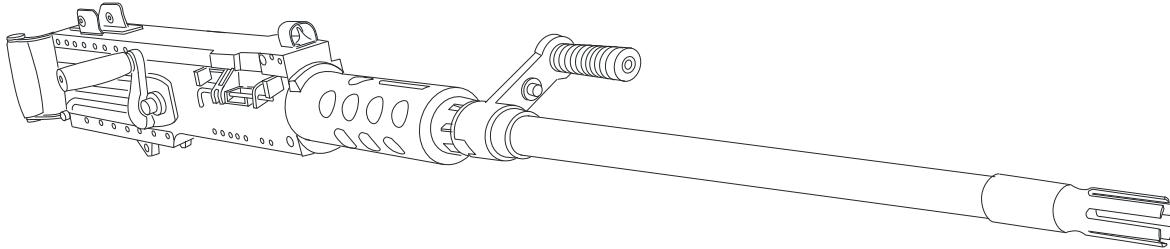


**TECHNICAL MANUAL  
FIELD MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)  
FOR  
MACHINE GUN, CALIBER .50: M2A1  
W/FIXED HEADSPACE AND TIMING  
NSN 1005-01-511-1250 (EIC 4AZ)**



**M2A1 MACHINE GUN**

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**DEPARTMENTS OF THE ARMY AND AIR FORCE,  
AND COMMANDANT OF THE MARINE CORPS  
JULY 2011**



## WARNING SUMMARY

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### FIRST AID

- Army users should refer to FM 4-25.11.
  - Air Force users should refer to AFMAN 44-163(l).
  - Marine Corps users should refer to MCRP 3-02G.
- 

### EXPLANATION OF SAFETY WARNING ICONS



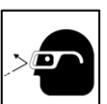
**EAR PROTECTION** - headphones over ears shows that noise level will harm ears.



**ELECTRICAL** - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.



**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 eyes.



**FLYING PROJECTILE** – spring loaded parts could release and hit body causing injury or death.



**HOT AREA** - hand over object radiating heat shows that part is hot and can burn.



**WEAPON FIRE** - accidental discharge of a weapon could penetrate the body causing serious injury or death.

**GENERAL SAFETY WARNINGS DESCRIPTION****WARNING****EXPLOSION**

Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction.

- Ensure that during barrel installation the square on the barrel extension is **NOT** pulled back **PAST** the 3/8 in. hole on the right side of the receiver or the barrel will not be attached to the barrel extension.
- Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.
- Maintain thumb pressure on buffer accelerator while installing barrel buffer assembly and barrel extension assembly into receiver.

Failure to comply may result in serious injury to personnel.

**WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

- DO NOT release the bolt or press the trigger.
- Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.
- DO NOT keep live ammunition in work area.

Failure to comply may result in serious injury to personnel.

**WARNING****HOT BARREL**

M2A1 can become extremely hot. After firing, ensure sufficient time is allowed for weapon to cool before performing inspection or cleaning procedures. If injury occurs, seek medical attention immediately. Failure to comply may result in serious injury to personnel.

**GENERAL SAFETY WARNINGS DESCRIPTION - Continued****WARNING****HEADSPACE AND TIMING**

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. The following guidelines should be strictly enforced to prevent improper headspace and timing issues:

- Headspace and timing must be verified at unit armor prior to issuing. M2A1 headspace and timing adjustment is performed at field support maintenance.
- All M2A1 machine guns must be inspected and gaged at least once annually for safety and serviceability. Air Force users refer to inspection requirements in Air Force Regulation (AFR) 50-36 and Air Force Pamphlet (AFP) 50-63, Volume 1. All USMC units will conduct Annual gaging for safety and serviceability.
- Do not insert any object such as coin or feeler gage between the barrel extension and trunnion block while retracting the bolt to adjust headspace. Placing an object between the barrel extension and trunnion can cause excessive headspace adjustment and possible damage to the weapon or injury to personnel
- All Army Reserve and National Guard M2A1 machine guns must be inspected and gaged at least once every two years, after the initial inspection/gaging procedures have been accomplished. This two year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M2A1 machine guns require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection. Ensure M2A1 headspace and timing check and adjustment has been performed by Field maintenance personnel
- As long as the Wear-Limit Gage indicates the weapon to be acceptable, the barrel(s) can be changed and fired as required. Once the weapon accepts the Wear-Limit Gage (.212 in.), (usually beyond at least 30,000 rounds of firing), Headspace Servicing may be required.

Failure to comply may result in serious injury to personnel.

## GENERAL SAFETY WARNINGS DESCRIPTION – Continued

### WARNING



#### BOLT LATCH ASSEMBLY SPRING

The spring in the bolt latch assembly is under heavy compression and could cause injury if released accidentally. Use caution when assembling or disassembling the bolt latch assembly. To avoid injury, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

### WARNING



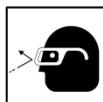
#### BACKPLATE SPRING

The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- DO NOT attempt to charge machine gun without the backplate assembled to machinegun.
- Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
- DO NOT stand behind the weapon while removing backplate assembly.
- Stand to one side of the weapon when removing backplate assembly.

Failure to comply may result in serious injury to personnel.

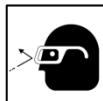
### WARNING



#### EYE HAZARDS

Machining operations are an eye hazard. To avoid injury to your eyes, use care when machining metal parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

### WARNING



#### EYE HAZARDS

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

## 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.



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



**FIRE** – flame shows that a material may ignite and cause burns.



**VAPOR** – human figure in a cloud shows that material vapors present a danger to life or health.

## HAZARDOUS MATERIALS DESCRIPTION

### WARNING



### CABON REMOVING COMPOUND (CRC)

Avoid skin contact with carbon removing compound (CRC) (item 10, WP 0057). The compound should be washed off thoroughly with running water if it comes in contact with the skin. A good lanolin base cream, after exposure to compound, is helpful. Use of chemical resistant gloves (item 22, WP 0057) and protective equipment is required.

### WARNING



### SOLVENTS AND PAINT THINNERS

Cleaning Compound Solvents and paint thinners are flammable. Do not clean parts near an open flame or in a smoking area. Make sure adequate ventilation is available. Wear safety glasses or splash goggles and protective gloves. Always know location of nearest eye wash station. Dry cleaning solvents and paint thinners evaporate quickly and have a drying effect on the skin. When used without protective gloves, these chemicals may cause irritation to, or cracking of, the skin.

**DEFINITION OF THE FOLLOWING ALERTS THROUGHOUT THIS MANUAL:**

**WARNING** – Identifies a clear danger to the person doing that procedure.

**CAUTION** – Identifies risk of damage to the equipment.

**NOTE** – Used to highlight essential procedures, conditions, statements, or convey important instructional data to the user.

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**LIST OF EFFECTIVE PAGES/WORK PACKAGES**

**NOTE:** Zero in the "Change No." column indicates an original page or work package.

Date of issue for original pages/work packages is:

Original ..... 0 ..... 29 Jul 2011

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 34 AND TOTAL NUMBER OF WORK PACKAGES IS 57 CONSISTING OF THE FOLLOWING:

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Front Cover .....	0	WP 0026 00 (4 pages).....	0
Title .....	0	WP 0027 00 (4 pages).....	0
a-f.....	0	WP 0028 00 (2 pages).....	0
A/B Blank .....	0	WP 0029 00 (2 pages).....	0
Blank .....	0	WP 0030 00 (2 pages).....	0
i – vi/blank .....	0	WP 0031 00 (2 pages).....	0
Blank .....	0	WP 0032 00 (6 pages).....	0
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WP 0003 00 (2 pages).....	0	Blank .....	0
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WP 0021 00 (4 pages).....	0	DA Form 2028.....	0
WP 0022 00 (4 pages).....	0	Metric Chart .....	0
WP 0023 00 (2 pages).....	0	Back Cover .....	0
WP 0024 00 (8 pages).....	0		
WP 0025 00 (2 pages).....	0		



HEADQUARTERS,  
DEPARTMENTS OF THE ARMY,  
AIR FORCE AND  
COMMANDANT OF THE MARINE CORPS  
Washington, D.C., 29 July 2011

TECHNICAL MANUAL

FIELD MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

MACHINE GUN, CALIBER .50: M2A1 W/FIXED  
HEADSPACE AND TIMING NSN 1005-01-511-1250 (EIC 4AZ)

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet on the TACOM Unique Logistics Support Applications (TULSA) Web 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. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP/TECH PUBS, MS 727, 6501 E. 11 Mile Rd., Warren, MI 48397-5000. The e-mail address is [tacolcmc.daform2028@us.army.mil](mailto:tacolcmc.daform2028@us.army.mil). The fax number is DSN 786-1856 or Commercial (586) 282-1856. A reply will be furnished to you.

Air Force users will submit requests for changes or reports of errors utilizing AFTO Form 22, Technical Manual (TM) Change Recommendation and Reply, in accordance with the guidance in Air Force Technical Order 00-5-1.

USMC users will submit by NAVMC Form 10772 directly to Commander, Marine Corps Systems Command, Attn: Assistant Commander Acquisition and Logistics (LOG/TP), 814 Radford Blvd., Suite 20343, Albany, Georgia 31704-0343. You may also send in your recommended changes via electronic mail. Our email address is <mailto:smb.log.tech.pubs.fct@usmc.mil>. A reply will be sent to you.

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# HOW TO USE THIS MANUAL

## GENERAL

This manual has been prepared and illustrated to provide field maintenance all the information required to support the M2A1 machine gun. To locate a work package (WP) of the manual quickly, check the Table of Contents in the front of the manual or the alphabetical index in the back of the manual.

- a. References are to work packages in this manual or to other publications.
- b. Throughout this manual, text is keyed to the illustrations by use of numbered callouts. When an item is called out in a work package, a number in parentheses in the text corresponds with a number on the illustration. A broken lined arrow indicates the object is hidden.
- c. Each task begins with an initial setup. It tells you what you need to do the task: tools, materials, parts, and other publications. It tells you what must be done to the equipment before you begin the task and provides general safety instructions.
- d. Unless otherwise specified, maintenance instructions and procedures apply to both M2 and M2A1 configurations.

## INDEXES

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

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

## LISTS

- a. Metric/US Customary Measurement Chart. Measurements in this manual are given in both metric and US customary units. The table inside the back cover compares metric measurements to their equivalent US customary units. Also provided are conversion factors to convert metric units to US customary units.
- b. Nomenclature Cross-Reference List. Throughout this manual, most items are referred to by their official nomenclature. In the list, the items referred to by their common names are listed alphabetically, followed by their official nomenclature.
- c. List of Abbreviations. An alphabetical list of uncommon abbreviations used in the manual is located in WP 0001 00.

## **MAINTENANCE PROCEDURES**

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

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

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

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

References—Lists other publications containing necessary information.

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

- b. Step-By-Step Procedures. Step-by-step procedures are illustrated procedures for maintenance authorized in the maintenance allocation chart (MAC). For replacement of parts, see WP 0038 00 through WP 0053 00.

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

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

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

- d. Callouts. A dashed callout arrow in an illustration indicates the part being called out is hidden, i.e., you can't see it on the illustration.

## **SUPPORTING INFORMATION**

- a. References. Contains a list of other manuals you might need to do your job.
- b. Maintenance Allocation Chart. Contains equipment group number, component or assembly name, maintenance function (service, repair, replacement, inspection, or tests), maintenance level (Field), tools and equipment, and remarks (any helpful information to help you get the job done right).
- c. Repair Parts and Special Tools List. Contains assembly breakdown (figure), assembly repair parts list, National Stock Number index, and Part Number index.
- d. Expendable and Durable Items List. Contains a list of expendable/durable supplies and materials you will need to operate and maintain the M2A1 machine gun.

## **CHAPTER 1**

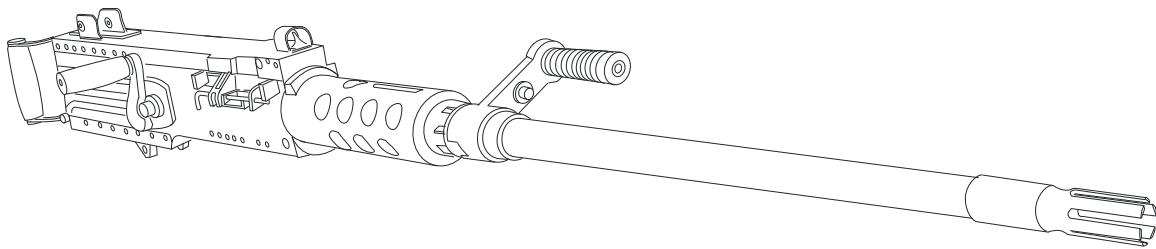
### **GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****GENERAL INFORMATION**

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**M2A1 MACHINE GUN  
(13006168)****SCOPE**

- a. Type of Manual. This technical manual includes Field Maintenance; a Repair Parts and Special Tools List (RPSTL) and a Maintenance Allocation Chart (MAC).
- b. Model Number and Equipment Name. This technical manual includes procedures for the M2A1, Caliber .50 Machine gun.
- c. Purpose of Equipment. To provide automatic weapon suppression fire for offensive and defensive purposes. This weapon can be used effectively against personnel; light armored vehicles; low, slow flying aircraft; and small boats.

**MAINTENANCE FORMS, RECORDS, AND REPORTS**

(A) Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual; DA PAM 738-751, or AR 700-138, Army Logistics Readiness and sustainability,

(MC) Maintenance forms and records used by Marine Corps personnel are prescribed by TM 4700-15/1.

(F) Maintenance forms and records used by Air Force personnel are prescribed in AFI 21-01 and Air Force Technical Order 00-5-1.

**REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)**

If your M2A1 machinegun 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. If you have Internet access, the easiest and fastest way to report problems or suggestions is to follow the instructions and links below:

For ALL non-Aviation/Missile Warranty, EIR and PQDRs must be submitted through the Web Product Quality Deficiency Reporting (PQDR) site.

New accounts can be established at the following address:

<http://www.nsclcptsmh.csd.disa.mil/accessforms/uarform.htm>.

If an account has already been established, the web site for submitting an EIR, PQDR, etc. is  
<http://www.nsclcptsmh.csd.disa.mil/webpqdr/webpqdr.htm>.

(F) Air Force users should send an AFTO Form 22 through your respective MAJCOM in the Computer-aided Acquisition and Logistics Support (JACALS) system. Follow guidance IAW section 5 of the Air Force Technical Order 00-5-1.

Marine Corps users shall submit SF 368s in accordance with MCO 4855.10. PQDRs should be submitted via the Product Data Reporting and Evaluation Program (PDREP) at  
<http://www.nsclcptsmh.csd.disa.mil/pdrep/pdrep.htm>. As an alternative, non-encrypted PQDRs may be submitted via the same site using the On-Line EZ-PQDR feature (when submitted via EZ, a PDREP User ID is not required; however a CAC is required).

**CORROSION PREVENTION AND CONTROL (CPC)**

Corrosion Prevention and Control (CPC) of 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 UV) 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 Management System (TAMMS) Users Manual.

SF Form 368 should be submitted to: ATTN: AMSRD-TAR-E/PQDR, 6501 E. 11 Mile Road, Warren, MI 48397-5000. Commercial (586) 574-5666. Email: [dami\\_tacomdrs@conus.army.mil](mailto:dami_tacomdrs@conus.army.mil).

Air Force users submit a Quality Deficiency Report (QDR) IAW Technical Order 00-35-D-54, Materiel Deficiency Reporting and Investigating System and Air Force Joint Manual (AFJMAN) 23-215 Reporting of Supply Discrepancies. Air Force Personnel will utilize the Joint Deficiency Reporting System (JDRS) to make any Quality Product Deficiencies Reports (PQDR).

## **DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE**

Refer to TM 750-244-7 for procedures concerning destruction of material to prevent enemy use.

## **PREPARATION FOR STORAGE OR SHIPMENT**

Refer to WP 0035 00.

Air Force users will prepare the weapon for shipment and storage according to the appropriate Specialized Packaging Instructions (SPI). SPI's can be found at <https://spires.wpafb.sindex.cfm>

## **NOMENCLATURE CROSS-REFERENCE LIST**

<u>Common Name</u>	<u>Official Nomenclature</u>
Accelerator pin assembly	Spring pin
Barrel assembly	Backplate latch Manual control lever (6008949)
Barrel buffer assembly	Machine gun barrel
Barrel carrier assembly	Recoil mechanism buffer
Barrel locking spring	Barrel manual control handle (5504080)
Bolt stud	Flat spring (7266134)
Bolt switch	Headless shoulder pin
Breech lock pin	Alternate feed knob
Buffer tube	Spring pin
Frame	Metallic tube
M2A1	Upper manual control handle (6008937)
Retaining pin	M2A1 Machine Gun with fixed headspace and timing
Safety wire	Headless straight pin
Sear slide	Non-electrical wire
Timing adjustment nut	Sear
Trigger block	Knurled plain nut
Trigger lever	Small arms safety
	Lock-release lever

## **LIST OF ABBREVIATIONS**

CPC .....	Corrosion Prevention and Control
HB .....	Heavy Barrel
HMMWV .....	High Mobility Multipurpose Wheeled Vehicle
MAC .....	Maintenance Allocation Chart
MDR.....	Materiel Deficiency Report
PMCS.....	Preventive Maintenance Checks and Services
PQDR.....	Product Quality Deficiency Report
QDR.....	Quality Deficiency Report
RPSTL .....	Repair Parts and Special Tools List

## **QUALITY OF MATERIEL**

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

**SAFETY, CARE, AND HANDLING OF AMMUNITION**

Refer to AR 385-10, The Army Safety Program, and DA PAM 385-64, Ammunition and Explosives Safety Standards, for general ammunition safety, care, and handling.

Air Force users will follow the guidance in Air Force Instruction (AFI) 21-201 Conventional Munitions Maintenance Management.

**COMMON TOOLS AND EQUIPMENT**

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items, as applicable to your unit.

**END OF WORK PACKAGE**

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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****EQUIPMENT DESCRIPTION AND DATA**

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**EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES**

The M2A1, caliber .50, Flexible Barrel Machine Gun is a link-belt fed, recoil-operated, air-cooled, crew-served machine gun. The machine gun is capable of firing single-shot and automatic; is capable of right-hand or left-hand feed. It is used as a ground gun mounted on M3 tripod mount, MK 26 MOD 0-14, MK 64 mount, and MK93 mount or is installed on M66 ring mount of several types of combat vehicles.

The M2A1, caliber .50, w/Fixed Headspace and Timing Machine Gun operates in the same manner as the standard .50 caliber machine gun. However, it offers added features, which include fixed headspace and timing, quick change barrel, and backplate trigger block.

All major components of the .50 Cal. M2A1 are interoperable. The Barrel Extension Assembly and Bolt have been serialized to remain together as an assembly. If a new Barrel Extension or Bolt is required, servicing the headspace and timing will be necessary. If any parts of the Barrel Extension Assembly or Bolt is interchanged, headspace and timing must be reset.

**NOTE**

Do not attempt to remove the Breech Lock from the Barrel Extension. It is not intended for the Breech Lock to be removed during cleaning. Pinning the Breech Lock insures that the assigned Breech Lock/Barrel Extension combination is maintained, thus insuring proper headspace.

The M3 tripod mount is a portable, folding mount which permits a high degree of accuracy and control of fire. For use of M3 tripod mount, refer to TM-9-1005-245-13&P.

The MK93 mount is a universal machine gun mount for ground deployment. Army and USMC users refer to TM 9-1010-231-13&P. Air Force users refer to TO 11W2-6-3-172.

MK64/MK 93 MOD 1 is a component assembly designed as a defensive ground mount for the MK19 MOD 3 and M2 HB machine guns onto the HMMWV ring assembly. It is composed of MK 93 MOD 2 machine gun mount, .50 caliber ammo holder assembly, mounting bracket, catch bag assembly, universal pintle adapter (UPA), and traverse and elevation mechanism (T&E).

**LOCATION AND DESCRIPTION OF MAJOR COMPONENTS**

Refer to TM 9-1005-347-10.

**EQUIPMENT DATA**

Weight of gun (receiver/barrel) (approx) .....	82 lb (37.22 kg)
Weight of barrel .....	25.6 lb (11.62 kg)
Length of gun .....	67.75 in. (172.10 cm)
Length of barrel(with flash suppressor attached) .....	47 in. (119.38 cm)
Length of rifling (approx).....	41.88 in. (106.38 cm)
Number of lands and grooves.....	8
Twist, right-hand .....	one turn in 15 in. (38.10 cm)
Feed.....	link-belt
Operation .....	short recoil
Cooling.....	air
Muzzle velocity (approx) .....	2,910 f/s (886.97 m/s) ± 30 f/s (9.14 m/s)
Maximum range (approx) .....	7,440 yd (6,803 m)
Maximum effective range (approx).....	2,000 yd (1,829 m)
Cyclic Rate .....	450-600 rpm

**RATES OF FIRE****NOTE**

For Abrams series tanks, refer to FM 17-12-1.

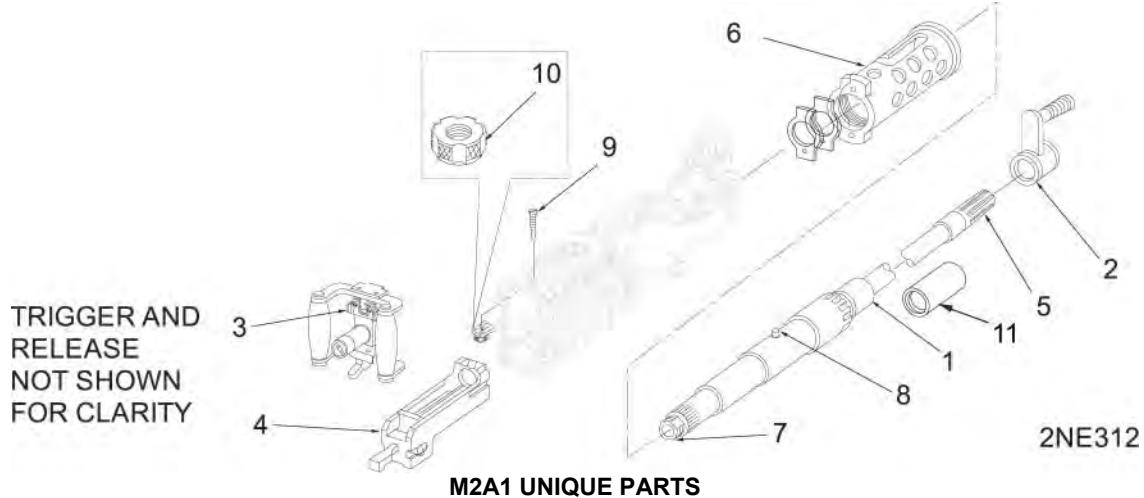
**SINGLE SHOT** - Place gun in single shot mode and engage target with well-aimed shots. The caliber .50 machine gun is extremely accurate and can effectively engage targets out to 2,000 yd (1,829 m). Change barrel at end of firing session, or if the barrel is damaged.

**SLOW FIRE** - Slow fire is less than 40 rounds per minute, fired in bursts of six to nine rounds, at 10-15 second intervals. Change barrel at the end of firing session, or if the barrel is damaged.

**RAPID FIRE** - Rapid fire is greater than 40 rounds per minute, fired in bursts of six to nine rounds, at 5-10 second intervals. Change barrel every hour, or if the barrel is damaged.

**CYCLIC RATE** - This rate represents the maximum amount of ammunition that can be expended by a gun without a break in firing. The cyclic rate of this caliber .50 machine gun is 450 to 600 rounds per minute.

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****THEORY OF OPERATION****PRINCIPLES OF OPERATION**

Barrel Assembly. Composed of barrel (1) and barrel carrier assembly (2). Barrel carrier assembly permits quick removal or installation of barrel and is secured to locking and retaining grooves of barrel.

The trigger block (3) is located at the top of the backplate assembly.

**WARNING**

During reassembly, the bolt and barrel extension serial numbers must match the last four digits of the receiver serial number to maintain headspace, and prevent gun malfunctions and serious injury.

Barrel Extension Assembly (4). Recoiling groups/parts of the weapon are locked completely together during recoil for 0.75 in. (1.91 cm) after firing. During recoil, the barrel extension assembly causes tips of the accelerator to rotate rearward. Located in the forward area inside the receiver assembly. The M2A1 barrel extension includes a breech lock specifically fitted to maintain the M2A1 fixed headspace. If any parts of barrel extension or bolt is interchanged, headspace and timing must be reset.

Flash Suppressor (5). Reduces muzzle flash when firing. Installed on the muzzle end of barrel.

Barrel Support Alignment and Retention Slots (6). Correctly align and secure the M2A1 quick change barrel.

Interrupted Threads (7). Allow for M2A1 quick barrel changes without prolonged operator exposure.

Barrel Lock Pin (8). Mates with the alignment and retention slots to properly position the M2A1 quick change barrel.

Fixed Timing Lock Screw (9) and Adjustment Nut (10). Provides fixed timing in conjunction with the M2A1 quick change barrel and fixed headspace.

Barrel Cap (11). Placed on Barrel for protection and when using BFA.

**END OF WORK PACKAGE**



**CHAPTER 2**

**TROUBLESHOOTING  
PROCEDURES**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****TROUBLESHOOTING INDEX**

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**GENERAL**

- a. Troubleshooting procedures are limited to those listed in the troubleshooting symptom index. Common malfunctions are listed in cycle of function order with a page number reference to the symptom table where a test or inspection and corrective action are provided.
- b. 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 your supervisor.

**SYMPTOM INDEX**

<u>Symptom</u>	<u>Work Package/Page</u>
Bolt Assembly Is Improperly Installed.....	WP 0005 00-14
Bolt Will Not Lock.....	WP 0005 00-6
Round Will Not Chamber.....	WP 0005 00-5
Weapon Has Uncontrolled Fire .....	WP 0005 00-13
Weapon Will Not Cock.....	WP 0005 00-12
Weapon Will Not Eject.....	WP 0005 00-11
Weapon Will Not Extract.....	WP 0005 00-10
Weapon Will Not Feed.....	WP 0005 00-1
Weapon Will Not Fire.....	WP 0005 00-7
Weapon Will Not Unlock.....	WP 0005 00-9

**NOTE**

Refer to operator's manual (TM 9-1005-347-10) for disassembly and assembly.

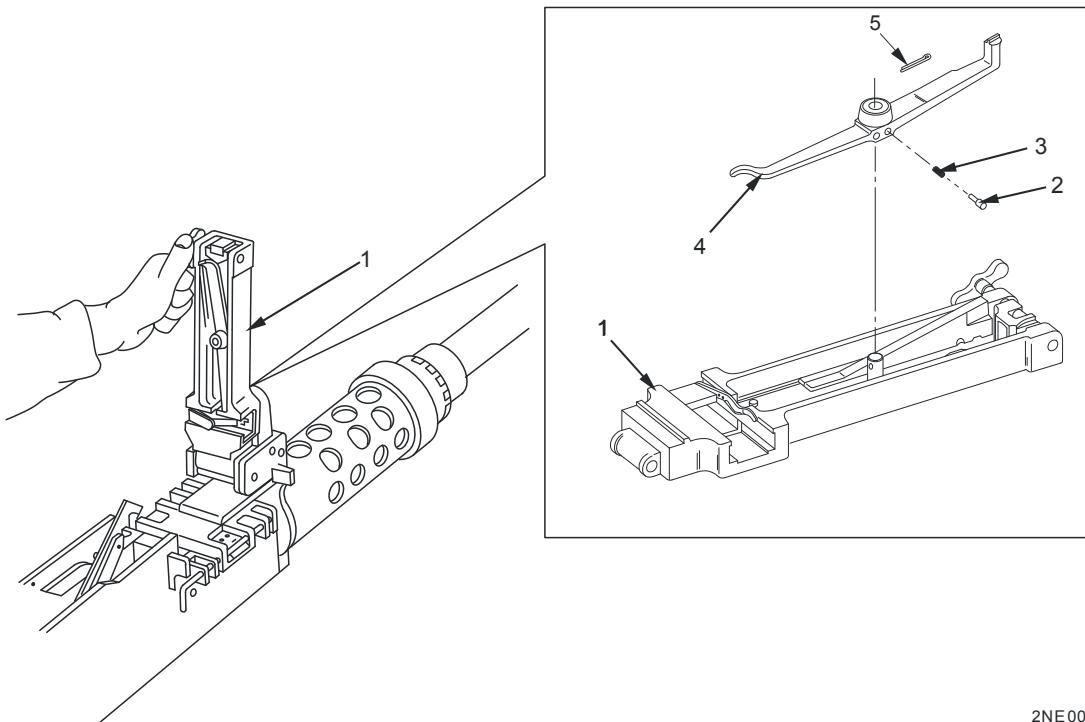
Check headspace and timing BEFORE beginning troubleshooting procedures. Verify headspace; if headspace verification fails, headspace adjustment must be performed by maintenance personnel. Refer to WP 0032 and WP 0033.

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****TROUBLESHOOTING PROCEDURES****TROUBLESHOOTING PROCEDURES****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****1. WEAPON WILL NOT FEED.**

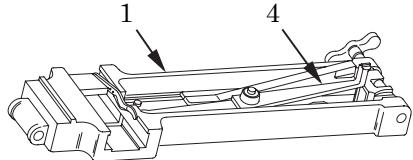
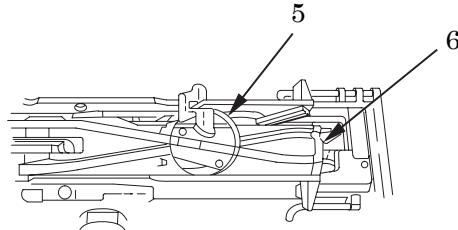
Step 1. Check cover assembly (1) for broken or bent shoulder pin (2); broken or collapsed coils on spring (3); burred, broken, or bent belt feed lever (4) or missing cotterpin/lock pin (5).



Replace defective shoulder pin (2), spring (3), and/or belt feed lever (4) on cover assembly (WP 0013 00).

**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****1. WEAPON WILL NOT FEED - Continued.**

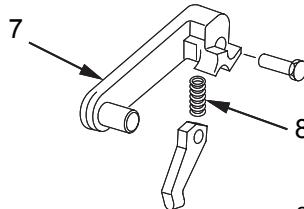
- Step 2. Check bolt switch (5) in bolt assembly (6) or belt feed lever (4) in cover assembly (1) for improper assembly.



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Reassemble bolt switch (5) (TM 9-1005-347-10) or belt feed lever (4) (WP 0013 00).

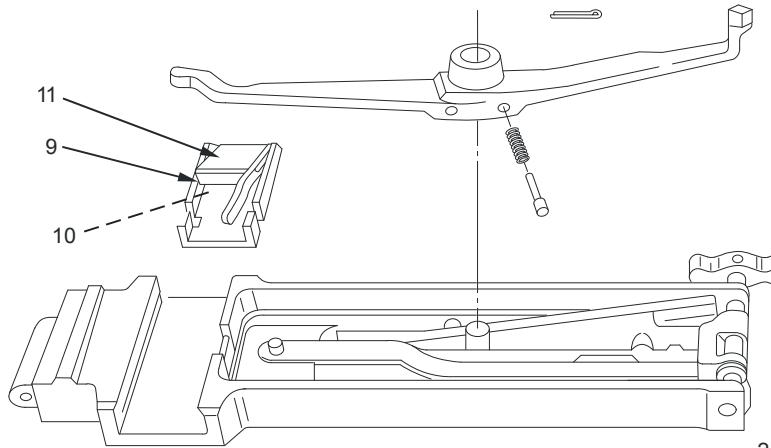
- Step 3. Check for defective cartridge extractor (7) and deformed, collapsed, elongated, or incorrectly installed ejector spring (8). Check for broken or collapsed coils on spring.



2NE009

Replace defective spring (8) (WP 0018 00)

- Step 4. Check belt feed slide assembly (9) for defective spring (10) under belt feed pawl (11).



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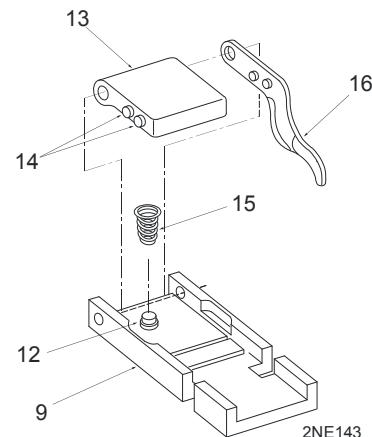
Replace defective spring (10) (WP 0013 00).

**NOTE**

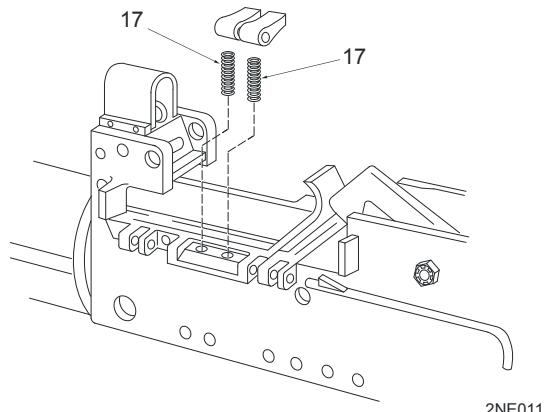
Ensure spring is installed properly and is not installed upside down.

- Step 5. Check for burred, broken, or bent belt feed slide assembly (9); broken or bent stud (12); burred, broken, or cracked belt feed pawl (13); bent or missing pins (14); broken or collapsed coils on spring (15); or broken or cracked belt feed pawl arm (16).

Replace defective belt feed slide assembly (9), belt feed pawl (13), belt feed pawl arm (16), or spring (15) (WP 0014 00).

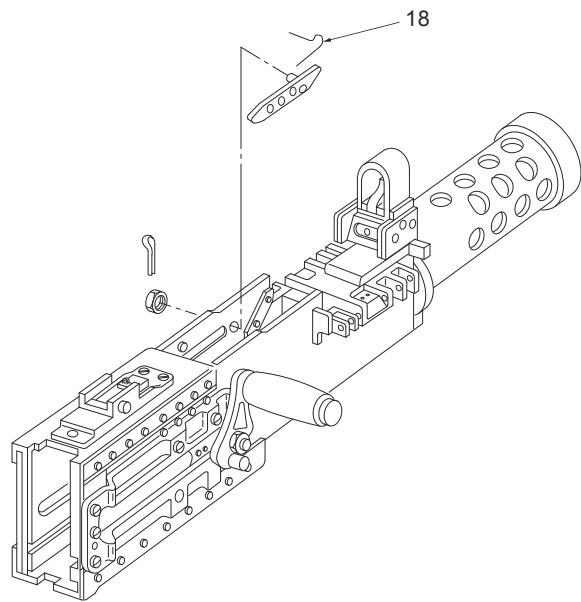


- Step 6. Check for broken or collapsed coils on belt holding pawl springs (17).



Replace defective belt holding pawl springs (17) (WP 0014 00).

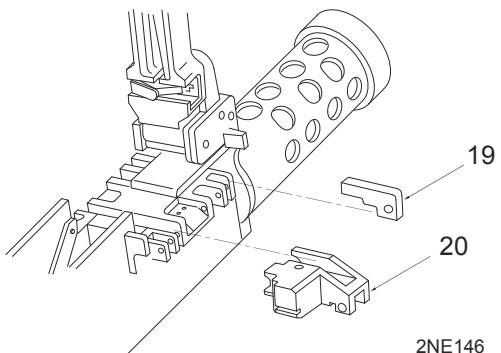
- Step 7. Check for defective (deformed) extractor switch spring (18). Check for proper (crisp) spring action.



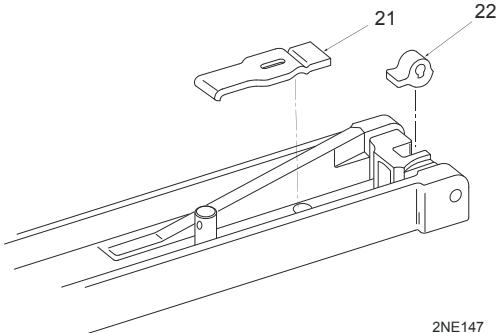
**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****1. WEAPON WILL NOT FEED - Continued.**

- Step 8. Check for burred, broken, or cracked front cartridge stop (19) or rear cartridge stop assembly (20).

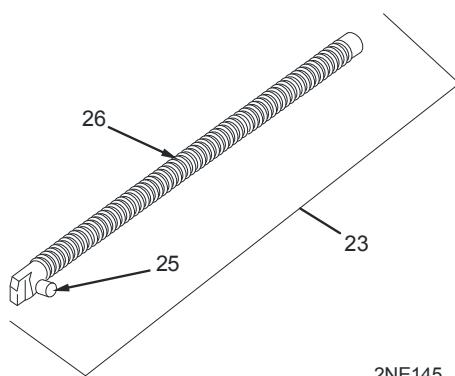
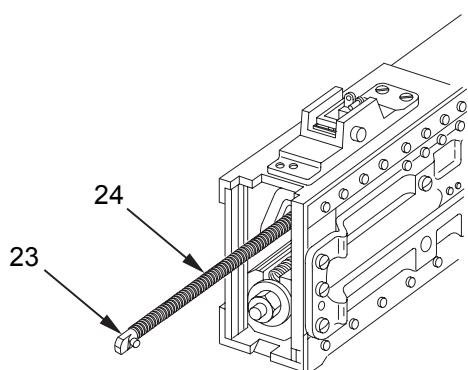
Repair (WP 0023 00) or replace (WP 0011 00) defective rear cartridge stop assembly (20). Replace defective front cartridge stop (19) (WP 0011 00).



- Step 9. Check for broken flat spring (21). Ensure flat spring has retained its tension. Check for burred or broken cover latch (22).



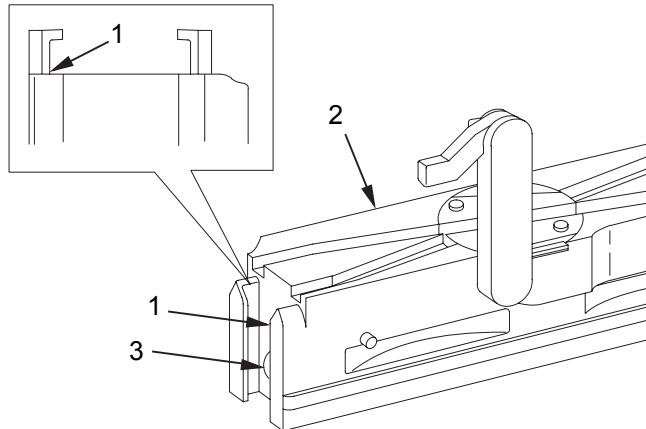
- Step 10. Check drive spring rod assembly (23) for defective rod and springs (24). Check for bent/cracked drive spring rod assembly (23) and/or broken/cracked pin (25). Check for broken/cracked or collapsed coils on spring (26).



Replace defective drive spring rod assembly (23) (WP 0011 00).

## 2. ROUND WILL NOT CHAMBER.

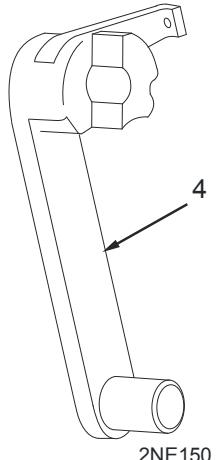
- Step 1. Check for bent, broken, or cracked T-slot (1) in bolt (2) or cracked, broken, or pitted recoil plate (3).



Replace defective bolt assembly (WP 0018 00).

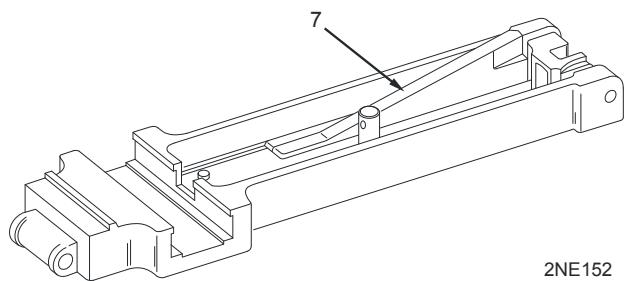
- Step 2. Check for burred, broken, or bent cartridge extractor (4).

Replace defective cartridge extractor (4) (WP 0018 00).



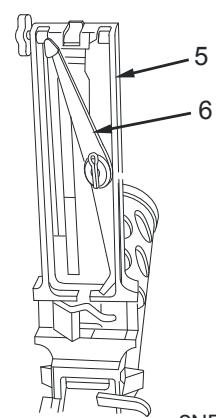
2NE150

- Step 3. Check top cover assembly (5) for bent or broken belt feed lever (6).  
Check for burred, scored, loose, or deformed cam (7).



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Replace defective belt feed lever (6) (WP 0013 00).

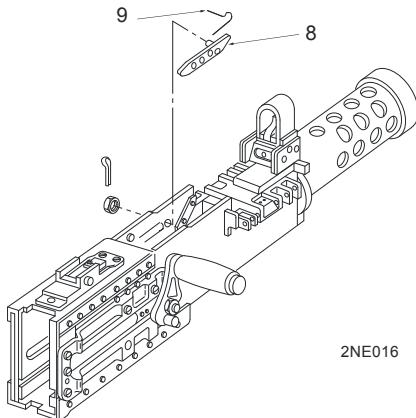


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**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****2. ROUND WILL NOT CHAMBER - Continued.**

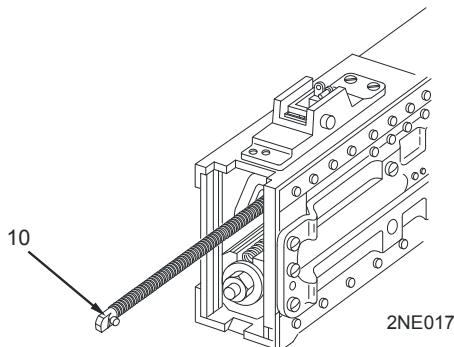
- Step 4. Check for defective extractor switch (8) or deformed extractor switch spring (9). Check for proper (crisp) spring action.

Replace extractor switch (8) or extractor switch spring (9) (WP 0016 00)



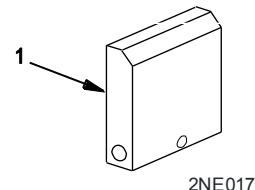
- Step 5. Check for defective drive spring rod assembly (10).

Replace drive spring rod assembly (10) (WP 0011 00).

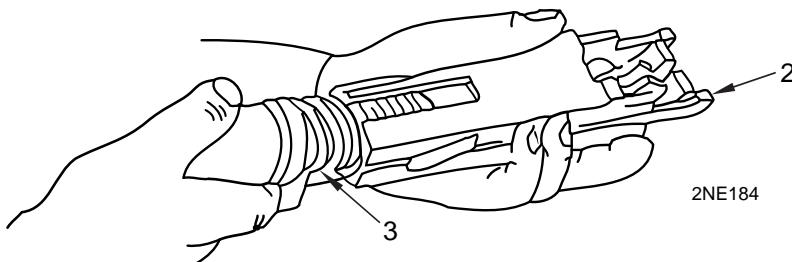
**3. BOLT WILL NOT LOCK.**

- Step 1. Check for chipped, cracked, broken, or improperly assembled breech lock (1).

Replace defective breech lock (1) (WP 0011 00) or install properly (WP 0030 00).



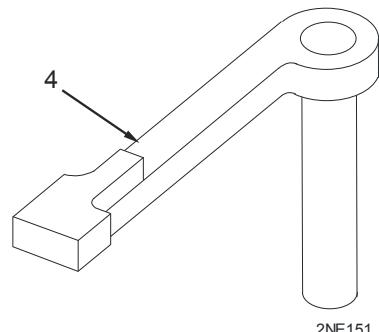
- Step 2. Check for burred, cracked, chipped, or broken buffer accelerator (2) or broken or collapsed coils on spring (3).



Replace defective buffer accelerator (2) or spring (3) (WP 0019 00).

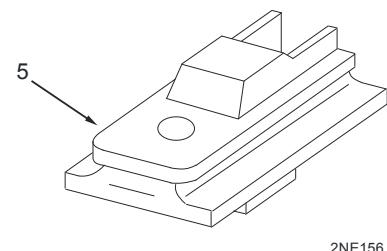
Step 3. Check for burred, broken, or bent sear stop and pin (4).

Replace defective sear stop and pin (4) (WP 0028 00).



Step 4. Adjust breech lock cam (5) (WP 0024 00), if required, and/or check for burred, scored, or deformed breech lock cam.

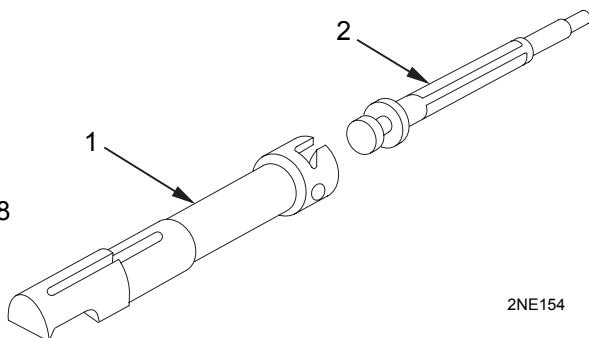
Replace defective breech lock cam (5) (WP 0015 00).



#### 4. WEAPON WILL NOT FIRE.

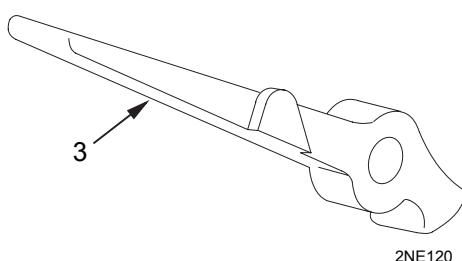
Step 1. Check for defective firing pin extension assembly (1) and burred, broken, cracked, or bent firing pin (2).

Replace defective firing pin (2) (WP 0018 00).



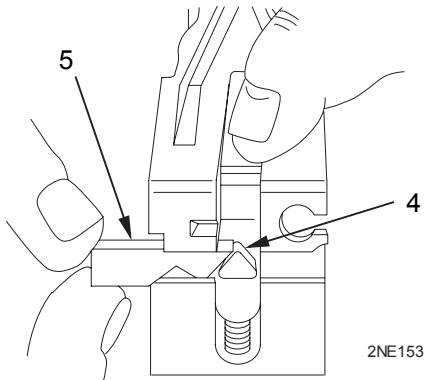
Step 2. Check for burred, broken/cracked, or bent cocking lever (3). Check for improper assembly.

Replace defective cocking lever (3) (TM 9-1005-347-10) or install cocking lever properly.



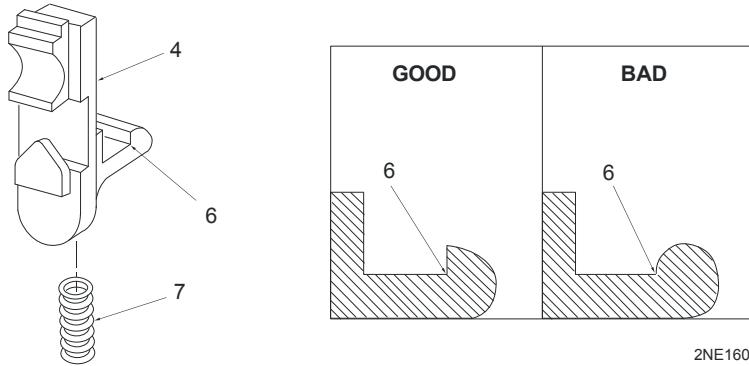
**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****4. WEAPON WILL NOT FIRE. - Continued.**

Step 3. Check bolt assembly for defective sear (4) or improper assembly of sear slide (5).



Replace defective sear (4) (TM 9-1005-347-10) or install sear slide (5) properly.

Step 4. Check for burred or broken sear (4). Ensure sear notch (6) has a sharp edge and is not chipped or broken. Check for elongated, broken, or collapsed coils on sear spring (7).



Replace defective sear (4) or sear spring (7).

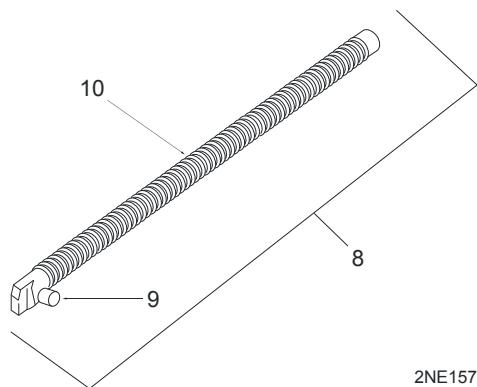
Step 5. Check bolt assembly for defective (collapsed, elongated, or incorrectly installed) sear spring (7). Check for proper (crisp) spring action.

Replace defective sear spring (7) (TM 9-1005-347-10).

#### 4. WEAPON WILL NOT FIRE - Continued.

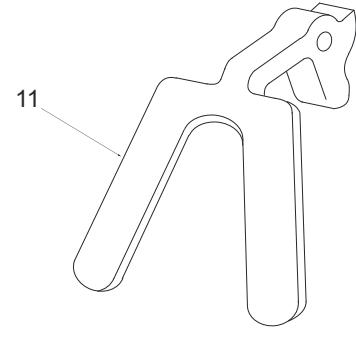
- Step 6. Check for bent/cracked drive spring rod assembly (8), broken/cracked pin (9), broken/cracked or collapsed coils on rod springs (10).

Replace defective drive spring rod assembly (8) (WP 0011 00).



- Step 7. Check for bent/cracked or broken trigger (11).

Replace defective trigger (11) (WP 0017 00).



#### 5. WEAPON WILL NOT UNLOCK.

- Step 1. Check for obstruction in receiver group.

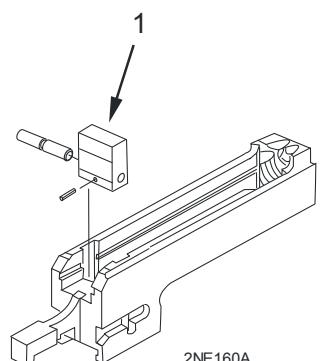
Remove obstruction.

##### NOTE

M2 and M2A1 breech locks are not interchangeable.

- Step 2. Check for chipped, cracked, broken, or improperly assembled breech lock (1).

Replace defective breech lock (1) (WP 0011 00) or install breech lock properly.



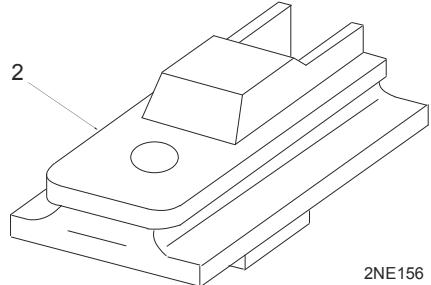
- Step 3. Check bolt assembly bottom slot that matches up with the breech lock (1) in barrel extension for burrs, cracks, and chipping.

Bolt assembly with minor gouging and/or imperfections in locking lug(s) causing no degradation in performance is acceptable. Remove the minor gouging/imperfection by stoning.

**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****5. WEAPON WILL NOT UNLOCK - Continued.**

- Step 4. Adjust breech lock cam (2) (WP 0015 00), if required, and/or check for burred, scored, or deformed breechlock cam.

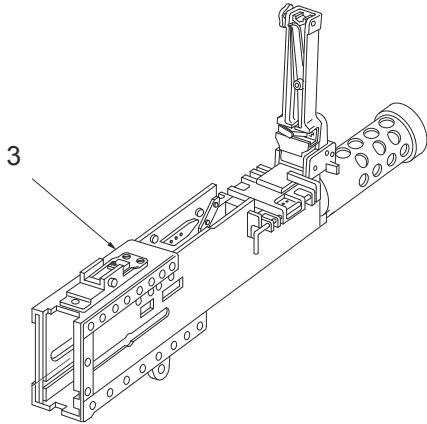
Replace defective breech lock cam (2) (WP 0015 00).



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- Step 5. Check for any obstruction in receiver (3).

Remove obstruction.

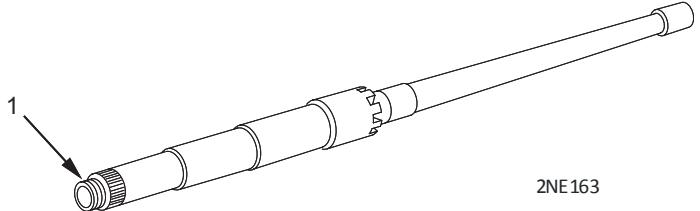


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**6. WEAPON WILL NOT EXTRACT.**

- Step 1. Check for defective (pitted) chamber (1) and burred or chipped threads and locking lugs.

Replace barrel assembly (WP 0011 00).



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- Step 2. Check for burrs on rails (2) of barrel extension assembly.

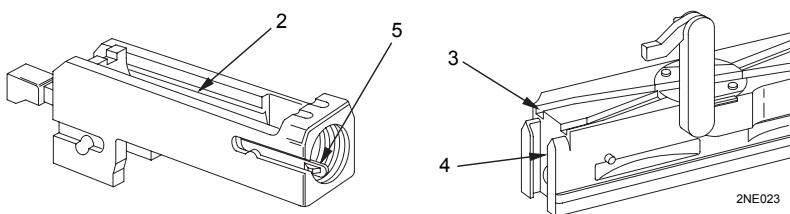
Remove burrs.

- Step 3. Check for burrs on rails (3) of bolt assembly.

Remove burrs.

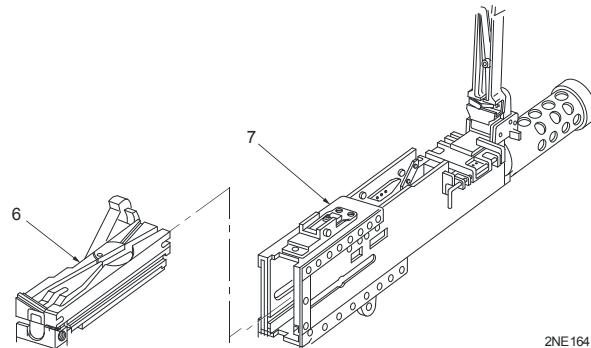
- Step 4. Check for broken T-slot (4) in bolt.

- Step 5. Check barrel locking spring (5).



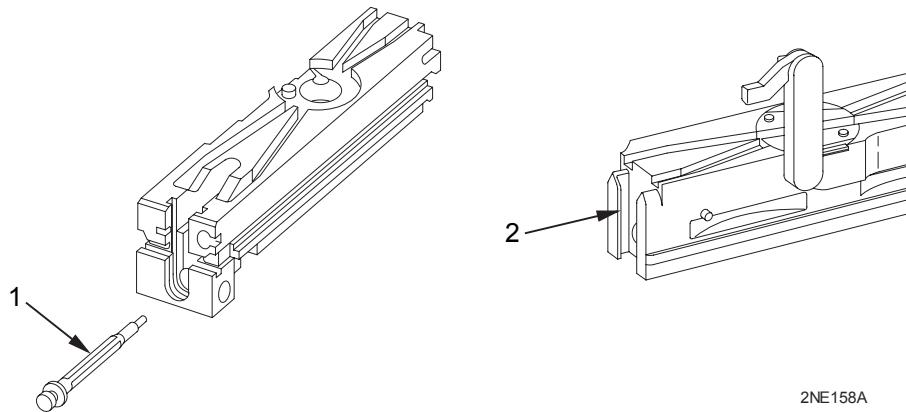
**Step 6.** Check for burrs on bolt assembly (6) and inside of receiver (7) which may cause insufficient recoil.

Remove burrs and reassemble (WP 0011 00).



## 7. WEAPON WILL NOT EJECT.

**Step 1.** Check for burred, broken/cracked, or bent firing pin (1).



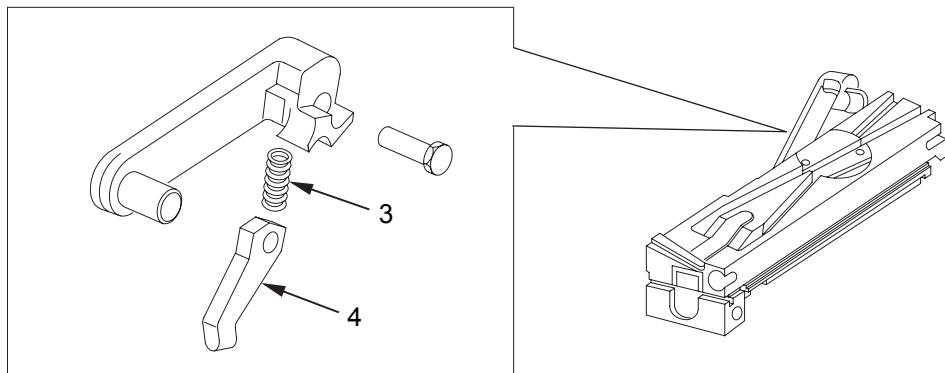
Replace defective firing pin (1) (WP 0018 00)

**Step 2.** Check for burrs in T-slot (2).

**TROUBLESHOOTING PROCEDURES – Continued****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****7. WEAPON WILL NOT EJECT – Continued.**

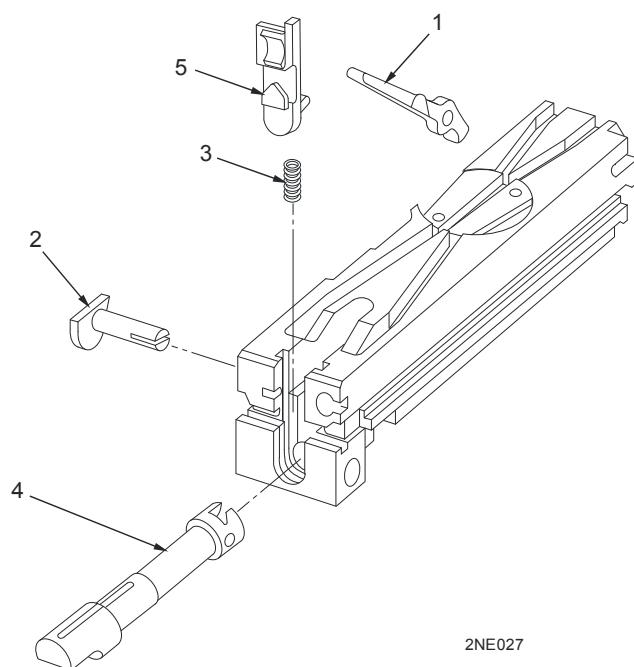
Step 3. Check for defective ejector spring (3).

Step 4. Check for defective bolt ejector (4).

**8. WEAPON WILL NOT COCK.**

Step 1. Check bolt for burred, bent, or broken cocking lever (1).

Replace defective cocking lever (1) (WP 0010 00).



Step 2. Check bolt for defective cocking lever pin (2).

Replace defective cocking lever pin (2) (TM 9-1005-347-10).

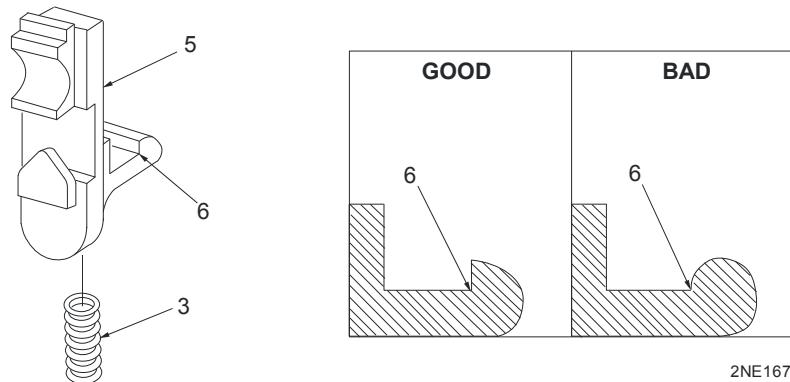
Step 3. Check bolt assembly for defective sear spring (3).

Replace defective sear spring (3) (TM 9-1005-347-10).

Step 4. Check for defective firing pin extension assembly (4).

Replace defective firing pin extension assembly spring (3) (TM 9-1005-347-10).

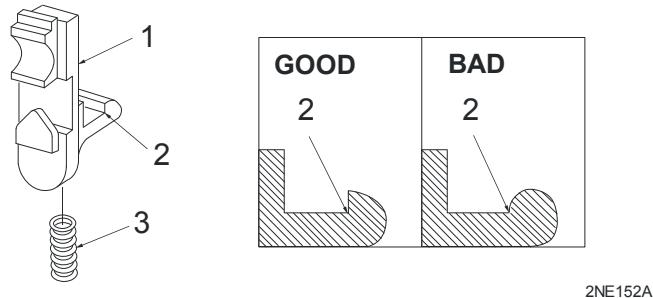
Step 5. Check for broken sear (5). Ensure sear notch (6) is not rounded as shown below or cracked, chipped, or broken. Check sear spring (3) for broken or collapsed coils.



Replace defective sear (5) or sear spring (3) (TM 9-1005-347-10).

## 9. WEAPON HAS UNCONTROLLED FIRE.

Step 1. Check for broken sear (1). Ensure sear notch (2) is not rounded as shown below or cracked, chipped, or broken. Check sear spring (3) for broken or collapsed coils. Ensure sear spring is correctly installed in recessed hole.



Replace defective sear (1) or sear spring (3) (TM 9-1005-347-10).

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**TROUBLESHOOTING PROCEDURES – Continued**

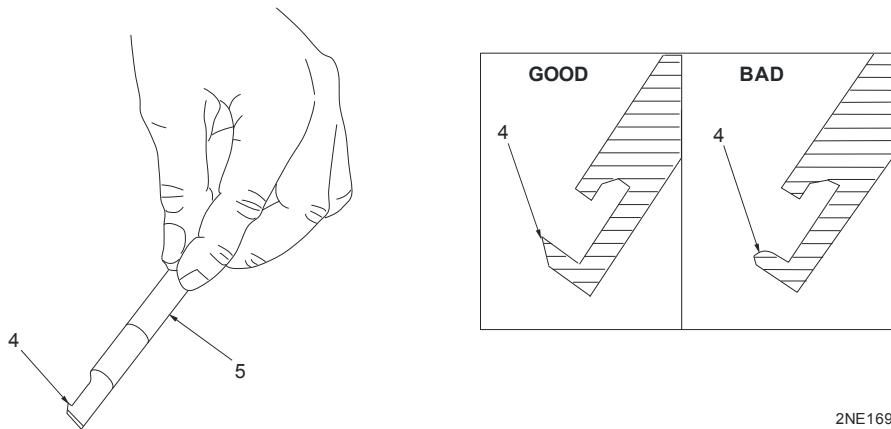
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**MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION**

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**9. WEAPON HAS UNCONTROLLED FIRE - Continued.**

Step 2. Check for broken notch (4) on firing pin extension assembly (5).



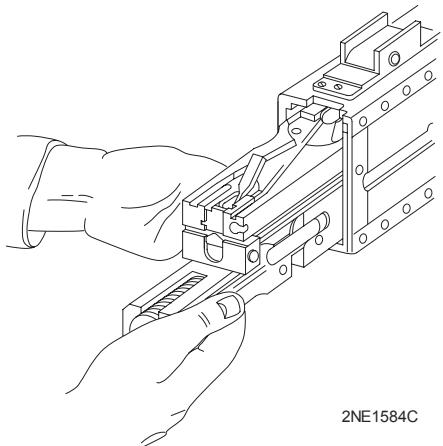
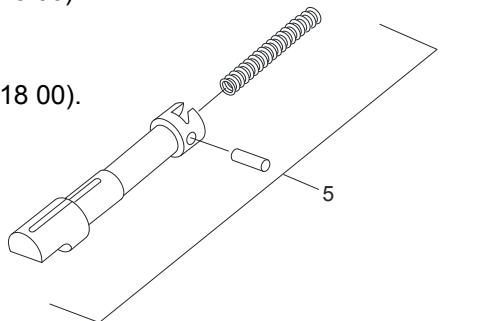
Replace defective firing pin extension assembly (WP 0018 00).

Step 3. Check for defective firing pin extension assembly (5).

Replace defective firing pin extension assembly (WP 0018 00).

**10. BOLT ASSEMBLY IS IMPROPERLY INSTALLED.**

Check for proper installation of bolt assembly.



Reassemble components correctly (WP 0011 00).

**END OF WORK PACKAGE**

**CHAPTER 3**  
**PMCS MAINTENANCE INSTRUCTIONS**



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**FIELD MAINTENANCE  
MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)  
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION**

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**INITIAL SETUP:****References**

DA Form 2404  
TM 9-1005-347-10  
WP 0007 00

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**GENERAL**

This section contains the procedures and instructions necessary to perform preventive maintenance checks. These checks are to be performed by maintenance personnel with assistance, where practical, of the operator/crew who will clean and lubricate in accordance with operator's manual, TM 9-1005-347-10.

The PMCS procedures are contained in the table of WP 0007 00. They are arranged in logical sequence requiring a minimum amount of time and motion on the part of the persons performing them.

**PMCS**

PMCS is checks and services performed by the operator/crew and Field Maintenance personnel. This is done using assigned equipment, operator and maintenance manuals, and other applicable technical publications at scheduled intervals to ensure equipment is Fully Mission Capable (FMC) or faults are identified and corrective action is complete.

Leaders are required to ensure that soldiers understand procedures outlined in this manual through effective hands on training and providing them with supervision.

**PMCS Performance**

PMCS in combat zones will be required before and weekly operation as a minimum. Equipment that is not utilized is not exempt from maintenance standards. While deployed, correction of NMC faults will be initiated immediately. The goal for non-deadline faults is to have all corrective action completed, job orders open, or parts requisitioned within 72 hours.

1. Recording of Faults: Faults discovered during any inspection that are not corrected on the spot will be recorded on DA Form 5988-E or DA Form 2404.
2. Deadline Fault: Mechanics will verify and troubleshoot the same day the NMC fault is found. Final resolution on NMC faults will be determined within 48 hours of original fault identification. All NMC faults will be repaired before operating equipment.
3. Routing Fault: Mechanics will troubleshoot and identify corrective action with a seven-day period from fault identification. These faults will be reported by first line supervisor or his designated representative. Routine faults will be repaired, parts placed on order, or work request opened before operating the equipment. If the fault is noted during operation of a dispatched piece of equipment, the fault will be annotated on the equipment's DA Form 5988-E and reported to maintenance when mission is complete. Once a fault has been verified by the unit armorer, the first line supervisor will verify the NSN/NIIN through FEDLOG and if the NSN/MIIN is correct, they will place it on order.
4. Parts Requisitioning Standards: Once a fault has been verified by the unit armorer, the first line supervisor will verify the NSN/NIIN through FED LOG and if the NSN/NIIN is correct, they will place it on order.

**PMCS TABLE**

Preventive Maintenance Checks and Services (PMCS) are your most important tools for making sure your equipment is ready for action. But to most effectively use the PMCS, you need to understand the different types of PMCS. So here are the ABCs of PMCS:

**BEFORE OPERATIONS:** Before Operation Checks make sure your equipment is fully mission capable (FMC) before you use it. Any faults found that make equipment non-mission capable (NMC) or violate a safety directive must be fixed before the mission or before the equipment is dispatched or used.

**DURING OPERATIONS:** During Operations Checks are faults that occur during the mission that affect the FMC status and must be fixed during the mission. Faults that are found that do not affect FMC status will be recorded on DA Form 5988-E or DA Form 2404 and corrected at completion of the mission.

**AFTER OPERATIONS:** After Operations Checks detect faults that result from the mission and ensure identification and correction of faults to maintain the equipment to 10/20 standard. After Operations Checks make sure equipment is maintained at 10/20 standards. Cleaning, inspecting, and lubing your weapon is an example of After Operations PMCS.

**MONTHLY:** Again, these checks and services should be done each month regardless of whether your equipment has seen action.

**QUARTERLY/ANNUAL OPERATIONS:** Quarterly/Annual Operations Checks are completed at least quarterly/annually.

Any faults that can't be fixed on the spot should be recorded on a DA Form 5988-E or DA Form 2404.

During deployment, correction of NMC faults should begin immediately. For non-deadline faults, the goal is correcting the fault within 72 hours. When a unit is not deployed, the goal for correcting NMC faults is 48 hours and for non-deadline faults seven days.

Any time a piece of equipment is dispatched to another unit or from the front lines to the rear, BEFORE, DURING, and AFTER PMCS should first be done. This is required by paragraph 2-7A in AR 385-55.

**EXPLANATION OF COLUMNS**

**Item No. Column.** This column specifies the logical order of performance. 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.

**Interval Column.** This column gives the designated interval when each check is to be performed. Before, During, After, Weekly, Quarterly, and Annually.

**Item To Be Checked or Serviced Column.** This column lists the items to be checked or serviced.

**Procedure Column.** This column contains a brief description of the procedure by which the check is to be performed. It contains all the information required to accomplish the checks and services.

**Equipment Not Ready/Available If: Column.** This column lists information which tells you what faults will keep your equipment from being capable of performing its primary mission. If check and service procedures show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

**NOTE**

Unless otherwise stated, maintenance is to be performed as indicated by PMCS.

An inactive machine gun is a machine gun, which has been stored in an arms room for a period of 90 days without use. The machine gun may or may not have been assigned to an individual.

An inactive machine gun shall receive quarterly PMCS unless inspection reveals more frequent servicing is necessary.

Normal cleaning (PMCS) of an inactive machine gun will be performed every 90 days.

Should the unit armorer detect corrosion on a machine gun prior to the end of the 90-day period, the PMCS should be performed immediately.

Solid film lubricant (SFL) is the authorized touch up of the machine gun and may be used on up to one third (1/3) of the exterior finish of the machine gun receiver.

For Army CONUS use only and Air Force training machine gun only: Solid film lubricant (SFL) may be used as a touch up without limitation on the barrel assembly. This is to say that units which do not fall under the category of divisional combat units or rapid deployment type units may have up to 100 percent of the exterior surface of the barrel assembly protected with SFL. Prior to application of SFL, the surface must be thoroughly cleaned and inspected for corrosion and/or damage. If corroded or damaged, the part must be repaired or replaced prior to application of SFL. Continued use under combat conditions would result in an unprotected surface when SFL wears off. This would result in a large light reflecting surface and accelerated deterioration of the unprotected surface. Therefore, divisional combat units and units which fall under the definition of rapid deployment type must adhere to the limitation of not over one third (1/3) of the exterior surface of the receiver covered by SFL; if over one third (1/3) of the machine gun receiver finish is worn off, the weapon must be turned in for a new one.

When determining mission capability, deadline if it is a deficiency.

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS),  
INCLUDING LUBRICATION INSTRUCTIONS**

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**INITIAL SETUP:****Reference**

AR 385-10  
DA Form 2404

**Reference (cont)**

DA Form 5988-E  
TM 9-1005-347-10  
WP 0032  
WP 0033

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**NOTE**

All PMCS checks and services will be completed before operation of the weapon. Inactive weapons, those not used for firing for three months or longer, will have those PMCS tasks listed as quarterly, semiannually, or annually completed as they are due. All PMCS checks and services annotated with an \* will be completed annually during gaging unless forwarded for repair.

M2A1 unique parts should NEVER be installed on M2HB weapons. The Barrel Extension Assembly and Bolt have been serialized to remain together as an assembly with serial number of receiver. If a new Barrel Extension or Bolt is required, servicing the headspace and timing will be necessary. If any part of the Barrel Extension or Bolt is interchanged, headspace and timing must be reset.

Do not attempt to remove the Breech Lock from the Barrel Extension. It is not intended for the Breech Lock to be removed during cleaning. Pinning the Breech Lock insures that the assigned Breech Lock/Barrel Extension combination is maintained, thus insuring proper Headspace.

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Before	Barrel Assembly	a) Check barrel chamber (6) for empty cartridge case b) Check barrel locking notch (1) for wear. c) Check threads (2) for burrs, cracks, or binding. d) Check pin (7) on barrel cracks or deformation. e) Check flash suppressor (5) is tight and check for cracks.	Empty cartridge case is present. Notch shows wear. Threads have burrs or cracks, or binds during installation. Pin is cracked or deformed. Flash suppressor is cracked.
2	Before	Bore	Check bore (4) for pits, bulges, metal fouling, empty cartridge case, or rings.	Pits, bulges, metal fouling, empty cartridge case or rings are present.

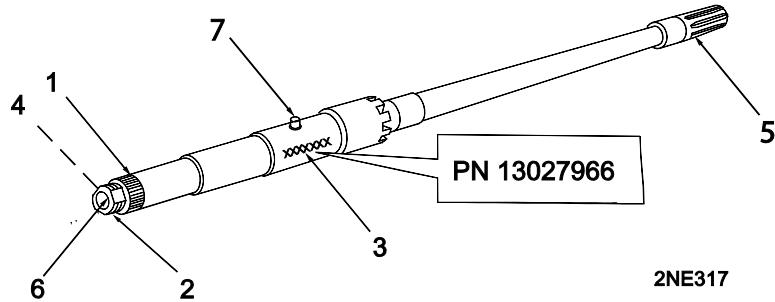
**WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

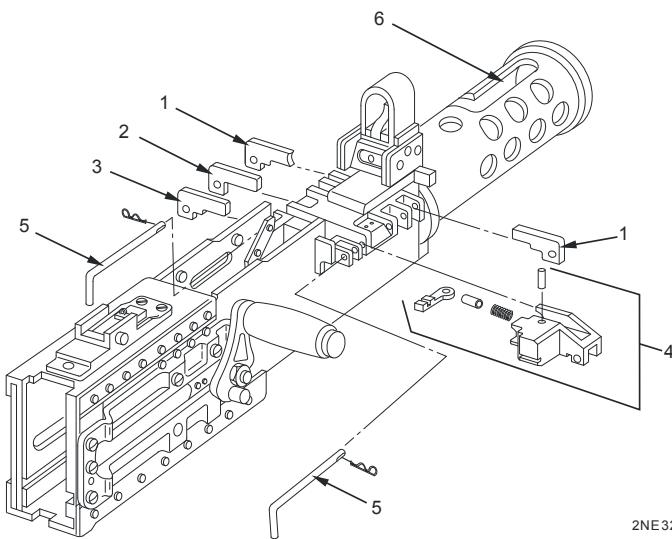
**NOTE**

- There is a gap which allows for expansion (when the barrel gets hot from firing) of the satellite liner (lined barrel PN 13027966).
- The part number (3) on M2A1 lined barrels is 13027966.
- If SLAP ammunition is being used, barrel life will be reduced

3	Before	Chamber	Check chamber (6) for pits, bulges, metal fouling, and rings.	Pits, bulges, metal fouling, or rings are present.
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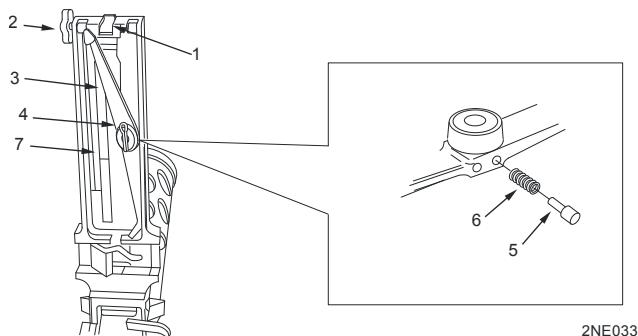


**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>NOTE</b>				
Cartridge stop (1) for blank ammo is different (longer) than cartridge stop for live ammo. Ensure cartridge stop is changed when firing blank or live ammo. Rear cartridge stop will not replace front cartridge stop.				
4	Before	Barrel Support Cam Slot	Check M2A1 barrel support cam slot (6) for burrs.	M2A1 barrel support cam slot is burred.
5	Before	Front RH/LH Cartridge Stops	Check if front cartridge stop (1) (RH feed)/front cartridge stop (1) (LH feed) is broken, tight fitting, or incorrectly assembled.	Either front cartridge stop is broken, tight fitting, or incorrectly assembled.
6	Before	Link Stripper	Check if link stripper (2) (RH feed only) is broken, tight fitting, or incorrectly assembled.	RH feed link stripper is broken, tight fitting, or incorrectly assembled.
7	Before	Rear Cartridge Stops	Check if rear cartridge stop (3) (RH feed only)/rear cartridge stop assembly (4) (LH feed only) is broken, tight fitting, or incorrectly assembled. Rear cartridge stop will not replace front cartridge stop.	Rear cartridge stop is broken, tight fitting, or incorrectly assembled.
8	Before	Pin	Check for broken or missing pawl pin (5).	Pawl pin is broken or missing.
 <p>2NE324</p>				

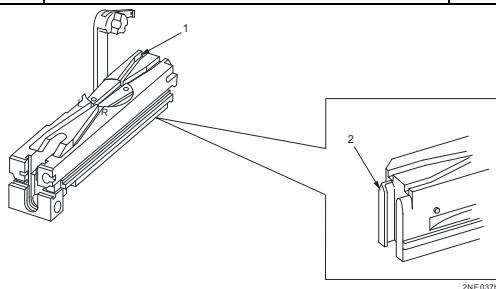
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
9	Before	Top Cover Assembly	Check cover latch (1) and cover latch lever (2) to see if broken or missing. Check cover for more than slight movement.	Cover latch is broken or missing; cover has more than slight movement.
10	Before	Belt Feed Lever	Check belt feed lever (3) for cracks, breaks, or bends.	Belt feed lever is cracked, broken, or bent.
11	Before	Lock Pin	Check for missing lock pin (4).	Lock pin is missing.

**NOTE**

- Bolt assembly with minor gouging and/or imperfections in locking lug(s) causing no degradation in performance is acceptable.
- The entire Serial Number is located on the receiver only.

12	Before	Bolt Assembly	a) Check bolt locking lugs for burrs or cracks. b) Verify serial number on barrel extension and bolt match last four numbers of serial number on receiver.	Bolt locking lugs are burred or cracked.  Bolt serial number does not match last four number of serial number on receiver.
13	Before	Bolt	Check bolt alternate feed area, cam grooves (1), and T-slot (2) for burrs or cracks. Check for chipped T-slot.	Bolt alternate feed area, cam grooves, or T-slot are burred, cracked, or chipped.



**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
14	Before	Bolt Body	a) Check bolt body for burrs. b) When assembled, ensure bolt body slides freely.	Bolt body fails to slide freely.
15	Before	Sear Stop and Pin	Check sear stop and pin (6) for bends or breaks.	Sear stop and pin are broken, flat, or twisted.
16	Before	Cartridge Extractor	Check cartridge extractor (7) and spring (8) for burrs or breaks.	Cartridge extractor is burred or broken.
<b>CAUTION</b>				Incorrect installation of bolt switch (1) can lead to battered belt feed lever if cover is closed and an attempt is made to function test the weapon.
<b>NOTE</b>				Correct installation of bolt switch (1) for left-hand feed is shown in the illustration.
17	Before	Bolt Switch	Check bolt switch (1) for burrs, looseness, and incorrect installation.	Bolt switch is burred, loose, or installed incorrectly.
18	Before	Extractor Stop Pin	Check for deformed, broken or missing extractor stop pin (2).	Extractor stop pin is missing, deformed, or broken.
19	Before	Arm Support	Check bolt extractor mounting arm support (3) for chips and burrs.	Bolt extractor mounting arm support is chipped or burred.
			 1 2 3 4 5 6 7 8  2NE319	
			 1 2 3  2NE040	

Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
20	Before	Sear Spring	Check sear spring (2) for deformity, collapsed coils, weakness, elongation, crisp spring action, and/or incorrect installation ( <b>must be in sear hole and recess in bottom of the bolt</b> ). Spring should not be able to be compressed fully with fingers.	Sear spring is deformed, weak, or incorrectly installed; sear spring can be compressed fully with fingers.
21	Before	Cocking Lever Pin	Check cocking lever pin (1) for burrs or breaks.	Cocking lever pin is burred or broken.
22	Before	Sear	Check sear (3) for burrs. Ensure sear notch (4) has a sharp edge and is not chipped or broken.	Sear has burrs or sear notch is dull, chipped, or broken.
23	Before	Sear Slide	a) Check sear slide (5) for free movement in guide grooves. b) Check for distorted sear notch (4) and proper installation, enters from left to right (for left hand feed).	Sear slide binds.  Notch is distorted or improperly installed.

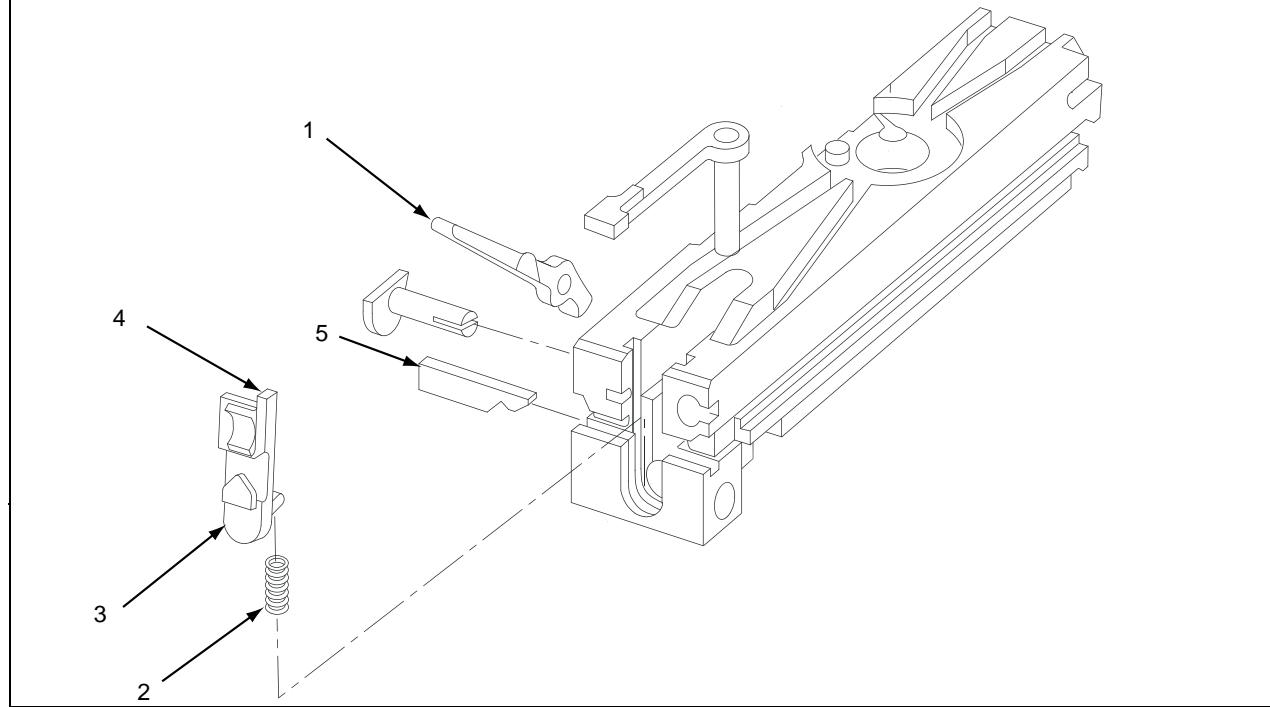
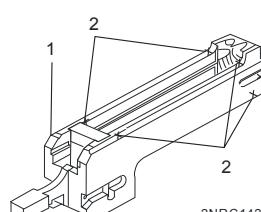
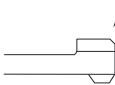


Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
24	Before	Barrel Extension	<p>a) Check breech lock and barrel extension for chipping.</p> <p>b) Check breech lock (1) for burrs, cracks, or binding.</p> <p>c) Check beveled edges of breech lock (1) for rolled back, broken, or chipped edges.</p>  <p>2NRC142a</p> <p><b>NOTE</b></p> <p>Complete Serial Number is located on the receiver only.</p> <p>d) Verify serial number on barrel extension and bolt match last four numbers of serial number on receiver.</p>	<p>Barrel extension is chipped.</p> <p>Breech lock is burred, cracked, binds, or is installed incorrectly.</p> <p>Breech lock beveled edges are rolled back, broken, or chipped.</p> <p>Cracks are present. If cracks are present, replace barrel extension.</p> <p>Barrel extension serial number does not match last four number of serial number on receiver.</p>

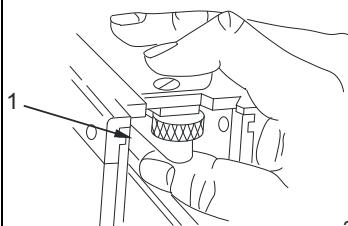
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**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

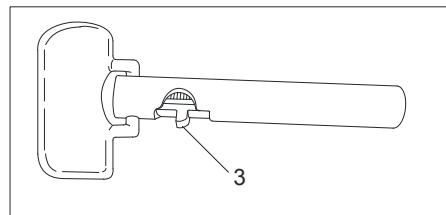
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
25	Before	Barrel Locking Spring	<p>a) Check barrel locking spring for retention; check locking spring for looseness and correct installation (spring locking lugs pointed towards barrel locking lugs).</p> <p>b) Check locking lugs for weakness and/or crisp spring action. Check for wear (rounded) spring locking lug.</p> <p style="text-align: center;">BARREL LOCKING LUGS</p>  <p style="text-align: center;">2NE031B</p>	<p>Barrel locking spring is loose or not staked; barrel assembly can be unscrewed.</p> <p>Locking spring is rounded on lug area.</p>
26	Before	Barrel Extension Assembly	<p>a) Check for chipped or cracked metal (including threaded area). Check shaft for cracks or looseness.</p> <p>b) Check first (partial) thread (bolt side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.</p> <p>c) Check last (partial) thread (barrel side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.</p>	<p>Loose, chipped or cracked metal.</p> <p>Chip or crack on the last (partial) thread (bolt side) visibly extends beyond the root of the thread.</p> <p>Chip or crack on the last (partial) thread (barrel side) visibly extends beyond the root of the thread.</p>

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
			<p style="text-align: center;"><b>NOTE</b></p> <p>All locations taken from gunner's perspective.</p> <p>d) Check remaining threads in the barrel extension for chips or cracks. Chips or cracks 1/2 linear inch in length or less shall be smoothed or repaired by hand stoning.</p>	Remaining threads in the barrel extension exhibit more than one chip or crack total. If only one chip or crack, it exceeds 1/2 linear inch in length and visibly extends into the barrel extension beyond the root of the thread. If repaired, the repaired surface exceeds 1/2 linear inch in length.
27	Before	Trigger Lever	Check trigger lever (1) for binding, bends, cracks, or breaks.	Trigger lever binds, is bent, cracked, or broken.
28	Before	Trigger Lever Pin	Check for bent or missing trigger lever pin (2) and for a broken lock (3).	Trigger lever pin is bent or missing; or lock is broken.

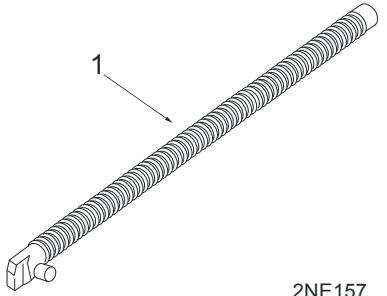


2NE046

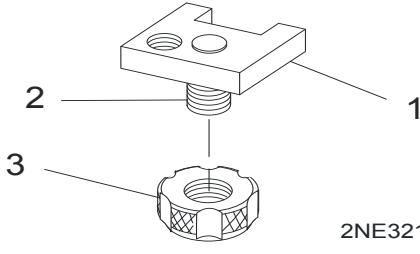
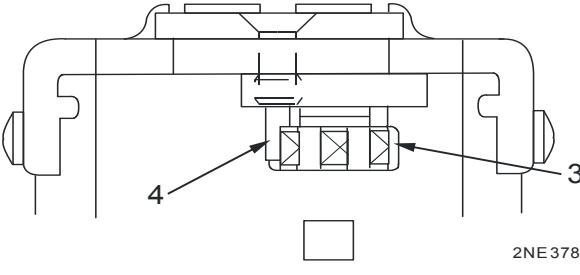
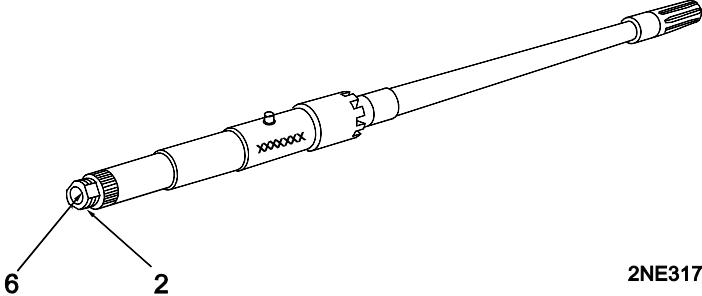


2NE047

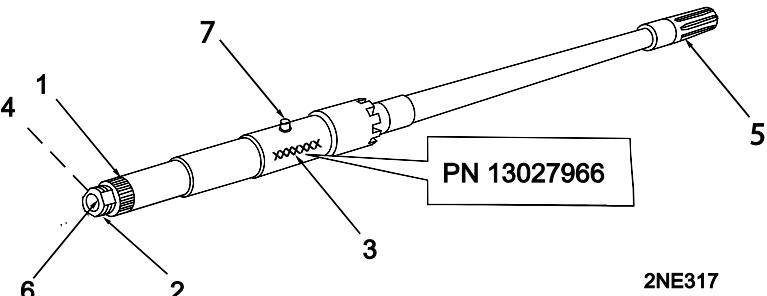
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
29	Before	Drive Spring Rod Assembly	<p>Check drive spring rod assembly (1) for broken or cracked springs, collapsed coils, flat spots on coils, or deformed, cracked, or broken rod.</p>  <p>2NE157</p>	Drive spring rod assembly springs are broken or cracked, coils have flat spots, coils are collapsed, or drive spring rod is deformed, cracked, or broken.
<b>WARNING</b> 				
<b>HEADSPACE AND TIMING</b>				
Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. See Warning Summary.				
30	Before	Headspace and Timing	<p>Unit Armorer will check and adjust headspace and timing. (Refer to WP 0033 and WP 0034).</p> <p>Verify headspace and timing.</p>	Equipment fails wear limit and timing gage inspection.
31	Before	Trigger Lever Stop Assembly	Check if adjustable stop (1) is missing or broken, or has stripped screw threads (2).	Adjustable stop is broken, missing, or threads are stripped.
32	Before	Timing Adjustment Nut	<p>Check for loose, stripped, or missing timing adjustment nut (3).</p> <p>Check installation (ensure notch is on top).</p>	Timing adjustment nut is loose, stripped, missing, or incorrectly installed.

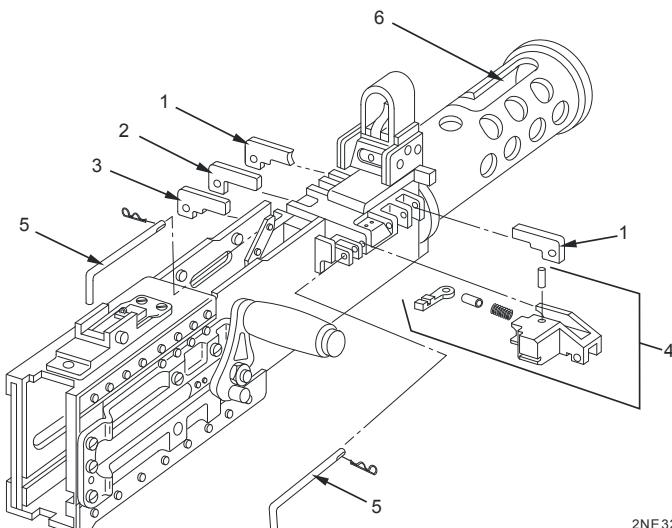
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
33	Before	Timing Adjustment Nut	Check for loose, stripped, or missing timing adjustment nut (3). Check installation (ensure notch is on top).	Timing adjustment nut is loose, stripped, missing, or incorrectly installed.
34	Before	Timing Adjustment Nut	Ensure timing lock screw (4) is seated into groove of timing adjustment nut.	Timing adjustment nut is improperly installed.
			 <b>2NE321</b>	 <b>2NE378</b>
35	During	Barrel Assembly	a) Check barrel chamber (6) for empty cartridge case. b) Check barrel chamber (6) for carbon buildup. c) Check threads (2) for burrs, cracks, or binds during installation.	Empty cartridge case is present.  Threads have burrs, cracks, or binds during installation.
			 <b>2NE317</b>	

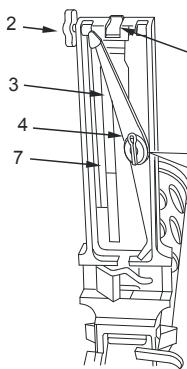
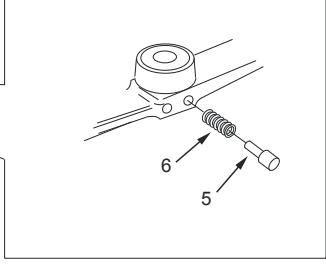
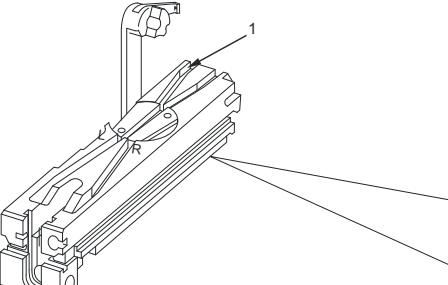
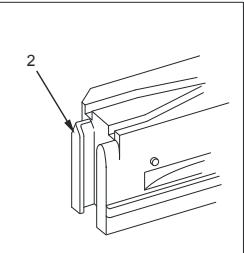
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>WARNING</b>				
 <b>ACCIDENTAL DISCHARGE</b> <p>Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.</p>				
<b>NOTE</b>				
36	After	Barrel Assembly	<ul style="list-style-type: none"> <li>a) Check barrel chamber (6) for empty cartridge case.</li> <li>b) Check barrel locking notches (1) for wear.</li> <li>c) Check threads (2) for burrs, cracks, or binding.</li> </ul>	<p>Empty cartridge case is present.</p> <p>Notches show wear.</p> <p>Threads have burrs or cracks, or binds during installation.</p>
37	After	Bore	<ul style="list-style-type: none"> <li>a) Check bore (4) for pits, bulges, metal fouling, empty cartridge case or rings.</li> <li>b) Check pin (7) on barrel cracks or deformation.</li> <li>c) Check flash suppressor (5) is tight and check for cracks.</li> </ul>	Pits, bulges, metal fouling, empty cartridge case or rings are present.
38	After	Chamber	Check chamber (6) for pits, bulges, metal fouling, and rings.	Pits, bulges, metal fouling, or rings are present.
 <b>PN 13027966</b>				

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>NOTE</b>				
Cartridge stop (1) for blank ammo is different (longer) than cartridge stop for live ammo. Ensure cartridge stop is changed when firing blank or live ammo. Rear cartridge stop will not replace front cartridge stop.				
39	After	Barrel Support Cam Slot	Check M2A1 barrel support cam slot (6) for burrs.	M2A1 barrel support cam slot is burred.
40	After	Front RH/LH Cartridge Stops	Check if front cartridge stop (1) (RH feed)/front cartridge stop (1) (LH feed) is broken, tight fitting, or incorrectly assembled.	Either front cartridge stop is broken, tight fitting, or incorrectly assembled.
41	After	Link Stripper	Check if link stripper (2) (RH feed only) is broken, tight fitting, or incorrectly assembled.	RH feed link stripper is broken, tight fitting, or incorrectly assembled.
42	After	Rear Cartridge Stops	Check if rear cartridge stop (3) (RH feed only)/rear cartridge stop assembly (4) (LH feed only) is broken, tight fitting, or incorrectly assembled. Rear cartridge stop will not replace front cartridge stop.	Rear cartridge stop is broken, tight fitting, or incorrectly assembled.
43	After	Pin	Check for broken or missing pawl pin (5).	Pawl pin is broken or missing.
 <p>2NE324</p>				

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
44	After	Top Cover Assembly	Check cover latch (1) and cover latch lever (2) to see if broken or missing. Check cover for more than slight movement.	Cover latch is broken or missing; cover has more than slight movement.
45	After	Belt Feed Lever	Check belt feed lever (3) for cracks, breaks, or bends.	Belt feed lever is cracked, broken, or bent.
46	After	Lock Pin	Check for missing lock pin (4).	Lock pin is missing.
				  <p style="text-align: right;">2NE033</p>
47	After	Bolt	Check bolt alternate feed area, cam grooves (1), and T-slot (2) for burrs or cracks. Check for chipped T-slot.	Bolt alternate feed area, cam grooves, or T-slot are burred, cracked, or chipped.
48	After	Bolt Assembly	Check bolt bottom slot for burrs or cracks.	Bolt bottom slot is burred or cracked.
				  <p style="text-align: right;">2NE037b</p>

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

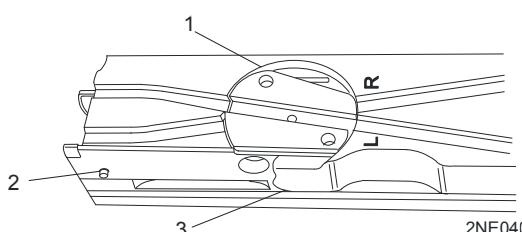
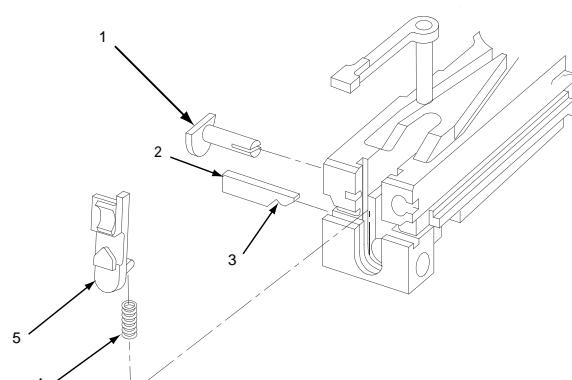
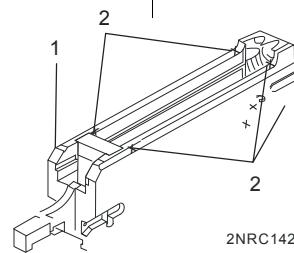
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
49	After	Sear Stop and Pin	Check sear stop and pin (6) for bends or breaks.	Sear stop and pin are broken, flat, or twisted.
50	After	Cartridge Extractor	Check cartridge extractor (7) and spring (8) for burrs or breaks.	Cartridge extractor is burred or broken.
<b>CAUTION</b>				
Incorrect installation of bolt switch (1) can lead to battered belt feed lever if cover is closed and an attempt is made to function test the weapon.				
<b>NOTE</b>				
Bolt assembly with minor gouging and/or imperfections in locking lug(s) causing no degradation in performance is acceptable.				
Correct installation of bolt switch (1) for left-hand feed is shown in the illustration.				
51	After	Bolt Switch	Check bolt switch (1) for burrs, looseness, and incorrect installation.	Bolt switch is burred, loose, or installed incorrectly.
52	After	Extractor Stop Pin	Check for deformed, broken or missing extractor stop pin (2).	Extractor stop pin is missing, deformed, or broken.
53	After	Arm Support	Check bolt extractor mounting arm support (3) for chips and burrs.	Bolt extractor mounting arm support is chipped or burred.
			 1 2 3 2NE040	
54	After	Bolt Body	Check bolt body for burrs and failure to slide freely.	Bolt body has burrs or fails to slide freely.

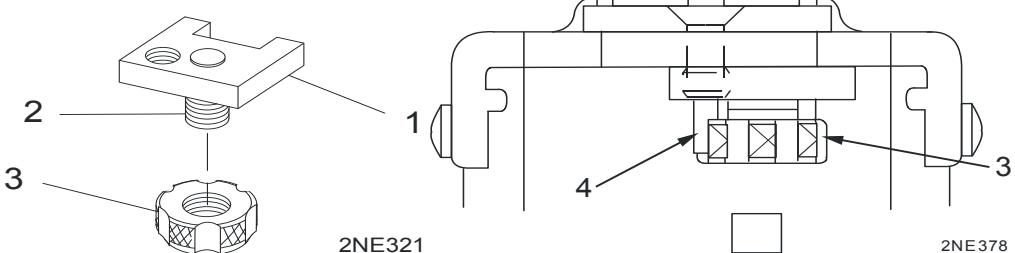
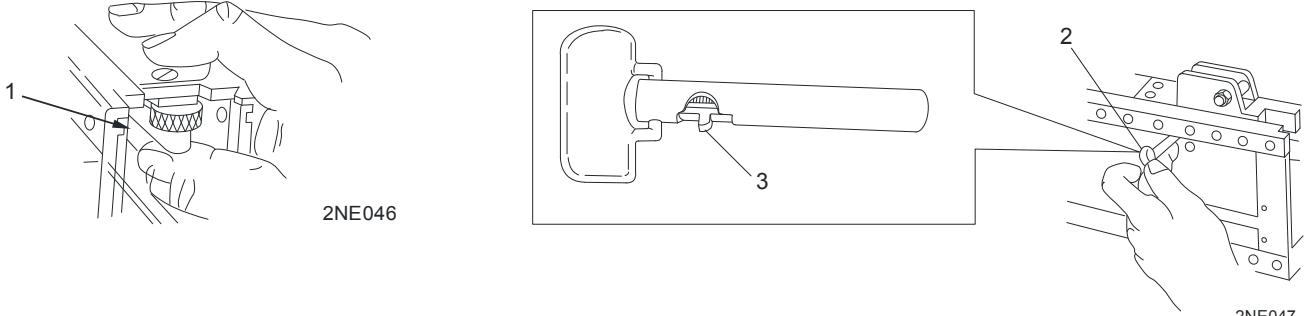
Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
55	After	Sear Spring	Check sear spring (1) for deformity, collapsed coils, weakness, elongation, crisp spring action, and/or incorrect installation ( <b>must be in sear hole and recess in bottom of the bolt</b> ). Spring should not be able to be compressed fully with fingers.	Sear spring is deformed, weak, or incorrectly installed; sear spring can be compressed fully with fingers.
56	After	Cocking Lever Pin	Check cocking lever pin (2) for burrs or breaks.	Cocking lever pin is burred or broken.
57	After	Sear	Check sear (3) for burrs. Ensure sear notch (4) has a sharp edge and is not chipped or broken.	Sear has burrs or sear notch is dull, chipped, or broken.
58	After	Sear Slide	Check sear slide (5) for free movement in guide grooves.	Sear slide binds.
59	After	Sear Notch	Check for distorted notch (4) and proper installation, enters from left to right (for left hand feed).	Notch is distorted or improperly installed.
				
60	After	Breech Lock	a) Check breech lock barrel extension for chipping. b) Check breech lock (1) for burrs, cracks, or binding. c) Check breech lock (1) beveled edges for rolled back, broken, or chipped edges. d) Check top, upper left and right corner (2) of barrel extension assembly for cracks.	Breech lock barrel extension is chipped. Breech lock is burred, cracked, binds, or is installed incorrectly. Breech lock beveled edges are rolled back, broken, or chipped. Cracks are present. If cracks are present, replace barrel extension.
 2NRC142a				

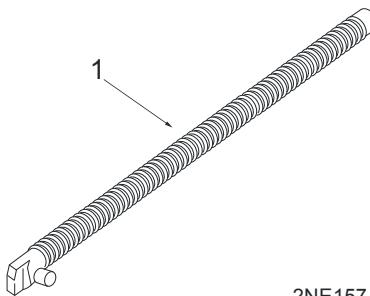
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
61	After	Barrel Locking Spring	<p>a) Check barrel locking spring for retention; check locking spring for looseness and correct installation (spring locking lugs pointed towards barrel locking lugs).</p> <p>b) Check locking lugs for weakness and/or crisp spring action. Check for wear (rounded) spring locking lugs.</p> <p style="text-align: center;"><b>BARREL LOCKING LUGS</b></p>  <p style="text-align: center;">2NE031B</p>	<p>Barrel locking spring is loose or not staked; barrel assembly can be unscrewed.</p> <p>Locking spring is rounded on lug area.</p>
62	After	Barrel Extension Assembly	<p>a) Check for chipped or cracked metal (including threaded area). Check shaft for cracks or looseness.</p> <p>b) Check first (partial) thread (bolt side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.</p> <p>c) Check last (partial) thread (barrel side) for chipped or cracked metal. Chips or cracks may be removed by hand stoning, provided chip or crack does not visibly extend beyond the root of the thread.</p> <p><b>NOTE</b> All locations taken from gunner's perspective.</p> <p>d.) Check remaining threads in the barrel extension for chips or cracks. Chips or cracks 1/2 linear inch in length or less shall be smoothed or repaired by hand stoning.</p>	<p>Loose, chipped or cracked metal.</p> <p>Chip or crack on the last (partial) thread (bolt side) visibly extends beyond the root of the thread.</p> <p>Chip or crack on the last (partial) thread (barrel side) visibly extends beyond the root of the thread.</p> <p>Remaining threads in the barrel extension exhibit more than one chip or crack total. If only one chip or crack, it exceeds 1/2 linear inch in length and visibly extends into the barrel extension beyond the root of the thread. If repaired, the repaired surface exceeds 1/2 linear inch in length.</p>

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
63	After	Trigger Lever Stop Assembly	Check if adjustable stop (1) is missing or broken, or has stripped screw threads (2).	Adjustable stop is broken, missing, or threads are stripped.
64	After	Timing Adjustment Nut	a. Check for loose, stripped, or missing timing adjustment nut (3).  b. Ensure timing lock screw (4) is seated into groove of timing adjustment nut.	Timing adjustment nut is loose, stripped, missing, or incorrectly installed.  Timing adjustment nut is improperly installed.
 <b>2NE321</b> <b>2NE378</b>				
65	After	Trigger Lever	Check trigger lever (1) for binding, bends, cracks, or breaks.	Trigger lever binds, is bent, cracked, or broken.
66	After	Trigger Lever Pin	Check for bent or missing trigger lever pin (2) and for a broken lock (3).	Trigger lever pin is bent or missing; or lock is broken.
 <b>2NE046</b> <b>2NE047</b>				

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
67	After	Drive Spring Rod Assembly	<p>Check drive spring rod assembly (1) for broken or cracked springs, collapsed coils, flat spots on coils, or deformed, cracked, or broken rod.</p>  <p>2NE157</p>	Drive spring rod assembly springs are broken or cracked, coils have flat spots, coils are collapsed, or drive spring rod is deformed, cracked, or broken.

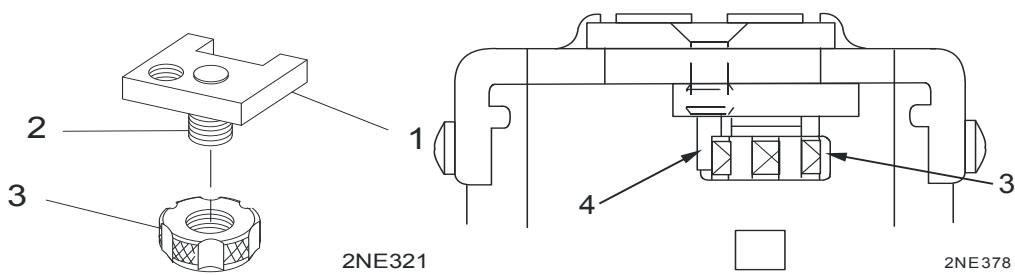
**WARNING****HEADSPACE AND TIMING**

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. See Warning Summary.

**NOTE**

Ensure handle is retracted during headspace verification.

68	After	Headspace and Timing	<p>Unit Armorer will check and adjust headspace and timing. (Refer to WP 0032 and WP 0033).</p> <p>Verify headspace/timing.</p>	M2A1 No-go gage goes in.
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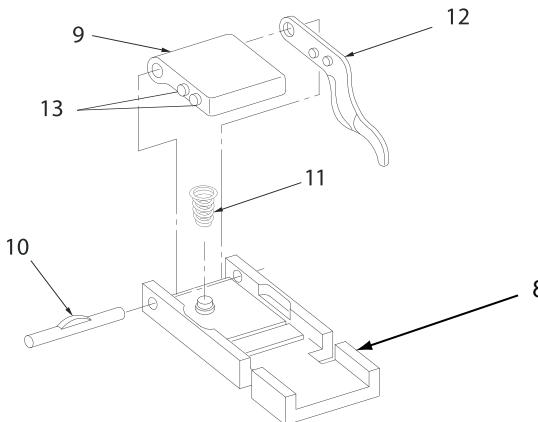
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

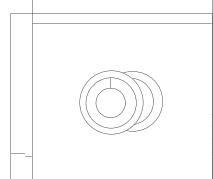
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
69	Quarterly	Helical Compression Spring	Check for burred, bent, or missing shoulder pin (5). Check spring (6) for missing, cracked, elongated, or collapsed spring coils. Check belt feed lever for proper (crisp) spring action.	Shoulder pin is bent, burred, or missing; spring coils are missing, cracked, elongated, or collapsed.
70	Quarterly	Belt Feed Lever	Check belt feed lever (3) for the correct direction of feed (left or right).	Direction of feed is incorrect.
71	Quarterly	Cover Extractor Spring	Check cover extractor spring (7) to see if burred or broken.	Cover extractor spring is burred or broken.
72	Quarterly	Top Cover Assembly	Check latch (1) and cover latch lever (2) to see if they are broken or missing. Check cover for more than slight movement.	Cover latch is broken or missing; cover has more than slight movement.

2NE033

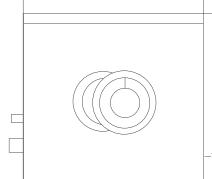
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
73	Quarterly	Belt Feed Slide Assembly	Check belt feed slide assembly (8) for burrs, cracks, and binding.	Belt feed slide assembly is burred, cracked, or binds.
74	Quarterly	Belt Feed Pawl	Check belt feed pawl (9) for binding in belt feed slide assembly.	Belt feed pawl binds.
75	Quarterly	Spring Pin	Check spring pin (10) for looseness. Check if spring wire is broken, coil collapsed or missing.	Spring pin is loose, spring wire is broken, or coil collapsed or missing.
76	Quarterly	Spring	Check for weak, broken, cracked, elongated, or collapsed coils or missing spring (11).  Check spring (11) for correct installation (oval/large end should be in belt feed pawl (9) with loop pointing down and away from pawl arm (12). Check for collapsed spring.	Spring is missing; coils are weak, broken, cracked, elongated, or collapsed.  Spring incorrectly installed or spring collapsed.
77	Quarterly	Pawl	Check for bent or broken pawl arm (12).	Pawl arm is bent or broken.
78	Quarterly	Pins	Check for bent or broken pins (13).	Pins are bent or broken. If pins are loose, replace feed belt pawl





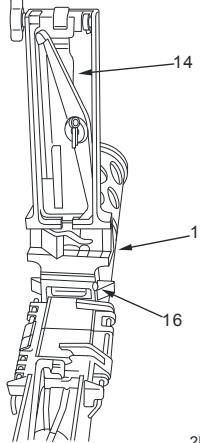
L.H. FEED



R.H. FEED

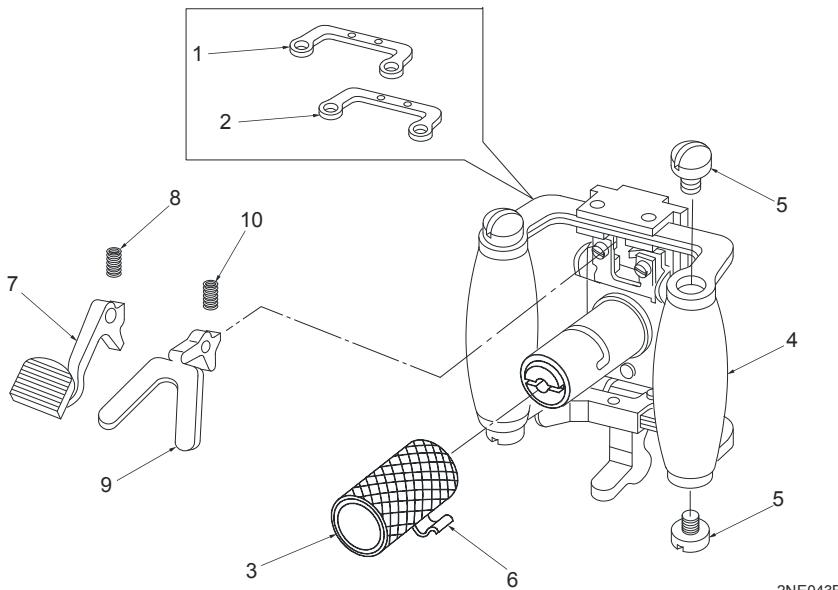
2NE034

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
79	Quarterly	Flat Spring	Check if flat spring (14) is weak, broken, or not seated over cover latch.	Flat spring is weak, broken, or not properly seated.
80	Quarterly	Cover Grooves	Check cover grooves (15) for burrs, cracks, or damage.	Cover grooves are burred, cracked, or damaged.
81	Quarterly	Cover Pin	Check for burred, bent, worn, or missing cover pin (16).	Cover pin is burred, bent, worn, or missing.
			 2NE036	
<p style="text-align: center;"><b>WARNING</b></p>  <p style="text-align: center;"><b>HEADSPACE AND TIMING</b></p> <p>M2A1 headspace and timing must be verified by unit Armorer prior to issuing. M2A1 headspace and timing adjustment is performed at field maintenance.</p>				
82	Quarterly	Headspace and Timing	Verify headspace/timing (WP 0032 00).	Wear gage (No Go) enters T-slot.

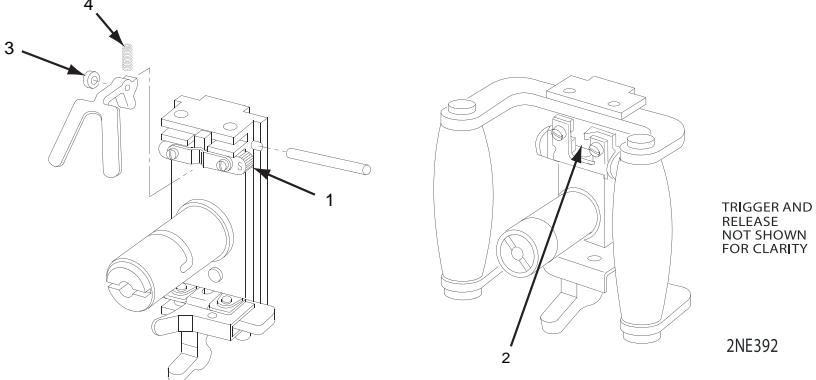
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
83	Quarterly	Back Plate Assembly	Check upper (1) and lower (2) handle frames for bends, cracks, or breaks.	Handle frames are bent, cracked, or broken.
84	Quarterly	Buffer Tube	Check back plate buffer tube (3) for any fluids (oil, solvent, or water) coming from the inside of the buffer tube. Do not submerge in water.	Buffer tube leaks.
85	Quarterly	Handles	Check handle grips (4) for cracks or missing screws (5).	Handle grips are cracked or missing screws.
86	Quarterly	Bolt Latch Release Lock	Check bolt latch release lock (6) for breaks or failure to hold bolt latch release (7) completely down.	Bolt latch release lock is broken or fails to hold bolt latch release completely down.
87	Quarterly	Bolt Latch Release	Check bolt latch release (7) and spring (8) for cracks, collapsed spring, or breaks. Check if spring is broken or missing. Check for proper (crisp) spring action by pressing on and releasing bolt latch release.	Bolt latch release is cracked, broken; or spring is missing or collapsed.
88	Quarterly	Trigger and Spring	Check trigger (9) and spring (10) for cracks or breaks; broken, collapsed, or missing spring. Check for proper (crisp) spring action by pressing on and releasing trigger.	Trigger is cracked or broken; or spring is missing or collapsed.

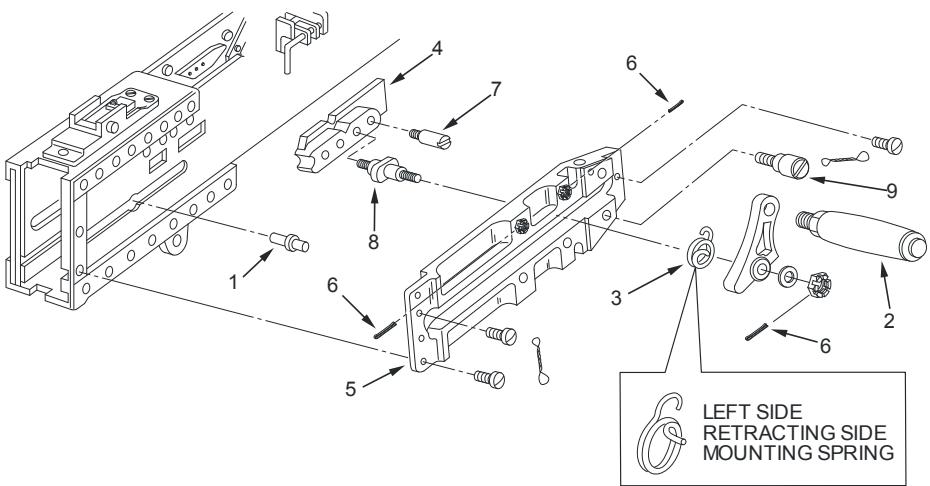
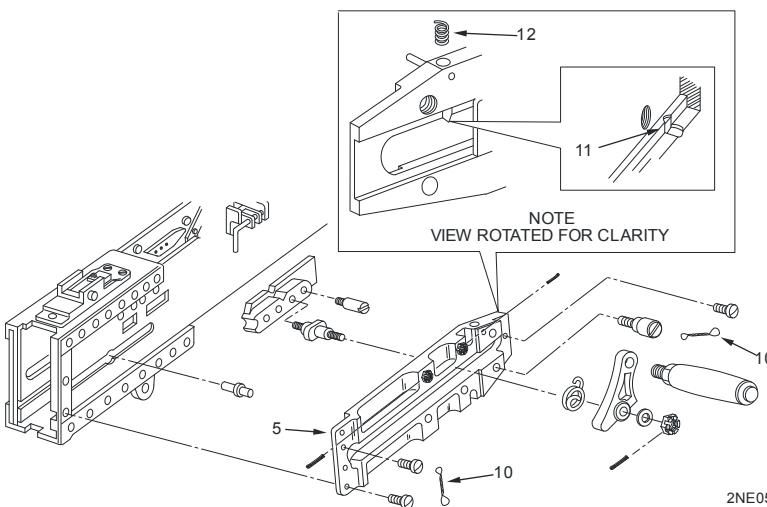


**DOES THIS ART NEED TO BE CHANGED??? 1 AND 2?**

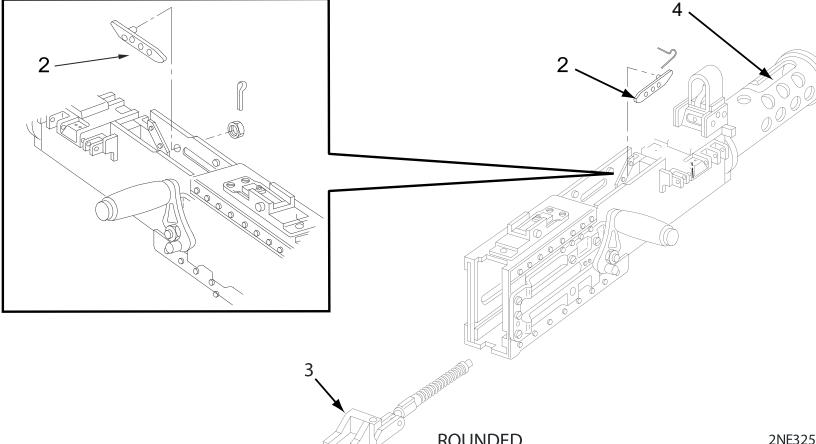
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
89	Quarterly	Trigger Block	Place trigger block (1) in S position and attempt to fire.  Attempt to place trigger block (2) in SAFE mode.	Fires on S.  Trigger block cannot be placed in SAFE mode.
90	Quarterly	Backplate	Check for missing sleeve spacer (3). Check for proper (crisp) spring (4) action by pressing on and releasing lock latch, manual lever, and trigger.	Sleeve spacer is missing. Spring action is weak. Spring is collapsed or broken.
			 2NE392	
91	Quarterly	Retracting Slide Assembly	Check bolt stud (1) for burrs or breaks.	Bolt stud is burred or broken.
92	Quarterly	Retracting Slide Handle	Check retracting slide handle (2) and spring (3) for cracks. Check for spring tension and proper assembly.	Retracting slide handle or spring is cracked; or has improper spring tension or assembly.
93	Quarterly	Retracting Slide	Check retracting slide (4) for burrs and binding in bracket (5).	Retracting slide is burred or binds.
94	Quarterly	Cotter Pins	Check for missing or broken cotter pins (6).	Cotter pins are missing or broken.
95	Quarterly	Shoulder Pin	Check for loose or broken shoulder pin (7), stud (8), or shoulder screw (9).	Shoulder pin, stud, or shoulder screw is loose or broken.

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

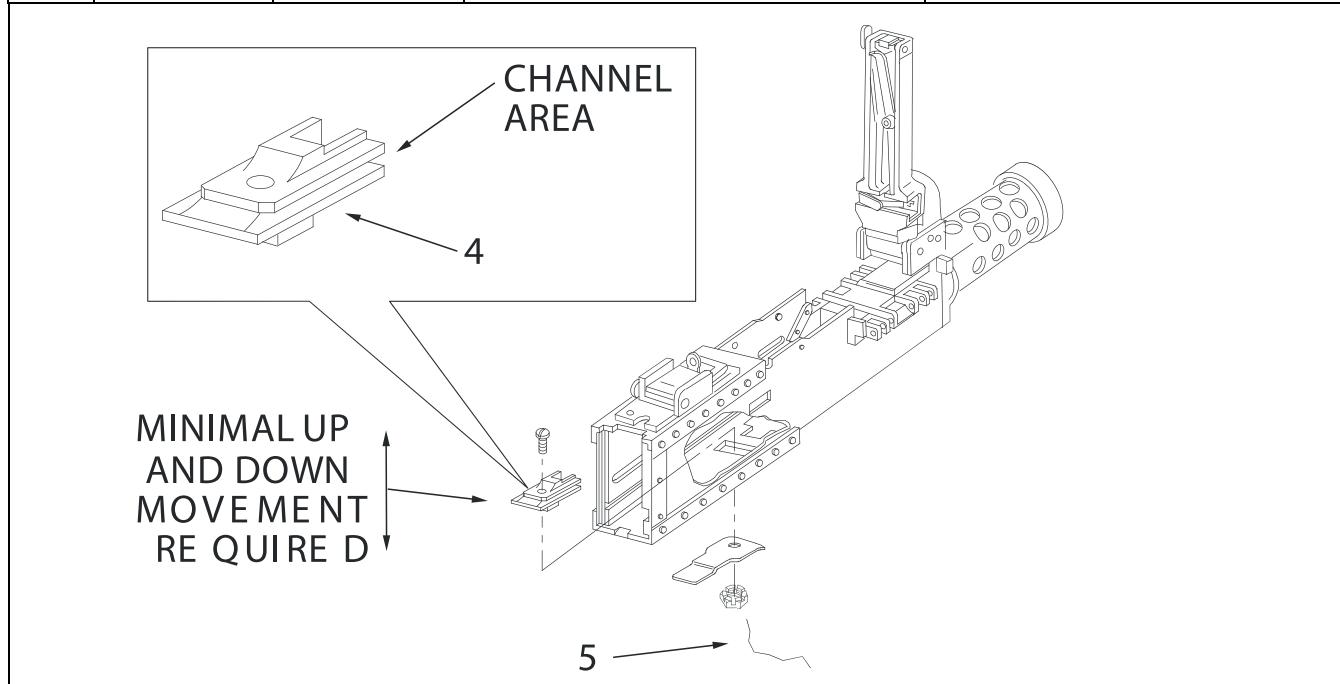
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				2NE050
96	Quarterly	Safety Wire	Check for broken or missing safety wires (10).	Safety wires are broken or missing.
97	Quarterly	Plunger	Check plunger (11) for proper assembly with bracket (5) and spring (12). Check for spring pressure when plunger is depressed. Check for collapsed spring.	Plunger is broken, missing, or incorrectly assembled. Spring is collapsed.
				2NE051

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

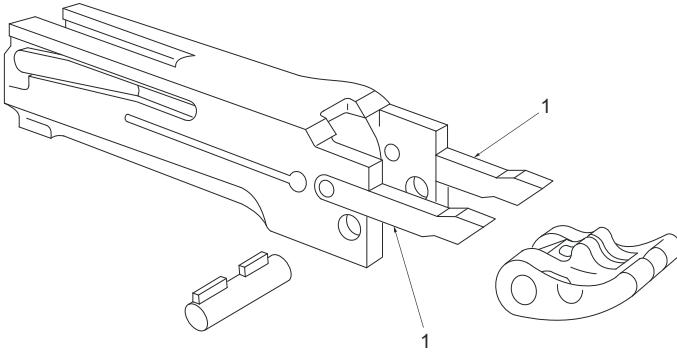
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
98	Quarterly	Receiver Assembly	Check barrel support (1) for burrs, cracks, or looseness.	Barrel support is burred, cracked, or loose.
99	Quarterly	Barrel Support	Check M2A1 barrel support cam slot (4) for burrs.	M2A1 barrel support cam slot is burred.
100	Quarterly	Extractor Switch	Check extractor switch (2) for spring tension and incorrect installation and presence of cotter pin. Check extractor switch for looseness.	Extractor switch is improperly installed; or has a weak or missing spring; or cotter pin is missing. Extractor switch is loose.
101	Quarterly	Bolt Latch	Check bolt latch (3) for spring tension and freedom of movement. Check bolt latch bolt catch for rounded edges.	Bolt latch binds or bolt latch bolt catch has rounded edges.
			 <p style="text-align: right;">2NE325</p>	
102	Quarterly	Breechlock Cam	Check breechlock cam (4) for up and down movement. Cam MUST have minimal movement. Check cam for wear in channel (rail) area.	Cam does not move or has wear in channel (rail) area.

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

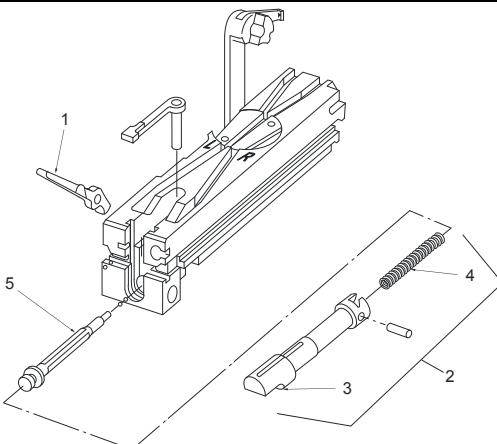
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
103	Quarterly	Safety Wire	Check for safety wire (5) through slotted nut and flat spring (flex only).	Safety wire is missing.
104	Quarterly	Receiver	Check receiver for cracks/movement of riveted components. If riveted components are loose, send to Field Maintenance.	Receiver is cracked or there is movement of riveted components.



**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

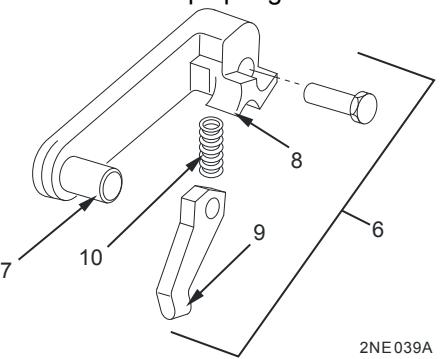
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
105	Annual	Barrel Buffer Body Assembly	Check for missing, damaged, or worn parts.	Parts are missing, damaged, or worn.
106	Annual	Lock Depressors	<p>a) Check lock depressors (1) for cracks or breaks.</p> <p><b>NOTE</b> Lock depressors may have movement (side to side or up/down) as long as the movement does not cause the weapon to malfunction.</p> <p>b) Check lock depressors (1) for failure to stay in barrel buffer body. Lock depressors may have a tendency to move (slight up and down or side to side movement).</p>	Lock depressors are cracked or broken.
 2NE041				
107	Annual	Annual safety and serviceability inspection and gaging	Check to ensure annual safety and serviceability inspection and gaging have been done on both barrels and that the next gaging and inspection is scheduled.	

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

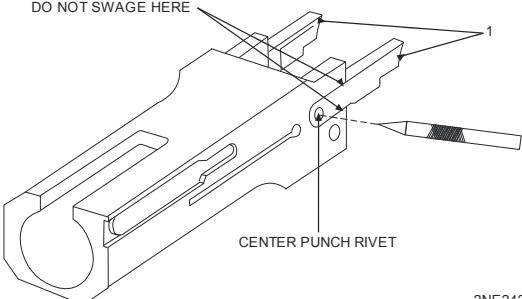
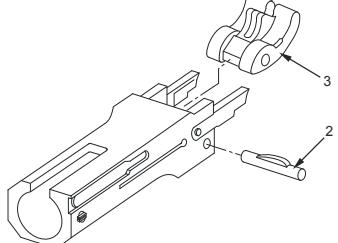
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>WARNING</b>  <b>EXPLOSION</b> Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.				
<b>CAUTION</b>				
If the bolt is retracted with the cover up and then cover is closed and the bolt released, the belt feed lever tang will not seat in the bolt groove. This results in a battered tang and a burred bolt body.				
108	Annual	Bolt Assembly	Check for missing lock pin.	Lock pin is missing.
109	Annual	Cocking Lever	Check cocking lever (1) for burrs or bends (especially where the lever cams).	Cocking lever has burrs or is bent.
110	Annual	Firing Pin Extension Assembly	a) Check if firing pin extension assembly (2) binds, is bent or cracked. b) Check for distorted notch (3).	Firing pin extension assembly binds, is bent or cracked. Notch is distorted.
111	Annual	Firing Pin Spring	Check for weak, broken, deformed, or collapsed coils on firing pin spring (4).	Firing pin spring coils are weak, broken, deformed, or collapsed.
112	Annual	Firing Pin	Check firing pin (5) for cracks, chipped or sharp tip. Tip should be smooth and well rounded.	Firing pin is cracked, bent, or broken.
				

2NE381

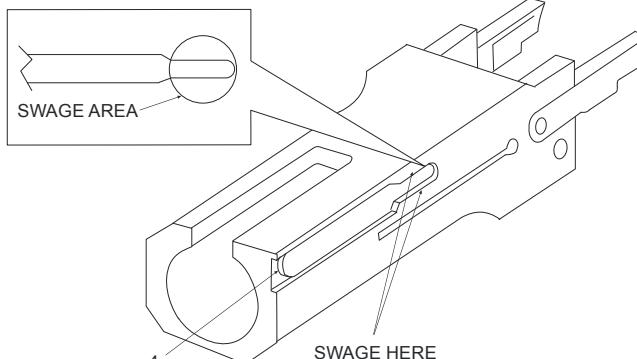
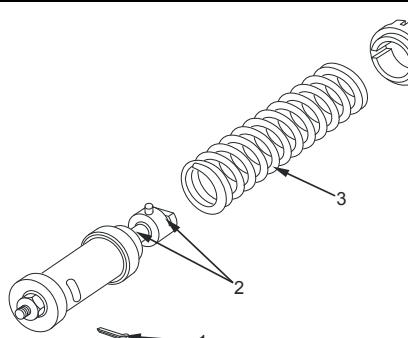
**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>CAUTION</b>				
<ul style="list-style-type: none"> <li>• NO stoning of locking lugs is authorized.</li> <li>• Stoning the locking lugs will result in premature increase in headspace.</li> <li>• Failure to comply may result in damage to equipment.</li> </ul>				
<b>NOTE</b>				
113	Annual	Cartridge Extractor	Check cartridge extractor (6) for bent arm and/or chipping on shank (7) in area where shank is inserted in bolt.	Cartridge extractor arm is bent or cracked.
114	Annual	Extractor	Check for chipped claw (8).	Claw is chipped.
115	Annual	Cartridge Ejector	Check for broken bolt ejector (9) and staking.	Bolt ejector is broken or not staked.
116	Annual	Cartridge Spring	Check for deformed, collapsed cartridge spring (10) coils. Check cartridge extractor for crisp spring action.   2NE 039A	Cartridge spring is broken, has collapsed coils, or weak spring action.

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
<b>NOTE</b>				
• Staking or swaging of the buffer body to secure or limit the movement of the lock depressors in their recesses is not required nor is it desirable. However, marks derived from previous unauthorized staking or swaging on buffer are acceptable as long as the staking/swaging does not interfere with the functioning of the weapon.				
• Ensure buffer accelerator is secured in barrel buffer body with accelerator pin assembly.				
• Swage the buffer body by using a blunt punch in the area around the lock groove in one or more places along the groove as required retaining the buffer body lock so that it cannot be removed by hand.				
117	Annual	Lock Depressor	Check rivets on lock depressors (1) to ensure depressors are securely retained in barrel buffer body and rivets are not loose. The rivets should not be staked or swaged in a manner which precludes slight movement of the lock depressors. The center of the rivets may be center punched if tightening of the lock depressors is required.	Rivets interfere with proper functioning of the weapon or are loose or missing from lock depressor.
118	Annual	Accelerator	Check for excessive wear on accelerator (3).	Accelerator shows excessive wear.
119	Annual	Accelerator Pin	Check accelerator pin (2) for burrs, looseness or wear, and for broken, not set, collapsed or missing spring.	Accelerator pin is burred, loose or worn. Spring is broken, not set, collapsed, or missing.
 				

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
120	Annual	Buffer Body Lock	Check retention of the buffer body lock (4). Buffer body assembly is serviceable as long as the lock cannot be removed by hand and/or can be secured by punching per following assembly directions. Previous swaging that does not damage, prevent assembly, or impair normal operation of the buffer body and lock is acceptable.	Buffer body lock can be removed by hand.
			 2NE242c	
121	Annual	Buffer Assembly	a. Check that cotter pin (1) is present. b. Check that rod and engaging notch (2) are not damaged.	Cotter pin is missing. Rod and/or engaging notch are damaged.
122	Annual	Buffer Spring	Check that buffer spring (3) is not broken, deformed, or coils collapsed.	Buffer spring is broken, deformed, or coils are collapsed.
			 2NE042	

**Table 1. Preventive Maintenance Checks and Services for Machine Gun, M2A1 – Continued.**

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
123	Annual	Buffer Tube/Back Plate Assembly	Disassemble buffer tube components from back plate assembly. Check if disks (1) are deformed, cracked, or collapsed.	Disks are deformed, cracked, or collapsed.
			<p style="text-align: center;"><b>NOTE</b></p> <p>Safety Wire is installed, solely as a precautionary measure, to prevent screws from loosening or falling out. When the user receives M2A1 that are new or overhauled, the safety wire is a single wire that may or may not be double twisted. Both methods are authorized and/or acceptable for use.</p>	
124	Annual	Trigger Block	Check trigger block for worn or damaged lockwire (2) or shoulder screws (3).	Lockwire or shoulder screws are damaged or worn.

**M2A1 TRIGGER BLOCK**

2NE340

**END OF WORK PACKAGE**



**CHAPTER 4**  
**MAINTENANCE INSTRUCTIONS**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****SERVICE UPON RECEIPT**

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**SERVICE UPON RECEIPT OF MATERIAL**

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD). Marine Corps personnel use MCO P4610.19.

**ARMY**

Army users report discrepancies in accordance with DA PAM 750-8.

**AIR FORCE**

Air Force users submit Material Deficiency Report (MDR) and Quality Deficiency Report (QDR) through the Joint Discrepancy Reporting System (JDRS) at <http://www.jdrs.mil>.

**MARINE CORPS**

Marine Corps users submit SF 368 in accordance with MCO 4855.10, Product Quality Deficiency Report (QDR) to: Commander, Marine Corps Logistics Bases (Code 856), 814 Radford Blvd, Albany, GA 31704-1128.

Check to see whether the equipment has been modified. Refer to authorized equipment configuration changes listed in DA PAM 25-30.

**WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

- DO NOT release the bolt or press the trigger.
- Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.
- DO NOT keep live ammunition in work area.

**INSTALLATION INSTRUCTIONS****Table 1. Service Upon Receipt Installation Instructions.**

<b>Location</b>	<b>Item</b>	<b>Action</b>	<b>Remarks</b>
Container	Machine Gun	<p>Remove machine gun from container.</p> <p>Inspect the equipment for damage incurred during shipment.</p> <p>Check the equipment against the packing list to see if the shipment is complete.</p>	<p>If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).</p> <p>Report all discrepancies in accordance with instructions in DA PAM 750-8.</p>
Machine Gun	Basic Issue Items	Check for missing parts.	Refer to operator's manual, TM 9-1005-347-10.
	Barrel/Spare Barrel Assembly	<p>Remove volatile corrosion inhibitor (VCI) bore tube from barrel and discard.</p> <p>Ensure flash suppressor is tight.</p>	
	All parts	<p>Field strip machine gun and inspect for missing parts, damaged parts, and rusted or corroded parts.</p> <p>Clean and lubricate.</p>	<p>Refer to operator's manual, TM 9-1005-347-10.</p> <p>Refer to operator's manual, TM 9-1005-347-10.</p>
		<p style="text-align: center;"><b>NOTE</b></p> <p>Do not attempt to remove the Breech Lock from the Barrel Extension. It is not meant for the Breech Lock to be removed during cleaning. Pinning the Breech Lock insures that the assigned Breech Lock/Barrel Extension combination is maintained, thus insuring proper headspace.</p>	
		Reassemble.	Refer to operator's manual, TM 9-1005-347-10.
		Verify headspace and timing was performed by unit armorer prior to issue. M2A1 headspace and timing adjustment is performed at Field Support maintenance	Refer to WP 0033 00.
		Function by hand using linked belted dummy cartridges.	Refer to operator's manual, TM 9-1005-347-10.
		Check to see whether the equipment has been modified.	<p>Army users see DA PAM 25-30. Marine Corps personnel use SL 1-2/SL 1-3. Air Force users see AFTO Form 105.</p>

**INSTALLATION INSTRUCTIONS – Continued****Table 1. Service Upon Receipt Installation Instructions.**

Location	Item	Action	Remarks
		<p>User/armorer is not required to gage new/overhauled weapons. Both new and overhauled weapons are test fired and gaged prior to packaging. Units are required to perform a service upon receipt IAW technical manual. Gaging is not called out as a requirement.</p> <p>Gaging is required annually for active army and every two years for guard and reserve.</p> <p>Gaging/calibration cards must reflect the date of last calibration (every twelve months). Each unit must tag their gage(s) to identify calibration date.</p>	<p>Gages are not calibrated or tagged. Record card with calibration date.</p>

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****GENERAL MAINTENANCE****GENERAL, CLEANING, DISASSEMBLY AND ASSEMBLY, FINISHED SURFACES, INITIAL SETUP**

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**INITIAL SETUP:****Materials/Parts**

Carbon removing compound (CRC) (item 10,  
WP 0057 00)  
Chemical resistant gloves (item 22,  
WP 0057 00)  
Lubricating oil (LSA) (item 25, WP 0057 00)  
Rifle bore cleaning compound (RBC) (item 14,  
WP 0057 00)  
Small arms bore cleaning brush (item 8,  
WP 0057 00)

**Materials/Parts - Continued**

Small arms chamber cleaning brush (item 9,  
WP 0057 00)  
Small arms cleaning cotton swab (item 33,  
WP 0057 00)  
Solid film lubricant (SFL) (item 24,  
WP 0057 00)

**References**

TM 9-1005-347-10

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## GENERAL

Refer to TM 9-1005-347-10 for general cleaning and lubricating instructions. Detailed cleaning procedures are provided in this work package. Moving surfaces should be cleaned frequently to ensure proper functioning.

### WARNING



HOT BARREL

M2A1 can become extremely hot. After firing, ensure sufficient time is allowed for weapon to cool before performing inspection or cleaning procedures. If injury occurs, seek medical attention immediately. Failure to comply may result in serious injury to personnel.

### WARNING



ACCIDENTAL DISCHARGE

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

- DO NOT release the bolt or press the trigger.
- Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.
- DO NOT keep live ammunition in work area.
- Failure to comply may result in serious injury to personnel.

### CAUTION

The use of gasoline; kerosene; benzene (benzyl); household cleaners; or high pressure water, steam, or air for cleaning the weapon is prohibited. Use only authorized cleaning materials (WP 0057 00). Failure to comply may result in damage to equipment.

Immediately after firing (or as soon as possible) thoroughly clean and lubricate the weapon to maintain reliability and combat effectiveness. Follow procedures in this work package.

### NOTE

Do not dilute rifle bore cleaning compound (RBC). Do not add antifreeze. Shake well before using.

**CLEANING**

1. Disassemble the machine gun into groups and assemblies (TM 9-1005-347-10).
2. Clean bore and chamber with cleaning brushes and cotton swab saturated with RBC until a clean cotton swab can be run through the barrel without detecting any decontamination. Wipe dry and lubricate (TM 9-1005-347-10).
3. Clean all metal surfaces that are subject to powder fouling with RBC, wipe dry, and lubricate (TM 9-1005-347-10).

**CAUTION**

The back plate assembly will not be submerged in solvents or other cleaning fluids. Use oily cloth on exterior surfaces to prevent corrosion.

4. Clean all other surfaces not covered in above paragraphs with RBC, wipe dry, and lubricate.

**WARNING****SOLVENTS AND PAINT THINNERS**

Cleaning Compound Solvents and paint thinners are flammable. Do not clean parts near an open flame or in a smoking area. Make sure adequate ventilation is available. Wear safety glasses or splash goggles and protective gloves. Always know location of nearest eye wash station. Dry cleaning solvents and paint thinners evaporate quickly and have a drying effect on the skin. When used without protective gloves, these chemicals may cause irritation to, or cracking of, the skin.

5. On component parts that have a hard carbon residue, it may be necessary to clean those parts with CRC. Depending on the amount of carbon residue, soak 2 to 16 hours, rinse with water, brush with a stiff bristle brush, wipe the parts dry, and lubricate.

**DISASSEMBLY AND ASSEMBLY**

Complete disassembly of a weapon is not always necessary in order to make a required replacement or repair. Good judgment should be used to keep disassembly and reassembly operations to a minimum.

During reassembly, subassemblies should be assembled first, and then assembled to form a complete weapon.

Lubricate frictional sliding surfaces before reassembly with LSA.

**FINISHED SURFACES**

All treated areas, which reflect light, will be refinished to match the appearance of new parts. Use solid film lubricant.

**NOTE**

An inactive machine gun is a machine gun which has been stored in an arms room for a period of 90 days without use. The machine gun may or may not have been assigned to an individual.

An inactive machine gun shall receive quarterly PMCS unless inspection reveals more frequent servicing is necessary.

Normal cleaning (PMCS) of an inactive machine gun will be performed every 90 days. Should corrosion be detected on a machine gun prior to the end of the 90-day period, the PMCS should be performed immediately.

Solid film lubricant (SFL) is the authorized touch up of the machine gun and may be used on up to one third (1/3) of the exterior finish of the machine gun receiver.

For Army CONUS use only and Air Force training machine gun only: SFL may be used as a touch up without limitation on the barrel assembly. This is to say that units which do not fall under the category of divisional combat units or rapid deployment type units may have up to 100 percent of the exterior surface of the barrel assembly protected with SFL. Prior to application of SFL, the surface must be thoroughly cleaned and inspected for corrosion and/or damage. If corroded or damaged, the part must be repaired or replaced prior to application of SFL. Continued use under combat conditions would result in an unprotected surface when SFL wears off. This would result in a large light reflecting surface and accelerated deterioration of the unprotected surface. Therefore, divisional combat units and units which fall under the definition of rapid deployment type must adhere to the limitation of not over one third (1/3) of their exterior surface of the receiver covered by SFL. If over one third (1/3) of the machine gun receiver finish is worn off, the weapon must be turned in for a new one. All USMC units are authorized to touch up the exterior finish with SFL up to 1/3 of the machine gun.

When determining mission capability, deadline if it is a deficiency.

**INITIAL SETUP**

In order to reduce the space required for the initial setup portion of the work packages, the following data is standard for all initial setups:

Materials/Parts - Includes only items applicable to the work package.

Tools and Special Tools - Includes only the standard tool set applicable to the work package.

Personnel Required - Includes the following designated joint service descriptions that are applicable to all field maintenance work packages:

Army - Military Occupational Specialty (MOS) 92Y Supply Clerk/Unit Armorer and MOS 91F Small Arms Repairman.

Air Force - Air Force Specialty Code (AFSC) 3P1XX Combat Arms Training and Maintenance Journeyman, Craftsman, and 3P1XXA Gunsmith.

Marine Corps - Military Occupational Specialty (MOS) 2111 Unit Armorer (Infantry Weapon Repairer).

**INITIAL SETUP - Continued**

References - Includes the operator's manual for joint service use:

NASM33540. ARMY TM 9-1005-347-10. Operator's Manual. Installation of Safety Wire and Cotter Pins.

Equipment Condition - Is listed as applicable to the work package.

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****IMPROPERLY INSTALLED BOLT ASSEMBLY  
REMOVAL**

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**INITIAL SETUP:****Tools and Special Tools**

Removal tool for improperly installed bolt  
(Figure 1, WP 0036 00)

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**REMOVAL**

If the bolt assembly is installed in the receiver with the cocking lever improperly positioned (not pointed towards the barrel assembly), the following two procedures can be used to free the bolt assembly without damaging components.

**WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed. DO NOT release the bolt or press the trigger.

**WARNING****BACKPLATE SPRING**

The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- DO NOT attempt to charge machine gun without the backplate assembled to machinegun.
- Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
- DO NOT stand behind the weapon while removing backplate assembly.
- Stand to one side of the weapon when removing backplate assembly.

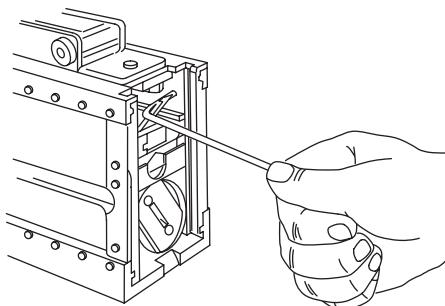
**NOTE**

For both procedures, ensure backplate, drive spring rod assembly, and bolt stud are removed.

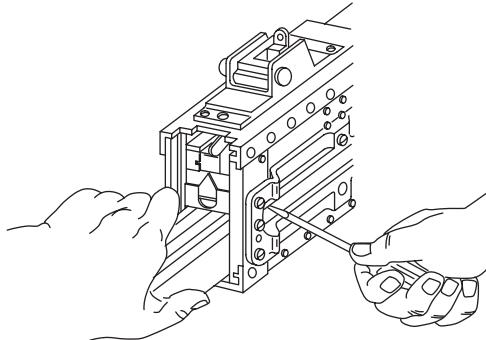
First procedure is contained in steps 1 and 2. Second procedure is contained in steps 3 through 6.

**REMOVAL – Continued**

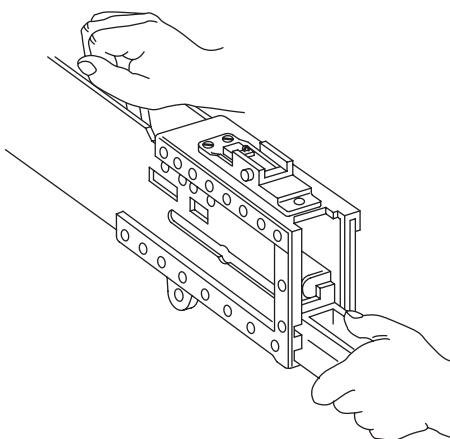
1. Fabricate a hook-shaped piece of safety wire (Figure 1, WP 0036 00). Place metal hook around the cocking lever, halfway up the cocking lever. If placed higher, the cocking lever will jam.
2. Press down hard on the cocking lever and pull back with several hard pulls of the tool. The bolt should come free of the receiver assembly.
3. Ensure backplate, drive spring rod assembly, and bolt stud are removed.
4. Depress buffer body lock with a pointed object and slide the buffer assembly out about 2.00 in. (5.08 cm).



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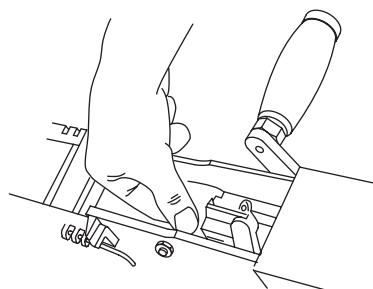


2NE088



2NE089

5. Slide the bolt assembly forward and pull the buffer assembly to the rear. The bolt forces the accelerator down and allows the buffer assembly to be moved. It may be necessary to slide the bolt assembly back and forth several times before the buffer assembly can be removed.
6. Push down on the front of the barrel extension assembly. Slide the bolt assembly out of the receiver. If the bolt hangs up, pull the barrel extension forward and up until the bolt assembly slides out.



2NE090

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****GENERAL MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

Small arms repairman tool kit  
(Table 2, item 6, WP 0054 00)

**Materials/Parts**

Dummy rounds  
Spring pin (item 18, WP 0038 00)

**Personnel Required**

Two

**References**

TM 9-1005-347-10

**Equipment Conditions**

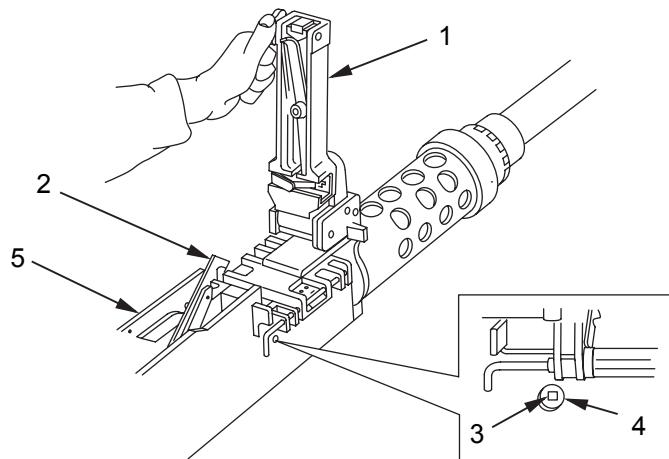
M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

**DISASSEMBLY****WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed. DO NOT release the bolt or press the trigger.

Failure to comply may result in serious injury to personnel.

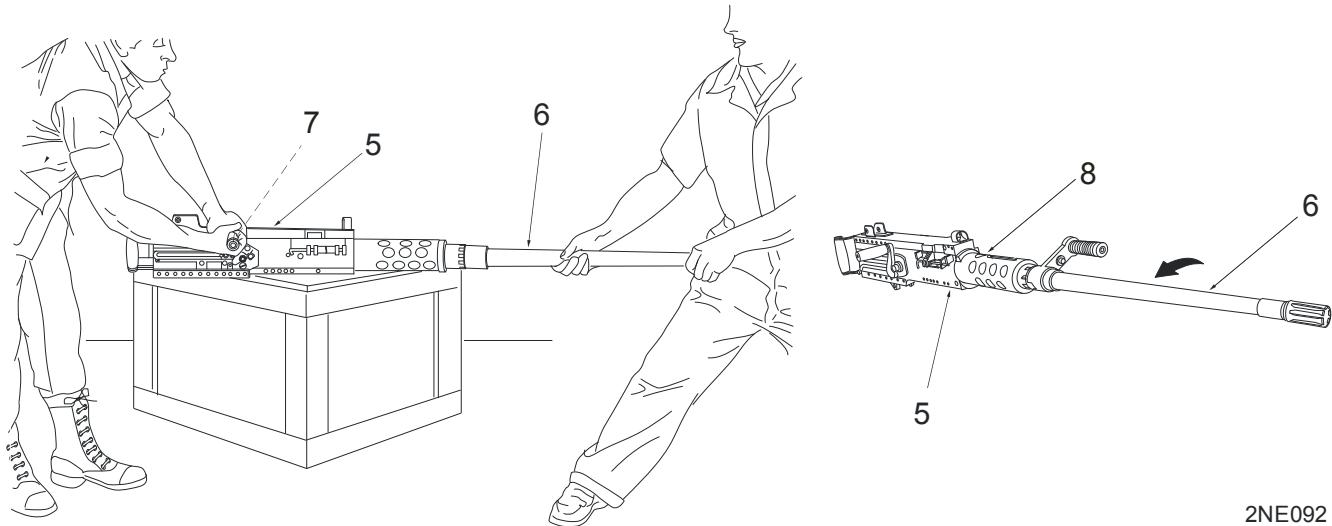
1. Raise cover assembly (1) all the way up. Retract bolt assembly (2) far enough for barrel locking spring lug (3) to center in barrel locking spring hole (4) on right hand side of receiver (5).



2NE091

**DISASSEMBLY - Continued**

2. Unlock and remove barrel assembly (6) from receiver (5). After retracting slide handle (7) approximately 3/8 in., rotate barrel counterclockwise until locking pin engages camming slot (8). Continue rotating barrel until locking pin engages alignment slot, then pull barrel forward out of barrel support.

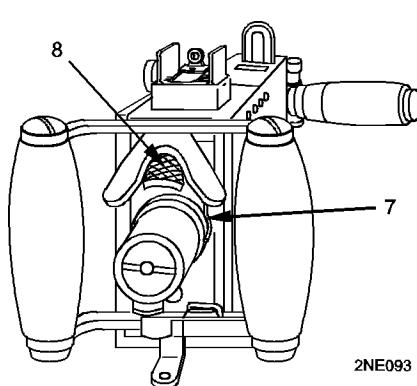


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**WARNING****BACKPLATE SPRING**

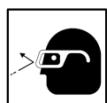
The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- DO NOT attempt to charge machine gun without the backplate assembled to machinegun.
  - Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
  - DO NOT stand behind the weapon while removing backplate assembly.
3. Ensure bolt latch release lock (7) is in unlocked (semi-automatic) position. The bolt latch release (8) must be in the up position (not locked down).

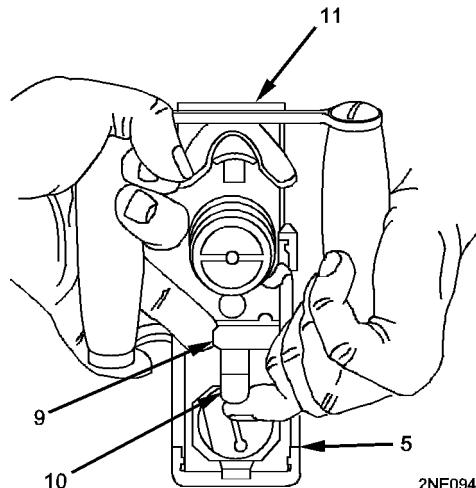


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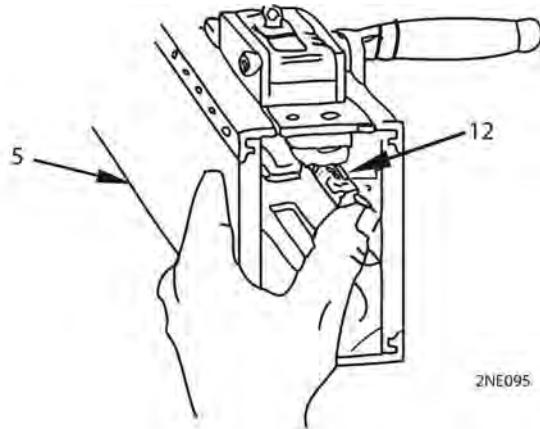
- Pull backplate latch lock (9) straight back, lifting up on backplate latch (10). Raise backplate assembly (11) straight up and remove from receiver (5).

**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

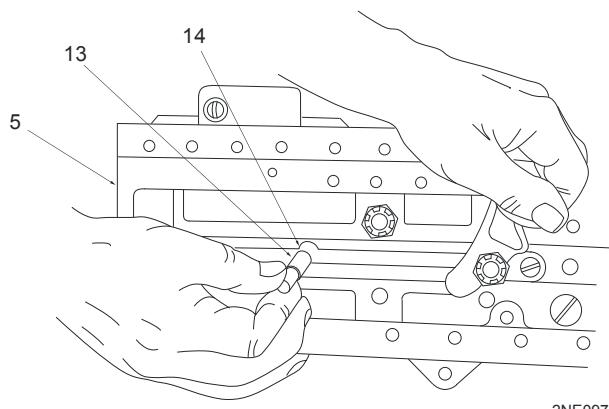


- Push rear of drive spring rod assembly (12) forward and to the left until free from the side of receiver (5). Remove drive spring rod assembly.

**NOTE**

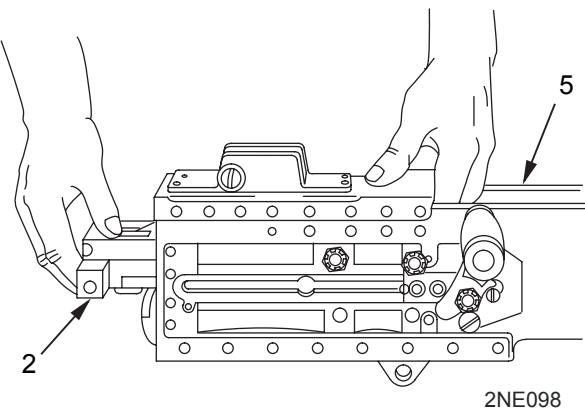
Bolt stud is removed from right side of flex machine gun.

- Retract bolt assembly far enough to align bolt stud (13) with (enlarged) bolt stud (14) in receiver (5). Remove bolt stud.

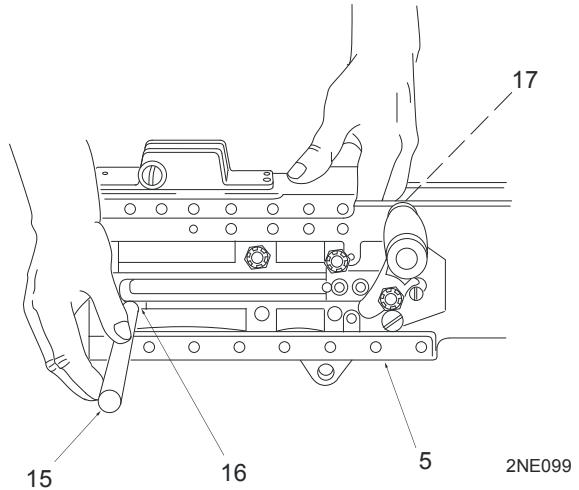


**DISASSEMBLY - Continued**

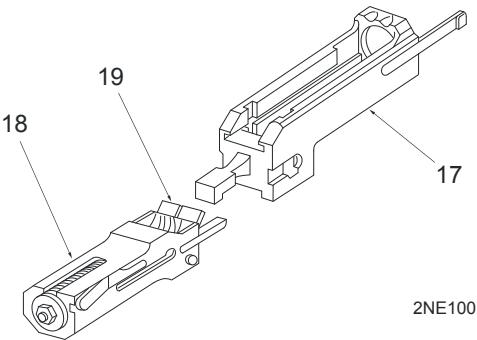
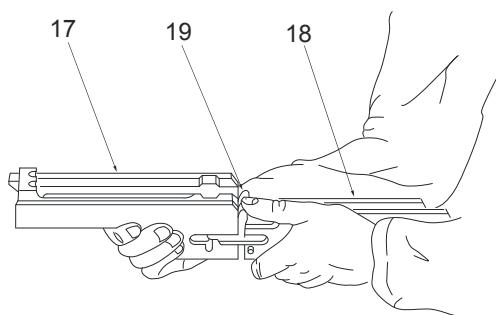
7. Remove bolt assembly (2) from receiver (5).



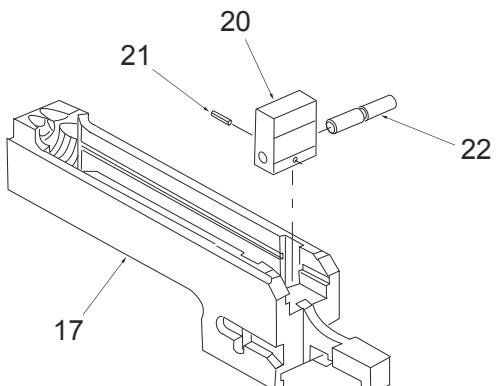
8. Install pointed end of punch (15) into hole (16) in receiver (5) and depress buffer body lock while applying rearward pressure on barrel extension assembly (17).



9. Remove barrel buffer assembly (18) and barrel extension assembly (17) together. Separate the assemblies by pushing forward on tips of buffer accelerator (19).



10. Remove breech lock (20) from barrel extension assembly (17) and position barrel extension upside down. Drive out and discard spring pin (21). Remove breech lock pin assembly (22) and slide breech lock out of barrel extension assembly.

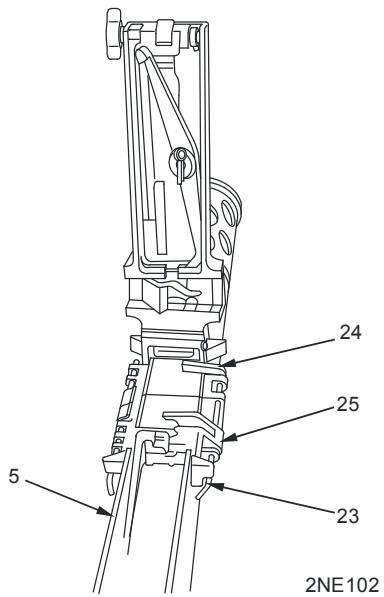


2NE379A

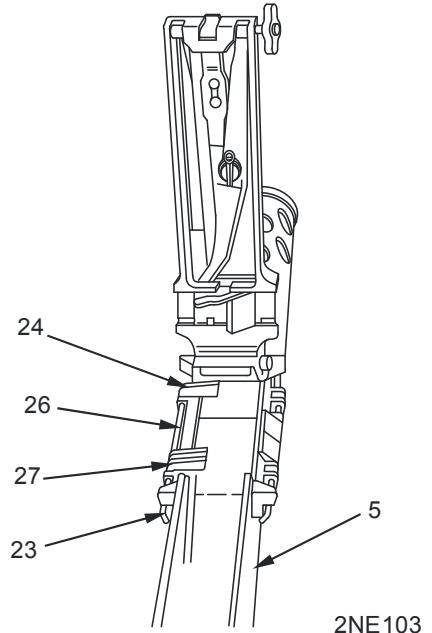
### NOTE

For left hand feed perform step 11.  
For left hand feed perform step 12.

11. Remove belt holding pawl pin (23) attaching front cartridge stop (24) and rear cartridge stop assembly (25) to receiver (5). Remove front cartridge stop and rear cartridge stop assembly (left-hand feed only).
12. Remove belt holding pawl pin (23) attaching front cartridge stop (24), link stripper (26), and rear cartridge stop (27) to receiver (5). Remove front cartridge stop, link stripper, and rear cartridge stop (right-hand feed only).



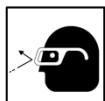
LEFT HAND FEED



RIGHT HAND FEED

## **DISASSEMBLY - Continued**

## **WARNING**



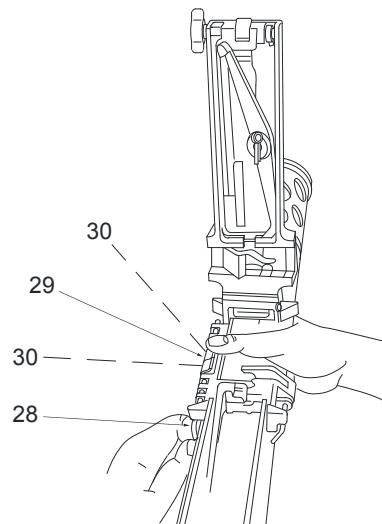
## **EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

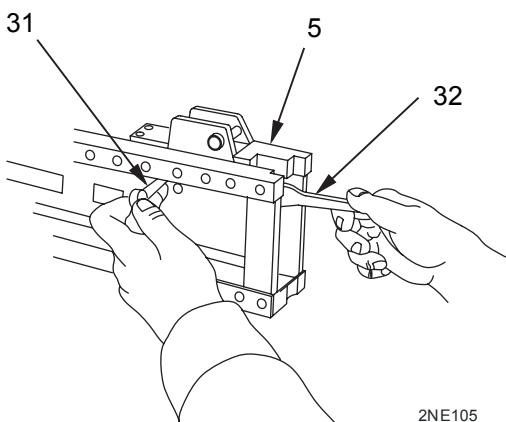
## **NOTE**

Hold down on belt holding pawl assembly to prevent loss of springs.

13. Remove belt holding pawl pin (28), belt holding pawl assembly (29), and two belt holding pawl springs (30).
  14. Raise loop of trigger lever pin (31) and rotate trigger lever pin until loop is in vertical position. Reach inside receiver (5) and hold trigger lever (32) while removing trigger lever pin. Remove trigger lever.



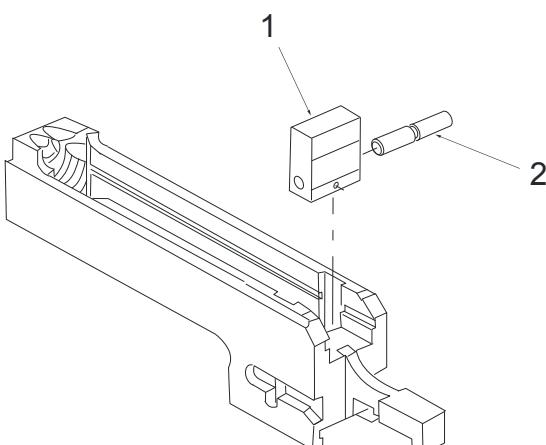
2NF104



3NE105

## **INSPECT/REPAIR**

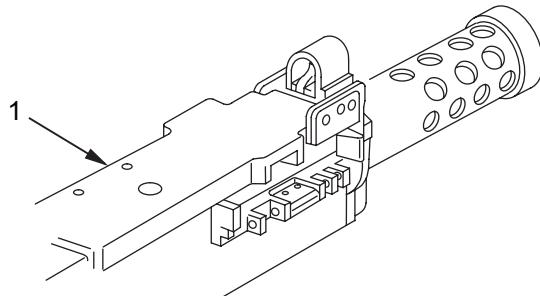
1. Check for missing, damaged, or worn parts.
  2. Check barrel support for cracks. No cracks are allowed. Original surface imperfections are permitted.
  3. Check breech lock (1) beveled edges for rolled back, broken, or chipped edges. Replace breech lock if edges are rolled back, broken, or chipped.
  4. Check for missing spring (2).
  5. Repair is by replacement of authorized parts.



2NE379

**ASSEMBLY****WARNING****EXPLOSION**

- Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction. Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.

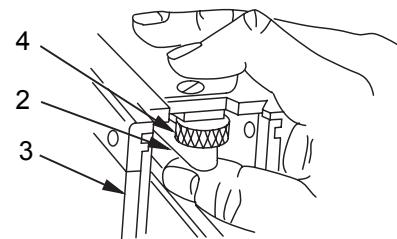


2NE108

- Open cover assembly (1) all the way up.
- Install trigger lever (2) in receiver (3).

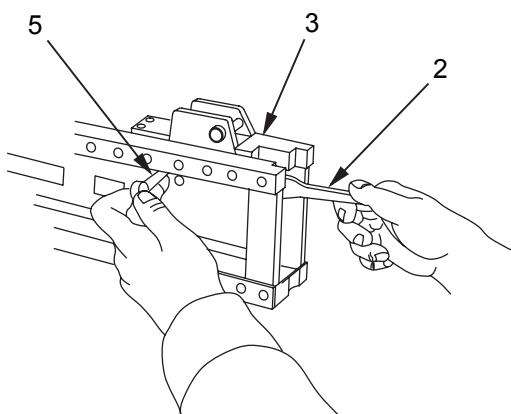
**NOTE**

Ensure trigger lever is aligned directly under timing nut (4).

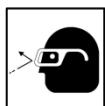


2NE109

- Align hole in trigger lever (2) with mounting hole in receiver (3).
- Place trigger lever pin (5), loop end vertical, in assembly hole on left side plate of receiver (3).
- Match key on trigger lever pin (5) with keyway inside plate of receiver (3) and install trigger lever pin completely.
- Rotate trigger lever pin (5) 90 degrees to lock securely in place, and fold down out of the way.
- Check that trigger lever (2) moves freely.

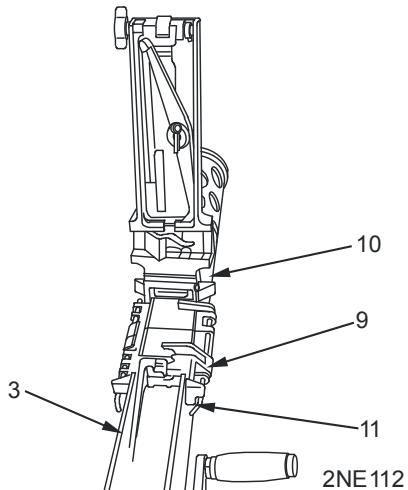
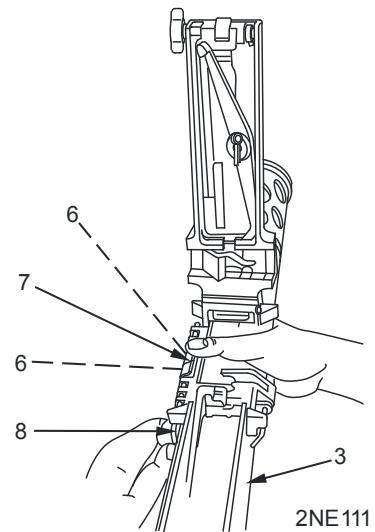
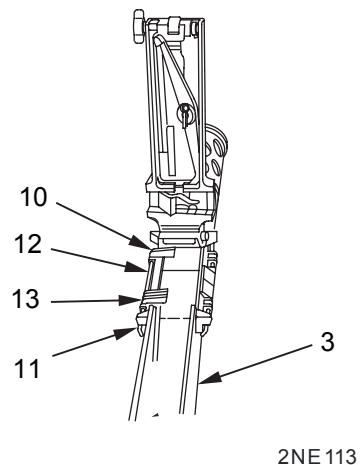


2NE110

**ASSEMBLY - Continued****WARNING****EYE HAZARDS**

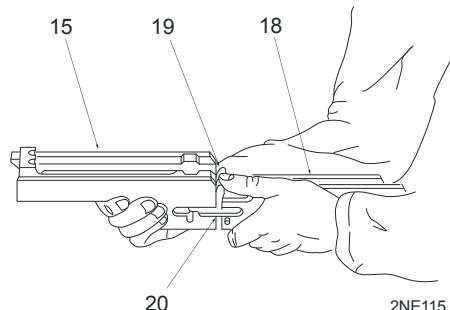
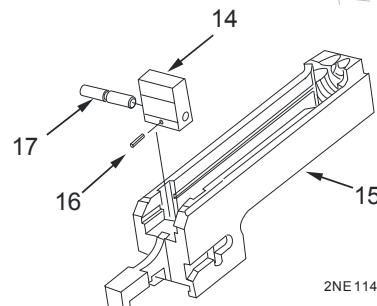
Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

8. Seat two belt holding pawl springs (6) in place on receiver (3).
9. Place belt holding pawl assembly (7) on belt holding pawl springs (6). Compress belt holding pawl springs and insert belt holding pawl pin (8).
10. Place rear cartridge stop assembly (9) and front cartridge stop (10) on receiver (3) (left-hand feed only).
11. Install belt holding pawl pin (11) with hooked end to rear (left-hand feed only).
12. Place front cartridge stop (10), link stripper (12), and rear cartridge stop (13) on receiver (3) (right-hand feed only).
13. Install belt holding pawl pin (11) with hooked end to rear (right-hand feed only).

**LEFT HAND FEED****RIGHT HAND FEED**

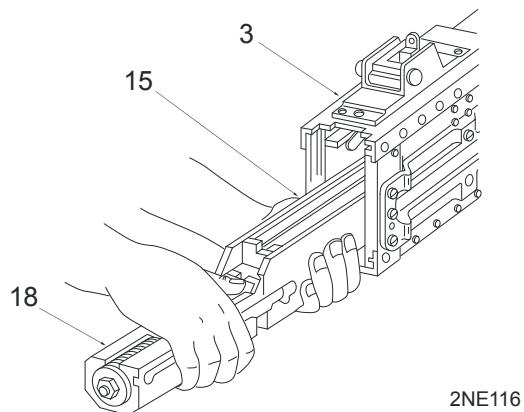
**ASSEMBLY - Continued**

14. Install breech lock (14) in barrel extension assembly (15) with beveled edge up and to the front of barrel extension assembly with new spring pin (16).
15. Install breech lock pin (17) in barrel extension assembly (15). Ensure both ends of breech lock pin are flush with sides of barrel extension assembly.
16. Hold barrel buffer assembly (18) with buffer accelerator (19) up and engage notch on shank of barrel extension assembly (15) with cross groove in piston rod of barrel buffer assembly.
17. Align breech lock depressors (20) in grooves of barrel extension assembly (15) and push barrel buffer assembly (18) forward.

**WARNING****EXPLOSION**

Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction. Failure to comply may result in serious injury to personnel.

- Ensure that during barrel installation the square on the barrel extension is **NOT** pulled back **PAST** the 3/8 in. hole on the right side of the receiver or the barrel will not be attached to the barrel extension.
  - Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.
  - Maintain thumb pressure on buffer accelerator while installing barrel buffer assembly and barrel extension assembly into receiver.
18. Install barrel buffer assembly (18) and barrel extension assembly (15) in receiver (3).



**ASSEMBLY - Continued****CAUTION**

When installing bolt assembly, do not trip buffer accelerator.

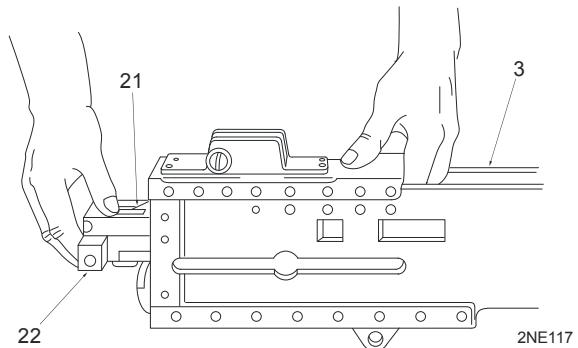
**NOTE**

Ensure cocking lever (21) is forward before installing bolt assembly (22) into receiver (3).

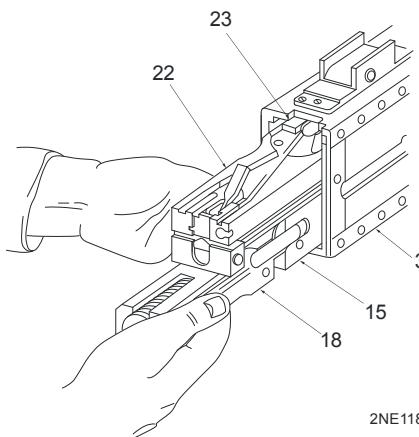
19. Push bolt assembly (22) forward into receiver (3) until bolt latch engages notches in top of bolt assembly.

**NOTE**

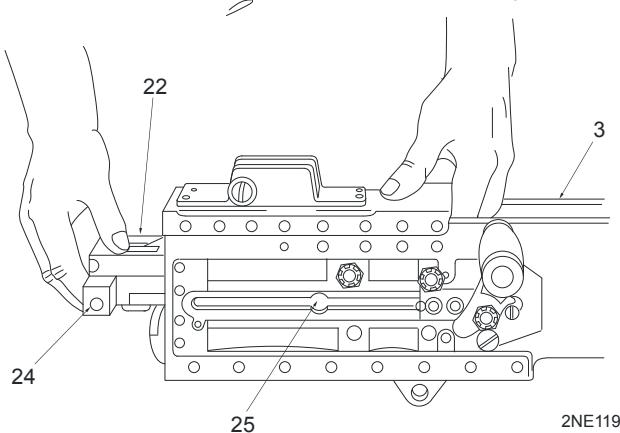
If unable to install by performing the previous step, perform steps 20 and 21.



20. Remove barrel extension assembly (15) and barrel buffer assembly (18) from the receiver (3). Install bolt assembly (22) into the barrel extension assembly and barrel buffer assembly and then install into the receiver.
21. Raise bolt latch (23) and push bolt assembly (22) into receiver (3).

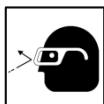


22. Align hole (24) in bolt assembly (22) with bolt stud hole (25) in receiver (3).



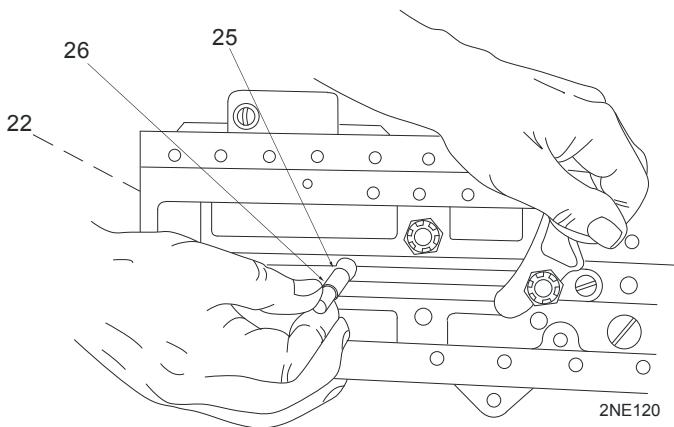
**ASSEMBLY - Continued**

23. Install bolt stud (26) in hole in bolt assembly.
24. Place bolt assembly (22) in forward position.

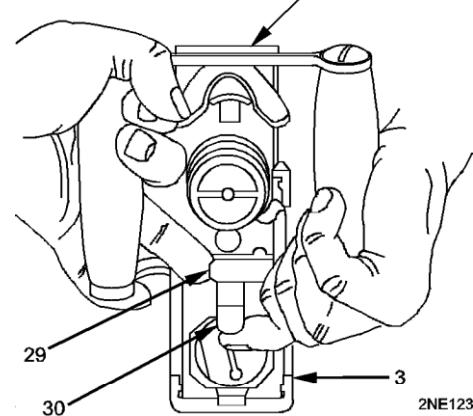
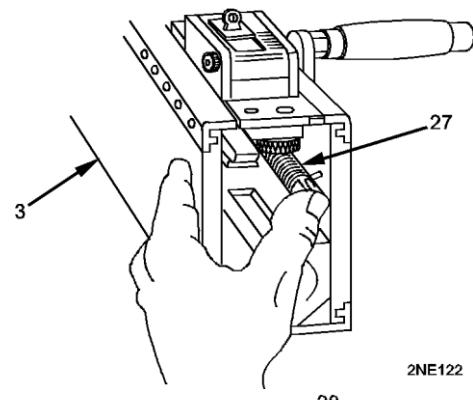
**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

25. Install drive spring rod assembly (27) in upper right hand corner of bolt assembly. Push forward and to the right until drive spring rod assembly engages in hole in side plate of receiver (3) and not in the groove for the backplate.



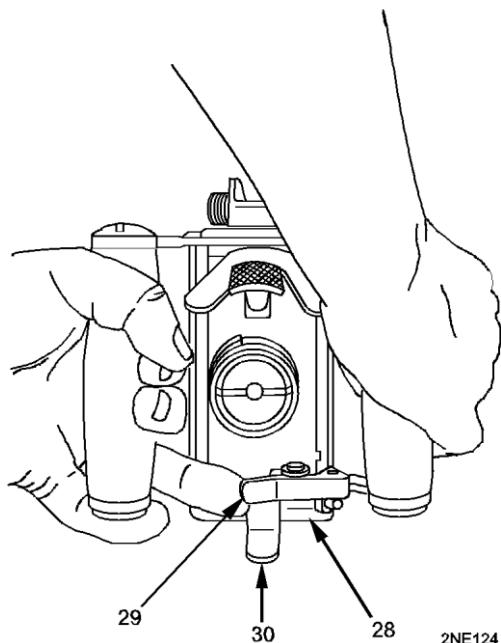
26. Install backplate assembly (28) in grooves of receiver (3). Pull backplate latch lock (29) while lifting up on backplate latch (30).



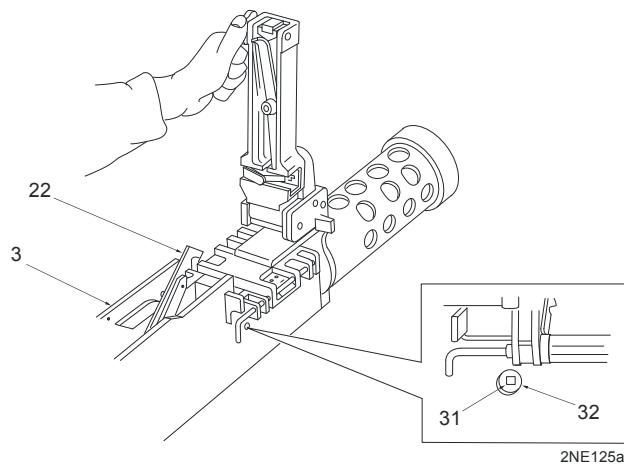
**ASSEMBLY - Continued****NOTE**

Test for proper locking of backplate assembly (28) by pulling up on the backplate assembly.

27. Pull backplate latch lock (29) back and pull up on backplate assembly (28) to ensure proper locking.
28. Lift backplate latch (30) up and pull up on backplate assembly (28) to ensure proper locking.
29. Close cover assembly (1), making sure it latches securely to receiver (3). Reopen cover assembly

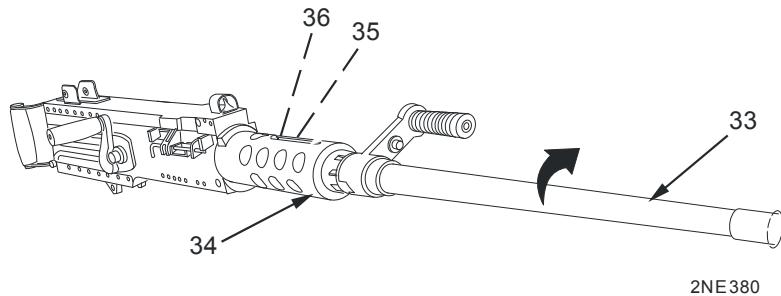


30. Retract bolt assembly (22) far enough for barrel locking spring lug (31) to center in barrel locking spring hole (32) on right hand side of receiver (3).



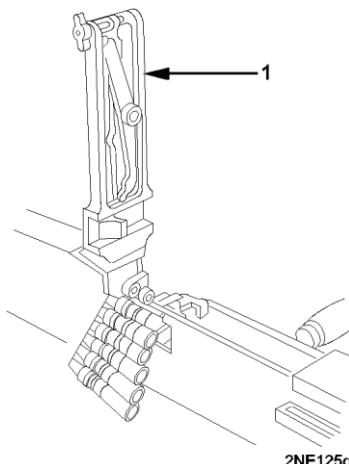
**ASSEMBLY – Continued**

31. Insert barrel assembly (33) into barrel support (34) until locking pin (35) engages camming slot (36). Rotate barrel assembly clockwise and secure locking pin in retention slot.



2NE380

32. Load five or more linked dummy rounds (use links from expended ammunition), close cover assembly (1), and hand operate weapon to ensure all components are functioning properly. Weapon should function through a complete cycle.



2NE125c

**END OF WORK PACKAGE**



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## FIELD MAINTENANCE

### MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

#### BOLT ASSEMBLY MAINTENANCE INSPECT/REPAIR, ADJUSTMENT

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#### INITIAL SETUP:

##### Tools and Special Tools

Small arms repairman tool kit  
(Table 2, item 6, WP 0054 00)

##### Equipment Conditions

Bolt assembly removed/disassembled  
(TM 9-1005-347-10)

#### References

TM 9-1005-347-10  
WP 0032 00  
WP 0033 00

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#### INSPECT/REPAIR

1. Check for missing, damaged, or worn parts.
2. Repair is by replacement of authorized parts.

#### ADJUSTMENT

1. Assemble bolt assembly (TM 9-1005-347-10).
2. Check and adjust headspace and timing (refer to WP 0032 00 and WP 0033 00).
3. Install bolt assembly (TM 9-1005-347-10).

#### END OF WORK PACKAGE



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****COVER ASSEMBLY MAINTENANCE  
REMOVAL, DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY, INSTALLATION****INITIAL SETUP:****Tools and Special Tools**

Field maintenance mall arms shop set  
(Table 2, item 3, WP 0054 00)

**References**

WP 0015 00

**Materials/Parts**

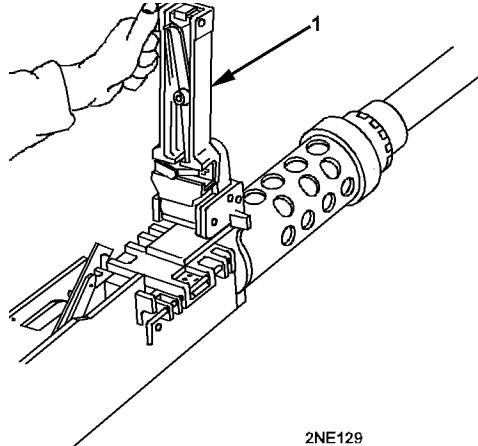
Cotter pin (item 6, WP 0038 00)  
Cotter pin (item 12, WP 0044 00)

**Equipment Conditions**

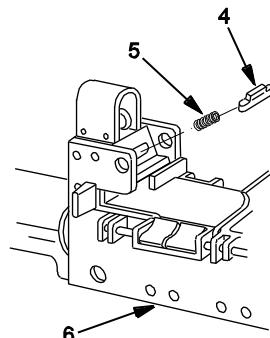
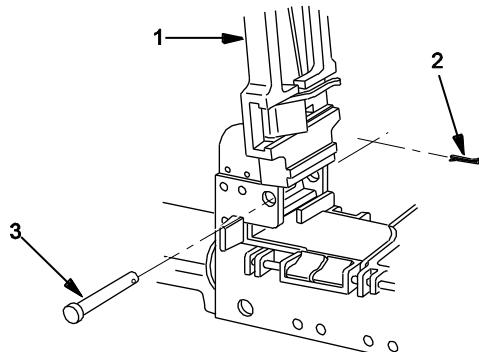
Cover assembly partially disassembled  
(WP 0011 00)

**REMOVAL**

1. Raise cover assembly (1) all the way up.
2. Remove and discard cotter pin (2). Using punch, drive out and remove headed straight pin (3). Remove cover assembly (1).
3. Remove cover detent pawl (4) and spring (5) from receiver (6).



2NE129



2NE336

**REMOVAL - Continued****NOTE**

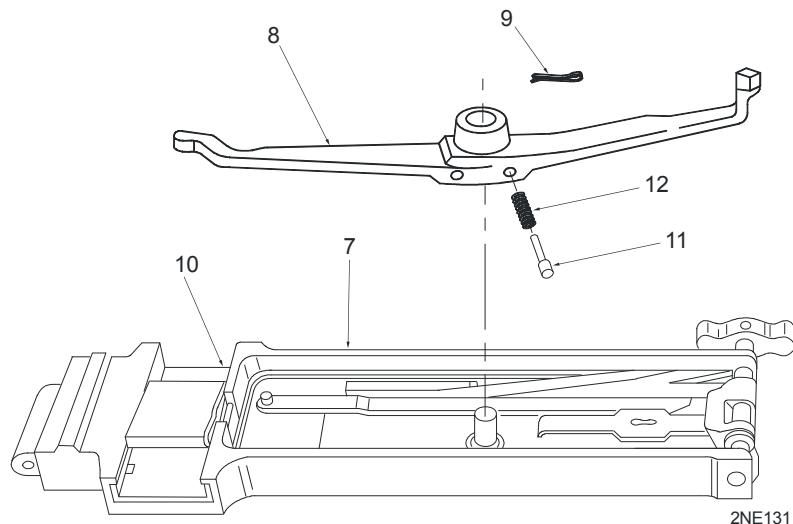
For clarity, illustrations show cover assembly removed from receiver.

3. Remove lock pin (9) from belt feed lever (8).

**WARNING****EYE HAZARDS**

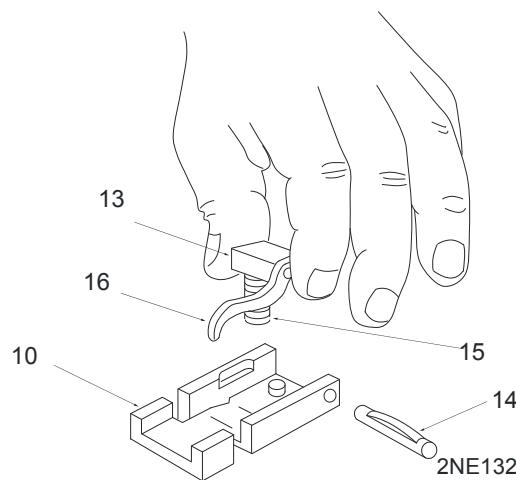
Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

4. Push belt feed lever (8) from left to right until toe end is aligned with slot in subassembly cover (7) and slot in belt feed slide assembly (10). Remove belt feed lever, shoulder pin (11), and helical compression spring (12).
5. Pull out belt feed slide assembly (10) from subassembly cover (7).

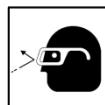


**REMOVAL - Continued**

6. Hold belt feed pawl (13) down while removing spring pin (14) from belt feed slide assembly (10).
7. Slowly let belt feed pawl (13) rise to control helical compression spring (15). Remove belt feed pawl from belt feed slide assembly (10). Remove helical compression spring and belt feed pawl arm (16) from belt feed pawl.

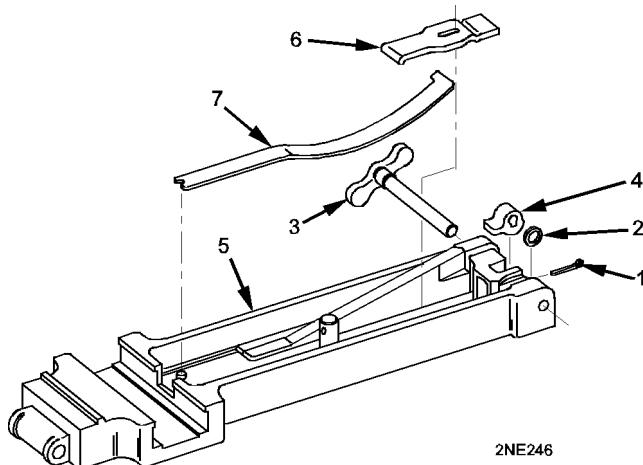
**DISASSEMBLY**

1. Remove cotter pin (1), flat washer (2), cover latch lever (3), and cover latch (4) from subassembly cover (5). Discard cotter pin.

**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

2. Pull down on cover latch flat spring (6) until it can be lifted off stud in subassembly cover (5).
3. Pry cover extractor flat spring (7) from subassembly cover (5); let cover extractor flat spring rise slowly to remove.



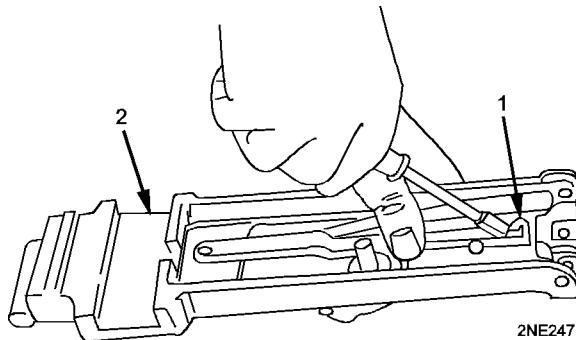
**INSPECT/REPAIR**

1. Check for missing, damaged, or worn parts. Check springs for collapsed coils and elongated springs. Check belt feed lever for proper (crisp) spring action. Ensure all parts are present and installed.
2. If subassembly cover is damaged, repair is by replacement of next higher assembly.
4. Repair is by replacement of authorized parts.

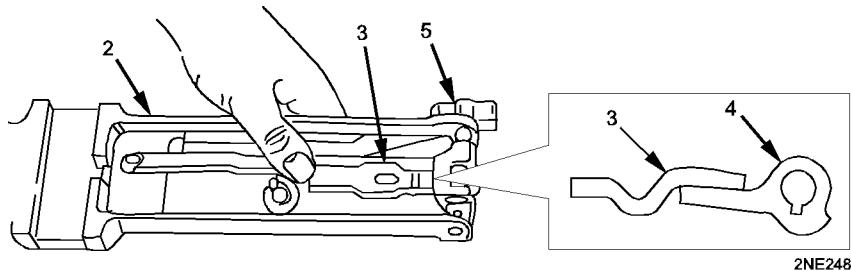
**ASSEMBLY****WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

1. Place forked end of cover extractor flat spring (1) under stud in subassembly cover (2) and push lip of cover extractor flat spring into slot of cover to install cover extractor flat spring in cover.

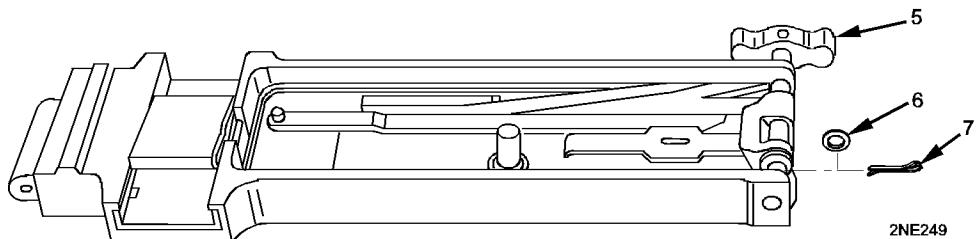


2. Position large end of slot in flat spring (3) over stud in subassembly cover (2). Push flat spring up until stud in cover is in small end of flat spring slot.
3. Install cover latch (4) and cover latch lever (5) in subassembly cover (2). Be sure cover latch is under lip on flat spring (3).



**ASSEMBLY - Continued**

4. Install flat washer (6) and new cotter pin (7) on cover latch lever (5).
5. Refer to WP 0015 00 for inspection when cover assembly is fitted to receiver assembly.



6. Assemble belt feed pawl arm (8) on belt feed pawl (9).

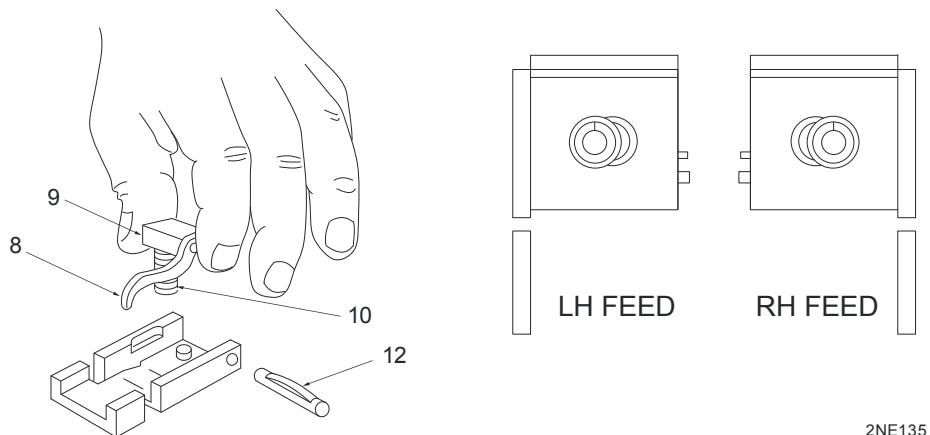
**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel

**NOTE**

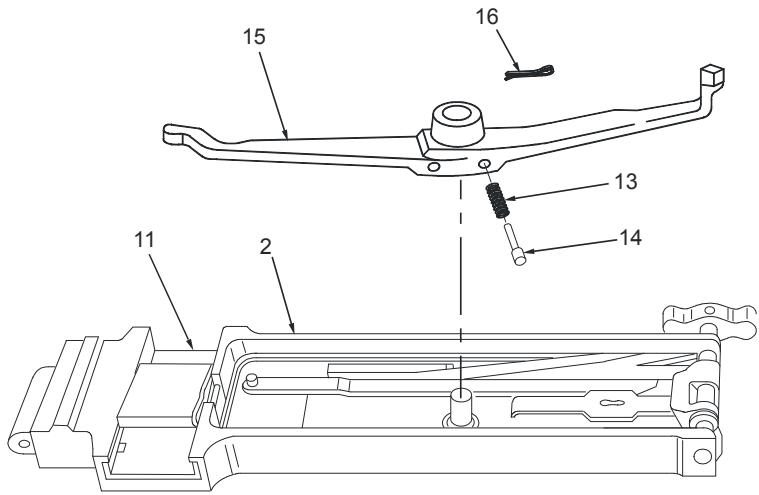
Refer to illustration for correct position of helical compression spring (6) for left- or right-hand feed.

7. Assemble large end of helical compression spring (10) in hole in belt feed pawl (9) with the foot of the spring in the side opposite the belt feed pawl arm (8).



**ASSEMBLY - Continued**

8. Install belt feed pawl (9) with attached parts on belt feed slide assembly (11), aligning helical compression spring (10) on pin of belt feed slide assembly. Secure with spring pin (12).
9. Push belt feed slide assembly (11) into subassembly cover (2).
10. Install helical compression spring (13) and shoulder pin (14) in belt feed lever (15).
11. Depress shoulder pin (14) and align belt feed lever (15) with slot in subassembly cover (2) and slot in belt feed slide assembly (11). Install belt feed lever in cover.
12. Install lock pin (16) to secure belt feed lever (15).

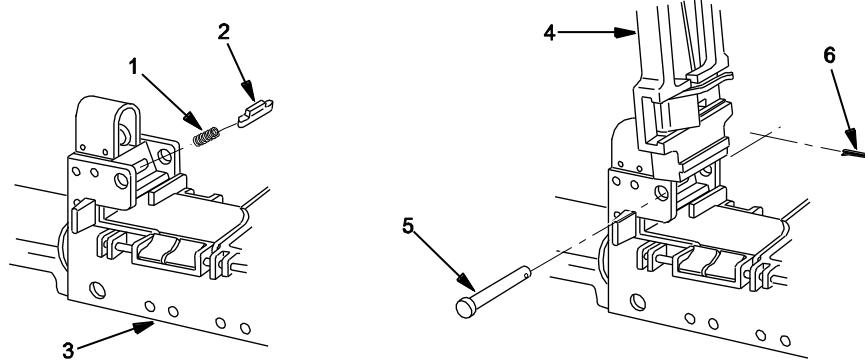


2NE136

**INSTALLATION****NOTE**

Be sure helical compression spring and shoulder pin are installed in the correct hole of belt feed lever. The upper hole of belt feed lever is for left-hand feed; the lower hole is for right-hand feed.

1. Place spring (1) and cover detent pawl (2) on receiver (3).
2. Position cover assembly (4) against cover detent pawl (2) on receiver (3). Close cover assembly.
3. Install headed straight pin (5) and new cotter pin (6).



2NE337

3. Perform top cover clearance check (WP 0015 00).

**END OF WORK PACKAGE**

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## FIELD MAINTENANCE

### M2A1 WITH FIXED HEADSPACE AND TIMING (1005-01-511-1250)

#### CHANGING MACHINE GUN FROM LEFT HAND FEED TO RIGHT HAND FEED DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

---

##### INITIAL SETUP:

###### Tools and Special Tools

Small arms repairman tool kit  
(Table 2, item 6, WP 0054 00)

###### References

TM 9-1005-347-10

###### Materials/Parts

Cotter pin (item 12, WP 0044 00)  
Cotter pin (3) (item 9, WP 0045 00)

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#### WARNING



#### ACCIDENTAL DISCHARGE

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

- DO NOT release the bolt or press the trigger.
- Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.
- DO NOT keep live ammunition in work area.

Failure to comply may result in serious injury to personnel.

#### NOTE

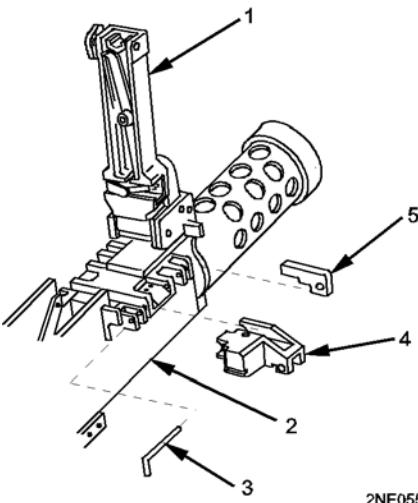
Procedures on cover latch and retracting slide assembly may vary depending on gun mount used.

**DISASSEMBLY**

1. Raise cover assembly (1) on receiver (2) and remove belt holding pawl pin (3), rear cartridge stop assembly (4), and front cartridge stop (5) from right side of receiver. Set rear cartridge stop assembly aside.

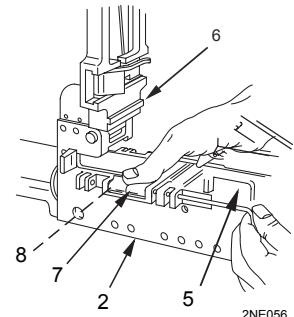
**WARNING**

To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.



2NE055

2. Remove belt holding pawl pin (6), belt holding pawl assembly (7), and belt holding pawl springs (8) from left side of receiver (2) and install belt holding pawl springs, belt holding pawl assembly, and belt holding pawl pin on right side of receiver.
3. Install front cartridge stop (5), link stripper (9), and cartridge stop (10) to left side of receiver (2), and secure with belt holding pawl pin (3).



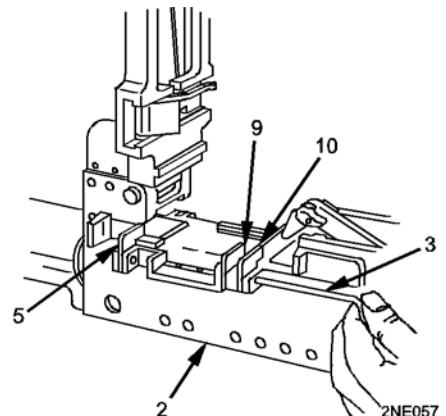
2NE056

**WARNING**

Ensure bolt is in the forward position before removing backplate assembly. Stand to the side of the weapon when removing the backplate assembly.

**NOTE**

Ensure that bolt latch release (11) is in the up position (single-shot mode).

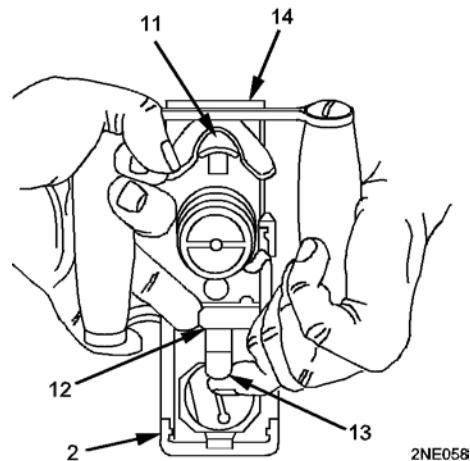


2NE057

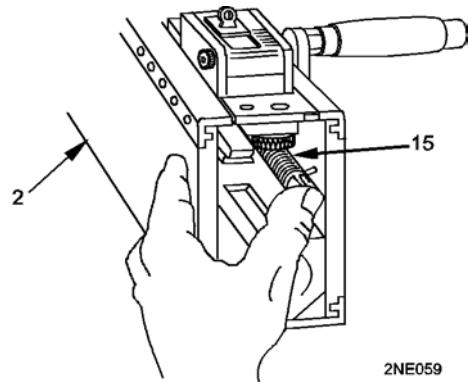
- Pull backplate latch lock (12) straight back, while lifting up on backplate latch (13). Raise backplate assembly (14) straight up and remove from receiver (2).

**WARNING**

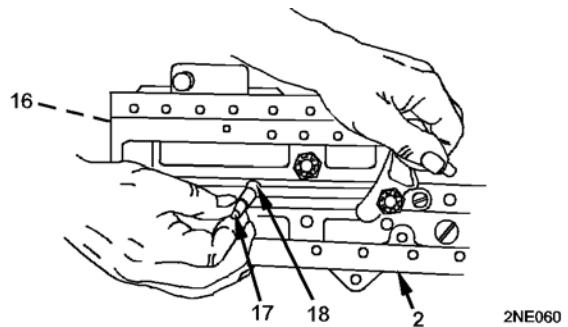
To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.



- Push rear of drive spring rod assembly (15) forward and to the left until free from side of receiver (2). Remove drive spring rod assembly from receiver.



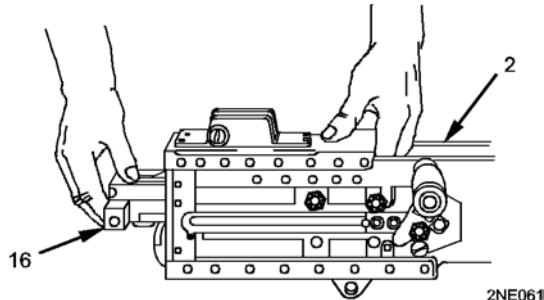
- Retract bolt assembly (16) far enough to align bolt stud (17) with enlarged bolt stud hole (18) in receiver (2). Remove bolt stud from right side of receiver.



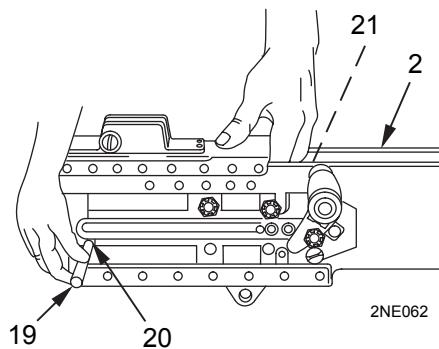
**DISASSEMBLY - Continued****NOTE**

Bolt latch must be pushed up to remove bolt assembly.

7. Remove bolt assembly (16) from receiver (2).

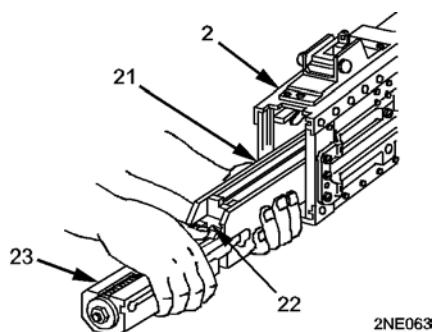


8. Install pointed end of punch (19) into hole (20) in receiver (2) and depress buffer body lock while applying rearward pressure on barrel extension assembly (21).

**WARNING**

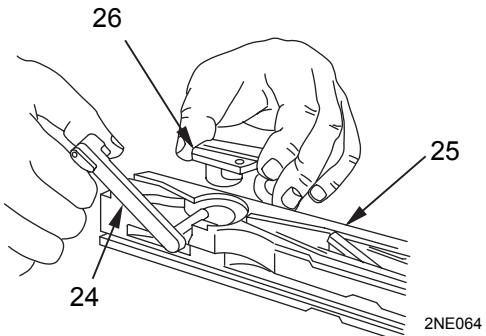
Maintain thumb pressure on buffer accelerator while removing barrel buffer assembly and barrel extension assembly from receiver. The assembly will disconnect and injure personnel.

9. Maintain thumb pressure on buffer accelerator (22). Remove barrel buffer assembly (23) and barrel extension assembly (21) from receiver (2).



**DISASSEMBLY - Continued**

10. Rotate cartridge extractor (24) upward and remove from left side of bolt subassembly (25). Lift out bolt switch (26). Install bolt switch with narrow end forward for right-hand feed. Install cartridge extractor. Set bolt subassembly aside.

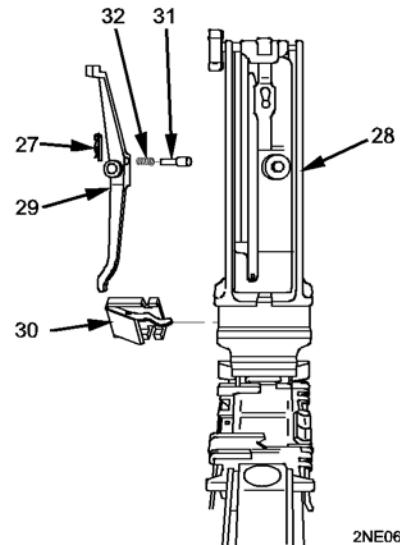
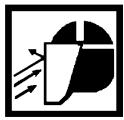


11. Remove lock pin (27) from underside of subassembly cover (28).

**WARNING**

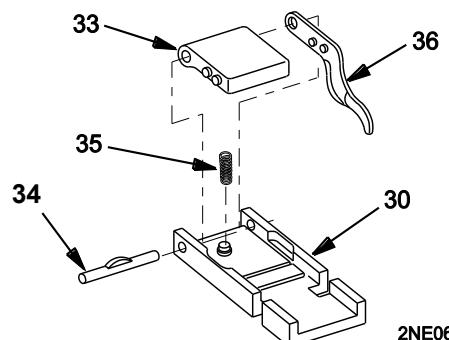
To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.

12. Push belt feed lever (29) to the right until toe end is in line with the slot in the subassembly cover (28) and the belt feed slide assembly (30). Remove belt feed lever, shoulder pin (31), and helical compression spring (32).
13. Remove belt feed slide assembly (30) from subassembly cover (28).

**WARNING**

To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.

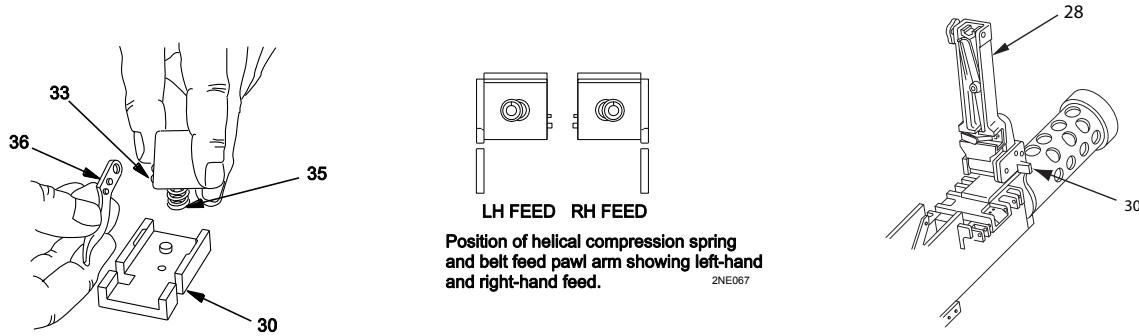
14. Hold belt feed pawl (33) while removing spring pin (34) from belt feed slide assembly (30).
15. Slowly let belt feed pawl (33) rise to control helical compression spring (35). Remove belt feed pawl from belt feed slide assembly (30). Remove helical compression spring and belt feed pawl arm (36) from belt feed pawl.



**DISASSEMBLY - Continued****WARNING**

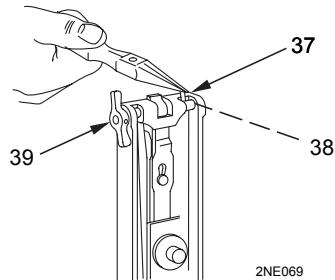
To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.

16. Assemble belt feed pawl arm (36) and helical compression spring (35) on belt feed pawl (33). Install large end of helical compression spring in hole in belt feed pawl with the foot of the helical compression spring opposite the belt feed pawl as illustrated. Ensure helical compression spring is installed correctly.
17. Install belt feed pawl (33) on belt feed slide assembly (30), aligning helical compression spring (35) on pin of belt feed slide assembly and secure with spring pin (34).
18. Push belt feed slide assembly (30) into subassembly cover (28) as shown.

**NOTE**

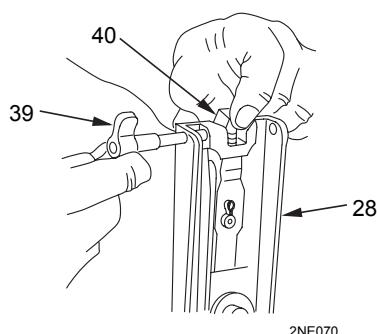
Next three steps are optional for operator convenience.

19. Remove cotter pin (37) and flat washer (38) from cover latch lever (39). Discard cotter pin.

**NOTE**

Make sure that cover latch (40) stays installed when performing this step.

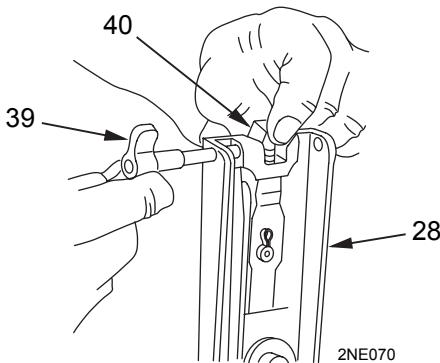
20. Remove cover latch lever (39) from subassembly cover (28).



**NOTE**

Make sure that cover latch (40) stays installed when performing this step.

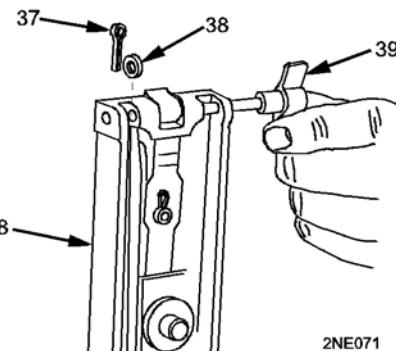
20. Remove cover latch lever (39) from subassembly cover (28).



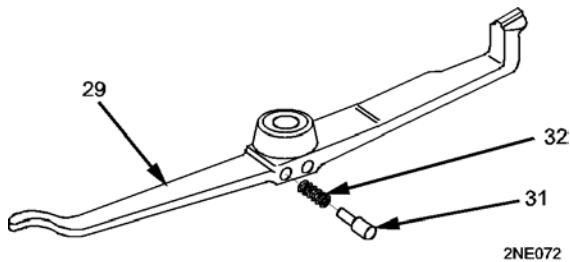
21. Install cover latch lever (39) in subassembly cover (28) as illustrated. Install flat washer (38) and new cotter pin (37).

**WARNING**

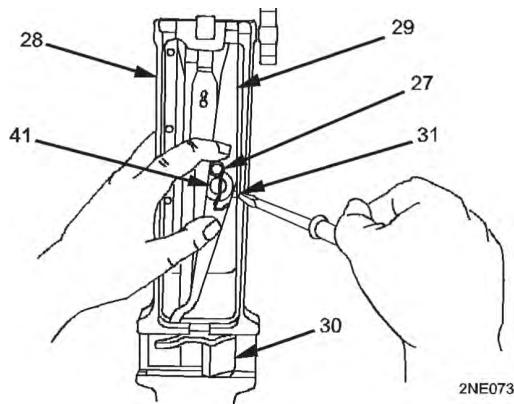
To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.



22. Install helical compression spring (32) and shoulder pin (31) into bottom hole of belt feed lever (29) for right-hand feed operation.



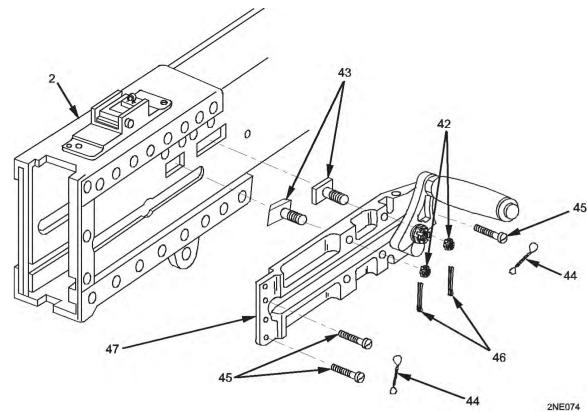
23. Position belt feed lever (29) so toe end is aligned with slots of subassembly cover (28) and belt feed slide assembly (30). Using screwdriver, press in on shoulder pin (31) and install belt feed lever on pivot stud (41). Install lock pin (27) to secure.



**DISASSEMBLY – Continued****NOTE**

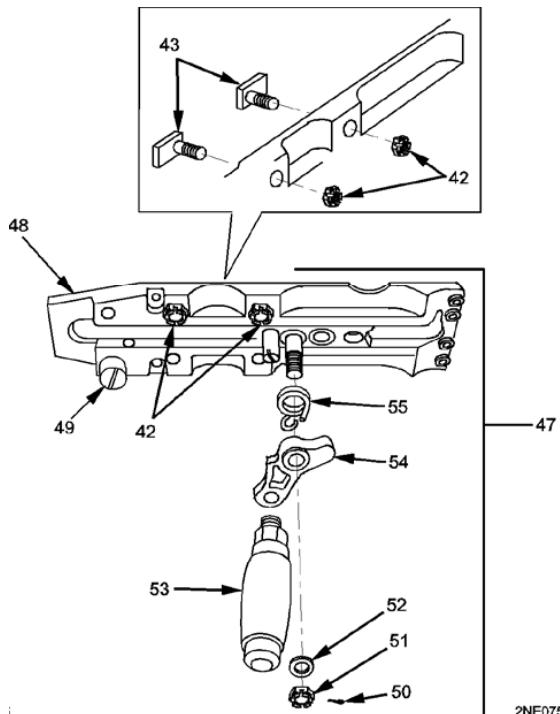
Removal of two plain slotted nuts (42) will cause two shoulder bolts (43) to drop into interior of receiver (2).

24. Cut safety wires (44) and remove three machine screws (45). Remove two cotter pins (46) and two plain slotted nuts (42). Remove retracting slide assembly (47) from right side of receiver (2). Retrieve two shoulder bolts (43). Discard cotter pins.



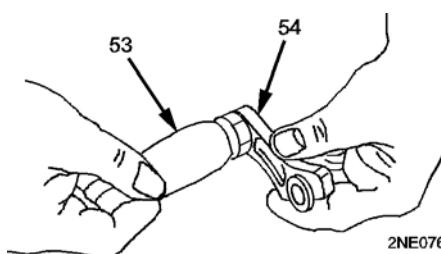
2NE074

25. Rotate retracting slide assembly (47) as shown and position beveled edges of two shoulder bolts (43) to the outside and install the two shoulder bolts into the top holes in the retracting slide bracket (48). Loosely install two plain slotted nuts (42) on the two shoulder bolts.



2NE075

26. Remove shoulder screw (49) from top hole in retracting slide bracket (48) and install in lower hole in retracting slide bracket.
27. Remove cotter pin (50), plain slotted nut (51), flat washer (52), retracting slide handle (53), lever (54), and helical torsion spring (55) from retracting slide bracket (48). Maintain spring in unit arms room. Discard cotter pin.



2NE076

28. Reinstall retracting slide handle (53) to lever (54) on opposite side of lever.

**WARNING**

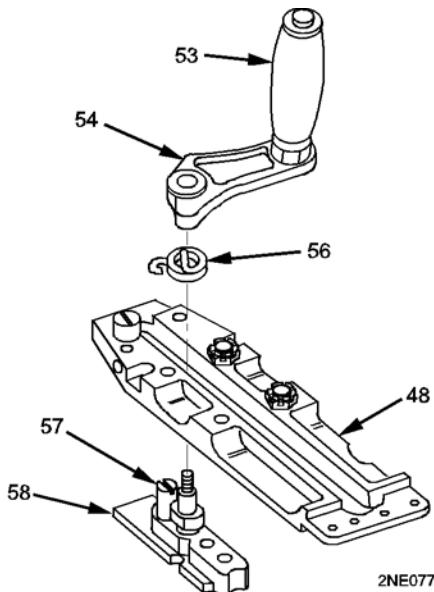
To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.

29. Acquire helical torsion spring (56) (used for left side mounting of retracting slide) and align helical torsion spring, retracting slide handle (53), and lever (54).

**NOTE**

Ensure tang of helical torsion spring (56) is inserted in hole in lever (54) and loop of helical torsion spring is positioned correctly over shoulder pin (57) of retracting slide (58).

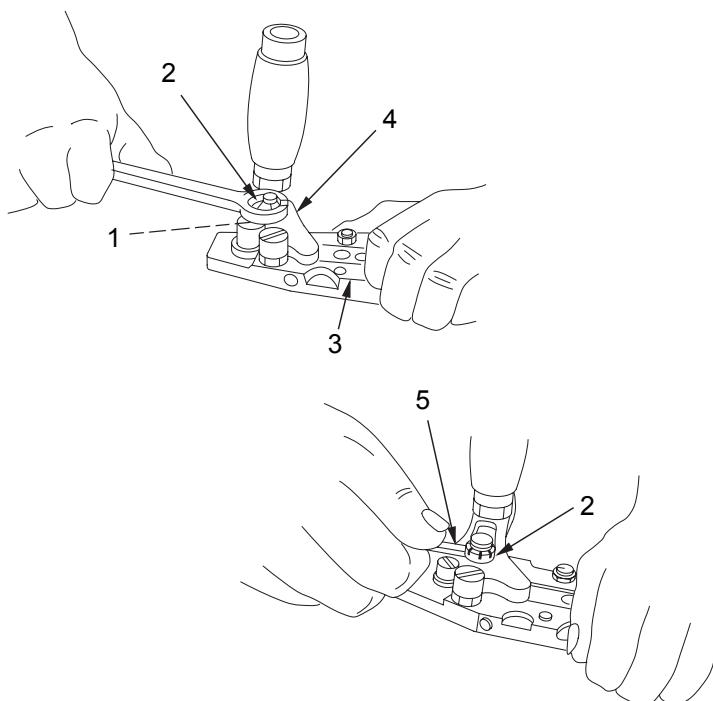
30. Install retracting slide (58) into the retracting slide bracket (48). Position helical torsion spring (56), lever (54), and retracting slide handle (53) on retracting slide. Position helical torsion spring over shoulder pin (57).

**REPAIR OR REPLACEMENT**

Repair is by replacing all authorized parts that do not meet inspection criteria.

**ASSEMBLY**

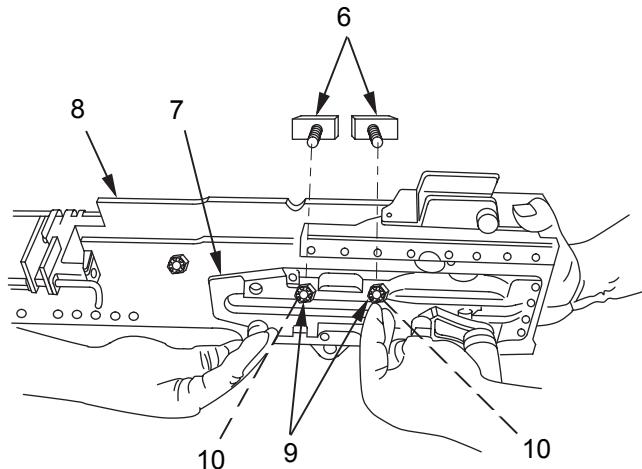
1. Install flat washer (1) and plain slotted nut (2) on retracting slide (3). Align nut slot with hole in stud. Ensure plain slotted nut is not tightened to restrict movement of lever (4). Install new cotter pin (5) in plain slotted nut to secure.



**ASSEMBLY - Continued****NOTE**

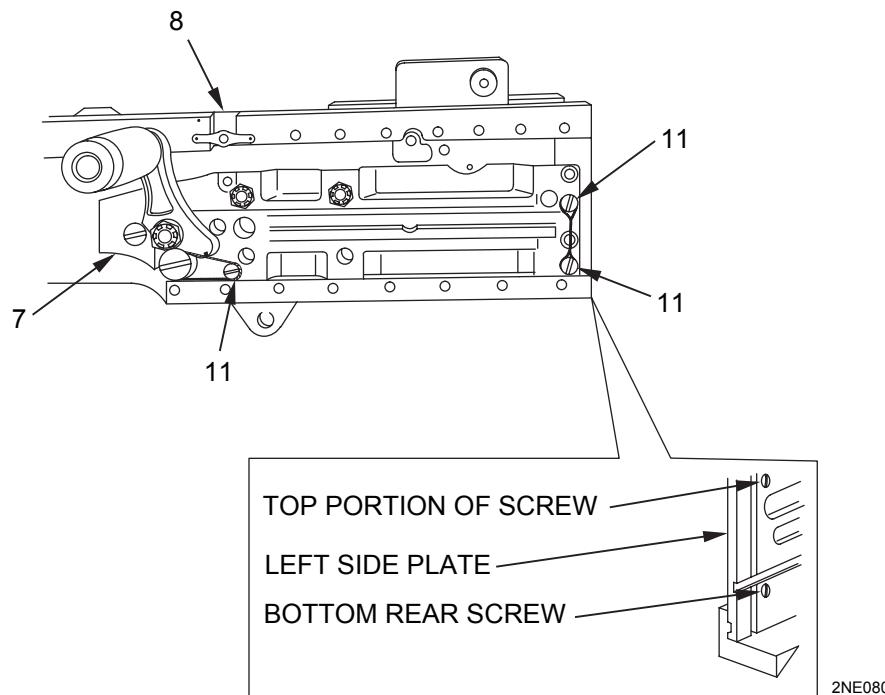
Ensure beveled edges of shoulder bolts (6) face out in opposite directions.

2. Install retracting slide assembly (7) to the left side of receiver (8) and tighten two plain slotted nuts (9). Secure plain slotted nuts with two new cotter pins (10).

**CAUTION**

Reduce length of bottom rear screw (with file or stone) as required to avoid interference with functioning of weapon. The screw should not protrude into side plate slot as illustrated.

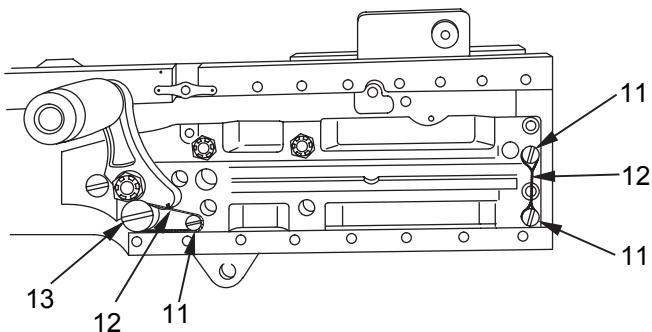
3. Install three machine screws (11) on retracting slide assembly (7), securing it to receiver (8).



**NOTE**

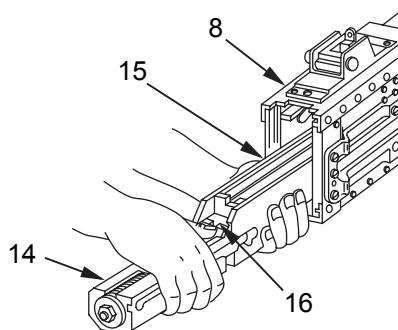
Safety wire must be installed on shank of shoulder screw and machine screw.

4. Install safety wire (12) on shoulder screw (13) and machine screw (11) and between two machine screws (11).

**CAUTION**

When installing barrel buffer assembly (14) and barrel extension assembly (15) into receiver (8), maintain thumb pressure on buffer accelerator (16).

5. Maintain thumb pressure on buffer accelerator (16). Install barrel buffer assembly (14) and barrel extension assembly (15) and bolt (18) in receiver (8).
6. Assemble recoil buffer assembly (14), barrel extension (15) and bolt (18).

**CAUTION**

When installing bolt assembly, do not trip buffer accelerator.

**NOTE**

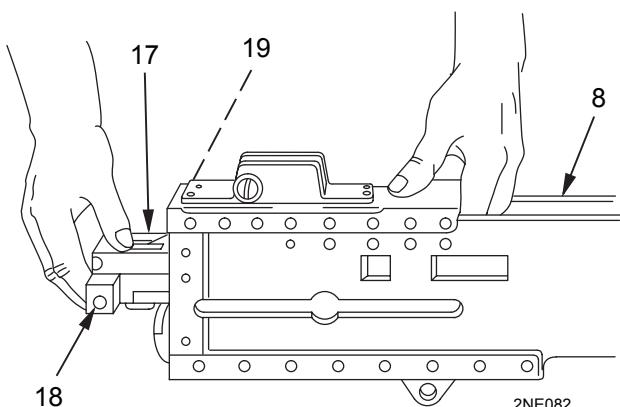
Ensure cocking lever (17) is **FORWARD** before installing bolt assembly (18) into receiver (8).

7. Push bolt assembly (18) forward into receiver (8) until bolt latch (19) engages notches in tip of bolt assembly.

**NOTE**

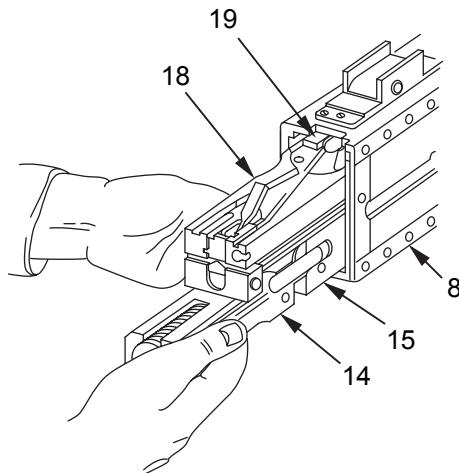
If unable to install bolt assembly, perform the step 8. If bolt assembly was successful, go to step 9.

8. Remove barrel extension assembly (15) and barrel buffer assembly (14) from the receiver (8). Install bolt assembly (18) into barrel extension assembly and barrel buffer assembly; then install into the receiver.

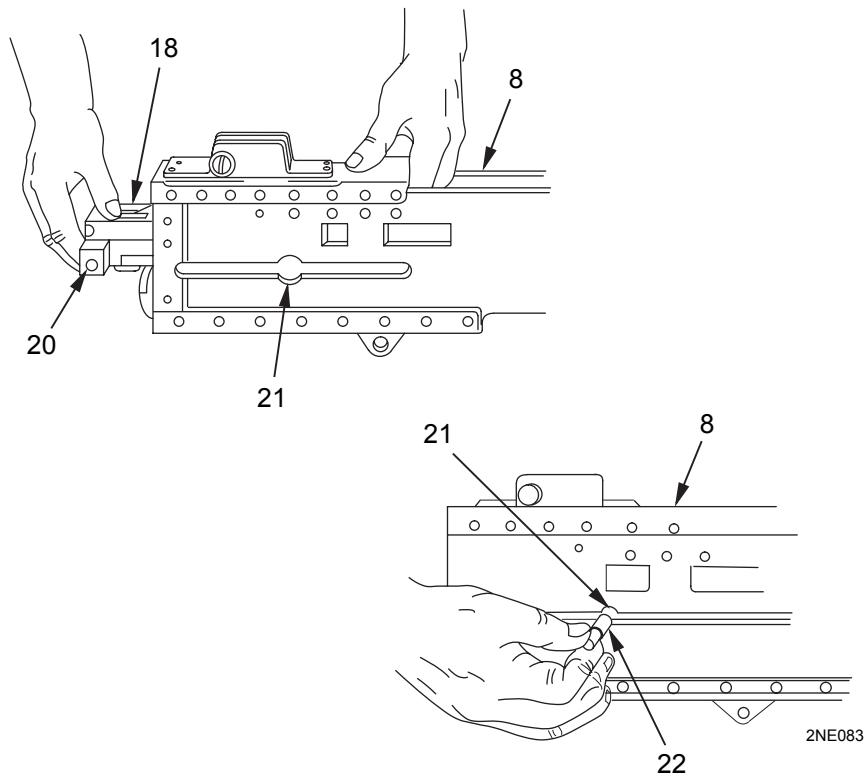


**ASSEMBLY - Continued**

9. Raise bolt latch (19) and push bolt assembly (18) into receiver (8).



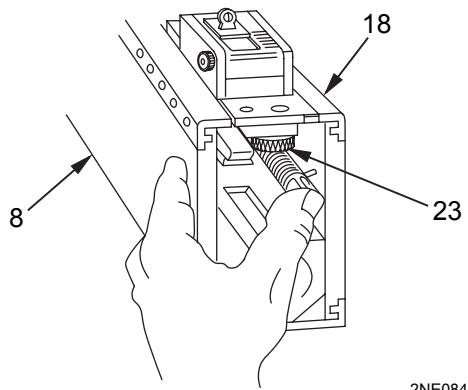
10. Align hole (20) in bolt assembly (18) with bolt stud hole (21) in receiver (8) and install bolt stud (22) in hole in bolt assembly.



**ASSEMBLY - Continued****WARNING**

To avoid injury to your eyes, wear face shield when removing and installing spring-loaded parts.

11. Install drive spring rod assembly (23) in upper right-hand corner hole in bolt assembly (18). Push forward and to the right until drive spring rod assembly tang engages in hole in side plate of receiver (8).



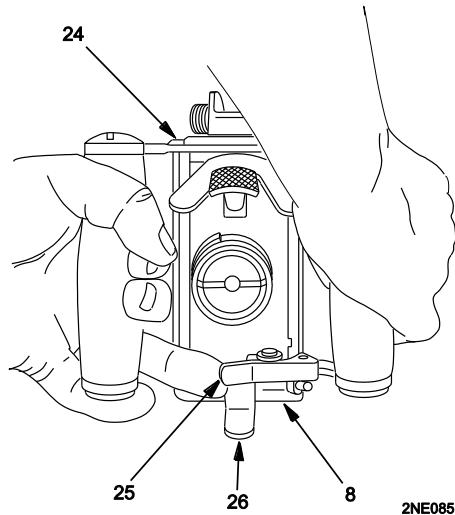
2NE084

12. Install backplate assembly (24) in receiver grooves. Pull backplate latch lock (25) straight back, while lifting up on backplate latch (26). Lower backplate assembly down until engaged in receiver (8).

**NOTE**

Ensure backplate assembly is properly locked in place. If backplate will not lock properly in place, refer to PMCS (see WP 0007).

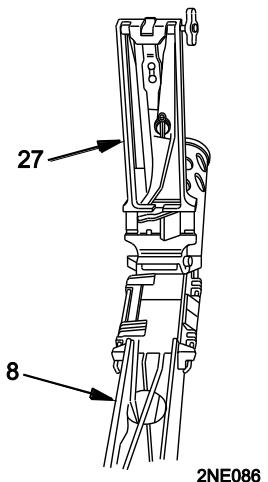
13. Pull backplate latch lock (25) back and pull up on backplate assembly (24) to ensure proper locking.
14. Lift backplate latch (26) up and pull up on backplate assembly (24) to ensure proper locking.



2NE085

**ASSEMBLY - Continued**

15. Close cover assembly (27) making sure it latches securely to receiver (8).

**NOTE**

Ensure barrel is installed properly (TM 9-1005-347-10).

16. Load five or more linked dummy rounds and hand operate weapon with feed tray in the closed position to ensure all components are functioning properly. Weapon should function through a complete cycle.

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****M2A1 WITH FIXED HEADSPACE AND TIMING (1005-01-511-1250)****ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN****INITIAL SETUP:****Tools and Special Tools**

Barrel erosion gage (item 4, WP 0049 00)  
 Barrel support special plug gage  
     (item 8, WP 0049 00)  
 Brass bushing plug gage (item 9, WP 0049 00)  
 Field maintenance small arms shop  
     set (item 18, WP 0054 00)  
 Firing pin hole plug gage (item 10,  
     WP 0049 00)  
 Firing pin protrusion gage  
     (item 11, WP 0049 00)  
 Oil buffer rod gage (item 12, WP 0049 00)  
 Wear check gage (item 6, WP 0049 00)

**Personnel Required**

Two

**References**

NASM 33540  
 SC 4933-95-CLA11  
 TB 43-180  
 TM 9-4933-208-34  
 WP 0009 00  
 WP 0011 00  
 WP 0017 00  
 WP 0019 00  
 WP 0032 00  
 WP 0033 00

**Materials/Parts**

Cleaner, lubricant, and preservative (CLP)  
     (item 12, WP 0055 00)  
 Cleaning Compound, Solvent  
     (item 16, WP 0055 00)  
 Wiping rag (item 27, WP 0055 00)

**Equipment Conditions**

M2A1 machine gun removed/dismounted  
 (TM 9-1005-347-10)

**WARNING****HEADSPACE AND TIMING**

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. The following guidelines should be strictly enforced to prevent improper headspace and timing issues:

- All M2A1 machine guns must be inspected and gaged at least once annually for safety and serviceability. Air Force users refer to inspection requirements in Air Force Regulation (AFR) 50-36 and Air Force Pamphlet (AFP) 50-63, Volume 1.
- All Army Reserve and National Guard M2A1 machine guns must be inspected and gaged at least once every two years, after the initial inspection/gaging procedures have been accomplished. This two year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M2A1 machine guns require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection. Ensure M2A1 headspace and timing check and adjustment has been performed by Field maintenance personnel. Failure to comply may result in serious injury to personnel.

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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN**
**Annual Spring Replacement**
**NOTE**

The following springs and/or parts will be replaced during annual inspection and/or gaging for the M2A1 Machine Gun.

**Table 1. Annual Gaging and Spring Replacement Parts List For M2A1 Machine Gun.**

PART NUMBER	NATIONAL STOCK NUMBER	NOMENCLATURE	QTY PER GUN
5009524	5360-00-209-8720	Helical Spring (Sear)	1
5013566	5360-00-501-3566	Compression Helical Spring	1
MS24665-283	5315-00-842-3044	Cotter Pin	2
5013527	5360-00-501-3527	Helical Spring	1

**General**
**WARNING**

**ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed. DO NOT release the bolt or press the trigger. Failure to comply may result in serious injury to personnel.


**BACKPLATE SPRING**

The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- DO NOT attempt to charge machine gun without the backplate assembled to machinegun.
- Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
- DO NOT stand behind the weapon while removing backplate assembly.
- Stand to one side of the weapon when removing backplate assembly.

Failure to comply may result in serious injury to personnel.

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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued****NOTE**

Small arms gages will be inspected and certified annually. The gages will not be used unless they are accompanied with the appropriate gage record. Refer to SC 4933-95-CLA11 for requirements.

Small arms gages are precision tools used to quickly and economically inspect dimensions and interface points on small arms weaponry. The gages are made of tool steel and are machined to extremely tight tolerances.

Gages are susceptible to corrosion. To decrease the frequency and severity of corrosion, small arms gages should periodically be given a light coating of CLP or similar preservative oil. Wipe the preservative off each gage with a soft cloth before use.

When using small arms gages, carefully follow the instructions. Never force a gage! This will cause excessive wear and will decrease the serviceable life of the gage.

**NOTE**

Small arms gages are susceptible to material displacement as a result of impact. Impact causes the gage to be out of tolerance. To prevent this, perform gaging on tables or workbenches that are padded or covered with vinyl or rubber whenever possible.

To ensure gages are serviceable, have them calibrated every 360 days as required by TB 43-180, Calibration and Repair Requirements for the Maintenance of Army Materiel. Only the Test, Maintenance, and Diagnostic Equipment Laboratories listed in TB 43-180 are authorized and equipped to perform this calibration.

Relative movement of riveted receiver components is defined as horizontal and/or vertical movement. USMC will calibrate gages in accordance with TI 4733-OD/11.

During annual gaging use M2A1 barrel and wear limit gage to verify headspace. Do not use master barrel gage to verify headspace. If headspace verification fails, headspace adjustment must be performed (WP 0032 and WP 0033) by field maintenance personnel.

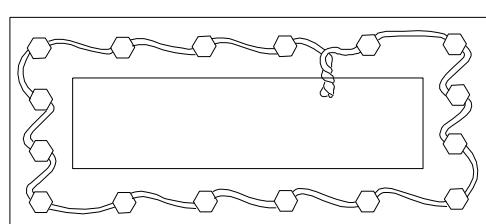
If SLAP ammunition is being used, barrel life will be reduced.

1. Refer to WP 0009 00 and TM 9-1005-347-10 for general maintenance procedures.
2. The following procedure should be used to check for a loose receiver: With the receiver lying on a table in a normal upright position, stand to the rear of the receiver (normal firing position). Using hands only, try to move riveted components forward and to the rear, and up or down. If all components are secure, the receiver has passed the loose receiver test; continue inspection.

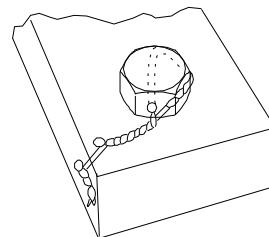
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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**

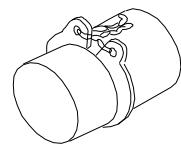
3. For installation of safety wire and cotter pins, refer to NASM 33540 and the following safety wire diagram.



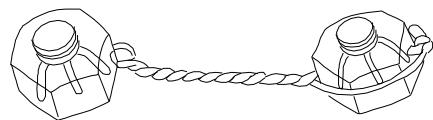
**SMALL SCREWS IN CLOSELY SPACED,  
CLOSED GEOMETRICAL PATTERN  
SINGLE WIRE METHOD**



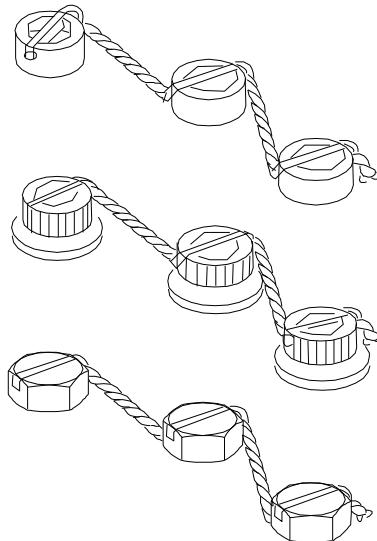
**SINGLE FASTENER APPLICATION  
DOUBLE TWIST METHOD**



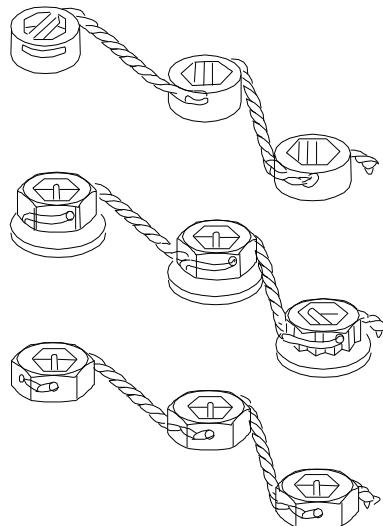
**EXTERNAL SNAP RING  
SINGLE WIRE METHOD**



**CASTELLATED NUTS ON UNDRILLED STUDS  
DOUBLE TWIST METHOD**



**MULTIPLE FASTENER APPLICATION  
ALTERNATE DOUBLE TWISTED  
METHOD-SINGLE HOLE.**



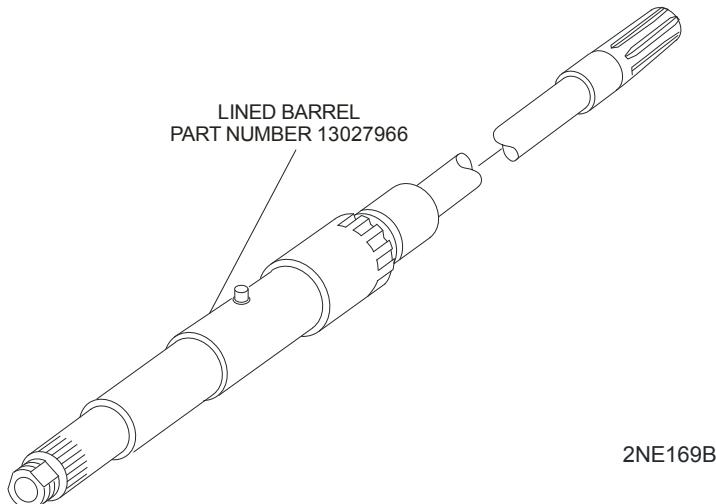
**MULTIPLE FASTENER APPLICATION  
DOUBLE TWISTED  
MULTIPLE HOLE.**

**THE FIGURES SHOWN ARE FOR RIGHT HAND THREAD APPLICATION.  
LOCKING FOR LEFT HAND THREADS WILL BE OPPOSITE.**

2NE313

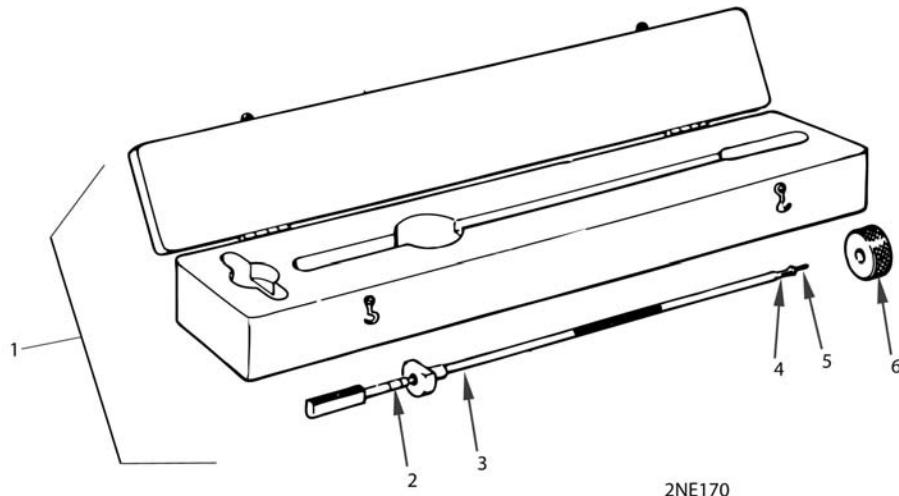
**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued****Barrel Erosion Check**

Lined barrel part number (PN 13027966) is engraved on the outside of the barrel.

**Lined Barrel Erosion Check****NOTE**

Barrel erosion gage must be pre-checked before using it.

1. Test for barrel erosion with M6A1 gage kit (1). Refer to TM 9-4933-208-34.
2. Pre-check barrel erosion gage (3) by retracting tapered rod (4). Set reject ring (2) flush with rear face of gage tube, thus expanding collet (5) to indicate a reject condition. Insert collet of gage into wear check gage (6). Collet should contact inside diameter of check gage and produce a slight drag. Check gage is worn when the collet fails to produce contact. Turn in worn or damaged gages for calibration or disposal.



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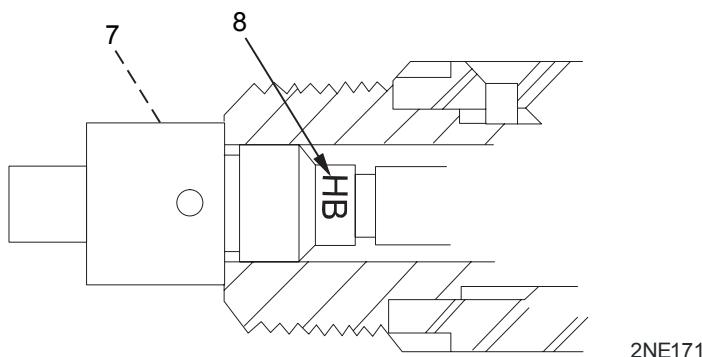
**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**
**Lined Barrel Erosion Check - Continued**
**CAUTION**

Retract tapered rod before inserting or removing barrel erosion gage into, or from, the barrel to avoid unnecessary wear or damage.

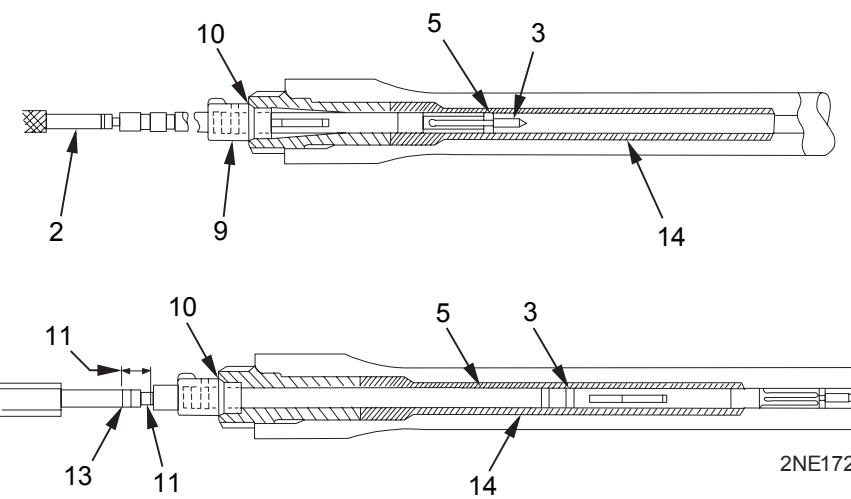
**NOTE**

False readings may be obtained if the chamber and barrel are not thoroughly cleaned.

3. For checking M2A1 heavy barrels, measure wear in the barrel liner by first engaging breech stop detent ball (7) into most forward groove so that the letters HB on gage tube (8) are immediately to the FRONT of the stop.



4. Retract the tapered rod (3) and insert barrel erosion gage (2) into barrel until stop (9) is seated flush against the breech end of barrel (10).
5. Tapered rod (3) is pushed gently, but firmly, into the gage tube (8) until it is stopped by the collet (5) engaging the bore.



6. The reading is taken from the rod at the end of the gage tube (8). The recessed portion (11) of the rod indicates that the barrel is new or has no appreciable wear. Barrels within serviceable range (12) are usable. The REJECT line (13) indicates an unserviceable barrel. To measure wear ahead of liner (14), move stop (9) to proper rearward groove. Use of gage is same as above.

**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**

7. Remove gage and store in the M6A1 gage kit case.

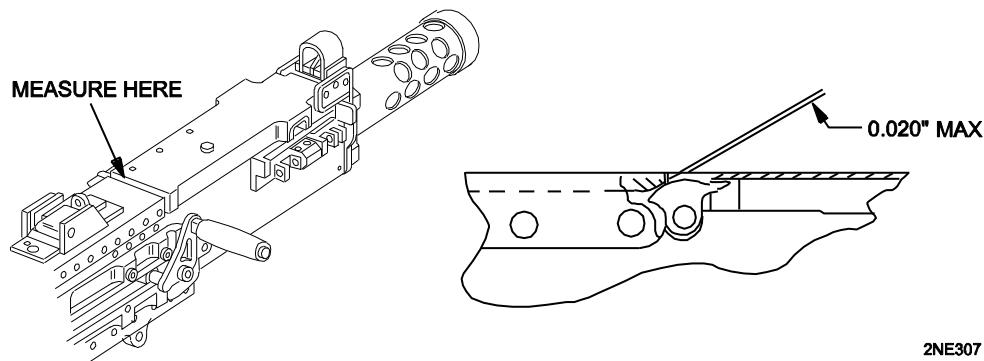
**Inspect Receiver Rivets****NOTE**

The ten thousandths in. (0.010) feeler gage must go between the riveted components for the entire length of the riveted area before the components are considered loose. Weapons thus found to be unserviceable will be turned in for overhaul.

Attempt to move riveted components forward and to the rear, and up or down. Rivets that hold the components may turn and be loose (no missing rivets allowed).

**Cover Latch - Top Cover Clearance Check**

Check clearance between cover latch and notch in top plate with a feeler gage. MAXIMUM CLEARANCE is 0.020 in. (0.0508 cm). The check must be performed any time the cover is removed.



2NE307

**Breech lock Cam – Bottom Plate Clearance Check****NOTE**

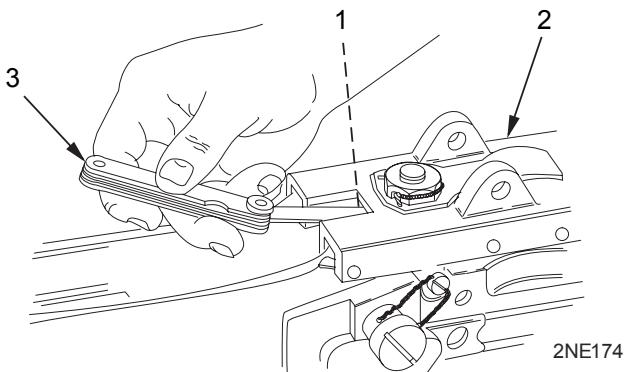
Recoil mechanism buffer, barrel extension assembly, and bolt assembly must be removed before clearance check is done. Refer to WP 0017 00 and TM 9-1005-347-10.

When measuring for maximum clearance, the feeler gage SHALL NOT penetrate to breech lock cam screw. When measuring for minimum clearance, the feeler gage SHALL penetrate to breech lock cam screw.

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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**

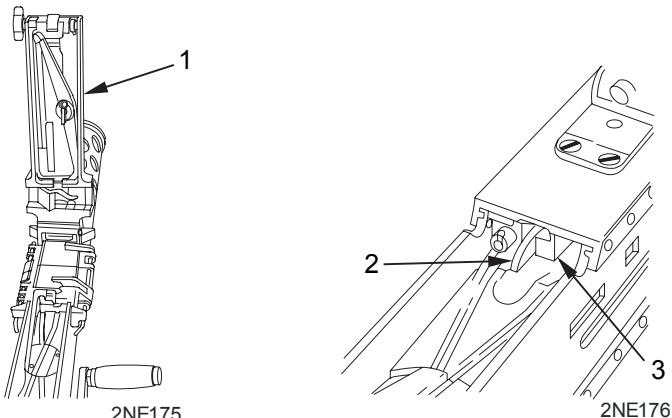
Check clearance between breech lock cam (1) and bottom plate (2) with a feeler gage (3). Maximum clearance is 0.008 in. (0.020 cm) with relative movement.


**Headspace/Timing Check and Adjustment**

Refer to WP 0032 00, and WP 0033 00.

**Trigger Lever Clearance Check**

1. Open top cover (1).
2. Check for binding/lack of clearance between trigger lever (2) and top plate bracket (3).


**Trigger Lever - Bolt Clearance Check**
**WARNING**

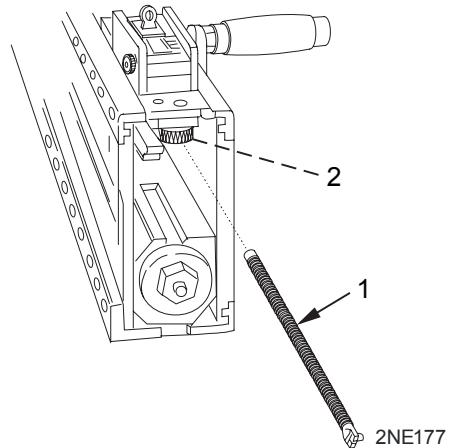
**BACKPLATE SPRING**

The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
- Stand to one side of the weapon when removing backplate assembly.

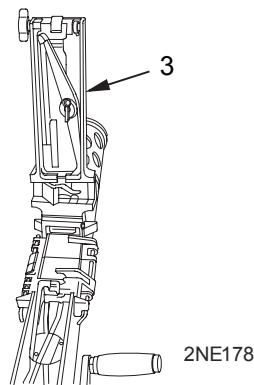
Failure to comply may result in serious injury to personnel.

1. Remove backplate assembly from receiver (WP 0011 00).
2. Remove drive spring rod assembly (1) from bolt assembly (2).

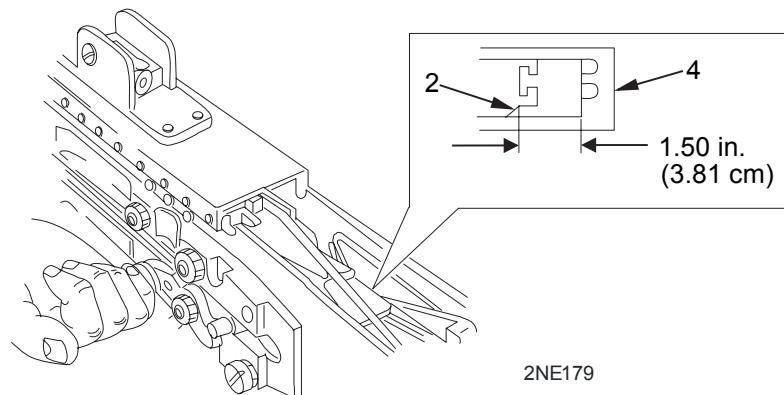


**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**

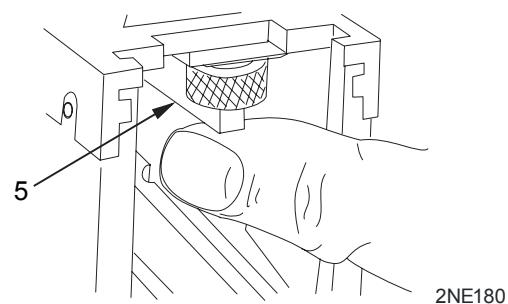
3. Raise cover (3).



4. Retract bolt assembly (2) rearward until face of bolt assembly is 1.50 in. (3.81 cm) from inside edge of barrel extension assembly (4).



5. Push up on trigger lever (5).
6. Trigger lever (5) should not drag on bolt group when trigger is depressed.
7. Check for looseness of barrel support.
8. Check for cracks between holes.

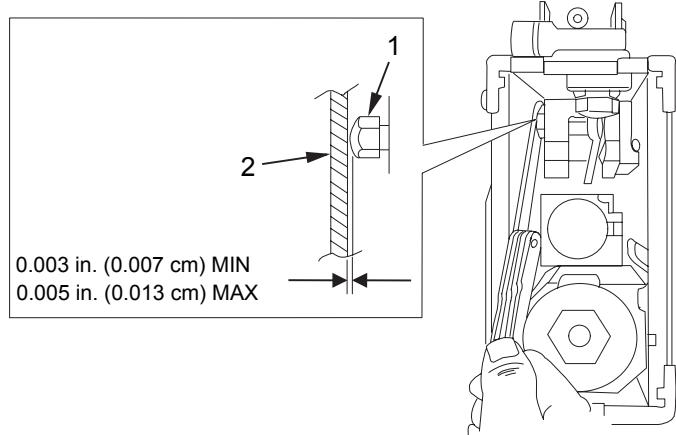


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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued**
**Bolt Latch Assembly – Receiver Sideplate Clearance Check**
**NOTE**

Check is not required when alternate bolt latch with flange is installed.

Check clearance between bolt latch assembly (1) and receiver sideplate (2). Clearance is 0.003 in. (0.007 cm) to 0.005 in. (0.013 cm).



2NE181

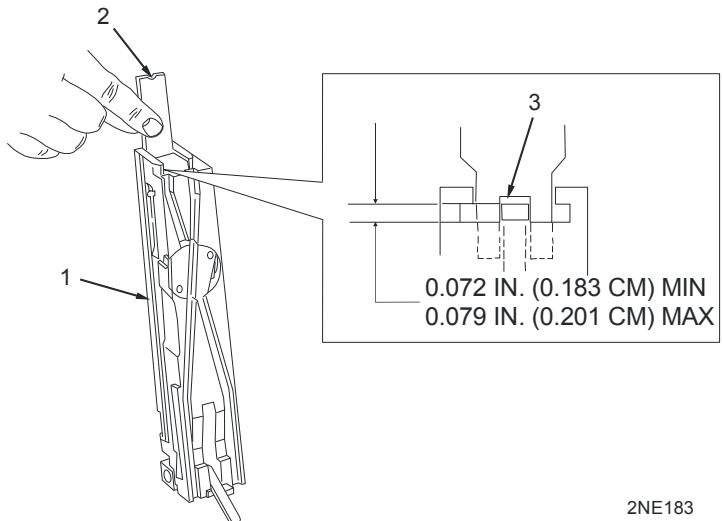
**Firing Pin Protrusion Gage Check**

1. Remove bolt assembly (WP 0011 00).

**WARNING**

Ensure cocking lever is in the rearward position. Injury could occur.

2. Check firing pin protrusion through face of fully assembled bolt assembly (1) by using firing pin protrusion gage (2). Release sear and allow firing pin (3) to extend through bolt face hole. Check that firing pin protrusion is within 0.079 inch (0.201 cm) maximum and 0.072 in. (0.183 cm) minimum from bolt assembly face.
  - a. NOGO Gage: While using the NOGO gage, IF the firing pin hit hard or stopped the gage from passing over firing pin, gaging criteria failed. IF firing pin hit lightly on NOGO gage, criteria passed.
  - b. GO Gage: If firing pin hit lightly on GO gage, criteria passed.



2NE183

## ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued

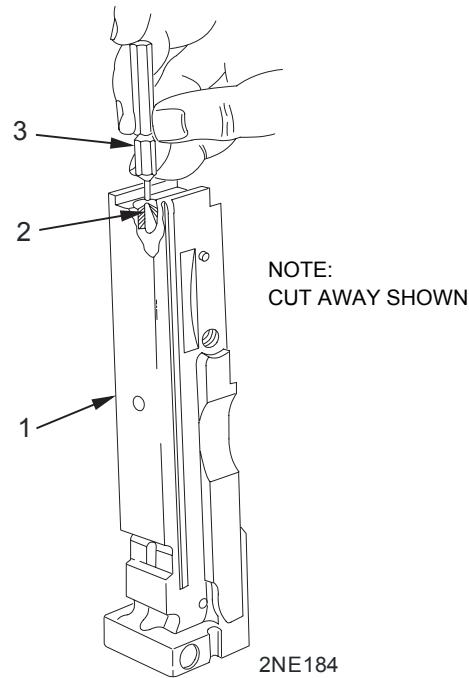
### Firing Pin Hole Check

1. Remove bolt assembly components from bolt (1) (TM 9-1005-347-10).
2. Check firing pin hole (2) in bolt using plug gage (3). Hole tolerance is 0.084 in. (0.213 cm) maximum. Plug gage entering firing pin hole all the way and elongation of firing pin hole (2) are causes for rejection.
3. Assemble components of bolt assembly (TM 9-1005-347-10).
4. Using firing pin protrusion gage, check firing pin protrusion.
  - a. Remove bolt assembly (TM 9-1005-347-10).
  - b. Release sear and allow firing pin to extend through bolt face hole. Check that firing pin protrusion is within 0.072 in. (0.183 cm) minimum to 0.079 in. (0.201 cm) maximum from bolt face.

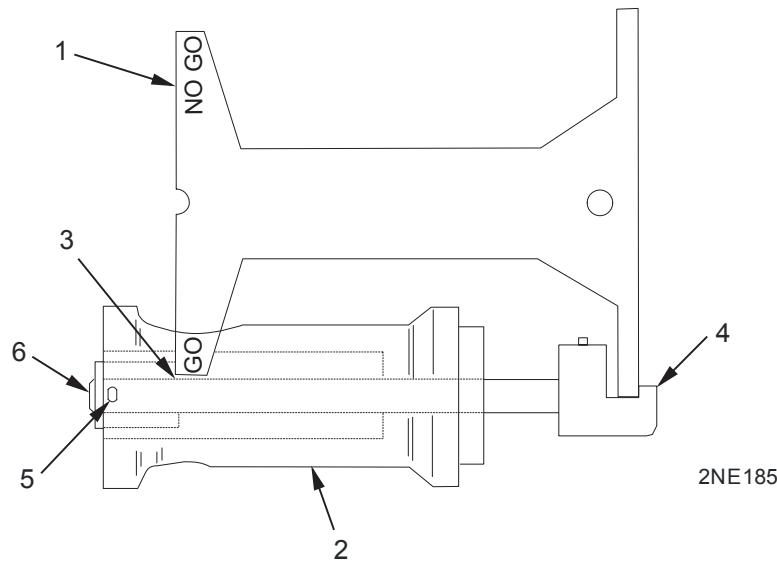
### Buffer Rod Assembly Check

Remove buffer assembly, spring, and buffer guide from body assembly (WP 0019 00).

1. New style buffer assembly gaging:
  - a. Using oil buffer rod gage (1), measure overall length of buffer assembly (2). Measurement of rear face of tube (3) to forward inside face of engaging notch (4) must be between 3.976 and 3.990 in. (10.099 and 10.134 cm).
  - b. If out of adjustment, remove and discard cotter pin (5) from nut (6). Adjust nut in accordance with oil buffer rod gage (1).
  - c. Install a new cotter pin (5) into nut (6).
  - d. Refer to WP 0019 00 for reassembly of buffer assembly, buffer guide, and spring.



2NE184

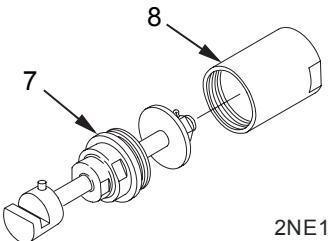


2NE185

**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued****Buffer Rod Assembly Check - Continued**

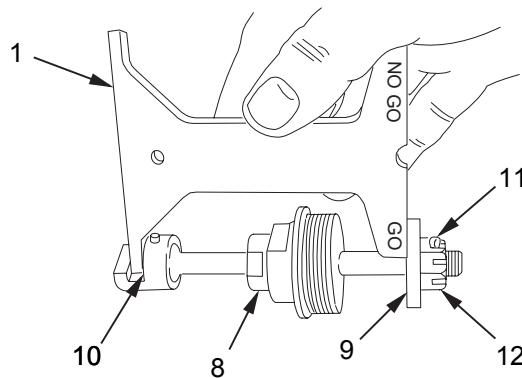
## 2. Old style buffer assembly gaging:

- Remove buffer assembly, spring, and buffer guide from body assembly (WP 0019 00).
- Remove oil buffer tube (7) from buffer assembly (8).



2NE186

- Using oil buffer rod gage (1), measure overall length of buffer assembly (8). Measurement of rear face of tube (9) to forward inside face of engaging notch (10) must be between 3.976 and 3.990 in. (10.099 and 10.134 cm).
- If out of adjustment, remove and discard cotter pin (11) from nut (12). Adjust nut in accordance with oil buffer rod gage (1).
- Install a new cotter pin (11) into nut (12).
- Install oil buffer tube (7) onto buffer assembly (8).
- Refer to WP 0019 00 for reassembly of buffer assembly, buffer guide, and spring.

**Barrel Support and Machine Thread Bushing Check**

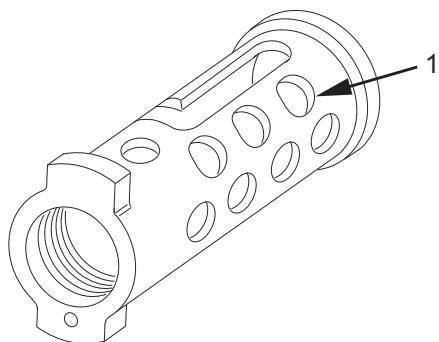
2NE187

**NOTE**

Barrel supports that have the three cooling holes closest to the muzzle end of the machine gun smaller than 1.1775 in. (2.9901 cm) in diameter are acceptable.

- Cooling holes are at the muzzle end of the barrel support and are used when either the M3 amplifier or the blank firing attachment are installed on the weapon. The hole size on the proper barrel support (1) is smaller than 1.1775 inches.
- Check cooling holes (1) for cracks. Cracks up to 0.0250 in. (0.635 mm) (maximum) in length are permitted at holes. No more than four cracks allowed per support. No more than two cracks allowed in succession in any direction. Original surface imperfections are permitted.

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**ANNUAL GAGING AND SPRING REPLACEMENT OF M2A1 MACHINE GUN - Continued****Maintenance of Small Arms Gages**

1. Small arms gages are precision tools used to quickly and economically inspect dimensions and interface points on small arms weaponry. They are made of tool steel and machined to extremely tight tolerances. With few exceptions, each small arms weapon system has gages used at Field and Depot maintenance levels.
2. Gages are susceptible to corrosion. To decrease the frequency and severity of corrosion, small arms gages should be periodically degreased with MIL-PRF-680 Type II cleaning compound, allowed to dry, and then given a light coating of CLP or similar preservative oil. Wipe the preservative off each gage with a soft cloth before use.
3. When using small arms gages, carefully follow the instructions given in the appropriate technical manual. Never force a gage! This will cause excessive wear and decrease the serviceable life of the gage.
4. Small arms gages are susceptible to material displacement as a result of impact. For example, a gage dropped onto a concrete floor may appear perfectly fine to the naked eye, but because it is machined to extremely tight tolerances, material displacement may have occurred. This results in the gage being out of tolerance. To prevent this, perform gaging on tables or workbenches that are padded or covered with vinyl or rubber whenever possible.
5. Perhaps the most crucial thing you can do to insure your gages are serviceable is to make sure to have them calibrated every 360 days as required by TB 43-180, Calibration and Repair Requirements for the Maintenance of Army Materiel. Field Maintenance is authorized two of each small arms gage; submit gages for calibration on a staggered schedule so one will always be available. Only the Test, Maintenance, and Diagnostic Equipment Laboratories listed in TB 43-180 are authorized and equipped to perform this calibration. USMC calibrate gages per TI 4733-OD-11.

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE OF M2A1 MACHINE GUN  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY**

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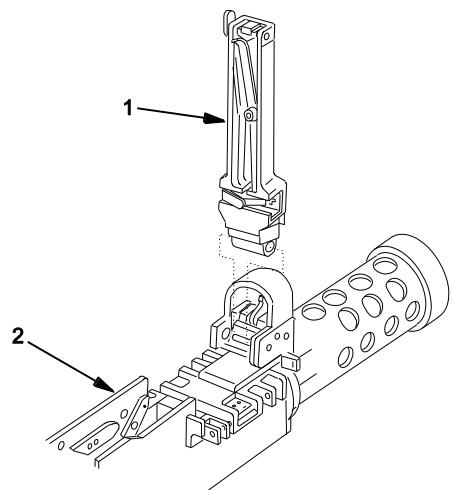
**INITIAL SETUP:**

<b>Tools and Special Tools</b>	<b>References</b>
Bolt latch spring tool assembly (item 13, WP 0049 00)	WP 0011 00 WP 0012 00
Field maintenance small arms shop set (Table 2, item 3, WP 0054 00)	WP 0013 00 WP 0017 00
Spanner wrench (item 18, WP 0054 00)	WP 0019 00 WP 0020 00
<b>Materials/Parts</b>	WP 0021 00
Cotter pin (2) (item 9, WP 0045 00)	WP 0022 00
Cotter pin (item 41, WP 0038 00)	WP 0023 00
Cotter pin (item 30, WP 0038 00)	WP 0031 00
Nonelectrical wire (2) (item 3, WP 0048 00)	WP 0033 00 WP 0038 00
<b>Personnel Required</b>	<b>Equipment Conditions</b>
Two	Machine gun partially disassembled (WP 0011 00)

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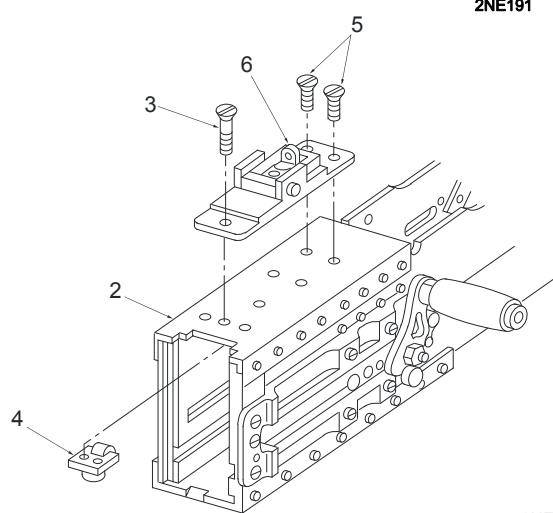
## DISASSEMBLY

1. Refer to WP 0013 00 for removal of cover assembly (1) from receiver (2).



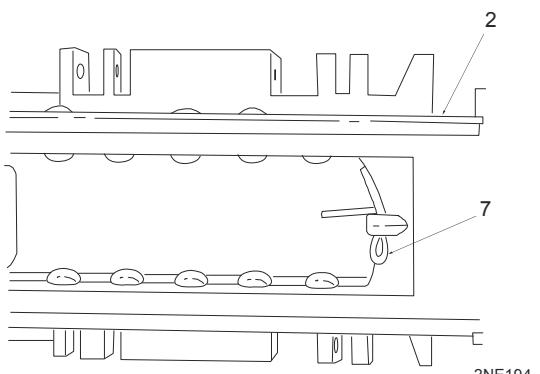
2NE191

2. Remove externally relieved screw (3) and remove adjustable trigger lever stop assembly (4) from inside receiver (2).
3. Remove two machine screws (5) and rear sight assembly (6) from top of receiver (2).



2NE193

4. If damaged, remove cotter pin (7) from lock located at front of receiver (2).

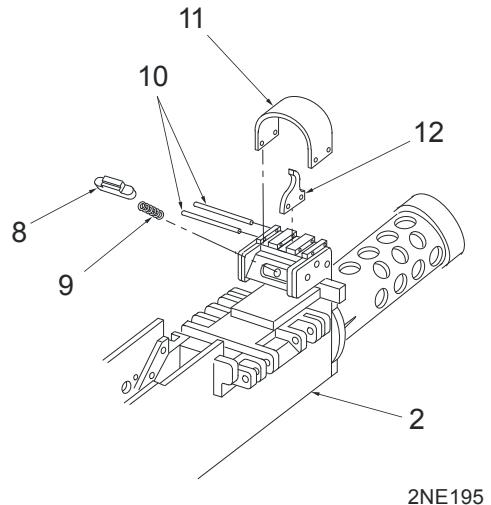


2NE194

**DISASSEMBLY - Continued****WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

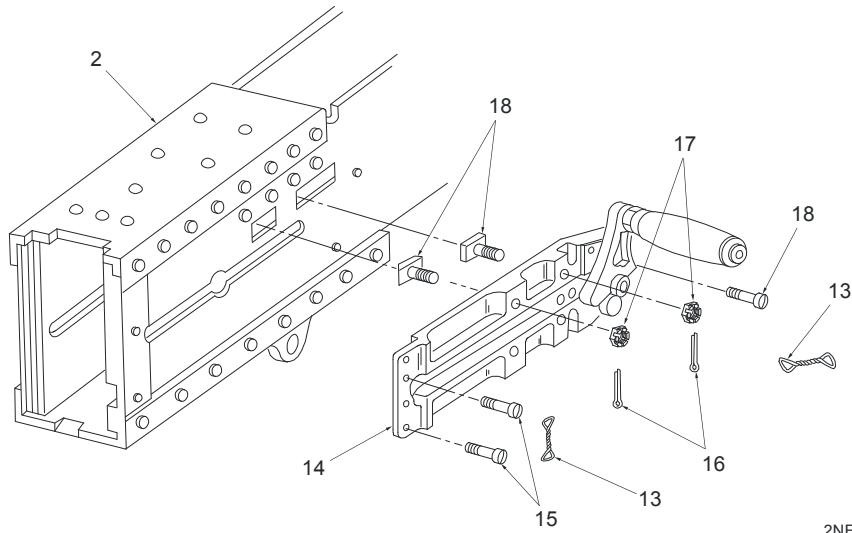
5. Remove cover detent pawl (8) and helical compression spring (9) from receiver (2).
6. Remove two headed straight pins (10), gun sight cover (11), and front sight (12) from receiver (2).



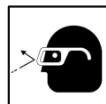
2NE195

**DISASSEMBLY - Continued**

7. Remove two sets of safety wires (13) from mounting hardware for retracting slide assembly (14). Remove three machine screws (15), two cotter pins (16), and two slotted plain nuts (17). Discard cotter pins; retrieve two tee-head shoulder bolts (18) that fell into the receiver (2). Remove retracting slide assembly from receiver. Discard safety wires.

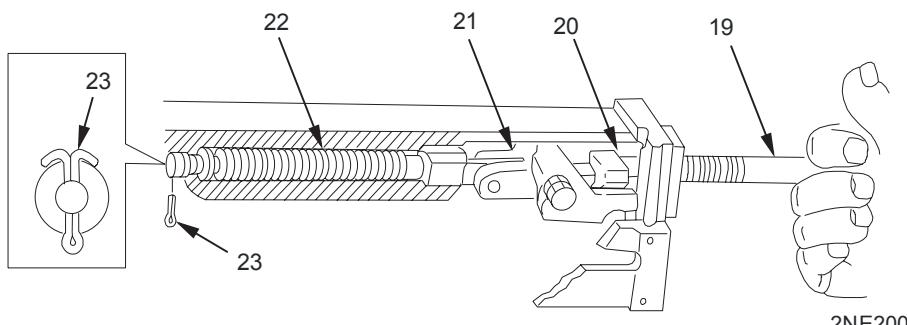


2NE196

**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and spring-installing loaded parts. Wear adequate eye protection. Failure to comply may result in injury to serious personnel.

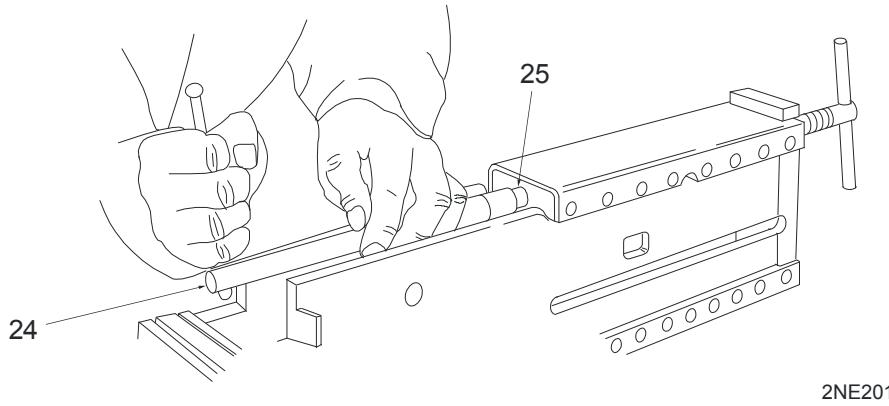
8. Turn bolt latch spring tool assembly (19) clockwise until operating head (20) contacts bolt latch assembly (21) and compresses helical compression spring (22). Remove and discard cotter pin (23) from bolt latch assembly.



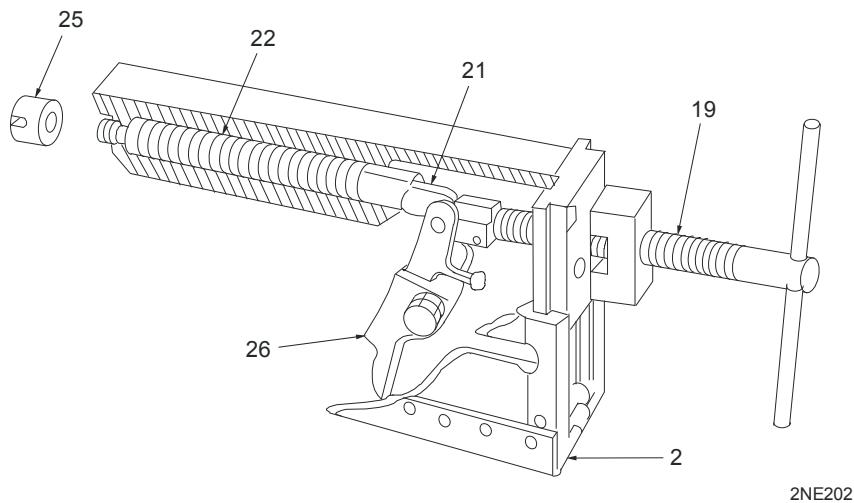
2NE200

**DISASSEMBLY - Continued**

9. Install spanner wrench (24) on plain round nut (25). Turn spanner wrench counterclockwise and remove plain round nut.

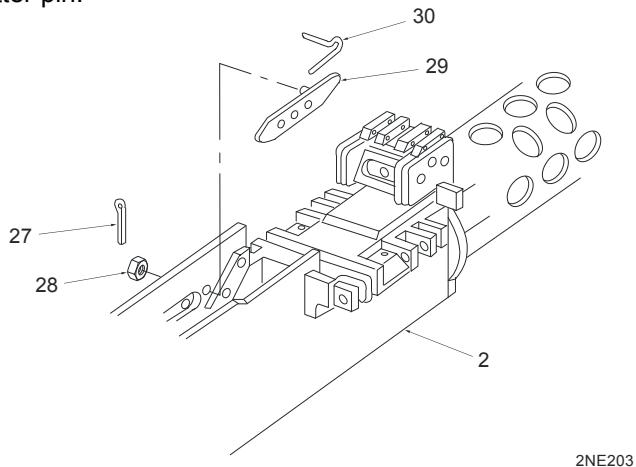


10. Install plain round nut (25) back on bolt latch assembly (21) and screw plain round nut two turns onto bolt latch assembly threads.
11. Unscrew bolt latch spring tool assembly (19) counterclockwise until manual control lever (26) drops down. Screw bolt latch spring tool assembly clockwise and compress helical compression spring (22) until plain round nut (25) can be removed from bolt latch assembly (21).
12. Remove plain round nut (25). Unscrew bolt latch spring tool assembly (19) counterclockwise and remove from receiver (2). Remove bolt latch assembly (21).



**DISASSEMBLY - Continued**

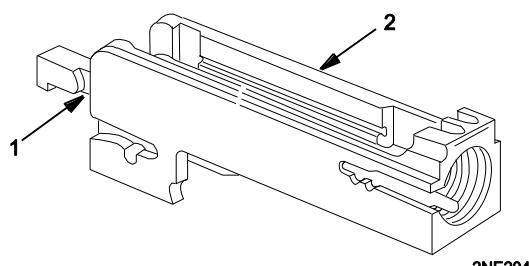
13. Remove cotter pin (27), plain slotted nut (28), extractor switch (29), and extractor switch spring (30) from receiver (2). Discard cotter pin.



2NE203

**INSPECT/REPAIR**

1. Check shaft (1) on barrel extension assembly (2) for any movement. Check for broken or chipped edges. Replace barrel extension assembly if any movement is present or if edges are broken or chipped.



2NE204

2. Check barrel extension for:
- Missing, damaged, or worn parts.
  - Breech lock beveled edges for rolled back, broken or chipped edges. Replace breech lock if edges are rolled back, broken, or chipped.
  - Repair is by replacement of authorized parts.

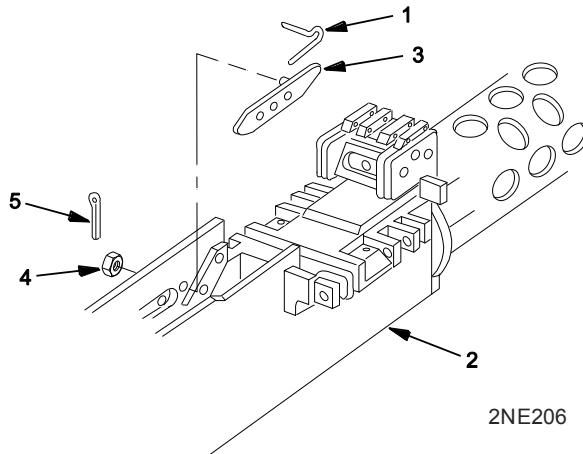
**NOTE**

All locations are taken from gunner's perspective.

3. Chipped or cracked metal on the first (partial) thread (bolt side) may be removed by hand stoning provided the chip or crack does not visibly extend beyond the root of the thread.
4. Chipped or cracked metal on the last (partial) thread (barrel side) may be removed by hand stoning provided the chip or crack does not visibly extend beyond the root of the thread.
5. The remaining full threads in the barrel extension shall exhibit not more than one chip or crack total. The single chip or crack permitted shall not exceed 1/2 linear inch in length and shall not visibly extend into the barrel extension beyond the root of the thread. Such chips or cracks shall be smoothed/repaired by hand stoning. The repaired surface shall not exceed 1/2 linear inch in length.
6. Chips or cracks not in accordance with the above or not in accordance with the applicable Technical Manual shall be cause for rejection.
7. Check for missing, damaged, or worn parts.
8. Backplate assembly is a repairable assembly (WP 0017 00).
9. Bolt assembly is a repairable assembly (WP 0012 00).
10. Barrel buffer assembly is a repairable assembly (WP 0019 00).
11. Cover assembly is a repairable assembly (WP 0013 00).
12. Retracting slide assembly is a repairable assembly (WP 0020 00).
13. Rear sight assembly is a repairable assembly (WP 0021 00).
14. Trigger lever stop assembly is a repairable assembly (WP 0031 00).
15. Bolt latch assembly is a repairable assembly (WP 0022 00).
16. Rear cartridge stop assembly is a repairable assembly (WP 0023 00).
17. Cartridge receiver is a repairable assembly (item 63, WP 0038 00).
18. Repair is by replacement of authorized parts.
19. Check M2A1 timing lock screw for worn threads or bent screw (WP 0031 00).

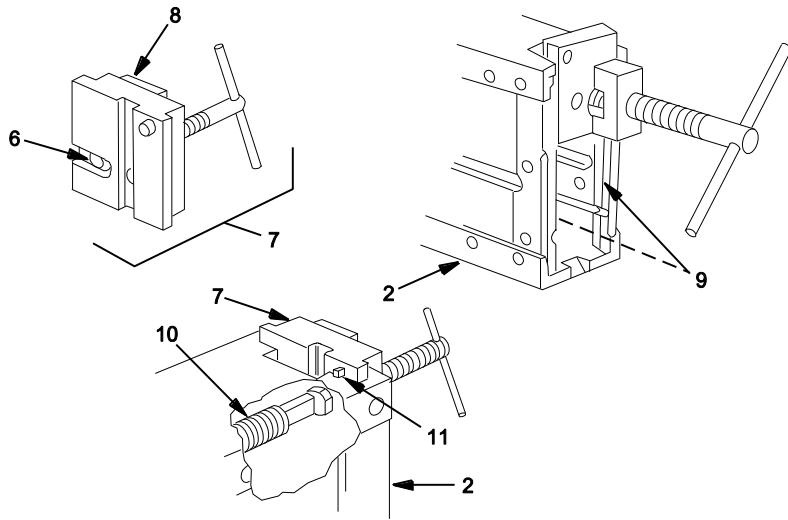
**ASSEMBLY**

1. Install extractor switch spring (1) in recess inside receiver (2). Install extractor switch (3) through receiver and secure with plain slotted nut (4). Install new cotter pin (5).

**WARNING**

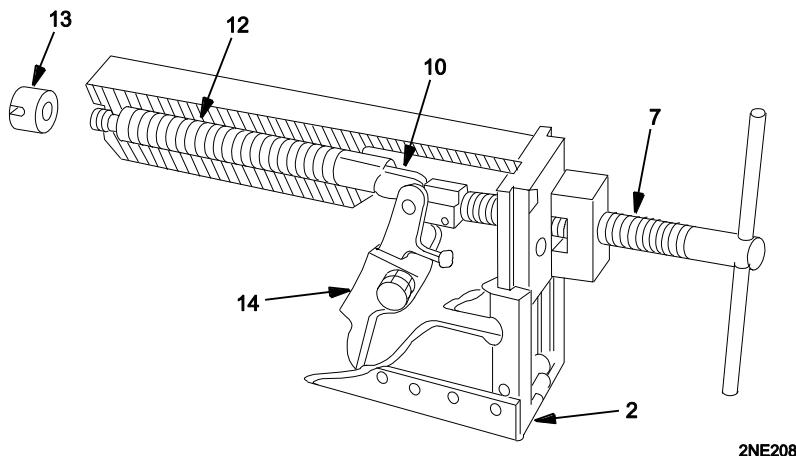
Wear face shield and carefully install bolt latch assembly in receiver assembly. The spring is under heavy compression and could cause injury if released accidentally.

2. Ensure operating head (6) of bolt latch spring tool assembly (7) is screwed counterclockwise into bracket (8) before sliding it into backplate grooves (9) in receiver (2).
3. Install bolt latch assembly (10) in receiver (2). Slide bolt latch spring tool assembly (7) into backplate grooves (9) until stop (11) contacts top of receiver.

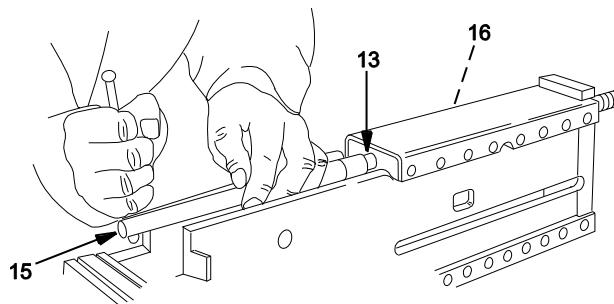


**ASSEMBLY - Continued**

4. Screw in bolt latch spring tool assembly (7) clockwise, compressing helical compression spring (12) so that plain round nut (13) can be installed on bolt latch assembly (10). Screw plain round nut two turns on to bolt latch assembly threads.
5. Unscrew bolt latch spring tool assembly (7) counterclockwise. Ensure bolt latch assembly (10) is held on by plain round nut (13).
6. Lift up on manual control lever (14) until it is level with top of receiver (2). Screw in on bolt latch spring tool assembly (7) clockwise and compress helical compression spring (12).



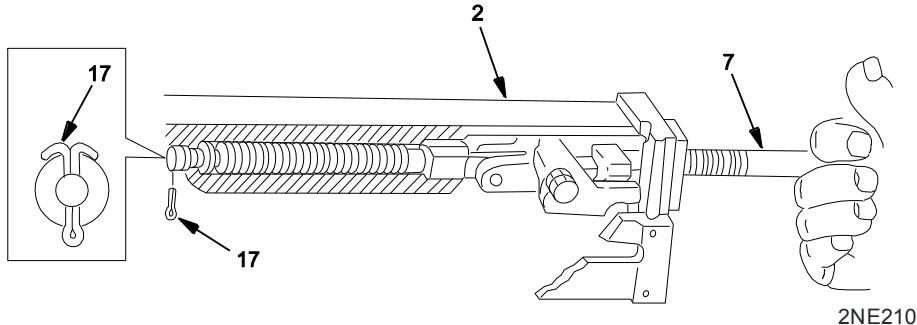
7. Tighten plain round nut (13) with spanner wrench (15). Line up slot in plain round nut with hole in bolt latch assembly eccentric pin (16).



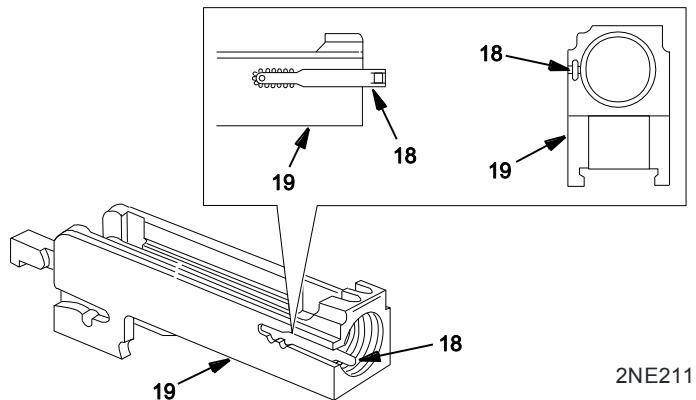
2NE209

**ASSEMBLY - Continued**

8. Install new cotter pin (17) and spread ends to secure. Ensure cotter pin is installed from the bottom, as shown.
9. Unscrew bolt latch spring tool assembly (7) counterclockwise and slide out of receiver (2).



10. If removed, install new barrel locking spring (18) in barrel extension assembly (19) until it reaches the end of its grooves. Swage barrel extension assembly into notch of spring in one place only. Barrel extension is acceptable as long as barrel locking spring cannot be removed by hand. Swaging that does not damage, prevent assembly, or impair normal operation is acceptable.

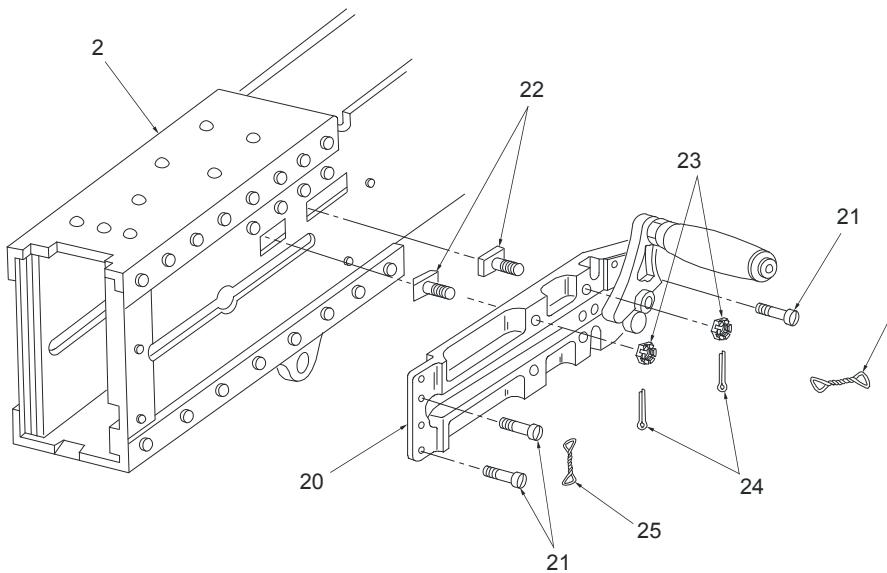


11. Install retracting slide assembly (20) into receiver (2) and secure with three machine screws (21).

**CAUTION**

Reduce length of bottom rear screw (with file or stone) as required to avoid interference with functioning of weapon. Screw should not protrude into sideplate slot.

12. From inside receiver, install two tee-head shoulder bolts (22). Ensure that beveled edges of tee-head shoulder bolts face out in opposite directions. Tighten two slotted plain nuts (23) and install two new cotter pins (24).
13. Using nonelectrical wire, install two new safety wires (25) to mounting hardware.

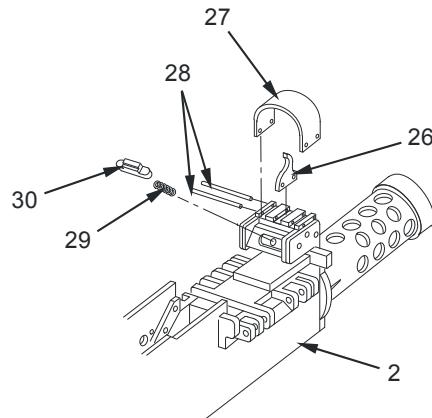
**ASSEMBLY - Continued**

2NE214

14. Install front sight (26) and gun sight cover (27) to receiver (2) and secure with two straight headed pins (28).

**WARNING**

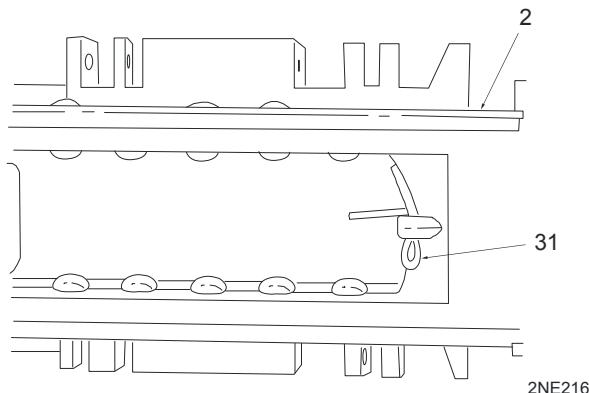
To avoid injury to your eyes, wear face shield when installing spring-loaded parts.



2NE215

15. Install helical compression spring (29) and cover detent pawl (30) on receiver (2).

16. If removed, install new cotter pin (31) in lock located at front of receiver (2).



2NE216

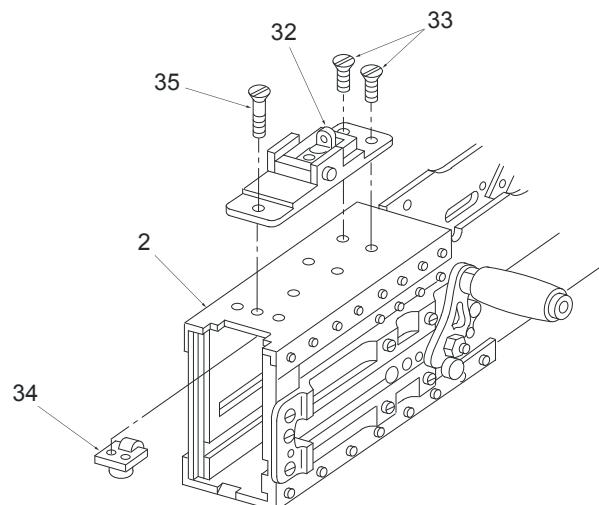
17. Install rear sight assembly (32) on top of receiver (2) and secure front end with two machine screws (33).

18. Install adjustable trigger lever stop assembly (34) inside receiver (2) and align locating holes in receiver and rear sight assembly (32). Install externally relieved screw (35) to secure rear sight assembly and adjustable trigger lever stop assembly to receiver.

#### NOTE

Do not stake externally relieved screw; refer to WP 0034 00 for adjusting timing.

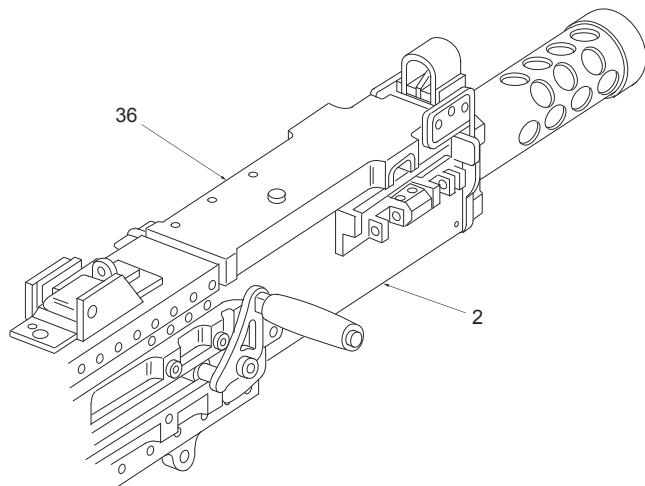
19. Stake two machine screws (33) and externally relieved screw (35).



2NE217

**ASSEMBLY - Continued**

20. Install cover assembly (36) on receiver (2) (WP 0013 00) and latch front to secure.



2NE219

21. Complete reassembly of weapon (WP 0011 00).

22. Function test weapon (WP 0011 00).

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BACK PLATE ASSEMBLY, SPADE GRIP  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(item 18, WP 0056 00)

**References**

WP 0028 00

**Materials/Parts**

Rivets (4) (item 5, WP 0041 00)  
Woodruff key (item 15, WP 0040 00)

**Equipment Conditions**

Backplate assembly removed (WP 0011 00)

**DISASSEMBLY****WARNING**

To avoid injury to your eyes, wear face shield when removing spring-loaded parts.

**CAUTION**

Do not clean solid plain disks with oil or solvent; check for wetness or swelling due to solvents, oil, or water. Use oily cloth on exterior surfaces to prevent corrosion.

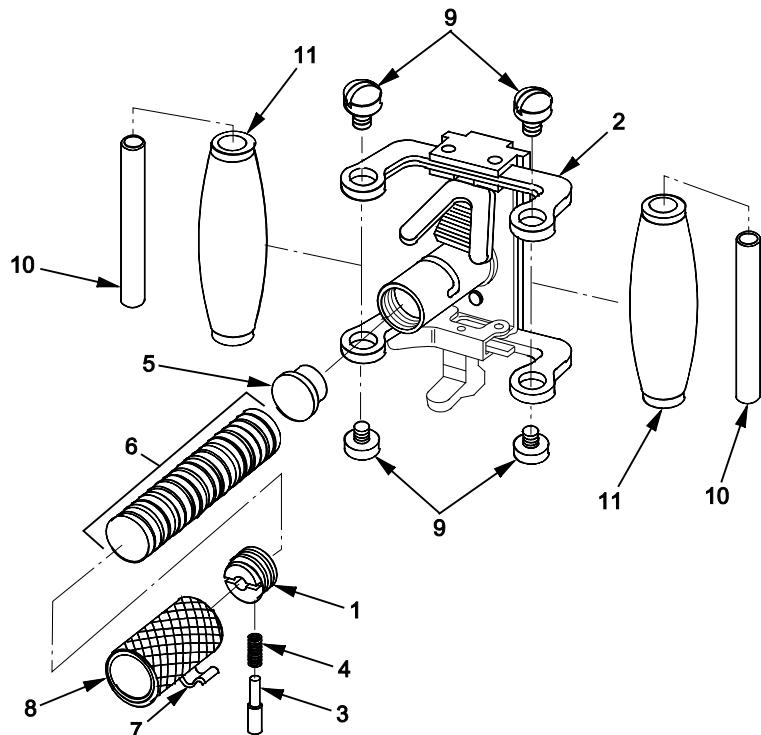
**DISASSEMBLY – Continued**

1. Remove machine thread plug (1) from backplate (2). Remove headless shoulder pin (3) and helical compression spring (4) from machine thread plug.

**NOTE**

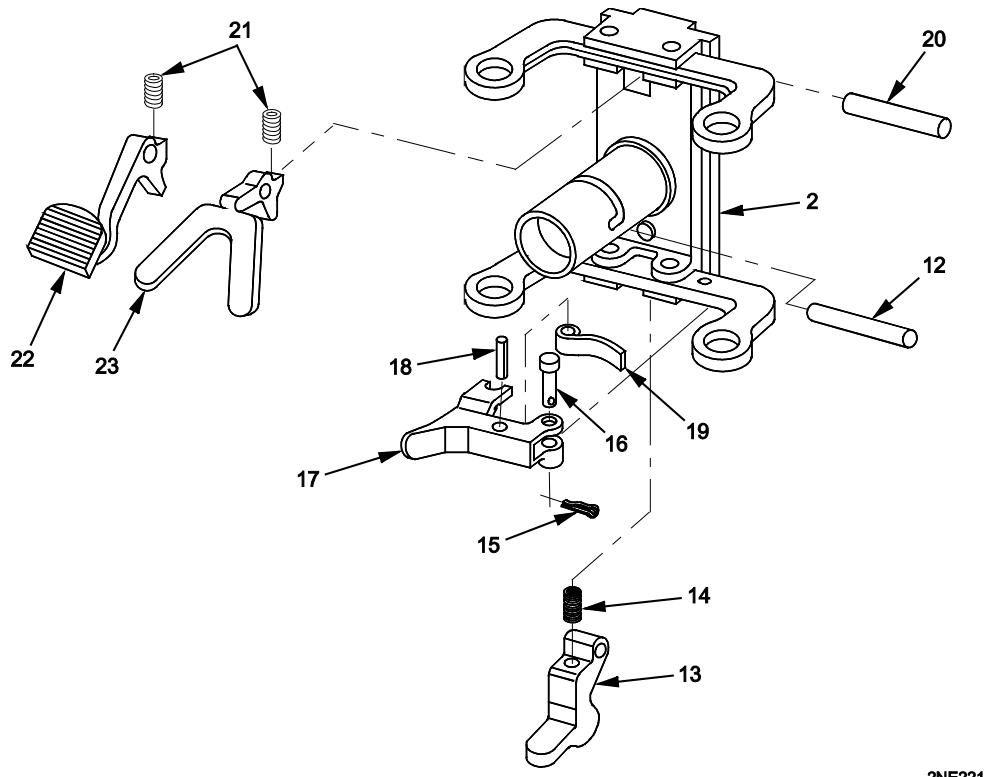
There are approximately 22 solid plain disks.

2. Push out recoil mechanism buffer (5); remove solid plain disks (6) and recoil mechanism buffer. If solid plain disks are deformed, wet, or swollen, discard and replace.
3. Lift up on bolt latch release lock (7) and pull buffer tube (8) from backplate (2).
4. Remove four machine screws (9), two handle grip tubes (10), and two machine gun handle grips (11).



2NE220

5. Remove headless straight pin (12), backplate latch (13), and helical compression spring (14) from backplate(2).
6. Remove lock pin (15), straight headed pin (16), and backplate latch lock (17).
7. Remove and discard woodruff key (18). Remove flat spring (19) from backplate latch lock (17).
8. Remove headless straight pin (20), two helical compression springs (21), bolt latch release (22), and trigger (23) from backplate (2).



2NE221

9. For Removal/Inspection/Installation of M2A1 trigger block (WP 0027 00).

**DISASSEMBLY – Continued****NOTE**

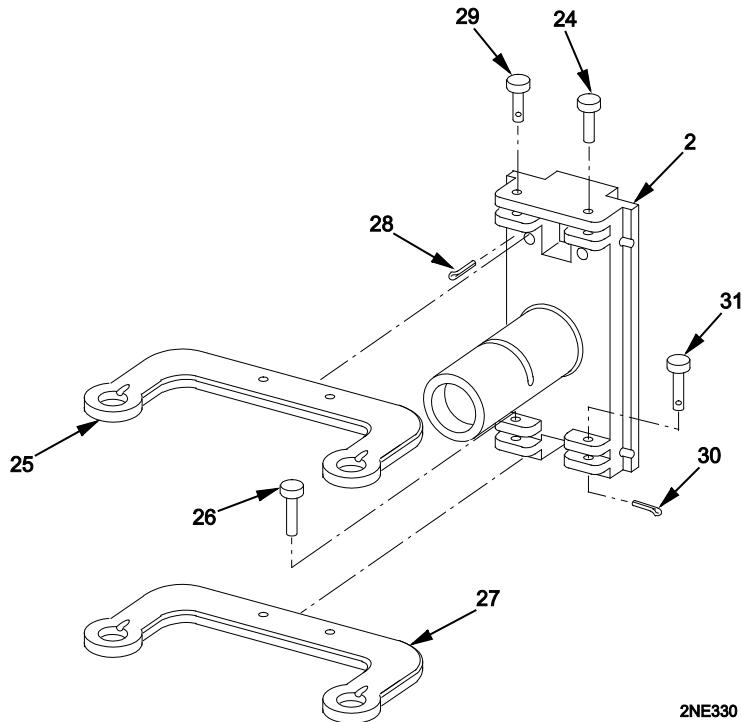
Steps 10 and 11 are for riveted backplates only. Rivets will be replaced by headed pins and lock pins at assembly.

**Backplate with Broken Rivets or Broken Frames**

10. Remove two solid rivets (24) and frame (25) from backplate (2). Discard solid rivets.
11. Remove two solid rivets (26) and frame (27) from backplate (2). Discard solid rivets.

**Backplate with Lock Pins**

12. Remove two lock pins (28), two headed straight pins (29), and frame (25) from backplate (2).
13. Remove two lock pins (30), two headed straight pins (31), and frame (27) from backplate (2).



2NE330

**INSPECT/REPAIR**

1. Check for out-of-round holes.
2. Check for collapsed springs and missing, damaged, or worn parts.
3. Repair is by replacement of authorized parts.
4. Backplate is a repairable assembly.

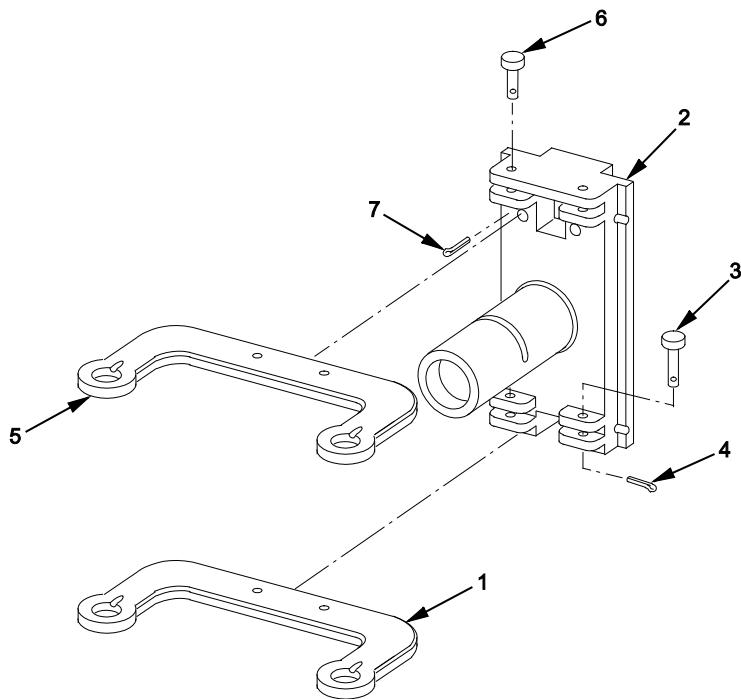
**CAUTION**

If solid plain disks are deformed, wet, or swollen, check receiver backplate slot for cracks or damage.

5. Inspect solid plain disks for contamination by fluids (e.g., oil, solvent, or water), cracks, deformation, or collapsed disks.
6. Replace all contaminated solid plain disks.

**ASSEMBLY**

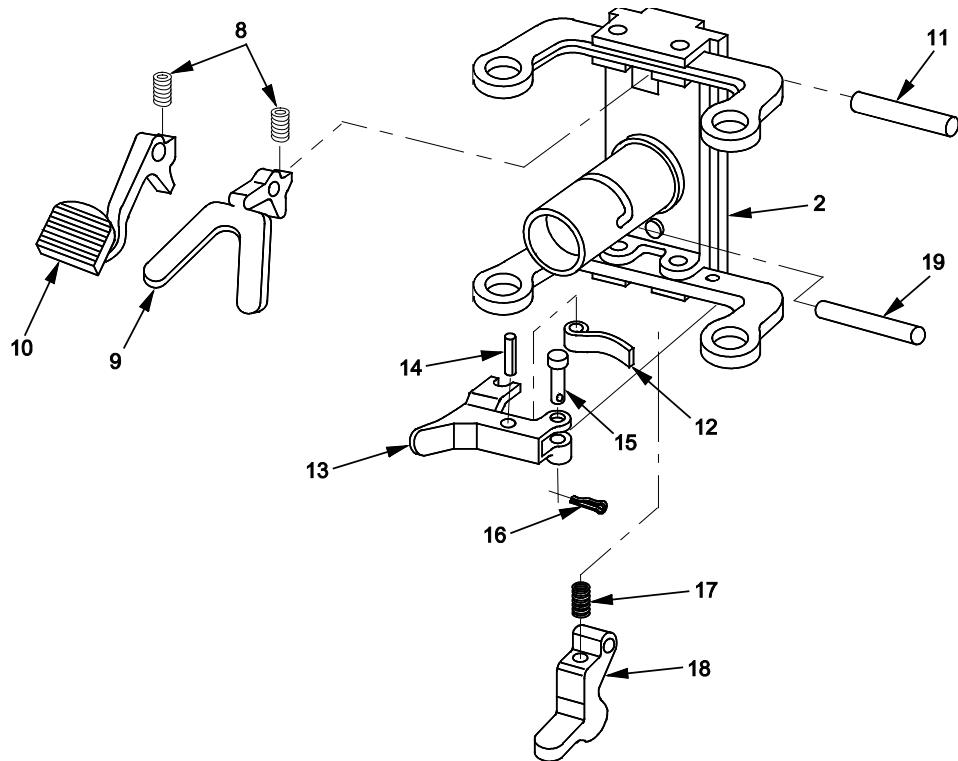
1. If removed, position frame (1) in backplate (2) and secure with two new headed straight pins (3) and two new lock pins (4).
2. If removed, position frame (5) in backplate (2) and secure with two new headed straight pins (6) and two new lock pins (7).



2NE331

**ASSEMBLY - Continued**

3. Install two helical compression springs (8), trigger (9), bolt latch release (10), and headless straight pin (11) in backplate (2). Peen metal of backplate over both ends of headless straight pin.
4. Assemble flat spring (12) to backplate latch lock (13) and secure with new woodruff key (14) by staking over ends of woodruff key.
5. Position backplate latch lock (13) on backplate (2) and secure with straight headed pin (15) and lock pin (16).
6. Install helical compression spring (17) in backplate latch (18) and secure in backplate (2) with headless straight pin (19). Stake metal of backplate over both ends of headless straight pin.



2NE334

**ASSEMBLY - Continued**

7. Install two handle grip tubes (20) into two machine gun handle grips (21). Position machine gun handle grips in backplate (2) and secure with four machine screws (22). Machine gun handle grips must not rotate after assembly. After tightening, stake metal of machine screws in slots in backplate frames.

**NOTE**

When installing buffer tube on backplate, ensure latch release lock is facing towards the backplate.

8. Install buffer tube (23) in backplate (2) making sure that the latch release lock (24) enters grooves in backplate.

**CAUTION**

Do not clean solid plain disks with oil or solvent; check for deformation, wetness, or swelling due to solvents, oil, or water.

**NOTE**

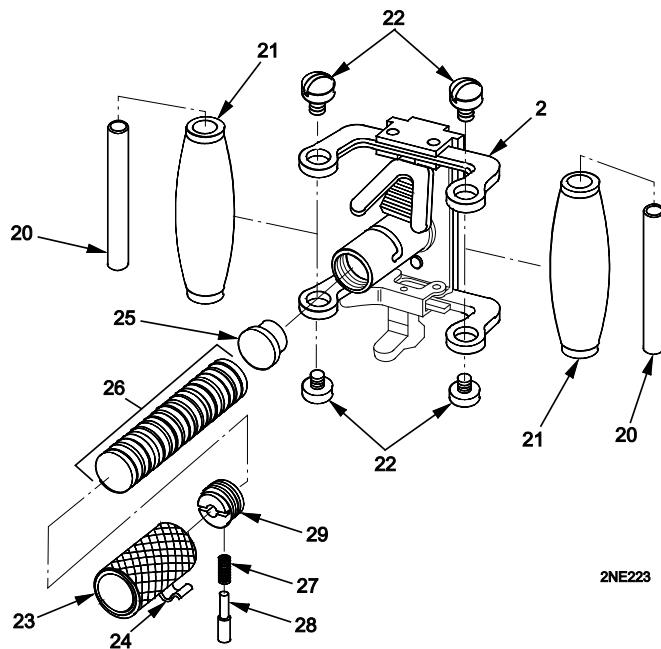
There are **approximately 22** solid plain disks.

9. Install recoil mechanism buffer (25) and solid plain disks (26) in backplate.

**NOTE**

Machine thread plug **MUST NOT** protrude more than one thread above or below flush. Verify that not more than one thread is showing on the weapon.

10. Install helical compression spring (27) and headless shoulder pin (28) in machine thread plug (29). Screw machine thread plug into backplate (2). Tighten plug. Back off only until headless shoulder pin is aligned in notch.



2NE223

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BREECH BOLT ASSEMBLY, CARTRIDGE EXTRACTOR,  
FIRING PIN EXTENSION ASSEMBLY, AND ALTERNATE FEED BOLT SUBASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 7, WP 0054 00)  
Firing pin spring tool assembly  
(item 14, WP 0049 00)  
Small arms repairman tool kit  
(Table 2, item 3, WP 0054 00)

**Materials/Parts**

Headed pin (item 3, WP 0041 00)

**References**

TM 9-1005-347-10

**Equipment Conditions**

Bolt assembly removed (WP 0011 00)

Bolt assembly partially disassembled  
(WP 0012 00)

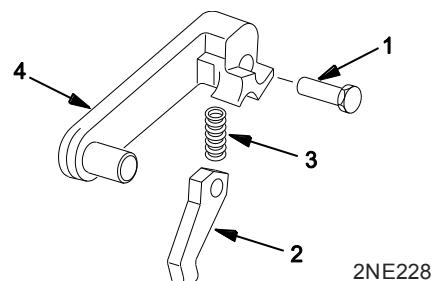
M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

M2A1 bolt removed and partially disassembled  
(TM 9-1005-347-10)

**DISASSEMBLY****WARNING**

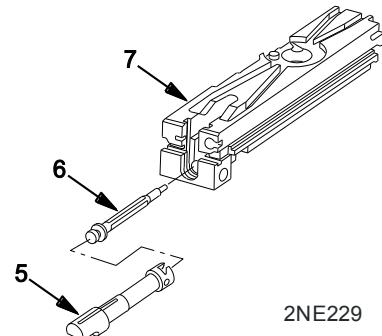
To avoid injury to your eyes, wear face shield when removing spring-loaded parts.

1. Drive out headed pin (1) and remove cartridge bolt ejector (2) and helical compression spring (3) from extractor (4). Discard headed pin.



2NE228

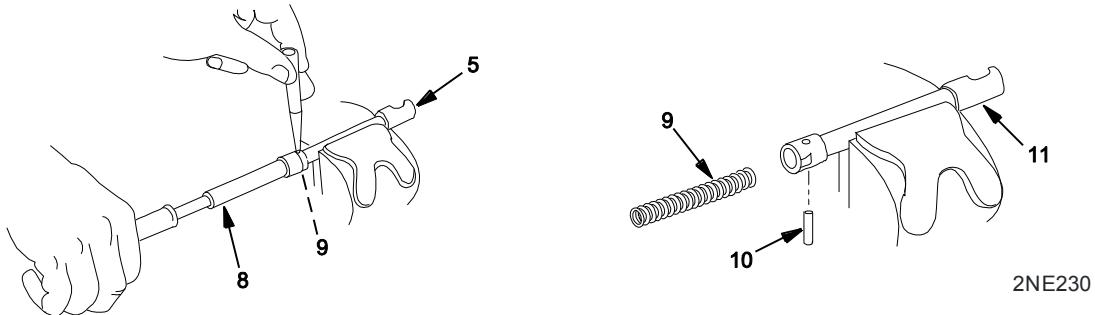
2. Remove firing pin extension assembly (5) and firing pin (6) from bolt subassembly (7). Separate firing pin from firing pin extension assembly.



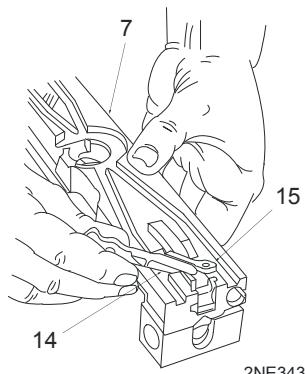
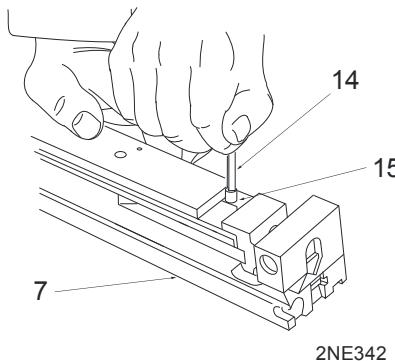
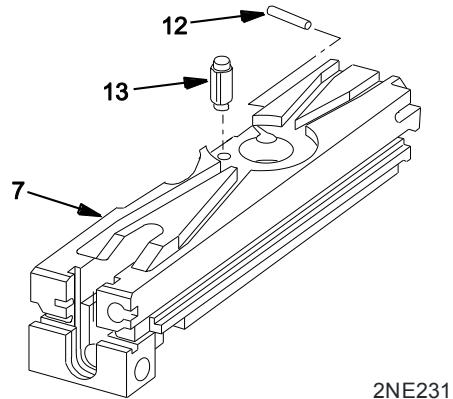
2NE229

**DISASSEMBLY – Continued**

3. Place firing pin extension assembly (5) in vise. Use firing pin tool assembly (8) to compress helical compression spring (9). Drive out headless straight pin (10) and remove helical compression spring from firing pin extension (11).

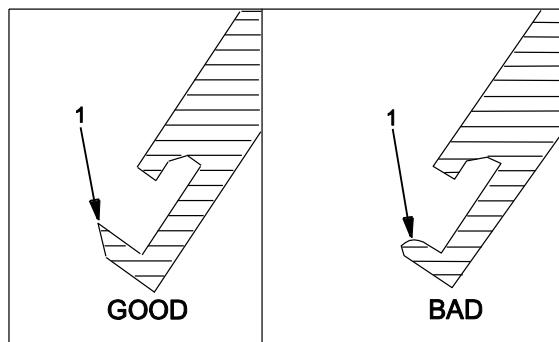
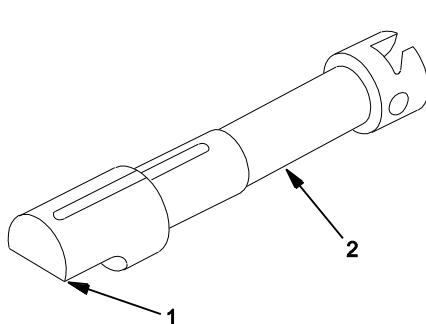


4. If damaged, drive out headless straight pin (12) and shoulder pin (13) from bolt subassembly (7).
5. Using thin edge of cocking lever (14), rotate sear stop to center of recess and bolt (7).
6. Turn bolt (7) over and use thin end of cocking lever (14) to press sear stop and pin (15) from bottom of bolt.
7. With top of bolt (7) up, use thin edge of cocking lever (14) to pry up and remove sear stop and pin (15).



**INSPECT/REPAIR**

1. Check that notch angle (1) of firing pin extension assembly (2) is not rounded as shown below.

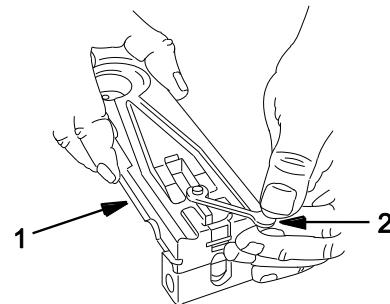


2NE235

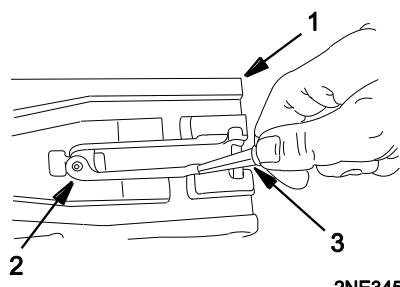
2. Inspect bolt face for pits and/or eroded areas up to a maximum 0.062 in. (0.157 cm) long or wide, 0.031 in. (0.079 cm) deep in scattered or random patterns, or rings 0.031 in. (0.079 cm) deep and 0.062 in. (0.157 cm) wide.
3. Check for missing, damaged, or worn parts.
4. Inspect springs for collapsed coils or deformation.
5. If recoil plate is damaged, repair is by replacement of next higher assembly.
6. Check for burred, broken or bent sear stop and pin. Replace if defective.
7. Repair is by replacement of authorized parts.

**INSTALLATION**

1. With top of bolt (1) up, insert pin end of sear stop and pin (2) into bolt.
2. Using wedge shaped end of the cocking lever (3) as a tool, press down on the flat end of the sear stop and pin (2) and swing it into groove on left side of the bolt (1).



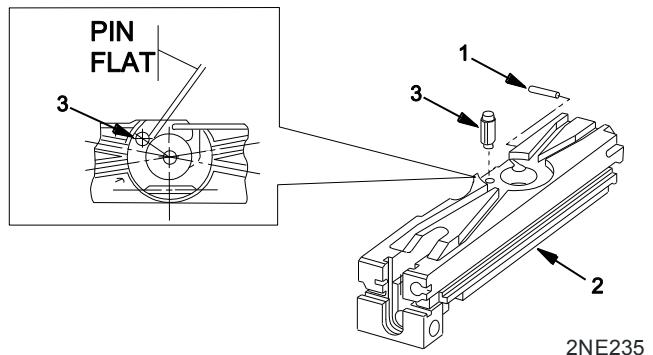
2NE344



2NE345

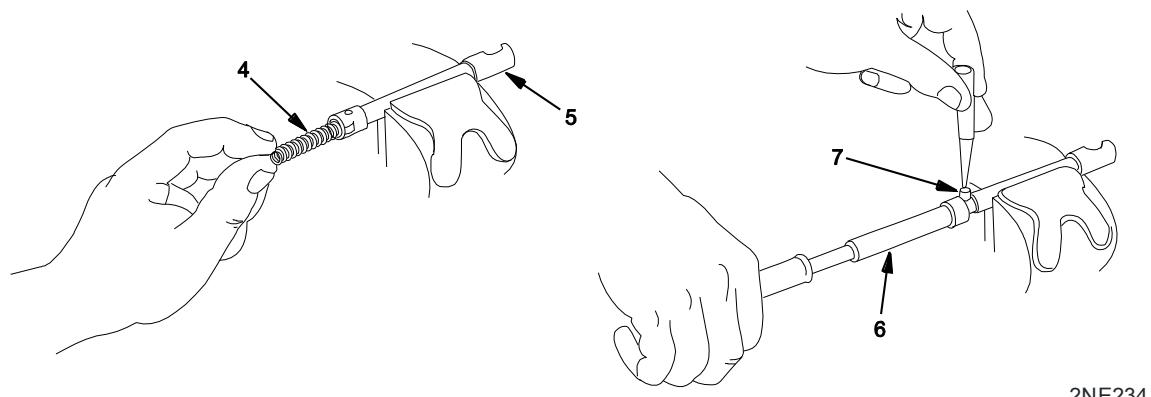
**ASSEMBLY**

1. If removed, press fit new headless straight pin (1) in bolt subassembly (2). Headless straight pin should protrude no more than 0.078 in. (0.198 cm) maximum. If necessary, stone or file top and bottom of headless straight pin to meet assembly dimensions.
2. If removed, press fit new shoulder pin (3) in bolt subassembly (2) with flat of shoulder pin facing as shown.

**WARNING**

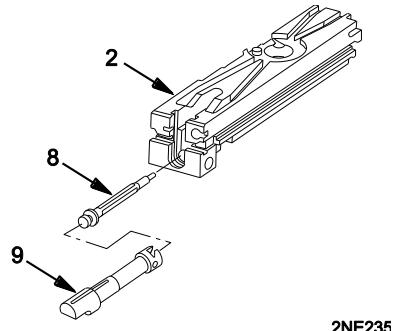
To avoid injury to your eyes, wear face shield when installing spring-loaded parts.

3. Install helical compression spring (4) into firing pin extension (5). Use firing pin tool assembly (6) to compress helical compression spring. Drive in headless straight pin (7) to secure helical compression spring. Stake pin hole area to prevent loss of headless straight pin.



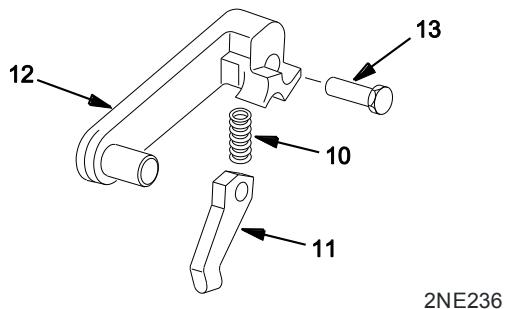
**ASSEMBLY - Continued**

4. Position firing pin (8) in slot in firing pin extension assembly (9). Install firing pin extension assembly in bolt subassembly (2) with notch downward.

**NOTE**

Ensure helical compression spring is in recess of extractor.

5. Install helical compression spring (10) and cartridge bolt ejector (11) in extractor (12) and secure with new headed pin (13). Cartridge bolt ejector must pivot freely. Peen metal of headed pin to secure cartridge bolt ejector.



6. Refer to operator's manual (TM 9-1005-347-10) for further reassembly of bolt assembly.

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****RECOIL MECHANISM BUFFER MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

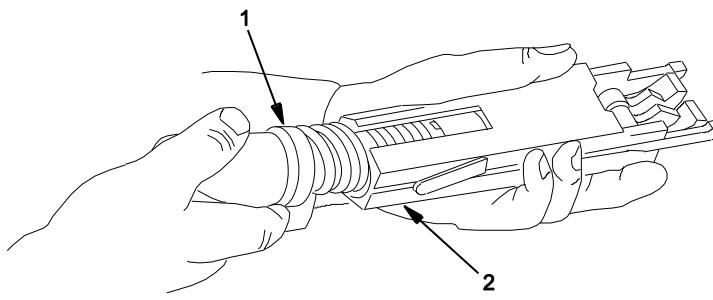
Field maintenance small arms shop set  
(item 18, WP 0054 00)  
Oil buffer rod tool assembly (item 12, WP 0049 00)

**Equipment Conditions**

Recoil mechanism buffer (barrel buffer assembly)  
removed (WP 0011 00)

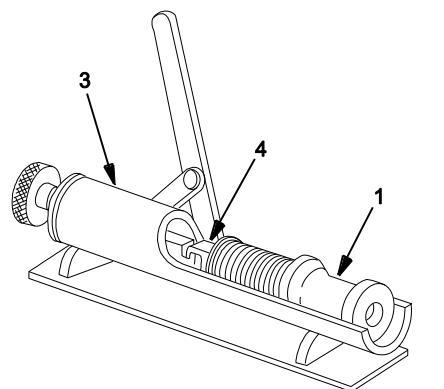
**DISASSEMBLY**

1. Remove buffer assembly (1) with attached parts from barrel buffer body (2).



2NE237

2. Place buffer assembly (1) in oil buffer tool assembly (3), with buffer assembly mating with tool assembly latch (4).

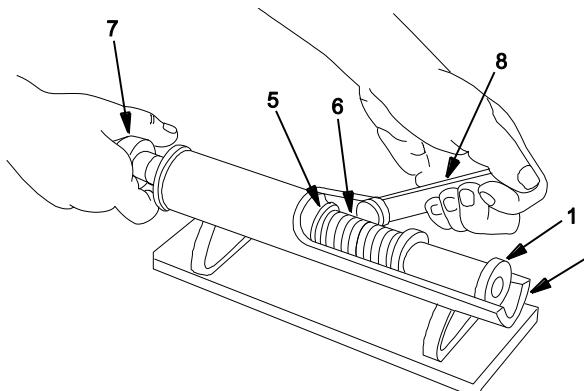


2NE238

**DISASSEMBLY - Continued****WARNING**

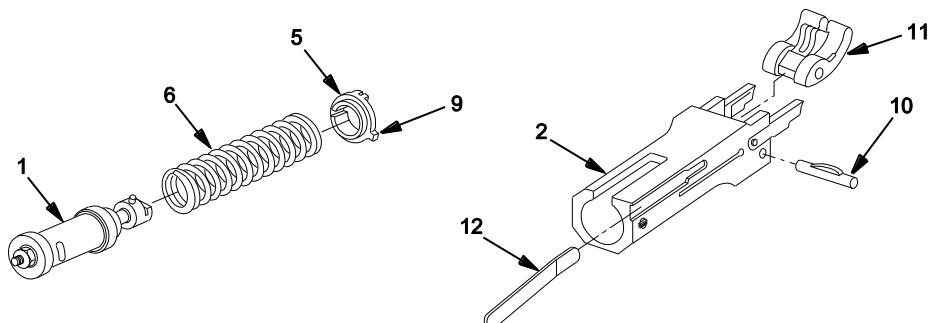
To avoid injury to your eyes, wear face shield when removing spring-loaded parts.

3. Squeeze buffer spring guide (5) and helical compression spring (6) together. Turn knob (7) 1/4 turn to release buffer spring guide from buffer assembly (1). Slowly release handle (8) and remove buffer assembly, helical compression spring, and buffer spring guide from oil buffer tool assembly (3).



2NE239

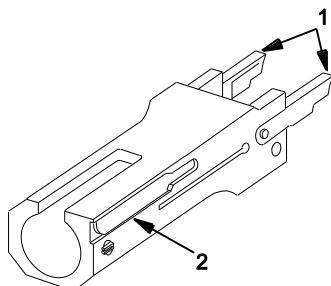
4. Remove buffer spring guide (5) with attached key (9) and helical compression spring (6) from buffer assembly (1).
5. Remove accelerator spring pin (10) and buffer machine accelerator (11) from barrel buffer body (2).
6. If damaged, drive out buffer body lock (12) to remove.



2NE240

**INSPECT/REPAIR**

1. Check rivet on lock depressors (1) to ensure lock depressors are securely retained in barrel buffer body. Up and down movement of the lock depressors is acceptable as long as the movement does not interfere with proper functioning of the weapon. Center punch the center of the rivet if retightening of the lock depressors is required.
2. Staking or swaging of the buffer body to secure or limit the movement of the lock depressors (1) in their recesses is not required nor is it desirable. However, marks derived from previous unauthorized staking or swaging on buffer are acceptable as long as the staking/swaging does not interfere with the functioning of the weapon.
3. Check retention of the buffer body lock (2). Lock/buffer is serviceable as long as the lock cannot be removed by hand and/or can be secured by center punching per following assembly instructions. Previous swaging that does not damage, prevent assembly, or impair normal operation of the lock/buffer body is acceptable.

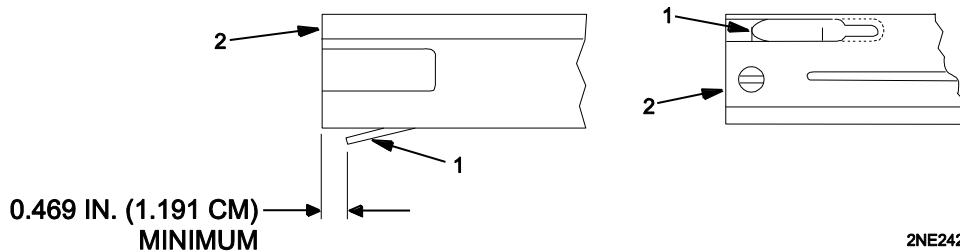


2NE241

4. Check accelerator spring pin for burrs and collapsed spring. Ensure spring is not broken.
5. Check for missing, damaged, or worn parts.
6. Check spring for broken or collapsed coils or deformations.
7. Repair is by replacement of authorized parts.

**ASSEMBLY**

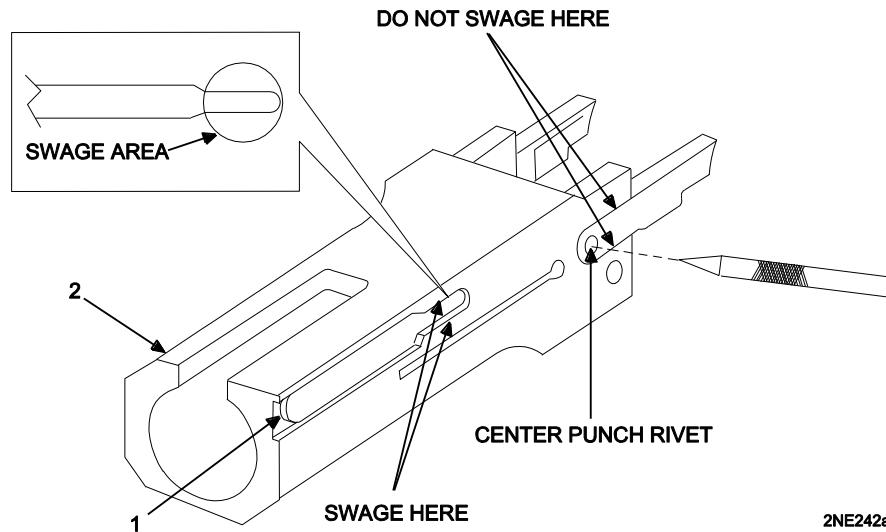
1. If removed, slide new buffer body lock (1) into groove in barrel buffer body (2) until it reaches the end. To ensure the lock is fully seated in the groove, there should be a minimum of 0.469 in. (1.191 cm) clearance between edge of barrel buffer body and the end of buffer body lock as shown.



2NE242

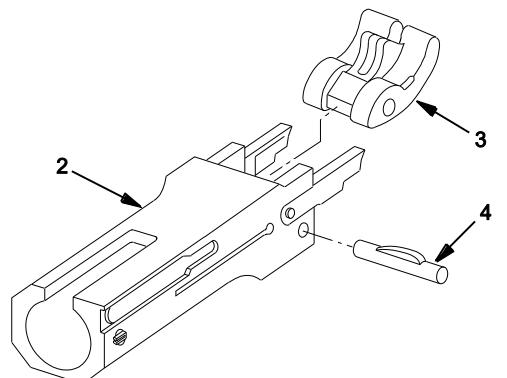
**ASSEMBLY - Continued**

2. Swage the barrel buffer body (2) by using a blunt punch, in one or more places along the lock groove as required, to retain the buffer body lock (1) so that it cannot be removed by hand.



2NE242a

3. Position buffer machine accelerator (3) in barrel buffer body (2) and secure with accelerator spring pin (4).

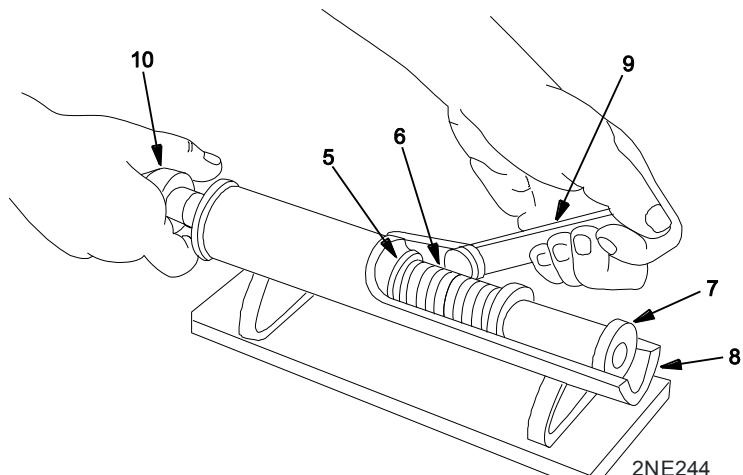


2NE243

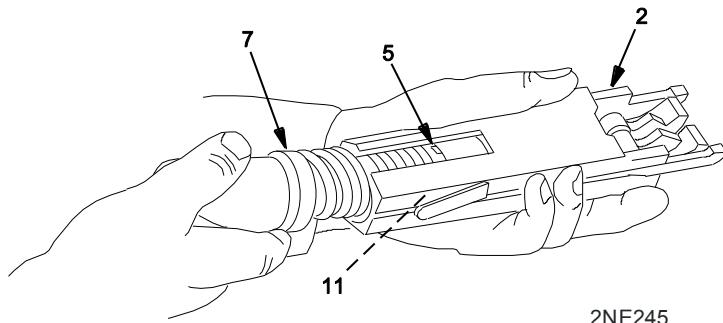
**WARNING**

To avoid injury to your eyes, wear face shield when installing spring-loaded parts.

4. Position buffer spring guide (5), helical compression spring (6), and buffer assembly (7) in oil buffer tool assembly (8). Compress helical compression spring using handle (9). Turn knob (10) 1/4 turn to lock buffer spring guide to buffer assembly. Release handle and remove assembled buffer assembly from oil buffer tool assembly.

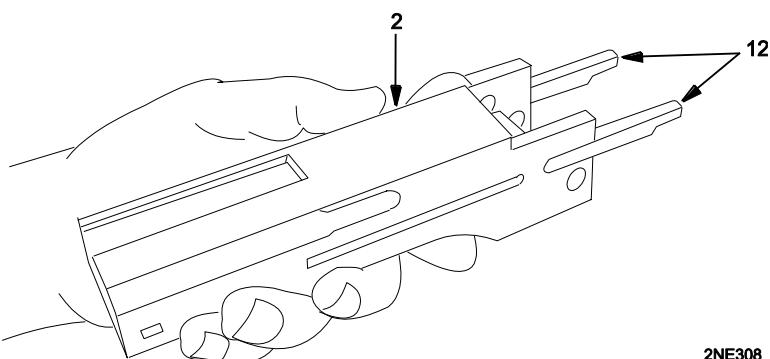


5. Install buffer assembly (7) in barrel buffer body (2) while aligning key (11) of buffer spring guide (5) with slot in barrel buffer body.

**NOTE**

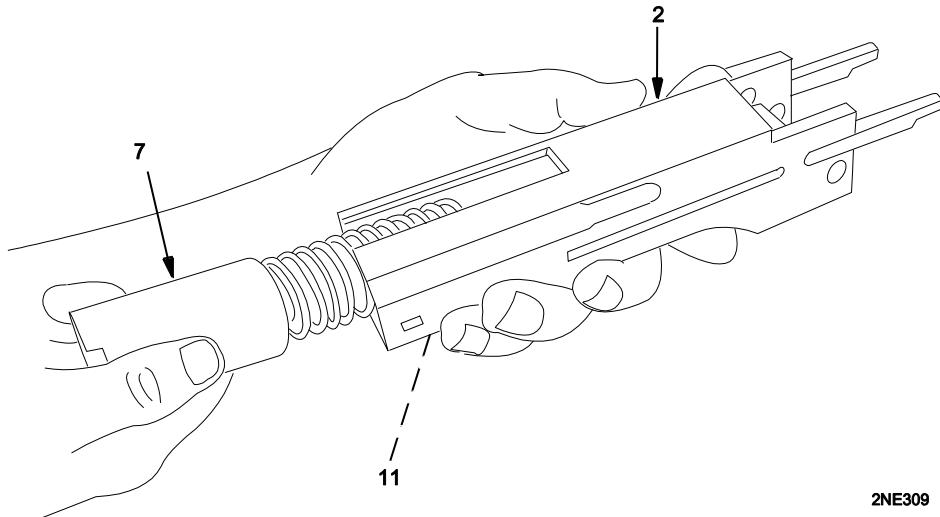
Some barrel buffer body assemblies have been issued with a 0.129 in. wide slot on both sides of the barrel buffer body rather than on one side only. If you have the configuration with two slots, you must perform steps 6 thru 8 to ensure correct installation of the buffer assembly.

6. Position barrel buffer body (2) so that two lock depressors (12) are pointed away from assembler and are closest to top of barrel buffer body.

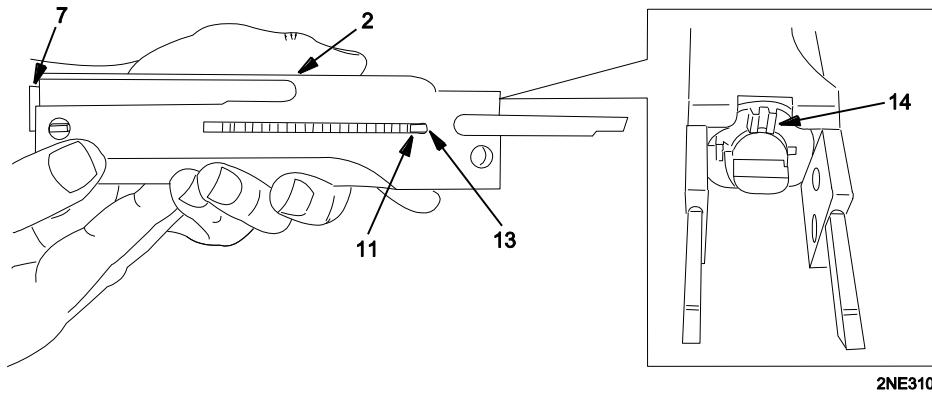


**ASSEMBLY - Continued**

7. Grasp buffer assembly (7) and partially insert spring end first into large diameter bore of barrel buffer body (2). Align key (11) of buffer spring guide to engage in 0.129 in. wide slot located on right hand side of barrel buffer body.



8. Slide buffer assembly (7) into barrel buffer body (2) until buffer spring guide (11) contacts far end of slot (13). When correctly assembled, hooked end of rod (14) in buffer assembly is pointed upward.



**END OF WORK PACKAGE**

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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****RETRACTING SLIDE ASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY**

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**INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0054 00)

**References**

WP 0016 00

**Materials/Parts**

Cotter pin (item 9, WP 0045 00)

**Equipment Conditions**

Retracting slide assembly removed (WP 0016 00)

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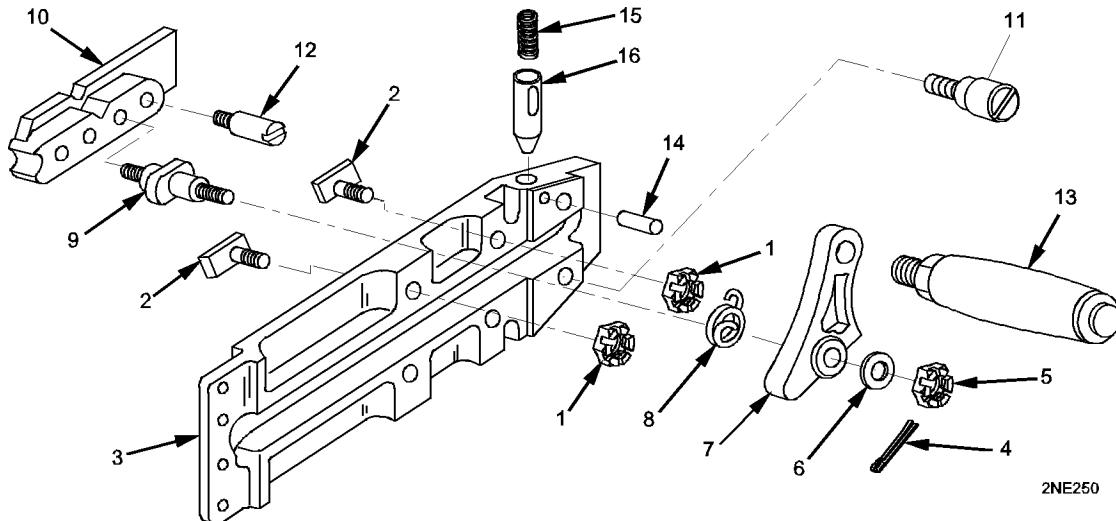
**DISASSEMBLY**

1. Remove two plain slotted nuts (1) and two tee-head shoulder bolts (2) from retracting slide bracket (3).
2. Remove and discard cotter pin (4). Remove plain slotted nut (5), flat thrust washer (6), retracting slide lever (7), and helical torsion spring (8) from retracting slide shouldered stud (9). Remove retracting slide (10) and shoulder screw (11) from retracting slide bracket (3).
3. Remove headless shoulder pin (12) and shouldered stud (9) from retracting slide (10).
4. Remove retracting slide handle (13) from retracting slide lever (7).

**WARNING****EYE HAZARDS**

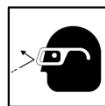
Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

5. Remove headless straight pin (14), helical compression spring (15), and retracting slide plunger (16) from retracting slide bracket (3).



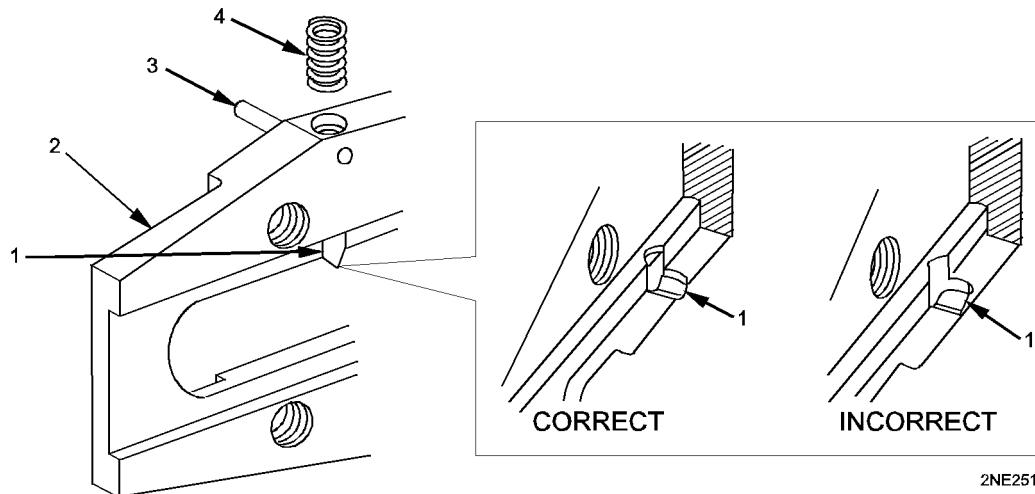
**INSPECT/REPAIR**

1. Check for collapsed spring coil and missing, damaged, or worn parts.
2. If retracting slide bracket is damaged, repair is by replacement of next higher assembly.
3. Repair is by replacement of authorized parts.

**ASSEMBLY****WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

1. Position retracting slide plunger (1) so that flat side is flush with track in retracting slide bracket (2) and straight headless pin (3) can be partially installed.
2. Place helical compression spring (4) in retracting slide plunger (1) and push down on helical compression spring to complete installation of headless straight pin (3). Headless straight pin should be flush with retaining slide bracket (2).



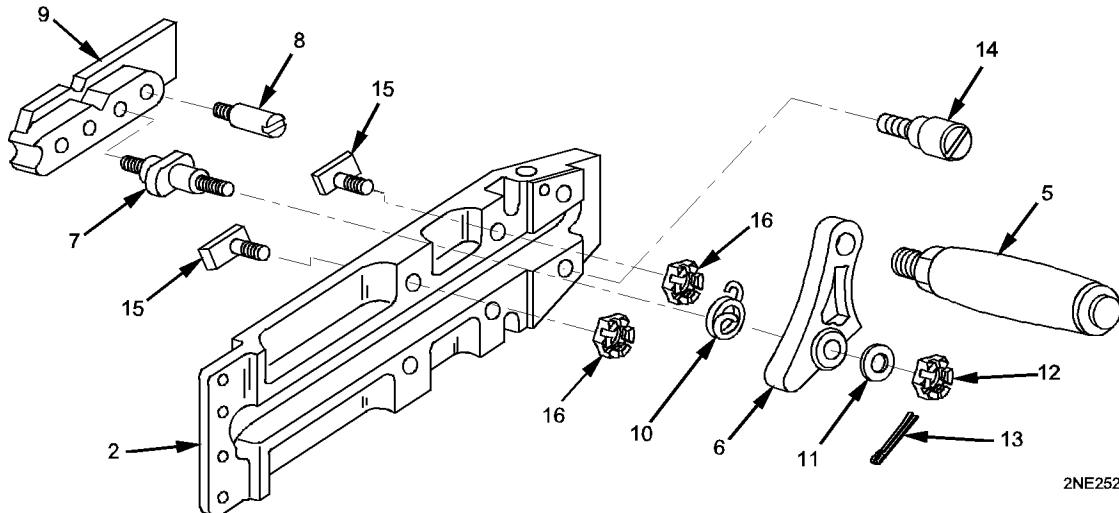
2NE251

**ASSEMBLY - Continued**

3. Install retracting slide handle (5) on retracting slide lever (6).
4. Install shouldered stud (7) and headless shoulder pin (8) on retracting slide (9), and position retracting slide into retracting slide bracket (2).
5. Install helical torsion spring (10), retracting slide lever (6), flat thrust washer (11), plain slotted nut (12), and new cotter pin (13) on shouldered stud (7).
6. Install shoulder screw (14) on retracting slide bracket (2).
7. Position two tee-head shoulder bolts (15) through retracting slide bracket (2) and loosely install two plain slotted nuts (16).

**NOTE**

Tee-head shoulder bolts and plain slotted nuts will be repositioned and tightened when retracting slide assembly is installed on receiver (WP 0016 00).



2NE252

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****REAR SIGHT ASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY**

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**INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0054 00)

**References**

TM 9-1005-347-10

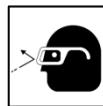
**Equipment Conditions**

Rear sight assembly removed (WP 0016 00)

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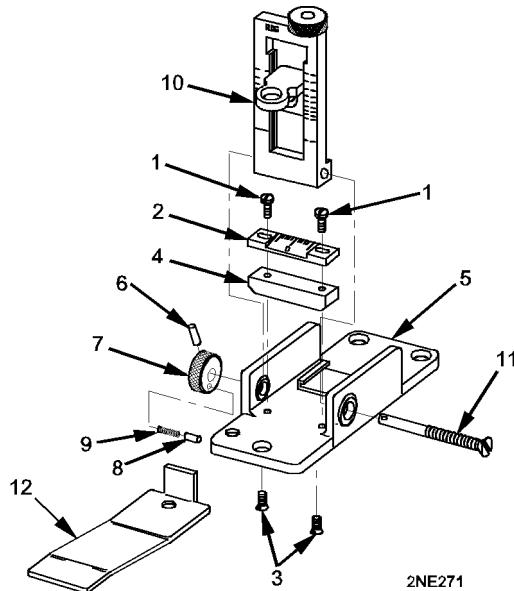
**DISASSEMBLY**

1. Remove two machine screws (1) and rear sight scale dial (2).
2. Remove two machine screws (3) and riser (4) from base (5).

**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

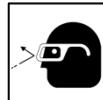
3. Remove spring pin (6) and rear sight windage screw knob (7). Remove detent windage plunger (8) and helical compression spring (9) from rear sight windage screw knob.
4. Lift folding rear sight assembly leaf (10) to vertical position and push down to remove setscrew (11). Lift out folding rear sight assembly leaf to remove.
5. Remove flat spring (12) from base (5).

**INSPECT/REPAIR**

1. Check for missing, damaged, or worn parts.
2. If the base is damaged, repair is by replacement of next higher assembly.
3. Repair is by replacement of authorized parts.

**ASSEMBLY**

1. Install flat spring (1) into base (2).
2. Position folding rear sight assembly leaf (3) on flat spring (1). Align folding rear sight assembly leaf with holes in base (2) and install setscrew (4) from the right side.

**WARNING****EYE HAZARDS**

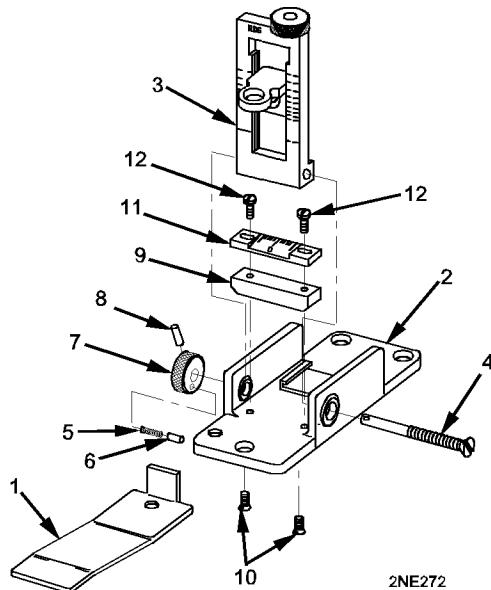
Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

3. Install helical compression spring (5) and detent windage plunger (6) in rear sight windage screw knob (7).
4. Install rear sight windage screw knob (7) on setscrew (4) and secure with spring pin (8) installed flush or below surface. If new setscrew was installed, drill  $0.062 + 0.003$  in. ( $0.157 + 0.008$  cm) hole through setscrew using rear sight windage screw knob as a template.

**NOTE**

With rear sight windage screw knob installed, there should be no noticeable lateral movement of setscrew. Folding rear sight assembly leaf must be capable of full lateral adjustment without binding.

5. Install riser (9) and secure with two machine screws (10).
6. Install rear sight scale dial (11) and secure with two machine screws (12).
7. Perform functional check (TM 9-1005-347-10).

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BOLT LATCH ASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECTION, REPAIR OR REPLACEMENT, ASSEMBLY**

---

**INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0054 00)

**References**

TM 9-1005-347-10  
WP 0015 00  
WP 0016 00

**Materials/Parts**

Cotter pin (item 41, WP 0038 00)

**Equipment Conditions**

Backplate and trigger lever removed  
(WP 0011 00)  
Bolt latch and trigger lever stop assembly removed  
(WP 0016 00)

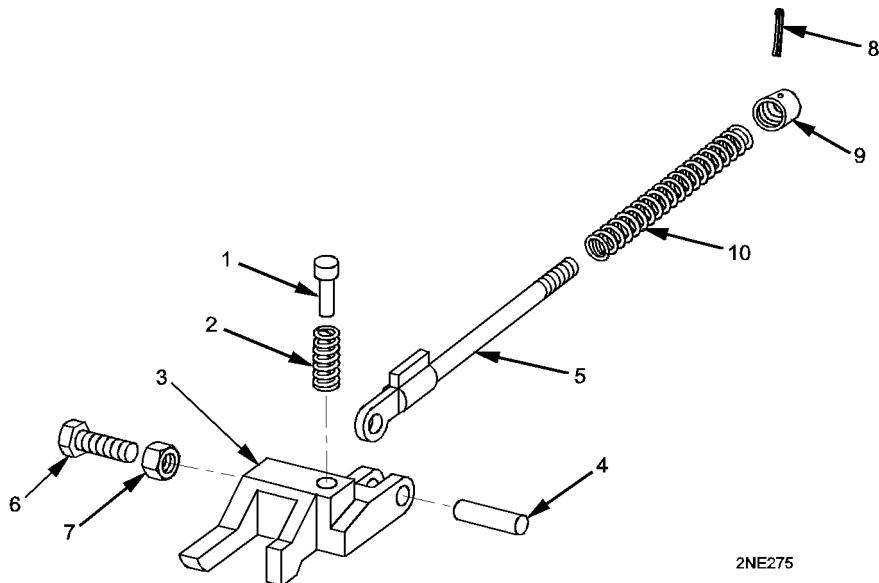
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**DISASSEMBLY**

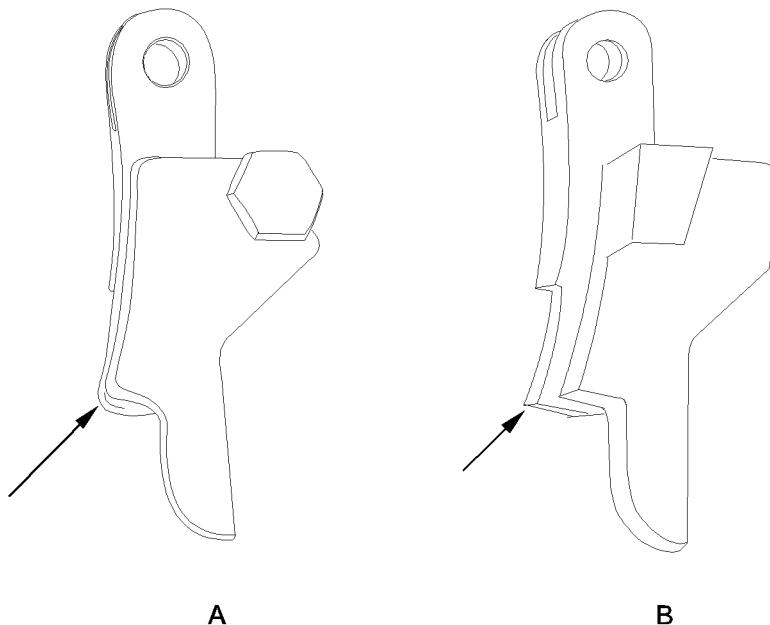
1. Remove headless shoulder pin (1) and helical spring (2) from manual control lever (3).
2. Remove straight pin (4) to remove eccentric pin (5) from manual control lever (3).
3. Remove machine bolt (6) and hexagon plain nut (7) from manual control lever (3).
4. If present, remove cotter pin (8) and plain round nut (9). Discard cotter pin.
5. Remove helical compression spring (10) from eccentric pin (5).

**NOTE**

Newly designed bolt latch does not have machine bolt (6) and hexagon plain nut (7).

**INSPECTION**

1. Remove barrel assembly, backplate assembly, bolt assembly, buffer assembly, and barrel extension assembly IAW TM 9-1005-347-10.
2. Visually inspect manual control lever.
3. The curved/rounded edge is a nonconforming/defective manual control lever. The sharp edge is a serviceable manual control lever.
4. If the manual control lever exhibits rounded edge(s) or excessive wear, replace it with a manual control lever with a sharp edge. A QDR should not be submitted against any manual control lever exhibiting rounded edge due to excessive wear.

**INSPECTION - Continued**

EITHER OF THE ABOVE DESIGNS ARE ACCEPTABLE: HOWEVER,  
THE ROUNDED EDGE IDENTIFIED BY THE ARROW IN PICTURE A  
IS UNACCEPTABLE WHILE THE SHARP EDGE IDENTIFIED BY THE  
ARROW IN PICTURE B IS ACCEPTABLE.

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**REPAIR OR REPLACEMENT**

1. Check for missing, damaged, or worn parts.
2. Check springs for collapsed coils.
3. Repair is by replacement of authorized parts.

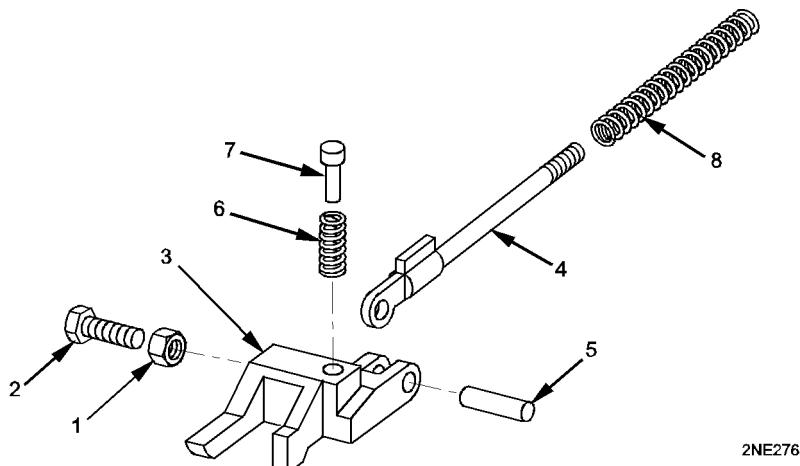
**ASSEMBLY**

1. Screw hexagon plain nut (1) onto machine bolt (2) and tighten. Install machine bolt (2) in manual control lever (3) and tighten.
2. Position eccentric pin (4) in manual control lever (3) and secure with straight pin (5).
3. Install helical spring (6) and headless shoulder pin (7) in manual control lever (3).
4. Install helical compression spring (8) on eccentric pin (4).

**NOTE**

Plain round nut and cotter pin will be installed when bolt latch assembly is installed.

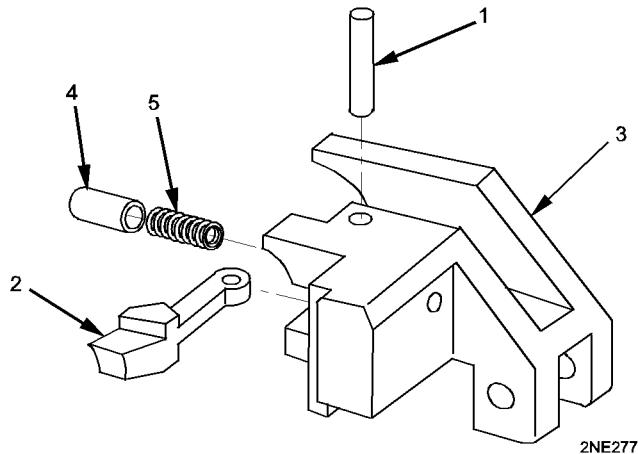
Refer to WP 0016 00 for installation of bolt latch assembly and WP 0015 00 for inspection of bolt latch assembly clearance between machine bolt (2) head and left side plate of receiver.

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****REAR CARTRIDGE STOP ASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****This work package applies only to the left hand feed M2A1 machine guns.****INITIAL SETUP:****Tools and Special Tools**Field maintenance small arms shop set  
(Table 2, item 13, WP 0054 00)**Equipment Conditions**Rear cartridge stop assembly removed  
(WP 0011 00)**DISASSEMBLY****WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

1. Drive out and remove headless straight pin (1) and cartridge aligning pawl (2) from stop (3).
2. Remove aligning pawl detent plunger (4) and helical compression spring (5).

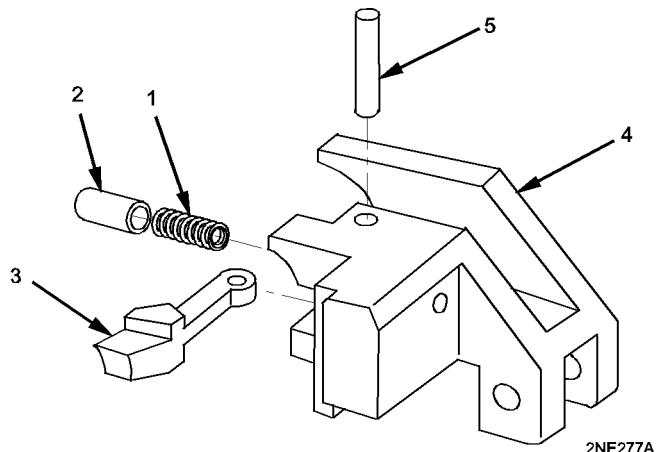


**INSPECT/REPAIR**

1. Check for missing, damaged, and worn parts.
2. Check spring for collapsed coils.
3. Check cartridge aligning pawl for signs of wear.
4. If the stop is damaged, repair is by replacement of next higher assembly.
5. Repair is by replacement of authorized parts.

**ASSEMBLY**

1. Position helical compression spring (1), aligning pawl detent plunger (2), and cartridge aligning pawl (3) in stop (4) and secure with headless straight pin (5).
2. Peen edge of hole in stop (4) to hold headless straight pin (5) in place.

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****CARTRIDGE RECEIVER MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0056 00)  
Screw Thread Insert Tool Kit (5180-00-935-0735)  
Screw Thread Insert Tool Kit (5180-00-935-0736)

**Materials/Parts**

Safety wire (item 5, WP 0049 00)

**References**

WP 0015 00  
WP 0027 00

**Equipment Conditions**

Machine gun field stripped (TM 9-1005-347-10)

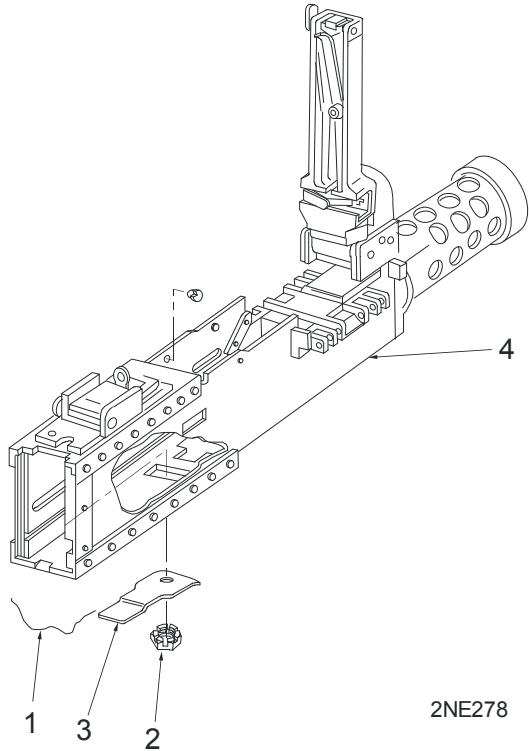
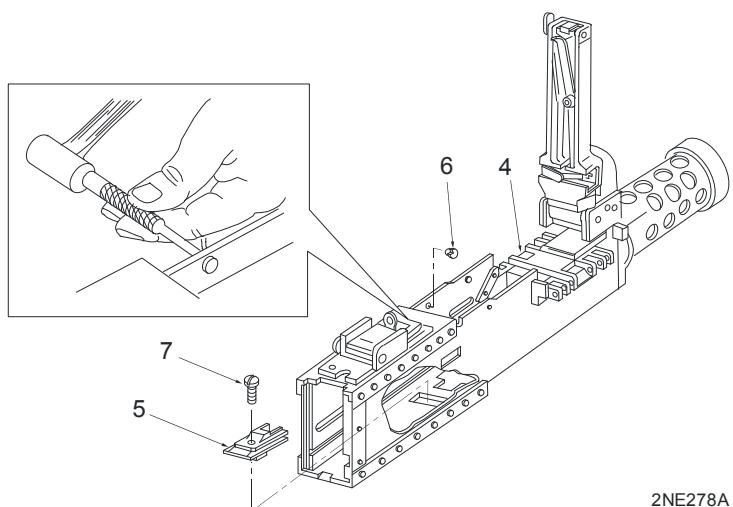
**DISASSEMBLY**

1. Remove and discard safety wire (1). Remove slotted nut (2) and flat spring (3) from bottom plate of receiver (4).
2. Remove machine screw (7) and breechlock cam (5).
3. If damaged, remove bolt stop (6) from left side plate of receiver (4).

**NOTE**

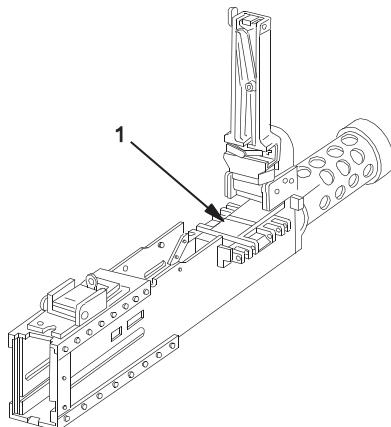
Remove barrel support and/or machine thread bushing and shim only if repair or replacement is required.

5. If required, remove barrel support and/or machine thread bushing, and shim (WP 0027 00).



**INSPECT/REPAIR**

1. Check for missing, damaged, or worn parts.
2. Check trunnion block (1) for cracks or wear. Trunnion block is unserviceable if cracked or worn beyond repair areas.

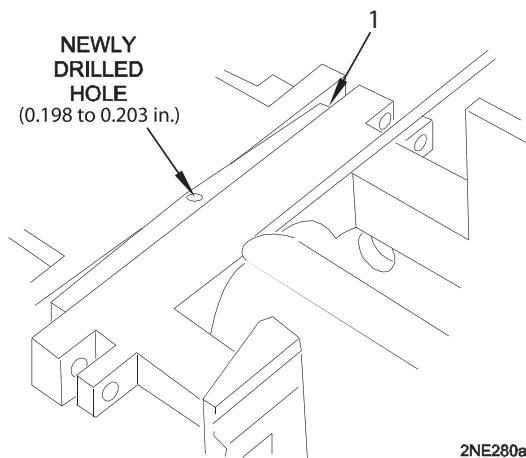


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**NOTE**

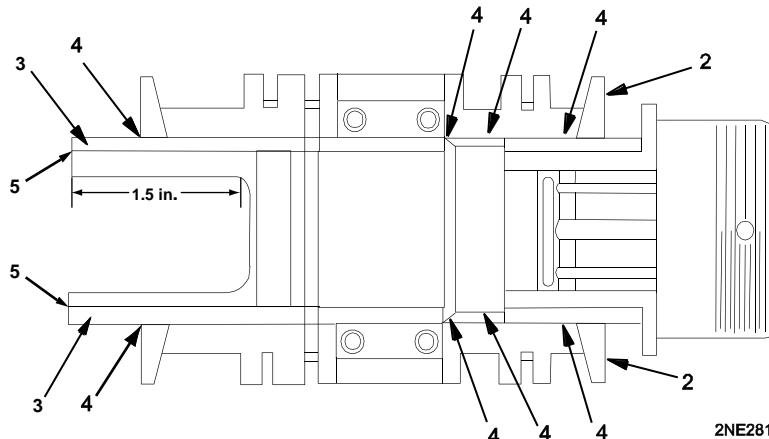
Trunnion blocks exhibiting grooves or wear in the feedway area measuring 0.020 in. (0.050 cm) in depth are considered to have reached the permissible wear limitations and will be turned in as unserviceable.

3. A receiver assembly with a hole broken through the feedway of the trunnion block stripper slot (1) may be repaired by drilling a 0.198 to 0.203 in. (0.503 to 0.516 cm) diameter hole, centered in the slot to include the damaged area. The trunnion hole has a maximum size of 0.250 in. (0.635 cm) in weapons coming from the depot overhaul program.



2NE280a

4. Inspect looseness of rivets holding the feed pawl brackets. The maximum allowable looseness or gap permitted between the belt holding (ammo) brackets (2) and side plates (3) is 0.010 in. (0.025 cm). The receiver is unserviceable if a ten-thousandths inch (0.010 in.) feeler gage passes through the area between the rivets(4) (rivet to rivet). Movement of brackets is allowed. Rivets are allowed to turn. The receiver is unserviceable if a 0.024 in. feeler gage passes through the area between the receiver side plate and trunion for a distance of 1.5 in.

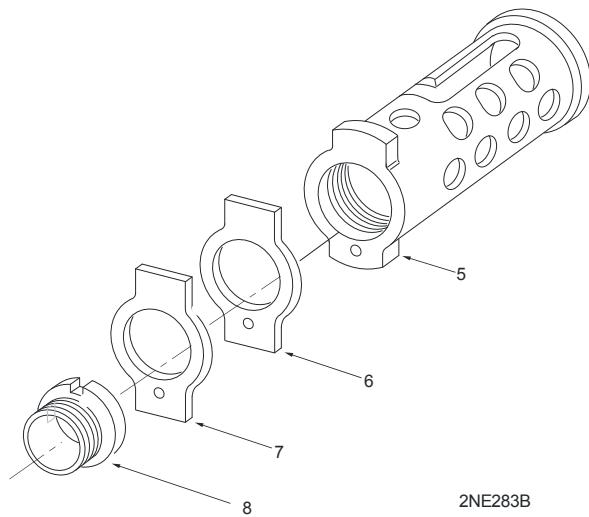


5. Measure between the riveted components at the rivet head site location (4) by using a 0.010 in. feeler gage. If the feeler gage can fit between the riveted components and contact the rivet for the entire length of the inspection area (i.e. at each rivet) the receiver is condemned.
6. Inspect/verify that there is no movement of riveted components (with the exception of feed pawl brackets where movement is allowed). If there is movement of riveted components, other than the feed pawl brackets, the receiver is unserviceable and should be turned in for overhaul.

### NOTE

A ten one-thousandth inch (0.010) feeler gage must go between the riveted components for the entire length of the riveted area before the components are considered loose. Weapons thus found to be unserviceable will be turned in for overhaul.

7. Check barrel support (5), spacer plate (6), spacer plate (7), and machine thread bushing (8) for cracks or burrs. Check barrel support for looseness (WP 0015 00). Maximum allowable looseness is 0.025 in. (0.0635 mm). A spacer plate thickness is selected that requires a torque over and above hand tight. Select a spacer plate thickness to attain a hand tight position between 20° and 55° from the locked position.
8. Repair is by replacement of authorized parts.



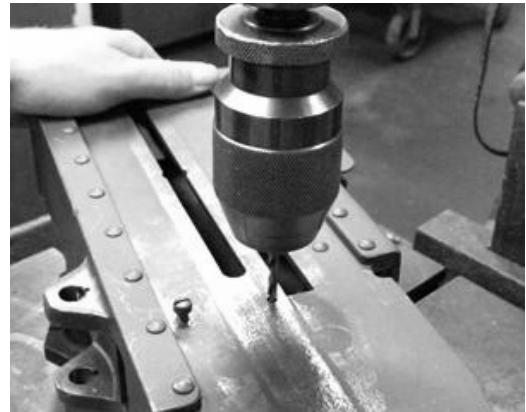
(Shown for Reference Only)

**INSPECT/REPAIR – Continued****CARTRIDGE RECEIVER REPAIR**

1. Repair stripped screw holes on Receiver Assembly as follows:

- a. Place receiver in vise (ensure receiver is level).

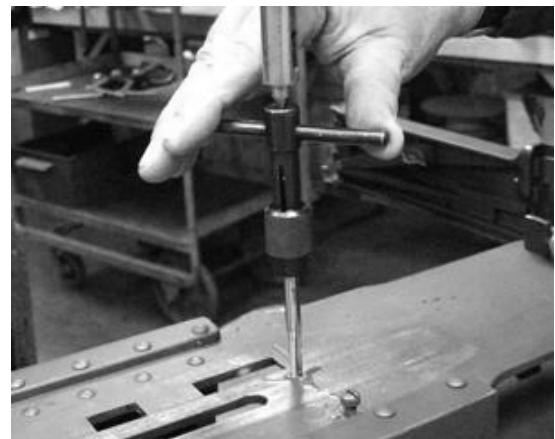
- b. Align receiver side plate hole by using a .159 inch drill bit.



- c. Drill out damaged threads to original depth using 13/64 drill bit.



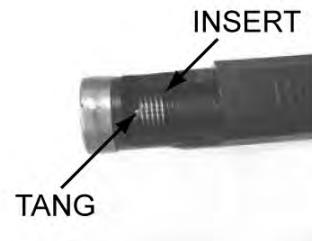
- d. Using T-handle with Insert Thread Repair Kit, tap to a depth equal to insert length.



**CARTRIDGE RECEIVER REPAIR - Continued**

2. Install insert as follows:

- a. Place insert in inserter tool with tang end forward.



- b. Place finger lightly over the insert and rotate mandrel until insert projects beyond end of mandrel.

**CAUTION**

Ensure that insert does not protrude past the inside wall of the receiver assembly or weapon function could be degraded or weapon stoppage could occur.

- c. Place tool squarely against tapped hole and wind insert until top coil is  $\frac{1}{4}$ " to  $\frac{1}{2}$ " turn below top work surface. Depth control can be adjusted by the depth control stop collar. Ensure insert does not extend completely through side plate wall.

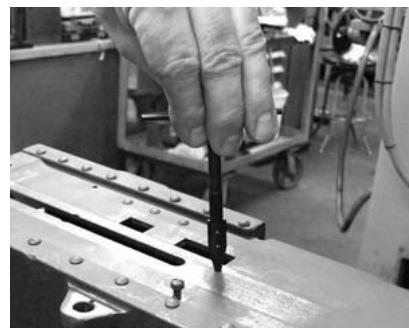
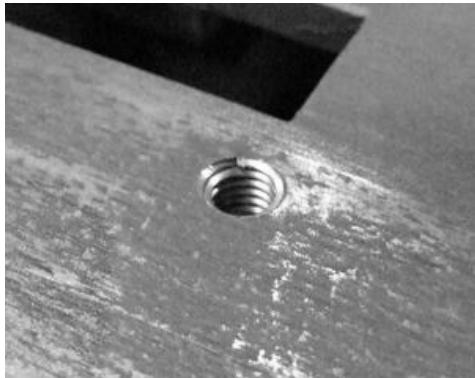


3. Set tang break off tool into insert and strike punch lightly with a sharp blow to remove tang.



**CARTRIDGE RECEIVER REPAIR - Continued**

4. If insert adjustment is necessary, retract mandrel by rotating handle counterclockwise. Place blade as shown in insert, push down and rotate counterclockwise to adjust/remove.

**BARREL SUPPORT REPAIR**

1. Repair stripped screw holes on Barrel Support as follows:
  - a. Place barrel support in vise (ensure support is level).
  - b. Align barrel support hole by using a .159 inch drill bit.
  - c. Drill out damaged threads to original depth using 13/64 drill bit.



**BARREL SUPPORT REPAIR - Continued**

- d. Using T-handle with Insert Thread Repair Kit, tap to a depth equal to insert length.



2. Install insert as follows:
- Place insert in inserter tool with tang end forward.



- Place finger lightly over the insert and rotate mandrel until insert projects beyond end of mandrel.

**CAUTION**

Ensure that insert does not protrude past the inside wall of the barrel support or weapon function could be degraded or weapon stoppage could occur.



- Place tool squarely against tapped hole and wind insert until top coil is  $\frac{1}{4}$ " to  $\frac{1}{2}$ " turn below top work surface. Depth control can be adjusted by the depth control stop collar. Ensure insert does not extend completely through side plate wall.



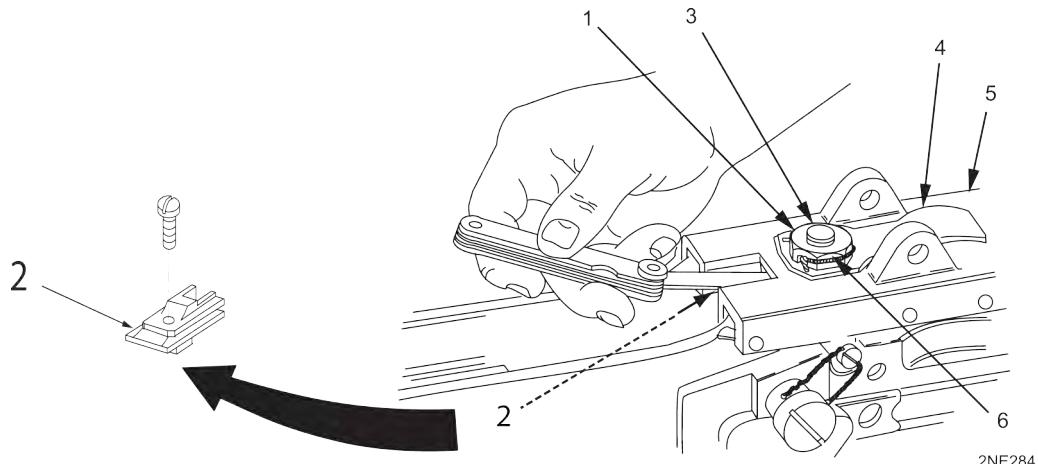
**BARREL SUPPORT REPAIR - Continued**

3. Set tang break off tool into insert and strike punch lightly with a sharp blow to remove tang.
4. If insert adjustment is necessary, retract mandrel by rotating handle counterclockwise. Place blade as shown in insert, push down and rotate counterclockwise to adjust/remove.

**ASSEMBLY****NOTE**

Ensure slotted nut (1) is positioned with slots next to receiver for both types.

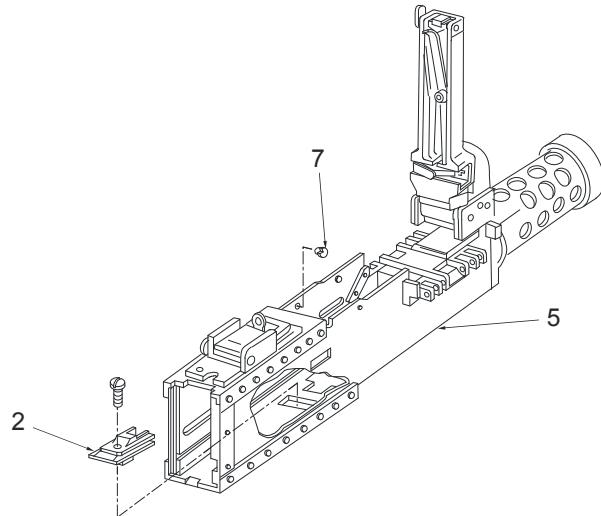
1. Position breechlock cam (2), machine screw (3), and flat spring (4) on bottom plate of receiver (5) and secure with slotted nut (1). Using a feeler gage, check clearance between breechlock cam and bottom plate of receiver. Maximum clearance is 0.008 in. (0.020 cm). Secure slotted nut, screw, and flat spring together with new safety wire (6).



**ASSEMBLY - Continued****NOTE**

When measuring for maximum clearance, the feeler gage SHALL NOT penetrate to breechlock cam screw. When measuring for minimum clearance, the feeler gage SHALL penetrate to breechlock cam screw.

2. If removed, install bolt stop (7) in left inside plate of receiver (5) as shown.
3. Refer to WP 0015 00 for inspection of fit of breechlock cam (2) with receiver (5).



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4. If removed, install barrel support and/or machine thread bushing, and spacer plate (WP 0026 00).

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BARREL ASSEMBLY MAINTENANCE  
INSPECTION****INITIAL SETUP:****Tools and Special Tools**

Small arms repairman tool kit  
(Table 2, item 3, WP 0054 00)

**Equipment Conditions**

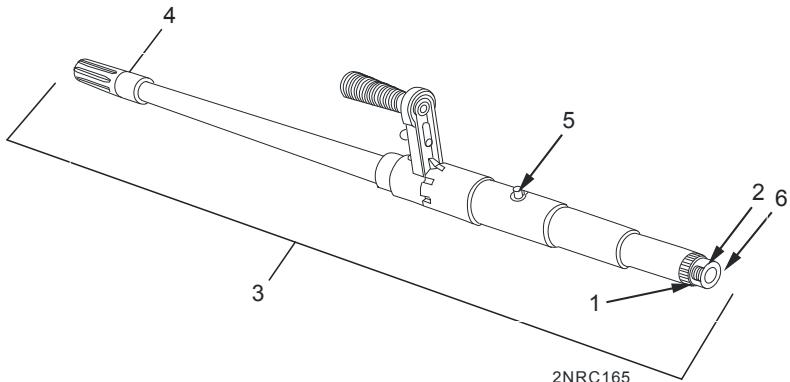
M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

**References**

WP 0015 00

**INSPECT**

1. Inspect barrel locking notches (1) and interrupted thread (2) for excessive wear or damage.
2. Inspect barrel assembly (3), flash suppressor (4) or cap for rust and looseness.
3. Inspect barrel locking pin (5) for wear or damage.

**NOTE**

Do not be confused by the ring 8 in. to 10 in. from the breech end of the barrel. This is caused by a designed-in gap to allow for expansion of the stellite liner when the barrel gets hot.

4. Inspect bore/chamber (6) for bulges, damaged rifling, or large pits. (A bulge will appear as a shadowy depression or ring).
5. Gage barrel (WP 0015 00).

**END OF WORK PACKAGE**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BARREL SUPPORT MAINTENANCE  
REMOVAL, INSPECT/REPAIR, INSTALLATION**

---

**INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0054 00)

**Materials/Parts**

Barrel Support Removal Tool  
Cotter pin (item 61, WP 0039 00)  
Headless shoulder pin (item 52, WP 0039 00)

**Materials/Parts - continued**

Safety wire (item 1, WP 0048 00)  
Setscrew (item 72, WP 0038 00)  
Spacer plate (item 49, WP 0038 00)

**Equipment Conditions**

Machine gun field stripped (TM 9-1005-347-10)

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**REMOVAL****NOTE**

Remove barrel support and/or machine thread bushing only if repair or replacement is required.

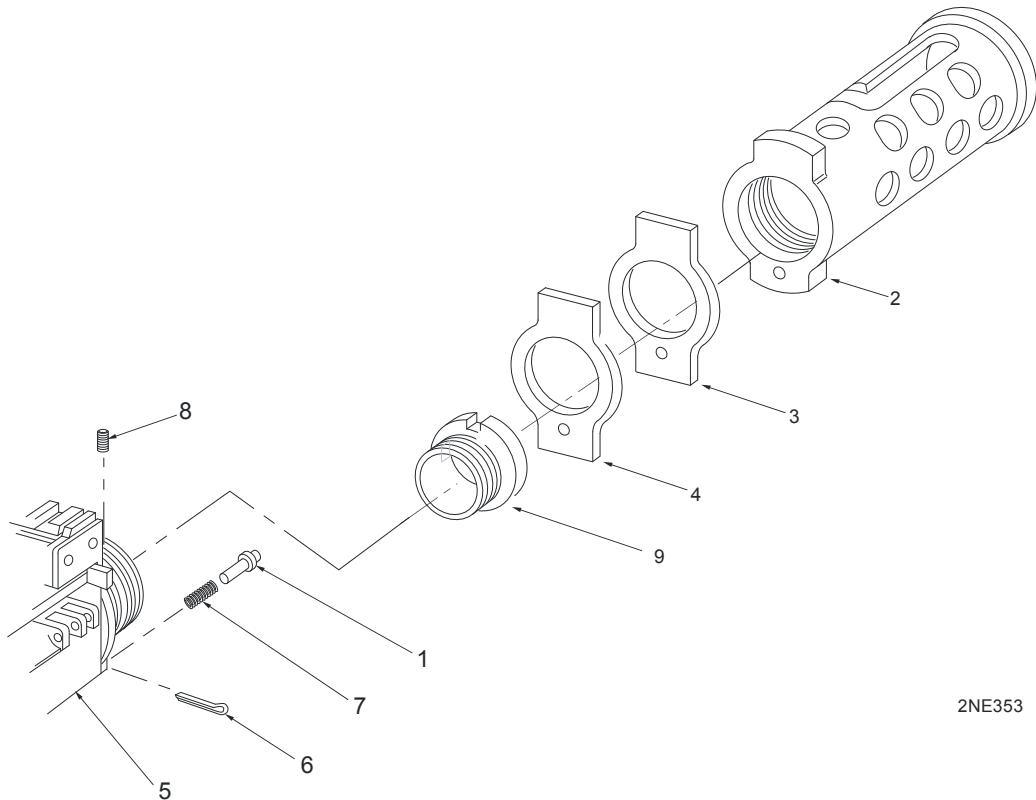
Do not remove cotter pin at beginning of procedure.

1. Retract headless shoulder pin (1) by using safety wire to hold the headless shoulder pin out of engagement of barrel support (2). Discard headless shoulder pin if required.

**NOTE**

The barrel support has a right hand thread.

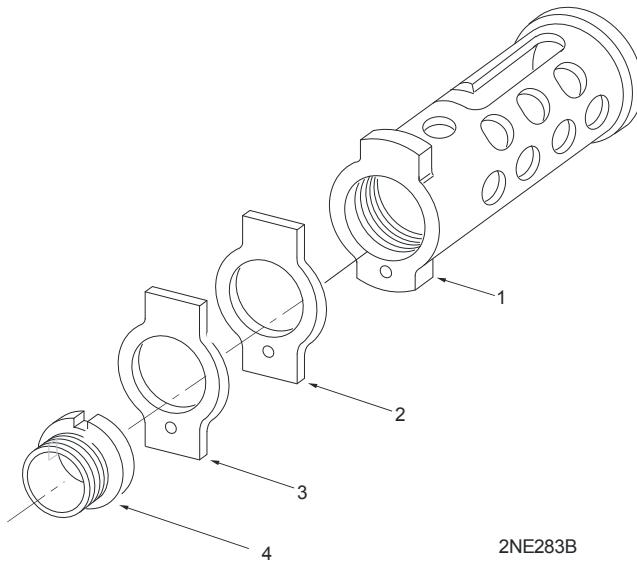
2. Remove barrel support (2) spacer plate (3), and spacer plate (4) from receiver (5) using Barrel Support Removal Tool. Discard spacer plates.
3. Remove cotter pin (6), releasing headless shoulder pin (1) and spring (7). Discard cotter pin.
4. Remove setscrew (8) and machine thread bushing (9) from receiver (5). Discard setscrew.



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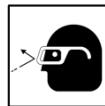
**INSPECT/REPAIR**

1. Check for missing, damaged, or worn parts.
2. Check barrel support (1), spacer plate (2), spacer (3), and machine thread bushing (4) for cracks or burrs. Alignment slot should be at about the 12 o'clock position.



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3. A shim thickness is selected that requires a torque over and above hand tight. Select a shim thickness to attain a hand tight position between 20° and 55° degrees from the locked position.
4. To attain the correct orientation of the M2A1 barrel support, additional spacer plate PN 13027973 and longer headless shoulder pin PN 13027978 to include an additional  $\frac{1}{2}$  shim may be required

**WARNING****EYE HAZARDS**

Machining operations are an eye hazard. To avoid injury to your eyes, use care when machining metal parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

**NOTE**

Reinstall barrel support and/or machine thread bushing, and shim only if repair or replacement is required.

## INSTALLATION

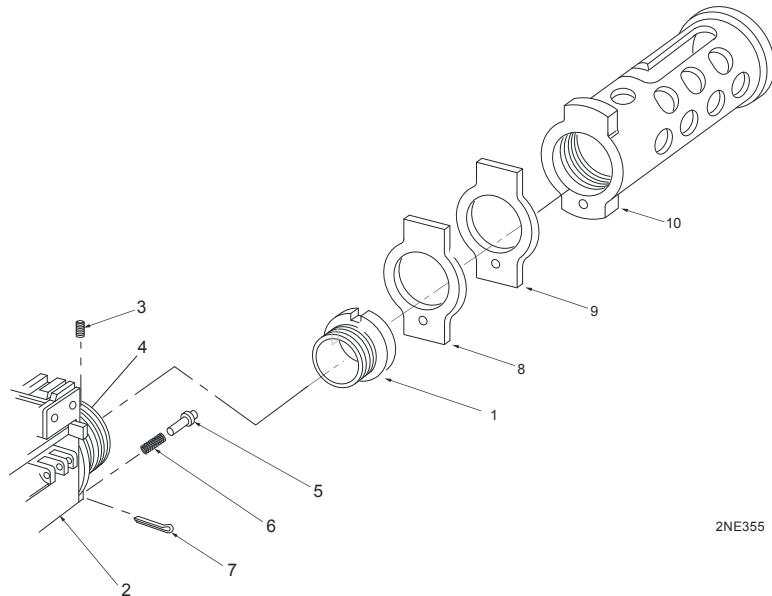
1. Install old machine thread bushing (1) on receiver (2) (15 foot-pound minimum) while aligning holes in machine thread bushing and receiver for setscrew (3). If old machine thread bushing and receiver setscrew holes will not align, a new setscrew hole must be drilled in machine thread bushing. A minimum of 0.250 in. of solid material must be present between any two setscrew holes in machine thread bushing. Drill new setscrew hole in machine thread bushing by drilling down through the threaded setscrew hole in the trunnion block (4) with a No. 7 drill. Install new setscrew.
2. If new machine thread bushing (1) is being installed, screw it tightly in place (15 foot-pound minimum). Drill hole in new machine thread bushing for new setscrew (3) by drilling down through threaded setscrew hole in trunnion block (4) with a No. 7 drill. Install new setscrew.
3. Insert new headless shoulder pin (5) and spring (6) (if replaced) and insert into recess at bottom front of receiver (2). Ensure headless shoulder pin manually actuates.
4. Insert new cotter pin (7).

### NOTE

Select spacer plate thickness to attain a hand tight position between 20° to 55° from the locked position.

To attain the correct orientation of the M2A1 barrel support, additional spacer plate PN 13027973 and longer headless shoulder pin PN SC5131 to include an additional ½ shim may be required.

5. Select new spacer plate (8) and spacer plate (9) and slide onto trunnion block of receiver (2) with beveled side facing bushing/receiver. Screw on barrel support (10), draw tight with Barrel Support Removal Tool, and remove safety wire from cotter pin (7).
6. If parts are not in alignment when screwed tightly together, disassemble and reassemble. Use spacer plate (8) of correct thickness until proper alignment is obtained.
7. Remove safety wire from headless shoulder pin (5). Verify headless shoulder pin is engaged by attempting to rotate barrel support. If barrel support cannot be rotated, it is properly locked.



2NE355

## END OF WORK PACKAGE

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****TRIGGER BLOCK MAINTENANCE  
REMOVAL, INSPECT/REPAIR, INSTALLATION****INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 3, WP 0054 00)

**References**

TM 9-1005-347-10  
WP 0011 00

**Materials/Parts**

Nonelectrical wire (2) (item 29, WP 0039 00)

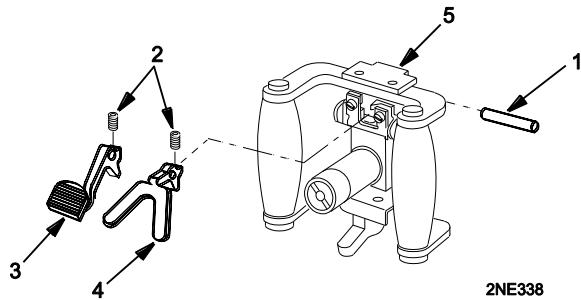
**Equipment Conditions**

Backplate assembly removed (WP 0011 00)

**REMOVAL****WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

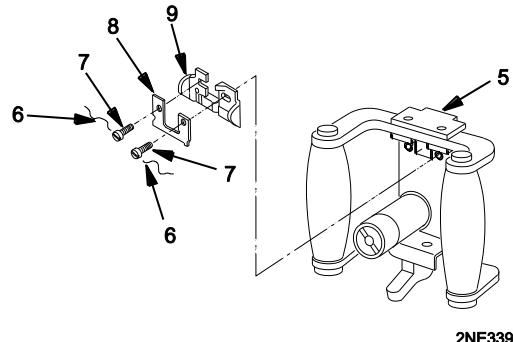
1. Place trigger block on fire mode. Check for interference with bolt latch release. Remove headless straight pin (1), two helical compression springs (2), bolt latch release (3), and trigger (4) from backplate (5).



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**REMOVAL – Continued**

2. Remove and discard two nonelectrical wires (6) securing two shoulder screws (7).
3. Remove two shoulder screws (7), flat spring (8), and trigger block (9) from backplate (5).



2NE339

**INSPECT/REPAIR**

1. Check for out-of-round holes and missing, damaged, or worn parts.
2. Repair is by replacement of authorized parts.

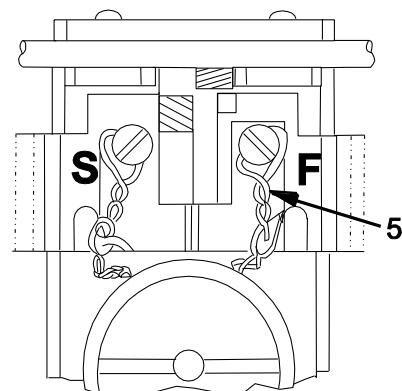
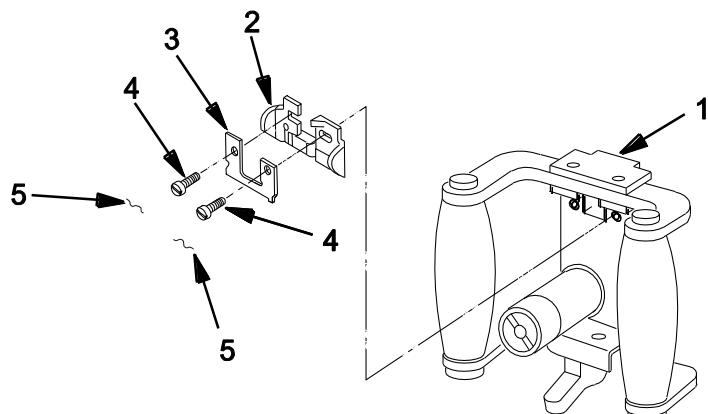
**INSTALLATION**

1. Secure backplate (1) in a suitable vise taking care not to damage any surfaces and place trigger block (2) against backplate.
2. Place flat spring (3) against trigger block (2) aligning holes and slots and insert two shoulder screws (4) through holes and into backplate (1).
3. Tighten two shoulder screws (4), ensuring that trigger block (2) slides easily back and forth while locking positively in both fire and safe positions. It may be necessary to back off the shoulder screws slightly to allow smooth operation.

**NOTE**

Safety wire is installed, solely as a precautionary measure, to prevent screws from loosening or falling out. When the user receives the M2A1 that are new or overhauled, the safety wire is a single wire that may or may not be double twisted. Both methods are authorized and/or acceptable for use.

4. Install new nonelectrical wires (5) through two shoulder screws (4) as shown. Ensure ends of lockwires will not injure the operator.



2NE340

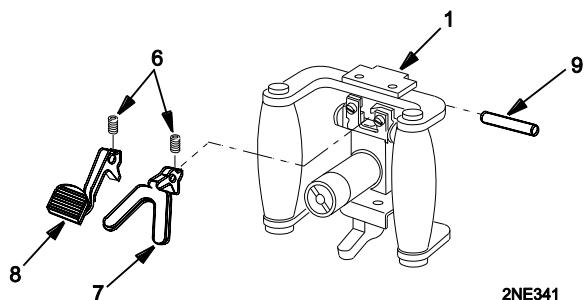
**WARNING****EYE HAZARDS**

Spring-loaded parts are an eye hazard. To avoid injury to your eyes, use care when removing and installing spring-loaded parts. Wear adequate eye protection. Failure to comply may result in serious injury to personnel.

**NOTE**

Ensure helical compression springs are in recesses of bolt latch release, backplate latch, and trigger.

5. Install two helical compression springs (6), trigger (7), bolt latch release (8), and headless straight pin (9) in backplate (1). Peen metal of backplate over both ends of headless straight pin.
6. Check for interference with bolt latch release (8) and trigger (7) while placing on both fire and safe modes.
7. Assemble backplate (1) on weapon (see WP 0011 00). Charge and verify safe and fire modes function correctly by performing Safety/Function check (refer to TM 9-1005-347-10).



2NE341

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****SEAR STOP AND PIN MAINTENANCE  
REMOVAL, INSPECT/REPAIR, INSTALLATION****INITIAL SETUP:****Tools and Special Tools**

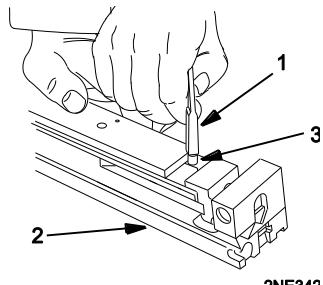
Small arms repairman tool kit  
(Table 2, item 6, WP 0054 00)

**Equipment Conditions**

M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)  
M2A1 bolt removed and partially disassembled  
(TM 9-1005-347-10)

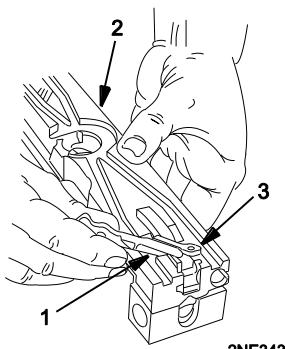
**REMOVAL**

1. Using thin edge of cocking lever (1), rotate sear stop to center of recess and bolt (2).
2. Turn bolt (2) over and use thin end of cocking lever (1) to press sear stop and pin (3) from bottom of bolt.



2NE342

3. With top of bolt (2) up, use thin edge of cocking lever (1) to pry up and remove sear stop and pin (3).



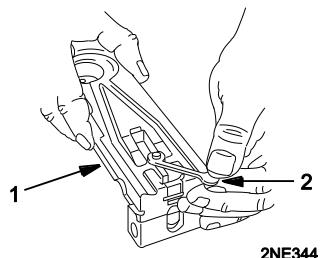
2NE343

**INSPECT/REPAIR**

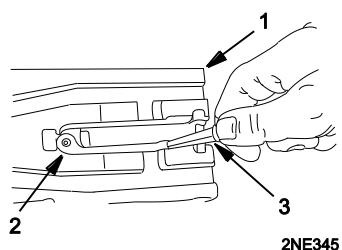
1. Check for burred, broken, or bent sear stop and pin.
2. Repair is by replacement of sear stop and pin.

**INSTALLATION**

1. With top of bolt (1) up, insert pin end of sear stop and pin (2) into bolt.



2. Using wedge shaped end of the cocking lever (3) as a tool, press down on the flat end of the sear stop and pin (2) and swing it into groove on left side of the bolt (1).

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****FLASH SUPPRESSOR AND BARREL CAP MAINTENANCE  
REMOVAL, INSPECT/REPAIR, INSTALLATION****INITIAL SETUP:****Tools and Special Tools**

Small arms repairman tool set  
(Table 2, item 6, WP 0054 00)  
1-3/8 in. Open end wrench (2)  
(item 17, WP 0049 00)

**Personnel Required**

Two

**Equipment Conditions**

M2A1 machine gun barrel removed/dismounted  
(TM 9-1005-347-10)

**Materials/Parts**

High temperature anti-seizing compound  
(item 1, WP 0055 00)

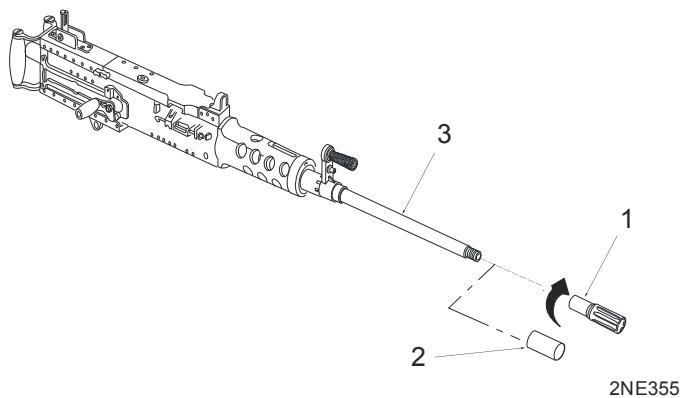
**DISASSEMBLY****WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

**NOTE**

The flash suppressor has a left hand thread.

Using 1-3/8 in. open end wrench, unscrew left-hand thread of the flash suppressor (1) or barrel cap (2) from muzzle end of barrel assembly (3) by turning clockwise.



**INSPECT/REPAIR**

1. Check for damaged or worn threads and broken parts on barrel (1) and barrel cap (2).
2. Repair is by replacement of flash suppressor or barrel cap.

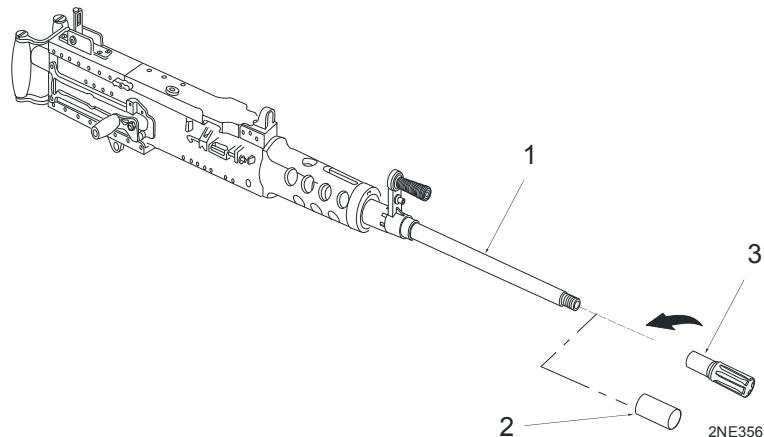
**INSTALLATION**

1. Apply high temperature anti-seizing compound to threads of barrel assembly (1).

**NOTE**

The flash suppressor has a left hand thread.

2. Install flash suppressor (2) or barrel cap (3) on barrel assembly (1) and tighten by turning counterclockwise with 1-3/8 in. open end wrench.



**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****BARREL EXTENSION AND BREECH LOCK MAINTENANCE  
INSPECT/REPAIR****INITIAL SETUP:****Tools and Special Tools**

Small arms repairman tool kit  
(Table 2, item 6, WP 0054 00)

**References**

WP 0033 00

**Equipment Conditions**

M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

M2A1 machine gun partially disassembled  
(WP 0011 00)

M2A1 barrel extension removed  
(TM 9-1005-347-10)

**INSPECT/REPAIR****WARNING****HEADSPACE AND TIMING**

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. The following guidelines should be strictly enforced to prevent improper headspace and timing issues:

- All M2A1 machine guns must be inspected and gaged at least once annually for safety and serviceability. Air Force users refer to inspection requirements in Air Force Regulation (AFR) 50-36 and Air Force Pamphlet (AFP) 50-63, Volume 1. Other users refer to TM 9-1005-347-10.
- All Army Reserve and National Guard M2A1 machine guns must be inspected and gaged at least once every two years, after the initial inspection/gaging procedures have been accomplished. This two year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M2A1 machine guns require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection. Ensure M2A1 headspace and timing check and adjustment has been performed by Field maintenance personnel.
- As long as the Wear-Limit Gage indicates the weapon to be acceptable, the barrel(s) can be changed and fired as required. Once the weapon accepts the Wear-Limit Gage (.212 in.), (usually beyond at least 30,000 rounds of firing), Headspace Servicing may be required.

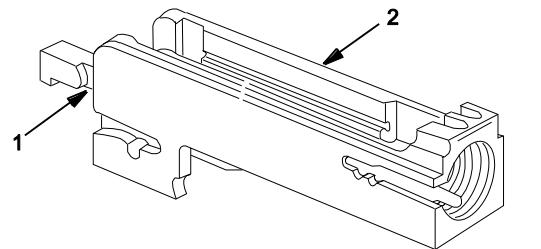
Failure to comply may result in serious injury to personnel.

**INSPECT/REPAIR - Continued****NOTE**

Breech lock is not to be removed unless replacement is necessary.

For Disassembly and Assembly procedures, see Adjust Fixed Headspace and Timing (WP 0034 00).

Ensure that barrel extension and bolt are serialized with last four digits of receiver.



2NE204

1. Check shaft (1) on barrel extension assembly (2) for any movement. Check for broken or chipped edges. Replace barrel extension assembly if any movement is present or if edges are broken or chipped.
2. Check barrel extension for:
  - a. Missing, damaged, or worn parts.
  - b. Breech lock beveled edges for rolled back, broken or chipped edges. Replace breech lock if edges are rolled back, broken, or chipped.
  - c. Repair is by replacement of authorized parts.
3. Check breech lock for:
  - a. Check for missing, damaged, or worn parts.
  - b. Replace breech lock if edges are rolled back, broken, or chipped.
  - c. Check breech lock pin for damage.
  - d. Repair is by replacement of authorized parts or stoning burr on pin.

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****TRIGGER LEVER STOP ASSEMBLY MAINTENANCE  
DISASSEMBLY, INSPECT/REPAIR, ASSEMBLY****INITIAL SETUP:****Tools and Special Tools**

Field maintenance small arms shop set  
(Table 2, item 7, WP 0054 00)

**Equipment Conditions**

Back Plate Assembly and Trigger Lever removed  
(WP 0011 00)

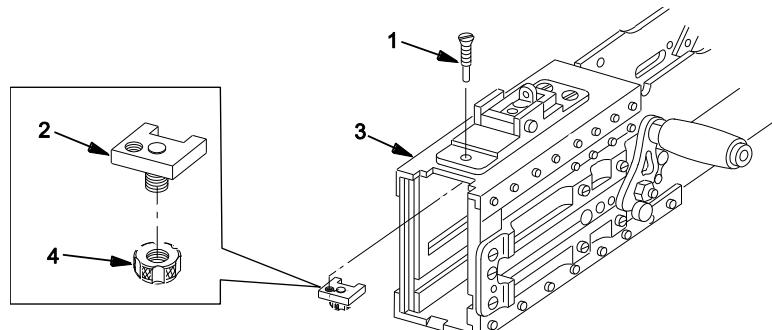
**References**

WP 0005 00  
WP 0011 00  
WP 0033 00

**DISASSEMBLY****NOTE**

M2A1 has no flat spring.

1. Remove timing lock screw (1) securing adjustable trigger lever stop (2) to receiver (3).
2. Unscrew and remove fixed timing adjustment nut (4) from adjustable trigger lever stop (2).



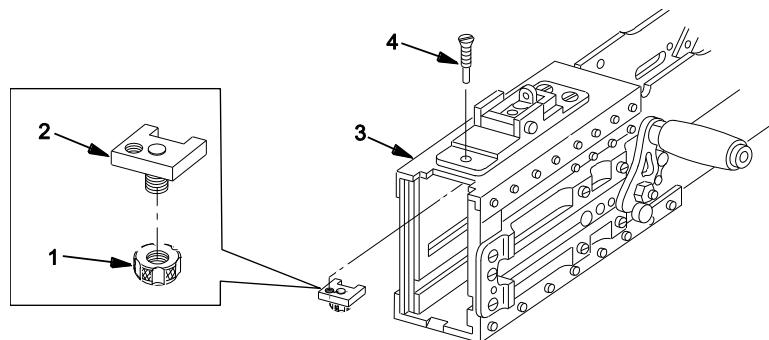
2NE357

**INSPECT/REPAIR**

1. Check for missing, damaged, or worn parts.
2. If the adjustable trigger lever stop is damaged, repair is by replacement of next higher assembly.
3. Repair is by replacement of authorized parts.

**ASSEMBLY**

1. Install fixed timing adjustment nut (1) on adjustable trigger lever stop (2).



2NE358

**NOTE**

The timing adjustment nut screws onto the adjustable trigger lever stop and is held in position by the timing lock screw.

2. Position adjustable trigger lever stop (2) in receiver (3) and install timing lock screw (4).

**NOTE**

Do not stake timing lock screw at this time.

3. Install backplate and trigger lever (see WP 0011 00).
4. Perform fixed timing adjustment (see WP 0033 00).
5. Perform Safety/Function check for M2A1.
  - a. Place trigger block to 'S' (safe) position.
  - b. Charge weapon.
  - c. Press trigger. Weapon should not fire.
  - d. Place trigger block to 'F' (fire) position.
  - e. Press trigger. Weapon should fire.
  - f. If weapon fails safety/function check, perform Troubleshooting (WP 0005 00).

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE OF M2A1 MACHINE GUN  
VERIFY FIXED HEADSPACE AND TIMING****INITIAL SETUP:****Tools and Special Tools**

Wear limit/timing gage  
(item 7, WP 0049 00)

**References**

WP 0033 00

**Personnel Required**

Two

**Equipment Conditions**

M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

**FIXED HEADSPACE AND TIMING VERIFICATION****WARNING****ACCIDENTAL DISCHARGE**

Failure to properly clear the M2A1 machine gun can result in an accidental discharge of a round. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting weapon and chamber to ensure all rounds have been removed.

- DO NOT release the bolt or press the trigger.
- Ensure Field maintenance has performed headspace and timing check and adjustment for the M2A1.
- DO NOT keep live ammunition in work area.

## **FIXED HEADSPACE AND TIMING VERIFICATION - CONTINUED**

## **WARNING**



## **HEADSPACE AND TIMING**

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. The following guidelines should be strictly enforced to prevent improper headspace and timing issues:

- Headspace and timing must be verified at unit armor prior to issuing.  
M2A1 headspace and timing adjustment is performed at field support maintenance.
  - All M2A1 machine guns must be inspected and gaged at least once annually for safety and serviceability. Air Force users refer to inspection requirements in Air Force Regulation (AFR) 50-36 and Air Force Pamphlet (AFP) 50-63, Volume 1.
  - Do not insert any object such as coin or feeler gage between the barrel extension and trunnion block while retracting the bolt to adjust headspace. Placing an object between the barrel extension and trunnion can cause excessive headspace adjustment and possible damage to the weapon or injury to personnel
  - All Army Reserve and National Guard M2A1 machine guns must be inspected and gaged at least once every two years, after the initial inspection/gaging procedures have been accomplished. This two year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M2A1 machine guns require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection. Ensure M2A1 headspace and timing check and adjustment has been performed by Field maintenance personnel
  - As long as the Wear-Limit Gage indicates the weapon to be acceptable, the barrel(s) can be changed and fired as required. Once the weapon accepts the Wear-Limit Gage (.212 in.), (usually beyond at least 30,000 rounds of firing), Headspace Servicing may be required.

Failure to comply may result in serious injury to personnel.

**FIXED HEADSPACE AND TIMING VERIFICATION - CONTINUED****WARNING****EXPLOSION**

Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction.

- Ensure that during barrel installation the square on the barrel extension is **NOT** pulled back **PAST** the 3/8 in. hole on the right side of the receiver or the barrel will not be attached to the barrel extension.
- Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.
- Maintain thumb pressure on buffer accelerator while installing barrel buffer assembly and barrel extension assembly into receiver.

**NOTE**

Headspace is the distance between the face of the bolt and the base of the cartridge case, fully seated in the chamber. Timing is the adjustment of the gun so that firing takes place when the recoiling parts are in the correct position for firing. Because the cartridge is held by the T-slot of the bolt, headspace with the machine gun is measured as the distance between the rear of the barrel and the face of the bolt. This occurs when the recoiling parts are forward and there is positive contact between the breech lock recess in the bolt and the lock in the barrel extensions. Periodic calibration checks of the gauge, at least annually, should be made by direct support personnel.

Initial headspace is set by direct support and no adjustment should be required. Headspace increases gradually with firing due to normal component wear. Periodic checks by unit armorer are required to ensure that the specific wear limit of 0.212 is not exceeded.

1. Headspace verifications.
  - a. Charge weapon to ensure that firing pin is retracted.

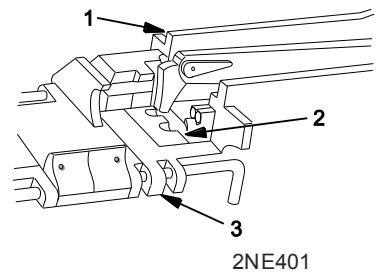
## NOTE

If the 0.212 wear limit is exceeded, a headspace adjustment must be performed by field maintenance personnel.

Bolt and barrel extension (with breech lock) should remain with the original receiver assembly. These parts are identified with the last four digits of the receiver serial number. If necessary, bolt and barrel extension may be transferred to another receiver; however, field personnel must verify proper headspace with the master barrel gage and select the proper breech lock size if these parts are interchanged.

The breech lock is pinned to prevent removal from the barrel extension. The breech lock must only be changed by authorized maintenance personnel for headspace adjustment.

- b. Remove slack in the bolt (1) and barrel extension (2) by retracting slide handle until the barrel extension begins to separate (but not more than 1/16 inch) from the trunnion block (3).



## CAUTION

Do not depress trigger when headspace gage is in T-slot. This could damage firing pin and gage.

## NOTE

Ensure that NO GO gage does not have any broken, bent, rusted, or pitted areas or other forms of mutilation that could affect dimensional tolerances.

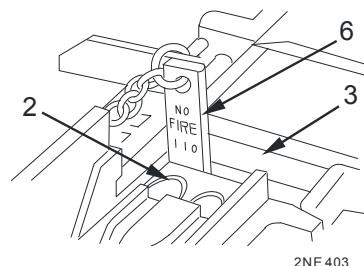


- c. Raise cartridge extractor (4) and with firm pressure attempt to insert the NO GO headspace gage (5) in the T-slot between face of bolt (1) and rear of barrel. If gage enters, remove gage and evacuate to support maintenance. If gage does not enter, release charging handle, rotate cartridge extractor down, allow bolt to go forward.
- d. Headspace verification is complete. Proceed to timing verification.

**FIXED HEADSPACE AND TIMING VERIFICATION – Continued**

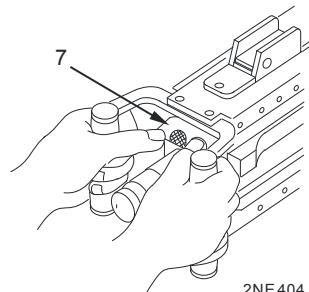
## 2. Timing verification.

- a. Grasp retracting slide handle and retract bolt just enough to insert NO FIRE gage (6) with beveled edge against barrel notches between barrel extension (2) and trunnion block (3). Release retracting slide handle slowly.



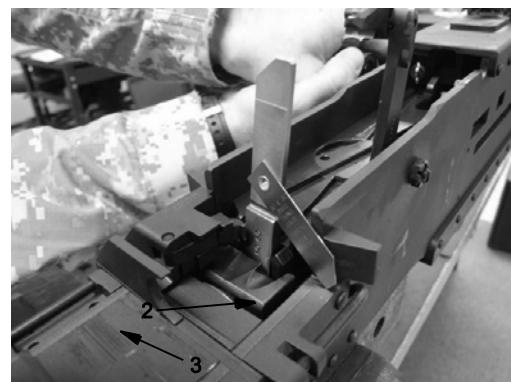
2NE403

- b. Ensure weapon safety switch is in the fire mode. Depress trigger (7); gun should NOT fire. If M2A1 machine gun does fire, perform timing adjustment (Refer to WP 0033 00).



2NE404

- c. Retract bolt just enough to remove NO FIRE gage (6) and insert FIRE gage (8) with beveled edge against barrel extension (2) and trunnion block (3). Release retracting handle slowly.



- d. Depress trigger; M2A1 machine gun should fire. If M2A1 does not fire, perform timing adjustment (see WP 0033 00).
- e. Timing verification is complete.

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE OF M2A1 MACHINE GUN  
ADJUST FIXED HEADSPACE AND TIMING****INITIAL SETUP:****Tools and Special Tools**

Breech lock selection gages #1-#16  
(item 3, WP 0049 00)  
Master barrel gage (item 16, WP 0049 00)  
Master breech lock (item 2, WP 0049 00)  
Quick change barrel headspace gage  
(PN 13027996) (item 5, WP 0049 00)  
Small Arms Repairman Tool Kit  
(Table 2, item 6, WP 0054 00)  
Wear limit/timing gage (item 7, WP 0049 00)

**Personnel Required**

Two

**References**

WP 0011 00  
WP 0032 00

**Equipment Conditions**

M2A1 machine gun removed/dismounted  
(TM 9-1005-347-10)

**Materials/Parts**

Solid Film Lubricant (SFL) (item 24, WP 0055 00)  
Spring pin (item 18, WP 0038 00)

**NOTE**

Headspace is the distance between the face of the bolt and the base of the cartridge case, fully seated in the chamber. Timing is the adjustment of the gun so that firing takes place when the recoiling parts are in the correct position for firing. Because the cartridge is held by the T-slot of the bolt, headspace with the machine gun is measured as the distance between the rear of the barrel and the face of the bolt. This occurs when the recoiling parts are forward and there is positive contact between the breech lock recess in the bolt and the lock in the barrel extensions. Periodic calibration checks of the gauge, at least annually, should be made by field maintenance personnel.

After correct headspace has been achieved, bolt and barrel extension assemblies must be serialized with the last four digits of the M2A1 machine gun receiver. The barrel extension assembly must be serialized on the bottom surface and the bolt assembly must be serialized on the left side.

Serialization marks may be made by stamping, etching, or with a vibrating pencil.

## ADJUSTMENT OF M2A1 MACHINE GUN FIXED HEADSPACE AND TIMING

### WARNING



Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing. Clearing consists of unloading the machine gun and visually inspecting the weapon and chamber to ensure all rounds have been removed. Do not release the bolt or press the trigger. Open the cover, retract the bolt to the rear, and visually inspect to ensure that the bolt and firing chamber of the gun does not contain a round of ammunition.

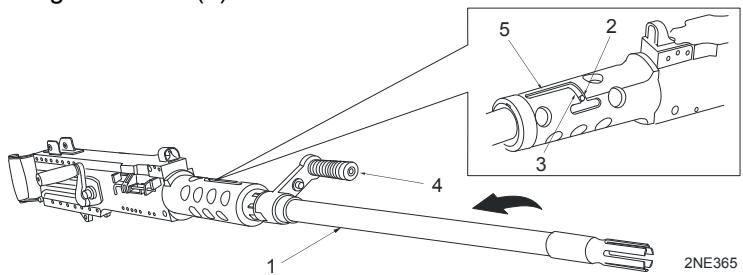
### WARNING



### HEADSPACE AND TIMING

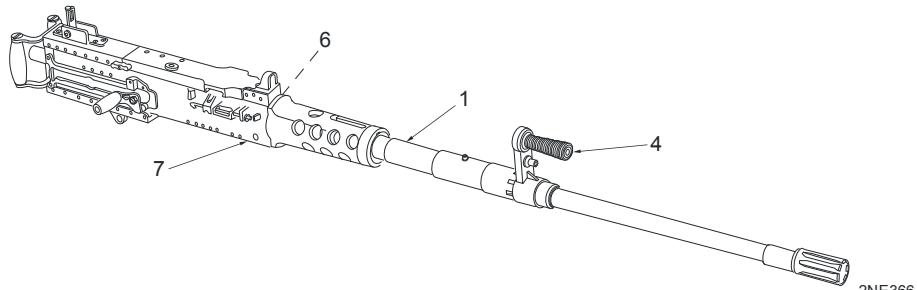
#### Fixed Headspace Adjustment

1. Using wear limit gage (.212 NO GO gage), verify headspace needs servicing (see WP 0032 00).
2. Remove M2A1 machine gun barrel as follows:
  - a. Retract slide approximately 3/8 in. Retract slide handle until barrel locking spring lug is centered in the 3/8 in. hole on the right side of the receiver.
  - b. As viewed from front of machine gun, rotate barrel (1) counterclockwise until barrel lock pin (2) engages barrel support camming slot (3). Continue rotating barrel using barrel carrying handle (4) until barrel lock pin engages alignment slot (5).



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- c. Barrel carrying handle (4) should now be positioned at top of barrel (1) with barrel unlocked from barrel extension (6). Pull barrel forward and remove from receiver assembly (7).



2NE366

**Fixed Headspace Adjustment - Continued****WARNING****EXPLOSION**

Failure to properly attach the barrel extension to the barrel assembly will cause inaccurate head space and timing which may result in a misfeed of ammunition, failure to fire, failure to cycle, or catastrophic weapon malfunction. Ensure during reassembly that the bolt and barrel extension assembly serial number match the last four digits of the receiver serial number to prevent losing headspace, which could cause gun malfunction and serious injury.

**NOTE**

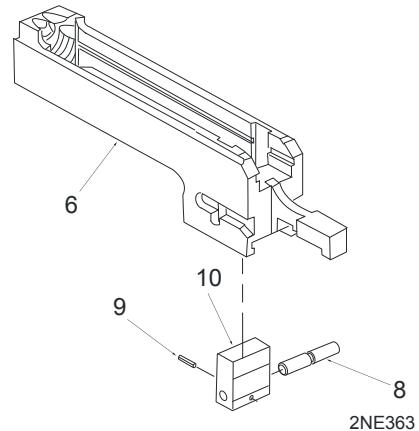
Serial markings may be made by stamping, etching, or with a vibrating pencil. Apply Solid Film Lubricant (SFL) to markings.

3. Disassemble weapon and inspect bolt and barrel extension (6) for excessive wear, cracks, and other damage. If a new barrel extension assembly or a new bolt assembly is required, new parts MUST BE SERIALIZED to identify them as an assembly. The barrel extension is to be marked on bottom surface with last four digits of receiver serial number. The bolt is to be marked on left side with last four digits of receiver serial number.

**NOTE**

The use of a brass punch is recommended to shear off spring pin.

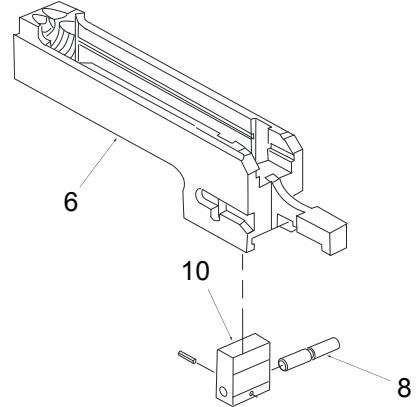
4. Position barrel extension (6) on its top (upside down).
5. Use brass punch to remove breech lock pin (8) and drive out spring pin (9). Slide breech lock (10) out of barrel extension (6).
6. Use 1/16 drift to drive out spring pin (9) from breech lock (10). Drive spring pin from front of breech lock to the rear. Once the spring pin is partially driven out, remove breech lock pin (8) and then the breech lock from the barrel extension. Complete removal of the spring pin from the breech lock. Discard spring pin.



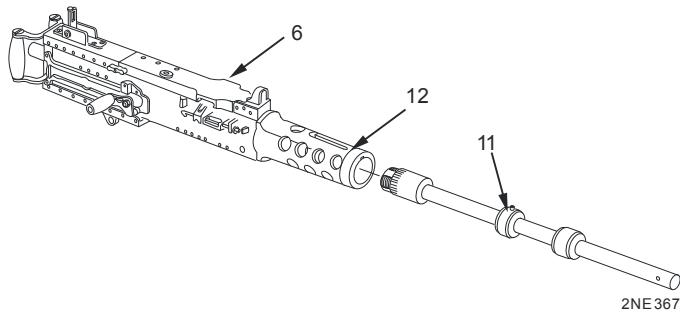
### Fixed Headspace Adjustment - Continued

#### NOTE

- Do not install spring pin into the Master Breech Lock.
- Ensure large beveled edge is installed facing up and to the front of the barrel extension.



7. Install master breech lock (10), with beveled edge in front position, from bottom of barrel extension (6). Secure with breech lock pin (8) and assemble weapon without installing barrel.
8. Charge weapon to ensure firing pin is retracted.
9. Retract slide handle until barrel locking spring is centered in the 3/8 in. hole on right side of receiver. Insert master barrel gage (11) into barrel support (12) and lock into barrel extension (6), thereby simulating barrel installation. If master barrel gage will not assemble, check barrel extension threads for burrs or damage and/or barrel support for correct assembly.



#### WARNING



#### HEADSPACE AND TIMING

Improper headspace and timing can cause the weapon to malfunction, resulting in injury to personnel and damage to equipment. Do not insert any object such as coin or feeler gage between the barrel extension and trunnion block while retracting the bolt to adjust headspace. Placing an object between the barrel extension and trunnion can cause excessive headspace adjustment and possible damage to the weapon or injury to personnel.

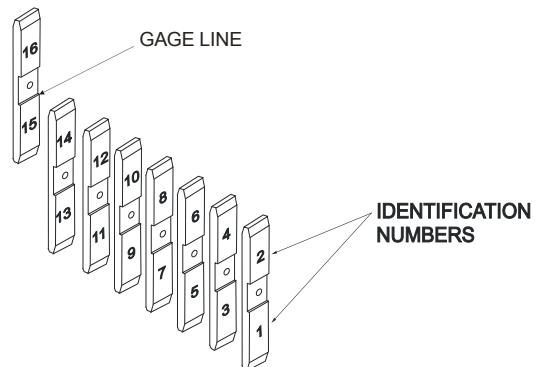
10. Open feed tray cover.
11. Grasp retracting slide handle and retract bolt until barrel extension has separated approximately 1/16 in. from trunnion block. Release retracting slide handle slowly.

### Fixed Headspace Adjustment - Continued

#### NOTE

The breech lock selection gage identification number is equivalent to the recommended breech lock size required to obtain 0.202 in. headspace.

12. Start with #16 Breech Lock Selection Gage and continue downward until first gage enters T-slot. By using firm pressure, gage must enter T-slot all the way until line is flush with top of bolt. Note gage number; each gage number corresponds to a breech lock in the breech lock set.
13. Remove master barrel gage and disassemble weapon.
14. Remove master breech lock from barrel extension (6) and replace with correct size breech lock (10) as determined by breech lock selection gage identification number noted in step 11.

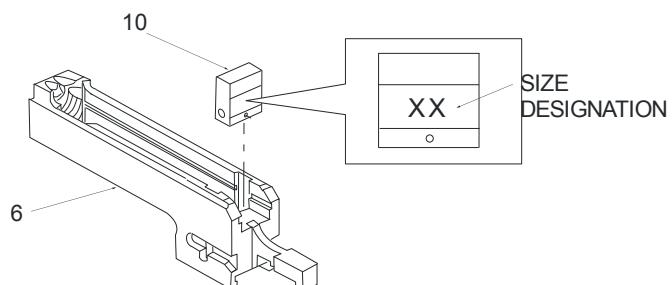


2NE369

#### NOTE

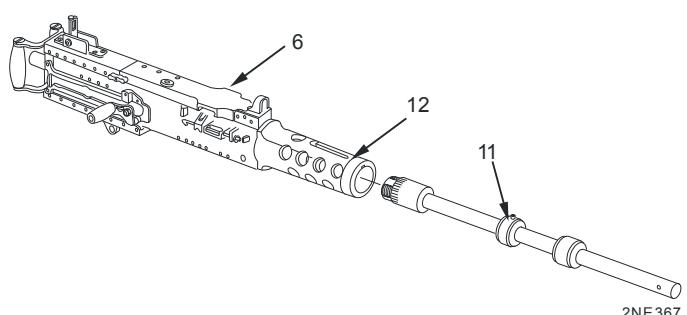
DO NOT install spring pin into the correct breech lock at this time.

15. Assemble weapon, except do not install spring pin in breech lock at this time.
16. Close feed tray cover.
17. Charge weapon to ensure firing pin is retracted.



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18. Retract slide handle until barrel locking spring is centered in the 3/8 in. hole on right side of receiver. Insert master barrel gage (11) into barrel support (12) and lock into barrel extension (6), thereby simulating barrel installation. If master barrel gage will not assemble, check barrel extension threads for burrs or damage and/or barrel support for correct assembly.



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**Fixed Headspace Adjustment - Continued**

19. Open feed tray cover.

**NOTE**

Ensure the arm of cartridge aligning pawl does not interfere with adjustment procedure.

20. Raise cartridge extractor (13).

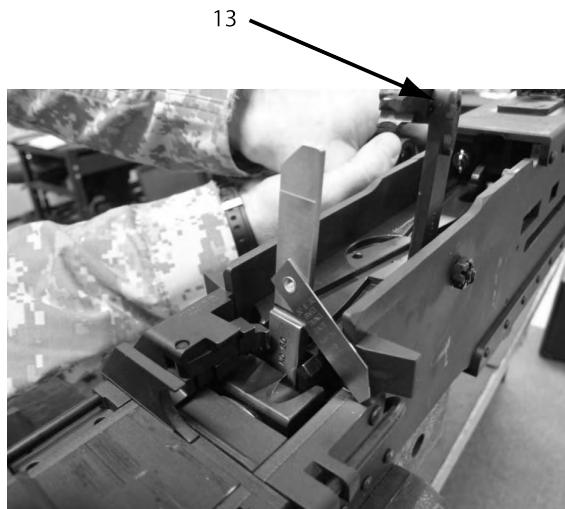
**WARNING**

Do not insert any object such as coin or feeler gage between the barrel extension and trunnion block while retracting the bolt to adjust headspace. Placing an object between the barrel extension and trunnion can cause excessive headspace adjustment and possible damage to the weapon or injury to personnel.

**NOTE**

In order to maximize headspace longevity, it is recommended that the breech lock selected allows the 0.202 in. gage to tightly enter slot.

21. Check headspace setting with quick change barrel headspace gage (PN 13027996) using minimum 0.202 in. "GO" blade. If 0.202 in. "GO" blade will enter and 0.203 in. "NO GO" blade will not enter or is very tight, headspace is set correctly.



- a. If 0.202 in. GO blade will not enter, disassemble weapon and replace breech lock with one which is smaller. Repeat steps 12 through 16. Repeat this procedure until 0.202 GO blade enters but 0.203 in. NO GO blade does not enter.
- b. If 0.203 in. NO GO blade enters, disassemble weapon and replace breech lock with one which is larger. Repeat steps 12 through 16. Repeat this procedure until 0.203 in. NO GO blade does not enter and 0.202 GO blade enters.

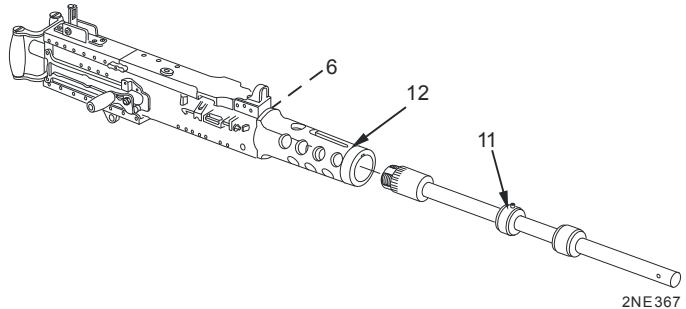
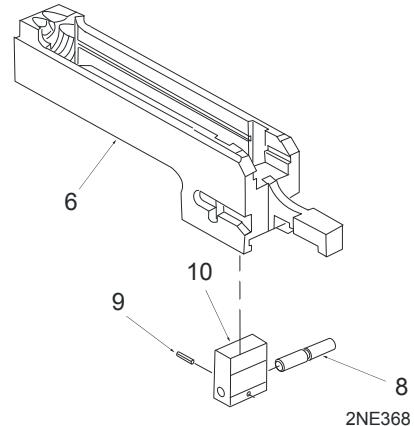
**Fixed Headspace Adjustment – Continued****WARNING**

During reassembly, the bolt and barrel extension serial numbers must match the last four digits of the receiver serial number to maintain headspace, and prevent gun malfunctions and serious injury.

22. Loosen master barrel gage (11) from barrel extension (6) and remove from barrel support (12). Disassemble weapon and position barrel extension with selected breech lock (10) and breech lock pin (8) so spring pin (9) can be installed. Mark left side of barrel extension with last four digits of receiver's serial number. Once spring pin is installed and barrel extension is appropriately serialized, weapon can be assembled.

23. Assembly.

- a. Place the selected breech lock (10) in barrel extension (6) with beveled edge in front position and install breech lock pin (8).
- b. Position barrel extension (6) on its side and install new spring pin (9) in breech lock (10) to secure breech lock pin (8).
- c. Reassemble receiver and install barrel assembly.
- d. Verify headspace using wear limit gage (see WP 0032 00).



### Fixed Timing Adjustment - Continued

#### **WARNING**

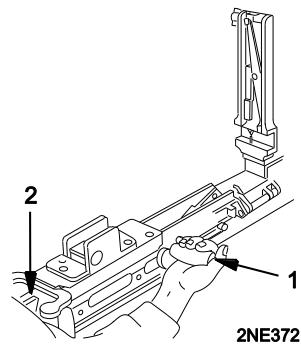


#### **BACKPLATE SPRING**

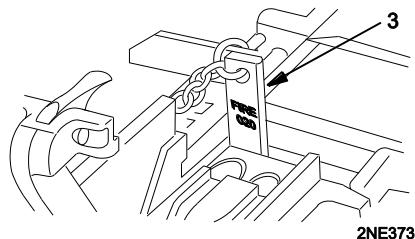
The backplate is spring-loaded and can cause serious injury if installed or removed improperly.

- DO NOT attempt to charge machine gun without the backplate assembled to machinegun.
- Never remove the backplate assembly from any weapon until the chamber has been cleared and the bolt is in forward position.
- DO NOT stand behind the weapon while removing backplate assembly.
- Stand to one side of the weapon when removing backplate assembly.

Failure to comply may result in serious injury to personnel.

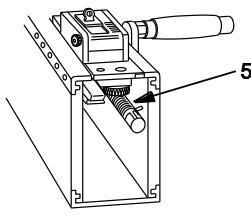
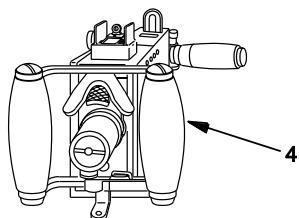


1. Pull bolt to rear with retracting slide handle (1) to cock machine gun; while holding handle, depress the bolt latch release (2) and do not allow bolt to slam forward. Do not press trigger.



2. Retract bolt just enough to insert beveled edge of FIRE gage (3) between trunnion block and barrel extension. Release retracting slide handle (1). Leave timing in extension.

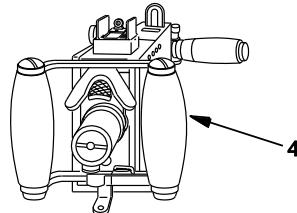
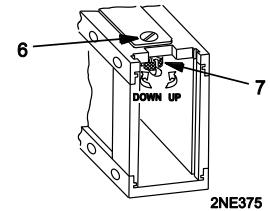
3. Remove backplate assembly (4) and drive spring rod (5). Refer to WP 0011 00.



2NE374

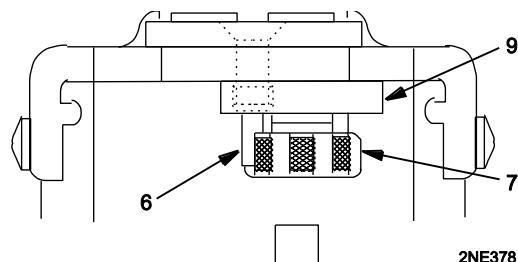
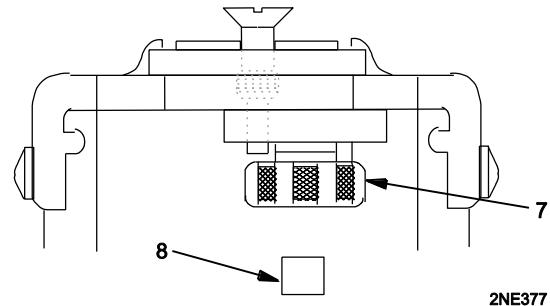
**Fixed Timing Adjustment - Continued**

4. Back out timing lock screw (6) enough to allow fixed timing adjustment nut (7) to turn freely. Move adjustment nut all the way down, turning counterclockwise, and retighten timing lock screw. Reinstall drive rod spring.
5. Remove wear limit/timing gage and reinstall backplate assembly (4). Reinstall wear limit gage. Attempt to fire by depressing trigger. Gun should not fire. Remove backplate assembly.

**NOTE**

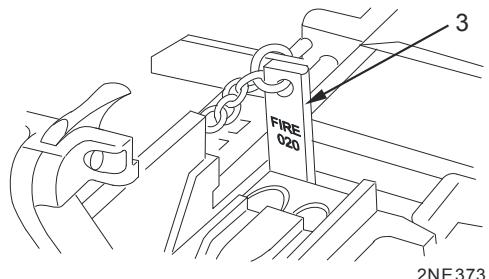
For M2A1 timing, the number of notches that the fixed timing adjustment nut is moved must be visually verified. The M2A1 adjustment nut does not provide audible clicks.

6. Remove fire gage.
7. Install backplate.
8. Reinsert fire gage.
9. Screw fixed timing adjustment nut (7) up (to the right) one notch at a time. Attempt to fire by installing backplate and pushing on butterfly trigger. Repeat steps 4 – 11 until gun fires.
10. Turn fixed timing adjustment nut (7) two additional notches up (to the right). Do not turn fixed timing adjustment nut any more.
11. While holding trigger stop body (9) and fixed timing adjustment nut (7) firmly in place, tighten timing lock screw (6) through trigger stop body and align small diameter of timing lock screw into nearest notch in fixed timing adjustment nut.



**Fixed Timing Adjustment - Continued**

12. Remove FIRE gage (3).
13. Charge weapon and release bolt, but do not allow bolt to slam forward.
14. Insert NO FIRE gage.
15. Press trigger. Weapon should not fire.
16. Remove NO FIRE gage and insert FIRE gage.
17. Press trigger. Weapon should fire.
18. Remove FIRE gage and repeat steps 13 through 17 two additional times.
19. Stake head of timing lock screw (6).
20. Fixed timing adjustment is now complete.

**END OF WORK PACKAGE**

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## FIELD MAINTENANCE

### MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

#### MAINTENANCE OF M2A1 MACHINE GUN PREPARATION FOR STORAGE OR SHIPMENT

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##### INITIAL SETUP:

###### Materials/Parts

	References
Barrier material (Sleeve and tubing bag) (item 2, WP 0055 00)	MIL-STD-129
Barrier material (item 3, WP 0055 00)	MIL-STD-1186
Cushioning material (item 20, WP 0055 00)	TM 9-1005-347-10
Fiberboard (item 21, WP 0055 00)	
Fiberboard box (PPP-B-640) (item 4, WP 0055 00)	
Fiberboard box (PPP-B-636) (item 5, WP 0055 00)	
Paper tape (item 34, WP 0055 00)	
Steel strap (item 31, WP 0055 00)	
Wooden box (PPP-B-601) (item 7, WP 0055 00)	
Wooden box (PPP-B-621) (item 6, WP 0055 00)	

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##### CLEANING, DRYING, AND PRESERVATION

The M2A1 machine gun shall be disassembled as necessary to accomplish the cleaning. All surfaces shall be cleaned with solvent cleaning compound.

Preserve all surfaces of the M2A1 machine gun with LSA.

##### PACKAGING

Packaging, if required, for shipping/storage that will not exceed 90 days shall be as follows:

Clean IAW TM 9-1005-347-10.

Wrap with barrier material.

Place in sleeve and tubing bag or wrap with barrier material and seal with paper tape.

Place one or more of item in minimum size container. Block and brace in accordance with MIL-STD-1186.

Cushion the M2A1 with cushioning material and use fiberboard as filler to create a tight pack.

Fiberboard containers shall be in accordance with PPP-B-636 and may be Class Domestic. Gross weight and size of the material shall determine grade of fiberboard container. Fiberboard boxes may also be used.

Wooden boxes shall be in accordance with PPP-B-601 or PPP-B-621.

Equivalent materials may be used.

Mark in accordance with MIL-STD-129.

**PACKING**

The unit container shall be packed in a wooden box.

Nail top to shipping box.

Secure box with steel straps.

**MARKING**

Serial number is required and shall be listed on the packing list. Packing list shall be put inside the shipping box.

Apply following marking on the outside of each fiberboard box:

National Stock Number  
Federal Item Name  
One Each  
Date  
Weight: Cube

Only the following markings shall be applied by stencil or label to exterior of shipping box:

Address of Destination  
Weight and Cube

**END OF WORK PACKAGE**

**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE OF M2A1 MACHINE GUN  
PRE-EMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT****INITIAL SETUP:****Materials/Parts**

Fiberboard Box (item 4, WP 0055 00)

**References**TB 9-1000-247-34  
WP 0015 00**MARKING OF SMALL ARMS****NOTE**

The marking of small arms by use of permanent etching, painting (oil or latex), stamping, or burning on metal, rubber-coated material synthetic material, or wood components is strictly forbidden. However, the use of white tape, masking tape, embossed tape, bar codes, or tags is permissible.

1. Serial number is required and shall be listed on the packing list. Packing list shall be put inside of the fiberboard box.
2. Apply the following marking on the outside of each fiberboard box:
  - a. National Stock Number.
  - b. Federal Item Name.
  - c. One Each.
  - d. Date.
  - e. Weight: Cube.
3. Only the following markings shall be applied by stencil or label to exterior of shipping box:
  - a. Address of Destination.
  - b. Weight and Cube.

**PRE-EMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT**

Refer to TB 9-1000-247-34.

Air Force users use annual gaging procedures (WP 0015 00).

**END OF WORK PACKAGE**



**CHAPTER 5**  
**PARTS INFORMATION**



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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE OF M2A1 MACHINE GUN  
ILLUSTRATED LIST OF MANUFACTURED ITEMS**

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**INTRODUCTION****Scope**

This work package includes complete instructions for making items authorized to be manufactured or fabricated at field maintenance.

**How to Use the Index of Manufactured Items**

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page which covers the fabrication criteria.

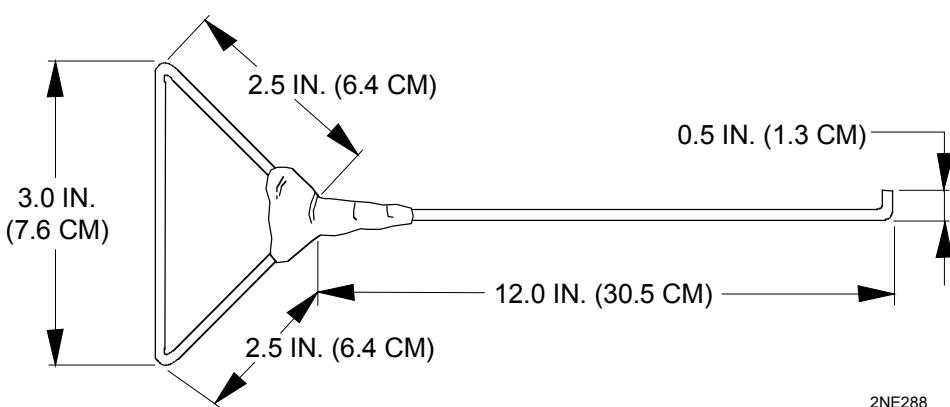
**Explanation of the Illustrations of Manufactured Items**

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

**INDEX OF MANUFACTURED ITEMS**

<u>Part Number</u>	<u>Page</u>
MS20995C41	0036 00-2
ASTMA641	0036 00-2
ASTMB16	0036 00-2

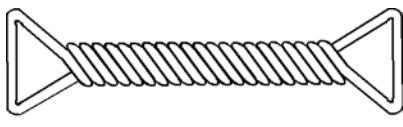
## ILLUSTRATIONS OF MANUFACTURED ITEMS

**Figure 1. Removal Tool for Improperly Installed Bolt.**

## NOTES:

Fabricate from 20.5 in. (52.1 cm) long rod of 3/8 in. diameter brass alloy NSN 9525-00-249-7441.

Wrap paper tape (item 34, WP 0055 00) where triangle joins.

**Figure 2. Safety Wire****Table 1. List of Materials.**

Nomenclature	Part Number	Figure
Wire, Non-electrical	MS20995C41	2
Wire, Non-electrical	ASTMA641	2
Wire, Non-electrical	ASTMB16	1

## NOTES:

Fabricate wire from part number found in Table 1.

Cut wire to necessary length.

Refer to NASM 33540 for illustration of safety wire.

**END OF WORK PACKAGE**

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## FIELD MAINTENANCE

### MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

#### INTRODUCTION TO REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

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## INTRODUCTION

### SCOPE

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement and diagnostic equipment (TMDE); and other special support equipment required for performance of field maintenance of the M2A1 Machine Gun. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) Codes.

### GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which may be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are listed in their own functional group and work package. Repair parts for reparable special tools are also listed in separate work package. Items listed are shown on the associated illustrations.
2. Special Tools List Work Packages. Work packages containing list of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. Cross-Reference Indexes Work Packages. There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number Index work package. The National Stock Number Index work package refers you the figure and item number. The Part Number Index work package refers you the figure and item number.

### EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

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

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

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**EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES (cont)**
**Table 1. SMR Code Explanation.**

<u>Source Code</u>	<u>Maintenance Code</u>	<u>Recoverability Code</u>
<u>XX</u>	<u>XX</u>	<u>X</u>
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item.  5th position: Who determines disposition action on unserviceable items.

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

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

<u>Source Code</u>	<u>Application/Explanation</u>
PA	
PB	
PC	<b>NOTE</b> Items coded PC are subject to deterioration.
PD	Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code.
PE	
PF	
PG	
PH	
PR	
PZ	
KD	Items with these codes are not to be requested/requisitioned individually. They are part of a kit, which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.
KF	
KB	
MO – Made at service/AMC level MF – Made at field/ASB level	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material, which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
MH – Made at below depot/sustainment level ML – Made at SRA/TASMG MD – Made at depot MG – Navy Only	

AO - Assembled by service/AMC level  
 AF - Assembled by field/ ASB level  
 AH - Assembled by below depot sustainment level  
 AL - Assembled by SRA/TASMG  
 AD - Assembled by depot  
 AG - Navy Only

Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

- XA - Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below.)
- XB - If an item is not available from salvage, order it using the CAGEC and part number.
- XC - Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's part number.
- XD - Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and part number given, if no NSN is available.

#### **NOTE**

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

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

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

<b>Maintenance Code</b>	<b>Application/Explanation</b>
O*-	Field (Service) level/AMC maintenance can remove, replace, and use the item.
F-	Field/ASB maintenance can remove, replace, and use the item.
H-	Below Depot Sustainment maintenance can remove, replace, and use the item.
L-	Specialized repair activity/TASMG can remove, replace, and use the item.
G-	Afloat and ashore intermediate maintenance can remove, replace, and use the item (Navy only).
K-	Contractor facility can remove, replace, and use the item.
Z-	Item is not authorized to be removed, replaced, or used at any maintenance level.
D-	Depot can remove, replace, and use the item.

\*NOTE – Army may use C in the third position. However, for joint service publications, Army will use O.

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

**EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES (cont)**

**NOTE**

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

<b>Maintenance Code</b>	<b>Application/Explanation</b>
O-	Field (Service)/AMC is the lowest level that can do complete repair of the item.
F-	Field/ASB is the lowest level that can do complete repair of the item.
H-	Below Depot/Sustainment is the lowest level that can do complete repair of the item.
L-	Specialized repair activity/TASMG is the lowest level that can do complete repair of the item.
D-	Depot is the lowest level that can do complete repair of the item.
G-	Both afloat and ashore intermediate levels are capable of complete repair of item. (Navy only)
K-	Complete repair is done at contractor facility.
Z-	Non-reparable. No repair is authorized.
B-	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

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

<b>Recoverability Code</b>	<b>Application/Explanation</b>
Z-	Non-reparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
O-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the service/AMC level.
F-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the field level/ASB.
H-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the below depot sustainment level.
D-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L-	Reparable item. Condemnation and disposal of item are not authorized below Specialized Repair Activity (SRA) or theater aviation sustainment maintenance group (TASMG).
A-	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
G-	Field level reparable item. Condemn and dispose at either afloat or ashore intermediate levels. (Navy only)
K-	Reparable item. Condemnation and disposal to be performed at contractor facility.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code, which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

#### **NOTE**

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

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and when required, a minimum description to identify the item.
2. Part numbers of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement "END OF FIGURE" appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

USMC QTY per Equip (Column (8)). This column accommodates the Marine Corps quantity per equipment requirement.

#### **EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS**

1. National Stock Number (NSN) Index Work Package. NSN's in this index are listed in National Item Identification Number (NIIN) sequence.

STOCK NUMBER Column. This column lists the NSN in NIIN sequence. The NIIN consists of the last nine digits of the NSN.

<u>NSN</u> (e.g., <u>5385-01-574-1476</u> )	When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.
<u>NIIN</u>	

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

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

2. Part Number (P/N) Index Work Package. Part numbers in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations, which places the first letter or digit of each group in order A through Z, followed by numbers 0 through 9 and each following letter or digit in like order).

**EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS (cont)**

PART NUMBER Column. Indicates the part number assigned to the item/

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

**SPECIAL INFORMATION**

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

<u>Code</u>	<u>Used On</u>
BNO	M2A1

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of the RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated.

**HOW TO LOCATE REPAIR PARTS****1. When NSNs or P/Ns Are Not Known.**

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and sub-assembly groups, and lists are divided into the same groups.

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

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

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

**2. When NSN Is Known.**

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

**3. When Part Number Is Known.**

First. If you have the part number and not the NSN, look in the PART NUMBER column of the part number index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

ABBREVIATIONS. N/A

**END OF WORK PACKAGE**

**FIELD MAINTENANCE**

**MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)**

**REPAIR PARTS LIST**

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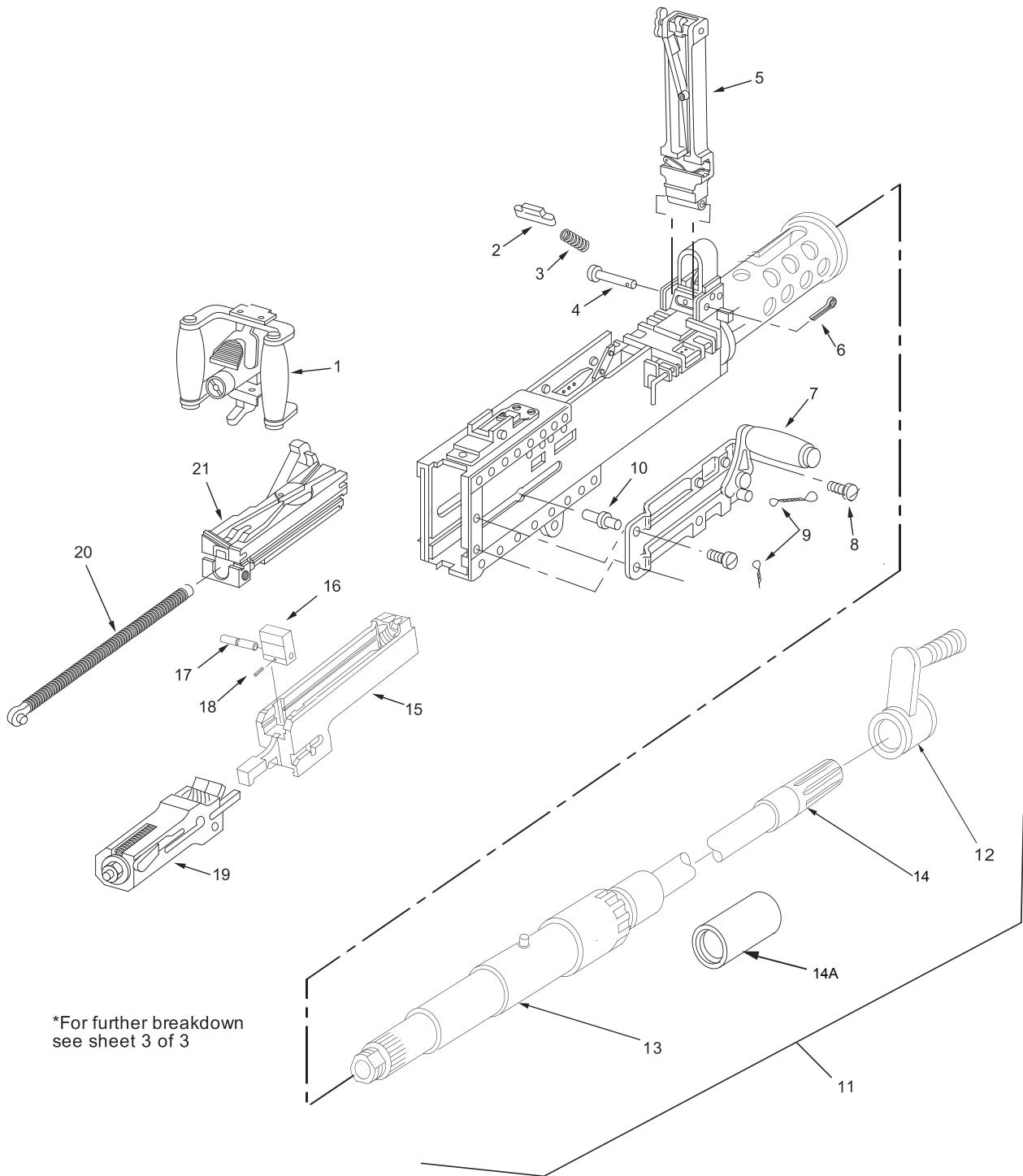
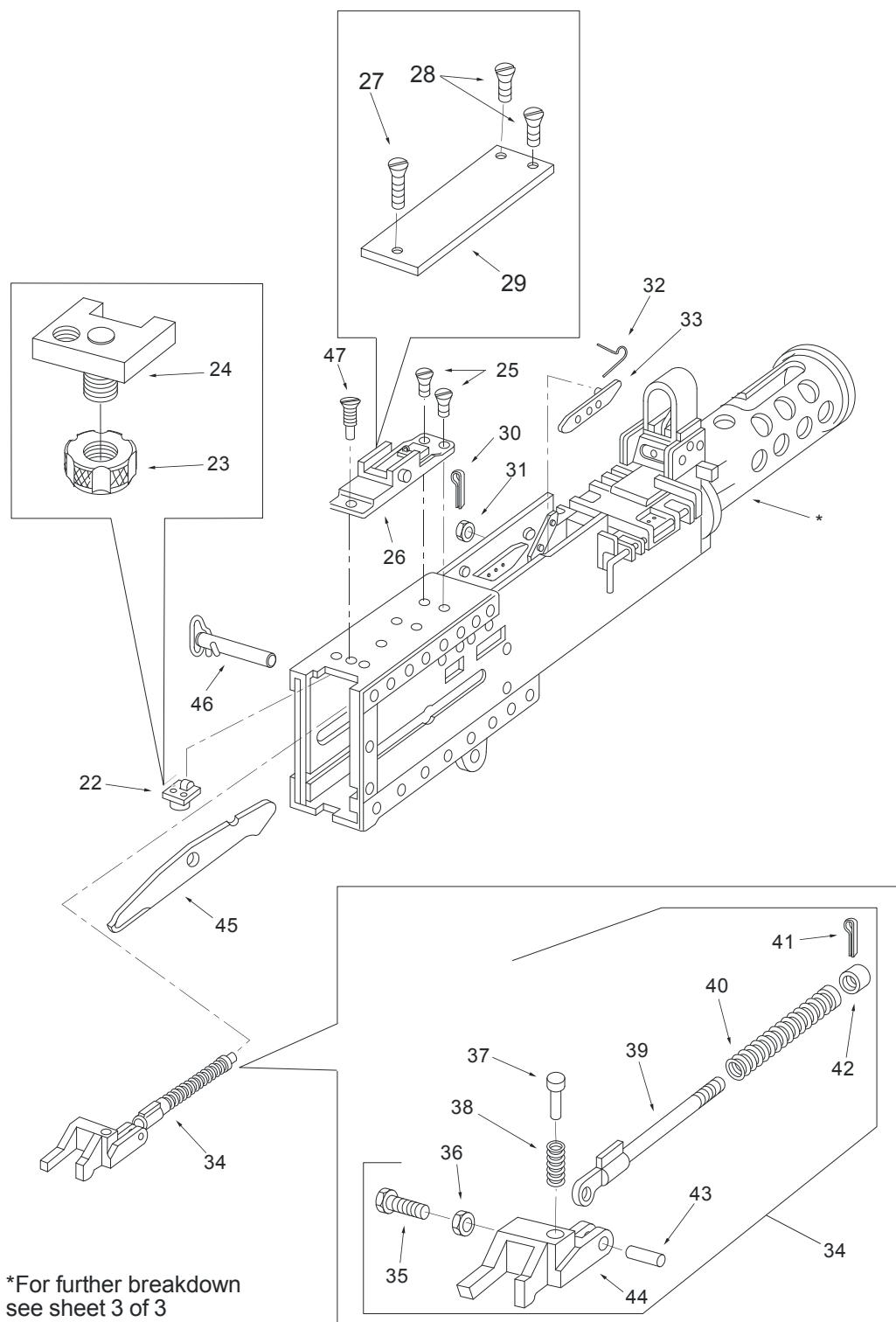


Figure 1. M2A1 Machine Gun 13006168; Flash Suppressor 7162072 and 3453; Adjustable Trigger Lever Stop Assembly 7265212; Bolt Latch Assembly 8448125; and Rear Right Hand Cartridge Stop Assembly 5577409. M2A1 Fixed Trigger Assembly, Timing Nut 3440, and Timing Screw 3439 (Sheet 1 of 3).



2NE291A

Figure 1. Machine Gun, Cal. .50, M2A1 13006168; Flash Suppressor 13027971; Stop Assembly Adjustable Trigger Lever 7265212; Latch Assembly, Bolt 8448125; Stop Assembly, Cartridge, Rear 5577409; Barrel Support 13027972; Barrel Assembly 13027965. (Sheet 2 of 3).

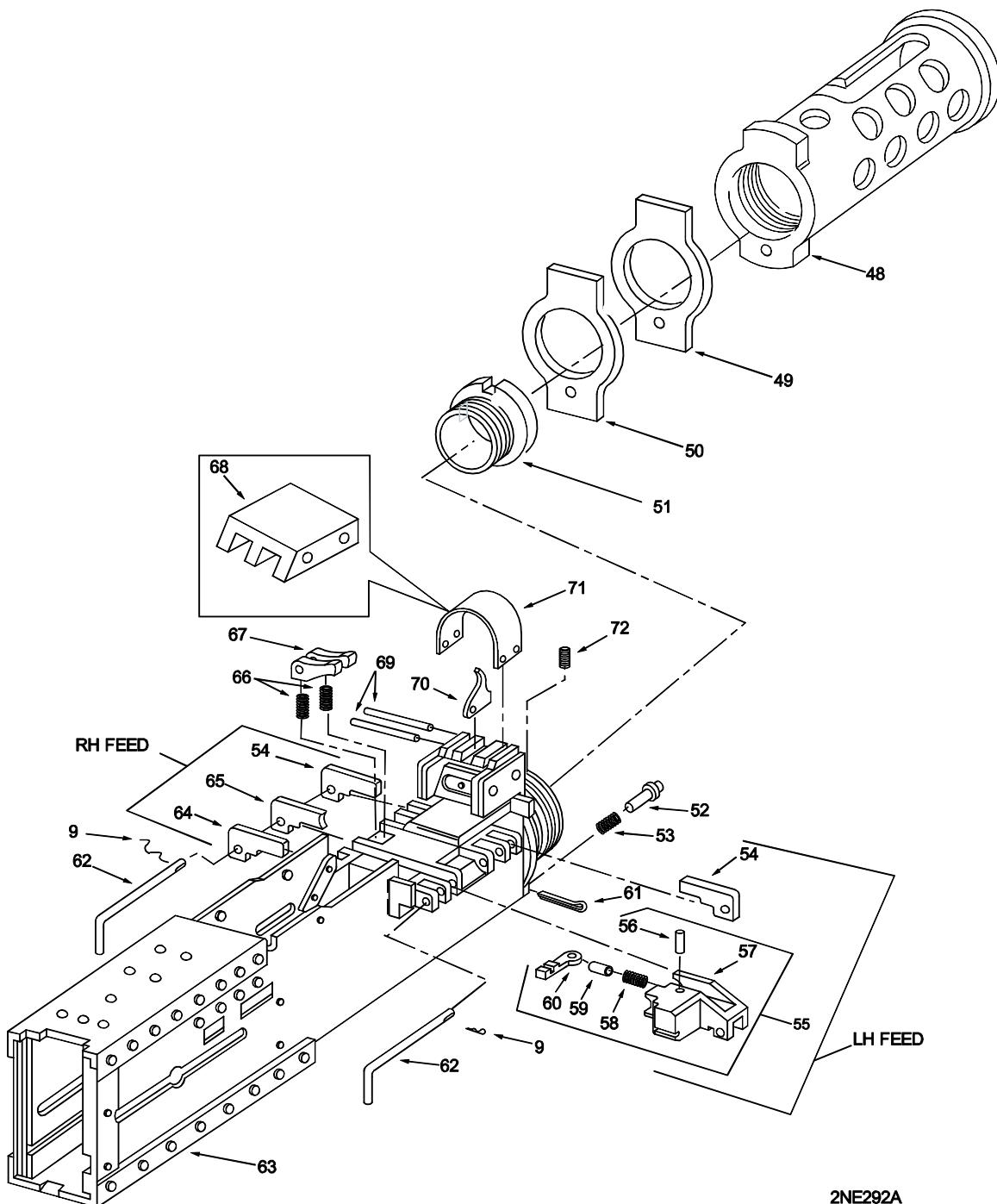


Figure 1 Machine Gun, Cal. .50, M2A1 13006168; Flash Suppressor 13027971; Stop Assembly Adjustable Trigger Lever 7265212; Latch Assembly, Bolt 8448125; Stop Assembly, Cartridge, Rear 5577409; Barrel Support 13027972; Barrel Assembly 13027965. (Sheet 3 of 3).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01; 0101; 0110; 0111; 0112; 0115; 0116	
					FIG. 1 MACHINE GUN, CAL. .50, M2A1 13006168; FLASH SUPPRESSOR 13027971; STOP ASSEMBLY, ADJUSTABLE TRIGGER LEVER 7265212; LATCH ASSEMBLY, BOLT 8448125; STOP ASSEMBLY, CARTRIDGE, REAR 5577409; BARREL SUPPORT 13027972; BARREL ASSEMBLY 13027965	
1	PAFFF	1005-01-547-6523	19204	13016070	PLATE ASSEMBLY, BACK, SPADE GRIP SEE FIG. 2 FOR BREAKDOWN.....	1
1	XXXXX	1005-01-562-7409	19200	13019693	PLATE ASSEMBLY, BACKPLATE, SEP	1
2	PAFZZ	3040-00-731-3069	19200	7313069	PAWL, COVER DETENT .....	1
3	PAFZZ	5360-00-597-1201	19204	7313068	SPRING, HELICAL, COMPRESSION .....	1
4	PAFZZ	5315-00-500-9271	19205	5009271	PIN, STRAIGHT, HEADED.....	1
5	PBFFF	1005-01-453-9290	19204	6528309	COVER ASSEMBLY SEE FIG. 7 FOR BREAKDOWN.....	1
6	PAFZZ	5315-01-063-6872	19200	12003201	PIN, COTTER.....	1
7	PAFFF	1005-00-657-3953	19200	11010439	SLIDE ASSEMBLY, RETRACTING SEE FIG. 8 FOR BREAKDOWN.....	1
8	PAFZZ	5305-01-372-8426	19205	7265596	SCREW, MACHINE.....	3
9	PAFZZ	9505-01-536-5728		NSSM20995C 32	SAFETY WIRE .....	1
10	PAFZZ	5315-00-501-3424	19207	5013424	PIN, SHOULDER, HEADLESS.....	1
11	PAFFF	1005-01-541-2478	19200	13027965	BARREL ASSEMBLY .....	1
12	PAFZZ	1005-01-539-3410	19200	13027981	.HANDLE ASSEMBLY, BARREL CARRYING .....	1
13	XAFBZ		19200	13027966	.BARREL .....	1
14	PAFZZ	1005-01-542-3029	19200	13027971	.SUPPRESSOR, FLASH .....	1
14A	PAFZZ	TBD	26978	13027970	.CAP, BARREL (USED FOR BFA AMPLIFIER ONLY.....	1
15	PAFZZ	1005-01-530-8724	19200	13027974	EXTENSION ASSEMBLY, BARREL, M2A1 .....	1
16	PAFZZ	1005-01-541-3657	19200	13028639	LOCK, BREECH, MACHINE, M2A1 (SET OF 16) UOC: BNO .....	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
	PAFZZ	1005-01-530-9640	19200	13028640	LOCK, BREECH, MACHINE (NO. 1).....	1
	PAFZZ	1005-01-537-3768	19200	13028641	LOCK, BREECH, MACHINE (NO. 2).....	1
	PAFZZ	1005-01-541-7232	19200	13028642	LOCK, BREECH, MACHINE (NO. 3).....	1
	PAFZZ	1005-01-536-5640	19200	13028643	LOCK, BREECH, MACHINE (NO. 4).....	1
	PAFZZ	1005-01-536-5642	19200	13028644	LOCK, BREECH, MACHINE (NO. 5).....	1
	PAFZZ	1005-01-536-5645	19200	13028645	LOCK, BREECH, MACHINE (NO. 6).....	1
	PAFZZ	1005-01-536-5639	19200	13028646	LOCK, BREECH, MACHINE (NO. 7).....	1
	PAFZZ	1005-01-536-5641	19200	13028647	LOCK, BREECH, MACHINE (NO. 8).....	1
	PAFZZ	1005-01-536-5643	19200	13028648	LOCK, BREECH, MACHINE (NO. 9).....	1
	PAFZZ	1005-01-537-2576	19200	13028649	LOCK, BREECH, MACHINE (NO. 10).....	1
	PAFZZ	1005-01-536-5646	19200	13028650	LOCK, BREECH, MACHINE (NO. 11).....	1
	PAFZZ	1005-01-536-5647	19200	13028651	LOCK, BREECH, MACHINE (NO. 12).....	1
	PAFZZ	1005-01-537-2578	19200	13028652	LOCK, BREECH, MACHINE (NO. 13).....	1
	PAFZZ	1005-01-537-3760	19200	13028653	LOCK, BREECH, MACHINE (NO. 14).....	1
	PAFZZ	1005-01-537-3763	19200	13028654	LOCK, BREECH, MACHINE (NO. 15).....	1
	PAFZZ	1005-01-537-3769	19200	13028655	LOCK, BREECH, MACHINE (NO. 16).....	1
17	PAFZZ	5315-01-530-8727	19200	13027976	PIN, BREECH LOCK, M2A1.....	1
18	PAFZZ	5315-01-541-7233	19200	MS16562-109	PIN, SPRING .....	1
19	AFFFF	1005-01-453-9289	19204	7266821	BUFFER, RECOIL MECHANISM SEE FIG. 6 FOR BREAKDOWN.....	1
20	PAFZZ	1005-00-556-4305	19200	5564305	ROD ASSEMBLY, DRIVE .....	1
21	AFFFF	1005-01-586-5017	19200	13027990	BOLT ASSEMBLY, BREECH SEE FIG. 4 FOR BREAKDOWN.....	1
22	PAFFF	1005-00-726-5212	19200	7265212	STOP ASSEMBLY, ADJUSTABLE TRIGGER LEVER.....	1
23	PAFZZ	5310-01-531-0866	19200	13027979	.NUT, PLAIN, KNULED .....	1
24	XAFZZ		19205	7312030	.STOP, ADJUSTABLE TRIGGER LEVER...	1
25	PAFZZ	5305-00-637-9395	19200	5153191	SCREW, MACHINE .....	4
26	PAFFF	1005-01-003-5475	19200	12003047	SIGHT ASSEMBLY, REAR SEE FIG. 9 FOR BREAKDOWN.....	1
27	PAFZZ	5305-00-731-2028	19204	7312028	SCREW, EXTERNALLY RELIEVED BODY FL-CK-HD.....	2
28	PAFZZ	5305-00-637-9395	19200	5153191	SCREW, MACHINE .....	1
29	PAFZZ	1005-00-600-8939	19200	6008939	PLATE, COVER.....	1
30	PAFZZ	5315-00-013-7137	80205	MS24665-814	PIN, COTTER .....	1
31	PAFZZ	5310-00-501-3556	19205	5013556	NUT, PLAIN, SLOTTED .....	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
32	PAFZZ	5360-00-600-8943	19204	6008943	SPRING, TENSION EXTRACTOR SWITCH .....	1
33	PAFZZ	5930-00-614-7461	19200	6147461	SWITCH, EXTRACTOR .....	1
34	AFFFF		19204	8448125	LATCH ASSEMBLY, BOLT .....	1
35	PAFZZ	5306-00-501-3622	19200	5013622	..BOLT, MACHINE.....	1
36	PAFZZ	5310-00-501-3623	19204	5013623	..NUT, PLAIN, HEXAGON .....	1
37	PAFZZ	5315-00-501-3524	19204	5013524	..PIN, SHOULDER, HEADLESS.....	1
38	PAFZZ	5360-00-299-1192	19204	5013525	..SPRING, HELICAL .....	1
39	PAFZZ	5315-00-600-8919	19200	6008919	..PIN, ECCENTRIC .....	1
40	PAFZZ	5360-00-501-3527	19200	5013527	..SPRING, HELICAL, COMPRESSION .....	1
41	PAFZZ	5315-00-234-1861	94135	12Z5056-35	..PIN, COTTER .....	1
42	PAFZZ	5310-00-501-3526	19205	5013526	..NUT, PLAIN, ROUND 2 DRIVE POINTS .....	1
43	PAFZZ	5315-00-501-3523	19204	5013523	..PIN, STRAIGHT .....	1
44	PAFZZ	1005-00-550-4060	19200	5504060	..LEVER, MANUAL CONTROL RECEIVER ASSEMBLY .....	1
45	PAFZZ	5340-00-625-7592	19200	6257592	LEVER, LOCK-RELEASE .....	1
46	PAFZZ	5315-00-731-3106	19200	7313106	PIN, STRAIGHT, HEADED TRIGGER LEVER .....	1
47	PAFZZ	5305-01-533-5173	19200	13027977	TIMING LOCK SCREW .....	1
48	PAFZZ	1005-01-530-8726	19200	13027972	SUPPORT, BARREL .....	1
49	PAFZZ	5365-01-530-7825	19200	13027973	SPACER, PLATE .028.....	1
50	PAFZZ	5365-00-726-5580	19200	7265580	SPACER, PLATE .0585.....	1
	PAFZZ	5365-00-726-5581	19200	7265581	SPACER, PLATE .0610.....	1
	PAFZZ	5365-00-726-5582	19200	7265582	SPACER, PLATE .0635.....	1
	PAFZZ	5365-00-726-5583	19204	7265583	SPACER, PLATE .0660.....	1
	PAFZZ	5365-00-726-5584	19200	7265584	SPACER, PLATE .0685.....	1
	PAFZZ	5365-00-726-5585	19200	7265585	SPACER, PLATE .0710.....	1
	PAFZZ	5365-00-726-5586	19200	7265586	SPACER, PLATE .0735.....	1
	PAFZZ	5365-00-726-5587	19200	7265587	SPACER, PLATE .0760.....	1
	PAFZZ	5365-00-726-5588	19200	7265588	SPACER, PLATE .0785.....	1
	PAFZZ	5365-00-726-5589	19204	7265589	SPACER, PLATE .0810.....	1
	PAFZZ	5365-00-726-5590	19200	7265590	SPACER, PLATE .0835.....	1
	PAFZZ	5365-00-726-5591	19200	7265591	SPACER, PLATE .0860.....	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
51	PAFZZ	5365-00-600-8920	19204	6008920	BUSHING, MACHINE THREAD .....	1
52	PAFZZ	5315-01-530-8728	26978	13027978	PIN, SHOULDER, HEADLESS.....	1
53	PAFZZ	5360-00-501-3566	19200	5013566	SPRING, HELICAL, COMP .....	1
54	PAFZZ	1005-00-501-3539	19200	5013539	STOP, CARTRIDGE, RH AND LH FEED ....	2
55	PAFFF	1005-00-557-7409	19200	5577409	STOP ASSEMBLY, CARTRIDGE, REAR, RH (LEFT HAND FEED ONLY).....	1
56	PAFZZ	5315-00-501-3612	19204	5013612	..PIN, STRAIGHT, HEADLESS.....	1
57	XAFZZ		19204	5577408	..STOP .....	1
58	PAFZZ	5360-00-501-3613	19200	5013613	..SPRING, HELICAL, COMPRESSION .....	1
59	PAFZZ	5340-00-501-3611	19200	5013611	..PLUNGER, DETENT, ALIGNING PAWL ...	1
60	PAFZZ	3040-00-600-8975	19204	6008975	..PAWL, CARTRIDGE ALIGNING .....	1
61	PAFZZ	5315-00-842-3044	80205	MS24665-283	PIN, COTTER .....	1
62	PAFZZ	5315-00-716-2872	19200	7162872	PIN, GROOVED, HEADLESS PAWL .....	2
63	PAFDA	1005-01-172-7725	19200	6535480	RECEIVER, CARTRIDGE SEE FIG. 11 FOR BREAKDOWN.....	1
64	PAFZZ	1005-00-501-3540	19200	5013540	STOP, CARTRIDGE (RH ONLY).....	1
65	PAFZZ	1005-00-501-3541	19200	5013541	STRIPPER, LINK (RH ONLY).....	1
66	PAFZZ	5360-00-209-9691	19204	7160628	SPRING, HELICAL COMPRESSION .....	2
67	PAFZZ	1005-00-731-3083	19200	7313083	PAWL ASSEMBLY, BELT HOLDING RH AND LH, W/SLEEVE GROUP ASSEMBLY .....	1
68	PAFZZ	1005-00-501-3588	19204	5013588	COVER, GUN .....	1
69	PAFZZ	5315-00-501-3546	19204	5013546	PIN, STRAIGHT, HEADED .....	2
70	PAFZZ	1005-00-600-8934	19204	6008934	SIGHT, FRONT BLADE TYPE .....	1
71	PAFZZ	1005-00-600-8935	19200	6008935	COVER, GUNSIGHT .....	1
72	PAFZZ	5305-00-299-1193	19205	5013530	SETSCREW .....	1

END OF FIGURE

**FIELD MAINTENANCE**

**MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)**

**BACK PLATE ASSEMBLY (SPADE GRIP) 6535477**

**REPAIR PARTS LIST**

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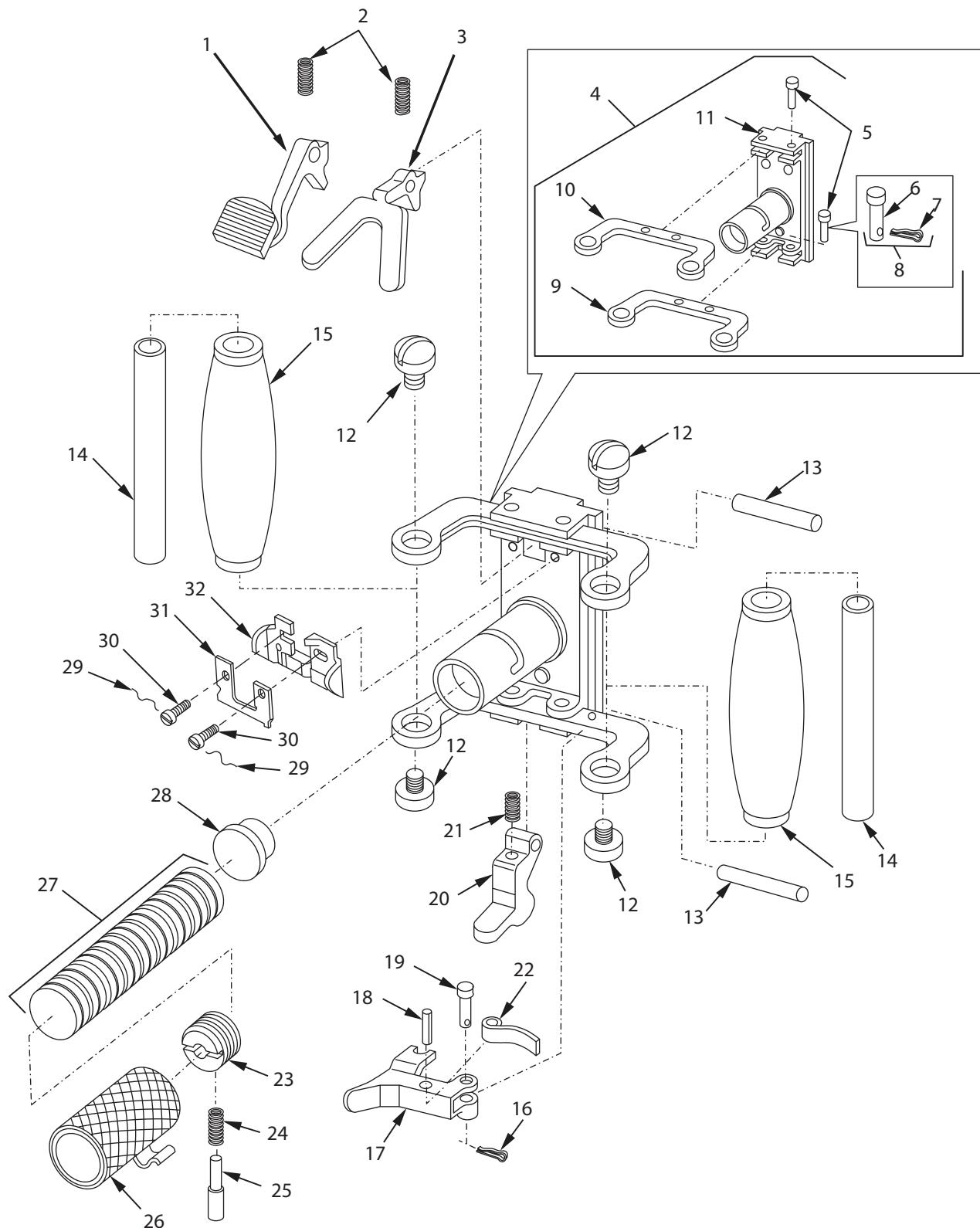


Figure 2. Back Plate Assembly (Spade Grip) 13016070.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0102						
FIG. 2 PLATE ASSEMBLY, BACK, SPADE GRIP 13019693						
1	PAFZZ	5340-00-550-4071	19200	5504071	LEVER, MANUAL CONTROL.....	1
2	PAFZZ	5360-00-500-9352	19200	5009352	SPRING, HELICAL, COMPRESSION .....	2
3	PAFZZ	1005-01-547-6524	19204	13016069	TRIGGER.....	1
4	PAFZZ		19204	5564307	PLATE ASSEMBLY, M1A2 TANK APP SEE FIG 3 FOR BREAKDOWN.....	1
5	PAFZZ	5320-00-471-5099	19204	5009287	RIVET, SOLID, 0.188 X 0.623 (FOR REPLACEMENT SEE PN 5152854 USE WITH PN 7312517).....	1
6	PAFZZ	5315-00-515-2854	19204	5152854	PIN, STRAIGHT, HEADED .....	1
7	PAFZZ	5315-00-731-2517	19204	7312517	PIN, LOCK, HEADED (FOR REPLACEMENT SEE PN 5152854 USE WITH PN 7312517).....	1
8	PAFZZ	5320-00-471-5099	19204	5009287	RIVET, SOLID, 0.188 X 0.623 (FOR REPLACEMENT SEE PN 5152854).....	1
9	PAFZZ	1005-00-600-8936	19204	6003936	FRAME, HANDLE, LOWER.....	1
10	PAFZZ	5340-00-600-8937	19200	6008937	HANDLE, MANUAL, CONTROL, UPPER.....	1
11	PAFZZ	1005-00-918-2618	19204	6535475	PLATE, BACK, .....	1
12	PAFZZ	5305-00-500-9394	19200	5009394	SCREW, MACHINE .....	4
13	PAFZZ	5315-00-500-9275	19204	5009275	PIN, STRAIGHT, HEADLESS .....	2
14	PAFZZ	1005-00-918-2617	19200	5009369	TUBE, HANDLE GRIP PLATE ASSEMBLY, BACK.....	2
15	PAFZZ	1005-00-726-5561	19200	7265561	GRIP, MACHINE GUN HANDLE, PLASTIC.....	2
16	PAFZZ	5315-00-731-2517	19204	7312517	PIN, LOCK (USE WITH PN 5152854) .....	1
17	PAFZZ	1005-00-927-7273	19200	11010453	LOCK, BACK PLATE LATCH .....	1
18	PAFZZ	5315-00-526-2799	19200	5262799	KEY, WOODRUFF.....	1
19	PAFZZ	5315-00-501-3581	19200	5013581	PIN, STRAIGHT, HEADED (USE WITH PN 7312517).....	1
20	PAFZZ	3040-00-600-8949	19200	6008949	LEVER, MANUAL CONTROL.....	1
21	PAFZZ	5360-00-500-9356	19200	5009356	SPRING, HELICAL COMPRESSION .....	1
22	PAFZZ	5360-00-624-3607	19204	6243607	SPRING, FLAT BACK PLATE, LATCH LOCK.....	1
23	PAFZZ	5365-00-515-2834	19205	5152834	PLUG, MACHINE THREAD.....	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODE (UOC)	QTY
24	PAFZZ	5360-00-500-9300	19200	5009300	SPRING, HELICAL COMPRESSION .....	1
25	PAFZZ	5315-00-515-2839	19204	5152839	PIN, SHOULDER, HEADLESS .....	1
26	PAFZZ	1005-00-550-4094	19204	5504094	TUBE, METALLIC.....	1
27	PAFZZ	5340-00-515-2835	19200	5152835	DISK, SOLID, PLAIN RED FBR, 1-3/32 OD, 0.127 MAX THK APPROX 22 PER ASSY NSN PROVIDES 1 EACH.....	V
28	PAFZZ	1005-00-515-2869	19200	5152869	BUFFER, RECOIL MECHANISM .....	1
29	MOFZZ	9505-00-293-4208	80205	ASTMA641	WIRE, NON-ELEC MFD FROM NSN 9505-00-684-4843.....	V
30	PAFZZ	5305-01-415-3269	19200	13018132	..SCREW, SHOULDER (PART OF TRIGGER BLOCK ASSEMBLY) .....	2
31	PAFZZ	5360-01-415-3267	19200	13018131	..SPRING, FLAT (PART OF TRIGGER BLOCK ASSEMBLY) .....	1
32	XAFFF		19200	13018130	..SAFETY, SMALL ARMS (PART OF TRIGGER BLOCK ASSEMBLY) .....	1

END OF FIGURE

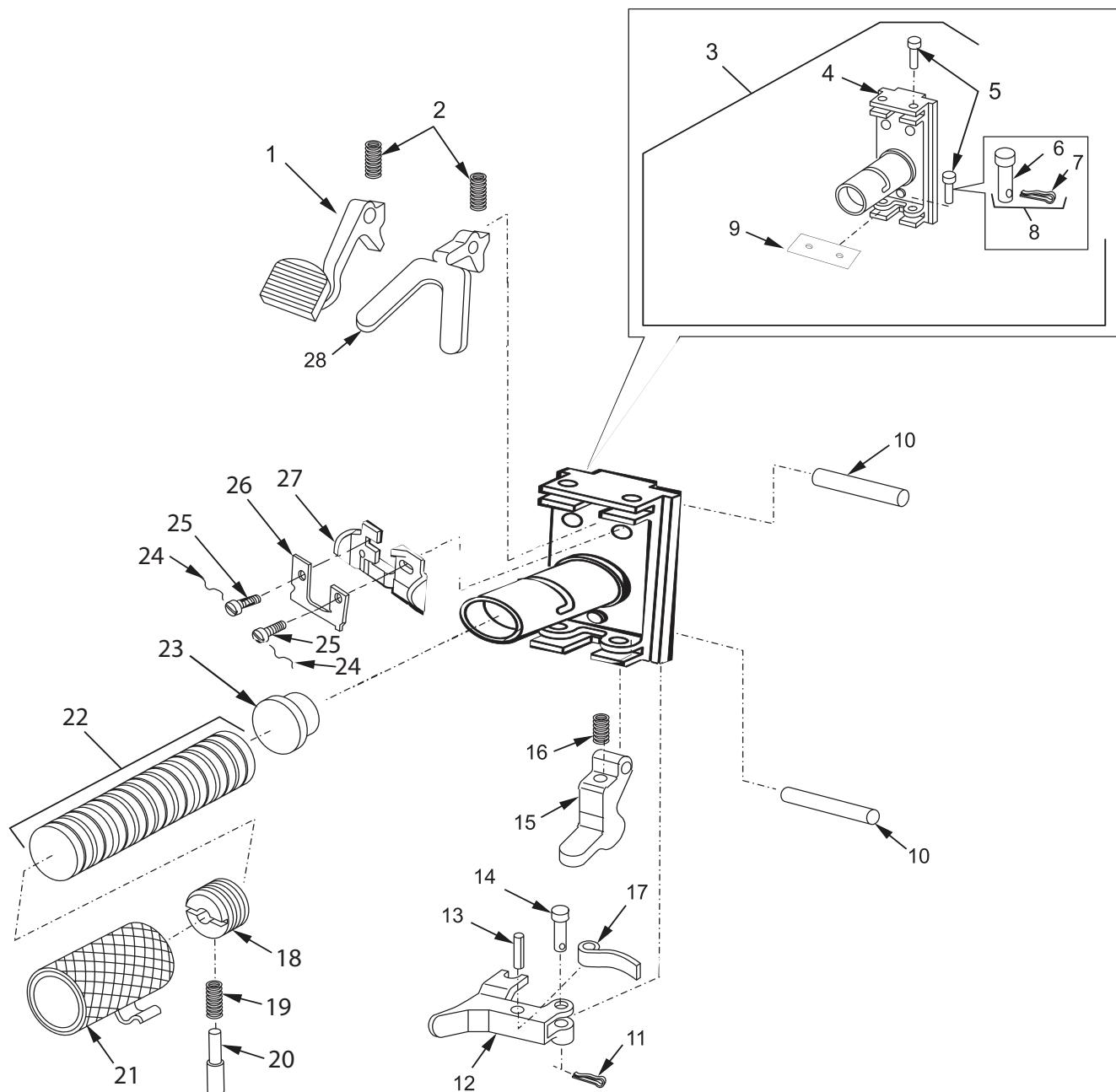
**FIELD MAINTENANCE**

**MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)**

**BACK PLATE ASSEMBLY  
(WITHOUT LATCH) 5564307**

**REPAIR PARTS LIST**

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2NE293a

Figure 3. Back Plate Assembly (Without Latch) 5564307.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 010201 FIG. 3 PLATE ASSEMBLY, BACK (WITHOUT LATCH) 5564307	
1	PAFZZ	5340-00-550-4071	19200	5504071	LEVER, MANUAL CONTROL.....	1
2	PAFZZ	5360-00-500-9352	19200	5009352	SPRING, HELICAL, COMPRESSION .....	2
3	XAFZZ	1005-00-918-2618	19204	6535475	PLATE, BACK, ASSY .....	1
4	PAFZZ	1005-00-918-2618	19204	6535475	..PLATE, BACK, .....	1
5	PAFZZ	5320-00-471-5099	19204	5009287	..RIVET, SOLID 0.188 X 0.623 (FOR REPLACEMENT SEE PN 5152854) (USE WITH PN 7312517).....	4
6	PAFZZ	5320-00-471-5099	19204	5009287	..RIVET, SOLID, 0.188 X 0.623 (FOR REPLACEMNT SEE PN 5152854 .....	4
7	PAFZZ	5315-00-731-2517	19204	7312517	...PIN, LOCK.....	4
8	PAFZZ	5315-00-515-2854	19204	5152854	...PIN, STRAIGHT, HEADED .....	4
9	PAFZZ	5365-00-515-2750	19200	5152750	..SPACER, PLATE.....	1
10	PAFZZ	5315-00-500-9275	19294	5009275	PIN, STRAIGHT, HEADLESS.....	2
11	PAFZZ	5315-00-732-2517	19204	7312517	PIN, LOCK (USE WITH 5152854) .....	1
12	PAFZZ	1005-00-927-7273	19200	11010453	LOCK, BACKPLATE LATCH .....	1
13	PAFZZ	5315-00-526-2799	19200	5262799	KEY, WOODRUFF.....	1
14	PAFZZ	5315-00-501-3581	19200	5013581	PIN, STRAIGHT, HEADED (USE WITH PN 7312517) .....	1
15	PAFZZ	3040-00-600-8949	19200	6008949	LEVER, MANUAL CONTROL.....	1
16	PAFZZ	5360-00-500-9356	19200	5009356	SPRING, HELICAL, COMPRESSION .....	1
17	PAFZZ	5360-00-515-2896	19204	5152896	SPRING, FLAT .....	1
18	PAFZZ	5365-00-515-2834	19205	5152834	PLUG, MACHINETHREAD .....	1
19	PAFZZ	5360-00-500-9300	19200	5009300	SPRING, HELICAL, COMPRESSION .....	1
20	PAFZZ	5315-00-515-2839	19204	5152839	PIN, SHOULDER, HEADLESS .....	1
21	PAFZZ	1005-00-550-4094	19204	5504094	TUBE, METALLIC.....	1
22	PAFZZ	5340-00-515-2835	19200	5152835	DISC, SOLID, PLAIN, RED FOR 1-3/32 OD, 0.127 MAX THKAPPROX 22 PER ASSY NSN PROVIDES 1 EACH .....	V
23	PAFZZ	1005-00-515-2869	19200	5152869	BUFFERM RECOIL MECHANISM .....	1
24	MOFZZ	9505-00-293-4208	80205	MS20995C32	WIRE, NON-ELECTRICAL (MAKE FROM NSN 9505-00-684-4843) .....	1
25	PAFZZ	5305-00-515-2897	19204	5152897	SCREW, SHOULDER.....	2
27	PAFZZ	1005-00-614-7511	19205	6147511	SAFETY, SMALL ARMS .....	1
28	PAFZZ	1005-00-600-8918	19204	6008918	TRIGGER.....	1

END OF FIGURE

0040 00-3/4 blank



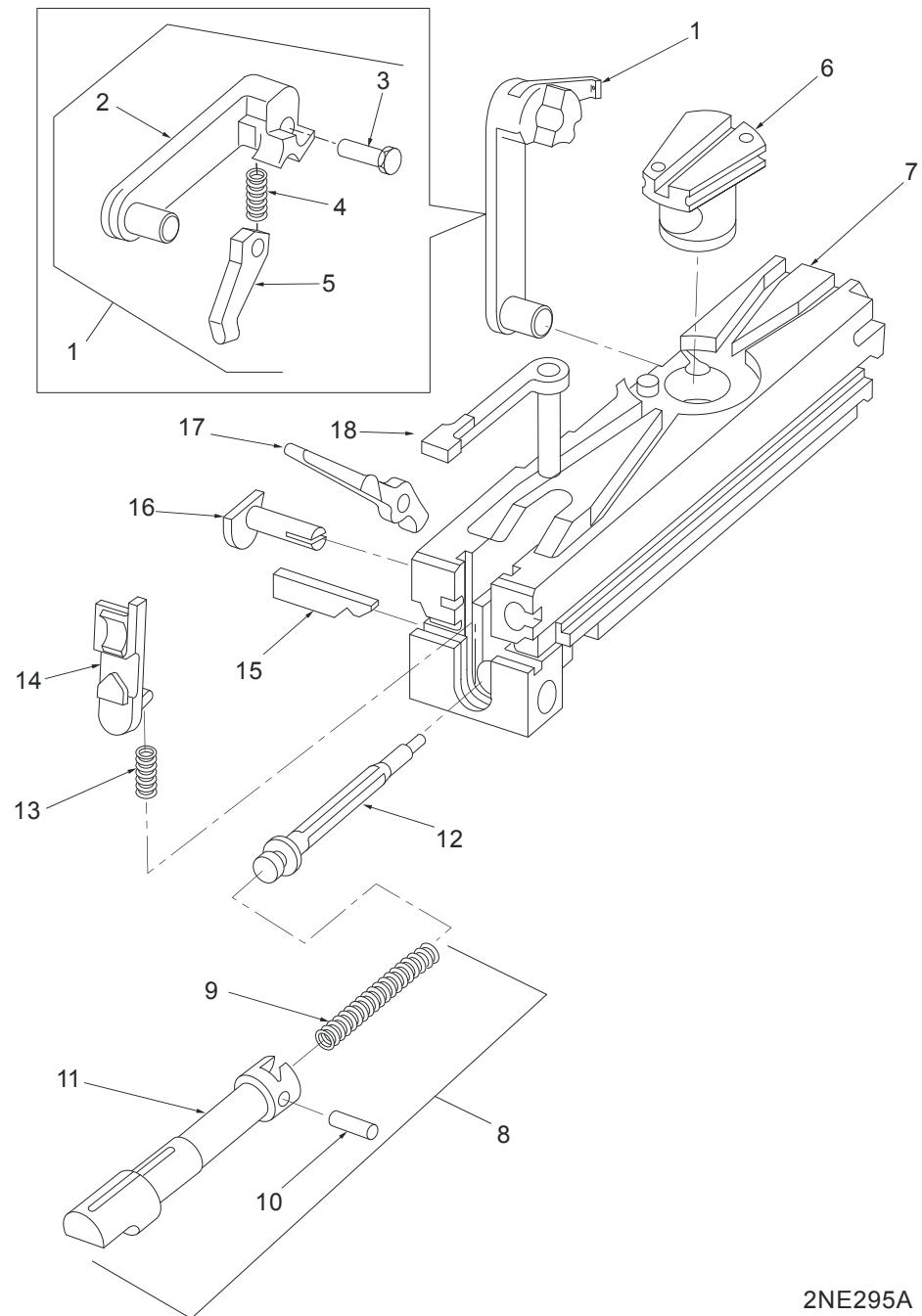
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**FIELD MAINTENANCE**

**BREECH BOLT ASSEMBLY 6528322, CARTRIDGE EXTRACTOR 6008959,  
AND FIRING PIN EXTENSION ASSEMBLY 6008976**

**REPAIR PARTS LIST**

---



2NE295A

Figure 4. Breech Bolt Assembly 6528322, Cartridge Extractor 6008959, and Firing Pin Extension Assembly 6008976.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 0104; 010401; 010402 FIG. 4 BOLT ASSEMBLY, BREECH 6528322; EXTRACTOR, CARTRIDGE 6008959; AND EXTENSION ASSEMBLY, FIRING PIN 6008976	
1	PAFFF	1005-00-600-8959	19204	6008959	EXTRACTOR, CARTRIDGE.....	1
2	XAFZZ		19204	5504065	..EXTRACTOR.....	1
3	PAFZZ	5315-00-500-9273	19200	5009273	..PIN, HEADED .....	1
4	PAFZZ	5360-00-500-9523	19200	5009523	..SPRING, HELICAL, COMPRESSION .....	1
5	PAFZZ	1005-00-600-9732	19204	6009732	..EJECTOR, CARTRIDGE BOLT.....	1
6	PAFZZ	5355-00-550-4062	19200	5504062	KNOB ALTERNATE FEED .....	1
7	PAFFF	1005-00-614-7463	19204	6147463	BOLT, SUB-ASSEMBLY ALTERNATE FEED SEE FIG. 5 FOR BREAKDOWN.....	1
8	PAFFF	1005-00-600-8976	19200	6008976	EXTENSION ASSEMBLY, FIRING PIN.....	1
9	PAFZZ	5360-00-500-9353	19200	5009353	..SPRING, HELICAL, COMPRESSION .....	1
10	PAFZZ	5315-00-500-9382	19200	5009382	..PIN, STRAIGHT, HEADLESS.....	1
11	XAFZZ		19204	6008946	..EXTENSION, FIRING PIN .....	1
12	PAFZZ	1005-00-731-0080	19200	7310080	PIN, FIRING.....	1
13	PAFZZ	5360-00-209-8720	19200	5009524	SPRING, HELICAL .....	1
14	PAFZZ	1005-00-550-4067	19204	5504067	SEAR .....	1
15	PAFZZ	1005-00-535-1220	19200	5351220	SLIDE, SEAR.....	1
16	PAFZZ	5315-00-731-2078	19204	7312078	PIN, STRAIGHT, HEADED.....	1
17	PAFZZ	1005-00-600-9718	19200	6009718	LEVER, BREECHLOCK (LEVER, COCKING).....	1
18	PAFFF	2540-01-580-6603	19200	13027991	SEAR STOP AND PIN .....	1

END OF FIGURE



**FIELD MAINTENANCE**

**ALTERNATE FEED BOLT SUBASSEMBLY 6147463**

**REPAIR PARTS LIST**

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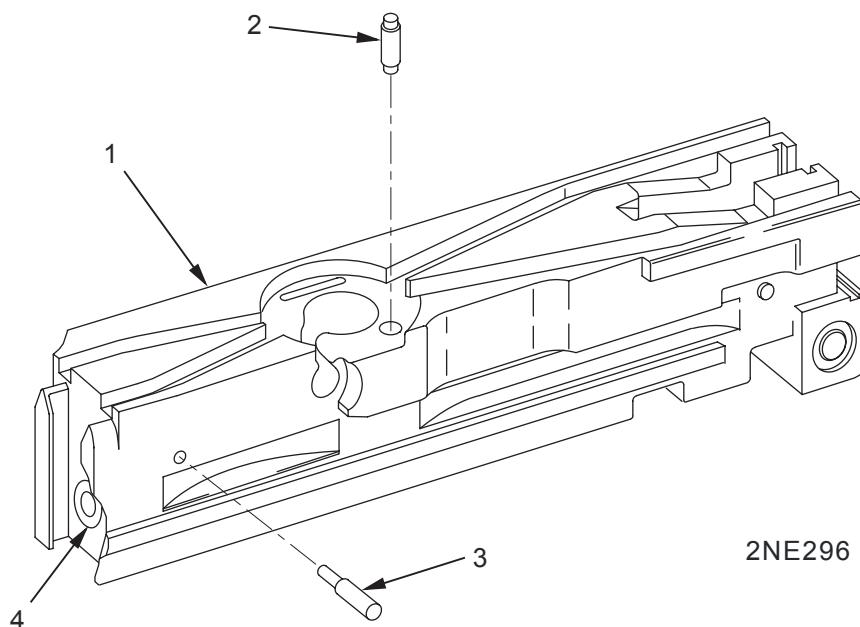


Figure 5. Alternate Feed Bolt Subassembly 6147463.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 010403	
					FIG. 5 ALTERNATE FEED BOLT SUBASSEMBLY 6147463	
1	XAFZZ		19204	6528256	BOLT .....	1
2	PAFZZ	5315-00-501-3529	19200	5013529	PIN, SHOULDER.....	1
3	PAFZZ	5315-00-500-9385	19200	5009385	PIN, STRAIGHT, HEADLESS.....	1
4	XAFZZ		19204	5152858	PLATE, RECOIL.....	1

END OF FIGURE

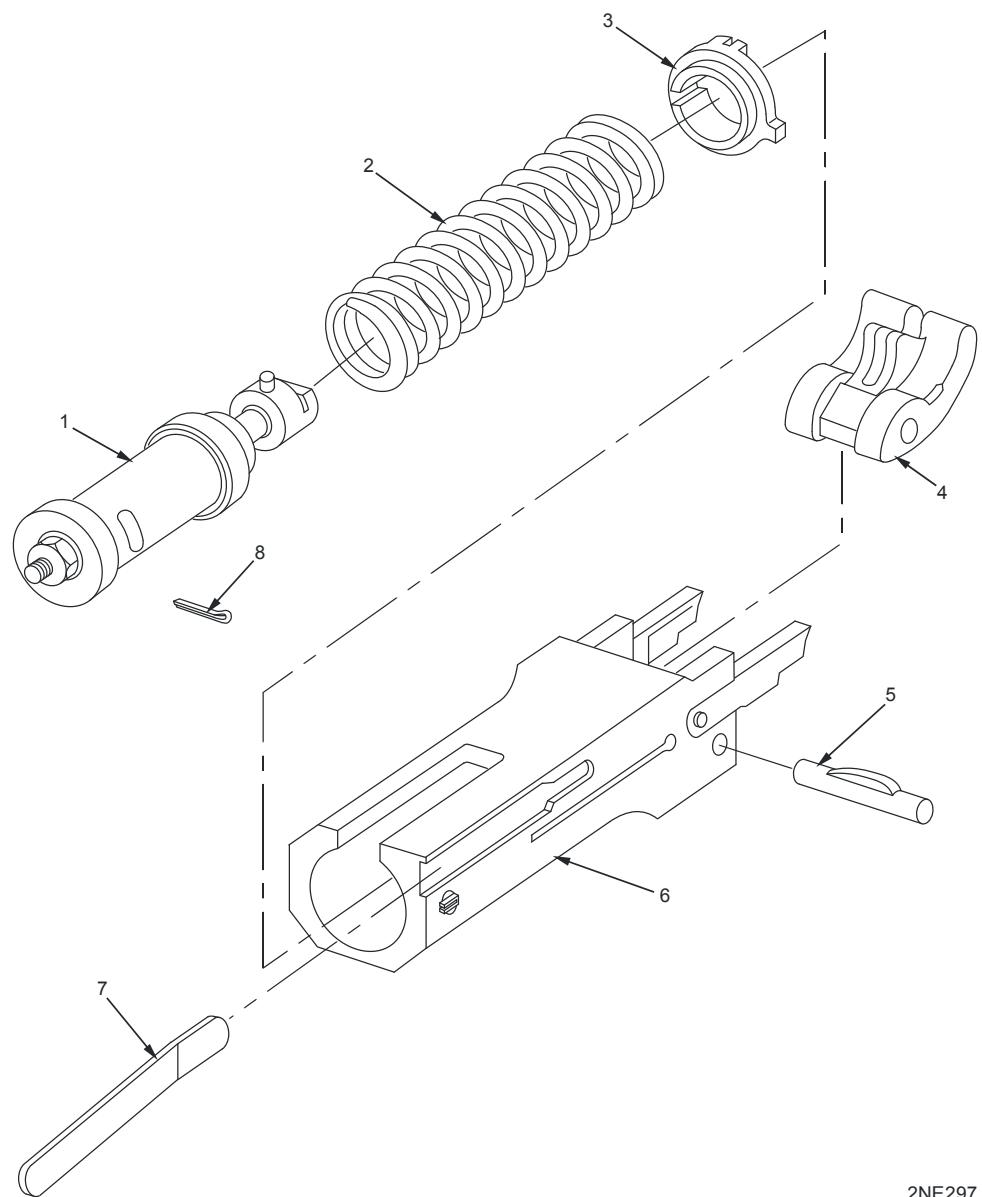


FIELD MAINTENANCE

RECOIL MECHANISM BUFFER 7266821

REPAIR PARTS LIST

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2NE297

Figure 6. Recoil Mechanism Buffer 7266821.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0105						
FIG. 6 BUFFER, RECOIL MECHANISM 7266821						
1	PAFZZ	1005-01-141-1235	19200	9340487	BUFFER ASSEMBLY, BARREL.....	1
2	PAFZZ	5360-00-200-5800	19200	6009832	SPRING, HELICAL, COMPRESSION .....	1
3	PAFZZ	1005-00-600-8782	19200	6008782	GUIDE, BUFFER SPRING .....	1
4	PAFZZ	1005-00-550-8141	19204	5508141	ACCELERATOR, MACHINE, BUFFER .....	1
5	PAFZZ	5315-00-600-8790	19204	6008790	PIN, SPRING .....	1
6	PAFZZ	1005-00-726-6835	19200	7266835	BODY ASSEMBLY, BARREL BUFFER .....	1
7	PAFZZ	5342-00-500-9266	19200	5009266	BUFFER BODY, LOCK.....	1
8	PAFZZ	5315-00-234-1861	80205	MS24665-298	PIN, COTTER .....	1

END OF FIGURE



FIELD MAINTENANCE

COVER ASSEMBLY 6528309

REPAIR PARTS LIST

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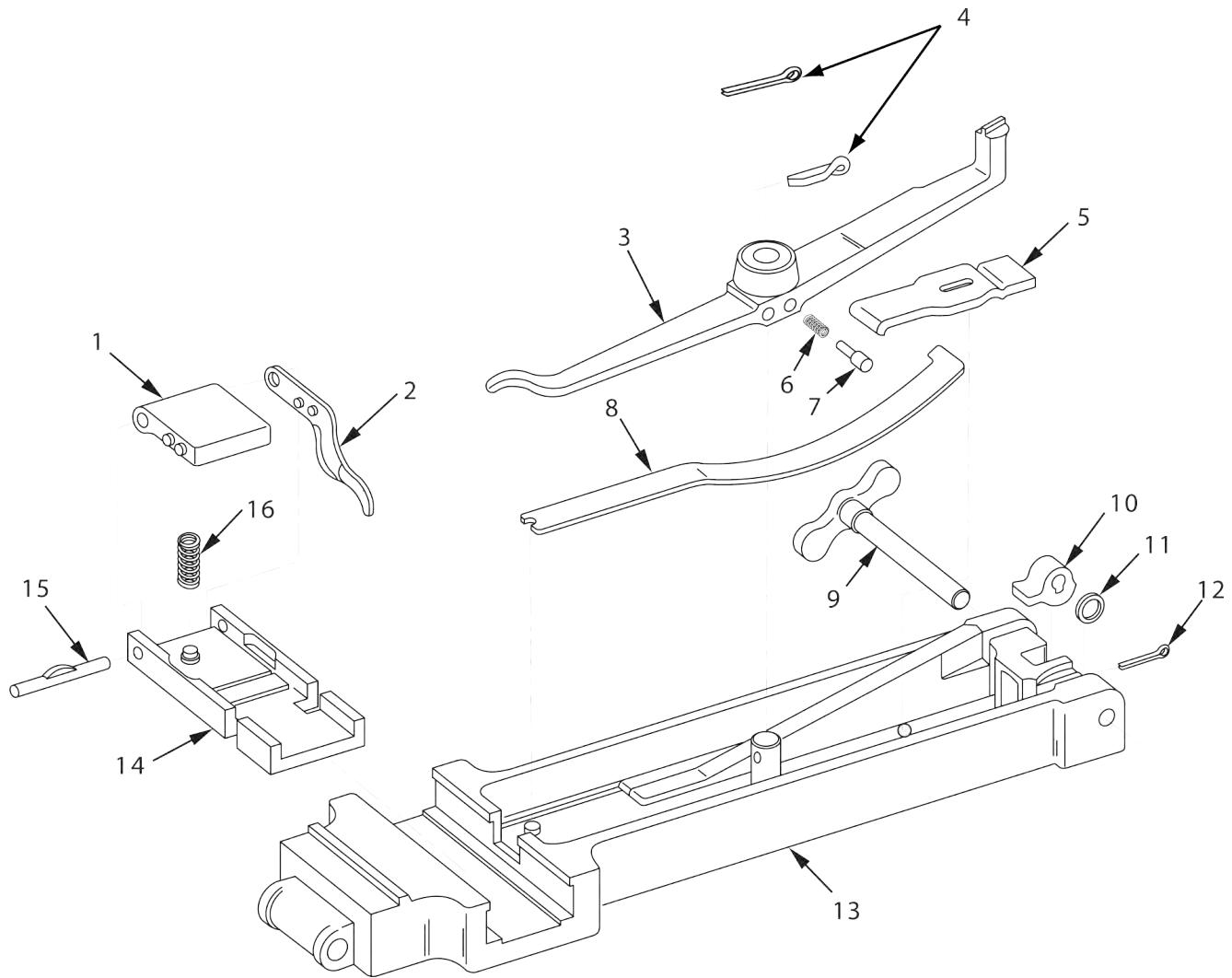


Figure 7. Cover Assembly 6528309.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0106						
FIG. 7 COVER ASSEMBLY 6528309						
1	PAFZZ	3040-00-600-8961	19204	6008961	PAWL, BELT, FEED .....	1
2	PAFZZ	3040-00-600-8914	19200	6008914	PAWL, BELT FEED ARM .....	1
3	PAFZZ	5340-00-556-4278	19200	5564278	LEVER.....	1
4	PAFZZ	5315-00-731-2970	19204	7312970	PIN, LOCK RETAINING, BELT FEED LEVER.....	1
4	PAFZZ	5315-00-842-3044	80205	MS24665-283	PIN, COTTER (ALTERNATE).....	1
5	PAFZZ	5360-00-600-8931	19204	6008931	SPRING, FLAT COVER LATCH.....	1
6	PAFZZ	5360-00-501-3516	19200	5013516	SPRING, HELICAL, COMPRESSION .....	1
7	PAFZZ	5315-00-299-1191	19204	5013515	PIN, SHOULDER, HEADLESS.....	1
8	PAFZZ	5360-00-600-9741	19200	6009741	SPRING, FLAT, COVER EXTRACTOR.....	1
9	PAFZZ	5340-00-731-2723	19200	7312723	LEVER, MANUAL CONTROL COVER LATCH .....	1
10	PAFZZ	5340-00-600-8928	19200	6008928	LATCH.....	1
11	PAFZZ	5310-00-800-3218	19204	5013545	WASHER, FLAT .....	1
12	PAFZZ	5315-00-013-7137	80206	MS24665-814	PIN, COTTER .....	1
13	XAFZZ		19200	5504081	COVER, SUBASSEMBLY .....	1
14	PAFZZ	1005-00-626-1110	19200	6261110	SLIDE ASSEMBLY, BELT FEED.....	1
15	PAFZZ	1005-00-600-8962	19204	6008962	PIN, SPRING .....	1
16	PAFZZ	5360-00-500-9351	19200	5009351	SPRING, HELICAL COMPRESSION .....	1

END OF FIGURE

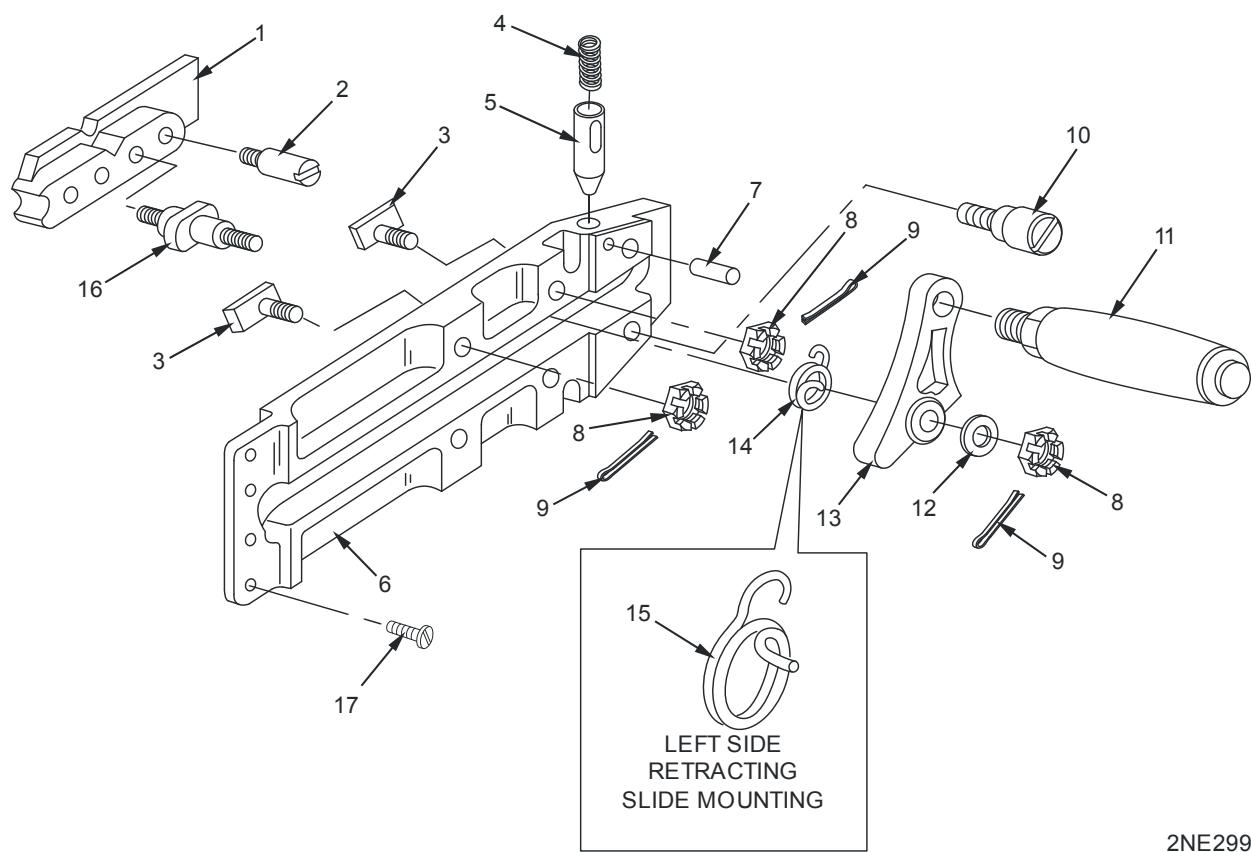


FIELD MAINTENANCE

RETRACTING SLIDE ASSEMBLY 11010439

REPAIR PARTS LIST

---



2NE299

Figure 8. Retracting Slide Assembly 11010439.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0107						
FIG. 8 SLIDE ASSEMBLY, RETRACTING 11010439						
1	PAFZZ	1005-00-614-7893	19200	6147893	SLIDE, RETRACTING .....	1
2	PAFZZ	5315-00-501-3694	19200	5013694	PIN, SHOULDER, HEADLESS.....	1
3	PAFZZ	5306-00-501-3681	19200	5013681	BOLT, TEE HEAD SHOULDER.....	2
4	PAFZZ	5360-00-501-3693	19200	5013693	SPRING, HELICAL, COMPRESSION .....	1
5	PAFZZ	1005-00-600-8990	19200	6008990	PLUNGER, RETRACTING SLIDE.....	1
6	XAFZZ		19200	11010440	BRACKET, RETRACTING SLIDE .....	1
7	PAFZZ	5315-00-501-3687	19200	5013687	PIN, STRAIGHT, HEADLESS.....	1
8	PAFZZ	5310-00-501-3686	19200	5013686	NUT, PLAIN, SLOTTED .....	3
9	PAFZZ	5315-00-013-7146	80205	MS24665-816	PIN, COTTER .....	3
10	PAFZZ	5305-00-600-8993	19205	6008993	SCREW, SHOULDER .....	1
11	PAFZZ	1005-00-631-3800	19200	6313800	HANDLE, RETRACTING SLIDE.....	1
12	PAFZZ	5310-00-501-3697	19200	5013697	WASHER, FLAT, THRUST.....	1
13	PAFZZ	3040-00-614-7085	19200	6147085	LEVER, REMOTE CONTROL SLIDE .....	1
14	PAFZZ	5360-00-501-3692	19204	5013692	SPRING, HELICAL TORSION (USED WHEN SLIDE IS MOUNTED ON RIGHT SIDE OF RECEIVER).....	1
15	PAFZZ	5360-00-501-3691	19204	5013691	SPRING, HELICAL TORSION (USED WHEN SLIDE IS MOUNTED ON LEFT SIDE OF RECEIVER) .....	1
16	PAFZZ	5307-00-631-3822	19200	6313822	STUD, SHOULDered .....	1
17	PAFZZ	5305-01-372-8426	19205	7265596	SCREW, MACHINE.....	4

END OF FIGURE



FIELD MAINTENANCE

REAR SIGHT ASSEMBLY 12003047

REPAIR PARTS LIST

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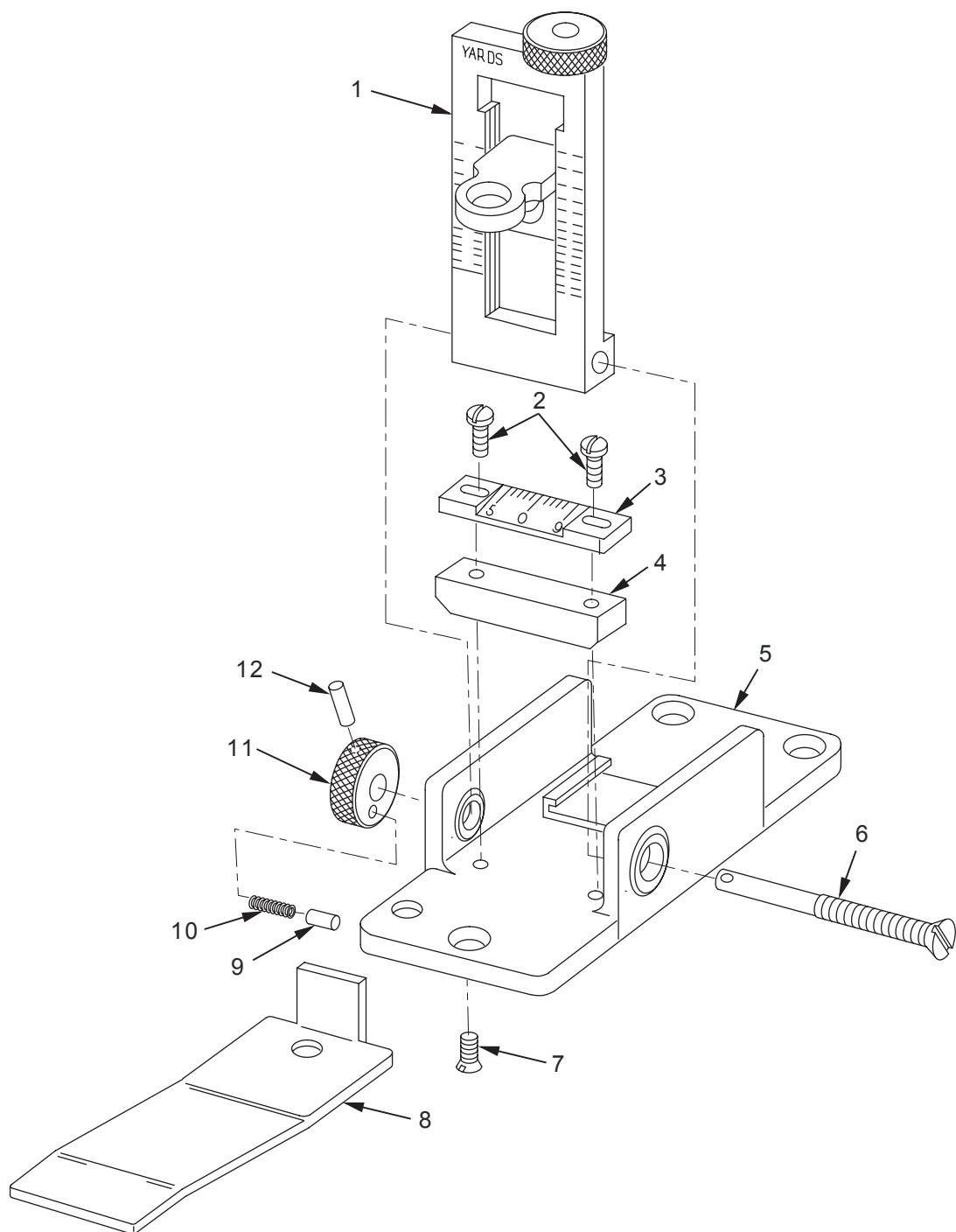


Figure 9. Rear Sight Assembly 12003047.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0109						
FIG. 9 SIGHT ASSEMBLY, REAR 12003047						
1	PAFZZ	1005-00-336-8608	19200	7267936	LEAF, REAR SIGHT ASSEMBLY, REAR FOLDING.....	1
2	PAFZZ	5305-00-501-3167	19200	5013167	SCREW, MACHINE REAR SIGHT, WINDAGE SCALE.....	2
3	PAFZZ	5355-00-501-3607	19200	5013607	DIAL, SCALE, REAR SIGHT .....	1
4	PAFZZ	1005-01-048-8572	19204	12003051	RISER, REAR SIGHT .....	1
5	XAFZZ		19204	12003056	BASE, REAR SIGHT ASSEMBLY .....	1
6	PAFZZ	5305-00-501-3160	19200	5013160	SETSCREW .....	1
7	PAFZZ	5305-00-958-9642	80204	MS35191-216	SCREW, MACHINE, RISER BLOCK.....	2
8	PAFZZ	5360-01-003-5476	19200	12003052	SPRING, FLAT, REAR SIGHT BASE .....	1
9	PAFZZ	5340-00-501-3155	19200	5013155	PLUNGER, DETENT WINDAGE .....	1
10	PAFZZ	5360-00-501-3154	19200	5013154	SPRING, HELICAL, COMPRESSION .....	1
11	PAFZZ	5355-00-600-8809	19200	6008809	KNOB, REAR SIGHT, WINDAGE SCREW .....	1
12	PAFZZ	5315-00-845-4231	96906	MS39086-56	PIN, SPRING .....	1

END OF FIGURE



FIELD MAINTENANCE

CARTRIDGE RECEIVER 6535480

REPAIR PARTS LIST

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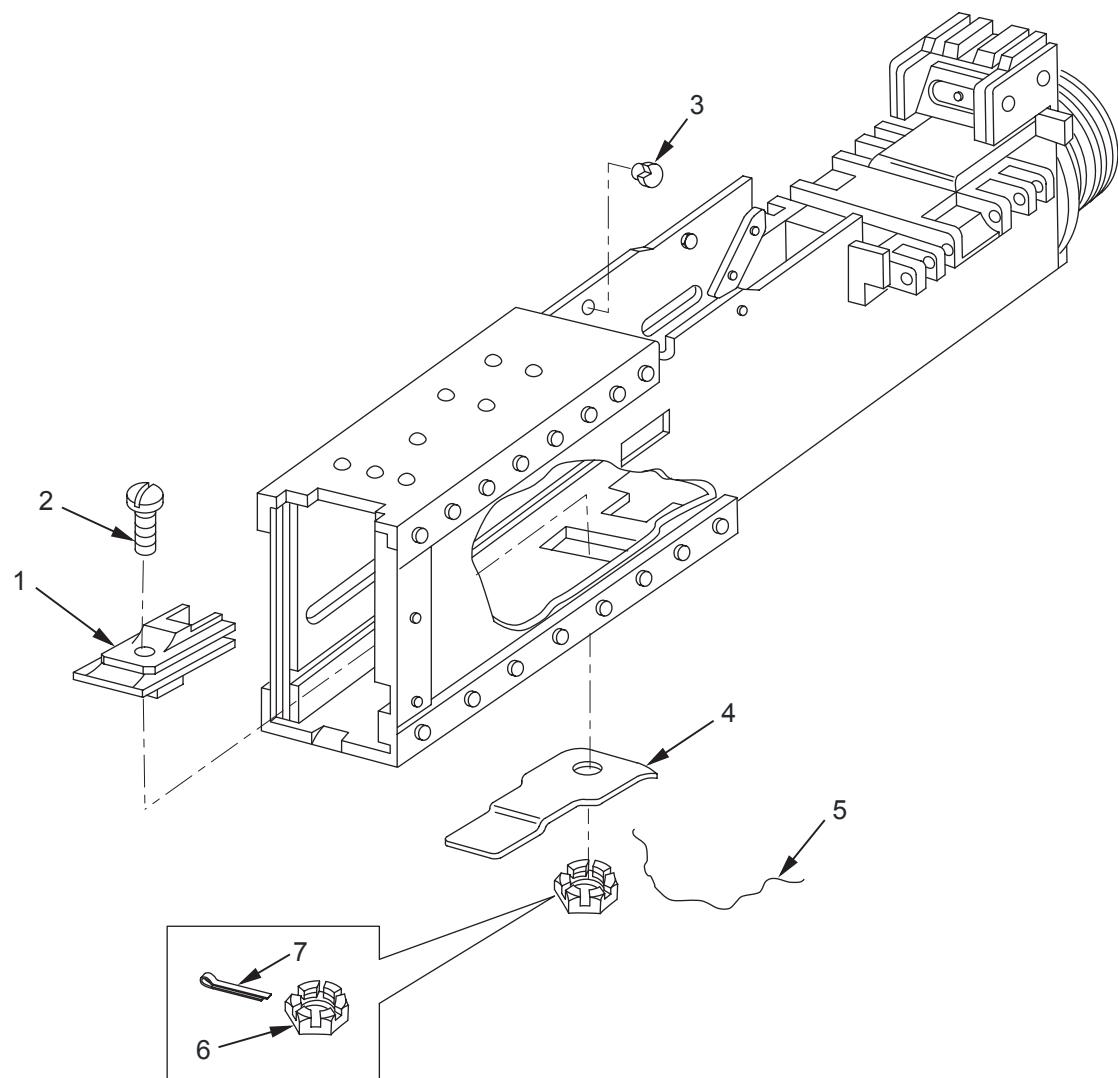


Figure 10. Cartridge Receiver 6535480.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0113						
FIG. 10 RECEIVER, CARTRIDGE 6535480						
1	PAFZZ	1005-00-614-7583	19200	6147583	CAM, BREECHLOCK .....	1
2	PAFZZ	5305-00-515-2938	19204	5152938	SCREW, MACHINE .....	1
3	PAFZZ	5315-00-500-9392	19200	5009392	STOP, BOLT .....	1
4	PAFZZ	5360-00-514-0428	19200	5140428	SPRING, FLAT .....	1
5	MOOZZ		80204	NASM20995- C41-56	WIRE, NONELECTRICAL MFD FROM NSN 9505-00-076-8640 .....	V
6	PAFZZ	5310-00-515-2939	19204	5152939	NUT, PLAIN, SLOTTED HEXAGON .....	1
7	PAFZZ	5315-00-298-1481	80205	MS24665-357	PIN, COTTER .....	1

END OF FIGURE



**FIELD MAINTENANCE****BULK MATERIAL****REPAIR PARTS LIST**

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 9999						
					FIG. BULK MATERIAL	
1	PAFZZ	9505-00-076-8640	96906	MS20995C41	WIRE, NONELECTRICAL CORROSION RESISTANCE STEEL (ESML) .....	V
2	PAFZZ	9505-00-684-4843	80205	ASTMA641	WIRE, NONELECTRICAL CARBON STEEL ZINC COATED (ESML).....	V
3	PAFZZ	9525-00-249-7441		ASTMB16	WIRE, NONELECTRICAL BRASS .....	V

**END OF FIGURE**



**TM 9-1005-347-23&P**

**0049 00**

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**FIELD MAINTENANCE**

**SPECIAL TOOLS**

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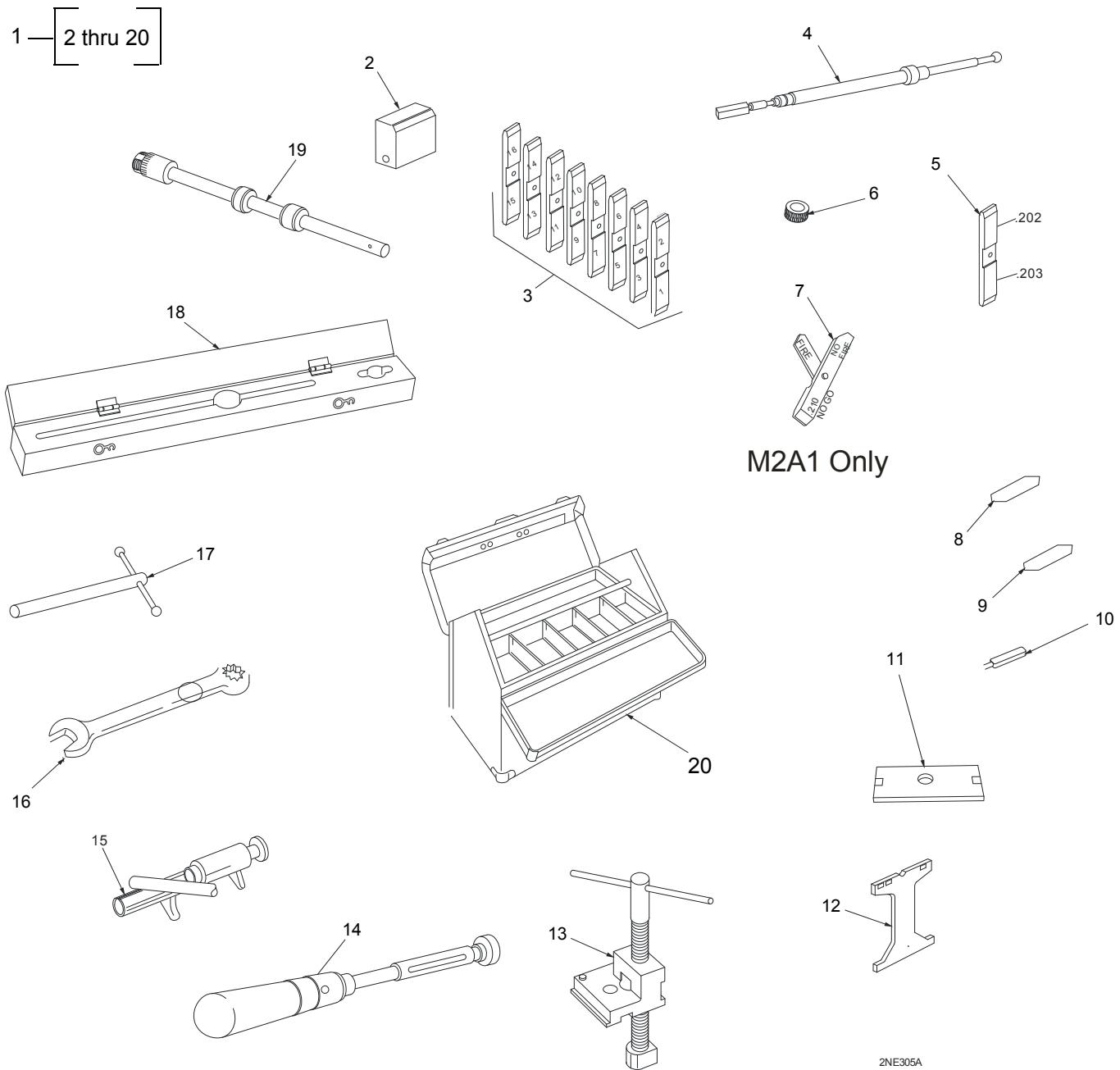


Figure 12. Special Tools/Tool Set 7265830.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 9999						
FIG. 12 SPECIAL TOOLS/TOOL SET, 7265830						
1	TBD	TBD	TBD	TBD	TOOL KIT, SPECIAL, CONSISTING OF: ....	1
2	PAFZZ	1005-01-541-2479	19200	13027997	.BREECH LOCK, M2A1 MASTER.....	1
3	PAFZZ	5210-01-541-3656	19200	13027998	.GAGE, BREECH LOCK SELECTION, M2A1 .....	1
4	PAFZZ	5210-00-317-2502	19204	7274725	.GAGE, BREECHBORE (BARREL EROSION).....	2
5	PAFZZ	5220-01-545-6073	19200	13027996	.GAGE, HEADSPACE .....	2
6	PAFZZ	5220-00-317-2503	19205	7274730	.GAGE, WEAR CHECK .....	2
7	PAOZZ	5220-01-580-6602	19200	13027994	.GAGE, WEAR LIMIT/TIMING .....	2
8	PAFZZ	5220-00-930-1845	19200	7799775	.PLUG GAGE, BARREL SUPPORT .....	1
9	PAFZZ	5220-00-930-1859	19200	7799808	.PLUG GAGE, BRASS BUSHING .....	1
10	PAFZZ	5220-00-507-7200	19200	5077200	.PLUG GAGE, FIRING PIN HOLE .....	2
11	PAFZZ	5220-00-197-4421	19205	7799739	.PROTRUSION GAGE, FIRING PIN .....	2
12	PAFZZ	5220-00-710-6326	19200	7106326	.ROD GAGE, OIL BUFFER .....	1
13	PAFZZ	4933-00-718-5892	19204	7185892	.TOOL ASSEMBLY, BOLT LATCH SPRING .....	1
14	PAFZZ	4933-00-624-3646	19205	6243646	.TOOL ASSEMBLY, FIRING PIN SPRING...	1
15	PAFZZ	4933-00-731-9903	19205	7319903	.TOOL ASSEMBLY, OIL BUFFER ROD.....	1
16	PAFZZ	5120-00-293-1324	03914	31-044	.WRENCH, 1-3/8 OPEN END .....	1
17	PAFZZ	5120-00-718-8742	19204	7188742	.WRENCH, SPANNER .....	1
18	PAFZZ	5140-00-313-9487	19205	7319997	.CASE, CARRYING GAGE.....	1
19	PAFZZ	5220-01-531-1672	26978	13027999	.BARREL (HEADSPACE), M2A1 MASTER..	2
20	PAFZZ	5140-00-473-6260	80244	7540995	.TOOL BOX, PORTABLE .....	1

END OF FIGURE



## FIELD MAINTENANCE

MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

## NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIGURE	ITEM	STOCK NUMBER	FIGURE	ITEM
5315-00-013-7137	1	30	5360-00-501-3516	7	6
5315-00-013-7137	7	12	5315-00-501-3523	1	43
5315-00-013-7146	8	9	5315-00-501-3524	1	37
9505-00-076-8640	BULK	1	1005-00-501-3540	1	63
5220-00-197-4421	12	11	1005-00-501-3541	1	64
5360-00-200-5800	6	2	5315-00-501-3546	1	68
5360-00-209-8720	4	13	5310-00-501-3556	1	31
5360-00-209-9691	1	65	5360-00-501-3566	1	52
5315-00-234-1861	1	41	5315-00-501-3581	2	19
5315-00-234-1861	6	8		3	14
5120-00-293-1324	12	17	1005-00-501-3588	1	67
9525-00-249-7441	BULK	3	5355-00-501-3607	9	3
9505-00-293-4208	2	29	5340-00-501-3611	1	58
	3	24	5315-00-501-3612	1	55
5315-00-298-1481	10	7	5360-00-501-3613	1	57
5315-00-299-1191	7	7	5306-00-501-3622	1	35
5360-00-299-1192	1	38	5310-00-501-3623	1	36
5305-00-299-1193	1	71	5306-00-501-3681	8	3
5140-00-313-9487	12	19	5310-00-501-3686	8	8
5210-00-317-2502	12	4	5315-00-501-3687	8	7
5220-00-317-2503	12	6	5360-00-501-3691	8	15
1005-00-336-8608	9	1	5360-00-501-3692	8	14
5320-00-471-5099	3	5	5360-00-501-3693	8	4
	3	6	5315-00-501-3694	8	2
5140-00-473-6260	12	20	5310-00-501-3697	8	12
5342-00-500-9266	6	7	5220-00-507-7200	12	10
5315-00-500-9271	1	4	5360-00-514-0428	10	4
5315-00-500-9273	4	3	5365-00-515-2750	3	9
5315-00-500-9275	2	13	5365-00-515-2834	2	23
	3	10		3	18
5360-00-500-9300	2	24	5340-00-515-2835	2	27
	3	19		3	22
5360-00-500-9351	7	16	5315-00-515-2839	2	25
5360-00-500-9352	2	2		3	20
5360-00-500-9352	3	2	5315-00-515-2854	2	6
5360-00-500-9353	4	9		3	8
5360-00-500-9356	2	21	1005-00-515-2869	2	28
	3	16		3	23
5315-00-500-9382	4	10	5305-00-515-2938	10	2
5315-00-500-9385	5	3	5360-00-515-2896	3	17
5315-00-500-9392	10	3	5360-00-515-2897	3	25
5305-00-500-9394	2	12	5310-00-515-2939	10	6
5360-00-500-9523	4	4	5315-00-526-2799	2	18
5360-00-501-3154	9	10		3	13
5340-00-501-3155	9	9	1005-00-535-1220	4	15
5305-00-501-3160	9	6	1005-00-550-4060	1	44
5305-00-501-3167	9	2	5355-00-550-4062	4	6
5315-00-501-3424	1	10	1005-00-550-4067	4	14
			5340-00-550-4071	2	1

STOCK NUMBER	FIGURE	ITEM	STOCK NUMBER	FIGURE	ITEM
5340-00-550-4071	3	1	5315-00-731-2970	7	4
1005-00-550-4094	2	26	3040-00-731-3069	1	2
	3	21	4933-00-731-9903	12	15
1005-00-550-8141	6	4	5315-00-732-2517	3	11
5340-00-556-4278	7	3	5310-00-800-3218	7	11
1005-00-556-4305	1	20	5315-00-842-3044	7	4
1005-00-557-7409	1	54	5315-00-842-3044	1	61
5360-00-597-1201	1	3	5315-00-845-4231	9	12
1005-00-600-8782	6	3	1005-00-918-2617	2	14
1005-00-600-8934	1	69	1005-00-918-2618	2	11
1005-00-600-8935	1	70		3	4
1005-00-600-8936	2	9	1005-00-927-7273	2	17
5340-00-600-8937	2	10		3	12
1005-00-600-8939	1	29	5220-00-930-1845	12	8
5360-00-600-8943	1	32	5220-00-930-1859	12	9
3040-00-600-8949	2	20	5305-00-958-9642	9	7
	3	15	1005-01-003-5475	1	26
1005-00-600-8959	4	1	5360-01-003-5476	9	8
3040-00-600-8961	7	1	1005-01-048-8572	9	4
1005-00-600-8962	7	15	5315-01-063-6872	1	6
3040-00-600-8975	1	59	1005-01-141-1235	6	1
1005-00-600-8976	4	8	1005-01-172-7725	1	63
1005-00-600-8990	8	5	5305-01-372-8426	1	8
5305-00-600-8993	8	10		8	17
1005-00-600-9718	4	17	5360-01-415-3267	2	31
1005-00-600-9732	4	5	5305-01-415-3269	1	19
5360-00-600-9741	7	8		2	30
3040-00-614-7085	8	13	1005-01-453-9289	1	5
5930-00-614-7461	1	33	1005-01-453-9290	12	16
1005-00-614-7463	4	7	1005-01-530-7824	1	13
1005-00-614-7511	3	27	5365-01-530-7825	1	49
1005-00-614-7583	10	1	1005-01-530-8724	1	15
1005-00-614-7893	8	1	1005-01-530-8726	1	48
5360-00-624-3607	2	22	5315-01-530-8727	1	17
4933-00-624-3646	12	14	5315-01-530-8728	1	51
5340-00-625-7592	1	45	1005-01-530-9640	1	16
1005-00-626-1110	7	14	5310-01-531-0866	1	23
1005-00-631-3800	8	11	5220-01-531-1672	12	16
5307-00-631-3822	8	16	5305-01-533-5173	1	24
5305-00-637-9395	1	25	1005-01-536-5639	1	16
5305-00-637-9395	1	28	1005-01-536-5640	1	16
1005-00-657-3953	1	7	1005-01-536-5641	1	16
9505-00-684-4843	BULK	2	1005-01-536-5642	1	16
5220-00-710-6326	12	12	1005-01-536-5643	1	16
5315-00-716-2872	1	61	1005-01-536-5645	1	16
4933-00-718-5892	12	13	1005-01-536-5646	1	16
5120-00-718-8742	12	18	1005-01-536-5647	1	16
1005-00-726-5212	1	46	9505-01-536-5728	1	9
1005-00-726-5561	2	15	1005-01-537-2576	1	16
1005-00-726-6835	6	6	1005-01-537-2578	1	16
1005-00-731-0080	4	12	1005-01-537-3760	1	16
5305-00-731-2028	1	27	1005-01-537-3763	1	16
5315-00-731-2078	4	16	1005-01-537-3768	1	16
5315-00-731-2517	2	16			
	3	7			
5340-00-731-2723	7	9			

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STOCK NUMBER	FIGURE	ITEM
1005-01-537-3769	1	16
1005-01-539-3410	1	12
1005-01-541-2478	1	11
1005-01-541-2479	12	2
5210-01-541-3656	12	3
1005-01-541-3657	1	16
1005-01-541-7232	1	16
5315-01-541-7233	1	18
1005-01-542-3029	1	14
5220-01-545-6073	12	5
1005-01-547-6523	1	1
1005-01-547-6524	2	3
1005-01-562-7409	1	1
5220-01-580-6602	12	7
1005-01-586-5017	1	21

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**END OF WORK PACKAGE**



## FIELD MAINTENANCE

## MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

## PART NUMBER INDEX

PART NUMBER	FIGURE	ITEM	PART NUMBER	FIGURE	ITEM
1968	2	27	5013607	9	3
1969	2	26	5013611	1	58
1994 (MB3955)	2	25	5013612	1	55
31-044	12	17	5013613	1	57
5009266	6	7	5013622	1	35
5009271	1	4	5013623	1	36
5009273	4	3	5013681	8	3
5009275	2	13	5013686	8	8
5009287	3	8	5013687	8	7
5009300	2	24	5013691	8	15
5009351	7	16	5013692	8	14
5009352	2	2	5013693	8	4
5009352	3	2	5013694	8	2
5009353	4	9	5013697	8	12
5009356	2	21	5077200	12	10
5009369	2	14	5140428	10	4
5009382	4	10	5152750	3	8
5009385	5	3	5152834	2	23
5009392	10	3	5152835	2	27
5009394	2	12	5152839	2	25
5009523	4	4	5152854	3	6
5009524	4	13	5152858	5	4
5013154	9	10	5152896	3	17
5013155	9	9	5152869	2	28
5013160	9	6	5152938	10	2
5013167	9	2	5152939	10	6
5013424	1	10	5153191	1	25
5013515	7	7	5153191	1	28
5013516	7	6	5262799	2	18
5013523	1	43	5351220	4	15
5013524	1	37	5504060	1	44
5013525	1	38	5504062	4	6
5013526	1	42	5504065	4	2
5013527	1	40	5504067	4	14
5013529	5	2	5504071	2	1
5013530	1	71	5504071	3	1
5013539	1	53	5504081	7	13
5013540	1	63	5504094	2	26
5013541	1	64	5508141	6	4
5013545	7	11	5564278	7	3
5013546	1	68	5564305	1	20
5013556	1	31	5564307	2	4
5013566	1	52	5577408	1	56
5013581	2	19	5577409	1	54
5013588	1	67			

PART NUMBER	FIGURE	ITEM	PART NUMBER	FIGURE	ITEM
6008782	6	3	7265581	1	50
6003936	3	9	7265582	1	50
6008790	6	5	7265583	1	50
6008809	9	11	7265584	1	50
6008914	7	2	7265585	1	50
6008918	3	3	7265586	1	50
6008919	1	39	7265587	1	50
6008920	1	51	7265585	1	50
6008928	7	10	7265589	1	50
6008931	7	5	7265590	1	50
6008934	1	69	7265591	1	8
6008935	1	70	7265596	8	17
6008936	2	6	7266821	1	19
6008937	2	10	7266835	6	6
6008939	1	29	7267936	9	1
6008943	1	32	7274725	12	4
6008946	4	11	7274730	12	6
6008949	2	20	7310080	4	12
6008959	4	1	7312028	1	27
6008961	7	1	7312030	1	24
6008962	7	15	7312078	4	16
6008975	1	59	7312517	2	16
6008976	4	8		3	7
6008990	8	5	7312723	7	9
6008993	8	10	7312970	7	4
6009718	4	17	7313068	1	3
6009732	4	5	7313069	1	2
6009741	7	8	7313083	1	66
6009832	6	2	7313106	1	47
6147085	8	13	7319903	12	15
6147461	1	33	7540995	12	20
6147463	4	7	7319997	12	19
6147583	10	1	7799739	12	11
6147893	8	1	7799775	12	8
6243607	2	22	7799808	12	9
6243646	12	14	8448125	1	34
6257592	1	45	9340487	6	1
6261110	7	14	11010439	1	7
6313800	8	11	11010440	8	6
6313822	8	16	11010453	2	17
6528256	5	1	12003047	1	26
6528309	1	5	12003051	9	4
6528322	1	21	12003052	9	8
6535475	2	11	12003056	9	5
	3	4	12003201	1	6
6535480	1	62	12Z5056-35	1	41
7106326	12	12	13016069	2	3
7160628	1	65	13016070	1	1
7162872	1	61	13018130	2	32
7185892	12	13	13018131	2	31
7188742	12	18	13018132	2	30
7265212	1	22	13019693	1	1
	1	46	13027965	1	12
7265561	2	15	13027966	1	13
7265580	1	50	13027970	1	14A

PART NUMBER	FIGURE	ITEM
13027971	1	14
13027972	1	48
13027973	1	49
13027974	1	15
13027976	1	17
13027977	1	24
	1	47
13027978	1	51
13027979	1	23
13027981	1	11
13027990	1	21
13027991	4	18
13027994	12	7
13027996	12	5
13027997	12	2
13028639	1	16
13028643	1	16
13028644	1	16
13028645	1	16
13028646	1	16
13028647	1	16
13028648	1	16
13028649	1	16
13028650	1	16
13028651	1	16
13028652	1	16
13028653	1	16
13028654	1	16
13028655	1	16
A10253	11	2
A10255	11	8
A10256	11	6
A10257	11	7
A10258	11	3
A10259	11	4
A10260	11	5
A10261	11	1
ASTMA641	BULK	1
GOV92608	12	16
MS16562-109	1	18
MS20995C32	2	24
MS20995C41	BULK	1
MS24665-283	1	60
MS24665-298	6	8
MS24665-357	10	7
MS24665-814	1	30
MS24665-814	7	12
MS24665-816	8	9
MS35191-216	9	7
MS39086-56	9	12
ASTMB16	BULK	2
NSSM20995C32	1	9

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**CHAPTER 6**  
**SUPPORTING INFORMATION**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****REFERENCES**

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**SCOPE**

This work package lists all field manuals, forms, technical manuals/technical orders, miscellaneous publications, and pamphlets referenced in this manual.

**FIELD MANUALS**

FM 17-12-1	Tank Combat Tables
FM 4-25.11	First Aid
FM 23-65	Machine Gun Caliber .50, HB, M2

**FORMS**

AFTO Form 22	Technical Order System Publication Improvement Report and Reply
AFTO Form 105	Inspection, Maintenance, and Firing Data for Ground Weapons
DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Work Sheet
NAVMC 10722	Marine Corps Recommended Changes to Publications
SF 364	Report of Discrepancy
SF 368	Product Quality Deficiency Report (Category II)

**RELATED PUBLICATIONS**

DOD 4160.21-M-1	Defense Demilitarization Manual
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**TECHNICAL BULLETINS**

- TB 9-1000-247-34 Standards for Overseas Shipment of Small Arms and Fire Control Materials
- TB 43-0240 Inspection and Calibration of Small Arms Gages—**Rescinded PUB**
- TB 43-180 Calibration and Repair Requirements for the Maintenance of Army Materiel

**TECHNICAL MANUALS/TECHNICAL ORDERS**

- SW 361-AO-MMO-010 Small Arms Machine Gun Mounts MK26, MK46, MK58, MK78, and MK82 Description, Operation, Maintenance and Illustrated Parts Breakdown
- TM 9-1005-213-10 Operator's Manual for Machine Gun,  
TO 11W2-6-3-161 Caliber .50, M2, Heavy Barrel,  
TM 02498A-10/1 Flexible and Turret Type and M2A1  
SW361-AB-MMO-010
- TM 9-1005-213-23&P Unit and Direct Support Maintenance Repair Parts and Special Tools List (Including Depot Repair Parts and Special Tools List) for Machine Gun, Caliber .50, M2, Heavy Barrel, Flexible and Turret Type and M2A1
- TM 9-1005-245-13&P Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts  
TM 9-1005-245-13&P/1 and Special Tools List (RPSTL) for Machine Gun Mounts and Combinations for Tactical/Armored Vehicles and Ground Mounting  
TO 11W2-8-1-322
- TM 9-1010-231-13&P Operator's, Unit, and Direct Support Maintenance Manual with Repair Parts  
TM 08686A-13&P/1 and Special Tools List (RPSTL) for Mount, Machine Gun, MK64  
TO 11W2-8-32-4
- TM 9-1300-206 Ammunition and Explosive Standards
- TM 9-4933-208-34 Kits, Barrel Erosion Gage M8, M6A1
- TM 750-244-7 Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1020, 1025, 1030, 1055, 1090, and 1095 to Prevent Enemy Use
- TM 4700-15/1 Equipment Record Procedures

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TO 00-35D-54	Air Force Material Deficiency Reporting and Investigating System
TO 11W-1-10	Historical Date Recording of Inspection, Maintenance, and Firing Data for Ground Weapons
TO 11W2-6-3-172	TBD

**MISCELLANEOUS PUBLICATIONS**

AFR 50-36	USAF Combat Arms Training and Maintenance Program
AFP 50-36, Volume 1	USAF Combat Arms Training and Maintenance
AR 750-1	Army Material Maintenance Policies
CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable/Durable Items (Except: Medical, Class V Repair Parts, and Heraldic Items)
MCO 4855.10	Product Quality Deficiency Report
MCO P4610.19	Transportation and Travel Record of Transportation Discrepancies
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking and Waterproofing; with Appropriated Test Methods
NASM 33540	General Practices for Safety Wiring and Cotter Pinning
SL 1-2/SL 1-3	Publications Stocked by USMC (INDEX) Program Training and Management and Range Operations

**PAMPHLETS**

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 750-8	The Army Maintenance Management System (TAMMS)

**END OF WORK PACKAGE**



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## FIELD MAINTENANCE

### MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)

#### MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

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This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

This MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Field – includes two subcolumns, Crew (C) and Maintainer (F).

Sustainment – includes two subcolumns, Below Depot (H) and Depot (D)

The maintenance to be performed at field and sustainment is described as follows:

1. Crew maintenance. The responsibility of a using organization to perform maintenance on its assigned equipment. It normally consists of inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies. The replace function for this level of maintenance is indicated by the letter "C" in the third position of the SMR code. A "C" appearing in the fourth position of the SMR code indicates complete repair is possible at the crew maintenance level.
2. Maintainer maintenance. Maintenance accomplished on a component, accessory, assembly, subassembly, plugin unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "F" appearing in the third position of the SMR code. An "F" appearing in the fourth position of the SMR code indicates complete repair is possible at the field maintenance level. Items are returned to the user after maintenance is performed at this level.
3. Below depot sustainment. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "H" appearing in the third position of the SMR code. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at the below depot sustainment maintenance level. Items are returned to the supply systems after maintenance is performed at this level.
4. Depot sustainment . Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. Depot sustainment maintenance can be performed by either depot personnel or contractor personnel. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot sustainment maintenance level. Items are returned to the supply systems after maintenance is performed at this level.

The tools and test equipment requirements table (immediately following the MAC) lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks table (immediately following the tools and test equipment requirements) contains supplemental instructions and explanatory notes for a particular maintenance function.

## Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gatings and evaluation of cannon tubes.
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. Service. Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following:
  - a. Unpack. To remove from packing box for service or when required for the performance of maintenance operations.
  - b. Repack. To return item to packing box after service and other maintenance operations.
  - c. Clean. To rid the item of contamination.
  - d. Touch-up. To spot paint scratched or blistered surfaces
  - e. Mark. To restore obliterated identification.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specific parameters.
5. Align. To adjust specific variable elements of an item to bring about optimum or desired performance.
6. Calibrate. To determine or cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is certified standard of known accuracy, to detect and adjust and discrepancy in the accuracy of the instrument being compared.
7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. Paint (ammunition only). To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.
9. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position of the Source, Maintenance and Recoverability (SMC) code.
10. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

**Maintenance Functions - Continued****NOTE**

The following definitions are applicable to the "repair" maintenance function:

Services – Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting – The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly – The step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least component identified as maintenance significant (i.e., assigned an SMR code) for the level of maintenance under consideration.

Actions – Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

11. Overhaul – That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to a like new condition.
12. Rebuild. Those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

**Explanation of Columns in the MAC**

Column (1) – Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies and modules with the Next Higher Assembly (NHA).

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

Column (3) – Maintenance Function. Column (3) lists the functions to be performed on the item listed in Column (2).

Column (4) – Maintenance level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as man-hours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

Field:

C Crew maintenance  
F Maintainer maintenance

**Explanation of Columns in the MAC - Continued****Sustainment:**

- L Specialized Repair Activity (SRA)
- H Below depot maintenance
- D Depot maintenance

**NOTE**

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) – Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) – Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

**Explanation of Columns in the Tools and Test Equipment Requirements**

Column (1) – Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) – Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) - Nomenclature. Name or identification of the tool or test equipment.

Column (4) – National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) – Tool Number. The manufacturer's part number.

**Explanation of Columns in the Remarks.**

Column (1) Remarks Code. The code recorded in remarks code entry of the MAC.

Column (2) – Remarks. This entry lists information pertinent to the maintenance function being performed as indicated in the MAC.

**TOOLS AND TEST EQUIPMENT REQUIREMENTS**

Table 1 lists all tools and test equipment, both special and common, required for maintaining the M2A1 machine gun. Common tools are not included in this table when they are part of an existing set, kit, or outfit authorized to the intended user; however, the authorized set, kit, or outfit which contains the prescribed common tools is listed.

**Explanation of Columns in the Tools and Test Equipment Requirements**

Column (1) – Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) – Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) – Nomenclature. Name or identification of the tool or test equipment.

**Explanation of Columns in the Tools and Test Equipment Requirements - Continued**

Column (4) – National Stock Number. The NSN of the tool or test equipment.

Column (5) – Tool Number. The manufacturer's part number, model number, or type number.

**Explanation of Columns in the Remarks**

Column (1) – Remarks Code. The code recorded in column (6) of the MAC.

Column (2) – Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

**END OF WORK PACKAGE**



**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****MAINTENANCE ALLOCATION CHART (MAC)****Table 1. MAC for M2A1 Machine Gun.**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
01	Machine Gun, M2A1 (13006168)	Repair Overhaul		1.6		6.0	6, 7			
01-01	PMCS Before	Inspect Service	0.4 0.3				7	A A		
01-02	PMCS During	Inspect	0.1					A		
01-03	PMCS After	Inspect Service	0.4 0.4				7	A A		
01-04	PMCS Quarterly	Service		0.2			7	A		
01-05	PMCS Yearly	Service		0.2			7	A		
01-06	PMCS Gaging	Inspect Service		0.3 0.7			1,2,3,7	A A		
0101	Flash Suppressor/Barrel Cap (7162072)	Inspect Repair		1.0 1.0						
0102	Back Plate Assembly, Spade Grip (13016070)	Repair	0.2	0.2			6,7			
010201	Back Plate Assembly, M1A2 Tank, APPL (13019693)	Repair	0.1	0.5			3			
0103	Fixed Headspace and Timing	Inspect Adjust		.1 .5			7 7			
0104	Bolt Assembly, Breech (6528322)	Inspect Repair	0.2 0.2	0.1 0.2			3,7			
010401	Extractor, Cartridge (6008959)	Inspect Repair	0.2 0.2	0.1 0.2			3,7			

**Table 1. MAC for M2A1 Machine Gun – Continued.**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANC E FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
010402	Extension Assembly, Firing Pin (13027974)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
010403	Sear Stop and Pin (13027991)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
010404	Bolt Sub- assembly (6147463)	Inspect	0.2	0.1			6,7			
		Repair	0.2	0.2						
0105	Buffer, Recoil Mechanism (7266821)	Inspect	0.2	0.1			3			
		Repair	01	0.2						
0106	Cover Assembly (6528309)	Inspect	0.2	0.1			6,7			
		Repair	0.2	0.2						
0107	Slide Assembly, Retracting (11010439)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
0109	Sight Assembly, Rear (12003047)	Inspect	0.2	0.1			3			
		Repair	0.2	0.3						
0110	Stop Assembly, Adjustable, Trigger Lever (7265212)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
0111	Latch Assembly, Bolt (8448125)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
0112	Stop Assembly, Cartridge, Rear (5577409)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						
0113	Receiver, Cartridge (6535480)	Inspect	0.2	0.1			3			
		Repair	0.2	0.2						

**Table 1. MAC for M2A1 Machine Gun – Continued.**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
0114	Handle, Manual Control, Barrel (5504080)	Inspect	0.2	0.1			1, 2, 3,7			
		Repair	0.2	0.3						
0115	Barrel Support (13027972)	Inspect		0.5			3			
		Repair		0.7						
0116	Barrel Assembly (13027965)	Repair		0.1			3			
0117	Left hand to Right Hand Conversion	Inspect		0.1			6			
		Repair	0.2	0.2						
0018	Gaging and Spring Replace- ment	Adjust		.2			7			
		Replace		.2						

**Table 2. Tools and Test Equipment for M2A1 Machine Gun.**

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	CROWBAR .....	5120-00-224-1390	10501985
2	F	FEELER GAGE.....	5120-00-221-1999	599-647
3	F	SHOP SET, SMALL ARMS: FIELD MAINTENANCE .....	4933-00-754-0664	SC4933-95-CLA11
4	F	TOOL KIT, SCREW THREAD.....	5180-00-935-0735	TBD
5	F	TOOL KIT, SCREW THREAD.....	5180-00-935-07365	TBD
6	F	TOOL KIT, SMALL ARMS.....	5180-01-559-5981	5180-95-B71
7	F	TOOL KIT, SPECIAL: FIELD MAINTENANCE .....	TBD	TBD

**REMARKS**

Table 3. Remarks for M2A1 Machine Gun

Reference Code	Remarks
A	Per SME, Inspect, Service, and Test times are rolled into PMCS FGCs 01-01 thru 01-06

**END OF WORK PACKAGE**

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**FIELD MAINTENANCE****MACHINE GUN, CALIBER .50: M2A1 (1005-01-511-1250)****EXPENDABLE AND DURABLE ITEMS LIST**

---

**INTRODUCTION****Scope**

This work package lists expendable and durable items that you will need to operate and maintain the M2A1 Machine Gun. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

**Explanation of Columns in the Expendable/Durable Items List**

Column (1) – Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., “Use Lubricant (item 20, WP 0055 00”).

Column (2) – Level. This column includes the lowest level of maintenance that requires the listed item (C=Operator/Crew).

C – Operator/Crew  
F – Field Maintenance

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

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

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

**EXPENDABLE AND DURABLE ITEMS****Table 1. Expendable and Durable Items List.**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
1	F	8030-00-251-3980	Anti-seizing Compound, High Temperature (81349) MIL-A-907	CN
2	F	8135-00-543-6574	Barrier Material: grease-proofed: interior packaging (81349) MIL-B-121	EA
3	F	8135-00-753-4661	Barrier Material: grease-proofed, waterproofed, flexible (81349) MIL-B-121	YD/RO
4	F	8115-01-019-7893	Box, Fiberboard: corrugated, triple-wall (81348) PPP-B-640	EA
5	F	8115-00-190-5002	Box, Fiberboard: weather resistant (81348) PPP-B-636	EA
6	F	8115-00-187-5195	Box, Wooden: nailed and locked, corner (81348) PPP-B-621	EA
7	F	8115-00-135-2424	Box, Wooden: pleated plywood (81348) PPP-B-601	EA
8	C	1005-00-550-4037	Brush, Cleaning, Small Arms Bore (19204) 5504037	EA
9	C	1005-00-766-0915	Brush, Cleaning, Small Arms Chamber (19204) 7790737	EA
10	C	6850-00-965-2332	Carbon Removing Compound (CRC): dip type, rinsing required (81348) P-C-111, type II	GL
11	F	DODAC 1305-A560	Cartridge, .50 Caliber, Dummy M2	AR
12	F	9150-01-054-6453	Cleaner, Lubricant, and Preservative (CLP) (81349) MIL-L-63460 1-pt (0.47-l) bottle with trigger sprayer	PT

**Table 1. Expendable and Durable Items List - Continued.**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
13	C	1005-00-556-4274	Cleaning Case (19204) 5564274	EA
14	C	6850-00-224-6657	Cleaning Compound, Rifle Bore (RBC) (81349) MIL-PRF-372 8-oz (237-ml) can	OZ
15	F	6850-01-474-2319 6850-01-474-2317 6850-01-474-2316	Cleaning Compound, Solvent (81349) MIL-PRF-680 1-gal can 5-gal can 55-gal can	GL GL GL
16	F	6850-01-567-2511	Cleaning Compound, Solvent (81349) MIL-PRF-680 TYPE II	GL
17	F	6850-00-224-6663	Cleaning Compound, Solvent: (81349) MIL-PRF-372 1-gal (3.79-l) can	GL
18	C	5350-00-221-0872	Cloth, Abrasive (80204) ANSI B74.18	EA/PG
19	F	6850-01-470-2737	Corrosion Inhibitor Packet (44695) 1-MUL POUCH	EA
20	F	8135-00-028-8634	Cushioning Material: cellulosic (81348) PPP-C-843	AR
21	F	8115-01-016-4438	Fiberboard: corrugated and solid sheet stock (container grade), and cut shapes (81348) PPP-F-320	AR
22	C	8415-00-823-7460	Gloves, Chemical Resistant: Type 3, (81348) ZZ-G-381	PR
23	F	9150-01-197-7689	Grease, Automotive and Artillery (GAA): -65 to +225 °F (-54 to +107 °C) effective temperature range 5-lb (2.27-kg) can (81349) M-10924-D	CN

**EXPENDABLE AND DURABLE ITEMS****Table 1. Expendable and Durable Items List - Continued.**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
24	C	9150-00-168-2000	Lubricant, Solid Film (81349) MIL-L-46147	CN
25	C	9150-00-687-4241	Lubricating Oil (LSA): 1-qt (0.95-l) can (81349) MIL-L-46000	QT
26		9150-00-231-6689 9150-00-231-9062	Lubricating Oil, General Purpose (PL-S): noncorrosive, low temperature 1-qt (0.95-l) can 5-gal (18.93-l) can (81348) VV-L-800	QT GL
27	F	7920-00-205-1711	Rag, Wiping: cotton (58536) A-A-531	LB
28	C	1005-00-653-5441	Rod, Cleaning, Small Arms (19204) 6535441	EA
29	C	1005-00-556-4102	Rod, Cleaning, Small Arms: set (19204) 5564102	EA
30	C	8105-00-921-5821	Small Arms Accessory Kit (19204) 11686430	EA
31	F	8135-00-286-8565	Strap, Steel (81348) QQ-S-781	LB
32	C	1005-00-716-2704	Swab Holder Section (19205) 7162704	EA
33	C	1005-00-288-3565	Swab, Small Arms Cleaning Cotton, 2-12 sq. in. 200 in bundle (19204) 5019316	EA/PG
34	F	7510-00-297-6655	Tape, Paper: opaque, water-resistant (81348) PPP-T-76	YD

**EXPENDABLE AND DURABLE ITEMS****Table 1. Expendable and Durable Items List - Continued.**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, PART NUMBER	(5) U/M
35	F	9505-00-076-8640	Wire, Non-Electrical, Corrosion Resistant Steel (ESML) (96906) MS20995C41	LB
36	F	9505-00-087-3956	Wire, Non-Electrical, Carbon Steel Zinc Coated (ESML) (96906) ASTMA641	LB
37	F	9525-00-249-7441	Wire, Non-Electrical, Brass (81346) ASTMB16	FT

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<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b>						<b>DATE</b> <i>Date you filled out this form.</i>	
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).	
<b>TO</b> ( <i>Forward to proponent of publication or form</i> ) ( <i>Include ZIP Code</i> ) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000						<b>FROM</b> ( <i>Activity and location</i> ) ( <i>Include ZIP Code</i> ) <i>Your mailing address</i>	
<b>PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>							
PUBLICATION/FORM NUMBER <i>TM Number</i>						DATE <i>Date of the TM</i>	TITLE <i>Title of the TM</i>
ITEM	PAGE	PARA-GRAF	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)	
SAMPLE							
TYPED NAME, GRADE OR TITLE <i>Your Name</i>			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <i>Your Phone Number</i>			SIGNATURE <i>Your Signature</i>	

<b>TO</b> (Forward direct to addressee listed in publication) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000				<b>FROM</b> (Activity and location) (Include ZIP Code) <i>Your Address</i>				<b>DATE</b> <i>Date you filled out this form</i>
<b>PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS</b>								
PUBLICATION NUMBER			DATE		TITLE			
<i>TM Number</i>			<i>Date of the TM</i>		<i>Title of the TM</i>			
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
<b>PART III – REMARKS</b> (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 <i>Your Name</i>			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <i>Your Phone Number</i>			SIGNATURE <i>Your Signature</i>		

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is OAASA							
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PUBLICATION/FORM NUMBER TM 9-1005-347-23&P					DATE 29 July 2011	TITLE Field Manual with RPSTL for Machine Gun, Caliber .50: M2A1 W/Fixed Headspace And Timing	
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
TYPED NAME, GRADE OR TITLE			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE	

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By Order of the Secretary of the Army:

Official:



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*Administrative Assistant to the  
Secretary of the Army*  
1117903

MARTIN E. DEMPSEY  
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Official:

MARK T. BRINKMAN  
*Program Manager, Infantry Weapons (PMM-132)*  
*Marine Corps Systems Command*

MICHAEL W. HAGEE  
*Commandant of the Marine Corps*

**DISTRIBUTION:**

To be distributed in accordance with initial distribution number (IDN) 401267 for TM 9-1005-347-23&P.

Marine Corps PCN 184 024985 00



## THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meter = 0.3937 Inch  
 1 Decimeter = 10 Centimeters = 3.94 Inches  
 1 Meter = 10 Decimeters = 100 Centimeters  
     = 1000 Millimeters = 39.37 Inches  
 1 Dekameter = 10 Meters = 32.8 Feet  
 1 Hectometer = 10 Dekameters = 328.08 Feet  
 1 Kilometer = 10 Hectometers = 1000 Meters  
     = 0.621 Mile = 3,280.8 Feet  
 Millimeters = Inches times 25.4  
 Inches = Millimeters divided by 25.4

### WEIGHTS

1 Centigram = 10 Milligrams = 0.154 Grain  
 1 Decigram = 10 Centigrams = 1.543 Grains  
 1 Gram = 0.001 Kilogram = 10 Decigrams  
     = 1000 Milligrams = 0.035 Ounce  
 1 Dekagram = 10 Grams = 0.353 Ounce  
 1 Hectogram = 10 Dekagrams = 3.527 Ounces  
 1 Kilogram = 10 Hectograms = 1000 Grams  
     = 2.205 Pounds  
 1 Quintal = 100 Kilograms = 220.46 Pounds  
 1 Metric Ton = 10 Quintals = 1000 Kilograms  
     = 1.1 Short Tons

### LIQUID MEASURE

1 Milliliter = 0.001 Liter = 0.034 Fluid Ounce  
 1 Centiliter = 10 Milliliters = 0.34 Fluid Ounce  
 1 Deciliter = 10 Centiliters = 3.38 Fluid Ounces  
 1 Liter = 10 Deciliters = 1000 Milliliters  
     = 33.82 Fluid Ounces  
 1 Dekaliter = 10 Liters = 2.64 Gallons  
 1 Hectoliter = 10 Dekaliters = 26.42 Gallons  
 1 Kiloliter = 10 Hectoliters = 264.18 Gallons

### SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inch  
 1 Sq Decimeter = 100 Sq Centimeters = 15.5 Sq Inches  
 1 Sq Meter (Centare) = 10 Sq Decimeters  
     = 10,000 Sq Centimeters = 10.764 Sq Feet  
 1 Sq Dekameter (Are) = 100 Sq Meters = 1,076.4 Sq Feet  
 1 Sq Hectometer (Hectare) = 100 Sq Dekameters  
     = 2.471 Acres  
 1 Sq Kilometer = 100 Sq Hectometers  
     = 1,000,000 Sq Meters = 0.386 Sq Mile

### CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.061 Cu Inch  
 1 Cu Decimeter = 1000 Cu Centimeters = 61.02 Cu Inches  
 1 Cu Meter = 1000 Cu Decimeters  
     = 1,000,000 Cu Centimeters = 35.31 Cu Feet

### TEMPERATURE

$5/9 (\text{°F} - 32) = \text{°C}$   
 $(9/5 \times \text{°C}) + 32 = \text{°F}$   
 -35° Fahrenheit is equivalent to -37° Celsius  
 0° Fahrenheit is equivalent to -18° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 90° Fahrenheit is equivalent to 32.2° Celsius  
 100° Fahrenheit is equivalent to 38° Celsius  
 212° Fahrenheit is equivalent to 100° Celsius

### APPROXIMATE CONVERSION FACTORS

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>	<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Inches .....	Centimeters.....	2.540	Centimeters .....	Inches.....	0.394
Feet.....	Meters.....	0.305	Meters.....	Feet.....	3.280
Yards .....	Meters.....	0.914	Meters.....	Yards.....	1.094
Miles .....	Kilometers.....	1.609	Kilometers .....	Miles .....	0.621
Square Inches .....	Square Centimeters .....	6.451	Square Centimeters .....	Square Inches.....	0.155
Square Feet .....	Square Meters.....	0.093	Square Meters .....	Square Feet .....	10.764
Square Yards.....	Square Meters.....	0.836	Square Meters .....	Square Yards.....	1.196
Square Miles .....	Square Kilometers .....	2.590	Square Kilometers .....	Square Miles.....	0.386
Acres .....	Square Hectometers .....	0.405	Square Hectometers....	Acres .....	2.471
Cubic Feet .....	Cubic Meters .....	0.028	Cubic Meters .....	Cubic Feet.....	35.315
Cubic Yards .....	Cubic Meters .....	0.765	Cubic Meters .....	Cubic Yards .....	1.308
Fluid Ounces .....	Milliliters.....	29.573	Milliliters.....	Fluid Ounces .....	0.034
Pints .....	Liters .....	0.473	Liters .....	Pints .....	2.113
Quarts .....	Liters .....	0.946	Liters .....	Quarts .....	1.057
Gallons .....	Liters .....	3.785	Liters .....	Gallons .....	0.264
Ounces .....	Grams .....	28.349	Grams .....	Ounces .....	0.035
Pounds .....	Kilograms .....	0.454	Kilograms .....	Pounds .....	2.205
Short Tons .....	Metric Tons .....	0.907	Metric Tons .....	Short Tons .....	1.102
Pound-Feet .....	Newton-Meters.....	1.356	Newton-Meters.....	Pound-Feet .....	0.738
Pounds-Inches.....	Newton-Meters.....	0.11375	Kilopascals .....	Pounds per Square Inch.....	0.145
Pounds per Square Inch..	Kilopascals .....	6.895	Kilometers per Liter ...	Miles per Gallon.....	2.354
Ounce-Inches.....	Newton-Meters.....	0.007062	Kilometers per Hour ...	Miles per Hour .....	0.621
Miles per Gallon.....	Kilometers per Liter .....	0.425	°Fahrenheit .....	°Celsius.....	$^{\circ}\text{C} = (\text{°F}-32)\times 5/9$
Miles per Hour .....	Kilometers per Hour .....	1.609	°Celsius .....	°Fahrenheit .....	$^{\circ}\text{F} = (9/5\times^{\circ}\text{C})+32$

PIN: 086877-000