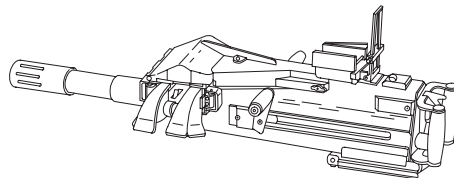


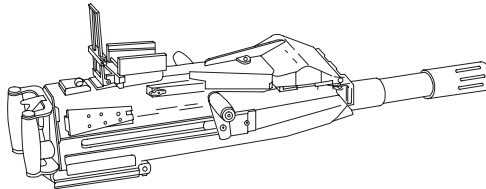
TECHNICAL MANUAL

**UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
MACHINE GUN, 40MM, MK19 MOD 3
NSN 1010-01-126-9063 (EIC:4AE)**



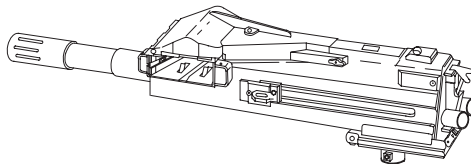
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**MACHINE GUN, 40MM, MK19 MOD 3, WITH SIGHT BRACKET
NSN 1010-01-490-9697**



1LK340

**MACHINE GUN, MK19, 40MM, UPGUNNED WEAPONS STATION (UPWS)
NSN 1010-01-362-6513**



1LK002

SUPERSEDURE NOTICE: This manual supersedes TM 9-1010-230-23&P dated October 2000.

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WARNING SUMMARY



EXPLOSION

Before performing any maintenance 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 at any time after firing, causing injury or death.

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

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

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; and inspect feeder, bolt face, 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.

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

During training, firing will not be conducted from enclosures.

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.

Empty the cartridge catch bag frequently during firing. If the cartridge catch 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 firing occur, check for bore obstruction.

Do not re-link or fire ammunition that has been cycled through the weapon.

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

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

Use only ammunition authorized for use with the MK19 machine gun: M383E4, M385A1, M918TP, M383HE, M384HE, and M430HEDP.

When firing approved 40MM ammunition, observe all **WARNINGS** in the front of this manual.

WARNING SUMMARY - Continued



MOVING PARTS

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

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

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.

To avoid injury, keep fingers clear of the cocking lever when firing pin fires.

Ensure safety slide block is installed in the position shown. If safety slide block is improperly installed, the thumb safety will not function, endangering personnel.



FLYING PARTICLES

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

Do not attempt to remove three self-locking shoulder screws from the feed slide housing. Springs will fly out causing injury.

The firing pin is under heavy spring tension. Always shield the tip of the firing pin whenever it is exposed and cocked. This will prevent injury if the firing pin sear is accidentally depressed.

Helical spring is under tension. Shield helical spring while pulling out pawl rod. This will prevent injury.



FALLING PARTS

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

WARNING SUMMARY - Continued



HEAVY OBJECT

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



EYE PROTECTION

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



EYE, EAR, AND HELMET PROTECTION

All personnel must wear a helmet and body armor. When firing the MK19 all personnel within 20 meters of firing area must wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.



CHEMICAL, FIRE, AND VAPOR

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.

FIRST AID

For further first aid data, see FM 4-25.11.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Dates of issue for original and changed pages are:

Original 0 30 November 2005

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 40 AND TOTAL NUMBER OF WORK PACKAGES IS 122, CONSISTING OF THE FOLLOWING:

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A	0
B blank.....	0
i - viii	0
WP 0001 00 - 0122 00	0
Index-1 - Index-11	0
Index -12 blank.....	0

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

***ARMY TM 9-1010-230-23&P
AIR FORCE TO 11W2-5-16-2
MARINE CORPS TM 08521A/09761A-23&P/2A
NAVY SW363-C3-MMM-020**

HEADQUARTERS,
DEPARTMENTS OF THE ARMY,
AIR FORCE, MARINE CORPS, AND NAVY
Washington, D. C., 30 November 2005

TECHNICAL MANUAL

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

FOR

**MACHINE GUN, 40MM, MK19 MOD 3
NSN 1010-01-128-9063 (EIC:4AE)**

AND

**MACHINE GUN, 40MM, MK19 MOD 3, WITH SIGHT BRACKET
NSN 1010-01-490-9697**

AND

**MACHINE GUN, 40MM, MK19,
UPGUNNED WEAPONS STATION (UGWS)
NSN 1010-01-362-6513**

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 <https://aeps.us.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 email your letter or DA Form 2028 direct to: AMSTA-LC-LMIT / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@us.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

CURRENT AS OF 31 DECEMBER 2004

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*This manual supersedes TM 9-1010-230-23&P dated 30 October 2000.

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HOW TO USE THIS MANUAL

General

Knowing how to use this manual is very important to you.

- a. References are to paragraphs in this manual or to other publications.
- b. Throughout this manual, text is keyed to the illustrations by use of 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.
- c. Each task begins with a setup sheet. It tells you what you need to do the task: tools, materials, parts, and other publications. It tells you what must be done to the equipment before you begin the task and provides general safety instructions.
- d. In the maintenance procedures, the numbered steps, printed in capital letters, are to be used by an experienced person. They are reminders about the order in which a task should be done. The lettered steps are a guide to the person who is less familiar with the gun.

Indexes

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

- a. Table of Contents. The table of contents lists, in the order of presentation, all chapters, work packages, and alphabetical index and gives the page numbers where they begin.
- b. Alphabetical Index. This index, located at the back of the book, is an extensive subject index for the entire manual. The page numbers following each entry tell you where in the manual to find a particular subject.

Lists

- a. Definition of Unusual Terms. A list of unusual or unfamiliar terms used in the manual is located in the glossary.
- b. Metric/US Customary Measurement Chart. Measurements in this manual are given in both metric and US customary units. The table inside the back cover compares metric measurements to their equivalent US customary units. Also provided are conversion factors to convert metric units to US customary units.
- c. Nomenclature Cross-Reference List and List of Abbreviations.
 - (1) Nomenclature Cross-Reference List. Throughout this manual, most items are referred to by their official nomenclature. In the list, the items referred to by their common names are listed alphabetically, followed by their official nomenclature.
 - (2) List of Abbreviations. An alphabetical list of uncommon abbreviations used in the manual is located in the glossary.

Troubleshooting Overview

a. This procedure is designed to isolate failures in the gun system. The procedure should start with a step-by-step functional test in the Operator's Manual to identify the problem. The functional test sends the mechanic to troubleshooting procedures, isolating the malfunction. When the malfunction is located, the mechanic is sent to the replace or repair paragraph. After the repair is finished, the mechanic is sent back to the functional test. This verifies a successful repair. After a successful test, the gun is returned to service.

- A Functional test shows a failure.
- B Failed component identified.
- C Failed component repaired or replaced.
- D Functional test begun again.
- E Functional test successfully completed.

b. A failure check/symptom index is included as a general reference to the troubleshooting procedures. Always start the procedure with the functional test in order to verify the symptom, and end the procedure with the functional test in order to verify the repair.

Maintenance Procedures

a. Initial Setup. Initial Setup is a list of everything needed in order to do maintenance on one part of the weapon.

Tools and Special Tools—Lists tools needed to perform maintenance.

Materials/Parts—Lists expendable/durable materials and 100% replaceable parts. Each material or part is followed by a part number or work package reference. If more than one part is needed, the quantity needed precedes the part number or reference.

Personnel Required—Lists the number of personnel needed when more than one person is required.

References—Lists other publications containing necessary information.

Equipment Conditions—Lists conditions to be met before starting the procedure. The reference on the left of the condition is a work package reference to instructions for setting up the condition.

b. Step-By-Step Procedures. Step-by-step procedures are illustrated procedures for maintenance authorized in the maintenance allocation chart (MAC). For replacement of parts, see WP 0095 00 through WP 0120 00.

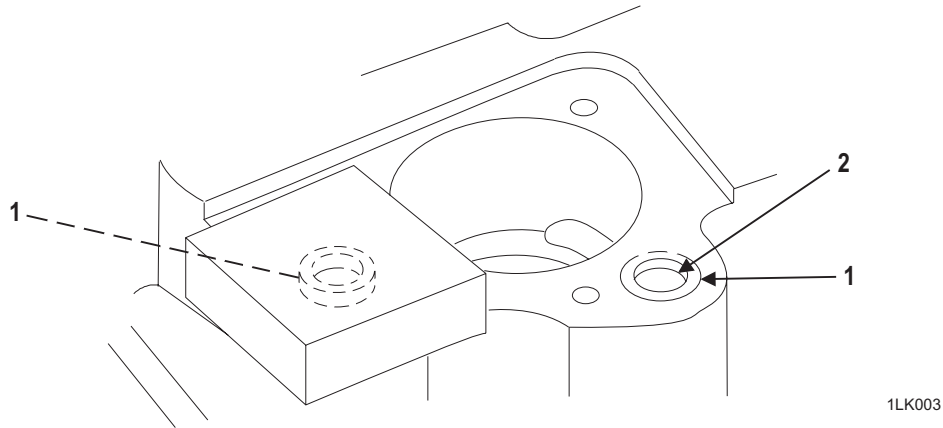
c. WARNINGS and CAUTIONS. Throughout the manual you will see WARNING and CAUTION data which must be followed.

(1) WARNING. A warning is used to alert the user of hazardous operating and maintenance procedures, practices, conditions, statements, etc., that may result in injury to or death of personnel if not strictly observed.

HOW TO USE THIS MANUAL – Continued

(2) **CAUTION.** A caution is used to alert the user of hazardous operating or maintenance procedures, practices, conditions, statements, etc., that may result in damage to or destruction of equipment or of mission effectiveness if not strictly observed.

d. **Callouts.** A dashed callout arrow in the procedures means the part being called out is hidden, i.e., you can't see it on the illustration. For example:



(1) Callout 1 is the seal.

(2) Callout 2 is the housing bore.

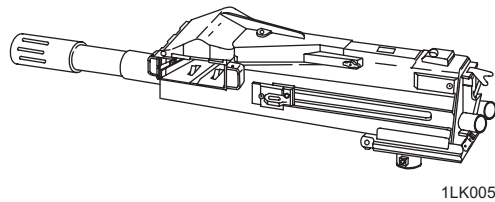
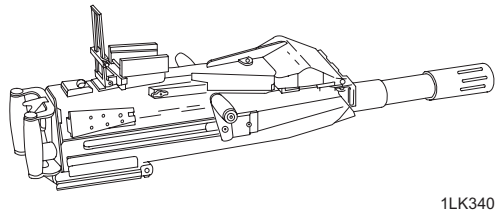
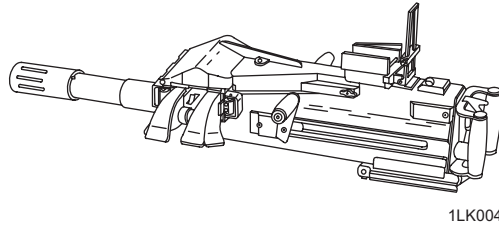
CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION FOR MK19 MOD 3 40MM MACHINE GUN, MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET, AND UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

GENERAL INFORMATION

**SCOPE**

- a. Type of Manual. Unit and Direct Support Maintenance, including Repair Parts and Special Tools List.
- b. Model Number and Equipment Name. MK19 MOD 3 40mm Machine Gun, MK19 MOD 3 40mm Machine Gun with Sight Bracket, and MK19 40mm Upgunned Weapons Station.
- c. Purpose of Equipment. Provides a machine gun that fires a 40mm grenade with antipersonnel fragmentation and light-armor capability.

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, Functional Users Manual for the Army Maintenance Management System (TAMMS).

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

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

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.

Accidents involving injury to personnel or damage to material will be reported on DA Form 285 (U.S. Army Accident Report) in accordance with AR 385-40. Explosives and ammunition malfunctions will be reported in accordance with AR 750-1.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your machine gun needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at: TACOM-ARDEC, 1 Rock Island Arsenal, Rock Island, IL 61299-7300. (FAX: Commercial (309) 782-6653, DSN 793-6653) (E-mail: qawqdrs@ria.army.mil). A reply will be furnished to you.

Air Force users submit AFTO Form 22, Technical Order System Publication Improvement Report and Reply, to: WR-ALC/MMIBTC, Robins AFB, GA 31098-5330.

Marine Corps users submit NAVMC Form 10772 direct to: Commanding General, Marine Corps Logistics Base (Code 850), 814 Radford Blvd, Albany, GA 31704-1128.

Navy users submit form TMDER NAVSEA 9086/10 to: Commanding Officer, Naval Ordnance Station, Code 20F4, Louisville, KY 40214-5000.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army material is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

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

If a corrosion problem is identified, it can be reported using the website at <http://AEPS@us.army.mil> (Product Quality Deficiency Report) or SF 368 (Product Quality Deficiency Report). Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem.

The form should be submitted to: ATTN: AMSTA-AR-QAW-C, TACOM-ARDEC, 1 Rock Island Arsenal, Rock Island, IL 61299-7300. (FAX: Commercial (309) 782-6653, DSN 793-6653) (E-mail: qawqdrs@ria.army.mil).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-7 for procedures concerning destruction of the MK19 MOD 3 40mm Machine Gun, MK19 MOD 3 40mm Machine Gun with Sight Bracket, and MK19 40mm Upgunned Weapons Station.

DEMILITARIZATION OF SMALL ARMS RESIDUE

To prevent the unauthorized use of replaced (used) components/sub-assemblies of weapons and associated small arms equipment following repair, demilitarization will be accomplished in accordance with DOD 4160.21-M-1, Defense Demilitarization Manual.

PREPARATION FOR STORAGE OR SHIPMENT

Refer to WP 0088 00.

LIST OF ABBREVIATIONS

BOD.....	Bore Obstruction Detector
cm.	Centimeter
dia.....	Diameter
DTI.....	Detailed Technical Inspection
FGC.....	Functional Group Code
GMD.....	Grease, Molybdenum Disulfide
HEDP.....	High Explosive, Dual Purpose
HE.....	High Explosive
in.....	Inch
LAW.....	lubricating oil
LSA.....	weapons lubricating oil
LSAT.....	weapons lubricating oil
LTI.....	Limited Technical Inspection
MAC.....	Maintenance Allocation Chart
NHA.....	Next Higher Assembly
SMR.....	Source, Maintenance, and Recovery
SRA.....	Specialized Repair Activity
TMDE.....	Test, Measurement, and Diagnostic Equipment
TP.....	Training Practice
UGWS.....	Upgunned Weapons Station
RBC.....	Rifle Bore Cleaner

QUALITY OF MATERIAL

Material used for replacement, repair, or modification must meet the requirements of this manual. If quality or material requirements are not stated in this manual, the material must meet the requirements of the drawings, standards, specifications, or approved engineering change proposals applicable to the subject equipment.

SAFETY, CARE, AND HANDLING

Refer to TM 9-1300-206 for general ammunition safety, care, and handling.

SUPPORTING INFORMATION FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT**Common Tools and Equipment**

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

Special Tools, TMDE, and Support Equipment

Special tools required for Unit and Direct Support are listed in WP 0094 00 and WP 0118 00.

Repair Parts

Repair parts are listed and illustrated in WP 0096 00 through WP 0118 00 of this manual.

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

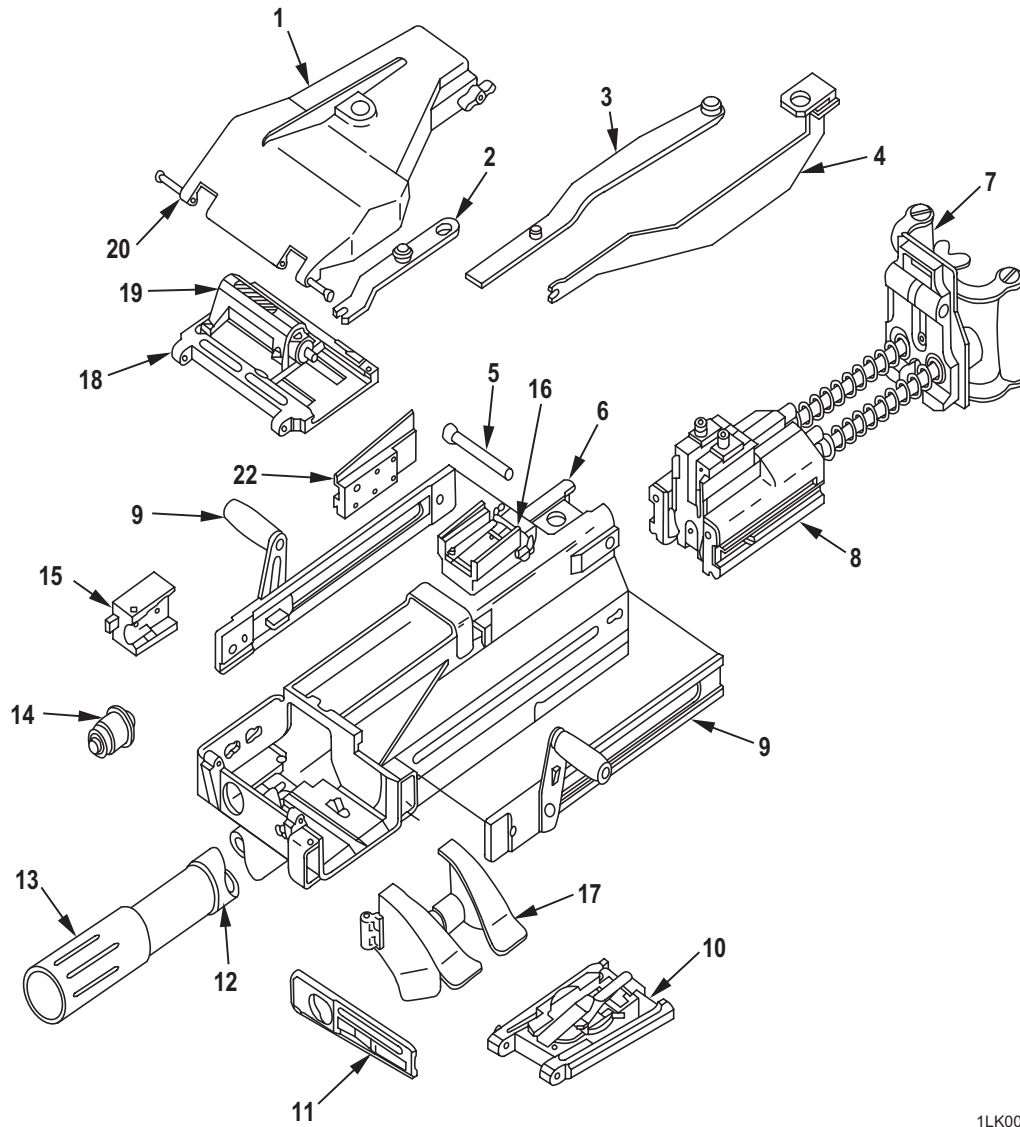
**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

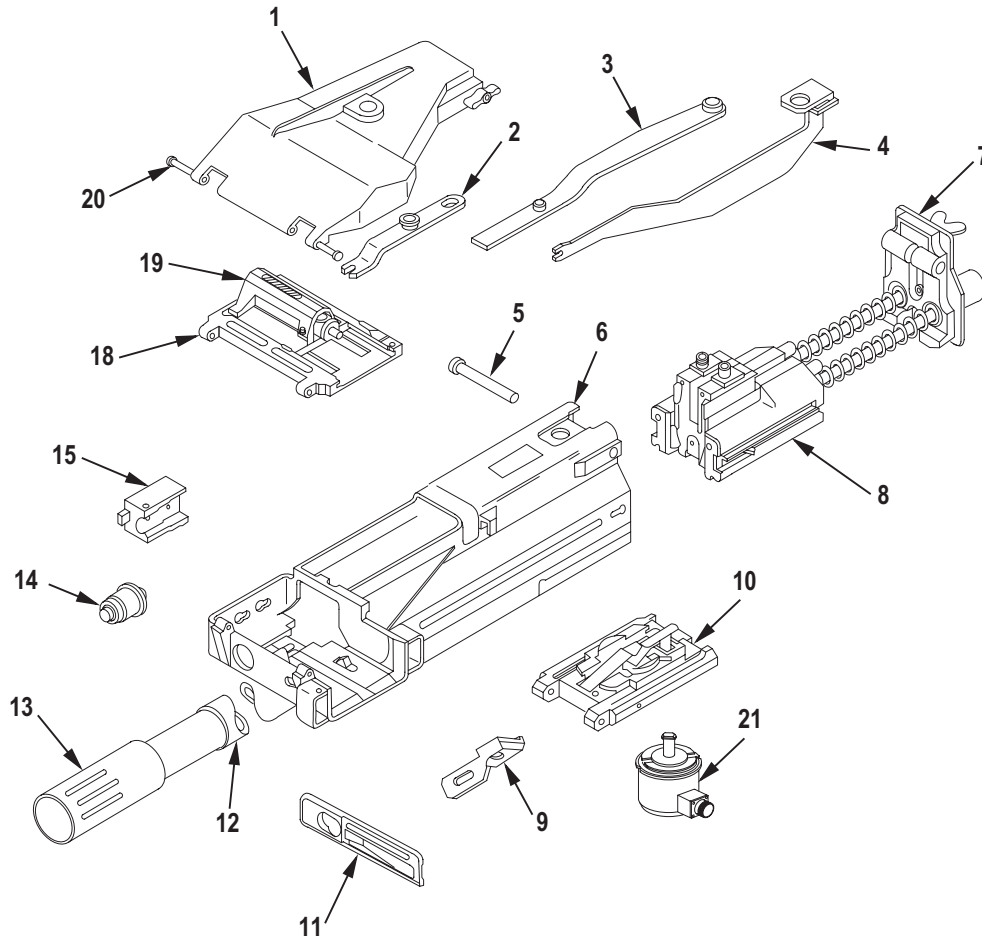
The MK19 Machine Gun is air cooled, blowback operated (with advanced primer ignition), belt fed, and can be mounted on the ground or on a vehicle.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



1LK006

MK19 MOD 3 Machine Gun and
MK19 MOD 3 Machine Gun with Sight Bracket



1LK007

MK19 Upgunned Weapon Station (UGWS)

- a. **TOP COVER ASSEMBLY (1).** Hinged to the receiver at the forward end by two straight pins. Locks by a latch assembly attached to the rear left side of the cover.
- b. **SECONDARY DRIVE LEVER (2).** Consists of a lever and permanently installed retaining ring. The forked end of the lever connects to the inner feed slide pin. The slot-end engages the pivot post on the primary drive lever. The secondary drive lever's pivot post engages the hole in the top cover assembly. The retaining ring is attached to the pivot post.
- c. **PRIMARY DRIVE LEVER (3).** Located on the top of the vertical cam assembly. Features a large and small pivot post. The large post protrudes through the raised portion of the vertical cam assembly and through the receiver. The small pivot post engages the slot in the secondary drive lever.
- d. **VERTICAL CAM ASSEMBLY (4).** Extends down the receiver's long axis and passes through the center of the bolt. The raised portion attaches to the receiver and to the primary drive lever.
- e. **BACKPLATE PIN ASSEMBLY (5).** Consists of a steel pin with knurled head, and a permanently installed retaining ring. The backplate pin assembly secures the bolt and backplate assembly to the receiver.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

- f. **RECEIVER (6).** The steel housing which supports all the other components. The ammunition-feed area of the receiver contains a primary and a secondary positioning pawl. The groove from the right-hand wall to the mouth of the feed area is called the "link guide". The grooved rails on the inside of the receiver support the bolt.
- g. **CONTROL GRIP ASSEMBLY (7) (MK 19 MOD 3 ONLY).** Attached to the backplate on the rear of the bolt and backplate assembly. Consists of two handgrips and a butterfly-type trigger located between the two grips.
- h. **BACKPLATE ASSEMBLY (7) (UGWS ONLY).** Attached to the backplate on the rear of the bolt and backplate assembly.
- i. **BOLT AND BACKPLATE ASSEMBLY (8).** Consists of a machined steel bolt attached to a backplate by a set of telescoping rods, tubes, and recoil springs.
- j. **CHARGER ASSEMBLIES, LEFT-HAND AND RIGHT-HAND (9) (MK 19 MOD 3 ONLY).** Each assembly consists of a charger housing to which is attached the arm with handle assembly and charger handle lock. The charger housings are installed on the sides of the receiver.
- k. **CHARGER BLOCK (9) (UGWS ONLY).** Block used for attaching the turret charging system.
- l. **SEAR ASSEMBLY (10).** Consists of the receiver sear and safety mechanism components inside a sear housing. The gun's safety is mounted on the rear of the assembly.
- m. **ALIGNMENT GUIDE ASSEMBLY (11).** Consists of the steel alignment guide and a flat spring held by a flat head screw and shoulder screw. The shoulder screw holds the alignment guide against the forward wall of the receiver's ammunition-feed area. The ogive plunger assembly protrudes through the elongated opening in the alignment guide.
- n. **BARREL (12).** The 40mm grenade barrel screws into the receiver. The chromed bore is rifled to impart spin to the fired round.
- o. **FLASH SUPPRESSOR (13).** The threaded end of the flash suppressor screws onto the end of the barrel and is secured with a slotted spring pin.
- p. **OGIVE PLUNGER ASSEMBLY (14).** Protrudes through the forward wall of the ammunition-feed area of the receiver and is held in place by the alignment guide assembly. Consists of a housing, plunger, and compression spring. The rearward end of the assembly is contoured to cushion the ogive of the round.
- q. **ROUND POSITIONING BLOCK (15).** Consists of a block with machined pins and springs. The pins are mounted to key slots in the right-hand wall of the receiver's ammunition-feed area.
- r. **REAR SIGHT ASSEMBLY (16).** Hinged to the rear sight base hinge support on top of the receiver. The rear sight base is held by four socket head cap screws and is designed to hold the AN/TVS-5 Night Vision Sight. The M2 bracket interfaces between the rear sight and 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.
- s. **FEED THROAT ASSEMBLY (17).** Assists feeding of 40mm ammunition. The feed throat attaches to the forward left side of the receiver by two sets of spring-loaded shoulder pins. Without a feed throat, machine gun stoppages may occur because of twisted or misaligned rounds.

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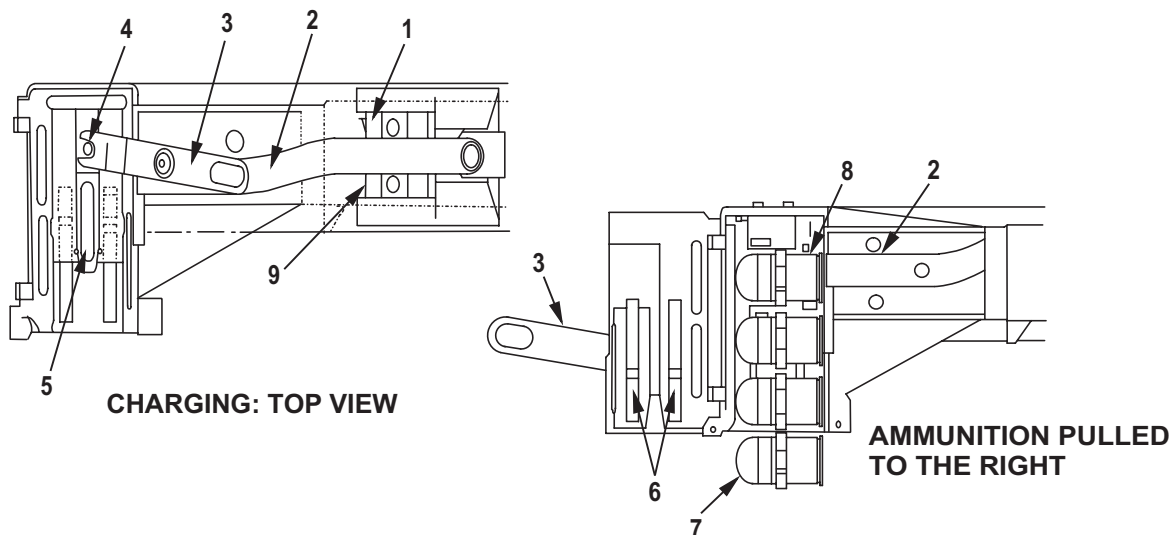
UNIT AND DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****THEORY OF OPERATION**

GENERAL

The weapon has six major mechanical functions which occur during its cycle of operation: charging, extracting, cocking, firing, recoil, and automatic feeding. Within each paragraph is a description of the function.

CHARGING

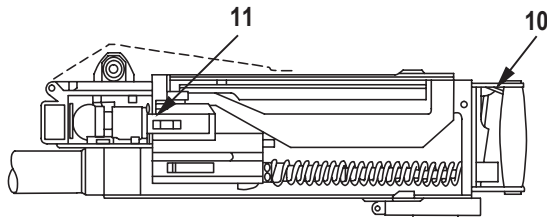
Charging is the process of manually pulling the bolt (1) to the rear by pulling the charging handle assemblies. The bolt assembly's rearward movement causes the primary drive lever (2) to move to the left. The primary drive lever rotates the adjustable secondary drive lever (3). The forked end of the secondary drive lever, which rests on the inner feed slide pin (4), moves the feed slide assembly (5) to the right. The feed pawls (6) on the feed slide assembly move the linked rounds (7) over one place in the ammunition-feed area of the receiver. The leading round (8) is now in line with the bolt face (9).



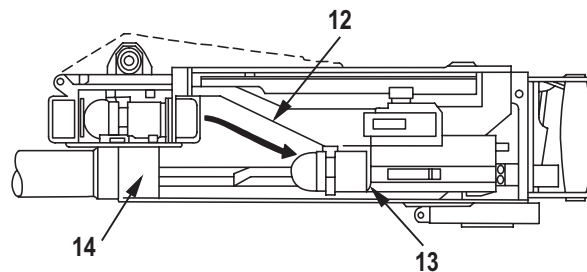
1LK008

EXTRACTING (DELINKING THE ROUND FROM THE BELT)

When the operator presses the trigger (10) after charging the gun, the bolt slams forward under spring tension. The bolt's extractors (11) snap over the cartridge of the leading round. As the operator charges the gun a second time, the link on the second round in the feeder contacts a depression in the receiver forcing the male and female links apart. As the round (8) is pulled rearward by the extractors (11), the curved edge of the vertical cam assembly (12) forces the round down the face of the bolt, out of the extractors, and into the bolt fingers (13). When the bolt is fully to the rear, the round is lined up with the chamber (14). The primer of the round is aligned with the firing pin, ready for firing. The rounds in the ammunition-feed area have been moved over one place (see CHARGING).



EXTRACTING: ROUNDS IN BOLT'S EXTRACTOR (SIDE VIEW)

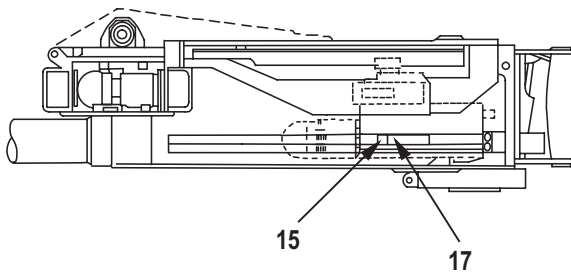


ROUND CAMMED DOWN

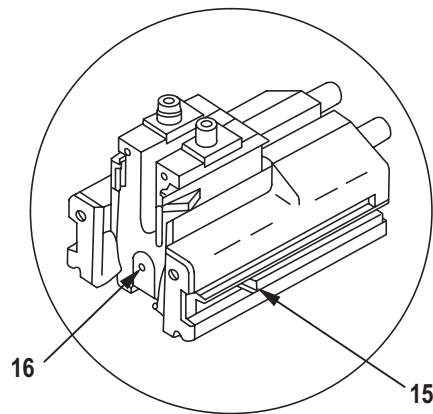
1LK009

COCKING

The rearward movement of the bolt causes the cocking lever (15) to retract the firing pin (16). The firing pin is held rearward by the firing pin sear (17). The firing pin sear and the cocking lever each prevent the gun from firing until the bolt is released forward.



COCKING: BOLT TO REAR, FIRING PIN RETRACTED



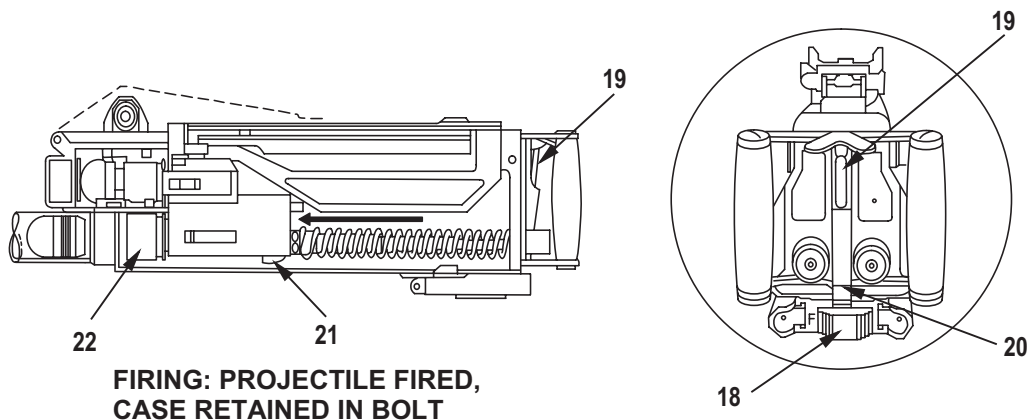
1LK010

FIRING

The releasing of the firing pin detonates the primer. Before the MK19 MOD 3 will fire:

- The bolt must be to the rear with the firing pin cocked.
- A round must be centered on the face of the bolt by the bolt fingers.
- Both charger handle assemblies must be forward, up, and locked. If either charger handle assembly is down, the bolt sear will not come in contact with the forward end of the receiver to allow the firing pin to fire the round.
- The thumb safety (18) must be on "F" (FIRE).

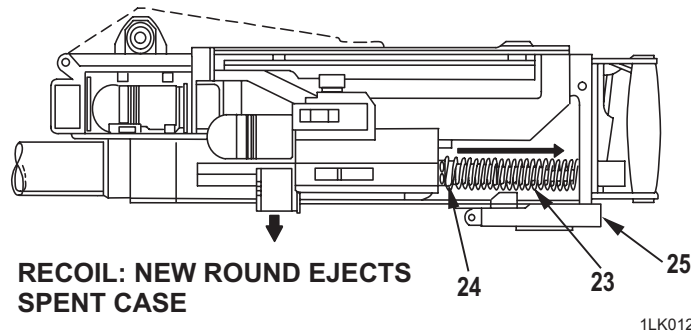
When the operator presses the trigger, the trigger depresses the operating rod (19), which depresses the tip of the receiver sear (20). The receiver sear disengages the bolt sear (21). The bolt is released forward under spring tension, with a round in its bolt fingers. When the cocking lever hits the forward end of the left-hand receiver rail slot, it is forced rearward. The bolt sear hits a plate in the bottom of the receiver, pushing the firing pin sear up to release the firing pin. The firing pin is driven forward, under tension by the firing pin spring. The firing pin detonates the primer of the round, igniting the propellant. At the moment of firing, the round, which has a reinforced propellant chamber, is not fully within the barrel's chamber (the bolt never locks in the weapon). Thus, the cartridge case (22) protrudes from the chamber, still held by the bolt fingers. The exploding powder then forces the projectile down the bore and out the muzzle of the gun. The bolt is fully forward with a new round in its extractors.



1LK011

RECOIL AND AUTOMATIC FEEDING

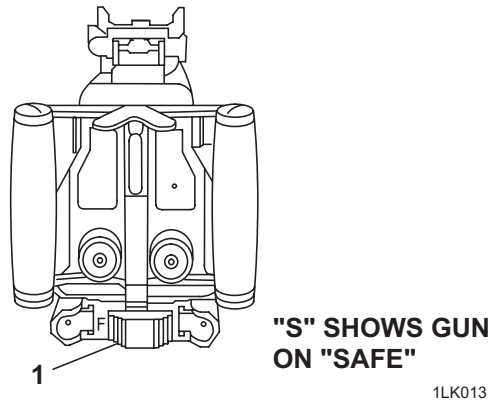
The gases from the burning powder blow the bolt rearward with a new round in its extractors. During recoil, several functions happen almost at once. The new round is extracted and is cammed down on top of the spent case by the vertical cam's curved rail. The spent case with its link still attached is forced from the bolt fingers and out the bottom of the gun (ejection). The feed slide assembly pulls the round to the right in the receiver's ammunition-feed area, where a new round is now ready to be delinked and extracted (automatic feeding). During the bolt's rearward travel, the cocking lever is pushed forward, which cocks the firing pin. When the bolt reaches the limit of its rearward travel, the recoil springs (23) are completely compressed. Any over-travel is absorbed by the bolt buffer assembly (24) and receiver buffer bodies (25) thus reducing trunnion load (recoil force) at the gun/mount attaching points. If the trigger is still depressed, the bolt sear will not engage the receiver sear and another firing cycle occurs. If the trigger is released, the bolt sear engages the receiver sear, which prevents the bolt from going forward, thus stopping firing.



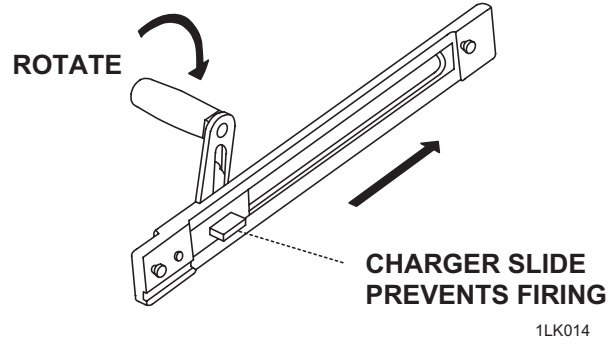
SAFETY MECHANISMS

Components which prevent the weapon from firing accidentally or interrupt the firing cycle intentionally are considered safety mechanisms. These include:

- a. Thumb safety (1). Activates the safety slide inside the sear assembly. The safety slide blocks the sear from being depressed by the operator as long as the safety is on "S" (SAFE).



b. Charger handle assemblies down. The safety slide on the inside edge of each charger arm slides rearward as the handle assembly is rotated down. With a handle assembly down, the bolt sear cannot come in contact with the forward end of the receiver to release the firing pin, so firing cannot occur. One or both handle assemblies may be lowered. Remember "CHARGER HANDLE ASSEMBLY DOWN" is the action for a runaway gun.



END OF WORK PACKAGE

CHAPTER 2

UNIT TROUBLESHOOTING PROCEDURES

FOR

MK19 MOD 3 40MM MACHINE GUN,

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET,

AND

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****UNIT TROUBLESHOOTING INDEX****GENERAL**

This section contains Unit level troubleshooting information for locating and correcting most of the operating troubles that may develop in the MK19 MOD 3/Upgunned Weapons Station. Each malfunction for the individual part or assembly is followed by a list of tests or inspections that will help you to determine the corrective actions to take. 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, see the individual repair sections in the maintenance procedures for each major assembly.

MALFUNCTION/SYMPTOM INDEX

Refer to Troubleshooting Work Packages for malfunctions, tests, and corrective actions. The Malfunction/Symptom Index is provided for a quick reference to the malfunctions covered.

NOTE

Refer to WP 0040 00 for general disassembly of your weapon.

Symptom**Work Package**

Bolt Does Not Reach Sear.....	WP 0007 00
Bolt Jams during Charging or Firing	WP 0005 00
Charger Handle(s) Override Bolt	WP 0018 00
Deformed Case or Round	WP 0017 00
Erratic Firing	WP 0012 00
Gun Difficult to Charge	WP 0006 00
Gun Will Not Shoot	WP 0008 00
Hard Firing (Excess Recoil)	WP 0014 00
Obstructed Bore	WP 0019 00
Premature Firing	WP 0016 00
Rounds Will Not Extract/Eject	WP 0010 00
Rounds Will Not Feed	WP 0009 00
Rounds Will Not Fire	WP 0011 00
Runaway Gun (Uncontrolled Automatic Fire)	WP 0015 00
Sluggish Firing	WP 0013 00

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – BOLT JAMS DURING CHARGING OR FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0040 00

SYMPTOM

Bolt jams during charging or firing.

WARNING

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

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

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

EMERGENCY ACTION TO CLEAR BOLT JAM

Hold one charger handle as far to the rear as possible to support the bolt.

While holding the charger handle back, open the top cover.

Slowly pull both charger handles back until the bolt clicks (locks) in the rear position. Place the weapon on "S" (SAFE). Be prepared to catch any ammunition that may fall from the underside of the weapon. Have assistant gunner or other personnel assist you.

Remove any ammunition from the bolt face and from the receiver.

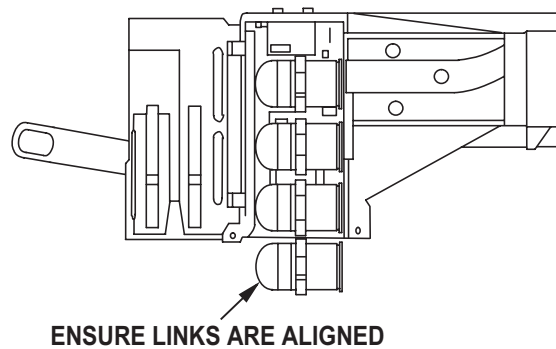
Ease the bolt forward. Move the feed slide assembly to the left. Close the top cover.

SYMPTOM - Continued

Bolt jams during charging or firing.

MALFUNCTION

Misaligned rounds/links.



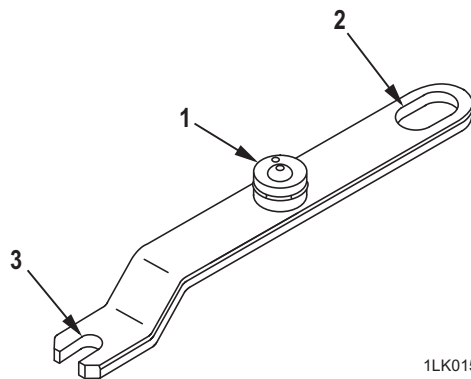
1LK341

CORRECTIVE ACTION

Ensure rounds/links are properly aligned.

MALFUNCTION

Damaged or burred secondary drive lever.

CORRECTIVE ACTION

1LK015

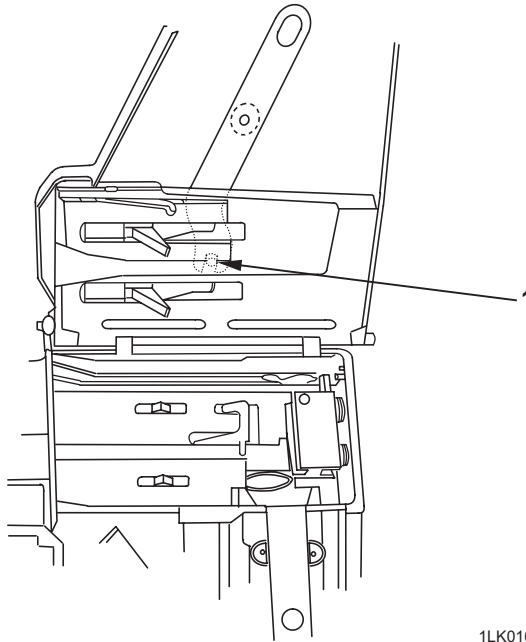
1. Open top cover and remove secondary drive lever (WP 0040 00).
2. Check for burrs around the pivot post (1), fork (2), and slot (3). Also check for deformation to the fork and slot.
3. Verify the retaining ring is present on the pivot post.

MALFUNCTION

Deformed lever or missing retaining ring.

CORRECTIVE ACTION

Install new secondary drive lever (WP 0040 00). Also inspect inner feed slide pin (1) for damage. If damaged, evacuate to Direct Support Maintenance.



1LK016

MALFUNCTION

Burred lever, fork, slot, or post pivot.

CORRECTIVE ACTION

Remove burrs with a stone.

SYMPTOM - Continued

Bolt jams during charging or firing.

MALFUNCTION

Obstruction on sides of bolt and in T-slot, between bolt and receiver, or between bolt and vertical cam.

CORRECTIVE ACTION

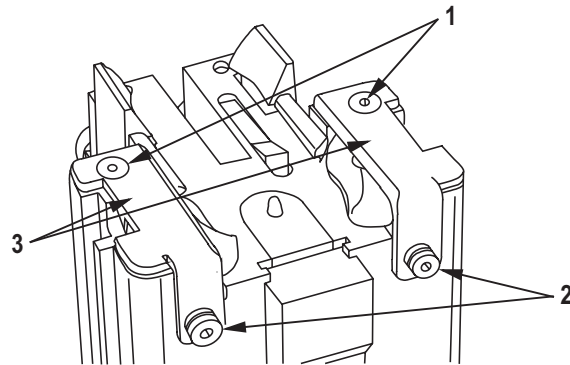
1. Remove the bolt and backplate assembly (WP 0040 00), vertical cam assembly, and primary drive lever (WP 0040 00).
2. Remove the obstruction.
3. Replace damaged vertical cam assembly and/or damaged primary drive lever.
4. If bolt is damaged, evacuate to Direct Support Maintenance.

MALFUNCTION

Loose or missing screws; loose RH and LH covers.

CORRECTIVE ACTION

Check for self-locking screws (1) and self-locking socket head cap screws (2). Manually attempt to move the RH and LH covers (3). They should not move at all. Place the large screwdriver on the combination tool under each bolt finger and lift to check for loose shoulder bolts. If loose or missing parts, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance).



1LK017

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

CORRECTIVE ACTION

Check for bent vertical cam. Inspect the chromed surface for burrs, nicks, pits, scratches, and aluminum buildup.

MALFUNCTION

Bent vertical cam.

CORRECTIVE ACTION

Install new vertical cam assembly (WP 0040 00).

MALFUNCTION

Burrs, aluminum buildup.

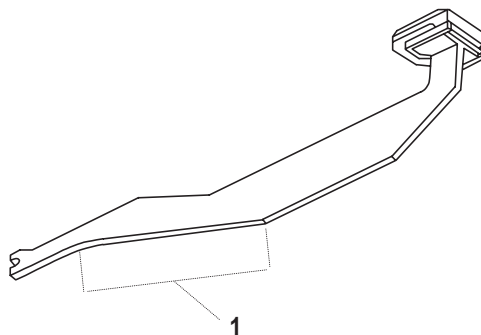
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



1LK018

SYMPTOM - Continued

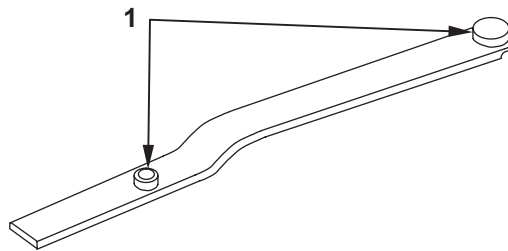
Bolt jams during charging or firing.

MALFUNCTION

Burred primary drive lever.

CORRECTIVE ACTION

Check the pivot posts (1) and all surfaces of the primary drive lever for burrs. If burred, remove with a stone and preserve with a lubricant. If the smaller pivot post is burred, check the slot on the secondary drive lever for burrs or deformed metal.



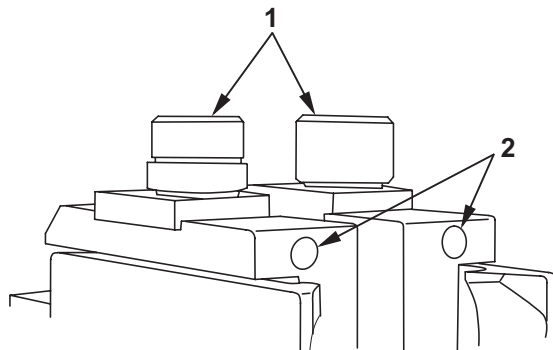
1LK019

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



1LK020

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – GUN DIFFICULT TO CHARGE

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

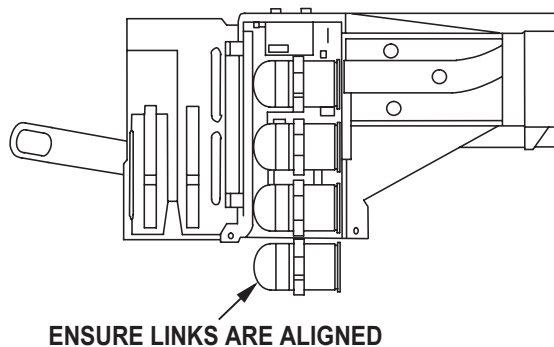
WP 0040 00

SYMPTOM

Gun difficult to charge.

MALFUNCTION

Ammo links not correctly aligned.

CORRECTIVE ACTION

1LK341

1. Ensure proper fit between link and toggle on ammunition.
2. Open top cover and inspect link and toggle connection of the ammunition in the feed tray area.

SYMPTOM - Continued

Gun difficult to charge.

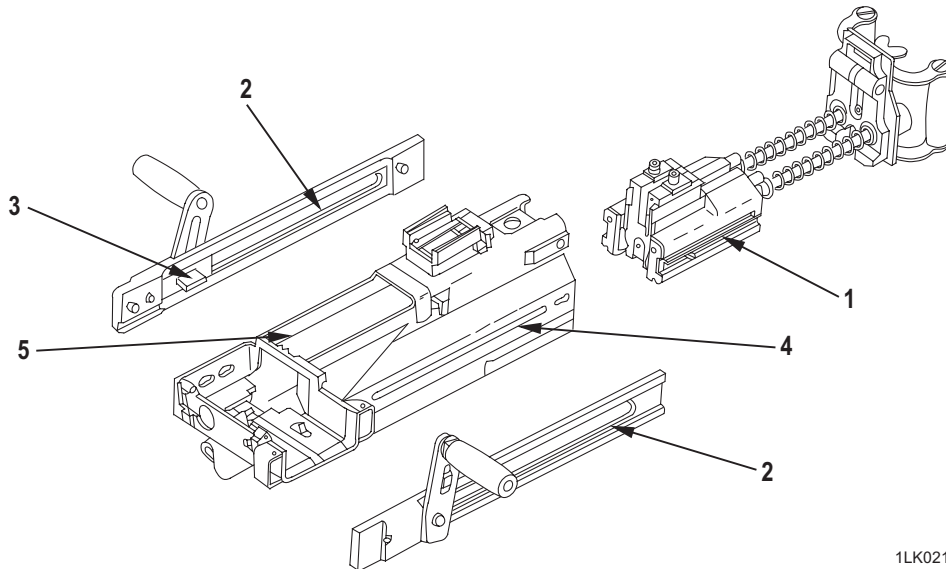
3. Try to adjust rounds and make sure links are in the link slot area.
4. Retry charging of weapon. If no success, delink one round of ammunition and dispose of properly; try again.

MALFUNCTION

Burred bolt rails, charger housing rails, or receiver rails.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly (WP 0040 00). Check the bolt rails (1) for burrs.
2. Remove the right-hand (RH) and left hand (LH) charger assemblies (WP 0040 00). Check the grooved rails (2) and the charger slide (3) for burrs. Remove burrs with a stone. Preserve with lubricant.
3. Check the RH and LH receiver rails (4) for burrs. Also check the right-rail (5) inside the receiver housing for burrs.



1LK021

MALFUNCTION

Eroded firing pin cover.

CORRECTIVE ACTION

Check the firing pin cover for pits and metal erosion. If damaged or eroded, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Burrs, aluminum buildup.

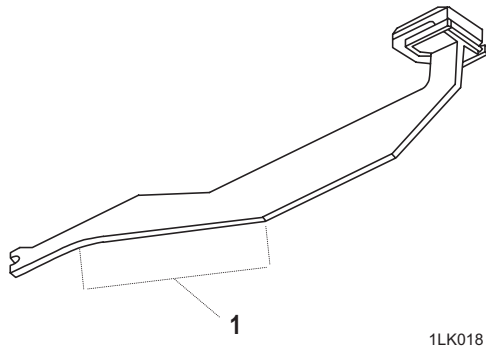
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



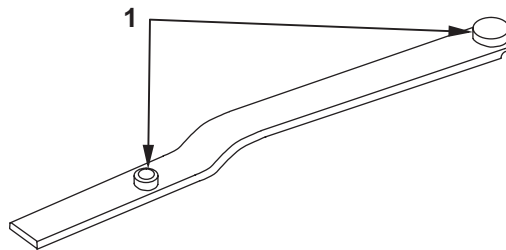
1LK018

MALFUNCTION

Burred primary drive lever.

CORRECTIVE ACTION

Check the pivot posts (1) and all surfaces of the primary drive lever for burrs. If burred, remove with a stone and preserve with a lubricant. If the smaller pivot post is burred, check the slot on the secondary drive lever for burrs or deformed metal.



1LK019

SYMPTOM - Continued

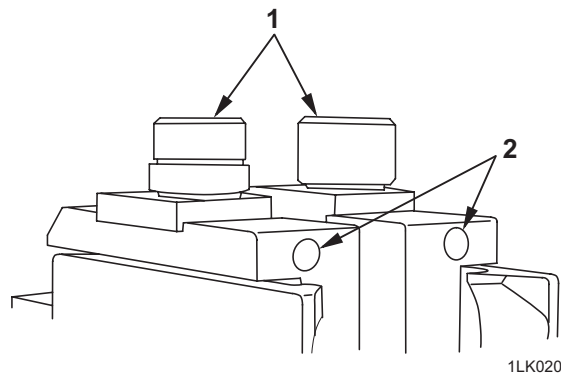
Gun difficult to charge.

MALFUNCTION

Loose or cracked RH and LH cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****UNIT TROUBLESHOOTING - BOLT DOES NOT REACH SEAR**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0040 00

SYMPTOM

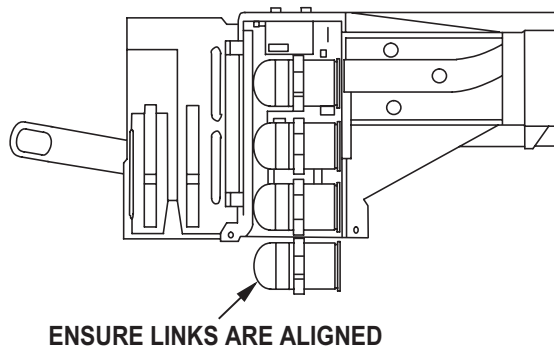
Bolt does not reach sear.

MALFUNCTION

Ammo links in correctly aligned.

CORRECTIVE ACTION

Correctly align ammo links.



1LK341

SYMPTOM - Continued

Bolt does not reach sear.

WARNING

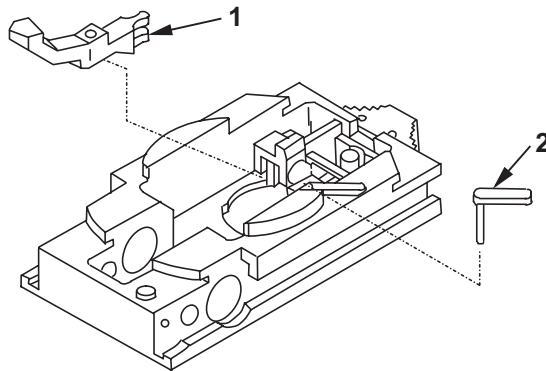
Before performing any procedure, ensure the weapon is clear of any ammunition.

MALFUNCTION

Broken safety lever (1) or safety lever pin (2).

CORRECTIVE ACTION

1. With the weapon assembled, bolt forward, place thumb safety on "S" (SAFE).
2. Rotate charger handles down and attempt to charge weapon.
3. If the bolt will not lock to the rear or the bolt moves forward with the safety on "S" (SAFE), evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



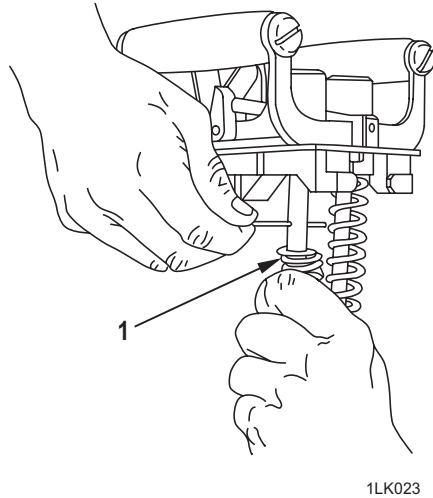
1LK022

MALFUNCTION

Broken or missing spring washers.

CORRECTIVE ACTION

1. With the weapon assembled, bolt forward, place the thumb safety on "F" (FIRE).
2. Charge the weapon.
3. If the bolt moves forward when the charger handles are released, the spring washer (1) may be broken or missing. Evacuate to Direct Support Maintenance.



MALFUNCTION

Burrs, aluminum buildup.

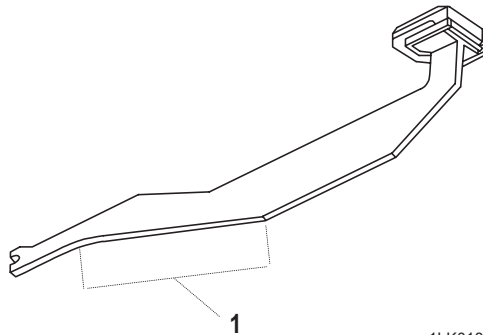
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



SYMPTOM - Continued

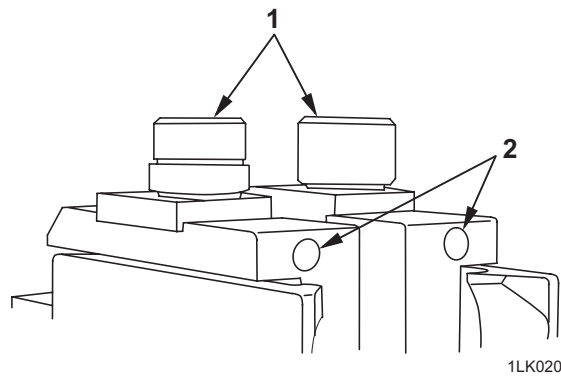
Bolt does not reach sear.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)

**END OF WORK PACKAGE**

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – GUN WILL NOT SHOOT

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0038 00

SYMPTOM

Gun will not shoot.

MALFUNCTION

Perform function check (WP 0038 00). Locate specific problem area and troubleshoot.

CORRECTIVE ACTION

Some malfunctions occur only during automatic operation. If the function check did not help to locate the problem evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – ROUNDS WILL NOT FEED

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Lubricant (as required)

References

WP 0038 00
WP 0040 00
WP 0043 00
WP 0052 00

SYMPTOM

Rounds will not feed.

MALFUNCTION

Bent, burred, or missing feed throat.

NOTE

Feeding problems can be caused by burred or improperly aligned ammo links, feed slide out of adjustment, or bent feed throat.

CORRECTIVE ACTION

Ensure feed throat is present and properly installed. Check feed throat for bends or burrs that will prevent round(s) from feeding correctly. Remove burrs with a stone. If feed throat is missing or damage prevents proper feeding, replace the feed throat (WP 0052 00).

SYMPTOM - Continued

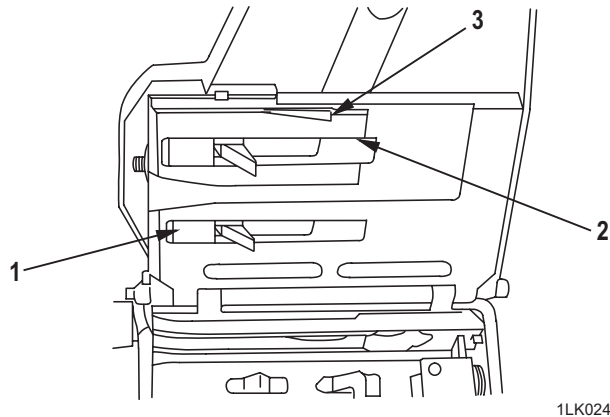
Rounds will not feed.

MALFUNCTION

Burred feed tray or damaged, weak, or binding feed tray pawl.

CORRECTIVE ACTION

1. Move the feed slide assembly (1) back and forth on the feed tray rails (2) to test for burrs or binding.
2. Press the feed tray pawl (3). It should be hard to press and should snap back crisply with no binding.
3. Remove the secondary drive lever (WP 0040 00), feed slide assembly (1) (WP 0040 00), top cover (WP 0040 00), and feed tray (WP 0040 00).



1LK024

BURRED FEED TRAY RAILS

Deburr with a stone.

DAMAGED PAWL

Disassemble the feed tray pawl, pin, and spring (WP 0043 00). Install new feed tray pawl (WP 0043 00). Perform function test (WP 0038 00).

WEAK SPRING

If spring is weak, replace spring (WP 0043 00).

BINDING

Lubricate. If binding persists, disassemble feed tray (WP 0043 00). Remove burrs and sharp edges with a stone. Lubricate and assemble (WP 0043 00).

MALFUNCTION

Feed slide mechanism out of adjustment.

CORRECTIVE ACTION**WARNING**

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

Function test the feed operation (WP 0038 00). Ensure the primary pawl snaps up as the dummy round is fed across the receiver's feed area. If the primary pawl does not snap up, evacuate to Direct Support Maintenance. (Weapons with adjustable secondary drive lever, have unit armorer make adjustment.) (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Welded pins missing from receiver; link guide burred or galled.

CORRECTIVE ACTION**PINS MISSING**

Evacuate the weapon to Direct Support Maintenance.

GALLING

Function check the feed operation (WP 0038 00) using six linked dummy rounds. If a galled link guide in receiver or feed tray prevents feeding, evacuate to Direct Support Maintenance. (Marine Corps: Replace feed tray (WP 0040 00), as required, at Unit Maintenance.)

BURRS

Remove with a stone.

SYMPTOM - Continued

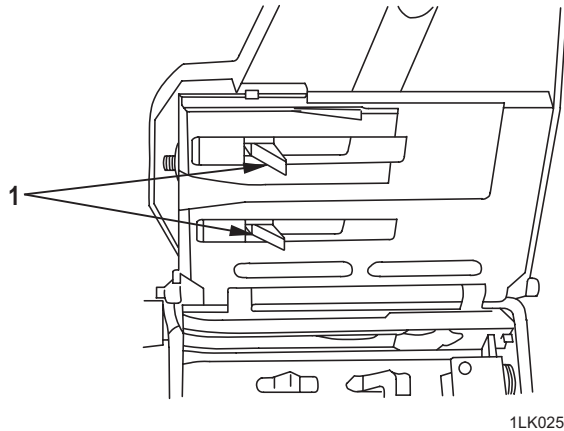
Rounds will not feed.

MALFUNCTION

Feed pawls burred; binding or weak springs.

CORRECTIVE ACTION

Press the two feed pawls (1) on the feed slide assembly. They should depress all the way and snap back crisply.



1LK025

BURRED, WEAK, BINDING

Remove the feed slide assembly from the feed tray (WP 0043 00). Remove feed pawls, straight headless pins, and feed pawl flat springs. If one of the feed pawl flat springs is broken, replace both. Clear any obstructions between the feed pawl flat spring and feed pawl. Deburr with a stone, lubricate lightly, and assemble.

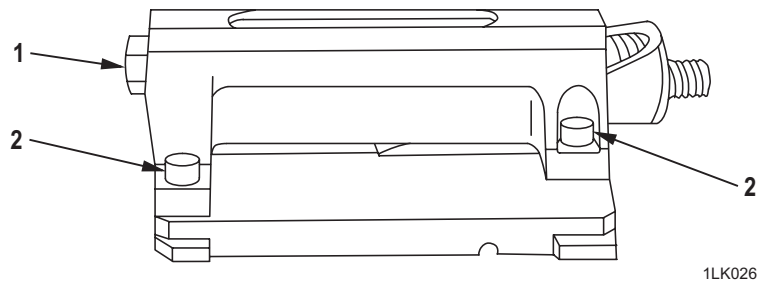
MALFUNCTION

Loose guide rod; loose or missing self-locking shoulder screws.

CORRECTIVE ACTION**WARNING**

Do not attempt to remove three self-locking shoulder screws from the feed slide housing. Springs will fly out causing injury.

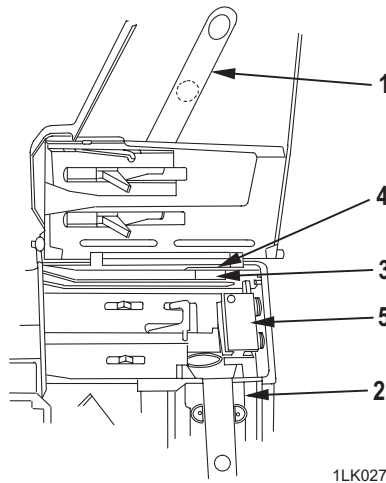
Manually try to move the guide rod (1) and the three self-locking shoulder screws (2) on the feed slide housing. There should be no movement. If any movement is found, evacuate to Direct Support Maintenance.

**MALFUNCTION**

Missing or improperly installed receiver components.

CORRECTIVE ACTION

Verify the presence of the following components: secondary drive lever (1), primary drive lever (2), ogive plunger assembly (3), alignment guide assembly (4), and round positioning block (5). Ensure proper installation.

**MISSING COMPONENTS**

Replace any missing components. If the primary or secondary drive levers were replaced, function check the feed operation (WP 0038 00) after assembly.

MALFUNCTION

Missing crosspins from primary pawl rod or secondary pawl rod.

CORRECTIVE ACTION

Evacuate to Direct Support Maintenance. (Marine Corps: Repair secondary pawl at Unit Maintenance.)

SYMPTOM - Continued

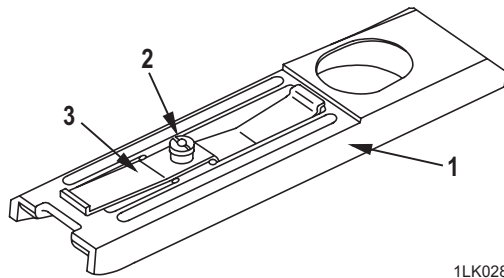
Rounds will not feed.

MALFUNCTION

Damaged alignment guide; cracked flat spring; loose screw.

CORRECTIVE ACTION

Remove the alignment guide assembly (WP 0040 00) and inspect for damage to the alignment guide (1), loose flat head screw (2), or cracked alignment guide flat spring (3).



1LK028

DAMAGED ALIGNMENT GUIDE

Install a new alignment guide assembly (WP 0040 00).

CRACKED SPRING

Evacuate to Direct Support Maintenance.

LOOSE FLAT HEAD SCREW

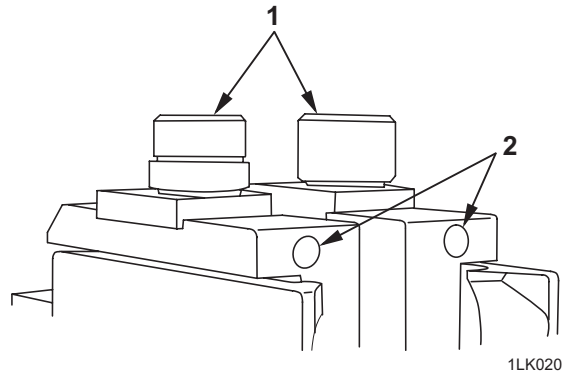
Alignment guide flat head screw and flat spring should not move relative to each other. If they move freely, evacuate to Direct Support Maintenance.

MALFUNCTION

Loose or cracked RH and LH cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****UNIT TROUBLESHOOTING – ROUNDS WILL NOT EXTRACT/EJECT**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

Lubricant (as required)

References

WP 0040 00

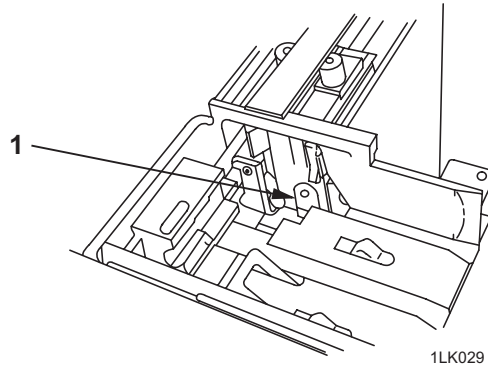
WP 0046 00

SYMPTOM

Rounds will not extract/eject.

MALFUNCTION

Rough or burred firing pin cover (1).

**CORRECTIVE ACTION**

Remove rough spots with an abrasive cloth. Remove burrs with a stone.

MALFUNCTION

Firing pin will not retract (defective firing pin, cocking lever, pin, or spring).

CORRECTIVE ACTION

With the weapon assembled, charge the weapon and place on "S" (SAFE). Observe through the receiver whether the firing pin is protruding. If the pin is protruding with the bolt to the rear, the cocking lever, pin, or spring is defective. Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

FIRING PIN WILL NOT RETRACT

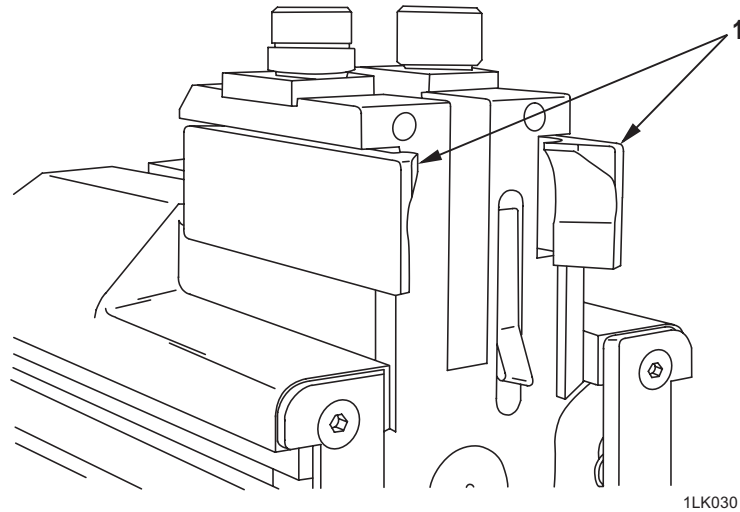
Evacuate to Direct Support Maintenance.

MALFUNCTION

Incorrect, obstructed, worn, or broken extractors; broken or weak springs.

CORRECTIVE ACTION

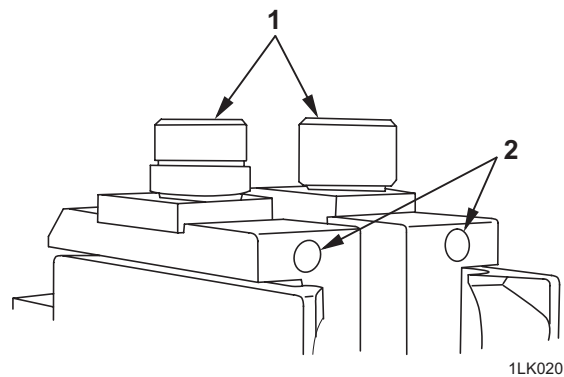
Check the tips (1) of the right-hand (RH) and left-hand (LH) cartridge extractors for obvious wear or breakage. Ensure the wider tip is on top. If wear or breakage is observed, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

**MALFUNCTION**

Loose or cracked RH and LH cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



SYMPTOM - Continued

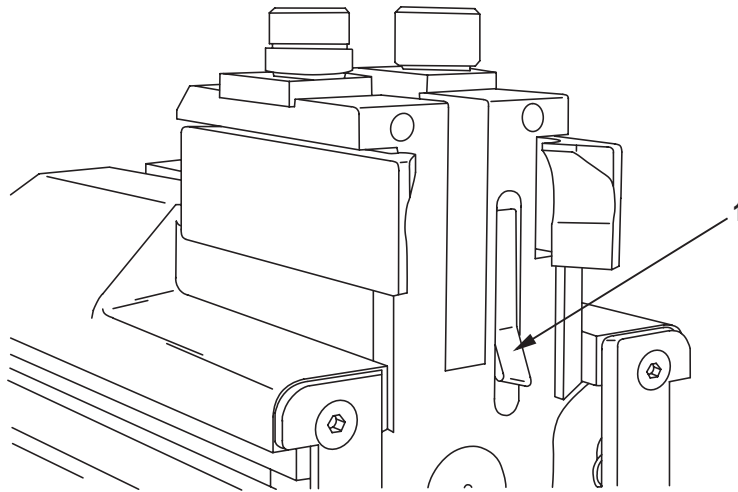
Rounds will not extract/eject.

MALFUNCTION

Obstructed pawl; weak helical spring.

CORRECTIVE ACTION

Press the pawl (1) to test for weak spring action or an obstruction under the pawl. If helical spring is weak or obstruction cannot be removed, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



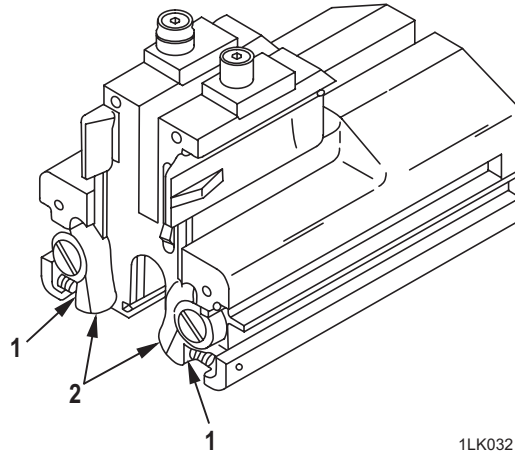
1LK031

MALFUNCTION

Obstructed bolt fingers; broken or weak finger springs.

CORRECTIVE ACTION

Ensure welded pins (1) are present in the bolt finger area, and on the bolt face. Force the RH and LH bolt fingers (2) apart to test for weakness or unequal finger spring tension. If weak or unequal finger spring tension, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



FINGER SPRINGS WEAK

Evacuate to Direct Support Maintenance.

WELDED PIN(S) MISSING

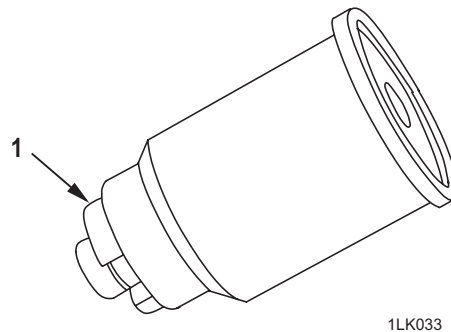
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Broken ogive plunger slotted washer.

CORRECTIVE ACTION

1. Remove the ogive plunger assembly (WP 0040 00) and inspect for broken slotted washer (1).
2. Disassemble ogive plunger (WP 0046 00). Inspect interior of the ogive spring housing and helical compression spring for proper lubrication. If lubrication is required, ensure parts are washed in solvent or RBC, dried, generously lubricated, and assembled.



SYMPTOM - Continued**BROKEN SLOTTED WASHER**

Disassemble the ogive plunger assembly (WP 0046 00), replace broken slotted washer, and assemble ogive plunger assembly.

END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN**

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – ROUNDS WILL NOT FIRE

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools – Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

TI-09761A-35/1

SYMPTOM

Rounds will not fire.

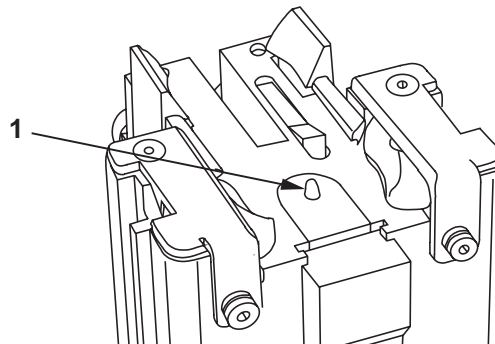
MALFUNCTION

Defective firing pin.

CORRECTIVE ACTION**WARNING**

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

1. Observe the **WARNING** above. Charge the weapon and press the trigger to release the bolt forward under spring tension.
2. Check the tip of the firing pin (1). It should be protruding. If not, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)
3. Check the tip of the firing pin for pits or damage.



1LK034

SYMPTOM - Continued

Rounds will not fire.

FIRING PIN DID NOT SPRING FORWARD

Test the firing pin operation again. Verify the firing pin springs forward. If not, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

FIRING PIN TIP PITTED

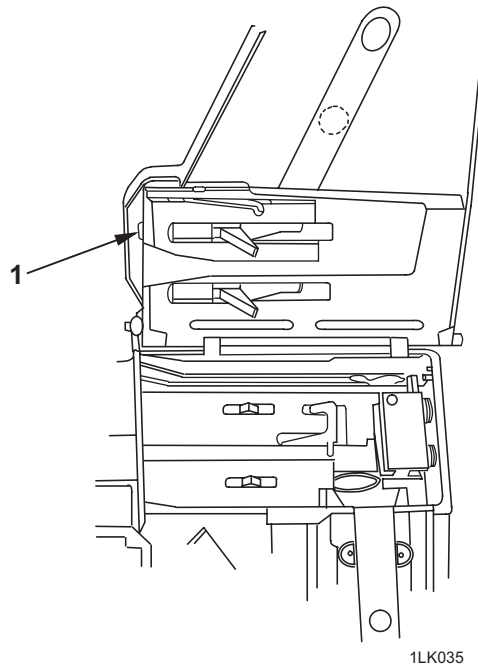
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Bent, broken, or missing guide rod spring.

CORRECTIVE ACTION

With feed slide assembly assembled, check presence and condition of guide rod spring (1).

**DAMAGED GUIDE ROD SPRING**

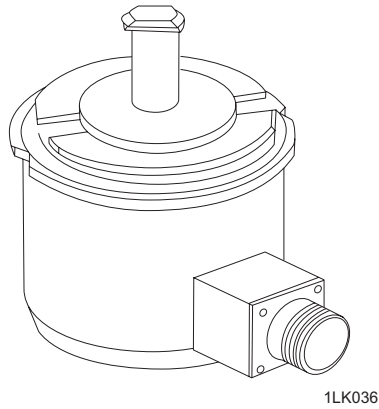
Evacuate to Direct Support Maintenance.

MALFUNCTION

Firing solenoid is defective (UGWS ONLY).

CORRECTIVE ACTION

Replace solenoid.



END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – ERRATIC FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-CL-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0040 00

SYMPTOM

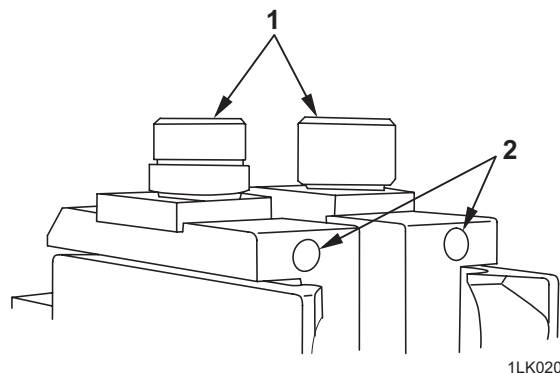
Erratic firing.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



SYMPTOM - Continued

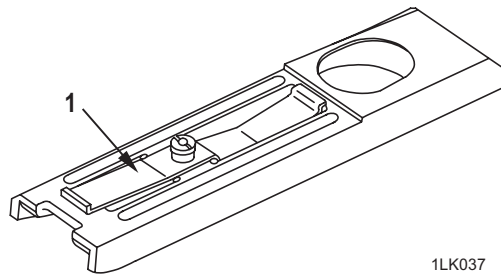
Erratic firing.

MALFUNCTION

Cracked or broken alignment guide flat spring.

CORRECTIVE ACTION

Remove the alignment guide assembly from the receiver (WP 0040 00). Check the alignment guide flat spring (1) for cracks around the flat head screw and for breakage.



1LK037

CRACKED OR BROKEN ALIGNMENT GUIDE FLAT SPRING

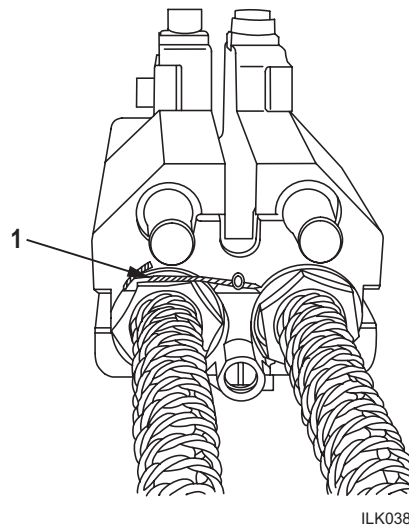
Evacuate to Direct Support Maintenance.

MALFUNCTION

Non-electrical wire missing or broken on bolt sleeves.

CORRECTIVE ACTION

Remove the bolt and backplate assembly from the receiver (WP 0040 00). Check for the presence of non-electrical wire (1) on the bolt sleeves.



1LK038

NON-ELECTRICAL WIRE MISSING/BROKEN

Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Broken lock plate.

CORRECTIVE ACTION

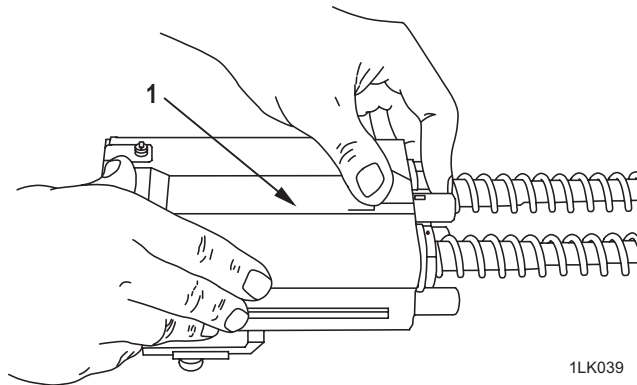
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Broken or worn helical compression spring; missing or out of position sear buffer components.

CORRECTIVE ACTION

Turn the bolt upside down or on its face. Manually attempt to move the bolt sear (1). The bolt sear should not move easily. If it does, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



1LK039

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – SLUGGISH FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0040 00

SYMPTOM

Sluggish firing.

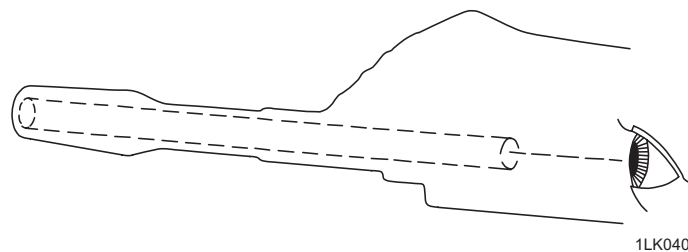
MALFUNCTION

Carbon buildup or chrome erosion on bore and chamber.

CORRECTIVE ACTION**NOTE**

A noticeable slowing down in the rate of fire indicates sluggish firing.

Remove the bolt and backplate assembly (WP 0040 00). Inspect the bore and chamber for carbon rings and chrome erosion.



SYMPTOM - Continued

Sluggish firing.

CARBON OR EROSION

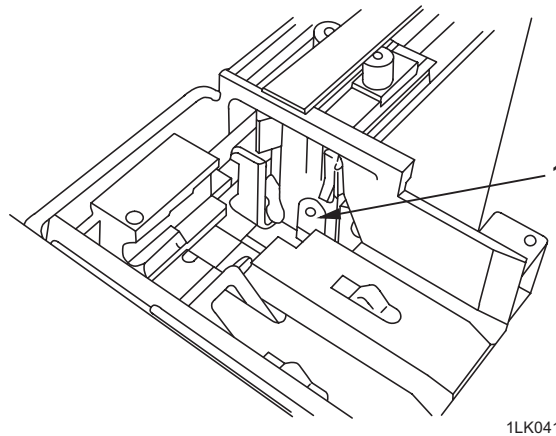
WARNING

To prevent injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

Clean the bore and chamber. Remove caked-on carbon in the chamber with an abrasive cloth. Inspect for chrome erosion in the chamber. If chrome erosion is found in the chamber evacuate to Direct Support Maintenance.

MALFUNCTION

Dry firing pin cover and bolt face.

CORRECTIVE ACTION

DRY

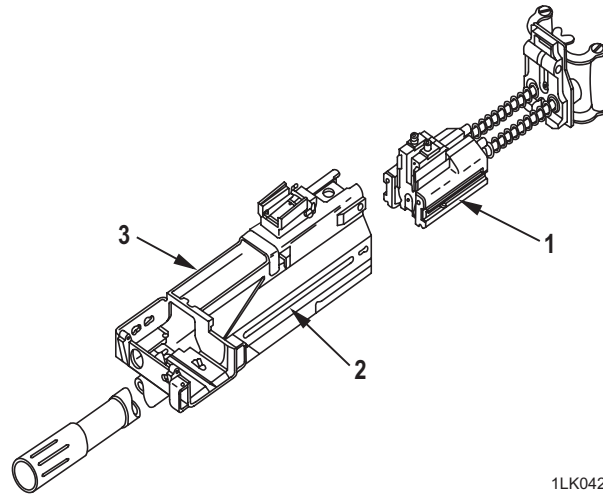
Lubricate the firing pin cover (1) and bolt face.

MALFUNCTION

Burred bolt or receiver rails.

CORRECTIVE ACTION

Remove the bolt and backplate assembly (WP 0040 00) and the charger assemblies (WP 0040 00). Inspect for burrs along the bolt rails (1) and external receiver rails (2). Also, check the right-hand inner rail (3) inside the receiver.



BURRS

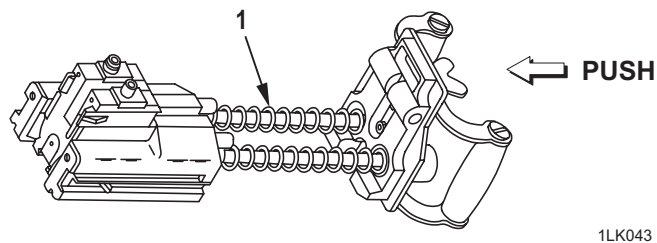
Remove burrs with a stone.

MALFUNCTION

Weak helical compression springs; broken strands.

CORRECTIVE ACTION

Place the bolt and backplate assembly face down on a hard surface. Push against the control grip assembly. The helical compression springs (1) should be hard to depress and should bounce back immediately. If not, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.) Inspect helical compression springs for broken strands. If any strand is broken, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



SYMPTOM - Continued

Sluggish firing.

MALFUNCTION

Burrs, aluminum buildup.

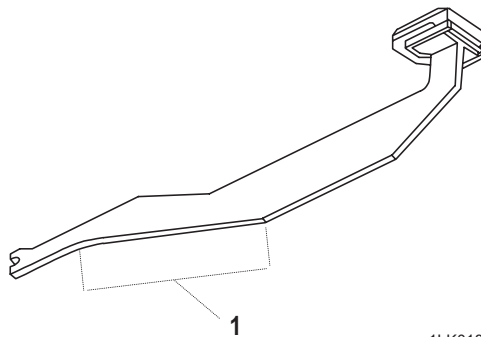
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



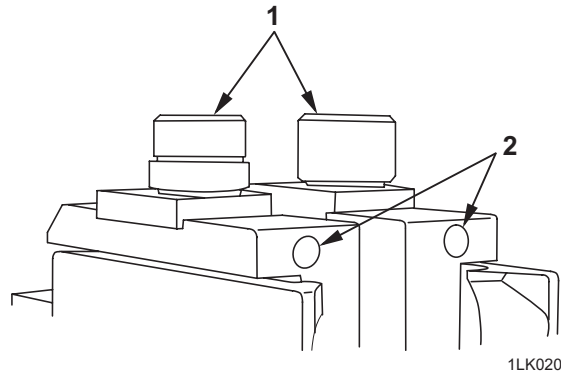
1LK018

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. If RH and LH cam followers are cracked or loose, evacuate to Direct Support Maintenance. (Marine Corps: Tighten nylon point set screws (2) as required and perform other repair at Unit Maintenance.)



END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****UNIT TROUBLESHOOTING – HARD FIRING (EXCESS RECOIL)**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0040 00

SYMPTOM

Hard firing (excess recoil).

MALFUNCTION

Bolt buffers contaminated with oil, water, or dust.

NOTE

Hard firing occurs when one of the weapon's buffer components is worn out, broken, missing, or exposed to oil, water, and/or dust. The shock of the bolt's recoil, instead of being absorbed by these components, is transmitted to the attaching points of the gun and mount.

CORRECTIVE ACTION

Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

SYMPTOM - Continued

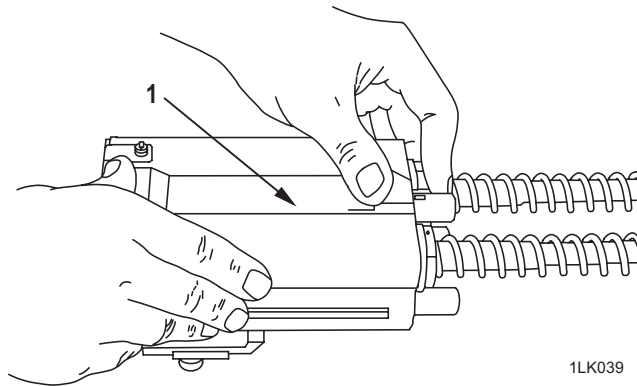
Hard firing (excess recoil).

MALFUNCTION

Broken helical compression spring; out of position or missing buffer components.

CORRECTIVE ACTION

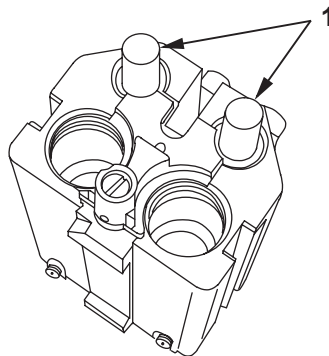
Remove the bolt and backplate assembly (WP 0040 00) from the receiver. Turn the bolt face down and manually attempt to move the bolt sear (1). The bolt sear should not move easily. If it does, the helical compression spring may be broken or one of the components in the cavity between the bolt and the bolt sear may be missing. Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

**MALFUNCTION**

Loose buffer bodies.

CORRECTIVE ACTION

Inspect buffer bodies (1) for up/down movement. If buffer bodies exhibit movement, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****UNIT TROUBLESHOOTING – RUNAWAY GUN (UNCONTROLLED AUTOMATIC FIRE)**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

Lubricant (as required)

References

TI-09761A-35/1

WP 0040 00

WP 0045 00

SYMPTOM

Runaway gun (uncontrolled automatic fire).

WARNING

Emergency Action: If weapon continues to fire after the trigger is released, keep weapon pointed in a safe direction. With one hand, lower one charging handle. The weapon will stop. After corrective action, test fire the weapon to verify proper functioning.

SYMPTOM - Continued

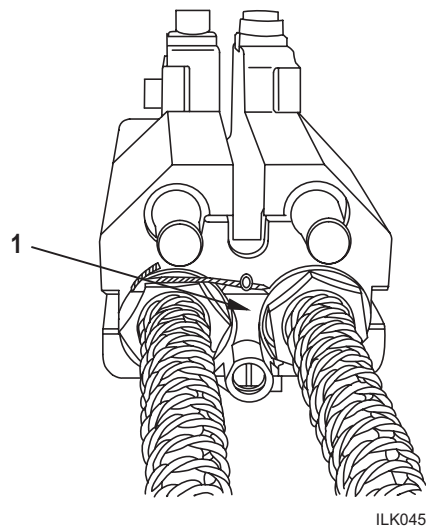
Runaway gun (uncontrolled automatic fire).

MALFUNCTION

Broken lock plate.

CORRECTIVE ACTION

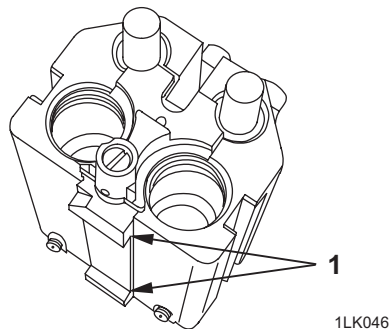
Remove the bolt and backplate assembly from the receiver (WP 0040 00). Inspect the lock plate (1) for breakage. If broken, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

**MALFUNCTION**

Broken/worn bolt sear

CORRECTIVE ACTION

Turn the bolt and backplate assembly on its side and inspect the bolt sear (1) for breakage/wear along the indicated surfaces. If wear, cracks, or breakages are observed, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



MALFUNCTION

Burrs, aluminum buildup.

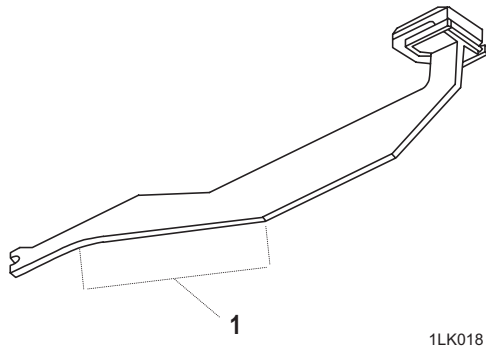
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



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MALFUNCTION

Broken receiver sear or sear spring.

CORRECTIVE ACTION

Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

SYMPTOM - Continued

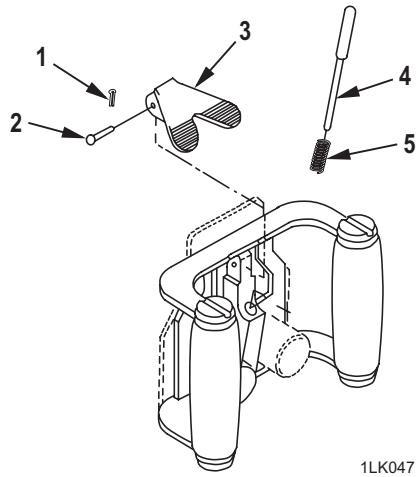
Runaway gun (uncontrolled automatic fire).

MALFUNCTION

Trigger obstructed in down position.

CORRECTIVE ACTION

Depress the trigger and release. Spring action should be crisp.

**OBSTRUCTED TRIGGER**

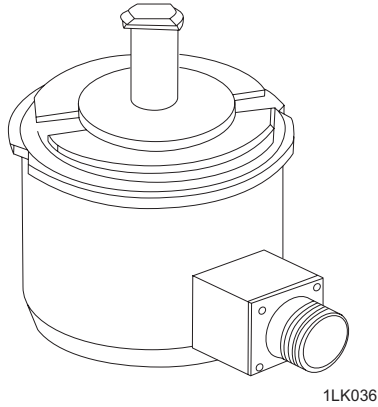
Remove the cotter pin (1) and panhead straight pin (2). Lift off the manual trigger plate (3), operating rod (4), and helical compression spring (5) (WP 0045 00). Remove obstruction. Replace any damaged parts.

MALFUNCTION

Electric firing solenoid defective (UGWS ONLY).

CORRECTIVE ACTION

Refer to TI-09761A-35/1 for repair of solenoid.



END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – PREMATURE FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0019 00
WP 0040 00
WP 0045 00

SYMPTOM

Premature firing.

MALFUNCTION**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, and feeder, bolt face, and receiver for damage and/or unusual debris.

Loose or broken bolt sear; broken lock plate or helical compression spring; damaged or missing buffer components.

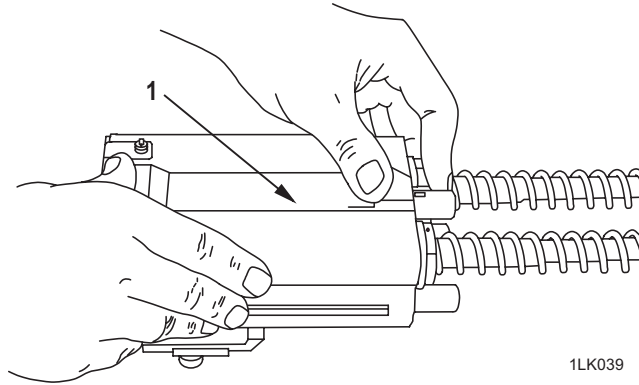
Premature firing.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly from the receiver (WP 0040 00).

SYMPTOM - Continued

2. Manually attempt to move the bolt sear (1). If it moves easily, remove the components (WP 0045 00). Check for a broken lock plate, bolt sear, helical compression spring, damaged, or missing components.

**BROKEN, MISSING, OR DAMAGED COMPONENTS**

Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Damaged receiver or chamber from premature firing.

CORRECTIVE ACTION

Inspect the forward area of the receiver and chamber area for damage. If a case or round is lodged in the bore, see **OBSTRUCTED BORE** (WP 0019 00).

MALFUNCTION

Full cartridge catch bag (not for Marine Corps use).

WARNING

Empty the cartridge catch bag frequently during firing. If the cartridge catch 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 firing occur, check for bore obstruction.

CORRECTIVE ACTION

Empty the cartridge catch bag.

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – DEFORMED CASE OR ROUND
(SHORT RECOIL, UNCONTROLLED ROUND)

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

TM 9-1010-230-10
WP 0019 00
WP 0040 00
WP 0045 00

SYMPTOM

Deformed case or round (short recoil, uncontrolled round).

NOTE

A deformed case or round occurs when the bolt fails to secure the round during charging or recoil or when there is a short recoil. When the round is not held securely, it can fall and become lodged between the bolt and receiver. In a short recoil, the round is not positioned for chambering and hits the receiver during the bolt's forward travel. Loose, damaged, burred, or broken parts are the primary causes. Short recoil can also result from premature firing. Troubleshoot as follows:

MALFUNCTION

Case or projectile lodged in bore or chamber.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly (WP 0040 00). Look through the receiver to check the bore for obstructions.
2. Use bore obstruction detector (BOD) to check for bore obstruction. Refer to TM 9-1010-230-10.

SYMPTOM - Continued

Deformed case or round (short recoil, uncontrolled round).

WARNING

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper.

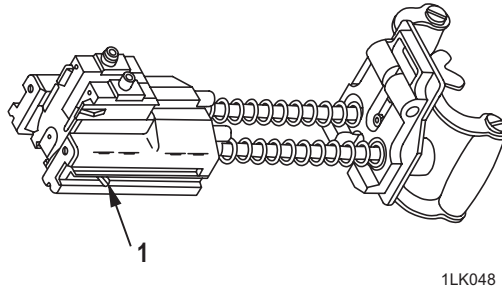
3. See **OBSTRUCTED BORE** (WP 0019 00). If only carbon buildup is present, clean the bore and chamber. Remove caked-on carbon in chamber with abrasive cloth or 600-grit silicone carbide abrasive paper.

MALFUNCTION

Broken or worn cocking lever.

CORRECTIVE ACTION

With the bolt and backplate removed (WP 0040 00), inspect for broken cocking lever (1).

**BROKEN COCKING LEVER**

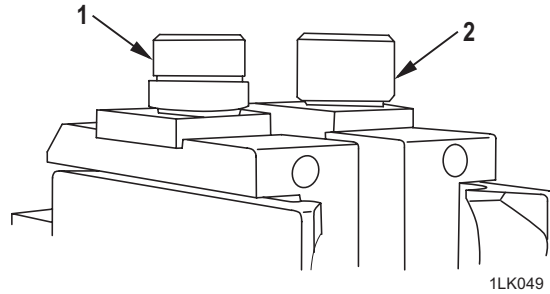
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Worn, broken, loose, or missing right-hand (RH) or left-hand (LH) cam follower(s).

CORRECTIVE ACTION

Inspect the bolt for loose or missing RH or LH cam followers (1 and 2).



LOOSE OR MISSING RH OR LH CAM FOLLOWER(S)

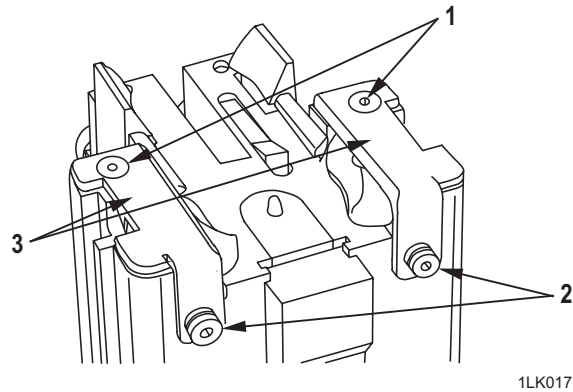
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

MALFUNCTION

Loose or missing screws; loose bolt fingers.

CORRECTIVE ACTION

Inspect the bolt for loose or missing self-locking screws (1) and self-locking socket head cap screws (2). Ensure the RH and LH covers (3) are tight.



LOOSE OR MISSING SCREWS

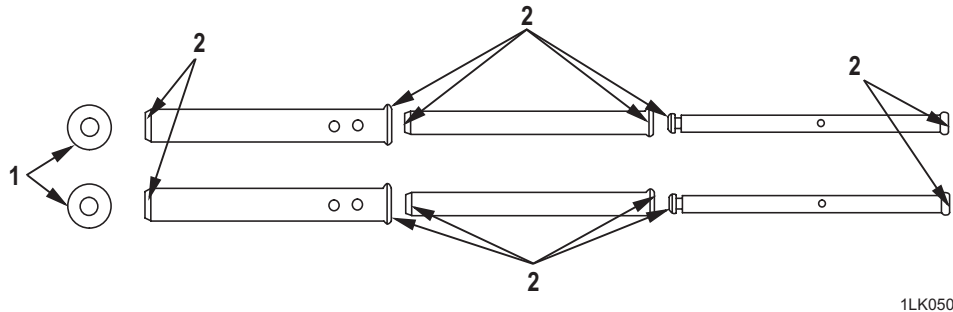
Evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)

SYMPTOM - Continued

Deformed case or round (short recoil, uncontrolled round).

MALFUNCTION

Broken spring washers; burred tubes or rods (not for Army use).

CORRECTIVE ACTION

Disassemble the bolt and backplate assembly (WP 0045 00). Inspect the front washers and spring washers (1) for damage. Check the tubes and rods for damage around the mouth (2) of each. Remove any burrs with a stone.

BROKEN SPRING WASHER

If one/both spring washers are damaged, replace both spring washers (WP 0045 00).

DAMAGED OR BURRED RODS OR TUBES

If any one rod or tube is damaged, replace all tubes and rods (WP 0045 00).

MALFUNCTION

Loose or missing feed slide assembly components.

CORRECTIVE ACTION

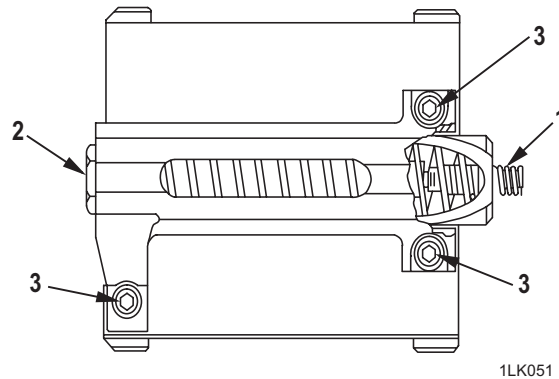
1. Detach the secondary drive lever from the top cover (WP 0040 00) and fold down the feed tray with the feed slide assembly.
2. Check for bent, broken, or missing helical compression spring (1).
3. Check the guide rod (2) for looseness. It should not move.

WARNING

Do not attempt to remove three self-locking socket head screws from the feed slide housing. Springs will fly out and cause injury.

4. Check for any of the three self-locking socket head screws (3) loose or missing from the feed slide housing.

5. Check for proper feed slide adjustment (WP 0040 00).



BROKEN OR MISSING SHUTTLE SPRING; LOOSE GUIDE ROD

Evacuate to Direct Support Maintenance.

MALFUNCTION

Burrs, aluminum buildup.

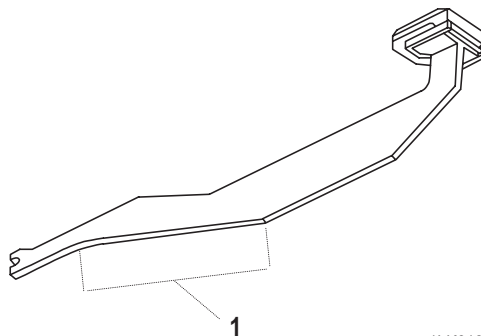
CORRECTIVE ACTION

1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. If nicks, pits, burrs, or scratches exist, evacuate to Direct Support Maintenance. Remove any aluminum buildup, surface imperfection, or dullness using only 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0040 00). Preserve with lubricant.



SYMPTOM - Continued

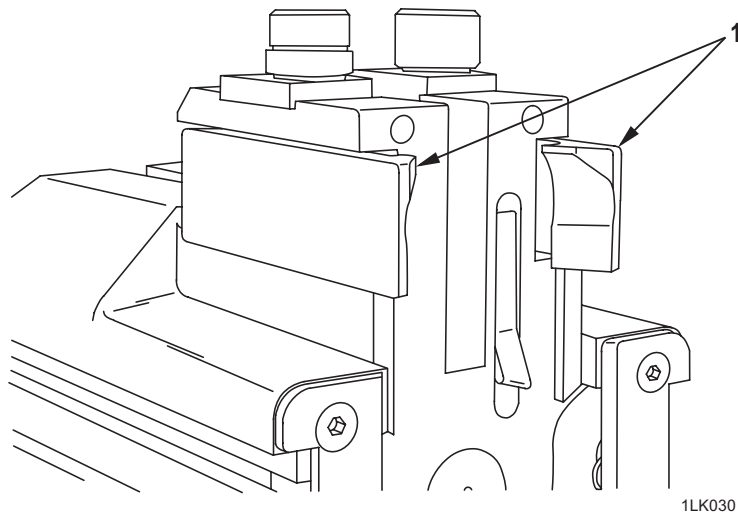
Deformed case or round (short recoil, uncontrolled round).

MALFUNCTION

Incorrect, obstructed, worn, or broken right-hand and left-hand cartridge extractors; broken or weak springs.

CORRECTIVE ACTION

Check the tips (1) of the right-hand and left-hand cartridge extractors for obvious wear or breakage. Ensure the wider tip is on top. If wear or breakage is observed, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)



END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – CHARGER HANDLE(S) OVERRIDES BOLT

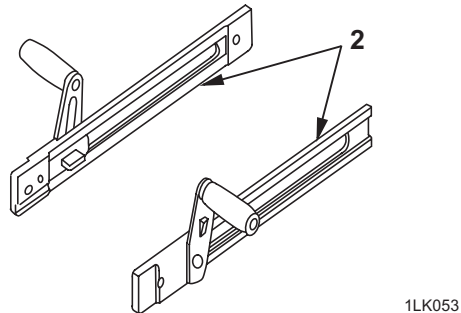
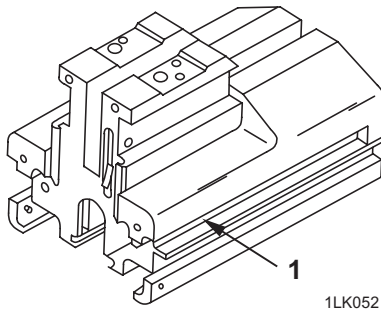
INITIAL SETUP:**References**WP 0045 00

SYMPTOM

Charger handle(s) overrides bolt.

MALFUNCTION

Slot in bolt is deformed and/or charger handle assembly(s) housing (2) is bent or bowed.

**CORRECTIVE ACTION****DEFORMATION OF SLOT**

If the rear of the slot is deformed more than 50 percent of its depth, evacuate to Direct Support Maintenance.

CHARGER HANDLE ASSEMBLY HOUSING BENT OR BROKEN

Replace charger handle assembly (WP 0045 00).

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

UNIT TROUBLESHOOTING – OBSTRUCTED BORE

INITIAL SETUP:**References**

TM 9-1010-230-10
WP 0017 00

SYMPTOM

Obstructed bore.

WARNING

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

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

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

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

MALFUNCTION

Spent case lodged in bore.

CORRECTIVE ACTION

For bore obstruction removal, evacuate to Direct Support Maintenance.

MALFUNCTION

Projectile lodged in bore or chamber.

CORRECTIVE ACTION

Observe the **WARNING** above. Follow the procedure, **DEFORMED CASE OR ROUND** (WP 0017 00), to determine the cause. Refer to round removal procedures, TM 9-1010-230-10.

END OF WORK PACKAGE

CHAPTER 3

DIRECT SUPPORT TROUBLESHOOTING PROCEDURES FOR MK19 MOD 3 40MM MACHINE GUN, MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET, AND UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING INDEX

GENERAL

This section contains Direct Support level troubleshooting information for locating and correcting most of the operating troubles that may develop in the MK19 MOD 3/Upgunned Weapon Station. Each malfunction for the individual part or assembly is followed by a list of tests or inspections that will help you to determine the corrective actions to take. 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, see the individual repair sections in the maintenance procedures for each major assembly.

MALFUNCTION/SYMPTOM INDEX

Refer to Troubleshooting Work Packages for malfunctions, tests, and corrective actions. The Malfunction/Symptom Index is provided for a quick reference to the malfunctions covered.

NOTE

See WP 0059 00 for general disassembly of your weapon.

Symptom**Work Package**

Bolt Does Not Reach Sear.....	WP 0023 00
Bolt Jams during Charging or Firing.....	WP 0021 00
Charger Handle(s) Override Bolt.....	WP 0034 00
Deformed Case or Round.....	WP 0033 00
Erratic Firing	WP 0028 00
Gun Difficult to Charge	WP 0022 00
Gun Will Not Shoot.....	WP 0024 00
Hard Firing (Excess Recoil).....	WP 0030 00
Obstructed Bore	WP 0035 00
Premature Firing	WP 0032 00
Rounds Will Not Extract/Eject.....	WP 0026 00
Rounds Will Not Feed.....	WP 0025 00
Rounds Will Not Fire	WP 0027 00
Runaway Gun (Uncontrolled Automatic Fire).....	WP 0031 00
Sluggish Firing.....	WP 0029 00

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – BOLT JAMS DURING CHARGING OR FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0038 00
WP 0056 00
WP 0066 00
WP 0070 00

Equipment Conditions

Weapon on "S" (SAFE), clear of ammo, bolt in
forward position.

SYMPTOM

Bolt jams during charging or firing.

WARNING

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

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

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

SYMPTOM - Continued

Bolt jams during charging or firing.

EMERGENCY ACTION TO CLEAR BOLT JAM

Hold one charger handle as far to the rear as possible to support the bolt.

While holding the charger handle back, open the top cover.

Slowly pull both charger handles back until the bolt clicks (locks) in the rear position. Place the weapon on "S" (SAFE). Be prepared to catch any ammunition that may fall from the underside of the weapon. Have assistant gunner or other personnel assist you.

Remove any ammunition from the bolt face and from the receiver.

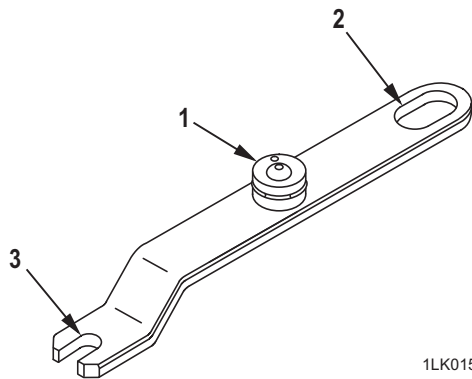
Ease the bolt forward. Move the feed slide assembly to the left. Close the top cover.

MALFUNCTION

Damaged or burred secondary drive lever.

CORRECTIVE ACTION

1. Open top cover and remove secondary drive lever (WP 0056 00).
2. Check for burrs around the pivot post (1), fork (2), and slot (3). Also check for deformation to the fork and slot.
3. Verify the retaining ring is present on the pivot post.

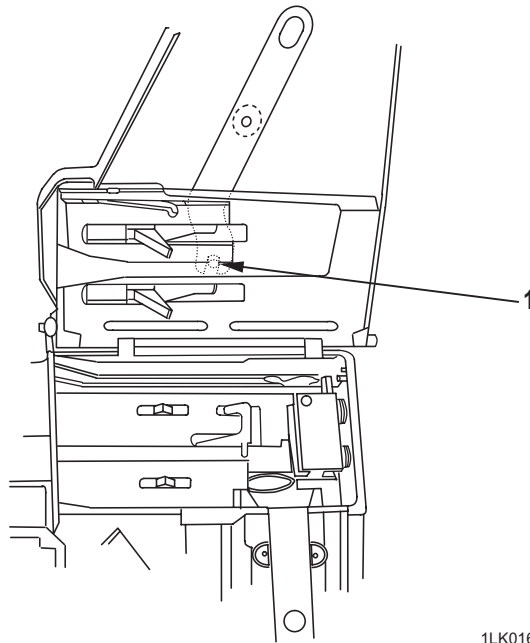


MALFUNCTION

Deformed lever or missing retaining ring.

CORRECTIVE ACTION

Install new secondary drive lever (WP 0056 00). Also inspect inner feed slide pin (1) for damage. If damaged, remove feed slide assembly from tray (WP 0070 00) and install a new inner feed slide. With the weapon assembled, function check the feed operation (WP 0038 00). Check for improper alignment of ammo link, improper alignment of feed slide, or damage to feed throat assembly.



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BURRED SECONDARY DRIVE LEVER, FORK, SLOT, OR POST PIVOT

Remove burrs with a stone.

MALFUNCTION

Obstruction on sides of bolt and in T-slot, between bolt and receiver, or between bolt and vertical cam.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly (WP 0056 00), vertical cam assembly, and primary drive lever (WP 0056 00).
2. Remove the obstruction.
3. Identify and replace any broken parts.

SYMPTOM - Continued

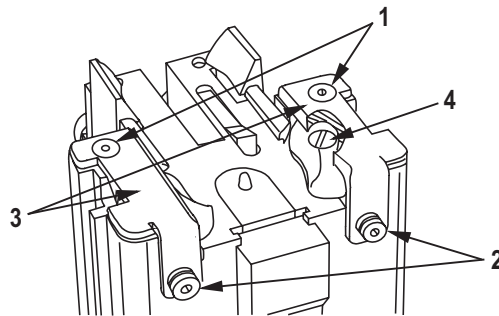
Bolt jams during charging or firing.

MALFUNCTION

Loose or missing screws; loose right-hand (RH) and left-hand (LH) covers.

CORRECTIVE ACTION

1. Check for self-locking screws (1) and self-locking socket head cap screws (2).
2. Manually attempt to move the RH and LH covers (3). They should not move at all.
3. Place the large screwdriver on the combination tool under each bolt finger and lift to check for loose shoulder bolts.



1LK054

4. Remove self-locking screws (1), self-locking socket head cap screws (2), RH and LH covers (3), and nylon point setscrews (not shown) beneath the self-locking socket head cap screws (2).
5. Tighten loose shoulder bolts (4).
6. Remove any nylon tip from set screw and install new self-locking screws, self-locking socket head cap screws, and nylon point setscrews upon assembly.
7. Verify the RH and LH covers are tight.

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

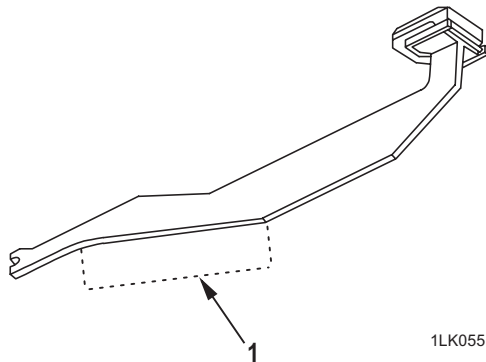
CORRECTIVE ACTION**PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY**

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



BENT VERTICAL CAM

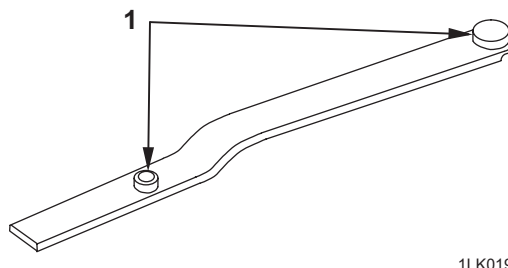
Install new vertical cam assembly (WP 0056 00).

MALFUNCTION

Burred primary drive lever.

CORRECTIVE ACTION

1. Check the pivot posts (1) and all surfaces of the primary drive lever for burrs.
2. Remove burrs with a stone and preserve with a lubricant.
3. If the smaller pivot post is burred, check the slot on the secondary drive lever for burrs or deformed metal.



SYMPTOM - Continued

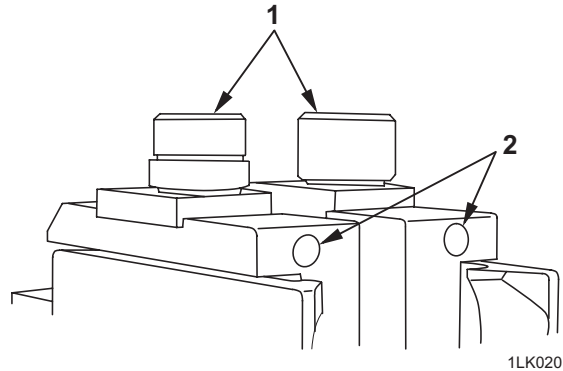
Bolt jams during charging or firing.

MALFUNCTION

Loose or cracked RH and LH cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top.

**LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS**

Tighten cam followers (1). Tighten nylon point set screws (2).

CRACKS

If cracked, replace RH and or LH cam follower. Install new nylon point set screw (2) (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – GUN DIFFICULT TO CHARGE**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

Lubricant (as required)

References

WP 0056 00

WP 0066 00

SYMPTOM - Continued

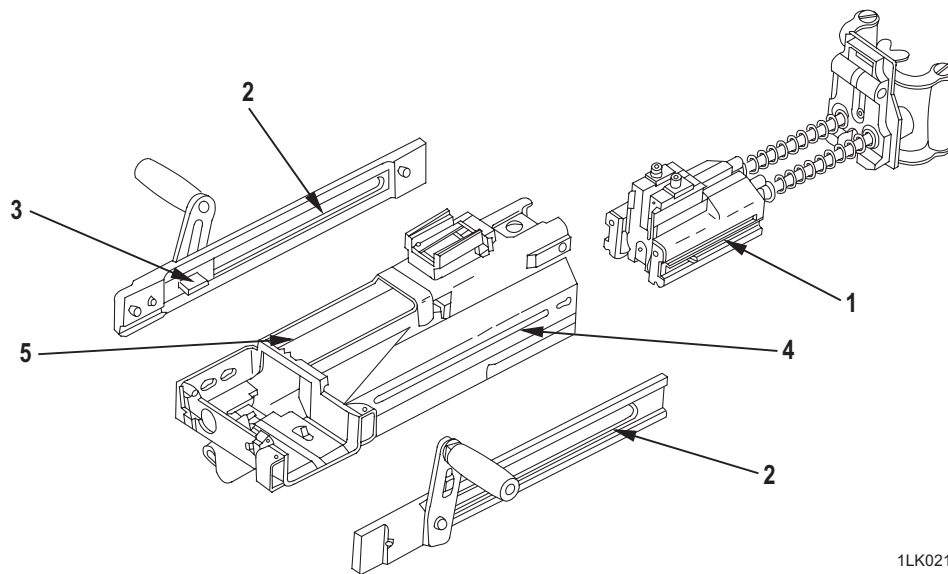
Gun difficult to charge.

MALFUNCTION

Burred bolt rails, charger housing rails, or receiver rails.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly (WP 0056 00). Check the bolt rails (1) for burrs.
2. Remove the right-hand (RH) and left-hand (LH) charger assemblies. Check the grooved rails (2) and the charger slide (3) for burrs. Remove burrs with a stone. Preserve with lubricant.
3. Check the RH and LH receiver rails (4) for burrs. Also check the right-rail (5) inside the receiver housing for burrs.



1LK021

MALFUNCTION

Eroded firing pin cover.

CORRECTIVE ACTION**WARNING**

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

Check the firing pin cover for pits and metal erosion. Remove the bolt sear and other components (WP 0056 00). Clean and lubricate parts. If damaged, install new firing pin cover upon assembly (WP 0066 00).

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

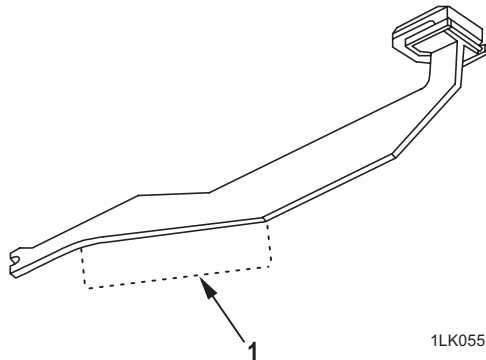
CORRECTIVE ACTION**PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY**

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



1LK055

BENT VERTICAL CAM

Install new vertical cam assembly (WP 0056 00).

SYMPTOM - Continued

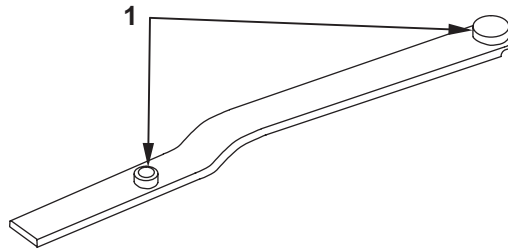
Gun difficult to charge.

MALFUNCTION

Burred primary drive lever.

CORRECTIVE ACTION

1. Check the pivot posts (1) and all surfaces of the primary drive lever for burrs.
2. Remove burrs with a stone and preserve with a lubricant.
3. If the smaller pivot post is burred, check the slot on the secondary drive lever for burrs or deformed metal.



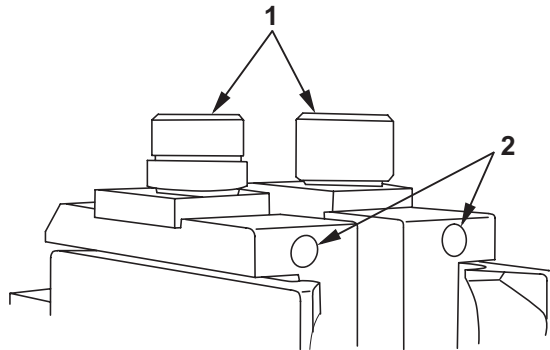
1LK019

MALFUNCTION

Loose or cracked RH and LH cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. Tighten nylon point set screws (2) as required.



1LK020

LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS

Tighten RH and LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – BOLT DOES NOT REACH SEAR

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0056 00
WP 0066 00

SYMPTOM

Bolt does not reach sear.

WARNING

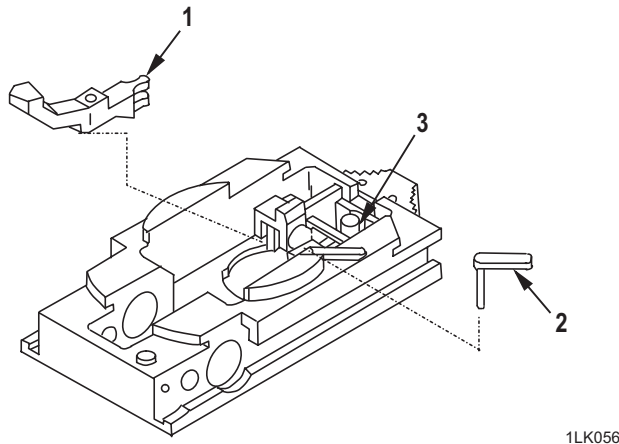
Before performing any procedure, ensure the weapon is clear of any ammunition.

MALFUNCTION

Broken safety lever, safety lever pin, or sear spring.

CORRECTIVE ACTION

1. With the weapon assembled, bolt forward, place safety on "S" (SAFE).
2. Rotate charger handles down and attempt to charge weapon.
3. If the bolt will not lock to the rear (sear up) with the safety on "S" (SAFE), the safety lever (1), safety lever pin (2) or sear spring (3) may be broken or missing. Replace broken or missing component (WP 0066 00).

**MALFUNCTION**

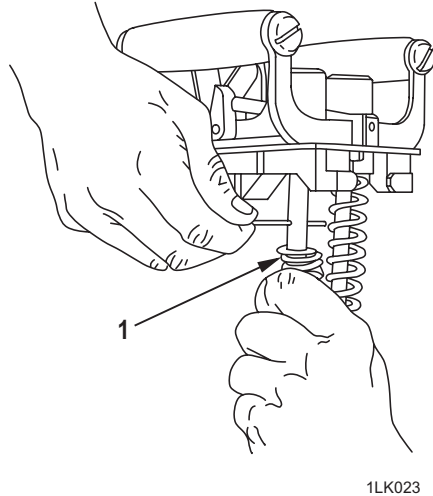
Broken or missing spring washers.

CORRECTIVE ACTION

1. With the weapon assembled, bolt forward, place the safety on "F" (FIRE).
2. Charge the weapon.
3. If the bolt moves forward when the charger handles are released, the spring washer (1) may be broken or missing. Replace spring washer (WP 0066 00).

CAUTION

Ensure spring washer is properly installed.



MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

CORRECTIVE ACTION

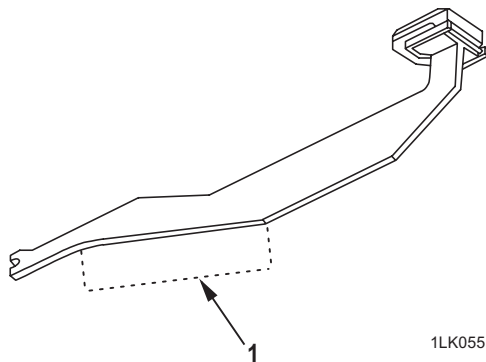
PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



SYMPTOM - Continued

Bolt does not reach sear.

BENT VERTICAL CAM

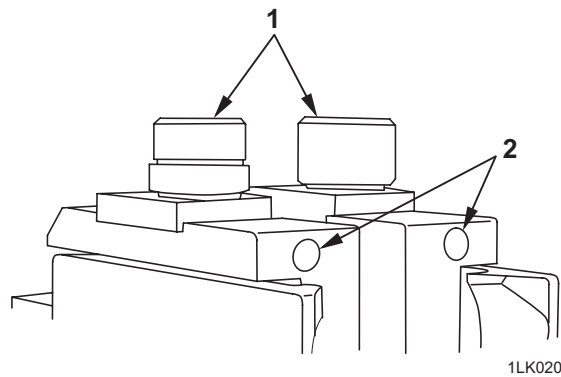
Install new vertical cam assembly (WP 0056 00).

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. Tighten nylon point set screws (2) as required.

**LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS**

Tighten RH or LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – GUN WILL NOT SHOOT

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0021 00
WP 0025 00
WP 0026 00
WP 0027 00
WP 0038 00

SYMPTOM

Gun will not shoot.

MALFUNCTION

Perform function check (WP 0038 00). Locate specific problem area and troubleshoot.

CORRECTIVE ACTION

Some malfunctions occur only during automatic operation. If the function check did not help to locate the problem area, perform the following symptom malfunctions in sequence until the problem is identified.

1. Rounds will not feed (WP 0025 00).
2. Rounds will not extract/eject (WP 0026 00).
3. Rounds will not fire (WP 0027 00).
4. Bolt jams during charging or firing (WP 0021 00).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – ROUNDS WILL NOT FEED

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0038 00
WP 0056 00
WP 0059 00
WP 0063 00
WP 0064 00
WP 0065 00
WP 0066 00
WP 0070 00
WP 0071 00
WP 0074 00
WP 0079 00

Materials/Parts

Lubricant (as required)

SYMPTOM

Rounds will not feed.

WARNING

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

MALFUNCTION

Bent, burred, or missing feed throat.

NOTE

Feeding problems can be caused by a missing, burred, or bent feed throat; improper feed slide alignment; or misaligned ammo link.

CORRECTIVE ACTION

Ensure feed throat is present and properly installed. Check feed throat for bends or burrs that will prevent round(s) from feeding correctly. Remove burrs with a stone. If feed throat is missing or damage prevents proper feeding, replace the feed throat (WP 0056 00).

SYMPTOM - Continued

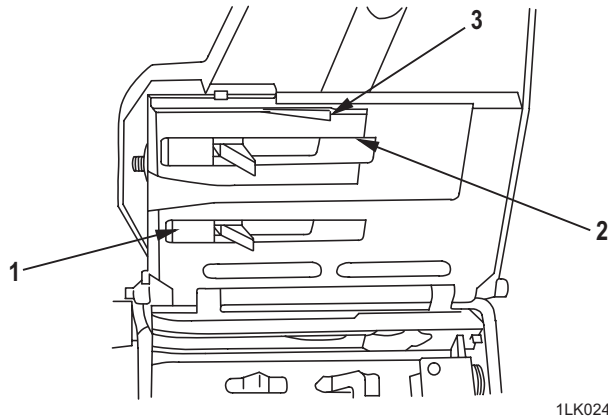
Rounds will not feed.

MALFUNCTION

Burred feed tray or damaged, weak, or binding feed tray pawl.

CORRECTIVE ACTION

1. Move the feed slide assembly (1) back and forth on the feed tray rails (2) to test for burrs or binding.
2. Press the feed tray pawl (3). It should be hard to press and should snap back crisply with no binding.
3. Remove the secondary drive lever (WP 0056 00), feed slide assembly (WP 0056 00), top cover (WP 0056 00), and feed tray (WP 0056 00).

**BURRED FEED TRAY RAILS**

Deburr with a stone.

DAMAGED PAWL

Disassemble the feed tray pawl, pin, and spring (WP 0059 00). Install new feed tray pawl (WP 0056 00). Function test feed operation (WP 0038 00).

WEAK SPRING

Remove weak spring, and install new spring (WP 0059 00).

BINDING

Lubricate. If binding persists, disassemble feed tray (WP 0059 00). Remove burrs, sharp edges with a stone. Lubricate and assemble.

MALFUNCTION

Feed slide mechanism out of adjustment.

CORRECTIVE ACTION

Function test the feed operation (WP 0038 00). Ensure the primary pawl snaps up as the dummy round is fed across the receiver's feed area. If the primary pawl does not snap up, adjust the feed slide assembly (WP 0071 00).

MALFUNCTION

Welded pins missing from receiver; link guide burred or galled.

CORRECTIVE ACTION**PINS MISSING**

Evacuate the weapon to Depot Maintenance.

GALLING

Function check the feed operation (WP 0079 00) using six linked dummy rounds. If the link guide surface in the receiver or feed tray has been scored sufficiently to prevent feeding, attempt to remove the raised surfaces using a fine stone. Perform function check again (WP 0079 00). If rounds will still not feed, evacuate to Depot Maintenance.

BURRS

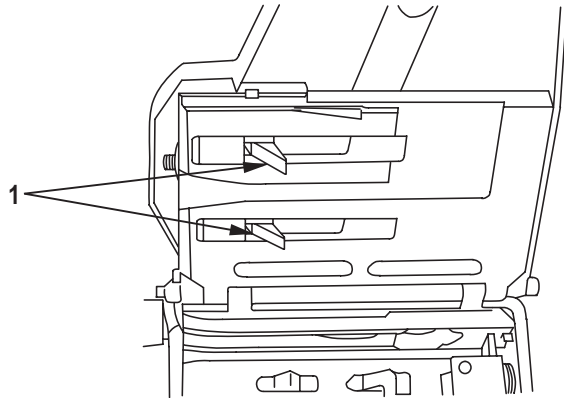
Remove with a stone.

SYMPTOM - Continued**MALFUNCTION**

Feed pawls burred; binding or weak flat springs.

CORRECTIVE ACTION

Press the two feed pawls (1) on the feed slide assembly. They should depress all the way and snap back crisply.



1LK025

Rounds will not feed.

BURRED, WEAK, BINDING

1. Remove the feed slide assembly from the feed tray (WP 0056 00).
2. Remove feed pawls, straight headless pins, and feed pawl flat springs. If one of the feed pawl flat springs is broken, replace both flat springs (WP 0070 00).
3. Clear any obstructions between the feed pawl flat spring and feed pawl.

CAUTION

If raised surfaces cannot be removed without removal of chrome surface, evacuate to Depot Maintenance.

4. Deburr with a stone, lubricate lightly, and assemble.

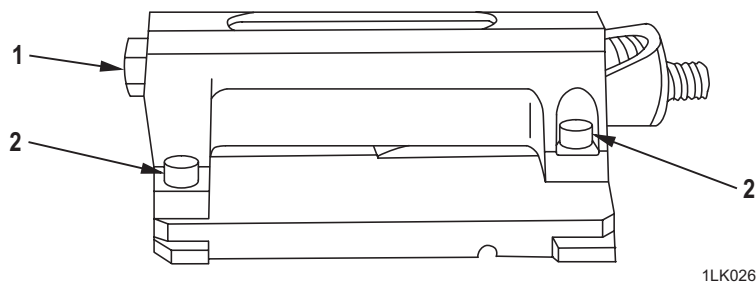
MALFUNCTION

Loose guide rod; loose or missing self-locking socket head screws.

CORRECTIVE ACTION**WARNING**

Use care if removal of three self-locking socket head screws (WP 0070 00) from the feed slide housing is necessary. Springs will fly out and may cause injury.

Manually try to move the guide rod (1) and the three self-locking socket head screws (2) on the feed slide housing. There should be no movement.

**LOOSE OR MISSING SELF-LOCKING SHOULDER SCREWS**

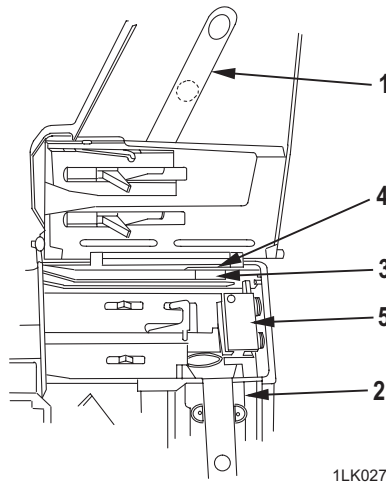
Replace loose or missing self-locking socket head screws (WP 0070 00) with new ones observing the **WARNING**.

SYMPTOM - Continued**MALFUNCTION**

Missing or improperly installed receiver components.

CORRECTIVE ACTION

Verify the presence of the following components: secondary drive lever (1), primary drive lever (2), ogive plunger assembly (3), alignment guide assembly (4), and round positioning block (5). Ensure for proper installation.

**MISSING COMPONENTS**

Replace any missing components. If the primary or secondary drive levers were replaced, function check the feed operation (WP 0038 00) after assembly.

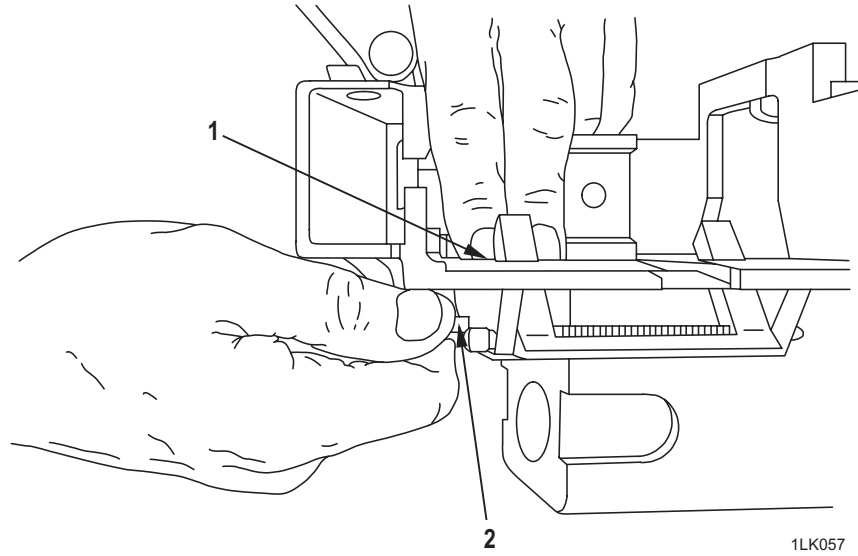
Rounds will not feed.

MALFUNCTION

Missing crosspins from primary pawl rod or secondary pawl rod.

CORRECTIVE ACTION

Depress the primary pawl (1) while attempting to retract the primary pawl rod (2) with your fingers. The primary pawl rod should not come out if crosspin is present. With your fingers, attempt to remove the secondary pawl rod. If the secondary pawl rod crosspin is present, the secondary pawl rod cannot be removed.



MISSING CROSSPIN

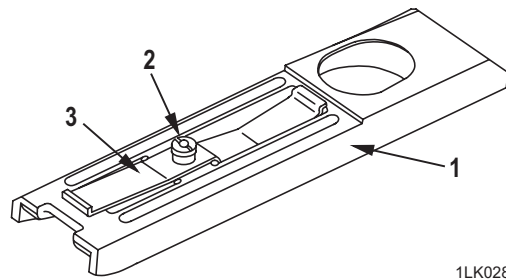
Remove barrel (WP 0065 00) and install new primary pawl rod (WP 0063 00). Install new secondary pawl rod (WP 0064 00).

MALFUNCTION

Damaged alignment guide; cracked flat spring; loose flat head screw.

CORRECTIVE ACTION

Remove the alignment guide assembly (WP 0056 00) and inspect for damaged alignment guide (1), loose flat head screw (2), or cracked alignment guide flat spring (3).



DAMAGED ALIGNMENT GUIDE

Install a new alignment guide assembly (WP 0056 00).

CRACKED SPRING

Disassemble and install a new flat spring (WP 0074 00).

SYMPTOM - Continued**LOOSE FLAT HEAD SCREW**

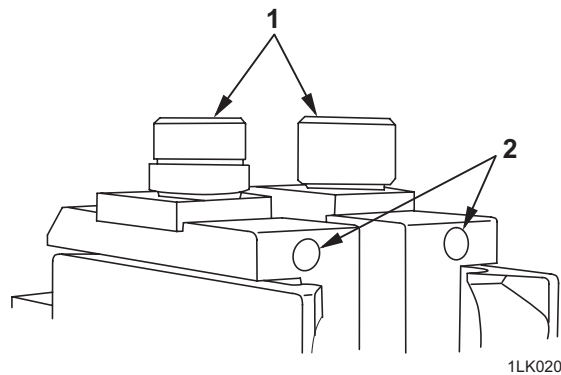
Flat head screw and flat spring should not move relative to each other. If they move freely, remove the alignment guide flat head screw, shoulder screw, and flat spring (WP 0074 00). Inspect components. Reassemble or install new parts as necessary.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. Tighten nylon point set screws (2) as required.

**LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS**

Tighten RH and LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – ROUNDS WILL NOT EXTRACT/EJECT**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0056 00
WP 0062 00
WP 0066 00
WP 0068 00

SYMPTOM

Rounds will not extract/eject.

MALFUNCTION

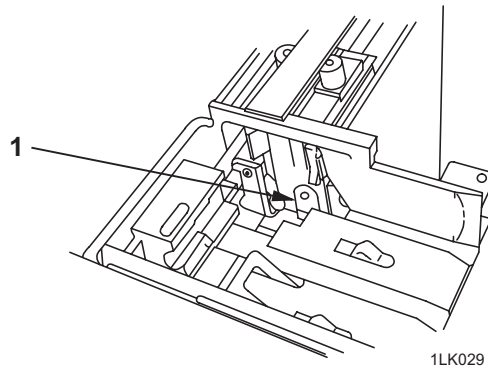
Rough or burred firing pin cover (1).

NOTE

If the rounds feed across the receiver's feed area, but are not pulled to the rear and down the face of the bolt during charging or recoil, check the components as noted in this symptom's malfunctions.

CORRECTIVE ACTION

Remove rough spots with abrasive cloth. Remove burrs with a stone.

**MALFUNCTION**

Firing pin will not retract (defective firing pin, cocking lever, pin, or spring).

CORRECTIVE ACTION

With the weapon assembled, charge the weapon and place on "S" (SAFE). Observe through the receiver whether the firing pin is protruding. If the pin is protruding with the bolt to the rear, the cocking lever, pin, or spring is defective.

FIRING PIN WILL NOT RETRACT

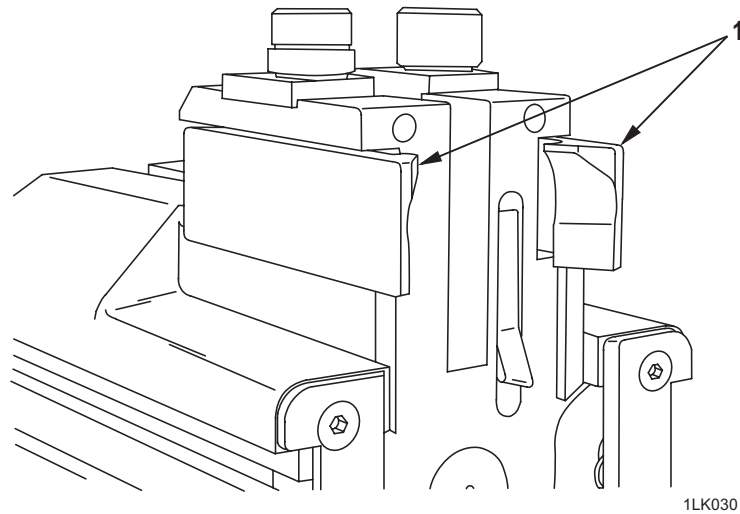
Replace defective parts (WP 0066 00).

MALFUNCTION

Incorrect, obstructed, worn, or broken extractors; broken or weak springs.

CORRECTIVE ACTION

1. Check the tips (1) of the right-hand (RH) and left-hand (LH) cartridge extractors for obvious wear or breakage. Ensure the wider tip is on top.
2. Attempt to force RH and LH cartridge extractors apart to test for weak or unequal spring tension or obstruction between the RH and LH cartridge extractor and bolt. Remove RH and LH cartridge extractors and springs (WP 0066 00). Measure spring length (WP 0062 00). Replace springs, in pairs, if critical lengths are not in accordance with requirements.



SYMPTOM - Continued

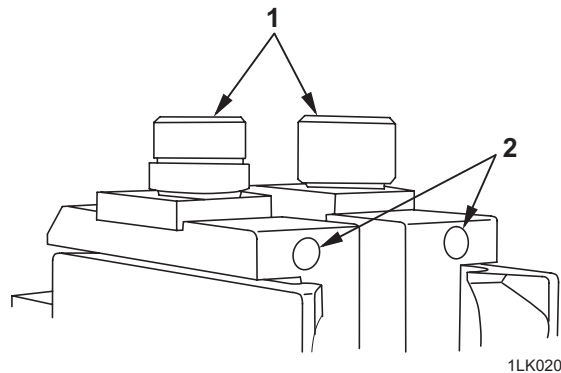
Rounds will not extract/eject.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. Tighten nylon point set screws (2) as required.

**LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS**

Tighten RH and LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

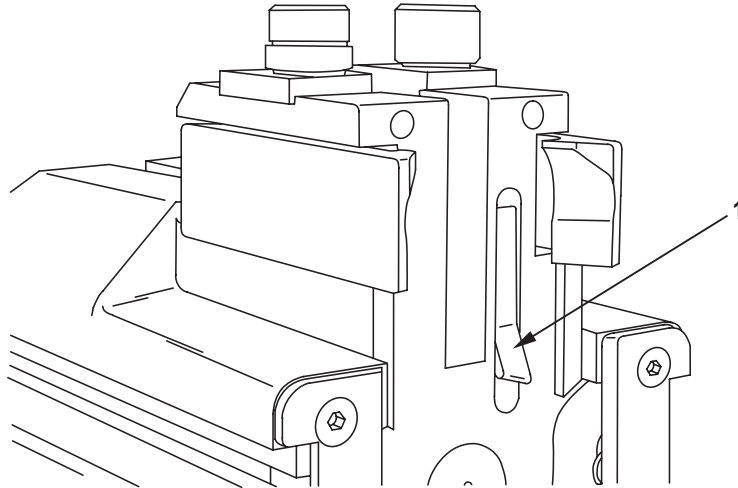
If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

MALFUNCTION

Obstructed pawl; weak helical spring.

CORRECTIVE ACTION

Press the pawl (1) to test for weak spring action or an obstruction under the pawl. Replace helical spring if action is weak; clear obstruction.



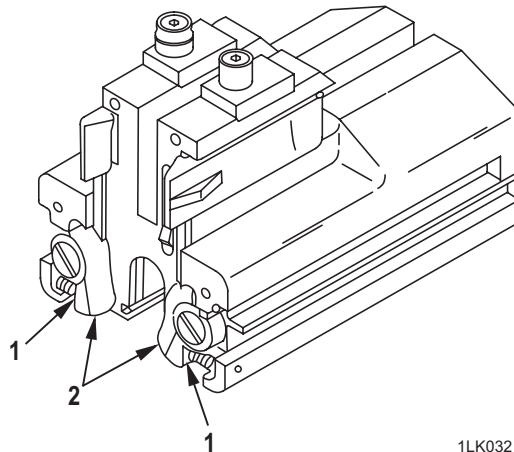
1LK031

MALFUNCTION

Obstructed bolt fingers; broken or weak finger springs.

CORRECTIVE ACTION

Ensure welded pins (1) are present in the bolt finger area, and on the bolt face. Force the RH and LH bolt fingers (2) apart to test for weakness or unequal finger spring tension. If weak or unequal finger spring tension, evacuate to Depot Maintenance. (Marine Corps: Repair at Unit Maintenance.)



1LK032

BOLT FINGERS WEAK

Remove the covers. Remove the shoulder bolts and lift out the bolt fingers and finger springs. Check for the presence of welded keeper pins (1) on the bolt fingers and bolt.

MISSING KEEPER PIN (BOLT)

Install new bolt (WP 0066 00).

SYMPTOM - Continued

Rounds will not extract/eject.

MISSING KEEPER PIN (BOLT FINGER)

Install new bolt finger (WP 0066 00).

WEAK OR BROKEN FINGER SPRINGS

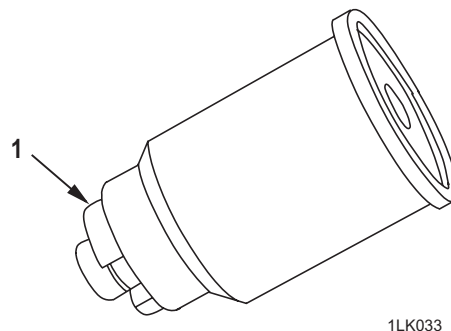
Install new finger spring on both sides. Reassemble (WP 0066 00).

MALFUNCTION

Broken ogive plunger slotted washer.

CORRECTIVE ACTION

1. Remove the ogive plunger assembly (WP 0056 00) and inspect for broken slotted washer (1).
2. Disassemble ogive plunger (WP 0068 00). Inspect interior of the ogive spring housing and helical compression spring for proper lubrication. If lubrication is required, ensure parts are washed in solvent or RBC, dried, generously lubricated, and reassemble.

**BROKEN SLOTTED WASHER**

Disassemble the ogive plunger assembly and replace broken slotted washer and assemble ogive plunger assembly (WP 0068 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – ROUNDS WILL NOT FIRE**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Dry cleaning solvent (item 13, WP 0121 00)

References

WP 0062 00
WP 0066 00
WP 0067 00
WP 0070 00
WP 0080 00

SYMPTOM

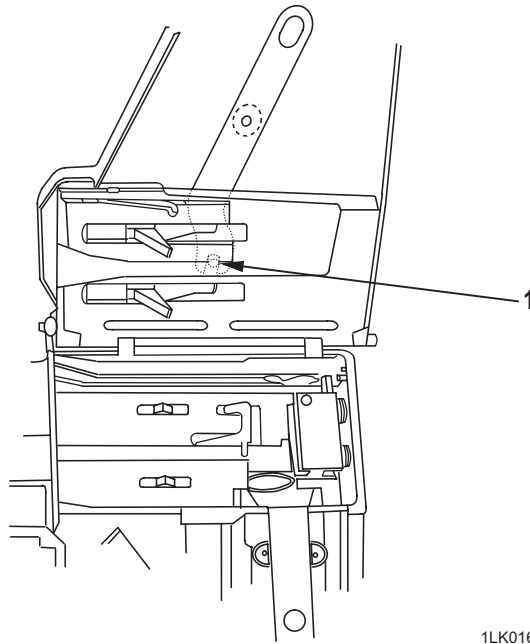
Rounds will not fire.

MALFUNCTION

Bent, broken, or missing helical compression spring.

CORRECTIVE ACTION

With feed slide assembly assembled, check presence and condition of helical compression spring (1).



1LK016

DAMAGED HELICAL COMPRESSION SPRING.

Remove the damaged helical compression spring and install a new one (WP 0070 00).

MALFUNCTION

Defective firing pin, firing pin sear, or springs.

CORRECTIVE ACTION**WARNING**

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

1. Observe the **WARNING** above. Charge the weapon and press the trigger to release the bolt forward under spring tension.
2. Check the tip of the firing pin (1). It should be protruding. If not, check for the following:

EXCESSIVE FOULING (BUILDUP) AROUND FRONT OF FIRING PIN AND FIRING PIN COVER

WARNING

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.

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

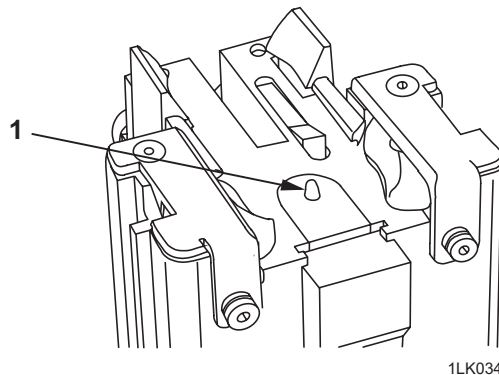
Clean firing pin with dry cleaning solvent (WP 0080 00).

FIRING PIN TIP, FIRING PIN SEAR, FIRING PIN SPRING DAMAGED

Install new components (WP 0066 00). When installing new firing pin, adjust the bolt's timing (WP 0067 00).

BROKEN STOP ON BOLT SEAR

Install new bolt sear and receiver sear (WP 0066 00). Check and adjust bolt timing prior to reassembly (WP 0067 00).



1LK034

SYMPTOM - Continued

Rounds will not fire.

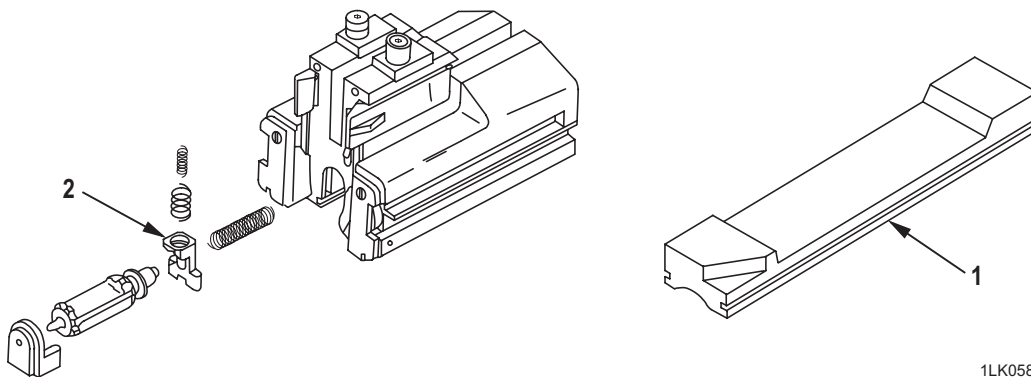
3. Check the tip of the firing pin for pits or damage.

FIRING PIN TIP PITTED

Install new firing pin (WP 0066 00). Adjust the bolt's timing (WP 0067 00).

FIRING PIN DID NOT SPRING FORWARD

1. Check the bolt sear (1) for damage.
2. Check the firing pin sear (2) for damage.
3. Measure the springs (see WP 0062 00).
4. Replace any worn or broken parts. Test the firing pin operation again.
5. Verify that the pin springs forward.
6. Adjust the bolt's timing (WP 0067 00).



END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – ERRATIC FIRING**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0056 00

WP 0062 00

WP 0066 00

WP 0067 00

WP 0074 00

SYMPTOM

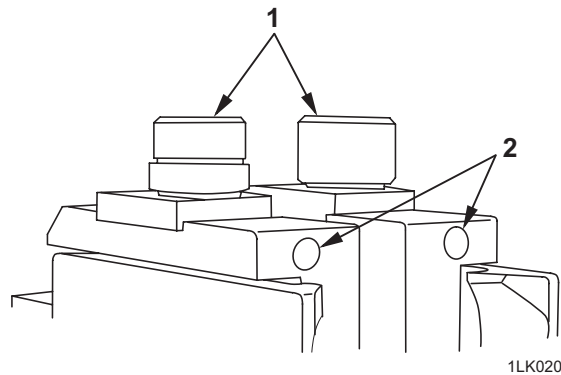
Erratic firing.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top. Tighten nylon point set screws (2) as required.

**LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS**

Tighten RH and LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

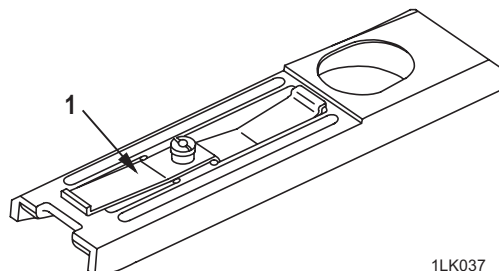
If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

MALFUNCTION

Cracked or broken alignment guide flat spring.

CORRECTIVE ACTION

Remove the alignment guide assembly from the receiver (WP 0056 00). Check the alignment guide flat spring (1) for cracks around the flat head screw and for breakage.



CRACKED OR BROKEN ALIGNMENT GUIDE FLAT SPRING

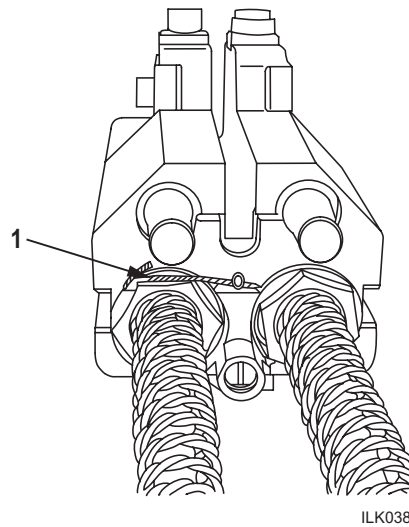
Disassemble the alignment guide assembly (WP 0074 00). Install a new alignment guide flat spring. Reassemble (WP 0074 00).

MALFUNCTION

Non-electrical wire missing or broken on bolt sleeves.

CORRECTIVE ACTION

Remove the bolt and backplate assembly from the receiver (WP 0056 00). Check for the presence of non-electrical wire (1) on the bolt sleeves.

**NON-ELECTRICAL WIRE MISSING/BROKEN**

Install non-electrical wire after adjusting bolt timing (WP 0067 00).

SYMPTOM - Continued

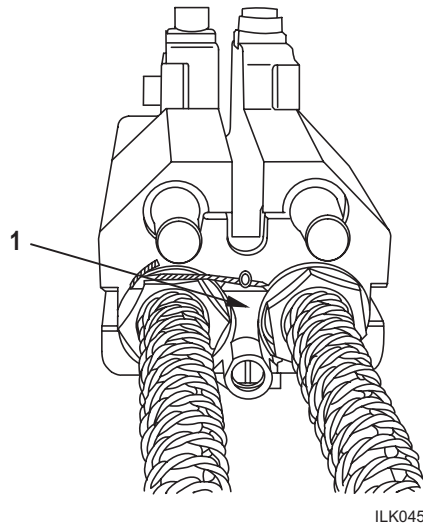
Erratic firing.

MALFUNCTION

Broken lock plate.

CORRECTIVE ACTION

With the bolt and backplate assembly removed from the receiver (WP 0066 00), check for a broken lock plate (1).

**LOCK PLATE BROKEN**

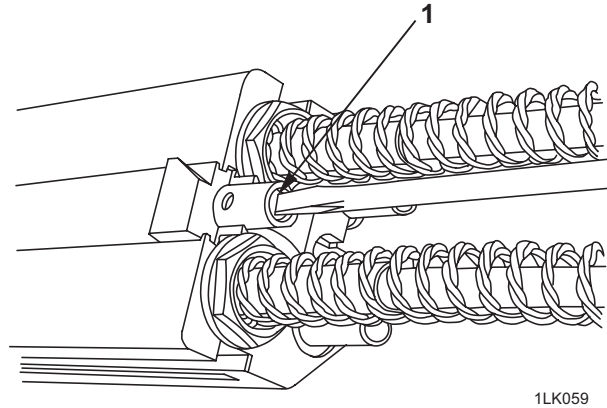
Remove the non-electrical wire, bolt sleeve, and damaged lock plate (WP 0066 00). After installing a new lock plate assembly (WP 0066 00), adjust the bolt's timing (WP 0067 00).

MALFUNCTION

Worn adjusting screw or spring plunger.

CORRECTIVE ACTION

Turn the adjusting screw (1) an equal number of turns in both directions. The screw should click each 1/4 turn. If it does not click, the spring plunger and/or the adjusting screw are worn.



ADJUSTING SCREW OR SPRING PLUNGER WORN

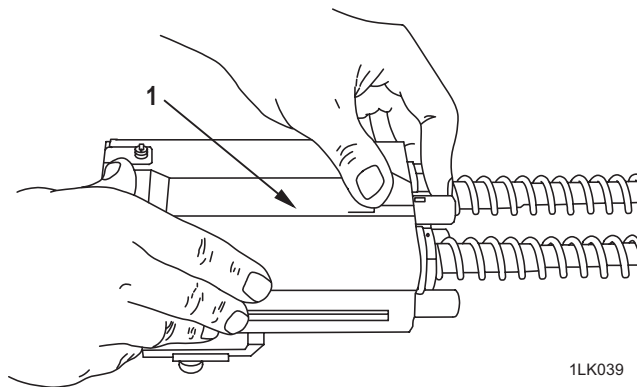
1. Remove the non-electrical wire, bolt sleeves, and lock plate assembly (WP 0066 00).
2. Inspect the lock plate assembly for damage to spring plunger or adjusting screw. If damaged, replace lock plate assembly (WP 0066 00).
3. Adjust the bolt's timing (WP 0067 00).

MALFUNCTION

Broken or worn helical compression spring; missing or out of position sear buffer components.

CORRECTIVE ACTION

Turn the bolt upside down or on its face. Manually attempt to move the bolt sear (1). The bolt sear should not move easily. If it does, the helical compression spring is worn or broken, or the buffer components are out of position or missing.



SYMPTOM - Continued

Erratic firing.

DAMAGED, WORN, OR MISSING COMPONENTS

Remove the components (WP 0066 00) and inspect for broken helical compression spring and for components out of position or missing. If the helical compression spring is intact, measure it (WP 0062 00). Replace any broken, worn, or missing components. Before reassembly, adjust bolt timing (WP 0067 00).

MALFUNCTION

Bolt timing out of adjustment.

CORRECTIVE ACTION

Adjust the bolt's timing (WP 0067 00). Install components as directed (WP 0066 00).

MALFUNCTION

Broken firing pin sear or bolt sear.

CORRECTIVE ACTION

Disassemble the bolt (WP 0066 00). Check for broken firing pin sear and firing pin sear springs. While disassembling bolt, check the bolt sear. Assemble and adjust the bolt's timing (WP 0067 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – SLUGGISH FIRING**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0056 00
WP 0062 00
WP 0065 00
WP 0066 00
WP 0067 00
WP 0072 00
WP 0080 00
WP 0085 00

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

SYMPTOM

Sluggish firing.

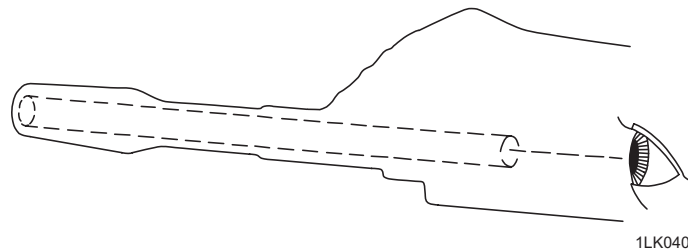
MALFUNCTION

Carbon buildup or chrome erosion on bore and chamber.

CORRECTIVE ACTION**NOTE**

A noticeable slowing down in the rate of fire indicates sluggish firing. After corrective action, test fire (WP 0085 00) the gun to verify proper functioning.

Remove the bolt and backplate assembly (WP 0056 00). Inspect the bore and chamber for carbon rings and chrome erosion.

**CARBON OR EROSION****WARNING**

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

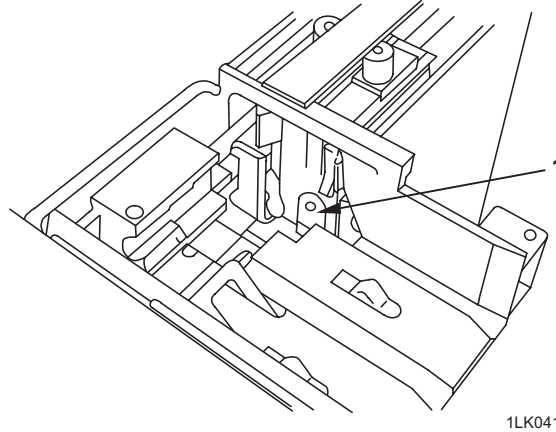
1. Clean the bore and chamber (WP 0080 00).
2. Remove caked-on carbon in the chamber with an abrasive cloth.
3. Inspect for chrome erosion in the chamber.
4. If chrome erosion is found in the chamber $\frac{3}{8}$ in. or more from the beginning of the rifling and extends more than halfway around the chamber, replace the barrel (WP 0065 00).

MALFUNCTION

Dry firing pin cover and bolt face.

CORRECTIVE ACTION

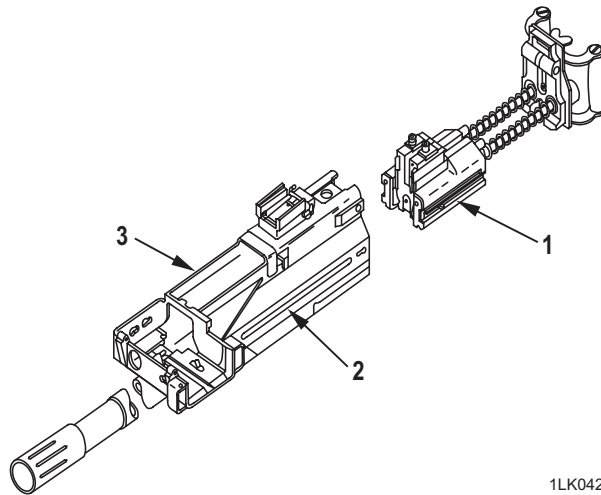
Lubricate the firing pin cover (1) and bolt face.

**MALFUNCTION**

Burred bolt or receiver rails.

CORRECTIVE ACTION

Remove the bolt and backplate assembly (WP 0056 00) and the charger assemblies (WP 0056 00). Inspect for burrs along the bolt rails (1) and external receiver rails (2). Also, check the right-hand inner rail (3) inside the receiver.

**BURRS**

Remove burrs with a stone.

SYMPTOM - Continued

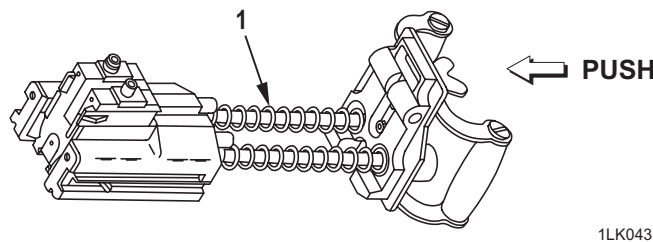
Sluggish firing.

MALFUNCTION

Weak helical compression springs; broken strands.

CORRECTIVE ACTION

Place the bolt and backplate assembly face down on a hard surface. Push against the control grip assembly. The helical compression springs (1) should be hard to depress and should bounce back immediately.

**WEAK SPRINGS**

If weak, remove the helical compression springs and measure them (refer to WP 0062 00). If either helical compression spring is too short, replace both helical compression springs (WP 0066 00). Complete malfunction actions for: Out-of-position or missing buffer washers and Bolt timing out of adjustment, in this work package.

BROKEN STRANDS

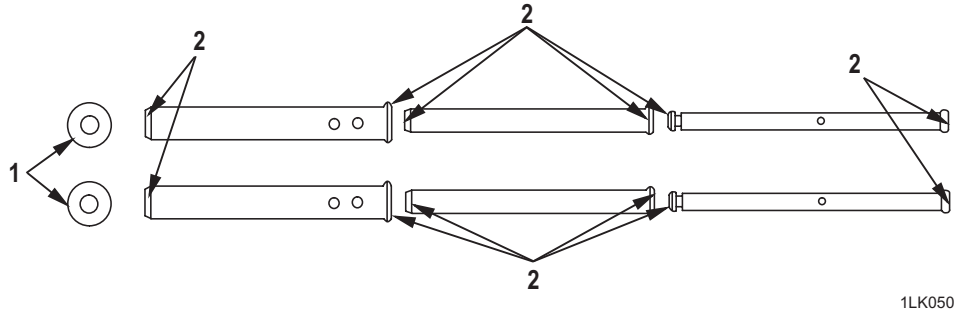
If strand(s) are broken on one or both helical compression springs, replace both helical compression springs.

MALFUNCTION

Broken spring washers; burred tubes or rods.

CORRECTIVE ACTION

Disassemble the bolt and backplate assembly (WP 0066 00). Inspect the front washers and spring washers (1) for damage. Check the tubes and rods for damage around the mouth (2) of each tube.

**BROKEN SPRING WASHER**

Replace both spring washers (WP 0066 00), ensuring the convex side is seated against the recoil spring.

DAMAGED OR BURRED RODS OR TUBES

Remove burrs using a stone. If damaged, replace all rods and tubes (WP 0066 00).

WORN FRONT WASHERS

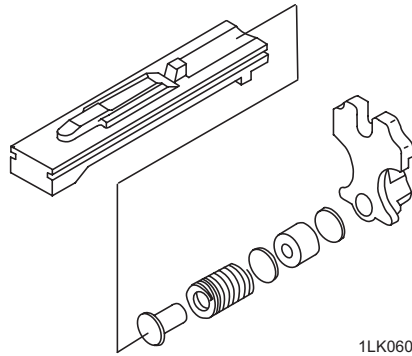
Replace both front washers (WP 0066 00). Assemble components. Adjust bolt's timing (WP 0067 00).

SYMPTOM - Continued**MALFUNCTION**

Out-of-position or missing buffer washers.

CORRECTIVE ACTION

Remove the non-electrical wire and lock plate (WP 0066 00). Partially remove the bolt sear. Ensure the components in the cavity formed by the bolt and bolt sear are all present and positioned as shown below.

**OUT-OF-POSITION OR MISSING COMPONENTS**

Replace any missing washers. Before reassembly, adjust the bolt's timing (WP 0067 00). Assemble all the buffer components correctly (WP 0066 00). Install the lock plate, bolt sleeves, and non-electrical wire.

MALFUNCTION

Bolt timing out of adjustment.

CORRECTIVE ACTION

Adjust the bolt's timing (WP 0067 00) whether or not new components were installed.

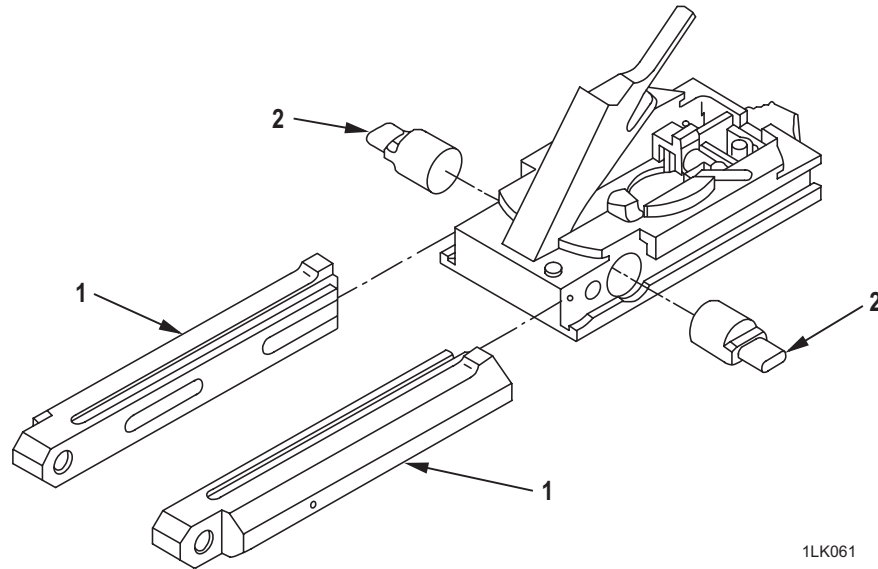
Sluggish firing.

MALFUNCTION

Broken recoil pin(s).

CORRECTIVE ACTION

Remove the sear assembly from the receiver (WP 0056 00). Remove the receiver buffer bodies (1) and recoil pins (2). Inspect the recoil pins for breakage.



1LK061

RECOIL PIN(S) BROKEN

Install new recoil pin(s) (WP 0072 00).

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

CORRECTIVE ACTION

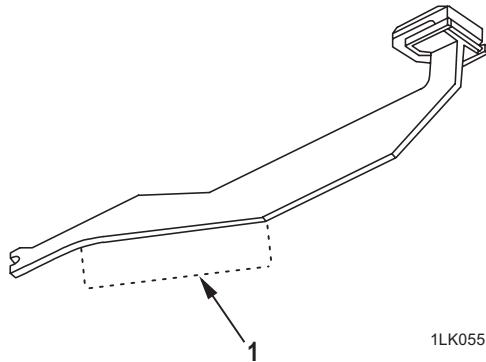
PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

SYMPTOM - Continued**NOTE**

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.

**BENT VERTICAL CAM**

Install new vertical cam assembly (WP 0056 00).

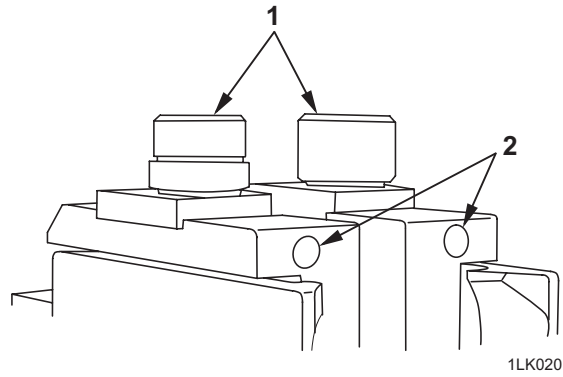
Sluggish firing.

MALFUNCTION

Loose or cracked right-hand (RH) and left-hand (LH) cam followers.

CORRECTIVE ACTION

Manually test the RH and LH cam followers (1) for looseness and check for cracks on the top.



LOOSE RH OR LH CAM FOLLOWERS OR NYLON POINT SET SCREWS

Tighten RH or LH cam followers (1). Tighten nylon point set screws (2).

CRACKS

If cracked, replace RH and or LH cam follower. Install new nylon point set screw (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – HARD FIRING (EXCESS RECOIL)**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0056 00
WP 0066 00
WP 0067 00
WP 0072 00

SYMPTOM

Hard firing (excess recoil).

MALFUNCTION

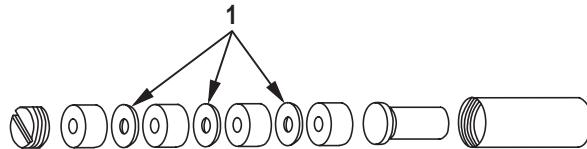
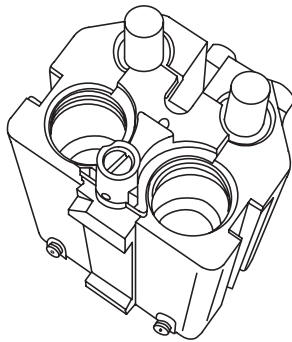
Bolt buffers contaminated with oil, water, or dust.

NOTE

Hard firing occurs when one of the weapon's buffer components is worn out, broken, missing, or exposed to oil, water, and/or dust. The shock of the bolt's recoil, instead of being absorbed by these components, is transmitted to the attaching points of the gun and mount.

CORRECTIVE ACTION

Remove the non-electrical wire, the bolt sleeves, and the bolt buffers (WP 0066 00). Disassemble both bolt buffers (WP 0072 00). Inspect the interiors for missing spring washers (1) and for the presence of any oil, water, or dust.



1LK062

MISSING SPRING WASHERS; OIL, WATER, OR DUST

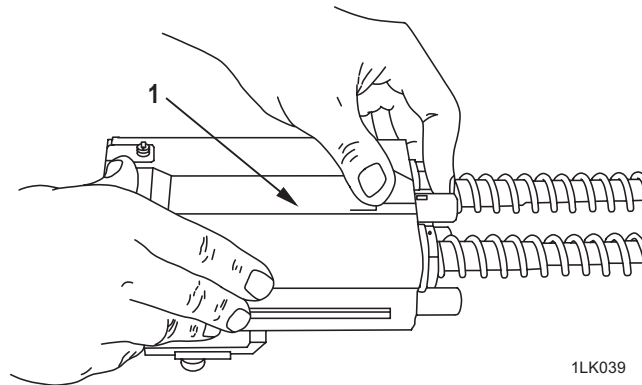
Replace any missing spring washers, ensuring the internal components are clean, dry, and in the correct order upon reassembly. Install the bolt sleeves and non-electrical wire.

MALFUNCTION

Broken helical compression spring; out of position or missing buffer components.

CORRECTIVE ACTION

Remove the bolt and backplate assembly from the receiver (WP 0056 00). Turn the bolt face down and manually attempt to move the bolt sear (1). The bolt sear should not move easily. If it does, the helical compression spring may be broken or one of the components in the cavity between the bolt and the bolt sear may be missing.



LOOSE BOLT SEAR

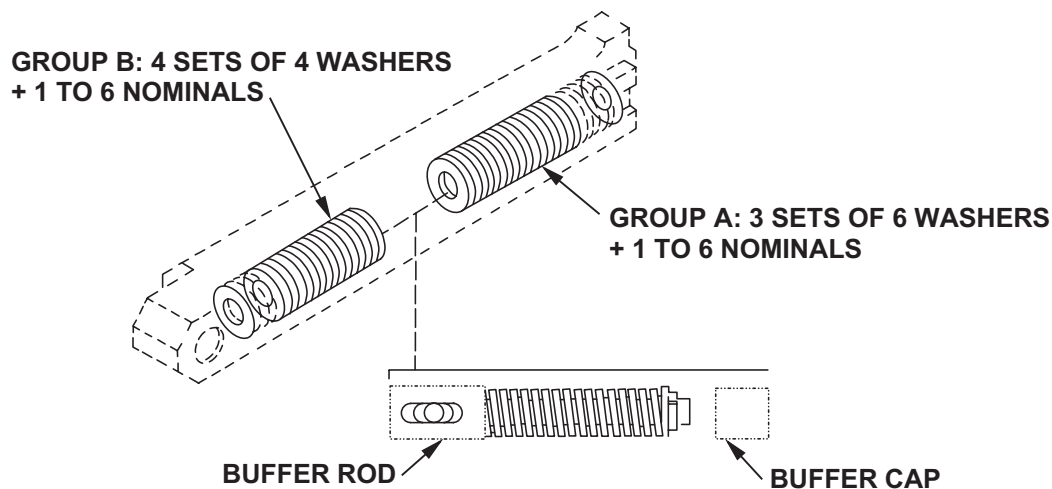
Remove the components (WP 0066 00). Inspect for a broken helical compression spring or components out of order or missing. Install new components as necessary before adjusting the bolt's timing (WP 0067 00).

MALFUNCTION

Loose buffer bodies; broken, out-of-position, or missing receiver buffer components.

CORRECTIVE ACTION

Remove the sear assembly from the receiver (WP 0056 00). Remove the LH and RH receiver buffer bodies and recoil pins. Disassemble the LH and RH receiver buffer bodies one at a time (WP 0072 00). The sequence of components inside the buffer bodies should match the following illustration. Inspect for broken/missing washers or parts out of sequence.



1LK063

BROKEN, OUT-OF-POSITION, OR MISSING RECEIVER BUFFER COMPONENTS

Install new components as necessary, replacing all spring washers in both receiver buffer bodies if any of the old spring washers were broken. Lubricate and reassemble the components, ensuring they are installed correctly (WP 0072 00).

SYMPTOM - Continued

Hard firing (excess recoil).

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

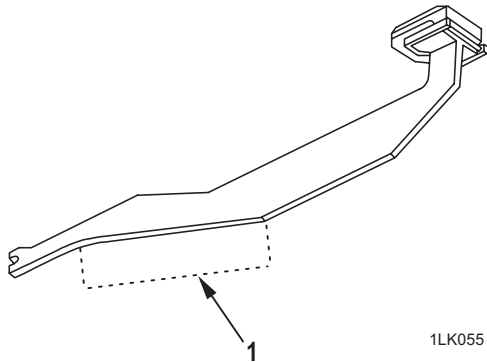
CORRECTIVE ACTION**PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY**

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



BENT VERTICAL CAM

Install new vertical cam assembly (WP 0056 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING – RUNAWAY GUN (UNCONTROLLED AUTOMATIC FIRE)**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

Lubricant (as required)

References

WP 0056 00

WP 0066 00

WP 0067 00

WP 0072 00

SYMPTOM

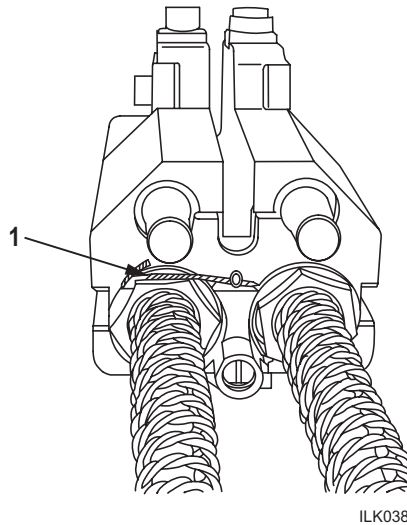
Runaway gun (uncontrolled automatic fire).

MALFUNCTION

Broken/worn lock plate; loose bolt buffer cap(s).

CORRECTIVE ACTION

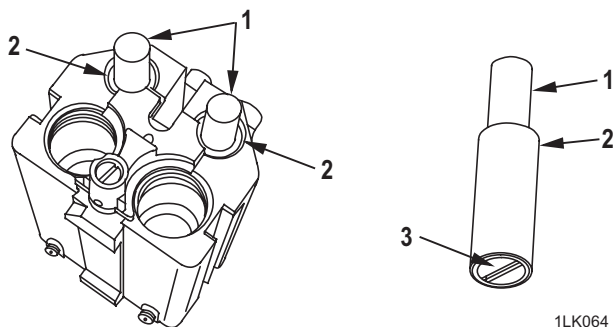
Remove the bolt and backplate assembly from the receiver (WP 0066 00). Inspect the lock plate (1) for breakage.

**LOCK PLATE BROKEN**

1. Remove the non-electrical wire and bolt sleeves.
2. Lift off the assembly.
3. Ensure bolt buffer caps are properly staked. If loose, replace bolt buffer cap assembly (WP 0066 00).
4. Install a new lock plate assembly (WP 0066 00) and adjust the bolt's timing (WP 0067 00).

BOLT BUFFER CAPS LOOSE

With the bolt face down, check the position of the two bolt buffers (1) to be sure that the body (2) (wider diameter part of each buffer) does not extend above the bolt. If it does, the bolt buffer cap (3) is probably loose.



MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

CORRECTIVE ACTION

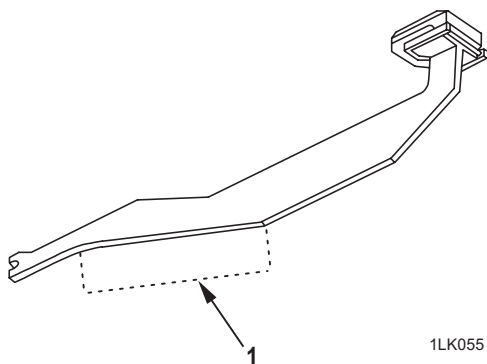
PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



BENT VERTICAL CAM

Install new vertical cam assembly (WP 0056 00).

SYMPTOM - Continued

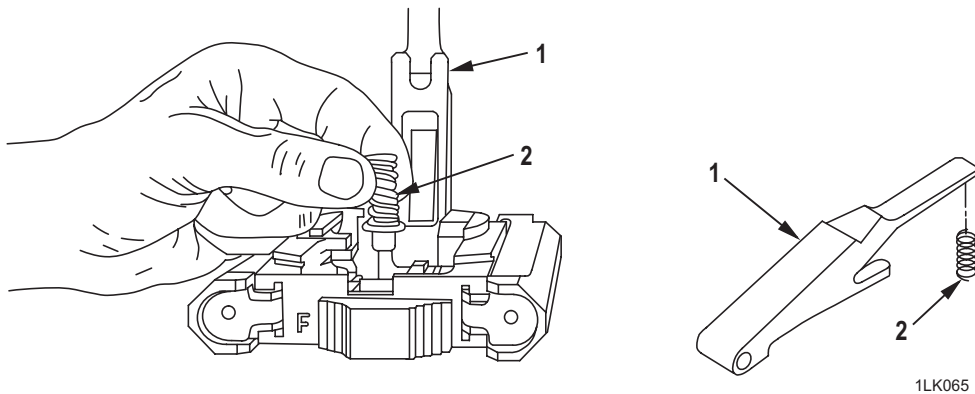
Runaway gun (uncontrolled automatic fire).

MALFUNCTION

Broken receiver sear or sear spring.

CORRECTIVE ACTION

Remove the sear assembly from the receiver (WP 0056 00). Remove the bolt and backplate assembly from the receiver (WP 0056 00). Raise the receiver sear (1) and check the sear spring (2) for breakage. Check the receiver sear for breakage or extreme wear on rear surface and bolt sear.

**BROKEN SEAR SPRING**

Remove the sear spring and install a new one (WP 0072 00).

WORN OR BROKEN SEAR SHOULDER

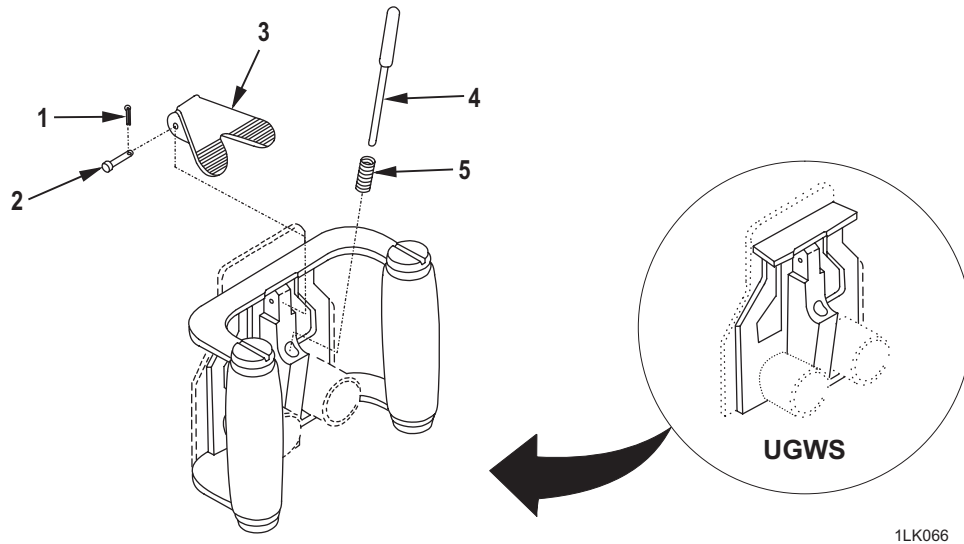
Remove the receiver buffer bodies and the sear pin (WP 0072 00). Lift out the sear. Install a new receiver sear and bolt sear (WP 0072 00).

MALFUNCTION

Trigger obstructed in down position.

CORRECTIVE ACTION

Depress the trigger and release. Spring action should be crisp.

**OBSTRUCTED TRIGGER**

Remove the cotter pin (1) and panhead straight pin (2) (WP 0066 00). Lift off the manual trigger plate (3), operating rod (4), and helical compression spring (5) (WP 0066 00). Remove obstruction. Replace any damaged parts.

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – PREMATURE FIRING

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0035 00
WP 0056 00
WP 0066 00
WP 0067 00

SYMPTOM

Premature firing.

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 damage and/or unusual debris.

NOTE

A weapon stoppage is listed as an unusual occurrence requiring an inspection of the weapon barrel for an obstruction. Such an obstruction is the projectile from the previous fired round even if some projectiles are observed to go downrange.

Improper installation of the MK93 mount catch bag or excessive accumulation of the spent cartridge cases in the bag can cause an out-of-battery fire by allowing spent cases to pile up under the bolt. This can cause a weapon stoppage and possibly out-of-battery functioning by physically interfering with the bolt action. The out-of-battery early functioning is the result of the bolt hitting a spent cartridge case that did not fully enter the catch bag. As a result, the firing pin can deploy early (premature firing) hitting the primer before the chamber is fully chambered. The case ruptures and the projectile can then lodge in the barrel due to lack of gas pressure to propel it through the barrel.

SYMPTOM - Continued

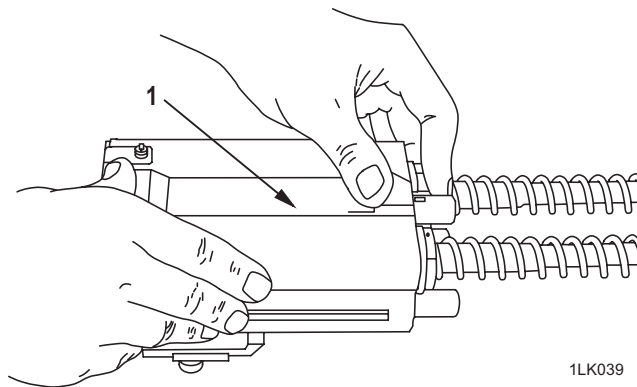
Premature firing.

MALFUNCTION

Loose or broken bolt sear; broken lock plate or helical compression spring; damaged or missing buffer components.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly from the receiver (WP 0056 00).
2. Manually attempt to move the bolt sear (1). If it moves easily, remove the components (WP 0066 00). Check for a broken lock plate, bolt sear, helical compression spring, damaged or missing components.

**BROKEN, MISSING, OR DAMAGED COMPONENTS**

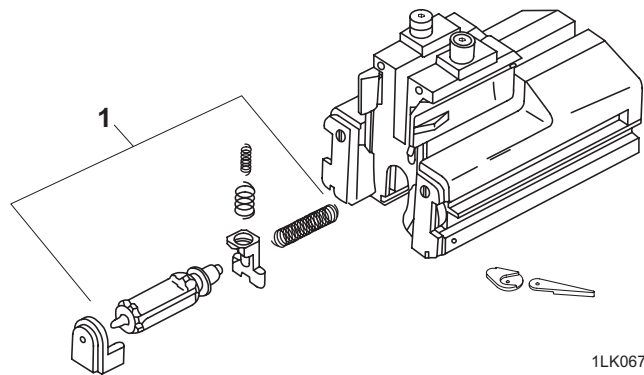
Replace any missing or damaged components after completing malfunction action(s) for: Broken firing pin, firing pin sear, or springs.

MALFUNCTION

Broken firing pin, firing pin sear, or springs.

CORRECTIVE ACTION

With the bolt sear removed, remove the two piece cocking lever and the firing components (1) (WP 0066 00). Inspect for breakage.



BROKEN FIRING COMPONENTS

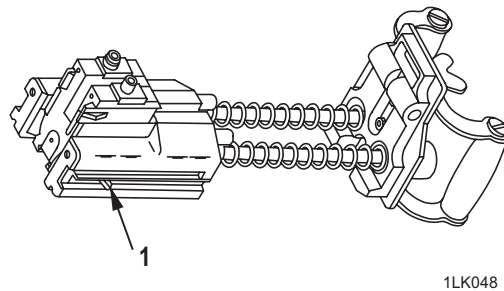
Replace any broken parts with new ones. Adjust the bolt's timing (WP 0067 00) and assemble the components (WP 0066 00).

MALFUNCTION

Broken or worn two piece cocking lever.

CORRECTIVE ACTION

With the bolt and backplate removed (WP 0066 00), inspect for broken cocking lever (1).



BROKEN COCKING LEVER.

Remove the broken two piece cocking lever and install a new one (WP 0066 00).

MALFUNCTION

Damaged receiver or chamber from premature firing.

CORRECTIVE ACTION

Inspect the forward area of the receiver and chamber area for damage. If a case or round is lodged in the bore, see **OBSTRUCTED BORE** (WP 0035 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****DIRECT SUPPORT TROUBLESHOOTING –
DEFORMED CASE OR ROUND (SHORT RECOIL, UNCONTROLLED ROUND)**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Cleaning compound (item 3, WP 0121 00)
Lubricant (as required)
Sealing compound (item 11, WP 0121 00)
Self-locking screw (2) (item 18, WP 0122 00)
Self-locking socket head cap screw (2) (item 7,
WP 0122 00)

References

WP 0035 00
WP 0056 00
WP 0066 00
WP 0067 00
WP 0071 00

SYMPTOM

Deformed case or round (short recoil, uncontrolled round).

NOTE

A deformed case or round occurs when the bolt fails to secure the round during charging or recoil or when there is a short recoil. When the round is not held securely, it can fall and become lodged between the bolt and receiver. In a short recoil, the round is not positioned for chambering and hits the receiver during the bolt's forward travel. Loose, damaged, burred or broken parts are the primary causes. Short recoil can also result from premature firing. Troubleshoot as follows.

SYMPTOM - Continued

Deformed case or round (short recoil, uncontrolled round).

MALFUNCTION

Case or projectile lodged in bore or chamber.

CORRECTIVE ACTION

1. Remove the bolt and backplate assembly (WP 0056 00). Look through the receiver to check the bore for obstructions.
2. Use bore obstruction detector (BOD) to check for bore obstruction.

WARNING

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper.

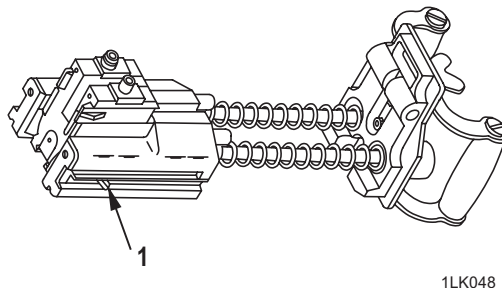
3. See **OBSTRUCTED BORE** (WP 0035 00). If only carbon buildup is present, clean the bore and chamber. Remove caked-on carbon in chamber with abrasive cloth or 600-grit silicone carbide abrasive paper.

MALFUNCTION

Broken or worn cocking lever.

CORRECTIVE ACTION

With the bolt and backplate removed (WP 0056 00), inspect for broken cocking lever (1).

**BROKEN COCKING LEVER**

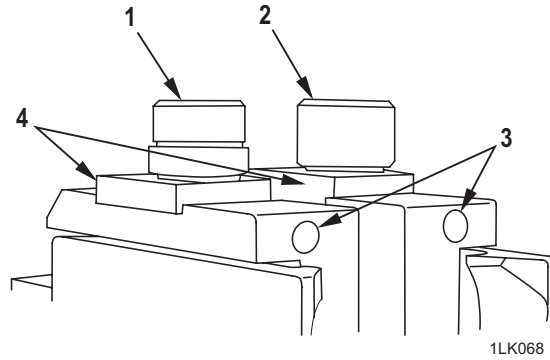
Remove the broken cocking lever and install a new one (WP 0066 00).

MALFUNCTION

Worn, frozen, loose, or missing right-hand (RH) or left-hand (LH) cam follower(s).

CORRECTIVE ACTION

Inspect the bolt for loose or missing RH or LH cam followers (1 and 2).

**WORN, FROZEN, LOOSE OR MISSING RH OR LH CAM FOLLOWER(S)**

1. Remove the nylon point set screw (3) from the side on which the cam follower is worn, frozen, loose, or missing and discard.
2. If the cam follower is loose, remove it.
3. Be sure to remove all the nylon tip from each hole after the cam followers have been removed.
4. Install the cam follower (replace if necessary), ensuring the pin retainers (4) are in place during installation.
5. Install new nylon point set screws (3).

SYMPTOM - Continued

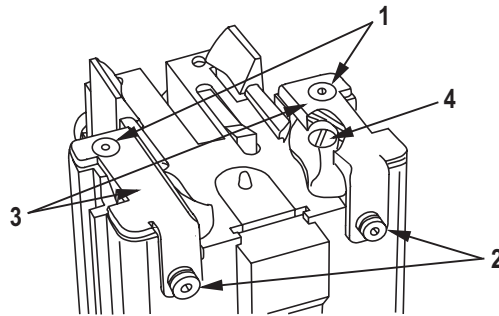
Deformed case or round (short recoil, uncontrolled round).

MALFUNCTION

Loose or missing screws; loose bolt fingers.

CORRECTIVE ACTION

1. Inspect the bolt for loose or missing self-locking screws (1) and self-locking socket head cap screws (2). Inspect the RH and LH covers (3) for damage and ensure they are tight.
2. Place the large screwdriver on the combination tool under each bolt finger and lift to check for loose shoulder bolt.



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LOOSE OR MISSING SCREWS

Remove two self-locking screws (1) and two self-locking socket head cap screws (2). Replace damaged covers as needed. Assemble with new self-locking screws and new self-locking socket head cap screws.

LOOSE BOLT FINGERS

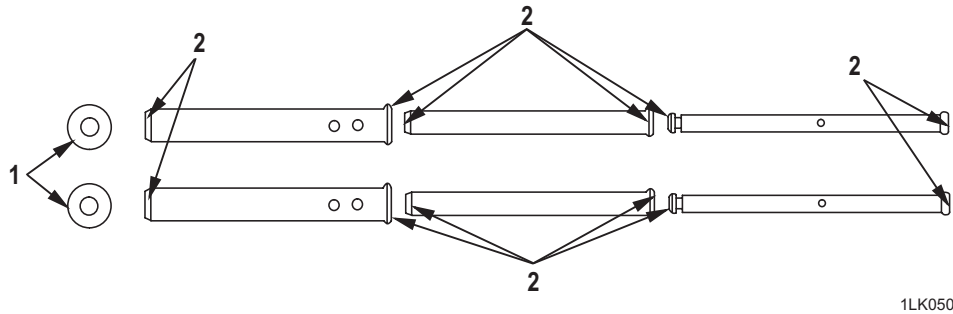
1. Remove self-locking screws (1), self-locking socket head cap screws (2), RH or LH cover (3), and the nylon point set screws (4) beneath the self-locking socket head cap screws.
2. Tighten loose shoulder bolts. Remove any remaining nylon tip from set screw hole(s) and install new self-locking screws, new self-locking socket head cap screws, and new nylon point set screws upon assembly.
3. Verify the RH and LH covers are tight.

MALFUNCTION

Broken spring washers; burred tubes or rods.

CORRECTIVE ACTION

Disassemble the bolt and backplate assembly (WP 0066 00). Inspect the front washers and spring washers (1) for damage. Check the tubes and rods for damage around the mouth (2) of each.

**BROKEN SPRING WASHER.**

Replace both spring washers, ensuring the convex side is seated against the helical compression spring (WP 0066 00).

DAMAGED OR BURRED RODS OR TUBES

Remove burrs using a stone. If damaged, replace all rods and tubes (WP 0066 00).

WORN FRONT WASHERS

Replace both washers. Assemble components (WP 0066 00). Adjust bolt timing (WP 0067 00).

MALFUNCTION

Loose or missing feed slide assembly components.

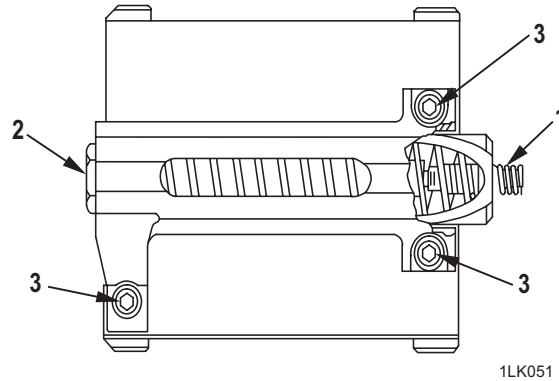
CORRECTIVE ACTION**WARNING**

The shuttle spring and housing are held under pressure. Always use the feed slide tool to hold the helical compression spring before removing the self-locking shoulder screws. Failure to observe this warning will result in injury.

SYMPTOM - Continued

Deformed case or round (short recoil, uncontrolled round).

1. Detach the secondary drive lever from the top cover (WP 0056 00) and fold down the feed tray with the feed slide assembly.



2. Check for bent, broken or missing helical compression spring (1).
3. Check the guide rod (2) for looseness. It should not move.
4. Check for any of the three self-locking socket head screws (3) loose or missing from the feed slide housing.
5. Check for proper feed slide adjustment (WP 0071 00).

BENT, BROKEN OR MISSING SHUTTLE SPRING; LOOSE GUIDE ROD

WARNING

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

Remove the feed slide assembly from the tray. Remove the housing. Remove the loose guide rod. Clean threads on guide rod and housing using cleaning compound. Apply sealing compound to the guide rod before tightening. Replace broken shuttle spring. Perform feed slide adjustment (WP 0071 00).

LOOSE OR MISSING SELF-LOCKING SOCKET HEAD SCREWS

Install new self-locking socket head screws.

MALFUNCTION

Bent, burred, or aluminum buildup on vertical cam assembly.

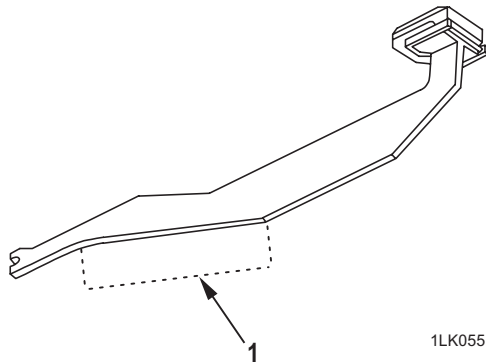
CORRECTIVE ACTION**PITTED, BURRED, OR ALUMINUM BUILDUP ON VERTICAL CAM ASSEMBLY**

1. Remove the vertical cam assembly and the primary drive lever (WP 0056 00).

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could cause damage to the vertical cam.

2. Inspect the chromed surface (1) of the vertical cam for nicks, pits, burrs, scratches, and aluminum buildup. Using a dial caliper, measure the distance of pits from the edge on the chromed surface. If pits are farther than 0.030 inch from edge, replace the vertical cam (WP 0056 00). Remove any aluminum buildup, surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. If the center of the cam surface cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly (WP 0056 00). Preserve with lubricant.



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BENT VERTICAL CAM

Install new vertical cam assembly (WP 0056 00).

SYMPTOM - Continued

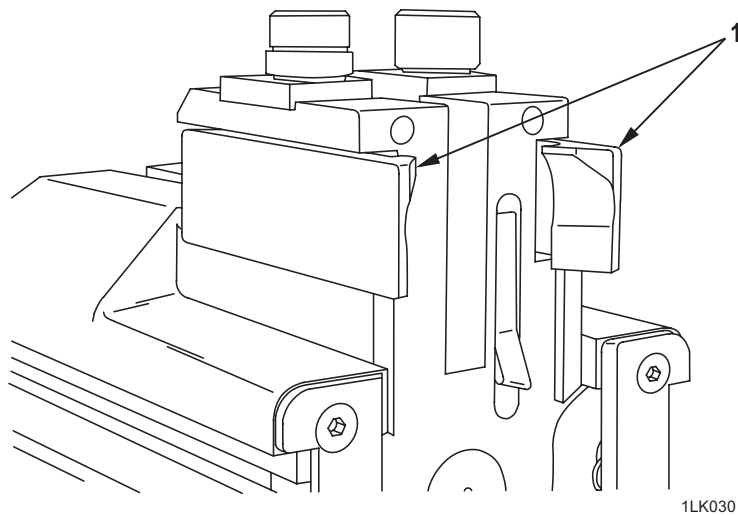
Deformed case or round (short recoil, uncontrolled round).

MALFUNCTION

Incorrect, obstructed, worn, or broken right-hand (RH) or left-hand (LH) cartridge extractors; broken or weak springs.

CORRECTIVE ACTION

Check the tips (1) of the RH and LH cartridge extractors for obvious wear or breakage. Ensure the wider tip is on top.

**WEAR OR BREAKAGE**

If wear or breakage is observed, replace the RH or LH cartridge extractors/springs (WP 0066 00).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – CHARGER HANDLE(S) OVERRIDES BOLT

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0056 00
WP 0075 00

SYMPTOM

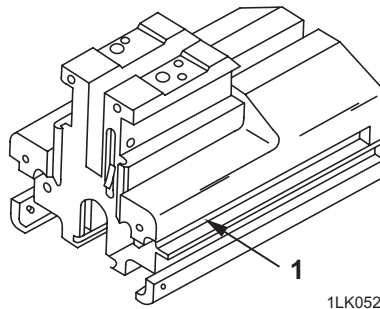
Charger handle(s) overrides bolt.

MALFUNCTION

Slot in bolt is deformed and/or charger handle assembly(s) housing is bent or bowed.

CORRECTIVE ACTION**DEFORMATION OF SLOT**

If the slot (1) in the bolt is deformed more than 50 percent of its depth, replace the bolt (WP 0056 00).

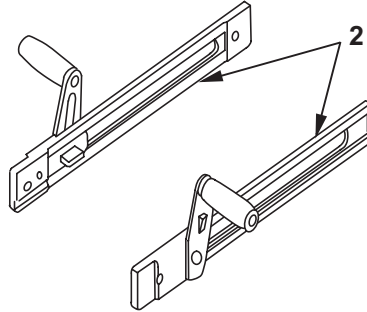


SYMPTOM - Continued

Charger handle(s) overrides bolt.

CHARGER HANDLE ASSEMBLY HOUSING (2) BENT OR BROKEN

Replace the charger housing (WP 0075 00).



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END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

DIRECT SUPPORT TROUBLESHOOTING – OBSTRUCTED BORE

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

TM 9-1010-230-10
WP 0065 00

SYMPTOM

Obstructed bore.

WARNING

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

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

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

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

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

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

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

SYMPTOM - Continued

Obstructed bore.

MALFUNCTION

Bore obstructed.

CORRECTIVE ACTION

1. Place weapon on "S" (SAFE).
2. Charge gun and hold bolt to rear.
3. Open top cover.
4. Insert bore obstruction device (BOD) into bore to check for a live round.

LIVE ROUND LODGED IN BORE

- a. If vehicle is mounted, remove the empty catch bag.
- b. Depress feed pawl, release ammunition belt, and clear feed area. Move the ammunition belt and can to a safe area.
- c. Holding the bolt to the rear, insert cleaning rod through receiver rail to top of shell casing and as close to the bolt as possible.
- d. Place left hand underneath as close to the round as possible. Vigorously raise cleaning rod upward forcing the round off the bolt face into the hand. Remove round to designated area for expended ordnance disposal (EOD).
- e. Place selector lever on "F" (FIRE). Ease the bolt forward. Remove the backplate pin, bolt and backplate assembly (WP 0056 00). Check for the type of obstruction.
- f. Remove obstruction per round removal procedures (TM 9-1010-230-10).

SPENT CASE LODGED IN BORE

Remove barrel (WP 0065 00). Install new barrel (WP 0065 00).

PROJECTILE IN RECEIVER, SEPARATED FROM CASE

Ammunition defective. Remove and dispose of separated projectile in accordance with local directives. No further corrective action is required.

END OF WORK PACKAGE

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS
FOR
MK19 MOD 3 40MM MACHINE GUN,
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET,
AND
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

SERVICE UPON RECEIPT**INITIAL SETUP:****Tools and Special Tools**

Tool kit, small arms repairman,
 SC-5180-95-B71 with addition of
 SL-3-00607A (Marine Corps Only)
 Tool set, intermediate maintenance,
 SL-3-08669A (Marine Corps only)
 Tool set, organizational maintenance,
 SL-3-08668A (Marine Corps only)

Materials/Parts

Lubricant (as required)

References

DA PAM 738-750 (TM 4700-15/1 Marine
 Corps)
 SF 364
 TM 9-1010-230-10
 WP 0121 00

SERVICE UPON RECEIPT OF MATERIEL

1. Inspect the MK19 MOD 3/MK19 Upgunned Weapons Station for damage incurred during shipment. If it has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).
2. Check the MK19 MOD 3/MK19 Upgunned Weapons Station against the packing slip to see if the shipment is complete. Users will report all discrepancies in accordance with DA PAM 738-750 (Marine Corps use TM 4700-15/1).
3. Check to see whether the MK19 MOD 3/MK19 Upgunned Weapons Station has been modified.

Table 1. Service Upon Receipt

Location	Item	Action	Remarks
1. Container	Banding straps	Remove.	See inventory list in Table 2.
	Barrier bag	Cut outer and inner bags carefully.	
	Contents	Remove. Check inventory list for presence of all items.	
	Outer container	Dispose. (Container may be used to evacuate the gun for maintenance.)	

SERVICE UPON RECEIPT OF MATERIEL - Continued

Table 1. Service Upon Receipt - Continued

Location	Item	Action	Remarks
2. MK19 MOD 3	Exterior	1. Inspect for rust, dents, and deformation. 2. Reject the weapon if: a. Barrel is bent. b. Control grip assembly is cracked or bent. c. Top cover or receiver is cracked.	
	Preliminary servicing	1. Field strip the gun (see TM 9-1010-230-10). Remove lubricant from exterior surfaces, dry, and lubricate all exterior surfaces with appropriate lubricant as specified in WP 0121 00.	
CAUTION Do not lubricate the interior of the bolt buffer assemblies. Lubricant will cause excess recoil with possible parts damage inside gun.			
		2. Lubricate bolt and backplate assembly. 3. Lubricate sear assembly. 4. Lubricate the ogive plunger assembly. 5. Lubricate/preserve the other assemblies and components on the weapon. 6. Assemble the weapon. 7. Function check feed operation. (Army: Fixed feed slide adjustment will be performed at the Direct Support level only. Unit Armorer can perform adjustment correction on weapons with adjustable secondary drive lever. Inspect feed slide alignment (Unit Armorer)).	

Table 1. Service Upon Receipt - Continued

Location	Item	Action	Remarks
3. Left rear of receiver	Serial number	1. Check the number against the shipping document. Serial numbers should match. 2. Report any discrepancy.	

Table 2. Inventory of Machine Gun Container.

Item Number	NSN	Nomenclature	U/I	Qty
1	1010-01-126-9063	Container, Packing Assembly, for 40mm Machine Gun, MK19 MOD 3	EA	1
2		40mm Machine Gun, MK19 MOD 3 (3269419) (12997550)	EA	1
3		Box, Fiberboard	EA	1
4		Bag, Barrier	EA	1
5	5140-00-473-6256	Bag, Tool, Satchel (not for Army issue)	EA	1
6	1005-00-494-6602	Brush, Cleaning, Small Arms (Tooth)	EA	1
7	8020-00-297-6657	Brush, Paint, Oval with Chisel Edge (Sash) (not for Army issue)	EA	1
8	1005-00-653-5441	Rod, Cleaning, Small Arms (.50 Caliber) (5 sections)	EA	1
9	1010-01-150-9983	Bore Cleaning Brush Assembly, 40mm	EA	1
10	8105-00-837-7756	Bag, Plastic, Waterproof	EA	1
11	0000-00-005-9811	Weapon Record Book, Part II (with Q/A entries by manufacturer)	EA	1
12	1005-00-791-5420	Operator's Manual, Machine Gun, 40MM, MK19 MOD 3 (TM 9-1010-230-10)	EA	1
13		Carrying Case, Barrel	EA	1

END OF WORK PACKAGE

UNIT

**MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

PREVENTIVE MAINTENANCE CHECKS AND SERVICES INTRODUCTION

INITIAL SETUP:**References**

DA Form 2404
TM 9-1010-230-10
WP 0080 00

GENERAL

This section contains the procedures and instructions necessary to perform Unit preventive maintenance checks and services (PMCS). These services are to be performed by Unit Maintenance personnel.

Wherever the MK19 MOD 3 is specified it shall also include the MK19 MOD 3 with Bracket and MK19 Upgunned Weapons Station (UGWS) unless otherwise indicated.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES**General**

The PMCS procedures are contained in the following table. They are arranged in logical sequence requiring a minimum amount of time and motion on the part of the persons performing them and are arranged so that there will be minimum interference between persons performing checks simultaneously on the same end item.

1. Unless otherwise noted, perform PMCS as indicated in WP 0038 00 to keep the weapon ready for use.
2. If the weapon has not been used for 90 days, PMCS in the operator's manual (TM 9-1010-230-10) should also be performed. If you see rust or other signs of wear on a weapon, the PMCS should be performed immediately.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Continued**Explanation of Columns**

1. **Item No. Column.** Checks and services are numbered in disassembly sequence. This column shall be used as a source of numbers for "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.
2. **Interval Column.** This column gives the designated interval when each check is to be performed.
3. **Man-Hours Column.** Man-hours required to complete all prescribed lubrication services to the nearest tenth of an hour.
4. **Item To Be Checked or Serviced Column.** This column lists the items to be checked or serviced. Items identified "DTI" indicate detailed technical inspection, to be performed every six months or 1,000 rounds, whichever is first. Items identified as "LTI" indicate limited technical inspection performed before issuing system back to lower echelon units and prior to embarkation after debarkation from tactical employment. Also perform every time the gun has been immersed in water or exposed to other extreme conditions, is rusty, or appears extremely dirty or worn.
5. **Procedure Column.** This column contains a brief description of the procedure by which the check is to be performed. It contains all the information required to accomplish the checks and services. Information marked "SH" indicates a specific equipment shortcoming and the procedure needed to correct the shortcoming.
6. **Equipment Not Ready/Available If: Column.** This column contains a brief statement of the condition (e.g., malfunction, shortage) that would cause the covered equipment to be less than fully ready to perform its assigned mission.

PMCS PROCEDURES

Inspect all assemblies for missing, broken, or loose parts. Inspect parts for cracks, dents, burrs, excessive wear, rust, or corrosion. Inspect external surfaces for adequate finish. Repair or replace authorized defective parts or notify direct support maintenance if repair is not authorized.

LUBRICATION

Make sure all items are cleaned and lubricated (refer to TM 9-1010-230-10). Do not use lubricants on any composite/rubber components (WP 0080 00). Refinish if necessary using solid film lubricant.

WARNING

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

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

INITIAL SETUP:

Tools and Special Tools

Tool kit, small arms repairman,
 SC-5180-95-B71 with addition
 of SL-3-00607A (Marine Corps Only)
 Tool set, intermediate maintenance,
 SL-3-08669A (Marine Corps only)
 Tool set, organizational maintenance,
 SL-3-08668A (Marine Corps only)

References

TM 9-1010-230-10
 TM 9-1010-231-13&P
 WP 0040 00
 WP 0042 00
 WP 0045 00
 WP 0048 00
 WP 0053 00

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
 Cleaning compound (RBC) (item 3, WP 0121 00)
 Solid film lubricant (item 7, WP 0121 00)
 Wiping rag (item 14, WP 0121 00)

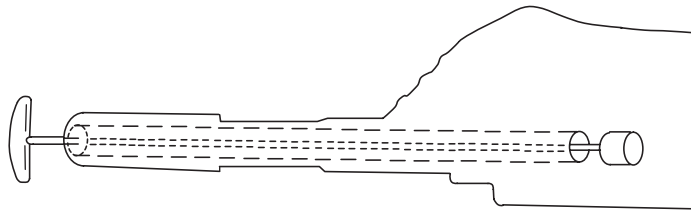
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Daily		MK19 MOD 3 Machine Gun (Exterior)	NOTE If weapon has been stored and not used for a period of 90 days, perform PMCS. Visually inspect exterior for rust. Remove rust with lubricant and wiping rag. Weapons with less than, or up to, one-third of the exterior protective finish missing will be touched up with solid film lubricant. 1LK004 MK19 MOD 3 1LK340 MK19 MOD 3 with Sight Bracket 1LK005 MK19 MOD 3 (UGWS)	Exterior of weapon has more than one-third protective finish missing.

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
2	Weekly		Bore and Chamber	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts. NOTE If possible, clean bore and chamber immediately after firing. Soak borebrush (on a cleaning rod) with Rifle Bore Cleaner (RBC). Insert borebrush into the muzzle and chamber. Resoak the brush. Repeat until bore and chamber are clean. Carbon may be removed from the chamber using abrasive cloth. Wipe bore and chamber dry and apply a light coat of lubricant.	Bore and/or chamber has carbon buildup (caked on carbon), pitting, burrs, or bulges.

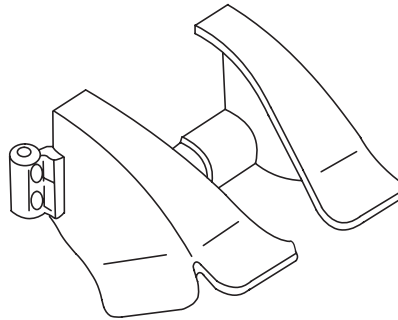


1LK069

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun – Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
3	Weekly		Feed Throat (MK19 MOD 3 only)	1. Check plungers for condition of the following components: weak springs, knurled pins (test by squeezing each set together). 2. Feed throat (check for cracks and bent areas). If bent, install on gun's receiver. Perform dummy round function test (see item 15). 3. Check for and remove rust with an abrasive cloth. Preserve with light coat of lubricant.	Plungers do not firmly secure the feed throat. Springs are weak or pin is missing or broken. Dummy (round) does not pass through the feed throat. Interior of feed throat is rusted.
4	Weekly		Top Cover Assembly	1. Raise the top cover. Ensure the handle is not loose, dry, or binding. Ensure spring is not broken. 2. Separate the secondary drive lever from the top cover (WP 0042 00). Remove any rust with wiping rag and lubricant. Lubricate lightly.	The lock handle and spring do not move as a unit with no relative movement between them. Spring is broken. Rust is present in the pivot post hole.



1LK070

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun – Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
5	Weekly		Secondary Drive Lever Assembly	Inspect for burrs. Remove with a stone. Verify the presence of the retaining ring on pivot post.	Retaining ring is worn or missing.
6	Weekly		Feed Slide Assembly	1. Verify the feed slide assembly slides in the feed tray. 2. Press the feed slide pawls to verify crisp spring action. 3. Install feed tray (WP 0040 00), feed slide assembly (WP 0040 00), and the adjustable secondary drive lever (WP 0040 00). With the bolt in the forward position and the feed slide assembly to the left, make sure helical compression spring is touching the inside wall of the top cover.	Feed slide/tray binds. Any spring is binding, weak, or broken. Top cover will not close. Guide rod spring is bent or out of adjustment. Primary/secondary drive levers do not properly interconnect.
7	LTI		Feed Tray and Feed Tray Pawl	1. Check feed tray for cracks and burrs along the rails of the tray. Inspect for rust. Ensure rails are well lubricated. 2. Press and release the feed tray pawl to verify crisp spring action without binding.	Feed tray is cracked. Rails are burred. Rust is present. There is relative movement between the pin and the pawl or the pawl binds.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun – Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1LK071					
8	LTI		Primary and Secondary Pawls	Press and release to verify crisp spring action.	Springs are weak or broken. Pawl is broken.
9	LTI		Round Positioning Block	- Slide the block in the keyholes to verify it is tight. - Check for movement of pins. Pins may turn but should not have any side to side or inward and outward movement.	Pins are bent or missing. Pins moving side to side or in and out.
10	LTI		Alignment Guide Assembly	Verify the alignment guide pin is tight.	There is relative movement between the spring and pin.

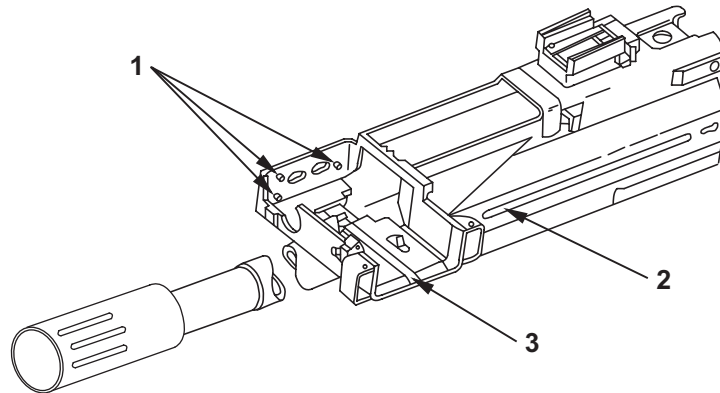
**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun – Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
11	Before		Ogive Plunger Assembly	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts. CAUTION Do not immerse the ogive assembly in cleaning solvent. Solvent dilutes the internal lubricant. Inspect for rust and damaged or missing parts. Disassemble and lubricate before firing.	Rust is present. Slotted washer is worn, split, or not properly lubricated (LSAT/LSA/GMD).

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
12	LTI		Receiver	1. Verify the three welded pins (1) are present. 2. Remove the bolt and backplate assembly (WP 0040 00). Inspect internal rails (2) for burrs. Inspect feeder link guide (3) for galling or burrs. Check for cracks on weld seams. Inspect all surfaces for rust. 3. Inspect receiver interior and right-hand inner rail for cracks and rust.	One or more pins are missing. Rails or feeder link guide are burred (galled). Weld seams are cracked. Rust is present. Cracks are visible. Rust is present.



1LK072

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
13	LTI		Bolt and Backplate Assembly	1. Verify the assembly is clean, lubricated, and has no rust. 2. With the bolt and backplate assembly removed from the receiver (WP 0040 00), the firing pin should retract. WARNING Do not relink or fire ammunition which has been cycled through the weapon.	Rust is present. Firing pin does not retract.
14	Weekly		Bolt and Backplate Assembly	1. Check for broken or missing safety wire (WP 0045 00). 2. Check for loose or missing screw (WP 0045 00).	Safety wire is broken or missing (evacuate to Direct Support Maintenance). Screw is loose or missing (evacuate to Direct Support Maintenance).
15	LTI		Secondary Pawl	Conduct the dummy round test: 1. Manually push a dummy round across the feed tray. Verify the pawl snaps behind the rim of the case prior to compression of the bolt fingers.	Secondary pawl does not snap back to retain the dummy round.

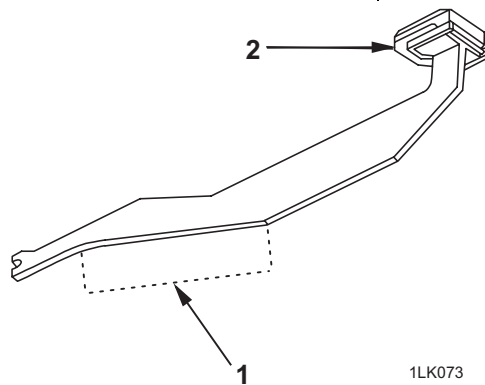
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
15 (cont)	LTI (cont)		Secondary Pawl (cont)	NOTE If erosion (chipped) is severe enough to interfere with the function of the round being fed into the bolt fingers, replace the bolt. 2. Push the dummy round out of the bolt fingers. Verify the round passes easily out of the bolt fingers. If still binding, disassemble, inspect, and replace damaged parts. (Army: Evacuate to Direct Support Maintenance).	Dummy round binds when manually pushed through the bolt fingers.
16	Before		Feed Slide	Check feed slide alignment before firing (Unit Armorer, with Feed Slide Adjustment Tool).	Feed slide out of alignment.
17	Before		Cam Followers	Inspect cam followers, feed pawl, LH and RH bolt fingers for spring tension, rust, flat spots, and lubrication.	Not serviceable and/or properly lubricated.
18	Weekly		Vertical Cam Assembly	1. Remove the vertical cam assembly and the primary drive lever (WP 0040 00).	Vertical cam is bent.

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				2. Inspect the chromed surface (1) for burrs, pits, nicks, scratches, and aluminum buildup. Remove any aluminum deposits (buildup), surface imperfection, or dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove any sharp edges with a stone. 3. If pits are found, measure the distance of the pit from the edge, using a dial caliper. If pits are farther than 0.030 in. from the edge, replace the vertical cam assembly. (Army: Evacuate to Direct Support Maintenance.) 4. Verify free movement of the drive lever lock (2).	Aluminum buildup or rust is present on the chromed surface. Pits are visible within 0.030 in. from edge on chromed surface. Drive lever pin is loose or missing. Lever binds.



PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

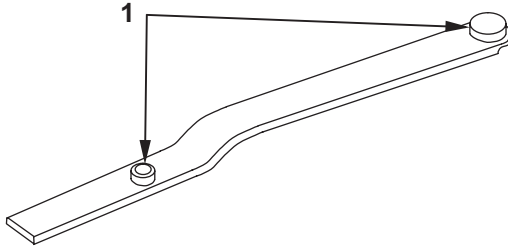
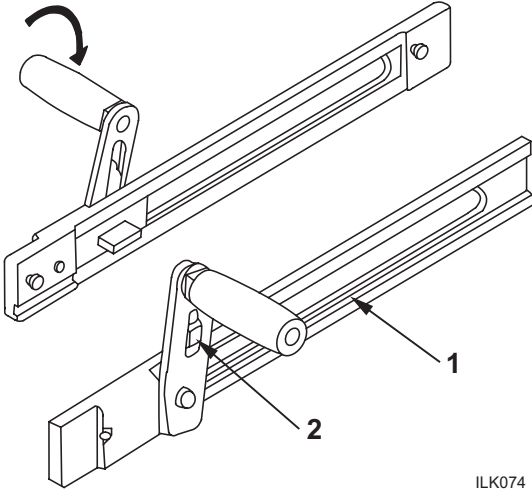
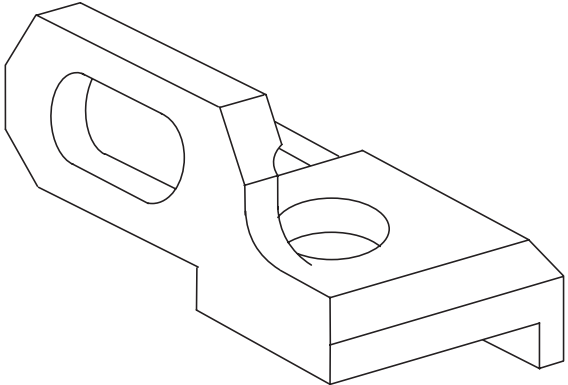
ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
19	Weekly		Primary Drive Lever	Inspect for burrs around the pivot post (1) and all surfaces. Remove burrs with a stone. 	Lever is burred. Pivot post is worn or burred.
20	Weekly		Charger Assemblies, LH and RH (MK 19 MOD 3); Charger Block (UGWS)	- Inspect the function and general condition of the following (MK19 MOD 3 only): - Handle locks - Slides - Arm mechanism - Lock plungers (tips) - Check grooved rails (1) for burrs. Remove burrs with a stone. - Apply light coat of lubricant under each handle lock (2) and between each charger housing and receiver.	1LK019 Parts are missing, broken, bent, or show signs of wear. Rails are bent or burred.

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
21	LTI		 ILK074 Sear Assembly	 1LK075 NOTE Whenever a new receiver sear is installed, also install a new bolt sear. Adjust the gun's timing. (Army: Evacuate to Direct Support Maintenance.) 1. Inspect receiver sear (1) for wear. Replace if worn, observing NOTE, above. 2. Using a dial caliper, measure the length of the sear spring (2). If it is shorter than 0.960, discard and install a new spring. (Army: Evacuate to Direct Support Maintenance.) 3. Move the thumb safety (3) back and forth to ensure it snaps into and remains in both the "S" (SAFE) and "F" (FIRE) positions. (Army: Evacuate to Direct Support Maintenance.)	Receiver sear shoulder is worn. Sear spring measurement is less than 0.960. Safety binds or does not hold in safe/fire position.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

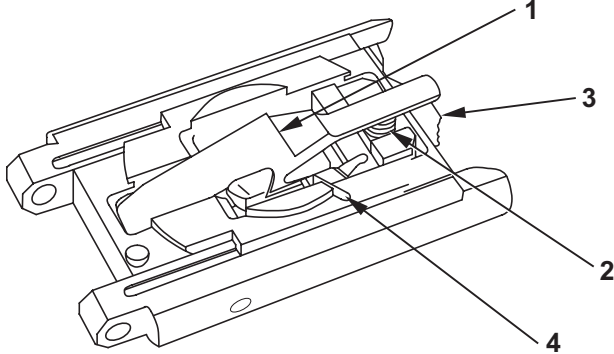
ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
21 (cont)	LTI (cont)		Sear Assembly (cont)	4. Inspect for broken parts and adequate lubrication. 5. Ensure that the safety lever pin (4) is installed.	Parts are broken or missing.
 1LK076					
22	LTI		Solenoid (MK19 UGWS only)	Inspect the electrical connector receptacle for damage.	Connector is damaged.
23	LTI		Round Removal Tool	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.	Cup is cracked. Set screw or cap screw(s) are missing.
24	LTI		Functional Check	Check feed slide adjustment.	NOTE If out of adjustment, feed slide adjustment (adjustable secondary drive lever) will be performed by the Unit Armorer. Adjustment of the fixed secondary drive lever will be done at Direct Support Maintenance.

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				WARNING Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod (Refer to TM 9-1010-231-13&P). Do not relink or fire ammunition which has been cycled through the weapon. Assemble the weapon and mount it on the MK 64 Machine Gun Mount, MK 16 MOD 0 Stand, or M3 Tripod. 1. Raise the top cover and assure the bolt is in the forward position. 2. Feed two linked dummy rounds of 40mm ammunition into the weapon until the first round is to the right of the secondary pawl. 3. Move the feed slide assembly to the left and close the top cover. Charge weapon and push the chargers forward and up. Verify that the chargers do not bind when the weapon is charged.	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
24 (cont)	LTI (cont)		Functional Check (cont)	4. Without opening the top cover, verify the second round is now to the right of the secondary pawl. The feed pawl will protrude when felt from the front underside of the feed tray area. Primary and secondary pawls should be in the up position. 5. Move the safety to "F" (FIRE). Press the trigger to release the bolt forward under spring tension. Raise the top cover. Verify the extractors are seated properly on the ammunition case rim and delinking has occurred. Close top cover. 6. Pull the bolt to the rear until the primary pawl clicks prior to complete charging of the bolt. Push the chargers fully forward and up. CAUTION Catch the ejected dummy round as it comes out the bottom of the weapon. The round's ogive may become dented if the round is dropped. 7. Press trigger to release bolt forward. Charge the weapon, catching the ejected round. Place thumb safety on "S" (SAFE).	

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				8. Raise top cover and verify the ammunition is seated firmly against the bolt face and that the round stop pawl protrudes from the bolt face above the seated ammunition. 9. Verify no malfunctions occurred and no discrepancies were noted during accomplishment of steps 1 through 8. 10. Remove dummy ammunition from the weapon using a cleaning rod section. 11. Install the feed throat and insert a belt of six linked dummy rounds. Verify weapon met requirements of steps 3 through 6 when repeated with the six linked rounds of dummy ammunition. CAUTION To prevent dented ogive, catch the ejected dummy round as it comes out of the bottom of the weapon. 12. Remove last dummy round from the weapon, using a cleaning rod section.	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for the MK19 MOD 3 Machine Gun - Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
24 (cont)	LTI (cont)		Functional Check (cont)	13. With rounds removed, charge the weapon and return charging handles forward and in up position. Press trigger and release bolt. Raise the cover and inspect the bolt face to insure that the firing pin protrudes. 14. Charge the weapon again and return the charging handles to the forward position, leaving one charging handle down. Press the trigger and release the bolt. Raise the cover and inspect bolt face to insure that the firing pin does not protrude. This procedure is to confirm stoppage of a runaway gun.	
25	Semi-annually		Detailed Technical Inspection (DTI) (Not for Army use)	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts. Detail strip, clean, and inspect the weapon. (Training Commands may establish their own criteria.) A DTI should also be performed if the weapon is immersed in water or is extremely dirty.	

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
26	Semi-annually		Bolt and Backplate Assembly (DTI) (Not for Army use)	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts. CAUTION Do not immerse the cam followers, sear buffer, or the assembled bolt buffer assemblies in cleaning solvent. Solvent damages these parts. Do not lubricate the internal components in the bolt buffer assemblies. Ensure the components are clean, dry, and not lubricated during assembly or excess recoil will result. 1. Detail strip, clean, and inspect the bolt and backplate assembly. 2. Replace any parts required. 3. Verify all springs are not bent, broken, or worn on outer coils. 4. Inspect the mouth of the rods and tubes for burrs. Remove burrs with a stone. Verify rods and tubes are not bent.	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
26 (cont)	Semi-annually (cont)		Bolt and Backplate Assembly (DTI) (Not for Army use) (cont)	NOTE Anytime the cam followers or the covers, RH and LH, are removed, install new nylon point set screws, flat head screws, and socket head screws. Adjust the bolt's timing and check feed slide adjustment each time the bolt is detail stripped or any of the following items are installed as new parts: Bolt sear Sear spring Buffer washers Firing pin Firing pin sear Lock plate assembly. 5. Lubricate and reassemble observing all NOTES mentioned above.	

**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
27	Semi-annually		Receiver Sear Assembly (DTI) (Not for Army use)	WARNING To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts. CAUTION Do not mix up the order or position of the components inside the receiver buffer bodies. Improper sequence or position of these components will cause excess recoil with possible parts damage (WP 0048 00). 1. Detail strip, clean, inspect, and lubricate the sear assembly. 2. Replace any parts required. 3. Verify all springs are not bent, broken, or worn on outer coils. 4. Lubricate and reassemble the sear assembly components.	

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued**Table 1. Preventive Maintenance Checks and Services for
the MK19 MOD 3 Machine Gun - Continued**

ITEM NO.	INTERVAL	MAN HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
28	Semi-annually		Other Assemblies (DTI) (Not for Army use)	1. Clean the other assemblies removing only the parts specified in the maintenance procedures for each assembly. 2. Inspect for worn, burred, broken, or missing parts. 3. Discard unserviceable parts and install new parts as required. 4. Verify all springs are not bent, broken, or worn on outer coils. 5. Lubricate and reassemble the weapon.	
29	Daily		Sight Mounting Bracket	Inspect for bent or broken bracket and for missing or damaged machine bolts (WP 0053 00).	Sight mounting bracket is damaged, bent, or broken so that adjustable sight bracket (ASB) cannot be mounted; machine bolts are damaged or missing.

END OF WORK PACKAGE

UNIT

**MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

GENERAL MAINTENANCE INSTRUCTIONS

INITIAL SETUP:**References**

WP 0121 00

GENERAL**Initial Setup**

The following information will reduce the space required for the initial setup portion of the maintenance procedures.

1. Materials/Parts required are not listed unless they apply to the procedure.
2. Personnel Required is listed only if the task requires more than one person. If Personnel Required is not listed, it means one person can do the job.
3. The approximate time required is listed on the applicable Maintenance Allocation Chart (MAC).
4. When the term "evacuate to Direct Support [or Depot] Maintenance" is used, the entire MK19 MOD 3/Upgunned Weapon Station (UGWS) Machine Gun must be evacuated.

Lubrication

Whenever the words "lubricant," "lube," "LSA," "LSAT," "LAW" or "GMD" are cited in this TM, they are to be interpreted to mean weapons lubricating oil (LSA) (item 9, WP 0121 00), weapons lubricating oil (LSAT) (item 10, WP 0121 00), weapons lubricating oil (LAW) (item 8, WP 0121 00), or grease, molybdenum disulfide (GMD) (item 6, WP 0121 00) can be utilized as applicable. The following constraints must be adhered to:

1. Under all but the coldest arctic conditions, LSAT, LSA, and GMD are the lubricants to use on the MK19 MOD 3/UGWS, at 10 degrees Fahrenheit and above.
2. LAW is the lubricant to use during cold arctic conditions (-10 degrees Fahrenheit and below).
3. Do not mix lubricants on the same MK19. The weapon must be thoroughly cleaned during change from one lubricant to another. Dry cleaning solvent (SD) (item 11 or 12, WP 0121 00) is recommended for this purpose.

GENERAL - Continued**Lubrication - Continued**

4. Rifle bore cleaner (RBC) (item 3, WP 0121 00) may be used to remove carbon buildup in the bore and other portions of the MK19.

END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MOD 3 40MM MACHINE GUN
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0097 00

Equipment Conditions

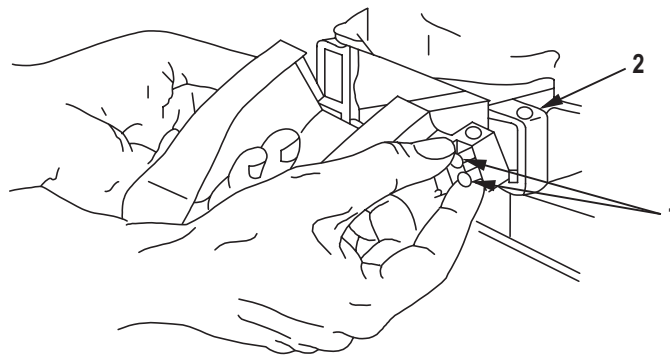
Weapon on "S" (SAFE), clear of ammo, bolt in
forward position

DISASSEMBLY**WARNING**

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

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

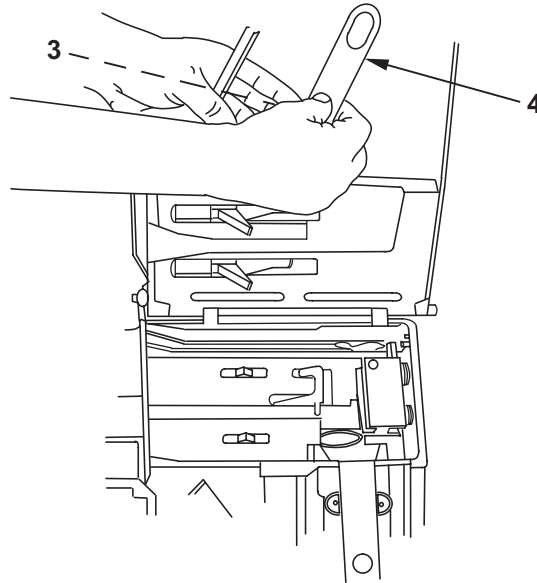
1. REMOVE FEED THROAT ASSEMBLY (MK19 MOD 3 ONLY).
 - a. Squeeze shoulder pins (1) on feed throat and pull away from receiver (2).



1LK077

DISASSEMBLY - Continued**2. REMOVE SECONDARY DRIVE LEVER.**

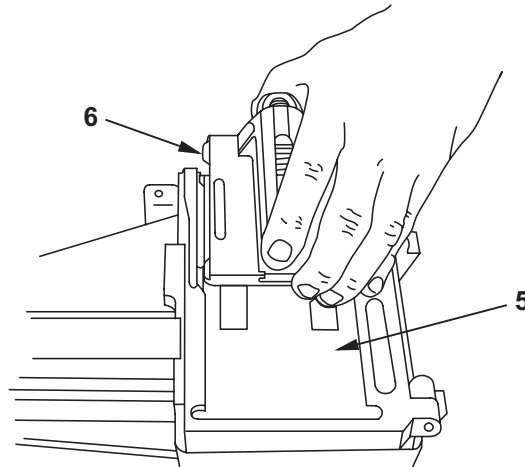
- a. Open the top cover assembly. Locate the center hole in the outside of the top cover. Press the pivot post (3) through the hole toward the inside of the top cover. Lift up on the secondary drive lever (4) to remove it from the feed slide assembly.



1LK081

3. REMOVE FEED SLIDE ASSEMBLY.

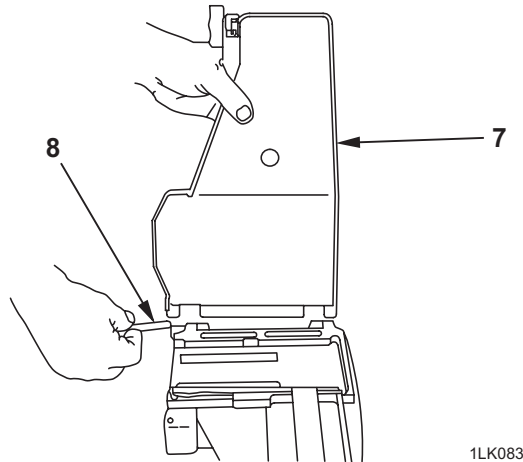
- a. Rotate the feed tray (5) down. Move the feed slide assembly to the left in the tray until the tabs (6) are lined up with the slots in the tray. Lift the feed slide assembly out of the tray.



1LK082

4. REMOVE TOP COVER ASSEMBLY.

- a. With the feed tray down, hold the top cover (7) straight up and pull out the knurled head straight pins (8) on both sides. Lift off the top cover assembly.



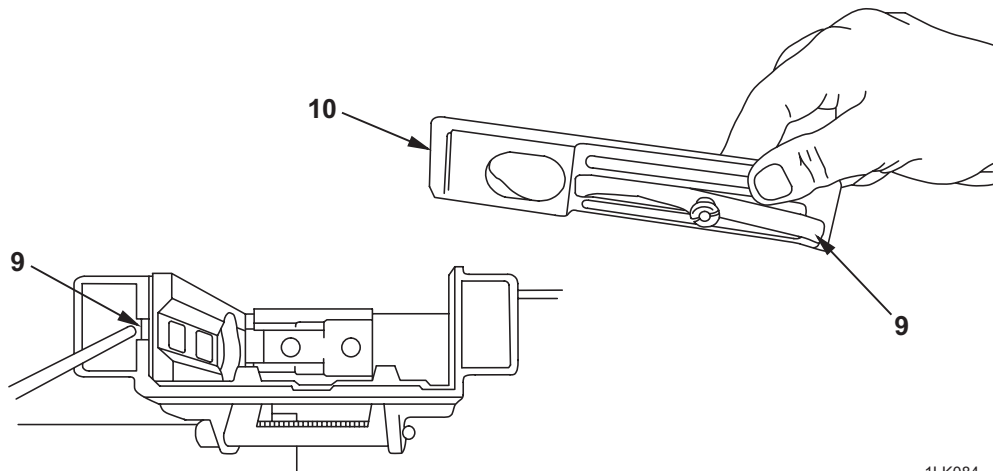
1LK083

5. REMOVE FEED TRAY.

- a. With the top cover removed, lift the feed tray out of the receiver.

6. REMOVE ALIGNMENT GUIDE ASSEMBLY.

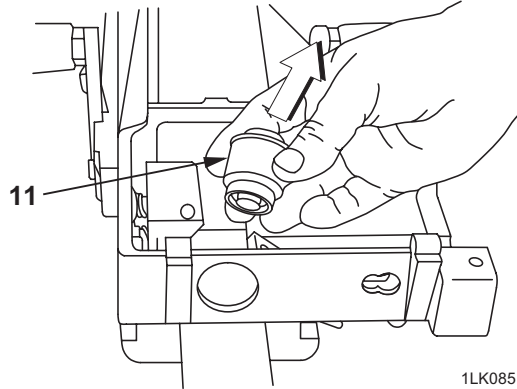
- a. Depress the tip of the alignment guide flat spring (9) with a screwdriver tip or your fingernail and slide alignment guide assembly (10) left and out of the receiver. Slide the alignment guide assembly out of the receiver, pulling the alignment guide assembly slightly rearward.



1LK084

DISASSEMBLY - Continued**7. REMOVE OGIVE PLUNGER ASSEMBLY.**

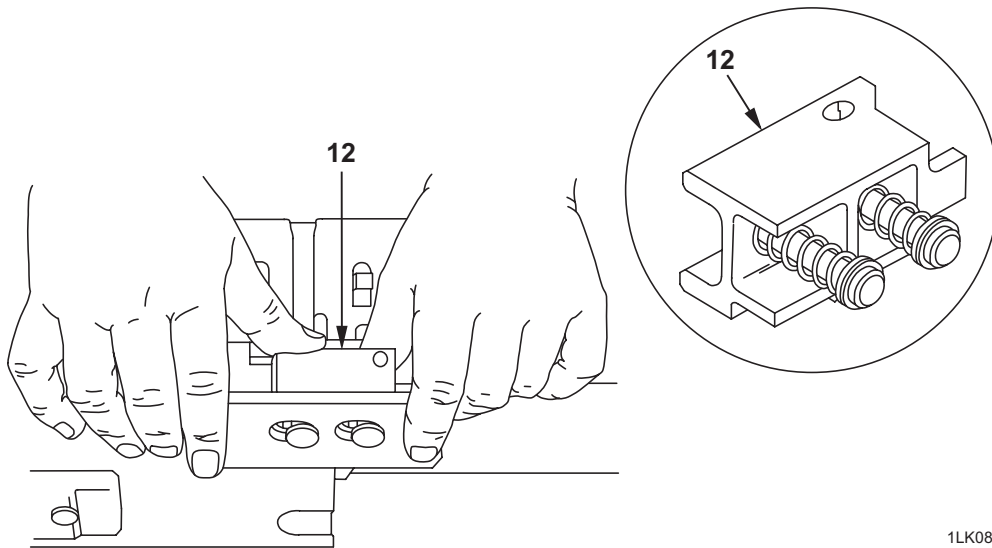
- a. Pull the ogive plunger assembly (11) out through the inside wall of the receiver.



1LK085

8. REMOVE ROUND POSITIONING BLOCK.

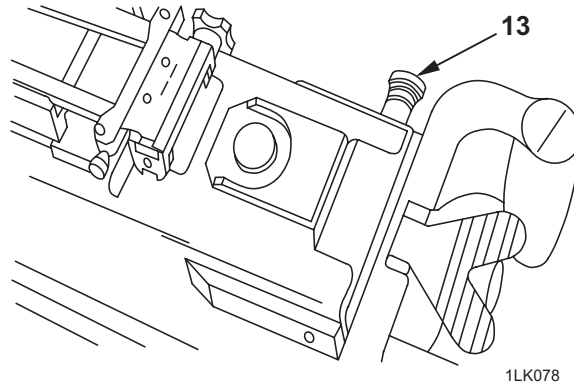
- a. With the alignment guide assembly removed, depress and push-slide the round positioning block (12) forward until it stops. Remove the assembly.



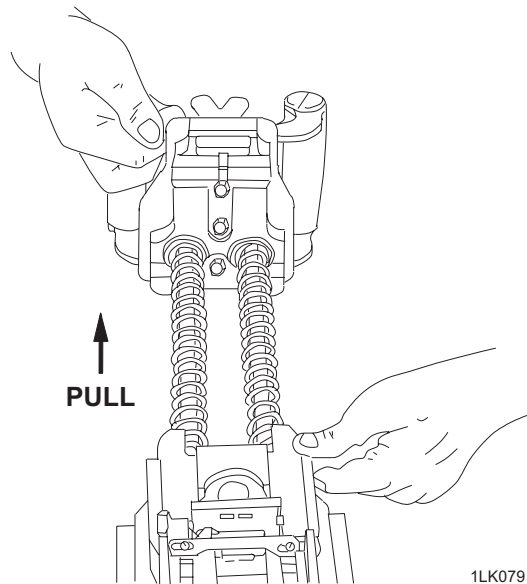
1LK086

9. REMOVE BACKPLATE PIN ASSEMBLY.

- a. Place the safety on "F" (FIRE). Retract the backplate pin assembly (13) from the appropriate side, using a screwdriver on the combination tool. Pull the pin straight out.

**10. REMOVE BOLT AND BACKPLATE ASSEMBLY.**

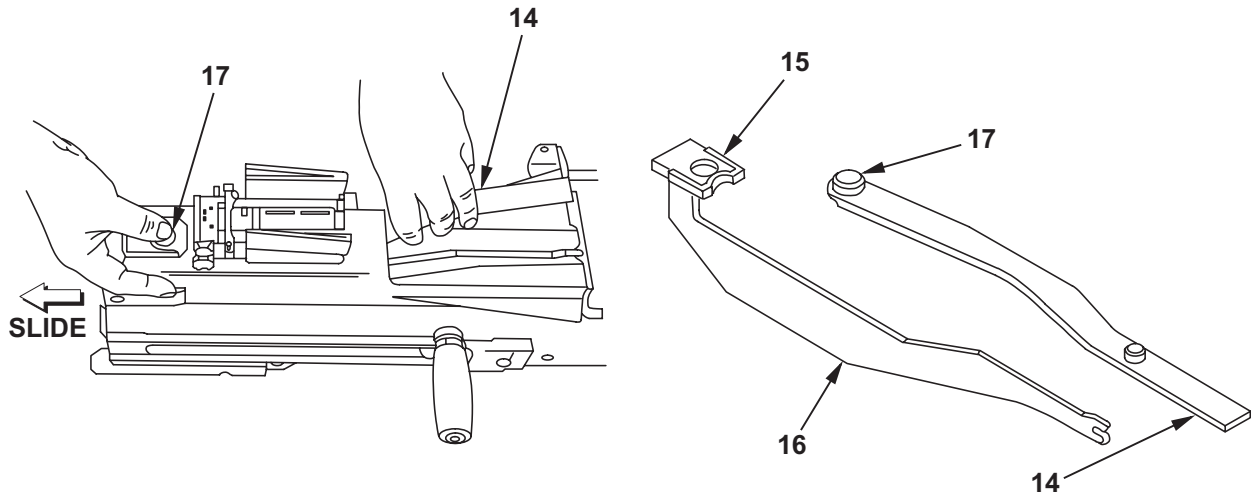
- a. With the backplate pin assembly removed, lift up slightly on backplate assembly and pull it out of the receiver, supporting the bolt with one hand and the control grip assembly with the other hand.

**11. REMOVE PRIMARY DRIVE LEVER.**

- a. The primary drive lever is removed with the vertical cam assembly.

DISASSEMBLY - Continued**12. REMOVE VERTICAL CAM ASSEMBLY.**

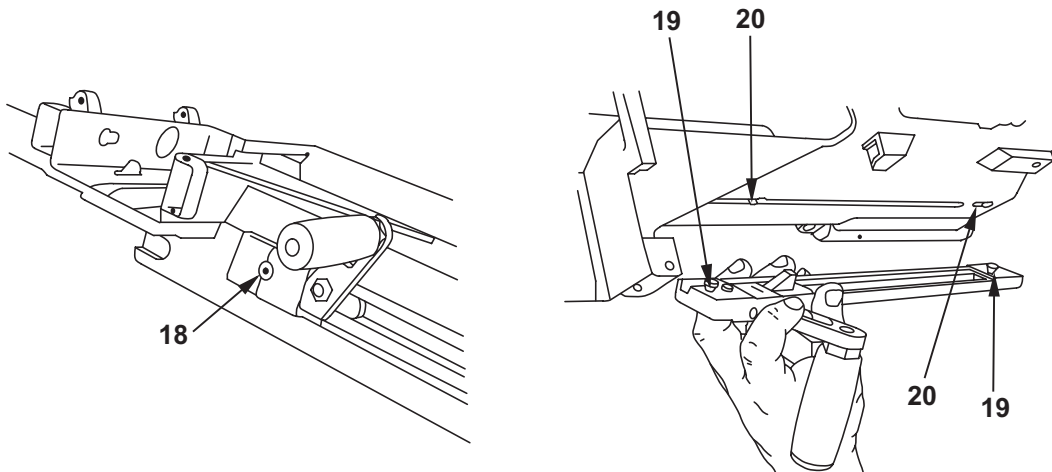
- a. Support the primary drive lever (14) as shown. Slide the drive lever lock (15) on the vertical cam assembly (16) rearward about 1/8 inch. Push down on the primary drive lever's pivot post (17) to disengage. Remove primary drive lever. Slide the vertical cam rearward to remove. Protect chromed edge during removal.



1LK080

13. REMOVE CHARGER ASSEMBLIES, RIGHT-HAND (RH) AND LEFT-HAND (LH).

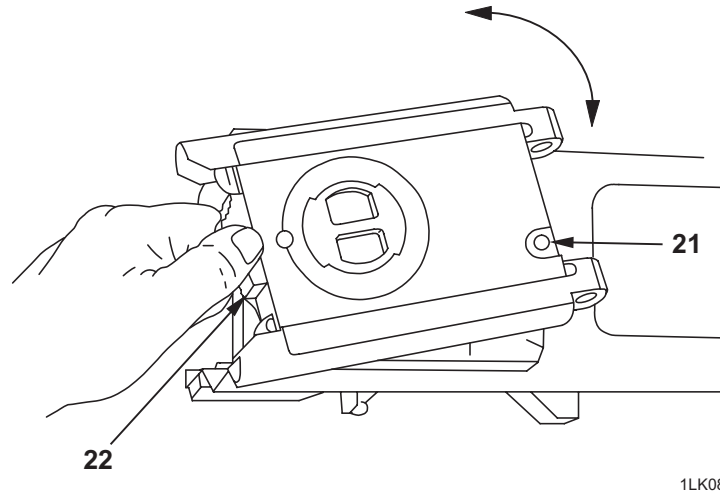
- a. With the bolt and backplate assembly removed and with the charger handle up, retract the lock plunger (18) at the base of the charger arm, using a screwdriver tip on the combination tool. Slide the charger housing rearward to disengage the lugs (19) from the keyslots (20) in the receiver. Then lift the assembly away from the receiver.



1LK087

14. REMOVE SEAR ASSEMBLY.

- a. With the bolt and backplate assembly removed, place the safety on "F" (FIRE). Turn the receiver over. Retract the lock plunger (21) on the sear housing, using a screwdriver tip on the combination tool. Squeeze the sear (22) and safety together. Rotate the sear assembly 90 degrees either way, pressing down on the safety as you rotate. Place the safety on "S" (SAFE) before the assembly is lifted from the receiver. Lift out the assembly.

**15. REMOVE RECEIVER.**

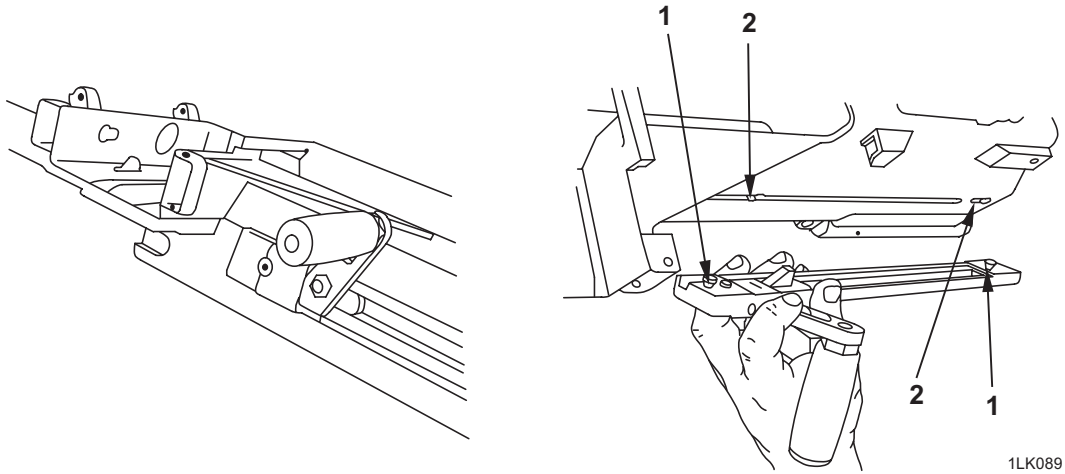
- a. Do not remove the barrel, primary and secondary positioning pawls, or the rear sight from the receiver.

REPAIR OR REPLACEMENT

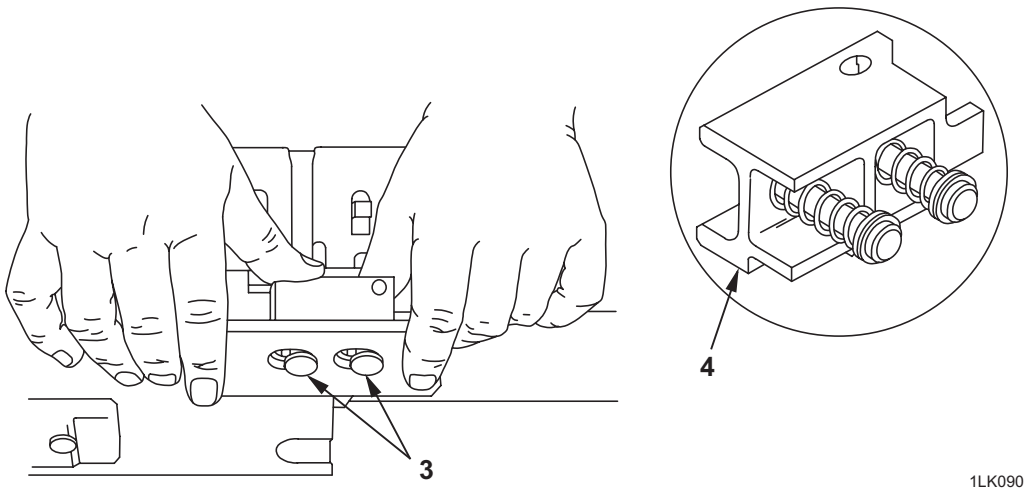
Repair defective parts as authorized by WP 0097 00.

ASSEMBLY**1. INSTALL CHARGER ASSEMBLIES, RIGHT-HAND (RH) AND LEFT-HAND (LH).**

- a. Position the charger housing so that the lugs (1) are aligned with the keyslots (2) in the receiver wall. Press against the charger housing and slide it forward until the charger assembly locks in place.

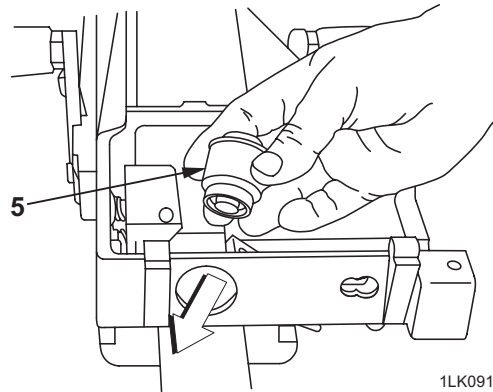
**2. INSTALL ROUND POSITIONING BLOCK.**

- a. Insert the pins (3) on the round positioning block (4) into the keyslots in the receiver wall with the tang end forward. Push-slide the block rearward until it stops.



3. INSTALL OGIVE PLUNGER ASSEMBLY.

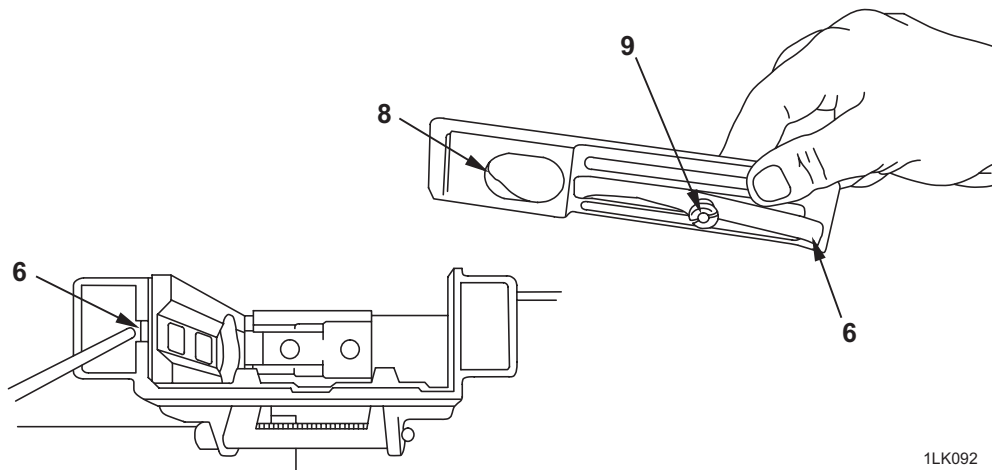
- a. Insert the smaller end of the ogive plunger assembly (5) through the forward wall of the receiver.



1LK091

4. INSTALL ALIGNMENT GUIDE ASSEMBLY.

- a. Depress the tip of the alignment guide flat spring (6) as you slide the alignment guide assembly (7) into the forward part of the receiver. Ensure the large hole (8) slides over the ogive plunger assembly and that the alignment guide screw (9) mates with the keyhole in the receiver.



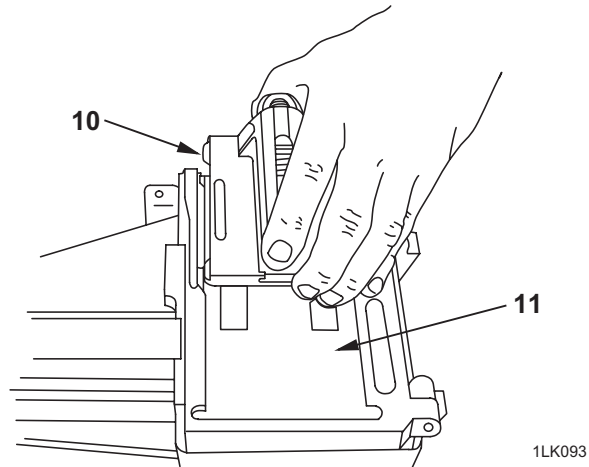
1LK092

5. INSTALL FEED TRAY.

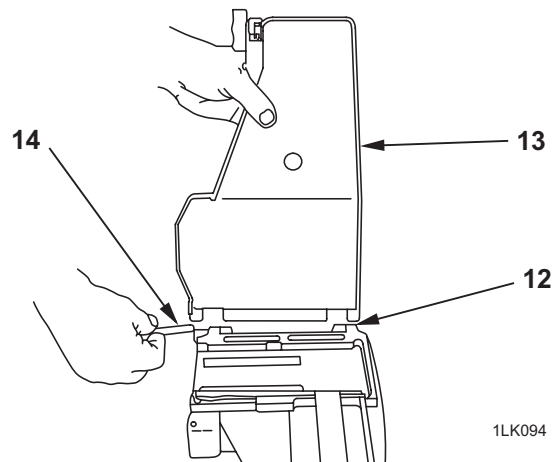
- a. Install the feed tray with the recessed side up, aligning the pin holes in the tray with those in the receiver.

ASSEMBLY - Continued**6. INSTALL FEED SLIDE ASSEMBLY.**

- a. Align the tabs on the feed slide assembly (10) with the slots in the feed tray (11), and insert the feed slide assembly into the tray. Make sure exposed spring is on left side of receiver.

**7. INSTALL TOP COVER ASSEMBLY.**

- a. Line up the pin holes in the top cover, the feed tray, and the receiver (12). Hold the top cover (13) straight up as you push in the knurled head straight pins (14) on each side. Ensure the knurled heads of the pins touch the top cover.

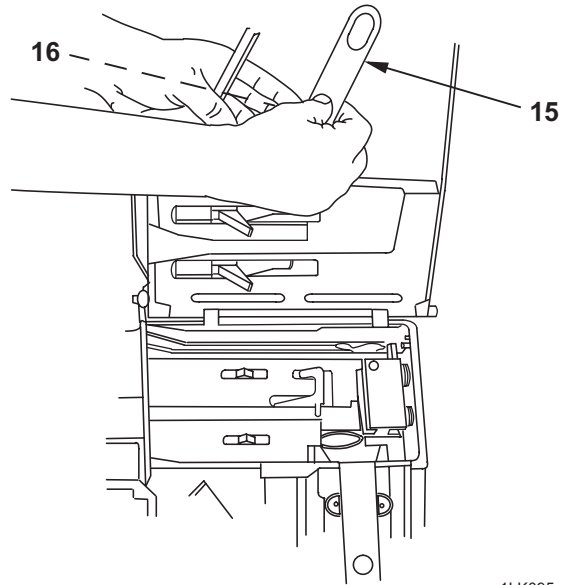


8. INSTALL SECONDARY DRIVE LEVER.

- a. Observing the NOTE, engage the forked end of the secondary drive lever (15) with the feed slide pin of the feed slide assembly. Raise the feed tray with feed slide assembly and secondary drive lever attached. Press the pivot post (16) through the hole in the top cover. It should snap in place.

NOTE

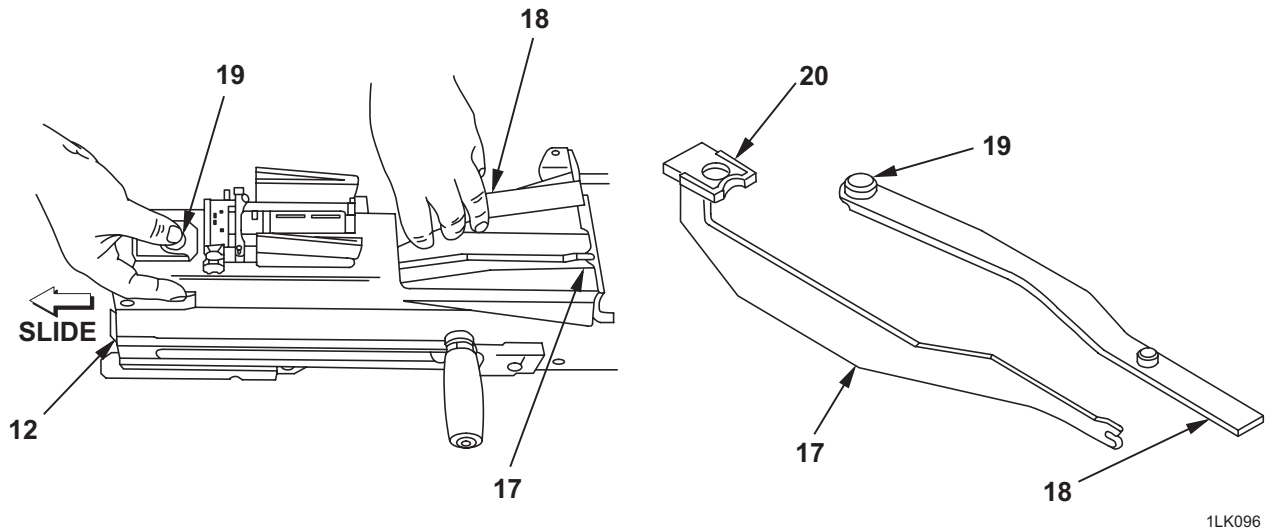
If the secondary drive lever is not properly engaged with the inner feed slide pin, the weapon will not feed.



1LK095

ASSEMBLY - Continued**9. INSTALL VERTICAL CAM ASSEMBLY.**

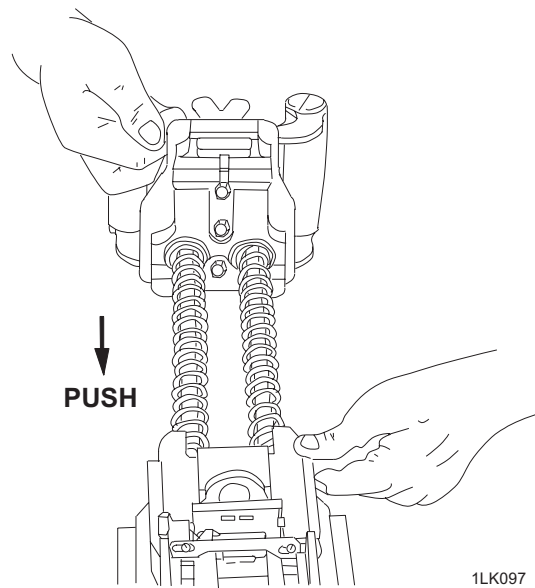
- a. Slide the vertical cam assembly (17) through the rear of the receiver until the raised portion slides over the lip of the receiver (12) and the pivot post holes are aligned. Engage the forked end of the vertical cam assembly with the forward notch in the receiver. Slide the primary drive lever (18) through the forward end of the receiver until the large pivot post (19) can be pushed upward into the receiver and the vertical cam assembly. Slide the drive lever lock (20) forward to lock the vertical cam assembly and the primary drive lever in place.

**10. INSTALL PRIMARY DRIVE LEVER.**

- a. The primary drive lever is installed with the vertical cam assembly.

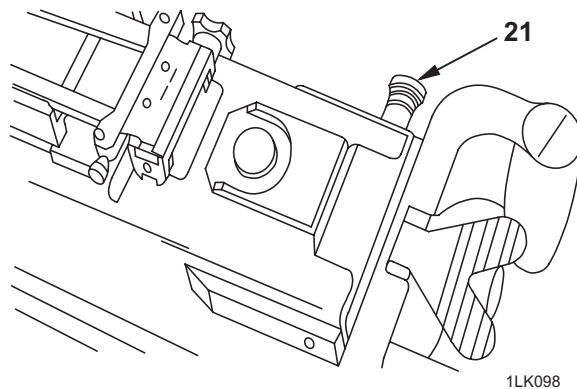
11. INSTALL BOLT AND BACKPLATE ASSEMBLY.

- a. Ensure the firing pin is cocked with the cocking lever in the forward position. Insert the bolt into the rear of the receiver while pressing downward on receiver sear until it stops. Close the top cover, ensuring the secondary drive lever and primary drive lever are properly aligned.



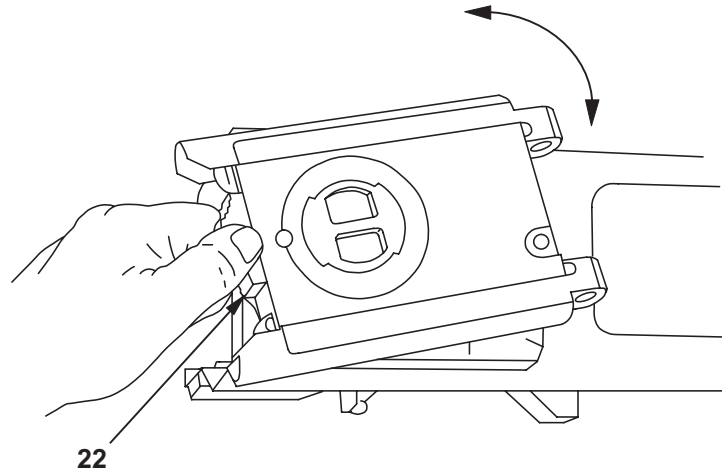
12. INSTALL BACKPLATE PIN ASSEMBLY.

- a. Insert the backplate pin assembly (21) through the receiver and bolt and backplate assembly from either side. Using a rubber mallet, strike the backplate pin assembly to engage the locking ring.



ASSEMBLY - Continued**13. INSTALL SEAR ASSEMBLY.**

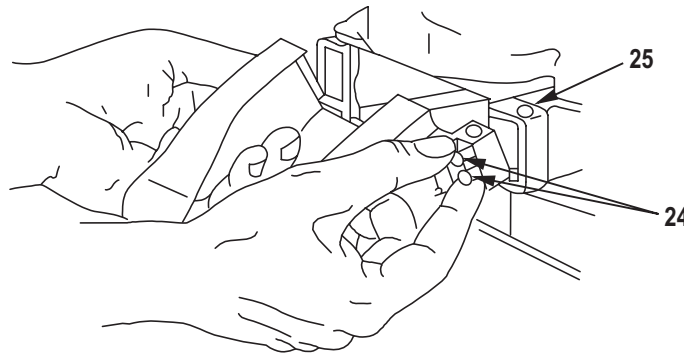
- a. Turn the weapon upside-down. Place the safety on "F" (FIRE). Squeeze the sear (22) and safety together during installation. Align the sear housing with the cutout in the bottom of the receiver. Holding the safety pressed down, twist the assembly 90 degrees so that the thumb safety is toward the rear of the receiver. The assembly should click into place. Place the safety on "S" (SAFE).



1LK099

14. INSTALL FEED THROAT ASSEMBLY (MK19 MOD 3 ONLY).

- a. Squeeze shoulder pins (23) on feed throat and insert into slots on both sides of receiver (24).



1LK100

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

**MAINTENANCE OF MK19 MACHINE GUN – BACKPLATE PIN ASSEMBLY
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC-5180-95-B71 with addition of
SL-3-00607A (Marine Corps Only)
Tool kit, small arms repairman
SC 5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

References

WP 0097 00

Equipment Conditions

Bolt and backplate removed from weapon
(WP 0040 00)

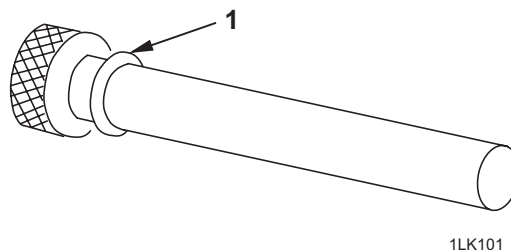
REMOVAL**WARNING**

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

Place the safety on "F" (FIRE). Observing the **WARNING** above, retract the pin from the appropriate side, using a screwdriver tip on the combination tool. Pull the pin straight out.

REPAIR OR REPLACEMENT

1. Inspect for rust. Remove rust with an abrasive cloth and preserve with a light coat of lubricant.
2. Ensure the retaining ring (1) is present on the pin. If it is missing, install a new backplate pin assembly. See WP 0097 00.



INSTALLATION

Insert the pin through the receiver and bolt and backplate assembly from either side. Using a rubber mallet, strike the pin to engage the locking ring.

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - SECONDARY DRIVE LEVER ASSEMBLY
(FIXED OR ADJUSTABLE)
REMOVAL, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

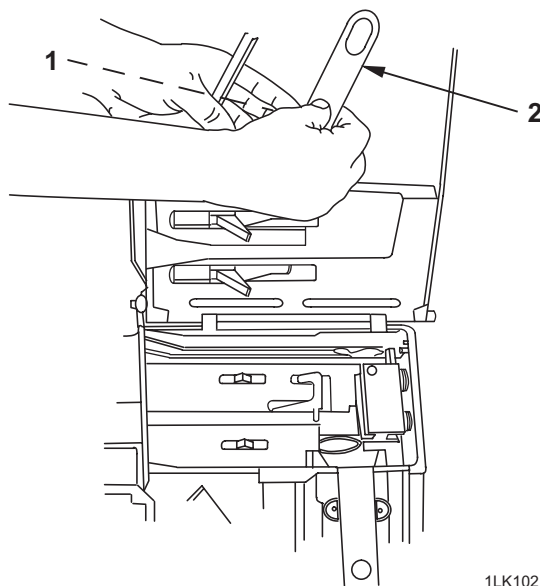
WP 0097 00

Equipment Conditions

Weapon on "S" (SAFE), bolt in the forward position

REMOVAL

Open the top cover assembly. Locate the center hole in the outside of the top cover. Press the pivot post (1) through the hole toward the inside of the top cover. Lift up on the secondary drive lever (2) to remove it from the feed slide assembly.

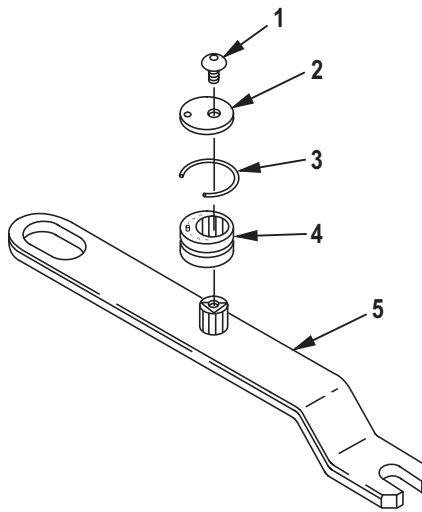


1LK102

DISASSEMBLY**NOTE**

This procedure applies only to the adjustable secondary drive lever.

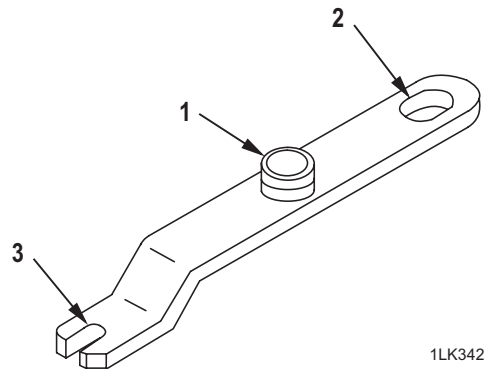
1. Remove blank bolt (1) from thrust washer bearing (2).
2. Remove thrust washer bearing (2).
3. Remove retaining ring (3) from selector bushing (4). Discard retaining ring.
4. Remove selector bushing (4) from adjustable secondary drive lever (5).



1LK343

REPAIR OR REPLACEMENT

1. Ensure the retaining ring is present on the pivot post (1). If it is missing or worn, install a new adjustable secondary drive lever.
2. Inspect for burrs, especially around the pivot post (1), the slot (2), and the forked end (3). Use a stone to remove burrs.
3. Replace defective parts as authorized by WP 0097 00.

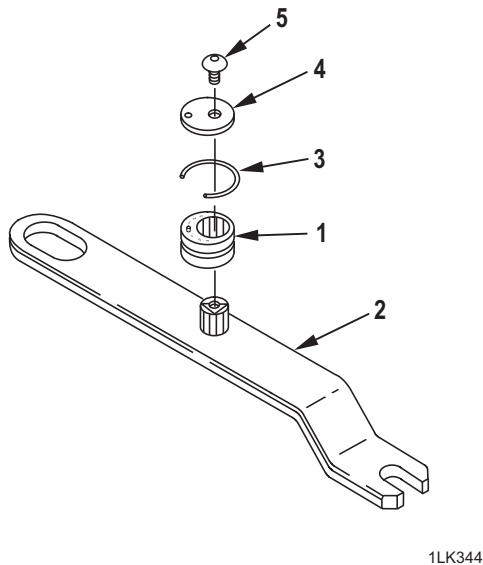


ASSEMBLY

NOTE

This procedure applies only to the adjustable secondary drive lever.

1. Install selector bushing (1) on adjustable secondary drive lever (2).
2. Install new retaining ring (3) on selector bushing (1).
3. Align pin on selector bushing (1) with hole in thrust washer bearing (4). Install thrust washer bearing and secure with blank bolt (5).



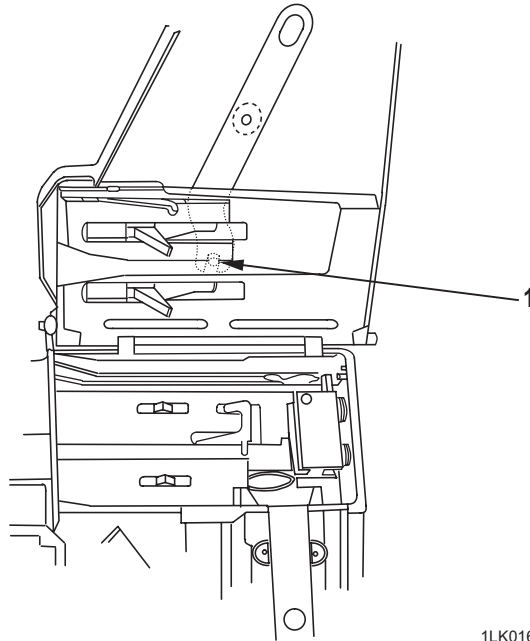
INSTALLATION

NOTE

Whenever a new secondary drive lever is installed, function check feed slide components.

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

Engage the forked end with the headless straight pin (1) of the feed slide assembly. Raise the feed tray with the feed slide assembly and secondary drive lever attached. Press the pivot post through the hole in the top cover. It should snap in place.



1LK016

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - FEED TRAY
INSPECTION OF INSTALLED ITEMS, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

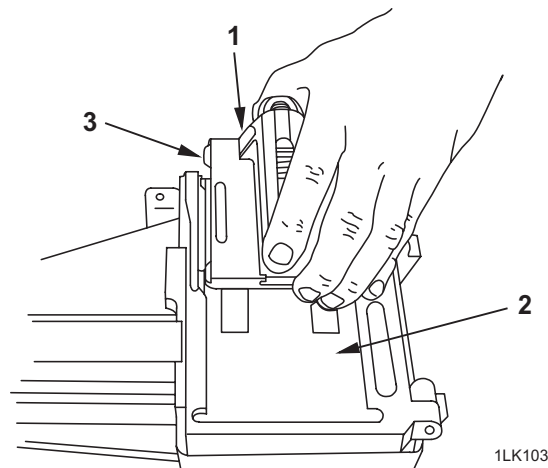
References

WP 0097 00

INSPECTION OF INSTALLED ITEMS**NOTE**

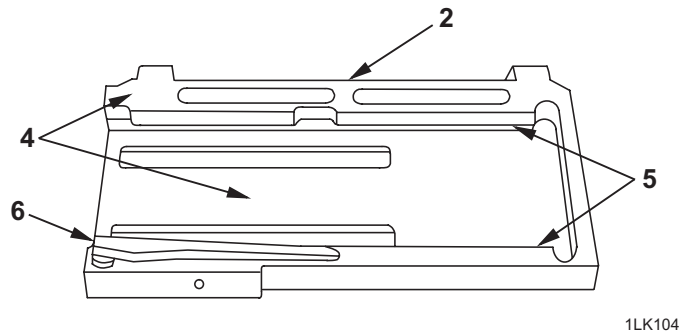
Do not remove the feed tray pawl unless parts replacement is necessary.

1. REMOVE FEED SLIDE ASSEMBLY FROM FEED TRAY.
 - a. Move feed slide assembly (1) to the left in the feed tray (2) until the tabs (3) are lined up with the slots in the feed tray. Lift the assembly out of the feed tray.



INSPECTION OF INSTALLED ITEMS - Continued

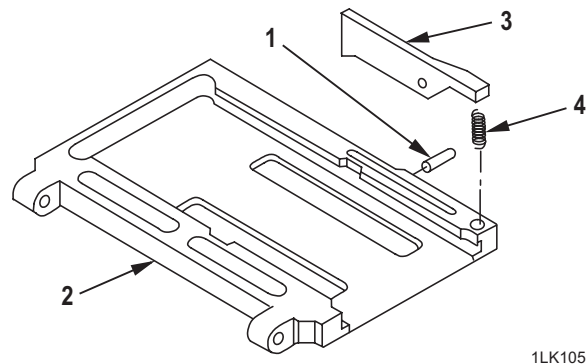
2. WHILE ASSEMBLED, INSPECT FOR OBVIOUS DEFECTS.
 - a. Examine flat surfaces (4) of feed tray (2) for cracks.
 - b. Inspect for burrs along the rails (5) of feed tray (2). Remove burrs using a stone.
 - c. Press the feed tray pawl (6) to test pawl spring action. If binding, lubricate. If weak, install a new pawl spring. If there is relative movement between the headless grooved pin and feed pawl, install a new headless grooved pin.



3. INSPECT HEADLESS GROOVED PIN.
 - a. Inspect the ridges of the pin for wear. Replace if bent, broken, or worn.

DISASSEMBLY

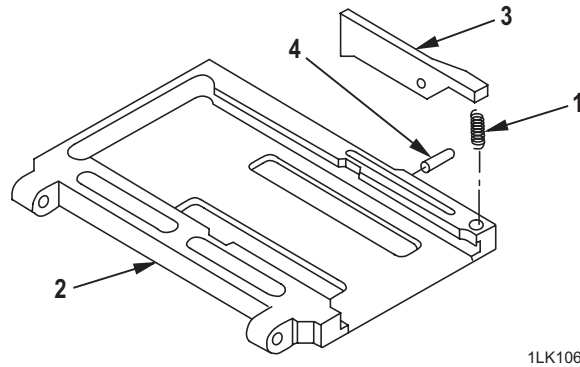
1. TAP OUT THE HEADLESS GROOVED PIN.
 - a. Using the punch and hammer, tap out the headless grooved pin (1) from inside to outside of the feed tray (2). Separate the feed tray pawl (3) and pawl spring (4).

**REPAIR OR REPLACEMENT**

Replace defective parts as authorized by WP 0097 00.

ASSEMBLY**1. INSTALL FEED TRAY.**

- a. Insert the pawl spring (1) into the hole in the feed tray (2). Position the feed tray pawl (3) against the feed tray, pin holes aligned. Insert the headless grooved pin (4) from outside to inside and tap it in with the hammer until the headless grooved pin is flush with the outside of the feed tray.



- b. Install the feed tray (2), recessed side up, aligning the pin holes in the feed tray with those in the receiver.
- c. Install feed slide assembly to the feed tray, aligning feed tray pawls with the slots in feed tray. Slide feed slide assembly completely to the right.

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - ROUND POSITIONING BLOCK
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

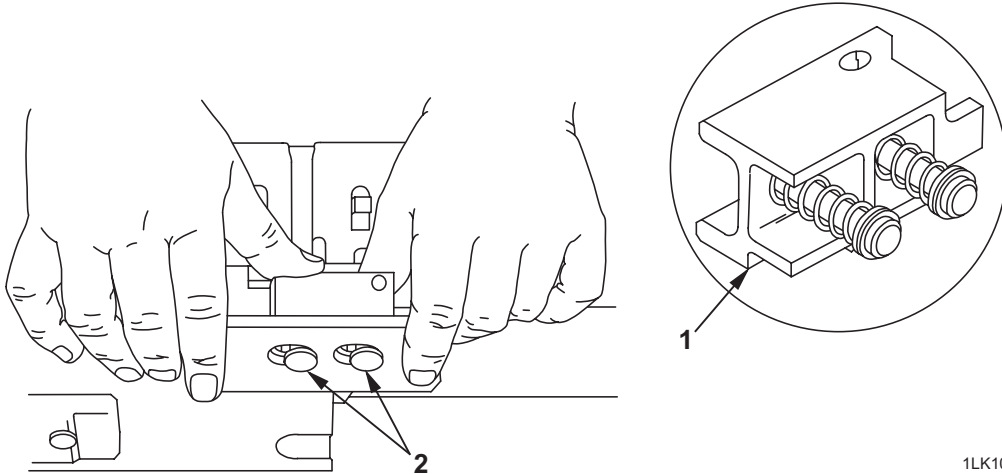
WP 0097 00

REMOVAL

1. REMOVE ROUND POSITIONING BLOCK.
 - a. Depress and push-slide round positioning block forward until it stops. Pull round positioning block away from receiver.

REPAIR OR REPLACEMENT**1. INSPECT ROUND POSITIONING BLOCK.**

- a. Inspect round positioning block (1). If pins (2) or springs are bent or damaged, replace. See WP 0097 00.
- b. Pins may turn but should not have any side to side or inward and outward movement.

**INSTALLATION****1. INSTALL ROUND POSITIONING BLOCK.**

- a. Insert the pins (2) on the round positioning block (1) into the keyslots in the receiver wall. Push-slide round positioning block rearward until it clicks in place.

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – BOLT AND BACKPLATE ASSEMBLY
AND CONTROL GRIP ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps Only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Cotter pin (1) (item 8, WP 0122 00)
Hexagon head self-locking cap screw (3)
(item 15, WP 0122 00)
Wiping rag (item 14, WP 0121 00)

References

WP 0100 00
WP 0103 00

Equipment Conditions

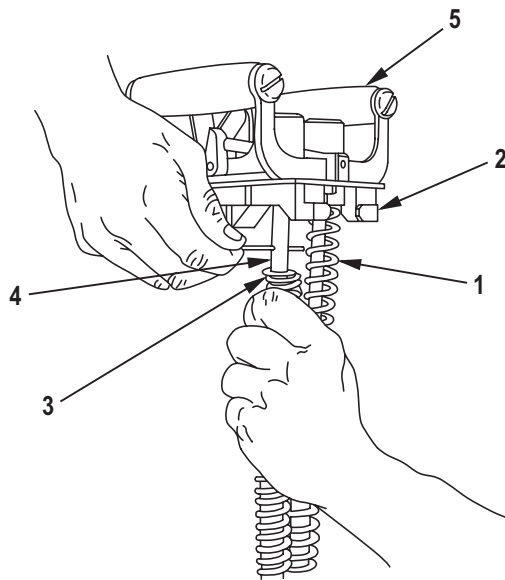
Bolt and backplate assembly removed from
weapon (WP 0040 00)

NOTE

The MK19 MOD 3 is shown unless otherwise indicated.

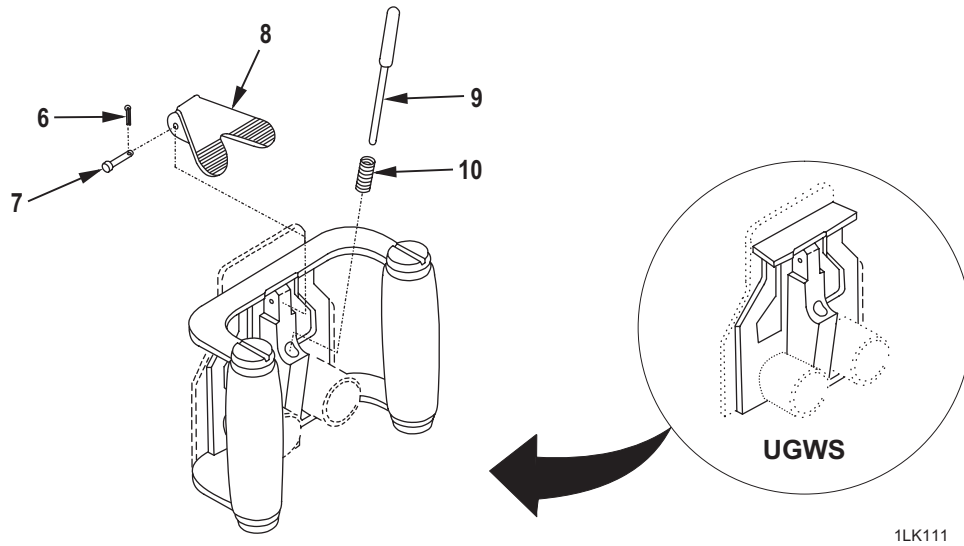
DISASSEMBLY

1. SEPARATE HELICAL COMPRESSION SPRINGS AND SPRING WASHERS FROM BACKPLATE.
 - a. Pull the helical compression spring (1) away from the backplate (2).
 - b. Rattle the backplate (2) to make the spring washer (3) slide down the rod.
 - c. Insert a 1/8 inch punch, cotter pin, or equal, into the small hole at the end of the inner rod (4) to hold the helical compression spring (1) away from the backplate (2). Repeat this procedure for the other helical compression spring.
2. SEPARATE THE INNER RODS FROM THE BACKPLATE.
 - a. Push the inner rod (4) off-center to release it from the backplate (2). Repeat for the other inner rod. Separate the control grip assembly (5) and backplate from the rods.



1LK110

3. REMOVE THE COTTER PIN, STRAIGHT PIN, MANUAL TRIGGER PLATE, OPERATING ROD, AND HELICAL COMPRESSION SPRING.
 - a. Using pliers, remove the cotter pin (6).
 - b. Remove the straight pin (7).
 - c. Lift off the manual trigger plate (8).
 - d. Lift out the operating rod (9) and helical compression spring (10).

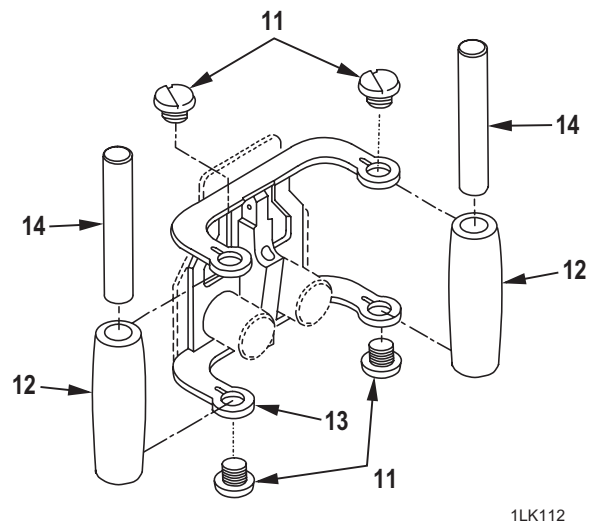


4. REMOVE THE HANDLE COMPONENTS (MK19 MOD 3 ONLY).

NOTE

Apply pressure on the tool to break the staking on the machine screws.

- a. Using one raised side on the combination tool, remove the four top and bottom machine screws (11).
- b. Separate the two handle grips (12) from the body mounting plate (13). Push the handle grip tubes (14) from the handle grips.



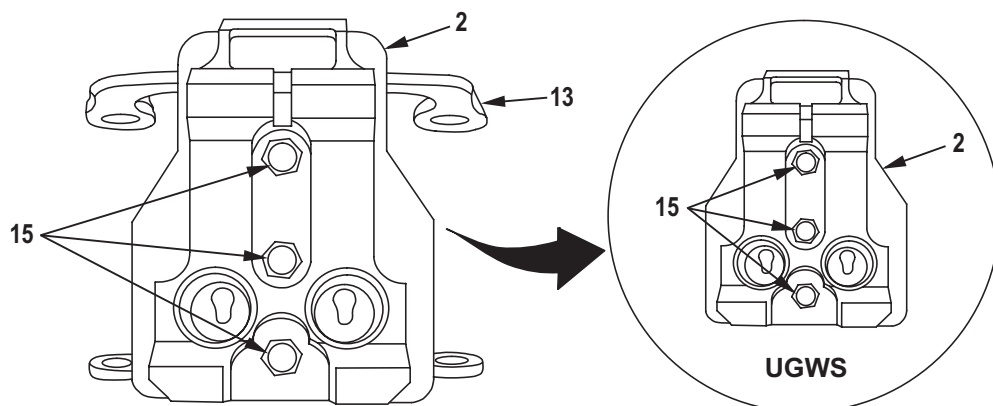
DISASSEMBLY - Continued

5. REMOVE THE BODY MOUNTING PLATE FROM THE BACKPLATE.

NOTE

The three hexagon head self-locking cap screws must be discarded each time they are removed and new ones must be installed.

- a. Using a socket wrench with a 1/2 inch socket, remove the three hexagon head self-locking cap screws (15) holding the body mounting plate (13) to the backplate (2). Separate the body mounting plate from the backplate.



1LK113

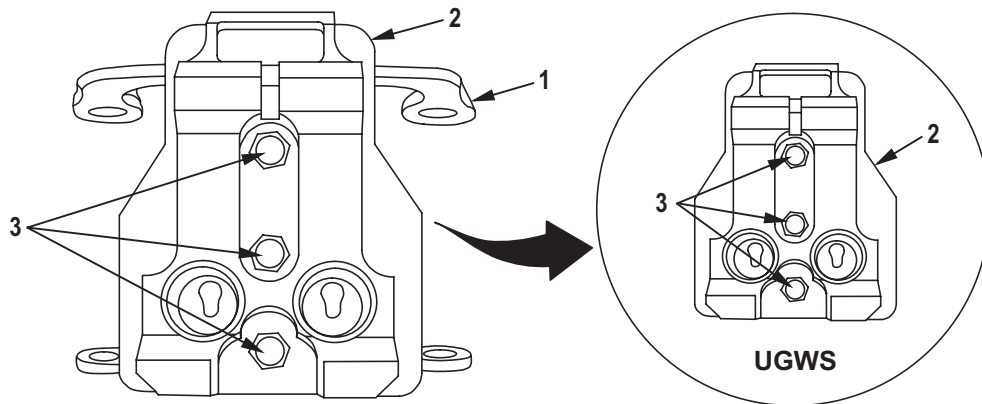
REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0100 00 and WP 0103 00.

ASSEMBLY**1. INSTALL THE BODY MOUNTING PLATE ON THE BACKPLATE.****NOTE**

Install three new hexagon head self-locking cap screws upon assembly.

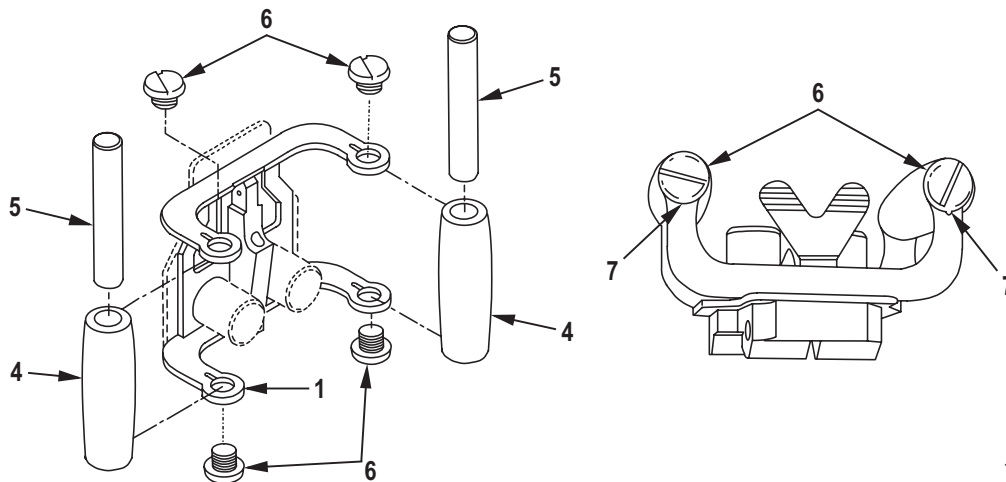
- a. Position the body mounting plate (1) against the backplate (2) with the screw holes aligned (MK19 MOD 3 only). Insert and tighten three new hexagon head self-locking cap screws (3), using a socket wrench with a 1/2 inch socket.



1LK114

2. INSTALL THE HANDLE COMPONENTS (MK19 MOD 3 ONLY).

- a. Position the two handle grips (4) on the body mounting plate (1) with top and bottom holes aligned.
- b. Slip the handle grip tubes (5) inside the handle grips (4).
- c. Insert and screw in the four machine screws (6), using screwdriver on the combination tool, until tight.
- d. With a center punch, stake the head of each machine screw (6) to the staking slot (7) in the body mounting plate (1). This prevents slippage.



1LK115

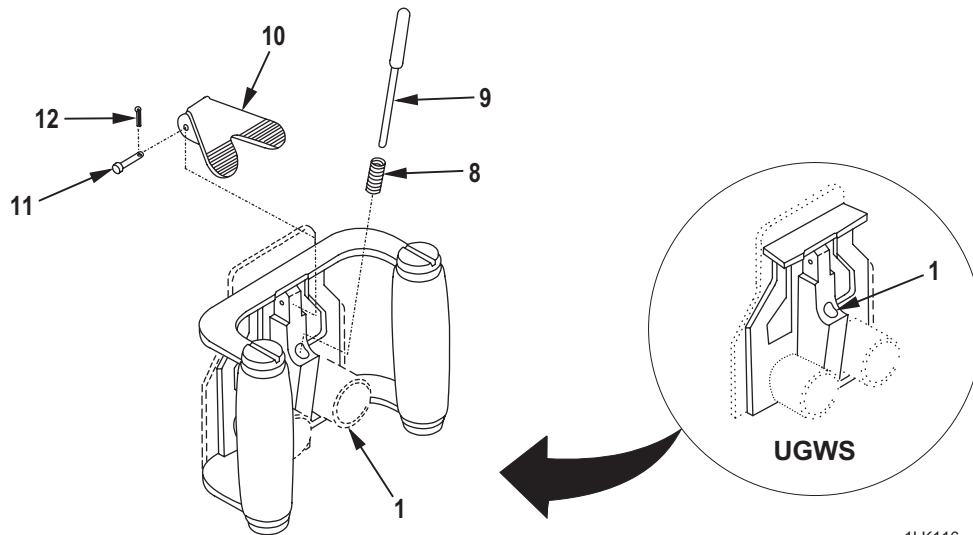
ASSEMBLY - Continued

3. INSTALL OPERATING ROD, HELICAL COMPRESSION SPRING, MANUAL TRIGGER PLATE, STRAIGHT PIN, AND COTTER PIN.

NOTE

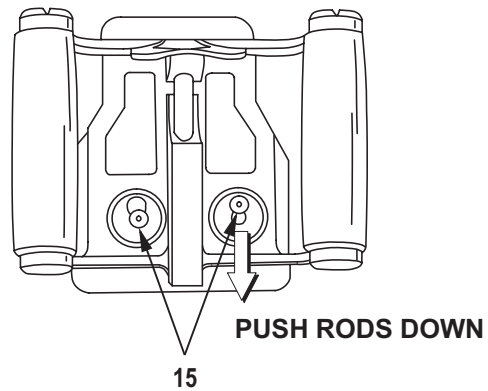
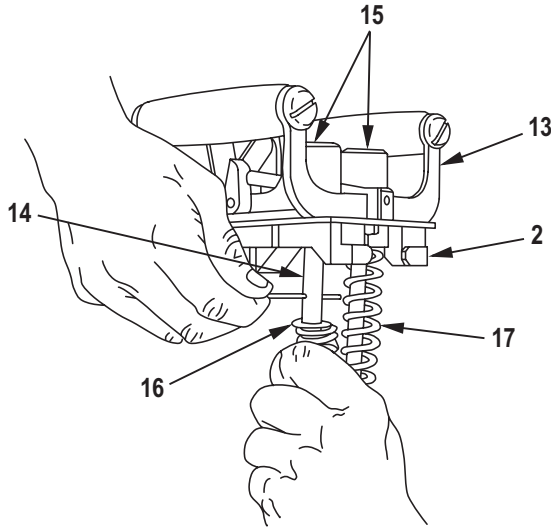
Install new cotter pin upon assembly.

- a. Drop the helical compression spring (8) into the hole in the body mounting plate (1). Insert the narrower tip of the operating rod (9) through the helical compression spring.
- b. Position the manual trigger plate (10) on top of the operating rod (9). Align the pinholes in the manual trigger plate with those in the body mounting plate (1).
- c. Insert the straight pin (11) through the pinholes. Insert a new cotter pin (12) to secure.



1LK116

4. ATTACH THE HELICAL COMPRESSION SPRINGS AND INNER RODS TO THE BACKPLATE.
 - a. To install the control grip assembly (13) and backplate (2), insert the tip of the inner rods (14) into off-center holes in the backplate tubes (15). Move the inner rods slightly to center them in the tubes.
 - b. Pull out the two 1/8 inch punches, or equal, to release the spring washers (16) and helical compression springs (17) into place.



1LK117

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

**MAINTENANCE OF MK19 MACHINE GUN - OGIVE PLUNGER ASSEMBLY
REMOVAL, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Tools and Special Tools - Continued

Ogive plunger assembly tool
(PN 3269505)

References

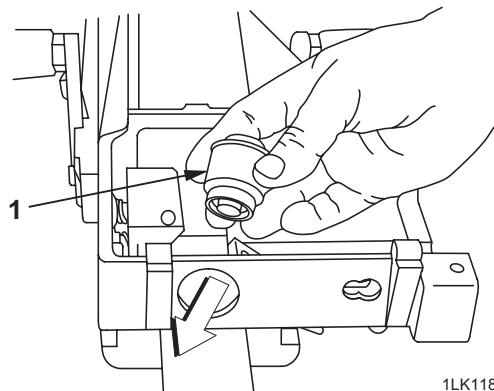
WP 0097 00
WP 0104 00

Equipment Conditions

Alignment guide assembly removed
from receiver (WP 0040 00)

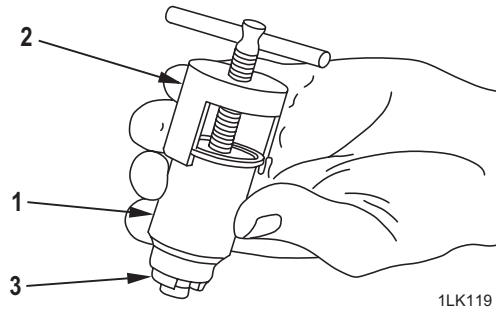
REMOVAL

1. REMOVE OGIVE PLUNGER ASSEMBLY.
 - a. Pull the ogive plunger assembly (1) out through the inside wall of the receiver.

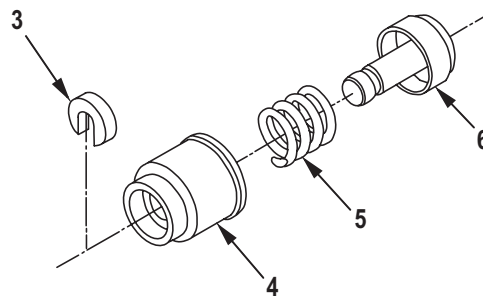


DISASSEMBLY**1. COMPRESS OGIVE PLUNGER ASSEMBLY TO REMOVE SLOTTED WASHER.**

- a. Place the wider end of the ogive plunger assembly (1) in the lip of the ogive plunger assembly tool (2).



- b. Turn the tool's handle to compress the assembly until the slotted washer (3) on the assembly can be removed.
- c. Remove the slotted washer (3).
- d. With the slotted washer (3) removed, fully unscrew the ogive plunger assembly tool (2).
- e. Remove the ogive spring housing (4), helical compression spring (5), and ogive plunger (6).



REPAIR OR REPLACEMENT**WARNING**

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

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.

CAUTION

Do not immerse the assembled ogive plunger assembly in dry cleaning solvent. Solvent dilutes the internal lubricant.

1. Inspect the ogive plunger assembly whenever it is disassembled for cleaning. Ensure there is no rust or damage, and that the internal components are well lubricated before assembly.
2. Replace defective parts as authorized by WP 0097 00 and WP 0104 00.

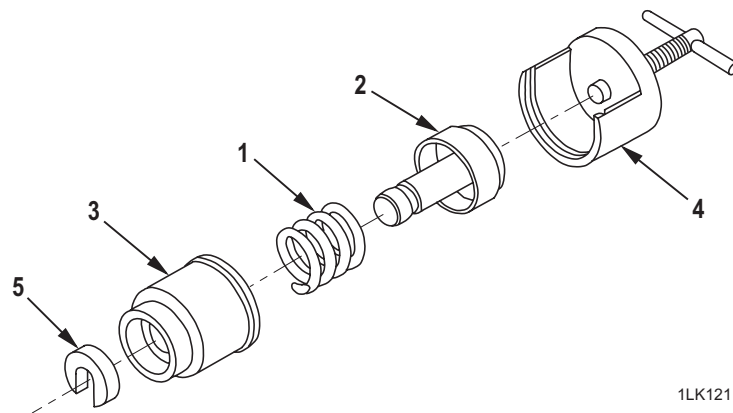
ASSEMBLY

1. ASSEMBLE THE OGIVE PLUNGER COMPONENTS IN THE TOOL.

NOTE

Lubricate ogive plunger assembly well before assembling.

- a. Insert the helical compression spring (1) over the ogive plunger (2). Place the assembly, spring first, into the ogive spring housing (3).

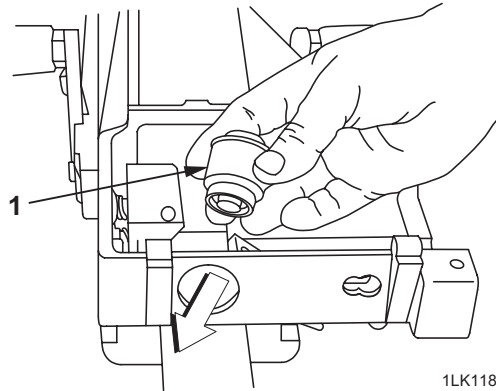


1LK121

- b. Place the ogive spring housing (3) (with helical compression spring (1) and ogive plunger (2)) into the ogive plunger assembly tool (4).
- c. Compress the components by turning the tool handle until the slotted washer (5) will fit in the groove of the ogive plunger (2).
- d. Install the slotted washer (5) in the groove of the ogive plunger (2).
- e. Unscrew and remove the ogive plunger assembly tool (4).

INSTALLATION

1. INSTALL OGIVE PLUNGER ASSEMBLY.
 - a. Install the ogive plunger assembly (1) through the inside wall of the receiver.

**END OF WORK PACKAGE**

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - TOP COVER ASSEMBLY
INSPECTION OF INSTALLED ITEMS, REMOVAL, DISASSEMBLY,
REPAIR OR REPLACEMENT, ASSEMBLY, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance
SL-3-08668A (Marine Corps only)

Materials/Parts

Grooved headless pin (1) (item 10, WP 0122 00)
Grooved headless pin (1) (item 11, WP 0122 00)
Helical torsion spring (1) (item 23, WP 0122 00)

References

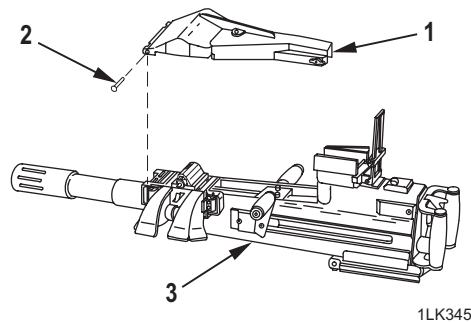
WP 0097 00
WP 0105 00

INSPECTION OF INSTALLED ITEMS

Inspect the latch mechanism by moving it. The lock handle and helical torsion spring should move as a unit with no relative movement between them. Ensure all parts are lightly lubricated with no binding. Do not remove components unless parts replacement is necessary.

REMOVAL

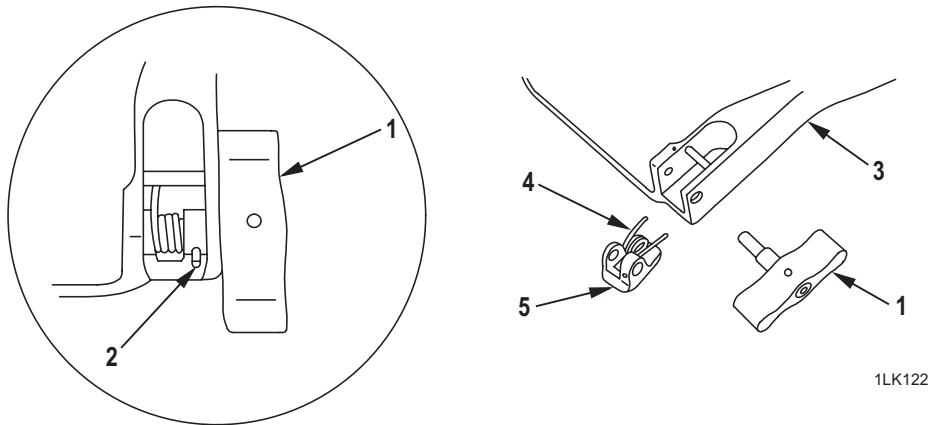
1. REMOVE THE TOP COVER FROM THE RECEIVER.
 - a. With the feed tray down, hold the top cover assembly (1) straight up and pull out the two knurled head straight pins (2). Lift the top cover assembly from the receiver (3).



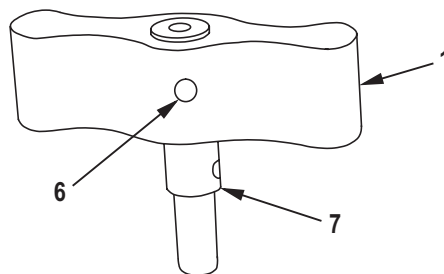
DISASSEMBLY**NOTE**

Do not disassemble the top cover assembly unless parts replacement is necessary.

1. REMOVE THE HEADLESS GROOVED PIN, COVER LOCK, HELICAL TORSION SPRING, AND HEADLESS GROOVED PIN.
 - a. Rotate the lock handle (1) to expose the headless grooved pin (2). Place a screwdriver under the headless grooved pin to hold it in place. Using the 3/32 inch punch and the hammer, tap out the headless grooved pin, grooved end first.
 - b. Pull the lock handle (1) out from the top cover (3).
 - c. Remove the helical torsion spring (4) and cover lock (5).



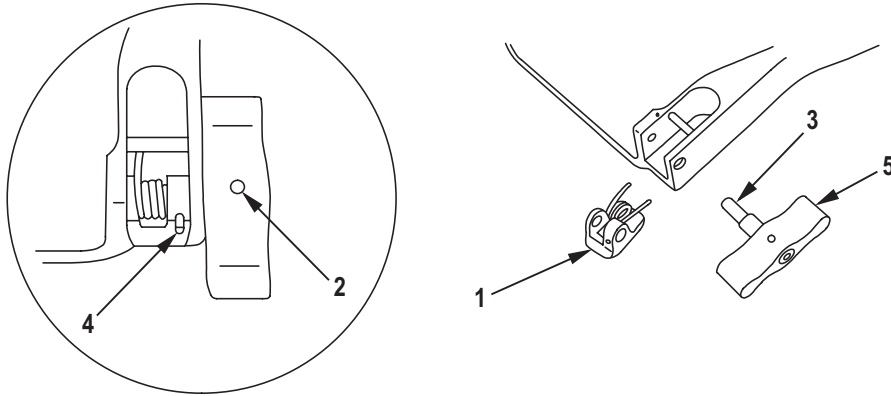
2. REMOVE THE LOCK SHOULDER PIN FROM THE LOCK HANDLE.
 - a. Place the lock handle (1) on a bench block. Using the 1/8 inch punch and brass-head hammer, tap out the headless grooved pin (6) which holds the lock shoulder pin (7) to the lock handle. Separate the components.
 - b. Pull out the lock shoulder pin (7).



REPAIR OR REPLACEMENT

1. NEW COMPONENTS REQUIRING REPLACEMENT AS A UNIT.

- a. If cover lock (1) is replaced, also install new headless grooved pin (2), lock shoulder pin (3), headless grooved pin (4), and lock handle (5). The cover lock and lock shoulder pin must be drilled as a unit when installed as new items. The lock handle must also be drilled when installed as a new item.
- b. Headless grooved pin (2) may be replaced by itself.
- c. Headless grooved pin (4) may be replaced by itself.



1LK221

2. DRILLING A NEW COVER LOCK, LOCK SHOULDER PIN, AND LOCK HANDLE.

NOTE

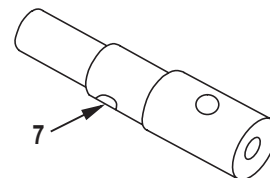
The cover lock and lock shoulder pin must be drilled as a unit when installed as new items. When installing the new cover lock, do not forget to install a new headless grooved pin, lock shoulder pin, headless grooved pin, and lock handle. The lock handle must also be drilled when installed as a new item.

- a. Enlarge the pilot holes in the cover lock and lock shoulder pin.
 - (1) Clamp assembled cover lock and lock shoulder pin in a vise with soft jaws and align predrilled holes in the cover lock (1) and lock shoulder pin (3).
 - (2) Using the 3/32 inch drill bit and drill press, enlarge the holes (6 and 7) as shown.



COVER LOCK

1LK222

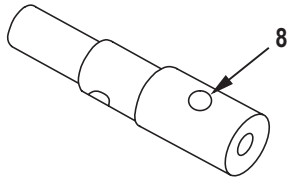


LOCK SHOULDER PIN

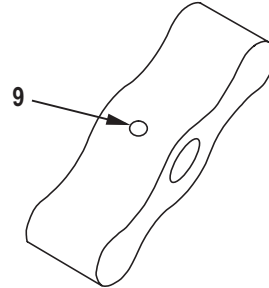
1LK223

REPAIR OR REPLACEMENT - Continued

- b. Enlarge the pilot holes in the lock shoulder pin and lock handle.
 - (1) Clamp the assembled lock shoulder pin and lock handle so the predrilled pilot holes (8 and 9) are aligned.
 - (2) Using the 1/8 inch drill bit and drill press, enlarge the holes (8 and 9) as shown.

**LOCK SHOULDER PIN**

1LK224

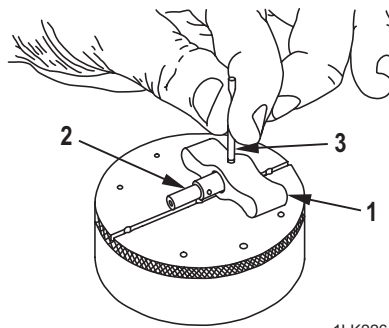
**LOCK HANDLE**

1LK225

3. Replace defective parts as authorized by WP 0097 00 and WP 0105 00.

ASSEMBLY

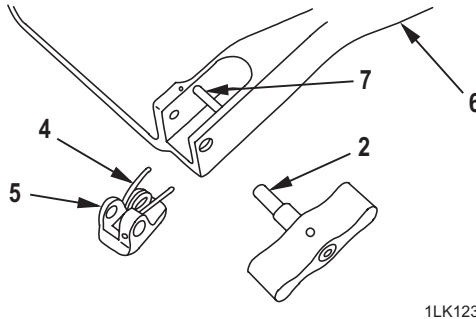
1. ATTACH THE LOCK SHOULDER PIN TO THE LOCK HANDLE.
 - a. Install the lock handle (1) over the lock shoulder pin (2), pin holes aligned. Insert the headless grooved pin (3) into the lock handle. Lay the assembly on a bench block and tap in the headless grooved pin with 1/8 inch punch and hammer.



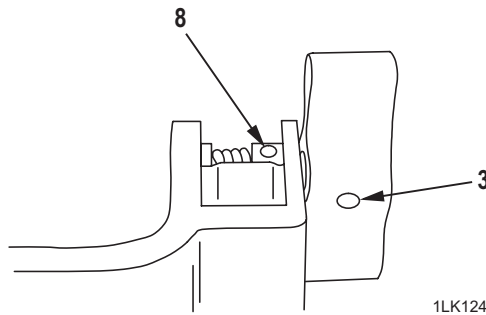
1LK226

2. ATTACH THE SPRING, COVER LOCK, AND LOCK PIN.

- a. Insert new helical torsion spring (4) and cover lock (5) in the top cover (6). Ensure the arm on the spring is under the welded crosspin (7) on the cover. Insert the lock shoulder pin (2) to secure.



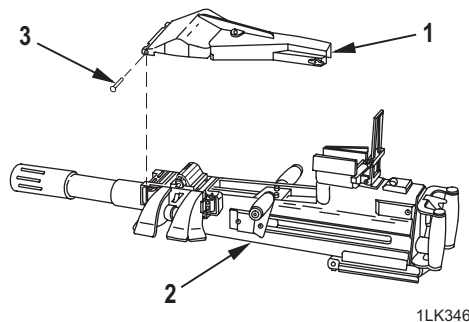
- b. Turn the lock handle so the flush end of the headless grooved pin (3) is upward. Insert new headless grooved pin (8) into the cover and the lock pin. Tap in with punch and hammer. The outside edge of the headless grooved pin must be flush with the cover lock. Ensure the latch mechanism moves with no binding and no relative movement among the parts.



INSTALLATION

1. INSTALL TOP COVER ASSEMBLY ON THE RECEIVER.

- a. Line up the pin holes in the top cover assembly (1), the feed tray, and the receiver (2). Hold the top cover straight up and push in the knurled head straight pins (3) on each side. Ensure the knurled heads of the pins touch the top cover.



END OF WORK PACKAGE

UNIT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN - SEAR ASSEMBLY
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool combination assembly (3269494)
Tool kit, small arms repairman
 SC 5180-95-B71 with addition of
 SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
 SC-5180-95-B71
Tool set, intermediate maintenance,
 SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
 SL-3-08668A (Marine Corps only)

Materials/Parts

Lubricant (as needed)

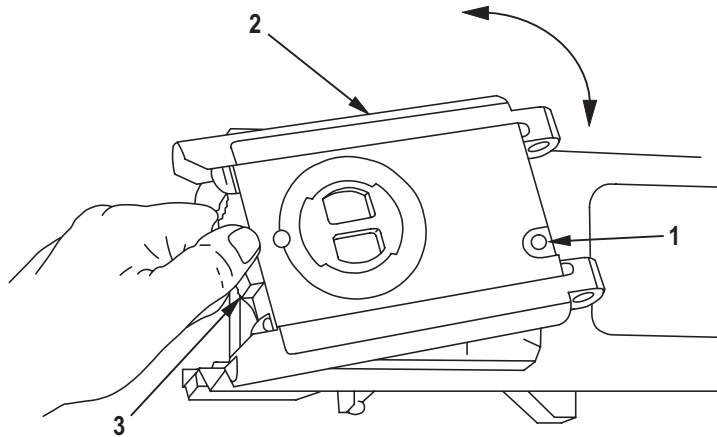
Equipment Conditions

Bolt and backplate assembly removed
(WP 0040 00)

REMOVAL

1. REMOVE SEAR ASSEMBLY.

- a. Place the safety in "F" (FIRE) position.
- b. Turn the receiver over. Retract the lock plunger (1) on the sear housing (2), using a screwdriver tip on the combination tool. Squeeze the sear (3) and safety together. Rotate the sear assembly 90 degrees either way, pressing down on the safety as you rotate.
- c. Place the safety on "S" (SAFE) before the sear assembly is lifted from the receiver. Lift out the sear assembly.

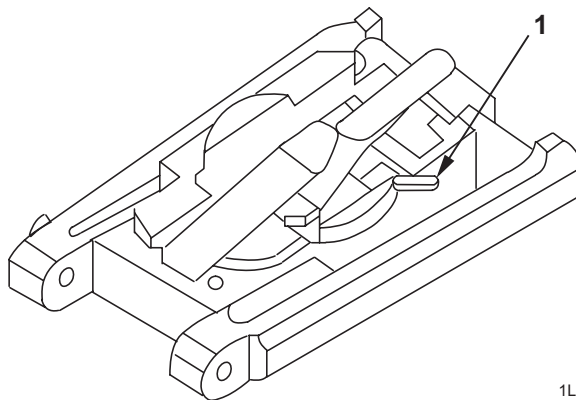


1LK129

REPAIR OR REPLACEMENT

1. INSPECT SEAR ASSEMBLY.

- a. Move the safety lever pin (1) back and forth to check positive retentive action. If weak or binding, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)
- b. Visually inspect for broken parts (e. g., broken safety lever pin). If parts are broken, evacuate to Direct Support Maintenance. (Marine Corps: Repair at Unit Maintenance.)
- c. Apply adequate lubricant.

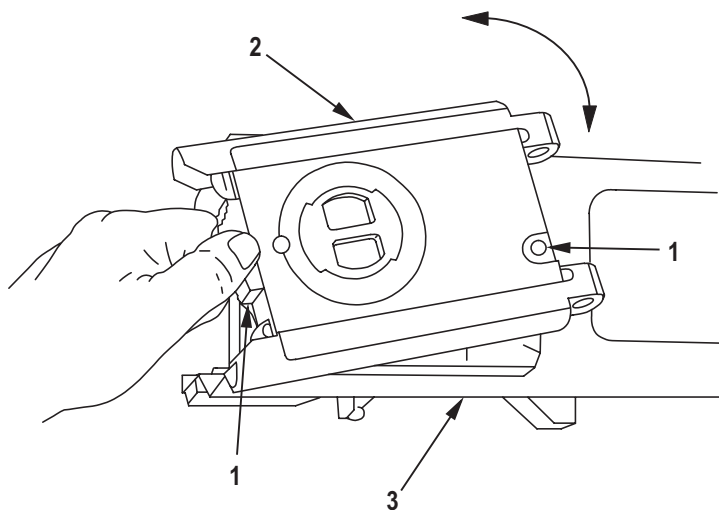


1LK130

INSTALLATION

1. INSTALL SEAR ASSEMBLY.

- a. Place the safety in "F" (FIRE) position. Squeeze the sear (1) and safety together during installation. Align the sear housing (2) with the cutout in the bottom of the receiver (3). Holding the safety pressed down, twist the sear assembly 90 degrees so the safety lever pin is toward the rear of the receiver. The assembly should click into place. Place the safety on "S" (SAFE).



1LK347

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - PRIMARY DRIVE LEVER AND VERTICAL CAM ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)
Slotted spring pin (item 5, WP 0122 00)

References

WP 0097 00
WP 0109 00

Equipment Conditions

Bolt and backplate assembly removed from
the weapon (WP 0040 00)
Primary drive lever and vertical cam assembly
removed from receiver (WP 0040 00)

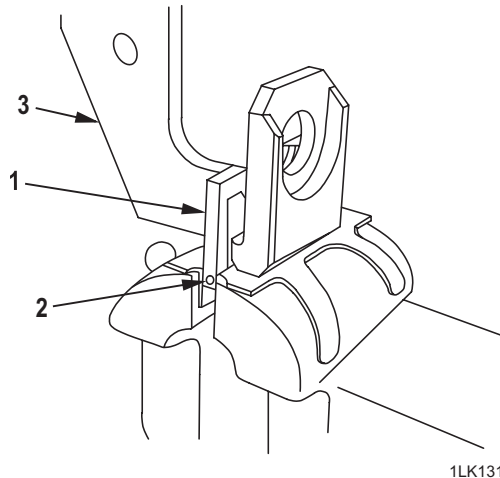
DISASSEMBLY

1. DISASSEMBLY OF VERTICAL CAM ASSEMBLY.

NOTE

Do not disassemble the vertical cam assembly unless parts replacement is necessary. The vertical cam assembly's spring pin must be discarded each time it is removed and a new pin must be installed.

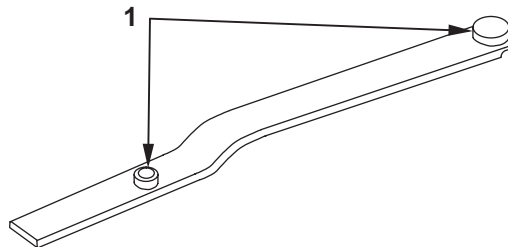
- a. Place the vertical cam assembly's drive lever lock (1) in a copper-jawed vise. This keeps the two ends of the lock from bending during disassembly.
- b. Using the 3/32 inch punch and hammer, drive out the spring pin (2) at least 1/2 inch.
- c. Using pliers, pull out and discard the spring pin (2).
- d. Remove assembly from vise and separate the drive lever lock (1) from the vertical cam (3).



REPAIR OR REPLACEMENT

1. INSPECT PRIMARY DRIVE LEVER.

- a. Inspect for obvious defects. Inspect for burrs on underside of lever and around both pivot posts (1). Inspect pivot post for flat surfaces. Remove burrs using a stone and preserve with a light coat of lubricant.

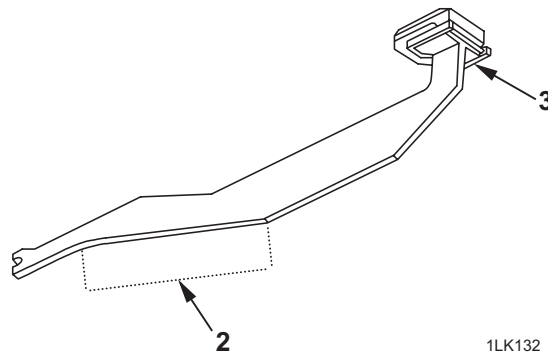


2. INSPECT VERTICAL CAM ASSEMBLY.

NOTE

Do not use any abrasive paper other than 600-grit silicone carbide abrasive paper. Other abrasive paper could damage the vertical cam.

- a. Inspect for nicks, pits, burrs, scratches, and aluminum build up. Remove any aluminum buildup or surface imperfections of dullness using 600-grit silicone carbide abrasive paper, abrasive cloth, or wood block. Remove burrs and sharp edges with a stone and preserve with lubricant. If the center of the cam surface (2) cannot be polished to a smooth mirror-like finish, replace the vertical cam assembly.
- b. Check for obvious damage and rust. Preserve with a light coat of lubricant.

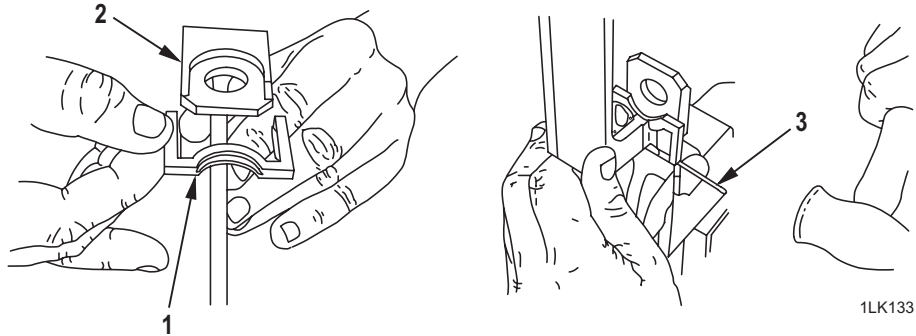


3. Replace defective parts as authorized by WP 0097 00 and WP 0109 00.

ASSEMBLY**1. ASSEMBLE VERTICAL CAM ASSEMBLY.****NOTE**

Install a new spring pin each time the old spring pin is removed.

- a. Position the drive lever lock (1) on the vertical cam (2), so that the curved step on the drive lever lock is upward as shown.



- b. Place the two ends of the drive lever lock in a vise. This keeps the ends of the lock from bending during assembly.
- c. Using the hammer, tap a new spring pin (3) into the aligned holes on one side. Guide the pin as it is tapped into position, until the pin enters the aligned holes on the other side of the drive lever lock. Ensure the pin is flush on both ends.
- d. Move the drive lever lock (1) to check for binding. If binding, lubricate lightly. Ensure the spring pin (3) is not loose.

END OF WORK PACKAGE

UNIT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN - ALIGNMENT GUIDE ASSEMBLY
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool, combination assembly (PN 3269494)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A)
Tool kit, small arms repairman,
SC-5180-95-B71

Tools and Special Tools - Continued

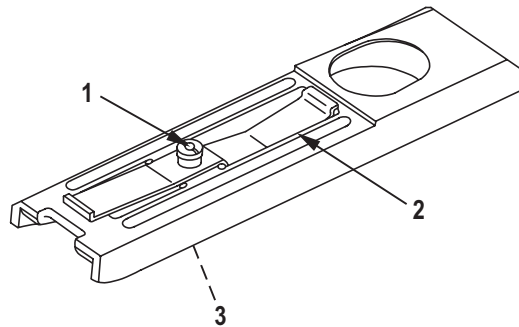
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

REMOVAL

1. REMOVE ALIGNMENT GUIDE ASSEMBLY.
 - a. Depress the tip of the alignment guide flat spring with a screwdriver tip or a fingernail and slide alignment guide assembly left and out of the receiver. Slide the alignment guide assembly out of the receiver, pulling the assembly slightly rearward.

REPAIR OR REPLACEMENT

1. Inspect the alignment guide assembly while assembled. Do not disassemble unless parts replacement is necessary. Ensure the shoulder screw (1) and alignment guide flat spring (2) do not move relative to each other. It is permissible for the shoulder screw and flat head screw (3) to turn together as long as the alignment guide flat spring is not loose. Inspect for thread damage. If damaged, evacuate alignment guide assembly to Direct Support Maintenance.
2. Inspect the alignment guide flat spring for cracks. If damaged, evacuate alignment guide assembly to Direct Support Maintenance.



1LK134

INSTALLATION

1. INSTALL ALIGNMENT GUIDE ASSEMBLY.
 - a. Depress the tip of the alignment guide flat spring and slide the alignment guide assembly into the forward part of the receiver. Ensure the large hole slides over the ogive plunger assembly and that the alignment guide pin mates with the keyhole in the receiver.

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - GUN CHARGER (RIGHT HAND/LEFT HAND)
INSPECTION OF INSTALLED ITEMS, REMOVAL, DISASSEMBLY,
REPAIR OR REPLACEMENT, ASSEMBLY, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Lock plunger tool (WP 0089 00)
Tool, combination assembly (PN 3269494)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Cotter pin (item 9, WP 0122 00)
Lubricant (as required)
Self-locking nut (item 1, WP 0122 00)
Slotted spring pin (item 4, WP 0122 00)

References

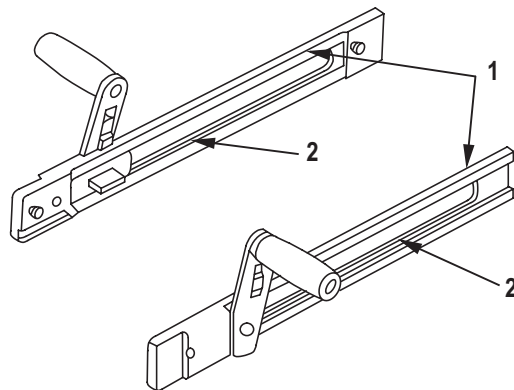
WP 0089 00
WP 0097 00
WP 0111 00
WP 0112 00

Equipment Conditions

Bolt and backplate assembly removed from
receiver (WP 0040 00)

INSPECTION OF INSTALLED ITEMS

1. Inspect the functioning of each charger handle lock and arm mechanism.
2. Inspect the general condition of charger housings. Ensure charger housing (1) is not bent. Inspect for and remove burrs along the grooved edges (2) of the housing using a stone; preserve with a lubricant.



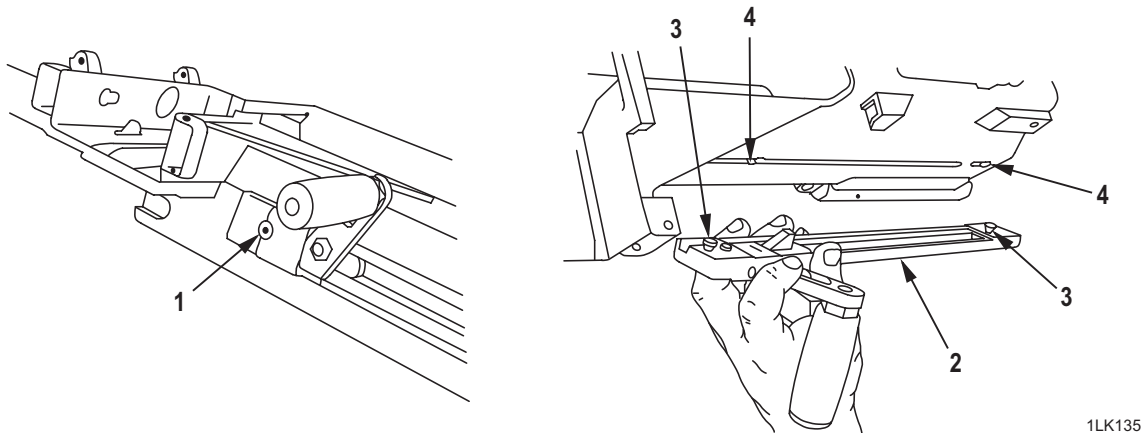
REMOVAL

1. REMOVE THE CHARGER ASSEMBLIES FROM THE RECEIVER.

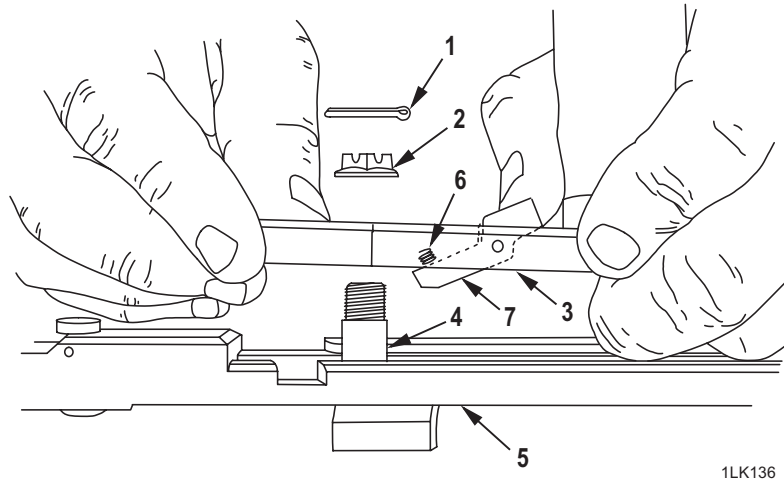
NOTE

Do not remove the spring pins, lock plungers, or helical springs for cleaning or lubrication. Remove only for parts replacement.

- a. With the bolt and backplate assembly removed or the weapon charged and on "S" (SAFE), and with the charger handles up, retract the lock plunger (1) at the base of the charger arm, using a screwdriver tip on the combination tool. Slide the charger housing (2) rearward to disengage the lugs (3) from the keyslots (4) in the receiver. Then lift the assembly away from the receiver.

**DISASSEMBLY**

1. REMOVE HELICAL COMPRESSION SPRING, CHARGER SLIDE, ARM, SELF-LOCKING NUT, AND COTTER PIN.
 - a. Remove cotter pin (1) using round nose pliers. Using box end wrench on combination tool, remove self-locking nut (2). Discard cotter pin and self-locking nut.
 - b. Separate arm (3) and charger slide (4) from charger housing (5).
 - c. Lift out helical compression spring (6) and charger handle lock (7) from arm (3).



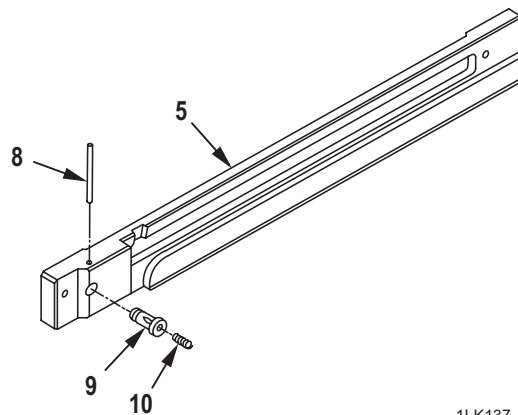
1LK136

2. REMOVE THE LOCK PLUNGER, SLOTTED SPRING PIN, AND HELICAL COMPRESSION SPRING.

NOTE

Remove for parts replacement only.

- a. Place the charger housing (5) on a bench block. Using a 3/32 inch punch and hammer, partially drive out the slotted spring pin (8). Insert lock plunger tool (WP 0089 00) into the lock plunger (9) to prevent loss of helical compression spring (10). While depressing the lock plunger tool into the lock plunger, punch the slotted spring pin from the charger housing.
- b. Pull the lock plunger (9) and helical compression spring (10) from the charger housing (5).



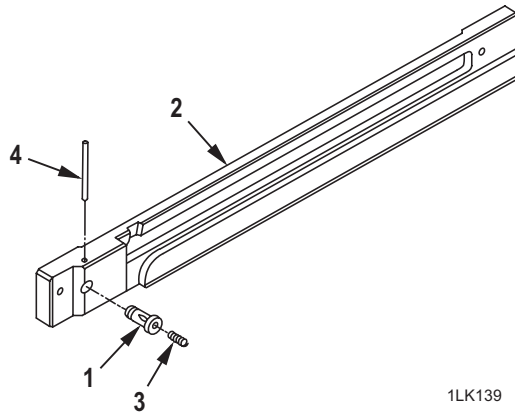
1LK137

REPAIR OR REPLACEMENT

1. Inspect helical compression springs. If crumpled or bent, install new spring.
2. Inspect lock plunger. Inspect for wear on the tip. Wear will eventually cause the charger assembly to fall off during operation. Replace the lock plunger if worn or damaged.
3. Replace defective parts as authorized by WP 0097 00, WP 0111 00, and WP 0112 00.

ASSEMBLY

1. INSTALL THE HELICAL COMPRESSION SPRING, LOCK PLUNGER, AND SLOTTED SPRING PIN.
 - a. Insert the lock plunger (1) into the hole in the charger housing (2) from the outside to inside.
 - b. Place the charger housing (2), topside up, on a flat surface, so the lock plunger (1) is exposed. Insert the helical compression spring (3) into the lock plunger.

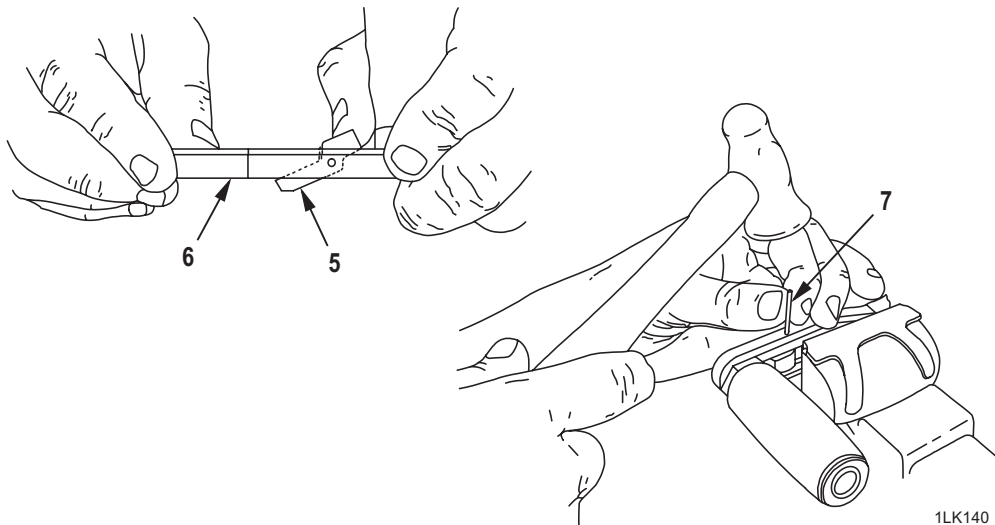


1LK139

CAUTION

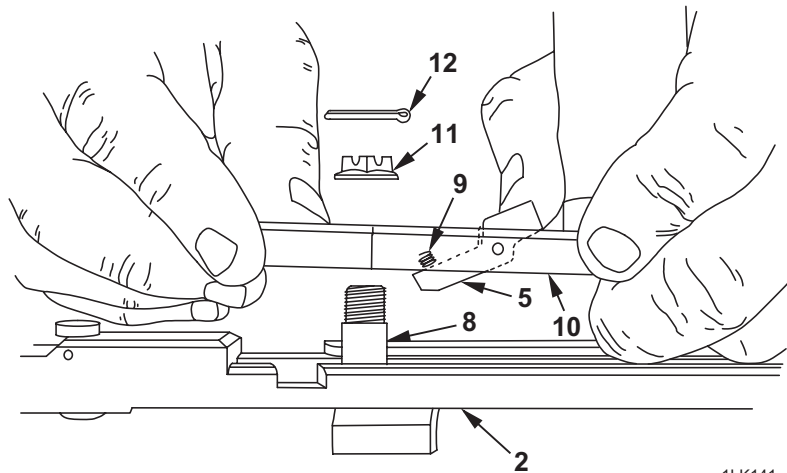
Be sure to compress the helical compression spring far enough to prevent damage by the spring pin.

- c. Insert a new slotted spring pin (4) about 1/8 inch into the top of the charger housing (2). Using the lock plunger tool (WP 0089 00), compress the helical compression spring (3) as far as possible in the lock plunger (1) while driving the slotted spring pin with a brass-head hammer, until the slotted spring pin is flush with the charger housing.
2. INSTALL THE CHARGER HANDLE LOCK AND SLOTTED SPRING PIN ON ARM.
 - a. Position the charger handle lock (5) in the slot of the arm (6). Align the pin holes in the arm and charger handle lock.



1LK140

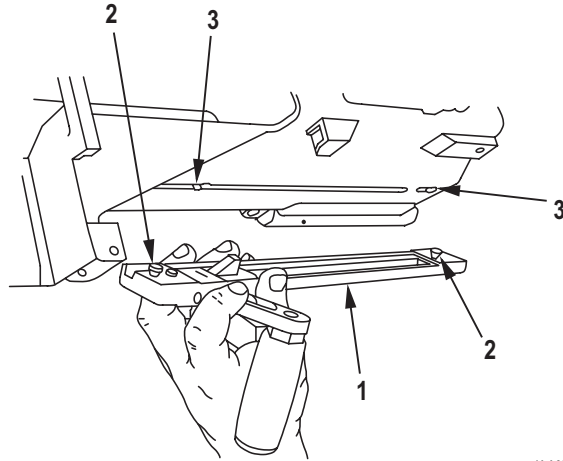
- b. Place the arm (6) with charger handle lock (5) in a vise. Drive in the slotted spring pin (7) using a brass-head hammer. Ensure the ends of the slotted spring pin are flush with the arm.
3. INSTALL THE HELICAL COMPRESSION SPRING, CHARGER SLIDE, ARM, SELF-LOCKING NUT, AND COTTER PIN.
 - a. Insert the threaded end of the charger slide (8) through the center groove on the charger housing (2). Ensure the threaded end is to the outside of the housing.
 - b. Position the helical compression spring (9) in the hole in the charger handle lock (5).
 - c. Slip the arm (with the handle assembly) (10) over the charger slide's (8) threaded end.
 - d. Screw a self-locking nut (11) onto the charger slide (8). Tighten with the 7/16 inch box end wrench.
 - e. Move the handle up and down to test the functioning. If the handle does not move easily, loosen the self-locking nut (11) slightly.
 - f. Install a new cotter pin (12) to secure the self-locking nut (11).



4. FUNCTION CHECK THE HANDLE LOCK AND ARM MECHANISM.
 - a. Press the charger handle lock (5) and release. It should spring back crisply, without binding.
 - b. Press the charger handle lock (5) and rotate the handle assembly up and down. If the handle is hard to rotate, the self-locking nut (11) is too tight. Remove the cotter pin (12) and gradually loosen the self-locking nut until the handle moves easily. Install a new cotter pin upon assembly.

INSTALLATION

1. INSTALL CHARGER ASSEMBLIES IN THE RECEIVER.
 - a. Position the charger housing (1) so the lugs (2) are aligned with the keyslots (3) in the receiver wall. Press against the charger housing and slide it forward until the charger assembly locks in place.



1LK348

END OF WORK PACKAGE

UNIT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – FEED THROAT ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Feed throat plunger (2) (item 20, WP 0122 00)

Feed throat plunger (2) (item 21, WP 0122 00)

Helical spring (2) (item 19, WP 0122 00)

Lubricant (as required)

References

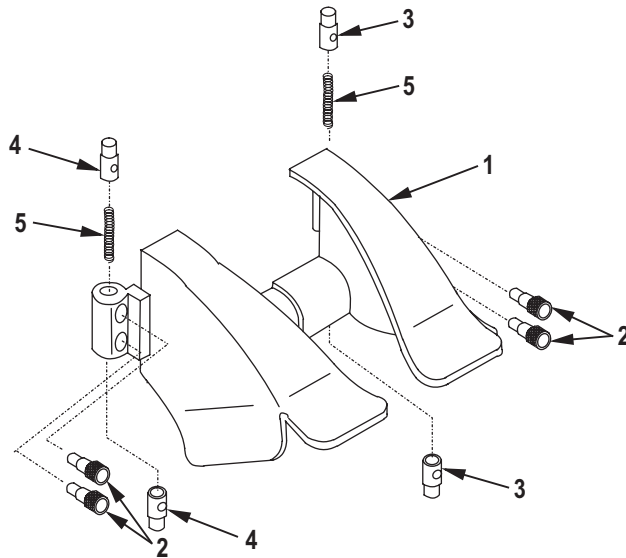
WP 0114 00

Equipment Conditions

Feed throat assembly removed from weapon
(WP 0040 00)

DISASSEMBLY

1. SECURE FEED THROAT.
 - a. Place ear of feed throat (1) over an open vise and secure, so tips of shoulder pins (2) are exposed.
2. REMOVE SHOULDER PINS.
 - a. Insert 3/32 inch punch into holes behind feed throat (1) over shoulder pins (2) and tap out, using a hammer.
3. REMOVE FEED THROAT PLUNGERS AND HELICAL SPRINGS.
 - a. Pull out feed throat plungers (3 and 4) and remove helical springs (5). Discard feed throat plungers and helical springs.



1LK142

REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0114 00.

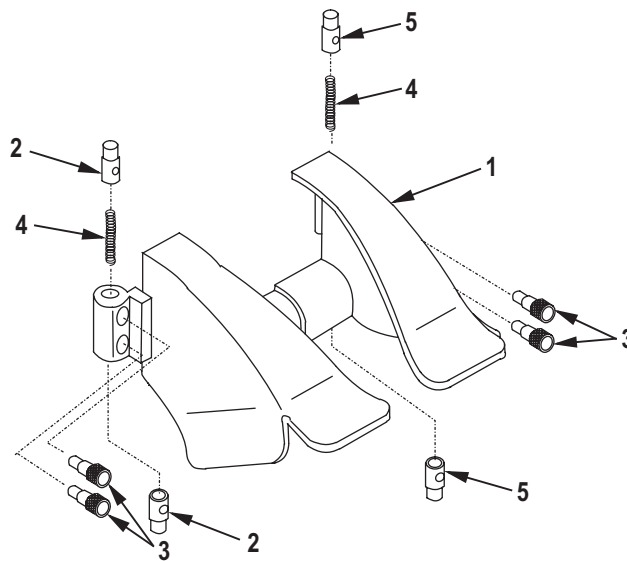
ASSEMBLY

1. SECURE FEED THROAT IN VISE.
 - a. Place feed throat (1) over an open vise and secure so plunger holes are exposed.
2. INSTALL HELICAL SPRINGS AND FEED THROAT PLUNGERS.
 - a. Apply light coat of lubrication in plunger holes.
 - b. Install new feed throat plunger (2), larger end first, into plunger hole.

CAUTION

Excessive staking will cause binding when plungers are exercised. Do not overstake. Exercise feed throat plungers after assembly to ensure there is no binding. If there is binding between shoulder pins and feed throat plungers, restake.

- c. Align the holes, insert shoulder pin (3), and stake.
- d. Insert new helical spring (4) and new feed throat plunger (2), larger end first, into plunger hole.
- e. Align the holes, insert shoulder pin (3), and stake.
- f. Install new feed throat plunger (5), larger end first, into plunger hole.
- g. Align the holes, insert shoulder pin (3), and stake.
- h. Insert new helical spring (4) and new feed throat plunger (5), larger end first, into plunger hole.
- i. Align the holes, insert shoulder pin (3), and stake.



1LK143

END OF WORK PACKAGE

UNIT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN - RECEIVER
INSPECTION OF INSTALLED ITEMS, REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Heat source, e.g., Benzomatic or equivalent
Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)
Wrench, offset, 3/8 x 7/16

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)
Sealing compound (item 11, WP 0121 00)
Solid film lubricant (item 7, WP 0121 00)
Wiping rag (item 14, WP 0121 00)

References

WP 0097 00

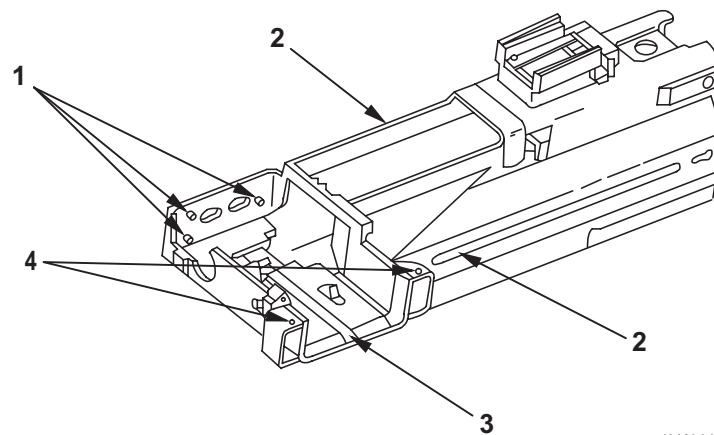
Equipment Conditions

Bolt and backplate assembly removed from
receiver (WP 0040 00)
Vertical cam assembly removed from receiver
(WP 0040 00)

INSPECTION OF INSTALLED ITEMS**NOTE**

The receiver may be inspected without removing the barrel or the positioning pawls.

1. INSPECT PINS.
 - a. Ensure the three pins (1) in the right-hand forward wall of the receiver are present. If one or more pins are missing, evacuate to Direct Support Maintenance.
2. INSPECT RECEIVER RAILS AND LINK GUIDE FOR BURRS.
 - a. Remove any burrs on the receiver rails (2) and on the link guide (3), using a stone.
3. INSPECT FOR RUST.
 - a. Exterior: Remove exterior rust with lubricant and wiping rags. Apply solid film lubricant to shiny surfaces following manufacturer's instructions.
 - b. Interior: Remove interior rust with abrasive cloth, then preserve with a light coat of lubricant.
4. INSPECT FOR CRACKS.
 - a. Check for cracks (4) in the areas indicated, below, as well as along all weld seams. If cracks are found, note the location and length of the crack, and evacuate to Direct Support Maintenance.
5. INSPECT FOR CRACKS/ELONGATION.
 - a. Check all holes for cracks/elongation.

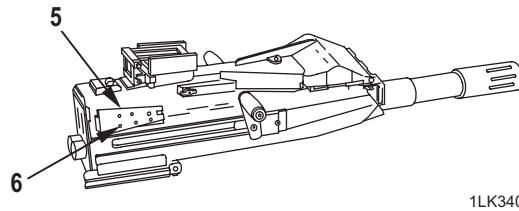


1LK144

NOTE

Steps 6 through 8 apply only to weapon with sight mounting bracket.

6. Inspect sight mounting bracket (5) for bent or broken part.
7. Inspect for broken or missing machine bolt(s) (6).
8. Inspect finish of sight mounting bracket (5). Use stone or file to attempt repair.

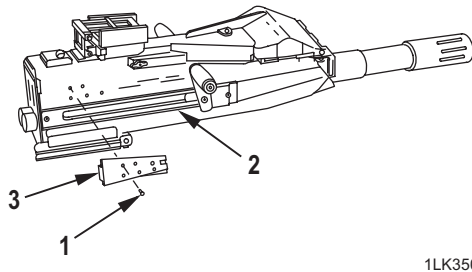


REMOVAL

NOTE

This procedure applies only to weapons with sight mounting bracket.

1. Access five machine bolts (1) through rear of receiver (2). Using a 7/16 12 or 6 point socket, remove machine bolts. Apply heat if necessary to loosen bolts prior to removal. Discard machine bolts.
2. Remove sight mounting bracket (3) from receiver (2). If damaged, discard bracket.



REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0097 00.

INSTALLATION

NOTE

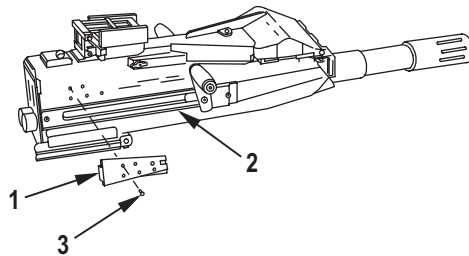
This procedure applies only to weapons with sight mounting bracket.

1. Clean drilled holes in sight mounting bracket (1) and receiver (2).
2. Apply sealing compound to threads of five new machine bolts (3).

CAUTION

Use care to avoid overtightening of machine bolts. Overtightening may cause damage to threads of sight mounting bracket.

3. Align holes in sight mounting bracket (1) with holes in receiver (2). Install five machine bolts (3), using 7/16 12 or 6 point socket. Tighten bolts.



1LK351

END OF WORK PACKAGE

UNIT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN - ADJUSTABLE SIGHT BRACKET (ASB)
INSPECTION OF INSTALLED ITEMS, REMOVAL, DISASSEMBLY, REPAIR OR REPLACEMENT,
ASSEMBLY, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

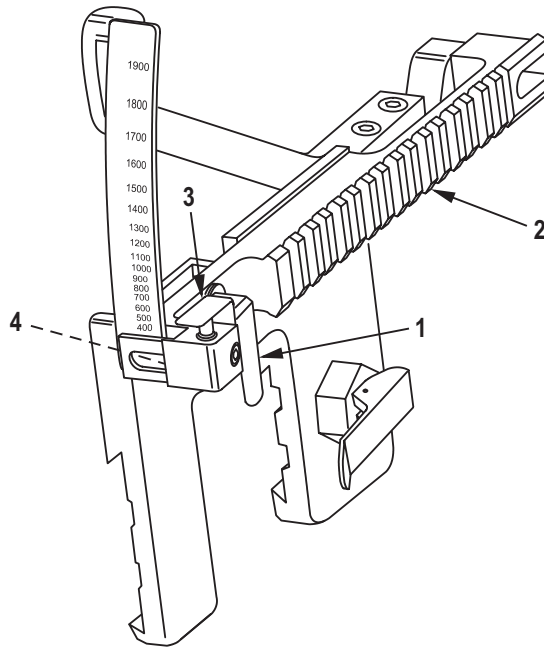
Isopropyl alcohol (item 2, WP 0121 00)
Lubricant (as required)
Solid film lubricant (item 7, WP 0121 00)
Spring pin (item 12, WP 0122 00)
Spring pin (item 13, WP 0122 00)
Spring pin (item 14, WP 0122 00)
Wiping rag (item 12, WP 0124 00)

References

WP 0115 00
WP 0116 00
WP 0117 00

INSPECTION OF INSTALLED ITEMS**1. INSPECT ADJUSTABLE SIGHT BRACKET.**

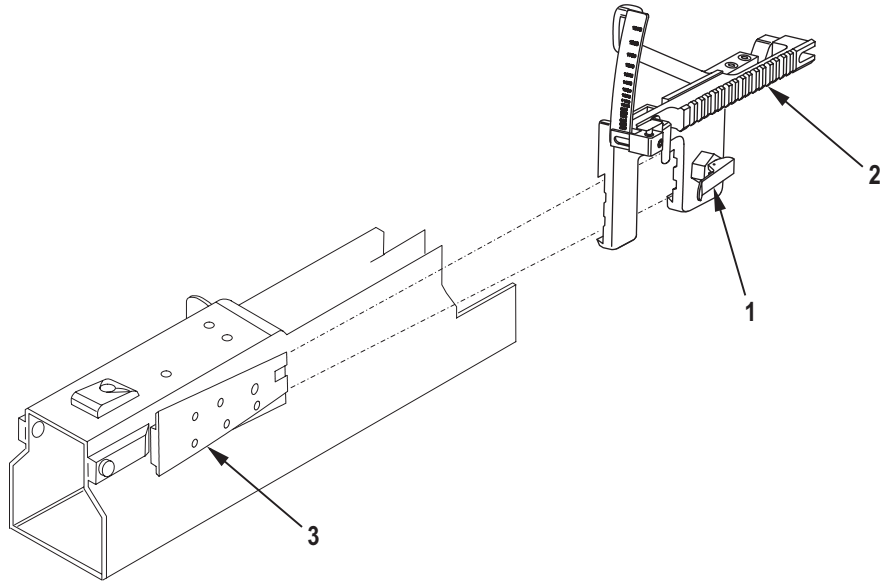
- a. Visually inspect for damaged, chipped, bent, broken, or missing parts.
- b. Visually inspect surface for scratched and missing finish.
- c. Release offset cam assembly (1) and slide arm assembly (2) up and down. Check range of motion of arm.
- d. Depress switch guard (3) and ensure diode (4) lights. If diode does not light, replace arm assembly.



1LK357

REMOVAL

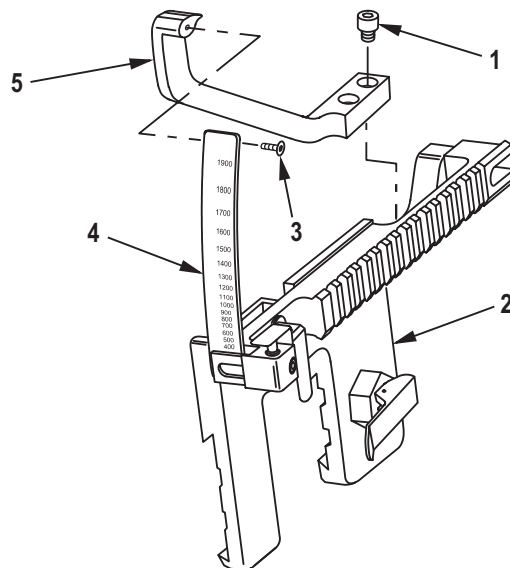
1. REMOVE ADJUSTABLE SIGHT BRACKET (ASB) FROM SIGHT MOUNTING BRACKET.
 - a. Pull out locking pin (1). Push ASB (2) forward to disengage the dovetails and remove ASB from the sight mounting bracket (3).



1LK358

DISASSEMBLY

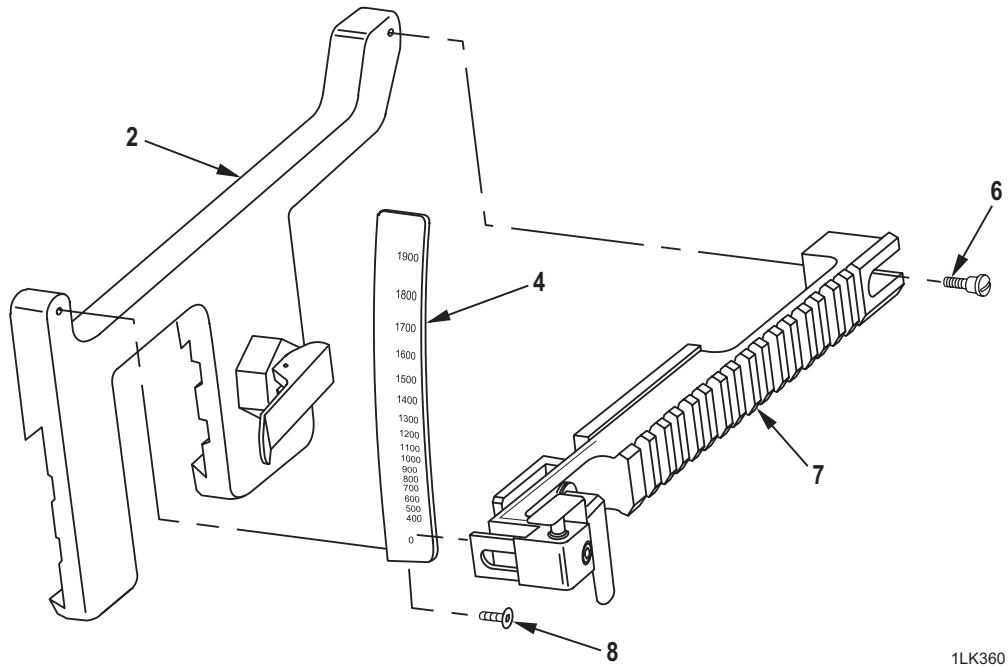
1. REMOVE SUPPORT ARM.
 - a. Remove two socket head cap screws (1) from base plate (2) and one socket head shoulder screw (3) from scale (4). Remove support arm (5).



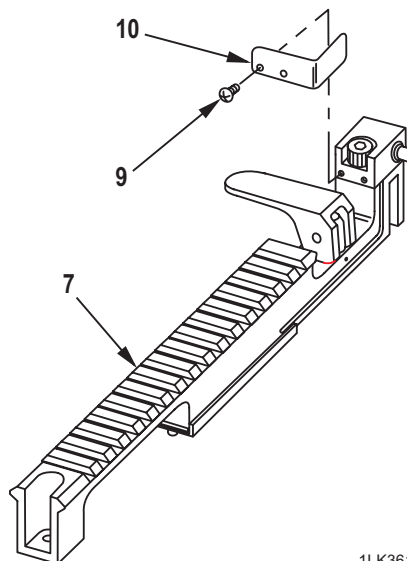
1LK359

DISASSEMBLY - Continued**2. REMOVE ARM ASSEMBLY AND SCALE FROM BASE PLATE.**

- a. Remove slotted shoulder screw (6) from base plate (2) and slide the arm assembly (7) off the end of the scale (4).
- b. Remove socket head shoulder screw (8) from the scale (4) and remove scale from base plate (2).

**3. REMOVE SWITCH GUARD.**

- a. Remove two cross tip pan head screws (9) and switch guard (10) from the arm assembly (7).

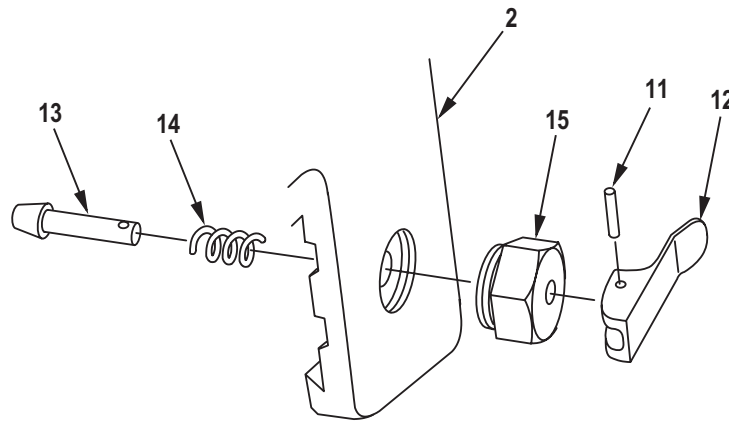


4. REMOVE CAM LEVER FROM BASE PLATE.

WARNING

The helical spring is under tension. Wear safety goggles when disassembling cam lever. Cover cam lever assembly with hand to prevent personnel injury or parts loss.

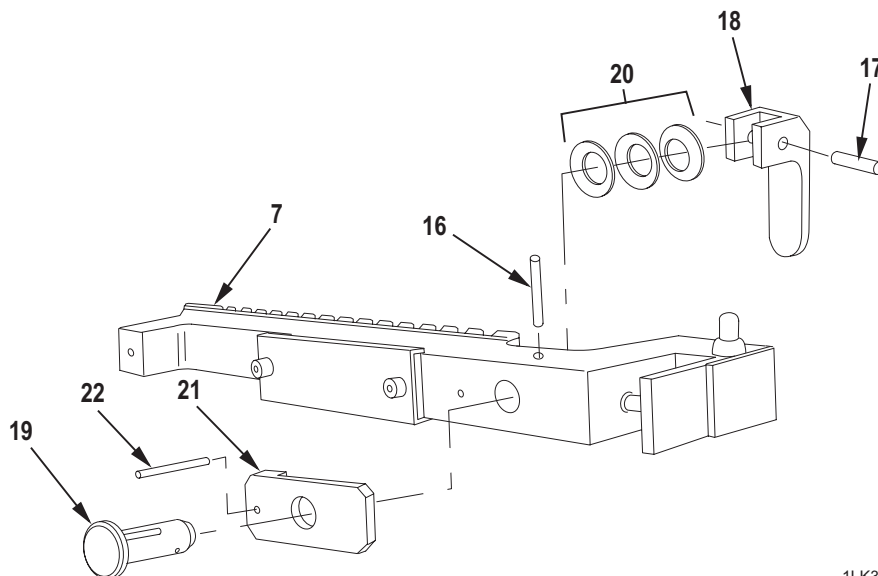
- a. Drive out spring pin (11) and remove cam lever (12) from base plate (2). Discard spring pin.
- b. Remove tapered pin (13) and helical spring (14) from tapered mount (15).
- c. If damaged, remove tapered mount (15).



1LK362

5. REMOVE OFFSET CAM AND CLAMP FROM ARM ASSEMBLY.

- a. Drive out spring pin (16) from arm assembly (7). Then drive out spring pin (17) from offset cam (18) and remove offset cam. Discard spring pins.
- b. Remove clamping shaft (19) and three spring washers (20). If clamp (21) is damaged, remove spring pin (22) and clamp from arm assembly (7).



1LK363

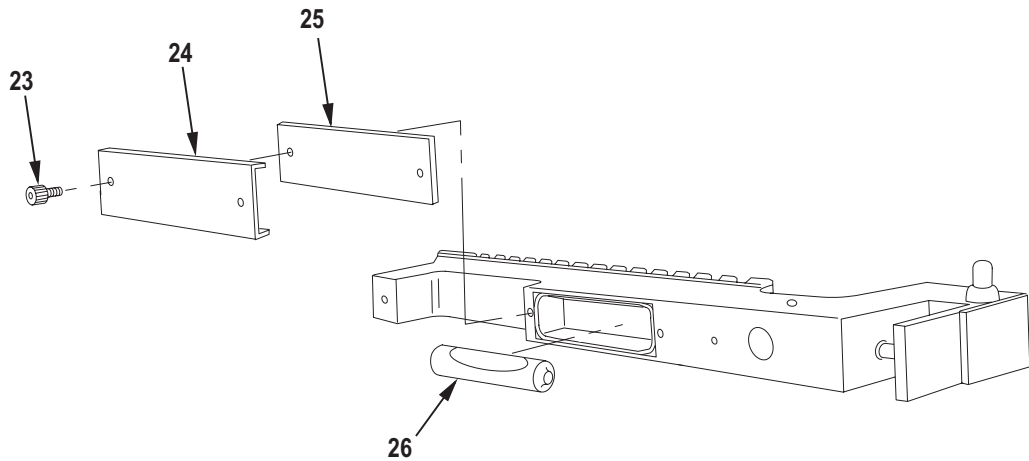
DISASSEMBLY - Continued**6. REMOVE BATTERY BOX COVER, GASKET, AND BATTERY.**

- a. Remove two socket head cap screws (23) and battery box cover (24).
- b. If damaged, remove gasket (25) from battery box cover (24). Remove all residue.
- c. Remove old adhesive from battery box cover (24) using isopropyl alcohol and wiping rag.

CAUTION

To prevent equipment damage, do not use tool or implement to pry battery from battery holder.

- d. Remove battery (26) by lifting from non-spring end.



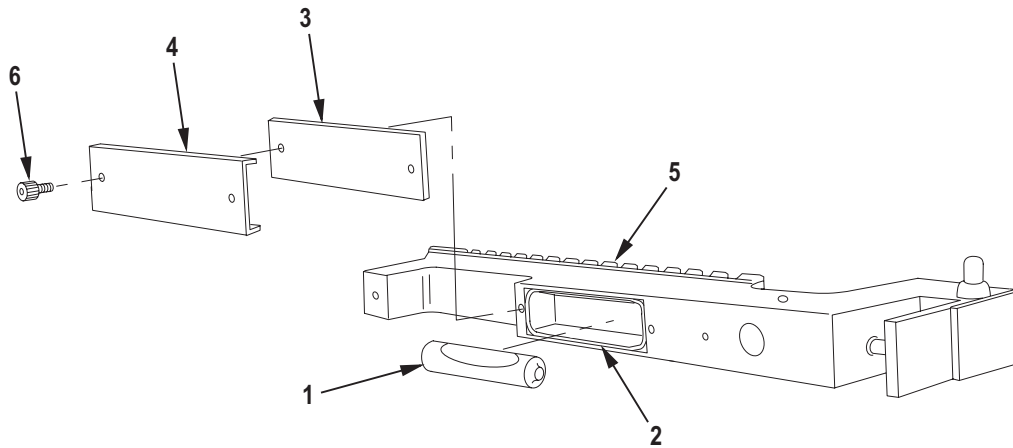
1LK364

REPAIR OR REPLACEMENT

1. Use solid film lubricant as a spot paint for repair of chips and scratches.
2. Replace defective parts as authorized by WP 0115 00, WP 0116 00, and WP 0117 00.

ASSEMBLY**1. INSTALL BATTERY, GASKET, AND BATTERY BOX COVER.**

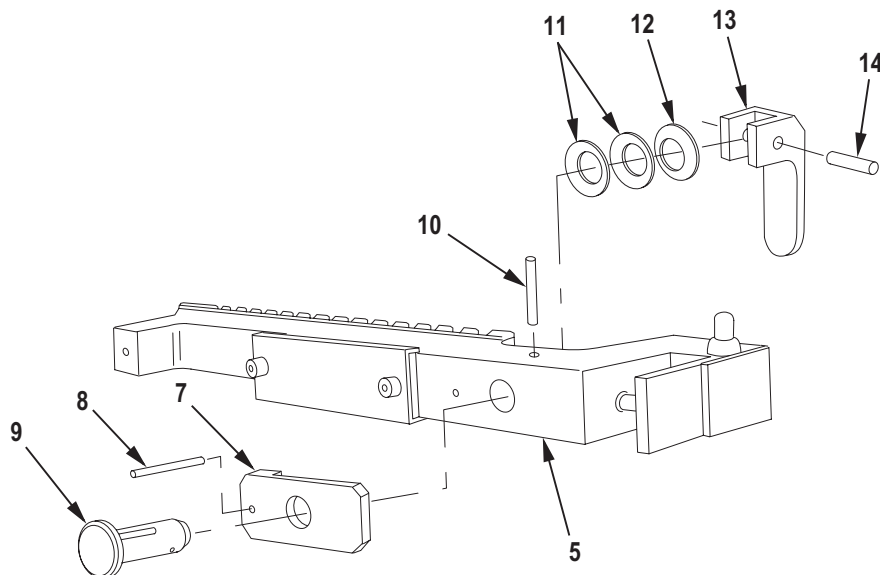
- a. Install battery (1) into battery holder (2) by placing rear (flat end) of battery against the spring. While pushing against the spring, also push the opposite end of battery down until firmly seated into battery holder.
- b. If removed, apply adhesive to new gasket (3) and carefully install gasket to battery box cover (4).
- c. Align two holes in battery box cover (4) with two holes in arm assembly (5) and secure battery box cover with two socket head cap screws (6). Ensure the gasket (3) maintains proper orientation while tightening screws.



1LK365

2. INSTALL CLAMP AND OFFSET CAM ON ARM ASSEMBLY.

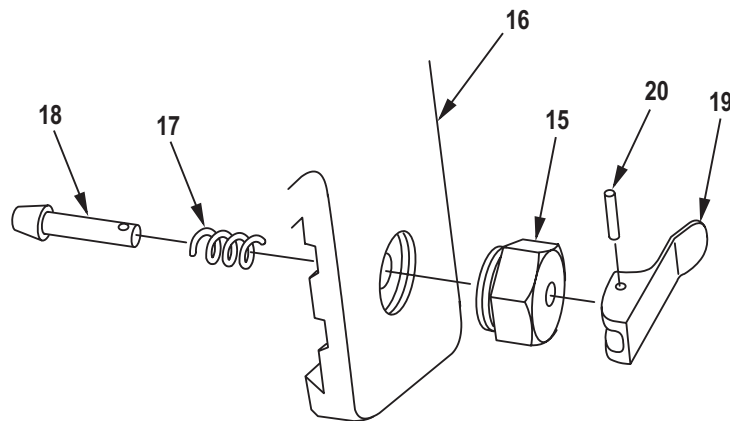
- a. If removed, position clamp (7) onto the bottom of the arm assembly (5) and align the holes. Insert a new spring pin (8).
- b. Install clamping shaft (9) through the clamp (7) and arm assembly (5), aligning the hole in the arm assembly with the slot in the clamping shaft. Secure by inserting a new spring pin (10) through the hole in the arm assembly.
- c. While holding the clamping shaft (9) fully into the clamp (7) and arm assembly (5), place two spring washers (11) atop the arm assembly with crown side up; then place a third spring washer (12) on top, crown side down. Position the offset cam (13) over the clamping shaft, aligning the holes. Secure by inserting a new spring pin (14) through the holes.



1LK366

ASSEMBLY - Continued**3. INSTALL CAM LEVER ON BASE PLATE.**

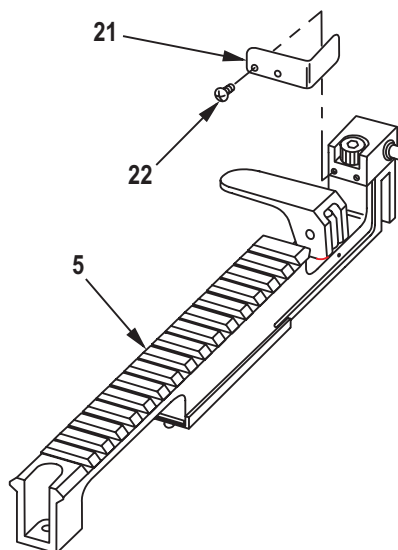
- a. If removed, install new tapered mount (15) to base plate (16).
- b. Install the helical spring (17) onto the shaft of the tapered pin (18).
- c. Insert tapered pin (18) into the tapered mount (15) until the rear of the tapered pin protrudes from the face of the tapered mount.
- d. Align the hole in the tapered pin (18) with the hole in the cam lever (19) and secure with new spring pin (20).



1LK367

4. INSTALL SWITCH GUARD.

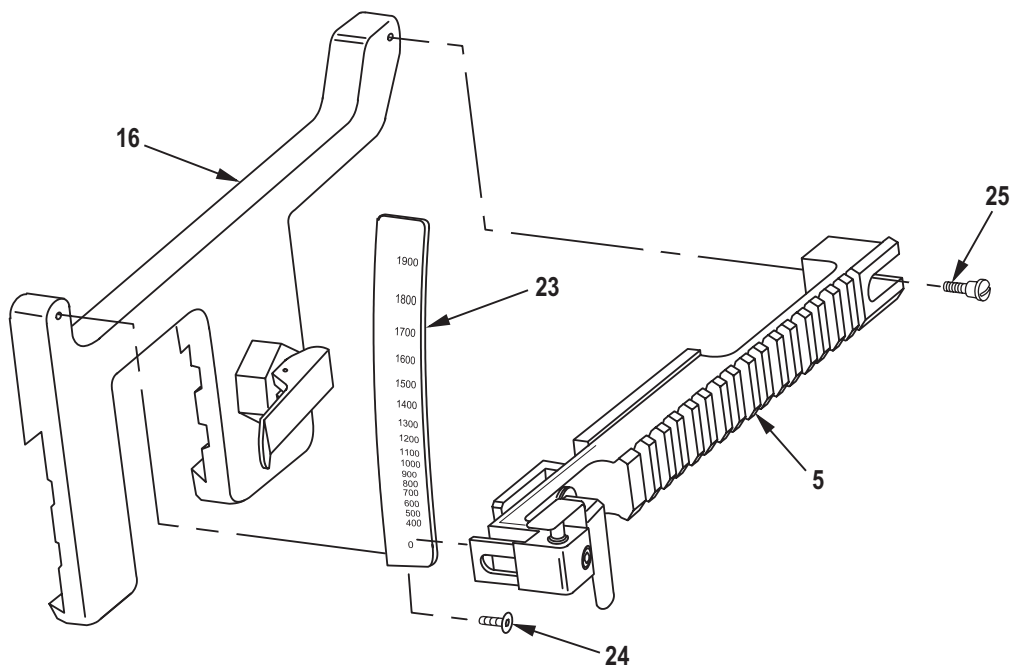
- a. Position switch guard (21) onto the arm assembly (5) and secure into place using two cross tip pan head screws (22).



1LK368

5. INSTALL SCALE AND ARM ASSEMBLY ON BASE PLATE.

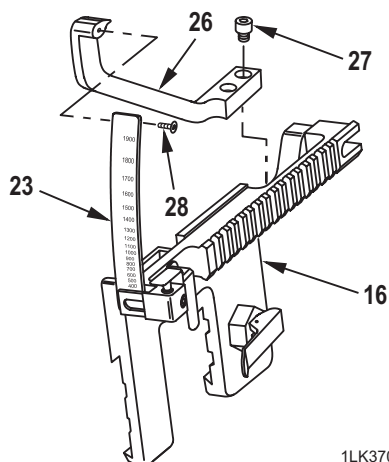
- a. Install scale (23) by positioning it onto the front of the base plate (16). Secure scale with socket head shoulder screw (24).
- b. Slide arm assembly (5) over top of scale (23). Position arm assembly on base plate (16) and install slotted shoulder screw (25).



1LK369

6. INSTALL SUPPORT ARM.

- a. Position support arm (26) on the base plate (16) and the back of the scale (23).
- b. Install two socket head cap screws (27) onto base plate (16) and one socket head shoulder screw (28) onto scale (23).



1LK370

INSTALLATION**WARNING**

Before beginning the following installation procedures, always start with a clear, safe weapon and ensure no rounds are on the bolt face or in the feeder. A second person should ensure that the weapon is unloaded (if on a firing range, the second person should be the Range Safety Officer). Ensure bolt is forward before starting installation. Injury or death to personnel or damage to equipment can occur if weapon is loaded and is accidentally discharged.

NOTE

Ensure locking pin and interfacing surfaces between the ASB and the sight mounting bracket are properly lubricated. This will ensure proper engagement and ease of future removal of the ASB.

1. Using LSA, LSAT, or GMD, lubricate the interfacing surfaces between the dovetail of the ASB (1) and dovetail of sight mounting bracket (2).
2. Using LSA, LSAT, or GMD, lubricate the tapered head of the locking pin (3) located at the forward end of the ASB (1).

WARNING

Improper engagement of the ASB can cause injury to personnel or damage to equipment during weapon discharge.

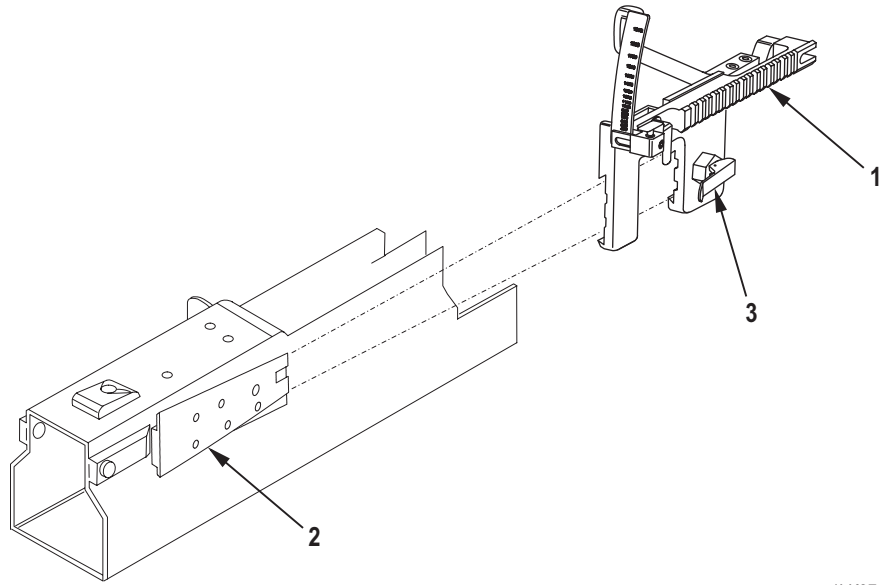
CAUTION

Do not remove rear sight assembly.

NOTE

Additional force applied to the locking pin is not required to achieve engagement. Additional applied force will jam engagement mechanism and make removal of the ASB difficult.

3. Align the dovetail of the ASB (1) approximately six inches in front of the sight mounting bracket (2) on the receiver of the MK19.
4. Pull ASB (1) rearward to engage dovetails. When the locking pin (3) drops in detent and an engagement sound is heard, sufficient engagement has been achieved.
5. If an engagement sound is not heard, pull out the locking pin (3), push the ASB (1) forward to disengage the dovetails, and repeat the procedure until sufficient engagement is achieved.



1LK371

END OF WORK PACKAGE

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS FOR MK19 MOD 3 40MM MACHINE GUN, MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET, AND UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

SERVICE UPON RECEIPT

SERVICE UPON RECEIPT OF MATERIEL

Refer to Service Upon Receipt (WP 0036 00) in Unit Maintenance.

END OF WORK PACKAGE

DIRECT SUPPORT

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

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MOD 3 40MM MACHINE GUN

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Lubricant (as required)

Equipment Conditions

Weapon on "S" (SAFE), clear of ammo, bolt in
forward position

For disassembly and assembly of MK19 MOD 3 machine gun, refer to WP 0040 00.

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – BACKPLATE PIN ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Combination tool (PN 3269494)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)
Lubricant (as required)

Equipment Conditions

Bolt and backplate removed from weapon
(WP 0040 00)

For removal and installation of backplate pin assembly, refer to WP 0041 00.

END OF WORK PACKAGE

DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN - SECONDARY DRIVE LEVER ASSEMBLY
(FIXED OR ADJUSTABLE)**

INITIAL SETUP:**References**

WP 0021 00

Equipment Conditions

Weapon on "S" (SAFE), bolt in the forward position

For removal and installation of secondary drive lever assembly, refer to WP 0042 00.

END OF WORK PACKAGE

DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

MAINTENANCE OF MK19 MACHINE GUN – FEED TRAY

INITIAL SETUP:**Tools and Special Tools**

Drill press
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Equipment Conditions

Feed tray removed from weapon
(WP 0040 00)

For disassembly and assembly of feed tray, refer to WP 0043 00.

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – ROUND POSITIONING BLOCK

INITIAL SET UP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps Only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Equipment Conditions

Alignment guide assembly removed from
receiver (WP 0040 00)

For removal and installation of round positioning block, refer to WP 0044 00.

END OF WORK PACKAGE

DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN – RECEIVER INSPECTION
INSPECTION OF INSTALLED ITEMS**

INITIAL SET UP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

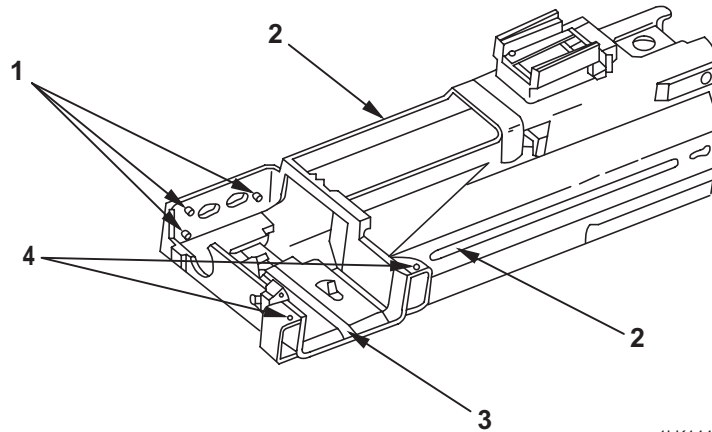
Lubricant (as required)

Solid film lubricant (item 7, WP 0121 00)

Wiping rag (item 14, WP 0121 00)

INSPECTION OF INSTALLED ITEMS

1. The receiver may be inspected without removing the barrel or the positioning pawls. Check for the following:
 - a. Pins. Ensure the three pins (1) in the right-hand forward wall of the receiver are present. If loose or missing, evacuate to Depot Maintenance.
 - b. Burrs. Remove any burrs on the receiver rails (2) and on the link guide (3), using a stone.
 - c. Rust.
 - (1) Exterior: Remove exterior rust with lubricant and wiping rag. Apply solid film lubricant to shiny surfaces following manufacturer's instructions.
 - (2) Interior: Remove interior rust with abrasive cloth; then preserve with a light coat of lubricant.
 - (3) Cracks. Check for cracks (4) in the areas indicated below, as well as along all weld seams. If cracks are found, note the location and length of the crack, and evacuate the weapon to Depot Maintenance.
 - (4) Check all holes for cracks/elongation.



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END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

**MAINTENANCE OF MK19 MACHINE GUN - RECEIVER SPRINGS MEASUREMENT
 REPAIR OR REPLACEMENT**

INITIAL SET UP:**Tools and Special Tools**

Shop set, small arms, field maintenance,
 SC 4933-95-A11
 Tool kit, small arms repairman
 SC 5180-95-B71 with addition of
 SL-3-00607A (Marine Corps only)
 Tool kit, small arms repairman,
 SC-5180-95-B71
 Tool set, intermediate maintenance,
 SL-3-08669A (Marine Corps only)
 Tool set, organizational maintenance,
 SL-3-08668A (Marine Corps only)

Equipment Conditions

Weapon partially disassembled (WP 0040 00)

REPAIR OR REPLACEMENT

1. Measure springs less than 6 inches long using a dial caliper. Measure springs over 6 inches long using a tape measure. If the length is less than that given below, replace with a new spring. Replace all parts of springs (such as extractor springs, finger springs, etc.). Measure and replace springs only when performing maintenance requiring disassembly/assembly of components.

Table 1. Measurement of Springs.

SPRING	QTY PER GUN	REPLACE IF LESS THAN (INCHES):
Bolt and Backplate Assembly:		
Cocking Lever Spring (Spring, Helical)	1	2.400
Sear Buffer Spring (Spring, Helical) 3269425	1	1.400
LH, RH Extractor Spring (Spring, Helical) 2813531	2	0.580
Finger Spring (Spring, Helical) 2813528	2	0.840

REPAIR OR REPLACEMENT - Continued**Table 1. Measurement of Springs - Continued.**

SPRING	QTY PER GUN	REPLACE IF LESS THAN (INCHES):
Firing Pin Sear Spring (Spring, Helical) 3269525	1	0.460
Firing Pin Spring (Spring, Helical) 3269417	1	3.000
Firing Pin Sear Inner Spring (Spring, Helical) 5526208	1	0.560
Round Stop Spring (Spring, Helical) MS24585-2121	1	0.930
Recoil Spring (Spring, Helical, Recoil) 3269433	2	17.500
Ogive Plunger Assembly:		
Ogive Plunger Spring (Spring, Helical) 32694553269455	1	1.800
Feed Slide Assembly:		
Shuttle Spring 3269462	1	5.770
Sear Assembly:		
Sear Spring (Spring, Helical) 3269539	1	0.960

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – PRIMARY PAWL
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

References

WP 0097 00

Equipment Conditions

Barrel removed from receiver (WP 0065 00)

REMOVAL

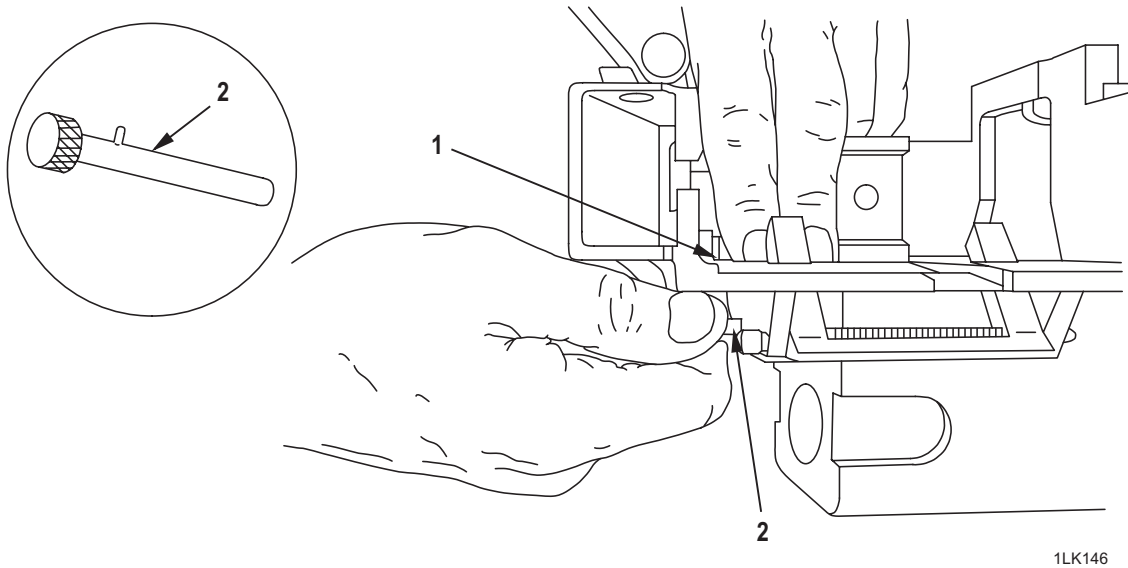
1. REMOVE PRIMARY PAWL, PAWL ROD, AND PAWL SPRING.

CAUTION

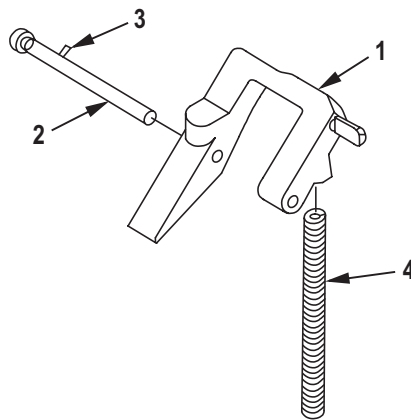
Use fingers, not pliers, to pull out pawl rod. Force can break the small crosspin on the pawl rod if not properly aligned in the slot.

REMOVAL - Continued

- a. With the barrel removed, depress the primary pawl (1) and pull out the pawl rod (2) using fingers. Lift out the primary pawl and pawl spring.

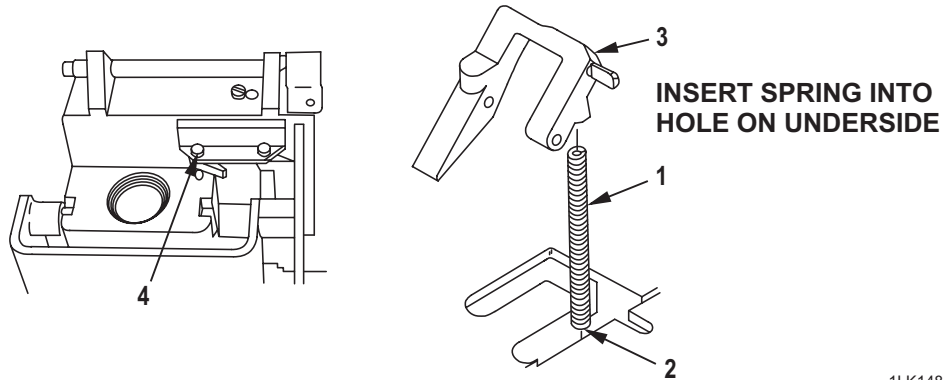
**REPAIR OR REPLACEMENT**

1. Examine the edges of the primary pawl (1) for burrs. Remove burrs with a stone. Before installation, ensure the hole in the receiver for the pawl spring and primary pawl has been cleared of all dirt and debris.
2. Inspect pawl rod (2) for rust. Remove rust with lubricant and cloth. Preserve with a light coat of lubrication. Replace the pawl rod if bent or if the crosspin (3) is missing. See WP 0097 00.
3. Test spring action of pawl spring (4) while assembled. Press primary pawl (1) and release. Spring action should be crisp. If spring action is not crisp, replace pawl spring. See WP 0097 00.



INSTALLATION**1. INSTALL PRIMARY PAWL, PAWL ROD, AND PAWL SPRING.**

- a. Turn receiver upright. Insert the pawl spring (1) into the hole (2) in the receiver. Install the primary pawl (3).
- b. Position the primary pawl (3) so the pinholes align with the pinholes in the receiver. Partially insert the pawl rod (4).



1LK148

- c. With one hand, depress the primary pawl (3). With the other hand, push the pawl rod (4) into the pinhole until the crosspin in the pawl rod enters the small hole in the receiver. Push the pawl pin's knurled head until it touches the receiver.
- d. Press the primary pawl (3) and release. Spring action should be crisp.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – SECONDARY PAWL
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION**

INITIAL SET UP**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 12, WP 0124 00)

Lubrication (as required)

References

WP 0097 00

REMOVAL

1. REMOVE SECONDARY PAWL, PAWL ROD, AND HELICAL SPRING.

WARNING

Helical spring is under tension. Shield helical spring while pulling out pawl rod.
This will prevent injury.

CAUTION

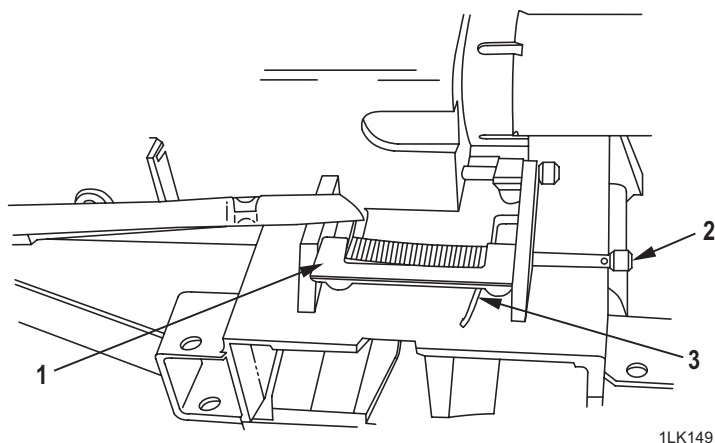
Use fingers, not pliers, to pull out pawl rod. Force can break the small crosspin on
the pawl rod if not properly aligned in the slot.

NOTE

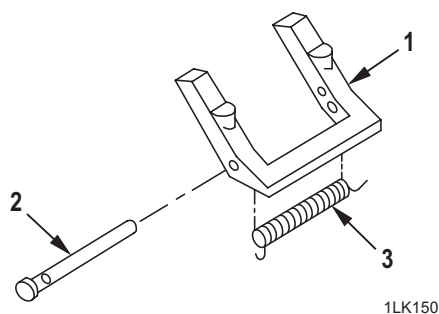
Do not remove the secondary pawl except to replace the secondary pawl, helical
spring, or pawl rod.

REMOVAL - Continued

- a. Turn receiver upside down. Depress secondary pawl (1) and pull out the pawl rod (2). Lift out the secondary pawl and helical spring (3).

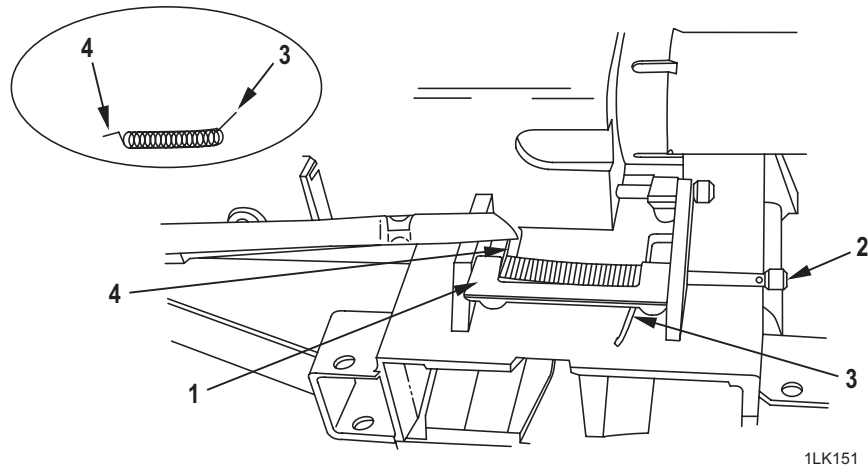
**REPAIR OR REPLACEMENT**

1. Examine the edges of the secondary pawl (1) for burrs. Remove burrs with a stone.
2. Inspect pawl rod (2) for rust. Remove any rust with lubricant and an abrasive cloth. Preserve with a light coat of lubricant. Replace if bent or broken or if crosspin is missing.
3. Test spring action of helical spring (3) while assembled. Press secondary pawl (1) and release. Spring action should be crisp.
4. Replace defective parts as authorized by WP 0097 00.



INSTALLATION

1. Position the secondary pawl (1) in the receiver so the pinholes are aligned.
2. Partially insert the pawl rod (2) into the pinholes.
3. Slip the helical spring (3), straight end first, over the end of the pawl rod (2).
4. Lock the wire twister pliers on the L-shaped end (4) of the helical spring (3) and tighten one full turn. Push the pawl rod (2) through the hole, depressing the secondary pawl (1) to allow the pawl rod to go in. Ensure the crosspin in the pawl rod enters the small slot in the receiver.



5. Unlock the pliers and release the helical spring (3) into place. The straight end of the helical spring should rest against the receiver. The L-shaped end of the helical spring should fit in the notch in the secondary pawl (1).
6. Depress the secondary pawl (1) again and push the pawl rod (2) in until the knurled head touches the receiver. Press the secondary pawl to test spring action.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – BARREL ASSEMBLY
REMOVAL, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY, INSTALLATION**

INITIAL SET UP:**Tools and Special Tools**

Gauge assembly, bore constriction
(PN 32969536)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)
Wrench, barrel (PN 3269541)

Materials/Parts

Lubricant (as required)
Slotted spring pin (item 3, WP 0122 00)
Wiping rag (item 14, WP 0121 00)

References

WP 0099 00

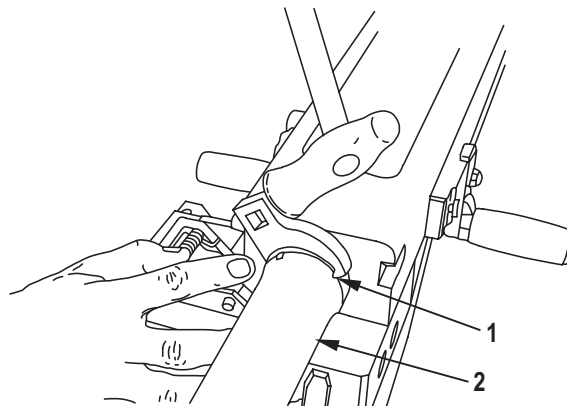
REMOVAL

1. REMOVE BARREL.

NOTE

Barrel should be removed only for replacement.

- a. Turn the receiver upside down. Hook the end of the barrel wrench into the slots (1) in the barrel close to the receiver. Tap the barrel wrench counterclockwise with a hammer to loosen. Unscrew the barrel (2) from the receiver.

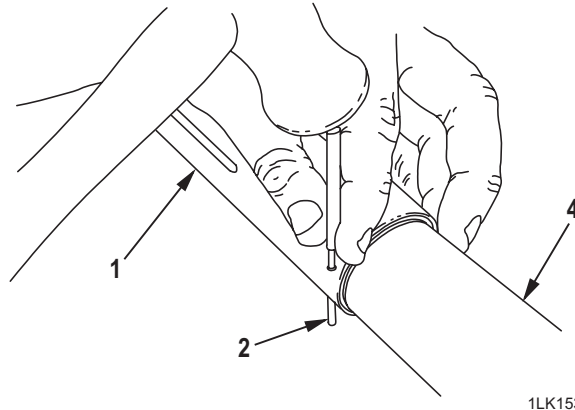


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DISASSEMBLY

1. REMOVE SLOTTED SPRING PIN.

- a. Inspect for rust, dents, and cracks. Remove rust with lubricant and rag. Ensure flash suppressor (1) is slightly loose. If flash suppressor is tight or dents interfere with functioning, drive out the slotted spring pin (2) using a punch and hammer. Discard the slotted spring pin.

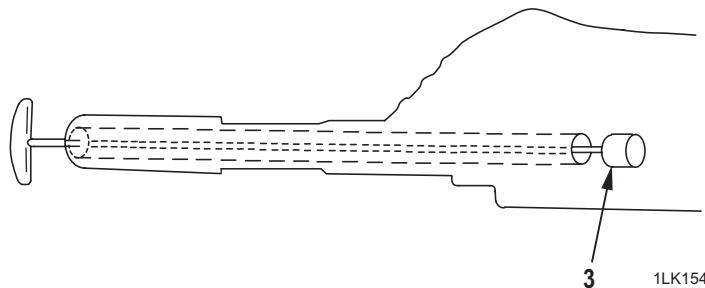


2. REMOVE FLASH SUPPRESSOR.

WARNING

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

- a. Clean the bore and chamber. Then screw the bore constriction gauge (3) onto the tip of the cleaning rod. Insert the gauge into the flash suppressor (2) to ensure any dents do not affect its functioning. If the gauge will not pass through the flash suppressor (2), remove the flash suppressor. Continue inserting the gauge into the bore all the way through the chamber. Verify the bore constriction gauge passes through freely; if not, replace the barrel (4).



REPAIR OR REPLACEMENT

1. Inspect barrel exterior for rust, dents, and cracks. Remove rust with lubricant and wiping rag.
2. Inspect flash suppressor for rust, dents, and cracks. Remove rust with lubricant and wiping rag.

3. Inspect barrel as follows:
 - a. Bore and chamber must be clean and free of corrosion.
 - b. Pits in the chamber are allowable if they are not large enough to cause extraction difficulties.
 - c. Pits less than the width of a land or groove in width or length are allowable. Replace if pits are greater than width of a land or groove, and if pits are 50 percent cumulative or 25 percent continuously.
 - d. Scattered or uniformly fine pits are allowable.
 - e. Tool marks or scratches are acceptable regardless of length. Tool marks will appear as lines running laterally in the grooves or they may run spirally across the top of the lands.
 - f. Definitely ringed bores or bores ringed sufficiently to bulge the outside surface barrel are cause for rejection. However, faint rings or shadowy depressions do not indicate an unserviceable barrel and should not be cause for rejection.
 - g. Lands that appear dark due to a coating of gilding metal from projectiles should not be cause for rejection.
4. Replace defective parts as authorized in WP 0099 00.

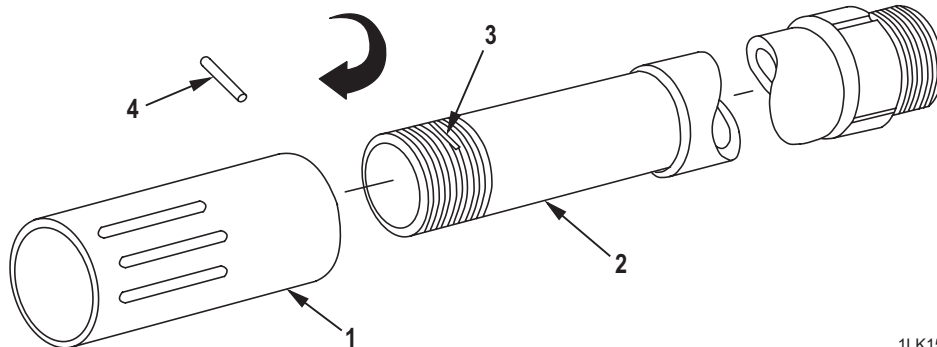
ASSEMBLY

1. INSTALL FLASH SUPPRESSOR AND SLOTTED SPRING PIN.
 - a. Screw the threaded end of the flash suppressor (1) all the way into the smaller end of the barrel (2) until none of the threads are showing. Then slightly reverse rotation of the flash suppressor until both pin holes in the flash suppressor can be seen. This indicates the holes are aligned with the flat (3) threaded surface of the barrel.

NOTE

Be sure to install new slotted spring pin.

- b. Insert a 3/32 inch punch through the pin holes of flash suppressor (1) and barrel (2) to ensure proper hole alignment. Tap in the new slotted spring pin (4) from side opposite punch, ensuring that the flash suppressor is slightly loose. This will not affect its functioning. Ensure the slotted spring pin is equally extended on both sides.

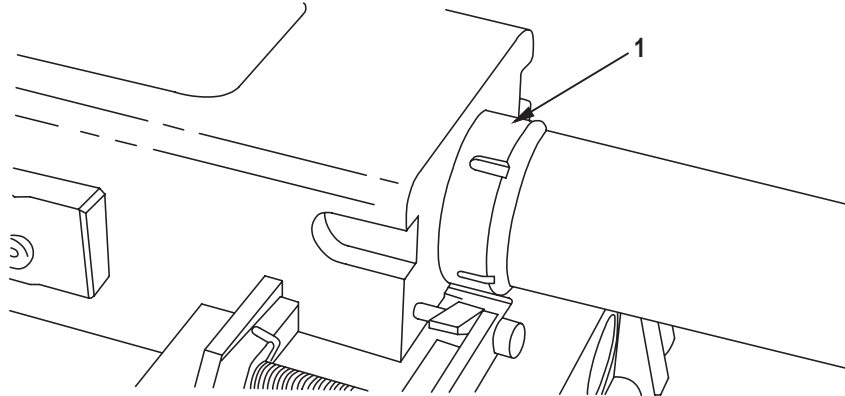


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INSTALLATION

1. INSTALL BARREL.

- a. Screw the larger threaded end of the barrel (1) all the way into the receiver until the barrel is flush against the receiver. Tighten the barrel by tapping the barrel wrench lightly with a hammer in a clockwise direction. Ensure any dents in the barrel do not interfere with functioning.



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END OF WORK PACKAGE

DIRECT SUPPORT

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

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

**MAINTENANCE OF MK19 MACHINE GUN – BOLT AND BACKPLATE ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Combination tool (PN 3269494)
Propane blow torch
Shop set, small arms, field maintenance,
SC 4933-95-A11
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Cotter pin (item 8, WP 0122 00)
Hexagon head self-locking cap screws (3)
(item 15, WP 0122 00)
Nylon point set screw (4) (item 17, WP 0122 00)

Materials/Parts - Continued

Sealing compound (item 11, WP 0121 00)
Self-locking screw (2) (item 18, WP 122 00)
Self-locking socket head cap screw (2) (item 7,
WP 0122 00)
Wiping rag (item 14, WP 0121 00)

References

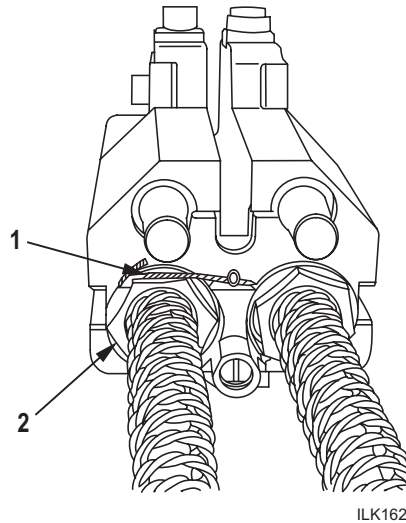
WP 0045 00
WP 0062 00
WP 0067 00
WP 0100 00
WP 0101 00
WP 0102 00

Equipment Conditions

Bolt and backplate assembly removed from
weapon (WP 0040 00)
Bolt and backplate assembly partially
disassembled (WP 0045 00)

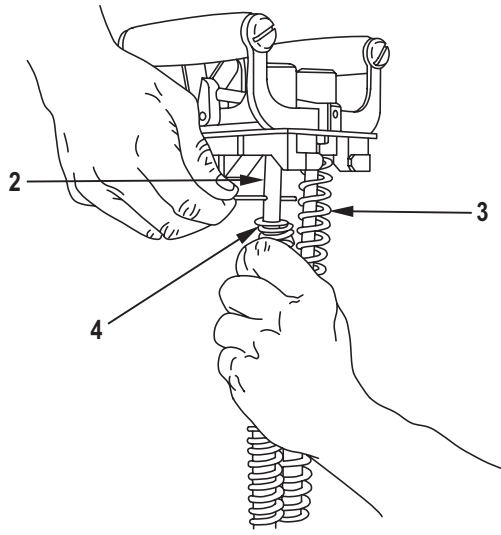
DISASSEMBLY**1. REMOVE NON-ELECTRICAL WIRE.**

- a. Using cutting pliers, clip non-electrical wire (1) from bolt sleeves (2) and remove non-electrical wire.

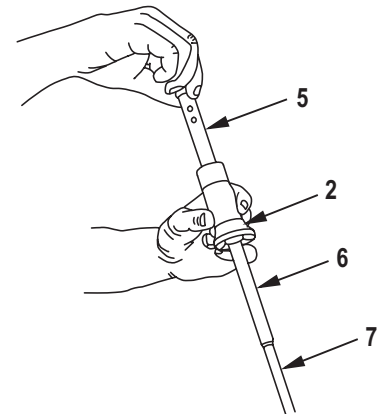
**2. REMOVE BOLT SLEEVES.****NOTE**

Relieve pressure by turning plug counterclockwise.

- a. Using the 1-1/4 inch open-end wrench (on the combination tool), unscrew two bolt sleeves (2) all the way. (A brass-head hammer can be used to tap the wrench to loosen the bolt sleeves first.)
- b. Separate the bolt sleeves (2), helical compression springs (3), spring washers (4), outside tubes (5), middle tubes (6), and inner rods (7).
 - (1) Hold back the helical compression springs (3) while removing the 1/8 inch punch. Slowly release the helical compression springs back to position and remove the spring washers (4) and helical compression springs. Be careful not to lose the spring washers.
 - (2) Tip the bolt sleeves (2) upside down. The bolt sleeves, outside tubes (5), middle tubes (6), and inner rods (7) should slide out together. Set aside the bolt sleeves.
 - (3) Tip the outside tubes (5) to let the middle tubes (6) and inner rods (7) slide out.



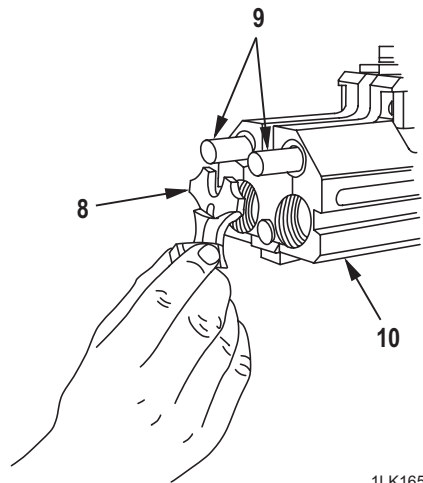
1LK163



1LK164

3. REMOVE LOCK PLATE ASSEMBLY AND BOLT BUFFER ASSEMBLIES.

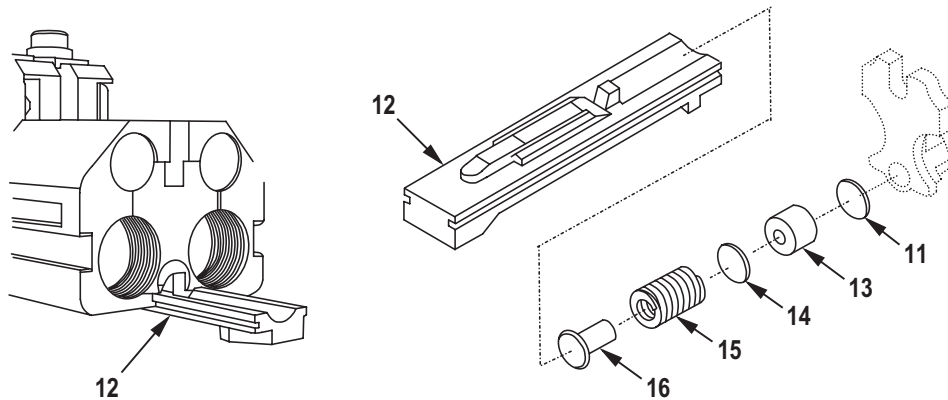
- a. Lift off the lock plate assembly (8). Pull two bolt buffer assemblies (9) from the rear of the bolt (10).



1LK165

DISASSEMBLY - Continued

4. REMOVE BOLT SEAR, BLANK BUFFER WASHERS, SEAR BUFFER, HELICAL COMPRESSION SPRING, AND SEAR BUFFER ROD.
 - a. Remove the blank buffer washer (11).
 - b. With the bolt face down on a flat surface, slide the bolt sear (12) rearward and remove it. Use care not to lose the parts beneath the bolt sear.
 - c. Lift out the sear buffer (13), blank buffer washer (14), helical compression spring (15), and sear buffer rod (16).



1LK166

5. REMOVE FRONT WASHERS.

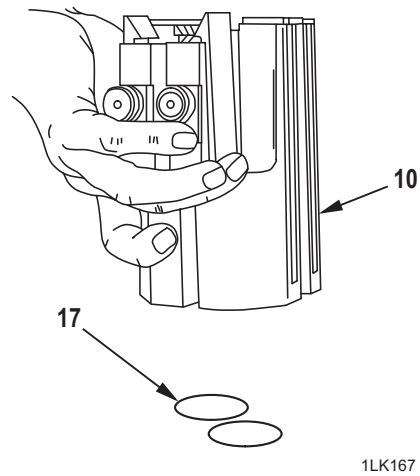
CAUTION

Do not immerse the cam followers in cleaning solvent. Solvent dissolves the greases in the packed bearings.

NOTE

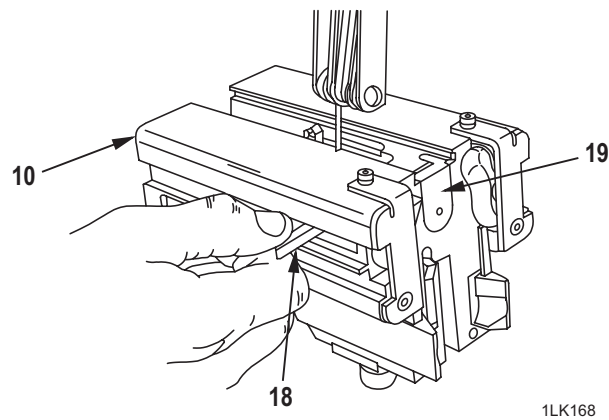
If it is difficult to remove the front washers, first remove the cam followers; then immerse the bolt in cleaning solvent (noting **CAUTION**, above). The washers can then be easily removed.

- a. Remove two front washers (17) from the bolt (10) and discard.



6. REMOVE THE FIRING PIN COVER.

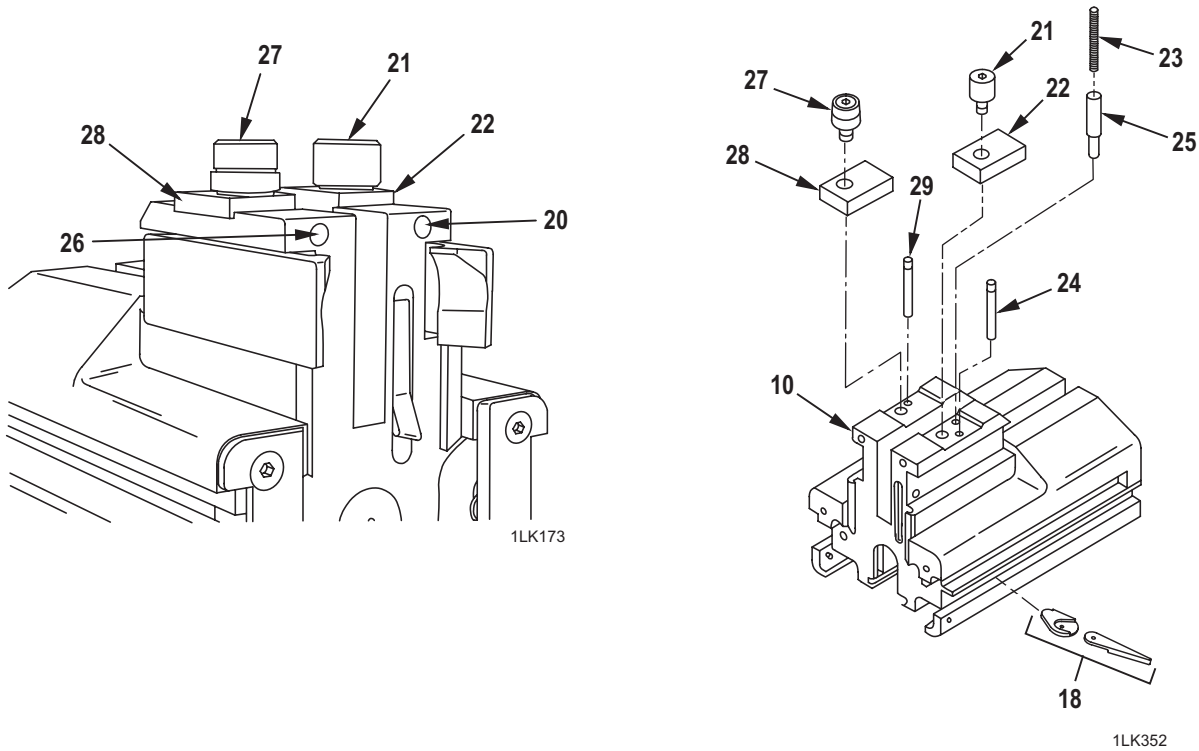
- a. Turn the bolt (10) upside down. Push the cocking lever (18) toward the bolt face to retract the firing pin until it clicks into position. Remove firing pin cover (19).



DISASSEMBLY - Continued**WARNING**

Left side cam follower is under spring tension. Remove carefully.

7. REMOVE LH CAM FOLLOWER, PIN RETAINER, PAWL SPRING, AND HEADLESS GROOVED PIN.
 - a. Loosen nylon point set screw (20) on LH cam follower (21) and pin retainer (22), approximately two turns using a 3/32 inch key wrench.
 - b. Unscrew LH cam follower (21), using 3/16 inch key wrench.
 - c. Lift out the LH cam follower (21), pin retainer (22), pawl spring (23), and headless grooved pin (24).
8. REMOVE SHOULDER PIN.
 - a. Invert bolt (10) and insert 1/8 inch key wrench, cotter pin, or equivalent through access hole in the underside of the bolt.
 - b. Push shoulder pin (25) through the top of the bolt (10) and remove the two-piece cocking lever (18).
9. REMOVE RH CAM FOLLOWER, PIN RETAINER, AND HEADLESS GROOVED PIN.
 - a. Loosen nylon point set screw (26) on RH cam follower (27) and pin retainer (28), approximately two full turns using a 3/32 inch key wrench.
 - b. Unscrew RH cam follower (27), using 3/16 inch key wrench.
 - c. Lift out the RH cam follower (27), pin retainer (28), and headless grooved pin (29).

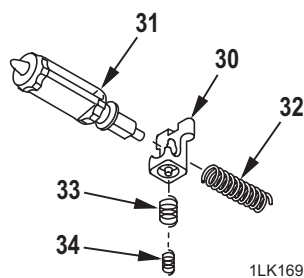


10. REMOVE FIRING PIN AND FIRING PIN SEAR.

WARNING

The firing pin is under spring tension. Always shield the tip of the firing pin whenever it is exposed and cocked. This will prevent injury if the firing pin sear is accidentally depressed.

- a. Tip the bolt (10). Depress the firing pin sear (30) using the combination tool. This will release the firing pin (31). Remove the firing pin, helical compression spring (32), firing pin sear, sear spring (33), and inner sear spring (34).



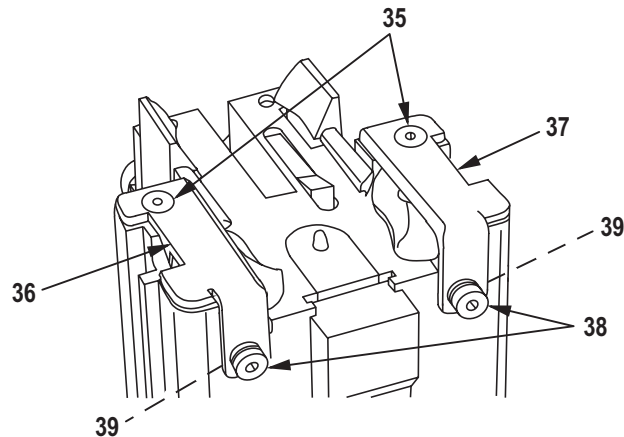
DISASSEMBLY - Continued

11. REMOVE SELF-LOCKING SCREWS, SELF-LOCKING SOCKET HEAD CAP SCREWS, NYLON POINT SET SCREWS, AND LEFT-HAND (LH) AND RIGHT-HAND (RH) COVER.

NOTE

The two self-locking screws, two self-locking socket head cap screws, and nylon point set screws must be discarded each time they are removed and must be replaced with new ones.

- a. Using a 1/8 inch key wrench, remove the two self-locking screws (35) on the front face of LH and RH covers (36 and 37).
- b. Using a 5/32 inch key wrench, remove the two self-locking socket head cap screws (38) on the underside of LH and RH covers (36 and 37).
- c. Lift off LH and RH covers (36 and 37).
- d. Using the 3/32 inch key wrench, remove the two nylon point set screws (39) and discard. Be sure to remove the nylon tip from each hole.

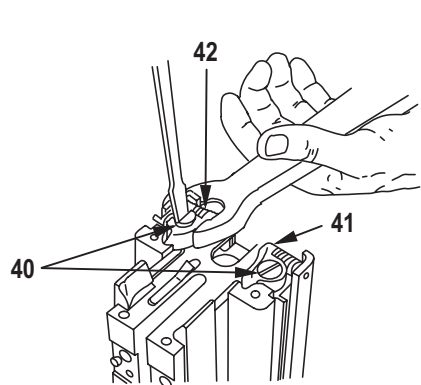


12. REMOVE SLOTTED HEAD SHOULDER BOLTS, RH AND LH BOLT FINGERS, AND FINGER SPRINGS.

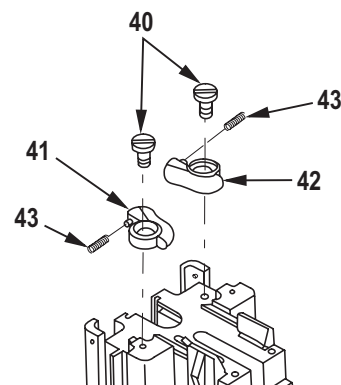
CAUTION

Do not use a small screwdriver or screw head damage will occur.

- a. Unscrew both slotted head shoulder bolts (40) using a large screwdriver; compress LH and RH bolt fingers (41 and 42) with the open wrench on the combination tool.
- b. Lift off LH and RH bolt fingers (41 and 42) and two finger springs (43).



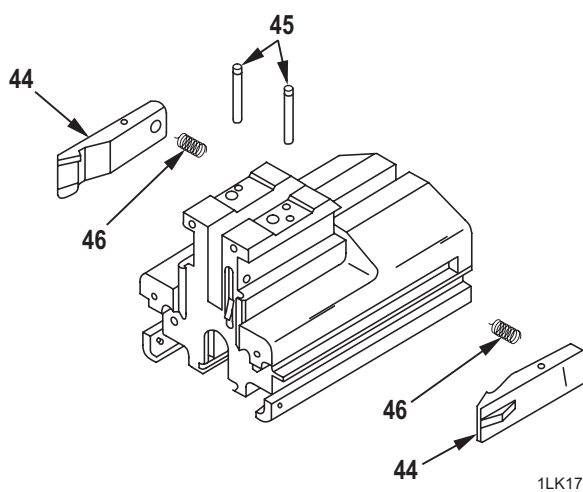
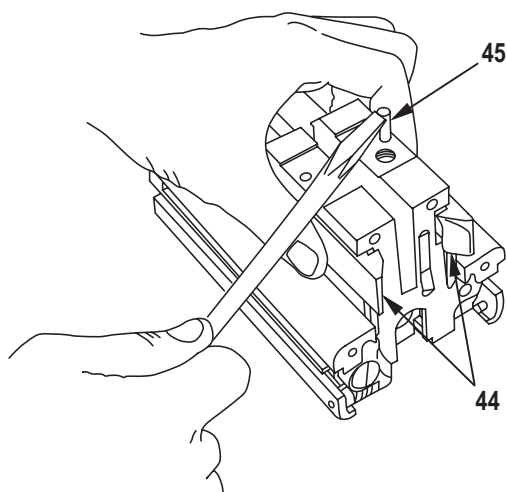
1LK171



1LK172

13. REMOVE HEADLESS GROOVED PINS, HELICAL COMPRESSION SPRINGS, AND CARTRIDGE EXTRACTORS.

- a. While pushing inward on the rear of the cartridge extractor (44), retract the headless grooved pin (45) using a screwdriver tip.
- b. Pull out headless grooved pin (45).
- c. Lift off helical compression spring (46).
- d. Repeat steps a through c on other side.

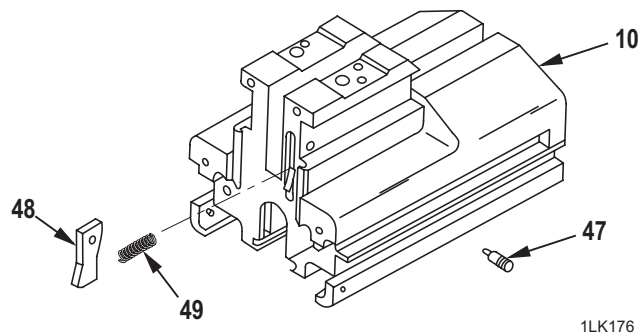


1LK175

DISASSEMBLY - Continued**14. REMOVE PAWL, SHOULDER PIN, AND HELICAL SPRING.****NOTE**

The shoulder pin is held in place with locking compound. Heat is required to remove. Do not remove the pawl, helical spring, or shoulder pin except as required for parts replacement.

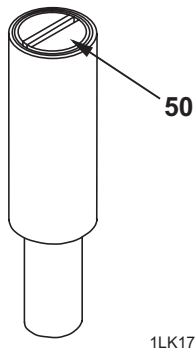
- a. Using a propane blow torch, lightly heat the area around the shoulder pin (47) until it can be removed.
- b. Unscrew the shoulder pin (47), using a 1/4 inch, flat-blade screwdriver. Remove the shoulder pin, the pawl (48), and helical spring (49) from the bolt (10).

**15. DISASSEMBLE THE BOLT BUFFER ASSEMBLIES (MARINE CORPS ONLY).****NOTE**

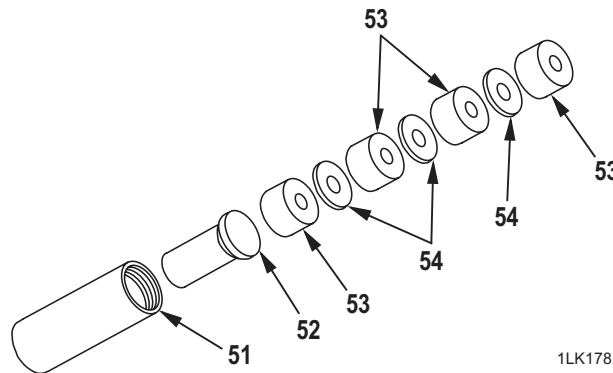
Do not routinely disassemble the bolt buffer assemblies. If they are accidentally immersed in solvent replace the bolt buffer assembly. If the bolt buffers need replacement due to excessive recoil (high trunnion load), disassemble them as follows. Ensure all parts are dry and not lubricated when reassembling.

The cap is staked.

- a. Place the bolt buffer assembly in a copper-jawed vise, cap side up. Remove the bolt buffer cap (50) using a large flat-blade screwdriver.



- b. Turn the buffer body upside down in a vise. Place a towel over the bolt buffer body (51) to protect the bolt buffer plunger (52). Using the 3/8 inch diameter punch, carefully push out four recoil mechanism buffers (53) and three spring washers (54), being careful not to damage washers.



REPAIR OR REPLACEMENT

1. GENERAL INSPECTION OF BOLT AND BACKPLATE ASSEMBLY.

- a. Inspect the bolt and backplate assembly each time it is detail stripped, as follows:
- (1) Measure the length of all springs as listed in WP 0062 00, using a dial caliper to measure any spring under 6 inches long. Use a tape measure to measure springs more than 6 inches.
 - (2) Inspect the general condition of all parts, especially those noted below. Make repairs/replacements as authorized in WP 0100 00, WP 0101 00, and WP 0102 00.
 - (3) Always adjust the bolt timing (WP 0067 00) upon reassembly of the bolt.

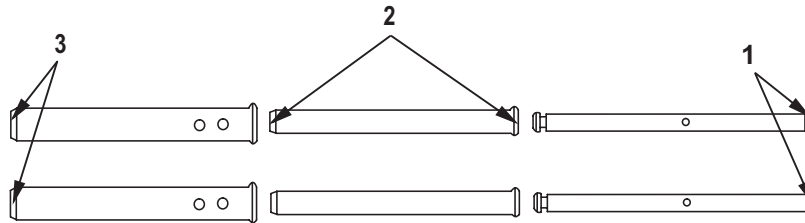
2. INSPECT BACKPLATE.

- a. Inspect straight pin, manual trigger plate, and operating rod. Examine the edges of the trigger plate for burrs. Remove burrs with a stone and preserve with lubricant. Replace the straight pin, trigger plate, or operating rod if damaged or worn. Inspect for rust. Remove rust with lubricant and cloth. Preserve with a light coat of lubrication.
- b. Examine handle components for burrs, cracks, damaged, or broken components. Remove any burrs. Replace damaged or broken components.
- c. Examine body and backplate for burrs or rust. Remove any rust. Replace if bent, cracked, or broken.

REPAIR OR REPLACEMENT - Continued**3. INSPECT BOLT.**

- a. Inspect inner rods (1), middle tubes (2), and outside tubes (3).

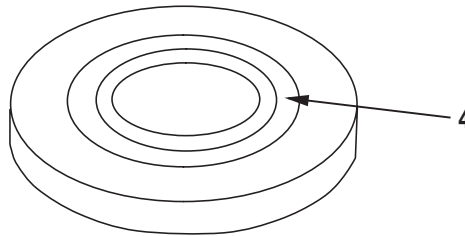
- (1) Inspect for burrs, especially around the openings of the tubes and rods. Remove burrs, using a stone and preserve with a lubricant. If a rod or tube is bent, install a new one. Ensure that rods and tubes slide freely upon assembly without binding.



1LK180

- b. Inspect front washers (4).

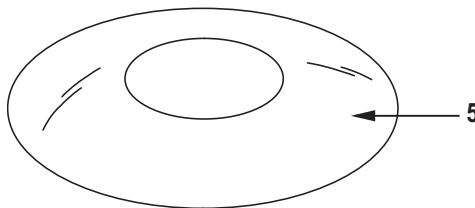
- (1) Visually inspect the round grooves in the two front washers. If the groove in either front washer is more than halfway through the washer (1/16 inch deep), replace both front washers with new ones.



1LK181

- c. Inspect spring washers (5).

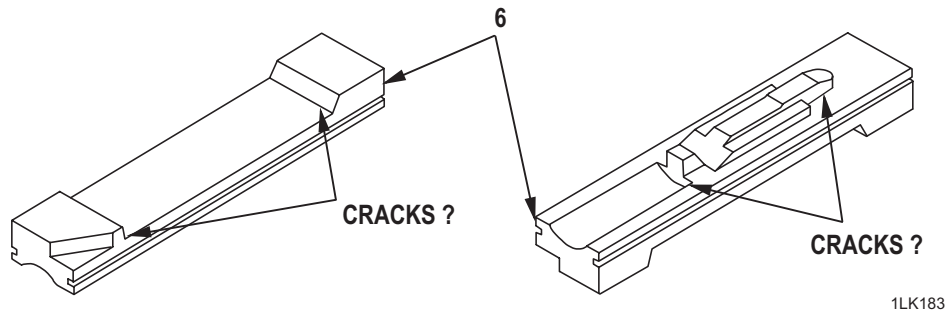
- (1) Inspect for radial cracks from the outside in. If either of the spring washers is cracked, badly worn, or shows signs of rust, replace both spring washers with new ones.



1LK182

d. Inspect bolt sear (6).

- (1) Inspect for cracks on the raised inside edge of the bolt sear, as shown. If cracked in this area, install a new bolt sear. Whenever a new bolt sear is installed, also install a new receiver sear. Whenever the bolt sear is removed or a new one is installed, check and adjust the bolt's timing (WP 0067 00) prior to reassembly.



e. Inspect cam followers (7).

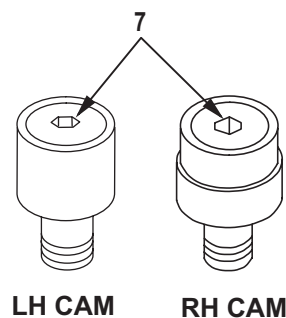
CAUTION

Do not immerse cam followers in cleaning solvent or use a high pressure spray. Solvent dilutes the grease in the packed bearings in these assemblies. To clean, wipe with a rag.

NOTE

When wear on the head of the cam follower is severe enough to cause the inside roller not to turn, replace the RH cam follower.

- (1) During maintenance procedures or replacement of the LH cam follower:
 - (a) If the plug is installed, ensure plug is flush and staked in place.
 - (b) If plug is present but not installed, discard. (If plug is not present, cam follower is still serviceable.)



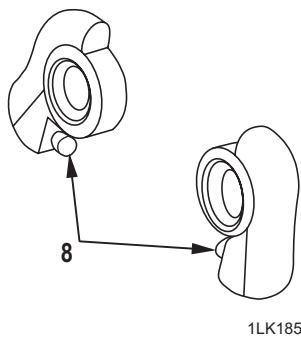
1LK184

- (2) Ensure no rust is present. If rust is seeping from the interior of either cam follower or if cam follower is accidentally immersed in solvent or water, install new ones. Remove exterior rust with lubricant and wiping rag.

REPAIR OR REPLACEMENT - Continued

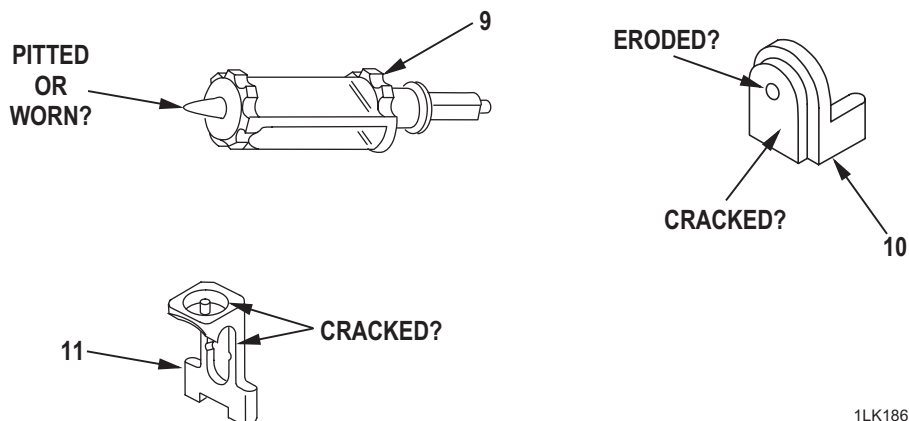
f. Inspect bolt fingers.

- (1) Ensure the welded pins (8) are not broken on either bolt finger. If pin is broken on either bolt finger, replace bolt finger.



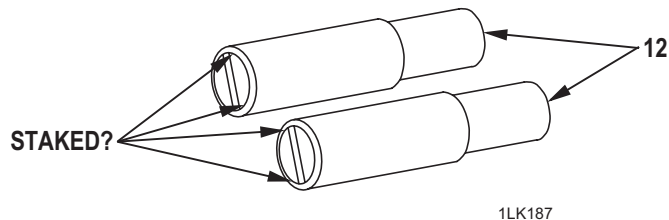
g. Inspect firing pin (9), firing pin cover (10), and firing pin sear (11).

- (1) If damaged, as shown, install new component.



h. Inspect bolt buffer assemblies.

- (1) Disassemble only if the assemblies have been accidentally immersed in water or solvent, are oozing rust, or when troubleshooting excess recoil. Ensure the interior of bolt buffer bodies (12) are clean and dry. Do not lubricate before reassembling. Using a sharp knife, trim any material extruded beyond the ends of the bolt buffers. Ensure each cap is staked to the internal threads of the bolt buffer body.



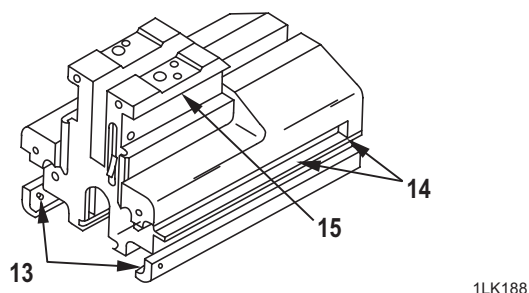
i. Inspect bolt.

- (1) Make sure the welded pins (13) on the lower sides of the bolt are not broken. If either pin is broken, replace the bolt. Check all accessible surfaces (14) for burrs. Deburr any rough edges with a stone and preserve with a lubricant.

NOTE

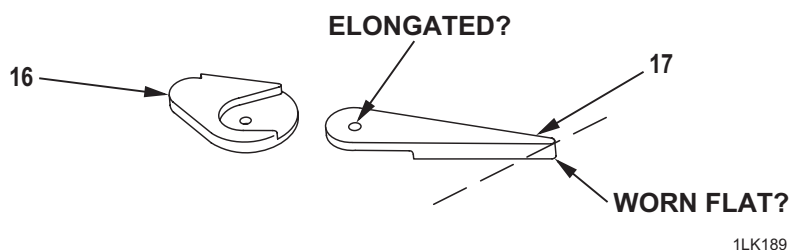
Where erosion is severe enough to interfere with the function of the round being fed into the bolt fingers or the rear of the slot is deformed more than 50 percent of its depth, replace the bolt.

Breakthrough/bulge of the cocking lever pin retaining spring hole (15) under the LH cam recess is not cause for rejection.



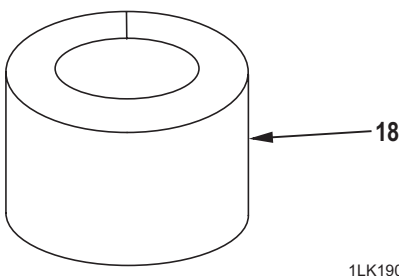
j. Inspect cocking lever (16) and cocking cam (17).

- (1) Measure the amount of wear on the inside of the tip using a dial caliper. If the length of the flat exceeds 0.100 inch, discard the cocking lever and install a new one.



k. Inspect sear buffer (18).

- (1) Using a sharp knife, trim away any material extruded beyond the ends. Do not remove any material from the diameter. The part will be reassembled as removed.



ASSEMBLY**WARNING**

To avoid injury, appropriate eye protection is recommended when cleaning the weapon and/or its parts.

CAUTION

Do not immerse the following components in cleaning solvent: cam followers, sear buffer, and bolt buffer assemblies (while assembled). Solvent damages these components. To clean, wipe with a rag.

Do not lubricate the components inside the bolt buffer assemblies. Any oil in these assemblies will cause excess recoil in the weapon.

NOTE

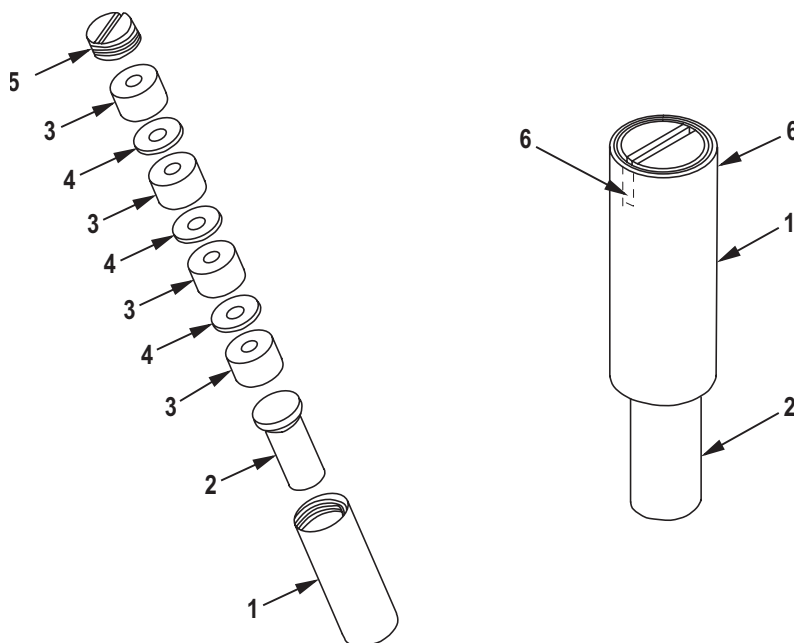
All components, except those noted in the **CAUTION** above, should be cleaned and lubricated prior to assembly.

1. ASSEMBLE THE BOLT BUFFER ASSEMBLIES (MARINE CORPS ONLY).

CAUTION

Do not immerse the bolt buffer assemblies in water or solvent. Do not lubricate the internal parts. Ensure all parts are clean, dry, and not lubricated when assembling.

- a. Place the bolt buffer body (1) in a copper-jawed vise, threaded end upward.
- b. Insert the narrow end of the bolt buffer plunger (2) into the bolt buffer body (1).
- c. Alternate the four recoil mechanism buffers (3) and three spring washers (4) on top of the bolt buffer plunger (2), exactly in the order shown. Push them down all the way, using a large punch covered with a towel.
- d. Install the bolt buffer cap (5) and tighten with a 1/2 inch screwdriver until the bolt buffer cap is flush with the bolt buffer body (1). Using a center punch, stake the inside of the slot (6) in the bolt buffer cap to the thread of the bolt buffer body in one place.



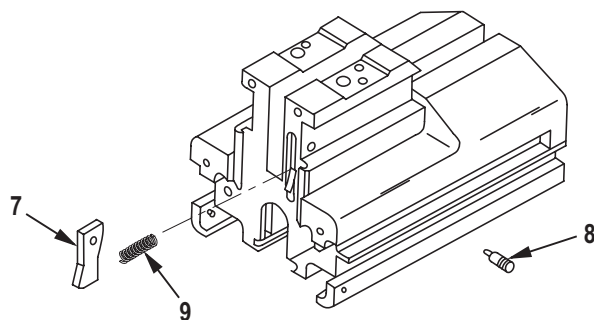
1LK192

2. INSTALL THE HELICAL SPRING, PAWL, AND SHOULDER PIN.

WARNING

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.

- Using dry cleaning solvent, clean the threads of the pawl (7) and shoulder pin (8) before installation.
- Insert the pawl (7) into the access groove with the helical spring (9). Hold pawl and helical spring in place while inserting and slightly tightening the shoulder pin (8), using a 1/4 inch flat-blade screwdriver.
- Apply sealing compound (item 11, WP 0121 00) to the remaining threads of the shoulder pin (8). Tighten securely.



1LK193

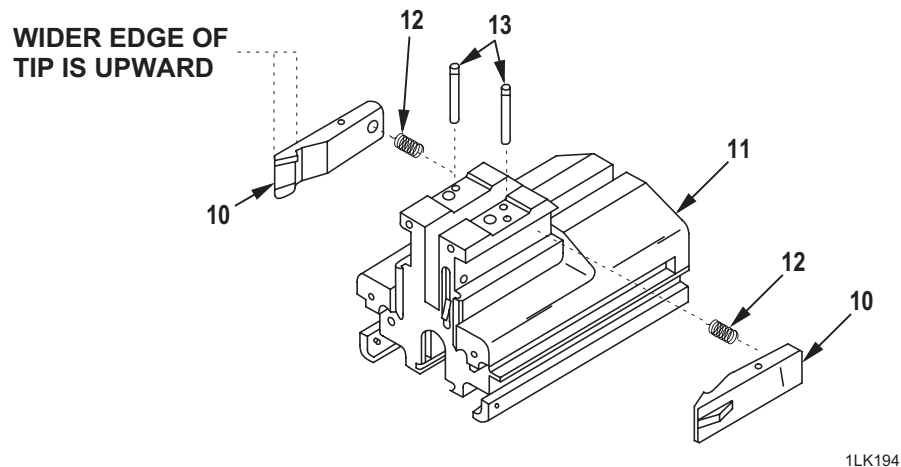
ASSEMBLY - Continued

3. INSTALL THE HELICAL COMPRESSION SPRINGS, CARTRIDGE EXTRACTORS, AND HEADLESS GROOVED PINS.

NOTE

The LH cartridge extractor has a raised portion on its outside flat surface.

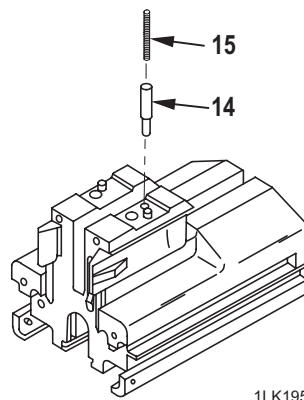
- Position the cartridge extractor (10) against the side of the bolt (11) so the helical compression spring (12) fits into the hole in the cartridge extractor. The wider edge of the tip should be upward.
- Push in the cartridge extractor (10) and insert the headless grooved pin (13) into the access hole in the top of the bolt (11). Ensure the headless grooved pin is pushed all the way in and holds the cartridge extractor in place.
- Repeat this procedure for the other side.



1LK194

4. INSTALL THE SHOULDER PIN AND PAWL SPRING.

- Drop the shoulder pin (14) into the top of the bolt so the shouldered pin's tapered diameter end is down.
- Place the pawl spring (15) on top of the shoulder pin (14). The pawl spring should stick up slightly.



1LK195

5. INSTALL PIN RETAINERS, RH AND LH CAM FOLLOWERS, AND NYLON POINT SET SCREWS.

- a. Place the LH pin retainer (16) on top of the bolt (11), holes aligned.

NOTE

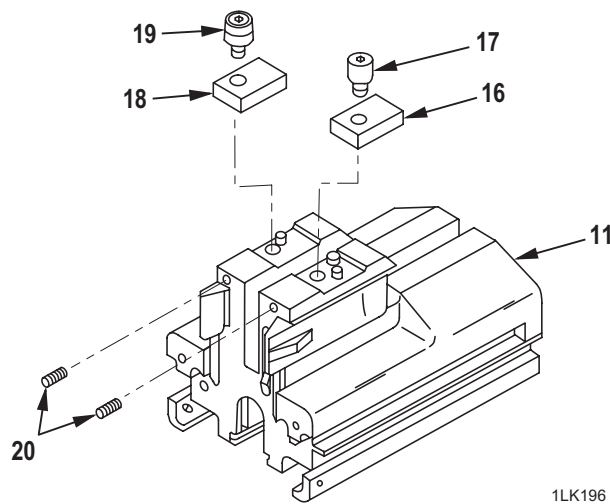
The RH cam follower is divided to roll in two directions. Be sure to install it on the RH side.

- b. Insert the LH cam follower (17) into the LH pin retainer (16) and tighten with a 3/16 inch key wrench. Ensure the pin retainer does not slip out of place while the cam follower is being tightened. Repeat for the RH pin retainer (18) and cam follower (19). Lubricate the RH cam follower only.

CAUTION

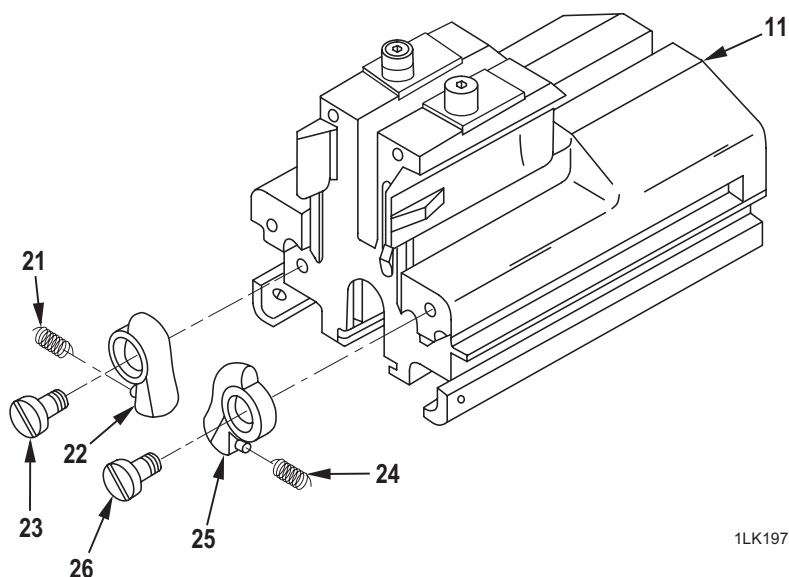
Do not over tighten the nylon point set screws. Too much pressure will strip the heads.

- c. Install two new nylon point set screws (20) on upper face of bolt (11), using a 3/32 inch key wrench.



ASSEMBLY - Continued

6. INSTALL FINGER SPRINGS, RH AND LH BOLT FINGERS, AND SLOTTED HEAD SHOULDER BOLTS.
 - a. Install the ends of the finger spring (21) between the welded pin on the RH bolt finger (22) and the pin on the bolt (11).
 - b. Using open end wrench on combination tool, squeeze the finger spring (21) and RH bolt finger (22) against the front of the bolt (11). Install and tighten the slotted head shoulder bolt (23) using a large flat-headed screwdriver.
 - c. Install the ends of the finger spring (24) between the welded pin on the LH bolt finger (25) and the pin on the bolt (11).
 - d. Using open end wrench on combination tool, squeeze the finger spring (24) and LH bolt finger (25) against the front of the bolt (11). Install and tighten the slotted head shoulder bolt (26) using a large flat-headed screwdriver.



7. INSTALL NYLON POINT SET SCREWS, RH AND LH COVERS, SELF-LOCKING SCREWS, AND SELF-LOCKING SOCKET HEAD CAP SCREWS.

NOTE

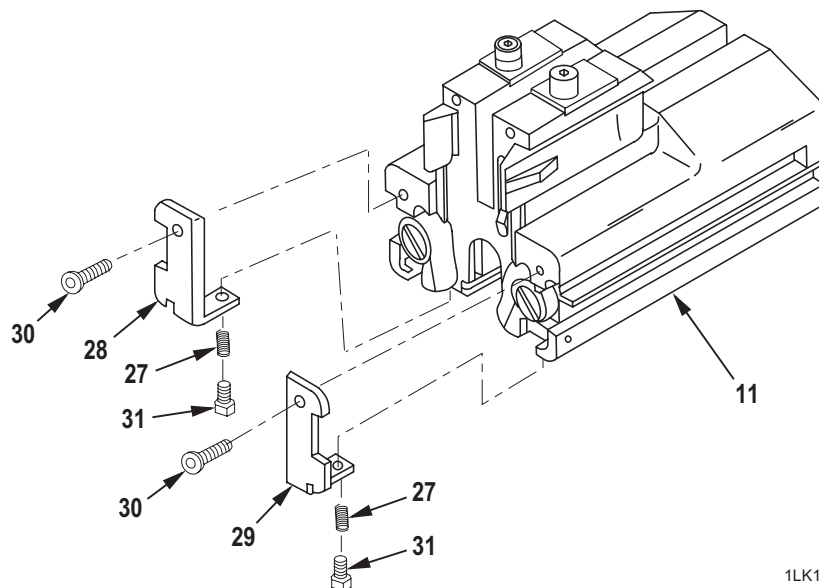
Be sure to install new self-locking screws, self-locking socket head cap screws, and nylon point set screws.

- a. Install two new nylon point set screws (27) into the bottom of the bolt (11), using a 3/32 inch key wrench.
- b. Hold either the LH or RH cover (28 or 29) in place on the front of the bolt, screw holes aligned.

NOTE

Tighten self-locking screws first or covers will be misaligned.

- c. Insert new self-locking screws (30) and tighten with the 1/8 inch key wrench. Insert new self-locking socket head cap screws (31) and tighten with 5/32 inch key wrench.
- d. Repeat for other cover.



1LK198

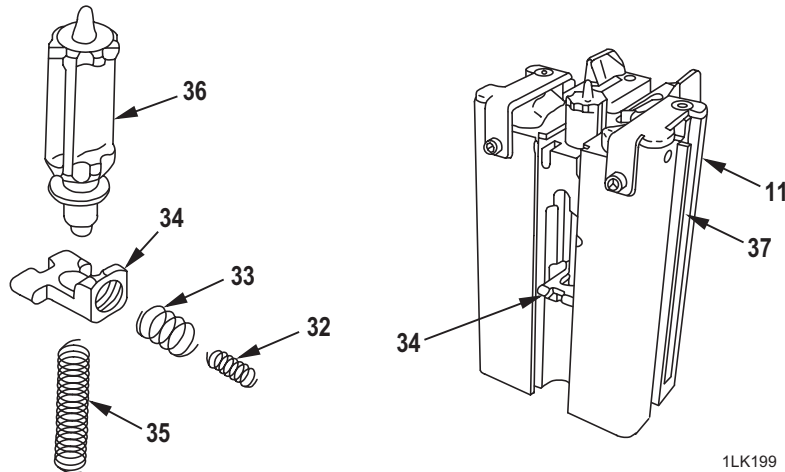
ASSEMBLY - Continued

8. INSTALL INNER SEAR SPRING, SEAR SPRING, FIRING PIN SEAR, FIRING PIN, AND HELICAL COMPRESSION SPRING.

NOTE

Ensure the firing pin, firing pin sear, bolt sear, and mating bolt surface are well lubricated during assembly.

- Turn the bolt (11) face up and install inner sear spring (32) and sear spring (33) into the firing pin sear (34).
- Install the firing pin sear (34) with assembled springs (32 and 33) into the center of the bolt (11), in the position shown.
- Push down on the firing pin sear (34) and insert the helical compression spring (35). Install the firing pin (36) in front of the helical compression spring, aligning the slot in the firing pin with the cocking lever slot (37) in the bolt. Release the firing pin sear.



9. INSTALL THE COCKING LEVER AND FIRING PIN COVER.

WARNING

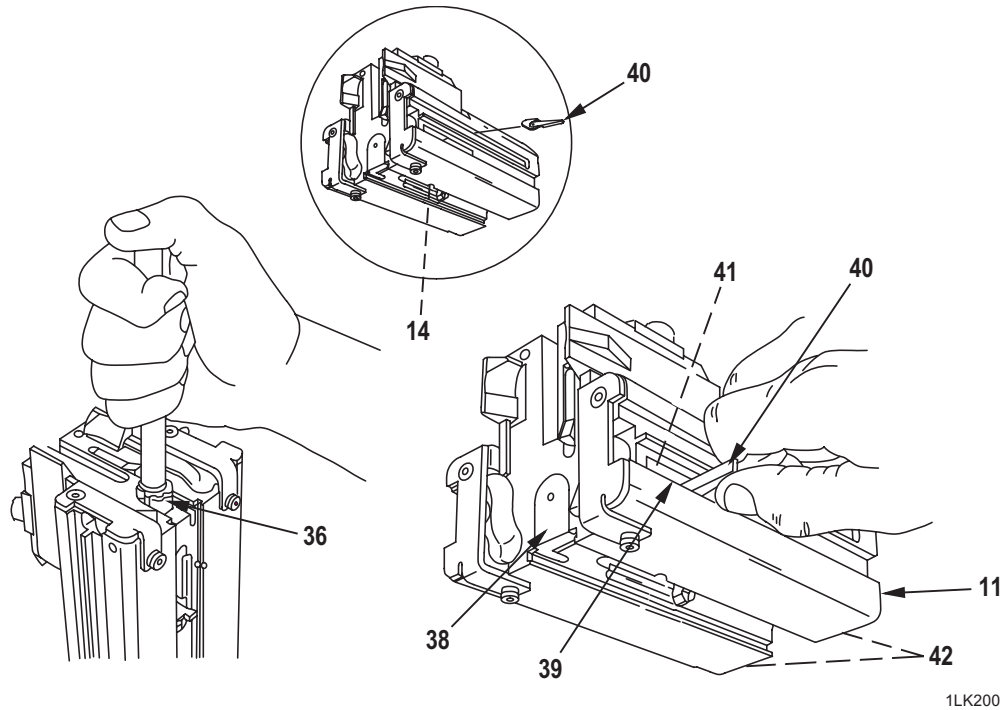
The firing pin is under heavy spring tension. Always shield the tip of the firing pin whenever it is exposed and cocked. This will prevent injury if the firing pin sear is accidentally depressed.

- Using the middle tube of the gun or caliber .50 cleaning rod T-section handle, depress the firing pin (36) until it clicks into the cocked position.
- Observing the **WARNING** above, install the firing pin cover (38) all the way over the firing pin (36).
- Using a 1/4 inch flat-blade screwdriver, align the firing pin slot with the slot (39) in the bolt (11).
- Using a 3/32 inch key wrench, depress the shoulder pin (14).

- e. Insert the assembled two-piece cocking lever (40) so the inside curve is against the side of the bolt (11). Release the shoulder pin (14). Be sure the shoulder pin passes through the hole in the cocking lever.
- f. Ensure the firing pin cover (38) is in place. Depress the firing pin sear (41) to release the firing pin forward. This relieves tension on the helical compression spring and sear springs.

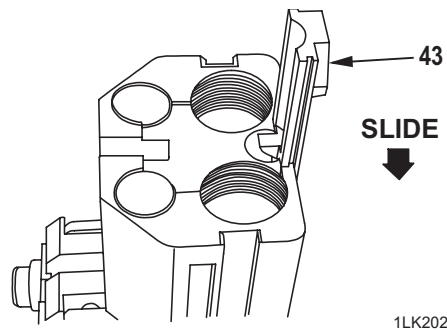
10. INSTALL THE TWO FRONT WASHERS.

- a. Install two new front (plastic) washers (42), if removed.



11. INSTALL THE SEAR BUFFER ROD, HELICAL COMPRESSION SPRING, SEAR BUFFER, AND BLANK BUFFER WASHERS.

- a. Ensure the firing pin is not cocked. While holding the cocking lever forward, slide the bolt sear (43) forward into the bolt's center groove from the rear, so the bolt and bolt sear form a hole, as shown.

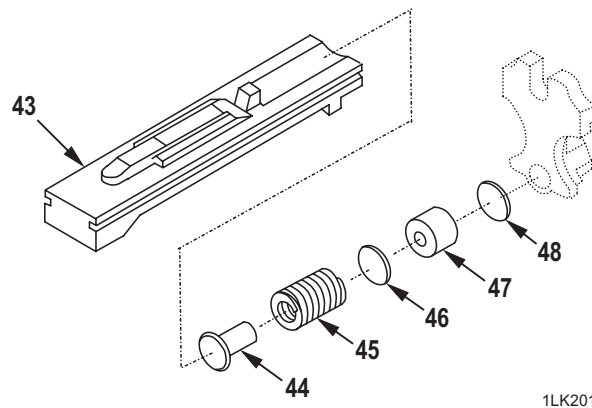


ASSEMBLY - Continued**NOTE**

Before continuing assembly of the bolt and backplate assembly, perform the bolt timing procedure in WP 0067 00.

- b. Insert the following components in sequence into the hole created by the bolt and bolt sear (43):

sear buffer rod (44) (head end first),
helical compression spring (45),
blank buffer washer (46),
sear buffer (47), and
blank buffer washer (48).



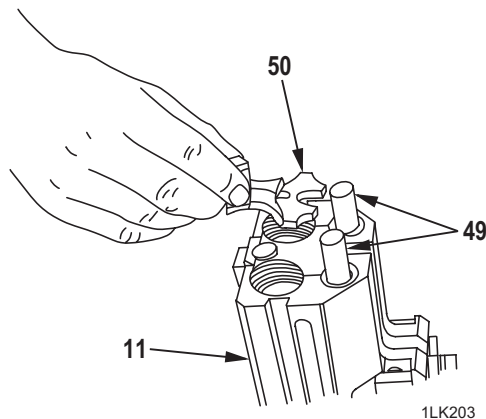
12. **INSTALL THE BOLT BUFFER ASSEMBLIES AND LOCK PLATE ASSEMBLY INTO THE BOLT.**

- a. Insert the cap end (wider end) of each bolt buffer assembly (49) into the rear of the bolt (11).

NOTE

Ensure bolt buffer body does not extend beyond rear of bolt.

- b. Lay the lock plate assembly (50) on the rear center of the bolt (11) with the cutouts aligned.

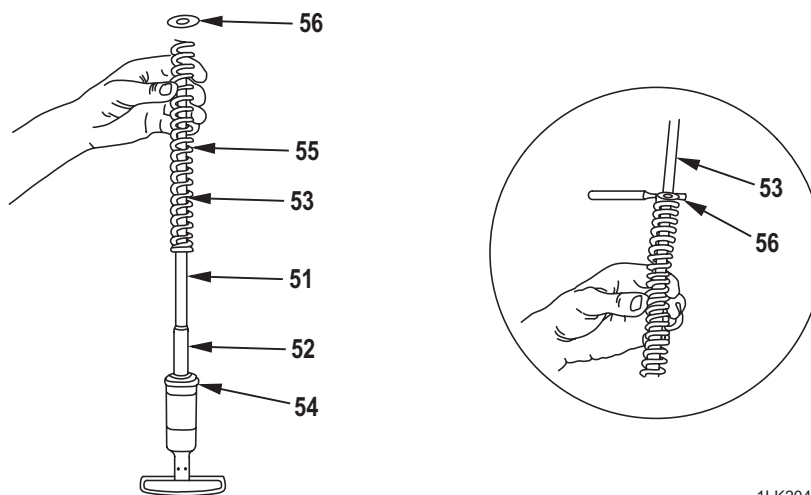


13. ASSEMBLE THE MIDDLE TUBES, OUTSIDE TUBES, INNER RODS, HELICAL COMPRESSION SPRINGS, AND BOLT SLEEVES.

CAUTION

When installing, be certain not to cross-thread the bolt sleeves.

- a. Slide middle tube (51) into outside tube (52).
- b. Slide inner rod (53) into middle tube (51).
- c. Slip the small end of the caliber .50 cleaning rod T-section handle through the rods and tubes to hold them in place.
- d. Slide bolt sleeves (54) over rods and tubes.
- e. Slip the helical compression spring (55) over the entire assembly.
- f. Compress the helical compression spring (55) on both sides and slip the spring washer (56) over the end of the inner rod (53). Be sure the convex side of the washer is seated against the helical compression spring.
- g. Insert a 1/8 inch punch, cotter pin or equal, into the hole to hold the helical compression spring (55) in place.
- h. Repeat steps a through g on other side.



1LK204

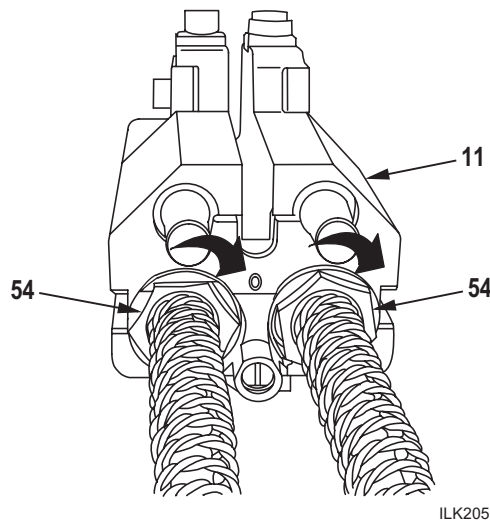
ASSEMBLY - Continued**14. INSTALL THE BOLT SLEEVES INTO THE BOLT.**

- a. Ensure the front washers (56) are in the bolt (11). Insert the bolt sleeves (54) into the round cutouts in the bolt and over the front washers.

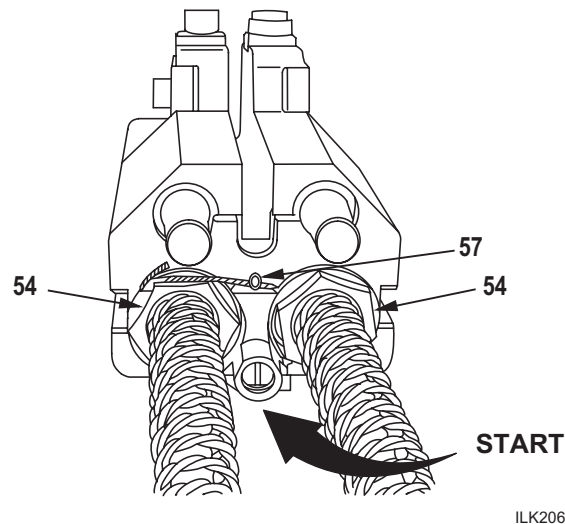
NOTE

If bolt sleeves cannot be threaded into bolt, back off lock plate screw (**COUNT CLICKS**). Start to thread the bolt sleeves into bolt. Tighten lock plate screw the same number of clicks as were backed off.

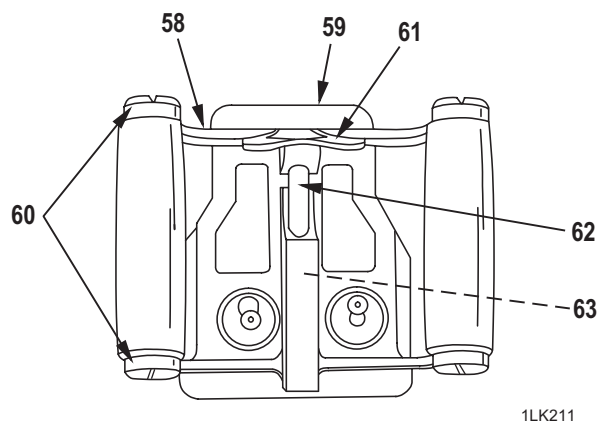
- b. Using the open-end wrench on the combination tool, alternately tighten each bolt sleeve (54) one full turn at a time until both are snug.

**15. SAFETY WIRE THE BOLT SLEEVES.**

- a. Using non-electrical wire (57), safety wire the bolt sleeves (54) from bottom right to top left as shown in illustration.



16. AFTER ASSEMBLY OF BACKPLATE ASSEMBLY (WP 0045 00), PERFORM FOLLOWING INSPECTION.
- Ensure the body mounting plate (58) does not move relative to the backplate (59).
 - Check that machine screws (60) are well staked to the staking slots in the body mounting plate (58).
 - Ensure the trigger action is snappy and the manual trigger plate (61) springs back when released. If binding, inspect for burrs and blockage where the operating rod (62) contacts the body mounting plate (58). If the manual trigger plate does not spring back, replace the helical compression spring (63).



17. ATTACH CONTROL GRIP ASSEMBLY (SEE WP 0045 00).
18. THE CONTROL GRIP ASSEMBLY CAN NOW BE ATTACHED TO THE INNER RODS AND THE ENTIRE ASSEMBLY INSERTED INTO THE RECEIVER.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF BOLT AND BACKPLATE ASSEMBLY - BOLT TIMING**

INITIAL SETUP:**References**

WP 0056 00

WP 0066 00

GENERAL

Timing is the maximum forward movement of the bolt after the firing pin releases.

PURPOSE

Accurate timing will ensure that the firing pin strikes the primer at the proper moment.

NOTE

Bolt timing should be adjusted when the weapon fires sluggishly or erratically, when the bolt is detail disassembled, or when the following components are installed new: firing pin, firing pin sear, lock plate assembly, bolt sear, sear buffer rod, blank buffer washers, and sear buffer.

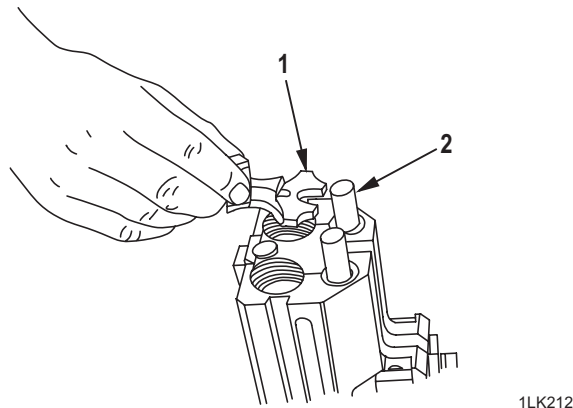
TIMING PROCEDURE

1. ADJUST BOLT TIMING.

NOTE

Be sure the firing pin mechanism and the contact surfaces between the bolt and bolt sear are well lubricated before adjusting the bolt's timing.

- a. Remove bolt and backplate assembly from the weapon (WP 0056 00).
- b. Remove non-electrical wire (WP 0066 00).
- c. Unscrew both bolt sleeves (WP 0066 00).
- d. Lift off the lock plate assembly (1). Remove both bolt buffer assemblies (2).

**NOTE**

To aid in reassembly, mark top side of sear buffer during removal.

Ensure sear buffer rod, blank buffer washer, sear buffer, and blank buffer washer are well lubricated prior to adjustment of bolt timing.

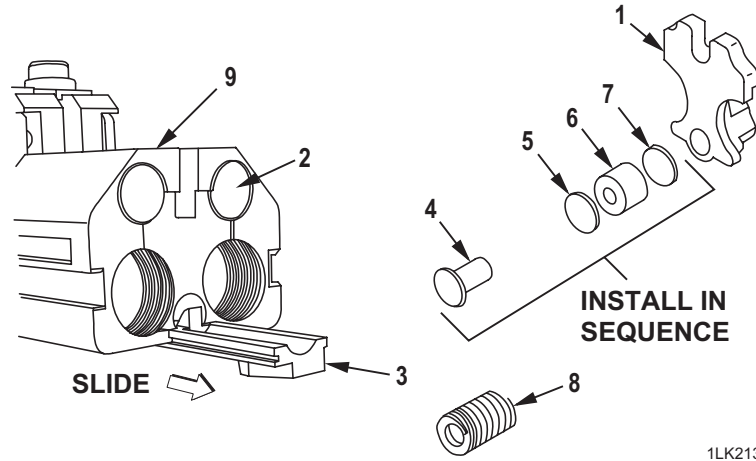
- e. Slide the bolt sear (3) rearward. Remove sear buffer rod (4), blank buffer washer (5), sear buffer (6), blank buffer washer (7), and helical compression spring (8). Lay the helical compression spring aside. Assemble the other components into the bolt as follows:

NOTE

Use end of middle tube to seat components 4 through 7 into bolt.

- (1) Install sear buffer rod (4) (head end first) into the bolt (9).
- (2) Install blank buffer washer (5) into the bolt (9).
- (3) Install sear buffer (maintaining previous assembly orientation) (6) into the bolt (9).
- (4) Install blank buffer washer (7) into the bolt (9).

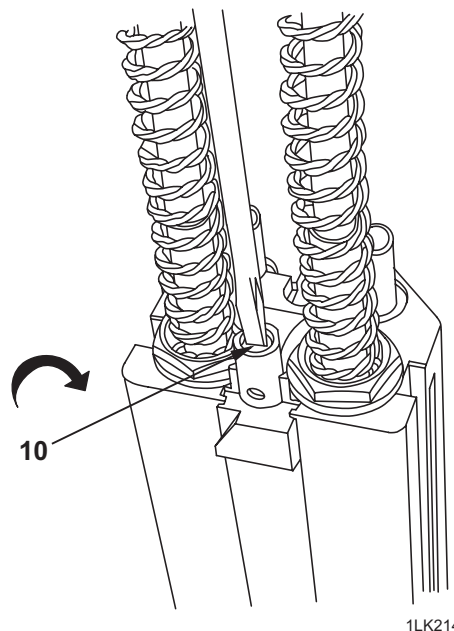
- (5) Install bolt buffer assemblies (2) into the bolt (9).
- (6) Unscrew adjusting screw (10) of lock plate assembly (1) to flush. Ensure the end of the adjusting screw is tightened 10 clicks beyond flush with the lock plate assembly. Install lock plate assembly into bolt (9).



NOTE

If completely assembled, install original bolt sleeves instead of the whole assembly.

- f. Reinstall bolt sleeves, helical compression springs, and inner rods (do not need to be attached) back into the bolt (WP 0066 00).
- g. Using the open end wrench on the combination tool, alternately tighten each bolt sleeve one full turn at a time until both are snug.
- h. Using a flat-tip 1/4 inch screwdriver and starting from 10 clicks beyond flush, tighten the adjusting screw (10) on the lock plate assembly (1) clockwise for 12 more clicks (for a total of 22 clicks).



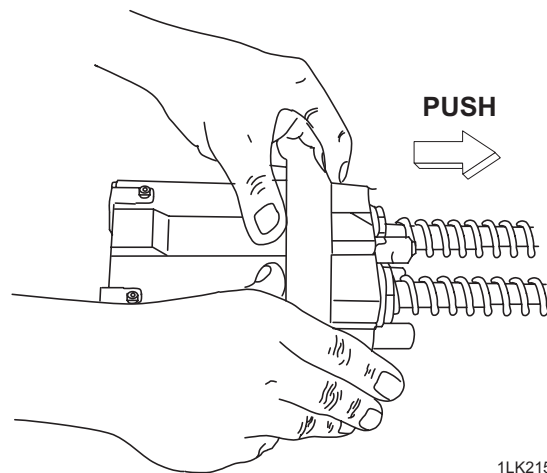
TIMING PROCEDURE - Continued

- i. Cock the cocking lever toward the bolt face until it clicks.

WARNING

To avoid injury, keep fingers clear of the cocking lever when the firing pin fires.

- j. Ensure the bolt is lying face down. To adjust the timing properly, it must be in this position.
- k. Using the flat surface of the combination wrench, place it horizontally to the bolt sear and push rearward. Observe the **WARNING** above; note whether or not the bolt sear causes the firing pin to fire. If bolt fires, go to step l. If bolt does not fire, go to step n.
- l. If pulling the bolt sear rearward caused the firing pin to fire, tighten the adjusting screw (10) ONE CLICK AT A TIME, push the sear forward, cock the firing pin, and try to fire, until pushing the bolt sear rearward will not cause the firing pin to fire. Test the accuracy of the findings by loosening the screw one click (pin should fire), then tightening one click back to position (pin should not fire). Repeat several times.
- m. Loosen one click and fire. Then loosen the adjusting screw (10) counterclockwise seven clicks. This sets the timing. Go to step p.
- n. If pulling the bolt sear rearward in step k did not cause the firing pin to fire, loosen the adjusting screw (10) ONE CLICK AT A TIME and try to fire, until pulling the bolt sear rearward fires the firing pin. Cock the firing pin and test the accuracy of the findings by tightening the screw one click (pin should not fire), then loosening one click back to position (pin should fire).



- o. Loosen the adjusting screw (10) seven more clicks. This sets the timing. Go to step p.
- p. Remove the bolt sleeves, lock plate assembly (1), bolt buffer assemblies (2), bolt sear (3), blank buffer washers (5 and 7), sear buffer (6), and sear buffer rod (4).
- q. Install the above components, along with the helical compression spring (8), as directed.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – OGIVE PLUNGER ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Tool, combination assembly (PN 3269494)
Tool, ogive plunger assembly (PN 3269505)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Lubrication (as required)

References

WP 0046 00

Equipment Conditions

Alignment guide assembly removed from
weapon (WP 0050 00)

For disassembly and assembly of ogive plunger assembly, refer to WP 0046 00.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – TOP COVER ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Drill press
Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

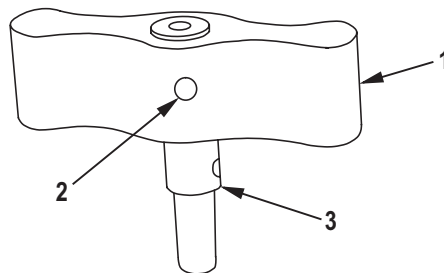
WP 0042 00
WP 0105 00

Equipment Conditions

Secondary drive lever removed from feed slide
assembly (WP 0042 00)
Lock handle removed from top cover assembly
(WP 0047 00)

DISASSEMBLY

1. REMOVE THE LOCK SHOULDER PIN FROM THE LOCK HANDLE.
 - a. Place the lock handle (1) on a bench block. Using the 1/8 inch punch and brass-head hammer, tap out the headless grooved pin (2) which holds the lock shoulder pin (3) to the lock handle. Separate the components.
 - b. Pull out the lock shoulder pin (3).



1LK353

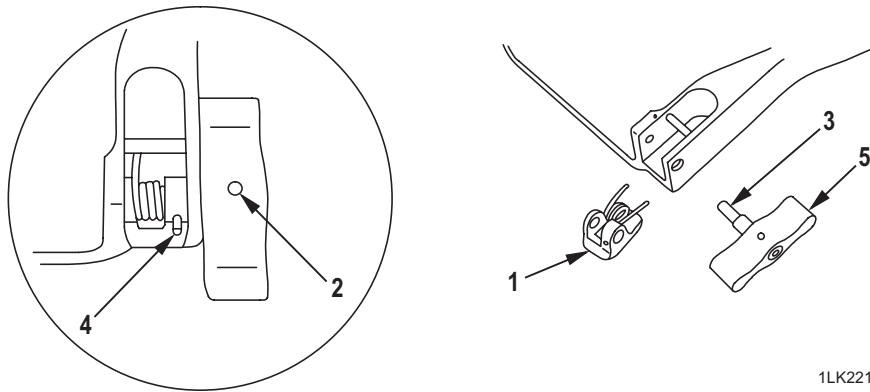
REPAIR OR REPLACEMENT

1. GENERAL.

- a. Inspect the latch mechanism by moving it. The lock handle and helical torsion spring should move as a unit with no relative movement between them. Ensure all parts are lightly lubricated with no binding. Do not remove components unless parts replacement is necessary.

2. NEW COMPONENTS REQUIRING REPLACEMENT AS A UNIT.

- a. If cover lock (1) is replaced, also install new headless grooved pin (2), lock shoulder pin (3), headless grooved pin (4), and lock handle (5). The cover lock and lock shoulder pin must be drilled as a unit when installed as new items. The lock handle must also be drilled when installed as a new item.
- b. Headless grooved pin (2) may be replaced by itself.
- c. Headless grooved pin (4) may be replaced by itself.



2. INSTALLING A NEW COVER LOCK, LOCK SHOULDER PIN, AND LOCK HANDLE.

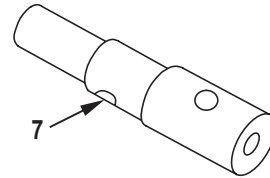
NOTE

The cover lock and lock shoulder pin must be drilled as a unit when installed as new items. When installing the new cover lock, do not forget to install a new headless grooved pin, lock shoulder pin, headless grooved pin, and lock handle. The lock handle must also be drilled when installed as a new item.

- a. Enlarge the pilot holes in the cover lock and lock shoulder pin.
 - (1) Clamp assembled cover lock and lock shoulder pin in a vise with soft jaws and align predrilled holes in the cover lock (1) and lock shoulder pin (2).
 - (2) Using the 3/32 inch drill bit and drill press, enlarge the holes (6 and 7) as shown.

**COVER LOCK**

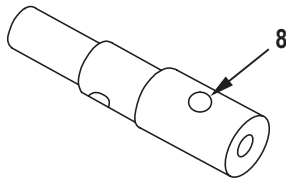
1LK222

**LOCK SHOULDER PIN**

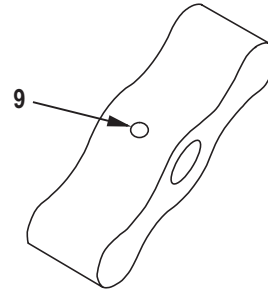
1LK223

b. Enlarge the pilot holes in the lock shoulder pin and lock handle.

- (1) Clamp the assembled lock shoulder pin and lock handle so the predrilled pilot holes (8 and 9) are aligned.
- (2) Using the 1/8 inch drill bit and drill press, enlarge the holes (8 and 9) as shown.

**LOCK SHOULDER PIN**

1LK224

**LOCK HANDLE**

1LK225

4. Replace defective parts as authorized by WP 0105 00.

1. ATTACH THE LOCK SHOULDER PIN TO THE LOCK HANDLE.

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0069 00-4

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN - FEED SLIDE ASSEMBLY
INSPECTION OF INSTALLED ITEMS, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Propane torch
Tool, combination (PN 3269494)
Tool, feed slide (PN 3269542)
Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Locking compound (PN MIL-R-46082)
Self-locking socket head screw (3)
(item 16, WP 0122 00)

Personnel Required

Two

References

TM 9-1005-245-13&P
TM 9-1010-231-13&P
WP 0038 00
WP 0040 00
WP 0042 00
WP 0062 00
WP 0106 00

Equipment Conditions

Secondary drive lever assembly removed from
weapon (WP 0042 00)
Feed slide assembly removed from weapon
(WP 0040 00)
Weapon on "S" (SAFE), clear of ammo, bolt in
forward position

INSPECTION OF INSTALLED ITEMS

CAUTION

If the top cover will not close, do not force it. Ensure the round is well seated between the feed pawls. Adjust the feed slide assembly until the cover will close.

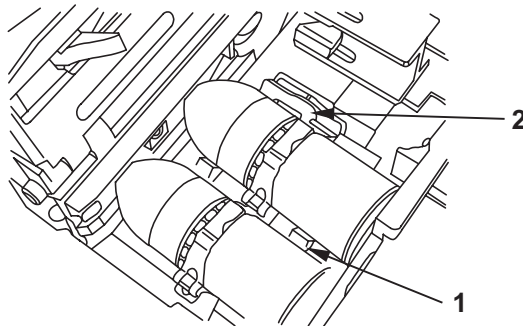
1. MOUNT WEAPON/FEED OPERATION FUNCTION CHECK.

WARNING

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

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

- a. Mount the assembled weapon on the MK 64 Machine Gun Mount (refer to TM 9-1010-231-13&P), on M3 tripod (refer to TM 9-1005-245-13&P), or table stand.
- b. Open the top cover. Place the bolt in the forward position. Slide two dummy rounds, female link first, across the secondary pawl (1). The round should be between the secondary pawl and primary pawl (2).

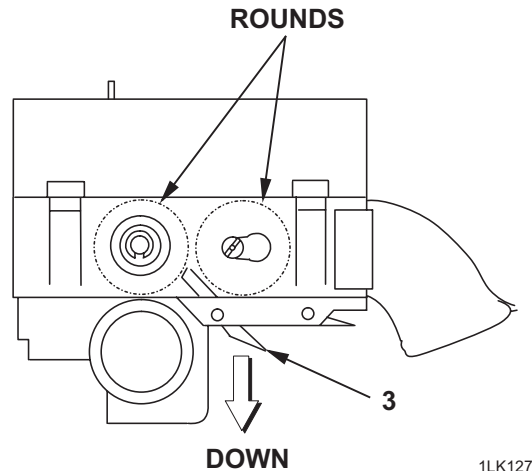


1LK126

- c. Position the feed slide assembly fully to the left while in the feed tray. Close the top cover, observing the **CAUTION**.

2. CHARGE WEAPON.

- a. Charge the weapon slowly. Place the safety on "S" (SAFE).
- b. Go to the front of the receiver and check the primary pawl lever (3), located under the receiver feed tray area. If it is flush with the receiver, the pawl is down (flush) in the feed area. Repair the weapon. If the primary pawl is protruding downward, perform step 3.



1LK127

3. POSITION OF PRIMARY PAWL.

- a. Place the safety on "F" (FIRE). Return one charger handle forward to the locked position. Hold the other charger handle firmly and ride the bolt forward slowly about 3 3/4 inches (or the length of one charger arm). Check the round positioning block tabs, which protrude from the right receiver wall; they should retract inward approximately the width of the tab heads. If this happens, the feed slide is adjusted correctly. If the tab heads protrude inward more or not at all, repair the weapon. (Marine Corps: Repair at Unit Maintenance.)

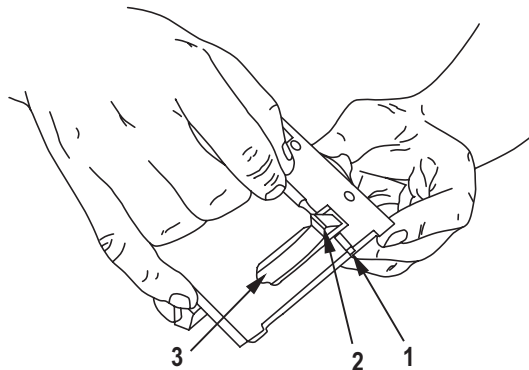
DISASSEMBLY

NOTE

Remove only the feed pawls, headless straight pins, and feed pawl flat springs for routine cleaning and inspection. Remove the spring housing only for parts replacement or adjustment.

1. REMOVE THE HEADLESS STRAIGHT PINS, FEED PAWLS, AND FEED PAWL FLAT SPRINGS.

- a. Push out the two headless straight pins (1) from sides of the two feed pawls (2) using a 3/32 inch punch.
- b. Lift off the two feed pawl flat springs (3) and the feed pawls (2).



1LK125

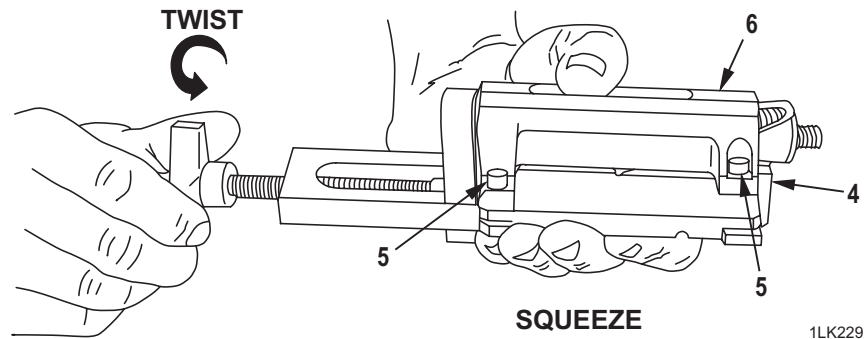
DISASSEMBLY - Continued**2. REMOVE THE SPRING HOUSING.****WARNING**

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

NOTE

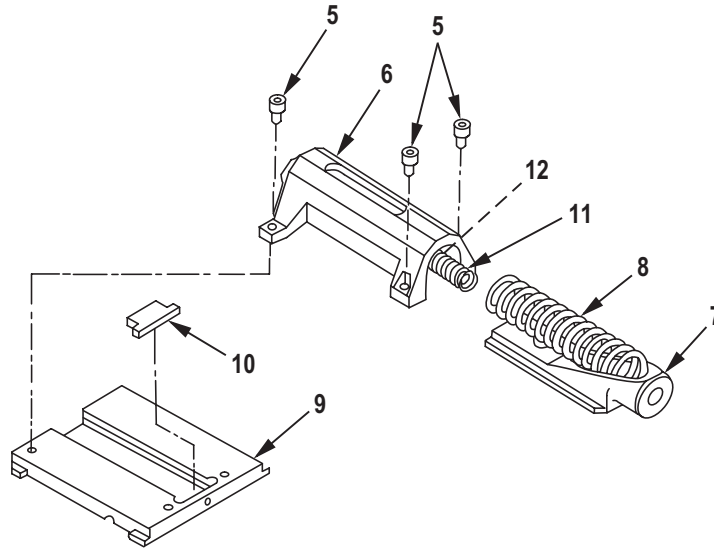
Do not remove the spring housing unless parts replacement is necessary. Do not remove the guide rod or the helical compression spring unless installation of a new helical compression spring or guide rod is needed.

- a. Note the **WARNING** above. Place feed slide assembly (4) in the feed slide tool and twist the tool handle until snug.
- b. Using the 5/32 inch key wrench, remove the three self-locking socket head screws (5) from the spring housing (6). Retain the old self-locking socket head screws for use in assembly task.
- c. Release pressure on the feed slide tool slowly, squeezing the assembly and tool to keep them aligned.

**3. SEPARATE THE INNER FEED SLIDE, SHUTTLE SPRING, OUTER FEED SLIDE, AND STOP/SHIM FROM SPRING HOUSING.**

- a. Lift off the spring housing (6) and remove the following internal components:

Inner feed slide (7)
Shuttle spring (the larger spring) (8)
Outer feed slide (9)
Stop/shim (10)



1LK230

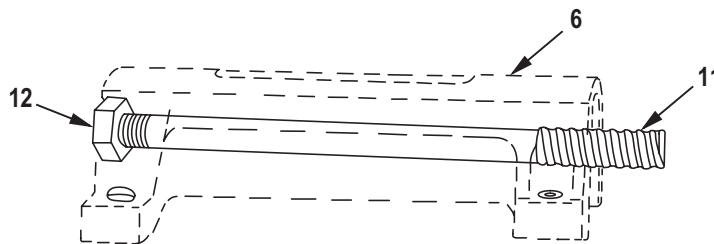
4. REMOVE THE HELICAL COMPRESSION SPRING AND GUIDE ROD.

NOTE

Do NOT remove the helical compression spring or guide rod unless parts replacement is necessary.

If the helical compression spring will not slide off the guide rod while twisting the spring counterclockwise, apply heat to remove the rod.

- a. Do NOT remove the helical compression spring (11) (smaller spring) from the guide rod (12) unless spring replacement is necessary. Replace only when the secondary drive lever cannot be positioned to permit closing of the top cover.
- b. To remove the guide rod (12) from spring housing (6), first heat the head of the guide rod with a propane torch to melt the locking compound. Then unscrew the guide rod, using a 5/8 inch box wrench or open-end wrench.
- c. Using pliers, remove the helical compression spring (11) by twisting it off the guide rod.



1LK231

REPAIR OR REPLACEMENT

1. With the feed slide assembly either removed or installed, press the feed pawls to verify crisp spring action. If either feed pawl is weak, install a new feed pawl flat spring on both sides.
2. Apply adequate lubrication.
3. Whenever the housing is removed for parts replacement, measure the shuttle spring using a caliper. See WP 0062 00 for critical dimension of the shuttle spring.
4. Replace defective parts as authorized by WP 0106 00.

ASSEMBLY**NOTE**

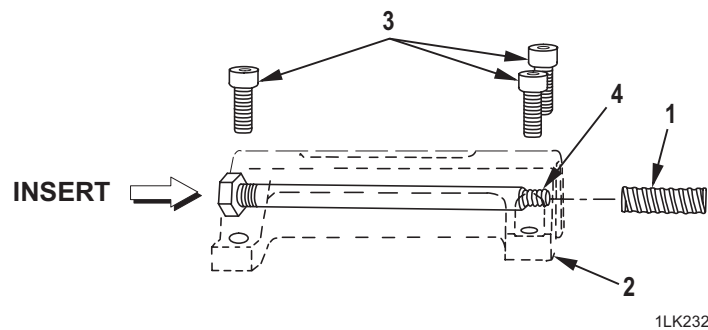
Perform step 1 only if helical compression spring or guide rod has been removed for replacement.

1. **INSTALL THE GUIDE ROD AND HELICAL COMPRESSION SPRING.**
 - a. Before installing a new helical compression spring (1), first determine how far the helical compression spring should protrude from the spring housing (2).

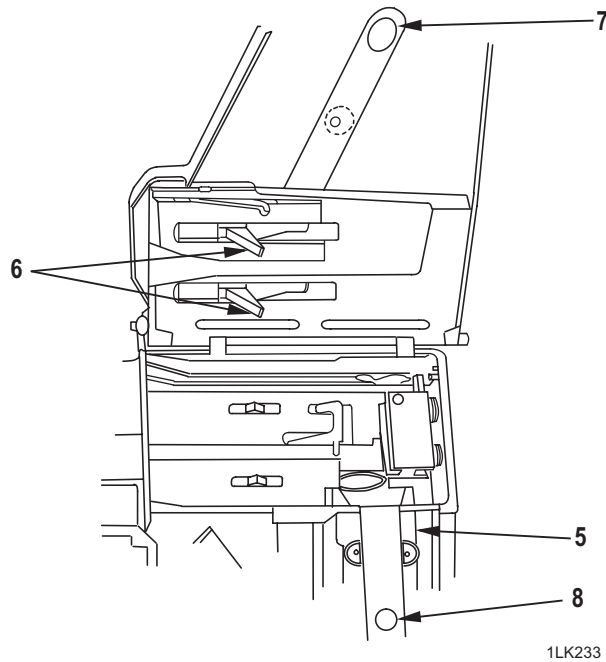
NOTE

Use the old self-locking socket head screws until step 2a has been completed.

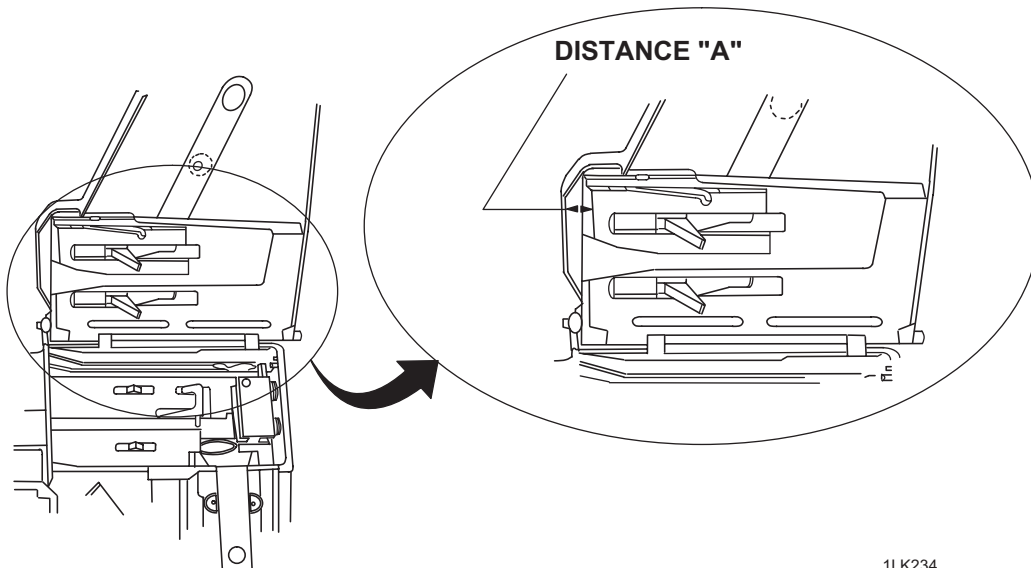
- b. Install self-locking socket head screws (3) and guide rod (4) (without helical compression spring) in the spring housing (2) (refer to steps 2 and 3).



- c. Install the feed slide assembly (WP 0040 00) and adjustable secondary drive lever (WP 0042 00) in the gun. Ensure the bolt (5) is forward. Rotate the top cover down on top of the receiver and manually move the feed slide pawls (6) until the slot in the secondary drive lever (7) and the post (8) on the primary drive lever mate, and the top cover can be fully closed.



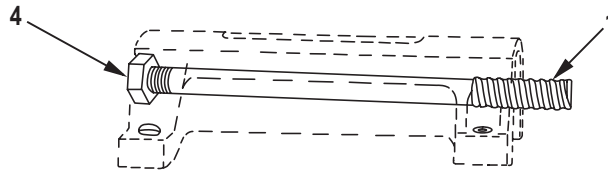
- d. Without disturbing the feed slide assembly, open the top cover. Using dial calipers, measure distance "A" (from the interior wall of the top cover to the edge of the housing). This is the appropriate distance for protrusion of the helical compression spring.



ASSEMBLY - Continued

CAUTION

Do not twist the helical compression spring too far onto the guide rod. It cannot be loosened without damage to the helical compression spring. Grip the helical compression spring where it contacts the guide rod to prevent damage to the helical compression spring.

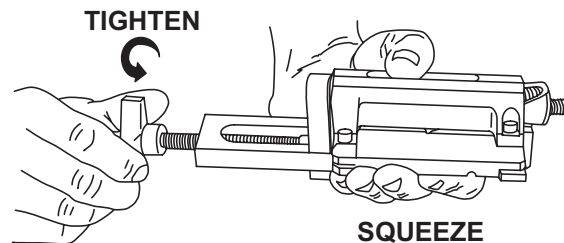
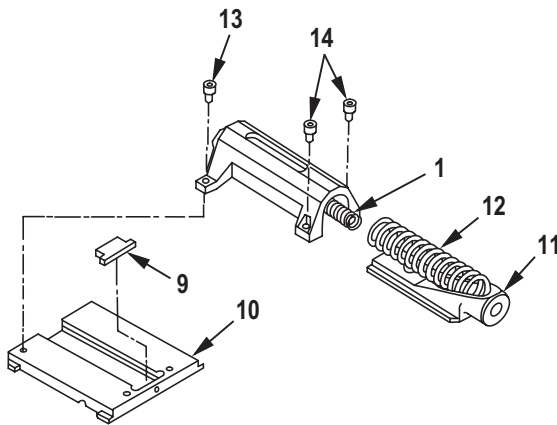


1LK235

- e. Remove the feed slide assembly. Using a 5/8 inch wrench, disassemble the guide rod (4) from the feed slide assembly. Using pliers, twist the rounded end of the new helical compression spring (1) onto the end of the guide rod until the helical compression spring protrudes from the housing slightly farther than the distance "A" obtained in step d. Do not twist the helical compression spring too far (note **CAUTION** above).
- f. Install the guide rod (4) into feed slide assembly. Install the assembly in the weapon and ensure that the top cover will close when the feed slide assembly is fully to the left and the bolt is forward. If the helical compression spring is too long to allow the cover to close, twist the helical compression spring clockwise to tighten it (note **CAUTION** above).
- g. Remove the guide rod (4) from feed slide assembly; degrease guide rod threads and threaded hole in feed slide assembly. Apply locking compound on threads and install guide rod into the feed slide assembly. Tighten with 5/8 inch wrench.

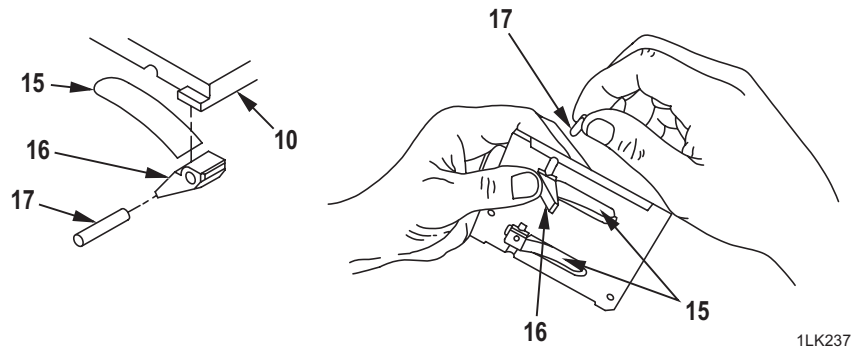
2. INSTALL INTERNAL COMPONENTS IN SPRING HOUSING.

- a. Install the stop/shim (9) into the outer feed slide (10). Insert the inner feed slide (11) into the outer feed slide. Install the shuttle spring (12) in the inner feed slide. Insert the assembled guide rod (4) and helical compression spring (1) through the shuttle spring.



1LK236

- b. Place the assembled components in the feed slide tool, as shown. Turn the handle on the tool (squeeze the assembly and the tool together for better performance) until the screw holes are aligned. Insert a new self-locking socket head screw (13), but do not tighten.
 - c. Turn the tool's handle until the two sets of screw holes (on the side with two screws) are aligned. Insert two new self-locking socket head screws (14). Alternately tighten the three self-locking socket head screws (13 and 14), using a 5/32 inch key wrench. Unscrew the tool and remove the feed slide assembly.
3. INSTALL THE FEED PAWLS, FEED PAWL FLAT SPRINGS, AND HEADLESS STRAIGHT PINS.
 - a. Position the feed pawl flat spring (15) into the indicated area of the outer feed slide (10), as shown.
 - b. Holding the feed pawl (16) and feed pawl flat spring (15) in place, insert the headless straight pin (17). Ensure the headless straight pin is equally extended on both sides. Follow this procedure for both feed pawls.



4. INSTALL THE FEED SLIDE ASSEMBLY INTO FEED TRAY.
 - a. Align the tabs on the feed slide assembly with the slots in the feed tray, and insert the feed slide assembly into the feed tray. Ensure exposed spring is on left side of receiver.
5. Perform function check (WP 0038 00) of the feed slide assembly following completion of maintenance and/or installation of any of the following new parts:

feed slide assembly
 inner feed slide
 outer feed slide
 feed pawls
 secondary drive lever
 primary drive lever
 primary pawl
 bolt
 top cover
 feed tray

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – ADJUSTMENT OF FEED SLIDE ASSEMBLY
INSPECTION OF INSTALLED ITEMS, ADJUSTMENT**

INITIAL SETUP:**Tools and Special Tools**

Feed adjustment tool (PN 10742)
Feed slide tool (PN 3269542)
Hexagon key (NSN 5120-01-428-8035)
Linked dummy rounds (2)
MK 16 MOD 0 stand or M3 tripod mount
MK 64 machine gun mount
Shop set, small arms, field maintenance,
SC 4933-95-A11
Socket head key set (NSN 5120-00-935-7340)
Table stand
Tool, combination assembly (PN 3269494)

Materials/Parts

Feed slide stop kit assembly screw
(PN MS 16997-38)

Materials/Parts - Continued

Self-locking socket head screw (3)
(item 16, WP 0122 00)

References

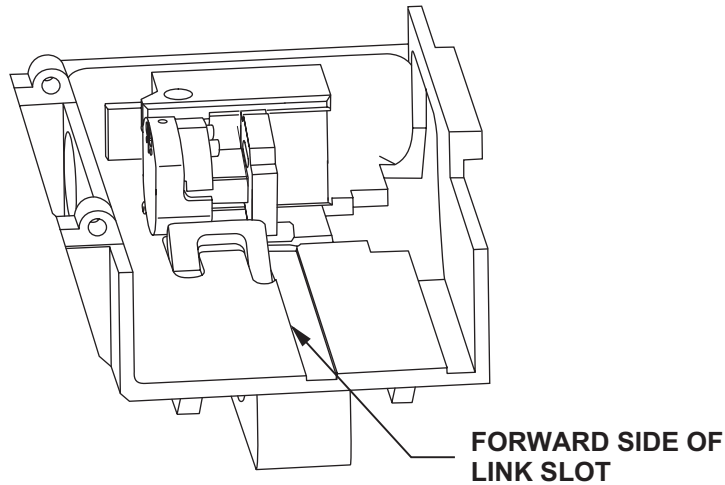
TM 9-1010-231-13&P
WP 0038 00
WP 0040 00
WP 0070 00

Equipment Conditions

Alignment guide removed from receiver
(WP 0056 00)
Ogive plunger assembly removed from
receiver (WP 0068 00)

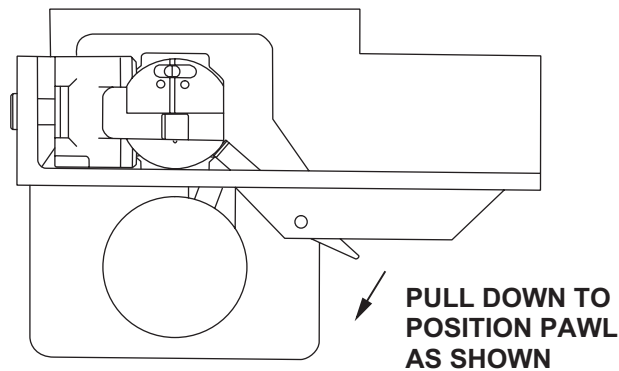
INSPECTION OF INSTALLED ITEMS

1. Place the feed adjustment tool into the feeder base between the round positioning block and the primary pawl.



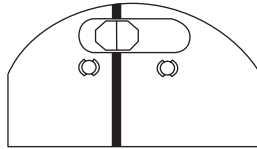
1LK238

2. Push feed adjustment tool forward so that feed adjustment tool contacts forward side of link slot in the feeder base. Primary pawl should be in full up position.
3. Close top cover.
4. Using fingers, access the feed adjustment tool from the ammunition entrance. Push the feed adjustment tool against round positioning block and ensure that the primary pawl is in the full up position by pulling downward on the pawl from under the feeder base.



1LK239

5. Push on round positioning block pins to ensure feed adjustment tool is in contact with primary pawl.
6. Retract the bolt to sear position (fully to rear, without pause or stopping); then move the handles forward and up.
7. View the feed adjustment tool through the ogive plunger hole. The left edge of the indicator should be **on the very left edge of the white line (W/I, one painted line over but not bottomed out)** or within the width of the white painted line of the adjustment is correct. If properly aligned, return the weapon to functional condition.



**AFTER INSPECTION
STEP 7
INDICATOR EDGE
WITHIN WIDTH OF
WHITE PAINT LINE**

1LK240

ADJUSTMENT

WARNING

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

1. Mount the weapon on the MK 64 Gun Mount, MK 16 MOD 0 Stand, M3 Tripod Mount, or lay weapon on any flat clean surface.

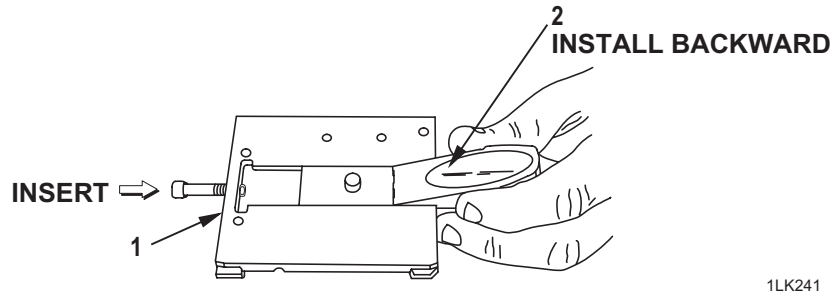
WARNING

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

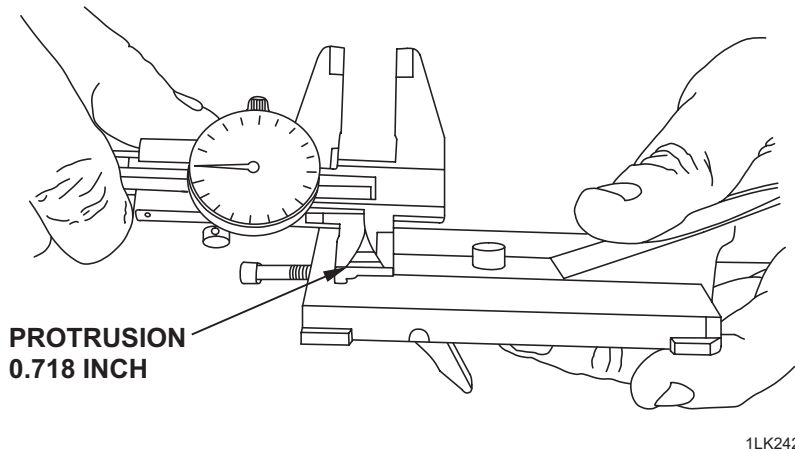
2. Remove the secondary drive lever and the feed slide assembly from the feed tray. Remove the spring housing from the feed slide assembly, and separate the components (WP 0070 00).

ADJUSTMENT - Continued

3. With the feed slide stop/shim removed, insert the feed slide stop kit assembly screw (MS 16997-38) through the threaded hole in the outer feed slide (1).
4. Turn the inner feed slide (2) around and install it backward as far as possible into the outer feed slide (1).



5. Using the 9/64 inch hex head screwdriver bit in the socket wrench handle, tighten the feed slide stop kit assembly screw until the feed slide stop kit assembly screw protrudes into the outer feed slide (1) about 0.718 inch. Measure the distance using a dial caliper, keeping the blades as close to the screw as possible. This is only an initial measurement. It is not necessarily the size of feed slide stop/shim to select in step 23.

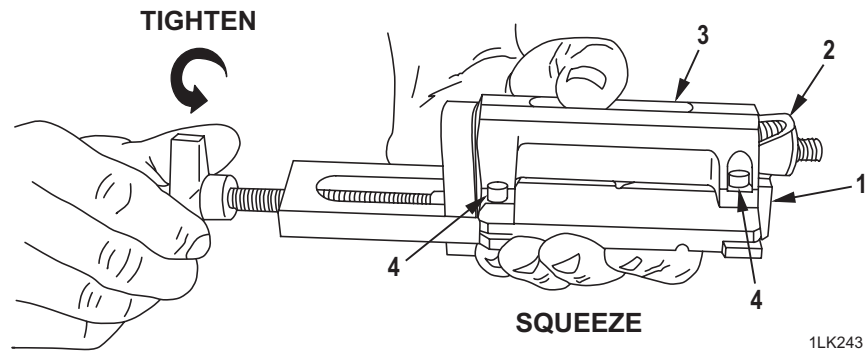


6. Leaving the feed slide stop kit assembly screw in place, turn the inner feed slide (2) around and install it properly. Install components (except the feed slide stop/shim) back in the spring housing (3).

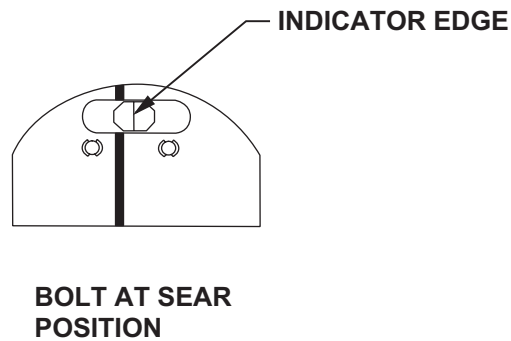
NOTE

Use the old self-locking socket head screws until steps 12 through 33 have been successfully performed. This saves screws and makes the job easier.

7. Compress the feed slide assembly in the feed slide tool as far as possible. If the feed slide assembly cannot be compressed far enough to install the self-locking socket head screws (4) onto the housing, loosen the cap screw in the outer feed slide (1) little by little and tighten the tool until the screw holes in the spring housing (3) and outer feed slide are aligned. Insert and tighten the self-locking socket head screws. Release pressure on the tool and remove.
8. Install the feed slide assembly back into the feed tray. Install the adjustable secondary drive lever.

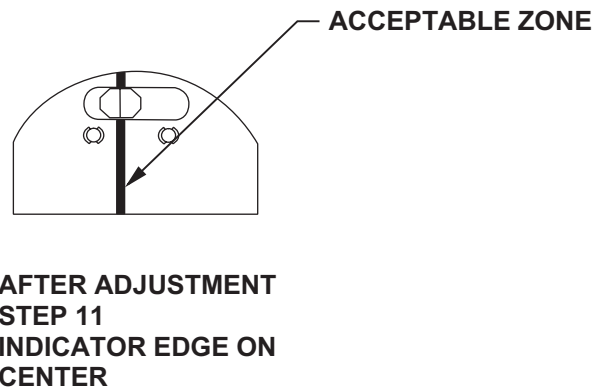


9. Perform inspection steps 1 through 6.
10. Viewing the feed adjustment tool through the ogive plunger hole, the gray indicator edge should be to the right of the white paint line.



1LK244

11. Back out the feed slide stop kit assembly screw until the indicator edge is centered in the white paint line. Do not make any further adjustments to the feed slide stop kit assembly screw.



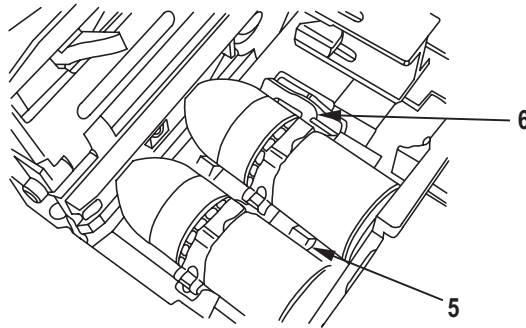
1LK245

ADJUSTMENT - Continued**WARNING**

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

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

12. Open the top cover. Place the bolt in the forward position. Slide two dummy rounds, female link first, into the ammunition feed area of the receiver, between the secondary pawl (5) and primary pawl (6). The left-hand side of the round should be snug against the secondary pawl.



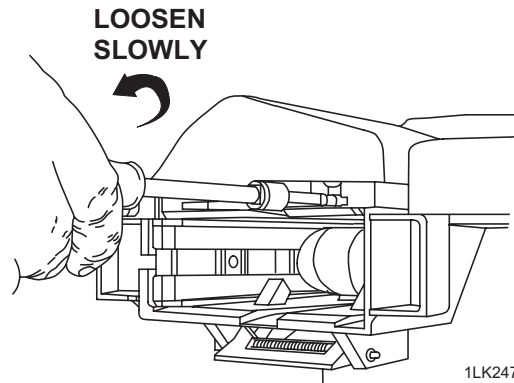
1LK246

CAUTION

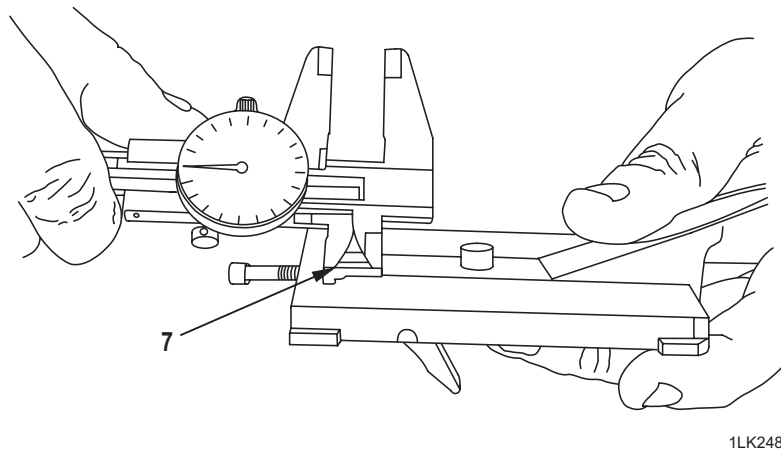
If top cover will not close, do not force it. Ensure the round is well seated between the pawls. Align the secondary drive lever post with the primary drive lever pivot post. Gently pull the protruding end of the feed slide stop kit assembly screw to the left, using pliers, until the cover closes.

13. Move the feed slide assembly fully to the left. Ensure that the bolt is forward; then close the cover, observing the **CAUTION**.
14. Charge the gun once to move the round to the right in the feeder.
15. Place the weapon thumb safety on "S" (SAFE).
16. Go to the front of the receiver and check the primary pawl located under the receiver feed tray area. Observe whether the primary pawl is up or down. If down, go to step 17. If up, screw in clockwise and repeat steps 1 through 12 until the primary pawl does not click up during steps 10 through 12. Then go on to step 17.
17. Without opening the top cover, slowly loosen the feed slide stop kit assembly screw, using the socket wrench handle and hex screwdriver bit, until the primary pawl clicks into the up position. The primary pawl should now hold the dummy rounds in place, next to the round positioning block.

18. Loosen the feed slide stop kit assembly screw two full turns.



19. Open the cover. Remove the round. Ease the bolt forward. Open the top cover and remove the feed slide assembly (WP 0040 00). Do not disturb the feed slide stop kit assembly screw.
20. Using the feed slide tool, compress the spring housing. Alternately loosen and remove the socket head screws on the spring housing, using the 5/32 inch key wrench.
21. Separate the internal components. Remove the inner feed slide, turn it around, and install it backward until it contacts the tip of the screw.
22. Using the dial caliper, measure the protrusion of the feed slide stop kit assembly screw (7) into the cavity of the outer feed slide (1). Keep the caliper blades as close to the feed slide stop kit assembly screw as possible to get an accurate measurement. Note the reading. This will be used to select the proper length of feed slide stop/shim.
23. Select a feed slide stop/shim which is the next smaller size than the dimension obtained in step 22.



24. Remove the feed slide stop kit assembly screw (7). Install the feed slide stop/shim into the slot in the outer feed slide (1).

ADJUSTMENT - Continued

25. Install the inner feed slide (2) in its proper position.
26. Assemble the feed slide assembly using three new self-locking socket head screws (4).
27. Install feed slide assembly into the feed tray of the weapon. Install the secondary drive lever and the feed slide assembly with feed tray into the top cover.
28. With the bolt forward, install the dummy rounds between the secondary and primary pawls.

CAUTION

If top cover will not close, do not force it. Ensure that the secondary drive lever post and primary drive lever post are properly aligned, and the round is well seated between the pawls.

29. Ensure that the feed slide assembly is to the left. Attempt to close the top cover. If the top cover will not close, ensure the bolt is forward, and follow the **CAUTION**.
30. Charge the weapon once, slowly. Listen for the click of the primary pawl snapping into position. This should occur just before the bolt has reached the limit of its rearward travel. Pull the bolt all the way to locked position.
31. Open top cover and remove the dummy rounds.
32. Release the bolt forward, slowly.
33. Perform the complete function check in PMCS (WP 0038 00), using at least six linked dummy rounds. Ensure that all six rounds are cycled through the weapon without binding or failure to feed.
34. Verify correct adjustment by performing inspection steps 1 through 7.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – SEAR ASSEMBLY
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Shop set, small arms, field maintenance,
SC 4933-95-A11
Tool, combination assembly (PN 3269494)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool, safety slide (PN 3269547)
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

References

WP 0048 00
WP 0062 00
WP 0067 00
WP 0097 00
WP 0107 00
WP 0108 00

Equipment Conditions

Bolt and backplate assembly removed from
weapon (WP 0040 00)
Sear assembly removed from receiver
(WP 0048 00)

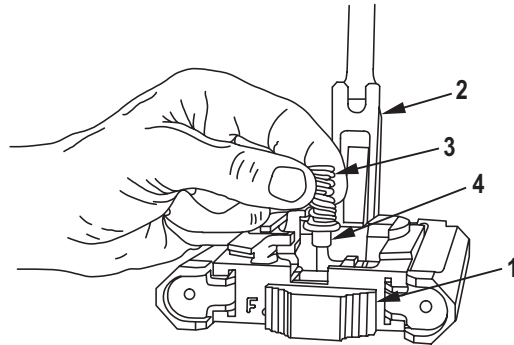
Materials/Parts

Safety wire (as required) (item 15, WP 0121 00)
Slotted spring pin (2) (item 2, WP 0122 00)

DISASSEMBLY**CAUTION**

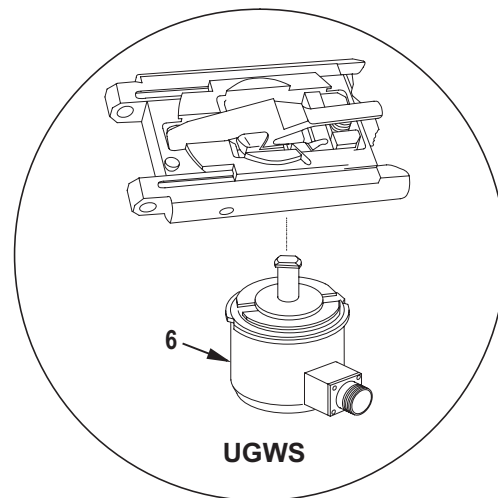
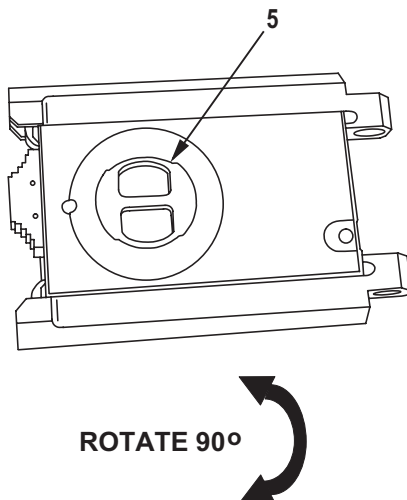
Do not immerse the assembled receiver buffer bodies in a cleaning solvent. Solvent dilutes the lubricant in the packed washers.

1. REMOVE HELICAL COMPRESSION SPRING AND SEAR SPRING PIN.
 - a. Place the thumb safety (1) in "F" (FIRE) position.
 - b. Lift the receiver sear (2). Remove the sear helical compression spring (3) and sear spring pin (4).



1LK249

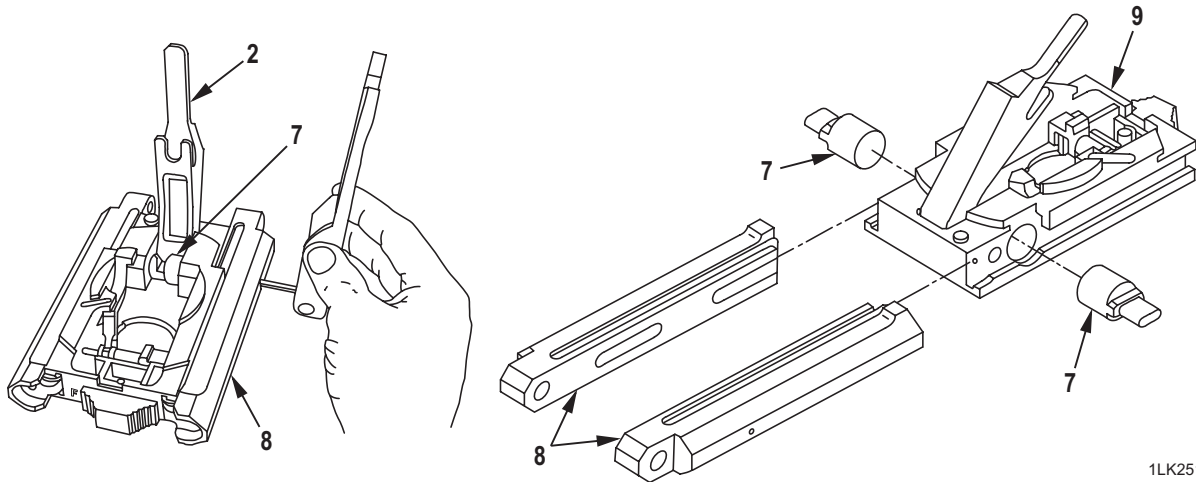
2. REMOVE THE SEAR HOUSING CAP (SOLENOID).
 - a. MK19 MOD 3: Rotate the sear housing cap (5) 90 degrees in either direction and remove.
(Upgunned Weapons Station: Rotate the solenoid (6) 90 degrees in either direction and remove.)



1LK250

3. REMOVE THE RECEIVER BUFFER BODIES AND RECOIL PINS.

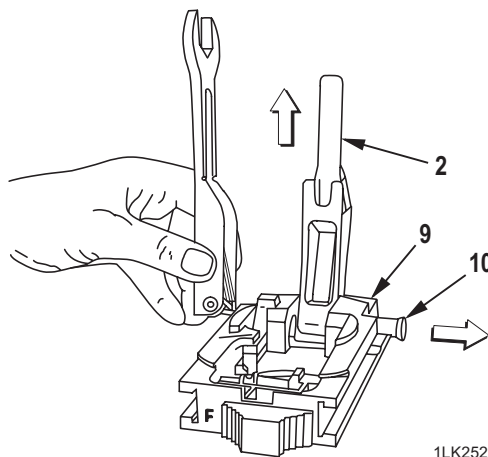
- a. Raise the receiver sear (2). Using a 1/8 inch key wrench or a 1/8 inch punch, push the recoil pin (7) on the right-hand side through the access hole in the receiver buffer body (8). Push it far enough to allow the receiver buffer body to move.
- b. Slide the receiver buffer body (8) forward and remove it. Push the recoil pin (7) out of the sear housing (9).
- c. Repeat this procedure to remove the receiver buffer body (8) and recoil pin (7) on the left-hand side.



1LK251

4. REMOVE THE RECEIVER SEAR.

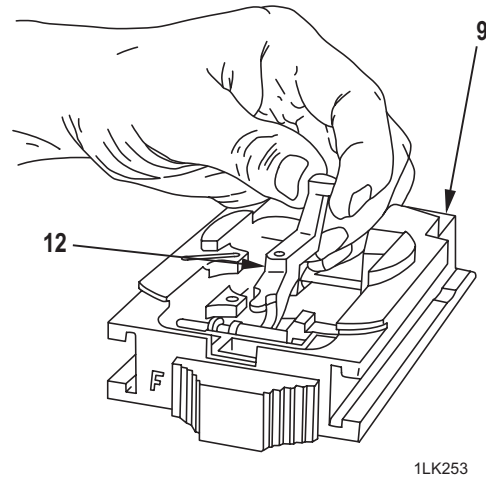
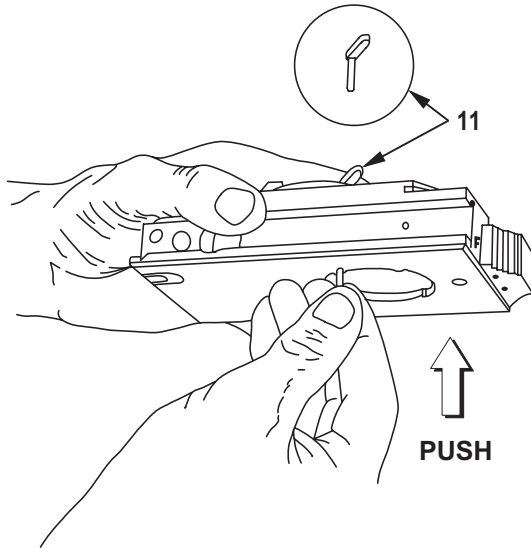
- a. Using the 1/8 inch key wrench or 1/8 inch punch, push the headed straight pin (10) from the left-hand side so that it slides out the right-hand side of the sear housing (9).
- b. Lift to remove the receiver sear (2).



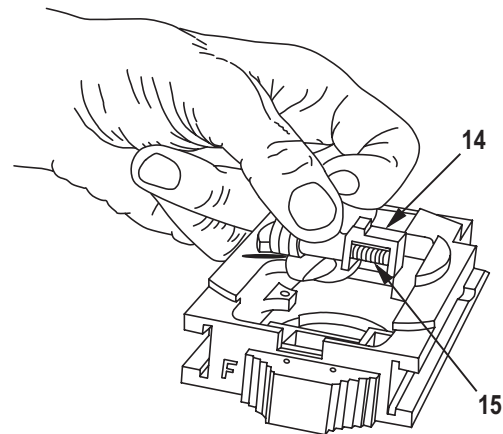
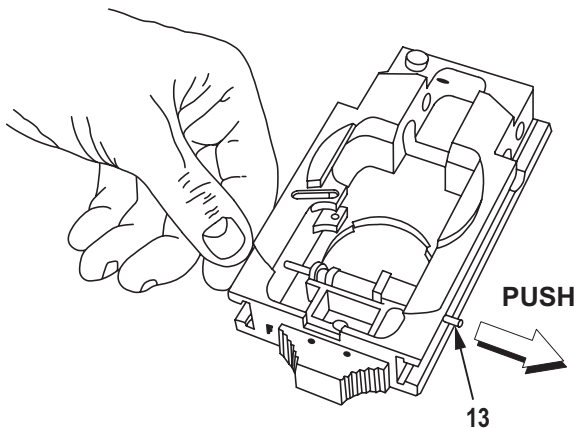
1LK252

DISASSEMBLY - Continued**5. REMOVE THE SAFETY LEVER AND SAFETY LEVER PIN.**

- a. Using a 1/16 inch punch, push the safety lever pin (11) through the top of the sear housing (9).
- b. Lift to remove the safety lever (12).

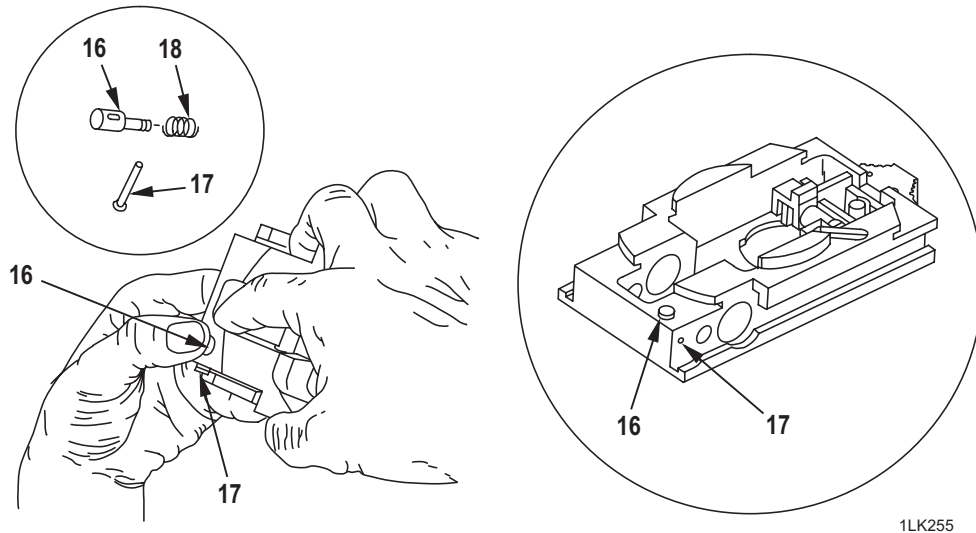
**6. REMOVE THE HEADLESS STRAIGHT PIN, SAFETY SLIDE, AND COMPRESSION HELICAL SPRING.**

- a. Push headless straight pin (13) from left to right, using a 1/16 inch punch, and remove.
- b. Lift to remove the safety slide (14) and compression helical spring (15) together, as a unit.
- c. Separate the safety slide (14) and compression helical spring (15).



7. REMOVE THE GROOVED PIN, HELICAL COMPRESSION SPRING, AND HEADED STRAIGHT PIN.

- a. Depress the grooved pin (16) and remove the headed straight pin (17).
- b. Lift to remove the grooved pin (16) and helical compression spring (18).

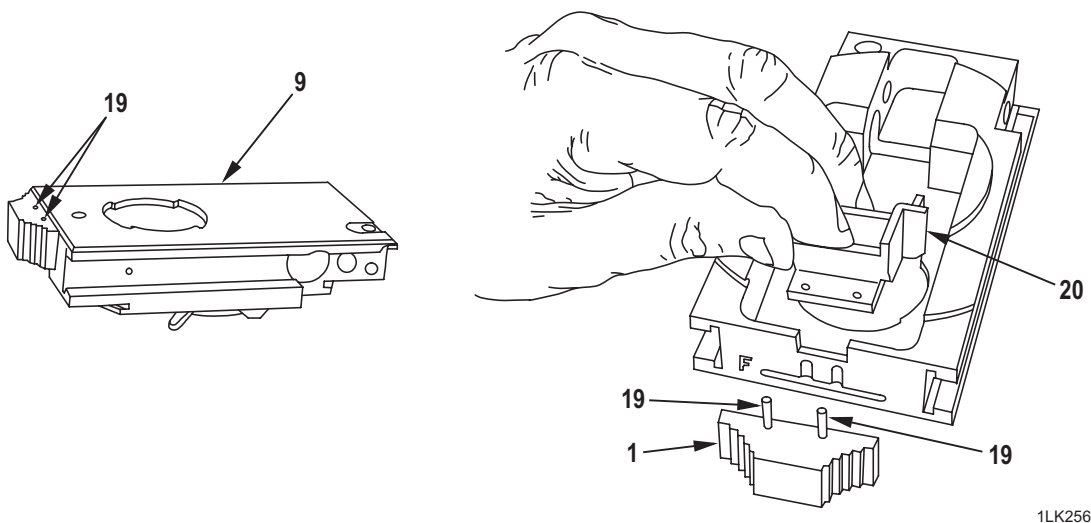


8. REMOVE THE THUMB SAFETY AND SAFETY SLIDE BLOCK.

NOTE

Do not remove except for parts replacement. If either the safety slide block or the thumb safety must be replaced, replace slotted spring pins each time removed.

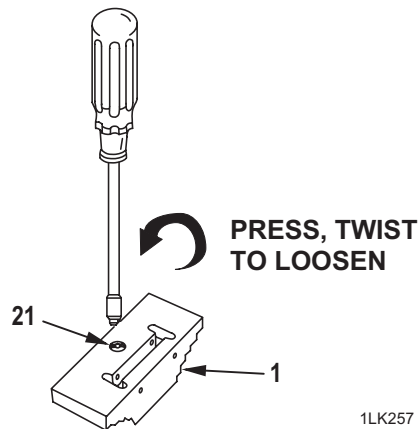
- a. Turn the sear housing (9) upside down. Using a hammer and 3/32 inch punch, tap out the two slotted spring pins (19) from the thumb safety (1). Discard the slotted spring pins. Remove the thumb safety and safety slide block (20).



DISASSEMBLY - Continued**9. REMOVE THE SPRING PLUNGER FROM THUMB SAFETY.****NOTE**

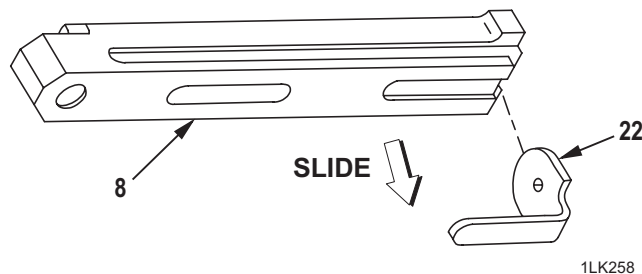
Do not remove the spring plunger from thumb safety unless parts replacement is necessary.

- a. Attach a 5/16 inch socket to the socket wrench handle. Attach the safety slide tool to the socket. Insert the tip of the safety slide tool into the thumb safety (1), press, and twist counterclockwise to remove the spring plunger (21).

**10. DISASSEMBLE THE RECEIVER BUFFER BODIES.****CAUTION**

Do not change the order or position of the components in each receiver buffer body. There are approximately 40 spring washers in each assembly which must be replaced exactly in the reverse order they were removed. If this sequence is not followed, heavy recoil (hard fire) will occur, with possible parts damage within the gun.

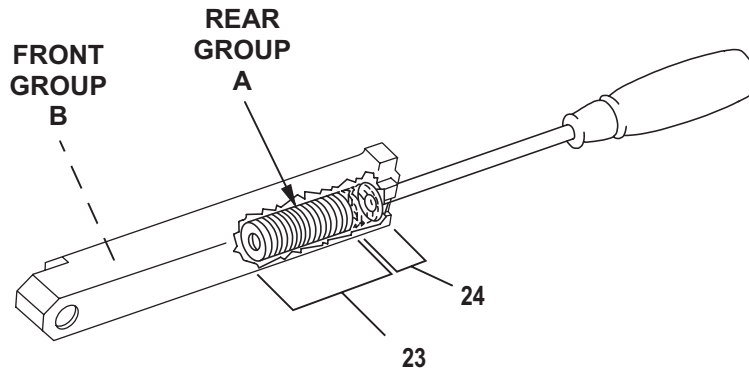
- a. Slide the buffer retainer (22) from the receiver buffer body (8).



- b. Slide the first set of washers (23) (Group A (rear) about 21 washers), onto a .50 caliber cleaning rod. Note the washers are curved back-to-back and front-to-front in sets of three. The first washers removed are placed parallel to the first set of three. These are called nominal washers (24).

NOTE

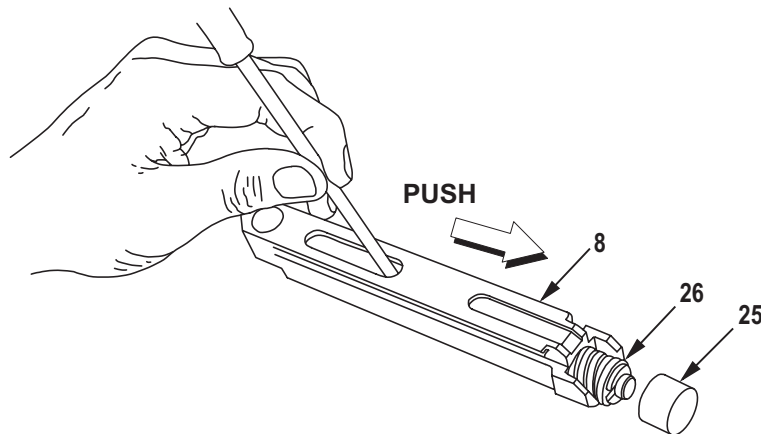
Group A (rear) washers are arranged in three sets of six, followed by one to six nominal washers which serve as shims.



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1LK259

- c. For cleaning, inspection, and lubrication, transfer the Group A washers (23) to a length of safety wire about 10 inches in length. Twist the ends of the safety wire to prevent loss of the washers.
- d. Place the receiver buffer body (8) horizontally, slot side up. Using a small screwdriver, push out the buffer cap (25) and buffer rod assembly (26) from the receiver buffer body. Use care not to spill the remaining spring washers.



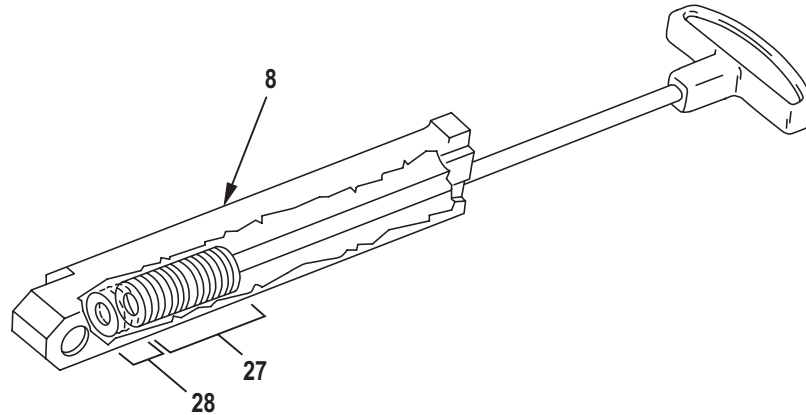
1LK260

DISASSEMBLY - Continued

- e. Slide the remaining washers (27) (Group B (front) total of about 19 washers) onto the handle section of a .50 caliber cleaning rod. The rod must reach all the way to the bottom of the receiver buffer body (8). Ensure all washers, including nominal washers (28), are removed.

NOTE

Group B (front) washers are arranged in four sets of four followed by one to six nominal washers which serve as shims.



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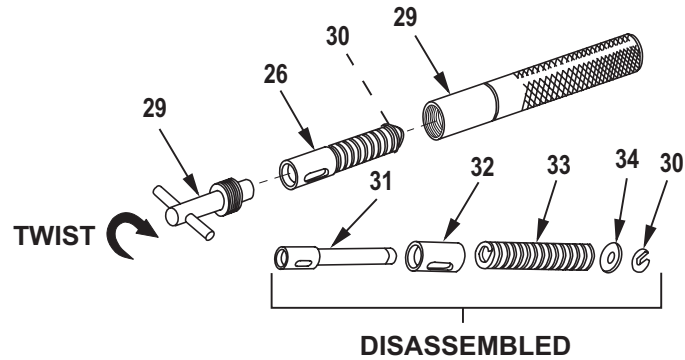
1LK261

- f. Transfer the Group B (front) washers (27) to another length of safety wire to prevent loss or mix-up.
 - g. Repeat the above procedure for the other receiver buffer body.
11. DISASSEMBLE THE BUFFER ROD ASSEMBLY.

NOTE

Army users disassemble only to lubricate components.

- a. Place the buffer rod assembly (26) in the buffer assembly tool (29) so that the slotted washer (30) is showing.
- b. Compress the buffer rod assembly (26) by twisting the handle of the buffer assembly tool (29) clockwise until the slotted washer (30) can be removed. Remove the slotted washer.
- c. Unscrew the buffer assembly tool (29) all the way. The headed grooved pin (31), buffer bushing (32), helical compression spring (33), and buffer flat washer (34) will separate easily.



1LK262

REPAIR OR REPLACEMENT

WARNING

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.

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

1. Using a dial caliper, measure the length of the helical compression spring. If it is shorter than the dimension given in WP 0062 00, discard and install a new helical compression spring.
2. Inspect washers for radial cracks. If one spring washer needs replacement, install all new spring washers in both receiver buffer bodies.
3. If a new receiver sear is installed, also install a new bolt sear and adjust bolt timing (WP 0067 00).
4. Replace defective parts as authorized by WP 0097 00, WP 0107 00, and WP 0108 00.

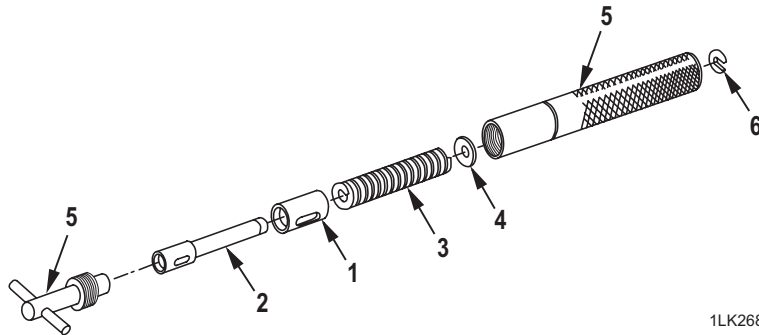
ASSEMBLY

1. ASSEMBLE THE BUFFER ROD ASSEMBLY COMPONENTS.

NOTE

Items 1, 2, 3, and 4 should be lubricated prior to assembly.

- a. Slide the buffer bushing (1) over the headed grooved pin (2) so the slots are aligned.



1LK268

- b. Insert the helical compression spring (3) over the headed grooved pin (2).
- c. Lay the buffer flat washer (4) on top of the helical compression spring (3).
- d. Holding the headed grooved pin (2) upright, place the assembled components into the buffer assembly tool (5), as shown.
- e. Twist the handle on the buffer assembly tool (5) to compress the assembly. Twist until the slotted washer (6) can be snapped over the end of the rod.
- f. Perform the above steps for the other buffer rod assembly.

2. ASSEMBLE THE RECEIVER BUFFER BODY COMPONENTS.

CAUTION

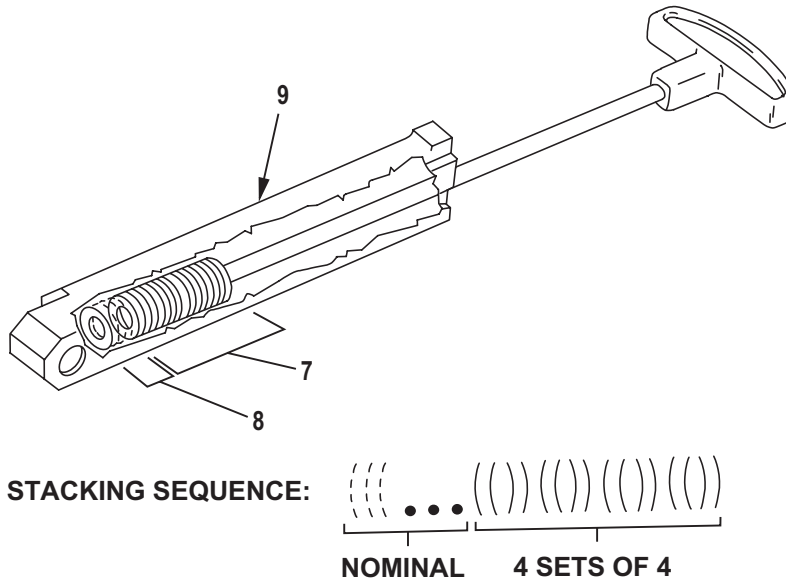
Do not change the order or position of the components in each receiver buffer body. There are approximately 40 spring washers in each assembly which must be replaced exactly in the reverse order they were removed. If this sequence is not followed, heavy recoil (hard fire) will occur, with possible parts damage within the gun.

NOTE

The stacked washers should be lubricated prior to assembly.

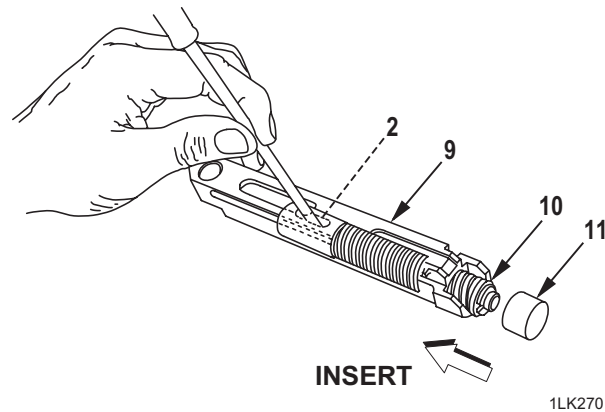
- a. Transfer the Group B washers (7) (4 sets of 4 plus one or more nominal washers (8)) from the safety wire onto the handle of a .50 caliber cleaning rod. The nominal washers should enter the receiver buffer body first and be closest to the tip of the cleaning rod.

- b. Using care not to spill the washers, insert the cleaning rod with Group B (front) washers (7) (4 sets of 4 plus the nominal washers (8)) into the receiver buffer body (9), ensuring washers are positioned on the bottom.



1LK269

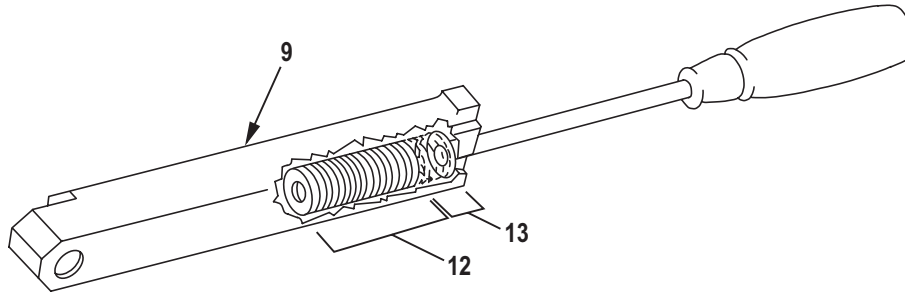
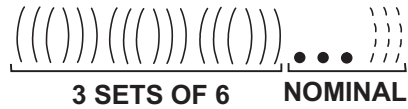
- c. Using a small screwdriver, align the small slot in the headed grooved pin (2) with the large slot in the receiver buffer body (9) as the buffer rod assembly (10) is inserted. Insert the buffer cap (11) on top of the buffer rod assembly.



1LK270

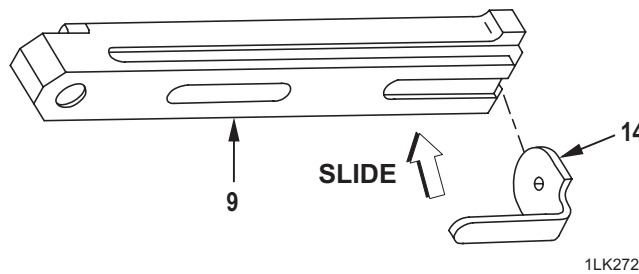
ASSEMBLY - Continued

- d. Transfer the Group A (rear) washers (12) (3 sets of 6 plus one or more nominal washers (13)) from the safety wire to a caliber .50 cleaning rod.
- e. Install the Group A washers (12), using care not to spill them. Ensure the nominal washers (13) are the last to go into the receiver buffer body (9).

**GROUP A STACKING SEQUENCE:**

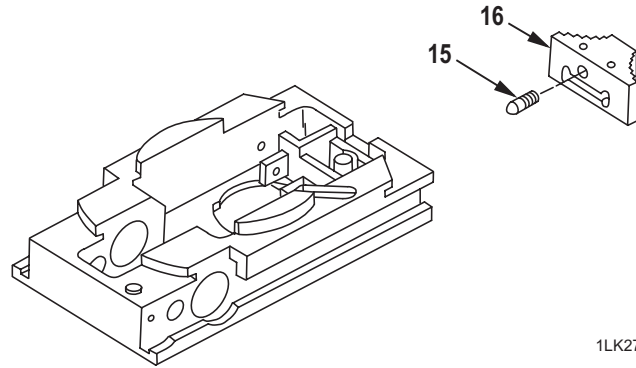
1LK271

- f. Slide the buffer retainer (14) onto the receiver buffer body (9) to secure the components.



1LK272

- g. Perform the above steps for the components in the other receiver buffer body.
3. **INSTALL THE SPRING PLUNGER IN THE THUMB SAFETY.**
 - a. Attach a 5/16 inch socket in the socket wrench handle. Attach the safety slide tool in the socket. Insert the threaded end of the spring plunger (15) into the thumb safety (16). Press and twist clockwise with the tip of the safety slide tool until the body of the spring plunger is flush with the thumb safety and the spring plunger tip is protruding.



4. INSTALL THE THUMB SAFETY AND SAFETY SLIDE BLOCK IN THE SEAR HOUSING.

NOTE

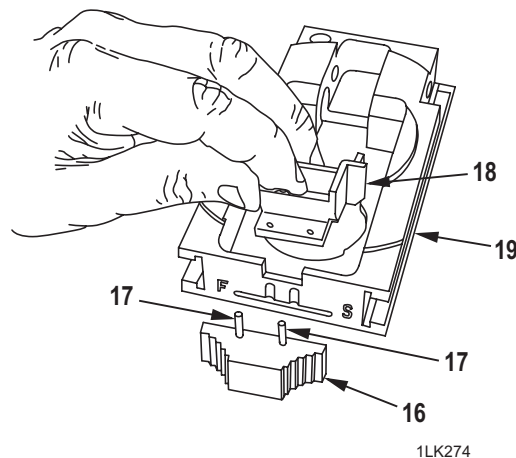
Lubricate sear housing detents before assembly.

- a. Insert two new slotted spring pins (17) about 1/4 inch into the top of the thumb safety (16) (plunger side).

WARNING

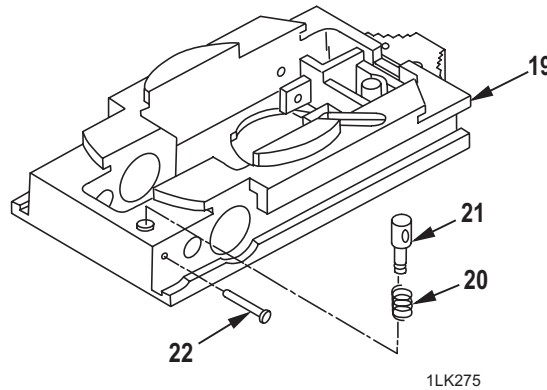
Ensure the safety slide block is installed in the position shown. If the safety slide block is improperly installed, the thumb safety will not function, endangering personnel.

- b. Insert the safety slide block (18) into the sear housing (19) in the position shown.
- c. With the sear housing (19) right side up, press the thumb safety (16) against the housing. Using a brass-head hammer, tap in the two slotted spring pins (17), until they are flush with the thumb safety.
- d. Move the thumb safety (16) back and forth to ensure it snaps crisply into the "S" (SAFE) and "F" (FIRE) positions. Verify detent action.



ASSEMBLY - Continued

5. INSERT THE GROOVED PIN, HELICAL COMPRESSION SPRING, AND HEADED STRAIGHT PIN.
 - a. Drop the helical compression spring (20) into the hole in the sear housing (19). Drop the grooved pin (21) into the same hole.
 - b. Push down on the grooved pin (21) aligning the slot with the hole in the sear housing (19) and install headed straight pin (22).

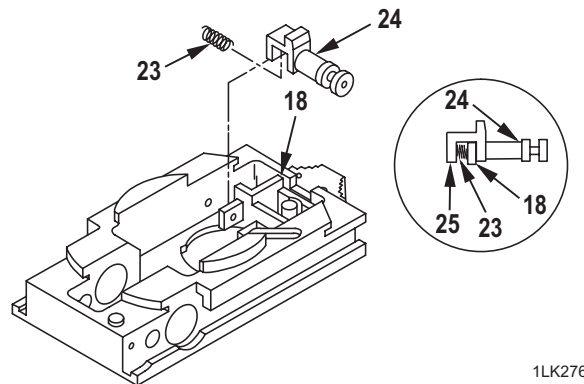


6. INSTALL THE SAFETY SLIDE, COMPRESSION HELICAL SPRING, AND HEADLESS STRAIGHT PIN.

WARNING

Be sure to install the safety slide in the position shown. If it is not installed correctly, the thumb safety will not function, endangering personnel.

- a. Insert the compression helical spring (23) all the way into the safety slide (24).

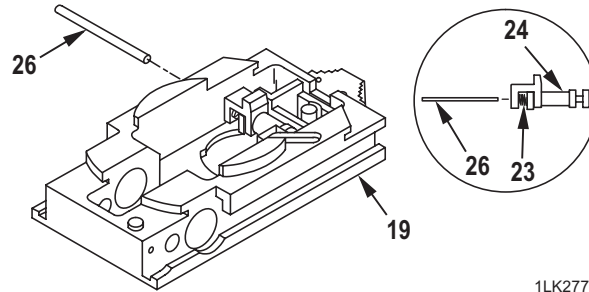


- b. Noting the **WARNING** above, position the tang (25) of the safety slide (24) with the compression helical spring (23) over the safety slide block (18). The compression helical spring will be compressed to the side shown in the inset drawing above.

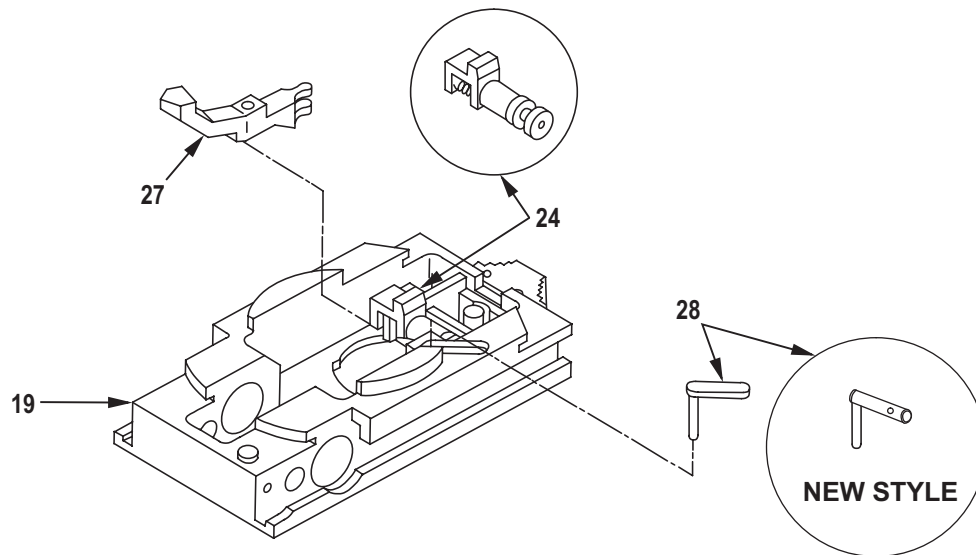
NOTE

The headless straight pin can fall out until the buffer assemblies are installed.

- c. Insert the headless straight pin (26) through the right-hand side of the sear housing (19). Push the headless straight pin through the safety slide (24) and the compression helical spring (23), flush with the left wall of the sear housing.

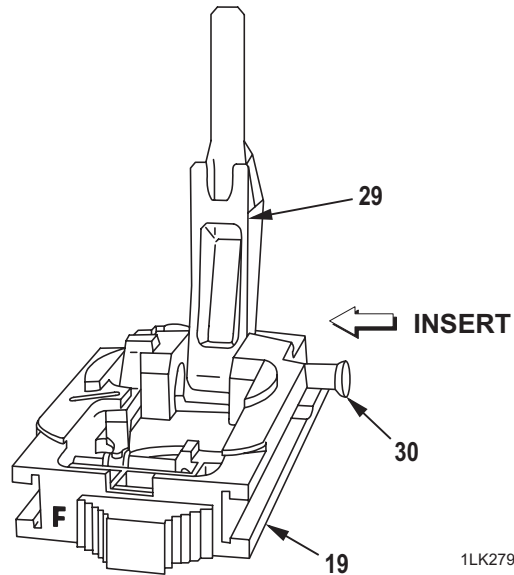
**7. INSTALL THE SAFETY LEVER AND SAFETY LEVER PIN.**

- a. Install the safety lever (27) so the forked end fits over the groove in the safety slide (24).
- b. Secure the safety lever (27) by inserting the safety lever pin (28). The safety lever pin should be flush with the sear housing (19).



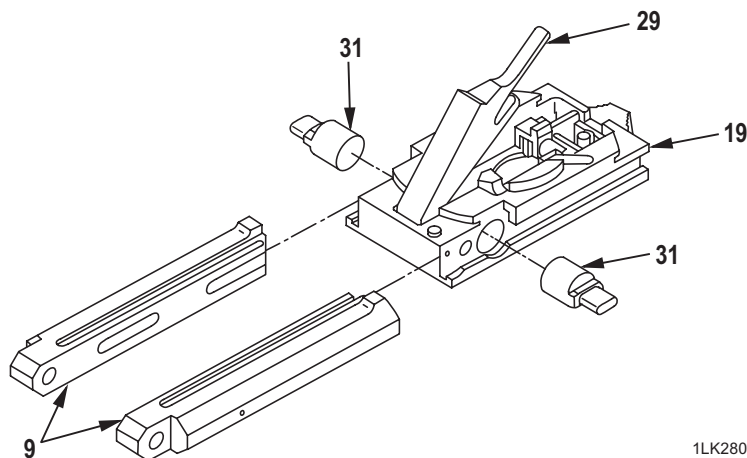
ASSEMBLY - Continued**8. INSTALL THE RECEIVER SEAR AND STRAIGHT HEADED PIN.**

- a. Position the receiver sear (29) straight up in the sear housing (19) so the pinholes are lined up. Insert the headed straight pin (30) from right to left.

**9. INSTALL THE RECOIL PINS AND RECEIVER BUFFER BODIES.****NOTE**

The receiver sear cannot be lowered if the recoil pins are in the way. Ensure the recoil pins are pushed toward the outside of the sear housing before attempting to lower the receiver sear.

- a. Raise the receiver sear (29). Insert either recoil pin (31), round end first, into either side of the sear housing (19) until the narrow (flat) end is flush with the outside of the sear housing. Ensure the narrow (flat) end is horizontal to the sear housing.



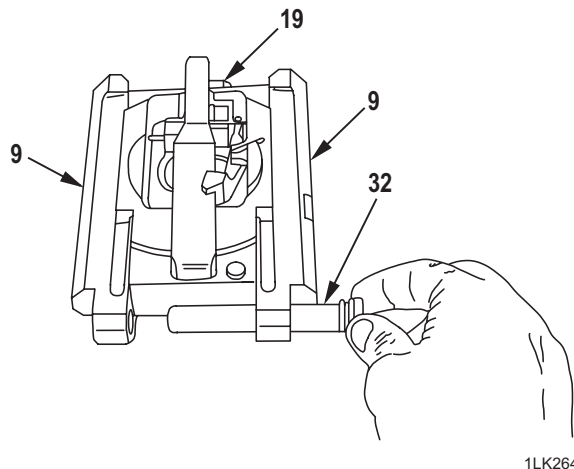
- b. Slide the receiver buffer body (9) onto the sear housing (19) until the access holes are aligned. Then push the recoil pin (31) through the hole until the round end of the recoil pin is flush with the inner surface of the sear housing.
- c. Repeat for the other receiver buffer body and recoil pin.

NOTE

Anytime the internal components of the receiver buffer bodies have been reinstalled after accidental mix-up or have been replaced with new components, perform the following procedure.

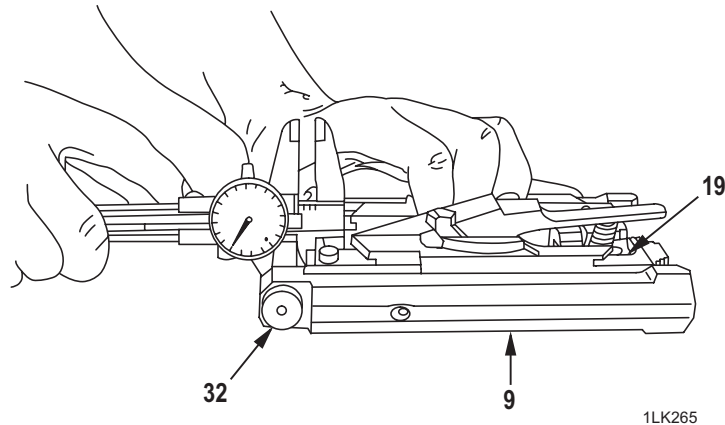
10. TEST FOR PROPER ADJUSTMENT OF RECEIVER BUFFER BODY COMPONENTS.

- a. Insert the weapon's backplate pin assembly (32), from the right side, through the large holes in each receiver buffer body (9).
- b. Squeeze the backplate pin assembly (32) toward the sear housing (19). Remove the squeezing pressure to allow the backplate pin assembly to relax. Exert slight pressure on the side of the backplate pin assembly (retaining ring end). This ensures there is no slack between the backplate pin assembly, receiver buffer body (9), and sear housing.



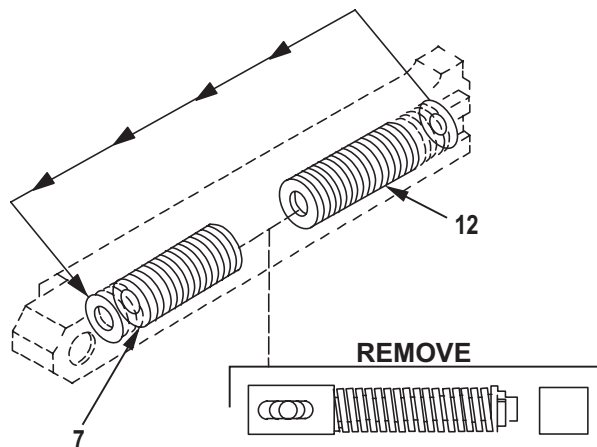
ASSEMBLY - Continued

- c. Using the caliper, spread the smaller blades between the inner edge of the backplate pin assembly (32) and the right-hand wall of the sear housing (19) where the sear housing contacts the receiver buffer body (9). Measure the exact distance.
- d. Repeat steps b and c for the other side.
- e. The distance between the wall of the sear housing (19) and the inner edge of the backplate pin assembly (32) on each side should be 0.298 ± 0.015 inch (0.283 to 0.313 inch).

**NOTE**

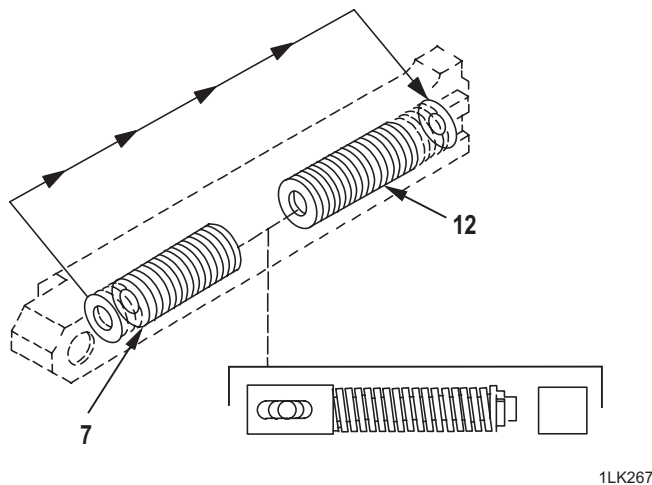
If the dimension is less than 0.283 inch, go to step f. If it is more than 0.313 inch, go to step h. If no further measurement is necessary, continue with step 11.

- f. If the dimension for either receiver buffer body in step g was LESS than 0.283 inch:
 - (1) Remove the receiver buffer body (9) from the sear housing (19).
 - (2) Remove the inner components from the receiver buffer body (9).



- (3) Take one washer from the extra (nominal) washers in Group A (12) (3 sets of 6) and place it parallel (curved in the same direction) with the nominal washers in Group B (7) (4 sets of 4).

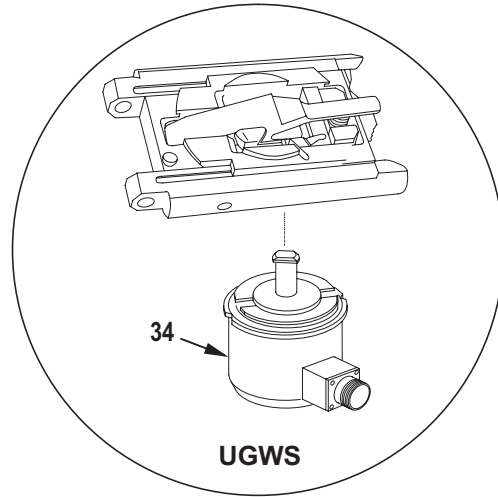
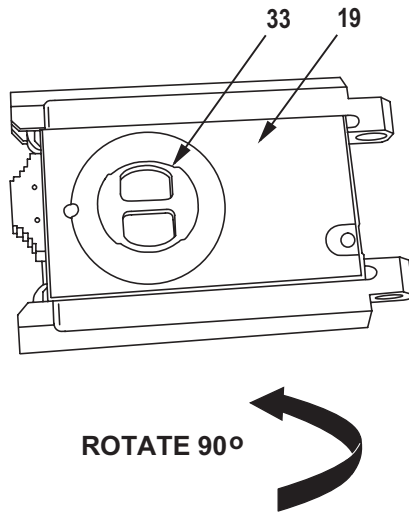
- (4) Assemble the components in the receiver buffer body as directed in assembly steps 2a through 2e. Now, however, there will be one less washer in Group A (12) and one more washer in Group B (7).
 - (5) If the washers in the top of the cavity (Group A) (12) do not fill the cavity, add washers in parallel to the top washer until the cavity is filled. Then install the buffer retainer.
 - (6) Install the receiver buffer body back into the sear housing.
 - (7) Repeat the procedure beginning with step a, until the dimension measures from 0.283 to 0.313 inch.
- h. If the dimension was MORE than 0.313 inch:
- (1) Remove the receiver buffer body (9) from the sear housing (19).
 - (2) Remove the inner components from the receiver buffer body (9).
 - (3) Take one washer from the extra (nominal) washers in Group B (7) (4 sets of 4) and place it parallel (curved in the same direction) to the nominal washers in Group A (12) (3 sets of 6).



- (4) Assemble the components in the receiver buffer body as directed in assembly steps 2a through 2e. Now, however, there will be one more washer in Group A (12) and one less washer in Group B (7).
- (5) If the washers in the top of the cavity (Group A) (12) do not fill the cavity, add washers in parallel to the top washer until the cavity is filled. Then install the buffer retainer.
- (6) Install the receiver buffer body back into the sear housing.
- (7) Repeat the procedure beginning with step a until the dimension measures from 0.283 to 0.313 inch.

ASSEMBLY - Continued**11. INSTALL THE SEAR HOUSING CAP (SOLENOID).**

- a. Make sure the safety is on "F" (FIRE) position.
- b. Line up the cutout on the sear housing cap (33) with the cutout in the sear housing (19).



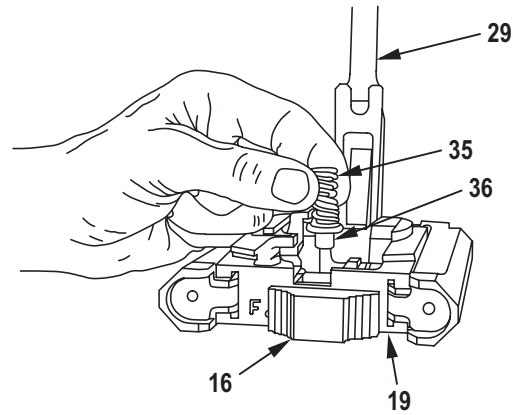
1LK281

- c. MK19 MOD 3: Push in on the sear housing cap (33) and rotate it 90 degrees so the notch in the sear housing cap mates with the lock pinhole. (Ugunned Weapons Station: Push on the solenoid (34) and rotate it 90 degrees so the notch in the solenoid mates with the lock pinhole.

12. INSTALL SEAR SPRING PIN AND HELICAL COMPRESSION SPRING.**NOTE**

Be sure to depress the receiver sear and place the thumb safety on "S" (SAFE) after installing the sear housing cap. The "S" (SAFE) position prevents the recoil pins from slipping out of place and blocking the receiver sear.

- a. Ensure the thumb safety (16) is in "F" (FIRE) position.
- b. Assemble the helical compression spring (35) over the sear spring pin (36).
- c. Insert the sear spring pin (36) and helical compression spring (35) into the sear housing (19) from the top.



1LK282

- d. Observing the NOTE, above, hold the receiver sear (29) down and place the thumb safety (16) in "S" (SAFE) position until sear assembly has been installed in the weapon.

13. INSTALL SEAR ASSEMBLY.

- a. Place the thumb safety (16) in "F" (FIRE) position. Squeeze the receiver sear (29) and thumb safety together during installation. Align the sear housing (19) with the cutout in the bottom of the receiver. Holding the thumb safety pressed down, twist the sear assembly 90 degrees so the thumb safety is toward the rear of the receiver. The sear assembly should click into place. Place the thumb safety on "S" (SAFE).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MOD 3 MACHINE GUN - PRIMARY DRIVE LEVER
AND VERTICAL CAM ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,
SC-5180-95-B71

Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Abrasive cloth (item 5, WP 0121 00)

Lubricant (as required)

Slotted spring pin (item 5, WP 0122 00)

Equipment Conditions

Bolt and backplate assembly removed from
the weapon (WP 0040 00)

For disassembly and assembly of primary drive lever and vertical cam assembly, refer to WP 0049 00.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN**

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

**MAINTENANCE OF MK19 MACHINE GUN – ALIGNMENT GUIDE ASSEMBLY
INSPECTION OF INSTALLED ITEMS, DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Propane torch
Tool, combination assembly (PN 3269494)
Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Flat head screw (item 26, WP 0122 00)
Sealing compound (item 11, WP 0121 00)
Shoulder screw (item 22, WP 0122 00)

References

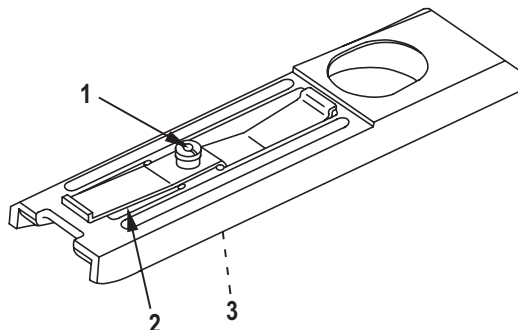
WP 0110 00

Equipment Conditions

Alignment guide removed from receiver
(WP 0040 00)

INSPECTION OF INSTALLED ITEMS**1. GENERAL.**

- a. Inspect the alignment guide while assembled. Do not disassemble unless parts replacement is necessary. Ensure the shoulder screw (1) and alignment guide flat spring (2) do not move relative to each other. It is permissible for the shoulder screw and flat head screw (3) to turn together as long as the alignment guide flat spring is not loose.



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DISASSEMBLY**NOTE**

Do not disassemble unless part replacement is required.

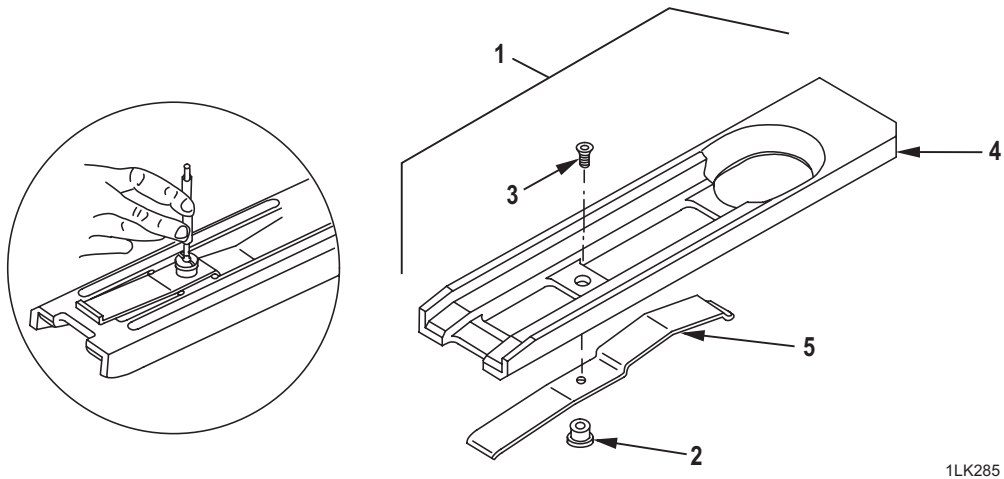
1. **DISASSEMBLE ALIGNMENT GUIDE.**

- a. Holding the alignment guide assembly (1) in a brass-jawed vise, heat the area around the shoulder screw (2) with the propane torch to loosen the locking compound.

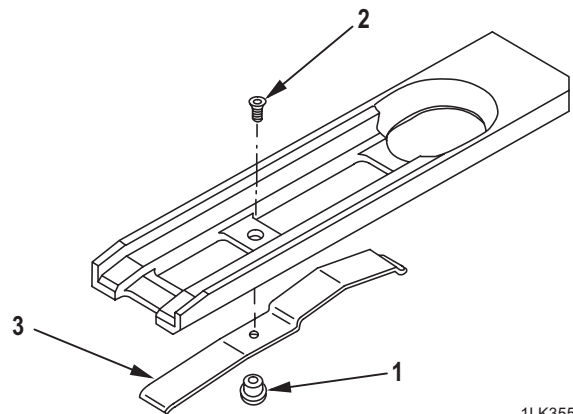
NOTE

Hold the flat head screw in place with a 1/8 inch key wrench.

- b. Unscrew the shoulder screw (2), using the raised tang on the edge of the combination tool.
- c. Separate the flat head screw (3), alignment guide (4), and alignment guide flat spring (5).

**REPAIR OR REPLACEMENT**

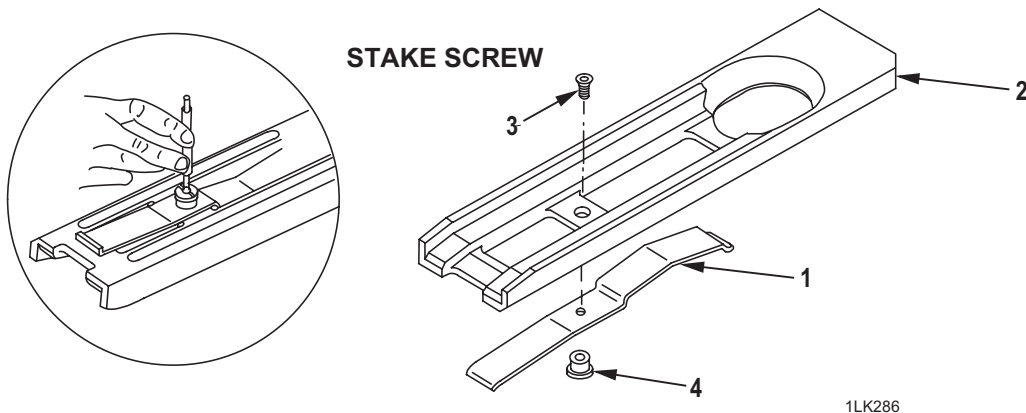
1. Inspect shoulder screw (1) and flat head screw (2) for thread damage. If damaged, replace.



2. Inspect the alignment guide flat spring (3) for cracks. If cracked, replace.
3. Replace defective parts as authorized by WP 0110 00.

ASSEMBLY

1. POSITION ALIGNMENT GUIDE FLAT SPRING AND INSERT FLAT HEAD SCREW.
 - a. Position alignment guide flat spring (1) against the flat side of the alignment guide (2). Ensure the curved part of the flat spring fits the slot in the alignment guide and the pin holes are aligned. Apply sealing compound to the threads of new flat head screw (3). Insert the new flat head screw through the holes in the alignment guide flat spring and alignment guide, as shown.



2. INSERT SHOULDER SCREW.
 - a. Insert new shoulder screw (4) over the tip of the flat head screw (3). Hold the flat head screw in place using a 1/8 inch key wrench. Tighten the shoulder screw fully, using the raised edge of the combination tool. No relative movement should exist. Stop tightening when the alignment guide flat spring (1) cannot be moved and when the flat head screw tip is about flush with the head of the shoulder screw.
3. STAKE SHOULDER SCREW.

NOTE

Staking the shoulder screw to the flat head screw is an additional precaution to prevent it from loosening during operations.

- a. Use a center punch to stake the shoulder screw (4) in two places, 90 degrees to the slots.
4. INSTALL ALIGNMENT GUIDE ASSEMBLY.
 - a. Depress the tip of the alignment guide flat spring as you slide the alignment guide assembly into the forward part of the receiver. Ensure the large hole slides over the ogive plunger assembly and that the alignment guide assembly shoulder screw mates with the keyhole in the receiver.

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – GUN CHARGER (RIGHT HAND/LEFT HAND)
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Fabricated lock plunger tool (WP 0089 00)
Tool, combination assembly (PN 3269494)
Tool kit, small arms repairman,
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Lubricant (as required)
Slotted spring pin (2) (item 6, WP 0122 00)

References

WP 0111 00
WP 0112 00

Equipment Conditions

Gun charger partially disassembled
(WP 0051 00)

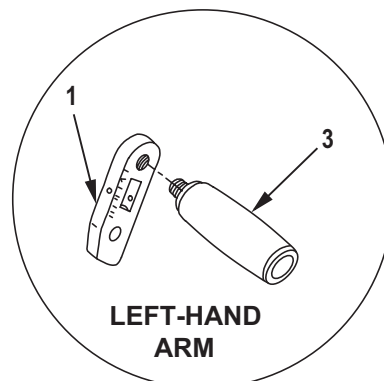
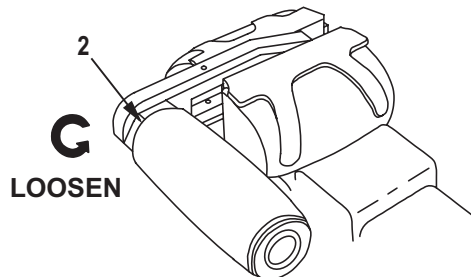
DISASSEMBLY

1. REMOVE HANDLE ASSEMBLY ON LEFT-HAND (LH) AND RIGHT-HAND (RH) ARM.

NOTE

Remove for parts replacement only.

- a. Place arm (1) in a vise with copper jaws or on a bench block.
- b. Using a thin jawed, 7/8 inch open end wrench, turn the nut (2) on the handle counterclockwise to remove the handle assembly (3).



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REPAIR OR REPLACEMENT

Replace defective parts as authorized by WP 0111 00 and WP 0112 00.

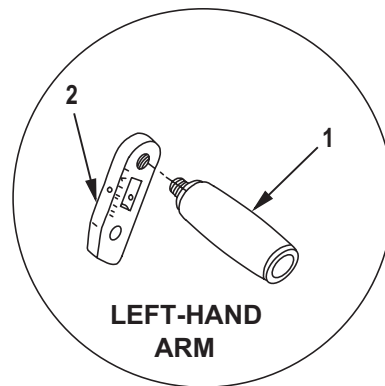
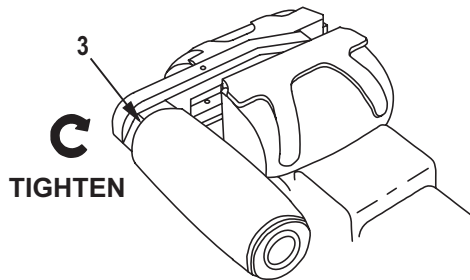
ASSEMBLY

1. INSTALL HANDLE ASSEMBLY ON LEFT-HAND (LH) AND RIGHT-HAND (RH) ARM.

NOTE

The outside of the arm is the side opposite the recessed slot.

- a. Position the handle assembly (1) against the outside of the arm (2) and screw it in as far as possible.
- b. Place the arm (2) in a vise with copper jaws. Tighten the nut (3) on the handle assembly (1), using a 7/8 inch, thin-jawed, open-end wrench.



1LK287

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – REAR SIGHT ASSEMBLY****DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY****THIS WORK PACKAGE APPLIES ONLY TO THE MK19 MOD 3 MACHINE GUN**

INITIAL SETUP:**Tools and Special Tools**

Tool, combination assembly (PN 3269494)

Tool kit, small arms repairman

SC 5180-95-B71 with addition of

SL-3-00607A (Marine Corps only)

Tool kit, small arms repairman,

SC-5180-95-B71

Tool set, intermediate maintenance,

SL-3-08669A (Marine Corps only)

Tools and Special Tools - Continued

Tool set, organizational maintenance,

SL-3-08668A (Marine Corps only)

Materials/Parts

Solid scale rivet (2) (item 25, WP 0122 00)

References

WP 0082 00

WP 0113 00

DISASSEMBLY**NOTE**

Do not routinely disassemble. Disassemble only for boresighting. Do not remove any of the sight components for parts replacement. If disassembled, do not mix components with other sight components. Parts interchangeability is not assured. If the scale or socket head cap screws are removed, the weapon must be boresighted.

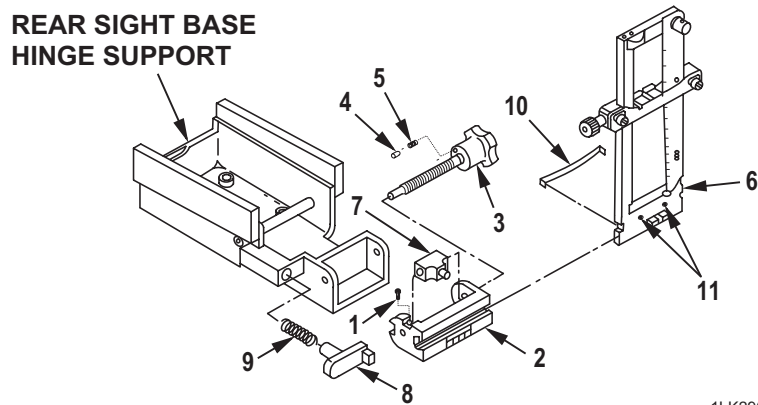
DISASSEMBLY - Continued

1. REMOVE THE WINDAGE SCREW, WINDAGE SCREW KEY, FRAME BASE, SIGHT LOCK, LEAF SPRING, AND SETSCREWS.
 - a. Using a 1/16 inch punch, push the slotted spring pin (1) through the bottom of the frame base (2).
 - b. Turn the windage screw (3) counterclockwise to remove it. Also remove the straight pin (4) and the helical compression spring (5) from the base of the windage screw.
 - c. Remove the frame base (2) with the frame assembly (6) attached. Slide the frame assembly from the frame base.
 - d. Lift out the windage screw key (7).
 - e. Remove the sight lock (8) and helical compression spring (9).
 - f. Remove the leaf spring (10) from the frame assembly (6).

NOTE

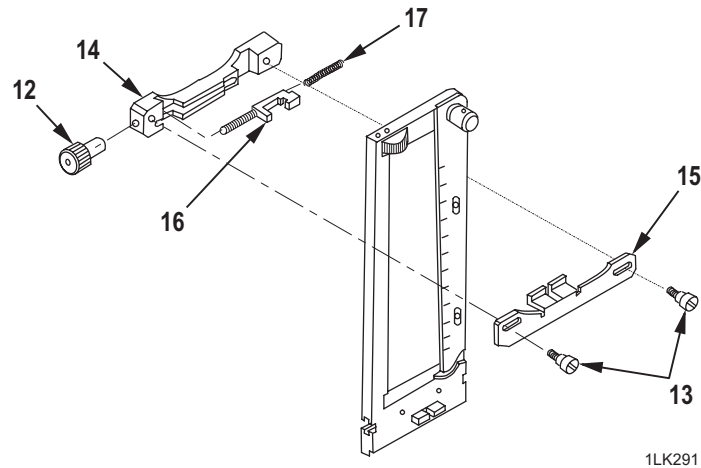
Do not remove the two headless setscrews unless they are loose or damaged. Replace both setscrews if one or both is loose or missing.

- g. If loose or damaged, remove the two headless setscrews (11) from the frame assembly (6).



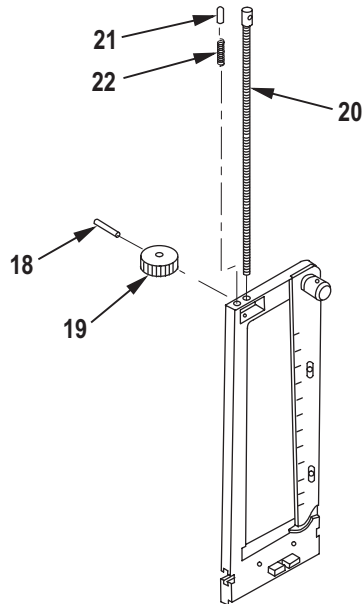
2. REMOVE THE RETAINER PLAIN NUT, SHOULDER SCREWS, APERTURE CARRIER, HELICAL SPRING, APERTURE RETAINER, AND REAR SIGHT SLIDE.

- a. Twist the retainer plain nut (12) counterclockwise to remove it.
- b. Using a flat-blade 9/64 inch screwdriver, unscrew the two shoulder screws (13). Separate the aperture carrier (14) from the rear sight slide (15).
- c. Separate the aperture retainer (16) and helical spring (17) from the aperture carrier (14).



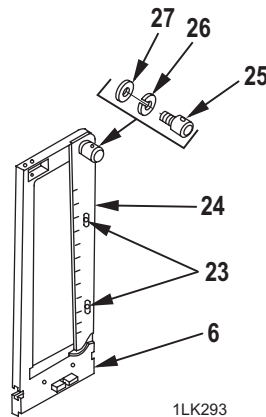
3. REMOVE THE SLOTTED SPRING PIN, ELEVATING WHEEL, STRAIGHT PIN, HELICAL SPRING, AND SCREW FROM THE FRAME ASSEMBLY.

- a. Using the 1/16 inch punch, drive out the slotted spring pin (18) from the elevating wheel (19).
- b. Push upward on the screw (20). Slide out the elevating wheel (19), the straight pin (21), and helical spring (22).



DISASSEMBLY - Continued

4. REMOVE THE SOLID SCALE RIVETS, SCALE LOCK SCREW, WASHERS, AND SCALE.
 - a. Lay the frame assembly (6) with the scale side down on a bench block. Using a 0.030 inch punch and brass-head hammer, drive out the two solid scale rivets (23) from the scale (24). Discard solid scale rivets.
 - b. Insert a 3/32 inch punch into the scale lock screw (25) and twist counterclockwise to remove. Lift out the lock washer (26) and flat washer (27).
 - c. Lift off the scale (24).

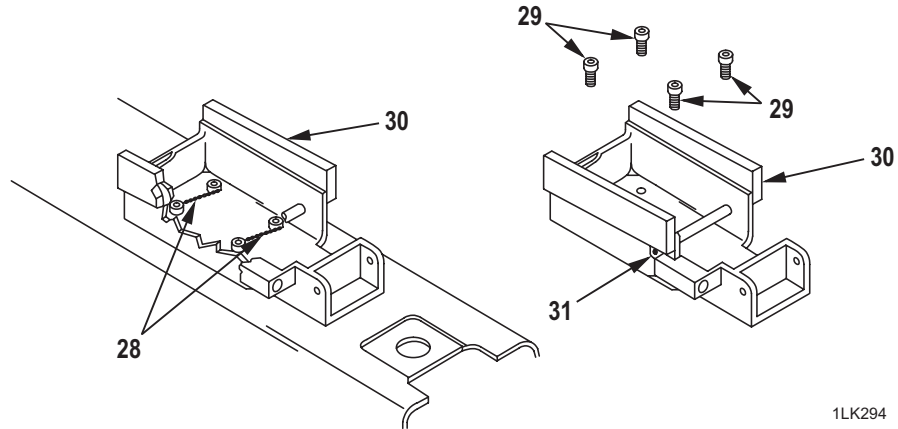


5. REMOVE THE NON-ELECTRICAL WIRE, SOCKET HEAD CAP SCREWS, AND REAR SIGHT BASE HINGE SUPPORT.

NOTE

Do not remove the rear sight base hinge support unless a new one must be installed.
Boresight (WP 0082 00) after assembly.

- a. Using the cutting pliers, clip the non-electrical wire (28) on the socket head cap screws (29) and remove the non-electrical wire.
- b. Remove the four socket head cap screws (29) using the 5/32 inch key wrench. Lift off the rear sight base hinge support (30). Do not remove cap screw (31). Replace if missing.



REPAIR OR REPLACEMENT

1. Ensure all moving parts operate freely without binding. Lubricate as necessary.
2. Remove external rust with lubricant and cloth.
3. Replace defective parts as authorized by WP 0113 00.

ASSEMBLY

NOTE

If the sight or socket head cap screws are removed, the weapon must be boresighted (WP 0082 00).

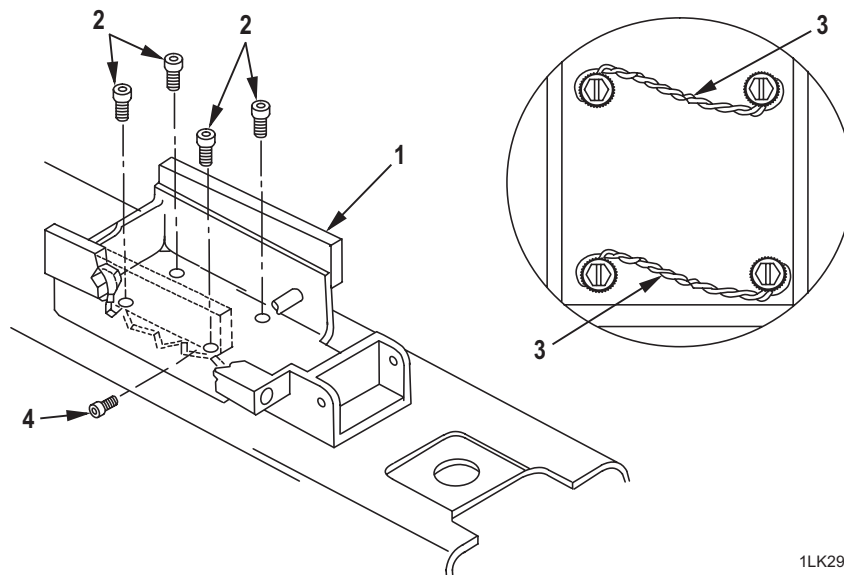
ASSEMBLY - Continued

1. INSTALL THE REAR SIGHT BASE HINGE SUPPORT, SOCKET HEAD CAP SCREWS, AND NON-ELECTRICAL WIRE.
 - a. Align the four holes in the rear sight base hinge support (1) with those in the top of the receiver.
 - b. Insert and lightly tighten the four socket head cap screws (2) using a 5/32 inch key wrench.
 - c. Boresight (WP 0082 00) the gun prior to safety wiring.

NOTE

The non-electrical wire can be applied parallel (as shown) or perpendicular to the gun's centerline.

- d. Using wire twister pliers, apply non-electrical wire (3) from right to left to each set of socket head cap screws.
- e. If missing, insert and tighten new cap screw (4), using a 5/16 inch key wrench. Stake the cap screw to the inside surface of the rear sight base hinge support (1).



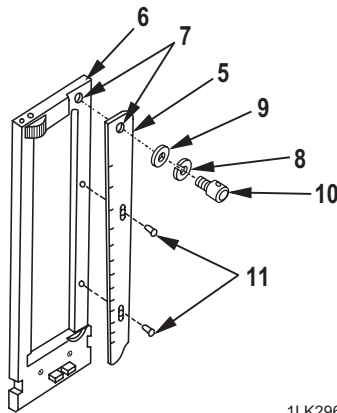
1LK295

2. INSTALL THE WASHERS, SCALE LOCK SCREW, SCALE, AND SOLID SCALE RIVETS ON THE FRAME.

NOTE

Be sure to install new solid scale rivets if the old rivets were removed. Boresight (WP 0082 00) weapon after assembly.

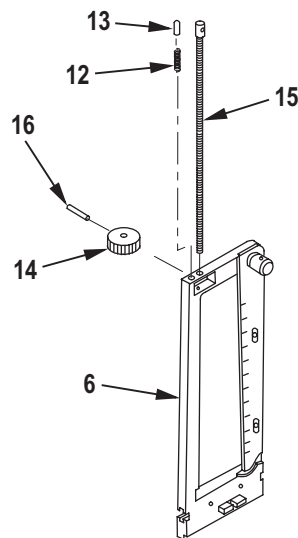
- a. Position the scale (5) on the frame assembly (6) so the holes (7) for the scale lock screw are aligned.
- b. Slide the lock washer (8), then the flat washer (9) over the tip of the scale lock screw (10). Install the scale lock screw with washers into the hole in the top of the scale. Tighten the scale lock screw using a 3/32 inch punch.
- c. Insert two new solid scale rivets (11) through the scale side of the frame assembly (6). Lay the frame assembly, with scale side down, on a bench block or anvil. Pound the stems of the solid scale rivets flat.



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3. INSTALL THE SCREW, HELICAL SPRING, STRAIGHT PIN, ELEVATING WHEEL, AND SLOTTED SPRING PIN.

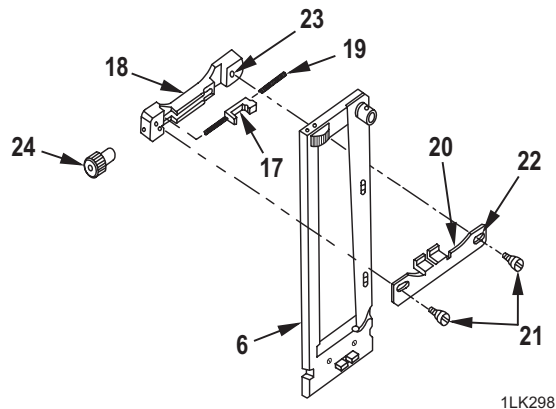
- a. Insert the helical spring (12) and straight pin (13) into the top of the frame assembly (6).
- b. Slide the elevating wheel (14) into the frame assembly (6).



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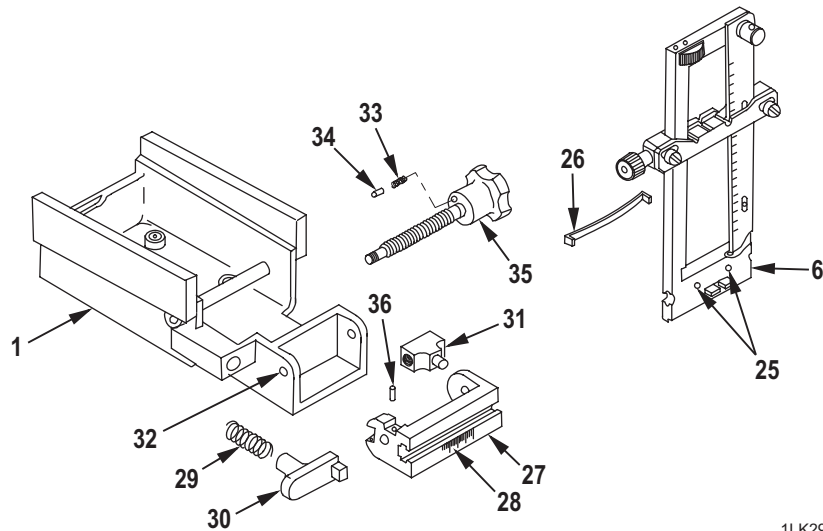
ASSEMBLY - Continued

- c. Insert the screw (15) through the top of the frame assembly (6), through the hole in the elevating wheel (14), and downward until the top of the screw is flush with the top of the frame assembly.
 - d. Align the pinholes in the elevating wheel (14) and screw (15). Tap in the slotted spring pin (16), using a brass-head hammer, until the slotted spring pin is flush on both sides.
4. INSTALL THE APERTURE RETAINER, HELICAL SPRING, APERTURE CARRIER, REAR SIGHT SLIDE, SHOULDER SCREWS, AND RETAINER PLAIN NUT.
- a. Install the aperture retainer (17) into the aperture carrier (18). Position the aperture carrier at the rear of the frame assembly (6).
 - b. Place one end of the helical spring (19) in the right hand side of the aperture carrier (18), against the aperture retainer (17). Hold the other end of the helical spring up at approximately 45 degrees. Lower the rear sight slide (20) down toward the aperture carrier until the helical spring contacts the tang on the rear sight slide. Lower the rear sight slide and helical spring together into the aperture carrier.



- c. Hold the aperture carrier (18) and rear sight slide (20) compressed while installing the two shoulder screws (21) through the slots (22) and holes (23). Tighten the shoulder screws using a 9/64 inch flat-blade screwdriver.
- d. Insert and tighten the retainer plain nut (24) into the left side of the aperture carrier (18).

5. INSTALL THE HEADLESS SETSCREWS, LEAF SPRING, SIGHT LOCK, FRAME BASE, WINDAGE SCREW, AND WINDAGE SCREW KEY.
 - a. If removed, install two new headless setscrews (25) in the frame assembly (6) and tighten with a jeweler's flat-blade screwdriver. Stake each setscrew using a center punch.
 - b. Install the leaf spring (26) onto the frame assembly (6) (side without the scale and battlesight). Slide the frame assembly, with spring attached, onto the frame base (27). (Ensure the windage scale (28) on the frame base is on the bottom.)
 - c. Insert the helical compression spring (29) and sight lock (30) into the rear sight base hinge support (1).
 - d. Position the windage screw key (31) in the slot in the frame base (27).
 - e. Insert the frame base (27) with frame assembly (6) into the rear sight base hinge support (1), with pinholes (32) aligned on each side.
 - f. With the frame assembly (6) centered in the frame base (27), insert the helical compression spring (33) and straight pin (34) into the head of the windage screw (35). Insert the windage screw from right to left through the rear sight base hinge support (1), frame base, and windage screw key (31). Hold the straight pin compressed and hold the windage screw key in place. Tighten the windage screw until flush with the left side of the rear sight base hinge support.
 - g. Push the windage screw (35) to align the pinholes. Insert the slotted spring pin (36) into the top of the frame base (27) and tap it in, using a brass-head hammer, until both ends are flush.
 - h. Rotate the windage screw (35) to zero on the windage scale (28) before attempting to lower the frame assembly (6).



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END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF THE MK19 MACHINE GUN – FEED THROAT ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Combination tool (PN 3269494)
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)

Tools and Special Tools – Continued

Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Feed throat plunger (2) (item 20, WP 0122 00)
Feed throat plunger (2) (item 21, WP 0122 00)
Helical spring (2) (item 19, WP 0122 00)
Lubricant (as required)

For disassembly and assembly of feed throat assembly, refer to WP 0052 00.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – ROUND REMOVAL TOOL
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Tool, combination assembly (PN 3269494)
Tool, kit, small arms repairman
 SC 5180-95-B71 with addition of
 SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
 SC-5180-95-B71
Tool set, intermediate maintenance,
 SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
 SL-3-08668A (Marine Corps only)

Materials/Parts

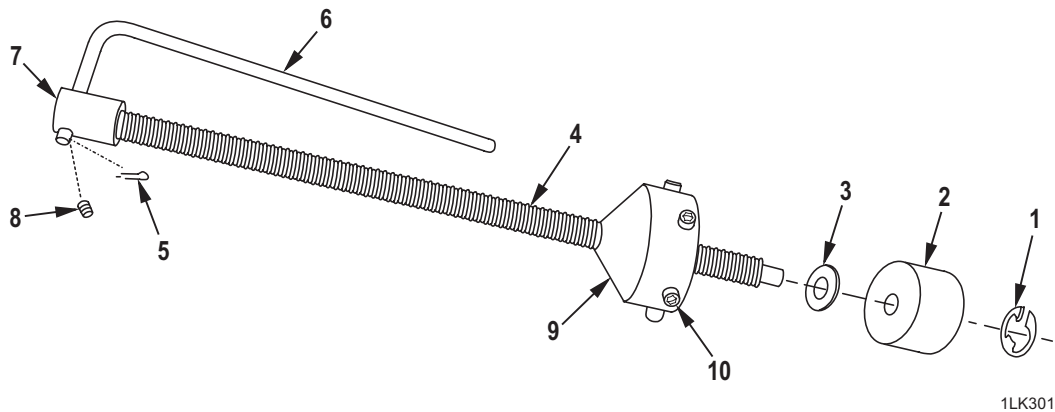
Cotter pin (item 27, WP 0122 00)
Lubricant (as required)
Wiping rag (item 14, WP 0121 00)

References

WP 0118 00

DISASSEMBLY

1. REMOVE RETAINING RING, CUP, AND BRASS WASHER.
 - a. Using a 1/4 inch width screwdriver, remove retaining ring (1). Separate cup (2) and brass washer (3) from shouldered shaft (4).
2. REMOVE COTTER PIN AND HANDLE.
 - a. Using round nose pliers, remove cotter pin (5) and discard. Slide handle (6) from drive rod (7).
3. REMOVE SET SCREW AND DRIVE ROD.
 - a. Using a 3/16 inch key wrench, unscrew and remove set screw (8) from the drive rod (7). Separate drive rod from shouldered shaft (4).
4. REMOVE SHAFT COLLAR AND SOCKET CAPSCREWS.
 - a. Remove shaft collar (9) from shouldered shaft (4). Using a 5/16 inch key wrench, unscrew and remove the five socket capscrews (10) from shaft collar.

**REPAIR OR REPLACEMENT**

1. Visually inspect for broken or missing parts.
2. Lightly lubricate.
3. Remove rust with lubricant and wiping rag.
4. Replace defective parts as authorized by WP 0118 00.

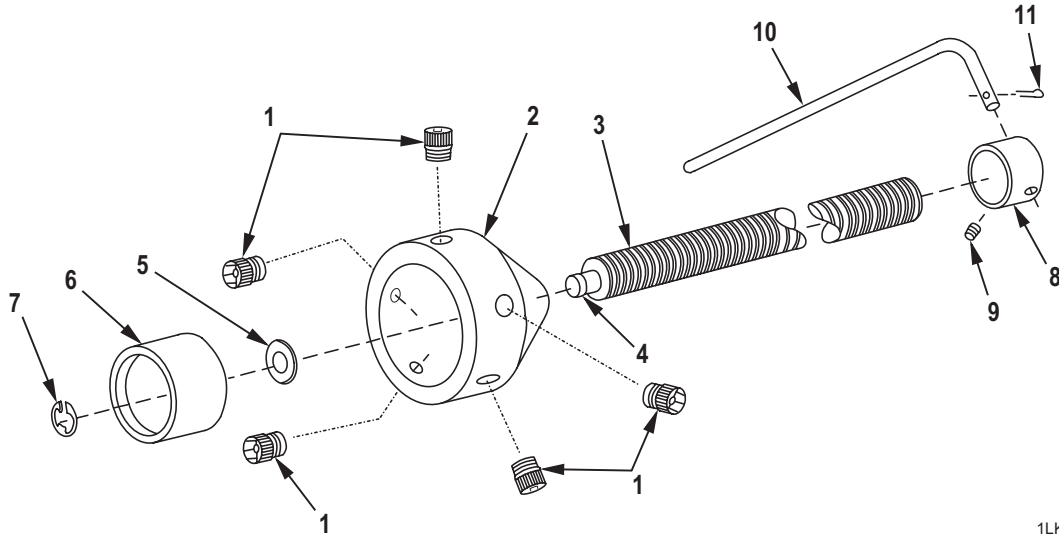
ASSEMBLY

1. INSTALL SOCKET CAPSCREWS AND SHAFT COLLAR.
 - a. Using a 5/16 inch key wrench, screw the five socket capscrews (1) into the shaft collar (2) until each is fully seated. Install shaft collar onto shouldered shaft (3) with the concave surface of shaft collar pointed toward the retaining ring groove (4).
2. INSTALL BRASS WASHER, CUP, AND RETAINING RING.
 - a. Seat brass washer (5) and cup (6) onto shouldered shaft (3). Using a 1/4 inch width screwdriver, snap on the retaining ring (7).
3. INSTALL DRIVE ROD AND SET SCREW.

NOTE

Ensure set screw hole is aligned with the detent on the shouldered shaft when installing drive rod.

- a. Place the drive rod (8) onto the shouldered shaft (3). Using a 3/16 inch key wrench, insert and tighten the set screw (9).
4. INSTALL HANDLE AND COTTER PIN.
 - a. Slide handle (10) through hole in drive rod (8). Using round nose pliers, install new cotter pin (11).



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END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – FEED OPERATION FUNCTION CHECK
INSPECTION OF INSTALLED ITEMS

INITIAL SETUP:**Tools and Special Tools**

Linked dummy rounds (2)
MK 64 machine gun mount
M3 tripod mount
Table stand

References

TM 9-1005-245-13&P
TM 9-1010-231-13&P
WP 0003 00
WP 0071 00

INSPECTION OF INSTALLED ITEMS**WARNING**

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

1. MOUNT AND LOAD THE WEAPON.

WARNING

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

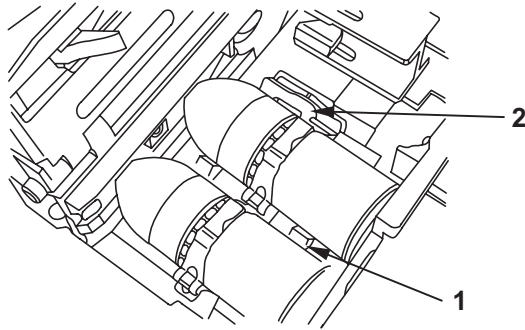
Do not allow the top cover to slam shut from raised position when loading. Hand injury or equipment damage may result.

- a. Mount the assembled weapon on the MK 64 Machine Gun Mount, M3 tripod, or table stand (see TM 9-1010-231-13&P/TM 9-1005-245-13&P).
- b. Open the top cover. Place the bolt in the forward position. Slide two dummy rounds, female link first, across the secondary pawl (1). The round should be between the secondary pawl and primary pawl (2).

INSPECTION OF INSTALLED ITEMS - Continued**CAUTION**

If top cover will not close, do not force it. Ensure the round is well seated between the pawls. Adjust the feed slide assembly until the cover will close.

- c. Position the feed slide assembly fully to the left. Close cover, observing the **CAUTION**.



1LK126

2. CHARGE THE WEAPON.

- a. Charge the weapon slowly (WP 0003 00). Place the thumb safety on "S" (SAFE).
- b. Go to the front of the receiver and check the primary pawl, located under the receiver feed tray area. Check the primary pawl to ensure it is flush with the receiver. If so, then the primary pawl is down (flush) in the feed area. For a quick check, perform step 3a. If the primary pawl is protruding downward, perform step 3b.

3. POSITION OF PRIMARY PAWL.

- a. If the primary pawl is up, open the top cover and remove the rounds. Place the thumb safety on "F" (FIRE). Ride the bolt forward. Slide the round between the pawls as in step 1b. Move the feed slide assembly fully to the left. Close the top cover.
- b. Charge the weapon slowly until the primary pawl clicks into the up position. Return one charger handle forward to the locked position. Hold the other charger handle firmly and ride the bolt forward slowly about 3 3/4 inches (or the length of one charger arm). Check the round positioning block tabs, which protrude from the right receiver wall; they should retract inward approximately the width of the tab heads. If this happens, the feed slide is adjusted correctly. If this does not happen, perform feed slide adjustment (WP 0071 00).

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – CLEANING**

INITIAL SETUP:**Materials/Parts**

Bore brush, 40mm (PN 3269511)
Cleaning compound (item 3, WP 0121 00)
Dry cleaning solvent (item 12, WP 0121 00)
Lubricant (as required)

References

TM 9-1010-230-10
WP 0121 00

CLEANING**WARNING**

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.

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

CAUTION

Do not immerse the following assemblies and components in dry cleaning solvent:

- Cam followers
- Bolt buffer assemblies (while assembled)
- Bolt buffer
- Sear buffer
- Ogive plunger assembly (while assembled)
- Receiver buffer body (while assembled)

NOTE

Make sure the weapon is clean and lubricated before reissuing. Observe the instructions and **CAUTIONs** for cleaning and lubricating each assembly. A list of cleaning and lubrication materials is provided in WP 0121 00.

1. Prior to cleaning, field strip the weapon. Disassemble only those assemblies, or parts or assemblies, listed in step 4. Apply the cleaning materials listed in WP 0121 00 as instructed for each assembly or component. Observe the **CAUTION** above for immersion of certain components.

CLEANING - Continued

2. Do NOT disassemble the following items. Immerse the entire assembly or component in dry cleaning solvent. Dry thoroughly before lubricating.
 - a. Backplate pin assembly
 - b. Secondary drive lever
 - c. Top cover assembly
 - d. Feed tray, feed tray pawl, and pawl spring
 - e. Vertical cam assembly
 - f. LH and RH gun charger assemblies
 - g. Alignment guide assembly
 - h. Round positioning block
 - i. Receiver (with secondary pawl, pawl rod, helical spring, and rear sight assembly attached)
 - j. Barrel and flash suppressor
3. Clean the bore and chamber, using a caliber .50 cleaning rod (in five sections), the 40mm borebrush adapter assembly and bore brush, and Rifle Bore Cleaner (RBC).
4. Disassemble the following assemblies and clean as instructed below. Do NOT immerse in cleaning solvent any of the components listed in the **CAUTION** at the beginning of this work package.
 - a. Bolt and backplate assembly. Remove all components from the bolt except the shoulder pin, pawl, and helical compression spring. Do not remove the backplate weldment from the control grip assembly. Immerse all components (except those listed in the **CAUTION** at the beginning of this work package) in dry cleaning solvent. Dry thoroughly before lubricating.
 - b. Feed slide assembly. Do not immerse the feed slide without first disassembling. Remove only the feed pawls, headless straight pin, and feed pawl flat spring. Do not remove the three self-locking socket head screws. Immerse feed pawls, headless straight pin, and feed pawl flat spring in dry cleaning solvent. Dry thoroughly before lubricating.
 - c. Ogive plunger assembly. Do not immerse while assembled (see **CAUTION** at the beginning of the work package). Disassemble it first; then immerse all parts in dry cleaning solvent. Dry thoroughly and lubricate before assembly.
 - d. Sear assembly. Do not immerse the assembled receiver buffer bodies with internal components in cleaning solvent (see **CAUTION** at the beginning of this work package); disassemble, then immerse them in dry cleaning solvent. Dry thoroughly before lubricating.
 - e. Primary pawl, pawl rod, and pawl spring. Remove from the receiver. Immerse all parts in dry cleaning solvent. Dry thoroughly before lubricating.
 - f. Feed throat. Remove from receiver. Clean all accessible surfaces with a rag.

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – LUBRICATION INSTRUCTIONS

INITIAL SETUP:**Materials/Parts**

Grease, molybdenum disulfide (GMD)
(item 6, WP 0121 00)
Lubricating oil (LAW) (item 8, WP 0121 00)
Lubricating oil, weapons (LSA)
(item 9, WP 0121 00)
Lubricating oil, weapons (LSAT)
(item 10, WP 0121 00)
Wiping rag (item 14, WP 0121 00)

References

WP 0080 00

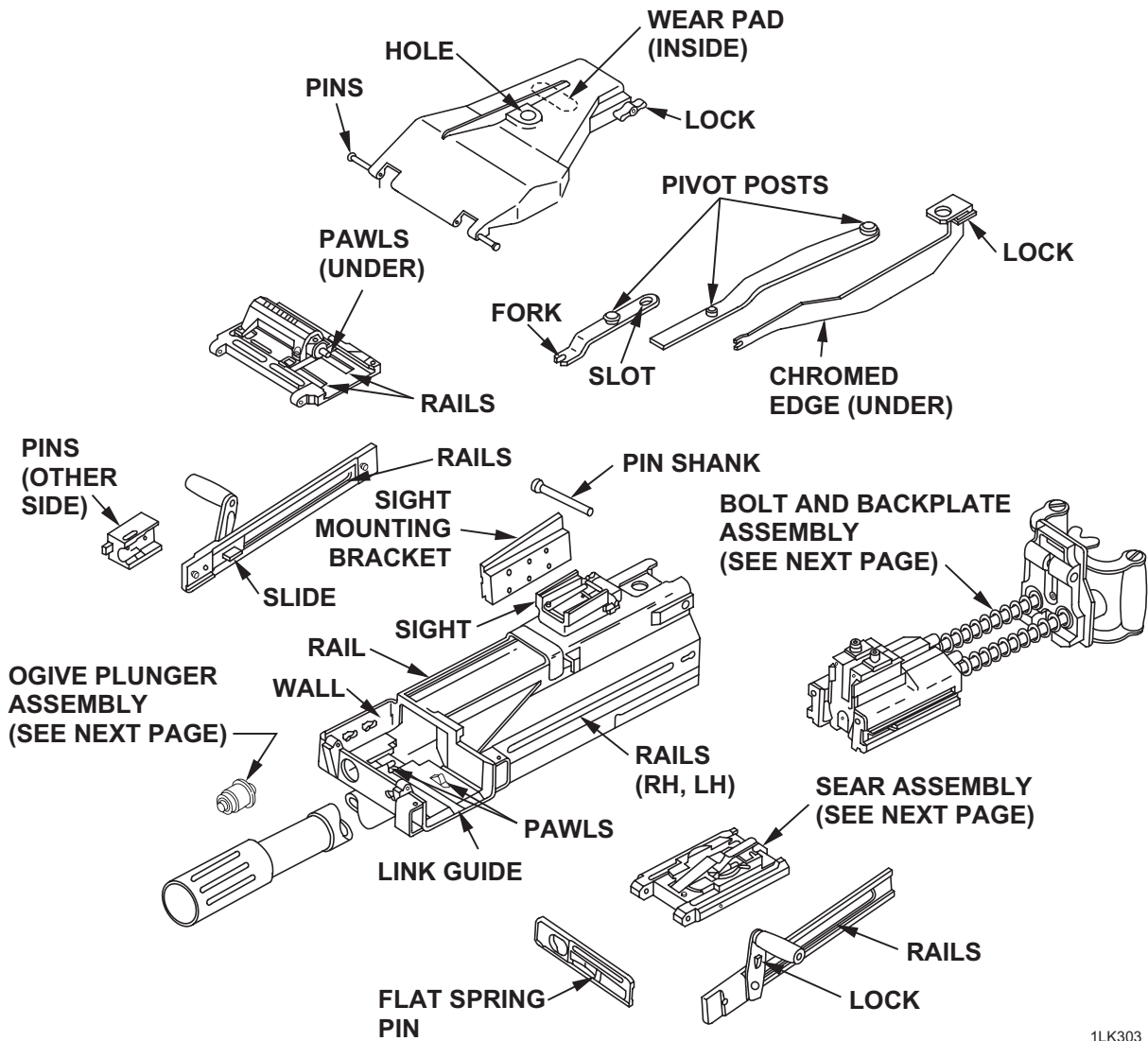
LUBRICATION**CAUTION**

Do not lubricate the internal bolt buffer assemblies. All parts must be clean and dry. Otherwise, excess recoil (hard firing) will occur upon firing, causing parts damage.

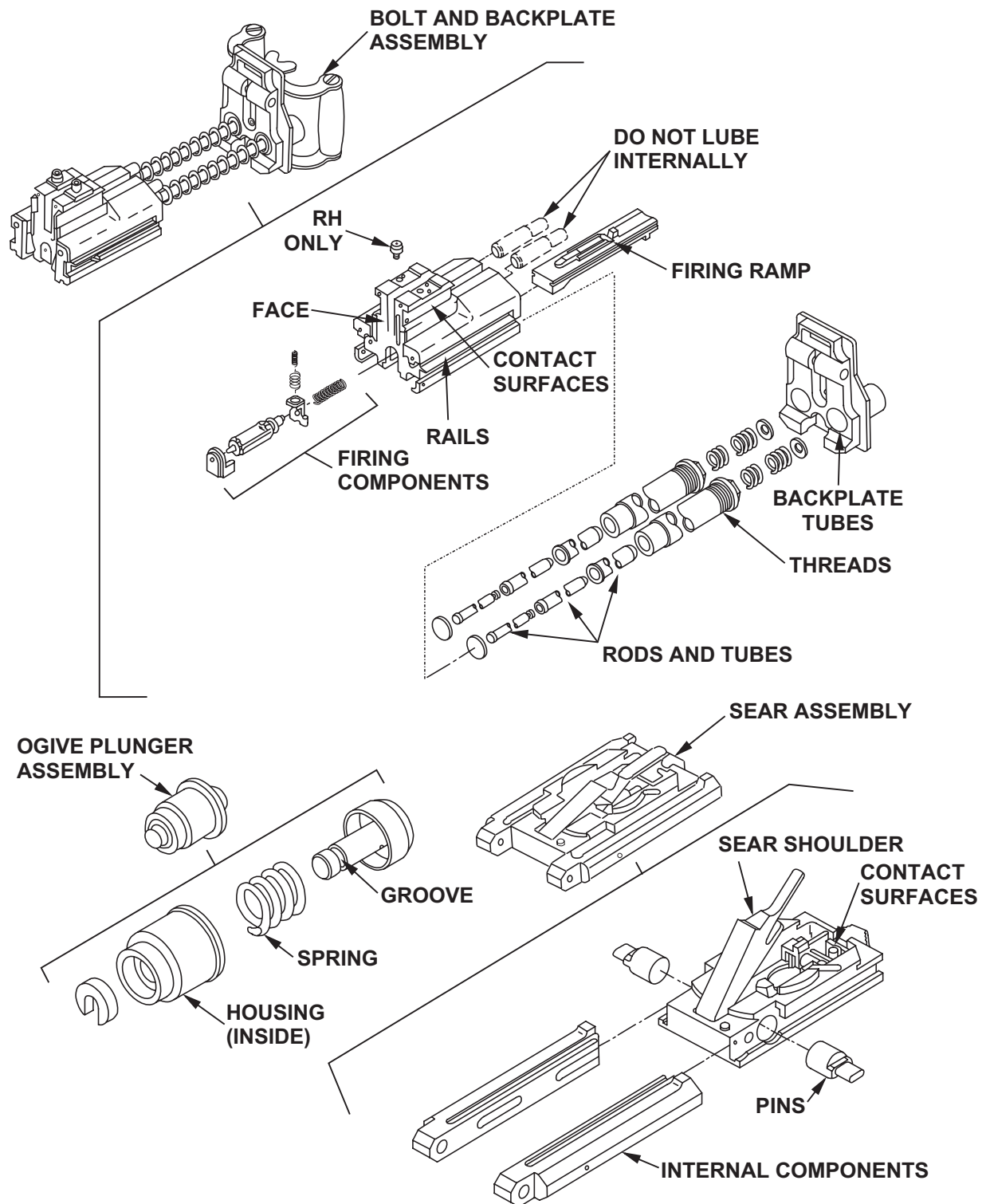
CLP is NOT authorized for use on the MK19. If it is used, damage to the sear buffer and cam followers will occur.

1. Normal Conditions. In all temperatures down to 0 degrees, use LSAT, LSA, or GMD. Lubricate by brushing a thin coat of lubricant on each component before assembly. Moderately lubricate all special lubrication points shown on the following pages.

LUBRICATION - Continued



1LK303

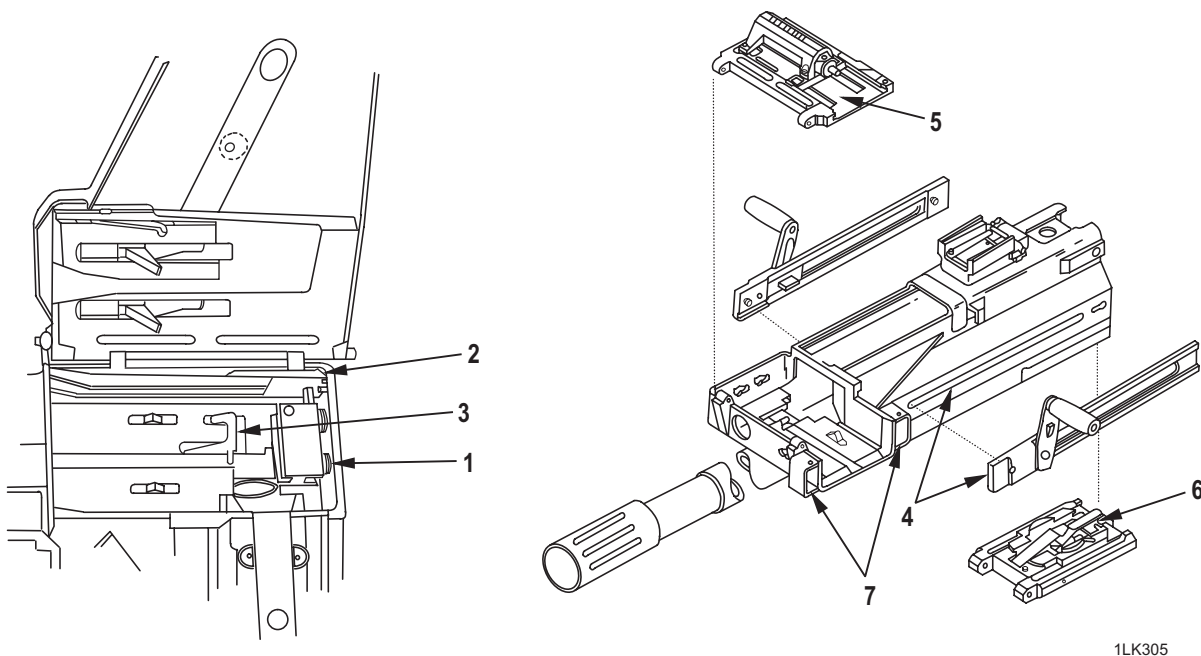


1LK304

LUBRICATION - Continued

2. Sand and Dust. Brush a generous coat of lubricant on all critical points shown in the illustration. Upon assembly, pack more lubricant into the following areas:
 - a. Between the round positioning block (1) and forward receiver wall.
 - b. Between the alignment guide assembly (2) and forward receiver wall.
 - c. Under the primary pawl (3).
 - d. Under the charger handle locks and between the charger housing and receiver (4).
 - e. Inside the feed tray (5).
 - f. Inside the sear assembly, under the receiver sear, and inside the sear housing and receiver buffer bodies (6).
 - g. Between the feed throat plungers and receiver slots (7).

Apply lubrication to exterior surfaces and wipe off with a clean wiping rag.



3. Extreme cold. Subzero weather causes the lubricant to become thicker. In temperatures 0 degrees and below, use LAW after first cleaning all parts to remove previous lubricants. When using LAW, brush on a thin coat, especially on those parts cited in WP 0080 00, step 2. If the metal "sweats" when the gun is brought indoors, field strip, wipe dry, then allow parts to return to room temperature before lubricating and reassembling.
4. Wet, salty conditions. Preserve and lubricate all surfaces generously to protect parts from rust.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – BORESIGHTING INSTRUCTIONS**

INITIAL SETUP:**Tools and Special Tools**

Adapter assembly, 40mm, 4933-00-102-6798
Boresight kit assembly, 40mm, 4933-00-930-1957
Fabricated target
MK 64 carriage and cradle assembly
M3 tripod ground mount
Tape measure
Traversing and elevating (T&E) mechanism

References

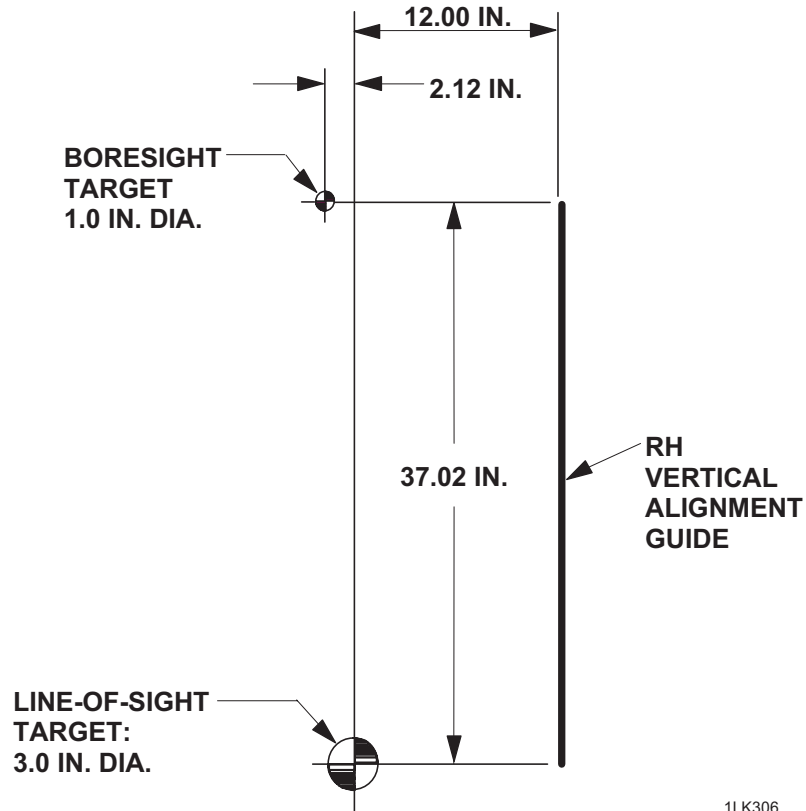
TM 10004A-10/A
TM 9-1010-231-13&P
WP 0065 00
WP 0085 00

BORESIGHTING INSTRUCTIONS**NOTE**

For boresighting of the Upgunned Weapons Station (UGWS) refer to TM 10004A-10/A.

BORESIGHTING INSTRUCTIONS - Continued**1. FABRICATE TARGET.**

- a. Construct a target to the dimensions shown:



1LK306

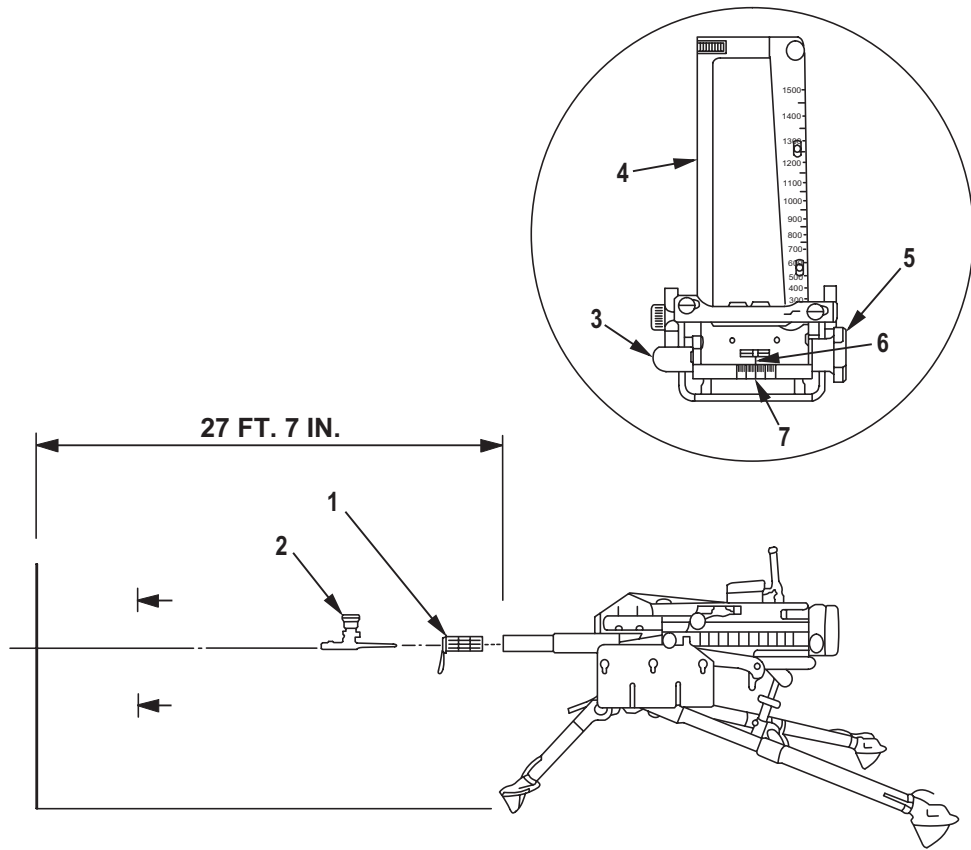
2. SET UP THE EQUIPMENT.

- a. Remove the weapons flash suppressor.

WARNING

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

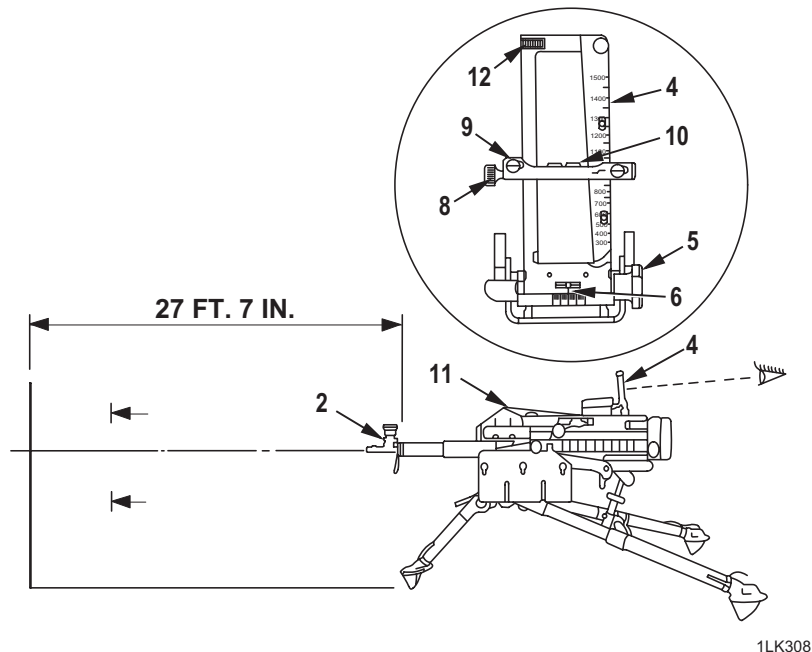
- b. Install the weapon in the MK 64 carriage and cradle assembly on the M3 tripod ground mount equipped with a T&E mechanism (for attaching the T&E mechanism to the MK 64 mount see TM 9-1010-231-13&P).
- c. Position the weapon so the centerline of the barrel is perpendicular to the target and on approximate center of boresight target crosshairs with muzzle end of barrel at 27 feet 7 inches from the target.
- d. Install the boresight adapter (1) in the end of the muzzle. Install the boresight (2) in the adapter, as shown.
- e. Raise the rear sight on the weapon by pressing the sight lock (3) while rotating the frame assembly (4) upward until it clicks. Turn the windage screw (5) until the windage indicator (6) is aligned with the 0 mark (7) on the windage scale.



1LK307

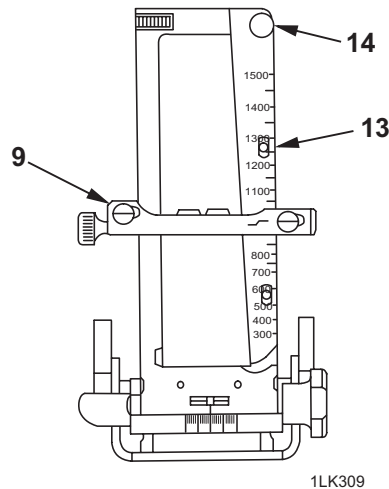
BORESIGHTING INSTRUCTIONS - Continued**3. BORESIGHT THE WEAPON.**

- a. Turn the boresight (2) so the eyepiece is out of the way. Stand at arm's length from the rear of the weapon. Sight past the right hand side of the frame assembly (4). The right hand side of the frame assembly should be parallel with the vertical alignment guide on the target. If it is not, tilt the target until the frame assembly and vertical alignment guide are parallel.
- b. With the boresight (2) in the upright position, look through the top of the scope and align the boresight's crosshairs with the boresight crosshairs on the target. Use only the T&E mechanism to move the muzzle into alignment.
- c. Without disturbing the weapon, slightly unscrew and press in the weapon's retainer plain nut (8). Slide the aperture carrier (9) upward on the scale to the 1,000 meter mark.
- d. Stand at arm's length from the rear of the gun and sight through the sight aperture of the rear sight slide (10) down the front sight blade (11). The center of the line of sight target should be approximately lined up with the top of the front sight blade and the top edge of the notch on the sight aperture.
- e. Loosen the four socket head cap screws and move the rear sight assembly to align the notch in the windage indicator (6) with the front sight and vertical crosshair on the line of sight target. Tighten the four socket head cap screws and non-electrical wire. If moving the sight does not bring it into alignment, use the elevating wheel (12) and windage screw (5) to bring the sight into alignment with the target.
- f. If the rear sight assembly is in acceptable alignment, the top edge of the aperture carrier (9) will be aligned with the 1,000 meter mark, as shown. If the top edge of the aperture carrier is at the 1,000 meter mark, go to step h. If it is above or below the 1,000 meter mark, go to step g.



1LK308

- g. Adjust the position of the scale.
- (1) If the top edge of the aperture carrier (9) was not aligned with the 1,000 meter mark (in step f), the scale (13) must be physically moved up or down. Do not move the aperture carrier. Loosen the scale lock screw (14) at the top of the scale by inserting a punch or key wrench into the holes and turning the screw counterclockwise, until the scale can be moved.
 - (2) Carefully slide the scale (13) up or down until the 1,000 meter mark is exactly aligned with the top of the aperture carrier (9). Tighten the scale lock screw (14). Go to step h.



- h. Verify alignment.
- (1) Ensure vertical alignment guide on target is parallel with the right hand side of the frame assembly.
 - (2) Ensure intersection of boresight crosshairs is within the 1 inch diameter circle on the target.
 - (3) Ensure line of sight is within the 3 inch diameter circle on the target.
- i. Remove the boresight and 40mm adapter from the muzzle of the weapon.
- j. Install the flash suppressor on the muzzle (WP 0065 00).

WARNING

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.

- k. Test fire (WP 0085 00) the weapon, if possible.

END OF WORK PACKAGE

DIRECT SUPPORT

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

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN – BORESIGHTING WEAPON EQUIPPED WITH
AN/TVS-5 NIGHT SIGHT ASSEMBLY (5855-00-629-5327)**

INITIAL SETUP:**Tools and Special Tools**

Adapter assembly, 40mm
Boresight kit assembly, 40mm
Fabricated target
MK 64 carriage and cradle assembly
M3 tripod ground mount
Tape measure

Tools and Special Tools - Continued

Traversing and elevating (T&E) mechanism

References

TM 9-1010-231-13&P
WP 0065 00

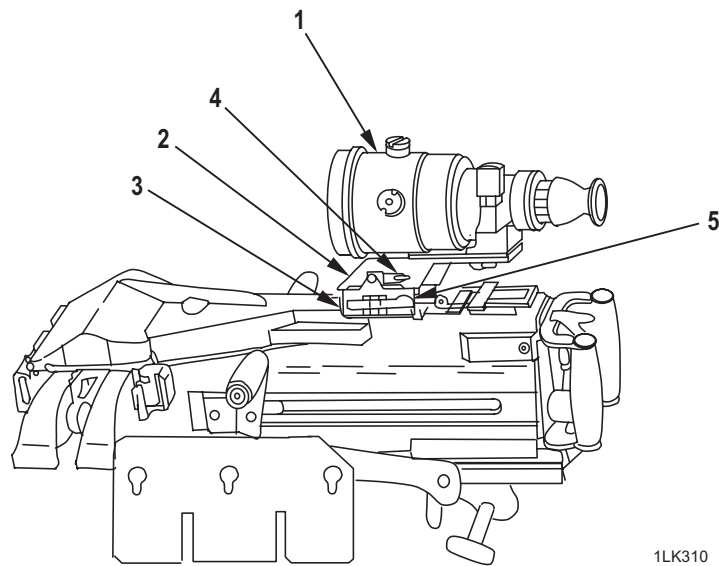
BORESIGHTING INSTRUCTIONS**1. ALIGN THE NIGHT SIGHT USING THE OPTICAL BORESIGHT.****a. Set up the equipment.**

- (1) Remove the weapon's flash suppressor (WP 0065 00).

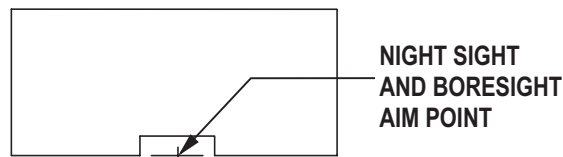
WARNING

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

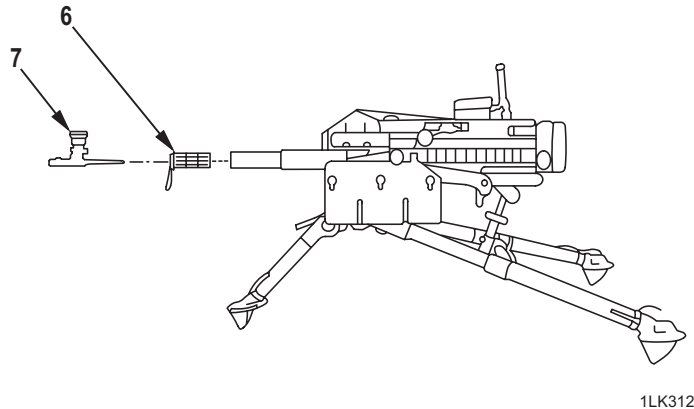
- (2) Install the weapon in the MK 64 carriage and cradle assembly on the M3 tripod ground mount equipped with a T&E mechanism (for attaching the T&E to the MK 64 mount, see TM 9-1010-231-13&P).
- (3) Attach the AN/TVS-5 night vision sight (1) to the night vision sight adapter (2) and slide the night sight assembly onto the MK19 MOD 3 rear sight assembly (3) until it stops. Hold the sight against the stop and tighten the side clamp (4) and then the two top clamps (5).

**b. Fabricate target.**

- (1) Construct target as shown below and place in front of weapon at 1,000 inches from the objective lens of the night sight.



- c. Install the boresight adapter (6) in the end of the muzzle. Install the boresight (7) in the adapter, as shown.



- d. Align the weapon to bring the optical boresight to coincide with the aiming point of the target.
- e. Without disturbing the alignment of the weapon, locate the night sight reticle by adjusting the azimuth and elevation actuators so that the 100 meter range mark and the optical boresight are both aligned to the same point of aim.
- f. Remove the boresight and 40mm adapter from the muzzle end of the gun.
- g. Install the flash suppressor on the muzzle (WP 0065 00).

WARNING

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.

CAUTION

Do not fire the weapon on the 1,000 inch target.

- h. Test fire.

NOTE

Always fasten left side cam on mounting bracket first.

Under extreme dark conditions, it may be necessary to orient the night vision sight in the direction of a higher level in order to see the back grid reticle more clearly (i.e., point the night vision sight toward the horizon).

- (1) Fire one or two rounds to settle the sight on the weapon and retighten the mounting bracket and lever screw assembly.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE OF MK19 MACHINE GUN – WHEN TO TEST FIRE**

INITIAL SETUP:**References**TM 9-1010-230-10

WHEN TO TEST FIRE**WARNING**

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.

When firing approved 40mm ammunition, observe all **WARNINGs** in the front of this manual.

1. AFTER BORESIGHTING THE WEAPON.
 - a. Test fire the weapon for accuracy after boresighting.
2. AFTER CLEARING AN OBSTRUCTION (GENERAL).
 - a. See round removal procedure in TM 9-1010-230-10.
3. AFTER ANY FIRING MALFUNCTIONS HAVE BEEN CORRECTED.
 - a. If possible, test fire the weapon for proper functioning after performing corrective action for the following deficiencies:
 - (1) runaway gun (uncontrolled automatic fire)
 - (2) erratic firing
 - (3) sluggish firing
 - (4) premature firing
 - (5) hard firing (excess recoil)

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – TEST FIRING PROCEDURES (ARMY ONLY)

INITIAL SETUP:**Tools and Special Tools**

Ammunition containers (M548 or PA120 containers)
Empty case catch bag
Linked 40mm ammunition as specified for each test
MK 64 gun mount (gun cradle)
M3 tripod ground mount
Six linked dummy rounds
Tool, combination assembly (PN 3269494)
Traverse and elevating (T&E) mechanism

References

TM 9-1010-231-13&P
WP 0020 00
WP 0040 00
WP 0067 00
WP 0091 00

TEST FIRING PROCEDURES (ARMY ONLY)**WARNING**

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

Firing will not be conducted from enclosures.

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.

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

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.

1. HIGH-EXPLOSIVE (HE) PROJECTILES:

- a. Observe all **WARNINGS** in the front of this manual.
- b. Ensure a clear path (i.e., tree, buildings, hills) of fire for at least 310 meters.
- c. Use only the ammunition types authorized in this technical manual (WP 0091 00).

TEST FIRING PROCEDURES (ARMY ONLY) - Continued**2. SET UP AND INSPECT EQUIPMENT AS FOLLOWS:****a. Equipment and tools required:**

- MK 64 gun mount (gun cradle)
- M3 tripod ground mount
- traverse and elevating (T&E) mechanism
- ammunition containers (M548 or PA120 containers)
- linked 40mm ammunition as specified for each test
- six linked dummy rounds
- combination tool (PN 3269494)
- empty case catch bag

b. Perform a visual inspection of the assembled gun (including feed throat) for completeness, workmanship, or visible damage that could adversely affect life, function, and reliability. Do not fire if deficiencies are present.**WARNING**

Ensure stow pin and depression stop are installed before attaching MK 64 mount to tripod. Refer to TM 9-1010-231-13&P.

c. Install the weapon on the MK 64 Gun Mount on the M3 Tripod with T&E Mechanism (see TM 9-1010-231-13&P).**WARNING**

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

d. Raise the top cover assembly and verify the following parts operate freely:

- round positioning block
- alignment guide assembly
- primary pawl
- secondary pawl
- feed slide assembly
- feed pawls
- feed tray pawl
- RH cartridge extractor
- LH cartridge extractor
- receiver sear (with bolt removed)
- LH bolt finger (with bolt removed, run dummy round through bolt face and ensure round passes freely through LH and RH bolt fingers)
- RH bolt finger (with bolt removed, run dummy round through bolt face and ensure round passes freely through LH and RH bolt fingers)
- pawl (with bolt removed, run dummy round through bolt face and ensure round stop pawl snaps behind round case rim prior to compression of LH and RH bolt finger springs)
- ogive plunger assembly
- cocking lever (check with bolt in and MK 16 MOD 0 (LH) charger removed)
- safety lever (with safety in "S" (SAFE) position)
- cover lock (with top cover closed, then opened)
- charger handle lock (RH)
- charger handle lock (LH)

-
- e. With the bolt in battery position and top cover raised, position feed slide assembly fully to the left and verify top cover closes freely.
 - f. With the thumb safety in "F" (FIRE) position, use charger handles to pull the bolt to the rear until receiver sear is engaged. The bolt and gun chargers shall move freely, without binding.
 - g. Hold the gun chargers to the rear to retain the bolt. Disengage the receiver sear and allow the bolt to return slowly to battery. There shall be no binding of the sear, bolt, or gun chargers.
 - h. Repeat step f. With thumb safety in "S" (SAFE) position, after searing, depress trigger to assure bolt will not return to battery.
 - i. Move thumb safety to "F" (FIRE) position. Hold the chargers to the rear to restrain the bolt. Disengage the receiver sear and allow the bolt to return slowly to battery. There shall be no binding of the receiver sear, bolt, or gun chargers.
 - j. Repeat steps f through i (retracting and releasing the bolt with thumb safety in "F" (FIRE) and "S" (SAFE) positions five times. Verify no malfunctions occurred and no discrepancies were noted.
 - k. If the bolt timing has not been set, remove the bolt and backplate assembly (WP 0040 00) and adjust bolt timing in accordance with WP 0067 00.
 - l. Reinstall bolt and backplate assembly (WP 0040 00), charge gun, return gun chargers to stow position, move thumb safety to "F" (FIRE) position, depress manual trigger plate, raise top cover, and verify firing pin is protruding from bolt face. Return thumb safety to "S" (SAFE) position.
 - m. Verify the firing pin is being retracted as the bolt travels rearward (being pulled by the gun chargers). This can be determined by watching the firing pin point disappear into the bolt face as the bolt is moved rearward from the battery position.
 - n. Raise the top cover and ensure the bolt is in the battery position.
 - o. Feed two linked dummy rounds of 40mm ammunition into the gun until the first round is latched in position by the secondary pawl.
 - p. Move feed slide assembly to the left and close top cover. Charge gun, return gun chargers to stow position, and verify receiver sear is engaged and rounds have been fed across feeder. Ensure primary pawl is in up position.
 - q. Move the thumb safety to "F" (FIRE) position, release the receiver sear, and verify ogive plunger assembly returns to rest position.
 - r. Raise top cover; verify the extractors are seated properly on the ammunition case rim.
 - s. Holding the top cover open, pull the bolt to the rear until it sears and return the gun chargers fully forward to stow position.
 - t. Place the thumb safety in "S" (SAFE) position.
 - u. Verify no malfunctions occurred and no discrepancies were noted during accomplishment of steps n through t.

TEST FIRING PROCEDURES (ARMY ONLY) - Continued**CAUTION**

Catch the ejected dummy round as it comes from the bottom of the weapon. The round's ogive may become dented if the round is dropped.

- v. Remove dummy ammunition from the gun, using the combination tool assembly.
- w. Pulling the gun chargers to the rear, hold one gun charger to restrain the bolt. Disengage the receiver sear and allow the bolt to return safely to battery.
- x. Install the feed throat assembly and repeat steps n through q using linked dummy rounds. Verify gun meets requirements of steps n through q when repeated with six linked rounds of dummy ammunition.
- y. Remove last dummy round from the gun, using the combination tool assembly.

3. GUN PROOF FIRING.

- a. Conduct the following before loading the weapon for tests 4 and 5:
 - Load one round of 40mm high velocity ammunition and fire the gun.
 - Inspect the gun and verify there are no signs of failure, deformation, or loosening of any parts.

4. SINGLE ROUND, SHORT BURST ACCURACY TEST.

- a. If possible, conduct this test after boresighting or after corrective action for runaway gun:
 - Load nine linked rounds into the weapon.
 - Raise the gun sight aperture to 1,000 meters and adjust the T&E mechanism to acquire a 14 meter target at a known 1,000 meter range.
 - Fire the nine rounds singly or in bursts of three.
 - Verify all nine rounds hit the target.
 - Inspect the weapon and verify there is no evidence of damage, malfunction, or stoppage.

5. FIRING RATE TEST TO VERIFY NORMAL RATE OF FIRE AND RECOIL LOAD.

- a. If possible, conduct this test after performing corrective action for erratic or sluggish rate of fire or for excess recoil:
 - Load 10 linked rounds into the weapon.
 - Raise the gun sight aperture to 1,000 meters and adjust the T&E mechanism to acquire a target at a known 1,000 meter range.
 - Fire the 10 rounds in a single burst of automatic fire.

- Verify the ammunition was expended without excess recoil, damage, or stoppage, and that the firing rate during the test was neither sluggish or erratic.
- If the firing was hard, erratic, or sluggish, or if any malfunctions occurred, troubleshoot (see WP 0020 00, Symptom Index).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – POST-FIRING CHECKS

INITIAL SETUP:**Materials/Parts**

Abrasive cloth (item 5, WP 0121 00)

References

WP 0040 00

WP 0084 00

POST-FIRING CHECKS

1. Repeat the inspection procedures in WP 0084 00, step 3.

WARNING

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

2. Clean bore and chamber.

NOTE

If possible, clean bore and chamber immediately after firing to minimize carbon buildup. Remove caked-on carbon with abrasive cloth.

3. Remove the bolt and backplate assembly (WP 0040 00), the vertical cam assembly, and the primary drive lever (WP 0040 00). Examine the chromed edge and entire surface of the vertical cam assembly for bends, burrs, nicks, pits, scratches, or dull spots. Remove with abrasive cloth or wood block.

DIRECT SUPPORT

**MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MAINTENANCE OF MK19 MACHINE GUN – MODIFICATION OF MK19 MOD 3 MACHINE GUN TO
MK19 MOD 3 UPGUNNED WEAPONS STATION (UGWS) (MARINE CORPS ONLY)
DISASSEMBLY, MODIFICATION, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Band saw
Tool kit, small arms repairman
SC 5180-95-B71 with addition of
SL-3-00607A (Marine Corps only)
Tool kit, small arms repairman,
SC-5180-95-B71
Tool set, intermediate maintenance,
SL-3-08669A (Marine Corps only)
Tool set, organizational maintenance,
SL-3-08668A (Marine Corps only)

Materials/Parts

Block (PN 6289494)
Cotton tip swab
Label (identification plate) (PN 7004224)
Machine screw (PN MS51958-40B)
Sealing compound (PN MIL-S-46163)
Solid film lubricant (item 7, WP 0121 00)
Wiping rag (item 14, WP 0121 00)

References

MCO P4400.84
TM 4700-15/1
UM 4790-5

References - Continued

WP 0044 00
WP 0066 00
WP 0072 00
WP 0075 00

Estimated Time to Complete the Task

One Machinist (MOS 2161), 0.5 hour per trigger
assembly and one Small Arms
Repairer/Technician (MOS 2111), 0.5 hour
per trigger assembly, interrupted by touch-up
finishing time 9.0 hours

Special Instructions

Send all excess parts to:

Director (Code 886/20)
Marine Corps Multi-Commodity Maintenance
Center
ATTN: Shop 729
Albany, GA 31704-1128

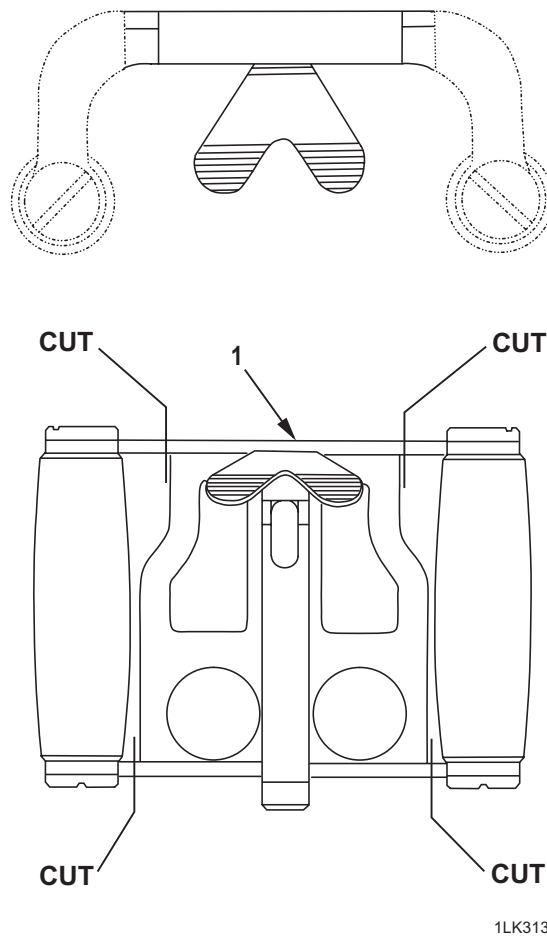
This work package shows complete instructions for the modification of the MK19 MOD 3 machine gun to the MK19 MOD 3 Upgunned Weapons Station (UGWS).

DISASSEMBLY

1. Remove control grip assembly from bolt and backplate assembly (WP 0066 00).
2. Remove sear housing cap from sear assembly (WP 0072 00).
3. Remove RH and LH charging handle assemblies (WP 0075 00).
4. Remove non-electrical wire from socket head cap screws on rear sight assembly. Using a 9/64 inch key wrench, remove four socket head cap screws and rear sight assembly from the receiver.

MODIFICATION

1. Using a band saw, cut the handles of control grip assembly (1) at locations shown.



1LK313

2. Using a file, remove all burrs, sharp edges, and sharp corners from cut surfaces. Treat all exposed (cut) surfaces with solid film lubricant using a wiping rag or cotton tip swab. Allow solid film lubricant to dry in accordance with manufacturer's instructions.

ASSEMBLY

1. Install modified control grip assembly onto bolt and backplate assembly (WP 0066 00).
2. Install solenoid to the sear assembly (WP 0072 00).
3. Install round positioning block onto left side of receiver (WP 0044 00).
4. Position identification plate on top of the receiver (ensuring the markings are legible) in back of the cover. Align the holes in the identification plate with the four existing holes in the receiver.
5. Apply sealing compound to threads of four machine screws, and secure the identification plate to the receiver.
6. Record the modification in accordance with TM 4700-15/1.
7. Report the modification in accordance with MCO P4400.84 (units supported by Automated Information System use UM 4790-5).

END OF WORK PACKAGE

DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

MAINTENANCE OF MK19 MACHINE GUN – PREPARATION FOR STORAGE OR SHIPMENT
(NOT FOR MARINE CORPS USE)

INITIAL SETUP:**References**

NAVSEAINST 8370.2 (Navy only)
Special Packaging Instruction Sheet
(P3269419)
TB 9-1000-247-34
WP 0080 00
WP 0081 00

NOTE

This section not for Marine Corps use.

WEAPON NOT BEING RETURNED TO UNIT

Packaging of the MK 19 MOD 3 shall be in accordance with Special Packaging Instruction Sheet (P3269419). If assistance is required contact: Commander, U. S. Army Armament Research Development and Engineering Center, ATTN: AMSTA-AR-ESK, Rock Island, IL 61299-7630.

WEAPON BEING RETURNED TO UNIT

1. Packaging, if required, for storage which will not exceed 90 days and shall be as follows:
 - a. Clean and preserve in accordance with cleaning and lubricating instructions contained in work packages WP 0080 00 and WP 0081 00.

PREPARATION FOR SHIPMENT/STORAGE

NAVY: Security, shipment, and storage shall be in accordance with NAVSEAINST 8370.2, Small Arms and Weapons Management Policy and Guidance Manual.

ARMY: Conduct overseas shipment procedures in accordance with Army TB 9-1000-247-34.

END OF WORK PACKAGE

DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****ILLUSTRATED LIST OF MANUFACTURED ITEMS**

INTRODUCTION**Scope**

This work package includes complete instructions for making items authorized to be manufactured or fabricated at Unit or Direct Support Maintenance.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the work package which covers fabrication criteria.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of the item are listed by part number or specification number in a tabular list on the illustration.

ILLUSTRATIONS OF MANUFACTURED ITEMS

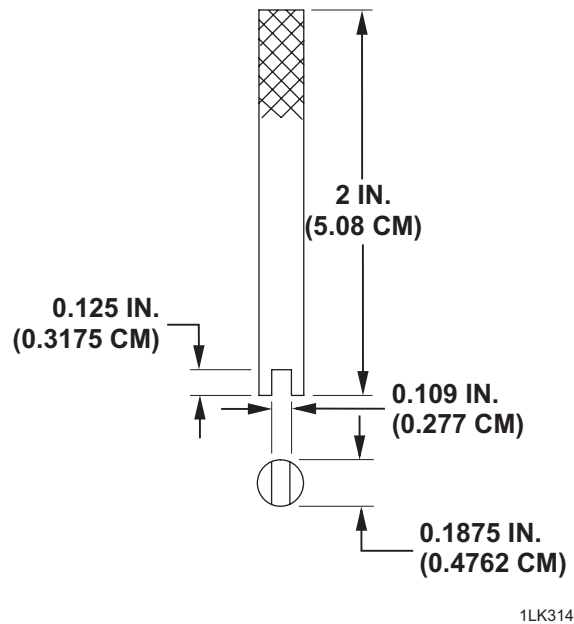


Figure 1. Lock Plunger Tool (Used in removal/installation of spring in charging handle).

NOTES:

1. FABRICATE FROM ROD, STEEL: 0.1875 IN. (0.4762 CM) DIAMETER, 2 IN. (5.08 CM) LONG.
2. MILL A GROOVE 0.109 IN. (0.277 CM) WIDE, 0.125 IN. (0.3175 CM) DEEP INTO THE CENTER OF ONE END OF THE ROD.
3. KNURL THE OTHER END OF THE ROD.
4. ALL DIMENSIONS ARE IN INCHES WITH METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

END OF WORK PACKAGE

CHAPTER 6

AMMUNITION MAINTENANCE INSTRUCTIONS FOR MK19 MOD 3 40MM MACHINE GUN, MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET, AND UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

AMMUNITION MAINTENANCE

INITIAL SETUP:**Materials/Parts**

Wiping rag (item 14, WP 0121 00)

OVERVIEW

This work package contains information and instructions on the types of ammunition used with the MK19 machine gun.

WARNING

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.

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 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.

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

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

Ensure ammunition link is aligned evenly on ammunition. Ensure link is aligned, touching copper band on both sides of ammunition.

Misaligned ammunition links are caused during ammunition separation when twisting the ammunition belt in preparation for loading the MK19. After ammunition belt has been separated, ensure ammunition links are aligned evenly and touching the copper band on both sides of the ammunition when loading.

1. PROTECT AMMUNITION FROM MUD, SAND, AND WATER.
 - a. If the ammunition gets wet or dirty, wipe it off with a clean rag (item 14, WP 0121 00). Wipe off light corrosion as soon as it is discovered. Turn in heavily corroded rounds in accordance with local procedures.

OVERVIEW - Continued

2. DO NOT EXPOSE AMMUNITION TO THE DIRECT RAYS OF THE SUN.
 - a. If the powder is hot, excessive pressure may be developed when the weapon is fired.
3. DO NOT OIL OR GREASE AMMUNITION.
 - a. Dust and other abrasives that collect on greased ammunition may cause damage to the operating parts of the weapon. Moreover, oiled ammunition produces excessive chamber pressure.
4. DO NOT FIRE DENTED ROUNDS, ROUNDS WITH LOOSE PROJECTILES, OR OTHERWISE DEFECTIVE ROUNDS.
 - a. Dispose of defective rounds in accordance with local procedures.

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****AMMUNITION MARKING INFORMATION**

DUMMY ROUNDS**NOTE**

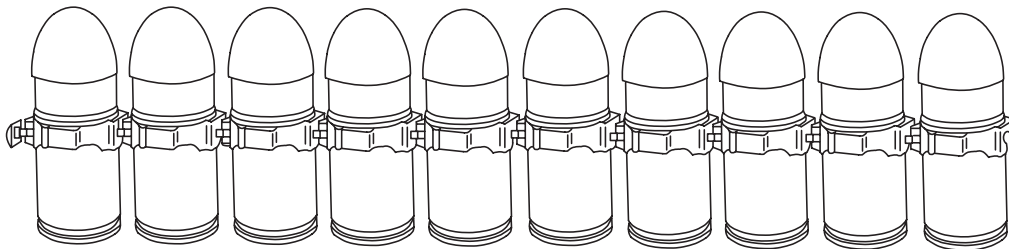
Tool sets referenced in this work package for Organizational and Direct Support Level Maintenance are for Marine Corps/Navy use only.

The dummy cartridge, 40 mm, M922/M922A1 (DODIC B472) linked with M16A2 links, 10 rounds per belt, packed in an M2A1 metal box will be authorized for each MK19 MOD 3 and for each Tool Set, Organizational Level Maintenance (NSN 5180-01-143-9605) and Tool Set, Direct Support Level Maintenance (NSN 5180-01-143-9604). Dummy cartridges for the tool sets are to be requisitioned from normal Class V (W) supply sources by units concerned after initial issue tool sets are received. These dummy cartridges are totally inert and are used for checking gun function and for gun crew training. Although inert items are normally on time, initial issue items are only replaced when worn out in service. It is anticipated that approximately 50 percent of the initial issue rounds may require replacement annually.

WARNING

Ensure ammunition link is aligned evenly on ammunition. Ensure link is aligned, touching copper band on both sides of ammunition.

Misaligned ammunition links are caused during ammunition separation when twisting the ammunition belt in preparation for loading the MK19. After ammunition belt has been separated, ensure ammunition links are aligned evenly and touching the copper band on both sides of the ammunition when loading.



1LK315

STANDARD A AMMUNITION

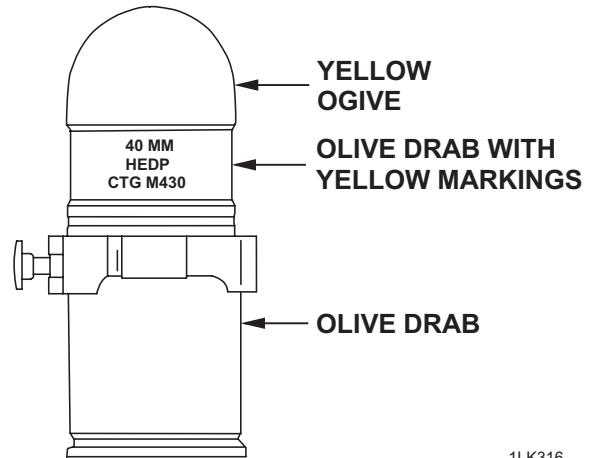
The cartridge, 40 mm, high explosive dual purpose (HEDP), M430/M430A1, linked with M16A2 links, is the current standard round designated for use with the MK19 MOD 3. This round is a high explosive, dual purpose, impact type round designed to penetrate two inches of steel armor at 0 degrees of obliquity and to inflict personnel casualties in the target area. This round is packed in PA120 or M548 metal ammunition containers (32 and 48 round belts).

M430/M430A1 Round:

- A high-explosive, dual purpose grenade
- Impact type round designed to penetrate two inches of steel armor at 0 degrees and to inflict personnel casualties

Characteristics:

- Fuze: PIBD, M549
- Filler: Comp A5
- Arming distance: 18 to 30 meters
- Wound radius: 15 meters



1LK316

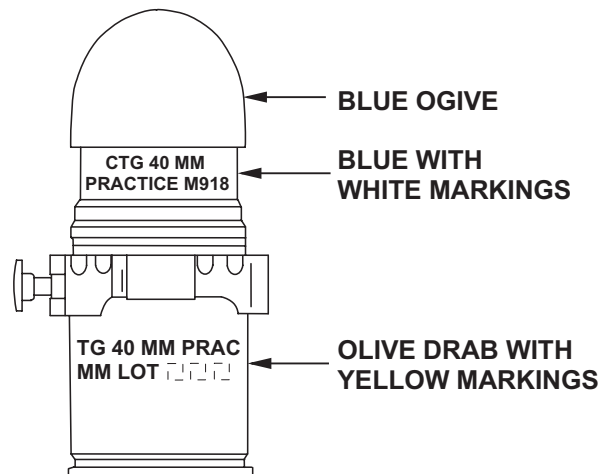
The cartridge, 40 mm, M918 TP, linked with M16A2 links is the companion training cartridge to the M430/M430A1. This round contains a pyrotechnic charge, which, on impact, emits a flash-bang signature to simulate the service ammunition.

M918 Round:

- A target practice round with flash signature

Characteristics:

- Propellant: M2
- Fuze: M550 escapement
- Arming distance: 18 to 30 meters
- Wound radius: 15 meters



1LK317

STANDARD B AMMUNITION**NOTE**

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

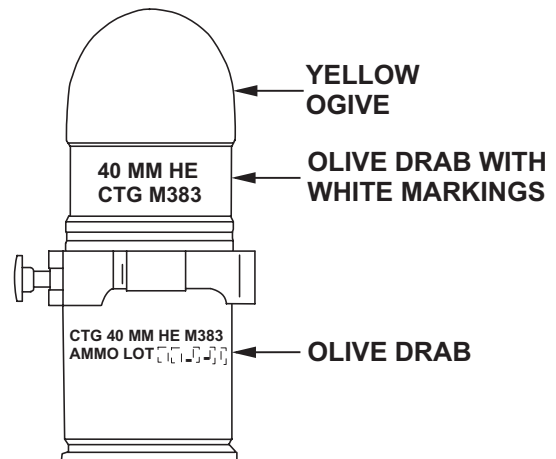
1. (Not for Army Use.) This category of item will no longer be procured but may be available in Navy stock and may be issued as a substitute item for the Standard A item until stock is exhausted. Ammunition containing either the M16 or M16A1 links is not to be used in the MK19 MOD 3 as weapon stoppages will occur. The M16A2 link is the only link compatible with the weapon and can be identified by four finger-like tabs holding the rotating band.
2. The two high-explosive (HE) cartridges listed below are high explosive rounds designed to inflict personnel casualties in the target area using ground burst effects. The HE filler and body materials of these rounds differ; however, the performance characteristics are the same and neither has the armor penetrating characteristics of the Standard A M430/M430A1 high-explosive dual purpose (HEDP) round.
 - a. Cartridge, 40 mm, HE, M383, linked with M16A2 links (DODIC B571), is a high-explosive round designed to inflict personnel casualties in the target area using ground burst effects. This round does not have the armor penetrating characteristics of the Standard A M430/M430A1 HEDP round. The M383 HE cartridge is available in a 50 round belt packed in a wooden box (NSN 1310-00-976-0907) as a 48 round belt.

M383 HE Round:

- A high explosive grenade
- Designed to inflict casualties

Characteristics:

- Fuze: PD, M533
- Filler: RDX, Comp A5
- Arming distance: 18 to 36 meters
- Wound radius: 15 meters



1LK318

- b. (Not for Army Use.) Cartridge, 40 mm, HE, M384, linked with M16A2 links (DODIC B470), 50 round belt per wooden box. Limited quantities remain in Navy stock.

STANDARD B AMMUNITION - Continued

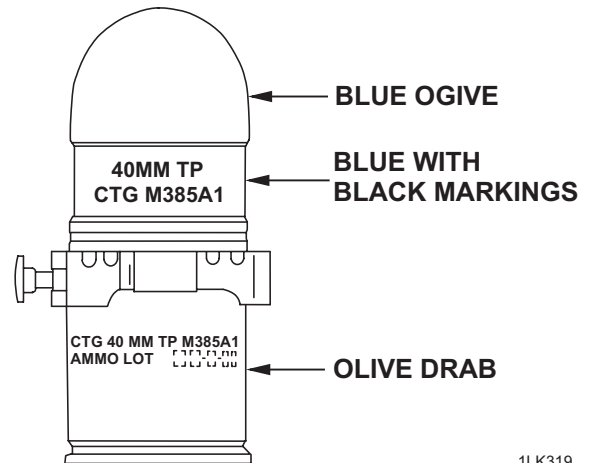
3. Cartridge, 40 mm, practice M385A1, linked with M16A1 or M16A2 links (DODIC B480), 50 round belt per wooden box, 48 round belt per M548 container, or 32 round belt per PA120 container. This round contains a projectile which has a solid aluminum body and is designed only for practice or proof testing of weapons. Limited quantities remain in Navy stock.

M385A1 TP Round:

- Training practice (TP), inert rounds with a propelling charge

Characteristics:

- Propellant: M2
- Muzzle velocity: 244 feet per second
- Maximum range: 2,200 meters



1LK319

END OF WORK PACKAGE

CHAPTER 7

SUPPORTING INFORMATION

FOR

MK19 MOD 3 40MM MACHINE GUN,

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET,

AND

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

REFERENCES

SCOPE

This work package covers all forms, technical manuals and miscellaneous publications referenced in this manual.

AIR FORCE FORMS AND MANUALS

AFTO Form 22	Technical Order System Publication Improvement Report and Reply
TO 11W1-10	Recording of Inspection, Maintenance, and Firing Data for Ground Weapons

ARMY REGULATIONS AND PAMPHLETS

AR 385-40	Accident Reporting and Records
AR 750-1	Malfunction Involving Ammunition and Explosives

DEPARTMENT OF THE ARMY FORMS

AEPS Web Site (http://AEPS@us.army.mil)	Product Quality Deficiency Report
AEPS Web Site (http://AEPS@us.army.mil)	Supply of Discrepancy
DA Form 285	U.S. Army Accident Report
DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA PAM 738-750	Functional Users Manual for The Army Maintenance Management System (TAMMS)
SF 364	Report of Discrepancy (ROD)
SF 368	Product Quality Deficiency Report

FIELD MANUALS

FM 4-25.11	First Aid

MISCELLANEOUS PUBLICATIONS

CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items)
DOD 4160.21-M-1	Defense Demilitarization Manual
TI-09761A-35/1	TBD
UM 4790-5	TBD

NAVY/MARINE CORPS FORMS AND MANUALS

MCO P4400.84	TBD
NAVMC Form 10772	TBD
NAVSEAINST 8370.2	Small Arms and Weapons Management Policy and Guidance Manual
TM 4700-15/1	Equipment Record Procedures
TMDER NAVSEA 9086/10	TBD

TECHNICAL BULLETINS

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

TECHNICAL MANUALS

TM 9-1005-245-13&P	Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts and Special Tools List (RPSTL) for Machine Gun Mounts and Combinations for Tactical/Armored Vehicles
TM 9-1010-230-10	Operator's Manual and Components for Machine Gun, 40 MM, MK19 MOD 3
TM 9-1010-231-13&P	Operator's, Organizational, and Intermediate Maintenance Manual with Repair Parts and Special Tools List for Mount, Machine Gun, MK 64
TM 9-1300-206	Ammunition and Explosives Standards

TM 750-244-7

Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1015, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use

TM 10004A-10/A

Upgunned Weapons Station (UGWS) Assault Amphibious Vehicle, Personnel, Model 7A1, AAVP7A1

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION**

INTRODUCTION**The Army Maintenance System MAC**

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

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

Field – Includes two subcolumns, Unit (C (Operator/Crew) and O (Unit)) maintenance and Direct Support (F) maintenance.

Sustainment – Includes two subcolumns, General Support (H) and Depot (D) maintenance.

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

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

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.
2. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. **Service.** Operations required periodically to keep an item in proper operating condition, e. g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms.

INTRODUCTION - Continued**Maintenance Functions - Continued**

4. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.
6. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
9. **Repair.** The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

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

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

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

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

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

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

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

Explanation of Columns in the MAC

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

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

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

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

Field:

C – Operator or Crew maintenance

O – Unit maintenance

F – Direct Support maintenance

Sustainment:

L – Specialized Repair Activity (SRA)

H – General Support maintenance

D – Depot maintenance

NOTE

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

INTRODUCTION - Continued**Explanation of Columns in the MAC - Continued**

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

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

Explanation of Columns in the Tools and Test Equipment Requirements

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

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

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

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

Column (5) – Tool Number. The manufacturer's part number, model number, or type number.

Explanation of Columns in the Remarks

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

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

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

MAINTENANCE ALLOCATION CHART (MAC)

Table 1. MAC for MK19 MOD 3 Machine Gun.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		Direct Support	General Support	DEPOT		
			C	O	F	H	D		
00	40MM Machine Gun MK19 MOD 3	Inspect Test Service Repair Overhaul	0.2	0.2	0.2 0.3	15.0	8, 10		
			0.2	0.2 0.3	0.2 1.5				
01	Machine Gun Assemblies and Components	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1	0.1 0.1 0.4		6, 12		
0101	Adjustable Secondary Drive Lever	Inspect Service Replace Repair Overhaul							
0102	Barrel Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.3 0.2		8, 11, 15		
02	Bolt and Backplate Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1 0.1 0.1		6, 8, 10, 12		

MAINTENANCE ALLOCATION CHART (MAC) - Continued

Table 1. MAC for MK19 MOD 3 Machine Gun - Continued.

(1)	(2)	(3)	(4)					(5)	(6)
			MAINTENANCE LEVEL						
			FIELD		SUSTAINMENT				
			UNIT		Direct Support	General Support	DEPOT		
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	C	O	F	H	D	EQUIPMENT REF CODE	REMARKS CODE
0201	Bolt Subassembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	 0.3 0.2			8, 10	
0202	Bolt Buffer Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1 0.1 0.2	0.1 0.1 0.1			8, 10	
0203	Control Grip Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1 0.1 0.2			15.0	8, 10	
03	Ogive Plunger Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1 0.1 0.2				8, 9, 10, 12	
04	Top Cover Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1 0.1 0.2				10	
05	Feed Slide Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1 0.2	0.1 0.1 0.1 0.2			6, 12	
06	Sear Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1 0.1 0.3			6, 11, 12, 13	

Table 1. MAC for MK19 MOD 3 Machine Gun - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD		SUSTAINMENT				
			UNIT		Direct Support	General Support	DEPOT		
			C	O	F	H	D		
0601	Receiver Buffer Bodies and Internal Components	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1			8, 9, 10, 12	
060101	Buffer Rod Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1			8, 9, 10, 12	
07	Vertical Cam Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1			10	
08	Alignment Guide Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1		0.1 0.1			10	
09	Gun Charger, LH	Inspect Service Replace Repair Overhaul	1.0 0.1	0.1 0.1					
10	Gun Charger, RH	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1					
11	Rear Sight Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1	0.1 0.1	0.1 0.1			12	

MAINTENANCE ALLOCATION CHART (MAC) - Continued

Table 1. MAC for MK19 MOD 3 Machine Gun - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			UNIT		Direct Support	General Support	DEPOT		
			C	O	F	H	D		
12	Feed Throat Assembly	Inspect Service Replace Repair Overhaul	0.1 0.1 0.1	0.1 0.1 0.1 0.2	0.1 0.1 0.1 0.2				
13	Adjustable Sight Bracket	Inspect Service Replace Repair Overhaul		0.5					
1301	Arm Assembly	Inspect Service Replace Repair Overhaul							
130101	Cover Assembly	Inspect Service Replace Repair Overhaul							
1302	Plunger Assembly	Inspect Service Replace Repair Overhaul							
9500	Special Tools - Round Removal Tool	Inspect Service Replace Repair Overhaul	0.1	0.1 0.1					

**Table 2. Tools and Test Equipment for MK19 MOD 3 Machine Gun
(Army and Other Services (Special)).**

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL		NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F		Adapter Assembly, 40MM	4933-00-102-6798	11686402
2	F		Bore Sight Kit Assembly, 40MM	4933-00-930-1957	11686583
3	F	F	Gauge Assembly, Bore Constriction	1010-01-138-4862	3269536
4	O	O	Feed Slide Adjustment Tool	1005-01-467-9435	10742
5	O	O	Recoupling/Relinking Pliers, Slip-joint, 7 in.	5120-01-021-7472	53CG
6	F	N/A	Shop Set, Small Arms, Field Maintenance	4933-00-754-0664	SC 4933-95- A11
7	F		Tape Measure		
8	F	O	Tool, Buffer Assembly	5120-01-138-4796	3269540
9	O	O	Tool, Combination Assembly	1010-01-130-3435	3269494
10	F	F	Tool, Feed Slide Assembly	1010-01-138-4798	3269542
11	O	O	Tool, Ogive Plunger Assembly	1010-01-130-3434	3269505
12	F	O	Tool, Safety Slide	5120-01-138-4811	3269547
13	O	O	Tool Kit, Small Arms Repairman	5180-01-462-4254	SC 5180-95- B71
14	F		Vernier Caliper	5210-00-250-4761	122EANDM
15	F	F	Wrench, Barrel	5120-01-138-4797	3269541

**Table 3. Tools and Test Equipment for MK19 MOD 3 Machine Gun
(Not for Army Use).**

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	O	Adapter, 40MM and Streamer Assembly	4933-00-102-6798	11686402
2	O	Boresight Kit w/Adapter	4933-00-930-1957	11686583
3	O	Gauge Assembly, Bore Constriction	1010-01-138-4862	3269536

MAINTENANCE ALLOCATION CHART (MAC) - Continued**Table 3. Tools and Test Equipment for MK19 MOD 3 Machine Gun
(Not for Army Use) - Continued.**

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
4	F	Machine, Field Maintenance, Basic Shop Set	3740-00-647-1109	CI665
5	O	Screw, Cap, Socket Head	5305-00-978-9378	MS 16997-38
6	F	Small Arms, Field Maintenance Shop Set	4833-00-647-1190	CI668
7	O	Small Arms Repairman Tool Kit (Marine Corps only: Kit with addition of SL 3-00607A)	4833-00-357-7770	SC 4933-95- A07
8	F	Tool Kit, Direct Support Maintenance	5180-01-143-9604	SL-3-08669A
9	O	Tool Kit, Organizational Maintenance	5180-01-143-9605	SL-3-08668A
10	O	Wrench, Spanner, Lock Plate: 1/4 in. dia.	5720-01-218-7486	VW-52-005

Table 4. Remarks for MK19 MOD 3 Machine Gun.

REMARKS CODE	REMARKS

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)****INTRODUCTION TO REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)**

SCOPE

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Unit and Direct Support Maintenance of the MK19 Machine Gun. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

GENERAL

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

1. **Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. **Special Tools List Work Packages.** Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

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

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

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

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

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

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

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

<u>Source Code</u>	<u>Application/Explanation</u>
PA PB PC PD PE PF PG	Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code.
	NOTE
	Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.

MO-	Made at unit/ AVUM level	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.
MF-	Made at DS/ AVIM level	
MH-	Made at GS level	
ML-	Made at SRA	
MD-	Made at depot	
AO-	Assembled by unit/AVUM level	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
AF-	Assembled by DS/AVIM level	
AH-	Assembled by GS level	
AL-	Assembled by SRA	
AD-	Assembled by depot	
XA		Do not requisition an XA-coded item. Order the next higher assembly. (Refer to NOTE below.)
XB		If an item is not available from salvage, order it using the CAGEC and P/N.
XC		Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.
XD		Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

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

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

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

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

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

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

NOTE

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

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

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

Recoverability Code		<u>Application/Explanation</u>
Z	-	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
O	-	Reparable item. When uneconomically repairable, condemn and dispose of the item at the unit level.
F	-	Reparable item. When uneconomically repairable, condemn and dispose of the item at the direct support level.
H	-	Reparable item. When uneconomically repairable, condemn and dispose of the item at the general support level.
D	-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L	-	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A	-	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

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

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

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

NOTE

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

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

1. The federal item name and, when required, a minimum description to identify the item.
2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

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

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

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

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

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

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

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

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

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

2. Part Number (P/N) Index Work Package.

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

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

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

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

SPECIAL INFORMATION

Associated Publications. The publications listed below pertain to the MK19 MOD 3 Machine Gun.

Publication

TM 9-1010-230-10

Short Title

Operator's Manual: MK19

HOW TO LOCATE REPAIR PARTS

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

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

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

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

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

2. When NSN Is Known.

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

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

3. When P/N Is Known.

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

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

ABBREVIATIONS

Not applicable.

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

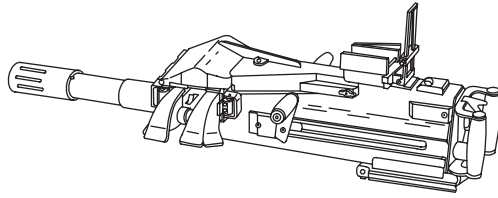
**MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)**

**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

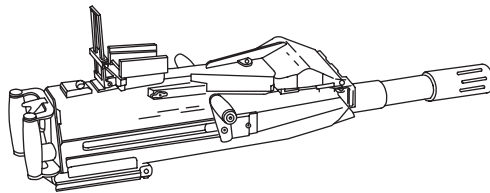
**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MK19 MOD 3 40MM MACHINE GUN, PN 3269419;
MK19 MOD 3 40MM MACHINE GUN WITH SIGHT MOUNTING BRACKET AND BII, PN 12997550;
AND
UPGUNNED WEAPONS STATION MK19 MOD 3 40MM MACHINE GUN, PN 7004160**

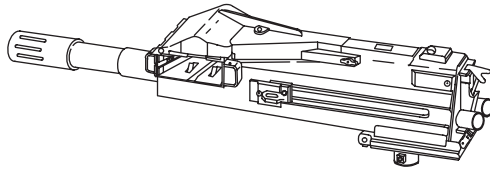
REPAIR PARTS LIST



MK19 MOD 3 (PN 3269419)



MK19 MOD 3 with Sight Mounting Bracket and BII (PN 12997550)



MK19 MOD 3, Upgunned Weapons Station (PN 7004160)

1LK372

Figure 1. Machine Gun, 40MM, MK19 MOD 3, PN 3269419; Machine Gun, 40MM, MK19 MOD 3 with Sight Mounting Bracket and BII, PN 12997550; and Machine Gun, 40MM, MK19 MOD 3, Upgunned Weapons Station, PN 7004160.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 00	
					FIG. 1 MACHINE GUN, 40MM, MK19 MOD 3, 3269419; MACHINE GUN, 40MM, MK19, WITH SIGHT MOUNTING BRACKET AND BII, 12997550; AND MACHINE GUN, 40MM, MK19 MOD 3, UPGUNNED WEAPONS STATION, 7004160	
	XAFDA *PADDD	1010-01-126-9063	10001	3269419	MACHINE GUN, 40MM, MK19 MOD 3	
	XAFDA *PADDD	1010-01-362-6513	OMLM6	7004160	MACHINE GUN, 40MM, MK19 MOD 3, UPGUNNED WEAPONS STATION	
	XAFDD *PADDD	1010-01-490-9697	19200	12997550	MACHINE GUN, 40MM, MK19 MOD 3, WITH SIGHT MOUNTING BRACKET	
	PAOOO	1010-01-151-6277	53711	5830059	.MK19 WEATHER COVER	

END OF FIGURE

* FOR ARMY USE ONLY

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

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

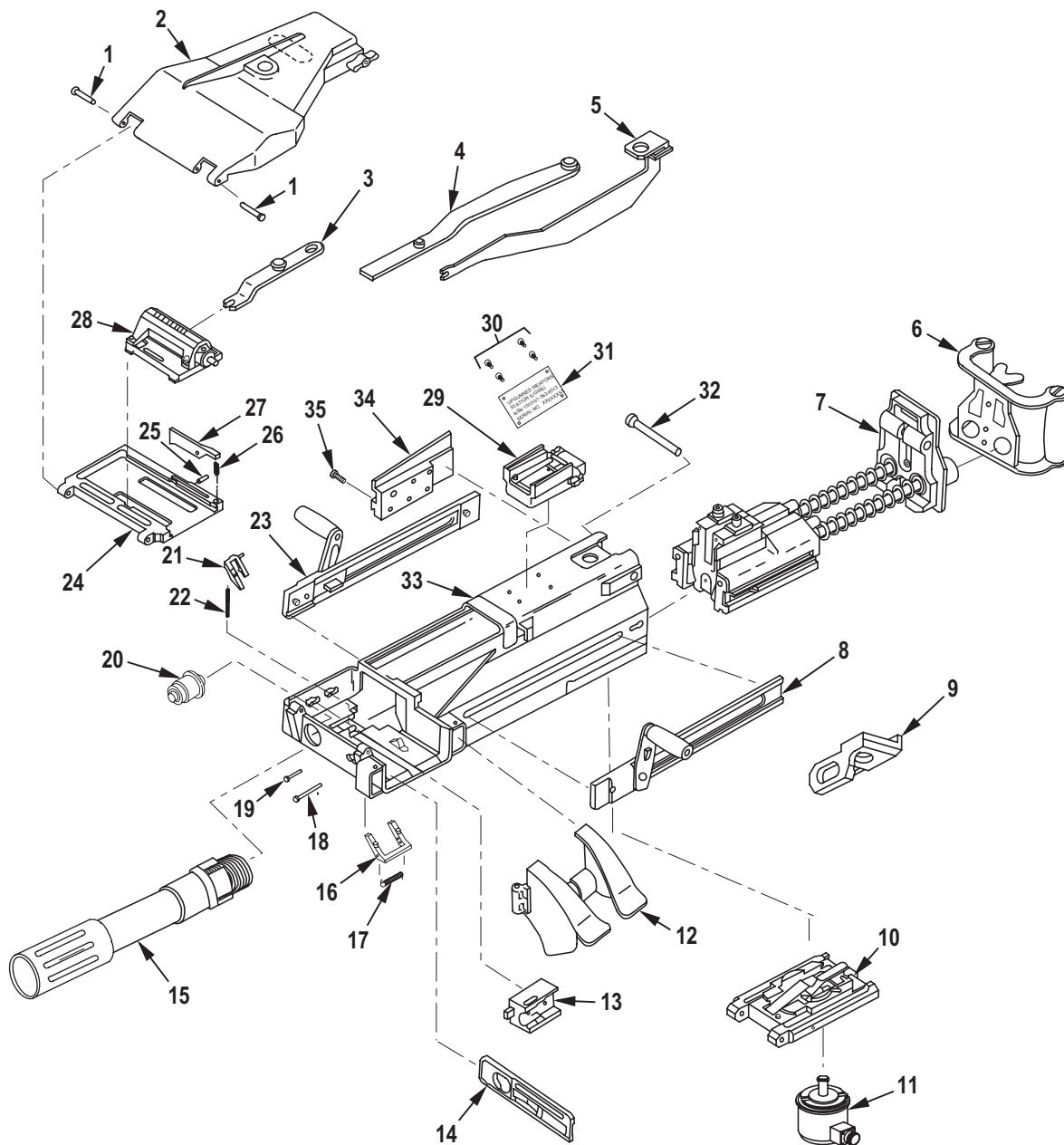
**MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)**

**UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)**

**MK19 MOD 3 40MM MACHINE GUN, PN 3269419;
MK19 MOD 3 40MM MACHINE GUN WITH SIGHT MOUNTING BRACKET AND BII, PN 12997550;
AND**

**UPGUNNED WEAPONS STATION MK19 MOD 3 40MM MACHINE GUN, PN 7004160
ASSEMBLIES AND COMPONENTS**

REPAIR PARTS LIST



1LK320

Figure 2. MK19 MOD 3 40MM Machine Gun, PN 3269419; MK19 MOD 3 40MM Machine Gun with Sight Mounting Bracket and BII, PN 12997550; and Upgunned Weapons Station MK19 MOD 3 40MM Machine Gun, PN 7004160 Assemblies and Components.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEMS	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 01						
					FIG. 2 MACHINE GUN, 40MM, MK19 MOD 3, 3269419; MACHINE GUN, 40MM, MK19 MOD 3, WITH SIGHT MOUNTING BRACKET AND BII, 12997550; AND MACHINE GUN, 40MM, MK19 MOD 3, UPGUNNED WEAPON STATION, 7004160, ASSEMBLIES AND COMPONENTS	
1	PAOZZ	5315-01-123-6092	53711	3269472	PIN, STR, KNURLED HD.....	2
2	PAFFF	1010-01-133-6979	53711	3269406	TOP COVER ASSEMBLY (SEE FIG. 10 FOR ASSY BKDN).....	1
3	PAOOO	3040-01-475-2685	26978	10768	LEVER, SECONDARY DRIVE, ADJUSTABLE (SEE FIG. 3 FOR ASSY BKDN).....	1
4	PAOZZ	3040-01-123-6097	53711	3269426	LEVER, DRIVE, PRIMARY	1
5	PAOZZ *PAOOO	1010-01-123-6705	53711	3269411	VERTICAL CAM ASSEMBLY (SEE FIG. 14 FOR ASSY BKDN).....	1
6	PAOOO	1010-01-129-1232	53711	3269415	CONTROL GRIP ASSEMBLY, MK19 MOD 3 (SEE FIG. 8 FOR ASSY BKDN).....	1
7	AFOFF *AFOFF		53711	3269401	BOLT AND BACKPLATE ASSEMBLY (SEE FIG. 5 FOR ASSY BKDN).....	1
8	PAOOO *PAOFF	1010-01-129-1247	53711	3269409	CHARGER, GUN, LH, MK16, MOD 0 (SEE FIG. 16 FOR ASSY BKDN).....	1
9	PAOZZ	1010-01-258-1467	53711	6289494	BLOCK (UGWS ONLY).....	1
10	PAOOO *AFFFF	1010-01-133-6990	53711	3269410	SEAR ASSEMBLY (SEE FIG. 12 FOR ASSY BKDN).....	1
11	PAFZZ	5945-01-133-6985	10001	3269501	SOLENOID (UGWS ONLY).....	1
12	PAOOO	1010-01-149-5468	10001	5830095	FEED THROAT ASSEMBLY (SEE FIG. 19 FOR ASSY BKDN).....	1
13	PAOZZ	1010-01-123-6094	53711	3269439	BLOCK, ROUND POSITIONING.....	1
14	PAOFF	1010-01-129-1235	53711	3269403	ALIGNMENT GUIDE ASSEMBLY (SEE FIG. 15 FOR ASSY BKDN).....	1
15	PAFFF	1010-01-440-3474	19200	12012058	BARREL ASSEMBLY (SEE FIG. 4 FOR ASSY BKDN).....	1
16	PAOZZ *PAFZZ	3040-01-123-6282	53711	3269438	PAWL, SECONDARY	1
17	PAOZZ *PAFZZ	5360-01-123-6200	53711	3269486	SPRING, HELICAL.....	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
18	PAOZZ *PAFZZ	5315-01-123-6096	53711	3269434	ROD, PAWL	1
19	PAFZZ	5315-01-123-6095	53711	3269435	ROD, PAWL	1
20	PAOOO *AOOOO	1010-01-133-6977	53711	3269405	OGIVE PLUNGER ASSEMBLY (SEE FIG. 9 FOR ASSY BKDN).....	1
21	PAFZZ	3040-01-123-6283	53711	3269436	PAWL, PRIMARY	1
22	PAFZZ	5360-01-122-9671	53711	3269502	SPRING, PAWL	1
23	PAOOO *PAOFF	1010-01-129-1233	53711	3269408	CHARGER, GUN, RH, MK16, MOD 0 (SEE FIG. 17 FOR ASSY BKDN).....	1
24	PAOZZ	1010-01-129-1236	10001	3269431	TRAY, FEED	1
25	PAOZZ	5315-01-133-0830	53711	5526204	PIN, GROOVED, HDLS	1
26	PAOZZ	5360-01-122-9670	53711	3269515	SPRING, PAWL	1
27	PAOZZ	1010-01-123-6281	10001	3269490	PAWL, FEED TRAY	1
28	PAOFF *AFOFF	1010-01-133-6980	10001	3269407	FEED SLIDE ASSEMBLY (SEE FIG. 11 FOR ASSY BKDN).....	1
29	PAOFF *PAFFF	1010-01-133-6983	10001	3269545	SIGHT ASSEMBLY, REAR, MK40, MOD 0 (SEE FIG. 18 FOR ASSY BKDN).....	1
30	PAOZZ	5305-01-392-1665	96906	MS51958-40B	MACHINE SCREW (UGWS ONLY).....	4
31	MOOZZ		OMLM6	7004224	IDENTIFICATION PLATE (UGWS ONLY).....	1
32	PAOZZ	1010-01-123-6706	53711	3269404	PIN ASSEMBLY, BACKPLATE	1
33	XAOFF *PADDA	1010-01-492-2118	19200	12997555	RECEIVER	1
34	XAOFF *PAFZZ	1010-01-491-8630	19200	12993610	SIGHT MOUNTING BRACKET	1
35	PAOZZ	5306-00-150-9105	19200	AN4-4A	BOLT, MACHINE	5

END OF FIGURE

* FOR ARMY USE ONLY

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

ADJUSTABLE SECONDARY DRIVE LEVER 10768

REPAIR PARTS LIST

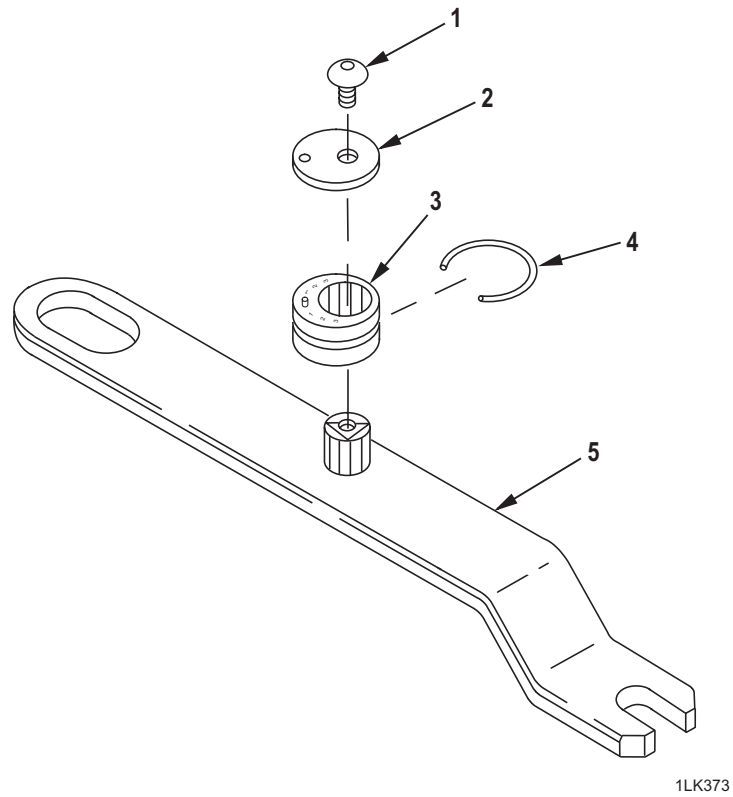


Figure 3. Adjustable Secondary Drive Lever, PN 10768.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEMS	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 0101	
					FIG. 3 ADJUSTABLE SECONDARY DRIVE LEVER 10768	
1	PAOZZ	5305-01-519-2130	19200	10928	BOLT, BLANK	1
2	PAOZZ	3120-01-492-0354	19200	10765	BEARING, WASHER, THRUST	1
3	XAOZZ			10764	BUSHING, SELECTOR.....	1
4	PAOZZ	5365-01-123-6820	19200	3269469-1	RETAINING RING	1
5	PAOOO	3040-01-475-2685	19200	10768	LEVER, SECONDARY DRIVE, ADJUSTABLE	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

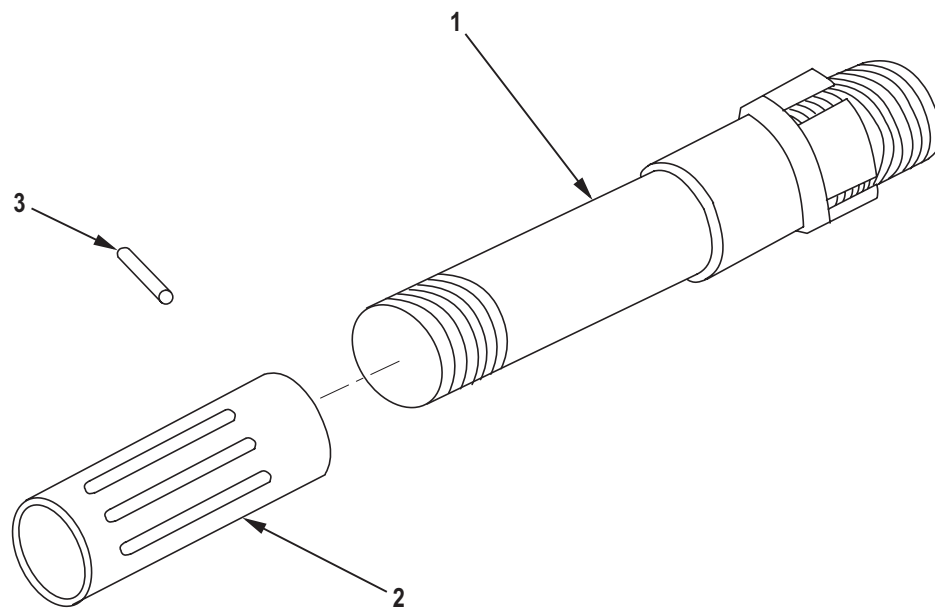
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

BARREL ASSEMBLY 12012058

REPAIR PARTS LIST



1LK321

Figure 4. Barrel Assembly, PN 12012058.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 0102	
					FIG. 4 BARREL ASSEMBLY 12012058	
1	XAFZZ	1055-01-122-9538	10001	3269422	BARREL, 40 MM	1
2	PAFZZ	1010-01-394-9913	19200	12012009	SUPPRESSOR, FLASH	1
3	PAFZZ	5315-00-058-9737	96906	MS16562-217	PIN, SPRING, SLOTTED	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

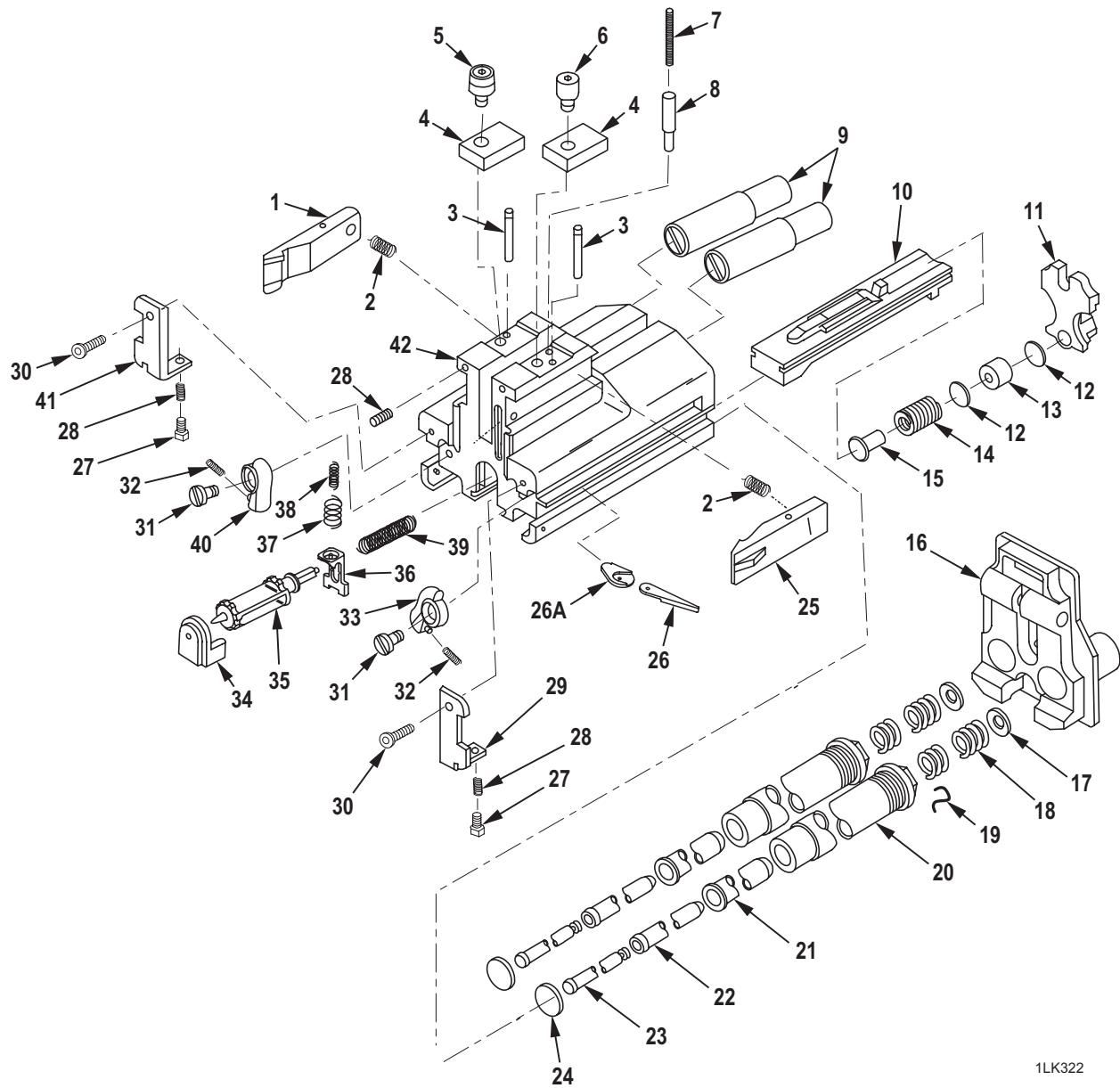
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

BOLT AND BACKPLATE ASSEMBLY 3269401

REPAIR PARTS LIST



1LK322

Figure 5. Bolt and Backplate Assembly, PN 3269401.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 02	
					FIG. 5 BOLT AND BACKPLATE ASSEMBLY 3269401	
1	PAOZZ *PAFZZ	1010-01-122-9540	53711	3269449	EXTRACTOR, CARTRIDGE, RH	1
2	PAOZZ *PAFZZ	5360-00-133-8266	53711	2813531	SPRING, HELICAL COMP	2
3	PAOZZ *PAFZZ	5315-01-123-6186	53711	3269476	PIN, GROOVED, HDLS	2
4	PAOZZ *PAFZZ	1010-01-122-9539	53711	3269450	RETAINER, PIN	2
5	PAOZZ *PAFZZ	3110-01-235-0389	53711	5526209	FOLLOWER, CAM, RH DBL ROLLER.....	1
6	PAOZZ *PAFZZ	3120-00-122-5878	53711	2680964	FOLLOWER, CAM, LH.....	1
7	PAFZZ	5360-01-122-9671	53711	3269502	SPRING, PAWL	1
8	PAOZZ *PAFZZ	5315-01-122-9641	53711	3269475	PIN, SHOULDER	1
9	PAOOO *PAFZZ	5303-01-129-1248	53711	3269402	BOLT BUFFER ASSEMBLY (SEE FIG. 7 FOR ASSY BKDN).....	2
10	PAOZZ *PAFZZ	1010-01-122-9678	53711	3269457	SEAR, BOLT	1
11	PAFZZ	1010-01-133-0824	53711	5526198	LOCK PLATE ASSEMBLY	1
12	PAOZZ *PAFZZ	5340-01-133-0829	53711	5526203	WASHER, BLANK BUFFER.....	2
13	PAOZZ *PAFZZ	1010-01-133-0827	53711	5526201	BUFFER, SEAR	1
14	PAOZZ *PAFZZ	5360-01-122-9603	53711	3269425	SPRING, HELICAL COMP	1
15	PAOZZ *PAFZZ	5315-01-133-0828	53711	5526202	ROD, SEAR BUFFER	1
16	XBOZZ *PAFZZ	1010-01-129-1245	53711	3269512	BACKPLATE	1
17	PAOZZ *PAFZZ	5310-01-122-9631	53711	3269474	WASHER, SPRING.....	2
18	PAOZZ *PAFZZ	5360-01-122-9602	53711	3269433	SPRING, HELICAL COMPRESSION.....	2

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
19	PAOZZ *MFFZZ	9505-00-293-4208	96906	NASM20995-C32	WIRE, NON-ELECTRICAL.....	V
20	PAOZZ *PAFZZ	1010-01-122-9542	53711	3269444	SLEEVE, BOLT	2
21	PAOZZ *PAFZZ	1010-01-122-9544	53711	3269440	TUBE, OUTSIDE.....	2
22	PAOZZ *PAFZZ	1010-01-122-9548	53711	3269441	TUBE, MIDDLE	2
23	PAOZZ *PAFZZ	5315-01-122-9543	53711	3269442	ROD, INNER	2
24	PAOZZ *PAFZZ	5340-01-122-9554	53711	3269459	WASHER, FRONT	2
25	PAOZZ *PAFZZ	1010-01-122-9541	53711	3269448	EXTRACTOR, CARTRIDGE, LH.....	1
26	PAOZZ *PAFZZ	1010-01-491-8628	19200	12997553	LEVER, COCKING (Replace old PN 3269443 with PN 12997552 and 12997553)	1
26A	PAOZZ *PAFZZ	1010-01-491-8627	19200	12997552	CAM, COCKING.....	1
27	PAOZZ *PAFZZ	5305-00-869-1097	96906	MS21295-16	SCREW, CAP, SCH, SLFLKG	2
28	PAOZZ *PAFZZ	5305-00-133-8276	53711	2655776	SCREW, SET, NYLON POINT	4
29	PAOZZ *PAFZZ	1010-01-122-9551	53711	3269464	COVER, LH.....	1
30	PAOZZ *PAFZZ	5305-00-366-6236	53711	2680889-1	SCREW, SLFLKG	2
31	PAOZZ *PAFZZ	5305-00-133-8270	53711	2680962	BOLT, SHOULDER, SLTD HD.....	2
32	PAOZZ *PAFZZ	5360-00-122-5890	53711	2813528	SPRING, FINGER	2
33	PAOZZ *PAFZZ	3040-00-122-5870	53711	2680959	BOLT, FINGER, LH.....	1
34	PAOZZ *PAFZZ	1010-01-122-9555	53711	3269452	COVER, FIRING PIN	1
35	PAOZZ *PAFZZ	1010-01-491-8631	19200	12997554	PIN, FIRING (Replace old PN 3269456 with PN 12997554 and 12997556)	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
36	PAOZZ *PAFZZ	1010-01-491-8632	19200	12997556	SEAR, FIRING PIN (Replace old PN 3269467 with PN 12997556 and 12997554)	1
37	PAOZZ *PAFZZ	5360-01-123-2356	53711	3269525	SPRING, HELICAL COMPRESSION	1
38	PAOZZ *PAFZZ	5360-01-171-0008	53711	5526208	SPRING, HELICAL COMPRESSION	1
39	PAOZZ *PAFZZ	5360-01-158-1207	53711	3269417	SPRING, HELICAL COMPRESSION	1
40	PAOZZ *PAFZZ	3040-00-122-5867	53711	2680956	BOLT, FINGER, RH	1
41	PAOZZ *PAFZZ	5340-01-122-9552	53711	3269463	COVER, RH	1
42	PAFZZ *PAFFF	1055-01-443-8386	19200	12012073	BOLT SUBASSEMBLY (SEE FIG. 6 FOR ASSY BKDN).....	1

END OF FIGURE

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

BOLT SUBASSEMBLY 12012073

REPAIR PARTS LIST

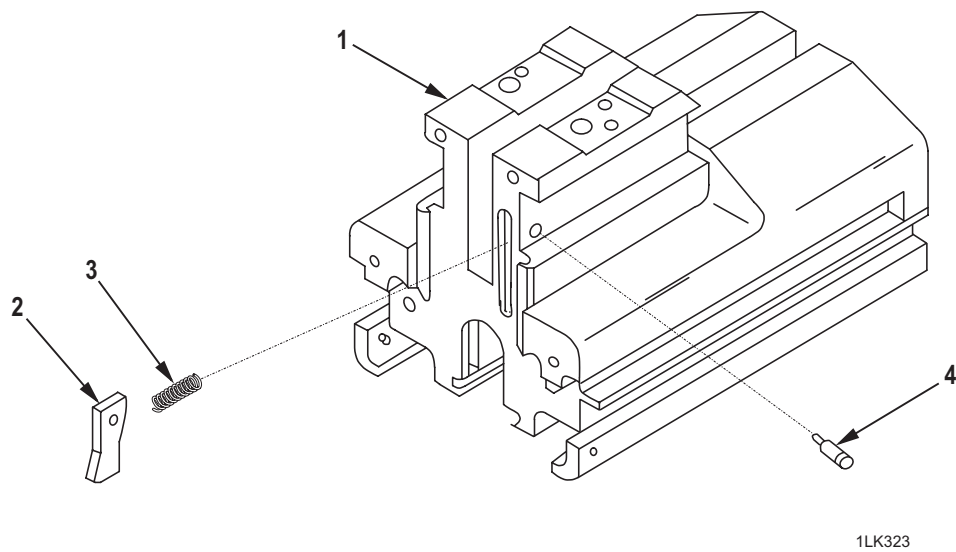


Figure 6. Bolt Subassembly, PN 12012073.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 0201	
					FIG. 6 BOLT SUBASSEMBLY 12012073	
1	XAFZZ		10001	3269461	BOLT	1
2	PAFZZ	3040-01-122-9672	10001	3269489	PAWL	1
3	PAFZZ	5360-01-217-2841	96906	MS24585-2121	SPRING, HELICAL.....	1
4	PAFZZ	5315-01-122-9639	53711	3269526	PIN, SHOULDER	1

END OF FIGURE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

BOLT BUFFER ASSEMBLY 3269402

REPAIR PARTS LIST

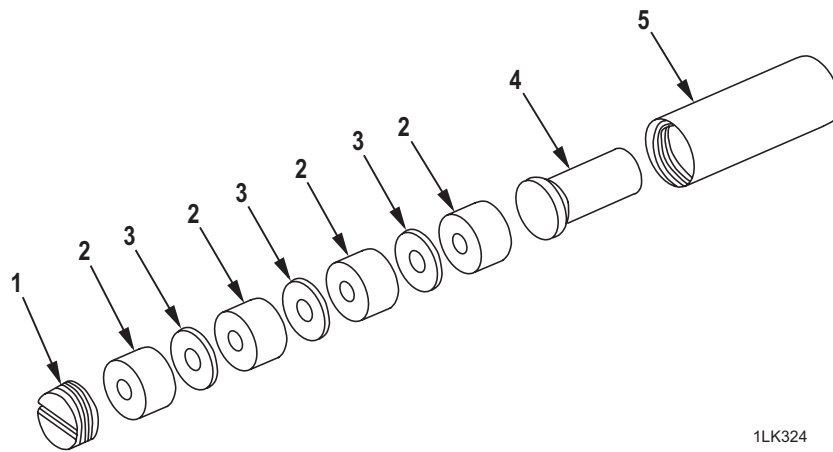


Figure 7. Bolt Buffer Assembly, PN 3269402.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 0202	
					FIG. 7 BOLT BUFFER ASSEMBLY 3269402	
1	PAOZZ *XAOZZ	1010-01-122-9546	10001	3269446	CAP, BUFFER, BOLT	1
2	PAOZZ *XAOZZ	1010-01-138-4810	10001	3269451	BUFFER, RECOIL MECHANISM.....	4
3	PAOZZ *XAOZZ	5310-01-123-6266	10001	3269482	WASHER, SPRING	3
4	PAOZZ *XAOZZ	1010-01-129-1246	10001	3269445	PLUNGER, BUFFER, BOLT	1
5	PAOZZ *XAOZZ	1010-01-122-9545	10001	3269447	BODY, BUFFER, BOLT.....	1

END OF FIGURE

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MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

CONTROL GRIP ASSEMBLY, MK19 MOD 3 3269415

REPAIR PARTS LIST

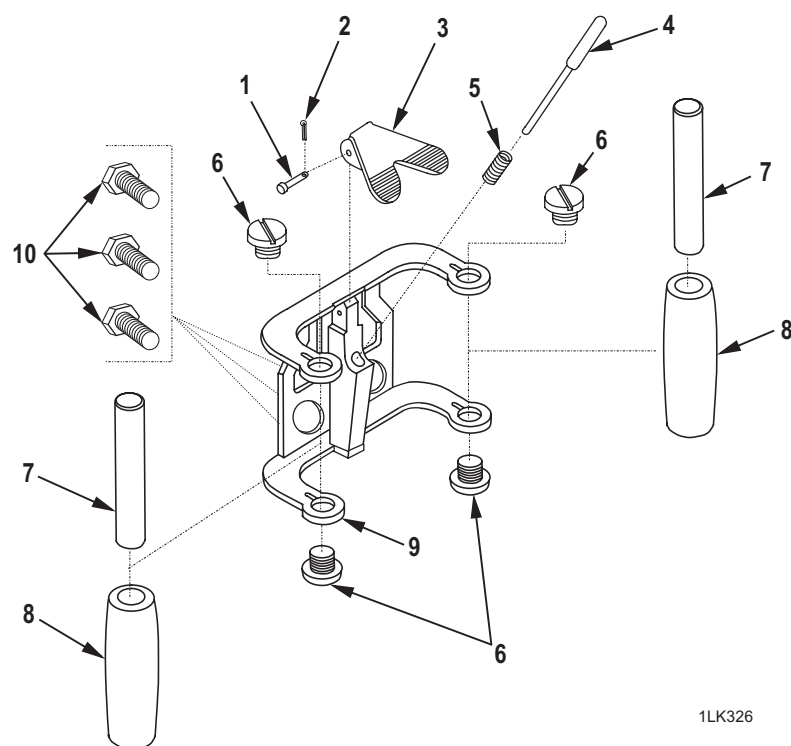


Figure 8. Control Grip Assembly, MK19 MOD 3, PN 3269415.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 0203	
					FIG. 8 CONTROL GRIP ASSEMBLY, MK19 MOD 3 3269415	
1	PAOZZ	5315-00-812-3757	96906	MS20392-1C21	PIN, STRAIGHT, PNH.....	1
2	PAOZZ	5315-00-551-4246	96906	MS24665-1010	PIN, COTTER, CRES.....	1
3	XAOZZ *PAOZZ	1010-01-129-1234	10001	3269533	PLATE, TRIGGER, MANUAL.....	1
4	PAOZZ	1010-01-123-6086	10001	3269535	ROD, OPERATING	1
5	PAOZZ	5360-00-897-6014	96906	MS24585-C181	SPRING, HELICAL COMPRESSION.....	1
6	PAOFF *PAOZZ	5305-00-500-9394	19204	5009394	SCREW, MACHINE	4
7	PAFZZ *PAOZZ	1005-00-918-2617	19205	5009369	TUBE, HANDLE GRIP	2
8	PAFZZ *PAOZZ	1005-00-726-5561	19204	7265561	GRIP, HANDLE	2
9	PAFZZ *XAOZZ	1010-01-133-6982	10001	3269534	BODY MGT PLATE.....	1
10	PAFZZ *PAOZZ	5306-00-051-4070	96906	MS90727-28	SCREW, CAP, SELF LOCKING, HEX HE	3
END OF FIGURE						

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

OGIVE PLUNGER ASSEMBLY 3269405

REPAIR PARTS LIST

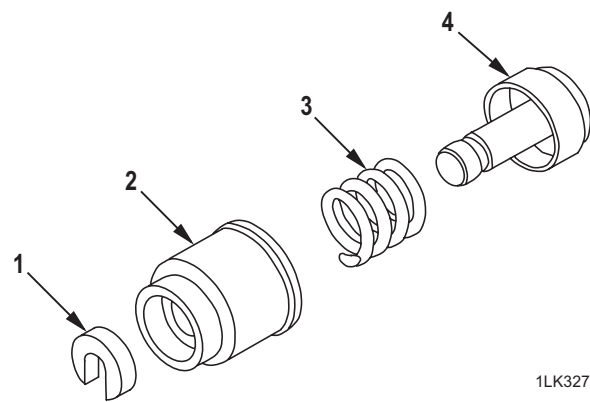


Figure 9. Ogive Plunger Assembly, PN 3269405.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 03	
					FIG. 9 OGIVE PLUNGER ASSEMBLY 3269405	
1	PAOZZ	5310-01-123-6265	10001	3269493	WASHER, SLOTTED	1
2	PAOZZ	1010-01-129-1244	10001	3269437	HOUSING, SPRING, OGIVE.....	1
3	PAOZZ	5360-01-124-4410	10001	3269455	SPRING, HELICAL COMPRESSION	1
4	PAOZZ	1010-01-123-6075	10001	3269483	PLUNGER, OGIVE.....	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

TOP COVER ASSEMBLY 3269406

REPAIR PARTS LIST

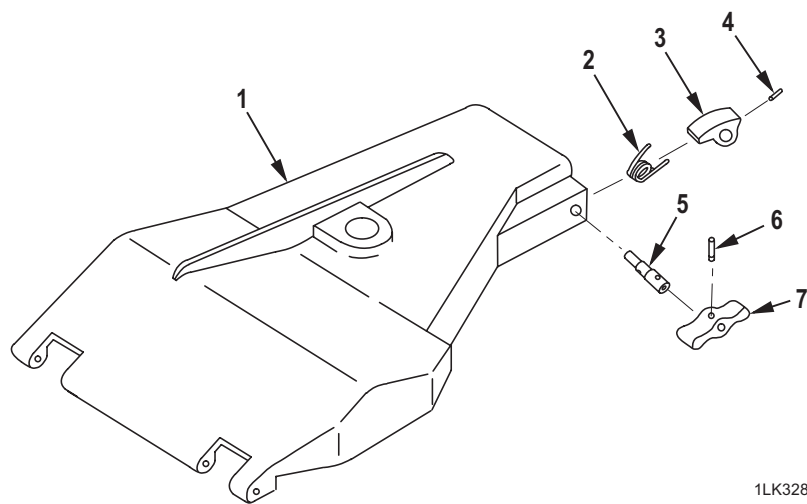


Figure 10. Top Cover Assembly, PN 3269406.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 04	
					FIG. 10 TOP COVER ASSEMBLY 3269406	
1	XAFZZ	1010-01-129-1243	53711	3269484	TOP COVER	1
2	PAFZZ	5360-01-123-6201	53711	3269488	SPRING, HELICAL TORSION	1
3	PAFZZ	1010-01-122-9556	53711	3269478	LOCK, COVER.....	1
4	PAFZZ	5315-00-281-3054	96906	MS51605-13	PIN, GROOVED, HEADLESS	1
5	PAFZZ	5315-01-123-6268	53711	3269479	PIN, SHOULDER, LOCK.....	1
6	PAFZZ	5315-00-150-3838	96906	MS51605-19	PIN, GROOVED, HEADLESS	1
7	PAFZZ	1010-01-123-6697	53711	3269477	HANDLE, LOCK	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

FEED SLIDE ASSEMBLY 3269407

REPAIR PARTS LIST

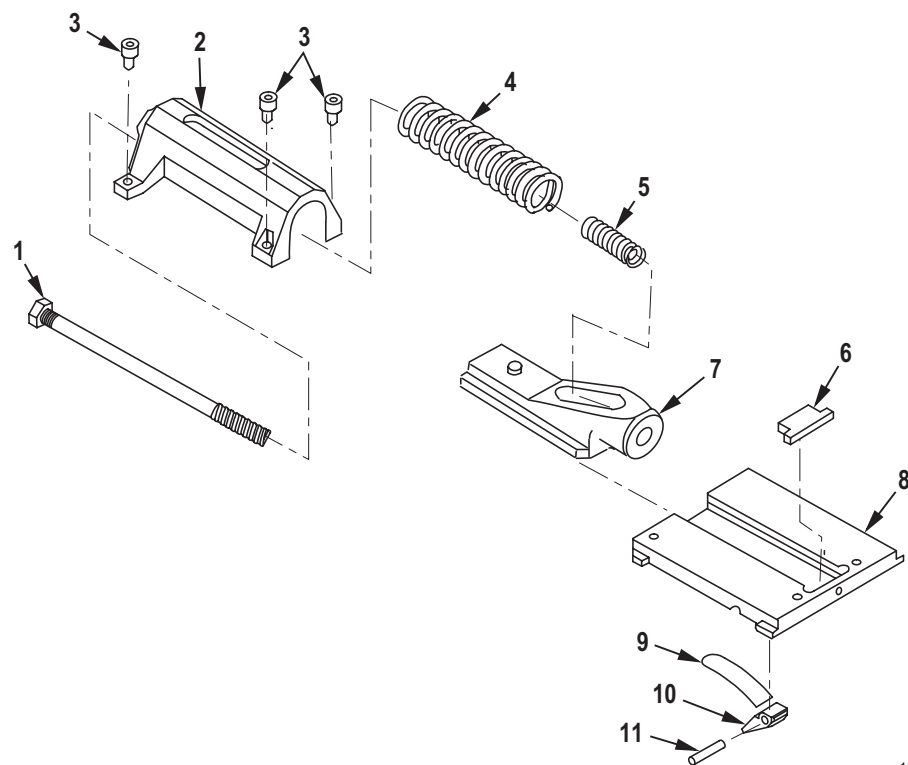


Figure 11. Feed Slide Assembly, PN 3269407.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 05	
					FIG. 11 FEED SLIDE ASSEMBLY 3269407	
1	PAFZZ	5306-01-123-6088	53711	3269481	ROD, GUIDE	1
2	XAFZZ *PAFZZ	1010-01-129-1242	53711	3269429	HOUSING, SPRING	1
3	PAFZZ	5305-00-269-0783	80205	NAS1351C3LN10	SCREW, SOCKET HEAD, SELF-LOCKING	3
4	PAFZZ	1010-01-122-9547	53711	3269462	SPRING, SHUTTLE	1
5	PAFZZ	5360-01-123-6197	53711	3269487	SPRING, HELICAL, COMPRESSION	1
6	PAFZZ	1010-01-170-9940	53711	3269416	STOP KIT, FEED SLIDE	1
					CONSISTING OF:	
					<u>NSN</u>	<u>STOP/SHIM</u>
					1010-01-329-4865	0.438 IN. (-5)
					1010-01-329-4866	0.469 IN. (-6)
					1010-01-329-4867	0.500 IN. (-7)
					1010-01-329-4868	0.531 IN. (-8)
					1010-01-330-2787	0.563 IN. (-9)
					1010-01-329-4869	0.594 IN. (-10)
					1010-01-329-4870	0.625 IN. (-12)
					1010-01-329-4871	0.656 IN. (-13)
					1010-01-329-4872	0.687 IN. (-14)
					1010-01-329-4873	0.718 IN. (-15)
					<u>SCREW</u>	
					5305-00-978-9376	MS16997-38
7	PAFZZ	1010-01-123-6074	53711	3269430	SLIDE, FEED, INNER	1
8	PAFZZ	1010-01-129-1230	53711	3269432	SLIDE, FEED, OUTER	1
9	PAOZZ *PAFZZ	5360-01-123-6308	53711	3269497	SPRING, FLAT, PAWL, FEED	2
10	PAOZZ *PAFZZ	3040-01-123-6280	53711	3269428	PAWL, FEED	2
11	PAOZZ *PAFZZ	5315-00-464-2682	96906	MS9389-84	PIN, STRAIGHT, HEADLESS	2

END OF FIGURE

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

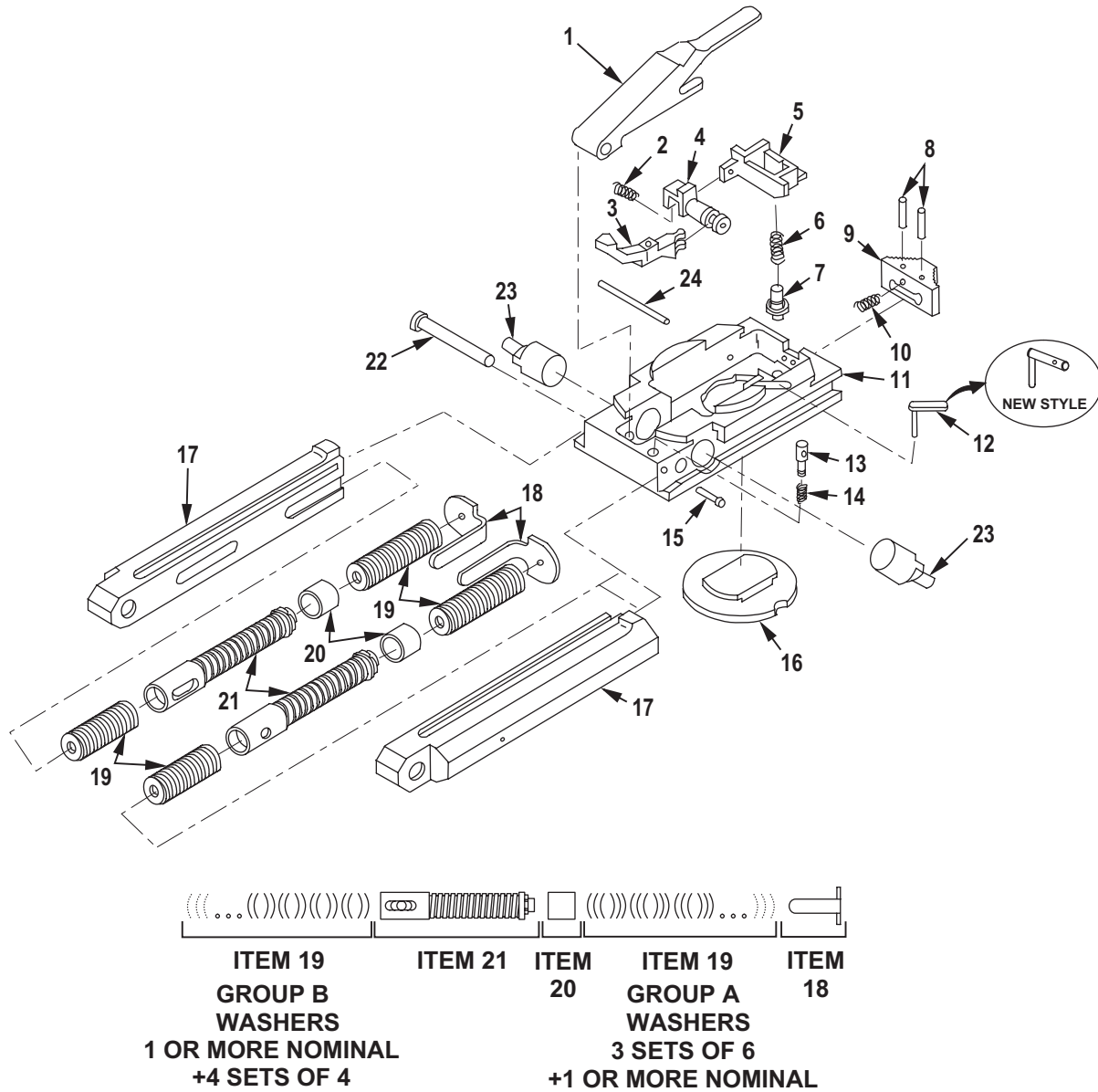
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

SEAR ASSEMBLY 3269410 AND RECEIVER BUFFER BODIES AND INTERNAL COMPONENTS 3269551

REPAIR PARTS LIST



1LK330

Figure 12. Sear Assembly, PN 3269410, and Receiver Buffer Bodies and Internal Components, PN 3269551.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 06, 0601	
					FIG. 12 SEAR ASSEMBLY 3269410 AND RECEIVER BUFFER BODIES AND INTERNAL COMPONENTS 3269551	
1	PAOZZ *PAFZZ	1010-01-123-6084	53711	3269470	SEAR, RECEIVER	1
2	PAOZZ *PAFZZ	5360-00-089-2366	96906	MS24585-C56	SPRING, HELICAL, COMPRESSION.....	1
3	PAOZZ *PAFZZ	1010-01-123-6080	53711	3269518	LEVER, SAFETY.....	1
4	PAOZZ *PAFZZ	1010-01-123-6082	53711	3269499	SLIDE, SAFETY	1
5	PAOZZ *PAFZZ	1010-01-359-2835	53711	3269498	BLOCK, SAFETY SLIDE.....	1
6	PAOZZ *PAFZZ	5360-00-123-6196	53711	3269517	SPRING, HELICAL COMPRESSION, SEAR	1
7	PAOZZ *PAFZZ	5315-01-123-6085	10001	3269420	PIN, SEAR SPRING.....	2
8	PAOZZ *PAFZZ	5315-00-823-8745	96906	MS16562-215	PIN, SPRING, SLTD, CRES.....	2
9	PAOZZ *PAFZZ	1010-01-123-6079	53711	3269519	SAFETY, THUMB.....	1
10	PAOZZ *PAFZZ	5305-01-123-6078	53711	3269520	PLUNGER, SPRING	1
11	XAOZZ *PAFZZ	1010-01-129-1239	53711	3269473	HOUSING, SEAR.....	1
12	PAOZZ *PAFZZ	1010-01-460-7941	53711	12938263	PIN, SAFETY LEVER.....	1
13	PAOZZ *PAFZZ	5315-01-123-6076	53711	3269491	PIN, GROOVED HD.....	1
14	PAOZZ *PAFZZ	5360-00-464-7070	96906	MS24585-C140	SPRING, HELICAL COMPRESSION, CRES.....	1
15	PAOZZ *PAFZZ	5315-01-151-8394	96906	MS9842-14	PIN, STRAIGHT, HD, DR, SHK.....	1
16	PAOZZ *PAFZZ	5340-01-129-1237	53711	3269471	CAP, SEAR HOUSING	1
17	PAOZZ *PAFZZ	1010-01-138-4812	53711	3269551	BODY, BUFFER, RECEIVER.....	2

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
18	PAOZZ *PAFZZ	1010-01-138-4807	53711	3269554	RETAINER, BUFFER, STL	1
19	PAOZZ *PAFZZ	5310-01-122-9630	53711	2680901	WASHER, SPRING	1
20	PAOZZ *PAFZZ	1010-01-138-4806	53711	3269555	CAP, BUFFER.....	2
21	PAOOO *PAFFF	1010-01-138-4804	53711	3269552	BUFFER ROD ASSEMBLY (SEE FIG. 13 FOR ASSY BKDN).....	2
22	PAOZZ *PAFZZ	5315-01-123-6182	53711	3269523	PIN, STRAIGHT, HEADED	1
23	PAOZZ *PAFZZ	5315-01-138-4805	53711	3269553	PIN, RECOIL	2
24	PAOZZ *PAFZZ	5315-01-123-6185	53711	3269522	PIN, STRAIGHT, HEADLESS	1

END OF FIGURE

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

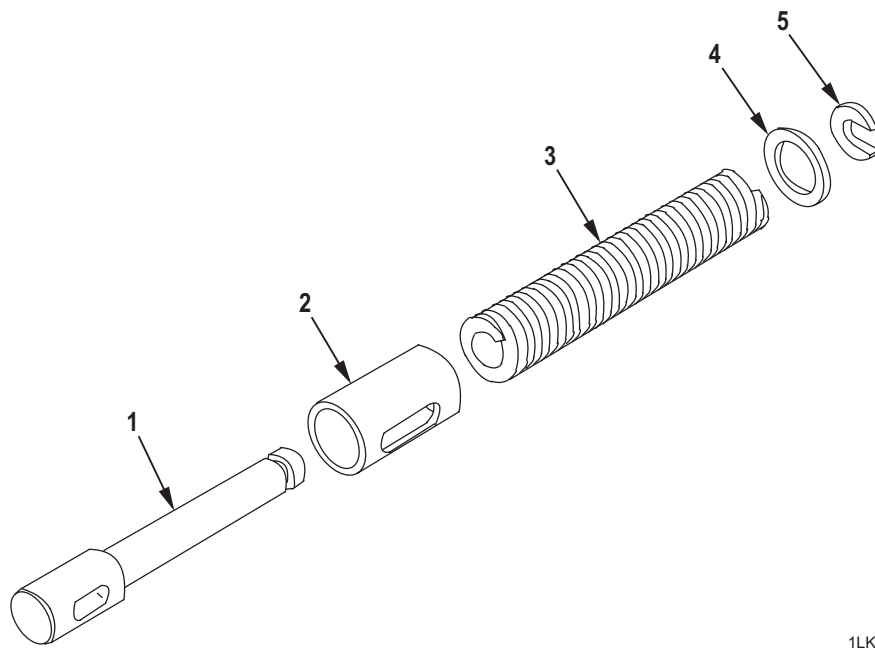
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

BUFFER ROD ASSEMBLY 3269552

REPAIR PARTS LIST



1LK331

Figure 13. Buffer Rod Assembly, PN 3269552.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 060101	
					FIG. 13 BUFFER ROD ASSEMBLY 3269552	
1	PAOZZ *XAFZZ	5315-01-138-4801	53711	3269537	PIN, GROOVED, HD.....	1
2	PAOZZ *PAFZZ	1010-01-138-4802	53711	3269538	BUSHING, BUFFER.....	1
3	PAOZZ *PAFZZ	5360-01-138-4803	53711	3269539	SPRING, HELICAL COMPRESSION.....	1
4	PAOZZ *PAFZZ	1010-01-138-4809	53711	3269543	WASHER, FLAT, BUFFER.....	1
5	PAOZZ *PAFZZ	1010-01-138-4808	53711	3269544	WASHER, SLOTTED	1

END OF FIGURE

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

VERTICAL CAM ASSEMBLY 3269411

REPAIR PARTS LIST

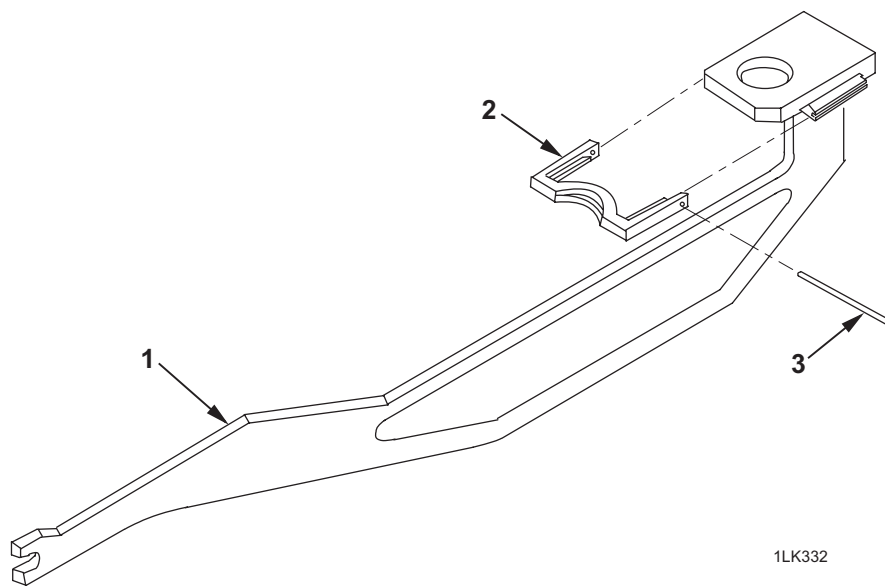


Figure 14. Vertical Cam Assembly, PN 3269411.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 07	
					FIG. 14 VERTICAL CAM ASSEMBLY 3269411	
1	XAOZZ	1010-01-123-6704	53711	3269427	CAM, VERTICAL.....	1
2	PAOZZ	1010-01-123-6699	53711	3269492	LOCK, LEVER, DRIVE.....	1
3	PAOZZ	5315-00-598-2933	96906	MS171512	PIN, SPRING, SLTD, CRES.....	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

ALIGNMENT GUIDE ASSEMBLY 3269403

REPAIR PARTS LIST

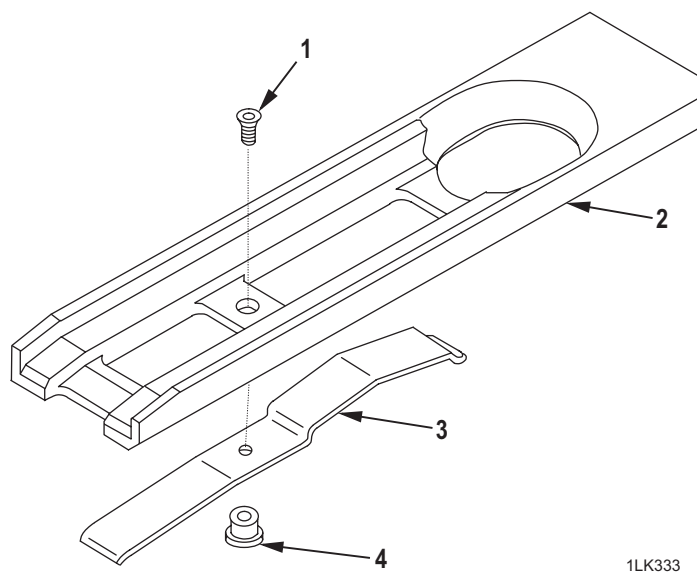


Figure 15. Alignment Guide Assembly, PN 3269403.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 08	
					FIG. 15 ALIGNMENT GUIDE ASSEMBLY 3269403	
1	PAFZZ	5305-01-217-8035	53711	5526211	SCREW, FLAT HEAD	1
2	PAFZZ *XAOZZ	1010-01-123-6708	53711	3269458	GUIDE, ALIGNMENT	1
3	PAFZZ	5360-01-123-6852	53711	3269468	SPRING, FLAT, GDE, ALIGN	1
4	PAFZZ	5305-01-124-4336	53711	3269454	SCREW, SHOULDER	1

END OF FIGURE

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UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

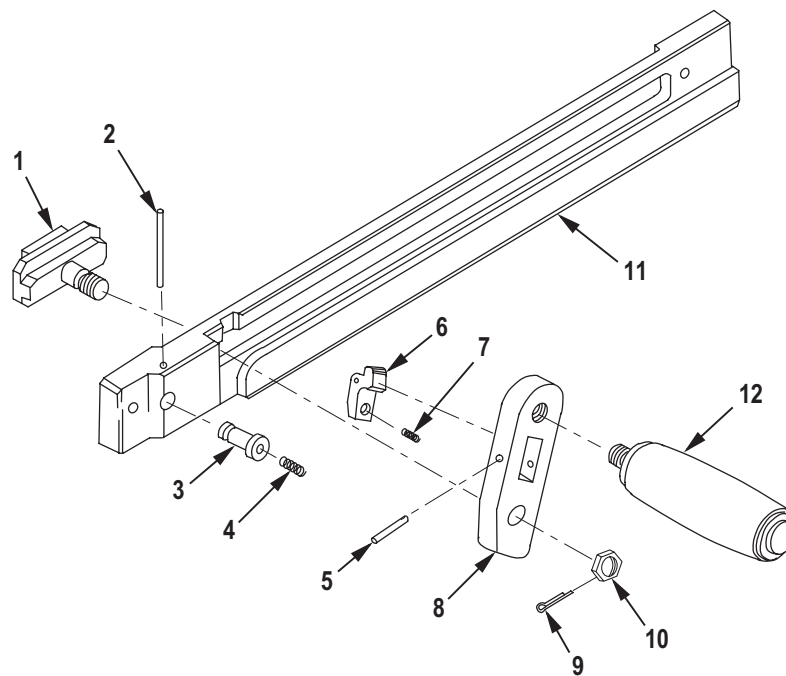
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

GUN CHARGER, LH, MK16, MOD 0 3269409

REPAIR PARTS LIST



1LK334

Figure 16. Charger, Gun, LH, MK16, MOD 0, PN 3269409.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 09	
					FIG. 16 GUN CHARGER, LH, MK16, MOD 0, 3269409	
1	XAOZZ *PAOZZ	1010-01-129-1231	10001	3269480	SLIDE, CHARGER	1
2	PAOZZ	5315-00-811-6552	96906	MS171506	PIN, SPRING, SLTD, CRES.....	1
3	PAOZZ	1010-01-123-6698	10001	3269513	PLUNGER, LOCK	1
4	PAOZZ	5360-00-405-2554	96906	MS24585-1063	SPRING, HELICAL COMPRESSION, STL	1
5	PAOZZ	5315-00-619-0899	96906	MS171533	PIN, SPRING, SLTD, CRES.....	1
6	PAOZZ	1010-01-123-6087	10001	3269516	LOCK, CHARGER HANDLE	1
7	PAOZZ	5360-00-194-5471	96906	MS24585C13	SPRING, HELICAL COMPRESSION,CRES.....	1
8	XAOZZ *PAFZZ	1010-01-129-2091	10001	3269524	ARM, LH.....	1
9	PAOZZ	5315-00-234-1863	96906	MS24665-300	PIN, COTTER, CRES.....	1
10	PAOZZ	5310-01-055-3853	96906	MS14145-L6	NUT, SELF-LOCKING.....	1
11	XAOZZ	1010-01-133-6984	10001	3269507	HOUSING, CHARGER, LH	1
12	PAOZZ *PAFZZ	1005-00-631-3800	19204	6313800	HANDLE ASSEMBLY	1

END OF FIGURE

* FOR ARMY USE ONLY

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

GUN CHARGER, RH, MK16, MOD 0 3269408

REPAIR PARTS LIST

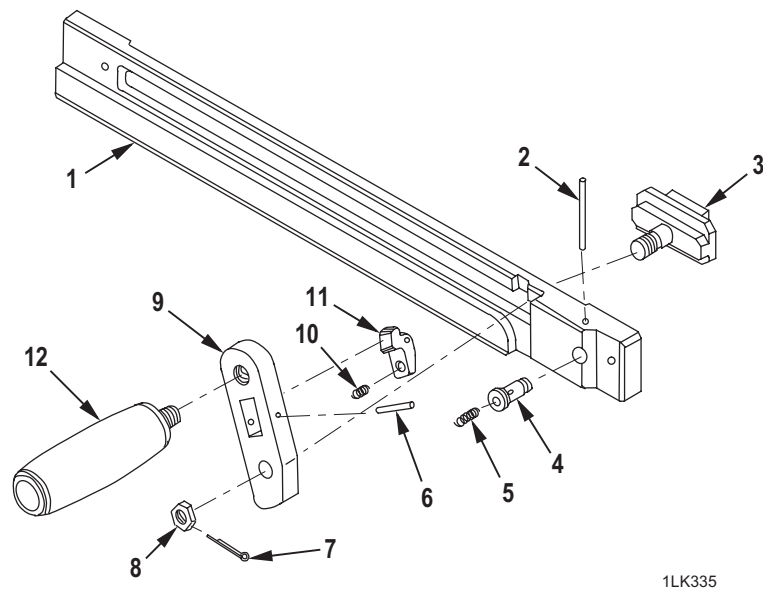


Figure 17. Charger, Gun, RH, MK16, MOD 0, PN 3269408.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 10	
					FIG. 17 GUN CHARGER, RH, MK16, MOD 0, 3269408	
1	XAOZZ	1010-01-133-6986	10001	3269506	HOUSING, CHARGER, RH.....	1
2	PAOZZ	5315-00-811-6552	96906	MS171506	PIN, SPRING, SLTD, CRES.....	1
3	XAOZZ *PAOZZ	1010-01-129-1231	10001	3269480	SLIDE, CHARGER	1
4	PAOZZ	1010-01-123-6698	10001	3269513	PLUNGER, LOCK	1
5	PAOZZ	5360-00-405-2554	96906	MS24585-1063	SPRING, HELICAL COMPRESSION, STL	1
6	PAOZZ	5315-00-619-0899	96906	MS171533	PIN, SPRING, SLTD, CRES.....	1
7	PAOZZ	5315-00-234-1863	96906	MS24665-300	PIN, COTTER, CRES.....	1
8	PAOZZ	5310-01-055-3853	96906	MS14145-L6	NUT, SELF LOCKING	1
9	XAOZZ *PAFZZ	3040-01-129-1229	10001	3269503	ARM, RH	1
10	PAOZZ	5360-00-194-5471	96906	MS24585C13	SPRING, HELICAL COMPRESSION, CRES	1
11	PAOZZ	1010-01-123-6087	10001	3269516	LOCK, CHARGER HANDLE	1
12	PAOZZ *PAFZZ	1005-00-631-3800	19204	6313800	HANDLE ASSEMBLY	1

END OF FIGURE

* FOR ARMY USE ONLY

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

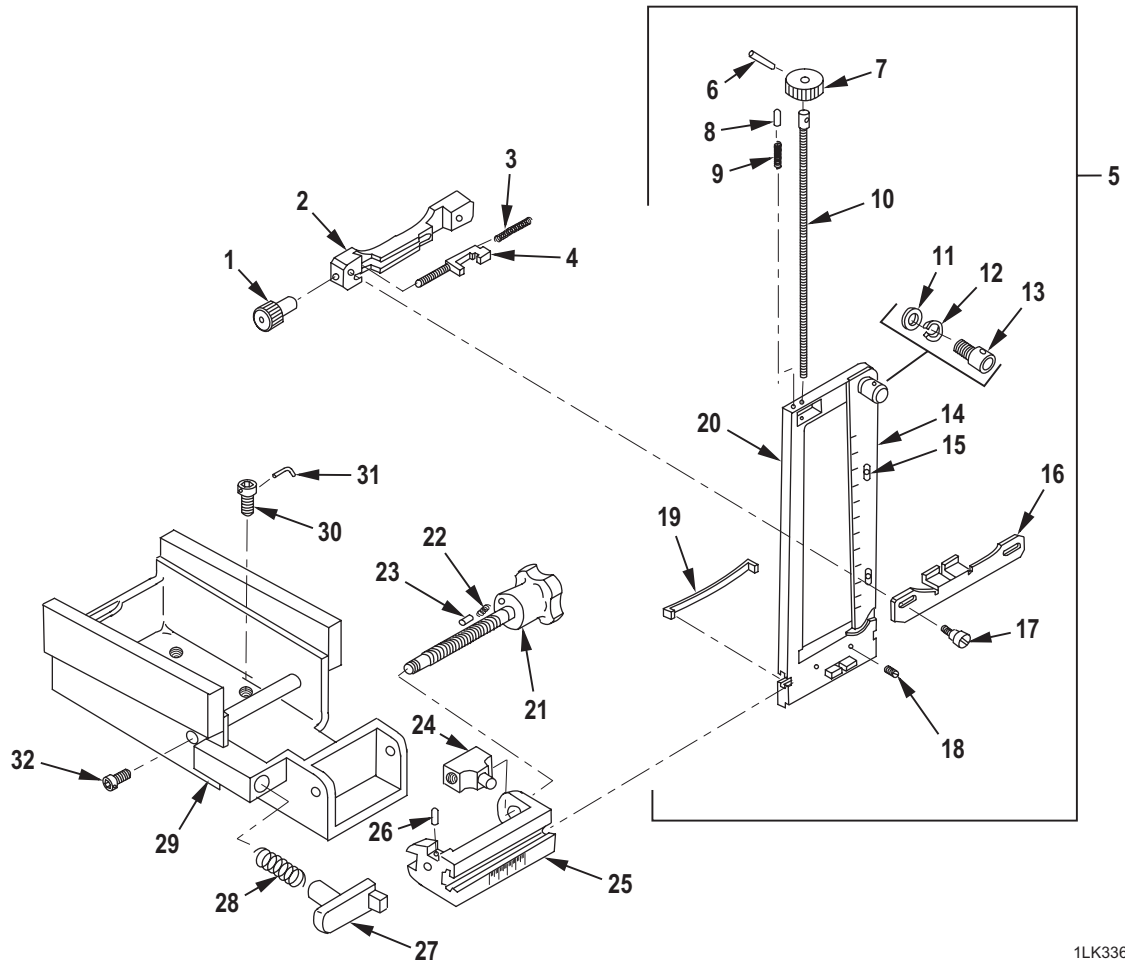
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

REAR SIGHT ASSEMBLY, MK40, MOD 0 3269545

REPAIR PARTS LIST



1LK336

Figure 18. Rear Sight Assembly, MK40, MOD 0, PN 3269545.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 11	
					FIG. 18 REAR SIGHT ASSEMBLY, MK40, MOD 0, 3269545	
1	PAOZZ *PAFZZ	5310-00-440-3355	53711	7791021	NUT, PLAIN, RETAINER.....	1
2	PAOZZ *PAFZZ	1010-00-439-6249	19204	7791014	CARRIER, APERTURE.....	1
3	PAOZZ *PAFZZ	5360-00-439-6255	19204	7791027	SPRING, HELICAL.....	1
4	PAOZZ *PAFZZ	1010-00-439-6252	19205	7791023	RETAINER, APERTURE.....	1
5	PAFZZ	5840-01-477-4318	19200	12993777	INDICATOR RANGE.....	1
6	PAOZZ *PAFZZ	5315-00-597-5086	96906	MS16562-98	.PIN, SPRING, SLOTTED	1
7	PAOZZ *PAFZZ	5355-01-294-9879	19204	7791029	.WHEEL, ELEVATING	1
8	PAOZZ *PAFZZ	5315-00-439-6251	19204	7791022	.PIN, STRAIGHT	1
9	PAOZZ *PAFZZ	5360-00-440-3356	19204	7791028	.SPRING, HELICAL.....	2
10	PAOZZ *PAFZZ	5305-01-296-0623	19204	7791025	.SCREW.....	1
11	PAOZZ *PAFZZ	5310-01-294-9877	19205	11010390	.WASHER, FLAT	1
12	PAOZZ *PAFZZ	5310-00-274-8702	96906	MS35338-60	.WASHER, LOCK, SPR, HELICAL.....	1
13	PAOZZ *PAFZZ	5305-01-295-9655	19204	7791018	.SCREW, LOCK, SCALE.....	1
14	PAFZZ	1010-01-133-6987	53711	3269548	.SCALE	1
15	PAFZZ	1010-01-133-6988	53711	3269557	.RIVET, SOLID SCALE	2
16	PAOZZ *PAFZZ	1010-00-440-3353	19204	7791011	.SLIDE, REAR SIGHT	1
17	PAOZZ *PAFZZ	5305-00-439-6253	19204	7791024	.SCREW, SHOULDER	2
18	PAOZZ *PAFZZ	5305-00-899-7436	19205	7791199	.SETSCREW, HEADLESS	2

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
19	PAOZZ *PAFZZ	1010-00-859-7933	19204	7791200	.SPRING, LEAF.....	1
20	PAOZZ *PAFZZ	5840-01-477-4318	19204	12993777	.FRAME ASSEMBLY	1
21	PAOZZ *PAFZZ	5305-00-439-6254	19205	7791026	SCREW, WINDAGE.....	1
22	PAOZZ *PAFZZ	5360-00-440-3356	19204	7791028	SPRING, HELICAL COMPRESSION.....	2
23	PAFZZ	5315-00-439-6251	19204	7791022	PIN, STRAIGHT	1
24	PAOZZ *PAFZZ	5315-00-440-3354	19204	7791020	KEY, WINDAGE SCREW.....	1
25	PAOZZ *PAFZZ	5340-01-388-8350	53711	12938262	BASE, FRAME	1
26	PAOZZ *PAFZZ	5315-00-240-1014	96906	MS16562-5	PIN, SPRING, SLOTTED	1
27	PAOZZ *PAFZZ	1010-01-384-9478	53711	12938261	LOCK, SIGHT.....	1
28	PAOZZ *PAFZZ	5360-00-838-6934	96906	MS24585-105	SPRING, HELICAL COMPRESSION.....	1
29	XAOOO *XAFZZ	1010-01-133-6989	53711	3269550	HINGE SUPPORT, BASE, REAR SIGHT	1
30	PAFZZ	5305-01-158-1197	53711	5526205	SCREW, CAP, SOCKET HE.....	4
31	PAOZZ *MFFZZ	9505-00-293-4208	96906	NASM20995-C32	WIRE, NON-ELECTRICAL.....	V
32	PAFZZ	5305-00-978-9346	96906	MS16997-38	SCREW, CAP, SCH.....	1

END OF FIGURE

* FOR ARMY USE ONLY

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

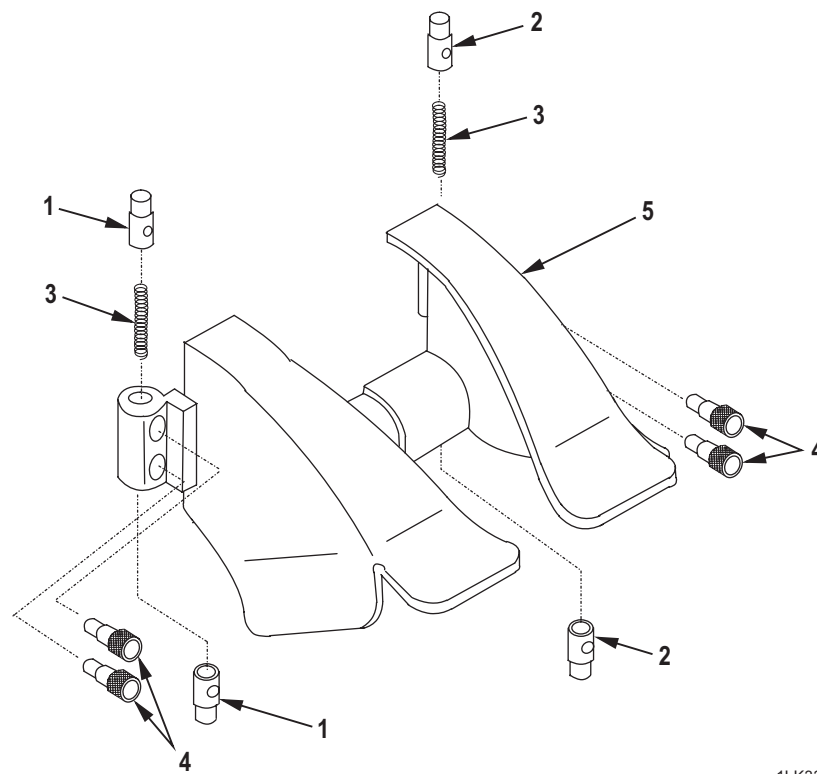
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

FEED THROAT ASSEMBLY 5830095

REPAIR PARTS LIST



1LK337

Figure 19. Feed Throat Assembly, PN 5830095.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 12	
					FIG. 19 FEED THROAT ASSEMBLY 5830095	
1	PAOZZ	1010-01-151-6216	10001	3010127-1	PLUNGER, FEED THROAT	2
2	PAOZZ	1010-01-151-6215	10001	3010127-2	PLUNGER, FEED THROAT	2
3	PAOZZ	5360-01-149-5513	10001	3010126	SPRING, HELICAL.....	2
4	PAOZZ	5315-01-149-5530	10001	3010125-2	PIN, SHOULDER	4
5	XAOZZ		53711	5830096	FEED THROAT	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

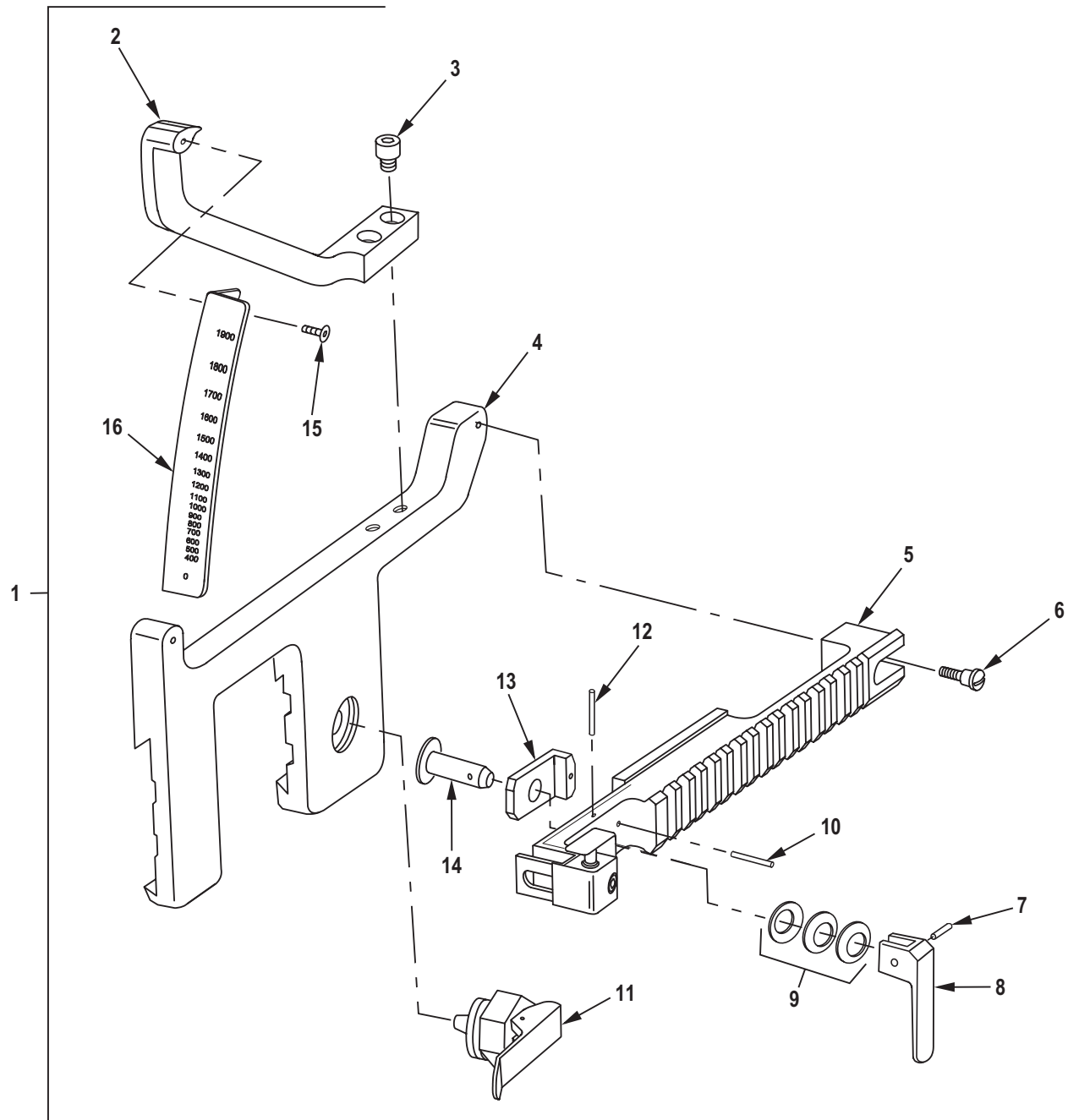
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

ADJUSTABLE SIGHT BRACKET 12997464

REPAIR PARTS LIST



1LK375

Figure 20. Adjustable Sight Bracket, 12997464.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 13	
					FIG. 20 ADJUSTABLE SIGHT BRACKET 12997464	
1	PAOFF	1240-01-515-3767	19200	12997464	ADJUSTABLE SIGHT BRACKET	1
2	PAOZZ	5340-01-522-7618	19200	12997466	.SUPPORT	1
3	PAOZZ	5305-00-421-7914	80205	MS16995-50B	.SCREW, CAP, SOCKET HEAD	2
4	XAOZZ		19200	12997465	.PLATE, BASE	1
5	PAOOO			12997488	.ASSEMBLY, ARM (SEE FIG. 21 FOR ASSY BKDN).....	1
6	PAOZZ	5305-01-517-4786	19200	12997469	.SCREW, SHOULDER	1
7	PAOZZ	5315-01-253-6728	80205	MS51923-51	.PIN, SPRING.....	1
8	PAOZZ	3040-01-517-4785	19200	12997472	.OFFSET CAM	1
9	PAOZZ	5310-01-148-0253	81349	M12133-1-5P	.WASHER, BELLEVILLE.....	3
10	PAOZZ	5315-00-688-2778	80205	MS51923-249	.PIN, SPRING.....	1
11	PAOOO	1010-01-517-6145	19200	13008566	.PLUNGER ASSEMBLY (SEE FIG. 22 FOR ASSY BKDN).....	1
12	PAOZZ	5315-00-965-1875	80205	MS51923-99	.PIN, SPRING.....	1
13	PAOZZ	5340-01-517-4787	19200	12997471	.CLAMP	1
14	PAOZZ	3040-01-517-4779	19200	12997470	.SHAFT, CLAMPING	1
15	PAOZZ	5305-00-068-5396	96906	MS24667-9	.SCREW	1
16	PAOZZ	1220-01-517-4782	19200	12997467	.SCALE	1
					END OF FIGURE	

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

ARM ASSEMBLY 12997488 AND COVER ASSEMBLY 12997481

REPAIR PARTS LIST

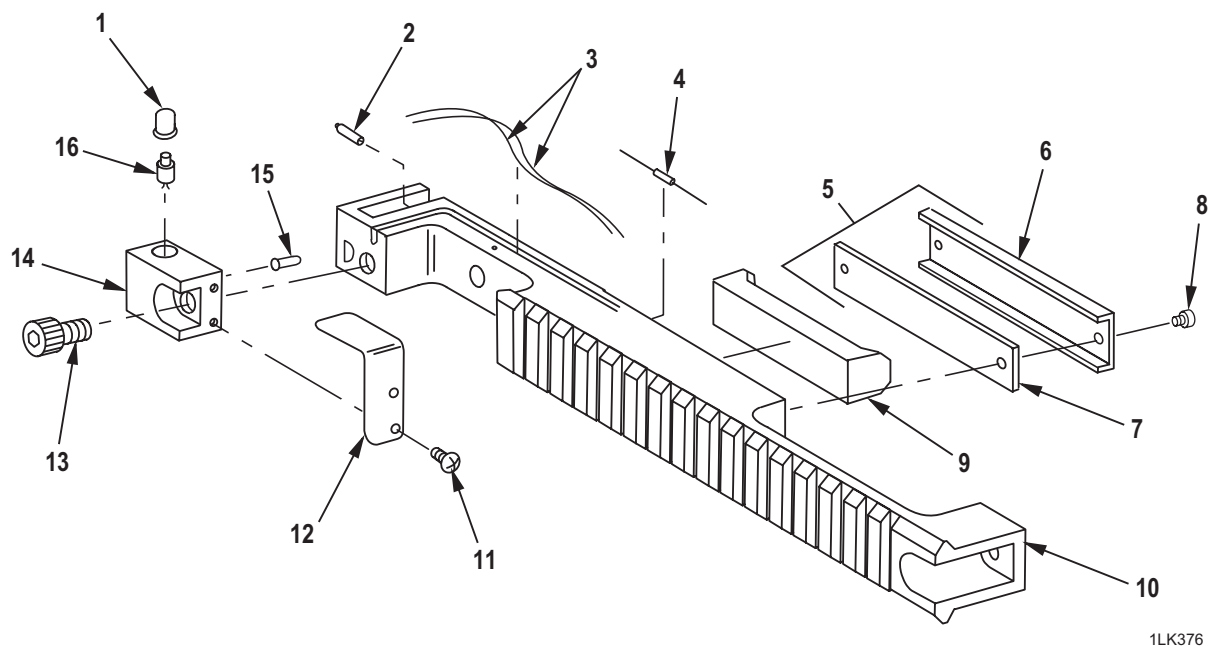


Figure 21. Arm Assembly, 12997488, and Cover Assembly, 12997481.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 1301, 130101	
					FIG. 21 ARM ASSEMBLY 12997488 AND COVER ASSEMBLY 12997481	
1	XAOZZ		19200	12997489	BOOT, SWITCH, PROTECTIVE	1
2	XAOZZ		19200	12997474	PLUNGER.....	1
3	XAOZZ		19200	ASB1044/7-24	WIRE.....	V
4	XAOZZ		19200	12997487	RESISTOR.....	1
5	PAOOO	5340-01-526-3299	19200	12997481	ASSEMBLY, COVER	1
6	PAOZZ	6160-01-517-8449	19200	12997479	.COVER, BATTERY BOX.....	1
7	PAOZZ	5330-01-517-6144	19200	12997482	.GASKET.....	1
8	PAOZZ	5305-01-483-8017	96906	NASM16995-9B	SCREW, CAP, SOCKET HEAD.....	2
9	XAOZZ		19200	12997483	HOLDER, BATTERY	1
10	XAOZZ		19200	12997468	ARM	1
11	PAOZZ	5305-00-054-5635	96906	MS51957-1	SCREW, PAN HEAD.....	2
12	PAOZZ	5930-01-517-4788	19200	12997490	GUARD, SWITCH	1
13	PAOZZ	5005-00-052-6456	80205	MS16996-10B	SCREW, CAP, SOCKET HEAD.....	1
14	XAOZZ	5340-01-517-4783	19200	12997485	COVER.....	1
15	XAOZZ		19200	12997484	DIODE	1
16	XAOZZ		19200	12997486	SWITCH, PUSH BUTTON MOMENTARY	1
					END OF FIGURE	

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

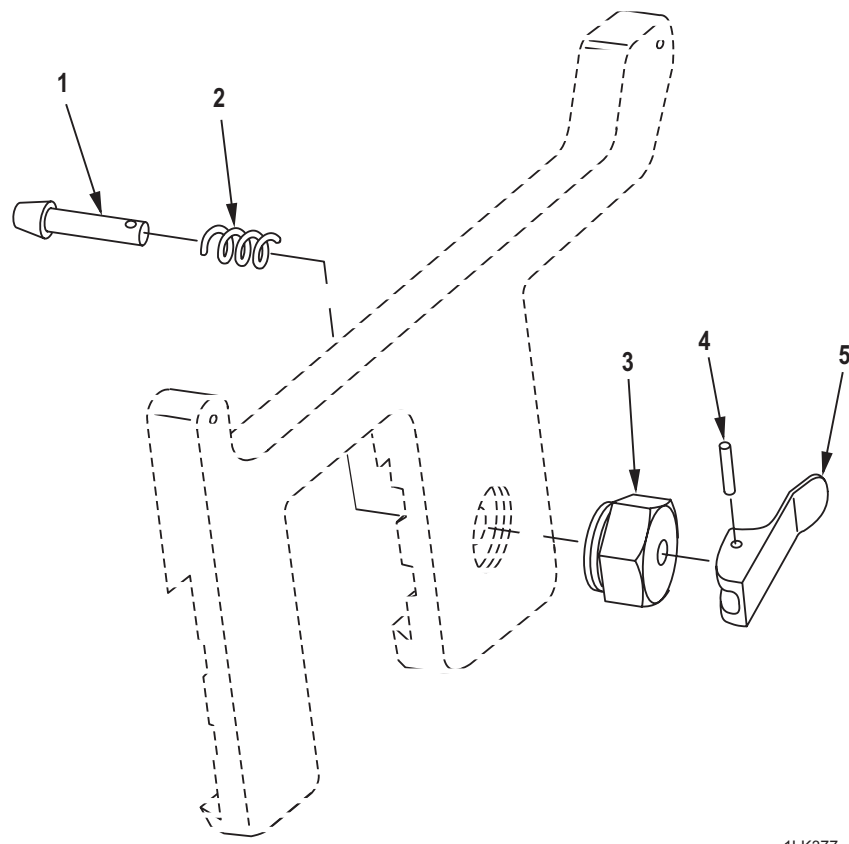
(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

PLUNGER ASSEMBLY 13008566

REPAIR PARTS LIST



1LK377

Figure 22. Plunger Assembly, 13008566.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
					GROUP 1302	
					FIG. 22 PLUNGER ASSEMBLY 13008566	
1	PAOZZ	5315-01-517-6147	19200	13008567	PIN, TAPERED	1
2	PAOZZ	5360-01-219-8311	96906	MS24585-C246	SPRING, HELICAL, COMPRESSION	1
3	XAOZZ		19200	13008568	MOUNT, TAPERED PIN	1
4	PAOZZ	5315-01-519-1111	96906	MS51923-52	PIN, SPRING.....	1
5	PAOZZ	1010-01-517-6146	19200	12997477	LEVER, CAM.....	1
					END OF FIGURE	

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

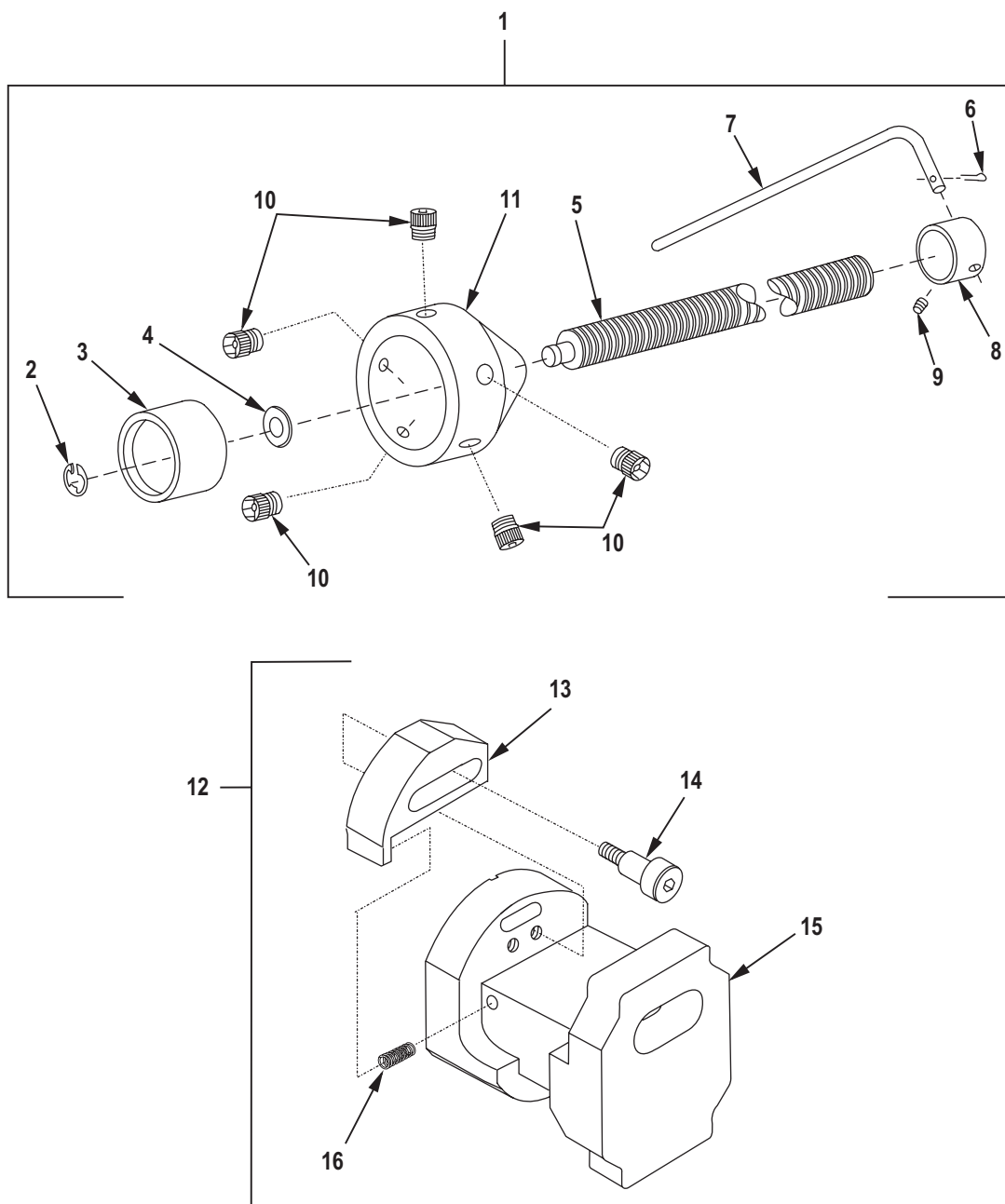
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

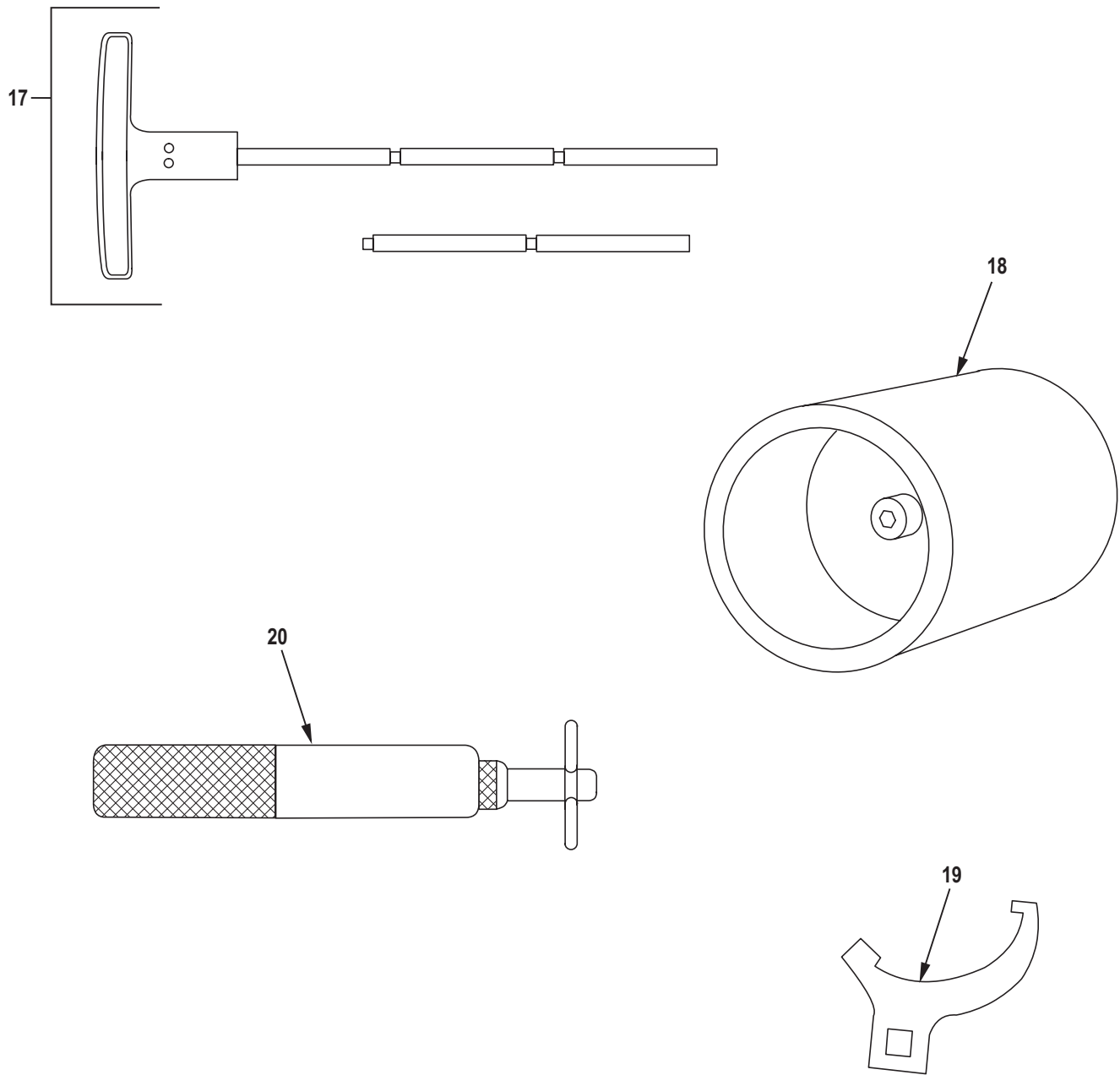
(NSN 1010-01-362-6513)

SPECIAL TOOLS



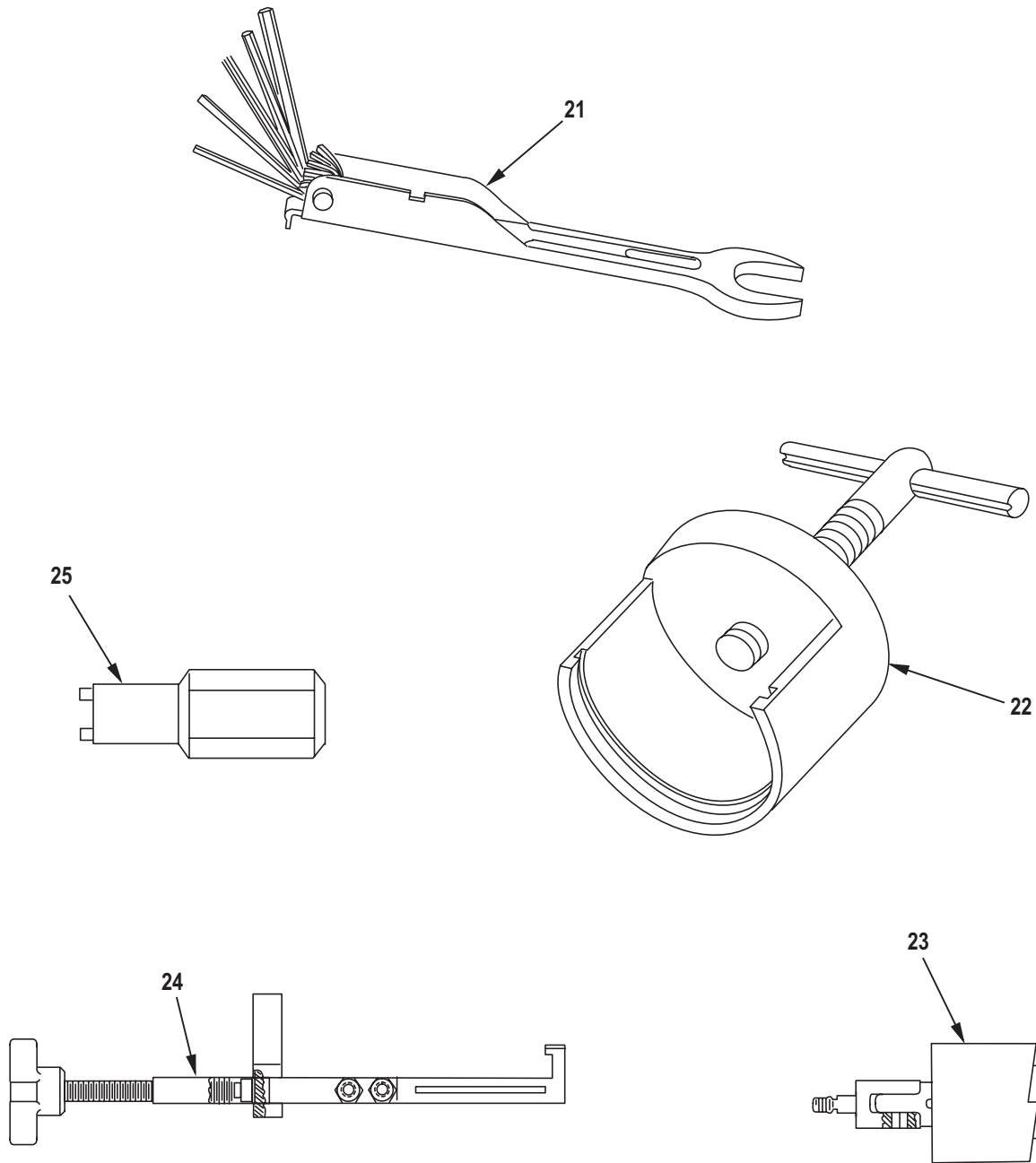
1LK339

Figure 23. Special Tools (Sheet 1 of 3).



1LK374

Figure 23. Special Tools (Sheet 2 of 3).



1LK378

Figure 23. Special Tools (Sheet 3 of 3).

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 9500 SPECIAL TOOLS						
FIG. 23 SPECIAL TOOLS						
1	PAOZZ	5120-01-347-1884		12926849	ROUND REMOVAL TOOL	1
2	PAOZZ	5365-01-396-8404	80204	ANSI B27.73CM1-10	.RING, RETAINING	1
3	PAOZZ	1010-01-355-9553	19200	12926848	.CUP	1
4	PAOZZ	5365-01-368-0429	19200	12926844	.WASHER, BRASS	1
5	PAOZZ	3040-01-355-7661	19200	12926845	.SHAFT, SHOULDERED	1
6	PAOZZ	5315-01-385-1540	39428	90149AO30	.PIN, COTTER	1
7	PAOZZ	1010-01-348-8758	19200	12926843	.HANDLE	1
8	PAOZZ	1010-01-355-9554	19200	12926846	.ROD, DRIVE	1
9	PAOZZ	5305-01-724-6755	80204	MS5165-78	.SCREW, SET	1
10	PAOZZ	5305-01-349-7520	19200	12926842	.SCREW, CAP, SOCKET	5
11	PAOZZ	3040-01-352-9065	19200	12926847	.COLLAR, SHAFT	1
12	PAOOO	1005-01-467-9435	26978	10742	FEED ADJUSTMENT TOOL	1
13	PAOZZ	1010-01-508-5551	26978	10825	.SLIDE	1
14	PAOZZ	5305-01-510-1275	26978	10827	.SCREW, SHOULDER	2
15	XAOZZ		26978	10826	.HOUSING, SLIDE	1
16	PAOZZ	5360-01-509-6006	26978	10749	.SPRING, COMPRESSION	1
17	PAOZZ	1005-00-653-5441	19205	6535441	CLEANING ROD ASSEMBLY, M7	1
18	PAOZZ	1010-01-138-4862	53711	3269536	BORE CONSTRICTION GAUGE ASSEMBLY	1
19	PAOZZ	5120-01-138-4797	53711	3269541	WRENCH, BARREL	1
20	PAOZZ	5120-01-138-4796	53711	3269540	BUFFER TOOL ASSEMBLY	1
21	PAOZZ	1010-01-130-3435	26978	3269494	COMBINATION TOOL	1
22	PAOZZ	1010-01-130-3434	53711	3269505	OGIVE PLUNGER TOOL	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
23	PAOZZ	1010-01-150-9983	53711	3269511	CLEANING BRUSH ASSEMBLY	1
24	PAOZZ	1010-01-138-4798	10001	3269542	FEED SLIDE TOOL.....	1
25	PAOZZ	5120-01-138-4811	53711	3269547	SAFETY SLIDE TOOL	1

END OF FIGURE

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5306-00-051-4070	8	10	5360-00-464-7070	12	14
5005-00-052-6456	21	13	5305-00-500-9394	8	6
5305-00-054-5635	21	11	5315-00-551-4246	8	2
5315-00-058-9737	4	3	5315-00-597-5086	18	6
5305-00-068-5396	20	15	5315-00-598-2933	14	3
5360-00-089-2366	12	2	5315-00-619-0899	16	5
3040-00-122-5867	5	40		17	6
3040-00-122-5870	5	33	1005-00-631-3800	16	12
3120-00-122-5878	5	6		17	12
5360-00-122-5890	5	32	1005-00-653-5441	23	17
5360-00-133-8266	5	2	5315-00-688-2778	20	10
5305-00-133-8270	5	31	5305-00-724-6755	23	9
5305-00-133-8276	5	28	1005-00-726-5561	8	8
5315-00-150-3838	10	6	5315-00-811-6552	16	2
5306-00-150-9105	2	35		17	2
5360-00-194-5471	16	7	5315-00-812-3757	8	1
	17	10	5315-00-823-8745	12	8
5315-00-234-1863	16	9	5360-00-838-6934	18	28
	17	7	1010-00-859-7933	18	19
5315-00-240-1014	18	26	5305-00-869-1097	5	27
5305-00-269-0783	11	3	5360-00-897-6014	8	5
5310-00-274-8702	18	12	5305-00-899-7436	18	18
5315-00-281-3054	10	4	1005-00-918-2617	8	7
9505-00-293-4208	5	19	5315-00-965-1875	20	12
	18	31	5305-00-978-9346	18	32
5305-00-366-6236	5	30	5310-01-055-3853	16	10
5360-00-405-2554	16	4		17	8
	17	5	1055-01-122-9538	4	1
5305-00-421-7914	20	3	1010-01-122-9539	5	4
1010-00-439-6249	18	2	1010-01-122-9540	5	1
5315-00-439-6251	18	8	1010-01-122-9541	5	25
	18	23	1010-01-122-9542	5	20
1010-00-439-6252	18	4	5315-01-122-9543	5	23
5305-00-439-6253	18	17	1010-01-122-9544	5	21
5305-00-439-6254	18	21	1010-01-122-9545	7	5
5360-00-439-6255	18	3	1010-01-122-9546	7	1
1010-00-440-3353	18	16	1010-01-122-9547	11	4
5315-00-440-3354	18	24	1010-01-122-9548	5	22
5310-00-440-3355	18	1	1010-01-122-9551	5	29
5360-00-440-3356	18	9	5340-01-122-9552	5	41
	18	22	5340-01-122-9554	5	24
5315-00-464-2682	11	11	1010-01-122-9555	5	34

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
1010-01-122-9556	10	3	5360-01-124-4410	9	3
5360-01-122-9602	5	18	1010-01-126-9063	1	
5360-01-122-9603	5	14	3040-01-129-1229	17	9
5310-01-122-9630	12	19	1010-01-129-1230	11	8
5310-01-122-9631	5	17	1010-01-129-1231	16	1
5315-01-122-9639	6	4		17	3
5315-01-122-9641	5	8	1010-01-129-1232	2	6
5360-01-122-9670	2	26	1010-01-129-1233	2	23
5360-01-122-9671	2	22	1010-01-129-1234	8	3
	5	7	1010-01-129-1235	2	14
3040-01-122-9672	6	2	1010-01-129-1236	2	24
1010-01-122-9678	5	10	5340-01-129-1237	12	16
5360-01-123-2356	5	37	1010-01-129-1239	12	11
1010-01-123-6074	11	7	1010-01-129-1242	11	2
1010-01-123-6075	9	4	1010-01-129-1243	10	1
5315-01-123-6076	12	13	1010-01-129-1244	9	2
5305-01-123-6078	12	10	1010-01-129-1245	5	16
1010-01-123-6079	12	9	1010-01-129-1246	7	4
1010-01-123-6080	12	3	1010-01-129-1247	2	8
1010-01-123-6082	12	4	5303-01-129-1248	5	9
1010-01-123-6084	12	1	1010-01-129-2091	16	8
5315-01-123-6085	12	7	1010-01-130-3434	23	22
1010-01-123-6086	8	4	1010-01-130-3435	23	21
1010-01-123-6087	16	6	1010-01-133-0824	5	11
	17	11	1010-01-133-0827	5	13
5306-01-123-6088	11	1	5315-01-133-0828	5	15
5315-01-123-6092	2	1	5340-01-133-0829	5	12
1010-01-123-6094	2	13	5315-01-133-0830	2	25
5315-01-123-6095	2	19	1010-01-133-6977	2	20
5315-01-123-6096	2	18	1010-01-133-6979	2	2
3040-01-123-6097	2	4	1010-01-133-6980	2	28
5315-01-123-6182	12	22	1010-01-133-6982	8	9
5315-01-123-6185	12	24	1010-01-133-6983	2	29
5315-01-123-6186	5	3	1010-01-133-6984	16	11
5360-01-123-6196	12	6	1010-01-133-6985	2	11
5360-01-123-6197	11	5	1010-01-133-6986	17	1
5360-01-123-6200	2	17	1010-01-133-6987	18	14
5360-01-123-6201	10	2	1010-01-133-6988	18	15
5310-01-123-6265	9	1	1010-01-133-6989	18	29
5310-01-123-6266	7	3	1010-01-133-6990	2	10
5315-01-123-6268	10	5	5120-01-138-4796	23	20
3040-01-123-6280	11	10	5120-01-138-4797	23	19
1010-01-123-6281	2	27	1010-01-138-4798	23	24
3040-01-123-6282	2	16	5315-01-138-4801	13	1
3040-01-123-6283	2	21	1010-01-138-4802	13	2
5360-01-123-6308	11	9	5360-01-138-4803	13	3
1010-01-123-6697	10	7	1010-01-138-4804	12	21
1010-01-123-6698	16	3	5315-01-138-4805	12	23
	17	4	1010-01-138-4806	12	20
1010-01-123-6699	14	2	1010-01-138-4807	12	18
1010-01-123-6704	14	1	1010-01-138-4808	13	5
1010-01-123-6705	2	5	1010-01-138-4809	13	4
1010-01-123-6706	2	32	1010-01-138-4810	7	2
1010-01-123-6708	15	2	5120-01-138-4811	23	25
5365-01-123-6820	3	4	1010-01-138-4812	12	17
5360-01-123-6852	15	3	1010-01-138-4862	23	18
5305-01-124-4336	15	4	5310-01-148-0253	20	9
			1010-01-149-5468	2	12

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5360-01-149-5513	19	3	1010-01-490-9697	1	
5315-01-149-5530	19	4	1010-01-491-8627	5	26A
1010-01-150-9983	23	23	1010-01-491-8628	5	26
1010-01-151-6215	19	2	1010-01-491-8630	2	34
1010-01-151-6216	19	1	1010-01-491-8631	5	35
1010-01-151-6277	1		1010-01-491-8632	5	36
5315-01-151-8394	12	15	3120-01-492-0354	3	2
5305-01-158-1197	18	30	1010-01-492-2118	2	33
5360-01-158-1207	5	39	1010-01-508-5551	23	13
1010-01-170-9940	11	6	5305-01-509-6006	23	16
5360-01-171-0008	5	38	5305-01-510-1275	23	14
5360-01-217-2841	6	3	1240-01-515-3767	20	1
5305-01-217-8035	15	1	3040-01-517-4779	20	14
5360-01-219-8311	22	2	1220-01-517-4782	20	16
3110-01-235-0389	5	5	5340-01-517-4783	21	14
5315-01-253-6728	20	7	3040-01-517-4785	20	8
1010-01-258-1467	2	9	5305-01-517-4786	20	6
5310-01-294-9877	18	11	5340-01-517-4787	20	13
5355-01-294-9879	18	7	5930-01-517-4788	21	12
5305-01-295-9655	18	13	5330-01-517-6144	21	7
5305-01-296-0623	18	10	1010-01-517-6145	20	11
5120-01-347-1884	23	1	1010-01-517-6146	22	5
1010-01-348-8758	23	7	5315-01-517-6147	22	1
5305-01-349-7520	23	10	6160-01-517-8449	21	6
3040-01-352-9065	23	11	5315-01-519-1111	22	4
3040-01-355-7661	23	5	5305-01-519-2130	3	1
1010-01-355-9553	23	3	5340-01-522-7618	20	2
1010-01-355-9554	23	8	5340-01-526-3299	21	5
1010-01-359-2835	12	5			
1010-01-362-6513	1				
5365-01-368-0429	23	4			
1010-01-384-9478	18	27			
5315-01-385-1540	23	6			
5340-01-388-8350	18	25			
5305-01-392-1665	2	30			
1010-01-394-9913	4	2			
5365-01-396-8404	23	2			
1010-01-440-3474	2	15			
1055-01-443-8386	5	42			
1010-01-460-7941	12	12			
1005-01-467-9435	23	12			
3040-01-475-2685	2	3			
	3	5			
5840-01-477-4318	18	5			
	18	20			
5305-01-483-8017	21	8			

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN
(NSN 1010-01-126-9063)
MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET
(NSN 1010-01-490-9697)
UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN
(NSN 1010-01-362-6513)

PART NUMBER INDEX

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
AN4-4A	2	35	MS90727-28	8	10
ANSI B27.73CM1-10	23	2	MS9389-84	11	11
ASB1044/7-24	21	3	MS9842-14	12	15
M12133-1-5P	20	9	NAS1351C3LN10	11	3
MS14145-L6	16	10	NASM16995-9B	21	8
	17	8	NASM20995-C32	5	19
MS16562-215	12	8		18	31
MS16562-217	4	3	10742	23	12
MS16562-5	18	26	10749	23	16
MS16562-98	18	6	10764	3	3
MS16995-50B	20	3	10765	3	2
MS16996-10B	21	13	10768	2	3
MS16997-38	18	32		3	5
MS171506	16	2	10825	23	13
	17	2	10826	23	15
MS171512	14	3	10827	23	14
MS171533	16	5	10928	3	1
	17	6	11010390	18	11
MS20392-1C21	8	1	12012009	4	2
MS21295-16	5	27	12012058	2	15
MS24585-105	18	28	12012073	5	42
MS24585-1063	16	4	12926842	23	10
	17	5	12926843	23	7
MS24585-2121	6	3	12926844	23	4
MS24585C13	16	7	12926845	23	5
	17	10	12926846	23	8
MS24585-C140	12	14	12926847	23	11
MS24585-C181	8	5	12926848	23	3
MS24585-C246	22	2	12926849	23	1
MS24585-C56	12	2	12938261	18	27
MS24665-1010	8	2	12938262	18	25
MS24665-300	16	9	12938263	12	12
	17	7	12993610	2	33
MS24667-9	20	15	12993777	18	5
MS35338-60	18	12		18	20
MS51605-13	10	4	12997464	20	1
MS51605-19	10	6	12997465	20	4
MS5165-78	23	9	12997466	20	2
MS51923-249	20	10	12997467	20	16
MS51923-51	20	7	12997468	21	10
MS51923-52	22	4	12997469	20	6
MS51923-99	20	12	12997470	20	14
MS51957-1	21	11	12997471	20	13
MS51958-40B	2	30	12997472	20	8
			12997474	21	2

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
12997477	22	5	3269430	11	7
12997479	21	6	3269431	2	24
12997481	21	5	3269432	11	8
12997482	21	7	3269433	5	18
12997483	21	9	3269434	2	18
12997484	21	15	3269435	2	19
12997485	21	14	3269436	2	21
12997486	21	16	3269437	9	2
12997487	21	4	3269438	2	16
12997488	20	5	3269439	2	13
12997489	21	1	3269440	5	21
12997490	21	12	3269441	5	22
12997550	1		3269442	5	23
12997552	5	26A	3269444	5	20
12997553	5	26	3269445	7	4
12997554	5	35	3269446	7	1
12997555	2	33	3269447	7	5
12997556	5	36	3269448	5	25
13008566	20	11	3269449	5	1
13008567	22	1	3269450	5	4
13008568	22	3	3269451	7	2
2655776	5	28	3269452	5	34
2680889-1	5	30	3269454	15	4
2680901	12	19	3269455	9	3
2680956	5	40	3269457	5	10
2680959	5	33	3269458	15	2
2680962	5	31	3269459	5	24
2680964	5	6	3269461	6	1
2813528	5	32	3269462	11	4
2813531	5	2	3269463	5	41
3010125-2	19	4	3269464	5	29
3010126	19	3	3269468	15	3
3010127-1	19	1	3269469-1	3	4
3010127-2	19	2	3269470	12	1
3269401	2	7	3269471	12	16
3269402	5	9	3269472	2	1
3269403	2	14	3269473	12	11
3269404	2	32	3269474	5	17
3269405	2	20	3269475	5	8
3269406	2	2	3269476	5	3
3269407	2	28	3268477	10	7
3269408	2	23	3269478	10	3
3269409	2	8	3269479	10	5
3269410	2	10	3269480	16	1
3269411	2	5		17	3
3269415	2	6	3269481	11	1
3269416	11	6	3269482	7	3
3269417	5	39	3269483	9	4
3269419	1		3269484	10	1
3269420	12	7	3269486	2	17
3269422	4	1	3269487	11	5
3269425	5	14	3269488	10	2
3269426	2	4	3269489	6	2
3269427	14	1	3269490	2	27
3269428	11	10	3269491	12	13
3269429	11	2	3269492	14	2

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
3269493	9	1	3269553	12	23
3269494	23	21	3269554	12	18
3269497	11	9	3269555	12	20
3269498	12	5	3269557	18	15
3269499	12	4	5009369	8	7
3269501	2	11	5009394	8	6
3269502	2	22	5526198	5	11
	4	7	5526201	5	13
3269503	17	9	5526202	5	15
3269505	23	22	5526203	5	12
3269506	17	1	5526204	2	25
3269507	16	11	5526205	18	30
3269511	23	23	5526208	5	38
3269512	5	16	5526209	5	5
3269513	16	3	5526211	15	1
	17	4	5830059	1	
3269515	2	26	5830095	2	12
3269516	16	6	5830096	19	5
	17	11	6289494	2	9
3269517	12	6	6313800	16	12
3269518	12	3		17	12
3269519	12	9	6535441	23	17
3269520	12	10	7004160	1	
3269522	12	24	7004224	2	31
3269523	12	22	7265561	8	8
3269524	16	8	7791011	18	16
3269525	5	37	7791014	18	2
3269526	6	4	7791018	18	13
3269533	8	3	7791020	18	24
3269534	8	9	7791021	18	1
3269535	8	4	7791022	18	8
3269536	23	18		18	23
3269537	13	1	7791023	18	4
3269538	13	2	7791024	18	17
3269539	13	3	7791025	18	10
3269540	23	20	7791026	18	21
3269541	23	19	7791027	18	3
3269542	23	24	7791028	18	9
3269543	13	4		18	22
3269544	13	5	7791029	18	7
3269545	2	29	7791199	18	18
3269547	23	25	7791200	18	19
3269548	18	14	90149AO30	23	6
3269550	18	29			
3269551	12	17			
3269552	12	21			

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT**MK19 MOD 3 40MM MACHINE GUN****(NSN 1010-01-126-9063)****MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET****(NSN 1010-01-490-9697)****UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN****(NSN 1010-01-362-6513)****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 MOD 3 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 abrasive cloth (item 5, WP 0121 00).").

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

C - Operator/Crew

O - Unit

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 Issue (U/I). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (3).

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/I
1			Deleted	
2	O	6810-00-983-8551	Alcohol, Isopropyl (81348) TTI735	
3			Cleaning Compound: Cleaning compound, rifle bore cleaner (RBC) (81349) MIL-PFR-372	
	C	6850-00-224-6656	2 ounce can	CN
	C	6850-00-224-6577	8 ounce can	CN
	O	6850-00-224-6663	1 gallon can	GL
4	O	6850-00-224-6665	Cleaning Compound: 1-gallon can (81349) MIL-C-11090	GL
5	C	5350-00-221-0872	Cloth, Abrasive 50-sheet package (81349) A-A-1206	PK
6			Grease, Molybdenum Disulfide (GMD) (81349) MIL-G-21164	
	C	9150-00-935-4018	14 ounce can	OZ
	O	9150-00-223-4004	6.5 pound can	OZ
	O	9150-00-965-2003	35 pound can	LB
7	O	9150-01-260-2534	Lubricant, Solid Film 16-ounce can (81349) MIL-L-23398	OZ
8	C	9150-00-292-9689	Lubricating Oil (LAW) 1-quart bottle (81349) MIL-L-14107	QT
9			Lubricating Oil, Weapons, semi- fluid (LSA) (81349) MIL-L-46000	
	C	9150-00-935-6597	2 ounce bottle	OZ
	C	9150-00-889-3522	4 ounce bottle	OZ
	O	9150-00-870-4241	32 ounce bottle	OZ
	O	9150-00-753-4686	1 gallon can	GL

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/I
10	C O	9150-00-949-0323 9150-01-109-7793	Lubricating Oil ,Weapons, semi- fluid w/Teflon (LSAT) (81349) MIL-L-46150 8 ounce tube 1 pound can	TU LB
11	O	8030-00-181-7603	Sealing Compound, Grade A Red, Type 3 (Locking Compound) 50-milliliter bottle (81349) MIL-L-R-46082	BT
12	O	6850-00-281-1985	Solvent, Dry Cleaning 1-gallon can (58536) A-A-711	GL
13	C	6850-00-281-3061	Solvent, Dry Cleaning 1-gallon can (81348) P-D-680	GL
14	C	7920-00-205-1711	Wiping Rag: cotton 50-pound bundle (58536) A-A-531	BL
15	O	9505-00-293-4208	Wire, Safety 1-pound spool (96906) MS20995C32	SP

END OF WORK PACKAGE

UNIT AND DIRECT SUPPORT

MK19 MOD 3 40MM MACHINE GUN

(NSN 1010-01-126-9063)

MK19 MOD 3 40MM MACHINE GUN, WITH SIGHT BRACKET

(NSN 1010-01-490-9697)

UPGUNNED WEAPONS STATION MK19 40MM MACHINE GUN

(NSN 1010-01-362-6513)

MANDATORY REPLACEMENT PARTS LIST

This work package includes a list of all mandatory replacement parts referenced in the task initial setups and procedures. These are items that must be replaced during maintenance whether they have failed or not. This includes items based on usage intervals such as miles, time, rounds fired, etc.

Table 1. Mandatory Replacement Parts List.

ITEM NO.	PART NUMBER/ CAGEC	NSN	NOMENCLATURE	QTY
1	MS14145-L6 (96906)	5310-01-055-3853	Self-locking nut	2
2	MS16562-215 (96906)	5315-00-823-8745	Slotted spring pin	2
3	MS16562-217 (96906)	5315-00-058-9737	Slotted spring pin	1
4	MS171506 (96906)	5315-00-811-6552	Slotted spring pin	2
5	MS171512 (96906)	5315-00-598-2933	Slotted spring pin	1
6	MS171533 (96906)	5315-00-619-0899	Slotted spring pin	2
7	MS21295-16 (96906)	5305-00-869-1097	Self-locking socket head cap screw	3
8	MS24665-1010 (96906)	5315-00-551-4246	Cotter pin	1
9	MS24665-300 (96906)	5315-00-234-1863	Cotter pin	2
10	MS51605-13 (96906)	5305-00-281-3054	Grooved headless pin	1
11	MS51605-19 (96906)	5305-00-150-3838	Grooved headless pin	1
12	MS51923-51 (80205)	5315-01-253-6728	Spring pin	1

Table 1. Mandatory Replacement Parts List - Continued.

ITEM NO.	PART NUMBER/ CAGEC	NSN	NOMENCLATURE	QTY
13	MS51923-52 (96906)	5315-01-519-1111	Spring pin	1
14	MS51923-99 (80205)	5315-00-965-1875	Spring pin	1
15	MS90727-28 (96906)	5306-01-051-4070	Hexagon head self-locking cap screw	6
16	NAS1351C3LN10 (80205)	5305-00-269-0783	Self-locking socket head screw	6
17	2655776 (53711)	5305-00-133-8276	Nylon point setscrew	4
18	2680889-1 (53711)	5305-00-366-6236	Self-locking screw	2
19	3010126 (10001)	5360-01-149-5513	Helical spring	2
20	3010127-1 (10001)	1010-01-151-6216	Feed throat plunger	2
21	3010127-2 (10001)	1010-01-151-6215	Feed throat plunger	2
22	3269454 (53711)	5301-01-124-4336	Shoulder screw	1
23	3269488 (53711)	5360-01-123-6201	Helical torsion spring	1
24	3269517 (53711)	5310-01-123-6196	Sear spring	1
25	3269557 (53711)	1010-01-133-6988	Solid scale rivet	2
26	5526211 (53711)	5305-01-217-8035	Flat head screw	1
27	90149AO30 (39428)	5315-01-385-1540	Cotter pin	1

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Director Infantry Weapons
Marine Corps Systems Command

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

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

WEIGHTS

1 Centigram = 10 Milligrams = 0.154 Grain
1 Decigram = 10 Centigrams = 1.543 Grains
1 Gram = 0.001 Kilogram = 10 Decigrams
= 1000 Milligrams = 0.035 Ounce
1 Dekagram = 10 Grams = 0.353 Ounce
1 Hectogram = 10 Dekagrams = 3.527 Ounces
1 Kilogram = 10 Hectograms = 1000 Grams
= 2.205 Pounds
1 Quintal = 100 Kilograms = 220.46 Pounds
1 Metric Ton = 10 Quintals = 1000 Kilograms
= 1.1 Short Tons

LIQUID MEASURE

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

SQUARE MEASURE

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

CUBIC MEASURE

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

TEMPERATURE

$5/9 (^{\circ}\text{F} - 32^{\circ}) = ^{\circ}\text{C}$
 $(9/5 \times ^{\circ}\text{C}) + 32^{\circ} = ^{\circ}\text{F}$
-35° Fahrenheit is equivalent to -37° Celsius
0° Fahrenheit is equivalent to -18° Celsius
32° Fahrenheit is equivalent to 0° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
100° Fahrenheit is equivalent to 38° Celsius
212° Fahrenheit is equivalent to 100° Celsius

APPROXIMATE CONVERSION FACTORS

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>	<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Inches	Centimeters	2.540	Centimeters	Inches	0.394
Feet	Meters	0.305	Meters	Feet	3.280
Yards	Meters	0.914	Meters	Yards	1.094
Miles	Kilometers	1.609	Kilometers	Miles	0.621
Square Inches	Square Centimeters	6.451	Square Centimeters ...	Square Inches	0.155
Square Feet	Square Meters	0.093	Square Meters	Square Feet	10.764
Square Yards	Square Meters	0.836	Square Meters	Square Yards	1.196
Square Miles	Square Kilometers	2.590	Square Kilometers	Square Miles	0.386
Acres	Square Hectometers	0.405	Square Hectometers ...	Acres	2.471
Cubic Feet	Cubic Meters	0.028	Cubic Meters	Cubic Feet	35.315
Cubic Yards	Cubic Meters	0.765	Cubic Meters	Cubic Yards	1.308
Fluid Ounces	Milliliters	29.573	Milliliters	Fluid Ounces	0.034
Pints	Liters	0.473	Liters	Pints	2.113
Quarts	Liters	0.946	Liters	Quarts	1.057
Gallons	Liters	3.785	Liters	Gallons	0.264
Ounces	Grams	28.349	Grams	Ounces	0.035
Pounds	Kilograms	0.454	Kilograms	Pounds	2.205
Short Tons	Metric Tons	0.907	Metric Tons	Short Tons	1.102
Pound-Feet	Newton-Meters	1.356	Newton-Meters	Pound-Feet	0.738
Pounds-Inches	Newton-Meters	0.11375	Kilopascals	Pounds per Square Inch	0.145
Pounds per Square Inch ..	Kilopascals	6.895	Kilometers per Liter ...	Miles per Gallon	2.354
Ounce-Inches	Newton-Meters	0.007062	Kilometers per Hour ...	Miles per Hour	0.621
Miles per Gallon	Kilometers per Liter	0.425	°Fahrenheit	°Celsius	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$
Miles per Hour	Kilometers per Hour	1.609	°Celsius	°Fahrenheit	$^{\circ}\text{F} = (9/5 \times ^{\circ}\text{C}) + 32$

