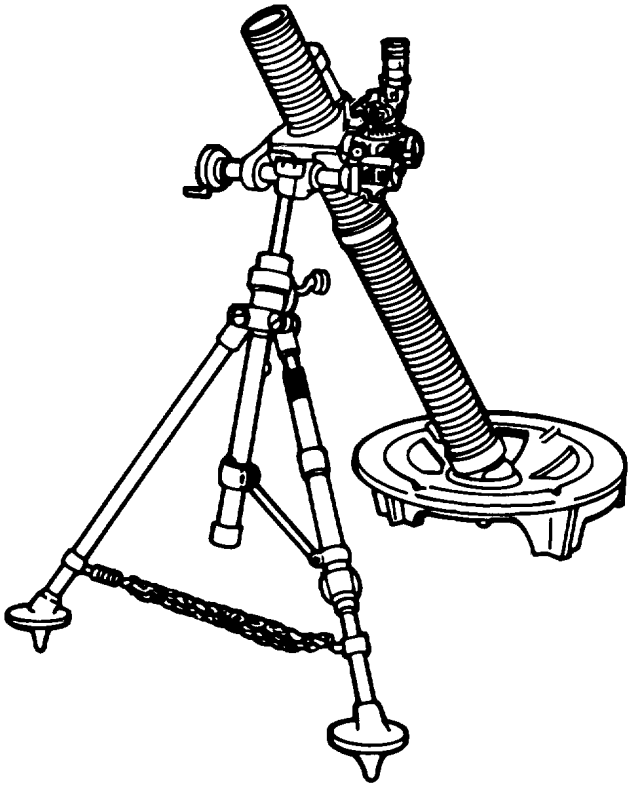
CHECK FOR CURRENT CHANGES
SUPERSEDES COPY
TECHNICAL MANUAL DATED 12 APRIL 1971
SEE PAGE i FOR DETAILS

ORGANIZATIONAL MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS



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

EQUIPMENT DESCRIPTION AND DATA	1-1
MAINTENANCE INSTRUCTIONS	2-1
REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT	2-1
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REPAIR PARTS AND SPECIAL TOOLS LIST	C-1
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ALPHABETICAL INDEX	Index

This copy is a reprint which includes current pages from Changes 1 thru 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1985

WARNING

Before performing maintenance procedures, inspect the cannon barrel to make sure it is empty. Keep live ammunition out of the area during maintenance operations.

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.

Melted rope can cause a severe bum.

For first aid data, see FM 21-11.

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 15 September 1987

Organizational Maintenance Manual
(Including Repair Parts and Special Tools List)

for

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

TM 9-1015-200-20&P, 25 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
B-5 and B-6	B-5 and B-6

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:

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

DISTRIBUTION:

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

TM 9-1015-200-20&P
C2

CHANGE

HEADQUARTERS
DEPARTMENT OF THE ARMY

NO. 2

WASHINGTON, D.C., 30 April. 1987

Organizational Maintenance Manual
(Including Repair Parts and Special Tools List)

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

TM 9-1015-200-20&P, 25 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.

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B-3 through B-6	B-3 through B-6

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

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:

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

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 16 January 1987

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

TM 9-1015-200-20&P, 25 October 1985, is changed as follows:

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

Remove Pages	Insert Pages
D-1 and D-2	D-1 and D-2

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TECHNICAL MANUAL
No. 9-1015-200-20&P

HEADQUARTERS
DEPARTMENT OF THE ARMY

Washington, DC 25 October 1985

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

Current as of 10 June 1985 for appendix C

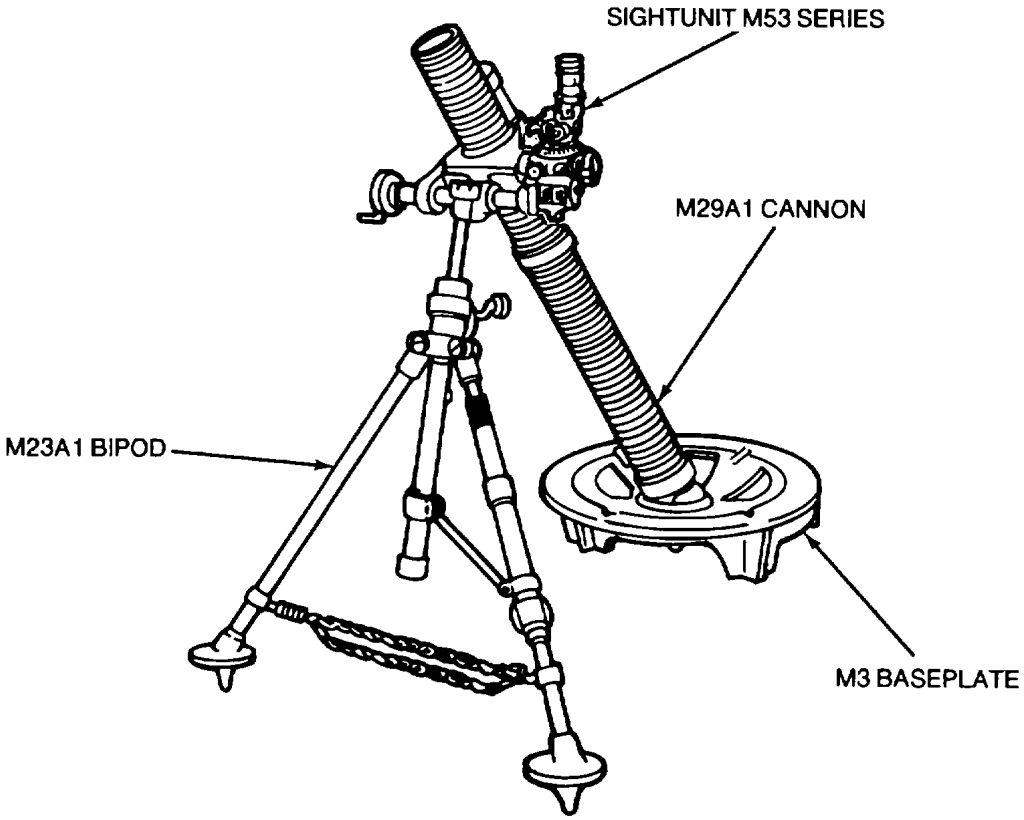
REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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 as much of TM 9-1015-200-12, 12 April 1971, including all changes, as pertains to organizational maintenance.

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81-MM MORTAR M29A1

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. *Type of Manual*: Organizational 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 will be found in TM 750-244-7**.**

1-4. PREPARATION FOR STORAGE OR SHIPMENT. Refer to page 2-20.

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

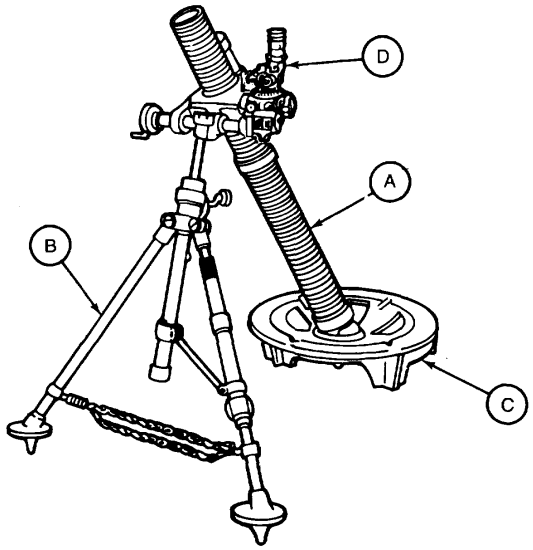
1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

(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.

Section III. PRINCIPLES OF OPERATION

1-11. 81-MM MORTAR M29A1. Refer to TM 91015-200-10.

CHAPTER 2
MAINTENANCE INSTRUCTIONS

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

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

2-2. SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT. Tools and test equipment are listed in appendix B. Repair parts for group 05 special tools are listed and illustrated in appendix C. There are no other special tools authorized at organizational level.

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

Section II. SERVICE UPON RECEIPT

2-4. SERVICE UPON RECEIPT OF MATERIEL.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

c. Check to see whether the equipment has been modified. Refer to the authorized equipment configuration changes listed in DA PAM 750-10 and DA PAM 310-1.

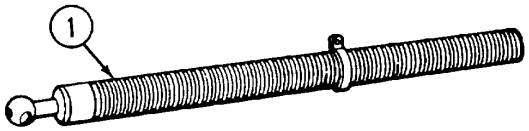
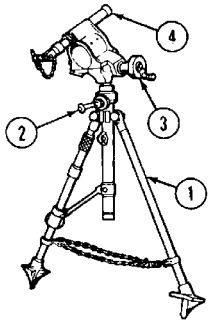
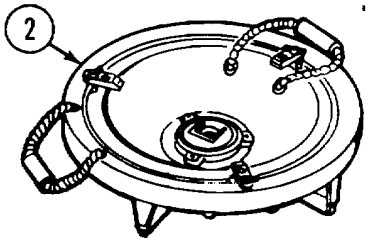
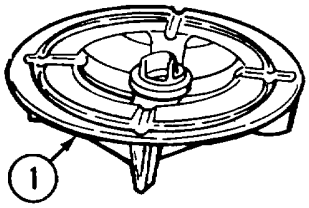
SERVICE UPON RECEIPT - 81-MM MORTAR M29A 1

LOCATION	*ITEM*	*ACTION*	*REMARKS*
1. Mortar	a. Cannon assembly	Make sure cannon assembly is properly assembled, cleaned, and lubricated.	See TM 9-1015-200-10 for proper assembly and lubrication.
	b. Bipod assembly	Make sure bipod assembly is properly assembled and lubricated. Check for any missing parts or damage.	See TM 9-1015-200-10 for proper assembly and lubrication.
	c. Baseplate	Make sure baseplate is not damaged.	See TM 9-1015-200-10.
2. Container	a. Basic issue items	Check for missing items.	See TM 9-1015-200-10, app B.
	b. M53 series sight unit	Check for damaged or missing parts.	See TM 9-1015-200-10.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

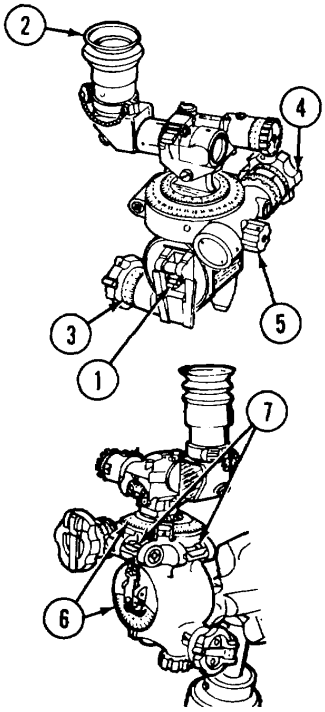
2-5. GENERAL. The required PMCS procedures are listed in the table below These services should be done by the unit armorer with the crew's assistance. Perform every 90 days if the weapon has not been used during that time PMCS

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES QUARTERLY SCHEDULE

Item No	Item To Be Inspected	Procedure	Equipment Is Not Ready/Available If:
1	Cannon assembly	a. Check cannon assembly (1) for unusual wear and damage in bore or corrosion and damage to external surface	Cannon assembly has assembly cracks, dents, bulges, or unusual wear.
		b. Check for worn or damaged firing pin	Firing pin is worn or damaged
			
2	Bipod assembly	a. Check bipod assembly (1) for cracks, broken welds, rust, and loose, missing, or damaged parts.	Bipod assembly has cracks, broken welds loose, missing, or damaged parts
		b. Elevating (2) and traversing (3) mechanism assemblies must operate smoothly and without binding through entire range of travel	, Elevating and/or traversing mechanism assemblies are inoperative or binding
		c. Test function shock absorber assembly (4) by operating manually with mortar in high range.	Shock absorber assembly inoperative or binding
3	Baseplate M3/M23A1	a. Check baseplate M3 (1) or baseplate M23A1 (2) for cracks, broken welds, loose, missing, or damaged parts.	Baseplate has cracks, broken welds, loose, missing, or damaged parts
		b. Disassemble and clean baseplate M3 (1) or baseplate M23A1 (2) and all components.	

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES QUARTERLY SCHEDULE (CONT.)

Item No.	Item To Be Inspected	Procedure	Equipment Is Not Ready/Available If:
4	Sightunit M53/ M53A1	a. Check that locking latch (1) secures sightunit to mortar.	Locking latch does not secure sightunit.
		b. Check eyeshield (2) for damage. Check lenses and window for smears, scratches, cracks, or other obstructions .	Image is totally obstructed.
		c. Check elevation (3) and deflection (azimuth) (4) worm mechanism backlash. Must not exceed 0.5 of a mil.	Backlash exceeds 0.5 of a mil.
		d. Check that mounting surfaces are free of nicks and burrs.	Nicks and burrs prevent proper seating in holder.
		e. Check that deflection (azimuth) knob (4) stays in position when locking knob (5) is tightened.	Deflection (azimuth) knob (4) slips when tightened.
		f. Check rotation of the elevation knob (3) and deflection (azimuth) knob (4) over entire range of movement. Motion must be smooth and even.	Knobs have excessive backlash.
		g. Check index lines and scales (6). They must be clear and distinct.	Scales and indexes cannot be read.
		h. Level vials (7) must not be cracked, broken or loose in mountings; covers must not be missing.	Vials are cracked, broken or loose in mounting



Section IV. TROUBLESHOOTING

2-6. GENERAL.

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

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

2-7. TROUBLESHOOTING PROCEDURES.

a. Refer to troubleshooting procedures on page 2-4.

b. Use the symptom index for a quick reference to symptoms covered in the procedures.

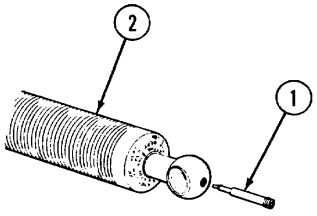
SYMPTOM INDEX

	Troubleshooting Procedure Page
8-1-MM MORTAR M29A1	
Mortar does not recoil properly	2-5
Mortar fails to fire	2-4
Mortar is difficult to elevate or depress	2-4
Mortar is difficult to traverse	2-4
Sightunit will not seat in sight socket	2-5

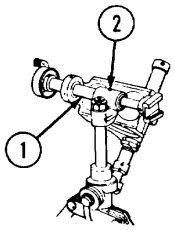
TROUBLESHOOTING PROCEDURES

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

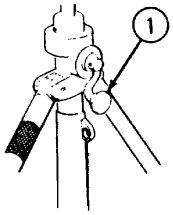
1. MORTAR FAILS TO FIRE.
   - Step 1. Check for worn, damaged, or improperly seated firing pin (1).
     Replace firing pin if worn or damaged (p 2-6).
     Reseat if improperly seated.
   - Step 2. Check for dirty or damaged barrel (2).
     If damaged, evacuate to direct support maintenance. Clean if dirty.



2. MORTAR IS DIFFICULT TO TRAVERSE.
   - Step 1. Check for a bent traversing spindle assembly (1)
     If damaged, evacuate to direct support maintenance.
   - Step 2. Check for loose or missing machine screw (2)
     If loose or missing, evacuate to direct support maintenance.

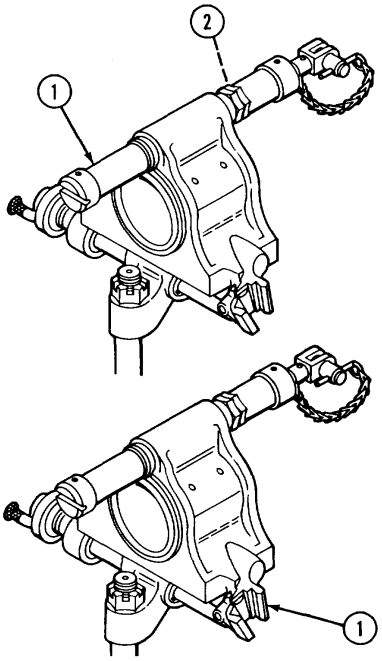


3. MORTAR IS DIFFICULT TO ELEVATE OR DEPRESS
   Turn elevating crank (1) and check for binding or inoperative gears.
   If crank binds or is inoperative, evacuate to direct support maintenance.

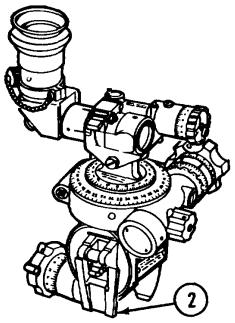


MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

4. MORTAR DOES NOT RECOIL PROPERLY.
   - Step 1. Check for loose, bent, or dented shock absorber tube (1).
     If loose, tighten. If damaged or broken evacuate to direct support maintenance.
   - Step 2. Check for bent shoulder stud (2) while pulling back on it manually.
     If damaged, evacuate to direct support: maintenance.



5. SIGHTUNIT WILL NOT SEAT IN SIGHT SOCKET.
   - Step 1. Check for broken or bent sight socket (1).
     If damaged, evacuate to direct support maintenance.
   - Step 2. Check for damaged dovetail slot (2) on sightunit.
     If damaged, evacuate to direct support maintenance.



Section V. MAINTENANCE PROCEDURES

2-8. GENERAL. This section provides repair instructions for all items which are the responsibility of organizational maintenance as allocated by the Maintenance Allocation Chart in appendix B.

WARNING

Before performing maintenance procedures, inspect the cannon barrel to make sure it is empty. Keep live ammunition out of area during maintenance operations.

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

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.

2-9. CANNON ASSEMBLY MAINTENANCE INSTRUCTIONS.

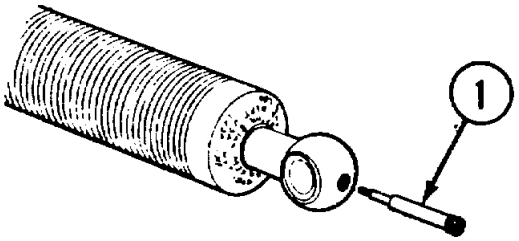
This task covers Repair.

INITIAL SETUP

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

REPAIR

Unscrew firing pin (1). Replace firing pin (1) if damaged or defective. See appendix C.



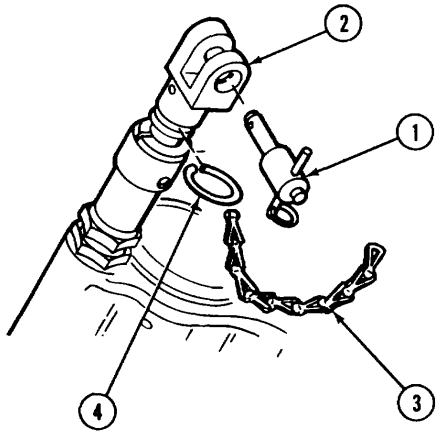
2-10. SHOCK ABSORBER ASSEMBLY MAINTENANCE INSTRUCTIONS.

This task covers Disassembly/Repair/Reassembly.

INITIAL SETUP

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

DISASSEMBLY/REPAIR/REASSEMBLY



a. Remove clevis locking pin (1) from clevis (2).

b. Remove weldless chain (3) and clip (4) from clevis locking pin (1) and clevis (2), and remove clip (4) from weldless chain (3).

c. If weldless chain (3) is damaged or defective, replace by fabricating a new chain 6 inches long from NSN 4010-00-868-8063.

d. Replace authorized items found to be damaged during disassembly. See appendix C.

e. Attach clip (4) to weldless chain (3).

f. Attach weldless chain (3) and clip (4) to clevis locking pin (1) and clevis (2).

g. Install clevis locking pin (1) in clevis (2).

2-11. LOWER BIPOD 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)

DISASSEMBLY/REPAIR/REASSEMBLY

a. Remove helical extension spring (1).

b. Remove welded chain (2) and chain hook (3).

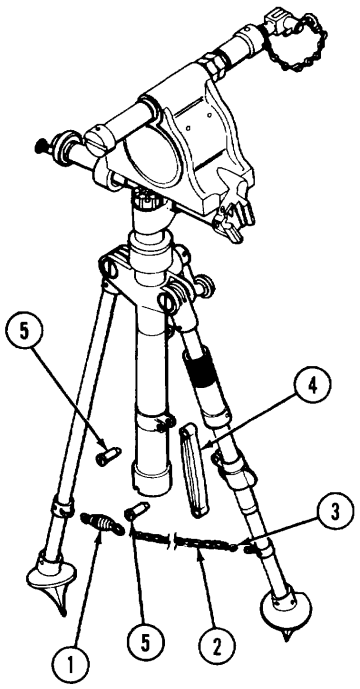
c. Remove connecting rod (4) by removing two shoulder screws (5).

d. If welded chain (2) is damaged or defective, replace by fabricating a new chain 36 inches long from NSN 4010-00-807-4219.

e. Replace authorized items found to be damaged during disassembly. See appendix C.

f. Secure connecting rod (4) in position using two shoulder screws (5).

g. Attach welded chain (2), chain hook (3), and helical extension spring (1).



2-12. BASEPLATE M3/M23A1 MAINTENANCE INSTRUCTIONS.

This task covers the following maintenance of the M3 baseplate and of the M23A1 baseplate, inner and outer ring assemblies, and clamp assembly.

a. Disassembly
b. Cleaning/Lubrication/Repair
c. Reassembly

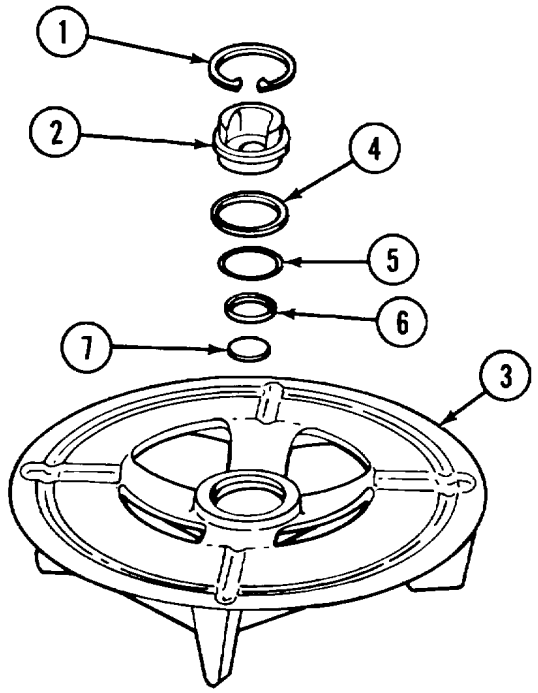
INITIAL SETUP

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

Materials/Parts
Automotive and artillery grease
item 17, app D)
Wiping rag (item 25, app D)

a. BASEPLATE M3

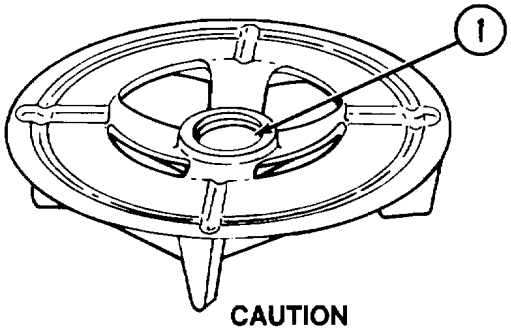
DISASSEMBLY



a. Remove retaining ring (1) and baseplate socket (2) from plate (3).

b. Remove three rings (4, 5, and 6) and pad (7).

CLEANING/LUBRICATION/REPAIR



CAUTION
Do not clean nonmetallic rings and pad in solvent. The solvent will cause the rings and pad to break apart prematurely. Do not use diesel fuel, gasoline, kerosene, bore cleaner, or any other similar fluids.

a. Wipe all dirt, dust and other foreign material from rings, pad, and socket seat (1) of baseplate.

b. Replace any items found to be damaged during disassembly. See appendix C.

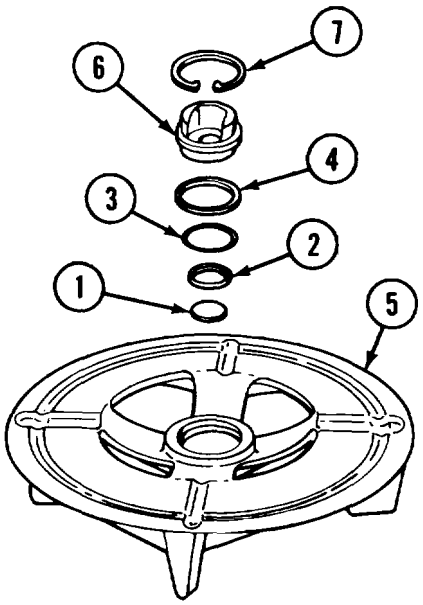
c. Apply light coat of automotive and artillery grease to socket seat (1), pad, rings, and socket.

2-12. BASEPLATE M3/M23A1 MAINTENANCE INSTRUCTIONS (CONT.).

a. BASEPLATE M3 (CONT.).

b. M23A1 BASEPLATE, INNER AND OUTER RING ASSEMBLIES, AND CLAMP ASSEMBLY.

REASSEMBLY

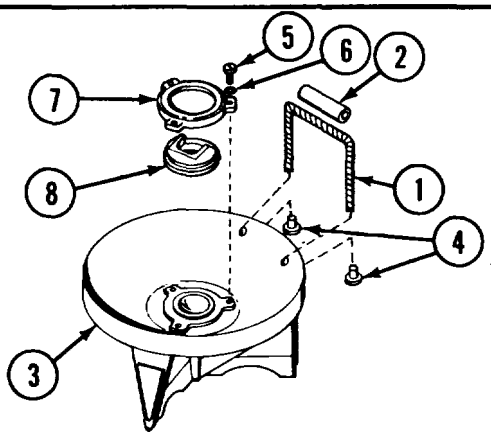


a. Install pad (1) and three rings (2, 3 and 4) in plate (5).

b. Install baseplate socket (6) and retaining ring (7).

DISASSEMBLY

1



a. If damaged, cut and remove rope (1) and handle (2) from inner body ring (3).

b. If damaged, remove two brass grommets (4) from inner body ring (3).

c. Remove three machine screws (5) and lock washers (6).

d. Lift out collar (7) and cap (8).

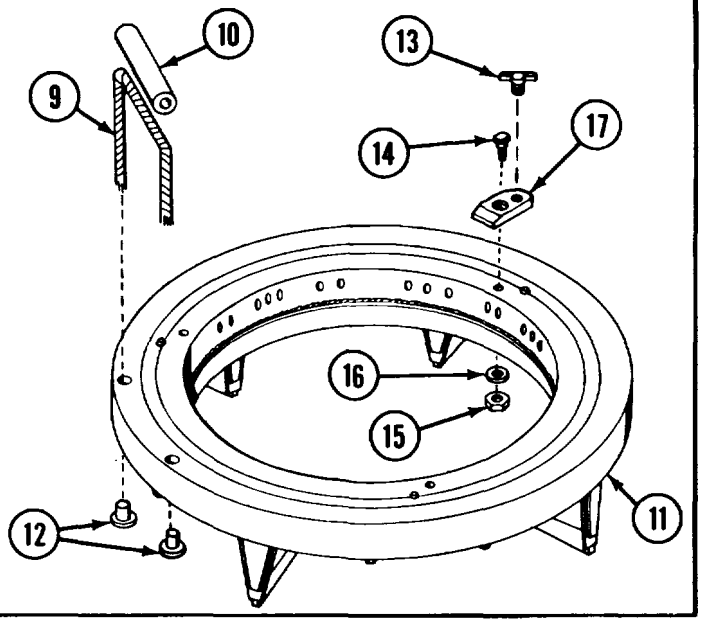
2

a. If damaged, cut and remove rope (9) and handle (10) from outer body ring (11).

b. If damaged, remove two brass grommets (12) from outer body ring (11).

c. Remove three thumbscrews (13), shoulder bolts (14), plain hexagon nuts (15), and lock washers (16).

d. Remove three outer ring latches (17) from outer body ring (11).

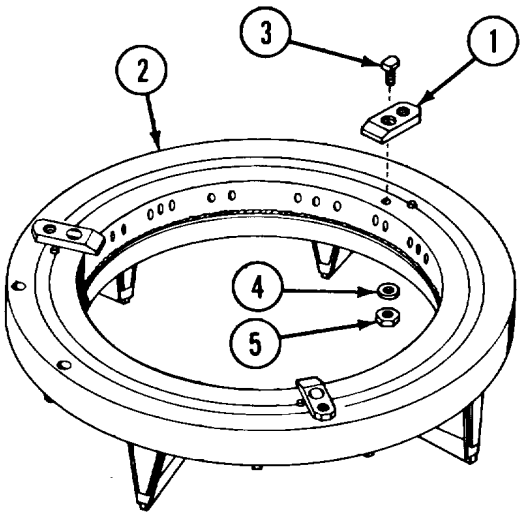


CLEANING/LUBRICATION/REPAIR

a. Clean disassembled items.
b. Replace any authorized items found to be damaged. See appendix C.
c. If the inner or outer ring bodies are damaged or defective, replace M23A1 baseplate with M3 baseplate.

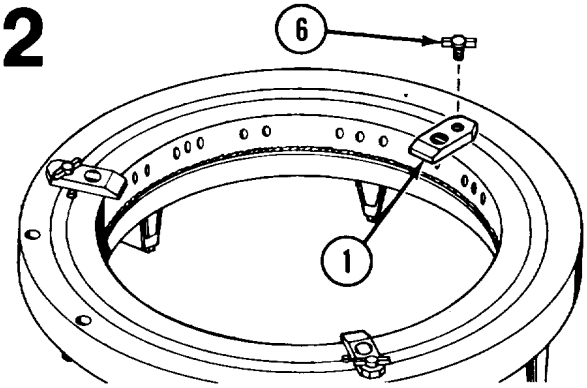
REASSEMBLY

1



Install the three outer ring latches (1) to outer body ring (2) using shoulder bolts (3), lock washers (4) and plain hexagon nuts (5). Tighten nuts securely.

2

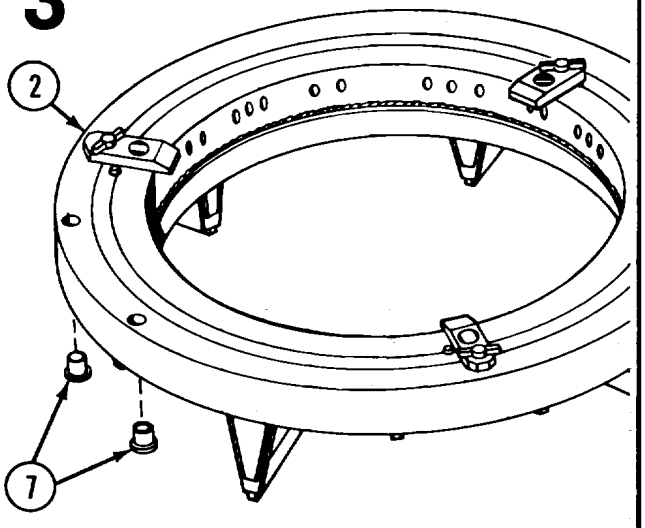


a. Install thumbscrew (6) in outer ring latch (1). Turn thumbscrew all the way down.

b. Stake latch (1) into thumbscrew (6) just enough to keep the thumbscrew from being removed.

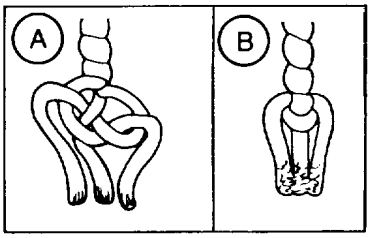
c. Repeat above steps to install other thumbscrews.

3



If removed, install two brass grommets (7) in outer body ring (2).

4



a. Tie knot in rope as shown in (A).

WARNING

Melted rope can cause a severe burn.

b. After tying knot, pull it tight and fuse the ends together as shown in (B).

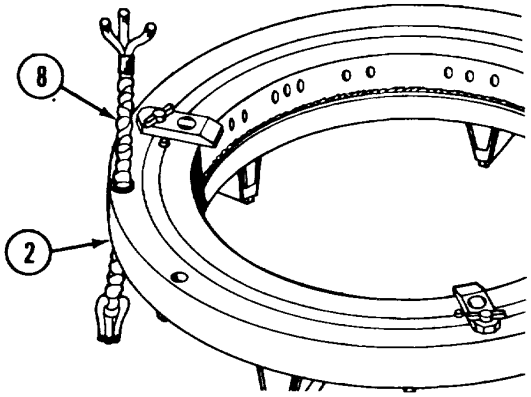
NOTE

Use only enough heat to melt the rope strands together.

2-12. BASEPLATE M3/M23A1 MAINTENANCE INSTRUCTIONS (CONT.).

REASSEMBLY (CONT.)

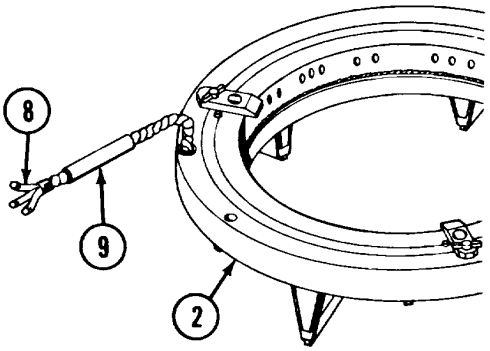
5



a. If removed, insert unknotted end of rope (8) up through hole in outer body ring (2).

b. Pull up on rope (8) until knot is against bottom of outer body ring (2).

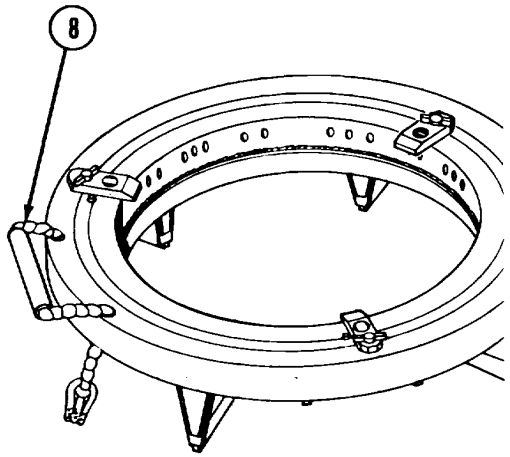
6



a. Install handle (9) on rope (8).

b. Insert unknotted end of rope (8) down through hole in outer body ring (2).

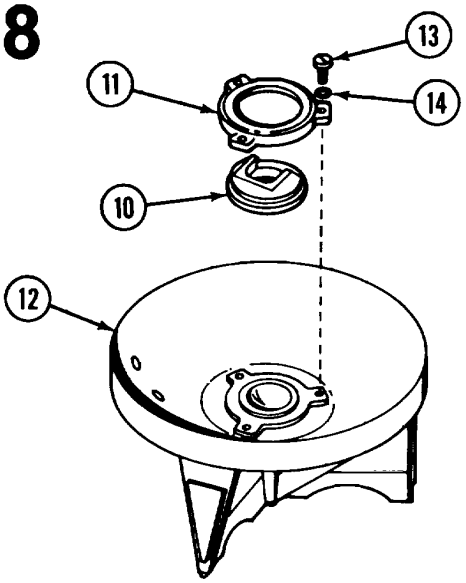
7



a. Tie knot in rope (8) as shown in step 4a.

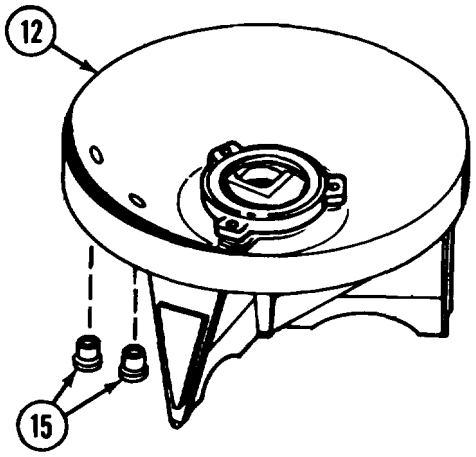
b. After tying knot, pull tight and fuse the ends as shown in step 4b.

8



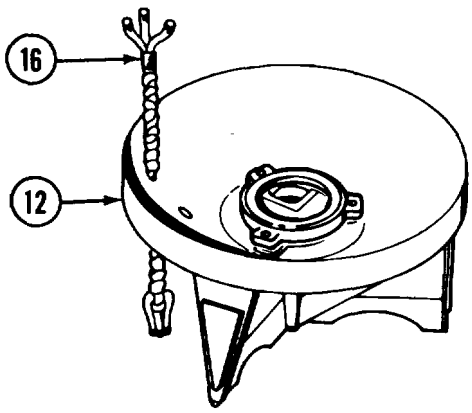
Position cap (10) and collar (11) on inner body ring (12) and secure with three machine screws (13) and lock washers (14). Tighten screws securely.

9



If removed, install two brass grommets (15) in inner body ring (12).

10



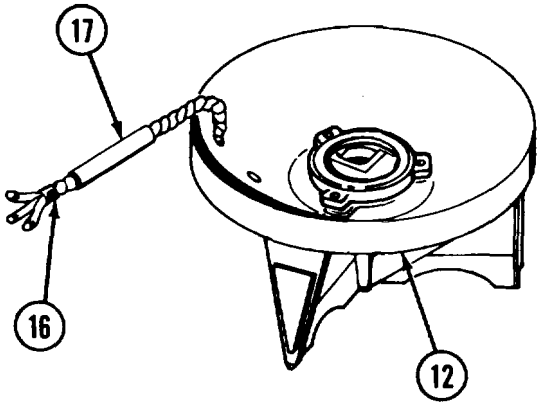
a. Tie knot in rope (16) as shown in step 4a.

b. After tying knot, pull tight and fuse the ends as shown in step 4b.

c. If removed, insert unknotted end of rope (16) up through hole in inner body ring (12).

d. Pull up on rope (16) until knot is against bottom of inner body ring (12).

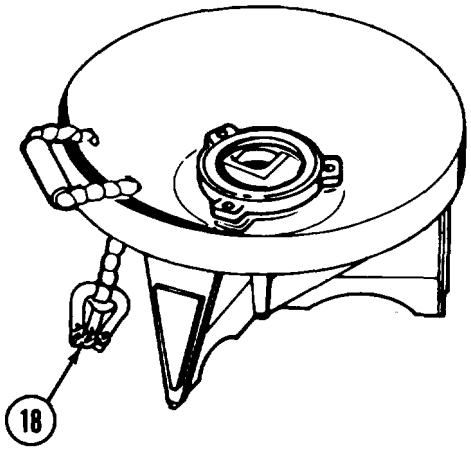
11



a. Install handle (17) on rope (16).

b. Insert unknotted end of rope (16) into inner body ring (12).

12



a, Tie knot in rope (18) as shown in step 4a.

b. After tying knot, pull tight and fuse the ends as shown in step 4b.

2-13. SIGHTUNIT M53/M53A1 MAINTENANCE INSTRUCTIONS.

This task covers:

a. Disassembly
b. Cleaning
c. Repair
d. Reassembly

INITIAL SETUP

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

References
TM 9-1015-200-10
TM 9-254

Materials/Parts

Cleaning brush (item 8, app D)
Cleaning brush (Item 8 app D)
Cleaning compound (item 1 0, app D)
Lens paper (item 23, app D)

Equipment Condition

Sightunit M53/M53A1 removed from M29A1 mortar (TM 9-1015-200-10)

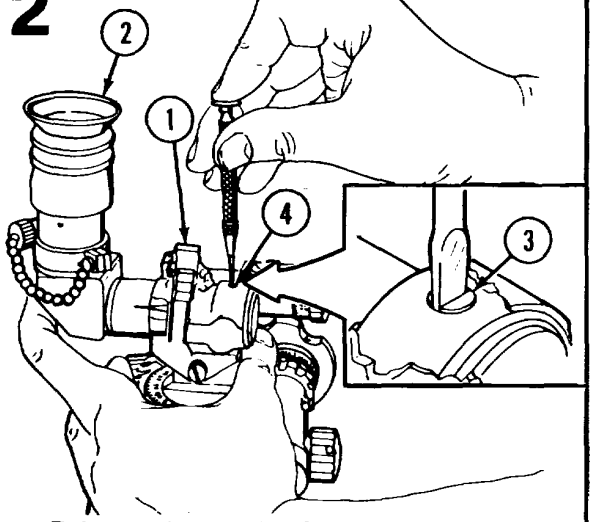
DISASSEMBLY

1

NOTE

A collar with three setscrews spaced 120 apart secures elbow telescope in the telescope mount.

2

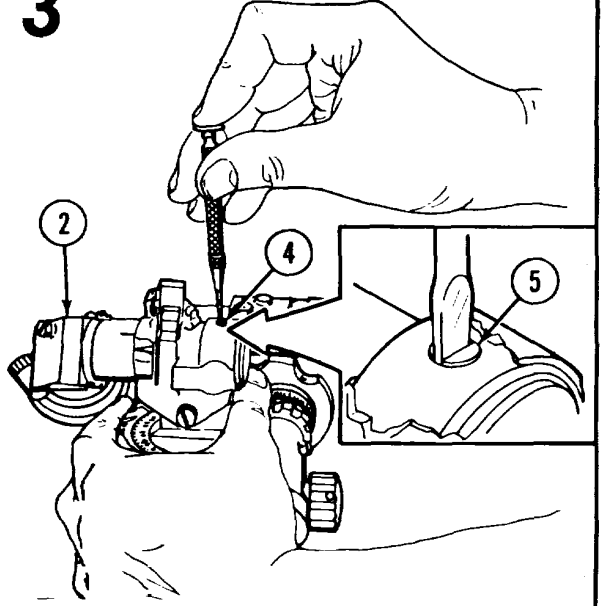


a. Release telescope locking clamp (1).

b. Turn elbow telescope (2) to the vertical position until setscrew (3) can be reached through hole (4).

c. Loosen setscrew (3).

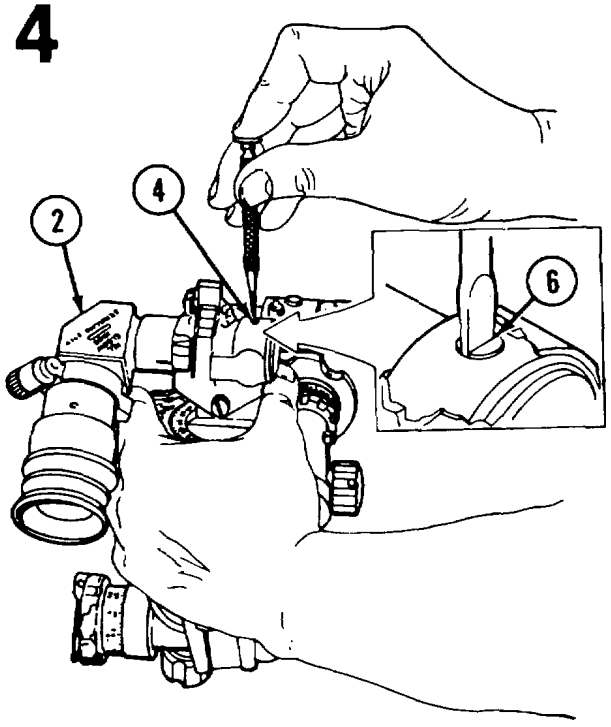
3



a. Turn elbow telescope (2) to the right until setscrew (5) can be reached through hole (4).

b. Loosen setscrew (5).

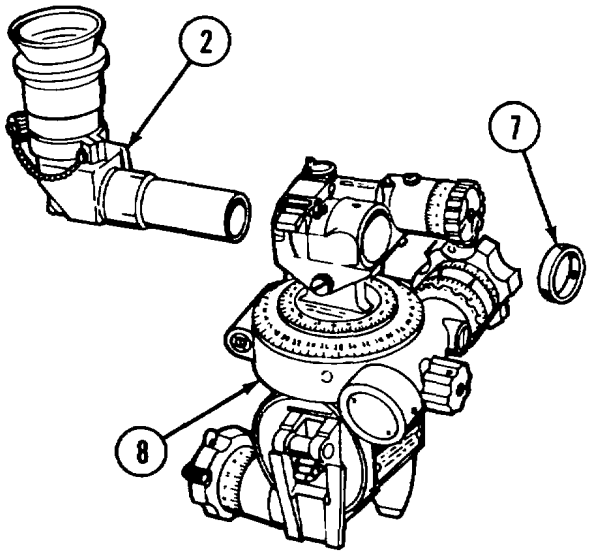
4



a. Turn elbow telescope (2) to the left until setscrew (6) can be reached through hole (4).

b. Loosen setscrew (6).

5



Remove elbow telescope (2) and collar (7) from telescope mount (8).

CLEANING

Refer to TM 9-254.

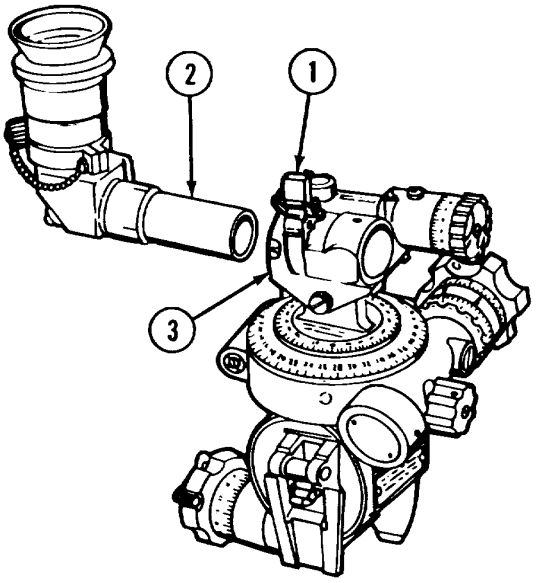
REPAIR

Replace authorized items found to be damaged during disassembly. See appendix C.

2-13. SIGHTUNIT M53/M53A1 MAINTENANCE INSTRUCTIONS (CONT.).

REASSEMBLY

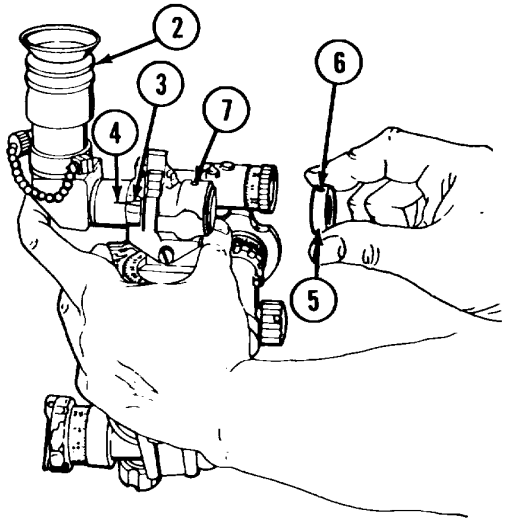
1



a. Release telescope locking clamp (1).

b. Insert elbow telescope (2) in telescope mount (3).

2



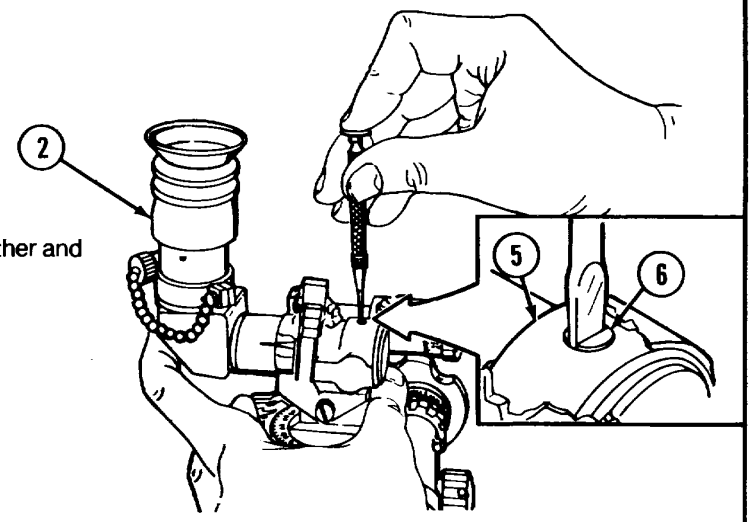
a. Turn elbow telescope (2) to the vertical position.

b. Aline reference mark (4) with indexing line on telescope mount (3). Hold elbow telescope in this position.

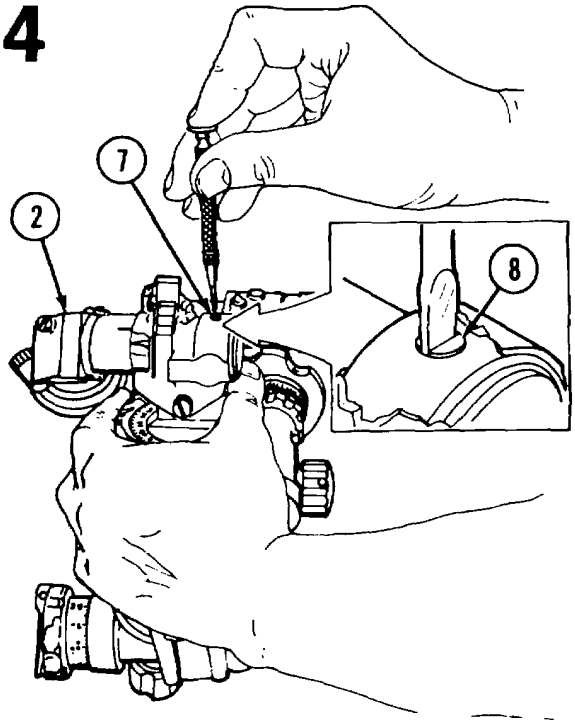
c. Start collar (5) on end of elbow telescope (2), then turn collar to aline setscrew (6) with hole (7).

3

Push collar (5) and elbow telescope (2) together and tighten setscrew (6).



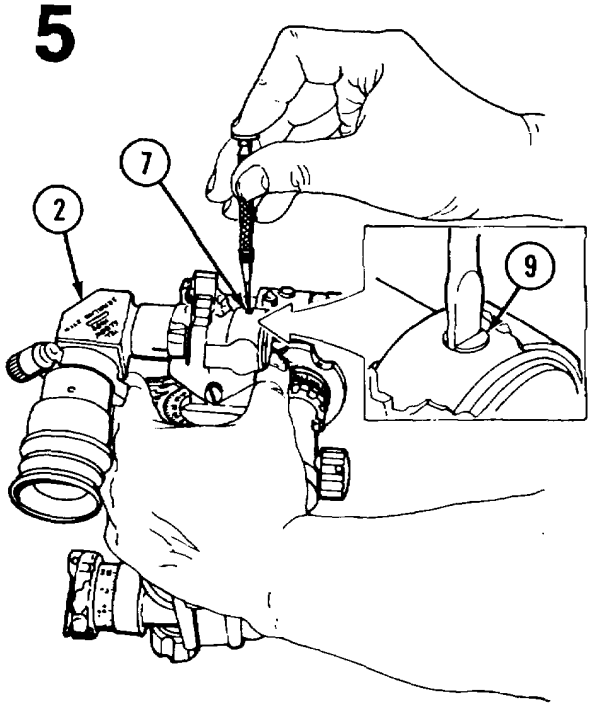
4



a. Turn elbow telescope (2) to the right until setscrew (8) can be reached through hole (7).

b. Tighten setscrew (8).

5

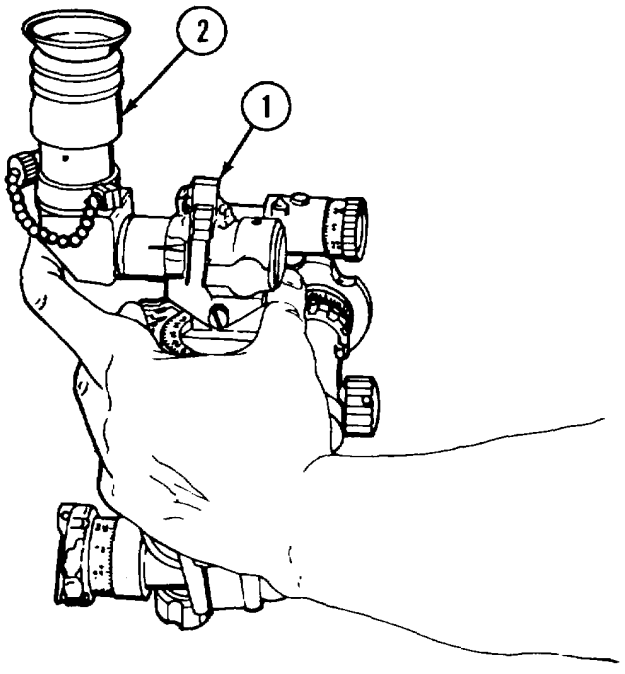


a. Turn elbow telescope (2) to the left until setscrew (9) can be reached through hole (7).

b. Tighten setscrew (9).

6

Turn elbow telescope (2) to the vertical position and secure telescope locking clamp (1).



2-14. ELBOW TELESCOPE M109 MAINTENANCE INSTRUCTIONS.

This task covers Disassembly/Cleaning/Repair/Reassembly.

INITIAL SETUP

Materials/Parts
- Cleaning brush (item 8, app D)
- Cleaning compound h 10, app D)
- Lens paper (item 23, app D)

References
- TM 9-1015-200-10
- TM 9-254

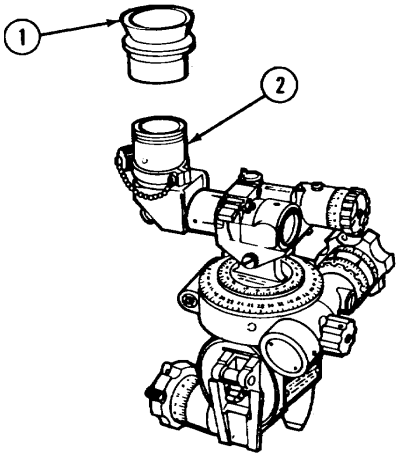
Equipment Condition
Sightunit M53/M53A1 removed from M29A1 mortar (TM 9-1015-200-10).

DISASSEMBLY/CLEANING/REPAIR/REASSEMBLY

a. Remove damaged eyeshield (1) from elbow telescope M1 09 (2).

b. Refer to TM 9-254 for optical cleaning instructions.

c. Replace eyeshield (1) on elbow telescope (2). See appendix C.



2-15. BASIC ISSUE ITEMS (REPAIR PARTS) MAINTENANCE INSTRUCTIONS.

This task covers Disassembly/Repair Reassembly of the:

a. M53E1 Instrument light

b. M14 Aiming Post Light

INITIAL SETUP

Tools and Special Tools
Small Arms Repairman Tool Kit
(SC 5180-95-CL-A0**7)**

a. M53E1 INSTRUMENT LIGHT

DISASSEMBLY/REPAIR/REASSEMBLY

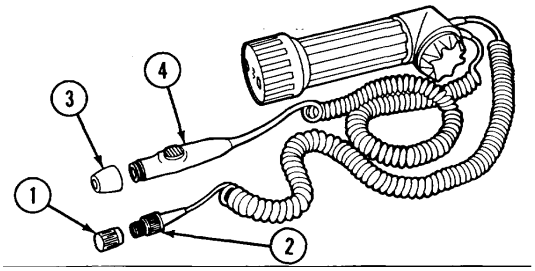
a. Unscrew protective cap (1) from reticle light (2).

b. Unscrew window (3) from hand light (4).

c. Replace authorized parts. See appendix C.

d. Install protective cap (1) on reticle light (2).

e. Install window (3) on hand light (4).



b. M14 AIMING POST LIGHT

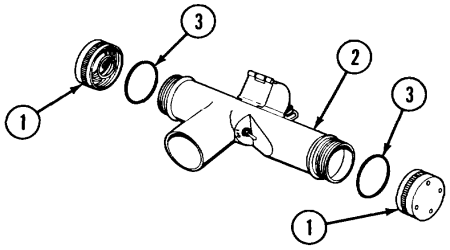
DISASSEMBLY/REPAIR/REASSEMBLY

a. Unscrew cap-plug (1) from case assembly (2).

b. Remove preformed packing (3) from case assembly (2).

c. Replace authorized parts. See appendix C.

d. Place preformed packing (3) in case assembly (2) and screw cap-plug (1) on case assembly (2).



Section VI. LUBRICATION INSTRUCTIONS

2-16. LUBRICATION INSTRUCTIONS. Refer to TM 9-1015-200-10.

Section VII. PREPARATION FOR STORAGE OR SHIPMENT

2-17. ADMINISTRATIVE STORAGE. Refer to TM 740-90-1. item 27, app D).

2-18. CLEANING, DRYING AND PRESERVATION.

a. *Cleaning and Drying.* Disassemble before cleaning. Clean unpainted metallic surfaces by wiping with general purpose lubricating oil (item 19, app D). Clean painted metallic surfaces by any applicable process and dry with wiping rags (item 25, app D)

b. *Preservation.* Preserve all unpainted metallic surfaces of the mortar with general purpose lubricating oil (item 19, app D). Baseplate requires no preservative.

2-19. UNIT PACK.

a. Reassemble cannon to bipod Muzzle of cannon should extend 22 inches above the ring.

b. Roll volatile packaging paper (item 24, app D) into a tube and insert into cannon muzzle with the treated side out.

c. Wrap volatile packaging paper or barrier material (item 2, app D) around the cannon above the traversing assembly.. Secure with tape (item 28, app D).

d. Close end of muzzle with tape (item 27, app D).

e. Wrap volatile packaging paper (item 24, app D) around the preserved surfaces of the traversing assembly and bipod assembly. Secure with tape (item 28 app D).

2-20. PACKAGING OF BII.

a. Remove the following components from the mortar and package as BII

(1) Place sightunit M53 series and instrument light M53E1 in sightunit carrying case M166 and overpack in fiberboard box (item 5, app D). Close box with tape (item 27, app D).

(2) Place aiming post lights M14 in lighting equipment chest M14 and overpack in fiberboard box (item 6, app D). Close box with tape (item 27, app D).

b. All BII should be cleaned, dried, preserved, and carefully cushioned with cushioning material (item 13 app D). Consolidate in a fiberboard box (item 7, app D) before packing in weapon container. Close box with tape (item 27, app D).

2-21. PACKING.

a. Use the original shipping container or make a shipping container according to procedures in appendix E. Apply a layer of barrier material (item 2, app D) to all container surfaces and blocking that contacts the mortar surfaces. Position the packages as shown in Figure 2- 1. Position the upper supports over the lower supports to hold the mortar in place.

b. Secure the top cover to the container with nails (item 22, app D).

c. Apply three straps (item 26, app D) size 3/4 inch, to the container.

2-22. MARKING

a. Mark according to MIL-STD-129.

b. Mark the following on each interior package.
   (1) National Stock Number
   (2) Par Number
   (3) Federal Item Name
   (4) 1 Each and date (Month, Year
   (5) Weight and Cube

c. Omit all marking from the outside of the exterior shipping box, except the following:

   1) Destination Address
   (2) Weight and Cube

2-23. PREPARATION OF SMALL COMPONENT ITEMS FOR SHIPMENT

a. If a small breakable component such as a sight-unit is the only item being shipped, Fast Pack containers are recommended. A catalog of Fast Pack containers can be obtained by writing to: AMC Packaging, Storage, and Containerization Center, ATTN.: STSTO-TP-P, Tobyhanna, PA 18466.

b. If the component item is durable metal, apply general purpose lubricating oil (item 19, app D) and, wrap in barrier material (item 2, app D). Cushion (item 13, app D), mark, and place in a fiberboard box of appropriate size.

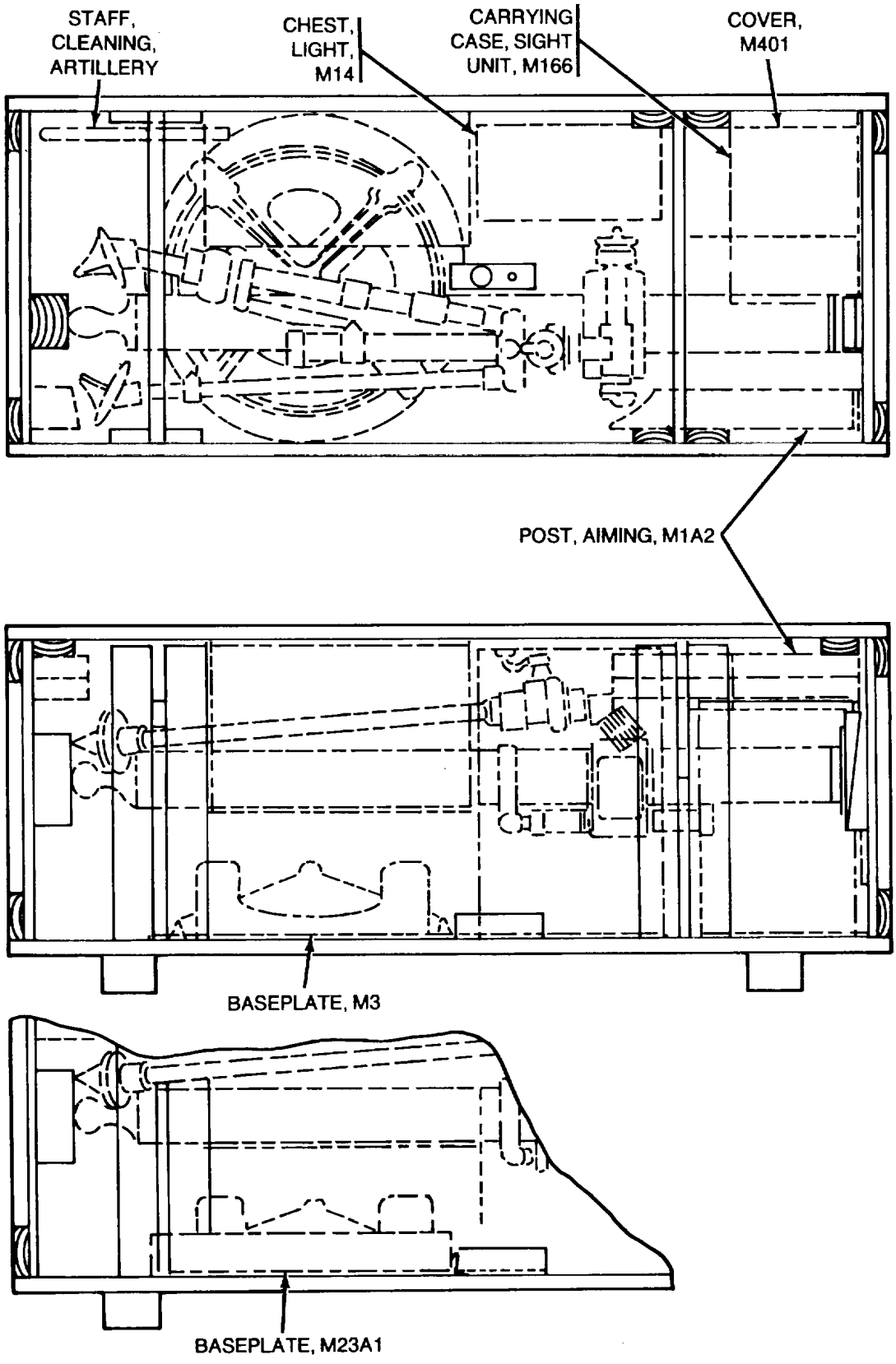


Figure 2-1. Positioning of items in shipping container.

APPENDIX A
REFERENCES

A-1. SCOPE. This appendix lists all forms, technical manuals , pamphlets, and miscellaneous publications referenced in this manual.

A-2 FORMS.

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

A-3. TECHNICAL MANUALS.

TM 9-254 ..... General Maintenance Procedures for Fire Control Materiel
TM 9-1015-200-10 ..... Operator's Manual for 81 -mm Mortar M29A1, (1 01 5-00-999-7794)
TM 740-90-1 ..... Administrative Storage of Equipment
TM 750-244-7 ..... Procedures for Destruction of Equipment to Prevent Enemy Use

A-4. PAMPHLETS.

DA PAM 310-1 ..... Consolidated Index of Army Publications and Blank Forms
DA PAM 738-750 ..... The Army Maintenance Management System (TAMMS)
DA PAM 750-10 ..... US Army Equipment Index of Modification Work Orders

A-5. MISCELLANEOUS PUBLICATIONS.

MIL-STD-129 ..... Marking for Shipment and Storage
CTA 8-100 ..... Army Medical Equipment Expendable/Durable Supplies
CTA 50-970 ..... Expendable/Durable Items (except Medical, Class V Repair Parts and Heraldic Items)
FM 21-11 ..... First Aid for Soldiers
SC 5180-95-CL-A07 ..... Tool Kit, Small Arms Repairman

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for. the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories

c. Section III lists the tools and test equipment (both special tools and common tool set required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows (except for ammunition MAC[1]).

a. *Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards

c. *Service.* Operations required periodically to keep an item in proper operating condition, i.e., to clean. (includes decontaminate, when required), to preserve to drain to paint, or to replenish fuel, lubricants, chemical fluid, or gases.

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

e. *Aline.* To adjust specified variable elements of an item to bring about optimum or desired performance.

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

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

h. *Replace.* To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3d position code of the SMR code.

[1]Exception is authorized for ammunition MAC to permit the redesignation/redefinition of maintenance function headings to more adequately identify ammunition maintenance functions. The heading designations and definitions will be included in the appropriate technical manual for each category of ammunition.

I. Repair. The application of maintenance service[2], including fault location/troubleshooting[3] removal/ installation, and disassembly/assembly[4] procedures and maintenance actions[5] to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system,

j. *Overhaul.* That maintenance effort (se*rv*ice/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition

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

B-3. EXPLANATION OF COLUMNS IN THE MAC SECTION II.

a *Column 1, Group Number.* Column 1 lists func tional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00."

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

c. *Column 3, Maintenance Function.* Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions see paragraph B-2.)

d. *Column 4, Maintenance Category* Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/ assembly time, troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the -various maintenance categories are as follows:

C..... Operator or Crew
O ..... Organizational Maintenance
F ..... Direct Support Maintenance
H..... General Support Maintenance
L ..... Specialized Repair Activity (SRA)[6]
D..... Depot Maintenance

e. *Column Tools and Equipment.* Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. *Column 6, Remarks.* This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in section IV.

---

[2]Services - inspect, test, service, adjust, aline, calibrate, and/or replace.

[3]Fault locate/troubleshoot - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

[4]Disassemble/assemble - encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least componency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

[5]Actions - welding, grinding, riveting, straightening, facing, remachining, and/or resurfacing.

[6]This maintenance category is not included in Section II, column (4) of the Maintenance Allocation Chart. To identify functions to this category of maintenance, enter a work time figure in the "H" column of Section II, column (4), and use an associated reference code in the Remarks column (6). Key the code to Section IV, Remarks, and explain the SRA complete repair application there. The explanatory remark(s) shall reference the specific Repair Parts and Special Tools List (RPSTL) TM which contains additional SRA criteria and the authorized spare/repair parts.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. *Column 1, Reference Code.* The tool and test Equipment reference code correlates with a code used

b. *Column 2 Maintenance Category.* The lowest category of maintenance authorized to use the tool or test equipment

c. C*olumn 3, Nome*nc*lature.* name or identification of the tool or test equipment.

d. *Column, National Stock Number.* The National stock number of the tool or test equipment.

e. Column 5 Tool Number. The manufacturer's part number.

5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. *Column 1, Reference Code.* The code recorded in column 6, Section 11.

b. *Column 2 Remarks.* This column lists information pertinent to the maintenance function being performed as indicated in the MAC, section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	81-MM MORTAR M29A1	Inspect	0.2	0.2					
		Service		1.0					
		Repair			1.0			3 and 4	
		Overhaul					18.0		
01	CANNON ASSEMBLY	Inspect	0.1	0.1	0.1			1 and 2	A
		Service	0.4						
		Replace			0.1				
		Repair		0.1	0.1			4	
02	BIPOD ASSEMBLY M23A1	Inspect	0.5	0.5					
		Service	0.2		3.0				
		Repair			0.5			3 and 4	
		Overhaul							
0201	Traversing Mechanism Assembly	Replace			0.5			3 and 5	
		Repair			1.0			3, 4, and 5	
020101	Shock Absorber Assembly	Replace			0.5			3	
		Repair		0.1	1.0			3 and 4	
020102	Traversing Spindle Assembly	Replace			0.2			3 and 4	
		Repair			0.4			3 and 4	
02010201	Cap Assembly	Replace			0.1			3	
		Repair			0.2			3	
020103	Handwheel Traversing Assembly	Replace			0.2			3 and 4	
		Repair			0.5			3 and 4	
020104	Yoke Assembly	Inspect			0.1				
		Replace			0.5			3	
		Repair			O5		3.0	3	
0202	Lower Bipod Assembly	Replace			0.1			3	
		Repair		0.1	2.0			3	
020201	Elevating Mechanism Assembly	Replace			0.3			3 and 6	
		Repair			1.0			3 and 6	

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
02020101	Cover Assembly	Replace			0.1			3	
		Repair			0.2			3	
02020102	Elevating Mechanism Housing	Replace			0.2			3	
		Repair			0.4			3	
03	BASEPLATE M3/M23A1	Inspect	0.1	0.1					
		Replace		0.1					
		Repair		0.5				3	
0301	Inner Ring Assembly (M23A1)	Replace		0.5					
		Repair		0.5				3	
0302	Outer Ring Assembly (M23A1)	Replace		0.1					
		Repair		0.5				3	
030201	Clamp Assembly	Replace		0.1					
		Repair		0.1					
04	SIGHTUNIT M53/M53A1	Inspect	0.2	0.2					
		Service		0.2					
	Repair			0.1				3	
0401	Elbow Telescope M109	Inspect	0.1						
		Service	0.1						B
		Replace		0.1					
		Repair		0.1					
0402	Telescope Mount M128 and M128A1	Inspect	0.1						
		Adjust				4.0			C
		Service	0.1						B
		Calibrate							C
		Replace		0.1					
		Repair				4.0			C
		Overhaul					10.0		
05	BASIC ISSUE ITEMS (REPAIR PARTS)								
0501	Instrument Light M53E1	Inspect	0.1						
		Service	0.1						
		Replace	0.1	0.1					
		Repair	0.1	0.1				3	
0502	Aiming Post Light M14	Inspect	0.1						
		Service	0.1						
		Replace	0.1						
		Repair		0.1				3	
0503	Boresight-M45/M45A1								B and D

Section III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

REFERENCE CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	Accessory Outfit for Pullover Gages	4933-00348-8652	SC 4933-95CL-E09
2	F	Borescope: Cannon Bore Inspecting, M2 or Borescope: Cannon Bore Inspecting, M3	6650-00-587-0986 or 6650-01-03-0035	SC 6650-95CL-E01 11584701
3	O	Tool Kit, Small Arms Repairman	5180-00-357-7770	SC 5180-95-CL-A07
4	F	Basic Field Maintenance Small Arms Shop Set, Less Power	4933-00-754-0664	SC 4933-95CL-A 11
5	F	Spanner Wrench	5120-00-722-8728	7228728
6	F	Spanner Wrench	5120-00-612-8199	6128199

Section IV. REMARKS

Reference	Remarks
A	Refer to TM 9-1000-202-14
B	Refer to TM 9-254
C	Refer to TM 9-1240-287-34
D	Refer to TM 9-1240-278-12

APPENDIX C
ORGANIZATIONAL MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

C-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 organizational 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.

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

a. Section 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 a 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 . Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s).

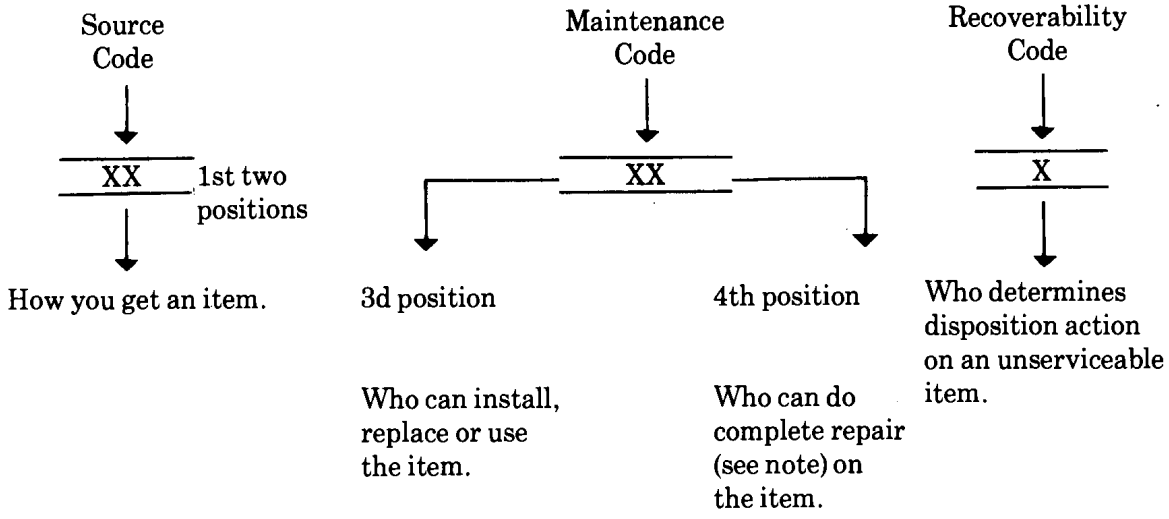
b. *Section III Special Too List.* Not applicable.

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 part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C-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 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 PH 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 a 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 am 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 a not to be requested/requisitioned individually. The parts that 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 par 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 compete repair of the item.
H	General support is the lowest level that can do compete 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 compete 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 "B" 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 Codes	Definition
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) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry or reference is made to the applicable figure.
(4) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.
(5) 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).
(6) The usable on code, when applicable (see paragraph 5, special information).
(7) 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.

(8) 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 function 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.

C-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 compete 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 am 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 part 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 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.

C-5. SPECIAL IN**FORMATION.**

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. *Kits.* Line item entries for repair parts appear in a group in section II (see table of contents).

d. *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.

e. Illustrations - Listings. The illustrations in this RPSTL are identical to those published in TM 9-1015-200-30&P. Only those parts codes "C" or ”O” in the third position of the SMR code are listed in the tabular listing; therefore, there may be a break in the item number sequence. Only illustrations containing organizational or aviation unit authorized items appear in this RPSTL.

C-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 and 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 C-4a(1)). The part numbers in the PART NUMBER INDEX are listed in ascending alphanumeric sequence (see C-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.

C-7. ABBREVIATIONS. Not applicable.

Section II. REPAIR PARTS LIST

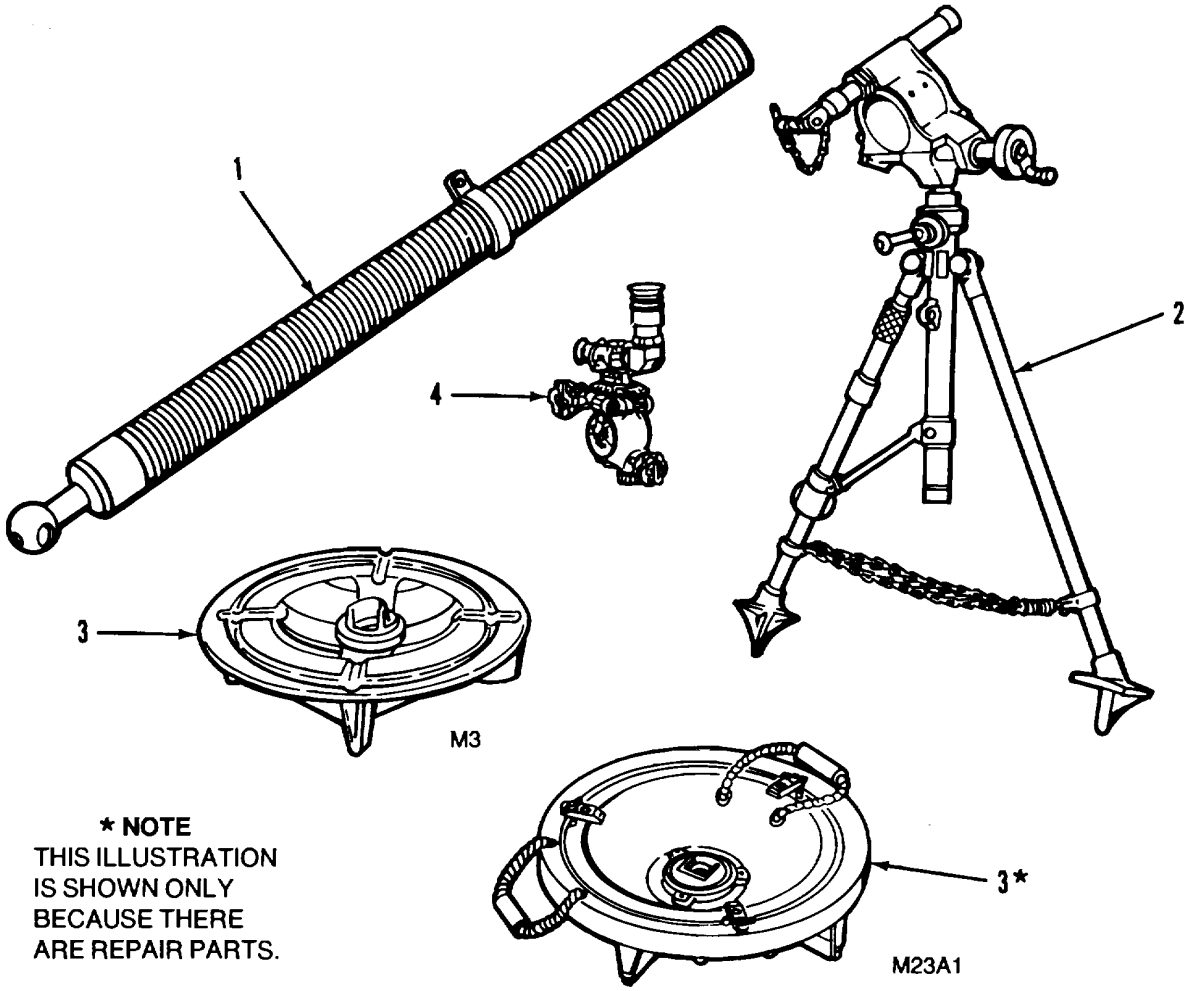


Figure C-1. 81-mm Mortar M29A 1.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 00 81-MM MORTAR M29A1 11578364	
				FIG.C-1 81-MM MORTAR M29A1	
3	PA000	19206	7309128	BASEPLATE, MORTAR M3	1
4	A0000	19200	8245971	SIGHT UNIT, M53 (SEE FIG.C-8 FOR ..... ASSEMBLY BREAKDOWN)	1
4	A0000	19200	10559698	SIGHT UNIT M53A1 (SEE FIG.C-8 FOR ..... ASSEMBLY BREAKDOWN).....	1
				END OF FIGURE	

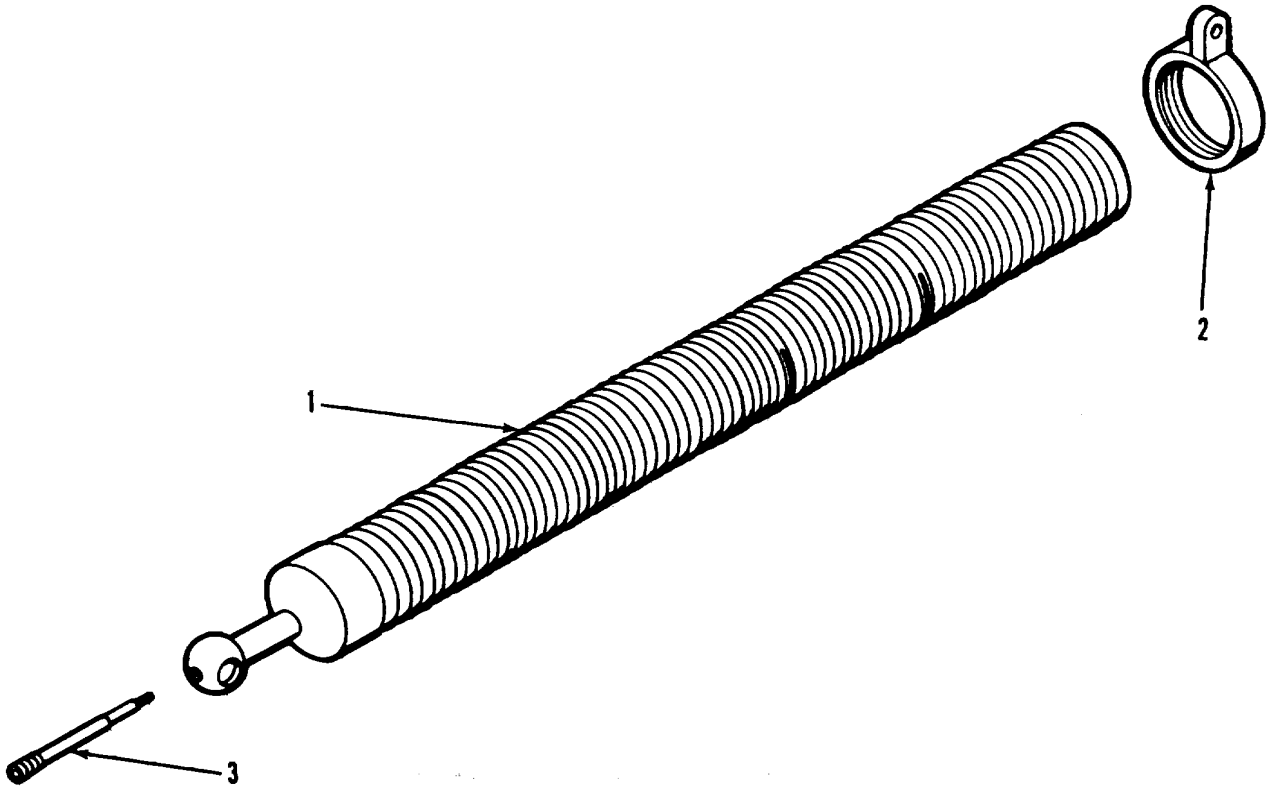


Figure C-2. Cannon assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 01 CANNON ASSEMBLY 8766507	
				FIG. C-2 CANNON ASSEMBLY	
3	PAOZZ	19206	11577647	PIN, FIRING.....	1

END OF FIGURE

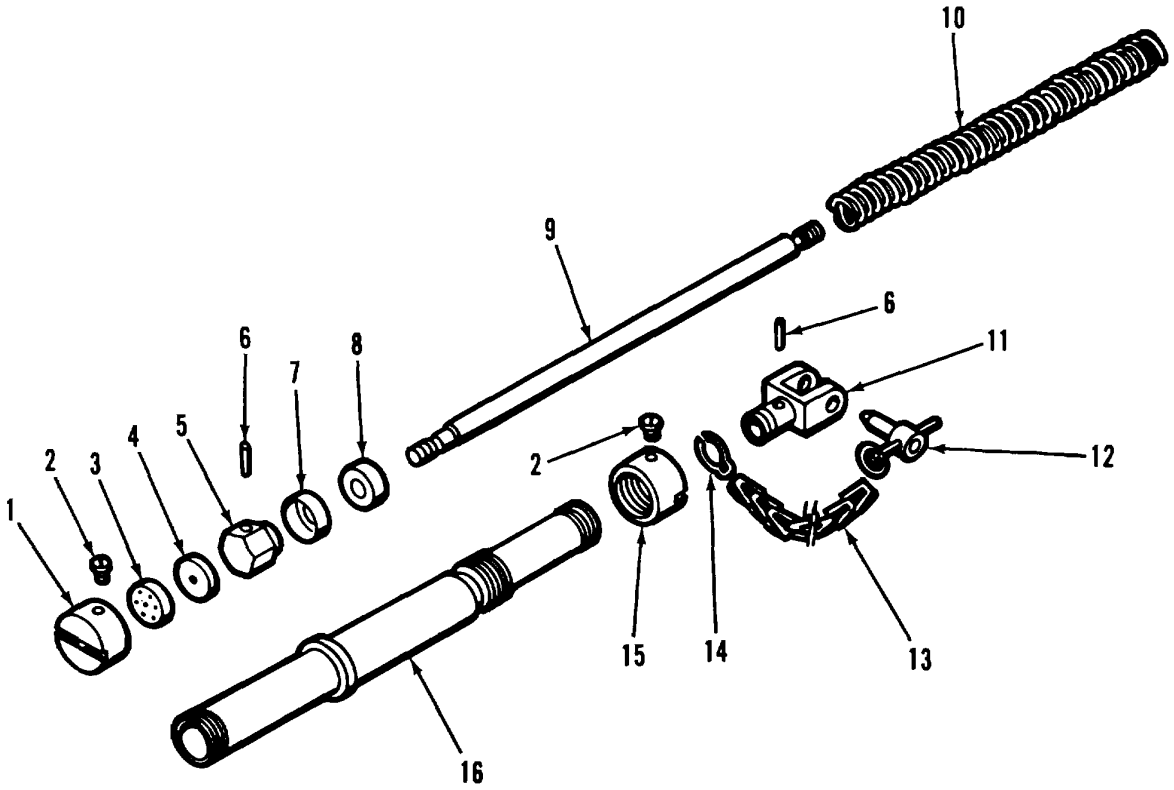


Figure C-3. Shock absorber assembly.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 020101 SHOCK ABSORBER ASSEMBLY 7305092	
				FIG. C-3 SHOCK ABSORBER ASSEMBLY	
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

END OF FIGURE

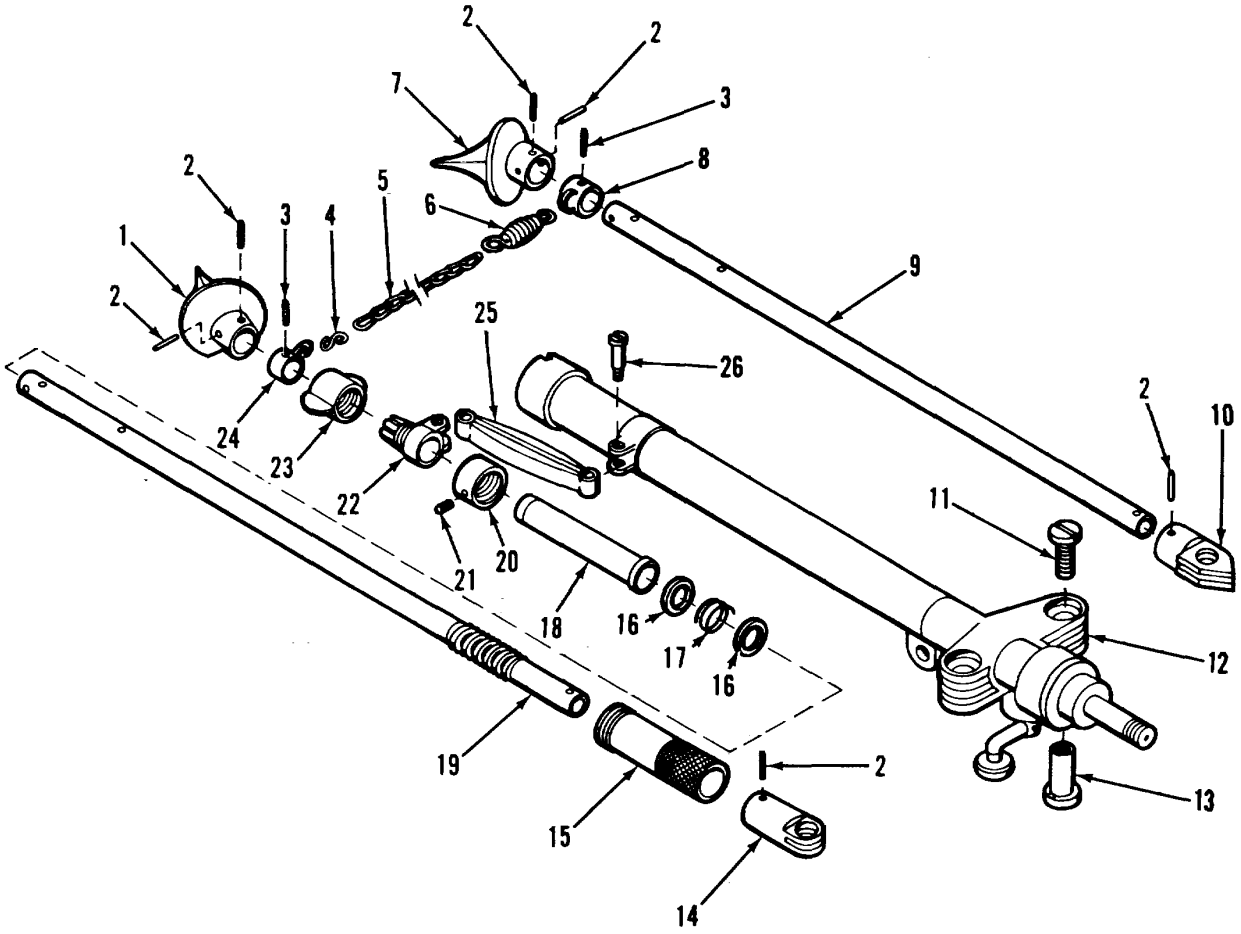


Figure C-4. Lower bipod assembly.

(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. C-4 LOWER BIPOD ASSEMBLY	
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
25	PAOZZ	19206	6008336	ROD, CONNECTING	1
26	PAOZZ	19206	7236709	SCREW, SHOULDER	2

END OF FIGURE

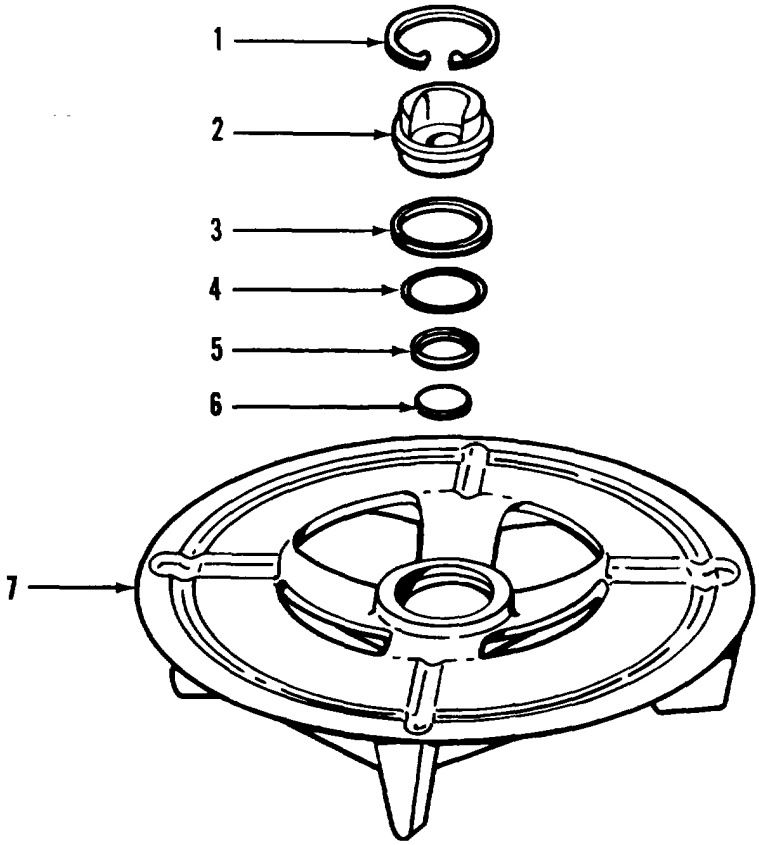


Figure C-5. Baseplate M3/M23A1 (M3 series).

(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.C-5 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 BASEPLATE	1
				PAD (1) C-5-6	
				RING (1) C-5-3	
				RING (1) C-5-4	
				RING (1) C-5-5	

END OF FIGURE

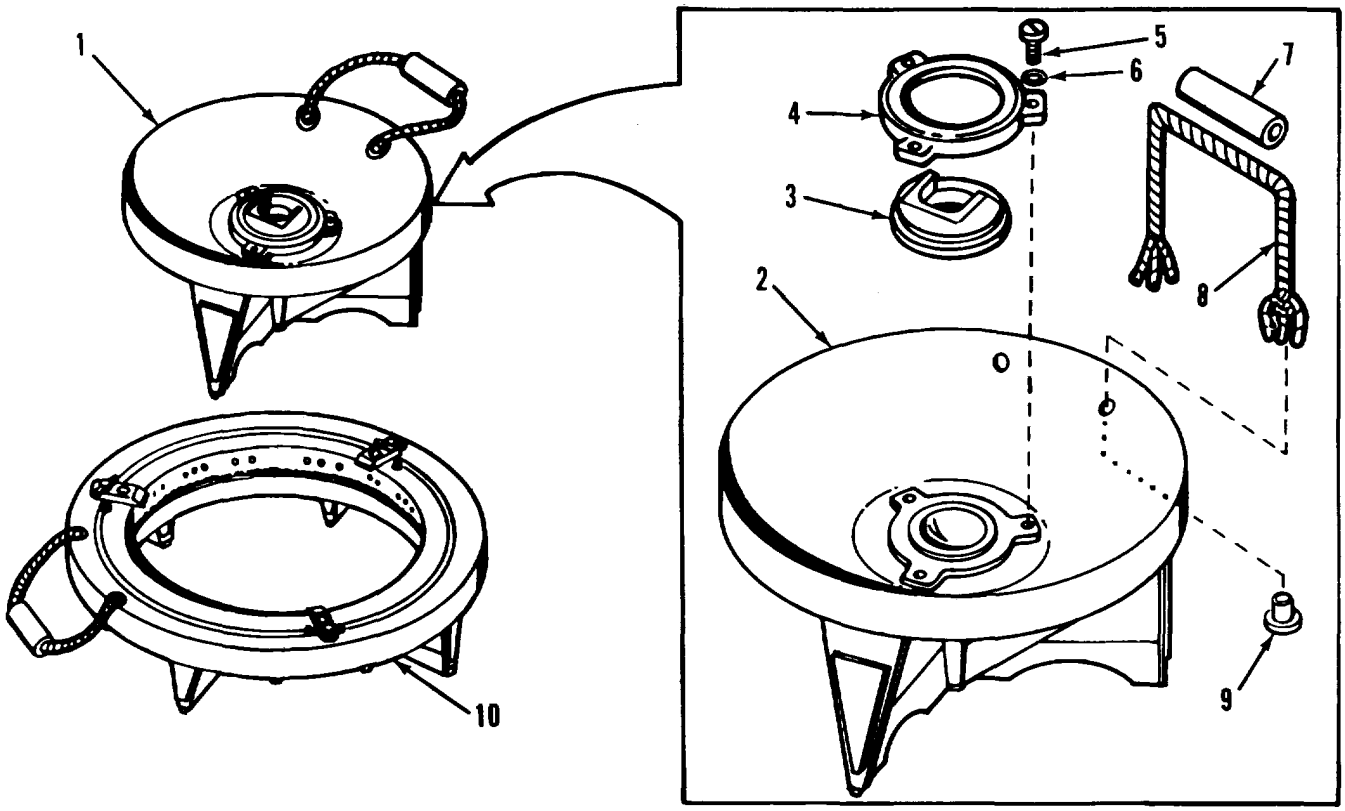


Figure C-6. Baseplate M3/M231A (M23A1 series) and inner ring assembly.

(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.C-6 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	XAOOO	19206	7230729	RING ASSEMBLY, OUTER	1

END OF FIGURE

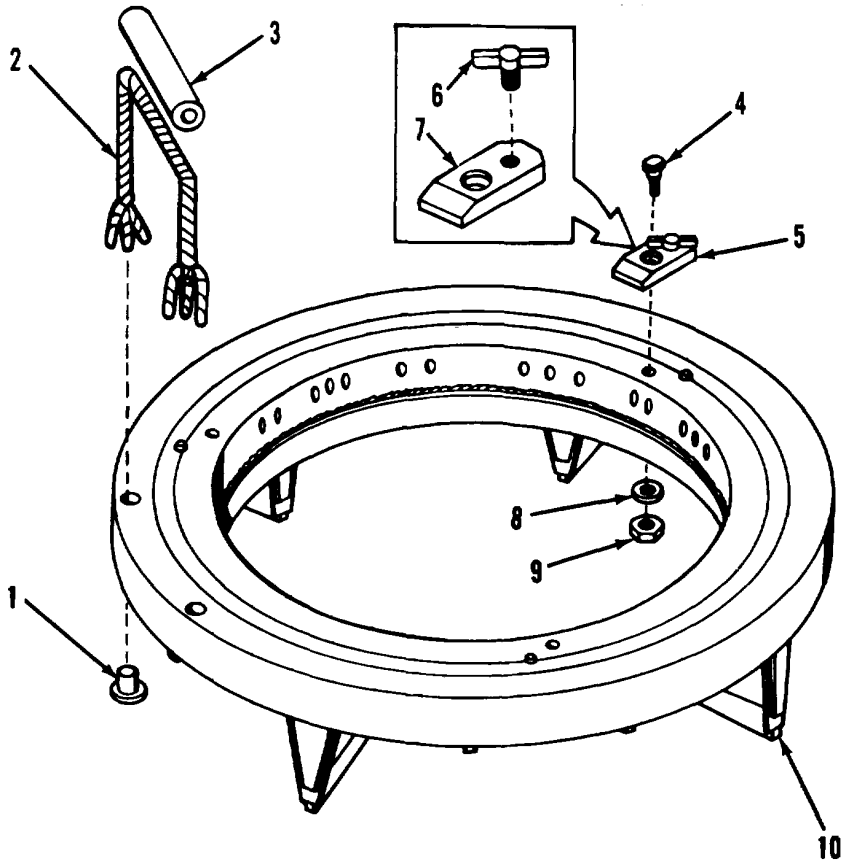


Figure C-7. Outer ring assembly and clamp assembly.

(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.C-7 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	AOOOO	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

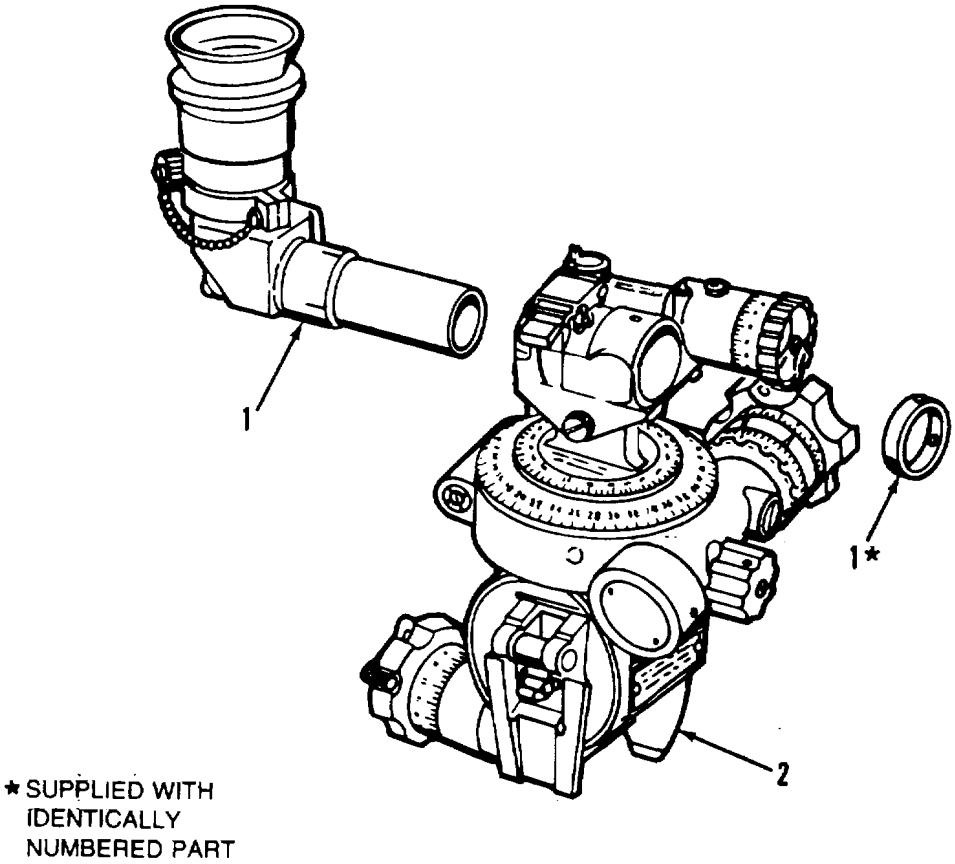


Figure C-8. Sightunit M53/M53A1.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 04 SIGHTUNIT M53/M53A1 8245971 AND 10559698	
				FIG.C-8 SIGHTUNIT M53/M53A1	
1	PAOOO	19200	8588780	TELESCOPE, ELBOW M109	1
2	PAOHH	19200	8245970	MOUNT, TELESCOPE M128	1
3	PAOHH	19200	10559699	MOUNT, TELESCOPE M128A1	1
				END OF FIGURE	

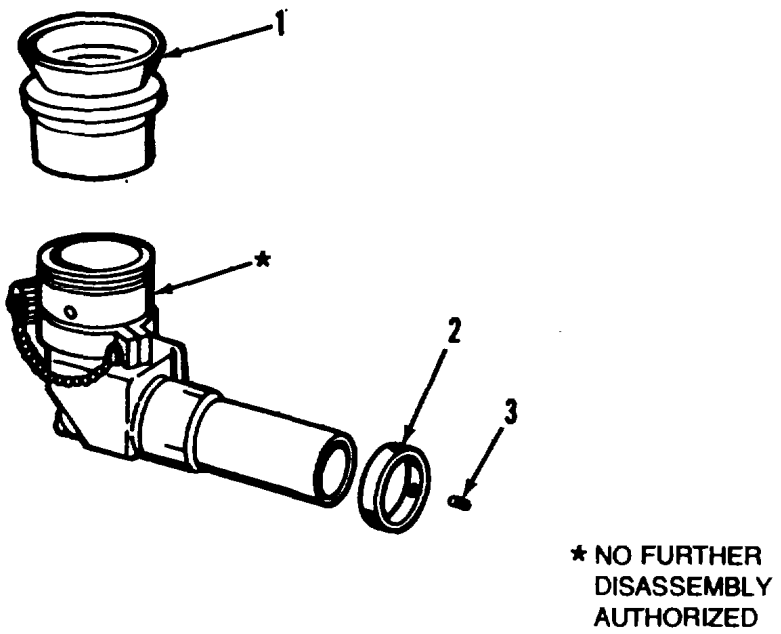


Figure C-9. Elbow telescope M109.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0401 ELBOW TELESCOPE M109 8588780	
				FIG.C-9 ELBOW TELESCOPE M109	
1	PAOZZ	19200	8588791	EYESHIELD, OPTICAL I	1
2	PAOZZ	19200	5206438	COLLAR, SHAFT.....	1
3	PAOZZ	96906	MS51974-1	SETSCREW	3
				END OF FIGURE	

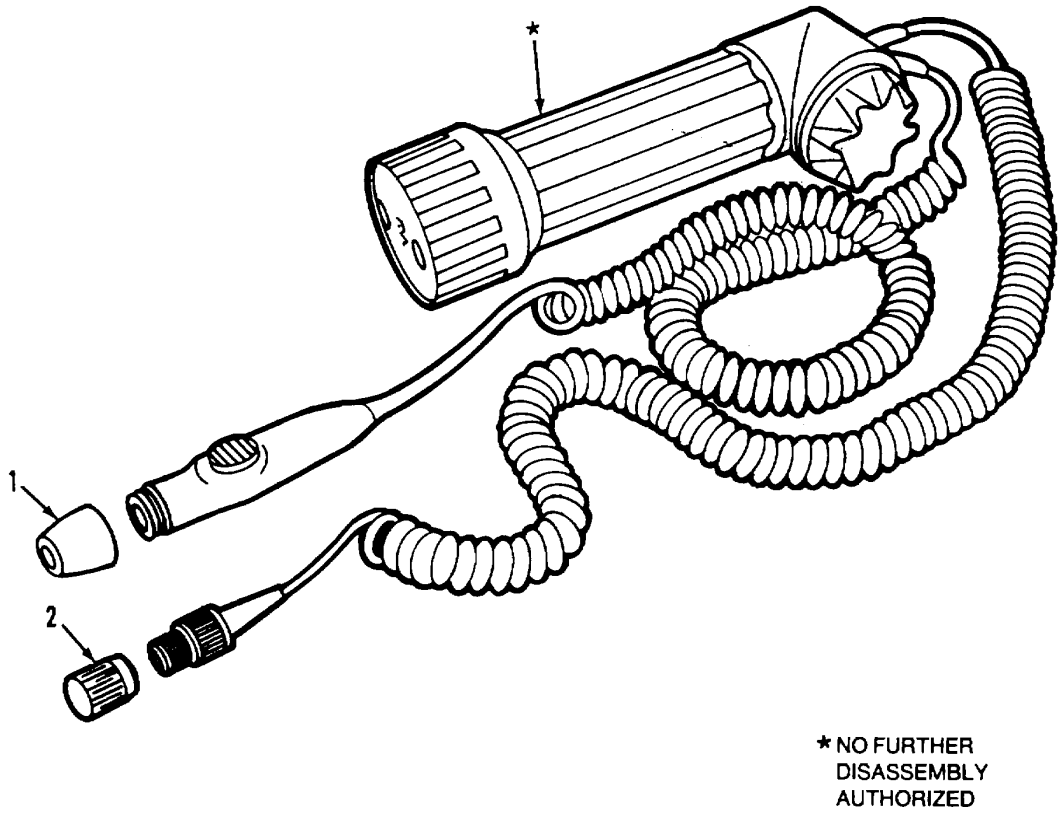


Figure C-10. Instrument light M53E1.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0501 INSTRUMENT LIGHT M53E1 10553463	
				FIG.C-10 INSTRUMENT LIGHT M53E1	
1	PAOZZ	19200	8579669	LENS, LIGHT.....	1
2	PAOZZ	19200	11731197	CAP ASSEMBLY.....	1
				END OF FIGURE	

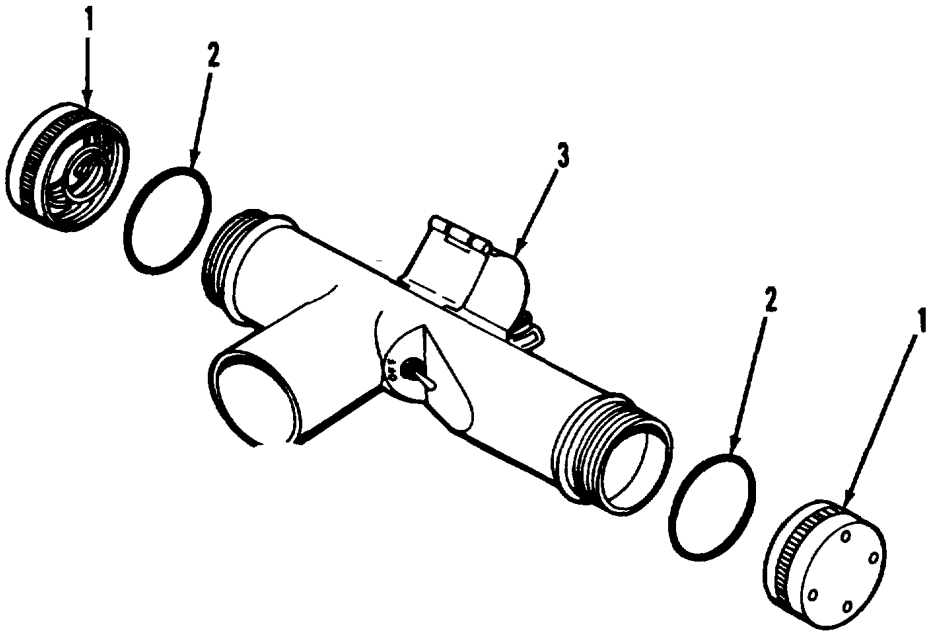


Figure C-11. Aiming post light M14.

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0502 AIMING POST LIGHT M14 11785401	
				FIG.C-11 AIMING POST LIGHT M14	
1	PAOZZ	19200	11785403	CAP-PLUG, PROTECTIVE	2
2	PAOZZ	96906	MS29513-020	PACKING, PREFORMED.....	2
3	XAOZZ	19200	11785406	CASE ASSEMBLY.....	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

END OF FIGURE

Section III. SPECIAL TOOLS LIST

Not applicable.

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-003-4094	C-7	8			
5310-00-004-5033	C-6	6			
5340-00-023-6662	C-3	12			
1240-00-181-4806	C-8	2			
1290-00-186-0058	C-10	2			
5330-00-250-0224	C-11	2			
1015-00-340-1179	C-5				
6230-00-460-4715	C-10	1			
5360-00-502-5017	C-4	6			
4030-00-502-5019	C-4	4			
3040-00-520-6438	C-9	2			
5365-00-576-2499	C-5	1			
1015-00-592-5312	C-1	3			
1015-00-600-8336	C-4	25			
4020-00-714-4266	C-6	8			
	C-7	2			
5305-00-716-8035	C-9	3			
5305-00-723-0698	C-7	6			
5306-00-723-0700	C-7	4			
1015-00-723-0703	C-6	9			
	C-7	1			
1015-00-723-0706	C-6	3			
1015-00-723-0707	C-6	4			
1015-00-723-5790	C-6	7			
	C-7	3			
5305-00-723-6709	C-4	26			
1015-00-730-5184	C-3	14			
1015-00-730-6664	C-7	7			
4010-00-807-4219	BULK	2			
1240-00-823-5612	C-8	1			
1240-00-823-5613	C-8	2			
4010-00-868-8063	BULK	1			
1240-00-892-5517	C-9	1			
1015-00-923-4257	C-5	2			
1015-00-928-3797	C-2	3			
5305-00-984-5690	C-6	5			
5310-01-070-2105	C-7	9			
5340-01-177-9217	C-11	1			

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
19206	CHAINNPN		C-3	13
19204	CHAINNPN-WLD		C-4	5
96906	MS29513-020	5330-00-250-0224	C-11	2
96906	MS35206-310	5305-00-984-5690	C-6	5
96906	M835338-46	5310-00-004-5033	C-6	6
96906	MS35338-48	5310-00-003-4094	C-7	8
96906	MS51967-14	5310-01-070-2105	C-7	9
96906	MS51974-1	5305-00-716-8035	C-9	3
19200	10559698		C-1	4
19200	10559699	1240-00-181-4806	C-8	2
19206	11577647	1015-00-928-3797	C-2	3
19206	11577758	4010-00-807-4219	BULK	2
19206	11578050	5340-00-023-6662	C-3	12
19204	11578758		C-5	3
19204	11578759		C-5	4
19204	11578760		C-5	5
19204	11578761		C-5	6
19206	11578762	1015-00-340-1179	C-5	
19200	11731197	1290-00-186-0058	C-10	2
19200	11785403	5340-01-177-9217	C-11	1
19200	11785406		C-11	3
19206	5025017	5360-00-502-5017	C-4	6
19204	5025019	4030-00-502-5019	C-4	4
19200	5206438	3040-00-520-6438	C-9	2
19206	6008336	1015-00-600-8336	C-4	25
19206	7144266	4020-00-714-4266	C-6	8
			C-7	2
19206	7229585	4010-00-868-8063	BULK	1
19206	7230698	5305-00-723-0698	C-7	6
19206	7230700	5306-00-723-0700	C-7	4
19206	7230703	1015-00-723-0703	C-6	9
			C-7	1
19206	7230706	1015-00-723-0706	C-6	3
19206	7230707	1015-00-723-0707	C-6	4
19206	7230725		C-6	2
19206	7230726		C-7	10
19206	7230727		C-6	1
19206	7230729		C-6	10
19206	7235790	1015-00-723-5790	C-6	7
			C-7	3
19206	7236709	5305-00-723-6709	C-4	26
19206	7238234		C-7	5
19206	7305184	1015-00-730-5184	C-3	14
19206	7306664	1015-00-730-6664	C-7	7
19207	7309124	5365-00-576-2499	C-5	1
19206	7309125	1015-00-923-4257	C-5	2
19206	7309126		C-5	7
19206	7309128	1015-00-592-5312	C-1	3
19200	8245970	1240-00-823-5613	C-8	2
19200	8245971		C-1	4
19200	8579669	6230-00-460-4715	C-10	1

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
19200	8588780	1240-00-823-5612	C-8	1
19200	8588791	1240-00-892-5517	C-9	1

APPENDIX D
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE. This appendix lists expendable/durable supplies and materials you will need to operate and maintain the mortar. This listing is for informational pur poses only and is not authority to requisition the list items. These items are authorized to you by CTA 50970, Expendable/Durable items (Except Medical, class V, Repair Parts, and Heraldic Items), or CTA 8-100 Army Medical Department Expendable/durable items.

D-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 cleaning compound, item 10, app D").

b. Column (2) - Level This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew

O - Organizational Maintenance

- *Column(3) -National Stock Number*

c National stock number assigned to the item; use it to request or requisition the item.

d. Co*lumn (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 Code for Manufacturer (FSCM) in parentheses.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea., in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C	6810-00201-0906	ALCOHOL, DENATURED (81348) OE-760	PT
2	O		BARRIER MATERIAL (81349) MILB-121	
		8135-00-753-4661	36 in. wide, 100 yd roll	YD
3	C	6135-00-120-1020	BATTERY, DRY: 1.5V, BA-3030 (81349)	EA
4	C	6135-00-930-0030	BATTERY, DRY: 1.5V, BA-3030 (for cold weather operations only) (80058)	EA
5	0		BOX, FIBERBOARD (81348) PPP-B-636	
		8115-00-079-8459	25 ea bd - 9 in. x 9 in. x 9 in.	EA

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
6	O		BOX, FIBERBOARD (81348) PPP-B-636	
		8115-00-290-3369	25 ea bd - 10 in. x 6 in. x 8 in.	EA
7	O		BOX, FIBERBOARD (81348) PPP-B-636	
		8115-00-290-3375	25 ea bd - 14 in. x 10 in. x 6 in.	EA
8	C	7920-00-205-2401	BRUSH, CLEANING TOOL (81349) MILS43871	EA
9	C	8020-00-242-7266	BRUSH, PAINT (96906) MS-16866	EA
10			CLEANING COMPOUND, OPTICAL LENS: liquid (81349) ML-C-43454	
	C	6850-00-227-1887	1 qt bottle	QT
	C	6850-00-392-9751	2 oz bottle	OZ
11			CLEANER COMPOUND, RIFLE BORE (RBC): solution type (81349) MILC-372	
	C	6850-00-224-6657	8 oz can	OZ
	C	6850-00-224-6663	1 gal can	GL
12	C		CLOTH, ABRASIVE: crocus (81348) P-C-458	
		5350-00-221-0872	50 sheet package	SH
13	O		CUSHIONING MATERIAL: cellulose (81348) PPC-C-843	
		8135-00-989-9889	20 in. x 50 feet	RO
14	C		DRY CLEANING SOLVENT (SD) (81348) P-D-680	
		68500-281-1985	1 gal can	GL
15	C		ENAMEL, forest green (81349) MIL-E-52798	
		8010-00-111-7938	1 gal can	GL
16	C	8415-00-823-7457	GLOVES, CHEMICAL AND SOLVENT RESISTANT (TYPE 3) (81348) ZZ-G-381	PR

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
17	O	9150-00-190-0905	GREASE, AUTOMOTIVE AND ARTILLERY (GAA) (81349) MIL-G-19204 6.5 lb can	LB
18	C	6240-00-6359800	LAMP, INCANDESCENT (96906) MS51008-3	EA
19	C	9150-00-231-2361	LUBRICATING OIL, GENERAL PURPOSE(81349) MIL-L-3150	QT
20	C	9150-00-292-9689	LUBRICATING OIL, WEAPONS (LAW) (81349) MILL14107 1 qt can	QT
21	O	5315-00-010-6510	NAIL, BOX (81348) F**F-**N-105	EA
22	C	6640-00-663-0832	PAPER, LENS: tissue, sheet form (1348) NNNP40	EA
23	O	6640-00-285-4694	PAPER, LENS (81348) NNNP40	EA
24	O	8135-00-985-7242	PAPER, VOLATILE, PACKAGING (81349) MIL-P-3420 36 in. wide, 100 ft roll	FT
25	C	7920-00-205-1711	RAG, WIPING (58536) A-A-531 50 lb bale	LB
26	O	8135-0286-8565	STEEL STRAPPING, FLAT, 5/8" W (81348) QQ-S-781 100 lb coil	LB
27	O	7510-00-297-6655	TAPE, PRESSURE SENSI**TI**VE ADHESIVE: paperback, water resistant (81348) PPP-T-76 2 in. wide x 120 yd roll	YD

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
28	O		TAPE, PRESSURE SENSITIVE ADHESIVE (81348) PPP-T-42	
		7510-00-266-6712	1 in. wide x 60 yd roll	YD
29			THINNER, SYNTHETIC RESIN ENAMEL (81348) TT T-306	
	C	8010-00-160-5791	1 pt can	PT
	C	8010-00-087-1953	1 qt can	QT
	C	8010-00-160-5794	1 gal can	GL

APPENDIX E
ILLUSTRATED LIST OF MANUFACTURED ITEMS

E-1. INTRODUCTION. This appendix includes complete instructions for making items authorized to be manufactured or fabricated at organizational mainte nance.

E-2. MATERIAL. All bulk materials needed to manufacture an item are listed in Table E-1.

Table E-1. Shipping Container Bill of Material

PART NO.	NAME	NO REQ	MAT'L	DIMENSIONS
1	SKID	2	WOOD	3 x 4 NOM x 24 1/2
2	FLOOR	1		1 NOM x 24 1/2 x 58 1/2
3	SIDE	2		1NOM x21 x581/2
4	END	2		1 NOM x21 x23
5	CLEAT, VERTICAL	12		1 x 3 NOM x 20 3/4
6	CLEAT, HORIZONTAL	4		1 x 3 NOM x 18
7	BATTEN, COVER	2		l x 3 NOM x 21
8	BLOCK	1		3 x4 NOM x 6
9	CLAMP	1	WOOD	2 x2 NOM x6
9A	CLAMP, STEEL	1	STEEL	1/8 x 1 1/2 x 9 (MILD STEEL OR EQUIVALENT)
10	WEDGE	2	WOOD	2 x 4 NOM x 7
11	SUPPORT, LOWER	1	PLYWOOD	3/4 x 14 1/2 x 23
12	SUPPORT, UPPER	1		34 x 9 x 23
13	SUPPORT, LOWER	1		3/4 x 10 3/4 x 23
14	SUPPORT, UPPER	1		3/4 x 12 3/4 x 23
15	COVER	1		3/4 x 24 1/2 x 58 1/2
16	DISC	1		3/16 x 3 5/8 Dia
17	PROTECTOR	1	PLYWOOD	3/16x4x6
18	BOLT, CARRIAGE	1	FF-B84 STEEL	3/8 - 16 **x 3 1**/2
19	WASHER	1	FFW-92 STEEL	3/8
20	NUT	1	FF-N-638 STEEL	3/8 - 16
21	STRAP, END (A)	4	COMML STEEL	.035 x 11 1/4 x 37
22	STRAP, RETAINER (A)	1	COMML STEEL	.035x 11 1/4 x 6
23	NAIL	AS REQ	FF-N105	AS REQUIRED

(A) STRAPPING (PARTS 21 AND 22) REQUIRE NAIL ON STRAPPING; TYPE II.

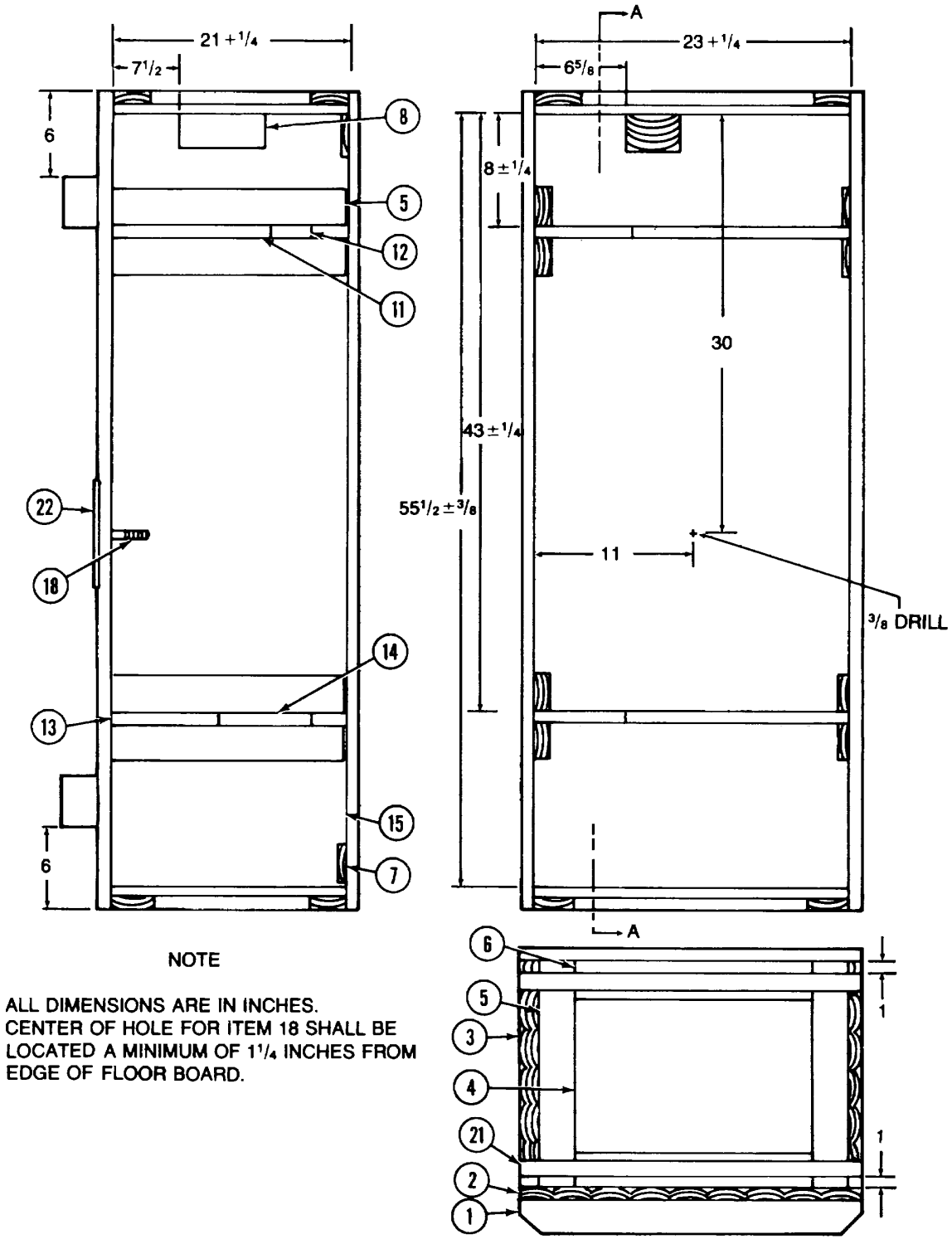


Figure E-1. Shipping container -box.

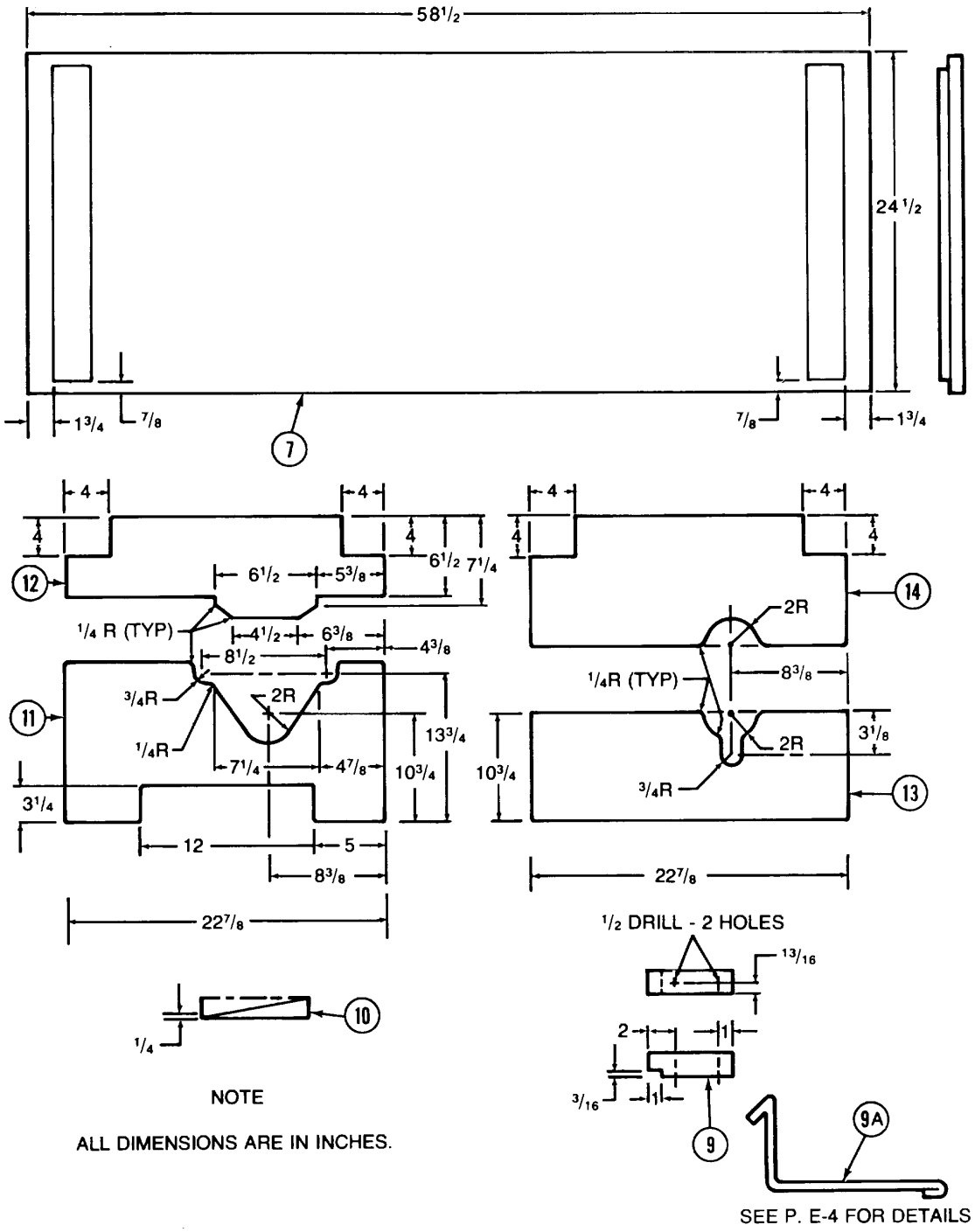
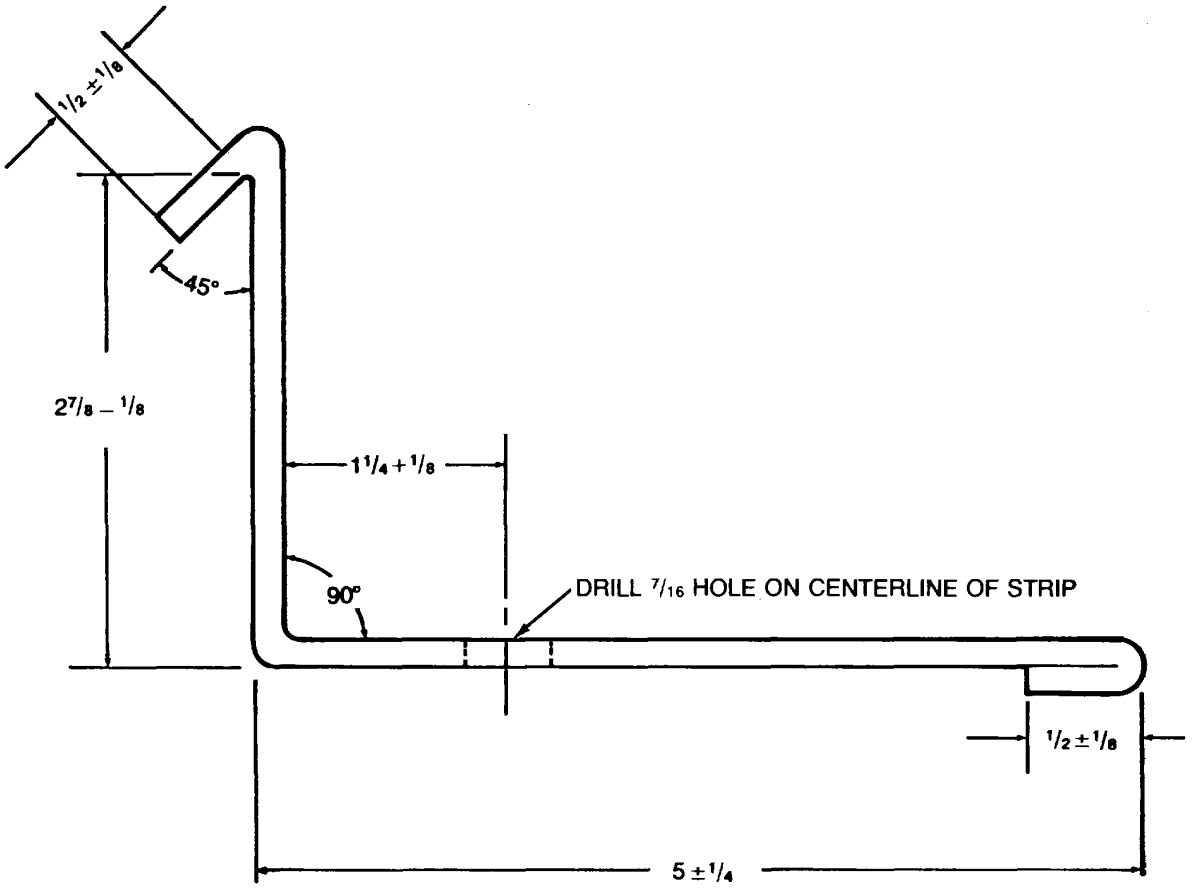


Figure E-2. Shipping container - cover and interior supports.



NOTE

ALL DIMENSIONS ARE IN INCHES.

MATERIAL: 1/8" × 1 1/2" × 9" MILD STEEL OR EQUIVALENT

NOTE
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FIGURE E-3 Shipping container - baseplate tie-down.

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