Tavor Assault Rifle

HOME OF LEGENDARY UZI

Armorer's Manual

Record of Changes and Revisions

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SAFETY SUMMARY

1. Firing the TAVOR assault rifle will be done only by trained soldiers and according to the user local safety regulations.
2. Firing the TAVOR assault rifle in “LEFT configuration” will be done only by left handed soldiers.
3. Firing the TAVOR assault rifle will be done with zeroed sights only.
4. Firing the TAVOR 40 mm grenade launcher will be done with zeroed sight only.
5. Firing the TAVOR assault rifle from the “hip” will be done while holding the rifles butt under the armpit.
6. It is not allowed to fire continuously more than 8 magazines without cooling the rifle.
7. It is not allowed to look directly to the laser pointer or to point the laser towards friendly troops.
8. It is not allowed to look through the laser pointer with binoculars.
9. Safety laser zone – beam divergence 0.7 mRad referring the pointed target.

HAZARD AWARENESS NOTICE

Do not service or adjust alone

Under no circumstances will a person operate or maintain rifle without the presence or assistance of another person capable of rendering aid. Unless under direct supervision of a qualified person, no person shall operate or maintain the rifle for which he is not qualified.

Report all hazards

If at any time you detect a hazard, it is your responsibility to report the hazard to ensure that it is corrected. If at any time you detect a "new" or "suspected new" hazard, particularly due to rifle assembly, modification, or repair, it is your responsibility to ensure that a SAFETY notice is submitted to the Safety Center. This will ensure that this hazard will be investigated, publicized, or corrected, as required.

Chapter 1

Introduction

1.1 General

The automatic TAVOR Assault Rifle, manufactured by the Israel Weapon Industries (IWI), operates according to the closed bolt principle, with rotational bolt locking, and unlocking by gas impact on piston head. The rifle is equipped with integral reflex sight and laser pointer.

There are four types of TAVOR rifles:

- TAR (TAVOR Assault Rifle)
- CTAR (Commander Assault Rifle)
- STAR (Sharp Shooter Rifle)
- GTAR (TAVOR with Grenade Launcher)

1.2 Technical Data

The following table displays the technical data for the TAR rifles:

Caliber	5.56 mm X 45 mm	
Weight	▪ TAR (weapon only)	3.3 kg
	▪ Combat weight (including sight, magazine and sling)	3.9 kg
Length	▪ TAR – total length	72 cm
	▪ TAR – barrel length	46 cm

Barrel		▪ Number of grooves	6
		▪ Twist	Right hand
		▪ Rifling	1:7"
Magazine		▪ 30 rounds metal magazine	
Safety modes		▪ Safe, semi automatic, automatic	
Muzzle velocity and rate of fire		▪ TAR muzzle velocity	~ 910 m/sec
		▪ Rate of fire	750 ÷ 900 (rpm)
Sight	▪ TAR	▪ Day – optical reflex sight (red dot) + visible laser pointer	
		▪ Night – optical reflex sight (red dot) combined with third-generation SLS	
		▪ Backup sights	
	▪ STAR	▪ Day – telescope, x 4 magnification (or any other scope that fits Picatinny rail)	
		▪ Night – fourth-generation SLS	
		▪ Backup sights	
Ammunition		M855/(SS109)	
Standard accessories		▪ Sling	
		▪ 30 rounds magazine	
		▪ Cleaning box assy.	
		▪ Operator manual	

Special accessories (optional):	▪ Bayonet knife
	▪ Bipod
	▪ 40 mm grenade launcher
	▪ Variety of optical sights

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Chapter 2

Principle of Operation

2.1 General

This chapter details the TAVOR principle of operation.

2.2 Tavor Parts

The TAVOR parts are detailed as follows:

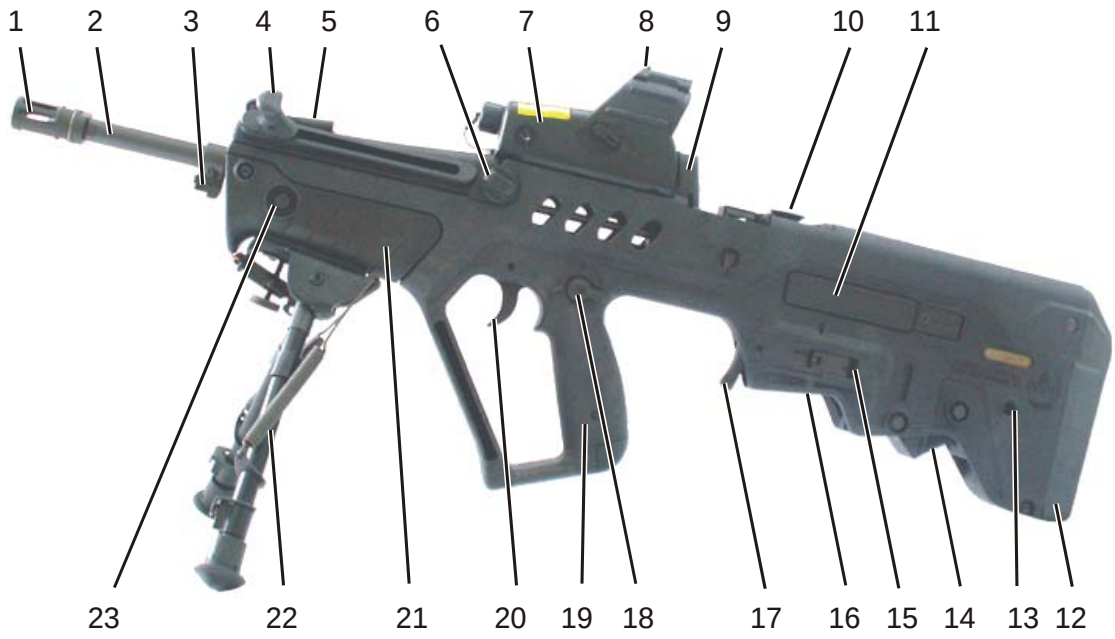

Figure 2-1. TAVOR Parts

No.	Part
1	Flash suppressor
2	Barrel
3	Bayonet guide
4	Cocking handle
5	Front backup sight
6	Front swivel sling
7	MARS reflex sight
8	Grenade launcher rear sight
9	Rear backup sight
10	Optical accessories adaptor
11	Ejector port cover
12	Butt assembly
13	Rear sling swivel
14	Bolt carrier stopper lever
15	Magazine catch
16	Magazine well
17	Magazine release lever
18	Safety lever
19	Pistol grip
20	Trigger
21	Fore grip
22	Bipod (STAR model only)
23	Laser pointer switch

2.3 Recoiling System Parts

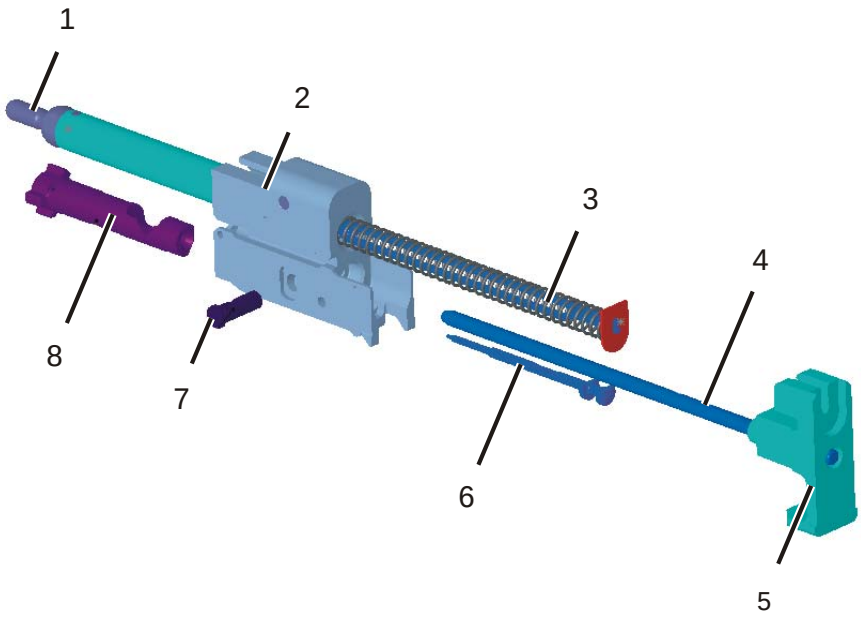

Figure 2-2. Recoiling System Parts

No.	Part
1	Piston
2	Bolt carrier assembly
3	Return spring
4	Bolt carrier guide rod
5	Buffer
6	Firing pin
7	Bolt guide pin
8	Bolt

2.4 Operation Cycle

The rifle operation cycle consists of eight steps as follows:

a. Loading

- Loading is accomplished by inserting the magazine into the magazine well in the rifle.

b. Cocking

- Manual cocking – pulling back the cocking handle and releasing it, the bolt carrier moves backwards and forward causing the hammer to be caught by the sear.
- Automatic cocking – when the projectile passes the gas port, part of the gas passes through the gas tube, hits the piston head, drives it back together with the bolt carrier and bolt.

c. Feeding

- The recoil spring drives the recoiling system forward, the bolt hits the upper round in the magazine, driving it through the bullet ramp into the chamber.

d. Locking

- Upon completion of the bolt travel forward, the bolt surface hits the round base and the bolt stops.
- The bolt carrier continues the forward travel causing rotational movement of the bolt, due to the spiral path on the bolt.
- The rotational movement locks the bolt locking lugs against the mating lugs in the barrel extension.

e. Firing

- Pulling the trigger causes the trigger rod movement that releases the hammer, which in turn strikes the firing pin.
- The firing pin moves forward and strikes the bullet cap.

f. Unlocking

- After the bullet is shot, amount of the gas returns back through the gas port into the gas tube and hits the piston head. The piston starts to retreat the recoiling system.
- The bolt carrier moves back, while the bolt guide pin turns the bolt due to the bolt spiral path.
- The rotational movement causes unlocking and release of the bolt locking lugs from the barrel extension lugs.

g. Extraction

- The extractor catches the bullet rim, and during the back movement, the extractor pulls the spent case out of the chamber.

h. Ejection

- The spent case is supported in the chamber and the barrel extension at the beginning of the bolt back movement. The spring-loaded ejector applies force on the rim until the spent case looses the barrel extension support and the spent case is ejected through the ejection port by the compressed ejector spring force.

2.5 Mechanical Safeties

The TAVOR is equipped with mechanical safeties that physically prevent unintentional firing:

a. First mechanical safety – no shot can be performed unless the bolt is locked completely.

- Firing pin protrusion – the firing pin does not protrude over the bolt surface unless the bolt completed its forward travel and is locked in the barrel extension.
- The bolt is completely locked in the barrel extension 0.078" (2mm) before the bolt carrier completes its forward travel. In case the hammer is accidentally released before the bolt carrier movement completion, it hits the bolt carrier body rather than the firing pin.
- Automatic sear – 0.078" (2 mm) before the bolt carrier completes its forward travel it releases the automatic sear from the hammer, which enables the hammer to move and hit the firing pin.

b. Second mechanical safety – there is no unlocking of the bolt until the projectile leaves the barrel, and the pressure in the barrel drops to safe level.

c. Third mechanical safety – trigger safety device.

- The trigger safety device locks the trigger mechanism in safe position and does not allow release of the hammer while the rifle is dropped accidentally.

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Chapter 3

Trigger Mechanism Operation

3.1 General

The TAVOR rifle has three safety lever modes: Safe, Semi automatic (Repetitive) and Automatic.

The trigger mechanism comprises the following parts:

- Hammer – hits the firing pin to perform firing.
- Sear – provides semi automatic firing of the weapon.
- Automatic sear – provides automatic firing of the weapon and prevents the hammer release prior to the bolt locking.
- Trigger – pressing the trigger causes the trigger rod to move.
- Trigger rod – passes the trigger movement to the activator.
- Activator – the movement of the trigger rod causes the activator to rotate together with the sear and release the hammer.

3.2 Safety Positions

3.2.1 Safe Position

The safety lever is located behind the trigger rod and prevents the trigger movement.

3.2.2 Semi-Automatic Fire Mode

The semi-automatic fire mode is as follows:

a. First round fire:

- Setting safety lever to Semi automatic Fire Mode enables pulling the trigger.
- Pulling the trigger pulls the trigger rod that turns the activator.
- Activator turning forces the sear that releases the hammer.
- The released hammer hits the firing pin and causes the firing of the round.

b. Second round fire:

- After the first round fired (while the shooter still pulls the trigger), the bolt carrier travels backwards and forward causing the hammer rotation.
- The hammer is caught by the sear, but still not affecting the activator.
- Upon trigger release the activator is seated under the sear tail, ready to push it when the trigger is squeezed again.
- Another squeeze of the trigger starts the cycle from the beginning.

3.2.3 Automatic Fire Mode

The automatic fire mode is as follows:

a. First round fire:

- Setting safety lever to Auto mode enables longer trigger movement so that the activator accomplishes a longer rotational movement, neutralizing the sear from the hammer.
- The released hammer hits the firing pin.

b. Sustain fire:

- After the first round fire, firing is automatic (the shooter still squeezing the trigger).
- When the bolt carrier travels back, it forces the hammer down.
- Longer trigger squeezing causes the activator to accomplish longer rotational movement, neutralizing the sear from the hammer.
- The hammer is caught by the automatic sear.
- The forward travel of the bolt carrier causes its rear section to hit the automatic sear, releasing the hammer.
- The hammer, which is released of the automatic sear, accomplishes another firing operation. This goes on similarly as long as the trigger is squeezed.
- When the shooter releases the trigger, the sear catches the hammer and cuts the cycle.

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Chapter 4

Operation

4.1 General – Normal Operation

This chapter contains the safety precautions for using weapon, explanation of the TAVOR rifle type of weapon, bullet loading and preparation for firing and jam clearance.

4.2 Safety Operation

Operate the rifle using the following safety precautions:

a. Always load or unload the weapon in the shooting range, and prior to firing hold the rifle in the firing direction only.

b. Unload the weapon prior to leaving the shooting range, or prior to any service/inspection operation.

c. Do not travel with the rifle loaded.

d. Verify that the rifle is always on “safe” mode when not in use.

e. Use special tools only for maintenance.

f. For firing, use standard approved ammunition.

g. Prior to firing verify that the barrel bore is clean and unobstructed.

h. Upon completion of firing, clean the weapon and apply thin coat of lubricant oil on the recoiling parts.

4.3 Safety Inspection

TAVOR rifle safety inspection shall be carried out in the following events:

a. When receiving and delivering.

b. In shooting range:

   1) Upon arrival to the range area.

   2) Upon completion of fire at each stage.

   3) Prior to leaving the range area.

Perform the inspection as follows:

a. Using your thumb ensure that the safety lever is positioned to S ("safe" mode).

b. Ensure there is no magazine in the weapon.

c. Hold the pistol grip with all five fingers.

d. Raise the weapon to a 60º angle.

e. Cock three times and hold the cocking handle back.

f. Lower the weapon to a 45° angle downwards.

g. Check visually the barrel chamber.

h. Release the cocking handle.

4.4 Weapon Operation

Operate the rifle as follows:

a. Feeding:

   1) Fill the magazine with 30 rounds.

   2) Insert the magazine into the weapon magazine housing until a click of the magazine catch is heard.

   3) Verify that pulling it down cannot draw out the magazine.

b. Loading: Cock the recoiling system by pulling back the cocking handle and releasing. This action causes the duty round to be pushed by the bolt out of the magazine through the bullet ramp into the chamber.

c. Firing:

   1) Set the safety lever to firing mode (semi auto., Automatic).

   2) Squeeze the trigger.

3) Upon completion firing the magazine (empty magazine) the recoiling system is at rear position. Remove the empty magazine and insert a full magazine instead, then press the bolt carrier lever to release the bolt carrier, which moves forward and loading another round into the chamber.

Warning:

Closed bolt system weapons have always remaining unfired round in the chamber when fire is stopped, while rounds are still available in the magazine. Remove the magazine and run safety inspection to verify that the last round is ejected of the chamber and there is no an additional round.

d. Unloading:

1) Incline the weapon 60 degrees up in the firing direction.
2) Press the magazine catch and remove the magazine.
3) Cock the rifle twice and hold the cocking handle in rear position.

Note:

If the rifle is loaded, the round will be ejected.

4) Check the rifle, by looking into the rifle chamber, the bolt face and the magazine house, and verify that there is no round (the check is performed also by the commander)
5) Release the cocking handle and move the safey lever to "safe" mode.
6) Collect the ejected round, if any.

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Chapter 5

Aiming System

5.1 General

The aiming system consists the means to aim the weapon onto the desired location.

The TAVOR is equipped with an aiming system that includes optical reflex sight and integral laser pointer. The aiming system is attached to the barrel.

5.2 Sights

The following paragraphs describe the TAVOR sights:

a. MARS Reflex Sight:

1) General

The reflex sight consists day/night sight with no magnification, mounted integrally on the barrel. Removal and installation are carried out at the Armorer Level. the sight includes a laser pointer.

2) Sight operation

Light source inside the sight assy. emits red light beam, which is projected on a window where a red dot is visible. The soldier observes the target area through this window, which coincides the red dot and the target.

3) Weapon laying

The aiming is carried out by setting the red dot on the target, with both eyes open.

4) Serviceability test:

a) Check the sight completeness and verify it is stabled installed.

b) Check for normal operation and intact red dot.

c) When any defect or fault is noticed, send sight for repair.

5) Service and preventive maintenance:

a) Clean the sight of dirt and dust, paying special attention to the lens and buttons.

b) Clean lens, light control window and laser window by means of lens cleaning sheet or clean patch. Remove carefully sand grains or dust from lenses, in order not to scratch them.

b. Backup sights:

1) The backup sights serve for firing when the reflex sight is inoperative from any reason. The front backup sight (folded) is located on the cocking handle guide. The rear backup sight is located on the cylinder gas (night vision accessory base) (folded).

2) Aiming through the sight is accomplished by setting the front blade into the center of the hole at the rear sight and creating LOS through the eye, blade and target.

Note:

Return the sight to the armory when detecting any fault.

Chapter 6

Disassembly/Assembly Authorized at Operator Level

6.1 General

This chapter contains user level disassembly/assembly procedures. No disassembly/assembly activities are allowed to be performed by the user except for these detailed hereinafter. The user shall not remove or install any other part on the weapon and when necessary an authorized armorer shall be applied.

Assembly is carried out same as disassembly, but in reverse order.

6.2 General Instructions

The following instructions are applicable to soldiers and various maintenance levels:

a. Prior to disassembly carry out safety inspection and remove ammunition from the weapons.

b. Place the parts according to the disassembly sequence on a clean surface to keep the parts clean.

c. Use authorized accessories and tools only.

d. Separate the parts of the weapon from other weapon parts.

e. Use cleaning solution to clean the weapon parts.

6.3 Preliminary Disassembly

Perform preliminary disassembly as follows (see Figure 6-1):

a. Remove the recoiling system from the weapon by pressing the butt lock pin on the RIT side of the rifle and pulling all the way to the LH side (the pin remains connected).

b. Open the butt holding its top section, hold the buffer and pull the recoiling system out.

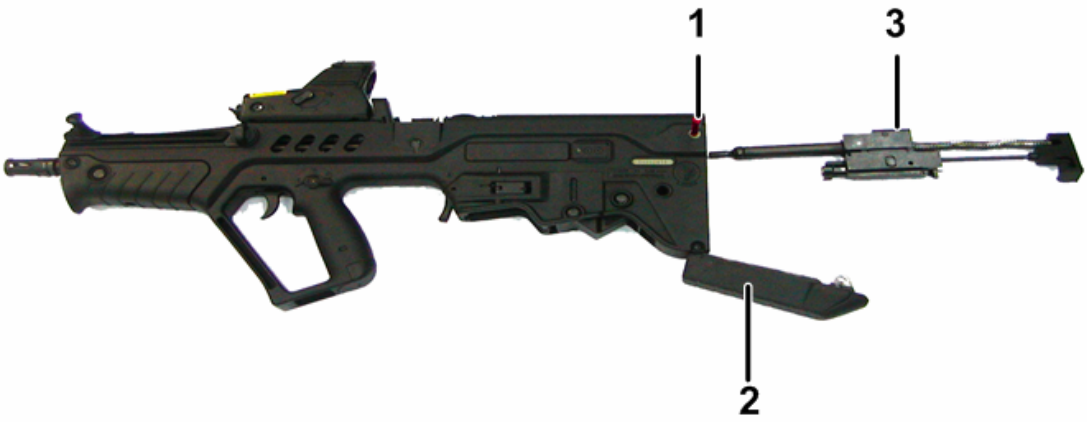

Figure 6-1. Primary disassembly

No.	Part
1	Butt locking pin
2	Butt rear side
3	Recoiling system

6.4 Secondary Disassembly

Perform secondary disassembly as follows:

a. Recoiling Assy. disassembly:

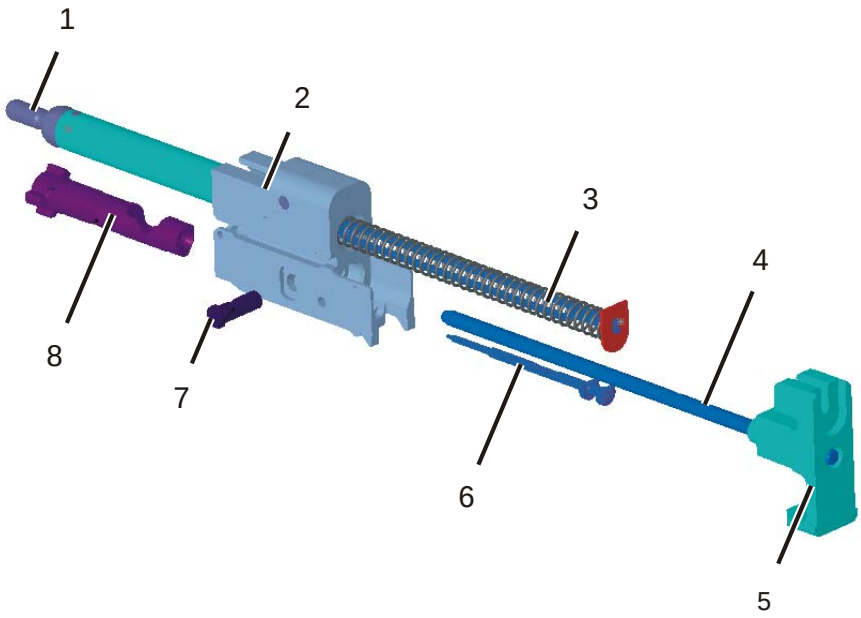

Figure 6-2. Recoiling System Parts

	Part Number	Part Designation
1	00.704.3305	Piston
2	00.704.3300	Bolt carrier assembly
3	00.704.3303	Return spring
4	00.704.3200	Bolt carrier guide rod
5	00.704.3221	Buffer
6	00.704.3001	Firing pin
7	00.704.3002	Bolt guide pin
8	00.704.3100	Bolt

1) Removal of the recoil spring from the buffer – Compress the recoil spring until the spring may be removed from the buffer.
2) Removal of bolt guide pin – Take out the bolt carrier guide rod, push the bolt guide pin at the bolt carrier LH side until it comes out of the bolt carrier.
   Remove bolt and firing pin from the bolt carrier.
3) Assembly – the assembly will be done in reverse order.

Note:

While inserting the bolt guide pin, the bolt and the firing pin grooves must be directed up and the bolt guide pin must enter its place in the bolt carrier sink.

b. Removal of the trigger mechanism from the Rifle (see Figure 6-3):

1) Press the mechanism lock pins on the rifle's RH side and pull it all the way to the LH side (the pins remain connected to the rifle).
2) Lift bolt carrier stop button and remove the sears mechanism.

Figure 6-3. Removal of trigger mechanism

No.	Part
1	Butt locking pin
2	Mechanism locking pins
3	Trigger mechanism

c. Assembly – assembly will be done in reverse order.

Note:

The hammer must be cocked (down position).

Chapter 7

Operator Level – Preventive Maintenance

7.1 General

Perfect acquaintance with the proper service of the weapon is highly significant.

The attention assigned to the weapon cleaning and service determines eventually the proper operation of the weapon when necessary.

Experience shows that the majority of stoppages are caused by inappropriate handling of the weapon rather than by mechanical defects.

7.2 Accessories and Cleaning Tools for Weapon Service

The following accessories and cleaning tools are required for weapon service (see Figure 7-1):

Figure 7-1. Cleaning kit

No.	Part
1	Oil can
2	Cleaning rod
3	General cleaning brush
4	Chamber and barrel extension cleaning brush
5	Internal receiver cleaning brush

7.3 Daily Inspection/Service

In order to maintain the normal condition of the rifle, daily service must be carried out even when the weapon is not fired.

Perform Daily Inspection/Service procedure as follows:

a. Accomplish user-authorized primary disassembly.
b. Use clean dry patch to clean the barrel bore and visually check that the bore is clean.
c. Visually check the barrel bore for rust, erosion, swollen areas or metal sediments.
d. Clean all parts of soot, sand or dust.
e. Using lens cleaning rice paper, clean sight lens.
f. Apply thin coat of rifle oil lubricant to metal weapon surfaces.
g. Assemble the weapon.

7.4 Weekly Inspection/Service

Perform Weekly Inspection/Service procedure as follows:

a. Carry out daily inspection/service according to paragraph 7.3 and in addition accomplish user authorized secondary disassembly.
b. Visually inspect the bolt, firing pin and extractor for damage.
c. Check bolt surface for damage and verify that the firing pin hole is round and not eroded.
d. Check ejector for normal springiness.
e. Verify that the safety lever operates properly.
f. Check tightness of the grip screws.
g. Visually inspect the grip and the cocking handle for damage.
h. Check that the optical sight and laser pointer operate properly.
i. In sharp shooter configuration rifle, inspect bipod for normal condition.

7.5 Pre-Firing Inspection/Service

Prior to any firing verify cleanliness of the weapon as follows:

a. Accomplish primary user-authorized disassembly.
b. Separate the weapon assemblies from other weapon assemblies.
c. Clean soot, sand and oil by means of standard cleaning solution only.
d. Clean barrel bore by a cleaning rod:
    1) Insert the cleaning rod into barrel from muzzle end.
    2) Insert one patch square to loop of the cleaning rod.
    3) Pull the cleaning rod in parallel to the barrel direction.
e. When soot or metal sediments are noticed in the barrel or chamber, clean with appropriate brush.
f. Apply thin coat of rifle oil lubricant to recoiling parts surfaces except for surfaces that contact exhaust gas such as the barrel bore or the chamber.
g. Assemble the weapon taking special care not to replace assemblies with those of another weapon.
h. For firing, use standard ammunition approved by ammunition inspector. Do not lubricate or clean ammunition with any cleaning solvents.

7.6 Post-Firing Inspection/Service

Upon completion of firing, clean the weapon thoroughly, with special attention to parts contacting exhaust gas:

a. Unload weapon; make sure there is no round in the chamber.
b. Accomplish primary user-authorized disassembly. Verify that the weapon assemblies are separated from other weapon assemblies.
c. Clean all weapon assemblies with standard cleaning solution.
d. Pass through the barrel bore patch moistened with rust preventive oil and then pass a clean patch until the drawn patch is clean.
e. Clean well and lubricate the barrel bore, chamber and gas system assemblies daily until no soot comes out (minimum seven day).
f. Clean feeding assembly from sand, dust, etc.

Note:

Weapon inspection/service shall be carried out immediately after firing. When this is impossible, lubricate the weapon parts and the barrel bore with thick coat of rifle oil to avoid curing of the soot.

7.7 Extreme Condition Operation

In extreme conditions, perform service and cleaning as follows:

a. Cold Climate:

At temperatures below the freezing point it is essential that all weapon-recoiling parts are moisture free. It is proved that over lubrication of the metal parts causes coagulation that create loose operation of the mechanism and faults. Thus, after carrying out the daily service proceed as follows:

1) Dress the rifle with muzzle cover.
2) At temperatures below -10°C, disassemble the weapon down to user-authorized level and lubricate the metal parts with special low temperature oil.
3) Protect the rifle against rain and snow.
4) Upon completion of activities and when entering a building, dry and clean well the rifle and re-lubricate.

b. Hot/Humid Climate

At high temperature and humid climate, service/inspect properly the weapon daily, and after cleaning, lubricate the metal parts with rust preventive oil.

c. Sand Storm

In sand storm conditions, sand and dust may penetrate the mechanism and bore. Hence, thorough daily cleaning is essential. After using the rifle on sand grounds proceed as follows:

1) Wipe the lubricant to prevent sand from sticking to the lubricants, which may cause faults.
2) Protect the rifle with the muzzle cover to prevent sand and dust penetration into the bore.
3) Apply lubricant to recoiling parts and sliding surfaces, such as the sliding surface between the blot and the bolt carrier, the spiral path on the bolt, returning spring, bolt carrier guiding rod, cocking rod and slot of cocking handle guide.

Chapter 8

Disassembly and Assembly

8.1 General

This chapter provides step-by-step instructions for rifle disassembly and assembly on armorer level.

The tasks detailed in this chapter are as follows:

Front sight assembly disassembly and assembly	Paragraph 8.20
Sight stabilizer sleeve assembly disassembly and assembly	Paragraph 8.21
Safety sub-assembly disassembly and assembly	Paragraph 8.22
Optical sight disassembly and assembly	Paragraph 8.23
Bolt carrier assembly disassembly and assembly	Paragraph 8.24
Mechanism housing assembly disassembly and assembly	Paragraph 8.25
Grenade launcher assembly disassembly and assembly	Paragraph 8.26
Bipod disassembly and assembly	Paragraph 8.27

8.2 List of Tools and Materials

The following tools and materials are used to perform disassembly and assembly tasks as well as barrel tests:

1	Allen wrenches. Sizes: ▪ 2 mm ▪ 1/8” ▪ 9/64” ▪ 4 mm	
2	Open wrench (19 mm or 3/4")	
3	Closed Hex wrench (7 mm)	
4	Barrel wrench	
5	Punches. Sizes: ▪ 1.5 mm ▪ 2.0 mm ▪ 3.0 mm	
6	Pin guide punch. Sizes: ▪ 1.5 mm ▪ 2.0 mm	
7	Metal hammer	

8	Plastic hammer	
9	Flat screwdriver	
10	Phillips screwdriver (2X80)	
11	Support pin (5.0X11.5 mm)	
12	Go gauge	
13	No Go gauge	
14	Barrel straightness gauge	
15	Loctite glue (242/270)	

8.3 Flash Suppressor Disassembly and Assembly

Required tools	▪ 19 mm or 3/4” wrench (X2)

To remove the flash suppressor, perform the steps as follows:

a. Hold the flash suppressor and the suppressor lock nut using the wrenches (Figure 8-2).

b. Turn the flash suppressor (1) counter-clockwise while turning the suppressor lock nut (2) clockwise.

c. Remove the flash suppressor.

d. Remove the suppressor lock nut.

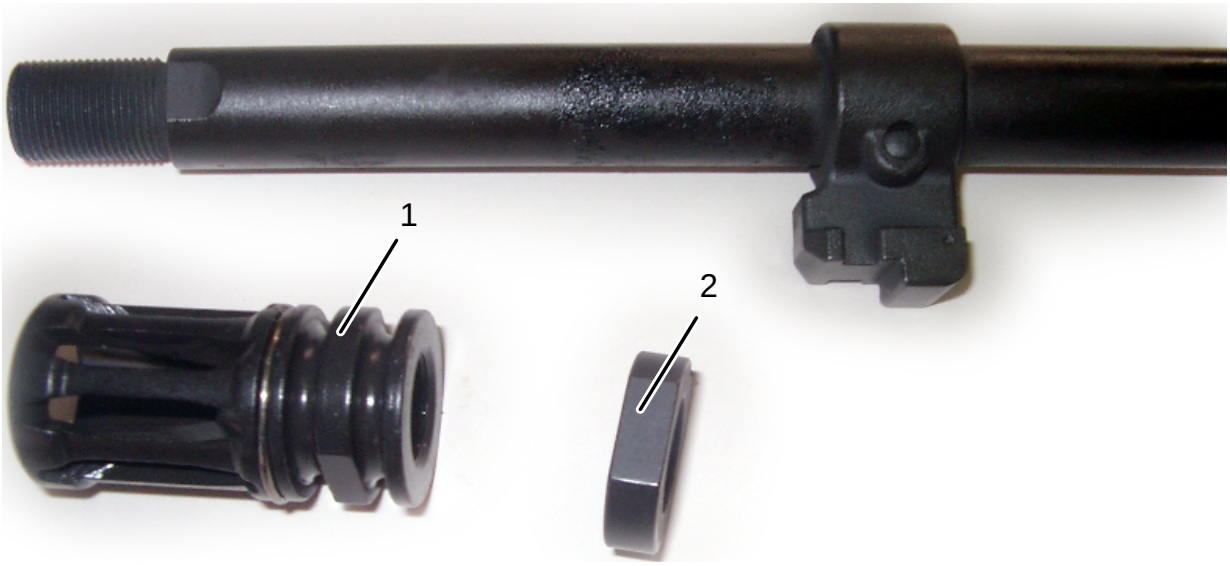

Figure 8-1. Flash Suppressor Assembly Parts

	Part Number	Part Designation
1	00.704.2010	Flash suppressor assembly
2	00.704.2008	Suppressor lock nut

To assemble the flash suppressor, perform the steps as follows:

a. Screw the suppressor lock nut (2) to the barrel till the end of the thread.

b. Screw the flash suppressor (1) until it touches the nut suppressor lock.

c. Unscrew the flash suppressor until its slots point up.

d. Using one wrench, hold the flash suppressor in place, using another wrench, tighten the suppressor lock nut counter-clockwise against it.

Figure 8-2. Flash Suppressor Disassembly

8.4 Grip Disassembly and Assembly

Required tools	▪ 1/8” Allen wrench (X2) ▪ Loctite 242 glue (or similar)

To remove the grip, perform the steps as follows:

a. Open both cocking handle guide screws using an Allen wrench.

b. Hold the front section of the grip and pull it downwards gently.

c. Gently remove the laser pointer switch (1, Figure 8-3).

d. Remove the grip.

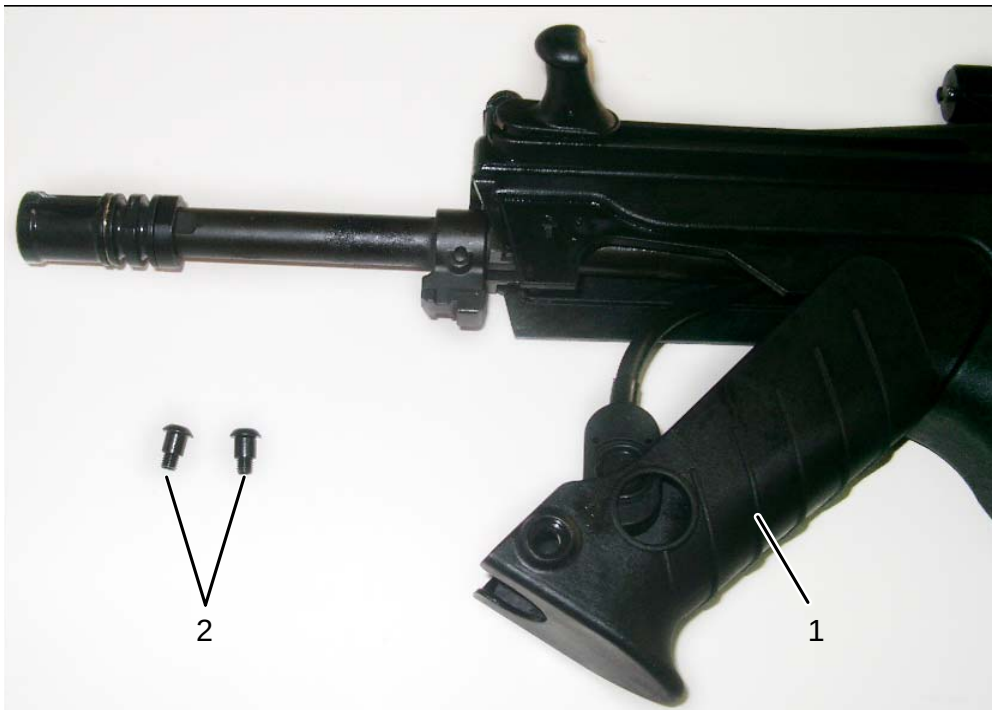

Figure 8-3. Grip Disassembly

	Part Number	Part Designation
1	00.704.0009	Grip
2	00.704.0310	Guide cocking handle screw (X2)

To assemble the grip, perform the steps as follows:

a. Insert the laser pointer switch into its bore on the grip (Figure 8-4). Verify that the laser pointer wire is routed to the opposite side of which the cocking handle bar is installed.

Figure 8-4. Inserting the Laser Pointer Switch

b. Verify that the grip salients are located on the receiver.

c. Insert the grip into its place on the receiver.

d. Apply a thin coat of Loctite 242 to the guide cocking handle screws.

e. Tighten the screws using an Allen wrench (Figure 8-5).

Figure 8-5. Tightening the Allen Screws

8.5 Cocking Handle Disassembly and Assembly

Required tools	▪ 1.5 mm punch ▪ Metal hammer

To remove the cocking handle, perform the steps as follows:

a. Using the 1.5 mm punch, push out the pin that secures the swivel sling lock.

b. Pull out the swivel sling lock (3) and the swivel sling (2).

c. Lightly push the sides of the receiver supporting the cocking handle guide, and pull guide forward.

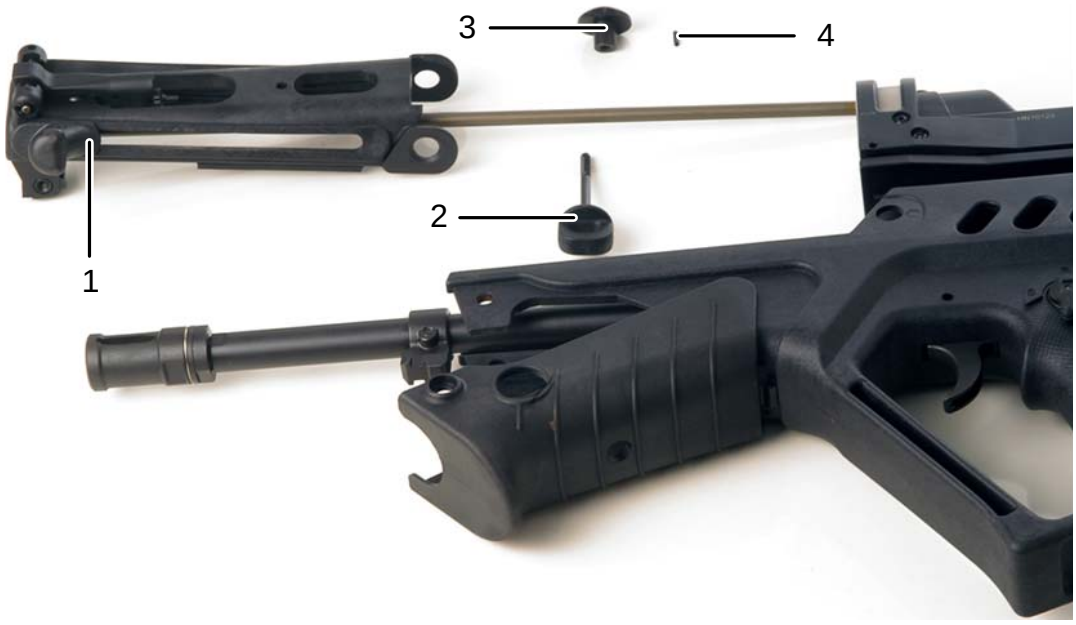

Figure 8-6. Cocking Handle Assembly

	Part Number	Part Designation
1	00.704.0100	Cocking handle guide assembly
2	00.704.1036	Forward sling sleeve
3	00.704.1037	Forward sling lock
4	00.704.3107	Ejector pin

To assemble the cocking handle guide assembly, perform the steps as follows:

a. Make sure that the barrel is locked.

b. Insert the cocking bar into the cocking guide hole of the sight base.

c. Insert the cocking handle guide assembly into its place on the rifle receiver.

Figure 8-7. Inserting the Cocking Handle Guide Assembly

d. Insert the forward sling sleeve (2) into its place on the left side of the rifle (in right - handed configuration) and screw it to the forward sling lock (3).

Figure 8-8. Inserting the Forward Sling Sleeve

Figure 8-9. Screwing the Forward Sling Sleeve

e. Align the holes of the forward sleeve and the forward lock.

Figure 8-10. Aligning the Holes

f. Using a hammer, insert the security pin into its place.

Figure 8-11. Inserting the Security Pin

8.6 Barrel Disassembly and Assembly

Required tools	▪ Barrel wrench ▪ 1.5 mm punch

To remove the barrel, perform the steps as follows:

a. Verify that the cocking handle has been removed from the rifle.

b. Using a 1.5 mm punch, unlock the plate locking pin barrel lock.

c. Insert the barrel wrench into the slot on the barrel locking pin and turn it 180° clockwise, so that the white mark is aligned with O.

d. Pull the barrel out of the rifle.

e. Remove the front shield (2).

Figure 8-12. Barrel Assembly

	Part Number	Part Designation
1	00.704.2000	Barrel assembly
2	00.704.0007	Front shield

To assemble the barrel, perform the steps as follows:

a. Verify that the white mark on the barrel locking pin is aligned with O.

b. Insert the front shield (2).

c. Insert the barrel into its place in the receiver.

d. Insert the barrel wrench into the barrel locking pin and turn it 180° counter-clockwise, so that the white mark is aligned with L, until it clicks the notch in the receiver.

Figure 8-13. Barrel Wrench in Locking Pin

Figure 8-14. Barrel Locking Pin (Positioned to O)

8.7 Gas Cylinder Disassembly and Assembly

Required tools	▪ None

To remove the gas cylinder, perform the steps as follows:

a. Set the safety lever to Safe.

b. Push the cylinder forward, until a third of it is out of its track.

c. Apply additional force in the same direction, until the gas cylinder comes out.

Figure 8-15. Gas Cylinder Assembly

	Part Number	Part Designation
1	00.704.0200	Gas cylinder assembly

To assemble the gas cylinder, perform the steps as follows:

a. Place the gas cylinder in front of the receiver rails.

b. Push the receiver walls a little sideways and insert the gas cylinder into the receiver.

c. Verify that the rails of the gas cylinder are aligned with the insert slot, and push it into place.

Figure 8-16. Placing Gas Cylinder into Receiver

Figure 8-17. Gas Cylinder in Place

8.8 Safety Disassembly and Assembly

Required tools	▪ 2.0 mm punch ▪ Flat screwdriver

To remove the safety, perform the steps as follows:

a. Using a 2.0 mm punch, push the plunger securing the safety pivot cover on a right-handed rifle or the safety lever on a left-handed rifle (both on the right-hand side of the rifle), and push the pivot cover (1) towards the rifle rear until it comes off.

b. Position the safety lever to R.

c. Insert a flat screwdriver between the body and safety cam (3), and pull the safety lever out (5).

d. Remove the MARS operation bar (6).

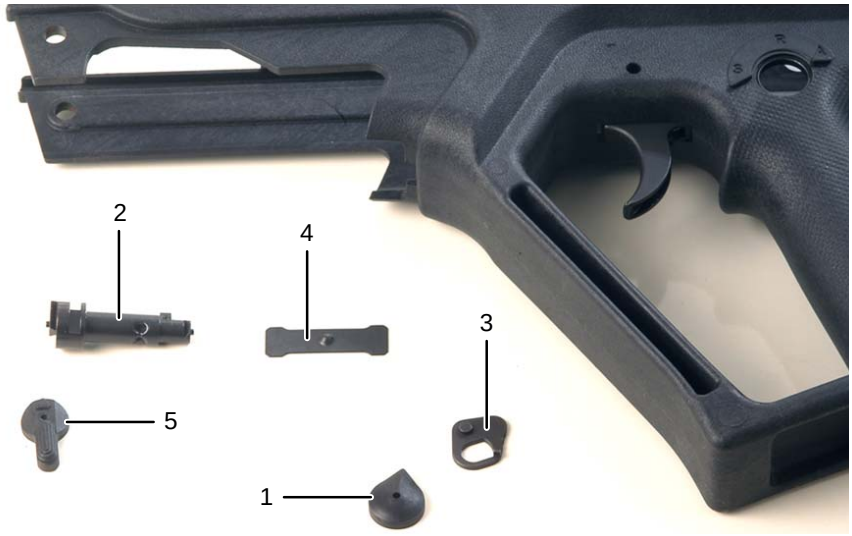

Figure 8-18. Safety Assembly

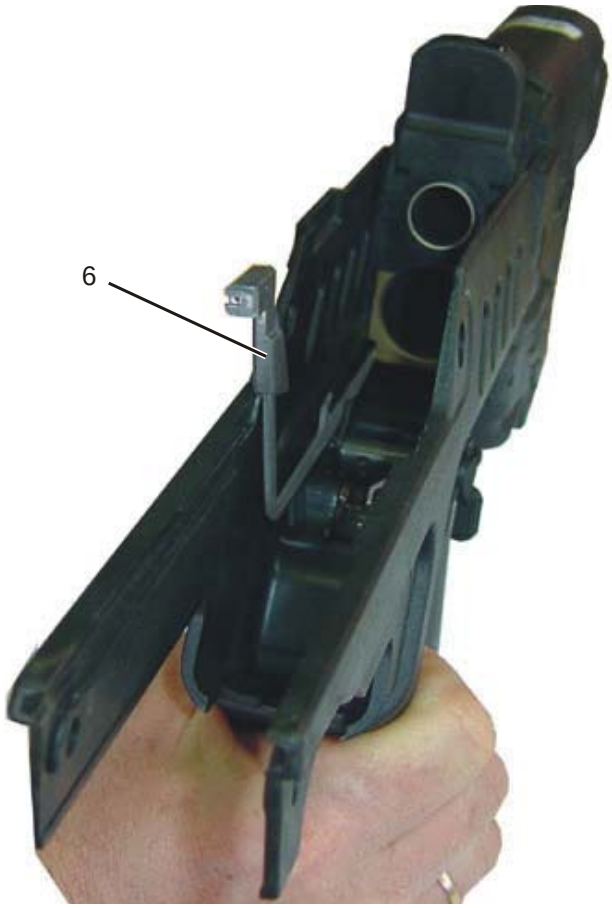

Figure 8-19. MARS Operation Bar

	Part Number	Part Designation
1	00.704.1017	Safety pivot cover
2	00.704.1050	Safety assembly
3	00704.1061	Safety cam
4	00.704.1016	Safety position spring
5	00.704.1015	Safety lever
6	00.704.1130	MARS operation bar

To install the safety, perform the steps as follows:

a. Insert the safety position spring (4) into its place in the receiver with the embossment pointing up.

Figure 8-20. Inserting Safety Position Spring

b. Insert the safety assembly (2) into its hole on the left-hand side of the receiver.

c. Press the MARS operation bar (6) against the receiver left wall and slide it all the way into the groove. When inserted, make sure that the fork sits on the safety bar.

d. Assemble the safety cam (3). Make sure that the pin embossment is in contact with the MARS operation bar (6).

e. Lightly push the safety assembly (2) against the spring and push it into the right safety hole of the receiver.

Figure 8-21. Inserting the Safety into Place

f. Assemble the safety pivot cover (1) for right-handed rifle (or the safety lever for left-handed rifle) by pressing the securing plunger and pushing the parts to the opposite direction.

g. Check the safety for proper movement and smooth clicks.

Figure 8-22. Assembling the Safety Lever

8.9 Trigger Disassembly and Assembly

Required tools	▪ 3.5 mm punch ▪ Plastic hammer

To remove the trigger, perform the steps as follows:

a. Using the hammer and 3.5 mm punch remove trigger pivot (2) from rifle receiver, while supporting the rifle from below.

b. Remove the trigger (1) from the receiver.

c. Separate the trigger (1) and trigger spring (3).

d. When re-recoiling the trigger make sure that the trigger safety device does not get stuck on the trigger rod.

Figure 8-23. Trigger Assembly

	Part Number	Part Designation
1	00.704.1070	Trigger assembly
2	00.704.1021	Trigger pin
3	00.704.1026	Trigger spring

To assemble the trigger, perform the steps as follows:

a. Insert the trigger spring (3) into the trigger (1).

b. Insert the support pin into the trigger, through the trigger spring.

Figure 8-24. Inserting the Trigger Pin into the Trigger

c. Insert the trigger into the receiver. Note that the safety trigger device pin is inserted into the trigger rod.

d. Make sure that the trigger spring is supported by the projection on the receiver.

Figure 8-25. Trigger in Receiver

e. Align the trigger hole with the receiver hole and insert the trigger pin (2), sharp edge forwards, from the right-hand side of the rifle.

f. Use a hammer to insert the trigger pin (2) into its final position.

Figure 8-26. Inserting the Trigger Pin

g. Make sure that the trigger spring secures the trigger pin, by pressing lightly on the pin with the punch.

h. Check the trigger for proper movement.

8.10 Magazine Catch Disassembly and Assembly

Required tools	▪ 2.5 mm punch ▪ Plastic hammer ▪ 5.0X11.5 mm support pin

To remove the magazine catch, perform the steps as follows:

a. Using the punch, take out the magazine catch pivot (3).

b. Hold the magazine catch (1) and the magazine catch spring (2) and take out the punch.

c. Remove the magazine catch (1) and magazine catch spring (2) and separate them from each other.

d. Using the punch, remove the magazine release lever pin (7) from the left side of the receiver.

e. Remove the magazine catch connector lever (4).

f. Remove the magazine release lever pivot (5).

g. Remove the magazine release lever and its spring and separate them from each other.

Figure 8-27. Magazine Catch Assembly

	Part Number	Part Designation
1	00.704.1001	Magazine catch
2	00.704.1002	Magazine catch spring
3	00.704.1003	Magazine catch pivot
4	00.704.1004	Connector lever
5	00.704.1006	Magazine release lever pivot
6	00.704.1007	Magazine release lever spring
7	00.704.1008	Magazine release lever pin
8	00.704.1005	Magazine release lever

To assemble the magazine catch, perform the steps as follows:

a. Install the magazine release lever spring (6) into the magazine release lever (8) using the support pin. Make sure that the spring bend is located in the lever slot.

Figure 8-28. Installing the Magazine Release Lever Spring

b. Install the magazine release lever (8) into the receiver. Make sure the pivot hole is at the center of the lever hole.

Figure 8-29. Installing the Lever into the Receiver

c. Install the magazine release lever pivot (5).

Figure 8-30. Installing the Magazine Release Lever Pivot

d. Insert the magazine release lever pivot (5) into the receiver with the sharp edge forwards.

Figure 8-31. Installing the Magazine Release Lever Pivot

e. Push the magazine release lever pivot (5) all the way.

f. Insert the connector pin from the right side of the receiver, with the narrow diameter of the pin forwards, just enough for the pin to reach the rifle level.

Figure 8-32. Installing the Connector Pin

Figure 8-33. Securing the Connector Pin

g. Insert the connector lever (Figure 8-34) so that it is positioned horizontally on the receiver floor.

h. Using a 2.5 mm punch, insert the connector pin all the way. Make sure that it goes through the connector.

i. Check for proper movement.

j. Install the magazine catch spring (2) into the magazine catch (1).

Figure 8-34. Installing the Magazine Connector Lever

k. Insert the magazine catch (1) to its location in the receiver. Make sure that the magazine catch spring (2) is located on the receiver slot.

Figure 8-35. Installing the Magazine Catch

l. Press the magazine catch (1) and insert the magazine catch pin (3) from the magazine house direction, with the sharp edge of the pin entering first.

Figure 8-36. Installing the Magazine Catch Pin

Figure 8-37. Securing the Magazine Catch Pin

m. Check the magazine catch for proper operation.

8.11 Butt Disassembly and Assembly

Required tools	▪ Flat screwdriver (X2) ▪ 5.0 mm punch ▪ Loctite 242 or similar

To remove the butt assembly, perform the steps as follows:

a. Pull the butt locking pin (5) all the way out from the receiver left side, until it is captured by the butt locking spring.

b. Open the butt pivot screw and take off the butt assembly parts.

c. Separate the sleeve (4) from the butt assembly (3).

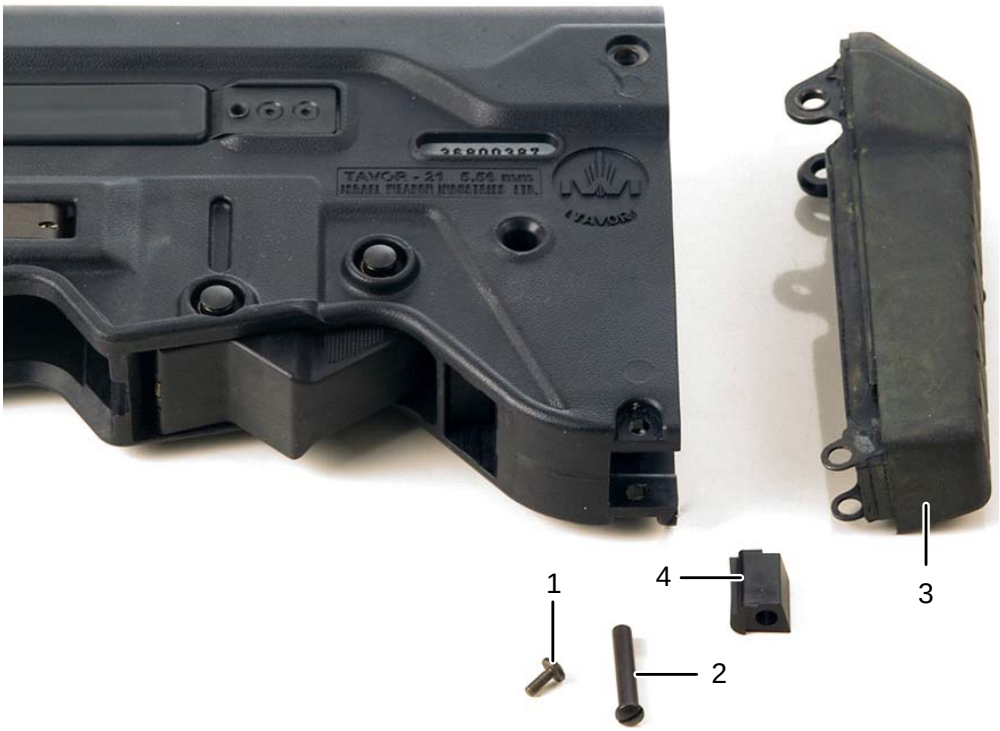

Figure 8-38. Butt Assembly

Figure 8-39. Butt Locking Pin

	Part Number	Part Designation
1	00.704.0006	Butt pivot screw
2	00.704.0005	Butt pivot
3	00.704.1200	Butt assembly
4	00.704.1201	Sleeve
5	00.704.1032	Butt locking pin

To assemble the butt assembly, perform the steps as follows:

a. Insert the butt sleeve (4) to the butt assembly (3). Make sure the parts are aligned with each other.

Figure 8-40. Inserting the Butt Sleeve into the Butt Assembly

b. Insert the butt assembly into the receiver and align the holes.

c. Insert the butt pivot (2).

Figure 8-41. Inserting the Butt Pivot

d. Apply a thin coat of Loctite 242 to the butt pivot screw (1), and screw it in place.

e. Close the butt and push the butt locking pin (5) all the way in.

8.12 Bolt Carrier Stopper Disassembly and Assembly

Required tools	▪ 5.0 mm punch

To remove the bolt carrier stopper, perform the steps as follows:

a. Remove the recoiling system from the receiver.

b. Open the mechanism locking pins on the right side of the receiver.

c. Pull out the mechanism housing assembly from the receiver.

d. Push the bolt carrier stopper lever (4) into the receiver and remove it.

e. Separate the bolt carrier stopper pin (2) and bolt carrier stopper spring (3) from the bolt carrier stopper lever.

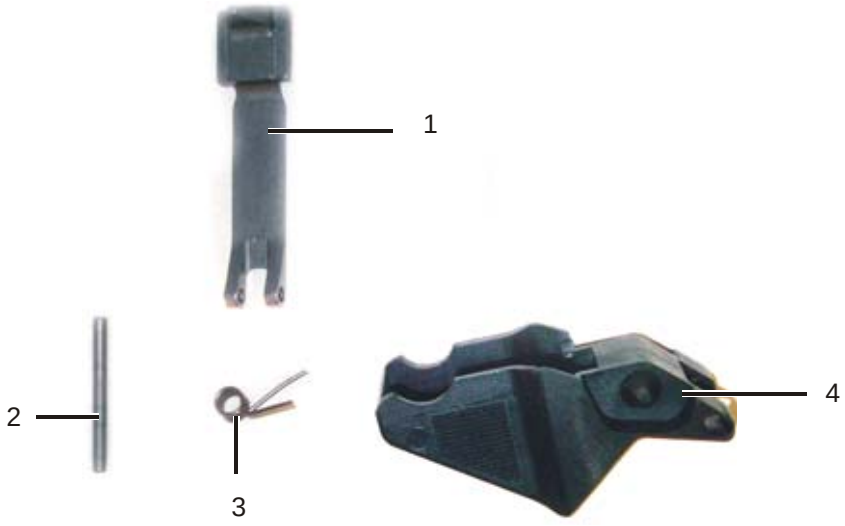

Figure 8-42. Bolt Carrier Stopper Assembly

	Part Number	Part Designation
1	00.704.1022	Bolt carrier stopper
2	00.704.1023	Bolt carrier stopper pin
3	00.704.1024	Bolt carrier stopper spring
4	00.704.1025	Bolt carrier stopper lever

To assemble the bolt carrier stopper, perform the steps as follows:

a. Install the bolt carrier stopper (1) and the spring (3) into the bolt carrier stopper lever (4).

Figure 8-43. Installing Bolt Carrier Stopper Spring

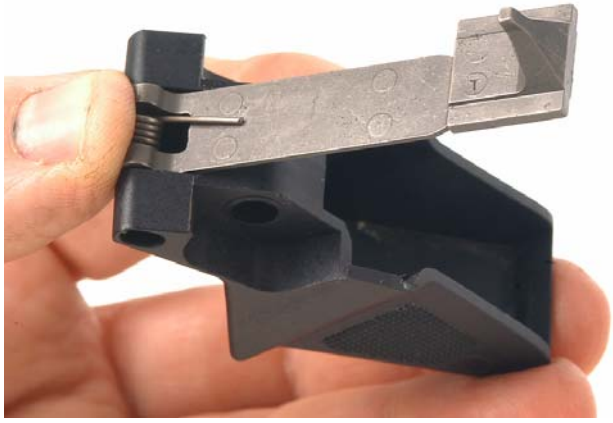

Figure 8-44. Installing Bolt Carrier Stopper

b. Insert the bolt carrier stopper assembly into the receiver, against the receiver rails, and pull the bolt carrier stopper to its location.

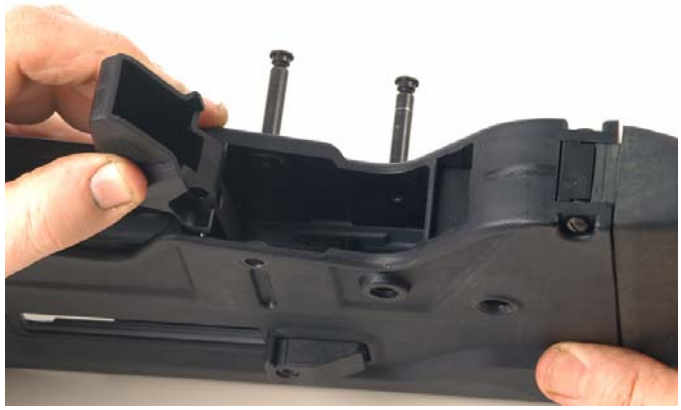

Figure 8-45. Installing the Bolt Carrier Stopper into the Receiver

8.13 Ejection Port Cover Disassembly and Assembly

Required tools	▪ Flat screwdriver

To remove the ejection port cover, perform the steps as follows:

a. Lift the ejection port cover (1) using a screwdriver.

b. Push the ejection port cover (1) towards the butt assembly and remove it.

c. Remove the ejection port cover base (2) from its rail, and take it out of the receiver.

Figure 8-46. Ejection Port Cover and Base

	Part Number	Part Designation
1	00.704.1013	Ejection port cover
2	00.704.1014	Ejection port cover base

To assemble the ejection port cover, perform the steps as follows:

a. Insert ejection port cover base (2) into its place in the insert slot (for right-handed on the right-hand side, for left-handed on the left-hand side) and hold it.

Figure 8-47. Inserting Ejection Port Cover Base

b. Push the ejection port cover (1) forward and insert it into the rail of the base.

Figure 8-48. Ejection Port Cover

8.14 Insert Disassembly and Assembly

Required tools	▪ 2.0 mm Allen wrench ▪ Barrel wrench ▪ 9/64" Allen wrench ▪ Loctite 270 or similar

To remove the insert, perform the steps as follows:

a. Twist the barrel locking pivot till it is aligned with the slot on the receiver (90°).

b. Push the pivot from the right side out.

c. Using a 9/64" Allen wrench remove the deflector tightening screw (1).

d. Remove the deflector (2).

Figure 8-49. Deflector and Tightening Screw

e. Drill the extraction port screws out. This is necessary since they are secured with Loctite and cannot be opened using an Allen wrench.

f. Remove the nuts from the receiver insert.

g. Take out the extraction port shield off the receiver.

h. Lift the receiver a little to make sure the embossment on the insert is not inside the receiver slot, lower the receiver a little and pull the insert and the trigger bar assembly out.

i. Separate the trigger bar assembly from the insert.

	Part Number	Part Designation
1	00.704.1111	Receiver insert
2	00.704.1120	Trigger bar assembly
3	00.704.1040	Barrel locking pivot assembly
4	00.704.1114 X4	Extraction port shield screw
5	00.704.1112 X2	Extraction port shield
6	00.704.1113 X4	Extraction port shield nut
7	00.704.1113	Deflector tightening screw
8	00.705.1112	Deflector

To assemble the insert, perform the steps as follows:

a. Insert the trigger bar assembly into the rail on the left side of the insert. Push the rear pin into the wide hole and slide it all the way back.

Figure 8-50. Insert and Trigger Bar Assembly

b. Install the insert into the receiver.

c. Push the insert into its place and make sure the insert embossment is located in the receiver slot.

Figure 8-51. Installing the Insert into the Receiver

d. Install the four ejection port shield nuts into their place on the insert.

e. Assemble the ejection port shields and insert the four ejection port shield screws.

f. Apply a thin coat of Loctite 270 to the screws, and screw them in place.

g. Verify that the glued surfaces are clean and dry, and tighten the four nuts. Make sure they are located in the receiver slot.

Figure 8-52. Installing the Ejection Port Shield

Figure 8-53. Securing the Ejection Port Shield

h. Bend the deflector and install it in place.

i. Using a 9/64" Allen wrench, screw the deflector tightening screw.

j. Insert the barrel locking pivot from the receiver left-hand side. Make sure to locate the pin against the receiver slot and push the barrel locking pivot into its place.

k. Twist the barrel pin clockwise.

8.15 Butt Locking Pin Disassembly and Assembly

Required tools	▪ 5.0 mm punch

To remove the butt locking pin, perform the steps as follows:

a. Push the butt locking pin (1) from the right side until it is stopped by the butt locking pin spring (2).

b. Push the spring leg up and remove the pin (1) from the receiver.

c. Pull the butt locking pin spring (2) out.

Figure 8-54. Butt Locking Pin

	Part Number	Part Designation
1	00.704.1032	Butt locking pin
2	00.704.1033	Butt locking pin spring

To assemble the butt locking pin, perform the steps as follows:

a. Insert the butt locking pin (1) from the left-hand side.

Figure 8-55. Installing the Butt Locking Pin

b. Insert the butt locking pin spring (2) into its place in the rifle insert.

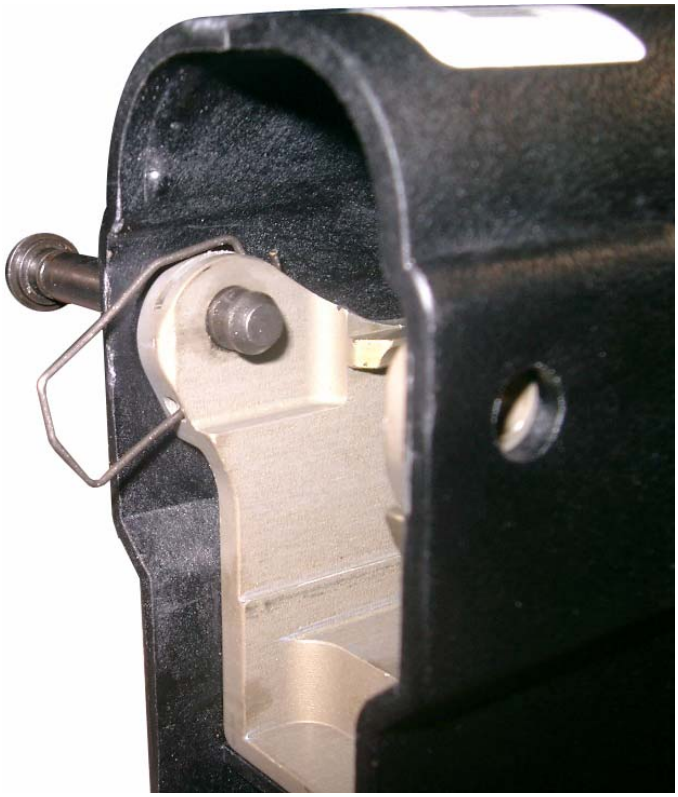

Figure 8-56. Inserting the Butt Locking Spring

8.16 Bolt Disassembly and Assembly

Required tools	▪ 2.0 mm punch ▪ 1.5 mm punch ▪ Metal hammer

To disassemble the bolt, perform the steps as follows:

a. Remove the extractor as follows:
   - Press extractor (2) between the extractor spring (8) and the extractor pivot (6).
   - Using a 2.0 mm punch, push the extractor pivot (6) out.

b. Lift the ejector (3) up to bolt surface.

c. Using a 1.5 mm punch, remove ejector pin (7), and carefully release the ejector pressure so it does not shoot off.

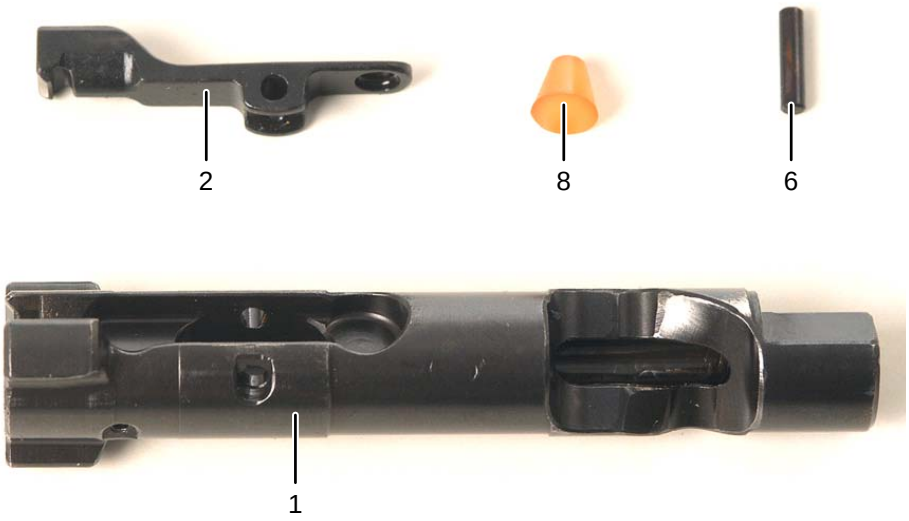

Figure 8-57. Bolt Assembly

d. Remove the ejector (3).

e. Remove the ejector spring (4).

f. Remove the ejector spring guide (5).

	Part Number	Part Designation
1	00.704.3101	Bolt right
2	00.704.3102	Extractor
3	00.704.3103	Ejector
4	00.704.3104	Ejector spring
5	00.704.3105	Ejector spring guide
6	00.704.3106	Extractor pivot
7	00.704.3107	Ejector pin
8	00.704.3108	Extractor spring

To assemble the bolt, perform the steps as follows:

a. Insert the ejector spring guide (5) into the ejector spring.

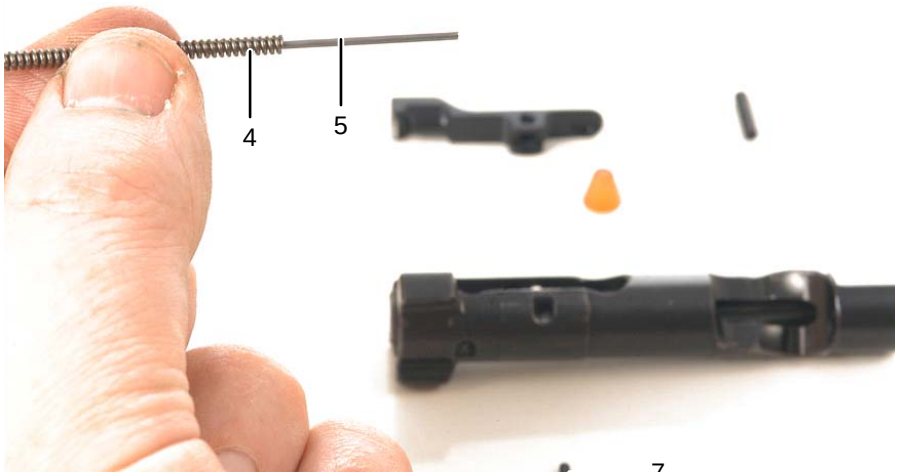

Figure 8-58. Inserting the Ejector Guide into the Ejector Spring

b. Insert the ejector spring (4) into the ejector hole.

c. Direct the ejector (3) into the ejector hole and insert it.

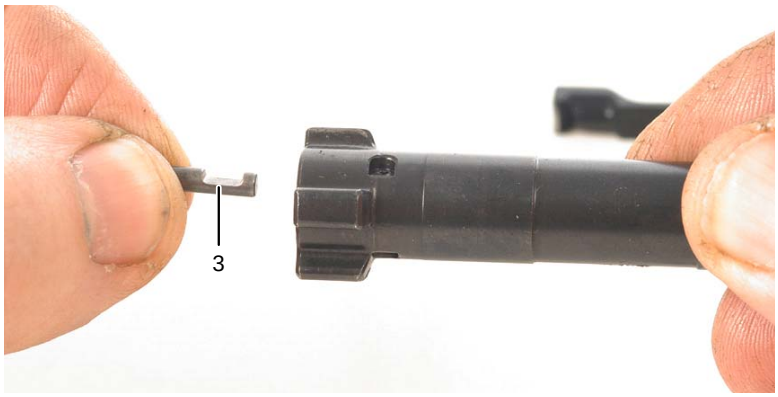

Figure 8-59. Inserting the Ejector into the Ejector Hole

d. Press the ejector (3) and assemble the ejector pin (7).

Figure 8-60. Assembling the Ejector Pin

e. Check the ejector for proper movement.

f. Insert the extractor spring (8) into its slot on the bolt, with the diameter of the bigger spring interfacing the bolt.

Figure 8-61. Inserting the Extractor Spring

g. Insert the extractor (2) into its place and press it, having aligned the holes, and insert the extractor pin.

Figure 8-62. Inserting the Extractor

8.17 Bolt Carrier Guide Bar Disassembly and Assembly

Required tools	▪ Plastic hammer

To disassemble the bolt carrier guide bar, perform the steps as follows:

a. Pull the bolt carrier guide bar and the buffer.

b. Separate the parts.

Figure 8-63. Bolt Carrier Guide Bar Assembly

	Part Number	Part Designation
1	00.704.3211	Bolt carrier guide bar
2	00.704.3221	Buffer

To assemble the bolt carrier guide bar, perform the steps as follows:

a. Push the bolt carrier guide bar into the buffer.

Figure 8-64. Connecting the Bolt Carrier Guide Bar and Buffer

b. Knock on the buffer using a hammer to secure it in place.

Figure 8-65. Securing the Bolt Carrier Guide Bar to the Buffer

8.18 Cocking Handle Guide Disassembly and Assembly

Required tools	▪ 3.0 mm punch ▪ 1.5 mm punch ▪ Plastic hammer ▪ Flat screwdriver

To disassemble the cocking handle guide, perform the steps as follows:

a. Disassemble the securing pin and separate the cocking bar assembly (3) from the cocking handle assembly (4).

b. Disassemble the cocking handle secure spring by taking out the secure spring from the recessed cocking handle and pull the spring out (2).

c. Disassemble the sight stabilizer sleeve assembly (11) by opening the ears and taking out the sleeve from the cocking handle bar.

d. Locate the ejector pin (12) against the windage screw slot, on the left-hand side of the cocking handle, and disassemble the pin.

e. Push the windage screw from the left-hand side all the way until it stops and then open the screw thread and take out the following:

   – Windage screw (5)
   – Front sight assembly (10)
   – Front sight assembly spring (13)
   – Leaf spring (6)
   – Windage plunger screw (7)
   – Windage plunger screw spring (8)

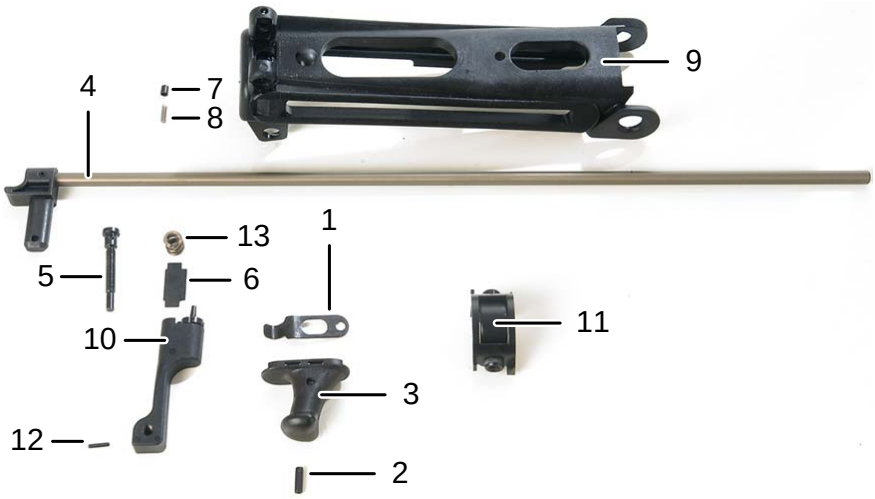

Figure 8-66. Cocking Handle Guide Assembly

	Part Number	Part Designation
1	00.704.0001	Cocking handle securing spring
2	00.704.0002	General pin
3	00.704.0008	Cocking handle
4	00.704.0010	Cocking handle bar sub-assembly
5	00.704.0101	Windage screw
6	00.704.0102	Front sight leaf spring
7	00.704.0104	Windage screw plunger
8	00.704.0105	Windage screw plunger spring
9	00.704.0110	Cocking handle guide
10	00.704.0120	Front sight assembly
11	00.704.0140	Sight stabilizer sleeve assembly
12	00.704.3107	Ejector pin
13	00.704.0103	Front sight spring

To assemble the cocking handle guide, perform the steps as follows:

a. Insert the windage screw plunger spring (8) and the windage screw plunger (7) into the upper right ear of the cocking handle.

Figure 8-67. Inserting the Windage Screw Plunger

b. Insert the front sight spring (13) into its place in the cocking handle.

c. Insert the leaf spring (6) into its place in the cocking handle.

Figure 8-68. Inserting the Front Sight Assembly Spring

d. Insert the front sight assembly (10).

Figure 8-69. Inserting the Front Sight

e. Lightly press the windage screw plunger (7) and insert the windage screw (5) from the right-hand side.

f. Tighten the windage screw (5) and push it together until it enters the left-hand ear.

Figure 8-70. Tightening the Screws

g. Position the windage screw (5) against the left ear slot and insert the ejector pin (12).

h. Turn the windage screw 360° in both directions and verify that the clicks are smooth.

i. Slightly open the lower ear of the cocking handle and insert the sight stabilizer sleeve (11) into the place.

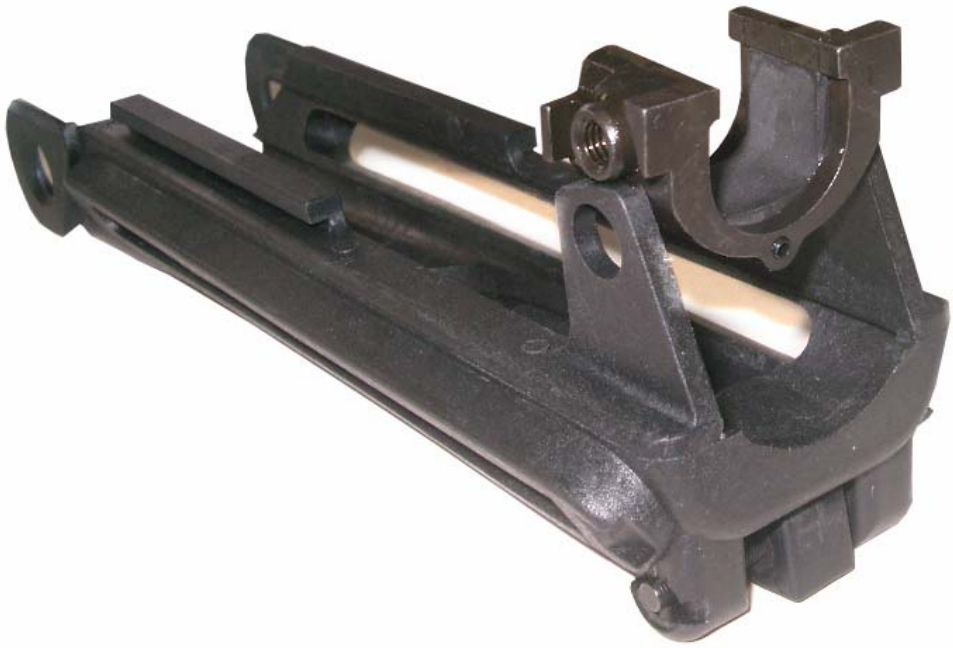

Figure 8-71. Inserting the Sight Stabilizer Sleeve

j. Insert the cocking bar (4) into the cocking handle slot from the left-hand side for a right-handed rifle (or from right-hand side for a left-handed rifle).

Figure 8-72. Inserting the Cocking Bar into the Cocking Handle Slot

k. Insert the cocking handle securing spring (1) into its place in the cocking handle slot. Make sure that the spring embossment points out.

Figure 8-73. Cocking Handle Securing Spring

l. Assemble the cocking handle to the cocking bar.

Figure 8-74. Cocking Handle Installation

m. Make sure the cocking handle spring embossment is directed to the front side of the cocking handle guide.

n. Align the holes and assemble the pin.

8.19 Cocking Bar Handle Disassembly and Assembly

Required tools	▪ 3.0 mm punch ▪ Metal hammer

To disassemble the cocking bar handle, perform the steps as follows:

a. Using a 3.0 mm punch, remove the pin (1) connecting the cocking handle cup and cocking bar.

b. Separate the parts from each other.

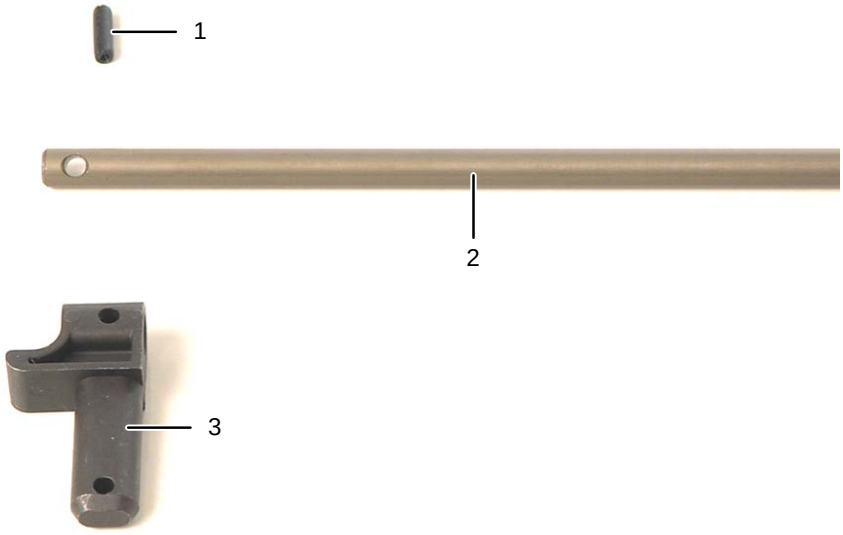

Figure 8-75. Cocking Bar Handle Assembly

	Part Number	Part Designation
1	00.704.0002	Pin
2	00.704.0011	Cocking handle bar
3	00.704.0013	Cocking handle cup

To assemble the cocking bar handle, perform the steps as follows:

a. Insert the cocking handle bar into the cocking handle cup.

b. Position the cocking handle bar against the cocking handle cup hole.

c. Using a hammer, insert the pin.

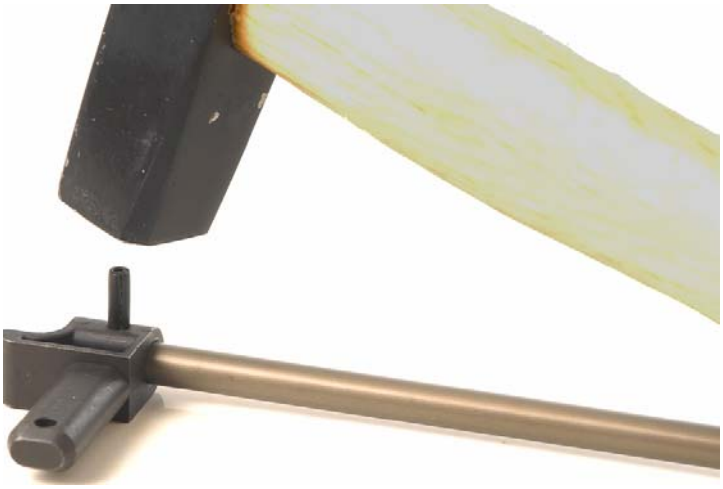

Figure 8-76. Inserting the Pin

8.20 Front Sight Disassembly and Assembly

Required tools	▪ 1.5 mm punch

To disassemble the front sight, perform the steps as follows:

a. Press the elevation plunger (4).

b. Unscrew the front sight bar (1) counter-clockwise, and remove the following:

- Front sight assembly (2)
- Elevation plunger (4)
- Elevation plunger spring (3)

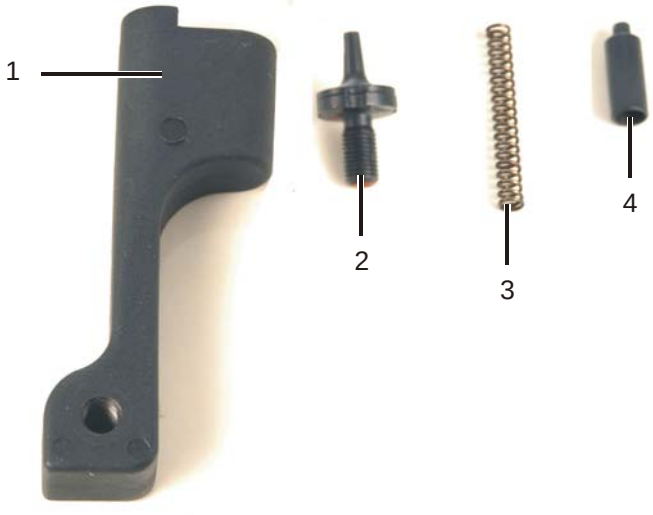

Figure 8-77. Front Sight Assembly

	Part Number	Part Designation
1	00.704.0121	Front sight bar
2	00.704.0130	Front sight assembly
3	00.704.0122	Elevation plunger spring
4	00.704.0123	Elevation plunger

To assemble the front sight, perform the steps as follows:

a. Insert the elevation plunger spring (3) and the elevation plunger (4) into the smooth hole. Make sure that the smaller diameter part of plunger points up.

Figure 8-78. Inserting the Elevation Plunger Spring and Plunger

b. Push the plunger and screw into the front sight clockwise.

Figure 8-79. Pushing the Plunger

8.21 Sight Stabilizer Sleeve Disassembly and Assembly

Required tools	▪ None

To disassemble the sight stabilizer sleeve, perform the steps as follows:

a. Remove the sight stabilizer sleeve pin (2).

b. Pull the Teflon sleeve (3) up and remove it from the sight stabilizer sleeve (1).

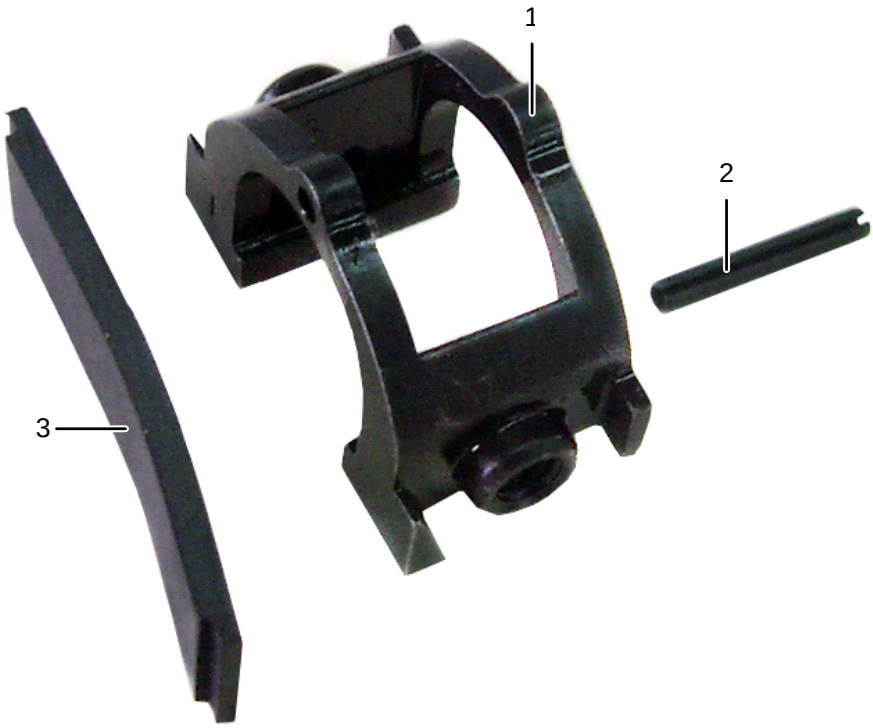

Figure 8-80. Sight Stabilizer

	Part Number	Part Designation
1	00.704.0141	Sight stabilizer sleeve
2	00.704.0143	Sight stabilizer sleeve pin
3	00.704.0142	Teflon sleeve

To assemble the sight stabilizer sleeve, perform the steps as follows:

a. Insert the Teflon sleeve (3) into the sight stabilizer sleeve (1).

Figure 8-81. Sight Stabilizer Sleeve

b. Insert the sight stabilizer sleeve pin (2).

8.22 Safety Sub-Assembly Disassembly and Assembly

Required tools	▪ 1.5 mm punch ▪ Metal hammer

To disassemble the safety sub-assembly, perform the steps as follows:

a. Press the safety left plunger and pull the safety lever for a right-handed rifle (or safety pivot cover for a left-handed rifle).

b. Disassemble the safety plunger pin and remove the following:

- Safety right-hand plunger (5)
- Safety plunger spring (7)
- Safety left-hand plunger (4)

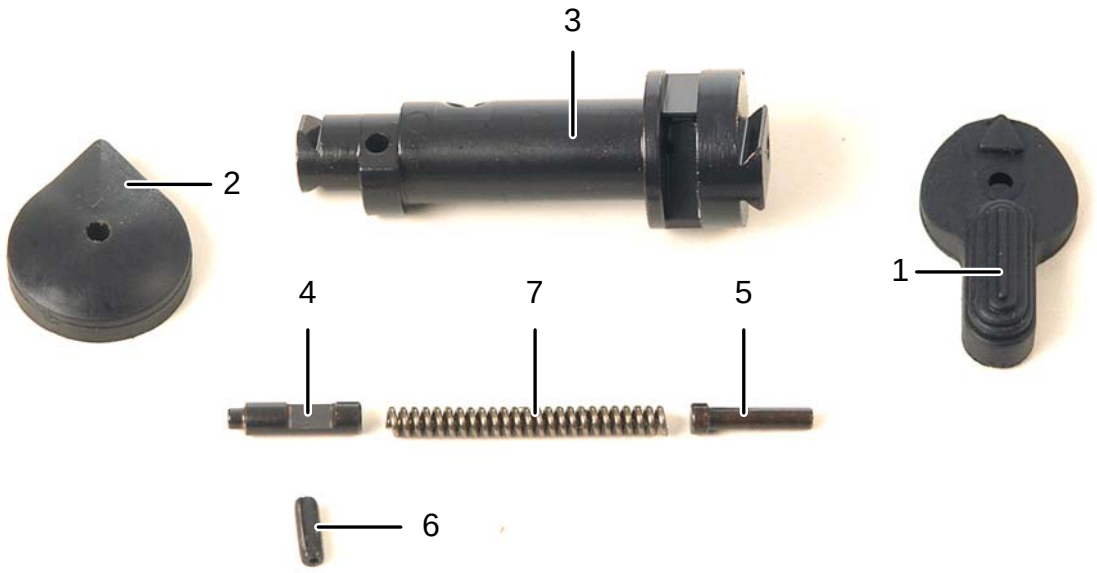

Figure 8-82. Safety Sub-Assembly

	Part Number	Part Designation
1	00.704.1015	Safety lever
2	00.704.1017	Safety pivot cover
3	00.704.1051	Safety
4	00.704.1052	Safety left plunger
5	00.704.1053	Safety right plunger
6	00.704.1054	Safety plunger pin
7	00.704.1055	Safety plunger spring

To assemble the safety sub-assembly, perform the steps as follows:

a. Insert the smaller diameter side of the safety right-hand plunger (5).

Figure 8-83. Safety Right-Hand Plunger

b. Insert the safety plunger spring (7).

c. Insert the safety left-hand plunger (4). Make sure that the slot is against the safety pin hole.

Figure 8-84. Inserting the Safety Left-Hand Plunger

d. Using a hammer, insert the safety plunger pin (6).

Figure 8-85. Securing the Pin

e. Assemble the safety lever (1) for a right-handed rifle (or the safety pivot cover for a left-handed rifle).

Figure 8-86. Assembled Safety

f. Press the safety left-hand plunger (6) and push the safety lever (or safety pivot cover) into its place.

8.23 Optical Sight Disassembly and Assembly

Required tools	▪ Closed 9/32" Hex wrench ▪ Loctite 242 glue

To disassemble the optical sight, perform the steps as follows:

a. Verify that that barrel is disassembled from the rifle.

b. Using a closed 9/32" Hex wrench, open and remove two sight base nuts (5).

c. Remove the spring lock washers (4) and sight base clamps (3).

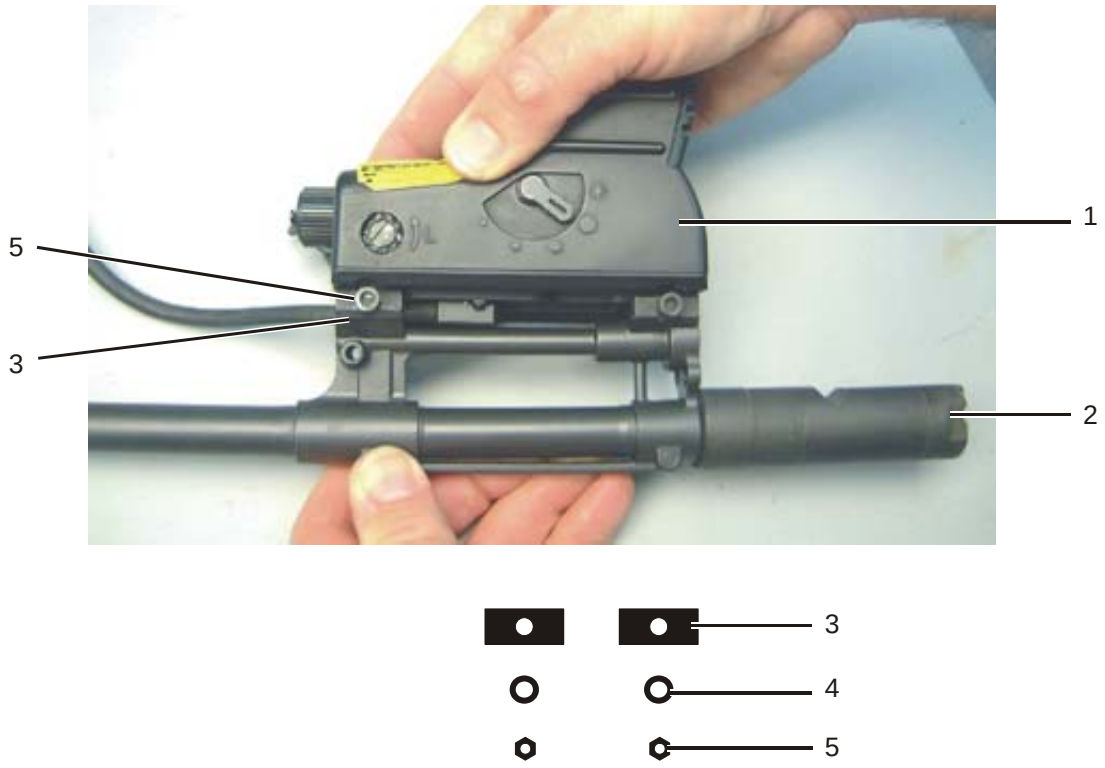

Figure 8-87. Optical Sight and Barrel Assembly

	Part Number	Part Designation
1	00.704.6000 R	Optical sight
2	00.704.2000 I	Barrel assembly
3	00.704.6002	Sight base clamp
4	00.704.6005	Spring lock washer
5	00.704.6004	Sight base nut

To assemble the optical sight, perform the steps as follows:

a. Install the sight on the sight base.

b. Install two sight base clamps (3) on the sight screws.

c. Install two spring lock washers (4) on the sight base clamps (3).

d. Apply a thin coat of Loctite 242 to the two sight base screws.

e. Using a closed 9/32" Hex wrench, fasten the two sight base nuts.

Figure 8-88. Closing the Sight Base Nuts

f. Verify that the sight is properly attached to the barrel.

8.24 Bolt Carrier Assembly Disassembly and Assembly

Required tools	▪ Metal hammer ▪ 3.0 mm punch ▪ 4.0 mm punch

To disassemble the bolt carrying assembly, perform the steps as follows:

a. Press the piston connector pin (1) using a hammer and a 3.0 mm punch and remove it from the bolt carrier sub-assembly.

b. Using a hammer and a 4.0 mm punch, press the bolt carrier pin (2) and remove it from the bolt carrier.

c. Using a hammer and a 3.0 mm punch, press the general pin (3) and remove it from the bolt carrier.

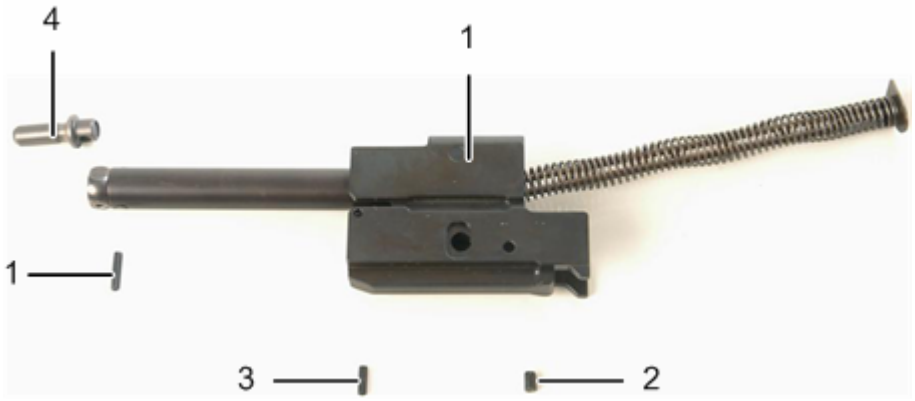

Figure 8-89. Bolt Carrier Assembly

	Part Number	Part Designation
1	00.704.3314	Piston connector pin
2	00.704.3306	Bolt carrier back pin
3	00.704.3302	General pin
4	00.704.3305	Piston

To assemble the bolt carrying assembly, perform the steps as follows:

a. Position the piston in its place in the bolt carrier, and insert the piston connector pin, using the hammer and 3.0 mm punch. Verify that the pin does not protrude from the piston guide.

Figure 8-90. Inserting the Piston Connector Pin

b. Insert the bolt carrier back pin into its place on the back right-hand side of the bolt carrier for a right-handed rifle (or from left-hand side for a left-handed rifle). Make sure the pin surface is in the same height as the bolt carrier sidewall.

Figure 8-91. Inserting the Bolt Carrier Back Pin

c. Insert the pin into its place on the front – form right-hand side of the bolt carrier for a right-handed rifle (or from left-hand side for a left-handed rifle).

d. Verify that the pin surface is at the same height as the bolt carrier sidewall.

Figure 8-92. Inserting the Pin

e. Verify that the device is assembled properly and the piston is not locked in place (free side movements).

Figure 8-93. Assembled Bolt Carrier Assembly

8.25 Mechanism Assembly Disassembly and Assembly

Required tools	▪ Flat screwdriver ▪ 4.0 mm punch ▪ 2.0 mm punch with internal hole ▪ Sear assembly ▪ Metal hammer

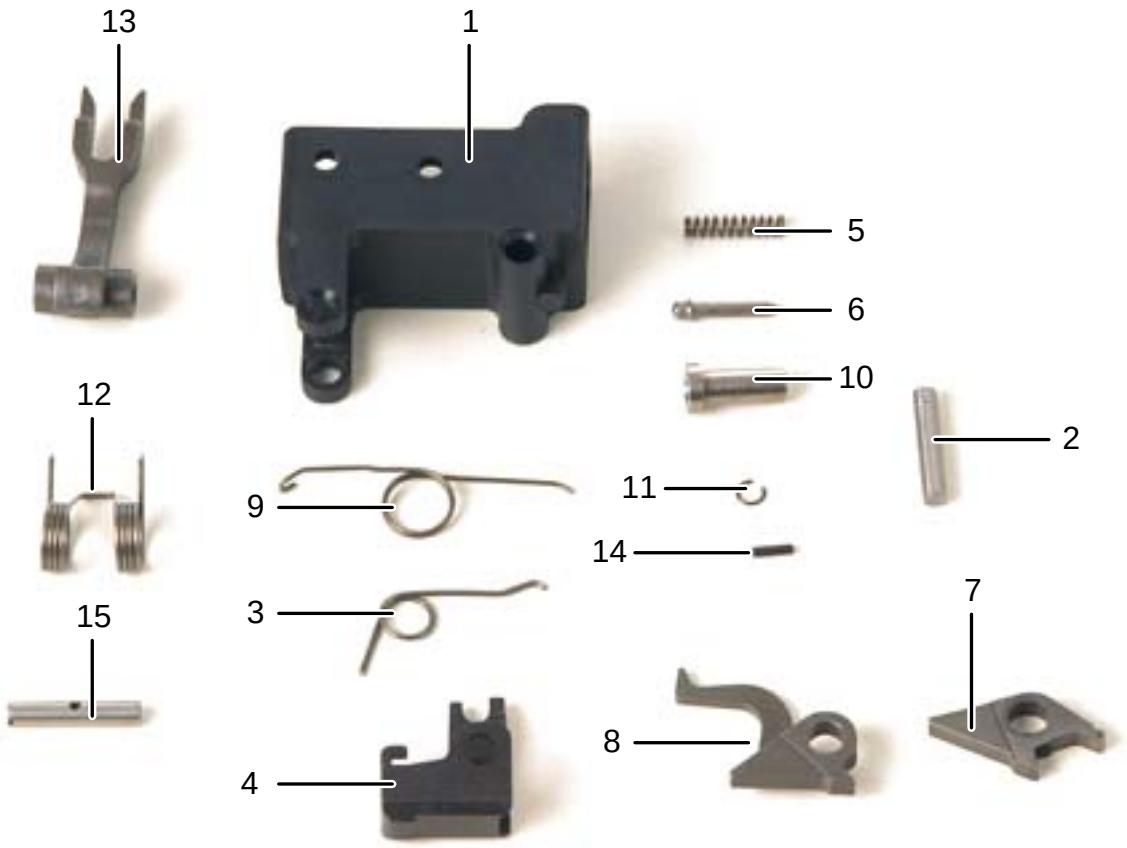

Figure 8-94. Mechanism Assembly

	Part Number	Part Designation
1	00.704.4002	Mechanism housing
2	00.704.4015	Sear pivot
3	00.704.4013	Activator spring
4	00.704.4006	Sear activator
5	00.704.4014	Sear plunger spring
6	00.704.4007	Sear plunger
7	00.704.4003	Sear
8	00.704.4005	Automatic sear
9	00.704.4004	Automatic sear spring
10	00.704.4008	Sear pivot bushing
11	00.704.4016	Internal ring spring
12	00.704.4012	Hammer spring
13	00.704.4001	Hammer
14	00.704.4017	Hammer securing pin
15	00.704.4009	Hammer pivot

To disassemble the mechanism assembly, perform the steps as follows:

a. Using a 2 mm punch, remove the hammer securing pin (14).

b. Using a 5 mm punch, remove the hammer pivot (15).

c. Remove the hammer (13) and hammer spring (12) and separate them from each other.

d. Using a hammer and a 5 mm punch, remove the sear pivot (2).

e. Remove the sear assembly from the mechanism housing.

f. Separate the activator spring (3) from the activator sear (4).

g. Separate the automatic sear spring (9) from the automatic sear (8).

h. Separate the sear pivot bushing (10) from the sear (7).

i. Remove the sear (7), automatic sear (8), sear plunger spring (5) and sear plunger (6).

To assemble the mechanism assembly, perform the steps as follows:

a. Assemble the sear plunger springs on the plungers. Make sure to insert the closed spring loop first.

Figure 8-95. Assembling Sear Plunger Spring

b. Assemble the internal ring spring onto the sear pivot bushing.

Figure 8-96. Assembling the Internal Ring Spring

c. Assemble the hammer spring on the hammer as displayed in Figure 8-97.

Figure 8-97. Assembling the Hammer and Hammer Spring

d. Direct the sear activator left-hand upper leg up.

e. Insert the sear.

Figure 8-98. Inserting the Sear

f. Push the sear pivot bushing (10) from the right-hand side until it aligns with the automatic sear surface (8).

g. Insert the sear plunger (6) into the left-hand hole of the sear activator, with the spring side entering first.

h. Insert the automatic sear (8) and push the sear pivot bushing (10) to its final position.

i. Install the automatic sear spring (5) from the right-hand side of the sear activator. The short leg supports the automatic sear.

j. Insert the sear activator into the mechanism housing. Make sure the sear activator spring is over the bushing pivot sear from the left side.

Figure 8-99. Assembling the Automatic Sear Spring

k. Press the sear activator (4) and align the holes.

l. Insert the sear pivot (2).

Figure 8-100. Inserting the Sear Pivot

m. Bend the secondary sear spring leg and place it under the secondary sear leg.

n. Assemble the hammer. Make sure that the spring legs lean on the mechanism housing wall and the legs edges pointed into the mechanism housing.

Figure 8-101. Assembling the Hammer

o. Push the hammer down, until the holes are aligned and insert the hammer pivot up to its final location.

Figure 8-102. Inserting the Hammer Pivot

p. Using the screwdriver locate the hammer pivot hole.

Figure 8-103. Locating the Hammer Pivot Hole

q. Insert the hammer security pin. Make sure it goes under the wall surface of both sides.

Figure 8-104. Inserting the Hammer Secure Pin

r. Check the sear mechanism for proper operation.

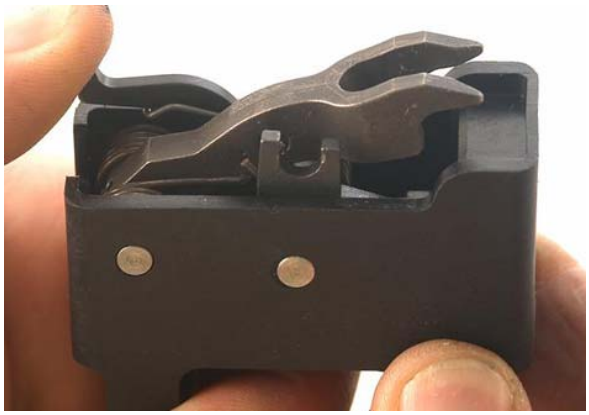

Figure 8-105. Checking Operation

8.26 Grenade Launcher Disassembly and Assembly

Required tools	▪ Phillips screwdriver ▪ 4.0 mm punch ▪ 1.5 mm pin guide punch ▪ Metal hammer

Grenade launcher installation equipment:

Figure 8-106. Grenade Launcher Connection Equipment

	Part Number	Part Designation
1	00.704.79005T	Long flash suppressor
2	00.704.79004	Front swivel sling
3	00.704.79001T	Rear adaptor
4	00.736.110185	40 mm grenade launcher
5	00.704.79010	40 mm sight
6	00.704.79003T	Support block
7	00.704.79002T	Clamp
8	00.704.79006T	Screw
9	00.704.79008T	Washer (x2)
10	00.704.790076T	Nut
11	00.704.79017	Remote control laser pointer holder
12	00.704.79007	Spacer
13	00.704.79009T	Remote control laser pointer holder spacer

To assemble the grenade launcher, perform the steps as follows:

a. Assemble the 40 mm front sight on the cocking handle assembly.

Figure 8-107. Assembling the Sight on the Cocking Handle Assembly

Figure 8-108. Assembling the Sight on the Cocking Handle Assembly

b. Install the front swivel sling on the long flash suppressor

Figure 8-109. Installing the Front Swivel Sling on the Suppressor

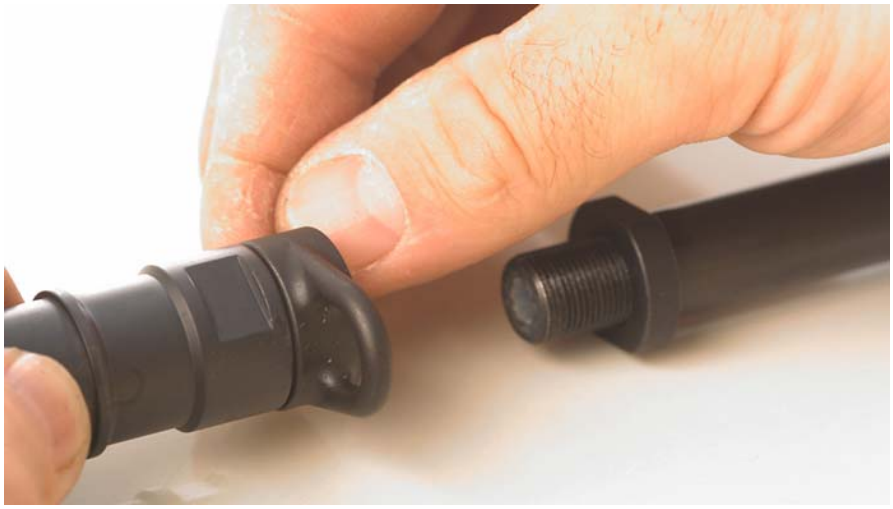

Figure 8-110. Installing the Front Swivel Sling on the Suppressor

c. Screw the suppressor to the rifle barrel till the end of the thread.

Figure 8-111. Screwing the Suppressor on the barrel

d. Using one wrench, hold the flash suppressor in place, and using another wrench tighten the suppressor lock nut counter-clockwise, against the suppressor.

Figure 8-112. Completing the Front Swivel Sling Installation – Suppressor Tightening

e. Install the rear adaptor into its place on the barrel.

Figure 8-113. Installing the Rear Adaptor

Figure 8-114. Grenade Launcher Rear Adaptor

f. Assemble the cocking handle assembly on the rifle.

g. Install the 40 mm grenade launcher (4) on the rear adaptor and locate in under the barrel.

Figure 8-115. Installing the Grenade Launcher

h. Place the remote control laser pointer holder spacer (13) on the second hole from the right on the launcher body and the spacer (12) on the corresponding opposite hole (Figure 8-116).

Figure 8-116. Installing the Remote Control Laser Pointer Holder Spacer

i. Insert the support block (6) into its place on the 40 mm grenade launcher, locate the clamp (7) and tighten the screw (8). Note that you must use the two washers (10) to support the nut (9) and the screw head.

Figure 8-117. Installing the Cocking Handle Assembly

j. Tighten the sight switch to the rifle handle with the strip.

Figure 8-118. Installed Grenade Launcher

k. Check for proper operation.

8.27 Bipod Disassembly and Assembly

Required tools	None

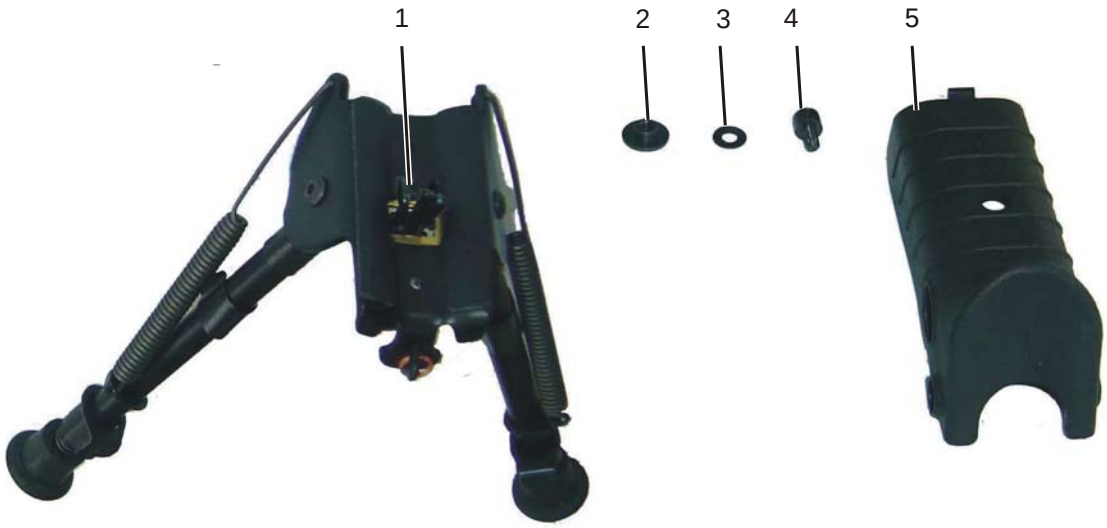

Figure 8-119. Harris Bipod Assembly

	Part Number	Part Designation
1	00.252.0020	Bipod assembly
2	N/A	Nut
3	N/A	Washer
4	N/A	Connector
5	00.704.0007	Grip

To disassemble the bipod from the rifle, perform the steps as follows:

a. Loosen the screw on the lower part of the bipod (Figure 8-120).

Figure 8-120. Releasing the Bipod Screw

b. Release the clamp connectors from the grip (Figure 8-121) and remove the bipod room the rifle grip.

Figure 8-121. Releasing the Clamp Connector

Figure 8-122. Removing the Bipod from the Rifle Grip

c. Remove the grip from the rifle according to Paragraph 8.4.

d. Unscrew the connector (4) from the rifle grip (Figure 8-123) and remove the washer (3) and nut from the grip interior (Figure 8-124).

Figure 8-123. Connector Removal

Figure 8-124. Nut and Washer Removal

To assemble the bipod on the rifle, perform the steps as follows:

a. Put the washer (3) on the nut (2) and align it with the hole in the grip interior.

b. Screw the connector (4) into the washer (2) through the grip exterior.

c. Assemble the grip on the rifle according to Paragraph 8.4.

d. Place the clamp teeth from both sides into the connector hole (4). Make sure to assemble the bipod in the correct direction, so that the folding direction is towards the barrel.

e. Tighten the bipod screw.

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Chapter 9

Weapon Conversion from Right Handed to Left Handed User

9.1 General

This chapter describes the procedure for converting the weapon from right handed to left handed user.

9.2 Conversion Process

The following paragraphs provide step-by-step conversion instructions:

a. Change cocking handle from left side to right side as follows:

1) Remove cocking handle assembly from the receiver.
2) Remove pin securing cocking handle to cocking handle cup.
3) Remove cocking bar subassembly from the left side slot of the cocking guide and change it to the right side.
4) Connect the cocking handle to cocking cup and insert the securing pin.

b. Assemble the cocking handle assembly and change front swivel from left side to right side as follows:

1) Insert front swivel bur to the rifle on the left side.
2) Screw the securing nut on the right side.
3) Insert the ejector pin.

c. Change safety lever from left side to right side as follows:

1) Remove safety lever from left side.
2) Remove safety pivot cover from right side.
3) Assemble safety lever on the right side.
4) Assemble safety pivot cover on the left side.

d. Change ejection port cover from left side to right side and the deflector from the right side to the left side as follows:
   1) Remove ejection port cover by sliding it out to the butt direction.
   2) Remove ejection port shield.
   3) Unscrew the deflector screw.
   4) Remove the deflector from the right side.
   5) Assemble ejection port shield on the right ejection port.
   6) Assemble ejection port cover on the right ejection port by sliding into the ejection port shield.
   7) Assmble the deflector on the left dise and tighten the deflector screw.

e. Change the bolt carrier as follows:
   1) Remove pin from right side of the bolt and assemble it on the left side.
   2) Remove bolt carrier back pin from right side of the bolt and assemble it on the left side.

f. Replace right handed bolt (part no. 00.704.3101R) by left handed bolt (part no. 00.704.3101L).

Chapter 10

Gauges

10.1 General

This chapter describes the weapon inspection gauges.

10.2 List of Gauges

The following gauges are used during weapon inspection:

a. Head space – Go gauge 37.984 (00.05.051.9001).

b. Head space – No Go gauge 38.300 (00.05.051.9002).

c. Barrel straightness – Gauge (00.05.051.9004).

Remarks:

- Prior to each gauge inspection carry out safety inspection.
- Prior to each gauge inspection clean the rifle thoroughly.
- Do not apply force using the gauges.
- Verify, prior to gauge inspection, that the gauges are calibrated.

10.3 Head Space Inspection

This inspection is used to ensure that the chamber – bolt dimensions match the bullet cartridge dimension. The minimum gauge provides the essential dimension for the cartridge seat in the chamber, while the maximum gauge ensures that no cartridge breach happens because the chamber does not support the cartridge.

For this inspection use the following gauges:

- Minimum head space gauge – 37.984
- Maximum head space gauge – 38.300

Perform the head space inspection procedure as follows:

a. Remove recoiling assembly from the weapon.

b. Clean well the barrel and chamber.

c. Clean well the bolt surface.

d. Install the recoiling assembly.

e. Insert the gauge to the chamber.

f Lock the bolt while pushing the bolt carrier in and check:

1) Minimum head space gauge – the bolt should lock as if a regular bullet is inserted.

Figure 10-1. Minimum Head space Gauge Inspection

2) Maximum head space gauge – the bolt should not lock.

Maximum Head Space (No Go) Gauge

Figure 10-2. Maximum Head space Gauge Inspection

10.4 Barrel Straightness Inspection

This gauge is used for inspecting the barrel straightness.

Perform the Barrel Straightness Inspection Procedure as follows:

a. Clean the barrel bore using cleaning rod.

b. Insert the barrel straightness gauge from the muzzle end – the gauge should pass through the barrel on its own.

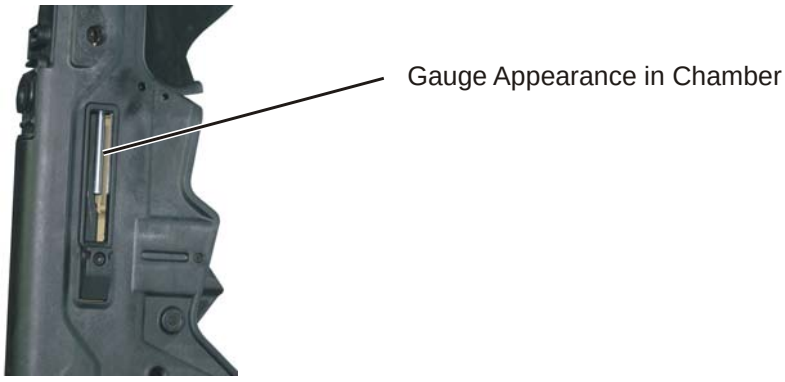

Figure 10-3. Barrel Straightness Inspection

Chapter 11

Troubleshooting & Repair

11.1 General

This Chapter provides troubleshooting and repair tables. For each symptom, the tables provide the probable reason as well as remedy action instructions.

No	Symptom	Probable Reason	Remedy
1	Cartridge head space large	Worn barrel	Replace barrel
		Worn bolt	Replace bolt
2.	Cartridge head space small	Soot in chamber	Clean with brass brush
		Faulty bolt, splinters	Remove splinters from locking stages
3.	Long firing pin protrusion	Long firing pin	Replace firing pin
		Worn bolt	Replace bolt
4.	Short firing pin protrusion	Faulty, broken firing pin	Replace firing pin
		Soot and dirt on bolt	Remove soot and dirt
		Soot and dirt on firing pin	Remove soot and dirt
5.	Worn barrel	Barrel wear	Replace barrel
6.	Barrel straightness gauge does not pass	Soot, sand, dust in barrel	Clean with brass brush
7.	Safety selector loose/hard	Hole in rifle receiver worn	Send to D-level maintenance
		Safety lug not installed properly	Reinstall the safety
		Selector spring worn	Replace safety selector spring
8.	Butt lock pin loose/free	Butt lock spring weak/missing	Replace spring

No	Symptom	Probable Reason	Remedy
9.	Trigger not spring loaded/stuck	Dirt and sand in trigger mechanism	Clean trigger mechanism
		Trigger spring faulty/improperly installed	Replace/reinstall trigger spring
		Laser pointer control cable improperly routed	Route cable appropriately
10.	Trigger pivot comes out	Trigger pivot improperly installed	Insert pivot in position
11.	Hammer pivot comes out	Safety pin faulty/missing	Install safety pin
12.	Weapon not zeroed (does not hit target), dispersion	Loose sight	Tighten sight nuts
		Worn barrel	Replace barrel
		Sight mount broken	Replace sight
13.	Loose butt	Butt pivot screw loose	Tighten and glue butt pivot screw
		Rubber separation from butt	Replace butt
14.	Flash suppressor loose	Flash suppressor lock nut loose	Tighten suppressor against lock nut
		Flash suppressor cracked/broken	Replace flash suppressor
		Lock nut damaged/missing	Replace lock nut
15.	Front swivel damaged/broken		Replace front swivel

No	Symptom	Probable Reason	Remedy
16.	Bolt unlocking	Dirt, sand, soot in chamber and barrel extension	Clean with brass brush
		Soot in chamber	Clean with brass brush
		Gas cylinder distorted/ damaged/dirty (soot)	Replace gas cylinder
		Cartridge stuck in chamber	Remove with evacuation plug
		Return spring weak/damaged/distorted	Replace Return spring
		Faulty/distorted ammunition	Replace ammunition
		Cocking rod distorted	Replace cocking rod
		Cocking handle guide damaged/ distorted	Replace Cocking handle guide
17.	Not loading	Damaged/cracked magazine	Replace magazine
		Magazine catch step faulty/broken	Replace magazine catch
18.	Not feeding	Magazine lips damaged/pressed	Replace magazine
		Magazine damaged/pressed	Replace magazine
		Magazine spring weak/distorted	Replace magazine spring
		Gas cylinder dirty (soot)	Clean/replace gas cylinder
		Faulty/worn bolt	Replace bolt
19.	No extraction	Extractor worn/distorted	Replace extractor
		Extractor spring weak	Replace extractor spring
		Chamber dirty (soot)	Clean with brass brush
		Extractor pivot broken	Replace extractor pivot
		Faulty ammunition	Replace faulty rounds
20.	No cocking during fire	Broken gas piston	Replace gas piston
		Gas connector passage closed	Replace barrel

No	Symptom	Probable Reason	Remedy
21.	No ejection	Ejector spring weak	Replace ejector spring
		Ejector friction/damage	Disassemble and clean ejector. Replace securing pin
		Ejector worn/broken	Replace ejector
		Large extractor gap	Replace extractor
22.	Weak striking	Soot on firing pin in bolt	Clean soot
		Short/damaged firing pin	Replace firing pin
		incomplete locking, soot on bore surface	Clean bore and bolt
		Hammer spring weak/damaged	Replace hammer spring
		Automatic sear catch step in hammer worn/damaged	Replace hammer and automatic sear
23.	Faulty cartridge, extractor catching in bullet rim	Chamber dirty with sand/soot	Clean with brass brush
		Chamber damaged/eroded	Replace barrel
		Large extractor gap	Replace extractor/bolt
		Weapon exploded/blocked	Send to appropriate maintenance level
24.	Cartridge having pressing signs – longwise and widthwise	Chamber dirty with soot and sand	Clean chamber with brass brush
		Chamber damaged/eroded	Replace barrel
25.	Disconnector not functioning – unintentional automatic fire in single mode	Worn hammer	Replace hammer
		Disconnector worn	Replace disconnector
26.	Hard cocking	Barrel lock pin turned.	Complete barrel lock pin turn
		Recoiling system dirty/dry	Clean and lubricate recoiling system and body interior
		Cocking handle guide miss-located	Reinstall cocking handle guide
		Cocking rod distorted	Replace cocking rod