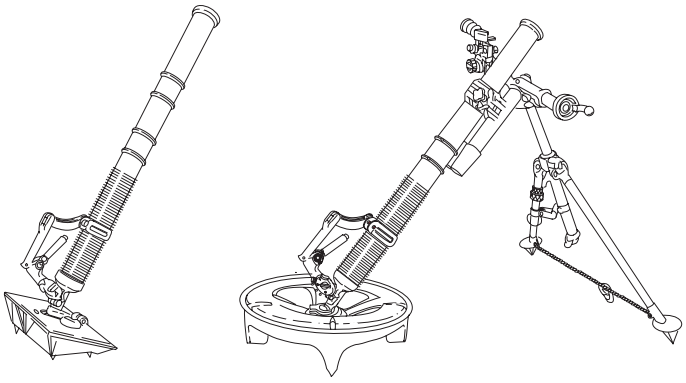
ARMY TM 9-1010-223-23&P
MARINE CORPS TM 08206A-23&P/2A

TECHNICAL MANUAL

UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
(INCLUDING DEPOT REPAIR PARTS)

FOR

LIGHTWEIGHT COMPANY MORTAR 60-MM, M224
(NSN 1010-01-020-5626)



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HEADQUARTERS, DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES MARINE CORPS

15 SEPTEMBER 1998

PCN18408206200

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within the technical manual.

FIRST AID

For first aid information, refer to FM 4-25.11, First Aid.

EXPLANATION OF SAFETY WARNING ICONS

EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.

FLYING PARTICLES - arrows bouncing off face shows that particles flying through the air will harm face.

WEAPON FIRE - weapon may accidentally discharge causing severe injury or death.

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

WARNING

Dented barrels must be replaced as they are unsafe for firing.

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS

CHEMICAL - drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.

EYE PROTECTION - person with goggles shows that the material will injure the eyes.

FIRE - flame shows that a material will ignite and cause burns.

RADIATION - three circular wedges shows that the material emits radioactive energy and can injure human tissue.

VAPOR - human figure in a cloud shows that material vapors present danger to life or health.

HAZARDOUS MATERIALS DESCRIPTION

WARNING

DRY CLEANING SOLVENTS AND PAINT THINNERS

Dry cleaning solvents (SD) and paint thinners are flammable. Do not clean parts near an open flame or in a smoking area. Make sure adequate ventilation is available. Wear safety glasses, splash goggles, and protective gloves. Always know location of nearest eye wash station. Dry cleaning solvents and paint thinners evaporate quickly and have a drying effect on the skin. When used without protective gloves, these chemicals may cause irritation to, or cracking of, the skin.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING

RADIOACTIVE TRITIUM (H_3)

The M64/M64A1/M67 Sight Units, Range Indicator, and M58/M59 Aiming Post Lights contain radioactive tritium gas in sealed source form. Exposure to tritium gas is a potential ionizing radiation hazard.

- Eating, drinking, or smoking is NOT allowed in tritium device maintenance areas.
- Arms rooms are not authorized work areas for the range indicator or any other mortar component.
- The range indicator shall be easy to remove. Work shall be performed by Direct Support maintenance personnel who are not permitted to use screwdrivers and/or punches to remove the range indicator from the handle and firing mechanism. If resistance is encountered, place the range indicator under ventilation controls (laboratory hood) and exercise extreme caution to remove.
- All personnel who operate and/or maintain fire control equipment must be aware of the special precautions to control exposure to tritium. Refer to the "Tritium (H_3) Safety, Care and Handling" section in WP 0001 00.
- Immediately report any suspected lost or damaged items to your Local Radiation Safety Officer (LRSO). If your LRSO cannot be reached, contact the TACOM-RI Safety Office during regular duty hours at DSN 793-2965/4594, Commercial (309) 782-2965/4594.

LRSO: _____ Phone: _____

ARMY TM 9-1010-223-23&P
MARINE CORPS TM 08206A-23&P/2A

CHANGE
NO. 3

HEADQUARTERS
DEPARTMENTS OF THE ARMY AND MARINE CORPS
WASHINGTON, D.C., 15 APRIL 2010

TECHNICAL MANUAL
UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
(INCLUDING DEPOT REPAIR PARTS)

FOR
LIGHTWEIGHT COMPANY MORTAR 60-MM, M224
(NSN 1010-01-020-5626)

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i and ii	i and ii
0033 00-0 through 0035 00-2	0033 00-0 through 0035 00-2
0040 00-1 through 0042 00-0	0040 00-1 through 0042 00-0
0048 00-1 through 0049 00-1	0048 00-1 through 0049 00-1
1 through 4 (Index)	1 through 4 (Index)

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4. Replace the following work packages with their revised version.

Work Package Number
WP 0001 00
WP 0003 00
WP 0005 00
WP 0008 00
WP 0009 00
WP 0010 00
WP 0011 00
WP 0016 00
WP 0018 00
WP 0020 00
WP 0021 00
WP 0024 00
WP 0025 00
WP 0028 00
WP 0029 00
WP 0030 00
WP 0031 00
WP 0050 00
WP 0051 00
WP 0052 00

5. File this sheet in the front of the manual for reference purposes.

By Order of the Secretary of the Army and Commandant of the Marine Corps:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

R. P. SHOCKEY
Director, Program Support
Marine Corps Systems Command

OFFICIAL:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army

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DEPARTMENT OF THE ARMY
NO. 2 WASHINGTON, D.C., 20 FEBRUARY 2006

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WP 0003 00
WP 0009 00
WP 0030 00
WP 0031 00

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PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

R. P. SHOCKEY
Director, Program Support
Marine Corps Systems Command

OFFICIAL:

SANDRA R. RILEY
Administrative Assistant to the Secretary of the Army
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CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 AUGUST 2001

TECHNICAL MANUAL
UNIT AND DIRECT SUPPORTMAINTENANCE MANUAL
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FOR
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0040 00-1 through 0045 00-0	0040 00-1 through 0045 00-0
2028s	2028s

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WP 0010 00
WP 0018 00
WP 0020 00
WP 0050 00
WP 0051 00
WP 0052 00

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ERIC K. SHINSEKI
General, United States Army
Chief of Staff

R. P. SHOCKEY
Director, Program Support
Marine Corps Systems Command

Official:

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Change ....1 1 Aug 01
Change ....2 20 Feb 06
Change ....3 15 Apr 10

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Page / WP No.	*Change No.
Cover	2
a - b	3
c Added	3
d blank Added	3
A	3
B blank	0
i	3
ii - iii	0
iv blank	0
WP 0001 00	3
WP 0002 00	2
WP 0003 00	3
WP 0004 00	0
WP 0005 00	3
WP 0006 00 - WP 0007 00	0
WP 0008 00 - WP 0011 00	3
WP 0012 00 - WP 0015 00	0
WP 0016 00	3
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***ARMY TM 9-1010-223-23&P**
MARINE CORPS TM 08206A-23&P/2A

HEADQUARTERS, DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES MARINE CORPS
Washington, D.C., 15 September 1998

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FOR

LIGHTWEIGHT COMPANY MORTAR 60-MM, M224 (NSN 1010-01-020-5626)

Current as of 1 June 2009 for RPSTL WP 0033 00 to WP 0051 00

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is https://aeps.ria.army.mil. The DA Form 2028 is located under the Public Applications section of the AEPS Public Home Page. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

Marine Corps users submit NAVMC 10772 to: Commander, Marine Corps Logistics Bases (Code 850), 814 Radford Blvd, Albany, GA 31704-1128. Recommended changes may be sent by fax (DSN 567-6439, Commercial (912) 439-6439), by e-mail (COMMARCORLOGBASES_853SMB@ILS853@MCLB ALBANY) (provide information normally on NAVMC 10772), or by naval message (in any format, only one publication per message). A reply will be furnished to you. Marine Corps users/maintainers should also provide an informational copy to: Commander, Marine Corps System Command, ATTN: CBGI, 2033 Barnett Ave, Suite 315, Quantico, VA 22314-5010.

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*This manual supersedes TM 9-1010-223-20&P dated 27 March 1981, including all changes, and TM 9-1010-223-34&P dated 1 April 1981, including all changes.

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CHAPTER 1

INTRODUCTORY INFORMATION WITH THEORY OF OPERATION

GENERAL INFORMATION 0001 00

SCOPE

Type of Manual

Unit and Direct Support Maintenance, including Repair Parts and Special Tools List.

Model Number and Equipment Name

60mm Lightweight Company Mortar, M224.

Purpose of Equipment

Provides a high-angle fire support system for use against a variety of ground targets.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. Marine Corps personnel refer to the on-line MCPDS or Marine Corps Stocklist SL-1-2 Index of Technical Publications.

Marine Corps users/maintainers will use the forms, records, and procedures used for equipment maintenance as prescribed by TM 4700-15/1, Ground Equipment Record Procedures.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

Army: If your M224 mortar 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 Commander, US Army Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-QAW-A (R)/Customer Feedback Center, Rock Island, IL 61299-7300 (FAX: DSN 793-6653, Commercial (309) 782-6653) (E-Mail: qawqdrs@ria.army.mil). We will send you a reply.

Marine Corps Users/Maintainers:

If the M224 Mortar has been damaged during shipment, if shipment is incomplete, if incorrect item is received, or if incorrect quantity of Marine Corps Supply System Responsibility (SSR), Marine Corps Collateral Material (CM), or Marine Corps Using Unit Responsibility (UUR) items are received, submit a Supply Discrepancy Report SF 364 in accordance with SECNAVINST 4355.18. For SSR items and UUR items, refer to TM 9-1010-223-10/08206A-10/1A.

If your M224 Mortar has deficiencies in materiel or design or nonconforming conditions which limit or prohibit the item from fulfilling its intended purpose, submit a Product Quality Deficiency Report (PDQR) SF 368 in accordance with MCO 4855.10, Product Quality Deficiency Report, and TM 4700-15/1, Equipment Records Procedures. Mail it to: Commander (Code 808-1), Marine Corps Logistics Bases, 814 Radford Blvd, Albany, GA 31704-1128 (Telephone: DSN 567-5292/5482, Commercial (912) 439-5292/5482; FAX: DSN 567-5631, Commercial (912) 439-5631; E-Mail: mbp@ala.usmc.mil) or via Naval Message. A reply will be furnished to you.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR) - Continued

If your M224 Mortar needs improvements which relate directly to savings in man-hours, materials, supplies, equipment, funding, or increased effectiveness in carrying out the programs or missions of your unit/command, U.S. Marine Corps units/commands refer to MCO 1650.17, USMC Military Incentives Award Program.

CORROSION PREVENTION AND CONTROL (CPC)

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.

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.

The form should be submitted to:

Commander
U.S. Army Armament Research, Development and Engineering Center
ATTN: AMSTA-AR-QAW-A (R)/Customer Feedback Center
Rock Island, IL 61299-7300

FAX: Commercial (309) 782-6653, DSN 793-6653
E-Mail: qawqdrs@ria.army.mil.

DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

Procedures and materials used for the destruction of the 60mm mortar to prevent enemy use will be found in TM 750-244-7.

PREPARATION FOR STORAGE OR SHIPMENT

Requirements for administrative storage are listed in WP 0016 00.

NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature
Cannon tube	60 millimeter cannon
Plain wing nut	Wing plain nut

TRITIUM (H_3) SAFETY, CARE, AND HANDLING

1. Purpose: These precautions implement mandatory license requirements for use and maintenance of tritium radioluminous fire control devices used on mortars.

2. Hazard Description: Radioactive tritium gas is contained in the following mortar components: M64/M64A1/M67 Sight Units, Range Indicator, and M58/M59 Aiming Post Lights. Provided are some facts about tritium exposure:
   - Tritium is a potential ionizing radiation hazard.
   - The tritium gas is hermetically sealed into glass tubes or vials like miniature fluorescent lamps.
   - No external radiation is emitted by the vial itself since the glass effectively stops the beta particles.
   - The beta radiation emitted by tritium is only a hazard if the tritium vial is broken and contaminates personnel or work areas.
   - The tritium gas will quickly disperse into the surrounding air if a vial is broken. It becomes more hazardous when released into a confined space such as an arms room or unventilated room, where the tritium gas converts to tritiated water vapor.
   - Tritiated water is readily absorbed by the body through inhalation, ingestion, or absorption through the skin when contact is made with contaminated surfaces or devices.

3. Identification: Mortar devices containing radioactive self-luminous vials are identified by means of radioactive warning labels. These labels should not be defaced or removed during maintenance and should be replaced immediately when necessary.

4. Control: Control of this radioactive materiel is mandated by Federal Regulation. Immediately report any suspected lost or damaged items to your Radiation Safety Officer (RSO). If your local Radiation Safety Officer cannot be reached, contact the TACOM-RI Safety Office during regular duty hours at DSN 793-2965/4594, or Commercial (309) 782-2965/4594.

   LOCAL RSO: _____ PHONE: _____

5. Procedures for Handling Damaged Tritium Lamps: The following procedures shall be followed when a tritium lamp contained in a mortar component is broken or does not show illumination.

   a. If the tritium lamp is broken, cracked, or there is no illumination, immediately wrap the device in two clear plastic bags, seal with tape, and mark the bag "Broken Tritium Device – Do Not Open". Personnel handling the tritium device should wear impermeable gloves. If gloves are not available, use the inverted bag method in picking up the device. Place the potentially contaminated gloves between the first and second plastic bag prior to sealing.

   b. If skin contact is made with any device or area potentially contaminated with tritium, wash immediately (within 3 minutes) with nonabrasive soap and cold water for at least 1 minute.

   c. Notify your local RSO immediately to report the incident. Contact the base safety office or your NBC officer for the name and telephone number of the local RSO.

   d. Broken tritium sources indoors may result in tritium contamination of the areas, such as work bench table tops, ceilings, floors, etc. Personnel need to inform other persons to vacate the immediate area and secure the immediate area from entry until the RSO has determined the extent of contamination. This can only be determined by the RSO performing a wipe test survey of the potentially contaminated work surfaces/areas.

TRITIUM (H_3) SAFETY, CARE, AND HANDLING - Continued

e. Your local RSO will perform a leak test on the damaged device and related work area by performing wipe tests to determine the extent of tritium contamination. If wipe test results are in excess of 1,000 disintegrations per minute (DPM), decontaminate the area per guidance provided by the TACOM-RI license RSO. The local RSO will perform another wipe test after decon to be certain decontamination was successful.

6. Maintenance Precautions: This procedure is applicable to all personnel working with tritium devices, including depot and field maintenance levels.

a. Do not attempt to repair a known broken device until it has been determined by the RSO that the device is free of tritium contamination. It may or may not be economically feasible to repair mortar components. Due to expired shelf-life, not all non-illuminated devices will have evidence of tritium contamination, but will still be handled as if they were contaminated.

b. Check for illumination prior to maintenance in a low light or dark room. Check the luminosity of each lamp in each device to determine the condition. If any lamp is not illuminated, do not repair. Wrap the entire device in plastic bag as outlined above and notify your RSO immediately.

c. Wear protective gloves and perform work in a well-ventilated designated area.

d. Wash hands immediately (within 3 minutes) with nonabrasive soap and cold water after handling a broken mortar fire control device that contains tritium modules.

e. When mortar tritium module components are replaced during maintenance, they must be placed into a clear plastic bag, labeled radioactive tritium component, the NSN, and activity present in millicuries. The maintainer must turn in the fire control component immediately to the unit RSO for proper radioactive waste disposal and security.

f. Spare parts to include modules containing tritium lamps must be stored in the shipping container, as received, until installation into the mortar component. Storage of radioactive items is required to be in a secured, well-ventilated area that is designated by the RSO.

g. Additional guidance for safe handling and maintenance is located in TM 9-254, General Maintenance Procedures for Fire Control Materiel.

7. Maintenance Levels:

a. Modules containing tritium lamps can be replaced at the field maintenance level. The module encloses the tritium lamp, e.g., level vials are considered to be modules. Maintenance of mortar components containing tritium fire control involving module replacement ONLY will be performed in a controlled area designated by the installation or mission/unit RSO.

TRITIUM (H_3) SAFETY, CARE, AND HANDLING - Continued

b. Any repair requiring the removal of the tritium lamp itself from the module is prohibited by TACOM-RI NRC license. Depot level maintenance repair facilities have been established to perform more difficult repairs on fire control devices. All mortar tritium fire control devices requiring replacement of the tritium lamp(s) contained INSIDE the module will be evacuated to the appropriate Tritium Instrument Repair Facility designated by the TACOM LCMC senior health physicist as indicated below. Severely damaged devices (not economically feasible to repair) must be turned in to your installation or local RSO immediately for disposal. The following is an approved list of depot level repair Tritium Instrument Repair Facilities:

(1) Anniston Army Depot

(2) Fort Drum, NY

(3) Fort Stewart, GA

(4) Fort Bragg, NC

(5) Fort Lewis, WA

(6) Schofield Barracks, HI

(7) MCLB Albany, GA

(8) MCLB Barstow, CA

(9) Rock Island Arsenal, Rock Island, IL

8. Posting Requirements: In accordance with Title 10 CFR Section 19.11, the following rules and regulations shall be posted in work area where mortar tritium fire control devices are repaired. Copies may be requested or further information obtained by contacting the TACOM-RI LCMC RSO/licensee, ATTN: AMSTA-CSC-ZR, Rock Island, IL 61299-7630.

NOTE

Postings e and f (below) may be filed in the installation safety office for review, rather than posting them in the work area.

a. NRC License (TACOM license BML 12-00722-06).

b. Standard Operating Procedures specifying maintenance procedures.

c. NRC Form 3 (May 1999) and Reorganization Act of 1974, Section 206.

d. Emergency contact information (local RSO and license RSO).

e. 10 CFR Part 19 - Notices, Instructions, and Reports to Workers.

f. 10 CFR Part 20 - Standards for Protection against Radiation.

PREEMBARKATION INSPECTION PROCEDURES

Preembarkation standards also apply to return of equipment to user, operational readiness floats, and return of items to supply system.

Fire control instruments must be inspected for outward appearance, mechanical condition, proper operation, and illumination of radioactive light sources.

Instruments must approach new equipment standards of operation and appearance. The workmanship and quality must reflect the highest standards obtainable. The tritium light source must exhibit proper illumination and be free of any apparent damage.

Specific Instructions

Fire control instruments must conform to the following specifications for overseas shipment:

a. Condition of optical element. Lenses, prisms, reticles, and windows must be free from dirt, scratches, pits, and chips that will affect optical performance of the instrument and must exhibit proper illumination of radioactive light sources.

b. Functioning of mechanical parts. Mechanical parts must operate smoothly without binding or rough motion. Parts must be free from grit and must be properly lubricated.

c. Illumination of radioactive parts. The level vials, reticles, and counter dials must illuminate properly.

d. General appearance and condition of the instrument:

(1) All parts of the instrument must be present and free from defects.

(2) Paint must cover all specified surfaces. Repaint if painted surfaces show signs of damage.

(3) All optics must be free from any internal dirt and moisture. Excessive dirt or moisture indicates a breakdown in sealing and is cause for rejection of the instrument.

(4) All scales must be easily read. All numbers and divisions must be clearly defined.

(5) Any fire control instrument failing to meet the requirements of the final inspection is unsatisfactory for overseas shipment.

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Capabilities and Features

1 Lightweight
2 Highly mobile
3 Easily maintained
4 Self-illuminated fire control
5 Hand-held firing possible

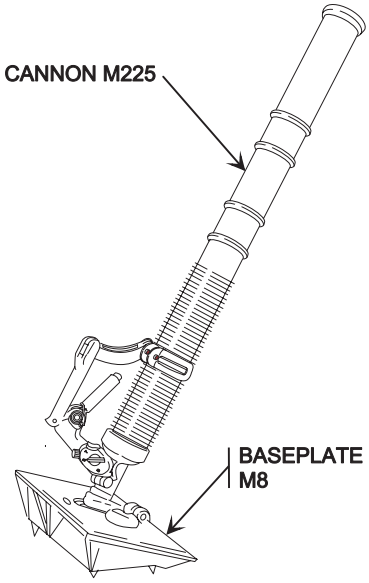
Major Weapon System Components

1 M225 60-mm Mortar Cannon
2 M170 60-mm Mortar Bipod
3 M7 and M8 Baseplates
4 M67 Sight Unit

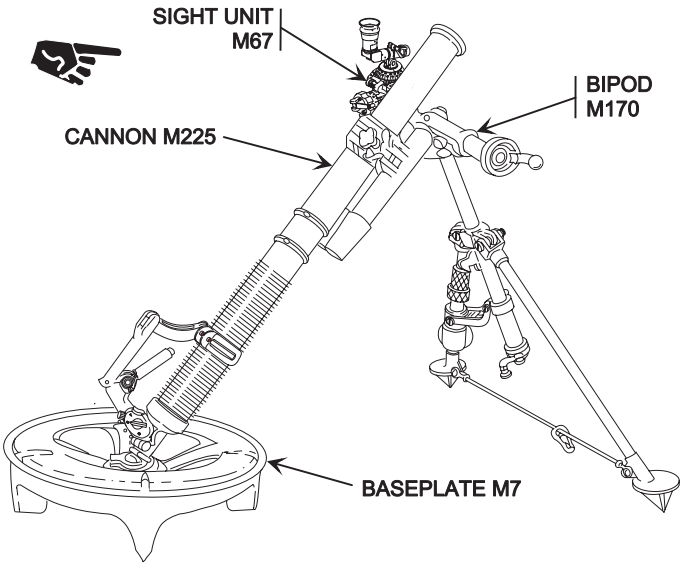
NOTE

M67 sight unit is the primary sight unit. The M64/M64A1 sight unit may still be in use but is becoming obsolete. While the M67 sight unit is preferred and is illustrated in many parts of this manual, some illustrations still show the M64/M64A1 sight unit.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



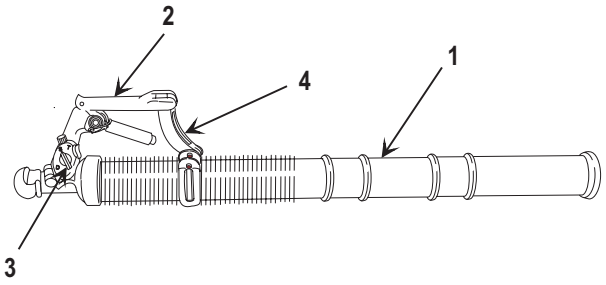
HAND-HELD MODE



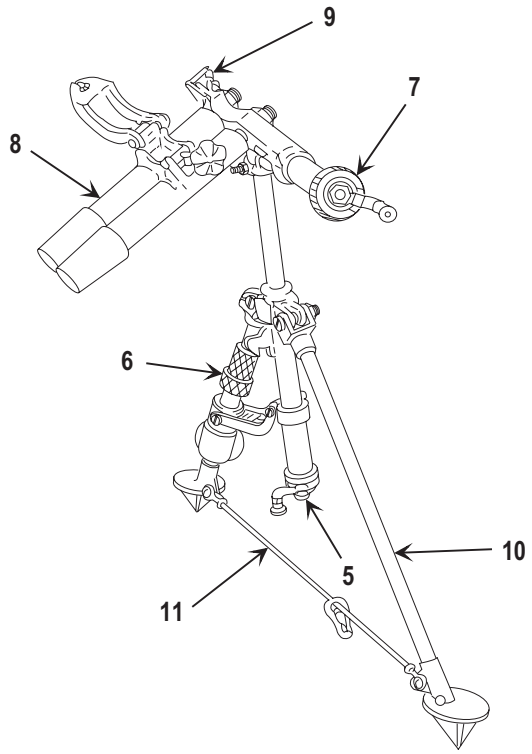
CONVENTIONAL MODE

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

CANNON M225. Provides a lightweight, smooth bore cannon (1) which includes a handle and firing mechanism (2). Cannon fires the cartridge. Handle and firing mechanism contains a firing selector (3) which permits drop fire (D), trigger fire (T), and safe (S) positions. A range indicator assembly (4) is provided on the handle and firing mechanism for setting range in the hand-held mode.

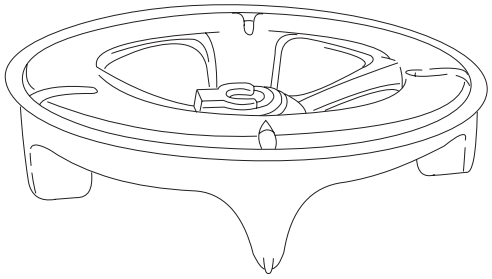


BIPOD M170. Clamps to the cannon for use with the baseplate M7 when in conventional mode. Provides elevating mechanism (5), cross leveling mechanism (6), and traversing mechanism (7) for the mortar. Two shock absorbers (8) absorb the shock of firing. A dovetail (9) for the sight unit is located on the bipod yoke. Legs (10) and wire rope assembly (11) provide stable platform for the system.

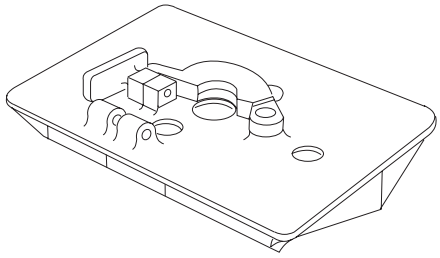


LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

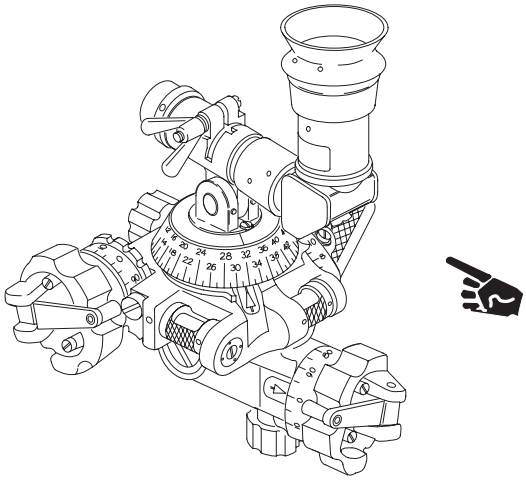
BASEPLATE M7. Receives the basecap of the cannon, provides stable firing base, and helps to absorb the shock of recoil in the conventional mode.



BASEPLATE M8. Provides a firing base for the cannon in the hand-held mode.



SIGHT UNIT M67. Provides self-illuminating sighting capability for indirect fire in the conventional mode. Serves to lay the mortar for deflection and elevation.



M67

EQUIPMENT DATA

WEAPON ASSEMBLED	
Range	
Min	50-75 m
Max	3500 m
Rate of fire	
Four minutes	30 RPM
Sustained	20 RPM
Weight, conventional mode	46.5 lb (21.1 kg)
Weight, hand-held mode	18.0 lb (8.2 kg)
CANNON M225	
Weight	14.4 lb (6.5 kg)
Overall length	40.0 in. (1.0 m)
BIPOD M170	
Weight	15.2 lb (6.9 kg)
Overall length (collapsed)	28.0 in. (0.7 m)
Azimuth adjustment	250.0 mils
Elevation adjustment	800 to 1511 mils
BASEPLATE M7	
Weight	14.4 lb (6.5 kg)
BASEPLATE M8	
Weight	3.6 lb (1.6 kg)
SIGHT UNIT M67	
Weight	2.9 lb (1.3 kg)
Field of View	10 degrees
Magnification	4.0 X nominal 3.5 effective
Illumination	Self-contained radioactive tritium, 6 to 8 years life

THEORY OF OPERATION **0003 00**

PRINCIPLES OF OPERATION

The mortar functions with few mechanical components and operating steps. It is capable of functioning as a conventional mortar with bipod M170, baseplate M7, and sight unit M67. It is also capable of being utilized with only the cannon and baseplate M8 in a hand-held mode. The principles of operation are essentially the same for either mode of operation. Both the drop fire method and the trigger fire method can be used in either mode.

DROP FIRE METHOD

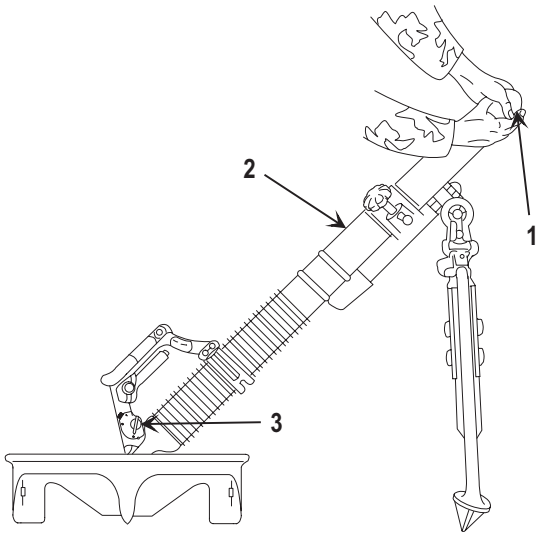
WARNING

RADIOACTIVE TRITIUM (H_3)

NOTE

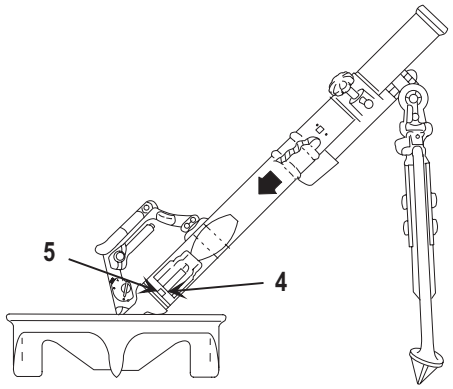
M67 sight unit is the primary sight unit. The M64/M64A1 may still be in use but is becoming obsolete.

1. Mortar is fired by dropping cartridge (1) down cannon tube (2), base end first. Firing selector (3) must be in the "D" position.

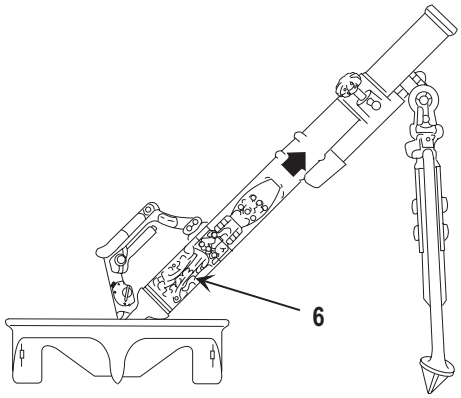


DROP FIRE METHOD - Continued

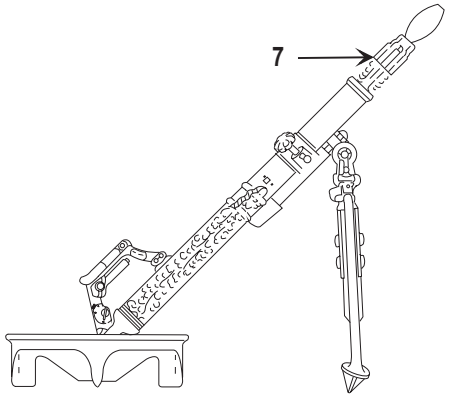
2. Percussion primer and ignition cartridge (4) explodes as primer on cartridge contacts firing pin (5) in base of cannon.



3. The propelling charge is ignited by the exploding ignition cartridge. Expanding gases (6) force the cartridge from the mortar.



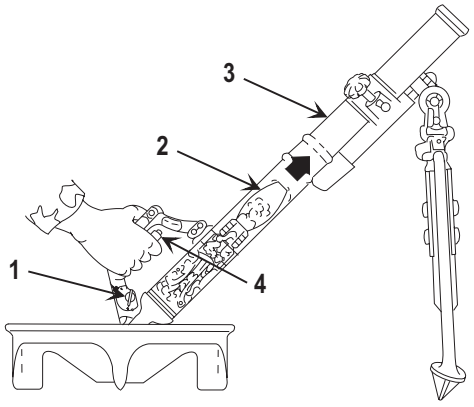
4. The fins (7) on the rear of the cartridge stabilize it in flight.



THEORY OF OPERATION - Continued **0003 00**

TRIGGER FIRE METHOD

With firing selector (1) in trigger position (T), cartridge (2) is dropped in the cannon tube (3), base end first. Mortar will fire only after trigger (4) is squeezed.



SUPPORTING DATA WORK PACKAGE FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT 0004 00

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items, as applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

There are no special tools or TMDE for this item.

REPAIR PARTS

Repair parts are listed and illustrated in supporting information work packages 0032 00 through WP 0051 00 of this manual.

CHAPTER 2

UNIT TROUBLESHOOTING PROCEDURES FOR THE M224 60-MM MORTAR

INTRODUCTION 0005 00

GENERAL

This table lists the common malfunctions which you may find during the operation or maintenance of the 60mm mortar or its components. Perform the tests/inspections and corrective actions in the order listed.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your supporting unit.

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

CAUTION

Trigger firing without a round in the barrel will cause rapid failure of the sear. Trigger firing without a round should be limited to inspection for operation only.

After unit maintenance has been performed on the mortar, make a complete functional check of the firing mechanism.

1. *Trigger (T).* When firing selector is set in "T" position, firing pin is retracted. When trigger is squeezed, firing spring is compressed and then suddenly released, causing firing pin to move forward into chamber. When released, trigger should return freely to its original position.

2. *Safe (S).* When firing selector is set in "S" position, firing pin is mechanically locked in retracted position.

3. *Drop (D).* When firing selector is set in "D" position, firing pin is moved forward and protrudes into chamber.

TROUBLESHOOTING PROCEDURES **0006 00**

THIS WORK PACKAGE COVERS:
60mm Mortar, M224

INITIAL SETUP:

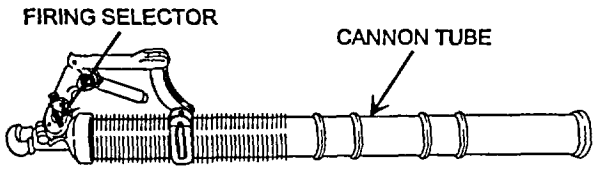
Maintenance Level
Unit

Materials/Parts
General purpose lubricating oil (GPL)
(item 13, WP 0052 00)

References
WP 0011 00
WP 0013 00
WP 0014 00
WP 0015 00

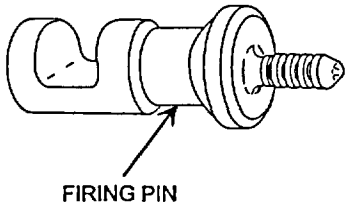
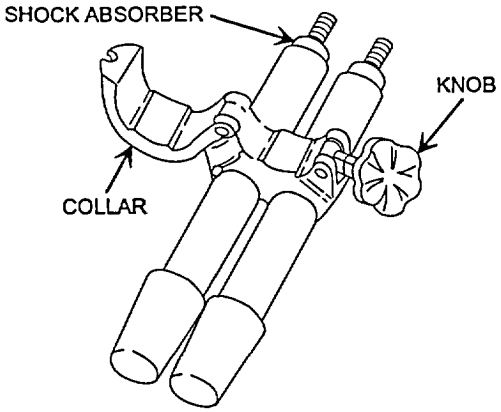
60MM MORTAR, M224

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE **For corrective actions of malfunctions not listed in this work package, notify direct support maintenance.**		
		
1. ROUND FAILS TO SLIDE DOWN CANNON TUBE.	Check to see if inert round will slide down cannon tube.	Evacuate complete mortar to direct support maintenance.
2. ROUND FAILS TO FIRE.	1. Check firing selector operation. Move firing selector through "T", "S", and "D" positions. Firing selector should move freely and detent should provide a positive stop in all three positions. Squeeze trigger in all three positions. "S" and "D" should do nothing. Mechanism should click loudly in "T" position.	Replace handle and firing mechanism. Refer to WP 0011 00.

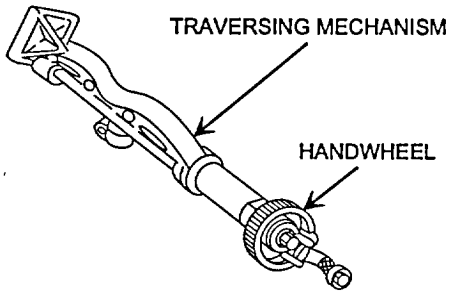
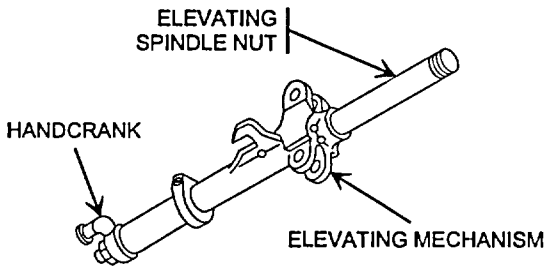
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		
2. ROUND FAILS TO FIRE - Continued. pin removal.	2. Check for broken firing pin. Refer to WP 0011 00 for firing	Install new firing pin. Refer to WP 0011 00.
	3. Check adjustment of handle and firing mechanism.	Adjust handle and firing mechanism. Refer to WP 0011 00.
		
3. COLLAR-SHOCK ABSORBER ASSEMBLY HANGS OUT OF BATTERY.	Pull on shock absorber and release. Shock absorber should return to retracted position.	If collar-shock absorber assembly doesn't return to retracted position, evacuate to direct support maintenance for repair.
4. COLLAR-SHOCK ABSORBER ASSEMBLY RETURNS IMMEDIATELY TO BATTERY POSITION WITHOUT BUFFING ACTION.	Pull on shock absorber and release. It should return with smooth buffing action.	If collar-shock absorber assembly has no buffing action, evacuate to direct support maintenance for repair.
5. COLLAR WILL NOT SECURE TO CANNON.	1. Check knob for proper operation.	Replace collar-shock absorber assembly. Refer to WP 0013 00.

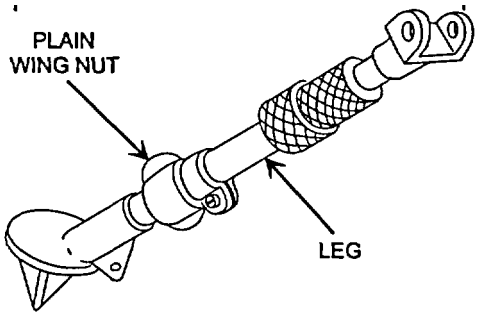
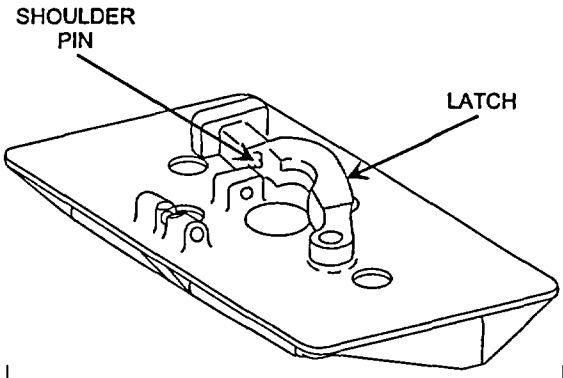
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. COLLAR WILL NOT SECURE TO CANNON - Continued.	2. Check collar for damage and enlarged or distorted inside diameter surfaces.	Replace collar-shock absorber assembly. Refer to WP 0013 00.
		
6. BINDING IN TRAVERSING MECHANISM.	Check for physical damage to mechanism.	Evacuate to direct support maintenance for repair.
7. EXCESSIVE PLAY IN TRAVERSING MECH-ANISM.	Check for backlash. turn, evacuate to direct support maintenance for repair.	If backlash exceeds one-eighth
		
8. BINDING IN ELEVATING MECHANISM.	1. Check for physical damage to mechanism. 2. Check elevating spindle nut for dirt or foreign matter.	Evacuate to direct support maintenance for repair. Clean and lubricate.
9. EXCESSIVE PLAY IN ELEVATING MECHANISM.	Check for backlash.	If backlash exceeds one-eighth turn, evacuate to direct support maintenance for repair.

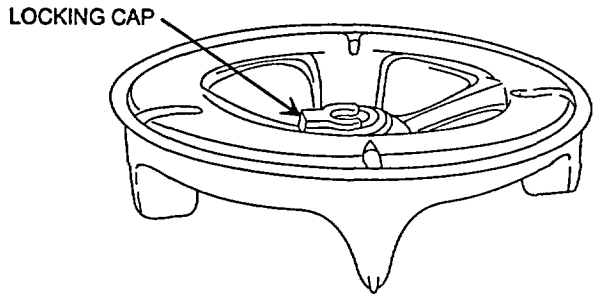
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		
10. BINDING IN CROSS-LEVELING MECHANISM.	1. Check for dirt or foreign matter or for bent left leg.	Clean or replace left leg. Refer to WP 0013 00.
	2. Check operation of plain wing nut. Loosen and check that it slides freely through entire length of travel. Tighten in several positions and check for positive locking.	Evacuate to direct support maintenance for repair.
		
11. BASEPLATE LATCH ON BASEPLATE M8 FAILS TO LATCH.	1. Check for foreign matter in baseplate latch.	Clean baseplate latch.
	2. Inspect for spring action and for broken shoulder pin.	Replace baseplate latch. Refer to WP 0015 00.
	3. Inspect baseplate for mutilated hole.	Replace baseplate.

60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		
12. LOCKING CAP ON M7 BASEPLATE WILL NOT SECURE CANNON OR IS BINDING.	1. Check for foreign matter in locking cap.	Clean and lubricate locking cap.
	2. Inspect for missing parts.	Replace missing machine screws, lockwashers, or locking cap retainer. Refer to WP 0014 00.
	3. Inspect for damage to baseplate socket.	Replace baseplate.

END OF TASK

CHAPTER 3

DIRECT SUPPORT TROUBLESHOOTING PROCEDURES FOR THE M224 60-MM MORTAR

INTRODUCTION **0007 00**

GENERAL

This table lists the common malfunctions which you may find during the operation or maintenance of the 60 mm mortar or its components. Perform the tests/inspections and corrective actions in the order listed.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or is not corrected by listed corrective actions, see individual repair section for maintenance instructions on each major assembly.

NOTE

Refer to TM 9-1000-202-14, Evaluation of Cannon Tubes, for borescope and pullover gaging requirements.

TROUBLESHOOTING PROCEDURES **0008 00**

THIS WORK PACKAGE COVERS:
60mm Mortar, M224

INITIAL SETUP:

Maintenance Level
Direct Support

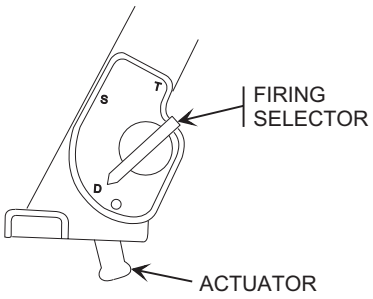
Tools and Special Tools
Outside caliper micrometer GGG-C-105

Materials/Parts
Aircraft grease (item 11, WP 0052 00)

References
TM 9-1000-202-14
WP 0022 00
WP 0023 00
WP 0024 00

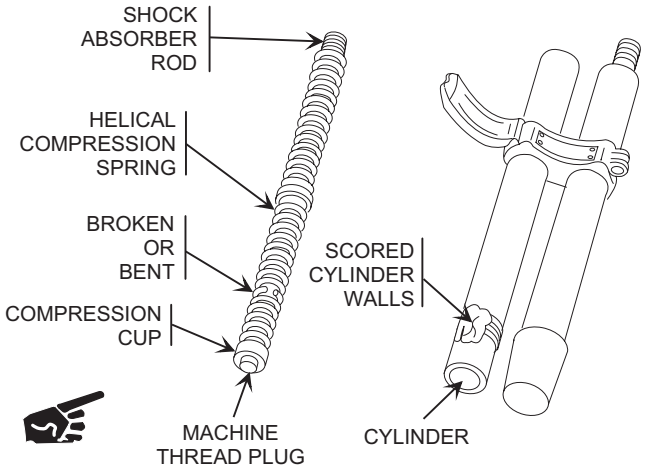
60MM MORTAR, M224

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ROUND FAILS TO SLIDE DOWN CANNON TUBE.	Inspect cannon tube bore. Refer to TM 9-1000-202-14.	Replace cannon.
		
2. ROUND FAILS TO FIRE.	1. Place firing selector in D (drop fire) while watching actuator. If actuator does not move forward, inspect for worn sear, firing selector, and/or actuator.	Replace faulty components.
	2. Place firing selector in D and press on actuator. If firing selector jumps out of D position, inspect for worn firing selector and/or detent plunger.	Replace faulty components.

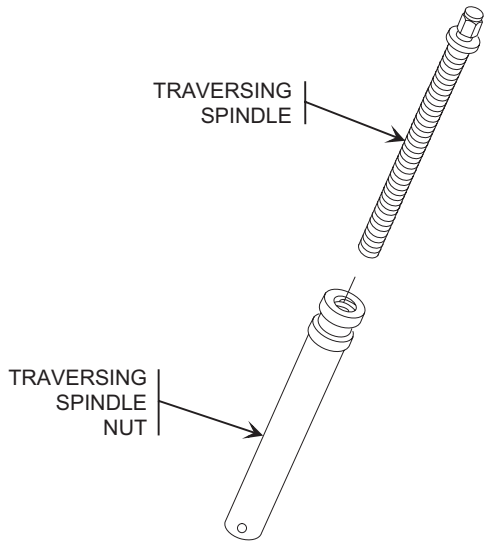
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ROUND FAILS TO FIRE - Continued.	3. Place firing selector in T (trigger fire). Listen for loud click and watch for actuator to snap forward when trigger is squeezed. If no click or movement is noted, inspect for worn sear, actuator, spring, or sear release plunger.	Replace faulty components.
	4. Operate trigger while observing actuator and trigger. If actuator and/or trigger does not return to normal position when trigger is released, inspect spring and sear assembly.	Repair or replace faulty components.
		
3. COLLAR-SHOCK ABSORBER ASSEMBLY HANGS OUT OF BATTERY.	1. Pull each shock absorber rod out fully and release. Shock absorber rod should retract completely.	If retraction is not complete, go to step 2.
	2. Disassemble and inspect for broken/failed helical compression spring or bent shock absorber rod.	Replace faulty components.

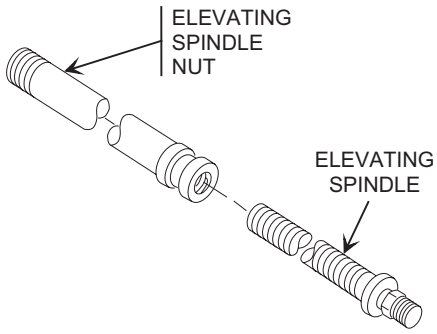
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. COLLAR-SHOCK ABSORBER ASSEMBLY RETURNS IMMEDIATELY TO BATTERY POSITION WITHOUT BUFFING ACTION.	1. Pull each shock absorber rod out fully and release shock absorber rod. Shock absorber rod should retract completely with smooth buffing action.	If retraction is not complete, go to step 2.
	2. Disassemble and inspect compression cup for nicks, cuts, and tears. Inspect for scored cylinder walls.	Replace faulty components.
	3. Inspect orifice holes in shock absorber rod and machine thread plug for any foreign matter which will restrict air flow.	Clean as required.
		
5. DIFFICULTY IN TRAVERSING WEAPON.	1. Check for lubrication.	Lubricate traversing spindle and traversing spindle nut. Refer to WP 0022 00.
	2. Inspect for burred or bent traversing spindle.	Remove burrs. Straighten or replace traversing spindle. Refer to WP 0022 00.

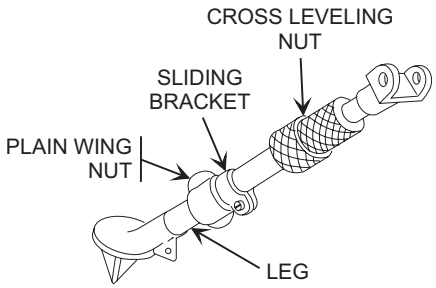
60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. DIFFICULTY IN TRAVERSING WEAPON - Continued.	3. Inspect for burred or damaged traversing spindle nut.	Remove burrs or replace damaged traversing spindle nut. Refer to WP 0022 00.
6. BACKLASH IN TRAVERSING MECHANISM EXCEEDS 1/8 OF A TURN.	Inspect for worn traversing spindle or traversing spindle nut.	Replace traversing spindle or traversing spindle nut. Refer to WP 0022 00.
		
7. DIFFICULTY IN ELEVATING WEAPON.	1. Check for lubrication.	Lubricate elevating spindle and elevating spindle nut. Refer to WP 0023 00.
	2. Inspect for bent or burred elevating spindle.	Remove burrs. Straighten or replace elevating spindle. Refer to WP 0023 00.
	3. Inspect for burred or damaged elevating spindle nut.	Remove burrs or replace damaged elevating spindle nut. Refer to WP 0023 00.
	4. Inspect for damaged elevating mechanism housing.	Repair or replace elevating mechanism housing. Refer to WP 0023 00.

60MM MORTAR, M224 - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
8. BACKLASH IN ELEVATING MECHANISM EXCEEDS 1/8 OF A TURN.	1. Inspect for worn elevating spindle and/or worn elevating spindle nut. 2. Inspect retainer for wear around center hole with a 0 - 1 inch outside caliper micrometer.	Replace elevating spindle and/or elevating spindle nut. Refer to WP 0023 00. Replace retainer if thickness is less than 0.121 in. (0.307 cm).
		
9. CROSSLEVELING ADJUSTMENT CANNOT BE MAINTAINED.	Inspect for worn operating parts.	Replace worn parts. Refer to WP 0024 00.
10. BINDING IN CROSS-LEVELING MECHANISM.	Inspect for burred, scored, or distorted parts.	Remove burrs and scores. Restore shape or replace items, as required. Refer to WP 0024 00.

END OF TASK

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS FOR THE M224 60-MM MORTAR

SERVICE UPON RECEIPT OF MATERIEL

Unpacking

When a new or reconditioned weapon is first received, it is the responsibility of the officer-in-charge to determine whether the weapon has been properly prepared for service by the supplying organization and whether it is in proper condition to perform its mission.

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

WARNING

RADIOACTIVE TRITIUM (H_3)

Table 1. Service Upon Receipt for M224 60-mm Mortar

LOCATION	ITEM	ACTION	REMARKS
1. Container	Mortar	Remove from container.	Check range indicator assembly tube for breakage.
2. Cannon	Cannon tube	Check to make sure the cannon is cleared.	
3. Container	Basic issue items	Check for missing items.	See TM 9-1010-223-10.
4. Mortar	All items	Clean and lubricate.	See TM 9-1010-223-10.
		NOTE Wipe excess oil or preservatives from cannon tube.	
5. Mortar	Handle and firing mechanism	Make a complete functional check.	See WP 0005 00.

SERVICE UPON RECEIPT OF MATERIEL - Continued

Table 1. Service Upon Receipt for M224 60-mm Mortar - Continued

LOCATION	ITEM	ACTION	REMARKS
6. Mortar	All items	Assemble major subassemblies to assure proper assembly.	See TM 9-1010-223-10.
6.1. Mortar	Mortar/Bipod	Mark and match mount/bipod to specific cannon tube (i.e., stencil, stamp, paint, etc.) to facilitate and confirm scheduled service on assembly.	
7. Sight unit case	M67 sight unit	Check for damaged or missing parts.	

Checking Unpacked Equipment

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 361, Transportation Discrepancy Report.

Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with applicable service instructions (e.g., for Army instructions, see DA PAM 750-8).

Check to see whether the equipment has been modified.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INCLUDING LUBRICATION INSTRUCTIONS

0010 00

THIS WORK PACKAGE COVERS:

Introduction, PMCS Procedures

INITIAL SETUP:

Maintenance Level

Unit

Materials/Parts

Abrasive cloth (item 8, WP 0052 00)
Rifle bore cleaning compound (RBC) (item 7, WP 0052 00)
Solid film lubricant (item 12, WP 0052 00)

References

TM 9-1000-202-14
TM 9-1010-223-10
WP 0011 00
WP 0013 00

INTRODUCTION

This work package contains the procedures and instructions necessary to perform unit preventive maintenance checks and services. These services should be done by the crew under the supervision of the unit armorer.

Always observe the WARNINGs and CAUTIONs appearing in the PMCS table. Warnings and cautions appear before applicable procedures. These WARNINGs and CAUTIONs must be observed to prevent injury to personnel and damage to equipment.

The INTERVAL column tells you when to do the check or service in the PROCEDURE column.

The ITEM TO BE CHECKED OR SERVICED column tells you the component of the mortar to be checked. The amount of time required is indicated in the MAN-HOUR column.

When recording results of PMCS, entries in the PMCS ITEM NO. column will be used for the TM Item No. column on DA Form 2404, Equipment Inspection and Maintenance Worksheet.

The EQUIPMENT NOT READY/AVAILABLE IF column indicates deficiencies which must be corrected before the 60-mm mortar can be returned to service.

PMCS PROCEDURES

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

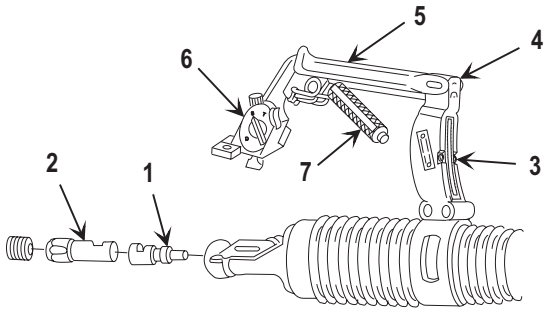
WARNING

RADIOACTIVE TRITIUM (H_3)

No maintenance will be performed on radioactive fire control devices and range indicator assembly except as specified in the Maintenance Allocation Chart in WP 0031 00.

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Quarterly		60-mm Mortar Cannon, M225	1. For borescope and pullover gage requirements, see TM 9-1000-202-14. Notify support maintenance if necessary.	Borescope and pullover gage requirements have not been met.
				2. Inspect cannon tube for rust, bulges, cracks, pitting, and external damage to cooling fins. Notify support maintenance if defects are found.	Cannon tube has rust, bulges, cracks, pitting, or external damage to cooling fins.



PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1 (Cont)	Quarterly (Cont)		60-mm Mortar Cannon, M225 (Cont)	3. Remove and inspect firing pin (1) and firing pin guide (2) for corrosion and accumulation of carbon and dirt. Clean all parts plus firing pin hole thoroughly with RBC (item 7, WP 0052 00). Replace all broken parts. Refer to WP 0011 00. **WARNING**  RADIOACTIVE TRITIUM (H_3)	Firing pin and/or firing pin guide is broken, corroded, or dirty.
				4. Check range indicator assembly (3) for broken vials and for illumination.	Vials are broken or there is no illumination. Assembly clips are missing or broken.
				5. Push in detent plunger (4) and check that handle (5) locks securely in retracted and extended position.	Handle will not lock securely.
				6. Move firing selector (6) through "T", "S", and "D" positions. Firing selector should move freely and detent plunger should provide positive stop in all three positions. Squeeze trigger (7) in all three positions. Nothing should happen in "S" and "D" positions. Mechanism should click loudly in "T" position. Replace handle and firing mechanism, if any defects are noted. Refer to WP 0011 00.	Firing selector does not move freely. Detent plunger does not provide positive stop. Trigger does not function properly.

PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1 (Cont)	Quarterly (Cont)		60-mm Mortar Cannon, M225 (Cont)	7. Inspect exterior finish of cannon tube for unprotected/ reflective surface. Solid film lubricant (SFL) (item 12, WP 0052 00) is the authorized touch up for the M225 cannon tube. FOR CONUS USE ONLY: Solid film lubricant may be used as a touch up to restore exterior finish of M225 cannon tube without limitation. Units that DO NOT fall under the category of Divisional Combat Units or rapid deployment type units may have up to 100% of exterior surface protected with SFL. Prior to application of SFL, surface must be thoroughly clean and inspected for corrosion and/or damage. If corroded or damaged, cannon must be repaired or replaced prior to application of SFL.	Exterior finish of cannon tube shows unpro-tected or reflective surface.

PMCS PROCEDURES - Continued

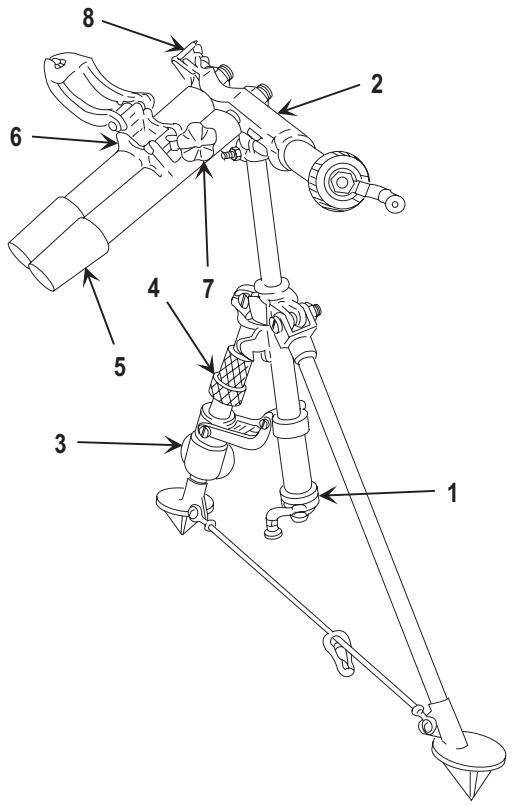
Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1 (Cont)	Quarterly (Cont)		60-mm Mortar Cannon, M225 (Cont)	For overseas shipment or combat conditions, the following criteria apply. Continued use under combat conditions will result in an unprotected/reflective surface when SFL wears off. This will result in a large light reflecting surface and accelerated deterioration of unprotected surface. Therefore, Divisional Combat Units and units which fall under definition of rapid deployment type units, or weapon systems scheduled for overseas shipment, must adhere to the limitation that NOT more than 1/3 of cannon tube exterior surface can be covered with SFL.	
2	Quarterly		60-mm Mortar Bipod, M170	1. Inspect bipod for rust, loose or missing parts, frayed wire rope assembly, broken foot gussets, and damaged protective finishes. Remove rust with abrasive cloth (item 8, WP 0052 00). Replace all loose or missing self-locking nuts and broken or damaged components. Repaint as required.	Bipod has loose or missing parts, frayed wire rope assembly, broken foot gussets, or damaged protective finishes.

PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2 (Cont)	Quarterly (Cont)		60-mm Mortar Bipod, M170 (Cont)		
				2. Elevating mechanism (1) and traversing mechanism (2) should operate smoothly and evenly throughout entire range, with less than 1/8 turn of backlash. Handwheel knob should rotate freely. Traversing knob should retract. Replace either mechanism that fails these checks.	Elevating mechanism or traversing mechanism does not operate smoothly. Back-lash exceeds 1/8 turn.



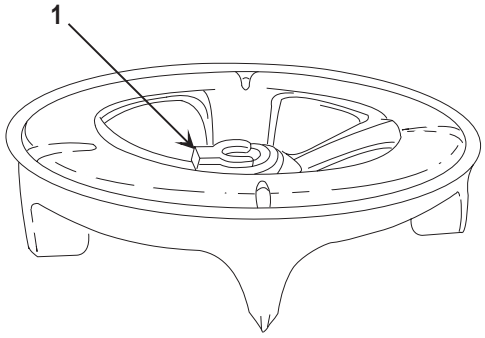
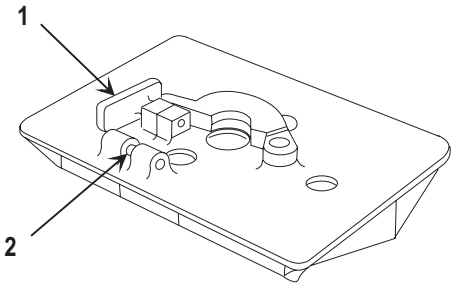
PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2 (Cont)	Quarterly (Cont)		60-mm Mortar Bipod, M170 (Cont)	3. Loosen cross level plain wing nut (3) and check that it slides freely through entire length of travel. Tighten plain wing nut in several positions and check for positive locking. Screw crossleveling nut (4) throughout its entire range. Operation should be free and even. Replace left leg if it is damaged or does not meet above checks. Refer to WP 0013 00.	Plain wing nut and crossleveling nut do not move freely. Plain wing nut does not lock positively.
				4. Test functioning of shock absorber (5). Pull rearward on bipod yoke (6) and observe counterrecoil action. Bipod yoke should return slowly and smoothly to original position. Inspect the upper and lower collar for damage and lack of roundness when closed. Knob (7) should compress spring tension washers when tightened and operate without binding. Replace collar-shock absorber assembly if any defects are noted.	Counterrecoil action of bipod yoke is not smooth. Collar is damaged. Knob does not tighten or operate without binding.
				5. Check sight unit dovetail (8) to make sure it is clean and free from obstruction.	Damage to dovetail prevents intended use.

PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Quarterly		Mortar Baseplate, M7	 Inspect baseplate for cracks, broken gussets, or missing parts and for free rotation of locking cap (1). Replace missing screws and washers. Clean and lubricate locking cap if binding. Replace baseplate if cracked or broken or if socket is damaged. Spot paint as required.	Baseplate is cracked or broken or socket is damaged.
4	Quarterly		Mortar Baseplate, M8		

PMCS PROCEDURES - Continued

Table 1. Unit Preventive Maintenance Checks and Services for M224 60-mm Mortar - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4 (Cont)	Quarterly (Cont)		Mortar Baseplate, M8 (Cont)	Inspect baseplate for cracks, broken gussets, and broken or missing points. Check that latch knob (1) extends and locks freely and positively. Inspect quick release plunger (2) for free operation. Replace broken or cracked baseplates. Replace latches which do not function properly. Paint as required.	Baseplate is broken or cracked. Latch knob or quick release plunger does not operate properly.
5	Quarterly		Basic Issue Items, Sighting and Fire Control Instruments (TM 9-1010-223-10)	Check equipment and operation of instruments. Replace damaged BII, instruments, and equipment.	Items are missing or damaged.
6	Semi-annually		60-mm Mortar Bipod, M170	Disassemble bipod to a level allowing complete cleaning, inspection for repair, and lubrication of parts of collar-shock absorber assembly, elevating mechanism, and traversing mechanism.	Collar-shock absorber assembly, traversing mechanism, and/or elevating mechanism have not received semiannual service.

M255 60-MM MORTAR CANNON MAINTENANCE 0011 00

THIS WORK PACKAGE COVERS:

Removal, Repair or Replacement, Installation

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Small Arms Repairman Tool Kit SC 5180-95-A07

Materials/Parts

Gasket 11578976
Retaining ring (2) 11578986
Self-locking nut (2) MS51988-3
Self-locking screw (2) NAS1352-4LE14P
Solid film lubricant (SFL) (item 12, WP 0052 00)

References

WP 0034 00

Equipment Condition

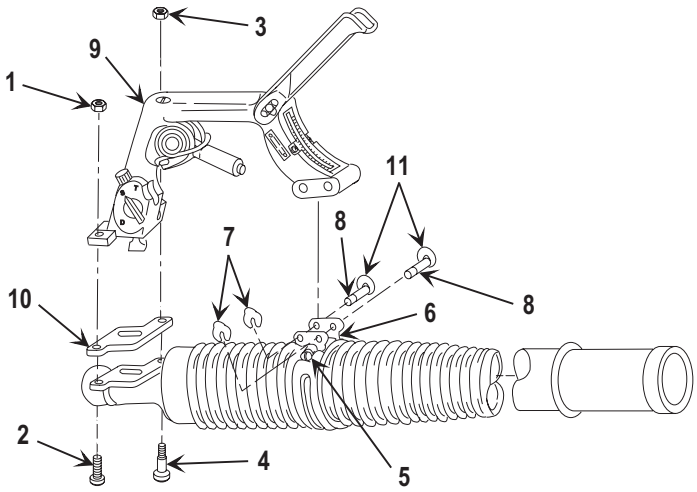
Cannon removed from bipod and baseplate.

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

REMOVAL

1. Remove self-locking nut (1) and self-locking screw (2). Discard self-locking nut and self-locking screw.
2. Remove self-locking nut (3) and shoulder screw (4). Discard self-locking nut.
3. Loosen self-locking screw (5) on loop clamp (6).
4. Pry off two retaining rings (7) and drive out two headless grooved pins (8) from handle and firing mechanism (9). Discard retaining rings.
5. Remove handle and firing mechanism (9) and gasket (10). Discard gasket.
6. If damaged, remove two retaining rings (11) from two headless grooved pins (8).



CAUTION

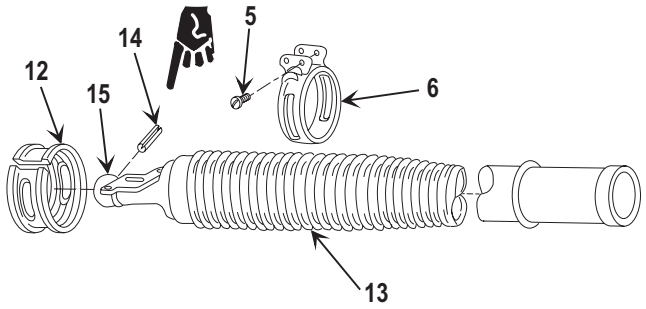
Do not attempt to remove the basecap from the tube on the cannon assembly. Loosening or removing of the basecap will make the M224 Mortar unserviceable.

7. Remove self-locking screw (5) from loop clamp (6). Discard self-locking screw.
8. Spread loop clamp (6) and slide it over mortar clamp sleeve (12) and off cannon tube (13).

REMOVAL - Continued

9. Remove mortar clamp sleeve (12) from cannon tube (13) by screwing off in either direction.

10. If damaged, remove headless grooved pin (14) from basecap (15).

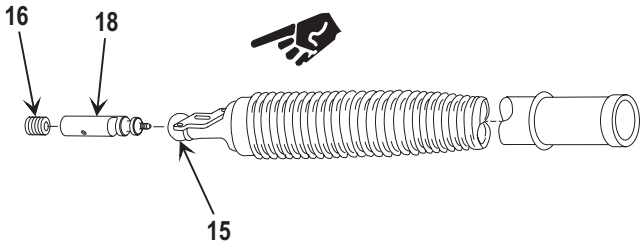


NOTE

The M225 Cannon's firing pin configuration has changed. The firing pin, firing pin guide, and machine thread plug were replaced by a new machine thread plug and one piece firing pin. If ordered for the first time, both the machine thread plug and firing pin will need to be ordered together.

The headless grooved pin (14) is no longer required with these new items and is not present in newly manufactured cannons. This headless pin can remain assembled when new firing pins/plugs are used. The replaced, three piece firing pin configuration is not to be used in any cannon without this headless grooved pin.

11. Screw machine thread plug (16) from end of basecap (15) and remove firing pin (18).



REPAIR OR REPLACEMENT

1. Replace firing pin if unserviceable.

2. If handle and firing mechanism does not function properly, replace with serviceable assembly.

3. Replace defective parts as authorized by WP 0034 00.

REPAIR OR REPLACEMENT - Continued

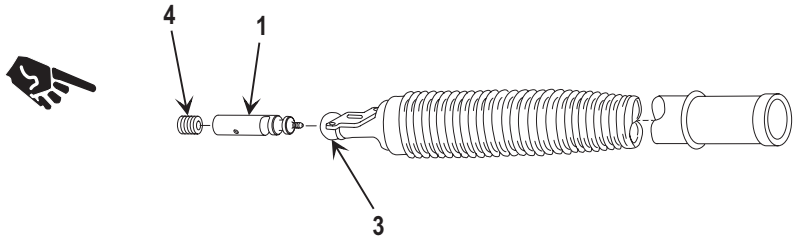
4. Solid film lubricant (SFL) (item 12, WP 0052 00) is the authorized touch up for the cannon tube.

   FOR CONUS USE ONLY: Solid film lubricant may be used as a touch up to restore the exterior finish of the cannon tube without limitation. Units that DO NOT fall under the category of Divisional Combat Units or rapid deployment type units may have up to 100% of the exterior surface protected with SFL. Prior to application of SFL the surface must be thoroughly clean and inspected for corrosion and/or damage. If corroded or damaged, cannon must be repaired or replaced prior to application of SFL.

   For overseas shipment or combat conditions the following criteria applies. Continued use under combat conditions will result in an unprotected/reflective surface when the SFL wears off. This will result in a large light reflecting surface and accelerated deterioration of the unprotected surface. Therefore, Divisional Combat Units and units which fall under the definition of rapid deployment type units, or weapon systems scheduled for overseas shipment, must adhere to the limitation that NOT more than 1/3 of the cannon tube exterior surface can be covered with SFL.

INSTALLATION

1. Insert firing pin (1) so that slot in firing pin is visible through slot. Push firing pin into basecap (3). Install machine thread plug (4) and tighten.

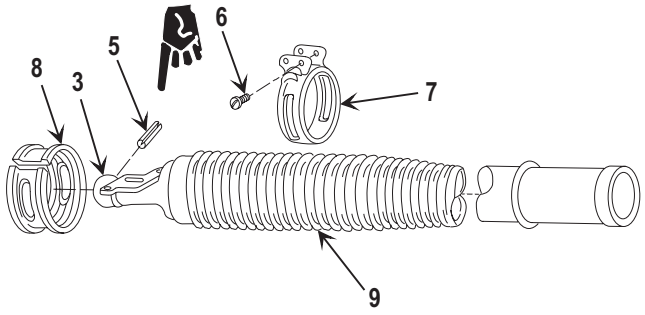


2. If removed, install new headless grooved pin (5). Install flush with outside of basecap (3).

3. Install new self-locking screw (6) into loop clamp (7). Do not tighten.

4. With adjustment notches of mortar clamp sleeve (8) facing technician, spread loop clamp (7) and install on mortar clamp sleeve so that self-locking screw (6) is on right side.

5. Screw mortar clamp sleeve (8) onto cannon tube (9), 22 to 23 fins from basecap (3).



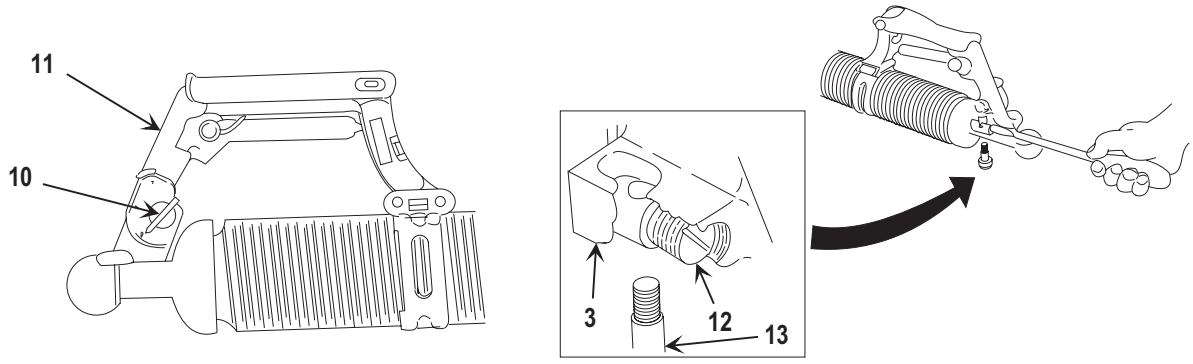
INSTALLATION - Continued

6. Turn firing selector (10) to "D" position. Position handle and firing mechanism (11) on cannon tube (9) without screws or pins installed.

7. Slide entire mechanism toward muzzle as far as possible.

8. While maintaining this forward position, adjust adjusting shoulder screw (12) until hole in it aligns with hole in basecap (3) and shoulder screw (13) can be inserted. The mechanism should be as far forward as possible without causing firing selector (10) to bind. Check operation of firing selector.

9. Remove shoulder screw (13).



INSTALLATION - Continued

NOTE

Ensure firing selector is in "D" position during installation of handle and firing mechanism.

10. Install new gasket (14).

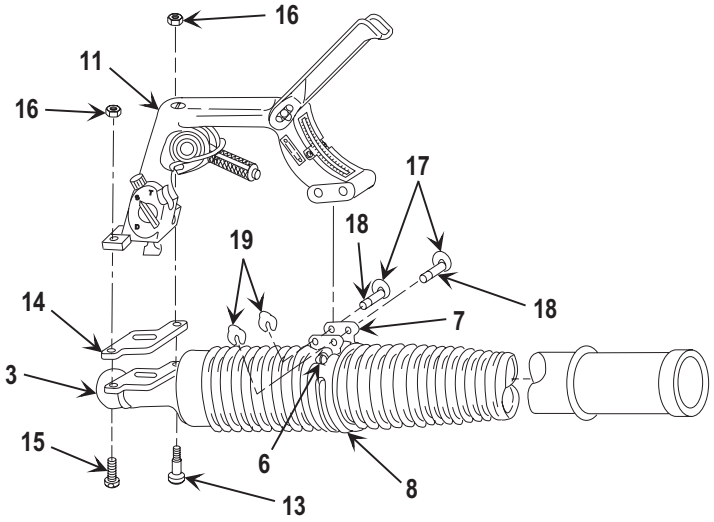
11. Install new self-locking screw (15) and shoulder screw (13) through basecap (3) and handle and firing mechanism (11). Install two new self-locking nuts (16) but do not tighten completely.

12. Using flat tip screwdriver, screw the mortar clamp sleeve (8) as required in either direction until holes in loop clamp (7) and handle and firing mechanism (11) align. Tighten self-locking screw (6).

13. If removed, install two new retaining rings (17) on two headless grooved pins (18).

14. Install two headless grooved pins (18) and secure with two new retaining rings (19).

15. Tighten self-locking nuts (16).



END OF TASK

HANDLE AND FIRING MECHANISM MAINTENANCE 0012 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Small Arms Repairman Tool Kit SC 5180-95-CL-A07

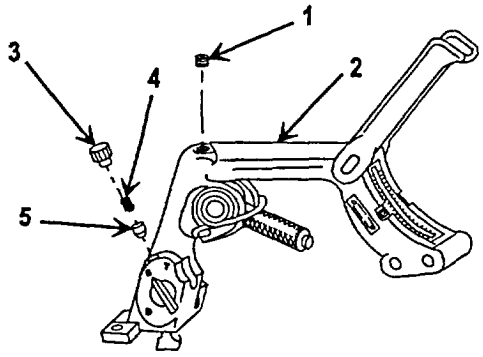
References
WP 0035 00

Equipment Condition
Handle and firing mechanism removed from cannon (WP 0011 00).

DISASSEMBLY

1. If damaged, remove lubrication fitting (1) from handle and firing mechanism (2).

2. If damaged, remove self-locking screw (3), helical spring (4), and detent plunger (5).



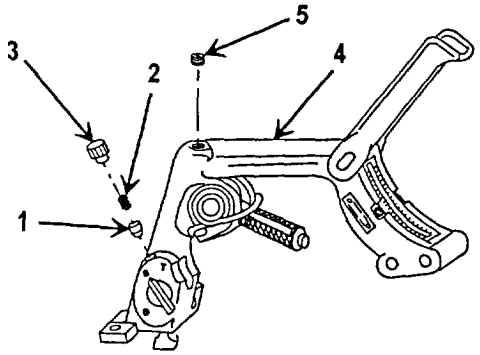
REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0035 00.

ASSEMBLY

1. If removed, install detent plunger (1), helical spring (2), and new self-locking screw (3) in handle and firing mechanism (4).

2. If removed, install new lubrication fitting (5).



END OF TASK

M170 60-MM MORTAR BIPOD MAINTENANCE 0013 00

THIS WORK PACKAGE COVERS:
Removal, Repair or Replacement, Installation

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Small Arms Repairman Tool Kit
SC 5180-95-CL-A07

Materials/Parts
Self-locking nut (2) MS21083-D7
Self-locking nut (2) MS21083-D12
Self-locking nut (2) MS21083-N3
Self-locking nut (3) MS51922-1
Self-locking screw (2) MS21096-3010

References
WP 0037 00

Equipment Condition
Cannon removed from bipod.

NOTE

Semiannual service of the M170 mortar bipod by Direct Support maintenance is required.

REMOVAL

NOTE

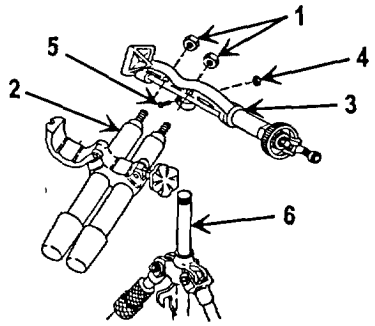
Shock absorber rods can be held with a 5/16-inch socket head screw key.

1. Remove two self-locking nuts (1) from shock absorber rods and discard.
2. Remove collar-shock absorber assembly (2) from traversing mechanism (3).
3. Remove self-locking nut (4) and hexagon cap screw (5) from clamp of traversing mechanism (3). Discard self-locking nut.

NOTE

Elevating mechanism may need to be elevated to get a grip on elevating spindle nut.

4. Hold traversing mechanism (3) and rotate elevating spindle nut (6) until traversing mechanism is removed.



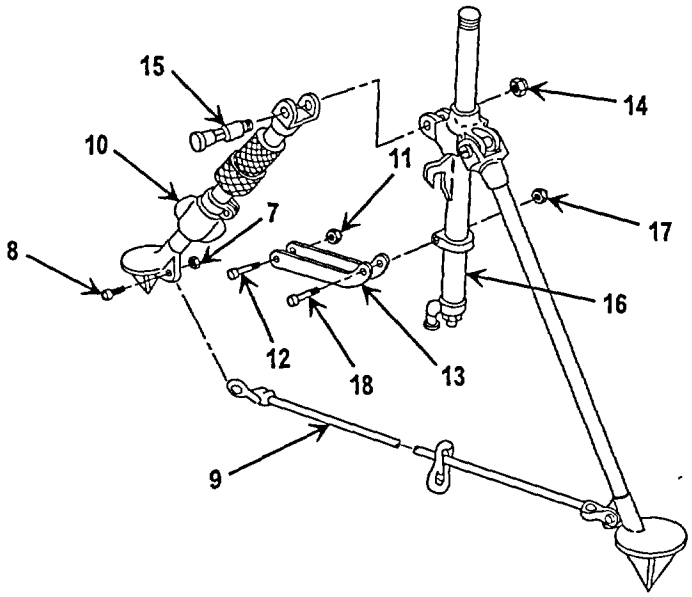
5. Remove self-locking nut (7), self-locking screw (8), and wire rope assembly (9) from left mortar mount leg (10). Discard self-locking nut and self-locking screw.
6. Remove self-locking nut (11) and shoulder screw (12) from connecting link (13). Discard self-locking nut.

NOTE

A 5/16-inch socket head screw key (or a 3/8-inch open end wrench on flat center) can be used to hold hinge pin while removing self-locking nut.

7. Remove self-locking nut (14), hinge pin (15), and left mortar mount leg (10) from elevating mechanism (16). Discard self-locking nut.
8. Remove self-locking nut (17), shoulder screw (18), and connecting link (13) from elevating mechanism (16). Discard self-locking nut.

REMOVAL - Continued



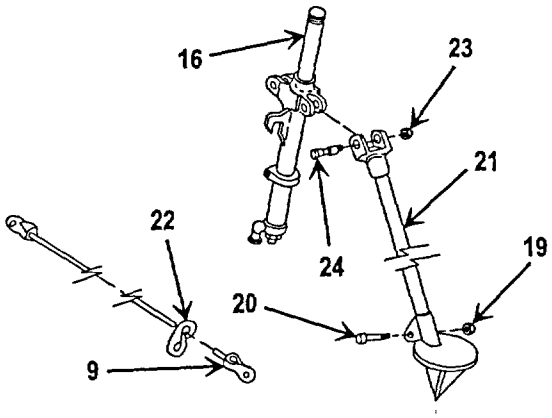
9. Remove self-locking nut (19), self-locking screw (20), and wire rope assembly (9) from right mortar mount leg (21). Discard self-locking nut and self-locking screw.

10. Slide snap hook (22) from wire rope assembly (9).

NOTE

A 5/16-inch socket head screw key (or a 3/8-inch open end wrench on flat center) can be used to hold hinge pin while removing self-locking nut.

11. Remove self-locking nut (23), hinge pin (24), and right mortar mount leg (21) from elevating mechanism (16). Discard self-locking nut.



REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0037 00.

INSTALLATION

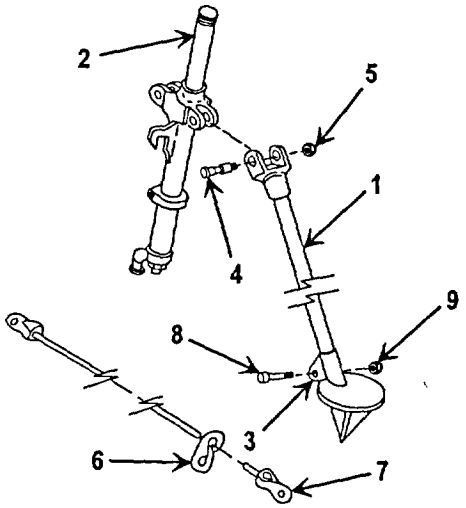
NOTE

A 5/16-inch socket head screw key (or a 3/8-inch open end wrench on flat center) can be used to hold hinge pin while tightening self-locking nut.

1. Install right mortar mount leg (1) to elevating mechanism (2) with clevis (3) pointing inward. Install hinge pin (4) from hook side of elevating mechanism. Install new self-locking nut (5) and tighten.

2. Slide snap hook (6) onto wire rope assembly (7).

3. Install wire rope assembly (7) to right mortar mount leg (1) with new self-locking screw (8). Install new self-locking nut (9) and tighten.



INSTALLATION - Continued

4. Install curved end of connecting link (10) to elevating mechanism (2) with shoulder screw (11) and new self-locking nut (12). Tighten self-locking nut.

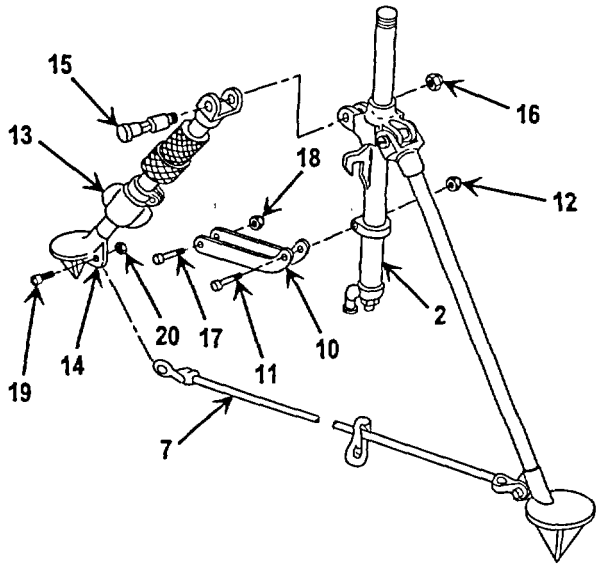
NOTE

A 5/16-inch socket head screw key (or a 3/8-inch open end wrench on flat center) can be used to hold hinge pin while tightening self-locking nut.

5. Install left mortar mount leg (13) to elevating mechanism (2) with clevis (14) pointing inward. Install hinge pin (15) from hook side of elevating mechanism. Install new self-locking nut (16) and tighten.

6. Install shoulder screw (17) and new self-locking nut (18) to secure connecting link (10) to left mortar mount leg (13).

7. Install wire rope assembly (7) to left mortar mount leg (13) with new self-locking screw (19) and new self-locking nut (20).



INSTALLATION - Continued

8. Hold traversing mechanism (21) and rotate elevating spindle nut (22) until traversing mechanism is completely installed.

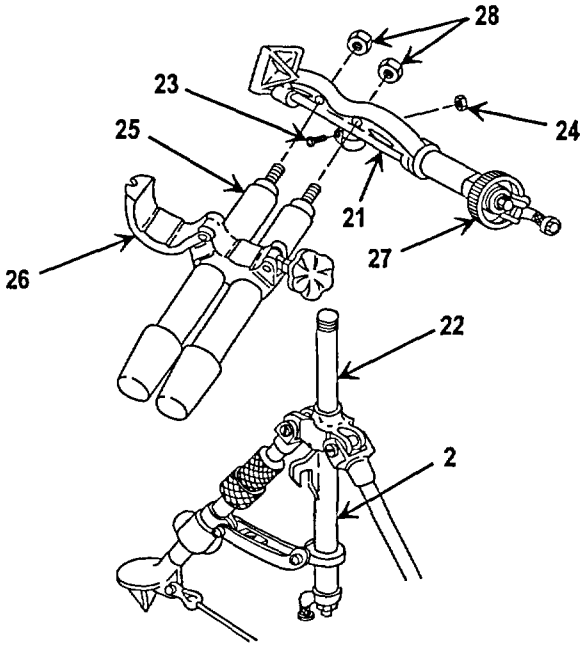
9. Install hexagon cap screw (23) so it points away from hook on elevating mechanism (2).

10. Install and tighten new self-locking nut (24) so that ears of clamp on traversing mechanism (21) are touching.

NOTE

Shock absorber rods can be held with 5/16-inch socket head screw key while installing self-locking nuts.

11. Install collar-shock absorber assembly (25) with collar (26) up and traversing knob (27) on right. Secure with two new self-locking nuts (28).



END OF TASK

M7 MORTAR BASEPLATE MAINTENANCE 0014 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Small Arms Repairman Tool Kit SC 5180-95-CL-A07

Materials/Parts
Lockwasher (4) MS35338-138

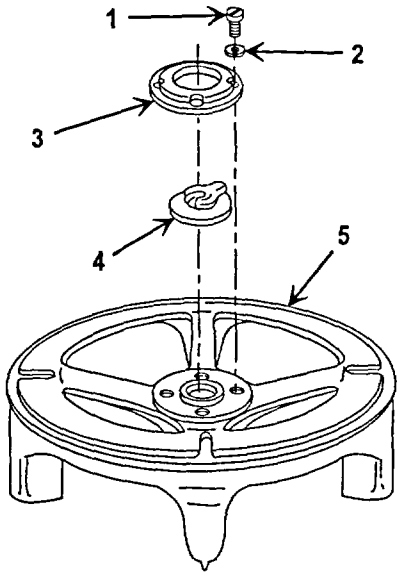
References
WP 0047 00

Equipment Condition
Cannon removed from baseplate.

DISASSEMBLY

1. Remove four machine screws (1) and four lockwashers (2) that hold locking cap retainer (3). Discard lockwashers.

2. Lift locking cap retainer (3) and locking cap (4) from baseplate (5).



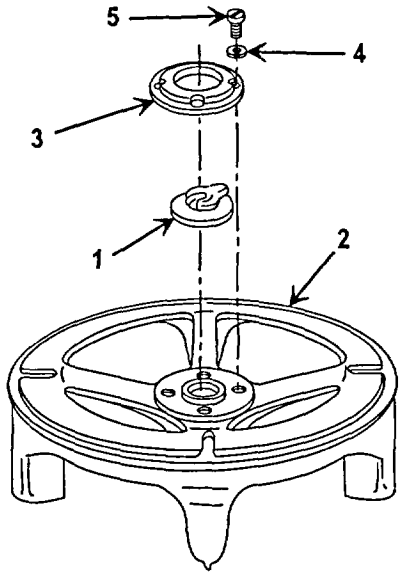
REPAIR OR REPLACEMENT

1. Inspect locking cap retainer and locking cap for burrs and damage.

2. Replace defective parts as authorized by WP 0047 00.

ASSEMBLY

Put locking cap (1) on baseplate (2). Add locking cap retainer (3) and secure it with four new lockwashers (4) and four machine screws (5).



END OF TASK

M8 MORTAR BASEPLATE MAINTENANCE 0015 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Small Arms Repairman Tool Kit
SC 5180-95-CL-A07

Materials/Parts
Retaining ring M27426-1103D

References
WP 0048 00

Equipment Condition
Baseplate removed from cannon.

DISASSEMBLY

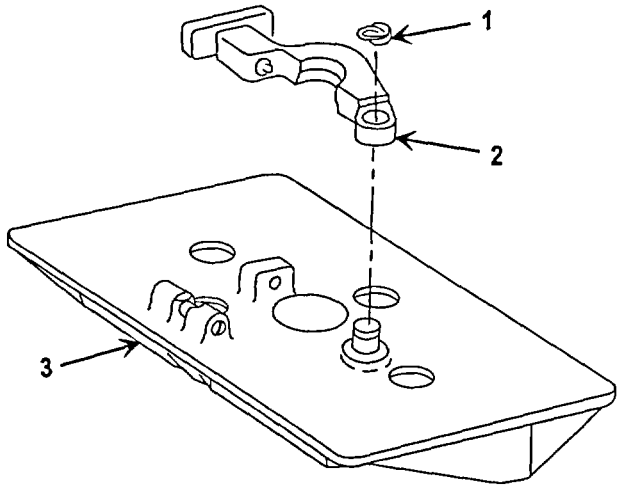
Remove retaining ring (1) and baseplate latch (2) from baseplate base (3). Discard retaining ring.

REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0048 00.

ASSEMBLY

Install baseplate latch (2) on baseplate base (3) and secure with new retaining ring (1).



END OF TASK

PREPARATION FOR STORAGE OR SHIPMENT 0016 00

THIS WORK PACKAGE COVERS:
Intermediate Storage

INITIAL SETUP:

Maintenance Level
Unit

Materials/Parts
Aircraft grease (GA) (item 11, WP 0052 00)
Barrier material (item 2, WP 0052 00)
Cleaning, lubricant, preservative (item 7.1, WP 0052 00)
Cushioning material (item 9, WP 0052 00)
Dry cleaning solvent (item 23, WP 0052 00)
General purpose lubricating oil (GPL) (item 13, WP 0052 00)
Pressure sensitive adhesive tape (item 25, WP 0052 00)
Pressure sensitive adhesive tape (water resistant) (item 26, WP 0052 00)
Wiping rag (item 19, WP 0052 00)

References
DA Form 2408-4
DA Form 2408-9

INTERMEDIATE STORAGE

Store the weapon under cover, in open sheds, or warehouses, whenever possible, and prepare it for storage in the following manner.

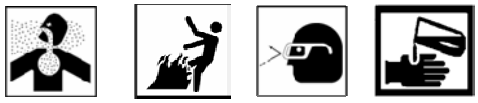
Preparation

Remove components and disassemble weapon prior to cleaning and packaging.

INTERMEDIATE STORAGE - Continued

Cleaning and Drying

WARNING



DRY CLEANING SOLVENTS AND PAINT THINNERS

Clean the weapon, including the bore, with dry cleaning solvent (item 23, WP 0052 00). Wipe dry using wiping rags (item 19, WP 0052 00).

Preservation

Coat the cannon bore liberally with GPL lubricating oil (item 13, WP 0052 00). Coat the other painted and unpainted surfaces of the cannon and mount assembly with GA grease (item 11, WP 0052 00).

Cleaner, Lubricant, Preservative (CLP) is authorized for use on mortar systems, but for short term application only. Prolonged storage of weapon systems coated with CLP will result in damage to equipment. GPL/RBC are preferred over CLP.

Packaging

1. Wrap the M225 60-mm cannon, bipod, and baseplates separately in barrier material (item 2, WP 0052 00) and close securely with 2 in. water resistant tape (item 26, WP 0052 00).

2. Preserve and wrap the BII and other small items in cushioning material (item 9, WP 0052 00) and place in fiberboard boxes. Close with 2 in. tape (item 25, WP 0052 00).

3. Enclose a copy of DA Form 2408-4, Weapons Record Data, and, when applicable, DA Form 2408-9, Equipment Control Record, in a plastic bag and secure to the wrapped M225 60-mm cannon with tape.

4. Include the following information on the inside packaging list:

   NATIONAL STOCK NUMBER
   PART NUMBER
   FEDERAL ITEM NAME
   WEIGHT AND CUBE
   SERIAL NUMBER.

INTERMEDIATE STORAGE - Continued

Marking

Mark shipping container with the following information:

DESTINATION
WEIGHT AND CUBE.

Preparation for Shipment of Small Component Items

1. If a small breakable component such as a sight unit is the only item being shipped, use fast pack containers. These are available in a wide range of sizes through the GSA catalog.

2. If the small item is durable metal, apply GPL lubricating oil (item 13, WP 0052 00) and wrap in barrier material (item 2, WP 0052 00). Cushion the item and place in a fiberboard box of appropriate size.

END OF TASK

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS FOR THE M224 60-MM MORTAR

SERVICE UPON RECEIPT 0017 00

GENERAL

Normally, it is not necessary to open the shipping container at the direct support level if the weapon is new or depot overhauled. The instructions for service upon receipt of materiel are found in WP 0009 00.

HANDLE AND FIRING MECHANISM MAINTENANCE 0018 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly, Testing

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-A11

Materials/Parts
Retaining ring 11578981
Self-locking screw (2) MS21090-352
Self-locking screw MS21262-12
Spring pin MS16562-226

References
WP 0035 00

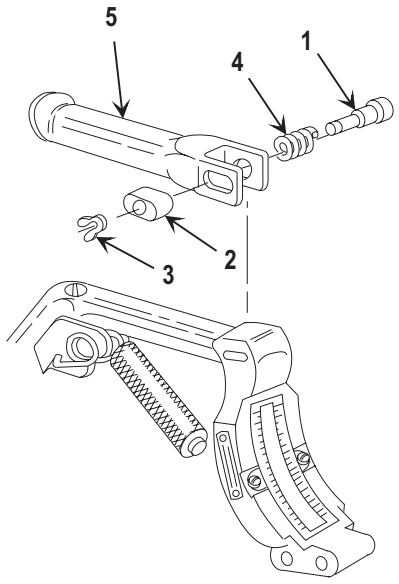
Equipment Condition
Handle and firing mechanism removed from cannon (WP 0011 00).

DISASSEMBLY

NOTE

Detent plunger is spring-loaded.

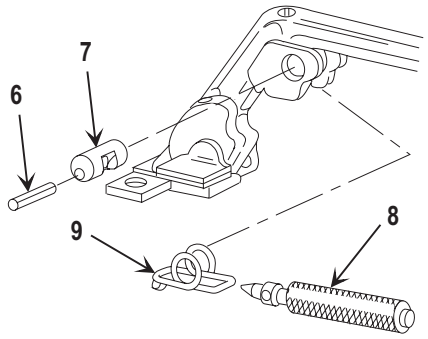
1. While holding onto detent plunger (1) and machine key (2), pry off and discard retaining ring (3).
2. Remove machine key (2), detent plunger (1), and helical compression spring (4) and take off carrying handle (5).



DISASSEMBLY - Continued

3. Drive spring pin (6) from barrel nut (7) and discard.

4. Unscrew trigger (8) from barrel nut (7). Push out barrel nut and remove torsion helical spring (9).



5. Remove self-locking screw (10).

6. Turn handle upside down and shake out helical compression spring (11) and detent plunger (12).

7. Remove adjusting screw (13) from housing (14) by screwing in (clockwise) until it comes out the other side.

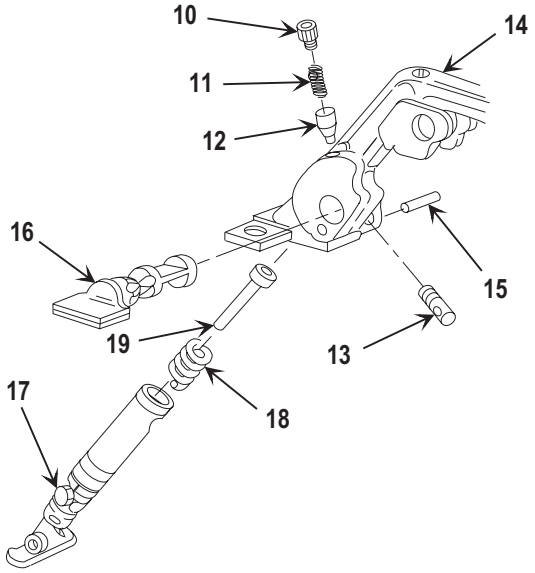
8. Remove headless straight pin (15) by pushing out from the firing selector side.

NOTE

Sear assembly can only be removed when firing selector is in T position.

9. Place firing selector (16) in T position and remove sear assembly (17), helical compression spring (18), and detent plunger (19) from bottom of housing (14).

10. Remove firing selector (16).



DISASSEMBLY - Continued

WARNING

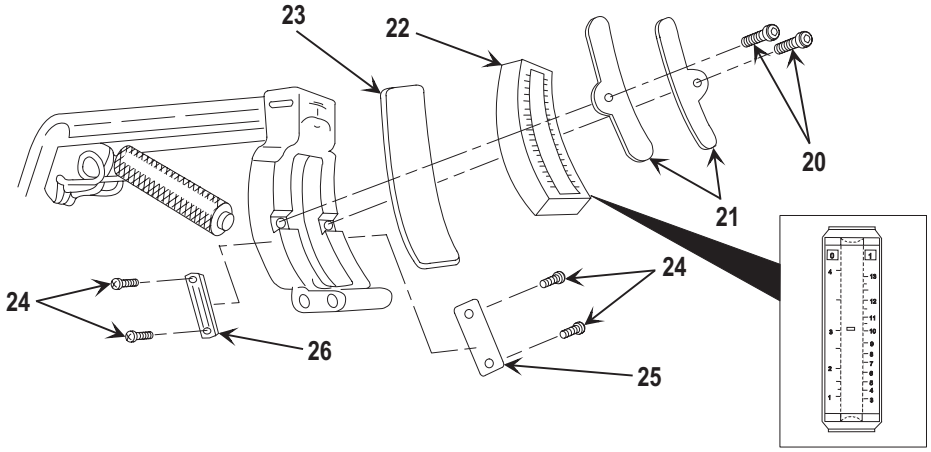
RADIOACTIVE TRITIUM (H_3)

The range indicator (22) shall be easy to remove. Work shall be performed by Direct Support maintenance personnel who are not permitted to use screwdrivers and/or punches to remove the range indicator from the handle and firing mechanism. If resistance is encountered, place the range indicator under ventilation controls (lab hood) and exercise extreme caution to remove.

ARMS ROOMS ARE NOT AUTHORIZED WORK AREAS FOR THE RANGE INDICATOR.

11. Remove two self-locking screws (20), two parts of assembly clip (21), range indicator (22), and cushioning pad (23).

12. Remove four machine screws (24), identification plate (25), and instruction plate (26).



REPAIR OR REPLACEMENT

1. Inspect for physical damage and deformed or worn parts.
2. Dispose of defective range indicator in accordance with instructions in WARNING summary in front of manual.
3. Replace defective parts as authorized by WP 0035 00.

ASSEMBLY

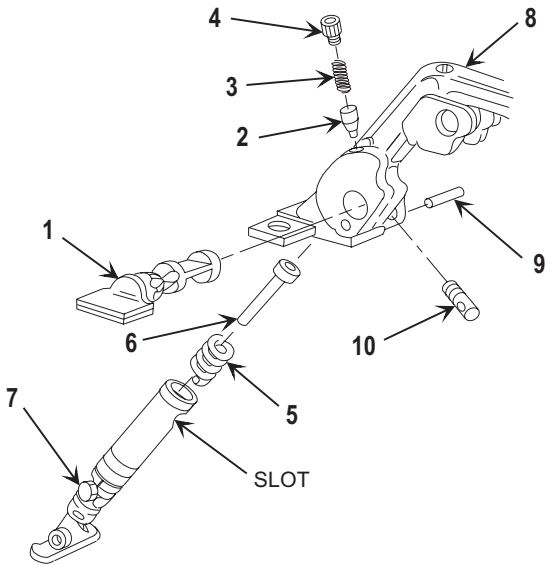
1. Install firing selector (1) and set to T position.
2. Insert detent plunger (2) and helical compression spring (3) and install new self-locking screw (4).

NOTE

Sear assembly cannot be installed unless firing selector is set to T.

The slot in sear assembly housing must face forward to allow installation of trigger.

3. Place helical compression spring (5) and detent plunger (6) inside housing of sear assembly (7). Slide sear assembly into housing (8) with slot facing forward.
4. Position sear assembly (7) as needed to align holes. Install headless straight pin (9) from the adjusting screw side to retain sear assembly in housing (8).
5. Install adjusting screw (10).



ASSEMBLY - Continued

6. Install torsion helical spring (11) with loops up and split ends against housing (8), and then insert barrel nut (12) with flat recess to front.

CAUTION

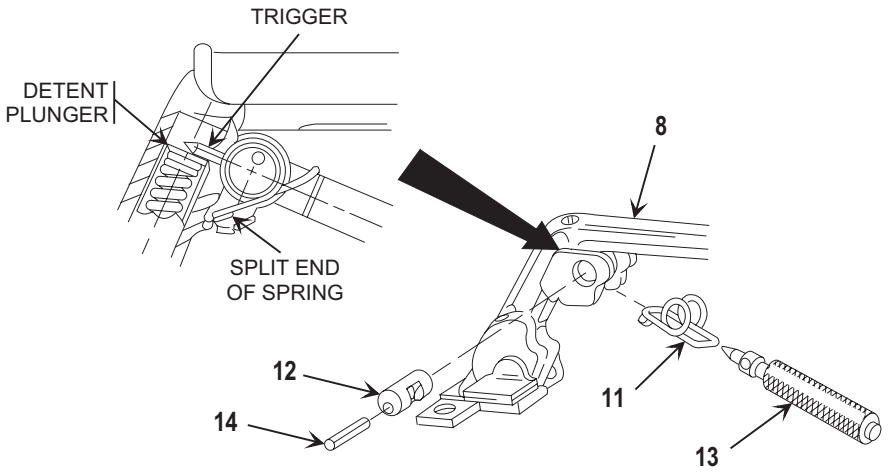
The trigger must be installed through slot of sear assembly housing and on top of detent plunger. If trigger is installed incorrectly, interior damage may occur.

Firing selector must be at T (trigger). Do not place in D (drop) position. Do not force anything.

Barrel nut is easily destroyed. Use caution when installing trigger into barrel nut.

7. Screw trigger (13) into barrel nut (12) with torsion helical spring (11) over top of trigger. Screw trigger in completely.

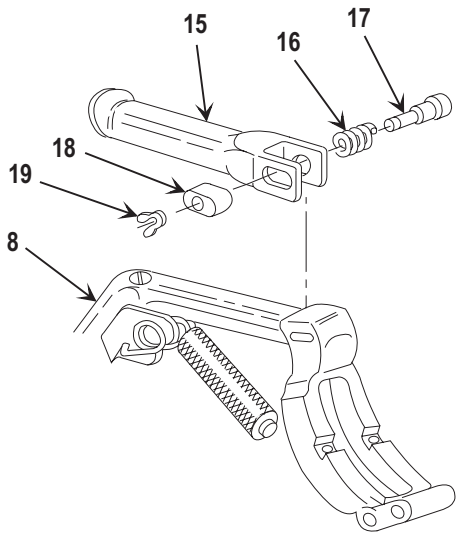
8. Drive in new spring pin (14) to retain trigger (13).



ASSEMBLY - Continued

9. Position carrying handle (15) on housing (8).

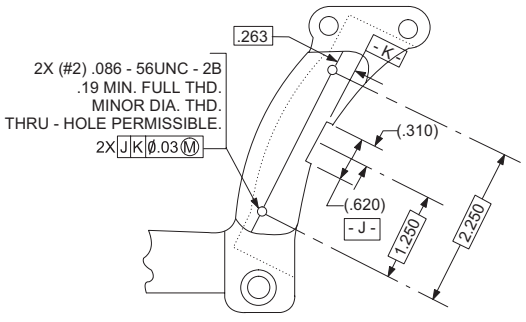
10. Install helical compression spring (16), detent plunger (17), and machine key (18) and secure with new retaining ring (19).



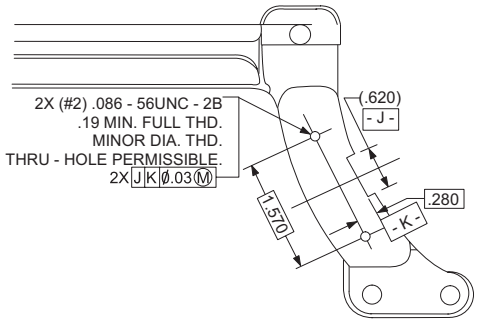
NOTE

Older production handle and firing mechanisms require the following drilling and tapping procedure for the replacement of instruction plate or identification plate.

11. Ensure range indicator has been removed. Stamp old plate information on new plate as required. Using new plate as a template and following dimensional illustration, center punch hole positions. Drill two #50 holes. Tap two #2-56UNC holes and then deburr.



IDENTIFICATION PLATE, 11729521



INSTRUCTION PLATE, 12950962

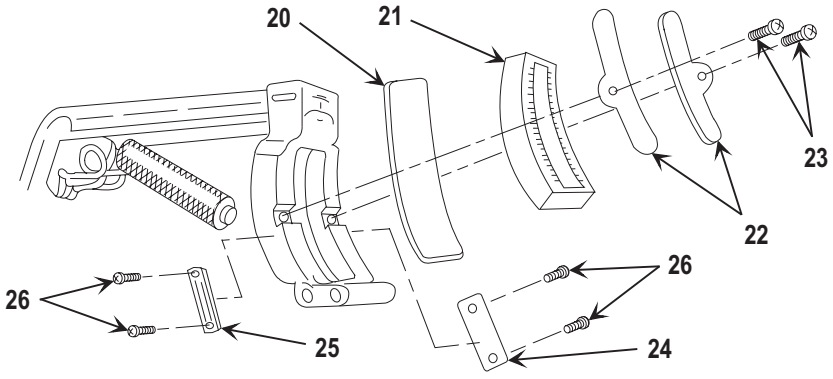
ASSEMBLY - Continued

WARNING

RADIOACTIVE TRITIUM (H_3)

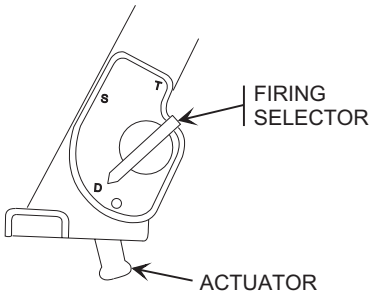
12. Install cushioning pad (20), range indicator (21), and two parts of assembly clip (22), and secure with two new self-locking screws (23).

13. Install identification plate (24) and instruction plate (25) with four screws (26).



TESTING

Move firing selector through T, S, and D positions. The firing selector should move freely and detent plunger should provide a positive stop in all three positions. Squeeze the trigger in all three positions and press actuator. The firing selector should not move. The mechanism will click loudly in the T position. In the S and D positions it will not click.



END OF TASK

SEAR ASSEMBLY MAINTENANCE **0019 00**

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-CL-All

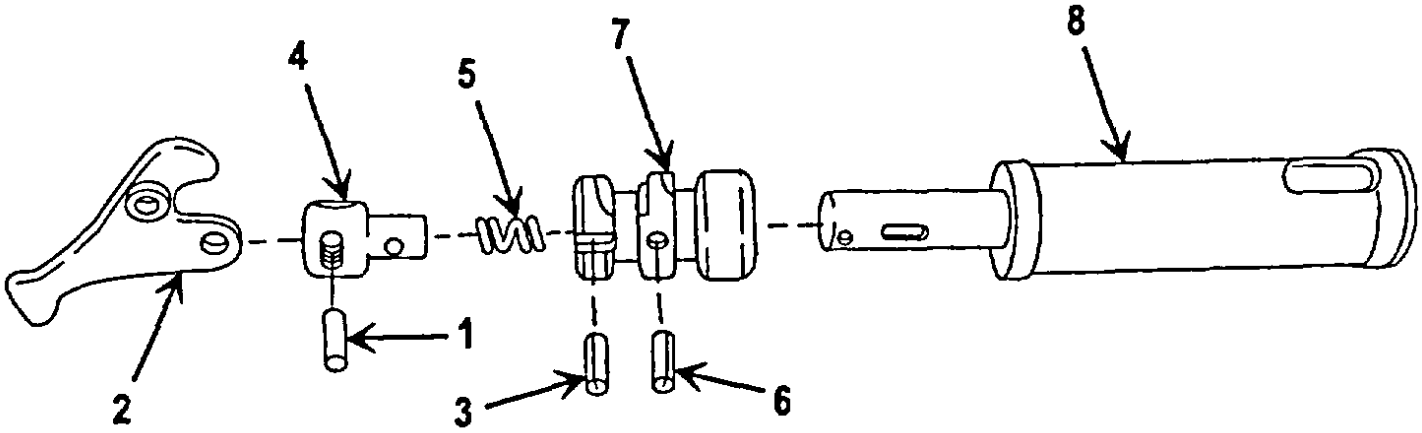
Materials/Parts
Spring pin (2) MS16562-223

References
WP 0036 00

Equipment Condition
Sear assembly removed from handle and firing mechanism (WP 0018 00).

DISASSEMBLY

1. Drive out headless straight pin (1) and remove firing pin actuator (2).
2. Drive out and discard spring pin (3). Remove rod end clevis (4) and helical compression spring (5).
3. Drive out and discard spring pin (6). Remove sear (7) from sear housing (8).

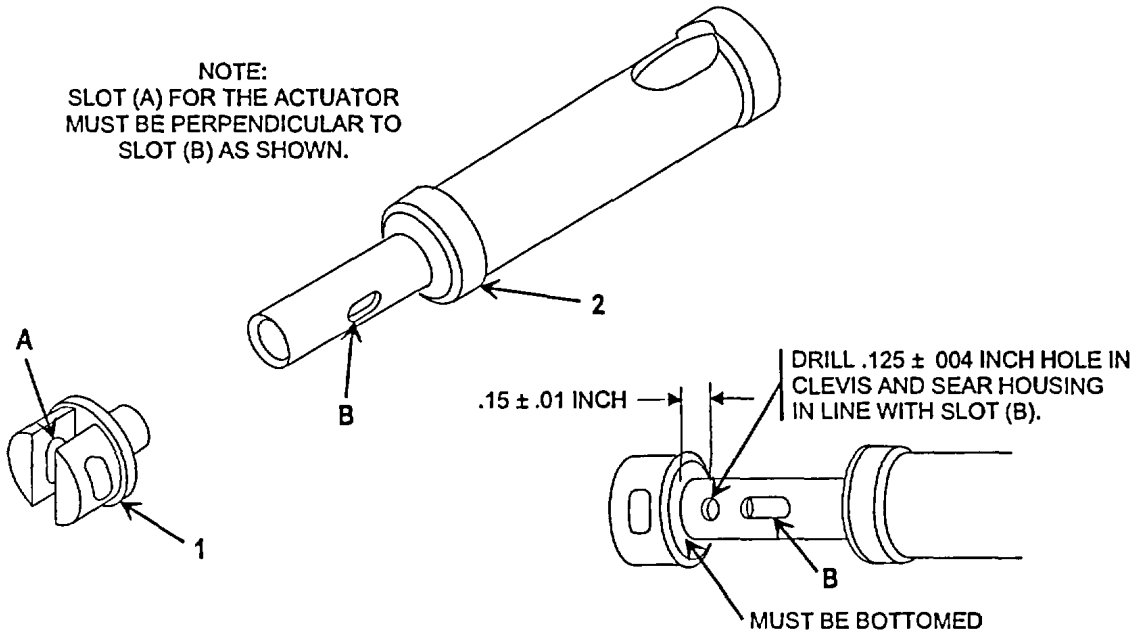


REPAIR OR REPLACEMENT

1. Inspect for wear, breakage, and any deformities.
2. Replace defective parts as authorized by WP 0036 00.

ASSEMBLY

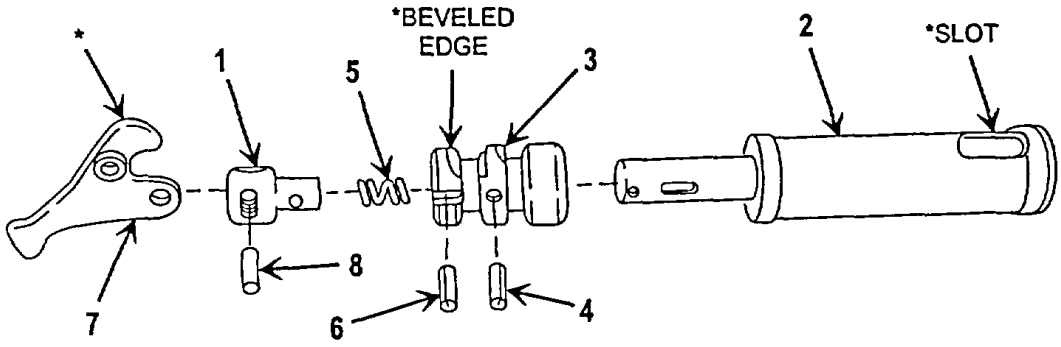
1. If rod end clevis (1) or sear housing (2) is new, drill hole in new rod end clevis and/or sear housing as illustrated.



2. Slide sear (3) on sear housing (2). Align beveled edge on sear with slot on sear housing (2). Install new spring pin (4).

3. Place helical compression spring (5) into sear housing (2). Insert and position rod end clevis (1). Align holes and insert new spring pin (6).

4. Install firing pin actuator (7). Align holes and install headless straight pin (8).



**ALL SURFACES MUST BE ALIGNED AS SHOWN IN ILLUSTRATION.*

END OF TASK

COLLAR-SHOCK ABSORBER ASSEMBLY MAINTENANCE 0020 00

THIS WORK PACKAGE COVERS:

Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level

Direct Support

Tools and Special Tools

Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-A11

Materials/Parts

Spring pin MS16562-231
Spring tension washer (5) 11579109

References

WP 0038 00

Equipment Condition

Collar-shock absorber assembly removed from bipod (WP 0013 00).

NOTE

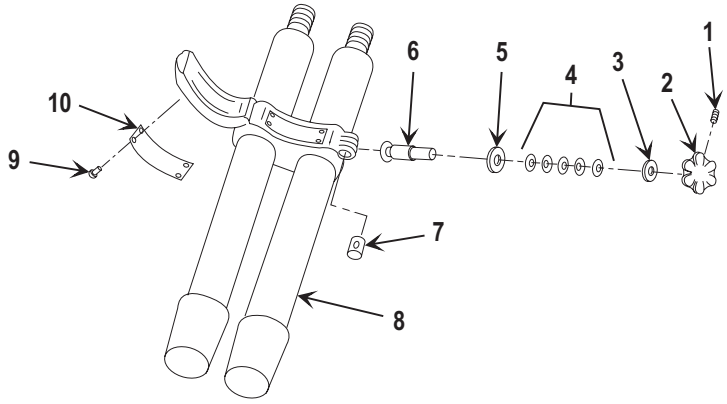
Semiannual disassembly of the M170 mortar bipod to a level allowing each part's complete cleaning, inspection for repair, and lubrication is required (Direct Support Semi-annual Parts Kit, NSN 1015-01-452-1191).

DISASSEMBLY

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

1. Drive spring pin (1) from knob (2) and discard.
2. Pull knob (2), flat washer (3), five spring tension washers (4), and flat washer (5) off shouldered shaft (6). Discard spring tension washers.
3. Unscrew shouldered shaft (6) from barrel nut (7) and push barrel nut from bipod yoke (8).
4. If damaged, remove four solid rivets (9) and identification plate (10).

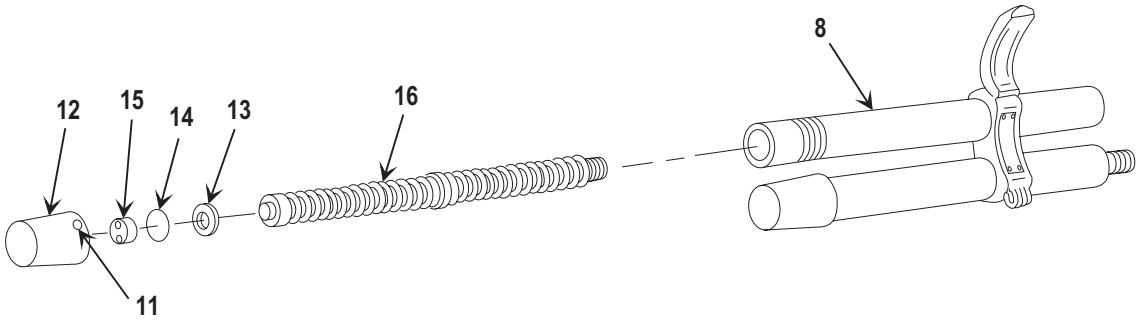


NOTE

Steps 5 and 6 are written and illustrated for only one shock absorber but apply to both cylinders.

5. Loosen setscrew (11) and screw off shock absorber cap (12). Remove flat washer (13), plain solid disk (14), and nonmetallic bushing (15) from shock absorber cap.
6. Slide piston assembly (16) out of bipod yoke (8).

DISASSEMBLY - Continued



REPAIR OR REPLACEMENT

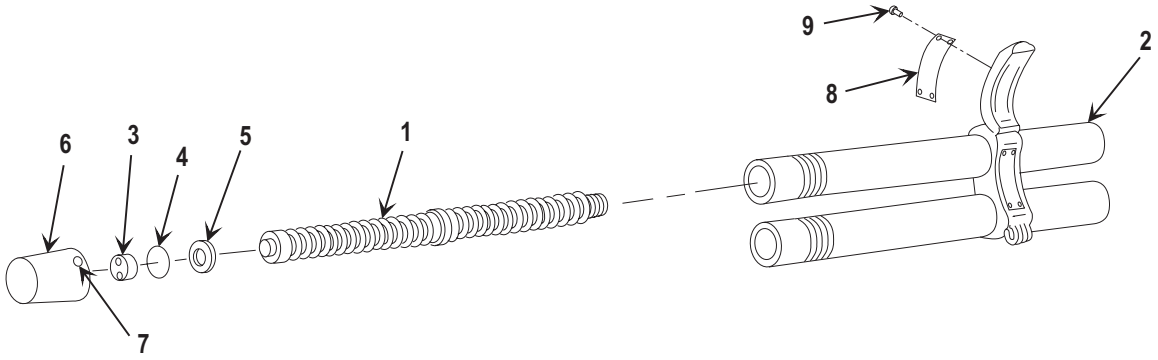
1. Inspect for burrs and repair by removing burrs.
2. Replace defective parts as authorized by WP 0038 00.

ASSEMBLY

NOTE

Steps 1 and 2 are written and illustrated for only one shock absorber but apply to both cylinders.

1. Push piston assembly (1) up through cylinder portion of bipod yoke (2).
2. Insert nonmetallic bushing (3), plain solid disk (4), and flat washer (5) into shock absorber cap (6). Pull piston assembly (1) from threaded end into the cylinder portion of bipod yoke (2) and screw shock absorber cap on end of cylinder. Tighten setscrew (7).
3. If removed, make new identification plate (8). Drill four holes. Stamp old plate information on new plate as required. Install identification plate on bipod yoke (2) using four new solid rivets (9).

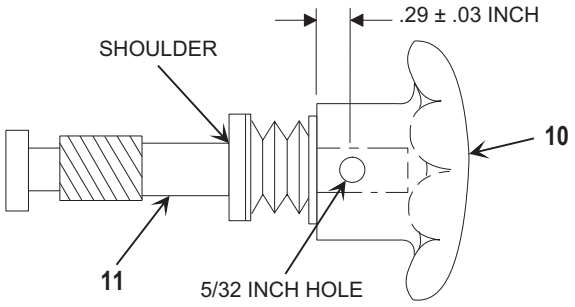


ASSEMBLY - Continued

NOTE

Drilling of knob and shouldered shaft is necessary only if either is replaced.

4. Before drilling the 5/32 inch hole in knob (10) and shouldered shaft (11), assemble the washers and seat them against the shoulder on shouldered shaft. Do not compress the washers.

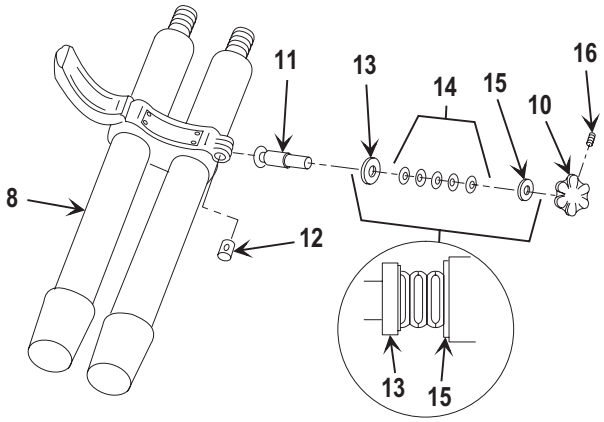


WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

5. Slide barrel nut (12) into housing of bipod yoke (8) and screw shouldered shaft (11) in completely. Install thick flat washer (13), five new spring tension washers (14), and thin flat washer (15) on shouldered shaft.

6. Install knob (10) on shouldered shaft (11) and align the holes. Drive in new spring pin (16).



ASSEMBLY - Continued

7. Upon completion of collar-shock absorber assembly, inspect recoil movement for proper recoil/counter-recoil action. From the assembled position, pull back on recoil assembly and then release. Inspect that the counter-recoil of collar-shock absorber assembly returns to position, aided by air-flow of piston assembly, in addition to the spring action. Push down on recoil assembly and inspect for spring tension to stop. Ensure that there is no free-play movement in either recoil direction.

END OF TASK

PISTON ASSEMBLY MAINTENANCE 0021 00

THIS WORK PACKAGE COVERS:

Disassembly, Repair or Replacement, Lubrication, Assembly

INITIAL SETUP:

Maintenance Level

Direct Support

Tools and Special Tools

Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-A11

Materials/Parts

General purpose lubricating oil (item 13, WP 0052 00)

References

WP 0039 00

Equipment Condition

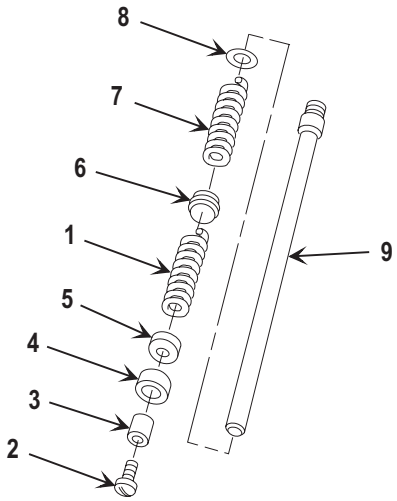
Piston assembly removed from collar-shock absorber assembly (WP 0020 00).

DISASSEMBLY

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

1. Hold tension on helical compression spring (1) and remove machine thread plug (2).
2. Slide sleeve spacer (3), compression cup (4), helical compression spring seat (5), helical compression spring (1), sleeve spacer (6), helical compression spring (7), and flat washer (8) from shock absorber rod (9).



REPAIR OR REPLACEMENT

1. Inspect for burrs and repair by removing burrs.
2. Replace defective parts as authorized by WP 0039 00.

LUBRICATION

1. Soak compression cup in general purpose lubricating oil (item 13, WP 0052 00) for one hour prior to assembly.
2. Lightly coat shock absorber rods, springs, and spacers with general purpose lubricating oil (item 13, WP 0052 00).
3. DO NOT allow grease, lubricant, or any foreign matter to plug orifice holes of shock absorber rod or machine thread plug. Check for free air-flow through these items prior to assembly.

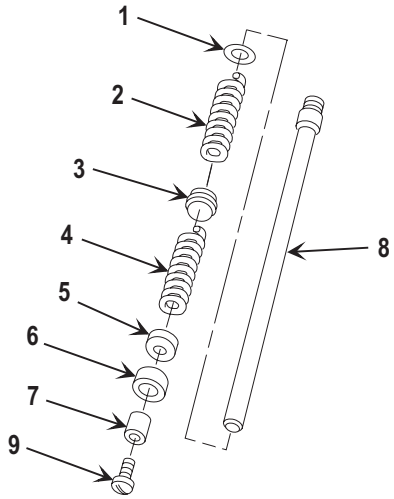
ASSEMBLY

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

1. Install flat washer (1), helical compression spring (2), sleeve spacer (3), helical compression spring (4), helical compression spring seat (5), compression cup (6), and sleeve spacer (7) on shock absorber rod (8).

2. Compress springs and install and tighten machine thread plug (9).



END OF TASK

TRAVERSING MECHANISM, TRAVERSING HOUSING, AND RETAINER MAINTENANCE 0022 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Lubrication, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-CL-All

Materials/Parts
Abrasive cloth (item 8, WP 0052 00)
Aircraft grease (item 11, WP 0052 00)
Headless grooved pin MS35675-41
Sealing compound (item 21, WP 0052 00)
Sealing compound (item 22, WP 0052 00)
Self-locking nut MS21083-D7
Spring pin MS16562-253
Spring tension washer 11578989
Wiper preformed packing 11579006

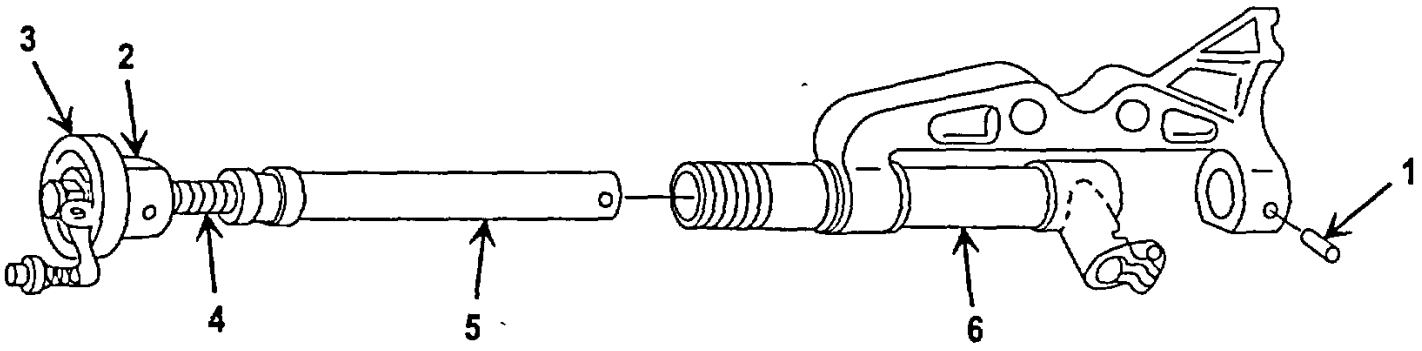
References
WP 0040 00
WP 0041 00
WP 0042 00

Equipment Condition
Traversing mechanism removed from bipod (WP 0013 00).

DISASSEMBLY

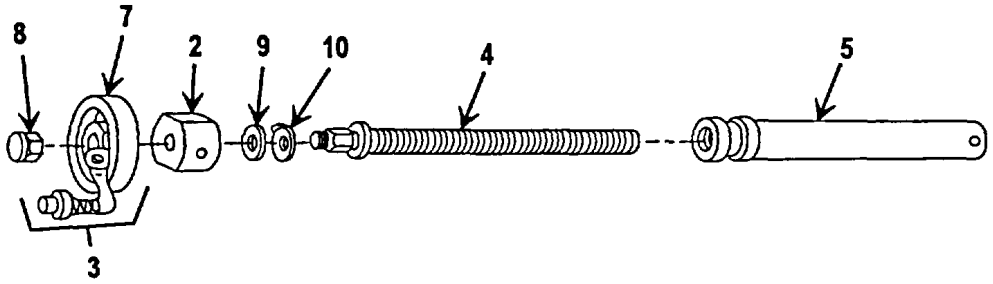
CAUTION
Do not attempt to loosen or remove plastic setscrew in retainer except according to instructions in "Repair or Replacement."

1. Drive out headless grooved pin (1). Unscrew retainer (2) and pull handwheel assembly (3), traversing spindle (4), and traversing spindle nut (5) out of traversing housing (6) as an assembly.

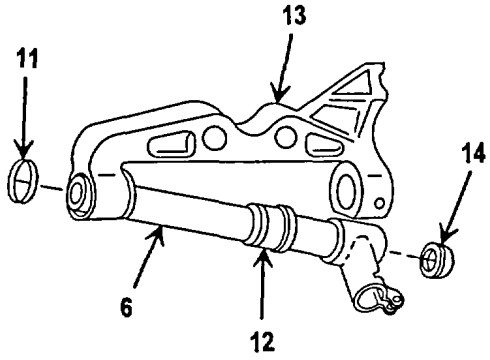


DISASSEMBLY - Continued

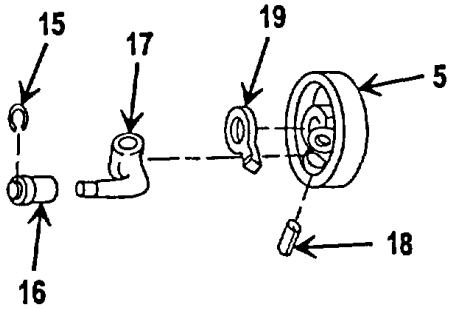
2. Remove traversing spindle nut (5) from traversing spindle (4). While holding knob (7), remove and discard self-locking nut (8). Remove handwheel assembly (3), retainer (2), spring tension washer (9), and key washer (10) from traversing spindle.



3. Remove retaining ring (11) from sleeve bearing (12). Push sleeve bearing out of bipod yoke (13). Remove sleeve bearing and traversing housing (6) as an assembly and then separate them. Pry wiper preformed packing (14) out of traversing housing and discard.



4. Remove retaining ring (15) and pull knob (16) offhand crank (17). Drive out and discard spring pin (18). Remove hand crank and flat spring (19) from knob (5).

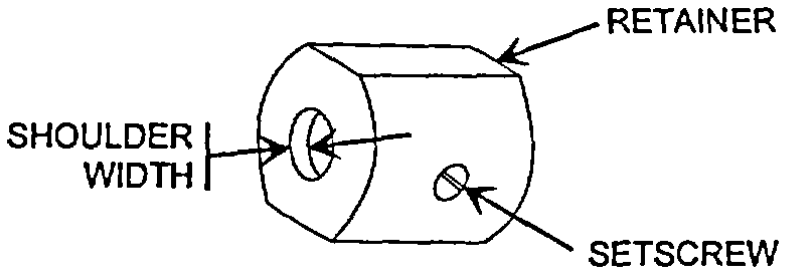


REPAIR OR REPLACEMENT

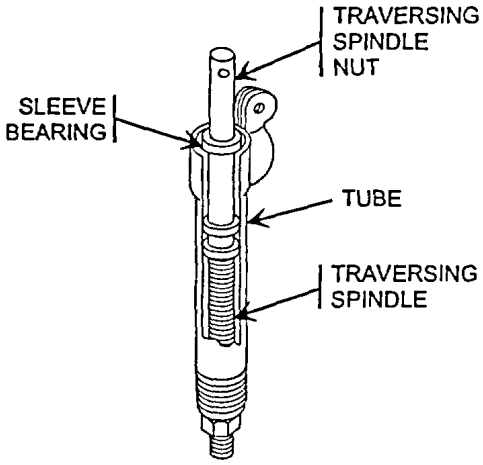
1. Inspect for damage of threaded components. Restore threads or replace defective items.

2. Inspect for burrs, cracks, and corrosion or wear. Remove burrs and corrosion using abrasive cloth (item 8, WP 0052 00).

3. When removing retainer, inspect for positive resistance to turning. If no resistance to turning is felt, drill out setscrew using a 9/64 inch drill and chase threads in retainer with a 10-24 UNC 3B tap. Inspect retainer for wear around center hole. Measure thickness with a 0 to 1 inch outside micrometer. Replace retainer if thickness is less than 0.121 in. (0.307 cm). Using a new setscrew, apply sealing compound (item 21, WP 0052 00) to threads and screw in until setscrew is flush with retainer thread minor diameter. Let sealing compound cure for 15 minutes.



4. Inspect traversing tube sleeve bearing for wear or damage. If bearing is worn or damaged, press it out and discard. Coat inner diameter of tube and outer diameter of new sleeve bearing with sealing compound (item 22, WP 0052 00). Using traversing spindle nut as a jig, install sleeve bearing into tube. Turn sleeve bearing at least 1/2 turn to spread sealing compound. After 5 minutes, remove traversing spindle nut and traversing spindle. Let sealing compound cure for 30 minutes.



5. Replace defective parts as authorized by WP 0040 00, WP 0041 00, and WP 0042 00.

LUBRICATION

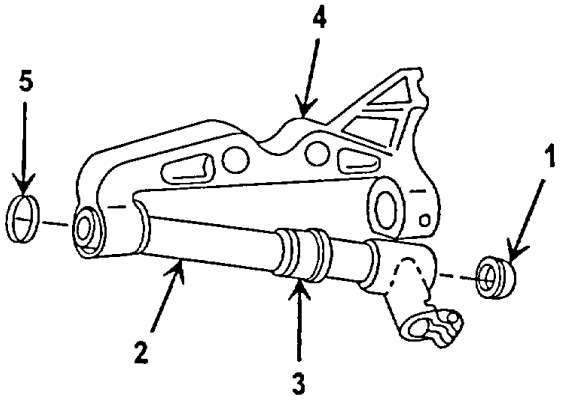
1. Lubricate threads of traversing spindle using aircraft grease (item 11, WP 0052 00).

2. Lubricate internal threads and outside surfaces of traversing spindle nut using aircraft grease (item 11, WP 0052 00).

3. Apply light coat of aircraft grease (item 11, WP 0052 00) to traversing housing and traversing sleeve bearing.

ASSEMBLY

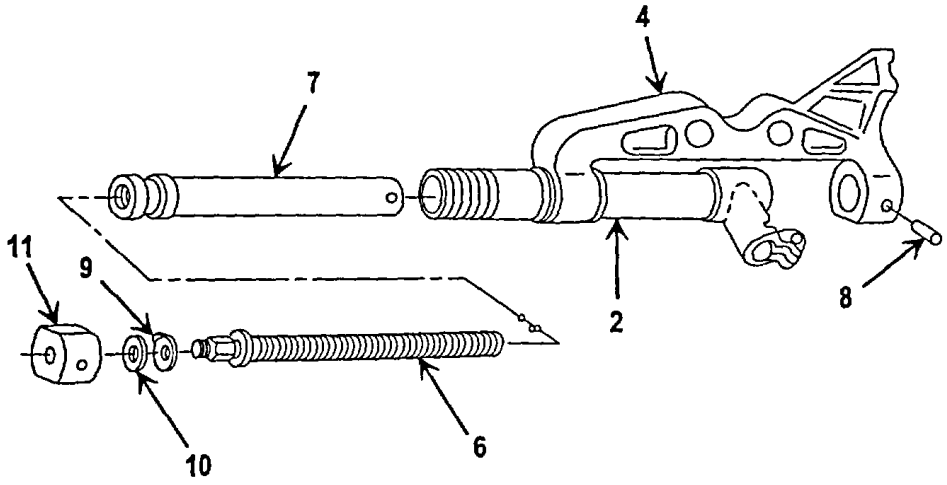
1. Install new wiper preformed packing (1) into traversing housing (2). Put sleeve bearing (3) on traversing housing and install in bipod yoke (4). Slip retaining ring (5) on sleeve bearing.



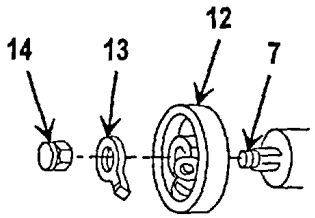
2. Screw traversing spindle (6) into traversing spindle nut (7), leaving approximately 1.5 in. (3.8 cm) clearance. Using traversing spindle, push traversing spindle nut through traversing housing (2). Put end of traversing spindle nut in bipod yoke (4). Align the holes and drive in new headless grooved pin (8).

ASSEMBLY- Continued

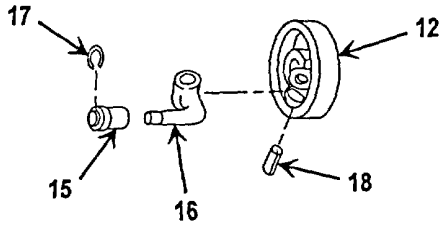
3. Put key washer (9) on traversing spindle (6). Screw traversing spindle into traversing spindle nut (7) until tab of key washer goes in slot. Holding parts in place, add new spring tension washer (10). Screw on retainer (11) and tighten.



4. Put knob (12) on traversing spindle (7). Add flat spring (13) and new self-locking nut (14) and tighten.



5. Put knob (15) on hand crank (16) and secure with retaining ring (17). Put crank assembly on knob (12) and secure with new spring pin (18).



END OF TASK

ELEVATING MECHANISM, ELEVATING HOUSING, AND RETAINER MAINTENANCE 0023 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Lubrication, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-CL-Al

Materials/Parts
Abrasive cloth (item 8, WP 0052 00)
Aircraft grease (item 11, WP 0052 00)
Preformed packing 11579006
Sealing compound (item 21, WP 0052 00)
Sealing compound (item 22, WP 0052 00)
Self-locking nut MS21083-D7

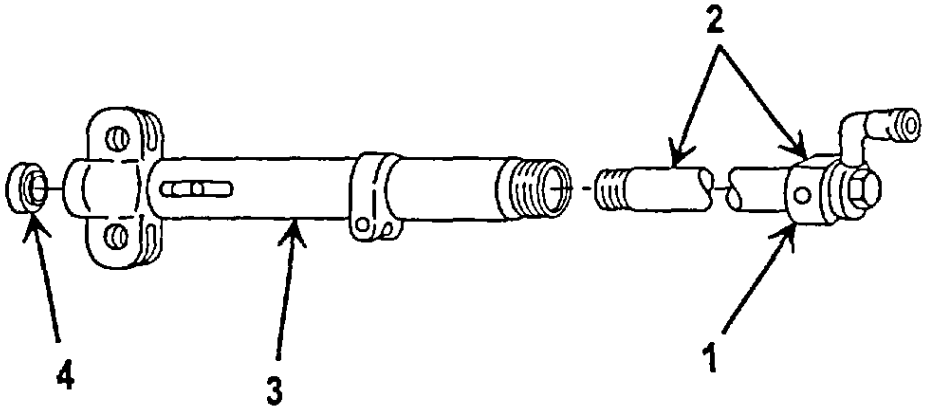
References
WP 0042 00
WP 0043 00
WP 0044 00

Equipment Condition
Elevating mechanism removed from bipod (WP 0013 00).

DISASSEMBLY

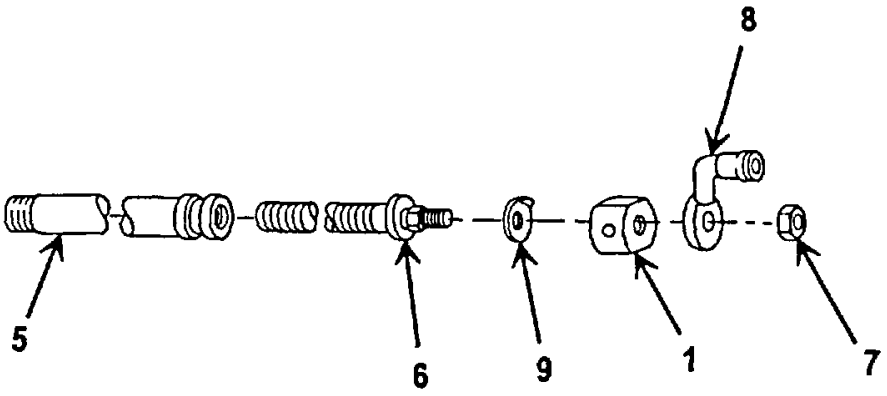
CAUTION
Do not attempt to loosen or remove plastic setscrew in retainer except according to instructions in "Repair or Replacement."

1. Loosen retainer (1). Slide elevating spindle nut group (2) from elevating housing (3). Pry out and discard preformed packing (4).

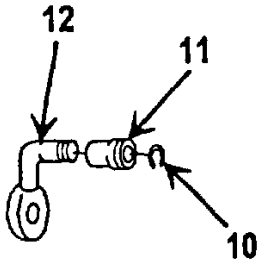


DISASSEMBLY - Continued

2. Remove elevating spindle nut (5) from elevating spindle (6). Unscrew and remove self-locking nut (7). Remove handle group (8), retainer (1), and key washer (9) from elevating spindle.



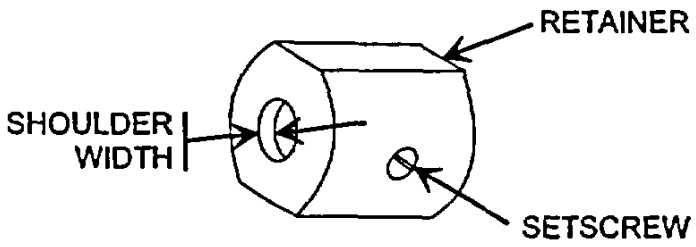
3. Pry off retaining ring (10) and remove knob (11) from hand crank (12).



REPAIR OR REPLACEMENT

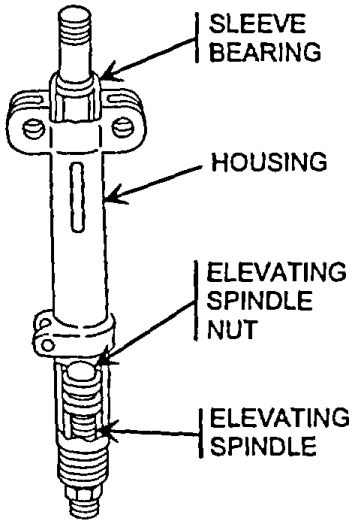
1. Inspect parts for bends, corrosion, cracks, burrs, and wear. Remove corrosion and burrs using abrasive cloth (item 8, WP 0052 00).

2. When removing retainer, inspect for positive resistance to turning. If no resistance to turning is felt, drill out setscrew using a 9/64 inch drill. Chase threads in retainer with a 10-24 UNC 3B tap. Inspect retainer for wear around center hole. Measure thickness with a 0 to 1 inch outside micrometer. Replace retainer if thickness is less than 0.121 in. (0.307 cm). Using a new setscrew, apply sealing compound (item 21, WP 0052 00) to threads and screw in until setscrew is flush with retainer thread minor diameter. Let sealing compound cure for 15 minutes.



REPAIR OR REPLACEMENT - Continued

3. Inspect sleeve bearing for wear or damage. If bearing is worn or damaged, drive out and discard sleeve bearing. Coat inner diameter of housing and outer diameter of new sleeve bearing with sealing compound (item 22, WP 0052 00). Push sleeve bearing into place and turn it at least halfway around to smooth sealing compound. Using elevating spindle and elevating spindle nut to center the sleeve bearing in the elevating housing, set the elevating housing in a vertical position for 5 minutes. Then remove elevating spindle and elevating spindle nut from housing and let sealing compound cure for 30 minutes.



4. Replace defective parts as authorized by WP 0042 00, WP 0043 00, and WP 0044 00.

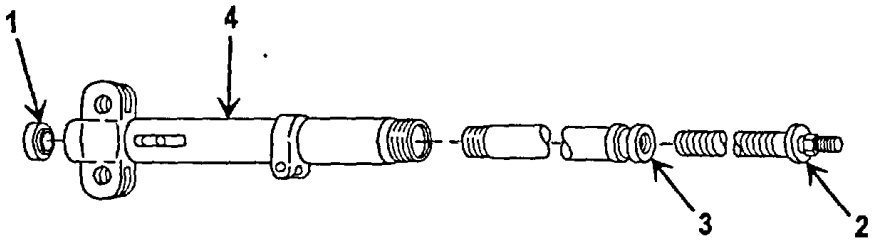
LUBRICATION

1. Apply a light coat of aircraft grease (item 11, WP 0052 00) to inner diameter of elevating housing and outer diameter of elevating spindle nut.

2. Coat threads of elevating spindle nut and elevating spindle with aircraft grease (item 11, WP 0052 00).

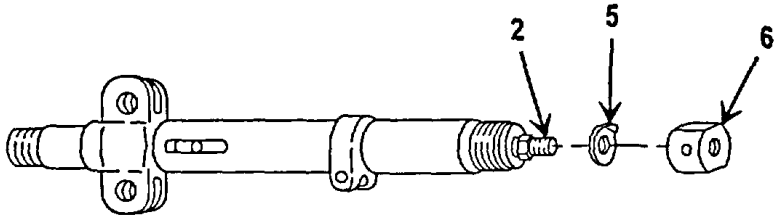
ASSEMBLY

1. Install new preformed packing (1). Screw elevating spindle (2) into elevating spindle nut (3), leaving approximately 1.5 in. (3.8 cm) clearance, and insert them into elevating housing (4).

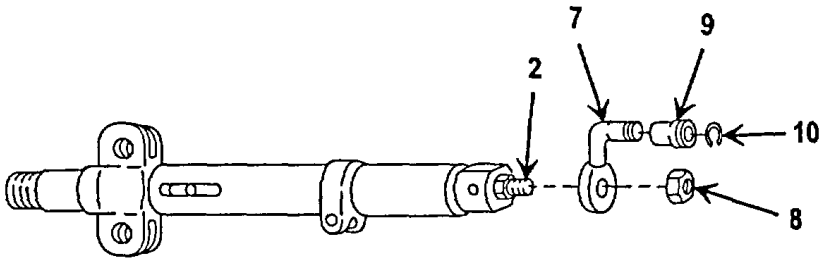


ASSEMBLY - Continued

2. Install key washer (5) on elevating spindle (2) with tab in the slot. Install and tighten retainer (6).



3. Put hand crank (7) on elevating spindle (2) and screw on new self-locking nut (8). Put knob (9) on hand crank and install retaining ring (10).



END OF TASK

MORTAR MOUNT LEG (LEFT) AND MORTAR MOUNT LEG (LEFT SUBASSEMBLY) MAINTENANCE

0024 00

THIS WORK PACKAGE COVERS:

Disassembly, Repair or Replacement, Lubrication, Assembly

INITIAL SETUP:

Maintenance Level

Direct Support

Tools and Special Tools

Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-A11

Materials/Parts

Abrasive cloth (item 8, WP 0052 00)
General purpose lubricating oil (item 13, WP 0052 00)
Headless grooved pin (2) MS35675-18
Headless grooved pin (2) 11578999

References

WP 0045 00

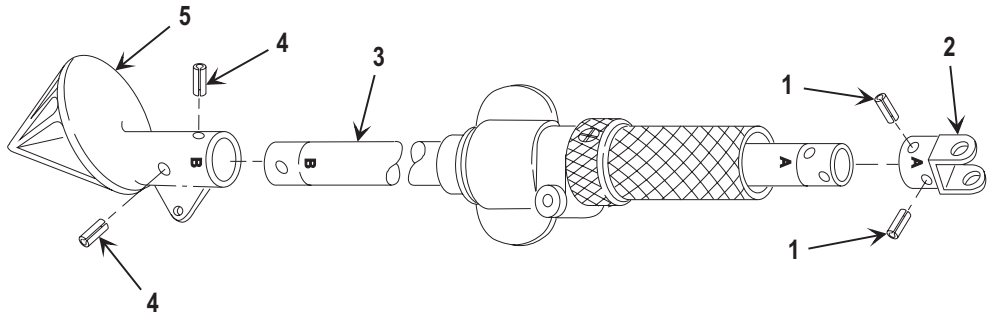
Equipment Condition

Mortar mount leg (left) removed from bipod (WP 0013 00).

DISASSEMBLY

1. Drive out two headless grooved pins (1) from rod end clevis (2) and mortar mount leg (3). Remove rod end clevis. Discard headless grooved pins.

2. Drive out two headless grooved pins (4) from mortar mount foot (5) and mortar mount leg (3). Remove mortar mount foot. Discard headless grooved pins.

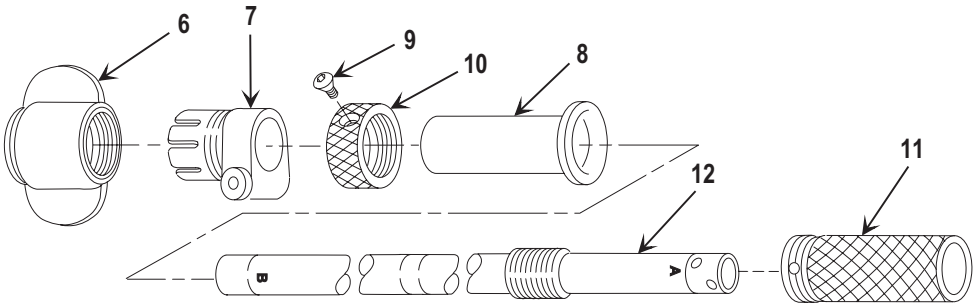


DISASSEMBLY - Continued

3. Screw plain wing nut (6) off mounting bracket (7). Slide plain wing nut and mounting bracket off sleeve (8).

4. Remove socket head cap screw (9). Unscrew nut (10) from grip (11) and slide sleeve (8) and nut off mortar mount leg (12) and separate.

5. Unscrew grip (11) and remove from mortar mount leg (12).



REPAIR OR REPLACEMENT

1. Inspect all components for physical damage, burrs, cracks, deformation, corrosion, and damaged threads. Remove burrs and corrosion using abrasive cloth (item 8, WP 0052 00). Use files and stone only on noncritical surfaces.

2. Replace mortar mount leg (left subassembly) when damage to mortar mount leg is not repairable.

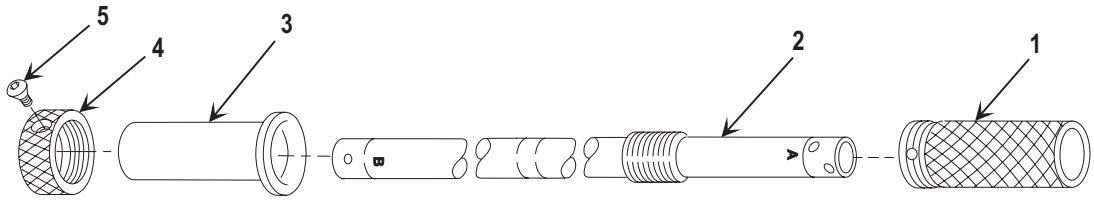
3. Replace defective parts as authorized by WP 0045 00.

LUBRICATION

Lubricate threaded components using a light coat of general purpose lubricating oil (item 13, WP 0052 00).

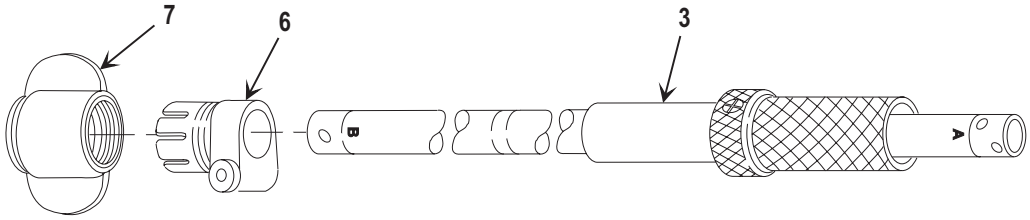
ASSEMBLY

1. Put grip (1) on A end of mortar mount leg (2) and screw it on the threads. Slide sleeve (3) on B end. Slip nut (4) over sleeve and screw on grip until holes for socket head cap screw (5) line up. Install and tighten socket head cap screw.



ASSEMBLY - Continued

2. Slide mounting bracket (6) on sleeve (3). Install and tighten plain wing nut (7) on mounting bracket.



NOTE

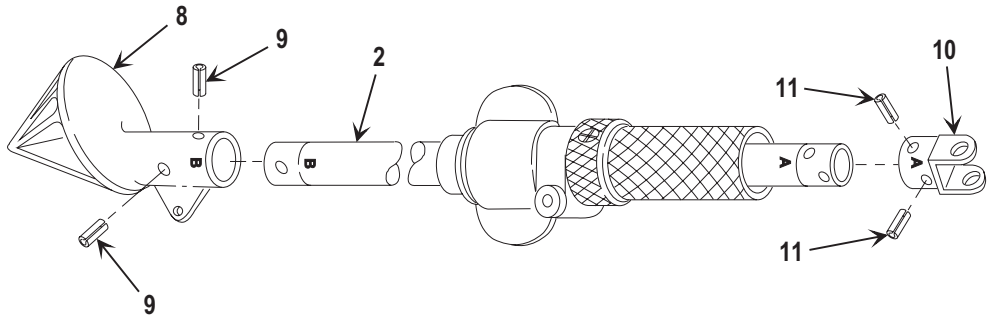
Alignment of rod end clevis and mortar mount foot is very important for reassembly.

If required, mortar mount leg may be rotated 90 degrees and redrilled (one time only) to better secure loose or new rod end clevis or mortar mount foot. Use 1/8 in. (0.125 in.) drill.

Foot is to be mounted at 70 degrees from the horizontal centerline of the leg's hinge pin hole. Bipod's left and right wire-rope mounting hole flanges must be canted similarly.

3. Align B on mortar mount foot (8) with B on mortar mount leg (2) and install mortar mount foot on mortar mount leg. Drive two new headless grooved pins (9) into mortar mount foot, securing assembly.

4. Align A on rod end clevis (10) with A on mortar mount leg (2) and install rod end clevis on mortar mount leg. Drive two new headless grooved pins (11) into rod end clevis, securing assembly.



END OF TASK

MORTAR MOUNT LEG (RIGHT) MAINTENANCE 0025 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4933-95-A11

Materials/Parts
Abrasive cloth (item 8, WP 0052 00)
Headless grooved pin (2) MS35675-18
Headless grooved pin (2) 11578999

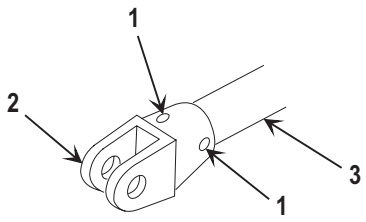
References
WP 0046 00

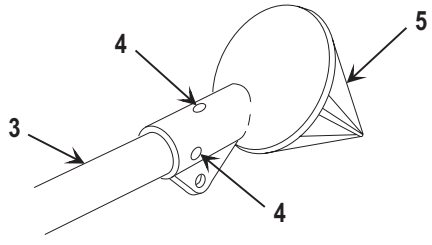
Equipment Condition
Mortar mount leg (right) removed from bipod (WP 0013 00).

DISASSEMBLY

1. Drive out two headless grooved pins (1) from rod end clevis (2) and mortar mount leg (3). Remove rod end clevis. Discard headless grooved pins.

2. Drive out two headless grooved pins (4) from mortar mount foot (5) and mortar mount leg (3). Remove mortar mount foot. Discard headless grooved pins.





REPAIR OR REPLACEMENT

1. Inspect all components for physical damage, burrs, cracks, deformation, and corrosion. Remove burrs and corrosion using abrasive cloth (item 8, WP 0052 00). Use files and stone only on noncritical surfaces.

2. Replace mortar mount leg assembly when damage to mortar mount leg is not repairable.

3. Replace defective parts as authorized by WP 0046 00.

ASSEMBLY

NOTE

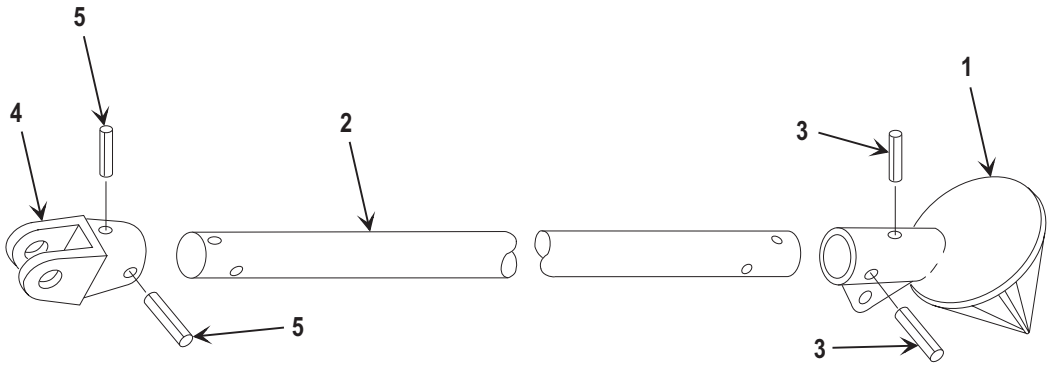
Alignment of rod end clevis and mortar mount foot is very important for reassembly.

If required, mortar mount leg may be rotated 90 degrees and redrilled (one time only) to better secure loose or new rod end clevis or mortar mount foot. Use 1/8 in. (0.125 in.) drill.

Foot is to be mounted at 70 degrees from the horizontal centerline of leg's hinge pin hole. Bipod's left and right wire-rope mounting hole flange must be canted similarly.

1. Install mortar mount foot (1) on mortar mount leg (2). Drive two new headless grooved pins (3) into mortar mount foot, securing assembly.

2. Install rod end clevis (4) on mortar mount leg (2). Drive two new headless grooved pins (5) into rod end clevis, securing assembly.



END OF TASK

M7 MORTAR BASEPLATE MAINTENANCE 0026 00

THIS WORK PACKAGE COVERS:
Repair or Replacement

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4993-95-CL-A11

References
WP 0047 00

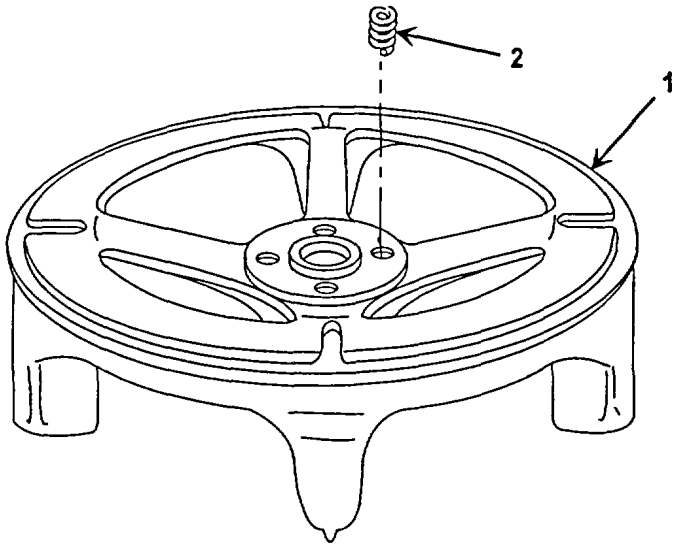
Equipment Condition
Mortar baseplate partially disassembled (WP 0014 00).

REPAIR OR REPLACEMENT

NOTE
Do not remove or replace serviceable screw thread inserts.

1. Inspect baseplate (1) to see if any of the four screw thread inserts (2) are missing or unserviceable. Replace unserviceable and missing screw thread inserts according to manufacturer's instructions in inserter kit.

2. Inspect baseplate (1) for cracks, breaks, or damaged socket. If defective, replace baseplate as authorized by WP 0047 00.



END OF TASK

THIS WORK PACKAGE COVERS:

Inspection of Installed Items, Disassembly, Repair or Replacement, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

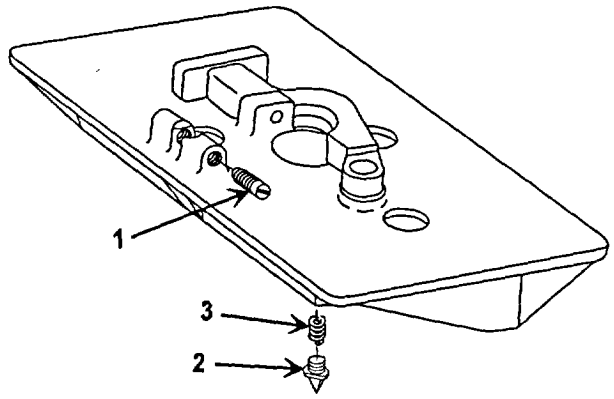
Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4993-95-CL-A11

References
WP 0048 00

Equipment Condition
Mortar baseplate removed from cannon.

INSPECTION OF INSTALLED ITEMS

1. Inspect two quick release plungers (1) for operation and security and for missing parts.
2. Inspect five baseplate points (2) for damage. Ensure that baseplate points are not missing or loose.



DISASSEMBLY

1. Using flat tip screwdriver, remove and discard damaged quick release plungers (1).
2. Using adjustable wrench, remove and discard damaged baseplate points (2).

NOTE

Do not remove serviceable screw thread inserts.

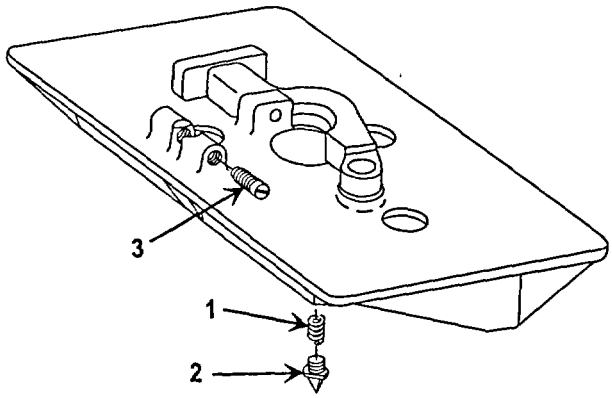
3. Remove and discard damaged screw thread inserts (3).

REPAIR OR REPLACEMENT

1. Inspect baseplate for cracks or breaks. Replace baseplate if unserviceable.
2. Replace defective parts as authorized by WP 0048 00.

ASSEMBLY

1. If removed, install new screw thread inserts (1).
2. If removed, install new baseplate points (2) using adjustable wrench.
3. If removed, install new quick release plungers (3) using flat tip screwdriver.



END OF TASK

BASEPLATE LATCH MAINTENANCE 0028 00

THIS WORK PACKAGE COVERS:
Disassembly, Repair or Replacement, Lubrication, Assembly

INITIAL SETUP:

Maintenance Level
Direct Support

Tools and Special Tools
Small Arms Shop Set: Field Maintenance, Basic, Less Power SC 4993-95-A11

References
WP 0049 00

Materials/Parts
General purpose lubricating oil (item 13, WP 0052 00)
Spring pin MS16562-213

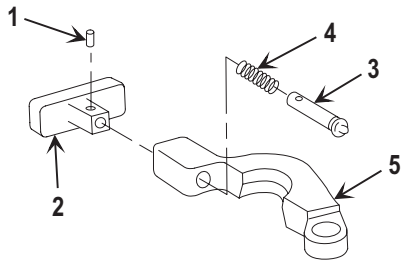
Equipment Condition
Baseplate latch removed from baseplate (WP 0015 00).

DISASSEMBLY

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

1. Drive out and discard spring pin (1).
2. Remove knob (2) from headless shoulder pin (3). Remove headless shoulder pin and helical compression spring (4) from latch (5).



REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0049 00.

LUBRICATION

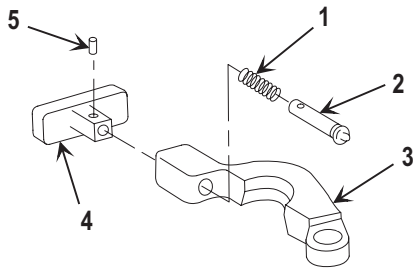
Lubricate headless shoulder pin and helical compression spring with general purpose lubricating oil (item 13, WP 0052 00).

ASSEMBLY

WARNING

Use care in handling spring-loaded components. Carelessness could result in injury.

Put helical compression spring (1) on headless shoulder pin (2). Put helical compression spring and headless shoulder pin into latch (3). Put knob (4) on headless shoulder pin and align holes. Drive in new spring pin (5).



END OF TASK

PREEMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT

0029 00

THIS WORK PACKAGE COVERS:

General, Preinspection Points, Inspection Points, Specific Criteria

INITIAL SETUP:

Maintenance Level

Direct Support

References

TM 9-1000-202-14
TM 9-1010-223-10
WP 0010 00

GENERAL

This inspection is conducted on materiel in alerted units scheduled for overseas duty to ensure that such materiel will not become unserviceable in a relatively short time. It prescribes a higher percentage of remaining usable life in serviceable materiel to meet a specific need beyond minimum serviceability.

PREINSPECTION POINTS

WARNING

Before starting an inspection or performing maintenance procedures, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the bore to ensure it is empty and free of obstructions. Keep live ammunition out of the area during maintenance operations.

1. Equipment must be considered "ready" under the criteria established in the Preventive Maintenance Checks and Services (PMCS) of WP 0010 00 and of TM 9-1010-223-10/TM 08206-10/1A.

2. Operator publications applicable to the equipment log book must accompany the equipment. All log book entries must be complete and up-to-date including those covering any repairs, replacements, or adjustment.

3. Weapons must be complete with all items required by applicable Department of the Army publications, including those in the basic issue items list of TM 9-1010-223-10.

4. Weapons and/or fire control equipment which do not qualify for shipment or issue will either be redistributed, repaired, or overhauled, or will become a candidate for cannibalization or other disposition as required by existing regulations.

INSPECTION POINTS

1. Care must be exercised to use tools that are suitable for the task to be performed in order to avoid unnecessary mutilation of parts and/or damage to tools.

2. Damaged threads should be repaired by using a thread restorer or by lathe-chasing and by replacing helical inserts.

3. Damaged surfaces should be restored using materials and tools consistent with tolerances of item being restored.

    a. There are various methods and materials used for removing corrosion. These should be carefully selected in order that surfaces being processed will not be damaged beyond serviceability.

    b. Crocus cloth and fine stones should be used to remove corrosion, burrs, and scores, from polished surfaces. Aluminum oxide abrasive cloth, files, or scrapers are permissible where critical dimensions will not be altered by their use.

4. Safety must function positively. When firing selector is in S position, the weapon must not fire when the trigger is squeezed.

5. All markings must be legible.

6. Complete disassembly of a unit is not always necessary in order to make a required repair or replacement. Good judgment should be exercised to keep disassembly and assembly to a minimum.

7. Exercise caution when removing and installing spring and headless grooved pins to prevent damage to the mechanism or component.

8. When assembling a unit, replace all spring and headless grooved pins with new pins. Self-locking screws and nuts must be replaced if they were removed.

9. Springs that are kinked and/or fail to function properly must be replaced.

10. During repair the materiel should be kept clean and should be lubricated before functioning or testing. Do not overlubricate. Use as little lubricant as necessary for proper functioning.

SPECIFIC CRITERIA

Surfaces

A worn or shiny surface is objectionable from the standpoint of visibility when it is capable of reflecting light, as a mirror does. A weapon with a distinct shine on exterior parts will be rejected for overseas shipment.

PREEMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT - Continued **0029 00**

SPECIFIC CRITERIA - Continued

M225 Cannon

1. Inspect the cannon tube in accordance with TM 9-1000-202-14.
2. The cannon tube must have a bore diameter of 2.392 to 2.405 in. (6.076 to 6.109 cm) to be acceptable for overseas shipment.
3. Basecap must be free of burrs that interfere with assembly to the socket and must be gastight on the cannon tube.
4. Firing mechanism and firing selector must function properly. Range indicator must be illuminated.

M170 Bipod

1. All movable elements must perform smoothly without binding.
2. Elevating, cross leveling, and traversing mechanisms must not bind.
3. Bipod legs should be straight and feet secure to legs. Plain wing nut must function properly.

M7 and M8 Baseplates

1. Baseplates must not be cracked. Minor bends are acceptable.
2. Clearance and ease of function must be maintained with cannon installed in baseplates.
3. M8 baseplate latch must function smoothly.

END OF TASK

CHAPTER 6

SUPPORTING INFORMATION

REFERENCES 0030 00

SCOPE

This work package lists all field manuals, forms, miscellaneous publications, technical manuals, and Marine Corps publications referenced in this manual.

FIELD MANUALS

First Aid	FM 4-25.11
Mortars	FM 23-90

FORMS

Equipment Control Record	DA Form 2408-9
Equipment Inspection and Maintenance Worksheet	DA Form 2404
Notice to Employees	NRC Form 3
Product Quality Deficiency Report	SF 368
Recommended Changes to Publications and Blank Forms	DA Form 2028
Supply Discrepancy Report	SF 364
Transportation Discrepancy Report	SF 361
Weapon Record Data	DA Form 2408-4

MISCELLANEOUS PUBLICATIONS

Army Materiel Maintenance Policies	AR 750-1
Army Medical Department Expendable/Durable Items	CTA 8-100
Expendable/Durable Items (Except: Medical, Class V, Repair Parts and Heraldic Items)	CTA 50-970
The Army Maintenance Management System (TAMMS) Users Manual	DA PAM 750-8
Notices, Instructions and Reports to Workers; Inspection	10 CFR Part 19
Reporting of Defects and Noncompliance	10 CFR Part 21
Standards for Protection Against Radiation	10 CFR Part 20

TECHNICAL MANUALS

Evaluation of Cannon Tubes	TM 9-1000-202-14
Operator's Manual: Lightweight Company Mortar 60-mm, M224	TM 9-1010-223-10
Operator's Manual: Lightweight Company Mortar 60-mm, M224	TM 08206A-10/1A (USMC)
Unit, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List for M64A1 Sight Unit (NSN 1240-01-379-7953) (EIC: N/A)	TM 9-1240-386-24&P
Unit, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List (Including Depot Repair Parts) for M67 Sight Unit (NSN 1240-01-366-7322) (EIC: N/A)	TM 9-1240-409-24&P
Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1015, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use	TM 750-244-7

REFERENCES - Continued **0030 00**

USMC PUBLICATIONS AND FORMS

Consumer-Level Supply Policy Manual	MCO P4450.150
Department of the Navy Physical Security and Loss Prevention	OPNAVINST 5530.14B
Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives (AA&E)	OPNAVINST 5530.13B
Ground Equipment Record Procedures	TM 4700-15-1
Index of Technical Publications	Marine Corps Stocklist SL-1-2
Marine Corps Radiation Safety Program	MCO 5104.3
Product Quality Deficiency Report	MCO 4855.10
Recommended Changes to Technical Publications	NAVMC 10772
Reporting of Item and Packaging Discrepancies	SECNAV 4355.18
Special Handling Tritium Fire Control	TI-5104-15/2A
TMDE Calibration and Maintenance Procedures	TI-4733-15/1D
USMC Military Incentives Award Program	MCO 1650.17
Weapon Record Book	NAVMC Form 10558A

MAINTENANCE ALLOCATION CHART (MAC) 0031 00

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Field — includes two columns, Unit maintenance and Direct Support maintenance. The Unit maintenance column is divided again into two more subcolumns, C for Operator or Crew and O for Unit maintenance.

Sustainment — includes two subcolumns, General Support (H) and Depot (D).

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.

2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

3. Service. Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following are examples of service functions:

    a. Unpack. To remove from packing box for service or when required for the performance of maintenance operations.

    b. Repack. To return item to packing box after service and other maintenance operations.

    c. Clean. To rid the item of contamination.

    d. Touch up. To spot paint scratched or blistered surfaces.

    e. Mark. To restore obliterated identification.

INTRODUCTION - Continued

4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

8. Paint. To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.

9. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.

10. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services — Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting — The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly — The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions — Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

INTRODUCTION - Continued

11. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

12. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) — Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

Column (2) — Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) — Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.)

Column (4) — Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

Field:

C — Operator or crew maintenance

O — Unit maintenance

F — Direct support maintenance

Sustainment:

L — Specialized repair activity (SRA)

H — General support maintenance

D — Depot maintenance

INTRODUCTION - Continued

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) — Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) — Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) — Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) — Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) — Nomenclature. Name or identification of the tool or test equipment.

Column (4) — National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) — Tool Number. The manufacturer's part number.

Explanation of Columns in the Remarks

Column (1) — Remarks Code. The code recorded in column (6) of the MAC.

Column (2) — Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

MAINTENANCE ALLOCATION CHART FOR M224 60-MM MORTAR

Table 1. MAC for M224 60-mm Mortar.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD			SUSTAINMENT			
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	C	O	F	H	D		
00	60-MM MORTAR, M224 (LIGHTWEIGHT COMPANY)	Inspect Service Install Overhaul	0.1 0.1 0.4						C
01	60-MM MORTAR CANNON, M225	Inspect Service Adjust Replace Repair	0.1 0.1	0.1 0.1 0.1 0.1 0.5	0.2 0.5			1, 2, 3 4, 5	A
0101	HANDLE AND FIRING MECHANISM	Inspect Replace Repair		0.1 0.5 0.2	0.1 0.5			 4, 5	
010101	SEAR ASSEMBLY	Replace Repair			0.2 0.2			 4	
02	60-MM MORTAR BIPOD, M170	Inspect Service Replace Repair	0.1	0.1 0.1 0.1 0.5	 6.5 			 5	
0201	COLLAR-SHOCK ABSORBER ASSEMBLY	Replace Repair		0.3	 0.5			5 4	
020101	PISTON ASSEMBLY	Replace Repair			0.2 0.2			 4	
0202	TRAVERSING MECHANISM	Replace Repair		0.2	 0.5			5 4	
020201	TRAVERSING HOUSING	Replace Repair			0.4 0.4			 4	B
020202	RETAINER	Replace Repair			0.1 0.3			 4	
0203	ELEVATING MECHANISM	Replace Repair		0.3	 0.5			5 4	
020301	ELEVATING HOUSING	Replace Repair			0.4 0.4			 4	B
020302	RETAINER	Replace Repair			0.1 0.3			 4	

MAINTENANCE ALLOCATION CHART FOR M224 60-MM MORTAR - Continued

Table 1. MAC for M224 60-mm Mortar - Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD			SUSTAINMENT			
			UNIT		DIRECT SUPPORT	GENERAL SUPPORT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	C	O	F	H	D		
0204	MORTAR MOUNT LEG (LEFT)	Inspect		0.1					
		Replace		0.2				5	
		Repair			0.5			4	
020401	MORTAR MOUNT LEG (LEFT SUBASSEMBLY)	Replace			0.2			4	
		Repair			0.5			4	
0205	MORTAR MOUNT LEG (RIGHT)	Replace		0.2					
		Repair			0.3			4	
03	MORTAR BASEPLATE, M7	Inspect	0.1	0.1					
		Replace		0.1					
		Repair		0.2	0.2			4, 5	
04	MORTAR BASEPLATE, M8	Inspect	0.1	0.1					
		Replace		0.1					
		Repair		0.1	0.2			4, 5	
0401	BASEPLATE LATCH	Inspect		0.1					
		Replace		0.1				5	
		Repair			0.2			4	

TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR M224 60-MM MORTAR

Table 2. Tools and Test Equipment for M224 60-mm Mortar.

(1) TOOL OR TEST EQUIPMENT REF CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
1	F	Accessory Outfit for Pullover Gages	4933-00-348-8652	SC 4931-95-A12
2	F	Borescope: Cannon Bore Inspecting, M3	6650-01-063-0035	11584701
3	F	Gage, Pullover (57-mm)	5200-01-259-9100	7243018
4	F	Shop Set, Small Arms: Field Maintenance, Basic, Less Power	4933-00-754-0664	SC 4933-95-A11
5	O	Tool Kit, Small Arms Repairman	5180-00-357-7770	SC 5180-95-A07

REMARKS FOR M224 60-MM MORTAR

Table 3. Remarks for M224 60-mm Mortar.

(1) REMARKS CODE	(2) REMARKS
A	Refer to TM 9-1000-202-14, Evaluation of Cannon Tubes.
B	Housing is not replaced; however, the preformed packing and sleeve bearing may be replaced.
C	Overhaul times for M224 mortar will be in DMWR 9-1010-223.

INTRODUCTION TO REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) 0032 00

SCOPE

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of unit and direct support maintenance of the M224 60-mm mortar. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

2. Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.

3. Cross-Reference Indexes Work Packages. There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

Source Code	**Maintenance Code**		**Recoverability Code**
xx	xx		x
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition action on unserviceable items.

*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code	Application/Explanation
PA PB PC PD PE PF PG	Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code. **NOTE** **Items coded PC are subject to deterioration.**
KD KF KB	Items with these codes are not to be requested/ requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO-Made at unit/ AVUM level MF-Made at DS/ AVIM level MH-Made at GS level ML-Made at SRA MD-Made at depot	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.
AO-Assembled by unit/AVUM level AF-Assembled by DS/AVIM level AH-Assembled by GS level AL-Assembled by SRA AD-Assembled by depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

XA	Do not requisition an 'XA" coded item. Order the next higher assembly. (Refer to NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's PIN.
XD	Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded 'XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance.

Maintenance Code		Application/Explanation
C	-	Crew or operator maintenance done within unit/AVUM maintenance.
O	-	Unit level/AVUM maintenance can remove, replace, and use the item.
F	-	Direct support/AVIM maintenance can remove, replace, and use the item.
H	-	General support maintenance can remove, replace, and use the item.
L	-	Specialized repair activity can remove, replace, and use the item.
D	-	Depot can remove, replace, and use the item.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Maintenance Code		Application/Explanation
O	-	Unit/AVUM is the lowest level that can do complete repair of the item.
F	-	Direct support/AVIM is the lowest level that can do complete repair of the item.
H	-	General support is the lowest level that can do complete repair of the item.
L	-	Specialized repair activity is the lowest level that can do complete repair of the item.
D	-	Depot is the lowest level that can do complete repair of the item.
Z	-	Nonreparable. No repair is authorized.
B	-	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability Code		Application/Explanation
Z	-	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
O	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the unit level.
F	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support level.
H	-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

Recoverability Code		Application/Explanation
D	-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L	-	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A	-	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different PIN from the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and when required, a minimum description to identify the item.

2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.

3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.

4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A 'V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package.

STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

NSN
(e.g., 5385-01-574-1476)
NIIN

When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC: ..." in the Description column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

Code	Used On
G63	Model M224

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in this manual.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / P/N index work packages and the bulk material list in the repair parts list work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N is Known.

First. If you have the P/N and not the NSN, look in the PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

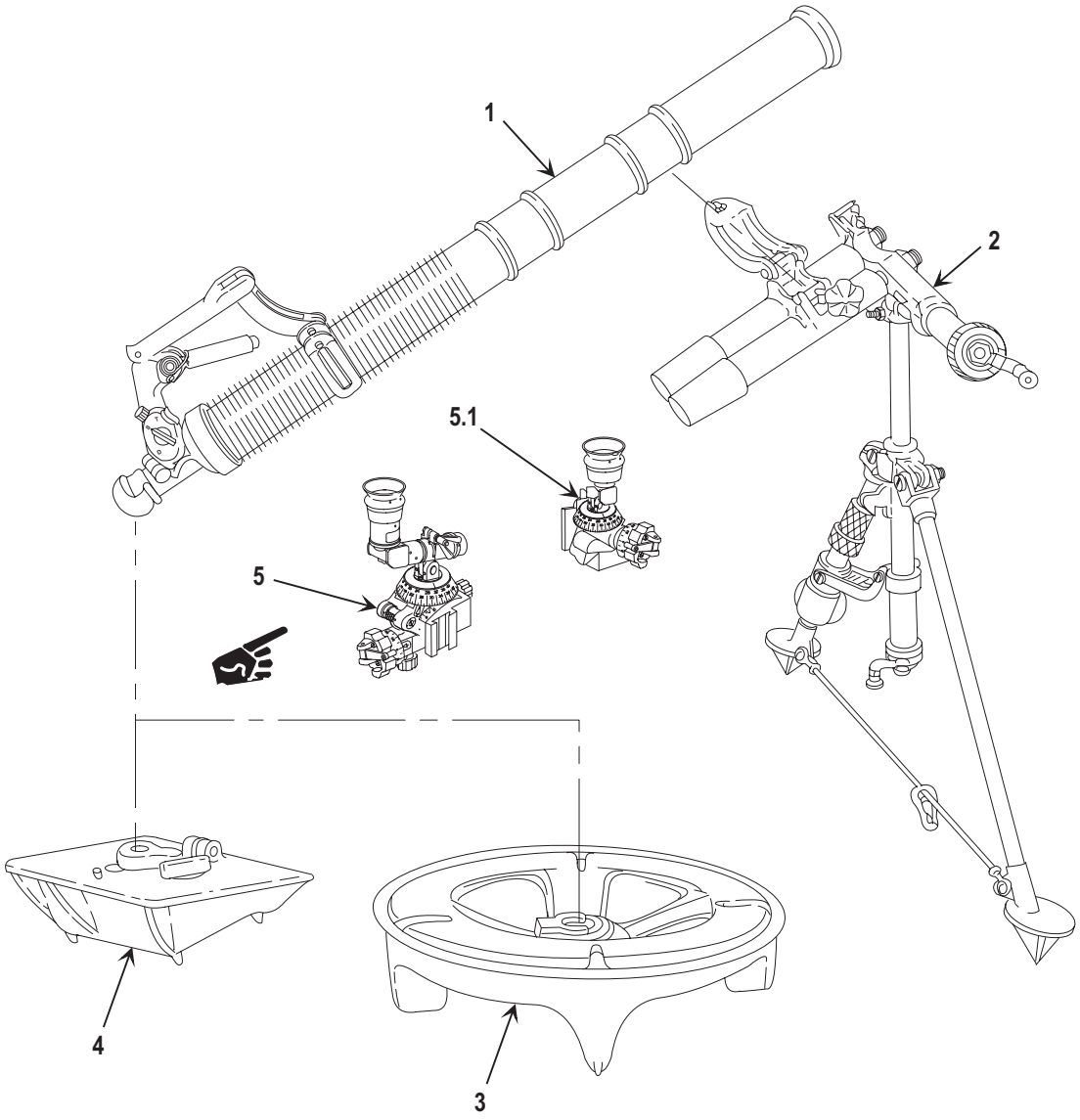


Figure 1. Group 00 M224 60-mm Mortar (Lightweight Company) 11579000.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 00 60-MM MORTAR, M224 (LIGHTWEIGHT COMPANY) FIG. 1 M224 60-MM MORTAR (LIGHTWEIGHT COMPANY) 11579000	
1	AOOFA		19206	11579080	CANNON,60-MM MORTAR:M225 (SEE FIG. 2 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
2	PAOFF	1010-01-521-1614	19206	11579090	BIPOD,60-MM MORTAR:M170 (SEE FIG. 5 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
3	PAOFF	1010-01-043-7504	19206	11579070	BASEPLATE,MORTAR,M7 (SEE FIG. 15 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
4	PAOFF	1010-01-043-4661	19206	11578990	BASEPLATE,MORTAR,M8 (SEE FIG. 16 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
5	PEODA	1240-01-366-7322	19200	9356182	SIGHT UNIT, M67 (FOR M67 ASSEMBLY BREAKDOWN AND SIGHT UNIT CARRYING CASE INFORMATION, SEE TM 9-1240-409-24&P) UOC:G63	1
5.1	PEOHA	1240-01-379-7953	19200	9360168	SIGHT UNIT, M64A1 (FOR M64A1 ASSEMBLY BREAKDOWN AND SIGHT UNIT CARRYING CASE INFORMATION, SEE TM 9-1240-386-24&P) UOC:G63	1
					END OF FIGURE	

NOTE

The M67 Sight Unit has replaced the M64A1 Sight Unit as the primary sight for the M224 Mortar System. Units can continue to use the M64A1 until sights are unserviceable and repair/replacement stock is exhausted.

END OF TASK

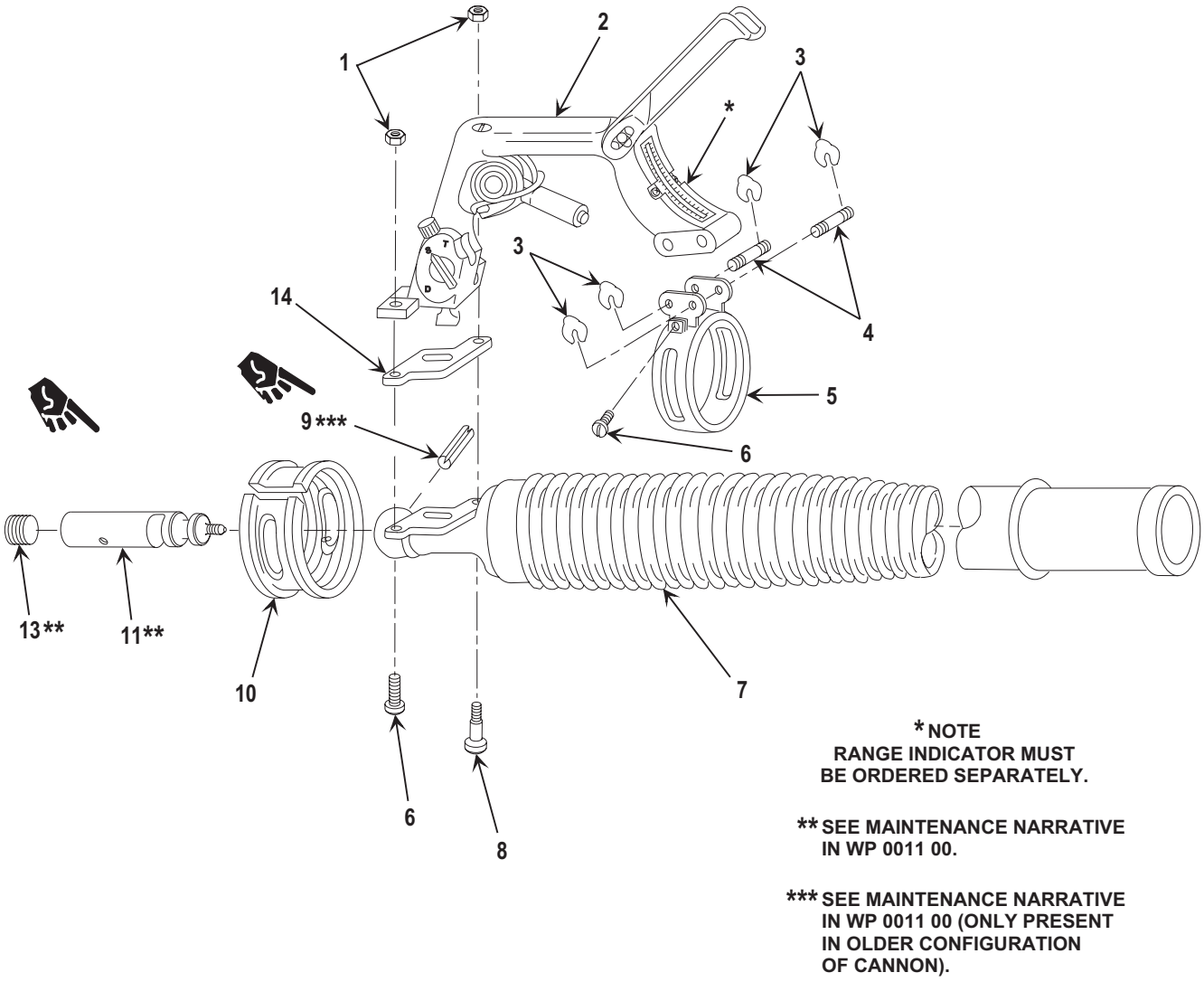


Figure 2. Group 01 M225 60-mm Mortar Cannon 11579080.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 60-MM MORTAR CANNON, M225	
					FIG. 2 M225 60-MM MORTAR CANNON 11579080	
1	PAOZZ	5310-00-159-1577	96906	MS51988-3	NUT,SELF-LOCKING,EX UOC:G63	2
2	PAOFF	1010-01-043-2050	19206	11578985	HANDLE AND FIRING MECHANISM (SEE FIG. 3 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
3	PAOZZ	5325-01-047-3201	19206	11578986	RING,RETAINING UOC:G63	4
4	PAOZZ	5315-01-047-8151	19206	11578984	PIN,GROOVED,HEADLESS UOC:G63	2
5	PAOZZ	5340-01-054-6799	19206	11579040	CLAMP,LOOP UOC:G63	1
6	PAOZZ	5305-00-182-7475	80205	NAS1352-4LE14P	SCREW,SELF-LOCKING UOC:G63	2
7	PAFDD	1010-01-044-5883	19206	11579093	CANNON,60 MILLIMETER UOC:G63	1
8	PAOZZ	5305-01-044-4414	19206	11579119	SCREW,SHOULDER UOC:G63	1
9	PAOZZ	5315-01-044-3916	19206	11579291	PIN,GROOVED,HEADLESS UOC:G63	1
10	PAOZZ	1010-01-043-2045	19206	11579039	SLEEVE,CLAMP,MORTAR UOC:G63	1
11	PAOZZ	1015-01-546-6617	1NUW7	12901202	PIN,FIRING UOC:G63	1
12					DELETED	
13	PAOZZ	5935-01-546-6679	1NUW7	11581024	PLUG,MACHINE THREAD UOC:G63	1
14	PAOZZ	5330-01-047-1046	19206	11578976	GASKET UOC:G63	1
					END OF FIGURE	

NOTE

When firing pin 12901202 (item 11) is used, machine thread plug 11581024 (item 13) must also be used. The headless grooved pin 11579291 (item 9) is not required with these items.

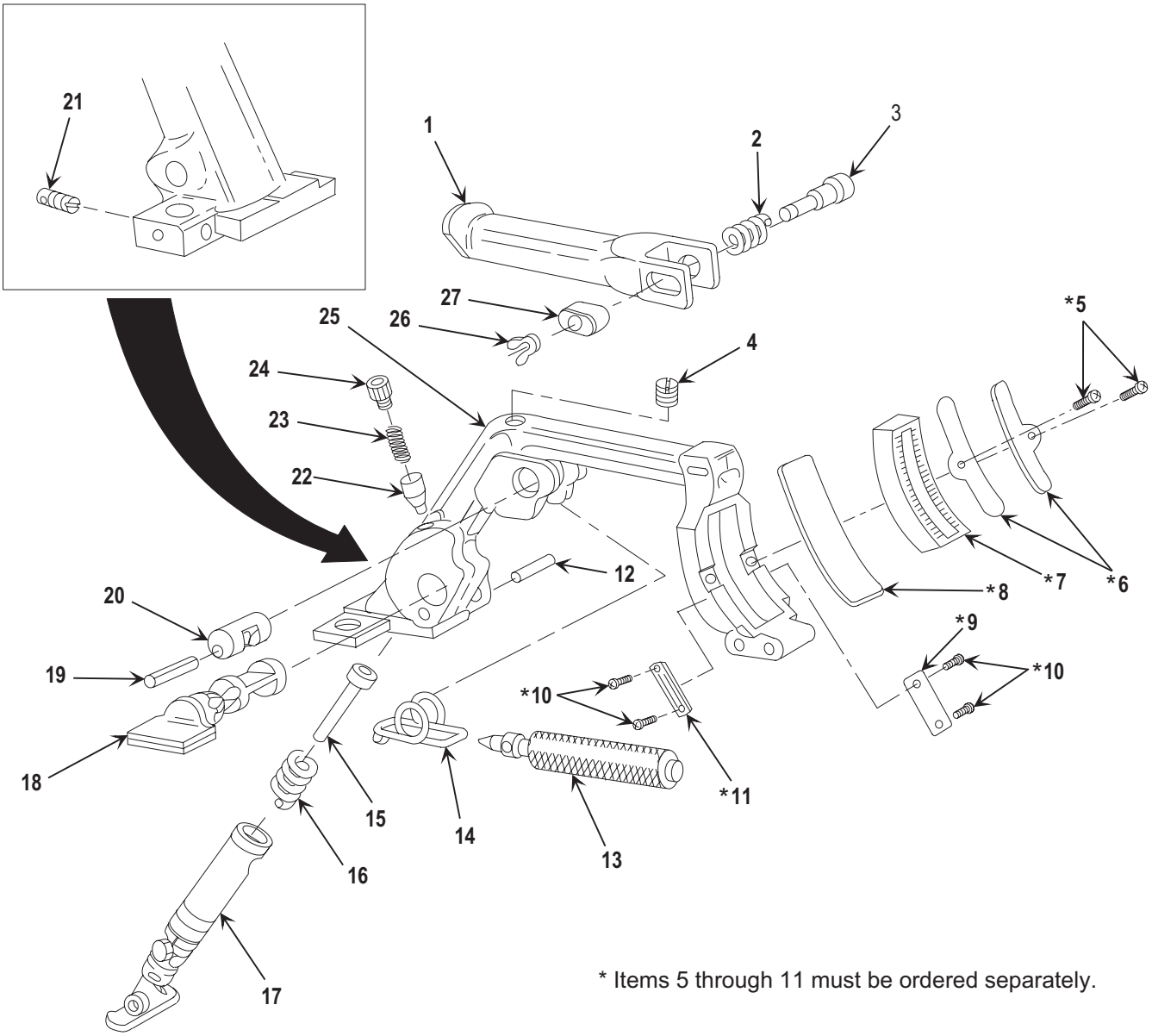


Figure 3. Group 0101 Handle and Firing Mechanism 11578985.

GROUP 0101 HANDLE AND FIRING MECHANISM 11578985 - Continued 0035 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0101 HANDLE AND FIRING MECHANISM	
					FIG. 3 HANDLE AND FIRING MECHANISM 11578985	
1	PAFZZ	1010-01-042-9139	19206	11578987	HANDLE,CARRYING,MORTAR UOC:G63	1
2	PAFZZ	5360-01-047-0615	96906	MS24585-1285	SPRING,HELICAL,COMPRESSION UOC:G63	1
3	PAFZZ	5340-01-042-9230	19206	11578980	PLUNGER,DETENT UOC:G63	1
4	PAOZZ	4730-00-420-9017	19206	11579062	FITTING,LUBRICATION UOC:G63	1
5	PAFZZ	5305-00-116-1469	96906	MS21090-352	SCREW,SELF-LOCKING UOC:G63	2
6	PAFZZ	5340-01-237-9034	19200	9360375	CLIP,ASSEMBLY UOC:G63	2
7	PCFZA	5840-01-458-6159	19200	9360374	RANGE INDICATOR UOC:G63	1
8	PAFZZ	1010-01-238-0569	19200	11785486	PAD,CUSHIONING UOC:G63	1
9	PAFZZ	9905-00-257-2754	19200	11729521	PLATE,IDENTIFICATION UOC:G63	1
10	PAFZZ	5305-00-054-5635	96906	MS51957-1	SCREW UOC:G63	4
11	PAFZZ	9905-01-397-7511	19200	12950962	PLATE,INSTRUCTION UOC:G63	1
12	PAFZZ	5315-00-804-9379	96906	MS9105-94	PIN,STRAIGHT,HEADLESS UOC:G63	1
13	PAFZZ	1010-01-042-9330	19206	11579094	TRIGGER UOC:G63	1
14	PAFZZ	5360-01-047-1401	19206	11579118	SPRING,HELICAL,TORSION UOC:G63	1
15	PAFZZ	5340-01-043-2043	19206	11578977	PLUNGER,DETENT RELEASE UOC:G63	1
16	PAFZZ	5360-01-047-1397	19206	11579092	SPRING,HELICAL,COMPRESSION UOC:G63	1
17	AFFFF		19206	11578995	SEAR ASSEMBLY (SEE FIG. 4 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
18	PAFZZ	1010-01-043-8194	19206	11578974	SELECTOR,FIRING UOC:G63	1
19	PAFZZ	5315-00-753-3893	96906	MS16562-226	PIN,SPRING UOC:G63	1
20	PAFZZ	5310-01-068-7470	19206	11578978	NUT,PLAIN,BARREL UOC:G63	1
21	PAFZZ	5305-01-049-9416	19206	11579117	SCREW,ADJUSTING SHOULDER,HEADLESS UOC:G63	1
22	PAOZZ	5340-01-148-4822	19206	11579778	PLUNGER,DETENT UOC:G63	1
23	PAOZZ	5360-01-047-8272	96906	MS24585-1073	SPRING,HELICAL,COMPRESSION UOC:G63	1
24	PAOZZ	5305-01-064-5441	96906	MS21262-12	SCREW,SELF-LOCKING UOC:G63	1

GROUP 0101 HANDLE AND FIRING MECHANISM 11578985 - Continued 0035 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
25	XAFZZ		19206	11579668	HOUSING UOC:G63	1
26	PAFZZ	5325-01-047-3200	19206	11578981	RING,RETAINING UOC:G63	1
27	PAFZZ	5315-01-049-0770	19206	11578983	KEY,MACHINE UOC:G63	1
					END OF FIGURE	

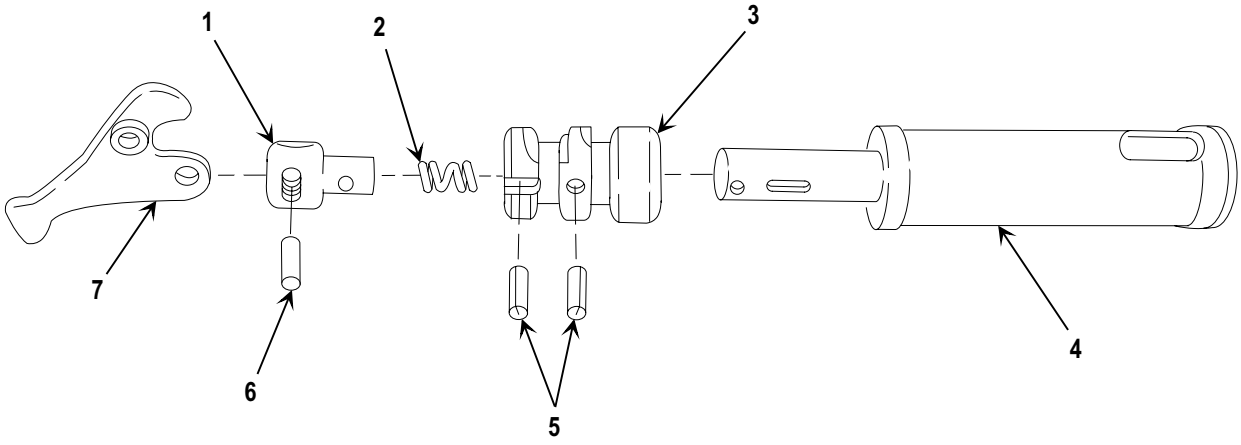


Figure 4. Group 010101 Sear Assembly 11578995.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 010101 SEAR ASSEMBLY	
					FIG. 4 SEAR ASSEMBLY 11578995	
1	PAFZZ	5340-01-067-0691	19206	11578979	CLEVIS,ROD END UOC:G63	1
2	PAFZZ	5360-01-007-1985	96906	MS24585-1080	SPRING,HELICAL,COMPRESSION UOC:G63	1
3	PAFZZ	1010-01-227-7090	19206	11579833	SEAR UOC:G63	1
4	PAFZZ	1010-01-043-8247	19206	11579042	HOUSING,SEAR UOC:G63	1
5	PAFZZ	5315-00-826-3251	96906	MS16562-223	PIN,SPRING UOC:G63	2
6	PAFZZ	5315-01-087-7106	96906	MS16556-334	PIN,STRAIGHT,HEADLESS UOC:G63	1
7	PAFZZ	1010-01-043-2044	19206	11579046	ACTUATOR,FIRING PIN UOC:G63	1
					END OF FIGURE	

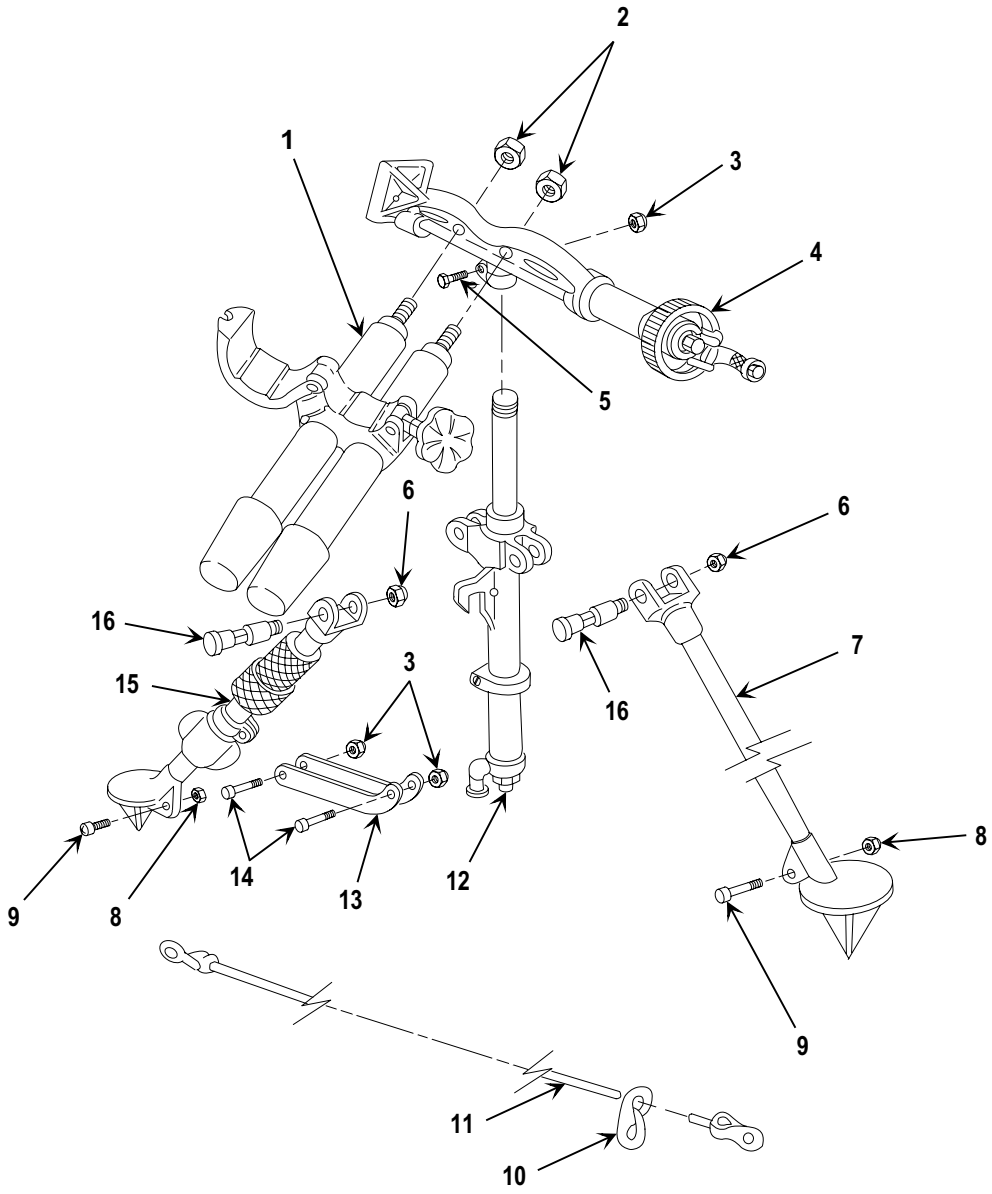


Figure 5. Group 02 M170 60-mm Mortar Bipod 11579090.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 60-MM MORTAR BIPOD, M170 FIG. 5 M170 60-MM MORTAR BIPOD 11579090	
1	PAOFF	1010-01-063-7680	19206	11579637	COLLAR-SHOCK ABSORBER ASSEMBLY (SEE FIG. 6 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
2	PAOZZ	5310-00-983-9448	96906	MS21083-D12	NUT,SELF-LOCKING,HEXAGON UOC:G63	2
3	PAOZZ	5310-00-088-1251	96906	MS51922-1	NUT,SELF-LOCKING,HEXAGON UOC:G63	3
4	PAOFF	1010-01-043-4572	19206	11579020	TRAVERSING MECHANISM (SEE FIG. 8 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
5	PAOZZ	5305-00-021-3668	96906	MS35307-310	SCREW,CAP,HEXAGON HEAD UOC:G63	1
6	PAOZZ	5310-00-016-7194	96906	MS21083-D7	NUT,SELF-LOCKING,HEXAGON UOC:G63	2
7	PAOFF	1010-01-043-7505	19206	11579075	LEG,MORTAR MOUNT (RIGHT) (SEE FIG. 14 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
8	PAOZZ	5310-00-902-6676	96906	MS21083-N3	NUT,SELF-LOCKING,HEXAGON UOC:G63	2
9	PAOZZ	5305-00-148-0081	96906	MS21096-3010	SCREW,SELF-LOCKING UOC:G63	2
10	PAOZZ	5340-01-044-3942	19206	11579107	SNAP HOOK UOC:G63	1
11	PAOZZ	4010-01-050-9735	19206	11579045	WIRE ROPE ASSEMBLY UOC:G63	1
12	PAOFF	1010-01-043-4663	19206	11579001	ELEVATING MECHANISM (SEE FIG. 11 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
13	PAOZZ	3040-01-079-1795	19206	11579667	CONNECTING LINK,RIGID UOC:G63	1
14	PAOZZ	5305-00-923-8599	96906	MS51975-14	SCREW,SHOULDER UOC:G63	2
15	PAOFF	1010-01-043-7506	19206	11579110	LEG,MORTAR MOUNT (LEFT) (SEE FIG. 13 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
16	PAOZZ	5315-01-047-6512	19206	11579018	PIN,HINGE UOC:G63	2
					END OF FIGURE	

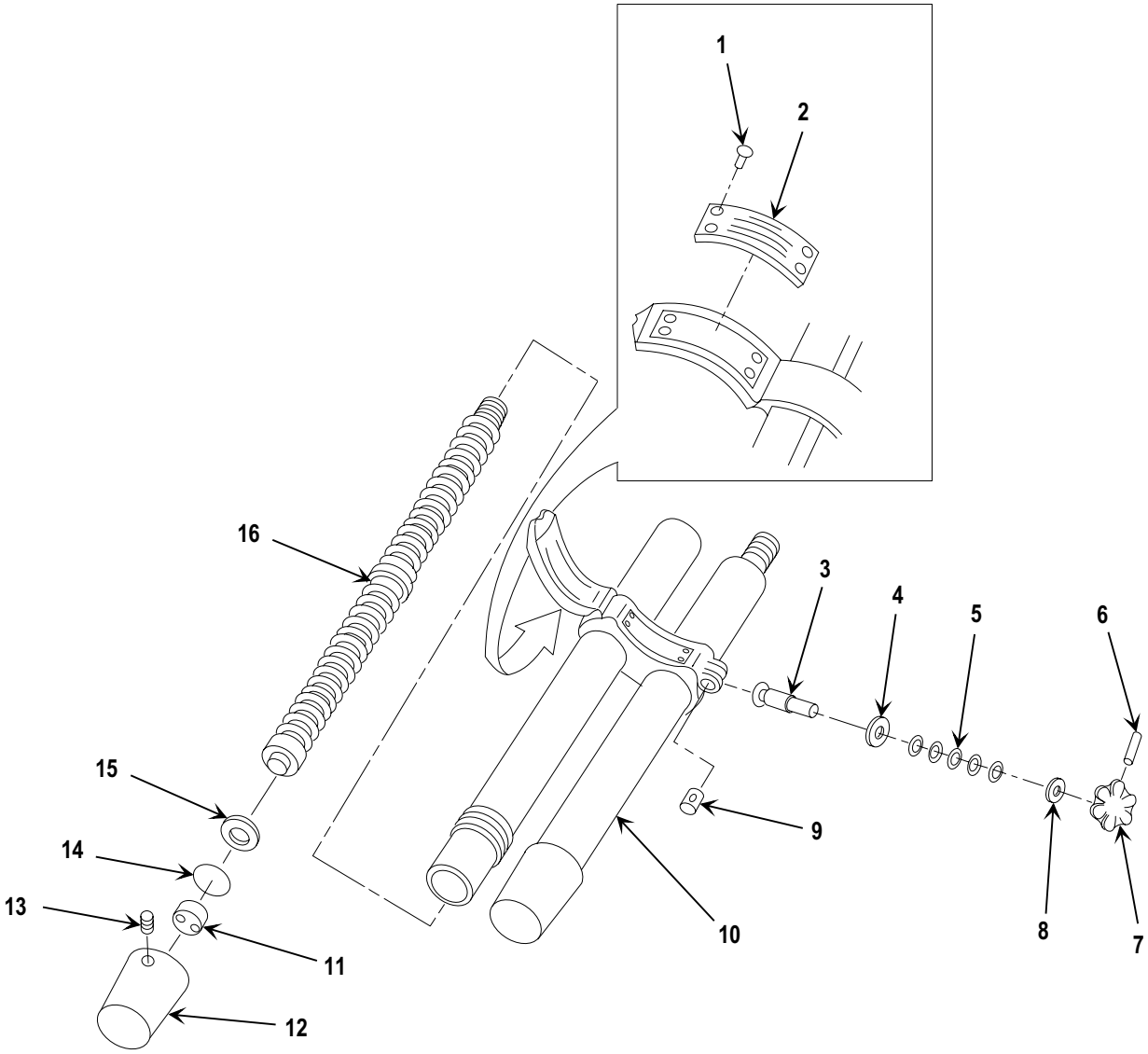


Figure 6. Group 0201 Collar-Shock Absorber Assembly 11579637.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0201 COLLAR-SHOCK ABSORBER ASSEMBLY	
					FIG. 6 COLLAR-SHOCK ABSORBER ASSEMBLY 11579637	
1	PAFZZ	5320-00-242-0371	96906	MS20470A3-8	RIVET, SOLID UOC:G63	4
2	PAFZZ	9905-01-354-2345	19206	11579290	PLATE, IDENTIFICATION UOC:G63	1
3	PAFZZ	3040-01-073-1185	19206	11579108	SHAFT, SHOULDERED UOC:G63	1
4	PAFZZ	5310-01-054-2569	19206	11579031	WASHER, FLAT UOC:G63	1
5	PAFZZ	5310-00-164-6416	19206	11579109	WASHER, SPRING TENSION BELLEVILLE UOC:G63	5
6	PAFZZ	5315-00-058-9767	96906	MS16562-231	PIN, SPRING UOC:G63	1
7	PAFZZ	5355-01-074-6043	19206	11579032	KNOB UOC:G63	1
8	PAFZZ	5310-01-047-1031	19206	11579028	WASHER, FLAT UOC:G63	1
9	PAFZZ	5310-01-049-9169	19206	11579029	NUT, PLAIN, BARREL UOC:G63	1
10	PAFZZ	1010-01-044-3858	19206	11579096	YOKE, BIPOD UOC:G63	1
11	PAFZZ	5365-00-723-5976	19206	7235976	BUSHING, NONMETALLIC UOC:G63	2
12	PAFZZ	1010-01-043-7482	19206	11579095	CAP, SHOCK ABSORBER UOC:G63	2
13	PAFZZ	5305-01-049-9838	19206	11579083	SETSCREW UOC:G63	2
14	PAFZZ	5340-01-043-4792	19206	11579019	DISK, SOLID, PLAIN UOC:G63	2
15	PAFZZ	5310-01-047-6295	19206	11578997	WASHER, FLAT UOC:G63	2
16	AFFFF		19206	11579084	PISTON ASSY (SEE FIG. 7 FOR ASSEMBLY BREAKDOWN) UOC:G63	2
					END OF FIGURE	

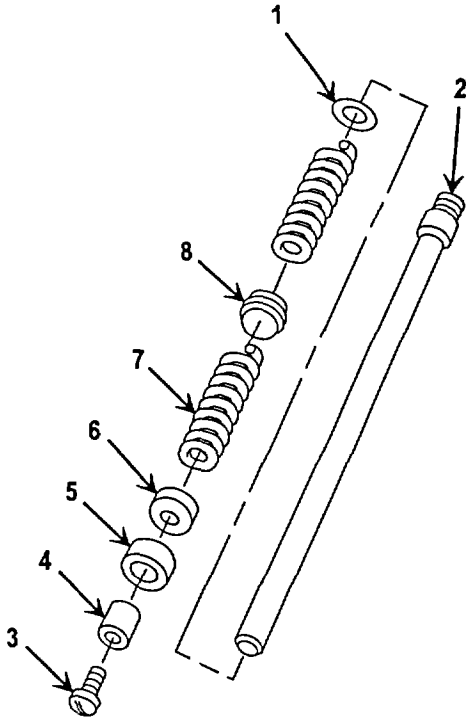


Figure 7. Group 020101 Piston Assembly 11579084.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 020101 PISTON ASSEMBLY	
					FIG. 7 PISTON ASSEMBLY 11579084	
1	PAFZZ	5310-01-051-8095	19206	11579074	WASHER, FLAT SHOCK ABSORBER UOC:G63	1
2	PAFZZ	1010-01-043-7488	19206	11578996	ROD, SHOCK ABSORBER UOC:G63	1
3	PAFZZ	5365-01-064-3451	19206	11579091	PLUG, MACHINE THREAD UOC:G63	1
4	PAFZZ	5365-01-047-0636	19206	11579292	SPACER, SLEEVE UOC:G63	1
5	PAFZZ	5340-01-044-3875	19206	11579086	CUP, COMPRESSION UOC:G63	1
6	PAFZZ	5340-01-044-0267	19206	11579085	SEAT, HELICAL COMPRESSION SPRING UOC:G63	1
7	PAFZZ	5360-01-047-8273	19206	11579043	SPRING, HELICAL, COMPRESSION UOC:G63	2
8	PAFZZ	5365-01-049-1556	19206	11579044	SPACER, SLEEVE UOC:G63	1
					END OF FIGURE	

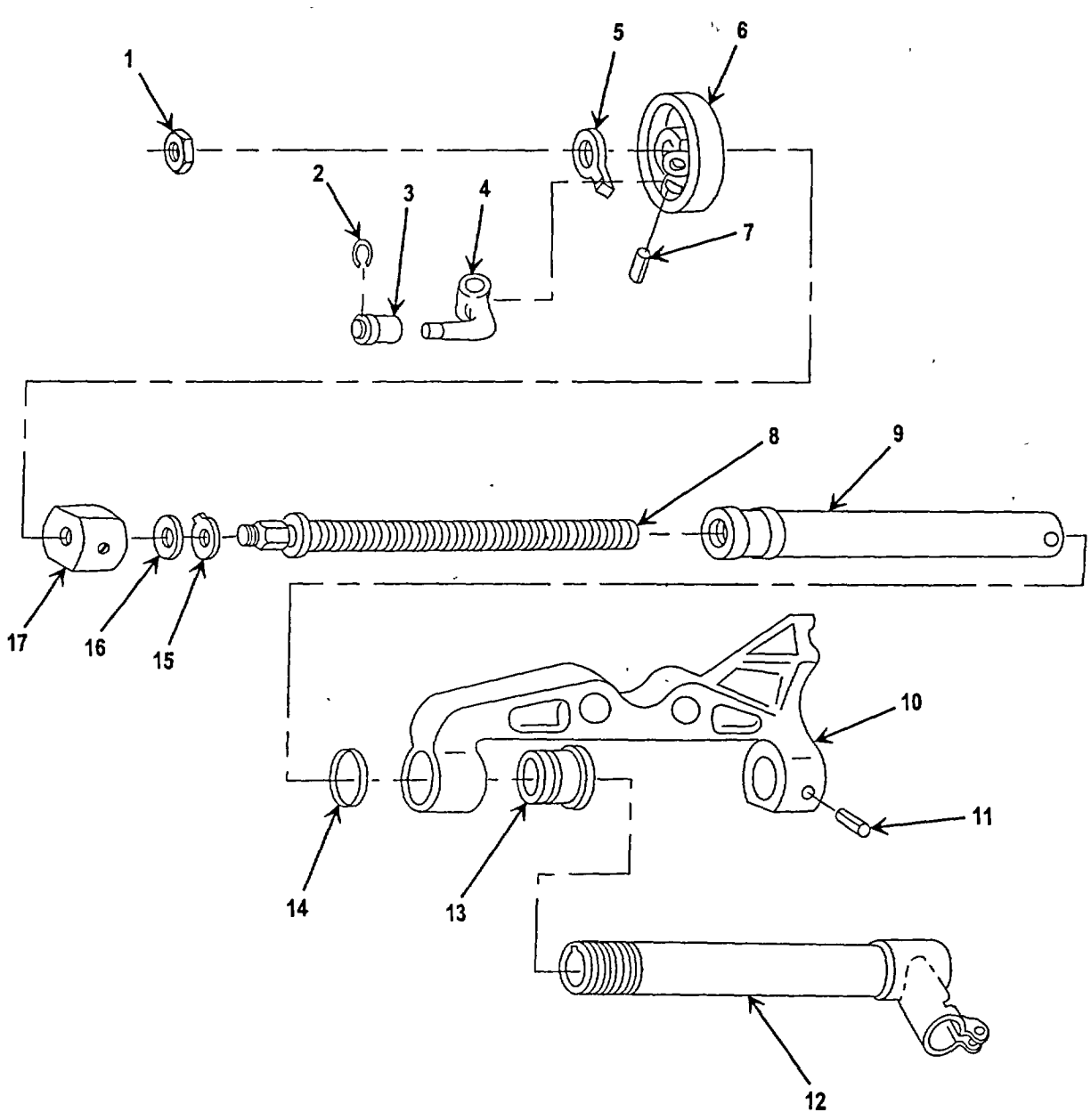


Figure 8. Group 0202 Traversing Mechanism 11579020.

GROUP 0202 TRAVERSING MECHANISM 11579020 - Continued 0040 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0202 TRAVERSING MECHANISM	
					FIG. 8 TRAVERSING MECHANISM 11579020	
1	PAFZZ	5310-00-016-7194	96906	MS21083-D7	NUT,SELF-LOCKING,HEXAGON UOC:G63	1
2	PAFZZ	5325-01-047-3202	19206	11578991	RING,RETAINING UOC:G63	1
3	PAFZZ	5355-01-047-9499	19206	11579027	KNOB UOC:G63	1
4	PAFZZ	5340-01-043-4674	19206	11579007	CRANK,HAND UOC:G63	1
5	PAFZZ	5360-01-047-9096	19206	11579036	SPRING,FLAT UOC:G63	1
6	PAFZZ	5355-01-048-0476	19206	11579012	KNOB UOC:G63	1
7	PAFZZ	5315-00-058-9808	96906	MS16562-253	PIN,SPRING UOC:G63	1
8	PAFZZ	3020-01-043-7497	19206	11579111	SPINDLE,TRAVERSING UOC:G63	1
9	PAFZZ	5340-01-043-2051	19206	11579087	NUT,TRAVERSING SPINDLE UOC:G63	1
10	PAFZZ	1010-01-366-3883	19206	11579023	YOKE,BIPOD UOC:G63	1
11	PAFZZ	5315-00-928-2336	96906	MS35675-41	PIN,GROOVED,HEADLESS UOC:G63	1
12	PAFFF	1010-01-043-2049	19206	11579010	HOUSING,TRAVERSING (SEE FIG. 9 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
13	PAFZZ	3120-01-047-0497	19206	11579026	BEARING,SLEEVE TRAVERSING UOC:G63	1
14	PAFZZ	5325-01-048-1336	81349	M27426-1133D	RING,RETAINING UOC:G63	1
15	PAFZZ	5310-01-048-3268	19206	11579025	WASHER,KEY TRAVERSING UOC:G63	1
16	PAFZZ	5310-00-562-2790	19206	11578989	WASHER,SPRING TENSION UOC:G63	1
17	AFFFF		19206	11579101	RETAINER (SEE FIG. 10 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
					END OF FIGURE	

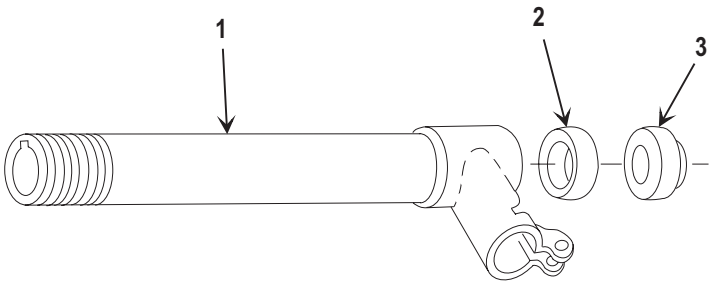


Figure 9. Group 020201 Traversing Housing 11579010.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 020201 TRAVERSING HOUSING	
					FIG. 9 TRAVERSING HOUSING 11579010	
1	XAFZZ		19206	11579021	TUBE UOC:G63	1
2	PAFZZ	3120-01-047-0496	19206	11578993	BEARING,SLEEVE TRAVERSING TUBE UOC:G63	1
3	PAFZZ	5330-00-433-9640	19206	11579006	PACKING,PREFORMED WIPER UOC:G63	1
					END OF FIGURE	

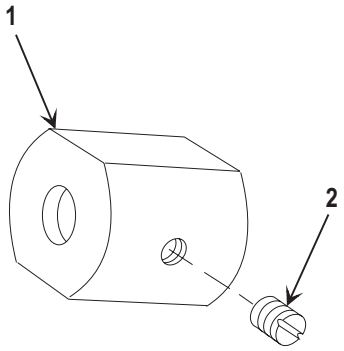


Figure 10. Group 020202 and Group 020302 Retainer 11579101.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 020202 AND 020302 RETAINER	
					FIG. 10 RETAINER 11579101	
1	PAFZZ	5340-01-051-9820	19206	11579005	RETAINER, HELICAL CO UOC:G63	1
2	PAFZZ	5305-01-049-9837	19206	11578992	SETSCREW UOC:G63	1
					END OF FIGURE	

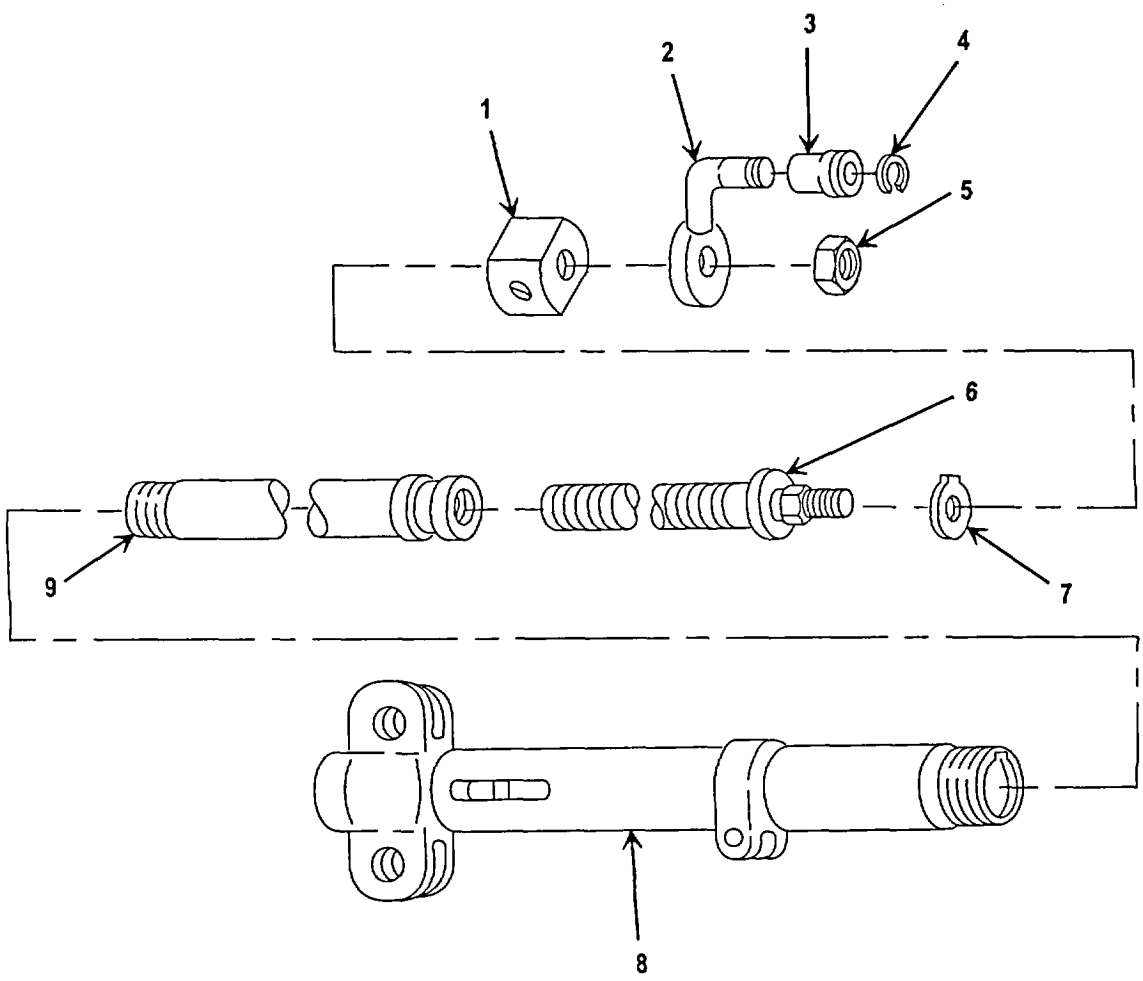


Figure 11. Group 0203 Elevating Mechanism 11579001.

GROUP 0203 ELEVATING MECHANISM 11579001 - Continued 0043 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0203 ELEVATING MECHANISM	
					FIG. 11 ELEVATING MECHANISM 11579001	
1	AFFFF		19206	11579101	RETAINER (SEE FIG. 10 FOR ASSEMBLY (BREAKDOWN)	
					UOC:G63	1
2	PAFZZ	5340-01-046-7156	19206	11579014	CRANK,HAND	
					UOC:G63	1
3	PAFZZ	5355-01-047-9499	19206	11579027	KNOB	
					UOC:G63	1
4	PAFZZ	5325-01-047-3202	19206	11578991	RING,RETAINING	
					UOC:G63	1
5	PAFZZ	5310-00-016-7194	96906	MS21083-D7	NUT,SELF-LOCKING,HE	
					UOC:G63	1
6	PAFZZ	3020-01-043-7496	19206	11579106	SPINDLE,ELEVATING M	
					UOC:G63	1
7	PAFZZ	5310-01-048-2637	19206	11579004	WASHER,KEY ELEVATING	
					UOC:G63	1
8	PAFFF	1010-01-043-7479	19206	11579011	HOUSING,ELEVATING M (SEE FIG. 12 FOR ASSEMBLY BREAKDOWN)	
					UOC:G63	1
9	PAFZZ	3020-01-043-7481	19206	11579035	NUT,ELEVATING SPINDLE	
					UOC:G63	1
					END OF FIGURE	

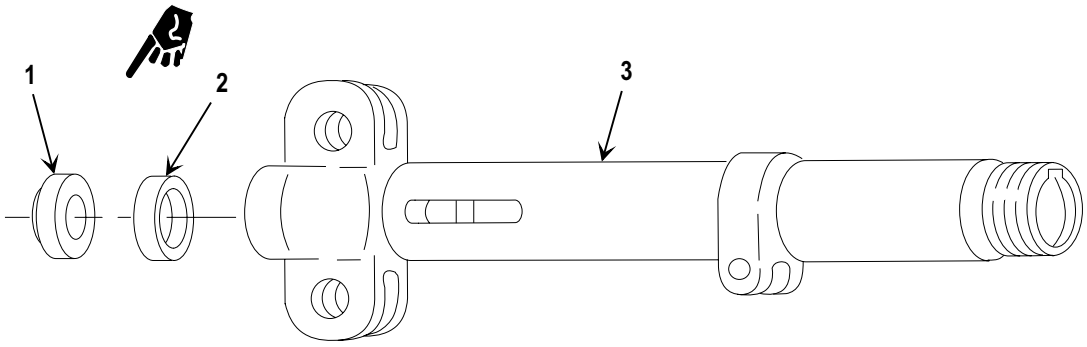


Figure 12. Group 020301 Elevating Housing 11579011.

GROUP 020301 ELEVATING HOUSING 11579011 - Continued 0044 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 020301 ELEVATING HOUSING	
					FIG. 12 ELEVATING HOUSING 11579011	
1	PAFZZ	5330-00-433-9640	19206	11579006	PACKING,PREFORMED UOC:G63	1
2	PAFZZ	3120-01-047-0498	19206	11579033	BEARING,SLEEVE UOC:G63	1
3	XAFZZ		19206	11579103	HOUSING UOC:G63	1
					END OF FIGURE	

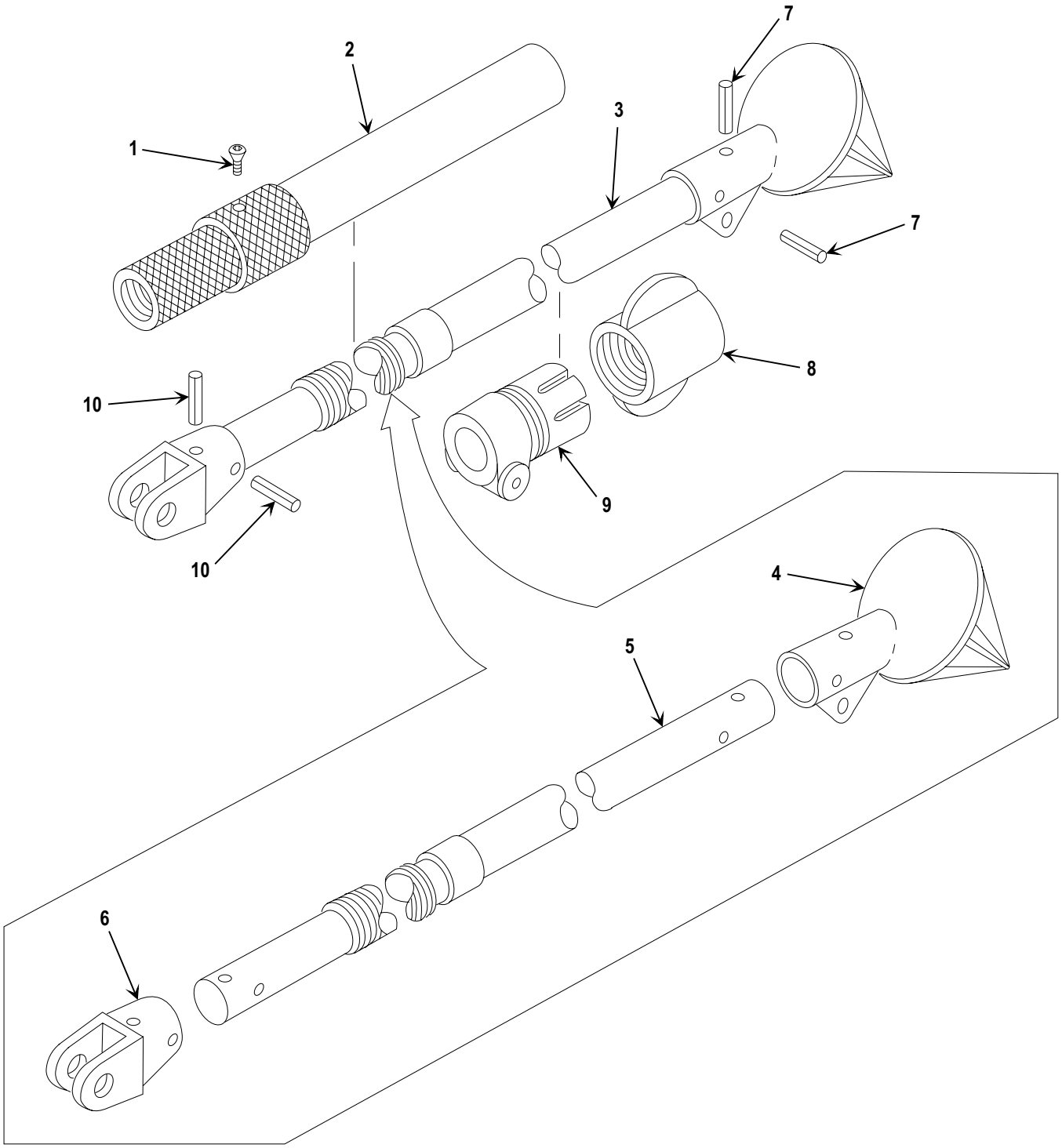


Figure 13. Group 0204 Mortar Mount Leg (Left) 11579110 and Group 020401 Mortar Mount Leg (Left Subassembly) 11579122.

GROUP 0204 MORTAR MOUNT LEG (LEFT) 11579110 AND **0045 00**
GROUP 020401 MORTAR MOUNT LEG (LEFT SUBASSEMBLY) 11579122 - Continued

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0204 MORTAR MOUNT LEG (LEFT) GROUP 020401 MORTAR MOUNT LEG (LEFT SUBASSEMBLY) FIG. 13 MORTAR MOUNT LEG (LEFT) 11579110 AND MORTAR MOUNT LEG (LEFT SUBASSEMBLY) 11579122	
1	PAFZZ	5305-01-052-9111	19206	11579052	SCREW, CAP, SOCKET HE UOC:G63	1
2	PAFFF	5310-01-043-7480	19206	11579121	NUT, CROSS LEVELING UOC:G63	1
3	PAFFF	1010-01-079-3373	19206	11579122	LEG, MORTAR MOUNT (LEFT SUBASSEMBLY) UOC:G63	1
4	PAFZZ	1010-01-085-1584	19206	11579666	..FOOT, MORTAR MOUNT UOC:G63	1
5	XAFFF		19206	11579056	..LEG, MORTAR MOUNT UOC:G63	1
6	PAFZZ	5340-01-176-8767	19206	11579016	..CLEVIS, ROD END UOC:G63	1
7	PAFZZ	5315-00-477-1034	96906	MS35675-18	PIN, GROOVED, HEADLESS UOC:G63	2
8	PAFZZ	5310-01-043-8070	19206	11579077	NUT, PLAIN, WING UOC:G63	1
9	PAFZZ	5340-01-043-2046	19206	11579002	BRACKET, MOUNTING UOC:G63	1
10	PAFZZ	5315-01-050-3421	19206	11578999	PIN, GROOVED, HEADLESS UOC:G63	2
					END OF FIGURE	

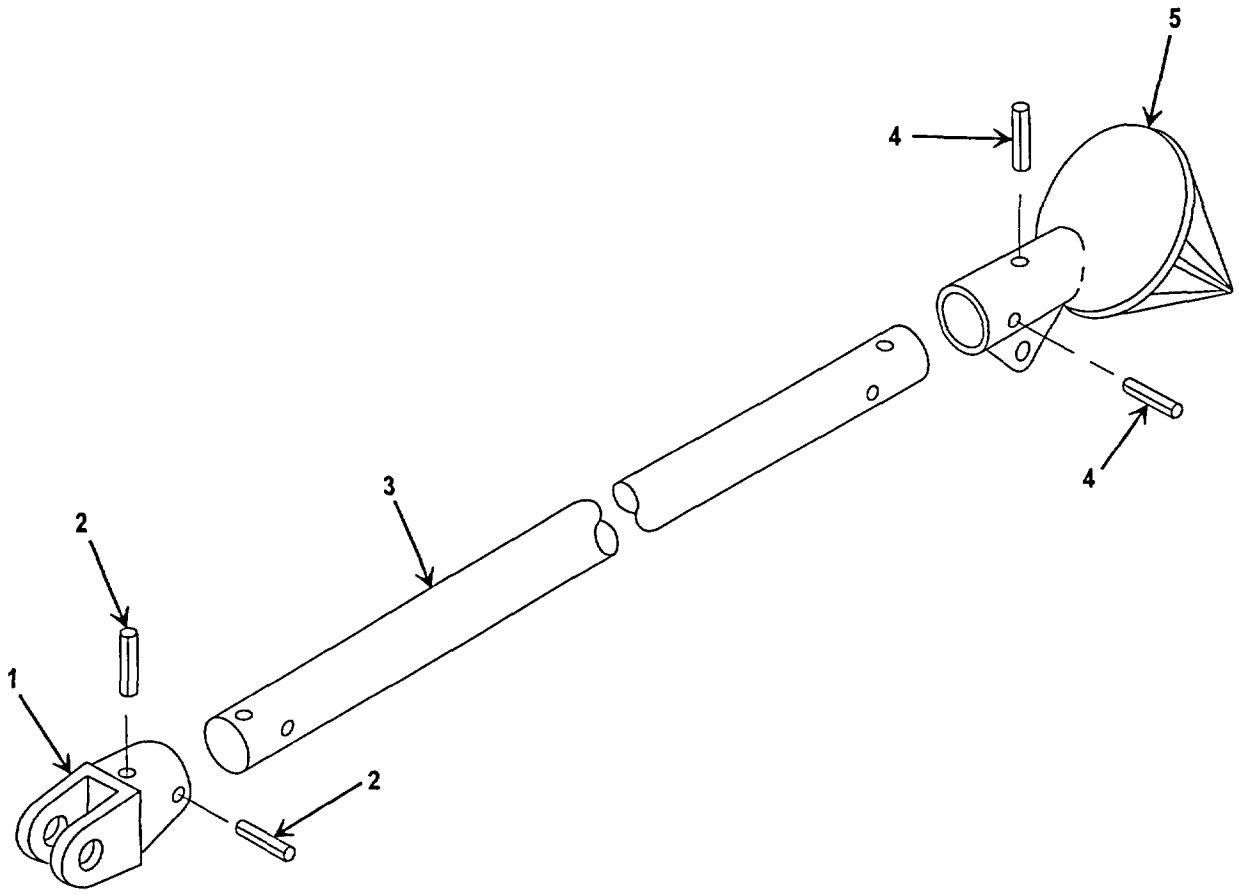


Figure 14. Group 0205 Mortar Mount Leg (Right) 11579075.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0205 MORTAR MOUNT LEG (RIGHT)	
					FIG. 14 MORTAR MOUNT LEG (RIGHT) 11579075	
1	PAFZZ	5340-01-176-8767	19206	11579016	CLEVIS, ROD END UOC:G63	1
2	PAFZZ	5315-01-050-3421	19206	11578999	PIN, GROOVED, HEADLESS UOC:G63	2
3	XAFFF		19206	11578998	LEG, MORTAR MOUNT UOC:G63	1
4	PAFZZ	5315-00-477-1034	96906	MS35675-18	PIN, GROOVED, HEADLESS UOC:G63	2
5	PAFZZ	1010-01-085-1584	19206	11579666	FOOT, MORTAR MOUNT UOC:G63	1
					END OF FIGURE	

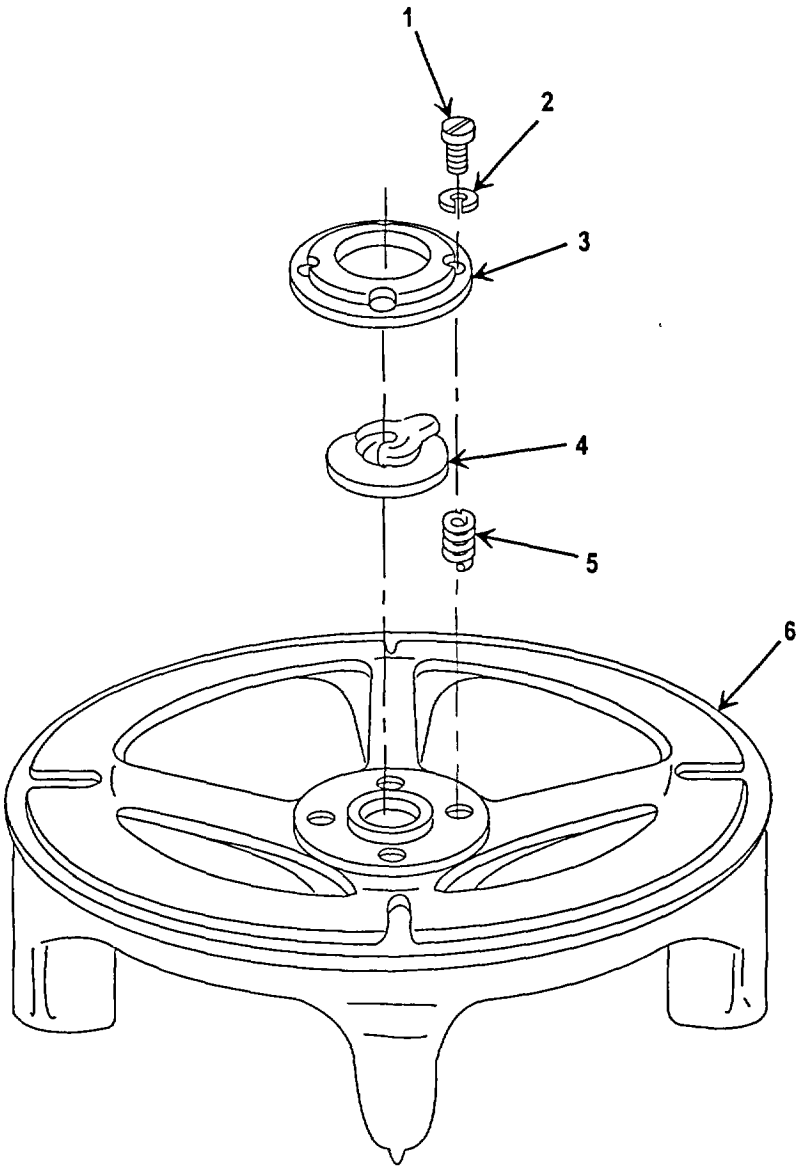


Figure 15. Group 03 M7 Mortar Baseplate 11579070.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03 MORTAR BASEPLATE, M7	
					FIG. 15 M7 MORTAR BASEPLATE 11579070	
1	PAOZZ	5305-00-912-4838	96906	MS35276-263	SCREW, MACHINE UOC:G63	4
2	PAOZZ	5310-00-933-8120	96906	MS35338-138	WASHER, LOCK UOC:G63	4
3	PAOZZ	1010-01-043-7487	19206	11579063	RETAINER, LOCKING CAP UOC:G63	1
4	PAOZZ	5340-01-043-7478	19206	11579067	CAP, LOCKING UOC:G63	1
5	PAFZZ	5325-00-290-4480	96906	MS124735	INSERT, SCREW THREAD UOC:G63	4
6	XAFZZ		19206	11579071	BASEPLATE BASE UOC:G63	1
					END OF FIGURE	

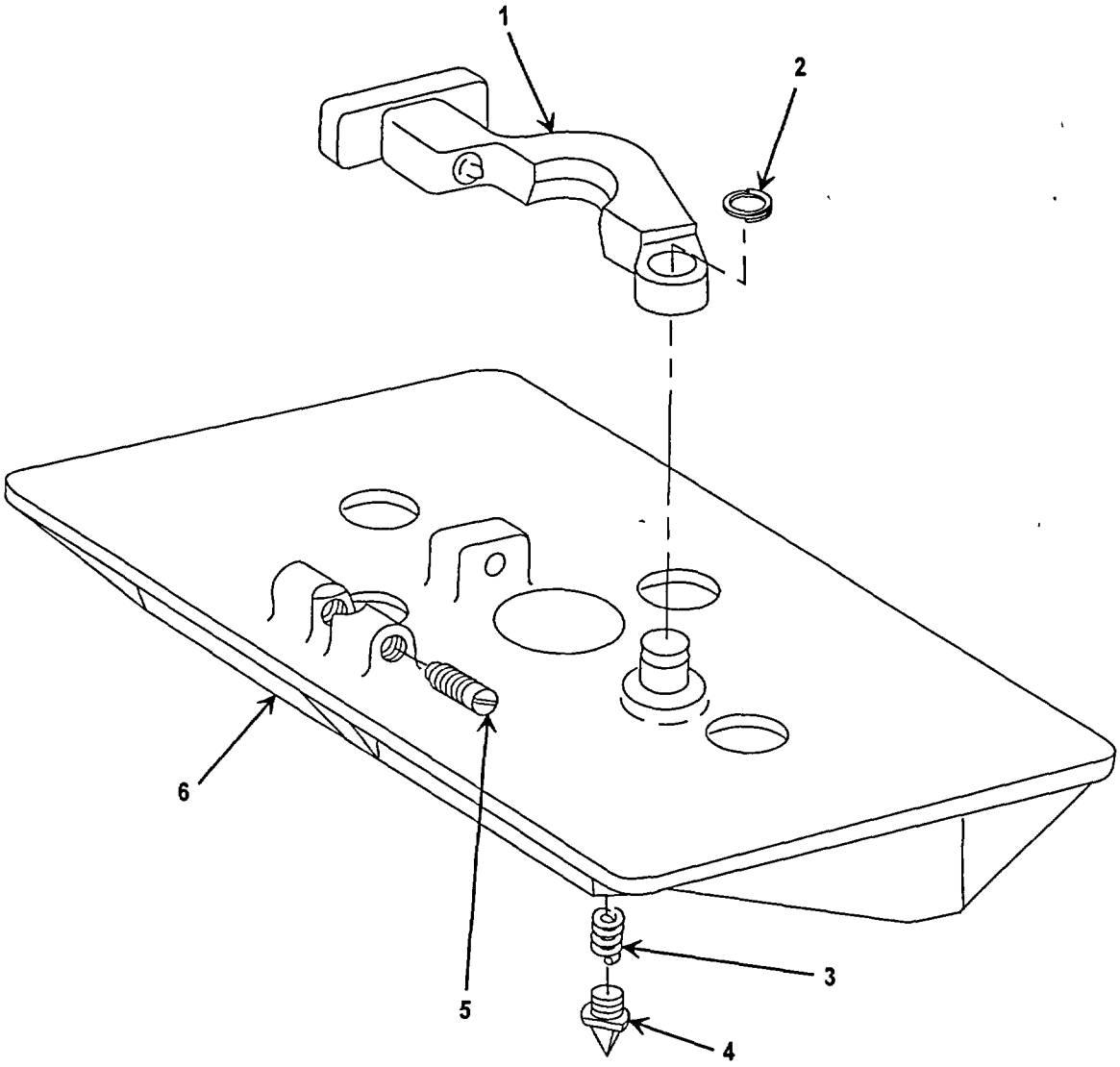


Figure 16. Group 04 M8 Mortar Baseplate 11578990.

GROUP 04 M8 MORTAR BASEPLATE 11578990 - Continued 0048 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 MORTAR BASEPLATE, M8	
					FIG. 16 M8 MORTAR BASEPLATE 11578990	
1	PAOFF	5340-01-043-7477	19206	11579066	LATCH,BASEPLATE (SEE FIG. 17 FOR ASSEMBLY BREAKDOWN) UOC:G63	1
2	PAOZZ	5325-01-048-7838	81349	M27426-1103D	RING,RETAINING UOC:G63	1
3	PAFZZ	5325-01-048-6354	96906	MS21209C5-10P	INSERT,SCREW THREAD UOC:G63	5
4	PAFZZ	1010-01-043-7495	19206	11579058	POINT,BASEPLATE STA UOC:G63	5
5	PAFZZ	5340-01-047-4336	19206	11579057	PLUNGER,QUICK RELEASE UOC:G63	2
6	XAFZZ		19206	11579068	BASEPLATE BASE,AUX UOC:G63	1
					END OF FIGURE	

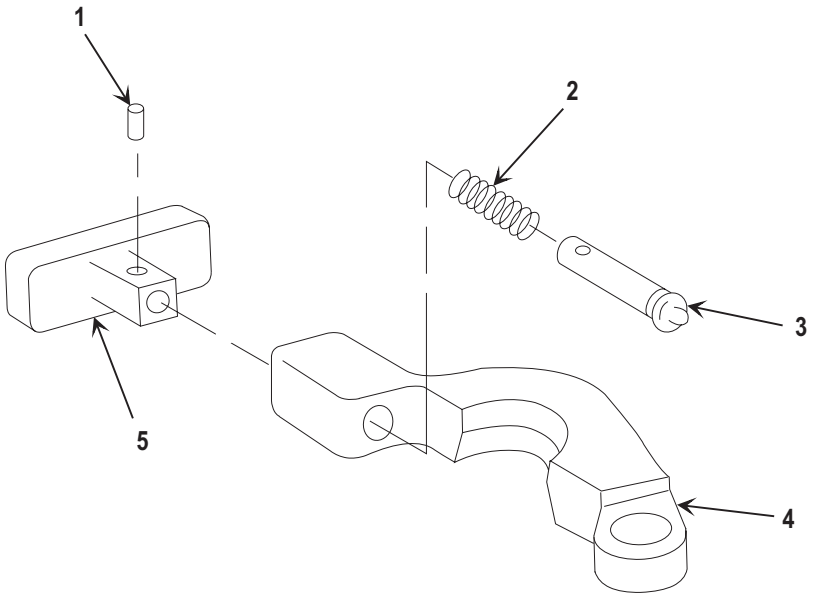


Figure 17. Group 0401 Baseplate Latch 11579066.

GROUP 0401 BASEPLATE LATCH 11579066 - Continued 0049 00

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0401 BASEPLATE LATCH	
					FIG. 17 BASEPLATE LATCH 11579066	
1	PAFZZ	5315-00-058-9731	96906	MS16562-213	PIN,SPRING UOC:G63	1
2	PAFZZ	5360-01-047-0616	96096	MS24585-1251	SPRING,HELICAL, COMPRESSION UOC:G63	1
3	PAFZZ	5315-01-054-6780	19206	11579061-1	PIN,SHOULDER,HEADLE LATCH UOC:G63	1
4	XAFZZ		19206	11579064	LATCH, BASEPLATE UOC:G63	1
5	PAFZZ	5355-01-052-9245	19206	11579059-1	KNOB LATCH UOC:G63	1
					END OF FIGURE	

NATIONAL STOCK NUMBER INDEX 0050 00

STOCK NUMBER	FIG.	ITEM
5340-01-047-4336	16	5
5310-01-047-6295	6	15
5315-01-047-6512	5	16
5315-01-047-8151	2	4
5360-01-047-8272	3	23
5360-01-047-8273	7	7
5360-01-047-9096	8	5
5355-01-047-9499	8	3
	11	3
5355-01-048-0476	8	6
5325-01-048-1336	8	14
5310-01-048-2637	11	7
5310-01-048-3268	8	15
5325-01-048-6354	16	3
5325-01-048-7838	16	2
5315-01-049-0770	3	27
5365-01-049-1556	7	8
5310-01-049-9169	6	9
5305-01-049-9416	3	21
5305-01-049-9837	10	2
5305-01-049-9838	6	13
5315-01-050-3421	13	10
	14	2
4010-01-050-9735	5	11
5310-01-051-8095	7	1
5340-01-051-9820	10	1
5305-01-052-9111	13	1
5355-01-052-9245	17	5
5310-01-054-2569	6	4
5315-01-054-6780	17	3
5340-01-054-6799	2	5
1010-01-063-7680	5	1
5365-01-064-3451	7	3
5305-01-064-5441	3	24
5340-01-067-0691	4	1
5310-01-068-7470	3	20
3040-01-073-1185	6	3
5355-01-074-6043	6	7
3040-01-079-1795	5	13
1010-01-079-3373	13	3
1010-01-085-1584	13	4
	14	5
5315-01-087-7106	4	6
5340-01-148-4822	3	22

STOCK NUMBER	FIG.	ITEM
5340-01-176-8767	13	6
	14	1
5340-01-237-9034	3	6
1010-01-227-7090	4	3
1010-01-238-0569	3	8
9905-01-354-2345	6	2
1010-01-366-3883	8	10
1240-01-366-7322	1	5
1240-01-379-7953	1	5.1
9905-01-397-7511	3	11
5840-01-458-6159	3	7
1010-01-521-1614	1	2
1015-01-546-6617	2	11
5935-01-546-6679	2	13

PART NUMBER INDEX

0051 00

PART NUMBER	FIG.	ITEM
MS124735	15	5
MS16556-334	4	6
MS16562-213	17	1
MS16562-223	4	5
MS16562-226	3	19
MS16562-231	6	6
MS16562-253	8	7
MS20470A3-8	6	1
MS21083-D12	5	2
MS21083-D7	5	6
	8	1
	11	5
MS21083-N3	5	8
MS21090-352	3	5
MS21096-3010	5	9
MS21209C5-10P	16	3
MS21262-12	3	24
MS24585-1073	3	23
MS24585-1080	4	2
MS24585-1251	17	2
MS24585-1285	3	2
MS35276-263	15	1
MS35307-310	5	5
MS35338-138	15	2
MS35675-18	13	7
	14	4
MS35675-41	8	11
MS51922-1	5	3
MS51957-1	3	10
MS51975-14	5	14
MS51988-3	2	1
MS9105-94	3	12
M27426-1103D	16	2
M27426-1133D	8	14
NAS1352-4LE14P	2	6
11578974	3	18
11578976	2	14
11578977	3	15
11578978	3	20
11578979	4	1
11578980	3	3
11578981	3	26
11578983	3	27
11578984	2	4
11578985	2	2
11578986	2	3
11578987	3	1
11578989	8	16
11578990	1	4
11578991	8	2
	11	4
11578992	10	2
11578993	9	2
11578995	3	17
11578996	7	2
11578997	6	15
11578998	14	3
11578999	13	10
	14	2
11579001	5	12
11579002	13	9
11579004	11	7
11579005	10	1
11579006	9	3
	12	1
11579007	8	4
11579010	8	12
11579011	11	8
11579012	8	6
11579014	11	2
11579016	13	6
	14	1
11579018	5	16
11579019	6	14
11579020	5	4
11579021	9	1
11579023	8	10
11579025	8	15
11579026	8	13
11579027	8	3
	11	3
11579028	6	8
11579029	6	9
11579031	6	4
11579032	6	7
11579033	12	2
11579035	11	9
11579036	8	5
11579039	2	10
11579040	2	5
11579042	4	4
11579043	7	7

PART NUMBER	FIG.	ITEM
11579044	7	8
11579045	5	11
11579046	4	7
11579052	13	1
11579056	13	5
11579057	16	5
11579058	16	4
11579059-1	17	5
11579061-1	17	3
11579062	3	4
11579063	15	3
11579064	17	4
11579066	16	1
11579067	15	4
11579068	16	6
11579070	1	3
11579071	15	6
11579074	7	1
11579075	5	7
11579077	13	8
11579080	1	1
11579083	6	13
11579084	6	16
11579085	7	6
11579086	7	5
11579087	8	9
11579090	1	2
11579091	7	3
11579092	3	16
11579093	2	7
11579094	3	13
11579095	6	12
11579096	6	10
11579101	8	17
	11	1
11579103	12	3
11579106	11	6
11579107	5	10
11579108	6	3
11579109	6	5
11579110	5	15
11579111	8	8
11579117	3	21
11579118	3	14
11579119	2	8

PART NUMBER	FIG.	ITEM
11579121	13	2
11579122	13	3
11579290	6	2
11579291	2	9
11579292	7	4
11579637	5	1
11579666	13	4
	14	5
11579667	5	13
11579668	3	25
11579778	3	22
11579833	4	3
11581024	2	13
11729521	3	9
11785486	3	8
12901202	2	11
12950962	3	11
9356182	1	5
9360168	1	5.1
9360374	3	7
9360375	3	6

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the M224 60-mm mortar. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) — Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., "Use plastic bag (item 1, WP 0052 00).").

Column (2) — Level. This column identifies the lowest level of maintenance that requires the listed item (C = Operator/Crew, O = Unit, F = Direct Support).

Column (3) — National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) — Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) — Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
1	C	8105-00-269-4662	BAG, PLASTIC: (81349) MIL-B-117 Pkg of 100	EA
2	O	8135-00-292-9719	BARRIER MATERIAL: (81348) MIL-B-121 36 in. wide, 100 yd roll	RO
3	O	8020-00-201-1870	BRUSH, ARTIST: (81348) H-B-241	EA
4	O	7920-00-205-2401	BRUSH, CLEANING TOOL: (81349) MIL-S-43871	EA

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
5	O	8020-00-242-7266	BRUSH, PAINT: (96906) MS16866	EA
6	O	6850-00-392-9751	CLEANING COMPOUND, OPTICAL LENS: (81349) MIL-C-43454 2 oz bottle	OZ
7	O	6850-00-224-6663	CLEANING COMPOUND, RIFLE BORE: (81349) MIL-C-372 1 gal can	GL
7.1	C	9150-01-193-6376	CLEANER, LUBRICANT, PRESERVATIVE: (27412) CLP-9	CN
8	O	5350-00-221-0872	CLOTH, ABRASIVE: Crocus (58536) A-A-1206 50 sheet package	PG
9	O	8135-00-300-4905	CUSHIONING MATERIAL: (81348) PPP-C-1797	FT
10	C	8415-00-266-8675	GLOVES, CHEMICAL AND SOLVENT RESISTANT: Type 3 (81348) ZZ-G-381	PR
11	F	9150-01-228-3389	GREASE, AIRCRAFT: (81349) MIL-G-81322	LB
12	O	9150-01-360-1906	LUBRICANT, SOLID FILM: Type 2, black (81349) MIL-L-46147 16 oz	EA
13	O	9150-00-231-2361	LUBRICATING OIL, GENERAL PURPOSE: (81349) MIL-L-3150 1 qt can	QT
14	O	9150-00-292-9689	LUBRICATING OIL, WEAPON: (81349) MIL-L-14107 1 qt can	QT

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
15	C	6640-00-285-4694	PAPER, LENS: (81348) NNN-P-40 100 sheet package	EA
16	O	8135-00-985-7242	PAPER, VOLATILE, PACKAGING: (81349) MIL-P-3420 36 in. wide, 100 ft roll	FT
17	O	8135-00-281-3920	PAPERBOARD, WRAPPING: (81348) PPP-P-291 24 in. wide, 250 ft long	FT
18	O	8010-01-229-7546	POLYURETHANE COATING (81349) MIL-C-53039	QT
19	O	7920-00-205-1711	RAG, WIPING: (58536) A-A-531 50 lb bundle	LB
20	F	8030-00-275-8110	SEALING COMPOUND: Base compound and catalyst (81349) MIL-S-11031 1 qt can	QT
21	F	8030-00-900-4412	SEALING COMPOUND: Blue, thick liquid (81349) MIL-S-22473 8 1/3 oz bottle	BT
22	F	8030-00-181-7603	SEALING COMPOUND: Type III (81349) MIL-R-46082 50 cc bottle	BT
23	O	6850-00-281-1985	SOLVENT, DRY CLEANING: (58536) A-A-711 1 gal can	GL
24	O	7510-00-266-6712	TAPE, PS, MASKING: (58536) A-A-383 1 in. wide, 60 yd roll	YD

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
25	O	7510-00-266-6712	TAPE, PSA: Type 4, CL1 (81348) PPP-T-60 2 in. wide, 60 yd roll	RO
26	O	7510-00-297-6655	TAPE, PSA, PAPERBACK, WATER-RESISTANT: (81348) PPP-T-76 2 in. wide, 120 yd roll	YD
27	O	8010-00-181-8080	THINNER, SYNTHETIC: (85570) 020X304 1 qt can	QT

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By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
05335

DISTRIBUTION: To be distributed in accordance with the Initial Distribution Number (IDN) 401145, requirements for TM 9-1010-223-23&P.

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE **Date you filled out this form.**
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* AMSTA-LC-CI / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	**FROM:** *(Activity and location) (Include ZIP Code)* **Your mailing address**	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-1010-223-23&P		Unit and Direct Support Maintenance Manual for Lightweight Company Mortar 60-MM, M224

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*
1	0048 00-1			16		Part number for Latch, baseplate is incorrect. It should be 1157066.

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name		Your Signature

TO: (*Forward direct to addressee listed in publication*)	**FROM:** (*Activity and location) (Include ZIP Code)*	*DATE*
AMSTA-LC-CI / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	Your address	Date you filled out this form

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PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meter = 0.3937 Inch
1 Decimeter= 10 Centimeters = 3.94 Inches
1 Meter = 10 Decimeters = 100 Centimeters
= 1000 Millimeters = 39.37 Inches
1 Dekameter = 10 Meters = 32.8 Feet
1 Hectometer = 10 Dekameters = 328.08 Feet
1 Kilometer 2 10 Hectometers = 1000 Meters
= 0.621 Mile = 3,280.8 Feet
Millimeters = Inches times 25.4
Inches = Millimeters divided by 25.4

WEIGHTS

1 Centigram = 10 Milligrams = 0.154 Grain
1 Decigram = 10 Centigrams = 1.543 Grains
1 Gram = 0.001 Kilogram = 10 Decigrams
= 1000 Milligrams = 0.035 Ounce
1 Dekagram = 10 Grams = 0.353 Ounce
1 Hectogram = 10 Dekagrams = 3.527 Ounces
1 Kilogram = 10 Hectograms = 1000 Grams = 2.205 Pounds
1 Quintal = 100 Kilograms = 220.46 Pounds
1 Metric Ton = 10 Quintals = 1000 Kilograms = 1.102 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liter = 0.034 Fluid Ounce
1 Centiliter = 10 Milliliters = 0.34 Fluid Ounce
1 Deciliter = 10 Centiliters = 3.38 Fluid Ounces
1 Liter = 10 Deciliters = 1000 Millileters = 33.82 Fluid Ounces
1 Dekaliter = 10 Liters = 2.64 Gallons
1 Hectoliter = 10 Dekaliters = 26.42 Gallons
1 Kiloliter = 10 Hectoliters = 264.18 Gallons

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inch
1 Sq Decimeter= 100 Sq Centimeters = 15.5 Sq Inches
1 Sq Meter (Centare) = 100 Sq Decimeters
= 10,000 Sq Centimeters = 10.764 Sq Feet
1 Sq Dekameter (Are) = 100 Sq Meters = 1,076.4 Sq Feet
1 Sq Hectometer (Hectare) = 100 Sq Dekameters = 2.471 Acres
1 Sq Kilometer = 100 Sq Hectometers = 1,000,000 Sq Meters
= 0.386 Sq Mile

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.061 Cu Inch
1 Cu Decimeter = 1000 Cu Centimeters = 61.02 Cu Inches
1 Cu Meter = 1000 Cu Decimeters = 1,000,000 Cu Centimeters
= 35.31 Cu Feet

TEMPERATURE

5/9 (F - 320) = °C
9/5 (°C+ 320) = °F
-35° Fahrenheit is equivalent to -37° Celsius
0° Fahrenheit is equivalent to -18° Celsius
32° Fahrenheit is equivalent to 0° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
100° Fahrenheit is equivalent to 38° Celsius
212°° Fahrenheit is equivalent to 100° Celsius

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.452
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.574
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.350
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds-Inches	Newton-Meters	0.11298
Pounds per Square Inch	Kilopascals	6.895
Ounce-Inches	Newton-Meters	0.007062
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609
Centimeters	Inches	0.394

TO CHANGE	TO	MULTIPLY BY
Meters	Feet	3.281
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2:352
Kilometers per Hour	Miles per Hour	0.621
°Fahrenheit	°Celsius	°C = (°F-32)x5/9
°Celsius	°Fahrenheit	°F = (9/5x° C)+32

PIN: 076923-000