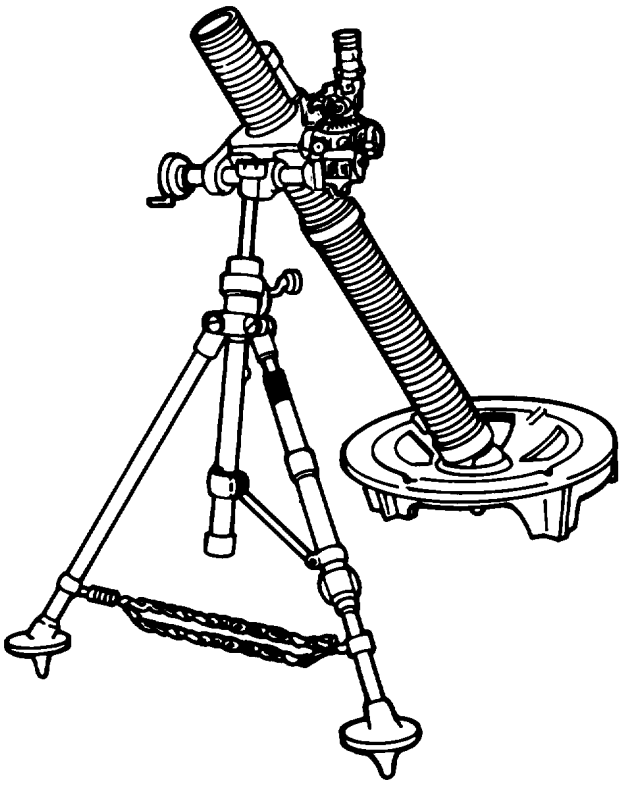
CHECK FOR CURRENT CHANGES
SUPERSEDES COPY
DATED 10 JUNE 1974
SEE PAGE i FOR DETAILS

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



FOR
81-MM MORTAR,
M29A1
(1015-00-999-7794)

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This copy is a reprint which includes current pages from Change 1.

HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1985

CHANGE

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC 24 July 1989

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

FOR

81MM MORTAR
M29A1

(1015-00-999-7794)

TM 9-1015-200-30&P, 22 October 1985, 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
2-5 and 2-6	2-5 and 2-6
2-7 and 2-8	2-7 and 2-8
2-17 and 2-18	2-17 and 2-18
2-29 thru 2-34	2-29 thru 2-34

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

By Order of the Secretary of the Army:

CARL E. VUONO
General. United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
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, 81-MM, M29, M29A1.

*** U.S. GOVERNS PRINTING OFFICE: 1992 0 - 311-831 (60978)**

WARNING

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

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.

TECHNICAL MANUAL
No. 9-1015-200-30&P
No. 9-101 5-200-30&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC
22 October 1985

Direct Support Maintenance Manual Including Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for 81-MM MORTAR M29A1 (1015-00-999-7794)

Current as of 10 June 1985 for appendix B

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: AMSMC-MAS, Rock Island, IL 61299-6000. A reply will be furnished to you.

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*This manual supersedes TM 9-1015-200-34, dated 10 June 1974, including all changes.

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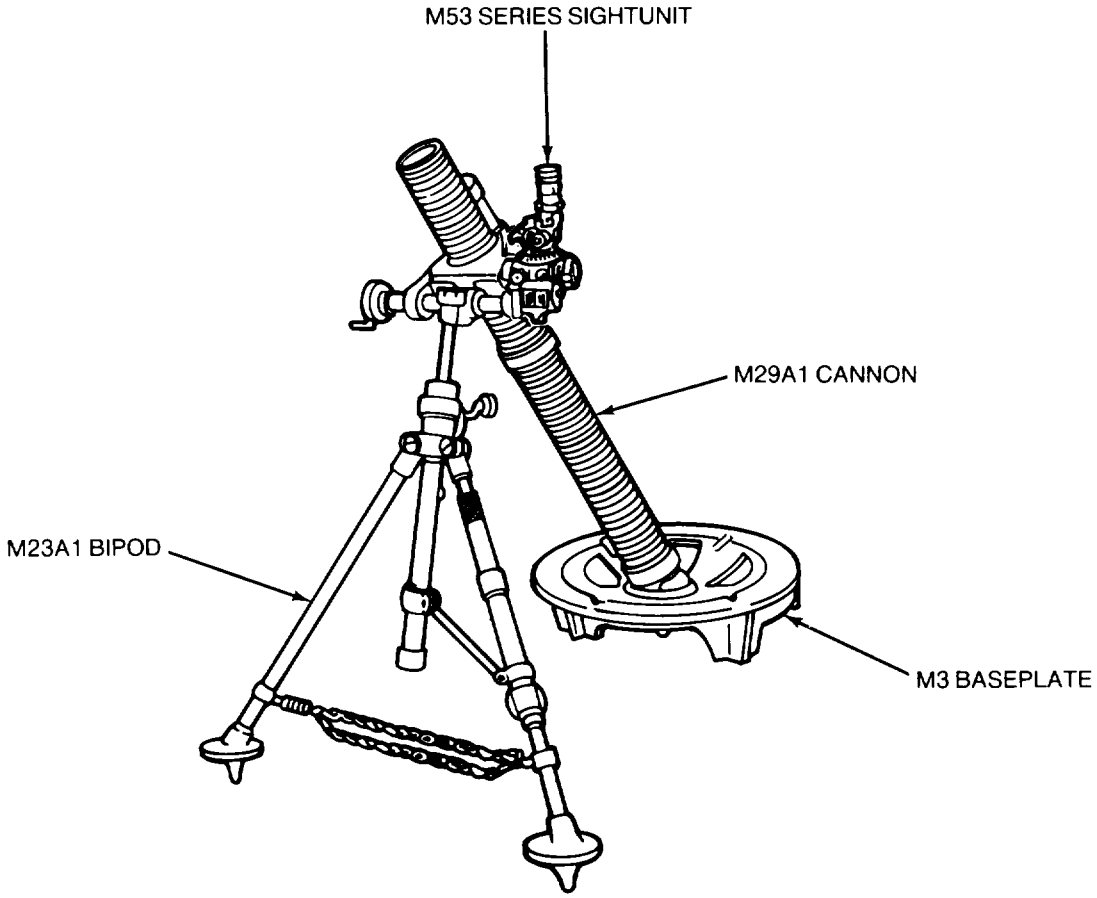


81-MM MORTAR M29A1

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. Type of Manual: Direct support maintenance, including repair parts and special tools list.

b. Model Number and Equipment Name: 81-mm mortar M29A1.

c. Purpose of Equipment: Provides a high-angle fire support system for 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 used 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 9-1015-200-20&P and TM 740-90-1.

1-5. NOMENCLATURE CROSS-REFERENCE LIST. This listing includes nomenclature cross-references used in this manual.

Common Name	Official Nomenclature
Clevis locking pin	Quick release pin

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: AMSMC-QAD, Rock Island, IL 61299-6000. We'll send you a reply.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES. The M29A1 81-mm mortar is a smoothbore, muzzle- loading weapon with the following characteristics:

a. Capabilities and Features.
   (1) Portable.
   (2) Provides high angle fire.
   (3) Provides close range support for ground troops.

b. Major Components.
   (1) Cannon Assembly M29A1
   (2) Bipod Assembly M23A1
   (3) Baseplate M3
   (4) Sightunit M53 or M53A1

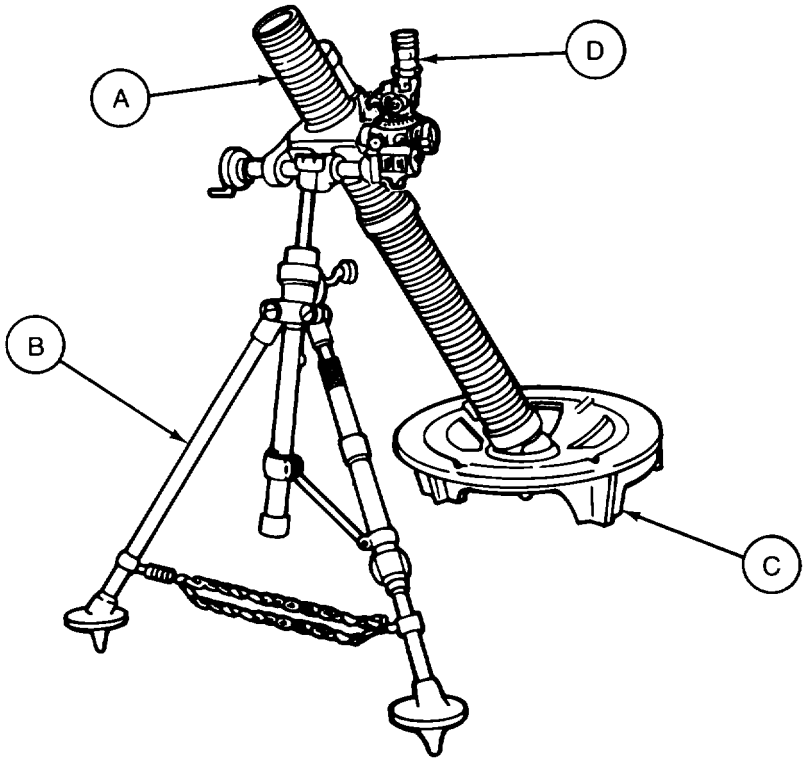
1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

(A) CANNON ASSEMBLY. The barrel is an externally threaded tube, closed at one end by a base cap that locks into the socket cap of baseplate. The cannon is used to fire projectiles.

(B) BIPOD ASSEMBLY. Provides firm support for elevation, traversing, and cross-leveling of the cannon. Shock is absorbed by a shock absorber.

(C) BASEPLATE. Supports base cap of cannon tube and absorbs recoil shock.

(D) SIGHTUNIT. Consists of an elbow telescope and a telescope mount. The sightunit is used to lay the mortar.



1-9. EQUIPMENT DATA. Refer to TM 9-1015-200-10.

1-10. SAFETY, CARE AND HANDLING.

a. All of the major components must be handled carefully.

b. Dropping the cannon could dent the tube or cause it to be out- of-round.

c. Dropping or mishandling the bipod assembly could:

(1) Damage the legs and/or damage the traversing and elevating mechanism assemblies.

(2) Damage the shock absorber.

(3) Damage or break the coupling.

CHAPTER 2
DIRECT SUPPORT 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. Refer to appendix B for a listing of special tools.

2-3. REPAIR PARTS. Repair parts are listed and illustrated in appendix B of this manual.

Section II. TROUBLESHOOTING

2-4. SERVICE UPON RECEIPT OF MATERIEL. Refer to TM 9-1015-200-20&P for service upon receipt of materiel instructions.

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 2-1.

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

SYMPTOM INDEX

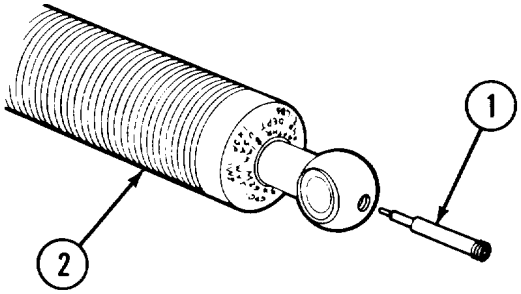
Troubleshooting Procedure Page

Backlash in elevating mechanism is greater than one-eighth of a turn (45°) 2-4
Backlash in traversing mechanism is greater than one-eighth of a turn (45) 2-3
Cross-leveling adjustment cannot be maintained 2-5
Cross-leveling mechanism binds 2-5
Elevating mechanism binds 2-4
Mortar fails to fire 2-2
Mortar is difficult to traverse 2-3
Shock absorber allows excessive recoil 2-2
Shock absorber fails to return bipod to firing position 2-2
Shock absorber returns bipod to firing position too quickly 2-2

TROUBLESHOOTING

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

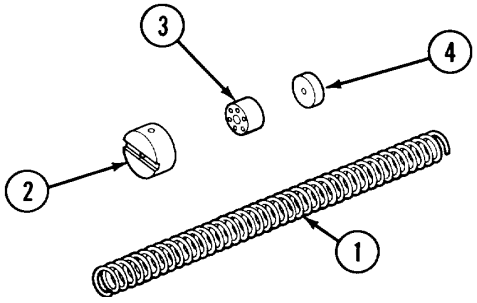
1. MORTAR FAILS TO FIRE.



Step 1. Check for worn, loose or broken firing pin (1).
Reseat or replace firing pin (refer to TM 9-1015-200-20&P).

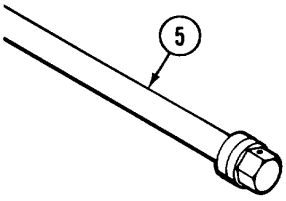
Step 2. Check for dented barrel (2).
Replace barrel if necessary (p 2-7).

2. SHOCK ABSORBER FAILS TO RETURN BIPOD TO FIRING POSITION



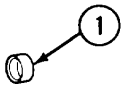
Step 1. Check for broken or set helical compression spring (1).
Replace spring (p 2-13).

Step 2. Check for restricted or plugged air vent holes in cap (2), bumper (3), or plate (4).
Clean or replace any item as necessary (p 2-13).



Step 3. Check for bent shouldered stud (5).
Replace shouldered stud (p 2-13).

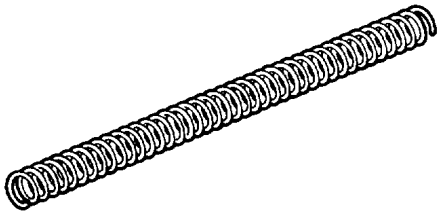
3. SHOCK ABSORBER RETURNS BIPOD TO FIRING POSITION TOO QUICKLY.



Step 1. Check for missing or damaged compression cup (1).
Replace compression cup if defective (p 2-13).

Step 2. Check for dry or stiff compression cup.
Soak the compression cup in oil (p 2-13).

4. SHOCK ABSORBER ALLOWS EXCESSIVE RECOIL.



Check for broken or set helical compression spring.
Replace helical compresson spring (p 2-13).

TROUBLESHOOTING (CONT)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

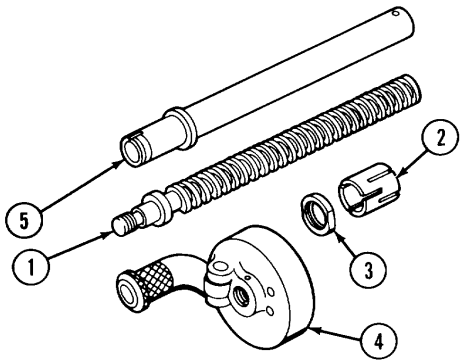
5. MORTAR IS DIFFICULT TO TRAVERSE.

Step 1. Check for burred or bent traversing spindle screw (1).
Remove burrs and straighten or replace traversing spindle screw (p 2-17).

Step 2. Check for tight sleeve bearing (2).
Loosen nut (3) (p 2-17).

Step 3. Check for bent handwheel body (4).
Replace traversing handwheel assembly (p 2-17).

Step 4. Check for burred or bent traversing spindle nut (5)
Remove burrs or replace bent nut (p 2-17).



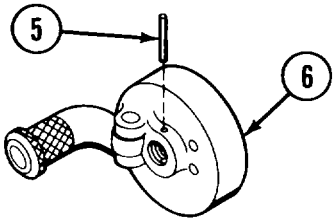
6. BACKLASH IN TRAVERSING MECHANISM IS GREATER THAN ONE-EIGHTH OF A TURN (45°)

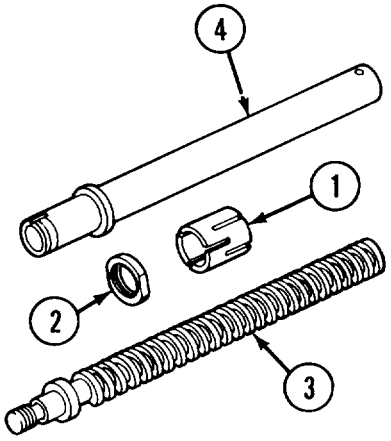
Step 1. Check for loose or worn sleeve bearing (1).
Adjust bearing tension with nut (2). Replace sleeve bearing if adjustment does not work (p 2-17).

Step 2. Check for worn traversing spindle screw (3) and/or traversing spindle nut (4).
Replace traversing spindle screw and/or traversing spindle nut if necessary (p 2-17).

Step 3. Check straight pin (5) for damage.
Replace straight pin if necessary (p 2-17).

Step 4. Check pin hole in handwheel body (6) for out-of-round.
Replace traversing handwheel assembly if necessary (p 2-17).





TROUBLESHOOTING (CONT)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

7. ELEVATING MECHANISM BINDS.

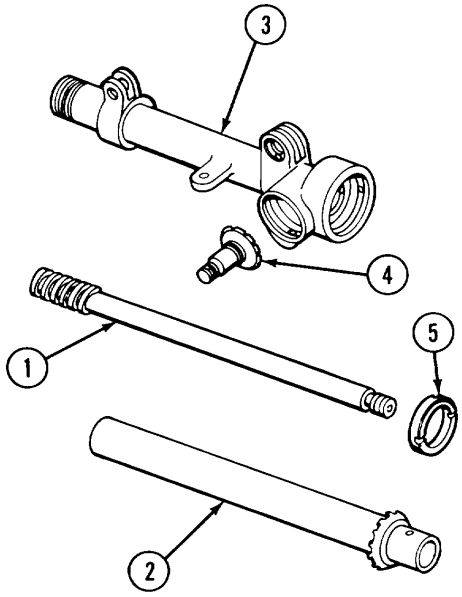
Step 1. Check for burred or bent elevating spindle (1).
Remove burrs, straighten, or replace elevating spindle (p 2-29)

Step 2. Check for burred or bent elevating spindle tube (2).
Remove burrs or replace elevating spindle tube (p 2-29).

Step 3. Check for bent elevating mechanism housing (3).
Replace elevating mechanism housing (p 2-29).

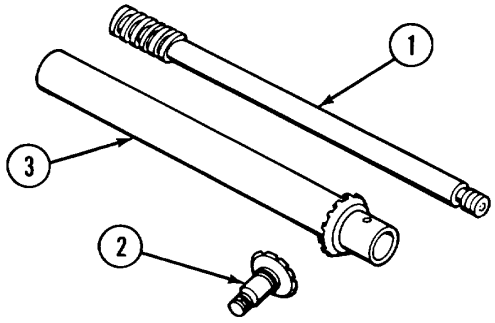
Step 4. Check bevel pinion (4) for burrs.
Remove burrs (p 2-29).

Step 5. Check for worn or missing bearing thrust washer (5).
Replace missing or worn washer (p 2-2).



8. BACKLASH IN ELEVATING MECHANISM IS GREATER THAN ONE-EIGHTH OF A TURN (45°).

Check for wear in elevating spindle (1), bevel pinion (2), or elevating spindle tube (3).
Replace as necessary (p 2-29).

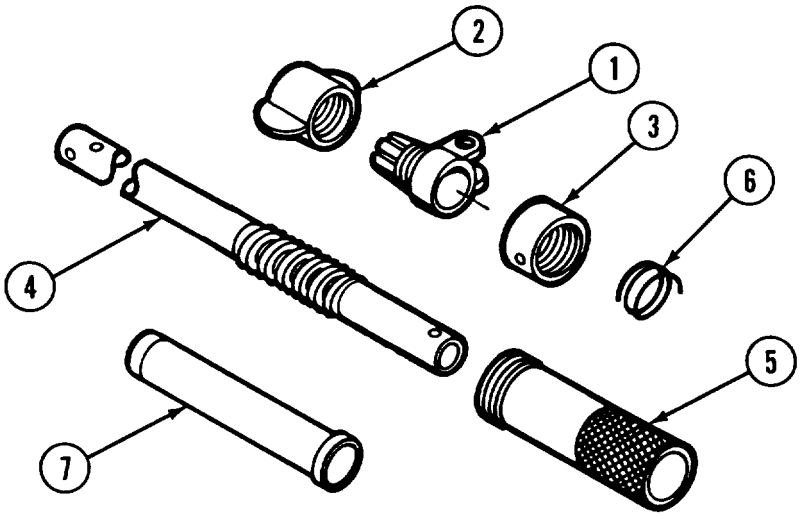


MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

9. CROSS-LEVELING ADJUSTMENT CANNOT BE MAINTAINED.

Check for worn operating parts. Check bracket (1), sleeve (2), ring (3), left leg body (4), adjusting nut assembly (5), helical compression spring (6), and left leg tube assembly (7).

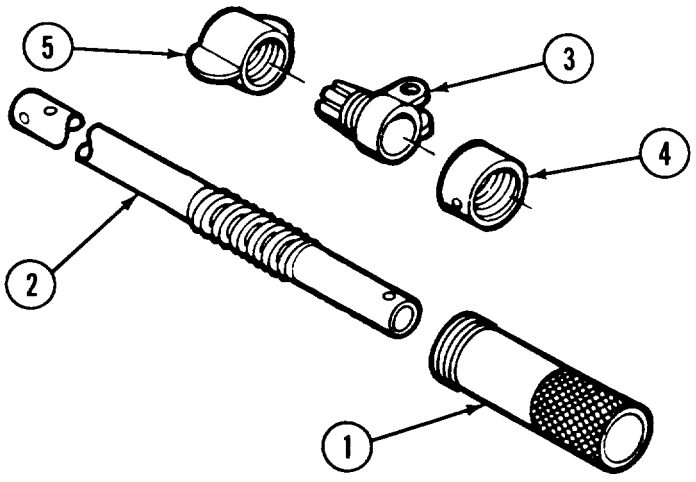
Replace defective parts as necessary (p 2-24).



10. CROSS-LEVELING MECHANISM BINDS.

Check for burred, scored or distorted working parts. Closely inspect adjusting nut assembly (1), left leg body (2), bracket (3), ring (4), and sleeve (5).

Remove burrs. Replace items as necessary (p 2-24).



Section IV. MAINTENANCE PROCEDURES

2-6. GENERAL.

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

(1) TM 9-1015-200-10, Operator's Manual.

(2) TM 9-1015-200-20&P, Organizational Maintenance Manual, including Repair Parts and Special Tools List for Mortar, 81-mm, M29A1.

b. Disassemble the mortar only to remove bad parts or components. Perform semi-annual lubrication which includes disassembly, cleaning and lubrication of the internal components of the shock absorber assembly, elevating, traverse and cannon assemblies. Lubricate per maintenance instructions for each assembly.

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

Use a soft faced hammer when performing maintenance procedures.

NOTE

Stake screws and pins after maintenance and adjustment have been performed.

2-7. INITIAL SETUP.

a. Tools and Special Tools lists tools needed for the procedure.

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 procedures.

2-8. CANNON ASSEMBLY - MAINTENANCE INSTRUCTIONS.

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

INITIAL SETUP

Tools and Special Tools
- Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
- Accessory Outfit for Pullover Gages (SC 4933-95-CL-E09)
- M2 or M3 Cannon Bore Inspecting Borescope (SC 6650-95-CL-E01 or 11584701)
- Basic Field Maintenance Small Arms Shop Set Less Power (SC 4933-95-CL-A1 1)

Materials/Parts
- Artificial dental stone (item 12, app C)
- General purpose lubricating oil (item 9, app C)
- Dry cleaning solvent (item 5, app C)
- Wiping rag (item 11, app C)

References
- TM 9-1000-202-14
- TM 9-1015-200-10
- TM 9-6650-235-13&P

Equipment Condition
- Cannon assembly removed from bipod assembly (TM 9-1015-200-10).

DISASSEMBLY/CLEANING/INSPECTION/REPAIR/REASSEMBLY

a. Unscrew barrel ring (1) from barrel (2).

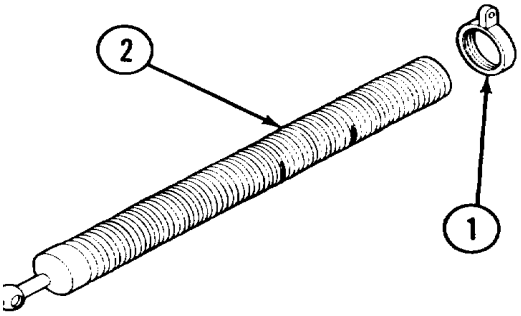
NOTE

The barrel consists of base cap and tube that are brazed together and cannot be disassembled.

b. Clean parts with dry cleaning solvent and wipe dry with wiping rag.
c. Examine ring for burrs or deformities.
d. Remove burrs or replace barrel ring if cracked or deformed.

WARNING

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



e. Examine mortar barrel for burrs, dents, cracks or deformities.
f. Remove burrs from the barrel and basecap.
g. Replace cannon if dented, cracked, or deformed. See appendix B.
h. Use borescope and pullover gage to inspect barrel according to instructions in TM 9-1000-202-14. See TM 9-6650-235-13&P for operation of the M3 Borescope.
j. When measurement of erosion rings is required, use artificial dental stone as directed by procedures in TM 9-1000-202-14.
i. Screw barrel ring (1) onto barrel (2). Lubricate with general purpose lubricating oil. See TM 9-1015-200-10.

2-9. BIPOD ASSEMBLY M23A1 - MAINTENANCE INSTRUCTIONS.

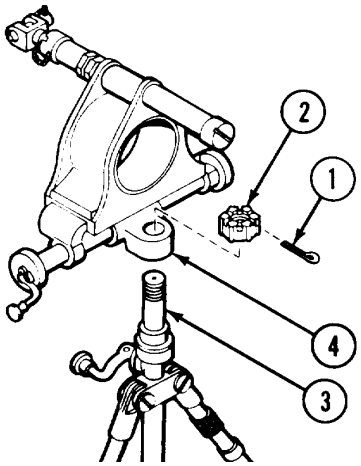
This task covers:
a. Disassembly
b. Cleaning/Repair
c. Reassembly

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)
Equipment Condition
Mortar cannon removed from bipod assembly
(TM 9-1015-200-10).

Materials/Parts
General purpose lubricating oil (item 9, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)
Cotter pin (MS 24665-357)
GGrease, Au tomotive & Artillery (GAA)
(item 8, app C)
References
TM 9-1015-200-10

DISASSEMBLY



a. Before removing hexagon nut (Z), elevate traversing mechanism assembly 3 or 4 inches for better holding support.

b. Remove cotter pin (1) and unscrew hexagon nut (2) from lower bipod assembly (3). Discard cotter pin.

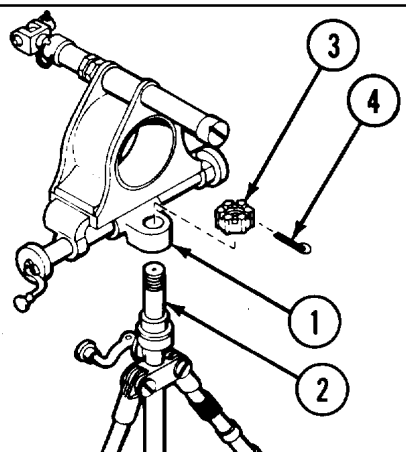
c. Using a soft face hammer, gently tap traversing mechanism assembly (4) from lower bipod assembly (3).

d. If light tapping of hammer does not loosen traversing mechanism assembly from lower bipod assembly, use a gear puller.

CLEANING/REPAIR

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.
b. Replace any item found to be defective during disassembly. See appendix B.

REASSEMBLY



a. using a sort race hammer, gently tap traversing mechanism assembly (1) onto lower bipod assembly (2).

b. Secure traversing mechanism assembly (1) with hexagon nut (3) and new cotter pin (4).

c. Lubricate bipod assembly with general purpose lubricating oil. See TM 9- 1015-200-10.

2-10. TRAVERSING MECHANISM ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/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)
Spanner wrench 7228728

Materials/Parts
General purpose lubricating oil (item 9, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)

EquipmentCondition
Traversing mechanism assembly removed from bipod assembly (p 2-8).

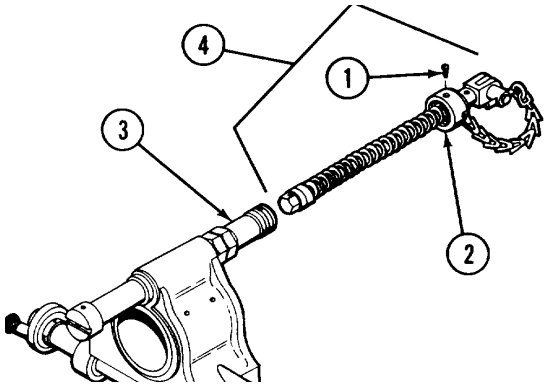
DISASSEMBLY

1

a. Remove machine screw (1) from cap (2) on spring and clevis portion of shock absorber assembly (4).

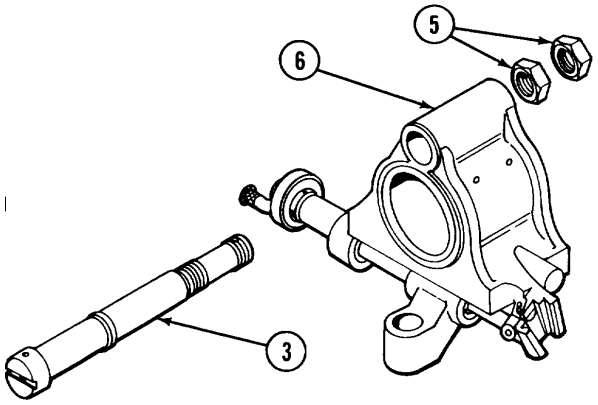
b. Unscrew cap (2) from mortar tube (3).

c. Pull out spring and clevis portion of shock absorber assembly (4) from mortar tube (3).



2

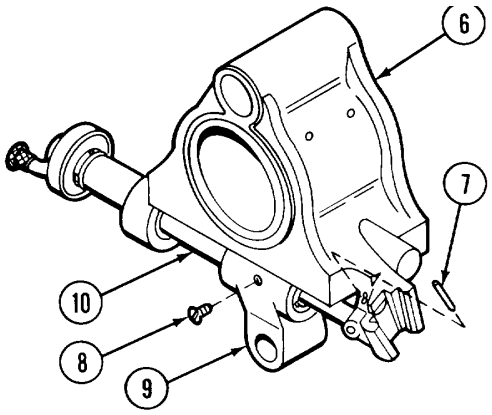
Unscrew two hexagon nuts (5) and remove tube (3) from yoke assembly (6).



2-10. TRAVERSING MECHANISM ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

DISASSEMBLY (CONT)

3

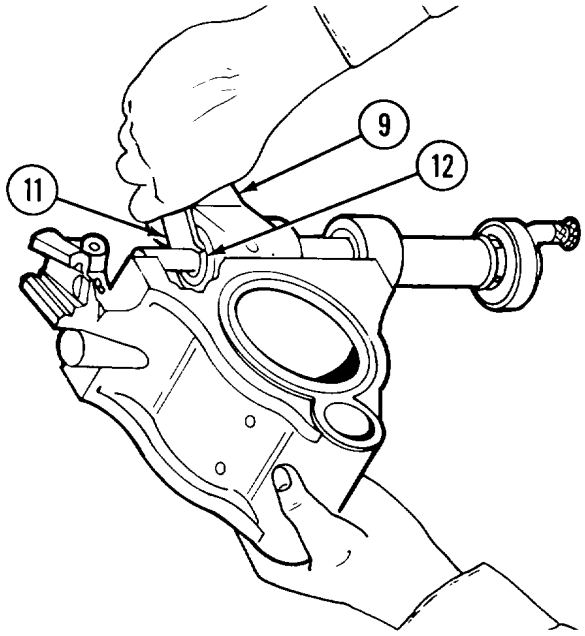


a. Remove straight pin (7) from yoke assembly (6) and machine screw (8) from bipod connector (9).

b. Partially slide traversing spindle assembly (10) from yoke assembly (6).

c. If traversing spindle assembly is stuck, turn handwheel and move bipod connector flush against yoke assembly. Turn traversing handwheel to pull spindle tube from hole in yoke assembly. Bearing (12) from bipod connector (9).

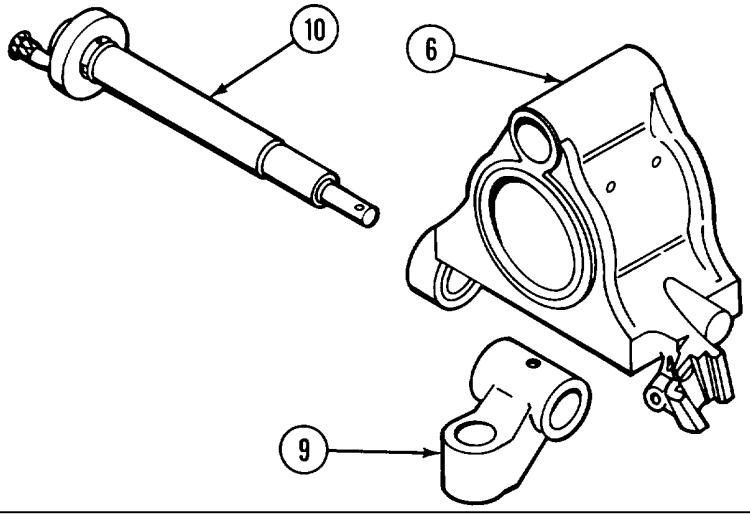
4



Using spanner wrench (11), unscrew traversing

5

Completely remove traversing spindle assembly (10) from yoke assembly (6) and bipod connector (9).



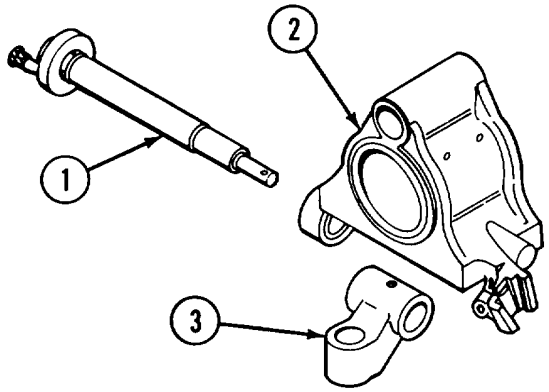
CLEANING/REPAIR

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.
b. Remove burrs and replace cracked or deformed parts.
c. Restore damaged threads. Replace parts if threads cannot be restored.
d. Replace any item found defective during disassembly. See appendix B.
e. Lubricate traversing mechanism assembly parts with general purpose lubricating oil before reassembly.

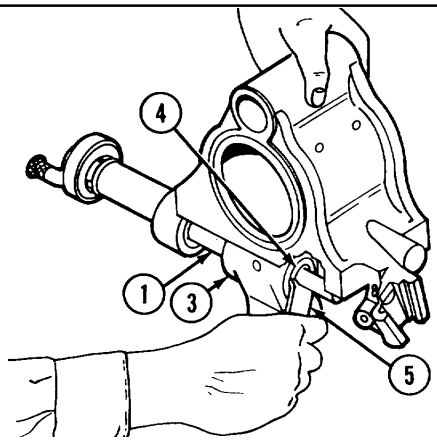
REASSEMBLY

1

Slide traversing spindle assembly (1) through yoke assembly (2) and bipod connector (3) and aline holes.



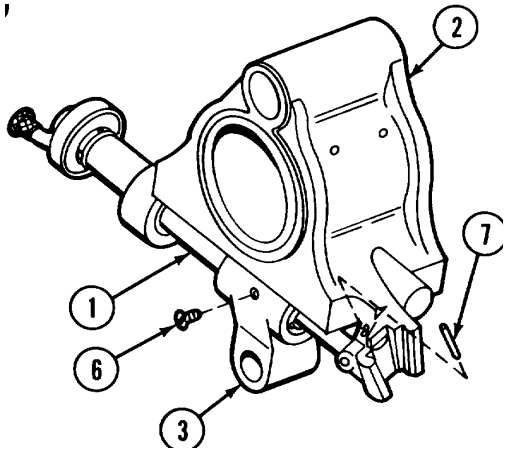
2



a. Attach traversing bearing (4) over traversing spindle assembly (1).

b. Using spanner wrench (5), tighten traversing bearing (4) into bipod connector (3), being careful to keep holes alined.

3



a. Install machine screw (6) into bipod connector (3).

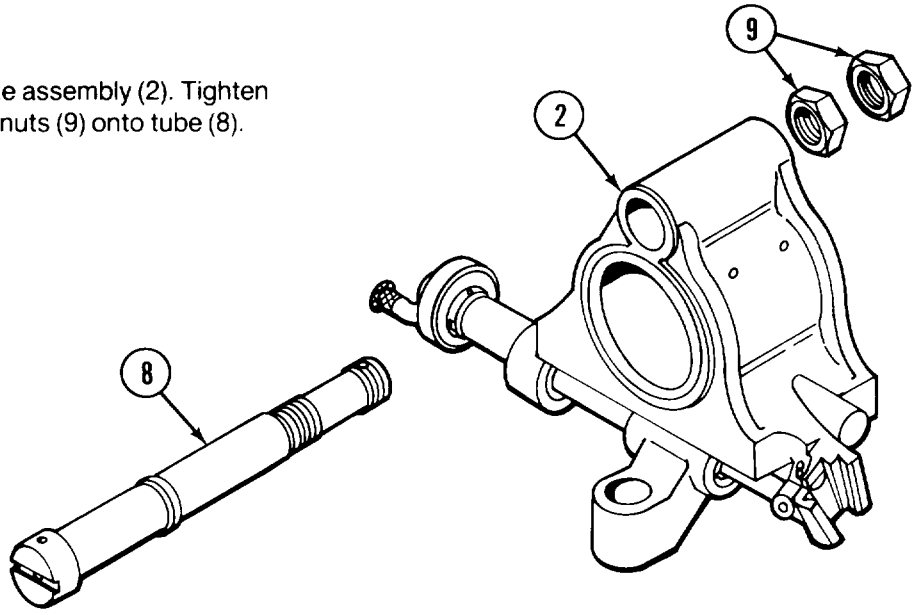
b. Secure traversing spindle assembly (1) to yoke assembly (2) with straight pin (7).

2-10. TRAVERSING MECHANISM ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

4

Insert tube (8) through yoke assembly (2). Tighten by screwing two hexagon nuts (9) onto tube (8).

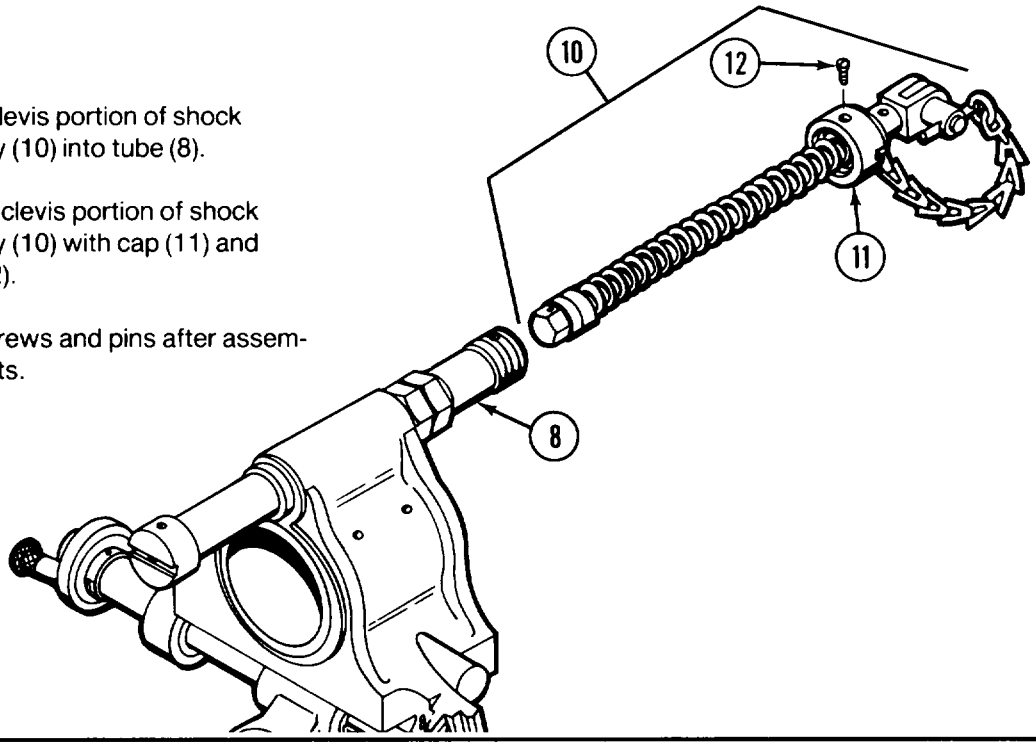


5

a. Insert spring and clevis portion of shock absorber assembly (10) into tube (8).

b. Secure spring and clevis portion of shock absorber assembly (10) with cap (11) and machine screw (12).

c. Lightly stake all screws and pins after assembly and adjustments.



2-11. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/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 9, app C)
Abrasive cloth (item 4, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)

Equipment Condition
Shock absorber assembly removed from traversing mechanism assembly (p 2-9).

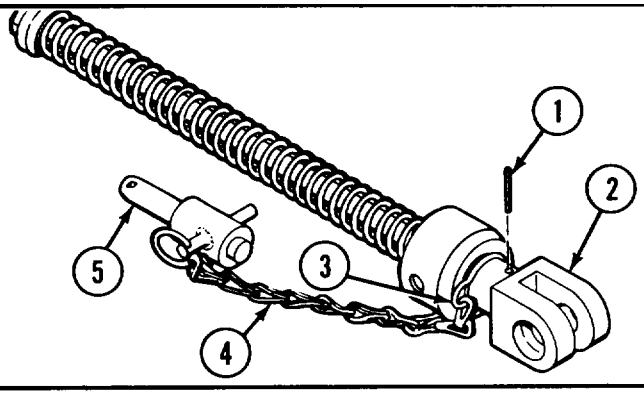
DISASSEMBLY

1

a. Drive straight pin (1) from clevis (2) with a punch.

b. Remove clip (3) and weldless chain (4) from clevis (2).

c. Separate weldless chain (4) from clip (3) and clevis locking pin (5).

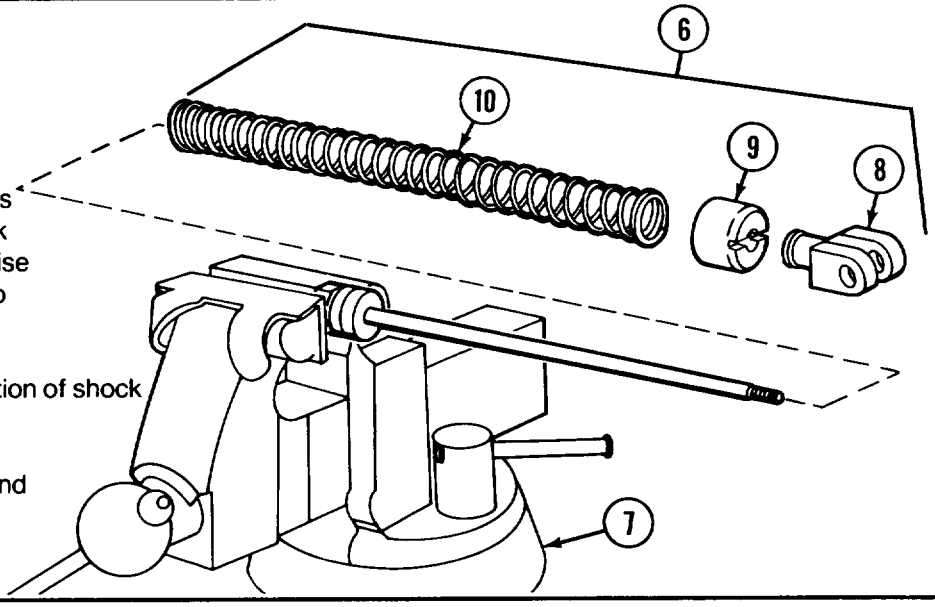


2

CAUTION
Hold sleeve nut in vise jaws when disassembling shock absorber assembly. Use vise caps to prevent damage to equipment.

a. Mount spring and clevis portion of shock absorber (6) in vise (7).

b. Remove clevis (8), cap (9), and spring (10).

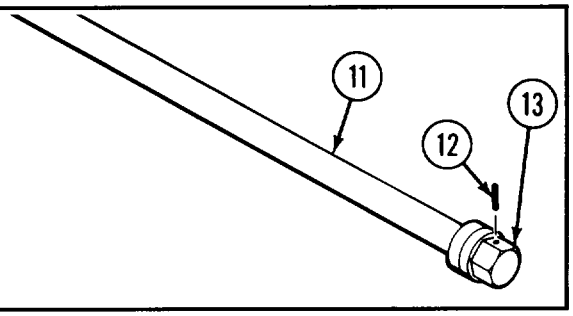


2-11. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

DISASSEMBLY (CONT)

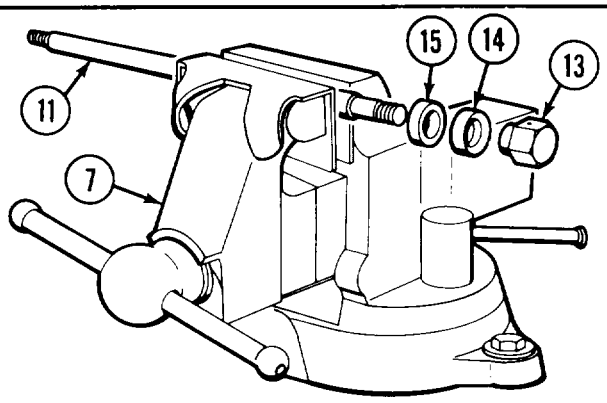
3

Remove shouldered stud (11) from vise and drive out pin (12) from sleeve nut (13).

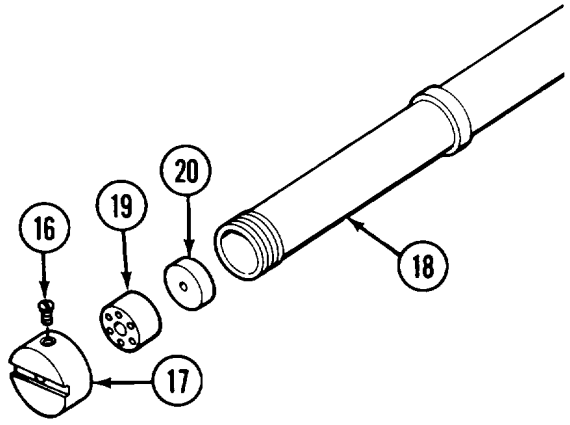


4

Mount shaft of shouldered stud (11) in vise (7) and remove sleeve nut (13), compression cup (14) and sleeve bearing (15).



5



a. Remove machine screw (16) from cap (17) and remove cap (17) from tube (18).

b. Push out bumper (19) and plate (20) from tube (18).

CLEANING/REPAIR

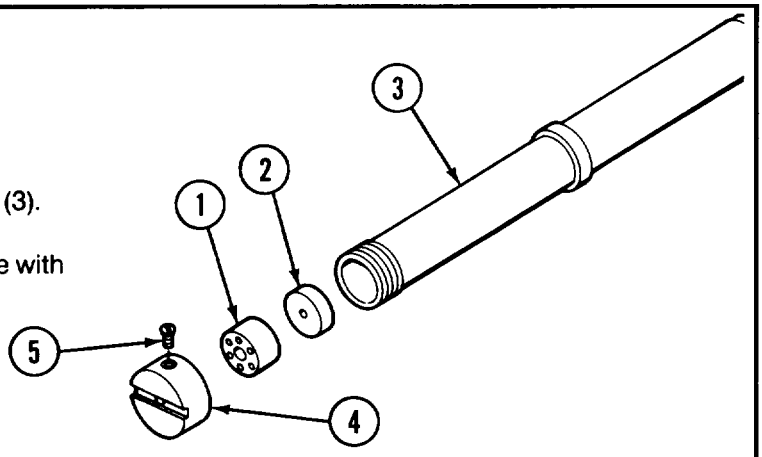
a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.
b. Remove burrs.
c. If air vent holes in bumper, cap, or plate are restricted, clean holes.
d. Polish interior of tube if it is not smooth. Use crocus abrasive cloth.
e. Soak compression cup for fifteen minutes in general purpose lubricating oil to remove dryness or stiffness.
f. Restore any damaged threads. Replace parts if threads cannot be restored.
g. If weldless chain is damaged or defective, replace by fabricating a new chain 6 inches long from 4010-00-868-8063.
h. Replace any item found defective during disassembly. See appendix B.
i. Lubricate shock absorber assembly with general purpose lubricating oil before reassembly.

REASSEMBLY

1

a. Insert bumper (1) and plate (2) in mortar tube (3).

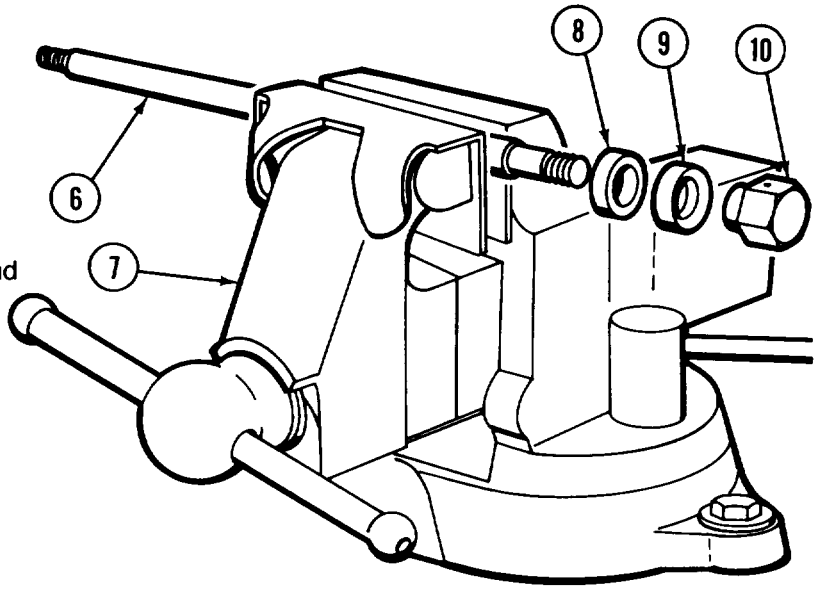
b. Screw cap (4) onto end of tube (3) and secure with machine screw (5).



2

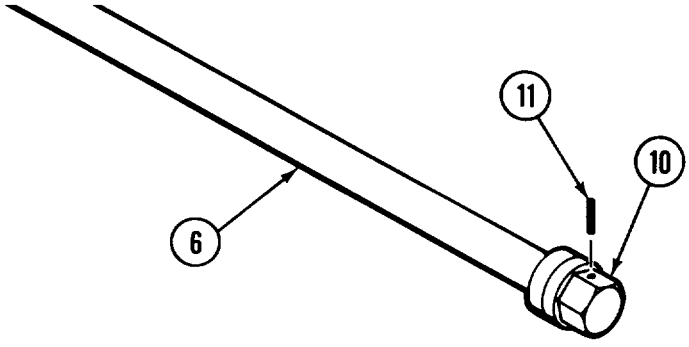
a. Mount shaft of shouldered stud (6) in vise (7) and attach sleeve bearing (8) and compression cup (9).

b. Screw sleeve nut (10) onto shouldered stud (6) and aline pin holes.



3

Remove shouldered stud (6) from vise and secure sleeve nut (10) using straight pin (11).



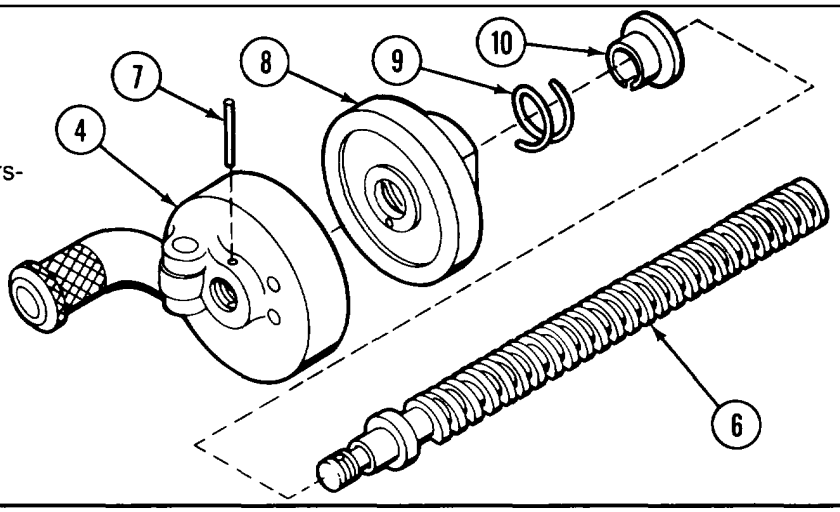
2-11. SHOCK ABSORBER ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

3

a. Drive out straight pin (7) from traversing handwheel assembly (4).

b. Hold traversing handwheel assembly (4), unscrew and remove traversing spindle screw (6), and remove cap assembly (8), helical spring (9), and sleeve bearing (10).

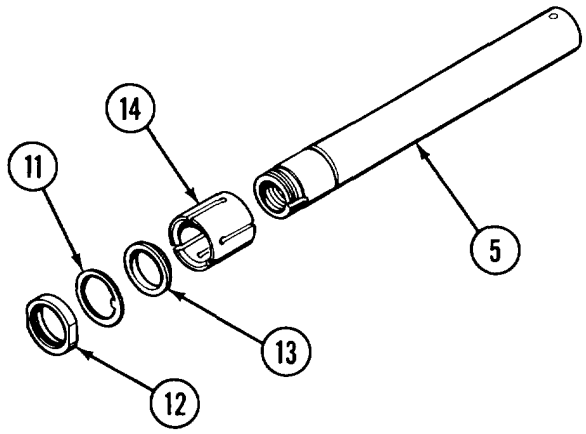


4

a. Bend back edges of key washer (11) that are pressed against the flat sides of nut (12).

b. Unscrew and remove nut (12).

c. Remove key washer (11), ring spacer (13) and bearing sleeve (14) from traversing spindle nut (5). Discard key washer (11).



2-12. TRAVERSING SPINDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Cleaning/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
Grease, Automotive & Artillery (GAA) (item 8, app C)
Dry cleaning solvent (item 5, app C)
Wiping rags (item 11, app C)
Key washer (7236598)

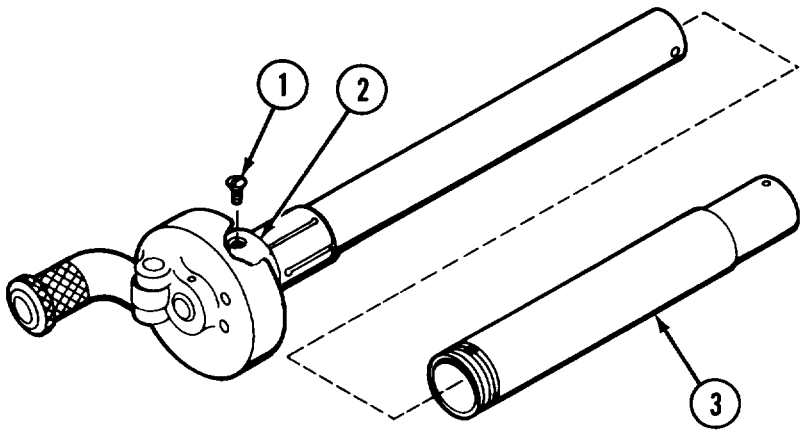
Equipment Condition
Traversing spindle assembly removed from traversing mechanism assembly (p 2-9).

DISASSEMBLY

1

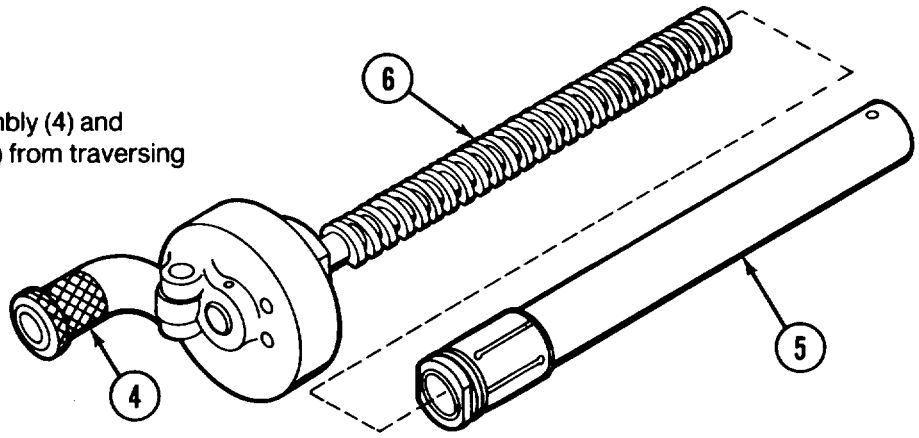
a. Remove machine screw (1) from cap assembly (2).

b. Unscrew traversing spindle tube (3) from cap assembly (2).



2

Hold traversing handwheel assembly (4) and unscrew traversing spindle nut (5) from traversing spindle screw (6).



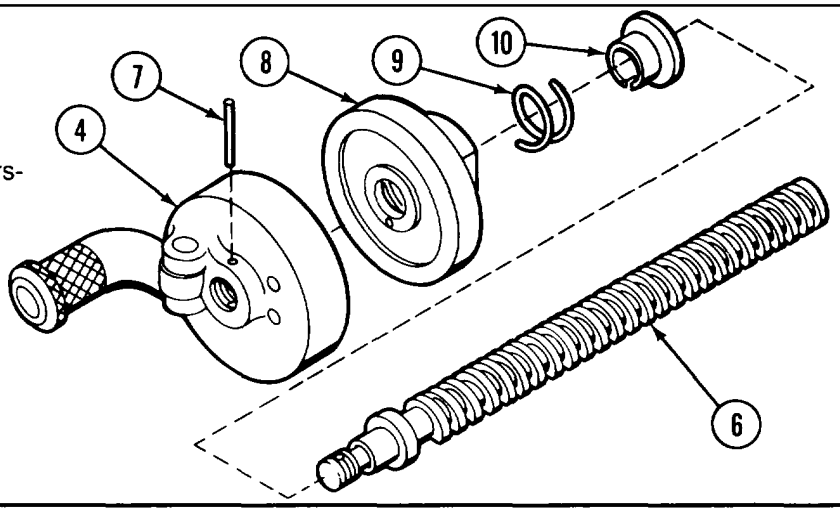
2-12. TRAVERSING SPINDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

DISASSEMBLY (CONT)

3

a. Drive out straight pin (7) from traversing handwheel assembly (4).

b. Hold traversing handwheel assembly (4), unscrew and remove traversing spindle screw (6), and remove cap assembly (8), helical spring (9), and sleeve bearing (10).

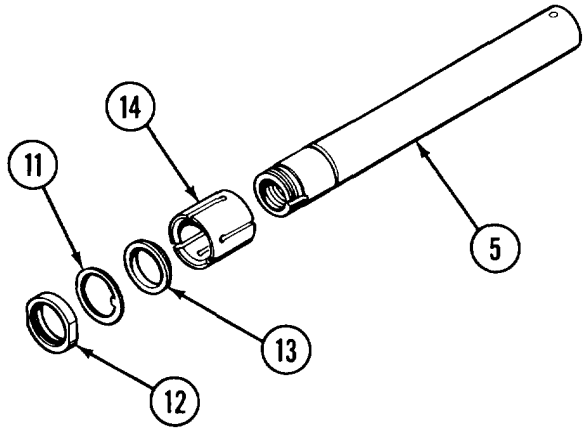


4

a. Bend back edges of key washer (11) that are pressed against the flat sides of nut (12).

b. Unscrew and remove nut (12).

c. Remove key washer (11), ring spacer (13) and bearing sleeve (14) from traversing spindle nut (5). Discard key washer (11).



CLEANING/REPAIR

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

b. Remove all burrs.

c. Restore all damaged threads. Replace parts if threads cannot be restored.

d. Replace any item found defective during disassembly. See appendix B.

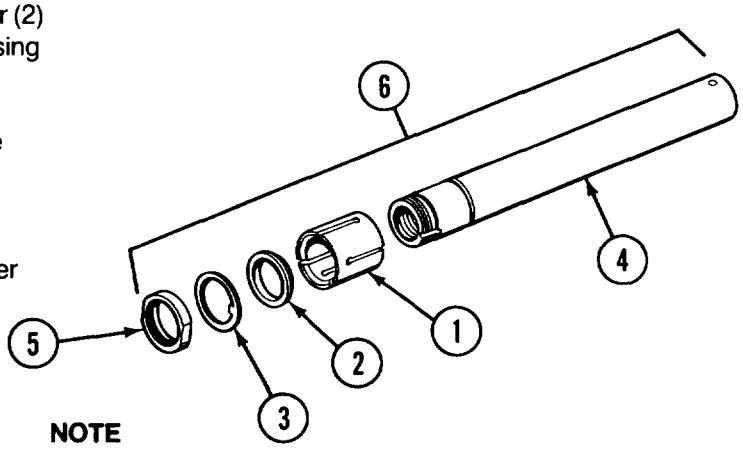
e. Lubricate traversing spindle assembly with Grease, Automotive & Artillery (GAA) before reassembly.

REASSEMBLY

1 a. Attach bearing sleeve (1), ring spacer (2) and new key washer (3) onto traversing spindle nut (4).

b. Screw nut (5) onto traversing spindle nut (4).

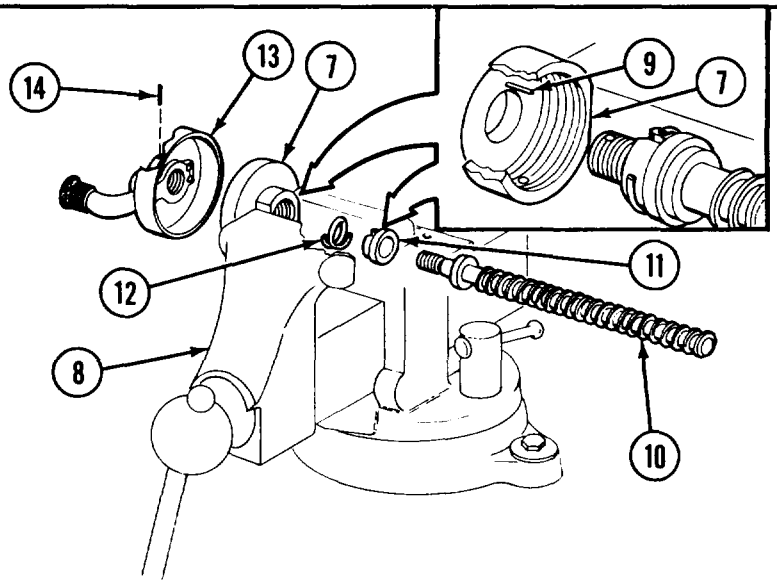
c. Tighten only fingertight at this time. Nut (5) will be tightened securely after adjustments are made.



NOTE

These parts, when assembled, will be referred to as spindle nut assembly (6) for identification only.

2



a. Mount cap assembly (7) in vise (8) with spring pin (9) at top position.

CAUTION

Make sure pin is properly alined in bearing slot groove.

b. Push (under pressure) traversing spindle screw (10), sleeve bearing (11), and helical spring (12) into cap assembly (7).

c. Screw traversing handwheel assembly (13) onto threaded end of traversing spindle screw (10) and aline pin holes.

d. Secure traversing handwheel assembly (13) in place with straight pin (14).

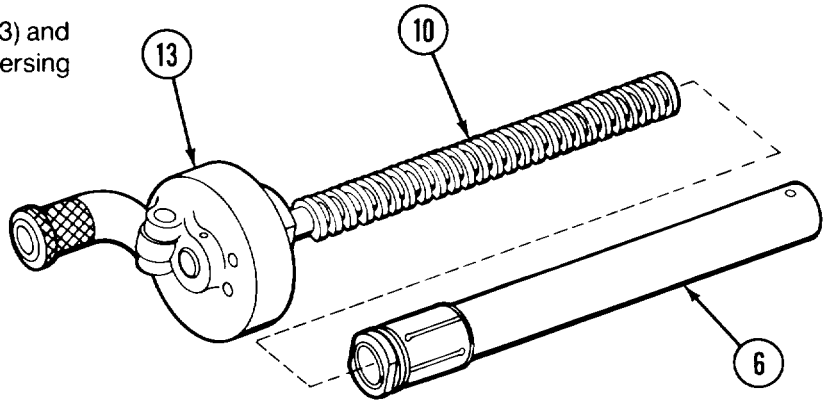
e. Remove traversing spindle assembly from vise (8).

2-12. TRAVERSING SPINDLE ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

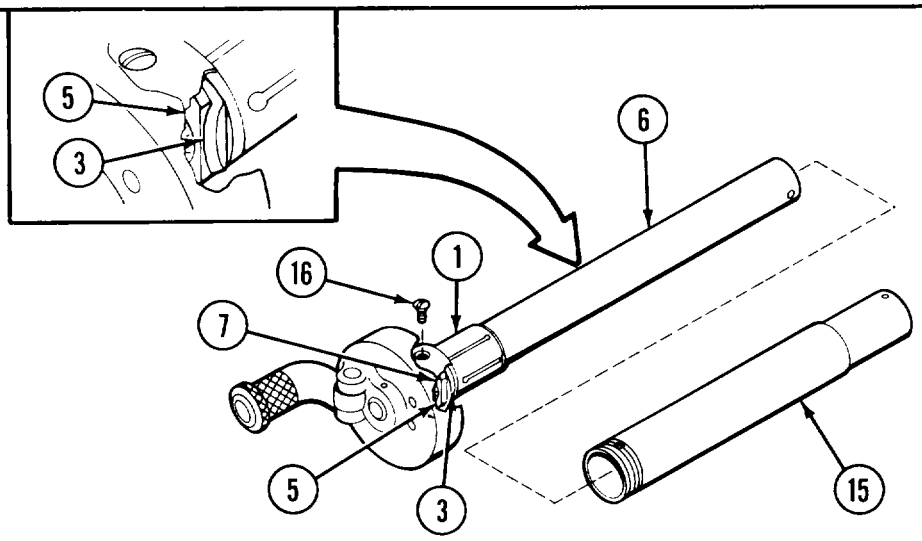
REASSEMBLY (CONT)

3

Hold traversing handwheel assembly (13) and screw spindle nut assembly (6) into traversing spindle screw (10).



4



a. Slide traversing spindle tube (15) over spindle nut assembly (6) and bearing sleeve (1).

b. Check that traversing spindle tube (15) has a light drag fit over sleeve bearing (1).

c. Remove traversing spindle tube (15) and unscrew spindle nut assembly (6) from cap assembly (7).

d. Bend both edges of key washer (3) over the flats of nut (5).

e. Slide traversing spindle tube (15) over spindle nut assembly (6) and bearing sleeve (1).

f. Screw traversing spindle tube (15) into cap assembly (7).

g. Tighten with machine screw (16).

2-13. CAP ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers disassembly/repair/reassembly.

INITIAL SETUP

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

Equipment Condition
Cap assembly removed from traversing spindle assembly (p 2-17).

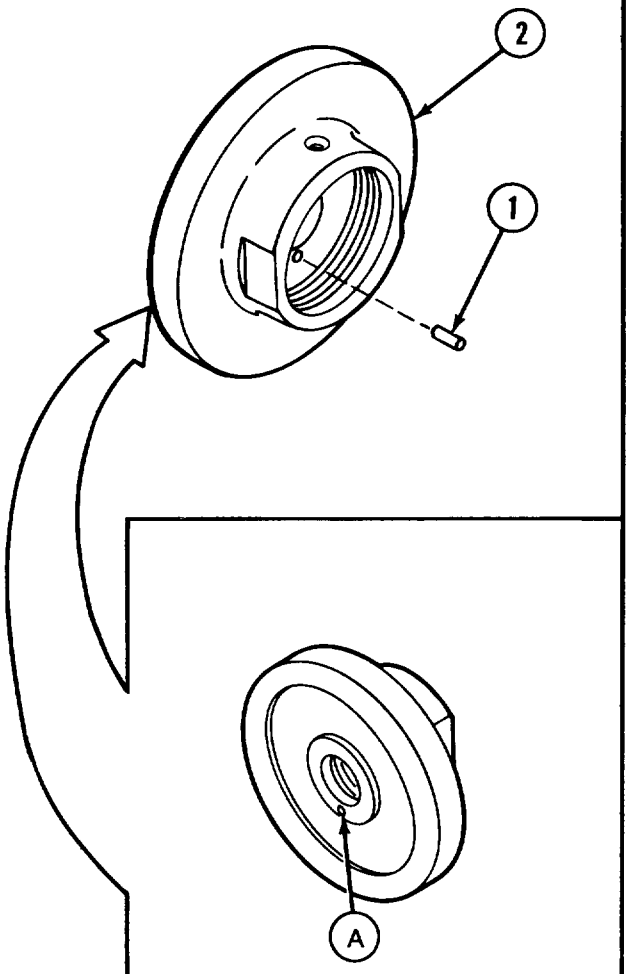
Materials/Parts
Spring pin (MS16562-97)

DISASSEMBLY/REPAIR/REASSEMBLY

a. Remove spring pin (1) from flange (2). Discard spring pin (1).

b. Replace cap assembly if flange is damaged or defective. See appendix B.

c. Install new spring pin (1) in flange (2).



2-14. TRAVERSING HANDWHEEL ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers disassembly/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 51 80-95-CL-A07)

Equipment Condition
- Traversing handwheel assembly removed from traversing spindle assembly (para 2-12).

DISASSEMBLY/REPAIR/REASSEMBLY

a. Unscrew the two machine screws (1) and remove detent (2).

b. Remove straight pin (3) to release straight pin (4).

c. Remove crank (5) from handwheel body (6).

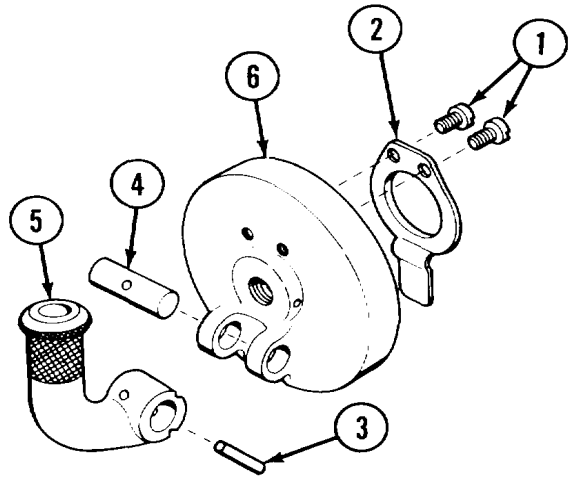
d. Replace damaged or defective parts. See appendix B.

e. Replace traversing handwheel assembly if handwheel body is defective.

f. Insert crank (5) into handwheel body (6).

g. Insert straight pin (4), aline pin holes, and secure with straight pin (3).

h. Attach detent (2) with two machine screws (1).



2-15. YOKE ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers disassembly/cleaning/repair/reassembly.

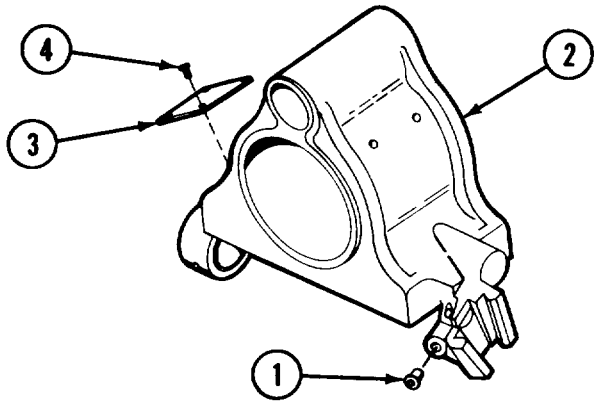
INITIAL SETUP

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

Equipment Condition
Yoke assembly removed from traversing mechanism assembly (p 2-9).

Materials/Parts
General purpose lubricating oil (item 9, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)

DISASSEMBLY/CLEANING/REPAIR/REASSEMBLY



a. If damaged, remove lubricating oil cup (1) from body (2) by pressing lubricating oil cup (1) out from underneath.

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

c. Remove all burrs.

d. Replace lubricating oil cup (1), identification plate (3), and drive screws (4), if damaged or missing. Mark identification plate with NSN and serial number of mortar if known.

e. Inspect the body inside diameter for wear. If worn beyond 3.568 inches, replace yoke assembly.

f. Replace entire yoke assembly if bushing, headless straight pin, or body is damaged or defective. See appendix B.

g. If yoke assembly is replaced, transfer identification plate to new yoke assembly.

h. Lubricate yoke assembly with general purpose lubricating oil before installation.

2-16. LOWER BIPOD ASSEMBLY - MAINTENANCE INSTRUCTIONS.

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

INITIAL SETUP

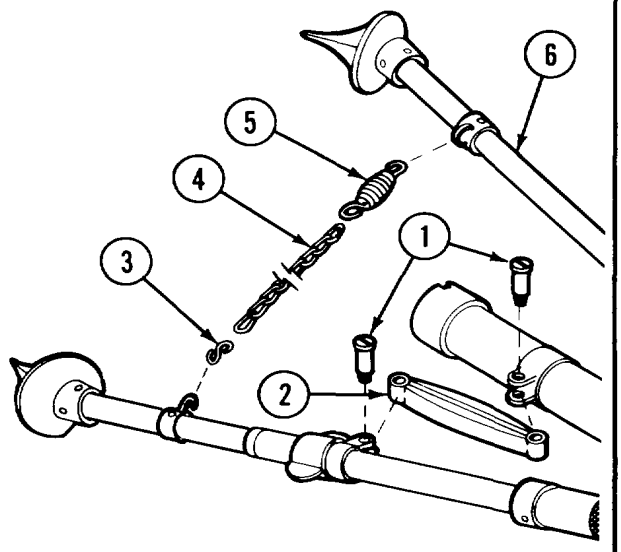
Tools and Special Tools
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)

Materials/Parts
General purpose lubricating oil (item 9, app C)
Abrasive cloth (item 4, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)

Equipment Condition
Lower bipod assembly removed from traversing mechanism assembly (p 2-8).

DISASSEMBLY

1

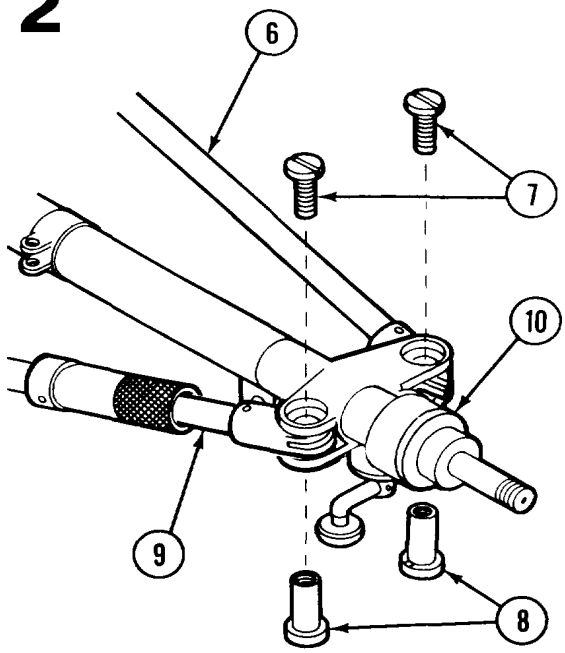


a. Mark location of collars and mortar mount feet before disassembly.

b. Unscrew two shoulder screws (1) from both ends of connecting rod (2).

c. Remove chain hook (3), welded chain (4) and helical extension spring (5) from right leg body (6).

2

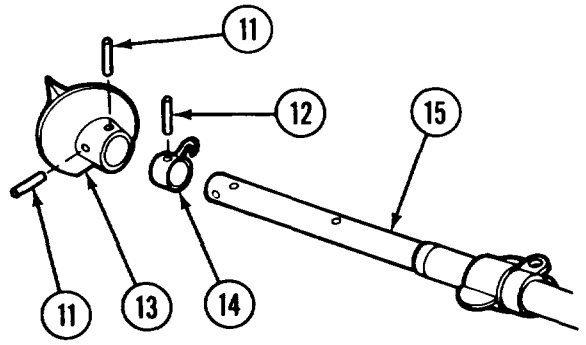


a. Unscrew two machine screws (7) from two straight pins (8).

b. Drive out two straight pins (8) with a brass drift.

c. Separate right leg body (6) and left leg body (9) from elevating mechanism assembly (10).

3

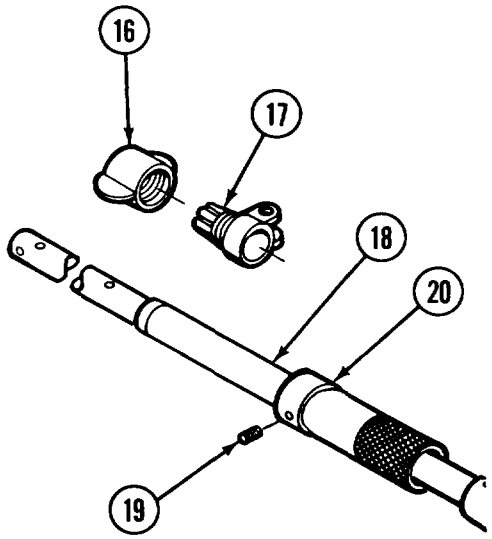


LEFT LEG

a. Drive out two headless straight pins (11) and one headless straight pin (12).

b. Remove mortar mount foot (13) and collar (14) from left leg body (15).

4



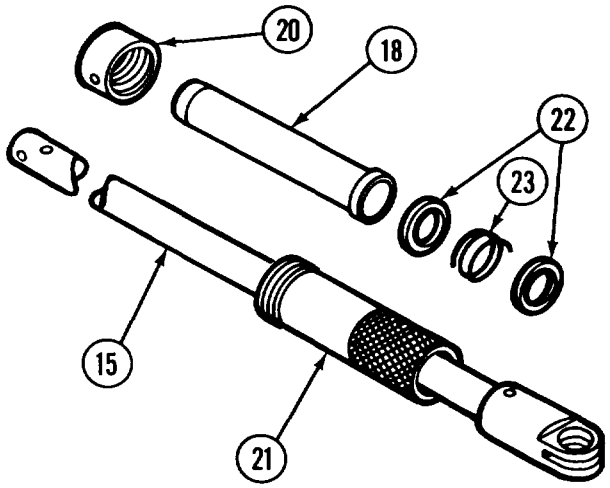
a. Remove the sleeve (16) and bracket (17) from left leg tube assembly (18).

b. Remove setscrew (19) from ring (20).

5

a. Unscrew ring (20) from adjusting nut assembly (21) and remove ring (20).

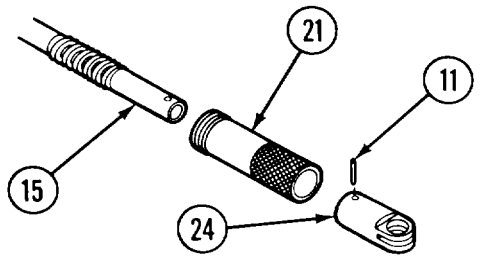
b. Remove left leg tube assembly (18), two flat washers (22) and helical compression spring (23) from left leg body (15).



2-16. LOWER BIPOD ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

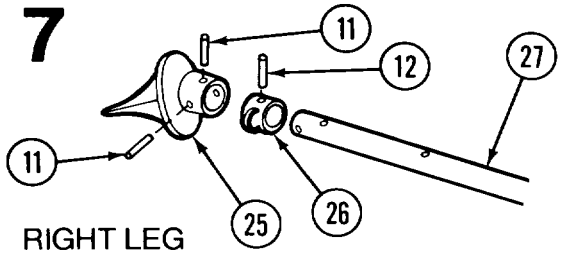
DISASSEMBLY (CONT)

6



Drive out headless straight pin (11) from clevis (24) and remove clevis (24) and adjusting nut assembly (21) from left leg body (15).

7



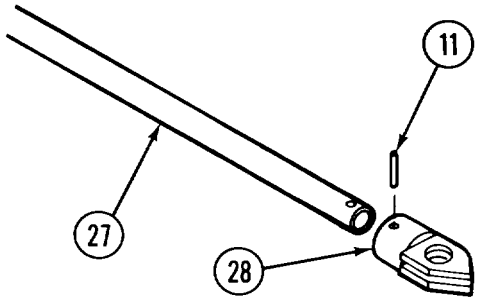
RIGHT LEG

a. Drive out two headless straight pins (11) and one straight pin (12).

b. Remove mortar mount foot (25) and collar (26) from right leg body (27).

8

Drive out headless straight pin (11) and remove clevis (28) from right leg body (27).



CLEANING/REPAIR

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

b. Remove all burrs.

c. Use crocus abrasive cloth on highly polished surfaces of bracket and tube assembly.

d. If headless straight pin (12) is damaged or defective, replace by fabricating a new headless straight pin (12) 1 1/2-inches long from wire 9505-00-331-0437.

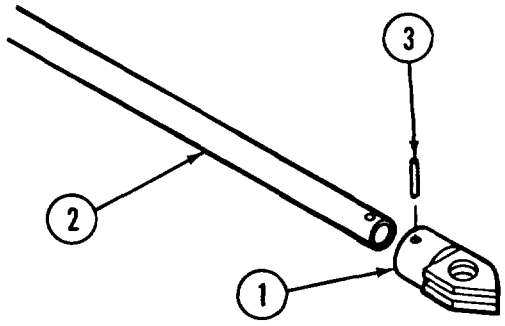
e. If welded chain (4) is damaged or defective, replace by fabricating a new chain 36 inches long from chain 4010-00-807-4219.

f. Replace any other item found damaged or defective during disassembly. See appendix B.

g. Lubricate lower bipod assembly with general purpose lubricating oil before reassembly.

REASSEMBLY

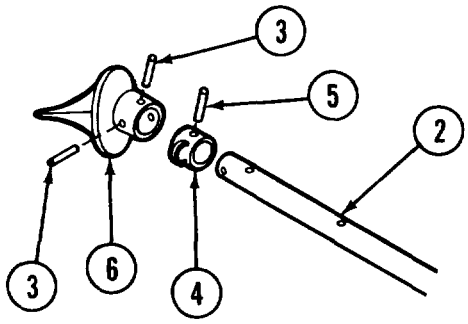
1



RIGHT LEG

Secure clevis (1) to right leg body (2) using headless straight pin (3).

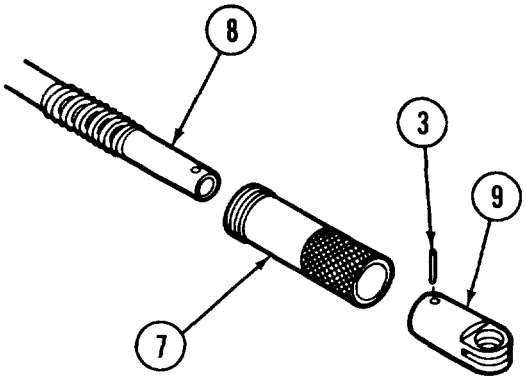
2



a. Attach collar (4) to right leg body (2) using straight pin (5).

b. Attach mortar mount foot (6) to right leg body (2) using two headless straight pins (3).

3

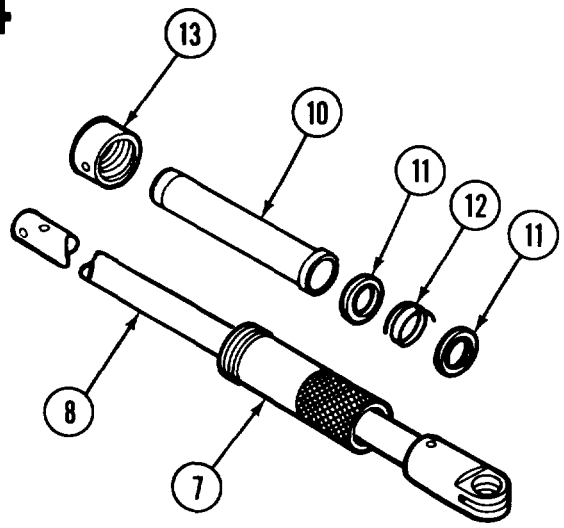


LEFT LEG

a. Screw adjusting nut assembly (7) onto left leg body (8).

b. Secure clevis (9) to left leg body (8) using headless straight pin (3).

4



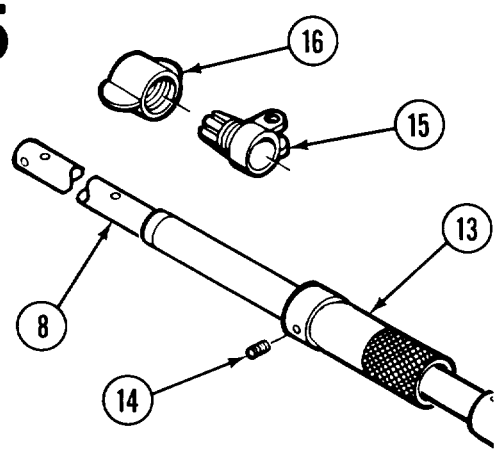
a. Attach left leg tube assembly (10), two flat washers (11) and helical compression spring (12) to left leg body (8).

b. Screw ring (13) handtight onto adjusting nut assembly (7) until setscrew holes line up.

2-16. LOWER BIPOD ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

REASSEMBLY (CONT)

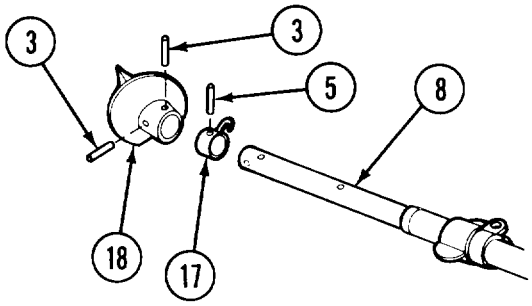
5



a. Secure adjusting nut assembly (13) with setscrew (14).

b. Slide the bracket (15) onto the left leg body (8) and secure in place with sleeve (16).

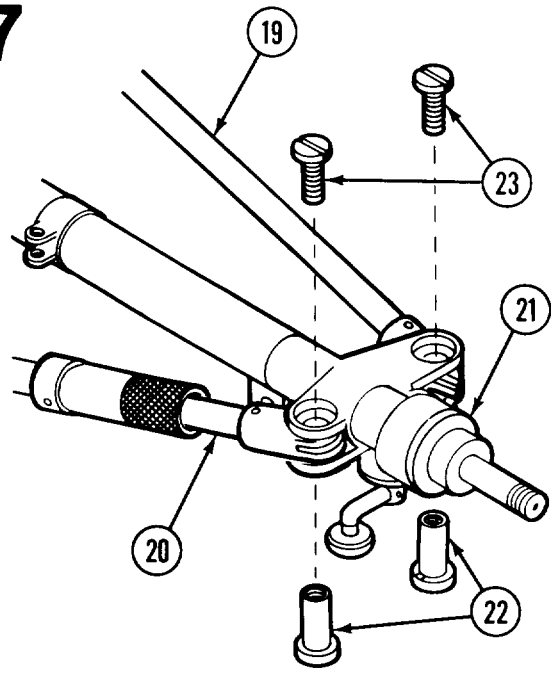
6



a. Attach collar (17) to left leg body (8) and secure with straight pin (5).

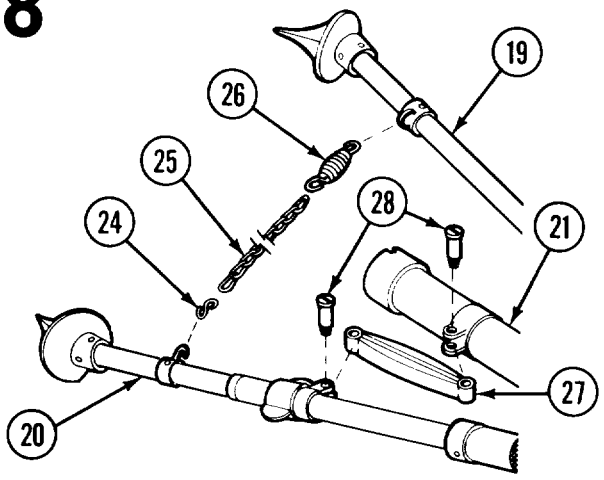
b. Attach mortar mount foot (18) to left leg body (8) and secure with two headless straight pins (3).

7



Attach right leg body (19) and left leg body (20) to elevating mechanism assembly (21) with two straight pins (22) and machine screws (23).

8



a. Attach chain hook (24), welded chain (25) and helical extension spring (26) to right leg body (19).

b. Attach connecting rod (27) to left leg body (20) and elevating mechanism assembly (21) using two shoulder screws (28).

c. Stake shoulder screws (28).

2-17. ELEVATING MECHANISM ASSEMBLY - MAINTENANCE INSTRUCTIONS.

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

INITIAL SETUP

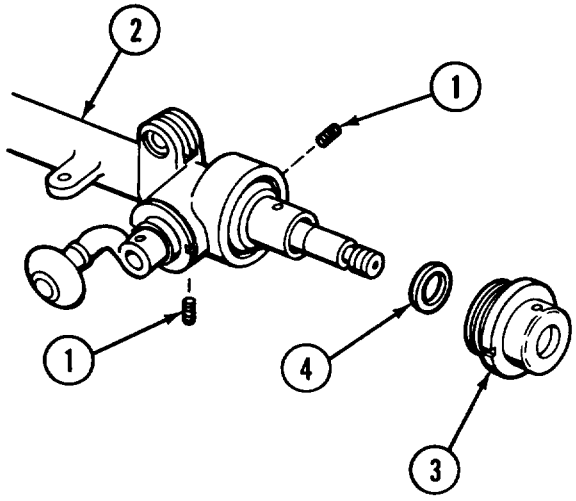
Tools and Special Tools
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)
Spanner wrench 6128199

Materials/Parts
Grease, Automotive & Artillery (GAA) (item 8, app C)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)
Flat washer (7236578)

Equipment Condition
Elevating mechanism assembly removed from lower bipod assembly (p 2- 24

DISASSEMBLY

1

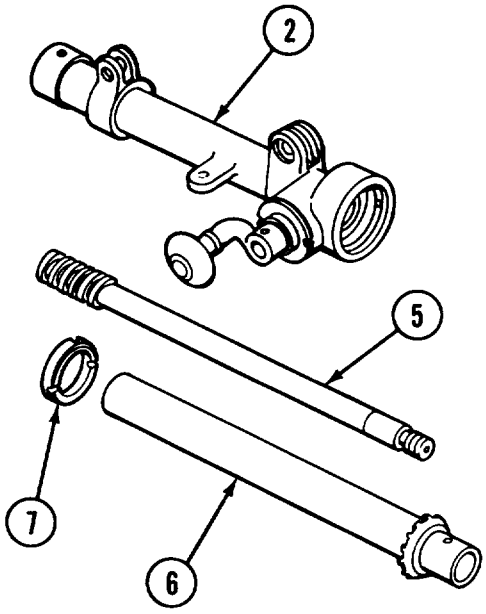


a. Remove two setscrews (1) from elevating mechanism housing (2).

b. With spanner wrench, remove cover assembly (3) from elevating mechanism housing (2).

c. Remove flat washer (4) from inside of cover assembly (3).

2



a. Lift out elevating spindle (5) along with elevating spindle tube (6) from elevating mechanism housing (2).

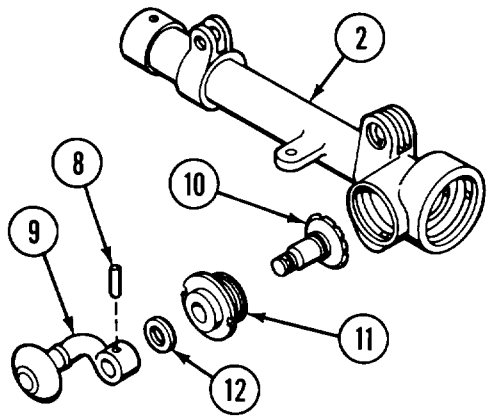
b. Remove thrust washer bearing (7) from elevating spindle tube (6).

c. Withdraw the elevating spindle (5) through bottom of elevating spindle tube (6).

2-17. ELEVATING MECHANISM ASSEMBLY - MAINTENANCE INSTRUCTIONS (CONT).

DISASSEMBLY (CONT)

3

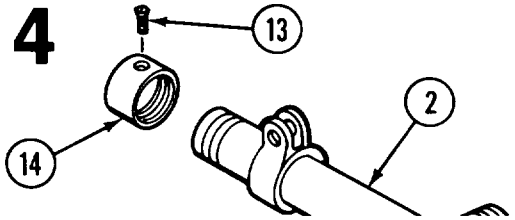


a. Drive out spring pin (8) and remove crank (9) from pinion (10).

b. With spanner wrench, remove cover (11) and assembled parts from elevating mechanism housing (2).

c. Remove cover (11) from bevel pinion (10) and remove flat washer (12) from inside cover (11). Discard flat washer (12).

4



Remove setscrew (13). Unscrew cap (14) from elevating mechanism housing (2).

CLEANING/REPAIR

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

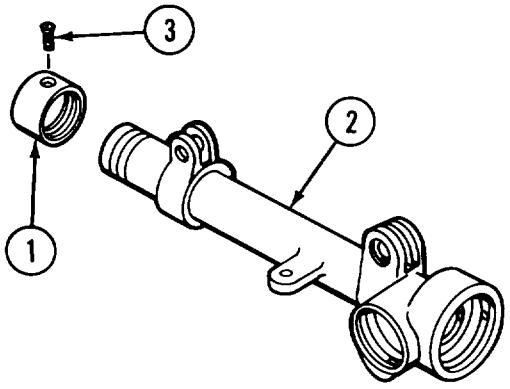
b. Remove all burrs and restore all damaged threads.

c. Replace any item found to be damaged or defective during disassembly. See appendix B.

d. Lubricate elevating mechanism assembly with with grease (GAA) before reassembly. reassembly.

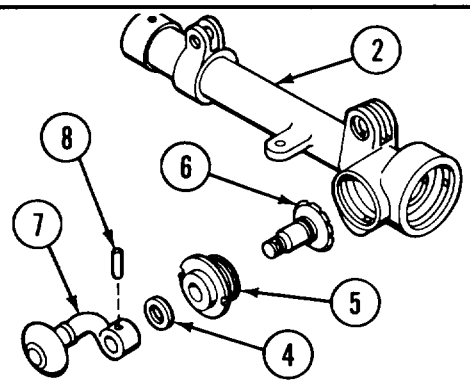
REASSEMBLY

1



Screw cap (1) onto elevating mechanism housing (2). Secure with setscrew (3).

2



a. Place new flat washer (4) inside cover (5) with bevel up and attach cover (5) to bevel pinion (6).

b. Place assembled parts inside elevating mechanism housing (2) and secure cover (5) to elevating mechanism housing (2) using spanner wrench.

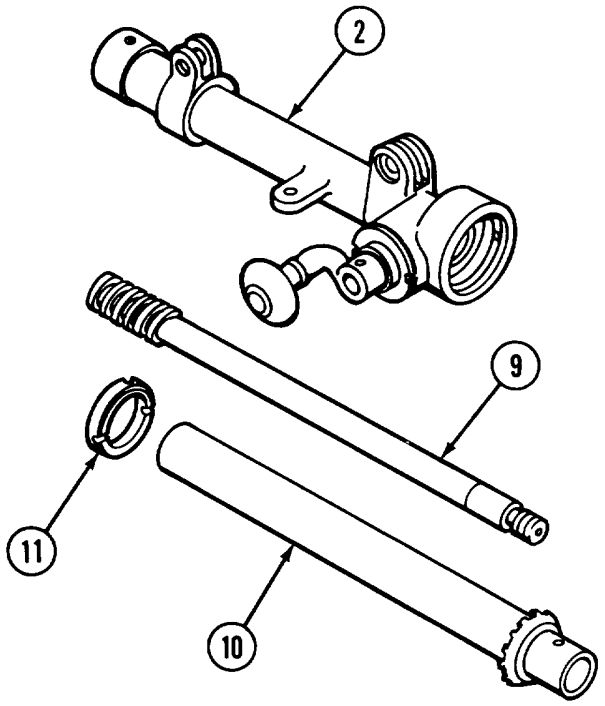
c. Attach crank (7) to bevel pinion (6) and aline pin holes. Secure with spring pin (8).

3

a. Insert elevating spindle (9) through bottom of elevating spindle tube (10).

b. Attach thrust washer bearing (11) to elevating spindle tube (10) with bevel facing the gear.

c. Insert elevating spindle (9) and elevating spindle tube (10) into elevating mechanism housing (2).



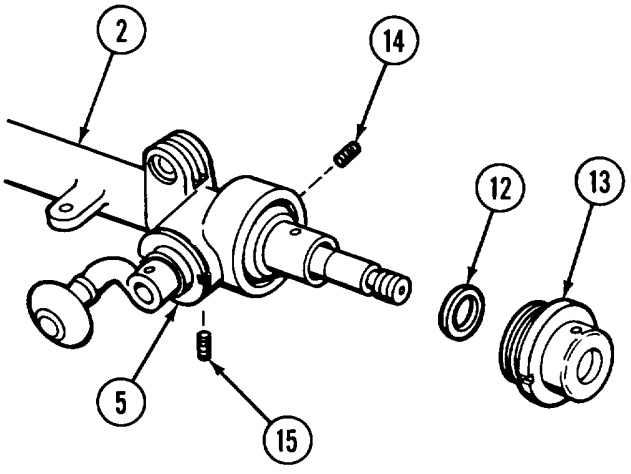
4

a. Attach flat washer (12) to inside of cover assembly (13).

b. With spanner wrench, secure cover assembly (13) to elevating mechanism housing (2).

c. Secure cover assembly (13) to elevating mechanism housing (2) with setscrew (14).

d. Secure cover (5) to elevating mechanism housing (2) with setscrew (15).



2-18. COVER ASSEMBLY - MAINTENANCE INSTRUCTIONS.

This task covers disassembly/repair/reassembly.

INITIAL SETUP

Tools and Special Tools	Equipment Condition
Small Arms Repairman Tool Kit (SC 5180-95-CL-A07)	Cover assembly removed from elevating mechanism assembly (p 2-29).

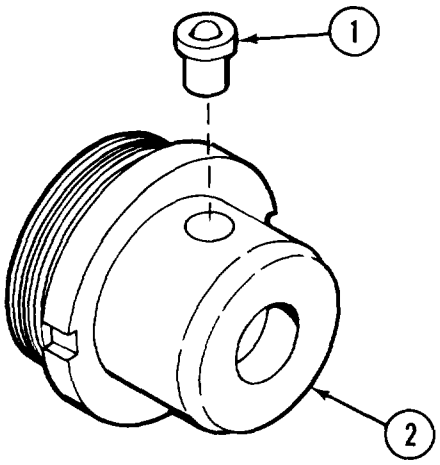
DISASSEMBLY/REPAIR/REASSEMBLY

a. If damaged, remove lubricating oil cup (1) from body (2) by pressing out from underneath.

b. Replace lubricating oil cup if damaged or defective. See appendix B.

c. Replace entire assembly if body is damaged or defective.

d. If removed, insert lubricating oil cup (1) into body (2).



NOTE

DO NOT overlube oil cups! After bipod assembly is completely assembled, lubricate each of 3 oil cups with general purpose lubricating oil (item 9, app C).

2-19. ELEVATING MECHANISM HOUSING - MAINTENANCE INSTRUCTIONS.

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

INITIAL SETUP

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

Materials/Parts
Grease, Automotive & Artillery (GAA)
Dry cleaning solvent (item 5, app C)
Wiping rag (item 11, app C)

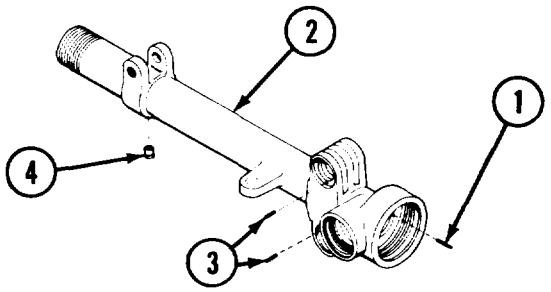
Equipment Condition
Elevating mechanism housing removed from elevating mechanism assembly (p 2-29).

DISASSEMBLY

a. If damaged, remove headless straight pin (1) from elevating housing (2).

b. If damaged, remove two headless straight pins (3) from elevating housing (2).

c. Remove lubricating oil cup (4) from elevating housing (2).

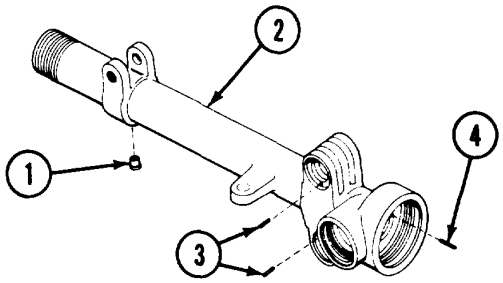


REPAIR

a. Clean parts with dry cleaning solvent and wipe dry with wiping rag.
b. Replace headless straight pin if damaged or defective.
c. Replace lubricating oil cup if damaged or defective.
d. If headless straight pins (3) are damaged or defective, replace by fabricating two new headless straight pins (3) 5/16-inch long from wire 9505-00- 331-0437.
e. Replace entire elevating mechanism assembly if elevating housing is damaged or defective.

See appendix B.

f. Lubricate elevating housing with grease (GAA) before reassembly.



a. Install lubricating oil cup (1) into elevating housing (2).

b. If removed, install two headless straight pins (3) to elevating housing (2).

c. If removed, install headless straight pin (4) into elevating housing (2).

2-20. BASEPLATE M23A1 - MAINTENANCE INSTRUCTIONS.

Refer to TM 9-1015-200-20&P.

2-21. BASEPLATE M3 - MAINTENANCE INSTRUCTIONS.

Refer to TM 9-1015-200-20&P.

2-22. FINAL INSPECTION - MAINTENANCE INSTRUCTIONS.

This task covers Final Inspection.

INITIAL SETUP

Materials/Parts
Enamel (item 6, app C)
Paint brush (item 2, app C)
Synthetic thinner (item 13, app C)

Equipment Condition
M29A1 81-mm mortar assembled in accordance with TM 9-1015-200-10.

References
TM 9-1015-200-10
TM 43-0139

FINAL INSPECTION

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

Point To Be Inspected	*Final Inspection*
Cannon M29	
a. Basecap	a. Cap gastight on tube and smooth ball.
b. Mortar tube	b. Bore diameter within limits, free of dents, and burrs, quadrant seat free of burrs, barrel clamp position marks legible.
c. Firing pin	c. Gastight in basecap.
d. Barrel ring	d. Does not bind, free of burrs.
Bipod Assembly M23A1	
a. Legs	a. Legs straight, chain intact, feet secure to legs, sliding bracket lock must lock firmly.
b. Elevating mechanism assembly	b. Must not bind, backlash must not exceed limits, must operate smoothly, components must not be loose.
c. Traversing mechanism assembly	c. Must not bind. Backlash must not exceed limits, must operate smoothly, components must not be loose.
d. Shock absorber assembly and yoke assembly	d. Clevis pin functional and attached to chain. Guide rings smooth and sight mount free of burrs.
e. Painted surfaces	e. Must be in good condition. See TM 43-0139.
Baseplate M3	
a. Baseplate plate	a. Must be free of burrs, cracks, and must not be deformed.
b. Baseplate socket	b. Must rotate with ease and be free of burrs.
c. Cushion set and retaining ring	c. Must not be damaged.
Baseplate M23A1	
a. Inner and outer ring bodies	a. Must be free of burrs, cracks, and must not be deformed.
b. Latches, outer ring	b. Must not be damaged and must function to latch the inner ring to the outer ring.
c. Baseplate socket	c. Must be free of burrs and must rotate with ease.
d. Carrying handles	d. Shall not be damaged.
e. Painted surface	e. Shall be in good condition. See TM 43-0139.

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

2-23. 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 forms, technical bulletins and manuals referenced in this manual.

A-2. FORMS.

SF 364	Report of Discrepancy (ROD)
SF 368	Quality Deficiency Report

A-3. TECHNICAL BULLETIN.

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

A-4. TECHNICAL MANUALS.

TM 9-1000-202-14	Evaluation of Cannon Tubes
TM 9-1015-200-10	Operator's Manual for 81 -mm Mortar M29A1 (1015-00-999-7794)
TM 9-1015-200-20&P	Organizational Maintenance, Including Repair Parts and Special Tools List for 81 -mm Mortar M29A1 (1015-00-999-7794)
TM9-6650-235-13&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 to Prevent Enemy Use

A-5. 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 PAM 738-750	The Army Maintenance Management System (TAMMS)
FM 21-11	First Aid for Soldiers
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 Bores Inspecting, M2 or Borescope M3

APPENDIX B
DIRECT SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS)

Section I. INTRODUCTION

B-1. SCOPE. This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of direct support maintenance of the 81-mm mortar M29A1. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools indicated by the Source, Maintenance and Recoverability (SMR) codes.

B-2. GENERAL. In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Repair parts kits are listed separately in their own functional group within section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s).

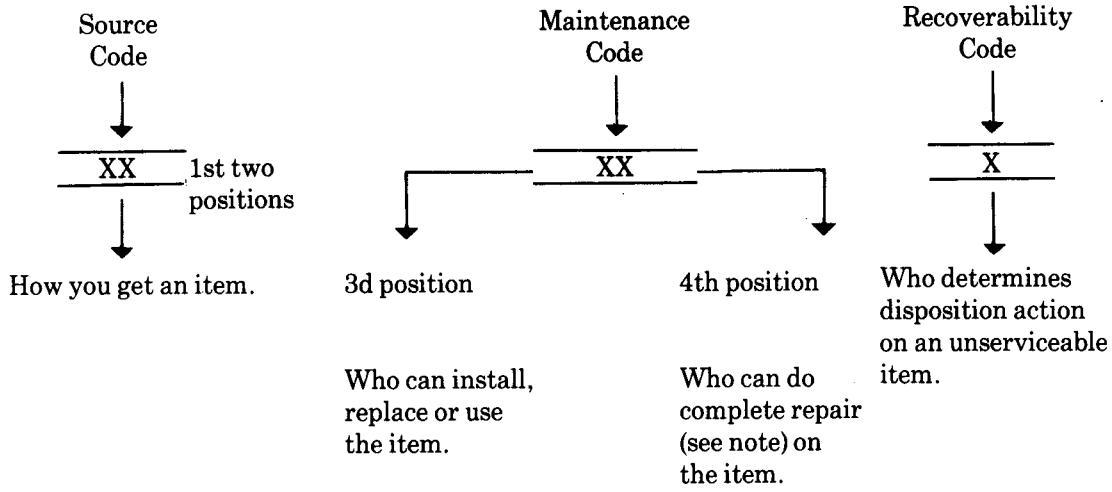
b. Section II. Special Tools List. Not applicable.

c. Section IV. National Stock Number and Part Number Index. A list, in National item identification number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

B-3. EXPLANATION OF COLUMNS (SECTIONS II AND III).

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

b. SMR CODE (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



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

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

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

XA - Do not requisition an "XA" -coded item. Order its next higher assembly. (Also, refer to the NOTE below.)

XB - If an "XB" item is not available from salvage, order it using the FSCM and part number given.

XD - Item is not stocked. Order an "XD" -coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

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

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

Code	Application/Explanation
C	- Crew or operator maintenance done within organizational or aviation unit maintenance.
O	- Organizational or aviation unit category can remove, replace, and use the item.
F	- Direct support or aviation intermediate level can remove, replace, and use the item.
H	- General support level can remove, replace, and use the item.
L	- Specialized repair activity can remove, replace, and use the item.
D	- Depot level can remove, replace, and use the item.

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

NOTE

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

This position will contain one of the following maintenance codes:

Code	Application/Explanation
O	- Organizational or aviation unit is the lowest level that can do complete repair of the item.
F	- Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	- General support is the lowest level that can do complete repair of the item.
L	- Specialized repair activity (designate the specialized repair activity) is the lowest level that can do complete repair of the item.
D	- Depot is the lowest level that can do complete repair of the item.
Z	- Nonreparable. No repair is authorized.
B	- No repair is authorized. (No parts or special tools are authorized for the maintenance of a MB" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc, at the user level.

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

Recoverability Code	Application/Explanation
Z	Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code.
O	Repairable item. When uneconomically repairable, condemn and dispose of the item at organizational or aviation unit level.
F	Repairable item. When uneconomically repairable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	Repairable item. When uneconomically repairable, condemn and dispose of the item at the general support level.
D	Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	-Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	-Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. *FSCM (Column (3*). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. *PART NUMBER (Column (4*). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

NOTE

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

e. *DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)).* This column includes the following Information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) Items that are included in kits and sets are listed below the name of the kit or set.

(3) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(4) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last lines of the description (before UOC).

(5) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipment's supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(6) The statement "END OF FIGURE" appears just below the last item description in column 5 for a given figure in both section II and section III.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

B-4. EXPLANATION OF COLUMNS (SECTION IV).

a. *NATIONAL STOCK NUMBER INDEX*.

(1) STOCK NUMBER column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e., (5385-01-574-1467).

NSN

NIIN

When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) FIG. column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in section II and section III.

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

b. *PART NUMBER INDEX*. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) FSCM column. The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

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

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and FSCM columns to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located in sections II and III.

(5) ITEM column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

B-5. SPECIAL INFORMATION.

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

b. *Assembly Instructions*. Detailed assembly instructions for items source coded to be assembled from component spare/repair parts are found in this manual. Items that make up the assembly are listed immediately following the assembly item entry or reference is made to an applicable figure.

c. *Index Numbers*. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number index and the bulk material list in section II.

B-6. HOW TO LOCATE REPAIR PARTS.

a. *When National Stock Number or Part Number is Not Known*:

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

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

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

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. *When National Stock Number or Part Number is Known*:

(1) First. Using the index of National stock numbers and part numbers, find the pertinent National stock number or part number. The NSN index is in National Item Identification Number (NIIN) sequence (see B-4a(1)). The part numbers in the PART NUMBER INDEX are listed In ascending alphanumeric sequence (see B-4b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

B-7. ABBREVIATIONS. Not applicable.

Section II. REPAIR PARTS LIST

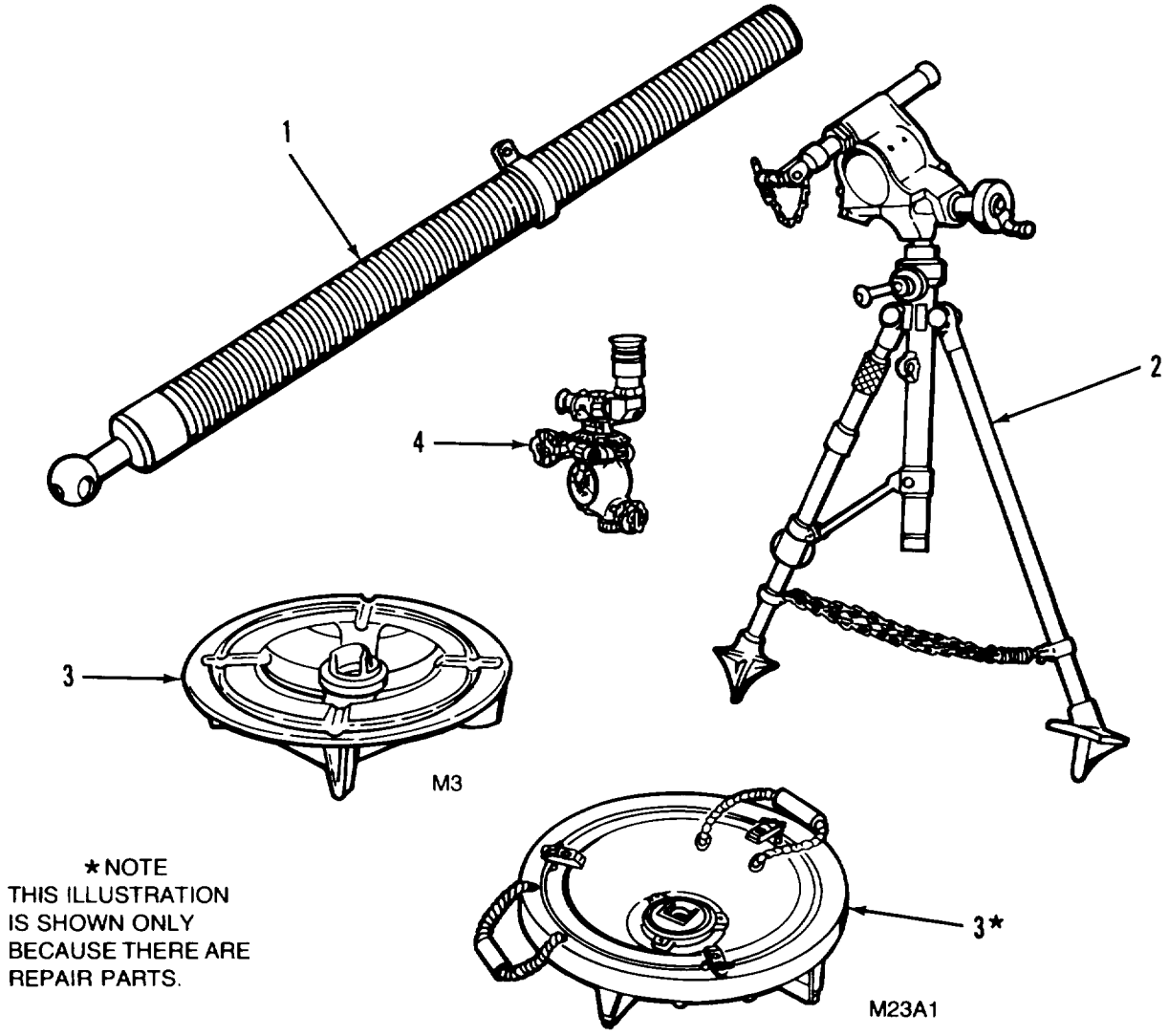


Figure B-1. 81-mm Mortar M29A 1 B-7

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 00 81-MM MORTAR M29A1 1158364	
				FIG. B-1 81-MM MORTAR M29A1	
1	PAFFF	19206	8766507	CANNON, 81 MILLIMETE 81-MM M29A1 ..... NOTE: TO BE USED AS A REPLACEMENT FOR CANNON M29, M29A1	1
2	AFFFF	19204	11578362	BIPOD ASSY M23A1 (SEE FIG. B-3 FOR ASSEMBLY BREAKDOWN)	1
3	PAOOO	19206	7309128	BASEPLATE, MORTAR M3	1
4	AOOOO	19200	10559698	SIGHT UNIT, M53	1
4	AOOOO	19200	10559698	SIGHT UNIT M53A1	1
				END OF FIGURE	

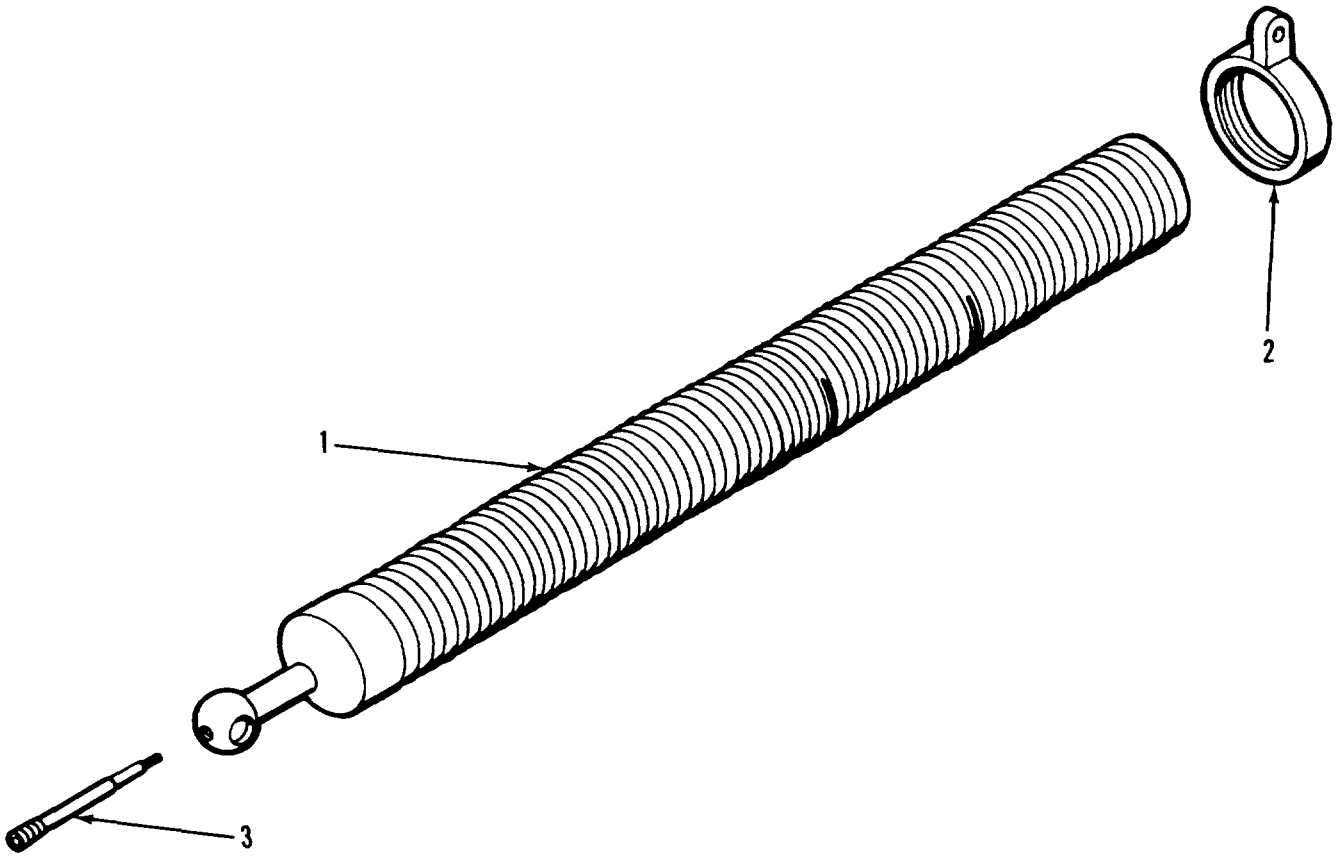


Figure B-2. Cannon assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 01 CANNON ASSEMBLY 8766507	
				FIG.B-2 CANNON ASSEMBLY	
1	XAFZA	19206	8766506	BARREL	1
2	PAFZZ	19206	11578240	BARREL RING	1
3	PAOZZ	19206	11577647	PIN, FIRING	1
				END OF FIGURE	

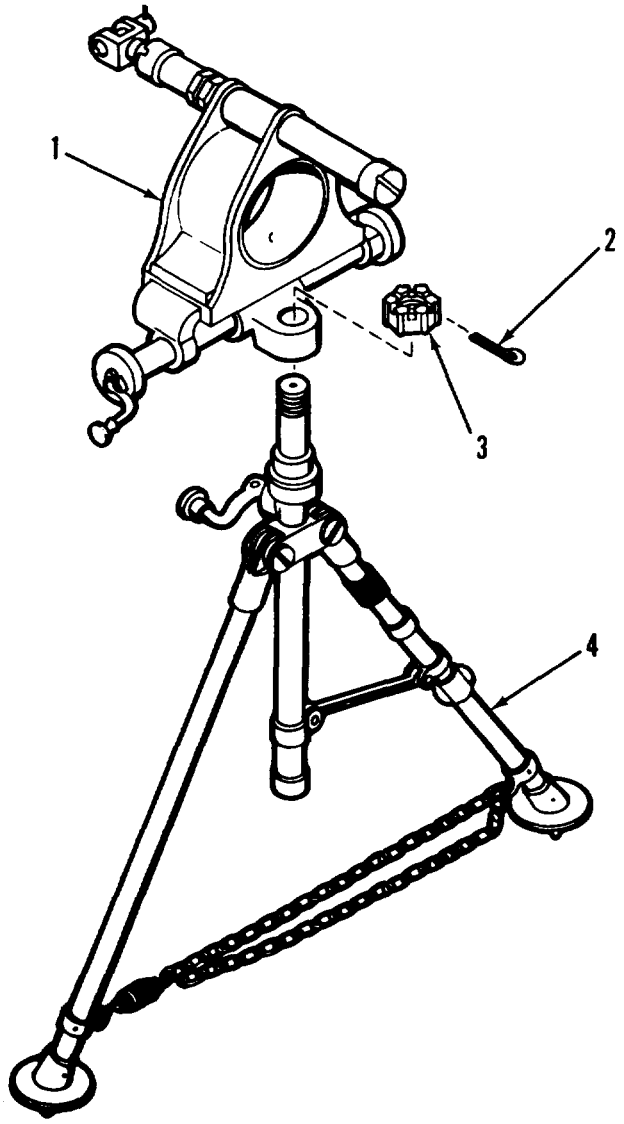
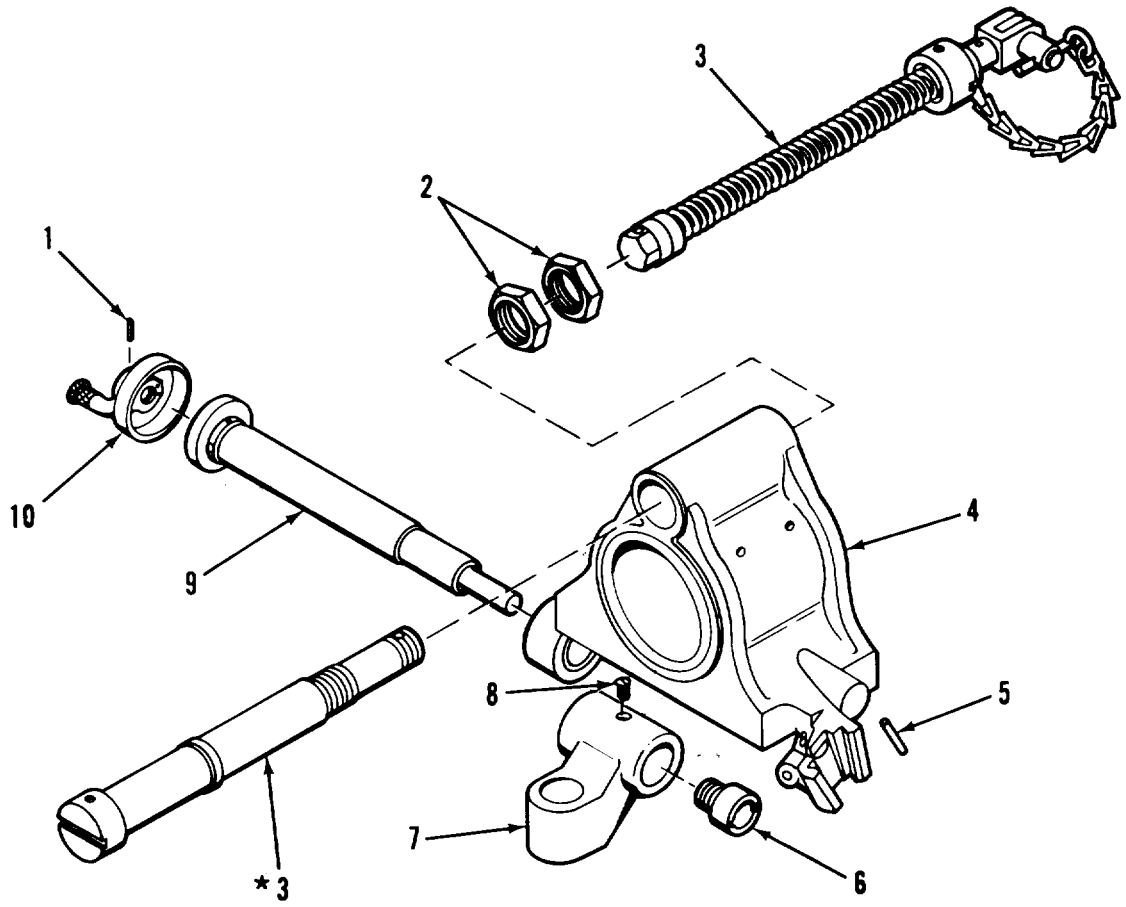


Figure B-3. Bipod assembly M23A 1

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 02 BIPOD ASSEMBLY M23A1 11578362	
				FIG.B-3 BIPOD ASSEMBLY M23A1	
1	AFFFF	19206	7305173	MECHANISM ASSEMBLY, TRAVERSING (SEE FIG.B-4 FOR ASSEMBLY BREAKDOWN)	1
2	PAFZZ	96906	MS24665-357	PIN, COTTER	1
3	PAFZZ	96906	MS35692-69	NUT, PLAIN, SLOTTED	1
4	AFFFF	19206	7305169	BIPOD ASSY, LOWER (SEE FIG.B-9 FOR ASSEMBLY BREAKDOWN	1
				END OF FIGURE	



*SUPPLIED WITH IDENTICALLY NUMBERED PART

Figure B-4. Traversing mechanism assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0201 TRAVERSING MECHANISM ASSEMBLY 7305173	
				FIG.B-4 TRAVERSING MECHANISM ASSEMBLY	
1	PAFZZ	96906	MS9105-63	PIN, STRAIGHT, HEADLE SS	1
2	PAFZZ	81352	AN924-16	NUT, PLAIN, HEXAGON	2
3	PAFFF	19206	7305092	SHOCK ABSORBER ASSEMBLY	1
4	PAFDD	19206	7305063	YOKE ASSEMBLY.	1
5	PAFZZ	96906	MS9105-98	PIN, STRAIGHT, HEADLE SS	1
6	PAFZZ	19206	7236591	BEARING, TRAVERSING	1
7	PAFZZ	19206	7308541	CONNECTOR BIPOD.	1
8	PAFZZ	19204	5025251	SCREW, MACHINE	1
9	AFFFF	19206	7308532	SPINDLE, TRAVERSING ASSEMBLY (SEE FIG.B-6 FOR ASSEMBLY BREAKDOWN)	1
10	PAFFF	19206	7308276	HANDWHEEL, TRAVERSIN G ASSEMBLY	1
				END OF FIGURE	

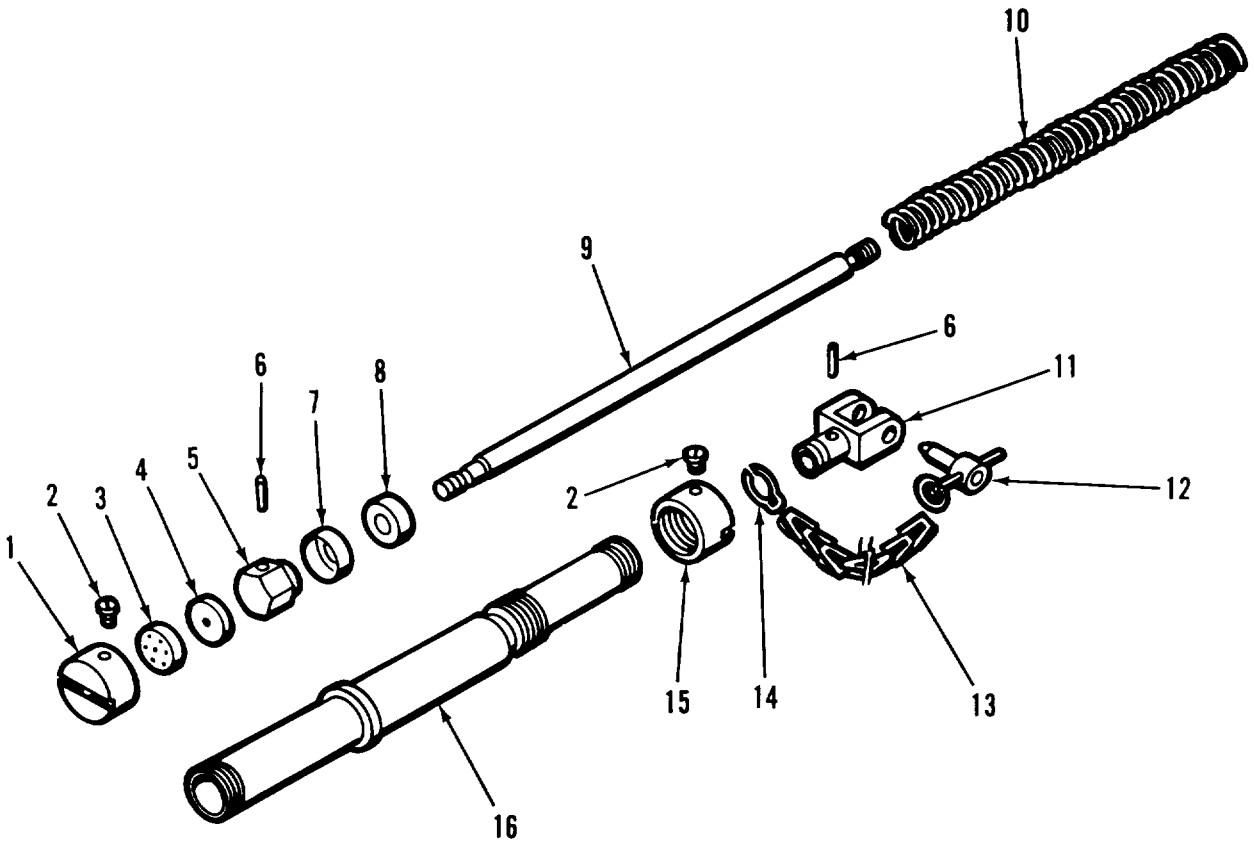


Figure B-5. Shock absorber assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 020101 SHOCK ABSORBER ASSEMBLY 7305092	
				FIG.B-5 SHOCK ABSORBER ASSEMBLY	
1	PAFZZ	19206	7235975	CAP, MORTAR	1
2	PAFZZ	19204	5025228	SCREW, MACHINE	2
3	PAFZZ	19206	7235976	BUMPER, RUBBER	1
4	PAFZZ	19206	7235977	PLATE	1
5	PAFZZ	19207	7235978	NUT SLEEVE	1
6	PAFZZ	96906	MS9105-36	PIN, STRAIGHT, HEADLE SS	2
7	PAFZZ	19206	7235979	CUP, COMPRESSION	1
8	PAFZZ	19206	7235980	BEARING, SLEEVE	1
9	PAFZZ	19207	7235983	STUD, SHOULDERED	1
10	PAFZZ	19206	7235982	SPRING, HELICAL, COMP	1
11	PAFZZ	19206	7238396	CLEVIS, ROD END	1
12	PAOZZ	19206	11578050	PIN, QUICK RELEASE	1
13	MOOZZ	19206	CHAINNPN	CHAIN, WELDLESS MAKE FROM CHAIN, WELDLESS, P/N 7229585/NSN 4010-00-868-8063	1
14	PAOZZ	19206	7305184	CLIP	1
15	PAFZZ	19206	7235989	CAP	1
16	PAFZZ	19206	7305089	TUBE, SHOCKY ABSORBER	1
				END OF FIGURE	

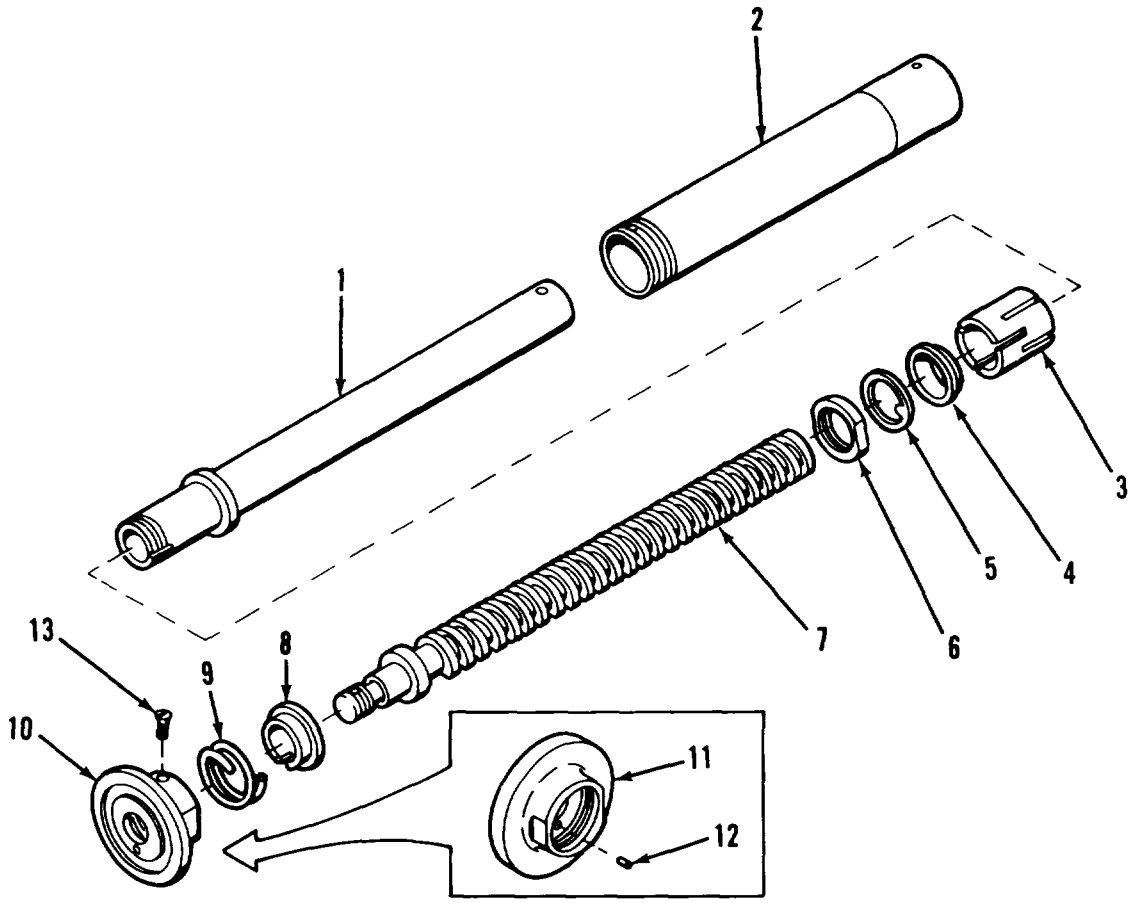


Figure B-6. Traversing spindle assembly and cap assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 020102 TRAVERSING SPINDLE ASSEMBLY 7308532 AND	
				GROUP 02010201 CAP ASSEMBLY 7308278	
				FIG.B-6 TRAVERSING SPINDLE ASSEMBLY AND CAP ASSEMBLY	
1	PAFZZ	19206	7236592	NUT, SPINDLE, TRAVERS ING	1
2	PAFZZ	19206	7235971	HOUSING, MECHANICAL	1
3	PAFZZ	19206	7236596	BEARING, SLEEVE	1
4	PAFZZ	19206	7236599	SPACER, RING	1
5	PAFZZ	19206	7236598	WASHER, KEY	1
6	PAFZZ	19206	7236597	NUT, PLAIN, ROUND	1
7	PAFZZ	19206	7236713	SCREW, SPINDLE, TRAVE RSING	1
8	PAFZZ	19206	7236595	BEARING, SLEEVE	1
9	PAFZZ	19206	7236594	SPRING, HELICAL, COMP	1
10	PAFFZ	19206	7308278	CAP ASSEMBLY, MORTAR	1
11	XAFZZ	19206	7308274	..FLANGE	1
12	PAFZZ	96906	MS16562-97	..PIN, SPRING	1
13	PAFZZ	19204	5025228	SCREW, MACHINE	1
				END OF FIGURE	

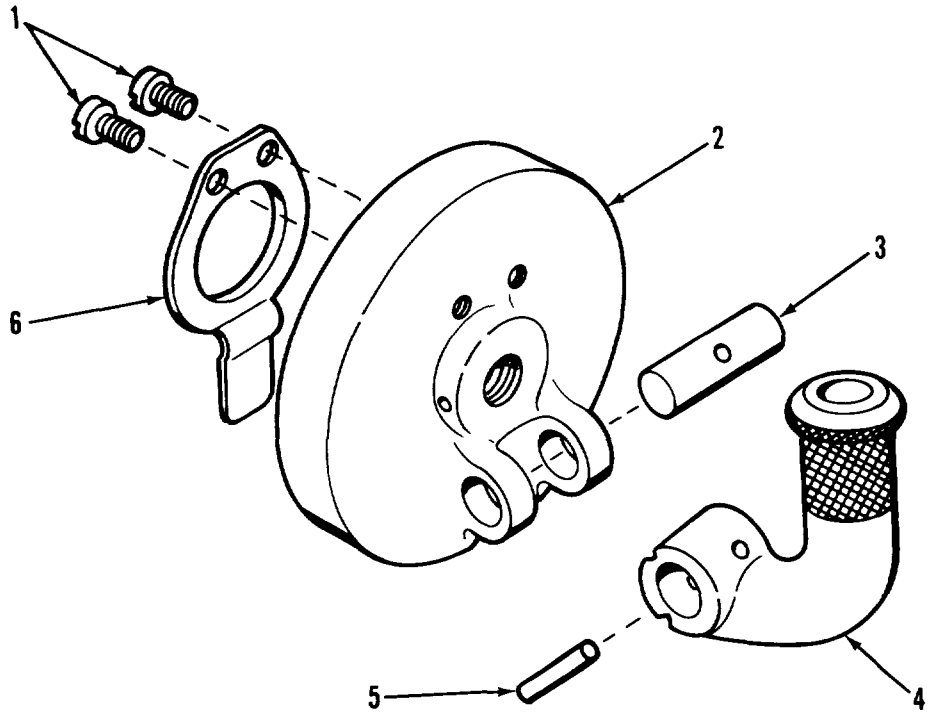


Figure B-7. Traversing handwheel assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 020103 TRAVERSING HANDWHEEL ASSEMBLY 7308276	
				FIG.B-7 TRAVERSING HANDWHEEL ASSY	
1	PAFZZ	96906	MS35207-240	SCREW, MACHINE	2
2	XAFZZ	19206	7308275	BODY, HANDWHEEL	1
3	PAFZZ	19206	7236047	PIN, STRAIGHT, HEADLE SS	1
4	PAFZZ	19206	7235927	CRANK	1
5	PAFZZ	96906	MS9105-09	PIN, STRAIGHT, HEADLE SS	1
6	PAFZZ	19206	5012975	DETENT	1
				END OF FIGURE	

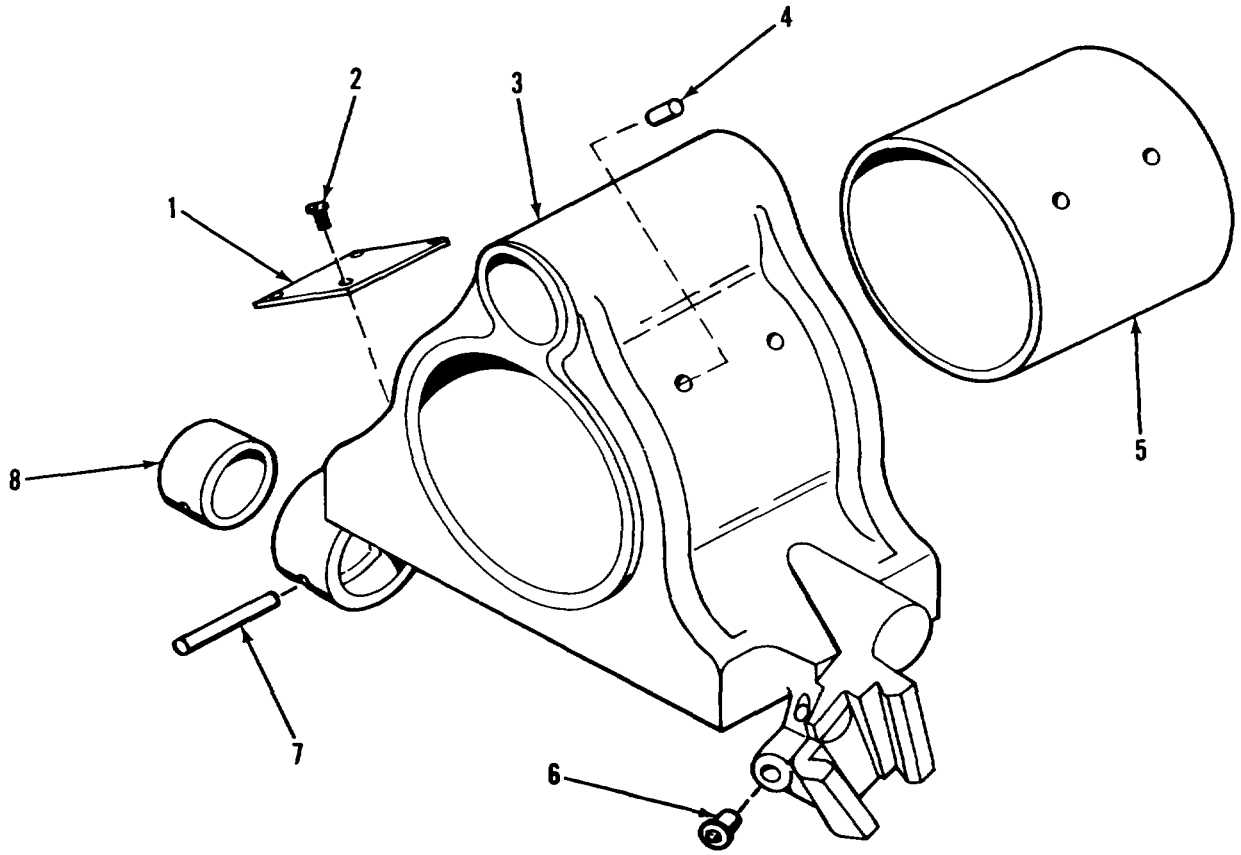


Figure B-8. Yoke assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 020104 YOKE ASSEMBLY 7305063	
				FIG.B-8 YOKE ASSEMBLY	
1	PAFZZ	19206	11578396	PLATE	1
2	PAFZZ	96906	MS21318-14	SCREW, DRIVE	4
3	XAFZZ	19206	7305062	BODY	1
4	PADZZ	96906	MS51945-19	RIVET, SPLIT	4
5	PADZZ	19206	7305061	SPACER, SLEEVE	1
6	PAFZZ	96906	MS35755-1	CUP, OIL, LUBRICATING	1
7	XAFZZ	96906	MS16556-833	PIN, STRAIGHT, HEADLE SS	1
8	XAFZZ	19206	7236715	BUSHING	1
				END OF FIGURE	

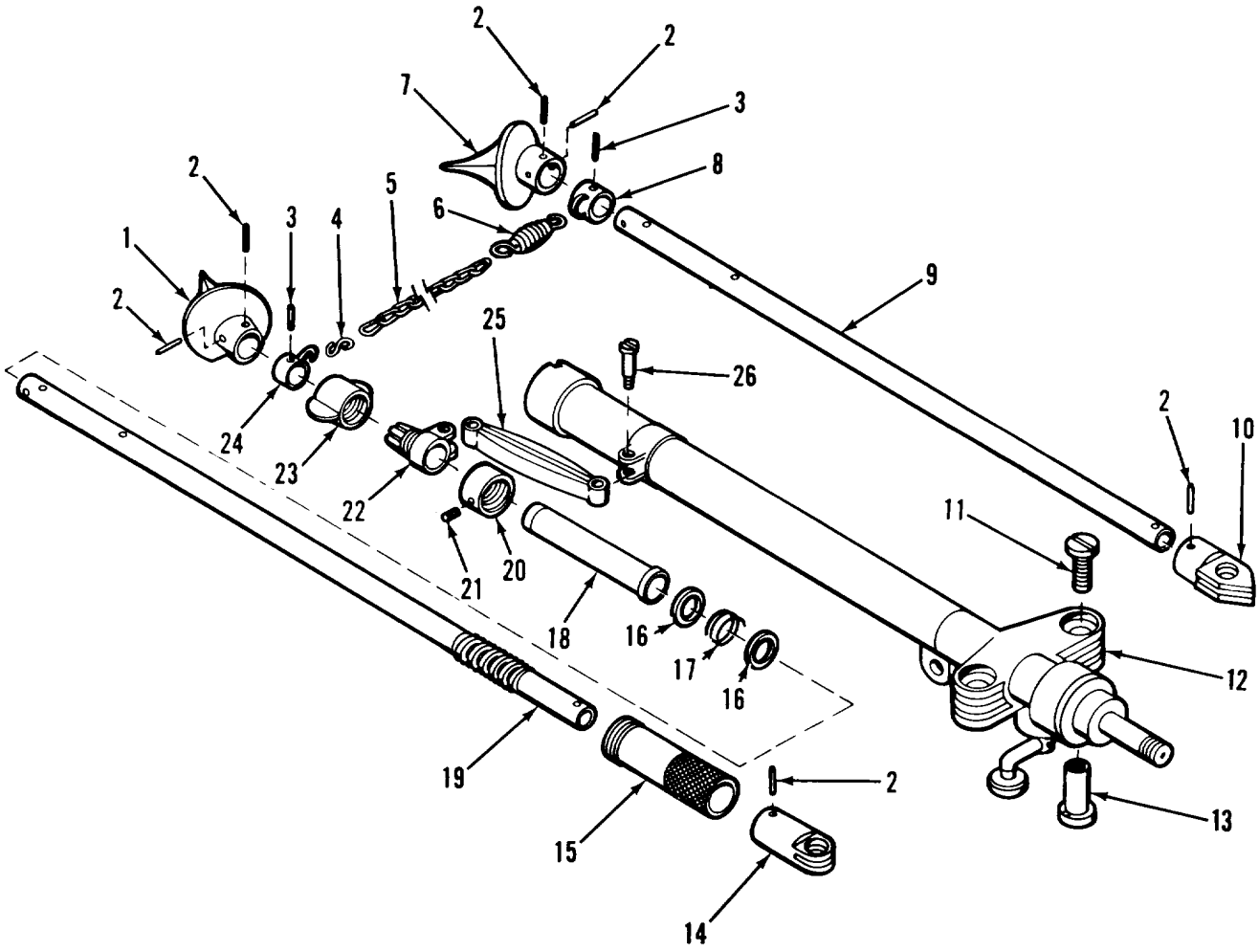


Figure B-9. Lower bipod assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 0202 LOWER BIPOD ASSEMBLY 7305169	
				FIG.B-9 LOWER BIPOD ASSEMBLY	
1	PAFZZ	19206	7305160	FOOT,MORTAR MOUNT	1
2	PAFZZ	19206	7237256	PIN,STRAIGHT,HEADLE SS	6
3	MFFZZ	19207	505337	PIN,STRAIGHT, MAKE FROM WIRE,P/N QQT580/NSN 9505-00-331-0437	2
4	PAOZZ	19204	5025019	HOOK,CHAIN,S	1
5	MOOZZ	19204	CHAINNPN-WLD	CHAIN,WELDED MAKE FROM CHAIN,WELDED,P/N 11577758/NSN 4010-00-807-4219	1
6	PAOZZ	19206	5025017	SPRING,HELICAL,EXTE	1
7	PAFZZ	19206	7305161	FOOT,MORTAR MOUNT	1
8	PAFZZ	19206	7305163	COLLAR	1
9	PAFZZ	19206	7305167	BODY,LEG RIGHT	1
10	PAFZZ	19206	7305181	CLEVIS,ROD END	1
11	PAFZZ	19206	7235901	SCREW,MACHINE	2
12	AFFFF	19206	7305171	MECHANISM ASSEMBLY,ELEVATING (SEE FIG.B-10 FOR ASSEMBLY BREAKDOWN)	1
13	PAFZZ	19206	7235898	PIN,STRAIGHT HEADED	2
14	PAFZZ	19206	7307908	CLEVIS,ROD END	1
15	PAFZZ	19206	6008334	NUT ASSEMBLY ADJUST	1
16	PAFZZ	19206	5025008	WASHER,FLAT	2
17	PAFZZ	19206	5025007	SPRING,HELICAL,COMP	1
18	PAFZZ	19206	5207738	TUBE ASSY,LEFT LEG	1
19	PAFZZ	19206	7305165	BODY,LEG LET	1
20	PAFZZ	19206	5025010	RING	1
21	PAFZZ	19204	5025009	SETSCREW	1
22	PAFZZ	19206	6008332	BRACKET	1
23	PAFZZ	19206	7230008	SLEEVE	1
24	PAFZZ	19206	7305162	COLLAR,LEFT,MORTAR	1
25	PAOZZ	19206	6008336	ROD,CONNECTING	1
26	PAOZZ	19206	7236709	SCREW,SHOULDER	2

END OF FIGURE

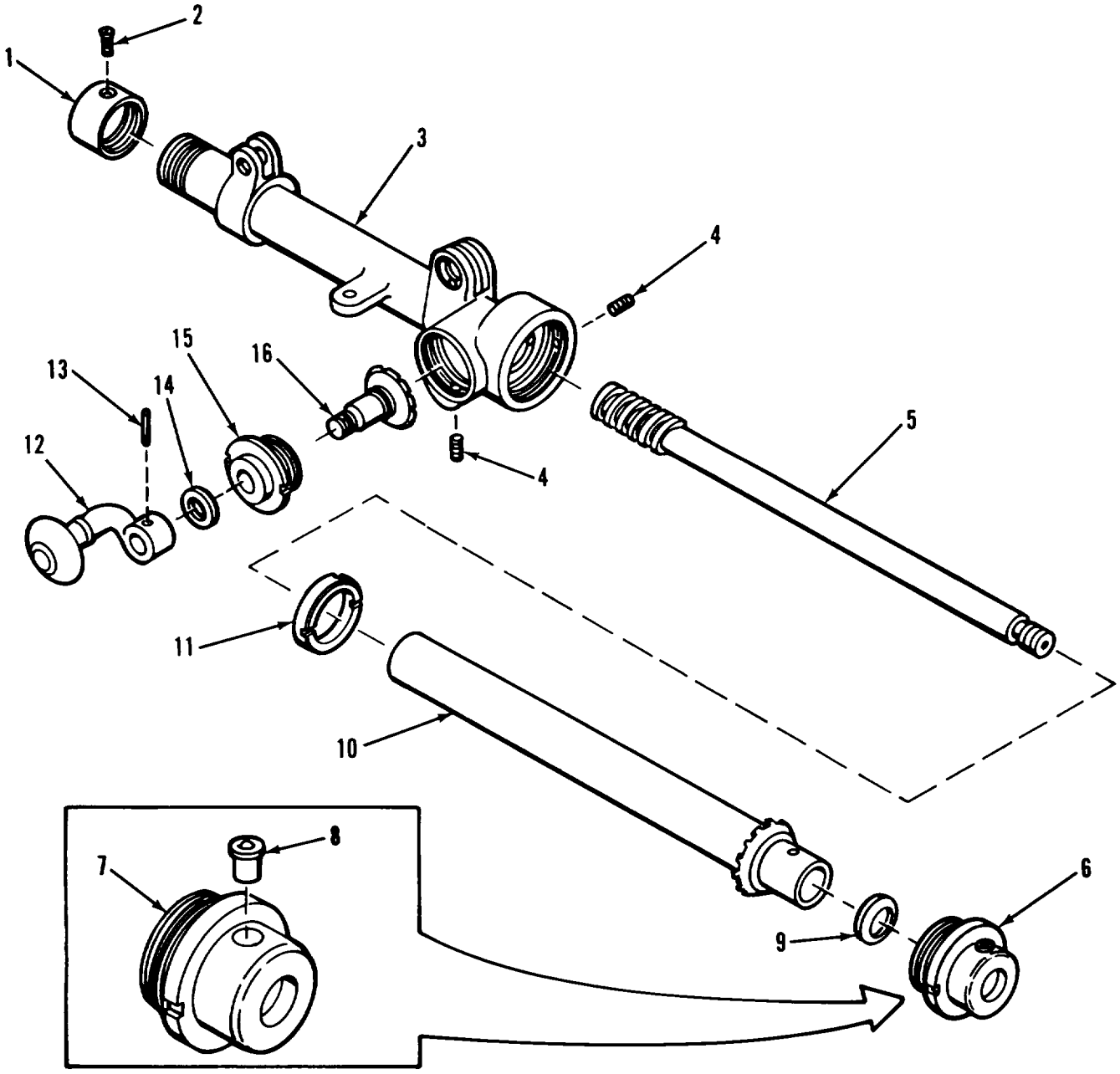


Figure B-10. Elevating mechanism assembly and cover assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 020201 ELEVATING MECHANISM ASSEMBLY 7305171 AND GROUP 02020101 COVER ASSEMBLY 7237799	
				FIG.B-10 ELEVATING MECHANISM ASSEMBLY AND COVER ASSEMBLY	
1	PAFZZ	19206	7235995	CAP,MORTAR	1
2	PAFZZ	96906	MS51974-26	SETSCREW	1
3	PAFFF	19206	7305154	HOUSING,ELEVATING MECHANISM	1
4	PAFZZ	19204	5012977	SETSCREW	2
5	PAFZZ	19206	7305156	SPINDLE,ELEVATING	1
6	PAFFF	19206	7237799	COVER ASSEMBLY	1
7	XAFZZ	19206	7236576	BODY	1
8	PAFZZ	96906	MS35755-1	CUP,OIL,LUBRICATING	1
9	PAFZZ	19206	7235900	WASHER,FLAT	1
10	PAFZZ	19206	7305155	TLJBE,ELEVATING SPIN	1
11	PAFZZ	19206	7236577	BEARING,WASHER,THRU	1
12	PAFZZ	19206	7236046	CRANK	1
13	PAFZZ	96906	MS16562-226	PIN,SPRING	1
14	PAFZZ	19206	7236578	WASHER,FLAT	1
15	PAFZZ	19206	7236575	COVER	1
16	PAFZZ	19206	7236573	PINION,BEVEL	1

END OF FIGURE

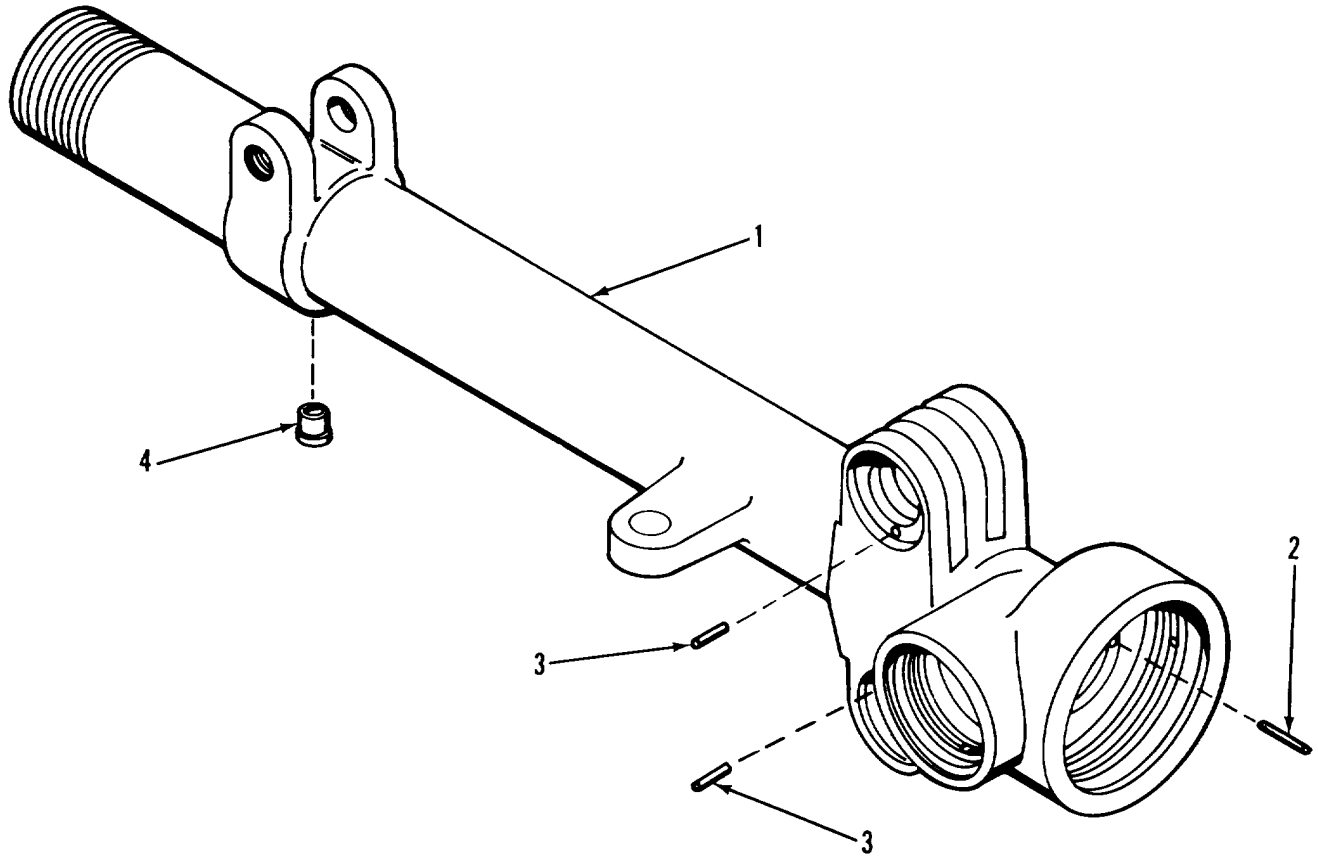


Figure B-11. Elevating mechanism housing

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 02020102 ELEVATING MECHANISM HOUSING 7305154	
				FIG.B-11 ELEVATING MECHANISM HOUSING	
1	XAFZZ	19206	11578515	ELEVATING HOUSING	1
2	PAFZZ	96906	MS16555-2	PIN,STRAIGHT,HEADLE SS	1
3	MFFZZ	96906	MS9105-54	PIN,STRAIGHT, MAKE FROM WIRE,P/N OQT580/NSN 9505-00-331-0437	2
4	PAFZZ	96906	MS35755-1	CUP,OIL,LUBRICATING	1
				END OF FIGURE	

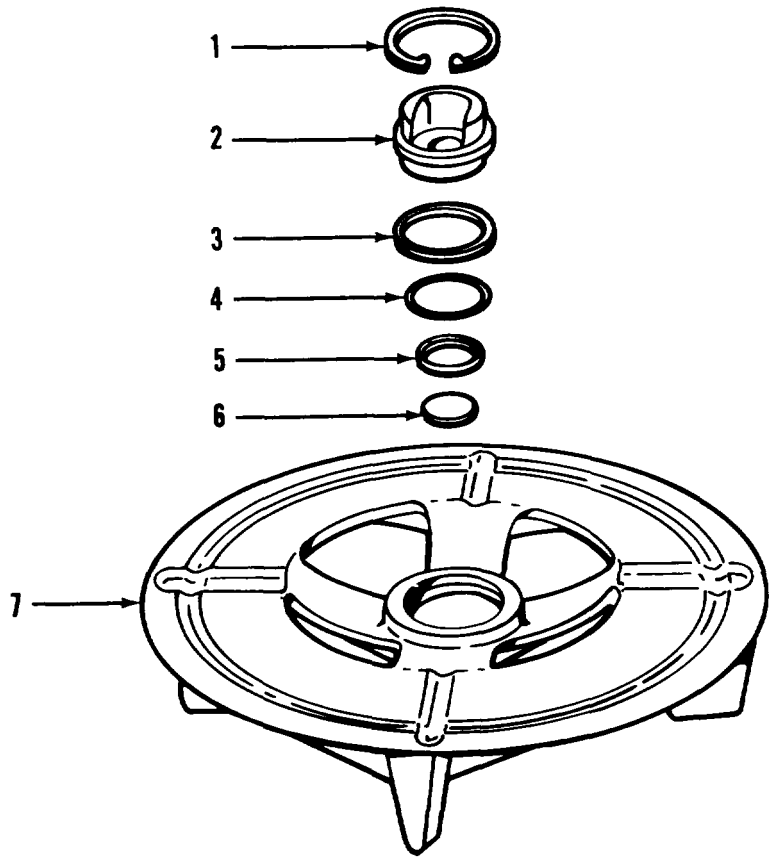


Figure B-12. Baseplate M3/M23A 1 (M3 series)

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 03 BASEPLATE M3/M23A1 (M3 SERIES) 7309128	
				FIG.B-12 BASEPLATE M3/M23A1 (M3 SERIES)	
1	PAOZZ	19207	7309124	RING,RETAINING	1
2	PAOZZ	19206	7309125	SOCKET,BASEPLATE	1
3	KFOZZ	19204	11578758	RING PART OF KIT P/N 11578762.....	1
4	KFOZZ	19204	11578759	RING PART OF KIT P/N 11578762.....	1
5	KFOZZ	19204	11578760	RING PART OF KIT P/N 11578762.....	1
6	KFOZZ	19204	11578761	PAD PART OF KIT P/N 11578762	1
7	XAOZZ	19206	7309126	PLATE.....	1
	PAOZZ	19206	11578762	PARTS KIT,MORTAR BA SEPLATE.....	1
				PAD (1)B-12-6	
				RING (1)B-12-3	
				RING (1)B-12-4	
				RING (1)B-12-5	
				END OF FIGURE	

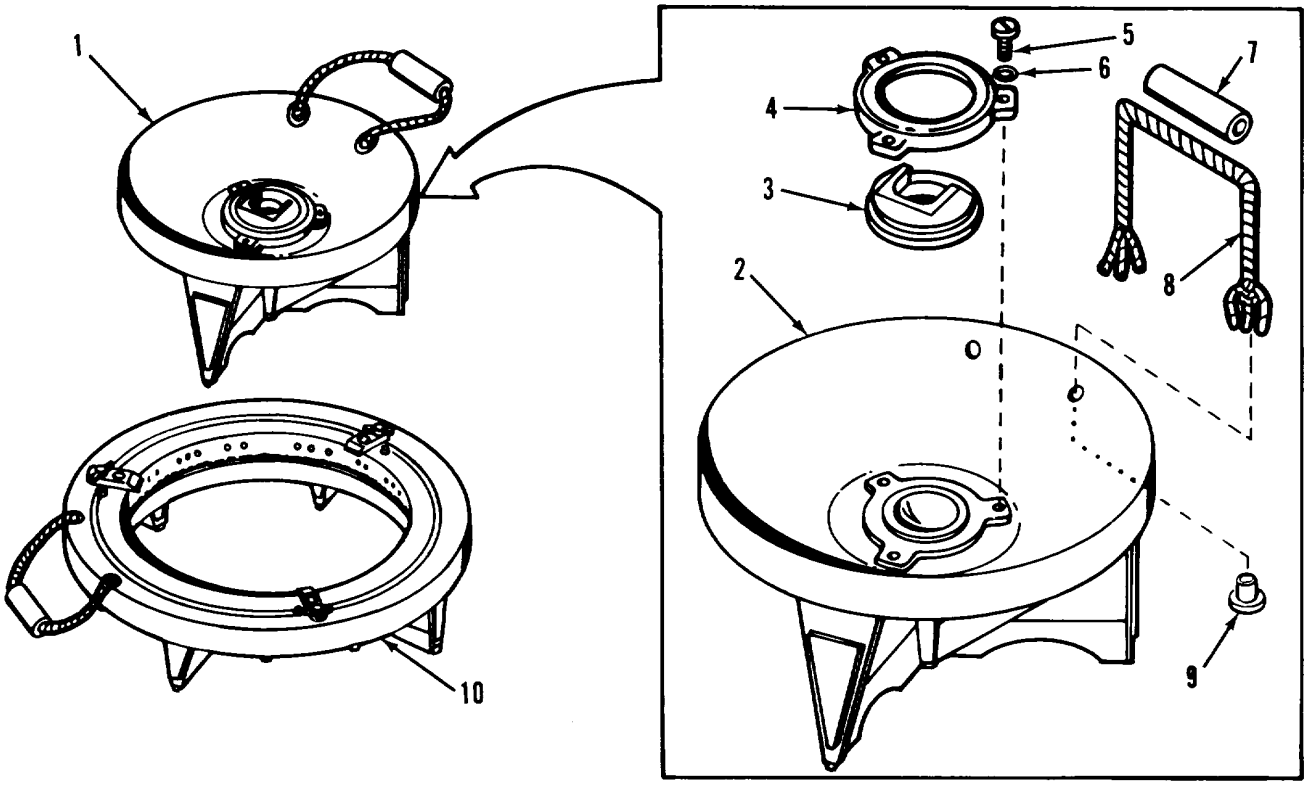


Figure B-13. Baseplate M3/M23A 1 (M23A 1 series) and inner rig assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 03 BASEPLATE M3/M23A1 (M23A1 SERIES) 7305185 AND GROUP 0301 INNER RING ASSEMBLY 7230727	
				FIG.B-13 BASEPLATE M3/M23A1 (M23A1 SERIES) AND INNER RING ASSEMBLY	
1	XAOOO	19206	7230727	RING ASSEMBLY, INNER	1
2	XAOZZ	19206	7230725	BODY, INNER RING	1
3	PAOZZ	19206	7230706	CAP	1
4	PAOZZ	19206	7230707	COLLAR	1
5	PAOZZ	96906	MS35206-310	SCREW,MACHINE	3
6	PAOZZ	96906	MS35338-46	WASHER,LOCK	3
7	PAOZZ	19206	7235790	HANDLE	1
8	PAOZZ	19206	7144266	ROPE,FIBROUS	1
9	PAOZZ	19206	7230703	GROMMET,BRASS	2
10	XACOO	19206	7230729	RING ASSEMBLY, OUTER	1

END OF FIGURE

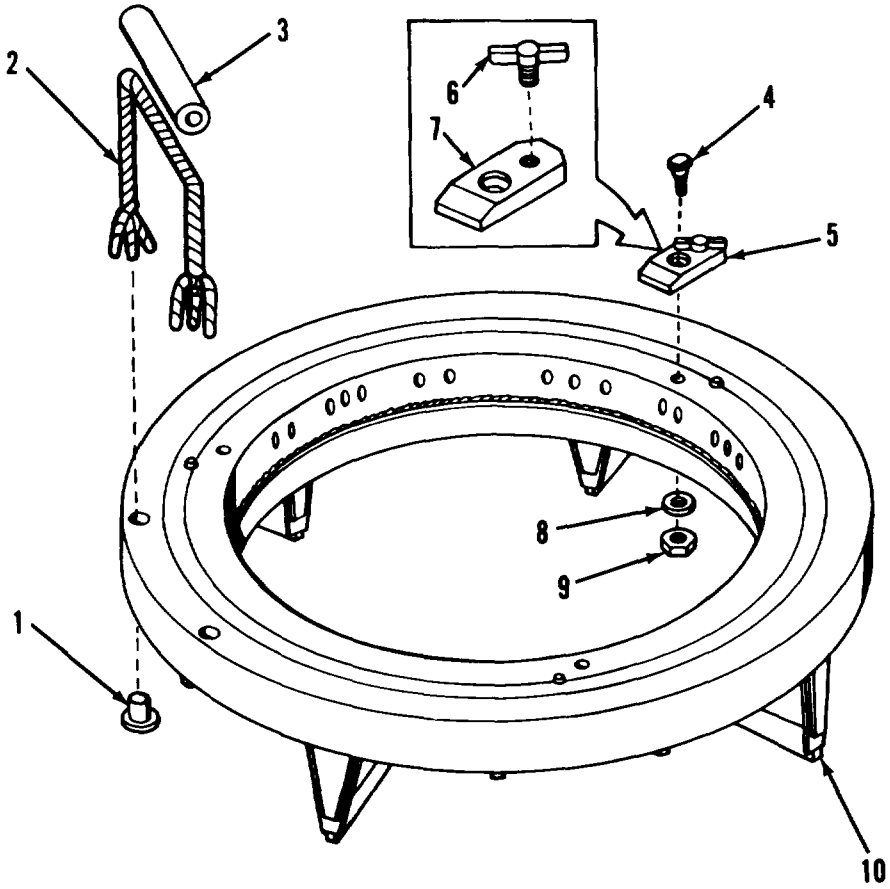


Figure B-14. Outer ring assembly and clamp assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 0302 OUTER RING ASSEMBLY 7230729 AND GROUP 030201 CLAMP ASSEMBLY 7238234	
				FIG.B-14 OUTER RING ASSEMBLY AND CLAMP ASSEMBLY	
1	PAOZZ	19206	7230703	GROMMET,BRASS	2
2	PAOZZ	19206	7144266	ROPE,FIBROUS	1
3	PAOZZ	19206	7235790	HANDLE	1
4	PAOZZ	19206	7230700	BOLT,SHOULDER	3
5	ACOOO	19206	7238234	CLAMP ASSEMBLY	3
6	PAOZZ	19206	7230698	THUMBSCREW	1
7	PAOZZ	19206	7306664	LATCH,OUTER RING	1
8	PAOZZ	96906	MS35338-48	WASHER,LOCK	3
9	PAOZZ	96906	MS51967-14	NUT,PLAIN,HEXAGON	1
10	XAOZZ	19206	7230726	BODY, OUTER RING	1
				END OF FIGURE	

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 9999 BULK MATERIALS	
				FIG:BULK	
1	PAOZZ	19206	7229585	CHAIN,WELDLESS	V
2	PAOZZ	19206	11577758	CHAIN,WELDED	V
3	PAFZZ	81348	OOT580	WIRE	V
				END OF FIGURE	

Section III. SPECIAL TOOLS LIST

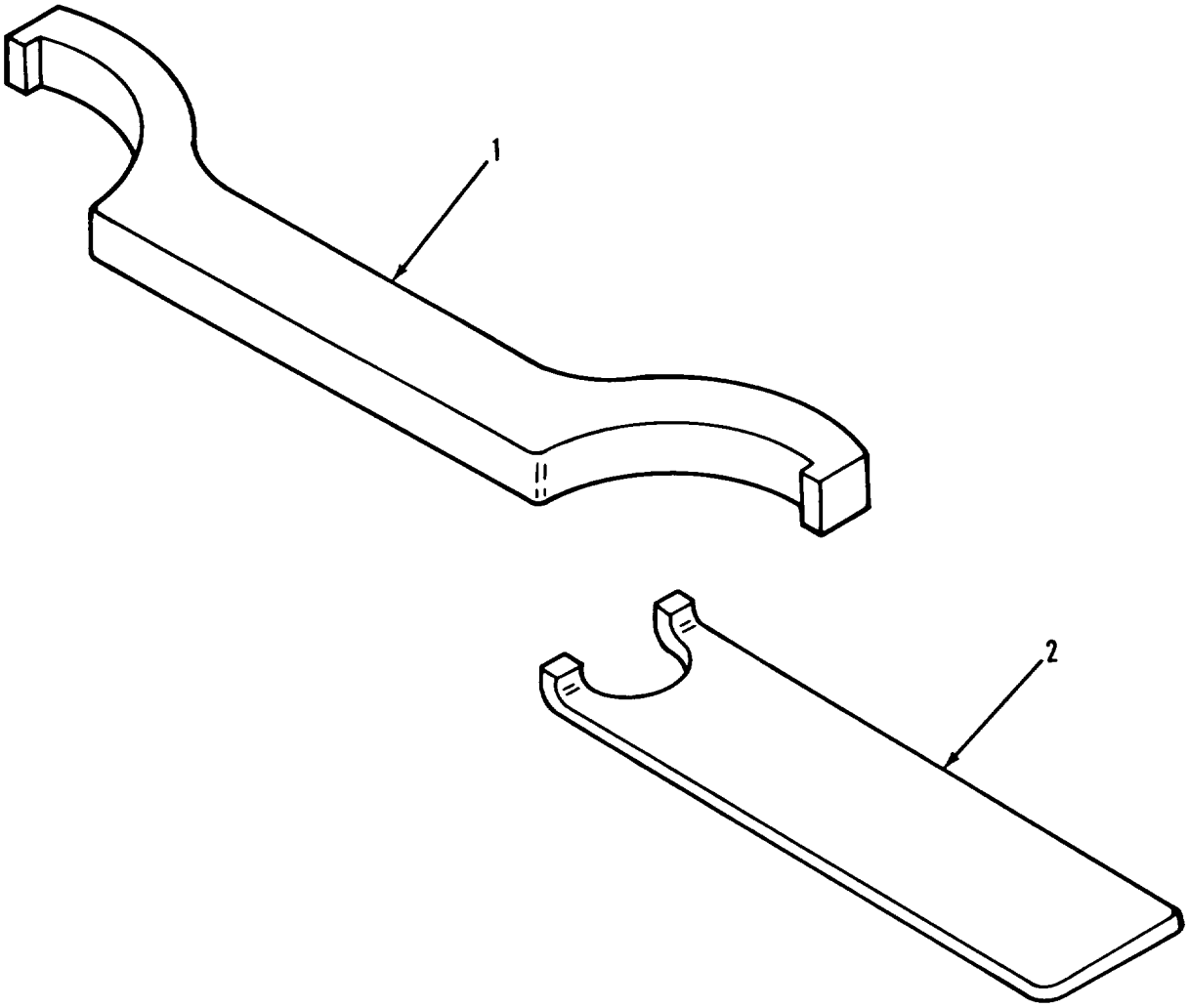


Figure B-15. Special tools

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 9500 SPECIAL TOOLS	
				FIG.B-15 SPECIAL TOOLS	
1	PAFZZ	19206	6128199	WRENCH,SPANNER BOI: 1 PER SUPPORTING DS MAINTENANCE COMPANY.....	
2	PAFZZ	19207	7228728	WRENCH,SPANNER BOI: 1 PER SUPPORTING DS MAINTENANCE COMPANY.....	

END OF FIGURE

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG	ITEM	STOCK NUMBER	FIG	ITEM
5310-00-003-4094	B-14	8	1015-00-723-5790	8-13	7
5310-00-004-5033	B-13	6		B-14	3
5340-00-023-6662	B-5	12	5315-00-723-5898	B-9	13
5315-00-052-6632	B-4	1	5310-00-723-5900	B-10	9
5315-00-052-6636	B-4	5	5305-00-723-5901	B-9	11
5315-00-058-6672	B-6	12	1015-00-723-5927	B-7	4
5305-00-099-7490	B-10	2	1015-00-723-5971	B-6	2
1015-00-127-2922	B-2	2	1015-00-723-5975	B-5	1
5305-00-175-3230	B-8	2	5365-00-723-5976	B-5	3
5310-00-282-7830	B-4	2	1015-00-723-5977	B-5	4
5315-00-298-1481	B-3	2	5310-00-723-5978	B-5	5
1010-00-300-5339	B-6	10	1015-00-723-5979	B-5	7
1015-00-300-5350	B-4	7	3120-00-723-5980	B-5	8
9505-00-331-0437	BULK	3	5360-00-723-5982	B-5	10
1015-00-340-1179	B-12		5307-00-723-5983	B-5	9
1015-00-342-1098	B-4	10	1015-00-723-5989	B-5	15
1015-00-501-2975	B-7	6	1015-00-723-5995	B-10	1
5305-00-501-2977	B-10	4	1015-00-723-6046	B-10	12
5360-00-502-5007	B-9	17	5315-00-723-6047	B-7	3
5310-00-502-5008	B-9	16	1015-00-723-6573	B-10	16
5305-00-502-5009	B-9	21	1015-00-723-6575	B-10	15
1015-00-502-5010	B-9	20	3120-00-723-6577	B-10	11
5360-00-502-5017	B-9	6	5310-00-723-6578	B-10	14
4030-00-502-5019	B-9	4	1015-00-723-6591	B-4	6
5305-00-502-5228	B-5	2	1015-00-723-6592	B-6	1
	B-6	13	5360-00-723-6594	B-6	9
5305-00-502-5251	B-4	8	3120-00-723-6595	B-6	8
1015-00-520-7738	B-9	18	3120-00-723-6596	B-6	3
5340-00-568-8692	B-9	14	5310-00-723-6597	B-6	6
5365-00-576-2499	B-12	1	5310-00-723-6598	B-6	5
1015-00-592-5312	B-1	3	5365-00-723-6599	B-6	4
1015-00-600-8332	B-9	22	5305-00-723-6709	B-9	26
5310-00-600-8334	B-9	15	5305-00-723-6713	B-6	7
1015-00-600-8336	B-9	25	5315-00-723-7256	B-9	2
5120-00-612-8199	B-15	1	1015-00-723-7799	B-10	6
4730-00-707-3068	B-8	6	5340-00-723-8396	B-5	11
	B-10	8	1015-00-730-5063	B-4	4
	B-11	4	1015-00-730-5089	B-5	16
4020-00-714-4266	8-13	8	1015-00-730-5092	B-4	3
	B-14	2	1015-00-730-5154	B-10	3
5315-00-721-7789	B-5	6	1015-00-730-5155	B-10	10
1015-00-722-5535	B-1	1	1015-00-730-5156	B-10	5
5120-00-722-8728	B-15	2	1015-00-730-5160	B-9	1
1015-00-723-0008	B-9	23	1015-00-730-5161	B-9	7
5305-00-723-0698	B-14	6	1015-00-730-5162	B-9	24
5306-00-723-0700	B-14	4	1015-00-730-5163	B-9	8
1015-00-723-0703	B-13	9	1015-00-730-5165	B-9	19
	B-14	1	1015-00-730-5167	B-9	9
1015-00-723-0706	B-13	3	5340-00-730-5181	B-9	10
1015-00-723-0707	B-13	4	1015-00-730-5184	B-5	14

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG	ITEM	STOCK NUMBER	FIG	ITEM
1015-00-730-6664	B-14	7			
5315-00-753-3893	B-10	13			
5305-00-781-2076	B-7	1			
4010-00-807-4219	BULK	2			
5315-00-812-9425	B-7	5			
5310-00-835-2140	B-3	3			
4010-00-868-8063	BULK	1			
1015-00-923-4257	B-12	2			
1015-00-928-3797	B-2	3			
5305-00-984-5690	B-13	5			
5315-00-988-8434	B-11	2			
5310-01-070-2105	B-14	9			
5365-01-134-7256	B-8	5			
5320-01-145-3193	B-8	4			

NATIONAL STOCK NUMBER AND PART NUMBER INDEX
PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG	ITEM
81352	AN924-16	5310-00-282-7830	B-4	2
19206	CHAINNPN		B-5	13
19204	CHAINNPN-WLD		B-9	5
96906	MS16555-2	5315-00-988-8434	B-11	2
96906	MS16556-833		B-8	7
96906	MS16562-226	5315-00-753-3893	B-10	13
96906	MS16562-97	5315-00-058-6672	B-6	12
96906	MS21318-14	5305-00-175-3230	B-8	2
96906	MS24665-357	5315-00-298-1481	B-3	2
96906	MS35206-310	5305-00-984-5690	B-13	5
96906	MS35207-240	5305-00-781-2076	B-7	1
96906	MS35338-46	5310-00-004-5033	B-13	6
96906	MS35338-48	5310-00-003-4094	B-14	8
96906	MS35692-69	5310-00-835-2140	B-3	3
96906	MS35755-1	4730-00-707-3068	B-8	6
			B-10	8
			B-11	4
96906	MS51945-19	5320-01-145-3193	B-8	4
96906	MS51967-14	5310-01-070-2105	B-14	9
96906	MS51974-26	5305-00-099-7490	B-10	2
96906	MS9105-09	5315-00-812-9425	B-7	5
96906	MS9105-36	5315-00-721-7789	B-5	6
96906	MS9105-54		B-11	3
96906	MS9105-63	5315-00-052-6632	B-4	1
96906	MS9105-98	5315-00-052-6636	B-4	5
81348	QQT580	9505-00-331-0437	BULK	3
19200	10559698		B-1	4
19206	11577647	1015-00-928-3797	B-2	3
19206	11577758	4010-00-807-4219	BULK	2
19206	11578050	5340-00-023-6662	B-5	12
19206	11578240	1015-00-127-2922	B-2	2
19204	11578362		B-1	2
19206	11578396		B-8	1
19206	11578515		B-11	1
19204	11578758		B-12	3
19204	11578759		B-12	4
19204	11578760		B-12	5
19204	11578761		B-12	6
19206	11578762	1015-00-340-1179	B-12	
19206	5012975	1015-00-501-2975	B-7	6
19204	5012977	5305-00-501-2977	B-10	4
19206	5025007	5360-00-502-5007	B-9	17
19206	5025008	5310-00-502-5008	B-9	16
19204	5025009	5305-00-502-5009	B-9	21
19206	5025010	1015-00-502-5010	B-9	20
19206	5025017	5360-00-502-5017	B-9	6
19204	5025019	4030-00-502-5019	B-9	4
19204	5025228	5305-00-502-5228	B-5	2
			B-6	13
19204	5025251	5305-00-502-5251	B-4	8
19207	505337		B-9	3

NATIONAL STOCK NUMBER AND PART NUMBER INDEX
PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG	ITEM
19206	5207738	1015-00-520-7738	B-9	18
19206	6008332	1015-00-600-8332	B-9	22
19206	6008334	5310-00-600-8334	B-9	15
19206	6008336	1015-00-600-8336	B-9	25
19206	6128199	5120-00-612-8199	B-15	1
19206	7144266	4020-00-714-4266	B-13	8
			B-14	2
19207	7228728	5120-00-722-8728	B-15	2
19206	7229585	4010-00-868-8063	BULK	1
19206	7230008	1015-00-723-0008	B-9	23
19206	7230698	5305-00-723-0698	B-14	6
19206	7230700	5306-00-723-0700	B-14	4
19206	7230703	1015-00-723-0703	B-13	9
			B-14	1
19206	7230706	1015-00-723-0706	B-13	3
19206	7230707	1015-00-723-0707	B-13	4
19206	7230725		B-13	2
19206	7230726		B-14	10
19206	7230727		B-13	1
19206	7230729		B-13	10
19206	7235790	1015-00-723-5790	B-13	7
			B-14	3
19206	7235898	5315-00-723-5898	B-9	13
19206	7235900	5310-00-723-5900	B-10	9
19206	7235901	5305-00-723-5901	B-9	11
19206	7235927	1015-00-723-5927	B-7	4
19206	7235971	1015-00-723-5971	B-6	2
19206	7235975	1015-00-723-5975	B-5	1
19206	7235976	5365-00-723-5976	B-5	3
19206	7235977	1015-00-723-5977	B-5	4
19207	7235978	5310-00-723-5978	B-5	5
19206	7235979	1015-00-723-5979	B-5	7
19206	7235980	3120-00-723-5980	B-5	8
19206	7235982	5360-00-723-5982	B-5	10
19207	7235983	5307-00-723-5983	B-5	9
19206	7235989	1015-00-723-5989	B-5	15
19206	7235995	1015-00-723-5995	B-10	1
19206	7236046	1015-00-723-6046	B-10	12
19206	7236047	5315-00-723-6047	B-7	3
19206	7236573	1015-00-723-6573	B-10	16
19206	7236575	1015-00-723-6575	B-10	15
19206	7236576		B-10	7
19206	7236577	3120-00-723-6577	B-10	11
19206	7236578	5310-00-723-6578	B-10	14
19206	7236591	1015-00-723-6591	B-4	6
19206	7236592	1015-00-723-6592	B-6	1
19206	7236594	5360-00-723-6594	B-6	9
19206	7236595	3120-00-723-6595	B-6	8
19206	7236596	3120-00-723-6596	B-6	3
19206	7236597	5310-00-723-6597	B-6	6
19206	7236598	5310-00-723-6598	B-6	5

NATIONAL STOCK NUMBER AND PART NUMBER INDEX
PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG	ITEM
19206	7236599	5365-00-723-6599	B-6	4
19206	7236709	5305-00-723-6709	B-9	26
19206	7236713	5305-00-723-6713	B-6	7
19206	7236715		B-8	8
19206	7237256	5315-00-723-7256	B-9	2
19206	7237799	1015-00-723-7799	B-10	6
19206	7238234		B-14	5
19206	7238396	5340-00-723-8396	B-5	11
19206	7305061	5365-01-134-7256	B-8	5
19206	7305062		B-8	3
19206	7305063	1015-00-730-5063	B-4	4
19206	7305089	1015-00-730-5089	B-5	16
19206	7305092	1015-00-730-5092	B-4	3
19206	7305154	1015-00-730-5154	B-10	3
19206	7305155	1015-00-730-5155	B-10	10
19206	7305156	1015-00-730-5156	B-10	5
19206	7305160	1015-00-730-5160	B-9	1
19206	7305161	1015-00-730-5161	B-9	7
19206	7305162	1015-00-730-5162	B-9	24
19206	7305163	1015-00-730-5163	B-9	8
19206	7305165	1015-00-730-5165	B-9	19
19206	7305167	1015-00-730-5167	B-9	9
19206	7305169		B-3	4
19206	7305171		B-9	12
19206	7305173		B-3	1
19206	7305181	5340-00-730-5181	B-9	10
19206	7305184	1015-00-730-5184	B-5	14
19206	7306664	1015-00-730-6664	B-14	7
19206	7307908	5340-00-568-8692	B-9	14
19206	7308274		B-6	11
19206	7308275		B-7	2
19206	7308276	1015-00-342-1098	B-4	10
19206	7308278	1010-00-300-5339	B-6	10
19206	7308532		B-4	9
19206	7308541	1015-00-300-5350	B-4	7
19207	7309124	5365-00-576-2499	B-12	1
19206	7309125	1015-00-923-4257	B-12	2
19206	7309126		B-12	7
19206	7309128	1015-00-592-5312	B-1	3
19200	8245971		B-1	4
19206	8766506		B-2	1
19206	8766507	1015-00-722-5535	B-1	1

APPENDIX C
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C-1 SCOPE. This appendix lists expendable/durable supplies and materials you will need to operate and maintain the 81 -mm 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

C-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 abrasive cloth, item 4, app C")

b. *Column 2 - Level*. This column identifies the lowest level of maintenance that requires the listed measure differs from the unit of issue, requisition the 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

lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) STOCK NATIONAL DESCRIPTION NUMBER	(4)	(5) U/M
1	C	7920-00-205-2401	BRUSH, CLEANING, TOOL AND PARTS: Chinese bristle, rd (81349) MIL-43871	EA
2	C		BRUSH, PAINT (96906) MS16866	
		8020-00-242-7266	3 in. Size	EA
3			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
4	C		CLOTH, ABRASIVE: crocus (81348) P-C-458	
		5350-00-221-0872	50 sheet package	SH

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
5	C		DRY CLEANING SOLVENT: (SD) (81348) FED-PD-680	
		6850-00-281-1985	1 gal can	EA
6	C		ENAMEL, forest green (81349) MIL-E-52798	
		8010-00-111-7937	1 gal can	GL
7	C	8415-00-823-7457	GLOVES, CHEMICAL AND SOLVENT RESISTANT (81348) ZZ-G-381	PR
8	C	9150-00-190-0905	GREASE, AUTOMOTIVE AND ARTILLERY: (GAA) (81349) MIL-G-1 9204 6.5 lb can	LB
9	C	9150-00-231-2361	LUBRICATING OIL, GENERAL PURPOSE (81349) MIL-L-3150	QT
10	C	9150-00-292-9689	LUBRICATING OIL, WEAPONS: (LAW) (81349) MILL14107	QT
11	C		RAG, WIPING (58536) A-A-531	
		7920-00-205-3750	50 lb bale	LB
12	F		STONE, ARTIFICIAL DENTAL (81348) US00746	
		6520-00-557-7000	5 lb can	LB
13	C		THINNER, SYNTHETIC RESIN ENAMEL (81348) TT-T-306	
		8010-00-160-5791	1 pt can	PT
		8010-00-087-1953	1 qt can	QT
		8010-00-160-5794	1 gal can	GL

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By Order of the Secretary of the Army:

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

Official:

MILDRED E. HEDBERG
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-40, Direct Support and General Support Maintenance requirements for Mortar, 81-MM, M29, M29A1.

TEAR ALONG PERFORATED LINE

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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 = 1,000 Millimeters = 39.37 Inches

1 Kilometer = 1,000 Meters = 0.621 Miles

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 = 1,000 Cu Millimeters = 0.06 Cu Inches

1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces

1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F -32) = °C

212° Fahrenheit is equivalent to 100° Celsius

90° Fahrenheit is equivalent to 32.2° Celsius

32° Fahrenheit is equivalent to 0° Celsius

9/5 C° +32 = F°

WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces

1 Kilogram = 1,000 Grams = 2.2 Lb.

1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

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