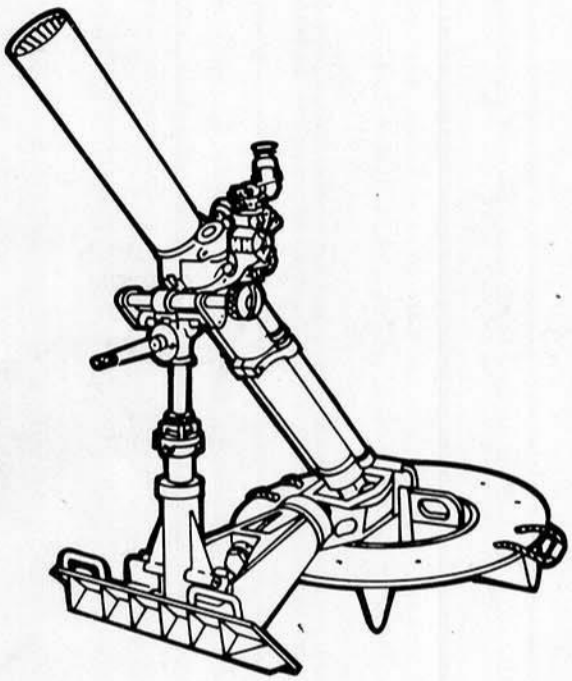
# TM 9-1015-215-30

TECHNICAL MANUAL
DIRECT SUPPORT MAINTENANCE MANUAL
FOR




| | |
|---|---|
| EQUIPMENT DESCRIPTION AND DATA | 1-1 |
| SERVICE UPON RECEIPT | 2-1 |
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| EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST | B-1 |
| ALPHABETICAL INDEX | Index 1 |


## MORTAR, 4.2-INCH: M30
## (CANNON M30 ON MOUNT M24A1)
## (1015-00-840-1840)
## AND
## TRAINER, SUBCALIBER, 60-MM: M31
## (8429878)

This copy is a reprint which includes current pages from Changes 1 and 2.


HEADQUARTERS, DEPARTMENT OF THE ARMY

October 1984



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**WARNING**

Do not move the rotator assembly and mortar baseplate as a unit; move the rotator assembly by its handles, and use two soldiers to move the mortar baseplate by the rope handles.

Do not stand in front of sleeve nut when removing it. The shock absorber may contain broken parts that would allow the compressed spring to fly out.

Dry cleaning solvents (SD) and paint thinners (TPM) are flammable. Do not clean parts near an open flame or in a smoking area. 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.

For first aid, see FM 21-11.

TM 9-1015-215-30
C2

Change
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 17 April 1987

DIRECT SUPPORT MAINTENANCE MANUAL

FOR

MORTAR, 4.2-INCH: M30
(CANNON M30 ON MOUNT M24A1)
(1015-00-840-1840)

AND

TRAINER, SUBCALIBER, 60-MM: M31
(8429878)

TM 9-1015-215-30, 9 October 1984, is changed as follows:

1. Remove old pages and insert new pages as indicated below.

2. New or changed material is indicated by a vertical bar in the margin of the page.

| Remove Pages | Insert Pages |
|---|---|
| 2-13 and 2-14 | 2-13 and 2-14 |
| 2-19 and 2-20 | 2-19 and 2-20 |

3. File this change sheet in the back of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
*General, United States Army*
*Chief of Staff*

**Official:**

R. L. DILWORTH
*Brigadier General, United States Army*
*The Adjutant General*

**DISTRIBUTION:**

To be distributed in accordance with DA Form 12-40, Direct and General Support Maintenance requirements for Mortar, 4.2-Inch, M30; Trainer, Subcaliber, M31.

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 24 June 1986

# DIRECT SUPPORT MAINTENANCE MANUAL FOR MORTAR, 4.2-INCH: M30 (CANNON M30 ON MOUNT M24A1) (1015-00-840-1840) AND TRAINER, SUBCALIBER, 60-MM: M31 (8429878)

TM 9-1015-215-30, 9 October 1984, is changed as follows:

1. Remove old pages and insert new pages as indicated below.

2. New or changed material is indicated by a vertical bar in the margin of the page.

| Remove Pages | Insert Pages |
|---|---|
| 2-9 and 2-10 | 2-9 and 2-10 |
| None | 2-10.1/(2-10.2 blank) |
| 2-11 and 2-12 | 2-11 and 2-12 |
| 2-17 and 2-18 | 2-17 and 2-18 |
| 2-21 and 2-22 | 2-21 and 2-22 |
| 2-29 and 2-30 | 2-29 and 2-30 |
| 2-39 thru 2-42 | 2-39 thru 2-42 |
| 2-61 and 2-62 | 2-61 and 2-62 |
| 2-69 and 2-70 | 2-69 and 2-70 |
| 2-77 thru 2-82 | 2-77 thru 2-82 |
| None | 2-82.1/(2-82.2 blank) |
| B-1 and B-2 | B-1 and B-2 |

3. File this change sheet in the back of the publication for reference purposes.

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*General, United States Army*
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*The Adjutant General*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-40, Direct and General Support Maintenance requirements for Mortar, 4.2 Inch, M30, Trainer, Subcaliber, M31.

TECHNICAL MANUAL
No. 9-1015-215-30

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 9 October 1984

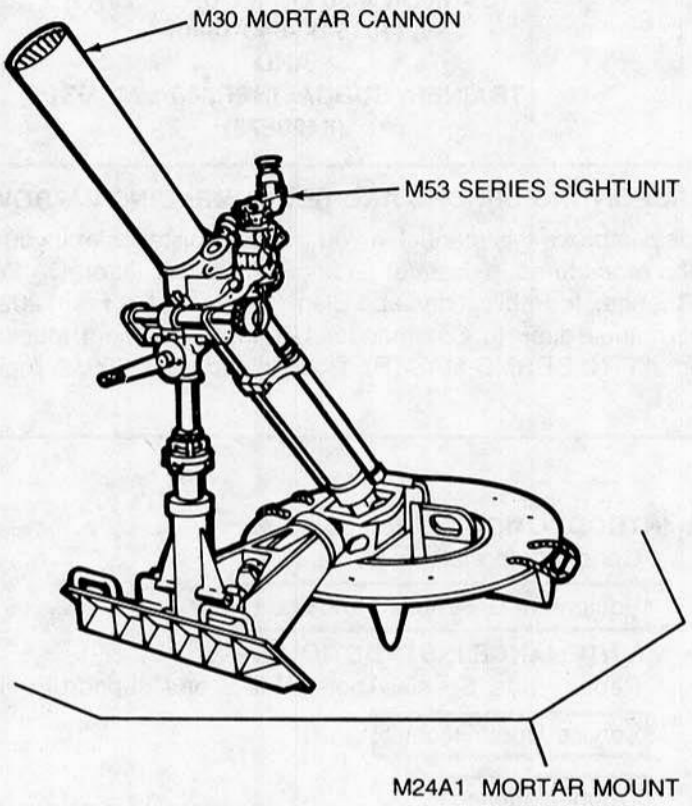
# Direct Support Maintenance Manual for MORTAR, 4.2-INCH: M30 (CANNON M30 ON MOUNT M24A1) (1015-00-840-1840) AND TRAINER, SUBCALIBER, 60-MM: M31 (8429878)

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Armament, Munitions and Chemical Command, ATTN: DRSMC-MAS (R), Rock Island, IL 61299. A reply will be furnished to you.


| | | Page |
|---|---|---|
| **CHAPTER 1** | **INTRODUCTION** | **1-1** |
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| | **ALPHABETICAL INDEX** | **Index 1** |


*This manual supersedes TM 9-1015-215-34, dated 11 April 1972, including all changes.




*M30 4.2-INCH MORTAR: - LEFT FRONT VIEW (FIRING POSITION)*

# CHAPTER 1
# INTRODUCTION

## Section I. GENERAL INFORMATION

**1-1. SCOPE.**

a. *Type of Manual.* Direct Support Maintenance Manual.

b. *Model Number and Equipment Name.* M30 4.2-inch Mortar.

c. *Purpose of Equipment.* Provides a high-angle fire support system to use against a variety of ground targets.

**1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.** Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System.

**1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.** Procedures and materials for the destruction of the mortar to prevent enemy use are found in TM 750-244-7.

**1-4. PREPARATION FOR STORAGE OR SHIPMENT.** Requirements for administrative and intermediate storage are listed in TM 740-90-1 and TM 9-1015-215-20&P.

**1-5. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS.**

NOMENCLATURE CROSS-REFERENCE LIST

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

| *Common Name* | *Official Nomenclature* |
|---|---|
| Barrel assembly | 4.2-inch mortar cannon |
| Felt washer | Nonmetallic flat washer |
| Locking pin | Mount sight pin |
| Standard assembly | Mortar mount assembly standard |

**1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).** If your 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. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Armament, Munitions and Chemical Command, ATTN: DRSMC-MAO (R), Rock Island, IL 61299. We'll send you a reply.

## Section II. EQUIPMENT DESCRIPTION AND DATA

**1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.**

a. *Characteristics.*

(1) A heavy mortar that is transported by vehicle.

(2) Can be emplaced on the ground or mounted in a special vehicle.

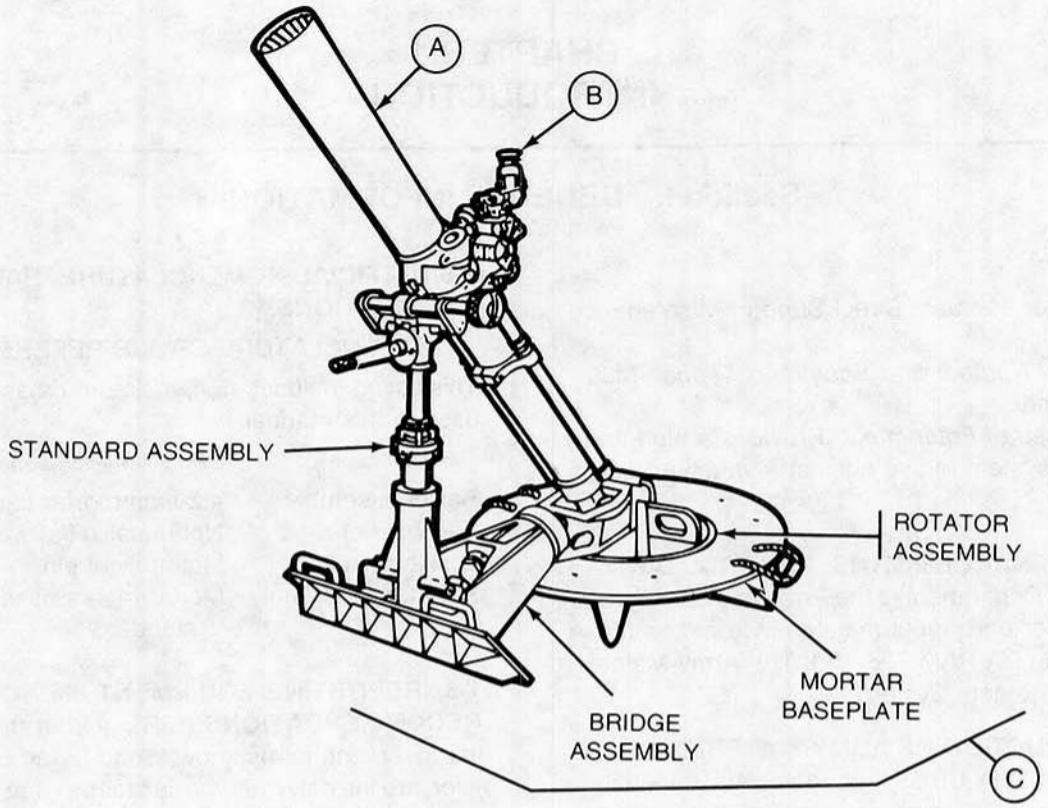
b. *Capabilities and Features.*

(1) Rifled bore cannon is muzzle loaded.

(2) Capable of delivering various types of ammunition with a variety of fuze settings at a rapid rate of fire.

(3) Breaks down into sections that one or two people can handle.

(4) An M53 series sightunit provides indirect fire capability.




## 1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

(A) M30 MORTAR CANNON. Fires ammunition and controls the direction of the projectile flight path.

(B) M53 SERIES SIGHTUNIT. Sighting device used to lay the mortar.

(C) M24A1 MORTAR MOUNT. Composed of standard assembly, bridge assembly, mortar baseplate, and rotator assembly, which assists in absorbing the forces of recoil and provides the mechanisms for elevating and traversing the weapon.

**1-9. EQUIPMENT DATA.** See TM 9-1015-215-10.

## 1-10. SAFETY, CARE, AND HANDLING.

a. All of the major mortar components are heavy and must be handled carefully.

**WARNING**

Do not move the rotator assembly and mortar baseplate as a unit; remove the rotator assembly by its handles, and use two soldiers to move the mortar baseplate by the rope handles.

b. Do not drop the cannon as this will likely:

(1) Dent the tube or cause it to be out-of-round.

(2) Damage the shock absorbers.

(3) Damage or break the coupling and sight mount assembly.

c. Keep the standard assembly in the low range position when not in use.

(1) Fold the handle of the traversing wheel body in the stowed position.

(2) Be careful of the elevating handle. Do not break.

d. Use two men to lift the bridge assembly by the handles. Watch out for twisting between the body and bridge cup assembly.

# CHAPTER 2
# MAINTENANCE INSTRUCTIONS

## Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

**2-1. COMMON TOOLS AND EQUIPMENT.** For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

**2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.** Special tools needed to maintain the 4.2-inch mortar are listed and illustrated in TM 9-1015-215-30P. Instructions for fabricated tools are in appendix C.

**2-3. REPAIR PARTS.** Spare and repair parts are listed and illustrated in TM 9-1015-215-30P.

## Section II. SERVICE UPON RECEIPT

**2-4. GENERAL.** The instructions for service upon receipt of materiel are found in TM 9-1015-215-20&P.

## Section III. TROUBLESHOOTING

**2-5. GENERAL.**

a. This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the mortar. Each malfunction for an individual component, unit, or system is followed by a list of tests/inspections which will help you to determine corrective actions to take. Perform the tests/inspections and corrective actions in the order listed.

b. This section cannot list all possible malfunctions that may occur nor all tests/inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious) or is not correctable by the listed corrective actions, notify your supervisor.

**2-6. TROUBLESHOOTING PROCEDURES.**

a. Refer to the troubleshooting symptom index on page 2-2.

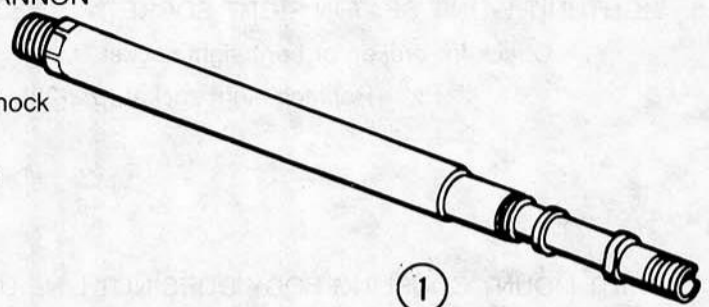
b. Use the symptom index to quickly refer to malfunctions listed in the chart.

## SYMPTOM INDEX


| | Troubleshooting Procedure Page |
|---|---|
| CANNON | |
| Coupling and sight mount assembly won't rotate | 2-3 |
| Coupling base does not line up with shock absorbers and sight mount coupling body | 2-4 |
| Improper recoil and counterrecoil | 2-3 |
| Sight mount coupling body does not line up with coupling base | 2-4 |
| Sightunit won't seat in sight socket | 2-4 |
| MOUNT | |
| Bridge Assembly | |
| Bridge assembly does not rotate | 2-10 |
| Poor stabilization of weapon during firing | 2-10 |
| Standard assembly trunnions won't go into bridge assembly sockets | 2-10 |
| Rotator Assembly | |
| Bridge assembly trunnions won't go into bridge trunnion sockets on rotator assembly | 2-9 |
| Rotator assembly does not turn freely | 2-8 |
| Rotator assembly won't lock in baseplate | 2-9 |
| Standard Assembly | |
| Difficulty in elevating or depressing weapon | 2-6 |
| Difficulty in traversing weapon | 2-5 |
| Elevating mechanism binds on elevating screw housing | 2-8 |
| Improper recoil | 2-5 |
| Standard assembly does not lock in its low or high range position | 2-7 |
| Standard assembly will not secure | 2-8 |

| MALFUNCTION | TEST OR INSPECTION | CORRECTIVE ACTION |
|---|---|---|

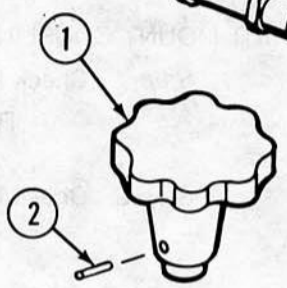
CANNON



1. IMPROPER RECOIL AND COUNTERRECOIL.

   Check for damaged or broken shock absorber parts.

   Repair (p 2-32) or replace (p 2-12) shock absorbers.



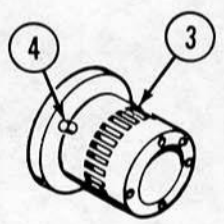

2. COUPLING AND SIGHT MOUNT ASSEMBLY WON'T ROTATE.

   *Step 1.* Check for broken sight mount knob (1).

   Replace sight mount knob (p 2-22).

   *Step 2.* Check for pin (2) in sight mount knob (1).

   Replace pin (p 2-22).

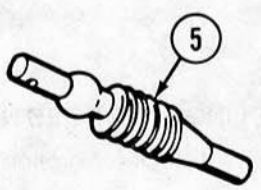



   *Step 3.* Check for broken or chipped worm assembly gear (3).

   Replace worm assembly gear (p 2-22).

   *Step 4.* Check pin (4) protrusion (p 2-25).

   Replace pin (p 2-22).




   *Step 5.* Remove sight mount worm (5) and check for cracks or breaks.

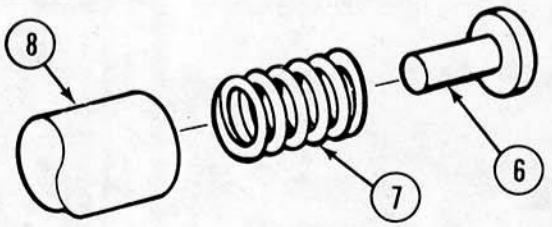
   Replace sight mount worm (p 2-22).

   *Step 6.* Check for jammed spring guide (6), helical compression spring (7), and yoke (8) due to dirt and grit.

   Remove and clean (p 2-22).

   *Step 7.* Check for broken helical compression spring (7).

   Replace helical compression spring (p 2-22).



*TROUBLESHOOTING (CONT)*

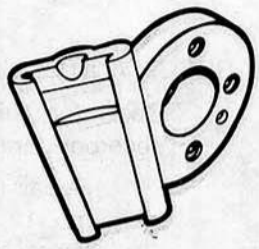
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CANNON (CONT)

3. SIGHTUNIT WON'T SEAT IN SIGHT SOCKET.

Check for broken or bent sight socket.

Replace sight socket (p 2-22).



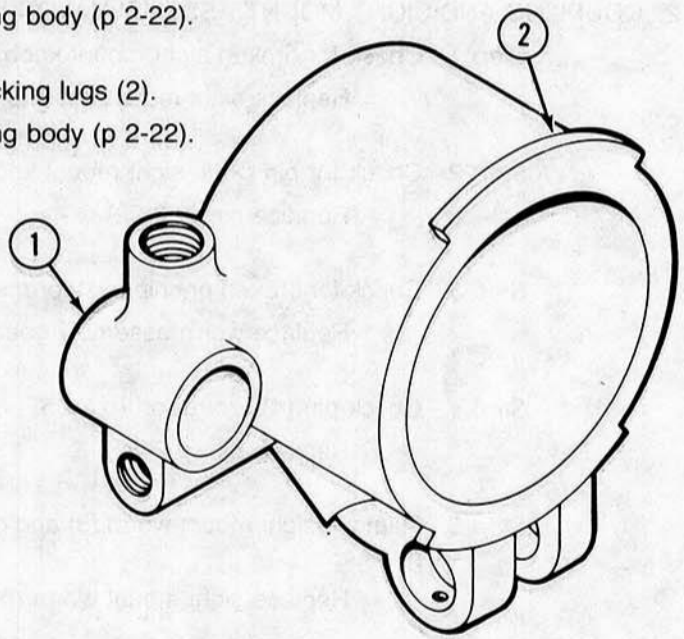
4. SIGHT MOUNT COUPLING BODY DOES NOT LINE UP WITH COUPLING BASE.

*Step 1.* Check for cracked or warped sight mount coupling body (1).

Replace sight mount coupling body (p 2-22).

*Step 2.* Check for broken bayonet-type locking lugs (2).

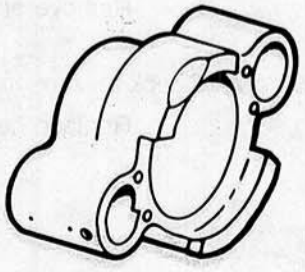
Replace sight mount coupling body (p 2-22).




5. COUPLING BASE DOES NOT LINE UP WITH SHOCK ABSORBERS AND SIGHT MOUNT COUPLING BODY.

Check for broken or out-of-round coupling base.

Replace coupling base (p 2-12).

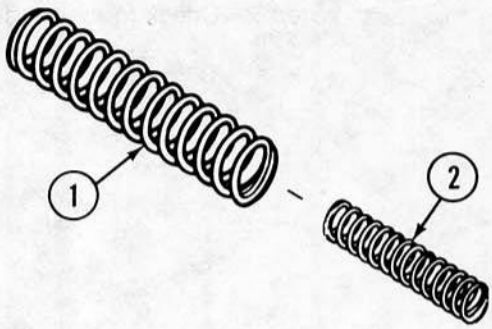


MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

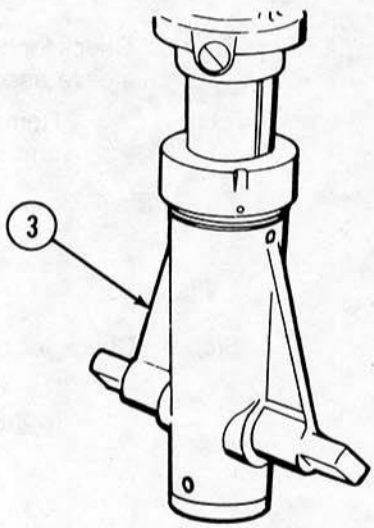
MOUNT

1. IMPROPER RECOIL.

*Step 1.* Check for distorted or broken compression springs (1 and 2).
Replace compression springs (p 2-42).

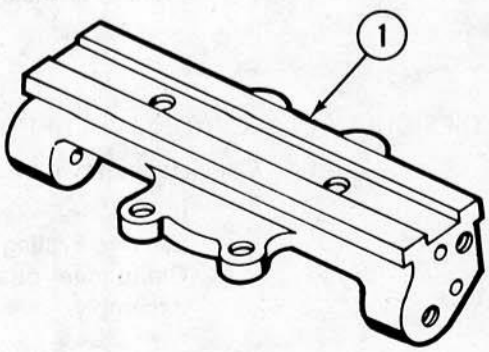



*Step 2.* Check for cracked or deformed standard base (3).
Replace standard base (p 2-42).




2. DIFFICULTY IN TRAVERSING WEAPON.

*Step 1.* Check for burrs or bent traversing slide support body (1).
Remove burrs or replace traversing slide support body (p 2-62).



*TROUBLESHOOTING (CONT)*

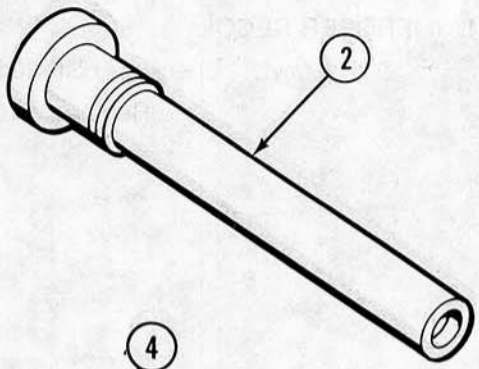
| MALFUNCTION | TEST OR INSPECTION | CORRECTIVE ACTION |
|---|---|---|

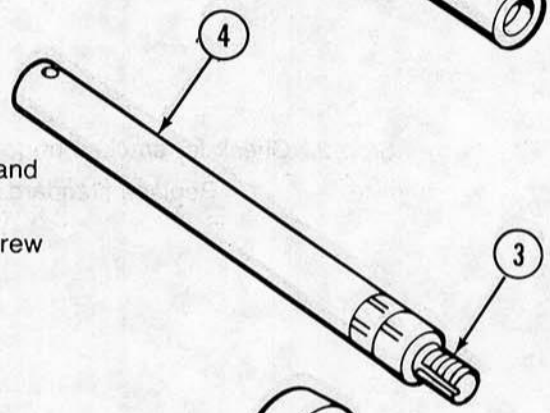
MOUNT (CONT)

2. DIFFICULTY IN TRAVERSING WEAPON (CONT).

*Step 2.* Check for bent traversing sleeve housing (2).

Replace traversing sleeve housing (p 2-62).



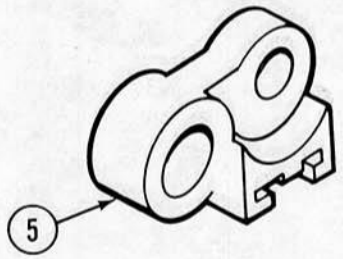




*Step 3.* Check for bent or burred traversing screw (3) and sleeve assembly (4).

Remove burrs or replace traversing screw and sleeve assembly (p 2-62).

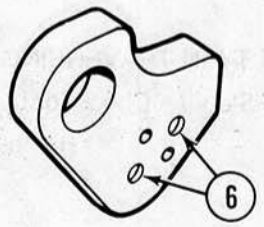
*Step 4.* Check for broken or burred traversing nut (5).

Remove burrs or replace traversing nut (p 2-62).




*Step 5.* Check for loose socket head cap screws (6) in the supports.

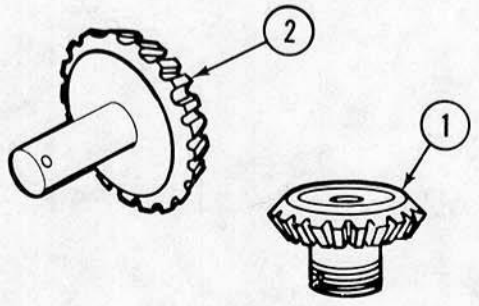
Tighten and stake all cap screws (p 2-62).




3. DIFFICULTY IN ELEVATING OR DEPRESSING WEAPON.

*Step 1.* Check for jammed miter gears due to dirt and grit fouling.

Clean elevating screw miter gear (1). Clean miter gear (2) in gear and handle assembly.



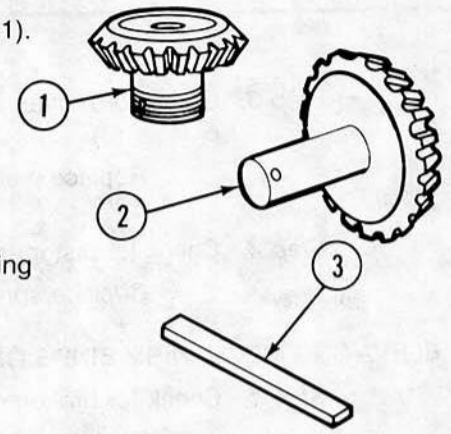
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

*Step 2* Check for broken or worn elevating screw miter gear (1).

Replace miter gear (p 2-42).

*Step 3.* Check for broken or worn miter gear (2).

Replace gear and handle assembly (p 2-62).

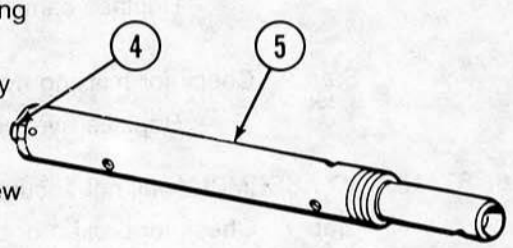



*Step 4.* Check for broken or damaged key (3) between elevating screw housing assembly (5) and elevating screw support (6).

Replace key if necessary (p 2-42).

*Step 5.* Check for broken or damaged key (4) on elevating screw housing assembly (5).

Replace elevating screw housing assembly (p 2-42).

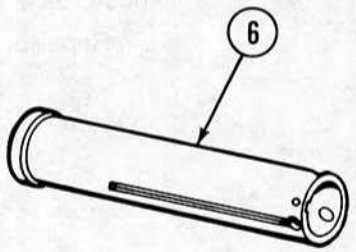



*Step 6.* Check for bent, warped, or nicked elevating screw housing assembly (5).

Replace elevating screw housing assembly (p 2-42).

*Step 7.* Check for bent or warped elevating support (6).

Replace elevating support (p 2-42).



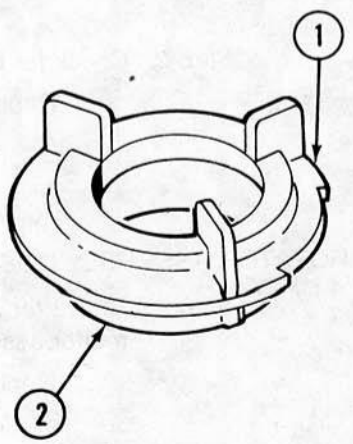

4. STANDARD ASSEMBLY DOES NOT LOCK IN ITS LOW OR HIGH RANGE POSITION.

*Step 1.* Check for jammed elevating mechanism cam (1) due to dirt and grit.

Remove and clean elevating mechanism cam (p 2-42).

*Step 2.* Check for damaged cams (2).

Replace elevating mechanism cam (p 2-42).



## TROUBLESHOOTING (CONT)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

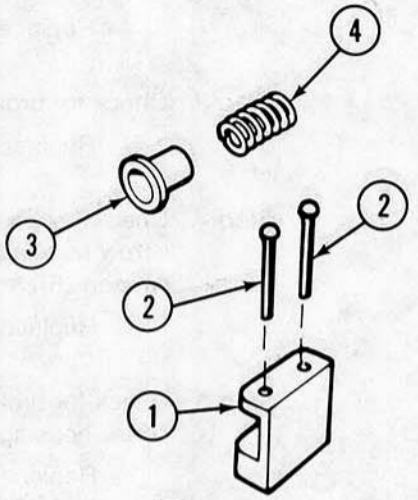
MOUNT (CONT)

*Step 3.* Check for broken elevating mechanism housing plunger (3).

Replace plunger (p 2-42).

*Step 4.* Check for distorted or broken plunger spring (4).

Replace spring (p 2-42).




5. ELEVATING MECHANISM BINDS ON ELEVATING SCREW HOUSING.

*Step 1.* Check for broken cam stop (1).

Replace cam stop (p 2-42).

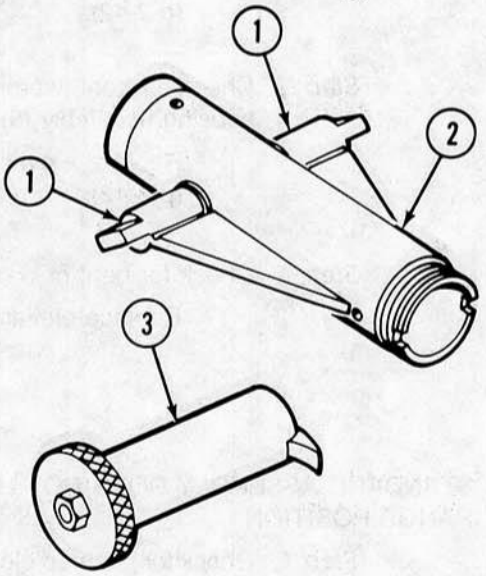
*Step 2.* Check for missing rivets (2).

Replace rivets (p 2-42).

6. STANDARD ASSEMBLY will not secure.

*Step 1.* Check for broken or bent trunnions (1) on standard base (2).

Repair or replace standard base (p 2-42).




*Step 2.* Check for broken mortar pin assembly (3).

Repair or replace pin assembly (p 2-29).

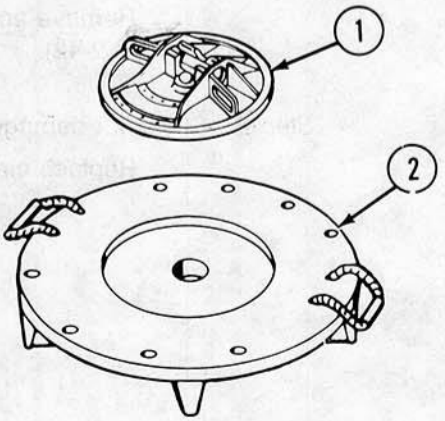
7. ROTATOR ASSEMBLY DOES NOT TURN FREELY.

*Step 1.* Check for cracked or warped bearing surface of rotator assembly (1).

Replace rotator assembly (p 2-41).

*Step 2.* Check for cracks in baseplate bearing surface (2).

Replace baseplate (p 2-41).



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

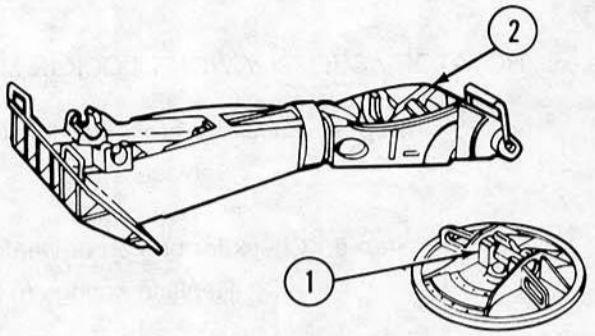
8. BRIDGE ASSEMBLY TRUNNIONS WON'T GO INTO BRIDGE TRUNNION SOCKETS ON ROTATOR ASSEMBLY.

*Step 1.* Check for burred bridge trunnion socket (1).

Remove burrs.

*Step 2.* Check for cracked bridge trunnion socket (1).

Replace rotator assembly (p 2-41).



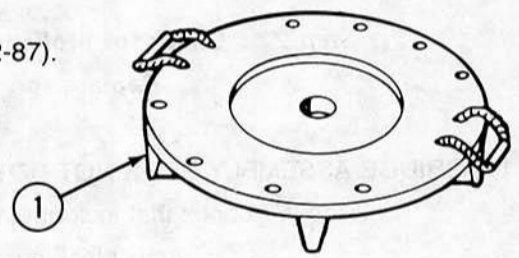

*Step 3.* Check for cracks in bridge trunnions (2).

Replace bridge assembly (p 2-41).

9. ROTATOR ASSEMBLY WON'T LOCK IN BASEPLATE.

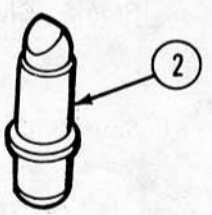
*Step 1.* Check for dirt or grit in slide lock recess of mortar baseplate (1).

Remove rotator assembly and clean.
Clean recesses of mortar baseplate (p 2-87).



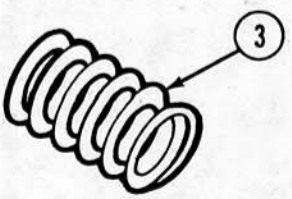

*Step 2.* Check for broken or damaged headless shoulder pin (2).

Replace pin (p 2-82).




*Step 3.* Check for broken or weak spring (3).

Replace spring (p 2-82).

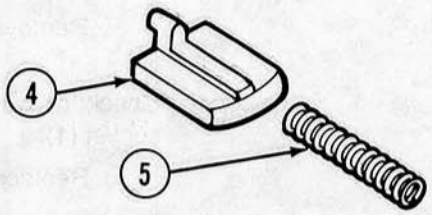


MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

MOUNT (CONT)

9. ROTATOR ASSEMBLY WON'T LOCK IN MORTAR BASEPLATE (CONT).

*Step 4.* Check for broken slide locks (4).
Replace slide locks (p 2-82).




*Step 5.* Check for broken or weak springs (5) for slide locks.
Replace springs (p 2-82).

9.1 ROTATOR ASSEMBLY WON'T UNLOCK FROM MORTAR BASEPLATE.

*Step 1.* **Check for dirt and grit in slide lock releases of the rotator assembly.**
**Remove and clean rotator assembly (p. 2-82).**

*Step 2.* **Check for broken or weak springs (5).**
**Replace springs (p. 2-82).**

10. BRIDGE ASSEMBLY DOES NOT ROTATE.

*Step 1.* Check that lock nut (1) is not screwed on too tight.
Adjust lock nut (p 2-81).

*Step 2.* Check for bent or warped shank (2) on bridge cup assembly (3).
Replace bridge cup assembly (p 2-78).

*Step 3.* Check for cracked bridge cup (4).
Replace bridge cup assembly (p 2-78).

*Step 4.* Check for damaged preformed packing (5).
Replace preformed packing (p 2-78).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

MOUNT (CONT)

11. STANDARD ASSEMBLY TRUNNIONS WON'T GO INTO BRIDGE ASSEMBLY SOCKETS.

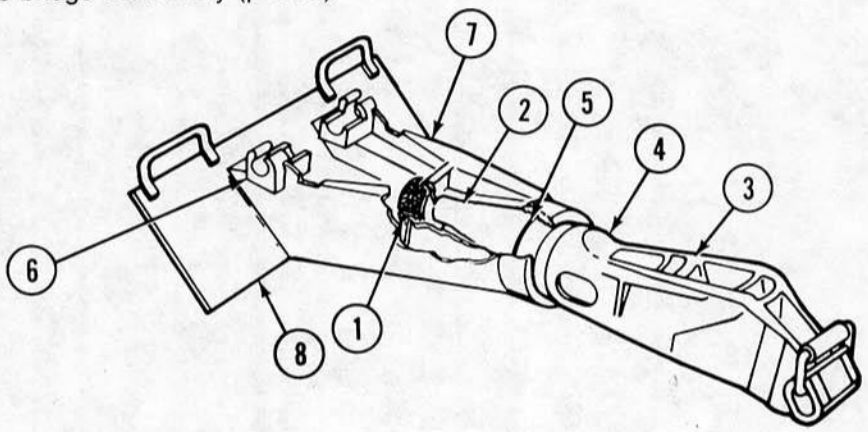
Check for cracked socket (6) on bridge base body (7).

Replace bridge base body (p 2-78).

12. POOR STABILIZATION OF WEAPON DURING FIRING.

Check for cracked bridge base body (7) or spade (8).

Replace bridge base body (p 2-78).



## Section IV. MAINTENANCE PROCEDURES

### 2-7. GENERAL.

a. Before beginning maintenance operations, check to see that the following manuals are available in the maintenance shop.

(1) TM 9-1015-215-10, Operator's Manual.

(2) TM 9-1015-215-20&P, Organizational Maintenance Manual, including Repair Parts and Special Tools List.

(3) TM 9-1015-215-30P, Direct Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Mortar, 4.2-inch, M30.

b. Disassemble the mortar only to remove bad parts or components.

**WARNING**

Dry cleaning solvents (SD) and paint thinners (TPM) are flammable. Do not clean parts near an open flame or in a smoking area. 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.

**CAUTION**

Do not weld objects until you know the physical characteristics of the metal.

c. Refer to TM 9-237 when welding is necessary.

### 2-8. INITIAL SETUP.

a. *Tools and Special Tools* lists tools needed for the procedures.

b. *Materials/Parts* refers to expendable materials and 100% replaceable parts.

c. *Personnel Required* is listed only if the task requires more than one person. If *Personnel Required* is not listed, it means one person can do the job.

d. *References* lists other publications containing necessary information.

e. *Equipment Condition* lists conditions to be met before starting the procedure.

*MAINTENANCE INDEX*


| *Item* | *Page* |
|---|---|
| Bridge Assembly | 2-78 |
| Coupling and Sight Mount Assembly | 2-22 |
| Coupling Assembly Base | 2-31 |
| Gear and Handle Assembly | 2-72 |
| Mortar Baseplate | 2-87 |
| Mortar Mount Assembly Standard | 2-42 |
| M24A1 4.2-inch Mount | 2-41 |
| M30 4.2-inch Mortar Cannon | 2-12 |
| M31 60-mm Subcaliber Trainer | 2-88 |
| Pin Assembly | 2-29 |
| Rotator Assembly | 2-82 |
| Shock Absorber Assembly | 2-32 |
| Traversing Assembly Slide | 2-62 |
| Traversing Assembly Wheel | 2-70 |
| 4.2-inch Cannon (Barrel Assembly) | 2-40 |

## 2-9. M30 4.2-INCH MORTAR CANNON - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Accessory Outfit for Pullover Gages (SC 4933-95-CL-E09)
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Cannon Bore Inspecting M2 or M3 Borescope (SC 6650-95-CL-E01)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
4.2-inch Mortar Cannon M30 and 4.2-inch Mortar Mount M24 Series Field Maintenance Tool Set (5910503)

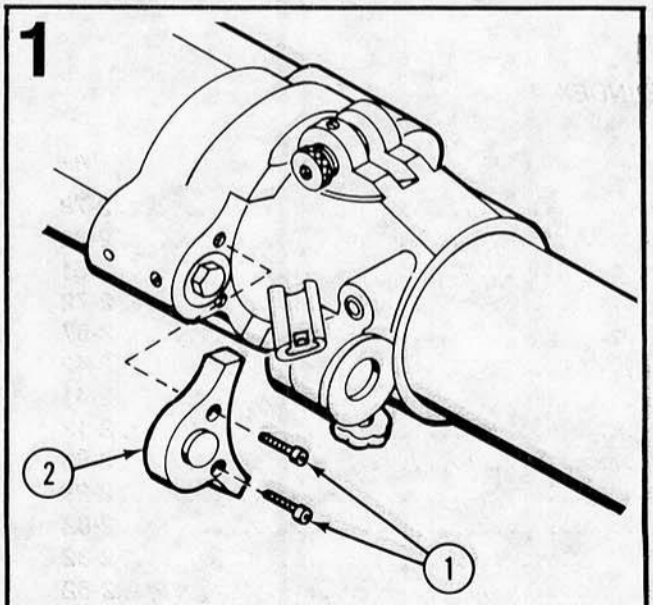
*Materials/Parts*
General purpose lubricating oil (Item 10, app B)
Dry cleaning solvent (item 6, app B)
Preformed packing 7144006
Wiping rag (item 12, app B)

*References*
TM 9-1000-202-14
TM 9-1015-215-10
TM 9-1015-215-30P
TM 9-6650-235-13&P

*Equipment Condition*
Mortar cannon removed from M30 4.2-inch mortar (See TM 9-1015-215-10.)

### DISASSEMBLY

**1**

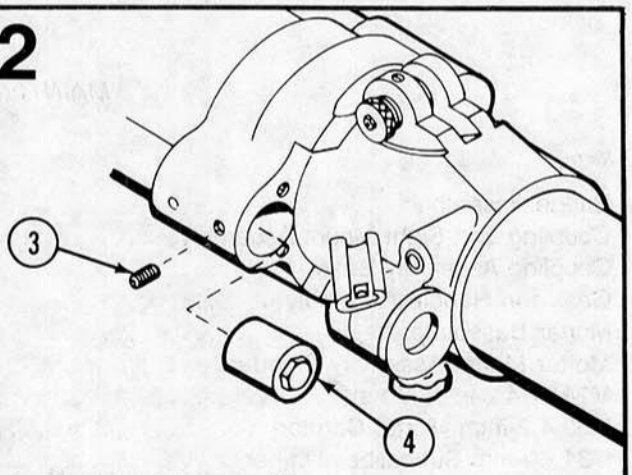



a. Remove two socket head cap screws (1).

b. Remove mortar coupling lug (2).

c. Repeat steps a. and b. to remove mortar coupling lug on the other side.

**2**




a. Remove setscrew (3).

**WARNING**

Do not stand in front of sleeve tube nut (4) when removing it. The compressed spring may fly out of the shock absorber.

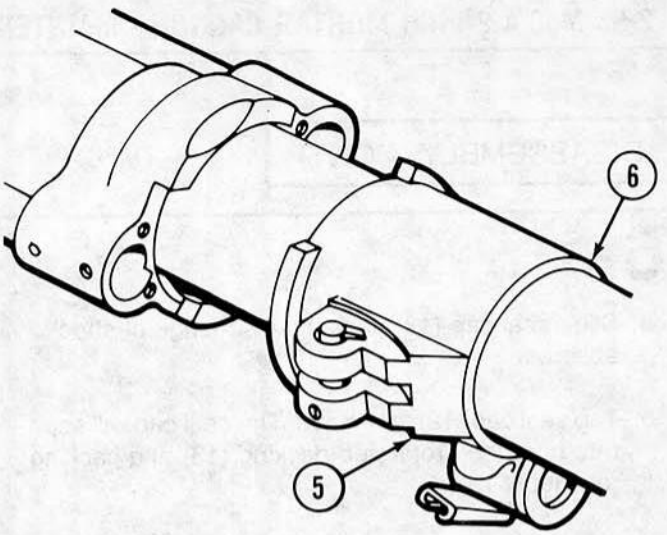
b. Unscrew and remove sleeve tube nut (4).

c. Repeat steps a. and b. to remove sleeve nut on other side.

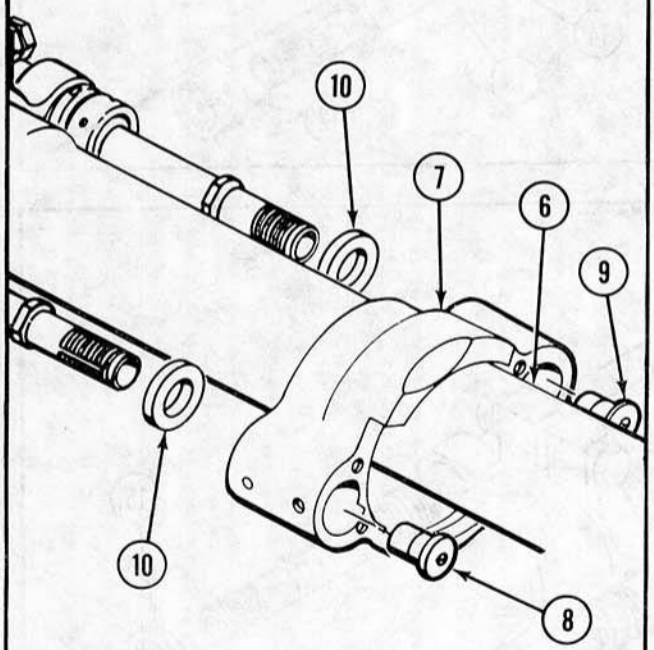
## 3

a. Rotate coupling and sight mount assembly (5) a quarter turn, either way, to unlock.

b. Remove coupling and sight mount assembly (5) by sliding it over muzzle of mortar cannon tube (6).




## 4



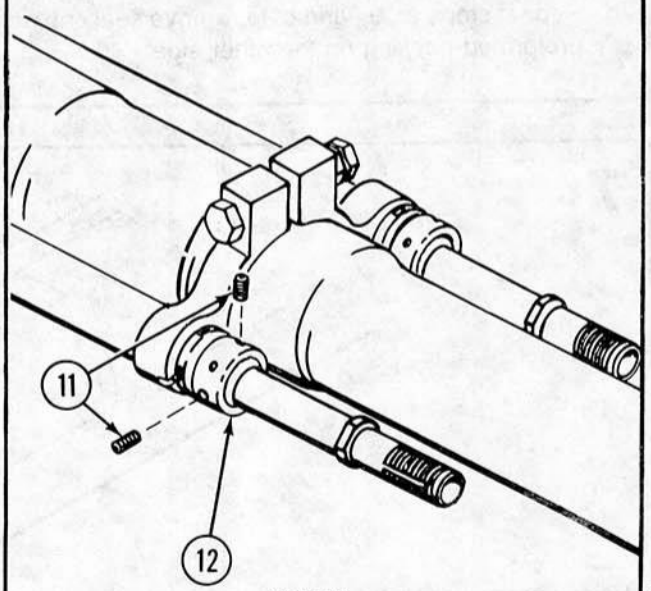

**NOTE**

Removing the coupling assembly base (7) may pop out the cushion assemblies (8 and 9). They are actually parts of the shock absorber.

a. Remove coupling assembly base (7) by sliding it over muzzle of mortar cannon tube (6).

b. Remove two flat washers (10).

## 5




NOTE

Some seal caps may have only one setscrew.

a. Remove two setscrews (11) from seal cap (12).

b. Using spanner wrench, unscrew seal cap (12).

c. Repeat steps a. and b. to unscrew seal cap on the other side.

## 2-9. M30 4.2-INCH MORTAR CANNON - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

**6**

a. Slide seal cap (12) back against flange of shock absorber.

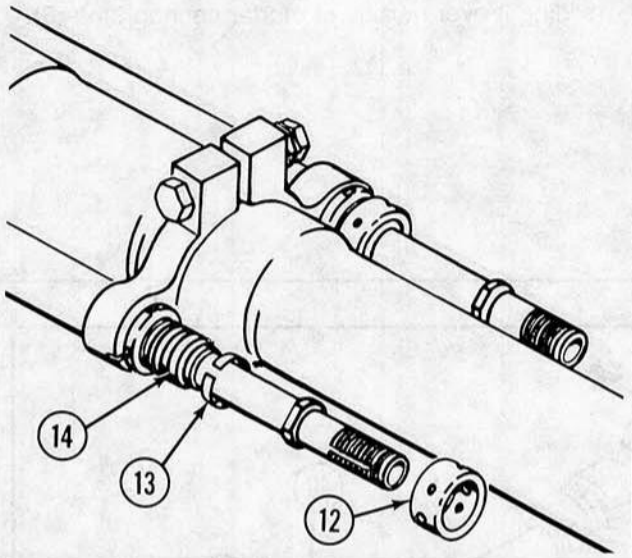
b. Tap seal cap (12) to remove. The seal cap will separate from the preformed packing (13) and packing retainer (14).

c. Remove preformed packing (13).

**NOTE**

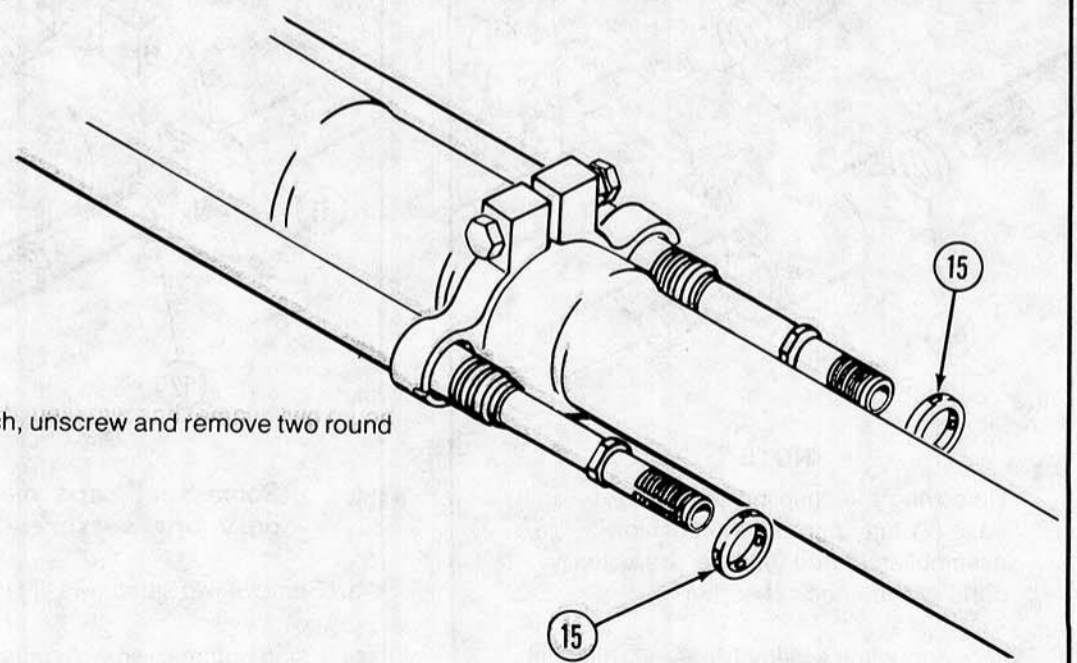
The packing retainer (14) is part of the shock absorber. It cannot be removed at this time.

d. Repeat steps a., b., and c. to remove seal cap and preformed packing on the other side.




**7**

Using spanner wrench, unscrew and remove two round nuts (15).

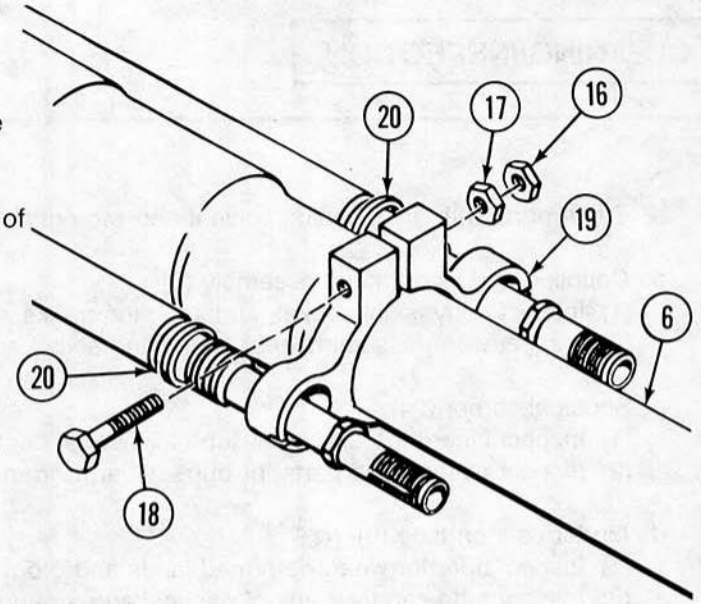


## 8

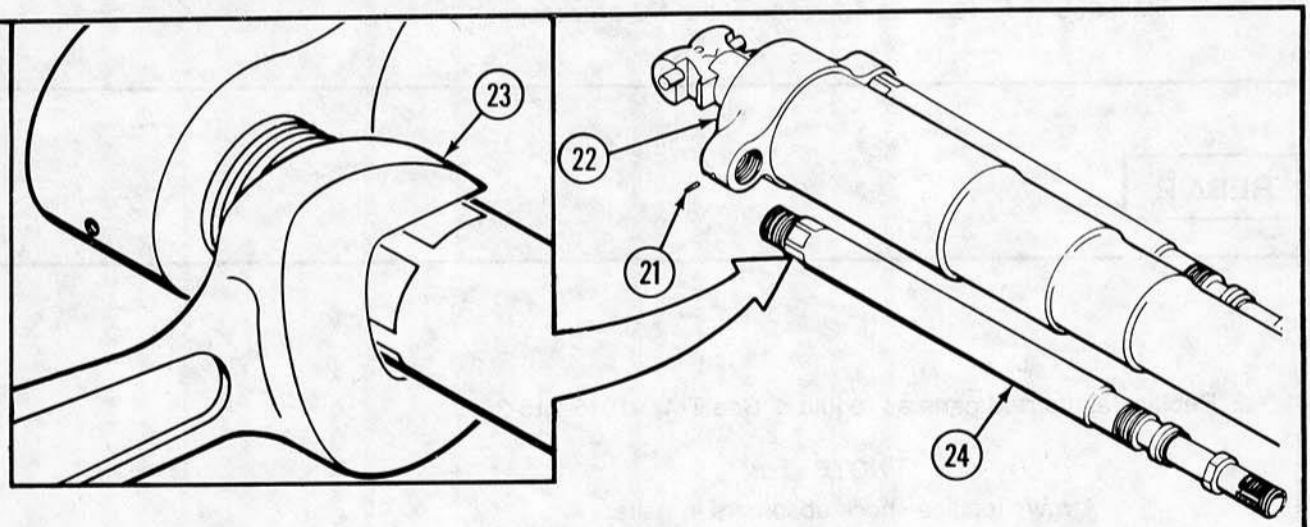
a. Remove nuts (16 and 17) and screw (18) to free barrel flange (19) on mortar cannon tube (6).

b. Remove barrel flange (19) by sliding it over muzzle of mortar cannon tube.

c. Remove two ring spacers (20).




## 9




a. Remove setscrew (21) from barrel assembly (22).

b. Using wrench (23), unscrew and remove shock absorber (24).

c. Repeat steps a. and b. to remove shock absorber from the other side.

## 2-9. M30 4.2-INCH MORTAR CANNON - MAINTENANCE INSTRUCTIONS (CONT).

### CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Coupling and sight mount assembly (5).
   (1) Inspect body, sight socket, and knob for cracks, nicks, or burrs.
   (2) Inspect worm assembly gear for turning action and wear.

c. Shock absorber (24).
   (1) Inspect inner tube and outer tube for bends, dents, cracks, heavy scoring, or mutilation.
   (2) Inspect all threaded parts for burrs, wear, or damage.

d. Mortar cannon tube (6).
   (1) Inspect bore for wear, deformed lands and grooves, powder fouling, and rust.
   (2) Inspect tube cap for signs of gas leakage around the barrel and for loose, bent, or burred pins.
   (3) Borescope and use pullover gage on barrel according to instructions in TM 9-1000-202-14. See TM 9-6650-235-13&P for operation of the M3 borescope.

### REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

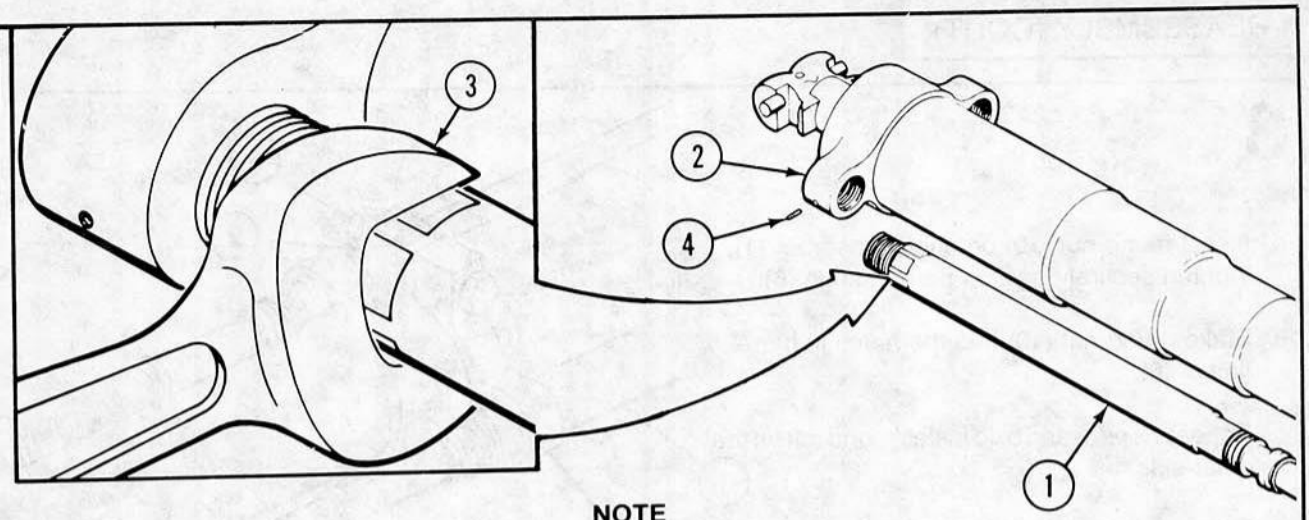
**NOTE**

Always replace shock absorbers in pairs.

b. Use stone or file to smooth out any nicks or burrs.

## REASSEMBLY

**1**




**NOTE**

New cannon tubes have gunner's quadrant flat spots on end of muzzle.

a. Place cannon on work bench with the gunner's quadrant flat spot facing down.

b. Install shock absorber (1) in barrel assembly (2). Use wrench (3) to tighten securely.

c. Install setscrew (4) in barrel assembly (2). Tighten securely.

d. Repeat steps b. and c. to install shock absorber on the other side.

**2**

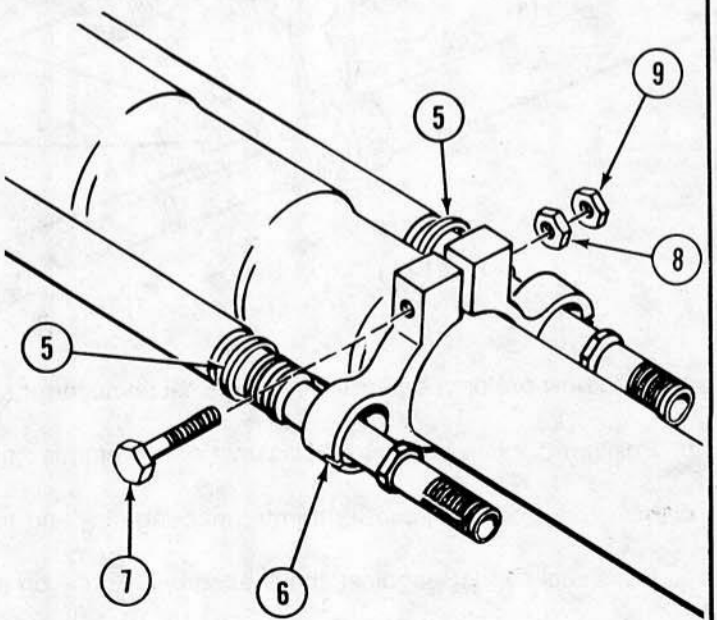
a. Install two ring spacers (5). Slide them back against the shoulders on shock absorbers.

**NOTE**

Face notches on barrel flange toward muzzle of mortar tube.

b. Install barrel flange (6). Slide it back against two ring spacers (5).

c. Install screw (7) and nuts (8 and 9). Do not tighten at this time.



## 2-9. M30 4.2-INCH MORTAR CANNON - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

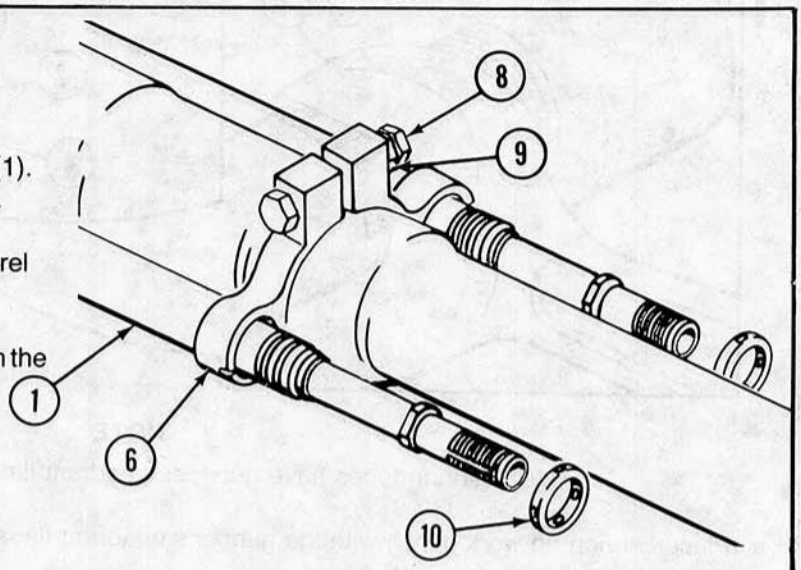
**3**

a. Install round nut (10) on shock absorber (1). Tighten securely against barrel flange (6).

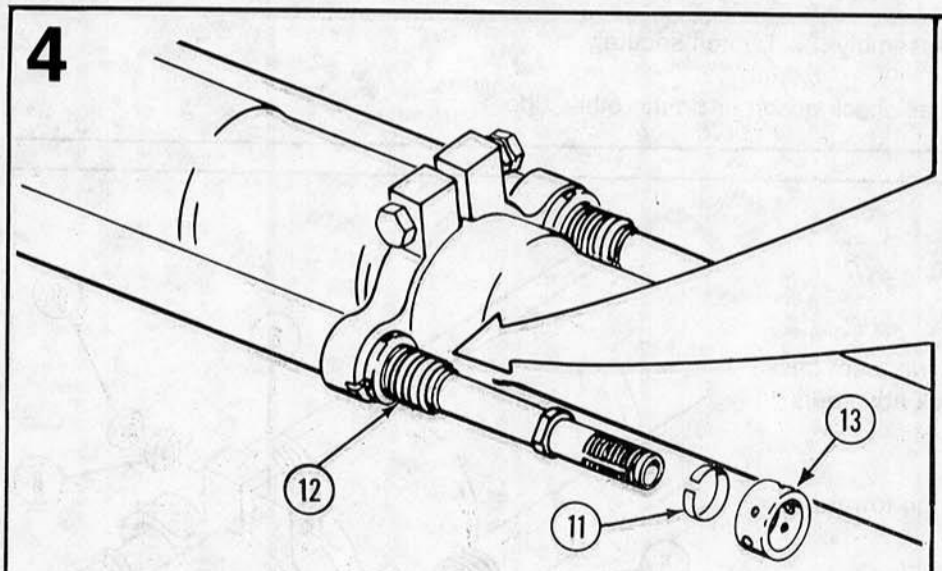
b. Stake round nut (10) into the notch in barrel flange (6).

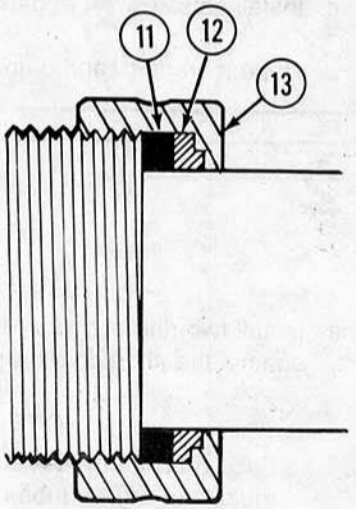
c. Repeat steps a. and b. to install round nut on the other side.

d. Tighten two nuts (8 and 9).




**4**




a. Slide new preformed packing (11) against shoulder of shock absorber.

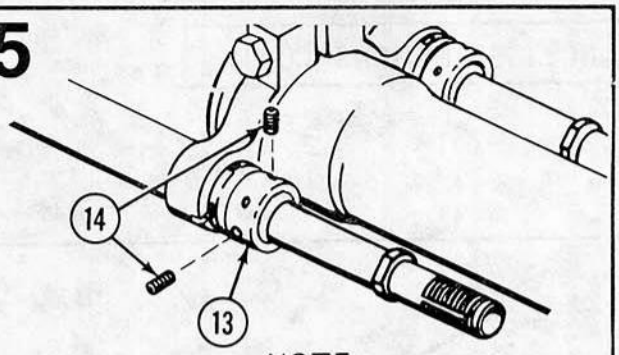
b. Position packing retainer (12) against new preformed packing (11).

c. Install seal cap (13) over preformed packing (11) and packing retainer (12).

d. Push seal cap (13) against shock absorber. Screw on and tighten securely with spanner wrench.

e. Repeat steps a. through d. to install preformed packing and seal on other side.

**5**



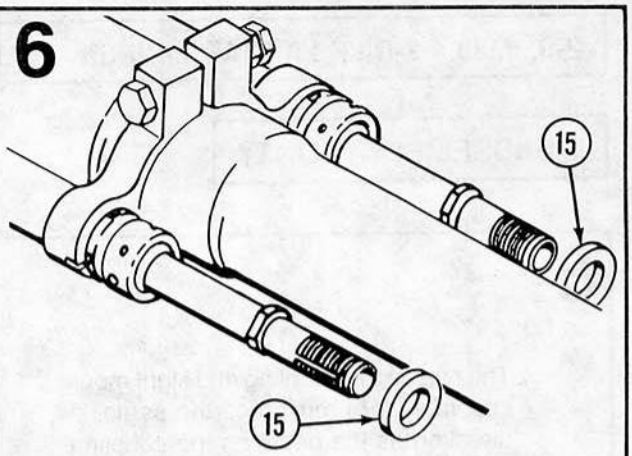

NOTE

If positioning does not permit access to install two setscrews, install only one.

a. Install two setscrews (14) in seal cap (13). Tighten securely.

b. Repeat step a. to install two setscrews on the seal cap on the other side.

**6**




Install two flat washers (15). Slide them back against flanges on the shock absorber.

**7**

**NOTE**

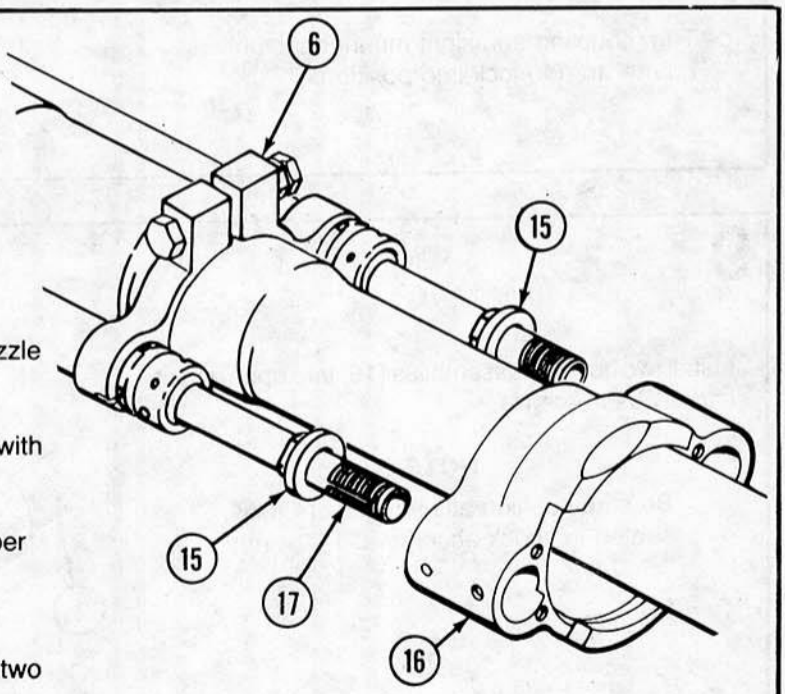
Bevel on coupling assembly base (16) must face the same direction as the split in the barrel flange (6).

a. Slide coupling assembly base (16) over muzzle of mortar cannon tube.

b. Aline holes in coupling assembly base (16) with shock absorbers.

c. Aline the grooves (17) of the shock absorber inner tubes with locking pins in coupling assembly base (16).

d. Push coupling assembly base (16) against two flat washers (15).



## 2-9. M30 4.2-INCH MORTAR CANNON - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

**8**

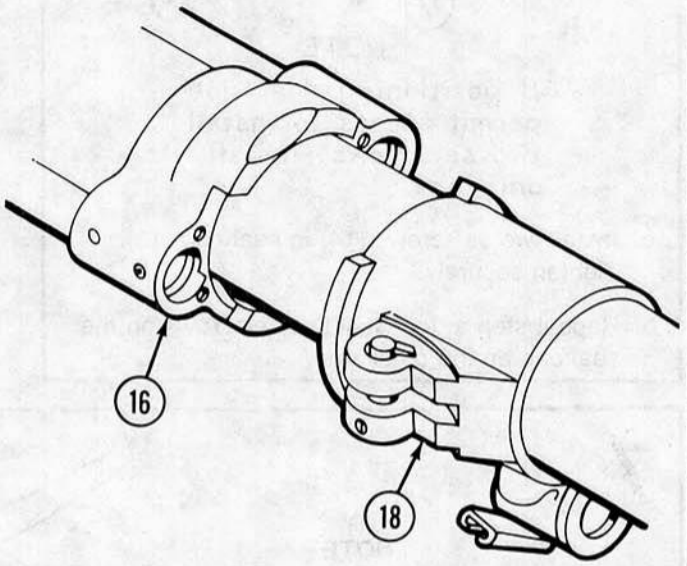
**NOTE**

The eye on the coupling and sight mount assembly (18) must face the same direction as the bevel on the coupling assembly base (16).

a. Install coupling and sight mount assembly (18) by sliding it over muzzle of mortar cannon tube.

b. Mate locking lugs on coupling and sight mount assembly (18) with recesses on coupling assembly base (16).

c. Turn coupling and sight mount assembly a quarter turn to lock into position.

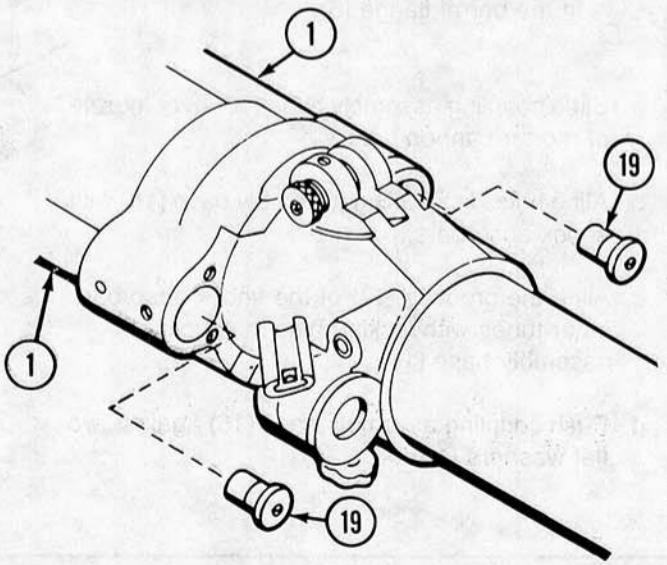



**9**

Install two cushion assemblies (19) into open end of shock absorbers (1).

**NOTE**

Be sure cushion assemblies are fully seated in shock absorbers.



# 10

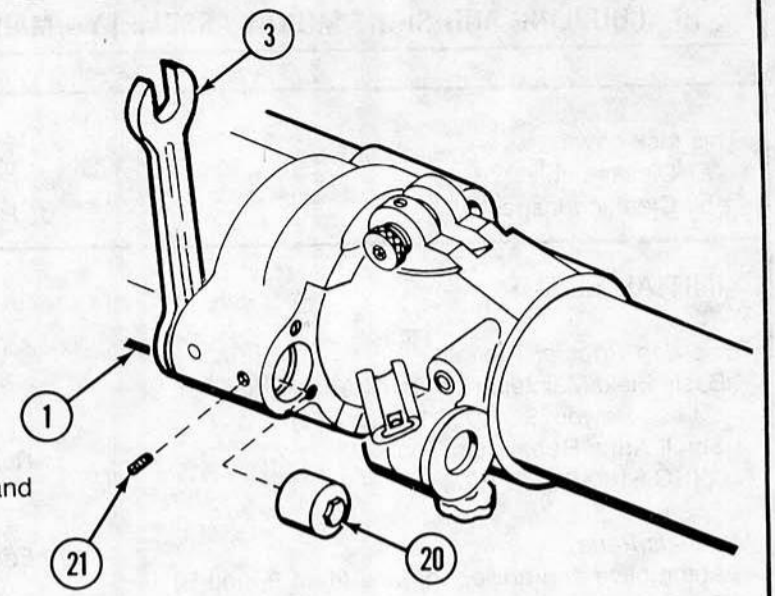
a. Install sleeve tube nut (20) on shock absorber (1). Tighten securely.

**NOTE**

Use wrench (3) to hold shock absorber while sleeve nut is being tightened.

b. Install setscrew (21). Tighten securely.

c. Repeat steps a. and b. to install sleeve nut and setscrew on the other side.

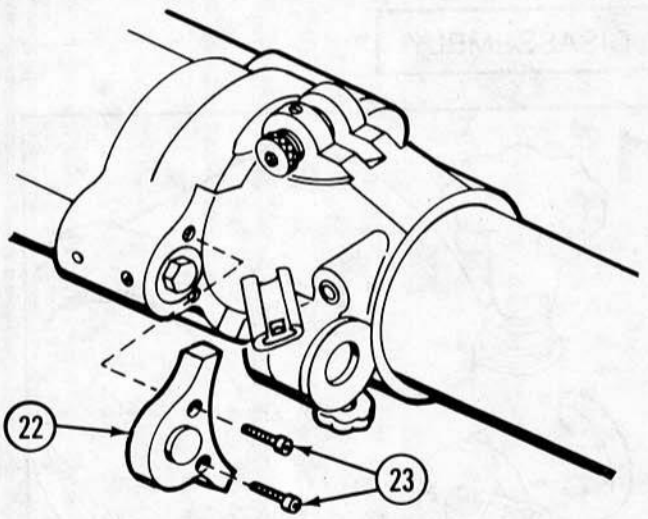



# 11

a. Install mortar coupling lug (22).

b. Install two socket head cap screws (23).

c. Repeat steps a. and b. to install mortar coupling lug on the other side.




# 12

Stake all setscrews securely when reassembly has been completed.

# 13

Lubricate cannon with general purpose lubricating oil. See TM 9-1015-215-10.

## 2-10. COUPLING AND SIGHT MOUNT ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

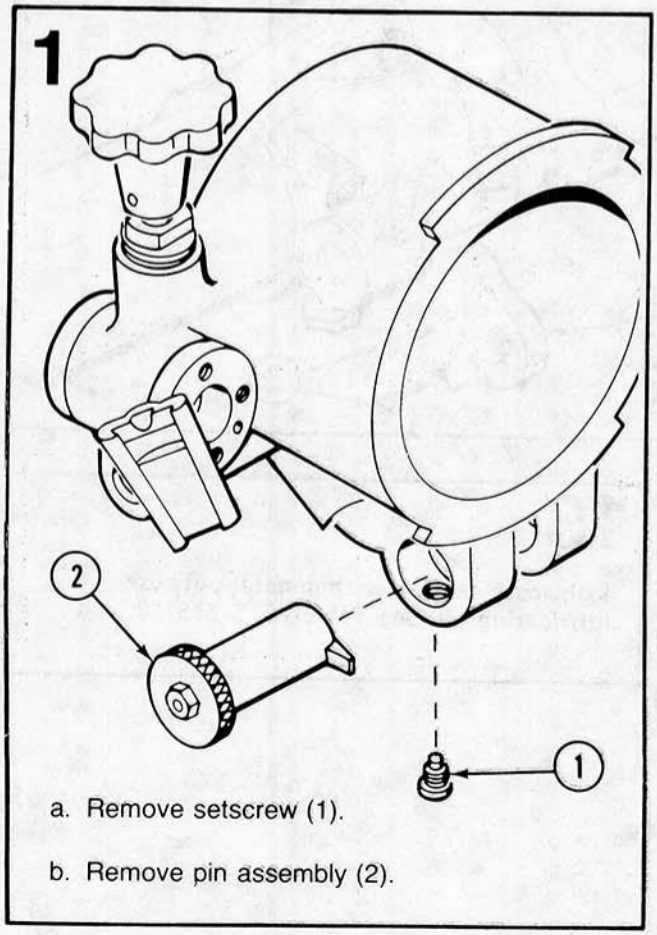
*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)
Gasket 7144012

*References*
TM 9-1015-215-30P

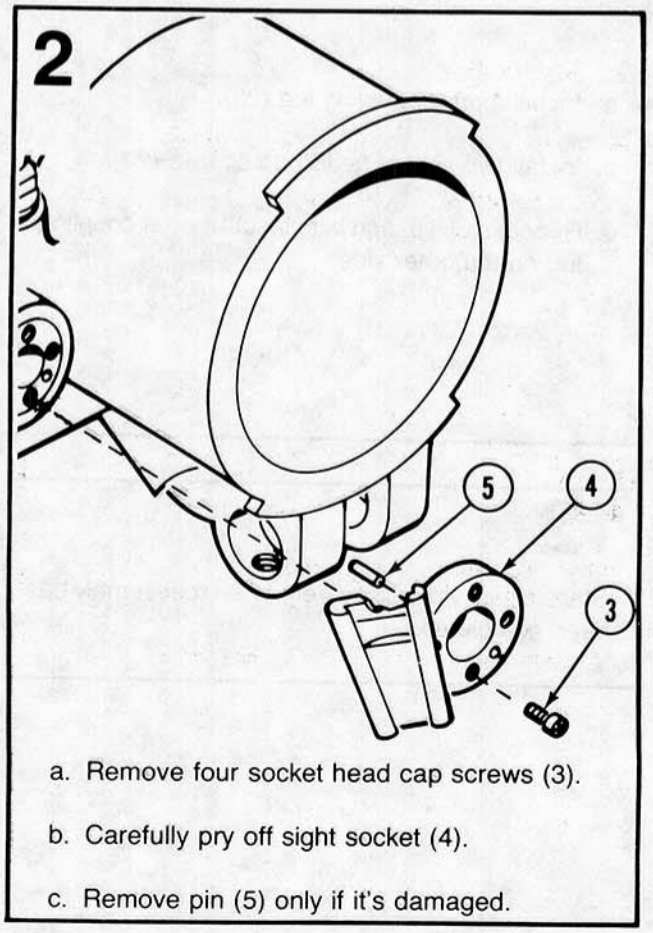
*Equipment Condition*
Coupling and sight mount assembly removed from cannon (p 2-12).

### DISASSEMBLY




a. Remove setscrew (1).

b. Remove pin assembly (2).

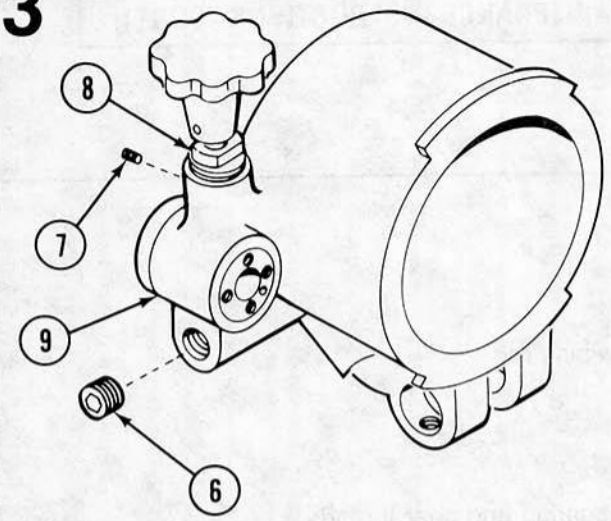



a. Remove four socket head cap screws (3).

b. Carefully pry off sight socket (4).

c. Remove pin (5) only if it's damaged.

**3**

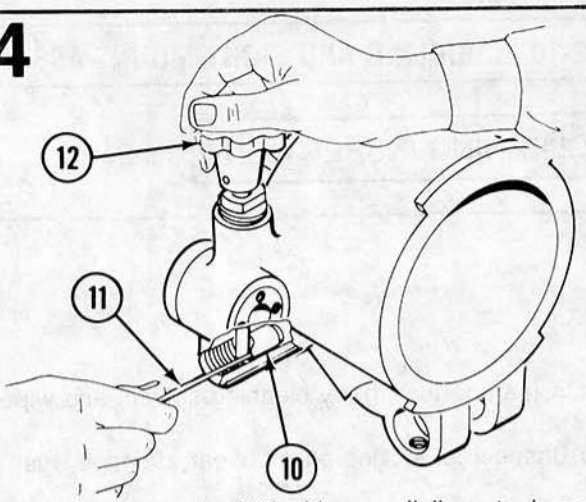



a. Remove pipe plug (6).

b. Remove setscrew (7).

c. Unscrew ball seat (8) until it is free of coupling body (9).

**4**




a. Push in on yoke (10) with a small diameter brass rod (11).

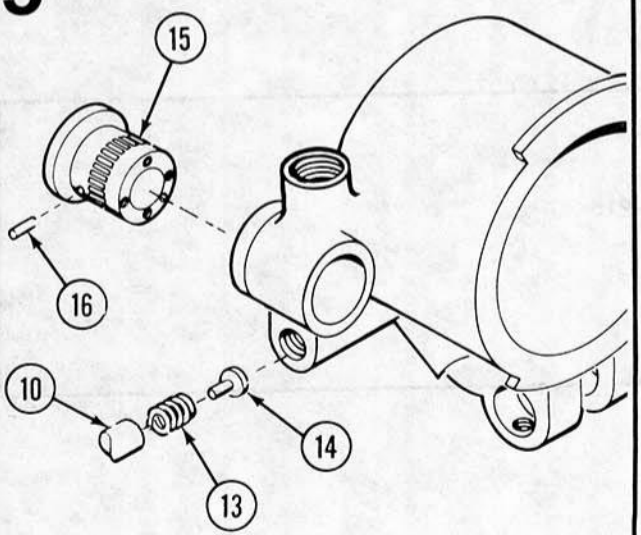
b. Turn knob (12) counterclockwise until the knob and worm assembly can be removed as a unit.

**NOTE**

Be careful that the sleeve worm bearings do not drop away.

c. Remove brass rod (11).

**5**

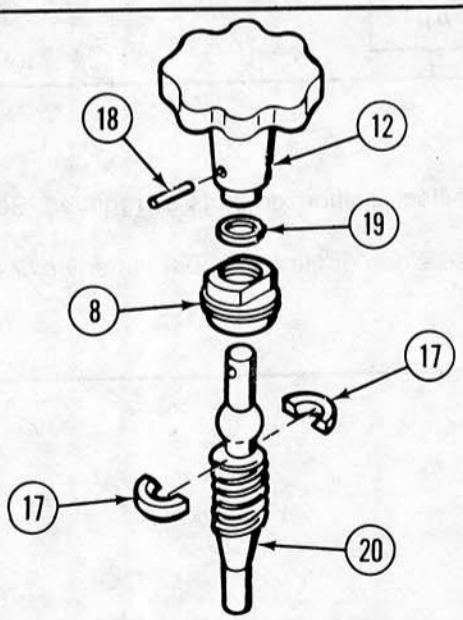



a. Remove yoke (10), spring (13), and spring guide (14).

b. Remove worm assembly gear (15).

c. Remove pin (16) only if pin or gear are damaged.

**6**




a. Remove two sleeve bearings (17).

b. Remove spring pin (18).

c. Remove knob (12), gasket (19), and ball seat (8) from sight mount worm (20).

## 2-10. COUPLING AND SIGHT MOUNT ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Inspect for locking action, wear, damage, rust, and burrs.

c. Sight mount worm (20):
   (1) Inspect for cracks or breaks, especially between ball bearing and gear threads.
   (2) Inspect two sleeve bearings (17) for wear or damage.

d. Inspect worm assembly gear (15) for wear, damage, or burrs.

e. Inspect spring (13) for cracks, breaks, or deformities.

### REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

REASSEMBLY

**1**

Apply automotive and artillery grease to all bearing surfaces, springs, and gears during reassembly.

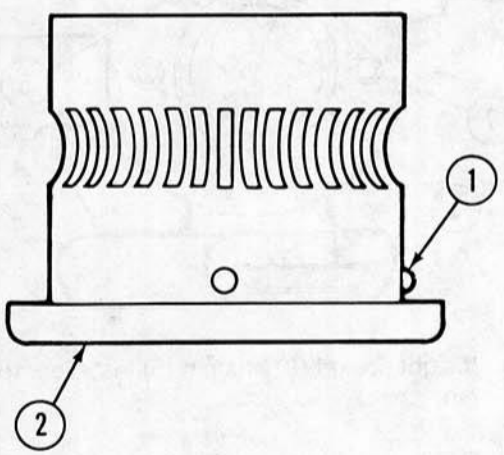
**2**

a. To install a new pin in a serviceable worm gear, go to step 3.

b. To install a new pin in a different segment of the worm gear, go to step 4.

c. To install a serviceable or a new worm assembly gear, go to step 5.

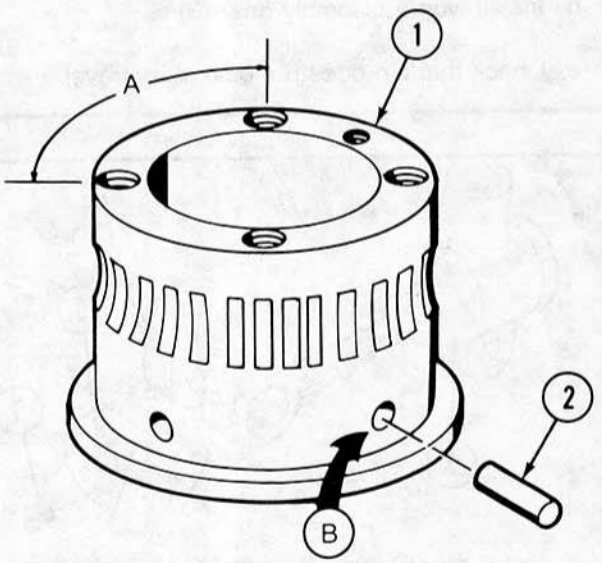
**3**




a. Install pin (1) in worm gear (2). Pin should project 5/64 inch ±1/64 inch above geared surface.

b. Go to step 5.

**4**




a. Check that the old pin has been removed.

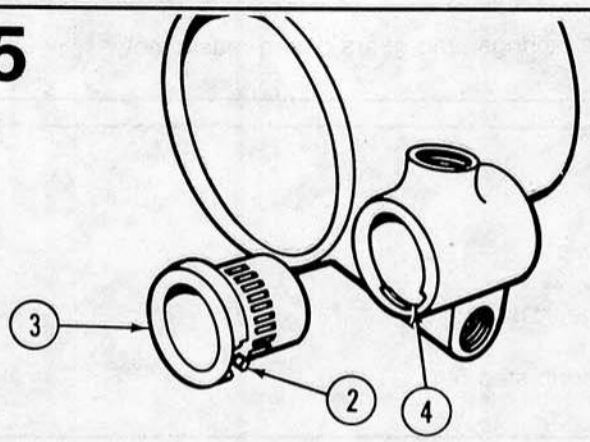
b. Examine worm gear (1) and select a good segment of gear teeth (A).

c. Install pin (2) at (B) opposite good segment (A). Pin should project 5/64 inch ±1/64 inch above geared surface.

## 2-10. COUPLING AND SIGHT MOUNT ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**5**

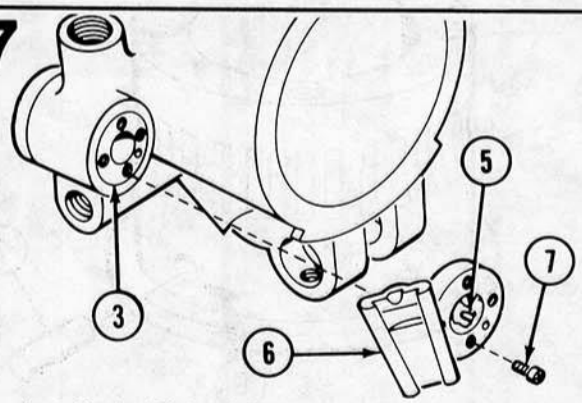



a. Aline pin (2) in worm assembly gear (3) with notch in coupling body (4).

b. Install worm assembly gear (3).

c. Check that pin does not bind in its travel.

**7**




a. Install pin (5) in sight socket (6) if it has been removed.

b. Aline pin (5) with pin hole in worm assembly gear (3).

c. Install sight socket (6). Press or tap sight socket into worm assembly gear (3).

d. Install four socket head cap screws (7). Tighten securely.

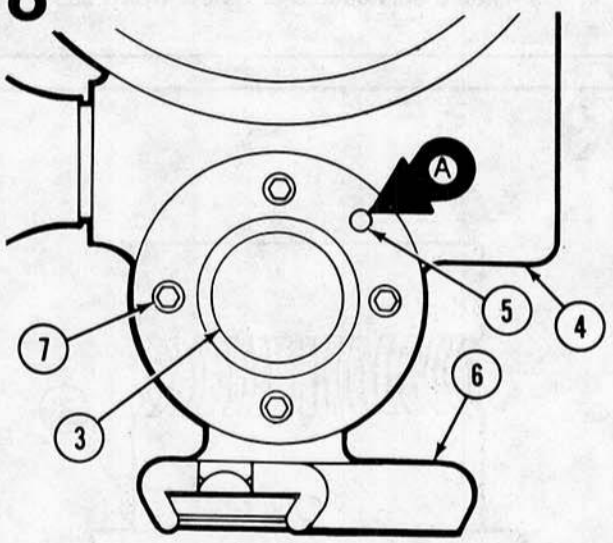
e. Go to step 9.

**6**

a. To install the sight socket in original worm assembly gear, go to step 7.

b. To install the sight socket in a new or repaired worm assembly gear, go to step 8.

**8**




a. If sight socket (6) has pin (5) installed, remove pin.

b. Position sight socket (6) on coupling body (4) as shown.

c. Turn worm assembly gear (3) until its screw holes line up with sight socket screw holes.

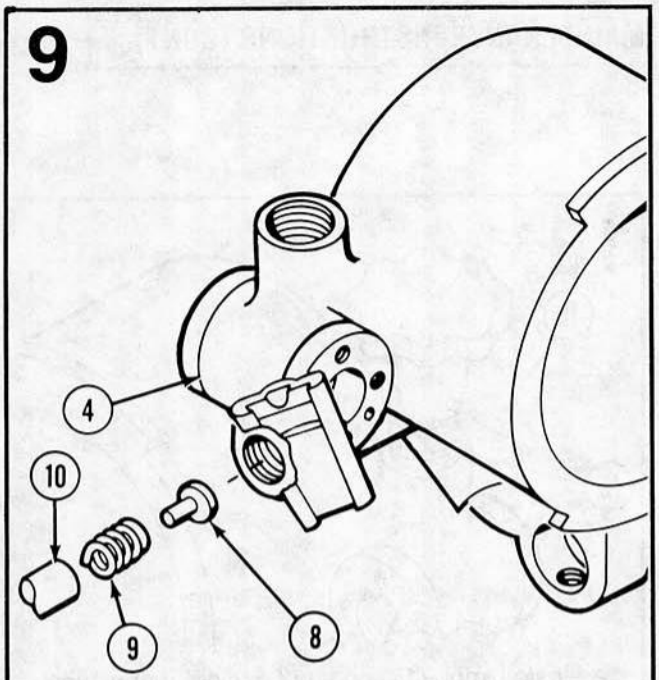
d. Install four cap screws (7). Tighten securely.

e. Using hole (A) as a guide, drill 11/64 inch-hole, 15/16 inch deep. Ream 3/16 inch in worm assembly gear (3).

f. Install pin (5) below flush in sight socket (6).

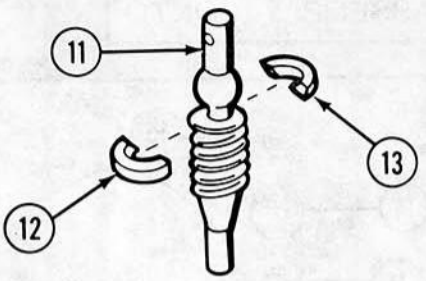
g. Go to step 9.

## 9




Install spring guide (8), spring (9), and yoke (10) in coupling body (4).

## 10




a. Apply grease to ball section of sight mount worm (11).

b. Grease sleeve bearings (12 and 13) enough to stick in place.

c. Position two sleeve bearings (12 and 13) on ball section of sight mount worm (11). Press in place.

## 11

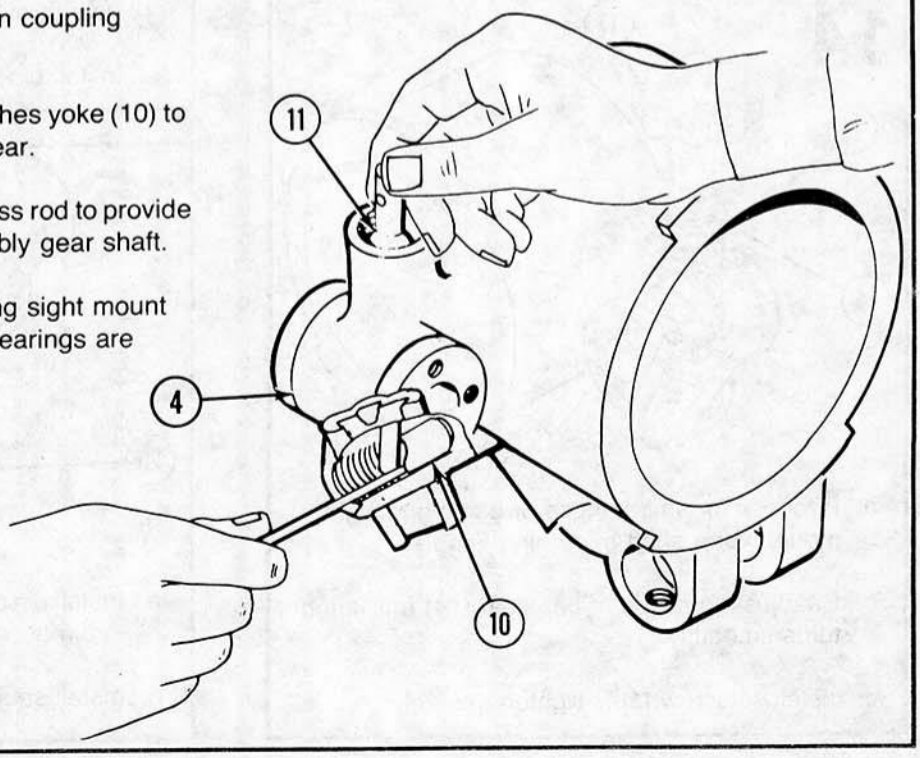
a. Install sight mount worm (11) in coupling body (4).

b. Push in and turn until shaft touches yoke (10) to engage the worm assembly gear.

c. Press in on yoke (10) with a brass rod to provide clearance for the worm assembly gear shaft.

d. Continue pushing in and turning sight mount worm (11) until it and sleeve bearings are seated.

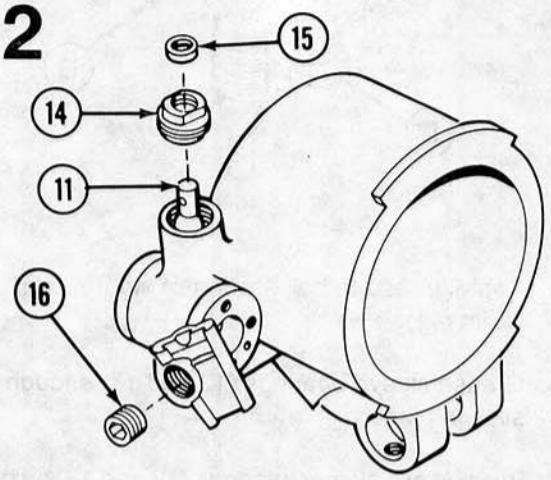
e. Remove brass rod.



## 2-10. COUPLING AND SIGHT MOUNT ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

**12**

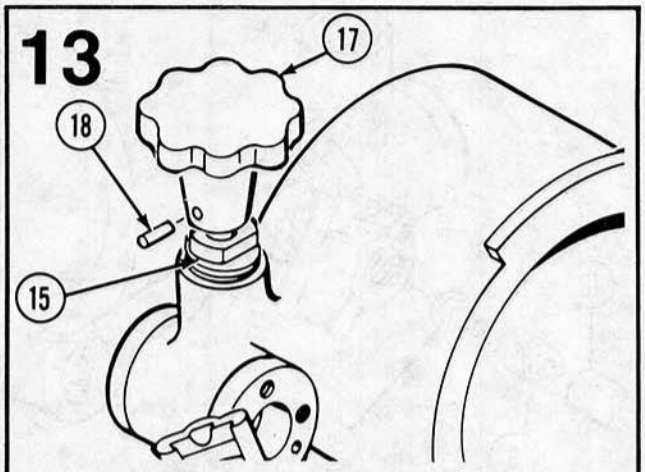



a. Install ball seat (14). Tighten just enough to allow the sight mount worm (11) to turn smoothly.

b. Install new gasket (15).

c. Install pipe plug (16).

**13**




a. Install knob (17) on shaft of sight mount worm.

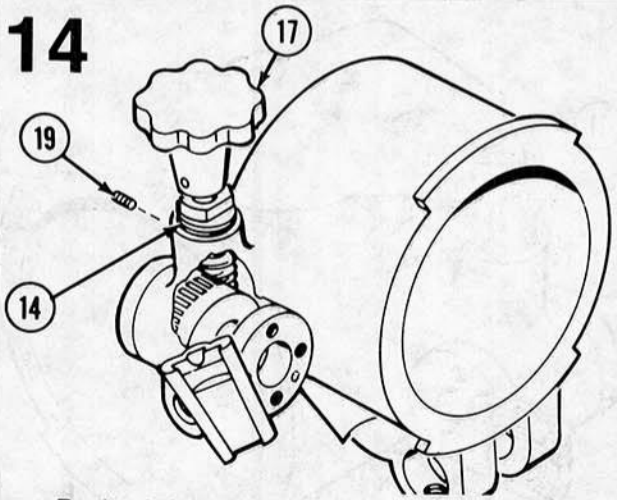
b. Press and turn knob (17) to aline pin holes.

c. If the old sight mount worm is installed, go to step e. below. If a new sight mount worm is installed, go to step d. below.

d. Press knob (17) against gasket (15) and, using the pin hole in knob as a guide, drill a 1/8-inch hole through shaft.

e. Install pin (18).

**14**

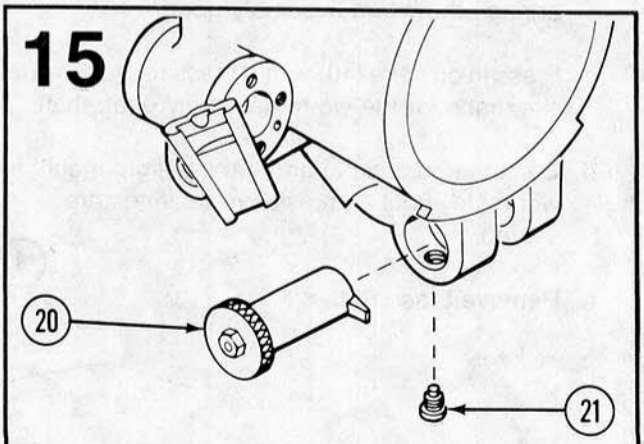



a. Recheck for smoothness or binding in sight mount worm shaft by turning knob (17).

b. Readjust tightness of ball seat (14) until knob turns smoothly.

c. Install setscrew (19). Tighten securely.

**15**




a. Install pin assembly (20) and aline setscrew slot in pin assembly with setscrew hole.

b. Install setscrew (21). Tighten securely.

## 2-11. PIN ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly/Cleaning/Inspection
b. Repair
c. Reassembly

### INITIAL SETUP

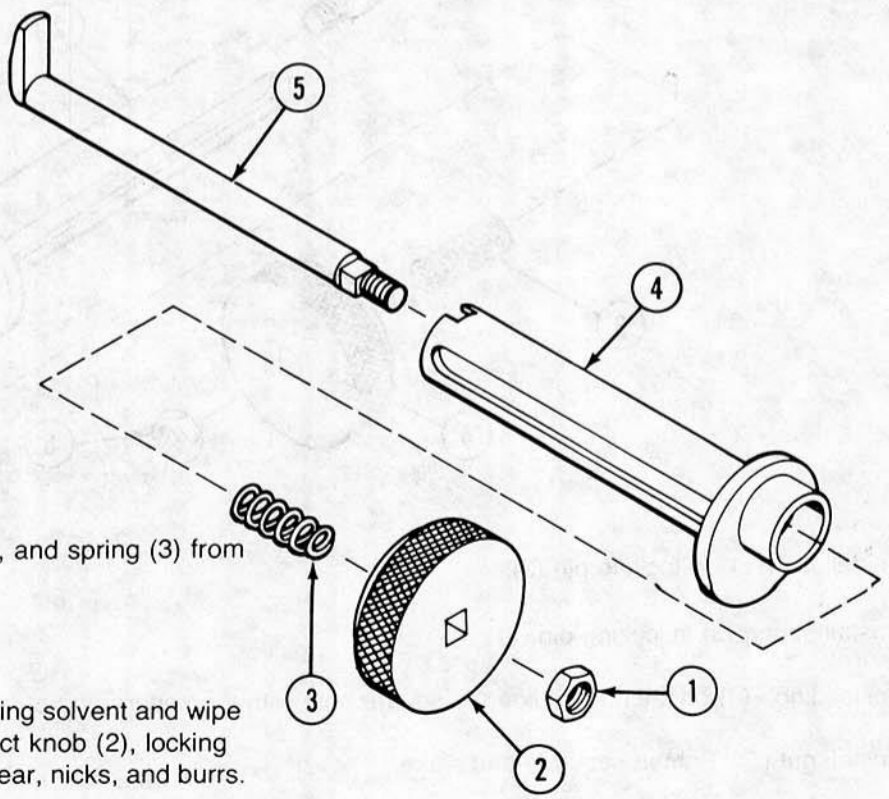
*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
General purpose lubricating oil (Item 10, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-30P

*Equipment Condition*
Pin assembly removed from coupling and sight mount assembly (p 2-22).

### DISASSEMBLY/CLEANING/INSPECTION




a. Remove nut (1), knob (2), and spring (3) from locking pin (4).

b. Remove latch (5).

c. Clean parts with dry cleaning solvent and wipe dry with wiping rag. Inspect knob (2), locking pin (4), and latch (5) for wear, nicks, and burrs.

d. Inspect spring (3) for cracks, breaks, or deformities.

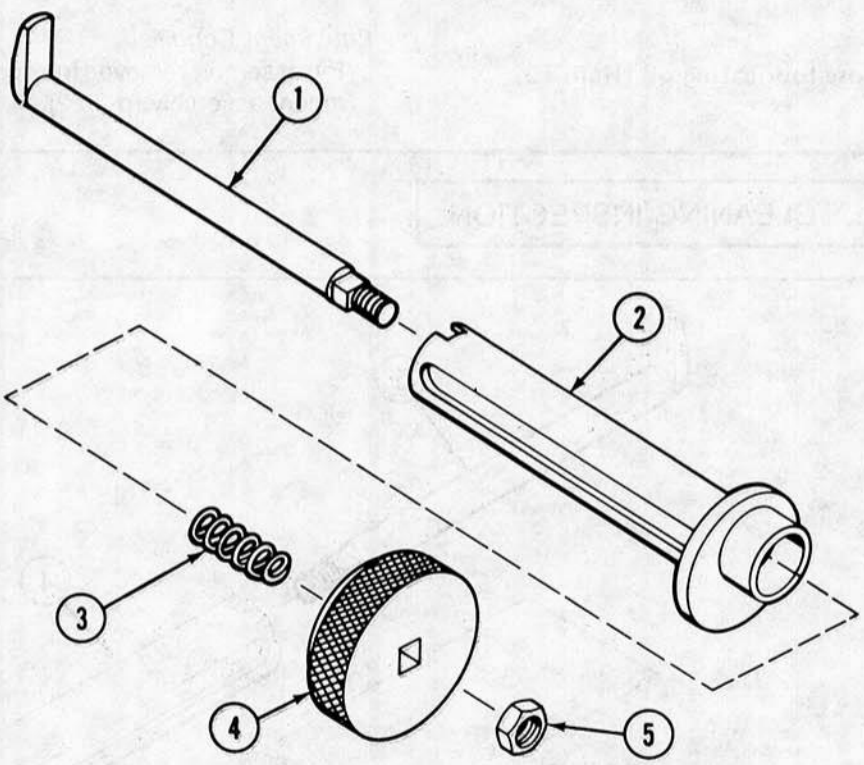
## 2-11. PIN ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

### REASSEMBLY




a. Install latch (1) in locking pin (2).

b. Install spring (3) in locking pin (2).

c. Install knob (4) on latch (1). Aline the square hole with the square end of latch.

d. Install nut (5). Tighten securely and stake.

e. Lubricate pin assembly with general purpose lubricating oil.

## 2-12. COUPLING ASSEMBLY BASE - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly/Cleaning/Inspection
b. Repair
c. Reassembly

### INITIAL SETUP

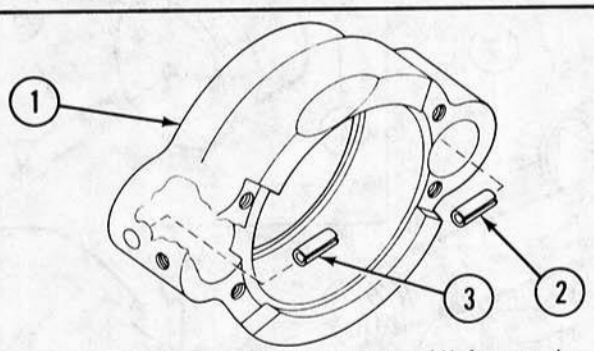
*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-30P

*Equipment Condition*
Coupling assembly base removed from cannon (p 2-13).

### DISASSEMBLY/CLEANING/INSPECTION

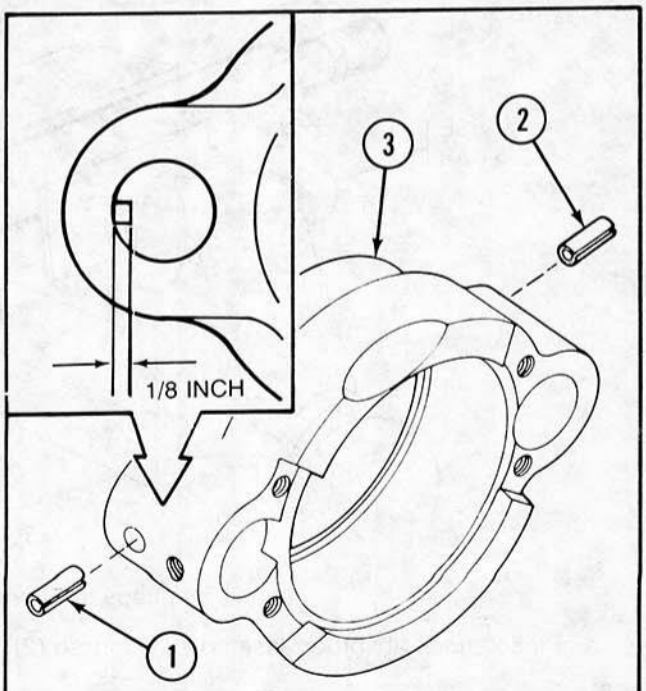



a. Inspect coupling assembly base (1) for cracks, burrs and nicks.
b. If damaged, remove pins (2 and 3) from coupling assembly base (1).
c. Clean coupling assembly base (1) with dry cleaning solvent and wipe dry with rag.

### REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P
b. Use stone or file to smooth out any nicks or burrs.

### REASSEMBLY




a. If removed, insert pins (1 and 2) in coupling assembly base (3).
b. Drive pins in until they project 1/8 inch above the inner surface.

## 2-13. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
Special screwdriver (fig C-1, app C)

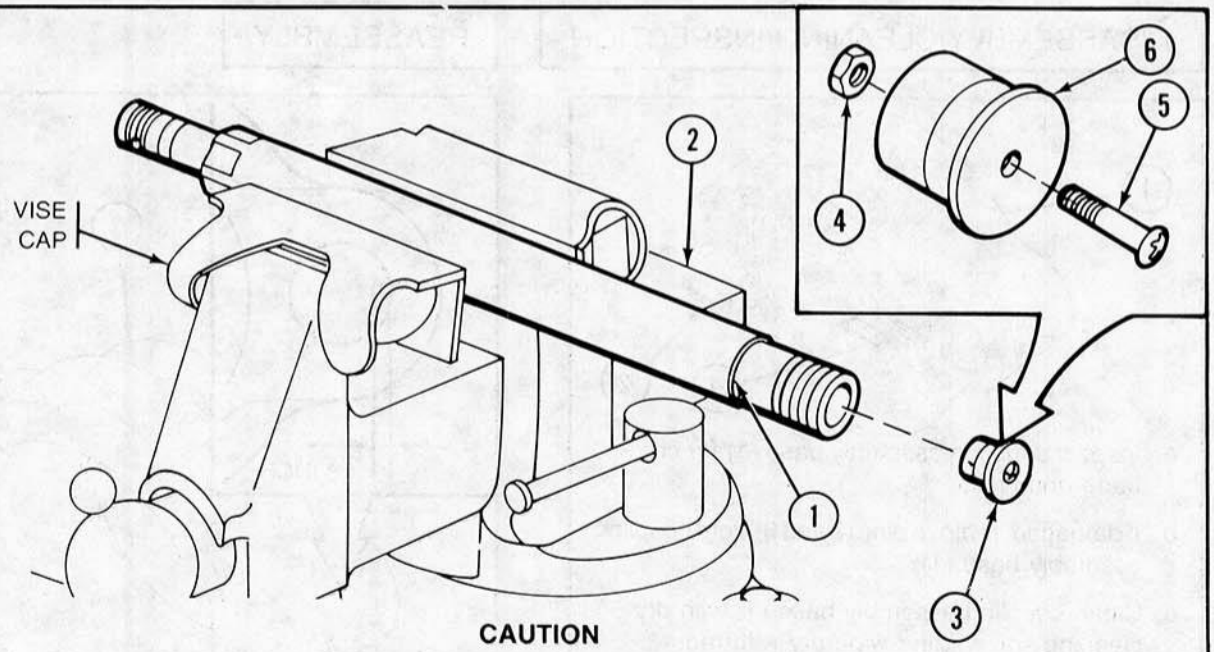
*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-30P

*Equipment Condition*
Shock absorber assembly removed from cannon (p 2-12).

### DISASSEMBLY

**1**




**CAUTION**

Install vise caps to prevent damage to shock absorber.

a. Place shock absorber assembly (1) in vise (2).

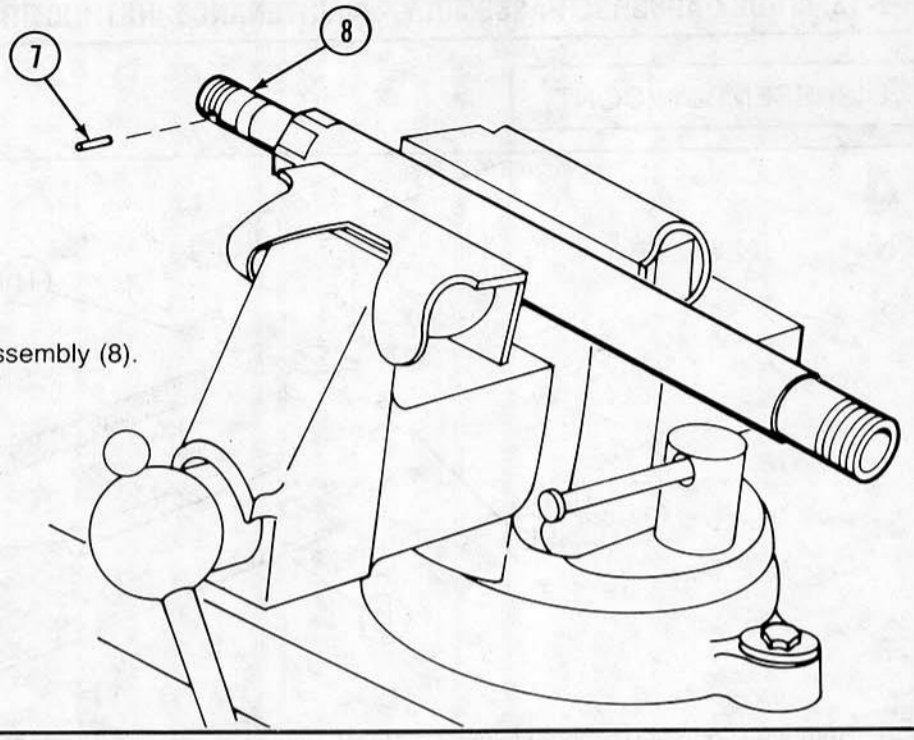
b. Remove cushion assembly (3).

**NOTE**

Disassemble cushion assembly (3) only if damaged.

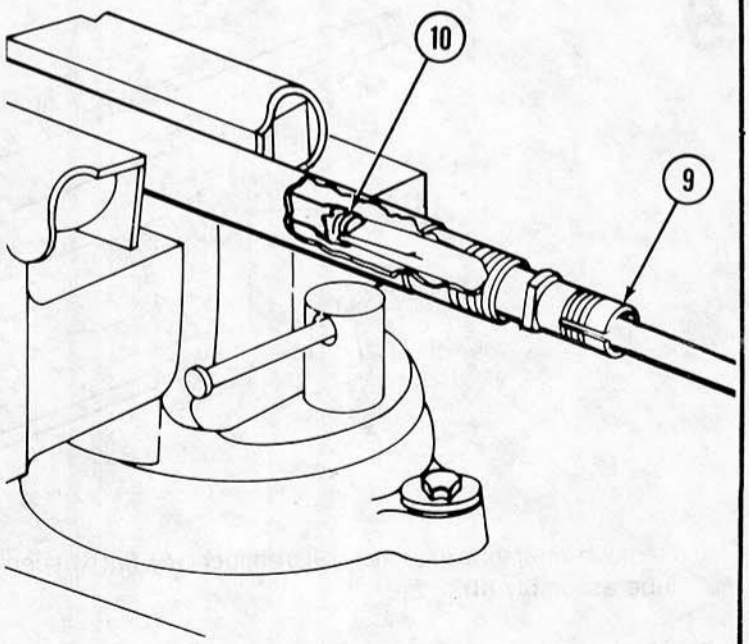
c. Remove nut (4) and screw (5) from cushion (6).

## 2




Remove pin (7) from outer tube assembly (8).

## 3




a. Insert special screwdriver (fig C-1, app C) into inner tube assembly (9) until contact is made with slot in connecting rod (10).

**WARNING**

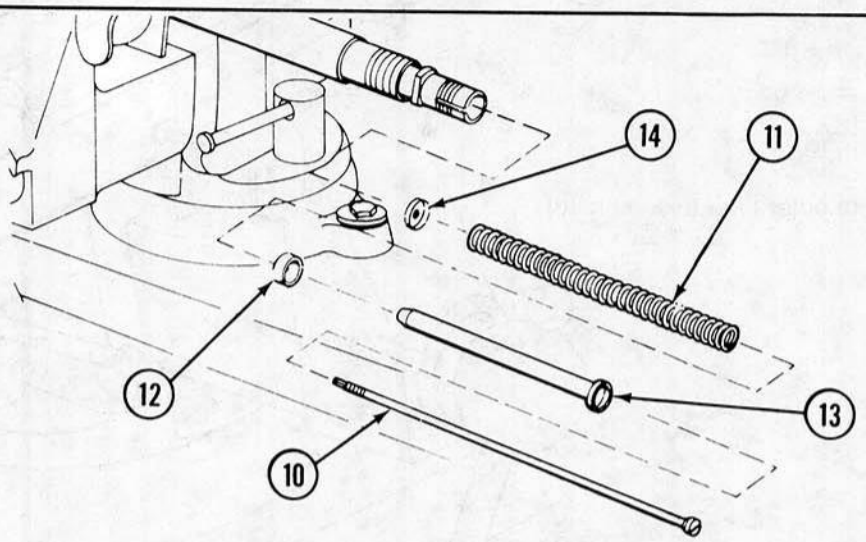
The recoil spring, which is telescoped by the spring retainer sleeve and connecting rod, is compressed. When removing the connecting rod, do not let the spring fly out.

b. Release connecting rod (10) by unscrewing it counterclockwise.

## 2-13. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

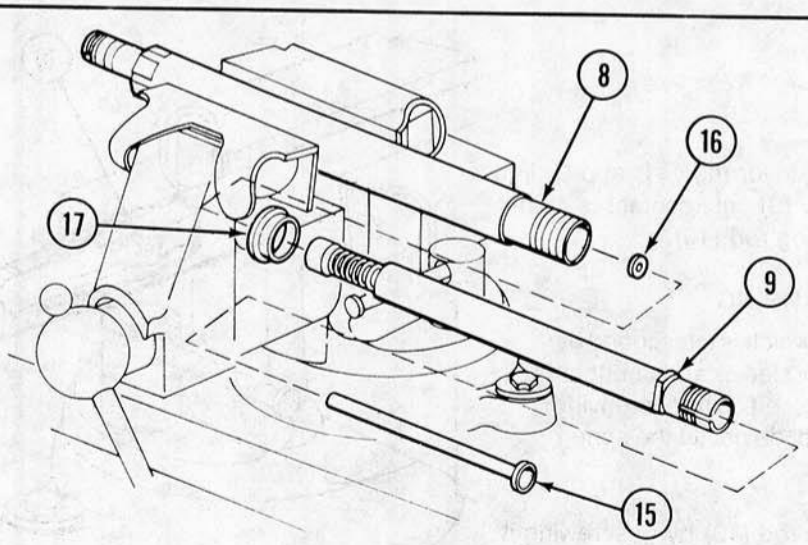
**4**




a. Remove spring (11), upper sleeve guide (12), spring retainer sleeve (13), connecting rod guide (14), and connecting rod (10) as a unit.

b. Separate all the parts in step a.

**5**




a. Remove inner tube assembly (9), retainer (15), flat washer (16), and packing retainer (17) as a unit from outer tube assembly (8).

b. Separate all the parts in step a.

**NOTE**

Do not disassemble inner tube assembly (9). It is replaced as an assembly. See TM 9-1015-215-30P.

## CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag. Inspect all threaded parts for damage, burrs, or wear.

b. Inspect cushion assembly (3) for wear and correct compression length. See page 2-38.

c. Inspect outer tube assembly (8) and inner tube assembly (9) for bends, dents, heavy scoring, burrs, nicks, or mutilation.

d. Inspect connecting rod (10) for bends, wear, or damage.

e. Inspect spring retainer sleeve (13) and retainer (15) for dents, cracks, or breaks.

f. Inspect spring (11) for cracks, breaks, or deformities.

## REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

c. If one shock absorber spring (part No. 7144094) is replaced, the spring in the shock absorber on the other side must also be replaced.

d. Discard entire shock absorber assembly (part No. 7144220) if the connecting rod, inner tube assembly or outer tube assembly require replacing.

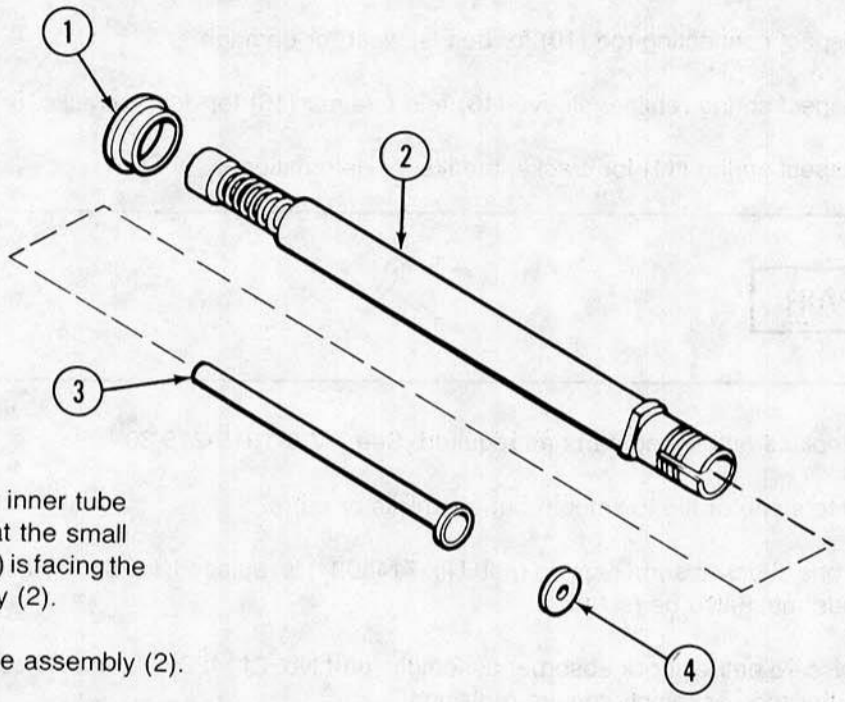
e. See TM 9-1015-215-30P for the interchangeability of parts betweeen shock absorber assembly, part No. 7144220 and shock absorber assembly part No. 11578073.

## 2-13. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY

**1** Apply automotive and artillery grease to all bearing surfaces and springs before reassembly.

**2**




a. Install packing retainer (1) on inner tube assembly (2) making sure that the small diameter of packing retainer (1) is facing the flange on inner tube assembly (2).

b. Install retainer (3) in inner tube assembly (2).

c. Seat flange of retainer (3) in the bottom of inner tube assembly (2).

d. Install connecting rod guide (4) in inner tube assembly (2).

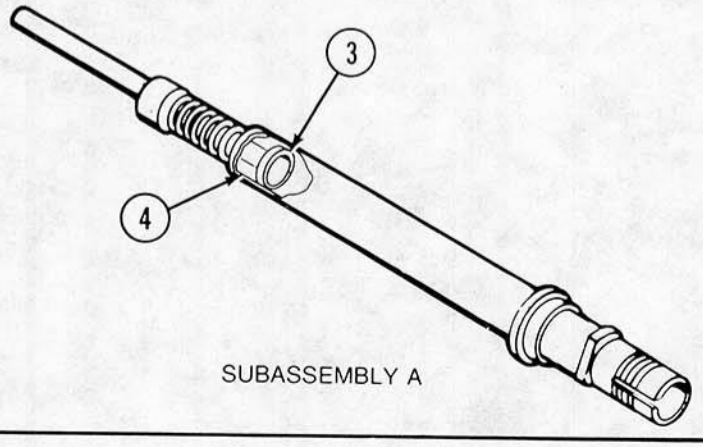
**3**

a. Seat connecting rod guide (4) down against flange of retainer (3).

**NOTE**

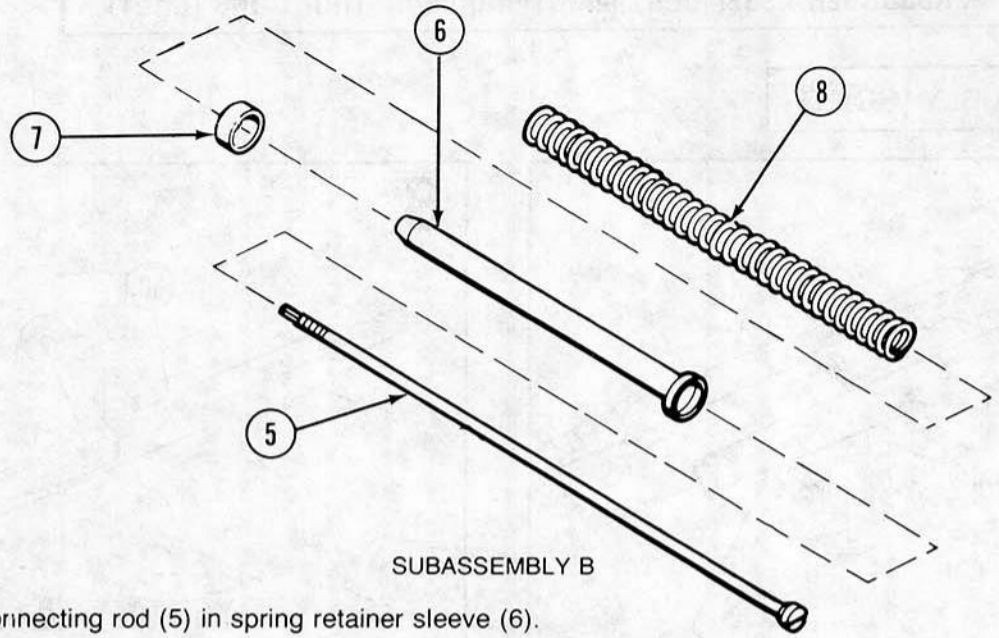
The guide and retainer will be referred to as SUBASSEMBLY A.

b. Temporarily set SUBASSEMBLY A aside and continue with step 4.




SUBASSEMBLY A

**4**




SUBASSEMBLY B

a. Install connecting rod (5) in spring retainer sleeve (6).

b. Install upper sleeve guide (7) on spring retainer sleeve (6).

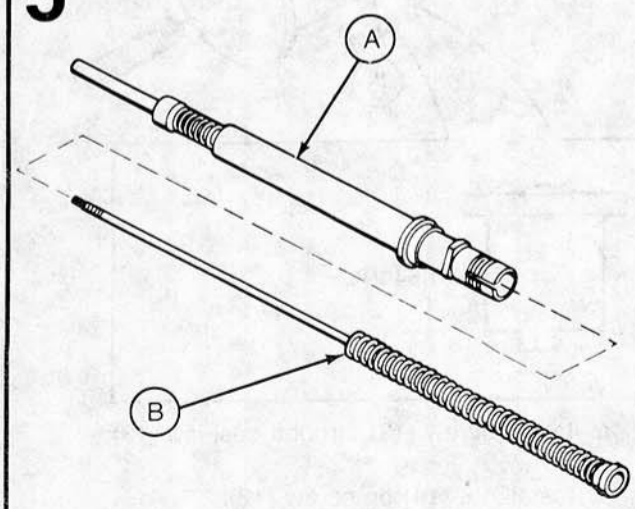
c. Seat beveled side of guide (7) against flange of sleeve (6).

d. Install spring (8) on spring retainer sleeve (6).

**NOTE**

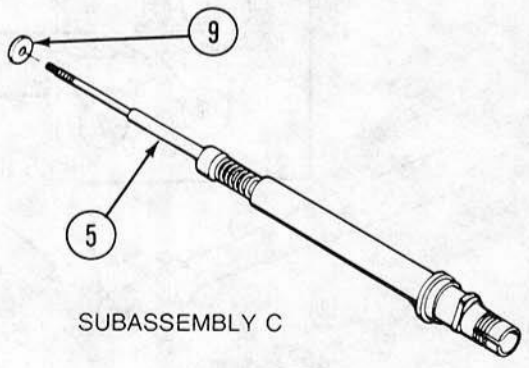
The above group of parts will be referred to as SUBASSEMBLY B.

**5**




Install SUBASSEMBLY B from step 4 into SUBASSEMBLY A from step 3.

**6**




SUBASSEMBLY C

Install flat washer (9) on exposed end of connecting rod (5).

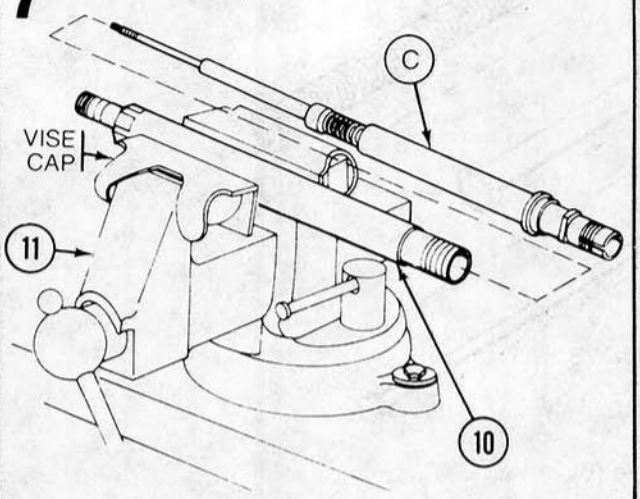
**NOTE**

The above group of parts will be referred to as SUBASSEMBLY C.

## 2-13. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

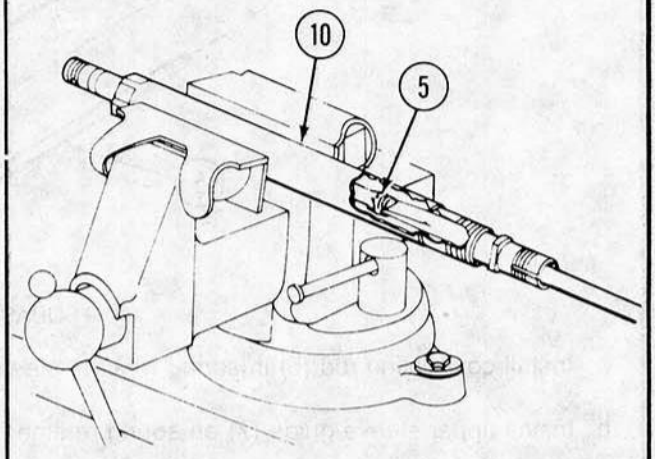
**7**




a. Place outer tube assembly (10) in vise (11).

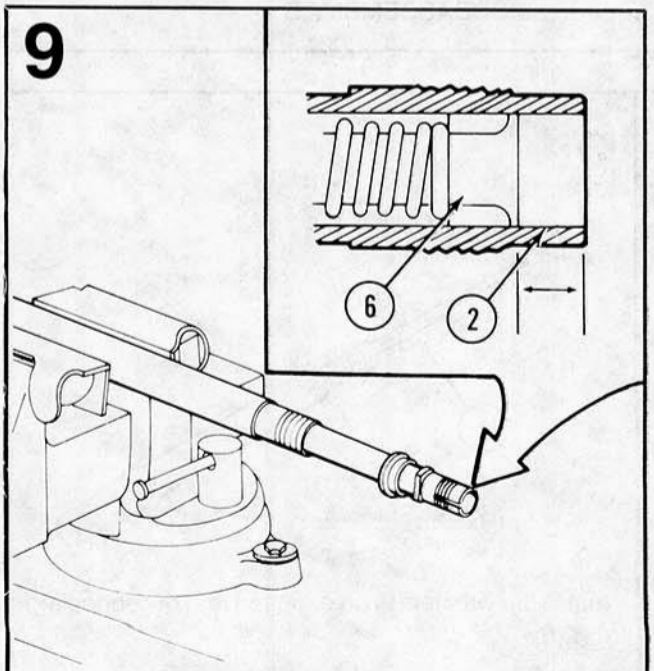
b. Insert SUBASSEMBLY C from step 6 into outer tube assembly (10).

**8**



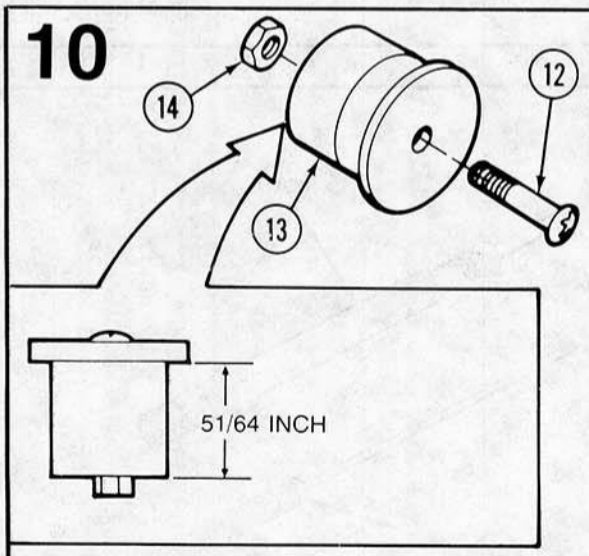

Screw connecting rod (5) part way into outer tube assembly (10) using the special screwdriver (fig C-1, app C).

**9**




Turn connecting rod to obtain 49/64 inch distance from end of inner tube assembly (2) and end of spring retainer sleeve (6).

**10**

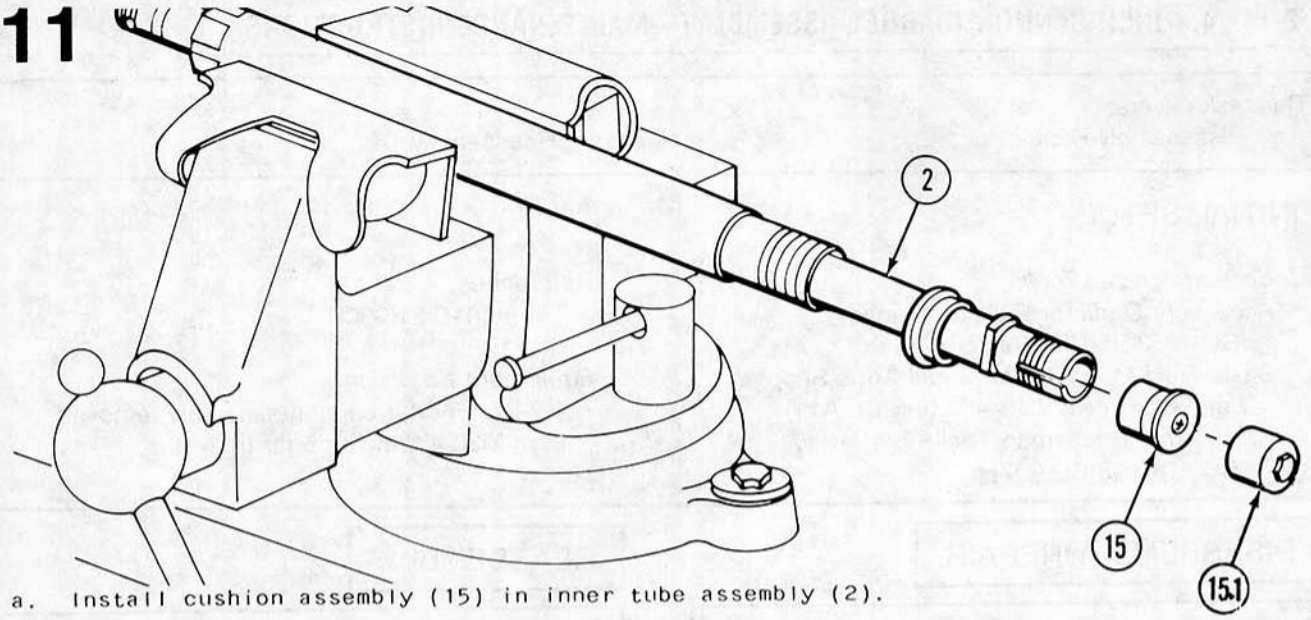



a. Install screw (12) through cushion (13).

b. Install nut (14) on screw (12).

c. Tighten nut (14) to compress the length of the cushion assembly (under shoulder washer) 51/64 inch. Stake nut to screw.

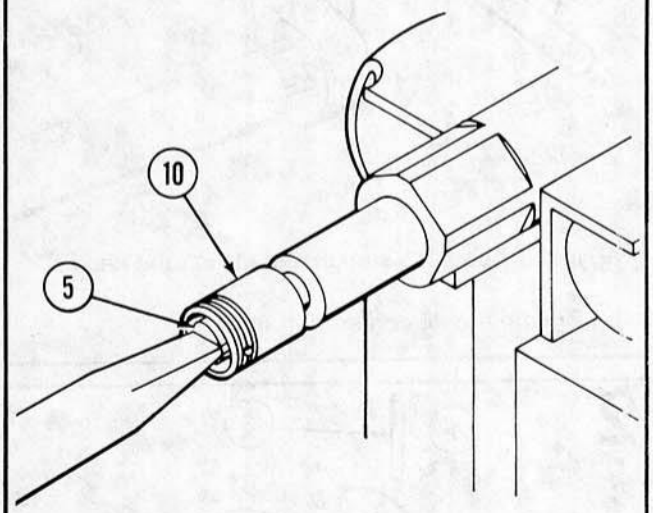
## 11




a. Install cushion assembly (15) in inner tube assembly (2).

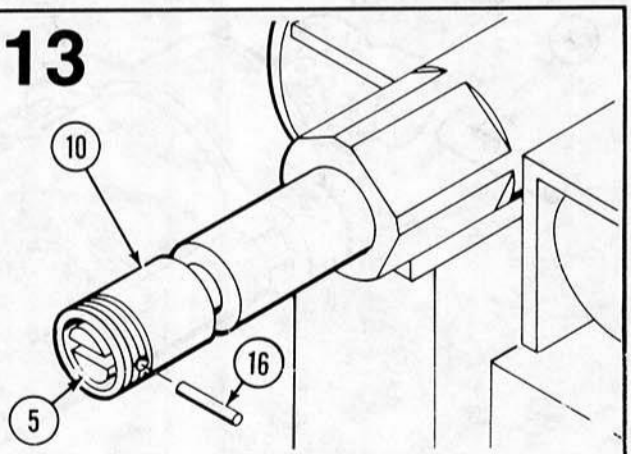
b. Install sleeve tube nut (15.1) on shock absorber. Tighten until stopped by cushion assembly washer against end of inner tube assembly (2). This will force the cushion assembly (15) into the inner tube assembly (2).

## 12




At breech end of outer tube assembly (10), tighten connecting rod (5) counterclockwise until tight in spring retainer sleeve.

## 13




a. Using special screwdriver (fig C-1, app C), aline slot in connecting rod (5) with pin holes in outer tube assembly (10).

**CAUTION**

*Be careful not to damage threads on* outer tube assembly (10) when installing pin (16).

b. Install pin (16). Drive to centered position in outer tube assembly (10).

NOTE

Sleeve tube nut must be removed before installing shock absorber in cannon.

## 2-14. 4.2-INCH CANNON (BARREL ASSEMBLY) - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly/Repair
b. Reassembly

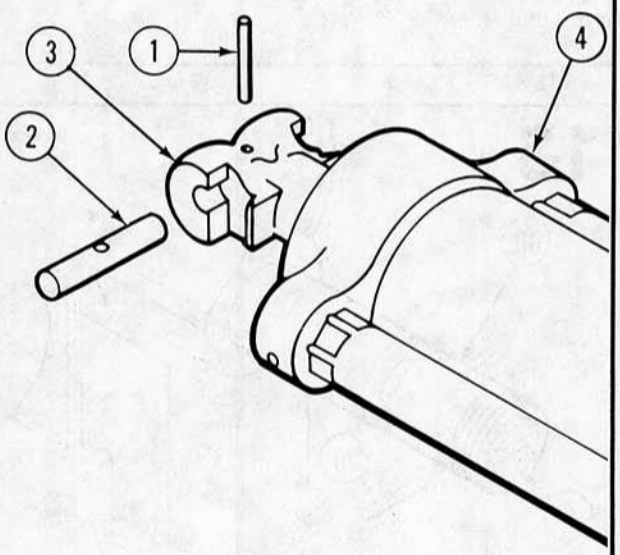
### INITIAL SETUP

*Tools and Special Tools*
Accessory Outfit for Pullover Gages (SC 4933-95-CL-E09)
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*References*
TM 9-1015-215-30P

*Equipment Condition*
4.2-inch mortar cannon assembly removed from M30 4.2-inch mortar (p 2-12).

### DISASSEMBLY/REPAIR




**NOTE**

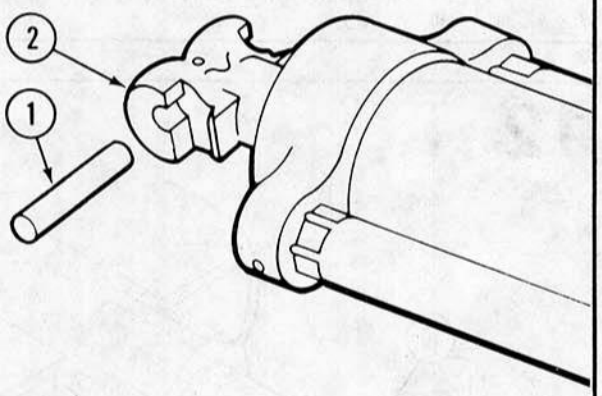
Disassembly of tube cap (3) and tube (4) is not authorized below depot level.

a. If damaged, drive spring pin (1) and headless straight pin (2) from tube cap (3).

b. Replace authorized parts as required. See TM 9-1015-215-30P.

### REASSEMBLY

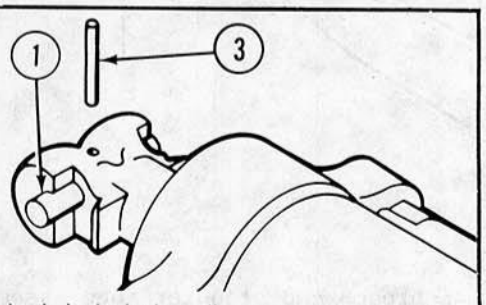
**1**




a. Install headless straight pin (1) in tube cap (2).

b. Drive pin until centered in tube cap (2).

**2**




a. Drill 3/8-inch hole in headless straight pin (1). Use hole in tube cap as a guide.

b. Install spring pin (3). Drive pin until centered in tube cap.

## 2-15. M24A1 4.2-INCH MOUNT - MAINTENANCE INSTRUCTIONS.

This task covers repair/replacement.

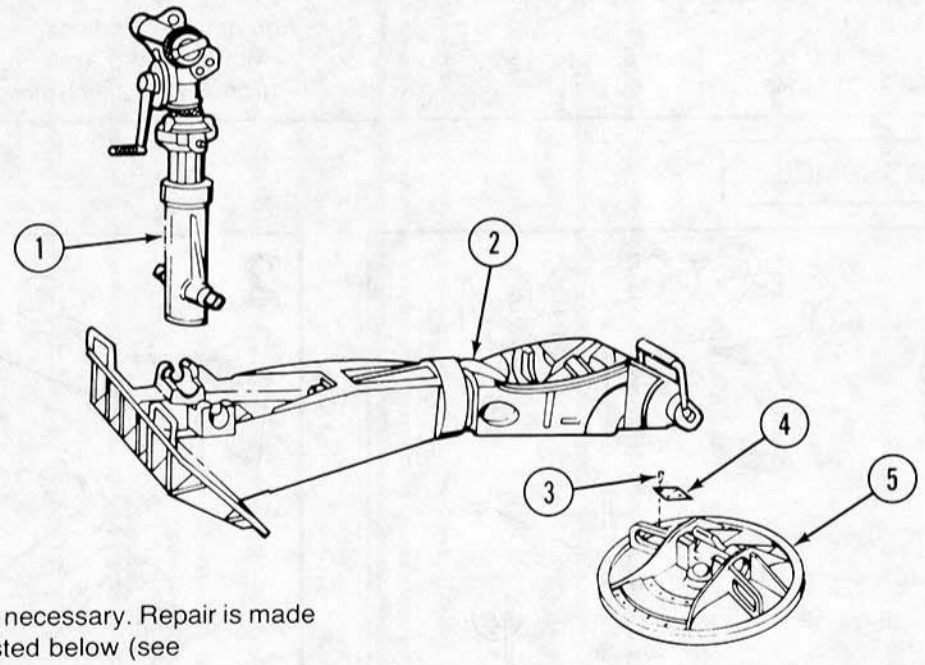
### INITIAL SETUP

*Tools and Special Tools*
Small Arms Repairman Tool Kit
(SC 5180-95-CL-A07)
Basic Field Maintenance Small Arms Shop
Set, Less Power (SC 4933-95-CL-A11)

*References*
TM 9-1015-215-10
TM 9-1015-215-30P

*Equipment Condition*
M24A1 4.2-inch mount removed from M30
4.2-inch mortar (see TM 9-1015-215-10).

### REPAIR/REPLACEMENT




No repair procedures are necessary. Repair is made by replacing the items listed below (see TM 9-1015-215-30P):

Mortar mount assembly standard (1)

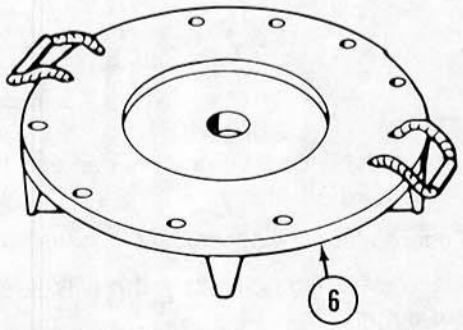
Bridge assembly (2)

Four screws (3)

Identification plate (4)

Rotator assembly (5)

Mortar baseplate (6)



## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
4.2-inch Mortar Cannon M30 and 4.2-inch Mortar Mount M24 Series Field Maintenance Tool Set (5910503)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
General purpose lubricating oil (Item 10, app B).
Dry cleaning solvent (item 6, app B)
Gasket 7144043
Preformed gasket 7144055
Preformed packing 7144064
Shim 7144045
Wiping rag (item 12, app B)

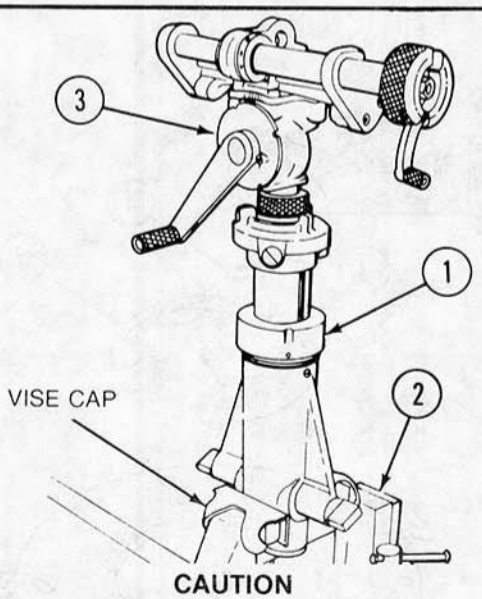
*Personnel Required*
2

*References*
TM 9-1015-215-10
TM 9-1015-215-30P

*Equipment Condition*
Mortar mount assembly standard removed from M30 4.2-inch mortar (TM 9-1015-215-10).

### DISASSEMBLY

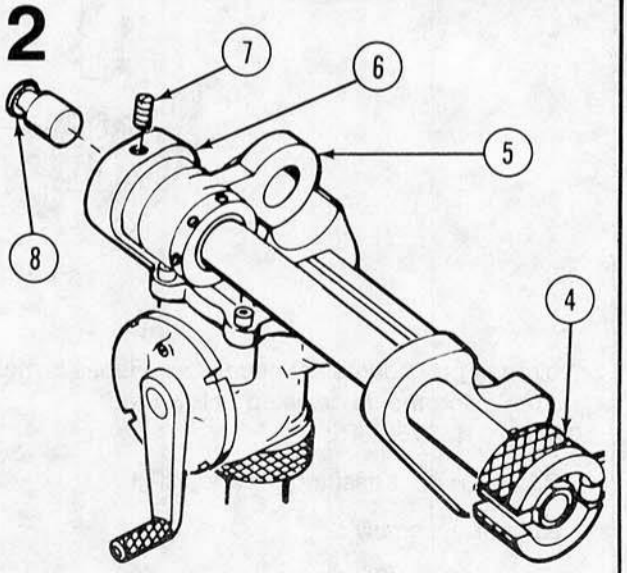
**1**




**CAUTION**
Install vise caps to prevent damage to standard assembly.

a. Secure standard assembly (1) in vise (2).
b. Place elevating gear (3) in the fully lowered position.

**2**




a. Turn traversing assembly wheel (4) to move traversing nut (5) against support (6).
b. Remove setscrew (7) and headless grooved pin (8).

# 3

a. Pull traversing assembly wheel (4) to move traversing nut (5) against support (9).

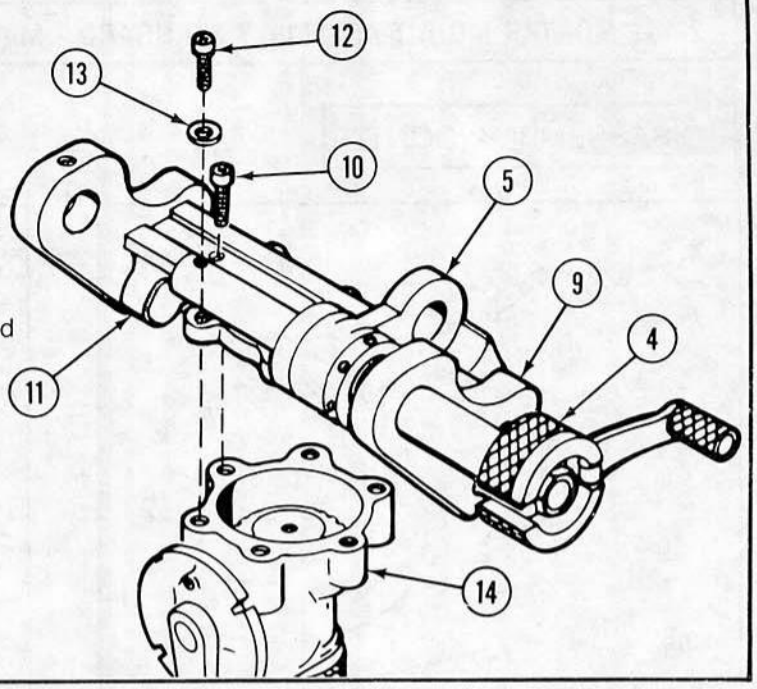
b. Remove two socket head cap screws (10) in groove of traversing assembly slide (11).

c. Remove four socket head cap screws (12) and four washers (13).

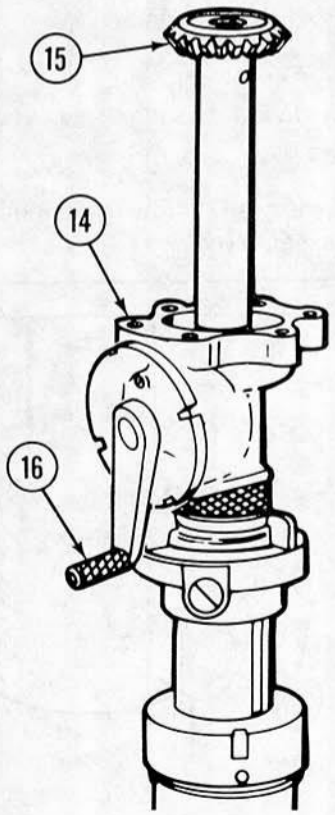
**NOTE**

Hold traversing assembly slide (11) when removing the last screw.

d. Remove traversing assembly slide (11) from gear case (14).

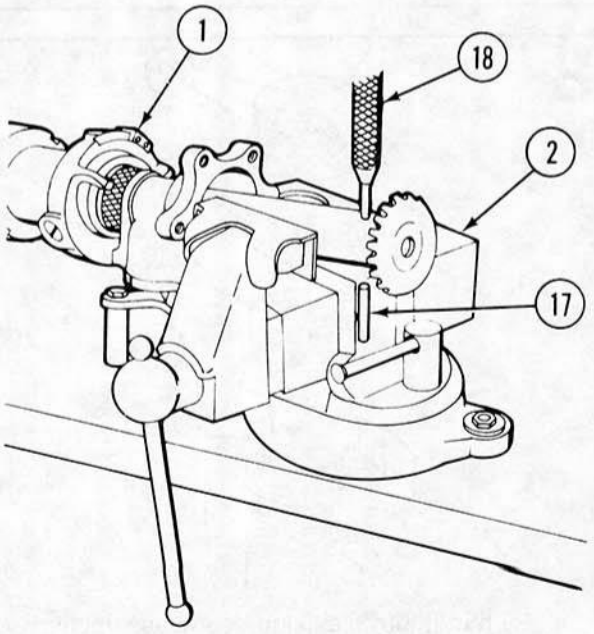



# 4




Elevate miter gear (15) completely by lifting up on gear case (14) and turning handle (16).

# 5



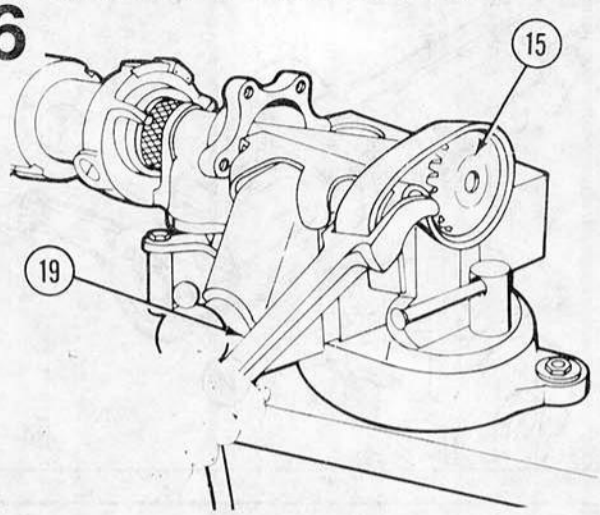

a. Reposition standard assembly (1) in vise (2) as shown.

b. Drive out spring pin (17) using punch (18).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

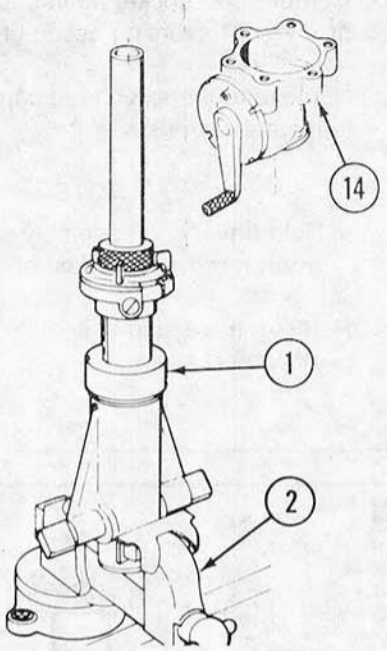
**6**




a. Install strap wrench (19) on miter gear (15).

b. Unscrew and remove miter gear (15).

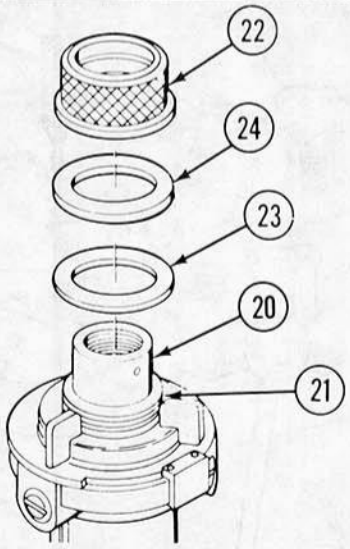
**7**




a. Reposition standard assembly (1) vertically in vise (2).

b. Remove gear case (14) by lifting it up and off standard assembly (1).

**8**

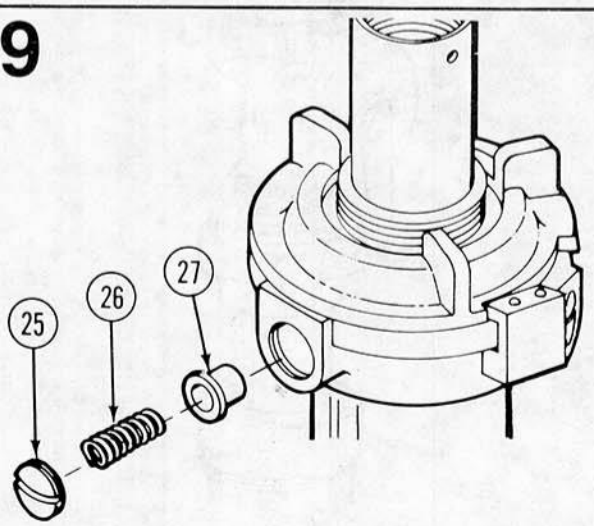



a. By hand, turn elevating screw assembly sleeve (20) down into elevating assembly screw (21).

b. Unscrew and remove cap (22).

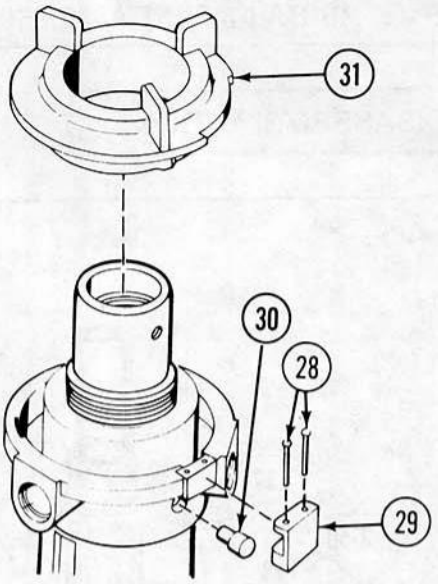
c. Remove thrust washer (23) and gasket (24) from cap (22).

**9**




Remove three setscrews (25), three springs (26), and three plungers (27).

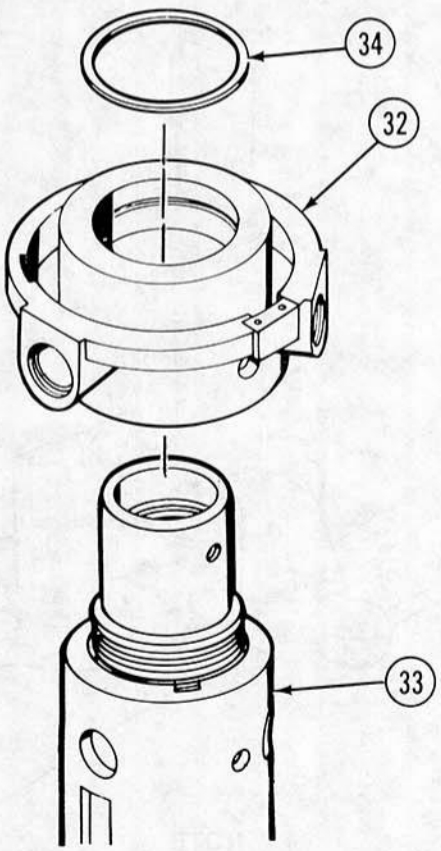
# 10




a. Remove two rivets (28), cam stop (29), and headless shoulder pin (30).

b. Rotate elevating mechanism cam (31) one-eighth turn counterclockwise and lift out.

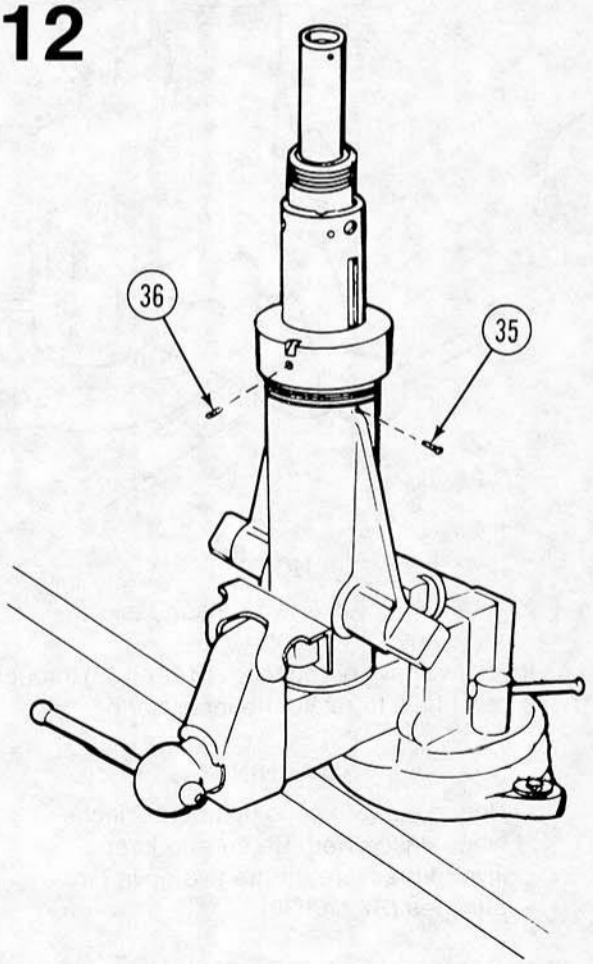
# 11




a. Remove housing (32) from elevating screw support (33).

b. Remove preformed gasket (34).

# 12

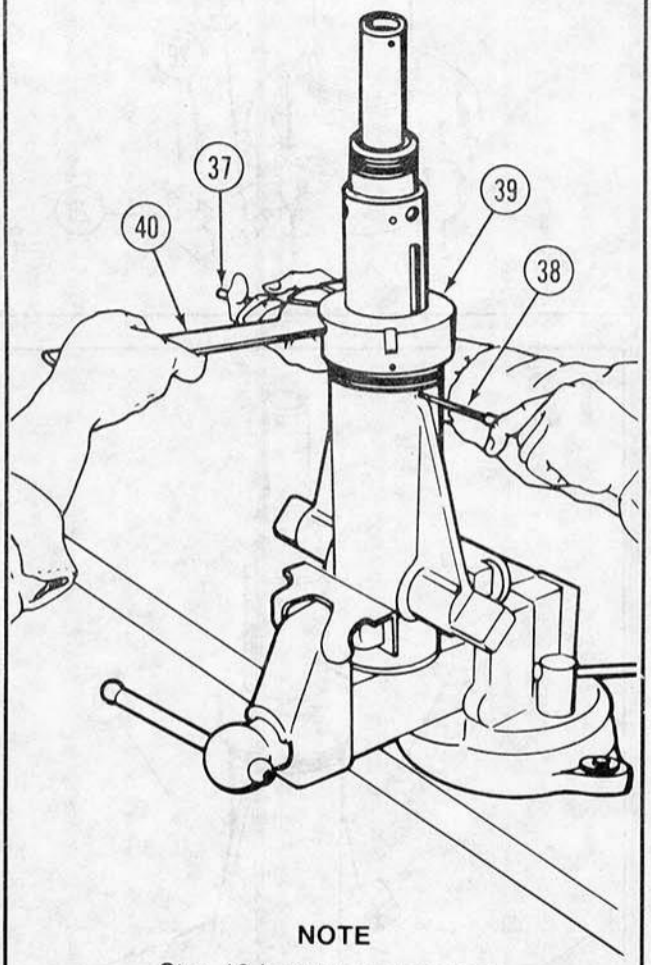



Remove two screws (35) and two setscrews (36).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

**13**




**NOTE**

Step 13 is a two-person task.

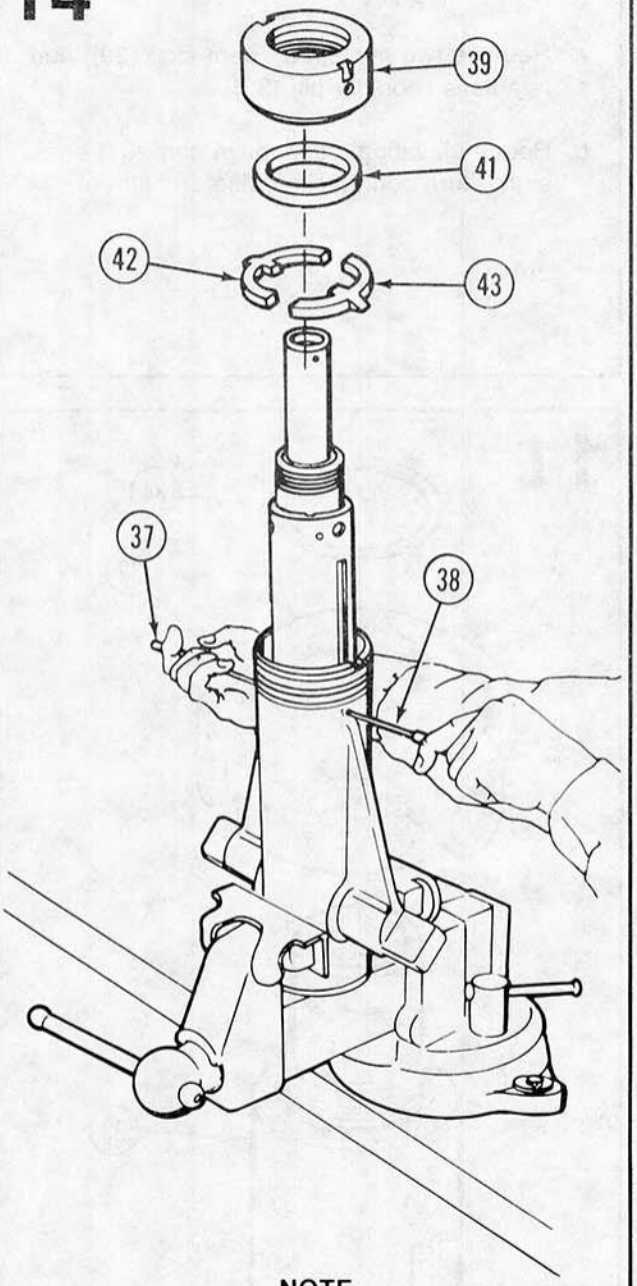
a. Insert two drive pin punches (37 and 38) through screw holes to retain the inner spring.

**WARNING**

Round nut (39) pops up about 2 inches when unscrewed. Be sure to keep inward pressure on the two drive pin punches (37 and 38).

b. Using spanner wrench (40), unscrew round nut (39).

**14**




**NOTE**

Step 14 is a two-person task.

Remove round nut (39), preformed packing (41), and two keyed lock rings (42 and 43).

## 15

**NOTE**

Step 15 is a two-person task.

a. Place spring compressor (44) on top of spring (45). Aline slots with drive pin punches (37 and 38) and push down.

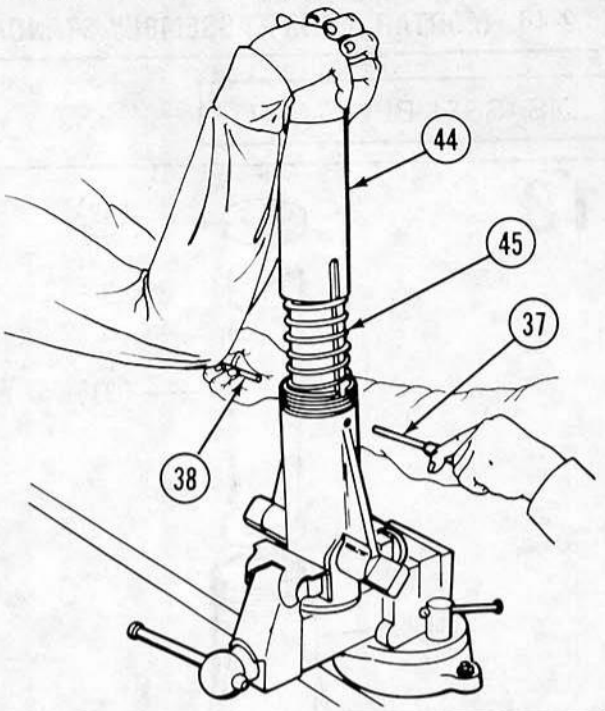
**WARNING**

Keep pressure on spring as punches are removed.

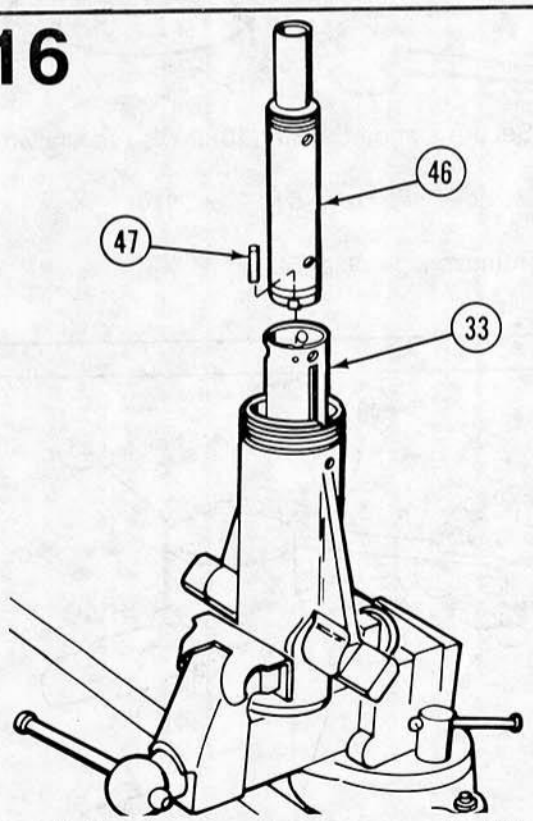
b. Continue pushing down on spring compressor (44) until drive pin punches (37 and 38) can be removed.

c. Let spring compressor (44) rise slowly until all spring pressure is gone.

d. Remove spring compressor (44) and spring (45).



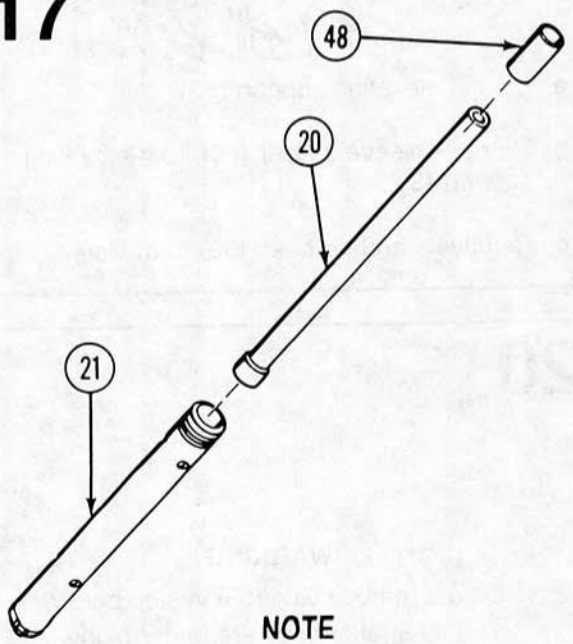

## 16




a. Lift elevating screw housing assembly (46) out of elevating support (33).

b. Remove key (47).

## 17




**NOTE**

Disassemble the following parts only if sleeve bushing (48) is worn or binding.

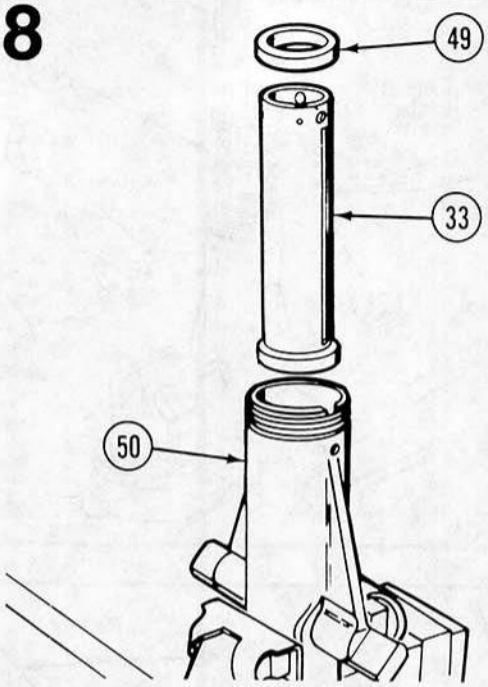
a. Unscrew elevating screw assembly sleeve (20) from elevating assembly screw (21).

b. Remove sleeve bushing (48) from elevating screw assembly sleeve (20).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

**18**

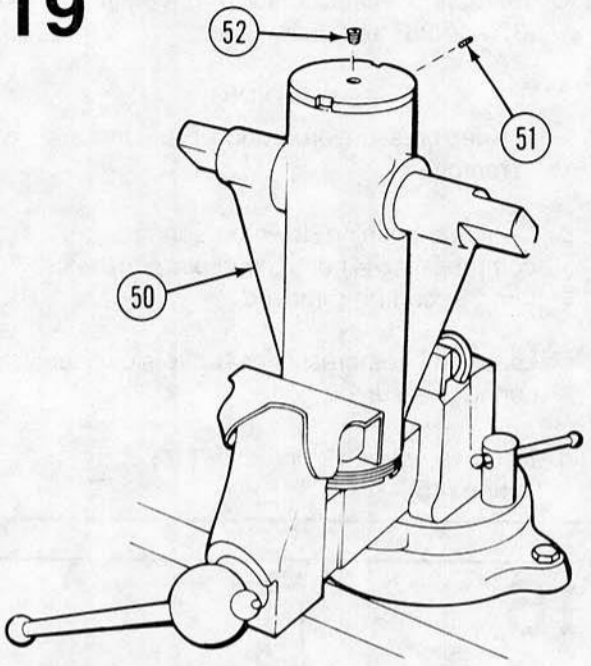



a. Lift out elevating support (33).

b. Remove sleeve spacer (49) from elevating support (33).

c. Remove standard base (50) from vise.

**19**




a. Secure standard base (50) in vise as shown.

b. Remove setscrew (51).

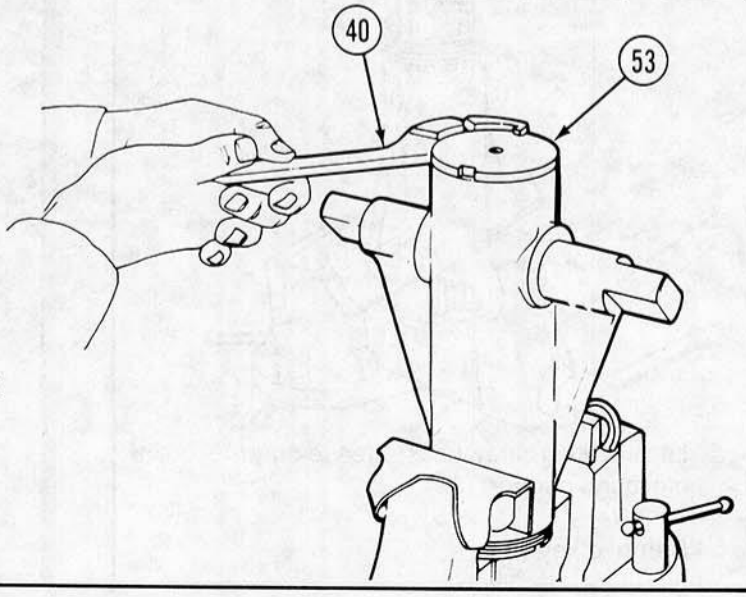
c. Remove pipe plug (52).

**20**

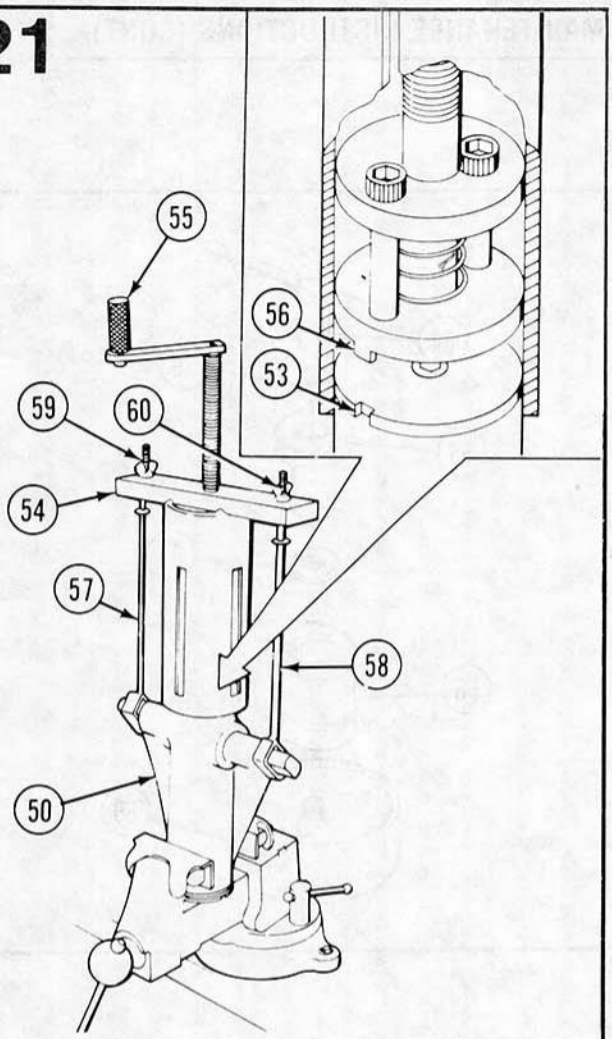
**WARNING**

Do not remove plug (53) in step below. The internal springs are under high compression.

Using spanner wrench (40), turn plug (53) just enough to loosen the threads.



## 21




a. Position spring compression tool (54) over standard base (50).

b. Turn handle (55) to fully engage tool projection (56) in slot of plug (53).

c. Attach the loops of outriggers (57 and 58) to standard base (50) trunnions.

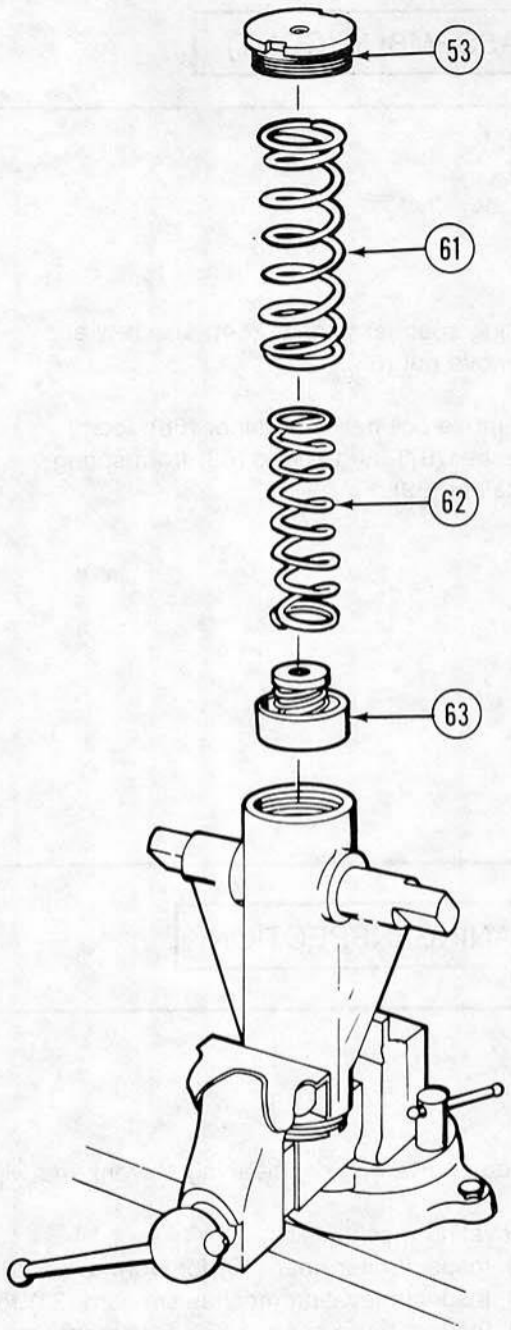
d. Tighten wing nuts (59 and 60) securely.

e. Turn handle (55) counterclockwise to unscrew plug (53).

f. Continue turning handle (55) until spring pressure is gone.

g. Remove spring compression tool (54).

## 22




a. Remove plug (53) and springs (61 and 62).

b. Lift out snubber spring assembly (63).

**NOTE**

Item 63 will be referred to as the snubber spring assembly although it cannot be ordered as an assembly.

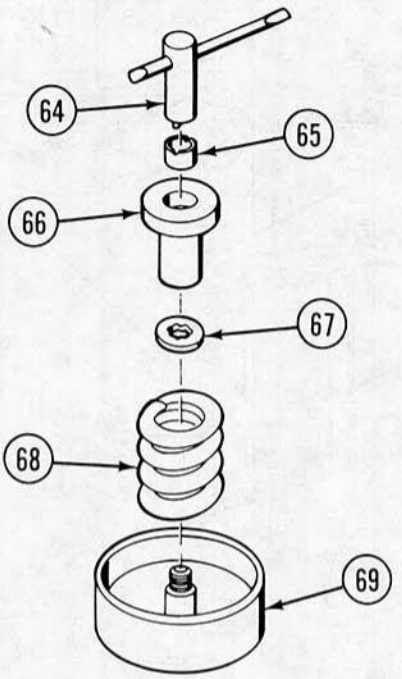
## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

**23**

a. Using spanner wrench (64), unscrew and remove nut (65).

b. Remove coil helical retainer (66), lock washer (67), and spring (68) from spring retainer (69).




### CLEANING/INSPECTION

**1**

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Elevating mechanism.
(1) Inspect miter gear (15) for worn, cracked, or broken teeth.
(2) Inspect elevating mechanism cam (31) for wear or nicks.
(3) Inspect three springs (26) for cracks, breaks or deformities.
(4) Inspect elevating assembly screw (21) for broken key, deformed plunger holes and bent or broken screw.
(5) Inspect key (47) for bends, breaks or nicks.
(6) Inspect elevating screw assembly sleeve (20) for bends or damaged threads.
(7) Inspect sleeve bushing (48) for damaged threads.
(8) Inspect sleeve spacer (49) and elevating support (33) for cracks, burrs, nicks, and mutilation.
(9) Inspect two keyed lock rings (42 and 43) for cracks or breaks.
(10) Inspect spring (45) for cracks, breaks or deformities.

## 2

c. Recoil mechanism
   (1) Inspect plug (53) and nut (65) for stripped threads, nicks, and burrs.
   (2) Inspect spring retainer (69) for cracks, breaks, and damage to threaded stud.
   (3) Inspect all springs for cracks, breaks or deformities.
   (4) Inspect standard base (50) for cracks, burrs, nicks, and mutilation.

d. Traversing mechanism. Inspect traversing assembly slide (11) for wear of sliding contact surfaces. Traversing nut (5) should slide on traversing assembly slide (11) without binding.

## REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

## REASSEMBLY

## 1

Apply automotive and artillery grease to all bearing surfaces and springs during reassembly.

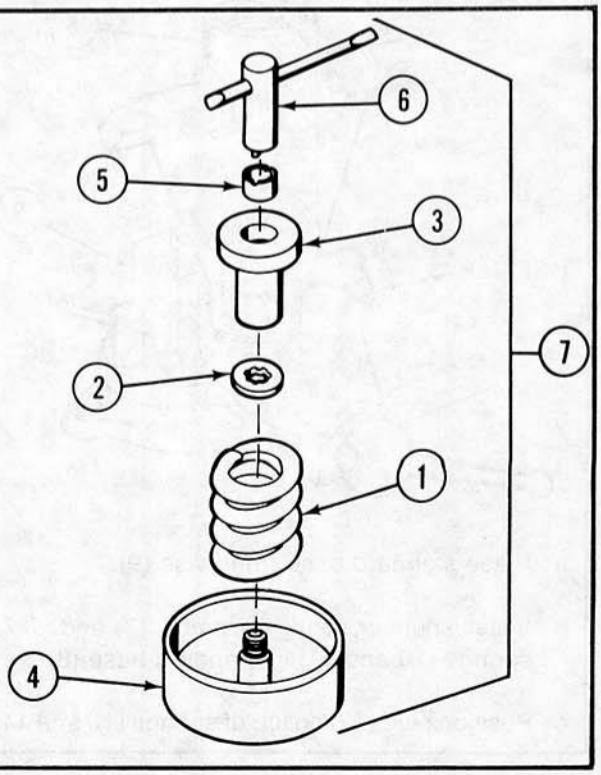
## 2

a. Install spring (1), lock washer (2), and coil spring retainer (3) in spring retainer (4).

b. Press down on coil helical retainer (3) and install nut (5). Tighten securely with spanner wrench (6).

**NOTE**

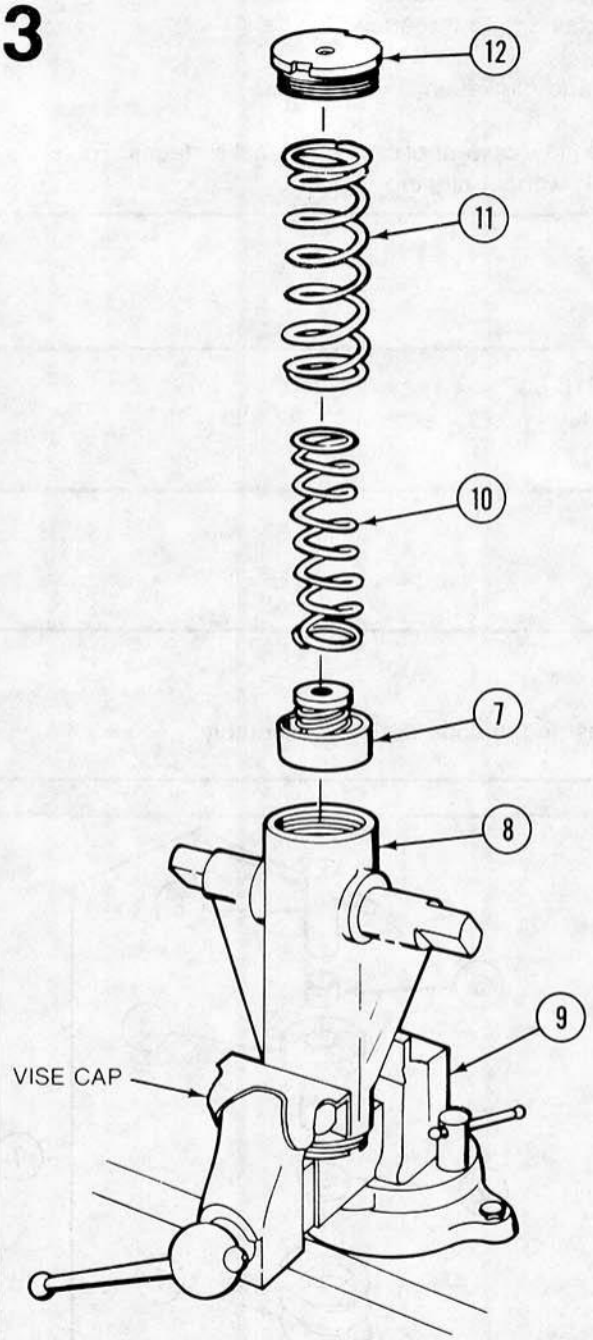
This unit will be referred to as the snubber spring assembly (7).



## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**3**

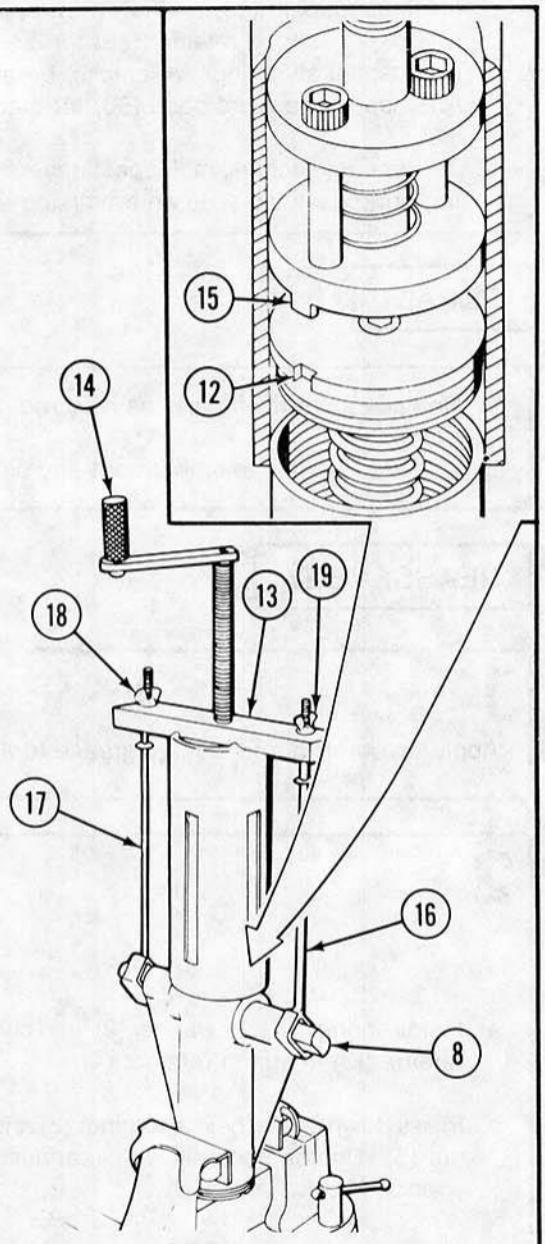



a. Place standard base (8) in vise (9).

b. Install snubber spring assembly (7) and springs (10 and 11) in standard base (8).

c. Position plug (12) on top of springs (10 and 11).

**4**




a. Position spring compression tool (13) over standard base (8).

b. Turn handle (14) to engage tool projection (15) in slot of plug (12).

c. Attach the loops of outrigger (16 and 17) to standard base (8) trunnions.

d. Tighten wing nuts (18 and 19) securely.

## 5

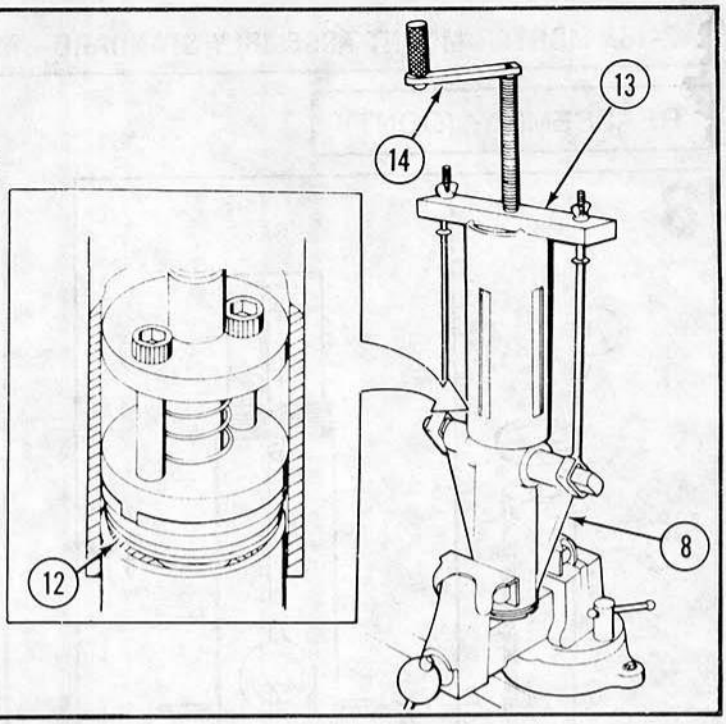
a. Turn handle (14) clockwise to compress springs and install plug (12).

**NOTE**

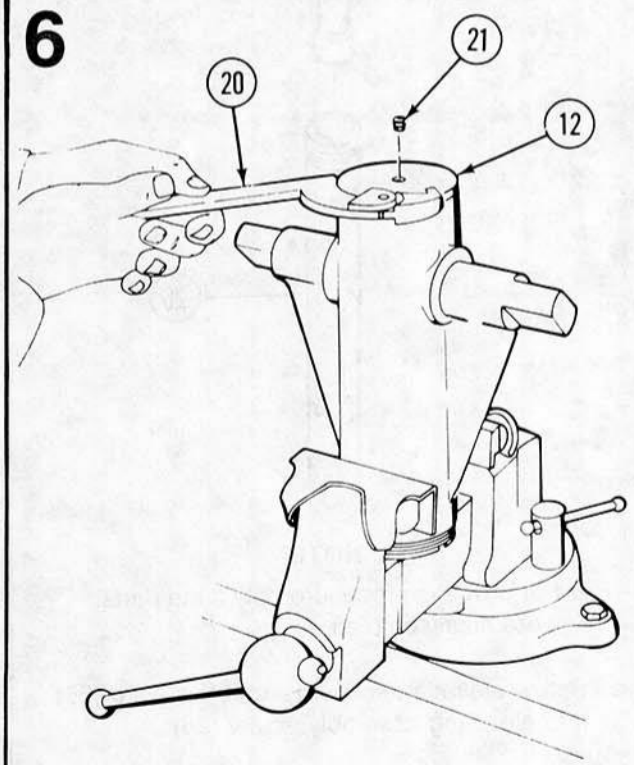
Be sure plug (12) doesn't become cross-threaded into standard base (8). Slots in the side of spring compression tool are provided to watch the assembly procedure.

b. Continue turning handle until plug (12) is seated.

c. Remove spring compression tool (13).



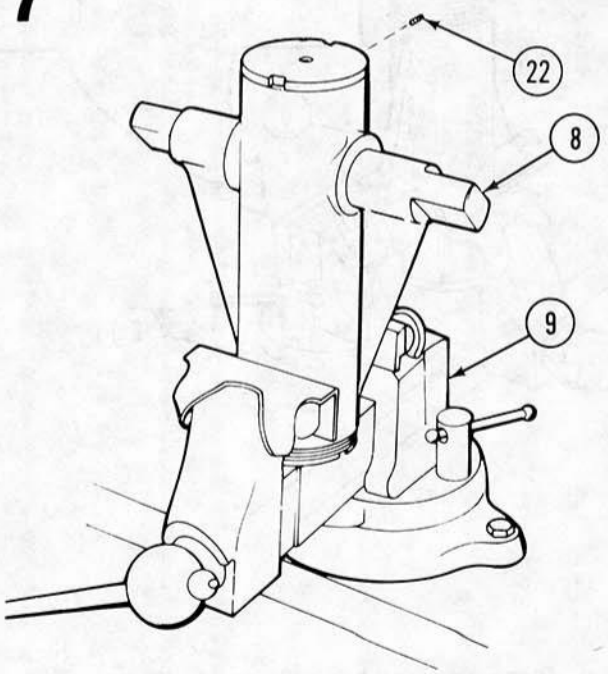

## 6




a. Using spanner wrench (20), tighten plug (12) securely.

b. Install pipe plug (21). Tighten securely.

## 7



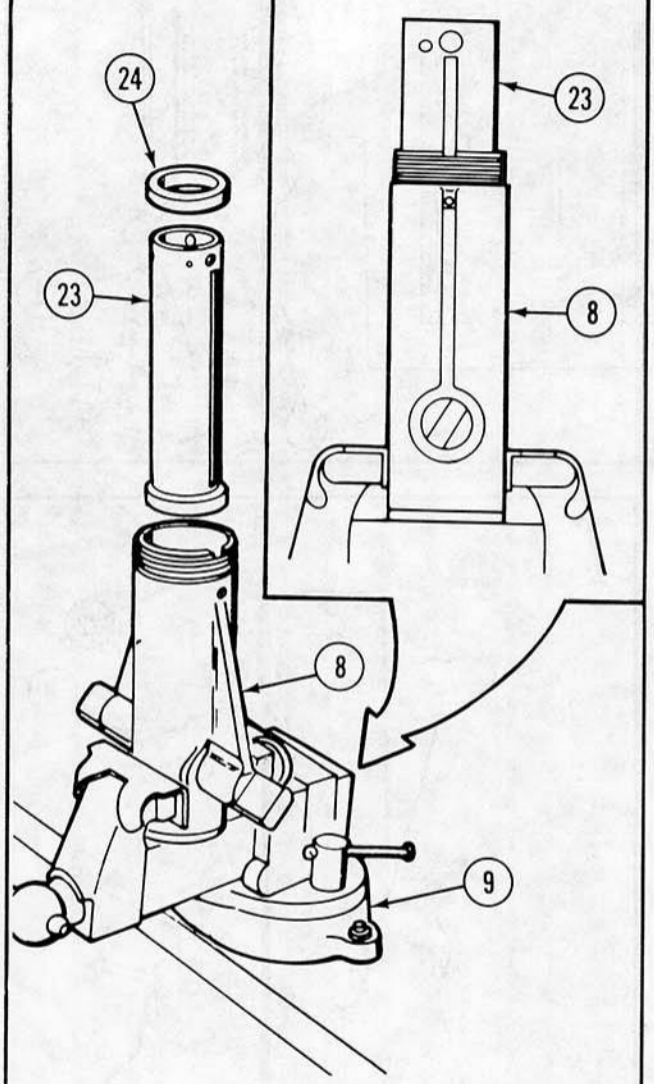

a. Install setscrew (22). Tighten securely.

b. Remove standard base (8) from vise (9).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**8**

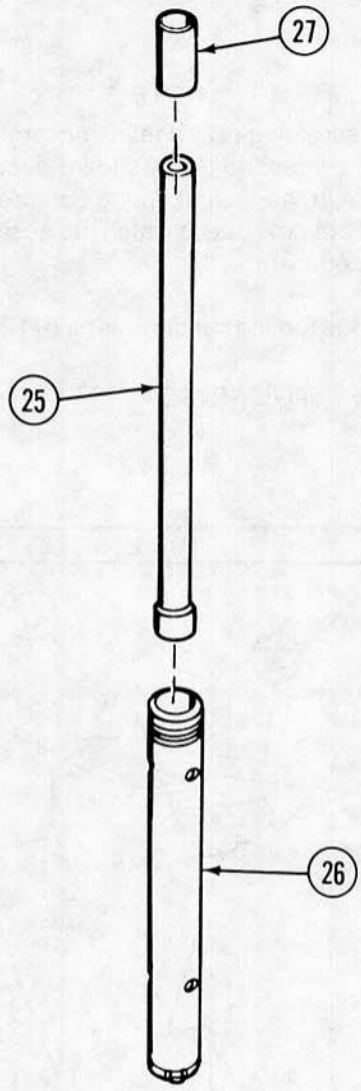



a. Place standard base (8) in vise (9) as shown.

b. Aline elevating support (23) with standard base (8) as shown. Install.

c. Slide sleeve spacer (24) down over elevating support (23).

**9**




**NOTE**

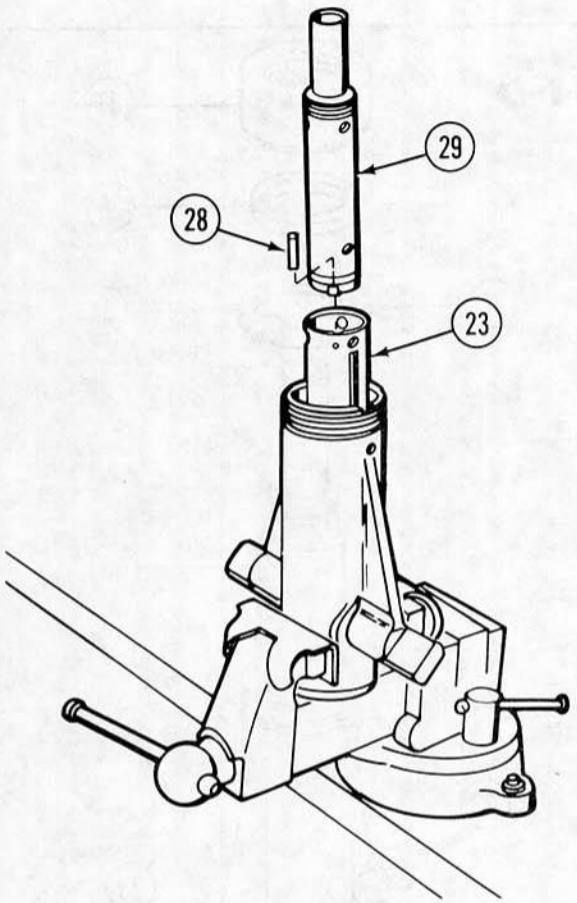
Perform this procedure only if the parts were disassembled.

a. Screw elevating screw assembly sleeve (25) into elevating assembly screw (26).

b. Slide sleeve bushing (27) over elevating screw assembly sleeve (25).

c. Press sleeve bushing (27) into recess inside of elevating assembly screw (26).

# 10



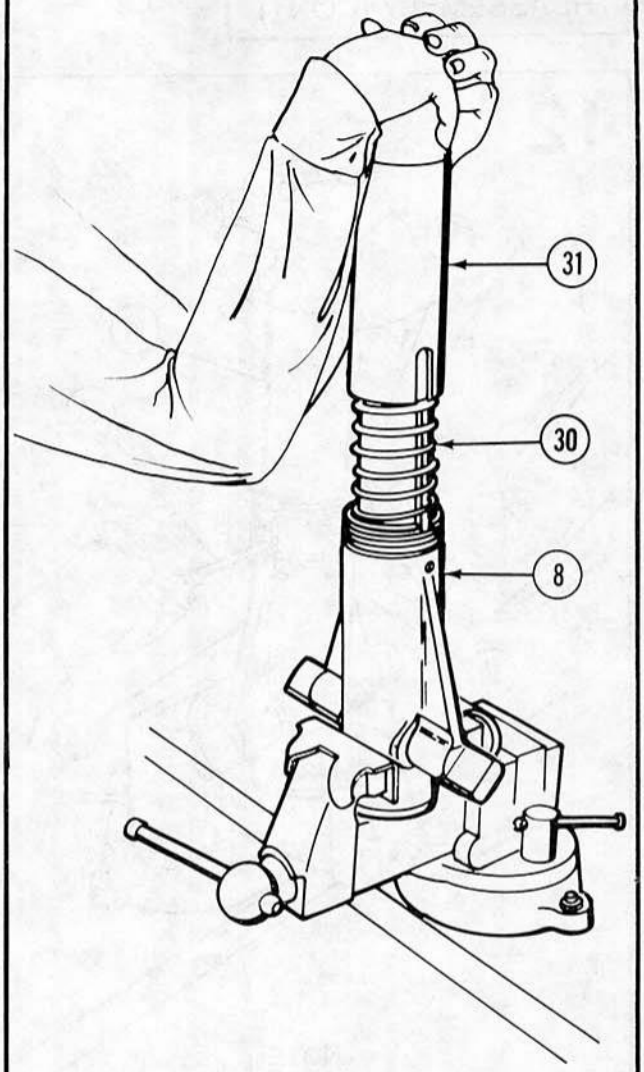

a. Aline key (28) on elevating screw housing assembly (29) with key slot in elevating support (23).

b. Install elevating screw housing assembly (29) part way.

c. Position key (28) against elevating screw housing assembly (29) and in key slot of elevating support (23).

d. Push elevating screw housing assembly (29) and key (28) all the way down into elevating support (23).

# 11




a. Install spring (30).

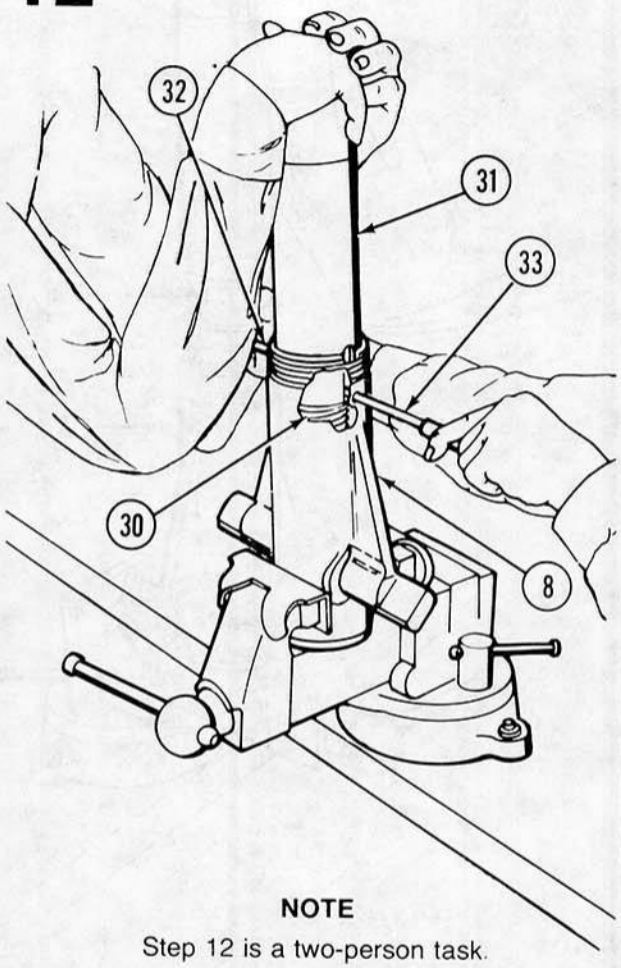
b. Position spring compressor (31) down against spring (30).

c. Aline slots in spring compressor (31) with screw holes in standard base (8).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

**12**




**NOTE**

Step 12 is a two-person task.

a. Push down on spring compressor (31) until the top coil of spring (30) is below the screw holes in standard base (8).

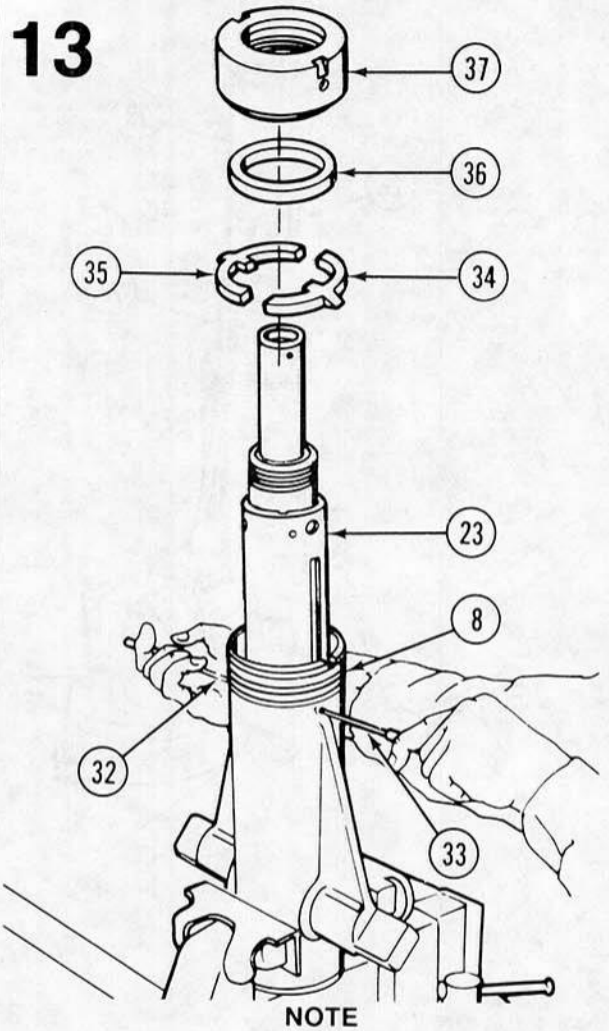
b. Insert two drive pin punches (32 and 33) through screw holes and into spring compressor (31) slots. Hold drive pin punches in place.

**WARNING**

Keep inward pressure on the two drive pin punches (32 and 33).

c. Remove spring compressor (30).

**13**




**NOTE**

Step 13 is a two-person task.

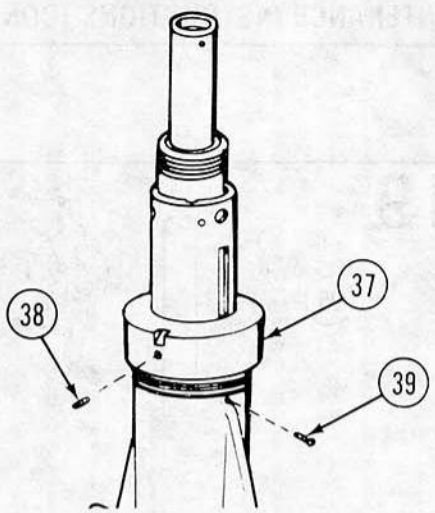
a. Aline two keyed lock rings (34 and 35) with slots in elevating support (23) and standard base (8). Install keyed lock rings on shoulder of standard base.

b. Install new preformed packing (36) in round nut (37).

c. Install round nut (37) on standard base (8). Screw down handtight.

d. Remove two drive pin punches (32 and 33).

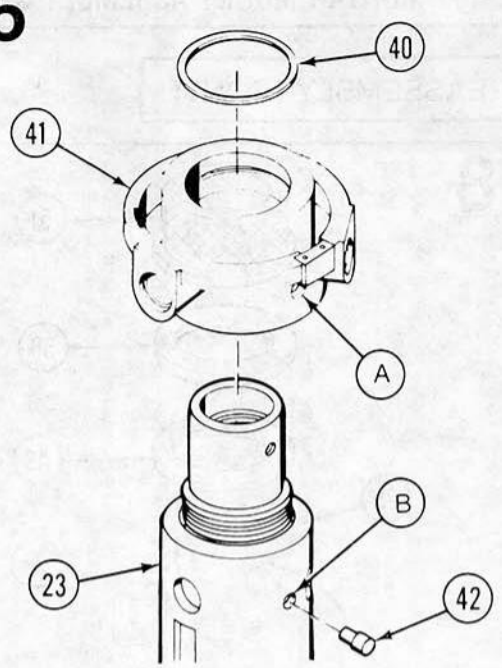
## 14




a. Tighten retaining nut (37) securely.

b. Install two setscrews (38) and two screws (39). Tighten securely.

## 15

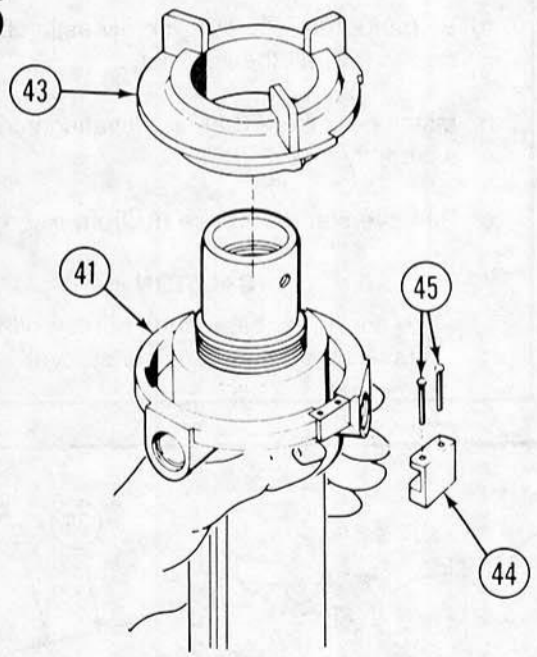



a. Install new gasket (40) in housing (41).

b. Position housing (41) on elevating support (23) and aline pin hole (A) with pin hole (B).

c. Install headless shoulder pin (42). Hold pin in place.

## 16

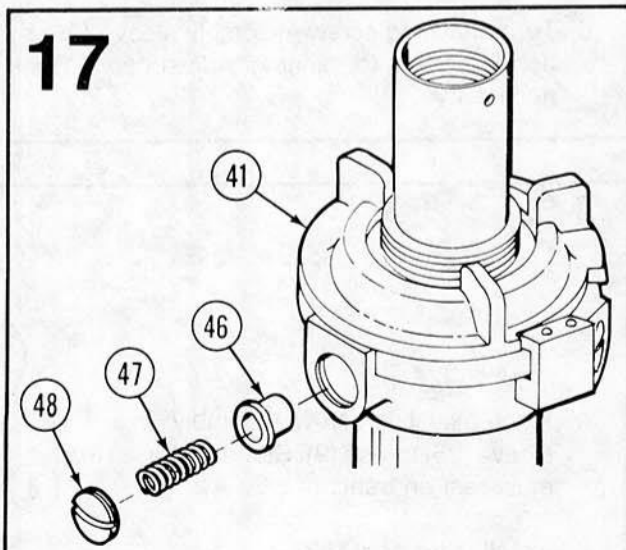



a. Position elevating mechanism cam (43) in housing (41). Aline notch in cam (43) with two pin holes in housing (41).

b. Position cam stop (44) thick rim down on housing (41) and aline pin holes.

c. Install two solid rivets (45).

## 17



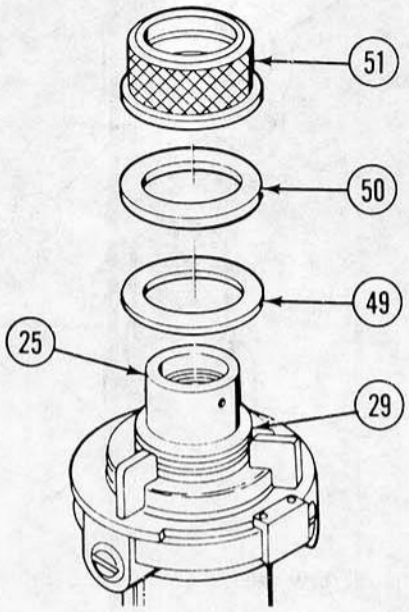

a. Install three plungers (46), three springs (47), and three setscrews (48) in housing (41).

b. Tighten three setscrews (48) securely.

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**18**



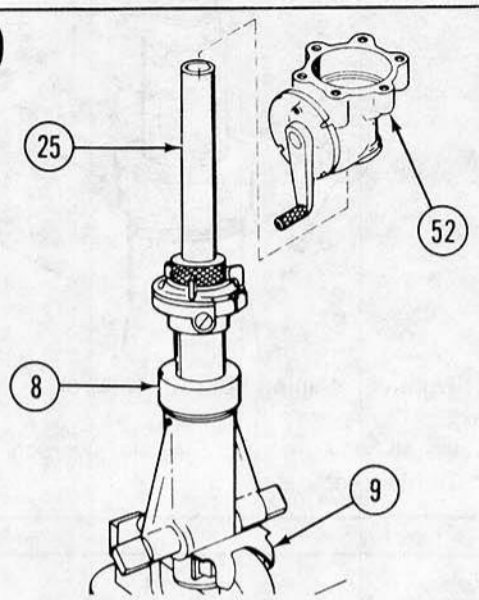

a. Position thrust washer (49) on shoulder of elevating screw housing assembly (29).

b. Install new gasket (50) in cap (51).

c. Install cap (51) handtight.

d. Turn elevating screw assembly sleeve (25) by hand to check for binding. Adjust cap (51), as necessary.

**19**




a. By hand, turn elevating screw assembly sleeve (25) all the way out.

b. Install gear case (52) on elevating screw assembly sleeve (25).

c. Remove standard base (8) from vise (9).

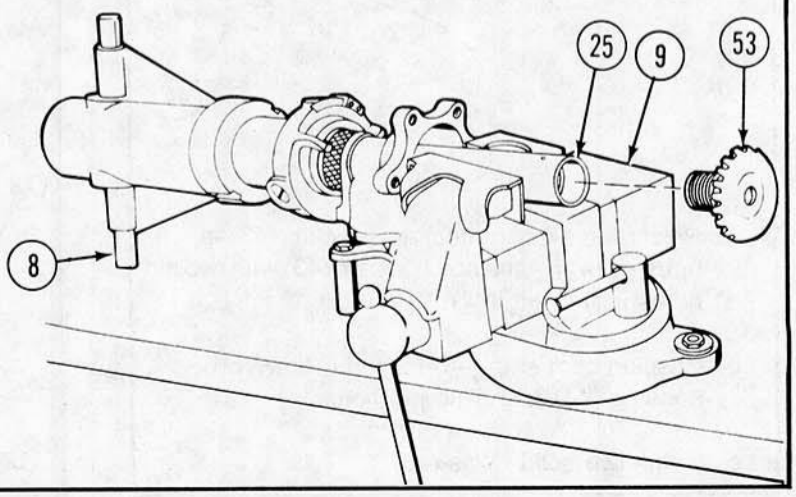
**CAUTION**

Be sure gear case does not fall off the elevating screw assembly sleeve.

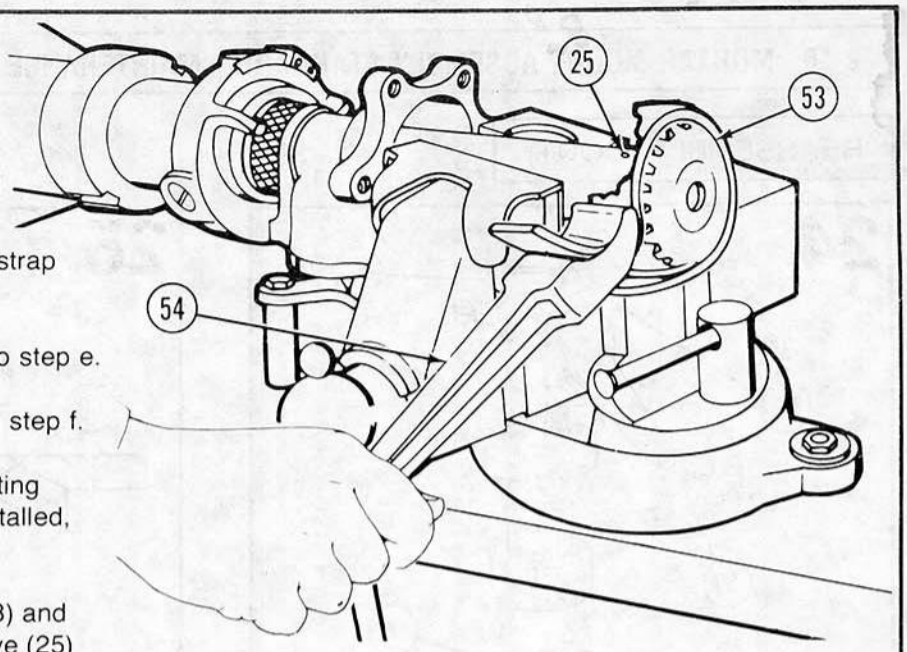
**20**

a. Place elevating screw assembly sleeve (25) in vise (9). Standard base (8) must rest on bench.

b. Install miter gear (53).



## 21




a. Tighten miter gear (53), using strap wrench (54).

b. If the old gear is installed, go to step e.

c. If a new gear is installed, go to step f.

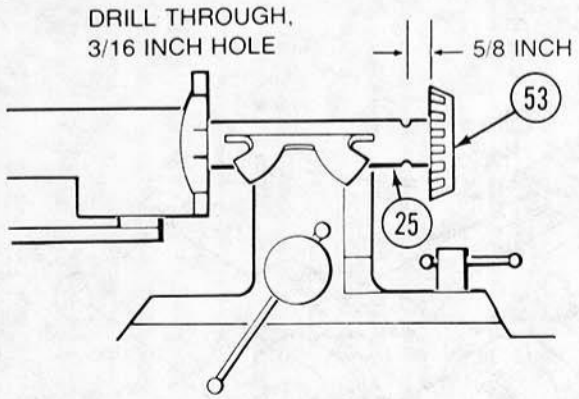
d. If a new gear and a new elevating screw assembly sleeve are installed, go to step 22.

e. Aline pin holes in miter gear (53) and elevating screw assembly sleeve (25) and then go to step 23.

NEW PARTS ONLY

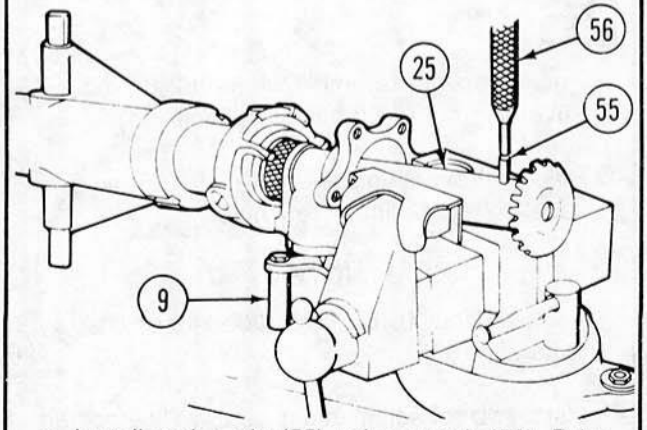
f. Using elevating screw assembly sleeve (25) pin hole as a guide, drill 3/16-inch hole through shaft of miter gear (53). Then go to step 23.

## 22




Drill 3/16 inch hole through elevating screw assembly sleeve (25) and shaft of miter gear (53) 5/8 inch down from the underside of miter gear. Then go to step 23.

## 23



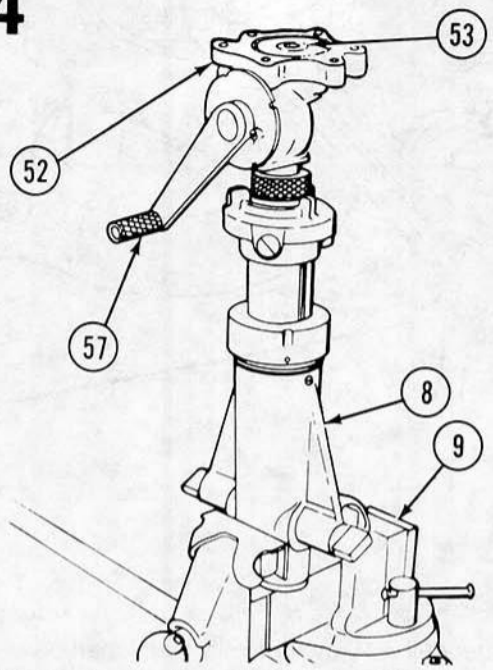

a. Install spring pin (55) using punch (56). Drive spring pin flush and file off burrs.

b. Remove elevating screw assembly sleeve (25) from vise (9).

## 2-16. MORTAR MOUNT ASSEMBLY STANDARD - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

**24**

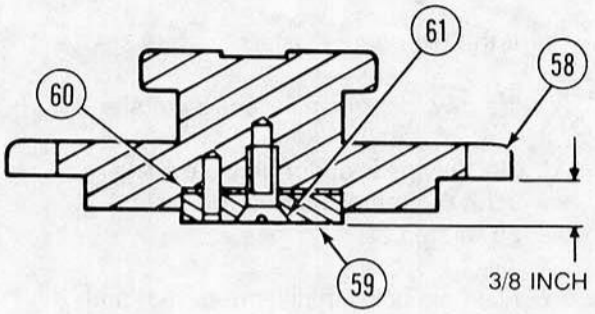



a. Place standard base (8) in vise (9).

b. Turn miter gear (53) down into gear case (52).

c. Turn handle (57) to completely mesh the gears.

**25**




**NOTE**

Be sure to make the following check before placing the traversing assembly slide on top of the gear case.

a. Check for 3/8 inch clearance between bottom surface of traversing slide body mounting flange (58) and face of thrust washer (59). Add or delete shims (60) as necessary.

b. After clearance adjustment, stake screw (61) in four places.

**26**

a. Pull traversing assembly wheel (62) to move traversing nut (63) against support (64).

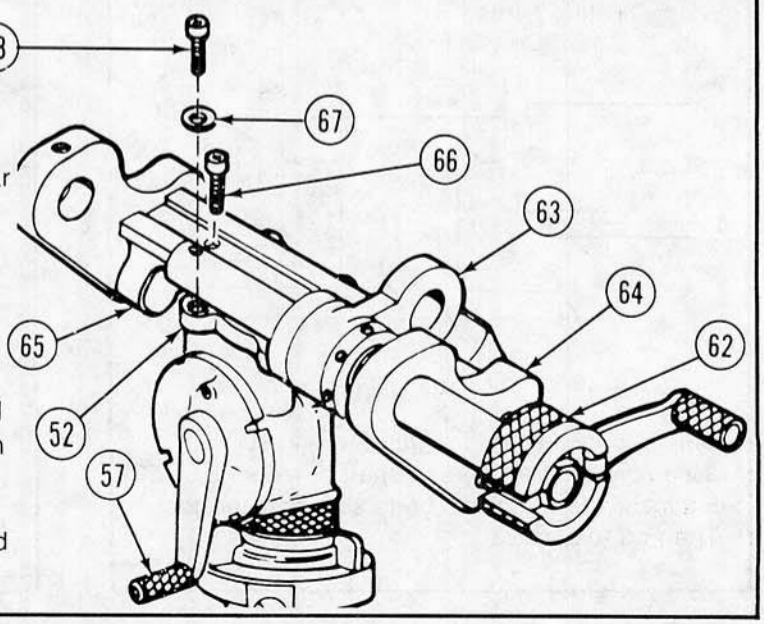
b. Position traversing assembly slide (65) on gear case (52) and aline screw holes.

**NOTE**

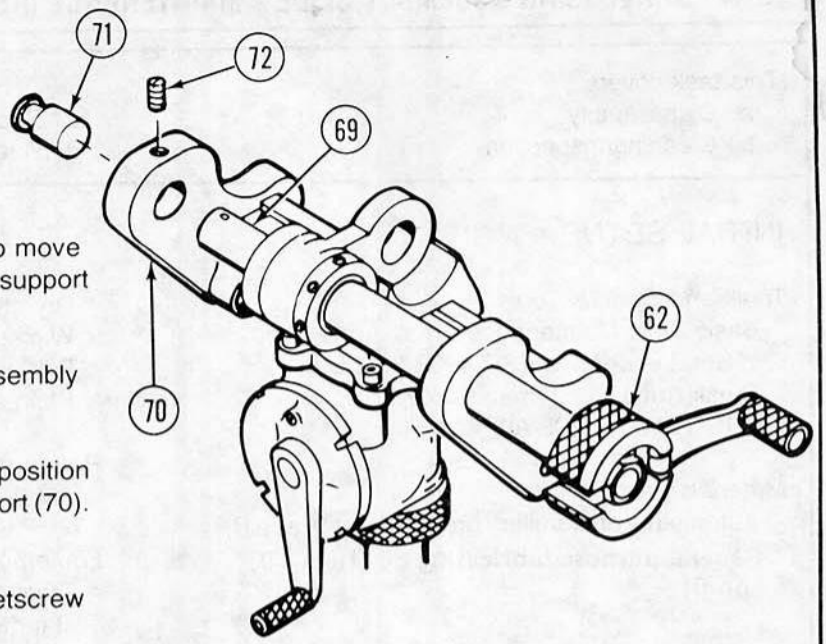
Traversing nut (63) must face away from handle (57).

c. Install two socket head cap screws (66) located in groove of traversing assembly slide. Tighten securely.

d. Install four washers (67) and four socket head cap screws (68). Tighten securely.



## 27




a. Push traversing assembly wheel (62) to move screw and sleeve assembly (69) toward support (70).

b. Aline pin holes in screw and sleeve assembly (69) and support (70).

c. Push traversing assembly wheel (62) to position screw and sleeve assembly (69) in support (70). Check alinement of pin holes.

d. Install headless grooved pin (71) and setscrew (72). Tighten setscrew securely.

## 28

Lubricate standard with general purpose lubricating oil in accordance with TM 9-1015-215-10.

## 2-17. TRAVERSING ASSEMBLY SLIDE - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

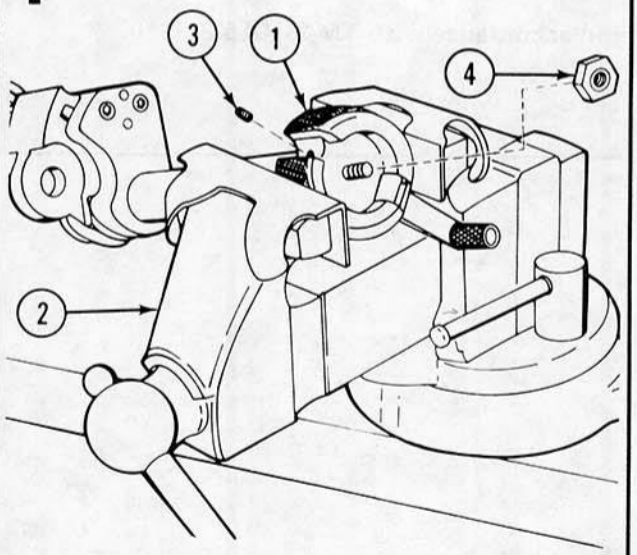
*Materials/Parts*
Automotive and artillery grease (item 9, app B)
General purpose lubricating oil (Item 10, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)
Felt washer 7144063
Plain solid disc 8765630

*References*
TM 9-1015-215-30P

*Equipment Condition*
Traversing assembly slide is removed from standard assembly (p 2-42).

### DISASSEMBLY

**1**

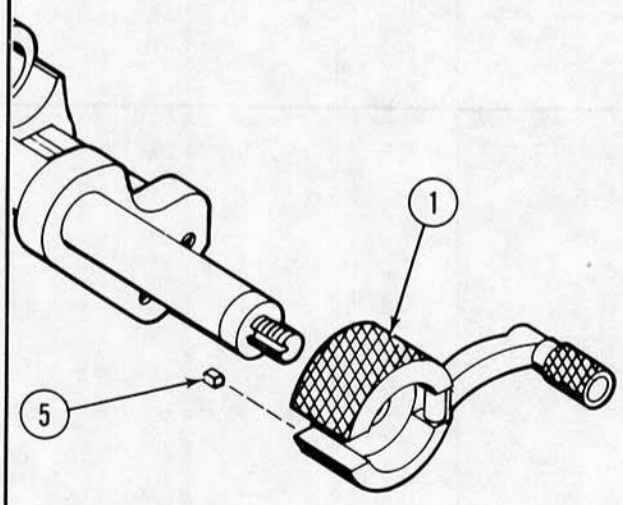



a. Place traversing assembly wheel (1) in vise (2) with other end of traversing assembly slide resting on work bench.

b. Remove setscrew (3) and nut (4).

c. Release traversing assembly wheel (1) from vise (2).

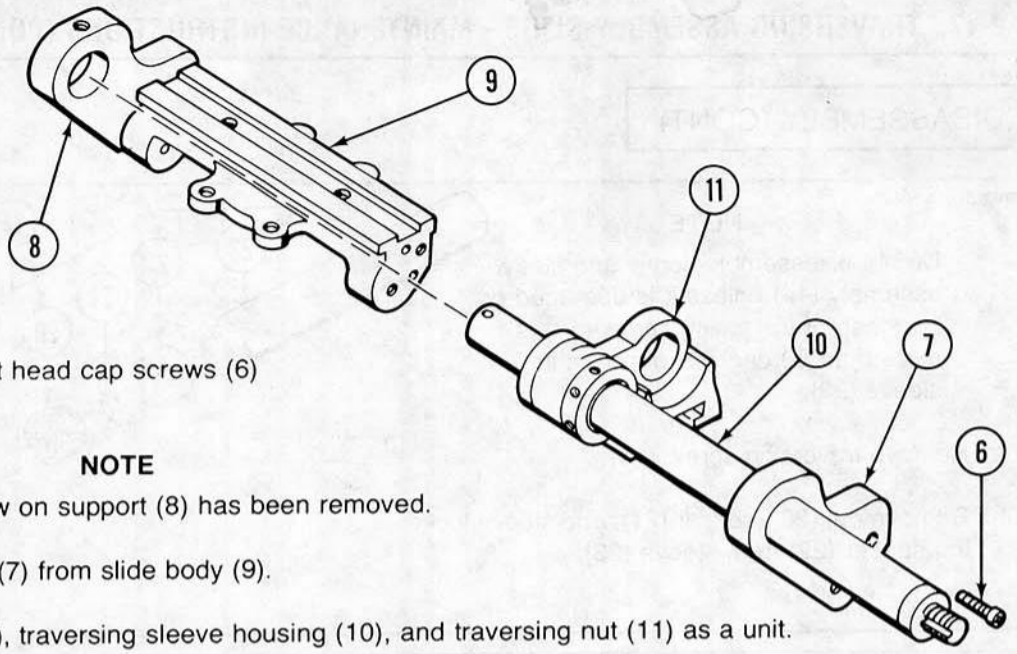
**2**




**NOTE**
Don't lose the key.

Remove traversing assembly wheel (1) and key (5).

## 3




a. Remove two socket head cap screws (6) from support (7).

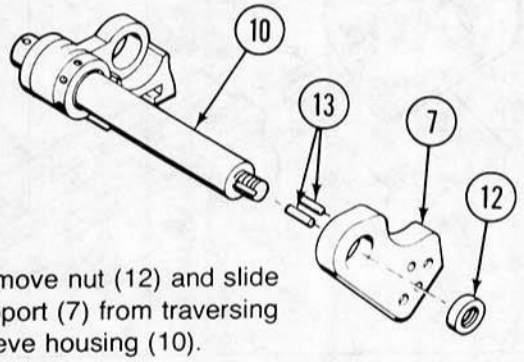
**NOTE**

Be sure setscrew on support (8) has been removed.

b. Gently pry support (7) from slide body (9).

c. Remove support (7), traversing sleeve housing (10), and traversing nut (11) as a unit.

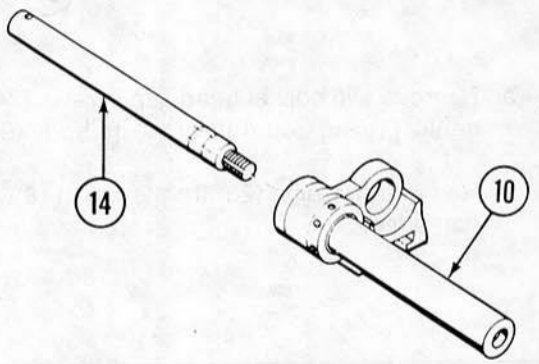
## 4




a. Remove nut (12) and slide support (7) from traversing sleeve housing (10).

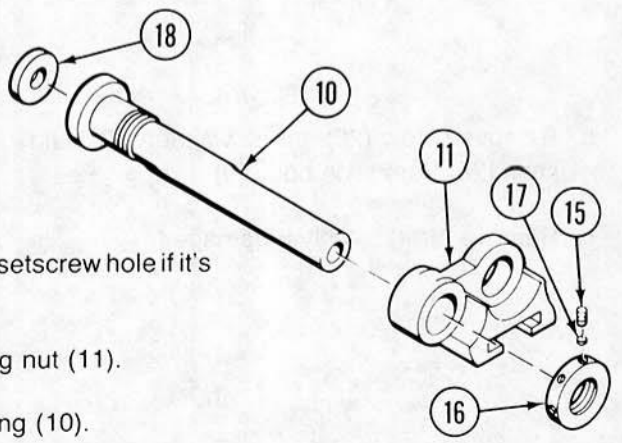
b. Remove two pins (13) only if damaged.

## 5




Remove screw and sleeve assembly (14) from traversing sleeve housing (10).

## 6




a. Remove setscrew (15) from nut (16).

b. If nut (16) cannot be loosened by hand, use a drive pin inserted in one of the four holes to remove nut.

c. Check nut (16) for solid disc. Punch solid disc (17) out of setscrew hole if it's still in there.

d. Remove traversing sleeve housing (10) from traversing nut (11).

e. Remove felt washer (18) from traversing sleeve housing (10).

## 2-17. TRAVERSING ASSEMBLY SLIDE - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

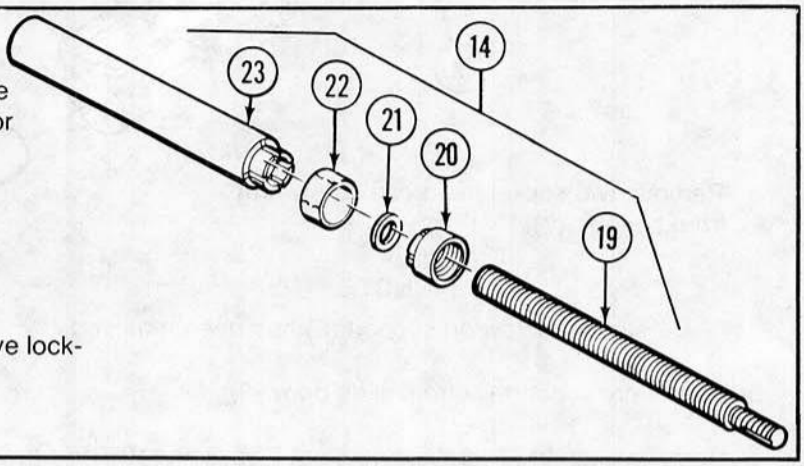
**7**

**NOTE**

Do not disassemble screw and sleeve assembly (14) unless it is damaged or backlash of traversing screw (19) is more than 30 degrees of a turn in sleeve (23).

a. Remove traversing screw (19).

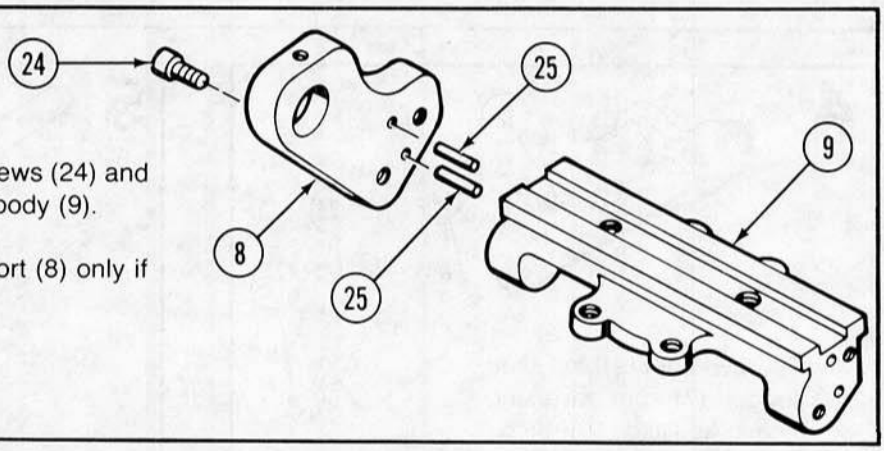
b. Remove nut (20), spacer (21), and sleeve locking spacer (22) from sleeve (23).




**8**

a. Remove two socket head cap screws (24) and gently pry support (8) from slide body (9).

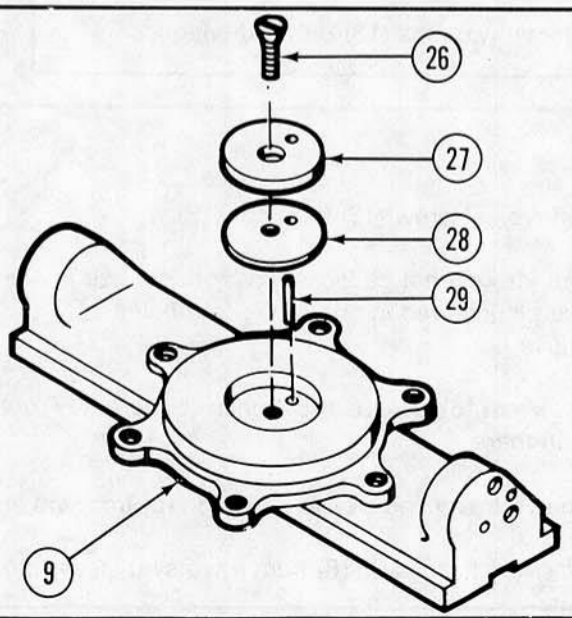
b. Remove two pins (25) from support (8) only if damaged.




**9**

a. Remove screw (26), thrust washer (27), and shim (28) from slide body (9).

b. Remove pin (29) only if damaged.



## CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Inspect traversing assembly wheel (1) for nicks, burrs, and damaged key way.

c. Inspect traversing sleeve housing (10) for bends or dents.

d. Inspect traversing screw (19) for bends, dents, worn or deformed threads.

e. Inspect supports (7 and 8) for nicks, burrs, or out-of-round bearing holes.

## REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

## REASSEMBLY

**1**

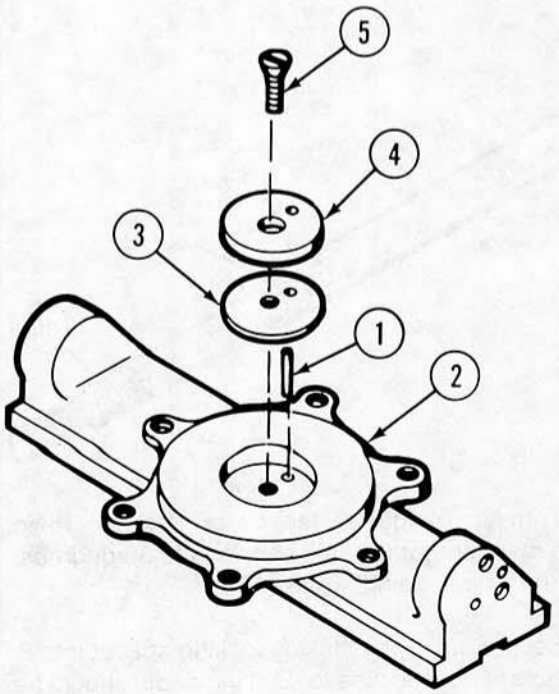
Apply automotive and artillery grease to all threads and bearing surfaces during reassembly.

**2**

a. Install pin (1) in slide body (2) if it was removed.

b. Install shim (3) and thrust washer (4). Secure with screw (5).

c. See page 2-60, step 25, to check and adjust clearance from top of thrust washer (4) to slide body (2).



## 2-17. TRAVERSING ASSEMBLY SLIDE - MAINTENANCE INSTRUCTIONS (CONT).

### REASSEMBLY (CONT)

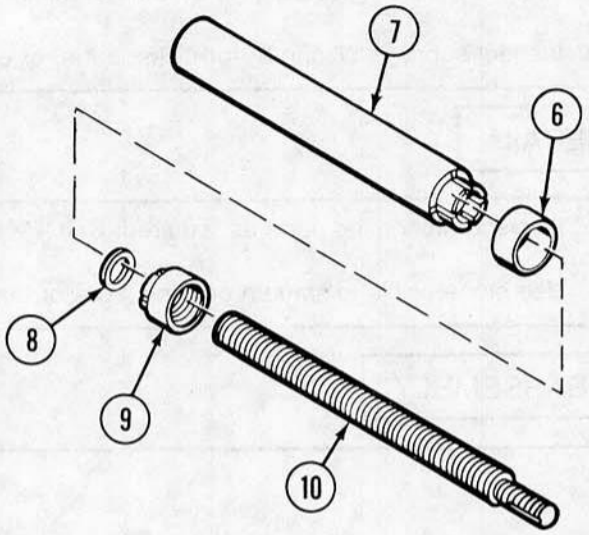
**3**

a. Place sleeve locking spacer (6) on end of sleeve (7).

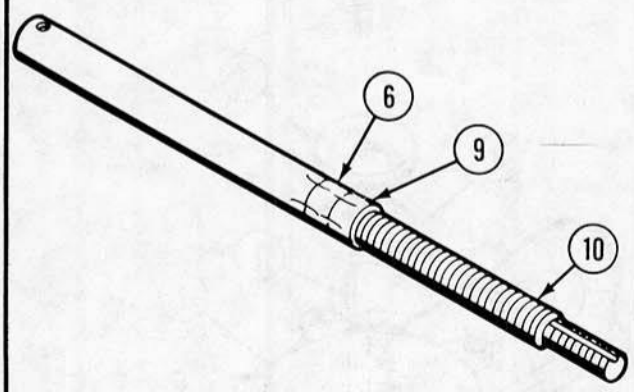
b. Insert spacer (8) in locking spacer (6). Push it back until it touches end of sleeve (7).

c. Place nut (9) against sleeve locking spacer (6). Hold in place.

d. Insert and turn traversing screw (10) into nut (9) and sleeve (7).



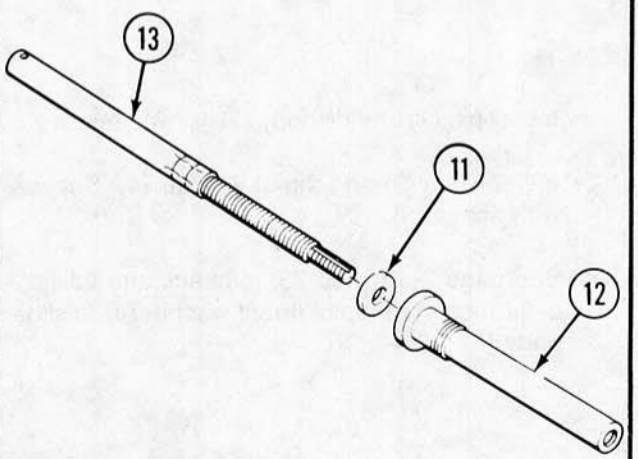

**4**




a. Turn nut (9) against sleeve locking spacer (6) in a manner that will limit backlash to 30 degrees turn of traversing screw (10).

b. Secure nut (9) by staking locking spacer into 8 slots in nut and sleeve. Staking depth should be approximately 1/16 inch.

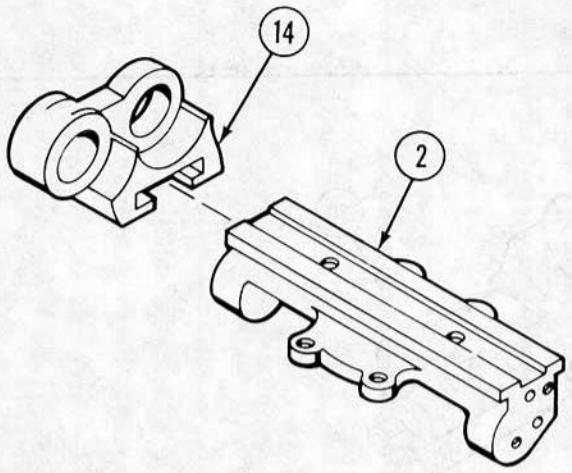
**5**




a. Install new felt washer (11) in traversing sleeve housing (12).

b. Install screw and sleeve assembly (13) into traversing sleeve housing (12).

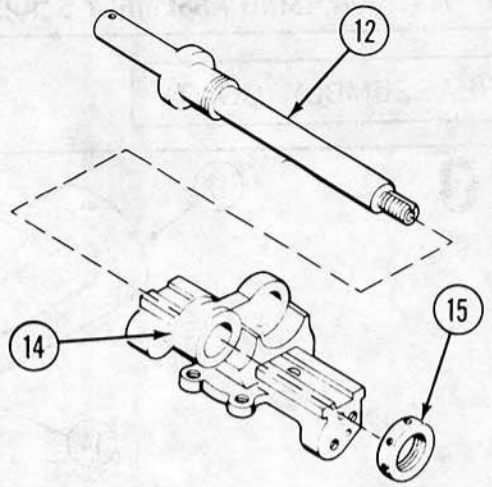
**6**




a. Install traversing nut (14) on slide body (2).

b. Slide traversing nut (14) the full length of slide body (2) to check for binding.

**7**

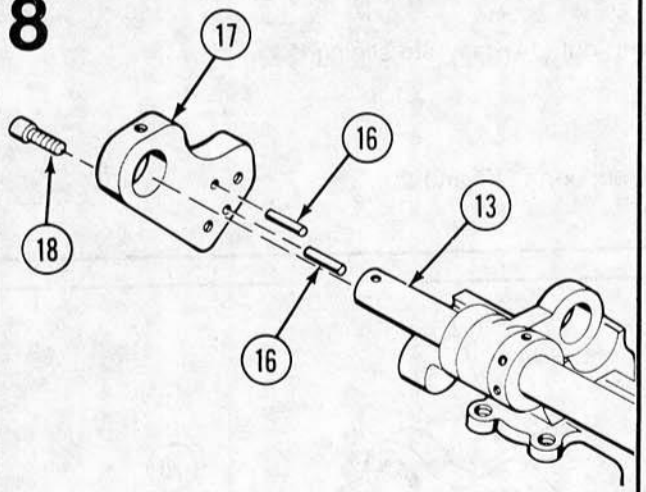



a. Install traversing sleeve housing (12) through traversing nut (14).

b. Install nut (15) handtight on traversing sleeve housing (12).

c. Rotate traversing sleeve housing (12) to check for binding. Readjust nut (15) until rotation of traversing sleeve housing is smooth.

**8**




a. Install two new pins (16) in support (17) if they were removed.

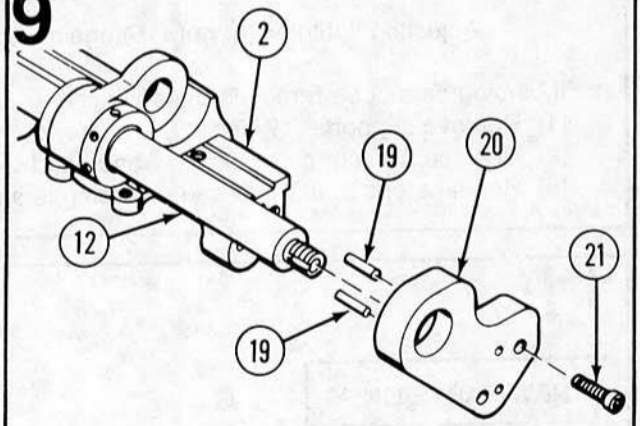
b. Aline pins in support (17) with pin holes in slide body.

c. Gently tap support (17) in place.

d. Guide end of screw and sleeve assembly (13) through hole in support (17).

e. Install two socket head cap screws (18).

**9**




a. Install two new pins (19) in support (20) if they were removed.

b. Aline hole in support (20) with traversing sleeve housing (12) and slide support over traversing sleeve housing.

c. Aline pins in support (20) with pin holes in slide body (2).

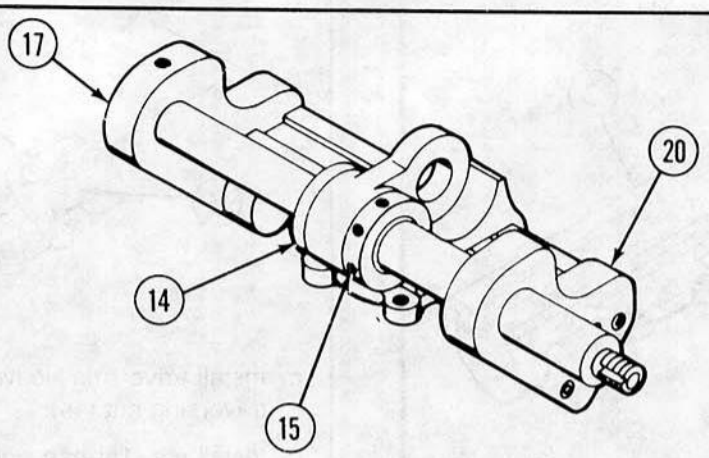
d. Gently tap support (20) in place.

e. Install two socket head cap screws (21).

## 2-17. TRAVERSING ASSEMBLY SLIDE - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**10**




a. Push traversing nut (14) back and forth between supports (17 and 20) to check for binding.

b. If binding is present:
   (1) Loosen screws and tap supports.
   (2) Tighten screws and repeat step a.

**NOTE**

Adjusting tightness of nut (15) against traversing nut (14) may aid sliding.

c. If binding cannot be removed by tapping:
   (1) Remove supports (17 and 20) and the four pins.
   (2) Replace the four pins with new ones and reinstall supports (17 and 20).
   (3) Repeat steps a., b., and c. until sliding is smooth.

**11**

NEW PARTS ONLY

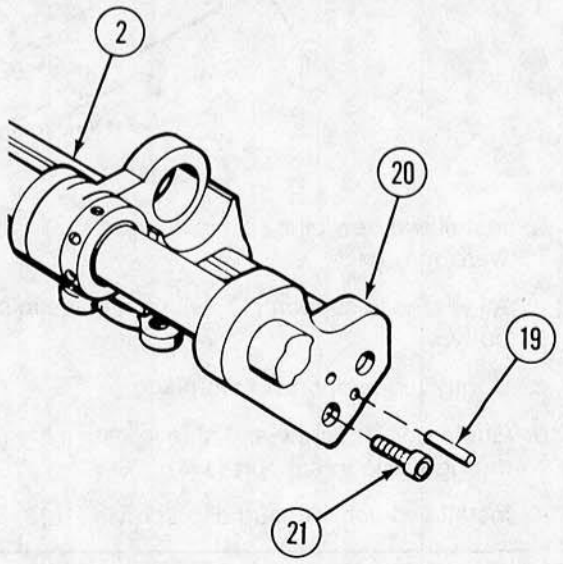
a. To install a new slide body, follow steps b. through e. below.

b. Install supports (17 and 20). Secure with four socket head cap screws (18 and 21).

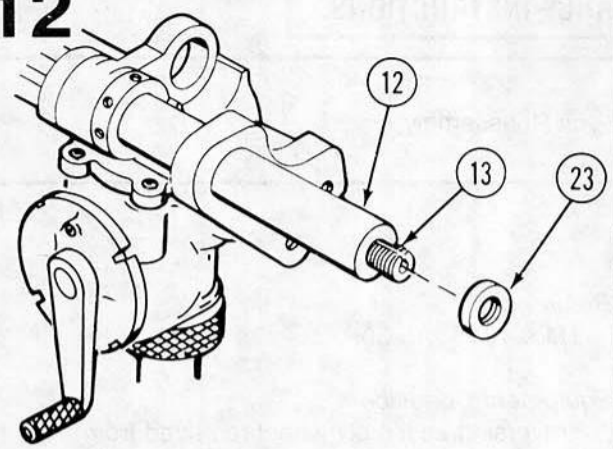
c. Using pin holes in supports (17 and 20) as guides, drill four 1/4-inch holes, 3/4-inch deep in slide body (2).

d. Install four new pins (16 and 19).

e. Check for binding. See step 10.



## 12




a. Reassemble traversing assembly slide on standard assembly (p 2-60, step 26, and p 2-61, step 27).

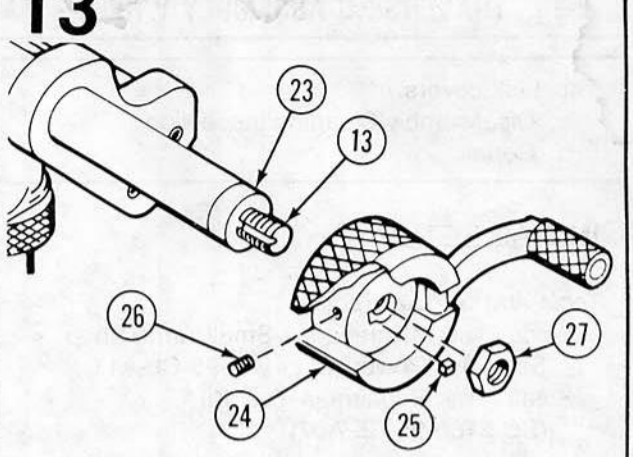
b. Install nut (23) part way on screw and sleeve assembly (13).

c. Slowly turn screw and sleeve assembly (13) counterclockwise until small end is fully extended and traversing begins.

d. While turning screw and sleeve assembly (13), run nut (23) up against traversing sleeve housing (12).

e. Back nut (23) off just enough to keep end play to a minimum, but also enough to allow the screw and sleeve assembly (13) to rotate easily.

## 13




a. Install traversing assembly wheel (24) on screw and sleeve assembly (13). Push it against nut (23).

b. Aline key ways in traversing assembly wheel (24) and screw and sleeve assembly (13).

c. Install key (25) in alined key ways.

d. Install setscrew (26). Tighten securely.

e. Install nut (27). Tighten securely. Stake in two places.

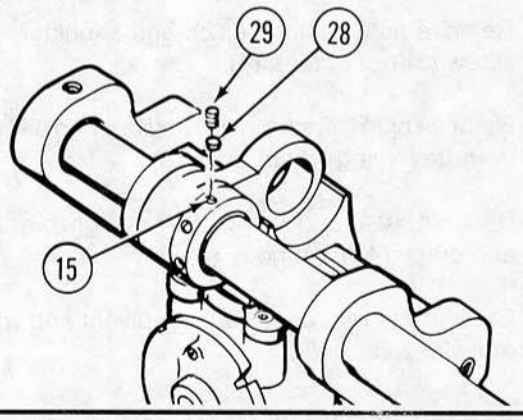
f. Check traversing wheel full length for maximum backlash of 30 degrees and for smooth and easy action.

## 14

a. Place new solid disc (28) in setscrew hole of nut (15).

b. Using a punch, tap solid disc (28) into place.

c. Install setscrew (29). Tighten securely.




## 15

a. Stake all setscrews and socket head cap screws securely when reassembly and adjustments are complete.

b. Wipe all unpainted exposed surfaces with general purpose lubricating oil.

## 2-18. TRAVERSING ASSEMBLY WHEEL - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly/Cleaning/Inspection
b. Repair
c. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-30P

*Equipment Condition*
Traversing assembly wheel removed from traversing assembly slide (p 2-62).

### DISASSEMBLY/CLEANING/INSPECTION

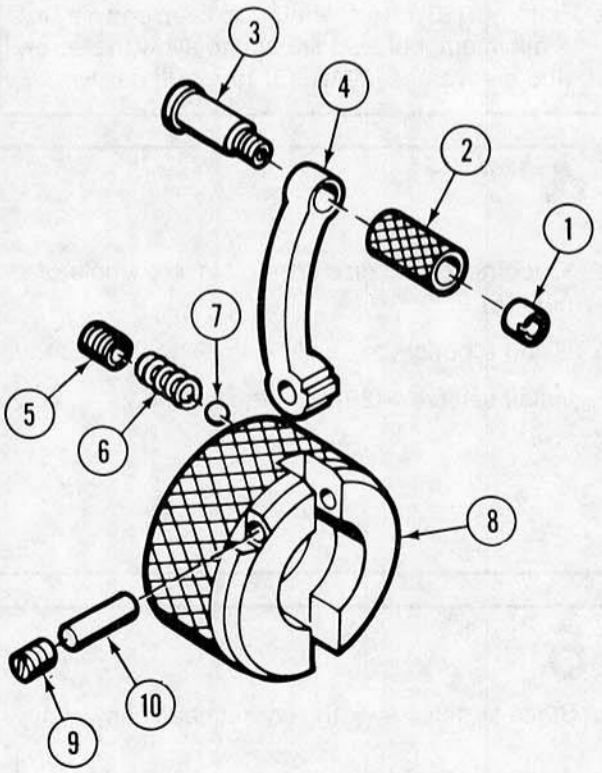
a. Remove nut (1), handle (2), and shoulder screw (3) from crank (4).

b. Remove plug (5), spring (6), and bearing ball (7) from traversing wheel body (8).

c. Remove setscrew (9), headless straight pin (10), and crank (4) from body (8).

d. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

e. Inspect spring (6) for cracks, breaks, and deformities.



## REPAIR

Replace authorized parts as required. See TM 9-1015-215-30P.

## REASSEMBLY

a. Apply automotive and artillery grease to bearing and spring during reassembly.

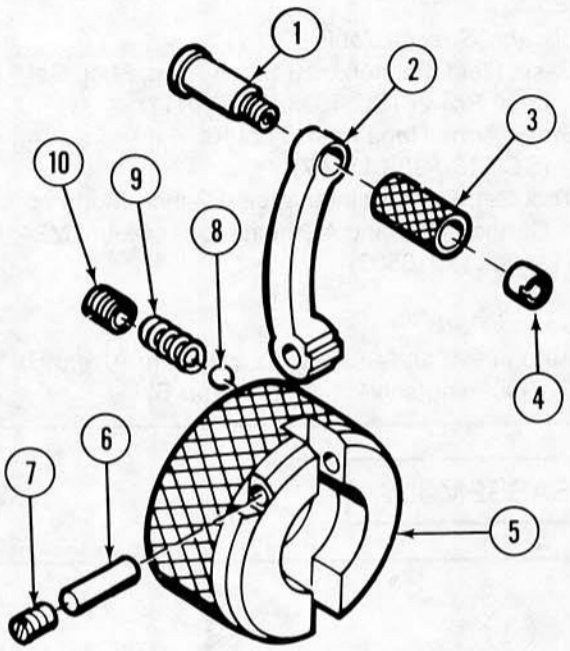
b. Install shoulder screw (1) in crank (2).

c. Install handle (3) and nut (4) on crank (2). Tighten nut (4) securely.

d. Position crank (2) assembly in traversing wheel body (5) in the closed position and aline pin holes.

e. Install headless straight pin (6) and setscrew (7). Tighten setscrew (7) securely.

f. Install bearing ball (8), spring (9), and plug (10) in traversing wheel body (5). Tighten plug (10) securely.



## 2-19. GEAR AND HANDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
Tool Set, Field Maintenance 4.2-inch Mortar Cannon M30 and 4.2-inch Mortar Mount M24 series (5910503)

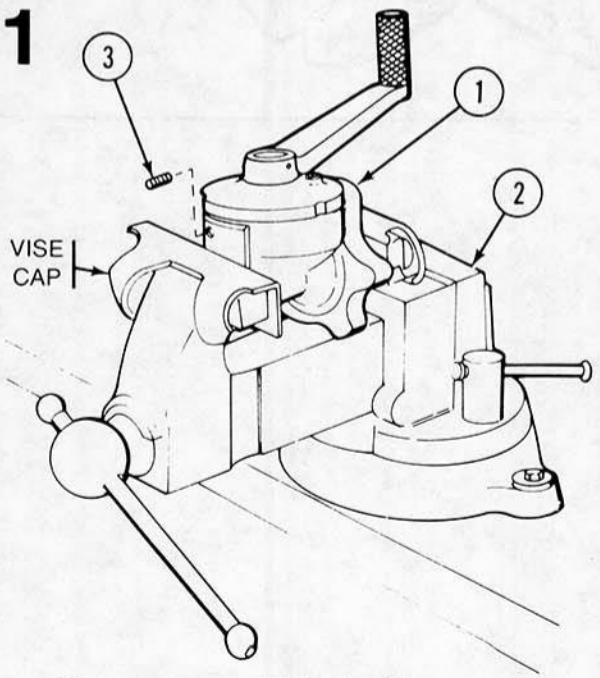
*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Gasket 7144043
Shims 7144051
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-30P

*Equipment Condition*
Gear case with gear and handle assembly removed from standard assembly (p 2-43)

### DISASSEMBLY

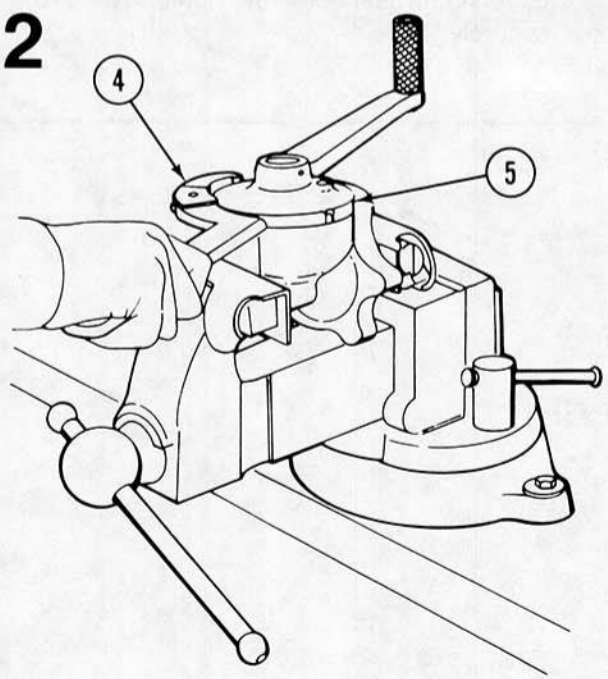
**1**




a. Place gear case (1) in vise (2).

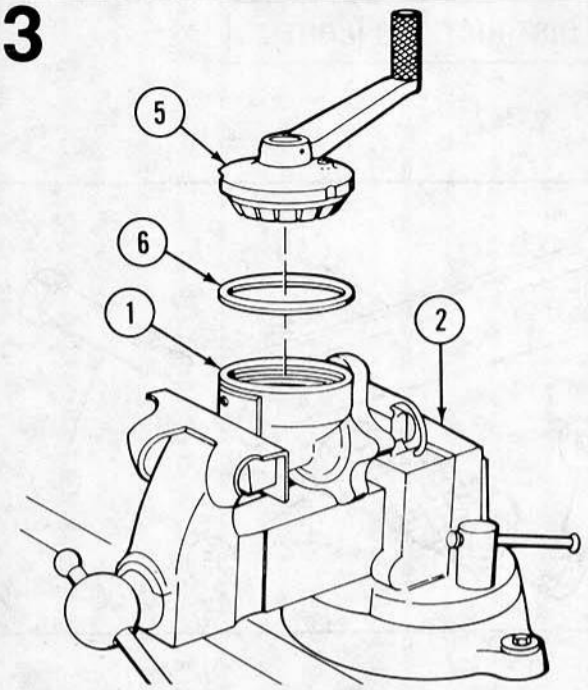
b. Remove setscrew (3).

**2**




Using spanner wrench (4), loosen cover of gear and handle assembly (5).

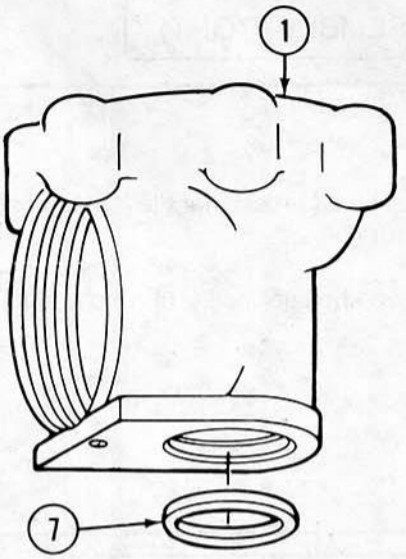
**3**




a. Remove gear and handle assembly (5) and shim (6) from gear case (1).

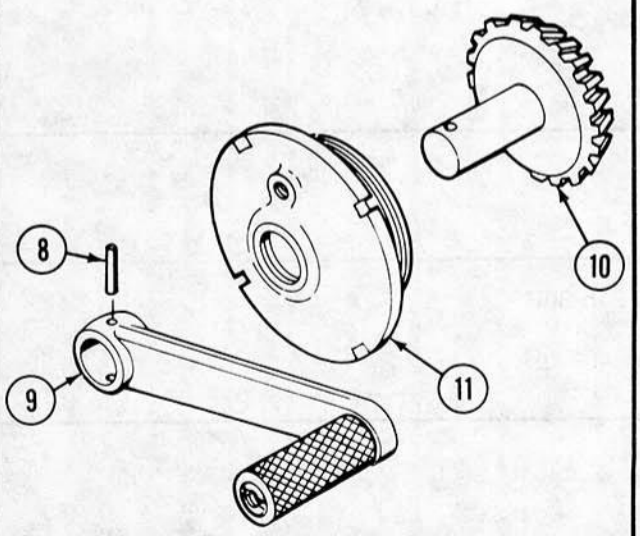
b. Remove gear case (1) from vise (2).

**4**




Remove gasket (7) from gear case (1).

**5**

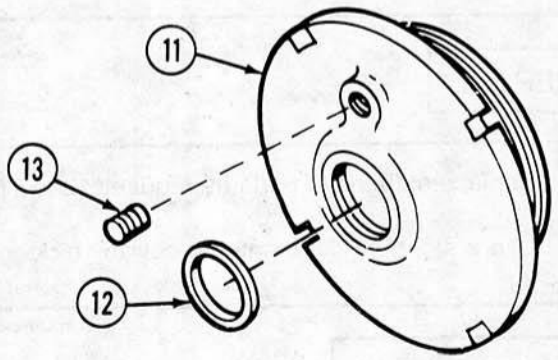



a. Remove spring pin (8).

b. Remove crank (9) from shaft of miter gear (10).

c. Remove miter gear (10) from gear case cover (11).

**6**




a. If damaged, remove preformed packing (12) from gear case cover (11).

b. Remove pipe plug (13) only if damaged.

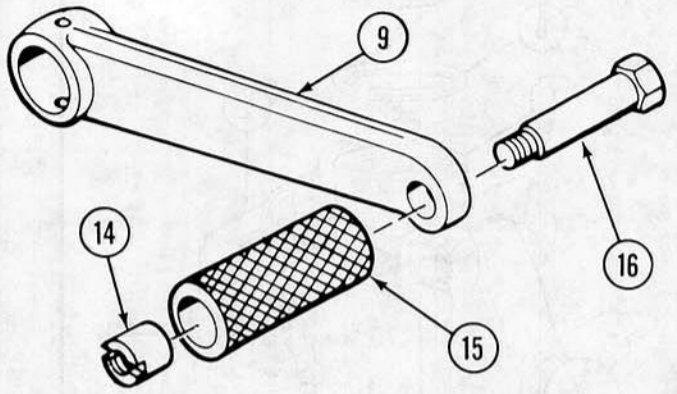
## 2-19. GEAR AND HANDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### DISASSEMBLY (CONT)

**7**

a. Remove nut (14) and handle (15) from shoulder bolt (16).

b. Remove shoulder bolt (16) from crank (9).




### CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Inspect gear case cover (11) for nicks and burrs.

c. Inspect miter gear (10) for worn, cracked or broken teeth.

d. Inspect all threaded parts for damage, burrs or wear.

### REPAIR

a. Replace authorized parts as required. See TM 9-1015-215-30P.

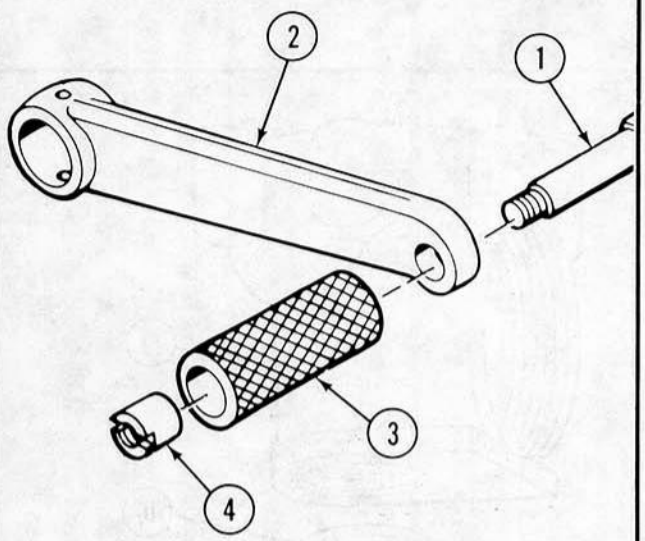
b. Use a stone or file to smooth out any nicks or burrs.

### REASSEMBLY

**1**

Apply automotive and artillery grease to all bearing surfaces and gears during reassembly.

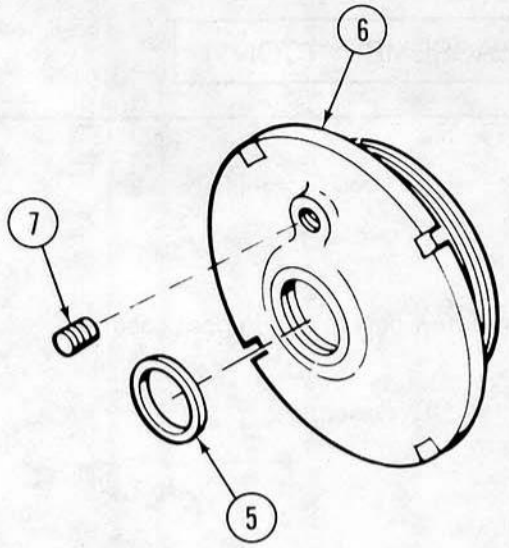
## 2




a. Install shoulder bolt (1) in crank (2).

b. Install handle (3) and nut (4) on shoulder bolt (1). Tighten nut securely.

## 3




a. If removed, install new preformed packing (5) in gear case cover (6).

b. Install pipe plug (7) if it was removed.

## 4

a. Install miter gear (8) in gear case cover (6).

b. Install crank (2) on shaft of miter gear (8).

c. If all old parts are being assembled, go to step d. below. If a new miter gear is being installed, go to step e. through step g. below.

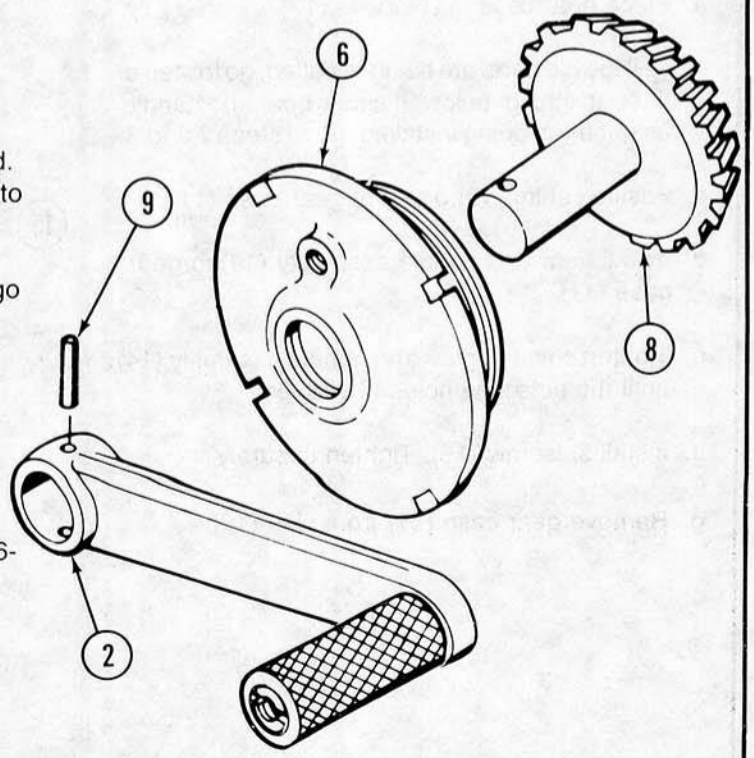
d. Aline pin holes and install spring pin (9). Then go to step 5.

NEW PARTS ONLY

e. Using pin hole in crank (2) as a guide, drill 3/16-inch hole in shaft of miter gear (8).

f. Install spring pin (9).

g. Check that miter gear (8) and crank (2) turn smoothly in gear case cover (6).

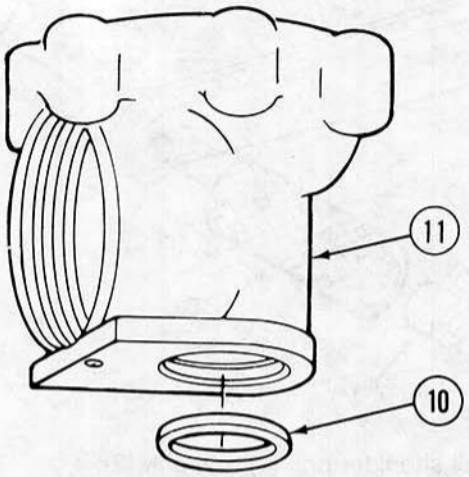


## 2-19. GEAR AND HANDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**5**

Install new gasket (10) in gear case (11).




**6**

a. Place gear case (11) in vise (12).

b. If all the old parts are being installed, go to step c. through step g. below. If a new gear and handle assembly is being installed, go to steps 7 and 8.

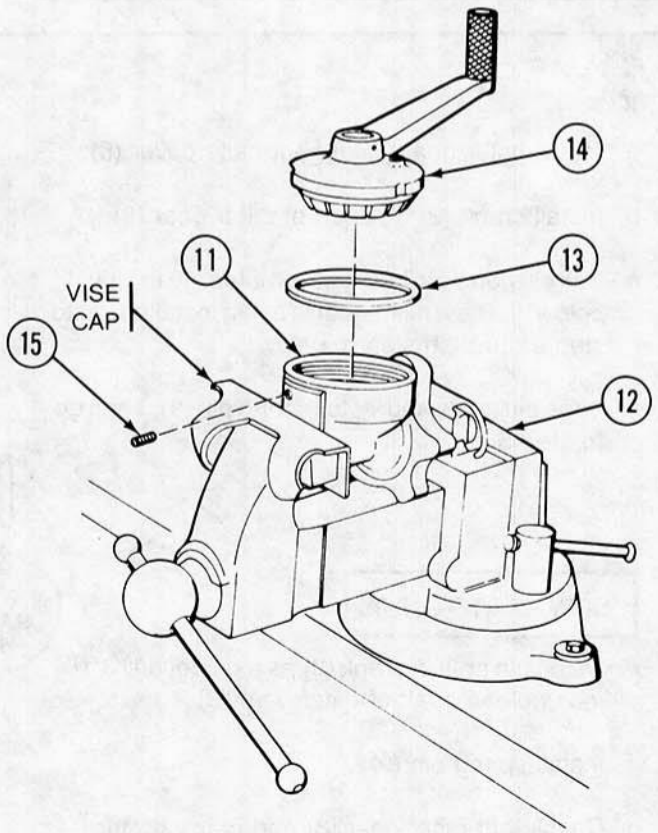
c. Position shim (13) on lip of gear case (11).

d. Install gear and handle assembly (14) in gear case (11).

e. Tighten cover of gear and handle assembly (14) until the setscrew holes are alined.

f. Install setscrew (15). Tighten securely.

g. Remove gear case (11) from vise (12).



# 7

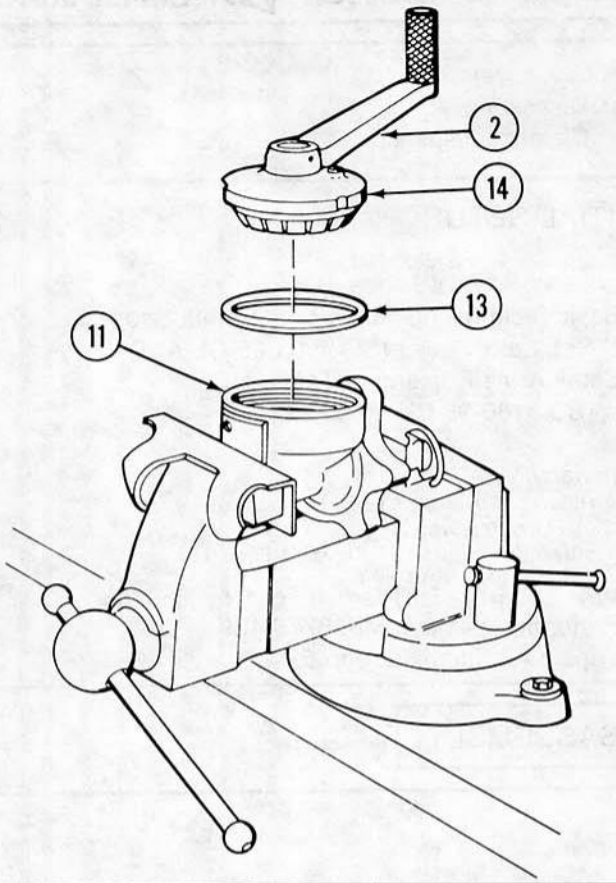
NEW PARTS ONLY

a. Screw gear and handle assembly (14) into gear case (11). Tighten securely.

b. Turn crank (2) to check for binding.

c. If binding occurs, remove gear and handle assembly (14) and install one or more shims (13) as required.

d. Repeat steps a., b., and c. until elevating crank turns smoothly and without binding.




# 8

NEW PARTS ONLY

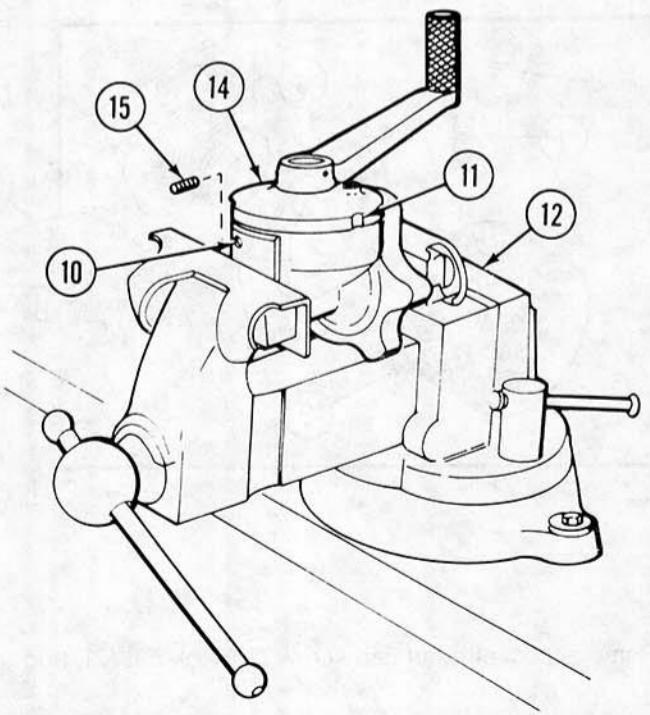
a. Using setscrew hole in gear case (11) as a guide, drill a No. 33 (0.113-inch) hole in cover of gear and handle assembly (14).

**NOTE**

Drill the hole just deep enough so that the setscrew will be flush with gear case. Avoid drilling through the cover of gear and handle assembly to prevent metallic chips from entering the gear case.

b. Install setscrew (15). Tighten securely.

c. Remove gear case (11) from vise (12).



## 2-20. BRIDGE ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection/Repair
c. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
General purpose lubricating oil (item 10, app B)
Dry cleaning solvent (item 6, app B)
Preformed packing MS28775-429
Wiping rag (item 12, app B)

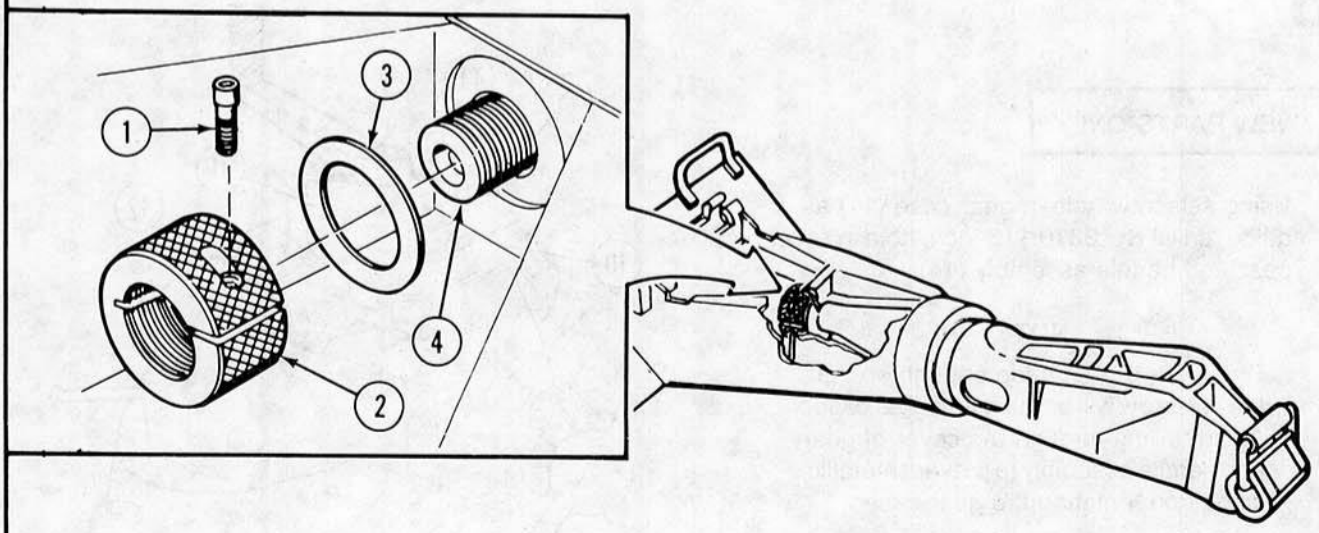
*Personnel Required*
MOS 44B Welder

*References*
TM 9-1015-215-30P
TM 9-237
TM 9-1015-215-10

*Equipment Condition*
Bridge assembly is removed from M30 4.2-inch mortar (TM 9-1015-215-10).

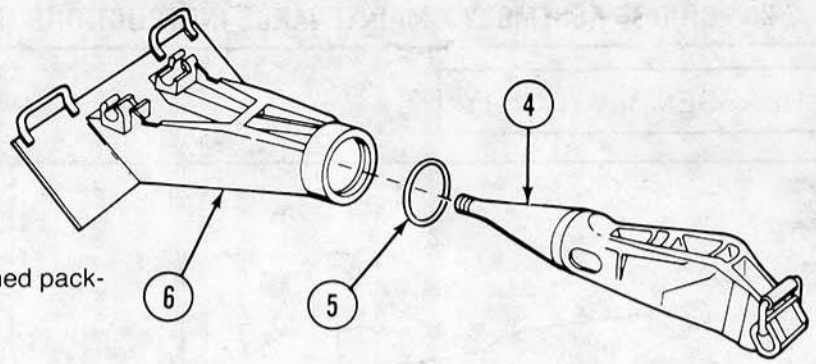
### DISASSEMBLY

**1**



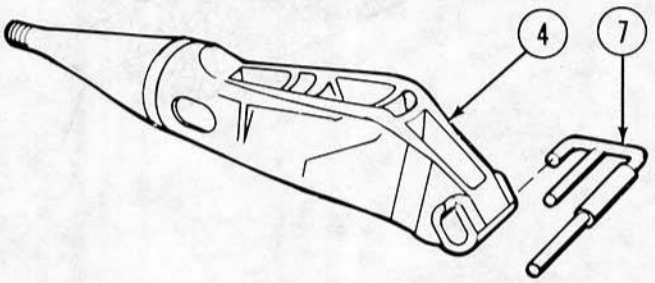

Remove socket head cap screw (1), lock nut (2), and thrust washer (3) from bridge cup body (4).

**2**




Remove bridge cup body (4) and preformed packing (5) from bridge base body (6).

**3**




**NOTE**

Do not remove handle (7) unless it is unserviceable.

Remove handle (7) from bridge cup body (4) by cutting or bending as necessary.

## CLEANING/INSPECTION/REPAIR

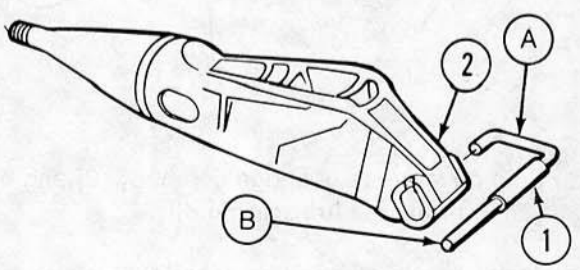
a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Inspect all threaded parts for damage, burrs, or wear. Use stone or file to smooth out any burrs or sharp corners. Inspect bridge cup body (4) and bridge base body (6) castings for cracks.

c. Replace authorized parts as required. See TM 9-1015-215-30P.

## REASSEMBLY

**1**



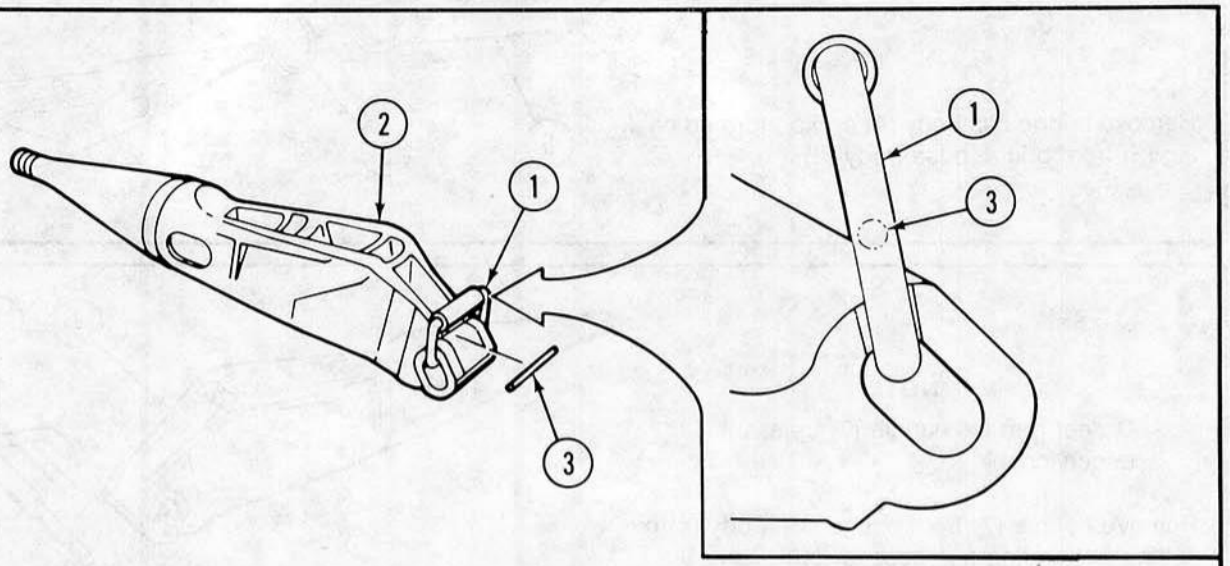

a. Insert hook (A) of handle (1) in bridge cup body (2) socket.

b. Bend end (B) of handle (1) to hook it in bridge cup body (2) socket.

## 2-20. BRIDGE ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

**2**



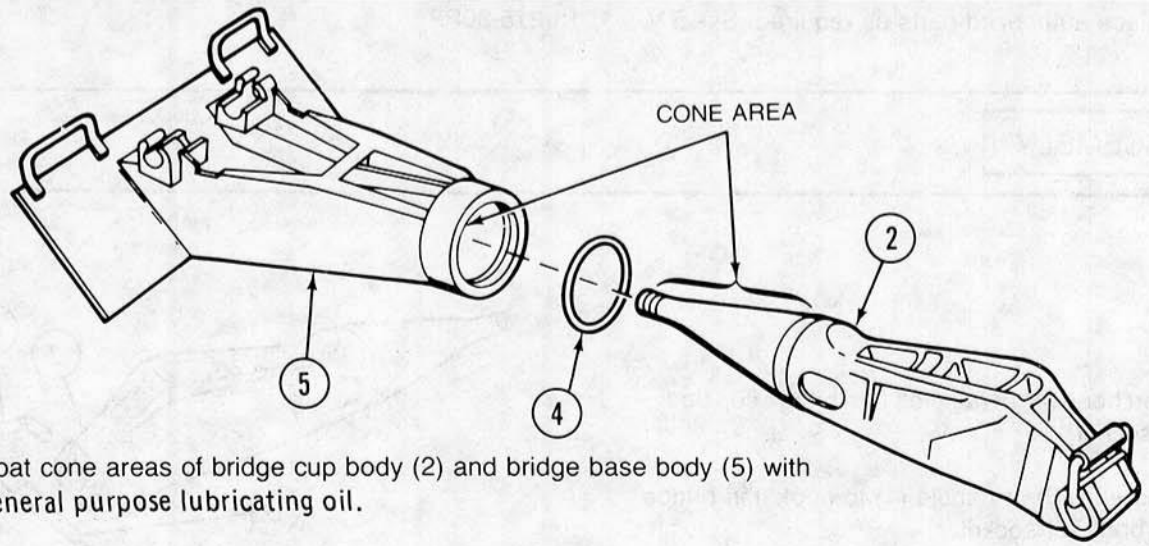

a. Lift handle (1) to its extreme upward and forward position and temporarily block in place.

b. Insert headless straight pin (3) between the handle uprights, rest it on sloping surface of bridge cup body (2) and temporarily block in place.

c. Weld each end of headless straight pin (3) to handle assembly (1) with a continuous 360° bead around the rod (see TM 9-237).

d. Remove blocking.

**3**

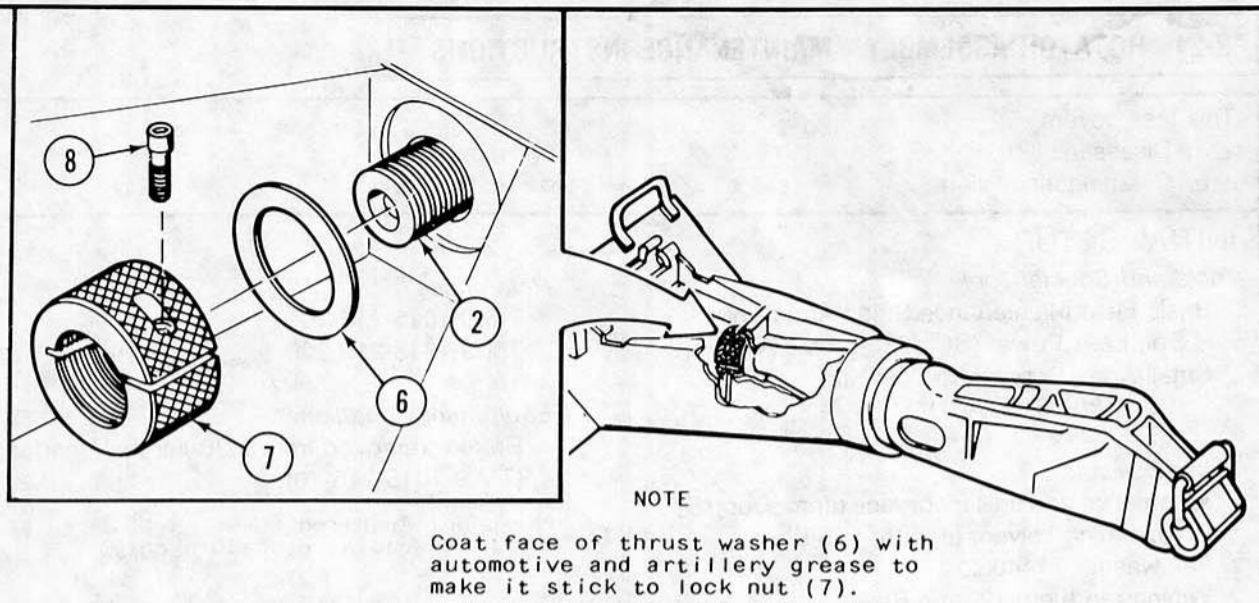



a. Coat cone areas of bridge cup body (2) and bridge base body (5) with general purpose lubricating oil.

b. Install new preformed packing (4) in bridge base body (5).

c. Install bridge cup body (2) in bridge base body (5).

**4**




NOTE

Coat face of thrust washer (6) with automotive and artillery grease to make it stick to lock nut (7).

a. Place thrust washer (6) over small diameter of shoulder of lock nut (7).

b. Install lock nut (7) on threaded end of bridge cup body (2).

c. Tighten lock nut (7) until bridge assembly pivots slowly when lifted by one handle on the spade.

d. Install socket head cap screw (8) in lock nut (7). Tighten socket head cap screw (8) securely.

## 2-21. ROTATOR ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/Inspection
c. Repair
d. Reassembly

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Felt washer 7144082
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-10
TM 9-1015-215-30P

*Equipment Condition*
Rotator removed from M30 4.2-inch mortar (TM 9-1015-215-10).

Personnel Required
2 (for special procedure only)

### DISASSEMBLY

**1** SPECIAL PROCEDURE

a. If rotator cannot be removed from baseplate, perform the following procedure.

WARNING

Rotator assembly may fall out of baseplate assembly during this procedure if not restrained by additional repairman.

b. Stand baseplate (1) on edge with pipe plug hole (1.1) up.

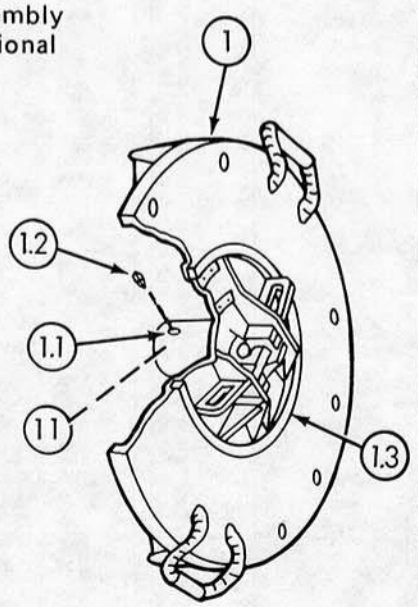
c. Remove pipe plug (1.2) from baseplate assembly.

d. Rotate the rotator assembly (1.3) until one of the slide locks (11) is visible through the pipe plug hole.

e. Using an appropriate punch and hammer, tap the slide lock back into its rotator housing.

f. Rotate the rotator assembly 180° until the other slide lock is visible through the pipe plug and repeat step e.

g. Procede with disassembly.



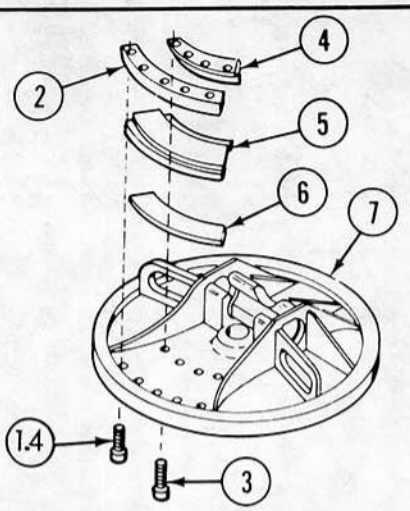
DISASSEMBLY

## 1.1

a. Remove five socket head cap screws (1) and outer retainer (2).

b. Remove four socket head cap screws (3) and inner retainer (4).

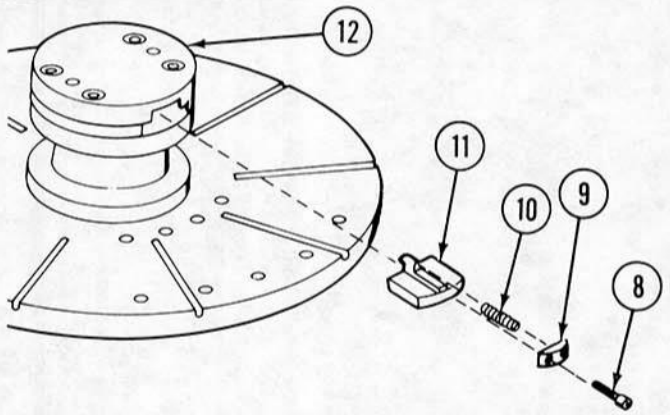
c. Remove rest pad (5) and cushion (6) from rotator body (7).




## 2

a. Remove two socket head cap screws (8), retainer (9), spring (10), and slide lock (11) from slide lock retainer (12).

b. Repeat step a. to remove similar items from other side.

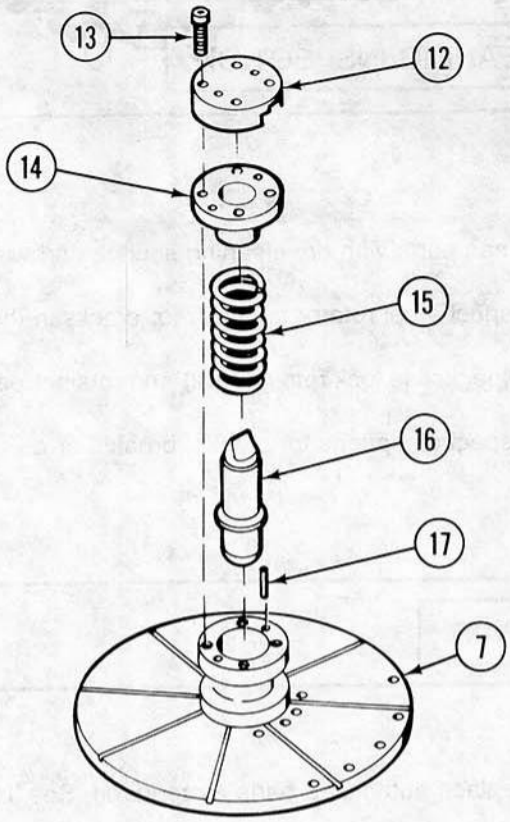


# 3

a. Remove four socket head cap screws (13).

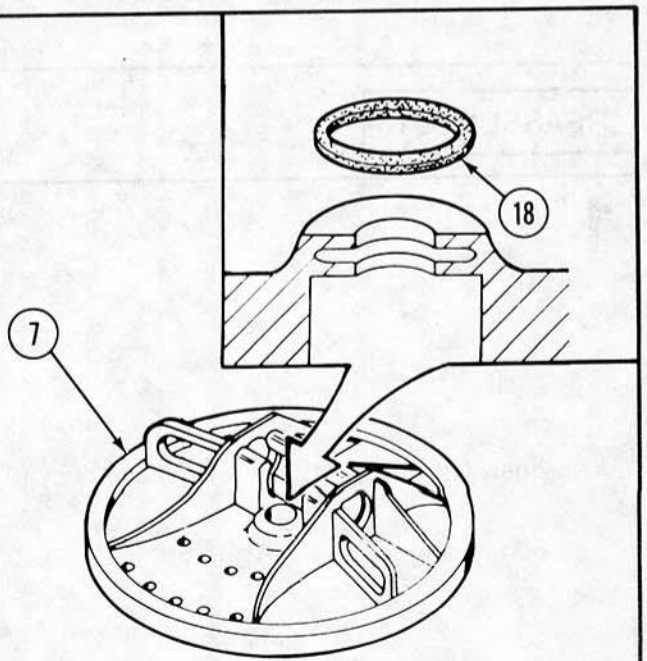
b. Remove slide lock retainer (12), expanding pin guide (14), spring (15), and headless shoulder pin (16) from rotator body (7).

c. Remove two spring pins (17) only if they are damaged.




# 4

Remove felt washer (18) from slot in rotator body (7).



## 2-21. ROTATOR ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

### CLEANING/INSPECTION

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

b. Inspect steel rotator body (7) for cracks in the body and in the welds.

c. Inspect slide lock retainer (12) and retainer parts for breaks, cracks, nicks and burrs, and deformed parts.

d. Inspect all springs for cracks, breaks, or deformities.

### REPAIR

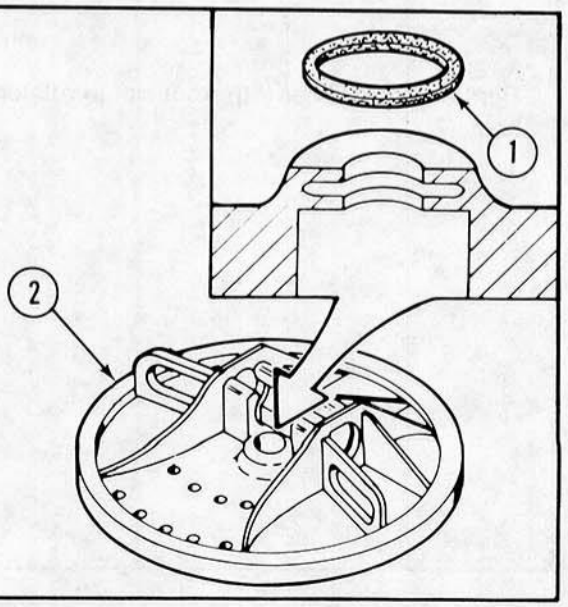
a. Replace authorized parts as required. See TM 9-1015-215-30P.

b. Use stone or file to smooth out any nicks or burrs.

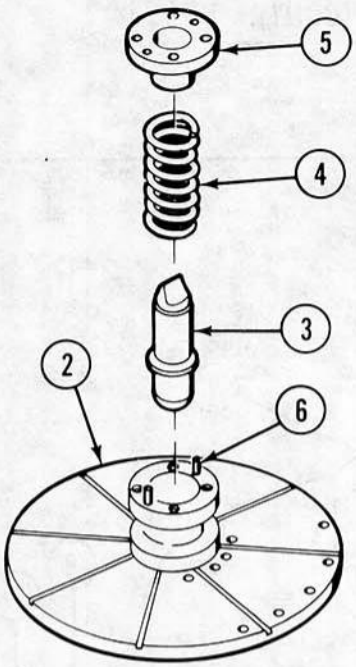
### REASSEMBLY

**1**

Install new felt washer (1) in slot in rotator body (2).

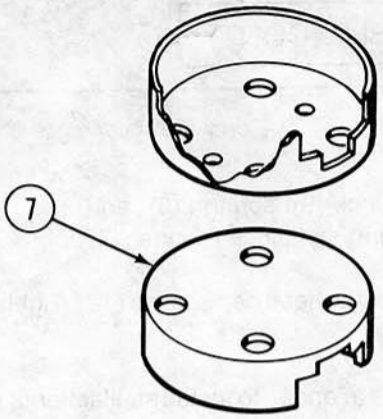


## 2




Install headless shoulder pin (3), spring (4) and expanding pin guide (5) in rotator body (2). If pins (6) were not removed, aline pin holes in guide (5) over pins (6) and install guide (5).

## 3




NEW PARTS ONLY

a. If a new slide lock retainer (7) is installed, use the old retainer as a guide to drill holes for pins.

b. Drill two 3/8-inch holes through the new slide lock retainer (7).

## 4

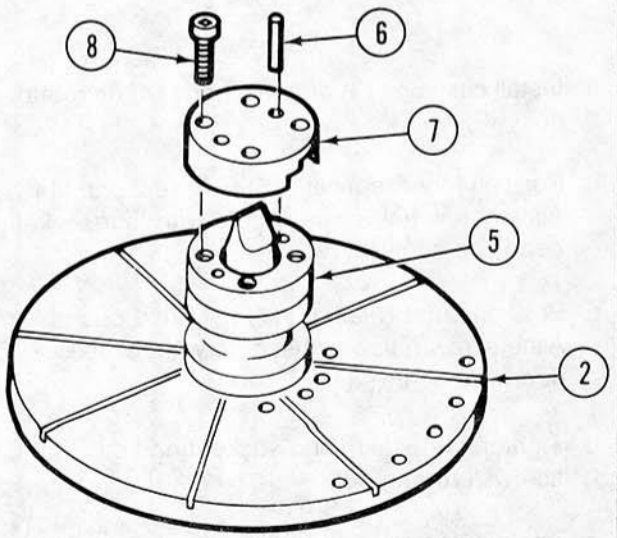
a. Position retainer (7) on expanding pin guide (5).

b. Aline pin holes with screw holes in retainer (7), guide (5), and rotator body (2).

c. Install four socket head cap screws (8) loosely.

d. If removed, install two new spring pins (6).

e. Tighten four socket head cap screws (8) securely.



## 2-21. ROTATOR ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

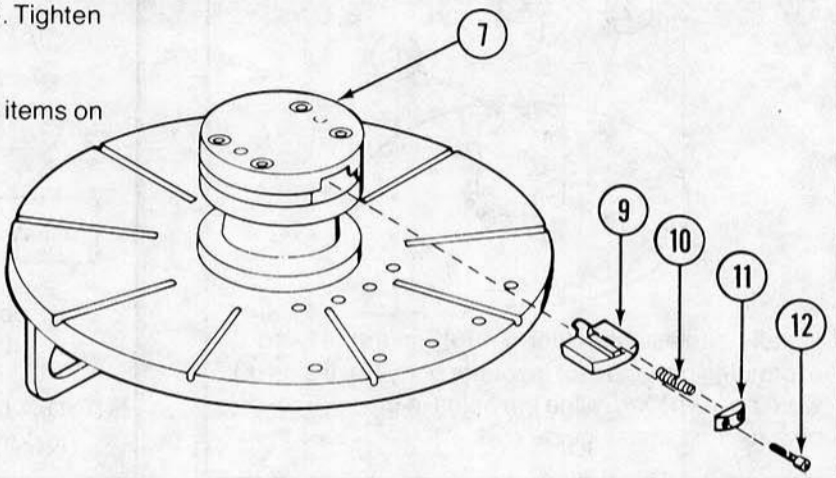
### REASSEMBLY (CONT)

**5**

a. Install slide lock (9), spring (10), and retainer (11) in slide lock retainer (7).

b. Install two socket head cap screws (12). Tighten securely.

c. Repeat steps a. and b. to install similar items on the other side.




**6**

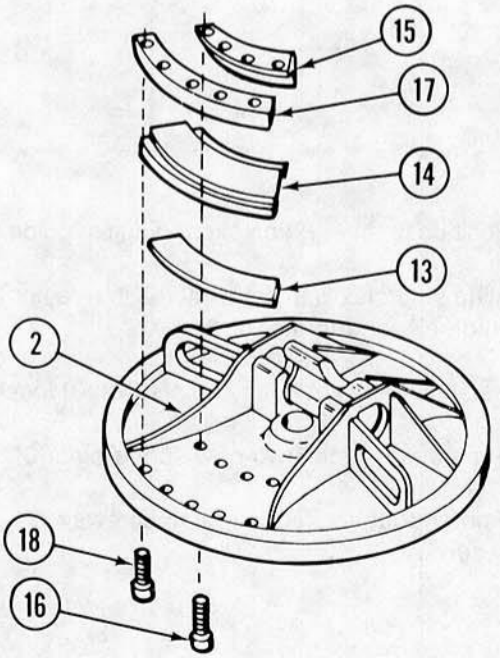
a. Install cushion (13) and rest pad (14) on rotator body (2).

b. Position inner retainer (15) over rest pad (14). Aline screw holes and secure with four socket head cap screws (16).

c. Position outer retainer (17) over rest pad (14). Aline screw holes and secure with five socket head cap screws (18).

d. Tighten and stake nine socket head cap screws (16 and 18).

e. Apply automotive and artillery grease to the entire underside of bearing surface.



## 2-22. MORTAR BASEPLATE - MAINTENANCE INSTRUCTIONS.

This task covers disassembly/cleaning/inspection/repair/reassembly.

### INITIAL SETUP

*Tools and Special Tools*
Basic Field Maintenance Small Arms Shop Set, Less Power (SC 4933-95-CL-A11)
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

*Materials/Parts*
Automotive and artillery grease (item 9, app B)
Dry cleaning solvent (item 6, app B)
Wiping rag (item 12, app B)

*References*
TM 9-1015-215-20&P
TM 9-1015-215-30P
TM 9-1015-215-10

*Equipment Condition*
Mortar baseplate removed from M30 4.2-inch mortar (TM 9-1015-215-10).

### DISASSEMBLY/CLEANING/INSPECTION/REPAIR/REASSEMBLY

a. Unscrew and remove pipe plug (1) from baseplate (2) only if the pipe plug is damaged.

b. Clean parts with dry cleaning solvent and wipe dry with wiping rag.

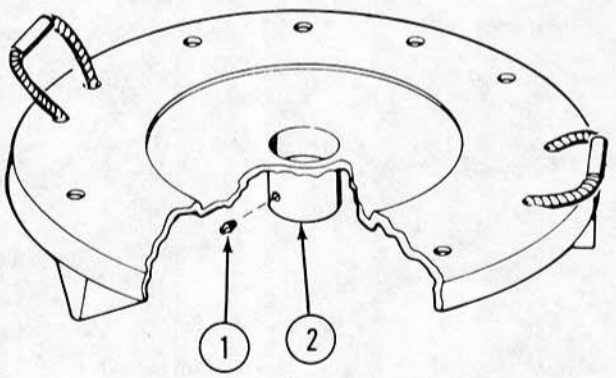
c. Inspect bearing surface of baseplate (2) for warping.

d. Inspect baseplate (2) for cracks and broken gussets or spades.

e. Replace pipe plug (1) as required. See TM 9-1015-215-30P.

f. If removed, install pipe plug (1) in baseplate (2). Tighten securely.

g. Apply automotive and artillery grease to entire bearing surface.



## 2-23. M31 60-MM SUBCALIBER TRAINER - MAINTENANCE INSTRUCTIONS.

This task covers inspection/repair.

### INITIAL SETUP

*Tools and Special Tools*
Accessory Outfit for Pullover Gages
(SC 4933-95-CL-E09)
M3 Borescope (11584701) or M2 Borescope
(SC 6650-95-CL-E01)
Pullover Gage (7243022)

*References*
TM 9-6650-235-13&P
TM 9-1000-202-14
TM 9-1015-215-30P

### INSPECTION/REPAIR

a. Inspect M2 60-mm mortar cannon in accordance with TM 9-1000-202-14. See TM 9-6650-235-13&P for operation of the M3 borescope.

b. If necessary, replace M2 60-mm mortar cannon. See TM 9-1015-215-30P.

## 2-24. FINAL INSPECTION - MAINTENANCE INSTRUCTIONS.

This task covers Final Inspection.

### INITIAL SETUP

*Materials/Parts*
Enamel (item 7, app B)
Paint brush (item 2, app B)
Synthetic thinner (item 13, app B)

*References*
TM 9-1015-215-10
TM 43-0139

*Equipment Condition*
M30 4.2-inch mortar assembled in accordance with TM 9-1015-215-10.

### FINAL INSPECTION

Perform the final inspection below after maintenance procedures have been completed.

| *Point To Be Inspected* | *Final Inspection* |
|---|---|
| Tube cap | Gastight seal on tube. Cap pin intact. |
| Mortar tube | Bore diameter 4.221 inches. Tube is free of dirt, grit, rust and deformation of lands and grooves. Shell drops freely. |
| Coupling and sight mount assembly | Tight fit with coupling base. Functions smoothly. |
| Shock absorbers | Functions smoothly. |
| Traversing mechanism | Does not bind. Crank undamaged. Backlash must not exceed 30 degree turn of wheel body. |
| Elevating mechanism | Backlash must not exceed 10 degrees. Functions smoothly. |
| Recoil mechanism | Functions smoothly. |
| Bridge assembly | Smooth swivel action. Lock nut secure. Trunnion bearings not damaged. Handles intact. |
| Rotator assembly | Functions smoothly. Proper locking action. Handles intact. |
| Mortar baseplate | Handles intact. |
| Paint | Inspect painted surfaces. Touch up bare spots and scratches with green enamel. See TM 43-0139. |

## Section V. PREEMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT

**2-25. PREEMBARKATION INSPECTION.** For preembarkation inspection of materiel in units alerted for overseas movement, refer to TB 9-1000-247-34.

# APPENDIX A
# REFERENCES

**A-1. SCOPE.** This appendix lists all technical bulletins, technical manuals, field manuals, and miscellaneous publications referenced in this manual.

**A-2. TECHNICAL BULLETINS.**

| | |
|---|---|
| TB 9-1000-247-34 | Standards for Oversea Shipment or Domestic Issue of Small Arms, Aircraft Armament, Towed Howitzers, Mortars, Recoilless Rifles, Rocket Launchers and Associated Fire Control Equipment |

**A-3. TECHNICAL MANUALS.**

| | |
|---|---|
| TM 9-237 | Operator's Manual: Welding Theory and Application (T034W4-1-5) |
| TM 9-1000-202-14 | Operator's, Organizational, Direct Support, and General Support Maintenance Manual For Evaluation of Cannon Tubes |
| TM 9-1015-215-10 | Operator's Manual for 4.2-inch Mortar, M30 |
| TM 9-1015-215-20&P | Organizational Maintenance Manual (including Repair Parts and Special Tools List) for Mortar, 4.2-inch: M30 (Cannon M30 on Mount M24A1) and Trainer, Subcaliber, 60-mm: M31 |
| TM 9-1015-215-30P | Direct Support Maintenance Repair Parts and Special Tools List (including Depot Maintenance Repair Parts and Special Tools) for Mortar, 4.2-inch, M30 (Cannon M30 on Mount M24A1) and Trainer, Subcaliber, 60-mm M31 |
| TM 9-6650-235-13&P | Operator's Organizational and Direct Support Maintenance Manual, Including Repair Parts and Special Tools List, including Depot Maintenance Repair Parts and Special Tools List For Borescope M3 |
| TM 43-0139 | Painting Instructions for Field Use |
| TM 740-90-1 | Administrative Storage of Equipment |
| TM 750-244-7 | Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1015, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use |

**A-3. FIELD MANUALS.**

| | |
|---|---|
| FM 21-11 | First Aid for Soldiers |

**A-4. MISCELLANEOUS PUBLICATIONS.**

| | |
|---|---|
| CTA 8-100 | Army Medical Equipment Expendable/Durable Supplies |
| CTA 50-970 | Expendable/Durable Items (except: Medical, Class V Repair Parts and Heraldic Items) |
| DA FORM 2028 | Recommended Changes to Publications and Blank Forms |
| DA PAM 738-750 | The Army Maintenance Management System (TAMMS) |
| SC 4933-95-CL-A11 | Shop Set, Small Arms: Field Maintenance, Basic Less Power |
| SC 4933-95-CL-E09 | Accessory Outfit for Pullover Gages |
| SC 5180-95-CL-A07 | Tool Kit, Small Arms Repairman |
| SC 6650-95-CL-E01 | Borescope: Cannon Bore Inspecting, M2 or Borescope M3 |
| SF 368 | Quality Deficiency Report |

# APPENDIX B
# EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

## Section I. INTRODUCTION

**B-1. SCOPE.** This appendix lists expendable/durable supplies and materials you will need to operate and maintain the 4.2-inch mortar. This listing is for informational purposes 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.

**B-2. EXPLANATION OF COLUMNS.**

a. *Column (1) - Item Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cloth, abrasive, crocus, item 5, app B").

b. *Column (2) - Level.* This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance

c. *Column (3) - National Stock Number.* This is the National stock number assigned to the item; use it to request or requisition the item.

d. *Column (4) - Description.* Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. *Column (5) - Unit of Measure (U/M).* Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

## Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

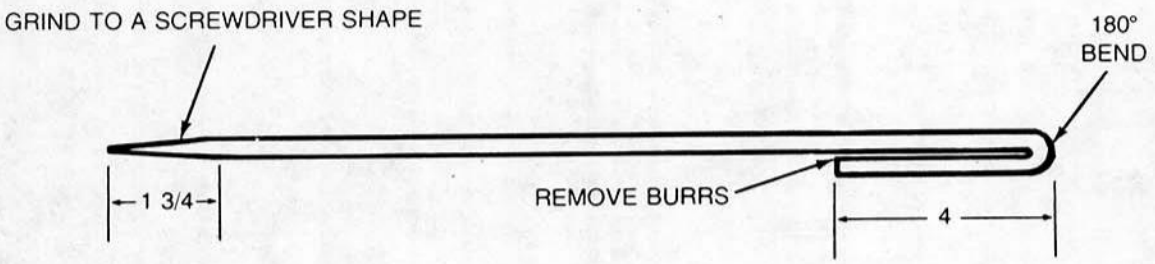
| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION | (5) U/M |
|---|---|---|---|---|
| 1 | C | 7920-00-205-2401 | BRUSH, CLEANING, TOOL AND PARTS: Chinese bristle, rd, (81349) MILS43871 | EA |
| 2 | C | 8020-00-242-7266 | BRUSH, PAINT (96906) MS16866 3 in. size | EA |
| 3 | | | **Deleted** | |
| 4 | | | CLEANING COMPOUND, RIFLE BORE: (RBC) solution type (81349) MIL-C-372 | |
| | C | 6850-00-224-6657 | 8 oz can | OZ |
| | C | 6850-00-224-6663 | 1 gal can | GL |

| (1) ITEM NUMBER | (2) LEVEL | (3) NATIONAL STOCK NUMBER | (4) DESCRIPTION | (5) U/M |
|---|---|---|---|---|
| 5 | C | | CLOTH ABRASIVE: crocus<br>(81348) P-C-458 | |
| | | 5350-00-221-0872 | 50 sheet package | SH |
| 6 | C | | DRY CLEANING SOLVENT: (SD)<br>(81348) PD-680 | |
| | | 6850-00-281-1985 | 1 gal can | GL |
| 7 | C | | ENAMEL: olive drab<br>(96906) MS35530-2 | |
| | | 8010-00-297-2124 | 1 gal can | GL |
| 8 | O | 8415-00-823-7457 | GLOVES, CHEMICAL AND SOLVENT RESISTANT<br>(81348) ZZ-G-381 | PR |
| 9 | C | | GREASE, AUTOMOTIVE AND ARTILLERY: (GAA)<br>(81349) MIL-G-19204 | |
| | | 9150-00-190-0905 | 6.5 lb can | LB |
| 10 | C | 9150-00-231-2361 | LUBRICATING OIL, GENERAL PURPOSE<br>**(81349) MIL-L-3150** | QT |
| 11 | C | 9150-00-292-9689 | LUBRICATING OIL, WEAPONS: (LAW)<br>(81349) MILL14107 | QT |
| 12 | C | | RAG, WIPING<br>(81348) A-A-531 | |
| | | 7920-00-205-1711 | 50 lb bale | LB |
| 13 | | | THINNER, SYNTHETIC RESIN ENAMEL<br>(81348) TT-T-306 | |
| | C | 8010-00-160-5791 | 1 pt can | PT |
| | C | 8010-00-087-1953 | 1 qt can | QT |
| | C | 8010-00-160-5794 | 1 gal can | GL |

# APPENDIX C
# ILLUSTRATED LIST OF MANUFACTURED ITEMS

**C-1. INTRODUCTION.** This appendix includes complete instructions for making items authorized to be manufactured or fabricated at direct support maintenance.

**C-2. MATERIAL.** All bulk material needed to manufacture the item is listed on the illustration.




NOTE:
1. FABRICATE FROM 28 INCHES LONG x 3/8 INCHES DIAMETER MILD STEEL ROD NSN 9510-00-596-2068 OR EQUIVALENT.

2. ALL DIMENSIONS ARE IN INCHES.

*Figure C-1. Special screwdriver.*

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By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
*General, United States Army*
*Chief of Staff*

Official:

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*Major General, United States Army*
*The Adjutant General*

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To be distributed in accordance with DA Form 12- 40, Direct and General Support Maintenance requirements for Mortar, 4.2-Inch, M30 on Mount M24A1.

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| PAGE NO. | PARAGRAPH | FIGURE NO. | TABLE NO. |
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Change TM 9-1015-215-30 to read TM 9-1015-215-10.
Reason: Wrong TM number

SAMPLE

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SIGN HERE John Smith

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## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

### WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

### LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

### SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

### CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

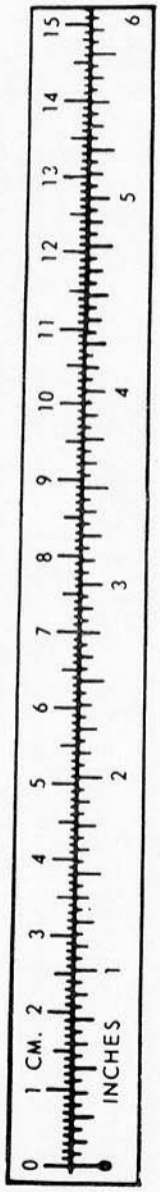
### TEMPERATURE

$5/9\ (^0F - 32) = {}^0C$
$212^0$ Fahrenheit is equivalent to $100^0$ Celsius
$90^0$ Fahrenheit is equivalent to $32.2^0$ Celsius
$32^0$ Fahrenheit is equivalent to $0^0$ Celsius
$9/5\ C^0 + 32 = F^0$

### 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 | 6.451 |
| 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 | 29.573 |
| Pints | Liters | 0.473 |
| Quarts | Liters | 0.946 |
| Gallons | Liters | 3.785 |
| Ounces | Grams | 28.349 |
| Pounds | Kilograms | 0.454 |
| Short Tons | Metric Tons | 0.907 |
| Pound-Feet | Newton-Meters | 1.356 |
| Pounds per Square Inch | Kilopascals | 6.895 |
| Miles per Gallon | Kilometers per Liter | 0.425 |
| Miles per Hour | Kilometers per Hour | 1.609 |

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| Centimeters | Inches | 0.394 |
| Meters | Feet | 3.280 |
| 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 | 2.354 |
| Kilometers per Hour | Miles per Hour | 0.621 |




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