SW370-A4-OPI-010 Rev 1
SOFWEP-05-G10-00088-00

OPERATOR'S MANUAL
NSN: 0640-LP-104-4930
for

Rifle, 5.56 mm MK 16 MOD 0, Special Operations Forces (SOF) Combat Assault (SCAR-L)

1005-13-119-7704

Rifle, 7.62 mm MK 17 MOD 0, Special Operations Forces (SOF) Combat Assault (SCAR-H)

1005-13-119-7703

40 mm MK 13 MOD 0, Enhanced Grenade Launcher Module (EGLM)

1010-13-119-8614

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June 5, 2008

0640-LP-107-6651

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ORGANIZATION

This manual covers operation of MK 16 MOD 0 (SCAR-L), MK 17 MOD 0 (SCAR-H), and MK 13 MOD 0 (Enhanced Grenade Launcher Module (EGLM)).

Because of commonality in nomenclature, operation, and procedures, SCAR-L and SCAR-H are covered at the same time in Chapter 1, Chapter 2, Chapter 3, Chapter 4, and Chapter 5 in first portion of manual. SCAR refers to both SCAR-L and SCAR-H unless otherwise noted.

EGLM, both stand-alone and mounted to SCAR, is covered in second portion of manual (Chapter 6, Chapter 7, Chapter 8, and Chapter 9) with exception of EQUIPMENT DESCRIPTION (Chapter 1, Section II). EGLM refers to MK 13 MOD 0 in all configurations.

The all inclusive-design of this manual is based on interoperability of SCAR/EGLM weapons as a system. Goals of combining three weapons

into one manual are: 1) to ensure that operators have all pertinent information in one central publication and 2) to reduce weapon's administrative footprint for operator.

WARNINGS

<u>Always follow five basic safety rules</u>:

- **Treat every weapon as if it were loaded.**
- **Never point weapon at anything you do not intend to shoot.**
- **Keep your trigger finger straight and off trigger until ready to fire.**
- **Keep weapon on safe until you intend to fire.**
- **Be sure of your target and backstop.**

Never rely totally on your firearm's mechanical “safety” devices. Like any mechanical device, a “safety” can sometimes fail; it can be jarred or inadvertently manipulated into an unsafe condition.

1. Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, transferring, or storing.

2. **Stay clear of muzzle, and always keep weapon pointed downrange.**

3. **Keep selector lever on safe until ready to fire.**

4. **Before firing, make sure barrel is properly torqued to specification.**

5. **Hot fired cartridge cases may strike right arm as they are ejected from weapon when firing left-handed. Operators firing left-handed should not roll up right arm sleeve of clothing.**

6. **Always visually and physically inspect chamber after clearing weapon.**

7. **With ammunition and weapon at ambient temperature, (approximately 70°F) SCAR is at risk of a cook-off within 180 rounds firing full automatic, suppressed.**

8. **Blank Firing Adapter (BFA) is for use with standard barrel length; use only blank M200 (5.56 mm) or M82 (7.62 mm) ammunition with BFA.**

9. **Blank ammunition should not be fired toward personnel within 20 feet or less from muzzle; fragments of closure wad or particles of unburned propellant may inflict injury within that range.**

10. **Ensure moving parts assembly is in forward position before disassembly.**

11. **Do not allow a round to hit any hard surface or it may fire. Dispose of live rounds appropriately.**

12. **Do not modify components, use repair parts, or interchange components other than those authorized by this manual.**

13. **Never remove hot barrel to clear malfunction. Wait until barrel is cool to touch before removal.**

14. **Personnel shall wear approved hearing protection and eye protection devices during training exercises; muzzle blast, debris, and ejected casings could inflict serious injury.**

15. **Sound Suppressor: refer to Ancillary Equipment Instructions (Paragraph 5-6) and heed all Warnings, Cautions, and Notes pertaining to use and maintenance of sound suppressor.**

16. **Ensure trigger module takedown pin is positively retained. When trigger module takedown pin is not positively retained, it can work loose during firing. If it works completely out, trigger module can separate from SCAR and MK 13 MOD 0.**

17. **Ensure barrel is free of obstructions, using flashlight if necessary. It only takes a small obstruction to dangerously increase pressures.**

18. **If a noticeable difference in sound or recoil is experienced, stop firing. Either condition could indicate incomplete powder burn and/or bullet stuck in bore. Pull charging handle to rear, inspecting chamber while pulling rearward. When chamber is accessible, inspect round and remove fired cartridge case. Clear weapon and check for unburned powder grains in receiver or bore; inspect for obstructions. Remove unburned powder or obstructions from bore before resuming firing. If bullet is stuck in bore, return weapon to armory.**

19. **If SCAR stops firing with a live round in chamber of hot barrel, remove round first. However, if live round cannot be removed within 10 seconds, remove magazine and wait 15 minutes with**

weapon pointed in safe direction. Keep face away from ejection port while clearing hot chamber.

20. **If SCAR is dropped or jarred while moving parts assembly is locked to rear or in forward position with fully loaded magazine, a round could be chambered.**

21. **Before starting function check, be sure to clear weapon. DO NOT squeeze trigger until weapon has been cleared. Inspect chamber to ensure that it is empty and no ammunition is in position to be chambered. Do not keep live ammunition near work area.**

22. **DO NOT FIRE seriously corroded ammunition, dented cartridges with loose bullets, cartridges exposed to extreme heat (135°F) until they have cooled and cartridges with bullet pushed in (short rounds). Inspect every round loaded into weapon.**

23. Prior to initial firing, clean bore and wipe away any anti-rust compound in chamber and on bolt of SCAR.

24. Make sure of adequate ventilation in area that you discharge weapon. Wash hands thoroughly after exposure to ammunition or cleaning weapon. Lead exposure can be obtained from discharging weapon in poorly ventilated areas, cleaning firearms, or handling ammunition. After firing, thoroughly wash hands prior to eating food or using tobacco products. Lead is a substance that has been known to cause birth defects, reproductive harm, and other serious injury.

25. Use proper ammunition. Barrel and bolt of SCAR have been made with substantial safety margins over pressures developed by 5.56 x 45 mm and 7.62 x 51 mm North Atlantic Treaty Organization (NATO) ammunition. EGLM barrel has been made with substantial safety margins over pressures developed by 40 x 46 mm NATO ammunition. Manufacturer

assumes no liability for accidents that occur through use of rounds of different caliber or not fabricated according to SAAMI or NATO standards.

26. **When firing, only U.S. Military and NATO ammunition should be fired from weapon.**

27. **Due to growth potential of SCAR platform, multiple caliber variants may become available. Make certain to check for proper weapon component and compatibility when changing calibers. DO NOT interchange bolt, bolt carrier, guide rod assembly, or firing pin between calibers.**

28. **Always set selector lever in 'S' (Safe) position prior to negotiating obstacles with loaded weapon.**

29. **Utilize weapon sling at any time you need to use your hands.**

30. **Never lean on weapon, and never place it against any unstable object.**

31. **When using SCAR in close proximity to cover, ensure line of bore AND line of sight are clear before engaging targets.**

32. **SCAR/EGLM is subject to wear and tear and requires preventive maintenance checks and services.**

33. **Rail panels should be installed on unused portions of 3, 6, and 9 o'clock rails when not covered by aiming devices or accessories.**

34. **Be careful not to accidentally fire weapon when inserting gloved fingers into trigger area.**

35. **Do not use cartridges other than those authorized for the 40 mm grenade launcher. Use of unauthorized high explosive 40**

mm cartridges will result in death or injury. Use only authorized rounds.

36. **The danger radius of practice grenades is 20 meters (66 ft).**

37. **Projectiles assembled with M552 (T333) fuzes will arm within 3 meters (10 ft) of weapon. Clear line of fire of all obstructions that will endanger personnel when weapon is fired.**

38. **The M407A1 practice round fuze arms between 14 to 27 meters (46 to 89 ft).**

39. **Do not fire ammuntion not made for use in the MK 13 MOD 0 Grenade Launcher. Doing so will result in injury or death of personnel.**

40. **Hearing protection is required for user and all adjacent personnel on firing range, when using M585 cartridge.**

41. **Non-lethal rounds for the 40 mm grenade launcher MK 13 MOD 0 have the potential to cause lethal injuries if operator instructions are not precisely followed. Operator instructions for non-lethal rounds are over-packed in the appropriate ammunition containers.**

42. **Before inspection, be sure weapon is not loaded.**

43. **Personnel should not fire more than 200 rounds within a 24 hour period in training.**

CAUTIONS

1. **When weapon is dirty or damaged, disassemble in accordance with (IAW) fieldstrip procedures (Chapter 4 (SCAR) and Chapter 9 (MK 13 MOD 0)).**

2. **Do not use wire brush or any type of abrasive material to clean aluminum or composite surfaces of weapon.**

3. **Place selector lever on 'S' before reassembling weapon.**

4. **Do not continue to adjust windage and elevation mechanisms if resistance is encountered. This could result in damage to equipment.**

5. **Never ride charging handle forward; let it go forward on its own force.**

6. **Do not lubricate gas piston, gas regulator, or gas regulator housing.**

Failure to follow these instructions can cause extensive damage to weapon.

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Revision No. 1

SCAR
OPERATOR'S MANUAL

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LIST OF EFFECTIVE PAGES

NOTE: Zero in the *Change No.* column indicates an original page or chapter. Portion of text affected by changes is indicated by vertical line in page's outer margins. Changes to illustrations are indicated by miniature pointing hands. Changes to block diagrams are indicated by shaded areas.
Dates of issue for original and changed pages are:

Original	0	1 January 2007
Revision 1	5	June 2008

TOTAL NUMBER OF PAGES FOR THIS MANUAL IS 460. TOTAL NUMBER OF CHAPTERS IS 10, CONSISTING OF THE FOLLOWING:

Page No.	Change No.
Cover	0
Organization a-b	0
Warnings c-n	0
List of Effective Pages A-F	0
Reporting Errors and Recommending Improvements i-ii	0
Table of Contents iii-xii	0
List of Figure xiii-xxii	0
List of Tables xxiii-xxiv	0
Chap 1 1-46	0
Chap 2 1-86	0
Chap 3 1-20	0
Chap 4 1-84	0
Chap 5 1-50	0
Chap 6 1-6	0

Page No.	Change No.
Chap 7 1-40	0
Chap 8 1-6	0
Chap 9 1-34	0
Chap 10 1-8	0
Appendix A 1-2	0
Appendix B 1-8	0
Appendix C 1-6	0
Appendix D 1-8	0
Appendix E 1-6	0
Appendix F 1-4	0

CHANGE RECORD

Change No.	Date	Title or Brief Description	Signature of Validating Officer
Rev. 1	6/5/08	Changes according to Crane and FN.	Ron Webster

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Rifle, 5.56 mm MK 16 MOD 0, Special Operations Forces (SOF) Combat Assault (SCAR-L)

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40 mm MK 13 MOD 0, Enhanced Grenade Launcher Module (EGLM)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. Please let us know if you find any mistakes or if you know of a way to improve a procedure. Mail DA Form 2027 (*Recommended Changes to Publications and Blank Forms*) directly to: Small Arms Weapons Division, Joint Special Operations Response Department, Naval Surface Warfare Center, Crane Division, Crane, IN. You may also send in your recommended changes via e-mail or by fax. Our fax number is 812-854-1044. Our e-mail address is smallarms@navy.mil. A reply will be furnished.

This publication is available through the Small Arms Weapons Division, Joint Special Operations Response Department, NSWC, Crane Division.

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

SECTION **PAGE**

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LIST OF FIGURES

LIST OF FIGURES (CONT.)

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LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF FIGURES (CONT.)

LIST OF TABLES

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CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

SCAR is developed in two configurations, MK 16 MOD 0 in 5.56 x 45 mm North Atlantic Treaty Organization (NATO) and MK 17 MOD 0 in 7.62 x 51 mm NATO. Both MK 16 MOD 0 and MK 17 MOD 0 possess capability for barrel modularity and are available in the following variants: Standard (S), Close Quarter Combat (CQC), and Long Barrel (LB). Barrel modularity can be accomplished via changing the complete receiver assembly or just the barrel assembly. **The S barrel length is the standard configuration for SCAR.**

MK 16 MOD 0 is designed to use an enhanced 5.56 x 45 mm magazine as well as a standard M4/M16 magazine. MK 17 MOD 0 provides open architecture design to accommodate changing calibers from standard 7.62 x 51 mm NATO.

Ergonomic and parts commonality between MK 16 MOD 0 and MK 17 MOD 0 is maximized to create a modular family of SCAR weapons. Commonality is essential for training time reduction, enhancing mission effectiveness, and improving operator's ingrained operational and emergency procedure autonomic responses that are critical during high stress situations.

SCAR is compatible with 40 mm EGLM (MK 13 MOD 0). MK 13 MOD 0 is designed to be used in stand-alone configuration via stand-alone buttstock or mounted to SCAR. MK 13 MOD 0 mounts to SCAR in any barrel length configuration on the 6 o'clock rail. Rail interface is capable of withstanding recoil forces generated by firing 40 mm grenade launcher with cartridge producing pressure of 230 bar. Due to free floated barrel design, when MK 13 MOD 0 is mounted to SCAR, SCAR exhibits no detectable shift in zero when firing MK 13 MOD 0 or mounting other sighting systems, aiming devices, and accessories. SCAR is also compatible with nearly all Special Operations Peculiar Modification

(SOPMOD) Accessory Kit components via Military Standard (MIL-STD)-1913 Rails.

Figure 1-1. MK 16 Barrel Configurations.

1-1. SCOPE.

a. Type of manual: Operator's Manual.
b. Model numbers and equipment names: Rifle, 5.56 mm MK 16 MOD 0; Rifle 7.62 mm MK 17 MOD 0; 40 mm MK 13 MOD 0 EGLM.
c. Purpose of equipment: Rifles' purpose is to provide personnel offensive/defensive capability to engage enemy targets with direct fire. Grenade launcher's purpose is to provide personnel offensive/defensive capability to engage targets with direct/ indirect fire. MIL-STD-1913 Rails provide operator capability to mount various accessories onto SCAR and MK 13 MOD 0.

1-2. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If weapon needs improvement, inform Program Office. User and maintainer are the only ones who can tell us what improvements to weapon are needed. Let us know what is lacking in design or performance. Tell us why a procedure is hard to perform and/or recommend improved procedure. A reply will be furnished directly to you. Fill out the Technical Manual Deficiency/Evaluation Report (TMDER) found in Appendix E.

Report to:

Commander
Crane Division
Naval Surface Warfare Center
Attn: Code JXNQ, Bldg 2521
300 Highway 361
Crane, IN 47522-5001
or e-mail to: smallarms@navy.mil

1-3. CORROSION, PREVENTION, AND CONTROL (CPC).

CPC of material is a continuing concern. It is important that any corrosion problems with this item be reported so that problem can be corrected and improvements can be made to prevent problem in future. While corrosion is typically associated with rusting metals, it can also include deterioration of other materials such as rubber or 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 (PQDR). Use of key words such as corrosion, rust, deterioration, or cracking will assure that information is identified as a CPC problem. Form should be submitted to:

Commander
Crane Division
Naval Surface Warfare Center
Attn: Code JXNQ, Bldg 2521
300 Highway 361
Crane, IN 47522-5001
or e-mail to: smallarms@navy.mil

1-4. DESTRUCTION OF NAVY MATERIAL TO PREVENT ENEMY USE.

Destruction of Equipment to Prevent Enemy Use procedure will be found in Technical Manual (TM) 750-224-7.

1-5. LIST OF ABBREVIATIONS/ACRONYMS.

'A'	Automatic
AAL	Additional Authorization List
BFA	Blank Firing Adapter
BII	Basic Issue Items
BZO	Battle Sight Zero
CAGEC	Commercial and Government Entity Code
CCW	Counterclockwise
CLP	Cleaner, Lubricant, and Preservative
CPC	Corrosion, Prevention, and Control
CQC	Close Quarter Combat

CTR	Center Top Right
CW	Clockwise
EGLM	Enhanced Grenade Launcher Module
EIR	Equipment Improvement Recommendations
‘F’	Fire
IAW	In Accordance With
IR	Infrared
LAW	Lubricating Oil, Arctic, Weapons
LB	Long Barrel
LL	Lateral Left
LOP	Length of Pull

LR	Lateral Right
LSA	Lubricating Oil, Weapon
MIL-STD	Military Standard
MOA	Minute of Angle
MRD	Miniature Red Dot
NATO	North Atlantic Treaty Organization
NSN	National Stock Number
NSWC	Naval Surface Warfare Center
PMCS	Preventative Maintenance Checks and Services
POA	Point of Aim
POI	Point of Impact

PQDR	Product Quality Deficiency Report
RBC	Rifle Bore Cleaner
RH	Right-hand
S	Standard
‘S’	Safe
SOF	Special Operations Forces
SOP	Standard Operating Procedures
SOPMOD	Special Operations Peculiar Modification
TL	Top Left
TM	Technical Manual
TMDER	Technical Manual Deficiency/Evaluation Report

TOA	Table of Authority
TR	Top Right
U/I	Unit of Issue
U/M	Unit of Measure

Section II. EQUIPMENT DESCRIPTION (SCAR/MK 13 MOD 0)

1-6. CHARACTERISTICS, CAPABILITES, FEATURES, AND EQUIPMENT DATA.

a. Characteristics.
   (1) SCAR is a shoulder fired, air-cooled, magazine fed, short stroke gas operated, select fire, modular weapon system.
   (2) MK 13 MOD 0 is a shoulder fired, rotary locked breach, quick on/off with no effect on host weapon zero, double action trigger, left or right hand operation 40 mm weapon

module capable of firing in stand-alone capacity or attached to SCAR. MK 13 MOD 0 is designed to fire all low velocity and future medium velocity 40 mm rounds. MK 13 MOD 0 can be utilized with standard leaf sight or mechanical quadrant sight consisting of infrared (IR) laser pointer, miniature red dot (MRD) sight, and flip up iron sights.

b. Capabilities.

(1) SCAR **(in S configuration)** is designed to engage targets at ranges out to 300 meters for point target and 500 meters for area target using back-up iron sights. SCAR provides operators ability to interchange barrel lengths for optimal mission requirements. SCAR is equipped with multiple MIL-STD-1913 Rails at 3, 6, 9, and 12 o'clock positions to facilitate mounting of various accessories in order to tailor weapon to meet operational mission requirements.

NOTE

When installing SOPMOD optics to MIL-STD-1913 12 o'clock rail, ensure optic throw levers are on opposite side of charging handle.

(2) MK 13 MOD 0 is designed to engage targets at ranges out to 300 meters effectively for area target. MK 13 MOD 0 stand-alone buttstock is equipped with multiple MIL-STD-1913 Rails at 3, 6, 9, and 12 o'clock positions to facilitate mounting of various accessories in order to tailor weapon to meet operational mission requirements.

c. Features.

(1) SCAR features receiver with continuous, monolithic 12 o'clock rail along with a 3, 6, and 9 o'clock rail on forward portion. SCAR has capability of operator-level barrel changes for mission requirements (CQC, S, LB). All complete barrel assemblies are free floating and suppressor compatible when secured to receiver.

Buttstock provides adjustable cheek rest, 6-position Length of Pull (LOP), and is capable of side folding. SCAR has numerous ambidextrous features. Refer to Figure 1-1 and Figure 1-2 for nomenclature description. Note that Figure 1-1 is MK 16 MOD 0 left side view and that Figure 1-2 is MK 17 MOD 0 right side view; both weapons have all features shown.

Figure 1-2. Nomenclature, Left Side View (MK 16 MOD 0 (S)).

1. Flash Hider
2. Barrel
3. Front Sight Assembly
4. Front Sight Locking Pin
5. Charging Handle
6. Bolt Release
7. Rear Sight Assembly
8. Cheek Rest Button
9. Cheek Rest
10. Sling Attachment Point
11. Gas Block
12. 9 O'clock Rail
13. Takedown Pin
14. Magazine Release, Left
15. Trigger
16. Selector Lever, Left
17. Sling Attachment Points
18. Buttstock Lock
19. LOP Adjustment Lock

Figure 1-2. Nomenclature, Left Side View (MK 16 MOD 0 (S)) (cont.).

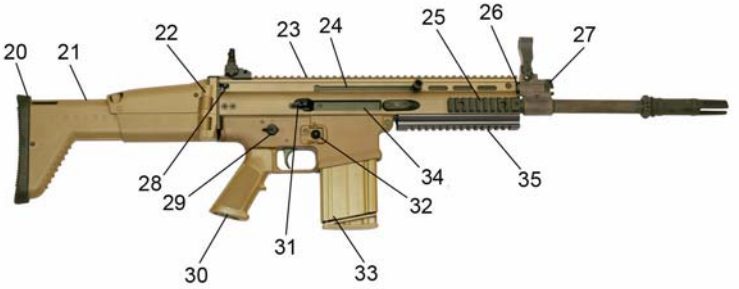

Figure 1-3. Nomenclature, Right Side View (MK 17 MOD 0 (S)).

20. Buttstock Pad
21. Adjustable, Foldable Buttstock
22. Buttstock Hinge
23. 12 O'clock Rail
24. Charging Handle Slot
25. 3 O'clock Rail
26. Sling Attachment Point
27. Gas Regulator
28. Sling Attachment Point
29. Selector Lever, Right
30. Pistol Grip
31. Deflector, Buttstock Lock
32. Magazine Release, Right
33. Magazine
34. Ejector Port
35. 6 O'clock Rail

Figure 1-3. Nomenclature, Right Side View (MK 17 MOD 0 (S)) (cont.).

(2) MK 13 MOD 0 features a cam driven, rotating barrel and locks into breach with multiple lugs. Barrel opens forward and has an ambidextrous feature, cams to left or right for ease of loading and for use with longer projectiles. Additionally, grenade launcher is equipped with manual extractor lever that allows operator to enhance control of unloading live round. Extractor also holds spent casing firmly to breech until barrel is unlocked and manually pushed forward at which time it ejects spent casing. Refer to Figure 1-4, Figure 1-3, and Figure 1-5 for nomenclature description.

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Figure 1-4. Nomenclature, Left Side (MK 13 MOD 0 (Stand-alone Configuration)).

1. Sling Attachment Points
2. Barrel Stripping Lever
3. Handguard Locking Lever
4. 9 O'clock Rail
5. Sling Attachment Point
6. LOP Adjustment Lock
7. Barrel
8. Safety
9. Takedown Pin
10. Firing Pin Retaining Latch

Figure 1-4. Nomenclature, Left Side (MK 13 MOD 0 (Stand-alone Configuration)) (cont.).

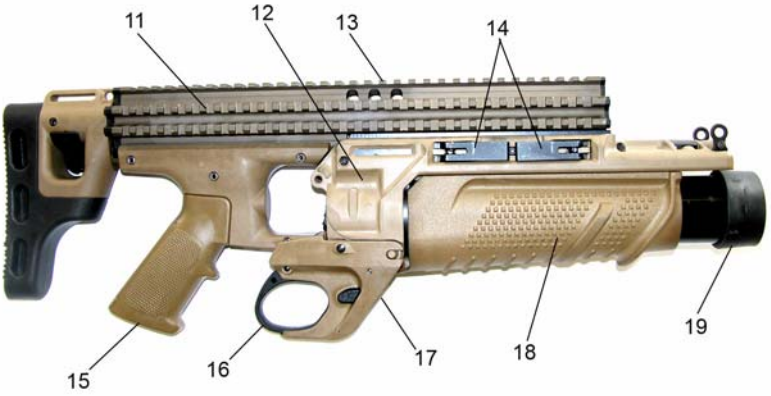

Figure 1-5. Nomenclature, Right Side (MK 13 MOD 0 (Stand-alone Configuration)).

11. 3 O'clock Rail
12. Frame
13. 12 O'clock Rail
14. Jaw Levers
15. Pistol Grip
16. Trigger
17. Stand-alone Trigger Module
18. Handguard
19. Muzzle Ring

Figure 1-5. Nomenclature, Right Side (MK 13 MOD 0 (Stand-alone Configuration)) (cont.).

Figure 1-6. MK 13 MOD 0 Trigger Modules and Sights.

d. Equipment data.

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0).

Description	Item	Measurement
Caliber	MK 16 MOD 0	5.56 mm
	MK 17 MOD 0	7.62 mm
	MK 13 MOD 0	40 mm

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Weight (unloaded)	MK 16 MOD 0	
	CQC	6.99 lbs
	S	7.24 lbs
	LB	7.74 lbs
	MK 17 MOD 0	
	CQC	7.69 lbs
	S	7.91 lbs
	LB	8.23 lbs
	MK 13 MOD 0	
	Launcher	2.51 lbs
	Stand-alone Buttstock	3.13 lbs
	MK 16 MOD 0 Trigger Module	0.45 lbs

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Weight (unloaded) (cont.)	MK 13 MOD 0 Trigger Module	0.28 lbs
	MK 17 MOD 0 Trigger Module	0.49 lbs
	Suppressor, MK 16 MOD 0	0.99 lbs
	Suppressor, MK 17 MOD 0	1.72 lbs
Overall Length	MK 16 MOD 0	
	CQC	Stock Fully Extended (max) 30.88 in Stock Fully Collapsed (min) 28.63 in Stock Folded 21.25 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Overall Length (cont.)	MK 16 MOD 0 (cont.)	
	S	Stock Fully Extended (max) 35.00 in Stock Fully Collapsed (min) 32.50 in Stock Folded 25.00 in
	LB	Stock Fully Extended (max) 39.12 in Stock Fully Collapsed (min) 36.63 in Stock Folded 29.25 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Overall Length (cont.)	MK 17 MOD 0	
	CQC	Stock Fully Extended (max) 35.00 in Stock Fully Collapsed (min) 32.50 in Stock Folded 25.12 in
	S	Stock Fully Extended (max) 38.00 in Stock Fully Collapsed (min) 35.50 in Stock Folded 28.00 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Length (cont.)	MK 17 MOD 0 (cont.)	
	LB	Stock Fully Extended (max) 41.88 in Stock Fully Collapsed (min) 39.5 in Stock Folded 32.12 in
	MK 13 MOD 0	
	With Stand-alone Buttstock	Stock Fully Extended (max) 26.50 in Stock Fully Collapsed (min) 20.25 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Height (no optics or magazine)	MK 16 MOD 0/MK 17 MOD 0 (all barrel lengths)	8.03 in
	MK 13 MOD 0 w/Stand-alone Buttstock and Stand-alone Trigger Module	7.94 in
Width	MK 16 MOD 0/ MK 17 MOD 0	Stock Folded 3.69 in Stock Unfolded 2.73 in
	MK 13 MOD 0	3.11 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Barrel Length	MK 16 MOD 0	
	CQC	10 in
	S	14 in
	LB	18 in
	MK 17 MOD 0	
	CQC	13 in
	S	16 in
	LB	20 in
	MK 13 MOD 0	
	Launcher	9.6 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Muzzle Velocity	MK 16 MOD 0	
	CQC	
	M855	2650 fps
	MK 262	2430 fps
	S	
	M855	2920 fps
	MK 262	2670 fps

NOTE

Velocity may vary due to ammunition lot and atmospheric conditions.

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Muzzle Velocity (cont.)	MK 16 MOD 0 (cont.)	
	LB	
	M855	3120 fps
	MK 262	2840 fps
	MK 17 MOD 0	
	CQC	
	M80	2540 fps
	M118LR	2370 fps
	S	
	M80	2770 fps
	M118LR	2490 fps

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Muzzle Velocity (cont.)	MK 17 MOD 0 (cont.)	
	LB	
	M80	2810 fps
	M118LR	2620 fps
	MK 13 MOD 0	
	MK 13 MOD 0	249 fps
Lands and Grooves	MK 16 MOD 0	6
	MK 17 MOD 0	4
	MK 13 MOD 0	6
Twist Rate	MK 16 MOD 0	1:7 right-hand (RH)
	MK 17 MOD 0	1:12 RH
	MK 13 MOD 0	RH

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Trigger Pull	MK 16 MOD 0	6 lbs +/- 1.5 lbs
	MK 17 MOD 0	6 lbs +/- 1.5 lbs
	MK 13 MOD 0	10.5 lbs
Cyclic Rate of Fire	MK 16 MOD 0	625 rpm
	MK 17 MOD 0	625 rpm
Magazine Capacity	MK 16 MOD 0 20-round 5.56 mm magazine not intended for use with MK 13 MOD 0	20- or 30-round detachable box
	MK 17 MOD 0	10- or 20-round detachable box

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
LOP	MK 16 MOD 0/ MK 17 MOD 0	2.50 in
	MK 13 MOD 0	6.25 in
Cheek Rest Adjustment	MK 16 MOD 0/ MK 17 MOD 0	0.51 in
Sight Radius	MK 16 MOD 0	16.18 in
	MK 17 MOD 0	17.00 in
Barrel Extension Torque	MK 16 MOD 0/ MK 17 MOD 0	62 in lb

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Bore to Top Rail	MK 16 MOD 0/ MK 17 MOD 0	1.93 in
	MK 13 MOD 0 mounted on MK 16 MOD 0/ MK 17 MOD 0	4.75 in
	MK 13 MOD 0 mounted on Stand-alone Buttstock	3.62 in
Bore to Front Sight Post	MK 16 MOD 0/ MK 17 MOD 0	3.37 in
Bore to Rear Sight Aperture	MK 16 MOD 0/ MK 17 MOD 0	3.38 in

Table 1-1. Equipment Technical Data (SCAR/MK 13 MOD 0). (cont.)

Description	Item	Measurement
Bore to Side Rails	MK 16 MOD 0/ MK 17 MOD 0	1.14 in
	MK 13 MOD 0	1.25 in
Minimum Safe Firing Range (HE)	MK 13 MOD 0	Training: 130 m (426 ft) Combat: 31 m (102 ft)
Minimum Arming Range	MK 13 MOD 0	About 14 to 38 m (46 to 125 ft)
Rate of Fire	MK 13 MOD 0	5 to 7 rpm

1-7. MAJOR COMPONENTS (SCAR) LOCATION AND DESCRIPTION.

Figure 1-7. SCAR's Five Major Components.

Magazine Assembly (1)	Consists of steel construction. Holds cartridges for feeding and provides guide to position cartridges for stripping. Provides for quick reload capabilities for sustained firing. MK 16 MOD 0 magazine is available in 20- or 30-round capacity. MK 17 MOD 0 magazine is available in 10- or 20-round capacity.
Trigger Module (2)	Contains trigger assembly, sear, hammer assembly, ambidextrous selector lever, pistol grip, bolt catch, and ambidextrous magazine release.

Buttstock Module (3)	Buttstock provides additional 1/2” to height for cheek weld, 6-position LOP, and is side folding for compact carry. Buttstock module contains ambidextrous rear sling attachment point.
Moving Parts Assembly (4)	Consists of bolt/bolt carrier, return spring assembly, and charging handle.

Complete Receiver Assembly (5)	Contains receiver assembly (**serialized item**), barrel assembly (CQC, S, or LB), rear sight assembly, front sight assembly, brass deflector/ buttstock lock, barrel retention system, MIL-STD-1913 Rails at 3, 6, 9, and 12 o'clock positions, gas block, gas regulator, gas piston, ambidextrous sling mounts, and ambidextrous charging handle options.

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CHAPTER 2
OPERATING INSTRUCTIONS (SCAR)

Section I. WEAPON OPERATION

2-1. SAFETY CHECK.

Carry out the following procedure in order to ensure that SCAR can be manipulated, stored, and/or transported without any risk.

CAUTION

Be sure to clean weapon before initial use. Leaving initial protective lubricant in weapon can cause stoppage, malfunction, or failure due to over pressure.

a. UNLOAD and CLEAR weapon before manipulation or disassembly as described on the following pages.
   (1) Point weapon in a safe direction.

(2) Attempt to place weapon on 'S' (Step 1) (Figure 2-1).
(3) Remove magazine from weapon (Step 2) (Figure 2-1).
(4) Pull charging handle to rear. Lock moving parts assembly to rear utilizing bolt catch (Step 3) (Figure 2-1).
(5) Place weapon on 'S' if not already there (Step 4) (Figure 2-1).
(6) Visually and physically inspect chamber and magazine well, utilizing flashlight if necessary (Step 5) (Figure 2-1).
(7) Pull charging handle to rear most position and then release. Do not ride bolt forward.
(8) Watch bolt assembly go forward on empty chamber (Figure 2-1).

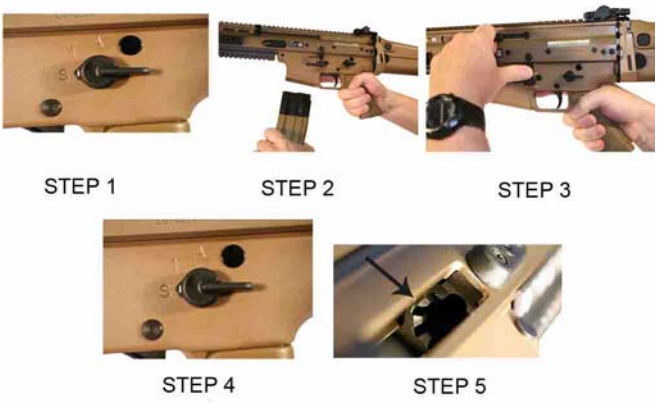

Figure 2-1. Unload and Clear SCAR.

2-2. WEAPON OPERATION.

WARNING

With moving parts assembly locked to rear position, dropping or jarring weapon with loaded magazine could chamber and fire round.

WARNING

Charging handle on SCAR reciprocates as weapon cycles. Ensure non-firing hand is clear if not utilizing vertical grip.

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a. Selector lever use (Figure 2-2).
   (1) SAFE ('S'). Weapon will not fire. Selector lever cannot be on 'S' unless weapon is "cocked". Always place on 'S' when loaded, unless in use.
   (2) SEMI-AUTOMATIC ('1'). Weapon will fire one round each time trigger is pulled.
   (3) AUTOMATIC ('A'). Weapon will continue to fire as long as trigger is pulled to rear.

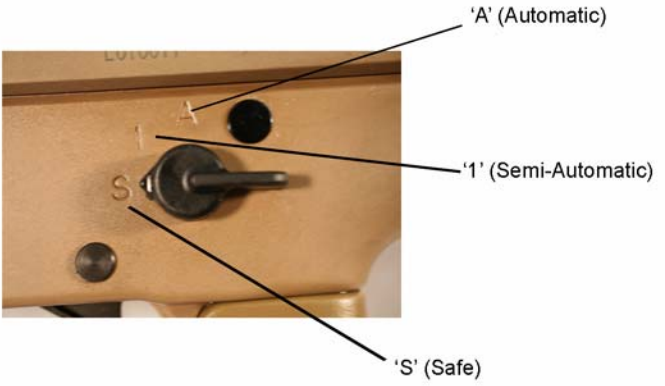

Figure 2-2. Selector Lever Positions (SCAR).

NOTE

Magazine may be inserted into weapon with moving parts assembly in rear or forward position.

b. Load magazine assembly.
   (1) A 5.56 mm magazine comes in either a 20- or 30-round capacity and may be loaded with any amount up to that capacity. A 7.62 mm magazine comes in a 10- or 20-round capacity and may be loaded with any amount up to that capacity. Magazine follower has raised portion generally resembling outline of cartridge. Cartridges are loaded into magazine so bullets' tips point in same direction as raised portion of follower; ensure rear of cartridge is oriented to rear of magazine (Figure 2-3).
      (a) Loading a 5.56 mm magazine with a 10-round stripper clip and FN stripper clip adapter found in Operator's Tool Kit (Figure 2-4).

Figure 2-3. Ammunition Orientation.

Figure 2-4. Ammunition, 30-round Magazine, FN Stripper Clip Adapter.

1 With stripper clip adapter in place, place 10-round stripper clip in position. Using thumb pressure on rear of top cartridge, press down firmly until all ten rounds are below feed lips of magazine (Figure 2-5).

Figure 2-5. Loading 10-Round Stripper Clip (5.56 mm).

2 Remove empty stripper clip while holding stripper clip adapter in place.

3 Repeat until two 10-round clips (20-round magazine) or three 10-round clips (30-round magazine) are loaded.

4 Remove stripper clip adapter. Retain it for future use.

(b) Loading a 5.56 mm magazine with individual rounds.

1 Push cartridge straight down through feed lips and to rear until seated (Figure 2-6).

2 Repeat until 20-rounds (20-round magazine) or 30- rounds (30-round magazine) are loaded.

Figure 2-6. Loading Individual Rounds (5.56 mm).

(c) Loading 7.62 mm magazine with 5-round stripper clip and FN stripper clip adapter found in Operator's Tool Kit (Figure 2-7).

Figure 2-7. Ammunition, 20-round Magazine, Stripper Clip Adapters (MK 17 MOD 0).

1 With stripper clip adapter in place, place 5-round stripper clip in position. Using thumb pressure on rear of top cartridge, press down firmly until all five rounds are below feed lips of magazine (Figure 2-8).

Figure 2-8. Loading 5-Round Stripper Clip (7.62 mm).

2 Remove empty stripper clip while holding stripper clip adapter in place.

3 Repeat until two 5-round clips (10-round magazine) or four 5-round clips (20-round magazine) are loaded.

4 Remove stripper clip adapter. Retain it for future use.

(d) Loading a 7.62 mm magazine with individual rounds.

1 Push cartridge straight down through feed lips and to rear until seated (Figure 2-9).

2 Repeat until 10- or 20-rounds (20-round magazine) are loaded.

Figure 2-9. Loading Individual Rounds (7.62 mm).

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c. Loading and chambering round.
   (1) Loading and chambering round with bolt in forward position without **magazine assembly** inserted into weapon.
      (a) With hammer cocked and selector lever on 'S', ensure muzzle is pointed in a safe direction.
      (b) Charge weapon by pulling charging handle rearward and pressing lower portion of bolt catch, which will lock moving parts assembly to rear (Step 1) (Figure 2-10). Check chamber; ensure it is clear.
      (c) Push magazine assembly upward in magazine well until magazine catch engages and holds magazine in position (Step 2) (Figure 2-10).
      (d) Tap upward on magazine. Then pull downward on magazine to ensure it is properly seated and locked into position (Step 3) (Figure 2-10).

Figure 2-10. Load Weapon (SCAR).

(e) Press top of bolt release in order to allow moving parts assembly to move fully forward going into battery, chambering a round (Step 4) (Figure 2-11). IF BOLT DOES NOT GO FORWARD, PULL CHARGING HANDLE TO REAR AND RELEASE.

(f) Utilize charging handle as forward assist by pushing it forward to ensure bolt is locked and round is properly chambered (Step 5) (Figure 2-11).

Figure 2-11. Charge Weapon (SCAR).

WARNING

Weapon is now loaded. Ensure it is pointed in a safe direction and selector lever is on 'S'.

(2) Chambering a round with bolt being in rear position and loaded magazine assembly inserted.
   (a) With selector lever on 'S', ensure muzzle is pointed in a safe direction.
   (b) Press top of bolt release in order to allow moving parts assembly to move fully forward into battery, chambering a round (Step 4) (Figure 2-11). IF BOLT DOES NOT GO FORWARD, PULL CHARGING HANDLE TO REAR AND RELEASE.
   (c) As an alternative, with magazine assembly fully secured, press bolt catch letting moving parts assembly move forward under its own power chambering a round.

CAUTION

Never “ride” charging handle forward.

d. Unloading and clearing weapon.

WARNING

To be considered safe before disassembly, cleaning, inspecting, transporting, or storing, weapon must be unloaded and cleared.

(1) Point weapon in a safe direction. Attempt to place selector lever on ‘S’. If weapon is not cocked, selector lever cannot be placed in ‘S’ position.
(2) Remove magazine assembly by placing non-firing hand beneath magazine and then depressing magazine release (Step 1) (Figure 2-12). Magazine should fall freely from weapon; maintain positive control of magazine. If magazine does not fall freely from weapon, grasp

magazine with non-firing hand while pressing magazine release with trigger finger and pull magazine down and away until it clears magazine well (Step 2) (Figure 2-12).

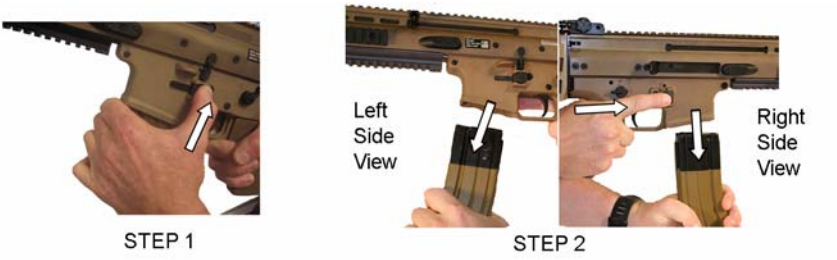

Figure 2-12. Remove Magazine Assembly (SCAR).

(3) To lock moving parts assembly, pull charging handle to rear most position while at the same time pressing bottom of bolt catch. While maintaining pressure on bottom of

bolt catch, ease charging handle forward until bolt engages bolt catch. Place selector lever on SAFE if not already done.

(4) Visually and physically inspect bore, chamber, and magazine well for any ammunition.

(5) Watch bolt assembly go forward on empty chamber.

e. Adjusting buttstock module.

(1) LOP adjustment.

(a) Press LOP lock and pull or push buttstock module to change LOP desired (Figure 2-13). Adjustments are numbered 1 through 6. Each adjustment is equal to 1/2" for total of 2.5" LOP adjustment.

Figure 2-13. Buttstock LOP Adjustment.

(2) Cheek rest adjustment.

(a) Press cheek rest adjusting button, and adjust cheek rest either up or down to desired position (Figure 2-14). Raising cheek rest will add additional 0.51” of comb height.

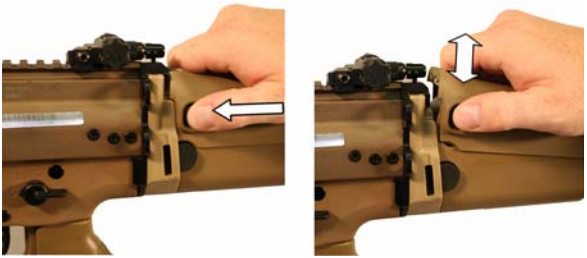

Figure 2-14. Cheek Rest Adjustment.

(3) Folding/unfolding buttstock module.

(a) To fold, press buttstock lock to release it from backplate (Step 1), fold buttstock to right (Step 2), and lock buttstock by applying slight down-and-in pressure ensuring notch on buttstock locks into deflector (Step 3) (Figure 2-15).

Figure 2-15. Folding Buttstock.

(b) To unfold, grasp buttpad, and unlock buttstock from notch on deflector by applying slight down-and-away pressure. Aggressively swing buttstock and lock into backplate. Inspect to ensure positive lock.

f. Barrel change procedure.

(1) Barrel assembly removal.

(a) Clear weapon as described in paragraph Figure 2-1.

(b) Fieldstrip weapon as described in Chapter 4. It is not necessary to disassemble moving parts group for barrel assembly removal.

CAUTION

In order to avoid damage to barrel extension screws and receiver assembly, it is recommended that T-Handle Torque Wrench (PN 305-900-2630, preset for 62in/lbs) be utilized during installation of barrel assembly. Using SCAR Multi-tool can cause damage to screws and receiver.

CAUTION

Do not attempt to remove any other screws than prescribed during barrel removal at operator level.

NOTE

All barrel screws are T-25 (torx) and are retained to receiver assembly. Do not attempt to remove these screws during barrel removal.

(c) Utilizing Operator Tool Kit (PN 314-975-0010) (Figure 2-16), use T-Handle Torque Wrench (PN 305-900-2630), SCAR Multi-tool (PN 314-940-0010), and T-25 bit (PN 305-900-2640) to loosen forward barrel extension screws (one located on left and right side of weapon) by turning COUNTERCLOCKWISE (CCW) until screws reach their end of travel (Figure 2-17).

Figure 2-16. SCAR Operator Tool Kit.

1. SCAR Tool Kit Case Pouch
2. SCAR/MK 13 MOD 0 Multi-tool
3. Gas Piston Removal Tool
4. T-Handle Torque Wrench
5. T-25 Torx Bit
6. Quick Reference Card
7. 25 m BZO Template
8. 7.62 mm Stripper Clip Adapter
9. 5.56 mm Stripper Clip Adapter

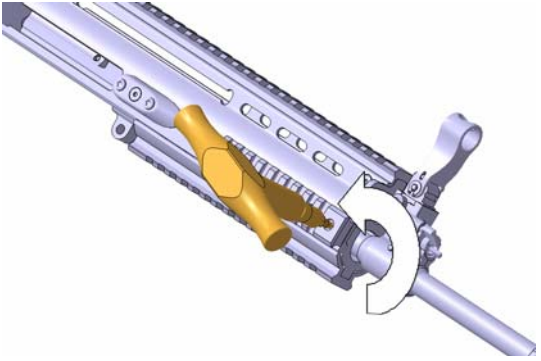

Figure 2-17. Loosen Forward Barrel Extension Screws.

(d) Using same tool, loosen four rear barrel extension screws (two located on left and right side of weapon) by turning CCW until screws reach their end of travel (Figure 2-18).

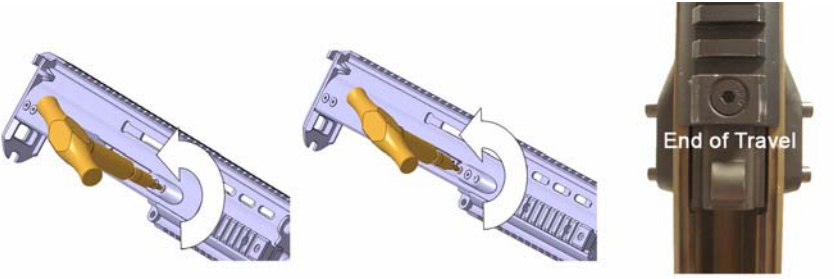

Figure 2-18. Loosen Rear Barrel Extension Screws.

(e) Remove barrel assembly by pushing forward on chamber area of barrel extension (Step 1) until rear barrel extension lugs are visible in cut, recessed portion of receiver frame (Step 2). Next pull barrel assembly up and out of receiver frame (Step 3) (Figure 2-19).

CAUTION

Removing barrel assembly from receiver frame without barrel extension clearing cut, recessed portion of upper receiver frame could result in damage to frame.

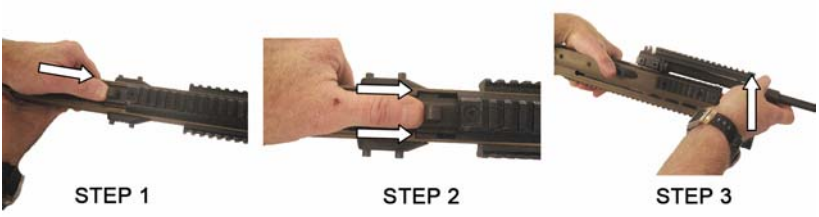

Figure 2-19. Remove Barrel Assembly.

(2) Barrel assembly installation.

(a) Install barrel assembly ensuring barrel extension lugs fall freely into cut, recessed portion in receiver frame (Step 1), align barrel extension lugs with guide

channel, and slide barrel assembly rearward until it is fully seated in receiver frame (Step 2) and all barrel extension screws are aligned with barrel assembly (Figure 2-20).

Figure 2-20. Install Barrel Assembly.

(b) Using T-Handle Torque Wrench (PN 305-900-2630) and SCAR Multi-tool and applying downward pressure while turning CLOCKWISE (CW) (Figure 2-21), tighten four rear barrel extension screws and two forward barrel extension screws (three located on left and right side of weapon) in an alternating sequence (Figure 2-21) until they are snug.

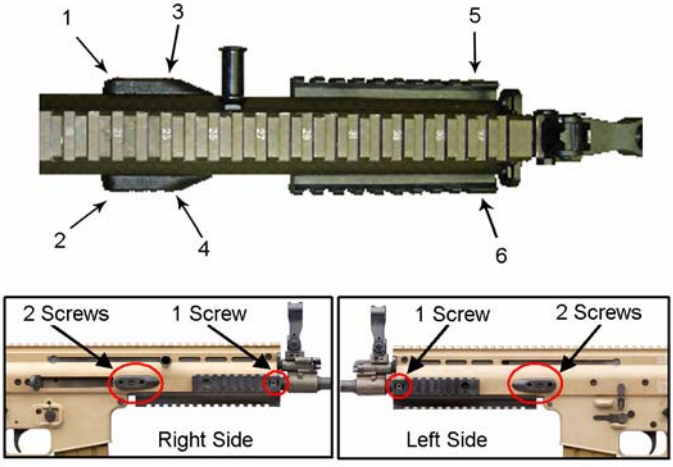

Figure 2-21. Barrel Extension Screw Tightening Sequence.

NOTE

Figure 2-27 depicts barrel extension screw tightening and torque sequence that allows for maximum zero repeatability during barrel changes (≤ Minute of Angle (MOA)). Always tighten and torque barrel extension screws in same manner.

(c) Using T-Handle Torque Wrench (Figure 2-22) and the same alternating sequence (Figure 2-20), tighten four rear barrel extension screws and two forward barrel extension screws to required torque setting (62 in/lbs). There will be an audible/tactile signature from torque wrench when barrel support screws reach proper torque setting.

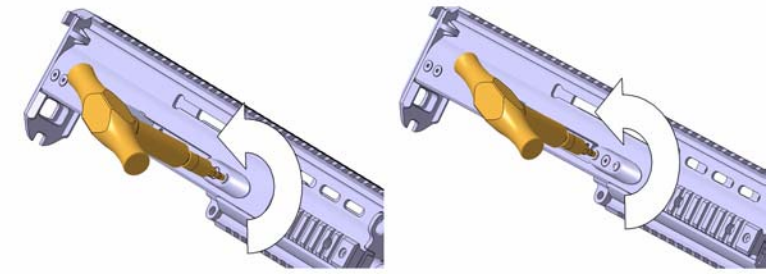

Figure 2-22. Tighten Forward Barrel Extension Screws.

2-3. CYCLE OF OPERATION.

a. Fully understanding cycle of operation for SCAR will greatly reduce downtime should weapon not function properly. Knowing cycle of operation will enable operator to clearly describe what is happening with weapon to armorer for faster maintenance. Cycle of operation is a continuous loop; so for this manual's purpose, cycle starts with FIRING.

(1) **FIRING** begins with active thought of pulling trigger to engage target. With weapon in semi-automatic or full-automatic mode, pulling trigger will cause sear to disengage hammer notch allowing hammer to fall. Hammer will strike firing pin, which in turn strikes primer discharging powder. As bullet passes gas port in barrel, expanding gases go up through gas port into gas regulator. Gases impart energy onto short stroke gas piston pushing it to rear. Gas piston contacts front of bolt carrier starting its movement to rear. Movement of bolt carrier starts next

phase. Any excess gas is vented forward through vent hole located in gas regulator.

(2) **UNLOCKING** occurs when bolt carrier is moved to rear. Bolt cam pin starts to cam in slot on left side of bolt carrier turning locking lugs until they are clear to move to rear, free of barrel extension.

(3) **EXTRACTING** occurs when bolt carrier pulls bolt to rear and extractor pulls case from chamber.

(4) **EJECTING** occurs when front of case clears front edge of ejection port while ejector pushes on left side of case head. This action and continued movement of bolt carrier to rear causes casing to strike brass deflector and then clear weapon system.

(5) **COCKING** occurs when bolt carrier moves to rear far enough to contact hammer and push it down and to rear until fully compressed. As bolt moves all the way to rear, guide rod spring is fully compressed. This now forces bolt

carrier back to front. Cocking starts while ejection is occurring.

(6) **FEEDING** begins as bolt carrier returns forward and front of bolt carrier contacts next round in magazine. Once round is pushed far enough forward, rim of case will clear magazine feed lips and move toward chamber.

(7) **CHAMBERING** starts as tip of projectile clears barrel extension and enters rear of chamber.

(8) **LOCKING** occurs as continued momentum of bolt carrier moving forward causes extractor to move over case rim and bolt cam pin cams in slot in bolt carrier forcing locking lugs to rotate in barrel extension.

   (a) In automatic fire mode, as carrier moves to its farthest position forward, it trips automatic sear sending hammer forward again, as long as trigger is held to rear.

   (b) In semi-automatic mode, as carrier moves to its farthest position forward, it trips automatic sear

sending hammer to rest on disconnector. Release of trigger at this point will allow hammer notch to come up into contact with sear on trigger; operator should hear distinctive “click” as trigger resets.

b. Cycle of operation is continuous until either stopped by operator, magazine is empty, or operator incurs stoppage or malfunction at which time operator should begin troubleshooting procedures.

2-4. OPERATION UNDER UNUSUAL CONDITIONS.

ENVIRONMENT/WEATHER

Unusual conditions are defined as any climatic condition requiring special maintenance of weapon. Perform maintenance outlined for climate that most applies to operational area.

NOTE

Cap, Protective, Dust Cover is compatible for both the MK 16 MOD 0 and MK 17 MOD 0 flash hiders. The cover is designed to prevent debris from obstructing the bore and is able to be shot off when the need occurs.

Figure 2-23. Cap, Protective, Dust Cover.

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a. Hot, dry climate - desert.

NOTE

Hot, dry climates are usually areas containing blowing sand and fine dust. Deserts can be hot during daylight hours and freezing during hours of darkness. Consequently, this harsh environment will severely impact weapon as well as all other types of equipment. Weapon's continued operation will depend on detailed cleaning and lubricating procedures.

(1) Dust and sand will get into weapon and magazines. This may cause stoppages. Give inside areas and moving parts of weapon a thorough cleaning every day and after firing.

(2) Corrosion is less likely to form on metal parts in dry climates. Therefore, lubrication should be applied to internal working surfaces and moving parts only. Use light

amount of lubrication. Unload and dry ammunition and insides of magazine daily. Do not lubricate ammunition.

(3) Using overall weapon protection cover, muzzle cap (if available), and spare magazine protective bags will help protect weapon and ammunition from sand and dust. Use these items when tactical situation permits.

(4) Keep moving parts assembly in forward position, a magazine installed in weapon, and muzzle cap (if available) on muzzle to help keep out sand and dust.

(5) In a sand and dust environment, lubricate weapon as follows (Figure 2-24). For lubrication application/definition, refer to Lubrication Chart (Figure 4-37).
   (a) Light lubrication on bolt body.
   (b) Light lubrication on bolt cam pin and interior surface of bolt cam pin slot.
   (c) Light lubrication on bolt carrier contact points.
   (d) Light lubrication on bolt carrier riding surfaces and receiver rail.

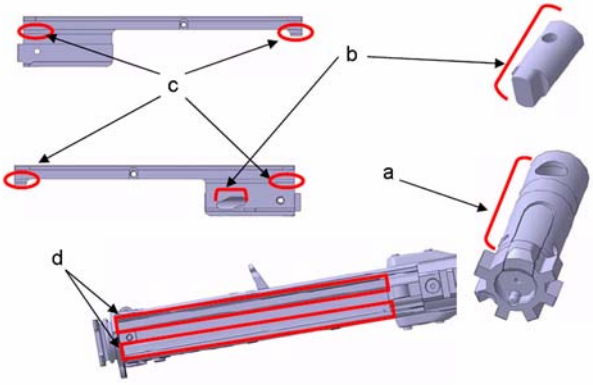

Figure 2-24. Weapon Lubrication Points - Unusual Conditions.

b. Extreme cold climate - arctic.

WARNING

Use extreme care to ensure weapon does not fire.

CAUTION

Under extreme conditions, Cleaner, Lubricant, and Preservative (CLP) on moving parts can prevent weapon from firing. Ensure CLP is thoroughly removed from weapon and Lubricating Oil, Arctic, Weapons (LAW) is applied prior to extreme cold operations (below +10°F).

(1) Cleaning and lubrication should be accomplished inside warm room. Weapon should be at room temperature if possible.
   (a) Wipe clean and apply light coat of LAW to moving parts in accordance with (IAW) Figure 2-24.

(b) To prevent freezing and condensation of moisture, keep weapon covered when moving from a warm to a cold area to allow for gradual cooling.

(c) Always attempt to keep weapon free of moisture.

(d) IF POSSIBLE, unload and function check weapon every 30 minutes to help prevent freezing of moving parts.

(e) Do not lay warm weapon directly in snow or ice.

(f) When moving a cold weapon into a warm place, condensation (moisture) will form in and on weapon. If possible, leave weapon in protected but cold area outside. When weapon is brought inside a warm place, it should be disassembled and wiped dry several times as it reaches room temperature.

(g) Keep insides of magazines and ammo wiped dry. Moisture will freeze and cause malfunctions. Do not lubricate ammunition.

(h) Using muzzle cap (if available), protective magazine bag, and overall weapon cover will help protect weapon. Use them whenever tactical situation permits.

c. Hot, wet climate - jungle.

NOTE

Use CLP to clean and lubricate.

(1) Perform normal maintenance as outlined in Preventive Maintenance Checks and Services (PMCS) Table 4-1.

(2) Clean and lubricate weapon frequently. Inspect hidden surfaces of bolt and bolt carrier assembly, ejector, extractor, upper receiver and moving parts assembly, complete receiver assembly, and trigger module for corrosion. Also pay close attention to spring-loaded detents (front and rear iron sights and gas regulator) on weapon.

(3) To help prevent corrosion, remove handprints with dry wiping rag. Then lubricate IAW paragraph 4-7 (Lubrication Guide).

(4) Unload and check inside of magazine frequently for corrosion and moisture. Wipe ammunition dry before reloading.

(5) Use magazine bag, muzzle cap (if available), etc. for protection when tactical situation permits.

d. Heavy rain and fording operations - all climates.

(1) Perform maintenance IAW appropriate climate conditions.

(2) Attempt to keep weapon free of moisture.

(3) Use weapon cover, muzzle cap, and protective bags (if available) to protect weapon, ammunition, and magazines.

CAUTION

Although this weapon is capable of firing with water in barrel, it is recommended to allow a two-second drain time prior to firing. Also, pull charging handle rearward approximately 1.5 inches to allow water to drain from chamber area.

(4) Always attempt to drain any water from barrel prior to firing by removing muzzle cap (if applicable) and point muzzle down.

(5) After salt water operations, fieldstrip weapon and flush with fresh water. Lubricate IAW appropriate climate conditions.

2-5. UNSUPPRESSED AND SUPPRESSED OPERATIONS.

a. Unsuppressed and suppressed operations.
   (1) SCAR is capable of accepting quick detachable sound suppressor.

NOTE

Suppressed operations may result in carbon buildup in trigger module due to residual gas in barrel blowing back into trigger module during extracting and ejecting.

In **unsuppressed** modes of firing, it is recommended to disassemble, inspect, and clean the following components at **1,000** rounds: gas regulator, gas piston, and gas regulator housing.

In **suppressed** mode of firing, it is recommended to disassemble, inspect and clean the following components at **400** rounds: gas regulator, gas piston, and gas regulator housing. Also inspect and clean (DO NOT REMOVE FROM BARREL) flash hider.

(2) Gas regulator and piston on SCAR are designed to keep excess carbon from accumulating on bolt carrier assembly. Most of buildup is blown out of vent hole in front of regulator. However, it will be necessary to disassemble and clean gas system for continued optimum performance (as described in paragraph 4-6).

(3) It is recommended that gas regulator be cycled 2 to 3 times prior to placing it on required setting. This will ensure gas regulator is on right setting and that it continues to move freely.

(4) Currently gas regulator has three positions as viewed from muzzle end (Figure 2-25).
   (a) 10 o'clock setting - Standard for normal **SUPPRESSED** operations.
   (b) 12 o'clock setting - Standard for **UNSUPPRESSED** operations.
   (c) 4 o'clock setting - Standard for disassembling, cleaning, and reassembling.

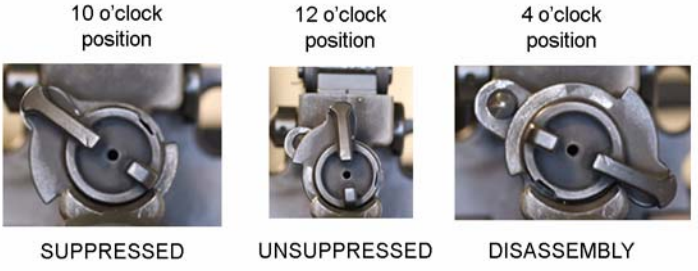

Figure 2-25. Gas Regulator Settings.

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2-6. EXPLANATION OF SIGHTS.

NOTE

All zeroing adjustments are done on front sight assembly. This allows more than one barrel to be zeroed for same weapon. Adjustments for range (elevation) and fine tune adjustments to correct for lateral wind (windage) and suppressor are done on rear sight assembly.

a. It is critical the user understands that due to SCAR modular design, SCAR is made available with three different barrel variants in each caliber (S, CQC, and LB). The user MUST be aware of which barrel is installed on weapon during Battle Sight Zero (BZO) procedures. Each barrel is equipped with front sight assembly.
b. Ensure that both front and rear sights are secured in “up” position. To flip rear sight up, simply grasp rear sight aperture housing and pull up and towards barrel until you feel it “lock”

into position (Figure 2-26). To flip up front sight, push front sight lock (located on left side of front sight housing) towards weapon's muzzle, unlocking front sight housing. Pull housing up towards 12 o'clock rail, until you feel it "lock" into position (Figure 2-26).

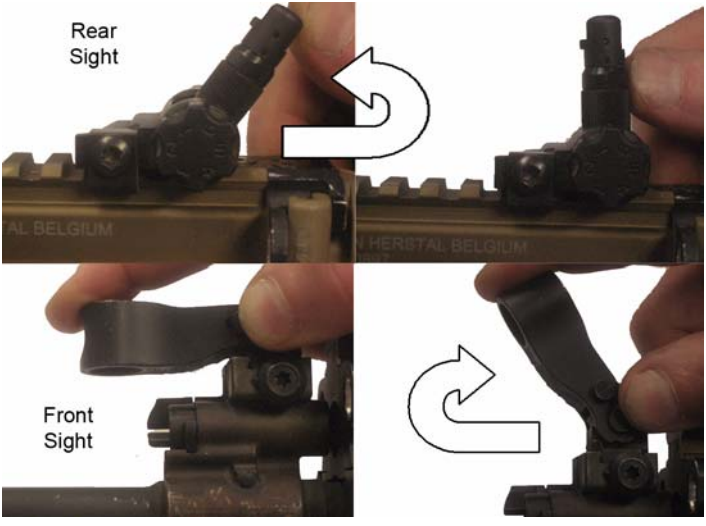

Figure 2-26. Deploy Rear and Front Sight.

c. **Front sight assembly** is adjusted using SCAR Multi-tool. It consists of front sight housing with index line, front sight post with arrow, front sight post detent, windage screw, windage screw detent, and front sight locking cam (Figure 2-27). Ability to adjust windage on front sight enables operator to set BZO on each barrel length without having to adjust rear sight windage when interchanging barrels. Rotating front sight post CW (in direction of arrow) will move impact of round UP; rotating front sight post CCW will move impact of round DOWN. Rotating windage screw REARWARD (CW) (towards shooter) will move impact of round RIGHT; rotating windage screw FORWARD (CCW) (towards muzzle) will move impact of round LEFT.

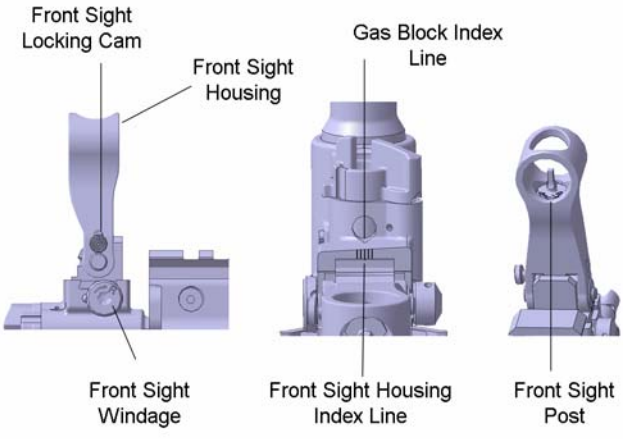

Figure 2-27. Front Sight Nomenclature.

d. **Rear sight assembly** is adjusted by hand. It consists of MIL-STD-1913 Rail Mount, two sight apertures, elevation drum, and two windage knobs, one on left side of sight and one on right side of sight (Figure 2-28). Windage knobs have numbers engraved from 1 to 6 going CW when viewed from right side of weapon and 1 to 6 going CCW when viewed from left side of weapon to reflect click values. Windage knobs also have engraved arrows and the letter ('R' for right) to reflect direction of movement of round impact. Elevation drum has numbers engraved from 2 to 6 to reflect distance from target. Rotating elevation drum CW will shift strikes of round UP. Rotating elevation drum CCW will shift strikes of round DOWN. Sight apertures flip up and down. Large aperture is used for target engagement during limited visibility or when a greater field of view is desired. Small aperture is used for zeroing and for "normal" firing situations. Use of rear sight windage (once BZO is accomplished) is to adjust for atmospheric conditions, different ammunition types, and special equipment (i.e. load

bearing equipment, body armor, etc.). Rotating either of the two rear sight windage knobs REARWARD (towards shooter) will move impact of round to LEFT. Rotating either of the two rear sight windage knobs FORWARD (towards muzzle) will move impact of round to RIGHT.

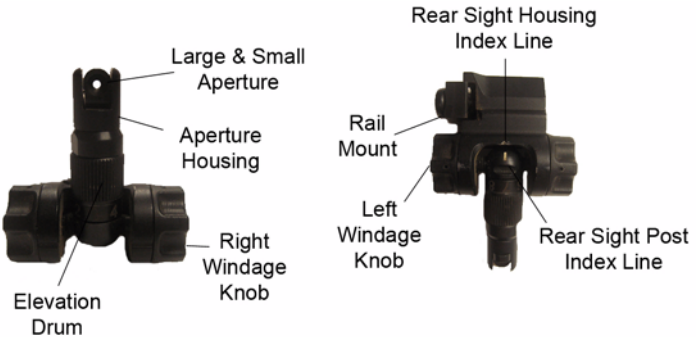

Figure 2-28. Rear Sight Nomenclature.

2-7. BZO PROCEDURES (SCAR).

a. SCAR is pre-set to a factory zero from manufacturer. This pre-set zero enables operator to proceed directly to 25 meter BZO procedure without having to mechanically zero sights.

NOTE

If there is any question as to whether sights are not factory zeroed or have been manipulated by another operator or armorer, proceed to set mechanical zero (2-7c) and then follow 25 meter BZO procedures.

b. Twenty-five meter BZO procedure for SCAR.
   (1) Ensure to utilize standard MK 16 MOD 0 zeroing target or MK 17 MOD 0 zeroing target as appropriate.
   (2) Ensure to utilize small aperture during zeroing procedures.
   (3) For S and LB variants, set rear sight elevation drum to “3” for 25/300 meter zero. For CQC variant, set rear sight elevation drum to “2” for 25/200 meter zero.

(4) Load and fire 3-shot group while aiming center mass on target from 25 meters.
(5) Locate center of shot group and note adjustments necessary to achieve point of aim/point of impact (POA/POI).
(6) Use the following tables and/or follow written procedure to aid in achieving BZO.
(7) Once 25 meter BZO is achieved, verify and confirm BZO at 300 meters.

NOTE

To be properly zeroed at 25 meters, POI in relation to POA for each caliber, ammunition type, and corresponding barrel must be as follows in Table 2-1.

NOTE

For suppressor BZO procedures, see sound suppressor shift charts for MK 16 and MK 17 on provided disk in back of manual.

Table 2-1. POI vs. POA (25 Meters).

	CQC	S	LB
MK 16 MOD 0			
M855	25M: -4.6 MOA. low	25M: -3.2 MOA. low	25M: -3.2 MOA. low
MK 262	25M: -3.9 MOA. low	25M: -2.5 MOA. low	25M: -2.5 MOA. low
MK 17 MOD 0			
M80	25M: -3.9 MOA. low	25M: -1.0 MOA. low	25M: -1.0 MOA. low
M118LR	25M: -4.0 MOA. low	25M: -1.0 MOA. low	25M: -1.0 MOA. low

Table 2-2. Round Impact Movement with Sight Adjustments (25 Meters).

Sight	Adjust-ment	CW	CCW	RWD	FWD	(1) Click Value* at Range	Squares at 25M
Front	Elevation	Up	Down			25M= 3/8 in. 100M= 1.5 in. 200M= 3.0 in. 300M= 4.5 in.	1

Table 2-2. Round Impact Movement with Sight Adjustments (25 Meters). (cont.)

Sight	Adjust-ment	CW	CCW	RWD	FWD	(1) Click Value* at Range	Squares at 25M
Front (cont.)	Windage			Right	Left	25M= 1/4 in. 100M= 1 in. 200M= 2 in. 300M= 3 in.	1

Table 2-2. Round Impact Movement with Sight Adjustments (25 Meters). (cont.)

Sight	Adjust-ment	CW	CCW	RWD	FWD	(1) Click Value* at Range	Squares at 25M
Rear	Elevation	Up	Down			25M= 3/8 in. 100M= 1.5 in. 200M= 3 in. 300M= 4.5 in.	1

Table 2-2. Round Impact Movement with Sight Adjustments (25 Meters). (cont.)

Sight	Adjust-ment	CW	CCW	RWD	FWD	(1) Click Value* at Range	Squares at 25M
Rear (cont.)	Windage			Left	Right	25M= 1/4 in. 100M= 1 in. 200M= 2 in. 300M= 3 in.	1

*Measurements are rounded off

CW=Clockwise;
CCW=Counterclockwise;
RWD=Rearward; FWD=Forward

(8) Adjusting impact of round for elevation with front sight post.

(a) Using front sight tool on SCAR Multi-tool, adjust front sight post (Figure 2-29). Rotating front sight post CW will move impact of round UP; rotating front sight post CCW will move impact of round DOWN (Figure 2-29).

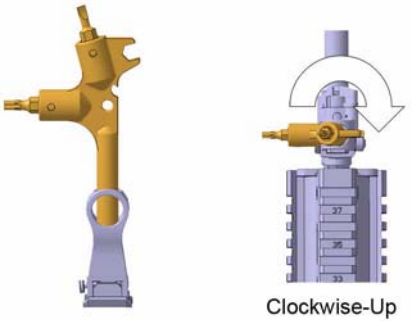

Figure 2-29. Front Sight Post Elevation Adjustment.

(b) One click of elevation on front sight post at 25 meters will move impact of round approximately 3/8 inches (or approximately one square on standard MK 16 MOD 0 and MK 17 MOD 0 zeroing targets). One click of elevation on front sight post at 100 meters will move impact of round approximately 1.5 inches. See Table 2-2 for round impact movement (in elevation) for front sight post.

(9) Adjusting round impact for windage with front sight assembly windage adjustment screw.

(a) Using SCAR Multi-tool with T-25 bit, adjust windage adjustment screw (Figure 2-30). Rotating windage screw CW (towards shooter) will move round impact RIGHT; rotating windage adjustment screw CCW (towards muzzle) will move round impact LEFT (Figure 2-30).

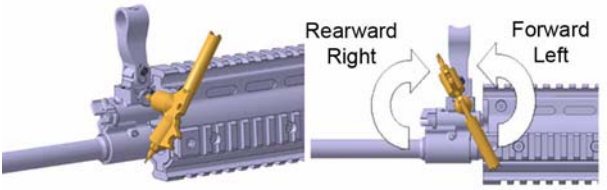

Figure 2-30. Front Sight Post Windage Adjustment.

(b) One windage click on windage adjustment screw at 25 meters will move round impact approximately 1/4 inch (or approximately 1/2 square on MK 16 MOD 0 and MK 17 MOD 0 zeroing targets). One windage click on windage adjustment screw at 100 meters will move round impact approximately one inch. See Table 2-2 for round impact movement (in windage) for front sight assembly at various ranges.

NOTE

If unable to zero weapon after following 25 meter BZO procedure, proceed to mechanically zero weapon (2.7.C)

c. Setting SCAR mechanical zero.
   (1) Setting front sight mechanical zero.
      (a) To set mechanical zero for elevation, ensure that front sight post is flush with front sight housing (Figure 2-31). Using SCAR Multi-tool, turn front sight post either CW or CCW (Figure 2-32) to adjust sight to mechanical zero for front sight elevation.

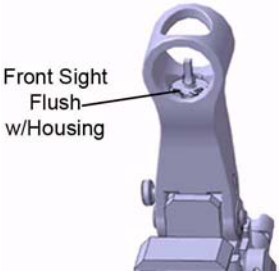

Figure 2-31. Front Sight Post Flush.

Figure 2-32. Adjust Front Sight Post.

(b) To set mechanical zero for windage, center front sight housing index line with index line located on gas block as shown in Figure 2-33.

(c) Utilizing SCAR Multi-tool, rotate front sight windage screw (located on left side of weapon) REARWARD (CW) in order to move front sight housing to left. Rotate windage screw FORWARD (CCW) in order to move front sight housing to right (Figure 2-34).

Figure 2-33. Front Sight Housing Alignment.

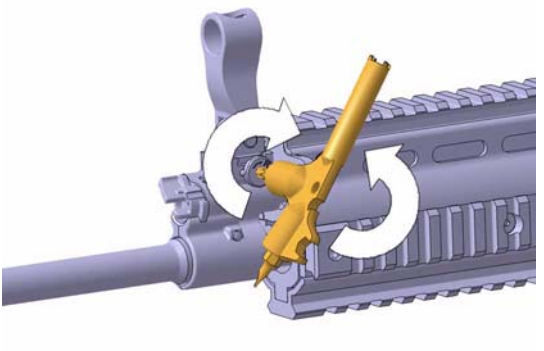

Figure 2-34. Front Sight Housing Movement.

NOTE

There are a total of 36 clicks on front sight windage screw. Eighteen clicks from one side end of travel to center should adjust sight to mechanical zero for front sight windage. If 18 clicks from one side end of travel does not bring front sight housing center with index line on gas block, front sight assembly may be damaged and should be inspected by certified armorer.

(2) Setting rear sight mechanical zero.

(a) To set mechanical zero for elevation, ensure that rear sight elevation aperture housing is flush with rear sight elevation drum by rotating rear sight elevation knob CCW to end of travel (Figure 2-35).

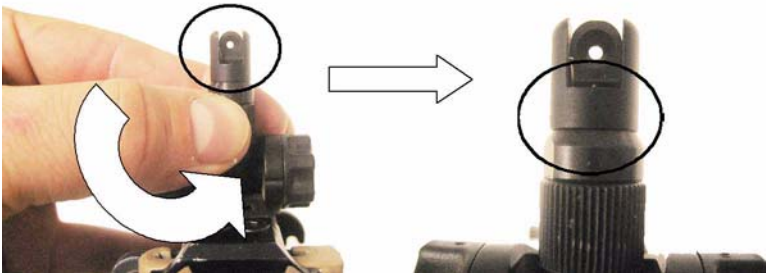

Figure 2-35. Rear Sight Aperture Flush.

(b) To set mechanical zero for windage, rear sight first must be flipped down. Rotate left or right windage knobs rearward towards buttstock or forward (away from buttstock) until rear sight post index line is centered on rear sight housing index line (Figure 2-36).

NOTE

There are a total 36 clicks on rear sight windage knobs. Eighteen clicks from one side end of travel to center should adjust sight to mechanical zero for rear sight windage. If 18 clicks from one side end of travel does not bring rear sight post center with index line, rear sight assembly may be damaged and should be inspected by certified armorer.

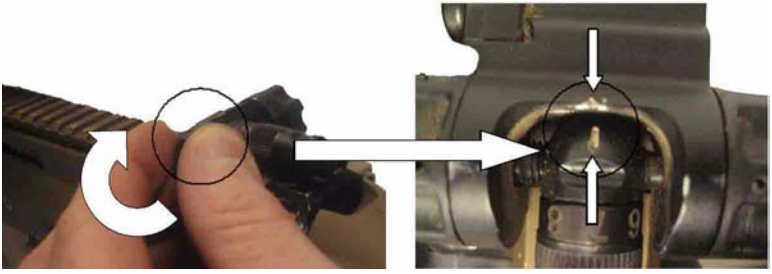

Figure 2-36. Rear Sight Alignment.

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CHAPTER 3
TROUBLESHOOTING PROCEDURES

Section I. TROUBLESHOOTING PROCEDURES

3-1. STOPPAGES AND MALFUNCTIONS.

WARNING

If a noticeable difference in sound or recoil is experienced, stop firing. Either condition could indicate incomplete powder burn and/or projectile stuck in bore. Retract bolt slowly and remove fired cartridge case. Clear weapon and check for unburned powder grains or projectile lodged in bore. Remove unburned powder or bullet from bore before resuming firing. If bullet is stuck in bore, return weapon to qualified armorer.

a. Stoppages and malfunctions
   (1) Stoppage is failure of automatic or semi-automatic firearm to complete cycle of operation. Operator can apply immediate or remedial action to clear stoppage. Some stoppages that cannot be cleared by immediate or remedial actions could require weapon repair to correct problem.
   (2) Malfunction is caused by procedural or mechanical failure of rifle, magazine, or ammunition. Function checks and PMCS identify potential problems before they become malfunctions. Repeated malfunctions can indicate weapon requires cleaning and lubrication or inspection by qualified armorer.
   (3) Should you incur stoppage or malfunction, the recommended first action to get weapon back into service is referred to as immediate action.

3-2. IMMEDIATE ACTION.

a. Immediate action involves quickly applying possible correction to overcome stoppage based on initial observation or indicators but without determining actual cause. To apply immediate action, perform following steps:
   (1) TAP - Aggressively TAP bottom of magazine to ensure it is properly seated and magazine follower is not jammed.
   (2) RACK - RACK charging handle fully to rear, and check chamber (observe for ejection of live or expended cartridge). If round is not present in chamber or partially fed from magazine, release charging handle (do not ride it forward) allowing bolt to go forward under spring tension. Strike charging handle forward to ensure bolt closure.
   (3) ASSESS - ASSESS situation, and attempt to re-engage target as necessary.

b. Apply immediate action only one time for given stoppage. Do not apply immediate action second time. If weapon still fails to fire, inspect it to determine cause of stoppage or malfunction and take appropriate remedial action.

3-3. REMEDIAL ACTION.

WARNING

If weapon stops firing with live round in chamber of hot barrel, remove magazine and round as fast as possible. However, if round cannot be removed within 10 seconds, remove magazine and wait 15 minutes with weapon pointing in a safe direction. Failure to do so can result in serious injury due to a round possibly cooking off. Regardless, keep face away from ejection port while clearing a hot chamber.

a. Remedial action is continuing effort to determine cause for stoppage or malfunction and attempt to clear stoppage once it has been identified. To apply remedial action, perform following steps:
   (1) Attempt to place weapon on safe.
   (2) Pull and lock charging handle to rear.
   (3) Remove magazine from weapon.
   (4) Clear any obstructions from chamber area.
   (5) Ensure gas regulator is in proper position for either unsuppressed or suppressed operations.
   (6) Visually inspect weapon for any obvious broken parts.
   (7) Reload weapon with new magazine.
   (8) Attempt to re-engage target as necessary.
b. Should remedial action fail to get weapon to fire, weapon should undergo thorough cleaning, inspection, and lubrication.
c. If weapon still fails to fire after thoroughly cleaning, inspecting, and lubricating, there has likely been part failure and qualified armorer should further inspect weapon.

3-4. MALFUNCTIONS AND CORRECTIVE ACTIONS.

a. Table 3-1 lists common malfunctions that may occur during operation or maintenance of rifle or its components. Perform function checks and corrective action in order listed.
b. This manual does not list all malfunctions that may occur, nor all tests and inspections and corrective actions. If malfunction is not corrected by listed corrective actions, forward rifle to qualified armorer for corrective action.
c. Should problems occur with weapon, use following guidelines to identify source and corrective action necessary. Eliminate the following areas in order to prevent wasting time:

(1) Ammunition. Ammunition issues can cause problems with weapon systems. If problems are with wide range of weapons, ammunition should be looked at first. If ammunition is found to be faulty, follow your unit's procedures for ammunition deficiencies.

(2) Weapon. For issues with weapon, first identify where problem originates in regards to cycle of operation.

(3) Magazine. Inspect magazines for large dents to body, spring tension, and damage to feed lips. Use new or different magazine.

d. Malfunctions.

(1) Failure to feed, chamber, or lock. Malfunction can occur when loading weapon or during cycle of operation. Once magazine has been loaded into rifle, forward movement of moving parts assembly could lack enough force (generated by expansion of guide rod and spring) to feed, chamber, and lock first round. While firing, cycle of

operation is interrupted by failure to strip round from magazine, to chamber round, and to lock it.

(2) Failure to fire cartridge. Failure of cartridge to fire despite fact that round has been chambered, trigger is pulled, and sear has released hammer. This occurs when firing pin fails to strike primer with enough force or when ammunition is bad.

(3) Failure to extract and eject. Failure to extract results when cartridge case remains in rifle chamber. While bolt and bolt carrier could move rearward only a short distance, more commonly bolt and bolt carrier recoil fully to rear, leaving cartridge case in chamber. Live round is then forced into base of cartridge case as bolt returns in next feed cycle. This malfunction is one of the hardest to clear.

WARNING

Failure to extract is considered to be extremely serious malfunction, requiring use of tools to clear. Live round could be left in chamber and be accidentally discharged. if second live round is fed into primer of chambered live round, rifle could explode and cause personal injury. This malfunction must be properly identified and reported. Failures to eject should not be reported as extraction failures.

WARNING

Severity of failure to extract determines corrective action procedures. If bolt has moved rearward far enough so that it strips live round from magazine in its forward motion:

Bolt and carrier must be physically held to rear.

Magazine and all loose rounds must first be removed before clearing stoppage.

Ensure bolt and carrier are physically held to rear, and keep face away from muzzle; tapping butt of weapon on hard surface usually causes cartridge to fall out of chamber.

WARNING

However, if cartridge case is ruptured, it can be seized. When this occurs, cleaning rod can be inserted into chamber from muzzle end.

Tap cleaning rod against inside of fired cartridge will clear cartridge from chamber.

When cleaning and inspecting extractor and chamber reveal no defects but failure to extract persists, it is possible that chamber surface is damaged and barrel must be replaced.

NOTE

Cartridge must extract before it can eject.

(4) Failure to eject. Failure to eject cartridge is an element in weapon's cycle of functioning, regardless of mode of fire. Malfunction occurs when cartridge is not ejected through ejection port and either remains partly in chamber or becomes jammed in upper receiver as bolt closes. When operator initially clears rifle, cartridge could strike inside surface of receiver and bounce back into path of bolt.

(5) Other malfunctions. Most probable malfunctions that can occur are as follows:

(a) Failure of bolt to remain in rearward position after last round in magazine is fired. Check for bad magazine or short recoil.

(b) Failure of bolt to lock in rearward position when bolt release has been engaged. Check bolt release; replace as required.

(c) Failure of magazine to lock into rifle. Check magazine and magazine catch for damage. Turn in to qualified armorer to adjust catch; replace as required.

(d) Failure of any part of moving parts assembly to function. Check for incorrect assembly of components. Correctly clean and assemble moving parts assembly, or replace damaged parts.

(e) Failure of ammunition to feed from magazine. Check for damaged magazine. Damaged magazine could cause repeated feeding failures and should be turned in to certified armorer for replacement.

(f) Failure of gas piston and gas regulator to properly function. Correctly disassemble, clean, and reassemble gas piston and gas regulator.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to feed, chamber, lock	Excess dirt or debris in and around moving parts assembly	Disassemble, clean, inspect, and reassemble.
	Defective magazine (dented or bulged)	Replace.
	Magazine improperly loaded	Inspect, unload, and reload. Ammunition into magazine.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions. (cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to feed, chamber, lock (cont.)	Dirty gas piston or regulator	Clean gas piston and regulator. Inspect gas piston rings.
	Defective round	Unload magazine, remove round, and load magazine.
	Debris in chamber area	Clean chamber area.
	Debris in and around bolt lugs and chamber area	Clean bolt lugs and chamber area.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions. (cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to feed, chamber, lock (cont.)	Short recoil	Push forward on charging handle.
Failure to fire	Light indentation on primer of round	Inspect ammunition.
	Defective firing pin	Inspect moving parts assembly.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions. (cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to extract	Short recoil	Inspect chamber area, and remove fired cartridge case.
	Damaged extractor or weak/broken extractor spring	Inspect extractor.
	Weak or broken guide rod/return spring	Inspect guide rod/ return spring for wear or damage.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions. (cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to extract (cont.)	Excessive rate of fire	Ensure gas regulator setting is in suppressed mode when firing suppressed.
	Restricted movement of moving parts assembly	Disassemble, clean, inspect, and reassemble.
	Excessively dirty weapon	Disassemble, clean, inspect, and reassemble.

Table 3-1. Malfunctions, Tests/Inspections, and Corrective Actions. (cont.)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to extract (Blank Firing Adapter (BFA))	BFA properly installed	Check for proper installation.
Failure to eject	Damaged extractor or weak/broken extractor spring Excessively dirty weapon	Inspect extractor. Disassemble, clean, inspect, and reassemble.
Failure to eject (BFA)	BFA properly installed	Check for proper installation.

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CHAPTER 4
MAINTENANCE INSTRUCTIONS

Section I. FIELDSTRIP PROCEDURES

4-1. SAFETY CHECK.

a. Carry out the following procedure in order to ensure that SCAR can be manipulated, stored, and/or transported without any risk.

CAUTION

Be sure to clean weapon before initial use. Leaving protective lubricant in weapon can cause stoppage, malfunction, or failure due to over pressure.

b. UNLOAD and CLEAR weapon before manipulation or disassembly as described in paragraph 2-1.a.

4-2. SCAR RIFLE FIELDSTRIP.

a. Fieldstrip weapon into five major components.
   (1) Remove magazine assembly.
   (2) Remove trigger module.
      (a) From LEFT side of weapon, push in on takedown pin and pull out from RIGHT until trigger module is released from receiver assembly (Figure 4-1).

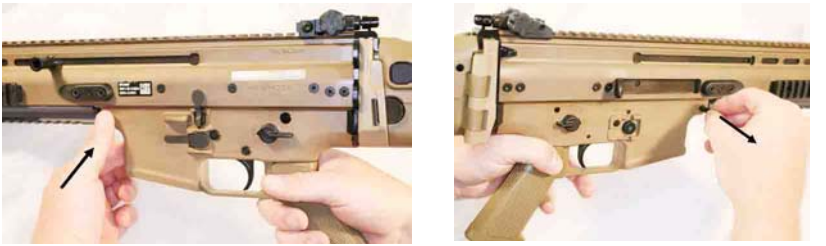

Figure 4-1. Release Takedown Pin.

(b) Push trigger module forward to release it from backplate. Then remove it by pulling it downward (Figure 4-2).

Figure 4-2. Remove Trigger Module.

NOTE

Do not try to remove takedown pin on trigger module. Takedown pin is retained in trigger module by takedown pin spring.

(3) Remove buttstock module.

(a) Remove buttstock module by pulling downward off of receiver assembly backplate; remove it entirely from receiver assembly backplate (Figure 4-3).

Figure 4-3. Remove Buttstock Module.

(4) Remove moving parts assembly.

(a) Remove moving parts assembly by pulling charging handle fully rearward in charging handle slot while applying downward pressure on guide rod retaining plate exposing guide rod and return spring assembly (Figure 4-4).

Figure 4-4. Release Moving Parts Assembly.

(b) Charging handle is now able to be removed by pulling it out of moving parts assembly and freeing it from receiver assembly (Figure 4-5).

Figure 4-5. Remove Charging Handle.

(c) Slide moving parts assembly to rear and out of receiver assembly (Figure 4-6).

Figure 4-6. Remove Moving Parts Assembly.

(d) Disassemble moving parts assembly.

1 Remove return spring assembly by pulling it out of bolt carrier (Figure 4-7).

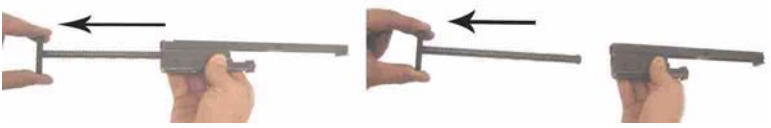

Figure 4-7. Remove Return Spring Assembly.

2 SCAR fieldstrip is now complete.

(5) Complete receiver assembly.

NOTE

Further disassembly is not required for barrel change.

(a) Gas regulator.

1 Disassemble gas block assembly.

2 Ensure that front sight assembly is locked upright.

3 When viewed from muzzle, turn gas regulator CW to 12 o'clock position. If gas regulator is difficult to turn, use SCAR/MK 13 MOD 0 Multi-tool to aid in turning it to proper position for removal (Figure 4-8).

Figure 4-8. Turn Gas Regulator to 12 O'clock Position.

4 Using SCAR Multi-tool and flat-head bit or similar shaped object, push in detent and turn gas regulator CW until it stops in the 4 o'clock position. Remove gas regulator from front of gas block (Figure 4-9). If gas regulator is difficult to turn, use Multi-tool to aid in turning it to proper position for removal as described above (Figure 4-9).

Figure 4-9. Turn Gas Regulator to 4 O'clock Position for Removal.

5 Push piston out to front of gas block using gas piston removal tool (Figure 4-10). Attach gas piston removal tool to bolt carrier (Step 1). Place receiver assembly with muzzle pointed down (Step 2). Slide bolt carrier and gas piston removal tool into receiver frame ensuring to align bolt carrier with bolt carrier guide rails (Step 3). Let bolt carrier and gas piston removal tool fall freely into upper receiver frame striking gas piston (Step 4). Gas piston will eject from gas block (Step 5).

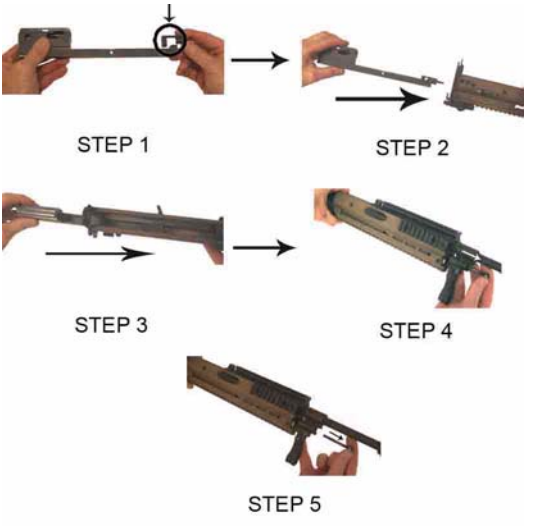

Figure 4-10. Remove Gas Piston.

NOTE

If gas piston removal tool is not available, attach three to four cleaning rods, insert male end into receiver above barrel assembly, align male end of cleaning rod with gas piston by looking through slots in front of receiver, and aggressively tap on female end of cleaning rod. Gas piston will eject from gas block.

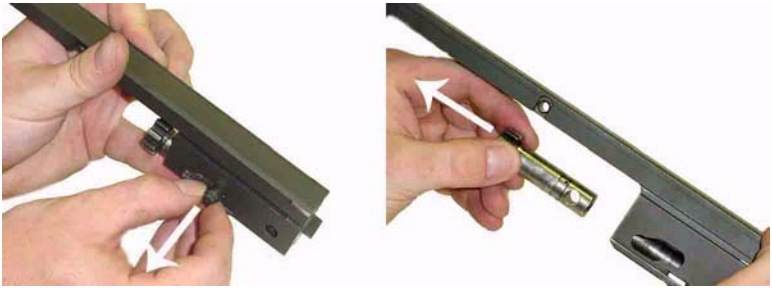

Figure 4-11. Remove Bolt Cam Pin and Bolt Assembly.

b. Magazine(s) fieldstrip.

CAUTION

Do not attempt to interchange other magazine parts (i.e., M4/M14, etc.) with SCAR magazine parts.

(1) Magazine, 5.56 mm (20- or 30-round).

(a) Using rod patch eyelet, push down on spring releasing it from floorplate (Step 1). Ease floorplate towards rear of magazine (Step 2). Maintain spring tension with thumb, and remove floorplate from body; continue to maintain spring tension (Step 3). Remove spring by working it slowly in left-to-right motion until all tension is released and spring is removed freely from body (Step 4) (Figure 4-12).

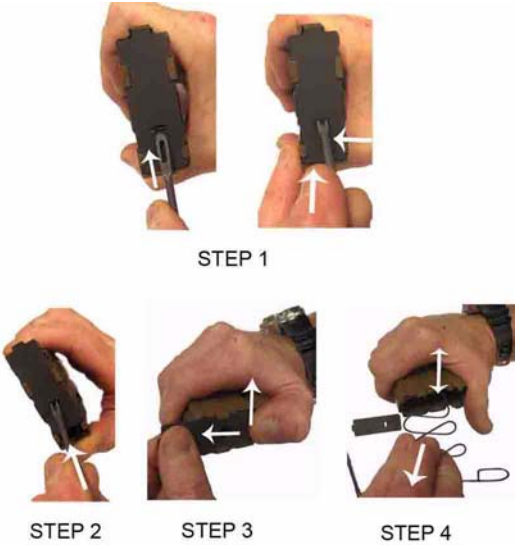

Figure 4-12. Disassemble Magazine, 5.56 mm.

(2) Magazine, 7.62 mm (10- or 20-round).

(a) Using rod patch eyelet, push up on floorplate while at same time easing it towards rear of magazine (Step 1). Pull and push floorplate until it is removed from body; maintain control of spring (Step 2). Push spring to rear until it is free from body (Step 3). Remove spring by working it slowly in left-to-right motion until all tension is released and spring is removed freely from body (Step 4) (Figure 4-13).

Figure 4-13. Disassemble Magazine, 7.62 mm.

c. Weapon and magazine are now fieldstripped for cleaning (paragraph 4-6) and/or barrel change procedures (paragraph 2-2.f.).

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4-3. REASSEMBLE SCAR.

a. Reassemble weapon (SCAR).
   (1) Complete receiver assembly.
      (a) Reassemble gas block assembly.
      (b) Ensure front sight assembly is locked upright.
      (c) When viewed from muzzle, insert gas regulator. Turn CCW until it stops in the 12 o'clock position. If gas regulator is difficult to turn, use SCAR/MK 13 MOD 0 Multi-tool to aid in turning it to proper position for installation (Figure 4-14).
      (d) Using SCAR/MK 13 MOD 0 Multi-tool and flat-head bit or similar shaped object, push in detent and turn gas regulator CCW until it stops in the 10 o'clock position (Figure 4-14).

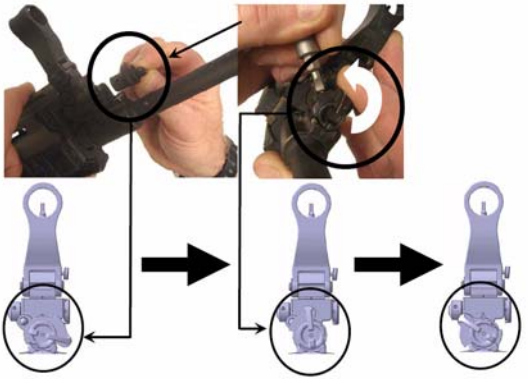

Figure 4-14. Gas Block Reassembly.

(2) Moving parts assembly.

(a) Reassemble moving parts assembly.

1 Re-install bolt assembly (with extractor facing to the right away from bolt cam pin slot) into bolt carrier while aligning bolt cam pin hole with bolt cam pin slot on left side of bolt carrier. Re-install bolt cam pin into bolt carrier by inserting it into bolt assembly (Figure 4-15).

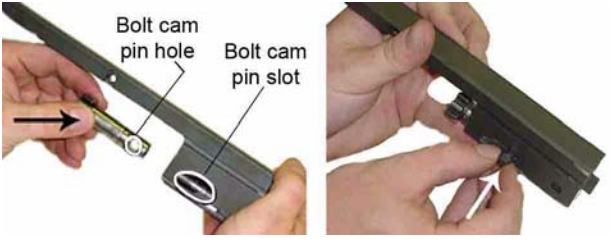

Figure 4-15. Re-install Bolt Assembly and Bolt Cam Pin.

2 Re-install firing pin into bolt carrier and bolt assembly, ensuring bolt assembly is fully seated to rear of bolt carrier and bolt cam pin is horizontal prior to installing firing pin (Figure 4-16).

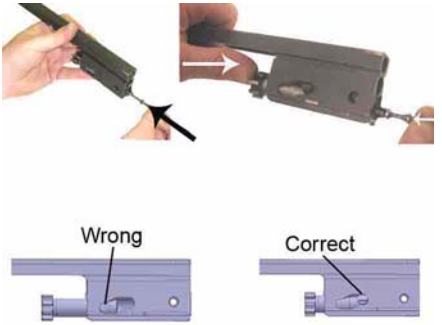

Figure 4-16. Re-install Firing Pin.

3 Re-install firing pin retaining pin assembly into left side of bolt carrier (Figure 4-17).

Figure 4-17. Re-install Firing Pin Retaining Pin.

4 Re-install return spring assembly into bolt carrier (Figure 4-18).

Figure 4-18. Re-install Return Spring Assembly.

(b) Re-install moving parts assembly into receiver assembly by sliding it into receiver frame until charging handle slot on bolt carrier is aligned with charging handle slot in receiver frame (Figure 4-19 and Figure 4-20). Ensure upper portion of bolt carrier is aligned with bolt carrier guide rails inside receiver frame and bolt is fully forward in bolt carrier.

Figure 4-19. Insert Moving Parts Assembly.

(c) Re-install charging handle into charging handle slot in bolt carrier when properly positioned in receiver frame (Figure 4-20).

Figure 4-20. Re-install Charging Handle.

NOTE

Charging handle is designed for ambidextrous use and can be installed on left or right of weapon depending on operator's preference.

(d) Using charging handle, slide moving parts assembly all the way forward into receiver assembly. You may have to apply downward pressure on top of guide rod retaining plate to clear backplate in order to slide moving parts assembly all the way forward (Figure 4-21).

Figure 4-21. Re-install Moving Parts Assembly.

(3) Buttstock module. Re-install buttstock module by sliding it upwards onto backplate until it is fully seated into receiver assembly backplate (Figure 4-22).

Figure 4-22. Re-install Buttstock Module.

(4) Re-install trigger module.

(a) Ensure takedown pin is pushed out of its housing all the way to the right of trigger module (Figure 4-23).

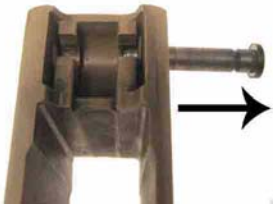

Figure 4-23. Takedown Pin Position for Re-installation.

NOTE

Ensure hammer is cocked (pushed in down position) prior to re-installing trigger module onto receiver assembly (Figure 4-24).

Figure 4-24. Hammer Cocked.

(b) Place trigger module up into position ensuring rear extrusion engages notch in backplate at slight angle (Step 1). Slowly rotate trigger module upward into receiver frame (Step 2) (Figure 4-25). Visually and physically inspect to ensure trigger module is fully seated to rear (Step 3) before pushing takedown pin to left, securing it to receiver assembly (Step 4) (Figure 4-25).

Figure 4-25. Re-install Trigger Module.

b. Reassemble magazine(s).
   (1) Magazine, 5.56 mm (20- or 30-round).
      (a) Insert follower and spring into body ensuring follower is oriented in proper direction (Step 1). Slowly work follower and spring into body in left-to-right motion (Step 2). While maintaining control of spring, ease floorplate back into position (Step 3). Fully seat floorplate into body until spring locks into cutout notch in floorplate and floorplate locks into body (Step 4) (Figure 4-26).

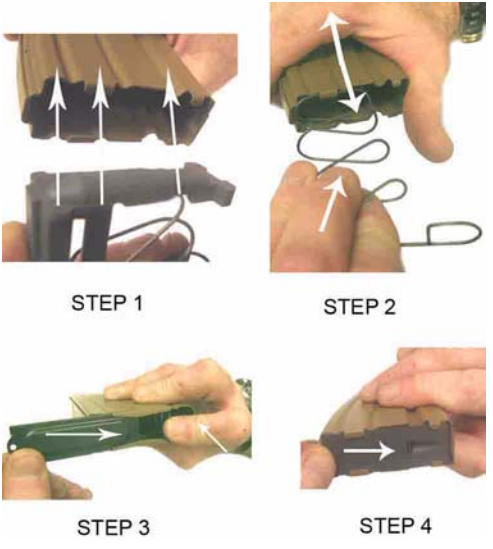

Figure 4-26. Reassemble Magazine, 5.56 mm.

(2) Magazine, 7.62 mm (10- or 20-round).

(a) Insert follower and spring into body ensuring follower is oriented in proper direction (Step 1). Slowly work follower and spring into body in left-to-right motion (Step 2). While maintaining control of spring, ease floorplate back into position (Step 3). Fully seat floorplate into body until floorplate locks into body (Step 4) (Figure 4-27).

Figure 4-27. Reassemble Magazine, 7.62 mm.

c. Weapon and magazine are now reassembled for use.

CAUTION

To ensure proper reassembly of weapon conduct function check as described in paragraph 4-4 prior to use.

4-4. FUNCTION CHECK.

a. After reassembly or prior to use, conduct function check as follows:
   (1) Ensure weapon is clear and safe.
   (2) Point weapon in a safe direction.
   (3) Cycle weapon by pulling charging handle, and place selector lever on 'S'.
   (4) Attempt to pull trigger; hammer should not fall.
   (5) Place selector lever on '1' (SEMI-AUTOMATIC).
   (6) Pull and hold trigger to rear; hammer should fall. Do not release trigger.

(7) Holding trigger to rear, cycle weapon by using charging handle.
(8) Slowly release trigger. Audible click should be heard.
(9) Place selector lever on 'A'.
(10) Pull and hold trigger to rear; hammer should fall.
(11) Cycle weapon 2 to 3 times using charging handle. Hammer should fall.
(12) Release trigger; nothing should be heard.
(13) Cycle weapon one time. Place selector lever on 'S'.

Section II. INSPECTION AND LUBRICATION

4-5. INSPECTION GUIDE.

Prior to, during, and after use, operator should inspect weapon and its components for any irregularities that may cause problems during its operation. If any of the below potential deficiencies are noted, they should be corrected immediately.

- Damaged or missing parts
- Improper assembly or function
- Restricted movement of any type, where applicable
- Uncustomary looseness of barrel extension screws or other parts
- Parts exhibiting signs of cracks, burrs, dents, or obvious signs of damage or stress
- Presence of signs or tactile clicks in controls, where applicable
- General overall cleanliness
- Lack of proper lubrication
- Restriction of gas regulator and gas piston
- Presence of corrosion or degradation of surface finish

4-6. CLEANING GUIDE.

WARNING

Before cleaning, ensure to unload and clear weapon as described in paragraph 2-1.a.

a. General.
   (1) Fieldstrip weapon (Chapter 4, Section I). Thoroughly clean, inspect, and lubricate weapon.
   (2) Always shake CLP before use.
   (3) Utilize cleaning kit provided with SCAR (Figure 4-28).

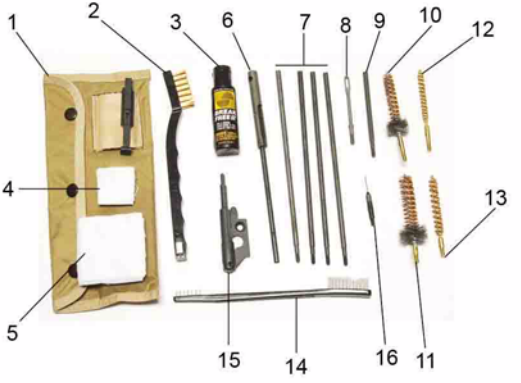

Figure 4-28. SCAR Cleaning Kit.

1. Case
2. Brass Cleaning Toothbrush
3. Small Bottle CLP
4. 1” X 1” Cleaning Patch
5. 2” X 2” Cleaning Patch
6. T-Handle Rod
7. Straight Threaded Rods
8. Eyelet Rod
9. Rod Adapter
10. 5.56 mm Chamber Brush
11. 7.62 mm Chamber Brush
12. 5.56 mm Bore Brush
13. 7.62 mm Bore Brush
14. Nylon Cleaning Brush
15. Scraper Tool
16. Gas Port Pick

Figure 4-28. SCAR Cleaning Kit. (cont.)

CAUTION

Do not use wire brush or any type of abrasive material to clean aluminum or composite surfaces of weapon.

(4) Clean areas.
    (a) Receiver assembly.

NOTE

Weapon's bore has lands and grooves called rifling. Rifling makes bullet spin as it moves down bore and down range. Because it twists so quickly, it is difficult to push new, stiff bore brush through bore. It is easier to pull bore brush through bore. Also, because brush will clean better if bristles follow grooves (called tracking), bore brush should be allowed to turn as it is pulled through.

1 Bore.

a Attach three or four cleaning rods together, depending on barrel length of weapon.

b Point muzzle down. Hold receiver in one hand while inserting male end of rod into chamber. Let rod fall straight through bore, about 2 to 3 inches will be sticking out of muzzle.

c Attach T-handle rod to end of cleaning rod sticking out of muzzle, and attach bore brush that corresponds to weapon caliber in use (5.56 mm or 7.62 mm) to female end sticking out of chamber. DO NOT reverse direction while in bore.

d Wrap clean patch soaked with CLP around bore brush. Pull patch and bore brush through bore out muzzle end. Remove T-handle rod. Let rod fall straight through bore from chamber end again. Reattach T-handle rod. Replace patch and repeat process until patch shows minimal signs of debris.

e Replace bore brush with rod patch eyelet (patch holder) and clean patch. Pull it through bore, out muzzle end.

f After one pull, take off T-handle rod and repeat process. Replace dirty patch with clean patch and continue pulling through bore (out muzzle end) until patch shows minimal signs of debris.

2 Chamber and locking lugs.

a Install appropriate caliber chamber brush on cleaning rod, and attach it to T-handle rod. Insert additional rod through hole in T-handle rod. Dip in CLP, and insert in chamber and locking lugs. Clean by pushing and rotating cleaning rod CW (Figure 4-29).

Figure 4-29. Clean Chamber and Locking Lugs.

3 Gas block, gas regulator, and gas piston.

a Clean gas regulator utilizing SCAR scraper/ cleaning tool (Figure 4-30). Insert gas regulator into C-shaped reamer; aggressively rotate gas regulator left and right removing excess carbon (Step 1). Using short snub-nosed reamer, insert into gas regulator sleeve, and aggressively rotate removing excess carbon (Step 2).

Use brass cleaning brush to remove any additional carbon on exterior of gas regulator (Step 3). Use gas port pick to clean gas regulator holes (Step 4).

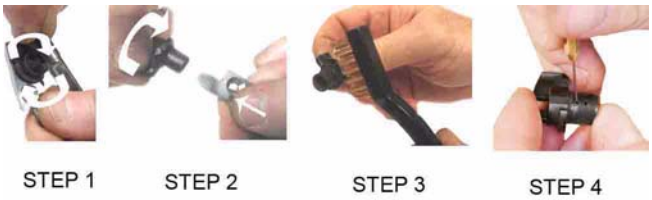

Figure 4-30. Clean Gas Regulator.

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b Clean gas piston utilizing SCAR scraper/ cleaning tool (Figure 4-31). Scrape shaft of gas piston removing excess carbon (Step 1). Scrape gas piston shoulder removing excess carbon (Step 2). Scrape gas piston head removing excess carbon (Step 3). Ensure gas rings are NOT aligned prior to reassembly (Step 4).

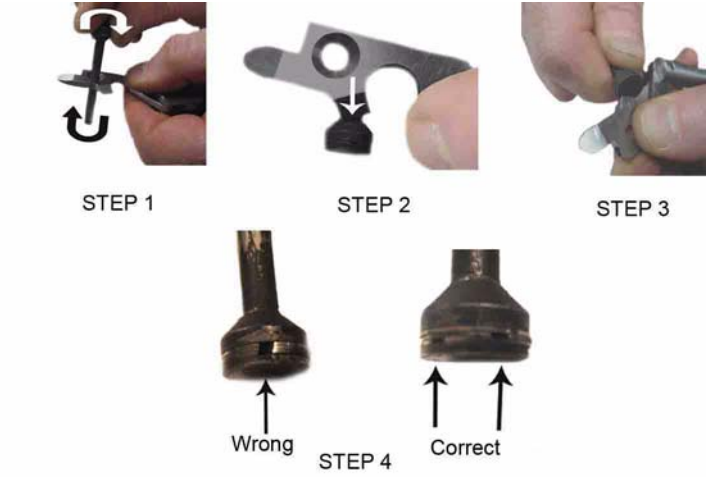

Figure 4-31. Clean Gas Piston.

c Clean gas block utilizing SCAR scraper/ cleaning tool (Figure 4-32). Clean gas regulator housing by inserting reamer into gas regulator; aggressively rotate removing excess carbon (Step 1). Use Brass cleaning brush to remove any additional carbon on exterior of gas block (Step 2). Place small amount of CLP on detent, and work detent in and out several times (Step 3).

Figure 4-32. Clean Gas Block.

4 Flash hider.
   a Use nylon cleaning brush to remove any loose debris.
   b Soak cleaning patch (or rag) with CLP and wipe down.
   c Add CLP to nylon cleaning brush, and scrub all exterior surfaces.
   d Wrap cleaning patch soaked with CLP around small brush portion of nylon cleaning brush, and scrub all interior surfaces.
   e Wipe all excess CLP away with dry cleaning patch (or rag).

5 Front sight.
   a Use nylon cleaning brush to remove any loose debris.
   b Soak cleaning patch (or rag) with CLP and wipe down.

c Add CLP to nylon cleaning brush, and scrub all exterior surfaces.

d Wipe all excess CLP away with dry cleaning patch (or rag).

6 Receiver exterior and interior surfaces.

CAUTION

Do not use wire brush or any type of abrasive material to clean aluminum or composite surfaces of weapon.

a Use nylon cleaning brush to remove any loose debris.

b Soak cleaning patch (or rag) with CLP, and wipe down.

c Add CLP to nylon cleaning brush, and scrub interior surfaces.

d Wipe all excess CLP away with dry cleaning patch (or rag).

(b) Moving parts assembly.

NOTE

It is not necessary to completely disassemble remainder of moving parts assembly for hasty application of lubricant. It is recommended that operator take into account environmental and operational conditions prior to disassembling entire moving parts assembly.

1 Using pointed end of charging handle, push firing pin retaining pin assembly from right side of bolt carrier and remove it from left side of bolt carrier (Figure 4-33).

Figure 4-33. Remove Firing Pin Retaining Pin.

2 Remove firing pin by pulling it backwards (Figure 4-34).

Figure 4-34. Remove Firing Pin.

3 Remove bolt cam pin and bolt assembly from bolt carrier (Figure 4-11).

4 Use nylon cleaning brush and dry cleaning patches (or rag) to remove any loose debris.

5 Add CLP to nylon cleaning brush, and scrub all surfaces.

6 Wipe all excess CLP away with dry cleaning patch (or rag).

(c) Trigger module.

1 With selector on SEMI-AUTOMATIC, press down and forward on automatic sear until audible pop is heard.

2 Place thumb over hammer. Pull trigger and ride hammer forward with thumb (Figure 4-35). DO NOT LET HAMMER SLAM FORWARD.

Figure 4-35. Release Hammer for Cleaning.

3 Use nylon cleaning brush and dry cleaning patches (rag or cotton swab) to remove any loose debris.

4 Add CLP to nylon cleaning brush, and scrub all surfaces.

5 Wipe all excess CLP away with dry cleaning patch (rag or cotton swab).

6 Press hammer down until locked. Place selector on 'S'.

(d) Buttstock module.

1 Use nylon cleaning brush and dry cleaning patches (or rag) to remove any loose debris.

2 Add CLP (or water) to nylon cleaning brush, and scrub all surfaces.

3 Wipe all excess CLP (or water) away with dry cleaning patch (or rag).

(e) Magazine.

1 Use nylon cleaning brush and dry cleaning patches (or rag) to remove any loose debris.

2 Add CLP to nylon cleaning brush, and scrub all surfaces.

3 Wipe all excess CLP away with dry cleaning patch (or rag).

4-7. LUBRICATION GUIDE.

CAUTION

Use authorized lubricants only. Do not lubricate bore and chamber for normal use. Do not lubricate gas piston, gas regulator, or gas regulator housing.

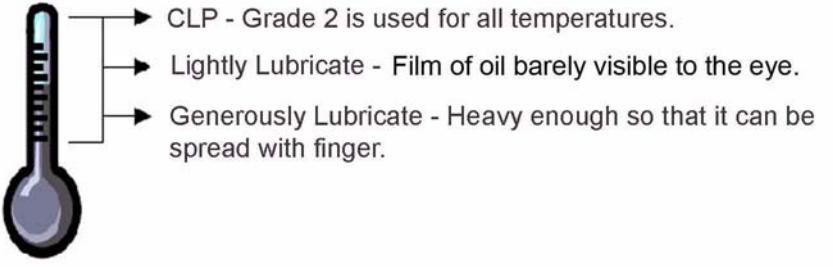

Figure 4-36. Lubrication Chart.

a. Lubricate following points of SCAR:
   (1) Trigger module (Figure 4-37).
      (a) Light lubrication on hammer, hammer spring, and hammer spring guide.
      (b) Light lubrication on automatic sear and automatic sear spring.
      (c) Light lubrication on hammer pin and trigger pin.
      (d) Generous lubrication on selector lever detent.
      (e) Light lubrication on trigger/sear area.

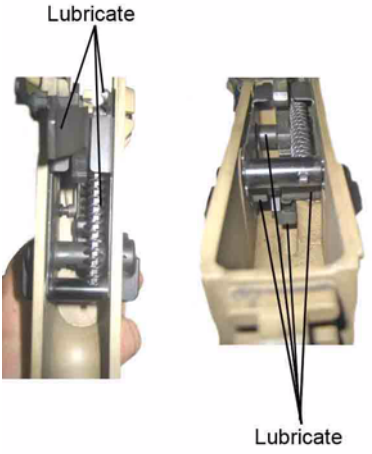

Figure 4-37. Trigger Module Lubrication Points.

(2) Buttstock module. No lubrication is necessary. Pay attention to joints at cheek rest and LOP adjustment area as well as cheek rest adjusting button, buttstock lock button, and LOP lock button. Blow out with air (if possible) or brush clean with nylon cleaning brush, keeping debris from accumulating (Figure 4-38).

Figure 4-38. Buttstock Module Cleaning Areas.

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(3) Moving parts assembly (Figure 4-39).

NOTE

It is not necessary to completely disassemble entire moving parts assembly for hasty application of lubricant. It is recommended that the operator take into account environmental and operational conditions prior to disassembling entire moving parts assembly.

(a) Generous lubrication on extractor and ejector. Manipulate each part to work in the lubrication, and ensure functionality.
(b) Generous lubrication on bolt body.
(c) Generous lubrication on bolt cam pin and bolt cam pin slot.
(d) Generous lubrication on bolt carrier contact points and bottom of bolt carrier.
(e) Generous lubrication on bolt carrier.
(f) Generous lubrication on return spring.

(g) Light lubrication in charging handle holes.

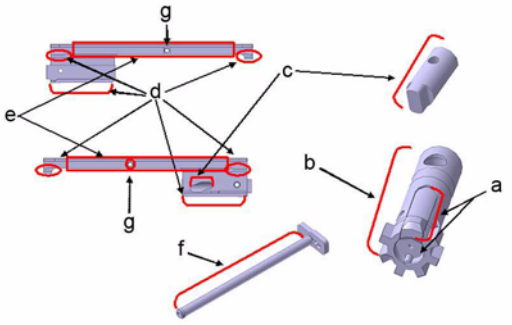

Figure 4-39. Moving Parts Assembly Lubrication Points.

(4) Complete receiver assembly (Figure 4-40).

NOTE

It is not necessary to lubricate exterior aluminum surfaces.

(a) Generous lubrication on all receiver guide rails and bolt carrier riding surfaces.
(b) Generous lubrication on iron sights and screw heads in order to prevent rust.
(c) Light lubrication on exterior barrel surface in order to prevent rust.

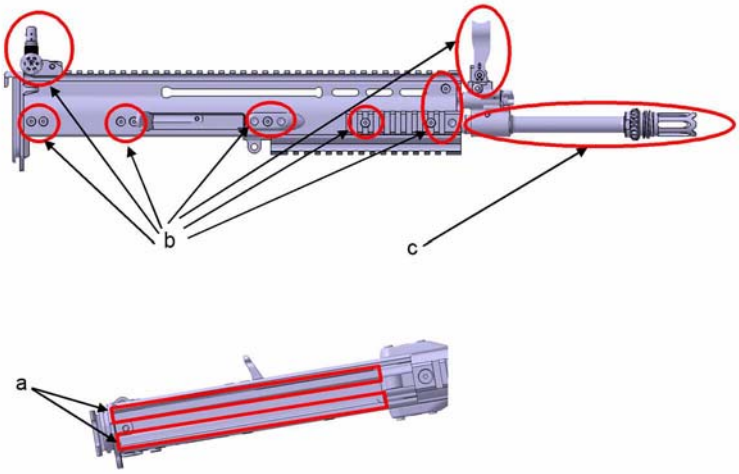

Figure 4-40. Receiver Assembly Lubrication Points.

(5) Magazine. Wipe all surfaces clean and leave dry.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-8. PMCS PROCEDURES.

WARNING

Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing.

a. UNLOAD and CLEAR weapon before manipulation or disassembly as described in paragraph 2-1.a.
b. General. To ensure readiness of weapon, perform preventive maintenance procedures in Table 4-1 prior to each mission. Preventive maintenance procedures include inspecting, cleaning, and performing of checkout procedures.
c. Explanation of table entries.

(1) “Item Number” Column. Numbers in this column are for references. When completing equipment inspection and maintenance worksheet, include item number for check and service indicating fault. Item numbers also appear in the order that checks and services must be completed for intervals listed.

(2) “Interval” Column. This column lists when actions must take place according to procedure column. BEFORE (B) procedures must be done before operating equipment for its intended mission. DURING (D) procedures must be done while operating or using equipment for its intended mission. AFTER (A) procedures must be completed immediately after operating or using equipment.

(3) “Items to be Checked or Service” Column. This column provides location and time to be checked or serviced.

(4) “Procedure” Column. This column gives procedure that must be completed to check or service item listed in Check/Service column to know if equipment is ready for its

intended mission or for operation. Complete procedure at the time stated in interval column.

(5) "Equipment Not Ready If" Column. Information in this column tells what faults will keep equipment from being capable of performing its primary mission. If check and service procedures show faults listed in this column, do not operate equipment. Follow standard operating procedures (SOP) for maintaining equipment or reporting equipment failure.

WARNING

Before starting inspection, be sure to clear weapon. Refer to clearing procedures 2-1.a. Do not squeeze trigger until weapon has been cleared. Inspect chamber to ensure that it is empty and no ammunition is in position to be chambered. Do not keep ammunition in or near work area.

NOTE

Inactive weapon is weapon (whether assigned or not assigned to individual) in arms room for a period of 90 days. Cleaning and PMCS of inactive weapon will be performed every 90 days. If weapon needs to be used after inactive period, a thorough cleaning (PMCS) shall be performed.

Table 4-1. PMCS Procedures.

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
1	Before	Magazine	Magazine slips easily into magazine well and locks in place.	Magazine is distorted or is hard to seat and/or does not lock into magazine well.
2	Before	Magazine	Magazine follower has spring tension and moves easily inside of magazine.	Magazine follower is stuck or has weak spring tension.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
3	Before	Magazine Catch (Function)	Insert magazine into magazine well. Magazine catch should hold magazine in place. Pressing magazine catch button should release magazine.	Magazine catch will not retain or release magazine.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
4	Before	Receiver Assembly	Check for barrel looseness (using T-Handle Torque Wrench with preset torque settings).	Barrel is loose enough to be moved by hand or unable to achieve proper torque setting.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
5	Before	Receiver Assembly	Check MIL-STD-1913 Rails to ensure they are secured to receiver.	3, 6, and 9 o'clock MIL-STD-1913 Rails are loose enough to be moved by hand.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
6	Before	Weapon Sights (Sight Adjustment)	Move front and rear sight to make sure they can be adjusted. Return sights to zero on weapon prior to firing.	Sights are damaged, missing, or can not be adjusted.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
7	Before	Weapon	Look weapon over for missing or damaged parts. Report missing or damaged parts to armorer.	Parts are missing or damaged to a point of being unserviceable.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
8	Before	Buttstock Module	Ensure cheekpiece is adjustable up and down. Ensure stock collapses to 6 positions. Make sure it folds to side and locks in place under brass deflector.	Any movement of stock is restricted in any way.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
9	Before	Complete Barrel Assemblies	Inspect barrel; check bore and chamber. Inspect gas regulator and gas piston.	Obstruction in barrel cannot be removed. Gas regulator is not adjustable or gas piston does not move freely.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
10	Before	Complete Barrel Assemblies	Ensure MIL-STD-1913 6 o'clock Rail is secured and front sight assembly is secured.	Front sight assembly or MIL-STD-1913 Rail is loose.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
11	During	Maintenance Performed during Firing Operations	Inspect, clean, and lubricate weapon after approximately 1,000 rounds unsuppressed or 400 rounds suppressed or at end of day.	Any part is broken, missing, or damaged to extent that it could cause weapon to malfunction.

Table 4-1. PMCS Procedures. (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
12	During	Maintenance Performed during Blank Firing Operations	Inspect, clean, and lubricate weapon after approximately 250 rounds (5.56 mm) or 200 rounds (7.62 mm) or at end of day.	Any part is broken, missing, or damaged to extent that it could cause weapon to malfunction.
13	After	Weapon	Perform function check.	Weapon fails function check.

CHAPTER 5
ANCILLARY EQUIPMENT INSTALLATION AND MAINTENANCE (SCAR)

5-1. GENERAL INFORMATION.

a. Ancillary equipment included with each SCAR is depicted in Figure 5-1.

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Figure 5-1. Ancillary Equipment (SCAR).

5-2. VERTICAL GRIP.

a. Vertical grip installation/removal.

(1) Vertical grip is designed to provide enhanced ergonomic firing support by attaching securely to MIL-STD-1913 6 o'clock Rail. It consists of grip with twin spring-driven locking bars, molded pressure pad recess, waterproof internal storage with three small zip ties, one strip of double-sided tape, and instruction booklet (Figure 5-2). Vertical grip weighs 0.1 lbs.

Figure 5-2. Vertical Grip.

(2) UNLOAD and CLEAR weapon (paragraph 2-1.a.).
(3) Clean rail of all debris by lightly scrubbing with nylon cleaning brush. Ensure 6 o'clock rail is free of obstructions and has no obvious damage.

NOTE

If molded pressure pad recess is to be utilized, ensure proper orientation of vertical grip (for left or right hand use) prior to installation.

NOTE

In order to protect rail, it is recommended that rail panels are installed on unused portion of rail.

(4) Position weapon vertically with buttstock placed on ground, and brace it properly against sturdy surface that will prevent side-to-side movement. Grasp vertical grip between both hands, retract (pull toward you) twin spring-driven locking bars with both index and fore fingers, and slide grip (while pushing with both thumbs side-by-side) onto 6 o'clock rail to desired position (Figure 5-3). Release locking bars.

Figure 5-3. Install Vertical Grip.

(5) After releasing locking bars, slide grip back and forth until audible click is heard, indicating proper locking bar engagement in cross cuts of MIL-STD-1913 Rail. Also, visually inspect locking bars to ensure they are located in the top of their ports. If locking bars are out of engagement, they will be in bottom of their ports, and grip is not yet locked into position. Ensure vertical grip is locked into desired position BEFORE WEAPON IS USED.

(6) Remove vertical grip by reversing installation procedures.

b. Vertical grip maintenance.
   (1) Remove vertical grip.
   (2) Clean vertical grip with water and nylon cleaning brush, and inspect for damage. Also inspect rails for burrs that can interfere with installation/removal.

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5-3. RAIL PANELS.

a. Installation/removal of rail panels.
   (1) Rail panels are designed to protect unused portions of MIL-STD-1913 Rails and operators' hands due to heat. They consist of (1) 6.75 inch panel, (2) 4.125 inch panels with molded pressure pad recess for different sized pressure pads, (1) 4.125 inch panel, and (4) 2 inch panels (Figure 5-4). Rail panel kit (complete) weighs 0.2 lbs.

Figure 5-4. Rail Panel Kit.

(2) UNLOAD and CLEAR weapon (paragraph 2-1.a.).

(3) Position weapon vertically with buttstock placed on ground, position rail panel onto desired MIL-STD-1913 Rail, latch end first, and slide panel down until it stops (Step 1) (Figure 5-5). Using fore finger, lift latch high enough to clear rail and continue to slide panel onto rail until desired position is reached (Step 2). Release latch and visually confirm engagement into cross-slot of MIL-STD-1913 Rail (Step 3). When properly engaged, top of latch will be flush with remainder of rail panel. If latch is not flush, press latch down with thumbs. To remove, lift latch until it clears rail and slide rail panel off.

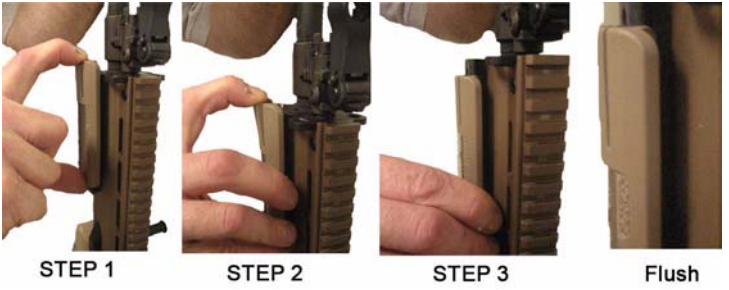

Figure 5-5. Install Rail Panels.

NOTE

Due to variance of pad dimensions, loose fit in rail panel with recess for pressure pad may be secured with double-sided tape (if available). Once pad is secured, use cable ties to route pad wiring out of the way of possible hot barrel contact or snags.

(4) Remove rail panels by reversing installation procedures.

b. Rail panels maintenance.

(1) Remove rail panels.

(2) Clean rail panels with water and nylon cleaning brush, and inspect for damage. Also inspect rails for burrs that can interfere with installation/removal.

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5-4. BIPOD (SUPPLIED WITH LB VARIANTS ONLY).

a. Bipod installation/removal.

(1) Bipod is supplied with SCAR LB variants. Bipod is designed to provide additional support for long range, accurate shooting. Bipod is foldable, adjustable, cant capable, and consists of independent, adjustable legs and MIL-STD-1913 Rail mounting interface. It is attached to bottom rail by means of mounting interface consisting of thumbscrew with locking bar located on bottom of bipod (Figure 5-6). Bipod weighs 0.8 lbs.

Figure 5-6. Bipod.

(2) UNLOAD and CLEAR weapon (paragraph 2-1.a.).

(3) Ensure bipod is flat/folded (Figure 5-6) with legs perpendicular to mounting bracket. Ensure mounting thumbscrew is completely unscrewed until it stops. This ensures that mounting interface and locking bar will slide freely onto MIL-STD-1913 Rail (Figure 5-7). Position weapon vertically with buttstock placed on ground. Slide bipod onto bottom rail with bipod mounting interface first, and adjust it to desired position (Step 1). While applying pressure to thumbscrew, let bipod ease down until locking bar engages into cross-slot of rail; audible, tactile click is heard when locking bar engages (Step 2). **Continue to apply pressure to thumbscrew and tighten by rotating it CW** (Step 3).

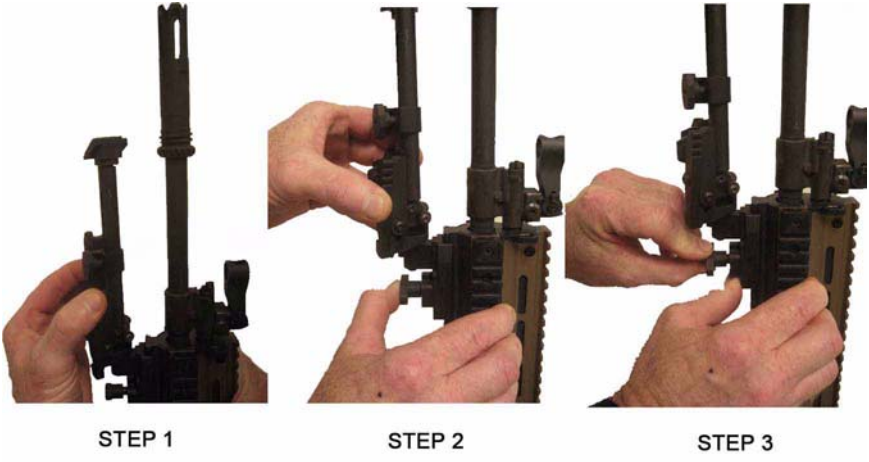

Figure 5-7. Install Bipod.

(4) Deploy/adjust bipod.

(a) Deploy bipod by grasping and pressing release lever located on each leg. Then pull bipod down and away from muzzle. When fully deployed, legs will lock into place via spring locks (Figure 5-8).

Figure 5-8. Deploy Bipod.

(b) Each leg of bipod is independently adjustable by loosening/tightening thumbscrew; bipod is also equipped with canting mechanism (adjustable with 3/32 inch hex wrench) that allows for use on uneven terrain (Figure 5-9).

Figure 5-9. Bipod Adjustment.

CAUTION

Failure to follow bipod installation procedures can result in bipod sliding off weapon during movement or sustained firing.

(5) Remove bipod by reversing installation procedures.

b. Bipod maintenance.

(1) Remove bipod.

(2) Clean bipod with water and nylon cleaning brush, and inspect for damage. Also inspect rails for burrs that can interfere with installation/removal.

5-5. SLING.

a. Sling and sling swivel installation/removal.

(1) Sling provides ambidextrous, comfortable, ready, and safe method of carrying SCAR or MK 13 MOD 0. It is especially useful when SCAR is equipped with accessories from SOPMOD Kit. Sling is constructed of one inch nylon webbing with spring hooks (and hook covers) for attachment to either sling swivel adapters or sling swivels built-in to SCAR/MK 13 MOD 0. Sling swivel adapters (2 per weapon) consist of MIL-STD-1913 Rail Mount

Interface, clamping screw (cap screw and set screw), and sling swivel. A 3/32” hex wrench is supplied with each adapter (Figure 5-10). Sling weighs 0.2 lbs. Swivels weigh 0.2 lbs.

Figure 5-10. Sling and Sling Swivels.

(2) Rail mount sling swivel adapter. Adapter can be mounted to any location on 3, 6, or 9 o'clock rail. Install adapter at desired location by first loosening and removing cap screw with 3/32" hex wrench (Step 1) (Figure 5-11). Next, use wrench to loosen set screw so adapter slides freely onto rail and slide adapter to desired position on rail so that set screw is aligned in a slot; tighten onto rail with wrench (Step 2). Replace and tighten cap screw (Step 3). When installed properly, mount will rest on top of rail with no gap.

Figure 5-11. Install Sling Swivel Adapter.

(3) Attach sling to sling swivel adapter or built-in sling attachment points. Manipulate spring hook, and attach to desired point.

(4) Adjust sling to preferred size by manipulating sling buckle to shorten or lengthen sling.

(5) Remove sling and sling swivel adapter by reversing installation procedures.

b. Sling and sling swivel adapters maintenance.

(1) Remove sling and/or sling swivel adapters.

(2) Clean sling with water; inspect for damage. Clean sling swivel adapters with CLP and nylon cleaning brush; wipe off excess CLP. Also inspect rails for burrs that can interfere with installation/removal.

5-6. BFA (MK 16 MOD 0; MK 17 MOD 0).

WARNING

There is a different BFA for MK 16 MOD 0 and MK 17 MOD 0. Ensure to match caliber of BFA to caliber of weapon. BFAs are not interchangeable between calibers.

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WARNING

BFA is for use with standard barrel length only; use only blank M200 (5.56 mm) or M82 (7.62 mm) ammunition with BFA.

NOTE

Prior to using BFA, it is recommended weapon is lubricated IAW lubrication guide (paragraph 4-7). If stoppages occur during BFA firing operations, refer to troubleshooting (Chapter 3).

a. BFA installation and removal.
BFA is designed to keep sufficient gas in weapon's barrel to allow semi-automatic or automatic firing with blank ammunition (M200; 5.56 mm or M82; 7.62 mm) (Figure 5-12). Device is attached to SCAR's flash hider via internal threads and retaining device (5.56 mm - M5 screw with T-25 drive or 7.62 mm stainless steel wire secondary latch). After firing 50 rounds,

BFA should be checked for secure fit. The 5.56 mm BFA weighs 0.5 lbs, and the 7.62 mm BFA weighs 1.0 lbs.

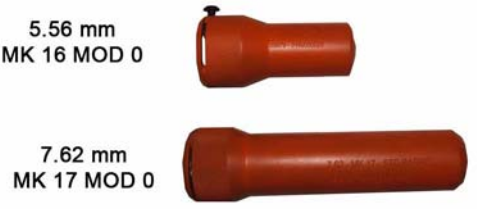

Figure 5-12. BFA is Shown.

NOTE

Switch regulator to “unsuppressed” if low power MS2 causes cylcing issues.

(1) Use on standard barrel only with “Suppressed” gas regulator setting. Install BFA (Figure 5-13) onto MK 17 MOD 0. With muzzle pointed away and in a safe direction, slide BFA over flash hider until external threads on flash hider engage internal threads of BFA (Step 1) (Figure 5-13). Rotate BFA by hand CW until shoulder at rear of flash hider engages mating surface within BFA and will no longer turn (Step 2). When BFA and flash hider are fully interfaced, elbow on spring wire secondary latch in rear of BFA should snap into one of notches between teeth on gear at rear of flash hider (Step 3). This will prevent BFA from unscrewing during use. Pull forward on BFA to ensure threads on flash hider are fully engaged with threads inside BFA.

NOTE

Ensure no teeth on rear of flash hider are visible.

Figure 5-13. Install BFA (MK 17 MOD 0).

(2) Use on standard barrel only with “Unsuppressed” gas regulator setting. Loosen screw on BFA with T-25 bit on SCAR/EGLM Multi-tool or T-handle torque wrench to ensure no contact with flash hider on MK 16 MOD 0 (Step 1). Install BFA (Figure 5-15). With muzzle pointed away and in a safe direction, slide BFA over flash hider until external threads on flash hider engage internal threads of BFA (Step 2) (Figure 5-13). Rotate BFA by hand CW until shoulder at rear of flash hider engages mating surface within BFA until it no longer turns and no teeth on rear of flash hider are visible (Step 3). Tighten screw to snug fit with T-25 bit on SCAR/EGLM Multi-tool (Step 4) Pull forward on BFA to ensure threads on flash hider are fully engaged with threads inside BFA and screw keeps BFA from turning.

NOTE

Ensure no teeth on rear of flash hider are visible.

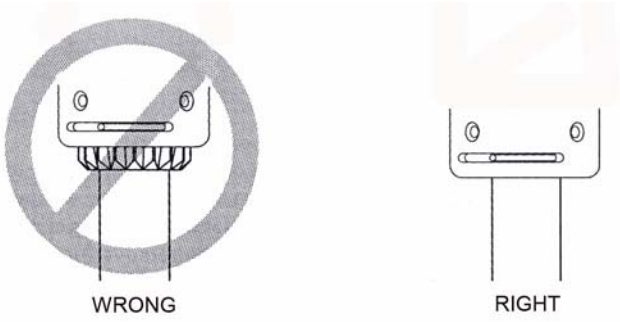

Figure 5-14. BFA Installation Procedure.

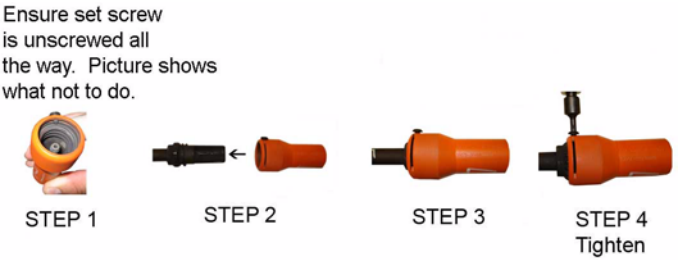

Figure 5-15. Install BFA (MK 16 MOD 0).

(3) Remove BFA by reversing installation procedures.

b. BFA maintenance.

(1) Remove BFA.

(2) Clean BFA with CLP and nylon cleaning brush; wipe off excess CLP. Inspect threads on exterior of flash hider and interior of BFA to ensure they are free of obstructions and undamaged.

5-7. SUPPRESSOR (MK 16 MOD 0; MK 17 MOD 0).

a. Suppressor installation/removal.

WARNING

There is a different suppressor for MK 16 MOD 0 and MK 17 MOD 0. Ensure to match caliber of suppressor to caliber of weapon.

NOTE

When installing suppressor, ensure gas regulator is at 10 o'clock position. (See Figure 2-23.)

NOTE

Prior to using suppressor, it is recommended weapon is lubricated IAW lubrication guide (paragraph 4-7). If stoppages occur during BFA firing operations, refer to troubleshooting (Chapter 3).

WARNING

Suppressors should be limited to “Semi-automatic Fire Only” for all barrel lengths.

WARNING

Never subject SCAR suppressor to more than 90 rounds of continuous automatic fire. If this limit is reached, allow suppressor to cool before resuming fire if tactical situation permits. Up to 15 rounds per minute of continual fire is acceptable. Extraordinary full automatic firing will cause premature loss of performance and service life.

(1) Suppressor(s) (Figure 5-16). MK 16 MOD 0 suppressor is designed to reduce sound and visible flash signature of 5.56 mm NATO caliber small arms. The 5.56 mm suppressor is only compatible with MK 16 MOD 0 flash hider. The MK 17 MOD 0 suppressor is designed to reduce sound and visible flash signature of 7.62 mm NATO caliber small arms. The 7.62 mm suppressor is only compatible with MK 17 MOD 0 flash hider. Suppressor can be installed in under five seconds with minimal effort. Stainless steel wire secondary latch secures suppressor when mounted and prevents it from loosening during use. The 7.62 mm suppressor weighs 1.0 lb, and the 5.56 mm suppressor weighs 0.5 lb.

Figure 5-16. Suppressors.

(2) UNLOAD and CLEAR weapon (paragraph 2-1.a.).
(3) Inspect threads on exterior of flash hider and interior of suppressor to ensure they are free of obstructions and undamaged.

(4) With muzzle pointed away and in a safe direction, slide suppressor over flash hider until external threads on flash hider engage internal threads of suppressor (Step 1) (Figure 5-18). Rotate suppressor by hand CW until shoulder at rear of flash hider engages mating surface within suppressor and will no longer turn (Step 2). When suppressor and flash hider are fully interfaced, elbow on spring wire secondary latch in rear of suppressor should snap into one of notches between teeth on gear at rear of flash hider (Step 3). This will prevent suppressor from unscrewing during use. Pull forward on suppressor to ensure threads on flash hider are fully engaged with threads inside suppressor.

NOTE

Ensure no teeth on rear of flash hider are visible.

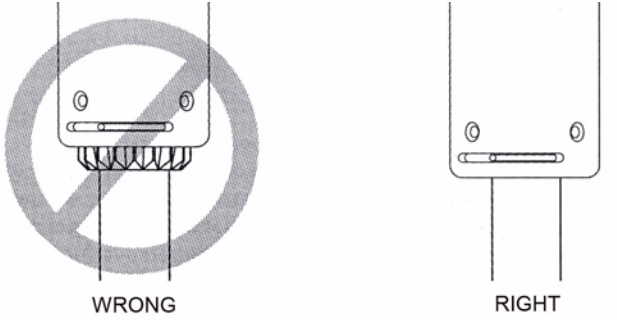

Figure 5-17. Suppressor Installation Procedure.

Figure 5-18. Install Suppressor (MK 17 MOD 0).

WARNING

In order to prevent burns, it is recommended that operator wear gloves while removing suppressor.

(5) Remove suppressor by reversing installation procedures.

b. Suppressor BZO.

NOTE

For suppressor BZO procedures see sound suppressor shift charts for the MK 16 and MK 17 on provided disk in back of manual.

c. Suppressor flash reduction.
   (1) First round flash signature can be eliminated by utilizing a water coated (wet) suppressor. To properly prepare suppressor, do the following:
      (a) While blocking muzzle of suppressor, fill with water.
      (b) Drain suppressor, shaking out any residue.
      (c) Attach and fire as soon as possible.

5-8. CLEANING KIT AND TOOLS.

a. SCAR Cleaning Kit is utilized to clean weapon. Refer to Figure 5-19.

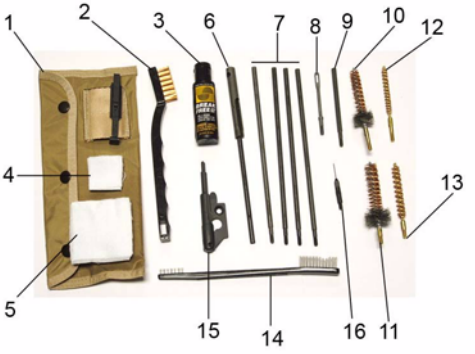

Figure 5-19. SCAR Cleaning Kit.

1. Case
2. Brass Cleaning Toothbrush
3. Small Bottle CLP
4. 1” X 1” Cleaning Patch
5. 2” X 2” Cleaning Patch
6. T-Handle Rod
7. Straight Threaded Rods
8. Eyelet Rod
9. Rod Adapter
10. 5.56 mm Chamber Brush
11. 7.62 mm Chamber Brush
12. 5.56 mm Bore Brush
13. 7.62 mm Bore Brush
14. Nylon Cleaning Brush
15. Scraper Tool
16. Gas Port Pick

Figure 5-18. SCAR Cleaning Kit. (cont.)

(1) SCAR scraper/cleaning tool description (Figure 5-20). This tool is primarily utilized to clean SCAR gas block assembly. (Refer to Chapter 4 pages 4-32 to 4-34 for illustrated use.)

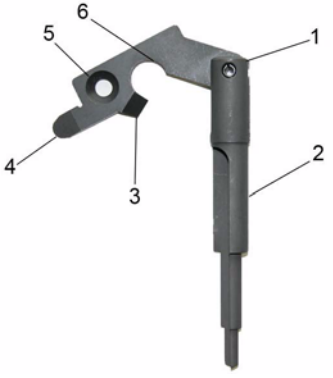

Figure 5-20. SCAR Scraper/Cleaning Tool.

1. Pivot

2. Reamer; cleans gas regulator housing, gas piston housing, and gas regulator inlet holes

3. Flat Scraper; cleans gas piston head and shoulder

4. Snub-Nosed Reamer; cleans interior diameter of gas regulator

5. Hole; cleans gas piston shaft

6. C-Shaped Reamer; cleans outer diameter of gas regulator

b. SCAR Operator Tool Kit is utilized for sight adjustments, barrel removal/installation, gas piston removal, MK 13 MOD 0 locking lever adjustments, and MK 13 MOD 0 leaf sight adjustments (Figure 5-21). SCAR Operator Tool Kit weighs 1.0 lbs.

Figure 5-21. SCAR Operator Tool Kit.

1. SCAR Tool Kit Case Pouch
2. SCAR/MK 13 MOD 0 Multi-tool
3. Gas Piston Removal Tool
4. T-handle Torque Wrench
5. T-25 Torx Bit
6. Quick Reference Card
7. 25 m BZO Template
8. 7.62 mm Stripper Clip Adapter
9. 5.56 mm Stripper Clip Adapter

(1) SCAR/MK 13 MOD 0 Multi-tool is primarily utilized for sight adjustments and provides alternate means of barrel removal, as well as featuring gas regulator adjustment wrench, MK 13 MOD 0 lever adjustment wrench, and accessory bit housing (Figure 5-22).

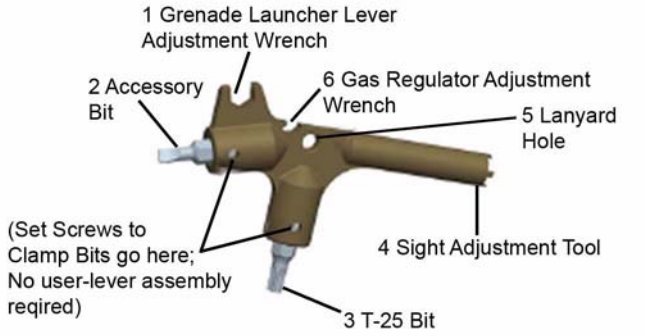

Figure 5-22. SCAR/MK 13 MOD 0 Multi-tool.

CHAPTER 6
MK 13 MOD 0 ENHANCED GRENADE LAUNCHER EQUIPMENT DESCRIPTION

Section I. MAJOR COMPONENTS (MK 13 MOD 0) LOCATION AND DESCRIPTION

WARNING

Do not use cartridges other than those authorized for the 40 mm grenade launcher. Use of unauthorized high explosive 40 mm cartridges will result in death or injury. Use only authorized rounds.

The danger radius of practice grenades is 20 meters (66 feet).

WARNING

Projectiles assembled with M552 (T333) fuzes will arm within 3 meters (10 feet) of weapon. Clear line of fire of all obstructions that will endanger personnel when weapon is fired.

The M407A1 practice round fuze arms between 14 to 27 meters (46 to 89 feet).

Do not fire ammunition not made for use in MK 13 MOD 0 Grenade Launcher. Doing so will result in injury or death of personnel.

Hearing protection is required for user and all adjacent personnel on firing range, when using M585 cartridge.

WARNING

Non-lethal rounds for 40 mm grenade launcher MK 13 MOD 0 have the potential to cause lethal injuries if operator instructions are not precisely followed. Operator instructions for non-lethal rounds are over-packed in appropriate ammunition containers.

Before inspection, be sure weapon is not loaded.

6-1. MAJOR COMPONENTS LOCATION AND DESCRIPTION.

a. Refer to Chapter 1, Section II, paragraph 1-6 for Characteristics, Capabilities, Features, and Equipment Data. Refer to Figure 6-1 for Major Components Location and Description.
b. Major Components Location and Description (Figure 6-1).

Figure 6-1. MK 13 MOD 0 Five Major Components.

Stand-alone Buttstock Module (1)	Steel and aluminum construction. Provides stand-alone mounting capability for MK 13 MOD 0. Provides for adjustable LOP via LOP adjustment lock, sling attachment point, and contains 3, 6, 9, and 12 o'clock MIL-STD-1913 Rail.
Trigger Module (2)	Polymer construction. Contains two stage trigger, sear assembly, takedown pin, and fire selector. MK 16 MOD 0 and MK 17 MOD 0 trigger modules (for MK 13 MOD 0) include magazine well that mates to SCAR magazine well.
Barrel and Handguard Assembly (3)	Polymer and aluminum construction. Contains barrel and handguard. Barrel contains rotary locking lugs, cam guideway, muzzle ring, and protective cap. Handguard provides grip area, handguard slide, and swivel guide.

Receiver Assembly (4)	Polymer and aluminum construction. Consists of receiver frame (serialized item) firing pin, handguard locking lever, ambidextrous sling attachment points, barrel and handguard assembly, stripping lever, and handguard cam track. Provides for MIL-STD-1913 Rail Interface utilizing two adjustable locking levers.
Leaf Sight Assembly (5)	Polymer and aluminum construction. Consists of sight support assembly capable of 6 mounting configurations onto MIL-STD-1913 Rail and sight assembly consisting of range indicator, rear sight bar, rear sight bar button, windage screw, elevation screw, and front sight point.
Mechanical Quadrant Sight (5)	Consists of IR laser pointer, MRD sight, flip-up iron sights, and pressure pad for remote operation.

CHAPTER 7
OPERATING INSTRUCTIONS (MK 13 MOD 0)

Section I. WEAPON OPERATION

7-1. SAFETY CHECK (MK 13 MOD 0).

Carry out the following procedure in order to ensure that MK 13 MOD 0 can be manipulated, stored, and/or transported without any risk.

CAUTION

Be sure to clean weapon before initial use. Leaving protective lubricant in weapon can cause stoppage, malfunction, or failure due to over pressure.

CAUTION

Ensure muzzle ring is tight on barrel.

a. UNLOAD and CLEAR weapon before manipulation or disassembly as described below.
   (1) Point weapon parallel to ground and in a safe direction.
   (2) Push fire selector to right ('S' position); red line must be hidden (Figure 7-1).
   (3) Press handguard locking lever. Allow handguard to slide forward on barrel (Step 1) (Figure 7-1).
   (4) With free hand, press extractor. Then continue to push barrel and handguard assembly forward and pivot it to weak side (Step 2) (Figure 7-1).
   (5) Release extractor, and then grasp rim of grenade. Pull grenade from barrel, and maintain control of it (Step 3) (Figure 7-1).

WARNING

Do not allow live grenades to fall to ground.

   (6) Visually and physically inspect chamber (Step 4) (Figure 7-1).

(7) Pull handguard assembly rearward to lock barrel and handguard assembly onto receiver assembly (Step 5) (Figure 7-1).

(8) Check that barrel and handguard assembly is correctly locked onto frame assembly.

Figure 7-1. Unload and Clear MK 13 MOD 0.

7-2. WEAPON OPERATION.

a. Fire selector use (Figure 7-2).
   (1) SAFE ('S'). No red line is visible; fire selector pushed from LEFT to RIGHT of trigger module. Weapon will not fire. Always place weapon on SAFE when loaded.
   (2) FIRE ('F'). Red line is visible on LEFT side of weapon; fire selector is pushed from RIGHT to LEFT of trigger module. Weapon will fire one round each time trigger is pulled.

Figure 7-2. Fire Selector Positions.

CAUTION

Ensure that only ammunition of proper caliber and good condition is used with MK 13 MOD 0.

b. Attach MK 13 MOD 0 to SCAR. MK 13 MOD 0 is capable of being mounted onto MK 16 MOD 0 and MK 17 MOD 0 6 o'clock rail via MIL-STD-1913 Rail compatible mount and caliber specific to MK 13 MOD 0 trigger module.

(1) Mount MK 13 MOD 0 to SCAR by first choosing appropriate caliber MK 13 MOD 0 trigger module that matches SCAR caliber. Each MK 13 MOD 0 trigger module is marked with corresponding SCAR to which it attaches (MK 16 MOD 0 and MK 17 MOD 0) (Figure 7-3).

Figure 7-3. MK 13 MOD 0 Trigger Modules for SCAR.

(2) Ensure safety check has been conducted per paragraph 7-1.

(3) Install appropriate caliber MK 13 MOD 0 trigger module onto MK 13 MOD 0 receiver. Ensure takedown pin is pushed out of its housing all the way to right of MK 13 MOD 0 trigger module and sear assembly is to rear. Rotate MK 13 MOD 0 trigger module up onto MK 13 MOD 0 receiver, and push takedown pin into left (Step 1) (Figure 7-4).

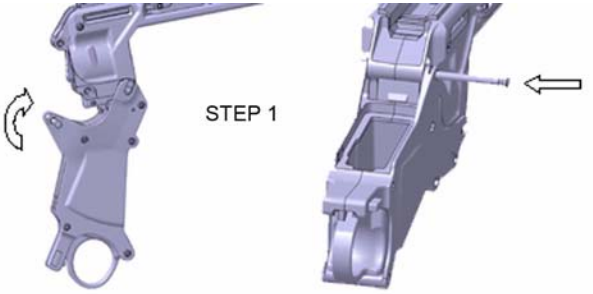

Figure 7-4. Install MK 13 MOD 0 Trigger Module.

NOTE

Do not use 20-round 5.56 mm or 10-round 7.62 mm magazine to help with installation in Step 2 below; it may be difficult to remove. The 20-round 5.56 mm magazine is not designed for use with MK 13 MOD 0.

(4) Seat empty magazine into SCAR. Open both jaw levers located on right side of MK 13 MOD 0; use magazine as guide and slide launcher module over magazine (Step 2) (Figure 7-5).

(5) Place top of MK 13 MOD 0 onto lower rail of SCAR. Lock launcher module by closing both jaw levers (Step 3) (Figure 7-5). Remove magazine.

Figure 7-5. Install MK 13 MOD 0 onto SCAR.

NOTE

If after locking MK 13 MOD 0 to SCAR the MK 13 MOD 0 is too tight or loose, adjust jaw levers using SCAR/MK 13 MOD 0 Multi-tool. Tighten or loosen corresponding screw (by sixths of turn); REARWARD (CW) tightens and FORWARD (CCW) loosens screws (Figure 7-6).

Figure 7-6. Adjust Jaw Levers.

c. Attach MK 13 MOD 0 onto stand-alone buttstock.
   (1) Mount MK 13 MOD 0 to stand-alone buttstock by first choosing MK 13 MOD 0 stand-alone trigger module (Figure 7-7).

Figure 7-7. MK 13 MOD 0 Stand-alone Trigger Module.

   (2) Ensure safety check has been conducted per paragraph 7-1.
   (3) Install MK 13 MOD 0 stand-alone trigger module onto MK 13 MOD 0 receiver. Ensure takedown pin is pulled out of its housing all the way to right of MK 13 MOD 0 trigger

module. Rotate MK 13 MOD 0 trigger module up onto MK 13 MOD 0 receiver, and push takedown pin in to left the same way as done previously with the other MK 13 MOD 0 trigger modules above (Figure 7-8).

(4) Open both jaw levers located on right side of MK 13 MOD 0 (Step 2) (Figure 7-8). Align tab on stand-alone buttstock as guide on MK 13 MOD 0 (stand-alone) trigger module, and place MK 13 MOD 0 onto 6 o'clock rail of stand-alone buttstock (Step 2) (Figure 7-8).

(5) Lock launcher module by closing both jaw levers (Step 3) (Figure 7-8).

NOTE

If MK 13 MOD 0 is too tight or loose, adjust jaw levers using SCAR Multi-tool; tighten or loosen corresponding screw (by sixths of turn). REARWARD (CW) tightens and FORWARD (CCW) loosens screws (Figure 7-8).

Figure 7-8. Install MK 13 MOD 0 onto Stand-alone Buttstock.

d. Attach leaf sight.
   (1) There are five total configurations possible when installing leaf sight assembly (Figure 7-9):
      (a) Lateral left position (LL): on left side of weapon.
      (b) Lateral right position (LR): on right side of weapon.

(c) Top left position (TL): sight support assembly screwed from right onto top rail and sight on left.

(d) Top right position (TR): sight support assembly screwed from left onto top rail and sight on right.

(e) Center top right position (CTR): sight support assembly screwed onto top rail and sight on its top.

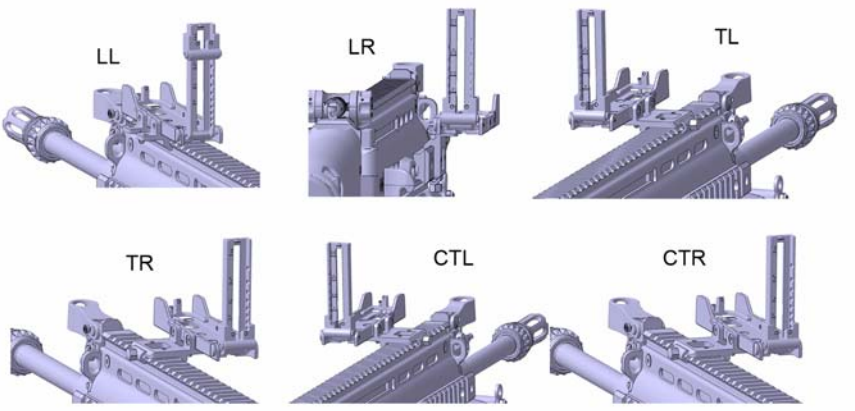

Figure 7-9. Leaf Sight Mounting Positions.

(2) Install leaf sight onto sight support assembly at mounting position corresponding to configuration desired (Figure 7-9).

(a) Loosen two sight support assembly screws on sight support assembly utilizing SCAR/MK 13 MOD 0 Multi-tool and T-25 bit; remove sight support assembly from leaf sight and unlock, and throw open throw lever (Figure 7-10).

(b) Place sight support assembly onto desired position on leaf sight. Apply Loctite 2440 Threadlocker (Blue) to support assembly screws and rail interface assembly screws. Then tighten with T-handle torque wrench.

(c) Place leaf sight with sight support assembly on desired rail position. Lock throw lever MIL-STD-1913 Rail mount.

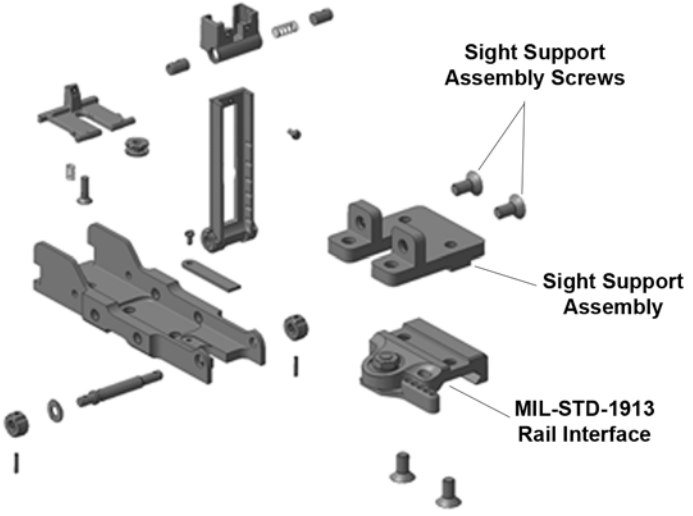

Figure 7-10. Changing Leaf Sight Mounting Configuration.

e. Load MK 13 MOD 0.
   (1) Point weapon parallel with ground and in a safe direction.
   (2) Push fire selector to right ('S' position); red line must be hidden (Figure 7-2).
   (3) Press handguard locking lever. Push barrel and handguard assembly completely forward, and pivot to weak side (Step 1) (Figure 7-11).

CAUTION

Be sure to clean weapon before initial use. Leaving protective lubricant in weapon can cause stoppage, malfunction, or failure due to over pressure.

CAUTION

Ensure muzzle ring is tight on barrel.

   (4) Load grenade into barrel (Step 2) (Figure 7-11).
   (5) Pull barrel and handguard assembly firmly to rear until it locks into receiver assembly (Step 3) (Figure 7-11).

Figure 7-11. Loading MK 13 MOD 0.

NOTE

If barrel and handguard assembly is not correctly locked, trigger will be free and launcher module will not fire when trigger is pulled.

f. Fire and unload MK 13 MOD 0.
   (1) Remove protective cap (Step 1) (Figure 7-12).
   (2) Ensure muzzle ring is tight on barrel prior to firing.

(3) Raise leaf sight, and slide rear sight bar up or down according to estimated range of target using range indicators (Step 2) (Figure 7-12).
(4) Shoulder weapon, and align grenade launcher with target.
(5) Aim grenade launcher at target by aligning rear sight bar notch with front sight post on leaf sight (Figure 7-12).
(6) Push fire selector to LEFT ('F' position); red line must be visible.
(7) Pull trigger fully rearward using either index or middle finger.
(8) After firing, release trigger and push fire selector to RIGHT ('S' position); red line must be hidden.
(9) Press handguard locking lever. Push barrel and handguard assembly completely forward and pivot to weak side for reloading or clearing weapon. Spent cartridge will automatically eject to ground.

NOTE

Repeat Step (2) after firing.

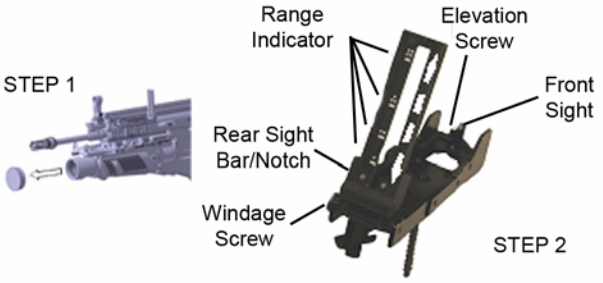

Figure 7-12. Fire and Unload MK 13 MOD 0.

7-3. CYCLE OF OPERATION.

a. It is important to fully understand MK 13 MOD 0's cycle of operation. Knowing this will greatly reduce downtime should launcher not function properly. Knowing cycle of operation will enable operator to describe what is happening with MK 13 MOD 0 to armorer for faster maintenance.

b. Cycle of operation is a continuous loop, so for this manual's purpose cycle starts with FIRING.

   (1) **FIRING** begins with active thought of pulling trigger to engage target. With fire selector in FIRE position, pulling double action trigger also pulls firing pin to rear, compressing firing pin springs. Firing pin is then released, which strikes primer of grenade.

   (2) **RE-SETTING** happens when trigger is released. It will return forward and reset its control of firing pin.

   (3) **UNLOCKING** begins when operator presses handguard locking lever releasing barrel and handguard assembly.

Pushing handguard forward will cause barrel to rotate in handguard and locking lugs to clear breech face.

(4) **EXTRACTING** occurs when barrel locking lugs have cleared breech and continue forward. Extractor has control of cartridge rim and barrel is pulled off casing.

(5) **EJECTING** occurs when front of case clears rear edge of barrel and ejector pushes on top side of case head. This action and gravity will allow casing to clear weapon system.

(6) **FEEDING and CHAMBERING** are done manually. Select type of ammunition required, and place it in rear of barrel. Push it in until fully seated.

(7) **LOCKING** occurs as barrel and handguard assembly is pulled rearward. As barrel begins contacting breech face, lugs rotate under breech lugs and handguard locks into position.

c. Cycle of operation is continuous until either stopped by operator or operator incurs stoppage or malfunction; at which time operator should begin troubleshooting procedures.

7-4. OPERATION UNDER UNUSUAL CONDITIONS.

ENVIRONMENT / WEATHER

Unusual conditions are defined as any climatic condition requiring special maintenance of weapon. Perform maintenance outlined for climate that most applies to operational area. Clean and lubricate weapon with CLP.

CAUTION

Ensure protective cap is installed when operating in unusual conditions to protect internal components.

a. Extreme cold climate - arctic.

CAUTION

Be careful not to accidentally fire weapon when inserting gloved fingers into trigger area.

(1) Cleaning and lubrication should be accomplished inside warm room; weapon should be at room temperature if possible.

b. Hot, dry climate - desert.

NOTE

Hot, dry climates are usually areas containing blowing sand and fine dust. Deserts can be hot during daylight hours and freezing during hours of darkness. Consequently, this harsh environment will severely impact weapon as well as all other types of equipment. Weapon's continued operation will depend on detailed cleaning and lubricating procedures.

(1) Clean often. Apply light lubrication frequently, because heat dissolves oil rapidly. Wipe oil from exposed surfaces. Cover weapon as much as possible. Keep sand out of parts.

c. Heavy rain, fording operations, saltwater spray - all climates.
   (1) Rainy, humid, and salty air contaminate lubrication and cause corrosion. Inspect grenade launcher daily. Dry, clean, and lubricate as necessary.

7-5. EXPLANATION OF SIGHTS.

a. Leaf sight (Figure 7-13). Direct fire folding leaf sight is designed to provide means of sighting EGLM for engaging targets at ranges 0-300 meters. Leaf sight attaches to 3, 9, or 12 o'clock rail on SCAR or stand-alone buttstock via sight support assembly with sight support locking jaw screw. For using leaf sight at night, luminescent tritium inserts are located on rear sight bar and on front sight post. Tritium light source consists of completely sealed capsule internally coated with phosphor and containing radioactive gas tritium (hydrogen-3). There are two tritium inserts on rear sight bar and one tritium insert on front sight. There are three notches between each range indicator; each notch equals a 25 m increment.

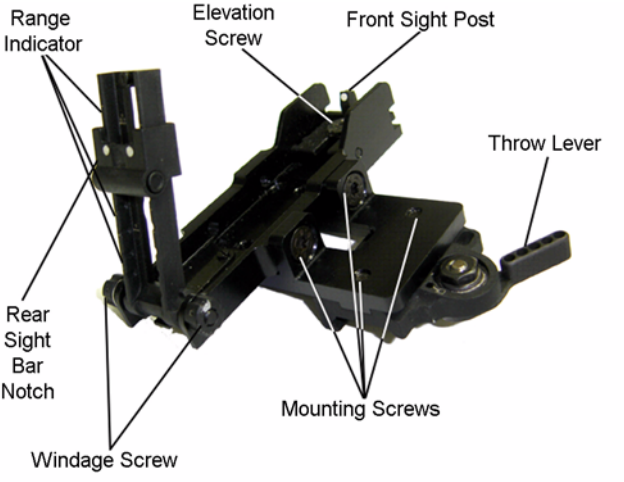

Figure 7-13. Leaf Sight.

b. Mechanical quadrant sight (Figure 7-14). Refer to supplemental instruction for description and BZO of mechanical quadrant sight.

Figure 7-14. Mechanical Quadrant Sight (MK 13 MOD 0).

7-6. BZO PROCEDURES.

a. BZO leaf sight.
   (1) Mechanical zero.
      (a) Set windage adjustment wheel to mechanical zero by rotating wheel forward (toward muzzle) until it reaches its end of travel. Then rotate windage adjustment wheel rearward (towards shooter) two complete revolutions.
      (b) Set elevation adjustment wheel to mechanical zero by rotating elevation wheel CW until flush. When complete, turn elevation adjustment wheel CCW four complete revolutions.

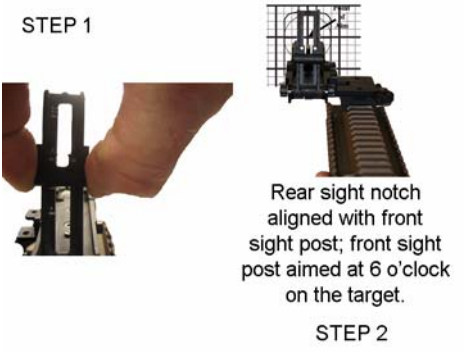

Figure 7-15. BZO Leaf Sight; Adjust Rear Sight Bar and Aim.

(2) 200 m BZO for leaf sight.
   (a) Lock sight into desired position on 3, 9 or 12 o'clock MIL-STD-1913 Rails.
   (b) Unfold sight by pulling up rear sight assembly.
   (c) Adjust rear sight bar to 200 m index line by pressing inward on both rear sight bar buttons. Release so that adjustment bar locks in place. Be sure that left dot on sighting bar is lined up with two dots directly above (200 m indication mark).
   (d) Aim at target by aligning rear sight notch with front sight post. Ensure tip of front sight post is at 6 o'clock position of target.

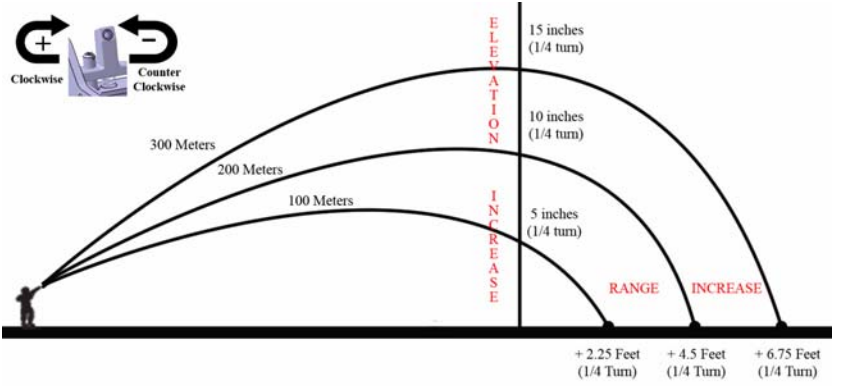

Figure 7-16. Reference Chart for Sight Adjustments.

(3) Adjustment procedures.

(a) If major elevation (+25 m) correction of leaf sight is necessary, raise or lower rear sight bar to adjusted range of target.

(b) If minor elevation correction (1-25 m) of leaf sight is necessary, take following actions:

1 Use SCAR Multi-tool with castle tool to adjust both elevation and windage screws.

2 Rotating elevation screw CW will move impact of round closer to shooter (decrease distance). Rotating elevation screw CCW will move round further away from shooter (increase distance).

3 Each 1/4 turn of elevation at 200 m will move round 10 inches vertical displacement (up or down) and will increase or decrease range (longitudinally) by 4.5 feet.

4 Rotating windage rearward (towards shooter) will move round impact LEFT. Rotating windage screw forward (towards muzzle) will move impact of round RIGHT.

5 Each 1/4 turn of windage wheel changes horizontal displacement by 10 inches at 200 m.

NOTE

Refer to Table 7-1 for further range adjustment variations and Figure 7-16 for quick reference range adjustments.

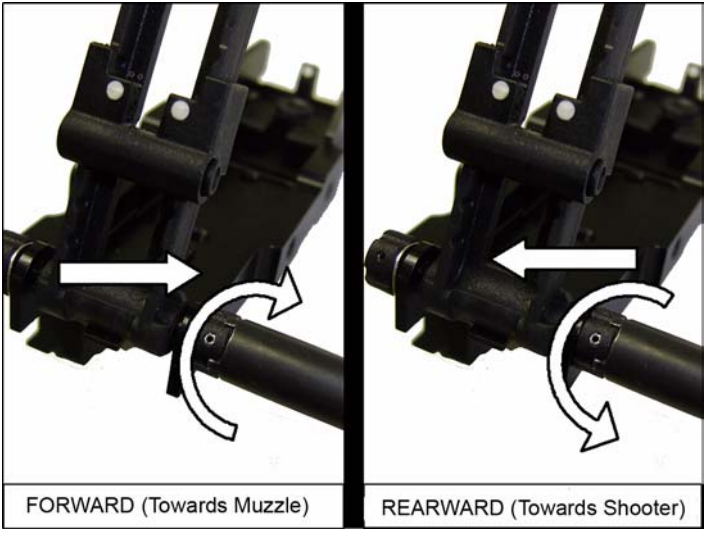

Figure 7-17. BZO Leaf Sight; Adjusting Elevation and Windage.

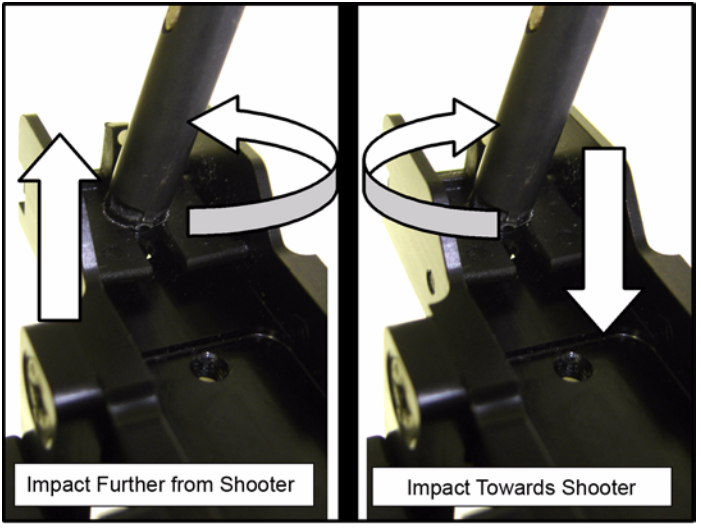

Figure BZO 7-17. Leaf Sight; Adjusting Elevation and Windage. (cont.)

Table 7-1. Round Impact Leaf Sight Movement.

	Adjust-ment	CW	CCW	RWD	FWD	1/4 Turn Value at Range	1 Turn Value at Range
Leaf Sight	Eleva-tion	Down	Up			100M= 0.135M (5 in.) 200M= 0.207M (10 in.) 300M= 0.405M (15 in.)	100M= 0.54M (20 in.) 200M= 1.08M (40 in.) 300 M= 1.62M (60 in.)

Table 7-1. Round Impact Leaf Sight Movement. (cont.)

	Adjust-ment	CW	CCW	RWD	FWD	1/4 Turn Value at Range	1 Turn Value at Range
Leaf Sight (cont.)	Wind-age			Left	Right	100M= 0.135M (5 in.) 200M= 0.207M (10 in.) 300M = 0.405M (15 in.)	100M= 0.54M (20 in.) 200M= 1.08M (40 in.) 300M= 1.62M (60 in.)

CHAPTER 8
TROUBLESHOOTING PROCEDURES (MK 13 MOD 0)

Section I. TROUBLESHOOTING PROCEDURES (MK 13 MOD 0)

8-1. STOPPAGES AND MALFUNCTIONS (MK 13 MOD 0).

a. There are generally two reasons MK 13 MOD 0 may cease to work: stoppage or malfunction. It is important to understand the difference. The following are definitions:
   (1) Stoppage is unintentional interruption in cycle of operation. Operator can apply immediate or remedial action to clear stoppage. Some stoppages that cannot be cleared by immediate or remedial actions could require weapon repair to correct problem. Stoppages will not normally mean

anything is physically wrong with weapon (i.e., weapon fails to fire due to poor ammunition).

(2) Malfunction is condition whereby weapon fails to perform as designed. Function checks and PMCS identify potential problems before they become malfunctions. Repeated malfunctions can indicate weapon requires cleaning and lubrication or inspection by certified armorer. Not all malfunctions mean that weapon is out of immediate service (i.e., front sight comes loose and BZO is lost).

(3) Should you incur stoppage or malfunction, the recommended first action to get weapon back into service is referred to as immediate action.

8-2. IMMEDIATE ACTION FOR MISFIRES.

a. If trigger is pulled, firing pin falls, and nothing happens, this condition is commonly called “MISFIRE”. Follow immediate action procedure below.

(1) Release trigger.
(2) Aim in on target.
(3) Pull trigger again.

WARNING

Do not allow live grenades to fall to ground.

b. If nothing happens again, UNLOAD and CLEAR weapon per paragraph 7-1.a. and examine primer. If primer is dented, PLACE GRENADE IN SAFETY AREA and follow range protocol for misfires. If it is not dented, bring weapon to qualified armorer.

8-3. REMEDIAL ACTION FOR HANGFIRES.

a. If you pull trigger and hear or feel unusual report or recoil, condition is commonly referred to as “HANGFIRE”. If you did

not see projectile leave barrel, follow the below remedial action procedure:

(1) Place weapon on safe; keep it pointed down range.
(2) If in training, announce “hangfire”.
(3) Wait at least one minute in case of delayed discharge.
(4) Point muzzle parallel to ground keeping muzzle line clear of any close barricades.
(5) Press handguard locking lever; allow handguard to slide forward on barrel (Step 1) (Figure 8-1).
(6) With free hand, press extractor. Then continue to push barrel and handguard assembly forward and pivot it to weak side. Release extractor (Step 2).
(7) Slide barrel stripping lever to right, and remove barrel from host weapon (Step 3).
(8) Keep round in barrel, and place them in designated area per range protocol.

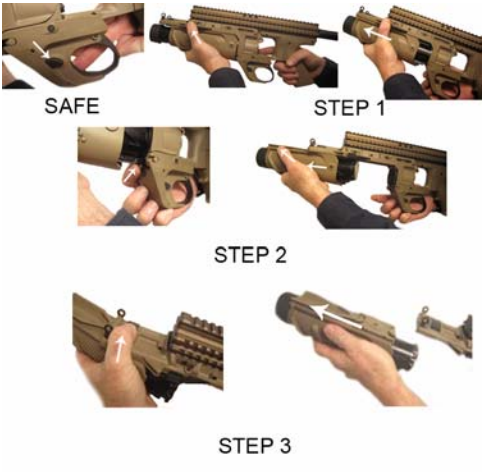

Figure 8-1. MK 13 MOD 0 Remedial Action.

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CHAPTER 9
FIELDSTRIP PROCEDURES (MK 13 MOD 0)

Section I. FIELDSTRIP PROCEDURES (MK 13 MOD 0)

9-1. SAFETY CHECK.

a. Carry out following procedure in order to ensure that MK 13 MOD 0 can be manipulated, stored, and/or transported without any risk.

CAUTION

Be sure to clean weapon before initial use. Leaving protective lubricant in weapon can cause stoppage, malfunction, or failure due to over pressure.

b. UNLOAD and CLEAR rifle before manipulation or disassembly as described in paragraph 7-1.a.

9-2. FIELDSTRIP MK 13 MOD 0.

a. Fieldstrip weapon.
   (1) If necessary, remove leaf sight (Step 1) per paragraph 7-2.d. (Figure 9-1).
   (2) Remove MK 13 MOD 0 from stand-alone buttstock by opening jaw levers and pulling away (Step 2) (Figure 9-1).

NOTE

Do not try to remove takedown pin on trigger module. Takedown pin is retained in trigger module by takedown pin spring.

   (3) Remove trigger module by pushing takedown pin from left to right (use SCAR Multi-tool if necessary); swing trigger module in downward motion and remove (Step 3) (Figure 9-1).

(4) Press handguard locking lever, and allow barrel handguard to slide completely forward on receiver assembly (Step 4) (Figure 9-1).

(5) Slide barrel stripping lever to right, and remove barrel and handguard assembly (Step 5) (Figure 9-1).

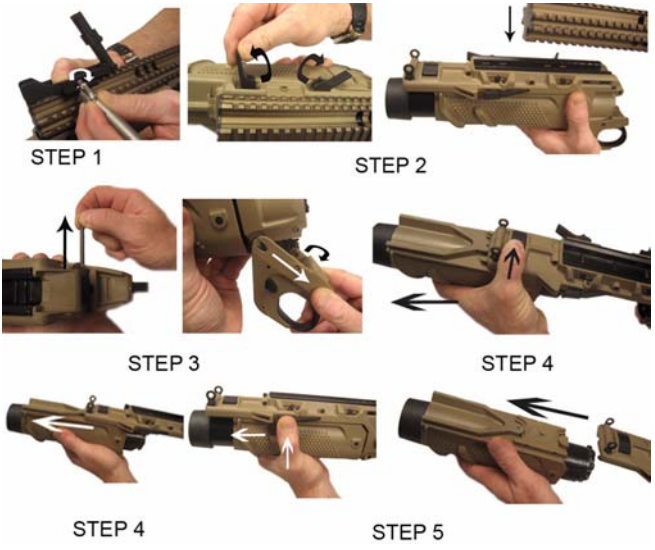

Figure 9-1. Disassemble MK 13 MOD 0.

(a) Disassemble barrel and handguard assembly (Figure 9-2) by pushing barrel forward into handguard and hold in place (Step 1) (Figure 9-2). Unscrew muzzle ring CW, and remove it from barrel (Step 2). Keeping in mind that barrel is held into handguard under spring tension, ease handguard forward and remove barrel (Step 3) (Figure 9-2).

(b) Slightly oil and wipe off bore and chamber of barrel.

NOTE

Further disassembly is only required for cleaning.

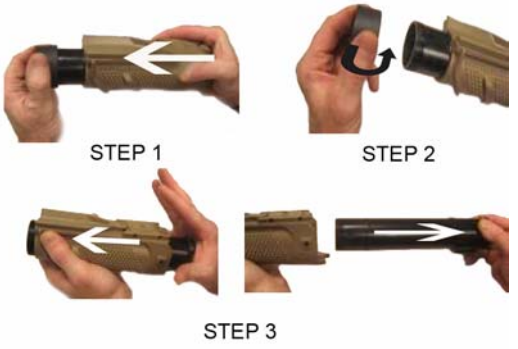

Figure 9-2. Disassemble MK 13 MOD 0 Barrel and Handguard Assembly.

9-3. REASSEMBLE MK 13 MOD 0.

a. Reassemble weapon.
   (1) Reassemble barrel and handguard assembly by reversing disassembly procedures described above.
   (2) Reassemble barrel and handguard assembly onto receiver assembly by sliding it on and pushing barrel stripping lever to right until handguard slide locks into receiver assembly (Step 1) (Figure 9-3).
   (3) Pull barrel and handguard assembly fully rearward until it locks into breech (Step 2) (Figure 9-3).
   (4) Install appropriate caliber MK 13 MOD 0 trigger module onto MK 13 MOD 0 receiver. Ensure takedown pin is pushed out of its housing all the way to right of MK 13 MOD 0 trigger module and sear assembly is to rear. Rotate MK 13 MOD 0 trigger module up onto MK 13 MOD 0 receiver, and push takedown pin into left (Step 3) (Figure 9-3).

(5) Reinstall MK 13 MOD 0 onto stand-alone buttstock by aligning tab on buttstock to trigger module and close jaw levers (Step 4) (Figure 9-3).

(6) Reinstall sight (Step 5) per paragraph 7-2.d.

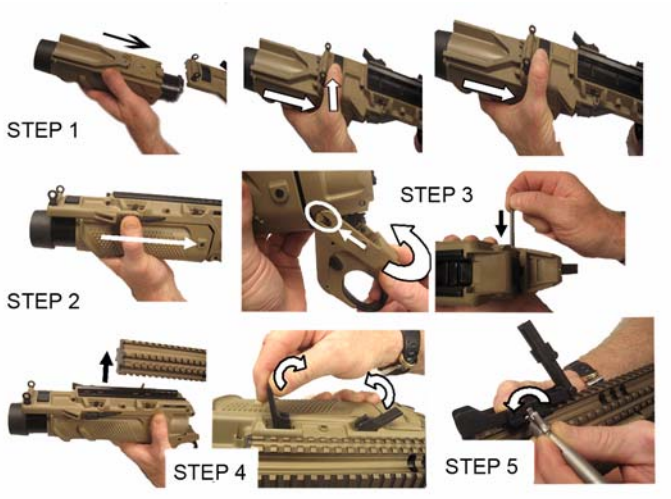

Figure 9-3. Reassemble MK 13 MOD 0.

9-4. FUNCTION CHECK (MK 13 MOD 0).

a. After reassembly or prior to use, conduct function check as follows:
   (1) Ensure weapon is UNLOADED and CLEAR per paragraph 7-1.
   (2) Point weapon in a safe direction.
   (3) Pull barrel and handguard assembly rearward to lock barrel and handguard assembly onto receiver assembly.
   (4) Place fire selector on ‘S’; red line must be hidden.
   (5) Attempt to pull trigger; firing pin should not fall.
   (6) Place fire selector on ‘F’; red line must be visible.
   (7) Pull trigger; firing pin should fall.
   (8) Release trigger; firing pin can be heard resetting.
   (9) Place firing selector on ‘S’; red line must be hidden.

Section II. INSPECTION AND LUBRICATION (MK 13 MOD 0)

9-5. INSPECTION GUIDE (MK 13 MOD 0).

Prior to, during, and after use, operator should inspect weapon and its components for any irregularities that may cause problems during its operation. If any of the below potential deficiencies are noted, they should be corrected immediately.

- Damaged or missing parts
- Improper assembly or function
- Restricted movement of any type, where applicable
- Uncustomary looseness of parts
- Parts exhibiting signs of cracks, burrs, or dents or obvious signs of damage or stress
- Presence of signs or tactile clicks in controls, where applicable
- General overall cleanliness
- Lack of proper lubrication
- Presence of corrosion or degradation of surface finish

9-6. CLEANING GUIDE (MK 13 MOD 0).

WARNING

Before cleaning, ensure to unload and clear weapon as described in paragraph 7-1.

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Figure 9-4. MK 13 MOD 0 Cleaning Kit.

1. Cleaning Kit Case
2. CLP
3. 40 mm Bore Brush
4. 40 mm Cleaning Cable
5. SCAR/EGLM Multi-tool
6. Box Wrench
6. Large Hex Wrench
8. Small Hex Wrench
9. Laser Adjustment Tool
10. Nylon Cleaning Brush

a. General.
   (1) UNLOAD and CLEAR weapon.
   (2) Fieldstrip weapon (Chapter 9); thoroughly clean, inspect and lubricate.
   (3) Always shake CLP before use.
   (4) Utilize MK 13 MOD 0 cleaning kit (Figure 9-4).
   (5) Wipe down all outer surfaces.
   (6) Clean inside of chamber with rag.
   (7) Brush inside of barrel clean with 40 mm bore brush.
   (8) With rag, clean firing pin, return spring, and firing pin springs by:
      (a) First pushing firing pin retaining latch in and up. Remove firing pin springs with rag.
      (b) Turning MK 13 MOD 0 upside down and shaking until firing pin and return spring fall out (Figure 9-5).

Figure 9-5. Remove MK 13 MOD 0 Firing Pin, Firing Pin Springs, and Return Spring.

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9-7. LUBRICATION GUIDE (MK 13 MOD 0).

Use only agency authorized lubricants. MK 13 MOD 0 is compatible with wide variety of lubricants. Carry out fieldstripping procedure as described in Chapter 9.

a. Apply light lubrication to following points of MK 13 MOD 0.
   (1) Firing pin, return spring, firing pin springs (Step 1) (Figure 9-6).
   (2) Sear assembly (Step 2) (Figure 9-6).
   (3) Slightly oil and wipe off bore and chamber of barrel (Step 3) (Figure 9-6).
   (4) Cam guideway and locking lugs of barrel (Step 4) (Figure 9-6).
   (5) Barrel stripper lever spring (Step 5) (Figure 9-6).
   (6) Handguard plunger spring (Step 6) (Figure 9-6).
   (7) Rail locking lever springs (Step 7) (Figure 9-6).
   (8) Barrel locking spring (Step 8) (Figure 9-6).

Figure 9-6. MK 13 MOD 0 Lubrication Points.

9-8. PMCS.

WARNING

Be sure to clear weapon before disassembling, cleaning, inspecting, transporting, or storing.

a. General. To ensure readiness of weapon, perform preventive maintenance procedures with Table 9-1 prior to each mission. Preventive maintenance procedures include inspecting, cleaning, and performing checkout procedures.
b. Explanation of table entries.
   (1) "Item Number" Column. Numbers in this column are for references. When completing equipment inspection and maintenance worksheet, include item number for check and service indicating fault. Item numbers also appear in

the order that checks and services must be completed for intervals listed.

(2) "Interval" Column. This column lists when actions must take place according to procedure column. BEFORE (B) procedures must be done before operating equipment for its intended mission. DURING (D) procedures must be done while operating or using equipment for its intended mission. AFTER (A) procedures must be completed immediately after operating or using equipment.

(3) "Items to be Checked or Service" Column. This column provides location and time to be checked or serviced.

(4) "Procedure" Column. This column gives procedure that must be completed to check or service item listed in Check/Service column to know if equipment is ready for its intended mission or for operation. Complete procedure at the time stated in interval column.

(5) "Equipment Not Ready If" Column. Information in this column tells what faults will keep equipment from being

capable of performing its primary mission. If check and service procedures show faults listed in this column, do not operate equipment. Follow SOP for maintaining equipment or reporting equipment failure.

WARNING

Before starting inspection, be sure to clear weapon. Refer to clearing procedures 7.1.a. If MK 13 MOD 0 is attached to SCAR, clear SCAR (2.1.a) and then clear MK 13 MOD 0. Do not squeeze trigger until weapon has been cleared. Inspect chamber and barrel to ensure that it is empty. Do not keep ammunition in or near work area.

NOTE

Inactive weapon is weapon (whether assigned or not assigned to individual) in arms room for a period of 90 days. Cleaning and PMCS of an inactive weapon will be performed every 90 days. If weapon is to be used after being inactive, cleaning and PMCS needs to be conducted.

Table 9-1. PMCS Procedures (MK 13 MOD 0).

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
1	Before	MK 13 MOD 0 and SCAR	Make an overall visual inspection for missing or damaged components. Check to ensure MK 13 MOD 0 is firmly attached to SCAR or stand-alone buttstock. Report any deficiencies to armorer.	Parts are missing or damaged. MK 13 MOD 0 is not firmly attached to SCAR or stand-alone buttstock.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
2	Before	Barrel and Handguard Assembly	Wipe oil and debris from barrel bore and chamber.	Barrel is dented, cracked or damaged. Handguard is cracked or loose. Cartridge retainer is damaged or missing.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
2 (cont.)	Before (cont.)	Barrel and Handguard Assembly (cont.)	Wipe oil and debris from barrel bore and chamber.	Handguard plunger is damaged or missing.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
3	Before	Receiver Assembly	Wipe oil and debris from breech face and lugs.	Ejector is damaged or missing. Extractor is damaged or missing. Lugs are dented or cracked.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
3 (cont.)	Before (cont.)	Receiver Assembly (cont.)	Wipe oil and debris from breech face and lugs.	Barrel locking lever does not function; levers do not function. Rail locking barrel stripper lever fails to lock.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
4	Before	Trigger Module	Check for proper operation of sear. Ensure MK 13 MOD 0 is UNLOADED and CLEAR. Pull trigger to rear; firing pin should fall. Release trigger, and firing pin should reset.	Sear does not function properly.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
5	Before	Trigger Module	Check for proper operation of fire selector in both 'S' and 'F' positions. Ensure MK 13 MOD 0 is UNLOADED and CLEAR. Place fire selector on 'S', and pull trigger; trigger should not release.	Fire selector does not function properly.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
5 (cont.)	Before (cont.)	Trigger Module (cont.)	Place fire selector on 'F', and pull trigger; trigger should release.	Fire selector does not function properly.
6	Before	Stand-alone Stock	Check operation of buttstock telescoping.	Buttstock does not telescope and lock in place.
7	Before	Leaf Sight	Check leaf sight for damage and function.	Leaf sight is damaged.

Table 9-1. PMCS Procedures (MK 13 MOD 0). (cont.)

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready If:
8	After	MK 13 MOD 0	Fieldstrip and inspect for damaged or missing components.	Parts are missing or damaged.

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CHAPTER 10
AMMUNITION

10-1. AMMUNITION.

a. Use only authorized ammunition that is manufactured to U.S. or NATO specifications. Refer to TM SMALL ARMS AND SPECIAL WARFARE AMMUNITION (NAVSEA SW010-AD-GTP-010) for instruction, technical information, and safety precautions related to use of all small arms and special warfare ammunition.
b. Turn in defective ammunition per range protocol. Attempt to keep ammunition dry and clean.

WARNING

Do not fire seriously corroded ammunition, dented cartridges, cartridges with loose projectiles, cartridges exposed to extreme heat (+135F), or cartridges with projectile pushed into casing (short round).

c. The following ammunition is most commonly used with MK 16 MOD 0 (Table 10-1 and Figure 10-1).

Table 10-1. MK 16 MOD 0 Ammunition.

Weapon	Ammunition	Tip Color
MK 16 MOD 0	M193 Ball	Copper
	M196 Tracer	Orange
	M199 Dummy	Copper
	M200 Blank	Violet
	M855 Ball	Green
	M856 Tracer	Orange
	M995 Armor Piercing	Black
	MK 262 Special Ball Long Range	Copper

Figure 10-1. MK 16 MOD 0 Ammunition.

d. The following ammunition is most commonly used with MK 17 MOD 0 (Table 10-2).

Table 10-2. MK 17 MOD 0 Ammunition.

Weapon	Ammunition	Tip Color
MK 17 MOD 0	M60 High Pressure Test	Copper
	M62 Tracer	Orange
	M80 Ball	Copper
	M82 Blank	Black
	M118 Special Ball Long Range	Copper
	M993 Armor Piercing	Black

e. The following ammunition is the most commonly used with MK 13 MOD 0 (Table 10-3).

Table 10-3. MK 13 MOD 0 Ammunition.

Weapon	Ammunition	Tip Color
MK 13 MOD 0	M433, High Explosive Dual Purpose	Gold w/Green and Yellow Markings
	M576, Multiple Projectiles	
	M583, White Star Cluster	White w/Black Markings
	M585, White Star Cluster	White w/Black Markings
	M781, Practice	Green w/White Markings

Table 10-3. MK 13 MOD 0 Ammunition. (cont.)

Weapon	Ammunition	Tip Color
MK 13 MOD 0 (cont.)	M992, Infrared Illumination	
	BA07, Foam Rubber Baton, Non-Lethal	Marked w/Letter “F”
	BA08, Rubber Ball, Non-Lethal	Marked w/Letter “B”

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APPENDIX A
REFERENCES

Consult the following publication indexes frequently for latest changes or revisions of references and for new publications relating to material covered in this manual.

A-1. TECHNICAL MANUALS.

SW370-A4-OPI-010 Rev 1	Operator's Manual	Rifle, 5.56 mm MK 16 MOD 0, SOF Combat Assault (SCAR-L); Rifle, 7.62 mm MK 17 MOD 0, SOF Combat Assault (SCAR-H); 40 mm MK 13 MOD 0, EGLM

SW370-CE-TRS-0101 Rev 1	Technical Repair Standard	Rifle, 5.56 mm MK 16 MOD 0, SOF Combat Assault (SCAR-L)
SW370-CF-TRS-0101 Rev 1	Technical Repair Standard	Rifle, 7.62 mm MK 17 MOD 0, SOF Combat Assault (SCAR-H)
SW370-CG-TRS-0101 Rev 1	Technical Repair Standard	40 mm MK 13 MOD 0, EGLM
TM 750-224-7	Destruction of Equipment to Prevent Enemy Use	

A-2. DEPARTMENT OF DEFENSE REGULATIONS.

DoD 4160-21-M-1	Defense Demilitarization Manual

APPENDIX B
BASIC ISSUE ITEMS (BII) LIST

Section I. INTRODUCTION

B-1. SCOPE.

This appendix lists BII for MK 16 MOD 0, MK 17 MOD 0, and MK 13 MOD 0.

B-2. BII LIST.

a. BII list is described as follows:
   (1) These are minimum essential items required to place MK 16 MOD 0, MK 17 MOD 0, and MK 13 MOD 0 into operation and to perform emergency repairs. Although shipped in separate packages, BIIs must be with weapons

during operation and whenever they are to be transferred between property accounts.

(2) This manual is the authority to request/requisition replacement BIIs, based on authorization of end item.

B-3. EXPLANATION OF COLUMNS.

a. The following provides explanation of columns found in tabular listing:

(1) Item Number (Item Number) Column. Numbers in this column are for references.

(2) National Stock Number (NSN) Column. This indicates NSN assigned to item and will be used for requisitioning purposes.

(3) Description, Commercial and Government Entity Code (CAGEC), and Part Number Column. This indicates federal item name and if required minimum description to

identify and locate item. Last line for each item indicates CAGEC followed by part number.

(4) Unit of Issue (U/I) Column. This indicates how item is issued for NSN shown in column two.

(5) Quantity Required (Qty. Req.) Column. This indicates quantity of item to be used with/on equipment.

Section II. BII

Table B-1. MK 16/17 BII.

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
1	TBD	SCAR/EGLM Operator's Manual, 0640-LP-104-4930	EA	1
2A	TBD	Magazine, 30-round, 5.56 mm, MK 16, 314-601-0020	EA	10

Table B-1. MK 16/17 Bll. (cont.)

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
	TBD	Magazine, 20- round, 5.56 mm, MK 16 *1, 314-601-2010	EA	10
2B	TBD	Magazine, 20- round, 7.62 mm, MK 17, 318-601-0020	EA	10
	TBD	Magazine, 10- round, 7.62 mm, MK 17 *2, 318-601-2020	EA	10
3	TBD	SCAR-L/H Cleaning Kit, 314-899-7030	EA	1
4	TBD	SCAR-L/H Operator Tool Kit, 314-975-0010	EA	1

Table B-1. MK 16/17 Bll. (cont.)

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
5	TBD	Rail Cover Kit (8-pieces per pack), 314-899-7080	PG	1
6	TBD	Vertical Grip, 314-900-0010	EA	1
7	TBD	Sling, 314-910-0030	EA	1
8	TBD	Removable Sling Swivel, 314-912-0010	EA	2
9	TBD	Bipod *3, 314-905-0010	EA	1
10	TBD	Blank Firing Adapter, 7.62 mm, MK 17, 318-950-0020	EA	1
11	TBD	Blank Firing Adapter, 5.56 mm, MK 16, 314-950-0020	EA	1

Table B-1. MK 16/17 BII. (cont.)

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
12	TBD	Suppressor, 7.62 mm, MK 17, 1005-01-556-2552	EA	1
13	TBD	Suppressor, 5.56 mm, MK 16, 1005-01-556-4261	EA	1

*Note (1): Magazine, 20-round, 5.56 mm, MK 16 only issued for MK 16 LB.

*Note (2): Magazine, 10-round, 7.62 mm, MK 17 only issued for MK 17 SSR.

*Note (3): Bipod only issued for MK 16/17 LB variant.

Table B-2. MK 13 BII.

ITEM	NSN	DESCRIPTION, CAGEC, AND PART NUMBER	U/I	QTY
1	TBD	Launcher, Grenade, 40 mm, MK 13 MOD 0, TBD	EA	1
2	TBD	Stand-alone Buttstock Module, 346-900-1001	EA	1
3	TBD	Trigger Module, MK 13 MOD 0 Stand-alone, 346-500-3010	EA	1
4	TBD	Trigger Module, MK 16 MOD 0, 346-500-1010	EA	1
5	TBD	Trigger Module, MK 17 MOD 0, 346-500-2010	EA	1

Table B-2. MK 13 BII. (cont.)

ITEM	NSN	DESCRIPTION, CAGEC, AND PART NUMBER	U/I	QTY
6	TBD	Leaf Sight, 346-700-3000	EA	1
7	TBD	Sight, Grenade Launcher (LA-7/PEQ), 346-700-4000	EA	1
8	TBD	SCAR/EGLM Operator's Manual, 0640-LP-104-4930	EA	1
9	TBD	EGLM Cleaning Kit, 346-899-7120	EA	1
10	TBD	Sling, 314-910-0030	EA	1
11	TBD	Removable Sling Swivel, 314-912-0010	EA	2

APPENDIX C
ADDITIONAL AUTHORIZED LIST (AAL)

Section I. INTRODUCTION

C-1. SCOPE.

This appendix lists additional items you are authorized for support of MK 16 MOD 0, MK 17 MOD 0, and MK 13 MOD 0.

C-2. AAL.

a. AAL list is described as follows:
   (1) These items do not accompany MK 16 MOD 0, MK 17 MOD 0, and MK 13 MOD 0 and do not have to be transferred between property accounts.

C-3. EXPLANATION OF COLUMNS.

a. The following provides explanation of columns found in tabular listing:
   (1) Item No. Column. Numbers in this column are for references.
   (2) NSN Column. Indicates NSN assigned to item and will be used for requisitioning purposes.
   (3) Description, CAGEC, and Part Number Column. Indicates federal item name and if required minimum description to identify and locate item. Last line for each item indicates CAGEC followed by part number.
   (4) U/I Column. Indicates how item is issued for NSN shown in column two.
   (5) Qty. Req. Column. Indicates quantity of item to be used with/on equipment.

Section II. AAL

Table C-1. AAL.

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
1	1240-01-533-0941	Reflex Sight, SU-231/ PEQ	EA	1
2	1240-01-540-1186	Sight Unit, SU-237/PVS	EA	1
3	1240-01-533-0939	Articulated Telescope, SU-230/PVS	EA	1
4	5855-01-533-0555	ATPIAL, LA-5/PEQ	EA	1
5	5855-01-533-0557	Thermal Sight, SU-232/ PAS	EA	1

Table C-1. AAL. (cont.)

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
6	5855-01-533-0940	Night Vision Device, AN/PVS-24	EA	1
7	NSN Pending	Product Improvement Kit, AN/PVS-17	EA	1
8	5888-01-474-8904	Mini Night Vision Sight, AN/PVS-17A	EA	1
9	1240-01-435-1919	Reflex Sight	EA	1
10	1240-01-412-6608	4x Day Optical Sight	EA	1
11	1240-01-495-1385	Enhance Carbine Optical Sight	EA	1

Table C-1. AAL. (cont.)

Item No.	NSN	Description, CAGEC, and Part Number	U/I	Qty Req
12	5860-01-439-5409	Carbine Visible Laser, AN/PEQ-5	EA	1
13	5855-01-422-5253	Infrared Illuminator, AN/PEQ-2	EA	1
14	5855-01-501-3081	Visible Bright Light II	EA	1
15	5855-01-533-0996	Gun Light, SU-232/PVS	EA	1
16	5855-01-540-1185	Integrated Gun Light, SU-238/PVS	EA	1

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APPENDIX D
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

D-1. SCOPE.

This appendix lists expendable/durable supplies and materials needed to operate and to maintain MK 16 MOD 0, MK 17 MOD 0, and MK 13 MOD 0.

D-2. EXPLANATION OF COLUMNS.

a. The following provides explanation of columns found in tabular listing:
   (1) Item No. Column. Numbers in this column are for references.

(2) Level Column. This column identifies lowest level of maintenance that requires listed items (e.g. “C” = Operator/ Crew).

(3) NSN Column. This indicates NSN assigned to item and will be used for requisitioning purposes.

(4) Description, CAGEC, and Part Number Column. This indicates federal item name and if required minimum description to identify and locate item. Last line for each item indicates CAGEC followed by part number.

(5) Unit of Measure (U/M) Column. This indicates measure used in performing actual maintenance function. If U/M differs from U/I, requisition lowest U/I that will satisfy requirements.

Table D-1. Expendable/Durable Supplies and Materials.

Item No.	Level	NSN	Description, CAGEC, and Part Number	U/M
1	C	9150-01-102-1473	CLP: 1/2 oz bottle (81349) MIL-L-63460	OZ
2	C	9920-00-292-9946	Cleaner, Tobacco Pipe: cotton tuft, wire core (32 per pack) (89666)	EA
3	C	6850-00-224-6656	Dills Pipe Cleaner Cleaning Compound, Carbine Bore (RBC): 2 oz bottle (81349) MIL-C-372	EA

Table D-1. Expendable/Durable Supplies and Materials. (cont.)

Item No.	Level	NSN	Description, CAGEC, and Part Number	U/M
4	C	6850-00-281-1985	Dry Cleaning Solvent (3.79l): 1 gallon can (58536)	GAL
5	C	9150-00-292-9689	Lubricating Oil, Arctic, Weapons (LAW): (1 quart can) (81349) MIL-L-14107	EA
6	C	9150-00-935-6597	Lubricating Oil, Weapons (LSA): semi-fluid, 2 oz, (59.15 ml) plastic bottle (81349) MIL-L-46000	OZ

Table D-1. Expendable/Durable Supplies and Materials. (cont.)

Item No.	Level	NSN	Description, CAGEC, and Part Number	U/M
7	C	9150-00-889-3522	LSA: semi-fluid, 4 oz, (118.30 ml) plastic bottle (81349) MIL-L-46000	OZ
8	C	7920-00-205-1711	Rag, Wiping: 50 lb bdl (58538) A-A-531	LB
9	C	1005-00-912-4248	Swab, Small Arms Cleaning: cotton, 1 pkg (1000 per package) (19204) 11686408	EA
10	C	N/A	Double Sided Tape	EA

Table D-1. Expendable/Durable Supplies and Materials. (cont.)

Item No.	Level	NSN	Description, CAGEC, and Part Number	U/M
11	C	3058300010	5.56 mm Chamber Brush	EA
12	C	3058310010	7.62 mm Chamber Brush	EA
13	C	3058320010	5.56 mm Chamber Bore Brush	EA
14	C	3058330010	7.62 mm Chamber Bore Brush	EA
15	C	3058230010	Brass Cleaning Toothbrush	EA

Table D-1. Expendable/Durable Supplies and Materials. (cont.)

Item No.	Level	NSN	Description, CAGEC, and Part Number	U/M
16	C	3469490010	Nylon Cleaning Brush	EA
17	C	5340008807666	Cap, Protective, Dust (8445067)	EA
18	C	N/A	Loctite 2440, threadlocker, medium strength (Blue), 0.017 oz	EA

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APPENDIX E
STANDARD FORM 368 PQDR

The following is an example of the SF368 Form. There is a form on the CD that can be completed.

PRODUCT QUALITY DEFICIENCY REPORT				☐ CATEGORY I	☐ CATEGORY II
1a. FROM (Originator)			2a. TO (Screening point)		
1b. TYPED NAME, TELEPHONE NO. AND SIGNATURE		1c. DATE	2b. NAME, TELEPHONE NO. AND SIGNATURE		2c. DATE
3. REPORT CONTROL NO.	4. DATE DEFICIENCY DISCOVERED	5. NATIONAL STOCK NO. (NSN)	6. NOMENCLATURE		
7a. MANUFACTURER/CITY/STATE		7b. MFRS. CODE	7c. SHIPPER/CITY/STATE	8. MFRS. PART NO.	
9. SERIAL/LOT/BATCH NO.	10a. CONTRACT NO.	10b. PURCHASE ORDER NO.	10c. REQUISITION NO.	10d. GBL NO.	
11. ITEM ☐ NEW ☐ REPAIRED/OVERHAULED	12. DATE MANUFACTURED/REPAIRED/OVERHAULED	13. OPERATING TIME AT FAILURE	14. GOVERNMENT FURNISHED MATERIAL ☐ YES ☐ NO		
15. QUANTITY	a. RECEIVED	b. INSPECTED	c. DEFICIENT	d. IN STOCK	
16. DEFICIENT ITEM WORKS ON/WITH	a. END ITEM (Aircraft, Tank, Ship, Weapon, etc.)	(1) TYPE/MODEL/SERIES		(2) SERIAL NO.	
	b. NEXT HIGHER ASSEMBLY	(1) NATIONAL STOCK NO. (NSN)	(2) NOMENCLATURE	(3) PART NO.	(4) SERIAL NO./LOT/BATCH
17. UNIT COST	18. EST. REPAIR COST	19a. ITEM UNDER WARRANTY ☐ YES ☐ NO ☐ UNKNOWN		19b. EXPIRATION DATE	
20. WORK UNIT CODE/EIC (Navy and Air Force only)					
21. ACTION/DISPOSITION ☐ HOLDING EXHIBIT FOR ____ DAYS	☐ RELEASED FOR INVESTIGATION	☐ RETURNED TO STOCK	☐ DISPOSED OF	☐ REPAIRED	☐ OTHER (Explain in item 22)

22. DETAILS (Describe, to best ability, what is wrong, how and why, circumstances prior to difficulty, cause, action taken including disposition, recommendations. Attach copies of supporting documents. Continue on separate sheet if necessary.)

22. LOCATION OF DEPENDENT MATERIAL			
23a. TO (Action point)		23b. TO (Support point) (Use Items 28 and 27 if more than one)	
24a. NAME, TELEPHONE NO. AND SIGNATURE	24b. DATE	24a. NAME, TELEPHONE NO. AND SIGNATURE	24b. DATE
25a. TO (Support point)		25b. TO (Support point)	
25a. NAME, PHONE NO. AND SIGNATURE	25b. DATE	27a. NAME, TELEPHONE NO. AND SIGNATURE	27b. DATE

STANDARD FORM 866 (REV. 10-83)
GENERAL SERVICES ADMINISTRATION
FPMR 101-20.8

34. FINDINGS AND RECOMMENDATIONS OF INVESTIGATOR (Explain in detail. Continue on a separate sheet of paper, if necessary.)

35. ACTION TAKEN

36. RESULTS OF DEPOT SURVEILLANCE

INSTRUCTIONS

1a. FROM (Originator) - Complete name of activity (no acronyms when sending deficiency report across component lines), activity address code (AAC), address including zip code of the activity originating the report.

1b. NAME, TELEPHONE NO., AND SIGNATURE - Provide name, telephone no. (include all available telephone numbers: FTS, Autovon, and commercial) and signature of an individual who can serve as a contact for questions regarding the report and/or to request exhibits or samples.

1c. DATE - Enter the date report was signed and forwarded to the screening or action point.

2a. TO (Screening Point) - The originating point will complete name of the screening point activity (no acronyms when deficiency report will be sent across component lines), the activity address code (AAC), address including zip code of the screening point where the report needs to be sent by the originator's activity. For those activities that do not have screening points, leave blank.

2c. DATE - Enter the date the person finished processing the report at the screening point.

3. REPORT CONTROL NUMBER - Number assigned to report when a numbering system is used. Those activities which are reporting quality deficiencies across component lines and are to comply with the DLA Regulation 4155.24 should reference the report control number as prescribed in the regulation.

7a. MANUFACTURER/CITY/STATE - Name of the manufacturer, the maintenance contractor, or Government activity which last repaired or overhauled the deficient item. For motor vehicles or components thereof, enter name of manufacturer of the vehicle or component, as appropriate.

7b. MANUFACTURERS CODE - Code of the manufacturer as listed in Cataloging Handbook H4.1 (Name to code), Federal Supply Code for Manufacturers (United States and Canada).

7c. SHIPPER/CITY/STATE - When the shipper of an item is different from the manufacturer, also include the shipper's or supplier's name.

9. SERIAL/CONTRACT NO. - Manufacturer's serial, lot or batch number of deficient item as applicable.

10. CONTRACT, PURCHASE ORDER, REQUISITION, GOVERNMENT BILL OF LADING, (GBL), NO. - Enter these numbers or any other available transportation document number in lieu of the GBL. Such numbers appear on the container, purchase document, and/or the item. It is extremely helpful if these items are furnished when the material was supplied by DSA.

11. ITEM - Check the appropriate block; provide the dates manufactured and received in block 12, if available.

13. OPERATING AT TIME OF FAILURE - Time item had been in operation since new, overhauled, or repaired when the deficiency was discovered, citing the appropriate performance element (miles, cycles, hours, etc.).

13a. QUANTITY DEFICIENT - Enter the quantity found deficient of those inspected.

13d. QUANTITY IN STOCK - Enter the quantity of material from this same manufacturer remaining in stock.

17. UNIT COST - Dollar value of the deficient item when known. Not applicable on reporting vehicles to GSA.

18. ESTIMATED REPAIR COST - Unit cost times number of units for replacement or estimated repair costs (including overhead) times number of units for correcting all the deficient items repaired when it can readily be determined. Not applicable on reporting vehicles to GSA.

19. ITEM UNDER WARRANTY - Check if item is known to be covered by contractor warranty. If yes, provide expiration date.

21. ACTION/DISPOSITION - A check in the appropriate block to indicate the action taken or requested. When an exhibit or sample is being held, indicate the number of days in the space provided. (An exhibit or sample shall be held for a minimum of 30 calendar days from the date the report is transmitted to the action point. Reporting activities are reminded that the packaging, packing and shipping containers are to be held along with the exhibits to facilitate investigation.) When none of the items indicate the actions or disposition taken or requested, check "Other" and identify the nature of the action taken or requested in item 22.

23. LOCATION OF DEFICIENT MATERIAL - Address and location of the deficient material.

24a. TO (Action Point) - Name, in the clear address, including zip code of the action point to which the report is being submitted.

24c. DATE - Enter the date the report was forwarded to an action point or the date the findings and recommendations were completed.

28. FINDINGS AND RECOMMENDATIONS OF INVESTIGATION - Include the findings and recommendations were completed.

29. ACTION TAKEN - State the action taken to resolve the complaint.

30. RESULTS OF DEPOT SURVEILLANCE - Show results of depot surveillance and planned action (i.e., replacement or repair by contractor, disposal, reuse, etc.).

STANDARD FORM 368 (MAR, (REV. 10-83)

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APPENDIX F
STANDARD TMDER FORM

Ref: NAVSEAINST 4160.3A NAVSEA S0005-AA-GYD-030/TMMP

NAVSEA/SPAWAR TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)

INSTRUCTIONS: Continue on 8 ½" x 11" page if additional space is needed.
1. Use this report to indicate deficiencies, problems and recommendations relating to publications.
2. For CLASSIFIED TMDERs see OPNAVINST 5510H for mailing requirements.
3. For TMDERs that affect more than one publication, submit a separate TMDER for each.
4. Submit TMDERs at web site https://nsdsa2.phdnswc.navy.mil or mail to: **COMMANDER, CODE 310 TMDER BLDG 1388, NAVSURFWARCENDIV NSDSA, 4363 MISSILE WAY, PORT HUENEME CA 93043-4307**

1. PUBLICATION NUMBER	2. VOL/PART	3. REV/DATE OR CHG/DATE	4. SYSTEM/EQUIPMENT ID

5. TITLE OF PUBLICATION	6. REPORT CONTROL NUMBER (6 digit UIC-YY-any four: xxxxx-03-xxxx)

7. RECOMMEND CHANGES TO PUBLICATION		
7a. Page #	7b. Para #	7c. RECOMMENDED CHANGES AND REASONS

8. ORIGINATOR'S NAME AND WORK CENTER	9. DATE	10. ORIGINATOR'S E-MAIL ADDRESS	11. TMMA of Manual (NSDSA will complete)
12. SHIP OR ACTIVITY **Name and Address** (Include UIC/CAGE/HULL)		13. Phone Numbers: Commercial (__) ___-____ DSN ___-____ FAX (__) ___-____	

NAVSEA 4160/1 (Rev. 7-2003) S/N 0116-F-985-4100

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