both nuclear and nonnuclear firing.

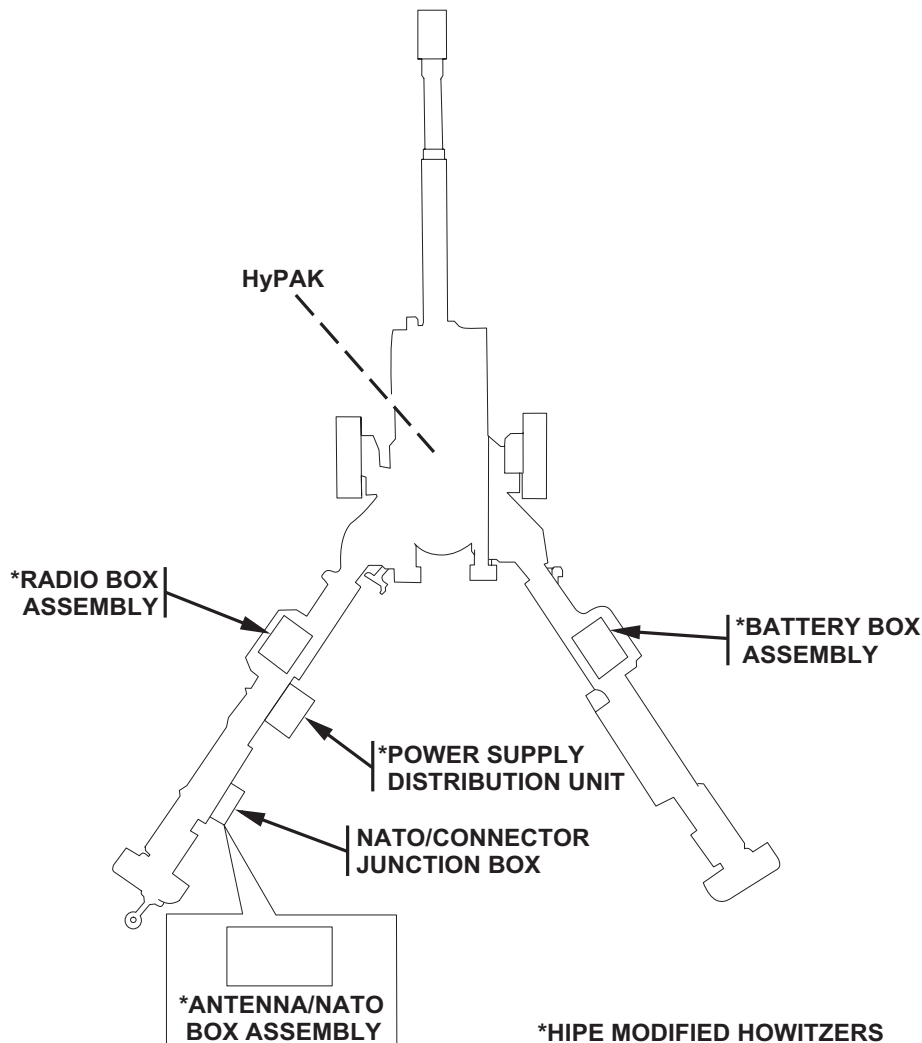
NOTE

A modified travel lock (to be fabricated by direct support maintenance) will be installed on all howitzers being airlifted by the CH47/CH47D helicopter. The modified travel lock will prevent damage to the helicopter and is to be used for airlift only, and not for towing the howitzer.

b. The M198 is an extended range, split-trail weapon that can be towed by a vehicle or airlifted by a CH47/CH47D or CH53E helicopter. The carriage has retractable wheels and a top carriage which can be rotated 3200 mils to decrease overall length for shipment or storage.

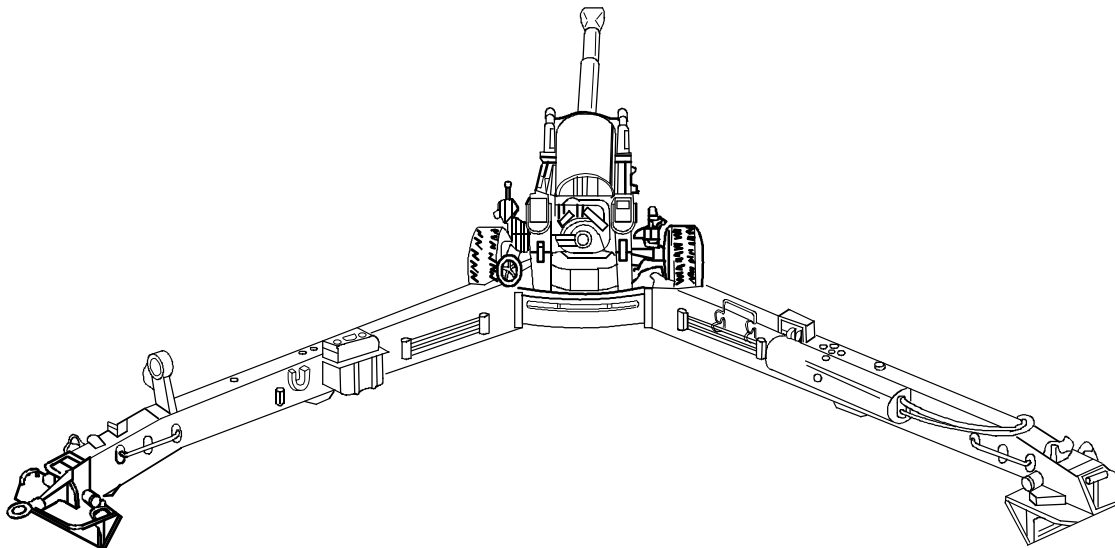
c. The fire control equipment may be used by one or two crewmen for direct or indirect fire. The gunner on the left side controls left and right (traversing) settings and the assistant gunner on the right side controls up and down (elevation) settings. The equipment can also be operated by a gunner on the left side controlling both traversing and elevation settings. All vials, reticles, and counters on the fire control and accessory equipment are radioactively illuminated.

d. The medium weight M198 howitzer has a low profile, may be emplaced rapidly, and has a 6400-mil speed shift assembly.

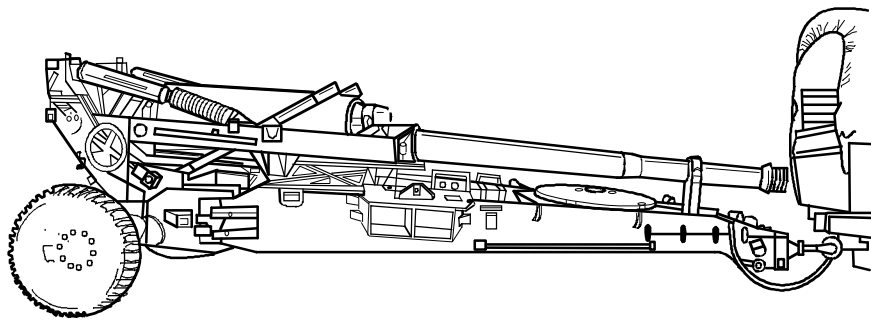


1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

- a. **Howitzer Positions.** The firing, stowed, and towed positions for the M198 howitzer are as shown.



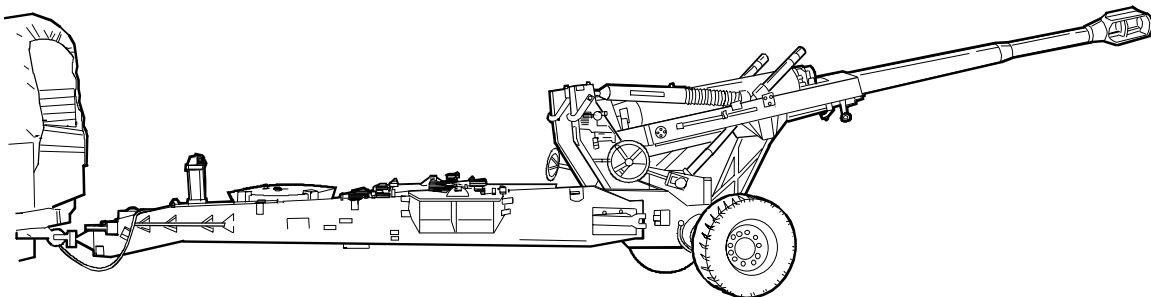
FIRING POSITION



STOWED POSITION

NOTE

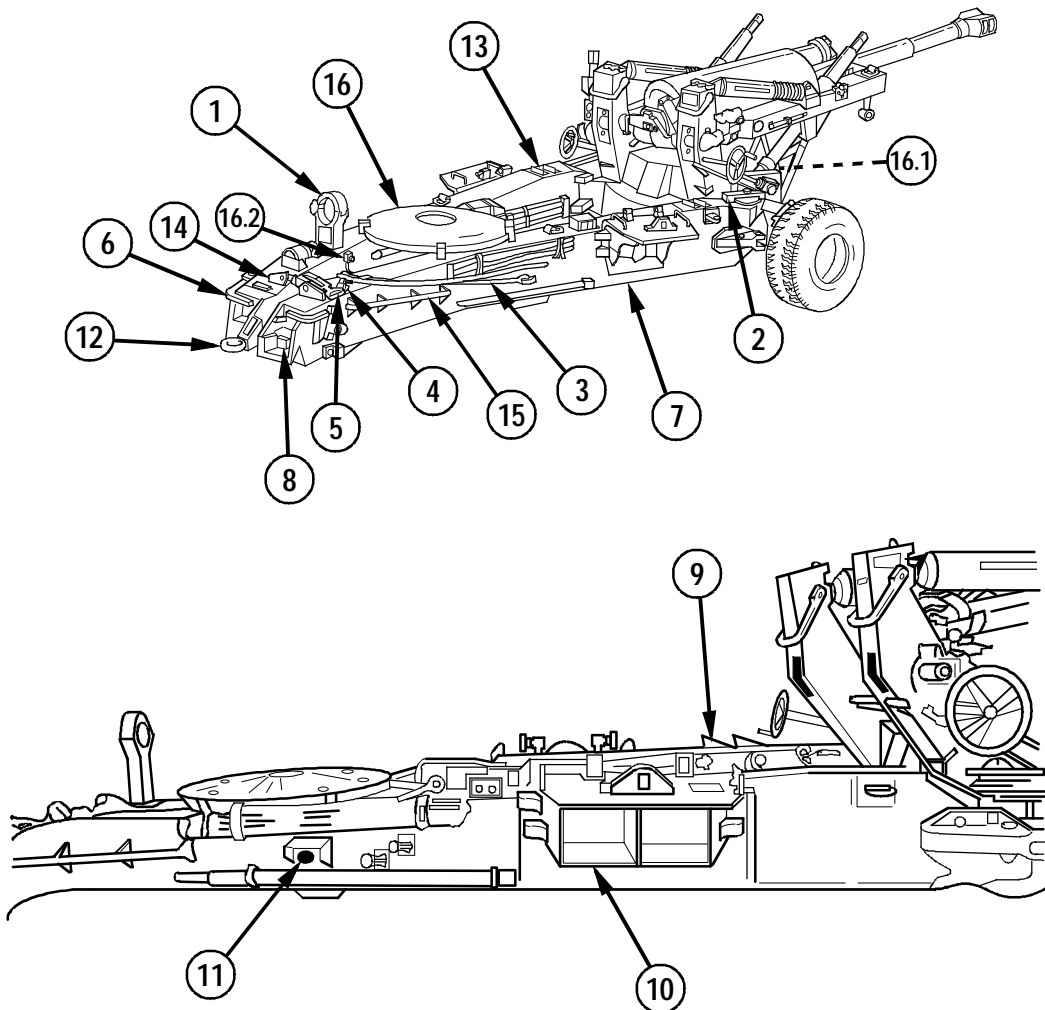
The muzzle brake is removed to tow the weapon in the stowed position.



TOWED POSITION

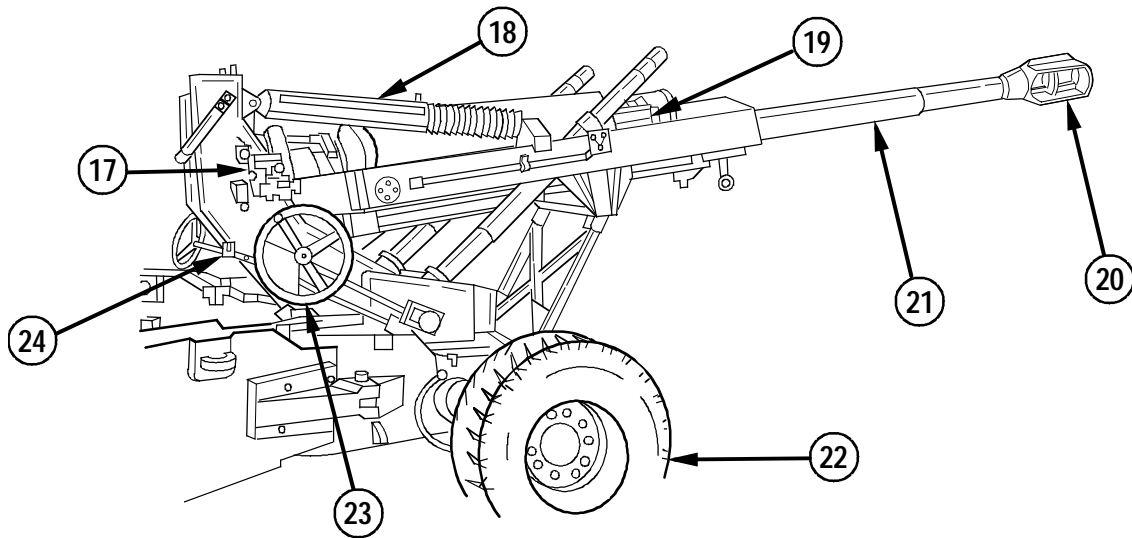
b. Howitzer Components. Familiarize yourself with the components of the M198 howitzer. Start with item number 1; then go to numbers 2, 3, 4, 5; and continue until you reach number 37. Go to page 2-1 for a detailed description of the controls and indicators.

Item	Component
1	Gun tube travel lock
2	Brake precheck
3	Service and emergency hose assemblies
4	Cam lock
5	Trail lock handle assembly
6	Lifting handle
7	Right trail
8	Trail retaining pin
9	BCS gun assembly (GA) bracket
10	Spade

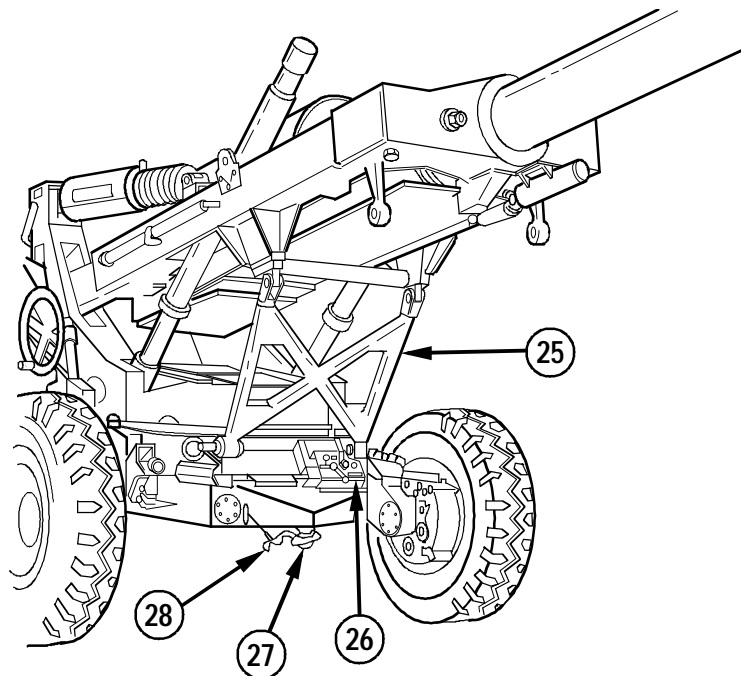


11	Drain cock
12	Lunette
13	Left trail
14	Trail lock
15	Lifting handle
16	Firing baseplate
16.1	HyPAK
16.2	HyPAK NATO Connector

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (cont)



- 17 M172 telescope and quadrant mount
- 18 Equilibrator cylinder (both sides)
- 19 Oil reserve indicator
- 20 Muzzle brake
- 21 Cannon tube
- 22 Wheel (both sides)
- 23 Elevating handwheel (both sides)
- 24 Manual control lever (both sides)



- 25 Travel lock assembly
- 26 Manifold assembly
- 27 Ball
- 28 Lock release lever