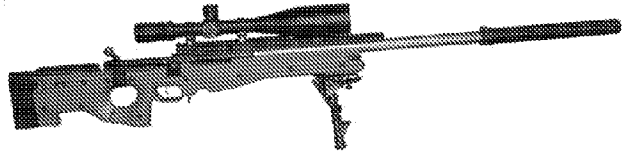
SOFWEP-07-G10-00772-00 Rev 00

OPERATOR'S MANUAL
for
MK 13 MOD 5 .300 WIN MAG SNIPER RIFLE



August 8, 2007

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WARNINGS

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

2. Stay clear of muzzle, and always keep weapon pointed down range.

3. Keep safety on until ready to fire.

4. Always look into chamber after clearing weapon.

5. Do not allow round to hit any hard surfaces or it may fire. Dispose of live rounds appropriately.

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

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7. All personnel shall wear approved single hearing protection devices during training exercises.

8. Ensure barrel is not obstructed by water and mud.

9. Before starting inspection, be sure to clear weapon. Do not keep live ammunition near work area.

10. Before cleaning, be sure to clear weapon.

11. DO NOT FIRE seriously corroded ammunition, dented cartridges, cartridges with loose bullets, cartridges exposed to extreme heat (135 °F), and cartridges with bullet pushed in (short rounds).

CAUTIONS

1. To avoid damage to equipment, do not use dry cleaning solvent on plastic components.

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2. If ammunition is wet or dirty, wipe it off with ry rag prior to use. Do not lubricate ammunition. Dust and other abrasives that collect on oily ammunition are damaging to operating parts of weapon. Lubricating cartridges produce excessive chamber pressure.

3. Never touch hot barrel.

4. Do not interchange parts (i.e. bolts) of weapon with other weapons.

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LIST OF EFFECTIVE PAGES

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

Date of issue for the current version of this manual is:

Original August 2007

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CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. Type of manual: Operator's Manual.

b. Model number and equipment name: MK 13 MOD 5 .300 Win Mag Sniper Rifle.

c. Purpose of equipment: Provides user with a system capable of high probability of a destructive first round hit on identified point targets.

1-2. CORROSION, PREVENTION, AND CONTROL (CPC).

CPC of material is a continuing concern. It is important any corrosion problems with this item are reported so that problem can be corrected and improvements can be made to prevent problems 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 result of a corrosion problem.

1-3. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Characteristics:

(1) MK 13 MOD 5 .300 Win Mag Sniper Rifle is a modified Remington 700 designed for use by riflemen and trained snipers to engage and destroy enemy personnel at long

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and short ranges. A complete kit of accessories can be provided for sustained deployment in remote areas.

MK 13 MOD 5 is a modified Remington 700 with a:

- Remington trigger
- 1 turn-in-10" twist barrel
- Accuracy International Stock (with folding buttstock)
- LightForce 5.5 X 22 X 56mm objective lens scope
- Remington Modular Rail System (MARS) to support laser type sights
- Harris bipod
- Cleaning rod and guide
- Form-fitted, hard-side storage case

b. Capabilities:

MK 13 MOD 5 .300 Win Mag Sniper Rifle will be used by riflemen and trained snipers to engage and destroy enemy personnel at long and short ranges. A complete kit of

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accessories can be provided for sustained deployment in remote areas.

MK 13 MOD 5 is an accurate sniper weapon that will retain zero if fired continually suppressed or continually unsuppressed. It is intended for suppressed use. MK 13 MOD 5 can experience a "transitional shot" when firing mode is changed from unsuppressed to suppresed or from suppressed to unsuppressed (see diagram below). This deviation typically affects only the first shot after a configuration change. There is also a chance that simple removal and reinstallation of suppressor could cause a slight shift of the first shot as well.

It is therefore strongly recommended that the user leave weapon configured as it is intended to be used, in suppressed mode. To be sure of no transitional effects after suppressor is removed for cleaning or installed after unsuppressed firing, fire 2 or 3 shots to "condition" rifle (bore and system) in the state it will be used. This concept is similar to firing a "fouling" shot

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after cleaning barrel to assure no undesired first shot effects. Rifle shots will hit at suppressed zero.

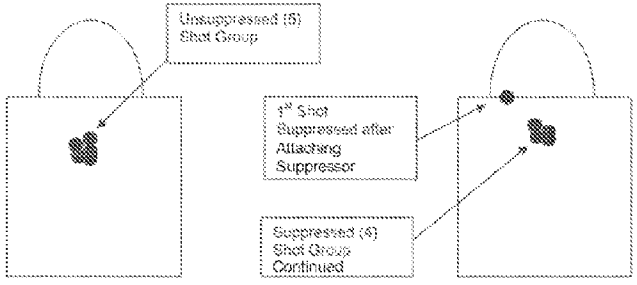

Figure 1-1. Generalized Illustration of Transitional Shot.

Barrel should be cleaned (section 3-5) every 50 to 100 rounds. The hard case provided allows for rifle storage with suppressor installed.

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It is recommended that users evaluate their particular rifle/ suppressor combination at a firing range while establishing suppressed and unsuppressed zeros. These zeros will tend to 1/2 1 Minutes of Angle (MOA) apart from each other, not considering any "transitional shots".

c. Features:

MK 13 MOD 5 .300 Win Mag Sniper Rifle consists of an air-cooled, manually operated, bolt-action rifle, KAC MK 11 Sound Suppressor, scope rings, optical sight, magazine, bipod, form fitting rifle case, round count book, and Operator's Manual.

Rifle may also be provided with optional accessories that might include adjustable sling, user cleaning and maintenance kit, scope lens covers and/or night scopes, lasers and flashlight, and spare magazines.

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1-4. MAJOR COMPONENTS LOCATION AND DESCRIPTION.

a. MK 13 MOD 5 .300 Win Mag Sniper Rifle Major Components.

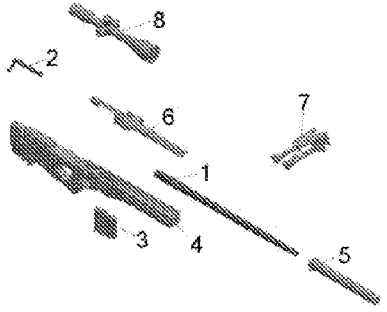

Figure 1-2. MK 13 MOD 5 .300 Win Mag Sniper Rifle Major Components.

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1. Barrel Assembly - Receiver is a Remington Model 700 with 8-40 scope base mounting holes. It includes a standard Remington Bolt Stop with spring and trigger assembly. Sear pin secures front of trigger assembly to receiver. A 0.250 inch thick recoil lug is installed between barrel and receiver. A four groove 416R stainless 1 turn in 10 inches barrel is included and finished to 26.5 inches with a machined interface to accept KAC MK 11 Sound Suppressor. Modular includes a MARS for a forward mounted night vision device and two removable rails for lasers.

2. Bolt Assembly - Bolt assembly is made up of firing pin/ cocking piece unit and carbon steel bolt body along with ejector, spring, and retaining pin. Bolt head is modified to accept M16 type extractor.

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3. Magazine Assembly - Five-round cartridge capacity detachable magazine holds cartridges in a straight stack format ready for feeding. It provides quick reload capabilities for sustained firing. Systems are fielded with eight magazines.

4. Stock Assembly - Stock assembly has plastic skins molded in an earth tone color. It is inletted for Remington Model 700 Long Action with 0.250 inch thick recoil lug. It includes recoil pad with two spacers, lower slotted rail, and bipod/sling mount stud. Stock includes adjustable height cheekrest with dual socket head locking screws. Buttstock is foldable to left side of weapon.

5. Suppressor - KAC MK 11 Sound Suppressor with Quick Detach (Q.D.) attachment is fielded with weapon.

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6. Scope Rail - Scope Rail is a Remington MARS with 20 MOA and adjustable side mounts.

7. Bipod - It is tension adjustable for cant and has spring loaded, push button activated legs to adjust height.

8. Scope - It is a 5.5 X 22 X 56MM Nightforce NXS Scope.

* Accessories - These include pull through cleaner and flexible shaft chamber brush, bore-guide, tube of grease, bottle of bore cleaner, plastic coated rod, adapter, jag, bore brush, Operator's Manual, round count book, aluminum rifle case, leather 1 1/4 inch military sling, quick detach swivels, and adjustable bipod (6-9 inch legs, swivel).

NOTE

For Basic Issue Items (BII), see Appendix A.

1-5. EQUIPMENT DATA.

Weight	Empty - 15.27 lbs / w/scope - 17.00 lbs
Length	Overall - 47.5 in / Barrel - 26.5 in
Rifle Twist	1 turn in 10 RH twist
Magazine Capacity	5 rounds
Operation	Manually Operated Turn Bolt, Repeater
Locking	Rotating/Turn
Feature Muzzle Velocity	2950 fps
Effective Range	1200 yds
Safety Features	Safety Switch (manual)
Ammunition	.300 Winchester Magnum Navy Ammunition Logistic Code (NALC) A191

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CHAPTER 2
OPERATING INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-1. PMCS PROCEDURES.

WARNING

Before starting inspection, be sure to clear weapon. Do not keep live ammunition near work area.

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Table 2-1: PMCS.

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
1	Before	MK 13 MOD 5 .300 Win Mag Sniper Rifle	Visually check for missing or damaged components. Inspect for cracks, burrs, fouling, foreign matter, looseness, and defective components.	All basic items of issue not present.

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
1 (cont.)	During		Hand function bolt assembly. It should not bind. Inspect barrel/ suppressor interface. Inspect barrel notches and Q.D. of suppressor for damage. Check to see that moving parts function smoothly.	

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
1 (cont.)	Before/ After		Inspect for proper installation Clean and wipe dry to remove oil, dirt, and other foreign matter. Lubricate.	

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
2	Before	Bolt Assembly	While cycling weapon, confirm bolt assembly moves freely without binding.	Bolt assembly binds in receiver.
	Before/ After		Remove bolt and inspect for excessive wear, cracks, or breaks. Check extractor for spring loaded return to battery.	

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
2 (cont.)			Clean and lubricate.	
3	Before/ After	Barrel and Receiver Assembly	Inspect barrel bore and chamber for presence of carbon and foreign matter. Clean, wipe and dry.	Obstruction in barrel bore cannot be removed.

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
4	Before/ After	Firing Mechanism	Hand function mechanism for proper operation and actuate safety. Safety will not engage when firing pin is forward.	Firing mechanism does not function properly, binds safety, and engages with striker/firing pin forward

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
5	During	Weapon	Periodically check weapon to make sure it is clean and no foreign material is in bore.	Foreign material is in bore.
6	After	Weapon and Equipment	Disassemble weapon and magazine. Clean and lubricate. Report all missing or damaged parts to unit armorer.	Parts are missing or damaged.

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
7	Before/ After	Weapon	Perform function check.	Weapon fails function check.
8	Before/ After	Day Optical Sight System (Scope)	Sight through scope. Inspect for visual obstruction of target image by dirt, dust, fungus, or moisture on optical surfaces and loose or broken optical elements.	These conditions resist correction after cleaning lenses.

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
9	Before/ After	Day Optic Sight (Scope) and Mounting	Check for damaged, loose, or missing parts. Check to ensure scope is securely mounted to scope rings and receiver rail system and reticle is oriented correctly.	Parts are loose or missing.

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Table 2-1: PMCS. (cont.)

Item	Interval	Item to be Checked or Serviced	Procedure	Equipment not Ready/Available If
9 (cont.)			Clean dust and other foreign matter from lenses.	

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Section II. OPERATION UNDER USUAL CONDITIONS

2-2. WEAPON OPERATION.

a. Loading.

(1) To load magazine of MK 13 MOD 5 .300 Win Mag Sniper Rifle.

(a) Grasp magazine in one hand, and use free hand to insert each cartridge with bullet towards front of magazine.

(b) Repeat this process until five rounds have been loaded into magazine.

(2) Install magazine into MK 13 MOD 5 .300 Win Mag Sniper Rifle.

(a) Move safety to SAFE position.

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(b) Insert loaded magazine into magazine well until it locks into position.

(c) Push upward until magazine latch snaps into position. A click can be heard to indicate that magazine is fully seated.

(d) Pull down on magazine to ensure it is fully seated.

WARNING

Weapon is now loaded. Ensure it is pointed in a safe direction.

(e) Rifle and magazine are now loaded and ready to fire.

b. Clearing.

(1) Point muzzle in safe direction.

(2) Place safety in safe position.

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(3) Remove magazine from rifle by pressing magazine latch and pulling downward on magazine.

(4) Unload magazine by exerting pressure with finger on base of cartridge case and push each round forward out of magazine one at a time until magazine is empty.

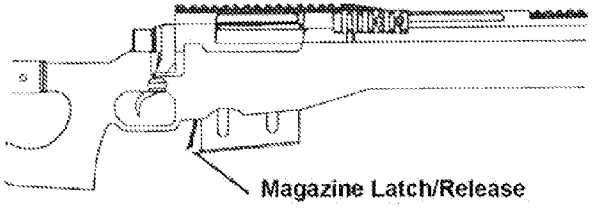

Figure 2-1. Remove Magazine.

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c. Suppressor.

(1) Slide suppressor over barrel with Q.D. latch at 2 o'clock position of barrel.

(2) Move suppressor rearward until making contact with indexing pin located at 6 o'clock position of barrel.

(3) With notches of barrel aligned with Q.D. latch, press down on Q.D. latch locking suppressor onto barrel.

d. Eyepiece/Reticle Focus.

NOTE

Self-focus for maximum sharpness while in an area where you can observe a target at about 300 meters as all human eyes see things differently.

Eyepiece focusing is performed after mounting day optical sight and supporting rifle in a steady rest.

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When unscrewing eyepiece, make sure it is not completely rotated off scope body. If eyepiece is already too far back, rotate lock ring and eyepiece forward.

(1) Rotate scope's variable power ring to its highest magnification. Unscrew eyepiece one turn counterclockwise (CCW) to back it away from its lock ring. Make sure lock ring is free by turning 1/4 turn.

(2) Point rifle at a clear area of sky, and turn eyepiece while observing sharpness of reticle. Turn the eyepiece several revolutions so as to move it at least 1/8"; it will take this much movement to change reticle sharpness.

(3) Once at best focus point, turn eyepiece back and forth through focus point until reticle is at its maximum sharpness.

(4) Look away from scope at some distant object, and focus eyes on that object. With eyes focused for that distance,

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quickly look into scope at reticle; it should appear clear and sharp.

(5) Repeat steps 2 through 4 until focus is set for eyes. Then screw lock ring up against eyepiece. Hold eyepiece in one hand, and do not let it move as you rotate lock ring. Turn lock ring until finger tight against eyepiece.

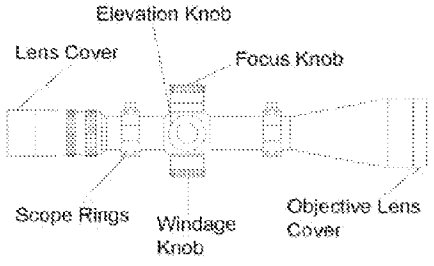

Figure 2-2. MK 13 MOD 5 .300 Win Mag Sniper Rifle Day Scope Control Locations.

NOTE

Naval Special Warfare (NSW) Version - Both elevation adjustment (upper control) and windage adjustment (right side control) have an adjustment increment of ¼ MOA per click.

U.S. Army Special Operation Forces (SOF) Version - Elevation adjustment has an adjustment increment of one MOA per click. Windage adjustment (right side knob) has an adjustment increment of ½ MOA per click.

e. Tools Required
- Allen wrench (supplied with scope)
- Collimator or boresight capabilities
- 1/2" combination wrench

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f. Windage Adjustment Procedure (NXS Scope).

(1) Rotate windage adjustment (right side knob) until optical center line is parallel to bore of rifle (use either a collimator or boresighting to find that position).

(2) Loosen windage adjustment set screws, and align zero mark with white reference mark on adjustment collar.

(3) Retighten set screws. Recheck adjustment and, if adjustment is not zeroed, return to step (2).

(4) Final adjustment of windage knob zero should be done on firing line.

g. Elevation Adjustment Procedure. (NXS Scope).

NOTE

This procedure needs to be accomplished during live fire exercise.

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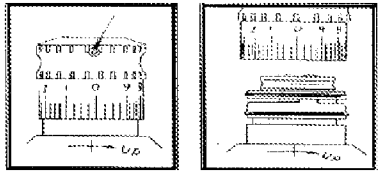
(1) Loosen set screws securing adjustment knob cap two turns.

(2) Lift off cap while turning clockwise (CW).



(3) Loosen four screws on clamp assembly two turns.

(4) Adjust turret with screwdriver while holding clamp assembly against stop.

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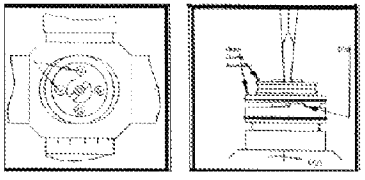

(5) Tighten four screws evenly on upper clamp assembly.

(6) Re-install cap; push down while twisting cap CW, never CCW. (To align zero, rotate cap CW.)

(7) Tighten set screws evenly on cap to 6 in/lbs each. Do not over tighten.

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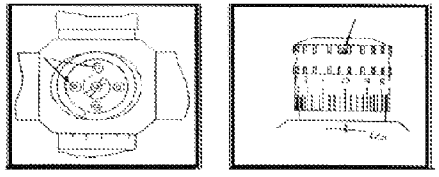

NOTE

If two set screws on adjustment cap are over-tightened, adjustment cap may become distorted. This can make elevation adjustment feel tight. If this problem occurs, slightly loosen two set screws. Finer adjustment of knob zero setting should be accomplished on firing range.

(8) Once zero is achieved, then set screws must again be loosened to allow knob to be set for zero at range weapon was fired (probably 100 meters).

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(9) Once this is completed, knob calibrations now allow for any range to be quickly dialed between 100 and 1200 meters.

(10) Confirm zero at primary engagement range. Adjust as in Step 2.

NOTE

Additional range adjustment should not be required.
MIL-Dots can be used for hold-over.

h. Paralax Adjustment. Scope features adjustment for eliminating paralax. It has limiting stops with two extreme positions symbolized by infinity mark on thickest line/dot. Purpose of this adjustment is to keep target in focus. If target is close, knob will set at a position near largest dot.

To prevent paralax from affecting accuracy of shot, it is important that target be precisely in focus with reticle. When it

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is, there will be zero paralax and thus it cannot influence accuracy of shot.

Paralax is indicated by apparent motion of reticle to target as shooter moves eye across exit pupil of scope. When scope is correctly focused for a specific target, image is precisely on reticle plane, and no paralax will be present.

Move rear sight in same direction as you need to move bullet on target.

i. Immediate Action. If weapon stops firing, perform the following immediate actions:

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WARNING

If a noticeable difference in sound or recoil is experienced, stop firing. Either condition could indicate an incomplete powder burn and/or a bullet stuck in bore.

Retract bolt slowly, and remove fired cartridge case. Clean weapon, and check for unburned powder grains in receiver or bore and for a bullet in bore before resuming firing.

If bullet is stuck in bore, return weapon to armorer.

Rotate bolt handle up, and pull bolt to rear. Slide it forward inserting a new cartridge into chamber. Rotate bolt to locked position. Attempt to fire weapon. If rifle fails to fire, perform remedial action in accordance with (IAW) paragraph j.

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j. Remedial Action.

(1) Clear rifle.

(2) Check chamber, bore, and receiver for obstructions. Remove any type of obstruction caused by such things as an empty or ruptured case, live round, or foreign matter.

(3) Remove obstruction.

(4) Reload rifle.

(5) Move safety lever to safety position; pull bolt fully to rear, and slide it forward to chamber a new round.

(6) Attempt to fire rifle.

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k. Bullet stuck in bore.

WARNING

If an audible "pop" or reduce recoil is experienced during firing, immediately cease fire.

DO NOT APPLY IMMEDIATE ACTION.

(1) Remove magazine.

(2) Lock bolt to rear.

(3) Place selector lever in "SAFE" position.

(4) Visually inspect chamber or insert cleaning rod into bore to ensure there is not a bullet stuck in bore.

(5) If a bullet is stuck in barrel of weapon, do not attempt to remove it. Turn weapon into armorer.

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l. Bipod Attachment.

(1) Point bipod legs forward towards muzzle.

(2) Loosen bipod attachment screw. While squeezing side plates together, engage lugs with bipod mounting adapter or stud beneath forend. Relax grip on side plates.

(3) Position bipod mounting base against rifle forend, and turn locking screw finger tight.

(4) Using fingers or allen wrench, tighten locking screw firmly but no more than 1/2 turn past finger tight.

m. Bipod Leg Adjustment (from folded position).

(1) One at a time, grasp bipod leg, and rotate down away from barrel.

(2) Depress leg release catch while grasping bipod leg foot, and extend to desired length.

BARBER - RE 0010097

(3) Leg release catch is spring loaded and automatically locks leg in pre-set positions when released in extended position.

(4) Retract legs by depressing leg release catch and pushing bipod leg.

(5) Bipod cant feature is adjustable by changing tension of forward thumb screw.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

2-3. ENVIRONMENT/WEATHER.

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

BARBER - RE 0010098

CAUTION

If extensive corrosion is found and cleaning does not solve problem, return rifle to unit armorer.

a. Extreme Cold Climate - Arctic.

(1) When operating rifle in extreme cold conditions, clean and lubricate rifle at room temperature if possible.

(2) Apply a light coat of Light Arctic Weight (LAW) to all functional parts.

(3) To prevent freezing, keep rifle covered when moving from a warm to a cold area. This will allow gradual cooling.

(4) Always keep weapon dry.

(5) Do not lay a hot weapon in snow or on ice.

(6) Keep ammunition dry; moisture will cause malfunction. Do not lubricate ammunition.

BARBER - RE 0010099

(7) Always keep snow and ice out of barrel bore. If you should get snow and ice into bore, clean bore before using swab and cleaning rod.

b. Hot, Wet Climate - Jungle.

(1) Perform maintenance more frequently. Inspect hidden surfaces for corrosion. If corrosion is found, clean and lubricate.

(2) To help prevent corrosion, remove handprints with cloth. Dry and lubricate rifle with Cleaner, Lubricant, and Preservative (CLP).

(3) Check ammunition and magazine frequently for corrosion. Clean magazine with CLP, and wipe dry with cloth. If necessary, clean ammunition with dry cloth.

(4) Always keep mud out of barrel. If mud should get into bore, clean it before firing using swab and cleaning rod.

c. 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 tax 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 rifle and cause malfunctions and excessive wear on component contact surfaces during firing. Keep rifle covered when possible.

(2) Corrosion is less likely to form on metal parts in a dry climate. Therefore, lightly lubricate internal working surfaces with grease that is provided with system. Do not

lubricate external parts of rifle. Wipe any excess lubricant from exposed surfaces.

d. Heavy Rain and Fording Operations - All Climates.

(1) Perform maintenance IAW appropriate climate conditions.

(2) Always attempt to keep weapon dry.

(3) Use weapon cover, muzzle cap if available, and protect weapon.

(4) Always drain water from barrel prior to firing. Dry bore with swab and cleaning rod if it is wet.

BARBER - RE 0010102

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CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. INSPECTION AND LUBRICATION

3-1. INSPECTION GUIDE.

a. Inspect rifle before lubricating.

WARNING

Do not interchange bolts between weapons.

(1) Inspect rifle for damaged or missing parts.

(2) Improper assembly or function.

(3) Absence of free movement, where applicable.

(4) Absence of spring tension, where applicable.

(5) Uncustomary looseness.

BARBER - RE 0010104

(6) Parts exhibiting signs of cracks, burrs, dents, or obvious signs of damage or stress.

(7) Presence of signs or tactile clicks in controls, where applicable.

(8) General overall cleanliness.

(9) Proper lubrication.

(10) Presence of corrosion or degradation of surface finish.

3-2. LUBRICATION GUIDE.

a. Any type of high-quality medium weight lubricant (oil or grease) specifically designed for use on firearms, such as CLP will work well on MK 13 MOD 5 .300 Win Mag Rifle.

WARNING

Do not use lubricants know for their ability to penetrate metal as these may deaden primers.

BARBER - RE 0010105

b. No lubrication - (surface is dry and not slippery to touch).

- Plastic/fiberglass components
- Bore (except for preservation)
- Trigger group
- Sights

c. Light Lubrication (CLP) - (finger run across surface yields little or no lubrication).

- Exterior of receiver and bolt handle.
- All metal parts.
- All internal parts in receiver assembly.
- Floorplate and magazine spring.
- Bore.

BARBER - RE 0010106

d. Medium Lubrication (grease) - (finger run across surface yields some lubrication but does not run down surface when held in a vertical position).

- Rear of bolt lugs and bolt body.
- Bolt cocking cam surface.
- Bore, only prior to stowing. Bore should be dry prior to firing.

e. Reapply lubrication periodically during firing as it burns off from heat.

f. Apply lubricant using patches, cotton swabs, or rags. A spray bottle also works well using compressed air to circulate lubricant into all parts and to remove excess.

BARBER - RE 0010107

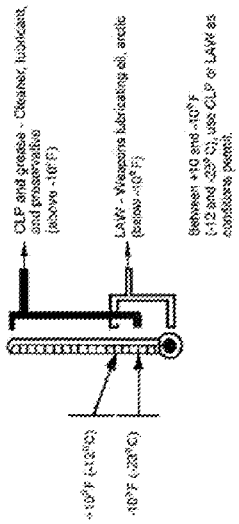

Figure 3-1. Lube Guide.

BARBER - RE 0010108

RE0010048

Section II. TROUBLESHOOTING PROCEDURES

3-3. TROUBLESHOOTING.

a. Table lists common malfunctions that may occur during operation or maintenance of rifle or its components. Perform tests, inspections, and corrective actions in order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests, inspections, and corrective actions. If a malfunction is not corrected by listed corrective actions, forward to unit armorer for corrective action.

BARBER - RE 0010109

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Closes on empty chamber	1. Magazine follower binds.	1. Replace magazine.
	2. Damaged follower spring.	2. Replace magazine.

BARBER - RE 0010110

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Failure to feed	1. Sharp or rough receiver rails.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Sharp edge - rear end of chamber.	2. Complete Malfunction Report and email to smallarms@navy.mil.
	3. Rough ramp in receiver.	3. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010111

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt locks hard over cartridge rim	1. Bolt interferes with shell rim.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Extractor interferes with shell rim.	2. Complete Malfunction Report and email to smallarms@navy.mil.
	3. Ejector binds or fails to retract far enough.	3. Replace ejector and associated components.
	4. Burr at extractor hole on bolt.	4. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010112

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt locks hard over cartridge rim (cont.)	5. Sharp corners on bolt lugs.	5. Complete Malfunction Report and email to smallarms@navy.mil.
Fails to extract	1. Tight, rough or oversized chamber.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Extractor broken or damaged.	2. Replace extractor assembly.
	3. Not enough hook space on extractor.	3. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010113

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Fails to extract (cont.)	4. Height of claw not correct.	4. Complete Malfunction Report and email to smallarms@navy.mil.
	5. Weak or brocken extractor spring.	5. Replace extractor assembly.
Fails to eject	1. Burr at ejector hole in bolt.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Ejector binds or fails to retract far enough.	2. Attempt to clean ejector. If cleaning fails to resolve problem, replace ejector and associated components.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Fails to eject (cont.)	3. Extractor drops shell.	3. Complete Malfunction Report and email to smallarms@navy.mil.
Misfires	1. Short firing pin (damaged). 2. Firing pin binds. 3. Short firing pin protrusion. 4. Faulty ammunition.	1. Replace firing pin assembly. 2. Replace firing pin assembly. 3. Replace firing pin assembly. 4. Replace ammunition.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Firing pin follows bolt down	1. Trigger out of adjustment.	1. Adjust trigger or replace as needed.
	2. Improper vertical engagement of sear and firing pin head.	2. Replace trigger assembly and/or firing pin assembly.
	3. Trigger does not retract.	3. Replace trigger assembly as needed.
	4. Corners on sear or connector rounded.	4. Replace trigger assembly as needed.

BARBER - RE 0010116

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt opens hard	1. See fails to extract.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Upset extraction cam on bolt handle.	2. Complete Malfunction Report and email to smallarms@navy.mil.
	3. Burr at ejector hole in bolt.	3. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010117

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt opens hard (cont.)	4. Blown or set back primer on shell	4. Inspect ammunition for deficiencies. If ammunition is faulty, report batch and lot numbers accordingly. If brown primer is a result of excess firing pin protrusion or damaged firing pin, replace firing pin assembly.
Bolt pulls out	1. Bolt stop or bolt release binds	1. Remove action from stock. Lubricate contact surface in bolt release and bolt stop. Check spring tension.

BARBER - RE 0010118

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt pulls out (cont.)	2. Bolt stop or bolt release broken.	2. Replace bolt stop.
Safety switch works too hard or too freely	1. Safety switch binds (works hard).	1. Replace trigger assembly as needed.
	2. Safety switch spring clip weak (safety switch works too freely).	2. Replace trigger assembly as needed.

BARBER - RE 0010119

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bulges or blows casehead	1. Oversized chamber.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Exceeds maximum headspace.	2. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010120

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Bolt Binds	1. Action screws protrude into bolt track.	1. File ends of screws.
	2. Scope rail screws protrude into bolt track.	2. File ends of screws.
	3. Bolt handle interface on stock.	3. Complete Malfunction Report and email to smallarms@navy.mil.
	4. Burr at rear of bolt lugs galling.	4. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010121

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Does not Group	1. Crown of barrel damaged.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Failing of bore.	2. Complete Malfunction Report and email to smallarms@navy.mil.
	3. Excessive throat erosion.	3. Complete Malfunction Report and email to smallarms@navy.mil.

BARBER - RE 0010122

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Does not Group (cont.)	4. Suppressor out of alignment or damaged.	4. Complete Malfunction Report and email to smallarms@navy.mil.
	5. Tighten scope rings.	5. If tightening scope rings fails to resolve problem, replace scope rings.
	6. Bad scope.	6. Replace scope.
Point of impact not correct	1. Barrel not straight.	1. Complete Malfunction Report and email to smallarms@navy.mil.
	2. Scope malfunction.	2. Tighten or change scope.

BARBER - RE 0010123

3-4. DISASSEMBLY PROCEDURES (FIELDSTRIPPING).

a. Remove bolt assembly.

(1) Unload and clear rifle.

(2) Fold buttstock to left.

(3) Raise bolt handle.

(4) Pull bolt handle all the way back.

(5) Push bolt stop release.

(6) While pushing bolt stop release, slide bolt from rifle.

b. Remove action assembly.

(1) Turn rifle upside down.

(2) Loosen two captured screws holding receiver to stock chassis and stock will slowly come away from barrel receiver.

BARBER - RE 0010124

3-5. CLEANING, INSPECTION, AND REPAIRS.

WARNING

Before cleaning, be sure to clear weapon.

a. Cleaning Procedure. This procedure should be followed to clean powder and copper fouling out of barrel.

(1) Unload and clear rifle.

(2) Remove bolt. Install bore guide.

(3) Saturate patch with solvent, and push it through bore, allowing it to drop off end of rod at muzzle.

(4) Repeat with new patch.

(5) Push dry patch through bore.

(6) Attach brush to rod, and saturate with solvent.

(7) Brush length of bore.

BARBER - RE 0010125

(8) Push dry patches until they come out clean.

(9) Saturate patch with solvent, and push through bore allowing it to drop off end of rod at muzzle.

(10) Repeat twice. Allow rifle to sit for five minutes.

(11) Push dry patch through bore. If copper is present, the patch will come out bright blue.

(12) Repeat steps 3 through 11 until you no longer see any bright blue on patch.

(13) Push several patches through bore until they come out clean.

NOTE

Flexible bore snake can be used as a field expedient cleaning rod.

BARBER - RE 0010126

SUBJECT TO PROTECTIVE ORDER - KINZER V. REMINGTON

b. Clean Chamber/Bolt.

(1) Use solvent soaked brush with dry patch wrapped around T-handle flex brush to clean chamber and bolt lugs.

(2) If excessive rust and debris are present in chamber, use standard .30 Caliber ratcheted bore brush to clean chamber.

(3) Apply light coat of Grease, Automotive, Artillery (GAA) or Shooter's Choice lube on rear of bolt lugs.

c. Bolt.

(1) Clean bolt body and bolt face with Shooter's Choice.

(2) Ensure bolt body and bolt lugs are free of debris and rust.

(3) Apply light coat of CLP to bolt and body using Shooter's Choice gun grease to locking lugs.

BARBER - RE 0010127

(4) If bolt and firing pin have been exposed to water and excessive moisture, remove firing pin from bolt.

(5) Thoroughly dry interior of bolt and firing pin. Apply light coat of Shooter's Choice gun grease to firing pin spring and threads of firing pin.

d. Clean Receiver/Trigger Assembly.

(1) Clean stock with mild detergent and water.

(2) Use nylon brush and cleaning solvent to clean underside of receiver.

(3) Clean trigger assembly with compressed air.

(4) Dry stock or let air dry after it has been cleaned.

(5) Lubricate rifle IAW paragraph 3-2.

BARBER - RE 0010128

e. Clean scope.

(1) Remove large particles from exposed lens surfaces by first blowing on surface.

(2) Brush with lens cleaning brush.

(3) Apply lens cleaning fluid or isopropyl alcohol to non-silicone lens cleaning tissue. Wipe lens in a circular motion starting in center of lens and working towards outside.

f. Clean suppressor.

(1) Clean interior of suppressor with dry brush.

(2) Apply light lubrication to Q.D. latch of suppressor.

NOTE

ARMORER - MK 11 suppressor may require a soak cleaning every 500-1000 rounds. Oil-free cleaning sol-

BARBER - RE 0010129

vent should be used to remove carbon fouling and unburnt propellant granules from suppressor.

(3) After soaking overnight in a closed solvent container, use hot, soapy water to wash remaining chemicals from internal voids.

(4) Thoroughly dry internal area using compressed air or oven set on low heat.

Section III. INSPECTION INTRUCTIONS

NOTE

Inspect before lubricating.

During and after cleaning, operator should inspect rifle and its components for any irregularities that may cause problems during its

BARBER - RE 0010130

operation. If any potential deficiencies are noted, they should be corrected immediately.

Visually inspect rifle for:

- Damaged or missing parts.
- Improper assembly or function.
- Absence of free movement, where applicable.
- Absence of spring tension, where applicable.
- Uncustomary looseness.
- 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.
- Presence of proper lubrication.
- Presence of corrosion or degradation of surface finish.

BARBER - RE 0010131

3-6. REASSEMBLY INSTRUCTIONS.

NOTE

After reassembly, barrel should not touch stock forward of recoil lug.

a. Assemble action assembly.

(1) Ensure stock chassis is turned top side up, and install barrel receiver assembly.

(2) Using 3/16" ball-end hex key, tighten two captured screws securing barrel receiver assembly to stock chassis.

(3) Use a torque wrench to torque action screws to 65 in/lbs.

(4) Install bolt assembly.

(a) Align lugs on bolt assembly with receiver.

BARBER - RE 0010132

(b) Slide bolt assembly into receiver, and push all the way in.

(c) To lock bolt assembly into position, push bolt handle down.

3-7. SCOPE MOUNTING (AS REQUIRED) (NXS SCOPE).

a. Installation and Mounting.

(1) Install battery into scope.

(2) To install battery, unscrew battery compartment cap CCW while holding parallax adjustment to prevent it from rotating.

(3) Place a new battery (PN CR2032) positive (+) side up or facing you.

(4) Replace and tighten cap.

BARBER - RE 0010133

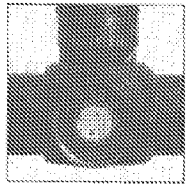

Figure 3-2. Scope Mounting Battery.

NOTE

Depending on intensity and conditions, battery can last up to 720+ hours of continuous use.

(5) Inspect each mounting ring and mount for burrs and debris. Remove any debris before mounting sighting systems. Make sure receiver MIL-STD-1913 RAIL is also free of debris and burrs.

BARBER - RE 0010134

(6) Mount day optic sight and scope rings to mounting rail with rifle held horizontally. Hook fixed jaws of sight mounts under right side of mounting rail, and rotate scope ring shafts down into selected rail position.

(7) Slide front and rear mount jaw under and against mounting rail, and finger-tighten mounting nuts. (To tighten, turn CW.) Optimally use a torque wrench for installation (65 in/lbs). However, if one is not available, follow steps a-b.

NOTE

This mounting procedure will be close to desired torque value 65 in/lbs. Repeat a good zero if performed exactly the same each time.

(a) Use ½ inch combination wrench to tighten rear mounting ring nut ¼ turn.

BARBER - RE 0010135

(b) Use ½ inch combination wrench to tighten front mounting ring nut ¼ turn.

b. Operation of NXS Integrated Illumination System.

(1) To activate reticle illumination, pull outward on parallax turret assembly. To deactivate, push parallax turret assembly.

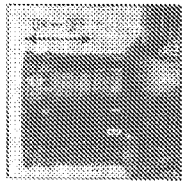

Figure 3-3. Parallax Turret Assembly.

(2) Change reticle illumination intensity by turning small rheostat located inside battery compartment.

BARBER - RE 0010136

(3) Using a small jewelers screwdriver, turn rheostat CCW to increase illumination intensity.

(4) Turn rheostat CW to decrease illumination intensity.

3-8. SCOPE REMOVAL INSTRUCTIONS (NXS SCOPE).

NOTE

Remove battery from scope only if scope is to be stored for extended periods.

a. De-activate Integrated Illumination System.

b. Loosen front and then rear mounting ring hex nuts while holding scope firmly against mounting rail.

c. Holding left side of rifle downward, rotate scope away from nuts to disengage from mounting rail.

BARBER - RE 0010137

3-9. FUNCTION CHECK.

WARNING

Before starting function check, make 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 cleared.

If rifle fails any of following tests, continued use of rifle could result in injury to or death of personnel.

a. Check chamber and magazine to ensure there are no cartridges in rifle.

b. Put safety switch in "F" position.

c. Close bolt quickly. Firing pin must remain cocked.

d. To ensure firing pin is cocked, pull trigger. Firing pin must fall.

e. Repeat procedure at least 10 times.

BARBER - RE 0010138

f. If firing pin assembly will not remain cocked when bolt is closed smartly, return rifle to NSWC Crane for repair.

BARBER - RE 0010139

CHAPTER 4
AUXILIARY EQUIPMENT MAINTENANCE

4-1. DISASSEMBLE, CLEAN, AND REASSEMBLE MAGAZINE ASSEMBLY.

a. Unload magazine carefully. Do not bend, deform, or gouge feed lips while unloading (stripping round from magazine).

CAUTION
Base is under spring tension.

b. Turn magazine base up. Push forward on baseplate with one thumb while covering bottom of magazine with other hand in order to catch spring as you slide baseplate to front and free of magazine body.

c. Pull gently on magazine spring and follower to separate from magazine body.

BARBER - RE 0010140

NOTE

Magazine follower and spring are attached. Do not separate follower from spring.

d. Wipe dirt from tube, spring, and follower; then lightly lubricate spring.

e. Orientate follower and spring to magazine body, and carefully insert through bottom of magazine body. Push remainder of spring into magazine. Slide baseplate on magazine body from front.

f. Slide base over lip on bottom of magazine, and continue sliding base under tabs until rear of base catches on magazine body.

BARBER - RE 0010141

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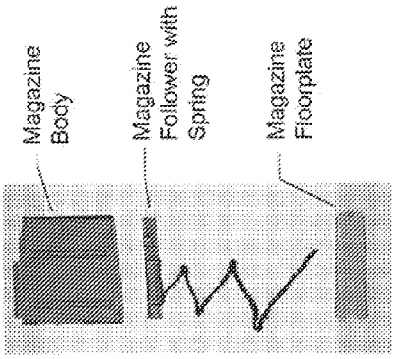

Figure 4-1. Magazine Disassembly.

BARBER - RE 0010142

RE0010082

4-2. CLEAN BIPOD ASSEMBLY.

a. Clean and check bipod assembly for proper operation. Lightly lubricate with CLP.

b. Return to unit armorer for corrective action if problems exist.

BARBER - RE 0010143

CHAPTER 5
AMMUNITION

5-1. AMMUNITION.

Use only .300 Winchester Magnum ammunition, (190 grain projectile) NALC A191, in MK 13 MOD 5 .300 Win Mag Sniper Rifle. This is the only ammunition authorized for use by your command.

WARNING

DO NOT FIRE:

- Seriously corroded ammunition.
- Dented cartridges.
- Cartridges with loose bullets.
- Cartridges exposed to extreme heat, 135ºF.
- Cartridges with bullet pushed in (short rounds).

BARBER - RE 0010144

If ammunition has one or more of the above characteristics, turn it in to range Noncommissioned Officer (NCO)

Keep ammunition dry and clean.

BARBER - RE 0010145

APPENDIX A
BASIC ISSUE ITEMS (BII) LIST

Section I. INTRODUCTION

A-1. SCOPE.

This appendix lists the BII for MK13 MOD 5 .300 Win Mag Sniper Rifle.

A-2. BII LIST.

BII list contains minimum essential items required to place MK 13 MOD 5 .300 Win Mag Sniper Rifle into operation and to perform emergency repairs. Although shipped in separate packages, BII must be with MK 13 MOD 5 .300 Win Mag Sniper Rifle during operation and whenever it is transferred between property accounts. Illustrations will assist in identifying items. This manual is authority to request/requisition replacement BII, based on authorization of end item.

BARBER - RE 0010146

A-3. EXPLANATION OF COLUMNS.

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

Column (1)- Illustration Number (Illus. No.). Indicates number of illustration in which item is shown.

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

Column (3)- Description, Commercial and Government Entity Code (CAGEC) and Part No. Indicates federal item name and if required a minimum description to identify and locate item. The last line for each item indicates CAGEC followed by part number.

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

BARBER - RE 0010147

Column (5)- Quantity required (Qty Req). Indicates quantity of item authorized to be used with/on equipment.

(1) Illus. No.	(2) NSN	(3) Description, CAGEC, Part No.	(4) U/I	(5) QTY REQ
1	1005-00-556-4174	Brush, cleaning, small arms 5564174	ea	1
2	1005-LL-LN9-5507	Rod, cleaning, small arms PN 30C-36	ea	1
3	N/A	Brush, chamber CCK4	ea	1
4	AL-FSS1.25-DEB	Eagle Sling, Quick Detach	ea	1

BARBER - RE 0010148

(1) Illus. No.	(2) NSN	(3) Description, CAGEC, Part No.	(4) U/I	(5) QTY REQ
5	1005-01-260-2643	Cover, scope, eyepiece 46043	ea	1
6	1005-01-260-2644	Cover, scope, objective 96044 (Mod 0/1)	ea	1
7	N/A	Guide, Bore BGW-L	ea	1
8	N/A	Sling (Turner) NMSRS (MOD 0, 1, 2, 3, and 4)	ea	1
9	N/A	Brush, Adapter LGBA	ea	1

BARBER - RE 0010149

(1) Illus. No.	(2) NSN	(3) Description, CAGEC, Part No.	(4) U/I	(5) QTY REQ
10	N/A	.30 Caliber Bore Snake Bore 24015	ea	1
11	N/A	Plastic Case (Hardigg) 3300 (MOD 2 and 5)	ea	1
12	1005-01-260-2665	Bipod (HBLM) (MOD 0/1)	ea	1
13	1005-LL-LT4-0952	Sling Swivels 774577 (MOD 0,1,3 and 4)	ea	2
14	N/A	Cleaning Jag 30C-PH or 30PH	ea	1

BARBER - RE 0010150

(1) Illus. No.	(2) NSN	(3) Description, CAGEC, Part No.	(4) U/I	(5) QTY REQ
15	N/A	Operator's Manual SW370-CD-OMP-010 Rev 00	ea	1
17	N/A	MK 13 Folding Tool T-10 Star Driver T-15 Star Driver 3/16 Ball-end Hex Key 1/16 Hex Key 2.5MM Hex Key 4MM Hex Key 5MM Hex Key	SET	1

BARBER - RE 0010151

APPENDIX B
ADDITIONAL AUTHORIZED LIST

Section I. INTRODUCTION

B-1. SCOPE.

This appendix lists additional items authorized for support of MK 13 MOD 5 .300 Win Mag Sniper Rifle.

B-2. GENERAL.

This list identifies items that do not have to accompany MK 13 MOD 5 .300 Win Mag Sniper Rifle and that do not have to be turned in with it. These items are all authorized by Table of Authority (TOA).

BARBER - RE 0010152

B-3. EXPLANATION OF LISTING.

NSNs, descriptions, and quantities are provided to help identify and request additional items required to support this equipment. Items are listed in alphabetical sequence by item name under type document (i.e., TOA which authorizes item(s)).

B-4. EXPLANATION OF COLUMNS.

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

Column (1)- NSN. Indicates NSN assigned to item and will be used for requisitioning purposes.

Column (2)- Description, CAGEC, and Part Number. Indicates federal item name and if required a minimum description to identity and locate item. Last line for each item indicates CAGEC, in parenthesis, followed by part number.

BARBER - RE 0010153

Column (3)- U/I. Indicates how item is issued for NSN shown in column one.

Column (4)- Qty Req. Indicates quantity of item authorized to be used with/on equipment.

(1) NSN	(2) DESCRIPTION, CAGEC, PART NUMBER	(3) U/I	(4) QTY REQ
1005-LL-L99-1175	5.5-22 X NXS Scope	ea	1
N/A	Magazine Assembly	ea	8

BARBER - RE 0010154

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APPENDIX C
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C-1. SCOPE.

This appendix lists expendable supplies and materials needed to operate and maintain MK 13 MOD 5 .300 Win Mag Sniper Rifle.

C-2. EXPLANATION OF COLUMNS.

a. **Column (1)- Item Number.** This number is assigned to entry in listing and is referenced in narrative instructions to identify material (e.g., "Use wiping rag, item 4, app D").

b. **Column (2)- Level.** This column identifies lowest level of maintenance that requires listed item.

c. **Column (3)- NSN.** This is the NSN assigned to item; it is used to request or requisition item.

d. **Column (4)- Description.** This indicates federal item name and if required a description to identify item. Last line for each item indicates CAGEC in parentheses followed by part number.

e. **Column (5)- Unit of Measure (U/M).** This indicates measure used in performing actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea., in., pr.). If U/M differs from U/I, requisition lowest unit of issue that will satisfy requirements.

BARBER - RE 0010157

(1) Item No.	(2) Level	(3) NSN	(4) Description	(5) U/M
1	Oper	1005-00-494-6602	Brush, cleaning, small arms (19204) 8448462	ea
2	Oper		CLP (81249) MIL-L-63460	
		9150-01-079-6124	4 oz. bottle	OZ
		9150-01-054-6453	1 pint bottle	PT
		9150-01-053-6688	1 gal. can	GAL

BARBER - RE 0010158

(1) Item No.	(2) Level	(3) NSN	(4) Description	(5) U/M
3	Oper	9150-00-292-9689	LAW MIL-L-14107 1 qt can	CN
4	Oper	6850-LL-LN9-5507	Grease, Shooter's Choice	OZ
5	Oper		Compound, Cleaning, Simple Green (1Z575)	
		7930-01-342-5316	5 gal container	GAL
		7930-01-306-8369	1 gal container	GAL
		7930-01-342-5317	24 oz bottle	OZ

BARBER - RE 0010159

(1) Item No.	(2) Level	(3) NSN	(4) Description	(5) U/M
6	Oper	6850-01-381-4401	Solvent, cleaning, Skysol 100	OZ

BARBER - RE 0010160

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APPENDIX D
BALLISTICS CARD

300 WinMag Match

MOA Wind Deflection										
Wind	Range (Yards)									
Speed	100	200	300	400	500	600	700	800	900	1000
5 mph	0.25	0.50	0.75	1.25	1.50	1.75	2.25	2.50	3.00	3.50
10 mph	0.50	1.00	1.75	2.25	3.00	3.75	4.50	5.25	6.25	7.00
15 mph	0.75	1.75	2.50	3.50	4.50	5.50	6.50	8.00	9.25	10.75
20 mph	1.00	2.25	3.25	4.50	6.00	7.25	8.75	10.50	12.50	14.25

BARBER - RE 0010162

RE0010102

MOA Wind Deflection										
Wind	Range (Yards)									
Speed	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
5 mph	4.00	4.50	5.25	5.75	6.25	7.00	7.50	8.00	8.75	9.25
10 mph	8.25	9.25	10.25	11.50	12.75	14.00	15.00	16.25	17.25	18.50
15 mph	12.25	13.75	15.50	17.25	19.00	21.00	22.75	24.25	26.00	27.75
20 mph	16.25	18.50	20.75	23.00	25.50	27.75	30.25	32.50	34.75	37.00

Zero Range	MOA Come-ups
100	0.00
200	1.50
300	3.50
400	5.75
500	8.50
600	11.25
700	14.50
800	18.25
900	22.50
1000	26.75

BARBER - RE 0010164

RE0010104

Zero Range	MOA Come-ups
1100	32.00
1200	37.75
1300	44.25
1400	51.75
1500	60.00
1600	68.75
1700	78.50
1800	89.00
1900	100.25
2000	112.00

Table D-1. Ballistic Table for .300 WinMag, DODIC A191.

BARBER - RE 0010165

RE0010105

		Trajectory in inches measured from line of sight												
		Range (yards)												
		0	100	200	300	400	500	600	700	800	900	1000	1100	1200
Zero Range (yds)	100	-1.5	0	-2.9	-10.7	-24.1	-44.1	-71.3	-106.7	-152.9	-211.0	-281.4	-368.5	-475.1
	200	-1.5	1.5	0	-6.4	-18.3	-36.9	-62.6	-96.5	-141.3	-197.9	-266.8	-352.5	-457.7
	300	-1.5	3.6	4.2	0	-9.8	-26.3	-49.9	-81.6	-124.3	-178.8	-245.7	-329.2	-432.3
	400	-1.5	6.0	9.1	7.4	0	-14.0	-35.2	-64.4	-104.7	-156.7	-221.1	-302.2	-402.8
	500	-1.5	8.8	14.7	15.8	11.2	0	-18.4	-44.9	-82.3	-131.6	-193.1	-271.4	-369.2
	600	-1.5	11.9	20.9	25.0	23.4	15.3	0	-23.4	-57.8	-104.0	-162.5	-237.7	-332.5
	700	-1.5	15.2	27.6	35.0	36.8	32.0	20.1	0	-31.0	-73.9	-129.0	-200.9	-292.3
	800	-1.5	19.1	35.3	46.6	52.3	51.4	43.3	27.2	0	-39.0	-90.3	-158.3	-245.8
	900	-1.5	23.4	44.0	59.6	69.7	73.1	69.3	57.5	34.6	0	-47.0	-110.6	-193.8
	1000	-1.5	28.1	53.4	73.7	89.4	96.6	97.5	90.3	72.2	42.3	0	-59.0	-137.5
	1100	-1.5	33.5	64.1	89.8	109.9	123.4	129.7	127.9	115.1	90.5	53.6	0	-73.1
	1200	-1.5	39.6	76.3	108.1	134.3	153.8	166.2	170.5	163.8	145.3	114.5	67.0	0

Table assumes site height of 1.5 inches

BARBER - RE 0010166

CAUTION

Ballistics data will vary with changes in guns, sights, ammunition lots, and atmospheric conditions.

Conversions:

fps to mph: fps x 3600 sec./5280'
mph to fps: mph/3600 sec. x 5280
inches to meters: in. x .0254

MOA Formula:

MOA =(in./m) x 87.34

Mil-Scale Range Estimation Formulas

Object size in meters x 1000 = Distance in meters
Object size in mils

Object size in Inches x 25.4 = Distance in meters
Object size in mils

Common U.S. Dimensions For Range Estimation

House door=31" x 79" Door knob height=36"

License plate=6" x 12" Vehicle tires=28" to 30" dia.

5'6" Man=66" 5'9" Man=69" 6'0" Man=72"

Average man: From crotch to top of head=39"

Head: ear to ear=6.5" Head: top to bottom=10"

Chest thickness=12" Across shoulders=20"

Shooting Up/Dn "Quick Fix" Estimation – Slope Angle Cosines

Determine angle, then multiply cosine times "line-of-sight" distance.

15°=.97 20°=.94 25°=.91 30°=.87 35°=.82 40°=.77 45°=.71

Adjust sight elevation for the horizontal "corrected range".

Important: Adjust windage for full "line-of-sight" distance.

Miscellaneous Information:

1 MOA=1.1452" @ 100 meters

1 mil=3.4377 MOA=3.9" @ 100 meters

BARBER - RE 0010168

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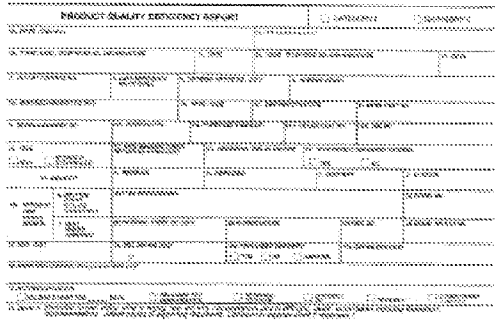
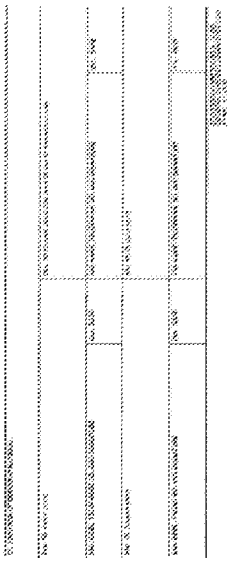
APPENDIX E

PRODUCT QUALITY DEFICIENCY REPORT (SF 368)

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



BARBER - RE 0010170



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BARBER - RE 0010172

RE0010112