TM 9-2113

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORDNANCE
MAINTENANCE

CAL. .50
SPOTTING
RIFLE M8
(T46E2)

DEPARTMENT OF THE ARMY • JANUARY 1956

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CAL. .50 SPOTTING RIFLE M8 (T46E2)

CHAPTER 1
INTRODUCTION

Figure 1. Cal. .50 spotting rifle M8 (T46E2)—three-quarter left front view and three-quarter right rear view.

Section I. GENERAL

1. Scope

a. This manual is published for the information and guidance of personnel responsible for field and depot maintenance of this materiel (fig. 1). It contains information on maintenance which is beyond the scope of the tools, equipment, or supplies normally available to using organizations. This manual does not contain information which is intended primarily for the using organization, since such information is available to ordnance maintenance personnel in the pertinent operator's technical manuals or field manuals.

b. This manual contains a description of, and procedures for removal, disassembly, inspection, repair, rebuild, and assembly of the cal. .50 spotting rifle M8 (T46E2). The appendix contains a list of current references, including supply and technical manuals, and other available publications applicable to the materiel.

c. TM 9–3058 contains operating and lubricating instructions for the materiel and contains all maintenance operations allocated to using organizations in performing maintenance work within their scope.

d. This first edition is being published in advance of complete technical review of all concerned. Any errors or omissions will be brought to the attention of the Chief of Ordnance, Department of the Army, Washington 25, D. C., ATTN: ORDFM-Pub.

2. Field and Depot Maintenance Allocation

The publication of instructions for complete disassembly and rebuild is not to be construed as authority for the performance by field maintenance units of those functions which have been restricted to depot shops and arsenals. In general, the prescribed maintenance responsibilities will apply as reflected in the allocation of maintenance parts listed in the appropriate columns of the current ORD 8 supply manuals pertaining to this weapon. Instructions for depot maintenance are to be used by maintenance companies in the field only when the tactical situation makes the repair functions imperative. Provisions of parts listed in the depot guide column of ORD 8 supply manuals will be made to field maintenance only when the maintenance to be performed has been certified by a responsible officer of the requisitioning organization.

3. Forms, Records, and Reports

a. General. Responsibility for the proper execution of forms, records, and reports rests upon the officers of all units maintaining this equipment. However, the value of accurate records must be fully appreciated by all persons responsible for compilation, maintenance, and use. Records, reports, and authorized forms are normally utilized to indicate the type, quantity, and condition of materiel to be inspected, repaired, or used in repair. Properly executed forms convey authorization and serve as records for repair or replacement of materiel in the hands of troops and for delivery of materiel requiring further repair to ordnance shops in arsenals, depots, etc. The forms, records, and reports establish the work required, the progress of the work within the shops, and the status of the materiel upon completion of its repair.

b. Authorized Forms. The forms generally applicable to units maintaining these weapons are listed in the appendix. For a complete listing of all forms, see current DA Pamphlet 310–2. Additional forms applicable to the using personnel are listed in the operator's manual. For instructions on use of these forms, refer to FM 9–10.

c. Field Reports of Accidents.

(1) *Injury to personnel or damage to materiel.* The reports necessary to comply with the requirements of the Army safety program are prescribed in detail in the SR 385–10–40 series of special regulations. These reports are required whenever accidents involving injury to personnel or damage to materiel occur.

(2) *Ammunition.* Whenever an accident or malfunction involving the use of ammunition occurs, firing of the lot which malfunctions will be immediately discontinued. In addition to any applicable reports required in (1) above, details of the accident or malfunction will be reported as prescribed in SR 385–310–1.

d. Report of Unsatisfactory Equipment or Materials. Any suggestions for improvement in design and maintenance of equipment and spare parts, safety and efficiency of operation, or pertaining to the application of prescribed lubricants, and/or preserving materials, or technical inaccuracies noted in Department of the Army manuals, will be reported through technical channels, as prescribed in AR 700–38, to the Chief of Ordnance, Department of the Army, Washington 25, D. C., ATTN: ORDFM, using DA Form 468, Unsatisfactory Equipment Report. Such suggestions are encouraged so that other organizations may benefit.

Note. Do not report all failures that occur. Report only REPEATED or RECURRENT failures which indicate unsatisfactory design or material. See also AR 700–38 and the printed instructions on DA Form 468.

Section II. DESCRIPTION AND DATA

4. Description

a. The cal. .50 spotting rifle M8 (T46E2) (fig. 1) is a magazine-fed, percussion-fired, gas-operated, semiautomatic rifle. The receiver is a cylindrically shaped steel casting. A firing mechanism assembly is attached to the receiver by the front and rear housing pins. The barrel assembly is screwed to the receiver and the gas cylinder group is located near the center of the barrel assembly. The gas cylinder body is locked to the barrel by a tapered pin driven into the holes in gas cylinder body and notch on the barrel.

b. Expanding gas from fired cartridge is bled into gas cylinder from the barrel port and actuates the operating rod assembly. The rod assembly moves the bolt slide group rearward against the pressure of two driving springs. A needle shaped gas screw regulator, inserted in the gas cylinder, controls the gas port opening.

c. The plastic buffer disk of the buffer assembly receives recoil energy from the slide group. Guide rods position the driving springs in the slide and are locked in slots of buffer assembly. Two bolt guides permit movement between the bolt slide and bolt assembly. The firing pin retractor holds the firing pin in retracted or safe position until the slide is in the battery position. Extraction and ejection are effected during rearward travel of bolt slide group. The cartridge ejector is held in the bolt lock by a spring pin. The front surface of bolt lock acts as the locking surface when the bolt is in battery.

d. The hammer in the firing mechanism assembly is cocked by the recoiling bolt. The sear release assembly holds the hammer and sear in the cocked position. The firing cable or firing rod attached to the sear release, when pulled, moves the sear release assembly and frees sear. This releases hammer from sear notch and allows hammer spring to rotate hammer against firing pin. The safety slide in forward position locks the sear against the safety, preventing release of the hammer. The bolt assembly cocks the hammer during its rearward travel.

e. The magazine assembly, which holds 10 rounds, is held in the firing mechanism housing by the tang of the front magazine catch. The rear magazine catch is depressed to release the front magazine catch. The rounds are fed into the top of magazine by pressure of the magazine spring.

5. Tabulated Data

Weight	26.06 lb
Overall length	48.89 in
Overall height (including magazine)	11.16 in.
Overall width	3.33 in
Barrel length	32.00 in.
Rifling:	
Number of grooves	8
Right-hand twist	one turn in 12 in
Depth of grooves	0.010 in
Firing rod pull	5 to 10 lb
Capacity of magazine assembly	10 rds
Rate of fire	semiautomatic
Cooling	air
Ammunition	cal. .50 spotter-tracer cartridge M48 (T189E1)

CHAPTER 2

PARTS, SPECIAL TOOLS, AND EQUIPMENT FOR FIELD AND DEPOT MAINTENANCE

6. General

Tools and equipment and maintenance parts over and above those available to the using organization are supplied to ordnance field maintenance units and depot shops for maintaining, repairing, and/or rebuilding the materiel.

7. Parts

Maintenance parts are listed in Department of the Army Supply Manual ORD 8 SNL B–48, which is the authority for requisitioning replacements. Parts not listed in an ORD 8 supply manual, but required by depot shops in rebuild operation may be requisitioned from the listing in the corresponding ORD 9 supply manual and will be supplied if available, when the need is substantiated. Requisitions for ORD 9 parts will contain a complete justification of requirements.

8. Common Tools and Equipment

Standard and commonly used tools and equipment having general application to this materiel are listed in ORD 6 SNL J–8, Section 6 and J–10, Sections 1, 2, and 15, and authorized for issue by TA and TOE.

9. Special Tools and Equipment

The special tools and equipment tabulated in table I are listed in Department of the Army supply manual ORD 7 SNL C–93 and/or will be listed in ORD 6 SNL J–12. This tabulation contains only those special tools and equipment necessary to perform the operations described in this manual, is included for information only and is not to be used as a basis for requisitions.

Item	Identifying No.	References		Use
		Fig.	Par.	
BRUSH, chamber cleaning, M6.	6108828	2	———	To clean chamber of barrel.
BRUSH, cleaning, cal. .50, M4.	5504037	2	———	To clean bore of barrel.
EXTRACTOR, ruptured cartridge case, special, cal. .50.	7266967	2	———	To remove separated cartridge case.
REFLECTOR, barrel, cal. .50.	5564255	2	60*a*	To inspect serviceability of barrel.
ROD, cleaning, jointed, cal. .50, M7.	6535441	2	———	To hold cleaning brush M4 and cleaning patches.

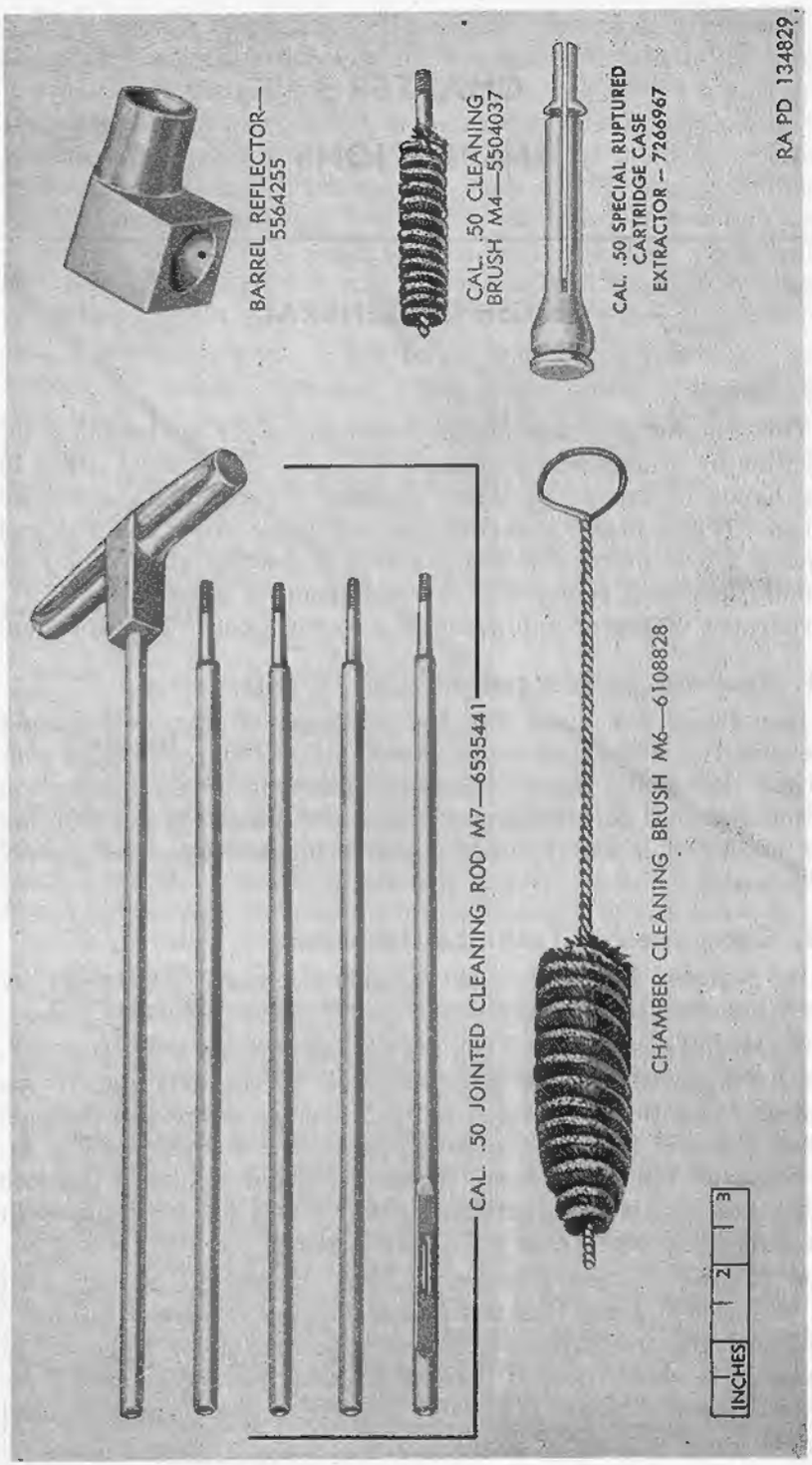

Figure 2. Special tools and equipment for cal. .50 spotting rifle M8 (T46E2).

CHAPTER 3

INSPECTIONS

Section I. GENERAL

10. Scope

This chapter provides specific instructions for the technical inspection by ordnance maintenance personnel of materiel either in the hands of troops or when received for repair in ordnance shops. It also briefly describes the in-process inspection materiel during repair or rebuild and the final inspection after repair or rebuild has been completed. Troubleshooting information is incorporated wherever applicable as a normal phase of inspection.

11. Purposes of Inspections

Inspections are made for the purposes of (1) determining the condition of an item as to serviceability, (2) recognizing conditions that would cause failure, (3) assuring proper application of maintenance policies at prescribed levels, and (4) determining the ability of a unit to accomplish its maintenance and supply missions.

12. Categories of Technical Inspection

In general, five categories of inspection are performed by ordnance maintenance personnel.

a. Overall Inspection. This is a periodic overall inspection performed by a contact party on materiel in the hands of troops and an inspection performed by maintenance company personnel when materiel is evacuated to the ordnance company. The inspection of materiel evacuated is more thorough and includes check and repair of minor points that would not be required in the inspection performed by a contact party.

b. Preembarkation Inspection. This inspection is conducted on materiel in alerted units scheduled for oversea duty to insure that such materiel will not become unserviceable or worn out in a relatively short time. It prescribes a higher percentage of remaining usable life in serviceable materiel to meet a specific need beyond minimum serviceability.

c. In-process Inspections. These are inspections performed in the process of repairing (field maintenance) or rebuilding (depot maintenance) the materiel as prescribed in chapter 4. This is to insure that all parts conform to the prescribed standards, that the workmanship is in accordance with approved methods and procedures, and that deficiencies not disclosed by the preliminary inspection are found and corrected. Detailed instructions are contained in chapter 4. A tabulated listing of these same repair and rebuild standards is also provided in chapter 6 for ready reference.

d. Final Inspection. This is an acceptance inspection performed by a final inspector, after repair or rebuild has been completed, to insure that the materiel is acceptable for return to user or for return to stock according to the standards established. Detailed instructions are contained in chapter 5.

e. Spot-check Inspection. This is a periodic overall inspection performed on only a percentage of the materiel in each unit to determine the adequacy and effectiveness of organizational and field maintenance.

Section II. TECHNICAL INSPECTION

13. General

Warning: Before starting a technical inspection, be sure to clear the weapon. Do not touch the trigger until the weapon has been cleared. Inspect the chamber to insure that it is empty and check to see that no ammunition is in position to be introduced. Avoid having live ammunition in the vicinity of the work.

a. Preparatory Procedures.

(1) Check to see that the weapon has been cleaned of all corrosion-preventive compound, grease, excessive oil, dirt, or foreign matter which might interfere with proper functioning or obscure the true condition of the parts.

(2) Make an overall inspection of the weapon for general appearance, condition, operation, and manual functioning. Use dummy or drill cartridges.

b. Inspection Guide. Table II is provided as a check list to be used as a guide for the inspection of weapons in the hands of troops. The overall inspection column lists the standards denoting minimum serviceability and the next column lists the standards for preembarkation inspection.

Note. The additional columns are provided for comparative information only to show the standards that are desired when the weapon is repaired or rebuilt in ordnance field or depot shops.

Table II. Inspection Guide for Cal. .50 Spotting Rifle M8 (T46E2)

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
Finish	Light gray to dense black in color. Exterior parts having a distinct shine will be used for training purposes only.	Light gray to dense black in color. Exposed surfaces will be dull enough to prevent glare.	Exposed surfaces will have a dull finish and will be free of bends and cracks.	Approximate a new finish.
Barrel group.	Barrel chamber will be free from pits causing extraction difficulties. Barrel will be free of bulges, pits, and corrosion. Gas port will be free of corrosion and carbon. The operating rod assembly will not be bent and will fit smoothly into receiver well. The gas piston will not be worn excessively on rings. Examine gas cylinder body for stripped thread and worn gas cylinder notch. Examine operating spring stop	Barrel chamber will be free from pits causing extraction difficulties. Barrel will be free of bulges, pits, and corrosion. Gas port will be free of corrosion and carbon. The operating rod assembly will not be bent and will fit smoothly into receiver well. The gas piston will not be worn excessively on rings. Examine gas cylinder body for stripped threads and worn gas cylinder notch.	Barrel chamber will be free from pits causing extraction difficulties. Barrel will be free of bulges, pits, and corrosion. Gas port will be free of corrosion and carbon. Taper pin groove will not show wear. The operating rod assembly will not be bent and will fit smoothly into receiver well. The clearance between face of receiver and operating rod assembly shoulder will be between 0.45 and 0.68 inch.	Each rifle will be equipped with new barrel unless the barrel condition simulates a new barrel. The operating rod assembly will not be bent and will fit smoothly into receiver well. The clearance between face of receiver and operating rod assembly shoulder will be between 0.45 and 0.68 inch.

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
	for worn nosing.		The gas piston will not be worn excessively on rings.	
		Examine operating spring stop for worn nosing.	Examine gas cylinder body for stripped threads and worn gas cylinder notch. Inspect cylinder well of body for scoring. Examine operating spring stop for worn nosing.	The gas piston will not be worn excessively on rings. Examine gas cylinder body for stripped threads and worn gas cylinder notch. Inspect cylinder well of body for scoring. Examine barrel rings of body for bending. Examine operating spring stop for worn nosing.
Bolt assembly.	The bolt assembly will slide freely in bolt slide and sliding surfaces will not be worn. Examine extractor for gripping of extractor claw over base of cartridge. Firing pin will fit smoothly	The bolt assembly will slide freely in bolt slide and sliding surfaces will not be worn. Examine extractor for gripping of extractor claw over base of cartridge. Firing pin will fit smoothly	The bolt assembly will slide freely in bolt slide and sliding surfaces will not be worn. Examine extractor for gripping of extractor claw over base of cartridge. Firing pin will fit smoothly	The bolt assembly will slide freely in bolt slide and sliding surfaces will not be worn. Examine extractor for gripping of extractor claw over base of cartridge. Firing pin will fit smoothly

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
	into bolt well. Firing pin retractor will not be worn on camming surfaces.	into bolt well. Firing pin retractor will not be worn on camming surfaces.	into bolt well. Examine firing pin for wear in extractor slot, hammer end, and primer nose. Firing pin retractor will not be worn on camming surfaces.	into bolt well. Examine firing pin for wear in retractor slot, hammer end, and primer nose. Firing pin retractor will not be worn on camming surfaces.
Bolt slide group.	Examine guide rods for straightness and roundness. Examine driving springs for set and kinks. Buffer assembly will be held tight on receiver locking projections. Inspect bolt slide keys and keyways for burs and gouges.	Examine guide rods for straightness and roundness. Examine driving springs for set and kinks. Buffer assembly will be held tight on receiver locking projections. Inspect bolt slide keys and keyways for burs and gouges.	Examine guide rods for straightness and roundness. Inspect guide rods end pins for wear and bending. Free length of driving springs should be between 16.850 and 17.100 inches. Buffer assembly will be held tight on receiver locking projections. Inspect bolt slide keys and keyways for burs and gouges. Examine camming surfaces of bolt slide for wear.	Examine guide rods for straightness and roundness. Inspect guide rods end pins for wear and bending. Free length of driving spring should be between 16.850 and 17.100 inches. Buffer assembly will be held tight on receiver locking projections. Examine flat head rivets for looseness and buffer disk for galling. Inspect bolt slide keys and keyways for burs and gouges. Examine camming surfaces of bolt slide for wear.

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
Firing mechanism assembly.	Examine hammer for wear on sear tang and firing pin nose. Inspect sear for free movement on retaining pin. Examine sear release assembly for free movement of sear release and tension of sear release spring. Examine rear magazine catch for deformation. Check front magazine catch for wear on magazine tang and free movement in firing mechanism housing slot. Safety should move easily in housing slot and will be securely peened to	Examine hammer for wear on sear tang and firing pin nose. Inspect sear for free movement on retaining pin. Examine sear for wear at hammer release slot and hammer notch. Examine sear release assembly for free movement of sear release and tension of sear release spring. Examine rear magazine catch for deformation. Check front magazine catch for wear on magazine tang and free movement in firing mechanism housing slot.	Examine hammer for wear on sear tang and firing pin nose. The force required to release hammer should be 10 pounds maximum. Inspect sear for free movement on retaining pin. Examine sear for wear at hammer release slot and hammer notch. The maximum travel of firing rod to release sear will be 0.200 inch. Examine sear release assembly for free movement of sear release and tension of sear release spring. Examine sear holding	burs and gouges. Examine camming surfaces of bolt slide for wear. Examine hammer for wear on sear tang and firing pin nose. The force required to release hammer should be 10 pounds maximum. Inspect sear for free movement on retaining pin. Examine sear for wear at hammer release slot and hammer notch. The maximum travel of firing rod to release sear will be 0.200 inch. Examine sear release assembly for free movement of sear release and tension of sear release spring. Examine sear holding

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
	safety slide. Examine firing mechanism housing for dents and deformation.	Safety should move easily in housing slot and will be securely peened to safety slide. Examine firing mechanism housing for dents and deformation.	notch on sear release for burs. The minimum force returning the sear release to cocked. position is 5 pounds. Examine rear magazine catch for deformation. Check front magazine catch for wear on magazine tang and free movement in firing mechanism housing slot. Safety should move easily in housing slot and will be securely peened to safety slide. Examine locking indent on safety slide rivet for wear. Examine firing mechanism housing for dents and deformation. Examine housing for loose rivets or welds.	notch on sear release for burs. The minimum force returning the sear release to cocked position is 5 pounds. Examine rear magazine catch for deformation. Check front magazine catch for wear on magazine tang and free movement in firing mechanism housing slot. Examine

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
				magazine catch yoke pin for proper peening to front magazine catch. Safety should move easily in housing slot and will be securely peened to safety slide. Examine locking indent on safety slide rivet for wear. Safety slide rivet will be below housing surface at least 0.005 inch.
Gas cylinder group.	Check for snappy cartridge ejection to see if readjustment of gas screw regulator is necessary. Examine gas screw regulator for corrosion and stripped threads. Inspect gas port and bore of gas cylinder for excessive carbon.	Check for snappy cartridge ejection to see if readjustment of gas screw regulator is necessary. Examine gas screw regulator for corrosion and stripped threads. Inspect gas port and bore of gas cylinder for excessive carbon.	Check for snappy cartridge ejection to see if readjustment of gas screw regulator is necessary. Examine gas screw regulator for corrosion and stripped threads. Inspect gas port and bore of gas cylinder for excessive carbon.	Check for snappy cartridge ejection to see if readjustment of gas screw regulator is necessary. Examine gas screw regulator for corrosion and stripped threads. Examine index numerals on regulator bushing for clarity. Inspect gas port and

Table II—Continued

Point to be inspected	Overall inspection	Preembarkation inspection	Final inspection-field maintenance	Final inspection-depot maintenance
				bore of gas cylinder for excessive carbon.
Magazine assembly.	Check magazine assembly for secure fit in housing well. Magazine follower should slide freely in magazine tube.	Check magazine assembly for secure fit in housing well. Magazine follower should slide freely in magazine tube.	Check magazine assembly for secure fit in housing well. Magazine follower should slide freely in magazine tube.	Check magazine assembly for secure fit in housing well. Magazine follower should slide freely in magazine tube.
Receiver group.	Examine slideways of receiver for wear or burs.	Examine slideways of receiver for wear or burs.	Examine slideways of receiver for wear or burs.	Examine slideways of receiver for wear or burs.
	Check buffer holding lugs on receiver for worn edges.	Check buffer holding lugs on receiver for worn edges.	Check buffer holding lugs on receiver for worn edges.	Check buffer holding lugs on receiver for worn edges.
	Inspect tang of cartridge ejector for wear.	Inspect tang of cartridge ejector for wear.	Inspect tang of cartridge ejector for wear.	Inspect tang of cartridge ejector for wear.
	Bolt lock should be held securely in receiver.	Bolt lock should be held securely in receiver.	Bolt lock should be held securely in receiver.	Bolt lock should be held securely in receiver.
			Inspect locking surface of bolt lock for wear.	Inspect locking surface of bolt lock for wear.

14. Inspection of Materiel in the Hands of Troops

a. General. Refer to TM 9–1100 for responsibilities and fundamental duties of inspecting personnel, the necessary notice and preparations to be made, forms to be used, and general procedures and methods to be followed by inspectors. Materiel to be inspected includes organizational spare parts and equipment and the stocks of cleaning and preserving materials. In the course of this technical inspection, the inspector will accomplish the following:

(1) Determine serviceability, i.e., the degree of serviceability, completeness, and readiness for immediate use, with special reference to safe and proper functioning of the materiel. If the materiel is found serviceable, it will be continued in service. In the event it is found unserviceable or incipient failures are disclosed, the deficiencies will be corrected on the spot or advice given as to corrective measure when applicable, or, if necessary, the materiel will be tagged for delivery to, and repair by, ordnance maintenance personnel.

(2) Determine causes of mechanical and functional difficulties that troops may be experiencing and check for apparent results of lack of knowledge, misinformation, neglect, improper handling and storage, security, and preservation.

(3) Check to see that all authorized modifications have been applied, that no unauthorized alterations have been made, and that no work beyond the authorized scope of the unit is being attempted. Pertinent MWO's are considered mandatory as of this printing; however, also check DA Pam 310–4 for current MWO's.

(4) Instruct the using personnel in proper preventive maintenance procedures where found inadequate.

(5) Check on completeness of the organizational maintenance allowances and procedures for obtaining replenishments.

(6) Check storage conditions of general supplies and ammunition.

(7) Initiate a thorough report on materiel on "deadline," with reasons therefor, for further appropriate action.

(8) Report to the responsible officer any carelessness, negligence, unauthorized modifications, or tampering. This report should be accompanied by recommendations for correcting the unsatisfactory conditions.

b. Specific Inspection Procedures.

(1) Inspect rifle to see that there are no glaring surfaces.
(2) Check operation of safety and safety slide.
(3) Check functioning of gun, using dummy ammunition.
(4) Check barrel bore for excessive pitting.
(5) Check firing rod pull (refer to par. 57).
(6) Check position of operating rod shoulder (refer to par. 63).

(7) Check gas cylinder group for rigidity in gas cylinder body.
(8) Inspect buffer assembly for fit on receiver.
(9) Check functioning of magazine assembly.
(10) Examine charging handle for looseness in bolt slide.
(11) Check functioning of front and rear magazine catch.
(12) Inspect hammer and sear for proper mating surfaces.
(13) Inspect cartridge ejector for worn tang.
(14) Check extractor for proper gripping of cartridge.
(15) Check driving springs for sufficient tension.
(16) Check firing pin and firing pin retractor for easy movement in bolt wells.

15. Inspection of Materiel Received in Ordnance Shops

a. Paragraph 14 applies also to the inspection of materiel received in ordnance shops.

b. If materiel received in ordnance shops is not tagged to indicate the nature of the repair, steps should be taken to determine the cause of the unserviceability, the extent of the required repairs, and an estimate of the parts required.

Table III. Troubleshooting

Malfunction	Probable cause	Corrective action
Failure to fire	Bolt does not seat properly due to weak or broken driving springs.	Replace the driving springs (pars. 35–40).
	Bolt does not seat properly due to worn bolt slide slots or keys.	Check bolt slide (pars. 35–40).
	Defective or broken firing pin.	Replace firing pin (pars. 42–45).
	Lightly struck primer	Check for chipped or damaged hammer (pars. 53–57).
		Check for damaged hammer spring (pars. 53–57).
		Check for worn or broken firing pin retractor (pars. 42–45).
	Sear does not release hammer.	Check for burs safety (pars. 53–57).
		Check for worn sear (pars. 53–57).
		Check for broken retaining pin holding sear (pars. 53–57).

Table III—Continued

Malfunction	Probable cause	Corrective action
	Sear release assembly inoperative.	Replace worn sear release spring (pars. 53–57).
		Replace worn sear release (pars. 53–57).
Failure to extract	Worn or broken extractor.	Replace extractor (pars. 42–45).
	Chamber of barrel worn.	Replace barrel assembly (pars. 59–63).
	Excessive recoil	Adjust gas screw regulator (par. 51).
	Extractor worn or broken.	Replace extractor (pars. 42–45).
Short recoil	Operating rod spring stop not alined.	Aline operating rod spring stop (par. 62*d*).
	Operating rod assembly worn or bent.	Replace operating rod assembly (pars. 59–62).
	Gas cylinder worn	Replace gas cylinder (par. 49*b*).
	Gas screw regulator corroded or misadjusted.	Replace (pars 47–50) or readjust gas screw regulator (par. 51).
	Worn or broken extractor plunger.	Replace extractor plunger (pars. 42–45).
	Worn or broken extractor plunger spring.	Replace extractor plunger spring (pars. 42–45).
Failure to eject	Worn cartridge ejector	Replace cartridge ejector (pars. 65–68).
	Gas screw regulator improperly adjusted.	Check adjustment of gas screw regulator (par. 51).
Failure to feed	Magazine assembly seats improperly in well.	Check for worn magazine catch spring (pars. 53–56).
		Check for worn or broken magazine front catch (pars. 53–56).
	Weak magazine spring	Replace magazine spring (pars. 30–33).
	Distorted magazine tube or magazine follower.	Replace magazine assembly (pars. 30–33).

16. Preembarkation Inspection of Materiel in Units Alerted for Oversea Movement

a. Materiel will not be considered unsuitable for oversea use because of lack of modification unless such modification affects the safety of personnel, is essential to functioning of the materiel, or is prescribed by an URGENT Department of the Army modification work order (MWO).

b. Newly manufactured and issued materiel, which has been inspected and accepted in accordance with Department of the Army specifications, will not be rejected by an Army inspector except for well-grounded reasons. All such rejections will be reported immediately to higher authority.

c. Satisfactory metal finishes for weapons range from dense black to medium light gray. Certain small arms weapons are manufactured with an unusual shade of neutral gray finish. Since this finish (gray zinc phosphate) is an accepted Department of the Army standard, these weapons will not be rejected by inspectors or troops for this condition. Rigid restrictions on shiny metal surfaces will not be carried to an extreme. A worn surface is objectionable from the standpoint of visibility when it is capable of reflecting light, somewhat as a mirror does. No weapon will be rejected for oversea use unless exterior parts have a distinct shine.

d. Light pitting of the barrel, even though plainly visible, is not cause for rejecting a weapon. It does not affect the accuracy materially, but is a disadvantage because it interferes with subsequent cleanings. A barrel that is uniformly pitted out with the edges of the lands sharp is acceptable, provided the breech bore reading of the barrel is satisfactory. Only those barrels showing developed pits, or pits cutting into the lands, are unsatisfactory.

e. Minor defects in metal components do not normally affect their being acceptable. Scratches and tool marks on barrels are ordinarily of no importance.

CHAPTER 4

REPAIR AND REBUILD

Section I. GENERAL

17. General

a. Information and instructions contained herein are supplementary to instructions for the using organization contained in TM 9–3058.

b. In this manual, the main groups of the weapon are disassembled, inspected, replaced or repaired, and assembled. For information on disassembly of the weapon permitted by organizational maintenance personnel, refer to TM 9–3058.

c. A rebuild flow chart and an operations route sheet that specify the various steps necessary in rebuild of the weapon are contained in this chapter for the use of maintenance shops engaged in rebuild for return to stock.

d. Information for ordnance maintenance units engaged in repair for return to user and information for maintenance shops engaged in rebuild for return to stock are covered together, but wherever the operation is not authorized for the field level of maintnance, a note is added such as DEPOT MAINTENANCE ONLY to indicate the prescribed level of maintenance.

e. Where different standards or tolerances are prescribed for field and for depot levels, the desired standard for the particular level is similarly indicated in parentheses.

18. Cleaning

a. General. Refer to TM 9–3058 for using arms information on cleaning, cleaning agents, and precautions to be observed in cleaning. Refer to TM 9–1861 for cleaning prior to refinishing metals. Information for ordnance personnel is given in *b* through *d* below.

b. Materiel Received in Ordnance Shops from Storage. Materiel is usually packed in a heat-sealable moisture-vaporproof barrier bag, lined with a Kraft creped paper, coated on the interior with volatile corrosion inhibitor (VCI). Generally, the materiel is coated with special preservative lubricating oil (type

P–9) and need not be degreased. Materiel coated with rust-preventive compound will be cleaned by one of the methods described in (1) through (3) below, whichever is applicable or available.

Note. Do not clean buffer disks by dip-tank or vapor-degreaser method. Use hand method.

(1) *Dip-tank method.* Disassemble as required, place parts in a perforated metal basket, and submerge and agitate in a tank containing mineral spirits paint thinner. Repeat, using a second tank with clean thinner. Extent of treatment in each tank will depend on ease with which the preservatives are dissolved. Wipe dry with wiping cloth and dip in special preservative lubricating oil (type P–9).

(2) *Vapor-degreaser method.* Tanks containing a heated solution of trichlorethylene or perchlorethylene (type II) are used mostly for degreasing items that are very greasy or oily and are not readily cleaned by the dip-tank method. Place parts in a perforated metal basket and submerge just below the vapors in the tank and keep until all the grease or oil melts and runs off the parts in the basket.

Warning: Personnel operating vapor degreasers are cautioned not to breathe the vapor fumes.

Remove parts from the tank and dip in special preservative lubricating oil (type P–9).

(3) *Hand method.* Apply mineral spirits paint thinner by swabbing large parts of the rifle to remove the rust-preventive compound. To clean small parts, place them in a bath and scrub them with a brush or with a lintless wiping cloth saturated with mineral spirits paint thinner. Care must be exercised to insure that all springs, spring wells, and operating surfaces have been thoroughly cleaned by the dip-tank method. Close visual inspection, after wiping all surfaces with a clean wiping cloth, will reveal any remaining rust-preventive compound. If the cleaning has not been thorough, the cloth will show a brownish stain. Dry the components with a clean, dry, lintless wiping cloth. When dry, dip all the components in special preservative lubricating oil (type P–9).

c. Cleaning After Repair or Rebuild.

(1) After repair or rebuild operations and prior to assembly, remove shop dirt and other foreign matter from all metal surfaces. This can be done by the dip-tank method (*b*(1) above), the vapor-degreaser method (*b*(2) above), or by cleaning with cloths soaked in mineral spirits paint thinner.

(2) In the dip-tank method, agitation for approximately 1 minute in each tank is sufficient; in the vapor-degreaser method, treatment for about 2 to 3 minutes is sufficient. Be careful to remove metal chips or grit from surfaces with close tolerance fits, which may cause misalinement or gouging of mating surfaces during assembly. Handle parts with rubber gloves during rebuild.

d. Cleaning After Shop Inspection. After in-process shop inspections, dip parts in a tank containing fingerprint remover oil (type A). Remove from tank using rubber gloves, and dry thoroughly with dry compressed air (provided with moisture filter traps or by wiping with clean, lint-free, dry cloths. Apply preservative lubricating oil (type P–9) as soon as possible after cleaning.

19. Lubrication

a. Refer to TM 9–3058 for lubrication instructions for the cal. .50 spotting rifle M8 (T46E2). Before reassembly of the rifle, oil all surfaces of the actuating components with special emphasis on the extractor, firing pin retractor, and the bolt guides. General lubricating instructions are covered in TM 9–2835. Lubricating materials are listed in Department of the Army Supply Manual ORD 3 SNL K–1 and their uses explained in TM 9–850.

b. When not in use, the rifle and its components should be coated with a medium preservative lubricating oil (type P–9). Keep a light film of preservative lubricating oil on all parts undergoing rebuild to prevent rust from forming on any metal surface.

c. On rifles being processed for long-term storage, immerge the metal assemblies into a bath of preservative lubricating oil (type P–9) at a temperature of 120° F. Agitate parts to assure complete preservation of recesses. Swab plastic parts with preservative lubricating oil (type P–9). Drain excess preservative from the parts.

20. General Repair and Rebuild Methods

a. The number of units processed will determine the disposition of manpower and job procedures. Improvised tooling and assembly line methods may be used if sufficient quantities of rifles are involved.

b. Precision gages should be used to inspect critical dimensions and tolerances.

c. Use only tools that will properly perform the operation intended, to prevent damage to the tools and the materiel.

d. Good judgment should be exercised to keep disassembly to a minimum in making a required replacement or repair.

e. Use care in handling component parts during repair or rebuild to prevent any further damage to the rifle.

f. Components should be closely examined by disassembling personnel to determine need for repair or replacement.

21. Removal of Excessive Carbon and Rust

a. During firing, hard carbon will gradually accumulate on the mating surfaces of the gas cylinder and gas piston. This may cause the piston to bind, preventing movement of the operating rod. Carbon may also collect on the gas screw regulator and on the barrel gas port, preventing proper functioning of the rifle. When cleaning, these parts should be carefully inspected for carbon.

b. Carbon can best be removed by careful scraping with a sharp tool, a fine abrasive, or crocus cloth. The polished surfaces of the gas cylinder and the gas piston can be scratched if care is not exercised when scraping.

c. Light rust may be removed with a cloth moistened with light preservative lubricating oil (type P–9) or rifle-bore cleaner solvent cleaning compound. If this does not suffice, use crocus cloth or fine abrasive cloth. Take care not to scratch or alter cleaned surfaces, to remove all dirt and abrasive, and to re-oil surfaces before assembling the parts.

22. Function-Firing

a. All spotting rifles M8 (T46E2), rebuilt in depot maintenance shops, will be function-fired with a sufficient number of rounds. When the number of weapons being rebuilt warrants, function-firing may be accomplished on a quality control basis.

b. All weapons will be cleaned as soon as possible after all firing tests have been completed and each day thereafter for 3 days, making a total of 4 consecutive days. An alternate method of scheduling cleaning operations is to clean all weapons immediately after function-firing and two successive times following the first cleaning; cleaning intervals should be at least 16 hours with not more than 72 hours between any two successive cleanings.

c. Special care should be taken to insure that bolt faces, pistons, breech end of receivers, and other parts subjected to burned powder residues are thoroughly cleaned. These parts should be scrubbed with a bristle brush moistened with rifle-bore cleaner solvent cleaning compound.

d. A single cleaning of the bore and chamber of function-fired weapons with steam or hot water (not less than 200° F.) is acceptable in lieu of the cleaning described in *b* above. The steam or hot water may be applied by hand or machine and the bore and chamber air-dried. The bore and chamber will then be scrubbed with a snug-fitting wire brush dipped in rifle-bore cleaner solvent cleaning compound. Three dry patches will then be passed through the bore and chamber, followed by one patch saturated with rifle-bore cleaner solvent cleaning compound.

23. Removal of Burs from Threads, Screwheads, and Working Surfaces

a. During the entire life of the rifle, polishing and stoning are necessary to relieve friction and to remove burs caused by usage. Burs on screwheads, threads, and like surfaces should be removed with a fine file or chased out with a corresponding sized die or tap. Burs on such working surfaces of the receiver keyways, bolt guides, cam surface of the firing pin retractor, locking surface of the sear and hammer, and any roughness on such parts as firing pin, extractor, cartridge ejector, or operating rod assembly should be removed with a fine file, or stone and polished with crocus cloth.

Note. Care should be exercised to stone and file evenly and lightly and not to remove more metal than is absolutely necessary and to maintain correct contours. Parts or assemblies should never be altered in any way that would affect interchangeability of parts.

b. Rough spots, scores, galling, and gouges will be smoothed so that part will operate normally. The finish of the repaired part will approximate the original finish. Use care not to alter critical dimensions or clearances between parts.

24. Finish of Metals

a. A class A or class B, type II, phosphate finish will be used unless otherwise specified herein. Use TM 9–1861 as a guide for refinishing.

b. During the process of refinishing, the barrels will be protected from acids, alkali, or phosphate solutions by plugging the muzzle and breech ends with corks, rubber stoppers, or wooden plug. The gas port of the barrel will also be plugged securely.

c. All springs having a wire diameter less than one-eighth of an inch and leaf springs should not be phosphated. The operating spring, hammer spring, and sear spring will not be phosphated.

d. Do not refinish parts that have a good quality finish. All refinished rifles will be operated by hand until the moving parts work smoothly without binding or undue effort.

e. All parts must be completely free of oil, grease, rust, residues, and other contaminants before phosphating. If necessary, abrasive blasting will be performed as a pretreatment.

25. Marking of Rebuilt Weapons

All rebuilt spotting rifles will be stamped with the initials of the rebuilding establishment in the United States. Weapons rebuilt by overseas base shops will not be stamped. Initials identifying the establishment rebuilding a rifle are stamped on the left side of the receiver directly in front of serial number. If the weapon is subsequently rebuilt at another establishment, the new identifying initials will be placed directly below those preceding. If the weapon is rebuilt at the same establishment as before, new initials need not be added. The establishments and the initials to be used are as follows:

Augusta Arsenal	AA
Benicia Arsenal	BA
Mt Rainier Ordnance Depot	MR
Raritan Arsenal	RA
Red River Arsenal	RRA
Rock Island Arsenal	RIA
Springfield Armory	SA

26. Spring

All springs will be visually checked for free length, corrosion, and distortion and spring ends will be inspected for damage or alteration. Springs that require replacement or load testing are listed in table V (par. 76), coil spring standards.

27. Flow Chart

A flow chart illustrating the sequence of operations necessary during rebuild of the weapon is provided in figure 3. This chart is intended for the information of depot maintenance organizations rebuilding the weapon by assembly line procedures for return to stock. The flow chart and the operations route sheet are provided to assist the shop foreman in shop layout, job assignments, and setting up for rebuilding a quantity of weapons. It contains information on authorized modifications current at the time of this publication's preparation. Check current DA Pam 310–4 for any additional modification work orders or technical bulletins which would require additional setups.

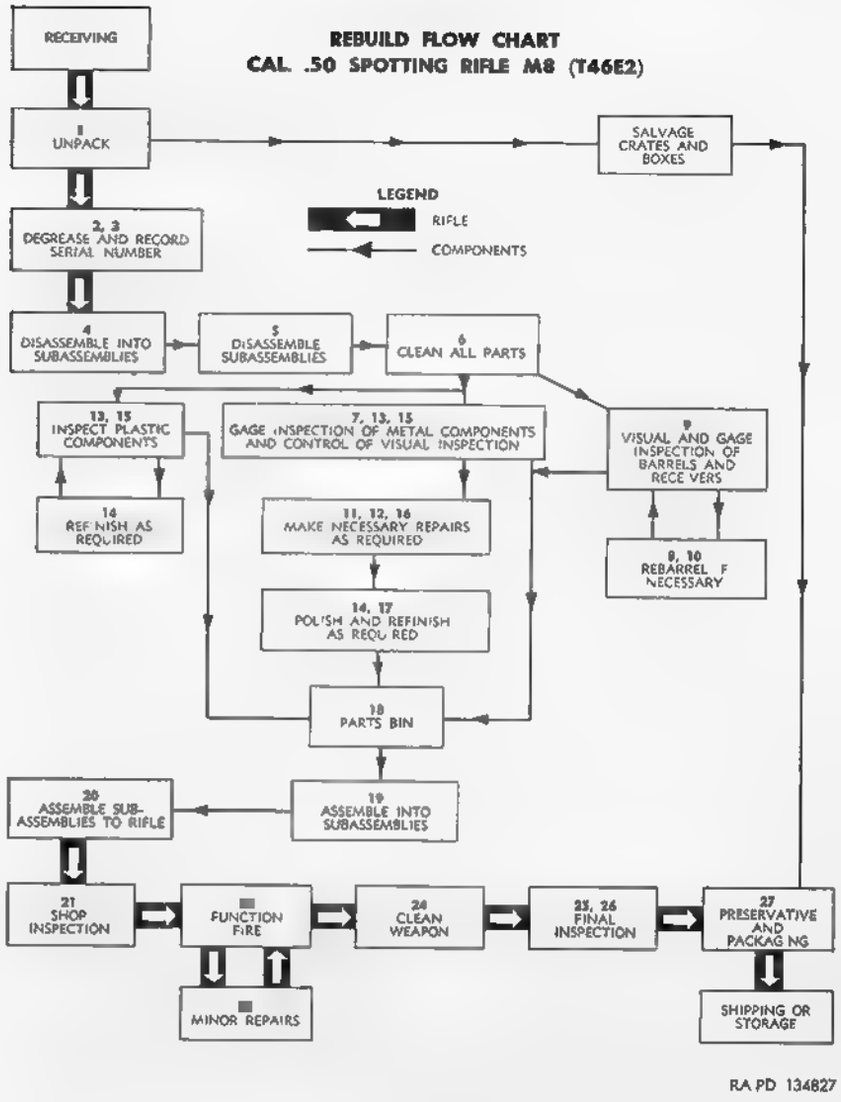

Figure 3. Rebuild flow chart for cal. .50 spotting rifle M8 (T46E2).

28. Operations Route Sheet

The following information supplements the rebuild flow chart (fig. 3). The operation numbers correspond to the numbers on the chart. Special tools, gages, fixtures, and machines required for an operation are indicated opposite the operation.

Table IV. Operations Route Sheet for Cal. .50 Spotting Rifle M8 (T46E2)

Operation No.	Operation	Machine	Fixtures	Tools	Gages
1	Unpack.				
2	Degrease.				
3	Record serial number.				
4	Disassemble into subassemblies.				
5	Disassemble subassemblies.				
6	Clean all parts			5504037 6108828 6535441	
7	*a* Inspect for excessive wear in bolt slide. *b* Inspect gas piston and gas cylinder for wear. *c* Inspect bolt assemblies. *d* Inspect sear, hammer, and sear release assembly for wear. *e* Inspect operating rod for wear. *f* Inspect gas port of gas cylinder body.				
8	Remove barrel from receiver if necessary.	Vise		Strap wrench	
9	Inspect barrel for pits and dents.			5564255	
10	Reassemble barrel to receiver	Vise		Strap wrench	
11	Remove burs.				
12	Do necessary repairing of parts as required.	Centerless grinder			
13	Inspect.				
14	Do necessary polishing of parts as necessary.				
15	Inspect.				
16	Sandblast parts requiring refinishing.				
17	Refinish.				
18	Inspect.				
19	Assemble into subassemblies.				
20	Assemble subassemblies to rifle.				
21	*a* Inspect operating rod protrusion from receiver.				Micrometer
	b Inspect pull on firing rod to release sear.				
	c Inspect firing rod motion				Micrometer

Table IV—Continued

Operation No.	Operation	Machine	Fixtures	Tools	Gages
	d Inspect return force of sear release retainer spring. *e* Inspect overall operation.				
22	Function fire.				
23	Do necessary repairing.				
24	Clean rifle			5504037 6108828 6535441	
25	Final inspection.				
26	Record serial number.				
27	Preserve and pack.				

Section II. MAGAZINE ASSEMBLY

29. General

The magazine assembly consists of the magazine tube, magazine follower, magazine base, and magazine spring.

30. Removal and Disassembly

Refer to TM 9–3058 for removal and disassembly of the magazine assembly (fig. 4).

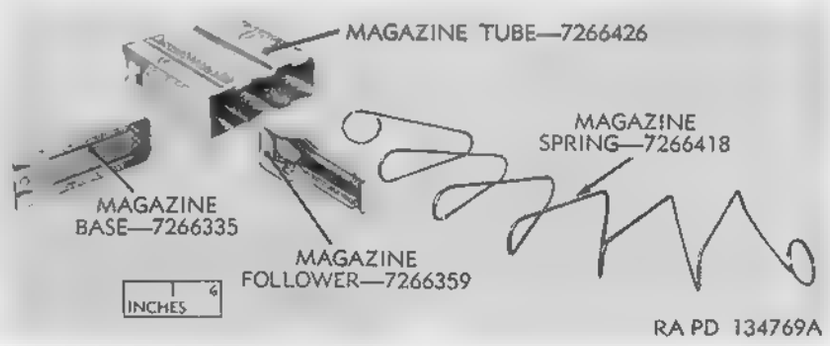

Figure 4. Magazine assembly 7266369—exploded view.

31. Inspection

a. Magazine Tube (fig. 5). Inspect the magazine tube for dents or bends. The tube should fit snugly into the magazine well.

b. Magazine Base and Follower (fig. 5). Examine the magazine base and follower for dents or distortion. The base should

slide easily into tube grooves and be held securely by the tube. Inspect the magazine follower for sliding fit in the tube and contour against a dummy cartridge.

c. Magazine Spring (fig. 4). Inspect the magazine spring for tension and deformation.

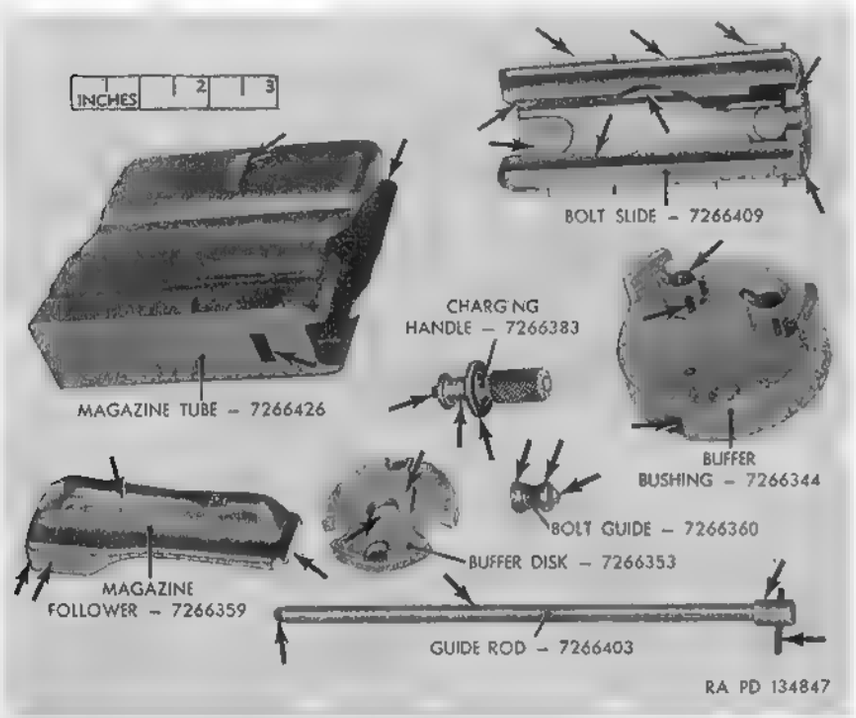

Figure 5. Bolt slide and magazine group parts—important points to inspect.

32. Repair and Rebuild

Remove dents or bends from magazine tube, base, and follower. Replace a weak magazine spring. Replace the magazine assembly if components are worn or broken.

33. Assembly and Installation

Refer to TM 9–3058 for assembly and installation of the magazine assembly (fig. 4).

Section III. BOLT SLIDE GROUP

34. General

The bolt slide group includes the buffer assembly, bolt slide, two bolt guides, two driving springs, two guide rods, charging handle, and bolt assembly.

35. Removal

Refer to TM 9–3058 for removal of bolt slide group (fig. 6).

36. Disassembly

Drive out the two flat-head rivets (fig. 6) from the buffer assembly and remove the buffer disk from the buffer bushing.

37. Inspection

a. Guide Rods. Inspect the guide rods (fig. 5) for straightness and roundness. Check the pin on the end of each rod for looseness and bending. The knurling on the rod ends should not be worn and rods should be free from burs, chips, nicks, and gouges.

b. Driving Springs. The driving springs should not be kinked or broken. Free length of new springs should be 16.850 to 17.100 inches.

c. Buffer Assembly. Inspect the buffer assembly for fit on the receiver and wear on the locking projection. The buffer catch slot of buffer bushing (fig. 5) should not have worn edges. The two flat-head rivets should not be loose. Examine the buffer disk for galling or cracks. Examine the buffer bushing for burs or gouges in the rod holes and rod slots.

d. Bolt Slide. Examine the bolt slide (fig. 5) for worn keys and keyways. The charging handle groove should be free from burs and handle should lock securely to the slide. The bolt guide holes should be smooth and not worn.

e. Bolt Guides. Check the bolt guides for worn tangs. The guides should be free from burs and scoring, and not out-of-round.

f. Charging Handle. Inspect charging handle (fig. 5) for worn knurling. Inspect handle plunger for looseness in charging handle cap. Depress plunger to check tension of handle plunger spring.

38. Repair and Rebuild

a. Peen loose flat-head rivets on buffer assembly taking precaution not to damage the plastic buffer disk. Remove burs from guide rod slots and buffer catch slot.

(1) Replace buffer disk if worn or broken. If entire buffer assembly is damaged, replace it.

(2) Replace the flat-head rivets if they do not hold the disk securely (Depot maintenance only).

b. Peen the charging handle plunger if it is loose in handle cap. Remove burs from the knurling of handle. Replace worn or broken charging handle.

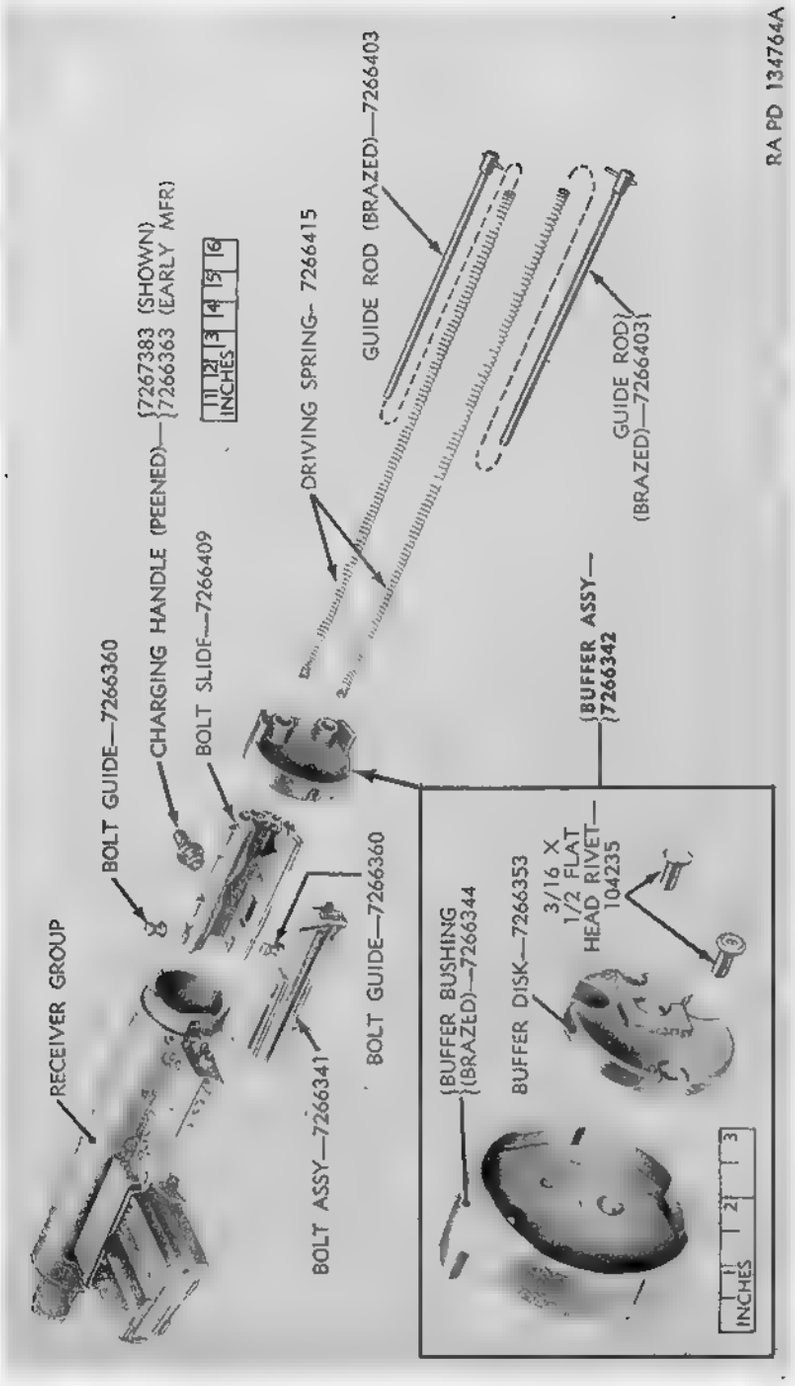

Figure 6. Bolt slide group removed from receiver group.

c. Straighten bent guide rods and rod end pins. If end pins are broken or rods are damaged, replace the guide rods.

d. Carefully remove kinks or bends from driving springs. Replace springs if they are worn or weak.

e. Use a fine honing stone to remove burs from the keyways, keys, and holes of the bolt slide. Remove foreign matter from the spring wells of the bolt slide. Replace badly damaged bolt slide.

f. Stone the lugs of bolt guides to remove burs. Replace worn or damaged bolt guides.

39. Assembly

Insert the buffer disk into buffer bushing (fig. 6) and aline the two rivet holes. Insert the two 3/16 x ½ flat-head rivets and upset their ends.

40. Installation

Refer to TM 9–3058 for installation of the bolt slide group (fig. 6).

Section IV. BOLT ASSEMBLY

41. General

The bolt assembly consists of the bolt, extractor, firing pin retractor, spring pin, extractor plunger, extractor plunger spring, and firing pin.

42. Removal and Disassembly

Refer to TM 9–3058 for removal and disassembly of the bolt assembly (fig. 7).

43. Inspection

a. Extractor Plunger and Plunger Spring (fig. 8). Inspect the extractor plunger for wear on pointed end and for burs, nicks, or cracks on shank of plunger. Inspect the extractor plunger spring for kinks or set. The plunger and spring should depress smoothly in the bolt well.

b. Firing Pin and Firing Pin Retractor (fig. 8). Inspect the firing pin for a blunted, chipped, or cracked nose. Examine the retractor slot of pin for signs of wear or burs. The pin should not be bent and should fit smoothly into the bolt well. The firing pin retractor should not show wear on camming surfaces and will fit easily in bolt slot and firing pin slot.

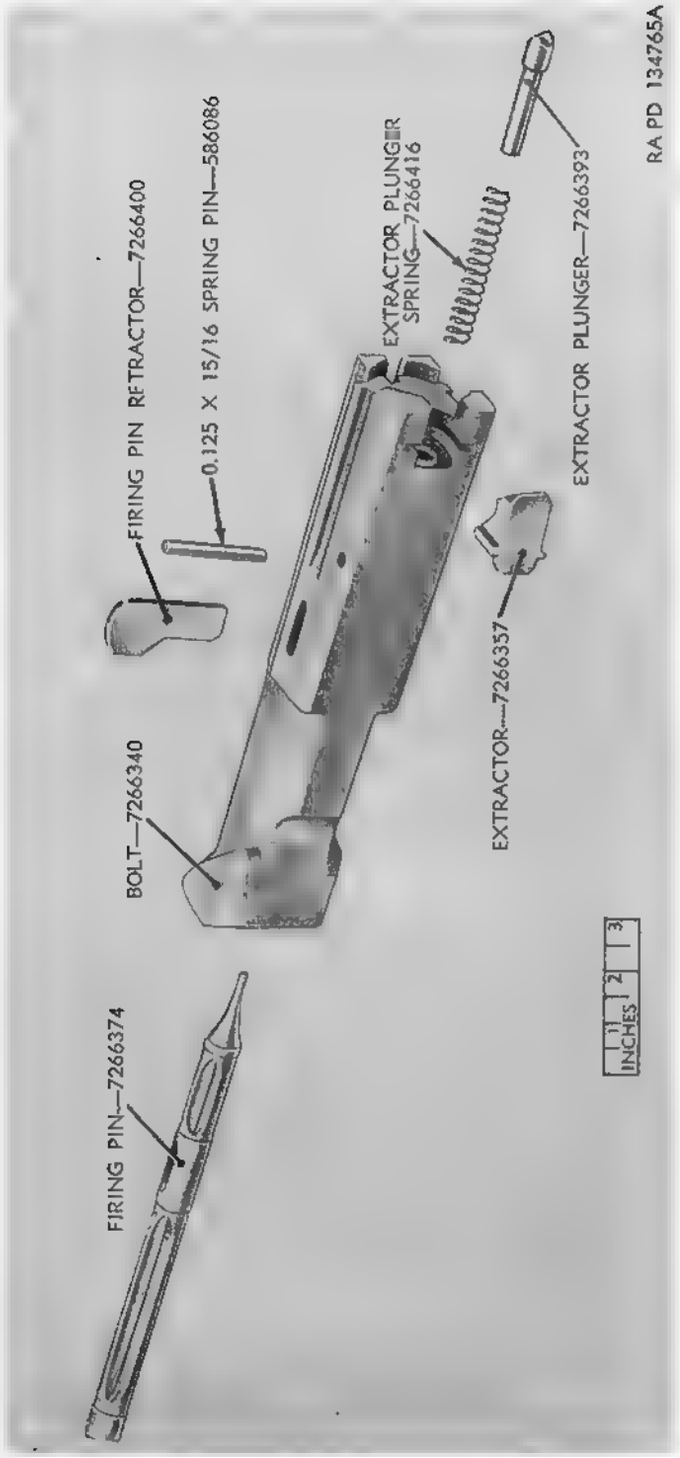

Figure 7. Bolt assembly 7266341—exploded view.

c. Bolt and Extractor (fig. 8). Examine the bolt for wear on sliding surfaces. The bolt guide slots should be free from burs or foreign matter. Examine wells and holes for wear or foreign matter. The keys on the extractor should fit easily into bolt keyways. Check functioning of extractor for stripping of top round from magazine and gripping of extractor claw over base of cartridge.

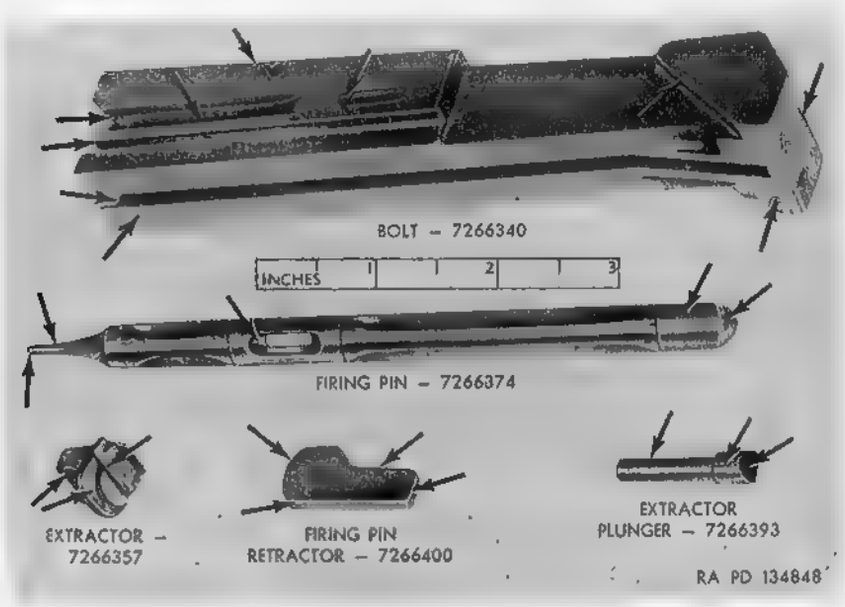

Figure 8. Bolt group parts—important points to inspect.

44. Repair and Rebuild

a. Carefully stone burs from sliding surfaces of the bolt. Remove foreign matter from holes, slots, and wells. Replace a worn or broken bolt.

b. Straighten a bent firing pin and stone burs from slots or nosing of pin. Replace a broken firing pin or worn firing pin extractor.

c. Replace damaged spring pin. Carefully stone point of extractor plunger if burred or nicked and straighten if bent. Replace a broken or damaged plunger. Remove bends from extractor plunger spring and replace if weak or damaged.

d. Stone any burs from keys of extractor. If stoning is necessary at the claw section of the extractor, care will be exercised to maintain original shapes and outlines. Replace a broken or worn extractor.

45. Assembly and Installation

Refer to TM 9–3058 for assembly and installation of the bolt assembly (fig. 7).

Section V. GAS CYLINDER GROUP

46. General

The gas cylinder group consists of gas cylinder assembly, gas screw regulator, lock ring bushing, regulator bushing, and gas screw regulator locking nut.

47. Removal and Disassembly

Unscrew the lock ring bushing, as far as it will go, turning it counterclockwise. Remove the lock ring bushing, regulator bushing, gas screw regulator locking nut, and gas screw regulator as a unit from the gas cylinder body (fig. 9). Loosen the regulator locking nut (fig. 10) and unscrew the regulator bushing from the screw regulator. Remove the lock ring bushing from regulator bushing. Unscrew the regulator locking nut from regulator. Rotate the gas cylinder assembly counterclockwise 180°, with a spanner wrench, until lip on cylinder clears groove of gas cylinder body and remove the gas cylinder assembly. Unscrew the gas cylinder plug from the gas cylinder.

48. Inspection

a. Inspect the gas screw regulator (fig. 11) for worn threads and flared head. Examine the regulator nose for deformation, corrosion, or excessive carbon. Examine threads on gas screw regulator locking nut (fig. 10), lock ring bushing (fig. 10), and regulator bushing (fig. 11) for stripping or crossing. Examine the index numerals on the regulator bushing for clarity. The lock ring bushing should hold regulator bushing securely when screwed against gas cylinder body.

b. Inspect the gas port and bore of gas cylinder assembly (fig. 11) for excessive carbon. The bore and outer diameter should be free from gouges or burs. The locking lug on the cylinder should not be deformed. The spanner wrench holes of cylinder will not show wear, and knurling will be free from burs and gouges.

49. Repair and Rebuild

a. Chase crossed or damaged threads of gas screw regulator, lock ring bushing, regulator bushing, and gas screw regulator locking nut. Remove carbon from regulator with sharp tool or crocus cloth. Replace lock ring bushing, regulator bushing, locking nut, or regulator if damaged beyond repair.

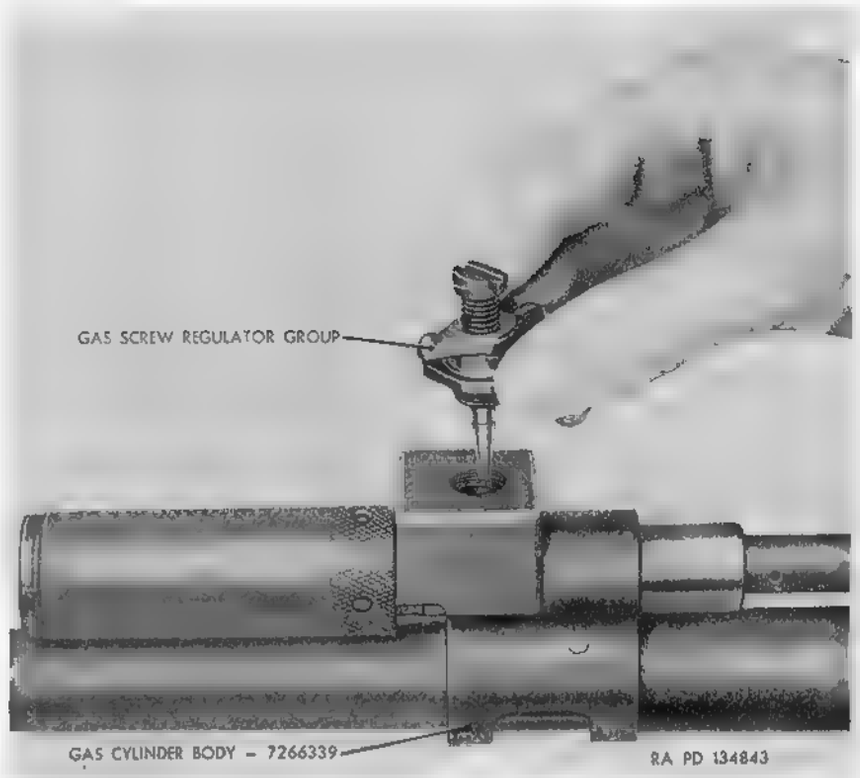

Figure 9. Removing or installing gas screw regulator group.

b. Carefully remove burs from outer diameter and bore of gas cylinder with a sharpening stone or crocus cloth. Remove excessive carbon with drill from gas port of cylinder. Remove carbon with crocus cloth or fine abrasive from bore of cylinder. Replace broken or worn gas cylinder assembly.

50. Assembly and Installation

a. Screw the gas cylinder plug into the gas cylinder and spin metal of cylinder to metal of plug. Insert the gas cylinder assembly (fig. 10) carefully into gas cylinder body, tapping lightly with a mallet if necessary, until cylinder bore rides over gas piston. Depress the operating rod by hand to check alinement of piston and cylinder when installing cylinder assembly. The locking lug should be opposite the barrel when cylinder assembly is fully engaged. Turn the cylinder assembly clockwise 180° (viewed from muzzle end) to lock cylinder assembly. The gas port of gas cylinder body, barrel, and cylinder assembly should be alined after assembly of cylinder assembly.

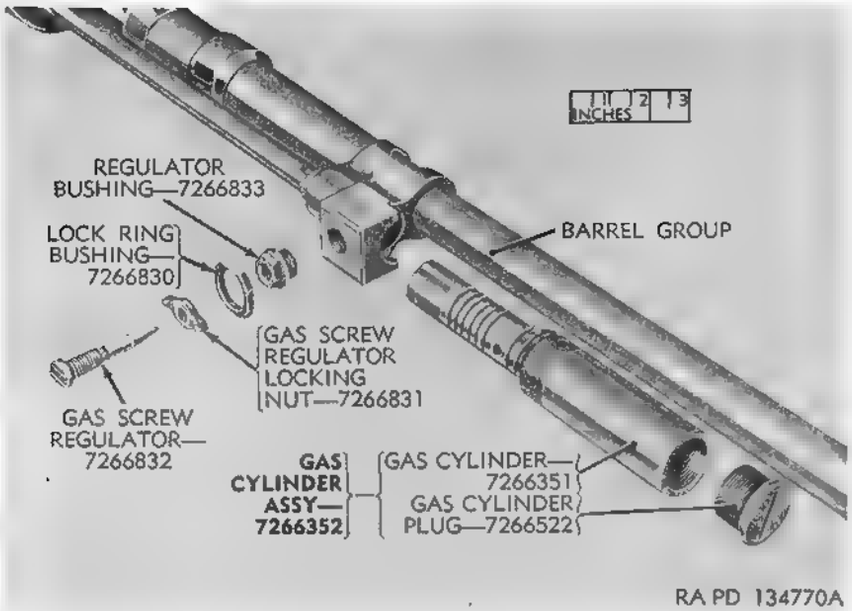

Figure 10. Gas cylinder group removed from the barrel group.

b. Screw the gas screw regulator locking nut onto the gas screw regulator. Install the lock ring bushing to the top of the regulator bushing. Screw the gas screw regulator into the regulator bushing. Screw the gas screw regulator group into gas cylinder body (fig. 9). Turn the lock ring bushing with a crescent wrench until locked against cylinder body face. Refer to paragraph 51 for adjustment of gas cylinder group.

51. Adjustment

a. The index setting of the gas screw regulator will be established during proof- and function-firing and only will be changed when an increase or decrease in power is warranted. Failure of the bolt to strip the top round from magazine or to eject cartridge case indicates a need for increase in power. Stubbing of nose of top round from magazine against forward wall of receiver or magazine indicates a need for decrease in power. Turning gas screw regulator in direction of increasing numerals on the regulator bushing will increase power.

b. To adjust setting, loosen the gas screw regulator locking nut (fig. 10) and screw the gas screw regulator completely down. Unscrew the regulator one-half turn, and fire the rifle and look for snappy consistant ejection of cartridge. Adjust the regulator one numeral (on regulator bushing) at a time until the ejection pattern desired is obtained. Tighten the locking nut being sure not to change setting of regulator.

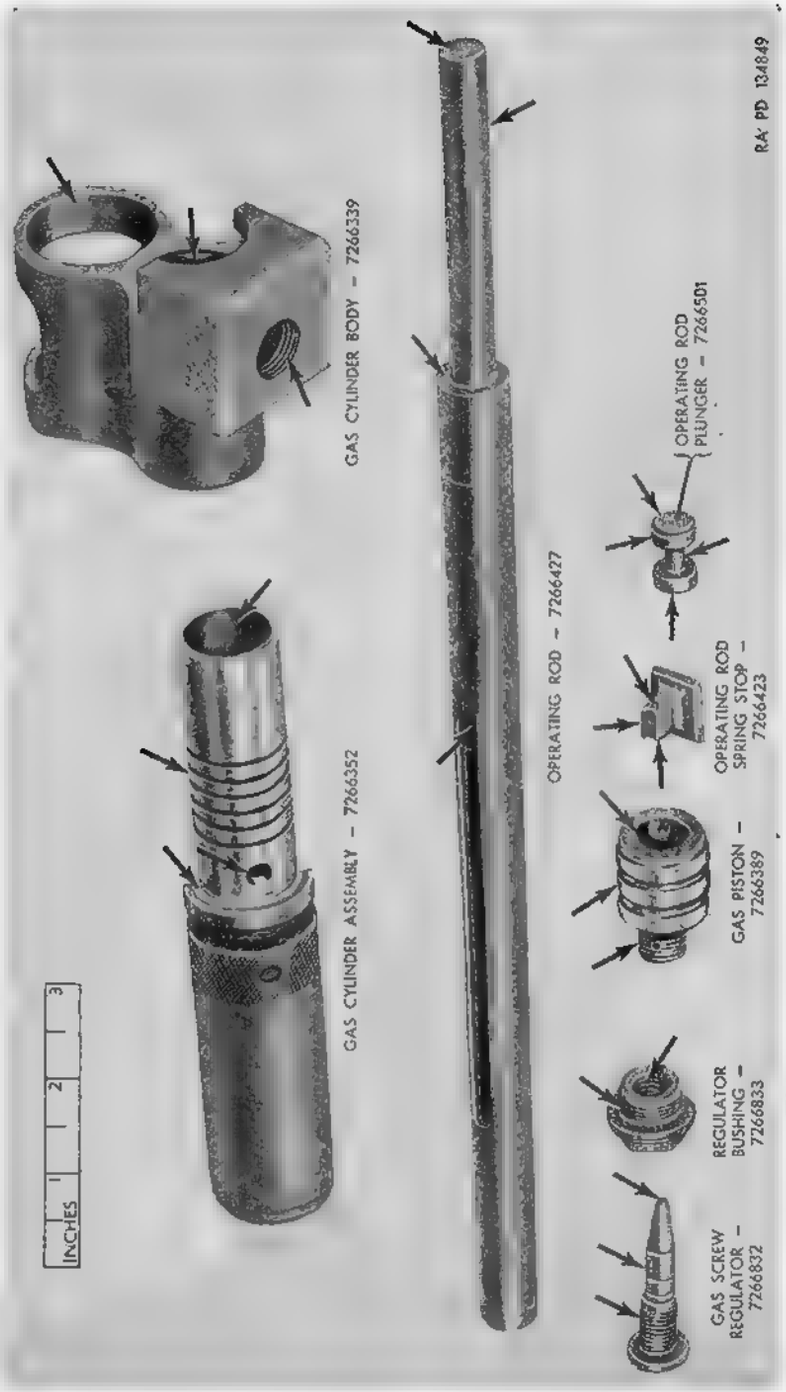

Figure 11. Operating rod and gas cylinder group parts—important points to inspect.

Section VI. FIRING MECHANISM ASSEMBLY

52. General

The firing mechanism assembly is attached to the receiver group of the cal. .50 spotting rifle M8 by two cotter pins and front and rear housing pins and is removed as a unit from the rifle for cleaning or repair.

53. Removal and Disassembly

a. Refer to TM 9–3058 for removal of the firing mechanism assembly (fig. 12) from the receiver group. Rotate the buffer catch spring counterclockwise in its groove in the buffer catch and remove the spring from the catch. Hold the hammer while pulling on the firing rod. This will release the hammer. Allow the hammer to go slowly forward. Remove the two cotter pins (fig. 15) and the two retaining pins holding the sear release assembly and the firing cable housing group. Remove the sear release assembly and rod group as a unit from the firing mechanism housing.

b. Rotate the firing cable housing group about the slot of the sear release (fig. 15) and remove the firing cable housing group from the sear release assembly. Remove the sear release retainer spring from the firing rod. Drive out the spring pin from the firing cable housing and remove the firing rod.

c. Drive out the sear release pin from the sear release retainer, and remove the sear release and sear release spring from slot of sear release retainer (fig. 13).

d. Remove the cotter pin from hammer pin (fig. 15). Drive out the hammer pin from the firing mechanism housing. Remove the hammer and hammer spring from the housing. Remove hammer from hammer spring (fig. 14). Remove the cotter pin and retaining pin holding the sear in the housing. Remove the sear from the housing.

e. Drive out the safety and safety slide rivet from firing mechanism housing. Remove the safety slide from the firing mechanism housing (fig. 17). Drive out the magazine catch yoke pin from the rear magazine catch and remove the front magazine catch. Remove the rear magazine catch spring from the rivet on the housing. Drive out the rear magazine catch pin and remove the rear magazine catch from housing (fig. 16).

54. Inspection

a. Buffer Catch and Buffer Catch Spring. Examine the buffer catch spring for tension and kinks. Inspect spring well on buffer

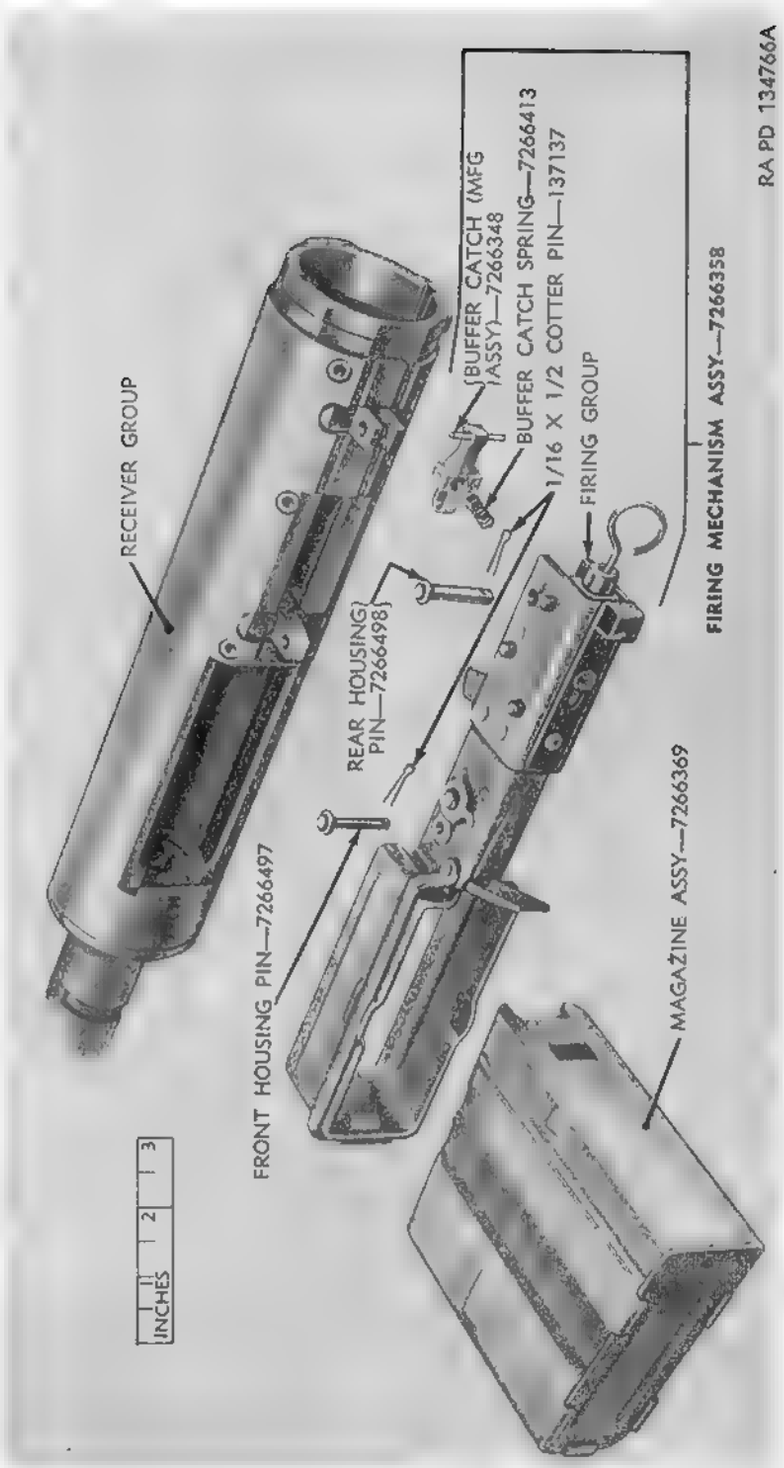

Figure 12. Firing mechanism assembly removed from receiver group.

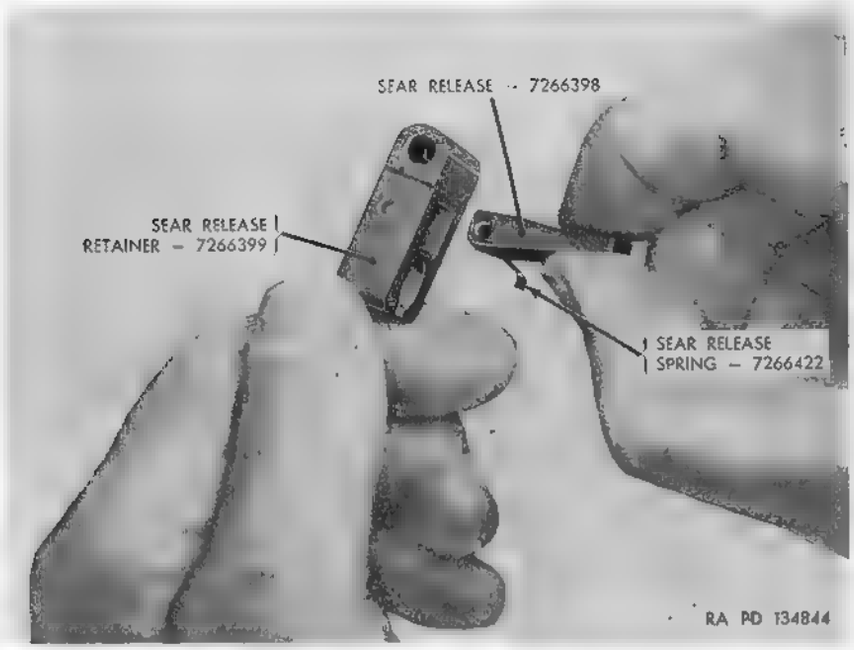

Figure 13. Disassembly or assembly of the sear release retainer.

catch for burs, nicks, or gouges. The pin handles on the catch should not be bent or loose. Check fit of catch in receiver slot.

b. Hammer and Hammer Spring. Examine the hammer (fig. 19) for wear on the sear tang and firing pin nose. The hammer pin hole should be free from burs, gouges, and foreign matter. The hammer spring should be held firmly on the hammer shoulders. Examine tension in the hammer spring and check for bending or deformation.

c. Sear. Examine the sear for wear at the hammer notch and sear release slot. The sear should rotate easily on the retaining pin and should be held firmly locked when safety and safety slide (fig. 18) is in rearward position.

d. Sear Release Assembly. Examine the sear holding notch on sear release (fig. 19) for nicks and burs. Inspect the sear release spring for set and deformation. The spring should fit easily in groove of sear release and slot of sear release retainer. Examine the sear release pin for burs, bending, and fit in retainer. The cable slot of retainer should be free from burs and deformation. The release assembly should rotate freely about the retaining pin.

e. Firing Cable Housing Group. Examine the tension of sear release retainer spring. Ends of spring should fit evenly into sear release retainer well and on end of firing rod. Examine firing cable housing for burs in rod and pin holes. The bushing of firing rod should fit snugly into well of firing cable housing.

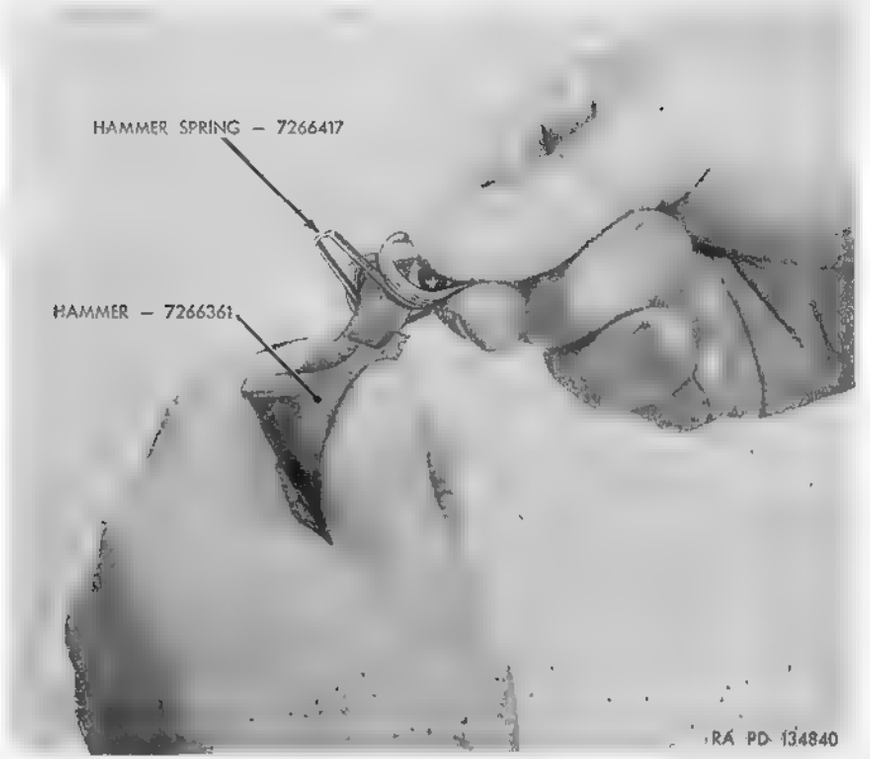

Figure 14. Disassembly or assembly of the hammer spring.

f. Magazine Catch Group. Examine the rear magazine catch spring for tension and set. The end loops of spring should be formed to hold on rivet and on magazine catch yoke pin. Inspect the magazine catch yoke pin for straightness, burs, and proper peening. The rear magazine catch pin should not be bent or burred. Inspect the rear magazine catch (fig. 20) for deformation or burs. The spring slot of catch should be free from foreign matter. The catch should fit smoothly into firing mechanism housing. The front magazine catch should fit snugly onto housing and tang of catch should move freely in housing slot.

g. Safety Slide Group. Examine the safety slide (fig. 20) for deformation and burs. The locking indent on slide should not be worn. The safety slide rivet should be peened securely but should allow movement of slide. The inner head of rivet should project below firing mechanism housing surface at least 0.005 inch. The safety should move easily in housing slot and should be peened securely to slide. The shoulder of safety should not be rounded or burred.

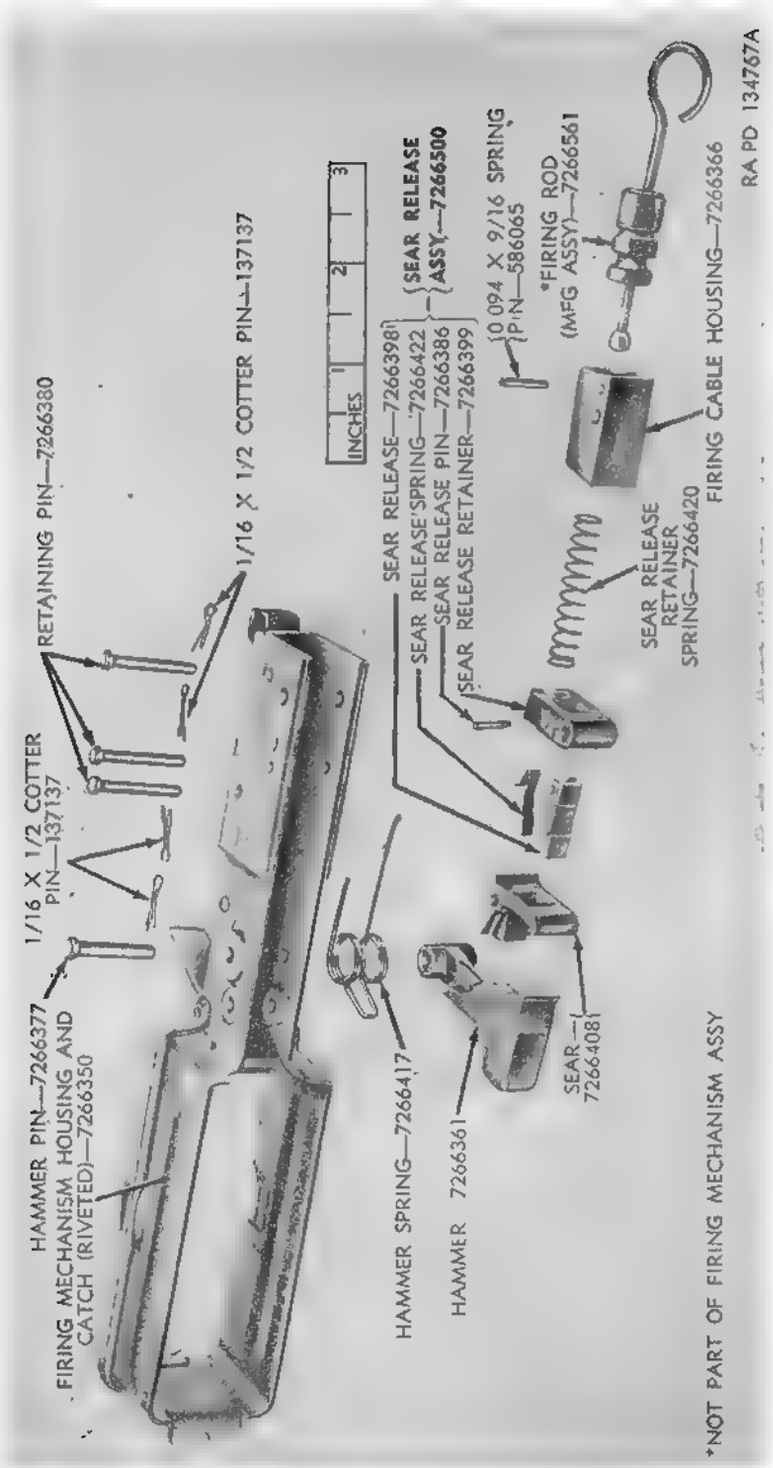

Figure 15. Firing mechanism assembly 7266358—partially exploded view.

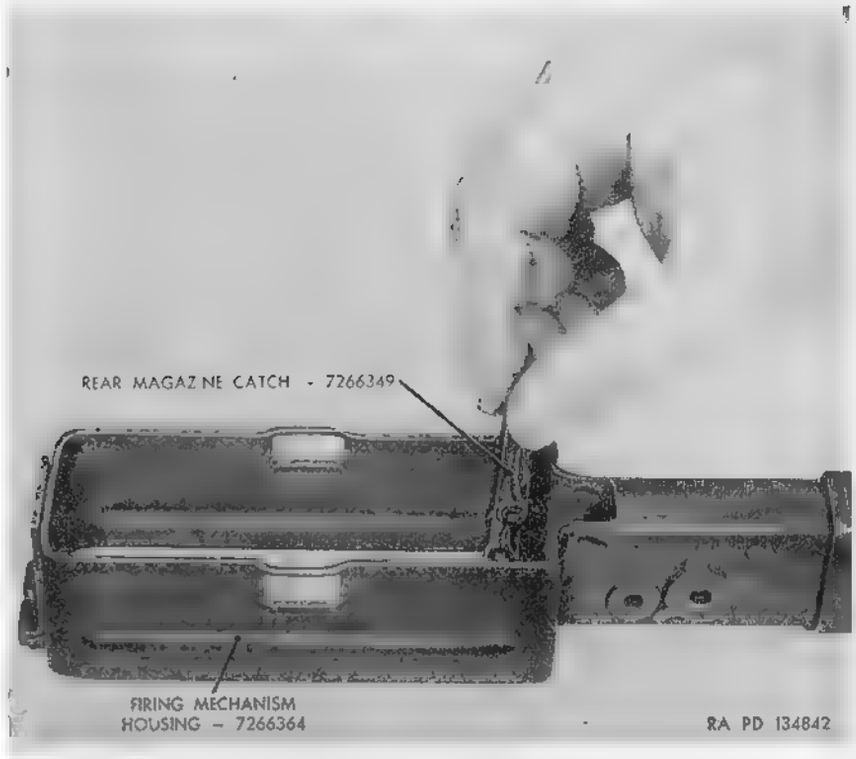

Figure 16. Removal or installation of rear magazine catch.

h. Firing Mechanism Housing. Examine the firing mechanism housing (fig. 20) for loose rivets or welds. The magazine assembly should fit snugly into magazine well of housing. The housing should fit easily into well of receiver. When in motion, the sear, sear release, and hammer should not touch sides of housing. The magazine catch slot and safety slot should not be deformed or worn. Retaining pin holes should not be worn enough to affect functioning of pins.

55. Repair and Rebuild

a. Straighten bent handle pins of buffer catch. Remove burs from spring well and pin hole of buffer catch. Replace worn or broken catch. Remove bends from magazine catch spring and replace spring if worn or broken.

b. Remove burs from hammer and sear, using a fine sharpening stone. Be sure to retain original profile when stoning. Replace worn or broken hammer or sear. Straighten bent hammer springs and replace if weak.

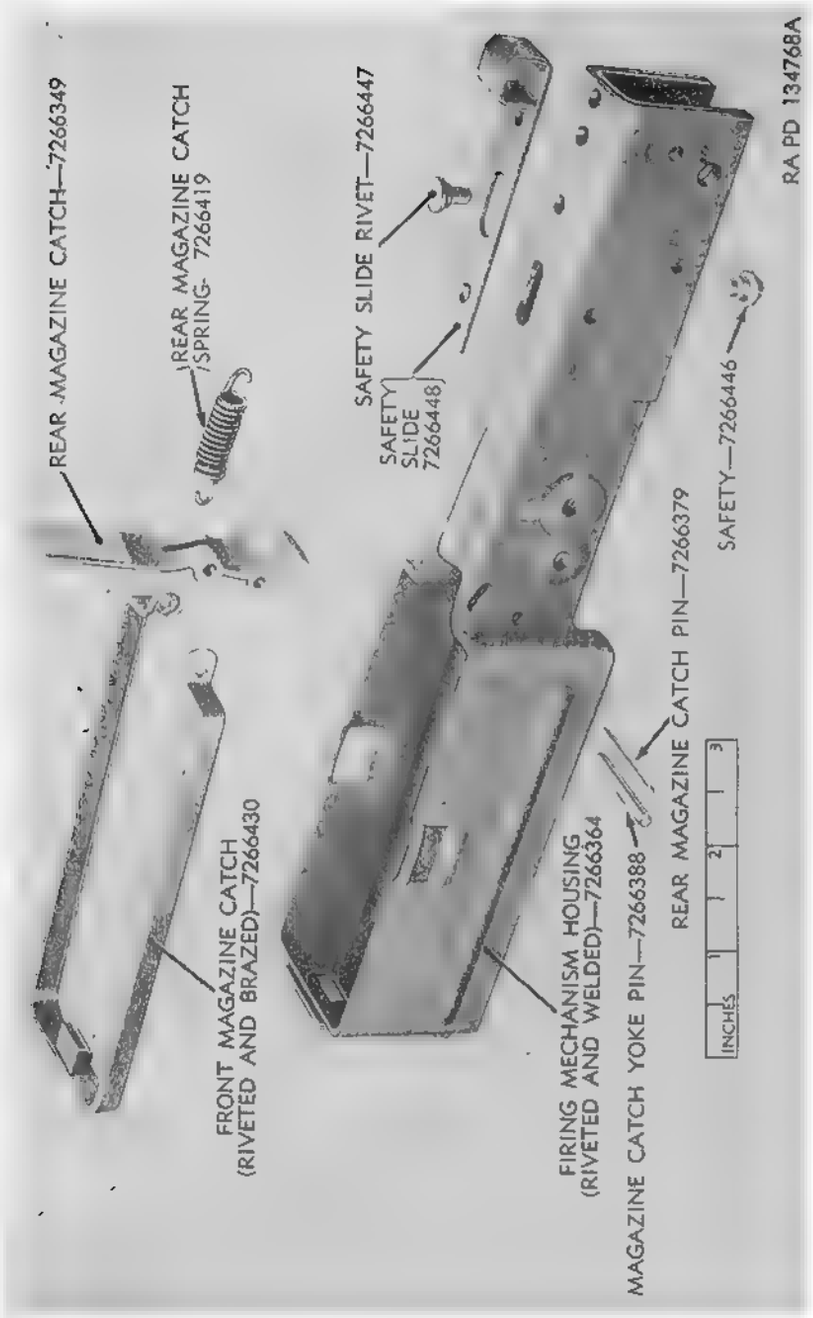

Figure 17. Housing and catch 7266350—exploded view.

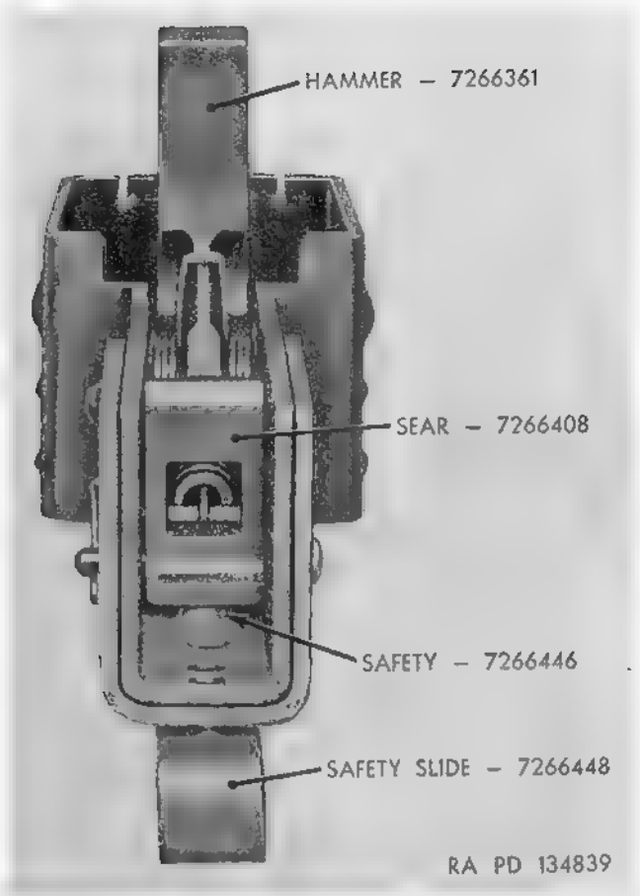

Figure 18. Safety retaining the sear in locked position.

c. Remove burs or gouges from sear release notch and replace if broken or worn. Straighten bent sear release spring and replace if it has permanent set. Remove foreign matter from slots of sear release retainer and replace if damaged. Replace worn sear release pin.

d. Burs on firing cable housing should be removed from holes and shoulders. If worn or deformed, housing should be replaced. Straighten bent firing rod and replace worn or broken 0.094 x 9/16 spring pin. A weak sear release retainer spring should be replaced.

e. Remove dents or deformation from front magazine catch and rear magazine catch. Remove foreign matter from spring slot of rear magazine catch. Replace catches if damaged or broken. If tension is weak on magazine catch spring or end loops are

broken, replace spring. Replace worn rear magazine catch pin or magazine catch yoke pin.

f. Straighten bent safety slides and replace if broken or worn. Remove burs from safety shoulder and slide rivet head.

g. Remove dents and other deformation from firing mechanism housing. Peen rivets on housing and remove burs or sharp edges. Replace housing and catch if component parts are completely worn. Straighten bent hammer pin, retaining pins, front and rear housing pins, and replace any that are worn beyond repair. Replace all cotter pins which are damaged.

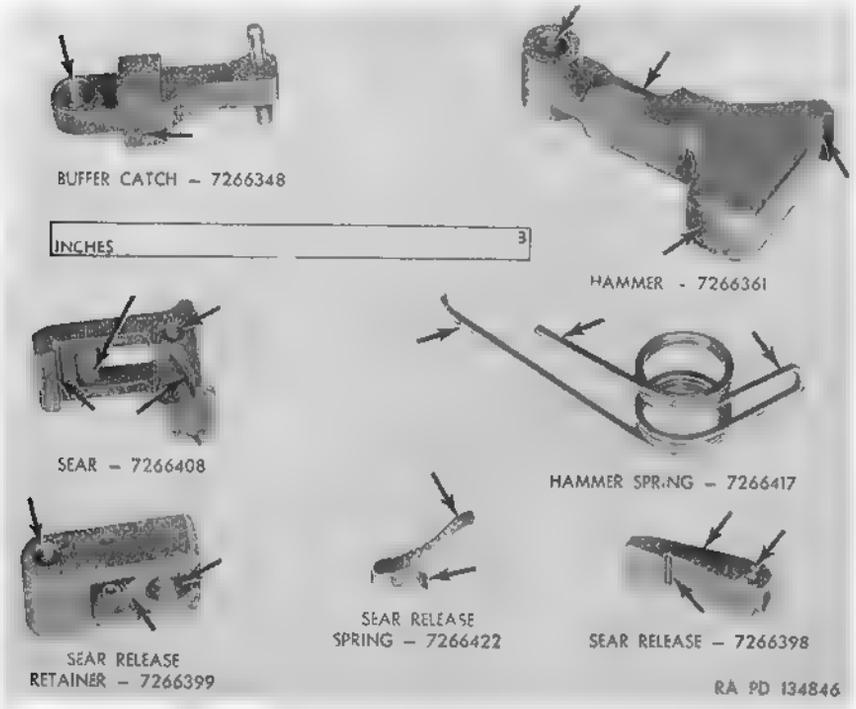

Figure 19. Firing mechanism group parts—important points to inspect.

56. Assembly and Installation

a. Insert the rear magazine catch into slot of firing mechanism housing (fig. 16) with flat side toward the magazine well. Aline catch pin hole with hole in housing while inserting the rear magazine catch pin. Insert the tang of the front magazine catch into the slot of the firing mechanism housing (fig. 17), and aline holes of front magazine catch with yoke pin hole of rear magazine catch. Insert the magazine catch yoke pin into front magazine catch, firing mechanism housing, and partially into rear magazine

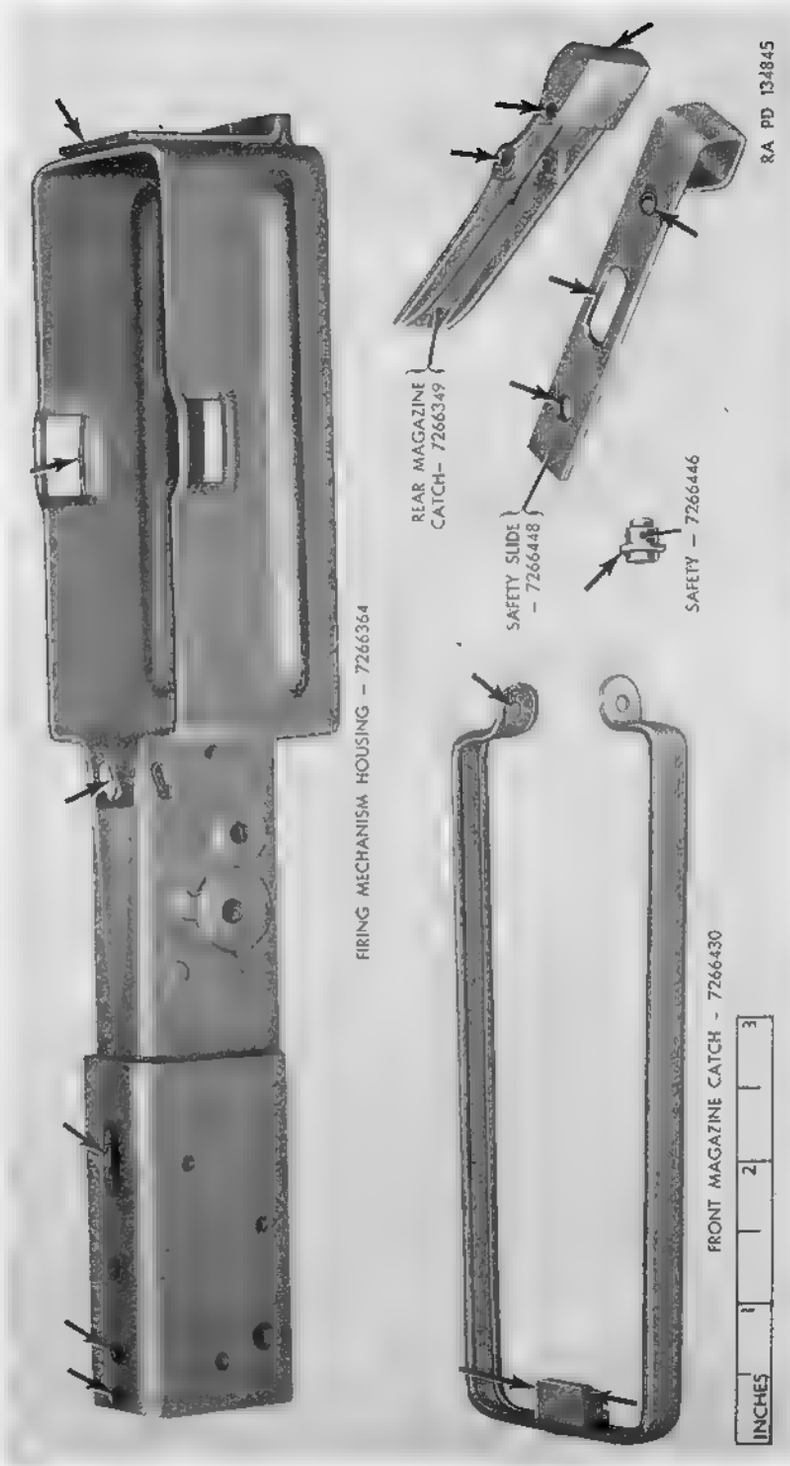

Figure 20. Housing and catch group parts—important points to inspect.

catch. Insert one end of rear magazine catch spring to rivet of housing with end loop of spring (fig. 21) upward. Extend the spring through the slot of rear magazine catch until end loop lines up with yoke pin hole in rear magazine catch. Drive the yoke pin through spring loop, rear magazine catch, firing mechanism housing, and front magazine catch. Rivet the end of the yoke pin making sure rear magazine catch moves freely in the housing slot.

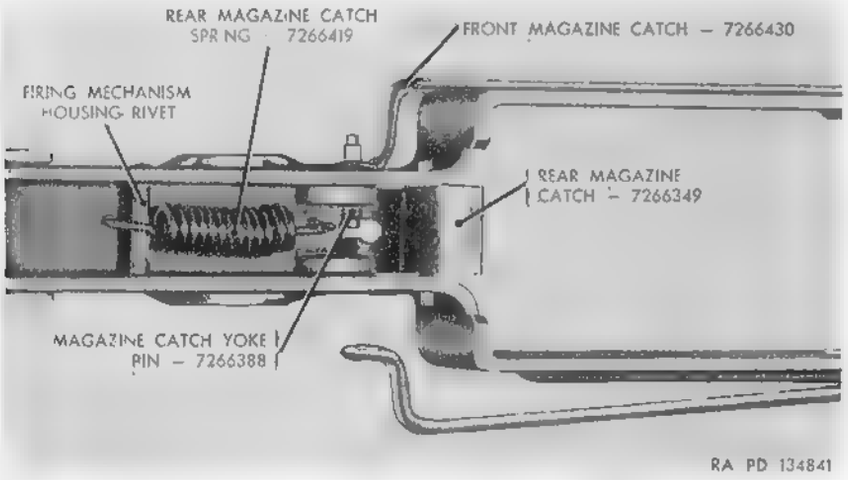

Figure 21. Locating rear magazine catch spring.

b. Aline slot firing mechanism housing with slots in safety slide (fig. 17). Insert the safety slide rivet into rear slot from outside the housing and peen on inside of housing. Be sure the slide moves after peening rivet. Insert the safety into front slot from inside the housing and peen on the outside of slide. Test slide for ease of movement after peening safety. The slide rivet after peening should be at least 0.005 inch below the housing inner surface.

c. Insert the sear into firing mechanism housing with toe towards magazine well. Drive in the retaining pin and insert the 1/16 x ½ cotter pin. Test the sear for rotation about the retaining pin when the safety is forward, and locking of sear when safety is in rearward position. Insert hammer to hammer spring (fig. 14). Insert the hammer and hammer spring into housing with long arm of the hammer spring resting on sear groove (fig. 22). Drive in the hammer pin and insert the 1/16 x ½ cotter pin.

d. Insert the sear release spring into groove of the sear release and insert both into slot of sear release retainer (fig. 13). De-

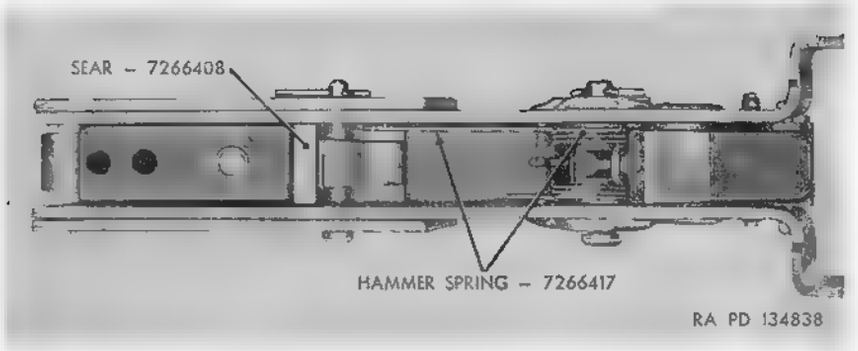

Figure 22. Hammer spring and sear in assembled position.

press the lip of the spring and force it further into retainer slot until the hole in retainer, hole in release, and curved lip of spring are alined, and insert the sear release pin into sear release retainer.

e. Insert the firing rod into hole of firing cable housing and aline the rear groove of rod bushing with rear pin hole of firing cable housing (fig. 15). Drive in the 0.094 x 9/16 spring pin. Insert the sear release retainer spring onto firing rod and compress spring while rotating the end of the sear release retainer about the end of the firing rod. Insert the sear release assembly and firing cable housing group into slot of sear. Drive in the two retaining pins into sear release assembly and firing cable housing group, and insert the two 1/16 x ½ cotter pins.

f. Insert the buffer catch spring into well of buffer catch and rotate spring clockwise until held by catch. Refer to TM 9–3058 for installation of firing mechanism assembly to the receiver group (fig. 12).

57. Functional Test

a. The force required to release the hammer from the cocked position after assembly of firing mechanism assembly should be 10 pounds maximum measured as a pull on the firing rod (fig. 23).

b. The maximum travel of the firing rod required to release the sear from sear release should be 0.200 inch. The hammer should be disengaged from the sear when checking this distance. If the firing mechanism assembly is assembled to weapon, hammer should contact firing pin during check. If mechanism assembly is disassembled from weapon, hammer shall be maintained at 90° ± 5° to firing mechanism housing base (fig. 23).

c. The minimum spring force returning the sear release to cocked position in sear slot is 5 pounds minimum measured at

the firing rod. This may be tested as the minimum force required on firing rod to prevent return of sear release to sear (fig. 23).

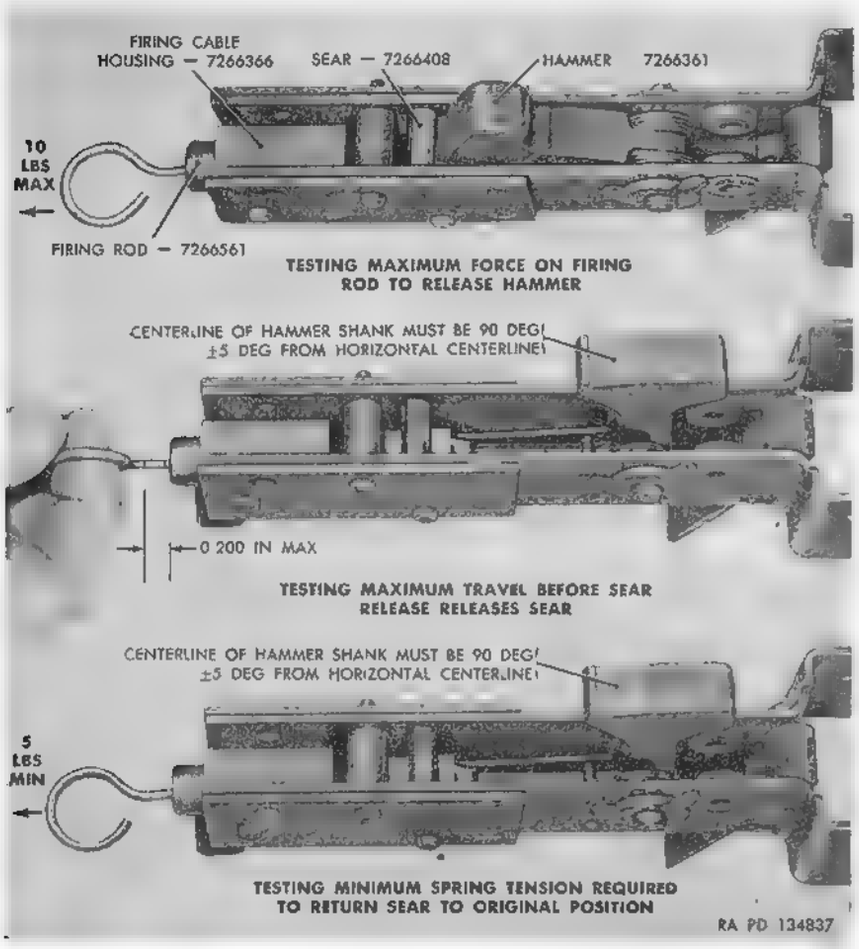

Figure 23. Testing operation of firing mechanism group.

Section VII. BARREL GROUP

58. General

The barrel group consists of the barrel assembly and operating rod assembly. The early manufacture barrel assemblies have a barrel protector to protect the threads on the end of the barrel.

59. Removal and Disassembly

a. Remove gas cylinder group and bolt slide group as described in paragraphs 35 and 47. On early manufacture barrel assemblies, unscrew the barrel protector from the end of the barrel (fig. 25). Drive out the taper pin from the gas cylinder body. Using a mallet and wood block to protect finished surfaces, drive gas cylinder body from shoulder of barrel and remove body from barrel.

b. Remove the operating rod assembly from the receiver assembly. Drill out staking marks on the operating rod spring stop and slide stop from barrel (fig. 24). Drill out the staking from two mounting keys and drive keys from barrel (fig. 25). Unscrew the barrel from the receiver with a strap wrench, while holding receiver in a vise with leather guards.

c. Drive out the spring pin from the gas piston (fig. 26). Unscrew the gas piston from the operating rod. Remove the operating rod springs and operating rod plunger from the operating rod.

d. Remove the spring pin from the gas cylinder body (fig. 25).

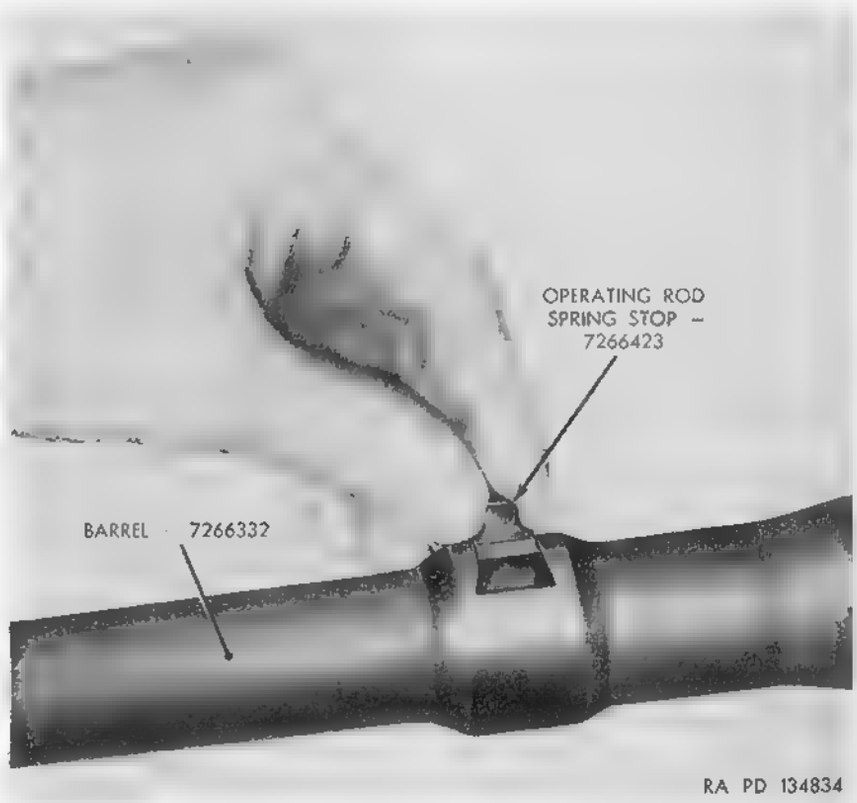

Figure 24. Disassembly or assembly of operating rod spring stop.

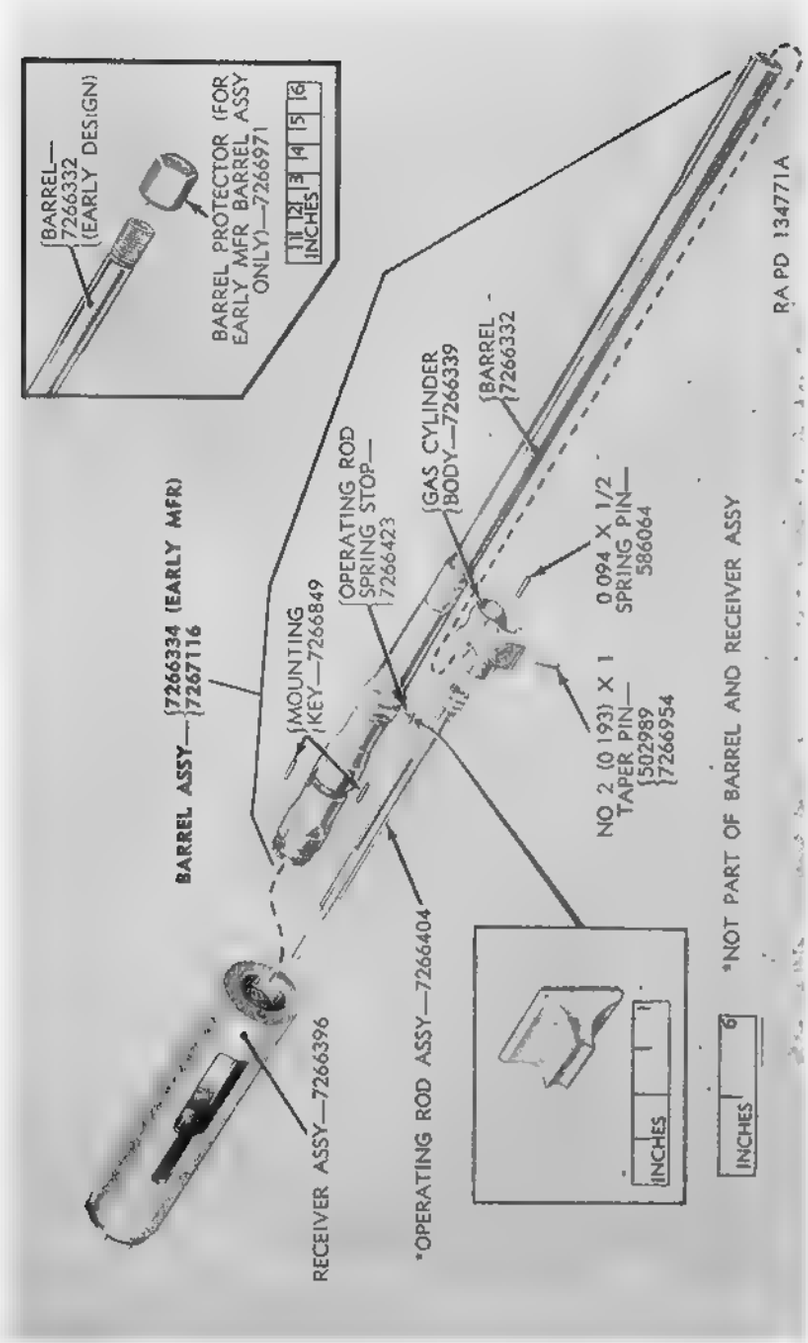

Figure 25. Barrel and receiver assembly 7266397—exploded view.

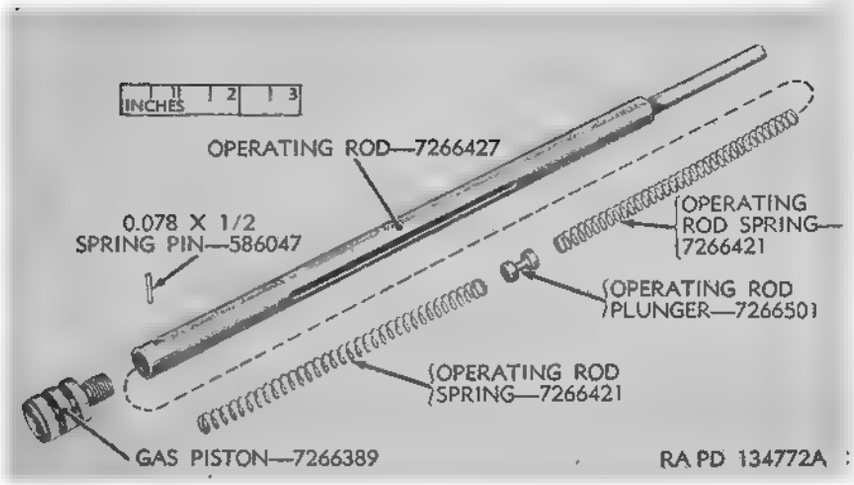

Figure 26. Operating rod assembly 7266404—exploded view.

60. Inspection

a. Barrel.

(1) Inspect the barrel for straightness, burs, corrosion, and rust. Inspect the gas port for foreign matter and excessive carbon. Check the mounting slot for wear or burs. Examine the plunger stop groove, taper pin slot, and mounting key groove for burs, gouges, or deformation. The cylinder body shoulder should not be gouged or grooved.

(2) Examine the bore of barrel for pitting. Light pitting is acceptable provided that the edges of lands are sharp. Those barrels showing developed pits or pits cutting into lands are unsatisfactory. Bores ringed sufficiently to bulge the outside surface are cause for rejection. Pits in the chamber large enough to cause extraction difficulty are cause for rejection. Inspect the bore visually, using barrel reflector 5564255 (fig. 2) inserted into chamber.

b. Operating Rod Assembly.

(1) Inspect the operating rod (fig. 11) for dents, burs, or bends. The rod should fit smoothly into receiver well. Inspect stop slot on rod for distortion or burs.

(2) Inspect the operating rod springs for tension or deformation. Ends of spring will seat evenly on the operating rod plunger. Inspect the operating rod plunger (fig. 11) for gouges, nicks, and burs.

(3) Examine gas piston (fig. 11) for gouges, scratches, and carbon on rings. The piston should fit snugly into gas cylinder. Inspect threads on piston for crossing or stripping.

c. Gas Cylinder Body. Examine the gas cylinder body (fig. 11) for gouging or scoring in cylinder well and bent barrel rings. The gas cylinder notch of body should be free from burs and nicks. Examine the gas port of body for excessive carbon. The gas screw regulator threads should not be stripped and regulator bushing should seat flush against body face.

d. Operating Rod Spring Stop. Examine nose of operating rod spring stop for wear and deformation. The stop should fit snugly in barrel slot and will be tightly staked.

61. Repair and Rebuild

a. Remove excessive rust from chamber or bore, using rifle-bore cleaner solvent cleaning compound, preservative lubricating oil (type P–9), or a crocus cloth. Remove excessive carbon from the gas port by scraping with a drill, using care not to enlarge port size. Replace barrel assembly where component parts are worn beyond serviceability. If refinishing of the barrel is necessary, be sure to plug muzzle, breech, and gas port with corks to prevent solution from entering the bore. Replace barrel assembly if components are worn beyond repair.

b. Straighten bent operating rod and remove burs with a fine stone. Remove burs from gas piston with crocus cloth or fine abrasive and remove all foreign particles from piston before assembly. Replace operating rod springs which are weak or broken. Straighten bent 0.078 x ½ spring pin and replace pin if worn or broken. Remove burs from operating rod plunger and replace if damaged beyond repair. Replace operating rod assembly if components are worn or damaged.

c. Remove carbon from gas port of gas cylinder body with a drill. Scrape excessive carbon from body well with sharp tool or fine crocus cloth. Carefully clean the body before assembly with rifle-bore cleaner solvent cleaning compound or preservative lubricating oil (type P–9). Straighten bent No. 2 (0.193) taper pin and replace if broken.

d. Remove burs from operating rod spring stop with crocus cloth. Be careful to maintain original shape of stop when stoning. Replace worn or damaged stops. Replace mounting keys if worn or broken.

62. Assembly and Installation

a. Insert one operating rod spring into operating rod well. Insert operating rod plunger (fig. 26) into operating rod well. Insert the second operating rod spring into operating rod well. Screw gas piston into operating rod until pin hole in rod alines with hole in piston. Drive in the 0.078 x ½ spring pin.

b. Insert the receiver into a vise with leather guards. Screw the barrel into the receiver, using a strap wrench. The draw line on front of the receiver should aline with draw mark on barrel (fig. 27). Insert the two mounting keys (fig. 25) into slot on barrel and drive them into place with a mallet. Stake metal of barrel over chamfer of both keys. Metal of barrel shall not protrude into annular space of barrel after staking keys.

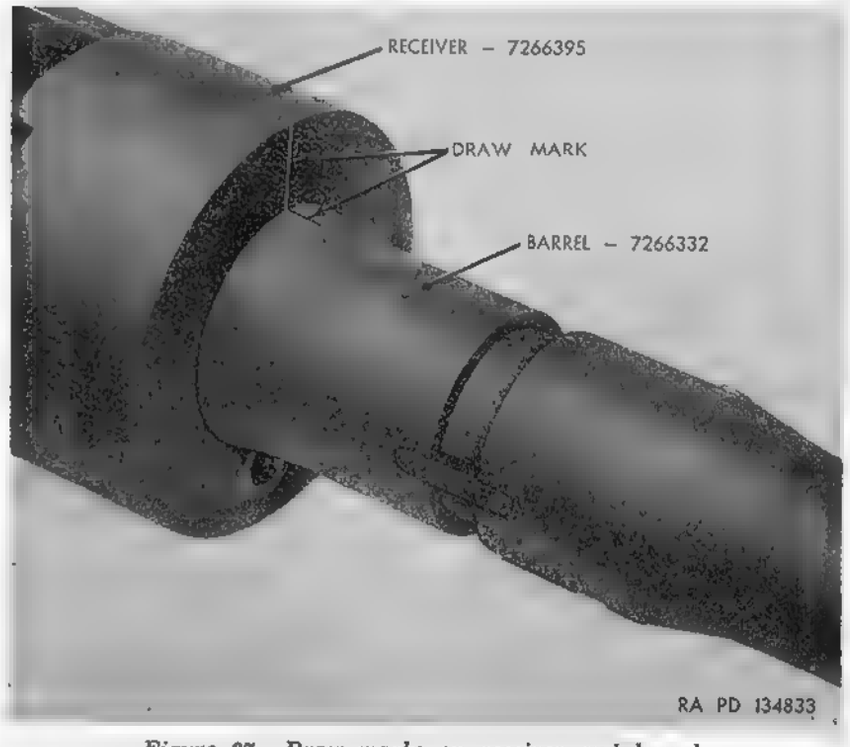

Figure 27. Draw marks on receiver and barrel.

c. Slide the operating rod spring stop into the groove on barrel (fig. 24). Insert the operating rod assembly into the hole in receiver assembly and aline groove of operating rod plunger with the stop (fig. 28). Adjust the position of the stop until the operating rod can be depressed smoothly into receiver assembly by hand. Drive in 0.094 x ½ spring pin into gas cylinder body, mak-

ing sure that pin is flush with body face. Install the gas cylinder body (fig. 29) onto barrel shoulder, using a mallet and wood block to protect finished surfaces. The taper pin slot of the barrel and taper pin hole of body should be alined while driving the body on the barrel shoulder. When the body face reaches the gas piston, aline hole in body with piston to prevent gouging the piston and body surfaces. The gas cylinder assembly should be used frequently to test the alinement of the body with piston while driving the gas cylinder body (fig. 30) on barrel shoulder. Drive in the No. 2 (0.193) x 1 taper pin (fig. 25) into hole in body until the pin extends equally on both sides of body. The pin should protrude a minimum of 0.09 inch from the body.

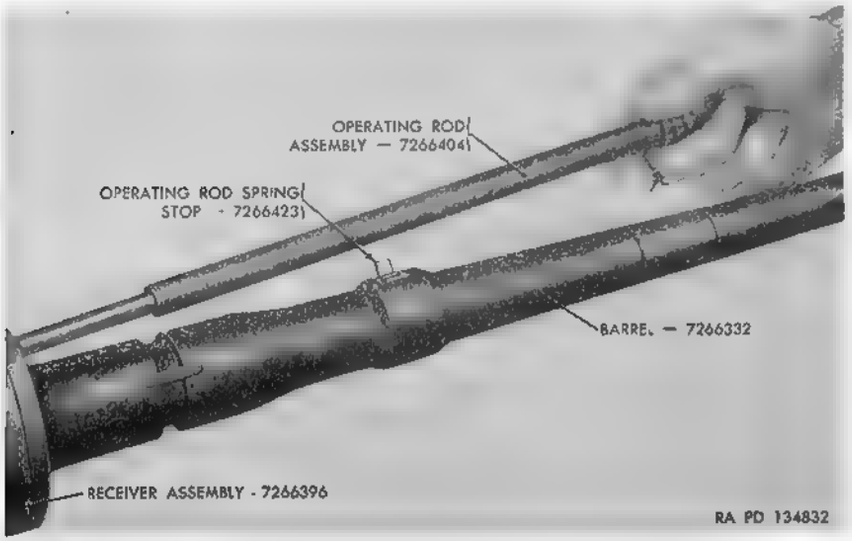

Figure 28. Installing operating rod assembly.

d. Assemble the gas cylinder group as described in paragraph 50 and the bolt slide group as described in paragraph 40. Test the operating rod assembly for ease of movement by hand. Adjust the position of the operating rod stop, if necessary, to allow free motion of rod assembly. Stake metal of barrel over the four corners of stop. On early manufacture barrel assemblies, screw barrel protector onto barrels. Remove rifle M8 from the vise.

63. Functional Test

Install rifle M8 in vise with leather guards maintaining operating rod in a horizontal level position. Reciprocate the operating rod a few times to obtain a stable position of the rod. Measure the distance between the face of the receiver and the first shoulder of the operating rod (fig. 31). The distance should measure between 0.45 to 0.68 inch. If measurement is outside these limits, the operating rod springs will be selectively assembled until this requirement is met. Remove rifle M8 from vise.

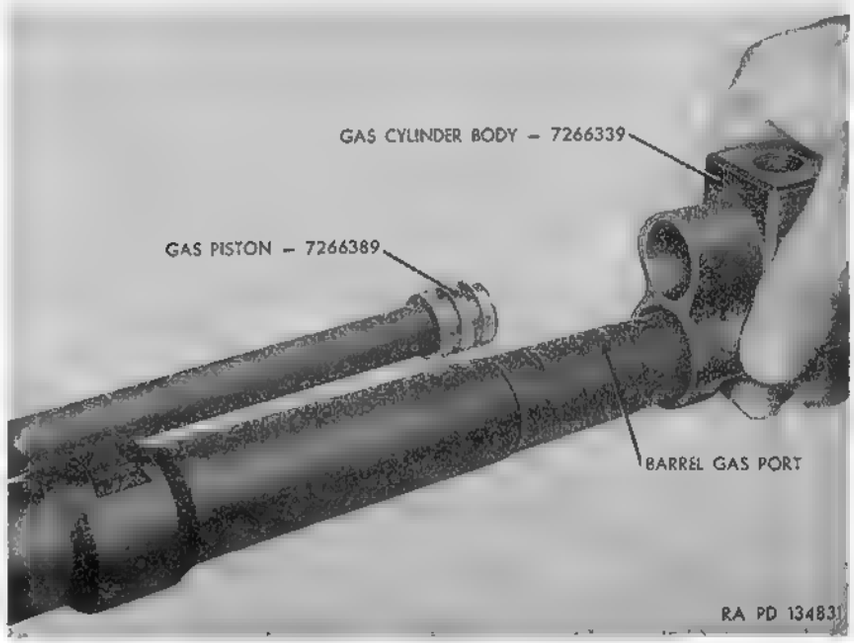

Figure 29. Installing gas cylinder body.

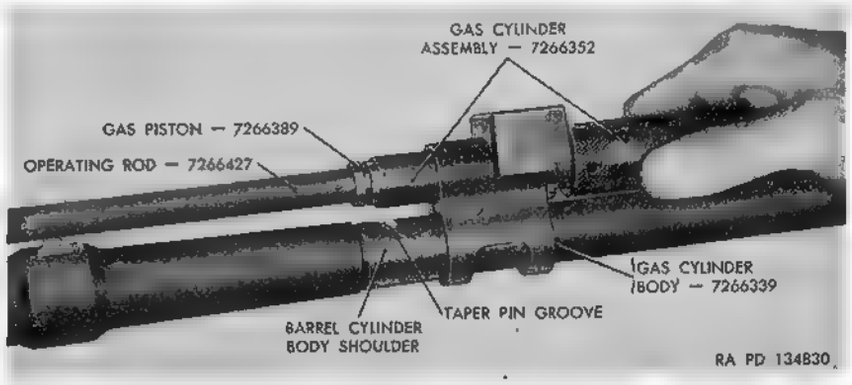

Figure 30. Checking alinement of gas cylinder body.

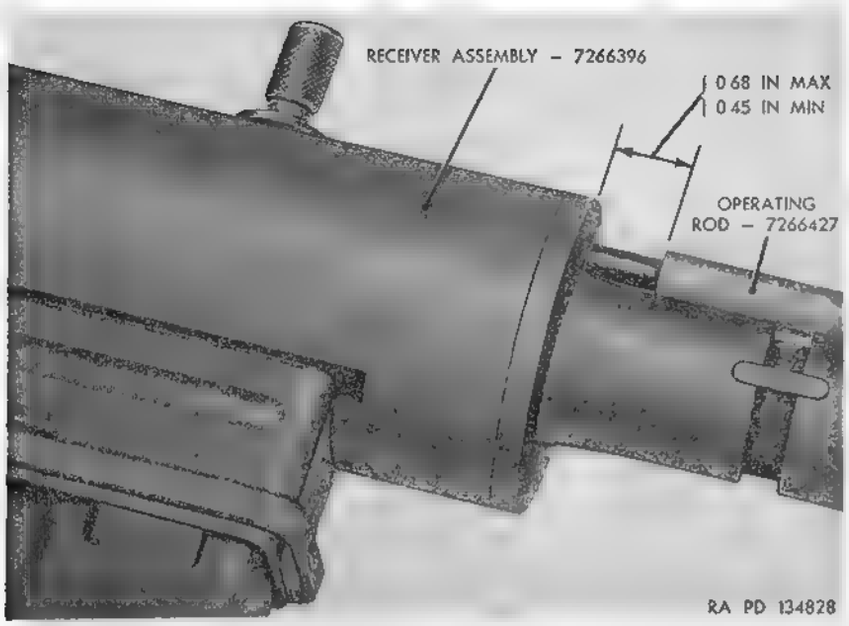

Figure 31. Operating rod shoulder clearance.

Section VIII. RECEIVER GROUP

64. General

The receiver group consists of the receiver assembly, cartridge ejector, and spring pin.

65. Removal and Disassembly

Remove the bolt slide group as described in paragraph 35 and the firing mechanism assembly as described in paragraph 53 and barrel group as described in paragraph 59. Drill out the staking from six bolt lock screws and unscrew them from receiver. Hold the bolt lock as it falls into receiver so as not to damage receiver surfaces and remove the lock from the receiver (fig. 32). Drift out the spring pin through hole in bolt lock. Remove cartridge ejector from lock (fig. 33). Drill out staking from firing mechanism retaining pin and drive out pin from receiver (fig. 34).

66. Inspection

a. Examine the threads on the receiver for stripping or crossing. Examine the slideways of receiver (fig. 35) for burs and wear. The buffer holding lugs on receiver should not show wear on edges. The magazine well and firing mechanism housing slot edges should not be damaged.

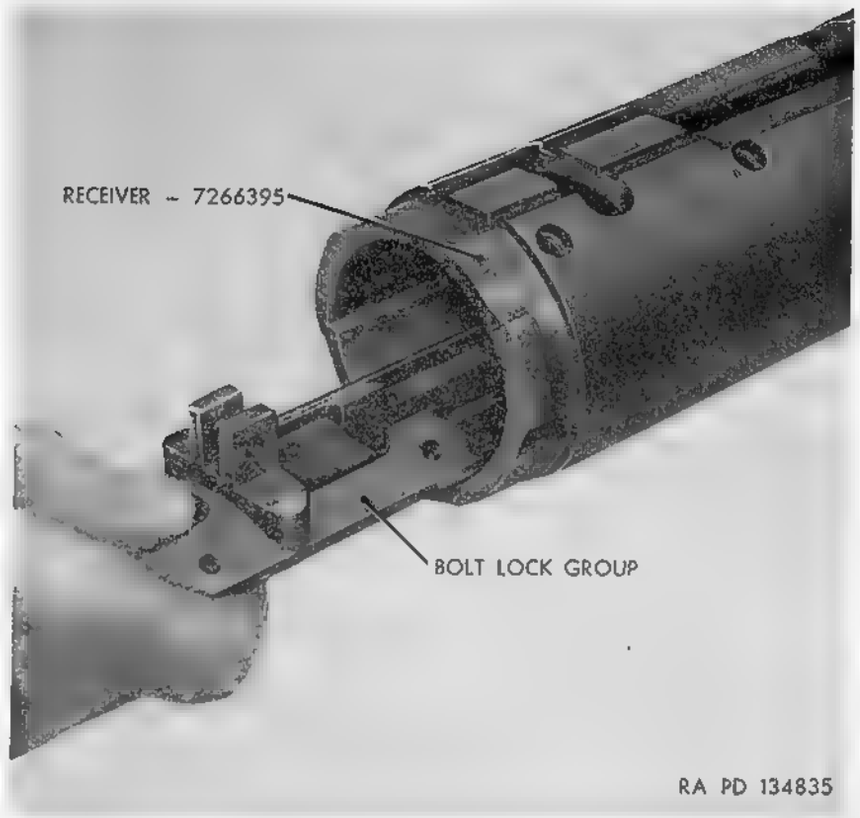

Figure 32. Removing or installing bolt lock group.

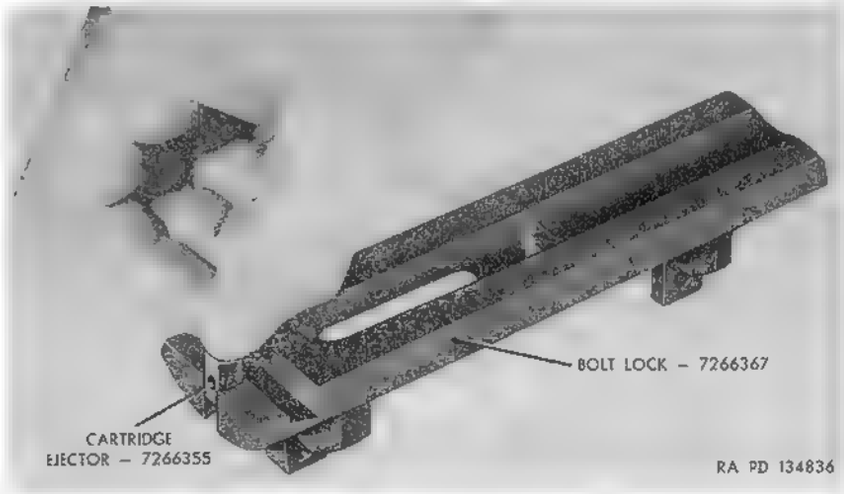

Figure 33. Disassembly or assembly of cartridge ejector.

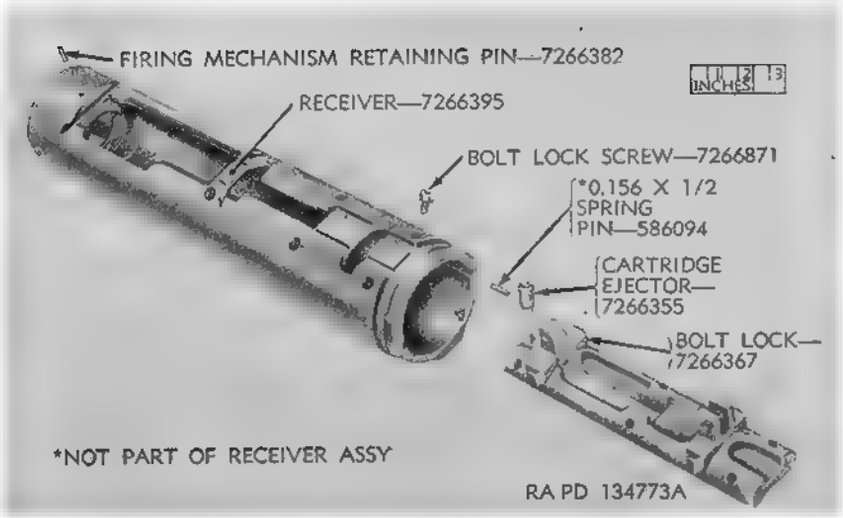

Figure 84. Receiver assembly 7266396—exploded view.

b. The firing mechanism retaining pin should not be bent or broken. The cartridge ejector should be held securely in the bolt lock and tang edge should not be worn, burred or nicked.

c. The bolt lock should fit snugly into receiver, and working and locking surfaces should be free from burs and gouging.

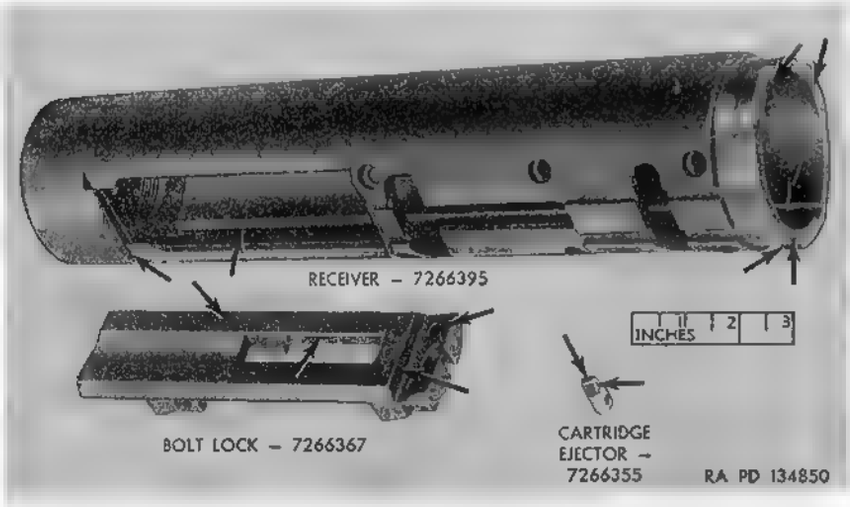

Figure 85. Receiver group parts—important points to inspect.

67. Repair and Rebuild

a. Remove burs from bolt lock surfaces and chase crossed threads of lock. Clean foreign matter from pin holes and ejector well. Replace broken lock. Replace bolt lock screws if threads are damaged or heads are bulged.

b. Stone burs from cartridge ejector, using care to maintain original shape and profile. Replace cartridge ejector if worn or damaged. Replace worn or broken 0.156 x ½ spring pin.

68. Assembly and Installation

a. Drive in the firing mechanism retaining pin (fig. 34) and stake to the receiver. Install the cartridge ejector (fig. 33) into bolt lock with tang side down and with flat alined with front surface of lock. Aline holes in ejector and lock. Drive in the 0.156 x ½ spring pin into ejector.

b. Install the bolt lock into receiver (fig. 32) and secure with six bolt lock screws.

Note. The bolt lock must be fully rearward before tightening bolt lock screws.

Stake the screws securely to the receiver. Install the firing mechanism assembly as described in paragraph 56 and the bolt slide group as described in paragraph 40 and barrel groups as described in paragraph 62.

CHAPTER 5

FINAL INSPECTION

Section I. RETURN TO USER

69. General

Weapons turned in for repair may be assumed to have defects caused by use or neglect. When they were accepted as new weapons, the parts composing them were dimensionally correct and made of the proper material. The inspection of these weapons after repair will differ from the inspection procedure used in the manufacturing plant, in that attention will be directed to wearing surfaces, parts that might crack or break due to high stress or fatigue, and evidences of corrosion. These defects do not evidence themselves by uniform reduction in a given dimension but show up as a chipped edge, a partially worn surface, or an eccentric hole. A gage used in manufacturing is merely a means of comparing an unknown dimension with a known one to judge whether a piece comes within tolerances. After this piece is worn through use, the change in dimension is more easily detected in many cases by comparing with adjacent surfaces; the piece in itself becomes a gage. Visual inspection is far more applicable in these cases and gaging is limited to those dimensions that are critical or that may be more advantageously measured than compared. Inspection of noncritical parts (parts that do not cause malfunctions) will be limited to appearance and the presence of cracks or flaws. The dimensions placed on these parts (and gaging used during manufacturing) were for the sole purpose of insuring interchangeability. Even if the dimensions of such parts are worn considerably below drawing tolerances, functioning and interchangeability will not be adversely affected and the parts are consequently acceptable. This materiel must meet the lower limit of serviceability in accordance with standards and tolerances prescribed in chapter 4 that are prescribed for field maintenance and with information in chapter 3 on materiel evacuated to the ordnance unit.

70. Specific Inspection Procedures

a. Check visual appearance of weapon.

b. Check functioning of rifle, using dummy ammunition.

c. Check functioning of safety and safety slide.

d. Check charging handle for fit in bolt slide.

e. Inspect firing mechanism housing and catch for the following:

(1) Function of front and rear magazine catches.

(2) Function of sear, sear release assembly, and hammer.

(3) Function of buffer catch.

f. Check the ease of movement of operating rod in gas cylinder by reciprocating rod by hand.

g. Check for proper firing rod pull (par. 57).

h. Operate rifle by hand to ascertain that final adjustments have been made for proper operation.

Section II. RETURN TO STOCK

71. General

Materiel to be returned to stock must fulfill inspection requirements covered in paragraph 69 and table III (par. 15). Since final acceptance of materiel depends largely upon the care exercised during repair and rebuild processes, it is extremely important that in-process inspections be carefully performed at the points as indicated in chapter 4.

72. Specific Inspection Procedures

a. Function-fire all rifles before placing in storage.

b. Upon completion of inspection, rifles will be properly cleaned and lubricated and correct rust-preventive compound applied.

c. Check overall appearance of weapon for a satisfactory finish from dense black to medium light gray.

d. Inspect for looseness or play in such components as buffer assembly, bolt slide, firing mechanism assembly, and gas cylinder group.

CHAPTER 6

REPAIR AND REBUILD STANDARDS

73. General

The standards included herein give the minimum and maximum measurements and key clearances of new or rebuilt parts. Normally, all parts that have not been worn beyond the dimensions or limits indicated or damaged from corrosion will be approved for service. Those beyond the dimensions or limits will be replaced.

74. Firing Mechanism Assembly

Fig. No.	Ref. ltr.	Point of measurement	Repair and rebuild standards Minimum	Maximum
36	A	Depth of safety slide rivet below firing mechanism housing	0.005	
36	B	Travel of firing rod to release sear from sear release		0.200
36	C	Firing rod force required to release hammer		10 lb
36	D	Spring force returning sear to cocked position	5 lb	

75. Barrel Group

Fig. No.	Ref ltr.	Point of measurement	Repair and rebuild standards Minimum	Maximum
36	E	Receiver face to operating rod shoulder	0.45	0.68
36	F	Protrusion of No. 2 (0193) x 1 taper pin	0.09	

76. Coil Spring Standards

Table V lists the standards for new coil springs. All coil springs will be replaced during rebuild.

Table V. Coil Spring Standards (New)

Spring	Part No.	Number of coils	Mean assembled height (in.)	Load at mean assembled height (lb)	Minimum operating height (in.)	Load at minimum operating height (lb)
Buffer catch	7266413	9 ± ¼	0.48 (max test height)	11 ± 1 (at max test height)	0.41	14 ± 1
Driving	7266415	115 Max 112 Min	11.925	7.00 ± 0.75	5.495	15.85 ± 1.50
Extractor plunger.	7266416	16	0.620	3.65 ± 0.50	0.488	4.21 ± 0.50
Operating rod.	7266421	37 Max 36 Min	3.290	5.15 ± 0.50	2.690	7.20 ± 0.65
Rear magazine catch.	7266419	13–½	1.854	50.00 ± 5.00	1.602	25.50 ± 3.50
Sear release retainer.	7266420	13–1	0.830	6.77 ± 1.00	0.630	8.25 ± 1.25

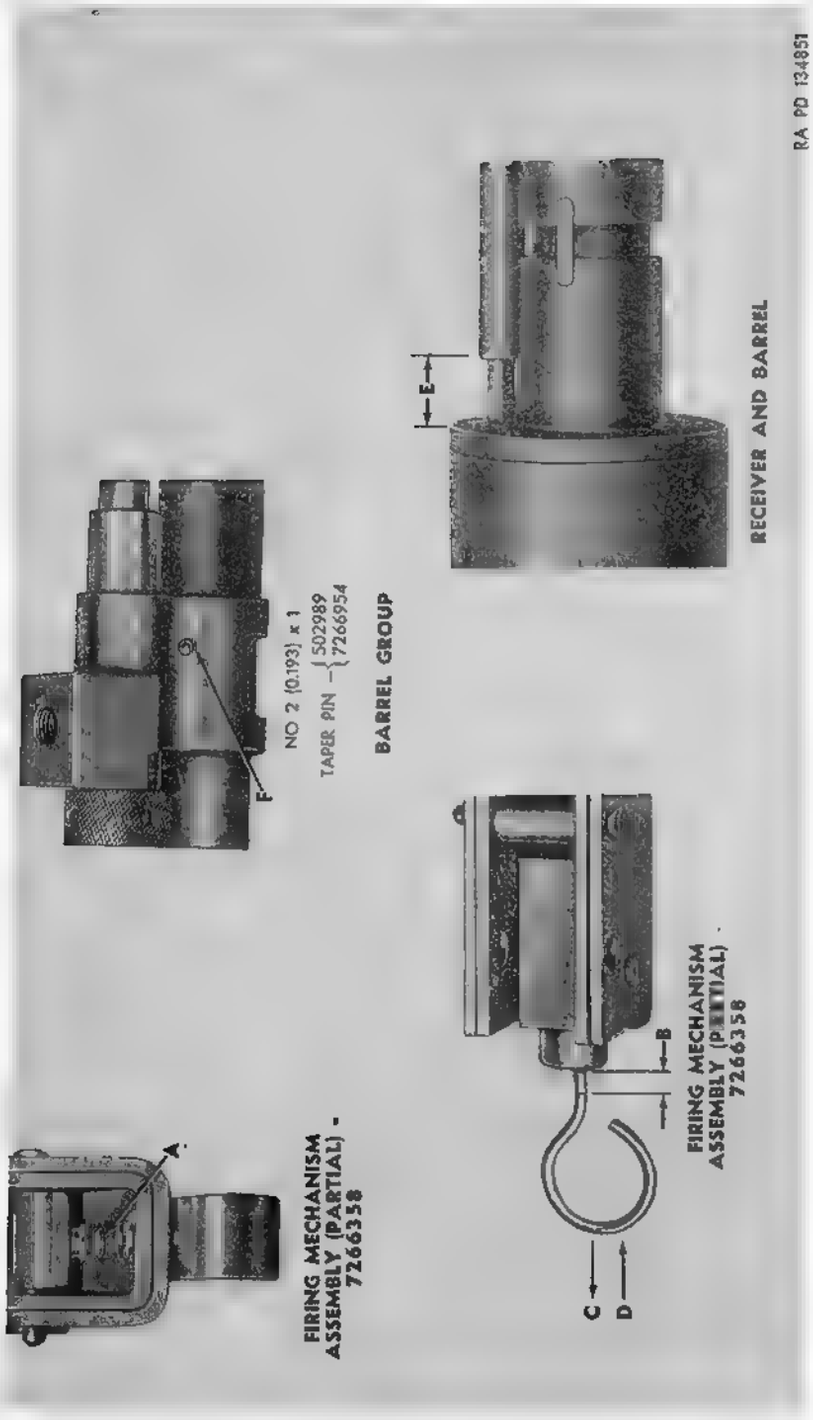

Figure 36. Minimum and maximum measurements.

APPENDIX

REFERENCES

1. Publication Indexes

DA pamphlets of the 310-series and DA Pam 108–1 should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to materiel covered in this manual.

2. Supply Manuals

The following manuals of the Department of the Army supply manuals pertain to this materiel:

a. Destruction to Prevent Enemy Use.

b. General.

Index of Supply Manuals—Ordnance Corps	DA Pam 310–29
Introduction	ORD 1

c. Repair and Rebuild.

Cleaners, Preservatives, Lubricants, Recoil Fluids, Special Oils, and Related Maintenance Materials.	ORD 3 SNL K–1
Items of Soldering, Metallizing, Brazing, and Welding Materials; Gases and Related Items.	ORD 3 SNL K–2
Lubricating Equipment, Accessories, and Related Dispensers.	ORD (*) SNL K–3
Miscellaneous Hardware	ORD 5 SNL H–2
Shop Set, Small Arms, Field Maintenance	ORD 6 SNL J–8, Sec 6
Special Tool Sets for Small Arms and Automatic Weapons (SNL Groups A and B).	ORD 6 SNL J–12
Standard Hardware	ORD 5 SNL H–1
Tool Set, Armorers'	ORD 6 SNL J–10, Sec 1
Tool Set, Canvas and Leather Repairman	ORD 6 SNL J–10, Sec 15
Tool Set, Small Arms Repairman (Ordnance) (MOS 0903).	ORD 6 SNL J–10, Sec 2

d. Weapon.

Rifle, Spotting, Cal. .50, M8 (T46E2)	ORD (*) SNL B–48
Rifle, 106-MM, M40 (T170E1); Mount, 106-MM Rifle, M79.	ORD 7 SNL C 93

(*) See DA Pam 310–29, Index of Supply Manuals—Ordnance Corps, for published types of manuals of the Ordnance section of the Department of the Army Supply Manual.

3. Forms

The following forms pertain to this materiel:

DA Form 9–13, Weapon Record Book—Part I—Major Item: Complete Record
DA Form 9–13–1, Weapon Record Book—Part II—Cannon Data
DA Form 9–71, Locator and Inventory Control Card
DA Form 9–72, Ordnance Stock Record Card
DA Form 9–76, Request for Work Order
DA Form 9–77, Job Order Register
DA Form 9–78, Job Order
DA Form 9–79, Parts Requisition
DA Form 9–80, Job Order File
DA Form 9–81, Exchange Part of Unit Identification Tag
DA Form 468, Unsatisfactory Equipment Report
DA Form 811, Work Request and Job Order
DA Form 811–1, Work Request and Hand Receipt
DA Form 828, Job Time Ticket—Individual
DA Form 829, Rejection Memorandum
DA Form 865, Work Order
DA Form 866, Consolidation of Parts
DA Form 867, Status of Modification Work Order
DD Form 6, Report of Damaged or Improper Shipment

4. Other Publications

The following manuals contain information pertinent to this materiel and associated equipment:

a. Camouflage.

Camouflage, Basic Principles	FM 5–20
Camouflage of Individuals and Infantry Weapons	FM 5–20A

b. Decontamination.

Decontamination	TM 3–220
Defense Against Chemical Attack	FM 21–40

c. Destruction to Prevent Enemy Use.

Explosives and Demolitions	FM 5–25
Ordnance Service in The Field	FM 9–5

d. General.

Common Classification Code	AR 711–50
Inspection of Ordnance Materiel in The Hands of Troops.	TM 9–1100
Regulations for Firing Ammunition on Training, Target Practice, and Combat.	AR 385–63
Safety: Accident Reporting	SR 385–10–40
Supplies and Equipment: Unsatisfactory Equipment Report.	SR 700–38

e. Operation.

Fundamentals of Small Arms	TM 9–2205
Small Arms Materiel and Associated Equipment	TM 9–2200

f. Repair and Rebuild.

Abrasive, Cleaning, Preserving, Sealing, Adhesive, and Related Materials Issued for Ordnance Materiel.	TM 9–850
Black Finishing Equipment for Ferrous Metals	TM 9–1861
Cal. .50 Spotting Rifle M8; 106-MM Rifle M40; and 106-MM Rifle Mount M79.	TM 9–3058
Instruction Guide: Welding Theory and Application	TM 9–2852
Lubrication	TM 9–2835
Maintenance Supplies and Equipment: Maintenance Responsibilities and Shop Operation.	AR 750–5
Ordnance Maintenance and General Supply in the Field.	FM 9–10
Painting Instructions for Field Use	TM 9–2851
Repair and Rebuild Standards for Small Arms Materiel.	TB ORD 366

g. Shipment and Limited Storage.

Army Shipping Document	TM 38–705
Inspection, Preservation, and Maintenance in Storage of Small Arms Materiel.	SR 743–110–1
Instruction Guide: Ordnance Packing and Shipping (Posts, Camps, and Stations).	TM 9–2854
Marking and Packing of Supplies and Equipment: Marking of Oversea Supply.	SR 746–30–5
Ordnance Storage and Shipment Chart—Group B	SB 9–OSSC–B
Preparation of Ordnance Materiel for Deep-Water Fording.	TM 9–2853
Preservation, Packaging, and Packaging of Military Supplies.	TM 38–230
Processing of Motor Vehicles and Related Unboxed Materiel for Shipment and Storage.	SB 9–4
Protection of Ordnance General Supplies in Open Storage.	TB ORD 379
Shipment of Supplies and Equipment: Report of Damaged or Improper Shipment.	SR 745–45–5
Standards for Oversea Shipment and Domestic Issue of Ordnance Materiel Other Than Ammunition and Army Aircraft.	TB ORD 385
Supplies and Equipment—Motor Vehicles	AR 700–105

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[AG 474.1 (23 Dec 55)]

By Order of *Wilber M. Brucker*, Secretary of the Army:

MAXWELL D. TAYLOR,
General, United States Army,
Chief of Staff.

Official:

JOHN A. KLEIN,
Major General, United States Army,
The Adjutant General.

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Ord Co (2) except TOE 9–12R, 9–17R, 9–46R, 9–47R, 9–49R, 9–57R, 9–229R, 9–347R, 9–367R, 9–387R (1).
Ft & Cp (2)
Gen & Br Svc Sch (2) except Ord Sch (50)
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Gen Depots (2) except Atlanta Gen Depot (None)
Ord Sec, Gen Depots (5)
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Ord Arsenal (5) except Raritan Arsenal (100)
Benicia Arsenal (20)
Mil Dist (1)
Ord Proc Dist (10)
MAAG (1)
Mil Msn (1)

NG: State AG (6); units—same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see SR 320–50–1.