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

TECHNICAL MANUAL
OPERATOR'S MANUAL
FOR

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

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

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

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HEADQUARTERS, DEPARTMENTS OF THE ARMY, AIR FORCE, NAVY AND HEADQUARTERS, U.S. MARINE CORPS
31 AUGUST 2012

PCN 184 079822 00

DEPARTMENT OF THE NAVY
Headquarters, U.S. Marine Corps
Washington, DC 20380-0001

21 June 2012

This Technical Manual (TM) is authenticated for Marine Corps use and is effective upon receipt.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

OFFICIAL

J.J. Stower
Product Manager, IW, PMM-113
Marine Corps Systems Command

DISTRIBUTION: PCN 184 079822 00

WARNING SUMMARY

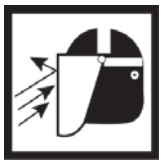
This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within the technical manual.

FIRST AID

Army personnel refer to FM 4-25.11
USAF personnel refer to AFMANN 44-163(1)
USMC personnel refer to MCRP 3-02G
Navy personnel refer to NTRP 4-02.1.1

EXPLANATION OF SAFETY WARNING ICONS

EAR PROTECTION - Headphones over ears show that noise level will harm ears.



FLYING PARTICLES - Arrows bouncing off face shield show that particles flying through the air will harm face.

HEAVY OBJECT - Human figure stooping over heavy object shows physical injury potential from improper lifting technique.

HELMET PROTECTION - Arrow bouncing off head with helmet shows that falling parts present a danger.

MOVING PARTS - Hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING

- During operation and maintenance of the weapon, observe all warnings in this manual.
- Do not use combat misfire procedures during peacetime or training. Serious injury can result if safety precautions are not observed.

WARNING

EYE, EAR, AND HELMET PROTECTION

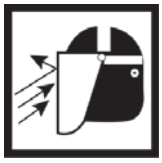
When firing 1310-B584, CTG, 40 MM TP M918 LNKD, there is a minimal possibility of injury to gun crew due to blowback of plastic from the capsule containing the spotting charge. This minimal possibility of injury is further decreased by using units following the life threatening warning in reference when firing the 1310-B584, CTG, 40 MM TP M918 LNKD, as follows:

"All personnel within 1,071 feet (310 meters) of impact area must wear a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn."

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING



EYE PROTECTION

- Appropriate eye protection is recommended when cleaning your weapon and/or its parts.
- Be sure to put bolt in forward position before removing the backplate pin assembly. Failure to observe this warning will result in injury.
- Wear eye protection when removing and installing spring-loaded parts. Ensure the spring is pointed away from all personnel. Failure to comply may result in serious injury to personnel.

WARNING

HEAVY OBJECT

The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container. Failure to comply may result in serious injury or death to personnel, or damage to equipment.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING

MOVING PARTS

- 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 allow the top cover to slam shut from raised position when loading, or if the bolt jams during firing. Failure to comply may result in accidental discharge of a round, hand injury or equipment damage.
- Do not insert your hands into the receiver with the bolt locked to the rear on sear. Severe injury could be sustained. Be sure the safety is on 'S' (SAFE).

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS

CHEMICAL - Drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.

EXPLOSION - Rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.

EYE PROTECTION - Person with goggles shows that the material will injure the eyes.

FIRE - Flame shows that a material will ignite and cause burns.

VAPOR - Human figure in a cloud shows that material vapors present danger to life or health.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION

WARNING

AMMUNITION

- Use only ammunition authorized for use with the MK19 Machine Gun.
- Keep ammunition dry, clean, and away from direct heat.
- Do not drop, strike, or destroy ammunition by mechanical means.
- Do not relink or fire ammunition which has been cycled through the weapon.
- Failure to comply may result in serious injury or death to personnel, or damage to equipment.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING

EXPLOSION

- Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- Be prepared to catch dropped/ejected live round from weapon. Ejected live rounds may detonate if dropped. Failure to comply may result in injury to personnel or damage to equipment.
- Failure to comply may result in serious injury or death to personnel and damage to equipment.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING

EXPLOSION

- Firing over hatches is prohibited. Keep weapon pointed in a safe direction. Never stand in front of muzzle. Be sure line-of-fire is clear of objects.
- Do not use a bayonet to remove an empty case or live round. Use round removal tool or cleaning rod.
- Install the depression stop on the carriage and cradle assembly in accordance with TM 9-1010-231-13&P before firing 'free gun'.
- Do not fire High-Explosive (HE) ammunition at targets less than 1,017 feet (310 meters) away during training or 246 feet (75 meters) away during combat. Fragmentation can reach the gunner position at a distance less than 1,017 feet (310 meters).
- Do not attempt to clear the weapon if the weapon fires too soon (out-of-battery). Do not attempt to clear or fire the weapon until it is fixed. Attempting to clear weapon firing out-of-battery can result in unintended firing. Failure to comply may result in death or serious injury to personnel. Follow procedure as given below.
- Firing on the move from the HMMWV/M113/M88A1/M106 or other vehicles is restricted to not more than 5 miles per hour on rough roads, trails or cross country. Fire on the move shall not exceed 10 miles per hour for all other conditions.
- The following procedures/steps must be performed in sequence to open top cover. Bolt could spring forward suddenly and fire a round causing severe injury. Be prepared to catch ejected round.
- Flash suppressor must have minimal movement. Do not overtighten flash suppressor. Failure to comply may cause a bore obstruction.
- Failure to comply may result in serious injury or death to personnel, or damage to equipment.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING

EXPLOSION

- 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.
- While loading, the bolt must be forward. Attempting to load while the bolt is forward may result in accidental discharge of the weapon. If the bolt is not forward, take gun off 'S' (SAFE) and ease charger handles forward. Do not let top cover slam shut from open position. Failure to comply may result in severe injury to personnel or damage to equipment.
- Empty the catch bag frequently during firing. If the bag becomes too full, spent cases can jam the weapon causing stoppage and out-of-battery firing. Should such a stoppage or out-of-battery occur, check for bore obstruction using the bore obstruction device.
- 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. Ensure weapon is clear of obstructions. Ensure bolt face and receiver are not damaged or obstructed.
- Failure to comply may result in serious injury or death to personnel and damage to equipment.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING

CHEMICAL COMPOUNDS

Cleaning solvents and paint thinners are flammable. These chemicals evaporate quickly drying the skin; irritation or cracking of the skin may result.

- Do not clean parts near an open flame or in a smoking area.
- Make sure adequate ventilation is available.
- Wear safety goggles and protective gloves.
- Always know location of nearest eye wash station.

Failure to comply may result in serious injury to personnel or damage to equipment.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 9-1010-230-10, 30 May 2001. Zero in the "CHANGE NO." column indicates an original page or work package.

Date of issue for the original manual is:

Original 31 August 2012

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 40 AND TOTAL NUMBER OF WORK PACKAGES IS 42, CONSISTING OF THE FOLLOWING:

Page/WP No.	Change No.	Page/WP No.	Change No.
Front Cover	0	WP 0019 (8 pages)	0
Warning Summary (10 Pages)	0	WP 0020 (6 pages)	0
Title Block Pages (2 pages)	0	WP 0021 (4 pages)	0
Table of Contents (8 pages)	0	WP 0022 (10 pages)	0
How to Use This Manual (2 pages)	0	WP 0023 (6 pages)	0
Chapter 1 Title Page	0	WP 0024 (4 pages)	0
WP 0001 (6 pages)	0	WP 0025 (6 pages)	0
WP 0002 (4 pages)	0	WP 0026 (4 pages)	0
WP 0003 (6 pages)	0	WP 0027 (6 pages)	0
Chapter 2 Title Page	0	WP 0028 (4 pages)	0
WP 0004 (4 pages)	0	WP 0029 (2 pages)	0
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WP 0009 (2 pages)	0	WP 0033 (2 pages)	0
WP 0010 (2 pages)	0	WP 0034 (2 pages)	0
WP 0011 (6 pages)	0	WP 0035 (2 pages)	0
WP 0012 (2 pages)	0	WP 0036 (2 pages)	0
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WP 0014 (2 pages)	0	Chapter 7 Title Page	0
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Chapter 4 Title Page	0	WP 0040 (4 pages)	0
WP 0016 (2 pages)	0	WP 0041 (2 pages)	0
WP 0017 (8 pages)	0	WP 0042 (2 pages)	0
Chapter 5 Title Page	0	Index (4 pages)	0
WP 0018 (2 pages)	0	Back Cover	0

HEADQUARTERS,
DEPARTMENTS OF THE ARMY,
AIR FORCE, NAVY, AND
HEADQUARTERS, U.S. MARINE CORPS
WASHINGTON, D.C., 31 AUGUST 2012

TECHNICAL MANUAL

OPERATOR'S MANUAL
FOR
MACHINE GUN, 40 MM, MK19 MOD 3, NSN 1010-01-126-9063 (EIC 4AE)

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

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

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know.

(A) The preferred method is to submit your DA Form 2018 (Recommended Changes to Publications and Blank forms) through the Internet on the TACOM Unique Logistics Support Applications (TULSA) Wed site. The Internet address is https://tulsa.tacom.army.mil. Access to all applications requires CAC authentication, and you must complete the Access Request form the first time you use it. The DA Form 2028 is located under the TULSA Applications on the left-hand navigation bar. Fill out the form and click on SUBMIT. Using this form on the TULSA Web site will enable us to respond more quickly to your comments and to better manage the DA Form 2028 program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP/ TECH PUBS, MS 727, 6501 E. 11 Mile Road, Warren, MI 48397-5000. The email address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 786-1856 or (586) 282-1856 Com.

(F) Submit notice of discrepancies or suggested changes on an AFTO Form 22 through the appropriate MAJCOM in the Joint Computer-aided Acquisition and Logistics Support (JCALS) system. Follow the guidance in accordance with Section 5 of Air Force Technical Order 00-5-1.

(M) Submit notice of discrepancies or suggested changes on a NAVMC 10772. The NAVMC may be submitted using either of the following:

a. The preferred method of submittal is using https://portal.logcom.usmc.mil/sites/pubs/ URL which will allow direct entry to the LOGCOM SharePoint site (LOGCOM SharePoint access and CAC required) where the form (Part I or Part II) can be filled out and submitted to the NAVMC database. Problems or questions regarding the NAVMC 10772 program should be reported by calling DSN 567-7628 or DSN 567- 5017 (Commercial number is (229) 639-7628 or (229) 639-5017).

b. The alternate method of submittal does not require a CAC to access the form. Click on http://navalforms.daps.dla.mil/web/public/forms, select the "Keyword Search" button, enter "10772" in the Search Criteria Box. Under "type" click on download page button. Click on PDF icon. Enter user data in the appropriate fields. Must have users contact information block filled with Unit address and telephone number. Click on the "Envelope" icon in the tool bar. Select "Send Copy", click on "OK". When the PDF document is created, an Outlook Email screen will open with the PDF as an attachment. On the TO: line type SMB.LOG.Tech.Pubs.fct@usmc.mil. In the body of the email, type any additional information you wish to provide. Click "SEND".

(N) Submit notice of discrepancies by letter directly to Commander, Code JXN, Bldg. 2521E, NAVSURF WARDCENDIV, 300 Hwy 361, Crane, IN 47522-5001.

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HOW TO USE THIS MANUAL

The safest, easiest, and best way to operate the MK19 (40 mm Machine Gun) is to use this manual. Learning to use this TM is as easy as reading through the next few pages of this section. Knowing the contents of this manual and how to use it will save time and work and will help to avoid exposure to unnecessary hazards while performing your job.

So where do you start?
Right here, if this is the first time you are using this TM. Be sure to completely read this section on how to use this manual first. There's a lot of information here that you need to know.

ORGANIZATION

This manual covers the operation of the MK19 40 mm Machine Gun. The manual is divided into seven chapters. The seven chapters, and what they contain, are found in the Table of Contents in the front of this manual. For example, to learn about using the MK19, you would look in the table of contents and discover that Chapter 2 provides all pertinent information about the operation of the system. Since Chapter 2 covers a great deal of information, you will have to scan the chapter to find the specific information you will need.

In the back of this manual, you will find Chapter 7, Supporting Information. The chapter provides specific information that will assist you in performing the various operational tasks. The work packages provide such information as additional references (i.e., other TMs or FMs), as in WP 0039, and Basic Issue Items (BII), as in WP 0040. Become familiar with all work packages and what they contain before beginning any operational or maintenance task.

Am I ready to use this TM?
If you've taken the time necessary to read this section, and are sure of the location and arrangement of the different chapters of this TM, you are ready to begin. Remember, this TM has been arranged with you, the user, in mind. Your safety and ability to perform the operational and maintenance tasks in the most efficient manner possible hinge on your ability to perform and understand the information contained in this manual. If you fully understand the arrangement and purpose of this TM, and have taken the time to read through this section, you will have no trouble operating and maintaining this system in the manner for which it was designed.

CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

OPERATOR MAINTENANCE
GENERAL INFORMATION

SCOPE

Type of Manual: Operator's Manual.

Model Number and Equipment Name. MK 19 MOD 3 Machine Gun.

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

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army Forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS).

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

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

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

Army: If your MK19 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.

ALL non-Aviation/Missile EIR and PQDRs must be submitted through the Product Data Reporting and Evaluation Program (PDREP) Web site.
The PDREP site is: https://pdrep.cssd.disa.mil/.

If you do not have Internet access, you may also submit your information using an SF 368 (Product Quality Deficiency Report). You can send your SF 368 using email, regular mail, or fax using the addresses/fax numbers specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. We will send you a reply.

Air Force: Users submit PQDR In Accordance With (IAW) TO 00-35D-54, USAF Deficiency Reporting, Investigation, and Resolution, and Air Force Joint Manual (AFJMAN) 23-215, Reporting of Supply Discrepancies.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR) - Continued

Marine Corps: If the weapon has been damaged during shipment, if shipment is incomplete, if the incorrect item is received, or if an incorrect quantity of Marine Corps supply system responsibility items (SSRI), Marine Corps collateral material (CM) items, submit SF 364, "Supply Discrepancy Report (SDR)", in accordance with SECNAVINST 4355.18, Reporting of Supply discrepancies.

If the weapon has deficiencies in materiel or design or nonconforming conditions which limit or prohibit the item from fulfilling its intended purpose, submit a SF 368, "Product Quality Deficiency Report (PQDR)", in accordance with MCO 4855.10, Product Quality Deficiency Report, and TM 4700-15/1.

Mail it to: Commander (Code 808-1), Marine Corps Logistics Bases, 814 Radford Blvd, Albany, GA 31704-1128; (DSN 567-5292/5482; Commercial (912) 439-5292/5482; FAX: DSN 567-5631; Commercial (912) 439-5631; E-mail: mbp@ala.usmc.mil) or via Naval message. A reply will be furnished.

Navy: Submit SF 368 to Commander, Code 20, NAVSURFWARCENDIV, 300 Highway 361, Crane, IN 47522-5001.

CORROSION PREVENTION AND CONTROL (CPC)

(A) Corrosion prevention and control of Army materiel 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.

Corrosion specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking.

Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light typically ultraviolet) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking.

SF Form 368, Product Quality Deficiency Report, should be submitted to the address specified in DA PAM 750-8, The Army Maintenance System (TAMMS) Users Manual.

(F) Submit Material Deficiency Report (MDR) and Quality Deficiency Report (QDR) to: Director Material Management, Robins AFB, GA.

(M) Carry out corrosion prevention in accordance with TM 4795-12/1, Organizational Corrosion Prevention and Control Procedures for USMC Equipment. Report a recurring corrosion problem on SF 368 in accordance with MCO 4855.10. Use key words such as "corrosion", "rust", "deterioriation", or "cracking" to ensure that the information is identified as a CPC problem.

(N) Submit SF 368 to: Commander, Code 20, NAVSURFWARCENDIV, 300 Highway 361, Crane, IN 47522-5001.

HAZARDOUS WASTE DISPOSAL INFORMATION

When servicing this weapon, performing maintenance, or disposing of materials such as cleaning fluids, cleaning compounds, sealants, and lubricants (or items, such as cleaning rags, contaminated with these substances) consult your unit/local hazardous waste disposal center or safety office for local regulatory guidance. If further information is needed, please contact The Army Environmental Hotline at 1-800-872-3845/OCONUS: 410-436-1244 or online at http://aec.army.mil/usaec/contactus.html. Accidental or intentional introduction of contaminants into the environment violates military, state, and federal regulations. Failure to comply may adversely affect the public or environment.

DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

(A) For destruction of materiel to prevent enemy use, refer to TM 750-244-7.
(F) Refer to Air Force Pamphlet (AFPAM) 10-219, Vol. 3
(M) Destroy by any method that will prevent disclosure of contents or reconstruction

PREPARATION FOR STORAGE OR SHIPMENT

(A) Prepare materiel for storage or shipment In Accordance With (IAW) TM 9-1010-230-23&P.
(F) Package machine guns for long-term storage and shipping IAW Special Packaging Instruction (SPI) 00-322-9715.

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LIST OF ABBREVIATIONS AND ACRONYMS

The following table lists acronyms and abbreviations that appear in this technical manual.

Abbreviation/Acronym	Name
AAL	Additional Authorization List
AMCOM	Aviation and Missile Command
AFTO	Air Force Technical Order
ASB	Adjustable Sight Bracket
BII	Basic Issue Items
BOD	Bore Obstruction Detector
CAC	Common Access Card
CAGEC	Contractor and Government Entity Code
CECOM	Communications-Electronics Command
cm	Centimeter
COEI	Components of End Item
CONUS	Continental United States
CPC	Corrosion Prevention and Control
CTA	Consolidated Table of Allowances
DA PAM	Department of Army Pamphlet
EIR	Equipment Improvement Recommendations
EOD	Expended Ordinance Disposal
DR	Deficiency Report
DSN	Defense Switched Network
°F	Degrees Fahrenheit
'F'	FIRE
FM	Field Manual
ft	Feet
GMD	Grease, Molybdenum Disulfide
HE	High-Explosive
HVCC	High Velocity Canister Cartridge
IAW	In Accordance With
in	Inch(es)
JCALS	Joint Computer-aided Acquisition and Logistics Support
JDRS	Joint Deficiency Reporting System
LAR	Logistics Assistance Representative
LAW	Lubricating, Oil
lbs	Pound(s)
LH	Left Hand
LSAT	Lubricating Oil
m	Meter
MAJCOM	Major Command
mm	Millimeter
MOD	Modified
MTOE	Modified Table of Organization and Equipment

LIST OF ABBREVIATIONS AND ACRONYMS - Continued

Abbreviation/Acronym	Name
NSN	National Stock Number
OCONUS	Outside Contiguous United States
PMCS	Preventive Maintenance Checks and Services
P/N	Part Number
PKI	Public Key Infrastructure
PQDR	Product Quality Deficiency Report
RBC	Rifle Bore Cleaner
RH	Right Hand
'S'	SAFE
SF	Standard Form
SOP	Standard Operating Procedure
TACOM	Tank-Automotive Command
TAMMS	The Army Maintenance Management System
TM	Technical Manual
TP	Training Practice
TULSA	TACOM Unique Logistics Support Applications
UGWS	UpGunned Weapon Station
U/I	Unit of Issue
WP	Work Package

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

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

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

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

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

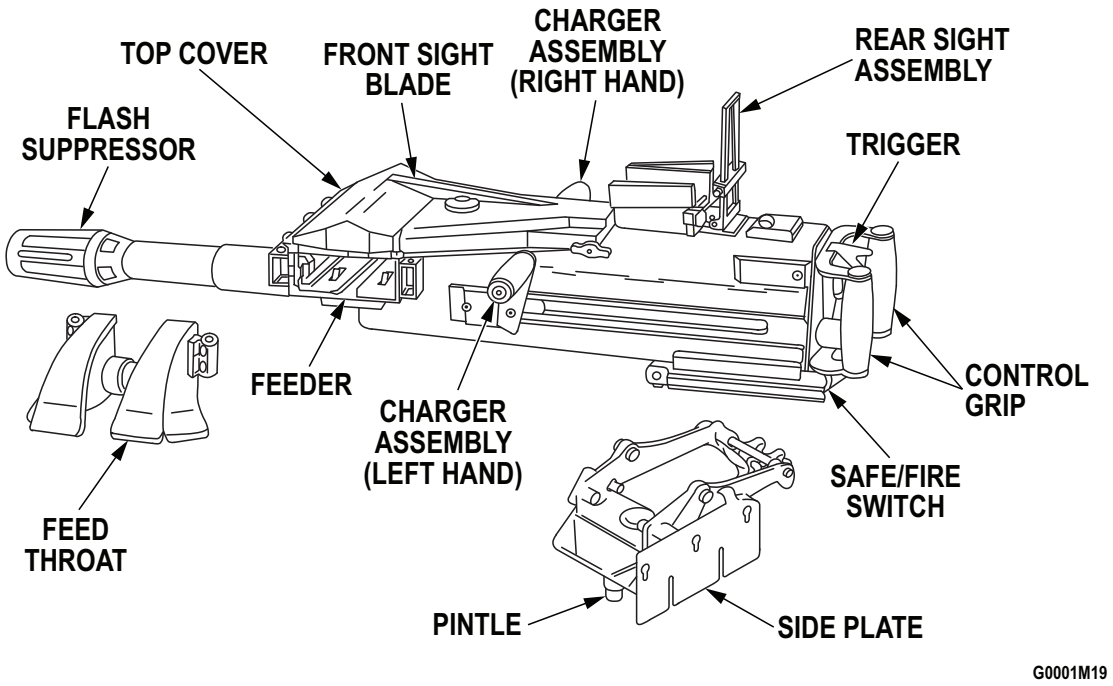


Figure 1. Location and Description of Major Components.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

RECEIVER ASSEMBLY. Holds the feed slide, top cover, sear, bolt and backplate, and feed throat assemblies. Ammunition is fed into the left side of the receiver through the feed throat assembly.

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

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

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

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

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

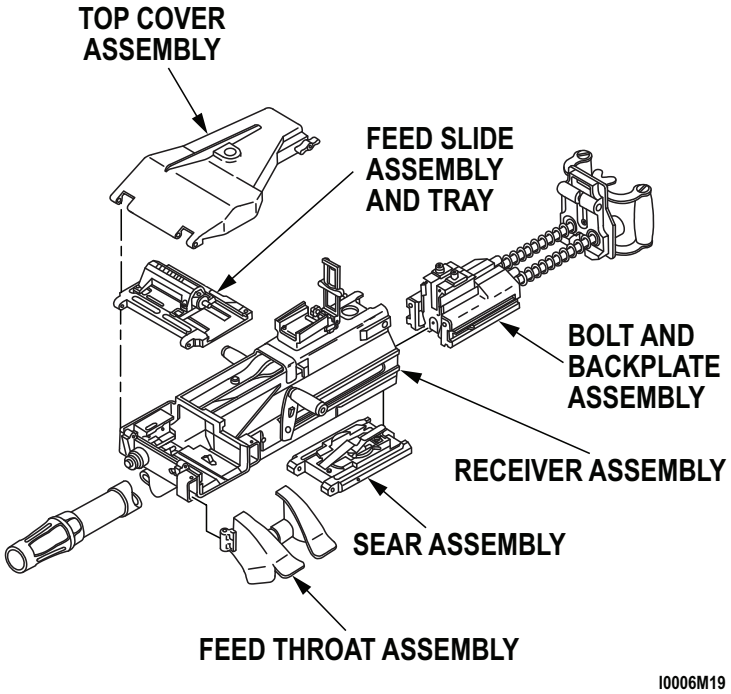


Figure 2. Location and Description of Major Components.

EQUIPMENT DATA

MK19 MACHINE GUN	
Weight	77.6 lb (35.2 kg); crew transportable
Length	43.1 inches (109.5 cm)
Width	14.0 inches (35.6 cm)
Height	8.8 inches (22.4 cm)
Rate of Fire (Cyclic)	325-375 rounds per minute
Range:	
Effective Point Target	1500 m (4921.25 ft)
Effective Area Targets	2212 m (7257.22 ft)

MK64 MOUNT	
Weight	21 lb (9.52 kg)
Length	17.5 inches (44.5 cm)
Height	9.5 inches (24.1 cm)

MK93 Mod 0/MK93 Mod 1

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

END OF WORK PACKAGE

OPERATOR MAINTENANCE
THEORY OF OPERATION

THEORY OF OPERATION

Loading/Charging

WARNING

Do not allow the top cover to slam shut from raised position when loading. Failure to comply may result in accidental discharge of a round, hand injury or equipment damage.

NOTE

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

1. Open top cover.

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

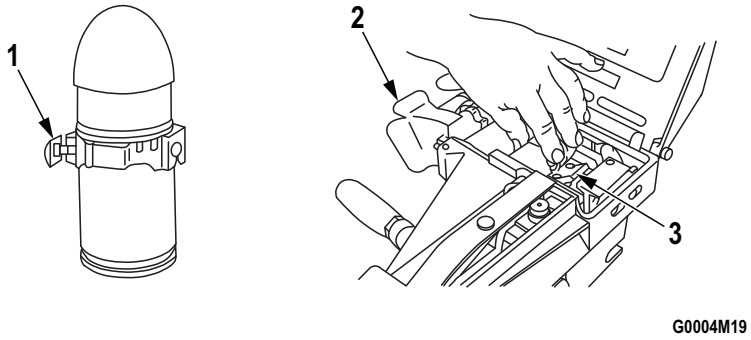


Figure 1. Loading/Charging.

Loading/Charging - Continued

3. Before closing top cover, ensure:

    a. The secondary drive lever (Figure 2, Item 1) is engaged with the feed slide pin.

    b. The feed slide assembly (Figure 2, Item 2) is all the way left. The spring should be touching the top cover.

    c. And the bolt (Figure 2, Item 3) is forward. If the parts are not in this position, damage can occur to the feed slide, bolt, and primary and secondary drive levers.

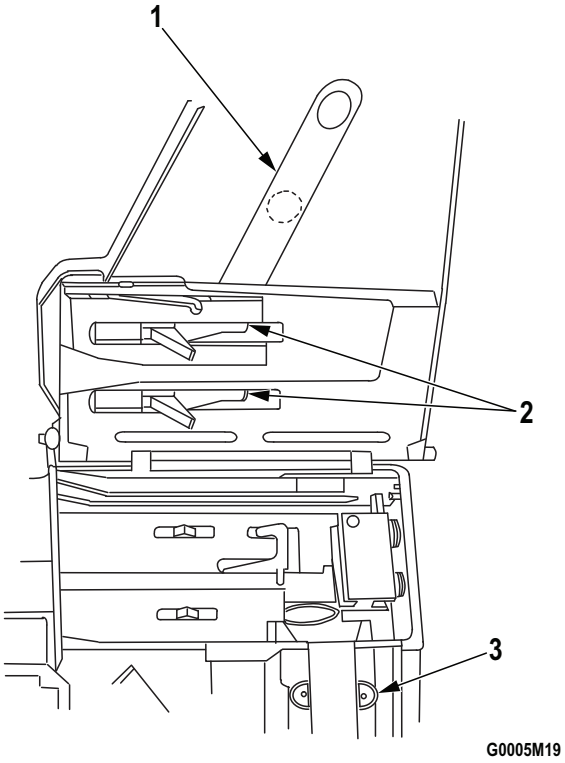


Figure 2. Loading/Charging.

Loading/Charging - Continued

4. Close top cover.

NOTE

Lowering and pulling back on Charging handles needs to be done in one motion without stopping or pausing.

5. Depress charging handle locks, lower and pull back on charger handles to pull the bolt (Figure 3, Item 4) to the rear and drive levers and feed slide assembly to move the linked rounds over one place in the feeder (Figure 3, Item 1).

6. Ensure the charger handles are pushed forward and up. Press the trigger to release the bolt until bolt slams forward, delinks and grasps the first round in its extractors (Figure 3, Item 3).

7. Pulling back the bolt a second time moves the round down the curved rail on the vertical cam assembly (Figure 3, Item 2) forcing the round down the bolt face out of the extractors into the bolt fingers (Figure 3, Item 5) (firing position).

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

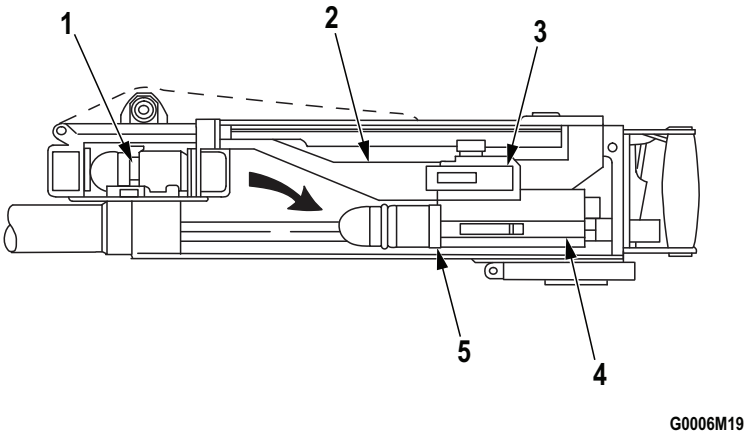


Figure 3. Loading/Charging.

Firing

NOTE

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

1. Pressing the trigger causes the receiver sear (Figure 4, Item 1) to release the bolt. The recoil springs (Figure 4, Item 2) force the bolt forward.

2. As the bolt travels forward, the cocking lever (Figure 4, Item 4) is released.

3. The bolt sear (Figure 4, Item 3) strikes the receiver plate and the bolt sear is held rearward. This action releases the firing pin, which strikes the primer and the round is fired.

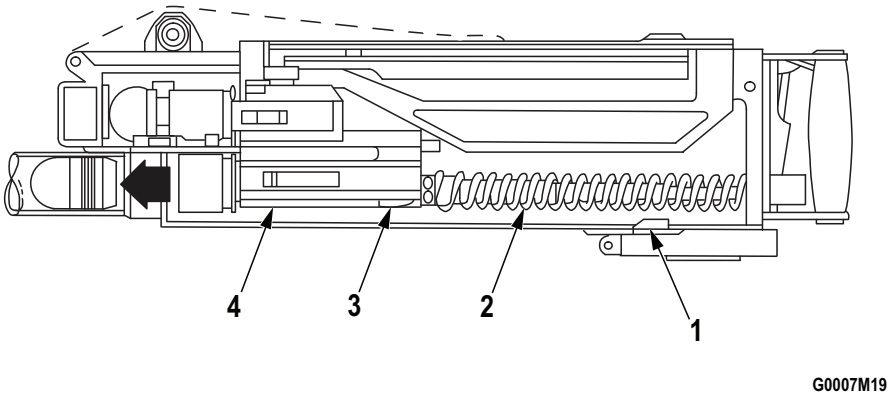


Figure 4. Firing.

User's Action

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

1. When a stoppage or jam occurs, follow the procedures in (WP 0013) to safely clear the jam and make sure there is no bore obstruction.

2. Charge the MK19 in the normal manner and check to see that the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch (2.54 cm) of charging handle travel.

3. If the primary and secondary pawls do not click up within the last 1 inch (2.54 cm) of charging travel, then the MK19 should be turned in to Field Maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) In Accordance With (IAW) TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Field Maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo are linked with one-piece or two-piece links.

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

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

Unit Commanders

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

Recoil/Ejecting

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

1. Extracts the spent cartridge case (Figure 5, Item 2) from the chamber by the bolt fingers.

2. Causes the next round to be cammed down the bolt face by the vertical cam assembly (Figure 5, Item 1). The round forces the spent case (Figure 5, Item 2) out the bottom of the gun.

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

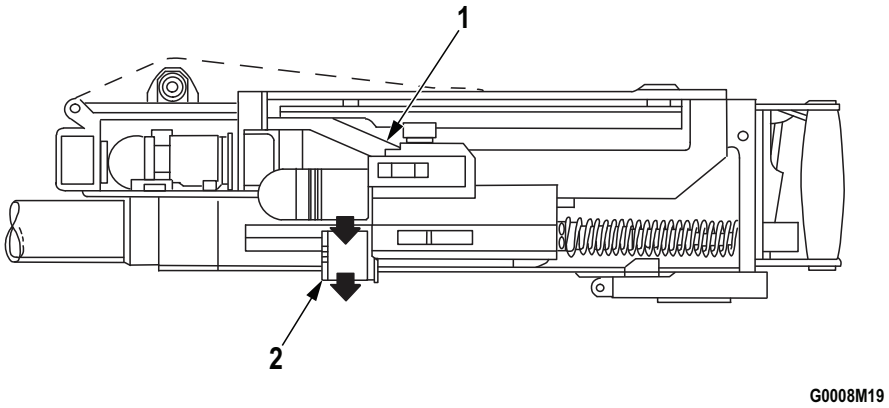


Figure 5. Recoil/Ejecting.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

OPERATOR MAINTENANCE
DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

BARREL

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

Rifling:
- Twist: RH, uniform
- Slope: 1 turn in 48 inches (1.22 m)
- Barrel Length: 16.25 inches (41.275 cm)

FLASH SUPPRESSOR

WARNING

Flash suppressor must have minimal movement. Do not overtighten flash suppressor. Failure to comply may cause a bore obstruction, result in serious injury or death to personnel or damage to equipment.

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

TOP COVER

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

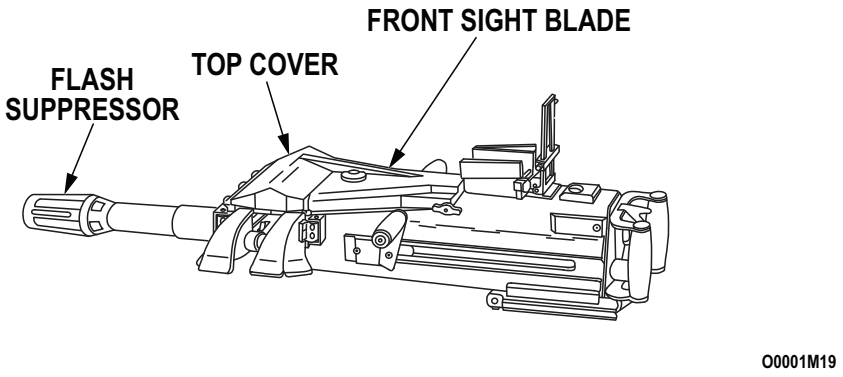


Figure 1. Description and Use of Operator Controls and Indicators.

CHARGER ASSEMBLIES (LEFT HAND AND RIGHT HAND)

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

REAR SIGHT ASSEMBLY

Hinged to the rear sight base on top of the receiver. The rear sight base is held by four sight mounting screws and is designed to hold the AN/TVS-5 Night Vision Sight. The sight frame holds a scale labeled from 984.25-4921.25 ft (300-1,500 m), an elevation mechanism, and a windage mechanism.

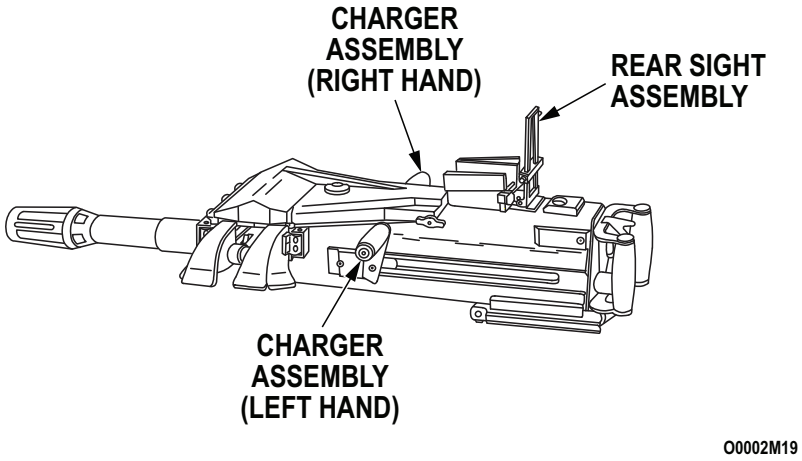


Figure 2. Description and Use of Operator Controls and Indicators.

CONTROL GRIP ASSEMBLY

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

SAFE/FIRE SWITCH

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

SAFE/FIRE SWITCH - Continued

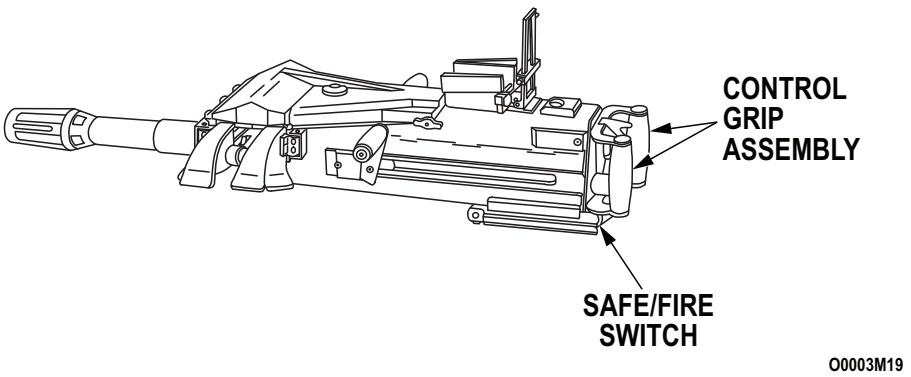


Figure 3. Description and Use of Operator Controls and Indicators.

FEED SLIDE ASSEMBLY

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

FEED THROAT

Allows smooth feed of 40 mm ammunition into the MK19.

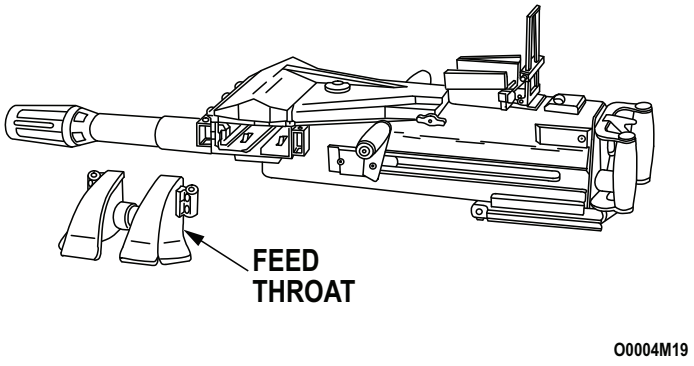


Figure 4. Description and Use of Operator Controls and Indicators.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
INSTALLATION

INITIAL SETUP:

References
TM 9-1010-231-13&P

INSTALLATION

WARNING

Before performing any procedure, ensure the weapon is clear of all ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

Vehicle Mount

1. Set up vehicle mount In Accordance With (IAW) TM 9-1010-231-13&P.
2. Ensure the pintle adapter (Figure 1, Item 1) is inserted into the vehicle mount before attaching the gun mount.

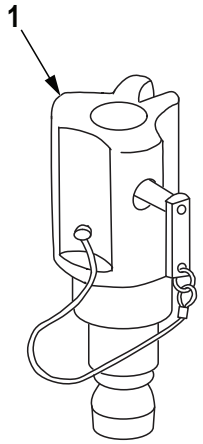


Figure 1. Vehicle Mount Installation.

INSTALLATION - Continued

M3 Tripod Ground Mount

Make M3 tripod ground mount (Figure 2, Item 2) level. Plant firmly and attach traversing and elevating mechanism (Figure 2, Item 1) to traversing bar.

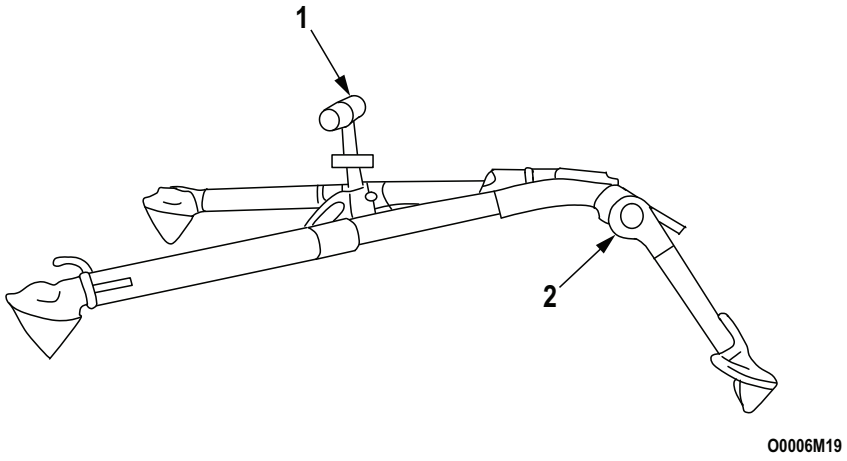


Figure 2. M3 Tripod Ground Mount.

MK64 Gun Mount

1. Raise pintle lock (Figure 3, Item 4) on tripod.
2. Position gun mount over tripod. Insert pintle (Figure 3, Item 3) into socket (Figure 3, Item 5) on tripod. Flip down pintle lock (Figure 3, Item 4) on tripod.
3. Disengage stow pin (Figure 3, Item 2).
4. Attach traversing and elevating mechanism (Figure 3, Item 1) to gun mount.

INSTALLATION - Continued

MK64 Gun Mount - Continued

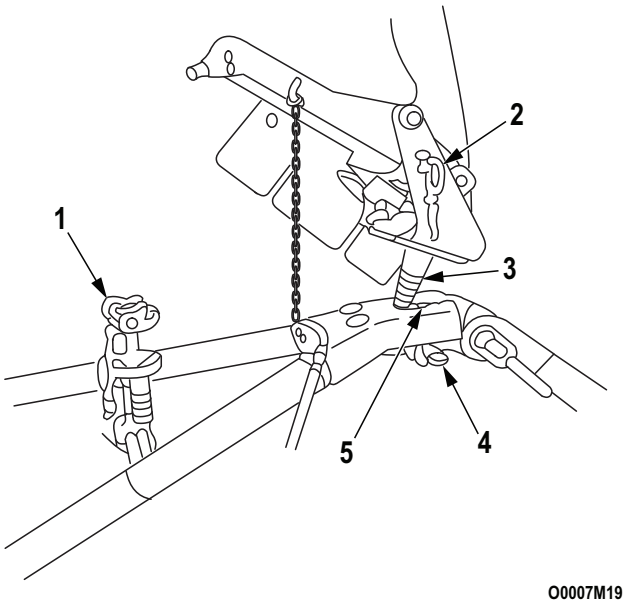


Figure 3. MK64 Gun Mount Installation.

Attach Empty Case Catch Bag Assembly (Air Force: optional)

WARNING

Empty the catch bag frequently during firing. If the bag becomes too full, spent cases can jam the weapon causing stoppage and out-of-battery firing. Should such a stoppage or out-of-battery occur, check for bore obstruction using the bore obstruction device. Failure to comply may result in serious injury or death to personnel and damage to equipment.

NOTE

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

1. Insert the two hooks on the empty case catch bag through the rear holes in the mount. Refer to TM 9-1010-231-13&P.
2. Engage the single front hanger on the catch bag with the hook on the mount.

INSTALLATION - Continued

Gun

NOTE

There are multiple configurations of the MK19 Machine Gun. The Mod 0 variant is shown.

1. Lower gun into mount. Slide gun's front grooves onto mount lugs (Figure 4, Item 1). Align rear holes (Figure 4, Item 2).
2. Insert rear pin.

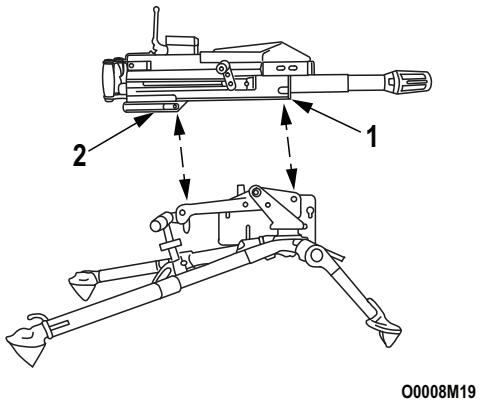


Figure 4. Gun Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
FEEDING

INITIAL SETUP:

References
TM 9-1010-230-23&P

References (cont.)
TM 9-1010-231-13&P
WP 0038

FEEDING

WARNING

- Keep ammunition dry, clean, and away from direct heat.
- Do not drop, strike, or destroy ammunition by mechanical means.
- Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in serious injury or death to personnel, or damage to equipment.
- Do not allow the top cover to slam shut from raised position when loading. Failure to comply may result in accidental discharge of a round, hand injury or equipment damage.

FEEDING - Continued

Attach Feed Throat to Feeder

1. Squeeze the spring-loaded pins on feed throat (Figure 1, Item 2).
2. Insert the feed throat into the slots (Figure 1, Item 1) on both sides of the feeder as shown.

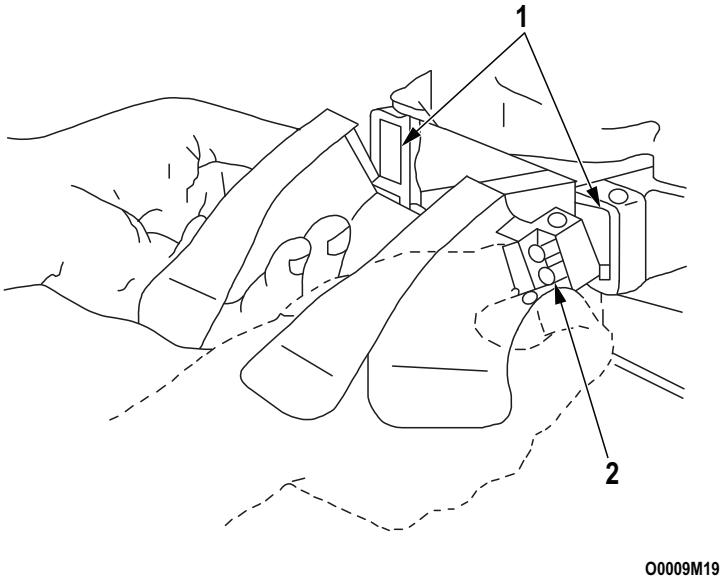


Figure 1. Feed Throat to Feeder Attachment.

Insert Round

WARNING

While loading, the bolt must be forward. Attempting to load while the bolt is forward may result in accidental discharge of the weapon. If the bolt is not forward, take gun off 'S' (SAFE) and ease charger handles forward. Do not let top cover slam shut from open position. Failure to comply may result in severe injury to personnel or damage to equipment.

FEEDING - Continued

Insert Round - Continued

NOTE

- While loading, the bolt must be forward. If the bolt is not forward, take gun off 'S' (SAFE) and ease charger handles forward.
- The feed throat prevents the linked rounds from twisting as they pass from the ammunition can into the MK19 receiver during firing. The major contributor to the MK19 jamming is ammo being separated by twisting the ammo belt, causing the ammo link to become misaligned. After the ammo belt has been separated, ensure ammo link is aligned evenly and touching the copper band all around the ammo.
- When using a vehicle mount, attach ammunition can bracket and can. Refer to TM 9-1010-231-13&P.
- When using a ground tripod mount, feed the ammunition directly from the can.

1. Open cover.
2. With female link (Figure 2, Item 1) first, insert the first round through the feed throat (Figure 2, Item 2), into the feeder, and across the first pawl (Figure 2, Item 3). Do not ‘roll’ the round.

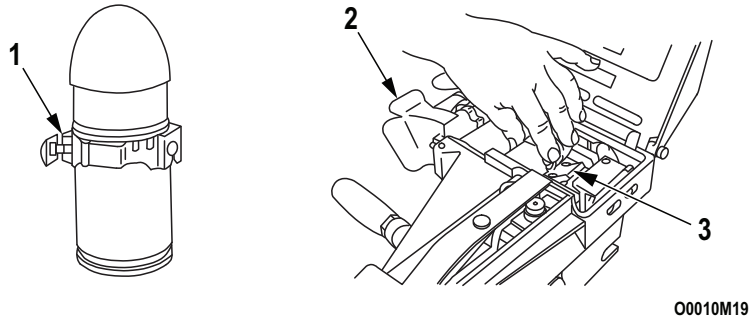


Figure 2. Round Insertion.

3. Ensure that the rounds are straight and firmly seated between the first and second pawls.
4. Move the feed slide assembly to the left. Close the top cover.
5. If users experience a stoppage while firing the MK19 machine gun, the following course of actions are recommended:

FEEDING - Continued

Insert Round - Continued

a. When a stoppage or jam occurs, follow the procedures in (WP 0038) to safely clear the jam and make sure there is no bore obstruction.

b. Charge the MK19 in the normal manner and check to see that the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch (2.54 cm) of charging handle.

c. If the primary and secondary pawls do not click up within the last 1 inch (2.54 cm) of charging travel, then the MK19 should be turned in to Field Maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) In Accordance With (IAW) TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Field Maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo are linked with one-piece or two-piece links.

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

Unit Commanders

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

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
CHARGING/LOADING

INITIAL SETUP:

Not Applicable

CHARGING/LOADING

NOTE

The preferred method for grasping the charger handles is palms down.

Pull Bolt to Rear

1. Grasp the charger handles (Figure 1, Item 2).
2. Press the charger handle locks (Figure 1, Item 1) and rotate the charger handles (Figure 1, Item 2) down.
3. Pull charger handles (Figure 1, Item 2) sharply to the rear, without stopping or pausing, until the bolt sears.
4. Push charger handles (Figure 1, Item 2) forward again.
5. Rotate charger handles (Figure 1, Item 2) up to the locked position.

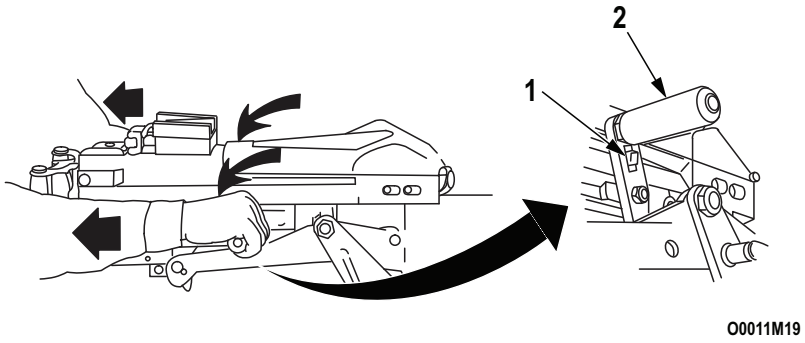


Figure 1. Pull Bolt to Rear.

CHARGING/LOADING - Continued

Load First Round

1. Place safety in ‘F’ (FIRE) position.
2. Press the trigger. The bolt will spring forward. The first round is now loaded on the bolt face (half-load).
3. Lower charger handles (Figure 2, Item 1) and pull, without stopping or pausing, to the rear until the bolt sears. This pulls the bolt with the loaded round into position for firing (full-load).
4. Place safety on ‘S’ (SAFE) position.

NOTE

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

5. Push the charger handles (Figure 2, Item 1) back to the forward position. Rotate the charger handles up. Your weapon is now combat ready.

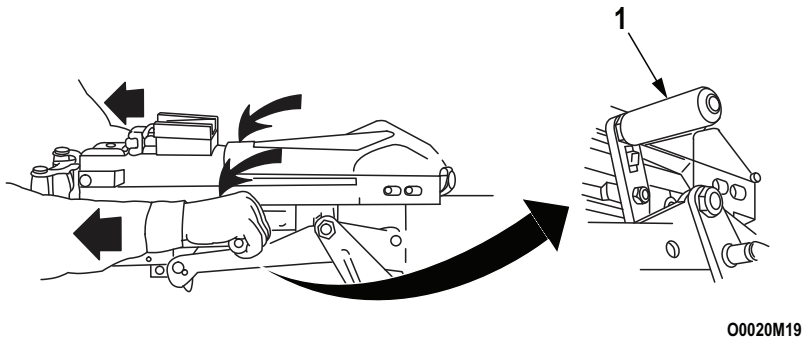


Figure 2. Load First Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
ADJUSTING REAR SIGHT

INITIAL SETUP:

Not Applicable

ADJUSTING REAR SIGHT

NOTE

- When rear sight is returned to down and locked position, ensure sight aperture setting is at 98.42 ft (300 m).
- Battlesight allows aiming down front sight blade when rear sight is down.

1. Press plunger (Figure 1, Item 5) to release sight frame (Figure 1, Item 2). Raise sight frame until it clicks.
2. Loosen retainer lock nut (Figure 1, Item 7). Push in on retainer lock nut to move aperture carrier (Figure 1, Item 6) up or down. This sets the elevation.
3. Move elevation wheel (Figure 1, Item 1) to adjust degrees of elevation.
4. Tighten retainer lock nut (Figure 1, Item 7).
5. Move windage screw (Figure 1, Item 3) on battlesight (Figure 1, Item 4) to set windage. Two clicks equals 1 mil. Turning the windage screw clockwise moves the sight to the right; counterclockwise moves the sight to the left.

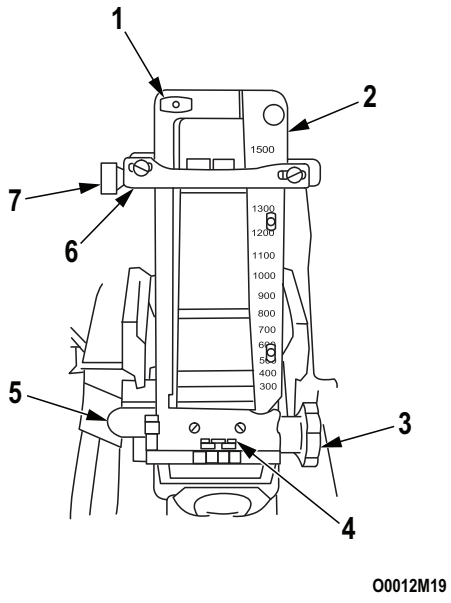


Figure 1. Adjusting Rear Sight.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
FIRING USING TRAVERSING AND ELEVATING MECHANISM

INITIAL SETUP:

Not Applicable

FIRING USING TRAVERSING AND ELEVATING MECHANISM

WARNING

Firing over hatches is prohibited. Keep weapon pointed in a safe direction. Never stand in front of muzzle. Be sure line-of-fire is clear of objects. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

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

1. Move safety switch from 'S' (SAFE) to 'F' (FIRE).
2. Move charger handles forward and up.
3. Place hands on control grips and thumbs on trigger.
4. Press trigger to fire. Fire a single round using the trigger control.
5. Adjust range ESTIMATE using range training techniques.
6. Adjust impact point by changing the windage, direction, and elevation and fire one round. Repeat cycle until the round hits or is within 16.40 ft (5 m) of the target.

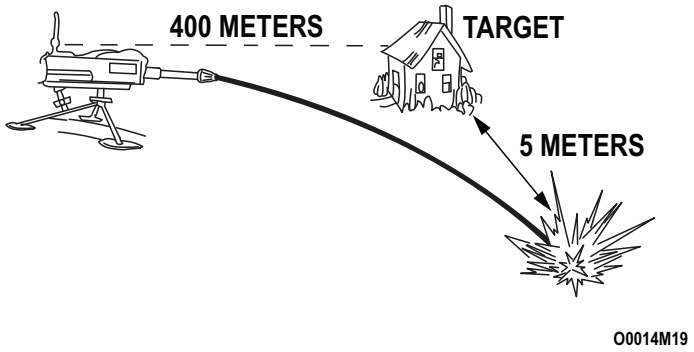


Figure 1. Firing Using Traversing and Elevating Mechanism.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
FREE GUN (NOT FOR ARMY USE)

INITIAL SETUP:

References
TM 9-1010-231-13&P

FREE GUN (NOT FOR ARMY USE)

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

WARNING

- Install the depression stop on the carriage and cradle assembly in accordance with TM 9-1010-231-13&P before firing 'free gun'.
- Do not fire High-Explosive (HE) ammunition at targets less than 1,017 feet (310 meters) away during training or 246 feet (75 meters) away during combat. Fragmentation can reach the gunner position at a distance less than 1,017 feet (310 meters).
- Failure to comply may result in injury to personnel or damage to equipment.

1. Choose a target approximately 1312.33 ft (400 m) (no closer than 1017.06 ft (310 m) for training).
2. Get in the ‘free gun’ position:
   - Elbows in.
   - Hands on control grips.
   - Thumbs on trigger.
   - Gun close to your chest.
   - Observe WARNING and ensure depression stop is properly installed so that the weapon cannot be depressed below 656.17 ft (200 m). (Navy only: Depression stops will not function on small craft. Pitch/roll will alter depression safe zone).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS
AFTER FIRING

INITIAL SETUP:

Tools and Special Tools
- Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)
- Rod, Cleaning, Small Arms (WP 0040, Table 2, Item 4)

Materials/Parts
- Cleaning Compound, Rifle Bore (WP 0042, Table 1, Item 3)
- Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 7)

Materials/Parts (cont.)
- Lubricating Oil (LSAT) (WP 0042, Table 1, Item 10)
- Rags, Wiping (WP 0042, Table 1, Item 11)

References
- TM 9-1010-231-13&P
- WP 0018
- WP 0027

AFTER FIRING

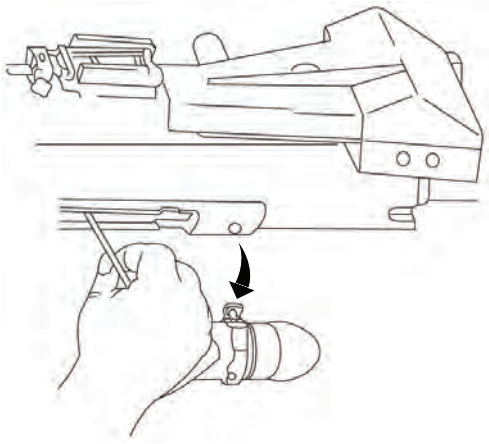
Remove Live Round or Spent Case From Bolt

1. Put the machine gun on ‘S’ (SAFE) and keep machine gun pointed downrange.
2. Remove case catch bag (if applicable). Refer to TM 9-1010-231-13&P. Charge the weapon.

WARNING

Do not use a bayonet to remove an empty case or live round. Use round removal tool or cleaning rod. Failure to comply can result in death or serious injury to personnel.

3. Return the charger handles to the forward position and rotate only one charger handle up.
4. Insert the tip of a cleaning rod through the receiver rail as close to the bolt face as possible.
5. Raise up on the cleaning rod to force the live round or case off the bolt face and out the bottom of the gun. Catch the live round as it falls out.



O0015M19

Figure 1. Remove Live Round or Spent Case From Bolt.

Remove Live Round or Spent Case From Bolt - Continued

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

6. Turn in the live round(s) In Accordance With (IAW) local Standard Operating Procedures (SOP).

Remove Linked Rounds From Feeder

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

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

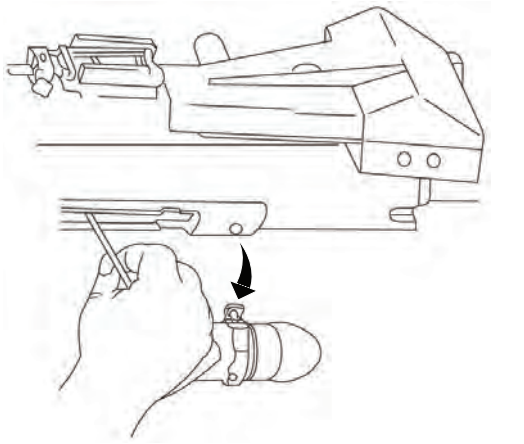


Figure 2. Remove Linked Rounds From Feeder.

2. At the same time, slide the linked rounds out of the feeder and out of the feed throat.
3. Return the linked rounds to the ammunition can.

Clean Bore and Chamber

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

1. Soak bore brush (on a cleaning rod) with Cleaning Compound, Rifle Bore.

NOTE

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

2. Insert bore brush into the muzzle. Push the brush all the way into the chamber.

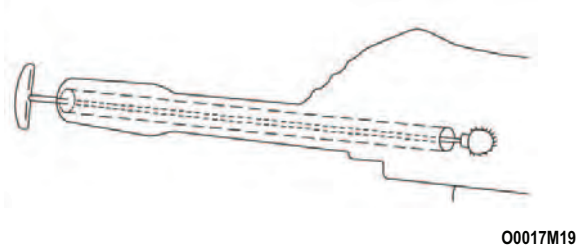


Figure 3. Clean Bore and Chamber.

3. Resoak the brush. Scrub the bore and chamber clean. Wipe bore and chamber with a dry rag.

CAUTION

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

4. Apply a light coat of Grease, Molybdenum Disulfate (GMD) or lubricating oil (LSAT).

Inspect Firing Pin

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

1. Return bolt to forward position. Close top cover.
2. Place safety in the "F" (FIRE) position.
3. Charge the weapon. Return charging handles to forward locked position.
4. Press the trigger to release the bolt to the forward position.
5. Open top cover and check the firing pin. It should be forward, not chipped or broken.

NOTE

If the firing pin is not protruding, place the safety on "S" (SAFE). Then repeat Steps 2 through 5. If firing pin check fails a second time, notify Field Maintenance.

6. Close top cover. Place safety on "S" (SAFE).

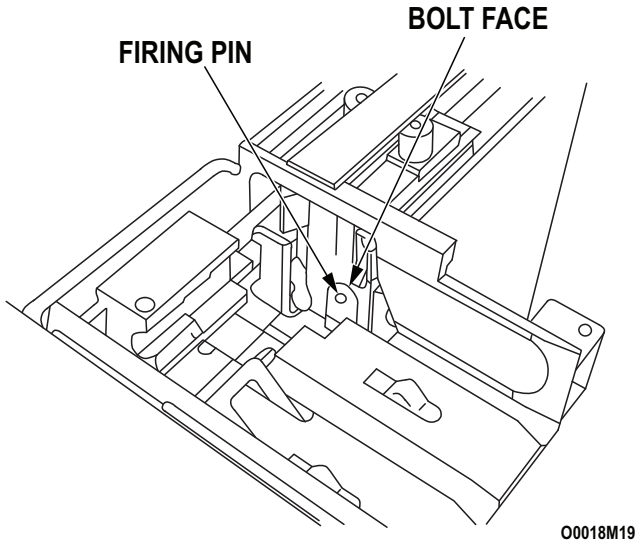


Figure 4. Inspect Firing Pin.

Field Strip

Field strip, clean, inspect, and lubricate gun as soon as possible after firing (WP 0018) through (WP 0027). Report all worn, burred, or defective parts to Field Maintenance.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER UNUSUAL CONDITIONS
UNUSUAL ENVIRONMENT/WEATHER PROCEDURES

INITIAL SETUP:

Materials/Parts
Grease, Molybdunum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)

References
WP 0017

UNUSUAL ENVIRONMENT/WEATHER

Hot, Wet, Salt Air

1. Inspect weapon more frequently for signs of rust.
2. Keep gun as moisture-free as possible.
3. Field strip, clean, and lube more often to preserve metal and prevent rust.
4. Use a generous second coat of Grease, Molybdunum Disulfate (GMD) or lubricating oil (LSAT) for extra protection. Refer to (WP 0017).

Hot, Dry, Sand, Dust

NOTE

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

1. Clean weapon thoroughly and lubricate only the moving components with GMD or LSAT.
2. Extreme heat dries up lubricant. Clean and lightly lube the moving components of the weapon more frequently with GMD or LSAT. Refer to (WP 0017).

UNUSUAL ENVIRONMENT/WEATHER - Continued

Cold, Ice, Snow

1. Cover weapon if left outside.
2. If possible, thoroughly clean, dry, and lube the weapon in a warm place.
3. If the weapon is brought indoors, keep it away from direct heat.
4. Perform functional checks and lube daily to help prevent corrosion.

NOTE

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

5. If the weapon 'sweats', dry and lube the parts before taking the weapon outdoors. Apply a light second coat to provide protection. For 0°F and below, use lubricating oil (LAW). Refer to (WP 0017).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EMERGENCY PROCEDURES
MISFIRE PROCEDURE

INITIAL SETUP:

References
TM 9-1010-230-23&P
WP 0015

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

IMMEDIATE ACTION

1. PEACETIME AND TRAINING

Clear the area of personnel. Pull bolt to the rear. If charging is not possible, go to "BOLT JAMMED" symptom in (WP 0015). Catch live round as it is ejected. Push charging handles forward and up. Put gun on 'S' (SAFE) and check for bore obstruction. If bore is clear, move safe to 'F' (FIRE) position, and attempt to fire. If nothing happens, put gun on 'S' (SAFE) and wait 10 seconds. Pull bolt to the rear. Catch live round as it is ejected. Open the top cover and clear the ammunition. Check bore for obstruction.

2. USER'S ACTION

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

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

b. Charge the MK19 in the normal manner and check to see the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch (2.54 cm) of charging handle travel.

IMMEDIATE ACTION - Continued

c. If the primary and secondary pawls do not click up within the last 1 inch (2.54 cm) of charging travel, then the MK19 should be turned in to Field Maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) In Accordance With (IAW) TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Field Maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo is linked with one-piece or two-piece links.

d. If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament Logistics Assistance Representative (LAR) for assistance in submission of this report. The Malfunction Incident Report should include ammo information IAW Step 3 below. Also indicate any corrective actions taken during PMCS.

3. UNIT COMMANDERS

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

IMMEDIATE ACTION - Continued

4. COMBAT ONLY

WARNING

- Do not use combat misfire procedures during peacetime or training. Serious injury can result if precautions are not observed.
- Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

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

Press charger handle locks and rotate charger handles down. Pull charger handles to the rear until the bolt sears. Push charger handles forward and rotate charger handles up and locked. Relay and fire. Turn in live round(s) IAW local Standard Operating Procedures (SOP).

END OF TASK

END OF WORK PACKAGE

CHAPTER 3

TROUBLESHOOTING PROCEDURES

OPERATOR MAINTENANCE
TROUBLESHOOTING PROCEDURES
INTRODUCTION, MALFUNCTION/SYMPTOM INDEX

INTRODUCTION

The troubleshooting procedures in (WP 0015) lists the common malfunctions which you may find during the operation or maintenance of the MK19 MOD 3 or its components. You should perform the tests/inspections and corrective actions in the order listed.

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

MALFUNCTION/SYMPTOM INDEX

END OF WORK PACKAGE

OPERATOR MAINTENANCE
TROUBLESHOOTING PROCEDURES
OPERATIONAL CHECKOUT

INITIAL SETUP:

Tools and Special Tools
- Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)
- Bore Obstruction Detector (WP 0040, Table 2, Item 2)
- Rod, Cleaning, Small Arms (WP 0040, Table 2, Item 4)
- Tool, Round Removal (WP 0040, Table 2, Item 5)

Personnel Required
(2)

References
- TM 9-1010-230-23&P

References (cont.)
- TM 9-1010-231-13&P
- WP 0006
- WP 0011
- WP 0038

WARNING

- Before performing any procedure, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.
- Ensure all ammunition and non-essential personnel are at least 213 feet (65 meters) to the rear of the weapon.
- If the bolt jams during firing do not let the bolt slam forward as top cover is being opened, it could fire a round.
- Be sure to put bolt in forward position before removing the backplate pin assembly. Failure to observe this warning will result in injury.
- Be prepared to catch dropped/ejected live round from weapon. Ejected live rounds may detonate if dropped. Failure to comply may result in injury to personnel or damage to equipment.

TROUBLESHOOTING PROCEDURE

SYMPTOM

BORE OBSTRUCTION

MALFUNCTION

Bore Obstructed.

CORRECTIVE ACTION

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

A Misfire is evidenced by a muffled sound of round firing; excess smoke out of the chamber area; or excess debris/gases below gun.

1. Place weapon on 'S' (SAFE).
2. Check for obstruction.
3. Notify Range Safety Officer (during training). Do the following immediately:
   a. Depress feed pawls, release ammunition belt, and clear feed area. Move the ammunition belt and can to a safe area.
   b. Remove the empty case catch bag. Refer to TM 9-1010-231-13&P.
   c. Charge gun and hold bolt to rear.
   d. Holding the bolt to the rear, insert .50 cal. cleaning rod through receiver rail to top of the shell casing and as close to the face of the bolt as possible.
   e. Place left hand underneath as close to the round as possible. Raise cleaning rod upward forcing the round off the bolt face into the hand. Remove round to designated area for Expended Ordinance Disposal (EOD).
4. Place selector lever on 'F' (FIRE). Ease the bolt forward. Remove the backplate pin, bolt, and backplate assembly, vertical cam assembly, and primary drive lever. Check for any type of obstruction.

CORRECTIVE ACTION - Continued

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

5. Check/remove any case/round from bolt face.
6. Insert bore obstruction detector into bore to check for a live round. See (WP 0038) for instructions to remove the round with the round removal tool.

NOTE

For exact bore obstruction instructions using the Round Removal Tool (WP 0038).

7. Remove obstruction per round removal procedures. See (WP 0038).

SYMPTOM

GUN WILL NOT SHOOT

MALFUNCTION

Misfire.

CORRECTIVE ACTION

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

IMMEDIATE ACTION

a. PEACETIME AND TRAINING

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

CORRECTIVE ACTION - Continued

b. USER'S ACTION

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

- When stoppage or jam occurs, follow the procedures in this manual to safely clear the jam and make sure there is no bore obstruction.
- Charge the MK19 in the normal manner and check to see the primary pawls have clicked up behind the cartridge in front of bolt face and that the secondary pawls have clicked up behind the next round before firing. The feed pawls should click up within the 1 inch (2.54 cm) of charging handle travel.
- If the primary and secondary pawls do not click up within the last 1 inch (2.54 cm) of charging travel, then the MK19 should be turned in to Field Maintenance for necessary troubleshooting and/or Preventive Maintenance Checks and Services (PMCS) In Accordance With (IAW) TM 9-1010-230-23&P. Also, the feed slide assembly checks/adjustment should be performed at Field Maintenance IAW TM 9-1010-230-23&P. Record ammo lot number, type of ammo, number of rounds fired, serial number of the MK19, and also indicate whether ammo is linked with one-piece or two-piece links.
- If the MK19 does not require feed slide adjustment and there appears to be no other deficiencies that would prevent this weapon from firing, the unit is to submit a Malfunction Incident Report. Contact your supporting TACOM Armament Logistics Assistance Representative (LAR) for assistance in submission of this report. The Malfunction Incident Report should include ammo information IAW Step 3 below. Also indicate any corrective actions taken during PMCS.

c. UNIT COMMANDERS

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

CORRECTIVE ACTION - Continued

d. COMBAT ONLY

WARNING

- Do not use combat misfire procedures during peacetime or training. Serious injury can result if precautions are not observed.
- Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

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

Press charger handle locks and rotate charger handles down. Pull charger handles to the rear until the bolt sears. Push charger handles forward and rotate charger handles up and locked. Relay and fire. Turn in live round(s) IAW with local Standard Operating Procedures (SOP).

MALFUNCTION

Bad Ammunition.

CORRECTIVE ACTION

1. Check primer of round.
   a. If primer is indented but did not fire, dispose of round(s) IAW local SOP.
   b. If primer is not indented, replace firing pin.
2. Check to see if round is stuck on bolt face.
3. Remove any ammunition from bolt face. If round is not on bolt face, leave bolt in rear position, gun on 'S' (SAFE). Go to "AMMO JAMMED IN FEEDER" malfunction in this WP.

MALFUNCTION

Ammo Jammed In Feeder.

CORRECTIVE ACTION

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

MALFUNCTION

Rounds Crooked or Not Seated Firmly.

CORRECTIVE ACTION

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

MALFUNCTION

Broken Link.

CORRECTIVE ACTION

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

MALFUNCTION

Link Off Rotating Band.

CORRECTIVE ACTION

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

MALFUNCTION

Female Link Was Not Inserted First.

CORRECTIVE ACTION

Ensure female link is first (WP 0006).

MALFUNCTION

Defective Feeder or Feed Slide Assembly.

CORRECTIVE ACTION

NOTE

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

1. Check pawls for damage. Report defects (broken, worn pawls; spring action, missing or dislodged pin) to Field Maintenance.
2. Check link guide for wear or gouges. Report defects to Field Maintenance.
3. Binding feed slide assembly. Remove feed slide assembly and tray. Clean, inspect, lubricate. Report defects to Field Maintenance.

MALFUNCTION

Bolt Will Not Pick Up Round.

CORRECTIVE ACTION

1. Raise charging handles before firing. Report defects to Field Maintenance. Place charging Handles Down.
2. Check for dirt-clogged, weak, or damaged extractors.
   a. Remove obstruction.
   b. Clean and lubricate.
3. Feed slide out of adjustment. Ensure feed slide is properly adjusted. Feed slide is out of adjustment if:
   - Round fails to feed
   - Round drops
   - Extractors will not pick up round
   - Round stubs on face of chamber

   Report defects to Field Maintenance.

MALFUNCTION

Bolt Drops Round Before Firing.

CORRECTIVE ACTION

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

1. Check for weak or damaged extractors or bolt fingers.
2. Report defect to Field Maintenance.

MALFUNCTION

Receiver Rails Binding.

CORRECTIVE ACTION

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

MALFUNCTION

Bad Cocking Lever.

CORRECTIVE ACTION

WARNING

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

CORRECTIVE ACTION - Continued

CAUTION

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

1. Remove bolt and backplate assembly.
2. Examine cocking lever (on left side of bolt) for wear or damage. Report defects to Field Maintenance.

SYMPTOM

SLUGGISH OR ERRATIC FIRING

MALFUNCTION

Dirty Bore or Chamber.

CORRECTIVE ACTION

Clean bore and chamber. Refer to After Firing Procedure (WP 0011).

MALFUNCTION

Weak Recoil Springs or Bent Guide Rods.

CORRECTIVE ACTION

WARNING

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

1. Remove bolt and backplate assembly from gun. Push against springs to test for weakness. Note bent rods.
2. Report defects to Field Maintenance.

MALFUNCTION

Bolt Sear Timing Adjustment.

CORRECTIVE ACTION

Notify Field Maintenance.

SYMPTOM

RUNAWAY GUN (UNCONTROLLED AUTOMATIC FIRE)

MALFUNCTION

Runaway Gun.

CORRECTIVE ACTION

WARNING

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

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

SYMPTOM

GUN FIRES TOO SOON

MALFUNCTION

Round Stuck in Barrel.

CORRECTIVE ACTION

WARNING

Do not attempt to clear the weapon if the weapon fires too soon (out-of-battery). Do not attempt to clear or fire the weapon until it is fixed. Attempting to clear weapon firing out-of battery can result in unintended firing. Failure to comply may result in death or serious injury to personnel. Follow procedure as given below.

1. Call for a cease fire.
2. Place weapon on 'S' (SAFE).
3. Clear area of personnel and ammunition.
4. Notify Range Safety Officer.

CORRECTIVE ACTION - Continued

5. Check barrel for lodged round using Bore Obstruction Detector (BOD) (WP 0038).
6. After weapon has been cleared by proper personnel, notify Field Maintenance.

SYMPTOM

BOLT JAMMED

MALFUNCTION

Bolt Jams.

CORRECTIVE ACTION

WARNING

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

1. Put gun on 'S' (SAFE).
2. Press charger handle locks and rotate charger handles down.
3. Pull charger handles to the rear as far as possible. Maintain rearward pressure on charging handles while assistant lifts top cover.
4. Pull charger handles to rear, without stopping or pausing, until bolt 'clicks' (locks) and ensure bolt stays to the rear when releasing charger handles.

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

5. Insert cleaning rod section through slot in side of receiver. Prepare to catch ejected, live round.
6. Raise cleaning rod to force live round down. Catch live round as it is ejected.
7. Remove ammo belt from feeder.
8. Reposition ammo belt in feeder.
9. Put gun on 'F' (FIRE).

CORRECTIVE ACTION - Continued

10. Ride the bolt forward by grasping one charging handle and depressing the trigger.
11. Ensure feed slide assembly is to the left.
12. Ensure secondary drive lever is engaged with the feed slide pin. If not, engage forked end with feed slide pin.
13. Close top cover gently.
14. Charge weapon and attempt to fire.
15. If bolt jams, repeat Steps 1 through 7. Put weapon on 'S' (SAFE), and notify Field Maintenance.

SYMPTOM

SHORT RECOIL

MALFUNCTION

Round Jammed in Weapon.

CORRECTIVE ACTION

WARNING

When firing High-Explosive (HE) or Training Practice (TP) ammunition, be alert to these three danger signals: (1) a muffled report from the gun, (2) smoke and debris from the bottom of the receiver, or (3) failure of the projectile to leave the muzzle. Gunner should observe downrange and attempt to determine if the round left the barrel. Any of these three symptoms mean a bore obstruction. Do not attempt to clear a bore obstruction. Failure to comply may result in death or serious injury to personnel. Follow Rapid Unobstructed Bore Check and Round Removal Tool procedures (WP 0038).

1. Place weapon on 'S' (SAFE).
2. Clear area of personnel and ammunition.
3. Notify Range Safety Officer.
4. Pull charger handles to rear, without stopping or pausing, until bolt 'clicks' (locks) and ensure bolt stays to the rear when releasing charger handles.

CORRECTIVE ACTION - Continued

WARNING

Do not relink or fire ammunition which has been cycled through the weapon. Failure to comply may result in injury to personnel or damage to equipment.

5. Insert cleaning rod section through slot in side of receiver. Prepare to catch ejected, live round.
6. Raise cleaning rod to force live round down. Catch live round as it is ejected.
7. Raise top cover.
8. Remove ammo belt from feeder.
9. Check for bore obstruction using bore obstruction detector (WP 0038).
10. If bore is obstructed, refer to (WP 0038) for round removal procedures.
11. If there is no obstruction, reposition belt in feeder.
12. Ensure feed slide assembly is to the left.
13. Charge weapon and attempt to fire.
14. If bolt jams, repeat Steps 1 through 6. Put weapon on 'S' (SAFE) and notify Field Maintenance.

SYMPTOM

TOP COVER WILL NOT CLOSE

MALFUNCTION

Improper Position of Feed Slide Assembly.

CORRECTIVE ACTION

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

MALFUNCTION

Misaligned Ammunition.

CORRECTIVE ACTION

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

END OF WORK PACKAGE

CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

OPERATOR MAINTENANCE
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

The table in (WP 0017), has been provided so you can keep your equipment in good condition and ready for its primary mission.

WARNINGS AND CAUTIONS

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

PMCS PROCEDURES

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

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

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

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

PMCS PROCEDURES - Continued

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

END OF WORK PACKAGE

OPERATOR MAINTENANCE
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP:

Tools and Special Tools
- Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
- Cleaning Compound, Rifle Bore (WP 0042, Table 1, Item 3)
- Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)
- Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)
- Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)

Materials/Parts (cont.)
- Lubricating Oil (LSAT) (WP 0042, Table 1, Item 10)
- Rags, Wiping (WP 0042, Table 1, Item 11)

References
- WP 0001
- WP 0018
- WP 0019
- WP 0020
- WP 0021
- WP 0022
- WP 0023
- WP 0024
- WP 0025
- WP 0026
- WP 0027

Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			NOTE Used/waste grease, solvents, and lubricants as well as items contaminated with these substances (such as cleaning rags) must be disposed of properly. See Hazardous Waste Disposal Information on (WP 0001) for more information.	
			GENERAL CLEANING AND LUBRICATION	
1	Before	MK19 Machine Gun	a. Test 'S' (SAFE) and 'F' (FIRE) positions.	Gun fires with safety on or fails to fire in 'F' (FIRE) position.
			b. Inspect exterior for rust. Remove rust with authorized lubricant and rag.	Rust is apparent on exterior of weapon.
			WARNING Before performing any procedure, ensure the weapon is clear of all ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.	
			c. Even if you do not use the weapon for a day, field strip, clean, inspect, lube, and reassemble major assemblies and components of the weapon	MK19 has not been field stripped and lubricated before each firing. Notify Field Maintenance.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			by performing Steps in (WP 0018) through (WP 0027).	
2	Before	Top Cover Assembly	Raise top cover assembly. Inspect interior for missing or damaged parts.	Top cover assembly has missing or defective parts. Notify Field Maintenance.
3	Before	Feed Slide Assembly	Check feed slide assembly for free movement (move secondary drive lever to move feed slide assembly back and forth).	Binding in feed slide assembly. Notify Field Maintenance.
4	Before	Bore and Chamber	a. With bolt in forward position, remove backplate pin. b. Remove bolt and backplate assembly (WP 0019) to inspect bore and chamber for carbon built-up. c. Reinstall bolt and backplate assembly.	Carbon is present in bore or chamber. Notify Field Maintenance.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before	Bolt Face	a. Ensure nylon tipped screws in bolt face are tight. b. Tighten nylon tipped screws. c. Ensure safety wire is present and not broken. d. Lube chromed area of bolt face. e. Ensure left and right hand cover screws are tight. f. Inspect bolt face for missing or broken safety wire and loose left and right hand cover screws. g. Ensure left hand and right hand cover screws are tight.	Safety wire broke or missing. Bolt face is scratched, or pitted. If screws are loose. Safety wire broken or missing. Notify Field Maintenance.
6	Before	Firing Pin	Press trigger to release the bolt and check firing pin. Ensure pin is not chipped or broken.	Firing pin not forward; pin is chipped or broken. Notify Field Maintenance.
7	Before	Flash Suppressor	Check to ensure flash suppressor has minimal movement.	
8	Before	Sear Housing Cap	Ensure cap is secure/tight and free of cracks.	Cap is not tight or has cracks. Notify Field Maintenance.
9	Before	Dovetail Mount	Visually inspect for missing or loose bolts or damage to Dovetail mounting surfaces.	Bolts missing or loose or mounting surfaces damaged – Notify Field Maintenance.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	During	MK19 Machine Gun	a. Ensure weapon remains lubricated during firing. b. Ensure no parts are broken or missing.	Parts are missing or broken. Notify Field Maintenance.
11	After	MK19 Machine Gun	a. Test 'S' (SAFE) and 'F' (FIRE) positions. b. Inspect exterior for rust. Remove rust with authorized lubricant and rag. **WARNING** Before performing any procedure, ensure the weapon is clear of all ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment. c. Field strip, clean, inspect, lube, and reassemble major assemblies and components of the weapon by performing Steps in (WP 0018) through (WP 0027). Clean bore and chamber with Rile Bore Cleaner (RBC), bore brush and clean rags.	Gun fires with safety on or fails to fire in 'F' (FIRE) position. Rust is apparent on exterior of weapon.
12	After	Top cover Assembly	Raise top cover assembly. Inspect interior for missing or damaged parts.	Top cover assembly has missing or defective parts. Notify Field Maintenance.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	After	Feed Slide Assembly	Check feed slide assembly for free movement (move secondary drive lever to move feed slide assembly back and forth).	Binding in feed slide assembly. Notify Field Maintenance.
14	After	Bore and Chamber	a. With bolt in forward position, remove backplate pin. b. Remove bolt and backplate assembly (WP 0019) to inspect bore and chamber for carbon built-up. c. Reinstall bolt and backplate assembly.	Carbon is present in bore or chamber. Notify Field Maintenance.
15	After	Bolt Face	a. Ensure nylon tipped screws in bolt face are tight. b. Tighten nylon tipped screws. c. Ensure safety wire is present and not broken. d. Lube chromed area of bolt face. e. Ensure left and right hand cover screws are tight. f. Inspect bolt face for missing or broken safety wire and loose left and right hand cover screws. g. Ensure left hand and right hand cover screws are tight.	Safety wire broke or missing. Bolt face is scratched, or pitted. If screws are loose. Safety wire broken or missing. Notify Field Maintenance.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
16	After	Firing Pin	Press trigger to release the bolt and check firing pin. Ensure pin is not chipped or broken.	Firing pin not forward; pin is chipped or broken. Notify Field Maintenance.
17	After	Flash Suppressor	Check to ensure flash suppressor has minimal movement.	Flash suppressor does not have movement.
18	After	Sear Housing Cap	Ensure cap is secure/tight and free of cracks.	Cap is not tight or has cracks. Notify Field Maintenance.
19	After	Dovetail Mount	Visually inspect for missing or loose bolts or damage to Dovetail mounting surfaces.	Bolts missing or loose or mounting surfaces damaged – Notify Field Maintenance.
20	Quarterly	MK19 Machine Gun	Perform all Before Interval tasks quarterly, or after extended storage of machine gun.	

END OF TASK

END OF WORK PACKAGE

CHAPTER 5

MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE
FEED THROAT ASSEMBLY

INITIAL SETUP:

Not Applicable

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

Squeeze plungers (Figure 1, Item 2) and remove the feed throat assembly (Figure 1, Item 1) to ensure proper functioning. If not functioning properly, return to Field Maintenance.

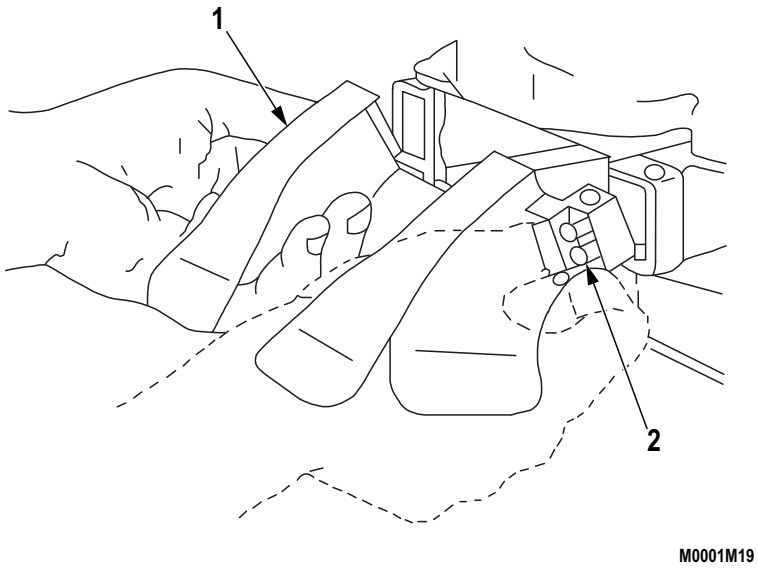


Figure 1. Feed Throat Assembly Removal.

END OF TASK

INSTALLATION

Squeeze plungers (Figure 2, Item 2), align pins with holes (Figure 2, Item 1) in receiver. Release plunger to reattach feed throat assembly (Figure 2, Item 3).

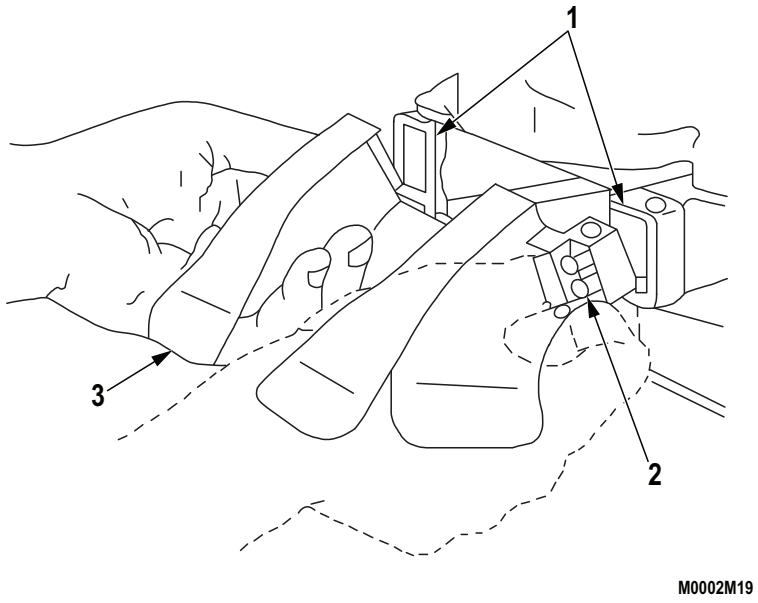


Figure 2. Feed Throat Assembly Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
BOLT AND BACKPLATE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Rifle Bore (RBC) (WP 0042, Table 1, Item 3)
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)

Materials/Parts (cont.)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Put the safety on ‘F’ (FIRE).
2. Open top cover.

WARNING

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

NOTE

You may need to use the rim of a spent case to remove the backplate pin.

3. Pull straight out on backplate pin (Figure 1, Item 1).
4. Lift up slightly on backplate assembly. Slowly pull bolt and backplate assembly (Figure 1, Item 2) out of receiver (Figure 1, Item 3).

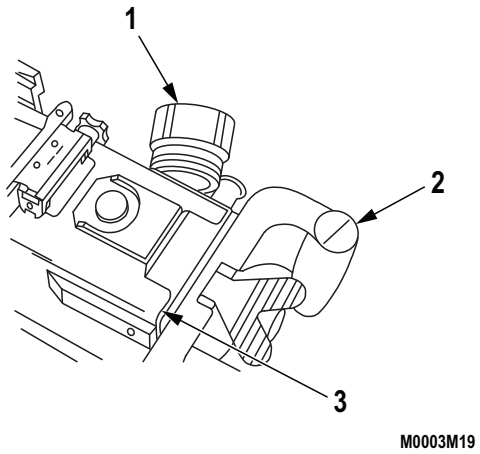


Figure 1. Bolt and Backplate Assembly Removal.

REMOVAL - Continued

5. Support bolt (Figure 2, Item 1) with one hand AND a control grip (Figure 2, Item 2) with the other. (While pressing down on sear receiver catch release, lift bolt up slightly and pull back to remove it.)

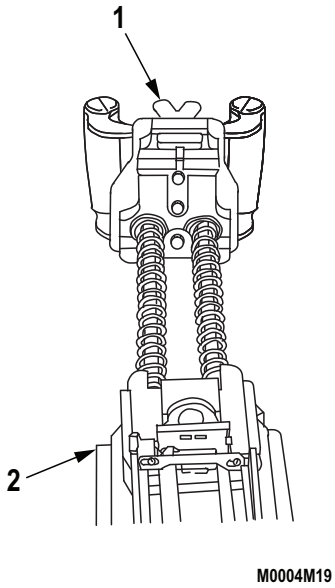


Figure 2. Bolt and Backplate Assembly Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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

- Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.
- Do not immerse bolt assembly in cleaning solvent. Cleaning solvent dilutes the grease in the packed bearings.

Apply cleaning compound solvent to wiping rag or bore cleaning brush only. Wipe or brush off dirt from all parts. Wipe all surfaces dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect bolt and backplate assembly for any deficiencies.

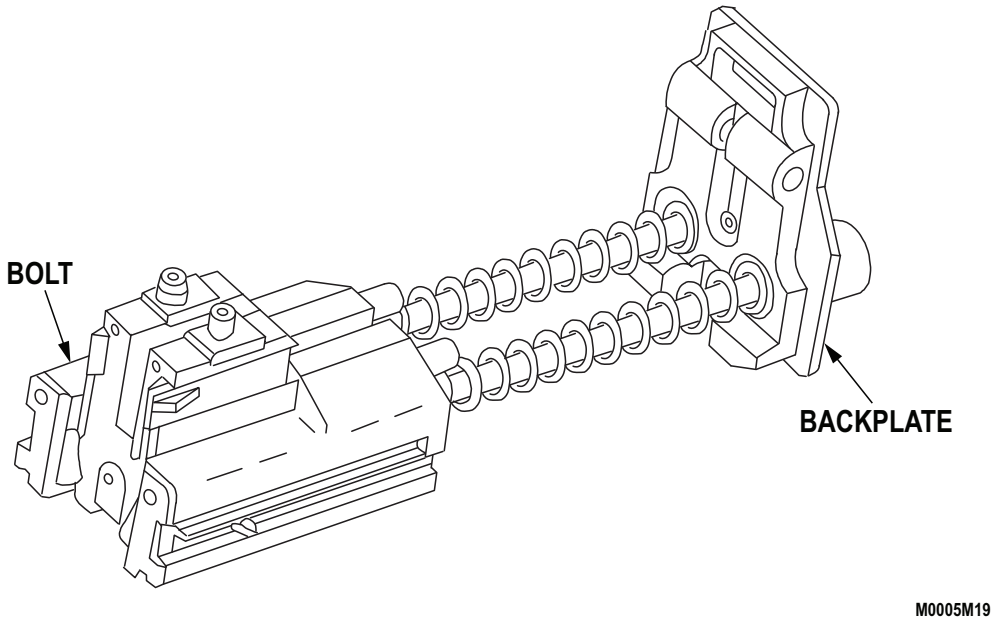


Figure 3. Bolt and Backplate Assembly Inspection.

INSPECTION - Continued

2. Inspect cocking lever (Figure 4, Item 4) for breaks, chips, or burrs.
3. Inspect guide rods (Figure 4, Item 2) for bens or binding.
4. Inspect recoil springs (Figure 4, Item 3) for weak spring action. (To test rods and springs, position the bolt-end against a flat, hard surface while pushing up and down on backplate assembly).
5. Ensure backplate pin (Figure 4, Item 1) retaining spring is not missing.
6. Ensure safety wire (Figure 4, Item 6) is not loose, broken, or missing.
7. Ensure nylon tipped screws in bolt face are tight.
8. Ensure left and right hand cover screws (Figure 4, Item 5) are tight.

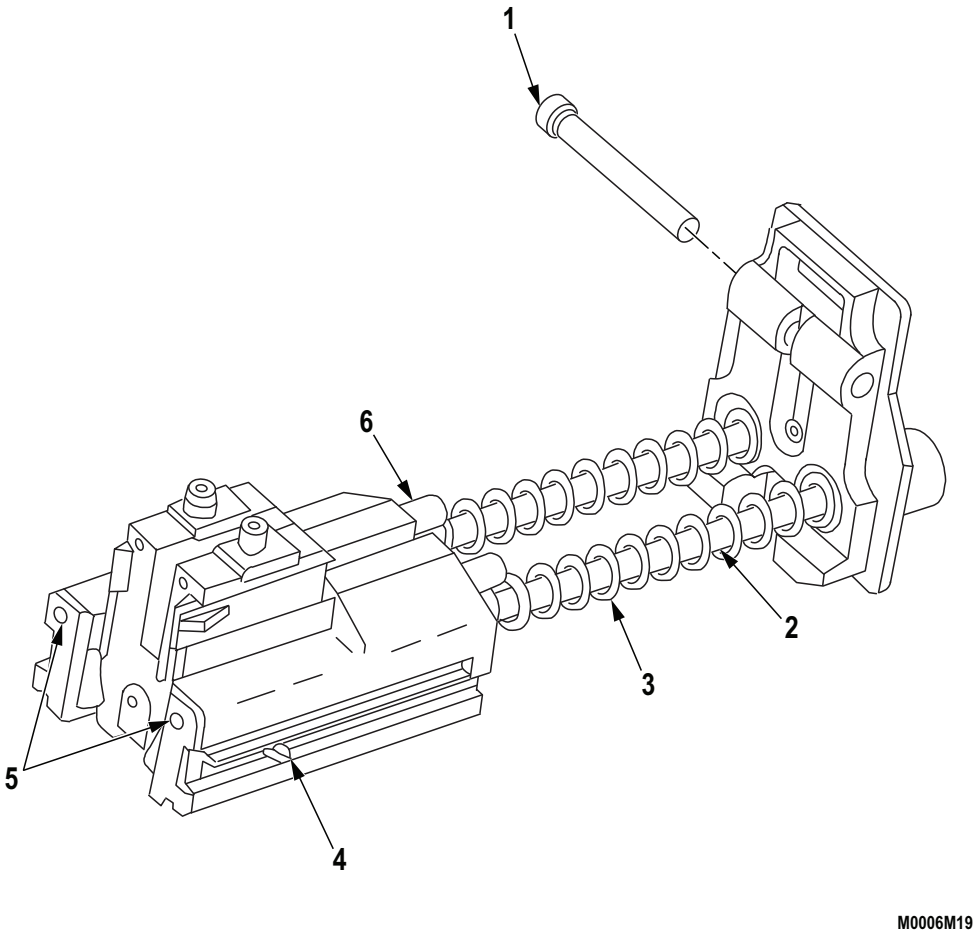


Figure 4. Bolt and Backplate Assembly Inspection.

END OF TASK

LUBRICATION

Apply light coat to all surfaces you can reach. Special areas: guide rods (Figure 5, Item 2), recoil springs (Figure 5, Item 3), bolt face (Figure 5, Item 6), bolt sear (Figure 5, Item 5), bolt rails (Figure 5, Item 4), and cam followers (Figure 5, Item 1).

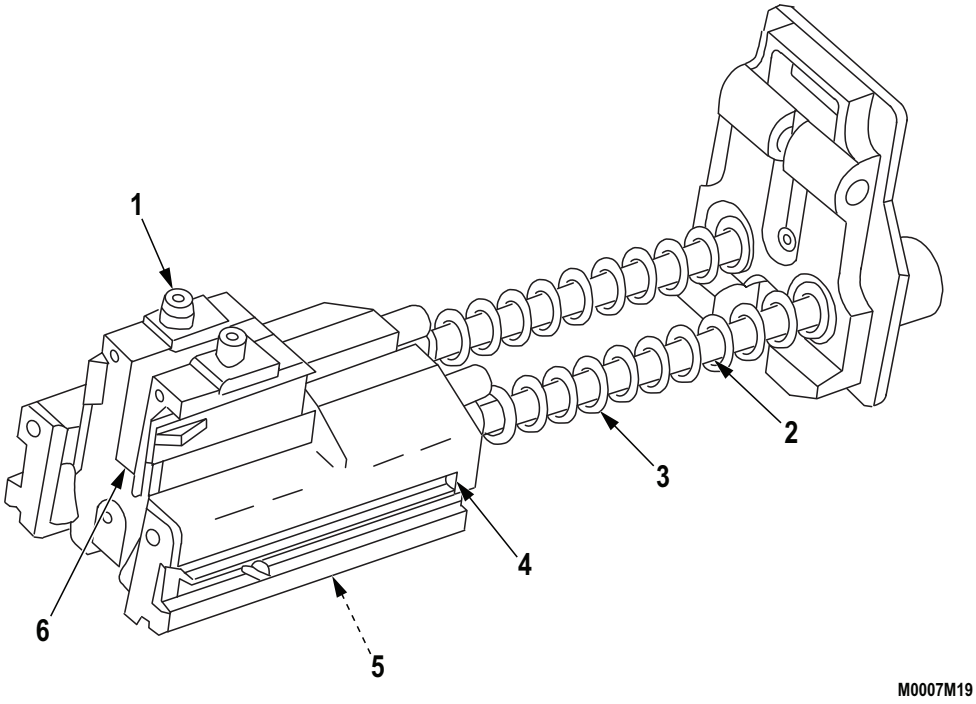


Figure 5. Bolt and Backplate Assembly Lubrication.

END OF TASK

INSTALLATION

NOTE

Before inserting assembly, put cocking lever in forward position.

Assemble bolt and backplate using one of the following procedures:

1. With sear assembly on gun:
   a. Place safety in 'F' (FIRE) position.
   b. Press sear (Figure 6, Item 2) using thumbs or rim of cartridge case.
   c. Make sure cocking lever (Figure 6, Item 1) is cocked and forward.

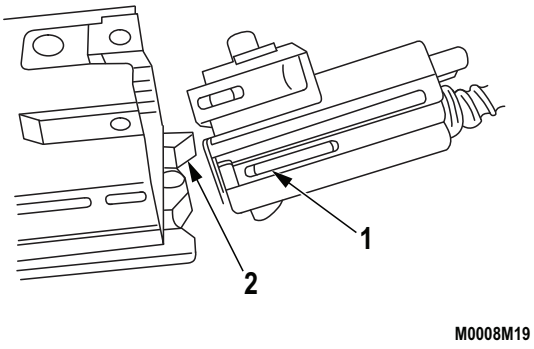


Figure 6. Bolt and Backplate Assembly Installation.

   d. Slide bolt and backplate assembly all the way forward.
   e. Insert backplate pin to lock assembly in place.
2. With sear assembly off gun:
   a. Make sure cocking lever is cocked forward.
   b. Insert bolt and backplate assembly into receiver.
   c. Insert backplate pin to lock assembly in place.
   d. Close cover.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
PRIMARY DRIVE LEVER AND VERTICAL CAM ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Rifle Bore (WP 0042, Table 1, Item 3)
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)

Materials/Parts (cont.)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

CAUTION

Do not rest vertical cam assembly on its chromed surface. Failure to comply may cause malfunction of weapon or damage to the vertical cam assembly.

1. Reach under top of receiver to locate drive lever lock (Figure 1, Item 1) on vertical cam assembly (Figure 1, Item 2). Slide lock rearward about 1/4 inch.

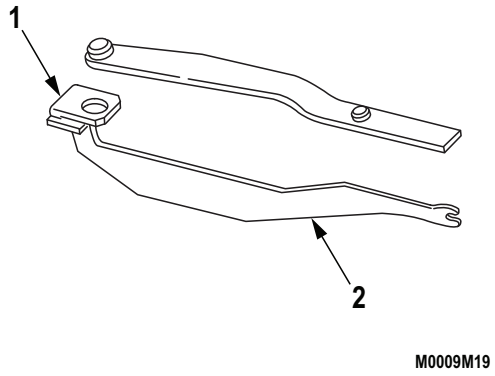


Figure 1. Primary Drive Lever and Vertical Cam Assembly Removal.

2. Press down on primary drive lever's pivot post (Figure 2, Item 1). This releases the primary drive lever and vertical cam (Figure 2, Item 3).

CAUTION

Use caution when removing cam assembly from the receiver. Do not allow the vertical cam to hit the inside of the receiver. Failure to comply may cause malfunction of weapon or damage to vertical cam assembly.

NOTE

There are multiple configurations of the MK19 Machine Gun. The Mod 0 variant is shown.

3. Pull out vertical cam (Figure 2, Item 3) (to rear) and primary drive lever from receiver (Figure 2, Item 2).

REMOVAL - Continued

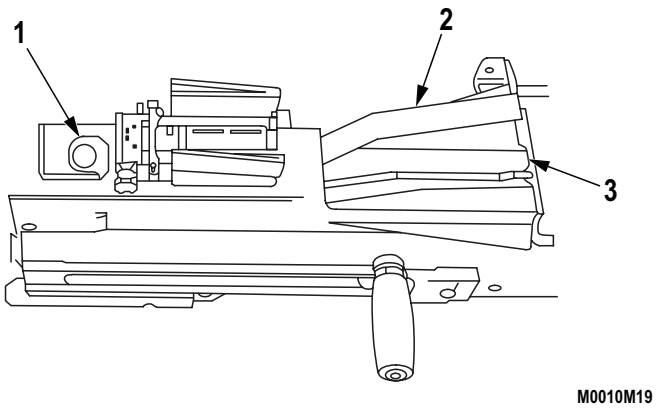


Figure 2. Primary Drive Lever and Vertical Cam Assembly Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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

Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.

Soak in cleaning compound solvent (if available). Wipe or brush off and dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect vertical cam assembly for bends, burrs, pits, scratches, aluminum buildup on chromed surface (Figure 3, Item 1). (Mirror-like surface on chromed surface.)

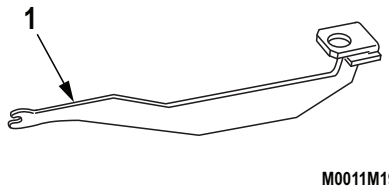


Figure 3. Vertical Cam Assembly and Primary Drive Lever Inspection.

2. Inspect the drive lever lock for looseness or binding.
3. Inspect the primary drive lever for burrs (especially around pivot posts).

END OF TASK

LUBRICATION

Apply lubricating oil (LSAT) or Grease, Molybdenum Disulfate (GMD) to all surfaces. Special areas: chromed surface on vertical cam assembly (Figure 4, Item 1), pivot posts (Figure 4, Item 2) on drive lever.

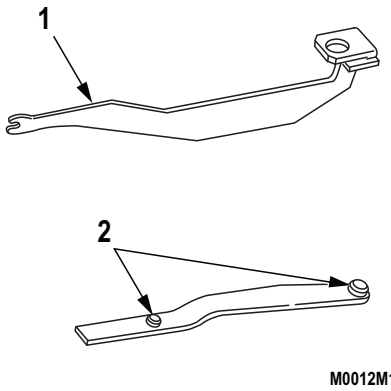


Figure 4. Vertical Cam Assembly and Primary Drive Lever Lubrication.

END OF TASK

INSTALLATION

CAUTION

Use caution when installing cam assembly into the receiver. Do not allow the vertical cam to hit the inside of the receiver. Failure to comply may cause malfunction of weapon or damage to vertical cam assembly.

NOTE

There are multiple configurations of the MK19 Machine Gun. The Mod 0 variant is shown.

1. Slide vertical cam assembly through rear of receiver. Raised portion should slide over top of receiver (Figure 5, Item 1). Drive lever lock should be underneath.
2. Engage forked end in notch (Figure 5, Item 2).

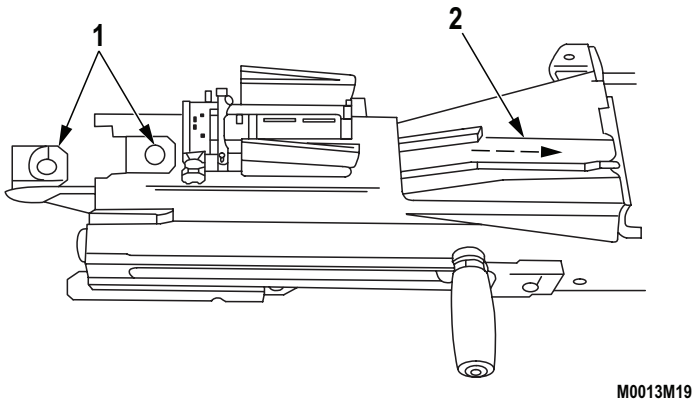


Figure 5. Vertical Cam Assembly Installation.

INSTALLATION - Continued

3. Hold vertical cam assembly in place and slide primary drive lever into receiver (Figure 6, Item 2).
4. Slide drive lever lock rearward and engage pivot post of lever through holes in receiver and vertical cam (Figure 6, Item 1).
5. Slide drive lever lock (on the vertical cam just beneath top of receiver) forward.

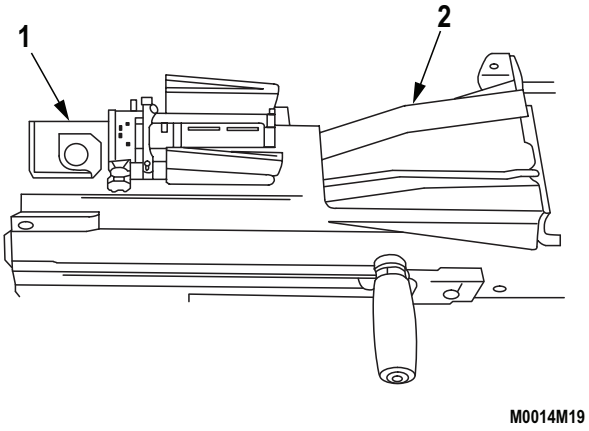


Figure 6. Primary Drive Lever Engagement.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
SECONDARY DRIVE LEVER

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Raise top cover.
2. Push down on pivot post (Figure 1, Item 1) from outside top cover. This releases secondary drive lever (Figure 1, Item 2).
3. Lift out secondary drive lever (Figure 1, Item 2) from inside top cover.

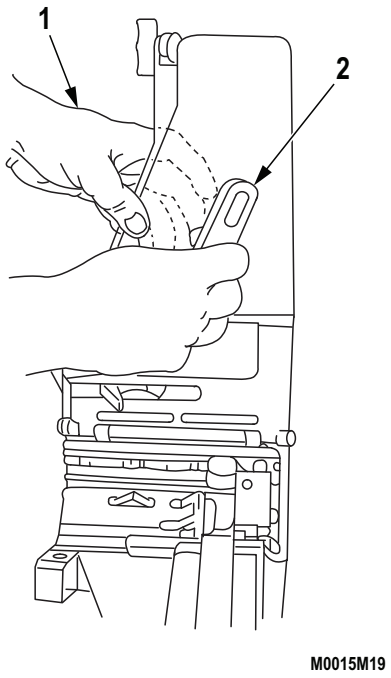


Figure 1. Secondary Drive Lever Removal.

END OF TASK

CLEANING

Wipe or brush off dirt.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Ensure retaining ring (Figure 2, Item 1) is not missing from pivot post.
2. Inspect pivot post (Figure 2, Item 2) for burrs.
3. Inspect forked end (Figure 2, Item 3) for burrs.

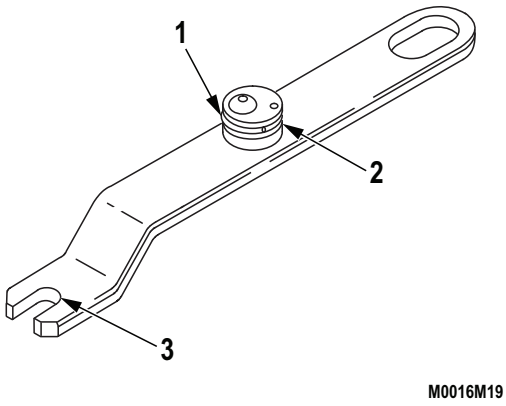


Figure 2. Secondary Drive Lever Inspection.

END OF TASK

LUBRICATION

Apply lubricating oil (LSAT) or Grease, Molybdenum Disulfate (GMD) to all surfaces.

END OF TASK

INSTALLATION

CAUTION

If secondary drive lever is not properly engaged with feed slide pin, gun will not fire. Failure to comply may cause equipment damage.

1. Rotate feed slide assembly and tray (Figure 3, Item 3) upward.
2. Engage forked end of adjustable secondary drive lever with feed slide pin (Figure 3, Item 2).
3. Press raised pivot through hole in top cover (Figure 3, Item 1).
4. Ensure that bearing washer is correctly installed.
5. Press adjustable secondary drive lever against top cover until it locks in place.

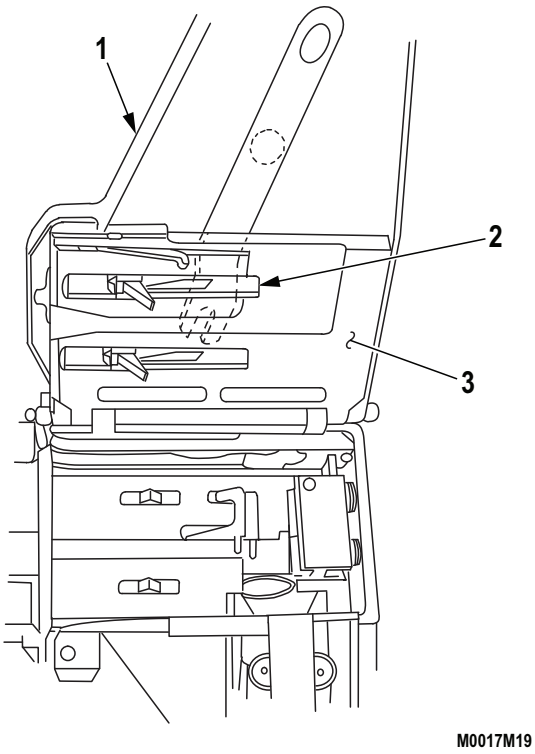


Figure 3. Secondary Drive Lever Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
FEED TRAY AND FEED SLIDE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly
(WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Solvent
(WP 0042, Table 1, Item 4)
Grease, Molybdenum Disulfate (GMD)
(WP 0042, Table 1, Item 6)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)

Materials/Parts (cont.)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping
(WP 0042, Table 1, Item 11)

References
WP 0017

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Lift tray out of feeder (Figure 1, Item 1).

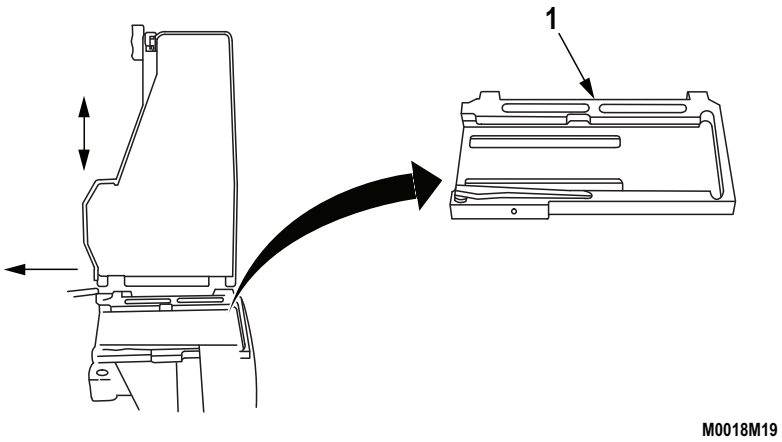


Figure 1. Feed Tray Removal.

REMOVAL - Continued

2. Pivot tray with feed slide assembly (Figure 2, Item 2) out of top cover.
3. Move feed slide assembly (Figure 2, Item 2) to line up tabs with slots in tray (Figure 2, Item 1).
4. Lift upward on feed slide assembly (Figure 2, Item 2).

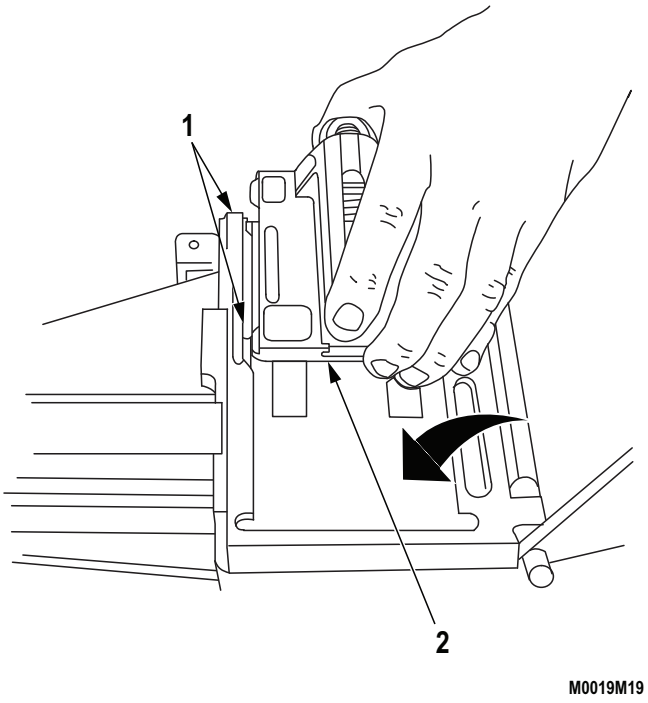


Figure 2. Feed Slide Assembly Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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

Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.

Wipe or brush off dirt. Soak in cleaning compound solvent (if available). Wipe dry.

END OF TASK

INSPECTION

NOTE

Report all burrs, binding or deficiencies to Field Maintenance.

1. Inspect feed pawls (Figure 3, Item 3) for burrs or binding.
2. Inspect feed tray (Figure 3, Item 1) for burrs or binding.
3. Inspect guide rails (Figure 3, Item 2) for burrs.
4. Inspect springs for excessive wear (flat spots), collapsing/elongation.
5. Ensure spring is properly installed.

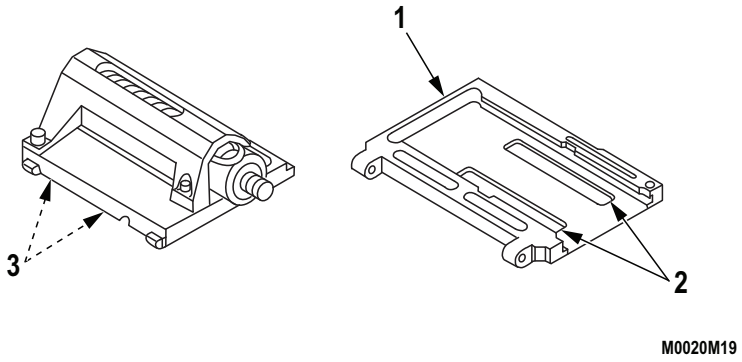


Figure 3. Feed Slide Assembly and Feed Tray Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfate (GMD) or lubricating oil (LSAT) to all surfaces. Special areas: feed pawl (Figure 4, Item 4), feed tray pawl (Figure 4, Item 2), guide rails (Figure 4, Item 3), and inner spring (Figure 4, Item 1).

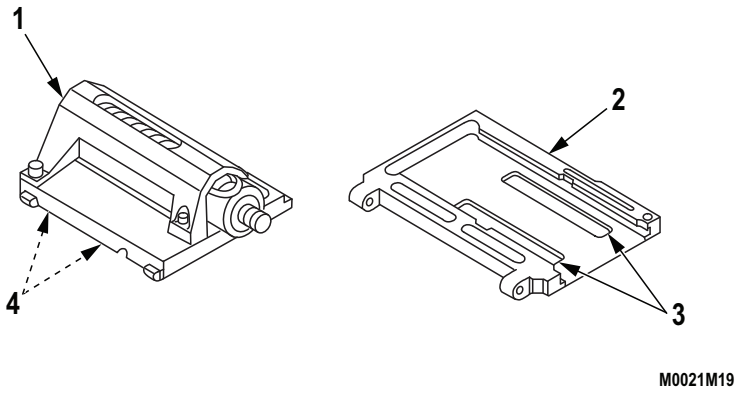


Figure 4. Feed Slide Assembly and Feed Tray Lubrication.

END OF TASK

INSTALLATION

1. Place tray into top of feeder, recessed side up.
2. Pinholes on tray should line up with lugs on receiver (Figure 5, Item 2).
3. Position feed slide assembly so that tabs are lined up with slots on tray (Figure 5, Item 1).
4. Insert tabs into slots. Drop feed slide assembly into tray and move it slightly to ensure engagement.

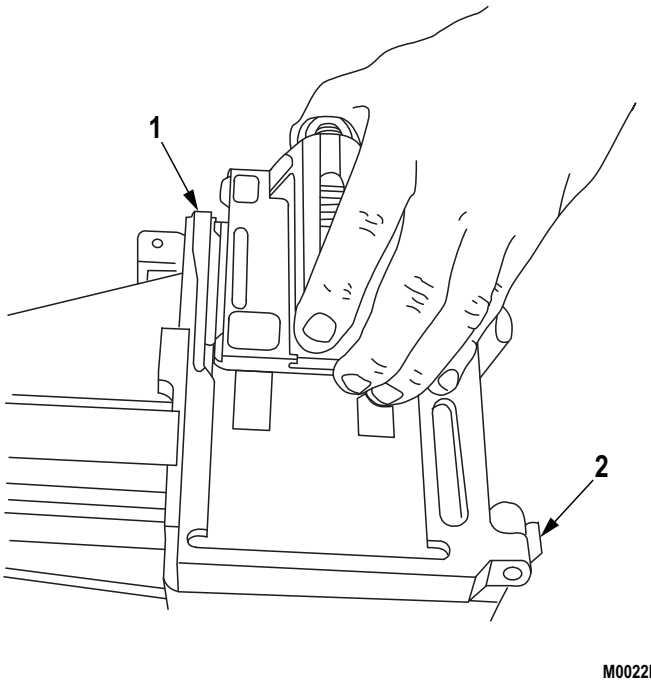


Figure 5. Feed Tray and Feed Slide Assembly Installation.

END OF TASK

TESTING

1. Move secondary drive lever (Figure 6, Item 1) back and forth. Feed slide assembly should move freely.
2. Press pawls (Figure 6, Items 3 and 4) to check spring action.
3. Inspect link guide (Figure 6, Item 2) for roughness and galling.
4. Perform feed slide adjustment inspection. Refer to (WP 0017).

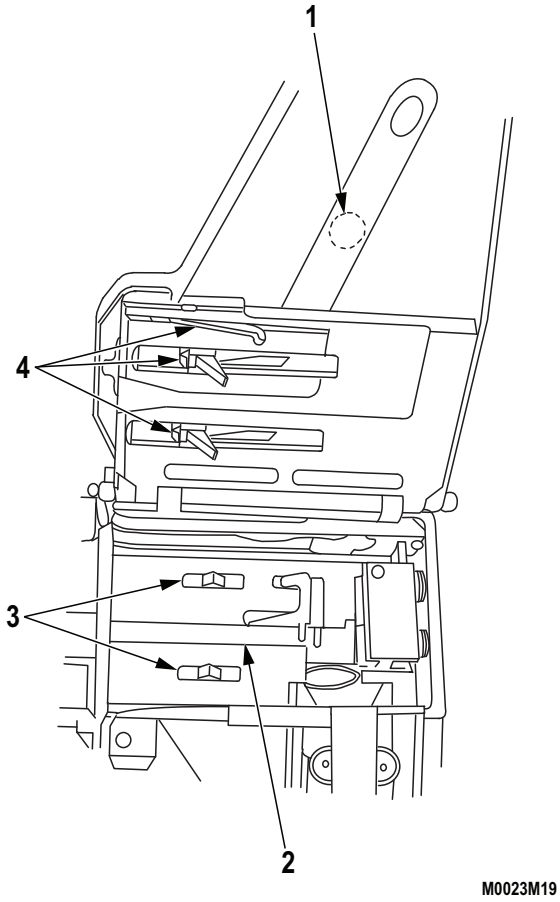


Figure 6. Feed Slide Assembly and Feeder Testing.

TESTING - Continued

CAUTION

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

5. Close top cover.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
TOP COVER ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

CAUTION

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

NOTE

Feed tray must be down to remove top cover pins.

1. Hold top cover (Figure 1, Item 1) straight up to align crosspin end.
2. Pull straight out on pins (Figure 1, Item 2).
3. Lift off top cover (Figure 1, Item 1).

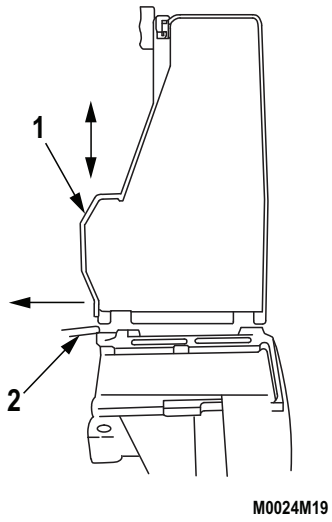


Figure 1. Top Cover Assembly and Feed Tray Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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

Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.

Wipe or brush off dirt. Apply cleaning compound solvent (if available). Wipe dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect top cover (housing) (Figure 2, Item 2) for cracks or rust.
2. Inspect latch (Figure 2, Item 3) for binding, looseness or breaks.
3. Ensure cover pin (Figure 2, Item 1) is not sheared, and crosspin is not broken.

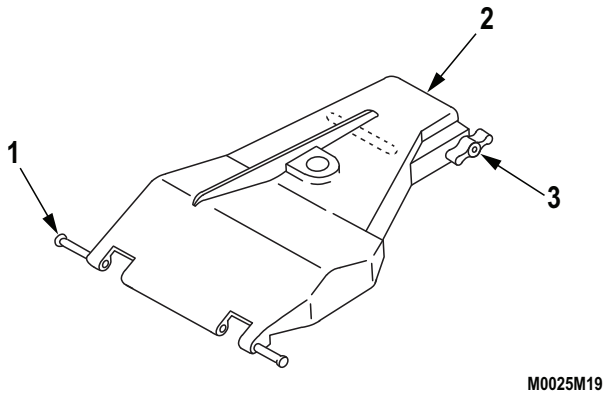


Figure 2. Top Cover Assembly Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfide (GMD) or lubricating oil (LSAT) to all surfaces. Special areas: apply a small amount to latch mechanism (Figure 3, Item 2). Work latch to spread lubricant. Do not forget cover pins (Figure 3, Item 1) and pin holes. Apply light coat to wear pad (Figure 3, Item 3) inside of cover.

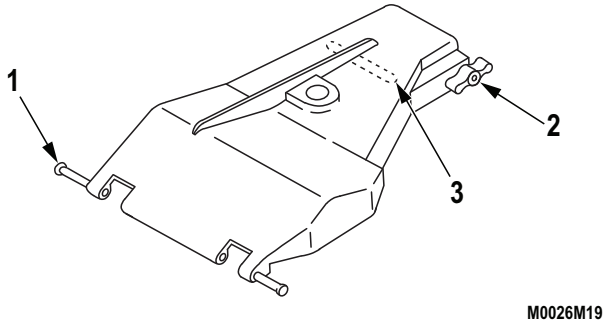


Figure 3. Top Cover Assembly Lubrication.

END OF TASK

INSTALLATION

CAUTION

To avoid breaking crosspin, be sure it is fully inserted into receiver before closing top cover. Failure to comply will result in equipment damage.

1. Feed tray should be in place resting in receiver.
2. Place top cover (Figure 4, Item 2) on receiver with pinholes (Figure 4, Item 3) in line with receiver lug end feed tray pinholes (Figure 4, Item 4).
3. Hold top cover (Figure 4, Item 2) straight up. Insert top cover pins (Figure 4, Item 1) on both sides. Ensure crosspin is fully inserted then rotate top cover fully open.

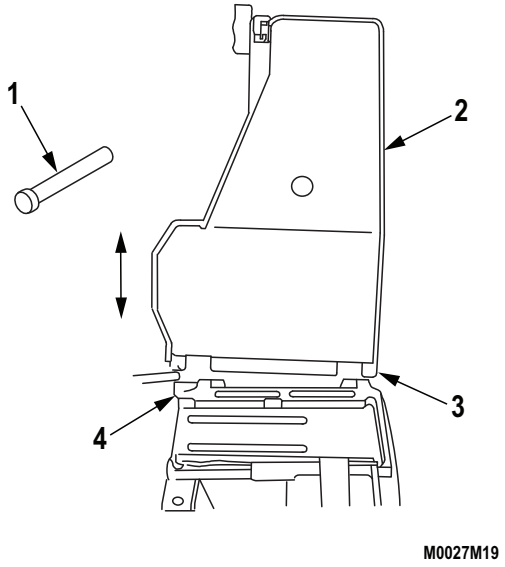


Figure 4. Feed Tray and Feed Slide Assembly Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ALIGNMENT GUIDE ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 9)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 8)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Depress flat leaf spring (Figure 1, Item 1).
2. Slide alignment guide (Figure 1, Item 2) toward feeder mouth.
3. Pull rearward on alignment guide (Figure 1, Item 2) and lift it out.

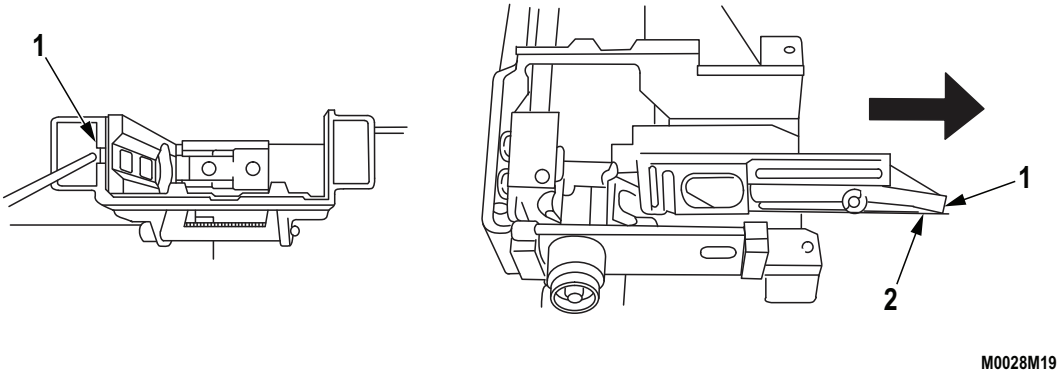


Figure 1. Alignment Guide Assembly Removal.

END OF TASK

CLEANING

Wipe or brush off dirt and dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect alignment guide spring (Figure 2, Item 2) for deformed, cracked, or loose condition.
2. Inspect pin (Figure 2, Item 1) for cracks or breaks.

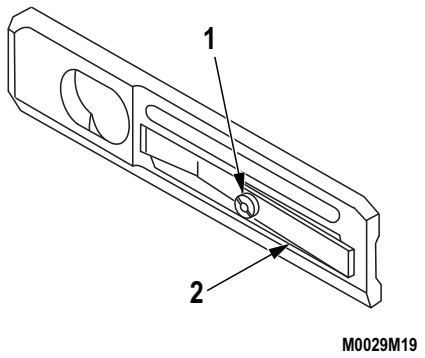


Figure 2. Alignment Guide Assembly Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfate (GMD) or lubricating oil (LSAT) to all surfaces.

END OF TASK

INSTALLATION

1. Position alignment guide assembly (Figure 3, Item 1) so that pin is lined up with slot in feeder wall.
2. Hold alignment guide against front wall (Figure 3, Item 2) and slide alignment guide into receiver until it is properly seated.

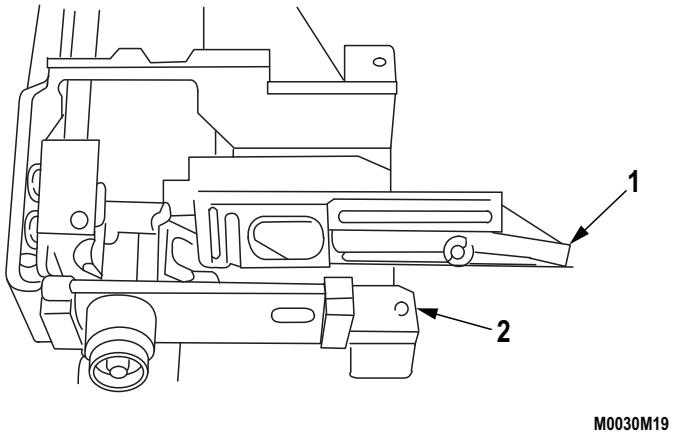


Figure 3. Alignment Guide Assembly Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ROUND POSITIONING BLOCK AND OGIVE PLUNGER ASSEMBLY

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any maintenance, ensure the weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Alignment guide must be removed first.
2. Push in and slide round positioning block (Figure 1, Item 1) toward muzzle end of gun.
3. Pull round positioning block (Figure 1, Item 1) away from wall of receiver.

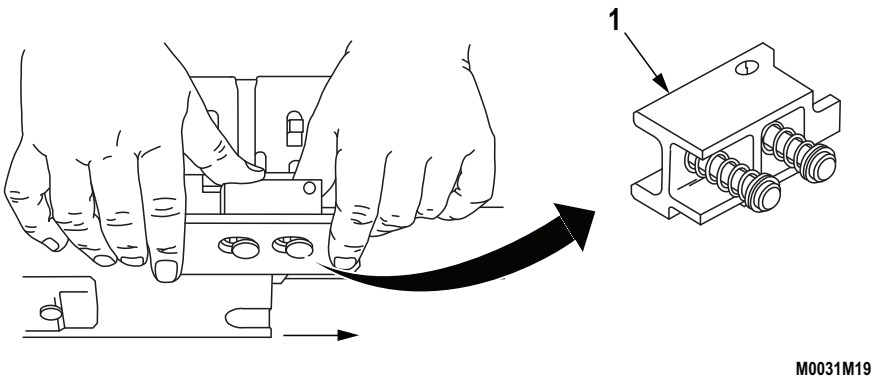


Figure 1. Round Positioning Block Removal.

REMOVAL - Continued

4. Alignment guide must be removed first.
5. Pull out ogive plunger (Figure 2, Item 1).

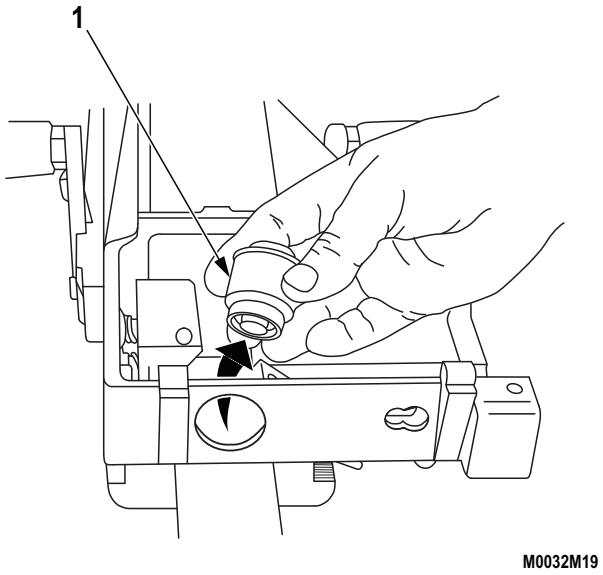


Figure 2. Ogive Plunger Assembly Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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.

CLEANING - Continued

CAUTION

- Do not immerse ogive plunger assembly in solvent. Solvent may dilute lubricant inside ogive plunger housing.
- Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.

Apply cleaning compound solvent (if available) to wiping rag or bore cleaning brush and wipe or brush off dirt. Wipe dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect Ogive plunger head (Figure 3, Item 1) for burrs or broken parts.

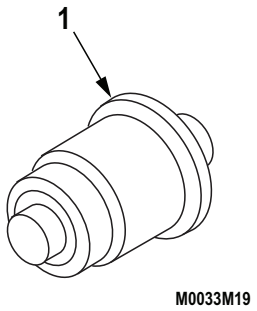


Figure 3. Ogive Plunger Head Inspection.

INSPECTION - Continued

2. If round positioning block (Figure 4, Item 1) has weak spring action, bent or burred posts, notify Field Maintenance.
3. Pins may turn but should NOT have side to side or outward movement.

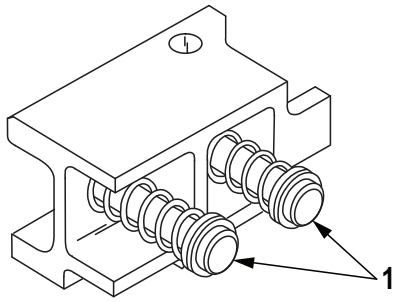


Figure 4. Ogive Plunger Assembly and Round Positioning Block Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfate (GMD) or lubricating oil (LSAT) to all surfaces. Special areas: Round positioning block (Figure 5, Item 1) springs and posts.

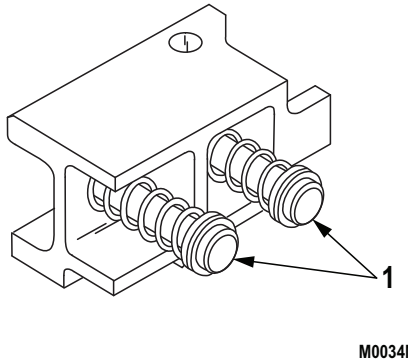


Figure 5. Ogive Plunger Assembly and Round Positioning Block Lubrication.

END OF TASK

INSTALLATION

1. Insert block into slots, with tang end (Figure 6, Item 1) forward.
2. Push against block and slide it toward rear until block locks in place.

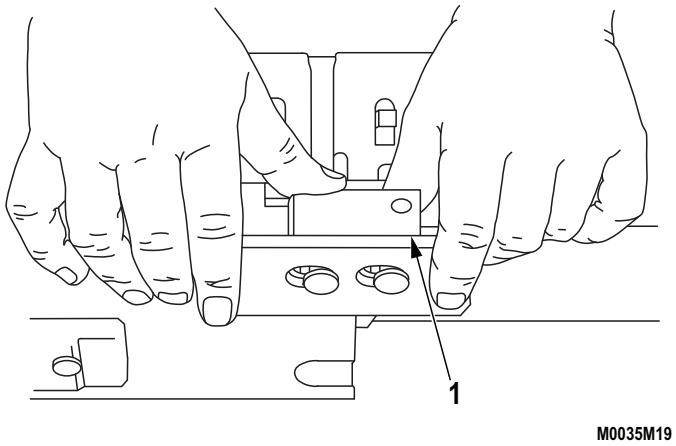


Figure 6. Round Positioning Block Installation.

3. Insert ogive plunger (Figure 7, Item 1) as shown.

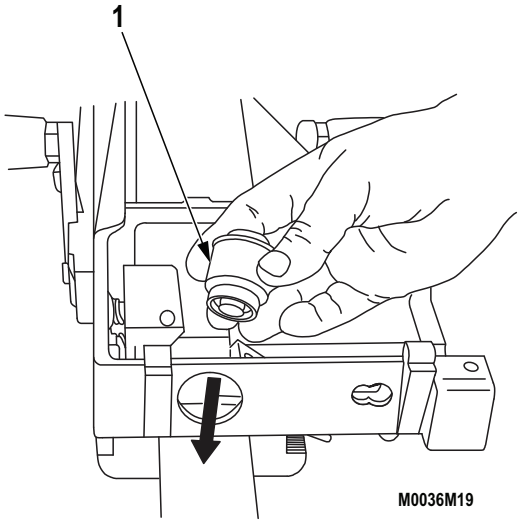


Figure 7. Ogive Plunger Assembly Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LEFT HAND AND RIGHT HAND (LH AND RH) CHARGER ASSEMBLIES MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Rotate charger handle up.
2. Using either your fingers or a spent case pry out on lip of lock plunger (Figure 1, Item 2).
3. Lift up on lock plunger (Figure 1, Item 2) to retract it and slide charger assembly (Figure 1, Item 1) all the way rearward.
4. Pull charger assembly (Figure 1, Item 1) away from receiver.

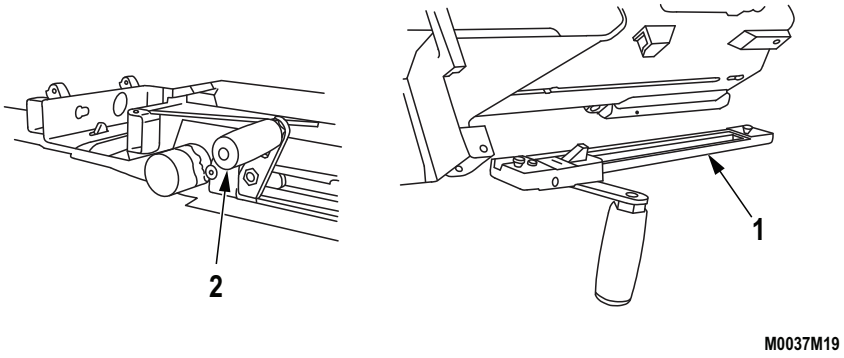


Figure 1. LH and RH Charger Assemblies Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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.

CLEANING - Continued

CAUTION

Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.

Apply cleaning compound solvent (if available) to wiping rag or bore cleaning brush and wipe or brush off dirt. Wipe dry.

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

1. Inspect grooved edges (Figure 2, Item 1) for burrs or bends.
2. Inspect latches for spring action on detents.
3. Inspect entire charger assembly for cracks, burrs, bends, or chips.

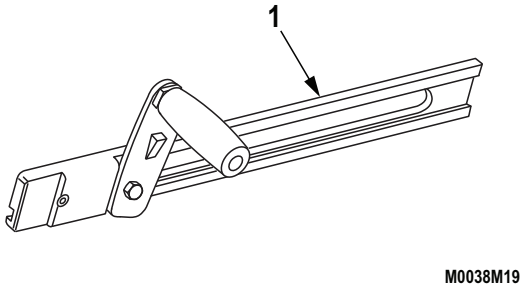


Figure 2. LH and RH Charger Assemblies Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfate (GMD) or lubricating oil (LSAT) to all surfaces except handles. Special areas: Grooved edges of rails (Figure 3, Item 1).

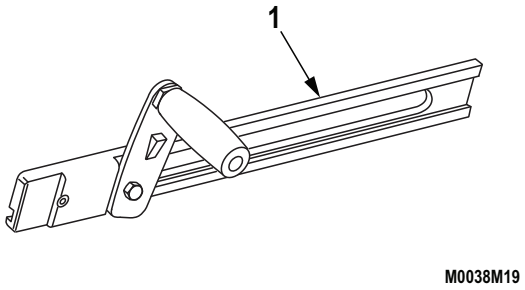


Figure 3. LH and RH Charger Assemblies Lubrication.

END OF TASK

INSTALLATION

1. Turn receiver upright.
2. Rotate charger handle (Figure 4, Item 2) to the straight-up position.
3. Line up lugs on charger with slots in receiver rail. Insert charger lugs into slots (Figure 4, Item 1).
4. Hold charger tightly against rail. Slide charger forward until it locks in place.

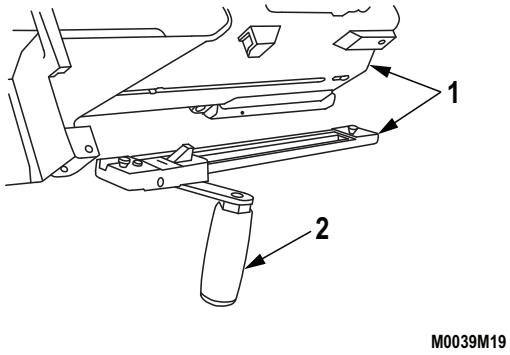


Figure 4. LH and RH Charger Assemblies Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
SEAR ASSEMBLY MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Bore Cleaning Brush Assembly (WP 0040, Table 2, Item 1)

Materials/Parts
Cleaning Compound, Solvent (WP 0042, Table 1, Item 4)
Grease, Molybdenum Disulfate (GMD) (WP 0042, Table 1, Item 6)

Materials/Parts (cont.)
Lubricating Oil (LAW) (WP 0042, Table 1, Item 8)
Lubricating Oil (LSAT) (WP 0042, Table 1, Item 9)
Rags, Wiping (WP 0042, Table 1, Item 11)

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

REMOVAL

1. Turn receiver over on its top. Put safety (Figure 1, Item 1) in 'F' (FIRE) position.
2. Lift up slightly on lock pin (Figure 1, Item 2) with fingers or female end of cartridge link.
3. Squeeze sear (Figure 1, Item 4) (underneath safety) and simultaneously rotate sear housing assembly approximately 15 degrees in either direction.
4. Press down on sear housing assembly and continue rotation until it stops (90 degrees from original position).
5. Press sear (Figure 1, Item 4) and safety together while you put safety (Figure 1, Item 1) on 'S' (SAFE). This locks sear in 'down' position and prevents accidental loss of sear spring (Figure 1, Item 3).
6. Lift out sear housing assembly.

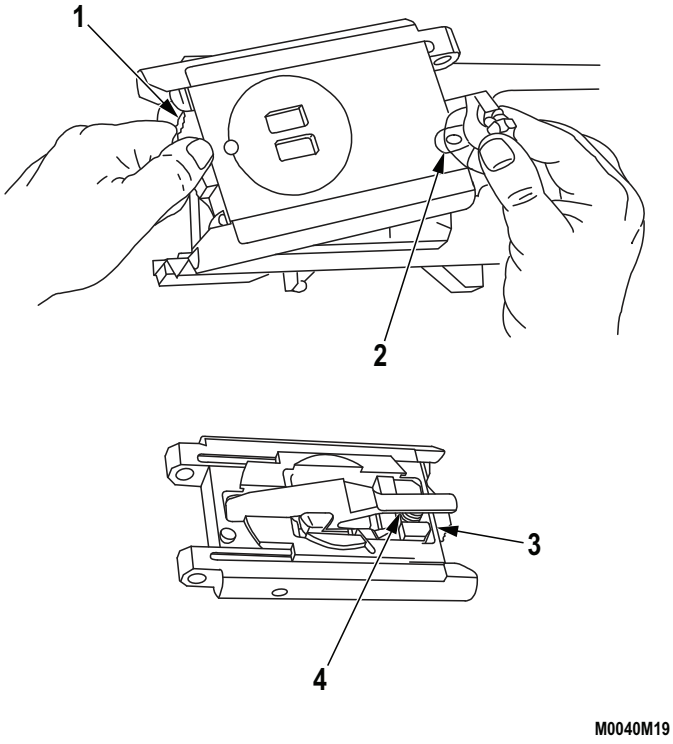


Figure 1. Sear Assembly Removal.

END OF TASK

CLEANING

WARNING

Cleaning compound 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

- Cleaning compound solvent is authorized for cleaning the MK19 Machine Gun but never dip the bolt, ogive plunger or sear in solvent. They have sealed composite components with grease inside. Solvent will dissolve the component parts and breakdown the grease in those assemblies. Failure to comply will result in damage to equipment.
- Do not immerse sear housing assembly in solvent. Solvent may dilute the lubricant inside sear housing.

Wipe or brush away dirt. Use cleaning compound solvent on a wiping rag or bore cleaning brush only. Wipe dry. (Navy only: If exposed to wet conditions, clean buffer springs and relubricate.)

END OF TASK

INSPECTION

NOTE

Report all deficiencies to Field Maintenance.

Inspect for burrs on any parts, especially rear shoulder of sear (Figure 2, Item 1).

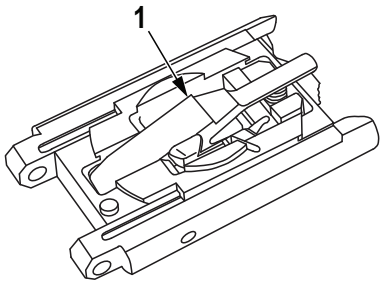


Figure 2. Sear Assembly Inspection.

END OF TASK

LUBRICATION

Apply Grease, Molybdenum Disulfide (GMD) or lubricating oil (LSAT) to all surfaces.

END OF TASK

INSTALLATION

1. Turn receiver over on its top.
2. Place sear housing on receiver and line up sear housing assembly at a right angle to barrel centerline.
3. Put safety on 'F' (FIRE) position.
4. Press down and rotate housing assembly until it stops.
5. Press up on sear and continue rotation until it locks in position.

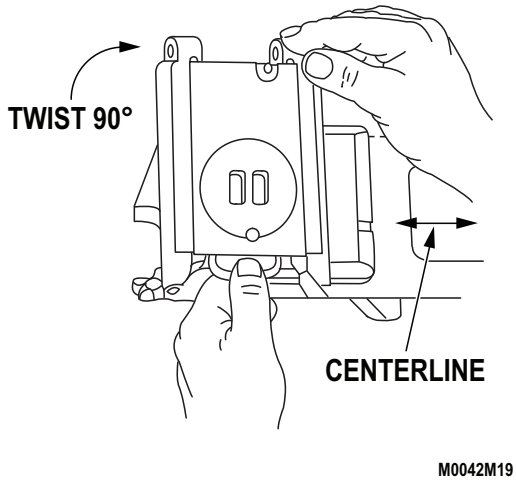


Figure 3. Sear Assembly Installation.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
TEST AND INSPECTION AFTER FINAL ASSEMBLY

INITIAL SETUP:

Not Applicable

WARNING

Before performing any procedure, ensure weapon is clear of any ammunition. Performing maintenance on a loaded weapon can lead to unexpected firing. Failure to comply may result in injury to personnel or damage to equipment.

TESTING

Function With Safety on 'S' (Safe), then on 'F' (Fire) Test

1. With top cover closed, put safety in 'S' (SAFE) position (push left).
2. Pull bolt to rear.
3. Push charger handles back to forward position. Rotate charger handles up.
4. Press trigger (Figure 1, Item 1). Bolt should not go forward.
5. Put safety in ‘F’ (FIRE) position (push right).

CAUTION

As bolt is under spring pressure, do not release it any more than necessary to test functioning of firing pin. ‘DRY FIRING’ causes wear on internal components. However it should be stored with firing pin protruding or un-cocked so that firing pin spring does not stay compressed for extended periods of time. This causes weakening of the firing pin spring which results in premature failure.

6. Press trigger (Figure 1, Item 1). Bolt should spring forward.
7. Put safety in ‘S’ (SAFE) position.
8. Leave bolt in forward position.

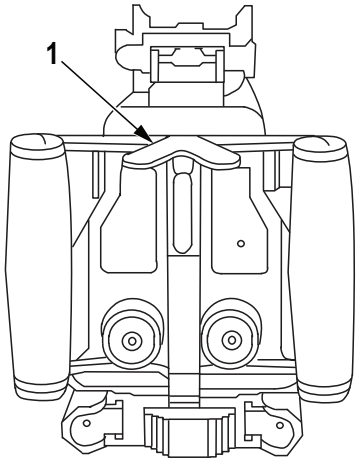


Figure 1. Function with Safety on 'S' (Safe), then on 'F' (Fire) Test.

END OF TASK

INSPECTION

Interior of Receiver

NOTE

If firing pin is not protruding, recharge and release bolt forward under spring pressure. If firing pin still does not protrude, notify Field Maintenance.

1. Inspect firing pin (Figure 2, Item 1) for protrusion.
2. Inspect bolt face (Figure 2, Item 2) to ensure it is lubricated and not dry, pitted, or corroded.

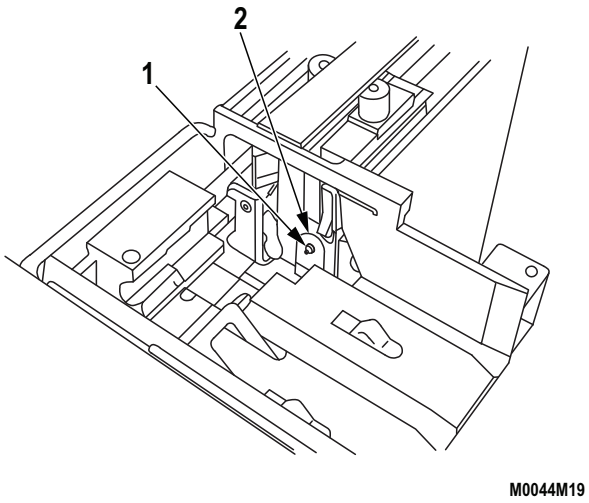


Figure 2. Interior of Receiver Inspection.

END OF TASK

END OF WORK PACKAGE

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

INITIAL SETUP:

References

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

MK64 MACHINE GUN MOUNT

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

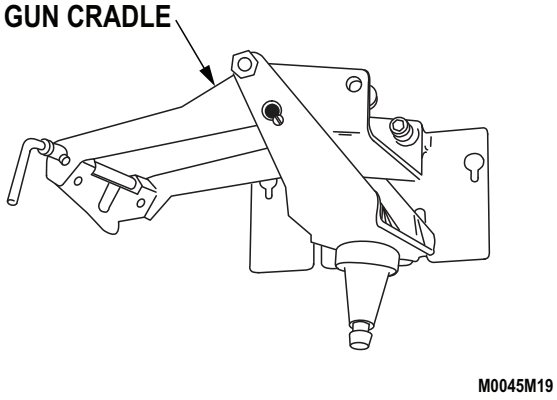


Figure 1. MK64 Machine Gun Mount.

END OF TASK

AN/TVS-5 SIGHT ASSEMBLY

1. Refer to Operator's Manual (TM 11-5855-214-10) for appropriate Night Vision Sight, Crew Served Weapon AN/TVS-5 procedures.
2. Ensure reticule (NSN 6650-01-192-9075) has been installed in the AN/TVS-5 prior to use with the MK19. Notify Field Maintenance for verification/installation of reticule.

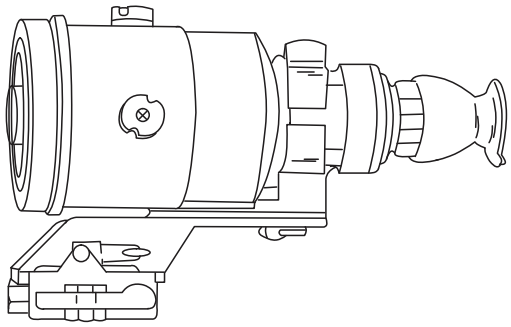


Figure 2. AN/TVS-5 Sight Assembly.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AUXILIARY EQUIPMENT
LIGHTWEIGHT ADJUSTABLE SIGHT BRACKET (ASB) MAINTENANCE

INITIAL SETUP:

Materials/Parts
AAA Battery
(WP 0042, Table 1, Item 1)
Grease, Molybdenum Disulfate (GMD)
(WP 0042, Table 1, Item 6)

References
TB 43-0134

Personnel Required
(2)

LUBRICATION

NOTE

Proper lubrication of locking pin and interfacing surfaces between lightweight Adjustable Sight Bracket (ASB) mount and receiver base bracket mounted dovetail. This will ensure proper engagement and ease of future removal of the MK19 lightweight ASB.

1. Lubricate the interfacing surfaces between the lightweight ASB dovetail slot and MK19 bracket dovetail.
2. Lubricate tapered head of locking pin located at forward end of MK19 base bracket dovetail.

END OF TASK

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.

CAUTION

Do NOT remove rear sight assembly.

1. Align lightweight ASB dovetail slot approximately six inches in front of MK19 bracket dovetail mounted on MK19 receiver.
2. Pull lightweight ASB rearward to engage dovetail into slot. When locking pin drops into detent and an engagement sound is heard, sufficient engagement has been achieved.
3. If an engagement sound is not heard, pullout locking pin, push lightweight ASB forward to disengage dovetail and repeat above procedure until sufficient engagement is achieved.

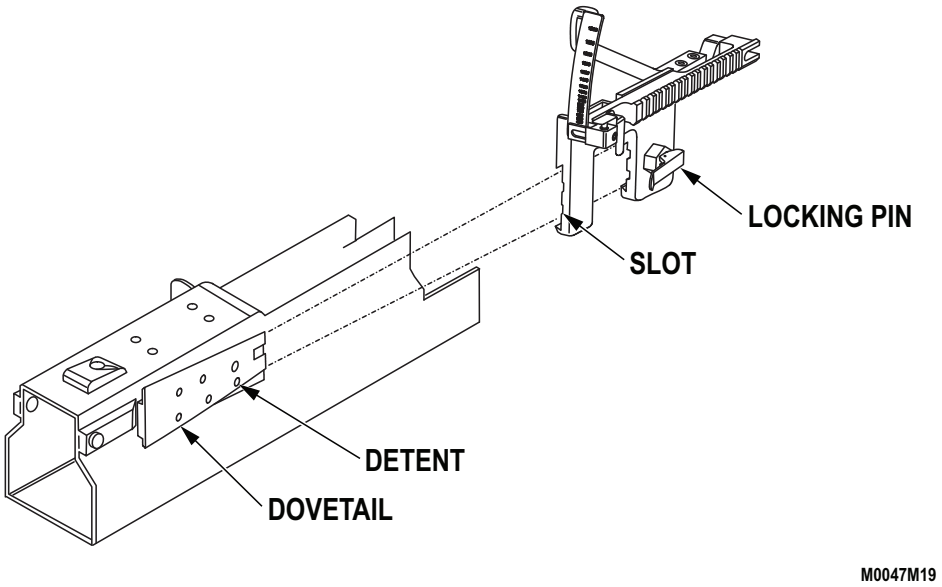


Figure 1. Dovetail Installation.

END OF TASK

USING ADJUSTABLE SIGHT BRACKET

Attach fire control device to ASB rail. Move arm on bracket to target range and then follow sighting and ranging instructions from fire control device technical manual.

END OF TASK

REMOVAL

Pull locking pin out and push lightweight ASB forward until disengaged. Remove lightweight ASB.

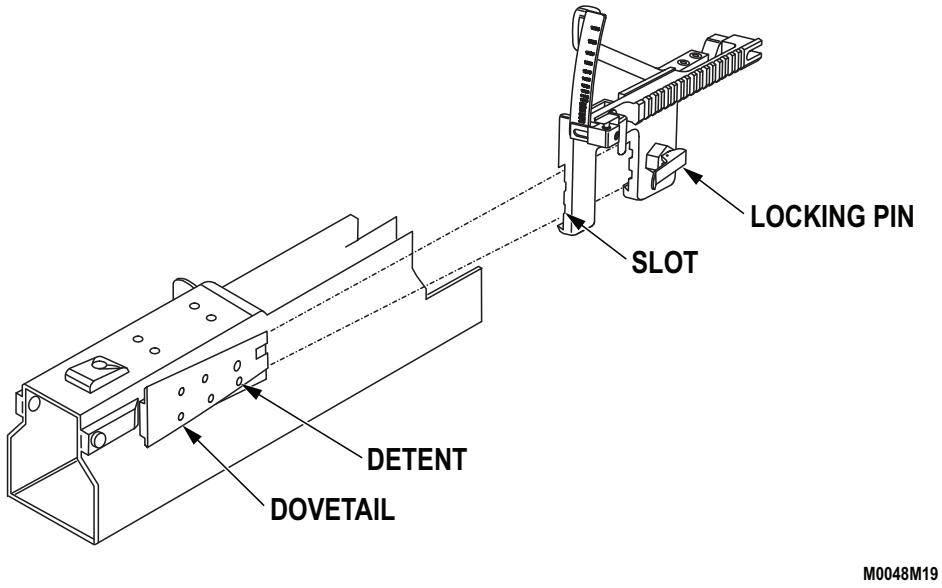


Figure 2. Adjustable Sight Bracket Removal.

END OF TASK

BATTERY REPLACEMENT

1. Remove two screws (Figure 3, Item 1) and battery cover (Figure 3, Item 2) with gasket (Figure 3, Item 3) from lightweight ASB (Figure 3, Item 4). Replace gasket if required.

NOTE

- Observe polarity of battery.
- Depending on their contents, batteries can be considered hazardous waste and must be disposed of properly in accordance with federal, state and local regulations. For additional information on battery disposal, refer to Battery Disposition and Disposal Technical Bulletin (TB 43-0134) or consult the installation environmental office for proper disposal guidance.

2. Remove battery (Figure 3, Item 5). Discard battery.
3. While observing polarity of battery, install new battery (Figure 3, Item 5) into lightweight ASB (Figure 3, Item 4).
4. Replace gasket (Figure 3, Item 3) if required onto cover (Figure 3, Item 2) and place onto lightweight ASB (Figure 3, Item 4).
5. Secure cover (Figure 3, Item 2) with two screws (Figure 3, Item 1).

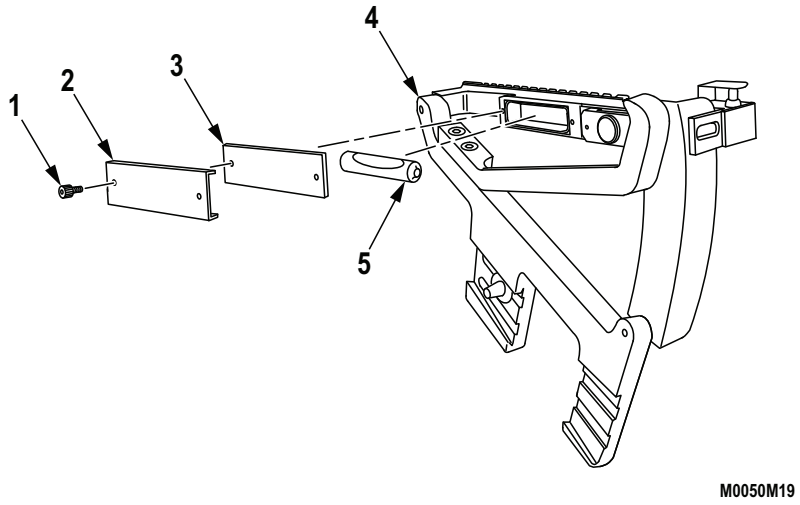


Figure 3. Battery Installation.

END OF TASK

END OF WORK PACKAGE

CHAPTER 6

AMMUNITION MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE
AMMUNITION
MK281 TARGET PRACTICE ROUND

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

MK281 TARGET PRACTICE ROUND

1. Practice Cartridge, inert projectile containing a non-toxic orange dye.
2. MK281: Packed 32 rounds in a PA120 metal container.
3. Propellant: M2.
4. Muzzle Velocity: 242 feet per second.
5. Maximum Range: 2200 m.
6. Minimum Range: Visible at a minimum of 1200 m on level terrain.

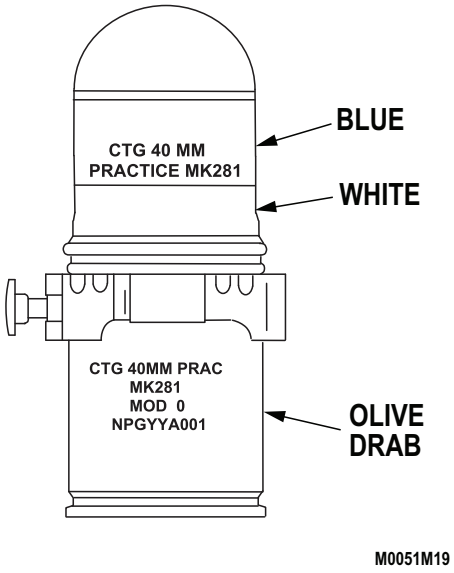


Figure 1. MK281 Target Practice Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M383 HIGH-EXPLOSIVE (HE) ROUND

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

M383 HIGH-EXPLOSIVE ROUND

1. A High-Explosive (HE) grenade.
2. Designed to inflict personnel casualties.
3. Packed in a 48-round belt, M548 metal ammunition container.
4. Fuze: PD, M533.
5. Filler: RDX, Comp. A5. GA PH JEF PEF.
6. Maximum range: 2200 m.
7. Arming Distance: 18-36 m.
8. Wound Radius: 15 m.

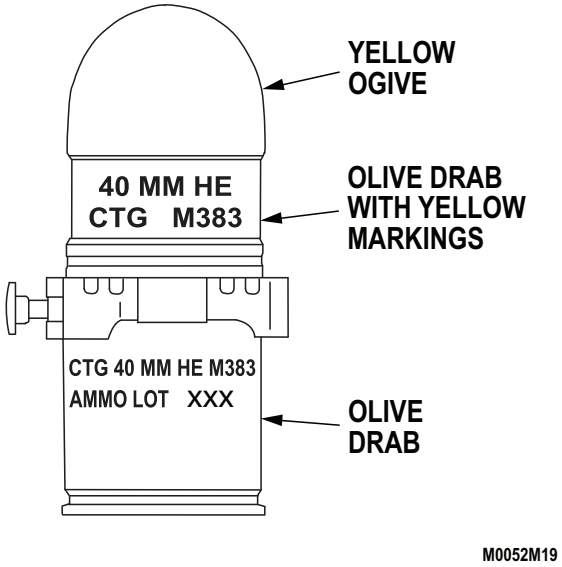


Figure 1. M383 High-Explosive Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M385A1 TRAINING PRACTICE ROUNDS

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

M385A1 TRAINING PRACTICE ROUNDS

1. Training Practice (TP), inert rounds with a propelling charge.
2. Packed in:
   - 32-round belt, PA120 ammunition container (1301-01-315-1636).
   - 48-round belt, M548 ammunition container (1301-01-159-3161).
3. Propellant: M2.
4. Muzzle Velocity: 244 feet per second.
5. Maximum Range: 2200 m.

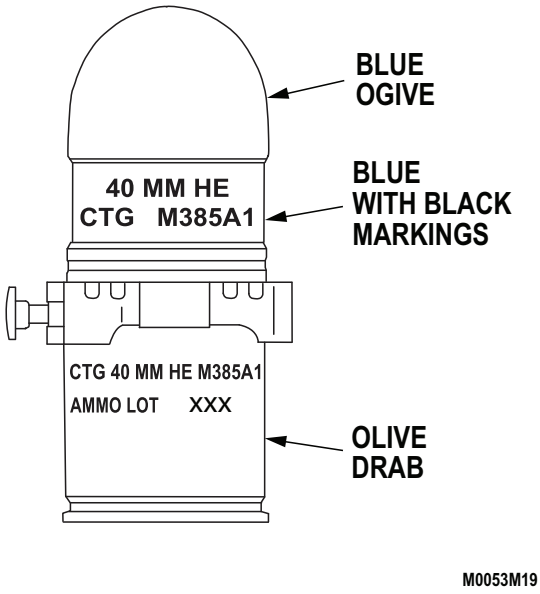


Figure 1. M385A1 Training Practice Rounds.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M918 TARGET PRACTICE ROUNDS

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

M918 TARGET PRACTICE ROUNDS

1. A target practice round with flash signature.
2. Packed in two metal ammo containers (32 and 48-round belts).
3. Propellant: M2.
4. Fuze: M550 Escapement.
5. Muzzle Velocity: 244 feet per second.
6. Maximum Range: 2200 m.
7. Arming Distance: 18-30 m.

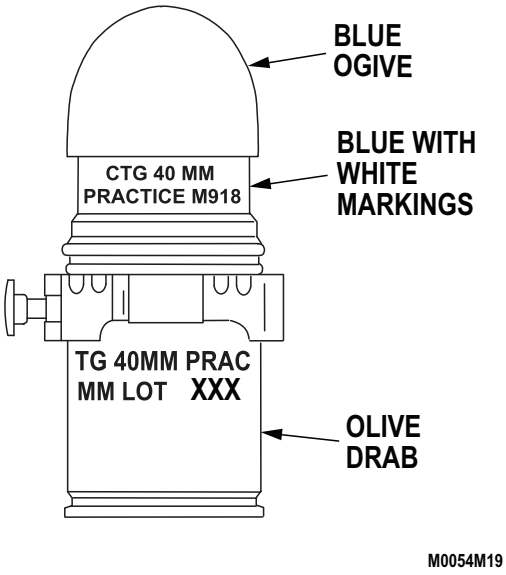


Figure 1. M918 Target Practice Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M1001 HIGH VELOCITY CANISTER CARTRIDGE (HVCC)

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

M1001 HIGH VELOCITY CANISTER CARTRIDGE (HVCC)

1. Anti-personnel – Capable of hitting a man size target at 100 m.
2. M1001: Packed 32 rounds in a PA120 metal container.
3. Propellant: M2.
4. Muzzle Velocity: 790 feet per second.
5. Maximum Range: 100 m.
6. Capable of penetrating standard PASGT vest. Contains 113 each, steel flechettes.

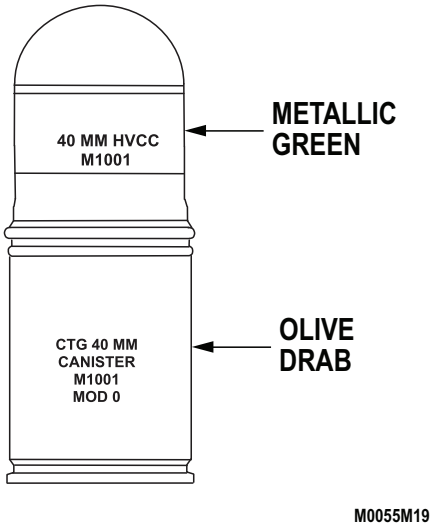


Figure 1. M1001 High Velocity Canister Cartridge (HVCC).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M922A1 DUMMY ROUND

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

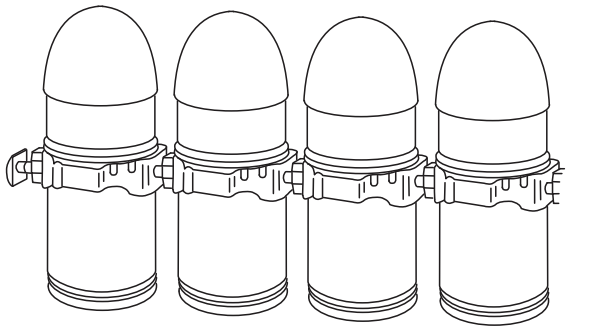
Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

- Use only ammunition linked with M16A2 links. Use of 40 mm ammunition with either M16 or M16A1 links will cause weapon stoppages.
- M922A1 dummy rounds are blue.

M922A1 DUMMY ROUND

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



M0056M19

Figure 1. M922A1 Dummy Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
M430/M430A1 HIGH-EXPLOSIVE DUAL PURPOSE ROUND

INITIAL SETUP:

Personnel Required
(2)

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

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

M430/M430A1 HIGH-EXPLOSIVE DUAL PURPOSE ROUND

1. A high-explosive, dual purpose grenade.
2. Designed to penetrate 2 inch armor at 0 degrees obliquity and inflict personnel casualties.
3. Packed in:
   - 32-round belt, PA120 Ammunition Can.
   - 48-round belt, M548 Ammunition Can.
4. Fuze: PIBD, M549 (M430)/ M549A1 (M430A1).
5. Filler: Comp. A5.
6. Arming Distance: 18 - 30 m.
7. Kill Radius: Approximately 5 m.
8. Wound Radius: Approximately 15 m.
9. Muzzle Velocity: 244 feet per second.
10. Maximum Range: 2200 m.

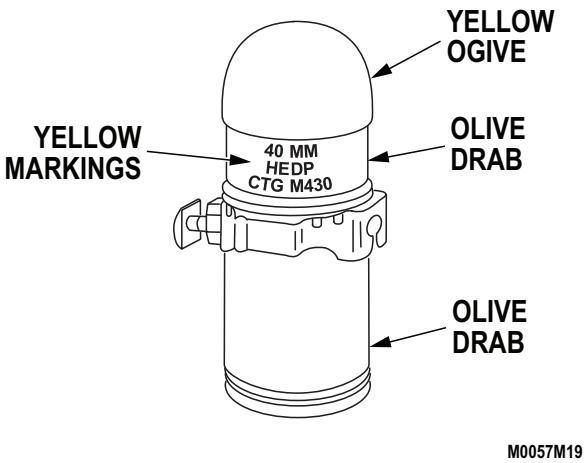


Figure 1. M430/M430A1 High-Explosive Dual Purpose Round.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
AMMUNITION
RAPID UNOBSTRUCTED BORE CHECK PROCEDURES, AND ROUND REMOVAL TOOL PROCEDURES

INITIAL SETUP:

Tools and Special Tools

Bore Obstruction Detector (WP 0040, Table 2, Item 2)
Rod, Cleaning, Small Arms (WP 0040, Table 2, Item 4)
Tool, Round Removal (WP 0040, Table 2, Item 5)

Personnel Required

(2)

References

TM 9-1010-231-13&P

References (cont.)

WP 0035
WP 0036
WP 0037

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES

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.
- The MK19 Machine Gun weighs 77.6 lb (35.2 kg). A two-man lift is required for the MK19 Machine Gun and each fully loaded M548 ammunition container.
- Do not approach or handle a 'dud' (a fired round which fails to explode on impact). The dud could explode any time after firing, causing injury or death.
- All personnel within 1,017 feet (310 meters) of impact area MUST WEAR a helmet and body armor. All personnel within 66 feet (20 meters) shall also wear eye protection and single hearing protection. Sleeves shall be rolled down and gloves worn.
- Failure to comply may result in serious injury or death to personnel.

CAUTION

Ensure proper feed slide adjustment, this will preclude possible damage to the round and stoppage.

NOTE

- Use only ammunition linked with M16A2 links. Use of 40 mm ammunition with either M16 or M16A1 links will cause weapon stoppages.
- The preferred method for checking the bore is by running the bore obstruction detector from the top of the weapon through the barrel until it protrudes from the muzzle. However, the bore obstruction detector may also be feed from the bottom of the receiver. The bolt must be to the rear to use the bore obstruction detector from the bottom.
- The bore obstruction detector is intended to be used to probe the barrel of the MK19 MOD 3 after an unusual occurrence or malfunction to check for any projectiles or cartridge cases which may become lodged in the bore.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Barrel Obstruction Inspection (General)

1. Put the safety on "S" (SAFE).
2. Notify the Range Safety Officer if training, or your Non Commissioned Officer in charge, that you have a possible bore obstruction.
3. Clear all non-essential personnel away from the gun position.

Barrel Obstruction Inspection From Top of Barrel (Day Operations)

WARNING

Do not let bolt go forward. Severe injury could be sustained.

1. **Gunner**: Lower charging handles, maintain grip, and apply back pressure to the bolt.
2. **Assistant Gunner**: Open top cover.

WARNING

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

3. **Assistant Gunner**: Check bolt face to ensure no live round is present. If a round, spent case, or debris is not present, go to Step 5. If a round, spent case, or debris is present, perform the following:

   Remove catch bag (be prepared to catch live ammunition which may fall from the bottom of the weapon). Refer to TM 9-1010-231-13&P.

4. **Gunner**: Charge the bolt completely until the bolt locks to the rear. Return handles to the forward position, handles down.
5. **Assistant Gunner**: If a round is still present, clear it from the bolt face using a 0.50 caliber cleaning rod inserted through the slot in the charger handle assembly. Catch the round.
6. **Gunner**: If a round, spent case, or debris is not present, perform the following:
   a. Pull charger handles to the rear until the bolt ‘clicks’ (locks) to the rear.
   b. Position charging handles in the forward and down position.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Barrel Obstruction Inspection From Top of Barrel (Day Operations) - Continued

7. **Assistant Gunner**: Perform the following Steps:
   a. Place the bore obstruction detector (weighted end first) into the chamber end of the barrel.
   b. Snake the bore obstruction detector into the barrel. If the cable stops feeding, pull it back, and push it forward again. If the cable can not be pushed forward any further, you have a bore obstruction.

NOTE

If bore obstruction detector will not go completely through the barrel, refer to Round Removal Tool Procedures later in this work package.

8. If the bore obstruction detector cable runs through the barrel and the weighted end can be seen protruding from the flash suppressor, the barrel is clear.
9. If barrel is clear, consult Field Maintenance for another possible cause for malfunction.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Barrel Obstruction Inspection From Top of Barrel (Day Operations) - Continued

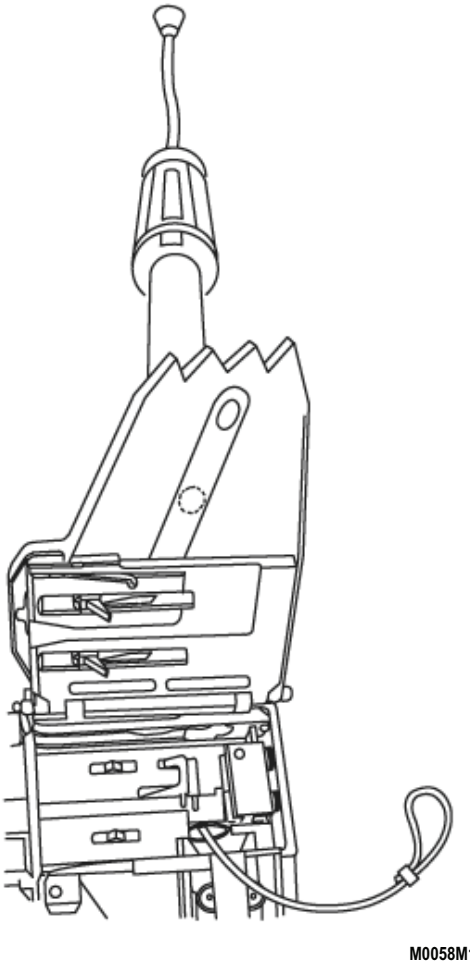


Figure 1. Bore Obstruction Inspection from Top of Barrel (Day Operations).

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Bore Obstruction Inspection From Bottom of Weapon (Day Operations)

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 (Check feed slide adjustment).
- Failure to comply may result in serious injury or death to personnel.

1. **Gunner**: Lower charging handles, maintain grip, and apply back pressure to the bolt.
2. **Assistant Gunner**: Open top cover.

WARNING

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

3. **Assistant Gunner**: Check bolt face to ensure no live round is present. If a round, spent case, or debris is not present, go to Step 5. If a round, spent case, or debris is present, perform the following:
   a. **Assistant Gunner**: Be prepared to catch live ammunition which may fall from the bottom of the weapon as the:
   b. **Gunner**: Charge the bolt completely until the bolt locks to the rear. Return handles to the forward position, handles down.
4. **Assistant Gunner**: Perform the following:
   a. If a round is still present, clear it from the bolt face using a 0.50 caliber cleaning rod inserted through the slot in the charger handle assembly.
   b. Catch the round.
5. **Gunner**: Perform the following:
   a. Pull charger handles to the rear until the bolt locks to the rear.
   b. Position charging handles in the forward and down position.
6. **Assistant Gunner**: Perform the following:
   a. Place the bore obstruction detector (weighted end first) through the receiver and into the chamber end of the barrel.
   b. Snake the bore obstruction detector into the barrel. If the cable stops feeding, pull it back, and push it forward again. If the cable can not be pushed forward any further, you have a bore obstruction.

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Bore Obstruction Inspection From Bottom of Weapon (Day Operations) - Continued

NOTE

Refer to "Round Removal Tool Procedures" in this work package, if bore obstruction detector will not go completely through the barrel.

7. If the bore obstruction detector cable runs through the receiver and the weighted end can be seen protruding from the flash suppressor, the barrel is clear.
8. If barrel is clear, consult Field Maintenance for another possible cause for malfunction.

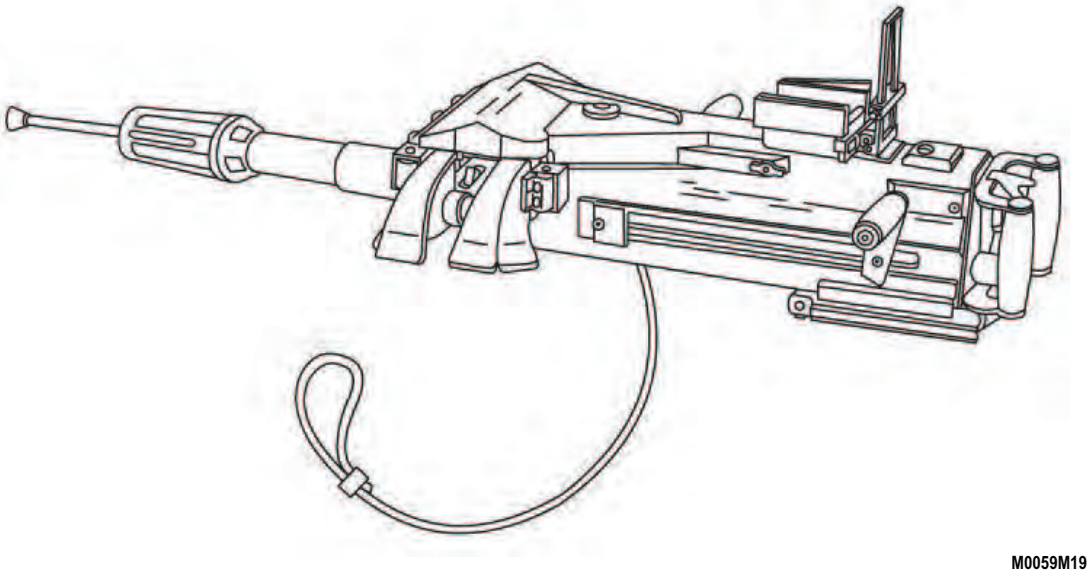


Figure 2. Bore Obstruction Inspection from Bottom of Weapon (Day Operations).

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Bore Obstruction Inspection (Night Operations)

1. Following the same procedures on (WP 0035), (WP 0036), and (WP 0037), ensure the crimp, at the loop end of the bore obstruction detector, is inserted from the top (Figure 3) far enough to touch the feeder base. This will ensure the barrel is clear when the weighted end cannot be seen.

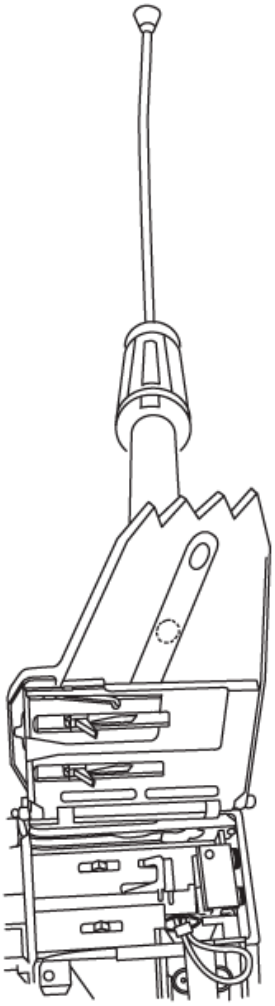


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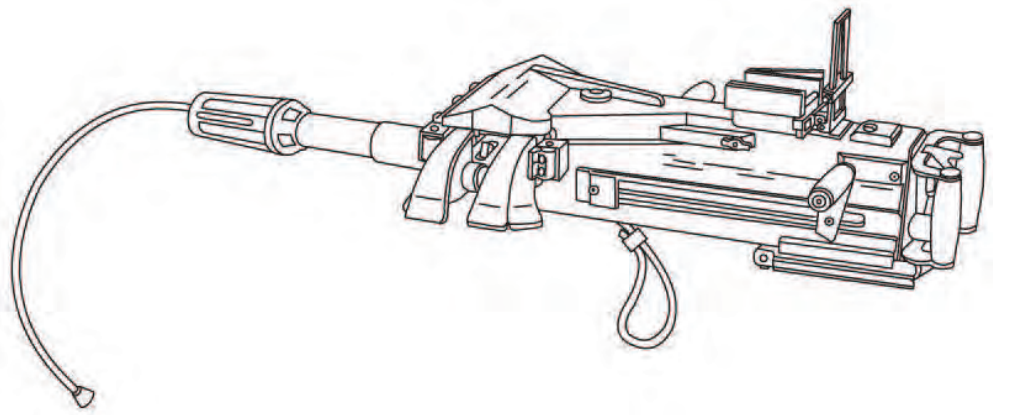
Figure 3. Bore Obstruction Inspection (Night Operations).

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

Bore Obstruction Inspection (Night Operations) - Continued

2. If inserted from the bottom (Figure 4), push the loop end as close to the bottom of the receiver as possible. This will ensure the barrel is clear.



M0061M19

Figure 4. Bore Obstruction Inspection (Night Operations).

RAPID UNOBSTRUCTED BORE CHECK PROCEDURES - Continued

ROUND REMOVAL TOOL PROCEDURES

WARNING

- Do not transport weapon with projectile lodged in bore.
- Only trained and qualified personnel should engage in the removal and recovery of the round.
- Do not transport recovered round by vehicle. Handle with care.

CAUTION

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

1. **FIRED CASE LODGED IN BORE.**

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

2. **PROJECTILE IN RECEIVER, SEPARATED FROM CASE.**

   Ammunition defect. Remove separated projectile. Carefully hand carry to nearby designated area for Extended Ordnance Disposal (EOD) disposal In Accordance With (IAW) local directives.

3. **PROJECTILE LODGED IN BORE OR CHAMBER.**

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

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

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

   d. Carefully hand carry round to nearby designated area for EOD.

END OF TASK

END OF WORK PACKAGE

CHAPTER 7

SUPPORTING INFORMATION

OPERATOR MAINTENANCE
REFERENCES

SCOPE

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

CONSOLIDATED TABLE OF ALLOWANCES (CTA)

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

DEPARTMENT OF THE ARMY PAMPHLETS (DA PAM)

DA PAM 750-8	The Army Maintenance Management System (TAMMS)

FIELD MANUALS (FM)

FM 4-25.11	First Aid

FORMS

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

TECHNICAL BULLETIN (TB)

TB 43-0134	Battery Disposition and Disposal Technical Bulletin

TECHNICAL MANUALS (TM)

TM 9-1005-245-13&P	Machine Gun Mounting Systems
TM 9-1010-230-23&P TO 11W2-5-16-2 SW 363-03-MMM-020	Organizational and Direct Support Maintenance Manual (including Repair Parts and Special Tools List) for Machine Gun, 40 MM, MK19 MOD 3
TM 9-1010-231-13&P TO 11W2-8-32-4 SW 363-D4-MMM 010-MK64	Operator's, Unit, and Direct Support Maintenance Manual (including Repair Parts and Special Tools List) for Mount, Machine Gun, MK64 Mod 9
TM 11-5855-214-10	Operator's Manual for Night Vision Sight, Crew Served Weapon AN/TVS-5
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 4700-15/1	Equipment Record Procedures

END OF WORK PACKAGE

OPERATOR MAINTENANCE
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

SCOPE

This work package lists COEI and BII for the MK19 Machine Gun to help you inventory items required for safe and efficient operation of the equipment.

GENERAL

The COEI and BII information is divided into the following lists:

COMPONENTS OF END (COEI) ITEM

Not applicable.

BASIC ISSUE ITEMS (BII)

These essential items are required to place the MK19 Machine Gun in operation, to operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the machine gun during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify items.

Explanation of Columns in the COEI List and BII List

Column (1), Illus Number. Gives you the number of the item illustrated.

Column (2), National Stock Number (NSN). Identifies the stock number of the item and will be used for requisitioning purposes.

Column (3), Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

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

Column (5), Unit of Issue (U/I). Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the NSN shown in column (2).

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

COMPONENTS OF END ITEM (COEI) LIST

There are no Components of End Item.

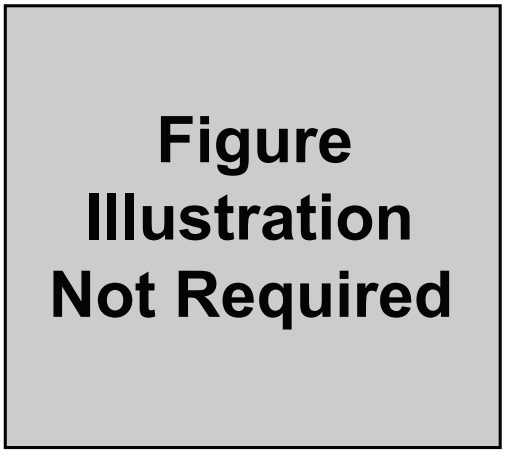


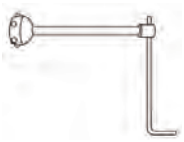
Table 1. Components of End Item (COEI) List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
		There are currently no Components of End Item for this equipment.			

Table 2. Basic Issue Items List.

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER (NSN) AND ILLUSTRATION	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1	1010-01-150-9983 	Bore Cleaning Brush Assembly, 40 mm P/N 3269511X1 (53711)		EA	1
2	1010-01-428-3233 	Bore Obstruction Detector P/N 12012055 (19200)		EA	1
3		Operator's Manual for Machine Gun, 40 mm, MK19, MOD 3 (TM 9-1010-230-10)		EA	1
4	1005-00-653-5441 	Rod, Cleaning, Small Arms (.50 caliber) (5 sections) P/N 6535441(19204)		EA	1

Table 2. Basic Issue Items List - Continued.

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER (NSN) AND ILLUSTRATION	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
5	5120-01-347-1884 	Tool, Round Removal P/N 12926849 (19200)		EA	1

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ADDITIONAL AUTHORIZATION LIST (AAL)
INTRODUCTION

INTRODUCTION

Scope

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

General

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

Explanations of Columns in AAL

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

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

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

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

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

Column (5) - Qty Recom. Indicates the quantity recommended.

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/(CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
8105-00-837-7756	Bag, Plastic, Internal Seal, Flat A-A-1799 (58536)		EA	1
1005-00-350-4100	Brush, Cleaning, Small Arms 8448466 (19204)		EA	1
1005-00-494-6602	Brush, Cleaning, Small Arms (Tooth) 8448462 (19204)		EA	1
8020-00-297-6657	Brush, Paint, Oval W/Chisel Edge (Sash) A-A-3193 (58536)		EA	1
1005-00-791-5420	Carring Case Barrel 7791009 (19200)		EA	1
1010-01-151-6277	Cover, Gun Mount, Weather 5830059 (53711)		EA	1

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EXPENDABLE AND DURABLE ITEMS LIST
INTRODUCTION

INTRODUCTION

Scope

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

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, Item 5)).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (include as applicable: C = Crew, O = AMC, F = Maintainer or ASB, H = BelowDepot or TASMG, D = Depot).

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, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

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

Table 1. Expendable and Durable Items List.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/(CAGEC)	(5) U/I
1	C	6135-00-826-4798	AAA Battery (Alkaline 12-pack)	PK
2	C	5140-00-473-6256	Bag, Tool, Satchel (Not for Army use.)	EA
3	C	6850-00-224-6657	Cleaning Compound, Rifle Bore MIL-C-372 (81349)	8 OZ
4	C	6850-01-378-2319	Cleaning Compound, Solvent 1-gallon can MIL-PRF-680 Type II (81349)	GL
5	C	5350-00-221-0872	Cloth, Abrasive Crocus B74.18 (80204)	PG
6	C	9150-00-935-4018	Grease, Molybdenum Disulfate (GMD) ROYCO 64 (07950)	14 OZ
7	C	9150-00-965-2003	Grease, Molybdenum Disulfide (GMD) MIL-G-21164	35 LB
8	C	9150-00-292-9689	Lubricating Oil (LAW) MIL-L-14107 (81349)	QT
9	C	9150-00-949-0323	Lubricating Oil (LSAT) MIL-L-46150 (81349)	8 OZ
10	C	9150-01-109-7793	Lubricating Oil (LSAT) MIL-L-46150 (81349)	LB
11	C	7920-00-205-1711	Rags, Wiping P/N 7920-00-205-1711 (80244)	50 LB

END OF WORK PACKAGE

INDEX

INDEX - Continued

INDEX - Continued

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE *Date you filled out this form.*

TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)* *Your mailing address*

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON
						SAMPLE

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name	*Your Phone Number*	*Your Signature*

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include ZIP Code)*	DATE
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

SAMPLE

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

USAPA V3.01

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE

TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-1010-230-10	31 August 2012	Operator's Manual for Machine Gun 40 MM, MK19

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPA V3.01

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include ZIP Code)*	DATE
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 9-1010-230-10	31 August 2012	Operator s Manual for Machine Gun 40MM, MK 19

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

USAPA V3.01

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE

TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*

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PUBLICATION NUMBER	DATE	TITLE
TM 9-1010-230-10	31 August 2012	Operator s Manual for Machine Gun 40MM, MK 19

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

USAPA V3.01

By Order of the Secretary of the Army:

Official

JOYCE E. MORROW
Administrative Assistant to the Secretary of the Army
1219105

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Army Distribution:

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

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General, United Sates Air Force
Chief of Staff and AFMC

By Order of the Secretary of the Navy:

JONATHAN W. GREENERT
Admiral, United States Navy
Chief of Naval Operations

By Direction of the Commandant of the Marine Corps:

J. J. STOWER
Lt. Col. U.S. Marine Corps
Product Manager, IW (PMM-113)
Marine Corps Systems Command

Marine Corps Distribution:
To be distributed in accordance with PCN 184 079822 00.

THE METRIC SYSTEM AND EQUIVALENTS

Linear Measure

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

Weights

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Pounds
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

Liquid Measure

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

Square Measure

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.0386 Sq Miles

Cubic Measure

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

Temperature

9/5 °C +32 = °F
5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius

APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

To Change	To	Multiply By
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

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