

***ARMY TM 9-1005-319-23&P
AIR FORCE TO 11W3-5-5-42
NAVY SW370-BU-MMI-010**

TECHNICAL MANUAL

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

**RIFLE, 5.56MM, M16A2 W/E, PN 9349000
NSN 1005-01-128-9936 (EIC:4GM);
RIFLE, 5.56MM, M16A3 W/E, PN 12012000
NSN 1005-01-357-5112;
RIFLE, 5.56MM, M16A4 W/E, PN 12973001
NSN 1005-01-383-2872 (EIC:4F9);
CARBINE, 5.56MM, M4, PN 9390000
NSN 1005-01-231-0973 (EIC:4FJ);
CARBINE, 5.56MM, M4A1, PN 12972700
NSN 1005-01-382-0953 (EIC:4GC)**

*Supersedes TM 9-1005-319-23&P, 11W3-5-5-42, and SW370-BU-MMI-010. 01 May 1991, including all changes.

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DEPARTMENTS OF THE ARMY, AIR FORCE, AND NAVY

NOVEMBER 2008

WARNING SUMMARY

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

FIRST AID

For first aid information, refer to FM 4-25.11, First Aid. Air Force users will refer to Air Force Manual AFMAN 44-163(I), First Aid Manual.

EXPLANATION OF SAFETY WARNING ICONS



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



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



FLYING PARTICLES - arrows bouncing off face shows that particles flying through the air will harm face.



WEAPON FIRE - weapon could accidentally discharge causing serious injury or death.

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING



To avoid injury to eyes, use care when removing and installing spring-loaded parts.

WARNING



WEAPON FIRE

Before starting an inspection, be sure to clear the weapon. Do not pull the trigger until the weapon has been cleared. Inspect the chamber to ensure that it is empty and no ammunition is in position to be chambered.

The lock plate prevents the selector lever from being placed in BURST and will be installed at the discretion of the unit commander. It is mandatory for use in civil disturbance (riot control).

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued



Do not keep live ammunition near work area.

If the weapon fails function tests, perform required maintenance. Continued use of weapon could result in injury to, or death of, personnel.

All M16A2, M16A3, M16A4 rifles and M4/M4A1 carbines must be inspected and gaged at least once annually for safety and serviceability. Initial gaging is required 1 year from receipt of the weapons. Air Force users refer to inspection requirements in the Air Force Instruction (AFI) 36-2226.

All Army Reserve and Army National Guard M16A2 rifles and M4 carbines must be inspected and gaged at least once every 2 years, after the initial inspection/gaging procedures have been accomplished. This initial gaging procedure is required 1 year from receipt of the weapons. This 2 year interval may be maintained unless preventive maintenance checks and services (PMCS) or other physical evidence indicates that an individual unit's M16A2 rifles and M4 carbines require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect the interval of inspection for other units.

It is recommended that training units inspect/gage all rifles and carbines at the end of each training cycle. Training units will inspect/gage all rifles and carbines at least once annually.

Unless performed by qualified maintenance personnel, DO NOT interchange bolt assemblies from one rifle/carbine to another. Doing so may result in injury to, or death of, personnel.

Bolt cam pin must be installed or rifle/carbine will blow up while firing the first round. If the bolt cam pin is not installed, injury to or death of personnel may result.

The lock plate prevents the selector lever from being placed in BURST and will be installed at the discretion of the unit commander. It is mandatory for use in civil disturbance (riot control).

Only blank cartridge M200 is to be used when the blank firing attachment (BFA) is attached to the carbine rifle. Ensure that the blank firing attachment (BFA) is removed before using live ammo. Use of live ammo with the BFA attached will result in a blown weapon and personal injuries.

Do not fire blank ammunition at a target at distances of less than 20 feet (6.10 m). The unburned propellant grains can cause injury within this distance.

For further information on safety, care, and handling of ammunition, Army users will refer to TM 9-1005-319-10. Air Force users should refer to AFI 21-201, Management and Maintenance of Non-Nuclear Munitions, and AFMAN 91-201, Explosives Safety Standards.

Any screw longer than 1 1/8 inch used with enhanced rifle grip part number 93949127 could make the disconnecter inoperable, and the weapon will not be able to fire in the burst mode. The loss of burst capability in a tactical situation could put the operator at risk. Ensure that the washer is in place.

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS



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



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



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



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

HAZARDOUS MATERIALS DESCRIPTION

WARNING



DRY CLEANING SOLVENT

Dry cleaning solvent is flammable and toxic and should be used in a well-ventilated area. Do not clean parts near an open flame or in a smoking area. Cleaning solvent evaporates quickly and has a drying effect on the skin. The use of protective gloves is necessary to protect the skin when cleaning weapon parts.

WARNING



SOLID FILM LUBRICANT

The ingredient, methylene chloride, is considered carcinogenic. Wear eye and skin protection and be sure the area is well-ventilated. Wash exposed skin thoroughly with soap and water.

WARNING



DICHLOROMETHANE

The ingredient, methylene chloride, is considered carcinogenic. Wear eye and skin protection and be sure the area is well-ventilated. Wash exposed skin thoroughly with soap and water.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING



CARBON REMOVING COMPOUND

When using carbon removing compound, avoid skin contact. If carbon removing compound comes in contact with the skin, wash thoroughly with running water. Using a good lanolin base cream after exposure to the compound is helpful. The use of gloves and protective equipment is required.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 9-1005-319-23&P, 11W3-5-5-42, and SW370-BU-MMI-010, 01 May 1991. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 28 November 2008

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 40 AND TOTAL NUMBER OF WORK PACKAGES IS 45 CONSISTING OF THE FOLLOWING:

Page/WP No.	Change No.	Page/WP No.	Change No.
Front Cover.....	0	WP 0029 (10 pgs).....	0
Warning summary (4 pgs)	0	WP 0030 (8 pgs).....	0
A	0	Chapter 4 title page	0
B blank.....	0	WP 0031 (2 pgs).....	0
i - xi	0	WP 0032 (6 pgs).....	0
xii blank	0	WP 0033 (6 pgs).....	0
Chapter 1 title page	0	WP 0034 (6 pgs).....	0
WP 0001 (8 pgs).....	0	WP 0035 (4 pgs).....	0
WP 0002 (6 pgs).....	0	WP 0036 (6 pgs).....	0
WP 0003 (4 pgs).....	0	WP 0037 (8 pgs).....	0
Chapter 2 title page	0	Chapter 5 title page	0
WP 0004 (2 pgs).....	0	WP 0038 (8 pgs).....	0
WP 0005 (22 pgs).....	0	WP 0039 (60 pgs).....	0
Chapter 3 title page	0	WP 0040 (4 pgs).....	0
WP 0006 (2 pgs).....	0	WP 0041 (4 pgs).....	0
WP 0007 (2 pgs).....	0	Chapter 6 title page	0
WP 0008 (28 pgs).....	0	WP 0042 (4 pgs).....	0
WP 0009 (18 pgs).....	0	WP 0043 (4 pgs).....	0
WP 0010 (6 pgs).....	0	WP 0044 (4 pgs).....	0
WP 0011 (8 pgs).....	0	WP 0045 (6 pgs).....	0
WP 0012 (10 pgs).....	0	Index-1 - Index-7	0
WP 0013 (4 pgs).....	0	Index-8 blank.....	0
WP 0014 (2 pgs).....	0		
WP 0015 (26 pgs).....	0		
WP 0016 (10 pgs).....	0		
WP 0017 (4 pgs).....	0		
WP 0018 (4 pgs).....	0		
WP 0019 (14 pgs).....	0		
WP 0020 (2 pgs).....	0		
WP 0021 (22 pgs).....	0		
WP 0022 (6 pgs).....	0		
WP 0023 (2 pgs).....	0		
WP 0024 (4 pgs).....	0		
WP 0025 (10 pgs).....	0		
WP 0026 (2 pgs).....	0		
WP 0027 (4 pgs).....	0		
WP 0028 (2 pgs).....	0		

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TABLE OF CONTENTS

	<u>WP Sequence No.</u>
<u>Page No.</u>	
Warning Summary	
How To Use This Manual	
CHAPTER 1 — GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION	
General Information	WP 0001
Figure 1. External View of 5.56mm Rifle, M16A2	0001-1
Figure 2. External View of 5.56mm Rifle, M16A3 and M16A4	0001-2
Figure 3. External View of 5.56mm Carbine, M4/M4A1	0001-3
Equipment Description and Data	WP 0002
Figure 1. Major Components of Rifles and Carbines	0002-2
Theory of Operation	WP 0003
Figure 1. Operation of Rifles and Carbines	0003-2
CHAPTER 2 — FIELD TROUBLESHOOTING PROCEDURES	
Troubleshooting Index	WP 0004
Troubleshooting Procedures	WP 0005
Table 1. Troubleshooting Procedures	0005-1
Figure 1. Magazine Catch Inspection	0005-2
Figure 2. Magazine Catch and Spring Inspection	0005-3
Figure 3. Action Spring	0005-3
Figure 4. Bolt Carrier Assembly Inspection	0005-4
Figure 5. Extractor Spring Assembly Inspection	0005-4
Figure 6. Gas Tube	0005-5
Figure 7. Action Spring Inspection	0005-5
Figure 8. Hammer and Burst Cam Inspection	0005-6
Figure 9. Firing Pin Retaining Pin Inspection	0005-7
Figure 10. Selector Lever and Firing Pin Inspection	0005-7

TABLE OF CONTENTS - Continued

WP Sequence No.

Page No.

CHAPTER 2 — FIELD TROUBLESHOOTING PROCEDURES (Continued)

Figure 11. Locking Lugs Inspection.....	0005-8
Figure 12. Cartridge Extractor Inspection.....	0005-8
Figure 13. Cartridge Ejector Inspection.....	0005-9
Figure 14. Trigger and Hammer Inspection.....	0005-10
Figure 15. Disconnecter, Automatic Sear, and Burst Cam Inspection.....	0005-11
Figure 16. Action Spring Replacement.....	0005-12
Figure 17. Bolt Ring Gap Adjustment.....	0005-12
Figure 18. Bolt Carrier Key Inspection.....	0005-13
Figure 19. Adjustment of Gas Tube.....	0005-13
Figure 20. Barrel Gas Port Cleaning.....	0005-14
Figure 21. Front Sight and Rear Sight Inspection.....	0005-15
Figure 22. Automatic Sear and Selector Lever Inspection.....	0005-16
Figure 23. Burst Disconnecter and Burst Cam Inspection.....	0005-17
Figure 24. Selector Lever and Automatic Sear Inspection.....	0005-18
Figure 25. Semiautomatic Disconnecter and Hammer Inspection.....	0005-19
Figure 26. Trigger and Pin Hole Inspection.....	0005-19
Figure 27. Selector Lever and Trigger Inspection.....	0005-20
Figure 28. Hammer Pin Inspection.....	0005-20
Figure 29. Magazine Inspection.....	0005-21
Figure 30. Bolt Catch Inspection.....	0005-22

CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS

Service Upon Receipt.....	WP 0006
Preventive Maintenance Checks and Services (PMCS) Introduction.....	WP 0007
Preventive Maintenance Checks and Services, Including Lubrication Instructions.....	WP 0008
Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines.....	0008-2
Rifle, 5.56mm (M16A2) 9349000; Rifle, 5.56mm (M16A3) 12012000; Rifle, 5.56mm (M16A4) 12973001; Carbine, 5.56mm (M4) 9390000; and Carbine, 5.56mm (M4A1) 12972700 Maintenance.....	WP 0009
Figure 1. Major Components of Rifles and Carbines.....	0009-2
Figure 2. Trigger Pull Test.....	0009-7
Figure 3. Beginning Position in Three-Round Burst.....	0009-8
Figure 4. Firing of First Round.....	0009-9
Figure 5. Movement of Key and Bolt Carrier Assembly.....	0009-9
Figure 6. First Rotation of Burst Cam.....	0009-10
Figure 7. Action of Automatic Sear.....	0009-10
Figure 8. Burst Disconnecter in Second Notch.....	0009-10
Figure 9. Forward Travel of Key and Bolt Carrier Assembly.....	0009-11
Figure 10. Firing of Second Round.....	0009-11
Figure 11. Rearward Movement of Key and Bolt Carrier Assembly.....	0009-12
Figure 12. Second Rotation of Burst Cam.....	0009-12
Figure 13. Second Round Action of Automatic Sear.....	0009-12
Figure 14. Burst Disconnecter in Third Notch.....	0009-13
Figure 15. Release of Hammer Assembly.....	0009-13
Figure 16. Firing of Third Round.....	0009-13

TABLE OF CONTENTS - Continued

	<u>Page No.</u>		<u>WP Sequence No.</u>
CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS (Continued)			
Figure 17. Final Movement of Key and Bolt Carrier Assembly.....	0009-14		
Figure 18. Third Rotation of Burst Cam	0009-14		
Figure 19. Rotation into Stop Notch	0009-15		
Figure 20. Completion of Firing	0009-15		
Figure 21. Release of Trigger	0009-16		
Figure 22. Stowage of Weapon	0009-17		
Back-up Iron Sight Maintenance			WP 0010
Figure 1. Removal of Back-up Iron Sight	0010-2		
Figure 2. Disassembly/Assembly of BUIS	0010-3		
Figure 3. Installation of Back-up Iron Sight	0010-5		
Bolt and Bolt Carrier Assembly Maintenance			WP 0011
Figure 1. Disassembly of Bolt and Bolt Carrier Assembly.....	0011-2		
Figure 2. Cleaning of Bolt Carrier Assembly	0011-2		
Figure 3. Inspection Points.....	0011-3		
Figure 4. Inspection of Carrier Key Screws	0011-4		
Figure 5. Inspection of Firing Pin	0011-4		
Figure 6. Firing Pin Protrusion Test	0011-5		
Figure 7. Checking for Binding of Bolt Assembly	0011-5		
Figure 8. Checking for Fit of Bolt Assembly	0011-6		
Figure 9. Repair of Carrier Key	0011-6		
Figure 10. Assembly of Bolt and Bolt Carrier Assembly.....	0011-7		
Breech Assembly Bolt Maintenance			WP 0012
Figure 1. Removal of Cartridge Extractor.....	0012-2		
Figure 2. Removal of Spring Pin	0012-2		
Figure 3. Removal of Cartridge Ejector.....	0012-3		
Figure 4. Removal of Bolt Rings	0012-3		
Figure 5. Bolt Face Inspection	0012-4		
Figure 6. Inspection for Cracks in Bolt Assembly	0012-4		
Figure 7. Inspection of Firing Pin Hole	0012-5		
Figure 8. Inspection of Bolt Assembly Parts	0012-6		
Figure 9. Installation of Bolt Rings	0012-7		
Figure 10. Installation of Cartridge Ejector.....	0012-7		
Figure 11. Installation of Spring Pin	0012-8		
Figure 12. Installation of Extractor Spring Assembly	0012-8		
Figure 13. Installation of Extractor Pin	0012-9		
Key and Bolt Carrier Assembly Maintenance			WP 0013
Figure 1. Disassembly of Key and Bolt Carrier Assembly	0013-1		
Figure 2. Installation of Carrier Key	0013-2		
Figure 3. Torquing Carrier Key Screws.....	0013-2		
Figure 4. Staking Carrier Key Screws.....	0013-3		
Figure 5. Staking Carrier Key Screws in the Field	0013-3		
Charging Handle Assembly Maintenance			WP 0014
Figure 1. Disassembly of Charging Handle Assembly	0014-1		
Figure 2. Assembly of Charging Handle Assembly	0014-2		

TABLE OF CONTENTS - Continued

WP Sequence No.

Page No.

CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS (Continued)

Upper Receiver and Barrel Assembly (M16A2, M16A3) 9349050, (M16A4) 12973010, and (M4, M4A1) 12972680 Maintenance	WP 0015
Figure 1. Removal of Upper Handguard Assembly (M16A2).....	0015-2
Figure 2. Removal of Lower Handguard Assembly (M16A2).....	0015-3
Figure 3. Removal of Upper and Lower Handguards (M16A3/M16A4/M4/M4A1).....	0015-3
Figure 4. Removal of Barrel Stop Assembly.....	0015-3
Figure 5. Removal of Spring Pin.....	0015-4
Figure 6. Removal of Gas Tube.....	0015-4
Figure 7. Removal of Compensator.....	0015-5
Figure 8. Removal of Recessed Washer.....	0015-5
Figure 9. Loosening of Barrel Nut Assembly.....	0015-6
Figure 10. Separation of Upper Receiver Assembly and Barrel Assembly.....	0015-6
Figure 11. Removal of Handguard Slip Ring.....	0015-7
Figure 12. Inspection of Handguard Assemblies.....	0015-8
Figure 13. Bore Inspection.....	0015-9
Figure 14. Alignment of Compensator.....	0015-9
Figure 15. Inspection of Chamber.....	0015-10
Figure 16. Inspection for Corrosion.....	0015-10
Figure 17. Inspection for Shiny Surfaces.....	0015-12
Figure 18. Installation of Handguard Slip Ring.....	0015-13
Figure 19. Alignment of Barrel Assembly and Upper Receiver Assembly.....	0015-14
Figure 20. Torquing of Barrel Nut Assembly.....	0015-15
Figure 21. Alignment of Front and Rear Sights.....	0015-16
Figure 22. Alignment of Barrel Nut Assembly.....	0015-17
Figure 23. Installation of Compensator.....	0015-18
Figure 24. Alignment of Compensator.....	0015-18
Figure 25. Installation of Gas Tube.....	0015-19
Figure 26. Installation of Spring Pin.....	0015-19
Figure 27. Installation of Barrel Stop Assembly.....	0015-20
Figure 28. Installation of Upper Handguard Assembly (M16A3/M16A4/M4/M4A1).....	0015-20
Figure 29. Installation of Lower Handguard (M16A3/M16A4/M4/M4A1).....	0015-21
Figure 30. Installation of Upper Handguard Assembly (M16A2).....	0015-21
Figure 31. Installation of Lower Handguard Assembly (M16A2).....	0015-22
Figure 32. Use of Barrel Erosion Gage.....	0015-23
Figure 33. Use of Barrel Straightness Gage.....	0015-24
Figure 34. Insertion of Headspace Gage.....	0015-25
Figure 35. Checking Headspace.....	0015-25
Figure 36. Use of Weights in Headspace Check.....	0015-26

TABLE OF CONTENTS - Continued

	<u>WP Sequence No.</u>
	<u>Page No.</u>
CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS (Continued)	
Barrel Assembly (M16A2, M16A3) 9349124, (M16A4) 12598107, Replacement Barrel and Front Sight Assembly (M4) 9390007, (M4A1) 12991851 Maintenance	WP 0016
Figure 1. Removal/Installation of Front Sight Post.....	0016-2
Figure 2. Removal/Installation of Front Sight Detent and Spring.....	0016-2
Figure 3. Removal of Small Sling Swivel (Rifle)	0016-3
Figure 4. Removal/Installation of Spring Pins (Carbine).....	0016-3
Figure 5. Removal/Installation of Locking Bar (Carbine).....	0016-4
Figure 6. Removal/Installation of Swivel Mount (Carbine)	0016-4
Figure 7. Disassembly/Assembly of Swivel Mount (Carbine)	0016-5
Figure 8. Repair of Bent Front Sight Assembly.....	0016-5
Figure 9. Installation of Small Sling Swivel (Rifle).....	0016-8
Figure 10. Measurement of Height of Front Sight Post	0016-9
Figure 11. Adjustment of Front Sight Post	0016-10
Figure 12. Final Measurement of Height.....	0016-10
Upper Handguard Assembly and Barrel Stop Assembly (M16A3, M16A4) Maintenance	WP 0017
Figure 1. Placement of Handguard Assembly for Repair.....	0017-1
Figure 2. Disassembly/Assembly of Handguard Assembly	0017-2
Figure 3. Repair of Barrel Stop Assembly.....	0017-2
Upper Handguard Assembly (M4, M4A1) Maintenance	WP 0018
Figure 1. Placement of Handguard Assembly for Repair.....	0018-2
Figure 2. Disassembly/Assembly of Handguard Assembly	0018-2
Upper Receiver Assembly and Rear Sight Assembly Maintenance	WP 0019
Figure 1. Removal of Ejection Port Cover	0019-2
Figure 2. Removal of Windage Knob	0019-3
Figure 3. Removal of Sight Aperture	0019-3
Figure 4. Disassembly of Rear Sight Assembly	0019-4
Figure 5. Removal of Forward Assist Assembly	0019-5
Figure 6. Straightening Rear Sight Guards.....	0019-6
Figure 7. Installation of Forward Assist Assembly	0019-7
Figure 8. Assembly and Installation of Elevation Knob Assembly	0019-8
Figure 9. Installation of Rear Sight Base.....	0019-9
Figure 10. Installation of Helical Spring.....	0019-10
Figure 11. Installation of Sight Aperture and Windage Knob.....	0019-10
Figure 12. Installation of Ejection Port Cover	0019-11
Figure 13. Zeroing Elevation Knob	0019-12
Figure 14. Centering Rear Sight.....	0019-13
Figure 15. Adjustment of Rear Sight.....	0019-13
Figure 16. Visual Verification	0009-14
Forward Assist Assembly Maintenance	WP 0020
Figure 1. Disassembly of Forward Assist Assembly	0020-1
Figure 2. Assembly of Forward Assist Assembly.....	0020-2
Lower Receiver and Buttstock Assembly Maintenance	WP 0021
Figure 1. Removal of Pistol Grip.....	0021-2
Figure 2. Removal of Machine Screw.....	0021-2
Figure 3. Removal of Buttstock Assembly (Rifle)	0021-3
Figure 4. Removal of Buttstock Assembly (Carbine).....	0021-4

TABLE OF CONTENTS - Continued

WP Sequence No.

Page No.

CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS (Continued)

Figure 5. Removal of Pivot Pin.....	0021-4	
Figure 6. Removal of Detent and Helical Spring	0021-5	
Figure 7. Removal of Buffer Assembly and Action Spring.....	0021-6	
Figure 8. Removal of Bolt Catch	0021-7	
Figure 9. Removal of Magazine Catch.....	0021-7	
Figure 10. Removal of Sear and Selector Lever.....	0021-8	
Figure 11. Removal of Hammer Assembly	0021-8	
Figure 12. Removal of Trigger Assembly	0021-9	
Figure 13. Inspection of Buffer Assembly	0021-10	
Figure 14. Inspection of Action Spring	0021-10	
Figure 15. Inspection for Serial Number.....	0021-11	
Figure 16. Condemnation Criteria.....	0021-11	
Figure 17. Installation of Trigger Assembly (M16A2/M16A4/M4)	0021-12	
Figure 18. Installation of Trigger Assembly (M16A3/M4A1).....	0021-13	
Figure 19. Installation of Hammer Assembly	0021-13	
Figure 20. Installation of Sear and Selector Lever.....	0021-14	
Figure 21. Installation of Magazine Catch.....	0021-14	
Figure 22. Installation of Bolt Catch	0021-15	
Figure 23. Installation of Action Spring and Buffer Assembly.....	0021-16	
Figure 24. Installation of Pivot Pin Detent.....	0021-16	
Figure 25. Installation of Pivot Pin	0021-17	
Figure 26. Installation of Buttstock Assembly (Rifle)	0021-18	
Figure 27. Installation of Buttstock Assembly (Carbine).....	0021-19	
Figure 28. Installation of Pistol Grip.....	0021-20	
Figure 29. Use of Thickness Gage.....	0021-21	
Figure 30. Use of Trigger and Hammer Gage.....	0021-22	
Buttstock Assembly Maintenance		WP 0022
Figure 1. Removal/Installation of Buttplate	0022-1	
Figure 2. Removal/Installation of Door Assembly	0022-2	
Figure 3. Disassembly/Assembly of Door Assembly	0022-2	
Figure 4. Disassembly/Assembly of Buttstock Assembly (Carbine)	0022-3	
Hammer Assembly Maintenance.....		WP 0023
Figure 1. Disassembly of Hammer Assembly.....	0023-1	
Figure 2. Assembly of Hammer Assembly.....	0023-2	
Trigger Assembly and Trigger Subassembly Maintenance		WP 0024
Figure 1. Disassembly of Trigger Assembly	0024-1	
Figure 2. Installation of Disconnect Springs (M16A2/M16A4/M4) ...	0024-2	
Figure 3. Installation of Trigger Spring	0024-3	
Lower Receiver and Receiver Extension Assembly (M16A2) 9349101, (M16A3) 12012002, (M16A4) 12598102, (M4) 9390011, and (M4A1) 12972690 Maintenance		WP 0025
Figure 1. Removal of Trigger Guard	0025-1	
Figure 2. Removal of Lower Receiver Extension (Rifle).....	0025-2	
Figure 3. Removal of Lower Receiver Extension (Carbine)	0025-3	
Figure 4. Inspection of Components	0025-4	
Figure 5. Stamping Serial Number.....	0025-5	
Figure 6. Installation of Buffer Retainer (Rifle)	0025-6	
Figure 7. Installation of Lower Receiver Extension (Rifle).....	0025-6	

TABLE OF CONTENTS - Continued

	<u>Page No.</u>	<u>WP Sequence No.</u>
CHAPTER 3 — FIELD MAINTENANCE INSTRUCTIONS (Continued)		
Figure 8. Torquing Lower Receiver Extension (Rifle)	0025-7	
Figure 9. Installation of Lower Receiver Extension (Carbine)	0025-8	
Figure 10. Installation of Trigger Guard.....	0025-9	
Adapter Rail Cover Assemblies Maintenance.....		WP 0026
Figure 1. Removal/Installation of Rail Cover.....	0026-1	
Annual Gaging Requirements.....		WP 0027
Preparation for Storage or Shipment		WP 0028
Pre-embarkation Inspection of Material in Units Alerted for Overseas Movement.....		WP 0029
Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine	0029-5	
Illustrated List of Manufactured Items.....		WP 0030
Figure 1. Front Sight Detent Depressor.....	0030-2	
Figure 2. Front Sight Post Removal and Installation Tool	0030-3	
Figure 3. Pivot Pin Removal Tool	0030-4	
Figure 4. Pivot Pin Installation Tool	0030-5	
Figure 5. Slave Pin.....	0030-6	
Figure 6. Adapter Bar for M12 Arms Rack	0030-7	
Figure 7. Modified Needle Nose Pliers	0030-8	
CHAPTER 4 — AUXILIARY EQUIPMENT MAINTENANCE INSTRUCTIONS		
Auxiliary Equipment		WP 0031
Lock Plate Maintenance		WP 0032
Figure 1. Removing Pistol Grip for Lock Plate Installation.....	0032-2	
Figure 2. Installing Lock Plate.....	0032-3	
Figure 3. Positioning Pistol Grip with Lock Plate Installed	0032-3	
Figure 4. Securing Pistol Grip with Lock Plate Installed	0032-4	
Figure 5. Removing Pistol Grip for Lock Plate Removal.....	0032-4	
Figure 6. Removing Lock Plate	0032-5	
Figure 7. Positioning Pistol Grip with Lock Plate Removed.....	0032-6	
Figure 8. Securing Pistol Grip with Lock Plate Removed.....	0032-6	
Top Sling Adapter Maintenance		WP 0033
Figure 1. Installing Top Sling Adapter.....	0033-1	
Figure 2. Installing Clamp on Front Sight.....	0033-2	
Figure 3. Attaching Sling to Top Sling Adapter and Clamp	0033-2	
Figure 4. Removing Sling from Clamp and Top Sling Adapter	0033-3	
Figure 5. Removing Clamp from Front Sight.....	0033-4	
Figure 6. Attaching Sling to Top Sling Adapter and Clamp	0033-4	
Figure 7. Removing Top Sling Adapter	0033-5	
Close Quarters Battle Sling Maintenance		WP 0034
Figure 1. Removing Sling Swivel	0034-2	
Figure 2. Removing Two Spring Pins	0034-2	
Figure 3. Removing Swivel Locking Bar	0034-3	
Figure 4. Removing Swivel Mount.....	0034-3	
Figure 5. Installing Barrel Band.....	0034-3	
Figure 6. Attaching Lanyard Assembly.....	0034-4	
Figure 7. Attaching Rear Sling Adapter.....	0034-4	

TABLE OF CONTENTS - Continued

	<u>Page No.</u>	<u>WP Sequence No.</u>
CHAPTER 4 — AUXILIARY EQUIPMENT MAINTENANCE INSTRUCTIONS (Continued)		
Figure 8. Assembling Sling to Rear Sling Adapter	0034-4	
Figure 9. Attaching Sling to Quick Release Swivel	0034-5	
Figure 10. Attaching Swivel to Lanyard	0034-5	
Figure 11. Securing Swivel and Lanyard	0034-5	
Blank Firing Attachment Maintenance		WP 0035
Figure 1. Unscrewing Slide	0035-1	
Figure 2. Placing Blank Firing Attachment.....	0035-2	
Figure 3. Securing Blank Firing Attachment	0035-2	
Figure 4. Unscrewing Slide from the Compensator.....	0035-3	
Figure 5. Removing Blank Firing Attachment	0035-3	
Figure 6. Securing Slide in Blank Firing Attachment	0035-4	
M12 Storage Rack Maintenance		WP 0036
Figure 1. Installing Adapter Bar on M12 Storage Rack.....	0036-2	
Figure 2. Fabrication of Locking Bar.....	0036-5	
Carrying Handle Assembly Maintenance		WP 0037
Figure 1. Disassembly of Carrying Handle Assembly	0037-2	
Figure 2. Straightening Rear Sight Guards.....	0037-3	
Figure 3. Assembly and Installation of Elevation Knob Assembly	0037-4	
Figure 4. Installation of Rear Sight Assembly.....	0037-5	
Figure 5. Installation of Helical Spring.....	0037-6	
CHAPTER 5 — PARTS INFORMATION		
Introduction to Repair Parts and Special Tools List (RPSTL).....		WP 0038
Rifle, 5.56mm (M16A2) 9349000; Rifle, 5.56mm (M16A3) 12012000; Rifle, 5.56mm (M16A4) 12973001; Carbine, 5.56mm (M4) 9390000; and Carbine, 5.56mm (M4A1) 12972700 Repair Parts List		WP 0039
Figure 1. Rifle, 5.56mm (M16A2) 9349000; Rifle, 5.56mm (M16A3) 12012000; Rifle, 5.56mm (M16A4) 12973001; Carbine, 5.56mm (M4) 9390000; and Carbine, 5.56mm (M4A1) 12972700	0039-2	
Figure 2. Back-up Iron Sight Assembly (M16A3, M16A4, M4, M4A1) 12996812.....	0039-6	
Figure 3. Bolt and Bolt Carrier Assembly 13004788.....	0039-8	
Figure 4. Breech Assembly Bolt 13004787.....	0039-10	
Figure 5. Key and Bolt Carrier Assembly 8448505	0039-13	
Figure 6. Charging Handle Assembly 8448517	0039-14	
Figure 7. Upper Receiver and Barrel Assembly (M16A2) 9349050, (M16A3, M16A4) 12973010, and (M4, M4A1) 12972680	0039-15	
Figure 8. Barrel Assembly (M16A2) 9349124, Barrel Assembly (M16A3, M16A4) 12598107, Replacement Barrel and Front Sight Assembly (M4) 9390007, and Replacement Barrel and Front Sight Assembly (M4A1) 12991851	0039-20	
Figure 9. Upper Handguard Assembly (M16A3, M16A4) 12973021 ..	0039-23	
Figure 10. Barrel Stop Assembly (M16A3, M16A4) 12973139	0039-24	
Figure 11. Upper Handguard Assembly (M4, M4A1) 12973096.....	0039-25	

TABLE OF CONTENTS - Continued

WP Sequence No.

Page No.

CHAPTER 5 — PARTS INFORMATION (Continued)

Figure 12. Upper Receiver Assembly (M16A2) 9349062, (M16A3, M16A4) 12973011, and (M4, M4A1) 12972675.....	0039-26	
Figure 13. Forward Assist Assembly 9349086.....	0039-29	
Figure 14. Rear Sight Assembly (M16A2) 9349072 and (M16A3, M16A4, M4, M4A1) 12951026	0039-30	
Figure 15. Lower Receiver and Buttstock Assembly (M16A2) 9349100, (M16A3) 12012001, (M16A4) 12598101, (M4) 9390011, and (M4A1) 12972690.....	0039-33	
Figure 16. Buttstock Assembly (M16A2, M16A3, M16A4) 9349119 and (M4, M4A1) 12012082	0039-40	
Figure 17. Hammer Assembly (M16A2, M16A4) 9349106, (M4) 9390032, and (M16A3, M4A1) 8448610.....	0039-44	
Figure 18. Trigger Assembly (M16A2, M16A4) 9349115, (M16A3) 8448591, (M4) 12972697, and (M4A1) 12972698.....	0039-46	
Figure 19. Trigger Subassembly (M16A2, M16A4) 9392518 and (M4) 12972696	0039-48	
Figure 20. Lower Receiver and Receiver Extension Assembly (M16A2) 9349101, (M16A3) 12012002, (M16A4) 12598102, (M4) 9390011, and (M4A1) 12972690.....	0039-50	
Figure 21. M16A3, M16A4, M4, and M4A1 Adapter Rail Cover Assemblies	0039-54	
Figure 22. Carrying Handle Assembly (M16A3, M16A4, M4, M4A1) 12951011.....	0039-56	
Figure 23. Special Tools.....	0039-58	
National Stock Number Index		WP 0040
Part Number Index		WP 0041

CHAPTER 6 — SUPPORTING INFORMATION

References.....		WP 0042
Maintenance Allocation Chart (MAC) Introduction.....		WP 0043
Maintenance Allocation Chart (MAC).....		WP 0044
Table 1. MAC for M16 Series Rifles and M4 Series Carbines.....	0044-1	
Table 2. Tools and Test Equipment for M16 Series Rifles and M4 Series Carbines.....	0044-4	
Table 3. Remarks for M16 Series Rifles and M4 Series Carbines	0044-4	
Expendable and Durable Items List.....		WP 0045
Table 1. Expendable and Durable Items List.....	0045-1	

Index

HOW TO USE THIS MANUAL

Read this manual carefully before performing required maintenance. Inspection/Maintenance and Repair procedures will be found in this manual.

General

1. All references are to work packages. Reference to maintenance procedures is to the work package where the repair appears.
2. Illustrations for the maintenance procedures show only the parts affected by the operation being performed.
3. Whenever the male gender is mentioned in the manual (i.e., crewman and repairman), it also pertains to the female gender.
4. When a procedure is common to M16A2, M16A3, and M16A4 rifles and M4/M4A1 carbine, only the carbine will be shown. If a procedure is not common to all weapons, the procedure will be appropriately illustrated.

Indexes

This manual is organized with several useful indexes as follows:

1. **Table of Contents.** The table of contents lists all work packages, figures, and tables with page references.
2. **Nomenclature Cross-Reference List.** This list provides common and official nomenclature for parts.
3. **Malfunction/Symptom Index.** This index is located just before the troubleshooting table and lists possible malfunctions in alphabetical order. Pages of the troubleshooting table are referenced.
4. **Alphabetical Index.** This index is located at the end of the manual and is an extensive subject index. Page references are provided.

Maintenance Procedures

There is one maintenance chapter for Field maintenance procedures. Air Force Only: Air Force Specialty Code 3POXXB, Special Experience Identifier (SEI) 312 or civilian equivalent, and gunsmith are the only personnel authorized to perform maintenance procedures contained in this manual.

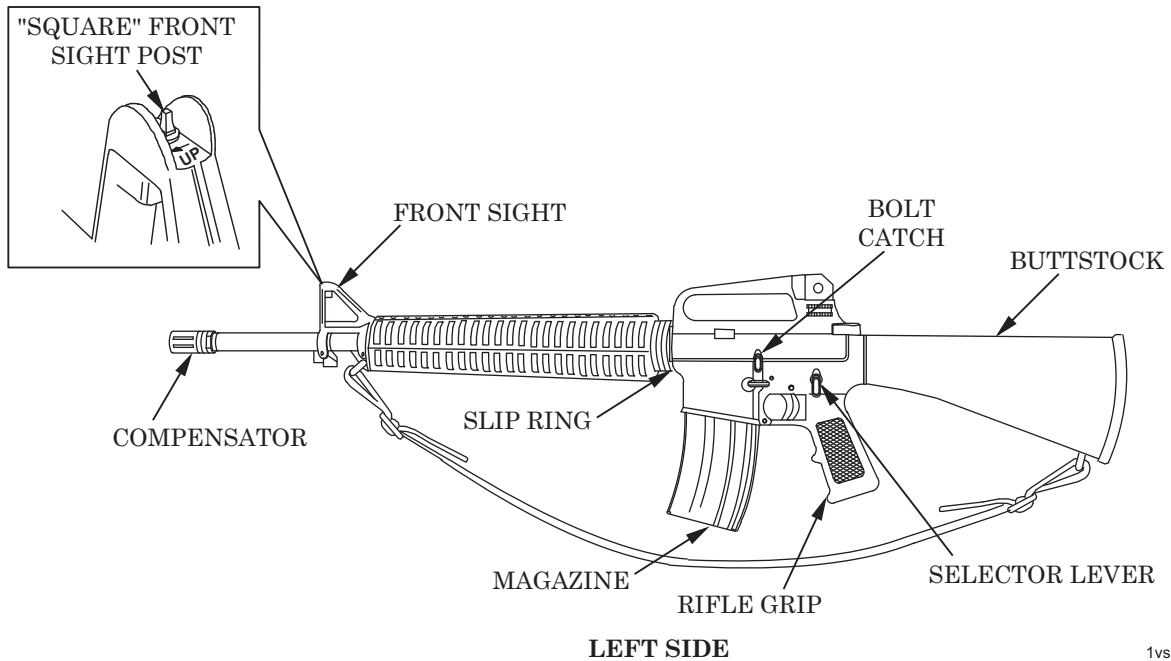
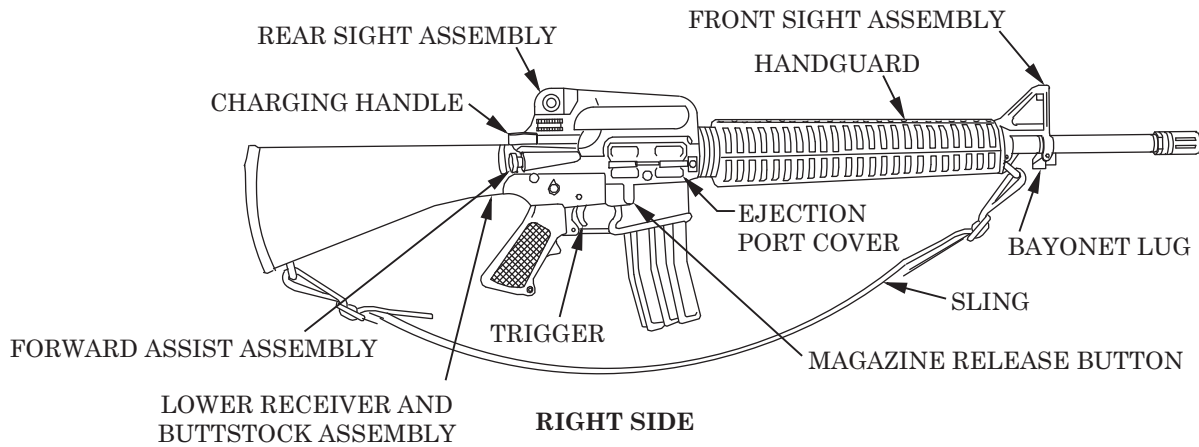
Each maintenance task has an initial setup containing a list of the following things that will be needed to do the maintenance task:

1. **Tools and Special Tools.** For standard and special tools, see WP 0039 and WP 0044. Army users will use the Tool Set, Gage Set, and/or Shop Set listed in the initial setup.
2. **Materials/Parts.** Expendable materials and 100 percent replaceable parts are listed. Each material or part is followed by a part number or work package reference.
3. **References.** Other publications containing necessary information are listed.
4. **Equipment Condition.** Conditions to be met before starting the procedure are listed.

CHAPTER 1

**GENERAL INFORMATION,
EQUIPMENT DESCRIPTION,
AND THEORY OF OPERATION
FOR
M16 SERIES RIFLES
AND
M4 SERIES CARBINES**

FIELD MAINTENANCE
GENERAL INFORMATION



1vs001

Figure 1. External View of 5.56mm Rifle, M16A2.

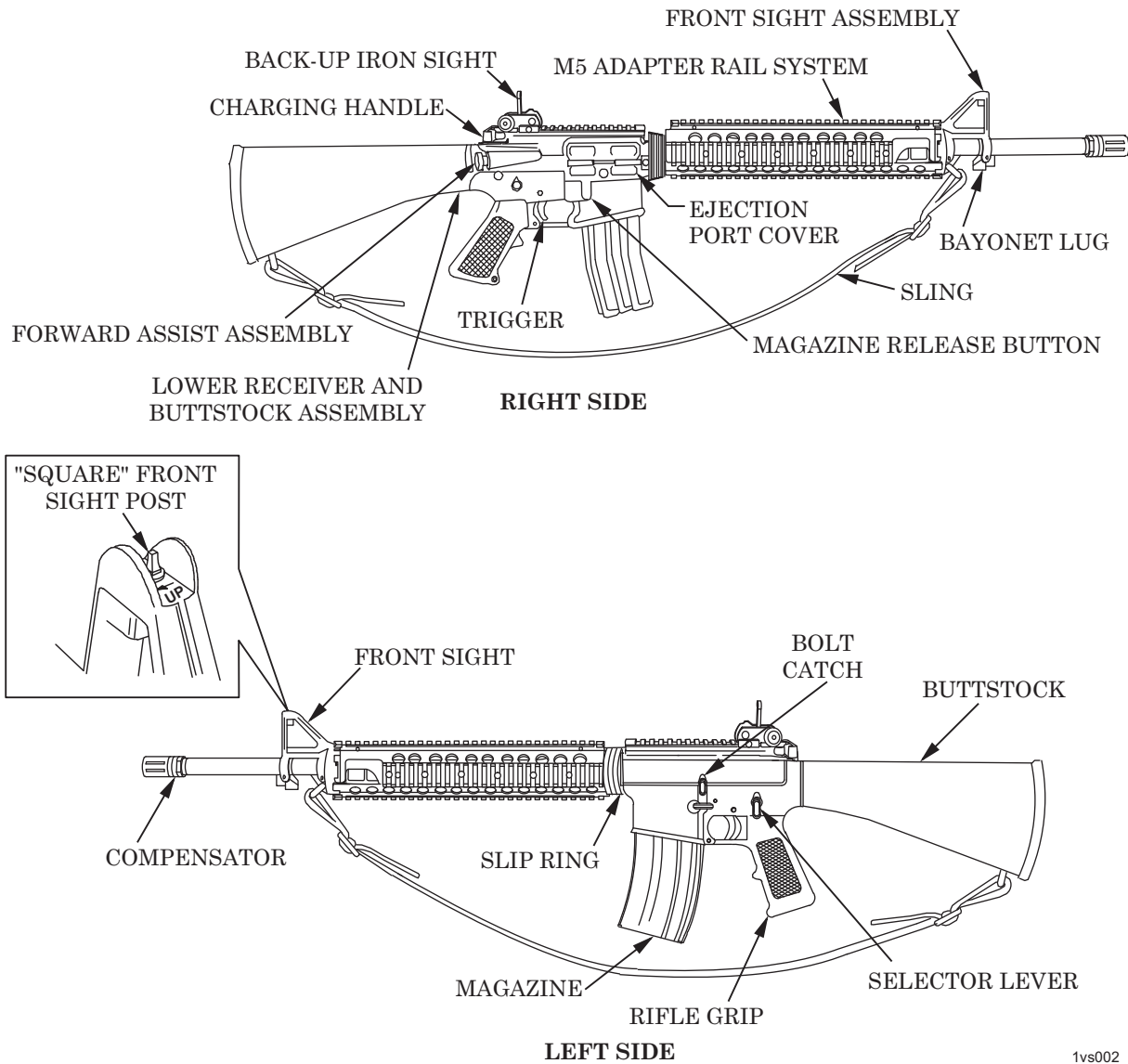
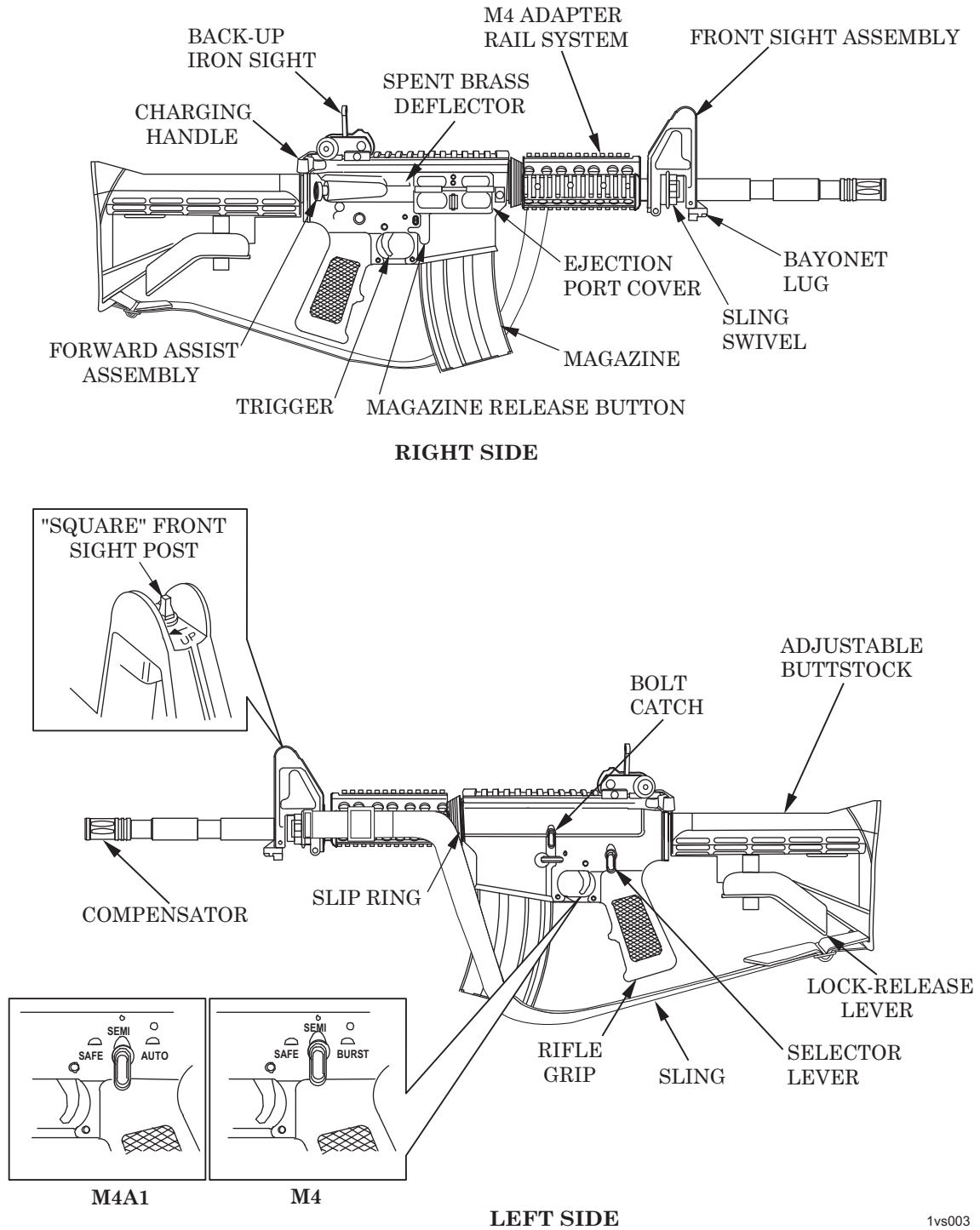


Figure 2. External View of 5.56mm Rifle, M16A3 and M16A4.



1vs003

Figure 3. External View of 5.56mm Carbine, M4/M4A1.

SCOPE

Type of Manual

Field maintenance manual.

Model Numbers and Equipment Names

M16A2, M16A3, and M16A4 Rifles and M4 and M4A1 Carbines.

Purpose of Equipment

The purpose of the rifles and carbines is to provide personnel with an offensive/defensive capability to engage targets with small arms fire.

MAINTENANCE FORMS, RECORDS, AND REPORTS

- (1) (A) Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.
- (2) (F) Maintenance forms and records used by Air Force personnel are prescribed in AFI 21-101, the applicable TO-00-20 Series, AFI 36-2226, and TO 11W-1-10.
- (3) (N) Navy users should refer to their service peculiar directives to determine applicable maintenance forms and records to be used.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your M16 series rifle or M4 series carbine needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. If you have Internet access, the easiest and fastest way to report problems or suggestions is to go to <https://aeps.ria.army.mil/aepspublic.cfm> (scroll down and choose the "Submit Quality Deficiency Report" bar). The Internet form lets you choose to submit an Equipment Improvement Recommendation (EIR), a Product Quality Deficiency Report (PQDR), or a Warranty Claim Action (WCA). You may also submit your information using an SF 368 (Product Quality Deficiency Report). You can send your SF 368 via e-mail, regular mail, or facsimile using the addresses/facsimile numbers specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Air Force users submit Quality Deficiency Report (QDR) in accordance with Technical Order (TO) 00-35D-54, Technical Manual, USAF, Materiel Deficiency Reporting and Investigating System, to: WR-ALC/LEET, Robins AFB, GA 31098-1640.

Navy users submit Quality Deficiency Report (QDR) to: Commander, Code 4081, Bldg. 2521, NAVSURF WARCENDIV, 300 Hwy 361, Crane, IN 47522-5001.

We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

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

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

If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words such as "corrosion", "rust", "deterioration", or "cracking" will ensure that the information is identified as a CPC problem.

Army users submit SF 368, Product Quality Deficiency Report, to:

ATTN: AMSRD-AAR-QEW-A
TACOM-ARDEC
1 Rock Island Arsenal
Rock Island, IL 61299-7300

Fax: DSN 793-6653, Commercial (309) 782-6653

E-Mail: qawqdrs@ria.army.mil

Air Force users submit Quality Deficiency Report (QDR) in accordance with TO 00-35D-54, Technical Manual, USAF, Materiel Deficiency Reporting and Investigating System, located at site <https://spires.wpafb.af.mil/sindex.cfm>.

Navy users submit Quality Deficiency Report (QDR) to:

Commander, Code 4081, Bldg. 2521
NAVSURF WARCENDIV, 300 Hwy 361
Crane, IN 47522-5001

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-7.

PREPARATION FOR STORAGE OR SHIPMENT

See WP 0028.

Air Force users refer to Special Packaging Instruction (SPI) 00-856-6885.

NOMENCLATURE CROSS-REFERENCE LISTCommon NameOfficial Nomenclature

Action Spring	Compression Helical Spring
Automatic Sear	Sear
Ball Bearing	Bearing Ball
Bolt Assembly	Breech Assembly Bolt
Bolt Catch Spring	Compression Helical Spring
Bolt Carrier Key Tool	Machine Key
Burst Disconnecter	Lock-Release Lever
Cam Clutch Spring	Helical Spring
Carbine	M4/M4A1 Carbine
Charging Handle Assembly	Handle Assembly
Disconnecter Spring	Compression Helical Spring
Ejector Spring	Helical Spring
Extractor Spring Assembly	Spring Assembly
Hammer Spring	Torsion Helical Spring
Lower Receiver Extension	Spring Receiver Holder
Magazine	Cartridge Magazine
Magazine Catch Spring	Compression Helical Spring
Peel Washer	Shim
Pistol Grip	Rifle Grip
Pivot Pin Detent	Headless Straight Pin
Rifle	Rifle, 5.56mm, M16A2/M16A3/M16A4
Rifle Barrel Assembly	Barrel Assembly
Selector Lever	Fire Control Selector
Semiautomatic Disconnecter	Lock-Release Lever
Sling	Small Arms Sling
Trigger Spring	Torsion Helical Spring

LIST OF ABBREVIATIONS/ACRONYMS**Abbreviation/Acronym**

AFI	Air Force Instruction
BUIS	Back-up iron sight
CLP	Cleaner, lubricant, and preservative
CPC	Corrosion Prevention and Control
EIR	Equipment Improvement Recommendation
fps	feet per second
in.	inch
lb	pound
mps	meters per second
PQDR	Product Quality Deficiency Report
psi	pounds per square inch
QDR	Quality Deficiency Report
RBC	Rifle bore cleaning compound
rds/m	rounds per minute
SDR	Supply Discrepancy Report
SF	Standard Form
SPI	Special Packaging Instruction
TO	Technical Order

QUALITY OF MATERIAL

Material used for replacement, repair, or modification must meet the requirements of this TM 9-1005-319-23&P. If quality of material requirements is not stated in this TM 9-1005-319-23&P, the material must meet the requirements of the drawings, standards, specifications, or approved engineering change proposals applicable to the subject equipment.

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

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

Air Force users should maintain the following common tools:

- Ball-peen hammer
- Combination wrench
- Flat file
- Flat-tip screwdriver
- Hammer
- Machinist's vise
- Needle nose pliers
- Punch
- Retaining ring pliers
- Socket wrench handle and socket head screw socket wrench
- Solid center punch
- Torque wrench
- Trigger pull test fixture rod and weights
- Tweezers/round nose pliers
- Vise jaw caps
- 3-ounce soft-brass hammer
- 1/16-inch drive pin punch
- 5/64-inch drive pin punch
- 3/32-inch drive pin punch
- 1/8-inch drive pin punch
- 8-inch adjustable wrench (2)

Special Tools, TMDE, and Support Equipment

Special tools required for field maintenance are listed in WP 0039 and WP 0044. Fabricated tools are listed and illustrated in WP 0030.

Repair Parts

Repair parts are listed and illustrated in the parts information work package WP 0039 of this manual.

END OF WORK PACKAGE

FIELD MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristics

The M16 series rifles and M4 series carbines are lightweight weapons. They are air-cooled, gas-operated, and magazine-fed. They have a semiautomatic, burst fire capacity, or full automatic fire.

Capabilities and Features

The rifles and carbines provide personnel with an offensive/defensive capability to engage targets with direct small arms fire.

The receivers are made of light-weight aluminum alloys; however, the safety, durability, and function of the rifles/carbines are in no way reduced. The portability and logistical values are greatly increased, particularly when air transport is used.

The bolt locking action is one of the mechanical features of the rifle/carbine. The bolt assembly and barrel extension contain locking lugs which engage and lock the bolt assembly firmly in the barrel extension. The initial force of the explosion of the cartridge is absorbed by the barrel, barrel extension, and bolt assembly.

The trigger guard is easily adaptable to winter operations. A spring-loaded retaining pin is depressed to allow ready access to the trigger when wearing arctic mittens.

The ejection port cover prevents dirt or sand from getting into the ejection port. The ejection port cover must be closed during periods when firing is not anticipated. It opens automatically with the forward or rearward movement of the bolt carrier assembly.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

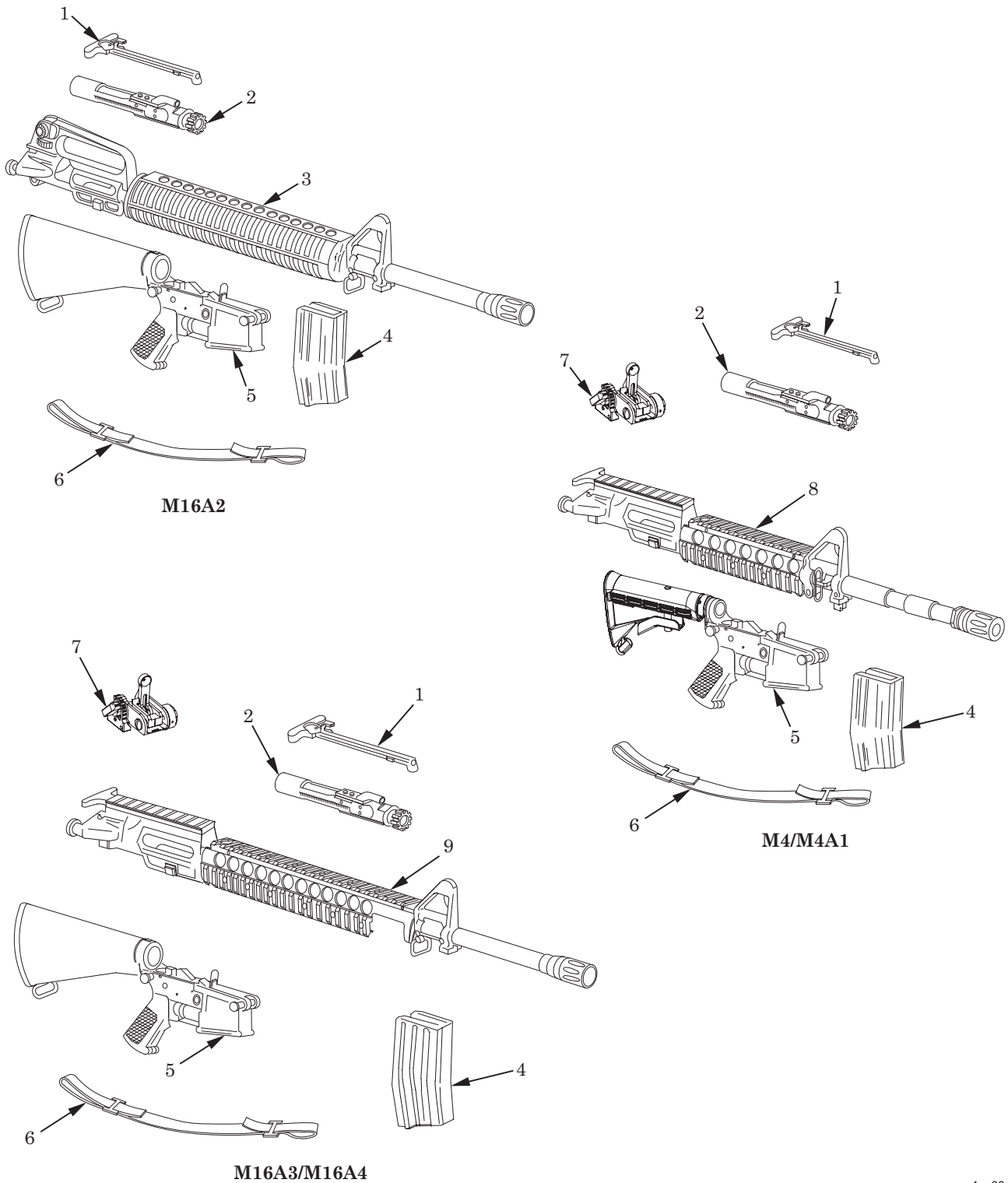


Figure 1. Major Components of Rifles and Carbines.

1vs004

Charging Handle Assembly (1)

This assembly provides a means of charging the weapon.

Bolt Carrier Assembly (2)

The bolt carrier assembly carries bolt assembly to chamber and fires the weapon. It contains the firing pin, cartridge extractor, bolt assembly, cartridge ejector, and bolt cam pin.

M16A2 Upper Receiver and Barrel Assembly (3)

The upper receiver contains rear sight assembly, ejection port, ejection port cover, and a housing for the key and bolt carrier assembly and bolt assembly. The rifle barrel assembly is air-cooled, contains compensator and front sight assembly, and holds the two handguard assemblies and the sling swivel.

Magazine (4)

The magazine has a 30 cartridge capacity.

Lower Receiver and Buttstock Assembly (5)

The lower receiver contains the trigger assembly, sear, hammer assembly, selector lever, rifle grip, bolt catch, and buttstock assembly. The buttstock assembly houses the action spring, buffer assembly, and extension assembly.

Sling (6)

The sling is adjustable and provides a means to carry the weapon.

M16A3/M16A4 and M4/M4A1 Back-up Iron Sight (7)

The back-up iron sight contains rear sight assembly.

M4/M4A1 Upper Receiver and Barrel Assembly (8)

The upper receiver contains ejection port, ejection port cover, and a housing for the key and bolt carrier assembly and bolt assembly. The carbine barrel assembly is air-cooled, contains compensator and front sight assembly, and holds the two adapter rail assemblies (upper and lower) and the sling swivel with side mount.

M16A3 and M16A4 Upper Receiver and Barrel Assembly (9)

The upper receiver contains ejection port, ejection port cover, and a housing for the key and bolt carrier assembly and bolt assembly. The rifle barrel assembly is air-cooled, contains compensator and front sight assembly, and holds the two adapter rail assemblies (upper and lower) and the sling swivel.

EQUIPMENT DATA**PHYSICAL CHARACTERISTICS****Weight:**

Carbine, M4, without magazine and sling	6.44 lb (2.92 kg)
Carbine, M4A1, without magazine and sling	7.81 lb (3.54 kg)
Rifle, M16A2, without magazine and sling	7.50 lb (3.40 kg)
Rifle, M16A3, M16A4, without magazine and sling	7.81 lb (3.54 kg)
Sling, adjustable	0.25 lb (0.11 kg)
Empty magazine	0.25 lb (0.11 kg)
Loaded magazine	1.06 lb (0.48 kg)
Carbine, M4, w/sling and loaded magazine	7.75 lb (3.51 kg)
Carbine, M4A1, w/sling and loaded magazine	8.63 lb (3.91 kg)
Rifle, M16A2, w/sling and loaded magazine	8.81 lb (4.00 kg)
Rifle, M16A3, M16A4, w/sling and loaded magazine	9.13 lb (4.14 kg)
Bayonet-Knife, M7	0.66 lb (0.30 kg)
Scabbard, M10	0.31 lb (0.14 kg)

Length:

Carbine with compensator, buttstock extended	33.0 in. (83.82 cm)
Carbine with compensator, buttstock closed	29.75 in. (75.57 cm)
Rifle with compensator	39.63 in. (100.66 cm)
Barrel (Carbine)	14.5 in. (36.83 cm)
Barrel (Rifle)	20 in. (50.8 cm)
Barrel with compensator (Carbines)	15.5 in. (39.37 cm)
Barrel with compensator (Rifles)	21 in. (53.34 cm)

Mechanical Features:

Rifling	Right-hand twist 6 grooves, 1 turn in 7 in. (17.78 cm)
Method of operation	Direct gas
Type of breech mechanism	Rotating bolt
Method of feeding	Magazine
Cooling	Air
Trigger pull (M16A2, M16A4, & M4)	5.5 to 9.5 lb (2.49 to 4.31 kg)
Trigger pull (M16A3 & M4A1)	5.5 to 8.5 lb (2.49 to 3.86 kg)

Ammunition:

Caliber	5.56mm
Type	Ball, blank, dummy, tracer, and frangible

FIRING CHARACTERISTICS

Muzzle velocity (Carbines) (approximate)	2,970 fps (905 mps)
Muzzle velocity (Rifles) (approximate)	3,100 fps (945 mps)
Chamber pressure	52,000 psi (358,540 kPa)
Cyclic rate of fire (Carbines) (approximate)	700 to 970 rds/m
Cyclic rate of fire (Rifles) (approximate)	700 to 900 rds/m

Maximum rate of fire:

Semiautomatic.....	45 rds/m
Burst	90 rds/m
Sustained rate of fire	12 to 15 rds/m

Maximum range..... 11,814 ft (approximately 3,600 m)

Maximum effective range:

Individual/point targets (M16A3/M16A4 Rifles & Carbines).....	1,641 ft (500 m)
Individual/point targets (M16A2 Rifle)	1,806 ft (550 m)
Area targets (M16A3/M16A4 Rifles & Carbines).....	1,950 ft (594 m)
Area targets (M16A2 Rifle).....	2,625 ft (800 m)

END OF WORK PACKAGE

FIELD MAINTENANCE**THEORY OF OPERATION**

GENERAL

The 5.56mm M16A2, M16A3, M16A4 rifle and the M4/M4A1 carbine is gas-operated. It fires in the semiautomatic, full automatic, or burst mode. The weapon has positive locking of the bolt. The firing pin is part of the bolt carrier assembly and cannot strike the primer until the bolt assembly is fully locked.

PRINCIPLES OF OPERATION

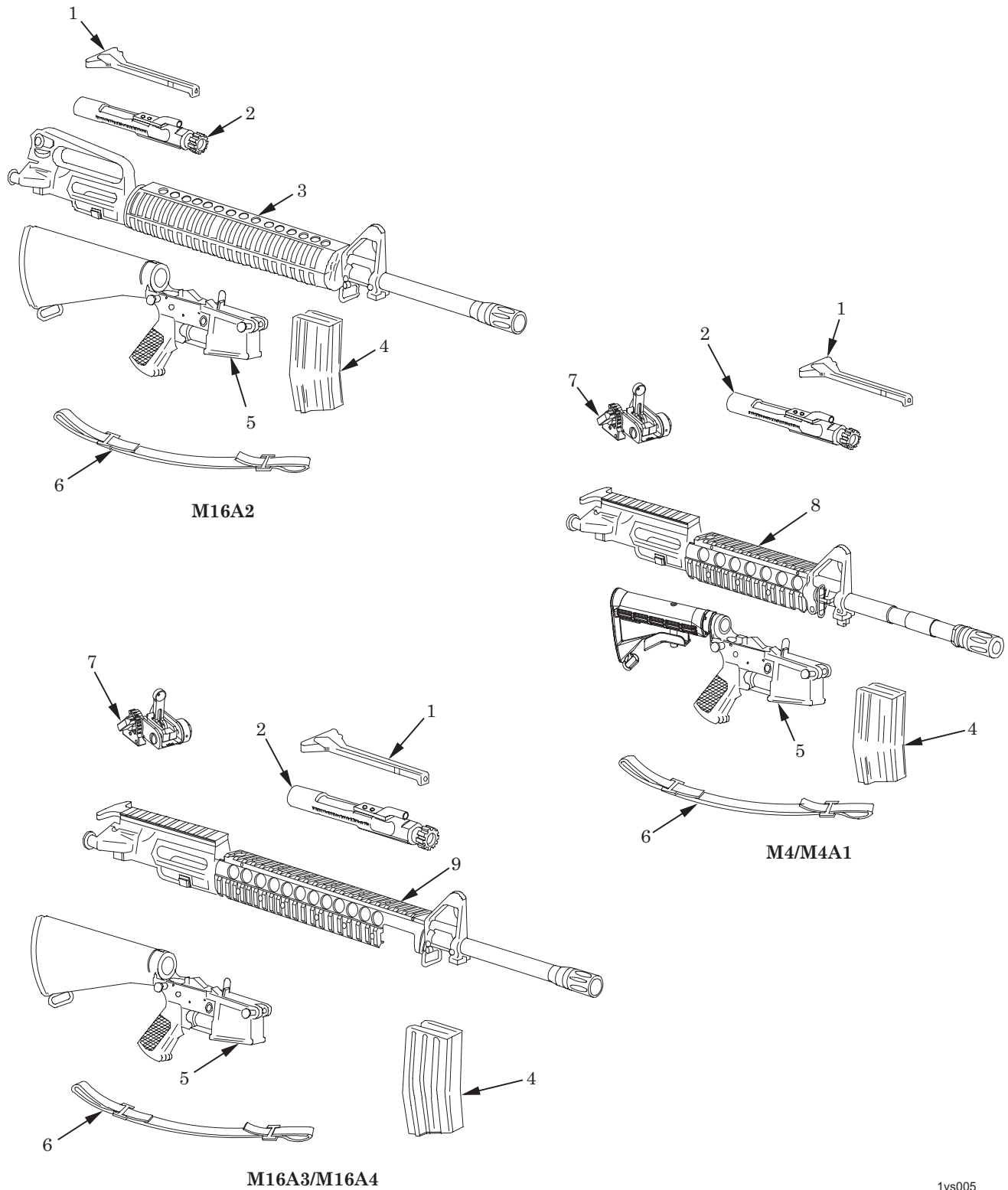


Figure 1. Operation of Rifles and Carbines.

1vs005

Charging Handle Assembly (1)

This assembly provides initial charging of the weapon. The handle latch locks the charging handle assembly in the forward position during sustained fire to prevent injury to the operator.

Bolt Carrier Assembly (2)

This assembly provides stripping, chambering, locking, firing, extraction, and ejection of cartridges using the drive springs and projectile propelling gases for power.

M16A2 Upper Receiver and Barrel Assembly (3)

The upper receiver provides support for the bolt carrier assembly. The barrel chambers the cartridge for firing and directs the projectile.

Magazine (4)

The magazine holds cartridges ready for feeding and provides a guide for positioning cartridges for stripping. It provides quick reload capabilities for sustained firing.

Lower Receiver and Buttstock Assembly (5)

This assembly provides firing control for the rifle and carbine. Storage for basic cleaning materials is provided in the M16A2, M16A3, and M16A4 rifles.

Sling (6)

The sling provides the means for carrying the weapon.

Back-up Iron Sight (BUIS) (7)

The BUIS can be used to sight the weapon when other means are unavailable.

M4/M4A1 Upper Receiver and Barrel Assembly (8)

The upper receiver provides support for the bolt carrier assembly. The barrel chambers the cartridge for firing and directs the projectile. The upper receiver contains an integral mounting rail to which various accessories attach.

M16A3 and M16A4 Upper Receiver and Barrel Assembly (9)

The upper receiver provides support for the bolt carrier assembly. The barrel chambers the cartridge for firing and directs the projectile. The upper receiver contains an integral mounting rail to which various accessories attach.

END OF WORK PACKAGE

CHAPTER 2

FIELD

TROUBLESHOOTING PROCEDURES

FOR

M16 SERIES RIFLES

AND

M4 SERIES CARBINES

FIELD MAINTENANCE

TROUBLESHOOTING INDEX

GENERAL

Field level troubleshooting information is provided for locating and correcting most of the operating troubles which may develop in the M16A2, M16A3, M16A4 rifle, M4/M4A1 carbine. Each malfunction for the individual part or assembly is followed by a list of tests or inspections which will help you to determine the corrective actions in the order listed.

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, see individual repair sections in the maintenance procedures for each major assembly.

See the troubleshooting table (WP 0005) for malfunctions, tests, and corrective actions. The symptom index is provided for a quick reference to the malfunctions covered in the table.

MALFUNCTION/SYMPTOM INDEX

<u>Symptom</u>	<u>Work Package - Page</u>
Bolt assembly fails to lock to rear after firing last round.....	0005-21
Failure of magazine to lock in rifle/carbine.....	0005-1
Failure to chamber.....	0005-3
Failure to cock.....	0005-10
Failure to cycle with selector lever set on AUTO (M16A3 and M4A1 only).....	0005-18
Failure to cycle with selector lever set on BURST (M16A2/M16A4 and M4 only).....	0005-16
Failure to eject.....	0005-9
Failure to extract.....	0005-8
Failure to feed.....	0005-2
Failure to fire.....	0005-5
Failure to lock.....	0005-4
Failure to unlock.....	0005-8
Fires two rounds with one pull of trigger with selector lever set on SEMI (double firing).....	0005-18
Fires with selector lever on SAFE or when trigger is released with selector lever on SEMI....	0005-20
Hammer pin "walks".....	0005-20
Rifle/carbine cannot be zeroed.....	0005-14
Short recoil.....	0005-12

END OF WORK PACKAGE

FIELD MAINTENANCE
TROUBLESHOOTING PROCEDURES
M16 SERIES RIFLE/M4 SERIES CARBINE

INITIAL SETUP:**Tools and Special Tools**

Shop Set, Small Arms: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Materials/Parts

Bore small arms cleaning brush (WP 0045, item 4)
 Carbon removing compound (WP 0045, item 8)
 Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)
 Gloves (WP 0045, item 17)
 Pipe cleaner (WP 0045, item 11)
 Reflector tool (WP 0039, Figure 23, item 3)

References

TM 9-1005-319-10
 WP 0009
 WP 0011
 WP 0012
 WP 0013
 WP 0015
 WP 0016
 WP 0019
 WP 0021
 WP 0023
 WP 0024

M16 SERIES RIFLE/M4 SERIES CARBINE

Table 1. Troubleshooting Procedures.

MALFUNCTION
TEST OR INSPECTION**CORRECTIVE ACTION**

1. FAILURE OF MAGAZINE TO LOCK IN RIFLE/CARBINE.

Step 1. Inspect for dirty or corroded magazine catch (1).

Disassemble and clean (WP 0021).

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued**Table 1. Troubleshooting Procedures - Continued.**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

1. FAILURE OF MAGAZINE TO LOCK IN RIFLE/CARBINE - Continued.

Step 2. Inspect for defective magazine catch spring (2).

Replace magazine catch spring (WP 0021).

Step 3. Inspect for worn or broken magazine catch (1).

Replace magazine catch (WP 0021).

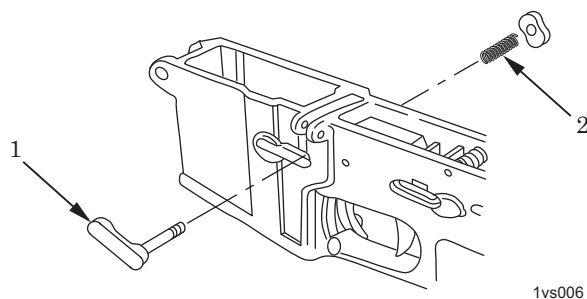


Figure 1. Magazine Catch Inspection.

2. FAILURE TO FEED.

Step 1. Inspect for weak or broken magazine catch spring (2).

Replace magazine catch spring (WP 0021).

Step 2. Inspect for defective magazine catch (1).

Replace magazine catch (WP 0021).

Step 3. Determine if magazine catch (1) is out of adjustment (will not retain magazine).

Refer to TM 9-1005-319-10.

Step 4. Check for short recoil.

See Malfunction 10.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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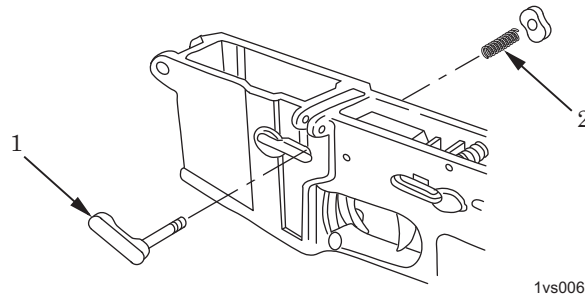


Figure 2. Magazine Catch and Spring Inspection.

3. FAILURE TO CHAMBER.

Step 1. Inspect for weak or broken action spring (3). RIFLE ONLY: Free length should be 11 3/4 in. (29.85 cm) minimum to 13 1/2 in. (34.29 cm) maximum. CARBINE ONLY: Free length should be 10 1/16 in. (25.56 cm) minimum to 11 1/4 in. (28.58 cm) maximum.

Replace action spring (WP 0021).

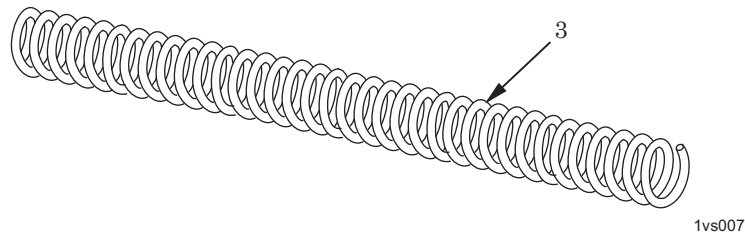


Figure 3. Action Spring.

Step 2. Check for short recoil.

See Malfunction 10.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

4. FAILURE TO LOCK.

Step 1. Inspect for missing bolt cam pin (4).

Replace bolt cam pin (WP 0011).

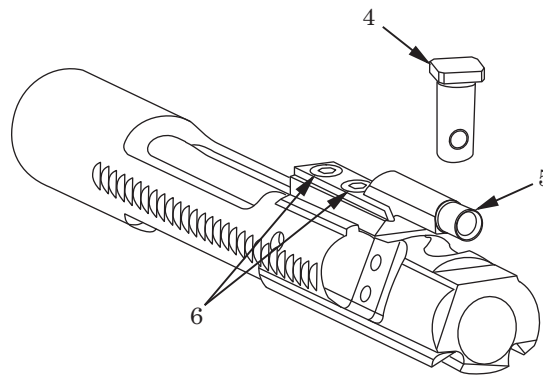
Step 2. Inspect for damaged bolt carrier key (5).

Repair slightly dented bolt carrier key. Replace more seriously damaged bolt carrier key (WP 0013).

Step 3. Inspect for loose screws (6) on bolt carrier key (5).

a. Disassemble and repair (WP 0013).

b. Reassemble using new screws.

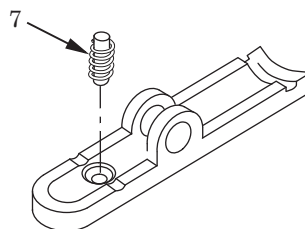


1vs008

Figure 4. Bolt Carrier Assembly Inspection.

Step 4. Inspect for improperly assembled extractor spring assembly (7).

Assemble correctly (WP 0012).



1vs009

Figure 5. Extractor Spring Assembly Inspection.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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Step 5. Inspect for bent gas tube (8).

- a. Adjust to original configuration by bending gas tube in area of handguards.
- b. Replace gas tube and check alignment (WP 0015).

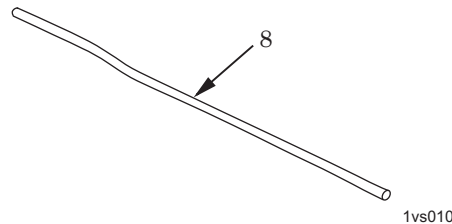


Figure 6. Gas Tube.

Step 6. Inspect for weak or broken action spring (3). RIFLE ONLY: Free length should be 11 3/4 in. (29.85 cm) minimum to 13 1/2 in. (34.29 cm) maximum. CARBINE ONLY: Free length should be 10 1/16 in. (25.56 cm) minimum to 11 1/4 in. (28.58 cm) maximum.

Replace action spring (WP 0021).

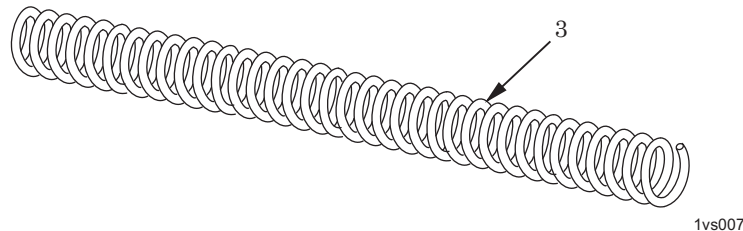


Figure 7. Action Spring Inspection.

Step 7. Check for short recoil.

See Malfunction 10.

5. FAILURE TO FIRE.

Step 1. Inspect for carbon buildup in firing pin recess inside bolt assembly.

Remove cartridge extractor and clean recess with pipe cleaner (WP 0045, item 11); see TM 9-1005-319-10.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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5. FAILURE TO FIRE - Continued.

Step 2. Inspect for broken hammer (10).

Replace hammer (WP 0021 and WP 0023).

Step 3. Inspect for broken hammer spring (9).

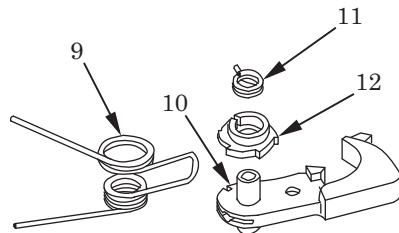
Replace hammer spring (WP 0021 and WP 0023).

Step 4. Check for improper assembly of hammer spring (9).

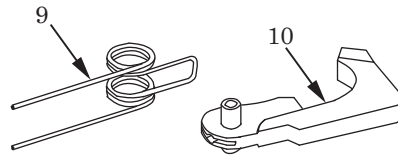
Assemble properly (WP 0023).

Step 5. **(M16A2, M16A4, and M4 Only)** Determine if burst cam (12) and/or burst cam spring (11) is frozen or improperly assembled.

Disassemble, clean, lubricate, and reassemble correctly (WP 0023).



M16A2, M16A4, and M4 Only



M16A3 and M4A1 Only

1vs011

Figure 8. Hammer and Burst Cam Inspection.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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Step 6. Inspect for broken, defective, or missing firing pin retaining pin (13).

Replace firing pin retaining pin (WP 0011).

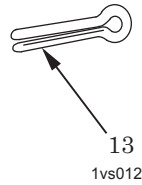


Figure 9. Firing Pin Retaining Pin Inspection.

Step 7. Determine if selector lever (14) is frozen on SAFE position.

Disassemble and clean (WP 0021).

Step 8. Inspect for broken firing pin (15) or for firing pin that does not meet gage protrusion requirement.

Replace firing pin (WP 0011).

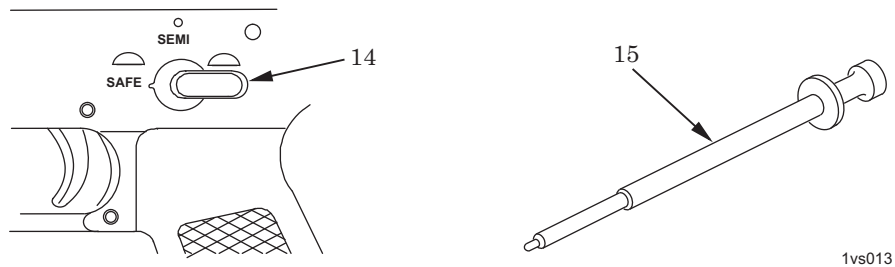


Figure 10. Selector Lever and Firing Pin Inspection.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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6. FAILURE TO UNLOCK.

Step 1. Inspect for burred locking lugs on bolt assembly (16).

Remove burrs.

Step 2. Inspect for burred lugs (17) on barrel extension.

Remove burrs.

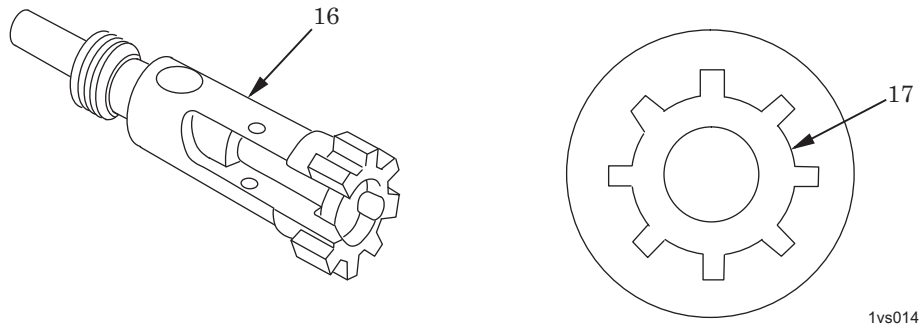


Figure 11. Locking Lugs Inspection.

Step 3. Check for short recoil.

See Malfunction 10.

7. FAILURE TO EXTRACT.

Step 1. Inspect for defective extractor pin (18), cartridge extractor (19), and/or extractor spring assembly (7).

Replace extractor pin, cartridge extractor, and/or extractor spring assembly (WP 0012).

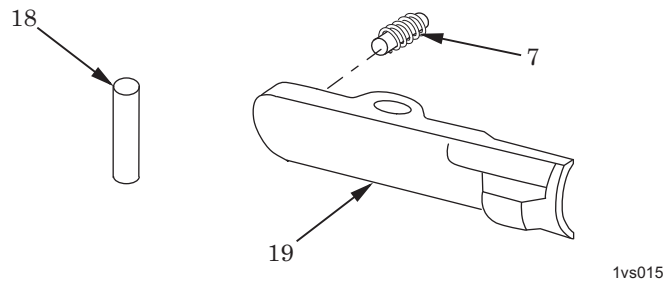


Figure 12. Cartridge Extractor Inspection.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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Step 2. Inspect badly pitted chamber with reflector tool (WP 0039, Figure 23, item 3).

Replace barrel assembly if chamber is badly pitted (WP 0015).

Step 3. Check for short recoil.

See Malfunction 10.

8. FAILURE TO EJECT.

Step 1. Inspect for broken cartridge ejector (22).

Replace cartridge ejector (WP 0012).

Step 2. Determine if cartridge ejector (22) is stuck in bolt body (20).

Disassemble and clean (WP 0012).

Step 3. Inspect for weak or broken ejector spring (21).

Replace ejector spring (WP 0012).

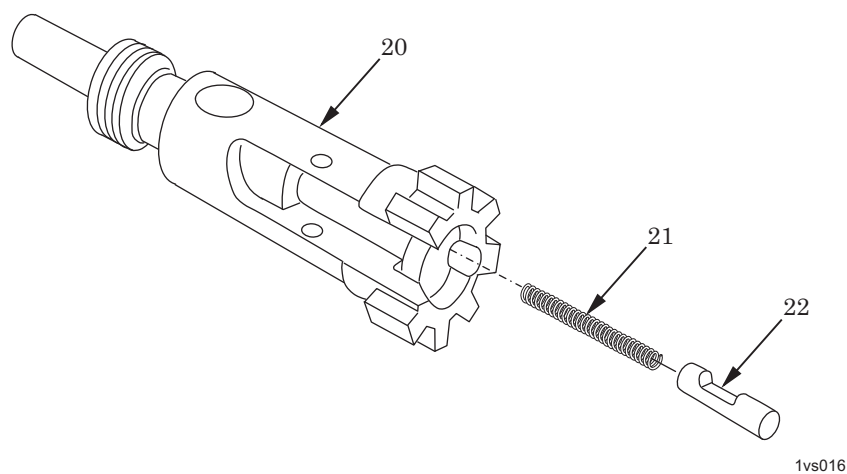


Figure 13. Cartridge Ejector Inspection.

Step 4. Check for short recoil.

See Malfunction 10.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

9. FAILURE TO COCK.

Step 1. Inspect for worn or broken trigger nose (24) or trigger spring (25).

Replace trigger (23) or defective trigger spring (WP 0024).

Step 2. Inspect for worn or broken hammer trigger notch (28).

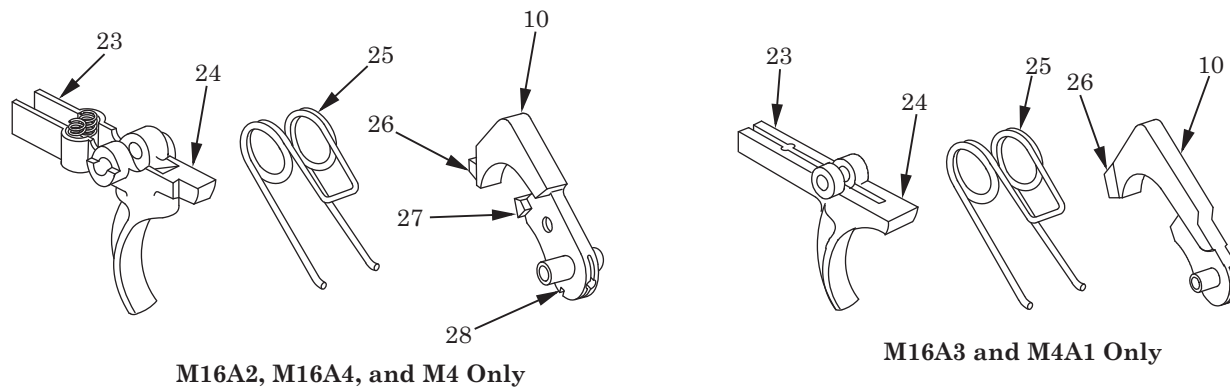
Replace hammer (10) (WP 0021 and WP 0023).

Step 3. Inspect for worn or broken hammer disconnecter hook (27).

Replace hammer (10) (WP 0021 and WP 0023).

Step 4. Inspect for worn or broken automatic sear hook (26).

Replace hammer (10) (WP 0021 and WP 0023).



1vs017

Figure 14. Trigger and Hammer Inspection.

Step 5. **(M16A3 and M4A1 have only one disconnector)** Inspect for worn or broken disconnector hooks (29).

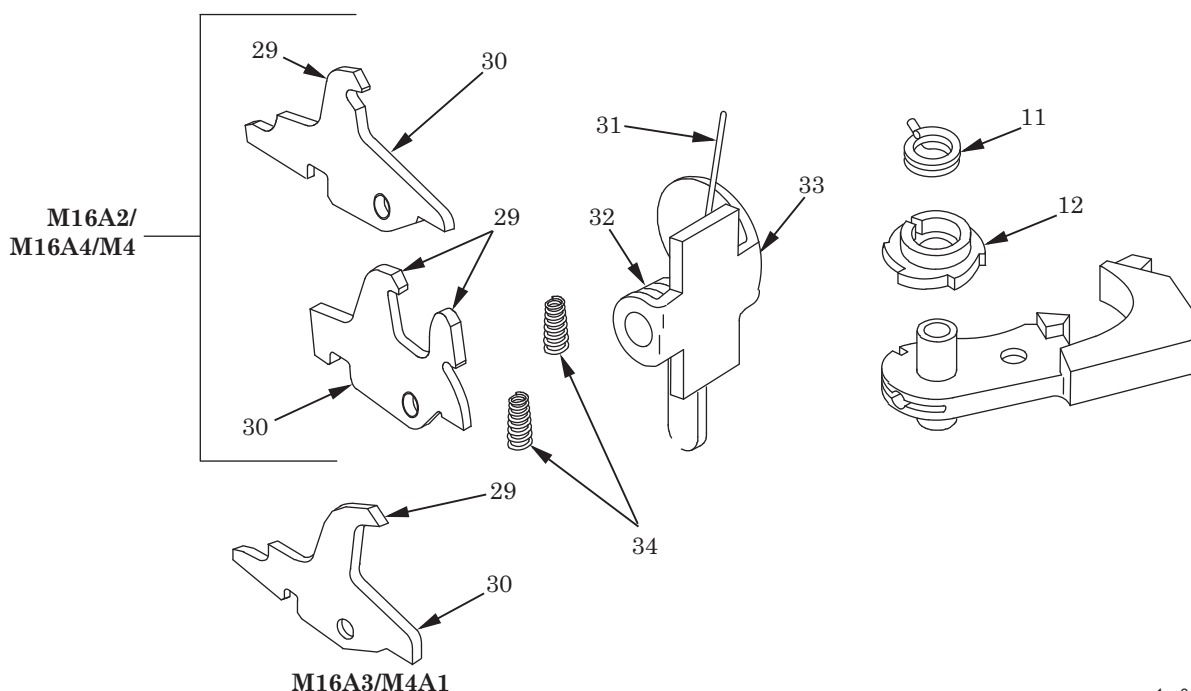
Replace defective disconnectors (30) (WP 0021).

Step 6. **(M16A3 and M4A1 have only one spring)** Inspect for weak, broken, or missing disconnector springs (34).

Replace disconnector springs (WP 0021).

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	Step 7.	Inspect for worn, broken, or missing automatic sear (33).
		Replace automatic sear (WP 0021).
	Step 8.	Inspect for weak or broken automatic sear spring (32).
		Replace automatic sear (33) (WP 0021).
	Step 9.	Determine if long leg (31) of automatic sear spring (32) is incorrectly assembled in receiver.
		Remove automatic sear (33) and install correctly (WP 0021).
	Step 10. (M16A2, M16A4, and M4 only)	Determine if burst cam (12) or burst cam spring (11) is frozen or improperly assembled.
		Disassemble, inspect, clean, lubricate, or replace as required (WP 0021).



1vs018

Figure 15. Disconnector, Automatic Sear, and Burst Cam Inspection.

Step 11. Check for short recoil.

See Malfunction 10.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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10. SHORT RECOIL.

Step 1. Inspect for broken or damaged action spring (3).

Replace action spring (WP 0021).

Step 2. Inspect for unlubricated or dirty action spring (3) and receiver extension.

Clean and lubricate.

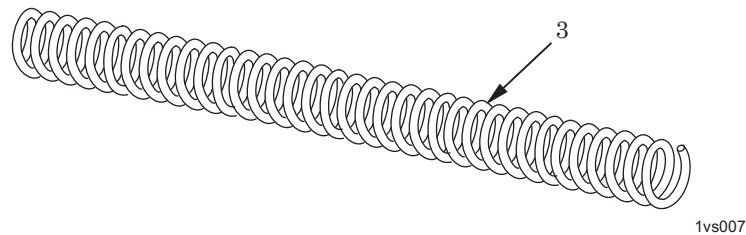


Figure 16. Action Spring Replacement.

Step 3. Inspect for improper gap space or worn, missing, or broken bolt rings (35).

- a. Stagger bolt ring gaps (approximately 1/3 turn apart).
- b. If worn, broken, or missing, replace bolt rings and stagger gaps (WP 0012).

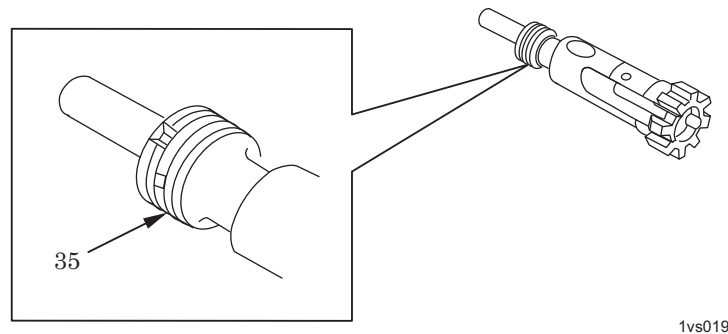


Figure 17. Bolt Ring Gap Adjustment.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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- Step 4. Inspect for carbon build-up or foreign matter in narrow passage of bolt carrier key (5).
Clean with CLP (WP 0045, item 9) and a worn bore brush.

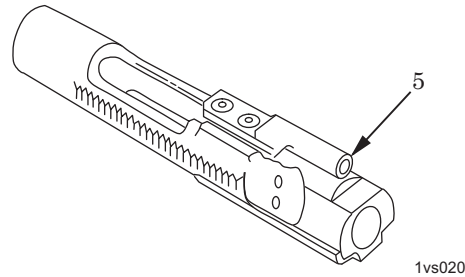


Figure 18. Bolt Carrier Key Inspection.

- Step 5. Inspect for broken or bent gas tube (8).
Adjust by bending in area of handguards or replace gas tube (WP 0015).
- Step 6. Determine if gas tube spring pin (37) is missing from front sight (36).
Replace gas tube spring pin (WP 0015).
- Step 7. Inspect for partially plugged gas system because of carbon build-up in gas tube (8).
Replace gas tube (WP 0015).

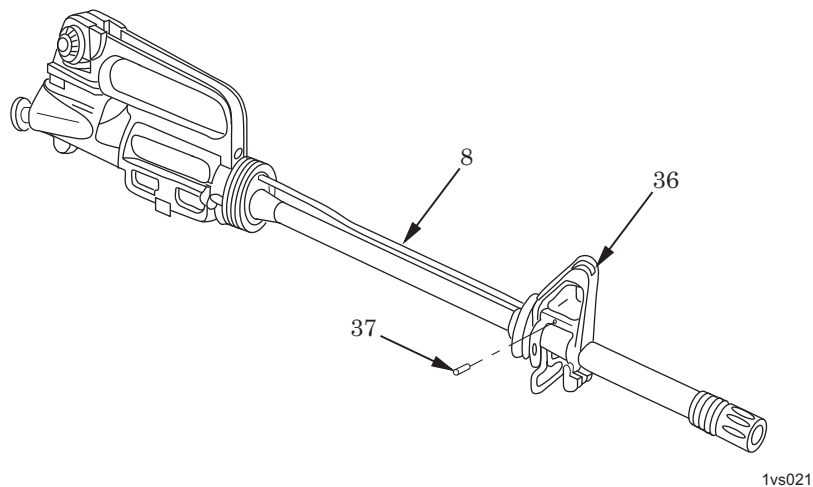
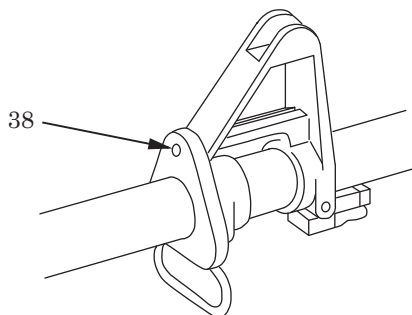


Figure 19. Adjustment of Gas Tube.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued**Table 1. Troubleshooting Procedures - Continued.****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****10. SHORT RECOIL - Continued.****WARNING****CARBON REMOVING COMPOUND**

Step 8. Inspect for carbon build-up in barrel gas port (38).

Remove carbon build-up by soaking barrel in carbon removing compound (WP 0045, item 8). Use rubber gloves (WP 0045, item 17) with carbon removing compound. Use a bore small arms cleaning brush (WP 0045, item 4).



1vs022

Figure 20. Barrel Gas Port Cleaning.

11. RIFLE/CARBINE CANNOT BE ZEROED.

Step 1. Inspect for defective or bent barrel assembly (44) (WP 0016).

Replace barrel assembly (WP 0015).

Step 2. (For windage) Determine if barrel assembly (44) is out of alignment with rear sight (39) on upper receiver.

Align barrel assembly and upper receiver (WP 0015).

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Step 3. (For elevation) Inspect for defective front sight (40).		Remove front sight post (41), front sight detent (42), and helical spring (43). If damaged, replace.
	Step 4. (For elevation) Inspect for defective rear sight (39).	Repair as required (WP 0019).

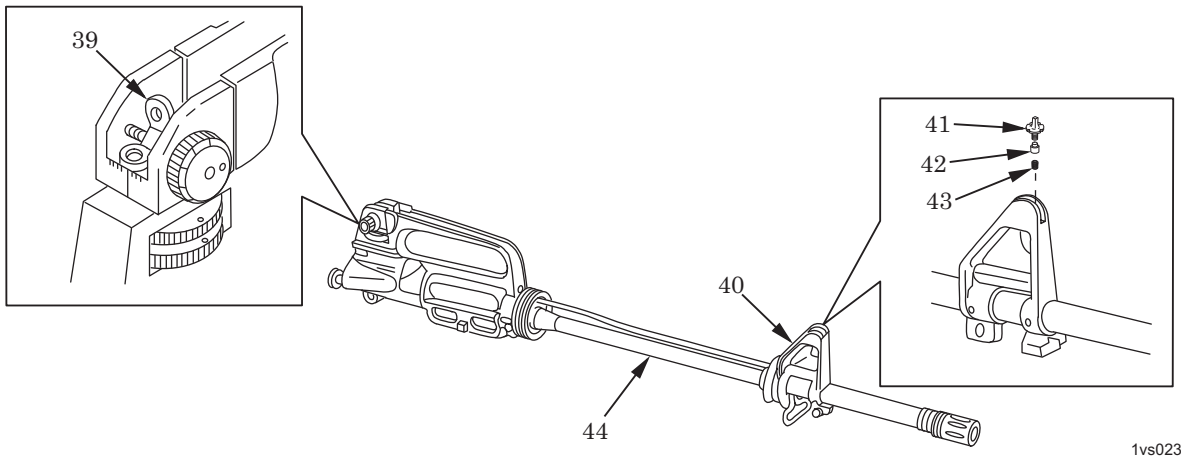
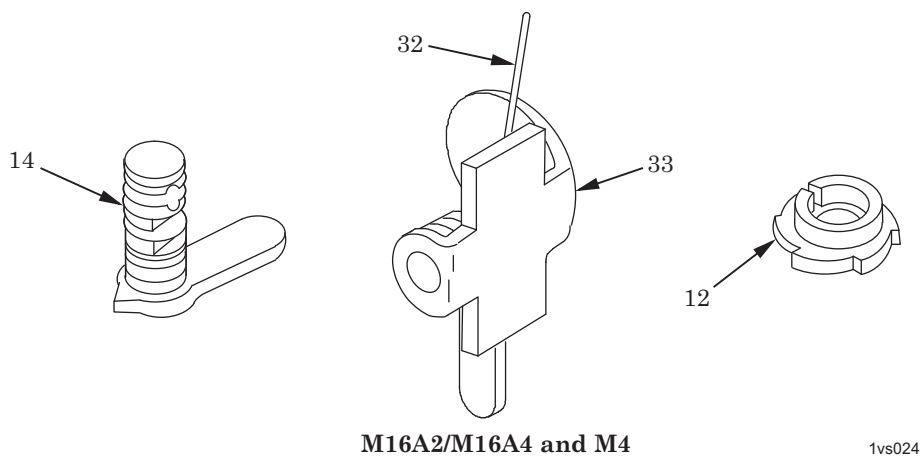


Figure 21. Front Sight and Rear Sight Inspection.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued**Table 1. Troubleshooting Procedures - Continued.**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
12. FAILURE TO CYCLE WITH SELECTOR LEVER SET ON BURST (M16A2/M16A4 AND M4 ONLY).		
Step 1. Inspect for broken automatic sear (33) or automatic sear spring (32).	Replace automatic sear (WP 0021).	
Step 2. Inspect for faulty selector lever (14).	Replace selector lever (WP 0021).	
Step 3. Inspect for broken tooth on burst cam (12).	Replace burst cam (WP 0021).	

**Figure 22. Automatic Sear and Selector Lever Inspection.**

- Step 4. Inspect for broken burst cam spring (11). Burst cam spring should be bent and properly formed without any sharp edges or corners.
- Inspect and replace burst cam spring if required (WP 0023).
- Step 5. Determine if bend in burst cam spring (11) is installed backwards (toward outside).
- Install burst cam spring properly with bend to inside (WP 0023).

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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NOTE

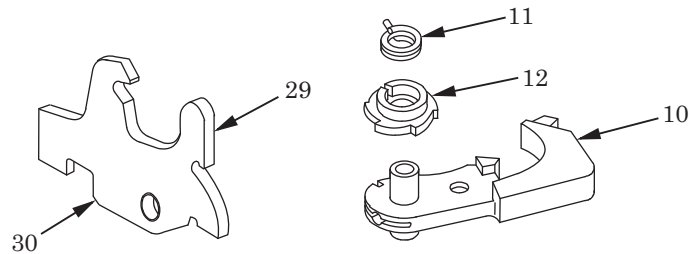
When hammer is rotated back to cocked position, burst cam should rotate to allow burst disconnecter to latch in next notch.

- Step 6. Determine if burst cam spring (11) fails to "clutch" and burst cam (12) fails to rotate back with hammer (10).

Replace burst cam spring. If problem continues, replace hammer and burst cam (WP 0023).

- Step 7. Inspect for broken front hook (29) on burst disconnecter (30).

Replace burst disconnecter (WP 0021).



M16A2/M16A4 and M4

1vs025

Figure 23. Burst Disconnecter and Burst Cam Inspection.

- Step 8. Check for short recoil.

See Malfunction 10.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued**Table 1. Troubleshooting Procedures - Continued.**

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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13. FAILURE TO CYCLE WITH SELECTOR LEVER SET ON AUTO (M16A3 AND M4A1 ONLY).

Step 1. Inspect for broken automatic sear (33) or automatic sear spring (32).

Replace automatic sear (WP 0021).

Step 2. Inspect for faulty selector lever (14).

Replace selector lever (WP 0021).

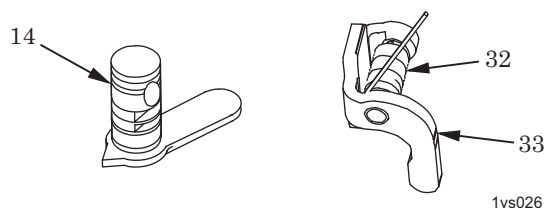


Figure 24. Selector Lever and Automatic Sear Inspection.

Step 3. Check for short recoil.

See Malfunction 10.

14. FIRES TWO ROUNDS WITH ONE PULL OF TRIGGER WITH SELECTOR LEVER SET ON SEMI (DOUBLE FIRING).

Step 1. Perform function test (WP 0009).

If any part of function test fails, continue with next step.

Step 2. Inspect for defective semiautomatic disconnecter (30).

Replace semiautomatic disconnecter (WP 0021).

Step 3. Inspect for worn or broken trigger notch (28) of hammer (10) (searing portion).

Replace hammer (WP 0021).

Step 4. Inspect for worn or broken disconnecter hook (27) of hammer (10).

Replace hammer (WP 0021).

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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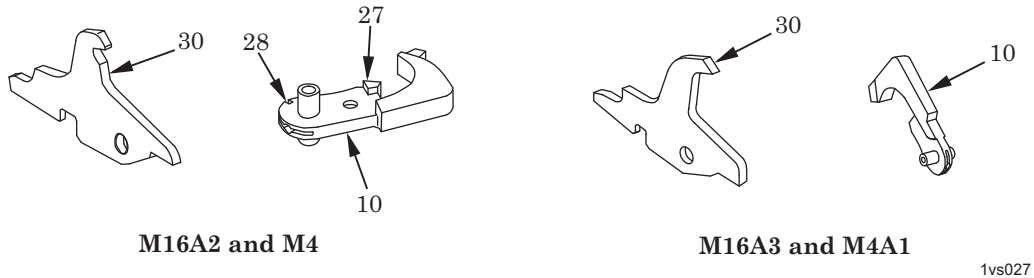


Figure 25. Semiautomatic Disconnecter and Hammer Inspection.

Step 5. Inspect for worn or broken trigger (23) (searing portion).

Replace trigger (WP 0021).

Step 6. Inspect for worn hammer or trigger pin hole.

Gage hammer pin hole (45) and trigger pin hole (46) (WP 0009). If test fails, replace weapon.

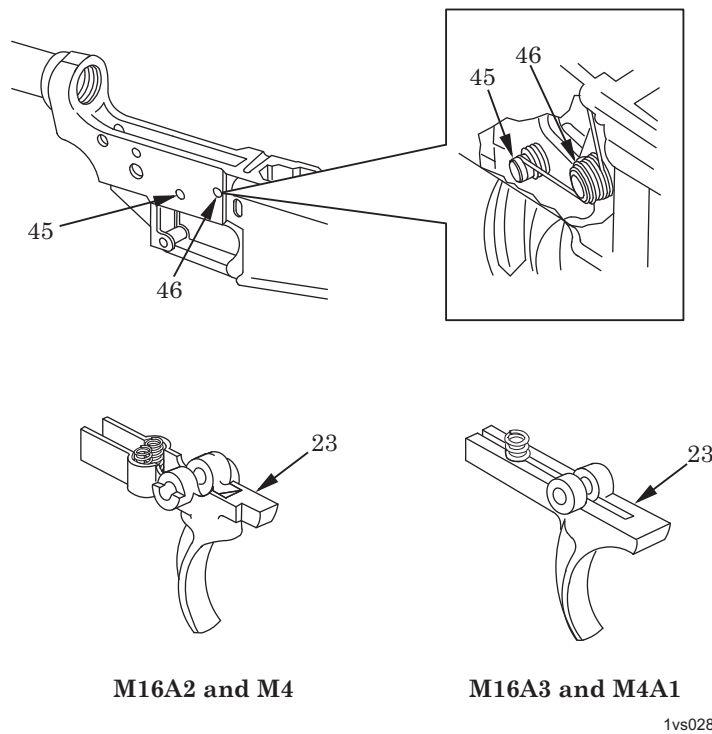


Figure 26. Trigger and Pin Hole Inspection.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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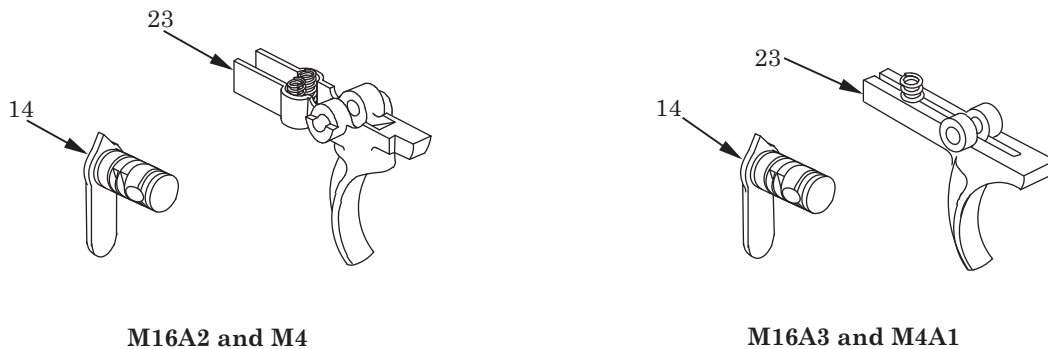
15. FIRES WITH SELECTOR LEVER ON SAFE OR WHEN TRIGGER IS RELEASED WITH SELECTOR LEVER ON SEMI.

Step 1. Inspect for defective selector lever (14).

Replace selector lever (WP 0021).

Step 2. Inspect for worn or broken rear portion of trigger (23).

Replace trigger (WP 0021).



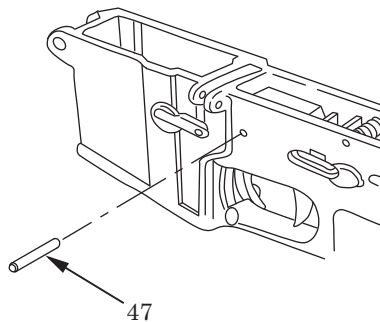
1vs029

Figure 27. Selector Lever and Trigger Inspection.

16. HAMMER PIN "WALKS".

Inspect hammer pin (47). Determine if it "walks" or works loose during firing or if hammer pin is very easy to push out of receiver when hammer is installed.

Replace hammer assembly (WP 0021).



1vs030

Figure 28. Hammer Pin Inspection.

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
17. BOLT ASSEMBLY FAILS TO LOCK TO REAR AFTER FIRING LAST ROUND.		
Step 1. Inspect magazine follower (50) for wear, breaks, or separation from magazine spring (49).	Replace magazine.	
Step 2. Determine if magazine spring (49) is weak or broken.	Replace magazine.	
Step 3. Inspect magazine feeder lips (48) for bends or breaks.	Replace magazine.	
Step 4. Determine if magazine follower (50) binds during operation.	Replace magazine.	

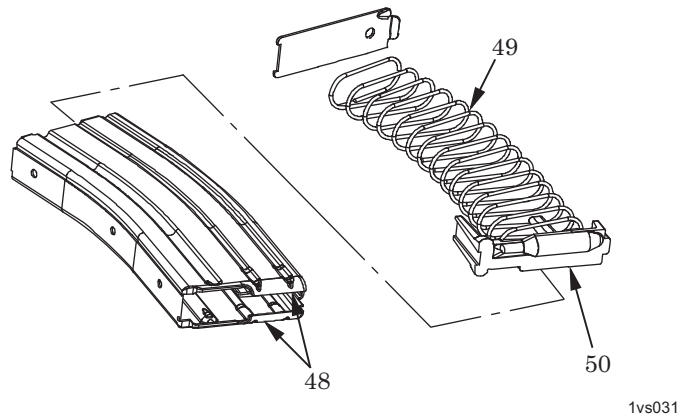


Figure 29. Magazine Inspection.

M16 SERIES RIFLE/M4 SERIES CARBINE - Continued

Table 1. Troubleshooting Procedures - Continued.

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

17. BOLT ASSEMBLY FAILS TO LOCK TO REAR AFTER FIRING LAST ROUND - Continued.

Step 5. Inspect for broken bolt catch (51).

Replace bolt catch (WP 0021).

Step 6. Inspect for weak or broken bolt catch spring (52).

Replace bolt catch spring (WP 0021).

Step 7. Inspect for restricted movement of bolt catch (51).

Disassemble and clean.

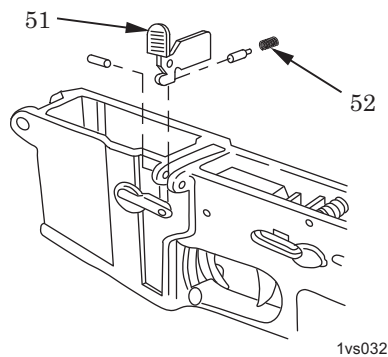


Figure 30. Bolt Catch Inspection.

END OF WORK PACKAGE

CHAPTER 3

**FIELD
MAINTENANCE INSTRUCTIONS
FOR
M16 SERIES RIFLES
AND
M4 SERIES CARBINES**

FIELD MAINTENANCE
SERVICE UPON RECEIPT

GENERAL

When a new or reconditioned weapon is first received, it is the responsibility of the officer-in-charge to determine whether the weapon has been properly prepared for service by supplying organization and whether it is in proper condition to perform its mission.

SERVICE UPON RECEIPT OF MATERIEL**Unpacking****WARNING**

Before starting an inspection, be sure to clear the weapon. Do not pull the trigger until the weapon has been cleared. Inspect the chamber to ensure that it is empty and no ammunition is in position to be chambered.

Remove the weapon and basic issue items from containers. Check for any missing items. Refer to TM 9-1005-319-10.

Checking Unpacked Equipment

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 361, Transportation Discrepancy Report. Air Force users will submit a Supply Discrepancy Report (SDR) in accordance with the guidance in Technical Order 00-35D-54.

Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with applicable service instructions (e.g., for Army instructions, see DA PAM 750-8).

Air Force users submit Quality Deficiency Report (QDR) in accordance with Technical Order 00-35D-54, Materiel Deficiency Reporting and Investigating System, located at site <https://spires.wpafb.af.mil/sindex.cfm>, and with Air Force Joint Manual (AFJMAN) 23-215, Reporting of Supply Discrepancies.

Navy users submit Quality Deficiency Report (QDR) to: Commander, Code 4081, Bldg 2521, NAVSURF WARCENDIV, 300 Hwy 361, Crane, IN 47522-5001.

Check to see whether the equipment has been modified. Refer to DA PAM 25-30.

Processing Unpacked Equipment

If volatile corrosion inhibitor (VCI) is in barrel, remove and discard. Field-strip weapon and inspect for missing, damaged, and rusted or corroded parts. Clean and lubricate. Refer to TM 9-1005-319-10.

END OF TASK

INSTALLATION INSTRUCTIONS

Refer to TM 9-1005-319-10 to assemble weapon and to perform function check. Check the magazine for positive retention and functioning of bolt catch.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION
GENERAL, EXPLANATION OF COLUMN ENTRIES**

GENERAL

a. Preventive Maintenance Checks and Services (PMCS) (WP 0008) must be performed by field maintenance personnel to be sure the M16 series rifle or M4 series carbine is in good operating condition and ready for its primary mission.

b. To ensure maximum operational readiness, it is necessary that the rifle/carbine be inspected at regular intervals so that any defects can be discovered and corrected before serious damage or failure occurs.

EXPLANATION OF COLUMN ENTRIES

a. **Item No. Column.** Checks and services are numbered in disassembly sequence. This column shall be used as a source of item numbers for the "TM Number" column on DA Form 5988-E, Equipment Inspection and Maintenance Worksheet, or DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.

b. **Interval Column.** This column gives the designated interval when each check is to be performed.

c. **Man-Hour Column.** This column indicates the amount of time required to perform the check or service.

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

e. **Procedure Column.** This column contains a brief description of the procedure by which the check is to be performed. It contains all the information required to accomplish the checks and services. Information marked "SH" indicates a specific equipment shortcoming and the procedure needed to correct the shortcoming.

NOTE

For the purpose of this technical manual, the following definition is supplied. This definition is not intended to apply to any other document.

Shortcoming (SH): A fault that requires maintenance or supply action on a piece of equipment, but does not render equipment unavailable for use.

f. **Equipment Not Ready/Available If: Column.** This column contains a brief statement of the condition (e.g., malfunction, deficiency) that would cause the covered equipment to be unavailable to perform its assigned mission.

END OF WORK PACKAGE

FIELD MAINTENANCE**PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS),
INCLUDING LUBRICATION INSTRUCTIONS
PMCS PROCEDURES, LUBRICATION INSTRUCTIONS**

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Abrasive cloth (WP 0045, item 13)
Cleaner, lubricant, and preservative (CLP) (WP 0045, item 10)
Dry cleaning solvent (WP 0045, item 15)
Gloves (WP 0045, item 17)
Rifle bore cleaning compound (RBC) (WP 0045, item 12)
Solid film lubricant (WP 0045, item 20)
Wash pan (WP 0045, item 26)
Weapons lubricating oil (LAW) (WP 0045, item 22)
Weapons lubricating oil (LSA) (WP 0045, item 21)

References

TM 9-1005-319-10
WP 0011
WP 0015
WP 0045

PMCS PROCEDURES**WARNING**

Before starting an inspection, be sure to clear weapon. Do not pull trigger until weapon is cleared. Inspect chamber to ensure that it is empty and no ammunition is in position to be chambered.

WARNING

Do not keep live ammunition near work area.

PMCS PROCEDURES - Continued**NOTE**

An inactive weapon is a weapon which has been stored in an arms room for a period of 90 days without use. The weapon may or may not have been assigned to an individual. Inactive weapons shall receive quarterly PMCS unless inspection reveals more frequent servicing is necessary. Normal cleaning (PMCS) of an inactive weapon will be performed every 90 days. If corrosion is detected on a weapon prior to the end of the 90-day period, the PMCS should be performed immediately.

Solid film lubricant (SFL) is the authorized touch up for the M16A2, M16A3, and M16A4 Rifle and M4/M4A1 Carbine and may be used on up to one third of the exterior finish of the weapon.

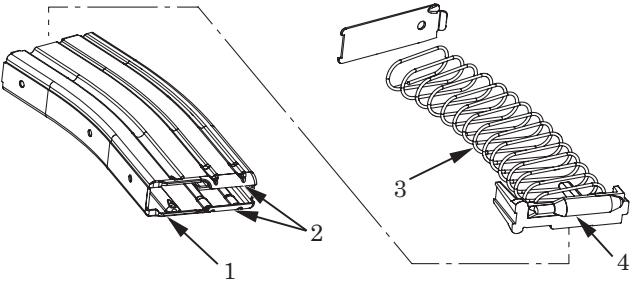
FOR ARMY CONUS USE ONLY AND AIR FORCE TRAINING WEAPONS ONLY:
Solid film lubricant may be used as a touch up without limitation on the upper receiver and barrel assembly. Units which DO NOT fall under the category of Divisional Combat Units or rapid deployment type units may have up to 100 percent of the exterior surface of the upper receiver and barrel assembly protected with SFL. Prior to application of SFL, the surface must be thoroughly cleaned and inspected for corrosion and/or damage. If corroded or damaged, the part must be repaired or replaced prior to application of SFL. Continued use under combat conditions would result in an unprotected surface when the SFL wears off. This would result in a large light reflecting surface and accelerated deterioration of the unprotected surface. Therefore, Divisional Combat Units and units which fall under the definition of Rapid Deployment type must adhere to the limitation of NOT over one third of their exterior surface covered by SFL.

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

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines.

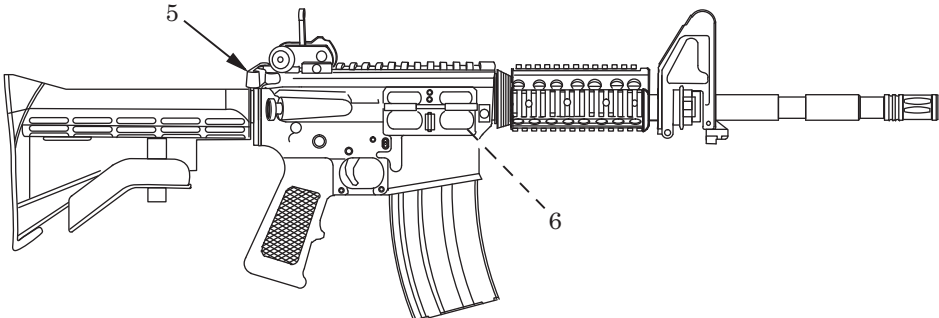
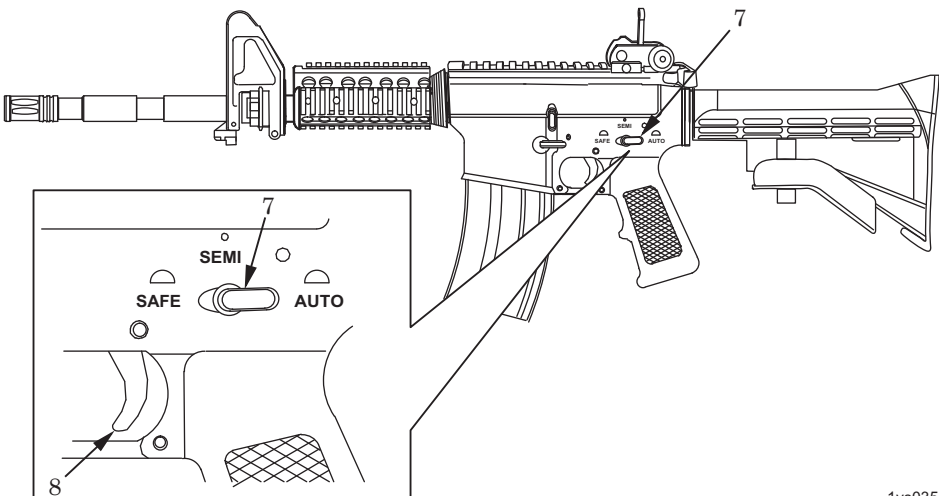
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
1	Quarterly		Magazine (Serviceability Check)	a. Check for availability of magazine. b. Disassemble magazine. Refer to TM 9-1005-319-10. Inspect tube (1) for bulges, dents, or damaged feeder lips (2). Inspect spring (3) and follower (4) for kinks or damage. Replace magazine if any of these conditions exist.	a. A magazine is not available for use with weapon. b. Tube is dented or feeder lips damaged. Spring is damaged or has flat spots.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
2	Quarterly		Charging Handle Assembly and Selector Lever	c. Reassemble magazine and check for binding during operation of follower (4). Replace magazine if follower binds.  WARNING  If weapon fails any of the following function tests, perform required maintenance. Continued use of weapon could result in injury to, or death of, personnel.	c. Follower binds.

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
2 (Cont)	Quarterly (Cont)		Charging Handle Assembly and Selector Lever (Cont)	a. Pull charging handle (5) to rear. Check that chamber is clear. Let bolt carrier assembly (6) close. Push charging handle forward to locked position. Leave hammer in cocked position. Do not pull trigger.  1vs034	a. Charging handle does not lock in place when in forward position.
			Selector Lever - SAFE	b. Place selector lever (7) in SAFE position. Pull trigger (8). Hammer should not fall.  1vs035	b. Hammer falls.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
			Selector Lever - SEMI	c. Place selector lever (7) in SEMI position. Pull trigger (8). Hammer falls. NOTE For the purpose of the following test, "slow" is defined as 1/4 to 1/2 the normal rate of trigger release. d. Hold trigger (8) to the rear, charge weapon, and release trigger with a slow, smooth motion, without hesitations or stops, until the trigger is fully forward (an audible click should be heard). Hammer should not fall until trigger is pulled. e. Repeat the SEMI position test five times.	c. Hammer does not fall. d. Hammer falls. e. Weapon malfunctions during any of these five tests.
			Selector Lever - BURST	M16A2, M16A4, and M4 Only f. Place selector lever (7) in BURST position. Charge weapon and squeeze trigger (8). Hammer should fall. g. Hold trigger (8) to the rear, pull charging handle to the rear, and release it three times. Release trigger. Squeeze trigger. Hammer should fall. NOTE Burst disconnect should hold hammer to the rear when it engages deep notch of burst cam.	f. Hammer does not fall. g. Hammer does not fall.

PMCS PROCEDURES - Continued

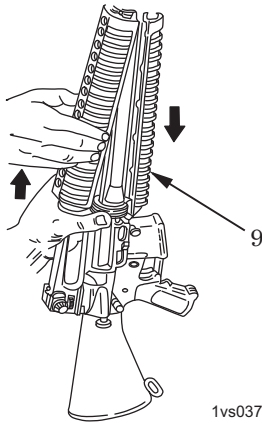
Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
2 (Cont)	Quarterly (Cont)		Charging Handle Assembly and Selector Lever (Cont) Selector Lever - AUTO Selector Lever - SAFE	M16A3 and M4A1 Only h. Place selector lever (7) in AUTO position. Charge weapon and squeeze trigger (8). Hammer should fall. i. Hold trigger (8) to the rear, charge weapon, and release trigger. Squeeze trigger. Hammer should not fall. j. Repeat the BURST position test five times. NOTE Automatic sear should release hammer while holding trigger in squeezed position before releasing and resqueezing trigger. All Weapons k. With hammer in forward position, use moderate finger/thumb pressure to attempt to place selector lever (7) in SAFE position.	h. Hammer does not fall. i. Hammer falls. j. Moderate finger/thumb pressure moves selector lever to SAFE position.

M16A2/M16A4/M4
M16A3/M4A1

1vs036

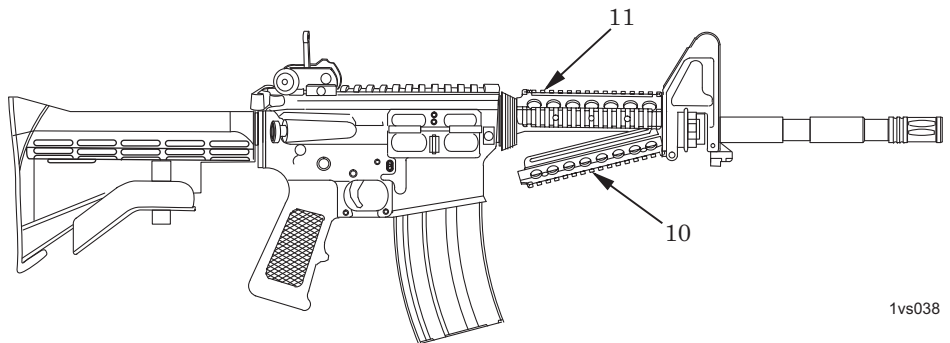
**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
3	Quarterly		Upper Receiver and Barrel Assembly (Handguard Assemblies)	CAUTION Do not use screwdriver or any other tool when removing handguard assemblies; use of tools may damage handguard assemblies and/or slip. M16A2 Only NOTE Refer to TM 9-1005-319-10 for "buddy system" procedure for removing handguard assemblies. a. Remove and inspect handguard assemblies (9) internally and externally for cracks and/or damage. Cracks are acceptable providing they do not extend into the handguard retaining flange, or adversely affect rifle operation, operator safety, or proper retention of handguard assembly. Discard and replace handguard assembly if heatshield is loose enough to rattle when installed on rifle.  1vs037	a. Handguard missing or unserviceable.

PMCS PROCEDURES - Continued

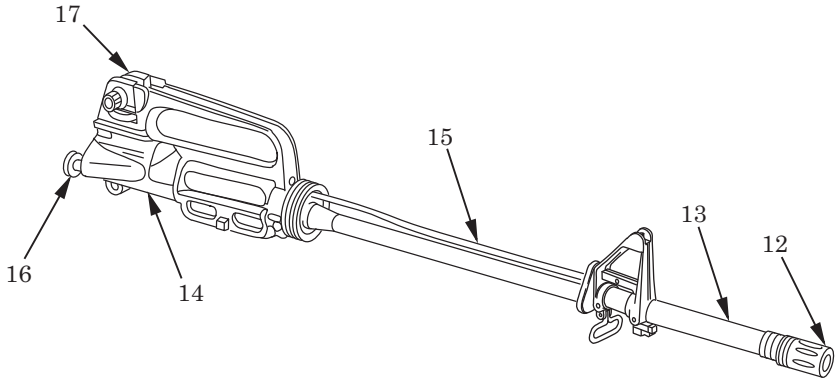
Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
3 (Cont)	Quarterly (Cont)		Upper Receiver and Barrel Assembly (Handguard Assemblies) (Cont)	M16A3, M16A4, M4, and M4A1 Only b. Remove lower handguard (10) (see WP 0015) and check for loose or missing heat shield. Check rear flange of upper handguard assembly (11) for cracks. Check upper handguard assembly for screw/retainer and forward leaf spring outside of handguard cap. Check for presence of pins securing forward leaf spring and rear clamp (M16A3/M16A4/M4/M4A1). Check for presence of barrel stop assembly (M16A3/M16A4).	b. Upper handguard assembly or lower handguard missing. Heat shield of lower handguard missing. Rear flange of upper handguard assembly displays cracks. Screw/retainer, forward leaf spring, or rear clamp missing (M16A3/M16A4/M4/M4A1). Barrel stop assembly missing (M16A3/M16A4).



1vs038

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

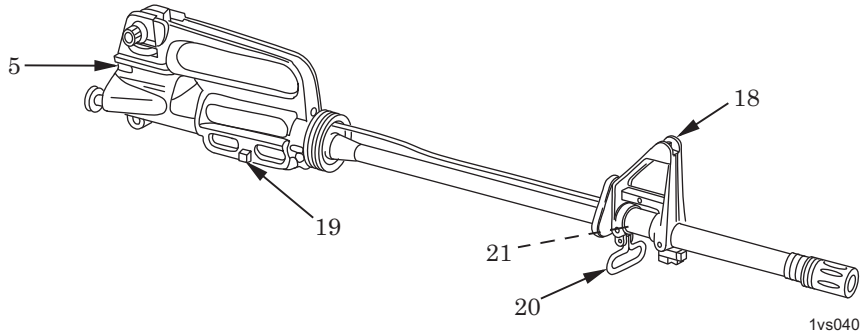
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
4	Quarterly		Upper Receiver and Barrel Assembly (Serviceability Check)	WARNING  DRY CLEANING SOLVENT CAUTION Damage may occur if excessive force is used to release takedown pin or pivot pin. Use hand pressure ONLY. a. Release takedown pins and open and separate receivers. Hand check compensator (12) for looseness on barrel (13); then hand check barrel for looseness on upper receiver (14). Check center slot of compensator for alignment (WP 0015).  17 16 14 15 13 12 1vs039	a. Compensator or barrel is loose.

PMCS PROCEDURES - Continued

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
4 (Cont)	Quarterly (Cont)		Upper Receiver and Barrel Assembly (Serviceability Check) (Cont)	b. Check gas tube (15), forward assist assembly (16), and rear sight assembly (17) for damage. c. Push in on forward assist assembly (16) several times to check for slippage of the forward assist pawl. SH - If slippage occurs, refer to TM 9-1005-319-10 for lubrication instructions. d. Rear sight spring should retain rear sight assembly (17) in either position with firmness (M16A2 only).	b. Gas tube, forward assist assembly, or rear sight assembly is damaged.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				NOTE If front or rear sight is moved, return to original position. e. Check front sight post, detent, and spring (18) for damage and corrosion. Clean and lubricate. Check charging handle (5) and ejection port cover (19) for defects and proper function. Check sling swivel (20) and rivet (21) for damage and proper function. SH - Components other than charging handle are defective; replace as necessary.	e. Charging handle is defective.
					

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
4 (Cont)	Quarterly (Cont)		Upper Receiver and Barrel Assembly (Serviceability Check) (Cont)	CAUTION Do not use a wire brush to roughen surfaces. If solid film lubricant comes in contact with moving parts or functioning surfaces of the weapon, remove lubricant immediately by washing with dry cleaning solvent. NOTE Shiny metal exterior surfaces of the rifle should be re-coated with solid film lubricant (WP 0045, item 20). Clean surface with dry cleaning solvent (WP 0045, item 15). Dry, roughen with abrasive cloth (WP 0045, item 13), and apply solid film lubricant. f. Inspect finish of upper receiver (14) for scratches or worn shiny spots. g. Inspect for painted surfaces on weapon.	g. Weapon has been painted.

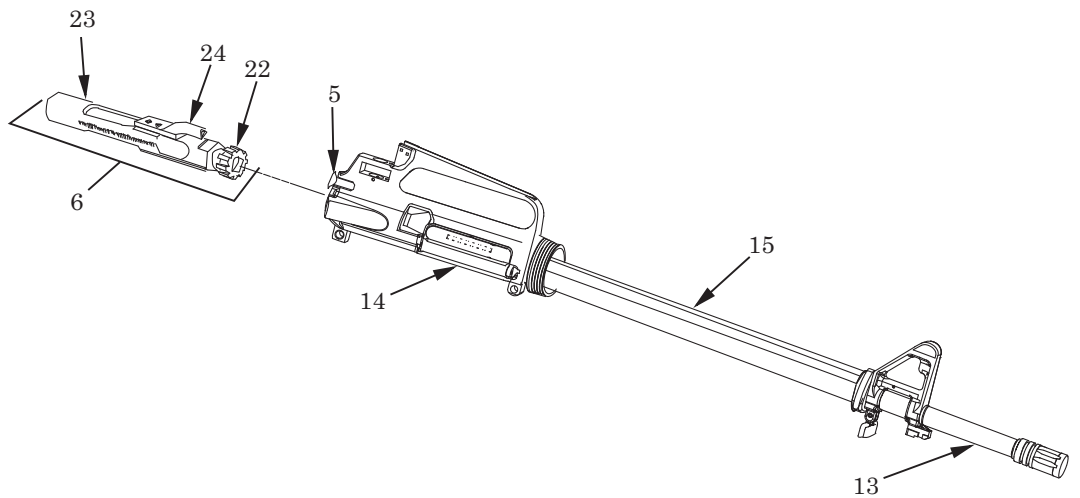
**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				WARNING  DRY CLEANING SOLVENT WARNING  SOLID FILM LUBRICANT h. If scratched or worn shiny in spots, disassemble and remove all lubricant from surface with dry cleaning solvent (WP 0045, item 15). Wear rubber gloves (WP 0045, item 17) and use a wash pan (WP 0045, item 26) to apply solvent. Let parts dry thoroughly. Roughen the surface using abrasive cloth (WP 0045, item 13) and apply solid film lubricant (WP 0045, item 20). Allow 16 to 24 hours to dry before handling.	

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

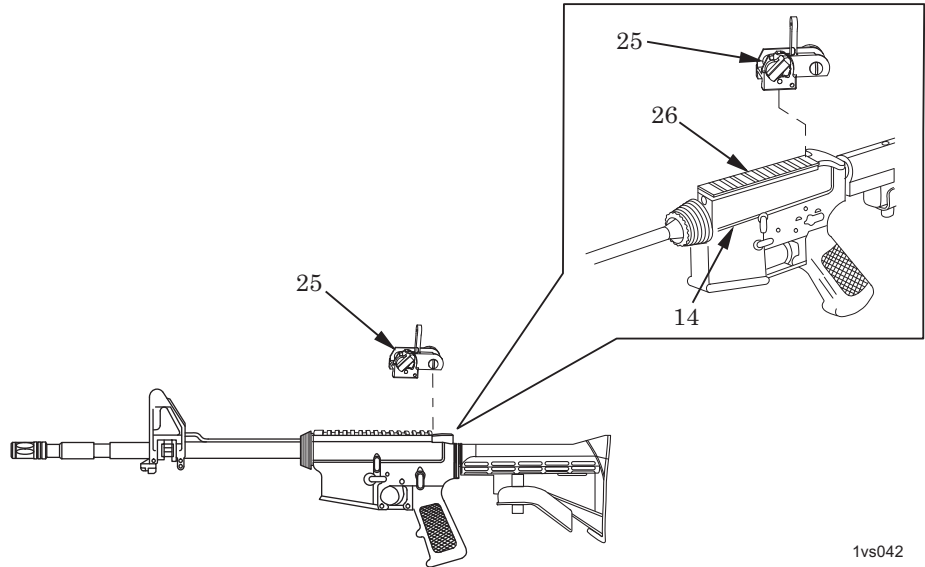
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
4 (Cont)	Quarterly (Cont)		Upper Receiver and Barrel Assembly (Serviceability Check) (Cont)	i. Hold barrel (13) at 40-degree angle (muzzle down). Pull charging handle (5) to rear. Hold bolt carrier assembly (6) to rear and push charging handle forward. Release bolt carrier assembly. The bolt carrier assembly should close and lock under its own weight. If it does not, remove the bolt assembly (22) from the key and bolt carrier assembly (23) and slide the key and bolt carrier assembly (without bolt) back and forth in the upper receiver and barrel assembly. If the gas tube (15) hits the carrier key (24) on the inside of the upper receiver (14), or if the gas tube binds in the carrier key, correct the malfunction by adjusting (slightly bending) the gas tube in the area of the handguard assemblies.	i. Adjustment does not correct the malfunction.



1vs041

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				M16A3/M16A4 and M4/M4A1 Only j. Inspect back-up iron sight (BUIS) (25) and mounting surface (26) of upper receiver (14) for damage. If BUIS is missing or cannot be correctly mounted, repair as authorized.	j. Back-up iron sight is missing or damaged or cannot be securely mounted.



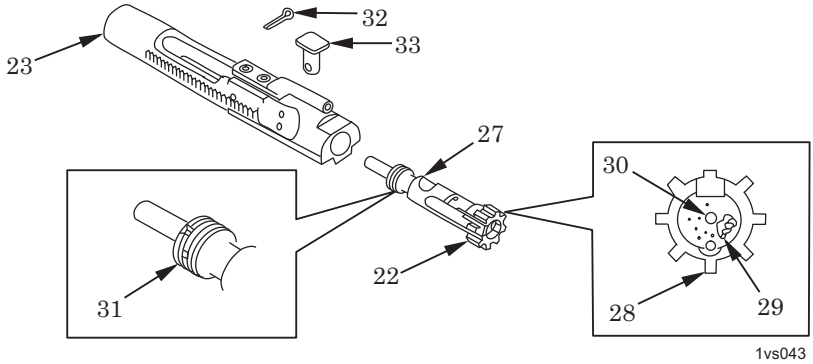
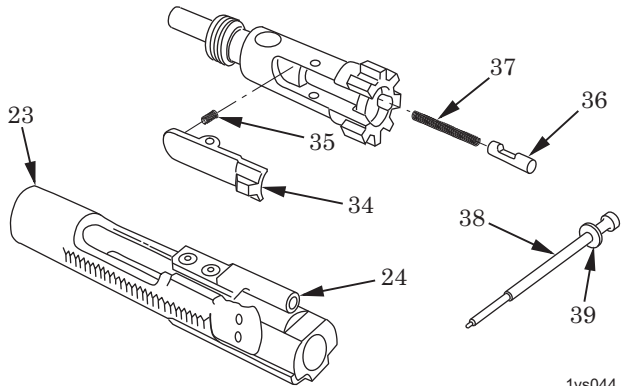
1vs042

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

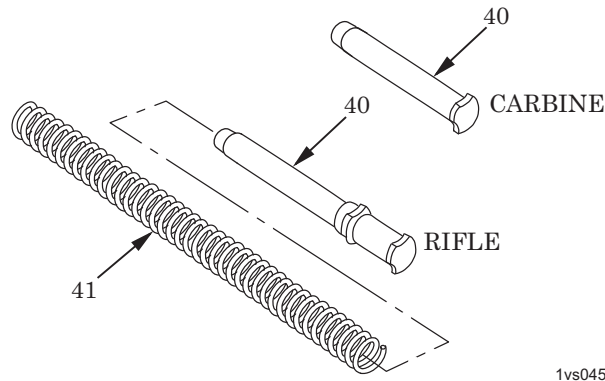
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
5	Quarterly		Key and Bolt Carrier Assembly and Bolt Assembly (Serviceability Check)	WARNING  Unless performed by qualified maintenance personnel, do not interchange bolt assemblies from one weapon to another. Doing so may result in injury to, or death of, personnel. a. Remove and disassemble (WP 0011). Visually inspect bolt assembly (22) for cracks, especially in the area of the bolt cam pin hole (27). Check for cracks on locking lugs (28), for a cluster of pits or chipped bolt face (29), and for an elongated firing pin hole (30). If cracked or broken, replace. b. Check for worn or missing bolt rings (31). Check for proper staggering of bolt rings. Insert bolt assembly (22) into key and bolt carrier assembly (23). Turn key and bolt carrier assembly so bolt assembly points down. Bolt assembly must not drop out. Remove bolt assembly. Check for broken or missing firing pin retaining pin (32) and bolt cam pin (33); replace as necessary.	a. Defects are found. b. Bolt assembly drops out of key and bolt carrier assembly due to its own weight. Firing pin retaining pin or bolt cam pin is missing or broken.

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

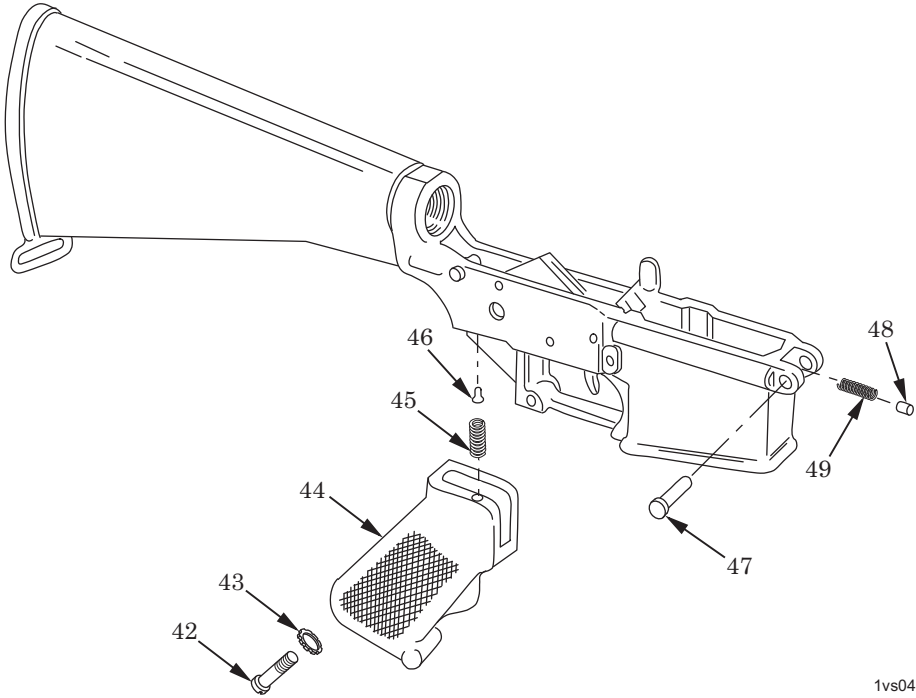
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
			 1vs043	c. Check cartridge extractor (34), extractor spring assembly (35), cartridge ejector (36), and ejector spring (37) for dirt and serviceability. If dirty, clean, lubricate, and assemble. If unserviceable, replace as necessary. d. Check key and bolt carrier assembly (23) and carrier key (24) for damage and looseness. NOTE If carrier key is dented, see WP 0011 for repair. e. Check firing pin (38) for chips or breaks. Pits or wear in area of flange (39) is permissible.	c. Parts are missing or unserviceable. d. Key and bolt carrier assembly or carrier key is damaged, or carrier key is loose.
			 1vs044		

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
6	Quarterly		Lower Receiver and Buttstock Assembly (Serviceability Check)	a. Remove buffer assembly (40) and action spring (41). Check buffer assembly for cracks. Check action spring for kinks and free length. Free length for rifle should be 11 3/4 inches (29.85 cm) minimum to 13 1/2 inches (34.29 cm) maximum. Free length for carbine should be 10 1/16 inches (25.56 cm) minimum to 11 1/4 inches (28.58 cm) maximum. Do not attempt to adjust spring length. SH - Buffer assembly is cracked; action spring is kinked or does not meet free length requirements. 	

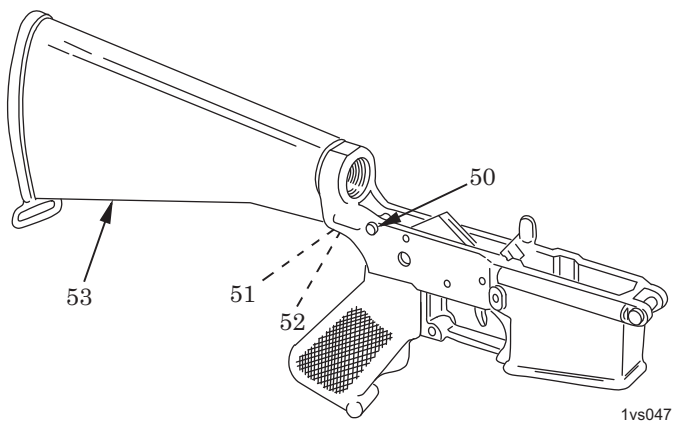
**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				b. Remove pistol grip screw (42), lockwasher (43), pistol grip (44), helical spring (45), safety detent (46), pivot pin (47), pivot pin detent (48), and helical spring (49). Clean and lubricate metal components. Also clean and generously lubricate pivot pin holes and spring/detent holes. Replace defective/damaged components as necessary.	b. Components are defective/damaged.

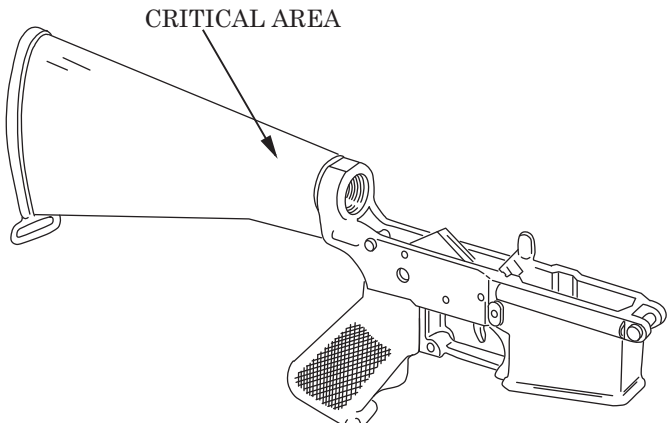
1vs046

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
6 (Cont)	Quarterly (Cont)		Lower Receiver and Buttstock Assembly (Serviceability Check) (Cont)	Rifle Only c. Disengage takedown pin (50) and pull out; push back in to re-engage takedown pin (an audible click should be heard). If an audible click is not heard, repair. d. Lubricate helical compression spring (51) and takedown pin detent (52) by placing one drop of lubricant on takedown pin detent and lowering buttstock assembly (53) to vertical position. Allow lubricant to work its way around the helical compression spring and takedown pin detent. e. Check components of buttstock assembly (53) for damage.  1vs047	c. Components are defective/damaged.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				Rifle Only f. Cracks in the critical area at the front end of buttstock are not acceptable. Under the following conditions, hairline cracks (no chipped away material allowed) originating from the buttplate end of the buttstock are acceptable. (1) One hairline crack, not to exceed 1 in. (2.54 cm) in length, per side of buttstock. (2) Two additional hairline cracks up to 0.25 in. (0.64 cm) in length, per side of buttstock. (3) A total of three cracks per side of buttstock, originating from buttplate end, is allowable. CRITICAL AREA  The diagram shows a side view of the buttstock of an M16/M4 rifle. An arrow points to the front end of the buttstock, which is labeled 'CRITICAL AREA'. The buttstock is shown with its mounting bracket and the rifle's receiver and magazine are visible in the background.	f. Buttstock is cracked in critical area or does not meet crack criteria.

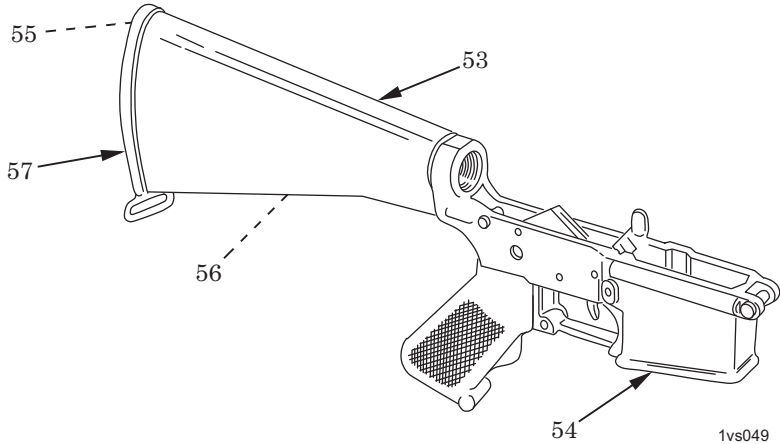
1vs048

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
6 (Cont)	Quarterly (Cont)		Lower Receiver and Buttstock Assembly (Serviceability Check) (Cont)	Rifle Only NOTE A small amount of side-to-side, up-and-down, or rotational movement of buttstock assembly is acceptable. g. Check buttstock assembly (53) for forward to rear movement and/or a 1/32 in. (0.079 cm) gap between buttstock assembly and lower receiver (54). If forward to rear movement is present and/or a 1/32 in. (0.079 cm) gap appears, tighten machine screw (55). If still not tight, remove buttstock assembly and check for loose receiver extension (56). If receiver extension is loose, repair. If not loose, replace buttplate (57), using new machine screw. h. Check buttplate (57) for cracks or damage. (1) Cracks are visible around the buttplate mounting hole while screws are mounted. SH - Cracks are visible around mounting holes when installed on rifle. (2) Cracks or separations around door assembly are visible when the door assembly is closed. SH - Cracks are visible when door assembly is closed.	g. Lower receiver extension cannot be tightened.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

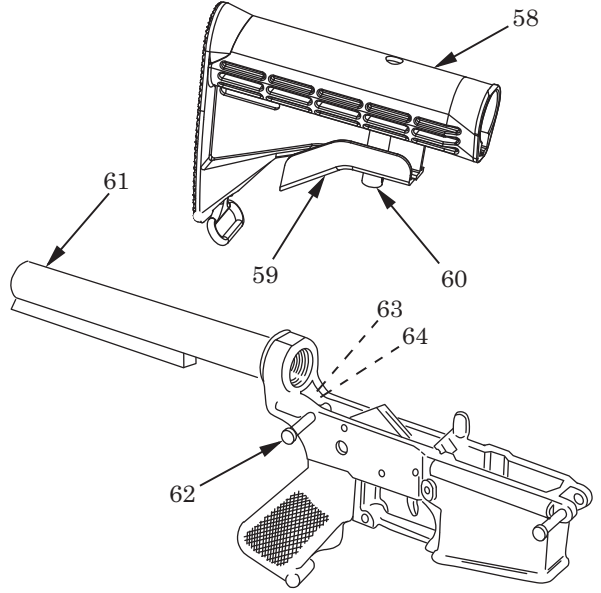
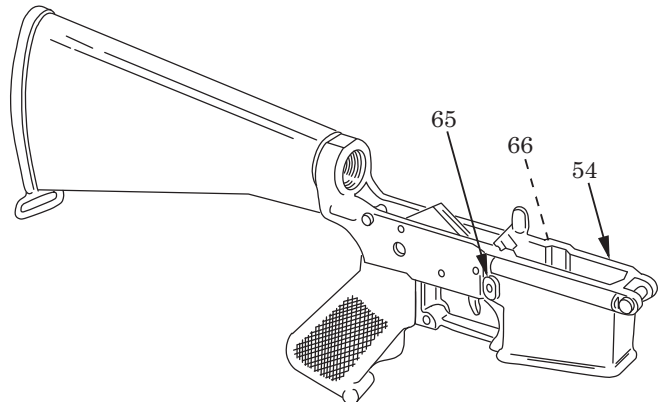
Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				(3) If buttplate is cracked in excess of 0.25 in. (0.64 cm) in length and extends through buttplate (57), repair. SH - Crack in excess of 0.25 in. extends through buttplate. (4) Buttplate (57) should not be removed except for repair or replacement of parts at which time a new machine screw, NSN 5305-01-147-8585, must be used.	
					

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
6 (Cont)	Quarterly (Cont)		Lower Receiver and Buttstock Assembly (Serviceability Check) (Cont)	Carbine Only i. Extend buttstock assembly (58). Grasp lock release lever (59) in area of retaining nut (60), pull downward, and slide buttstock assembly to rear to separate buttstock assembly from lower receiver extension (61). j. Clean and lubricate takedown pin (62). Lubricate takedown pin detent (63) and spring (64) by placing lubricant on detent and exercising it with a small screwdriver. k. Clean buttstock assembly (58) inside and out. Check lock release lever (59) for free movement. Check for cracks, dents, and damage to buttstock assembly. l. Hand check lower receiver extension (61) for looseness and corrosion. If loose, repair. Clean and lubricate lower receiver extension. m. Grasp lock release lever (59) in area of retaining nut (60) and pull to install buttstock assembly (58) onto lower receiver extension (61).	k. Lock release lever is cracked, does not move freely, or is dented or damaged enough to interfere with functioning. l. Lower receiver extension is loose.

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
				 All Weapons n. Function check magazine catch (65) and bolt catch (66).	n. Magazine catch or bolt catch is defective. 

PMCS PROCEDURES - Continued

Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
6 (Cont)	Quarterly (Cont)		Lower Receiver and Buttstock Assembly (Serviceability Check) (Cont)	NOTE If a weapons lower receiver is missing one third or more of its exterior protective finish, resulting in an unprotected/light reflecting surface, it is a candidate for overhaul. This missing finish will be considered a shortcoming (SH). This SH requires action to obtain a replacement weapon. Once a replacement has been received, evacuate the original weapon to depot for overhaul. o. Check finish of lower receiver (54) for scratches and worn shiny spots. If scratched or worn shiny in spots, repair in the same manner as stated for upper receiver (see item 4 above).	
7	Quarterly		M16 Series Rifles and M4 Series Carbines	a. Assemble per TM 9-1005-319-10. b. Check sling for damage. If damaged, replace. c. Check for improperly assembled, broken, missing, or damaged parts. Check overall general appearance. Replace parts or repair as required.	

**Table 1. Preventive Maintenance Checks and Services for
M16 Series Rifles and M4 Series Carbines - Continued.**

Item No.	Interval	Man-Hour	Item To Be Checked or Serviced	Procedure	Equipment Not Ready/Available If:
8	Quarterly		Annual Safety and Serviceability Inspection and Gaging	Check to ensure annual safety and serviceability inspection and gaging has been done and that the next gaging and inspection is scheduled.	Annual gaging has not been performed. Air Force users only will refer to AFI 36-2226 for inspection requirements.

END OF TASK

LUBRICATION INSTRUCTIONS

The term "cleaner, lubricant, and preservative (CLP)" or the words "lubricant", "LSA", or "LAW" are to be interpreted to mean CLP (WP 0045, item 10), weapons lubricating oil (LSA) (WP 0045, item 21), or weapons lubricating oil (LAW) (WP 0045, item 22). Lubricants can be utilized as applicable, with the following constraints.

CAUTION

Do not mix lubricants on the same weapon. The weapon must be thoroughly cleaned during change from one lubricant to another. Dry cleaning solvent (WP 0045, item 15) is recommended for cleaning during change from one lubricant to another.

1. Under all but the coldest Arctic conditions, LSA or CLP is the lubricant to use on the weapon. Either may be used at -10 °F (-23 °C) and above. However, do not use both on the same weapon at the same time.
2. LAW is the lubricant to use during cold Arctic conditions, +10 °F (-12 °C) and below.
3. Any of the lubricants may be used from -10 °F to +10 °F (-23 °C to -12 °C).
4. Rifle bore cleaning compound (RBC) (WP 0045, item 12) may be used to remove carbon buildup in the bore and other portions of the weapon.
5. Users will use only those cleaners, lubricants, or preservatives listed in WP 0045. No other cleaners, lubricants, or preservatives are authorized.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

**RIFLE, 5.56MM (M16A2) 9349000; RIFLE, 5.56MM (M16A3) 12012000;
RIFLE, 5.56MM (M16A4) 12973001; CARBINE, 5.56MM (M4) 9390000;
AND CARBINE, 5.56MM (M4A1) 12972700 MAINTENANCE**

**DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY,
TEST AND INSPECTION, STOWAGE**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Adapter bar (WP 0030, Figure 6)

Mounting bracket (WP 0045, item 23)

Rail protector (WP 0045, item 29)

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Solid film lubricant (SFL) (WP 0045, item 20)

References

TM 9-1005-319-10

WP 0015

WP 0021

Equipment Condition

Weapon assembled

DISASSEMBLY

WARNING

Before starting an inspection, be sure to clear the weapon. Do not pull the trigger until the weapon has been cleared. Inspect the chamber to ensure that it is empty and no ammunition is in position to be chambered.

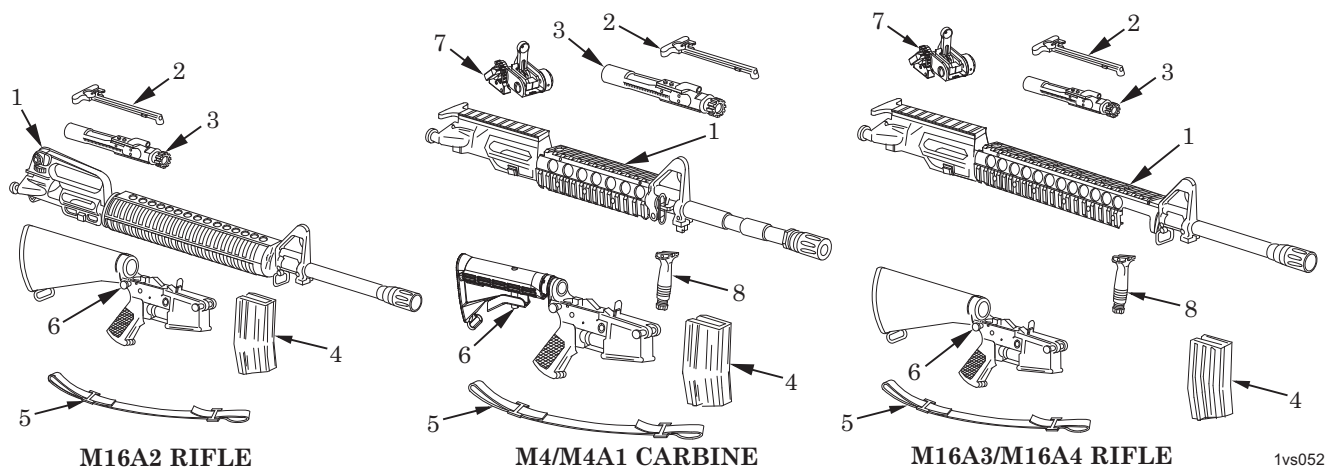


Figure 1. Major Components of Rifles and Carbines.

Remove magazine (4), sling (5), bolt and bolt carrier assembly (3), charging handle assembly (2), upper receiver and barrel assembly (1), vertical pistol grip (8), and back-up iron sight (7) from lower receiver and buttstock assembly (6). Refer to TM 9-1005-319-10.

END OF TASK**REPAIR OR REPLACEMENT****WARNING****SOLID FILM LUBRICANT**

Solid Film Lubricant (SFL) (WP 0045, item 20) is the only authorized touchup for the M16 series rifles and M4/M4A1 carbines and may be used on up to one third of the exterior finish of the weapon. **FOR ARMY CONUS USE ONLY:** SFL may be used as touchup without limitation on the upper receiver and barrel assembly. Units which DO NOT fall under the category of Divisional Combat Units or rapid deployment type units may have up to 100 percent of the exterior surface of the upper receiver and barrel assembly protected with SFL if necessary.

AIR FORCE ONLY: The only permissible coatings or coverings authorized for Air Force owned or controlled weapons are:

Receiver: Color hardcoat anodizing applied by qualified Depot personnel only;

Any steel components: Phosphate coat applied by qualified Depot personnel only;

Touchup of small damaged or shiny areas: SFL applied by qualified Combat Arms personnel only.

Painting or otherwise camouflaging Air Force weapons is not authorized.

END OF TASK

ASSEMBLY

WARNING



Unless performed by qualified maintenance personnel, do not interchange bolt assemblies from one weapon to another. Doing so may result in injury to, or death of, personnel.

1. Install charging handle assembly (2) and bolt and bolt carrier assembly (3) into upper receiver and barrel assembly (1). Join upper receiver and barrel assembly and lower receiver and buttstock assembly (6).
2. Snap on sling (5) and install magazine (4).
3. Install back-up iron sight (7) and vertical pistol grip (8) (M16A3/M16A4 and M4/M4A1 only).

END OF TASK

TEST AND INSPECTION

1. Visually inspect general appearance of weapon. Weapon should look new. All metal surfaces are to have a dull, rust- or corrosion-resistant finish with no burrs or deep scratches.
2. Visually inspect barrel for serviceability. Barrels must be straight, clean, free of rust, powder fouling, and free of bulges and rings. Fine pitting is allowable.
3. Using moderate hand pressure, check for rotational movement of the front sight in relation to the barrel. Also, using moderate hand pressure, check for rotational movement of the barrel in relation to the upper receiver. If movement between the front sight and the barrel exist, the barrel assembly must be replaced. If movement between the barrel and the upper receiver exist, the barrel assembly must be aligned and tightened (see WP 0015).
4. Visually inspect weapon for missing parts. All parts must be attached and all modifications must be applied. Steel parts must be rust free. Spring pins must be secure and screws must be tight.

TEST AND INSPECTION - Continued

5. Functionally inspect key and bolt carrier assembly and gas tube alignment. Refer to TM 9-1005-319-10 and use the following procedures:
 - a. Disengage the takedown pin and open the receiver.
 - b. Remove bolt carrier assembly.
 - c. Remove bolt assembly from bolt carrier assembly.
 - d. Insert key and bolt carrier assembly into upper receiver and barrel assembly. The bolt assembly must not be installed while performing test.
 - e. Slide key and bolt carrier assembly forward to detect binding between key and bolt carrier assembly and gas tube by feel. Badly bent gas tube could cause damage to both the key and bolt carrier assembly and the gas tube. A slightly bent gas tube will cause unnecessary wear of the key and bolt carrier assembly and gas tube.
 - f. Correct slight binding by removing handguard assemblies and slightly bending gas tube in the handguard area while repeating step e above until no binding is detected. Badly bent gas tubes will be replaced and realigned.
 - g. Remove key and bolt carrier assembly from upper receiver and barrel assembly.
 - h. Reassemble bolt assembly into key and bolt carrier assembly.
 - i. Reinstall key and bolt carrier assembly into upper receiver and barrel assembly.

M16A2 ONLY

6. Check rear sight assembly as follows:
 - a. Rotate elevation knob counterclockwise until the rear sight assembly is all the way down. If a whole click is not felt as the rear sight assembly stops, the rear sight assembly has bottomed out and will not pivot freely.
 - b. Position elevation knob back slightly to its last whole click as the rear sight assembly base is under tension of the ball bearing and helical spring. The 300 meter mark should align with the mark on the receiver.
 - c. If the 300 meter mark is not aligned with the mark on receiver, slip the range scale in the following manner:
 - (1) Position the 300 meter mark with the mark on the receiver.
 - (2) Insert a 1/16 in. key wrench through the access hole of the rear sight assembly base and into the index screw.
 - (3) Loosen the index screw three turns and leave the wrench in place.
 - (4) Rotate lower portion of elevation knob counterclockwise until it stops (range scale should not have moved). Elevation knob should be positioned on its last whole click.

- (5) Tighten index screw and remove wrench.
- (6) Check for proper setting.

ALL WEAPONS

- 7. Make a functional check on an assembled weapon with selector lever in SAFE, SEMI, and BURST/AUTO positions. Any portion of this check may be used alone to determine the operational condition of any specific firing position selected.
 - a. Remove magazine if installed. Pull charging handle assembly to rear. Check that chamber is clear. Let bolt and bolt carrier assembly close. Do not pull trigger. Leave hammer in cocked position.

WARNING



If weapon fails any function tests, perform required maintenance. Continued use of the weapon could result in injury to, or death of, personnel.

- b. Place selector lever in SAFE position and pull trigger. Hammer should not fall.
- c. Place selector lever in SEMI position. Pull trigger. Hammer should fall.

NOTE

For the purpose of the following check "SLOW" is defined as 1/4 to 1/2 the normal rate of trigger release.

- d. Hold trigger to the rear, charge weapon, and release the trigger with a slow, smooth motion, without hesitations or stops, until the trigger is fully forward; an audible click should be heard. Hammer should not fall.
- e. Repeat the SEMI position test five times. The weapon must not malfunction during any of these five tests. If the weapon malfunctions during any of these five tests, repair (see WP 0021).

M16A2, M16A4, and M4 ONLY

- f. Place selector lever in BURST position. Charge weapon and pull trigger. Hammer should fall.
- g. While holding trigger to the rear, pull charging handle assembly to rear and release three times. Release trigger. Hammer should not fall. The burst disconnect should have held the hammer to the rear while the trigger was in the pulled position. See item 14 for detailed explanation and function check of three-round burst.
- h. Pull trigger. Hammer should fall. This should be the first round of a three-round burst.

TEST AND INSPECTION - Continued**M16A3 and M4A1 ONLY**

- i. Place selector lever in AUTO position. Charge weapon and pull trigger. Hammer should fall.
- j. Hold trigger to the rear, charge weapon, and release trigger. Pull trigger. Hammer should not fall. AUTO sear should have released hammer as the bolt closed.

ALL WEAPONS

- k. With hammer in forward position, attempt to place the selector lever in the SAFE position. If selector lever can be placed on SAFE, repair (see WP 0021).
8. Perform the following additional functional checks and adjustments on assembled weapon:
- a. Press magazine catch button. Make sure it functions properly.
 - b. Press bolt catch. Make certain it operates smoothly and holds bolt in open position.
 - c. Inspect front sight and rear sight assembly. Make certain they can be adjusted properly.
 - d. Actuate forward assist assembly. It must work freely.
 - e. Inspect upper receiver and barrel assembly. Barrel assembly should not rotate within upper receiver assembly.
 - f. Check that third or middle slot of compensator is straight up at top dead center (TDC).
9. Test trigger pull as follows:

M16A2, M16A4, and M4 ONLY

- a. Clear the weapon. Place selector lever in BURST position. Pull the trigger and hold it to the rear. Pull the charging handle to the rear and return to the bolt closed position three times. (This will place the BURST disconnect in the deep notch of the BURST cam.)

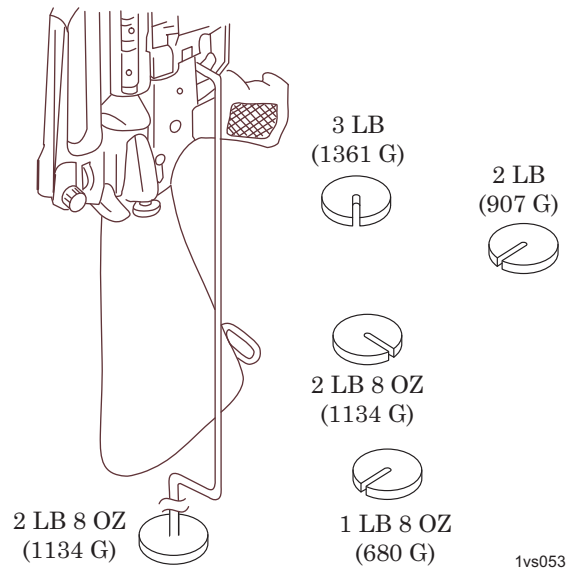


Figure 2. Trigger Pull Test.

- b. Release the trigger. Place the selector lever in SEMI position. Hold the weapon in the vertical position. Using trigger pull measuring fixture, P/N 7274758, add weights until hammer trips. Determine weight applied.
- c. Hammer must not trip when 5.5 lb (2.49 kg) have been applied; hammer must trip on applying 9.5 lb (4.31 kg).

M16A3 and M4A1 ONLY

- d. Clear the weapon. Cock weapon. Place selector lever in SEMI position and hold weapon in vertical position.
- e. Using trigger pull measuring fixture P/N 7274758, add weights until hammer trips. Determine weight applied.
- f. Hammer must not trip when 5.5 lb (2.49 kg) have been applied. Hammer must trip on applying 8.5 lb (3.86 kg).

ALL WEAPONS

- g. If weapon fails trigger pull test or excessive creep is present, replace trigger assembly and/or hammer assembly (see WP 0021).

NOTE

Always gage trigger and hammer pin holes with no go plug gage P/N 12006472 before replacing parts.

10. Check headspace using headspace gage P/N 7799734. See WP 0015.
11. Check firing pin protrusion using firing pin protrusion gage P/N 7799735. See WP 0015.
12. Check extent of barrel erosion using barrel erosion gage P/N 8448496. See WP 0015.

TEST AND INSPECTION - Continued

13. Check barrel straightness using barrel straightness gage P/N 8448202. See WP 0015.

NOTE

Review step 14 only if problems are encountered during selector lever tests.

First become familiar with the functioning of the firing mechanism, especially when in the SAFE and SEMI positions. Also understand the role that the automatic sear plays when firing in the BURST position. Functioning of the mechanism is explained below in a step by step manner. This actually will seem to complicate something that is really very simple and happens in less than 1 second. The diagrams on the following pages do not show the associated springs for the sake of simplicity. The positioning of the burst cam is shown in detail.

14. The following is a description of the functional theory of three-round burst.

NOTE

Assume the rifle is fully loaded with a live round in the chamber and the selector lever on BURST.

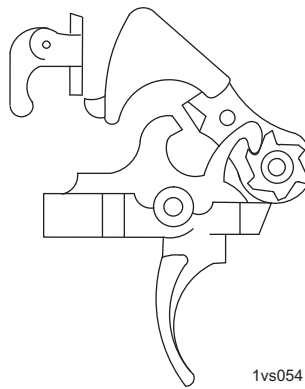


Figure 3. Beginning Position in Three-Round Burst.

- a. Hammer is cocked.
- b. Front hook of burst lever is in stop notch.

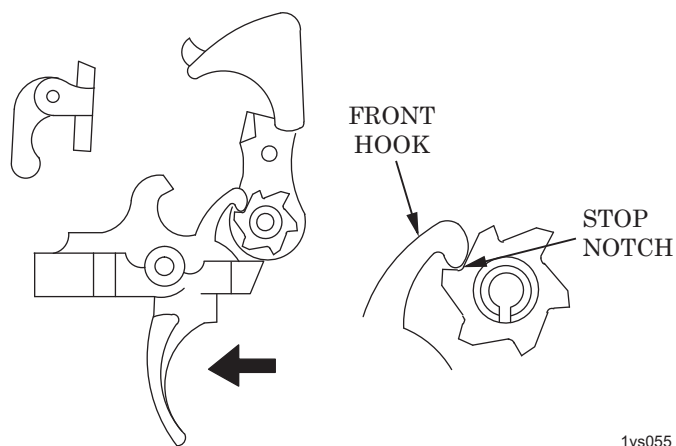


Figure 4. Firing of First Round.

- c. Trigger is pulled.
- d. Trigger nose drops and hammer falls firing the FIRST ROUND.
- e. Front hook of burst disconnector holds burst cam in place as hammer falls.

NOTE

Anytime the hammer falls forward, the clutch spring releases the burst cam and allows the front hook of the burst disconnector to keep it in place.

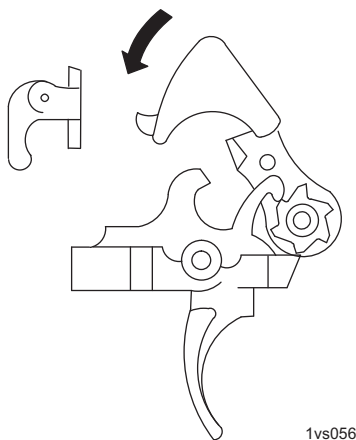


Figure 5. Movement of Key and Bolt Carrier Assembly.

- f. As the key and bolt carrier assembly moves to the rear, the hammer is forced to the rear.

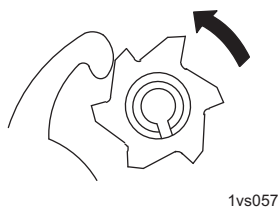
TEST AND INSPECTION - Continued

Figure 6. First Rotation of Burst Cam.

- g. The clutch spring of the burst cam clutches the burst cam and causes it to rotate one notch as the hammer is forced back.

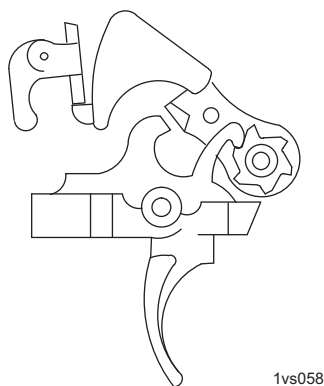


Figure 7. Action of Automatic Sear.

- h. When hammer is fully to the rear, the automatic sear catches it.

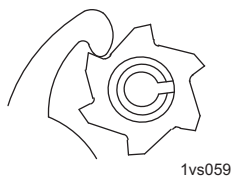


Figure 8. Burst Disconnecter in Second Notch.

- i. The front hook of the burst disconnecter is now fully in the second notch.

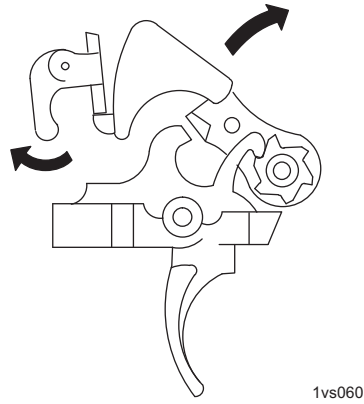


Figure 9. Forward Travel of Key and Bolt Carrier Assembly.

- j. As the key and bolt carrier assembly travels forward, the automatic sear releases the hammer and the hammer falls.

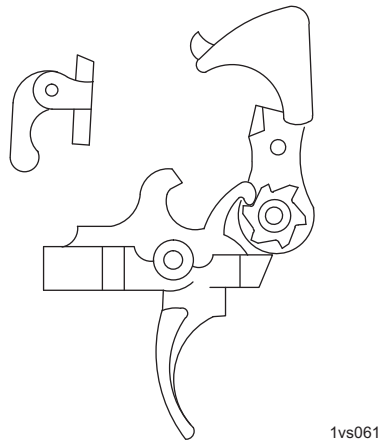


Figure 10. Firing of Second Round.

- k. When the hammer falls, the SECOND ROUND is fired.

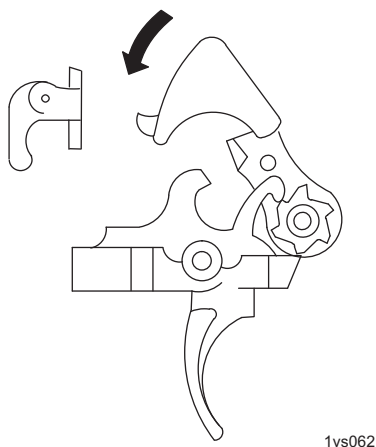
TEST AND INSPECTION - Continued

Figure 11. Rearward Movement of Key and Bolt Carrier Assembly.

- l. As the key and bolt carrier assembly moves to the rear, the hammer is forced back to the rear.

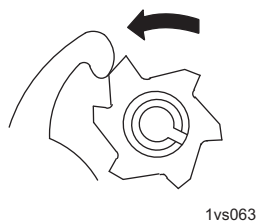


Figure 12. Second Rotation of Burst Cam.

- m. The clutch spring of the burst cam clutches against the burst cam and causes it to rotate one notch as the hammer is forced back.

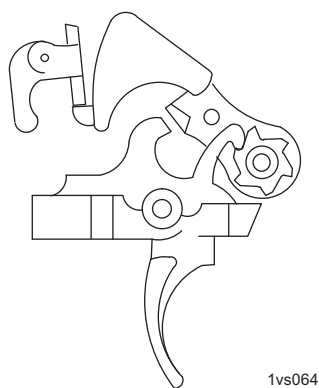


Figure 13. Second Round Action of Automatic Sear.

- n. When hammer is fully to the rear, the automatic sear catches it.

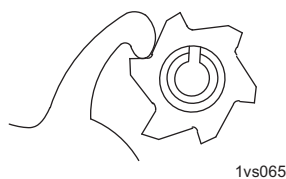


Figure 14. Burst Disconnecter in Third Notch.

- o. The front hook of the burst disconnecter is now fully in the third notch.

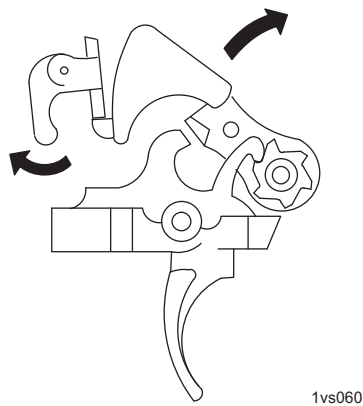


Figure 15. Release of Hammer Assembly.

- p. As the key and bolt carrier assembly travels forward, the automatic sear releases the hammer and the hammer falls.

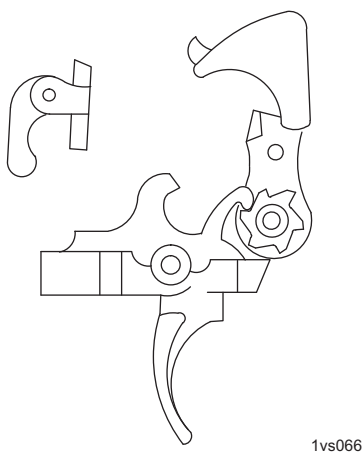


Figure 16. Firing of Third Round.

- q. When the hammer falls, the THIRD ROUND is fired.

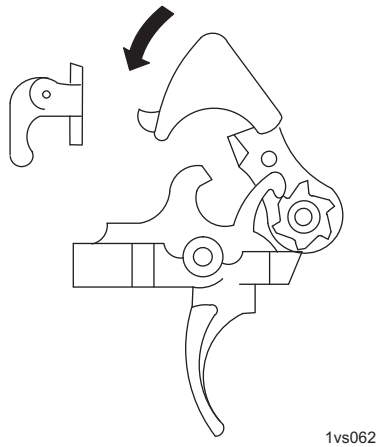
TEST AND INSPECTION - Continued

Figure 17. Final Movement of Key and Bolt Carrier Assembly.

- r. As the key and bolt carrier assembly moves to the rear, the hammer is forced back to the rear.

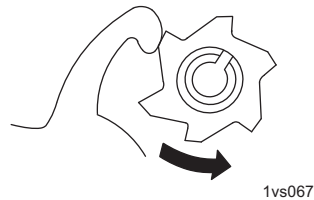


Figure 18. Third Rotation of Burst Cam.

- s. The clutch spring of the burst cam clutches against the burst cam and causes it to rotate one notch as the hammer is forced back.

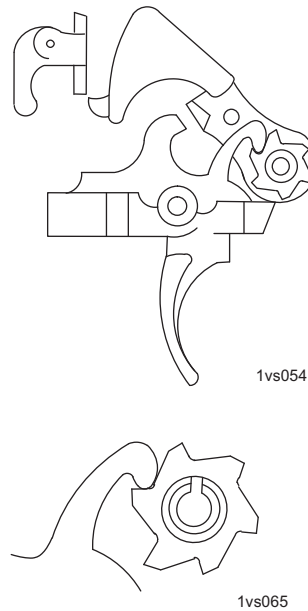


Figure 19. Rotation into Stop Notch.

- t. When the hammer is fully to the rear, it is initially caught by the automatic sear. However, the front hook of the burst disconnector is now fully in the next stop notch which is deeper than the others.

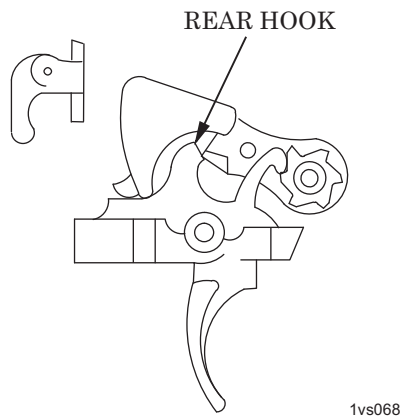


Figure 20. Completion of Firing.

- u. Because a stop notch is deeper than the others, it allows the front hook of the burst disconnector further forward than before. This allows the rear hook of the burst disconnector to latch on the rear hammer notch. This holds the hammer fully to the rear even though the trigger is still to the rear. This happens when the burst is over and the firing is stopped.

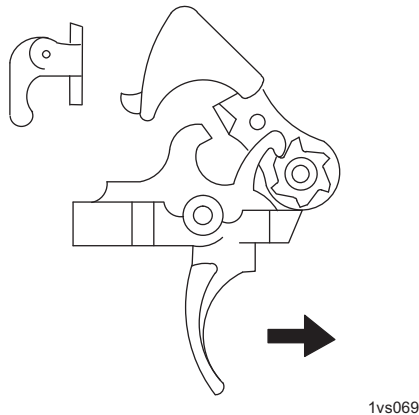
TEST AND INSPECTION - Continued

Figure 21. Release of Trigger.

- v. Once the trigger is released, the trigger nose comes up and holds the hammer back.

NOTE

Pulling the trigger to the rear and holding it back again will fire another three-round burst. This will continue until the magazine is empty. However, the trigger must be released between each burst.

END OF TASK**STOWAGE****NOTE**

Prior to stowing the weapon in arms room, perform steps 1 through 4.

1. Clear weapon. Refer to TM 9-1005-319-10.
2. Place selector lever in SEMI position.
3. Pull trigger. Hammer should fall.
4. Close ejection port (dust) cover.
5. Place weapon in rack.

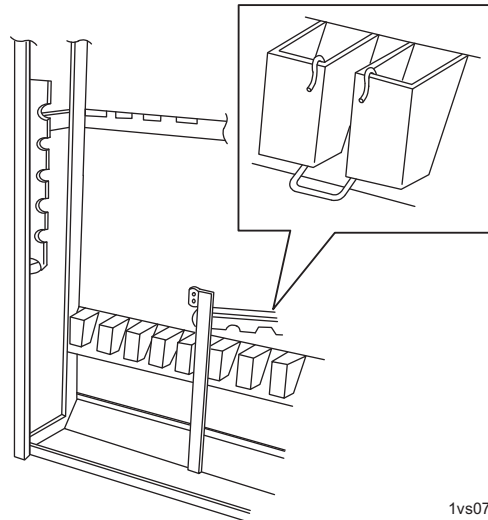


Figure 22. Stowage of Weapon.

6. Use M12 Storage Rack after modifying as described below.
 - a. The M12 storage rack is the correct arms rack in which to store the M4/M4A1 carbine. The carbine must be stored with buttstock extended. The back-up iron sight must be mounted in rearmost slot of upper receiver. When storing the M4/M4A1 carbine in the M12 storage rack a mounting bracket (WP 0045, item 23) may be used for each carbine being stored. This option is for the convenience of the person who opens and closes the storage rack to store the carbines.
 - b. To install the mounting bracket on the M12 storage rack, for use with the carbine, install the bracket with the hooks of the bracket facing toward the carbine, so that the lower receiver extension will contact the bent end of the bracket. The bent end of the bracket will hold the carbine upright when the arms rack is opened. The bracket can be turned around when not in use for the carbine to allow storage of the M16 series rifle.
 - c. When storing the M4/M4A1 carbine in the M12 storage rack, an adapter bar (WP 0030, Figure 6) MUST be used for security reasons.

NOTE

It is necessary to either remove the carrying handle, if present, or ensure that it is in rearmost position in order to secure the locking bars of the M12 rack during storage of the M16A4 rifle and M4/M4A1 carbine. DO NOT mix carrying handles from one weapon to another; it may change the zero of the host weapon.

- d. To prevent damage to the mounting surface on the upper receiver it is recommended that the rail protector (WP 0045, item 29) should be used during storage of the carbines and M16A4 rifle when the back-up iron sight or some other accessory is not installed on the upper receiver.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**BACK-UP IRON SIGHT MAINTENANCE****REMOVAL, DISASSEMBLY, REPAIR OR REPLACEMENT,
ASSEMBLY, LUBRICATION, INSTALLATION****EFFECTIVITY NOTICE**
M16A3, M16A4 RIFLE
M4, M4A1 CARBINE

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Recoil screw, 12996824

References

TM 9-1005-319-10

REMOVAL**WARNING**

Before starting removal procedure, clear the weapon. Inspect the chamber to ensure that it is empty and no ammunition is in position to be chambered.

1. Remove magazine. Draw bolt/carrier assembly to the rear and visually inspect chamber and receiver to make sure weapon is unloaded and no ammunition is present. Close bolt/carrier assembly; confirm that selector lever is set on SAFE, and close dust cover.

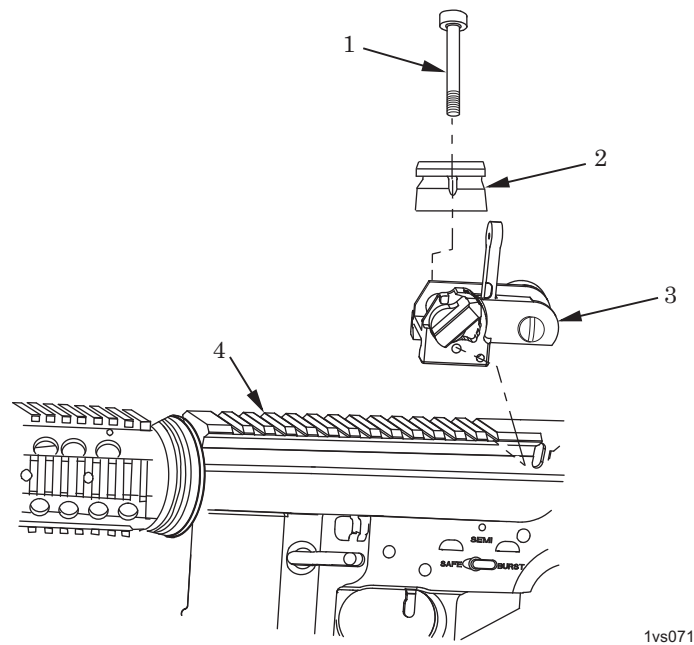
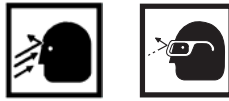
REMOVAL - Continued

Figure 1. Removal of Back-up Iron Sight.

2. Using 1/8 in. key wrench, remove recoil screw (1). Remove locking bar (2) and back-up iron sight (BUIS) (3) from upper receiver (4). Discard recoil screw.

END OF TASK

DISASSEMBLY**WARNING**

To avoid injury to eyes, use care when removing spring-loaded parts.

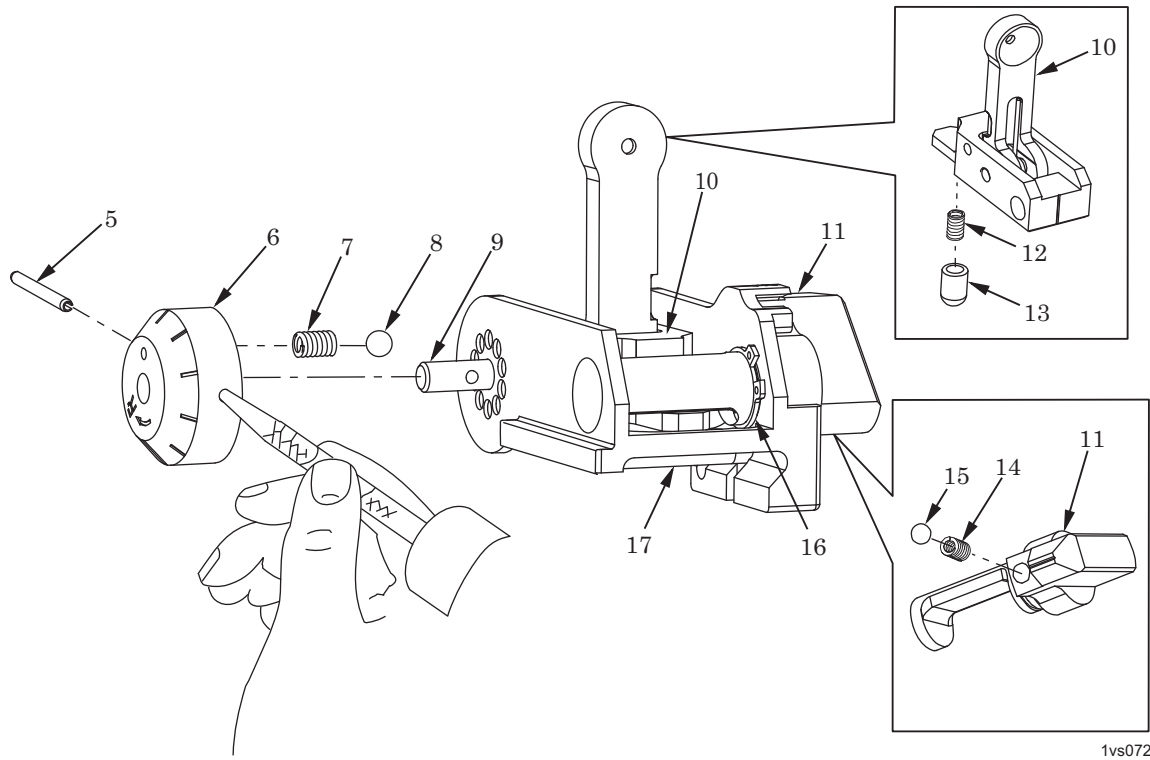


Figure 2. Disassembly/Assembly of BUIS.

1. Drive out spring pin (5) using hammer and 1/16 in. punch.
2. Catch windage knob (6), index spring (7), and ball bearing (8).
3. Using a flat bladed screwdriver, remove windage screw (9).
4. Remove frame assembly (with aperture sight) (10), and carefully remove compression spring (12) and plunger (13), from point beneath frame assembly.

NOTE

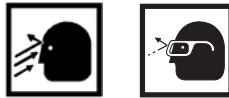
Disassemble the sight cam (11) only when necessary. If removed, discard external retaining ring.

5. Using retaining ring pliers, remove external retaining ring (16) and slide out sight cam (11) from sight base (17). Use care to retain parts when removing ball bearing (15) and index spring (14) underneath sight cam.

END OF TASK

REPAIR OR REPLACEMENT

1. Check sight parts for serviceability. Visually inspect sight base for cracks, corrosion, or damage. Check for legibility of markings. Detent indexing surfaces should be well formed. Replace if defective.
2. Visually inspect frame assembly for cracks, corrosion, or damage. Sight aperture should be round. Flip-up sight arm must lock down. Replace if defective.
3. Check sight cam for function, corrosion, or damage. Replace if defective.
4. Visually check locking bar for damage. Replace if defective.

END OF TASK**ASSEMBLY****WARNING**

To avoid injury to eyes, use care when installing spring-loaded parts.

NOTE

The external retaining ring must be replaced if removed for repair of the sight cam.

1. If removed, install sight cam (11) into sight base (17). Push ball bearing (15) and index spring (14) into hole in sight cam and slide sight cam all the way into sight base. Fasten in place with new external retaining ring (16).
2. Install compression spring (12) and plunger (13) into frame assembly (10). Install frame assembly into sight base (17). (It may be easier to rotate sight cam (11) to the 200-meter mark to slide frame assembly into position and then rotate to the 600-meter mark to hold frame assembly while inserting windage screw.)
3. Install windage screw (9) into sight base (17).
4. Install index spring (7) and ball bearing (8) into hole in windage knob (6). Align hole in windage knob with hole in windage screw (9) and fasten in place with spring pin (5).

END OF TASK**LUBRICATION**

1. Lubricate BUIS with overall light coat of CLP (WP 0045, item 9).
2. Rotate sight cam to 600-meter mark. Apply 2 or 3 drops of CLP to index spring and ball bearing through hole in bottom of sight cam.
3. Apply 2 or 3 drops of CLP to plunger and compression spring beneath flip-up aperture sight.

4. Apply 2 or 3 drops of CLP to index spring and ball bearing through hole in side of windage knob.
5. Apply light coat of CLP to threads of windage screw. Turn screw side-to-side before returning to original zeroing mark.

END OF TASK

INSTALLATION

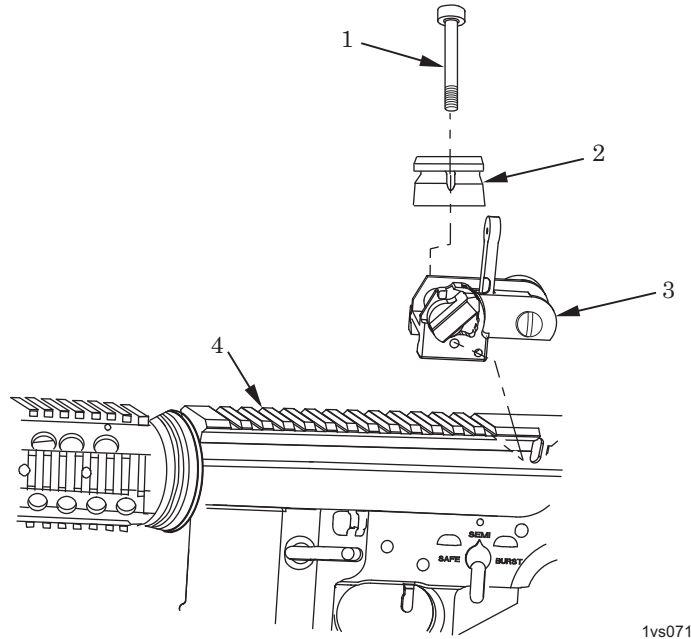


Figure 3. Installation of Back-up Iron Sight.

NOTE

Recoil screw is mandatory replacement when removed. There is a locking patch on threads of screw.

1. Install locking bar (2) and new recoil screw (1) into BUIS (3).

NOTE

The BUIS **MUST** be mounted in the rearmost slot on the upper receiver for the range adjustments and the zeroing to be correct.

2. Using locking bar (2) and recoil screw (1) align recoil screw in rearmost slot of upper receiver (4) with range scale of BUIS (3) facing rearward. Make sure BUIS is flat on receiver rail with angled edge under upper receiver rail and tighten in place with 1/8 in. key wrench.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**BOLT AND BOLT CARRIER ASSEMBLY MAINTENANCE****DISASSEMBLY, CLEANING, INSPECTION — ACCEPTANCE AND REJECTION CRITERIA,
REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Bolt carrier key tool (WP 0039, Figure 23, item 12)

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Pipe cleaner (WP 0045, item 11)

Rifle bore cleaning compound (RBC) (WP 0045, item 12)

References

TM 9-1005-319-10

WP 0012

WP 0013

Equipment Condition

Bolt and bolt carrier assembly removed (WP 0009)

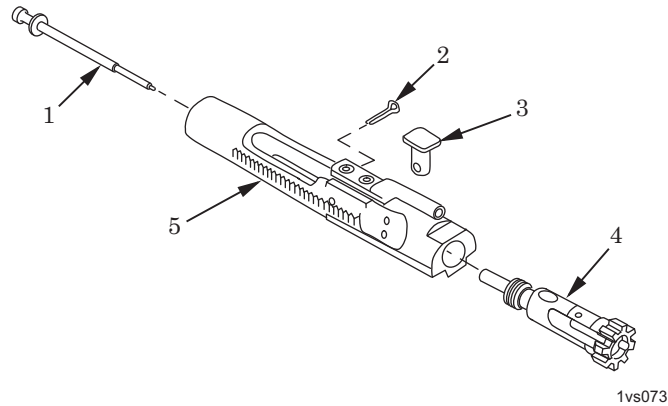
DISASSEMBLY

Figure 1. Disassembly of Bolt and Bolt Carrier Assembly.

CAUTION

To prevent damage to pin, do not spread or close legs of firing pin retaining pin.

1. Remove firing pin retaining pin (2).
2. Tip key and bolt carrier assembly (5) and catch firing pin (1) as it drops out.
3. Rotate bolt cam pin (3) one quarter turn and lift straight up to remove.
4. Remove bolt assembly (4) from key and bolt carrier assembly (5).

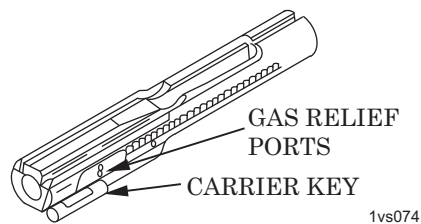
END OF TASK**CLEANING**

Figure 2. Cleaning of Bolt Carrier Assembly.

Clean carrier key and gas relief ports using CLP (WP 0045, item 9) or RBC (WP 0045, item 12) and pipe cleaner (WP 0045, item 11).

END OF TASK

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA**NOTE**

There are bolts and bolt carriers on fielded rifles, some with chrome-plated exterior surface finishes and some with phosphate coating. Both finishes are acceptable under certain operational requirements and/or restrictions. Phosphate-coated bolt carriers are required for divisional combat units. Chrome-plated bolt carriers are acceptable for divisional non-combat units and training center units. Chrome-plated and phosphate-coated bolt assemblies, bolt carrier assemblies, and repair parts for these assemblies may be intermixed in any combination, with the following exception:

Phosphate-coated bolt carriers are required for all deployable and deploying units. Chrome-plated bolt carriers are acceptable for non-deployable and training center units.

Air Force Only: Use of chrome-plated or phosphate-coated bolts and bolt carriers are acceptable for ALL Air Force missions and are deployable. Use of bolt carrier without forward assist serration is acceptable for ALL Air Force mission requirements.

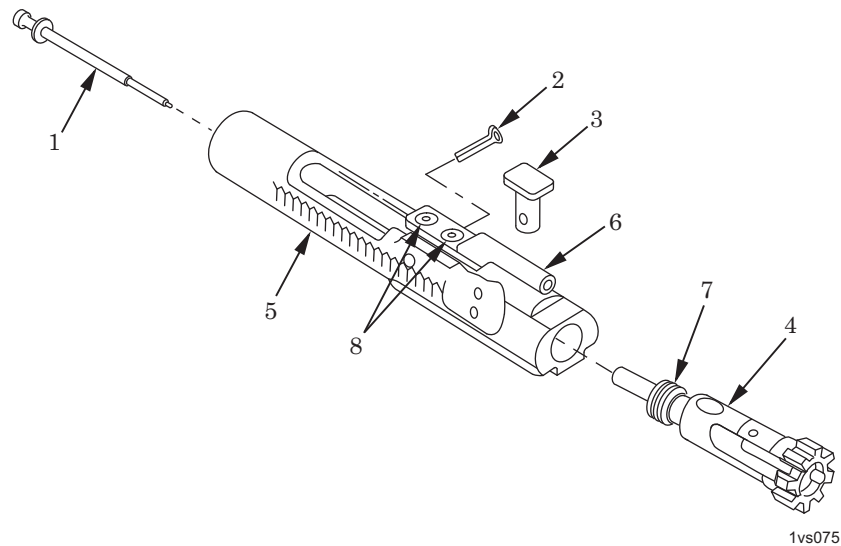


Figure 3. Inspection Points.

1. Inspect bolt assembly (4) to verify that gaps in bolt rings (7) are staggered and approximately 1/3 turn apart.
2. Inspect firing pin retaining pin (2) and bolt cam pin (3) for cracks, damage, or excessive wear. Replace if unserviceable.
3. Inspect key and bolt carrier assembly (5) for burrs, cracks, wear, and evidence of gas loss. Replace if unserviceable.

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA - Continued

4. Inspect carrier key (6) for dents, distortion, or looseness. If dented or loose, see REPAIR OR REPLACEMENT in this work package.
5. Visually inspect the carrier key screws (8) for looseness and proper staking.

NOTE

Do not attempt to re-torque if there is no loosening of the screws indicated by the staking marks. Surface "A" must not indicate distortion or damage which impairs parallelism. A maximum of 0.025 in. (0.064 cm) protrusion in an upward direction is permissible.

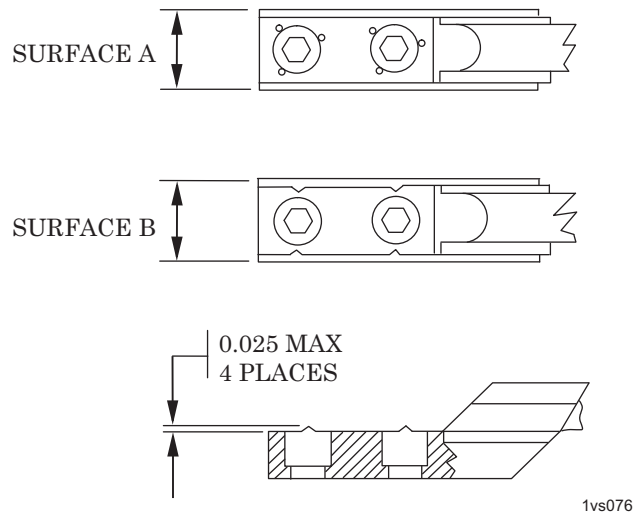


Figure 4. Inspection of Carrier Key Screws.

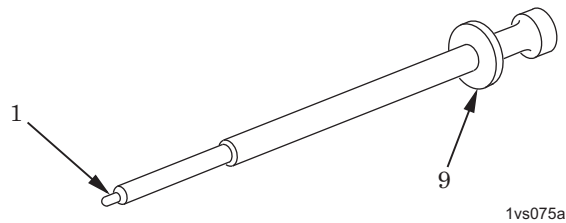


Figure 5. Inspection of Firing Pin.

6. Inspect tip of firing pin (1) for proper contour. Inspect for pitting, wear, and burrs. Pits or wear in area (9) is permissible. Replace firing pin if defective.

NOTE

Firing pin should touch the gage on minimum but should not touch on maximum.

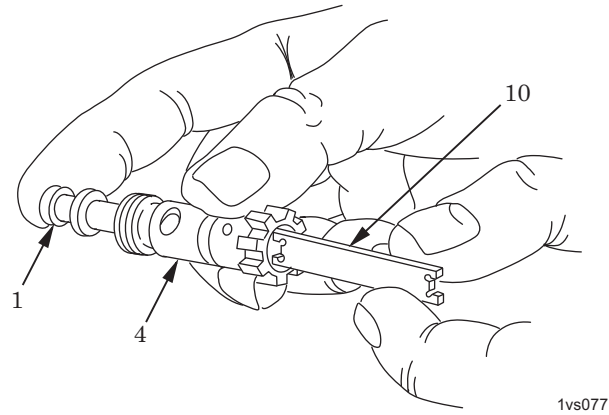


Figure 6. Firing Pin Protrusion Test.

7. Insert firing pin (1) through bolt assembly (4). Position firing pin protrusion gage (10) P/N 7799735 to check for proper protrusion of firing pin (minimum 0.028 in. (0.07 cm) to maximum 0.036 in. (0.09 cm)). Replace defective firing pin.

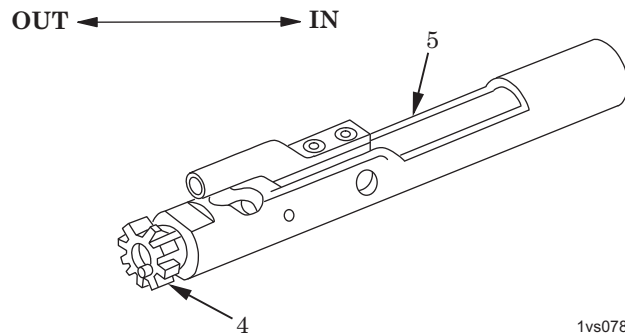


Figure 7. Checking for Binding of Bolt Assembly.

8. Prior to reassembly, insert bolt assembly (4) into key and bolt carrier assembly (5) (do not insert bolt cam pin) and exercise bolt assembly in and out of key and bolt carrier assembly. Check for binding.

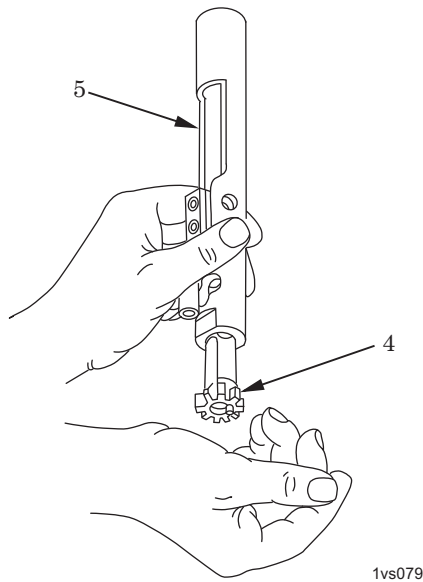
INSPECTION — ACCEPTANCE AND REJECTION CRITERIA - Continued

Figure 8. Checking for Fit of Bolt Assembly.

9. Check bolt assembly (4) for proper fit with bolt cam pin removed. Turn key and bolt carrier assembly (5) and suspend so the bolt assembly is pointed down. The bolt assembly must not drop out. If weight of bolt assembly allows it to drop out of key and bolt carrier assembly, replace bolt rings (see WP 0012).

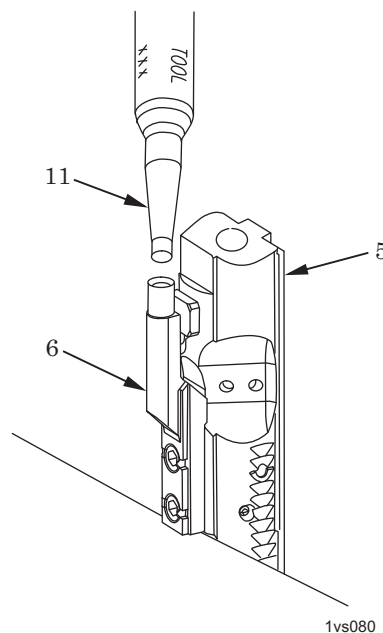
END OF TASK**REPAIR OR REPLACEMENT**

Figure 9. Repair of Carrier Key.

CAUTION

Extreme care must be exercised during the following procedure to ensure that the striking force is not directed to the attaching screws and that the tube portion is not enlarged or flared beyond original requirement. Such enlargement would permit loss of gas pressure when the key and gas tube come together during functioning. The edge of workbench is recommended.

1. Repair small dents and/or distortions in carrier key (6) using bolt carrier key tool (11) as follows:
 - a. Place the key and bolt carrier assembly (5) in a vertical position, supported so that contact is made with the rear surface of the carrier key (6).
 - b. Insert the small end of the key tool (11) into the tube portion of the carrier key (6).
 - c. Strike the large end of the key tool (11) lightly with a 4-ounce, soft-brass hammer.
 - d. Repeat striking (gently) until carrier key (6) is reformed to original configuration.
 - e. If carrier key (6) cannot be reformed to original configuration, see WP 0013 for replacement.
2. Replace all authorized unserviceable items. Retest all replaced parts.

END OF TASK

ASSEMBLY

WARNING



Bolt cam pin must be installed or rifle/carbine will blow up while firing the first round. If the bolt cam pin is not installed, injury to, or death of, personnel may result.

Unless performed by qualified maintenance personnel, do not interchange bolt assemblies from one weapon to another. Doing so may result in injury to, or death of, personnel.

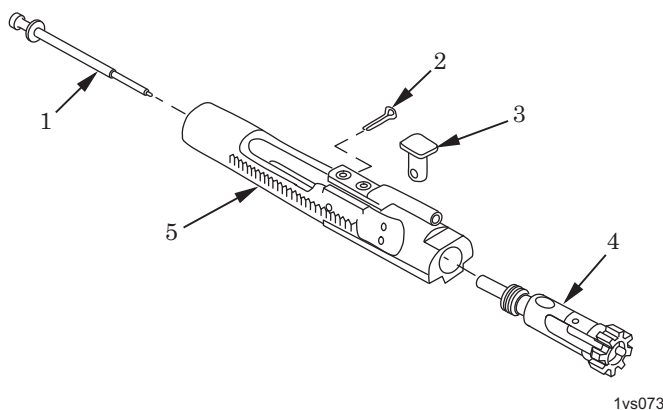


Figure 10. Assembly of Bolt and Bolt Carrier Assembly.

ASSEMBLY - Continued

1. Lubricate parts; refer to TM 9-1005-319-10.

NOTE

Before installing bolt assembly, check to see that the bolt ring gaps are staggered to prevent loss of gas pressure.

2. Install bolt assembly (4) into key and bolt carrier assembly (5).
3. Install bolt cam pin (3) and rotate one turn to secure bolt assembly (4).
4. Hold key and bolt carrier assembly (5) with bolt assembly (4) down and drop in firing pin (1).
5. Install firing pin retaining pin (2) from left side only to ensure proper installation. Check installation by attempting to shake out firing pin (1).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**BREECH ASSEMBLY BOLT MAINTENANCE****DISASSEMBLY, CLEANING, INSPECTION — ACCEPTANCE AND REJECTION CRITERIA,
REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Penetrant kit (WP 0045, item 27)

Wiping rag (WP 0045, item 30)

References

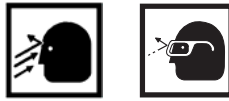
TM 9-1005-319-10

WP 0015

Equipment Condition

Bolt assembly removed (WP 0011)

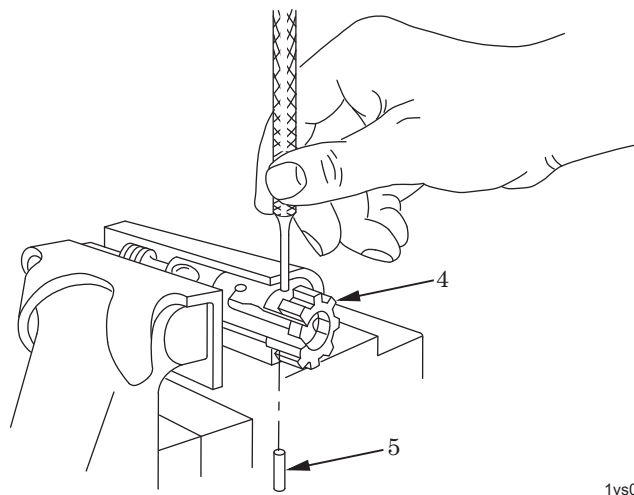
WARNING



NOTE

Do not remove the rubber insert from the extractor spring assembly.

1. Push out extractor pin (1) and remove cartridge extractor (2) and extractor spring assembly (3) as a unit.
2. If required, twist extractor spring assembly (3) counterclockwise to remove from cartridge extractor (2).



0012-2

CAUTION

Be sure to use vise jaw protective caps.

3. Hold bolt (4) in vise and remove spring pin (5) using 1/16 in. punch and hammer.

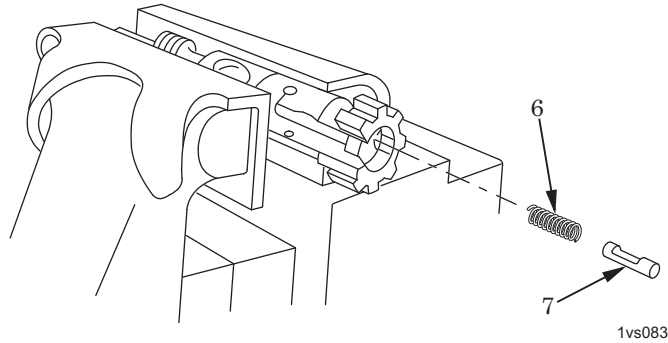


Figure 3. Removal of Cartridge Ejector.

4. Remove punch; be sure to catch cartridge ejector (7) and ejector spring (6) to prevent loss.

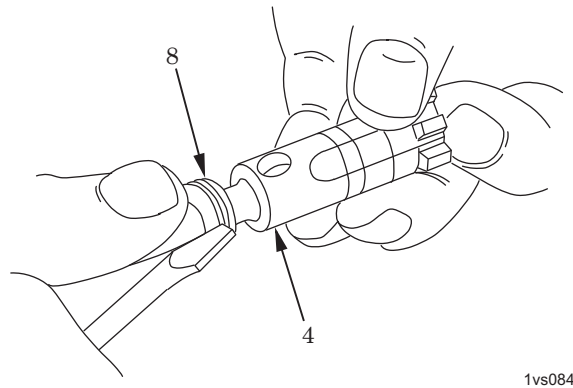


Figure 4. Removal of Bolt Rings.

NOTE

Do not remove bolt rings unless they require replacement and three new replacement bolt rings are on hand.

5. Using flat tip jeweler's screwdriver, remove three bolt rings (8) from bolt (4).

END OF TASK**CLEANING****CAUTION**

Do not distort extractor spring assembly during cleaning.

Clean all items; refer to TM 9-1005-319-10. Remove carbon deposits.

END OF TASK

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA

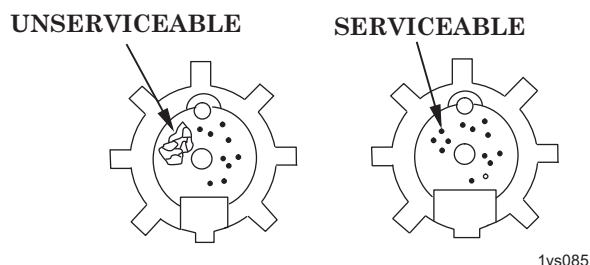


Figure 5. Bolt Face Inspection.

1. Inspect bolt (4) for pits, burrs, and wear as follows:
 - a. Bolt faces with a cluster of pits which are touching or tightly grouped, covering an area measuring approximately 1/8 in. (0.32 cm) across, will be rejected and replaced.
 - b. Bolts which contain individual pits or a scattered pattern will not be rejected.
 - c. Bolts that contain pits extending into the firing pin hole will not be rejected unless firing pin hole gaging check determines excess wear.
 - d. Rings on the bolt face (machine tool marks), grooves, or ridges less than approximately 0.010 in. (0.025 cm) will not be cause for rejection.

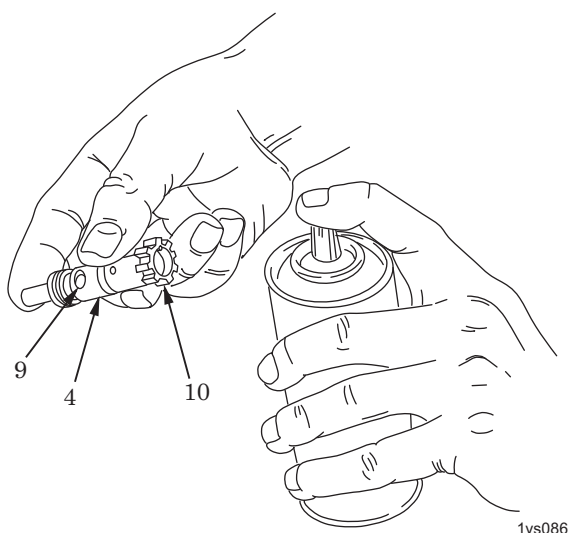


Figure 6. Inspection for Cracks in Bolt Assembly.

2. Inspect bolt (4) for cracks in locking lugs (10) and bolt cam pin hole (9) area. Use black light if available; otherwise, use a glass of no more than 3X magnification or use a penetrant kit (WP 0045, item 27). Pay close attention to the area where the locking lugs meet the body. Replace bolt assembly if bolt is defective.

WARNING**DRY CLEANING SOLVENT**

3. Use penetrant kit (WP 0045, item 27) to check for cracks in bolt (4) as follows:
 - a. The area to be inspected must be clean, free of oil, etc. Spray a small amount of remover on the area to be inspected, let dry and wipe off with a wiping rag.
 - b. Spray penetrant (only enough to wet the area) on the area of the bolt (4) to be inspected.
 - c. Spray developer over the penetrant and let the developer work. Cracks will be indicated by a change in color where there is a crack. If there are cracks, the component is unserviceable.
 - d. Pay close attention to the area where the locking lugs (10) meet the body.
 - e. If there are no cracks, spray remover on the area; let dry and wipe off with a wiping rag. Oil the area to prevent corrosion.
 - f. Replace bolt assembly if bolt (4) is defective.

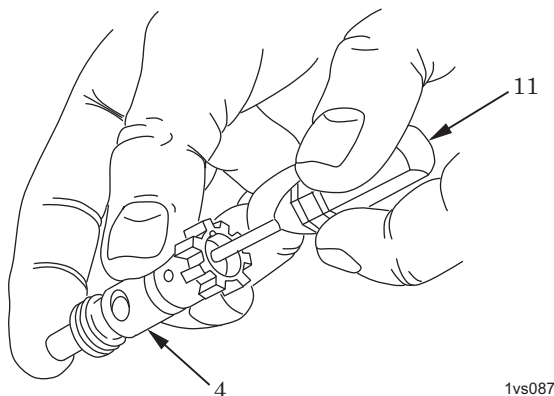


Figure 7. Inspection of Firing Pin Hole.

NOTE

Bolts with firing pin holes which permit the special no-go plug gage to fully penetrate at any position on the circumference will be rejected and replaced.

4. Test bolt (4) for elongated or oversized firing pin hole using special no-go plug gage (11) P/N 12620101.

NOTE

Replacement of the bolt assembly will require that the headspace be tested; see WP 0015.

END OF TASK

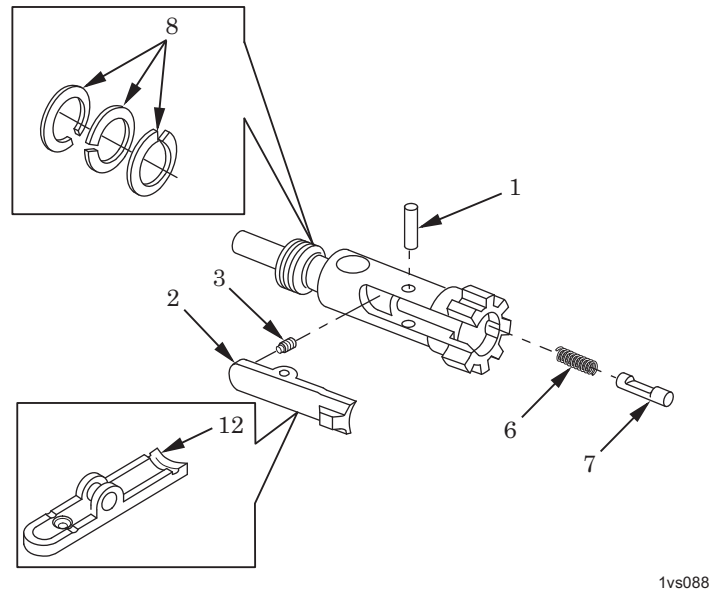
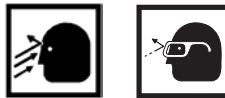
REPAIR OR REPLACEMENT

Figure 8. Inspection of Bolt Assembly Parts.

1. Check bolt rings (8) for cracks, kinks, bends, and proper stagger (gaps approximately 1/3 turn apart). Replace all three bolt rings if one or more bolt rings is damaged.
2. Inspect cartridge extractor (2), extractor spring assembly (3), and extractor pin (1) for cracks, breaks, chips, and other damage. Pay close attention to cartridge extractor lip (12). If damaged, replace.
3. Inspect cartridge ejector (7) and ejector spring (6) for cracks, breaks, and chips. If damaged, replace.

END OF TASK**ASSEMBLY**

1. Lightly lubricate all items; refer to TM 9-1005-319-10.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

WARNING

Unless performed by qualified maintenance personnel, do not interchange bolt assemblies from one rifle/carbine to another. Doing so may result in injury to, or death of, personnel.

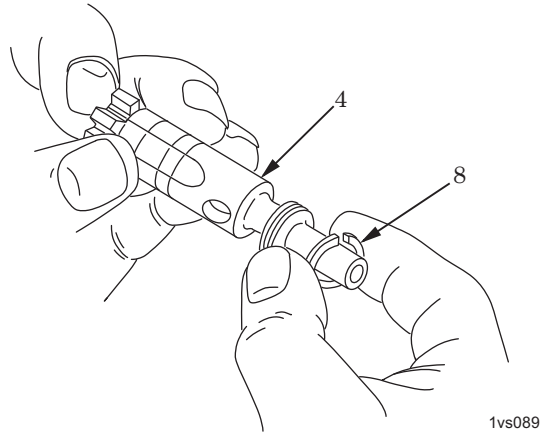


Figure 9. Installation of Bolt Rings.

NOTE

To install a bolt ring, carefully place one end in the bolt ring groove and hold in place with the thumb of one hand. With the index finger of the other hand, gently guide and push the rest of the bolt ring into the groove a little bit at a time until the entire bolt ring is in place.

Make certain bolt ring gaps are staggered to prevent loss of gas pressure. New bolt rings will make installing the bolt assembly difficult. Lubricate inside of key and bolt carrier assembly and use gentle pressure when installing.

2. Install three bolt rings (8) one at a time onto the bolt (4) using care not to bend or "spring" new bolt rings. Stagger the bolt ring gaps (approximately 1/3 turn apart).

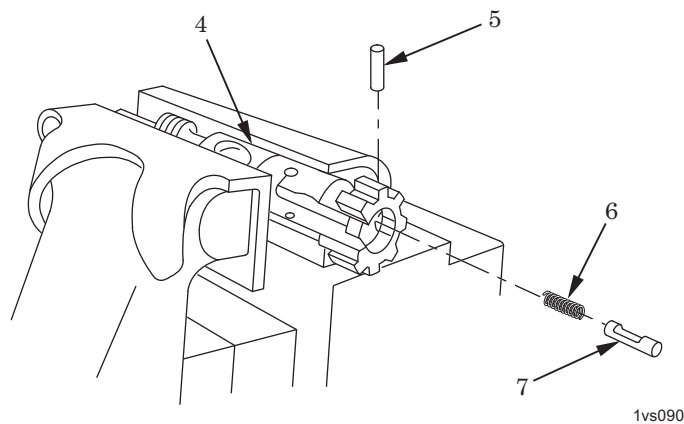


Figure 10. Installation of Cartridge Ejector.

CAUTION

Be sure to use vise jaw protective caps.

3. Place bolt (4) in a vise and start spring pin (5) in hole.
4. Install ejector spring (6) and cartridge ejector (7). Align groove on cartridge ejector so that spring pin (5) can be installed.

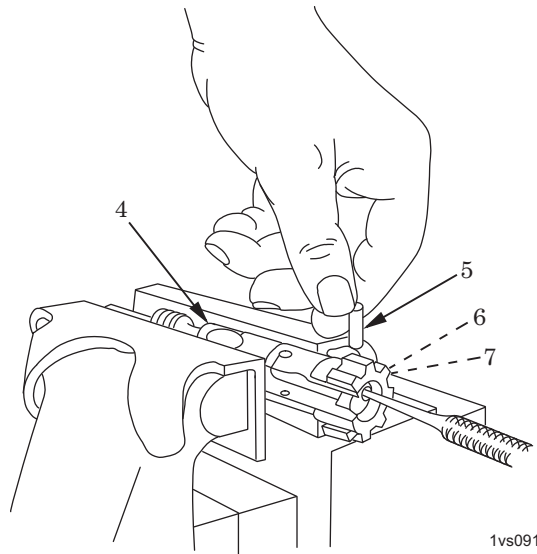
ASSEMBLY - Continued

Figure 11. Installation of Spring Pin.

5. Compress and hold ejector spring (6) and cartridge ejector (7) in place with a 3/8 in. punch.
6. Using hammer and 1/16 in. punch, complete installation of spring pin (5) so that ends are flush with outside of bolt (4).

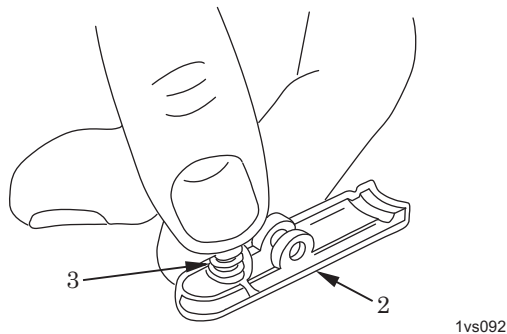


Figure 12. Installation of Extractor Spring Assembly.

NOTE

Do not disassemble rubber insert from extractor spring assembly.

7. If removed, insert large end of extractor spring assembly (3) into cartridge extractor (2) and seat by pushing and turning clockwise.

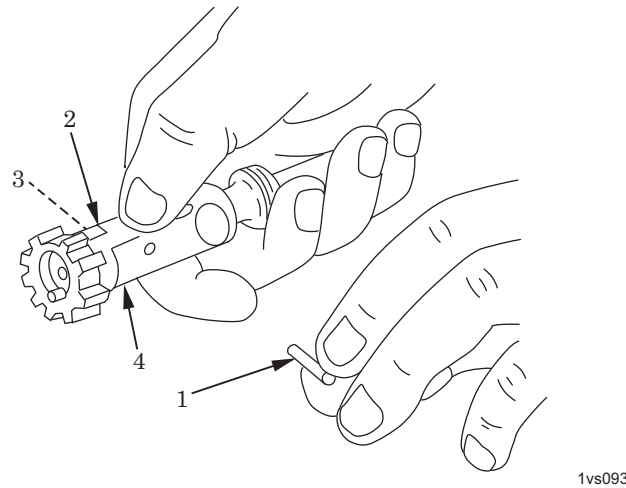


Figure 13. Installation of Extractor Pin.

8. Position cartridge extractor (2) and extractor spring assembly (3) on bolt (4).
9. Compress extractor spring assembly (3) and cartridge extractor (2) to align holes.
10. Install extractor pin (1) by hand.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
KEY AND BOLT CARRIER ASSEMBLY MAINTENANCE
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11
Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Carrier key screws (2) 8448508

References

TM 9-1005-319-10
WP 0011
WP 0039

Equipment Condition

Key and bolt carrier assembly removed (WP 0011)

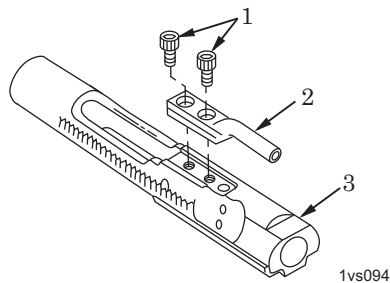
DISASSEMBLY

Figure 1. Disassembly of Key and Bolt Carrier Assembly.

NOTE

Do not disassemble the key and bolt carrier assembly unless the bolt carrier key is defective as determined by inspection procedures in WP 0011.

1. Using socket wrench handle and tight fitting 1/8 in. socket head screw socket wrench attachment, remove two carrier key screws (1). Discard screws.

NOTE

The heads and part of the bolt carrier key may be ground off in order to remove bolt carrier key from bolt carrier if carrier key screws cannot otherwise be removed.

2. Remove bolt carrier key (2) from bolt carrier (3).

END OF TASK

REPAIR OR REPLACEMENT

Inspect bolt carrier key and bolt carrier. If unserviceable, replace defective parts as authorized in WP 0039.

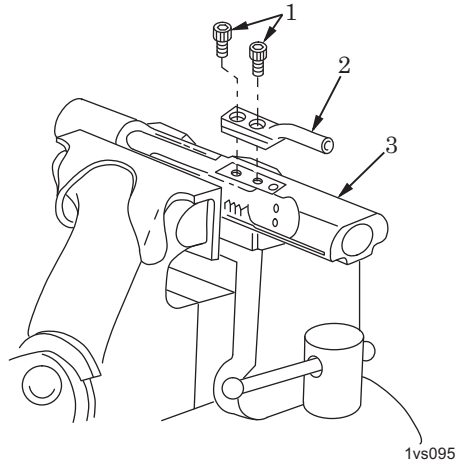
END OF TASK**ASSEMBLY**

Figure 2. Installation of Carrier Key.

NOTE

Do not reuse old carrier key screws. New carrier key screws must be used at assembly.

1. If disassembled, place bolt carrier (3) in vise using vise jaw caps. Install and position bolt carrier key (2) on bolt carrier.
2. Install two new carrier key screws (1).

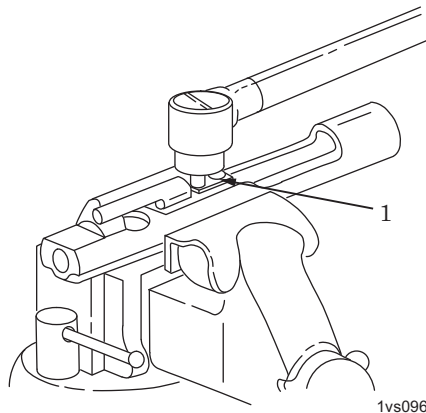


Figure 3. Torquing Carrier Key Screws.

3. Use a tight-fitting 1/8 in. socket head screw wrench attachment and an inch-pound torque wrench to torque carrier key screws (1) to 50 to 58 in-lb (5.65 to 6.55 N-m).

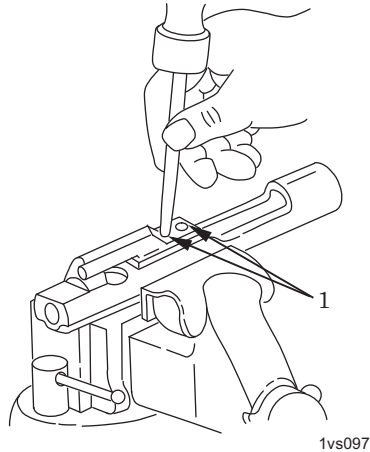


Figure 4. Staking Carrier Key Screws.

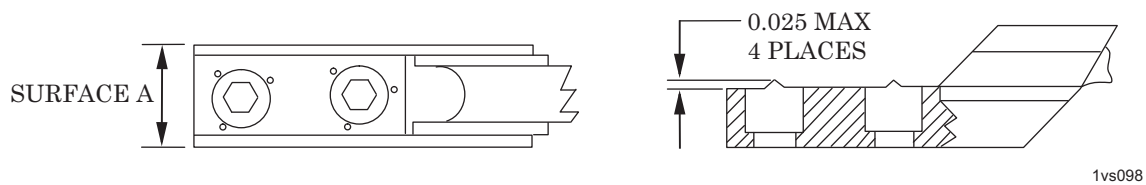


Figure 5. Staking Carrier Key Screws in the Field.

NOTE

Field staking method will be used by field units.

4. Use solid center punch and hand hammer to stake the two carrier key screws (1) in three places.
5. Reassemble weapon; refer to TM 9-1005-319-10.

NOTE

If blanks are used, blank firing attachment (BFA) must be attached.

6. If the bolt carrier key is replaced, three to eight rounds of blank or ball ammunition must be fired to ensure a seal is created. Manual operation of the weapon may be required. Refer to TM 9-1005-319-10 for firing.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CHARGING HANDLE ASSEMBLY MAINTENANCE
DISASSEMBLY, CLEANING, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

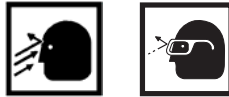
References

TM 9-1005-319-10

WP 0039

Equipment Condition

Charging handle assembly removed (WP 0009)

DISASSEMBLY**WARNING**

To avoid injury to eyes, use care when removing spring-loaded parts.

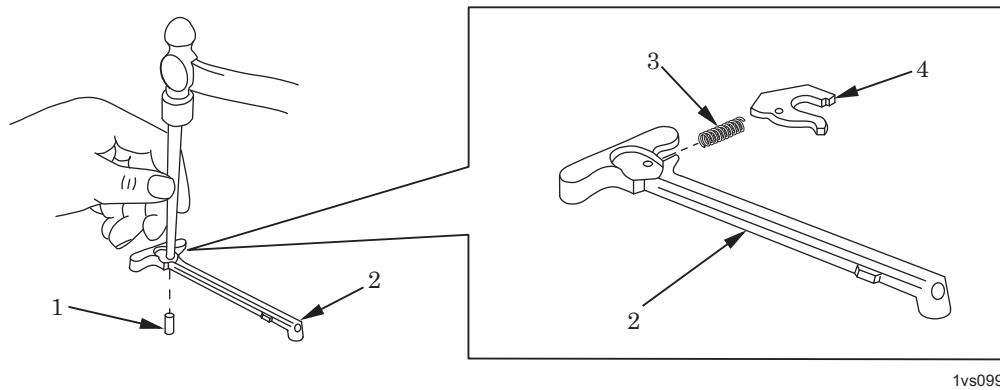


Figure 1. Disassembly of Charging Handle Assembly.

1. Remove spring pin (1) from charging handle (2) using a hammer and 1/16 in. punch.
2. As punch is withdrawn, catch charging handle latch (4) and helical spring (3) to prevent loss.

END OF TASK

CLEANING

Clean all items; refer to TM 9-1005-319-10. Remove carbon deposits.

END OF TASK**REPAIR OR REPLACEMENT**

Inspect all items for breaks, cracks, or damage. Replace all unserviceable items as authorized by WP 0039.

END OF TASK**ASSEMBLY**

1. Lightly lubricate all items; refer to TM 9-1005-319-10.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

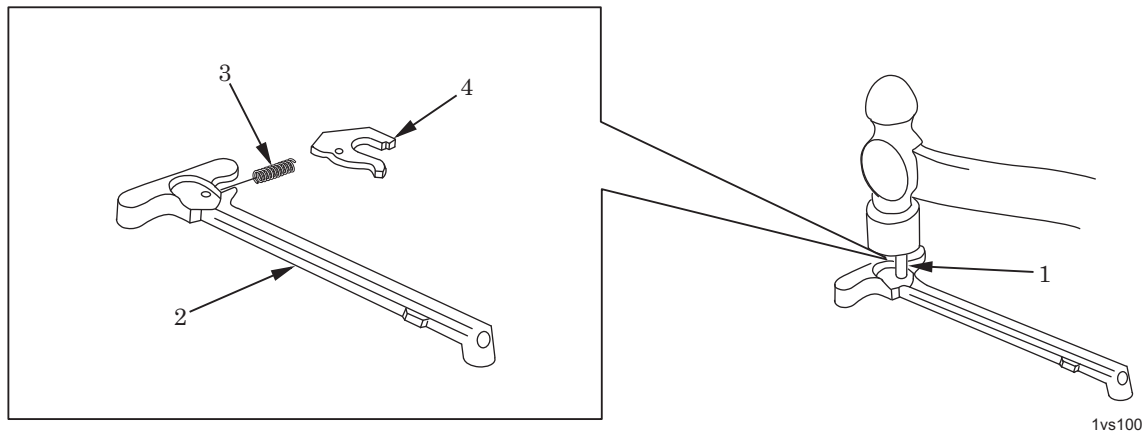


Figure 2. Assembly of Charging Handle Assembly.

2. Position helical spring (3) and charging handle latch (4) in charging handle (2). Align holes and hold in position.
3. Install spring pin (1) using hammer. Make sure spring pin is flush.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**UPPER RECEIVER AND BARREL ASSEMBLY (M16A2) 9349050,
(M16A3, M16A4) 12973010, AND (M4, M4A1) 12972680 MAINTENANCE****DISASSEMBLY, CLEANING, INSPECTION — ACCEPTANCE AND REJECTION CRITERIA,
REPAIR OR REPLACEMENT, ASSEMBLY, TEST AND INSPECTION**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Modified needle nose pliers (WP 0030, Figure 7)

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Abrasive cloth (WP 0045, item 13)

Carbon removing compound (WP 0045, item 8)

Chemical and oil protective gloves (WP 0045, item 17)

Dry cleaning solvent (WP 0045, item 15)

Lubricants (WP 0045)

Molybdenum disulfide grease (WP 0045, item 18)

Polyethylene (WP 0045, item 28)

Recessed washer 12991533

Sealing compound (WP 0045, item 32)

Small arms cleaning brush (WP 0045, item 4)

Solid film lubricant (SFL) (WP 0045, item 20)

Target (WP 0045, item 36)

Technical dichloromethane (WP 0045, item 14)

Wash pan (WP 0045, item 26)

References

FM 3-22.9

TM 9-1005-319-10

WP 0016

WP 0017

WP 0018

WP 0019

WP 0020

WP 0039

Equipment Condition

Upper receiver and barrel assembly removed from lower receiver (WP 0009)

DISASSEMBLY**CAUTION**

Do not use a screwdriver or any other tool when removing the handguard assemblies. Doing so may damage the handguard assemblies and/or slip ring.

Do not remove heat shield for any reason. Doing so will damage the heat shield and the handguard assemblies will have to be replaced.

NOTE

Refer to TM 9-1005-319-10 for "buddy system" procedure to remove handguard assemblies.

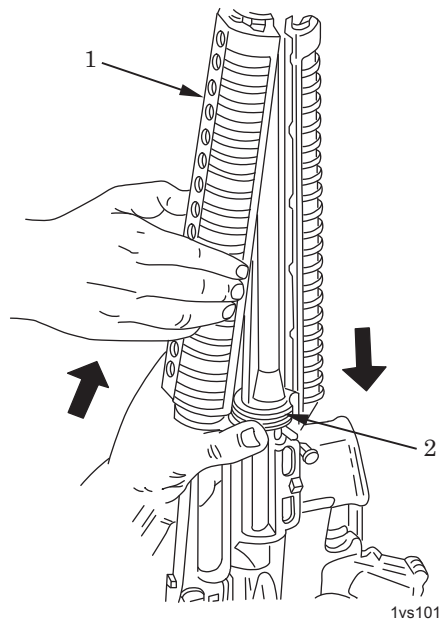
M16A2 RIFLE ONLY

Figure 1. Removal of Upper Handguard Assembly (M16A2).

1. Push down on handguard slip ring (2) and lift upper handguard assembly (1) up and out.

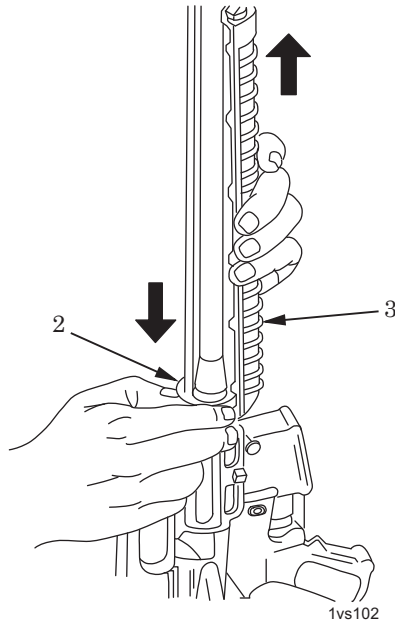


Figure 2. Removal of Lower Handguard Assembly (M16A2).

2. Push down on handguard slip ring (2) and lift the lower handguard assembly (3) up and out.

M16A3 & M16A4 RIFLE/M4 & M4A1 CARBINE ONLY

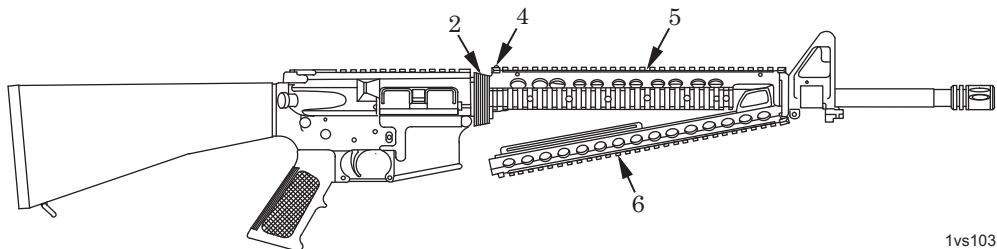


Figure 3. Removal of Upper and Lower Handguards (M16A3/M16A4/M4/M4A1).

3. Compress handguard slip ring (2) and pivot lower handguard (6) off front retaining clip.
4. Loosen slotted screw (4) in upper handguard assembly (5). Compress handguard slip ring (2) and remove upper handguard assembly.

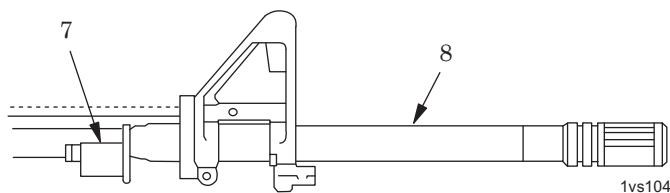


Figure 4. Removal of Barrel Stop Assembly.

5. Remove barrel stop assembly (7) from barrel assembly (8) (M16A3/M16A4 rifle only).

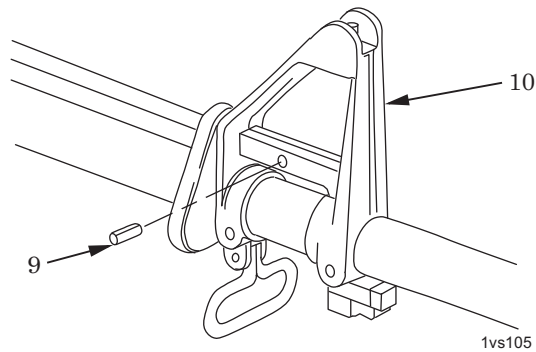
DISASSEMBLY - Continued**ALL WEAPONS**

Figure 5. Removal of Spring Pin.

6. Using ball-peen hammer and 5/64 in. diameter drive pin punch, drive spring pin (9) (which retains gas tube) from front sight assembly (10).

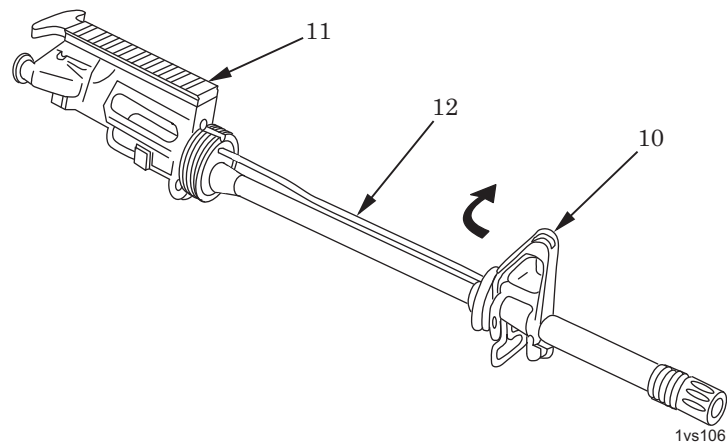


Figure 6. Removal of Gas Tube.

7. Slide gas tube (12) back into upper receiver assembly (11) to clear front sight assembly (10). Then lift slightly, pull forward, and remove gas tube.

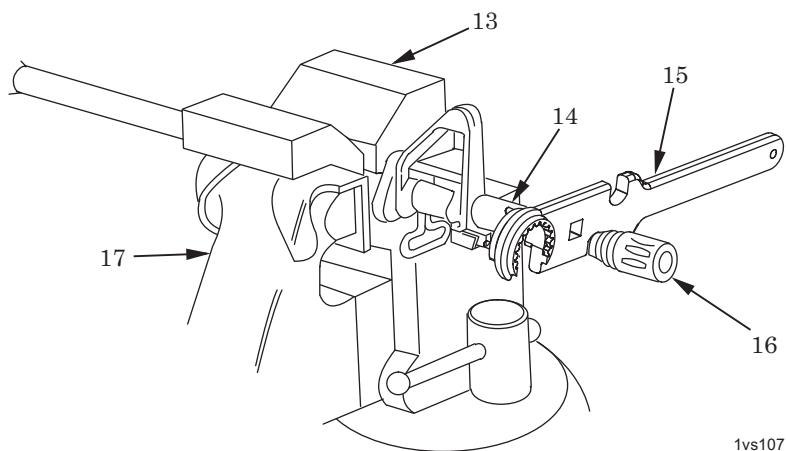


Figure 7. Removal of Compensator.

8. Position upper receiver and barrel assembly (14) in barrel removal fixture (13) and secure both in machinist's vise (17).
9. Using combination wrench (15), remove compensator (16).

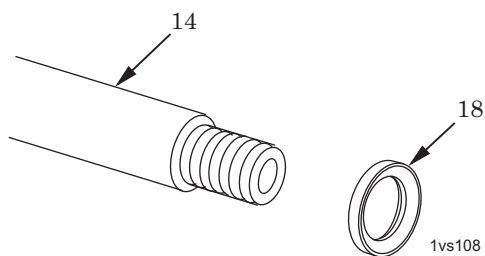


Figure 8. Removal of Recessed Washer.

10. Remove recessed washer (18) and discard.
11. Remove upper receiver and barrel assembly (14) from barrel removal fixture and machinist's vise.

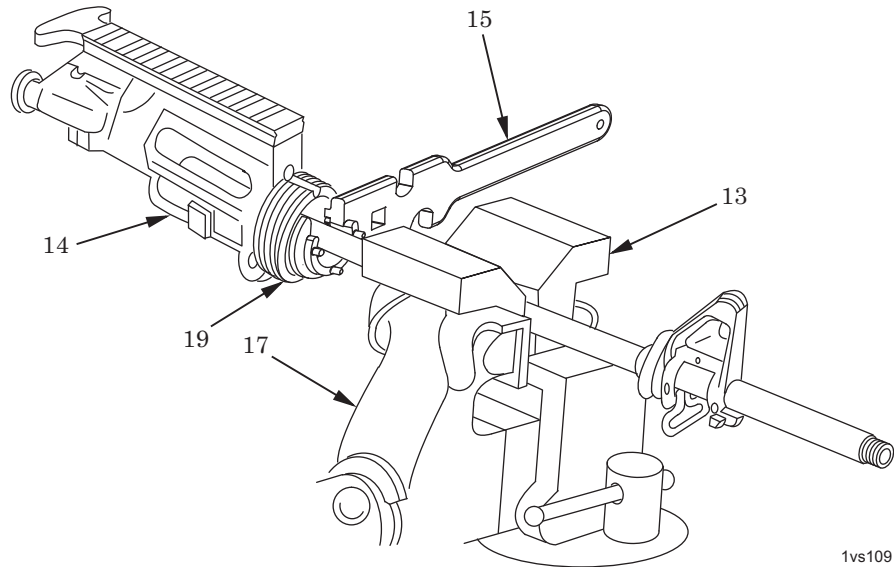
DISASSEMBLY - Continued

Figure 9. Loosening of Barrel Nut Assembly.

12. Place upper receiver and barrel assembly (14) into barrel removal fixture (13) and clamp into machinist's vise (17).

NOTE

Combination wrench must be pushed toward upper receiver assembly to compress slip ring spring in barrel nut assembly. Do not use a torque wrench to loosen the barrel nut assembly.

13. Using combination wrench (15), loosen barrel nut assembly (19).

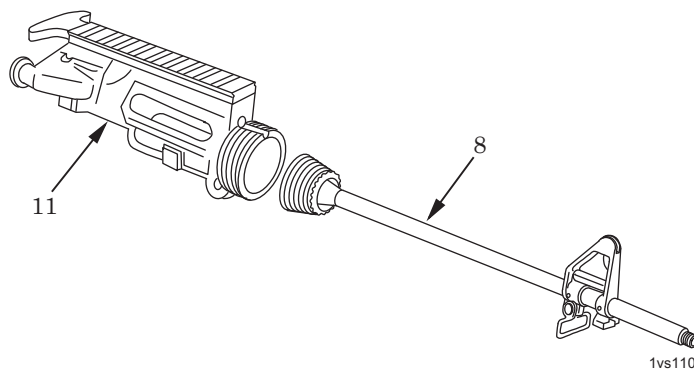


Figure 10. Separation of Upper Receiver Assembly and Barrel Assembly.

14. Separate upper receiver assembly (11) from barrel assembly (8).
15. Remove barrel assembly (8) from machinist's vise and barrel removal fixture (13).

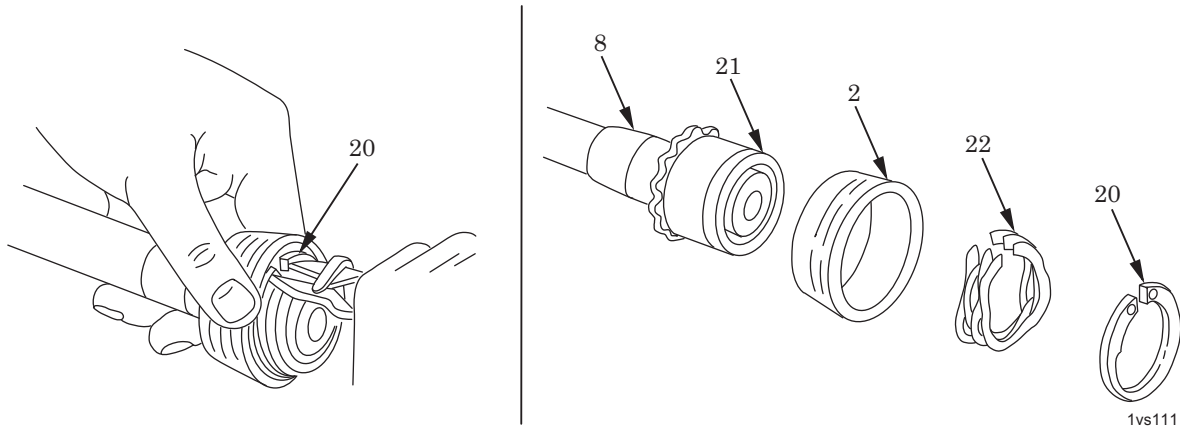
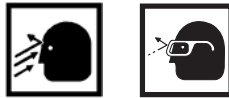


Figure 11. Removal of Handguard Slip Ring.

WARNING



To avoid injury to eyes, use care when removing spring-loaded parts.

16. Remove retaining ring (20) using retaining ring pliers.
17. Remove slip ring spring (22) and handguard slip ring (2).
18. Do not remove barrel nut (21) from barrel assembly (8).

END OF TASK

CLEANING

WARNING



CARBON REMOVING COMPOUND

NOTE

A small arms cleaning brush (bore) (WP 0045, item 4) may be used to clean interior of front sight assembly where gas tube is secured.

Use carbon removing compound (WP 0045, item 8) to remove carbon deposits from interior and exterior of gas tube. If a large amount of carbon is found and cannot be removed, replace gas tube.

END OF TASK

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA

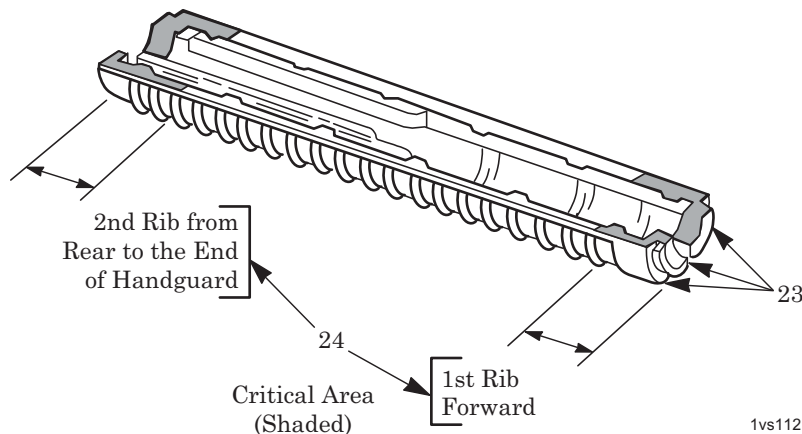


Figure 12. Inspection of Handguard Assemblies.

1. Inspect handguard assemblies for breaks, separation, and cracks using the following guidelines:
 - a. Breaks and separations of material which prevent proper retention or interfere with functioning of the weapon will be cause for handguard assembly rejection and replacement.
 - b. **M16A2** handguard assemblies may have up to two of the three front retaining tabs (23) missing. **M16A3/M16A4 and M4/M4A1** may not have any front retaining tabs missing. If all front retaining tabs for the M16A2 are missing, or any of the tabs for the M16A3/M16A4 or M4/M4A1 are missing, handguard assemblies must be replaced.
 - c. Cracks up to one inch in length are acceptable provided they do not extend into the retaining flange (CRITICAL AREA) (24).
 - d. Replace severely cracked or damaged handguard assemblies. Handguard assemblies which have a heat shield which is loose enough to rattle when installed on the weapon must be replaced. If upper handguard assembly for M16A3/M16A4 rifle is damaged, see WP 0017 for repair. If upper handguard assembly for M4/M4A1 carbine is damaged, see WP 0018 for repair.
2. Inspect front sight area for evidence of gas leakage around gas tube. Replace gas tube if short recoil results from gas leakage.
3. Inspect gas tube for cracks. Replace if defective.
4. Inspect the forward assist for slippage or actuation of the pawl. Lubricate in accordance with TM 9-1005-319-10 if pawl is not actuating. Open the action, pull the bolt and bolt carrier assembly slightly to the rear, and, with a push or a tap on the forward assist, ensure the bolt is pushed into the locked position. If forward assist does not perform this function properly, see WP 0019 and WP 0020 for repair.



Figure 13. Bore Inspection.

5. Inspect bore for burrs, cracks, rust, bulges, and pits using the following guidelines.
 - a. Pits no wider than a land or groove and no longer than 3/8 in. (0.95 cm) are allowed in the bore.
 - b. Uniformly fine pits in a densely pitted area of the bore are allowable.
 - c. Lands that appear dark blue due to coating of gliding metal from projectiles are allowable.
 - d. Definitely ringed bores or bores ringed sufficiently to bulge the outside surface of the barrel are cause for rejection. Replace barrel assembly if defective.

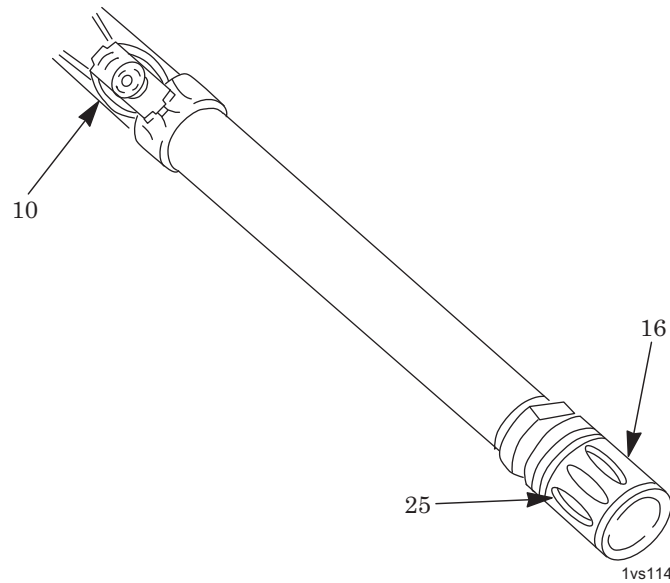


Figure 14. Alignment of Compensator.

6. Hand check compensator (16) for looseness on barrel. Align the third (middle) slot (25) straight up at top dead center (TDC) in line with front sight assembly (10). The alignment may vary as much as one half the width of slot in either direction. If loose or out of alignment, repair.
7. If upper receiver is separated from barrel assembly, inspect chamber for pits utilizing a flashlight. Pits 1/8 in. (0.32 cm) in length are cause for rejection. Replace barrel assembly if defective.

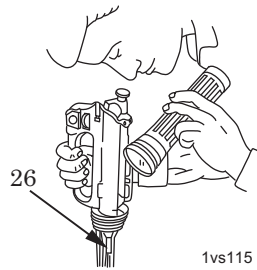
INSPECTION — ACCEPTANCE AND REJECTION CRITERIA - Continued

Figure 15. Inspection of Chamber.

8. If upper receiver and barrel assembly is assembled, inspect chamber using reflector tool (26) and flashlight. Pits 1/8 in. (0.32 cm) in length are cause for rejection. Replace barrel assembly if defective. If barrel assembly is replaced, inspect headspace. See TEST AND INSPECTION in this work package.
9. Inspect upper receiver assembly for cracks, corrosion, wear, or damage.
 - a. Small dents or gouges that do not affect functioning will not be cause for rejection.
 - b. If upper receiver assembly contains cracks or holes, the upper receiver assembly will be replaced.

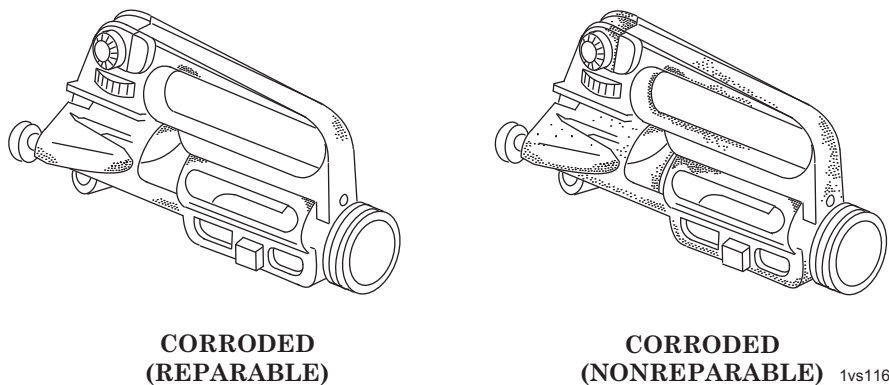
END OF TASK**REPAIR OR REPLACEMENT**

Figure 16. Inspection for Corrosion.

1. Repair corroded upper receiver assembly surface as follows:
 - a. Sand corroded area with abrasive cloth (WP 0045, item 13) and make sure all corrosion has been removed.

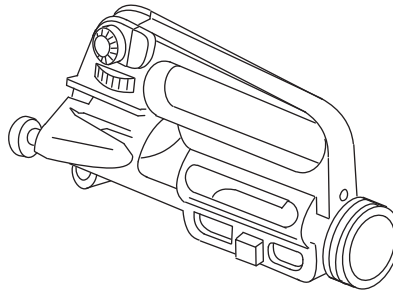
WARNING**DICHLOROMETHANE**

- b. Wash area with technical dichloromethane (methylene chloride) (WP 0045, item 14) to remove all dirt, grease, and foreign material.
- c. Apply sealing compound (WP 0045, item 32), mixed in accordance with manufacturer's directions, to areas to be filled.
- d. Spread sealing compound as smoothly as possible into defective area using a putty knife or similar tool.

NOTE

Do not feather edges.

- e. Place a sheet of polyethylene (WP 0045, item 28), cut to size, over filled area. Rub by hand to smooth.
2. After curing, remove polyethylene sheet in accordance with instructions from manufacturer.
3. Wash area with technical dichloromethane (methylene chloride) (WP 0045, item 14) to remove all dirt, grease, and foreign material.
4. Roughen area to be refinished with abrasive cloth (WP 0045, item 13) and clean surface again. Do not touch the area with fingers.

REPAIR OR REPLACEMENT - Continued

**SHINY SURFACES
(REPARABLE)**

1vs117

Figure 17. Inspection for Shiny Surfaces.

WARNING

SOLID FILM LUBRICANT

CAUTION

Solid film lubricant is to be used only as an exterior surface protective finish and touchup. If solid film lubricant comes in contact with recoiling parts or functional surfaces of the weapon, remove immediately by washing with technical dichloromethane.

5. Repair shiny surfaces by spraying a coat of solid film lubricant (WP 0045, item 20) in accordance with instructions supplied by the manufacturer. Dry 24 hours before handling.
6. Inspect all parts for damage and wear. Replace all defective parts as authorized by WP 0039.

NOTE

Damaged or missing teeth of the barrel nut is not cause for rejection provided the proper torque value can be obtained during installation using the identified tools. If removal of the barrel is not possible with the combination tool, a pipe wrench or other similar tool may be used during removal.

END OF TASK

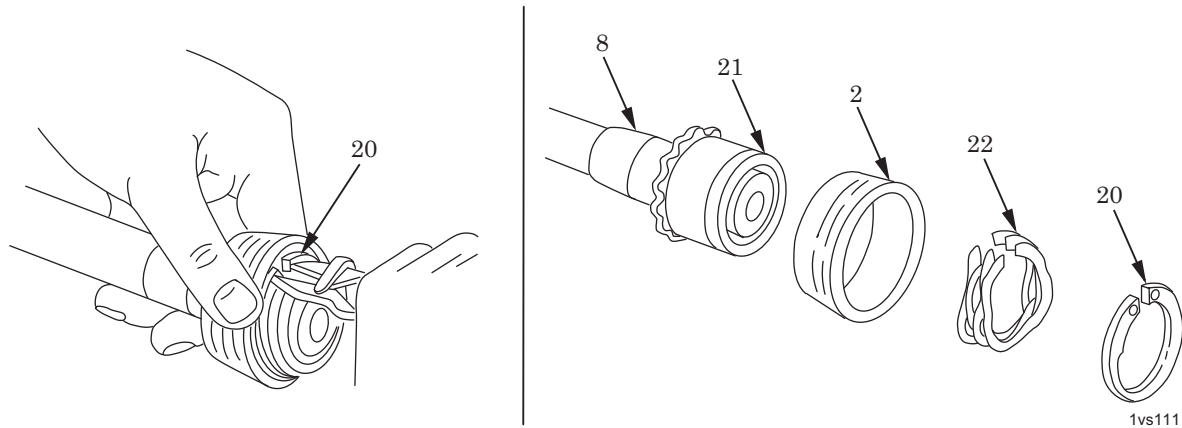
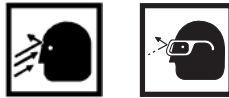
ASSEMBLY

Figure 18. Installation of Handguard Slip Ring.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

NOTE

After cleaning, apply molybdenum disulfide grease (WP 0045, item 18) to threads of barrel nut assembly before installation.

1. Position barrel nut (21) by sliding it to the rear of barrel assembly (8) as far as possible.
2. Slide handguard slip ring (2) over barrel nut (21).
3. Press slip ring spring (22) from both sides and insert it into handguard slip ring (2).
4. Install retaining ring (20) against slip ring spring (22) using retaining ring pliers. Snap retaining ring to barrel nut (21).

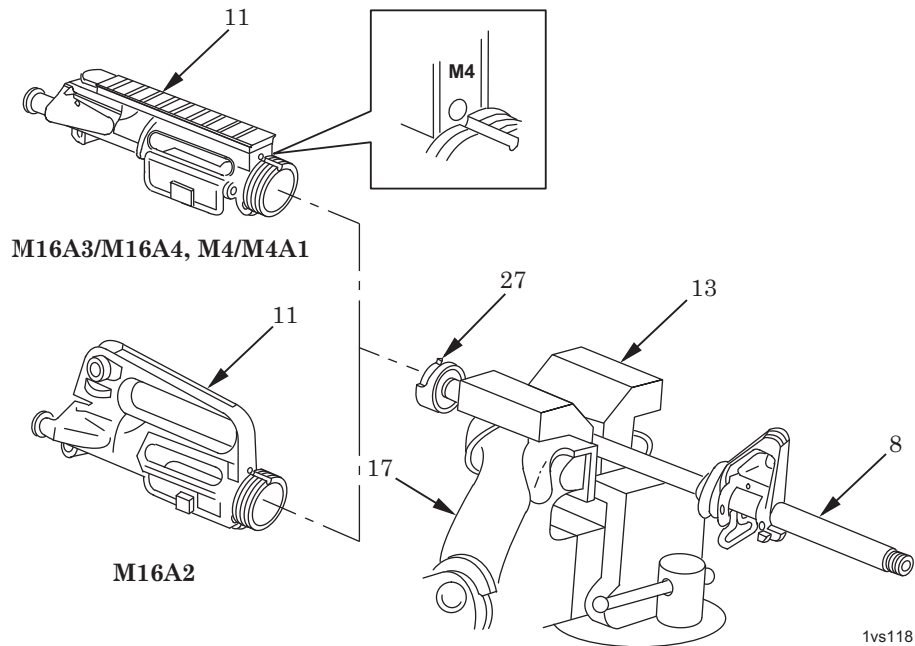
ASSEMBLY - Continued

Figure 19. Alignment of Barrel Assembly and Upper Receiver Assembly.

NOTE

The alignment pin must not show any signs of looseness.

5. Position barrel assembly (8) with alignment pin (27) up. Using barrel removal fixture (13), clamp barrel assembly in vise (17).

NOTE

The slot should fit the alignment pin perfectly with very little or no rotational play present. Note the play in a new barrel assembly and new upper receiver assembly and use this as a guide.

6. Wipe upper receiver threads clean and ensure there are no burrs. Apply molybdenum disulfide grease (WP 0045, item 18) to the threads before installation.
7. Align upper receiver assembly (11) using alignment pin (27) and slot in upper receiver assembly. Install over end of barrel assembly (8).

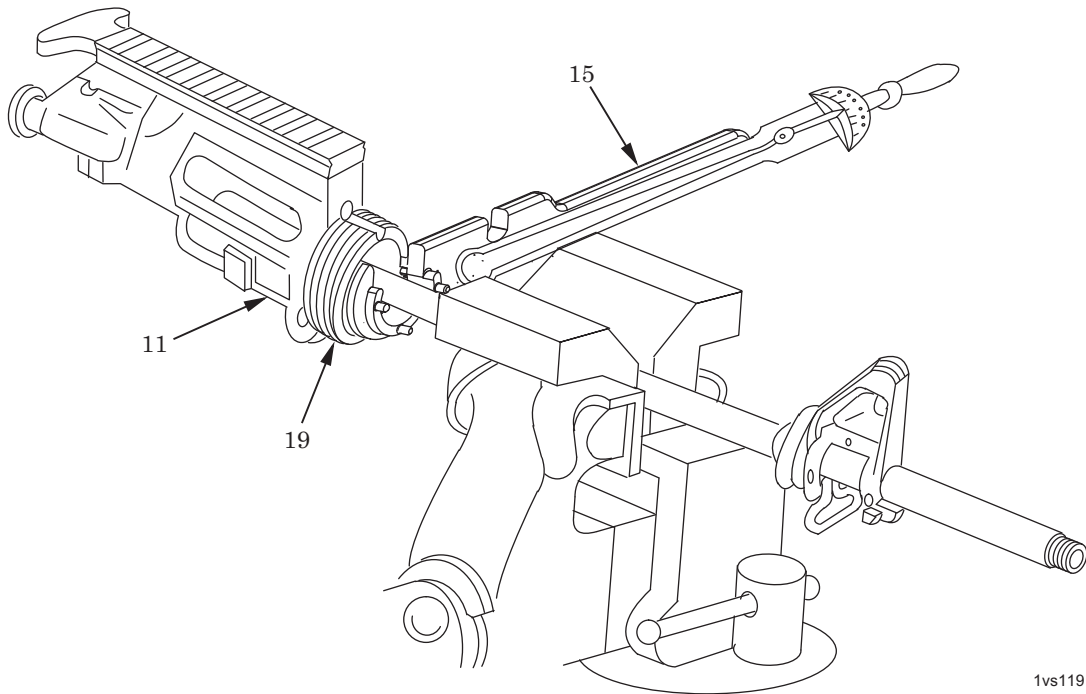


Figure 20. Torquing of Barrel Nut Assembly.

8. Engage threads of barrel nut assembly (19) with upper receiver assembly (11).
9. Using combination wrench (15) and torque wrench, torque barrel nut assembly (19) to 30 ft-lb (40.5 N-m). Torque is measured when both wrenches are used together.

NOTE

Performance of torquing procedure three times provides for a better thread fit and prevents barrel nut from becoming loose. Do not use the torque wrench for loosening.

10. Make certain all three drive pins or the teeth on combination wrench are engaged with barrel nut assembly (19). Loosen and repeat torque operation. Then loosen the barrel nut again.

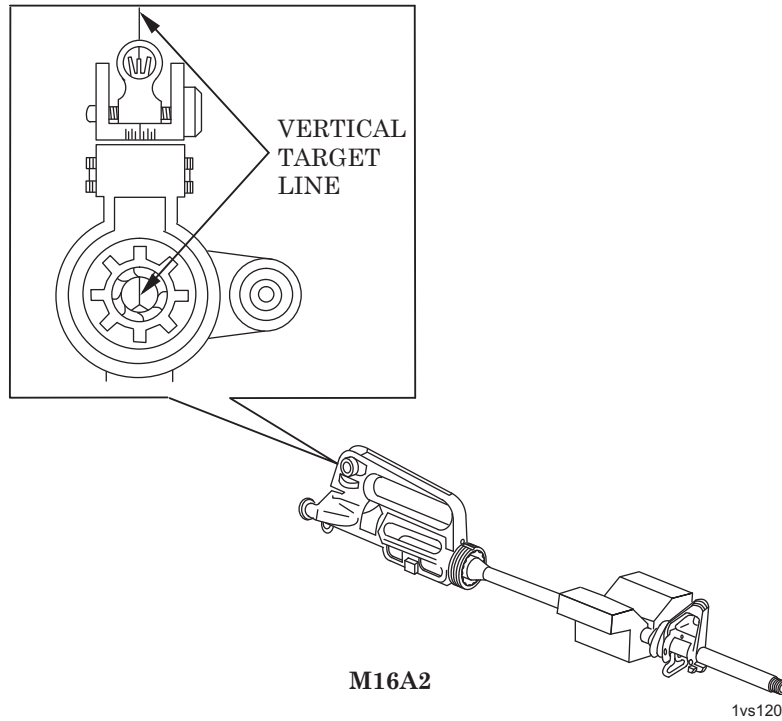
ASSEMBLY - Continued

Figure 21. Alignment of Front and Rear Sights.

NOTE

If barrel assembly (usually new) is not properly aligned in upper receiver assembly (usually an old part), excessive windage will be present and upper receiver assembly will require replacement to obtain proper fit between alignment pin and slot.

11. Loosen vise and align bore on a distant vertical target. Center the target in the bore from 12 o'clock through 6 o'clock. Front sight post should be on line and vertical with the target. Tighten vise. Adjust rear sight windage until a proper sight picture is obtained on the vertical target. Rear sight aperture will be approximately in the center of rear sight base if barrel assembly is properly aligned in upper receiver assembly.

CAUTION

Do not torque over 80 ft-lb (108 N-m) while tightening barrel nut assembly to next hole, to allow for proper alignment of gas tube.

NOTE

Do not attempt to hold upper receiver assembly with pry bar; however, if barrel assembly turns in holding fixture, a pry bar may be used through front sight assembly base to help prevent barrel assembly from turning in holding fixture. Use care not to distort or bend front sight assembly or retaining pins. Use "buddy system" to hold pry bar.

12. Torque barrel nut assembly (19) again to 30 ft-lb (40.5 N-m) while maintaining sight alignment. Barrel nut assembly may be tightened beyond 30 ft-lb (40.5 N-m) to align barrel nut assembly serrations for proper gas tube clearance. Never loosen barrel nut assembly to align for gas tube clearance.

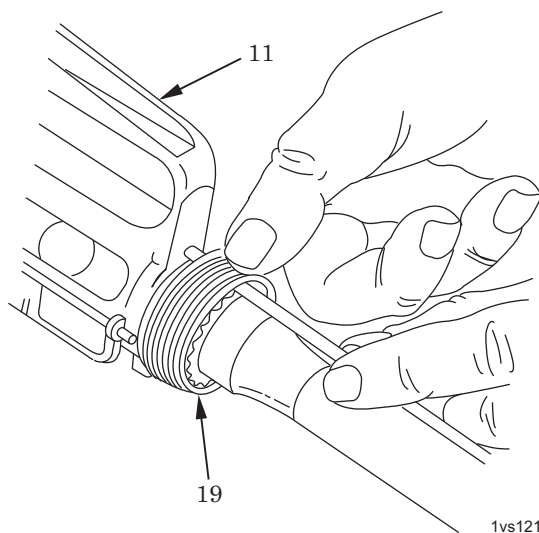


Figure 22. Alignment of Barrel Nut Assembly.

13. Check alignment of barrel nut assembly (19) with upper receiver assembly (11). The front 8 in. (20.32 cm) of a gas tube may be used as an alignment tool (see illustration). This is inserted into the bolt carrier key and then inserted into rear of receiver. If parts of barrel nut assembly are properly aligned, tool will pass freely and lay top dead center along the top of the barrel. A number 15 twist drill (0.180 in.) may also be used as an alignment tool. If necessary, tighten barrel nut assembly to next hole to allow proper alignment.

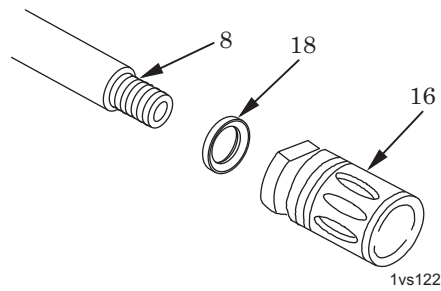
ASSEMBLY - Continued

Figure 23. Installation of Compensator.

14. Install new recessed washer (18) with the large diameter of recessed washer forward toward compensator and the small diameter rearward toward barrel assembly (8).

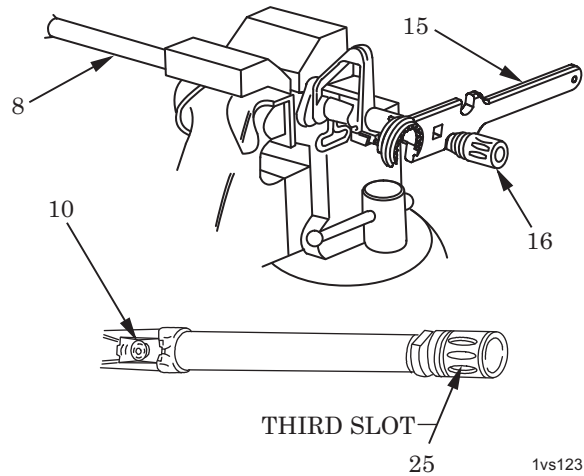


Figure 24. Alignment of Compensator.

NOTE

Recessed washer does not require torquing.

15. Install compensator (16) on barrel assembly (8) using combination wrench (15). Tighten compensator hand tight and then tighten a minimum of 90 degrees but no more than 450 degrees to align center of middle slot (25) with post of front sight assembly (10). Tighten compensator to complete alignment with front sight post to top dead center (TDC). Do not over rotate. If compensator is turned backwards, the compensator will loosen, so procedure must be started again with a new recessed washer.

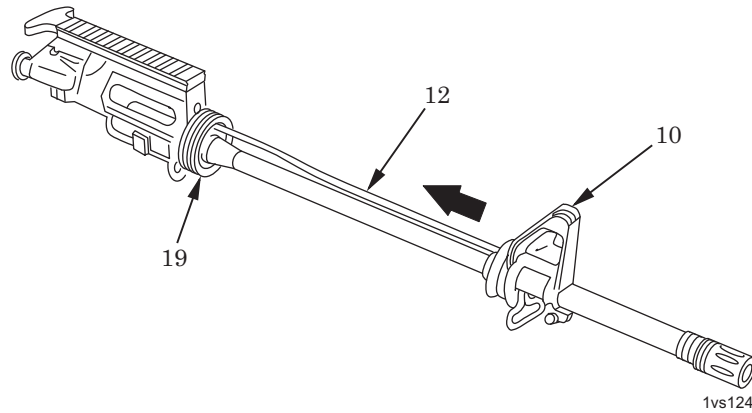


Figure 25. Installation of Gas Tube.

16. Slide gas tube (12) through barrel nut assembly (19) and then slide forward, inserting gas tube into hole in base of front sight assembly (10).

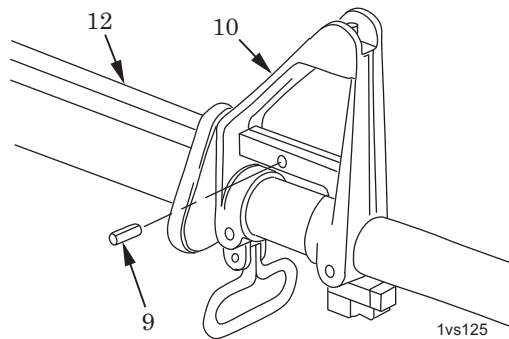


Figure 26. Installation of Spring Pin.

17. Align holes in gas tube (12) and base of front sight assembly (10).

NOTE

To assist in installing spring pin modified nose pliers may be used.

18. Using ball-peen hammer and 5/64-in. diameter drive pin punch, drive spring pin (9) into base of front sight assembly (10) to secure gas tube (12).

ASSEMBLY - Continued**M16A3 & M16A4 RIFLE/M4 & M4A1 CARBINE ONLY****NOTE**

Failure to install barrel stop assembly will prevent the M203A2 launcher from being mounted to the M16A3/M16A4 rifle.

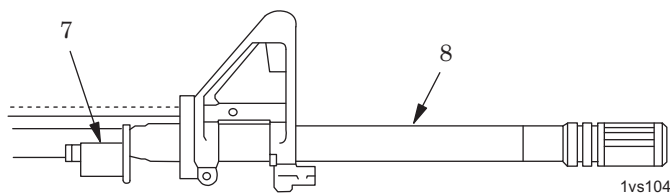


Figure 27. Installation of Barrel Stop Assembly.

19. Install barrel stop assembly (7) to barrel assembly (8) (M16A3/M16A4 Rifle only). Place barrel stop over thin section of barrel from six o'clock position, while avoiding contact with gas tube. Rotate barrel stop so opening is pointed upwards toward gas tube. Slide barrel stop forward until flat vertical portion fits into triangular sides of forward hand guard cap with springs to rear.

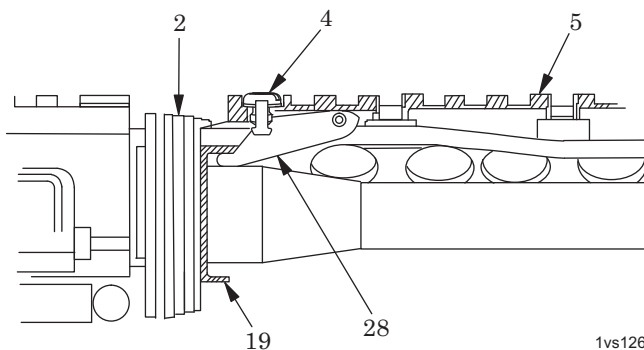


Figure 28. Installation of Upper Handguard Assembly (M16A3/M16A4/M4/M4A1).

20. Loosen slotted screw (4). Orient upper handguard assembly (5) so rear-locking clamp (28) is hanging down, after confirming that arrow on its inner surface points toward muzzle of weapon. Insert front end of upper handguard assembly into forward handguard cap at an angle. Be sure leaf spring at front of handguard assembly fits inside lip of handguard cap.

NOTE

M16A3/M16A4 RIFLE ONLY: Ensure notches at front edges of upper handguard assembly engage tabs at rear edges of barrel stop as handguard assembly is engaged and lowered into its final position.

21. Compress rear handguard slip ring (2) and pivot upper handguard assembly (5) down into fully locked position around barrel nut. Ensure that gas tube slot of rear-locking clamp (28) is straddling gas tube and that rear legs of clamp slip under barrel nut flange as handguard assembly makes contact with barrel nut and slip ring.

22. Release handguard slip ring (2) and confirm that it slides forward evenly around rear flange of upper handguard assembly (5). Note that two alignment pins automatically interface with cut-outs in barrel nut assembly (19) at 10 and 2 o'clock positions to remove rotational play of handguard assembly. Install and tighten slotted screw (4) to medium tight.

NOTE

Do not remove thermal liner from lower handguard. Orient lower handguard by confirming that arrow on its inner surface points toward muzzle of weapon.

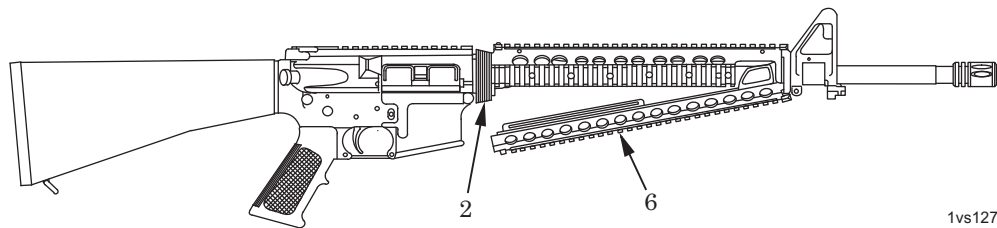


Figure 29. Installation of Lower Handguard (M16A3/M16A4/M4/M4A1).

23. Insert front edges of lower handguard (6) into forward handguard cap at angle shown. Compress handguard slip ring (2) while pivoting lower handguard up and into its final position.
24. Release handguard slip ring (2) and confirm that it engages around rear flange of lower handguard (6).

M16A2 RIFLE ONLY

NOTE

Refer to TM 9-1005-319-10 for "buddy system" procedure for installing handguard assemblies.

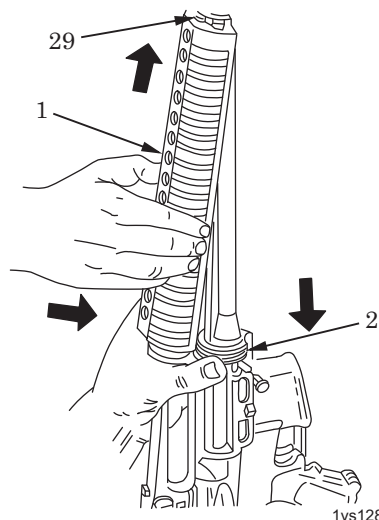


Figure 30. Installation of Upper Handguard Assembly (M16A2).

25. Install top of upper handguard assembly (1) in tube cap (29) while pushing down on handguard slip ring (2). Push bottom of upper handguard assembly in place and release handguard slip ring to lock handguard assembly in place.

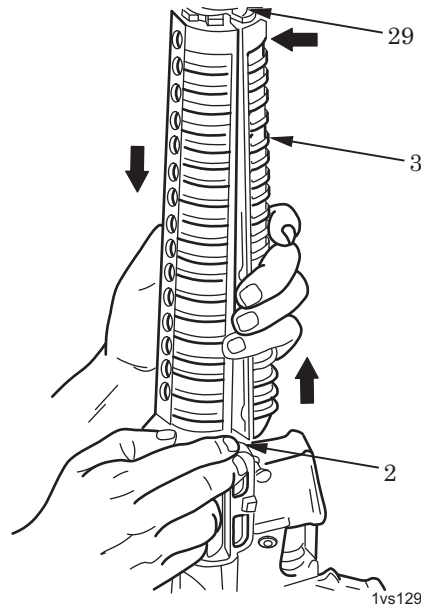
ASSEMBLY - Continued

Figure 31. Installation of Lower Handguard Assembly (M16A2).

26. Install top of lower handguard assembly (3) in tube cap (29) while pushing down on handguard slip ring (2). Push bottom of lower handguard assembly in place and release handguard slip ring to lock both handguard assemblies in place.

END OF TASK**TEST AND INSPECTION****NOTE**

The following information pertains to the use of breech, bore, and other gages:

Barrel erosion gage, PN 8448496, can be used to gage all chromed barrels;
Bore straightness gage, PN 8448202, is required for use on all barrels. The gage must pass through the barrel without being forced.

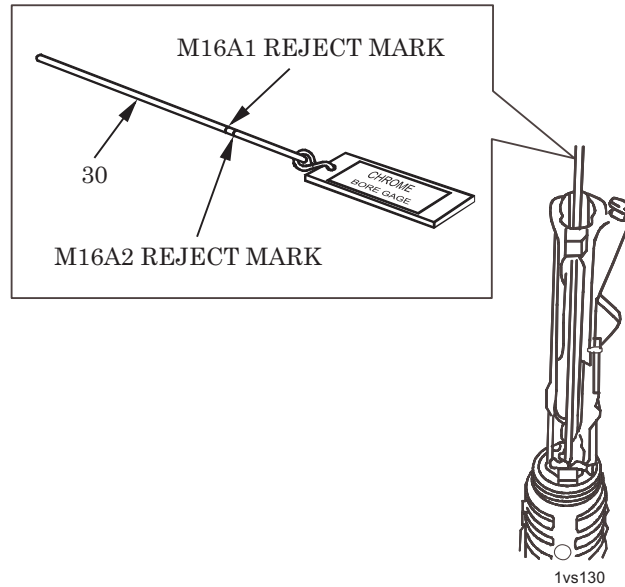


Figure 32. Use of Barrel Erosion Gage.

NOTE

When gaging barrel erosion prior to deployment of weapons, use the first mark (M16A1 Reject Mark) as the preembarkation mark for the M16A2/M16A3/M16A4 Rifles and M4/M4A1 Carbines.

1. Install key and bolt carrier assembly with bolt assembly and firing pin removed. Hold weapon in vertical position with receiver up. Insert barrel erosion gage PN 8448496 (30) into rear of upper receiver assembly. The M16A2 reject mark must be read at rear edge of upper receiver assembly.

NOTE

The M16A2 reject mark will also be used when gaging M16A3/M16A4 rifles and M4/M4A1 carbines.

2. If the M16A2 reject mark passes beyond rear surface of upper receiver assembly, the barrel is unserviceable and shall be replaced.

TEST AND INSPECTION - Continued

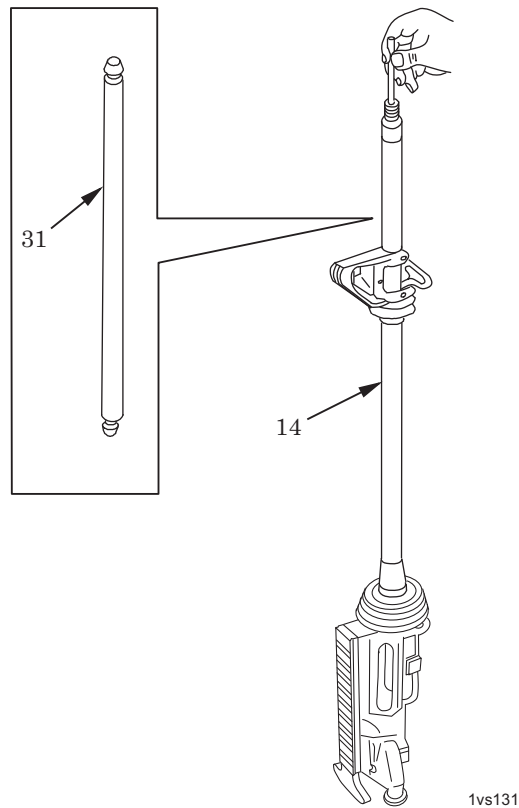


Figure 33. Use of Bore Straightness Gauge.

NOTE

Ensure barrel is clean prior to performing the following test.

3. Check straightness of bore using straightness gage PN 8448202 (31). Put gage in barrel. Tilt barrel and allow gage to fall through. Catch gage.
4. Gage must pass freely through barrel. If gage does not pass through barrel, recheck as follows. Hold upper receiver and barrel assembly (14) in vertical position with muzzle pointed down; insert gage into chamber end of barrel. Release gage and catch it as it exits muzzle end. If gage passes freely through the barrel, barrel is acceptable. If it does not, the barrel must be straightened or replaced. See WP 0016.

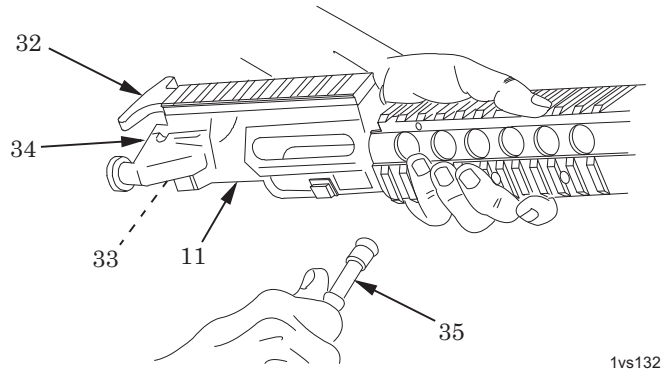


Figure 34. Insertion of Headspace Gage.

5. Assemble charging handle assembly (32), bolt assembly (33), and key and bolt carrier assembly (34) into upper receiver assembly (11).
6. Insert headspace gage PN 7799734 (35) in chamber.

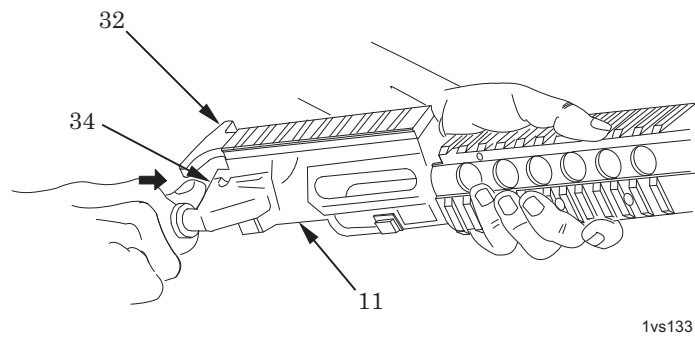


Figure 35. Checking Headspace.

NOTE

For the purpose of this test "light finger pressure" is defined as 8 1/2 to 8 3/4 pounds.

7. Check headspace by pressing key and bolt carrier assembly (34) and charging handle assembly (32) forward using light finger pressure.
8. Bolt should not rotate to locked position. Key and bolt carrier assembly (34) must protrude from rear of upper receiver assembly (11) for proper headspace.

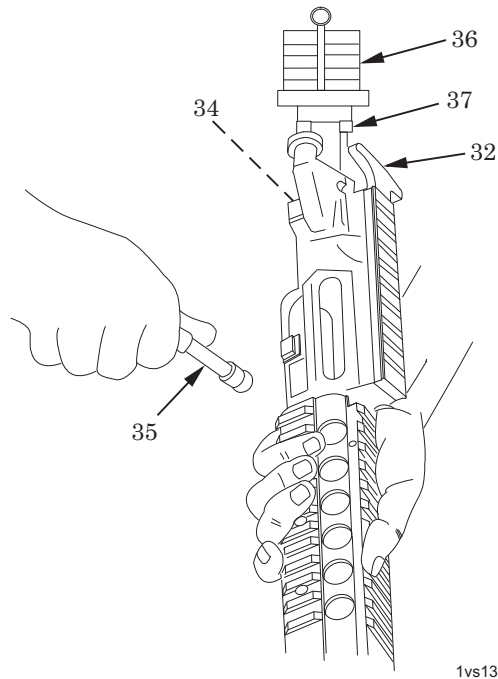
TEST AND INSPECTION - Continued

Figure 36. Use of Weights in Headspace Check.

9. If the test fails using finger pressure, remove the gage and perform the test again as follows. With the muzzle down, stack 8 1/2 to 8 3/4 pounds of trigger weights (36) on a locally fabricated spacer/weight (37) on key and bolt carrier assembly (34). Insert headspace gage (35) and test per above instructions.
10. Remove trigger weights (36), spacer/weight (37), key and bolt carrier assembly (34), charging handle (32), and headspace gage (35).
11. If excessive headspace, first replace bolt assembly and then recheck. If headspace is not corrected, replace barrel assembly; then recheck with the original bolt to determine if the bolt is still good or if the bolt should be replaced also.
12. Remove key and bolt carrier assembly, bolt assembly, charging handle assembly, and headspace gage.
13. Reassemble weapon; refer to TM 9-1005-319-10.

NOTE

Weapons which have been re-barreled must be function-fired with seven rounds of 5.56mm ball ammunition. After re-barreling, the weapon must be targeted with three rounds of 5.56mm ball ammunition at 25 meter range using target. Refer to TM 9-1005-319-10 and FM 3-22.9.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

**BARREL ASSEMBLY (M16A2) 9349124, (M16A3, M16A4) 12598107,
REPLACEMENT BARREL AND FRONT SIGHT ASSEMBLY (M4) 9390007,
(M4A1) 12991851 MAINTENANCE**

DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Front sight post removal and installation tool (WP 0030, Figure 2)

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Abrasive cloth (WP 0045, item 13)

Chemical and oil protective gloves (WP 0045, item 17)

Dry cleaning solvent (WP 0045, item 15)

Solid film lubricant (SFL) (WP 0045, item 20)

Target (WP 0045, item 36)

References

WP 0015

WP 0039

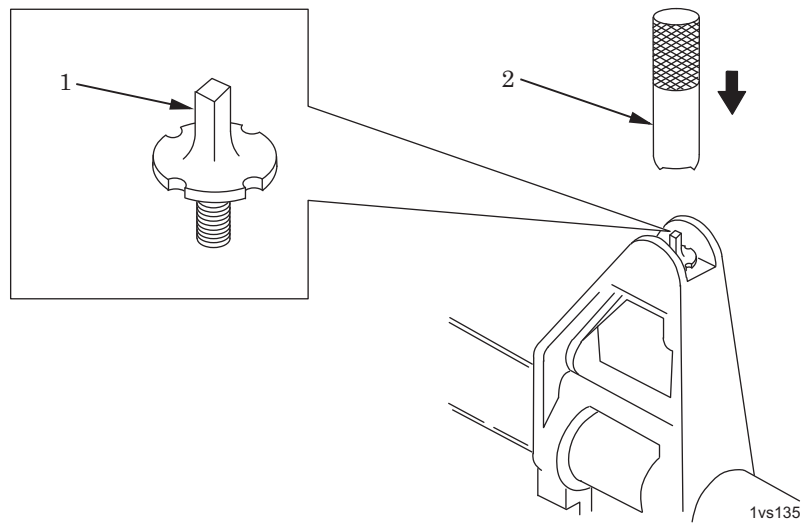
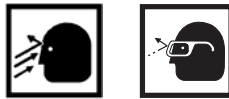
DISASSEMBLY

Figure 1. Removal/Installation of Front Sight Post.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

NOTE

Remove front sight post only if parts are damaged.

1. Using a dummy cartridge or a front sight post removal and installation tool (2) (WP 0030, Figure 2), remove front sight post (1) by turning counterclockwise.

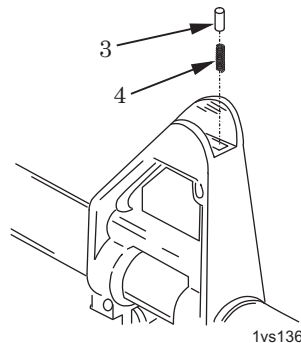


Figure 2. Removal/Installation of Front Sight Detent and Spring.

2. Catch front sight detent (3) and helical spring (4) to prevent loss.

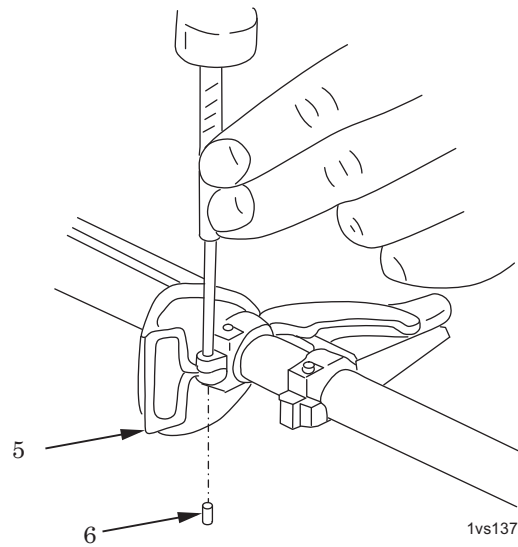
RIFLE ONLY

Figure 3. Removal of Small Sling Swivel (Rifle).

NOTE

Disassemble small sling swivel only if repair is necessary.

3. If necessary, knock out tubular rivet (6) with a hammer and punch and remove small sling swivel (5). Discard tubular rivet.

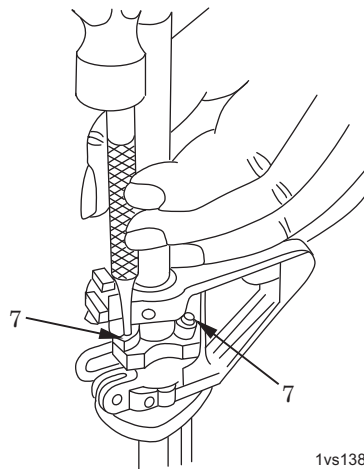
CARBINE ONLY

Figure 4. Removal/Installation of Spring Pins (Carbine).

4. Remove two spring pins (7).

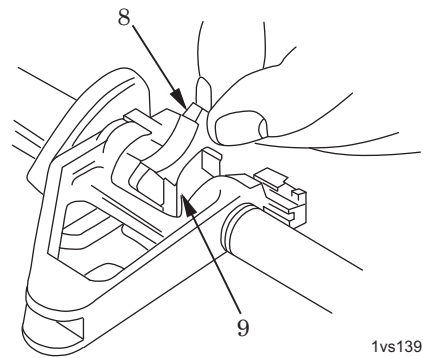
DISASSEMBLY - Continued

Figure 5. Removal/Installation of Locking Bar (Carbine).

5. Lift locking bar (8) up and out of swivel mount (9).

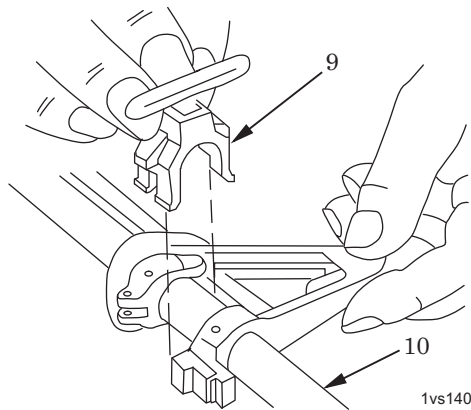


Figure 6. Removal/Installation of Swivel Mount (Carbine).

6. Remove swivel mount (9) from barrel and barrel extension assembly (10).

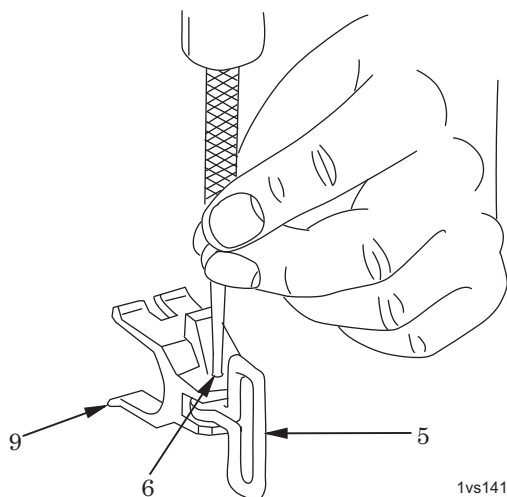


Figure 7. Disassembly/Assembly of Swivel Mount (Carbine).

7. Remove tubular rivet (6). Separate small sling swivel (5) from swivel mount (9).

END OF TASK

REPAIR OR REPLACEMENT

1. Inspect front sight post, front sight detent, and helical spring for damage. If damaged, replace.
2. Inspect front sight assembly for chips, breaks, and cracks.

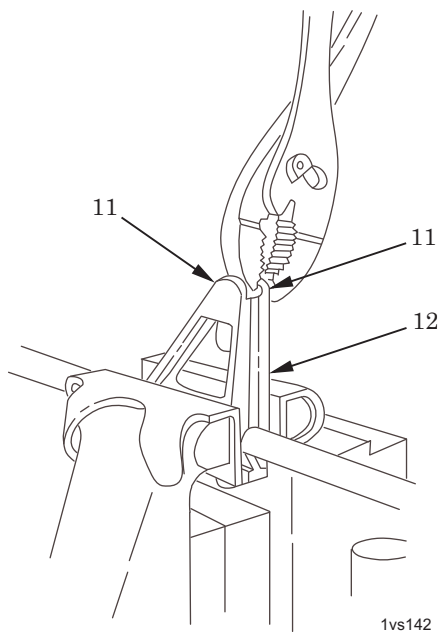


Figure 8. Repair of Bent Front Sight Assembly.

REPAIR OR REPLACEMENT - Continued

3. Inspect front sight guards (11) for bends. Straighten bent front sight guards as follows:

NOTE

Remove spring before heating. (Heat will damage spring.) The sight post and plunger may be reused unless damaged.

- a. Remove front sight post, detent, and helical spring (see DISASSEMBLY).

NOTE

Use copper or brass caps (jaw inserts) on bench vise to prevent damage to front sight base during clamping.

- b. Place front sight base (12) in a bench vise.
- c. Heat front sight guards (11) and bend with pliers. The front sight guards should be put back as nearly as possible to the original position. Allow front sight housing to air cool.

WARNING**DRY CLEANING SOLVENT**

- d. Roughen any damaged surface of front sight guards (11) with abrasive cloth (WP 0045, item 13) and clean with dry cleaning solvent (WP 0045, item 15). Always wear rubber gloves (WP 0045, item 17) when using dry cleaning solvent.

WARNING**SOLID FILM LUBRICANT****CAUTION**

Do not allow solid film lubricant to flow into front sight post threaded well.

- e. Apply solid film lubricant (WP 0045, item 20) to cover the damaged finish.
- f. If front sight guards (11) cannot be straightened utilizing the above procedures, replace the barrel assembly.
4. Slightly bent barrels may be straightened as follows:
- a. Check straightness using straightness gage 8448202 (WP 0015). If barrel fails straightness test, and the gage remains in the barrel in the area of the front sight assembly, perform step b to determine if it may be straightened.

- b. With the gage remaining in the bore, hold weapon in a vertical position with end of barrel into which gage was inserted pointing up. Ensure that if/when gage passes through barrel it will not be damaged. Using hand pressure ONLY, flex portion of barrel between front sight assembly and compensator in all four directions (left, right, forward, and back). If barrel is only slightly bent, gage will drop through when barrel is flexed in one of these directions. Note the direction which allowed the gage to drop through the barrel.

CAUTION

Remove the gage from the barrel before continuing.

NOTE

If the gage does not pass through the barrel when it is flexed, replace barrel assembly.

- c. Place barrel in a vise using appropriate protective jaws. Clamp barrel between front sight assembly and compensator approximately 1 in. (2.54 cm) from front sight assembly. The barrel assembly should be in a horizontal position with the side noted in step b toward repairman.

CAUTION

Do not apply pressure to the receiver.

- d. Grasp the BARREL near the receiver so that when force is applied the barrel will flex in the same direction as noted in step b.
 - e. Give barrel a sharp jerk of approximately 20 to 40 pounds of force.
 - f. Remove barrel from vise and recheck straightness (step a).
 - g. If gage still will not pass through barrel, perform step b to determine direction of bend. If barrel is still bent in the same direction as before, perform steps c through f using slightly more force. If barrel is now bent in the opposite direction, replace barrel assembly.
 - h. If gage passes freely through barrel, barrel shall be considered straight and continue in service.
 - i. If barrel has been straightened, the weapon must be targeted (WP 0015).
5. Replace all unserviceable parts as authorized by WP 0039.

END OF TASK

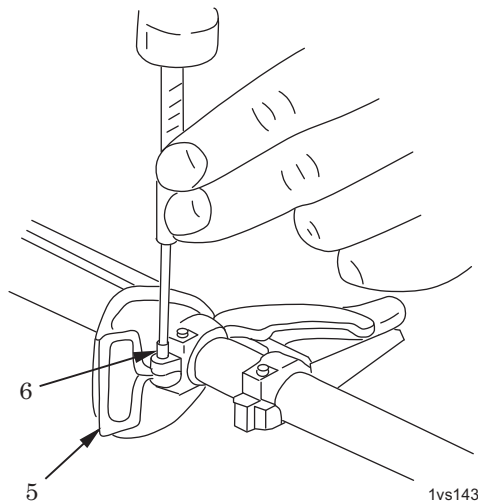
ASSEMBLY**RIFLE ONLY**

Figure 9. Installation of Small Sling Swivel (Rifle).

1. If previously disassembled, position small sling swivel (5) and install new tubular rivet (6) using center punch and hammer to spread and flare the hollow head of the tubular rivet.

CARBINE ONLY

2. Install small sling swivel (5) to swivel mount (9) with new tubular rivet (6) using center punch and hammer to spread and flare the hollow head of the tubular rivet.

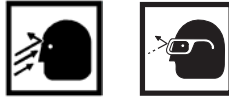
NOTE

It is recommended that the swivel mount be placed on the left side of the carbine for right handed operators and on the right side for left handed operators. This will keep the sling out of the way when the carbine is used. In addition, it shall be oriented so the integral stop, normally positioned towards the muzzle, is to the rear; this change in orientation allows the swivel to fold flat towards the muzzle so the side sling adapter does not interfere with the installation of the rail covers, the forward handgrip, or other accessories that require installation from the end of the rail.

3. Install swivel mount (9).
4. Place swivel locking bar (8) in swivel mount (9).
5. Install two spring pins (7).

ALL WEAPONS

6. Position helical spring (4) and front sight detent (3).

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

7. Install front sight post (1) by turning front sight post removal and installation tool (2) clockwise until front sight post base is flush with or slightly below front sight frame.
8. AIR FORCE ONLY: Perform mechanical zero procedures as follows:

NOTE

This procedure, when used in conjunction with rear sight mechanical zero adjustment, will give an approximate battle sight zero to most M16A2 rifles. The following steps can also be used before firing a new or newly assigned rifle. Use the procedures to check rifles stored in preferred packaging during routine inspections. This will help ensure soldiers armed with the rifles will have a better chance of hitting an enemy if the rifles must be used before a live fire zero can be made. Whenever possible, zeroing of the rifle should be accomplished using ball ammunition on a 25 meter zeroing target using the "L" aperture.

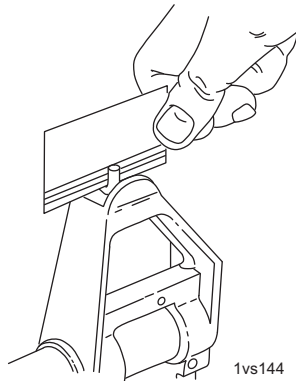


Figure 10. Measurement of Height of Front Sight Post.

- a. Mark a piece of plastic card stock or rigid paper with lines from 1mm to 5mm in 1mm increments. Set the card on front sight frame and check height of top of front sight post.

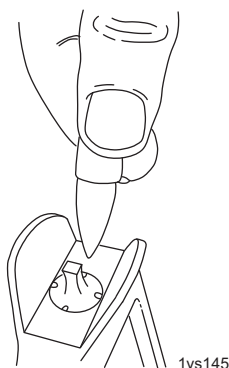
ASSEMBLY - Continued

Figure 11. Adjustment of Front Sight Post.

- b. Using a dummy round or front sight post tool, adjust front sight so top of front sight post is 5mm above machined surfaces of front sight frame.

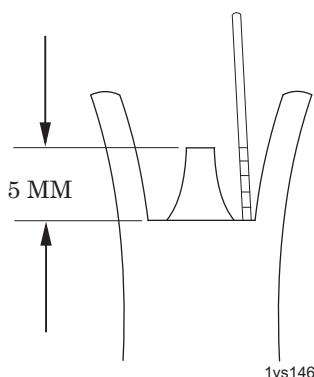


Figure 12. Final Measurement of Height.

- c. Visually check front sight post top height by using the marked plastic or paper card. Card must sit level on machined surfaces of front sight frame to obtain an accurate reading.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**UPPER HANDGUARD ASSEMBLY AND BARREL STOP ASSEMBLY (M16A3, M16A4) MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY****EFFECTIVITY NOTICE**
M16A3, M16A4 RIFLE

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Spring pin (2) MS16562-223

References

WP 0039

Equipment Conditions

Upper handguard assembly removed from rifle (WP 0015)

Barrel stop assembly removed from rifle (WP 0015)

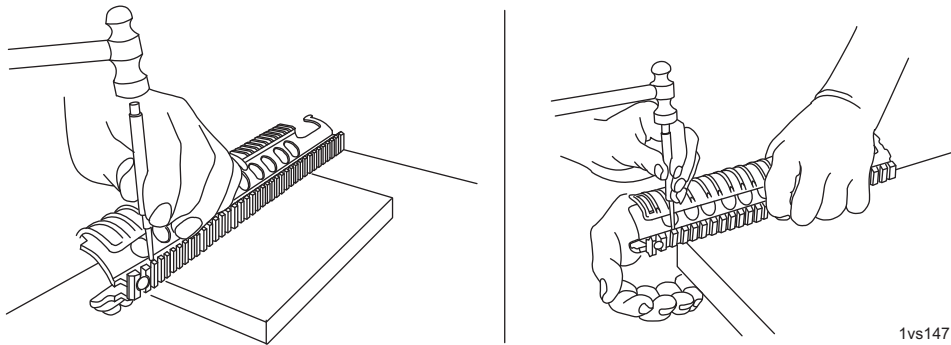
DISASSEMBLY

Figure 1. Placement of Handguard Assembly for Repair.

CAUTION

The handguard assembly is aluminum; therefore, care should always be taken not to damage or burr the slots of the rails.

NOTE

The spring pins in handguard assembly must be replaced with new pins each time they are removed.

A good one person method for removal of the spring pins to do repair work is to place a short piece of 1" x 4" wooden block under the rails. A two person method is to hold the handguard assembly along the side and over a corner of a wooden work bench.

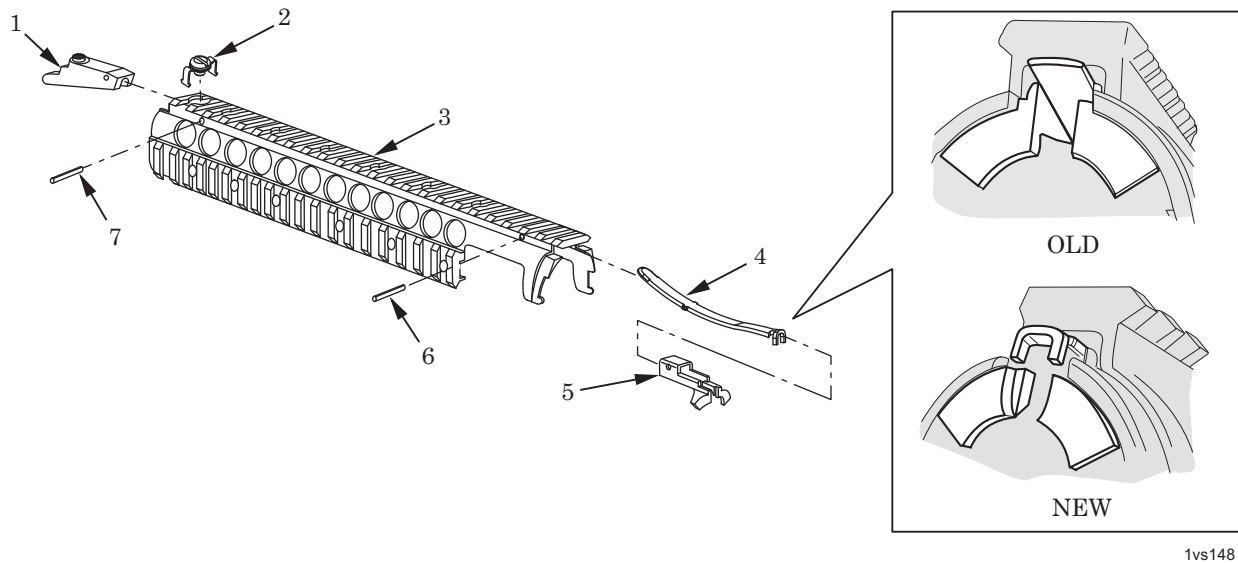
DISASSEMBLY - Continued

Figure 2. Disassembly/Assembly of Handguard Assembly.

1. If damaged, remove slotted screw (2) from upper handguard (3).
2. Taking care not to damage rails, drive out spring pin (7) using 1/8 in. punch and hammer. Remove rear handguard clamp (1). Discard spring pin.
3. Taking care not to damage rails, drive out spring pin (6) using 1/8 in. punch and hammer. Remove special shaped spacer (5) and flat spring (4). Discard spring pin.

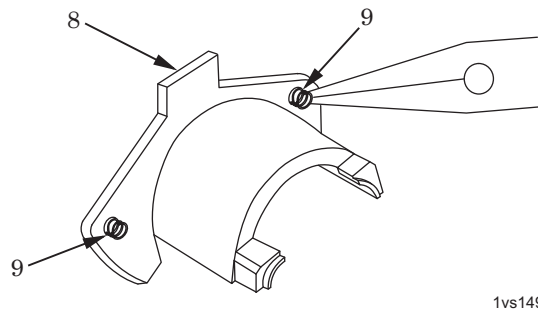


Figure 3. Repair of Barrel Stop Assembly.

4. If damaged, remove two helical compression springs (9) from barrel stop (8) turning counterclockwise with needle nose pliers.

END OF TASK

REPAIR OR REPLACEMENT

1. Clean, inspect, and lubricate the rail surfaces and recoil slots of the upper handguard assembly when the weapon is cleaned and/or when handguards are being installed.
2. Use the general purpose brush (M16 rifle double-ended toothbrush) from the standard rifle/carbine cleaning kit to clean the rail surfaces.
3. Lightly lubricate upper handguard assembly and spring latches in the handguard.
4. Remove burrs or nicks from rails using a small stone.
5. Replace defective items as authorized by WP 0039.

END OF TASK**ASSEMBLY**

1. If removed, install two helical compression springs (9) to barrel stop (8) turning clockwise with needle nose pliers.

NOTE

The flat spring (WP 0039, Figure 9, item 4) can only be used with the new style special shaped spacer (PN 13012018).

2. Install flat spring (4) and special shaped spacer (5) to upper handguard (3). Secure with new spring pin (6).
3. Install rear handguard clamp (1) to upper handguard (3) and secure with new spring pin (7).
4. If removed, install slotted screw (2) to upper handguard (3).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**UPPER HANDGUARD ASSEMBLY (M4, M4A1) MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY****EFFECTIVITY NOTICE**
M4, M4A1 CARBINE

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Spring pin (2) MS16562-223

References

WP 0039

Equipment Conditions

Upper handguard assembly removed from carbine (WP 0015)

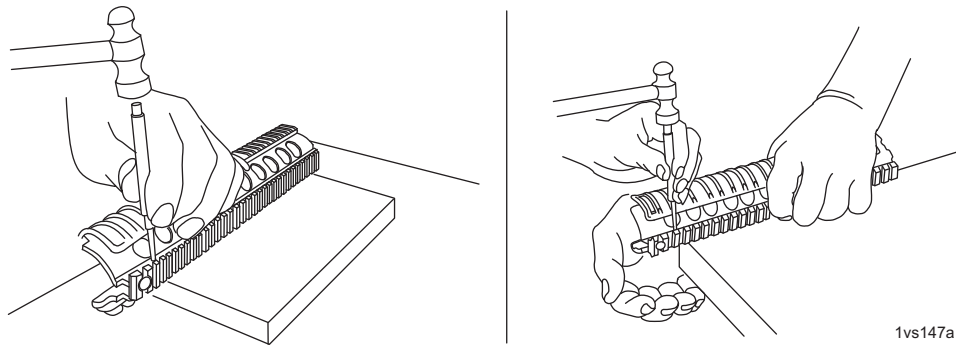
DISASSEMBLY

Figure 1. Placement of Handguard Assembly for Repair.

CAUTION

The handguard assembly is aluminum; therefore, care should always be taken not to damage or burr the slots of the rails.

NOTE

The spring pins in handguard assembly must be replaced with new pins each time they are removed.

A good one person method for removal of the spring pins to do repair work is to place a short piece of 1" x 4" wooden block under the rails. A two person method is to hold the handguard assembly along the side and over a corner of a wooden work bench.

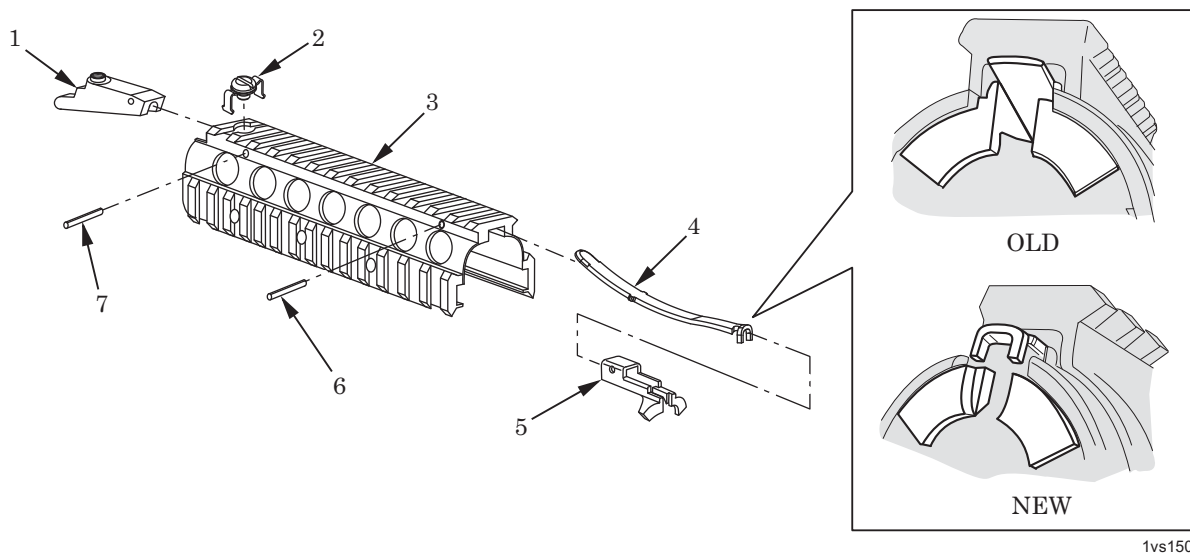


Figure 2. Disassembly/Assembly of Handguard Assembly.

1. If damaged, remove slotted screw (2) from upper handguard (3).
2. Taking care not to damage rails, drive out spring pin (7) using 1/8 in. punch and hammer. Remove rear handguard clamp (1). Discard spring pin.
3. Taking care not to damage rails, drive out spring pin (6) using 1/8 in. punch and hammer. Remove special shaped spacer (5) and flat spring (4). Discard spring pin.

END OF TASK**REPAIR OR REPLACEMENT**

1. Clean, inspect, and lubricate the rail surfaces and recoil slots of the upper handguard assembly when the weapon is cleaned and/or when handguards are being installed.
2. Use the general purpose brush (M16 rifle double-ended toothbrush) from the standard rifle/carbine cleaning kit to clean the rail surfaces.
3. Lightly lubricate upper handguard assembly and spring latches in the handguard.
4. Remove burrs or nicks from rails using a small stone.
5. Replace defective items as authorized by WP 0039.

END OF TASK**ASSEMBLY****NOTE**

The flat spring (WP 0039, Figure 11, item 4) can only be used with the new style special shaped spacer (PN 13012018).

1. Install flat spring (4) and special shaped spacer (5) to upper handguard (3). Secure with new spring pin (6).
2. Install rear handguard clamp (1) to upper handguard (3) and secure with new spring pin (7).
3. If removed, install slotted screw (2) to upper handguard (3).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**UPPER RECEIVER ASSEMBLY AND REAR SIGHT ASSEMBLY MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, LUBRICATION,
ASSEMBLY, TEST AND INSPECTION**

INITIAL SETUP:**Tools and Special Tools**

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Index screw 9349065

Solid film lubricant (WP 0045, item 20)

References

TM 9-1005-319-10

WP 0015

WP 0020

WP 0039

Equipment Condition

Upper receiver assembly removed from barrel (WP 0015)

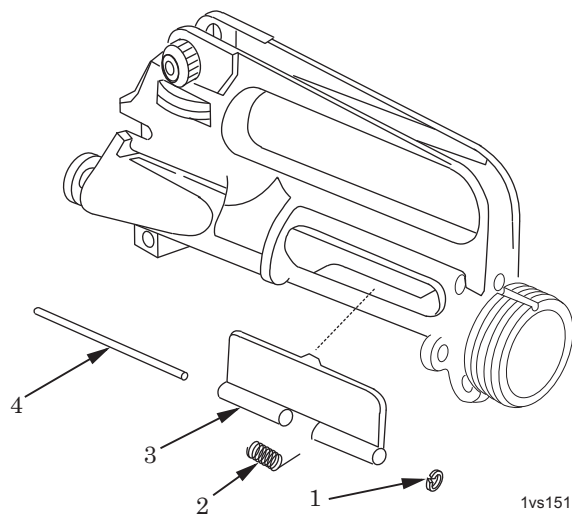
DISASSEMBLY**ALL WEAPONS**

Figure 1. Removal of Ejection Port Cover.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

NOTE

Headless grooved pin may bind against forward assist housing and require some additional force to remove.

1. Remove retaining ring (1) and slide headless grooved pin (4) to the rear.
2. Catch cover spring (2) and ejection port cover (3) to prevent loss as headless grooved pin (4) is withdrawn.

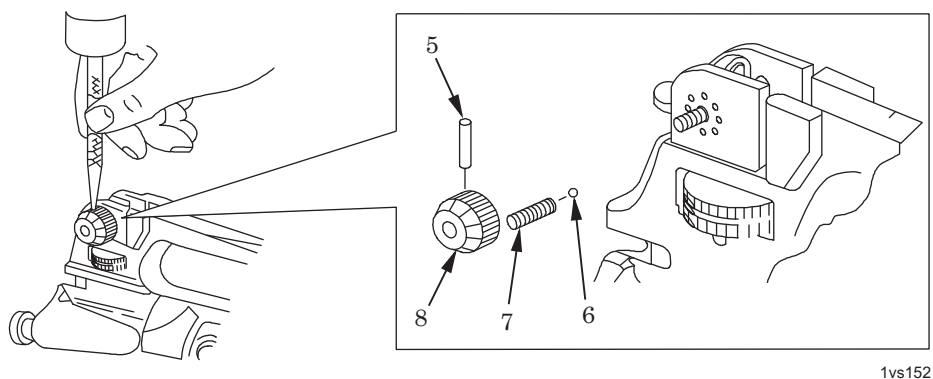
M16A2 RIFLE ONLY

Figure 2. Removal of Windage Knob.

CAUTION

Be sure to catch small parts. AIR FORCE ONLY: Use magnet to keep from losing small parts.

3. Drive out spring pin (5) using a hammer and 1/16 in. punch.
4. Catch windage knob (8), helical spring (7), and ball bearing (6).

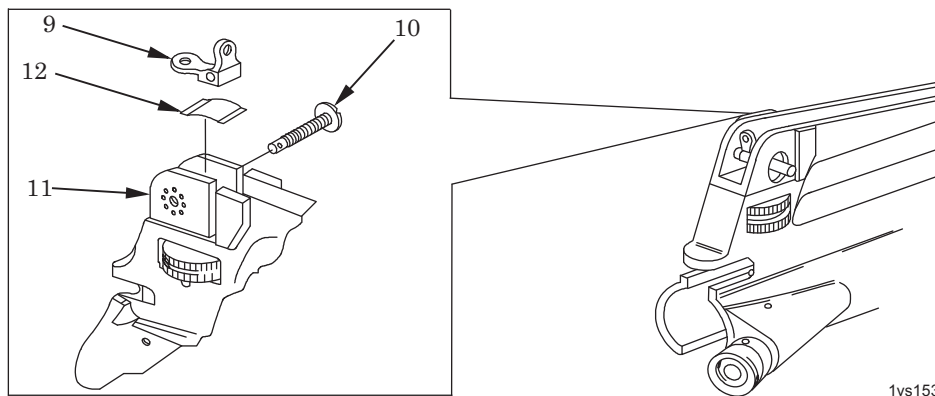


Figure 3. Removal of Sight Aperture.

5. Using a flat-bladed screwdriver, remove windage screw (10) from rear sight base (11).
6. Remove sight aperture (9) and flat spring (12) from rear sight base (11).

DISASSEMBLY - Continued

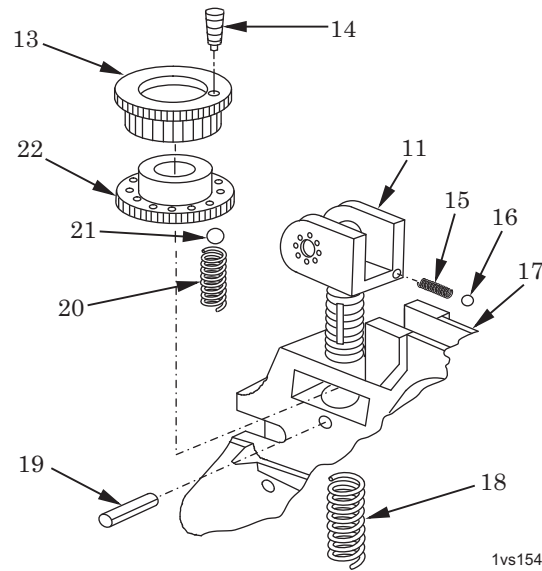
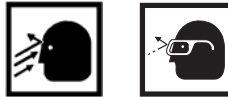


Figure 4. Disassembly of Rear Sight Assembly.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

7. Drive out spring pin (19) using a 3/32 in. punch. Catch helical spring (18) when punch is withdrawn.
8. Rotate elevation index (13) until rear sight base (11) clears upper receiver (17). Catch ball bearing (16) and helical spring (15) as rear sight base clears.
9. Push elevation index (13) out with thumb using slight rotation motion. Catch ball bearing (21) and helical spring (20).
10. Use 1/16 in. key wrench to remove index screw (14). Discard index screw. Separate elevation index (13) from elevation knob (22) by hand.

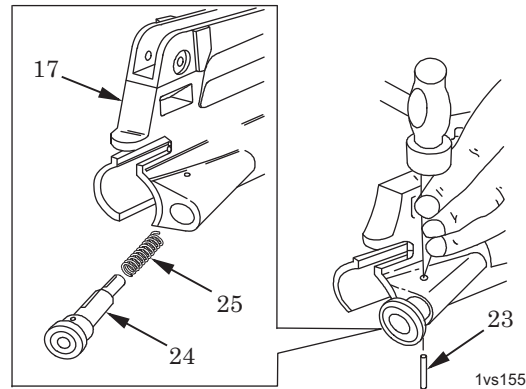
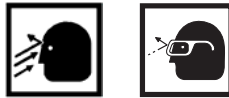
ALL WEAPONS

Figure 5. Removal of Forward Assist Assembly.

11. Remove spring pin (23) using 3/32 in. drive pin punch and hand hammer.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

12. Remove forward assist assembly (24) and helical spring (25) from upper receiver (17). For further disassembly of forward assist assembly see WP 0020.

END OF TASK**REPAIR OR REPLACEMENT****M16A2 RIFLE ONLY**

1. Check rear sight parts for serviceability. Inside of apertures should be round and distinct. Replace if defective.
2. Visually inspect rear sight assembly helical springs and ball bearings for breaks, bends, and missing parts. Ball bearings should be smooth and round. Replace if defective.
3. Check upper receiver for cracks, corrosion, and damage. Clear drain hole with a piece of wire. Repair (WP 0015) or replace if defective.
4. Check that flat spring retains sight aperture firmly in either position. Replace flat spring if sight aperture is not firm.
5. Check elevation index and windage knob for legibility of markings. Check underside of windage knob for cracks. Detent indexing surfaces should be well formed.
6. Check rear sight base for serviceability. Clear drain holes for springs. Threaded portion of rear sight base and elevation knob should be well formed.

REPAIR OR REPLACEMENT - Continued

7. Inspect rear sight guards for bends; if bent, repair as follows:

NOTE

Ensure that rear sight assembly components are removed from upper receiver.

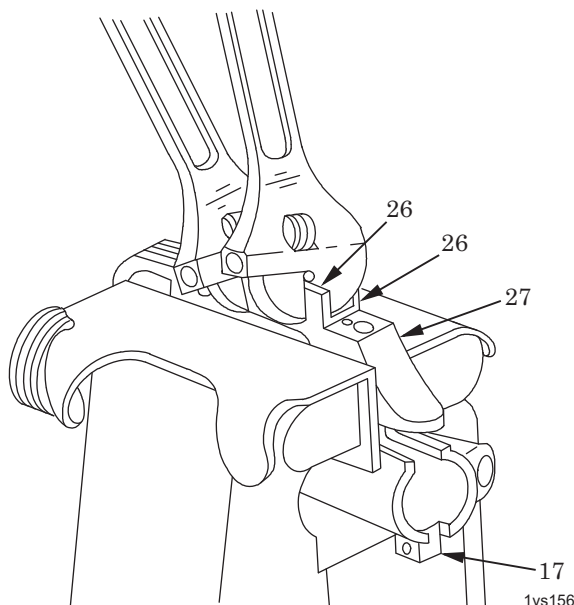


Figure 6. Straightening Rear Sight Guards.

- Place carrying handle (27) in a vise using jaw clamps. Tighten vise to firmly hold upper receiver (17).
- Using two adjustable wrenches, gradually bend guards (26) to straighten. When bending the guards, gradually bend beyond the straight point as the guard will partially return when bending pressure is stopped.
- After straightening, use a flat file to remove any nicks, kinks, or burrs that remain on the inside of guards (26).

WARNING

SOLID FILM LUBRICANT

CAUTION

Do not use wire brush on aluminum surfaces.

- Apply solid film lubricant (WP 0045, item 20) to brightened area for final protective coating.
- If rear sight guards cannot be straightened utilizing the above procedures, replace the upper receiver.

ALL WEAPONS

8. Inspect ejection port cover and latch assembly for serviceability.
9. Inspect all parts for damage and wear. Replace all defective parts as authorized by WP 0039.

END OF TASK**LUBRICATION**

Lubricate upper receiver assembly and rear sight assembly. Apply cleaner, lubricant, and preservative (CLP) (WP 0045, item 9) to helical springs and ball bearings (three each) and threaded portion of screws before installation. Lubricate helical springs and ball bearings through their respective drain holes.

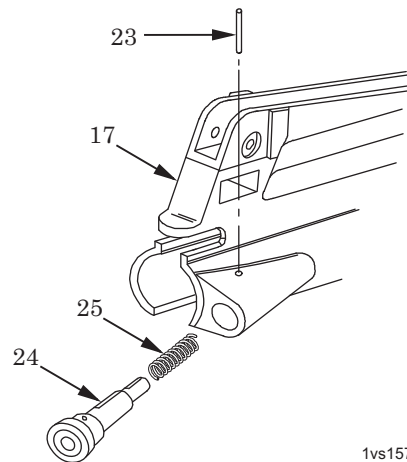
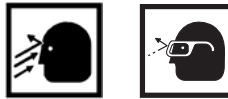
END OF TASK**ASSEMBLY****ALL WEAPONS**

Figure 7. Installation of Forward Assist Assembly.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

1. Apply CLP (WP 0045, item 9) to helical spring (25) and forward assist assembly (24) and install them into upper receiver (17).
2. Install spring pin (23) using 3/32 in. drive pin punch and hammer.

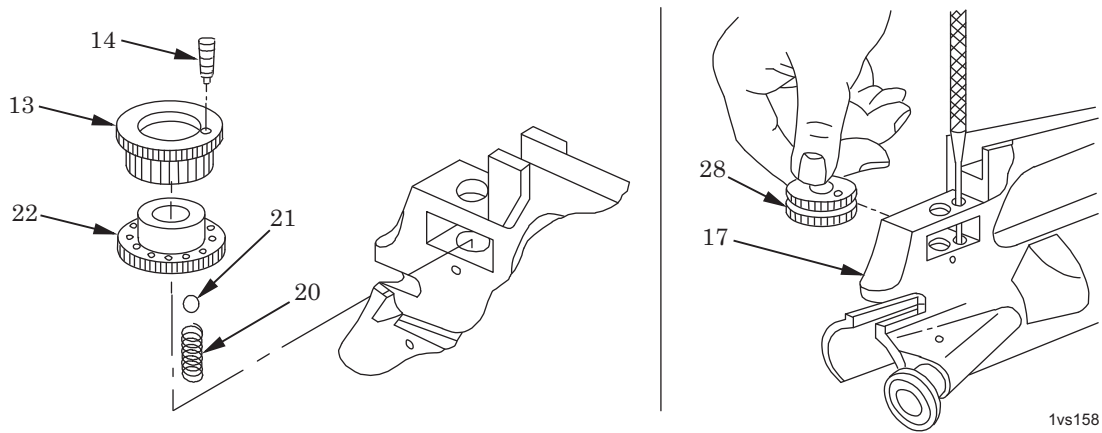
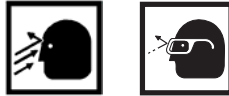
ASSEMBLY - Continued**M16A2 RIFLE ONLY**

Figure 8. Assembly and Installation of Elevation Knob Assembly.

3. Assemble elevation knob (22), elevation index (13), and new index screw (14) using 1/16 in. key wrench. Do not overtighten index screw as scale will require adjustment.
4. Install ball bearing (21) and helical spring (20) using needle-nose pliers or tweezers.
5. Depress ball bearing (21) with a punch inserted through access hole, and slide elevation knob assembly (28) into upper receiver (17) from the side. Center elevation knob assembly.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

NOTE

All springs are identical when new. Once disassembled from the rifle, their free length may vary due to different amounts of compression when installed. If the length of springs varies, use longer spring with windage knob and shorter spring in rear sight base.

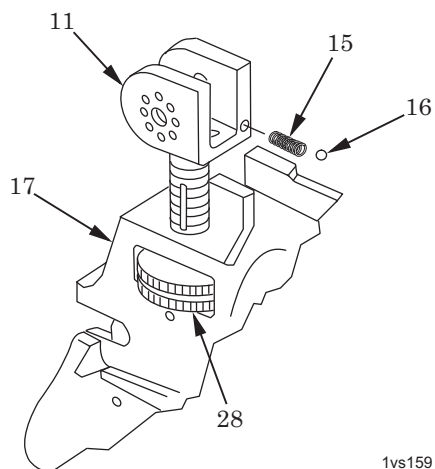


Figure 9. Installation of Rear Sight Base.

6. Insert threaded portion of rear sight base (11) into upper receiver (17) and rotate elevation knob assembly (28) until threads engage.
7. Insert helical spring (15) and ball bearing (16) into hole as elevation knob assembly (28) is further rotated and rear sight base (11) is lowered into upper receiver (17). Rotate elevation knob assembly until rear sight base is all the way down. Then come up 22 clicks before installing spring pin. Check spring action of helical spring on upper receiver.

ASSEMBLY - Continued

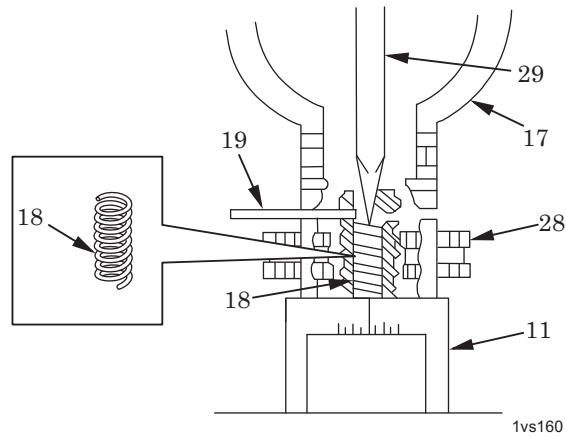


Figure 10. Installation of Helical Spring.

CAUTION

Ensure that spring pin passes over helical spring, not through its coils.

8. Insert helical spring (18) through underside of upper receiver (17). Compress helical spring with a small tip screwdriver (29) to install spring pin (19). Spring pin must pass over helical spring, not through its coils. Rotate elevation knob assembly (28) until rear sight base (11) is all the way down.

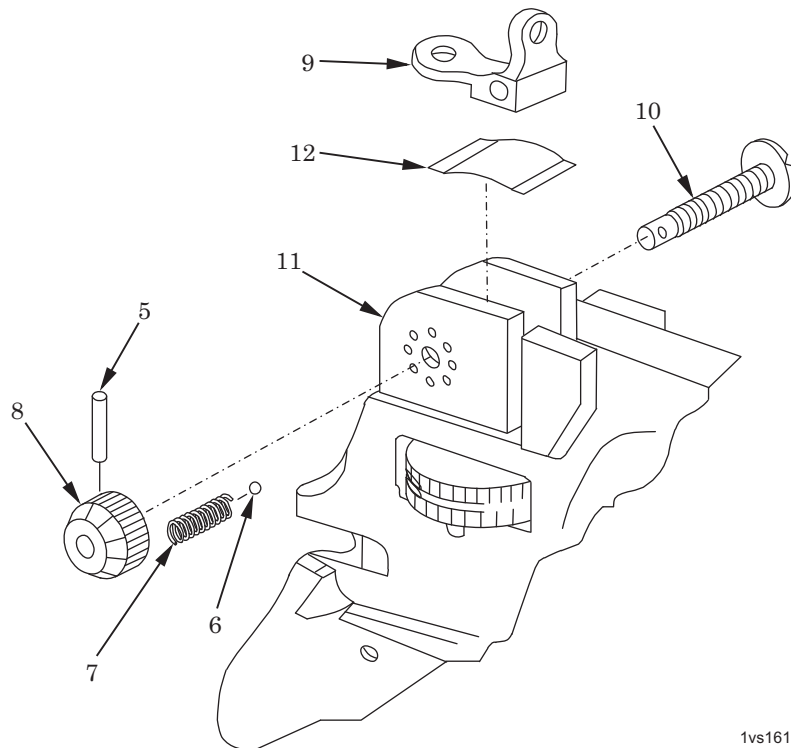


Figure 11. Installation of Sight Aperture and Windage Knob.

9. Install flat spring (12) and sight aperture (9) in rear sight base (11). Install windage screw (10) with screwdriver.
10. Insert helical spring (5) and ball bearing (6) in windage knob (8).

NOTE

Tilt upper receiver toward windage knob during positioning to prevent loss of ball bearing.

11. Position windage knob (8) on shaft of windage screw (10). Align holes in windage knob with hole of shaft in windage screw. Install spring pin (5).

ALL WEAPONS

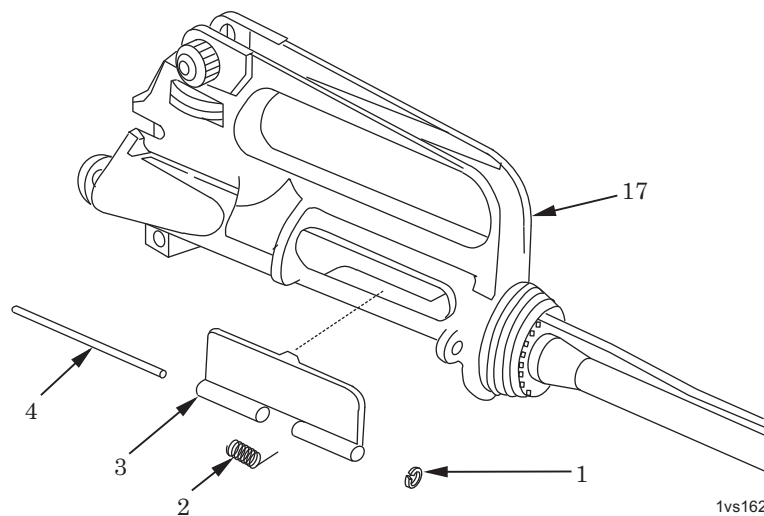


Figure 12. Installation of Ejection Port Cover.

12. Position ejection port cover (3) and helical spring (2) on upper receiver (17) with short leg of helical spring to the rear on inside of ejection port cover.

NOTE

Long leg of helical spring must be positioned and pretensioned before the headless grooved pin is installed.

13. Hold short leg of helical spring (2) in this position and turn long leg one half turn (180 degrees) with fingers of right hand.
14. Position long leg of helical spring (2) against ejection port cover (3). Hold helical spring and ejection port cover in this position and install headless grooved pin (4). Check for proper spring tension during installation of retaining ring (1).

END OF TASK

TEST AND INSPECTION

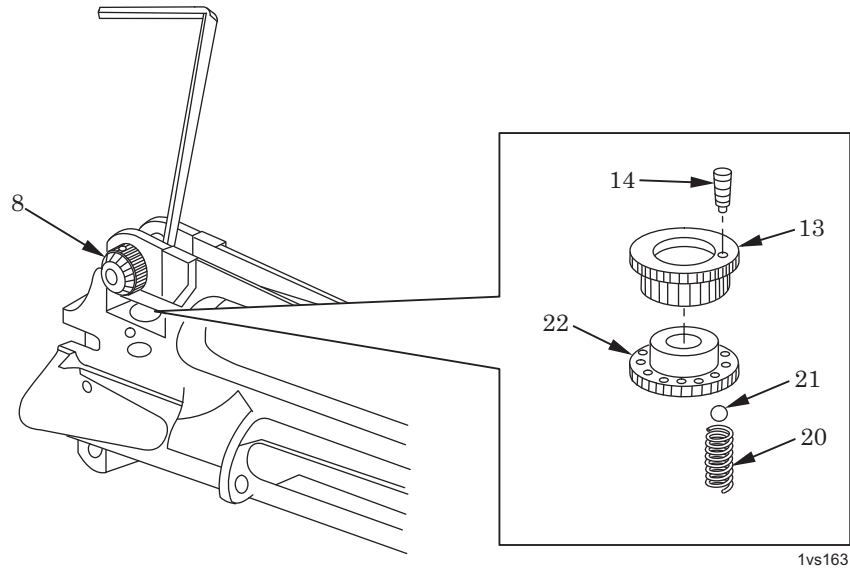


Figure 13. Zeroing Elevation Knob.

1. Rotate and test elevation index (13) and windage knob (8) for ease of functioning.
2. Inspect elevation knob zero as follows:
 - a. Rotate elevation knob (22) counterclockwise until the rear sight assembly is all the way down. If a whole click is not felt as the rear sight assembly stops, the rear sight assembly has bottomed out and will not pivot freely.
 - b. Position elevation knob (22) back slightly to its last whole click so the rear sight base is under tension of ball bearing (21) and helical spring (20). The 300 meter mark should align with mark on left side of upper receiver.
 - c. If 300 meter mark is not aligned with mark on receiver, slip range scale in the following manner:
 - (1) Position 300 meter mark with mark on receiver.
 - (2) Insert a 1/16 in. key wrench through access hole of rear sight base and into index screw (14).
 - (3) Loosen index screw (14) three turns and leave wrench in place.
 - (4) Rotate lower portion of elevation knob (22) counterclockwise until it stops (range scale should not have moved). Elevation knob should be positioned on its last whole click.
 - (5) Tighten index screw (14) and remove wrench.
 - (6) Check for proper setting.

3. AIR FORCE ONLY: Perform mechanical zero procedures as follows:

NOTE

This procedure, when used in conjunction with front sight mechanical zero adjustment, will give an approximate battle site zero to most M16A2 rifles. The following steps can also be used before firing a new or newly assigned rifle. Use the procedure to check rifles stored in preferred packaging during routine inspections. This will help to ensure that soldiers armed with the rifles will have a better chance of hitting an enemy if the rifles must be used before a live fire zero can be made. Whenever possible, zeroing of the rifle should be accomplished using ball ammunition on a 25 meter zeroing target using the "unmarked" aperture.

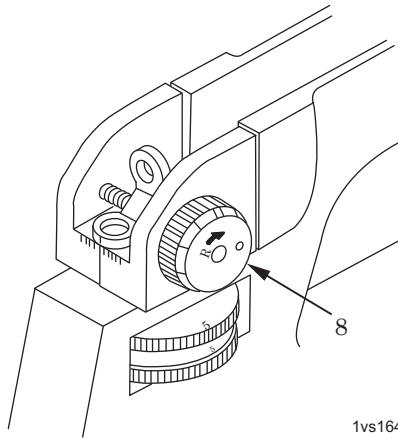


Figure 14. Centering Rear Sight.

- a. Center rear sight by moving windage knob (8) in the appropriate direction.

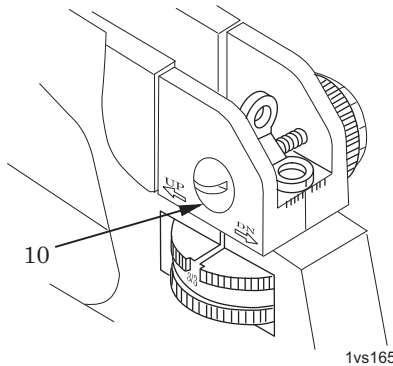


Figure 15. Adjustment of Rear Sight.

- b. Always push in on head of windage screw (10) after making rear sight adjustments.

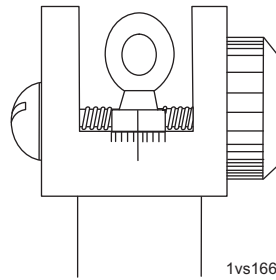
TEST AND INSPECTION - Continued

Figure 16. Visual Verification.

- c. Visually check rear sight to ensure it is centered after making adjustments. Also, ensure the rear sight is set in the short-range (0 - 2) position.
4. Assemble rifle; refer to TM 9-1005-319-10.
5. After the rifle is assembled, center rear sight, place at the 300 meter mark, and perform the following check:
 - a. While looking at a light background, obtain good sight alignment.
 - b. If the hole in the rear sight aperture appears oval instead of round, the rear sight base or upper receiver should be replaced. To determine which part requires replacement, replace the rear sight base first. If this does not resolve the problem, replace the upper receiver.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**FORWARD ASSIST ASSEMBLY MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, LUBRICATION, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11
Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

References

TM 9-1005-319-10

Equipment Condition

Forward assist assembly removed (WP 0019)

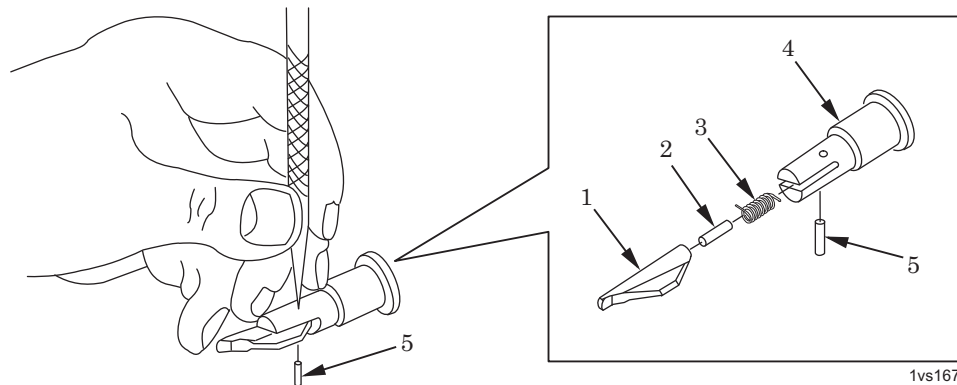
DISASSEMBLY

Figure 1. Disassembly of Forward Assist Assembly.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

1. Drive out spring pin (5) using 1/16 in. pin punch and hammer.
2. Remove forward assist pawl (1), pawl detent (2), and helical spring (3) from plunger assembly (4).

END OF TASK

REPAIR OR REPLACEMENT

1. Inspect forward assist pawl (1) for burrs, chips, and cracks. Minor burrs may be removed using fine files or stones, as required. Do not deform forward assist pawl. Replace if defective.
2. Inspect pawl detent (2) for burrs and cracks. Minor burrs may be removed using fine files or stones, as required. Do not deform pawl detent. Replace if defective.
3. Inspect helical spring (3) for kinks, breaks, and wear. Replace helical spring if defective.
4. Inspect plunger assembly (4) for wear, burrs, chips, and breaks. Minor burrs may be removed using fine files or stones, as required. Do not deform plunger assembly. Replace forward assist assembly if defective.
5. Inspect spring pin (5) for wear. Replace if defective.

END OF TASK**LUBRICATION**

Lubricate helical spring, pawl detent, and forward assist pawl with cleaner, lubricant, and preservative (CLP) (WP 0045, item 9) before installation.

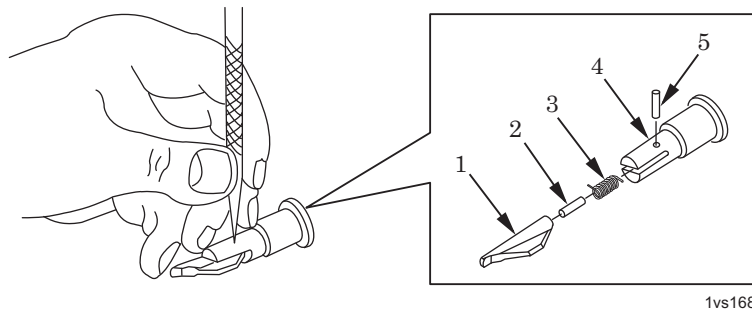
ASSEMBLY

Figure 2. Assembly of Forward Assist Assembly.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

1. Install helical spring (3), pawl detent (2), and forward assist pawl (1) into plunger assembly (4).
2. Align holes and install spring pin (5) using 1/16 in. drive pin punch and hammer. Spring pin must be flush or slightly below flush after reassembly.
3. Assemble rifle; refer to page TM 9-1005-319-10.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**LOWER RECEIVER AND BUTTSTOCK ASSEMBLY MAINTENANCE****DISASSEMBLY, INSPECTION — ACCEPTANCE AND REJECTION CRITERIA,
REPAIR OR REPLACEMENT, ASSEMBLY, TEST AND INSPECTION**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Pivot pin installation tool (WP 0030, Figure 4)

Pivot pin removal tool (WP 0030, Figure 3)

Slave pin (WP 0030, Figure 5)

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Lockwasher MS35335-61

Machine screw 9349128

Solid film lubricant (SFL) (WP 0045, item 20)

Technical dichloromethane (WP 0045, item 14)

References

TM 9-1005-319-10

WP 0015

WP 0023

WP 0024

WP 0025

WP 0039

Equipment Condition

Lower receiver and buttstock assembly removed (WP 0009)

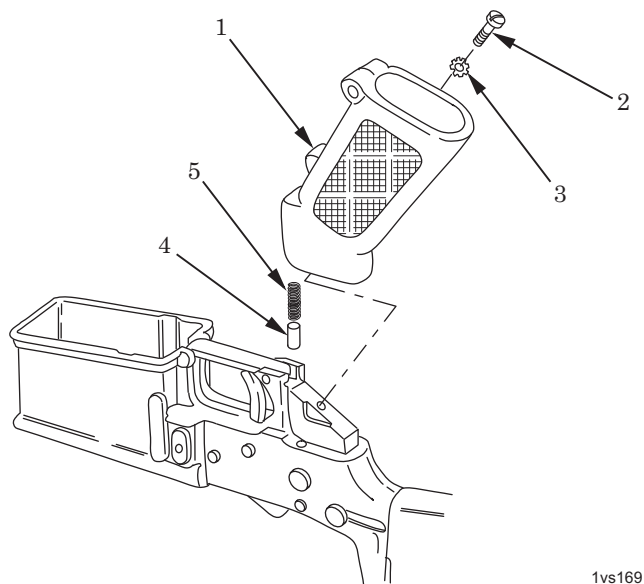
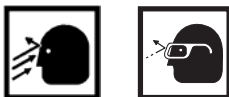
DISASSEMBLY

Figure 1. Removal of Pistol Grip.

1. Remove machine screw (2) and lockwasher (3). Discard lockwasher.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

2. Carefully remove pistol grip (1) and catch helical spring (5) and safety detent (4) to prevent loss.

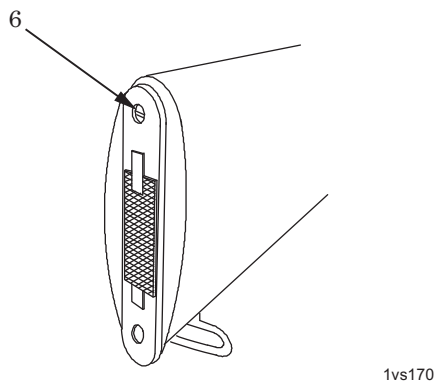
RIFLE ONLY

Figure 2. Removal of Machine Screw.

NOTE

If machine screw is removed, it must be discarded and replaced with a new one.

3. Remove and discard machine screw (6).

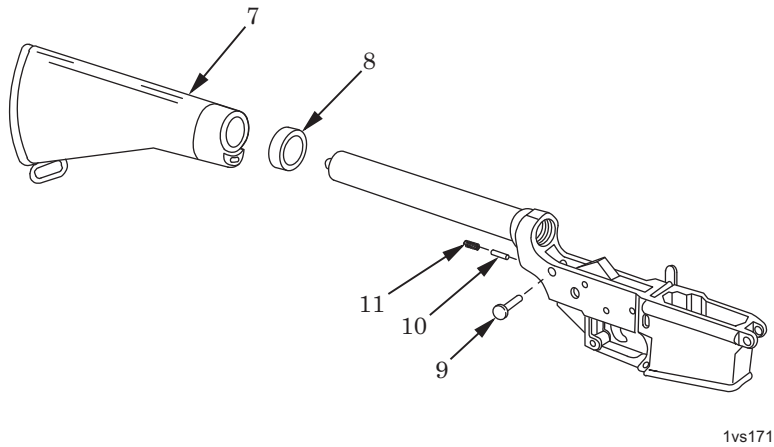


Figure 3. Removal of Buttstock Assembly (Rifle).

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

4. Remove buttstock assembly (7) carefully and catch helical spring (11), takedown pin detent (10), takedown pin (9), and stepped spacer (8) to prevent loss.

NOTE

If takedown pin detent will not come out, use a wire to push it out.

DISASSEMBLY - Continued

CARBINE ONLY

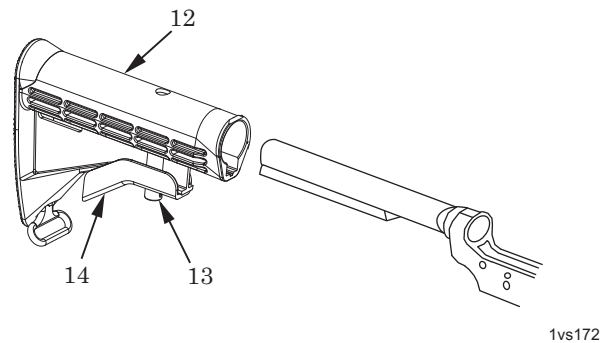


Figure 4. Removal of Buttstock Assembly (Carbine).

5. Extend buttstock assembly (12).
6. Grasp lock release lever (14) in area of retaining nut (13), pull downward, and slide buttstock assembly (12) to the rear to separate from lower receiver extension.

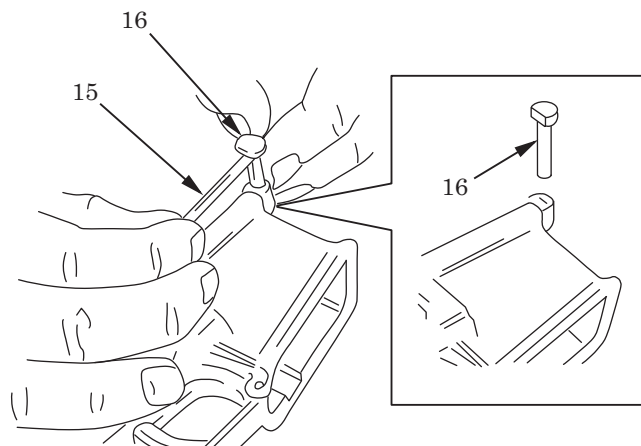
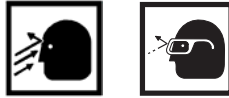


Figure 5. Removal of Pivot Pin.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

NOTE

Air Force Only: Lower receivers without a pivot pin detent are acceptable for use by Air Force personnel for all mission requirements worldwide. Refer to Air Force TO 11W3-5-5-24 for National Stock Numbers for replacement pivot pins.

Catch pivot pin detent and helical spring as pivot pin is removed.

7. Insert fabricated pivot pin removal tool (15) (WP 0030, Figure 3) to compress pivot pin detent. Turn pivot pin (16) a quarter turn. Remove tool and pivot pin.

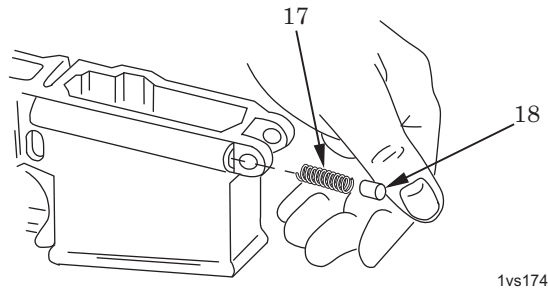


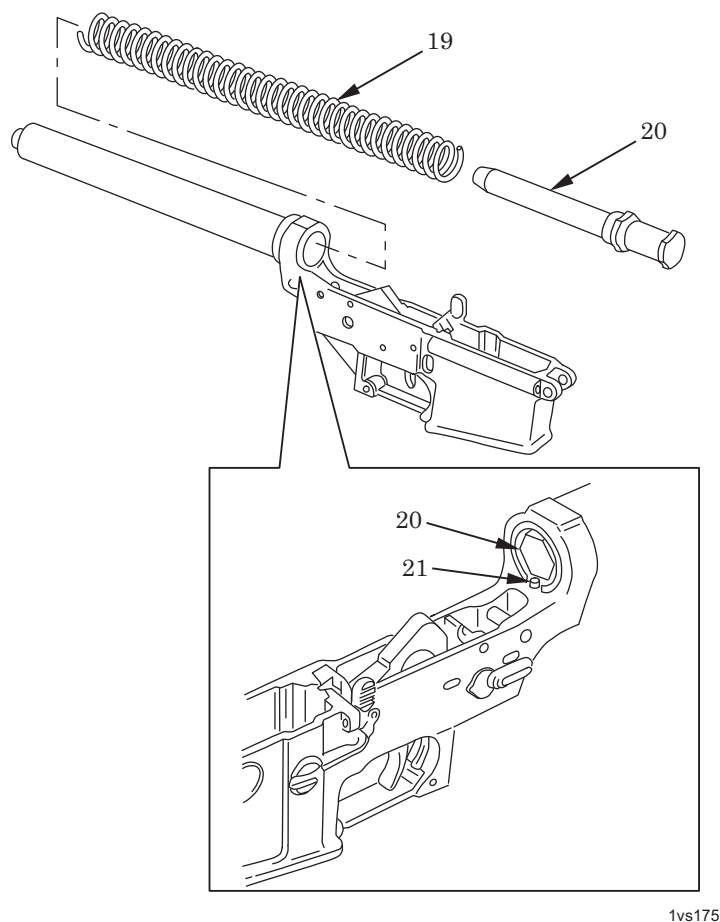
Figure 6. Removal of Detent and Helical Spring.

8. Catch pivot pin detent (18) and helical spring (17) in cupped hand to prevent loss.

NOTE

If helical spring will not come out, use a wire to pull it out.

DISASSEMBLY - Continued



1vs175

Figure 7. Removal of Buffer Assembly and Action Spring.

NOTE

Make sure hammer is cocked and selector lever is not set on BURST or AUTOMATIC before removing buffer assembly.

9. Press buffer assembly (20) in about 1/4 in. (0.635 cm). Depress buffer retainer (21) and release buffer assembly and action spring (19). Remove buffer assembly and action spring from receiver while depressing buffer retainer.

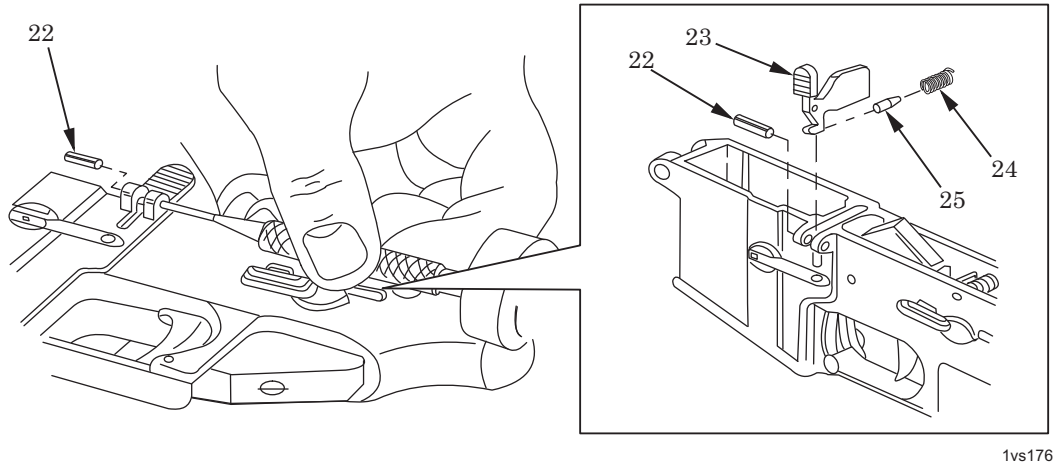
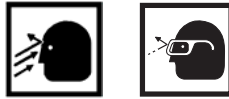


Figure 8. Removal of Bolt Catch.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

10. Remove spring pin (22) using 3/32 in. drive pin punch and hammer.
11. Remove bolt catch (23), bolt catch plunger (25), and bolt catch spring (24).

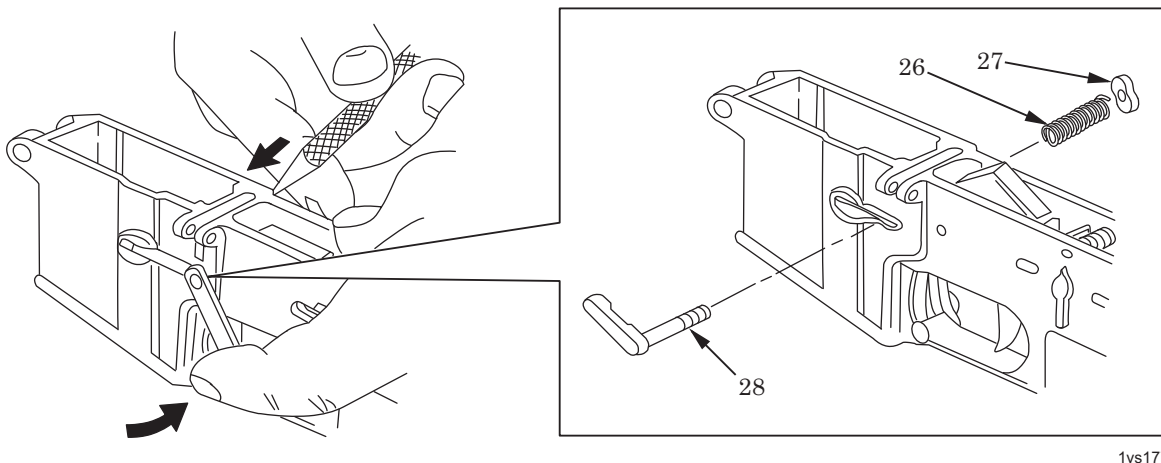


Figure 9. Removal of Magazine Catch.

12. Using drive pin punch, press magazine catch button (27) and turn magazine catch (28) counterclockwise to unscrew and remove.
13. Remove magazine catch button (27) and magazine catch spring (26).

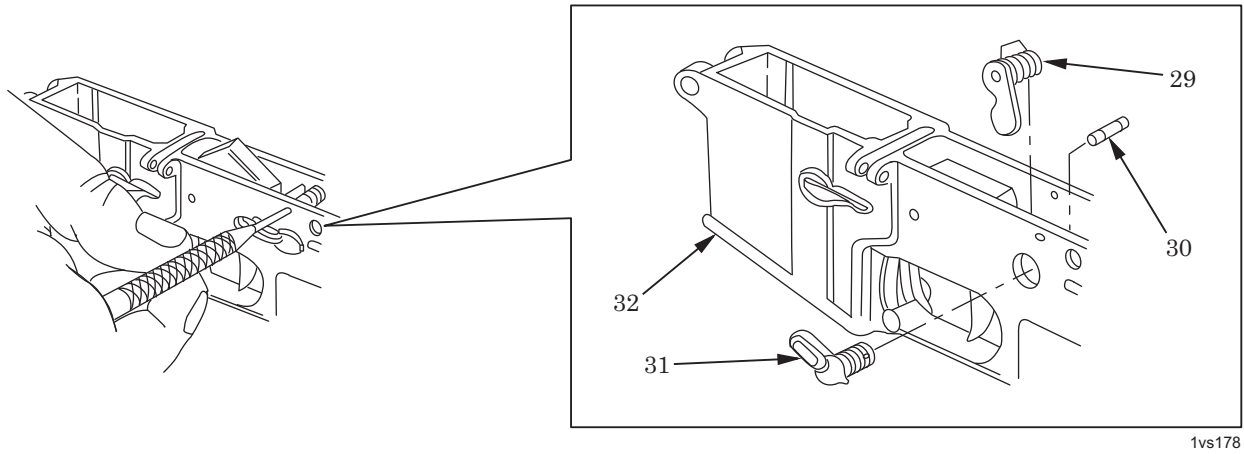
DISASSEMBLY - Continued

Figure 10. Removal of Sear and Selector Lever.

14. Use a rounded tip drive pin punch to push automatic sear pin (30) from lower receiver and receiver extension assembly (32).

NOTE

To remove automatic sear, selector lever must be positioned to BURST (if installed).

15. Remove automatic sear (29) and selector lever (31).

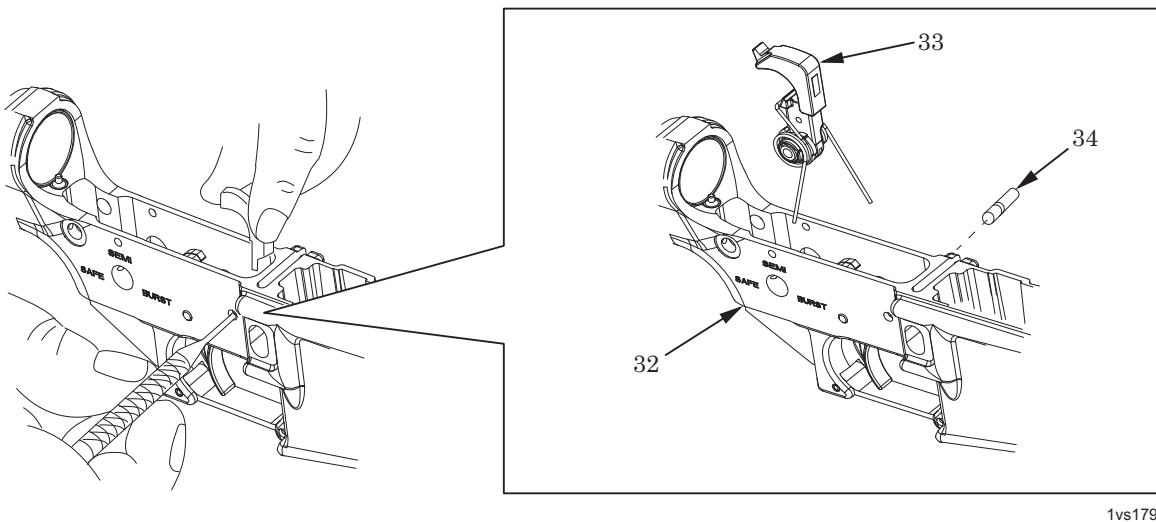
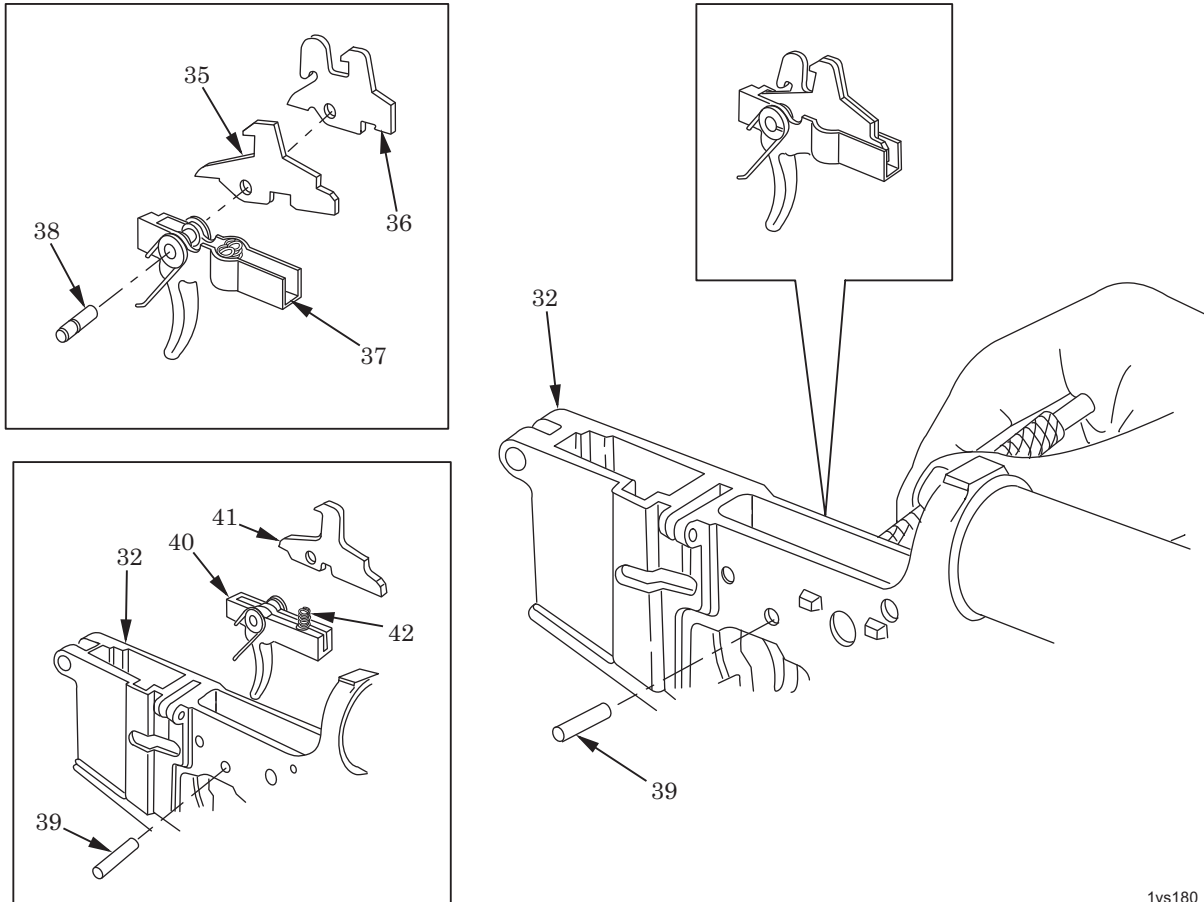


Figure 11. Removal of Hammer Assembly.

NOTE

To remove hammer assembly, place selector lever (if installed) to SEMI position.

16. Use drive pin punch to push hammer pin (34) from lower receiver and receiver extension assembly (32).
17. Remove hammer assembly (33). If further disassembly is required, see WP 0023.



1vs180

Figure 12. Removal of Trigger Assembly.

NOTE

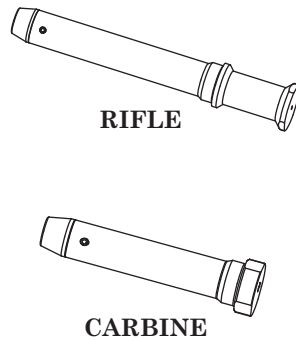
Use of fabricated slave pin will allow removal of the following parts as a unit.

18. Remove trigger pin (39) by pushing from the left side of lower receiver and receiver extension assembly (32) with fabricated slave pin (38) (WP 0030, Figure 5) and a drive pin punch.
19. Remove semiautomatic disconnecter (35), burst disconnecter (36), and trigger assembly (37). If further disassembly of trigger assembly is required, see WP 0024.

M16A3 and M4A1 ONLY

20. Remove disconnecter (41) and trigger assembly (40) with disconnecter spring (42) from lower receiver and receiver extension assembly (32).

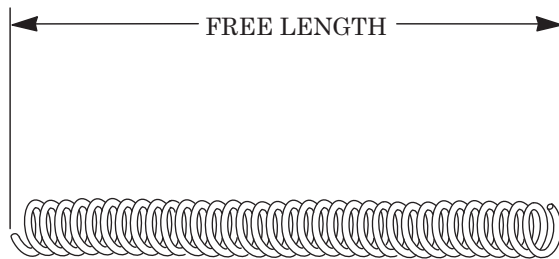
END OF TASK

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA

1vs181

Figure 13. Inspection of Buffer Assembly.

1. Inspect buffer assembly for cracks or damage. The buffer assembly has a hole with pin installed which protrudes equally on each side approximately 1/32 in. (0.08 cm).
2. If cracked or damaged, replace.



1vs182

Figure 14. Inspection of Action Spring.

3. Check free length of action spring. **RIFLE ONLY:** The free length must be between 11 3/4 in. (29.85 cm) minimum and 13 1/2 in. (34.29 cm) maximum. **CARBINE ONLY:** The free length must be between 10 1/16 in. (25.56 cm) minimum and 11 1/4 in. (28.58 cm) maximum. If measurements are not accurate, replace. Do not attempt to adjust the length by stretching the action spring.

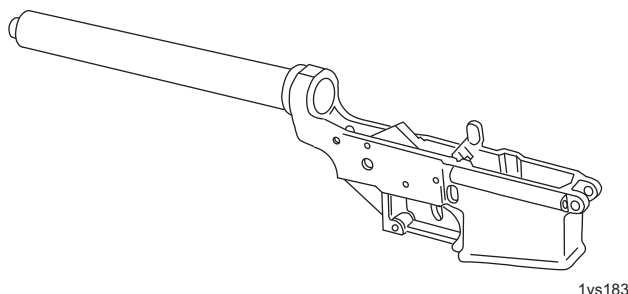


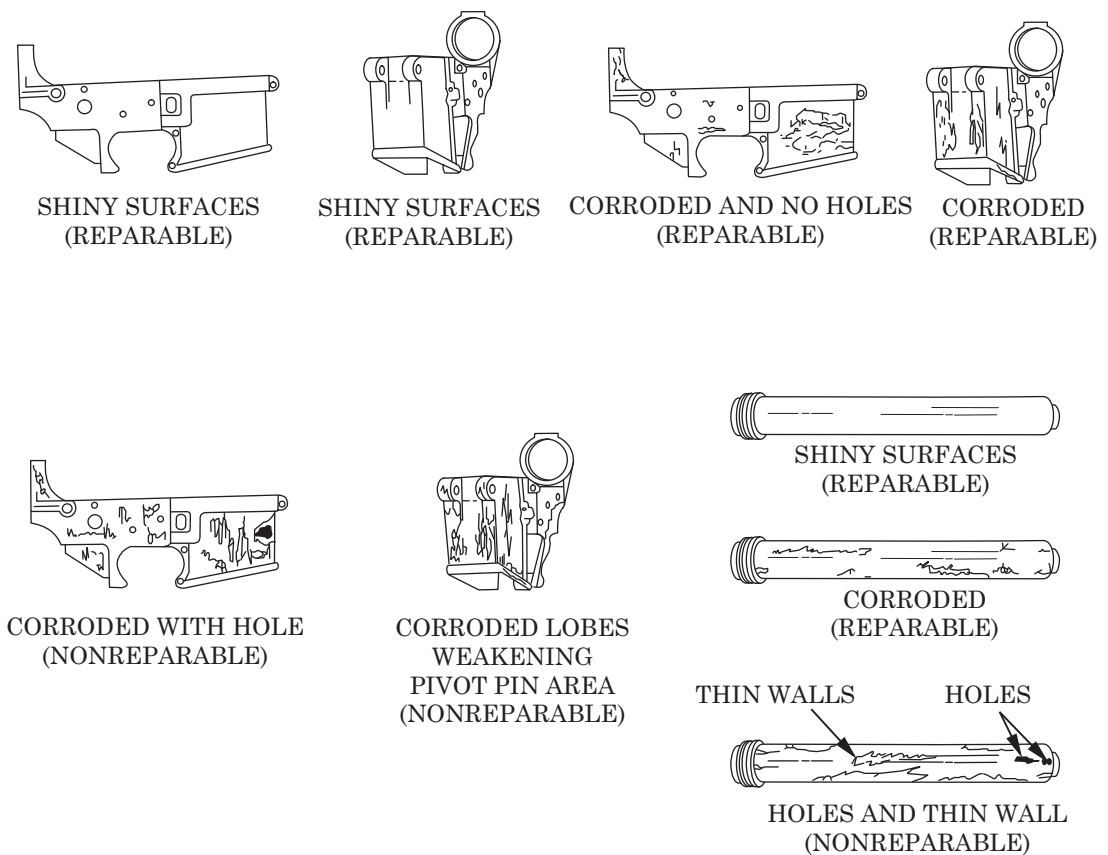
Figure 15. Inspection for Serial Number.

4. Inspect lower receiver and receiver extension assembly (without further disassembly) for legibility of serial number. **ARMY ONLY:** If the serial number is hard to read, see WP 0025 for repair. **AIR FORCE ONLY:** If the serial number is hard to read, evacuate to depot maintenance.

NOTE

See WP 0015 for repair of corroded surfaces.

5. Inspect lower receiver for corrosion in lower receiver lobes of pivot area or hinge pin area. If extensive corrosion appears in these areas, the receiver cannot be repaired; turn in weapon for replacement. Lower receiver extensions with shiny or corroded surfaces may be repaired. Lower receiver extensions with thin walls or holes must be replaced.



1vs184

Figure 16. Condemnation Criteria.

INSPECTION — ACCEPTANCE AND REJECTION CRITERIA - Continued**NOTE**

If a weapon's lower receiver is missing one third or more of its exterior protective finish, resulting in an unprotected, light-reflecting surface, it is candidate for overhaul. This missing finish will be considered a shortcoming. This shortcoming requires action to obtain a replacement weapon. Once a replacement has been received, evacuate the original weapon to depot for overhaul.

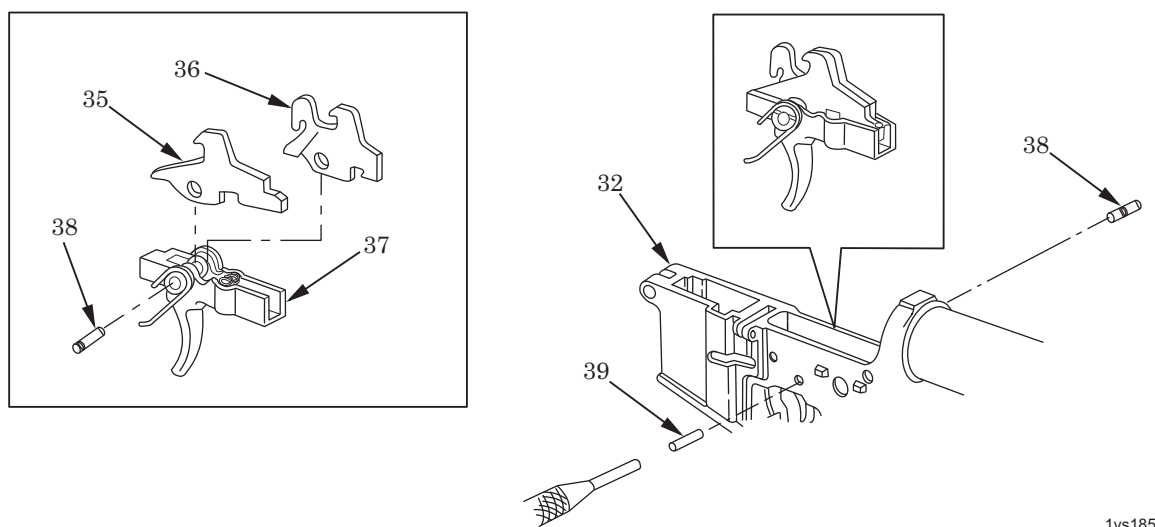
6. Inspect for missing or damaged parts. Inspect finish of lower receiver for shiny spots. Touch up with solid film lubricant (WP 0045, item 20) as required. See WP 0015 for procedure to repair shiny surfaces.

END OF TASK**REPAIR OR REPLACEMENT**

Repair or replace all defective parts of lower receiver and buttstock assembly as authorized by WP 0039.

ASSEMBLY

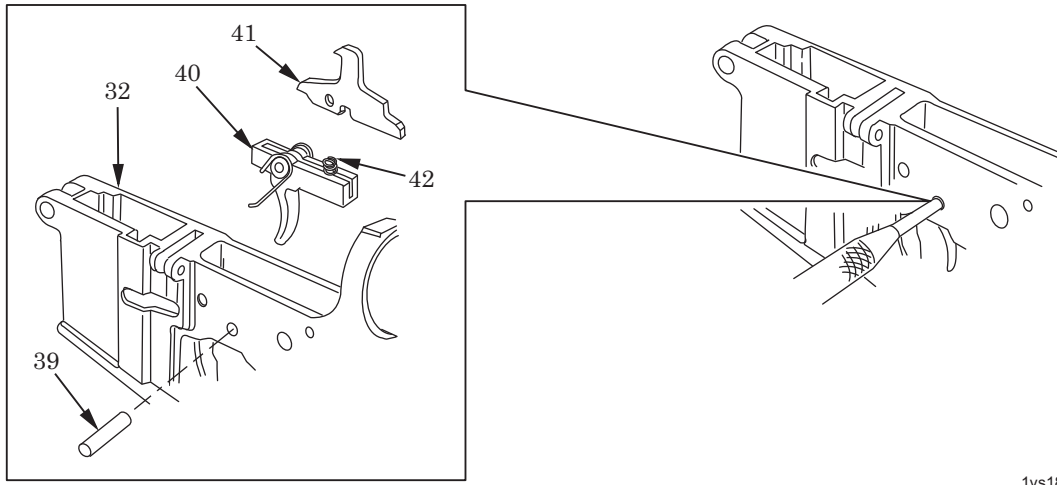
1. Clean and remove carbon deposits from all items. Lightly lubricate all metal components. Refer to TM 9-1005-319-10.



1vs185

Figure 17. Installation of Trigger Assembly (M16A2/M16A4/M4).

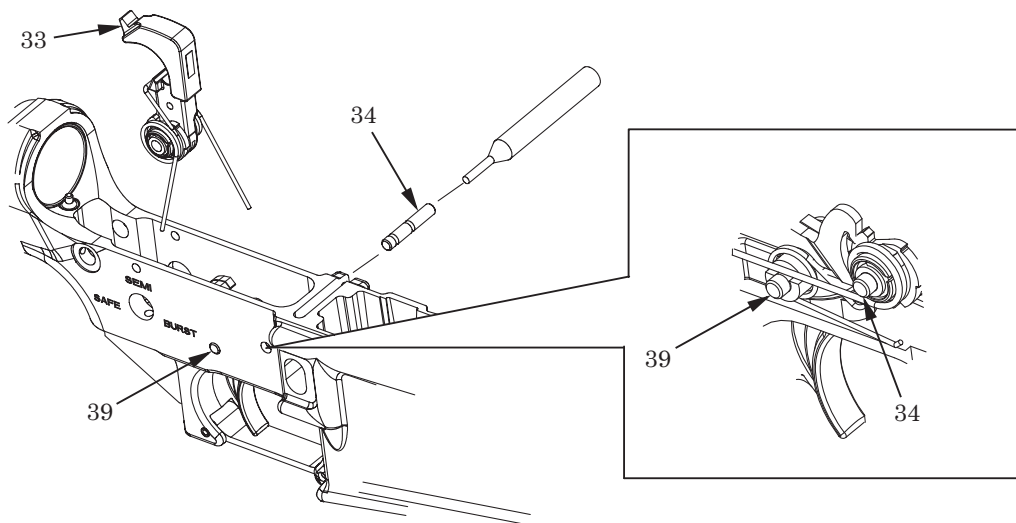
2. Assemble semiautomatic disconnecter (35), burst disconnecter (36), and trigger assembly (37). Install as a unit in lower receiver and receiver extension assembly (32) using slave pin (38) (WP 0030, Figure 5).
3. Install trigger pin (39) using drive pin punch. Push in until flush. Push out slave pin (38).

M16A3 and M4A1 ONLY

1vs186

Figure 18. Installation of Trigger Assembly (M16A3/M4A1).

4. Install trigger assembly (40), disconnector spring (42), and disconnector (41) into lower receiver and receiver extension assembly (32).
5. Install trigger pin (39) using drive pin punch. Push in until flush.



1vs187

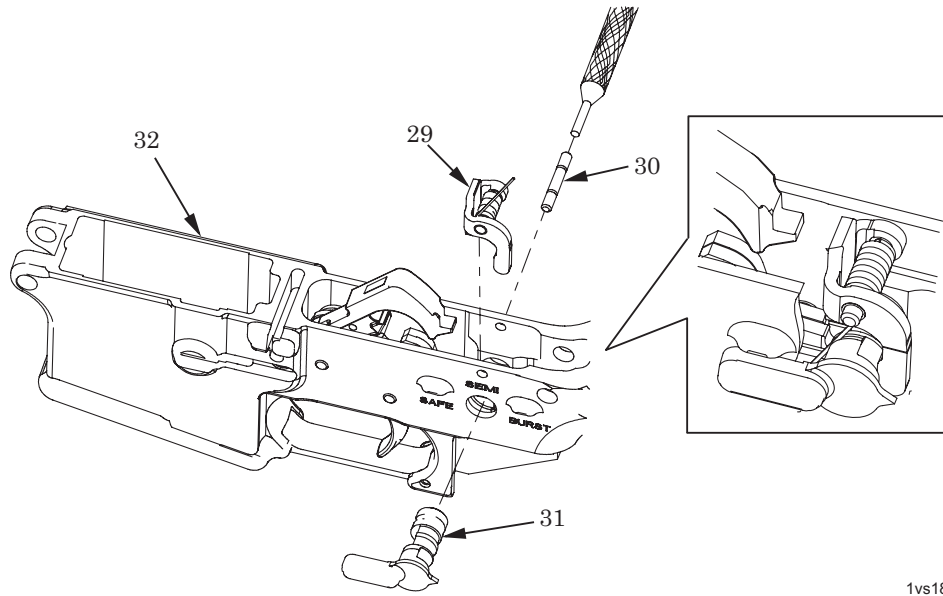
Figure 19. Installation of Hammer Assembly.

NOTE

Ends of hammer spring are installed to rear of trigger pin (39), resting in the annular groove on upper surface of trigger pin.

6. Install hammer assembly (33).
7. Install hammer pin (34) using drive pin punch. Push in until flush.

ASSEMBLY - Continued



1vs188

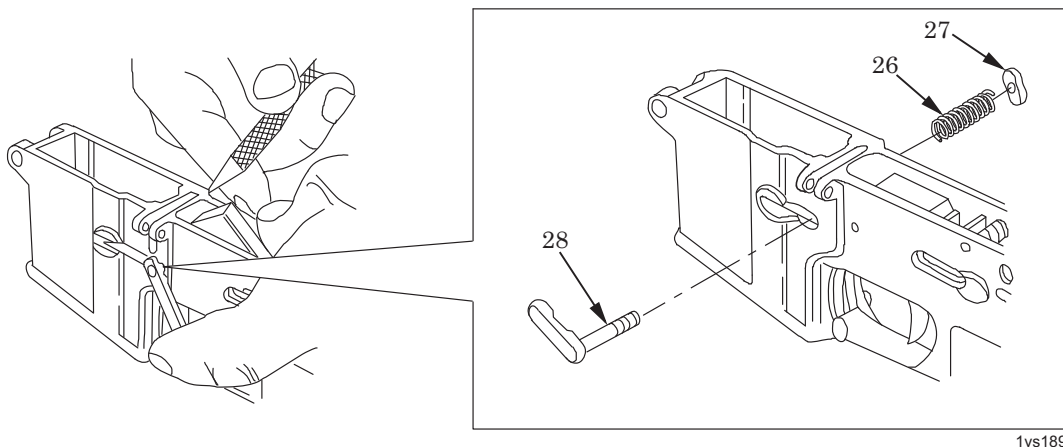
Figure 20. Installation of Sear and Selector Lever.

NOTE

Hammer assembly should be cocked prior to installing the selector lever.

Selector lever, if installed, must be positioned to BURST. Long leg of automatic sear spring must rest on top of selector lever.

8. Install selector lever (31) and automatic sear (29).
9. Install automatic sear pin (30) (install on the right side) into lower receiver and receiver extension assembly (32) using drive pin punch. Push in until flush.



1vs189

Figure 21. Installation of Magazine Catch.

10. Install magazine catch spring (26) and magazine catch button (27).

NOTE

Drive pin punch should be larger than hole in magazine catch button.

11. Install magazine catch (28). Push on magazine catch button (27) using drive pin punch and turn magazine catch clockwise until threaded end of magazine catch is flush with head of magazine catch button.

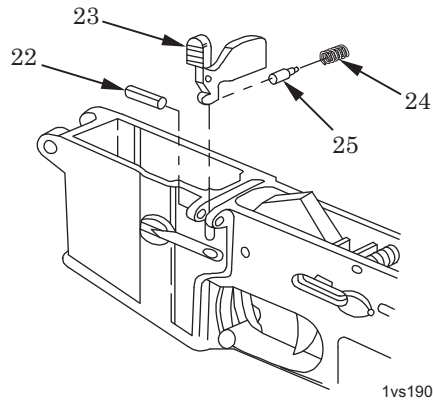


Figure 22. Installation of Bolt Catch.

12. Install bolt catch spring (24), bolt catch plunger (25), and bolt catch (23).
13. Secure by installing spring pin (22) using 3/32 in. drive pin punch and hammer.

ASSEMBLY - Continued

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

NOTE

Make sure hammer is cocked and selector lever is not set on BURST before installing buffer assembly.

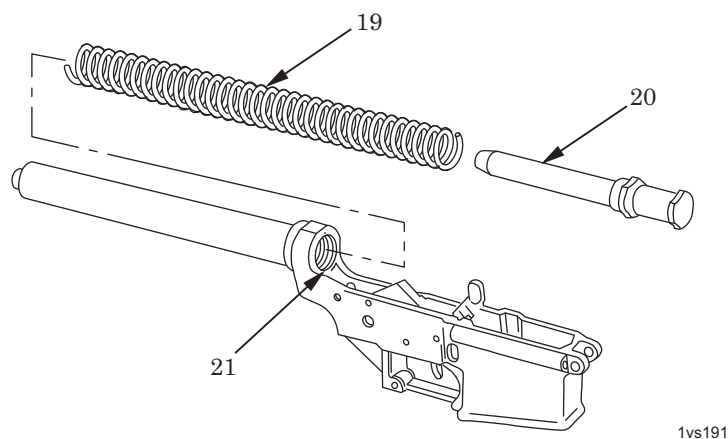


Figure 23. Installation of Action Spring and Buffer Assembly.

14. Press action spring (19) and buffer assembly (20) until buffer retainer (21) snaps up and holds them in place.

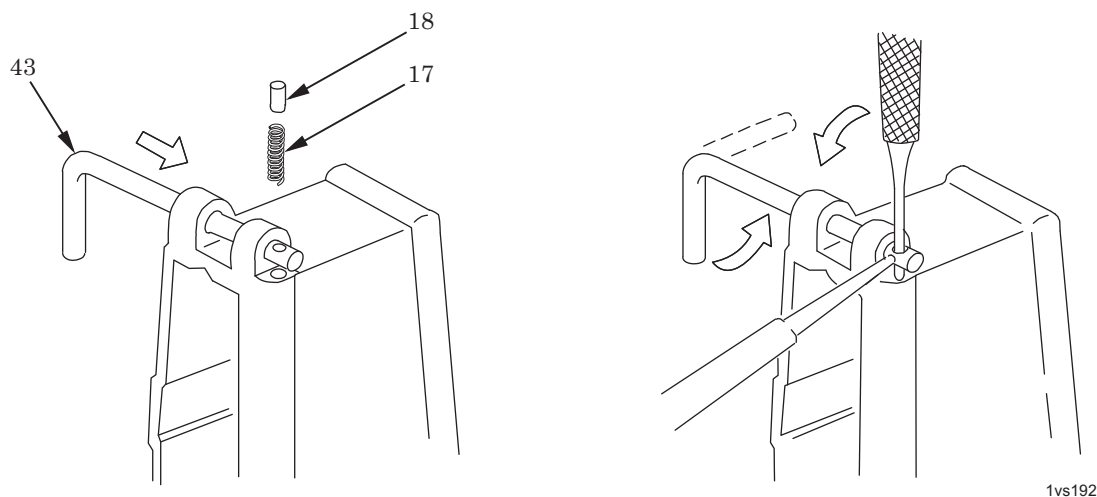


Figure 24. Installation of Pivot Pin Detent.

NOTE

Lower receivers without pivot pin detent may be used for all **Air Force** mission requirements.

15. Install fabricated pivot pin installation tool (43) (WP 0030, Figure 4). Insert helical spring (17) and pivot pin detent (18). Compress pivot pin detent in recess with punch and rotate tool. Remove punch.

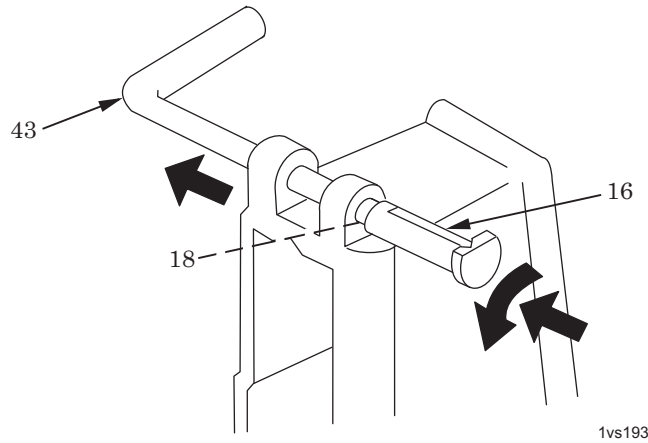
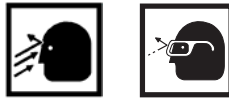


Figure 25. Installation of Pivot Pin.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

NOTE

Rounded end of pivot pin detent must be in groove of pivot pin when assembly is complete.

16. Position pivot pin (16) and, removing fabricated pivot pin installation tool (43) while maintaining pressure, slide pivot pin into hole. Rotate pivot pin to receive pivot pin detent (18).

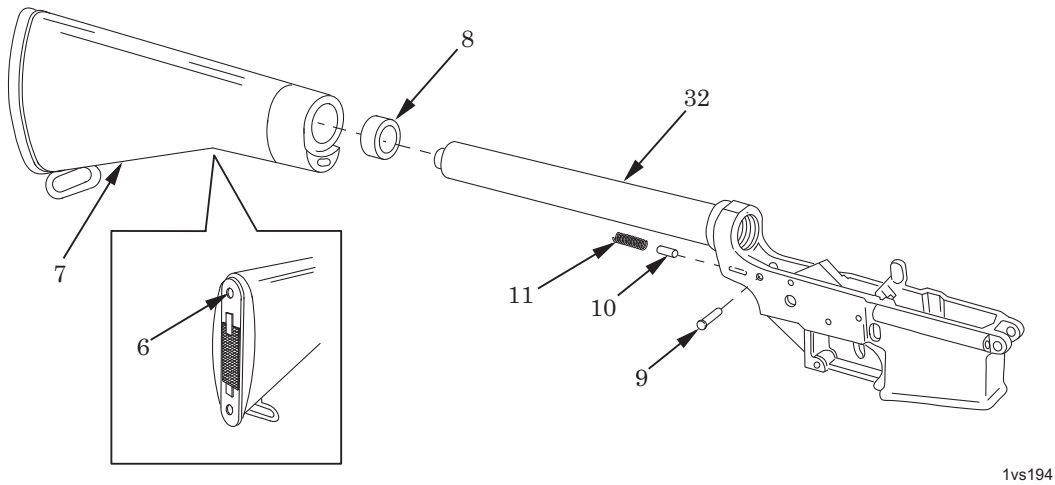
ASSEMBLY - Continued

Figure 26. Installation of Buttstock Assembly (Rifle).

RIFLE ONLY**CAUTION**

Do not kink helical spring during assembly.

17. Visually inspect takedown pin (9), takedown pin detent (10), and helical spring (11) before installation. Install takedown pin with groove toward the rear. Install takedown pin detent and helical spring from the rear.
18. Install stepped spacer (8) on lower receiver and receiver extension assembly (32) and carefully slide buttstock assembly (7) into position to compress helical spring (11).

NOTE

Machine screw, if removed, must be discarded and replaced with a new one.

19. Install new machine screw (6) to secure buttstock assembly (7).

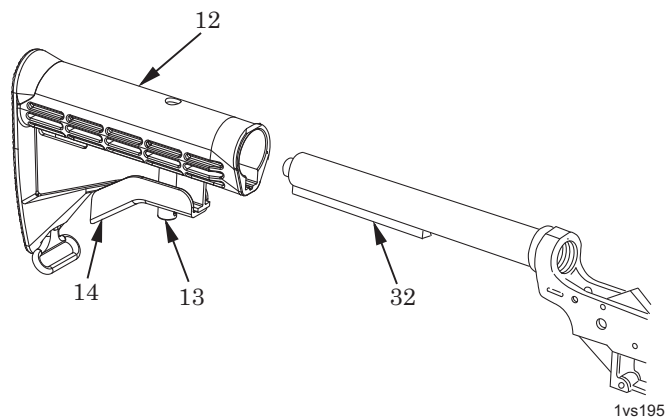
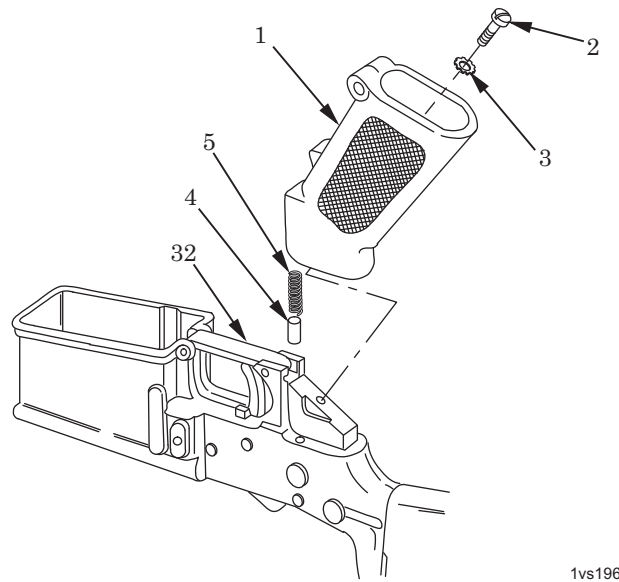
CARBINE ONLY

Figure 27. Installation of Buttstock Assembly (Carbine).

20. Pull down lock release lever (14) in area of retaining nut (13) and reinstall buttstock assembly (12) onto lower receiver and receiver extension assembly (32).

ASSEMBLY - Continued**ALL WEAPONS**

1vs196

Figure 28. Installation of Pistol Grip.

WARNING

Any screw longer than 1 1/8 inch used with enhanced rifle grip part number 9349127 could cause a hazardous situation.

CAUTION

Do not kink helical spring during assembly.

21. Install safety detent (4), pointed end first, and helical spring (5) into bottom of lower receiver and receiver extension assembly (32).

NOTE

A portion of the helical spring will fit in a hole in the pistol grip.

When utilizing the enhanced rifle grip (it has a bump between the second and third finger for a better grip) PN 9349127, rifle grip screw, PN AN501D416-18 (1 1/8 in.) or AN501D416-16 (1 in.), is authorized to be used with the enhanced grip.

Ensure the washer is in place.

22. Carefully install pistol grip (1) to compress helical spring (5). Secure pistol grip in place with new lockwasher (3) and machine screw (2).

23. Reassemble weapon; refer to TM 9-1005-319-10.

END OF TASK

TEST AND INSPECTION

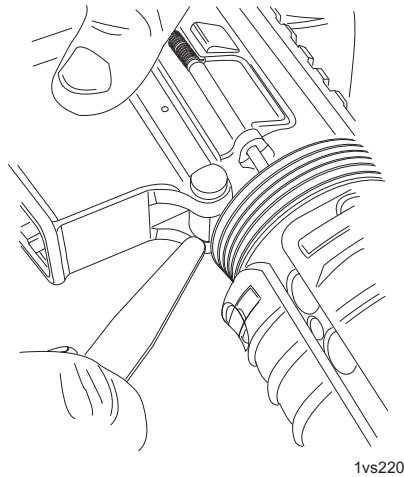


Figure 29. Use of Thickness Gage.

1. With the upper receiver attached to the lower receiver, and the pivot pin and takedown pins in place, perform the following test:
 - a. Apply hand pressure to push the upper receiver as far to one side as possible.
 - b. Attempt to insert a 0.020 in. thickness gage between the pivot pin lugs of the upper and lower receivers.
 - c. If the thickness gage penetrates to the pivot pin at all accessible locations, repair by replacement of the upper receiver or replacement of weapon is required.
2. If weapon fails the above test, remove the upper receiver and install a "NEW" upper receiver and perform the test again.
3. If weapon now passes the above test, it shall be considered serviceable and continue in use.
4. If weapon fails the test with a new upper receiver, this failure shall be considered a shortcoming. This shortcoming requires action to obtain a replacement weapon. Once a replacement has been received, evacuate the original weapon to depot for overhaul.

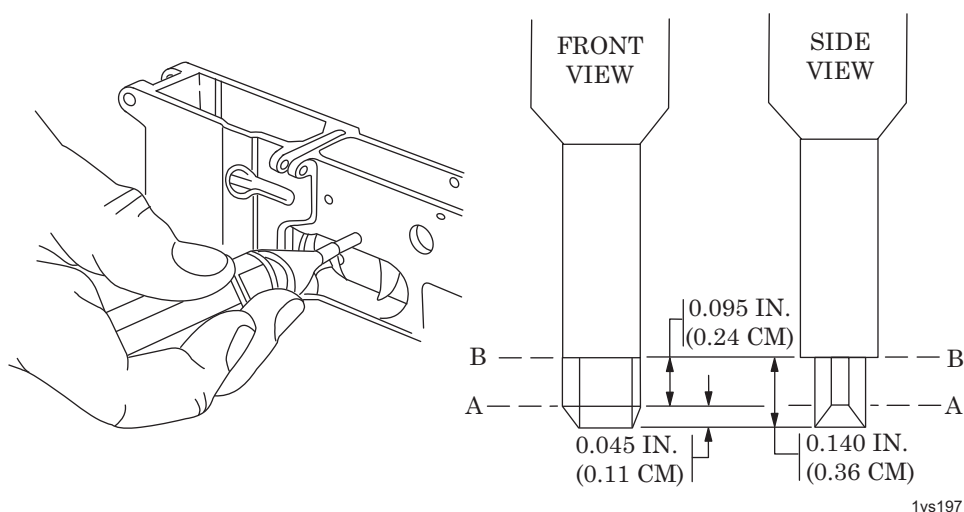
TEST AND INSPECTION - Continued

Figure 30. Use of Trigger and Hammer Gage.

NOTE

If the lower receiver is not disassembled, visually inspect for broken or damaged parts, and to ensure that the hammer and trigger springs are correctly installed before beginning this test. It is not necessary to disassemble the lower receiver for the sole purpose of this visual inspection. If broken or damaged parts are found, disassemble and repair as authorized.

5. Test two hammer pin holes and two trigger pin holes using no-go plug gage PN 12006472. This test may be conducted by disassembly of the lower receiver or by pushing the pin far enough to disengage the end of the pin from the side of the receiver which is being tested. If the lower receiver is not disassembled and the no-go plug gage enters any hole to first shoulder (A), the lower receiver must be disassembled and all four holes must be tested again.
6. Gently insert the no-go plug gage and rotate it 180 degrees. If the no-go plug gage passes into any one of the four pin holes to the second shoulder (B), the weapon is unserviceable and will be turned in for replacement.
7. After completion of gaging operation, visually inspect hammer and trigger springs to ensure proper location of spring legs.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**BUTTSTOCK ASSEMBLY MAINTENANCE****DISASSEMBLY, CLEANING, REPAIR OR REPLACEMENT, LUBRICATION, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

References

TM 9-1005-319-10

WP 0021

WP 0039

Equipment Condition

Buttstock assembly removed from lower receiver and buttstock assembly (WP 0021)

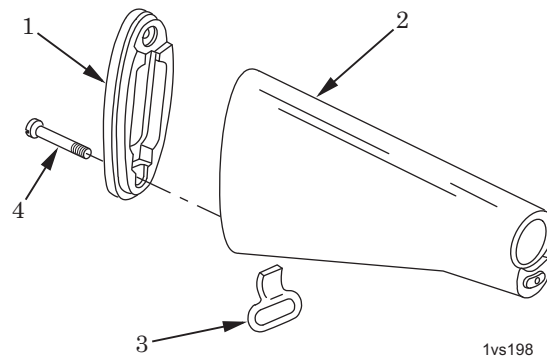
DISASSEMBLY**RIFLE ONLY**

Figure 1. Removal/Installation of Buttplate.

1. Remove machine screw (4), small sling swivel (3), and buttplate (1) from buttstock (2).

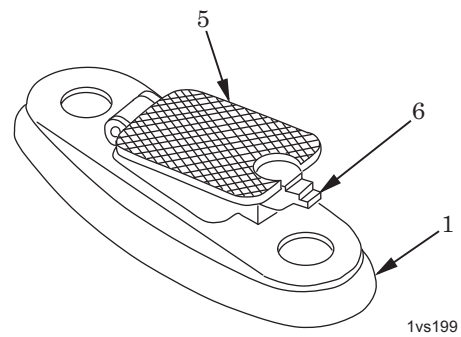
DISASSEMBLY - Continued

Figure 2. Removal/Installation of Door Assembly.

2. Push down on plunger (6) and lift door assembly (5) from buttplate (1).

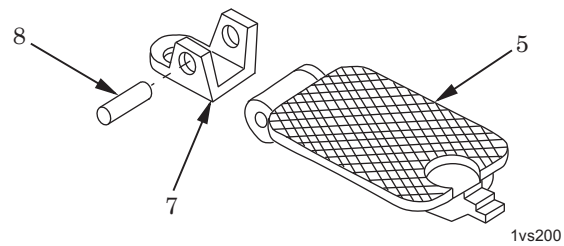


Figure 3. Disassembly/Assembly of Door Assembly.

3. Remove straight pin (8) and separate hinge (7) and door assembly (5).

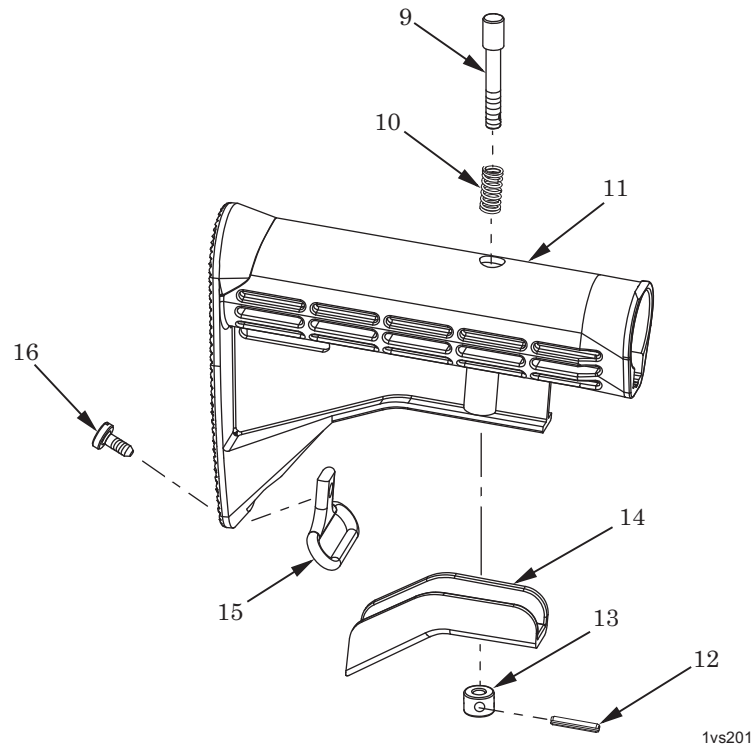
CARBINE ONLY

Figure 4. Disassembly/Assembly of Buttstock Assembly (Carbine).

4. Tap out spring pin (12) located in oval slot of self-locking nut (13), using 1/16 in. punch.
5. Insert index finger into forward end of buttstock (11) and push down on headless shoulder pin (9). Unscrew self-locking nut (13) and remove lock release lever (14), headless shoulder pin, and helical spring (10). Remove machine screw (16) and small sling swivel (15).

END OF TASK**CLEANING**

RIFLE ONLY: Clean all parts with cleaner, lubricant, and preservative (CLP) (WP 0045, item 9). Use brush to clean knurled surface of door assembly.

END OF TASK**REPAIR OR REPLACEMENT**

1. Inspect buttstock for cracks using the following guidelines:
 - a. Under the following conditions, hairline cracks (no chipped away material allowed) originating from buttplate end of buttstock are acceptable.
 - (1) One hairline crack, not to exceed 1 in. (2.54 cm) in length, per side of buttstock.
 - (2) Two additional hairline cracks up to 0.25 in. (0.64 cm) in length, per side of buttstock.
 - (3) A total of three cracks per side of buttstock, originating from buttplate end, are allowable.

REPAIR OR REPLACEMENT - Continued

- b. Cracks in the critical area at the front end of the buttstock are not acceptable and these buttstocks must be replaced.
2. While buttplate is installed on rifle, inspect for cracks around the mounting holes. Check for cracks in excess of 0.25 in. (0.64 cm) in length which extend through the buttplate. Replace if cracked.
3. Inspect door assembly for cracks, corrosion, stuck plunger, separations on outer face, or other damage. Replace if defective.
4. Inspect buttstock for unauthorized markings. M16A2 buttstocks, PN 9349121, with unauthorized markings may be used under the following conditions:
 - a. The only authorized markings are those which are temporary in nature, i.e., paint, tape, etc.
 - b. When marking a buttstock, only use temporary markings.
 - c. Buttstocks with unauthorized markings that have been stamped into the surface of the buttstock will not be used.
 - d. Unauthorized markings that have previously been scratched, etched, carved, etc. may continue in use if the marks do not extend into the fiber of the buttstock. Cutting into the fiber of the buttstock may weaken it.
 - e. These marks may be at any location on the buttstock. Unauthorized markings are not desirable. However, if previously applied, they will be allowed to continue in use due to the cost of the buttstock.
5. Replace all unserviceable items as authorized by WP 0039.

END OF TASK**LUBRICATION**

Lubricate all metal components; refer to TM 9-1005-319-10.

END OF TASK**ASSEMBLY****RIFLE ONLY**

1. Position hinge (7) on door assembly (5) and install straight pin (8).
2. Install door assembly (5) into buttplate (1) and press plunger (6) to lock.
3. Position buttplate (1) and small sling swivel (3) to buttstock (2) and secure with machine screw (4).

NOTE

See WP 0021 for reassembly of buttstock assembly to lower receiver.

CARBINE ONLY

4. Insert helical spring (10) onto headless shoulder pin (9).
5. Insert headless shoulder pin (9) and helical spring (10) into hole on top of buttstock (11), threaded end first.
6. Insert index finger into forward end of buttstock (11) and push down on headless shoulder pin (9).
7. Install lock release lever (14) onto threaded portion of headless shoulder pin (9) protruding through bottom of buttstock (11).
8. Screw on self-locking nut (13) until flush with headless shoulder pin (9). Align slot in self-locking nut with spring pin hole in headless shoulder pin.
9. Lightly tap spring pin (12) until flush on both sides of self-locking nut (13).
10. Attach small sling swivel (15) with machine screw (16).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HAMMER ASSEMBLY MAINTENANCE
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Equipment Condition**

Hammer assembly removed (WP 0021)

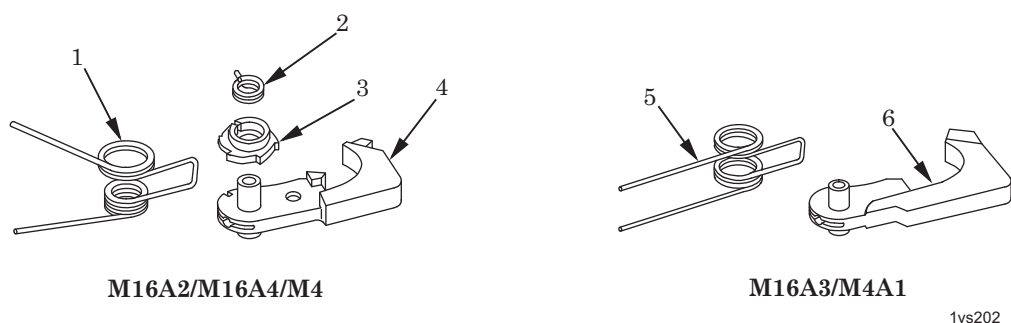
DISASSEMBLY

Figure 1. Disassembly of Hammer Assembly.

NOTE

M16A2 burst cam is black. M4 burst cam is nickel colored (shiny).

M16A2, M16A4, and M4: Remove hammer spring (1), burst cam spring (2), and burst cam (3) from hammer and hammer pin retainer assembly (4). **M16A3 and M4A1:** Remove hammer spring (5) from hammer (6).

END OF TASK**REPAIR OR REPLACEMENT**

1. Inspect hammer spring for deformities, breaks, and bends. Pay special attention to the large coil. Replace hammer spring if defective.
2. Inspect burst cam spring and burst cam for deformities, breaks, and bends; replace if defective.
3. Inspect hammer and hammer pin retainer assembly for chips and breaks. Hammer pin should click home under strong finger pressure. Install hammer pin into hole in hammer to check spring retention of the hammer pin. Replace hammer and hammer pin retainer assembly if defective.

END OF TASK

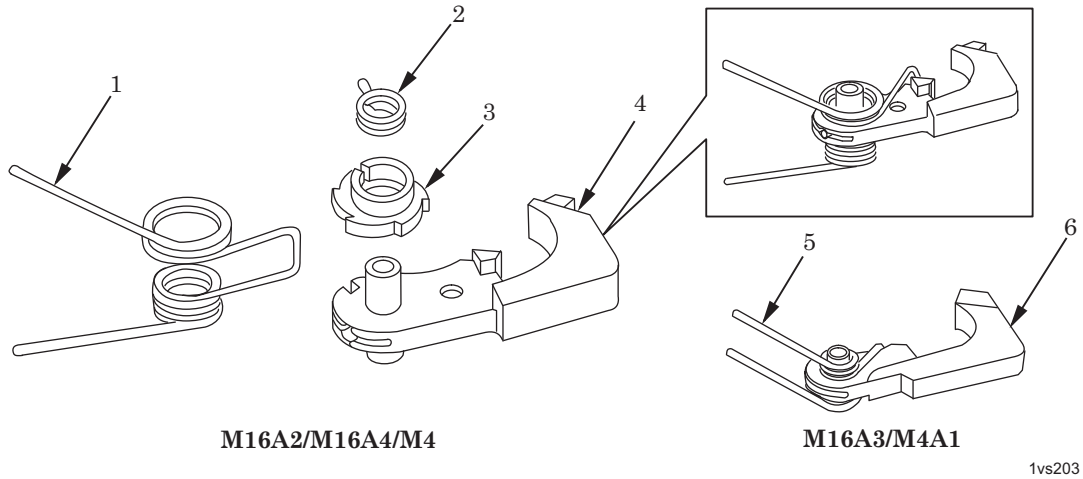
ASSEMBLY

Figure 2. Assembly of Hammer Assembly.

NOTE

M16A2 burst cam is black. M4 burst cam is nickel colored (shiny).

Burst cam spring should be assembled with bend to the inside. The large loop of the hammer spring should be assembled over the burst cam (M16A2/M16A4/M4).

M16A2, M16A4, and M4: Install burst cam (3), burst cam spring (2), and hammer spring (1) on hammer and hammer pin retainer assembly (4). **M16A3 and M4A1:** Install hammer spring (5) on hammer (6).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
TRIGGER ASSEMBLY AND TRIGGER SUBASSEMBLY MAINTENANCE
DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY

INITIAL SETUP:**Tools and Special Tools**

Bolt carrier key tool (WP 0039, Figure 23, item 12)

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

Equipment Condition

Trigger assembly removed (WP 0021)

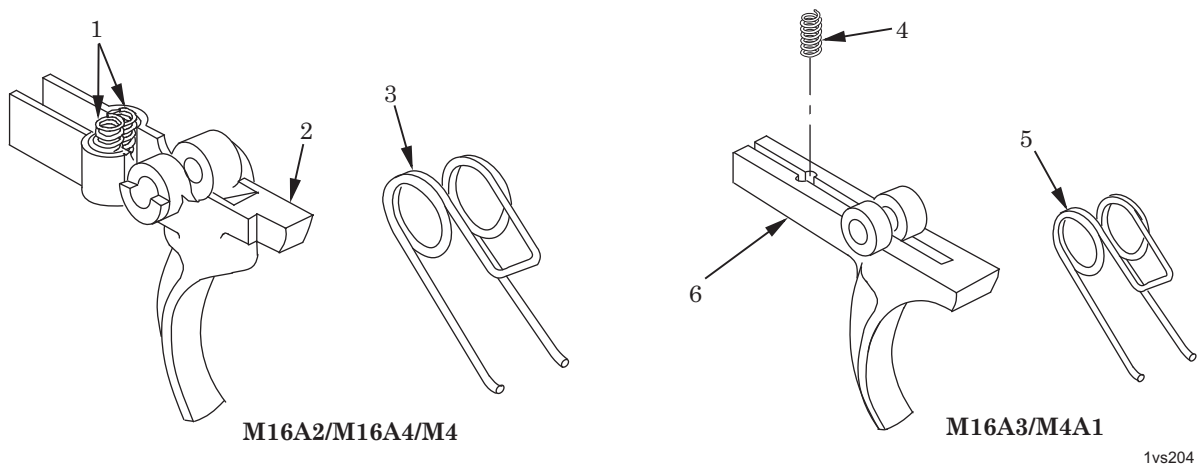
DISASSEMBLY

Figure 1. Disassembly of Trigger Assembly.

NOTE

Do not remove disconnector springs unless required for repair.

M16A2, M16A4, AND M4 ONLY

1. Remove trigger spring (3) and two disconnector springs (1) from trigger (2).

M16A3 AND M4A1 ONLY

2. Remove disconnector spring (4) and trigger spring (5) from trigger (6).

END OF TASK

REPAIR OR REPLACEMENT

1. Inspect trigger spring for kinks, deformities, and weakness. Replace if defective.
2. Inspect disconnecter springs for deformities, bends, breaks, and weakness. Replace if defective.
3. Inspect trigger for chips, wear, and cracks. Inspect for damaged searing surface on the trigger nose. Replace if defective.

END OF TASK

ASSEMBLY

M16A2, M16A4, and M4 ONLY

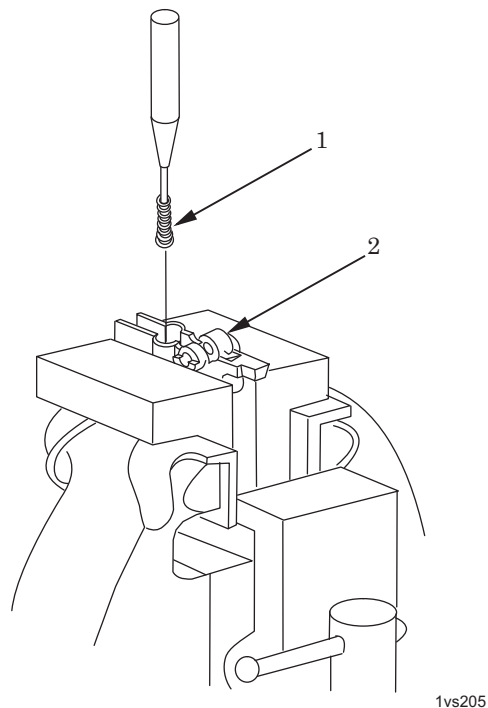


Figure 2. Installation of Disconnecter Springs (M16A2/M16A4/M4).

NOTE

Use bolt carrier key tool (WP 0039, Figure 23, item 12) to install disconnecter springs.

M4 CARBINE ONLY: The semi and burst disconnecter springs are not the same. The semi disconnecter spring (left side) is black while the burst disconnecter spring (right side) is nickel (shiny). Ensure that the correct spring is installed on each side for proper functioning.

1. Use the following procedure to install two disconnecter springs (1) using the bolt carrier key tool:
 - a. Secure trigger (2) in soft vise jaws or similar device.

- b. Place one spring (1) firmly on the tool with large diameter coils outward.
- c. Press spring (1) into recess to solid height.
- d. Hold spring (1) at solid height and slide spring into one of the holes until the punch is flush and perpendicular with the recess wall.
- e. Turn spring (1) one to two turns opposite of coil winding of the spring.
- f. Discontinue winding when an audible click or snap is heard or felt. This indicates that the spring is seated.
- g. Hold spring (1) in place when removing the tool to avoid unseating or damaging the spring.

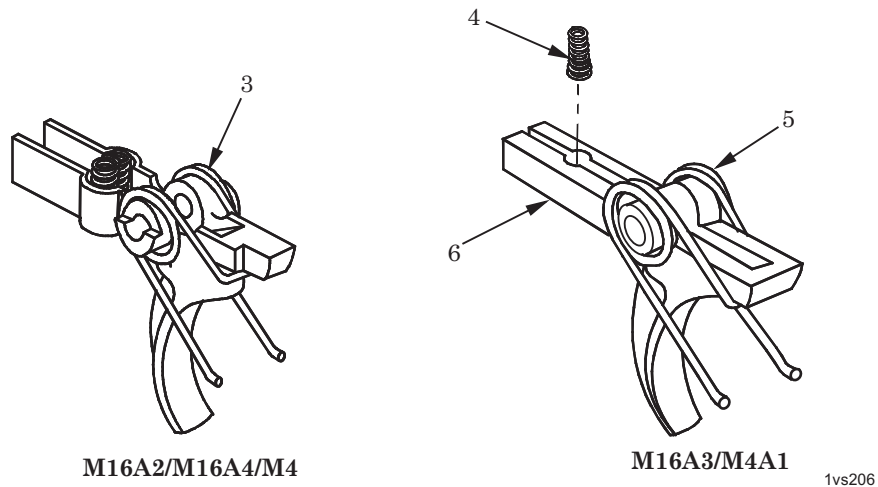


Figure 3. Installation of Trigger Spring.

M16A2, M16A4, and M4 ONLY

2. Install trigger spring (3).

M16A3 and M4A1 ONLY

3. Install disconnect spring (4) by inserting large end of spring into trigger (6).
4. Install trigger spring (5) on trigger (6).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M16A2) 9349101,
(M16A3) 12012002, (M16A4) 12598102, (M4) 9390011, AND (M4A1) 12972690 MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, ASSEMBLY**

INITIAL SETUP:**Tools and Special Tools**

Combination wrench (WP 0039, Figure 23, item 10)
Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11
Small Arms Tool Kit, SC 5180-95-B71
Spanner wrench (WP 0039, Figure 23, item 13)

Materials/Parts

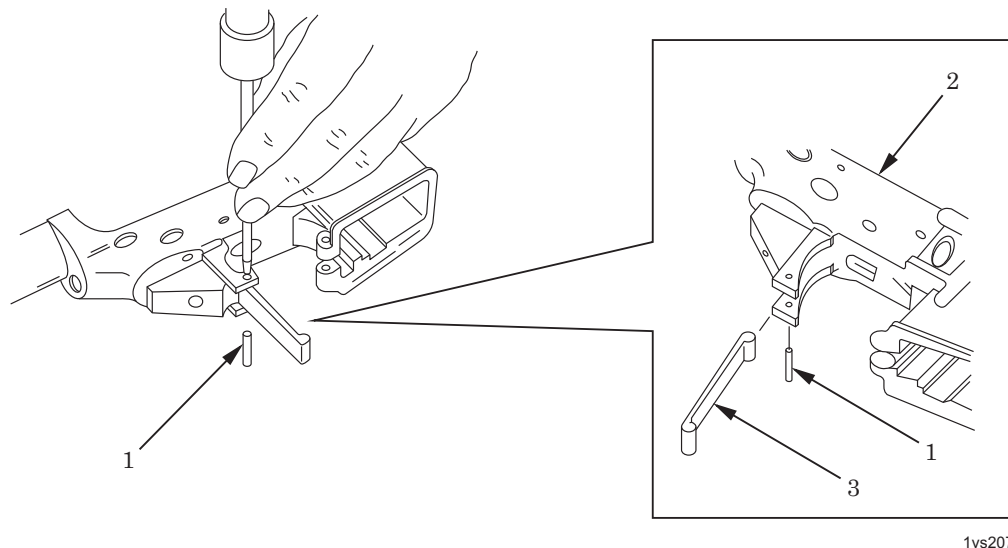
Abrasive cloth (WP 0045, item 13)
Molybdenum disulfide grease (WP 0045, item 18)
Solid film lubricant (SFL) (WP 0045, item 20)

References

WP 0021

Equipment Condition

Lower receiver and receiver extension assembly removed (WP 0021)

DISASSEMBLY

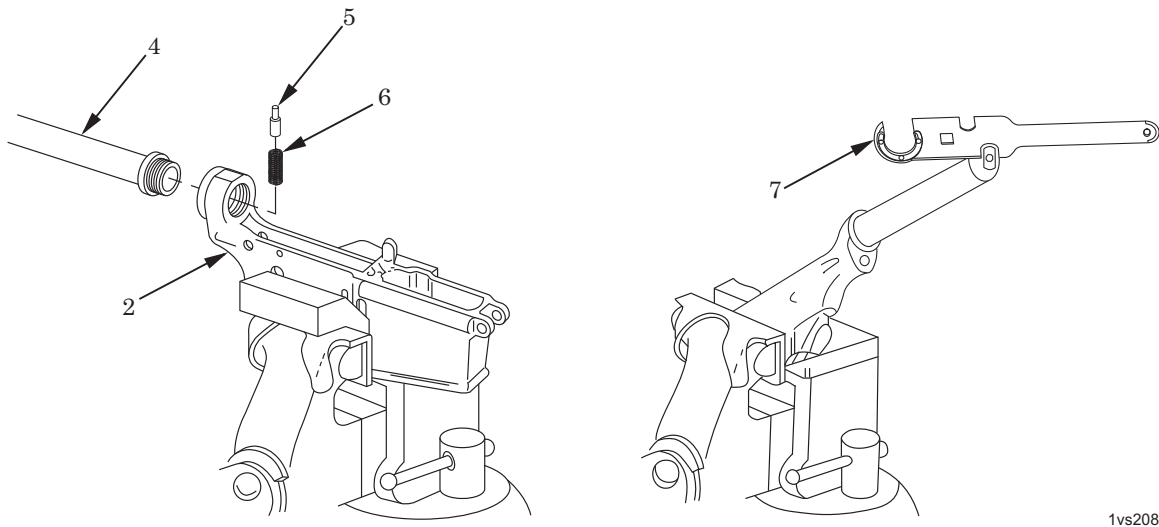
1vs207

Figure 1. Removal of Trigger Guard.

1. Remove spring pin (1) from lower receiver (2) using 1/8 in. drive pin punch and hammer.
2. Remove trigger guard (3).

DISASSEMBLY - Continued**RIFLE ONLY****NOTE**

Use padding between lower receiver and brass vise jaws. Grip the solid portion of the lower receiver with brass vise jaws which conform to the shape of the lower receiver in this area.



1vs208

Figure 2. Removal of Lower Receiver Extension (Rifle).

3. Clamp lower receiver (2) in a machinist's vise using vise jaw caps and tighten on solid portion just tight enough to hold.

WARNING

To avoid injury to your eyes, use care when removing spring-loaded parts.

NOTE

As lower receiver extension is removed, catch buffer retainer and helical spring. Lower receiver is a serial number controlled item.

4. Remove lower receiver extension (4) from lower receiver (2) using combination wrench (7) (WP 0039, Figure 23, item 10). Catch buffer retainer (5) and helical spring (6).

CARBINE ONLY**NOTE**

Use wooden vise jaws in place of brass vise jaw caps.

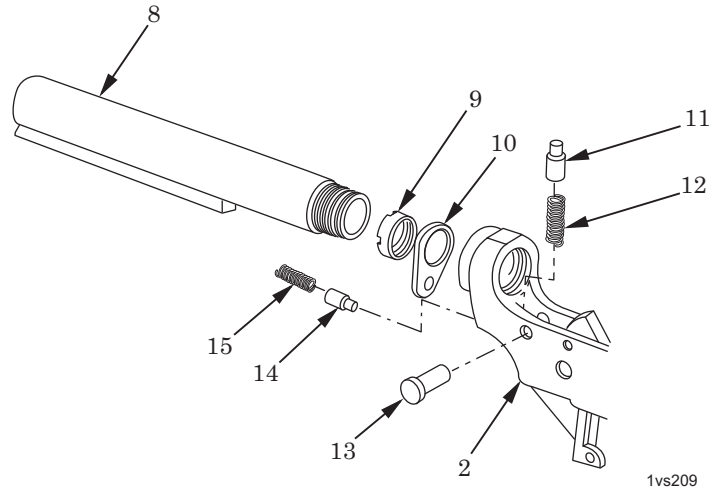


Figure 3. Removal of Lower Receiver Extension (Carbine).

5. Clamp lower receiver (2) in vise and tighten on solid portion just tight enough to hold.
6. Loosen round plain nut (9) using spanner wrench (WP 0039, figure 23, item 13). Catch headless straight pin (14) and helical spring (15).

CAUTION

While performing the following step, care should be taken to restrain the pivot pin spring and detent.

7. Loosen round plain nut (9) to allow receiver end plate (10) to disengage from lower receiver (2). Remove takedown pin (13), buffer retainer (11), and helical spring (12). Unscrew lower receiver extension (8) from lower receiver.

END OF TASK

REPAIR OR REPLACEMENT

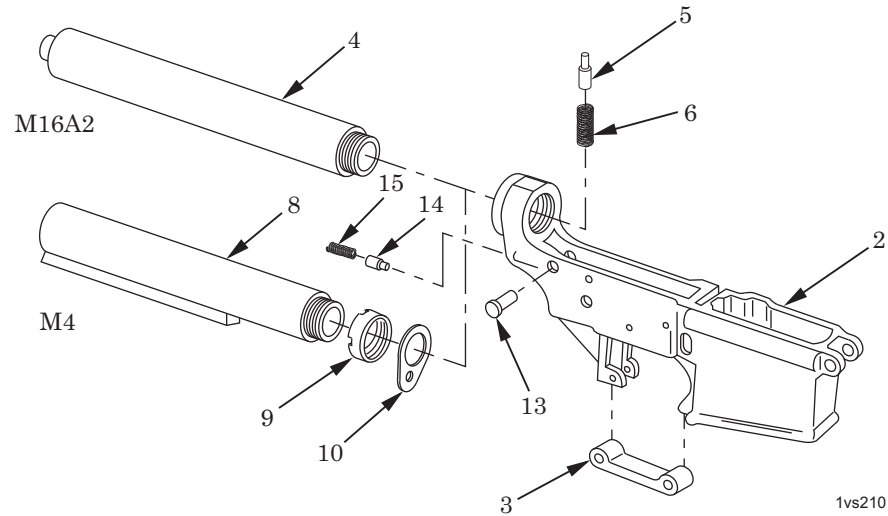


Figure 4. Inspection of Components.

1. Inspect lower receiver extension (4 or 8) for corrosion, dents, and wear. Repair by using abrasive cloth (WP 0045, item 13) to remove light corrosion. Retouch using solid film lubricant (WP 0045, item 20). Replace if defective.
2. Inspect buffer retainer (5) for wear. Replace if defective.
3. Inspect helical spring (6) for deformities and breaks. Replace if defective.
4. Inspect lower receiver (2). See WP 0021.
5. Inspect trigger guard (3) for deformities and check operation of plunger and spring. Replace trigger guard if defective.
6. **CARBINE ONLY:** Inspect receiver end plate (10) and round plain nut (9) for damage. Replace if damaged.
7. **CARBINE ONLY:** Inspect detent (14), helical spring (15), and takedown pin (13) for wear and deformities. Replace if defective.

NOTE

AIR FORCE ONLY: Only depot maintenance is authorized to restamp the serial number on weapon.

ARMY ONLY: Only field maintenance is authorized to restamp serial number.

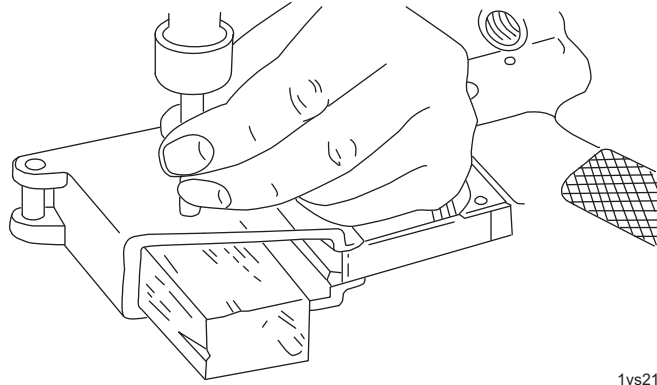


Figure 5. Stamping Serial Number.

8. **ARMY ONLY:** If serial number is hard to read on weapon, restamp as follows:
 - a. Support the receiver in the stamping area to prevent bending and distortion of the receiver.
 - b. Exercise extreme care to restamp the same serial number as the original.
 - c. Restamp the serial number the same size as the original serial number.

NOTE

Most rifle/carbine serial numbers are 1/8 in. (0.31 cm) in height, or close enough that this size is acceptable for such restamping. In the event that a weapon has a serial number that cannot be reproduced by the use of the die sets contained in the Set D Field Maintenance Post, Camp, and Station Small Arms Shop Set, local purchase of an appropriate size die set is authorized.

END OF TASK

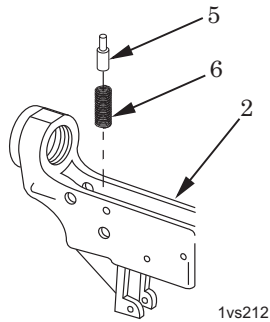
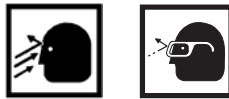
ASSEMBLY**RIFLE ONLY**

Figure 6. Installation of Buffer Retainer (Rifle).

WARNING

To avoid injury to your eyes, use care when installing spring-loaded parts.

1. Install helical spring (6) and buffer retainer (5) into lower receiver (2).

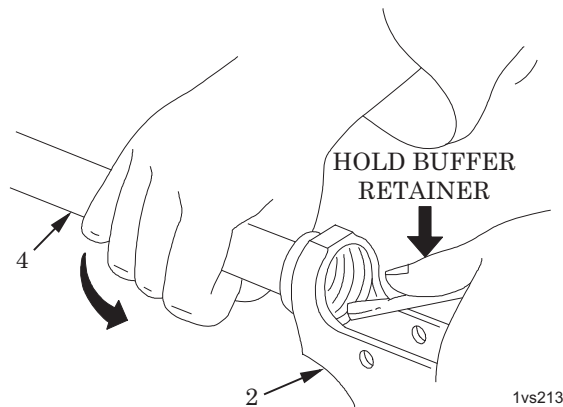
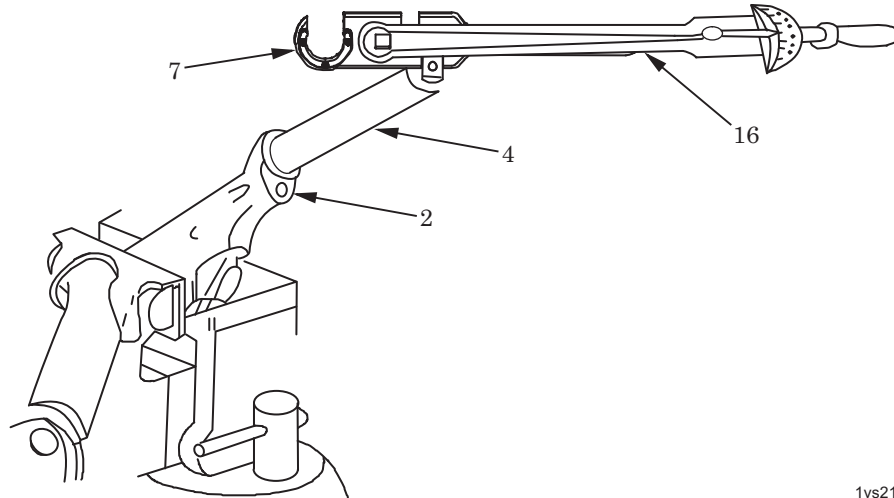


Figure 7. Installation of Lower Receiver Extension (Rifle).

2. Lubricate threads of lower receiver (2) and lower receiver extension (4) with molybdenum disulfide grease (WP 0045, item 18) before reassembly.
3. Install lower receiver extension (4) into lower receiver (2) while depressing buffer retainer.



1vs214

Figure 8. Torquing Lower Receiver Extension (Rifle).

NOTE

Use padding between lower receiver and brass vise jaws. Use vise jaws in vise and brass vise jaw caps, if available.

4. Clamp solid portion of lower receiver (2) in a machinist's vise using vise jaws. Grip solid portion of lower receiver with vise jaws which conform to the shape of lower receiver in this area.
5. Using combination wrench (7) (WP 0039, Figure 23, item 10) and torque wrench (16), torque lower receiver extension (4) to 35 to 39 ft-lb (47.25 to 52.65 N-m). Torque is read when both wrenches are used together.

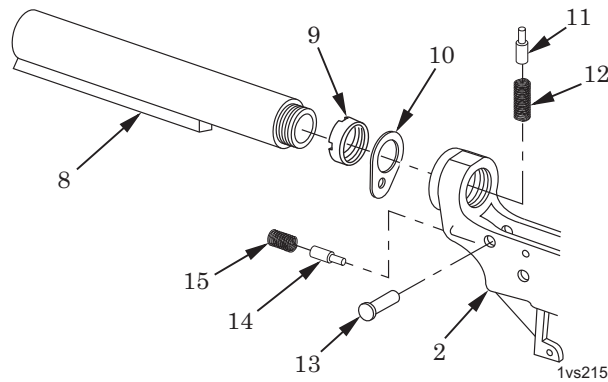
ASSEMBLY - Continued**CARBINE ONLY**

Figure 9. Installation of Lower Receiver Extension (Carbine).

6. Lubricate threads of lower receiver (2) and lower receiver extension (8) with molybdenum disulfide grease (WP 0045, item 18) before reassembly.
7. Place helical spring (12) and buffer retainer (11) into retaining hole of lower receiver (2). Screw round plain nut (9) onto lower receiver extension (8) with three notches on round plain nut facing forward.
8. Align receiver end plate (10) onto lower receiver extension (8) with lug of receiver end plate facing forward.
9. Place takedown pin (13), headless straight pin (14), and helical spring (15) in lower receiver assembly (2).
10. Push down on buffer retainer (11) and helical spring (12) and, at the same time, screw lower receiver extension (8) in until it retains buffer retainer in position.
11. Align lug of receiver end plate (10) into rear of lower receiver (2). Screw round plain nut (9) forward until it contacts receiver end plate.
12. Using spanner wrench (WP 0039, figure 23, item 13), tighten round plain nut (9) until snug.
13. Using spanner wrench and torque wrench, torque round plain nut (9) to 38 to 42 ft-lb (51.53 to 56.95 N-m).
14. Stake receiver end plate (10) in two places across from notches in round plain nut (9).

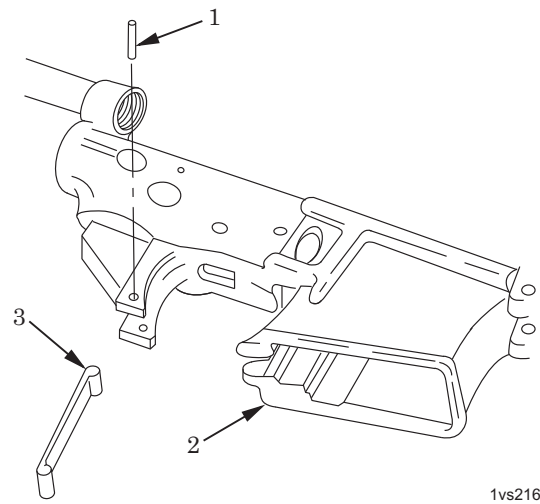
ALL WEAPONS

Figure 10. Installation of Trigger Guard.

15. Install trigger guard (3) into lower receiver (2).
16. Install spring pin (1) using 1/8 in. drive pin punch and hammer.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ADAPTER RAIL COVER ASSEMBLIES MAINTENANCE
REMOVAL, REPAIR OR REPLACEMENT, INSTALLATION

INITIAL SETUP:**Tools and Special Tools**

Small Arms Tool Kit, SC 5180-95-B71

References

WP 0039

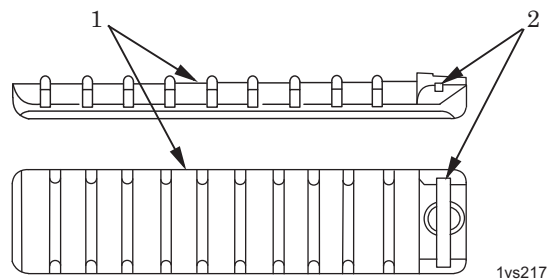
REMOVAL

Figure 1. Removal/Installation of Rail Cover.

NOTE

Rail covers are quickly detached from the adapter rail. A spring tension clip at one end of each rail cover automatically engages cutouts positioned at either end of the four rail sections.

To slide rail cover beyond a cutout, or to remove it, slide rail cover (1) in desired direction while applying thumb pressure to spring tension clip (2).

END OF TASK**REPAIR OR REPLACEMENT**

1. Use the general purpose brush (M16 rifle double-ended toothbrush) from the standard rifle/carbine cleaning kit to clean rail covers.
2. If rail covers are exposed to salt water or corrosive chemicals, thoroughly rinse in fresh water as soon as the tactical situation allows. Thoroughly clean, inspect, and lubricate spring retaining clips.
3. Clean and inspect the rail covers and the rail grabbers of accessories to be mounted prior to embarking on tactical operations or training events.

REPAIR OR REPLACEMENT - Continued

4. Rail covers may usually be cleaned with an absorbent cloth. There is no reason to apply lubricant to the plastic surfaces of the rail covers.
5. Replace rail cover if not secure. See WP 0039.

END OF TASK**INSTALLATION****NOTE**

The rail covers perform two primary functions. They are configured to protect the shooter's hands from direct skin contact with the metal parts of the adapter rail which gets hot during extended firing. They also protect the rail surfaces from excess wear and damage. For these reasons, rail covers should cover the unused sections of each rail of the adapter rail at all times.

Several different lengths of rail covers are provided with the handguard assemblies. For ease of reference, they should be identified by the number of ribs along the outer surfaces, i.e., "11 rib," "9 rib," "5 rib," and "4 rib."

All rail covers are interchangeable between rifles and carbines (carbine set includes two 2 rib and two 6 rib sections).

1. To cover the side and bottom rail surfaces, install rail covers (1) from muzzle end of adapter rail. Longer rail covers on carbine should be oriented with spring tension clip (2) toward muzzle (L-28, R-28, or B-28). Longer rail covers on rifle should be oriented with spring tension clip toward chamber (L-14, R-14, or B-14).
2. To cover the top rail pull charging handle to rear and install rail cover (1) from rear of upper receiver group.
3. As spring tension clip (2) meets its cutouts at either end of rails, clip will engage cutouts to secure rail cover (1). Shorter rail covers (used on rails partially occupied by accessories) should be oriented with spring tension clip away from accessories.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
ANNUAL GAGING REQUIREMENTS
INSPECTION, GAGING
EFFECTIVITY NOTICE
M16A2 RIFLE
M4, M4A1 CARBINE

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Tools and Special Tools

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Solid film lubricant (SFL) (WP 0045, item 20)

References

AFI 36-2226

AFTO Form 105

DA PAM 750-8

NAVMC 11003

TB 43-180

TM 1005-319-10

TO 33K-1-100-2

WP 0009

WP 0012

WP 0015

WP 0021

WARNING

To avoid injury to eyes, use care when removing and installing spring-loaded parts.

Initial gaging is required 1 year from receipt of the weapons.

All rifles and carbines must be gaged at least once annually for safety.

INSPECTION**NOTE**

Inspect M16A2 rifles at least once every 2 years, after the initial inspection/gaging procedures have been accomplished. This 2 year interval may be maintained unless preventive maintenance checks and services (PMCS), or other physical evidence, indicates that an individual unit's rifles require inspection/gaging at a more frequent interval. If it is determined that a yearly inspection is necessary for an individual unit, only that unit will be affected. This will not affect other units in regard to the interval of inspection.

It is recommended that training units inspect/gage all rifles at the end of each training cycle. Training units will inspect/gage all rifles at least once annually.

Air Force weapons will be inspected in accordance with the guidance in AFI 36-2226.

1. Visually inspect general appearance of weapon. Overall appearance will be that of a new weapon. For inspection criteria see WP 0009. All visual and functional inspection requirements must be met.
2. Perform a general inspection of weapon per WP 0009. Repair as required and authorized.

NOTE

Small arms gages are precision tools used in the maintenance of Army small arms and as such should be handled, used and stored with care. Periodically, they should be cleaned with the authorized cleaning solvent for weapons and given a light coating of lube. Do not use force when using gages and use them as prescribed in TM 9-1005-319-10. Per TB 43-180 small arms gages must be turned in for calibration every 360 days after they are put into use. Air Force will use guidance in TO 33K-1-100-2, TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide.

END OF TASK**GAGING**

1. Gage bolt carrier assembly for firing pin protrusion using firing pin protrusion gage PN 7799735 (WP 0044, item 2). See WP 0015.
2. Gage bolt carrier assembly for firing pinhole wear using no-go plug gage PN 12620101 (WP 0044, item 2). See WP 0012.
3. Inspect chamber in upper receiver and barrel assembly using chamber reflector tool PN 8448201 (WP 0044, item 2). See WP 0015.
4. Gage barrel in upper receiver and barrel assembly using barrel erosion gage PN 8448496 (WP 0044, item 2) and bore straightness gage PN 8448202 (WP 0044, item 2). See WP 0015.

-
5. Check headspace in upper receiver and barrel assembly by inserting headspace gage PN 7799734 (WP 0044, item 2) in chamber. See WP 0015.
 6. Gage pivot pin lug clearance in lower receiver assembly using 0.020-thickness gage. See WP 0021.
 7. Gage hammer and trigger pinholes in lower receiver assembly using taper plug gage PN 12006472 (WP 0044, item 2). See WP 0021.
 8. Gage trigger pull using trigger pull measuring fixture PN 7274758. See WP 0009.
 9. Document inspection with DA PAM 750-8, AFTO Form 105, or NAVMC 11003 when completed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PREPARATION FOR STORAGE OR SHIPMENT

INITIAL SETUP:**References**

MIL-B-117
MIL-B-121
MIL-STD-129
MIL-STD-1186
PPP-B-601
PPP-B-621
PPP-B-636
PPP-B-640
PPP-C-843
PPP-F-320
PPP-T-76
SPI 00-856-6885

PACKAGING

1. Packaging of the M16A2 Rifle and the M4/M4A1 Carbine shall be in accordance with MIL-STD-129 and the following:

ARMY ONLY: Army users shall package the rifle and the carbine in accordance with each respective Packaging Data Sheet (PDS) for shipment or storage which may exceed 90 days. The PDS is part of the Army Master Data File Retrieval Microform System (ARMS) Packaging File.

AIR FORCE ONLY: Air Force users shall package the rifle in accordance with each respective Special Packaging Instruction (SPI) 00-856-6885 for shipment or storage which may exceed 90 days. The SPIs are part of the Army Master Data File Retrieval Microform System (ARMS) Packaging File.

2. Packaging, if required, for shipping/storage which will not exceed 90 days shall be as follows:
 - a. Clean in accordance with operator's manual.
 - b. Wrap with MIL-B-121 waterproof material.
 - c. Place in barrier bag MIL-B-117, Type I, Class C, or wrap with MIL-B-121, Type I, Grade A, and seal with tape, PPP-T-76.
 - d. Place one or more of item in minimum size container. Block and brace in accordance with MIL-STD-1186. Cushion the M16 and similar weight items with PPP-C-843, and use PPP-F-320 as filler, to create a tight pack.
 - (1) Fiber board containers shall be in accordance with PPP-B-636 and may be Class Domestic. Gross weight and size of material shall determine grade of fiberboard container. PPP-B-640 may also be used.
 - (2) Wood containers shall be in accordance with PPP-B-601 or PPP-B-621.
 - e. Equivalent materials may be used.

PACKAGING - Continued

3. NSNs are not assigned to all the specified material.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE**PRE-EMBARKATION INSPECTION OF MATERIAL IN
UNITS ALERTED FOR OVERSEAS MOVEMENT**

INITIAL SETUP:**Test Equipment**

Tool and Gage Set (WP 0044, item 2)

Materials/Parts

Penetrant kit (WP 0045, item 27)

Solid film lubricant (WP 0045, item 20)

References

AR 725-50

SB 746-1

AMC PAM 310-9

DA PAM 750-8

DA Form 2408-9

WP 0008

WP 0009

WP 0015

NOTE

This work package applies to all the weapons (M16A2, M16A3, and M16A4 Rifle and M4 and M4A1 Carbine) unless stated otherwise.

PURPOSE

This work package establishes standards for overseas shipment (pre-embarkation inspection criteria) for all weapons. These standards are provided to ensure that the user is furnished equipment which will perform its mission without early failure or major maintenance problems.

SCOPE**NOTE**

M16 series rifles with chrome plated bolts and bolt carriers, lower receivers without pivot pin detents, and bolt carriers without serrations may be used by Air Force personnel for all mission requirements.

1. The standards prescribed provide for a high percentage of remaining life in affected rifles; therefore, rifles designated for overseas shipment must qualify under the standards contained in the following paragraph, table, and in referenced DA publications, before they can be approved for shipping action.

SCOPE - Continued

2. Provisions of this standard apply to all US Army agencies/activities selecting or preparing rifles for shipment to US troops overseas. It also applies to CONUS troops preparing rifles for shipment overseas. Provisions do not apply either to rifles being prepared for shipment to MAP/MAS recipients unless specifically prescribed by MAP/MAS transaction for the materiel or to rifle being returned to CONUS from overseas. The maintenance instructions and standards contained herein do not apply to rifles once the material has arrived at the overseas destination. At that time, maintenance instructions contained in the applicable TMs will be used.
3. This applies to rifles which are the logistic responsibility of the US Army Tank-automotive and Armaments Command (TACOM).
4. When inspecting a rifle belonging to another service, the inspector must abide by that service's unique requirements and that service's exceptions to standard guidance.

GENERAL

1. Only rifles which have been classified as serviceable condition code A, B, or C under AR 725-50 will be considered for overseas shipment. All items of equipment for which equipment serviceability criteria have been published must, as a minimum, be rated green under the ESC as a prerequisite to overseas shipment. In addition to the condition code standard, as enumerated above, and the required ESC rating prescribed herein, the rifle being considered for overseas shipment must meet the requirements of this section. The ESC will be discontinued as new operator manuals are revised which will be used to determine serviceability condition of rifle.
2. Waivers to provisions can only be granted by the gaining command of any particular end item being considered for issue, deployment, or shipment. The issuing services may recommend issue or shipment of rifles not meeting the provisions when all the following conditions exist:
 - a. Repair parts in required quantities cannot be obtained from the supply system prior to delivery of the end item.
 - b. The gaining command concurs in the receipt of the end item for storage until required repair parts become available. The gaining command must also state that capability, facilities, and funds are available to perform the necessary work when parts become available.
 - c. Department of the Army approval is obtained on a case-by-case basis.
 - d. Required repair parts are requisitioned by the issuing command for delivery to the gaining command.
3. All Department of the Army MWOs applicable to the specific rifle being considered for shipment overseas must have been applied.
4. Refer to SB 746-1 for pertinent publications relating to equipment processing and marking information.
5. Refer to AMC PAM 310-9 for publications containing applicable overhaul standards.

SHIPMENT OR ISSUE**Organizational Repair Parts, Tools, and Equipment**

Rifles must be complete with all items required by applicable Department of the Army publications, including those in the basic issue items list of the appropriate operator's manual.

Publications

Operator publications applicable to the equipment log book must accompany the equipment. All log book entries must be complete and up-to-date including those covering any repairs, replacements, or adjustments made to the rifle in complying with this section.

AIR FORCE ONLY: When a weapon is deployed or shipped to a repair facility for repairs and is expected to be returned to the owning organization, ensure a copy of each weapon's AFTO Form 105 is processed in accordance with guidance in TO 11W-1-10 and is sent with the weapon. The original AFTO Form 105 will remain with the owning organization.

Documentation

Prepare DA Form 2408-9 (Equipment Control Record) at time of overseas shipment or issue to another stock record or property book account, in accordance with the provisions of DA PAM 750-8.

Preparation

Process rifles for shipment as required by shipping documents and pertinent regulations.

DISPOSITION

Disqualified rifles which do not qualify for shipment will either be redistributed within the camp, post, or station, be repaired, or become candidates for overhaul, cannibalization, or other disposition as required by existing regulations.

GENERAL INSPECTION CRITERIA

WARNING



Before starting an inspection, be sure to clear the weapon. Do not pull the trigger until the weapon has been cleared. Inspect the chamber to ensure that it is empty and no ammunition is in position to be chambered.

1. Before inspection, the materiel must be thoroughly cleaned of all grease, dirt, or other foreign matter that might interfere with its proper function or the use of gages and tools during inspection.
2. Materiel must be free of burrs, rust, or corrosion on functional surfaces.
3. Parts must not be cracked, bent, distorted, or damaged and must be free of detrimental wear or looseness.
4. Minor defects in metal components do not normally affect their acceptability. For example, scratches and tool marks are ordinarily of no importance.
5. Inspect finish of metal surface.
 - a. General. Satisfactory metal surfaces for rifles range from black to light gray. A worn shiny metal surface is objectionable only when it is capable of reflecting light. No rifle will be rejected unless exterior parts have a shine. All rear sights must have a dull gray or black finish on all surfaces that would cause a glare.

GENERAL INSPECTION CRITERIA - Continued

- b. M16A2 Rifle. Minor loss of finish (shiny spots, nicks, scratches) on exterior surfaces of the barrel and compensator shall not be cause for rejection of M16A2 rifles located in hands of troops at training centers. Large shiny surfaces, nicks, scratches, etc., can be restored by the use of solid film lubricant (WP 0045, item 20). Rifles (small arms) missing in excess of one-third or more of the exterior finish resulting in an unprotected, light-reflecting surface, are considered candidates for overhaul. The only authorized level of maintenance to phosphate finish small arms is depot.
- 6. Plastic components must not be cracked or damaged in such a way as to interfere with their structural strength. Surface cracks, bruises, or dents that do not affect their strength will not be cause for rejection. Cracks will be cause for rejection. Criteria for determining which cracks are repairable are in WP 0008.
- 7. Barrels must be clean and free of corrosion such as that caused by moisture and powder fouling. Standards of serviceability are indicated in paragraphs 7.a. through 7.i. below.
 - a. Pits in the chamber are allowable if they do not cause extraction difficulties.
 - b. Pits as wide as a land and $\frac{3}{8}$ in. (0.95 cm) or less in length are allowable for 5.56 mm barrels. Pits not greater than the width of a land and less than $\frac{3}{8}$ in. (0.95 cm) long are permissible.
 - c. Scattered or uniformly fine pits, or fine pits in a densely pitted area are allowable.
 - d. Tool marks are acceptable regardless of length. They will appear as lines running laterally in the grooves, or may run spirally across the top of lands.
 - e. Ringed bores or bores ringed sufficiently to bulge the outside surface of the barrel are cause for rejection. However, faint rings or shadowy depressions do not indicate an unserviceable barrel and will not be cause for rejection. Gap in lined barrels will not be classified as a ringed bore.
 - f. Lands that appear dark due to coating of gilding metal from projectiles will not be cause for rejection.
 - g. Breech bore diameter will be checked on unlined barrels using the appropriate breech bore gage.
 - h. Barrel erosion gages are provided for lined barrels. Bore wear will be checked using barrel erosion gage for the M16A2. For detailed instructions in the use of the above gage and for serviceability limits, see WP 0015. The M16A1 reject mark will be used to reject worn barrels during pre-embarkation inspection.
 - i. Flaking or checking (fine cracks) of chromium plate in barrels or chambers will not be cause for rejection, unless accompanied by pitting to the degree that extraction difficulties are encountered or accuracy is unacceptable.
- 8. Springs must be free of distortion and broken coils. Springs must have sufficient tension to perform their intended function.
- 9. Screw heads must be in serviceable condition and threads must not be stripped. Internal threads must not be stripped.

10. The sear, hammer, and/or cocking notches must be in good condition. Chipped engaging corners will be cause for rejection. Slight wear on functional surfaces, including engaging corners, shall be acceptable, providing the minimum trigger pull requirements and selector lever checks are met in accordance with instructions in WP 0009.
11. Chips, flat spots, or bent striker points on firing pins will be cause for rejection.
12. The cartridge engaging surfaces on extractors must not be chipped or deformed.
13. Evidence of any damage to sights will be cause for a sight alignment check. Rear sight bases should have no movement.
14. Rear sight elevating and windage mechanisms must operate with distinct clicks, without binding. Sights must have sufficient tension to retain their setting during firing. Graduations and numerals must be legible. Graduation filler is not required.
15. Safeties must positively position in both the ON and OFF position. When in the ON or safe position, the rifle must not fire when the trigger is squeezed; when in the OFF or fire position, the rifle must fire when the trigger is squeezed.
16. All locking devices such as latches, magazine latches, or detents must be positive in action and must not become disengaged due to normal handling and firing. Retaining pins and similar devices must not be subject to accidental loss during use or transportation.
17. Each rifle must be hand functioned to check for unusual binding, positive cocking action, and general operation. Dummy ammunition must be used to assure positive feeding, chambering, extraction, and ejection action.

Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine.

Item	Standard
RIFLE:	
General	Clear rifle of any ammunition and inspect in accordance with General Inspection Criteria.
Barrel and barrel extension ...	Check barrel erosion. Use barrel erosion gage 8448496 for chrome lined barrels. Stripping of lands and grooves shall not be cause for rejection unless so determined by barrel erosion gage. Visually inspect, using chamber reflector tool 8448201. Pits 1/8 in. (0.31 cm) in length and those pits large enough to extend from the body of the chamber into the shoulder stop area and forcing cone area are cause for rejection. Large pits are defined as 1/8 in. (0.31 cm) or more in diameter as determined by visual inspection. Only closed flash suppressors are acceptable. Check barrel for straightness using bore straightness gage 8448202. Gage must pass freely through the bore to be acceptable, either dropped from the muzzle or chamber end.

GENERAL INSPECTION CRITERIA - Continued**Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine - Continued.**

Item	Standard
Front sight and gas tube	Inspect gas tube for proper alignment with carrier key. Gas tube must not bind when mating with the key. Evidence of gas leaks around the front sight connection of the gas tube shall be cause for rejection until rifle has been function fired to determine if the loss of gas is sufficient to cause malfunction. If malfunctions occur during function firing, repairs are necessary. Inspect front sight for damage.
Bolt carrier group.....	Inspect bolt for elongated or oversized firing pin hole using plain cylinder gage 12620101. Firing pin holes which permit the plain cylinder plug gage to fully penetrate at any position on the circumference will be rejected. Bolt face with a cluster of pits which are touching or tightly grouped, covering an area measuring approximately 1/8 in. (0.31 cm) across will be rejected. Bolts which contain pits extending into the firing pin hole will not be rejected unless firing pin hole gaging check determines rejection. Bolts which contain individual pits or scattered pits will not be cause for rejection. Only phosphated bolt carriers are acceptable. Both phosphated and chrome plated bolts are acceptable for Air Force use; only phosphated bolts are acceptable for Army use.

NOTE**(Air Force Only)**

Use of non-serrated bolt carriers is acceptable for all mission requirements. Use of chrome plated bolts and/or bolt carriers are acceptable for all mission requirements. Use of any style extractor spring is acceptable for all mission requirements, replace extractor spring only when they no longer enable extraction of cartridges.

Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine - Continued.

Item	Standard
Bolt locking lugs and bolt pin cam hole.	Inspect for cracks in the locking lugs and cam pin hole area. Use a black light, if available; otherwise, use a glass of no more than 3X magnification or use inspection penetrant. Use instructions contained in inspection penetrant kit for application. If cracks are detected, the bolts will be replaced.
NOTE	
Particular attention must be given to the area where the lugs meet the bolt body and around the side walls of the cam pin hole.	
Bolt rings must not be broken. Ring gaps must be properly spaced approximately 1/3 turn apart and not in line.	
Firing pin protrusion must be not less than 0.028 in. (0.071 cm) or more than 0.036 in. (0.091 cm). Use firing pin protrusion gage 7799735.	
Socket head cap screws must be staked.	
Carrier key must not be dented where end mates with gas tube. Repair or replace damaged carrier keys.	
Headspace	Inspect headspace using headspace gage 7799734. Excessive headspace will be cause for rejection.
Trigger pull	Inspect trigger pull using trigger measuring fixture 7274758. Trigger pull must be 5.5 lb (2.49 kg) minimum. Maximum for M16A2, M16A4 and M4 is 9.5 lb (4.31 kg). Maximum for M16A3 and M4A1 is 8.5 lb (3.86 kg). Test trigger pull (see WP 0009).
Lower receiver group.....	Inspect hammer and trigger pin holes using plain cylinder plug gage 12006472. Penetration of the gage in any one or more of the four holes will be cause for rejection. Inspect for cracks, corrosion, or mutilation which would affect functioning. Small dents or gouges will not be cause for rejection. Inspect receiver for corrosion in the lobes of the pivot or hinge pin area. Width between lobes shall not exceed 0.515 in. (1.30 cm). Inspect receiver for break through of metal. Inspect receiver and receiver extension for initial loss of protective coating.
NOTE	
Lower receivers without pivot pin detent may be used for all Air Force mission requirements.	
Action spring	M16A2/M16A3/M16A4 Rifle only: Free length of spring shall be between 11-3/4 and 13-1/2 in. (29.84 and 34.29 cm). M4/M4A1 Carbine only: Free length of spring shall be between 10-1/16 and 11-1/4 in. (25.56 and 28.58 cm).

GENERAL INSPECTION CRITERIA - Continued

Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine - Continued.

Item	Standard
Handguard	Inspect handguard assembly for breaks, separations, and cracks. Breaks and separations of material which prevent proper retention or interfere with functioning of the weapon will be cause for handguard rejection and replacement. Cracks up to 1 in. (2.54 cm) in length are acceptable provided they do not extend into the handguard retaining flange (critical area). M16A2 Rifle only: Each handguard assembly may have up to two of the three front retaining tabs missing. If all three front tabs are missing, the handguard assembly must be replaced. M16A3/M16A4 Rifle and M4/M4A1 Carbine only: Inspect per item 3 in Preventive Maintenance Checks and Services (WP 0008). All weapons: Replace severely cracked handguards. Handguards that have a heat shield loose enough to rattle when installed on the weapon must be replaced.
Stock assembly	Inspect buttstock assembly for dents, cracks, and chips. Check for breaks and separation of material which could prevent proper functioning of weapon.

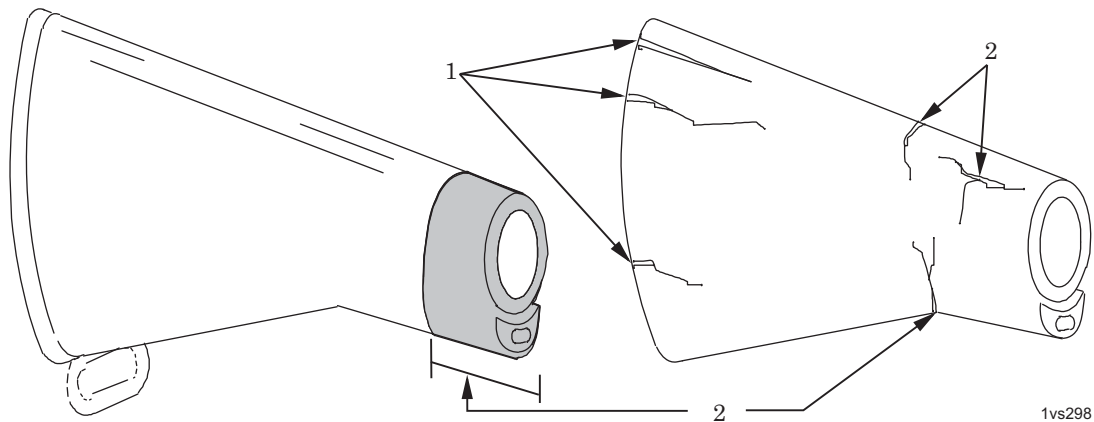


Figure 1. Buttstock Inspection.

Table 1. 5.56mm Rifle M16A2/M16A3/M16A4, M4/M4A1 Carbine - Continued.

Item	Standard
	M16A2 Rifle only: Under the following conditions, hairline cracks (1) originating from buttplate end of buttstock are acceptable. No chipped away material is allowed. - One hairline crack, not to exceed 1 in. (2.54 cm) in length, per side of buttstock. - Two additional hairline cracks up to 0.22 in. (0.55 cm) in length, per side of buttstock. Buttstocks with unauthorized markings stamped into their surfaces will be replaced. Unauthorized markings, scratched, etched, carved, etc., are acceptable if they do not extend into the fiber of the buttstock which may weaken it. These marks may lie at any location on the buttstock. Cracks (2) in the critical area at the front end of the buttstock are not acceptable and these buttstocks must be replaced. M16A3/M16A4 Rifle and M4/M4A1 Carbine only: Inspect for proper functioning. Repair as required.

END OF WORK PACKAGE

FIELD MAINTENANCE
ILLUSTRATED LIST OF MANUFACTURED ITEMS

INITIAL SETUP:

Not Applicable

INTRODUCTION**Scope**

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the field maintenance level.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page which covers fabrication criteria.

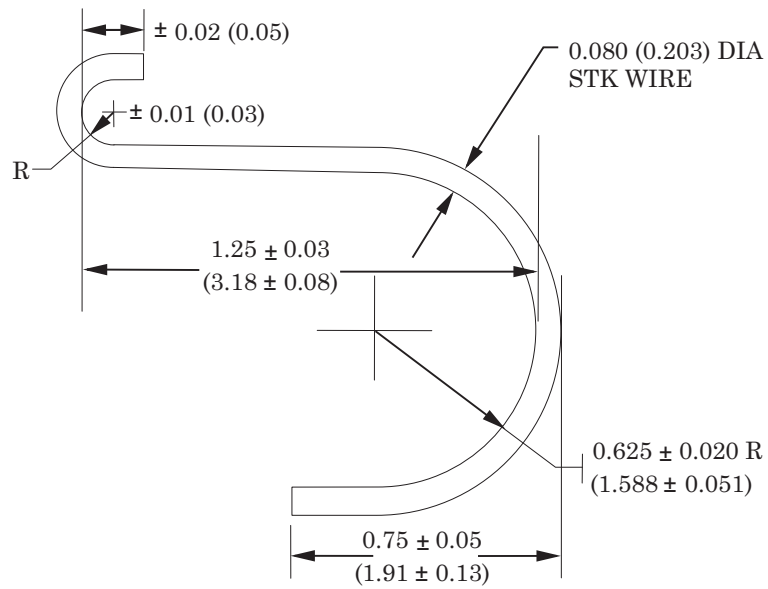
Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

INDEX OF MANUFACTURED ITEMS

Part Number	Nomenclature	Figure Number
NPN	Front sight detent depressor	1
NPN	Front sight post removal and installation tool	2
NPN	Pivot pin removal tool	3
NPN	Pivot pin installation tool	4
NPN	Slave pin	5
NPN	Adapter bar for M12 arms rack	6
NPN	Modified needle nose pliers	7

ILLUSTRATIONS OF MANUFACTURED ITEMS

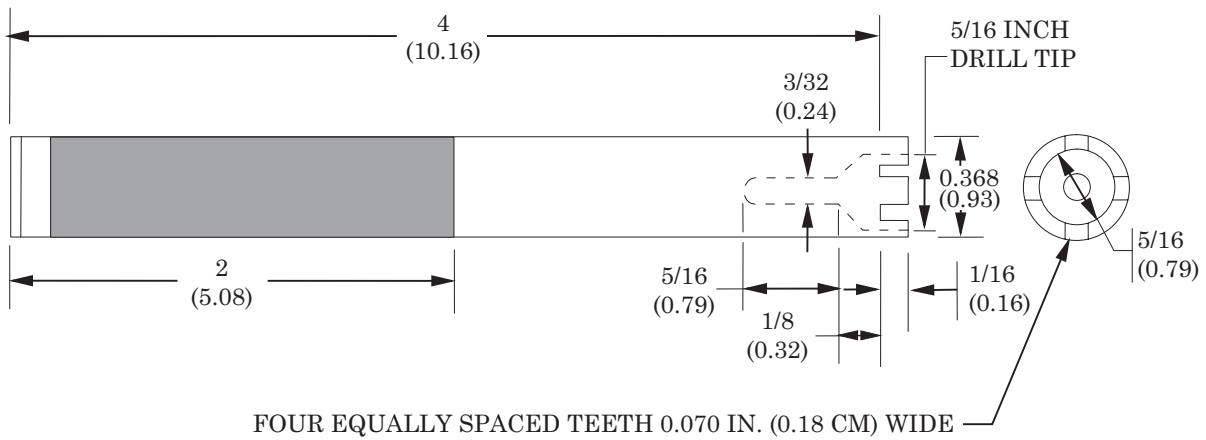


FABRICATE FROM 0.08 IN. MUSIC WIRE OR EQUIVALENT.
FINISH: NO. 5.3.1.2 OR 5.3.2.2 OF MIL-STD 17.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES
WITH METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

1VS291

Figure 1. Front Sight Detent Depressor.



FABRICATE FROM 0.375 IN. ROUND METAL BAR,
ASTM A686, FSCM 81346, GRADE C, CLASS W2-09,
NSN 9510-00-640-4407 OR EQUIVALENT.

NOTES:

1. ALL DIMENSIONS SHOWN ARE IN INCHES
WITH METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.
2. TEETH MUST BE HAND FILED TO FIT FRONT SIGHT POST.

1VS292

Figure 2. Front Sight Post Removal and Installation Tool.

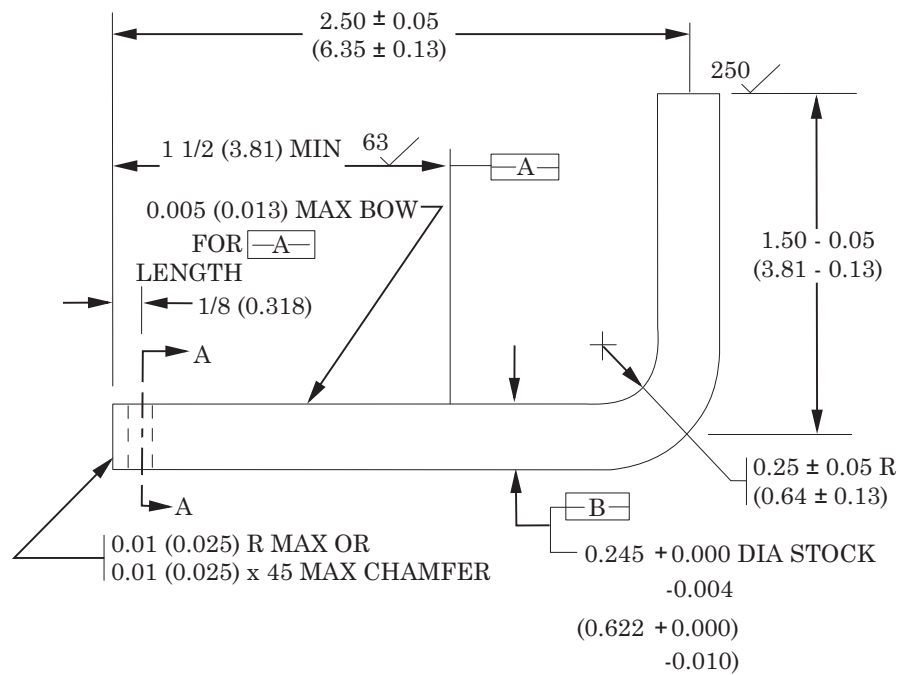
ILLUSTRATIONS OF MANUFACTURED ITEMS - Continued

FABRICATE FROM 1/16 IN. SOCKET HEAD SCREW KEY,
NSN 5120-00-198-5398 OR EQUIVALENT.

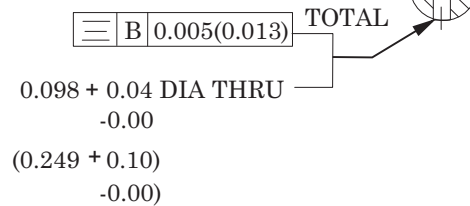
NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES
WITH METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

1VS293

Figure 3. Pivot Pin Removal Tool.



SECTION A-A



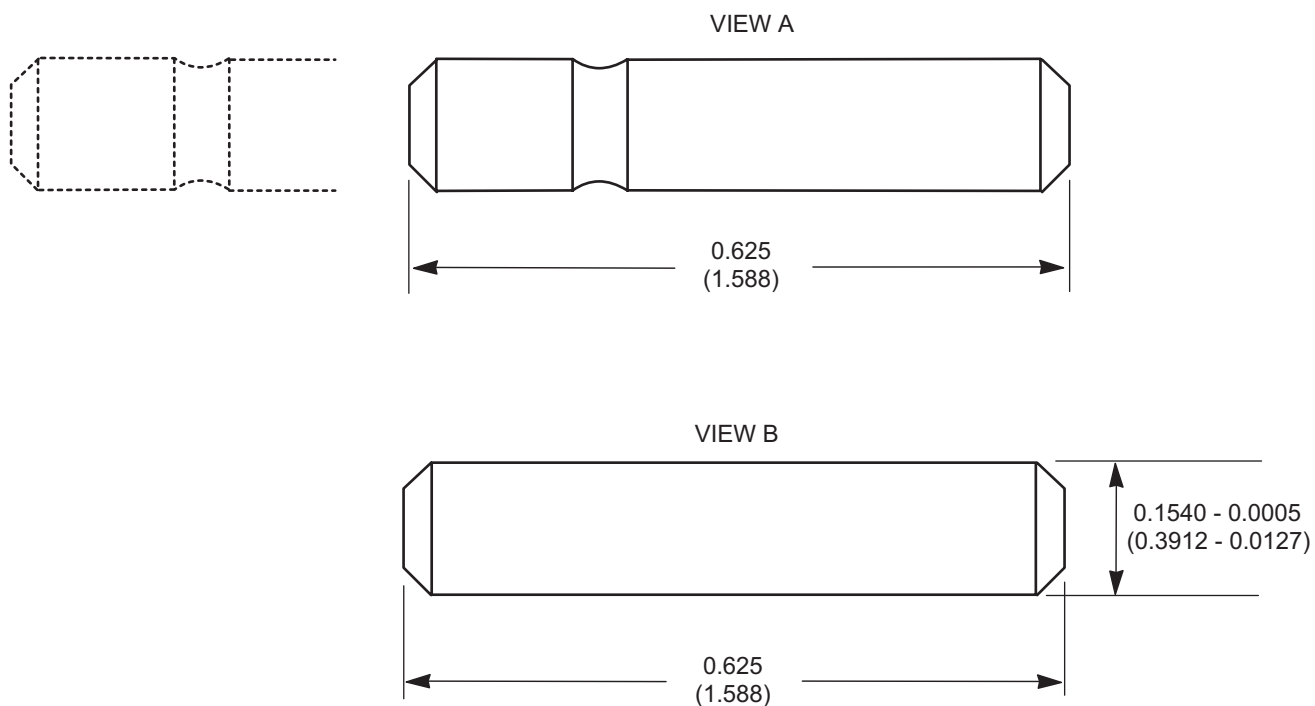
FABRICATE FROM 0.245 IN. STEEL AISI 1095 OR EQUIVALENT.
HARDEN AND TEMPER TO RC 57-61 FOR LENGTH -A-
FINISH: NO. 5.3.1.2 OR 5.3.2.2 OF MIL-STD-171.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES
WITH METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

1VS294

Figure 4. Pivot Pin Installation Tool.

ILLUSTRATIONS OF MANUFACTURED ITEMS - Continued

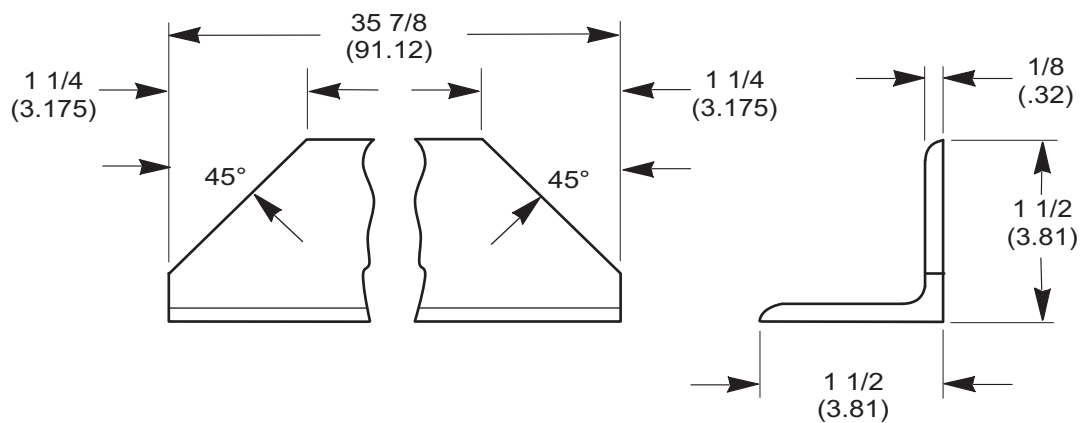


FABRICATE FROM OLD TRIGGER PIN (VIEW A) PN8448609 OR
FABRICATE SLAVE PIN (VIEW B) FROM MATERIAL BLOCK,
WIRE, STEEL ALLOY, GRADE 4140, ASTM-A547 OR EQUIVALENT.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES WITH
METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

1VS295

Figure 5. Slave Pin.



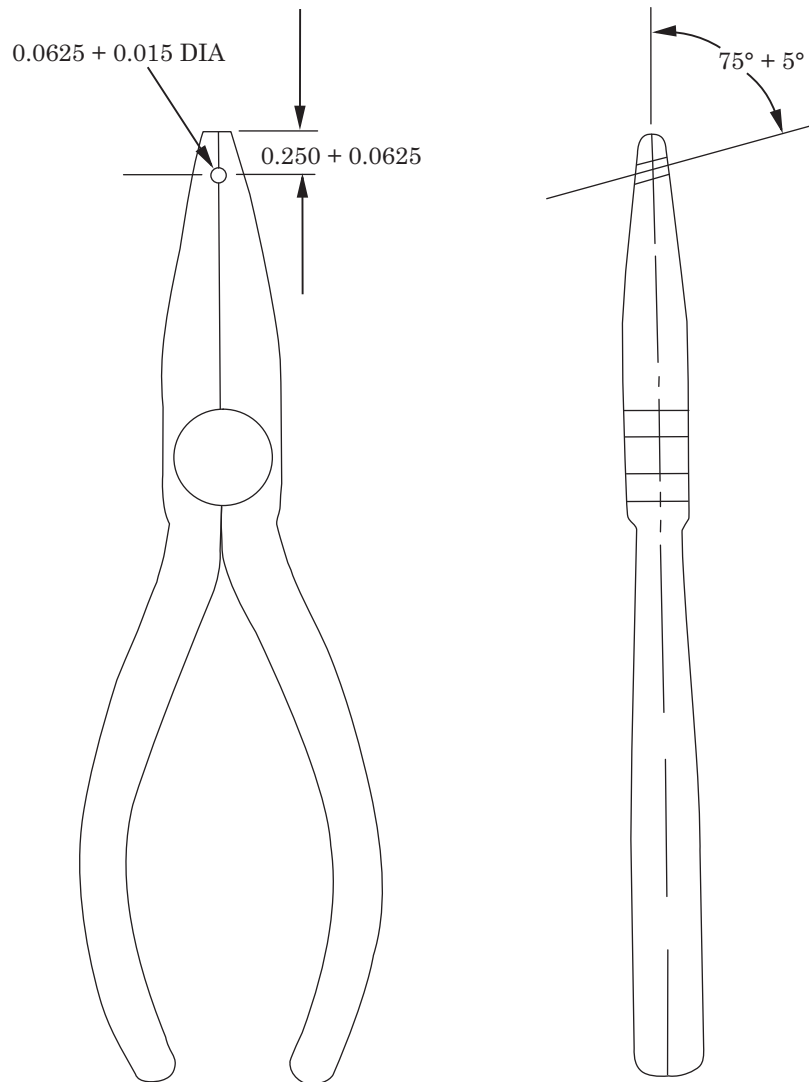
FABRICATE FROM $1 \frac{1}{2}$ IN. BY $1 \frac{1}{2}$ IN. BY $\frac{1}{8}$ IN.
ANGLE IRON, NSN 9520-00-277-4902 OR EQUIVALENT.
PAINT WITH OLIVE DRAB ENAMEL PAINT, NSN
8010-01-350-5249 OR EQUIVALENT.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES WITH
METRIC CONVERSION TO CENTIMETERS IN PARENTHESES.

1VS296

Figure 6. Adapter Bar for M12 Arms Rack.

ILLUSTRATIONS OF MANUFACTURED ITEMS - Continued



FABRICATE FROM NEEDLE NOSE PLIERS,
NSN 5120-00-268-3579 OR EQUIVALENT.

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES.

1VS297

Figure 7. Modified Needle Nose Pliers.

END OF WORK PACKAGE

CHAPTER 4

**AUXILIARY EQUIPMENT
MAINTENANCE INSTRUCTIONS
FOR
M16 SERIES RIFLES
AND
M4 SERIES CARBINES**

FIELD MAINTENANCE
AUXILIARY EQUIPMENT

INITIAL SETUP:

References

WP 0042

AUXILIARY EQUIPMENT

The following items of auxiliary equipment are used in conjunction with the weapons:

1. 40mm Grenade Launcher M203, NSN 1010-00-179-6447 **(Rifle Only)**.
2. 40mm Grenade Launcher M203A1, NSN 1010-01-434-9028 **(Carbine Only)**.
3. 40mm Grenade Launcher M203A2, NSN 1010-01-495-8511 **(M16A3/M16A4 Rifle or Carbine Only)**.
4. Conversion Kit, M261 (caliber .22 rimfire adapter), NSN 1005-01-010-1561.
5. Bayonet-Knife M7, NSN 1005-00-073-9238.
6. Bayonet-Knife Scabbard M10, NSN 1095-00-223-7164.
7. M9 Multi-Purpose Bayonet System, NSN 1005-01-227-1739.
8. Night Vision Sight, Individual Served Weapon, AN/PVS-4, NSN 5855-00-629-5334.
9. M2 Practice Bolt, NSN 1005-01-184-4041.
10. M68 Reflex Sight, NSN 1240-01-540-3690.
11. M30 Boresight, NSN 4933-01-394-7781.
12. Flashlight Mount, NSN 5340-01-485-1916 **(M16A3/M16A4 Rifle or Carbine Only)**.
13. Target Pointer Illuminator/Aiming Light (TPIAL), AN/PEQ-2A, NSN 5855-01-447-8992 **(M16/M4 Series)**.
14. Light Weapon Thermal Sight (LWTS), AN/PAS-13B(V)1, NSN 5855-01-464-3150 **(M16/M4 Series)**.
15. Medium Weapon Thermal Sight (MWTS), AN/PAS-13A(V)2, NSN 5855-01-458-0210 **(M16/M4 Series)**.
16. Heavy Weapon Thermal Sight (HWTS), AN/PAS-13A(V)3, NSN 5855-01-458-0211 **(M16/M4 Series)**.
17. Monocular Night Vision Device, AN/PVS-14, NSN 5855-01-432-0524 **(M16/M4 Series)**.
18. Enhanced Sliding Buttstock Assembly, NSN 1005-01-544-9825.

AUXILIARY EQUIPMENT - Continued

- 19. Tactical Sling, NSN 1005-01-541-1771.
- 20. Cleaning Kit, NSN 1005-01-558-7980.
- 21. Forward Rail Bracket, NSN 1005-01-541-2476.
- 22. Multi-mag Holder, NSN 1005-01-541-2477.
- 23. Forward Grip Bipod, NSN 1005-01-541-1772.
- 24. Lock Plate, NSN 1005-00-233-9031.
- 25. Top Sling Adapter, NSN 1005-00-406-1570.
- 26. Close Quarters Battle Sling Kit, NSN 1005-01-478-0848.
- 27. Blank Firing Attachment M15A2, NSN 1005-00-118-6192 **(Rifle Only)**.
- 28. Blank Firing Attachment M23, NSN 1005-01-361-8208 **(Carbine Only)**.
- 29. Carrying Handle Assembly, NSN 1005-01-465-0401.
- 30. M12 Storage Rack, NSN 1095-00-407-0674.

See WP 0042 for applicable publications.

FIELD MAINTENANCE

LOCK PLATE MAINTENANCE

INSTALLATION, REPAIR OR REPLACEMENT, REMOVAL

INITIAL SETUP:

Tools and Special Tools

Small Arms Tool Kit, SC 5180-95-B71

WARNING

The lock plate prevents the selector lever from being placed in BURST and will be installed at the discretion of the unit commander. It is mandatory for use in civil disturbance (riot control).

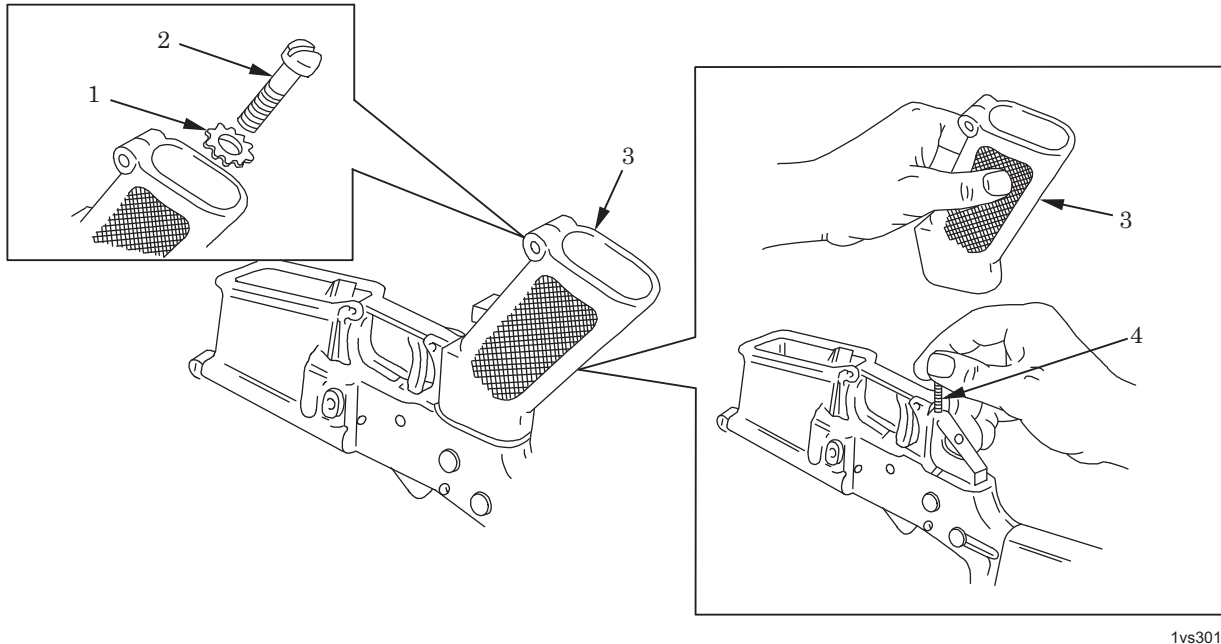
INSTALLATION

Figure 1. Removing Pistol Grip for Lock Plate Installation.

1. Using a screwdriver, reach inside pistol grip (3) and remove screw (2) and lockwasher (1).

WARNING

To avoid injury to your eyes, use care when removing or installing spring-loaded parts.

2. Carefully remove pistol grip (3). Hold detent helical spring (4) in place.

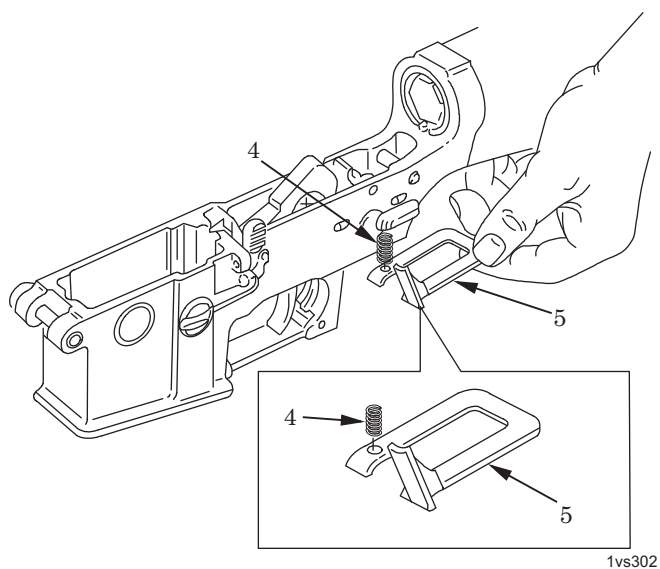


Figure 2. Installing Lock Plate.

3. Install lock plate (5) with the detent helical spring (4) passing through the hole in the right side of the lock plate and the arm on the outside of the receiver. The selector lever must point to the SAFE position.

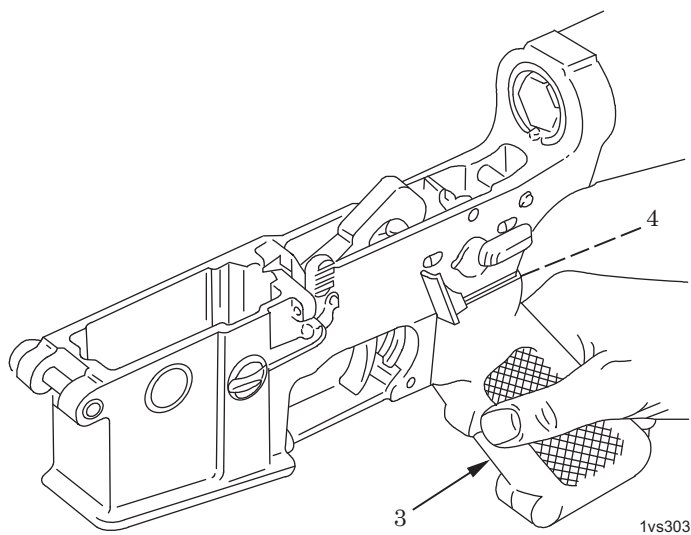


Figure 3. Positioning Pistol Grip with Lock Plate Installed.

4. Carefully compress detent helical spring (4) and position pistol grip (3).

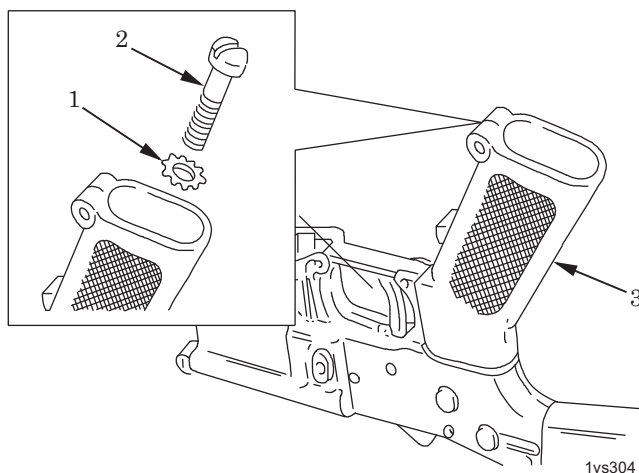
INSTALLATION - Continued

Figure 4. Securing Pistol Grip with Lock Plate Installed.

5. Using screwdriver, secure pistol grip (3) by installing lockwasher (1) and screw (2).

END OF TASK**REPAIR OR REPLACEMENT**

Inspect lock plate for serviceability and broken arm. Replace if unserviceable or if arm is broken.

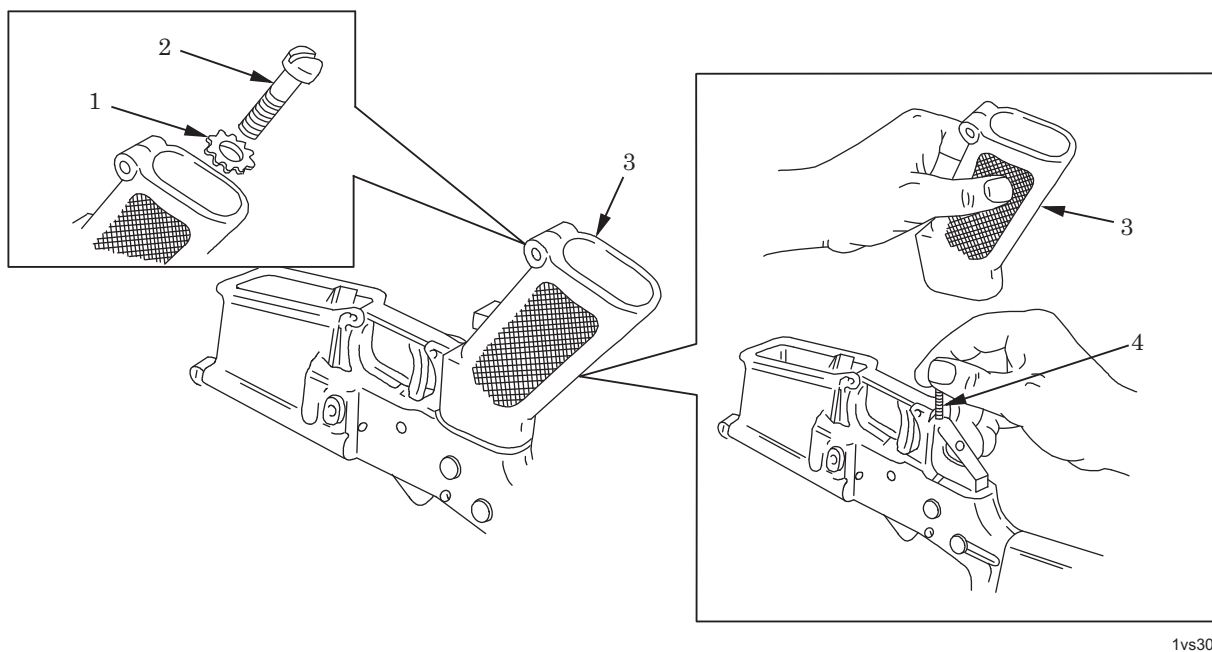
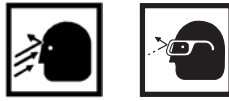
END OF TASK**REMOVAL**

Figure 5. Removing Pistol Grip for Lock Plate Removal.

1. Using a screwdriver, reach inside pistol grip (3) and remove screw (2) and lockwasher (1).

WARNING

To avoid injury to your eyes, use care when removing or installing spring-loaded parts.

2. Carefully remove pistol grip (3). Hold detent helical spring (4) in place.

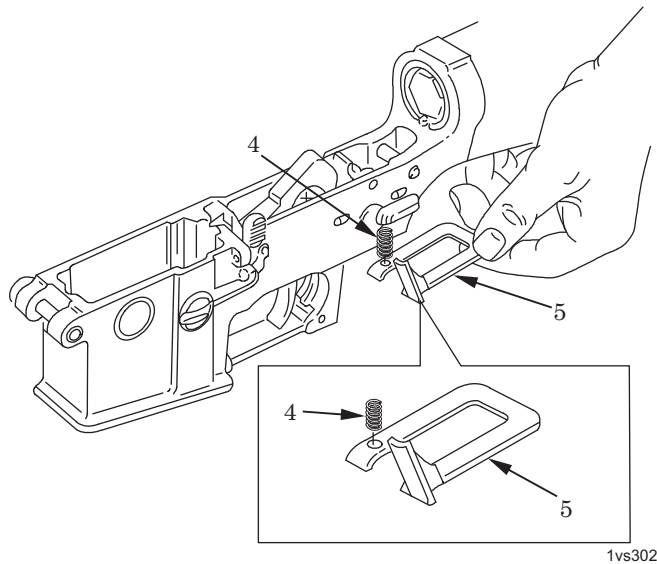


Figure 6. Removing Lock Plate.

3. Remove lock plate (5) while continuing to hold the detent helical spring (4) in place. The selector lever must point to the SAFE position.

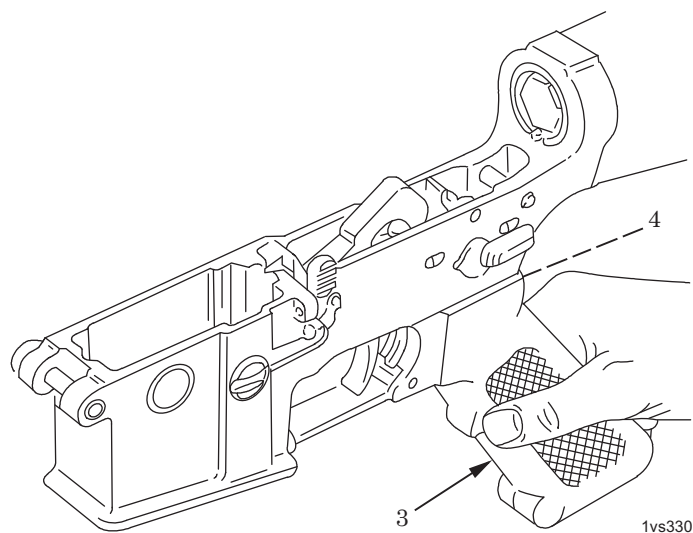
REMOVAL - Continued

Figure 7. Positioning Pistol Grip with Lock Plate Removed.

4. Carefully compress detent helical spring (4) and position pistol grip (3).

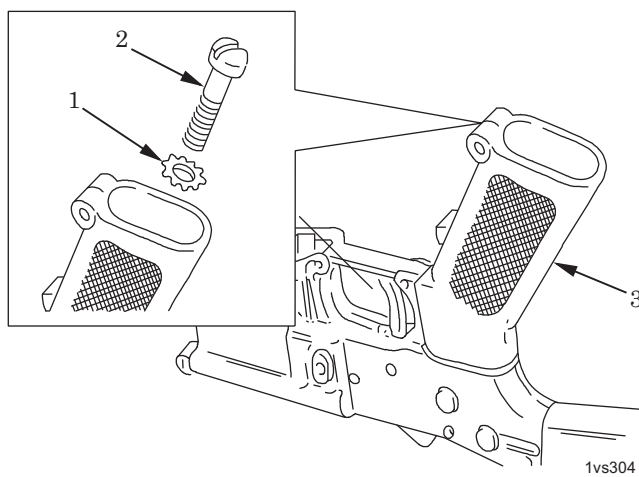


Figure 8. Securing Pistol Grip with Lock Plate Removed.

5. Using screwdriver, secure pistol grip (3) by installing lockwasher (1) and screw (2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TOP SLING ADAPTER MAINTENANCE
INSTALLATION, REPAIR OR REPLACEMENT, REMOVAL

INITIAL SETUP:**Materials/Parts**

Top sling adapter kit, PN 8448471

References

TM 9-1005-319-10

Equipment Conditions

Sling removed (TM 9-1005-319-10)

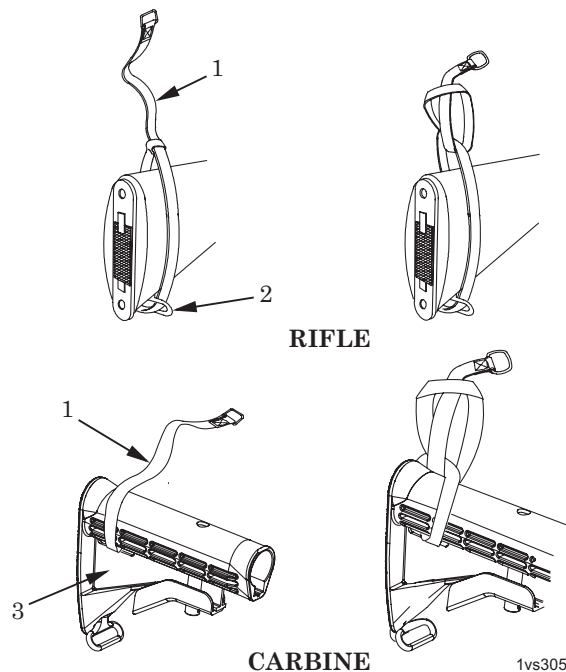
INSTALLATION

Figure 1. Installing Top Sling Adapter.

1. **Rifle Only:** Install top sling adapter strap (1) through sling swivel (2) and tie.
2. **Carbine Only:** Install top sling adapter strap (1) through sling opening (3) and tie.

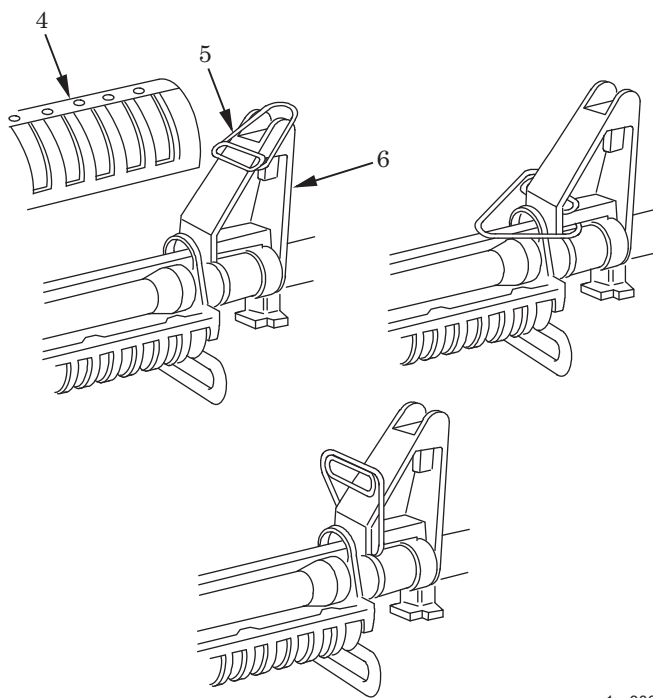
INSTALLATION - Continued

Figure 2. Installing Clamp on Front Sight.

3. Remove upper handguard assembly (4). Refer to TM 9-1005-319-10.
4. Use pliers to install clamp (5) on front sight base (6).

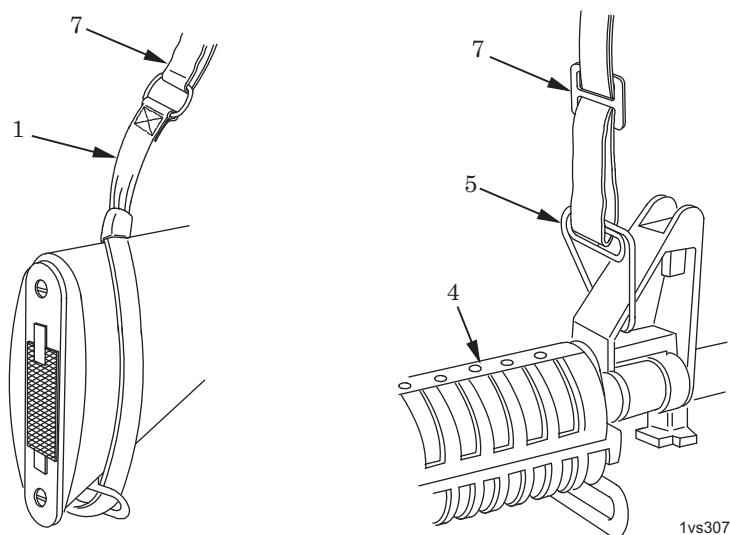


Figure 3. Attaching Sling to Top Sling Adapter and Clamp.

5. Attach sling (7) to top sling adapter strap (1) and to clamp (5).

6. Install upper handguard assembly (4). Refer to TM 9-1005-319-10.
7. Adjust sling (7).

END OF TASK**REPAIR OR REPLACEMENT**

Visually inspect top sling adapter strap and replace if it is badly worn or damaged.

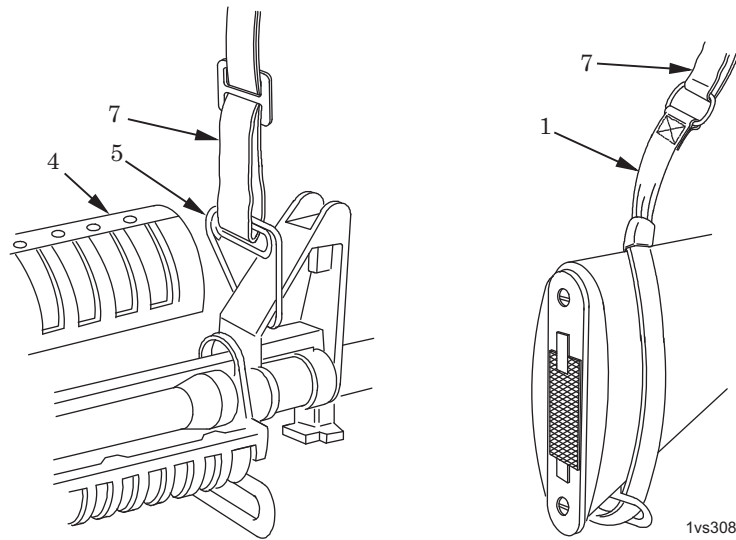
END OF TASK**REMOVAL**

Figure 4. Removing Sling from Clamp and Top Sling Adapter.

1. Remove upper handguard assembly (4). Refer to TM 9-1005-319-10.
2. Remove sling (7) from clamp (5) and top sling adapter strap (1).

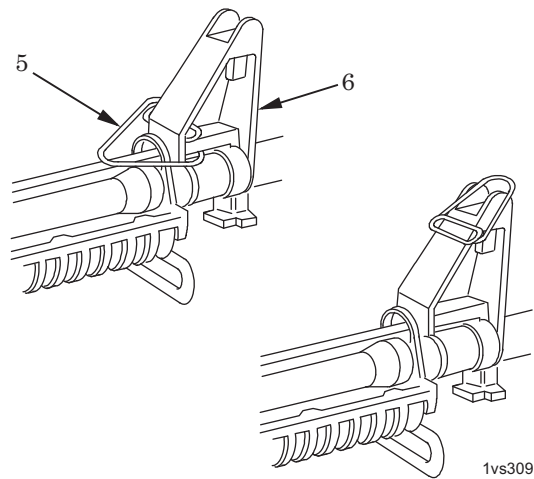
REMOVAL - Continued

Figure 5. Removing Clamp from Front Sight.

3. Use pliers to remove clamp (5) from front sight base (6).

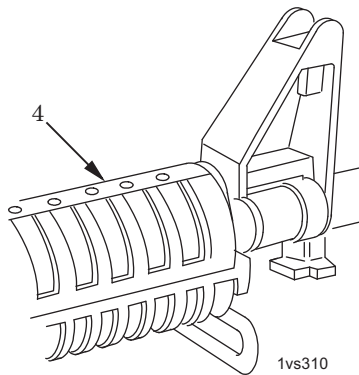


Figure 6. Attaching Sling to Top Sling Adapter and Clamp.

4. Install upper handguard assembly (4). Refer to TM 9-1005-319-10.

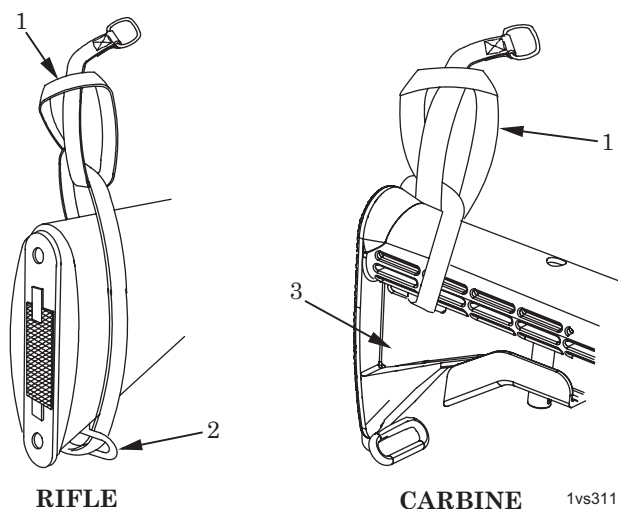


Figure 7. Removing Top Sling Adapter.

5. Untie top sling adapter (1) and remove from sling swivel (2) or sling opening (3). Use pliers to remove clamp (5) from front sight base (6).
6. Install sling. Refer to TM 9-1005-319-10.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CLOSE QUARTERS BATTLE SLING MAINTENANCE

INSTALLATION, REPAIR OR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Close quarters combat sling adapter kit, PN 12956271

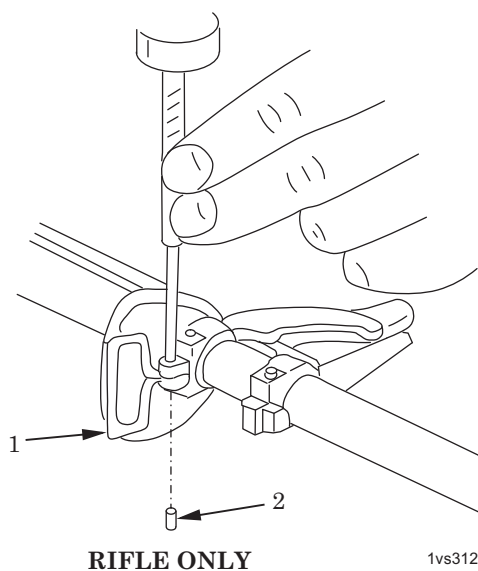
INSTALLATION

Figure 1. Removing Sling Swivel.

1. Knock out tubular rivet (2) with a hammer and punch and remove small sling swivel (1). Discard tubular rivet.

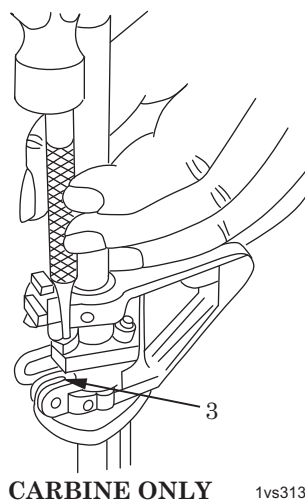


Figure 2. Removing Two Spring Pins.

2. Using hammer and punch, remove two spring pins (3). Discard spring pins.

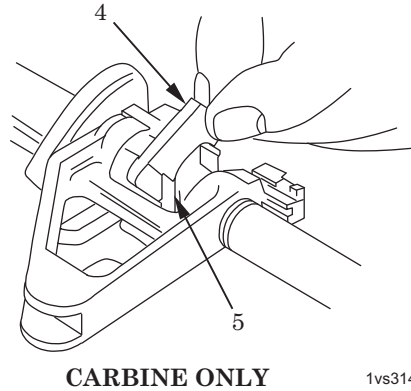


Figure 3. Removing Swivel Locking Bar.

3. Lift swivel locking bar (4) up and out of swivel mount (5).

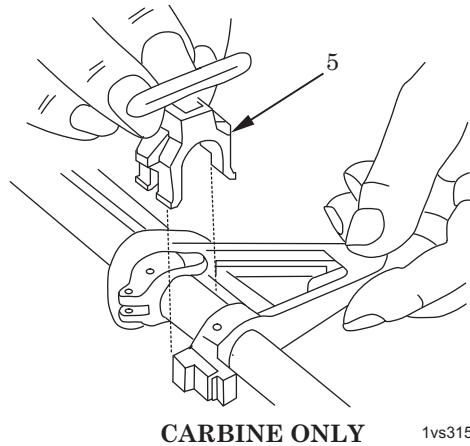


Figure 4. Removing Swivel Mount.

4. Remove swivel mount (5).

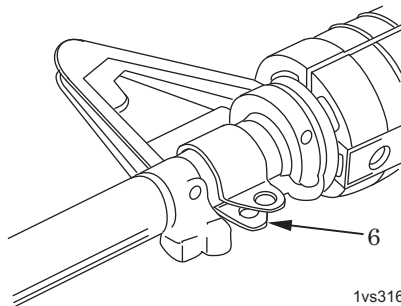


Figure 5. Installing Barrel Band.

5. Install barrel band (6) under front sight post. The barrel band must be bent out to fit around the barrel, then bent back close after installation to ensure proper fit around the barrel.

INSTALLATION - Continued

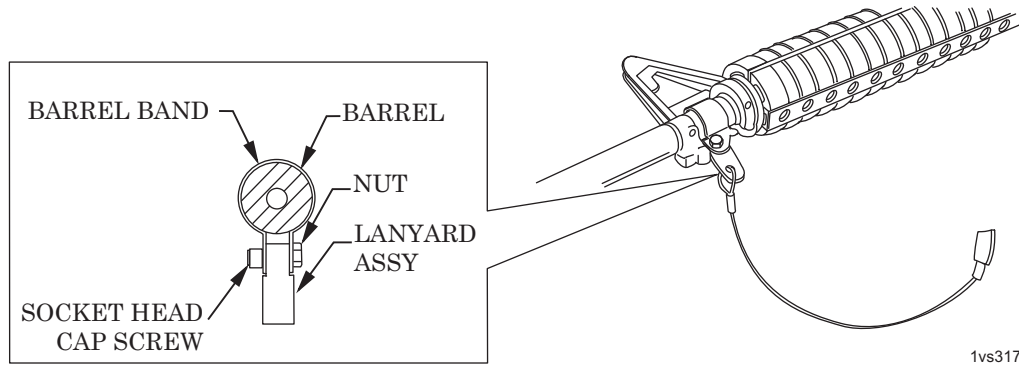


Figure 6. Attaching Lanyard Assembly.

6. Attach lanyard assembly to the barrel band using supplied hardware, 7/64 in. hex key wrench, and pliers.

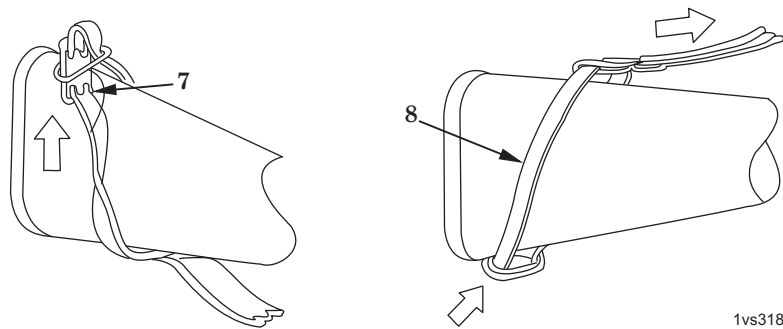


Figure 7. Attaching Rear Sling Adapter.

7. Put the rear loop (7) around the buttstock and pass the loop lock through the swivel exactly as shown in Figure 7.
8. Attach rear sling adapter (8) to buttstock as shown in Figure 7.

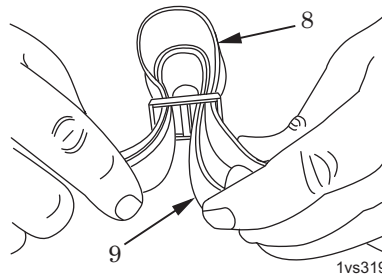


Figure 8. Assembling Sling to Rear Sling Adapter.

9. Assemble standard sling (9) to rear sling adapter (8) as shown in Figure 8.

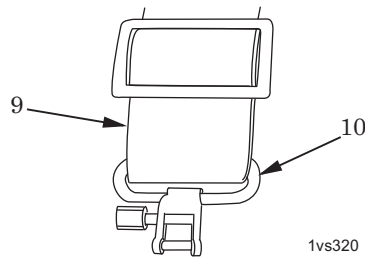


Figure 9. Attaching Sling to Quick Release Swivel.

10. Attach end of standard sling (9) to quick release swivel (10) as shown in Figure 9.



Figure 10. Attaching Swivel to Lanyard.

11. Attach swivel (10) to lanyard assembly. Unscrew nut counterclockwise while pulling outward, stopping when resistance is felt. Push inward on plastic nut and rotate plate a quarter turn.



Figure 11. Securing Swivel and Lanyard.

12. The swivel (10) can be attached to the lanyard in one of two ways; it can be attached either to the lug on the end of the lanyard or to the lug attached to the barrel band. When the lanyard is attached to the barrel lug, note that the lanyard is dressed around the sling (9) and inserted between the layers of the sling.

END OF TASK

REPAIR OR REPLACEMENT

Visually inspect close quarters battle sling and replace if it is badly worn or damaged.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BLANK FIRING ATTACHMENT MAINTENANCE
INSTALLATION, REPAIR OR REPLACEMENT, REMOVAL

INITIAL SETUP:

Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Paint, enamel (Red — Rifles) (WP 0045, item 24)

Paint, enamel (Yellow — Carbines) (WP 0045, item 25)

WARNING



Do not keep live ammunition near work area.

Only blank cartridge M200 is to be used when the blank firing attachment is attached to the rifle/carbine.

Do not fire blank ammunition at a target at distances of less than 20 feet (6.1 m). The unburned propellant grains can cause injury within this distance.

INSTALLATION

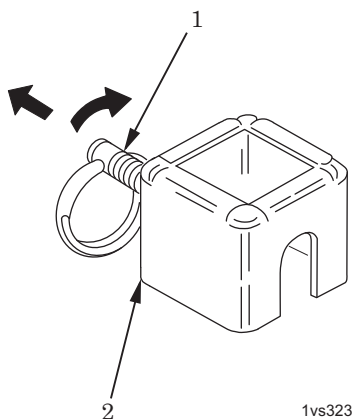


Figure 1. Unscrewing Slide.

NOTE

M23 blank firing attachment is stamped "M4 Carbine Only" painted yellow and may be used on the M4 and M4A1 carbines. M15A2 blank firing attachment is painted red and is used on the M16A2, M16A3, and M16A4 rifle.

1. Unscrew and pull slide (1) all the way out on the blank firing attachment (2).

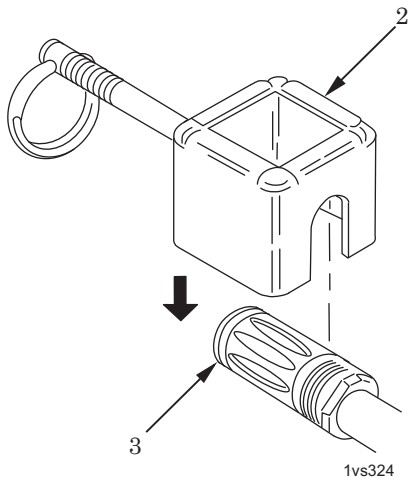
INSTALLATION - Continued

Figure 2. Placing Blank Firing Attachment.

2. Hook blank firing attachment (2) behind the first groove of the compensator (3).

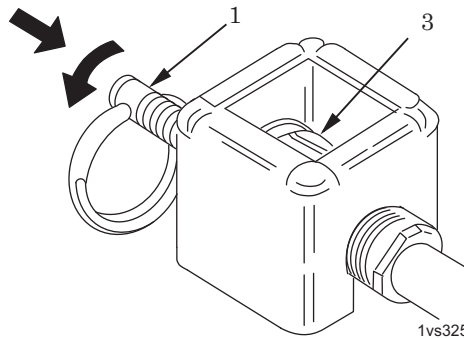


Figure 3. Securing Blank Firing Attachment.

CAUTION

Do not use tools to tighten the blank firing attachment. Use hands only.

3. Push slide (1) into compensator (3) and hand tighten.

NOTE

Check for tightness after firing approximately 50 blank rounds.

END OF TASK**REPAIR OR REPLACEMENT**

1. Clean blank firing attachment with CLP (WP 0045, item 9), wipe dry, and coat with CLP.
2. Inspect blank firing attachment for cracks or distortion. Be sure the parts in the slide are clear and clean. If blank firing attachment is cracked or distorted, it is unserviceable.

3. Repaint blank firing attachment using enamel paint. Use red (WP 0045, item 24) for M16A2, M16A3, and M16A4 rifles or yellow (WP 0045, item 25) for M4 and M4A1 carbines. Painting is the only repair authorized.
4. Replace blank firing attachment if unserviceable.

END OF TASK

REMOVAL

CAUTION

Do not use tools to tighten the blank firing attachment. Use hands only.

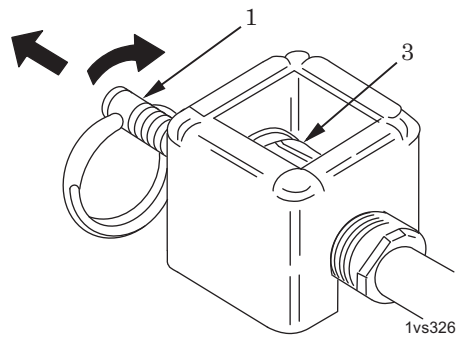


Figure 4. Unscrewing Slide from Compensator.

1. Unscrew slide (1) to remove from compensator (3).

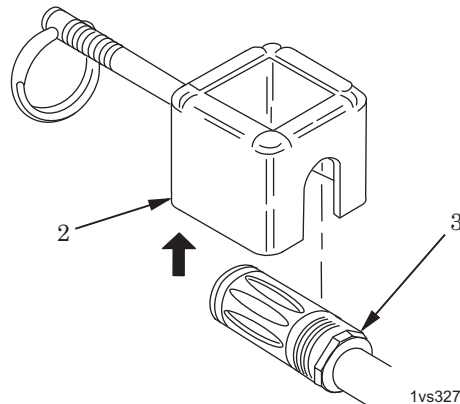


Figure 5. Removing Blank Firing Attachment.

2. Unhook blank firing attachment (2) from behind the first groove of the compensator (3).

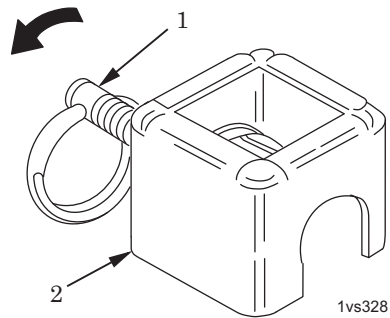
REMOVAL - Continued

Figure 6. Securing Slide in Blank Firing Attachment.

3. Screw slide (1) all the way in on blank firing attachment (2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
M12 STORAGE RACK MAINTENANCE
INSTALLATION

INITIAL SETUP:

Tools and Special Tools

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11
Small Arms Tool Kit, SC 5180-95-B71

Materials/Parts

Adapter bar (WP 0030, Figure 6)
Machine screw (2) (MS35206-315)
Mounting bracket (WP 0045, item 23)
Nut (2) (MS35649-2382)
Olive drab enamel (WP 0045, item 16)
Rail protector (WP 0045, item 29)
Washer (4) (MS27183-15)

INSTALLATION

M4/M4A1 Carbine Only:

1. When storing the M4/M4A1 carbine in the M12 storage rack, an adapter bar (WP 0030, Figure 6) **MUST** be used for security reasons. This minor alteration to the M12 storage rack must be performed by field maintenance. Install the adapter bar to the M12 storage rack as follows:
 - a. Remove all weapons from the M12 storage rack and position the M12 storage rack to gain access to the back.

INSTALLATION - Continued

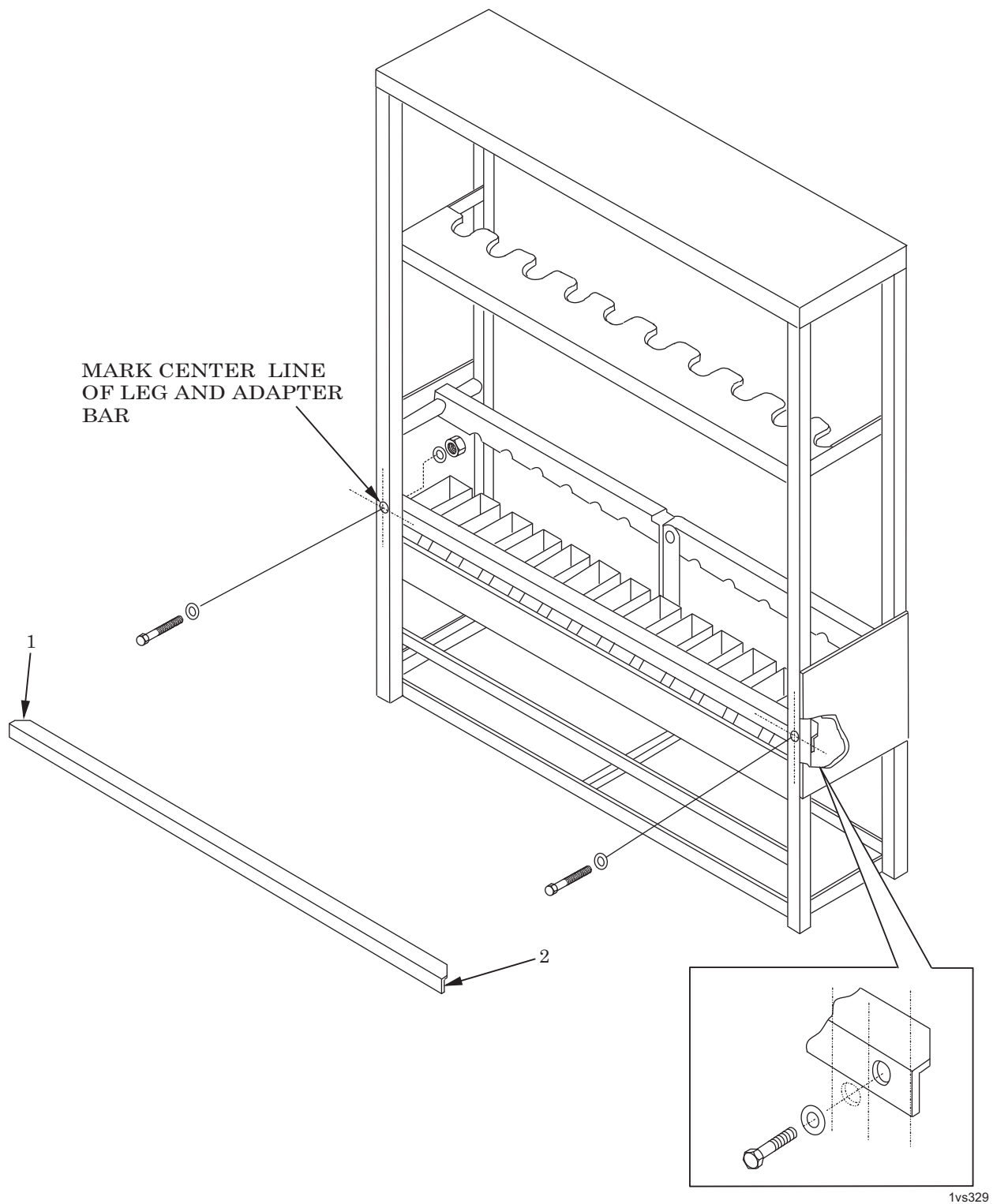


Figure 1. Installing Adapter Bar on M12 Storage Rack.

- b. The side of the adapter bar with the cut off corners (1) is the top and the side with the square corners (2) is the back. The portion of the bar must be placed so the cut corners face the front of the M12 storage rack.
- c. Holding the adapter bar at an angle, place one end into position inside the rear leg of the M12 storage rack. Lower the other end of the bar into position. Allow the adapter bar to rest on the M12 storage rack.
- d. Clamp both ends of the adapter bar into position. Mark the center line of the leg and adapter bar where they meet (see Figure 1). Using a center punch, mark the location of the holes to be drilled where the center lines cross. The holes must be centered on both the leg and the adapter bar. Drill a 1/8 in. pilot hole through both M12 storage rack legs and the ends of the adapter bar. Drill a 3/8 in. hole through both M12 storage rack legs and the ends of the adapter bar using the pilot hole as a guide. Remove the adapter bar. File the edges of all holes smooth. Paint all bare metal surfaces with olive drab enamel paint (WP 0045, item 16).
- e. Reinsert the adapter bar into position on the M12 storage rack. Using two 3/8 in. x 2 in. machine screws (MS35206-315, NSN 5305-00-984-5695 or equivalent), four washers (MS27183-15, NSN 5310-00-809-4061 or equivalent), and two nuts (MS35649-2382, NSN 5310-00-056-3395 or equivalent), assemble adapter bar to M12 storage rack and tighten securely. The bolts can be inserted from either the back or the front to meet your requirements. If the M12 storage rack is placed close to a wall or another M12 storage rack, it is recommended that the bolts be inserted from the back.
- f. Tack weld, braze, or peen the threaded portion of the bolt to the nut to prevent easy removal.
- g. Place M12 storage rack back into position and replace the weapons.

NOTE

It is necessary to either remove the carrying handle or move it back one notch in order to secure the locking bars of the M12 storage rack during storage of the M16A4 rifle and M4/M4A1 carbine. DO NOT mix back-up carrying handles from one weapon to another; it may change the zero of the last weapon.

- 2. It is recommended that the rail protector (WP 0045, item 29) be used during storage of the carbines when the carrying handle assembly or some accessory is not installed on the upper receiver to prevent damage to the mounting surface on the upper receiver.

INSTALLATION - Continued**M16A4 Rifle and M4/M4A1 Carbine:****NOTE**

Organizations that are having difficulty securing the M16A4 rifle with M5 adapter rail system mounted or M4/M4A1 carbine with M4 adapter rail system mounted are authorized the following minor alteration to the M12 storage rack.

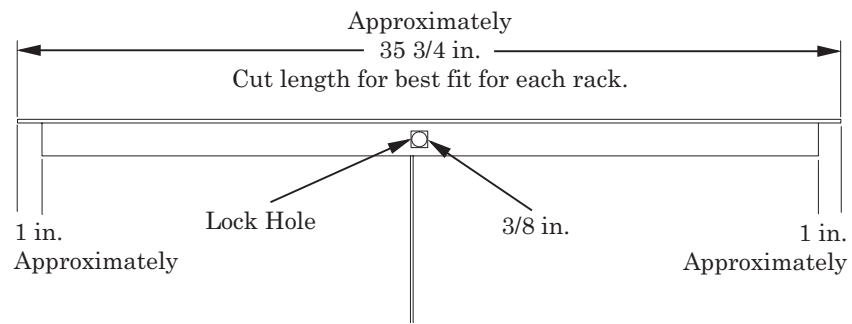
Due to differing physical dimensions of the M12 storage racks (construction tolerances), a locking bar is required when storing M16A4 rifles or M4/M4A1 carbines with adapter rail systems installed.

1. Fabricate and install locking bars as follows:

NOTE

The best length of the locking bar for each storage rack varies. The bar should be cut to the length that gives a very tight fit to ensure the M12 storage rack will meet arms rack certification criteria when using this locking bar. Measure and cut each length of angle iron to best fit each storage rack.

- a. Cut each piece of stock 1-1/4 in. x 1/8 in. angle iron needed for locking bars (one for each M12 storage rack). The dimensions shown below are approximate. Place the cross locking bars of the M12 storage rack in the up (unlocked) position.
- b. Place each piece of cut angle iron on each M12 storage rack separately to identify the location for the lock hole. Place the angle iron on the M12 storage rack with the angle iron behind the M12 storage rack lock hole. From the front of the M12 storage rack, trace the M12 lock hole onto the locking bar. The traced hole on the locking bar is larger than 3/8 in. (0.92 cm).
- c. Drill a 3/8 in. (0.92 cm) hole in the locking bar close to the top of the oversized traced hole on the angle iron. Ensure that as much metal as possible is left in the bottom portion of the angle iron's lock hole when drilling (1/8 in. (0.32 cm) minimum). Grind all cut and drilled surfaces to remove burrs.
- d. Position the two cross locking bars of the M12 storage rack in the up position.
- e. Place the M16A4, M4, or M4A1 weapons with the mounted adapter rail systems in the M12 storage rack.
- f. Place the fabricated M12 locking bar on the M12 storage rack with the lock hole of the locking bar behind the lock hole of the M12 storage rack. Place a series 200 lock through the lock holes and lock.



When drilling the 3/8 in. lock hole, leave as much metal intact at this location as possible (1/8 in. minimum).

1vs331

Figure 2. Fabrication of Locking Bar.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE**CARRYING HANDLE ASSEMBLY MAINTENANCE****DISASSEMBLY, REPAIR OR REPLACEMENT, LUBRICATION,
ASSEMBLY, TEST AND INSPECTION****EFFECTIVITY NOTICE****M16A3, M16A4 RIFLE****M4, M4A1 CARBINE**

INITIAL SETUP:**Tools and Special Tools**

Small Arms Shop Set: Field Maintenance, Basic, Less Power, SC 4933-95-A11

Small Arms Tool Kit, SC 5180-95-B71

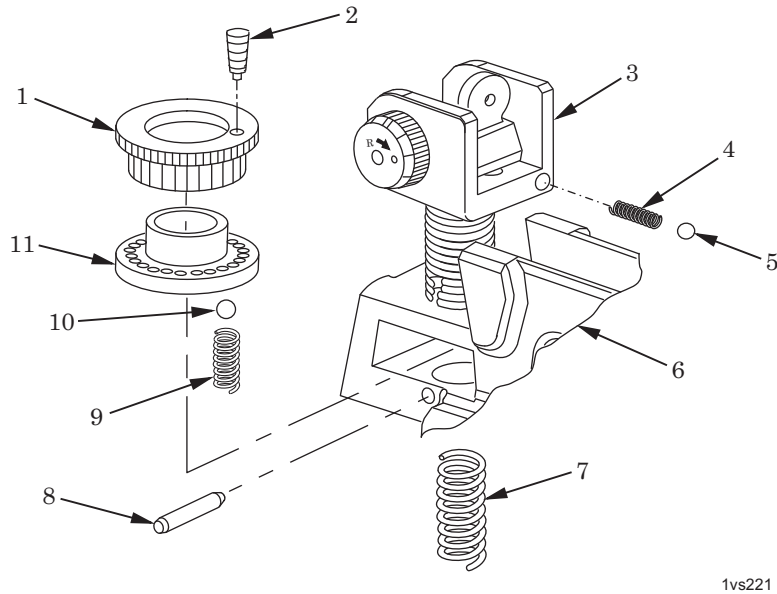
Materials/Parts

Cleaner, lubricant, and preservative (CLP) (WP 0045, item 9)

Index screw 9349065

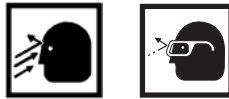
Solid film lubricant (WP 0045, item 20)

ReferencesWP 0039

DISASSEMBLY

1vs221

Figure 1. Disassembly of Carrying Handle Assembly.

WARNING

To avoid injury to eyes, use care when removing spring-loaded parts.

1. Drive out spring pin (8) using a 3/32 in. punch. Catch helical spring (7) when punch is withdrawn.
2. Rotate elevating mechanism (1) until rear sight assembly (3) clears gun carrying handle (6). Catch ball bearing (5) and helical spring (4).
3. Push elevating mechanism (1) out with thumb using slight rotation motion. Catch ball bearing (10) and helical spring (9).
4. Use 1/16 in. key wrench to remove index screw (2). Discard index screw. Separate elevating mechanism (1) from knob (11) by hand.

END OF TASK**REPAIR OR REPLACEMENT**

1. Check rear sight parts for serviceability. Inside of apertures should be round and distinct. Replace if defective.
2. Visually inspect rear sight assembly helical springs and ball bearings for breaks, bends, and missing parts. Ball bearings should be smooth and round. Replace if defective.
3. Check elevating mechanism for legibility of markings.

4. Check rear sight assembly for serviceability. Clear drain holes for springs. Threaded portion of rear sight assembly and knob should be well formed.
5. Inspect rear sight guards for bends; if bent, repair as follows:

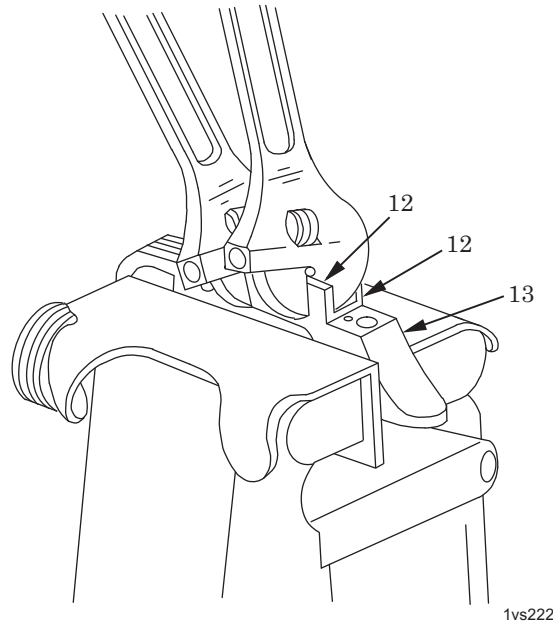


Figure 2. Straightening Rear Sight Guards.

- a. Place carrying handle assembly (13) in a vise using jaw clamps. Tighten vise.
- b. Using two adjustable wrenches, gradually bend guards (12) to straighten. When bending the guards, gradually bend beyond the straight point as the guard will partially return when bending pressure is stopped.
- c. After straightening, use a flat file to remove any nicks, kinks, or burrs that remain on the inside of guards (12).

WARNING



SOLID FILM LUBRICANT

CAUTION

Do not use wire brush on aluminum surfaces.

- d. Apply solid film lubricant (WP 0045, item 20) to brightened area for final protective coating.
 - e. If rear sight guards cannot be straightened utilizing the above procedures, replace the carrying handle assembly.
6. Inspect all parts for damage and wear. Replace all defective parts as authorized by WP 0039.

END OF TASK

LUBRICATION

Lubricate rear sight assembly. Apply cleaner, lubricant, and preservative (CLP) (WP 0045, item 9) to helical springs and ball bearings and threaded portion of index screw before installation. Lubricate helical springs and ball bearings through their respective drain holes.

END OF TASK

ASSEMBLY

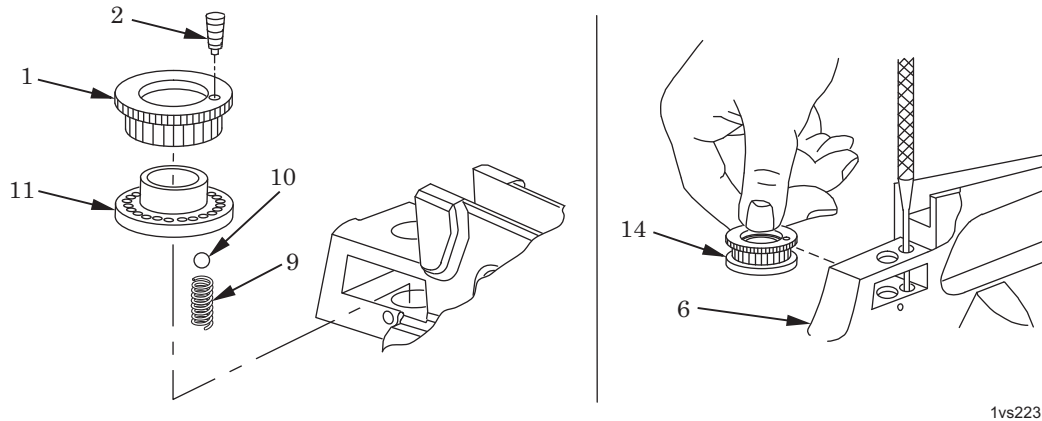


Figure 3. Assembly and Installation of Elevation Knob Assembly.

1. Assemble knob (11), elevating mechanism (1), and new index screw (2) using 1/16 in. key wrench. Do not overtighten index screw as scale will require adjustment.
2. Install ball bearing (10) and helical spring (9) using needle-nose pliers or tweezers.
3. Depress ball bearing (10) with a punch inserted through access hole, and slide elevation knob assembly (14) into gun carrying handle (6) from the side. Center elevation knob assembly.

WARNING

To avoid injury to eyes, use care when installing spring-loaded parts.

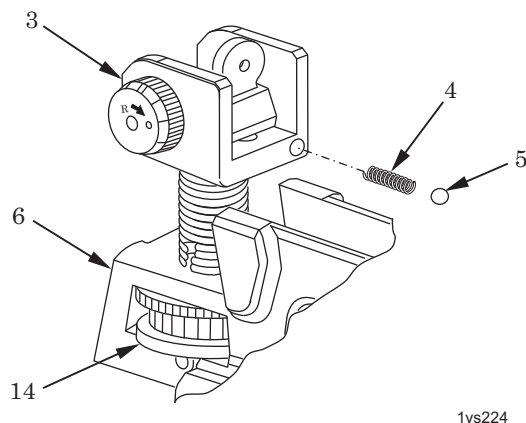


Figure 4. Installation of Rear Sight Assembly.

4. Install helical spring (4) and ball bearing (5).
5. Insert threaded portion of rear sight assembly (3) into gun carrying handle (6) and rotate elevation knob assembly (14) until threads engage.
6. Rotate elevation knob assembly (14) until rear sight assembly (3) is all the way down. Then come up 22 clicks before installing spring pin.

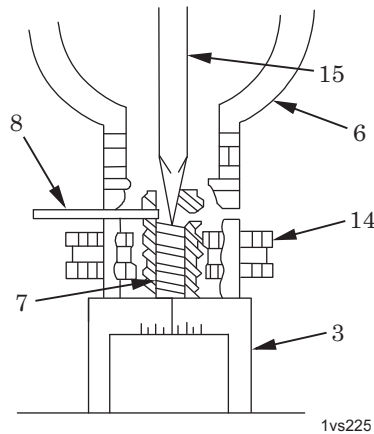
ASSEMBLY - Continued

Figure 5. Installation of Helical Spring.

CAUTION

Ensure that spring pin passes over helical spring, not through its coils.

7. Insert helical spring (7) through underside of gun carrying handle (6). Compress helical spring with a small tip screwdriver (15) to install spring pin (8). Spring pin must pass over helical spring, not through its coils. Rotate elevation knob assembly (14) until rear sight assembly (3) is all the way down.

END OF TASK**TEST AND INSPECTION**

1. Rotate and test elevating mechanism for ease of functioning.
2. Inspect elevation knob zero as follows:
 - a. Rotate knob counterclockwise until the rear sight assembly is all the way down. If a whole click is not felt as the rear sight assembly stops, the rear sight assembly has bottomed out and will not pivot freely.
 - b. Position knob back slightly to its last whole click so the rear sight assembly is under tension of ball bearing and helical spring. The 300 meter mark should align with mark on carrying handle assembly on the left side.

-
- c. If 300 meter mark is not aligned with mark on carrying handle assembly, slip range scale in the following manner:
- (1) Position 300 meter mark with mark on carrying handle assembly.
 - (2) Insert a 1/16 in. key wrench through access hole of rear sight assembly and into index screw.
 - (3) Loosen index screw three turns and leave wrench in place.
 - (4) Rotate lower portion of knob counterclockwise until it stops (range scale should not have moved). Knob should be positioned on its last whole click.
 - (5) Tighten index screw and remove wrench.
 - (6) Check for proper setting.

END OF TASK

END OF WORK PACKAGE

CHAPTER 5

PARTS INFORMATION
FOR
M16 SERIES RIFLES
AND
M4 SERIES CARBINES

FIELD MAINTENANCE**INTRODUCTION TO REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)**

INTRODUCTION**SCOPE**

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of field maintenance of the M16 series rifles and the M4 series carbines. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. **Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. **Special Tools List Work Packages.** Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

Table 1. SMR Code Explanation.

<u>Source Code</u>	<u>Maintenance Code</u>		<u>Recoverability Code</u>
— xx —	— xx —		— x —
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair* on the item.	5th position: Who determines disposition action on unserviceable items.

*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code**Application/Explanation**

PA
PB
PC
PD
PE
PF
PG
PH
PR
PZ

NOTE

Items coded PC are subject to deterioration.

Stock items; use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code.

KD
KF
KB

Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.

MO- Made at unit/
AMC level
MF- Made at DS/
ASB level
MH- Made at sustainment
level
ML- Made at SRA/TASMG
MD- Made at depot
MG- Navy only

Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.

<u>Source Code</u>	<u>Application/Explanation</u>
AO- Assembled by unit/AMC level	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
AF- Assembled by DS/ASB level	
AH- Assembled by sustainment level	
AL- Assembled by SRA/TASMG	
AD- Assembled by depot	
AG- Navy only	
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and part number.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's part number.
XD	Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

<u>Maintenance Code</u>	<u>Application/Explanation</u>
O* -	Unit level/AMC maintenance can remove, replace, and use the item.
F -	Direct support/ASB maintenance can remove, replace, and use the item.
H -	Sustainment maintenance can remove, replace, and use the item.
L -	Specialized repair activity/TASMG can remove, replace, and use the item.
G -	Afloat and ashore intermediate maintenance can remove, replace, and use the item (Navy only).
K -	Contractor facility can remove, replace, and use the item.
Z -	Item is not authorized to be removed, replaced, or used at any maintenance level.
D -	Depot can remove, replace, and use the item.

*NOTE - Army may use C in the third position. However, for joint service publications, Army will use O.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES - Continued

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

<u>Maintenance Code</u>	<u>Application/Explanation</u>
O	- Unit/AMC is the lowest level that can do complete repair of the item.
F	- Direct support/ASB is the lowest level that can do complete repair of the item.
H	- Sustainment is the lowest level that can do complete repair of the item.
L	- Specialized repair activity/TASMG is the lowest level that can do complete repair of the item.
D	- Depot is the lowest level that can do complete repair of the item.
G	- Both afloat and ashore intermediate levels are capable of complete repair of item (Navy only).
K	- Complete repair is done at contractor facility.
Z	- Nonreparable. No repair is authorized.
B	- No repair is authorized. No parts or special tools are authorized for the maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

<u>Recoverability Code</u>	<u>Application/Explanation</u>
Z	- Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
O	- Repairable item. When uneconomically repairable, condemn and dispose of the item at the service/AMC level.
F	- Repairable item. When uneconomically repairable, condemn and dispose of the item at the field/ASB level.
H	- Repairable item. When uneconomically repairable, condemn and dispose of the item at the below depot sustainment level.
D	- Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L	- Repairable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA) or theater aviation sustainment maintenance group (TASMG).
A	- Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

**Recoverability
Code**
Application/Explanation

G	-	Field level repairable item. Condemn and dispose at either afloat or ashore intermediate levels (Navy only).
K	-	Repairable item. Condemnation and disposal to be performed at contractor facility.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name and, when required, a minimum description to identify the item.
2. Part numbers of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package. NSNs in this index are listed in National Item Identification Number (NIIN) sequence.

STOCK NUMBER Column. This column lists the NSN in NIIN sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

For example, if the NSN is 5385-01-574-1476, the NIIN is 01-574-1476.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. Part numbers in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. Indicates the part number assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

<u>Code</u>	<u>Used On</u>
AR8	M16A2 Rifle
AW4	M16A3 Rifle
AZ1	M16A4 Rifle
AS1	M4 Carbine
AY6	M4A1 Carbine

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk materials are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in WP 0030 of this manual.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN / Part Number (P/N) Index work packages and the bulk material list in the repair parts list work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or Part Numbers Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When Part Number Is Known.

First. If you have the part number and not the NSN, look in the PART NUMBER column of the part number index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

END OF WORK PACKAGE

FIELD MAINTENANCE

**RIFLE, 5.56MM (M16A2) 9349000; RIFLE, 5.56MM (M16A3) 12012000;
RIFLE, 5.56MM (M16A4) 12973001; CARBINE, 5.56MM (M4) 9390000;
AND CARBINE, 5.56MM (M4A1) 12972700**

REPAIR PARTS LIST

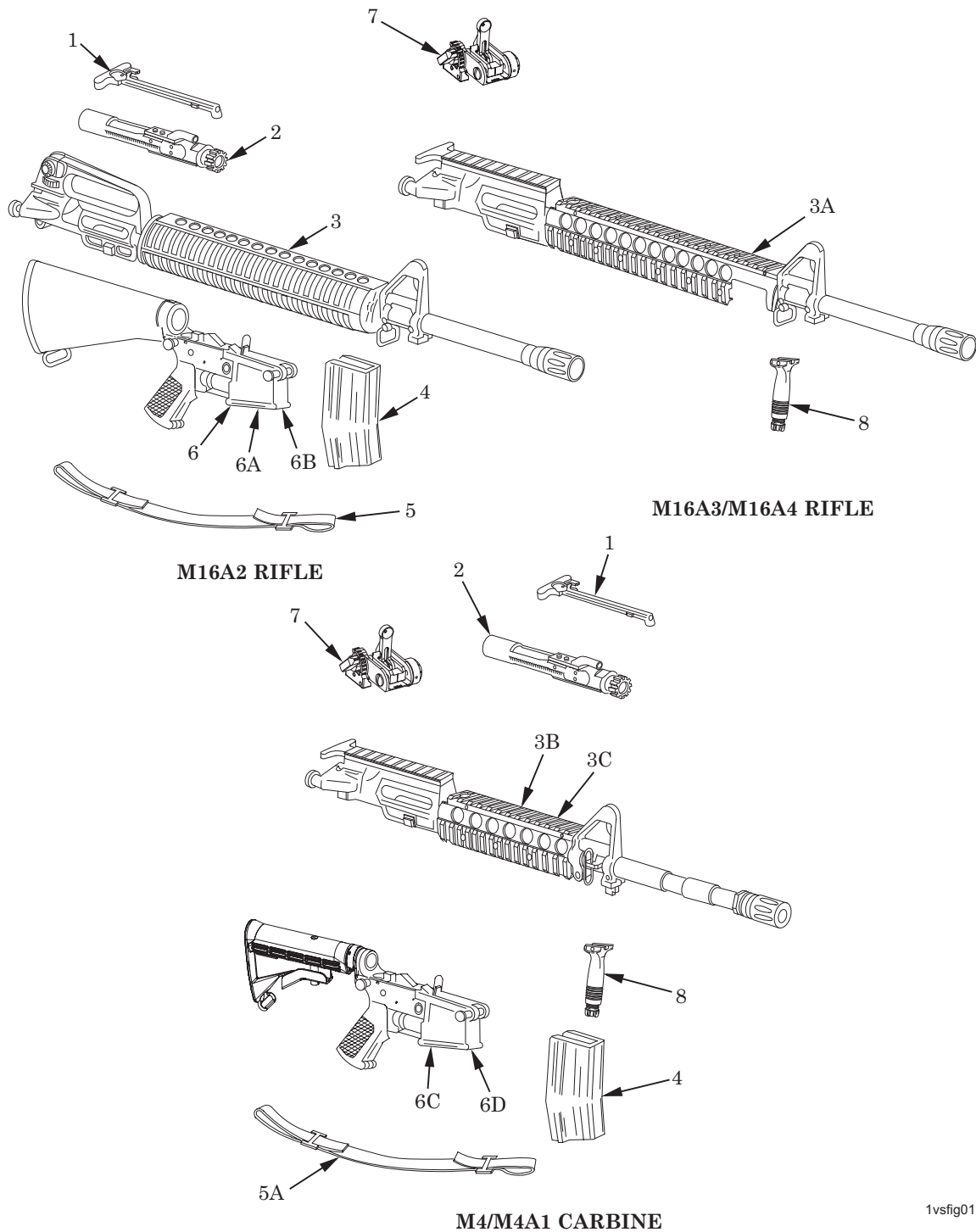
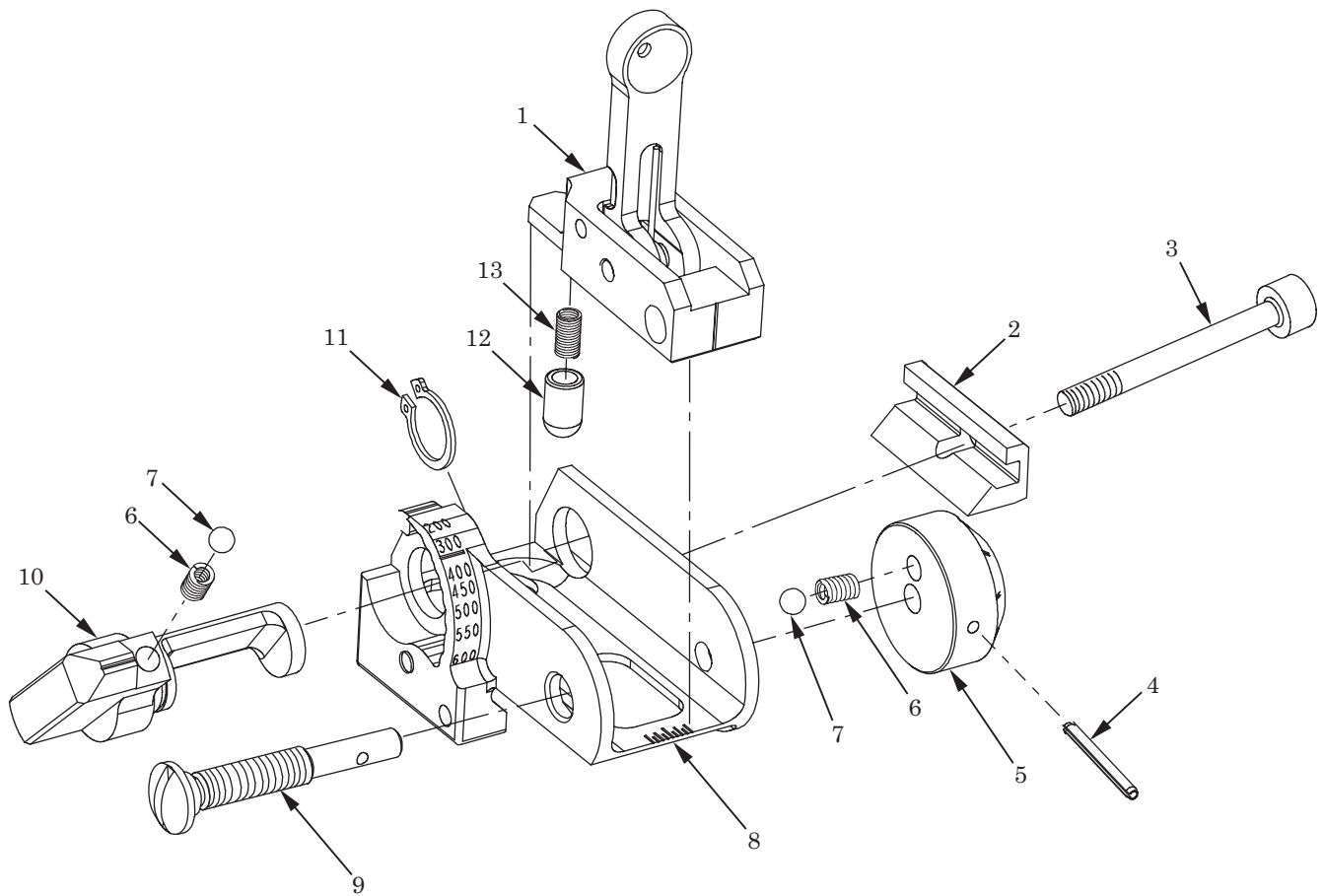


Figure 1. Rifle, 5.56mm (M16A2) 9349000; Rifle, 5.56mm (M16A3) 12012000; Rifle, 5.56mm (M16A4) 12973001; Carbine, 5.56mm (M4) 9390000; and Carbine, 5.56mm (M4A1) 12972700.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 00	(7) QTY
					FIG. 1 RIFLE, 5.56MM (M16A2) 9349000; RIFLE, 5.56MM (M16A3) 12012000; RIFLE, 5.56MM (M16A4) 12973001; CARBINE, 5.56MM (M4) 9390000; CARBINE, 5.56MM (M4A1) 12972700	
1	PAFFF	1005-00-017-9546	19204	8448517	HANDLE ASSEMBLY, CHARGING (FOR ASSY BREAKDOWN SEE FIG. 6).....	1
2	AFFFF		19200	13004788	BOLT AND BOLT CARRIER ASSEMBLY (FOR ASSY BREAKDOWN SEE FIG. 3).....	1
3	AFFFF		19200	9349050	UPPER RECEIVER AND BARREL ASSEMBLY (M16A2) (FOR ASSY BREAKDOWN SEE FIG. 7).....	1
					UOC:AR8	
3A	AFFFF		19200	12973010	UPPER RECEIVER AND BARREL ASSEMBLY (M16A3, M16A4) (FOR ASSY BREAKDOWN SEE FIG. 7).....	1
					UOC: AW4, AZ1	
3B	AFFFF		19200	12972680	UPPER RECEIVER AND BARREL ASSEMBLY (M4) (FOR ASSY BREAKDOWN SEE FIG. 7).....	1
					UOC:AS1	
3C	AFFFF		19200	12997148	UPPER RECEIVER AND BARREL ASSEMBLY (M4A1) (FOR ASSY BREAKDOWN SEE FIG. 7).....	1
					UOC:AY6	
4	PACZZ	1005-00-921-5004	19200	8448670	MAGAZINE CARTRIDGE (30 ROUND).....	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
5	PACZZ	1005-01-216-4510	19204	12624561	SLING, SMALL ARMS (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
5A	PACZZ	1005-01-368-9852	19200	12011996	SLING, SMALL ARMS (M4, M4A1) UOC:AS1, AY6	1
6	XAFFA		19200	9349100	LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M16A2) (FOR ASSY BREAKDOWN SEE FIG. 15) UOC:AR8	1
6A	XAFFA		19200	12012001	LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M16A3) (FOR ASSY BREAKDOWN SEE FIG. 15) UOC:AW4	1
6B	XAFFA		19200	12598101	LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M16A4) (FOR ASSY BREAKDOWN SEE FIG. 15) UOC:AZ1	1
6C	XAFFA		19200	9390011	LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M4) (FOR ASSY BREAKDOWN SEE FIG. 15) UOC:AS1	1
6D	XAFFA		19200	12972690	LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M4A1) (FOR ASSY BREAKDOWN SEE FIG. 15) UOC:AY6	1
7	PAFFF	1005-01-484-8000	19200	12996812	BACK-UP IRON SIGHT ASSEMBLY (M16A3, M16A4, M4, M4A1) (FOR ASSY BREAKDOWN SEE FIG. 2)..... UOC:AW4, AZ1, AS1, AY6	1
8	PAFZZ	1005-01-453-6655	19200	12973101	VERTICAL PISTOL GRIP (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1

END OF FIGURE



1vsfig02

Figure 2. Back-up Iron Sight Assembly (M16A3, M16A4, M4, M4A1) 12996812.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 01	(7) QTY
					FIG. 2 BACK-UP IRON SIGHT ASSEMBLY (M16A3, M16A4, M4, M4A1) 12996812	
1	PAFZZ	1005-01-497-2592	19200	12996813	FRAME, ASSEMBLY	1
2	PAFZZ	5340-01-484-7999	19200	12996823	BAR, LOCKING	1
3	PAFZZ	5305-01-484-7075	19200	12996824	SCREW, RECOIL	1
4	PAFZZ	5315-00-058-6678	96906	MS16562-103	PIN, SPRING-TUBULAR, SLOTTED	1
5	PAFZZ	5355-01-134-3627	19200	9349077	KNOB, WINDAGE	1
6	PAFZZ	5360-01-148-1751	19200	9349069	SPRING, INDEX	2
7	PAFZZ	3110-00-183-9175	96906	MS19060-4808	BALL, BEARING, CORROSION RESISTANT STEEL	2
8	XAFZZ		19200	12996818	SIGHT, BASE	1
9	PAFZZ	5305-01-484-7074	19200	12996822	SCREW, WINDAGE	1
10	XAFZZ		19200	12996819	SIGHT, CAM	1
11	PAFZZ	5325-01-486-7585	96906	MS16624-3035	RING, RETAINING, EXTERNAL	1
12	PAFZZ	5315-01-484-7071	19200	12996821	PLUNGER	1
13	PAFZZ	5360-01-484-7076	19200	12996820	SPRING, COMPRESSION	1
					END OF FIGURE	

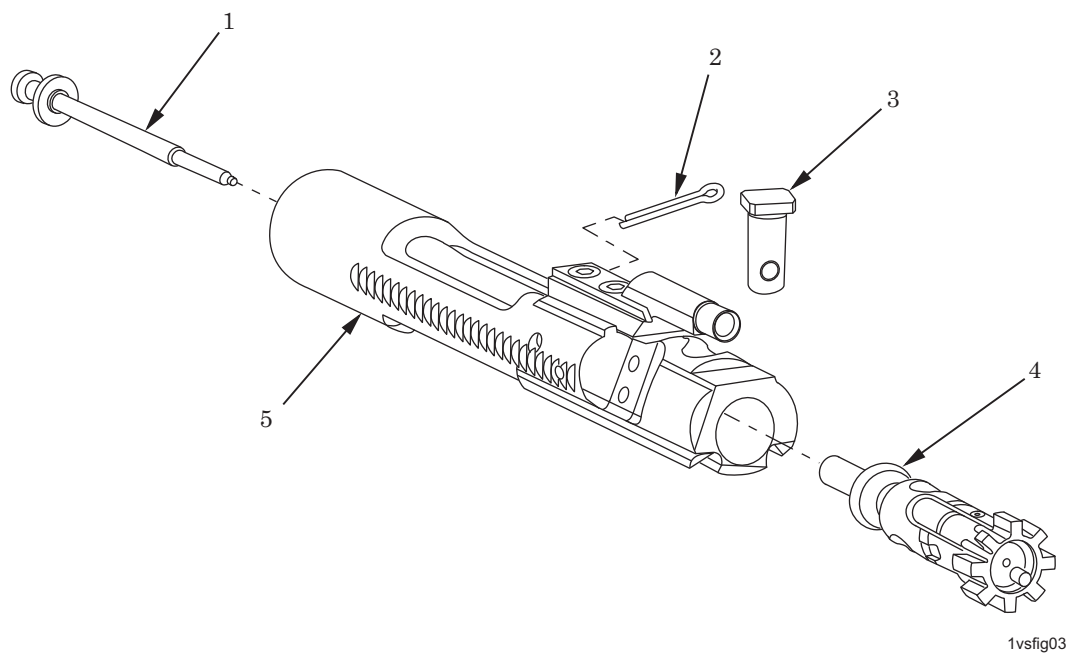


Figure 3. Bolt and Bolt Carrier Assembly 13004788.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 02	(7) QTY
					FIG. 3 BOLT AND BOLT CARRIER ASSEMBLY 13004788	
1	PAFZZ	1005-00-017-9547	19204	8448503	PIN, FIRING.....	1
2	PAFZZ	1005-00-999-1509	19204	8448504	PIN, FIRING PIN RETAINING	1
3	PAFZZ	5315-00-992-7294	19204	8448502	PIN, GROOVED, HEADED BOLT CAM.....	1
4	PAFFF	1005-01-505-1035	19200	13004787	BOLT, BREECH ASSEMBLY (FOR ASSY BREAKDOWN SEE FIG. 4).....	1
5	PAFFF	1005-01-441-1619	19204	8448505	KEY AND BOLT CARRIER ASSEMBLY (FOR ASSY BREAKDOWN SEE FIG. 5).....	1
					END OF FIGURE	

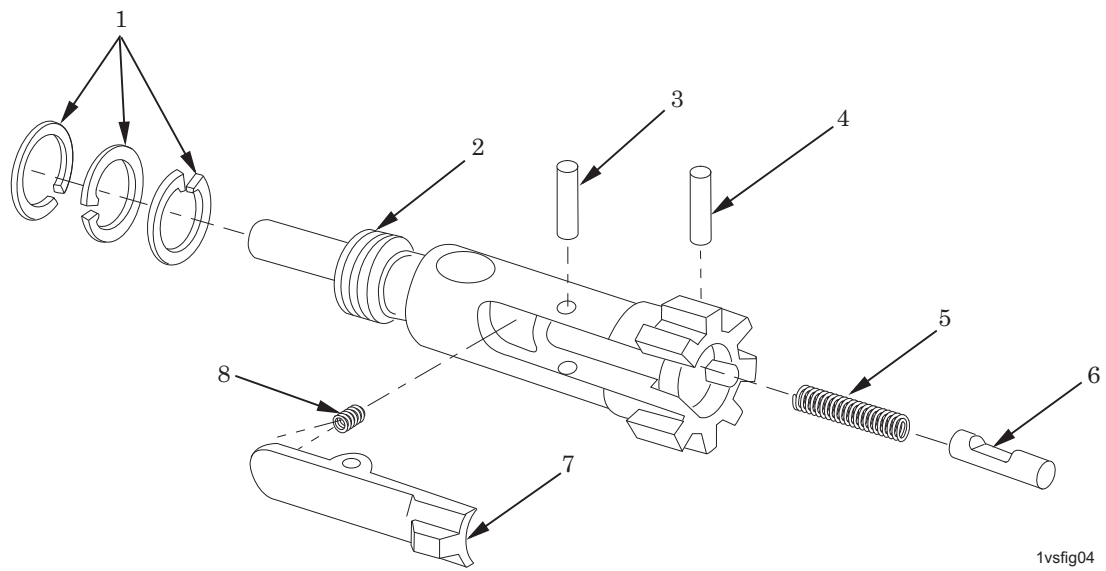
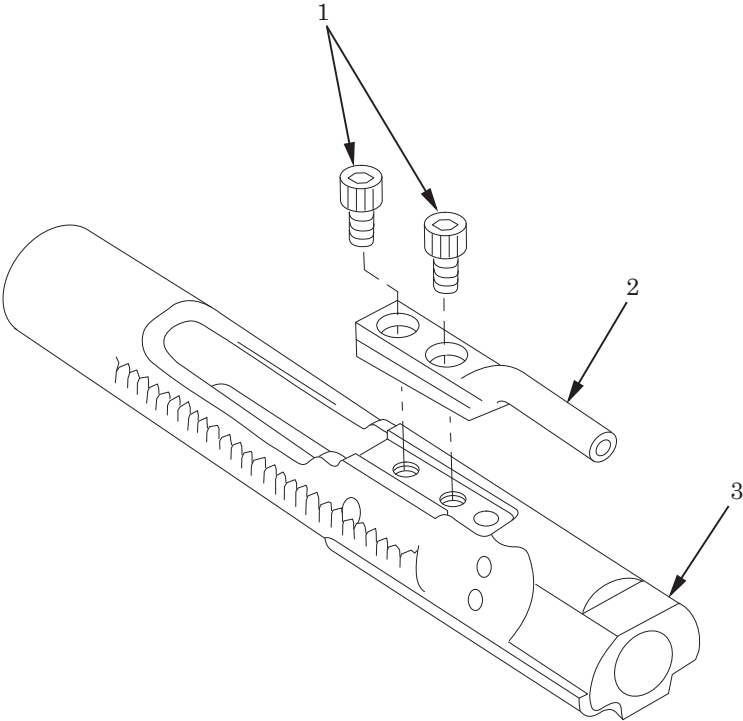


Figure 4. Breech Assembly Bolt 13004787.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0201						
FIG. 4 BREECH ASSEMBLY BOLT 13004787						
1	PAFZZ	1005-00-992-7287	19204	8448511	RING, BOLT	3
2	XAFZZ		19204	8448510	BOLT	1
3	PAFZZ	1005-00-992-7290	19204	8448513	PIN, EXTRACTOR	1
4	PAFZZ	5315-00-597-5086	80205	MS16562-98	PIN, SPRING EJECTOR	1
5	PAFZZ	5360-00-992-7292	19204	8448516	SPRING, HELICAL, COMPRESSION, EJECTOR	1
6	PAFZZ	1005-00-992-7291	19204	8448515	EJECTOR, CARTRIDGE	1
7	PAFZZ	1005-00-992-7288	19204	8448512	EXTRACTOR, CARTRIDGE.....	1
8	PAFZZ	1005-01-505-2886	19200	13004786	SPRING ASSEMBLY, EXTRACTOR (GOLD HUE SPRING)	1
END OF FIGURE						



1vsfig05

Figure 5. Key and Bolt Carrier Assembly 8448505.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0202						
FIG. 5 KEY AND BOLT CARRIER ASSEMBLY 8448505						
1	PAFZZ	5305-00-992-7284	19204	8448508	SCREW, CARRIER KEY.....	2
2	PAFZZ	1005-00-992-7283	19200	8448506	KEY, BOLT CARRIER.....	1
3	XAFZZ		19200	8448507	CARRIER, BOLT	1
END OF FIGURE						

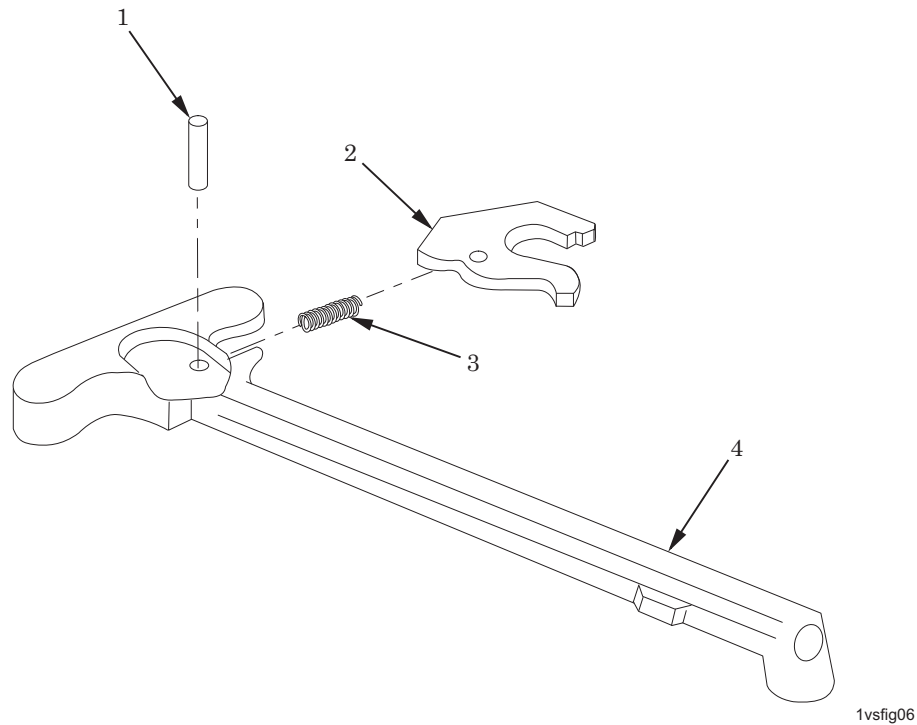
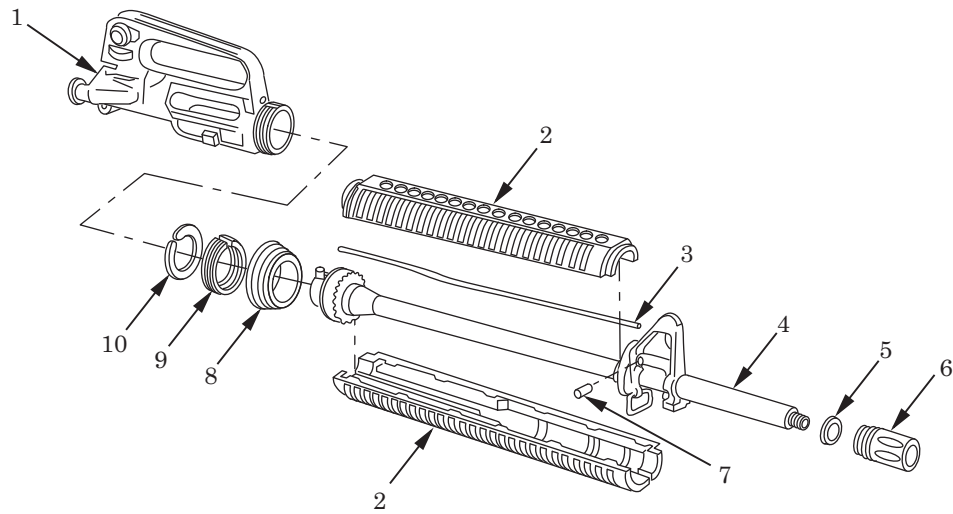
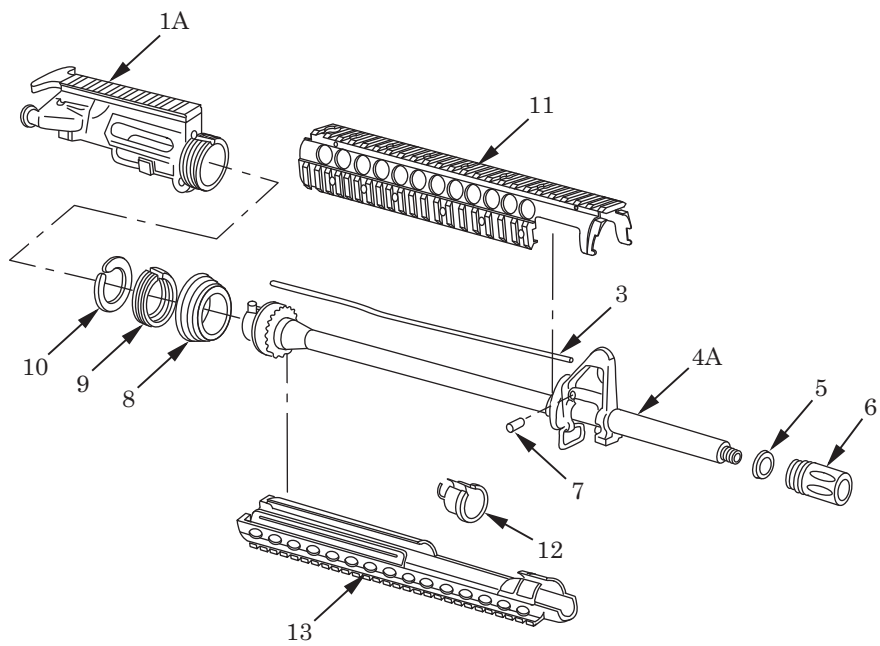


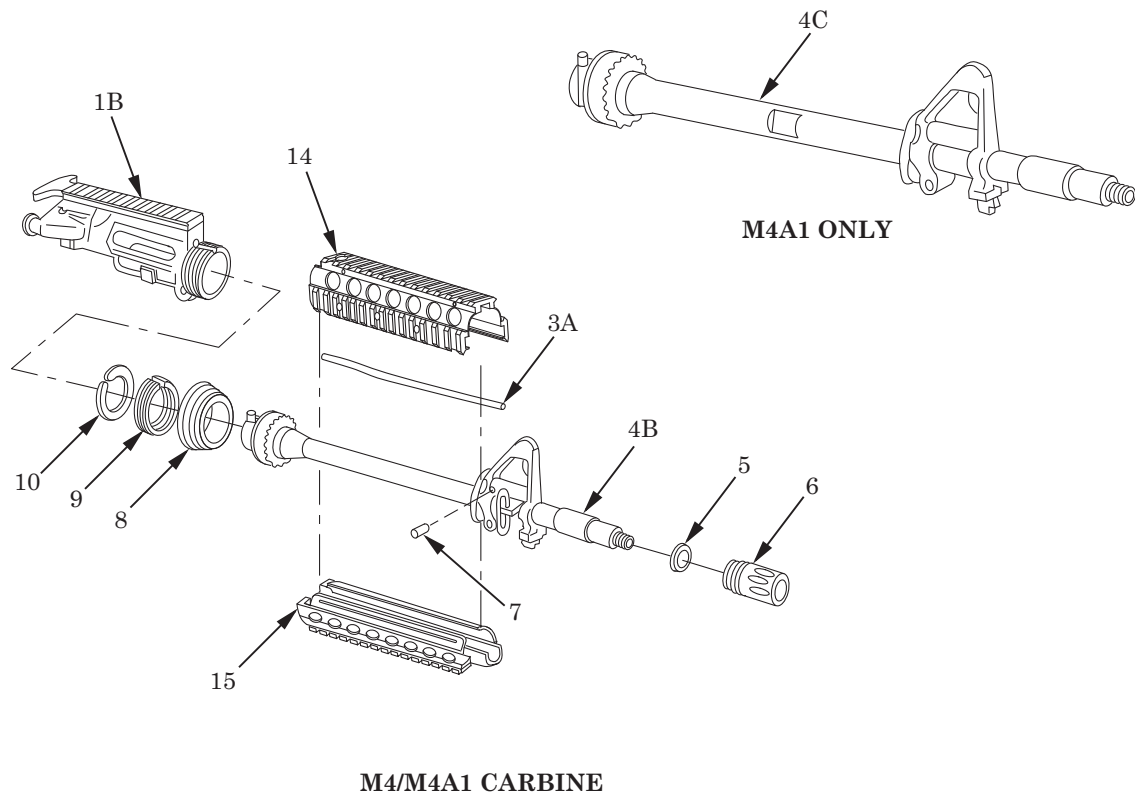
Figure 6. Charging Handle Assembly 8448517.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 03						
FIG. 6 CHARGING HANDLE ASSEMBLY 8448517						
1	PAFZZ	5315-01-048-9372	19204	8448521-2	PIN, SPRING, CHARGING HANDLE	1
2	PAFZZ	5342-00-999-0405	19200	8448519	LATCH, CHARGING HANDLE	1
3	PAFZZ	5360-00-999-0404	19204	8448520	SPRING, HELICAL, COMPRESSION, CHARGING HANDLE	1
4	XAFZZ		19204	8448518	HANDLE, CHARGING	1
END OF FIGURE						

**M16A2 RIFLE****M16A3/M16A4 RIFLE**

1vsfig07a

Figure 7. Upper Receiver and Barrel Assembly (M16A2) 9349050,
(M16A3, M16A4) 12973010, and (M4, M4A1) 12972680 (Sheet 1 of 2).

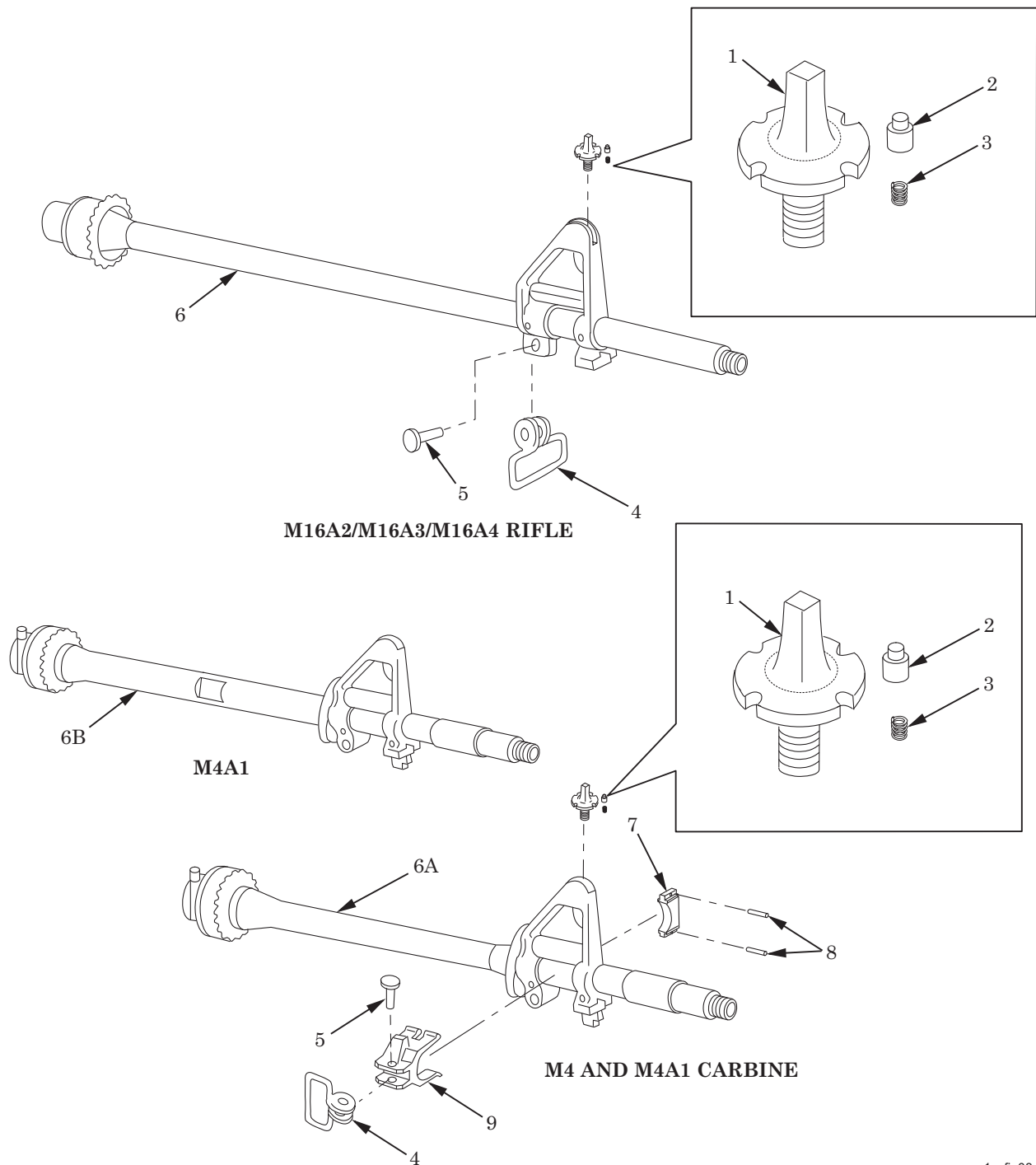


1vsfig07b

Figure 7. Upper Receiver and Barrel Assembly (M16A2) 9349050, (M16A3, M16A4) 12973010, and (M4, M4A1) 12972680 (Sheet 2 of 2).

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 04	(7) QTY
					FIG. 7 UPPER RECEIVER AND BARREL ASSEMBLY (M16A2) 9349050, (M16A3, M16A4) 12973010, AND (M4, M4A1) 12972680	
1	AFFFF		19200	9349062	UPPER RECEIVER ASSEMBLY (M16A2) (FOR ASSY BREAKDOWN SEE FIG. 12).....	1
					UOC:AR8	
1A	AFFFF		19200	12973011	UPPER RECEIVER ASSEMBLY (M16A3, M16A4) (FOR ASSY BREAKDOWN SEE FIG. 12).....	1
					UOC:AW4, AZ1	
1B	AFFFF		19200	12972675	UPPER RECEIVER ASSEMBLY (M4, M4A1) (FOR ASSY BREAKDOWN SEE FIG. 12).....	1
					UOC:AS1, AY6	
2	PAFZZ	1005-01-134-3629	19200	9349059	HANDGUARD ASSEMBLY (M16A2).....	2
					UOC:AR8	
3	PAFZZ	4710-00-978-1038	19200	8448567	TUBE, BENT, METALLIC (M16A2, M16A3, M16A4).....	1
					UOC:AR8, AW4, AZ1	
3A	PAFZZ	4710-01-233-8637	19200	9390016	TUBE, BENT, METALLIC (M4, M4A1).....	1
					UOC:AS1, AY6	
4	PAFFF	1005-01-146-7684	19200	9349124	BARREL ASSEMBLY (M16A2) (FOR ASSY BREAKDOWN SEE FIG. 8).....	1
					UOC:AR8	
4A	PAFFF	1005-01-454-1629	19200	12598107	BARREL ASSEMBLY (M16A3, M16A4) (FOR ASSY BREAKDOWN SEE FIG. 8).....	1
					UOC:AW4, AZ1	
4B	PAFFF	1005-01-233-8529	19200	9390007	BARREL AND FRONT SIGHT ASSEMBLY, REPLACEMENT (M4) (FOR ASSY BREAKDOWN SEE FIG. 8).....	1
					UOC:AS1	
4C	PAFFF	1005-01-471-5456	19200	12991851	BARREL AND FRONT SIGHT ASSEMBLY, REPLACEMENT (M4A1) (FOR ASSY BREAKDOWN SEE FIG. 8).....	1
					UOC:AY6	

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
5	PAFZZ	5310-01-475-9652	19200	12991533	WASHER, RECESSED	1
6	PAFZZ	1005-01-134-3633	19200	9349051	COMPENSATOR.....	1
7	PAFZZ	5315-00-058-6044	80205	MS16562-106	PIN, SPRING, GAS TUBE.....	1
8	PAFZZ	1005-00-087-8998	19204	8448712	RING, SLIP, HANDGUARD.....	1
9	PAFZZ	5360-00-978-1036	19204	8448555	SPRING, SLIP RING, HANDGUARD, UPPER RECEIVER.....	1
10	PAFZZ	5325-00-999-0863	80205	MS16626-3137	RING, RETAINING.....	1
11	PAFFF	1005-01-453-4225	19200	12973021	UPPER HANDGUARD ASSEMBLY (M16A3, M16A4) (FOR ASSY BREAKDOWN SEE FIG. 9)..... UOC:AW4, AZ1	1
12	PAFFF	1005-01-453-4224	19200	12973139	BARREL STOP ASSEMBLY (M16A3, M16A4) (FOR ASSY BREAKDOWN SEE FIG. 10)..... UOC:AW4, AZ1	1
13	PAFZZ	1005-01-453-1635	19200	12973029	LOWER HANDGUARD (M16A3, M16A4)..... UOC:AW4, AZ1	1
14	PAFFF	1005-01-453-4227	19200	12973096	UPPER HANDGUARD ASSEMBLY (M4, M4A1) (FOR ASSY BREAKDOWN SEE FIG. 11)..... UOC:AS1, AY6	1
15	PAFZZ	1005-01-453-1633	19200	12973099	LOWER HANDGUARD (M4, M4A1) ... UOC:AS1, AY6	1
END OF FIGURE						



1vsfig08

Figure 8. Barrel Assembly (M16A2) 9349124, Barrel Assembly (M16A3, M16A4) 12598107, Replacement Barrel and Front Sight Assembly (M4) 9390007, and Replacement Barrel and Front Sight Assembly (M4A1) 12991851.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0401						
FIG. 8 BARREL ASSEMBLY (M16A2) 9349124, (M16A3, M16A4) 12598107, AND REPLACEMENT BARREL AND FRONT SIGHT ASSEMBLY (M4) 9390007, (M4A1) 12991851						
1	PAFZZ	1005-01-134-3625	19200	9349056	POST, FRONT SIGHT	1
2	PAFZZ	5315-00-979-3930	19204	8448573	PIN, SHOULDER, HEADLESS (DETENT, FRONT SIGHT)	1
3	PAFZZ	5360-00-979-3931	19204	8448574	SPRING, HELICAL, COMPRESSION, FRONT SIGHT	1
4	PAFZZ	1005-00-017-9543	19204	8448571	SWIVEL, SLING, SMALL	1
5	PAFZZ	5320-01-063-7635	19204	8448697	RIVET, TUBULAR	1
6	XAFZZ		19200	9349054	BARREL AND BARREL EXTENSION ASSEMBLY (M16A2, M16A3, M16A4)	1
					UOC: AR8, AW4, AZ1	
6A	XAFZZ		19200	9390009	BARREL AND BARREL EXTENSION ASSEMBLY (M4)	1
					UOC: AS1	
6B	XAFZZ		19200	12991850	BARREL AND BARREL EXTENSION ASSEMBLY (M4A1)	1
					UOC: AY6	
7	PAFZZ	5340-01-474-2845	19200	12991254	CLAMP, SYNCHRO (BAR, LOCKING) (M4, M4A1)	1
					UOC: AS1, AY6	
8	PAFZZ	5315-00-690-0544	80205	MS39086-93	PIN, SPRING (M4, M4A1)	2
					UOC: AS1, AY6	
9	PAFZZ	1010-01-264-6517	19200	12598617	MOUNT, SWIVEL (M4, M4A1)	1
					UOC: AS1, AY6	
END OF FIGURE						

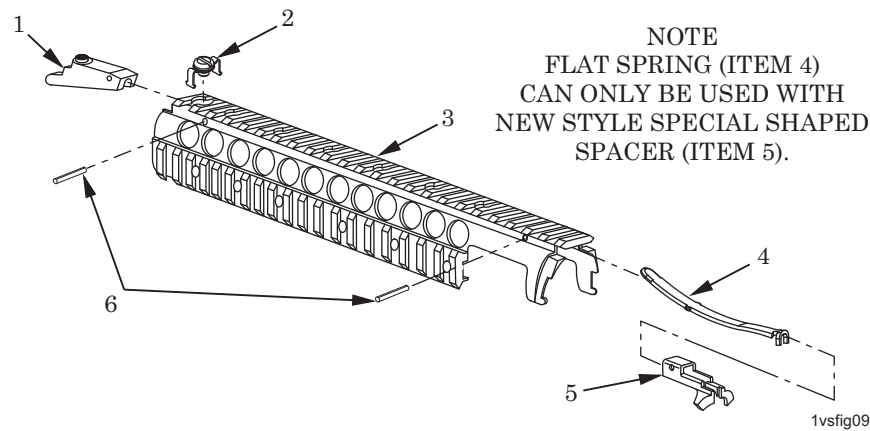


Figure 9. Upper Handguard Assembly (M16A3, M16A4) 12973021.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0402						
FIG. 9 UPPER HANDGUARD ASSEMBLY (M16A3, M16A4) 12973021						
1	PAFZZ	1005-01-453-4226	19200	12973027	REAR HANDGUARD CLAMP UOC:AW4, AZ1	1
2	PAFZZ	5305-01-540-4805	19200	13011435	SLOTTED SCREW ASSEMBLY UOC:AW4, AZ1	1
3	XAFZZ		19200	12973022	UPPER HANDGUARD UOC:AW4, AZ1	1
4	PAFZZ	5360-01-540-4806	19200	13012017	FLAT SPRING UOC:AW4, AZ1	1
5	PAFZZ	5365-01-540-4807	19200	13012018	SPECIAL SHAPED SPACER UOC:AW4, AZ1	1
6	PAFZZ	5315-00-826-3251	96906	MS16562-223	SPRING PIN UOC:AW4, AZ1	2
END OF FIGURE						

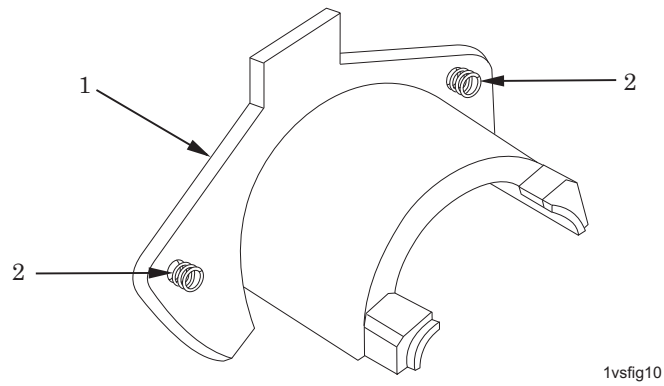


Figure 10. Barrel Stop Assembly (M16A3, M16A4) 12973139.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 0403 FIG. 10 BARREL STOP ASSEMBLY (M16A3, M16A4) 12973139	(7) QTY
1	XAFZZ		19200	12973034	BARREL STOP UOC:AW4, AZ1	1
2	PAFZZ	5360-01-452-9636	19200	12973035	HELICAL COMPRESSION SPRING UOC:AW4, AZ1	1
END OF FIGURE						

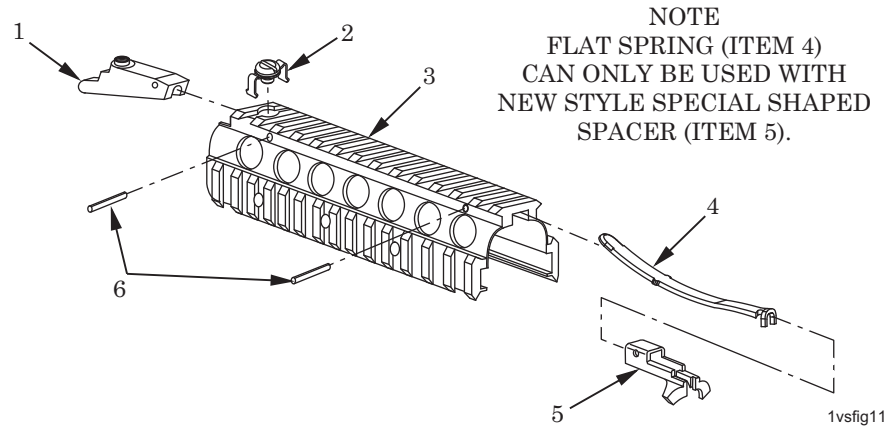
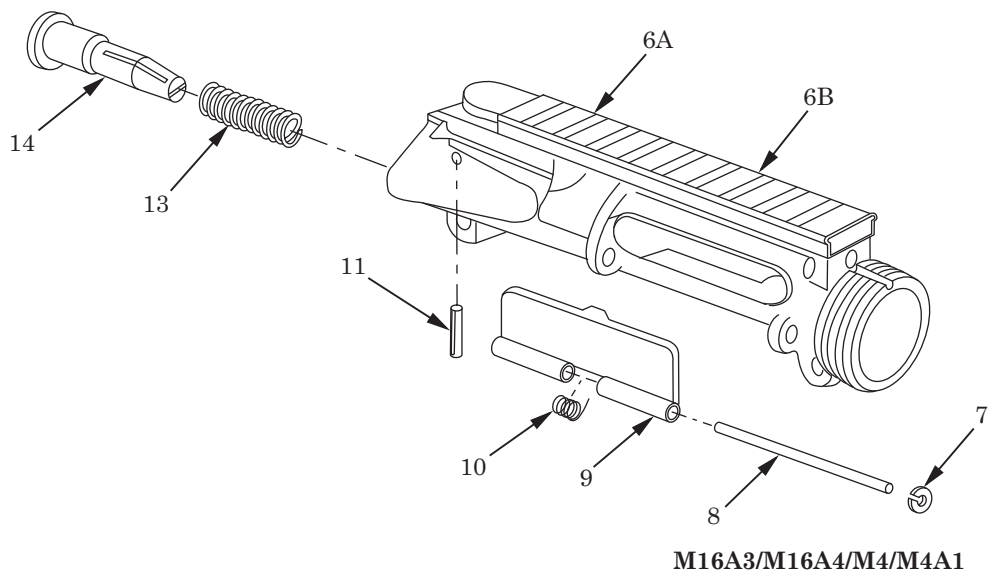
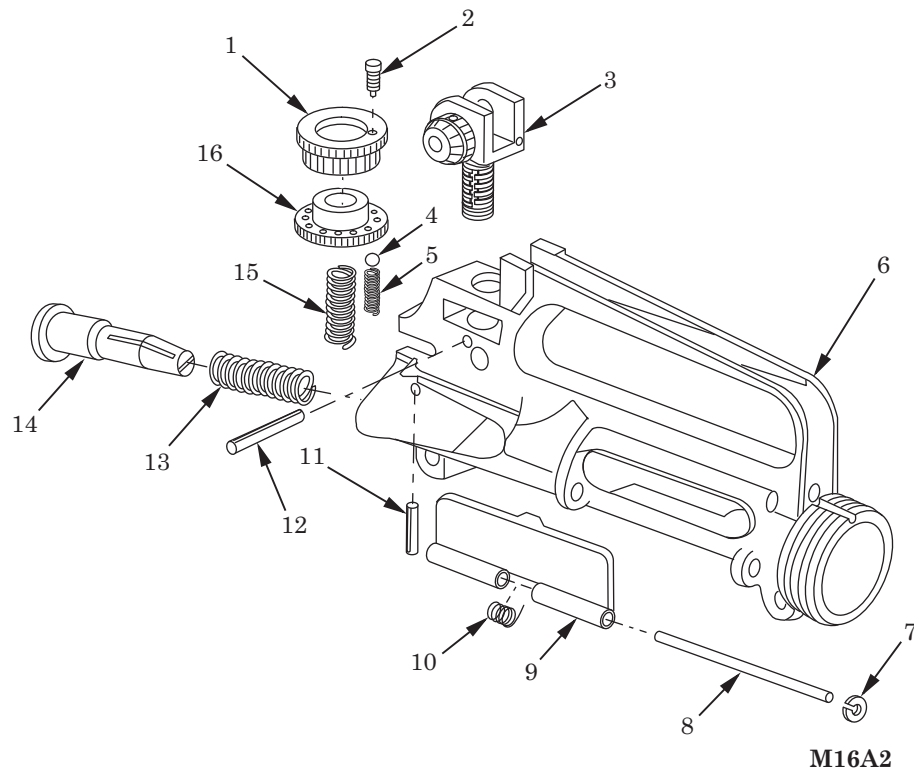


Figure 11. Upper Handguard Assembly (M4, M4A1) 12973096.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0404						
FIG. 11 UPPER HANDGUARD ASSEMBLY (M4, M4A1) 12973096						
1	PAFZZ	1005-01-453-4226	19200	12973027	REAR HANDGUARD CLAMP UOC:AS1, AY6	1
2	PAFZZ	5305-01-540-4805	19200	13011435	SLOTTED SCREW ASSEMBLY UOC:AS1, AY6	1
3	XAFZZ		19200	12973097	UPPER HANDGUARD UOC:AS1, AY6	1
4	PAFZZ	5360-01-540-4808	19200	13012016	FLAT SPRING UOC:AS1, AY6	1
5	PAFZZ	5365-01-540-4807	19200	13012018	SPECIAL SHAPED SPACER UOC:AS1, AY6	1
6	PAFZZ	5315-00-826-3251	96906	MS16562-223	SPRING PIN UOC:AS1, AY6	2

END OF FIGURE



1vsfig12

Figure 12. Upper Receiver Assembly (M16A2) 9349062, (M16A3, M16A4) 12973011, and (M4, M4A1) 12972675.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0405						
FIG. 12 UPPER RECEIVER ASSEMBLY (M16A2) 9349062, (M16A3, M16A4) 12973011, AND (M4, M4A1) 12972675						
1	PAFZZ	1005-01-134-3621	19200	9349066	INDEX, ELEVATION (M16A2) UOC:AR8	1
2	PAFZZ	5305-01-134-3622	19200	9349065	SCREW, INDEX (M16A2) UOC:AR8	1
3	AFFFF		19200	9349072	REAR SIGHT ASSEMBLY (M16A2) (FOR ASSY BREAKDOWN SEE FIG. 14) UOC:AR8	1
4	PAFZZ	3110-00-183-9175	96906	MS19060-4808	BALL, BEARING (M16A2) UOC:AR8	1
5	PAFZZ	5360-01-148-1751	19200	9349069	SPRING, HELICAL, COMPRESSION, INDEX (M16A2) UOC:AR8	1
6	PAFZZ	1005-01-134-3701	19200	9349063	RECEIVER, UPPER (M16A2) UOC:AR8	1
6A	PAFZZ	1005-01-382-6795	19200	12972670	RECEIVER, UPPER (M4, M4A1) UOC: AS1, AY6	1
6B	PAFZZ	1005-01-454-9880	19200	12973012	RECEIVER, UPPER (M16A3, M16A4) UOC:AW4, AZ1	1
7	PAFZZ	5325-00-999-0864	96906	MS16632-3012	RING, RETAINING, COVER UOC:AR8	1
8	PAFZZ	5315-00-978-1023	19204	8448533	PIN, GROOVED, HEADLESS, COVER UOC:AR8	1
9	PAFZZ	1005-00-978-1022	19204	8448525	COVER, EJECTION PORT UOC:AR8	1
10	PAFZZ	5360-00-978-1025	19204	8448532	SPRING, HELICAL, TORSION, COVER UOC:AR8	1
11	PAFZZ	5315-00-840-3812	80205	MS16562-121	PIN, SPRING, FORWARD ASSIST UOC:AR8	1
12	PAFZZ	5315-00-840-3812	80205	MS16562-121	PIN, SPRING (M16A2) UOC:AR8	1
13	PAFZZ	5360-00-017-9541	19200	8448540	SPRING, HELICAL, COMPRESSION, FORWARD ASSIST UOC:AR8	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
14	PAFFF	1005-01-442-0160	19200	9349086	FORWARD ASSIST ASSEMBLY (FOR ASSEMBLY BREAKDOWN SEE FIG. 13).....	1
15	PAFZZ	5360-01-134-3710	19200	9349070	SPRING, HELICAL, COMPRESSION, ELEVATION (M16A2) UOC:AR8	1
16	PAFZZ	5355-01-135-4972	19200	9349067	KNOB, ELEVATION (M16A2) UOC:AR8	1
END OF FIGURE						

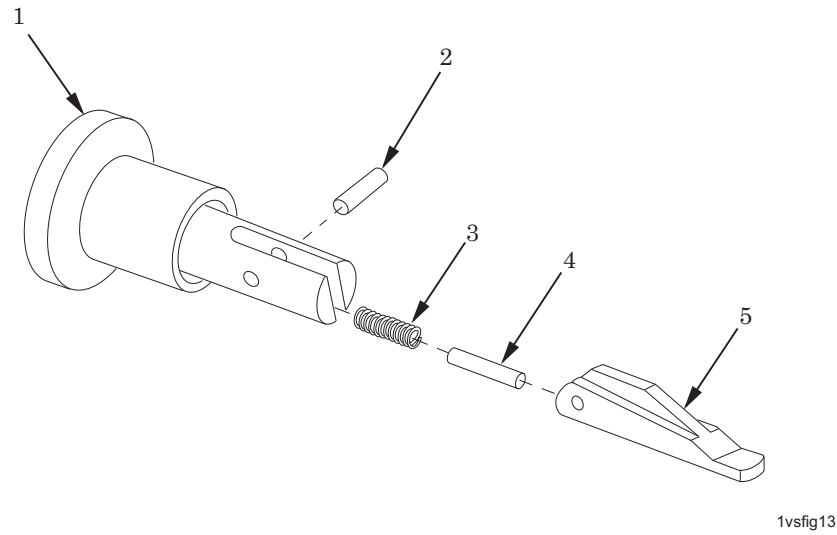


Figure 13. Forward Assist Assembly 9349086.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 040501						
FIG. 13 FORWARD ASSIST ASSEMBLY 9349086						
1	XAFZZ		19200	9349085	PLUNGER ASSEMBLY.....	1
2	PAFZZ	5315-01-048-9372	19204	8448521-2	PIN, SPRING, PAWL.....	1
3	PAFZZ	5360-00-523-8084	19200	8448542	SPRING, HELICAL, COMPRESSION, PAWL	1
4	PAFZZ	1005-00-017-9540	19204	8448544	DETENT, PAWL.....	1
5	PAFZZ	3040-00-017-9539	19204	8448543	PAWL, FORWARD ASSIST.....	1
END OF FIGURE						

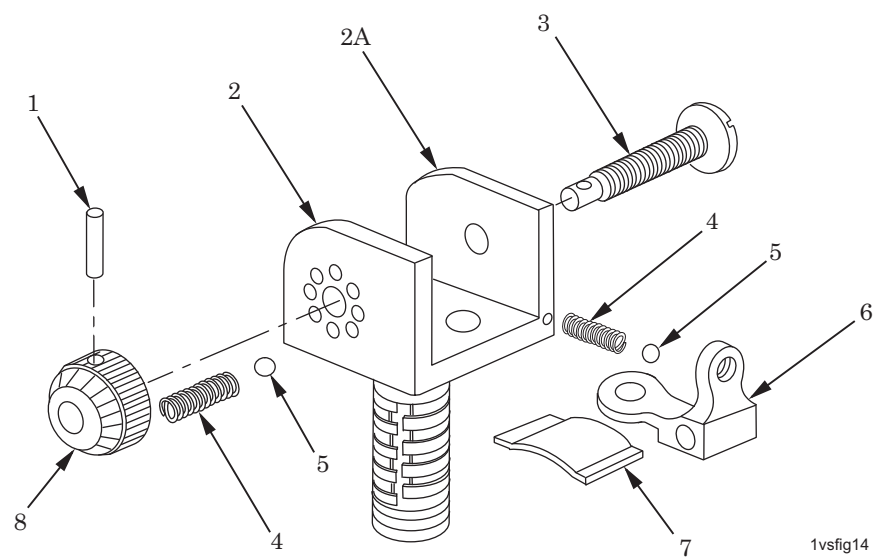
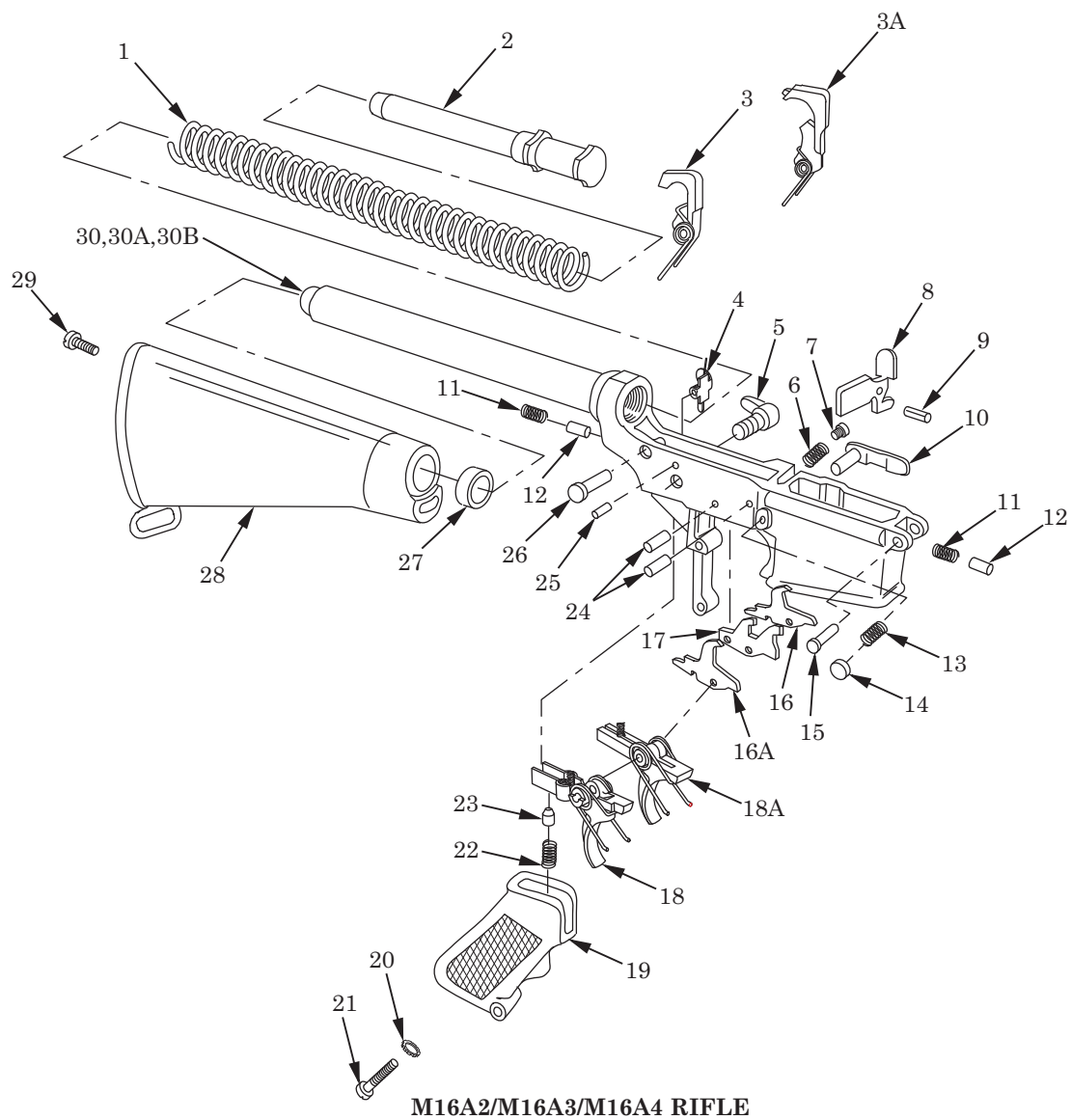


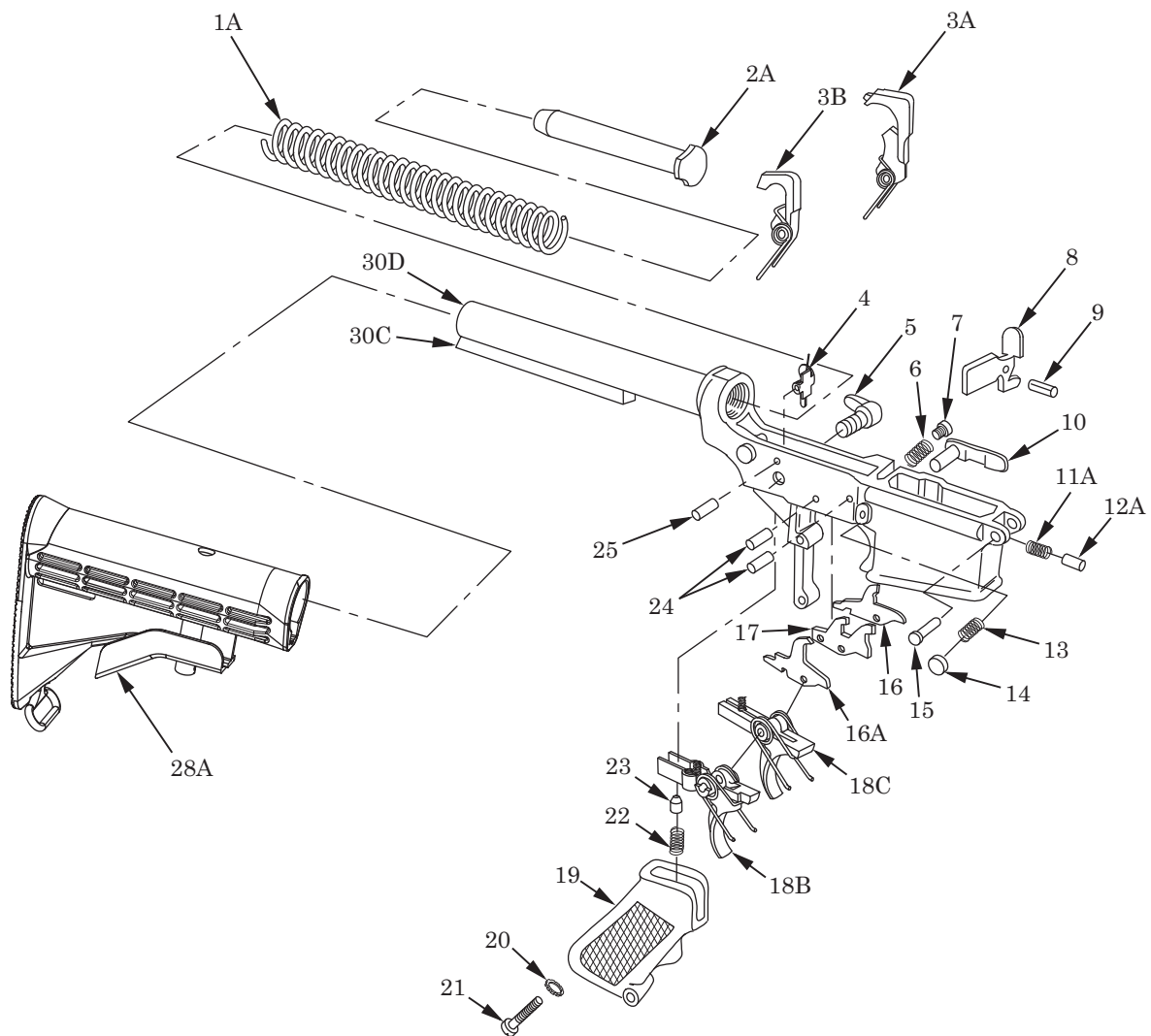
Figure 14. Rear Sight Assembly (M16A2) 9349072 and (M16A3, M16A4, M4, M4A1) 12951026.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 040502						
FIG. 14 REAR SIGHT ASSEMBLY (M16A2) 9349072 AND (M16A3, M16A4, M4, M4A1) 12951026						
1	PAFZZ	5315-00-058-6678	96906	MS16562-103	PIN, SPRING, WINDAGE.....	1
2	PAFZZ	1005-01-134-3631	19200	9349074	BASE, REAR SIGHT..... UOC:AR8	1
2A	PAFZZ	1005-01-382-7086	19200	12951028	BASE, REAR SIGHT..... UOC: AW4, AZ1, AS1, AY6	1
3	PAFZZ	5305-01-144-1490	19200	9349076	SCREW, EXTERNALLY RE.....	1
4	PAFZZ	5360-01-148-1751	19200	9349069	SPRING, HELICAL, COMPRESSION, REAR SIGHT	2
5	PAFZZ	3110-00-183-9175	96906	MS19060-4808	BALL, BEARING.....	2
6	PAFZZ	1005-01-135-3697	19200	9349075	APERTURE, SIGHT.....	1
7	PAFZZ	5360-01-381-6183	19200	12011987	SPRING, FLAT, REAR SIGHT.....	1
8	PAFZZ	5355-01-134-3627	19200	9349077	KNOB, WINDAGE	1
END OF FIGURE						



1vsfig15a

Figure 15. Lower Receiver and Buttstock Assembly (M16A2) 9349100, (M16A3) 12012001, (M16A4) 12598101, (M4) 9390011, and (M4A1) 12972690 (Sheet 1 of 2).



M4/M4A1 CARBINE

1vsfig15b

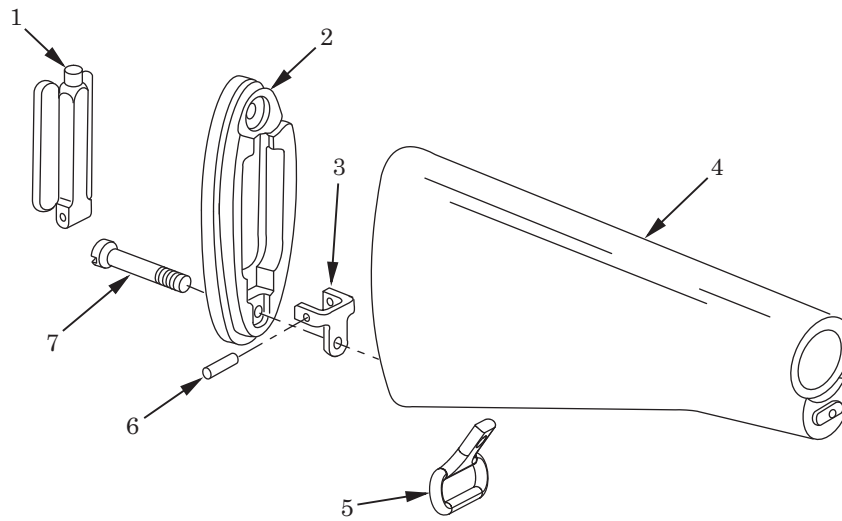
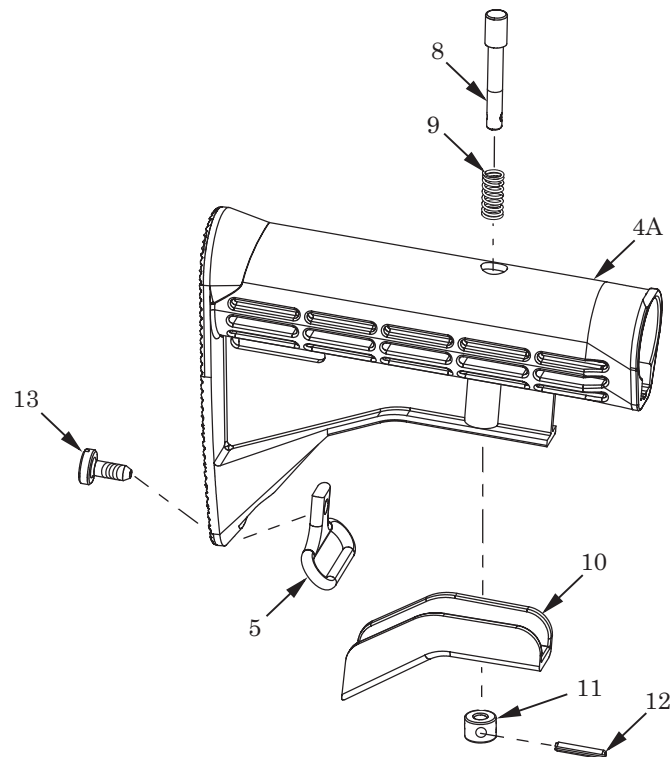
Figure 15. Lower Receiver and Buttstock Assembly (M16A2) 9349100, (M16A3) 12012001, (M16A4) 12598101, (M4) 9390011, and (M4A1) 12972690 (Sheet 2 of 2).

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 05	(7) QTY
					FIG. 15 LOWER RECEIVER AND BUTTSTOCK ASSEMBLY (M16A2) 9349100, (M16A3) 12012001, (M16A4) 12598101, (M4) 9390011, AND (M4A1) 12972690	
1	PAFZZ	5360-00-992-6665	19204	8448629	SPRING, HELICAL, COMPRESSION, ACTION (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
1A	PAFZZ	5360-01-233-8617	19200	9390022	SPRING, HELICAL, COMPRESSION (M4, M4A1)..... UOC:AS1, AY6	1
2	PAFZZ	1005-00-937-3078	19200	8448615	BUFFER ASSEMBLY (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	1
2A	PAFZZ	1005-01-522-0772	19200	13004468	BUFFER ASSEMBLY (M4, M4A1) UOC:AS1, AY6	1
3	AFFFF		19200	9349106	HAMMER ASSEMBLY (M16A2, M16A4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 17)..... UOC:AR8, AZ1	1
3A	AFFFF		19204	8448610	HAMMER ASSEMBLY (M16A3, M4A1) (FOR ASSEMBLY BREAKDOWN SEE FIG. 17)..... UOC:AW4, AY6	1
3B	AFFFF		19200	9390032	HAMMER ASSEMBLY (M4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 17)..... UOC:AS1	1
4	PAFZZ	1005-00-992-6649	19200	8448595	SEAR	1
5	PAFZZ	1005-01-225-8339	19200	9381367	SELECTOR, FIRE CONTROL	1
6	PAFZZ	5360-00-056-2246	19204	8448633	SPRING, HELICAL, COMPRESSION, BOLT CATCH	1
7	PAFZZ	1005-00-056-2247	19204	8448634	PLUNGER, BOLT CATCH	1
8	PAFZZ	1005-00-017-9548	19200	8448628	CATCH, BOLT	1
9	PAFZZ	5315-00-812-3312	80205	MS16562-119	PIN, SPRING, BOLT CATCH	1
10	PAFZZ	1005-00-056-2201	19204	8448638	CATCH, MAGAZINE	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
11	PAFZZ	5360-00-992-6655	19204	8448586	SPRING, HELICAL, COMPRESSION, TAKE DOWN/PIVOT PIN (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	2
11A	PAFZZ	5360-00-992-6655	19204	8448586	SPRING, HELICAL, COMPRESSION, PIVOT PIN (M4, M4A1) UOC:AS1, AY6	1
12	PAFZZ	5315-00-992-6654	19204	8448585	PIN, STRAIGHT, HEADLESS, DETENT, TAKE DOWN PIN (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	2
12A	PAFZZ	5315-00-992-6654	19204	8448585	PIN, STRAIGHT, HEADLESS (M4, M4A1) UOC:AS1, AY6	1
13	PAFZZ	5360-00-992-7301	19204	8448637	SPRING, HELICAL, COMPRESSION, MAGAZINE CATCH UOC:AR8, AW4, AZ1	1
14	PAFZZ	1005-00-992-7302	19204	8448636	BUTTON, MAGAZINE CATCH UOC:AR8, AW4, AZ1	1
15	PAFZZ	5315-00-017-9537	19204	8448621	PIN, GROOVED, HEADED (PIVOT PIN) UOC:AR8, AW4, AZ1	1
16	PAFZZ	5340-01-145-7910	19200	9349114	LEVER, LOCK-RELEASE, SEMI (M16A2, M16A4, M4) UOC:AR8, AZ1, AS1	1
16A	PAFZZ	1005-00-999-0406	19200	8448635	DISCONNECTOR (M16A3, M4A1) UOC:AW4, AY6	1
17	PAFZZ	5340-01-144-1499	19200	9349113	LEVER, LOCK-RELEASE, BURST (M16A2, M16A4, M4) UOC:AR8, AZ1, AS1	1
18	AFFFF		19200	9349115	TRIGGER ASSEMBLY (M16A2, M16A4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 18) UOC:AR8, AZ1	1
18A	AFFFF		19204	8448591	TRIGGER ASSEMBLY (M16A3) (FOR ASSEMBLY BREAKDOWN SEE FIG. 18) UOC:AW4	1
18B	AFFFF		19200	12972697	TRIGGER ASSEMBLY (M4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 18) UOC:AS1	1
18C	AFFFF		19200	12972698	TRIGGER ASSEMBLY (M4A1) (FOR ASSEMBLY BREAKDOWN SEE FIG. 18) UOC:AY6	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
19	PAFZZ	1005-01-148-4805	19200	9349127	GRIP, RIFLE, PLASTIC, BLACK	1
20	PAFZZ	5310-00-527-3634	80205	MS35335-61	WASHER, LOCK, RIFLE GRIP	1
21	PAFZZ	5305-01-268-1191	88044	AN501D416 -18	SCREW, MACHINE, RIFLE GRIP	1
22	PAFZZ	5360-00-992-7292	19204	8448516	SPRING, HELICAL, COMPRESSION, SAFETY.....	1
23	PAFZZ	1005-00-992-6667	19204	8448631	DETENT, SAFETY.....	1
24	PAFZZ	5315-00-992-7309	19204	8448609	PIN, GROOVED, HEADLESS, TRIGGER AND HAMMER	2
25	PAFZZ	5315-00-992-6650	19204	8448599	PIN, GROOVED, HEADLESS, AUTOMATIC SEAR.....	1
26	PAFZZ	5315-00-992-6653	19204	8448584	PIN, GROOVED, HEADED (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
27	PAFZZ	5365-01-267-2169	19200	12597640	SPACER, STEPPED (M16A2, M16A3, M16A4)	1
28	PAFFF	1005-01-135-4973	19200	9349119	BUTTSTOCK ASSEMBLY (M16A2, M16A3, M16A4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 16)..... UOC:AR8, AW4, AZ1	1
28A	AFFFF		19200	12012082	BUTTSTOCK ASSEMBLY (M4, M4A1) (FOR ASSEMBLY BREAKDOWN SEE FIG. 16)..... UOC:AS1, AY6	1
29	PAFZZ	5305-01-147-8585	19200	9349128	SCREW, MACHINE, BUTTCAP (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
30	XAFFA		19200	9349101	LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M16A2) (FOR ASSEMBLY BREAKDOWN SEE FIG. 20)	1
30A	XAFFA		19200	12012002	LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M16A3) (FOR ASSEMBLY BREAKDOWN SEE FIG. 20)	1
30B	XAFFA		19200	12598102	LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M16A4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 20)	1
					UOC:AZ1	

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
30C	XAFFA		19200	9390011	LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 20)..... UOC:AS1	1
30D	XAFFA		19200	12972690	LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M4A1) (FOR ASSEMBLY BREAKDOWN SEE FIG. 20)..... UOC:AY6	1
END OF FIGURE						

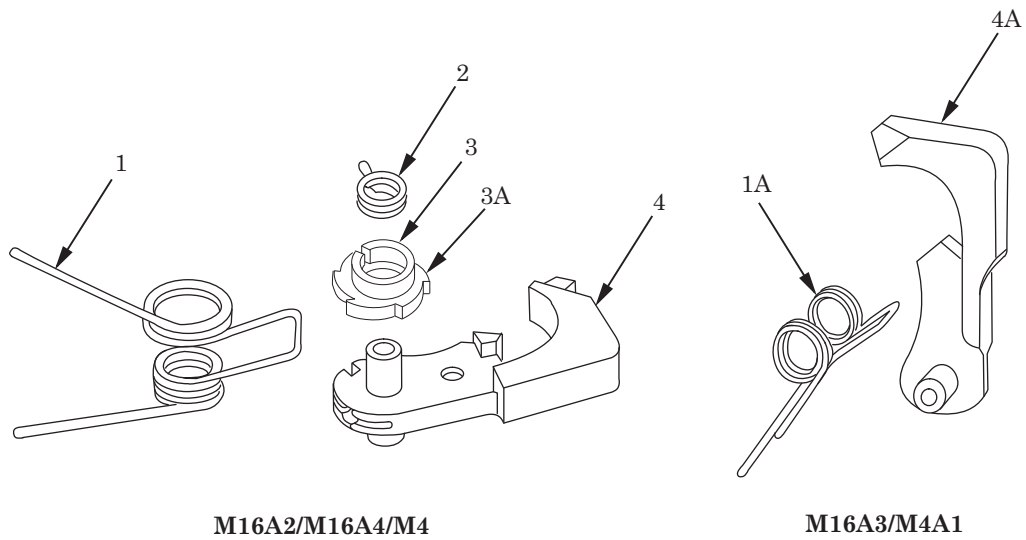
**M16A2/M16A3/M16A4 RIFLE****M4/M4A1 CARBINE**

1vsfig16

Figure 16. Buttstock Assembly (M16A2, M16A3, M16A4) 9349119 and (M4, M4A1) 12012082.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 0501	(7) QTY
					FIG. 16 BUTTSTOCK ASSEMBLY (M16A2, M16A3, M16A4) 9349119 AND (M4, M4A1) 12012082	
1	PAFZZ	1005-01-520-7064	19200	12999220	DOOR ASSEMBLY, THUMB (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
2	PAFZZ	1005-01-146-7685	19200	9349130	PLATE, BUTT, SHOULDER GUN STOCK (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
3	PAFZZ	5340-00-463-3892	19200	8448653	HINGE, ACCESS DOOR, BUTT PLATE (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	1
4	XAFZZ		19200	9349121	BUTTSTOCK (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	1
4A	PAFZZ	1005-01-459-0734	19200	12012081	BUTTSTOCK (M4, M4A1) UOC:AS1, AY6	1
5	PAFZZ	1005-00-403-0964	19204	8448652	SWIVEL, SLING, SMALL	1
6	PAFZZ	5315-00-463-3894	19204	8448655	PIN, STRAIGHT, HEADLESS, ACCESS DOOR (M16A2, M16A3, M16A4) UOC:AR8, AW4, AZ1	1
7	PAFZZ	5305-01-144-1494	19200	9349120	SCREW, MACHINE, BUTT PLATE (M16A2, M16A3, M16A4)..... UOC:AR8, AW4, AZ1	1
8	PAFZZ	5315-01-233-8608	19200	9390025	PIN, SHOULDER, HEADLESS (M4, M4A1)..... UOC:AS1, AY6	1
9	PAFZZ	5360-01-233-8616	19200	9390027	SPRING, HELICAL, COMPRESSION (M4, M4A1)..... UOC:AS1, AY6	1
10	PAFZZ	1005-01-233-8638	19200	9390014	LEVER, LOCK-RELEASE (M4, M4A1)..... UOC:AS1, AY6	1
11	PAFZZ	5310-01-233-8626	19200	9390026	NUT, SELF-LOCKING (M4, M4A1)..... UOC:AS1, AY6	1

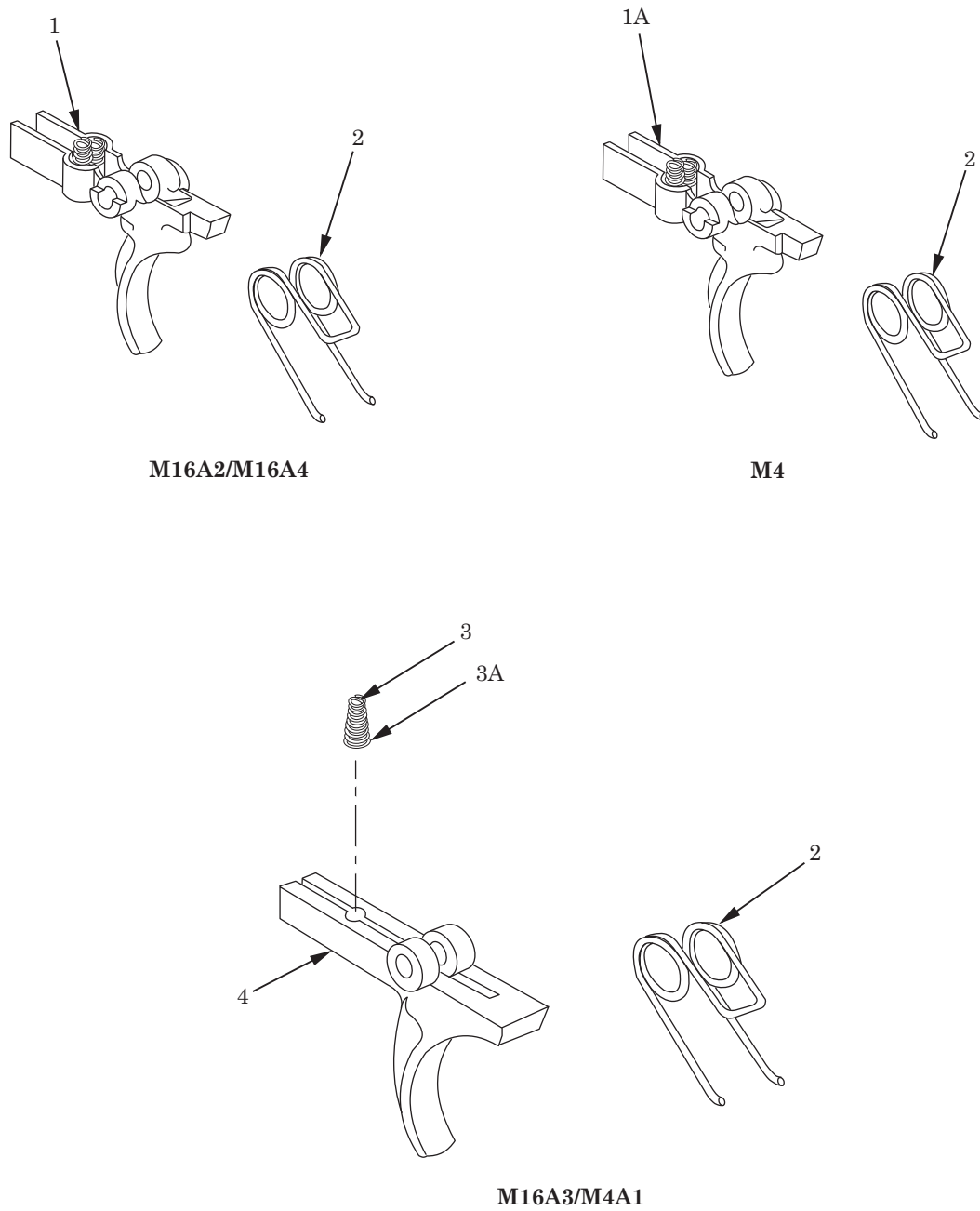
(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
12	PAFZZ	5315-00-843-9487	80205	MS16562-202	PIN, SPRING (M4, M4A1) UOC:AS1, AY6	1
13	PAFZZ	5305-01-459-5982	19200	12012083	MACHINE SCREW (M4, M4A1) UOC:AS1, AY6	1
END OF FIGURE						



1vsfig17

Figure 17. Hammer Assembly (M16A2, M16A4) 9349106, (M4) 9390032, and (M16A3, M4A1) 8448610.

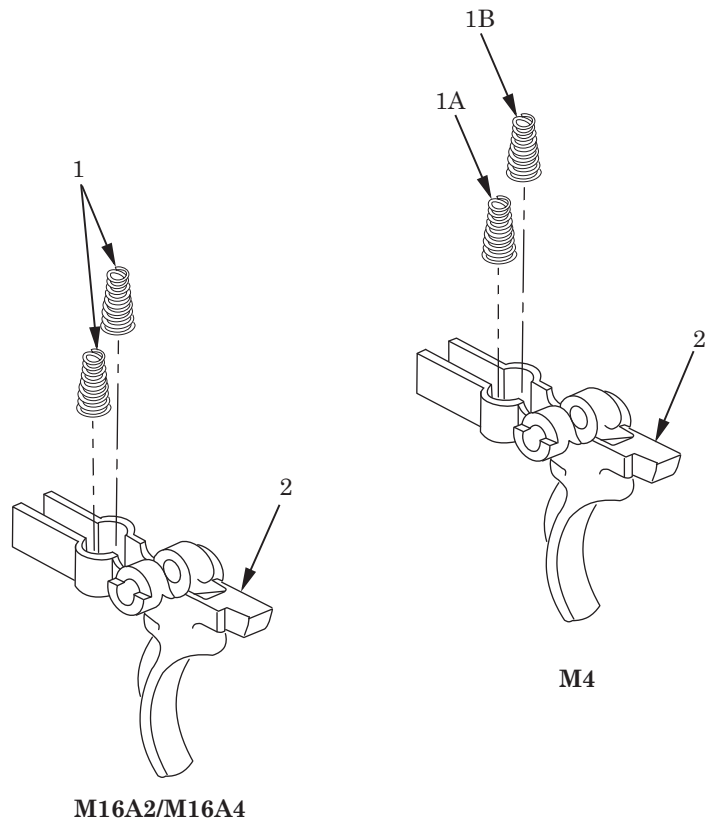
(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0502						
FIG. 17 HAMMER ASSEMBLY (M16A2, M16A4) 9349106, (M4) 9390032, AND (M16A3, M4A1) 8448610						
1	PAFZZ	5360-01-144-1492	19200	9349107	SPRING, HELICAL, TORSION, HAMMER (M16A2, M16A4, M4)..... UOC:AR8, AZ1, AS1	1
1A	PAFZZ	5360-00-992-6648	19204	8448611	SPRING, HELICAL, TORSION (M16A3, M4A1)..... UOC:AW4, AY6	1
2	PAFZZ	5360-01-136-5471	19200	9349109	SPRING, HELICAL, TORSION, BURST CAM (M16A2, M16A4, M4)..... UOC:AR8, AZ1, AS1	1
3	PAFZZ	1005-01-148-0172	19200	9349108	CAM, BURST (BLACK) (M16A2, M16A4)..... UOC:AR8, AZ1	1
3A	PAFZZ	3040-01-247-7969	19200	9390031	CAM, CONTROL (NICKEL/SHINY) (M4)..... UOC:AS1	1
4	PAFZZ	1005-01-134-3630	19200	9349110	HAMMER AND HAMMER PIN RETAINER ASSEMBLY (M16A2, M16A4, M4) UOC:AR8, AZ1, AS1	1
4A	PAFZZ	1005-00-017-9551	19200	8448612	HAMMER, FIRING, SMALL (M16A3, M4A1)..... UOC:AW4, AY6	1
END OF FIGURE						



1vsfig18

Figure 18. Trigger Assembly (M16A2, M16A4) 9349115, (M16A3) 8448591, (M4) 12972697, and (M4A1) 12972698.

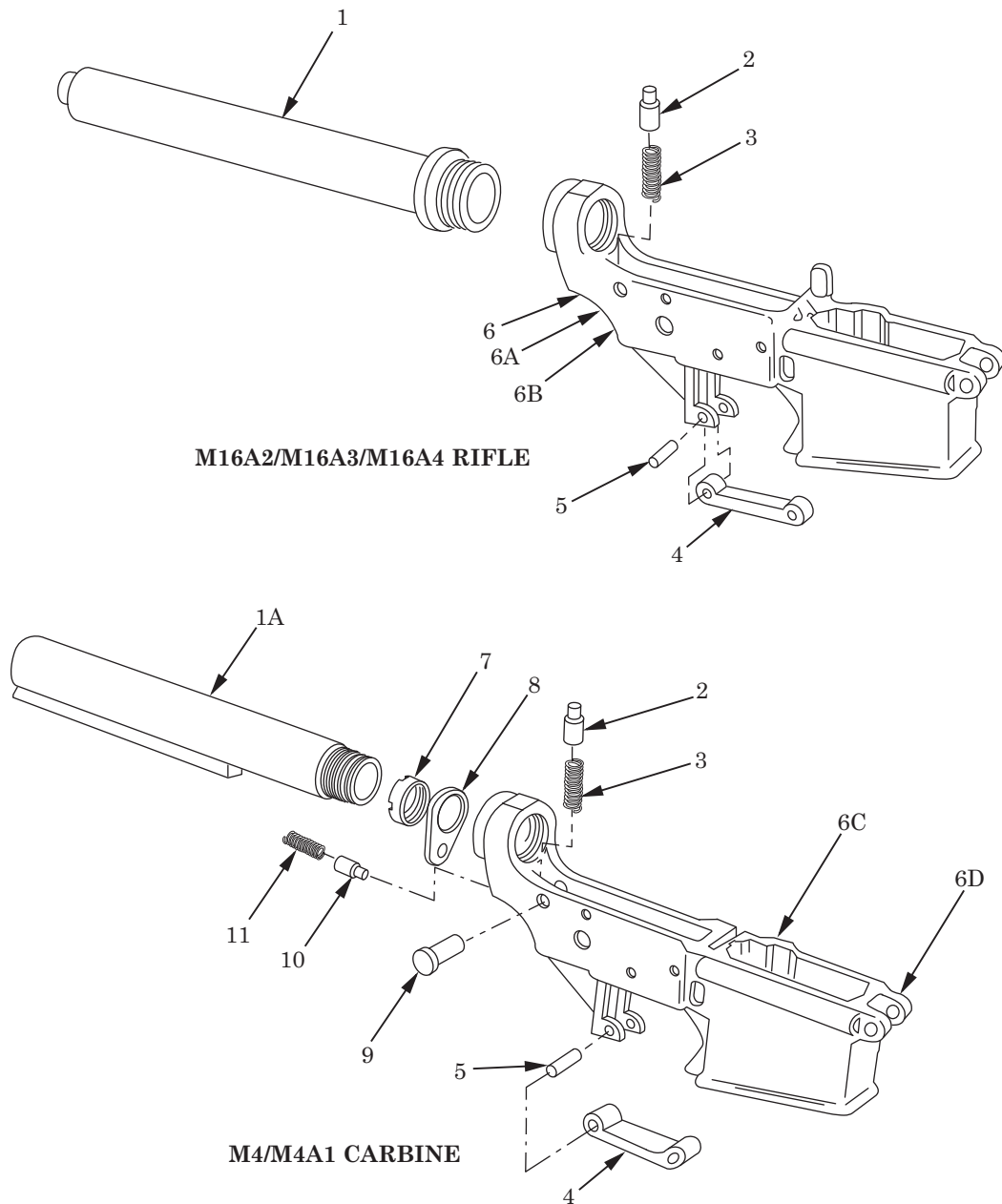
(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0503						
FIG. 18 TRIGGER ASSEMBLY (M16A2, M16A4) 9349115, (M16A3) 8448591, (M4) 12972697, AND (M4A1) 12972698						
1	PAFFF	1005-01-219-2402	19200	9392518	TRIGGER SUBASSEMBLY (M16A2, M16A4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 19).....	1
UOC:AR8, AZ1						
1A	PAFFF	1005-01-395-4257	19200	12972696	TRIGGER SUBASSEMBLY (M4) (FOR ASSEMBLY BREAKDOWN SEE FIG. 19).....	1
UOC:AS1						
2	PAFZZ	5360-00-992-7308	19204	8448593	SPRING, HELICAL, TORSION, TRIGGER	1
3	PAFZZ	5360-01-396-0256	19200	12972695	SPRING, HELICAL, COMPRESSION, DISCONNECT (BLACK) (M4A1).....	1
UOC:AY6						
3A	PAFZZ	5360-00-992-7311	19200	8448594	SPRING, HELICAL, COMPRESSION, (NICKEL/SHINY) (M16A3)	1
UOC:AW4						
4	PAFZZ	1005-00-992-7307	19204	8448592	TRIGGER (M16A3, M4A1)	1
UOC:AW4, AY6						
END OF FIGURE						



1vsfig19

Figure 19. Trigger Subassembly (M16A2, M16A4) 9392518 and (M4) 12972696.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 050301	
					FIG. 19 TRIGGER SUBASSEMBLY (M16A2, M16A4) 9392518 AND (M4) 12972696	
1	PAFZZ	5360-01-135-0353	19200	9349116	SPRING, HELICAL, COMP, DISCONNECT (M16A2, M16A4) UOC:AR8, AZ1	2
1A	PAFZZ	5360-01-135-0353	19200	9349116	SPRING, HELICAL, COMP, DISCONNECT (NICKEL/SHINY) (M4)..... UOC:AS1	1
1B	PAFZZ	5360-01-396-0256	19200	12972695	SPRING, HELICAL, COMP, DISCONNECT (BLACK) (M4)..... UOC:AS1	1
2	XAFZZ		19200	9390736	TRIGGER (M16A2, M16A4, M4) UOC:AR8, AZ1, AS1	1
					END OF FIGURE	



1vsfig20

Figure 20. Lower Receiver and Receiver Extension Assembly
(M16A2) 9349101, (M16A3) 12012002, (M16A4) 12598102,
(M4) 9390011, and (M4A1) 12972690.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 0504	(7) QTY
					FIG. 20 LOWER RECEIVER AND RECEIVER EXTENSION ASSEMBLY (M16A2) 9349101, (M16A3) 12012002, (M16A4) 12598102, (M4) 9390011, AND (M4A1) 12972690	
1	PAFZZ	5340-00-992-7297	19200	8448581	EXTENSION, LOWER RECEIVER (M16A2, M16A3, M16A4).....	1
					UOC:AR8, AW4, AZ1	
1A	PAFZZ	1005-01-233-8531	19200	9390019	EXTENSION, LOWER RECEIVER (M4, M4A1).....	1
					UOC:AS1, AY6	
2	PAFZZ	5315-00-992-6651	19204	8448582	PIN, SHOULDER, HEADLESS, BUFFER RETAINER.....	1
3	PAFZZ	5360-00-992-6652	19200	8448583	SPRING, HELICAL, COMPRESSION, BUFFER RETAINER.....	1
4	PAFZZ	1005-00-992-7299	19204	8448587	GUARD, TRIGGER	1
5	PAFZZ	5315-00-058-6081	80205	MS16562-129	PIN, SPRING, TRIGGER GUARD.....	1
6	XAFDA		19200	9349102	RECEIVER (M16A2)	1
					UOC:AR8	
6A	XAFDA		19200	12012003	RECEIVER (M16A3)	1
					UOC:AW4	
6B	XAFDA		19200	12598103	RECEIVER (M16A4)	1
					UOC:AZ1	
6C	XAFDA		19200	9390015	RECEIVER (M4)	1
					UOC:AS1	
6D	XAFDA		19200	12972652	RECEIVER (M4A1)	1
					UOC:AY6	
7	PAFZZ	5310-01-233-8625	19200	9390020	NUT, PLAIN, ROUND (M4, M4A1)	1
					UOC:AS1, AY6	
8	PAFZZ	1005-01-233-8530	19200	9390021	PLATE, RECEIVER END (M4, M4A1).....	1
					UOC:AS1, AY6	
9	PAFZZ	5315-00-992-6653	19204	8448584	PIN, GROOVED, HEADED (M4, M4A1).....	1
					UOC:AS1, AY6	

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
10	PAFZZ	5315-00-992-6654	19204	8448585	PIN, STRAIGHT, HEADLESS (M4, M4A1)..... UOC:AS1, AY6	1
11	PAFZZ	5360-00-992-6655	19204	8448586	SPRING, HELICAL, COMPRESSION (M4, M4A1)..... UOC:AS1, AY6	1
END OF FIGURE						

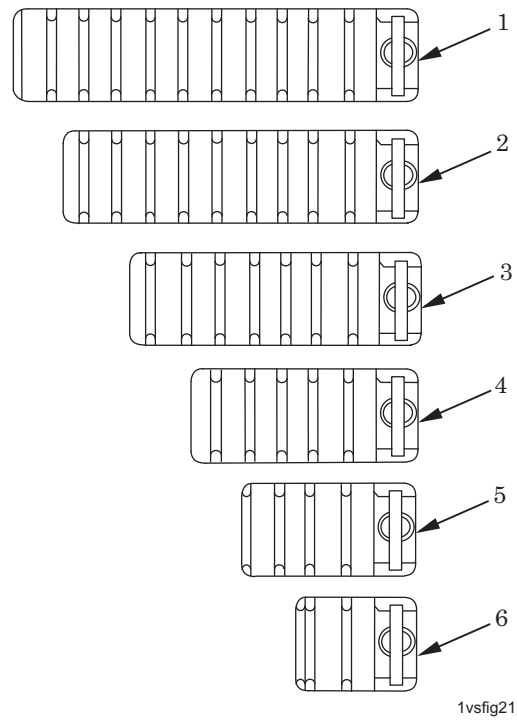


Figure 21. M16A3, M16A4, M4, and M4A1 Adapter Rail Cover Assemblies.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 06	(7) QTY
					FIG. 21 M16A3, M16A4, M4, AND M4A1 ADAPTER RAIL COVER ASSEMBLIES	
1	PAFZZ	1005-01-453-5386	19200	12973132	11 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
2	PAFZZ	1005-01-453-5383	19200	12973134	9 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
3	PAFZZ	1005-01-453-4222	19200	12973135	6 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
4	PAFZZ	1005-01-453-4221	19200	12973136	5 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
5	PAFZZ	1005-01-453-4223	19200	12973137	4 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
6	PAFZZ	1005-01-453-4228	19200	12973138	2 RIB RAIL COVER ASSEMBLY (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	V
NOTE						
V: ORDER ADEQUATE SIZE AND QUANTITY TO COVER ALL EXPOSED RAILS OF HANDGUARDS.						
END OF FIGURE						

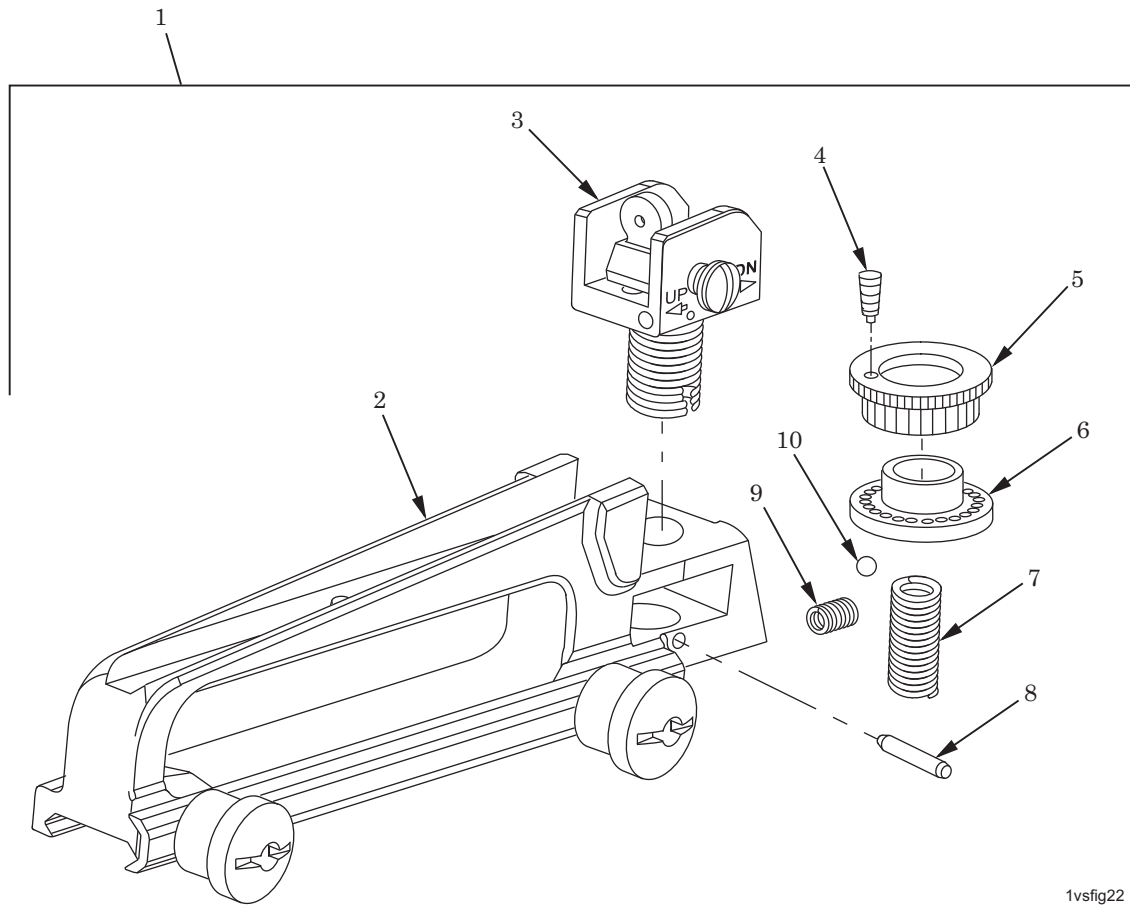
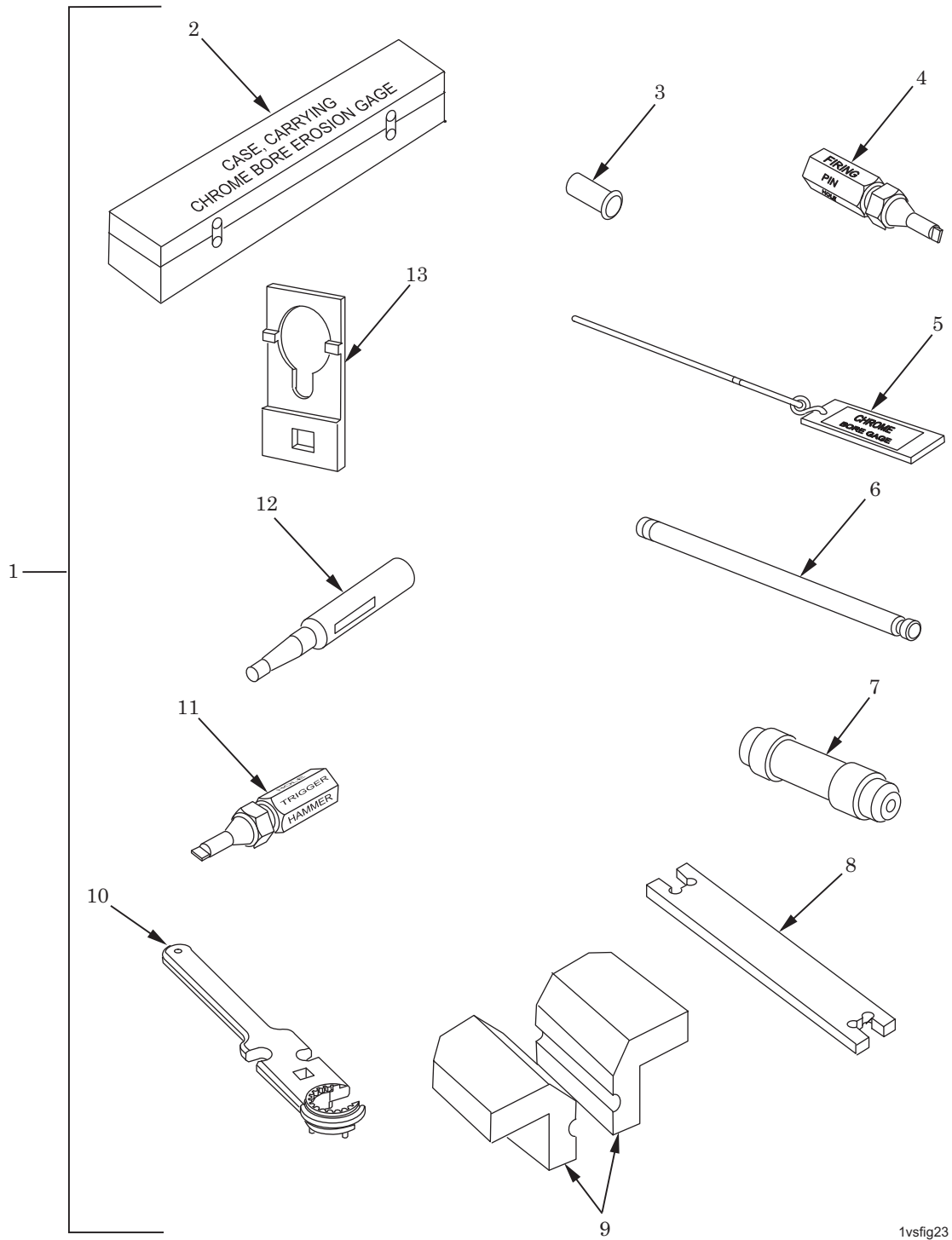


Figure 22. Carrying Handle Assembly (M16A3, M16A4, M4, M4A1) 12951011.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 07	(7) QTY
					FIG. 22 CARRYING HANDLE ASSEMBLY (M16A3, M16A4, M4, M4A1) 12951011	
1	PAFFF	1005-01-465-0401	19200	12951011	CARRYING HANDLE ASSEMBLY..... UOC:AW4, AZ1, AS1, AY6	1
2	PAFZZ	1005-01-382-7083	19200	12951021	.HANDLE, GUN CARRYING (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
3	AFFFF		19200	12951026	.REAR SIGHT ASSEMBLY (FOR ASSEMBLY BREAKDOWN SEE FIG. 14) (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
4	PAFZZ	5305-01-134-3622	19200	9349065	.SCREW, INDEX (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
5	PAFZZ	1005-01-382-7089	19200	12951018	.ELEVATING MECHANISM (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
6	PAFZZ	5355-01-382-6801	19200	12951019	.KNOB (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
7	PAFZZ	5360-01-134-3710	19200	9349070	.SPRING, HELICAL, COMPRESSION (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
8	PAFZZ	5315-00-840-3812	80205	MS16562-121	.PIN, SPRING (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
9	PAFZZ	5360-01-382-6802	19200	12951020	.SPRING, HELICAL, COMPRESSION (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
10	PAFZZ	3110-00-183-9175	80205	MS19060-4808	.BALL BEARING (M16A3, M16A4, M4, M4A1) UOC:AW4, AZ1, AS1, AY6	1
					END OF FIGURE	



1vsfig23

Figure 23. Special Tools.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC) GROUP 9500 FIG. 23 SPECIAL TOOLS	(7) QTY
1	PEFZZ		19204	8426685	MAINTENANCE KIT, GUN DS/GS SUPPORT MAINTENANCE FOR 5.56 RIFLE, M16 RIFLE SERIES	2
2	PAFZZ	4933-01-035-5607	19204	12006359	.CASE, BORE GAGE.....	2
3	PAFZZ	4933-00-800-7508	19204	8448201	.REFLECTOR TOOL, CHAMBER	2
4	PAFZZ	5220-01-075-5004	19200	12620101	.GAGE, PLUG, PLAIN	2
5	PAFZZ	5220-01-014-8183	19204	8448496	.GAGE, BARREL EROSION (CHROME BARREL)	2
6	PAFZZ	5220-00-221-9391	19204	8448202	.GAGE, STRAIGHTNESS.....	2
7	PAFZZ	5220-00-070-7814	19204	7799734	.GAGE, HEADSPACE.....	2
8	PAFZZ	5220-00-070-7815	19204	7799735	.GAGE, FIRING PIN PROTRUSION...	2
9	PAFZZ	4933-00-070-9151	19204	11010032	.FIXTURE, BARREL REMOVAL.....	2
10	PAFZZ	5120-01-505-1677	19200	12997571	.WRENCH, COMBINATION.....	2
11	PAFZZ	5220-01-043-9473	19204	12006472	.GAGE, PLUG, TAPER CYLINDER	2
12	PAFZZ	5315-01-310-0370	19200	12926769	.KEY, MACHINE.....	2
13	PAFZZ	5120-01-324-6631	19200	9390035	.WRENCH, SPANNER (M4, M4A1)..... UOC:AS1, AY6	2
END OF FIGURE						

END OF WORK PACKAGE

FIELD MAINTENANCE
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5315-00-017-9537	15	15	5360-00-978-1025	12	10
3040-00-017-9539	13	5	5360-00-978-1036	7	9
1005-00-017-9540	13	4	4710-00-978-1038	7	3
5360-00-017-9541	12	13	5315-00-979-3930	8	2
1005-00-017-9543	8	4	5360-00-979-3931	8	3
1005-00-017-9546	1	1	5360-00-992-6648	17	1A
1005-00-017-9547	3	1	1005-00-992-6649	15	4
1005-00-017-9548	15	8	5315-00-992-6650	15	25
1005-00-017-9551	17	4A	5315-00-992-6651	20	2
1005-00-056-2201	15	10	5360-00-992-6652	20	3
5360-00-056-2246	15	6	5315-00-992-6653	15	26
1005-00-056-2247	15	7		20	9
5315-00-058-6044	7	7	5315-00-992-6654	15	12
5315-00-058-6081	20	5		15	12A
5315-00-058-6678	2	4		20	10
	14	1	5360-00-992-6655	15	11
5320-01-063-7635	8	5		15	11A
5220-00-070-7814	23	7		20	11
5220-00-070-7815	23	8	5360-00-992-6665	15	1
4933-00-070-9151	23	9	1005-00-992-6667	15	23
1005-00-087-8998	7	8	1005-00-992-7283	5	2
3110-00-183-9175	2	7	5305-00-992-7284	5	1
	12	4	1005-00-992-7287	4	1
	14	5	1005-00-992-7288	4	7
	22	10	1005-00-992-7290	4	3
5220-00-221-9391	23	6	1005-00-992-7291	4	6
1005-00-403-0964	16	5	5360-00-992-7292	4	5
5340-00-463-3892	16	3		15	22
5315-00-463-3894	16	6	5315-00-992-7294	3	3
5360-00-523-8084	13	3	5340-00-992-7297	20	1
5310-00-527-3634	15	20	1005-00-992-7299	20	4
5315-00-597-5086	4	4	5360-00-992-7301	15	13
5315-00-690-0544	8	8	1005-00-992-7302	15	14
4933-00-800-7508	23	3	1005-00-992-7307	18	4
5315-00-812-3312	15	9	5360-00-992-7308	18	2
5315-00-826-3251	9	6	5315-00-992-7309	15	24
	11	6	5360-00-992-7311	18	3A
5315-00-840-3812	12	11	5360-00-999-0404	6	3
	12	12	5342-00-999-0405	6	2
	22	8	1005-00-999-0406	15	16A
5315-00-843-9487	16	12	5325-00-999-0863	7	10
1005-00-921-5004	1	4	5325-00-999-0864	12	7
1005-00-937-3078	15	2	1005-00-999-1509	3	2
1005-00-978-1022	12	9	5220-01-014-8183	23	5
5315-00-978-1023	12	8	4933-01-035-5607	23	2

NATIONAL STOCK NUMBER INDEX - Continued

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5220-01-043-9473	23	11	5310-01-233-8626	16	11
5315-01-048-9372	6	1	4710-01-233-8637	7	3A
	13	2	1005-01-233-8638	16	10
5320-01-063-7635	8	5	3040-01-247-7969	17	3A
5220-01-075-5004	23	4	1010-01-264-6517	8	9
1005-01-134-3621	12	1	5365-01-267-2169	15	27
5305-01-134-3622	12	2	5305-01-268-1191	15	21
	22	4	5315-01-310-0370	23	12
1005-01-134-3625	8	1	5120-01-324-6631	23	13
5355-01-134-3627	2	5	1005-01-368-9852	1	5A
	14	8	5360-01-381-6183	14	7
1005-01-134-3629	7	2	1005-01-382-6795	12	6A
1005-01-134-3630	17	4	5355-01-382-6801	22	6
1005-01-134-3631	14	2	5360-01-382-6802	22	9
1005-01-134-3633	7	6	1005-01-382-7083	22	2
1005-01-134-3701	12	6	1005-01-382-7086	14	2A
5360-01-134-3710	12	15	1005-01-382-7089	22	5
	22	7	1005-01-395-4257	18	1A
5360-01-135-0353	19	1	5360-01-396-0256	18	3
	19	1A		19	1B
1005-01-135-3697	14	6	1005-01-441-1619	3	5
5355-01-135-4972	12	16	1005-01-442-0160	12	14
1005-01-135-4973	15	28	5360-01-452-9636	10	2
5360-01-136-5471	17	2	1005-01-453-1633	7	15
5305-01-144-1490	14	3	1005-01-453-1635	7	13
5360-01-144-1492	17	1	1005-01-453-4221	21	4
5305-01-144-1494	16	7	1005-01-453-4222	21	3
5340-01-144-1499	15	17	1005-01-453-4223	21	5
5340-01-145-7910	15	16	1005-01-453-4224	7	12
1005-01-146-7684	7	4	1005-01-453-4225	7	11
1005-01-146-7685	16	2	1005-01-453-4226	9	1
5305-01-147-8585	15	29		11	1
1005-01-148-0172	17	3	1005-01-453-4227	7	14
5360-01-148-1751	2	6	1005-01-453-4228	21	6
	12	5	1005-01-453-5383	21	2
	14	4	1005-01-453-5386	21	1
1005-01-148-4805	15	19	1005-01-453-6655	1	8
1005-01-216-4510	1	5	1005-01-454-1629	7	4A
1005-01-219-2402	18	1	1005-01-454-9880	12	6B
1005-01-225-8339	15	5	1005-01-459-0734	16	4A
1005-01-233-8529	7	4B	5305-01-459-5982	16	13
1005-01-233-8530	20	8	1005-01-465-0401	22	1
1005-01-233-8531	20	1A	1005-01-471-5456	7	4C
5315-01-233-8608	16	8	5340-01-474-2845	8	7
5360-01-233-8616	16	9	5310-01-475-9652	7	5
5360-01-233-8617	15	1A	5315-01-484-7071	2	12
5310-01-233-8625	20	7	5305-01-484-7074	2	9

STOCK NUMBER	FIG.	ITEM
5305-01-484-7075	2	3
5360-01-484-7076	2	13
5340-01-484-7999	2	2
1005-01-484-8000	1	7
5325-01-486-7585	2	11
1005-01-497-2592	2	1
1005-01-505-1035	3	4
5120-01-505-1677	23	10
1005-01-505-2886	4	8
1005-01-520-7064	16	1
1005-01-522-0772	15	2A
5305-01-540-4805	9	2
	11	2
5360-01-540-4806	9	4
5365-01-540-4807	9	5
	11	5
5360-01-540-4808	11	4

END OF WORK PACKAGE

FIELD MAINTENANCE

PART NUMBER INDEX

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
AN501D416-18	15	21	8448521-2	6	1
MS16562-98	4	4		13	2
MS16562-103	2	4	8448525	12	9
	14	1	8448532	12	10
MS16562-106	7	7	8448533	12	8
MS16562-119	15	9	8448540	12	13
MS16562-121	12	11	8448542	13	3
	12	12	8448543	13	5
	22	8	8448544	13	4
MS16562-129	20	5	8448555	7	9
MS16562-202	16	12	8448567	7	3
MS16562-223	9	6	8448571	8	4
	11	6	8448573	8	2
MS16624-3035	2	11	8448574	8	3
MS16626-3137	7	10	8448581	20	1
MS16632-3012	12	7	8448582	20	2
MS19060-4808	2	7	8448583	20	3
	12	4	8448584	15	26
	14	5		20	9
	22	10	8448585	15	12
MS35335-61	15	20		15	12A
MS39086-93	8	8		20	10
7799734	23	7	8448586	15	11
7799735	23	8		15	11A
8426685	23	1		20	11
8448201	23	3	8448587	20	4
8448202	23	6	8448591	15	18A
8448496	23	5	8448592	18	4
8448502	3	3	8448593	18	2
8448503	3	1	8448594	18	3A
8448504	3	2	8448595	15	4
8448505	3	5	8448599	15	25
8448506	5	2	8448609	15	24
8448507	5	3	8448610	15	3A
8448508	5	1	8448611	17	1A
8448510	4	2	8448612	17	4A
8448511	4	1	8448615	15	2
8448512	4	7	8448621	15	15
8448513	4	3	8448628	15	8
8448515	4	6	8448629	15	1
8448516	4	5	8448631	15	23
	15	22	8448633	15	6
8448517	1	1	8448634	15	7
8448518	6	4	8448635	15	16A
8448519	6	2	8448636	15	14
8448520	6	3	8448637	15	13

PART NUMBER INDEX - Continued

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
8448638	15	10	9349127	15	19
8448652	16	5	9349128	15	29
8448653	16	3	9349130	16	2
8448655	16	6	9381367	15	5
8448670	1	4	9390007	7	4B
8448697	8	5	9390009	8	6A
8448712	7	8	9390011	1	6C
9349050	1	3		15	30C
9349051	7	6	9390014	16	10
9349054	8	6	9390015	20	6C
9349056	8	1	9390016	7	3A
9349059	7	2	9390019	20	1A
9349062	7	1	9390020	20	7
9349063	12	6	9390021	20	8
9349065	12	2	9390022	15	1A
	22	4	9390025	16	8
9349066	12	1	9390026	16	11
9349067	12	16	9390027	16	9
9349069	2	6	9390031	17	3A
	12	5	9390032	15	3B
	14	4	9390035	23	13
9349070	12	15	9390736	19	2
	22	7	9392518	18	1
9349072	12	3	11010032	23	9
9349074	14	2	12006359	23	2
9349075	14	6	12006472	23	11
9349076	14	3	12011987	14	7
9349077	2	5	12011996	1	5A
	14	8	12012001	1	6A
9349085	13	1	12012002	15	30A
9349086	12	14	12012003	20	6A
9349100	1	6	12012081	16	4A
9349101	15	30	12012082	15	28A
9349102	20	6	12012083	16	13
9349106	15	3	12597640	15	27
9349107	17	1	12598101	1	6B
9349108	17	3	12598102	15	30B
9349109	17	2	12598103	20	6B
9349110	17	4	12598107	7	4A
9349113	15	17	12598617	8	9
9349114	15	16	12620101	23	4
9349115	15	18	12624561	1	5
9349116	19	1	12926769	23	12
	19	1A	12951011	22	1
9349119	15	28	12951018	22	5
9349120	16	7	12951019	22	6
9349121	16	4	12951020	22	9
9349124	7	4	12951021	22	2

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
12951026	22	3	12996812	1	7
12951028	14	2A	12996813	2	1
12972652	20	6D	12996818	2	8
12972670	12	6A	12996819	2	10
12972675	7	1B	12996820	2	13
12972680	1	3B	12996821	2	12
12972690	1	6D	12996822	2	9
	15	30D	12996823	2	2
12972695	18	3	12996824	2	3
	19	1B	12997148	1	3C
12972696	18	1A	12997571	23	10
12972697	15	18B	12999220	16	1
12972698	15	18C	13004468	15	2A
12973010	1	3A	13004786	4	8
12973011	7	1A	13004787	3	4
12973012	12	6B	13004788	1	2
12973021	7	11	13012016	11	4
12973022	9	3	13012017	9	4
12973027	9	1	13012018	9	5
	11	1		11	5
12973029	7	13	13011435	9	2
12973034	10	1		11	2
12973035	10	2			
12973096	7	14			
12973097	11	3			
12973099	7	15			
12973101	1	8			
12973132	21	1			
12973134	21	2			
12973135	21	3			
12973136	21	4			
12973137	21	5			
12973138	21	6			
12973139	7	12			
12991254	8	7			
12991533	7	5			
12991850	8	6B			
12991851	7	4C			

END OF WORK PACKAGE

CHAPTER 6

SUPPORTING INFORMATION
FOR
M16 SERIES RIFLES
AND
M4 SERIES CARBINES

FIELD MAINTENANCE**REFERENCES**

SCOPE

This work package lists all field manuals, forms, miscellaneous publications, technical bulletins, and technical manuals referenced in this manual.

FIELD MANUALS

FM 3-22.9	Rifle Marksmanship M16A1, M16A2/3, M16A4, and M4 Carbine
FM 4-25.11	First Aid

FORMS

AFTO Form 22	Technical Order System Publications Improvement Report
AFTO Form 105	Inspection, Maintenance, and Firing Data for Ground Weapons
DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2408-9	Equipment Control Record
DA Form 5988-E	Equipment Inspection and Maintenance Worksheet - Electronic
DD Form 314	Preventive Maintenance Schedule and Record
NAVMC Form 10772	Recommended Changes to Technical Publications
NAVMC 11003	Ordnance Serialized Items Subsidiary Records
SF 361	Transportation Discrepancy Report
SF 364	Report of Discrepancy (ROD)
SF 368	Product Quality Deficiency Report

MISCELLANEOUS PUBLICATIONS

AFI 21-101	Management and Maintenance of Non-Nuclear Munitions
AFI 36-2226	Combat Arms Program
AFJMAN 23-215	Reporting of Supply Discrepancies
AFMAN 44-163(I)	First Aid Manual
AFMAN 91-201	Explosives Safety Standards

MISCELLANEOUS PUBLICATIONS - Continued

AMC-P 310-9	Equipment Publications Listing
AR 75-1	Malfunctions Involving Ammunition and Explosives
AR 385-40	Accident Reporting and Records
AR 725-50	Requisition, Receipt, and Issue System
AR 750-1	Army Materiel Maintenance Policy
CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-909	Field and Garrison Furnishings and Equipment
CTA 50-970	Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items)
DA PAM 25-30	Consolidated Army Publications and Forms Index
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual
DOD 4160.21-M-1	Defense Demilitarization Manual
SB 746-1	Publications for Packaging Army General Supplies
SC 4933-95-A11	Shop Set, Small Arms: Field Maintenance, Basic, Less Power
SC 5180-95-B71	Sets, Kits, and Outfits for Tool Kit, Small Arms
SPI 00-856-6885	Special Packaging Instructions for M16 Rifle

TECHNICAL BULLETINS

TB MED 524	Occupational and Environmental Health: Control of Hazards to Health from Laser Radiation
TB 9-1000-247-34	Standards for Overseas Shipment of Small Arms, Aircraft Armament, Towed Howitzers, Mortars, Recoilless Rifles, Rocket Launchers, and Associated Fire Control Equipment
TB 43-0002-73	Maintenance Expenditure Limits for FSC Group 10: FSC Classes 1005, 1010, 1015, 1030, 1055, 1090, and 1095
TB 43-0134	Battery Disposition and Disposal
TB 43-180	Interactive Electronic Technical Manual (IETM) for Calibration and Repair Requirements for the Maintenance of Army Materiel

TECHNICAL MANUALS/INSTRUCTIONS/ORDERS

TM 9-1005-237-23&P	Organizational and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Bayonet-Knife, M6, with Bayonet-Knife Scabbard, M10 (NSN 1095-00-014-0369), Bayonet-Knife, M7, with Bayonet-Knife Scabbard, M10 (1095-00-017-9701), and M9 Multipurpose Bayonet System (1005-01-227-1739)
TM 9-1005-319-10	Operator's Manual for Rifle, 5.56 mm, M16A2 W/E (NSN 1005-01-128-9936) (EIC: 4GM); Rifle, 5.56 mm, M16A3 (1005-01-357-5112); Rifle, 5.56 mm, M16A4 (1005-01-383-2872) (EIC: 4F9); Carbine, 5.56 mm, M4 W/E (1005-01-231-0973) (EIC: 4FJ); Carbine, 5.56 mm, M4A1 (1005-01-382-0953) (EIC: 4GC)
TM 9-1010-221-23&P	Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Launcher, Grenade, 40mm, M203, W/E (NSN 1010-00-179-6447) (EIC: 4QB) and Launcher, Grenade, 40mm, M203A1, W/E (1010-01-434-9028) (EIC: 4QH) and Launcher, Grenade, 40mm, M203A2, W/E (1010-01-495-8511) (EIC: 4QJ)
TM 9-6920-363-12&P	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Conversion Kit (Cal. 22 Rimfire Adapter) M261 (NSN 1005-01-010-1561) for Rifle, 5.56-mm, M16 and M16A1
TM 9-6920-746-12&P	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) M2 Practice Bolt Plastic Ammunition (NSN 1005-01-184-4041) for Rifle 5.56mm, M16 Series
TM 11-5855-213-23&P	Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Night Vision Sight, Individual Served Weapon AN/PVS-4 (NSN 5855-00-629-5334) (EIC: IPJ)
TM 11-5855-306-10	Operator Manual for Monocular Night Vision Device (MNVD) AN/PVS-14 (NSN 5855-01-432-0524) (EIC: IPX)
TM 11-5855-308-12&P	Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) Target Pointer Illuminator/Aiming Light AN/PEQ-2A (NSN 5855-01-447-8992) (EIC: N/A)
TM 11-5855-309-12&P	Operator and Armorer's Maintenance Manual (Including Repair Parts and Special Tools List) for Thermal Weapon Sight, AN/PAS-13A(V)2 (Medium) and AN/PAS-13A(V)3 (Heavy)
TM 11-5855-314-12&P	Operator and Armorer's Maintenance Manual (Including Repair Parts and Special Tools List) for Thermal Weapon Sight, AN/PAS-13A(V)1 (Light)

TECHNICAL MANUALS/INSTRUCTIONS/ORDERS - Continued

TM 750-244-7	Procedures for Destruction of Equipment in Federal Supply Classifications 1000, 1005, 1010, 1015, 1020, 1025, 1030, 1055, 1090 and 1095 To Prevent Enemy Use
TO 00-5-1	AF Technical Order System
TO 00-35D-54	Materiel Deficiency Reporting and Investigating System
TO 11A-13-10-7	Storage and Maintenance Procedures for Small Arms Ammunition
TO 11W-1-10	Historical Data Recording of Inspection, Maintenance, and Firing Data for Ground Weapons
TO 33K-1-100-2	TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide

END OF WORK PACKAGE

FIELD MAINTENANCE**MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION**

INTRODUCTION**The Army Maintenance System MAC**

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

This MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Field - includes three subcolumns, Crew maintenance (C), Service maintenance (O), and Field maintenance (F).

Sustainment - includes two subcolumns, Below Depot (H) and Depot (D).

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.
2. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. **Service.** Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following are examples of service functions:
 - a. **Unpack.** To remove from packing box for service or when required for the performance of maintenance operations.
 - b. **Repack.** To return item to packing box after service and other maintenance operations.

Maintenance Functions - Continued

- c. **Clean.** To rid the item of contamination.
 - d. **Touch up.** To spot paint scratched or blistered surfaces.
 - e. **Mark.** To restore obliterated identification.
- 4. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
 - 5. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.
 - 6. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
 - 7. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
 - 8. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
 - 9. **Repair.** The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services. Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly. The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. **Overhaul.** That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
11. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

Column (2) Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above).

Column (4) Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

Field:

- C - Crew maintenance
- O - Service maintenance
- F - Field maintenance

Sustainment:

- L - Specialized Repair Activity
- H - Below Depot maintenance
- D - Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Explanation of Columns in the MAC - Continued

Column (5) Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) Nomenclature. Name or identification of the tool or test equipment.

Column (4) National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) Tool Number. The manufacturer's part number, model number, or type number.

Explanation of Columns in the Remarks

Column (1) Remarks Code. The code recorded in column (6) of the MAC.

Column (2) Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

END OF WORK PACKAGE

FIELD MAINTENANCE
MAINTENANCE ALLOCATION CHART (MAC)

MAINTENANCE ALLOCATION CHART (MAC)

Table 1. MAC for M16 Series Rifles and M4 Series Carbines.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			CREW	SERVICE	FIELD	BELOW DEPOT	DEPOT		
			C	O	F	H	D		
00	M16A2, M16A3, M16A4 5.56mm Rifle, and M4/M4A1 Carbine	Inspect Test Service Replace Overhaul	0.1 0.2		0.3 0.2 0.3 0.1		**	2 2, 3	
01	Back-Up Iron Sight (M16A3/M16A4 and M4/M4A1)	Inspect Remove/Install Replace Repair	0.1 0.1		0.1 0.1 0.1 0.3			3 3	
02	Bolt and Bolt Carrier Assembly	Inspect Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1 0.1 0.1			1, 2 3	
0201	Breech Assembly Bolt	Inspect Test Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1 0.1 0.1			2 2 3	
0202	Key and Bolt Carrier Assembly	Inspect Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1 0.1			1 1, 3	
03	Charging Handle Assembly	Inspect Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1		**	3	

**Worktimes are included in DMWR 9-1005-319.

MAINTENANCE ALLOCATION CHART (MAC) - Continued

Table 1. MAC for M16 Series Rifles and M4 Series Carbines - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			CREW	SERVICE	FIELD	BELOW DEPOT	DEPOT		
			C	O	F	H	D		
04	Upper Receiver and Barrel Assembly	Inspect Test Service Remove/Install Replace Repair	0.1 0.2 0.1		0.2 0.2 0.1			2 1	A, B
0401	M16A2/M16A3/ M16A4 Barrel Assembly and M4/ M4A1 Replace- ment Barrel and Front Sight Assembly	Inspect Replace Repair	0.1		0.1			1, 2	
			0.1		0.3			3	
0402	Upper Handguard Assembly (M16A3/M16A4)	Inspect Service Remove/Install Replace Repair	0.1		0.1			3	
			0.1		0.1				
					0.1				
					0.2				
0403	Barrel Stop Assembly (M16A3/M16A4)	Inspect Remove/Install Replace Repair			0.1			3	
					0.1				
					0.1				
					0.1				
0404	Upper Handguard Assembly (M4/M4A1)	Inspect Service Remove/Install Replace Repair	0.1		0.1			3	
			0.1		0.1				
					0.1				
					0.2				
0405	Upper Receiver Assembly	Inspect Replace Repair			0.1 0.5 0.3			1, 2 1, 3	
040501	Forward Assist Assembly	Inspect Replace Repair			0.1 0.1 0.1			1, 3	
040502	Rear Sight Assembly (M16A2)	Inspect Replace Repair			0.1 0.3 0.2			1, 3 1, 3	
05	Lower Receiver and Buttstock Assembly	Inspect Test Service Repair	0.1		0.1			2	C, D, E
			0.2		0.1				
					0.2				
					0.3				

Table 1. MAC for M16 Series Rifles and M4 Series Carbines - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT REF CODE	(6) REMARKS CODE
			FIELD			SUSTAINMENT			
			CREW	SERVICE	FIELD	BELOW DEPOT	DEPOT		
			C	O	F	H	D		
0501	Buttstock Assembly	Inspect Remove/Install Replace Repair			0.1 0.1 0.1 0.1			3 3 3	
0502	Hammer Assembly	Inspect Remove/Install Replace Repair			0.1 0.1 0.1 0.1				
0503	Trigger Assembly	Inspect Remove/Install Replace Repair			0.1 0.1 0.1 0.1			1, 3 1, 3 1, 3	
050301	Trigger Subassembly (M16A2, M16A4, and M4)	Inspect Replace Repair			0.1 0.1 0.1			1, 3 1, 3	
0504	Lower Receiver and Receiver Extension Assembly	Inspect Test Repair			0.1 0.1 0.2			2 1, 3	
06	M16A3, M16A4, M4, and M4A1 Adapter Rail Cover Assemblies	Inspect Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1 0.1 0.2			3	
07	Carrying Handle Assembly	Inspect Service Remove/Install Replace Repair	0.1 0.1 0.1		0.1 0.1 0.3 0.2			1, 3 1, 3	

MAINTENANCE ALLOCATION CHART (MAC) - Continued**Table 2. Tools and Test Equipment for M16 Series Rifles and M4 Series Carbines.**

(1) TOOL OR TEST EQUIPMENT REFERENCE CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER (NSN)	(5) TOOL NUMBER
1 (Army Only)	F	Shop Set, Small Arms: Field Maintenance, Basic, Less Power	4933-00-754-0664	SC 4933-95-A11
2 (Army Only)	F	Tool and Gage Set, DS/GS Maintenance for 5.56mm Rifle, M16 Series		8426685
3 (Army Only)	O	Sets, Kits, and Outfits for Tool Kit, Small Arms	5180-01-506-8287	SC 5180-95-B71
4 (Air Force Only)	F	Torque Wrench, ft-lb	5120-00-640-6365	A-A-411
5 (Air Force Only)	F	Torque Wrench, in-lb	5120-00-230-6380	T-E-12A
6 (Air Force Only)	F	Trigger Weights	4933-00-647-3696	7274758

Table 3. Remarks for M16 Series Rifles and M4 Series Carbines.

REMARKS CODE	REMARKS
A	Tool, Front Sight Post Removal and Installation
B	Depressor, Front Sight Detent
C	Tool, Pivot Pin Removal
D	Tool, Pivot Pin Installation
E	Pin, Slave

END OF WORK PACKAGE

FIELD MAINTENANCE

EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

Scope

This work package lists expendable and durable items that you will need to operate and maintain the M16A2/M16A3/M16A4 Rifle and the M4/M4A1 Carbine. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items); CTA 50-909, Field and Garrison Furnishings and Equipment; or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use dry cleaning solvent (WP 0045, item 15)).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item (C = Crew, O = Service, F = Field).

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

Column (4) Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

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

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/(CAGEC)	(5) U/I
1	F	8040-00-944-7292	ADHESIVE, KIT MMM-A-1754 (81348)	KT
2	O	8020-00-244-0153	BRUSH, ARTIST'S: metal ferrule, flat chisel edge, 7/16 w, 1-1/8 exposed bristle H-B-241 (81348)	EA

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/(CAGEC)	(5) U/I
3	F	1005-00-716-2702	BRUSH, CLEANING, SMALL ARMS 7162702 (19205)	EA
4	C	1005-00-903-1296	BRUSH, CLEANING, SMALL ARMS: bore 11686340 (19204)	EA
5	C	1005-00-999-1435	BRUSH, CLEANING, SMALL ARMS: chamber 8432358 (19204)	EA
6	C	1005-00-494-6602	BRUSH, CLEANING, SMALL ARMS: tooth 8448462 (19204)	EA
7	O	7920-00-205-2401	BRUSH, CLEANING, TOOLS AND PARTS MILS43871 (81349)	EA
8	O	6850-00-965-2332	CARBON REMOVING COMPOUND P-C-111 (81348)	GL
9	O	9150-01-079-6124	CLEANER, LUBRICANT, AND PRESERVATIVE (CLP) 4 oz (118.30 ml) bottle	EA
	O	9150-01-054-6453	1 pt (0.47 l) bottle	EA
	O	9150-01-053-6688	1 gal. (3.79 l) can MIL-L-63460 (27412)	EA
10	C	9150-01-102-1473	CLEANER, LUBRICANT, AND PRESERVATIVE: 1/2 oz (14.79 ml) bottle MIL-L-63460 (81349)	EA
11	C	9920-00-292-9946	CLEANER, TOBACCO PIPE: cotton turf, wire core (36 per pkg) DILLSPIPE cleaner (89855)	EA
12	C	6850-00-224-6656	CLEANING COMPOUND, RIFLE BORE (RBC): small arms bore cleaning solution 2 oz (59.15 ml) bottle	OZ
	O	6850-00-224-6657	8 oz (236.59 ml) can	CN
	O	6850-00-224-6663	1 gal. (3.79 l) can MIL-PRF-372 (81349)	CN
13	O	5350-00-221-0872	CLOTH, ABRASIVE A-A-1206 (58536)	SH

Table 1. Expendable and Durable Items List - Continued.

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/(CAGEC)	(5) U/I
14	F	6810-00-244-0290 6810-00-616-9188	DICHLOROMETHANE, TECHNICAL 5 gal. (18.93 l) pail 600 lb (272.16 kg) drum ASTM D 4701 (81346)	CN DR
15	O	6850-00-281-1985	DRY CLEANING SOLVENT 1 gal. (3.79 l) can A-A-711 (58536)	GL
16	O	8010-00-297-0560	ENAMEL: olive drab no. 3407, 1 gal. (3.79 l) can TT-E-527 (81348)	GL
17	O	8415-00-823-7458 8415-00-823-7459 8415-00-823-7460	GLOVES, CHEMICAL AND OIL PROTECTIVE Size 9 Size 10 Size 11 MIL-DTL-32066 (81348)	PR PR PR
18	F	9150-00-754-2595	GREASE, MOLYBDENUM DISULFIDE MIL-G-21164 (81349)	LB
19	C	1005-01-113-0321	HANDLE SECTION, CLEANING ROD, SMALL ARMS 8436776 (19204)	EA
20	O	9150-01-260-2534	LUBRICANT, SOLID FILM 16 oz (473.18 ml) spray can MIL-L-23398 (81349)	OZ
21	C	9150-00-292-9689	LUBRICATING OIL, WEAPONS (LAW) 1 qt (0.95 l) can MIL-L-14107 (81349)	QT
22	C C O O	9150-00-935-6597 9150-00-889-3522 9150-00-687-4241 9150-00-753-4686	LUBRICATING OIL, WEAPONS (LSA): semifluid 2 oz (59.15 ml) plastic bottle 4 oz (118.30 ml) plastic bottle 1 qt (0.95 l) can 1 gal. (3.79 l) can MIL-L-46000 (81349)	OZ OZ CN CN
23	O	5340-01-230-3181	MOUNTING BRACKET (M4/M4A1 ONLY) 12556036 (19200)	EA

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/(CAGEC)	(5) U/I
24	O	8010-00-087-0102	PAINT, ENAMEL, SEMIGLOSS: paint for blank firing attachment (M15A2) 1 qt can (RED - Rifle) TT-E-529 (81348)	EA
25	O	8010-01-031-1274	PAINT, ENAMEL, SEMIGLOSS: paint for blank firing attachment (M23) 1 pt can (YELLOW - Carbine) TT-E-529 (81348)	EA
26	O	3990-00-795-3595	PAN, WASH (BOX, TOTE) 1211 (94453)	EA
27	F	6850-00-826-0981	PENETRANT KIT MIL-I-25135 (81349)	KT
28	F	8135-01-019-1691	POLYETHYLENE SHEET PE88-80-2 (84744)	EA
29	O	1005-01-394-7677	PROTECTOR, RAIL (M16A4, M4/M4A1 ONLY) 12972676 (19200)	EA
30	C	7920-00-205-1711	RAG, WIPING 50 lb (22.68 kg) bundle A-A-531 (58536)	LB
31	C	1005-00-050-6357	ROD SECTION, CLEANING, SMALL ARMS (3 required) 8436775 (19204)	EA
32	F	8030-00-670-8553	SEALING COMPOUND DEVCONF (16059)	KT
33	O	6850-01-474-2319	SOLVENT, GENERAL: Type II 1 gal. (3.79 l) can	GL
	O	6850-01-474-2317	5 gal. (18.93 l) pail	GL
	O	6850-01-474-2316	55 gal. (208.20 l) drum MIL-PRF-680 (81349)	GL
34	C	1005-00-937-2250	SWAB HOLDER SECTION, CLEANING ROD, SMALL ARMS 11686327 (19204)	EA

Table 1. Expendable and Durable Items List - Continued.

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/(CAGEC)	(5) U/I
35	C	1005-00-912-4248	SWAB, SMALL ARMS 11686408 (19204)	SH
36	C	6920-01-482-0098	TARGET, 25 METER ZEROING, M16A2/A3/A4 & M4/M4A1 12988975 (19200)	BX

END OF WORK PACKAGE

INDEX

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
A	
Abbreviation/Acronym	WP 0001-6
Adapter Rail Cover Assemblies Maintenance	
Installation	WP 0026-2
Removal	WP 0026-1
Repair or Replacement	WP 0026-1
Annual Gaging Requirements	
Gaging	WP 0027-2
Inspection	WP 0027-2
Auxiliary Equipment	WP 0031-1
B	
Back-up Iron Sight Maintenance	
Assembly	WP 0010-4
Disassembly	WP 0010-3
Installation	WP 0010-5
Lubrication	WP 0010-4
Removal	WP 0010-1
Repair or Replacement	WP 0010-4
Barrel Assembly (M16A2) 9349124, (M16A3, M16A4) 12598107, Replacement Barrel and Front Sight Assembly (M4) 9390007, (M4A1) 12991851 Maintenance	
Assembly	WP 0016-8
Disassembly	WP 0016-2
Repair or Replacement	WP 0016-5
Blank Firing Attachment Maintenance	
Installation	WP 0034-1
Removal	WP 0034-3
Repair or Replacement	WP 0034-2
Bolt and Bolt Carrier Assembly Maintenance	
Assembly	WP 0011-7
Cleaning	WP 0011-2
Disassembly	WP 0011-2
Inspection - Acceptance and Rejection Criteria	WP 0011-3
Repair or Replacement	WP 0011-6
Breech Assembly Bolt Maintenance	
Assembly	WP 0012-6
Cleaning	WP 0012-3
Disassembly	WP 0012-2
Inspection - Acceptance and Rejection Criteria	WP 0012-4
Repair or Replacement	WP 0012-6
Buttstock Assembly Maintenance	
Assembly	WP 0022-4
Cleaning	WP 0022-3
Disassembly	WP 0022-1
Lubrication	WP 0022-4
Repair or Replacement	WP 0022-3

INDEX - Continued

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
C	
Carrying Handle Assembly Maintenance	
Assembly	WP 0037-3
Disassembly	WP 0037-2
Lubrication	WP 0037-3
Repair or Replacement	WP 0037-2
Test and Inspection	WP 0037-6
Capabilities and Features	WP 0002-1
Characteristics	WP 0002-1
Charging Handle Assembly Maintenance	
Assembly	WP 0014-2
Cleaning	WP 0014-2
Disassembly	WP 0014-1
Repair or Replacement	WP 0014-2
Checking Unpacked Equipment	WP 0006-1
Close Quarters Battle Sling Maintenance	
Installation	WP 0034-2
Repair or Replacement	WP 0034-5
Common Tools and Equipment	WP 0001-7
Corrosion Prevention and Control (CPC)	WP 0001-5
D	
Destruction of Army Materiel to Prevent Enemy Use	WP 0001-5
Disposition - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-3
E	
Equipment Characteristics, Capabilities, and Features	WP 0002-1
Equipment Data	WP 0002-4
Expendable and Durable Items List	WP 0045-1
Explanation of Column Entries - Preventive Maintenance Checks and Services Introduction	WP 0007-1
F	
Field Manuals	WP 0042-1
Forms	WP 0042-1
Forward Assist Assembly Maintenance	
Assembly	WP 0020-2
Disassembly	WP 0020-1
Lubrication	WP 0020-2
Repair or Replacement	WP 0020-2
G	
General - Field Troubleshooting Index	WP 0004-1
General - Introduction to Repair Parts and Special Tools List	WP 0038-1

INDEX - Continued

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
G (Cont)	
General - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-2
General - Preventive Maintenance Checks and Services (PMCS) Introduction	WP 0007-1
General - Service Upon Receipt	WP 0006-1
General - Theory of Operation	WP 0003-1
General Information	WP 0001-1
General Inspection Criteria - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-3
H	
Hammer Assembly Maintenance	
Assembly	WP 0023-2
Disassembly	WP 0023-1
Repair or Replacement	WP 0023-1
How To Use This Manual	xi
I	
Illustrations of Manufactured Items	WP 0030-2
Index of Manufactured Items	WP 0030-1
Installation Instructions	WP 0006-2
Introduction - Illustrated List of Manufactured Items	WP 0030-1
Introduction to Repair Parts and Special Tools List (RPSTL)	WP 0038-1
K	
Key and Bolt Carrier Assembly Maintenance	
Assembly	WP 0013-2
Disassembly	WP 0013-1
Repair or Replacement	WP 0013-2
L	
List of Abbreviations/Acronyms	WP 0001-6
List of Effective Pages/Work Packages	A
Location and Description of Major Components	WP 0002-2
Lock Plate Maintenance	
Installation	WP 0032-2
Removal	WP 0032-4
Repair or Replacement	WP 0032-4
Lower Receiver and Buttstock Assembly Maintenance	
Assembly	WP 0021-12
Disassembly	WP 0021-2
Inspection - Acceptance and Rejection Criteria	WP 0021-10
Repair or Replacement	WP 0021-12
Test and Inspection	WP 0021-21

INDEX - Continued

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
L (Cont)	
Lower Receiver and Receiver Extension Assembly (M16A2) 9349101, (M16A3) 12012002, (M16A4) 12598102, (M4) 9390011, and (M4A1) 12972690 Maintenance	
Assembly	WP 0025-6
Disassembly	WP 0025-1
Repair or Replacement	WP 0025-4
Lubrication Instructions	WP 0008-27
M	
Maintenance Allocation Chart (MAC)	WP 0044-1
Maintenance Allocation Chart (MAC) Introduction	WP 0043-1
Maintenance Forms, Records, and Reports	WP 0001-4
Malfunction/Symptom Index - Field Troubleshooting Index	WP 0004-1
Miscellaneous Publications	WP 0042-1
Model Numbers and Equipment Names	WP 0001-4
M12 Storage Rack Maintenance	
Installation	WP 0036-1
N	
National Stock Number Index	WP 0040-1
Nomenclature Cross-Reference List	WP 0001-6
P	
Packaging	WP 0028-1
Part Number Index	WP 0041-1
PMCS Procedures	WP 0008-1
Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-1
Preparation for Storage or Shipment	WP 0001-5, WP 0028-1
Preventive Maintenance Checks and Services, Including Lubrication Instructions	WP 0008-1
Preventive Maintenance Checks and Services (PMCS) Introduction	WP 0007-1
Principles of Operation	WP 0003-2
Processing Unpacked Equipment	WP 0006-1
Purpose of Equipment	WP 0001-4
Purpose - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-1
Q	
Quality of Material	WP 0001-7

INDEX - Continued

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
R	
References	WP 0042-1
Repair Parts	WP 0001-7
Repair Parts List	
Adapter Rail Cover Assemblies	WP 0039-54
Back-up Iron Sight Assembly	WP 0039-6
Barrel Assembly (M16A2, M16A3, M16A4) and Replacement	
Barrel and Front Sight Assembly (M4, M4A1)	WP 0039-20
Barrel Stop Assembly (M16A3, M16A4)	WP 0039-24
Bolt and Bolt Carrier Assembly	WP 0039-8
Breech Assembly Bolt	WP 0039-10
Buttstock Assembly	WP 0039-40
Carrying Handle Assembly	WP 0039-56
Charging Handle Assembly	WP 0039-14
Forward Assist Assembly	WP 0039-29
Hammer Assembly	WP 0039-44
Key and Bolt Carrier Assembly	WP 0039-13
Lower Receiver and Buttstock Assembly	WP 0039-33
Lower Receiver and Receiver Extension Assembly	WP 0039-50
Rear Sight Assembly (M16A2)	WP 0039-30
Rifle, 5.56mm (M16A2, M16A3, M16A4) and Carbine,	
5.56mm (M4, M4A1)	WP 0039-2
Special Tools	WP 0039-58
Trigger Assembly	WP 0039-46
Trigger Subassembly	WP 0039-48
Upper Handguard Assembly (M16A3, M16A4)	WP 0039-23
Upper Handguard Assembly (M4, M4A1)	WP 0039-25
Upper Receiver and Barrel Assembly	WP 0039-15
Upper Receiver Assembly	WP 0039-26
Reporting Equipment Improvement Recommendations (EIR)	WP 0001-4
Rifle, 5.56mm (M16A2) 9349000; Rifle, 5.56mm (M16A3) 12012000;	
Rifle, 5.56mm (M16A4) 12973001; Carbine, 5.56mm (M4) 9390000;	
and Carbine, 5.56mm (M4A1) 12972700 Maintenance	
Assembly	WP 0009-3
Disassembly	WP 0009-2
Repair or Replacement	WP 0009-2
Stowage	WP 0009-16
Test and Inspection	WP 0009-3

INDEX - Continued

<u>Subject</u>	<u>WP Sequence No. - Page No.</u>
S	
Scope - General Information	WP 0001-4
Scope - Introduction to Repair Parts and Special Tools List	WP 0038-1
Scope - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-1
Scope - References	WP 0042-1
Service upon Receipt of Materiel	WP 0006-1
Shipment or Issue - Pre-Embarkation Inspection of Material in Units Alerted for Overseas Movement	WP 0029-2
Special Tools, TMDE, and Support Equipment	WP 0001-7
Supporting Information for Repair Parts, Special Tools, TMDE, and Support Equipment	WP 0001-7
T	
Table of Contents	ii
Technical Bulletins	WP 0042-2
Technical Manuals/Instructions/Orders	WP 0042-3
Top Sling Adapter Maintenance Installation	WP 0033-1
Removal	WP 0033-3
Repair or Replacement	WP 0033-3
Trigger Assembly and Trigger Subassembly Maintenance Assembly	WP 0024-2
Disassembly	WP 0024-1
Repair or Replacement	WP 0024-2
Troubleshooting Index - Field	WP 0004-1
Troubleshooting Procedures - Field	WP 0005-1
Type of Manual	WP 0001-4
U	
Unpacking	WP 0006-1
Upper Handguard Assembly (M4, M4A1) Maintenance Assembly	WP 0018-3
Disassembly	WP 0018-2
Repair or Replacement	WP 0018-3
Upper Handguard Assembly and Barrel Stop Assembly (M16A3, M16A4) Maintenance Assembly	WP 0017-3
Disassembly	WP 0017-1
Repair or Replacement	WP 0017-3

INDEX - Continued

Subject WP Sequence No. - Page No.

U (Cont)

Upper Receiver and Barrel Assembly (M16A2) 9349050,	
(M16A3, M16A4) 12973010, and (M4, M4A1) 12972680 Maintenance	
Assembly	WP 0015-13
Cleaning	WP 0015-7
Disassembly	WP 0015-2
Inspection - Acceptance and Rejection Criteria	WP 0015-8
Repair or Replacement	WP 0015-10
Test and Inspection	WP 0015-22
Upper Receiver Assembly and Rear Sight Assembly Maintenance	
Assembly	WP 0019-7
Disassembly	WP 0019-2
Lubrication	WP 0019-7
Repair or Replacement	WP 0019-5
Test and Inspection	WP 0019-12

W

Warning Summary	a
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).		DATE Date you filled out this form	
TO: (Forward to proponent of publication or form) (Include ZIP Code) AMSTA-LC-LMPP / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630						FROM: (Activity and location) (Include ZIP Code) Your mailing address			
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS									
PUBLICATION/FORM NUMBER TM 9-1005-319-23&P						DATE 28 November 2008		TITLE Field Maint Manual for M16 Series Rifle and M4 Series Carbine	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible).</i>			
	0009-1					The part number for the M16A2 rifle is incorrect in the work package title. SAMPLE			
<i>*Reference to line numbers within the paragraph or subparagraph.</i>									
TYPED NAME, GRADE OR TITLE Your Name					TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE Your Signature	

TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMPP / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630					FROM: <i>(Activity and location) (Include ZIP Code)</i> Your address			DATE Date you filled out this form
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PUBLICATION NUMBER TM 9-1005-319-23&P					DATE 28 November 2008		TITLE Field Maint. Manual for M16 Series Rifle and M4 Series Carbine	
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
PART III – REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i>								
TYPED NAME, GRADE OR TITLE Your Name				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE Your Signature	

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

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:

A handwritten signature in black ink, reading "Joyce E. Morrow". The signature is fluid and cursive, with the first name "Joyce" and last name "Morrow" clearly legible.

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0831107

DISTRIBUTION: To be distributed in accordance with the Initial Distribution Number (IDN) 400020 requirements for TM 9-1005-319-23&P.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meter = 0.3937 Inch
1 Decimeter = 10 Centimeters = 3.94 Inches
1 Meter = 10 Decimeters = 100 Centimeters
= 1000 Millimeters = 39.37 Inches
1 Dekameter = 10 Meters = 32.8 Feet
1 Hectometer = 10 Dekameters = 328.08 Feet
1 Kilometer = 10 Hectometers = 1000 Meters
= 0.621 Mile = 3,280.8 Feet
Millimeters = Inches times 25.4
Inches = Millimeters divided by 25.4

WEIGHTS

1 Centigram = 10 Milligrams = 0.154 Grain
1 Decigram = 10 Centigrams = 1.543 Grains
1 Gram = 0.001 Kilogram = 10 Decigrams
= 1000 Milligrams = 0.035 Ounce
1 Dekagram = 10 Grams = 0.353 Ounce
1 Hectogram = 10 Dekagrams = 3.527 Ounces
1 Kilogram = 10 Hectograms = 1000 Grams
= 2.205 Pounds
1 Quintal = 100 Kilograms = 220.46 Pounds
1 Metric Ton = 10 Quintals = 1000 Kilograms
= 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liter = 0.034 Fluid Ounce
1 Centiliter = 10 Milliliters = 0.34 Fluid Ounce
1 Deciliter = 10 Centiliters = 3.38 Fluid Ounces
1 Liter = 10 Deciliters = 1000 Milliliters
= 33.82 Fluid Ounces
1 Dekaliter = 10 Liters = 2.64 Gallons
1 Hectoliter = 10 Dekaliters = 26.42 Gallons
1 Kiloliter = 10 Hectoliters = 264.18 Gallons

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inch
1 Sq Decimeter = 100 Sq Centimeters = 15.5 Sq Inches
1 Sq Meter (Centare) = 10 Sq Decimeters
= 10,000 Sq Centimeters = 10.764 Sq Feet
1 Sq Dekameter (Are) = 100 Sq Meters = 1,076.4 Sq Feet
1 Sq Hectometer (Hectare) = 100 Sq Dekameters
= 2.471 Acres
1 Sq Kilometer = 100 Sq Hectometers
= 1,000,000 Sq Meters = 0.386 Sq Mile

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.061 Cu Inch
1 Cu Decimeter = 1000 Cu Centimeters = 61.02 Cu Inches
1 Cu Meter = 1000 Cu Decimeters
= 1,000,000 Cu Centimeters = 35.31 Cu Feet

TEMPERATURE

$5/9 (^{\circ}\text{F} - 32^{\circ}) = ^{\circ}\text{C}$
 $(9/5 \times ^{\circ}\text{C}) + 32^{\circ} = ^{\circ}\text{F}$
-35° Fahrenheit is equivalent to -37° Celsius
0° Fahrenheit is equivalent to -18° Celsius
32° Fahrenheit is equivalent to 0° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
100° Fahrenheit is equivalent to 38° Celsius
212° Fahrenheit is equivalent to 100° Celsius

APPROXIMATE CONVERSION FACTORS

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>	<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Inches	Centimeters	2.540	Centimeters	Inches	0.394
Feet	Meters	0.305	Meters	Feet	3.280
Yards	Meters	0.914	Meters	Yards	1.094
Miles	Kilometers	1.609	Kilometers	Miles	0.621
Square Inches	Square Centimeters	6.451	Square Centimeters ...	Square Inches	0.155
Square Feet	Square Meters	0.093	Square Meters	Square Feet	10.764
Square Yards	Square Meters	0.836	Square Meters	Square Yards	1.196
Square Miles	Square Kilometers	2.590	Square Kilometers	Square Miles	0.386
Acres	Square Hectometers	0.405	Square Hectometers ...	Acres	2.471
Cubic Feet	Cubic Meters	0.028	Cubic Meters	Cubic Feet	35.315
Cubic Yards	Cubic Meters	0.765	Cubic Meters	Cubic Yards	1.308
Fluid Ounces	Milliliters	29.573	Milliliters	Fluid Ounces	0.034
Pints	Liters	0.473	Liters	Pints	2.113
Quarts	Liters	0.946	Liters	Quarts	1.057
Gallons	Liters	3.785	Liters	Gallons	0.264
Ounces	Grams	28.349	Grams	Ounces	0.035
Pounds	Kilograms	0.454	Kilograms	Pounds	2.205
Short Tons	Metric Tons	0.907	Metric Tons	Short Tons	1.102
Pound-Feet	Newton-Meters	1.356	Newton-Meters	Pound-Feet	0.738
Pounds-Inches	Newton-Meters	0.11375	Kilopascals	Pounds per Square Inch	0.145
Pounds per Square Inch..	Kilopascals	6.895	Kilometers per Liter ...	Miles per Gallon	2.354
Ounce-Inches	Newton-Meters	0.007062	Kilometers per Hour ...	Miles per Hour	0.621
Miles per Gallon	Kilometers per Liter	0.425	°Fahrenheit	°Celsius	$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$
Miles per Hour	Kilometers per Hour	1.609	°Celsius	°Fahrenheit	$^{\circ}\text{F} = (9/5 \times ^{\circ}\text{C}) + 32$

