U.S. ARMY: TM 9-1010-230-10
U.S. MARINE CORPS: TM 08521A-10/1A
U.S. AIR FORCE: TO 11W2-5-16-1
U.S. NAVY: SW 363-C3-MMM-010

TECHNICAL MANUAL

OPERATOR'S MANUAL

MACHINE GUN, 40MM, MK19, MOD 3
(1010-01-126-9063) (EIC: 4AE)

HEADQUARTERS, DEPARTMENTS OF THE ARMY,
MARINE CORPS, AIR FORCE, AND NAVY

MAY 2001

WARNING SUMMARY

GENERAL

During operation and maintenance of the weapon, observe all warnings in this manual.

Before performing any procedure, ensure the weapon is clear of any ammunition.

Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.

Be prepared to catch dropped/ejected live round from weapon. (An ejected round is a round that has never been fired.)

Firing over hatches is prohibited. Keep weapon pointed in a safe direction. Never stand in front of muzzle. Be sure line-of-fire is clear of objects.

WARNING SUMMARY - Continued

Ensure all ammunition and non-essential personnel are at least 65 meters to the rear of the weapon.

Do not use combat misfire procedures during peacetime or training. Serious injury can result if safety precautions are not observed.

Any unusual occurrence during firing (e.g. short recoil, out-of-battery, excess smoke, flash, loud or muffled report, malfunction or stoppage) warrants immediate inspection of the weapon. Clear weapon, check barrel for obstruction, feeder, boltface, and receiver for damage and or unusual debris.

If the bolt jams during firing do not let the bolt slam forward as top cover is being opened, it could fire a round. (Check feed slide adjustment)

WARNING SUMMARY - Continued

Dry cleaning solvent is flammable and toxic and must be kept away from open flames and used in a well ventilated area. Use of rubber gloves is necessary to protect the skin when washing parts.

Dry cleaning solvent is authorized for cleaning the MK19 and it works great. But never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and break down the grease in those assemblies.

Appropriate eye protection is recommended when cleaning your weapon and/or its parts.

Do not allow the top cover to slam shut from raised position when loading. Hand injury or equipment or damage may result.

WARNING SUMMARY - Continued

Be sure to put bolt in forward position before removing the backplate pin assembly. Failure to observe this warning will result in injury.

Do not use a bayonet to remove an empty case or live round.

During training, firing will not be conducted from enclosures.

All personnel within 310 meters of impact area must wear a helmet and body armor. All personnel within 20 meters shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.

A two-man lift is required for the MK19 machine gun and each fully loaded M548 ammunition container.

WARNING SUMMARY - Continued

In case of a runaway gun, never try to break the ammo belt with your hands. Injury could result. Lower one charging handle to prevent the gun from firing.

Do not fire high-explosive (HE) ammunition at targets less than 310 meters away during training or 75 meters away during combat. Fragmentation can reach the gunner position at a distance less than 310 meters.

Ensure stow pin and depression stop are installed before attaching MK64 mount to tripod. Refer to TM 9-1010-231-13&P.

WARNING SUMMARY - Continued

The feed slide spring and housing are held under pressure. Always use the feed slide tool to hold the spring before removing the screws. Failure to observe the warning will result in injury.

Firing on the move from the HMMWV/M113/M88A1/M106 or other vehicles is restricted to not more than 5 miles per hour on rough roads, trails or cross country. Fire on the move shall not exceed 10 miles per hour for all conditions.

The MK19 shall be manned when mounted for operation in moving vehicles except when travel lock is engaged.

Empty the catch bag frequently during firing. If the bag becomes too full, spent cases can jam the weapon causing stoppage and out-of-battery firing.

WARNING SUMMARY - Continued

Should such a stoppage or out-of-battery firing occur, check for bore obstruction.

Use only ammunition authorized for use with the MK19 Machine Gun.

Keep ammunition dry, clean, and away from direct heat.

Do not drop, strike, or destroy ammunition by mechanical means.

Do not relink or fire ammunition which has been cycled through the weapon.

WARNING SUMMARY - Continued

Never use CLP or LSA on an MK19 Machine Gun. It gums up moving parts instead of lubricating them. The best thing for lubricating the MK19 is semi-fluid weapons lubricant (LSAT) NSN 9150-00-949-0323. Because of sometime difficulties in obtaining LSAT, GMD may be used for lubricating.

Never mix lubricants on the MK19 Machine Gun. If you change lubricants or do not know for sure which lubricant is currently applied to the MK19, completely clean off all the old lubricant before you apply a new one.

When lubricating the weapon, give extra attention to the feed pawls, the cocking lever rails, the pivot posts on the primary drive lever, and the bolt assembly. You'll have trouble firing if you forget just one of them.

WARNING SUMMARY - Continued

Dry cleaning solvent is authorized for cleaning the MK19 Machine Gun and it works great. But never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies.

FIRST AID

For additional first aid data, see FM 21-11.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages/work packages are:

Original ..... 0 ..... May 2001

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 48 AND TOTAL NUMBER OF WORK PACKAGES IS 19 CONSISTING OF THE FOLLOWING:

Page/WP No.	*Change No.
Title	0
a – i	0
j Blank	0
A - B	0
i - vii	0
viii Blank	0
WP 0001 00 - WP 0019 00	0
Index 1 - Index 27	0
Index 28 Blank	0

*Zero in this column indicates an original page or work package.

TM 9-1010-230-10

* U.S. ARMY: TM 9-1010-230-10
U. S. MARINE CORPS: TM 08521A-10/1A
U.S. AIR FORCE: TO 11W2-5-16-1
U.S. NAVY: SW 363-C3-MMM-010

TECHNICAL MANUAL

No. 9-1010-230-10

HEADQUARTERS
DEPARTMENTS OF THE ARMY,
MARINE CORPS, AIR FORCE,
AND NAVY
Washington, D. C., 30 May 2001

Operator's Manual
for
MACHINE GUN, 40MM, MK 19, MOD 3
(1010-01-126-9063) (EIC: 4AE)

*This manual supersedes TM 9-1010-230-10, dated 28 November 1996, including all changes.

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or E-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE OF CONTENTS

WP Sequence No.

WARNING SUMMARY

HOW TO USE THIS MANUAL

GENERAL INFORMATION 0001 00

CHAPTER 1 — DESCRIPTION AND THEORY OF OPERATION
Equipment Description and Data 0002 00
Theory of Operation 0003 00

TABLE OF CONTENTS - Continued

CHAPTER 2 — OPERATOR INSTRUCTIONS
Description and Use of Operator Controls and Indicators .. 0004 00
Operation Under Usual Conditions 0005 00
Operation Under Unusual Conditions 0006 00

CHAPTER 3 — TROUBLESHOOTING PROCEDURES
Troubleshooting Index 0007 00
Operational Checkout and Troubleshooting Procedures 0008 00

CHAPTER 4 — MAINTENANCE INSTRUCTIONS
Preventive Maintenance Checks and Services (PMCS)
Introduction 0009 00
Preventive Maintenance Checks and Services (PMCS),
Including Lubrication Instructions 0010 00

TABLE OF CONTENTS - Continued

Field Strip 0011 00
Maintenance 0012 00
Maintenance Procedures 0013 00
Ammunition 0014 00
Auxiliary Equipment 0015 00

CHAPTER 5 — SUPPORTING INFORMATION
References 0016 00
Components of End Item (COEI) and Basic Issue Items (BII) Lists 0017 00
Additional Authorization List (AAL) 0018 00
Expendable and Durable Items List 0019 00

INDEX

HOW TO USE THIS MANUAL

GENERAL

Knowing how to use this manual is very important.

a. References are to Work Packages in this manual.

b. Throughout this manual, text is keyed to illustrations by numbered callouts. When an item is called out in a procedure, a number in parentheses in the text corresponds with a number on the illustration.

INDEXES

This manual is organized to help you quickly find the information needed. There are two useful indexes:

a. **Table of Contents.** The Table of Contents lists, in the order of presentation, all chapters and Work Packages contained in this TM.

b. **Alphabetical Index.** This index, located in the back, is an extensive subject index for the entire manual. The work package numbers following each entry tell where in the manual to find a particular subject.

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

GENERAL INFORMATION

SCOPE

Type of Manual. Operator's

Model Number and Equipment Name. MK19 MOD 3 Machine Gun

Purpose of Equipment. The MK19 is a machine gun which fires a 40mm grenade with anti-personnel fragmentation and light anti-armor capability. It fires 40mm grenades at the rate of 325 - 375 rounds per minute.

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 (TAMMS).

Air Force. Users refer to TO 11W1-10 for applicable forms and records.

Marine Corps/Navy. Users refer to those forms and procedures used for equipment maintenance as prescribed by the current edition of TM 4700-15/1, Equipment Record Procedures.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your MK19 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS), or as specified by the acquiring activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

The supplies and materials needed for CPC are included in WP 0019 00, Expendable and Durable Items List. Preventive Maintenance Checks and Services procedures begin in WP 0009 00.

CORROSION PREVENTION AND CONTROL (CPC) - Continued

CPC of materiel is a continuing concern. It is important that any corrosion problems with the item be reported so the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368, Quality Deficiency Report. Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will assure that the information is identified as a CPC problem. The form should be submitted to: Commander, U. S. Army Research, Development, and Engineering Center, ATTN: AMSTA-AR-QAW-A (R), Rock Island, IL 61299-7300.

OZONE DEPLETING SUBSTANCES (ODS)

N/A

DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

For destruction of materiel to prevent enemy use, refer to TM 750-244-7.

PREPARATION FOR STORAGE OR SHIPMENT

Refer to TM 9-1010-230-23&P.

END OF WORK PACKAGE

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

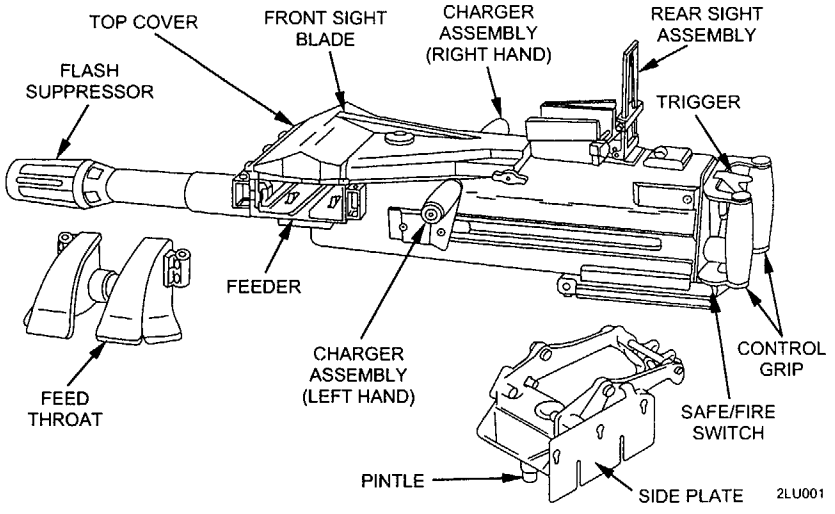
MK19 MACHINE GUN. The MK19 MOD 3 is an air-cooled, belt-fed, blowback operated, fully automatic weapon. Because it fires from an open bolt, your MK19 MOD 3 will not 'cook off.'

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES - Continued

MK64 Mount Mod 9. The MK64 attaches to the M3 Tripod and a variety of vehicle mounts. The MK64 holds the gun and allows it to traverse and elevate on the vehicle or tripod. It also features a travel lock which holds the weapon in travel position during vehicle operation.

MK93 Mod 0 (Marine Corps only). Designed as a defensive ground mount to attach the MK19 to the M3 tripod. Composed of a carriage assembly and yoke assembly.

MK93 Mod 1. Designed as a mount to attach the MK19 to the HMMWV ring assembly. Composed of the MK93 Mod 0, .50 caliber ammo holder assembly, mounting bracket, catch bag assembly, MK175 gun mount adapter, and traversing and elevation mechanism.


TOP COVER
FRONT SIGHT BLADE
CHARGER ASSEMBLY (RIGHT HAND)
REAR SIGHT ASSEMBLY
FLASH SUPPRESSOR
TRIGGER
FEEDER
CHARGER ASSEMBLY (LEFT HAND)
CONTROL GRIP
FEED THROAT
SAFE/FIRE SWITCH
PINTLE
SIDE PLATE
2LU001

0002 00-3

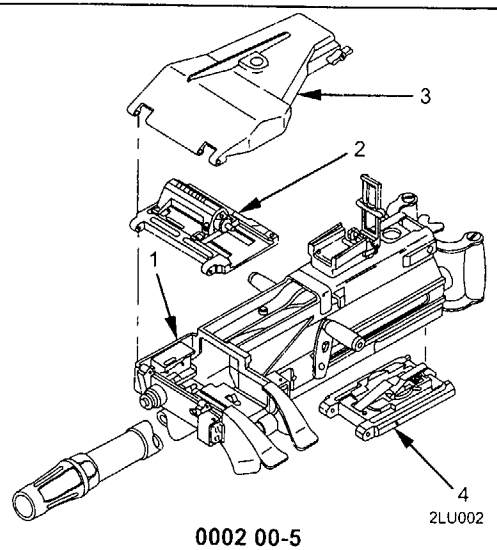
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

RECEIVER ASSEMBLY (1). Holds assemblies 2 through 6. Ammunition is fed into the left side of the receiver through the feed throat assembly.

FEED SLIDE ASSEMBLY AND TRAY (2). Holds the rounds in the feeder and indexes the ammunition into position for delinking.

TOP COVER ASSEMBLY (3). Holds the feed slide assembly and tray. It is opened by a latch (left side) for loading or to clean and inspect feeder area.

SEAR ASSEMBLY (4). Holds the receiver sear. Trigger action releases the sear and allows the bolt to go forward. The safety is attached to the sear assembly.

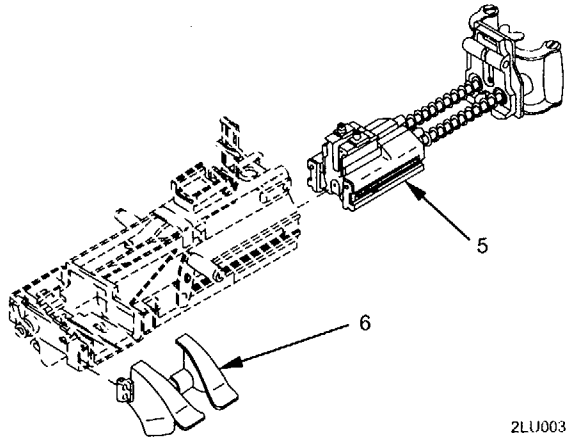


0002 00-5

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

BOLT AND BACKPLATE ASSEMBLY (5). The bolt fires the round when the sear is depressed by trigger action. The recoil springs drive the bolt forward on the receiver rails. The guide rods hold the springs in position. Trigger and handgrips are located on the backplate assembly.

FEED THROAT ASSEMBLY (6). Allows smooth feeding of 40mm ammunition. It attaches to the forward left side of the receiver by two sets of spring-loaded retaining pins. Without a feed throat, machine gun stoppages may occur because of twisted or misaligned rounds.


5
6
2LU003

EQUIPMENT DATA

MK19 MACHINE GUN

Weight	77.6 pounds; crew transportable
Length	43.1 inches
Width	14.0 inches
Height	8.8 inches
Rate of Fire (Cyclic)	325 - 375 rounds per minute
Range:	
Effective Point Target	1,500 meters
Effective Area Targets	2,212 meters

MK64 MOUNT

Weight	21 pounds
Length	17.5 inches
Height	9.5 inches

MK93 Mod 0/MK93 Mod 1

Refer to TM 9-1005-245-13&P.

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

THEORY OF OPERATION

THEORY OF OPERATION

WARNING

Read this manual before you load, shoot, or clean your weapon.

1. LOADING/CHARGING.

WARNING

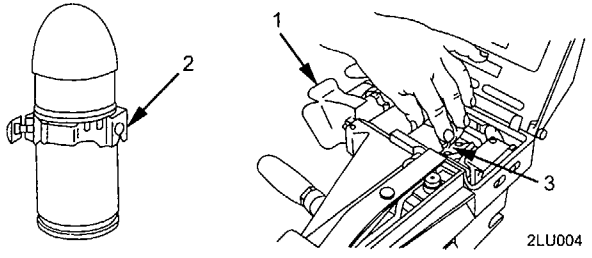
Do not allow the top cover to slam shut from raised position when loading. Hand injury or equipment damage may result.

NOTE

Ensure all foam packaging material between first and second layers of ammo has been removed prior to loading.

a. Open top cover.

b. 40-mm linked ammo is loaded into the feed throat (1), female link (2) first, until the ammo is past the first set of pawls (3).

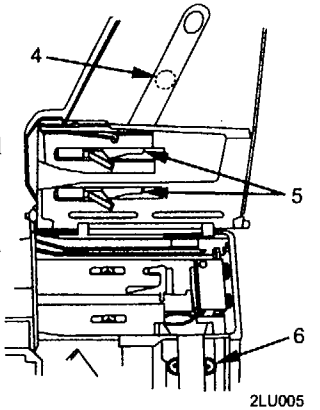


THEORY OF OPERATION - CONTINUED

CAUTION

Before closing top cover, ensure:

- The secondary drive lever (4) is engaged with the feed slide pin.
- The feed slide assembly (5) is all the way left. The spring should be touching the top cover,
- And the bolt (6) is forward. If the parts are not in this position, damage can occur to the feed slide, bolt, and primary and secondary drive levers.



c. Close top cover.

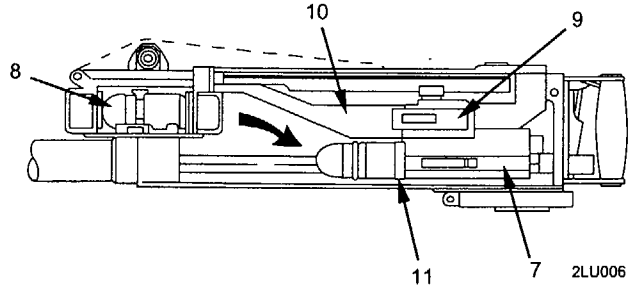
d. Depress charging handle locks, lower and pull back on charger handles (This must be done in one motion, without stopping or pausing). This pulls the bolt (7) to the rear. The bolt's action causes the drive levers and feed slide assembly to move the linked rounds over one place in the feeder (8).

e. The charger handles must be pushed forward and up. Press the trigger to release the bolt. The bolt slams forward. It delinks and grasps the first round in its extractors (9).

f. Pulling back the bolt a second time moves the round down the curved rail on the vertical cam assembly (10) forcing the round down the bolt face out of the extractors into the bolt fingers (11) (firing position).

THEORY OF OPERATION - Continued

g. As the bolt moves rearward, the gun's linkage simultaneously moves the next (second) linked round into position to align with the bolt extractors and the cocking lever 'cocks' the firing pin.



2. FIRING.

NOTE

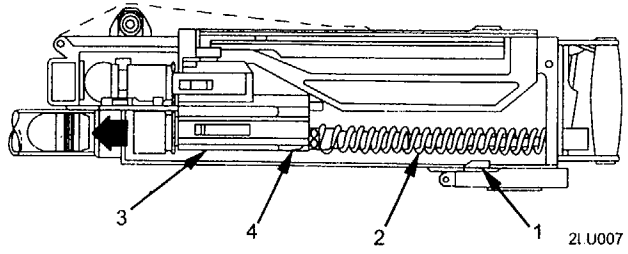
Before firing, both charger handles must be forward and up.
If either charger handle is down, gun will not fire.

a. Pressing the trigger causes the receiver sear (1) to release the bolt. The recoil springs (2) force the bolt forward.

b. As the bolt travels forward, the cocking lever (3) is released.

THEORY OF OPERATION - Continued

c. The bolt sear (4) strikes the receiver plate and the bolt sear is held rearward. This action releases the firing pin, which strikes the primer and the round is fired.



3. USER'S ACTION.

If users experience a stoppage while firing the MK19 Machine Gun, the following course of actions are recommended:

a. When a stoppage or jam occurs, follow the procedures in this manual to safely clear the jam and make sure there is no bore obstruction.

b. Charge the MK19 in the normal manner and check to see that the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch of charging handle travel.

THEORY OF OPERATION - Continued

c. If the primary and secondary pawls do not click up within the last 1 inch of charging travel, then the MK19 should be turned in to unit level maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) in accordance with TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Direct Support level maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo are linked with one-piece or two-piece links.

d. If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament LAR for assistance in submission of this report.

   The Malfunction Incident Report should include ammo information IAW c. above. Also indicate any corrective actions taken during PMCS.

4. UNIT COMMANDERS.

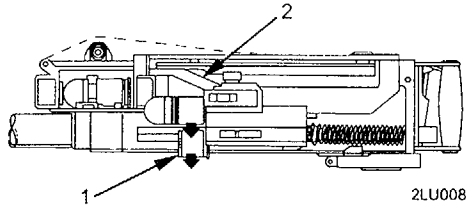
Contact your local TACOM LAR or your service maintenance manager upon receipt of this message for assistance. If you do not know your TACOM LAR, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-336/3881. LARS is available for assistance.

THEORY OF OPERATION - Continued

5. RECOIL/EJECTING.

The pressure from the burning powder forces the bolt rearward (recoil). As the bolt moves rearward, it:

a. Extracts the spent cartridge case (1) from the chamber by the bolt fingers.



0003 00-12

b. Causes the next round to be cammed down the bolt face by the vertical cam assembly (2). The round forces the spent case (1) out the bottom of the gun.

c. Moves the next round up against the round positioning block in the feeder for delinking. Firing will continue automatically as long as the trigger is depressed.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

BARREL

The 40mm grenade barrel screws into the receiver. The chromed bore is rifled to spin the fired round.

Rifling:
- Twist: RH, uniform
- Slope: 1 turn in 48 inches
- Barrel Length: 16.25 inches

FLASH SUPPRESSOR

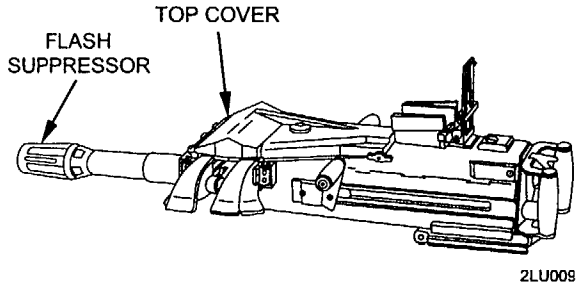
WARNING

Do not tighten flash suppressor, it must have minimal movement. Failure to observe this warning can cause a bore obstruction.

The threaded end of the flash suppressor screws onto the end of the barrel and is pinned with a spring pin.

TOP COVER

Hinged to the receiver at the forward end by two pins. Locks by a latch assembly attached to the left side of the cover. Located on top of the top cover is the front sight blade.

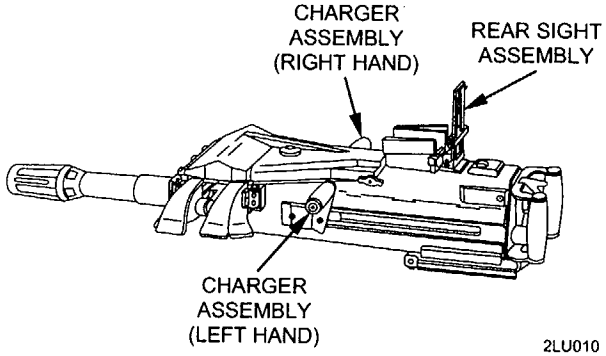

TOP COVER
FLASH
SUPPRESSOR
2LU009

CHARGER ASSEMBLIES (LH AND RH)

Each assembly consists of a charger housing to which is attached the charger arm with the handle assembly and handle lock. The charger housings are installed on the sides of the receiver.

REAR SIGHT ASSEMBLY

Hinged to the rear sight base on top of the receiver. The rear sight base is held by four sight mounting screws and is designed to hold the AN/TVS-5 Night Vision Sight. The sight frame holds a scale labeled from 300 to 1,500 meters, an elevation mechanism, and a windage mechanism.

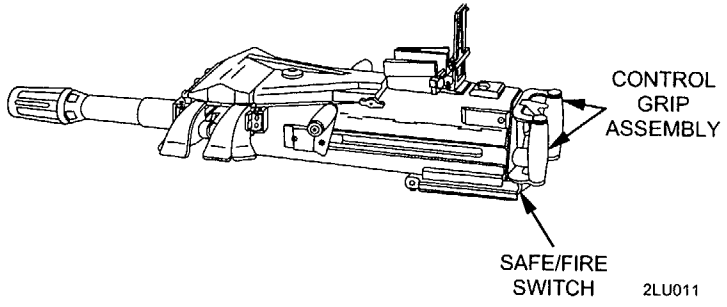

CHARGER ASSEMBLY (RIGHT HAND)
REAR SIGHT ASSEMBLY
CHARGER ASSEMBLY (LEFT HAND)
2LU010

CONTROL GRIP ASSEMBLY

Attached to the backplate weldment on the rear bolt and backplate assembly. Consists of two hand grips and a butterfly trigger located between the two grips.

SAFE/FIRE SWITCH

Activates the safety slide inside the sear assembly. The safety slide blocks the sear from being depressed (as long as the safety is on 'S' (SAFE)).

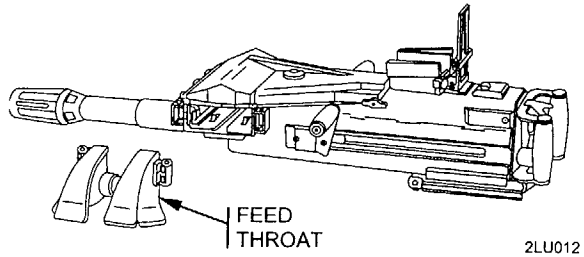


FEED SLIDE ASSEMBLY

Consists of an outer slide, feed pawls, housing, and the internal components of the housing. The shuttle spring is compressed inside the housing and is held in place by three socket head screws to the outer feed slide. Two feed slide pawls protrude from the underside of the feed tray. These move by the action of a flat, leaf-type spring and pin.

FEED THROAT

Allows smooth feed of 40mm ammunition into the MK19.



END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

OPERATION UNDER USUAL CONDITIONS
INSTALLATION, FEEDING, CHARGING/LOADING, ADJUSTING REAR SIGHT, FIRING USING TRAVERSING AND ELEVATING MECHANISM, FREE GUN (NOT FOR ARMY USE), AFTER FIRING

INITIAL SETUP:

Materials/Parts

Empty case catch bag,
P/N 5830060
Lubricating oil (LSAT) (item 6, WP 0019 00)
Molybdenum disulfate grease (item 3, WP 0019 00)
Rifle bore cleaner (RBC) (item 9, WP 0019 00)

References

TM 9-1010-231-13&P
WP 0011 00
WP 0012 00

INSTALLATION

WARNING

Before performing any procedure, ensure the weapon is clear of all ammunition.

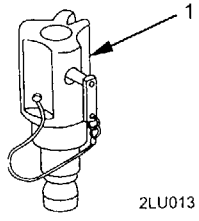
A two-man lift is required for the MK19 machine gun and each fully loaded M548 ammunition container.

1. INSTALL VEHICLE MOUNT.

   To set up vehicle mount, refer to TM 9-1010-231-13&P.

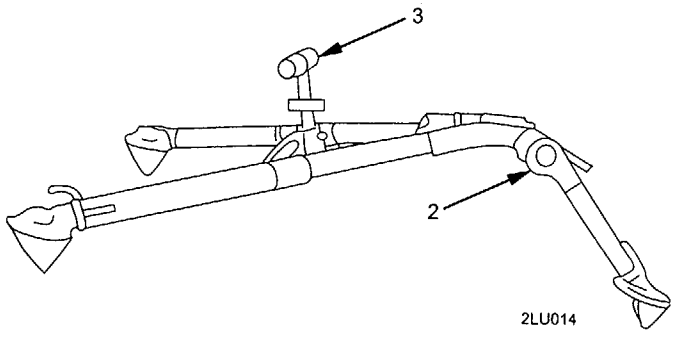
INSTALLATION - Continued

a. Ensure the pintle adapter (1) is inserted into the vehicle mount before attaching the gun mount.



2. INSTALL M3 TRIPOD GROUND MOUNT.

Make M3 tripod ground mount (2) level and plant firmly and attach traversing and elevating mechanism (3) to traversing bar.



INSTALLATION - Continued

3. INSTALL MK64 GUN MOUNT.

WARNING

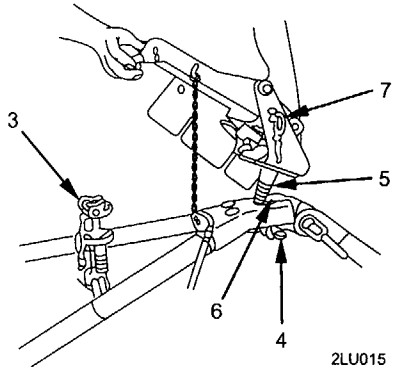
Both the stow pin and depression stop must be installed before attaching to tripod. Refer to TM 9-1010-231-13&P for mounting instructions.

a. Raise pintle lock (4) on tripod.

b. Position gun mount over tripod. Insert pintle (5) into socket (6) on tripod. Flip down pintle lock (4) on tripod.

c. Disengage stow pin (7).

d. Attach traversing and elevating mechanism (3) to gun mount.



INSTALLATION - Continued

4. ATTACH EMPTY CASE CATCH BAG ASSEMBLY (Air Force: optional).

WARNING

Empty the catch bag frequently during firing. If the bag becomes too full, spent cases can jam the weapon causing stoppage and out-of-battery firing. Should such a stoppage or out-of-battery occur, check for bore obstruction using the bore obstruction device.

NOTE

During catch bag installation, ensure the bag is behind the deflector plate.

a. Insert the two hooks on the empty case catch bag through the rear holes in the mount.

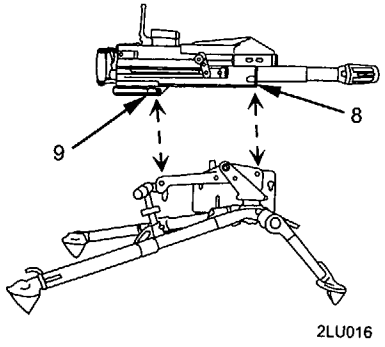
b. Engage the single front hanger on the catch bag with the hook on the mount.

INSTALLATION - Continued

5. INSTALL GUN.

   a. Lower gun into mount. Slide gun's front grooves onto mount lugs (8). Align rear holes (9).

   b. Insert rear pin.



0005 00-11

FEEDING

WARNING

Before performing any procedure, ensure the weapon is clear of any ammunition.

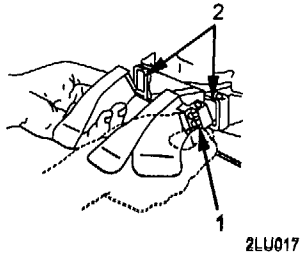
Use only ammunition authorized for use with the MK19 machine gun.

Do not allow the top cover to slam shut from raised position when loading. Hand injury or equipment damage may result.

1. ATTACH FEED THROAT TO FEEDER.

   a. Squeeze the spring-loaded pins on feed throat (1).

   b. Insert into the slots (2) on both sides of the feeder as shown.



FEEDING - Continued

WARNING

While loading, the bolt must be forward. If the bolt is not forward, take gun off 'S' (safe) and ease charger handles forward. Do not let top cover slam shut from open position.

NOTE

The feed throat prevents the linked rounds from twisting as they pass from the ammunition can into the MK19 receiver during firing. The major contributor to the MK19 jamming is ammo being separated by twisting the ammo belt, causing the ammo link to become misaligned. After the ammo belt has been separated, ensure ammo link is aligned evenly and touching the copper band all around the ammo.

NOTE

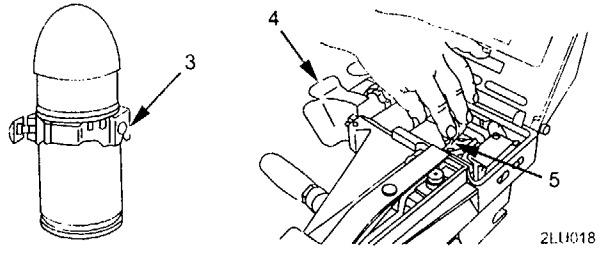
When using a vehicle mount, attach ammunition can bracket and can. Refer to TM 9-1010-231-13&P.

When using a ground tripod mount, feed the ammunition directly from the can.

2. INSERT ROUND.
   a. Open cover.

FEEDING - Continued

b. With female link (3) first, insert the first round through the feed throat (4), into the feeder, and across the first pawl (5). Don't 'roll' the round.



c. Ensure that the rounds are straight and firmly seated between the first and second pawls.

d. Move the feed slide assembly to the left. Close the top cover.

e. If users experience a stoppage while firing the MK19 machine gun, the following course of actions are recommended:

(1) When a stoppage or jam occurs, follow the procedures in WP 0014 00 to safely clear the jam and make sure there is no bore obstruction.

(2) Charge the MK19 in the normal manner and check to see that the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch of charging handle travel.

FEEDING - Continued

(3) If the primary and secondary pawls do not click up within the last 1 inch of charging travel, then the MK19 should be turned in to unit level maintenance for necessary trouble-shooting and/or Preventive Maintenance Checks and Services (PMCS) in accordance with TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Direct Support level maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo are linked with one-piece or two-piece links.

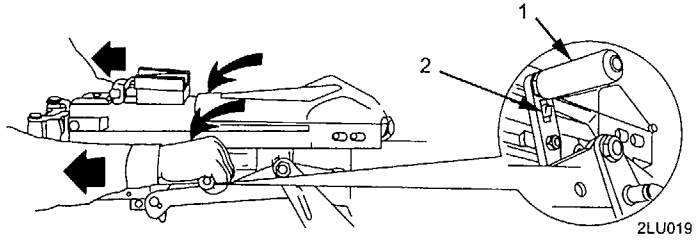
(4) If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament LAR for assistance in submission of this report.

The Malfunction Incident Report should include ammo information IAW (3) above. Also indicate any corrective actions taken during PMCS.

e. Unit Commanders contact your local TACOM LAR or your service maintenance manager upon receipt of this message for assistance. If you do not know your TACOM LAR, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-336/3881. LARS is available for assistance.

CHARGING/LOADING

1. PULL BOLT TO REAR.
   a. Grasp the charger handles (1). NOTE: The preferred method is palms down.
   b. Press the charger handle locks (2) and rotate the handles down.



c. Pull chargers sharply to the rear, without stopping or pausing, until the bolt sears.

d. Push the chargers forward again.

e. Rotate handles up to the lock position.

2. LOAD FIRST ROUND.

a. Place safety in 'F' (FIRE) position.

b. Press the trigger. The bolt will spring forward. The first round is now loaded on the bolt face (half-load).

CHARGING/LOADING - Continued

c. Lower charger handles and pull, without stopping or pausing, to the rear until the bolt sears. This pulls the bolt with the loaded round into position for firing (full-load).

d. Place safety on 'S' (SAFE) position.

NOTE

For firing, the charger handles must be forward and up. Keep safety on 'S' (SAFE) until ready to fire.

e. Push the charger handles back to the forward position. Rotate the charger handles up. Your weapon is now combat ready.

ADJUSTING REAR SIGHT

CAUTION

When rear sight is returned to down and locked position, ensure sight aperture setting is at 300 meters.

NOTE

Battlesight (1) allows aiming down front sight blade when rear sight is down.

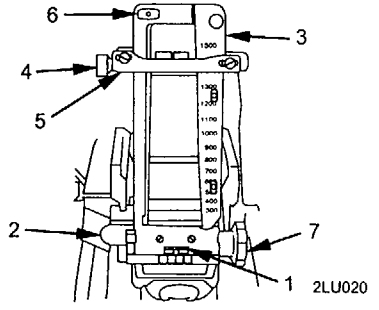
1. Press plunger (2) to release sight frame (3). Raise sight frame until it 'clicks.
2. Loosen retainer lock nut (4). Push in on lock nut to move aperture carrier (5) up or down. This sets the elevation.

ADJUSTING REAR SIGHT - Continued

3. Move elevation wheel (6) to adjust degrees of elevation.

4. Tighten retainer lock nut (4).

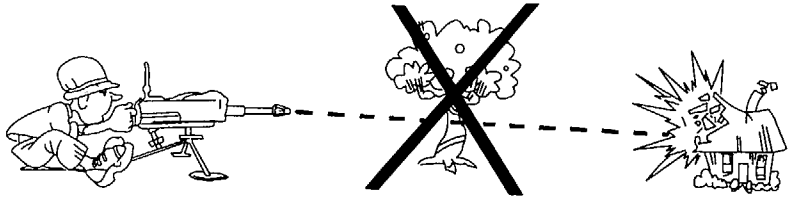
5. Move windage screw (7) to set windage. Two 'clicks' equals 1 mil. Turning the windage screw clockwise moves the sight to the right; counterclockwise moves the sight to the left.



FIRING USING TRAVERSING AND ELEVATING MECHANISM

WARNING

Firing over hatches is prohibited. Keep weapon pointed in a safe direction. Never stand in front of muzzle. Be sure line-of-fire is clear of objects.



2LU021

FIRING USING TRAVERSING AND ELEVATING MECHANISM - Continued

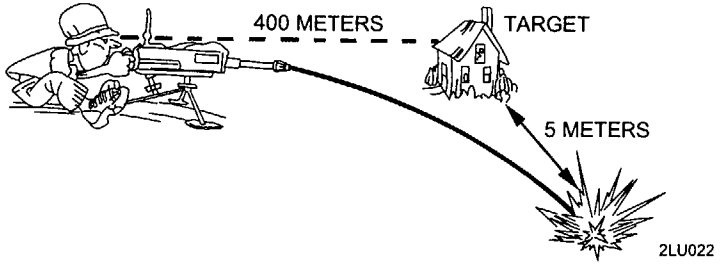
NOTE

Before zeroing the weapon, the traversing and elevating mechanism must be installed on the tripod. Gunner will have to rezero every time the type of ammunition is changed (e.g., from M430 to M385).

1. Safety off.
2. Charger handles forward and up.
3. Hands on control grips, thumbs on trigger.
4. Press trigger to fire. Fire a single round using the trigger control.

5. Adjust range ESTIMATE using range training techniques.

6. Adjust impact point by changing the windage, direction, and elevation and fire one round. Repeat cycle until the round hits or is within 5 meters of the target.



FREE GUN (NOT FOR ARMY USE)

'Free gun' is sometimes used in training and combat. The rear sight or traversing and elevating mechanism is not used with this technique.

WARNING

Before firing 'free gun', install the depression stop on the carriage and cradle assembly in accordance with TM 9-1010-231-13&P.

Do not fire HE ammunition at targets less than 310 meters away during training or 75 meters away during combat. Fragmentation can reach the gunner position at distances less than 310 meters.

1. Choose a target at about 400 meters (no closer than 310 meters for training).

2. Get in the 'free gun' position:

   - Elbows in.
   - Hands on control grips.
   - Thumbs on trigger.
   - Gun close to your chest.
   - Observe **WARNING** and ensure depression stop is properly installed so that the weapon cannot be depressed below 200 meters. (Navy only: Depression stops will not function on small craft. Pitch/roll will alter depression 'safe' zone.)

AFTER FIRING

1. REMOVE LIVE ROUND OR SPENT CASE FROM BOLT.

   a. Put the weapon on 'S' (SAFE) and keep it pointed downrange.

   b. Remove case catch bag (if applicable). Charge the weapon.

AFTER FIRING - Continued

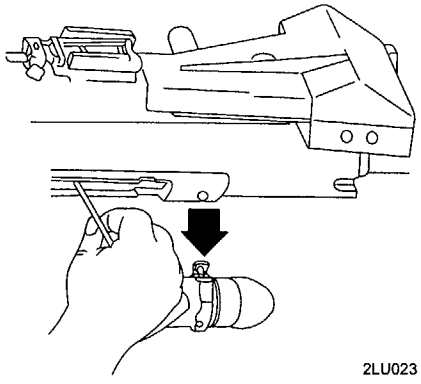
WARNING

Do not use a bayonet to remove an empty case or live round!

c. Return the charger handles to the forward position and rotate only one charger handle up.

d. Insert the tip of a cleaning rod through the receiver rail as close to the bolt face as possible.

e. Raise up on the cleaning rod to force the live round or case off the bolt face and out the bottom of the gun. Catch the live round as it falls out.



2LU023

AFTER FIRING - Continued

WARNING

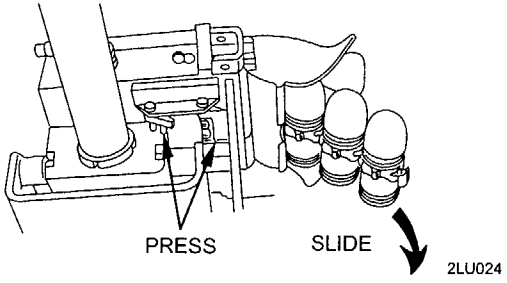
Do not relink or fire ammunition which has been cycled through the weapon.

f. Turn in the live round as required by current directives.

2. REMOVE LINKED ROUNDS FROM FEEDER.

Open top cover and see if any linked rounds are in the feeder. If rounds are present:

a. With one hand, reach beneath the feeder. Press the primary and secondary positioning pawls simultaneously.



b. At the same time, slide the linked rounds out of the feeder and out of the feed throat.

c. Return the linked rounds to the ammunition can.

AFTER FIRING - Continued

3. CLEAN BORE AND CHAMBER.

WARNING

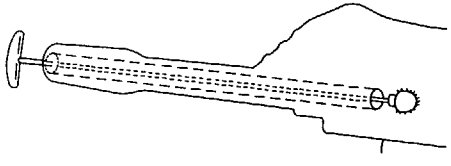
Before performing any procedure, ensure weapon is clear of any ammunition.

a. Soak borebrush (on a cleaning rod) with Rifle Bore Cleaner (RBC) (item 9, WP 0019 00).

b. Insert borebrush into the muzzle. Push the brush all the way into the chamber.

NOTE

The chamber gets the dirtiest; push the brush all the way into the chamber.



c. Resoak the brush. Scrub the bore and chamber clean. Wipe bore and chamber dry.

AFTER FIRING - Continued

CAUTION

'CLP' is not an authorized cleaner and shall not be used.

d. Apply a light coat of lubricating oil (GMD or LSAT) (item 3 or 6, WP 0019 00).

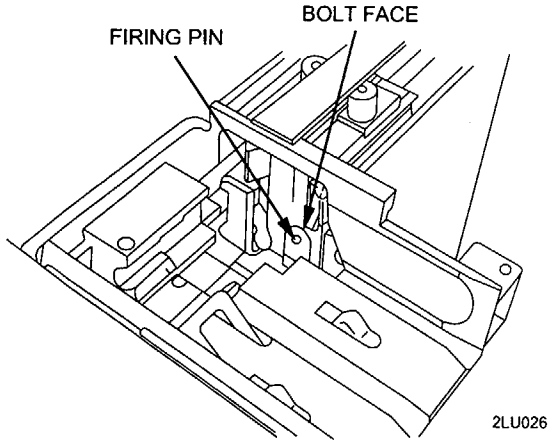
4. INSPECT FIRING PIN.

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition.

a. Return bolt to forward position. Close top cover.

b. Place safety in the 'F' (FIRE) position.



0005 00-37

AFTER FIRING – Continued

c. Charge the weapon. Return charging handles to forward locked position.

d. Press the trigger to release the bolt to the forward position.

e. Open top cover and check the firing pin. It should be forward, not chipped or broken.

NOTE

If the firing pin is not protruding, place the safety on 'S' (SAFE). Then repeat steps b through e. If firing pin check fails a second time, evacuate to unit maintenance.

f. Close top cover. Place safety on 'S' (SAFE).

5. FIELD STRIP.

Field strip, clean, inspect, and lubricate gun as soon as possible after firing. Refer to WP 0011 00 and WP 0012 00. Report all worn, burred, or defective parts to unit maintenance.

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

OPERATION UNDER UNUSUAL CONDITIONS
UNUSUAL ENVIRONMENT/WEATHER
PROCEDURES

INITIAL SETUP:

Materials/Parts
Lubricant, automatic weapons (LAW) (item 5, WP 0019 00)

References
WP 0010 00

UNUSUAL ENVIRONMENT/WEATHER

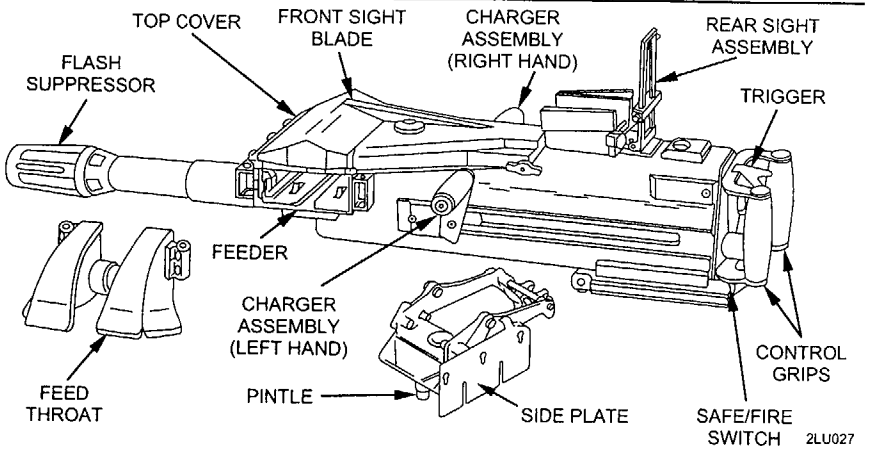
1. HOT WET, SALT AIR.

   a. Inspect the weapon more frequently for signs of rust.

   b. Keep gun as moisture-free as possible.

   c. Field strip, clean, and lube more often to preserve metal and prevent rust.

   d. Use a generous second coat of lubrication for extra protection. Refer to WP 0010 00.


TOP COVER
FRONT SIGHT BLADE
CHARGER ASSEMBLY (RIGHT HAND)
REAR SIGHT ASSEMBLY
FLASH SUPPRESSOR
TRIGGER
FEEDER
CHARGER ASSEMBLY (LEFT HAND)
CONTROL GRIPS
FEED THROAT
PINTLE
SIDE PLATE
SAFE/FIRE SWITCH
2LU027

UNUSUAL ENVIRONMENT/WEATHER - Continued

2. HOT DRY, SAND, DUST.

NOTE

Do not lubricate the entire exposed metal surfaces as this will only collect dust and sand.

a. Clean weapon thoroughly and lubricate only the moving components.

b. Extreme heat dries up lubricant. Clean and lightly lube the moving components of the weapon more frequently. Refer to WP 0010 00.

3. COLD, ICE, SNOW.

   a. Cover weapon if left outside.

   b. If possible, thoroughly clean, dry, and lube the weapon in a warm place.

   c. If the weapon is brought indoors, keep it away from direct heat.

   d. Perform functional checks and lube daily to help prevent corrosion.

UNUSUAL ENVIRONMENT/WEATHER - Continued

NOTE

Prior to using the cold-weather lubricant, be sure to clean off all existing lubrication.

e. If the weapon 'sweats', dry and lube the parts before taking the weapon outdoors. Apply a light second coat to provide protection. For 0 degrees and below, use lubricant, automatic weapons (LAW) (item 5, WP 0019 00). Refer to WP 0010 00.

END OF WORK PACKAGE

CHAPTER 3

TROUBLESHOOTING PROCEDURES

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD3
(1010-01-126-9063)

TROUBLESHOOTING INDEX
INTRODUCTION, MALFUNCTION/SYMPTOM INDEX

INTRODUCTION

The troubleshooting table in WP 0008 00 lists the common malfunctions which you may find during the operation or maintenance of the MK19 MOD 3 or its components. You should perform the tests/inspections and corrective actions in the order listed.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify Direct Support Maintenance.

MALFUNCTION/SYMPTOM INDEX

Malfunction	Number
Bolt Jammed	6
Bore Obstruction	1
Gun Fires Too Soon	5
Gun Won't Shoot	2
Runaway Gun	4
Short Recoil	7
Sluggish or Erratic Firing	3
Top Cover Won't Close	8

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

OPERATIONAL CHECKOUT AND TROUBLESHOOTING PROCEDURES
TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

References
WP 0005 00
WP 0014 00

WARNING

Before performing any procedure, ensure the weapon is clear of any ammunition.

Ensure all ammunition and non-essential personnel are at lease 65 meters to the rear of the weapon.

If the bolt jams during firing do not let the bolt slam forward as top cover is being opened, it could fire a round.

Be sure to put bolt in forward position before removing the backplate pin assembly. Failure to observe this warning will result in injury.

Be prepared to catch dropped/ejected live round from weapon.

TROUBLESHOOTING PROCEDURES

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

EMERGENCY ACTION

1. BORE OBSTRUCTION. (As evidenced by: (1) a muffled sound of round firing; (2) excess smoke out of the chamber area; or (3) excess debris/gases below gun).

Step 1. CHECK FOR BORE OBSTRUCTION.

a. Place weapon on 'S' (SAFE).

b. Notify Range Safety Officer (during training). Do the following immediately:

c. Depress feed pawls, release ammunition belt, and clear feed area. Move the ammunition belt and can to a safe area.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. BORE OBSTRUCTION - Continued.

d. Remove the empty case catch bag.

e. Charge gun and hold bolt to rear.

WARNING

Do not relink or fire any ammunition which has been cycled through the weapon.

f. Holding the bolt to the rear, insert cleaning rod through receiver rail to top of the shell casing and as close to the face of the bolt as possible.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. BORE OBSTRUCTION - Continued.

g. Place left hand underneath as close to the round as possible. Raise cleaning rod upward forcing the round off the bolt face into the hand. Remove round to designated area for EOD disposal.

Step 2. BORE OBSTRUCTED.

a. Place selector lever on 'F' (FIRE). Ease the bolt forward. Remove the backplate pin, bolt, and backplate assembly, vertical cam assembly, and primary drive lever. Check for any type of obstruction.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. **BORE OBSTRUCTION - Continued.**

WARNING

Do not relink or fire ammunition which has been cycled through the weapon.

b. Check/remove any case/round from bolt face.

c. Insert bore obstruction detector into bore to check for a live round.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. BORE OBSTRUCTION - Continued.
d. Remove obstruction per round removal procedures.

NOTE

For exact bore obstruction instructions using the Round Removal Tool, refer to WP 0014 00.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT.

Step 1. MISFIRE.

IMMEDIATE ACTION.

WARNING

Do not relink or fire ammunition which has been cycled through the weapon.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

PEACETIME AND TRAINING.

Clear the area of personnel . Pull bolt to the rear. (If charging is not possible, go to **BOLT JAMMED**.) Catch live round as it is ejected. Push charging handles forward and up. Put gun on 'S' (SAFE) and check for bore obstruction. If bore is clear, move safe to 'F' (FIRE) position, and attempt to fire. If nothing happens, put gun on 'S' (SAFE) and wait 10 seconds. Pull bolt to the rear. Catch live round as it is ejected. Open the top cover and clear the ammunition. Check bore for obstruction.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

USERS ACTION.

If users experience a stoppage while firing the MK19 Machine Gun, the following course of actions are recommended:

a. When stoppage or jam occurs, follow the procedures in this manual to safely clear the jam and make sure there is no bore obstruction.

b. Charge the MK19 in the normal manner and check to see the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch of charging handle travel.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

c. If the primary and secondary pawls do not click up within the last 1 inch of charging travel, then the MK19 should be turned in to unit level maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) in accordance with TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Direct Support level maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whefther ammo is linked with one-piece or two-piece links.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

d. If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament LAR for assistance in submission of this report. The Malfunction Incident Report should include ammo information IAW c. above. Also indicate any corrective actions taken during PMCS.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
2. GUN WON'T SHOOT - Continued.	
UNIT COMMANDERS.	
Contact your local TACOM LAR or your service maintenance manager upon receipt of this message for assistance. If you do not know your TACOM LAR, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-3881. LARS is available for assistance.	

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

WARNING

Do not use combat misfire procedures during peacetime or training. Serious injury can result if precautions are not observed.

Do not relink or fire ammunition which has been cycled through the weapon.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

NOTE

Both charger handles must be forward and up for firing. If either handle is down, gun will not fire.

COMBAT ONLY.

Press charger handle locks and rotate charger handles down. Pull charger handles to the rear until the bolt sears. Push charger handles forward and rotate charger handles up and locked. Relay and fire. Turn in live round as instructed by current directives.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

Step 2. BAD AMMUNITION.

PRIMER INDENTED BUT ROUND DIDN'T FIRE.

Dispose of round as authorized.

PRIMER NOT INDENTED.

Bad firing pin.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

ROUND ON BOLT FACE.

Remove any ammunition from bolt face. If round is not on bolt face, leave bolt in rear position, gun on 'S' (SAFE). Go to **AMMO JAMMED IN FEEDER**.

Step 3. AMMO JAMMED IN FEEDER.

Put gun on 'S' (SAFE). Check for proper attachment of feed throat. If charging is not possible, go to **BOLT JAMMED**.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

ROUNDS CROOKED OR NOT SEATED FIRMLY.

Remove linked ammunition from feeder, ensure link band is even and adjacent to copper band all around ammo, and reload.

BROKEN LINK.

Within weapon: Remove link.
On ammo: Remove round and dispose of as authorized.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

LINK OFF ROTATING BAND.

Remove round from belt, dispose of round as authorized, and reload.

FEMALE LINK FIRST.

Ensure female link is first. Refer to WP 0005 00.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

Step 4. BAD FIRING PIN.

PRIMER ON EJECTED ROUND NOT INDENTED.

Check firing pin/spring.

FIRING PIN TIP FAILS TO SPRING FORWARD.

Report defect to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

Step 5. DEFECTIVE FEEDER OR FEED SLIDE ASSEMBLY.

NOTE

Clear feeder of ammunition. Make sure gun is on 'S' (SAFE).

PAWLS.

Report defects (broken, worn pawls; spring action, missing or dislodged pin) to armorer/support maintenance.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

BADLY WORN OR GOUGED LINK GUIDE.

Report defects to armorer/support maintenance.

BINDING FEED SLIDE ASSEMBLY.

Remove feed slide assembly and tray. Clean, inspect, lubricate.
Report defects to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
2. GUN WON'T SHOOT - Continued.
Step 6. BOLT WON'T PICK UP ROUND.
CHARGING HANDLES DOWN.
Raise charging handles before firing. Report defects to armorer/support maintenance.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

DIRT-CLOGGED, WEAK, OR DAMAGED EXTRACTORS.

Remove obstruction. Clean and lubricate.

FEED SLIDE OUT OF ADJUSTMENT.

Feed slide out of adjustment if:

- Round fails to feed
- Round drops
- Extractor's won't pick up round
- Round stubs on face of chamber

Report defects to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

USERS ACTION.

If users experience a stoppage while firing the MK19 Machine Gun, the following course of actions are recommended:

a. When stoppage or jam occurs, follow the procedures in this manual to safely clear the jam and make sure there is no bore obstruction.

b. Charge the MK19 in the normal manner and check to see the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch of charging handle travel.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

c. If the primary and secondary pawls do not click up within the last 1 inch of charging travel, then the MK19 should be turned in to unit level maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) in accordance with TM 9-1010-230-23&P. Also, the feed slide assembly checks/ adjustment should be performed at Direct Support level maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo is linked with one-piece or two-piece links.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

d. If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament LAR for assistance in submission of this report. The Malfunction Incident Report should include ammo information IAW c. above. Also indicate any corrective actions taken during PMCS.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

UNIT COMMANDERS.

Contact your local TACOM LAR or your service maintenance manager upon receipt of this message for assistance. If you do not know your TACOM LAR, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-3881. LARS is available for assistance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

Step 7. BOLT DROPS ROUND BEFORE FIRING.

WARNING

Do not relink or fire ammunition which has been cycled through the weapon.

NOTE

Dispose of dropped, live round as required by current directives.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

WEAK OR DAMAGED EXTRACTORS OR BOLT FINGERS.

Report defects to armorer/support maintenance.

Step 8. RECEIVER RAILS BINDING.

Pull bolt to the rear, without stopping or pausing. Ease it forward (holding onto one charging handle while you press the trigger and check for binding). Place weapon on 'S' (SAFE) and remove backplate pin. Lift up slightly on the backplate assembly and pull the bolt and backplate assembly to the rear. Remove the chargers. Check the charger rails and receiver rails for burrs. Report defects to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

Step 9. BAD COCKING LEVER.

WARNING

Be sure bolt is forward before removing backplate pin assembly!
Serious injury could result!

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. GUN WON'T SHOOT - Continued.

CAUTION

When installing bolt and backplate, ensure cocking lever is in the forward position! Damage to equipment could result if cocking lever is to the rear.

REMOVE BOLT AND BACKPLATE ASSEMBLY.

Examine cocking lever (on left side of bolt) for wear or damage. Report defects to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

3. SLUGGISH OR ERRATIC FIRING.

Step 1. DIRTY BORE OR CHAMBER.

Clean bore and chamber. Refer to WP 0005 00, After Firing Procedure, Step 3.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. SLUGGISH OR ERRATIC FIRING - Continued.

Step 2. RECOIL SPRINGS; GUIDE RODS.

WARNING

Be sure bolt is forward before removing backplate pin assembly! Serious injury could result!

Remove bolt and backplate assembly from gun. Push against springs to test for weakness. Note bent rods.

Report defects to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

3. **SLUGGISH OR ERRATIC FIRING - Continued.**

Step 3. BOLT SEAR TIMING ADJUSTMENT.

Evacuate to direct support maintenance.

4. **RUNAWAY GUN (Uncontrolled Automatic Fire).**

WARNING

Never try to break the ammo belt with your hands; injury could result. Lower one charger handle to stop gun from firing.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

4. RUNAWAY GUN (Uncontrolled Automatic Fire) - Continued.

EMERGENCY ACTION

1. Keep gun pointed downrange and slightly elevated.
2. Press charger handle locks. Lower charging handle(s). Gun will stop.
3. Place on 'S' (SAFE). Clear weapon.

Report the condition to armorer/support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

5. GUN FIRES TOO SOON.

WARNING

Do not attempt to clear the weapon if the weapon fires too soon (out-of-battery). Do not attempt to clear or fire the weapon until it is fixed. Follow procedure as given below.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

5. GUN FIRES TOO SOON- Continued.

EMERGENCY ACTION.

1. Cease fire.
2. Place weapon on 'S' (SAFE).
3. Clear area of personnel and ammunition.
4. Notify Range Safety Officer.
5. Check barrel for lodged round using Bore Obstruction Detector (BOD).
6. After weapon has been cleared by proper personnel, evacuate it to support maintenance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED.

WARNING

The following procedures/steps must be performed in sequence to open top cover. Bolt could spring forward suddenly and fire a round causing severe injury. Be prepared to catch ejected round.

EMERGENCY ACTION.

1. Put gun on 'S' (SAFE).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

2. Press charger handle locks and rotate charger handles down.

3. Pull charger handles to the rear as far as possible. Maintain rearward pressure on charging handles while assistant lifts top cover.

Pull charger handles to rear, without stopping or pausing, until bolt 'clicks' (locks) and ensure bolt stays to the rear when releasing charger handles.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

WARNING

Do not relink or fire ammunition which has been cycled through the weapon.

5. Insert cleaning rod section through slot in side of receiver. Prepare to catch ejected, live round.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

6. Raise cleaning rod to force live round down. Catch live round as it is ejected.
7. Remove ammo belt from feeder.
8. Reposition ammo belt in feeder.
9. Put gun on 'F' (FIRE).
10. Ride the bolt forward by grasping one charging handle and depressing the trigger.
11. Ensure feed slide assembly is to the left.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

12. Ensure secondary drive lever is engaged with the feed slide pin. If not, engage forked end with feed slide pin.
13. Close top cover gently.
14. Charge weapon and attempt to fire.
15. If bolt jams, repeat Steps 1 through 7. Put weapon on 'S' (SAFE), and evacuate to support maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

USERS ACTION.

If users experience a stoppage while firing the MK19 Machine Gun, the following course of actions are recommended:

a. When stoppage or jam occurs, follow the procedures in this manual to safely clear the jam and make sure there is no bore obstruction.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

b. Charge the MK19 in the normal manner and check to see the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch of charging handle travel. Check ammo link, ensuring it is even and touches the copper band all around ammo.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

c. If the primary and secondary pawls do not click up within the last 1 inch of charging travel, then the MK19 should be turned in to unit level maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) in accordance with TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Direct Support level maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo is linked with one-piece or two-piece links.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

d. If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament LAR for assistance in submission of this report. The Malfunction Incident Report should include ammo information IAW c. above. Also indicate any corrective actions taken during PMCS.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. BOLT JAMMED - Continued.

UNIT COMMANDERS.

Contact your local TACOM LAR or your service maintenance manager upon receipt of this message for assistance. If you do not know your TACOM LAR, for CONUS call DSN 367-6204/6293, for Germany call DSN 375-6128/7436 and for Korea call DSN 315-722-3881. LARS is available for assistance.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

7. SHORT RECOIL.

WARNING

When firing HE or TP ammunition, be alert to these three danger signals: (1) a muffled report from the gun, (2) smoke and debris from the bottom of the receiver, or (3) failure of the projectile to leave the muzzle. Gunner should observe downrange and attempt to determine if the round left the barrel. Any of these three symptoms mean a bore obstruction. Do not attempt to clear a bore obstruction! Follow Rapid Unobstructed Bore Check and Round Removal Tool procedures in WP 0014 00.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

7. SHORT RECOIL - Continued.

EMERGENCY ACTION.

1. Place weapon on 'S' (SAFE).
2. Clear area of personnel and ammunition.
3. Notify Range Safety Officer.
4. Pull charger handles to the rear, without stopping or pausing, as far as possible. Maintain rearward pressure on charging handles.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

7. SHORT RECOIL - Continued.

5. Pull charger handles to rear, without stopping or pausing, until bolt 'clicks' (locks) and ensure bolt stays to the rear when releasing charger handles.

WARNING

Do not relink or fire any ammunition which has been cycled through the weapon.

6. Insert cleaning rod section through slot in side of receiver. Prepare to catch ejected, live round.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

7. SHORT RECOIL - Continued.

7. Raise cleaning rod to force live round down. Catch live round as it is ejected.
8. Raise top cover.
9. Remove ammo belt from feeder.
10. Check for bore obstruction using bore obstruction detector.

TROUBLESHOOTING PROCEDURES - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

7. SHORT RECOIL - Continued.

11. If bore is obstructed, refer to WP 0014 00 for round removal procedures.
12. If there is no obstruction, reposition belt in feeder.
13. Ensure feed slide assembly is to the left.
14. Charge weapon and attempt to fire.
15. If bolt jams, repeat Steps 1 through 7. Put weapon on 'S' (SAFE) and evacuate to support maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

8. TOP COVER WON'T CLOSE.

Step 1. IMPROPER POSITION OF FEED SLIDE ASSEMBLY.

Move feed slide assembly all the way left. Spring should touch cover.

Step 2. BOLT TO REAR.

Ride the bolt forward.

Step 3. MISALIGNED AMMUNITION.

Ensure rounds are straight and firmly seated in the feeder. Ensure links are evenly aligned in the link guide and on rounds. Clean dirt from feeder.

END OF WORK PACKAGE

CHAPTER 4

MAINTENANCE INSTRUCTIONS

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION GENERAL, PMCS PROCEDURES AND LUBRICATION INSTRUCTIONS

INITIAL SETUP:

References
DA Form 2404
WP 0010 00

GENERAL

The table in WP 0010 00 has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

WARNINGS AND CAUTIONS

Always observe the **WARNINGS** and **CAUTIONS** appearing in your PMCS table. **WARNINGS** and **CAUTIONS** appear before applicable procedures. You must observe these **WARNINGS** and **CAUTIONS** to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

PMCS PROCEDURES

a. **Item Number column.** Numbers in this column are for reference. When completing DA Form 2404, Equipment Inspection and Maintenance Worksheet, include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.

b. **Interval column.** This column tells you when you must do the procedure in the **Procedure** column. **BEFORE** procedures must be done before you operate or use the equipment for its intended mission. **DURING** procedures must be done during the time you are operating or using the equipment for its intended mission. **AFTER** procedures must be done immediately after you have operated or used the equipment.

c. **Man-Hour Column.** This column gives the amount of time required for the procedure.

d. **Item to be Checked or Serviced column.** This column provides the item to be checked or serviced.

PMCS PROCEDURES - Continued

e. **Procedure column.** This column gives the procedure you must do to check or service the item listed in the **Item to be Checked or Serviced** column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the **Interval** column.

f. **"Not Fully Mission Capable If" column.** Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM: MK19
(1010-00-179-6447)

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

INITIAL SETUP:

Materials/Parts:
Automatic weapons lubricant (LAW) (item 5, WP 0019 00)
Dry cleaning solvent (MIL-PRF-680, Type II) (item 10, WP 0019 00)
Lubricating oil (LSAT) (item 6, WP 0019 00)
Molybdenum disulfate grease (GMD) (item 3, WP 0019 00)

References:
WP 0011 00
WP 0012 00
WP 0013 00

GENERAL CLEANING AND LUBRICATION

1. Wipe or brush off dirt and grime.

WARNING

Dry cleaning solvent is authorized for cleaning the MK19 and it works great. But never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in these assemblies.

2. Give the weapon parts a good bath with dry cleaning solvent (item 10, WP 0019 00). Wipe each part dry.

GENERAL CLEANING AND LUBRICATION - Continued

WARNING

Never use CLP or LSA on a MK19 Machine Gun. It gums up moving parts instead of lubricating them. The best thing for lubricating the MK19 Machine Gun is semi-fluid weapons lubricant (LSAT) NSN 9150-00-949-0323. Because of sometime difficulties in obtaining LSAT, GMD may be used for lubricating. They come in three sizes:

GMD	NSN 9150-00-935-4018	14 oz
	NSN 9150-00-223-4004	6 1/2 lb
	NSN 9150-00-965-2003	35 lb

WARNING

Never mix lubricants on the MK19 Machine Gun. If you change lubricants or do not know for sure which lubricant is currently applied to the MK19 Machine Gun, completely clean off all the old lubricant before you apply a new one.

When lubricating the weapon, give extra attention to the feed pawls, the cocking lever rails, the pivot posts on the primary drive lever, and the bolt assembly. You'll have trouble firing if you forget just one of them.

3. Lubricate each part. Give special care to those hard-to-get spots.

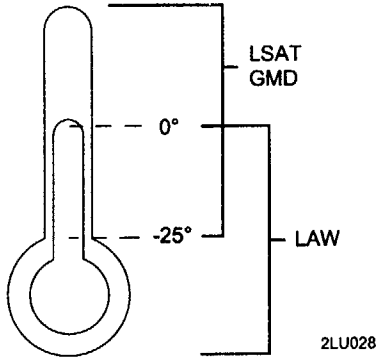
4. Work in the lubricant by moving the parts.

LUBRICATION INSTRUCTIONS

Lubricate the MK19 as follows:

- AFTER FIRING. Always.
- DAILY. If weapon is used but not fired.
- WEEKLY. If the weapon is stored.

1. Clean your equipment thoroughly.
2. Inspect for defects. Report all worn, burred, defective, or missing parts to your armorer or support maintenance.
3. Lubricate the MK19 and its equipment lightly to moderately with LSAT (item 6, WP 0019 00) or GMD (item 3, WP 0019 00). In cold weather, 0 degrees F to -25 degrees F, use either LSAT, GMD, or LAW (item 5, WP 0019 00). In extra cold weather, -25 degrees F and below, use LAW. See figure on page 0010 00-7.


LSAT
GMD
0°
-25°
LAW
2LU028

LUBRICATION INSTRUCTIONS - Continued

CAUTION

Always keep your weapon cleaned and lubed. Choose the right lubricant for the right temperature.

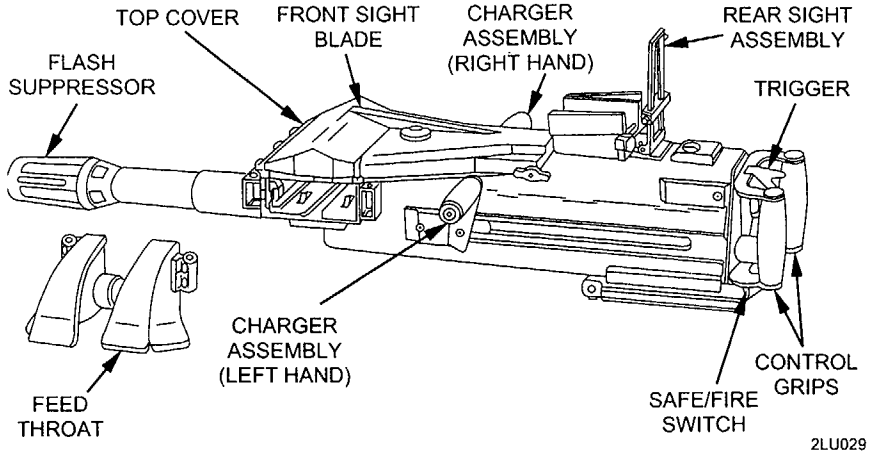
NOTE

Do not mix lubricants. Be sure to clean off all existing lubricant.

Do NOT use CLP.

GENEROUSLY LUBE: Heavy enough to spread with your finger.

LIGHTLY LUBE: A film of lubricant barely visible to the eye.


TOP COVER
FRONT SIGHT BLADE
CHARGER ASSEMBLY (RIGHT HAND)
REAR SIGHT ASSEMBLY
FLASH SUPPRESSOR
TRIGGER
CHARGER ASSEMBLY (LEFT HAND)
CONTROL GRIPS
FEED THROAT
SAFE/FIRE SWITCH
2LU029

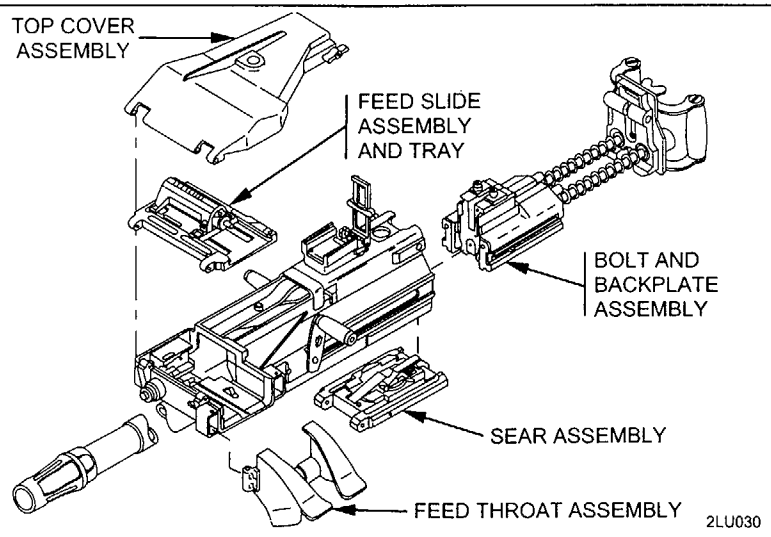
PMCS PROCEDURES

(ARMY, MARINE CORPS, AND NAVY: Conduct Items 1 through 14)

(ALL MK19 USERS): Conduct Items 1 through 14 each day machine gun is issued. Perform Items 7 and 8 after firing or when Items 1 through 6 indicate disassembly and cleaning are required.

Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
	WARNING Before performing any procedure, ensure the weapon is clear of all ammunition.				
1	Before		MK19 Machine Gun	Test SAFE and FIRE positions.	Gun fires with safety on or fails to fire in FIRE position.


TOP COVER ASSEMBLY
FEED SLIDE ASSEMBLY AND TRAY
BOLT AND BACKPLATE ASSEMBLY
SEAR ASSEMBLY
FEED THROAT ASSEMBLY
2LU030

0010 00-11

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before		MK19 Machine Gun (Cont)	Raise top cover assembly. Inspect interior for missing or damaged parts.	Parts missing or defective.
3	Before		Feed Slide Assembly	Check feed slide assembly for free movement (move secondary drive lever to move feed slide assembly back and forth).	Binding in feed slide assembly.

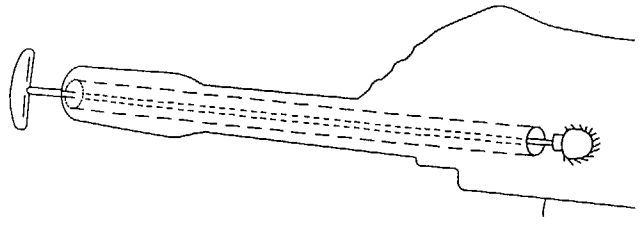
Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Feed Slide Adjustment	Ensure armorer has checked feed slide adjustment.	Feed slide adjustment not verified.

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before		Bore and Chamber	With bolt in forward position, remove backplate pin. Remove bolt and backplate assembly (WP 0011 00) to inspect bore and chamber for carbon build-up. Reinstall bolt and backplate assembly (WP 0013 00).	Carbon is present in bore or chamber.



2LU031

PMCS PROCEDURES – Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Before/After		Bolt Face	Lube chromed area of bolt face.	Bolt face is dry, scratched, or pitted.

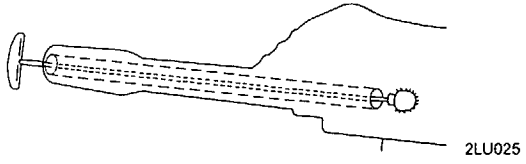
Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Before/After		Firing Pin	Press trigger to release the bolt and check firing pin.	Firing pin not forward; pin is chipped or broken.

PMCS PROCEDURES – Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	During		MK19 Machine Gun	Even if you don't use the weapon for a day, field strip it (WP 0011 00), clean, inspect, lube (WP 0012 00), and reassemble (WP 0013 00).	


2LU025

PMCS PROCEDURES – Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before/After		Gun Cradle, Mount, Traversing and Elevating Mechanism	Perform **BEFORE** PMCS if: 1. You are the assigned operator and the machine gun has been stored and not used for a period of 90 days.	

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9 (Cont)	Before/After (Cont)		Gun Cradle, Mount, Traversing and Elevating Mechanism (Cont)	2. You have been issued the gun for the first time.	
				Clean and lube gun cradle, mount, traversing and elevating mechanism daily. Be sure handwheels operate freely; parts are not binding or rusty.	Gun cradle, mount, or traversing and elevating mechanism is dirty, binding, or defective.

PMCS PROCEDURES – Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Before/After		MK19 Machine Gun	Inspect exterior for rust. Remove rust with authorized lubricant and rag.	Rust is apparent on exterior of weapon.
11	Before/After		Flash Suppressor	Check to ensure flash suppressor has minimal movement.	Flash suppressor does not have movement.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	After		MK19 Machine Gun	Field strip (WP 0011 00), clean, inspect, lube (WP 0012 00), and reassemble major assemblies and components (WP 0013 00). Clean bore and chamber with RBC, bore brush and clean rags.	

PMCS PROCEDURES – Continued

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Before/After		MK19 Machine Gun	Sear Housing Cap. Ensure cap is secure/ tight and free of cracks.	Cap is not tight or has cracks. Notify support maintenance.
14	Before		MK19 Machine Gun	Field strip and lubricate.	MK19 has not been field stripped and lubricated before each firing.

END OF WORK PACKAGE

OPERATOR

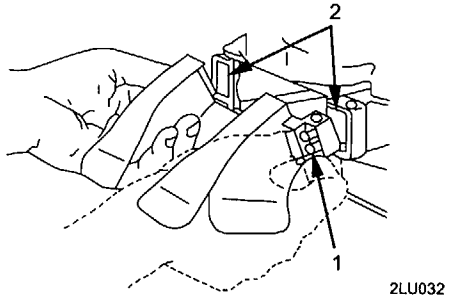
MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

FIELD STRIP
REMOVAL

REMOVAL

1. REMOVE FEED THROAT ASSEMBLY.

   a. Squeeze plungers (1 and 2) to ensure proper functioning. If not functioning properly, return to direct support maintenance.



2. REMOVE BOLT AND BACKPLATE ASSEMBLY.

WARNING

Before performing any procedure, ensure the weapon is clear of any ammunition.

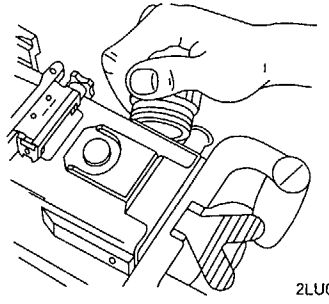
Be sure to bolt in forward position before removing the backplate pin assembly. Failure to observe this warning will result in injury.

a. Put the safety on 'F' (FIRE).

b. Open top cover.

REMOVAL - Continued

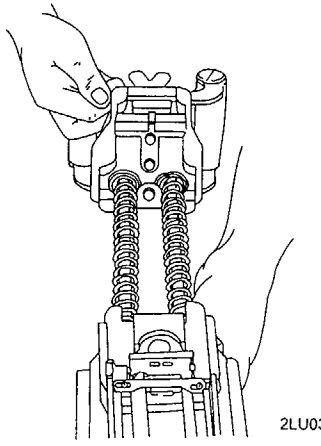
c. Observing the **WARNING** on previous page, pull straight out on the backplate pin. Use rim of a spent case.



2LU033

d. Lift up slightly on backplate assembly. Slowly pull the bolt and backplate assembly out of the receiver.

e. Support the bolt with one hand AND a control grip with the other. (While pressing down on the sear receiver catch release, lift the bolt up slightly and pull back to remove it.)



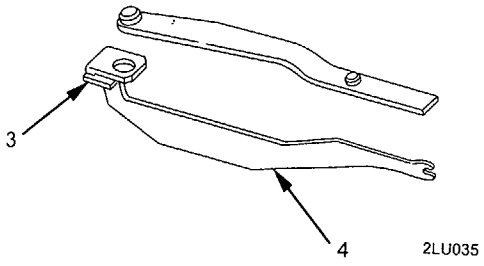
REMOVAL - Continued

3. REMOVE PRIMARY DRIVE LEVER AND VERTICAL CAM ASSEMBLY.

   a. Reach under top of receiver to locate the drive lever lock (3) on the vertical cam assembly (4). Slide the lock rearward about 1/4 inch.

CAUTION

Do not rest vertical cam assembly on its chromed surface.


3
4
2LU035

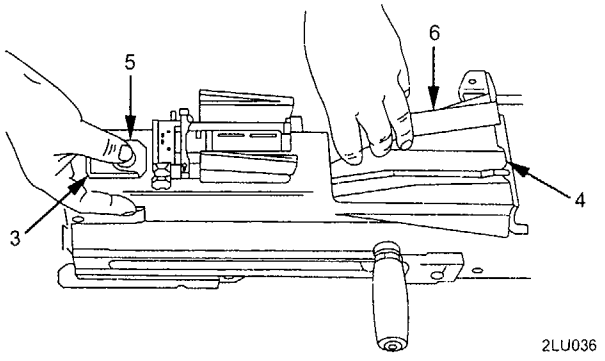
REMOVAL - Continued

b. Press down on the primary drive lever's pivot post (5). This releases the primary drive lever and vertical cam (4).

CAUTION

Do not allow the vertical cam to be damaged by allowing it to hit the inside of the receiver.

c. Pull out the vertical cam (4) (to the rear) and the primary drive lever from the receiver (6).


5
6
3
4
2LU036

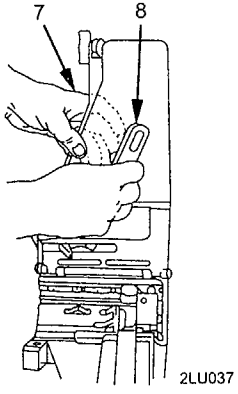
REMOVAL - Continued

4. REMOVE SECONDARY DRIVE LEVER.

   a. Raise top cover.

   b. Push down on pivot post (7) from outside top cover. This releases the secondary drive lever (8).

   c. Lift out secondary drive lever (8) from inside the top cover.


7
8
2LU037

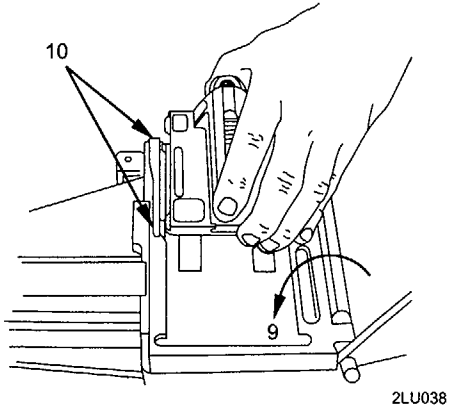
REMOVAL – Continued

5. REMOVE FEED SLIDE ASSEMBLY.

   a. Pivot the tray with feed slide assembly (9) out of the top cover.

   b. Move feed slide assembly (9) to line up tabs with slots in tray (10).

   c. Lift upward on feed slide assembly (9).


10
9
2LU038

REMOVAL - Continued

6. REMOVE TOP COVER ASSEMBLY AND FEED TRAY.

CAUTION

Remove/insert top cover pins using only your fingers, not pliers. Forcing the pin can break the small crosspin on the rod.

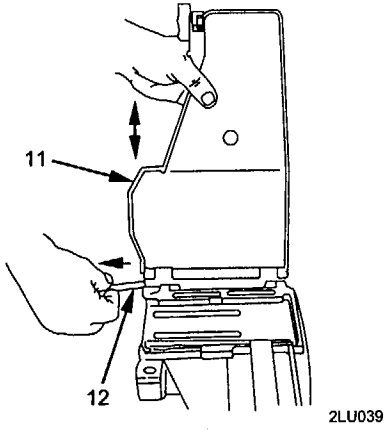
NOTE

Feed tray must be down to remove top cover pins.

a. Hold top cover (11) straight up to align crosspin end.

b. Pull straight out on pins (12).

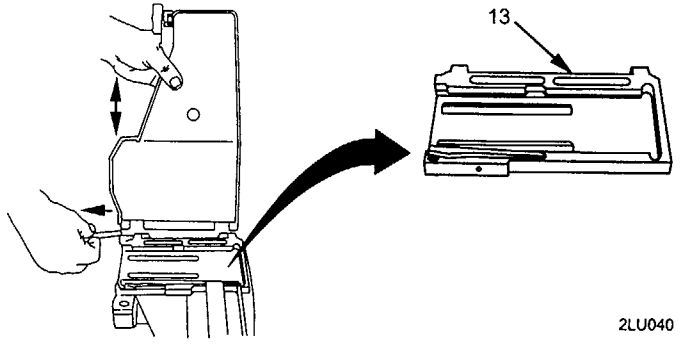
c. Lift off top cover (11).



0011 00-15

REMOVAL – Continued

7. REMOVE FEED TRAY.
   a. Lift tray out of feeder (13).

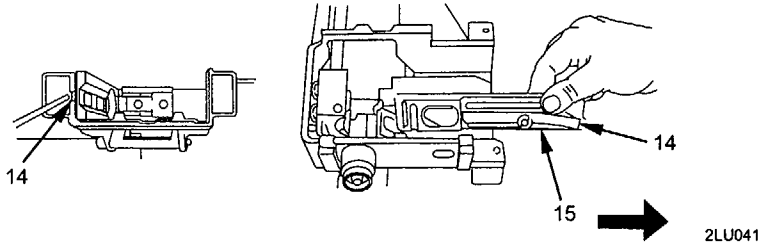


8. REMOVE ALIGNMENT GUIDE ASSEMBLY.

   a. Depress the flat leaf spring (14) by using a cartridge link toggle (male end) or small tool.

   b. Slide alignment guide (15) toward feeder mouth.

   c. Pull rearward on alignment guide (15) and lift it out.



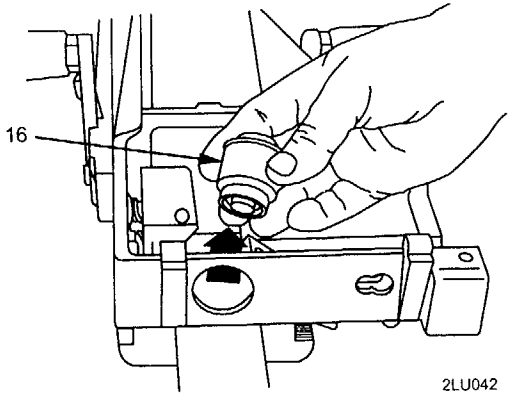
2LU041

REMOVAL - Continued

9. REMOVE OGIVE PLUNGER ASSEMBLY.

   a. Alignment guide must be removed first (see Step 8).

   b. Pull out ogive plunger (16).


16
2LU042

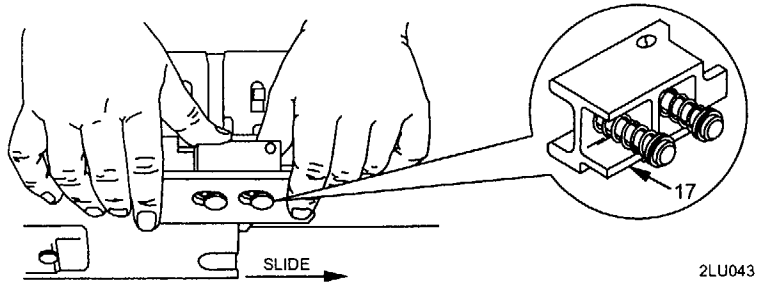
REMOVAL – Continued

10. REMOVE ROUND POSITIONING BLOCK.

    a. Alignment guide must be removed first (see Step 8).

    b. Push in and slide round positioning block (17) toward muzzle end of gun.

    c. Pull round positioning block (17) away from wall of receiver.


17
SLIDE
2LU043

REMOVAL - Continued

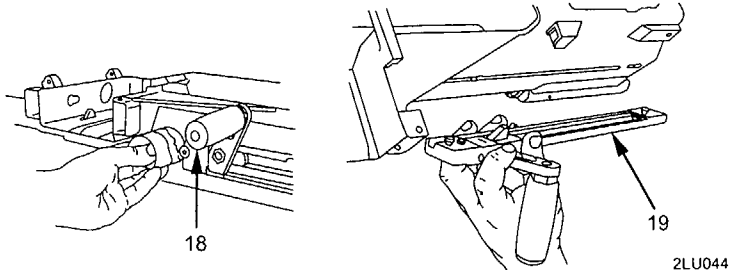
11. REMOVE CHARGER ASSEMBLIES (LH AND RH).

    a. Rotate charger handle up.

    b. Using either your fingers or a spent case pry out on the lip of the lock plunger (18).

    c. Lift up on the lock plunger (18) to retract it and slide charger assembly (19) all the way rearward.

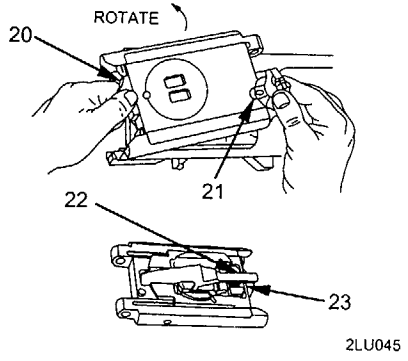
    d. Pull charger assembly (19) away from receiver.


18
19
2LU044

REMOVAL - Continued

12. REMOVE SEAR ASSEMBLY.
    a. Turn receiver over on its top. Put safety (20) in 'F' (FIRE) position.
    b. Lift up slightly on lock pin (21) with fingers or female end of cartridge link.
    c. Squeeze sear (22) (underneath safety) and simultaneously rotate sear housing assembly approximately 15 degrees in either direction.
    d. Press down on sear housing assembly and continue rotation until it stops (90 degrees from original position).
    e. Press sear (22) and safety together while you put safety (20) on 'S' (SAFE). This locks the sear in the 'down' position and prevents accidental loss of the sear spring (23).

f. Lift out sear housing assembly.



OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

MAINTENANCE
CLEANING, INSPECTION, AND LUBRICATION

INITIAL SETUP:

Materials/Parts

Automatic weapons lubricant (LAW) (item 5, WP 0019 00)
Bore cleaning brush (item 2, WP 0017 00)
Dry cleaning solvent (item 10, WP 0019 00)
Lubricating oil (LSAT) (item 6, WP 0019 00)
Rifle bore cleaner (RBC) (item 9, WP 0019 00)
Wiping rags (item 8, WP 0019 00)

CLEANING, INSPECTION, AND LUBRICATION

WARNING

Before performing any procedure, ensure the weapon is clear of any ammunition.

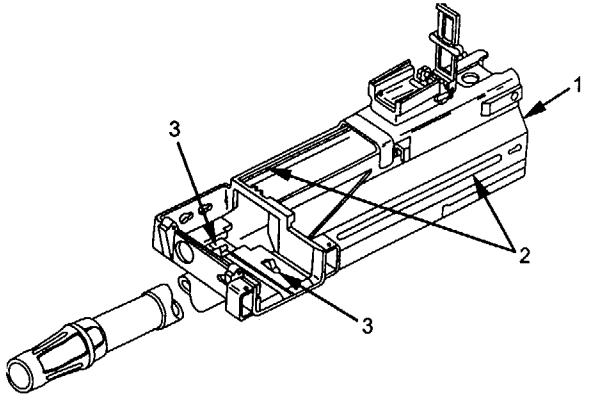
Dry cleaning solvent is flammable and toxic and must be kept away from open flames and used in a well ventilated area. Use of rubber gloves is necessary to protect the skin when washing parts.

Dry cleaning solvent is authorized for cleaning the MK19 and it works great. But never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies.

CLEANING, INSPECTION, AND LUBRICATION - Continued

1. CLEAN RECEIVER ASSEMBLY.

   a. Wipe or brush away dirt from all parts, especially the interior of receiver housing (1), receiver rails (2), and feeder (3). Apply dry cleaning solvent (item 10, WP 0019 00) (if available) to wiping rag (item 8, WP 0019 00) or bore cleaning brush (item 2, WP 0017 00).



2LU046

CLEANING, INSPECTION, AND LUBRICATION – Continued

NOTE

The chamber is the worst carbon build-up area, and eventually gets pitted from the carbon. To clean it, soak your bore brush in RBC and run it through the muzzle into the chamber. Repeat this until the muzzle's clean. When cleaning these parts, use a brush or rag dipped in a small amount of solvent.

b. Swab out bore and chamber, using bore cleaning brush and RBC (item 9, WP 0019 00).

c. Wipe all parts dry.

2. INSPECT RECEIVER ASSEMBLY.

NOTE

Report all deficiencies to the unit armorer.

CLEANING, INSPECTION, AND LUBRICATION – Continued

a. Receiver housing (1): Cracks (including hairline cracks), rust.

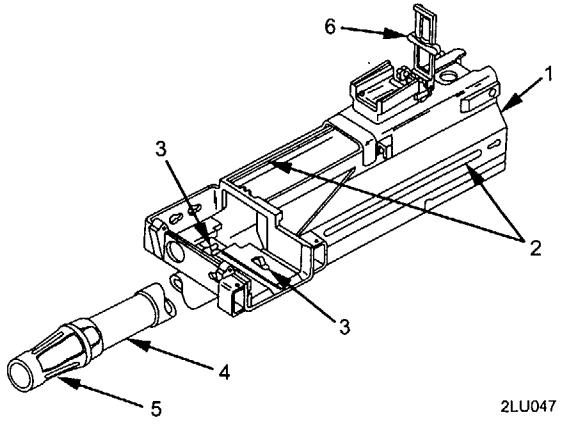
b. Receiver rails (2): Burrs, cracked welds.

c. Feeder pawls (3): No spring action or burrs; check pins for retention.

d. Barrel (4): Carbon buildup or pitting in bore or chamber.

e. Flash suppressor (5): Dents, cracks, or erosion. Ensure minimal movement is maintained.

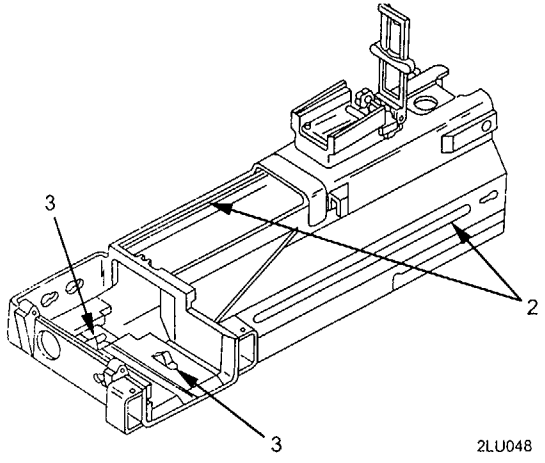
f. Rear sight parts (6): Rust, binding, broken, or bent.


6
1
3
2
3
4
5
2LU047

CLEANING, INSPECTION, AND LUBRICATION – Continued

3. LUBRICATE RECEIVER ASSEMBLY.

Apply to all parts. Special areas: receiver rails (2) and feeder (3). Apply a small amount to feeder pawls (work pawls back and forth to spread the lubricant).



0012 00-11

CLEANING, INSPECTION, AND LUBRICATION – Continued

4. CLEAN SEAR ASSEMBLY.

CAUTION

Do not immerse sear housing assembly in solvent. Solvent may dilute the lubricant inside the sear housing.

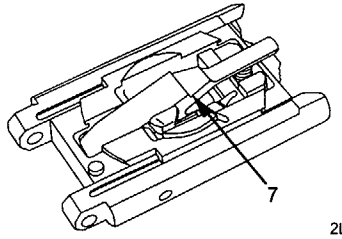
Wipe or brush away dirt. Use dry cleaning solvent (item 10, WP 0019 00) on a wiping rag (item 8, WP 0019 00) or bore cleaning brush (item 2, WP 0017 00) only! Wipe dry. (Navy only: If exposed to wet conditions, clean buffer springs and relubricate.)

5. INSPECT SEAR ASSEMBLY.

NOTE

Report all deficiencies to the unit armorer.

Burrs on any parts, especially the rear shoulder of the sear (7).



2LU049

CLEANING, INSPECTION, AND LUBRICATION – Continued

6. LUBRICATE SEAR ASSEMBLY.

Apply to all surfaces.

7. CLEAN ALIGNMENT GUIDE ASSEMBLY.

Wipe or brush off dirt and dry.

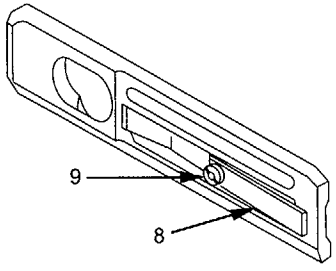
8. INSPECT ALIGNMENT GUIDE ASSEMBLY.

NOTE

Report all deficiencies to the unit armorer.

a. Alignment guide spring (8): Deformed, cracked, or loose.

b. Pin (9): Cracked or broken.



2LU050

CLEANING, INSPECTION, AND LUBRICATION - Continued

9. LUBRICATE ALIGNMENT GUIDE ASSEMBLY.

Apply to all surfaces.

10. CLEAN OGIVE PLUNGER ASSEMBLY AND ROUND POSITIONING BLOCK.

CAUTION

Do not immerse ogive plunger assembly in solvent. Solvent may dilute the lubricant inside the ogive plunger housing.

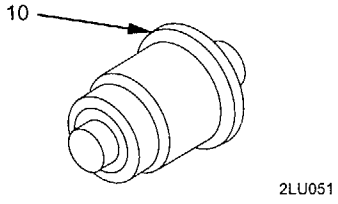
Wipe or brush off dirt.

11. INSPECT OGIVE PLUNGER ASSEMBLY AND ROUND POSITIONING BLOCK.

NOTE

Report all deficiencies to the unit armorer.

a. Ogive plunger head (10): Burrs, broken parts

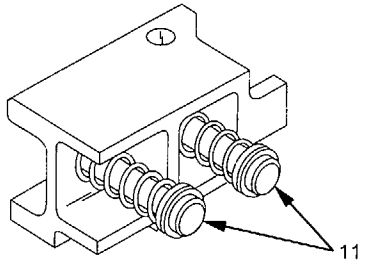


0012 00-17

CLEANING, INSPECTION, AND LUBRICATION - Continued

b. If the round positioning block (11) has weak spring action, bent or burred posts, evacuate to Direct Support Maintenance.

c. Pins may turn but should NOT have side to side or outward movement.



2LU052

12. LUBRICATE OGIVE PLUNGER ASSEMBLY AND ROUND POSITIONING BLOCK.

Apply to all surfaces. Special areas: Round positioning block (11) springs and posts.

13. CLEAN CHARGER ASSEMBLIES (LH AND RH).

Apply dry cleaning solvent (item 10, WP 0019 00) (if available) to wiping rag (item 8, WP 0019 00) or bore cleaning brush (item 2, WP 0017 00) and wipe or brush off dirt. Wipe dry.

CLEANING, INSPECTION, AND LUBRICATION - Continued

NOTE

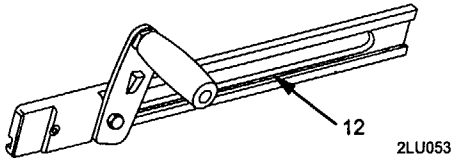
Report all deficiencies to unit armorer.

14. INSPECT CHARGER ASSEMBLIES (LH AND RH).

    a. Grooved edges (12): Burred, bent.

    b. Latches: Spring action on detents.

    c. Entire charger assembly: Cracks, burrs, bent, or chipped.



15. LUBRICATE CHARGER ASSEMBLIES (LH AND RH).

Apply to all surfaces except handles. Special areas: Grooved edges of rails (12).

16. CLEAN VERTICAL CAM ASSEMBLY AND PRIMARY DRIVE LEVER.

Soak in dry cleaning solvent (item 10, WP 0019 00) (if available). Wipe or brush off and dry.

CLEANING, INSPECTION, AND LUBRICATION - Continued

17. INSPECT VERTICAL CAM ASSEMBLY AND PRIMARY DRIVE LEVER.

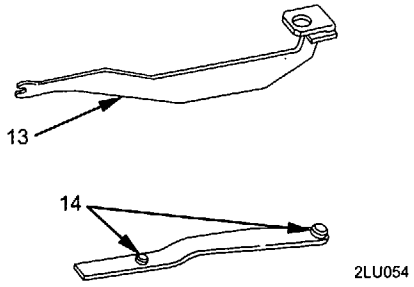
NOTE

Report all deficiencies to the unit armorer.

a. Vertical cam assembly: Bends, burrs, pits, scratches, aluminum buildup on chromed surface (13). (Mirror-like surface on chromed surface.)

b. Drive lever lock: Loose or binding.

c. Primary drive lever: Burrs (especially around pivot posts).



18. LUBRICATE VERTICAL CAM ASSEMBLY AND PRIMARY DRIVE LEVER.

    a. Apply to all surfaces. Special areas: chromed surface on vertical cam assembly (13), pivot posts on drive lever (14).

CLEANING, INSPECTION, AND LUBRICATION - Continued

19. CLEAN SECONDARY DRIVE LEVER.

Wipe or brush off dirt.

20. INSPECT SECONDARY DRIVE LEVER.

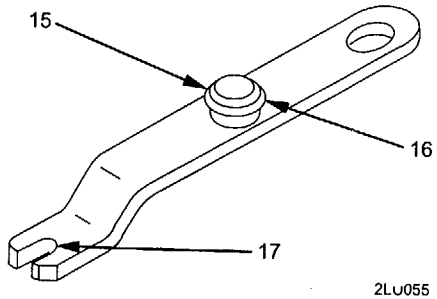
NOTE

Report all deficiencies to the unit armorer.

a. Retaining ring (15): Missing from pivot post.

b. Pivot post (16): Burrs.

c. Forked end (17): Burrs.



21. LUBRICATE SECONDARY DRIVE LEVER.

Apply to all surfaces.

CLEANING, INSPECTION, AND LUBRICATION - Continued

22. CLEAN FEED SLIDE ASSEMBLY AND FEED TRAY.

Wipe or brush off dirt. Soak in dry cleaning solvent (item 10, WP 0019 00) (if available). Wipe dry.

NOTE

Report all deficiencies to the unit armorer.

23. INSPECT FEED SLIDE ASSEMBLY AND FEED TRAY.

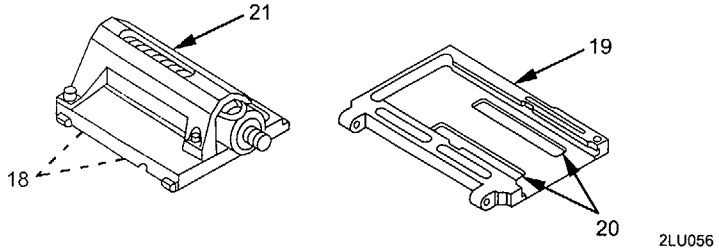
a. Feed pawls (18): Burrs or binding.

b. Feed tray (19): Burrs or binding.

c. Guide rails (20): Burrs.

d. Springs for excessive wear (flat spots), collapsing/elongation.

e. Spring is properly installed.



24. LUBRICATE FEED SLIDE ASSEMBLY AND FEED TRAY.

Apply to all surfaces. Special areas: feed pawl (18), feed tray pawl (19), guide rails (20), and inner spring (21).

CLEANING, INSPECTION, AND LUBRICATION - Continued

25. CLEAN TOP COVER ASSEMBLY.

Wipe or brush off dirt. Apply dry cleaning solvent (item 10, WP 0019 00) (if available). Wipe dry.

26. INSPECT TOP COVER ASSEMBLY.

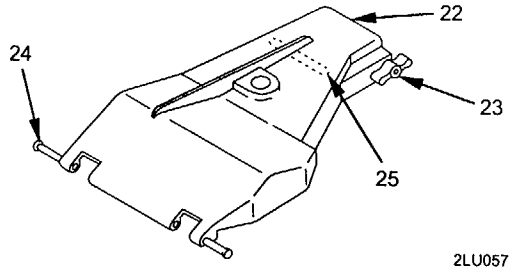
NOTE

Report all deficiencies to the unit armorer.

a. Top cover (housing) (22): Cracks, rust.

b. Latch (23): Binding, loose or broken.

c. Cover pin (24): Sheared or broken crosspin.



27. LUBRICATE TOP COVER ASSEMBLY.

Apply to all surfaces. Special areas: apply a small amount to the latch mechanism (23). Work the latch to spread the lubricant. Don't forget cover pins (24) and pin holes. Apply light coat to the wear pad (25) inside the cover.

CLEANING, INSPECTION, AND LUBRICATION - Continued

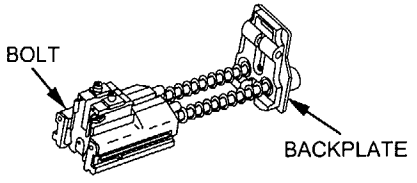
28. CLEAN BOLT AND BACKPLATE ASSEMBLY.

CAUTION

Do not immerse bolt assembly in cleaning solvent. Cleaning solvent dilutes the grease in the packed bearings.

Observe CAUTION. Apply dry cleaning solvent (item 10, WP 0019 00) to wiping rag (item 8, WP 0019 00) or bore cleaning brush (item 2, WP 0017 00) only. Wipe or brush off dirt from all parts. Wipe all surfaces dry.

29. INSPECT BOLT AND BACKPLATE ASSEMBLY.



2LU058

NOTE

Report all deficiencies to the unit armorer.

CLEANING, INSPECTION, AND LUBRICATION - Continued

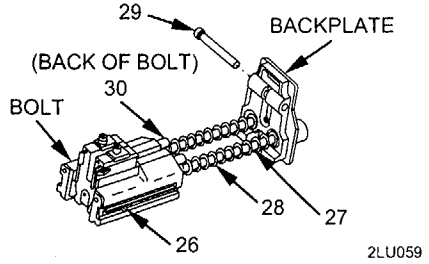
a. Cocking lever (26): Broken, chipped, or burred.

b. Guide rods (27): Bent, binding.

c. Recoil springs (28): Weak spring action. (Test rods and springs; position the bolt-end against a flat, hard surface. Push up and down on backplate assembly.)

d. Backplate pin (29): Retaining spring missing.

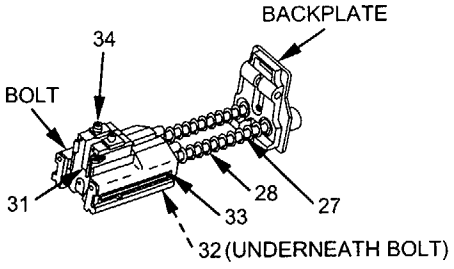
e. Safety wire (30): Loose, broken, or missing.


29
BACKPLATE
(BACK OF BOLT)
30
BOLT
28
27
26
2LU059

CLEANING, INSPECTION, AND LUBRICATION - Continued

30. LUBRICATE BOLT AND BACKPLATE ASSEMBLY.

Apply light coat to all surfaces you can reach. Special areas: guide rods (27), recoil springs (28), bolt face (31), bolt sear (32), bolt rails (33), and cam followers (34).



2LU060

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

MAINTENANCE PROCEDURES
ASSEMBLY,TEST AND INSPECTION

INITIAL SETUP:

References
WP 0012 00

ASSEMBLY

NOTE

Be sure components are lubricated in accordance with WP 0012 00 prior to reassembly.

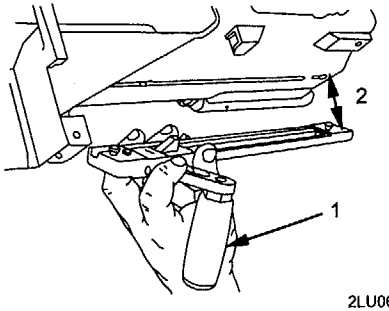
1. INSTALL CHARGER ASSEMBLIES (LH AND RH).

   a. Turn receiver upright.

   b. Rotate charger handle (1) to the straight-up position.

   c. Line up lugs on charger with slots in receiver rail. Insert charger lugs into slots (2).

d. Hold charger tightly against rail. Slide charger forward until it locks in place.



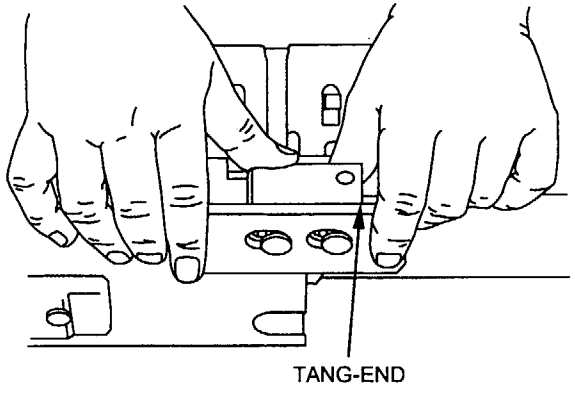
2LU061

ASSEMBLY - Continued

2. INSTALL ROUND POSITIONING BLOCK.

   a. Insert block into slots, with the tang end forward.

   b. Push against block and slide it toward the rear until the block locks in place.

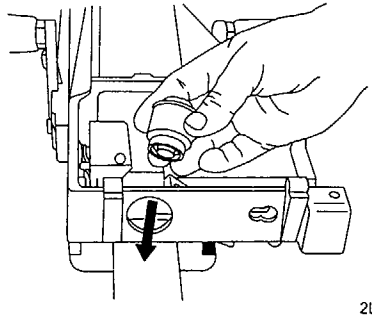


2LU062

ASSEMBLY – Continued

3. INSTALL OGIVE PLUNGER ASSEMBLY.

Insert ogive plunger as shown.

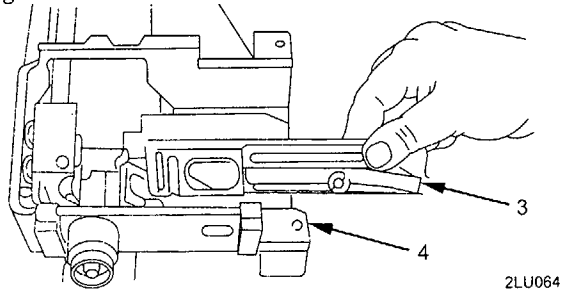


2LU063

4. INSTALL ALIGNMENT GUIDE ASSEMBLY.

   a. Position the alignment guide assembly (3) so that the pin is lined up with the slot in the feeder wall.

   b. Hold the alignment guide against the front wall (4) and slide the alignment guide into the receiver until it 'clicks.'



ASSEMBLY - Continued

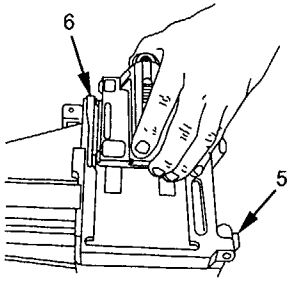
5. INSTALL FEED TRAY AND FEED SLIDE ASSEMBLY.

   a. Place tray into top of feeder, recessed side up.

   b. Pinholes on tray should line up with lugs on receiver (5).

   c. Position feed slide assembly so that tabs are lined up with slots on tray (6).

   d. Insert tabs into slots. Drop feed slide assembly into tray and move it slightly to ensure engagement.



2LU065

ASSEMBLY - Continued

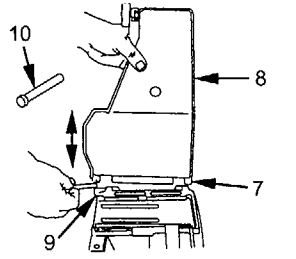
6. INSTALL TOP COVER ASSEMBLY.

CAUTION

To avoid breaking the crosspin, be sure it is fully inserted into the receiver before closing top cover.

a. Feed tray should be in place resting in the receiver.

b. Place the top cover on the receiver with the pinholes in line with the receiver lug end feed tray pinholes (7).



2LU066

c. Hold top cover (8) straight up. Insert top cover pins (9) on both sides. Ensure the crosspin (10) is fully inserted then rotate the top cover fully open.

ASSEMBLY - Continued

7. ENGAGE SECONDARY DRIVE LEVER.

CAUTION

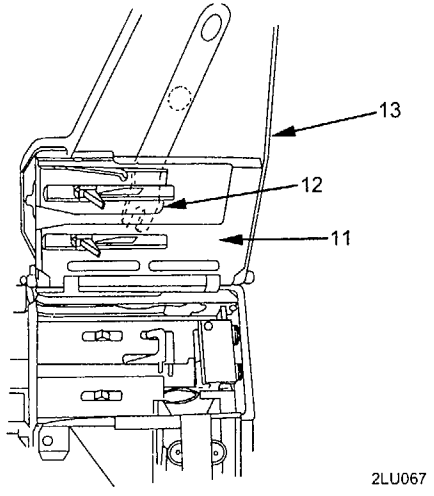
If secondary drive lever is not properly engaged with the feed slide pin, gun will not fire.

a. Rotate the feed slide assembly and tray (11) upward.

b. Engage forked end of secondary drive lever with the feed slide pin (12).

c. Press raised pivot post through hole in top cover (13).

d. Press secondary drive lever against top cover until it locks in place.



0013 00-13

ASSEMBLY - Continued

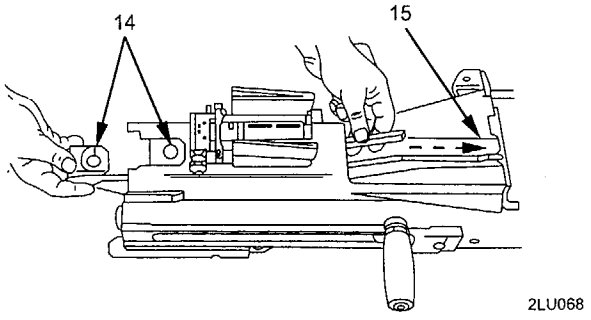
8. INSTALL VERTICAL CAM ASSEMBLY.

CAUTION

Do not damage vertical cam by hitting it on the inside of the receiver.

a. Slide vertical cam assembly through rear of receiver. Raised portion should slide over the top of the receiver (14). Drive lever lock should be underneath.

b. Engage forked end in the notch (15).



0013 00-15

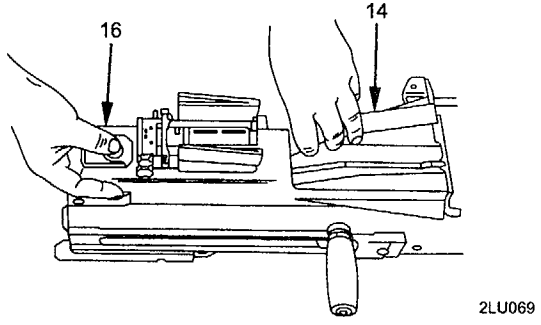
ASSEMBLY - Continued

9. ENGAGE PRIMARY DRIVE LEVER.

   a. Hold vertical cam assembly in place and slide primary drive lever into receiver (14).

   b. Slide drive lever lock rearward and engage pivot post of lever through holes in receiver and vertical cam (16).

   c. Slide drive lever lock (on the vertical cam just beneath top of receiver) forward.


16
14
2LU069

ASSEMBLY - Continued

10. INSTALL BOLT AND BACKPLATE ASSEMBLY.

CAUTION

Before inserting assembly, put cocking lever in forward position.

Assemble bolt and backplate using one of the following procedures:

a. With sear assembly on gun:

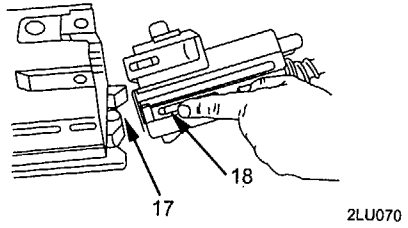
(1) Place safety in 'F' (FIRE) position.

(2) Press sear (17) using thumbs or rim of cartridge case.

(3) Make sure cocking lever (18) is cocked and forward.

(4) Slide bolt and backplate assembly all the way forward.

(5) Insert backplate pin to lock assembly in place.



ASSEMBLY - Continued

b. With sear off gun:

(1) Make sure cocking lever is cocked forward.

(2) Insert bolt and backplate assembly into receiver.

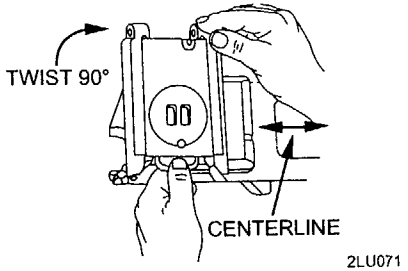
(3) Insert backplate pin to lock assembly in place.

(4) Close cover.

11. INSTALL SEAR ASSEMBLY.

a. Turn receiver over on its top.

b. Place sear housing on the receiver and line up sear housing assembly at a right angle to the barrel centerline.



ASSEMBLY - Continued

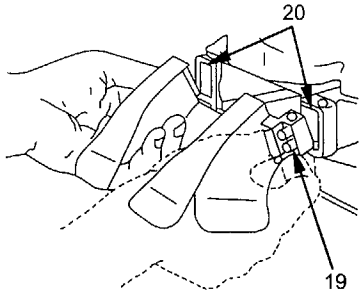
c. Put safety on 'F' (FIRE) position.

d. Press down and rotate housing assembly until it stops.

e. Press up on sear and continue rotation until it locks in position.

12. INSTALL FEED THROAT ASSEMBLY.

a. Squeeze plungers (19), align pins with holes (20) in receiver. Release plunger to reattach feed throat.



2LU072

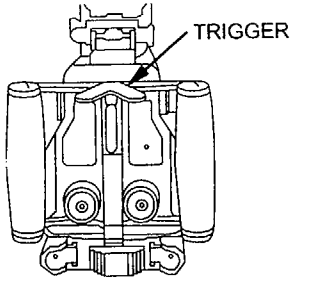
TEST AND INSPECTION

WARNING

Before performing any procedure, ensure the weapon is clear of any ammunition.

1. CHECK FUNCTIONING WITH SAFETY ON 'S' (SAFE) THEN ON 'F' (FIRE).

   a. With top cover closed, put safety in 'S' (SAFE) position (push left).



2LU073

TEST AND INSPECTION – Continued

b. Pull bolt to rear.

c. Push charger handles back to forward position. Rotate charger handles up.

d. Observe **WARNING** on previous page.

e. Press trigger. Bolt should not go forward.

f. Put safety in 'F' (FIRE) position (push right).

CAUTION

As bolt is under spring pressure, do not release it any more than necessary to test functioning of firing pin. 'DRY FIRING' causes wear on internal components.

g. Press trigger. Bolt should spring forward.

h. Put safety in 'S' (SAFE) position.

i. Leave bolt in forward position and continue.

TEST AND INSPECTION – Continued

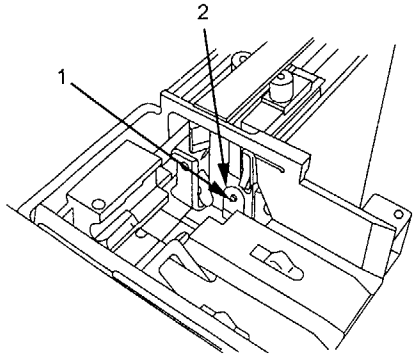
2. OPEN TOP COVER; INSPECT INTERIOR OF RECEIVER FOR MISSING/DAMAGED PARTS.

   a. Touch firing pin (1).

NOTE

If firing pin is not protruding, recharge and release the bolt forward under spring pressure.

   b. Touch bolt face (2) to ensure it is lubricated and not dry, pitted, or corroded.



2LU074

TEST AND INSPECTION - Continued

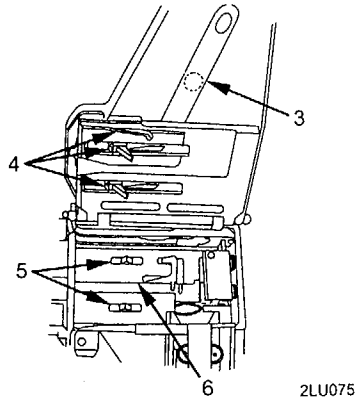
3. CHECK FEED SLIDE ASSEMBLY AND FEEDER.

   a. Move secondary drive lever (3) back and forth. Feed slide assembly should move freely.

   b. Press the pawls (4 and 5) to check spring action.

   c. Inspect link guide (6) for roughness and galling.

   d. Perform feed slide adjustment inspection. Refer to WP 0010 00, Preventive Maintenance Checks and Services Table, step 3.



0013 00-31

TEST AND INSPECTION - Continued

CAUTION

Before closing top cover always be certain the secondary drive lever is engaged with feed slide pin, feed slide assembly is to the left, and bolt is forward. Never attempt to force top cover closed. Equipment damage could result. Do not slam cover shut.

d. Close top cover, observing CAUTION.

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

AMMUNITION
M383 HIGH-EXPLOSIVE ROUND, M385A1 TRAINING PRACTICE ROUNDS, M918 TARGET PRACTICE ROUNDS, M922A1 DUMMY ROUND, M430/M430A1 HIGH-EXPLOSIVE DUAL PURPOSE ROUND, RAPID UNOBSTRUCTED BORE CHECK PROCEDURES, AND ROUND REMOVAL TOOL PROCEDURES

INITIAL SETUP:

Tools and Special Tools
Bore obstruction detector (item 3, WP 0017 00)
Round removal tool (item 5, WP 0017 00)

Personnel Required
Two

WARNING

Use only ammunition authorized for the use with the MK19 machine gun.

Keep ammunition dry, clean, and away from direct heat.

Do not drop, strike, or destroy ammunition by mechanical means.

A two-man lift is required for the MK19 machine gun and each fully loaded M548 ammunition container.

Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.

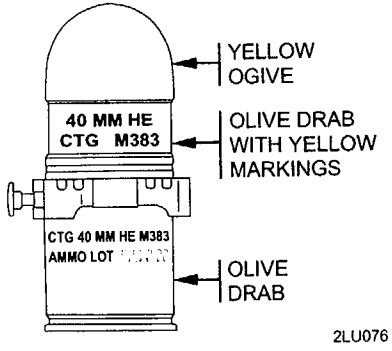
NOTE

Use only ammunition linked with M16A2 links. Use of 40mm ammunition with either M16 or M16A1 links will cause weapon stoppages.

M383 HIGH-EXPLOSIVE ROUND

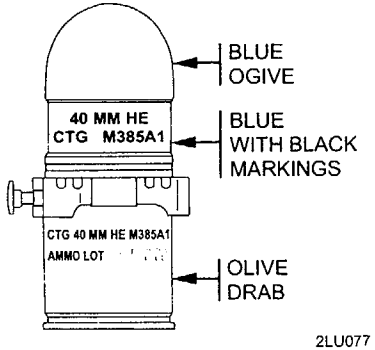
1. A high-explosive (HE) grenade
2. Designed to inflict personnel casualties
3. Packed in a 48-round belt, M548 metal ammunition container
4. Fuze: PD, M533
5. Filler: RDX, Comp. A5
6. Maximum range: 2,200 meters

7. Arming Distance: 18 - 36 meters
8. Wound Radius: 15 meters



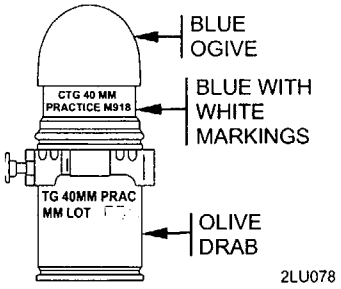
M385A1 TRAINING PRACTICE ROUNDS

1. Training practice (TP), inert rounds with a propelling charge.
2. Packed in:
   - 32-round belt, PA120 ammunition container (1301-01-315-1636)
   - 48-round belt, M548 ammunition container (1301-01-159-3161).
3. Propellant: M2
4. Muzzle Velocity: 244 miles per second
5. Maximum Range: 2,200 meters


BLUE
OGIVE
40 MM HE
CTG M385A1
BLUE
WITH BLACK
MARKINGS
CTG 40 MM HE M385A1
AMMO LOT
OLIVE
DRAB
2LU077

M918 TARGET PRACTICE ROUND

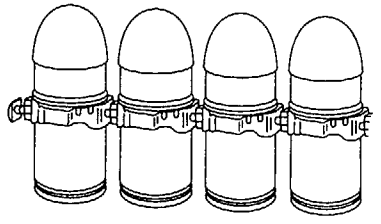
1. A target practice round with flash signature
2. Packed in two metal ammo containers (32 and 48-round belts)
3. Propellant: M2
4. Fuze: M550 Escapement
5. Muzzle Velocity: 244 miles per second
6. Maximum Range: 2,200 meters
7. Arming Distance: 18 - 30 meters


BLUE
OGIVE
CTG 40 MM
PRACTICE M918
BLUE WITH
WHITE
MARKINGS
TG 40MM PRAC
MM LOT
OLIVE
DRAB
2LU078

M922A1 DUMMY ROUND

M922A1 Dummy Round: 1301-01-154-6525

1. Totally inert.
2. Used to check gun functioning and for gun crew training.
3. Packed in 10, 20, 32, or 48-round belts.
4. Issued to armorers only.



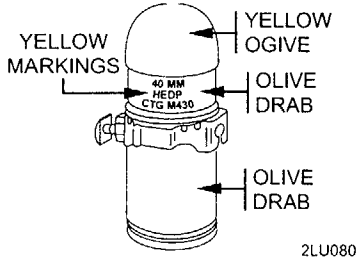
2LU079

M430/M430A1 HIGH-EXPLOSIVE DUAL PURPOSE ROUND

1. A high-explosive, dual-purpose grenade
2. Designed to penetrate 2-inch armor at 0 degrees obliquity and inflict personnel casualties
3. Packed in:
   - 32-round belt, PA120 Ammunition Can
   - 48-round belt, M548 Ammunition Can
4. Fuze: PIBD, M549 (M430)/ M549A1 (M430A1)
5. Filler: Comp. A5
6. Arming Distance: 18 - 30 meters
7. Kill Radius: Approximately 5 meters
8. Wound Radius: Approximately 15 meters

M430/M430A1 HIGH-EXPLOSE DUAL PURPOSE ROUND - Continued

9. Muzzle Velocity: 244 miles per second
10. Maximum Range: 2,200 meters



RAPID UNOBSTRUCTED BORE CHECK PROCEDURES

WARNING

Any unusual occurrence during firing (e.g. short recoil, out-of-battery, excess smoke, flash, loud or muffled report, malfunction or stoppage) warrants immediate inspection of the weapon. Clear weapon, check barrel for obstruction, feeder, bolt face, and receiver for damaged and or unusual debris. Do not attempt to clear the obstructed bore. Follow instructions in the local SOP to remove the obstruction or get assistance. Continued firing may cause injury or equipment damage.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

NOTE

The preferred method for checking the bore is by running the bore obstruction detector from the top of the weapon through the barrel until it protrudes from the muzzle. However, the bore obstruction detector may also be feed from the bottom of the receiver. The bolt must be to the rear to use the bore obstruction detector from the bottom.

NOTE

The bore obstruction detector is intended to be used to probe the barrel of the MK19 MOD 3 after an unusual occurrence or malfunction to check for any projectiles or cartridge cases which may become lodged in the bore.

1. CHECKING THE BARREL FOR AN OBSTRUCTION (GENERAL).

   a. Put the safety on 'S' (SAFE).

   b. Notify the Range Safety Officer if training, or your Non-Commissioned Officer in Charge, that you have a possible bore obstruction.

   c. Clear all non-essential personnel away from the gun position.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

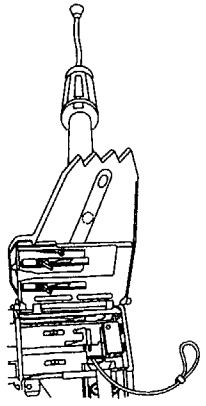
2. CHECKING FOR A BORE OBSTRUCTION FROM THE TOP OF THE WEAPON (DAY OPERATIONS) (FIGURE 1).

   a. **Gunner:** Lower charging handles, maintain grip, and apply back pressure to the bolt.

WARNING

Do not let bolt go forward!

   b. **Assistant Gunner:** Open top cover.



2LU081

Figure 1

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

WARNING

Do not insert your hands into the receiver with the bolt locked to the rear on sear. Severe injury could be sustained. Be sure the safety is on 'S' (safe).

c. **Assistant Gunner:** Check bolt face to ensure no live round is present. If a round, spent case, or debris is not present, go to Step c. If a round, spent case, or debris is present, perform the following:

(1) Remove catch bag (Be prepared to catch live ammunition which may fall from the bottom of the weapon).

d. **Gunner:** Charge the bolt completely until the bolt 'clicks' (locks) to the rear. Return handles to the forward position, handles down.

e. **Assistant Gunner:** If a round is still present, clear it from the bolt face using a caliber .50 cleaning rod inserted through the slot in the charger handle assembly. Catch the round.

f. **Gunner:** If a round, spent case, or debris is not present, perform the following:

(1) Pull charger handles to the rear until the bolt 'clicks' (locks) to the rear.

(2) Position charging handles in the forward and down position.

g. **Assistant Gunner:** Perform the following steps:

(1) Place the bore obstruction detector (weighted end first) into the chamber end of the barrel.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

(2) Snake the bore obstruction detector into the barrel. If the cable stops feeding, pull it back, and push it forward again. If the cable can't be pushed forward any further, you have a bore obstruction.

NOTE

Refer to Round Removal Tool Procedures, if bore obstruction detector will not go completely through the barrel.

h. If the bore obstruction detector cable runs through the barrel and the weighted end can be seen protruding from the flash suppressor, the barrel is clear.

i. If barrel is clear, consult your armorer for another possible cause for malfunction.

3. CHECKING FOR A BORE OBSTRUCTION FROM THE BOTTOM OF THE WEAPON (DAY OPERATIONS) (FIGURE 2).

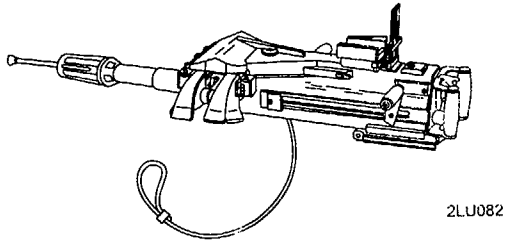


Figure 2

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

WARNING

Do not let the bolt slam forward as top cover is being opened, it could fire a round.

a. **Gunner:** Lower charging handles, maintain grip, and apply back pressure to the bolt.

b. **Assistant Gunner:** Open top cover.

WARNING

Do not insert your hands into the receiver with the bolt locked to the rear on sear. Severe injury could be sustained. Be sure the safety is on 'S' (SAFE).

c. **Assistant Gunner:** Check bolt face to ensure no live round is present. If a round, spent case, or debris is not present, go to Step d. If a round, spent case, or debris is present, perform the following:

(1) Remove catch bag.

(2) **Assistant Gunner:** Be prepared to catch live ammunition which may fall from the bottom of the weapon as the:

(3) **Gunner:** Charge the bolt completely until the bolt 'clicks' (locks) to the rear. Return handles to the forward position, handles down.

(4) **Assistant Gunner:** Perform the following:

(a) If a round is still present, clear it from the bolt face using a caliber .50 cleaning rod inserted through the slot in the charger handle assembly.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

(b) Catch the round.

d. **Gunner:** Perform the following:

(1) Pull charger handles to the rear until the bolt 'clicks' (locks) to the rear.

(2) Position charging handles in the forward and down position.

e. **Assistant Gunner:** Perform the following:

(1) Place the bore obstruction detector (weighted end first) through the receiver and into the chamber end of the barrel.

(2) Snake the bore obstruction detector into the barrel. If the cable stops feeding, pull it back, and push it forward again. If the cable can't be pushed forward any further, you have a bore obstruction.

NOTE

Refer to round removal tool procedures in this work package, if bore obstruction detector will not go completely through the barrel.

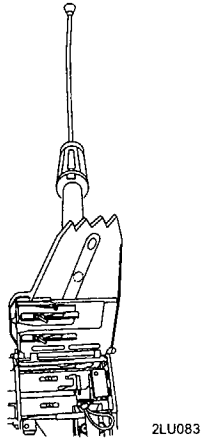
f. If the bore obstruction detector cable runs through the receiver and the weighted end can be seen protruding from the flash suppressor, the barrel is clear.

g. If barrel is clear, consult your armorer for another possible cause for malfunction.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

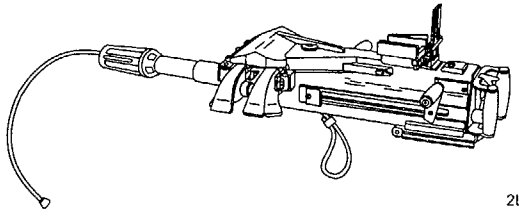
4. CHECKING FOR A BORE OBSTRUCTION (NIGHT OPERATIONS) (FIGURES 3 AND 4).

   a. Following the same procedures on pages 0014 00-14, 0014 00-16, and 0014 00- 21, ensure the crimp, at the loop end of the bore obstruction detector, is inserted from the top (Figure 3) far enough to touch the feeder base. This will ensure the barrel is clear when the weighted end cannot be seen. If inserted from the bottom (Figure 4), push the loop end as close to the bottom of the receiver as possible. This will ensure the barrel is clear.



2LU083

Figure 3



2LU084

Figure 4

ROUND REMOVAL TOOL PROCEDURES

WARNING

Do not transport weapon with projectile lodged in bore.

Only trained and qualified personnel should engage in the removal and recovery of the round.

Do not transport recovered round by vehicle. Handle with care.

CAUTION

Do not use round removal tool to remove a spent case lodged in bore. Damage to barrel and tool will occur.

1. FIRED CASE LODGED IN BORE.

Remove barrel and have obstruction removed. Install barrel. No further corrective action is required.

2. PROJECTILE IN RECEIVER, SEPARATED FROM CASE.

Ammunition defect. Remove separated projectile. Carefully handcarry to nearby designated area for EOD disposal in accordance with local directives.

ROUND REMOVAL TOOL PROCEDURES - Continued

3. PROJECTILE LODGED IN BORE OR CHAMBER.

   a. Place round removal tool collar over end of flash suppressor and screw five cap screws into slots of the suppressor. Attach either end of handle to the end of the threaded rod. Position cup of threaded rod over ogive.

   b. Screw threaded rod into barrel. Push out bore obstruction.

   c. Catch projectile with both hands as it is forced from the barrel.

   d. Carefully handcarry round to nearby designated area for EOD disposal.

END OF WORK PACKAGE

OPERATOR

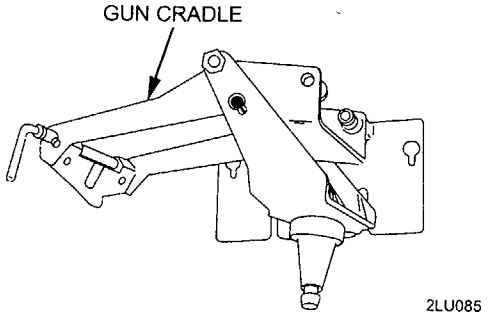
MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

AUXILIARY EQUIPMENT
MK64 MACHINE GUN MOUNT AND AN/TVS-5 SIGHT ASSEMBLY

INITIAL SETUP:

References
TM 11-5855-214-10
TM 9-1010-231-13&P

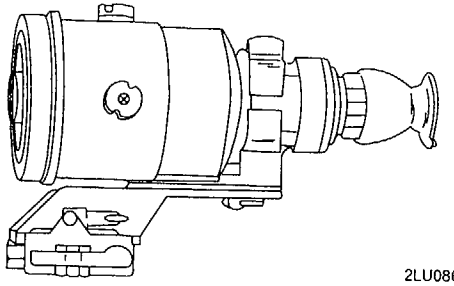
MK64 MACHINE GUN MOUNT



NOTE

Refer to TM 9-1010-231-13&P for appropriate procedures.

AN/TVS-5 SIGHT ASSEMBLY



2LU086

NOTE

Refer to TM 11-5855-214-10 for appropriate procedures.

AN/TVS-5 SIGHT ASSEMBLY - Continued

NOTE

Refer to Operator's Manual for Night Vision Sight, Crew Served Weapon AN/TVS-5 (TM 11-5855-214-10).

Ensure reticle (NSN 6650-01-192-9075) has been installed in the AN/TVS-5 prior to use with the MK19. Evacuate to direct support maintenance for verification/installation of reticle.

END OF WORK PACKAGE

CHAPTER 5

SUPPORTING INFORMATION

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

REFERENCES

SCOPE

This work package lists all field manuals, technical manuals, and Army regulations referenced in this manual.

CONSOLIDATED TABLE OF ALLOWANCES (CTA)

CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable/Durable Items (Except: Medical, Class V, Repair Parts and Heraldic Items)

DEPARTMENT OF THE ARMY PAMPHLETS (DA PAM)

DA PAM 738-750	The Army Maintenance Management System (TAMMS)

FIELD MANUALS (FM)

FM 23-27	MK19, 40MM Grenade Machine Gun Mod 3

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
SF 368	Product Quality Deficiency Report

TECHNICAL MANUALS (TM)

TM 9-1010-230-23&P TO 11W2-5-16-2 SW 363-03-MMM-020	Organizational and Direct Support Maintenance Manual (including Repair Parts and Special Tools List) for Machine Gun, 40MM, MK19 MOD 3
TM 9-1010-231-13&P TO 11W2-8-32-4 SW 363-D4-MMM 010-MK64	Operator's, Unit, and Direct Support Maintenance Manual (including Repair Parts and Special Tools List) for Mount, Machine Gun, MK64
TM 11-5855-214-10	Operator's Manual for Night Vision Sight, Crew Served Weapon AN/TVS-5
TM 4700-15/1	Equipment Record Procedures

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM, MK19, MOD 3
(1010-01-126-9063)

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS INTRODUCTION, COMPONENTS OF END ITEM (COEI) LIST, BASIC ISSUE ITEMS (BII) LIST

INTRODUCTION

SCOPE

This work package lists Components of End Item and Basic Issue Items for the MK19 Machine Gun to help you inventory items required for safe and efficient operation.

GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

COMPONENTS OF END (COEI) ITEM

Not applicable.

BASIC ISSUE ITEMS (BII)

INTRODUCTION

These are the minimum items required to place the MK19 Machine Gun in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the machine gun during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

INTRODUCTION - Continued

EXPLANATION OF COLUMNS

The following provides an explanation of columns in the tabular listings:

Column (1), Illustration Number. This column indicates the number of the illustration in which the item is shown.

Column (2), National Stock Number. Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

Column (3), Description, CAGEC, and Part Number. Indicates the Federal item name followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parenthesis) and the part number.

Column (4), Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

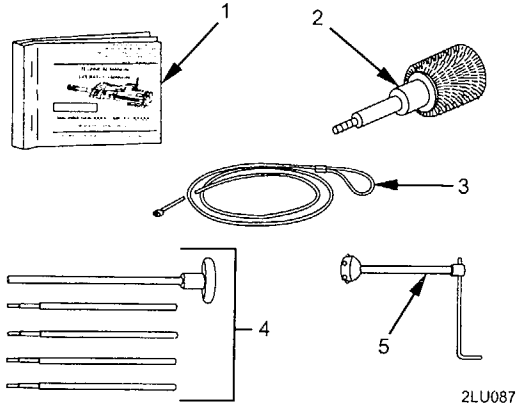
Column (5), Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6), Quantity Required (Qty Rqr). Indicates the quantity required.

COMPONENTS OF END ITEM (COEI) LIST

There are no components of the end item.

BASIC ISSUE ITEMS (BII) LIST



0017 00-6

Table 1. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1		Operator's Manual for Machine Gun, 40mm, MK19, MOD 3 (TM 9-1010-230-10)		EA	1

BASIC ISSUE ITEMS (BII) LIST - Continued

Table 1. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
2	1010-01-150-9983	Bore cleaning brush assembly, 40-mm (10001) PN 3269511		EA	1
3	1010-01-428-3233	Bore obstruction detector (19200) PN 12012055		EA	1

Table 1. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
4	1005-00-653-5441	Rod, cleaning, small arms (.50 caliber) (5 sections) (19204) PN 6535441		EA	1

BASIC ISSUE ITEMS (BII) LIST - Continued

Table 1. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
5	5120-01-347-1884	Tool, Round Removal (19200) PN 12926849		EA	1

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

ADDITIONAL AUTHORIZATION LIST (AAL)
INTRODUCTION, ADDITIONAL AUTHORIZATION LIST ITEMS

INTRODUCTION

SCOPE

This work package lists additional items you are authorized for the support of the MK19 Machine Gun.

GENERAL

This list identifies items that do not have to accompany the MK19 Machine Gun and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

EXPLANATION OF COLUMNS IN THE AAL

The following provides an explanation of columns in the tabular listing:

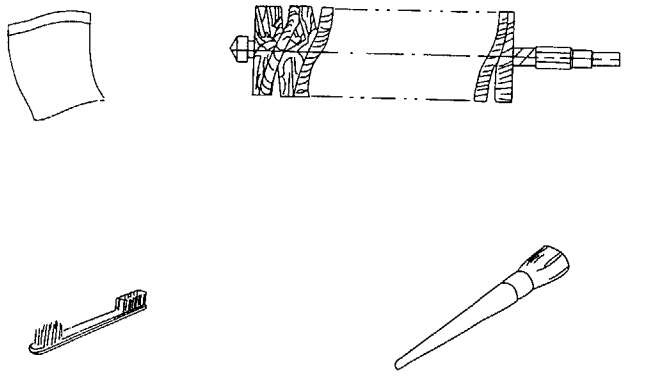
Column (1) - National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) - Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (in parentheses) and the part number.

Column (3) - Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) - Quantity Recommended (Qty Recm). Indicates the quantity recommended.



2LU088

ADDITIONAL AUTHORIZATION LIST ITEMS

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
8105-00-837-7756	BAG, PLASTIC, INTERNAL SEAL, FLAT (58536) A-A-1799		EA	1
1005-00-350-4100	BRUSH, CLEANING, SMALL ARMS (19204) P/N 8448466		EA	1

ADDITIONAL AUTHORIZATION LIST ITEMS - Continued

Table 1. Additional Authorization List - Continued.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
1005-00-494-6602	BRUSH, CLEANING, SMALL ARMS (TOOTH) (19204) P/N 8448462		EA	1

Table 1. Additional Authorization List - Continued.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM
8020-00-297-6657	BRUSH, PAINT, OVAL W/CHISEL EDGE (SASH) (98906) P/N 16866		EA	1

END OF WORK PACKAGE

OPERATOR

MACHINE GUN, 40-MM: MK19, MOD 3
(1010-01-126-9063)

EXPENDABLE AND DURABLE ITEMS LIST
INTRODUCTION, EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

SCOPE

This work package lists expendable and durable items that you will need to operate and maintain the MK19 Machine Gun. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

EXPLANATION OF COLUMNS IN THE EXPENDABLE/DURABLE ITEMS LIST

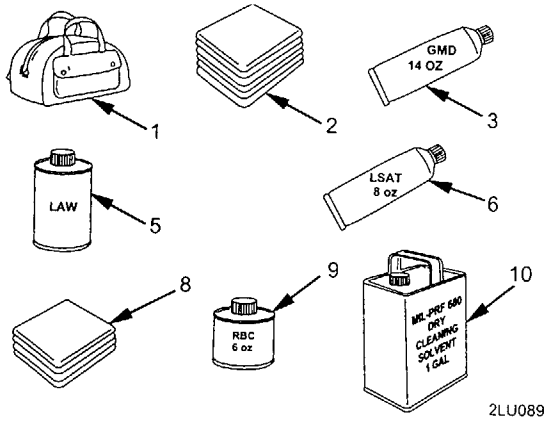
Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., "Use dry cleaning solvent (item 10, WP 0019 00).").

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

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

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

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


GMD
14 OZ
LAW
LSAT
8 oz
RBC
6 oz
MIL-PRF 680
DRY
CLEANING
SOLVENT
1 GAL
1
2
3
5
6
8
9
10
2LU089

0019 00-4

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
1		5140-00-473-6256	Bag, tool, satchel **(Not for Army use.)**	EA
2		5350-00-221-0872	Cloth, abrasive crocus (58536) A-A-1206	PG

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
3		9150-00-935-4018	Grease, molybdenum disulfate (GMD) (81349) MIL-G-21164	14 OZ
4		9150-00-965-2003	Grease, molybdenum disulfide (GMD) MIL-G-21164	35 LB

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
5		9150-00-292-9689	Lubricant, automatic weapons, Arctic (LAW) (81349) MIL-L-14107	QT
6		9150-00-949-9323	Lubricating oil (LSAT) (81349) MIL-L-46150	8 OZ

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
7		9150-01-109-7793	Lubricating oil (LSAT) MIL-L-4650	LB
8		7920-00-205-1711	Rags, wiping (58536) A-A-2522	50 LB
9		6850-00-224-6657	Rifle Bore Cleaner (RBC) (81349) MIL-C-372	8 OZ

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
10		6850-00-281-3061	Solvent, dry cleaning (81348) MIL-PRF-680, Type II	CN

END OF WORK PACKAGE

INDEX

Subject	WP Sequence No. - Page No.
A	
Additional Authorization List	
Additional Authorization List Items	0018 00-5
Introduction	0018 00-2
Adjusting Rear Sight	0005 00-23
Alignment Guide Assembly	
Clean	0012 00-14
Inspect	0012 00-14
Install	0013 00-7
Lubricate	0012 00-16
Remove	0011 00-17

INDEX - Continued

Subject	WP Sequence No. - Page No.
A (cont)	
Ammunition	
M383 High-Explosive Round	0014 00-4
M385A1 Training Practice Rounds	0014 00-6
M918 Target Practice Round	0014 00-8
M922A1 Dummy Round	0014 00-10
M430/M430A1 High-Explosive Dual Purpose Round	0014 00-11
Rapid Unobstructed Bore Check Procedures	0014 00-13
Round Removal Tool Procedures	0014 00-28

INDEX - Continued

Subject	WP Sequence No. - Page No.
A (cont)	
Auxiliary Equipment	
AN/TVS-5 Sight Assembly	0015 00-3
MK64 Machine Gun Mount	0015 00-2
B	
Barrel	
Description	0004 00-1
Basic Issue Items (BII)	
BII List	0017 00-7

INDEX - Continued

Subject	WP Sequence No. - Page No.
B (cont)	
Introduction	0017 00-3
Bolt and Backplate Assembly	
Clean	0012 00-30
Inspect	0012 00-31
Install	0013 00-18
Lubricate	0012 00-34
Remove	0011 00-3
Bore	
Clean	0005 00-34

INDEX - Continued

Subject	WP Sequence No. - Page No.
C	
Case Catch Bag	
Attach	0005 00-8
Chamber	
Clean	0005 00-34
Inspect	0012 00-6
Charger Assemblies (LH and RH)	
Clean	0012 00-19
Description	0004 00-4
Inspect	0012 00-20
Install	0013 00-2

INDEX - Continued

Subject	WP Sequence No. - Page No.
C (cont)	
Lubricate	0012 00-21
Remove	0011 00-22
Charging/Loading	0005 00-20
Cleaning, Inspection, and Lubrication	0012 00-3
Components of End Item List	0017 00-5
Consolidated Table of Allowances (CTA)	0016 00-2
Control Grip Assembly	
Description	0004 00-6
Corrosion Prevention and Control (CPC)	0001 00-3

INDEX - Continued

Subject	WP Sequence No. - Page No.
D	
Department of the Army Pamphlets (DA PAM)	0016 00-2
Description and Use of Operator Controls and Indicators	0004 00-1
Destruction of Material to Prevent Enemy Use	0001 00-5
E	
Equipment Characteristics, Capabilities, and Features	0002 00-1
Equipment Data	0002 00-8

INDEX - Continued

Subject	WP Sequence No. - Page No.
E (cont)	
Expendable and Durable Items List	
Expendable and Durable Items List	0019 00-5
Introduction	0019 00-2
F	
Feed Slide Assembly	
Clean	0012 00-26
Description	0004 00-7
Inspect	0012 00-26

INDEX - Continued

Subject	WP Sequence No. - Page No.
F (cont)	
Install	0013 00-8
Lubricate	0012 00-27
Remove	0011 00-12
Feed Throat Assembly	
Description	0004 00-8
Install	0013 00-22
Remove	0011 00-2
Feed Tray	
Clean	0012 00-26
Inspect	0012 00-26

INDEX - Continued

Subject	WP Sequence No. - Page No.
F (cont)	
Install	0013 00-8
Lubricate	0012 00-27
Remove	0011 00-16
Feeding	0005 00-12
Attach Feed Throat to Feeder	0005 00-13
Field Manuals	0016 00-3
Field Strip	
Removal	0011 00-2
Firing	
After Firing	0005 00-29

INDEX - Continued

Subject	WP Sequence No. - Page No.
F (cont)	
Operation	0003 00-7
Using Traversing and Elevating Mechanism	0005 00-25
Firing Pin	
Inspect	0005 00-36
Flash Suppressor	
Description	0004 00-2
Forms	0016 00-3
Free Gun	0005 00-28

INDEX - Continued

Subject	WP Sequence No. - Page No.
G	
General Cleaning and Lubrication	0010 00-3
General Information	0001 00-1
Gun	
Install	0005 00-10
H	
How to Use this Manual	vi

INDEX - Continued

Subject	WP Sequence No. - Page No.
L	
List of Effective Pages/Work Packages	A
Loading/Charging	0003 00-2
Location and Description of Major Components	0002 00-4
Lubrication Instructions	0010 00-6
M	
Maintenance	
Cleaning, Inspection, and Lubrication	0012 00-3
Maintenance Forms, Records, and Reports	0001 00-2

INDEX - Continued

Subject	WP Sequence No. - Page No.
M (cont)	
Maintenance Procedures	
Assembly	0013 00-2
Test and Inspection	0013 00-24
MK19 Mod 3 Machine Gun	
Description	0002 00-1
Test and Inspection	0013 00-24
MK64 Gun Mount	
Description	0002 00-2
Install	0005 00-6

INDEX - Continued

Subject	WP Sequence No. - Page No.
M (cont)	
MK93 Mod 0 (Marine Corps only)	
Description	0002 00-2
MK93 Mod 1	
Description	0002 00-2
M3 Tripod Ground Mount	
Install	0005 00-5
M383 High-Explosive Round	0014 00-4
M385A1 Training Practice Rounds	0014 00-6
M430/M430A1 High-Explosive Dual Purpose Round	0014 00-11
M918 Target Practice Round	0014 00-8

INDEX - Continued

Subject	WP Sequence No. - Page No.
M (cont)	
M922A1 Dummy Round	0014 00-10
O	
Ogive Plunger Assembly	
Clean	0012 00-16
Inspect	0012 00-17
Install	0013 00-6
Lubricate	0012 00-19
Remove	0011 00-18

INDEX - Continued

Subject	WP Sequence No. - Page No.
O (cont)	
Operation Under Usual Conditions	
Adjusting Rear Sight	0005 00-23
After Firing	0005 00-29
Charging/Loading	0005 00-20
Feeding	0005 00-12
Firing Using Traversing and Elevating Mechanism	0005 00-25
Free Gun (Not for Army Use)	0005 00-28
Installation	0005 00-3

INDEX - Continued

Subject	WP Sequence No. - Page No.
O (cont)	
Operation Under Unusual Conditions	
Unusual Environment/Weather	0006 00-2
Operational Checkout and Troubleshooting Procedures	
Troubleshooting Procedures	0008 00-4
Ozone Depleting Substances (ODS)	0001 00-5
P	
Preparation for Storage or Shipment	0001 00-6

INDEX - Continued

Subject	WP Sequence No. - Page No.
P (cont)	
Preparation for Storage or Shipment	0001 00-6
Preventive Maintenance Checks and Services	
General	0009 00-2
PMCS Procedures	0009 00-2
Preventive Maintenance Checks and Services (PMCS) Including Lubrication Instructions	
General Cleaning and Lubrication	0010 00-3
Lubrication Instructions	0010 00-6
PMCS Procedures	0010 00-10

INDEX - Continued

Subject	WP Sequence No. - Page No.
P (cont)	
Primary Drive Lever	
Clean	0012 00-21
Engage	0013 00-16
Inspect	0012 00-22
Lubricate	0012 00-23
Remove	0011 00-6
R	
Rapid Unobstructed Bore Check Procedures	0014 00-13

INDEX - Continued

Subject	WP Sequence No. - Page No.
R (cont)	
Rear Sight Assembly	
Adjusting	0005 00-23
Description	0004 00-4
Receiver Assembly	
Clean	0012 00-4
Inspect	0012 00-7
Lubricate	0012 00-10
Recoil/Ejecting	0003 00-12
References	0016 00-1
Reporting Equipment Improvement Recommendations (EIR)	0001 00-3

INDEX - Continued

Subject	WP Sequence No. - Page No.
R (cont)	
Round	
Insert	0005 00-15
Round Positioning Block	
Clean	0012 00-16
Inspect	0012 00-17
Install	0013 00-4
Lubricate	0012 00-19
Remove	0011 00-20
Round Removal Tool Procedures	0014 00-28

INDEX - Continued

Subject	WP Sequence No. - Page No.
S	
Safe/Fire Switch	0004 00-6
Safety/Fire Switch	
Description	0004 00-6
Scope	0001 00-1
Sear Assembly	
Clean	0012 00-12
Inspect	0012 00-13
Install	0013 00-20
Lubricate	0012 00-14
Remove	0011 00-24

INDEX - Continued

Subject	WP Sequence No. - Page No.
S (cont)	
Secondary Drive Lever	
Clean	0012 00-24
Engage	0013 00-12
Inspect	0012 00-24
Lubricate	0012 00-25
Remove	0011 00-10
T	
Table of Contents	iii

INDEX - Continued

Subject	WP Sequence No. - Page No.
T (cont)	
Technical Manuals (TM)	0016 00-4
Test and Inspection	0013 00-24
Theory of Operation	0003 00-2
Top Cover Assembly	
Clean	0012 00-28
Description	0004 00-2
Inspect	0012 00-28
Install	0013 00-10
Lubricate	0012 00-29
Remove	0011 00-14

INDEX - Continued

Subject	WP Sequence No. - Page No.
T (cont)	
Troubleshooting Index	
Introduction	0007 00-2
Malfunction/Symptom Index	0007 00-3
Troubleshooting Procedures	0008 00-1
V	
Vehicle Mount	
Installation	0005 00-3

INDEX - Continued

Subject	WP Sequence No. - Page No.
V (cont)	
Vertical Cam Assembly	
Clean	0012 00-21
Inspect	0012 00-22
Install	0013 00-14
Lubricate	0012 00-23
Remove	0011 00-6
W	
Warning Summary	a

By Order of the Secretary of the Army:

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

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0024513

Distribution: To be distributed in accordance with the Initial Distribution Number (IDN) 400589 requirements for TM 9-1010-230-10.

18407982200

TM 08521A-10/1A

PIN: 059480-000