

# ATCHISSON M16/AR15 .22LR CONVERSION DEVICE

OPERATION AND MAINTENANCE MANUAL



MILITARY ARMAMENT CORPORATION  
Marietta, Georgia 30062

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Defence Academy  
of the United Kingdom

To Maj JVA Hobart  
This is my first  
manual and one of the  
few things that I've written.  
I'm afraid I'm better at  
gun designing. I'll leave  
the writing to you.  
I enjoy reading your  
articles because I always  
learn something.  
Max Atkinson

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Atchisson M16/AR15 .22LR Conversion Device

Figure 1

## CHAPTER 1 INTRODUCTION

### 1-1 GENERAL INFORMATION

The Atchisson Conversion Kit is a .22 caliber rim fire device which replaces the standard bolt in the Armalite AR15 family of weapons, and allows the user to employ inexpensive .22 caliber ammunition for training and special missions. Conversion Kits are available at this time for semi-automatic fire only. The selective fire kits are experimental.

### 1-2 DESCRIPTION AND PHYSICAL DATA

The Atchisson Conversion Kit is manufactured by the Military Armament Corporation, Marietta, Georgia.

There are three types of Devices:

- (1) Semi-Automatic for use in the Armalite AR15 Sporter.
- (2) Semi-Automatic for use in the M16, M16A1, XM177E2, and CAR15.
- (3) Selective fire, semi- or full-automatic, for use in the M16, M16A1, XM177E2, and CAR15.

These devices are identical in all respects, with the exceptions noted below: (See Fig. 2.)

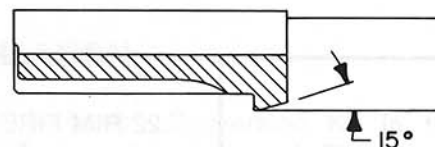
- (1) The AR15 Sporter semi-automatic device has a 15° inclined plane surface on the rear of the bolt. This is necessary due to the sharp cut on the AR15 hammer. (See Fig. 2.)

- CHAPTER 1
- (2) The semi-automatic device for the M16, M16A1, XM177E2 and CAR15 has a flat bottom bolt with a 45° cut to reduce sharp edges. The flat bottom is possible because of the rounded hammer in this series of weapons (See Fig. 2.)
- (3) The selective fire device is different in that the bolt is machined to accept a trip lever that activates the disconnecter on the M16 selective fire weapons. The trip will not cause automatic fire from the AR15 Sporter series of weapons. (See Fig. 2.)

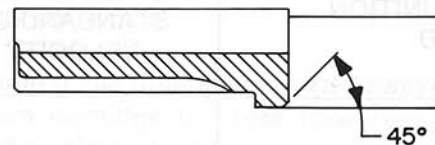
The Atchisson Conversion Device will not fit in other 5.56mm assault rifles. Any attempt to force the Device in other rifles may result in damage to the unit. The Kit is so designed to facilitate use and maintenance by the average user.

NOTE: The Conversion Device in itself is NOT a weapon. It is a sub-caliber Device to convert the Armalite AR15 family of weapons to a training/special mission weapon.

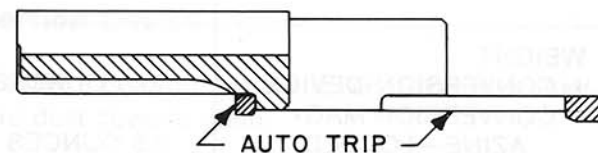
## BOLT CROSS SECTIONS



AR-15 SPORTER



M16 SEMI-AUTOMATIC



M16 FULL OR SEMI-AUTOMATIC

**CHART 1**  
**PHYSICAL DATA**

CALIBER	.22 RIM FIRE
OPERATION	STRAIGHT BLOWBACK
TYPE AMMUNITION TO BE USED	.22 LONG RIFLE, STANDARD OR HIGH VELOCITY
OVERALL LENGTH	8.8 INCHES
CHAMBER BARREL LENGTH	2.8 INCHES
WEIGHT CONVERSION DEVICE CONVERSION MAG- AZINE—LOADED —UNLOADED	13.0 OUNCES  6.5 OUNCES 4.5 OUNCES
MAGAZINE CAPACITY	UP TO 16 ROUNDS
CYCLIC RATE OF FIRE (AUTOMATIC MODE)	1,000 RPM

**CHAPTER 2**  
**OPERATION**

**2-1 INSTALLATION**

To install the Atchisson Conversion Kit in the M16 Rifle, a standard procedure must be followed. These procedures are:

**Remove Standard Bolt**

- (1) Remove the standard cartridge magazine (5.56mm). Clear the weapon of ammunition. Check the chamber to be sure no live rounds remain.
- (2) Turn weapon on its right side (muzzle away). Use the nose of the 5.56mm cartridge to press take-down pin through the receiver. Pull pin so that upper receiver swings free.
- (3) Pull charging handle approximately half-way out. Grasp standard bolt and remove completely. Check barrel for obstructions.

**Install Conversion Device**

- (1) Make sure the charging handle is approximately half-way out. Ensure dust cover is open.
- (2) Insert replacement bolt (Conversion Device) into the upper receiver. It should go into place as the standard bolt normally does. Be certain the gas deflector on the Conversion Device engages groove on the underside of charging handle. (See Fig. 3.)
- (3) Push Conversion bolt in as far as possible. Close weapon and push take-down pin into the closed position.



Installing Conversion Device in M-16 Rifle

Figure 3

## CAUTION

DO NOT USE EXCESSIVE FORCE TO INSTALL THE CONVERSION DEVICE.

## 2-2 LOADING THE CONVERSION MAGAZINE

- (1) Fill the Conversion magazine with up to 16 rounds of .22 rim fire ammunition, Long Rifle only.
- (2) Place weapon on "safe" in normal manner. Insert loaded magazine into the lower receiver, using the same procedure for inserting the regular magazine.

## CAUTION

NEVER ATTEMPT TO INSERT A .22 CONVERSION MAGAZINE INTO A WEAPON WHILE THE STANDARD BOLT IS INSTALLED. DAMAGE TO THE MAGAZINE WILL RESULT.

- (3) The weapon is ready for charging.

## 2-3 FIRING THE CONVERSION KIT

- (1) Ensure weapon is on "safe".
- (2) Pull charging handle to the rear and release. DO NOT hold the handle as the bolt closes. This will cause a slow feed situation that can jam the device. The conversion bolt will activate the dust cover as the standard bolt does.

NOTE: The M16A1 bolt assist will not function on the Conversion bolt. Slow feeds will have to be cleared to close the bolt.

The weapon is ready to fire.

- (3) Select the mode of fire. With semi-auto Conversion Device, it is impossible to fire full-automatic from the M16 automatic rifle. Switching the selector on the M16 to auto will cause a malfunction. On automatic devices, either mode of fire may be selected.
- (4) After the mode is selected, normal firing procedures may be carried out.

## 2-4 METHODS OF FIRING

- (1) All methods of regular rifle training may be employed with the exception of long-range accuracy.
- (2) Selecting of fire is accomplished with the normal selector.
- (3) Sight adjustment is normally not required at ranges under 100 meters.

## 2-5 UNLOADING

- (1) Remove magazine in the normal way.
- (2) Pull charging handle to the rear and check the chamber for remaining rounds. Eject live cartridges. Close bolt and squeeze the trigger while pointing the muzzle toward the ground.

## 2-6 REMOVING THE CONVERSION BOLT

- (1) Remove the Conversion magazine. Clear weapon of ammunition.
- (2) Push take-down pin out. Swing upper receiver free.
- (3) Pull charging handle to the rear. Remove Conversion bolt by reversing the installation procedures. Removal is the same as if the standard bolt were being removed.
- (4) Replace standard bolt. Be sure the bolt, itself, is pulled forward so that the orientation lug is completely vertical.
- (5) Replace standard magazine.

### CAUTION

DO NOT ATTEMPT TO INSERT THE STANDARD 5.56MM MAGAZINE WHILE THE CONVERSION BOLT IS IN PLACE. DAMAGE TO THE CONVERSION DEVICE MAY RESULT.

REMEDY	CAUSE	SYMPTOM
Replace Ammo Clean Chamber Clear Weapn And Recharge	Dirty Chamber Dirty Feed (M) Reloading Chrg ing Handle	Failure to Fire
		Failure to Chamber

## CHAPTER 3

### STOPPAGES AND CORRECTIVE ACTION

#### 3-1 DEFINITION

A stoppage is the unintentional interruption in the cycle of operation. It can be caused by improper functioning of the converted weapon or faulty ammunition.

#### 3-2 TYPES OF STOPPAGES

The stoppages that can occur are identical to normal stoppages, i.e., a misfire, a hangfire, or a jam.

#### 3-3 CHART OF STOPPAGES — PROBABLE CAUSE AND CORRECTIVE ACTION

The chart below will help identify and correct normal stoppages:

**CHART 2**

STOPPAGE	CAUSE	REMEDY
Failure to Feed	Deformed Magazine Feed Lips	Replace Magazine
Failure to Chamber	Defective Ammo Dirty Chamber Slow Feed (Not Releasing Charging Handle)	Replace Ammo Clean Chamber Clear Weapon And Re-Charge

**CHART 2 (Cont'd.)**

Failure to Fire	Defective Ammo Failed to Chamber Properly	Replace Ammo Clear Chamber And Re-Charge
Failure to Extract	Dirty Chamber Dirty (Gritty) Ammo Broken Extractor Weak Extractor Spring	Clean Chamber Replace Ammo  Replace Replace
Failure to Eject	Bent or Broken Ejector Short Recoil  Damaged Receiver Tube	Replace Ejector  Clean and Oil Device Repair or Replace
Failure to Cock	Defective Lockwork—Not Associated With Conversion Bolt Short Recoil	Repair or Replace Lockwork in Accordance With Standard Action Clean and Oil Device
Bolt Sticks to To Rear	Buffer is Mis-Aligned	Re-Align Buffer

## CHAPTER 4 MAINTENANCE

### 4-1 GENERAL

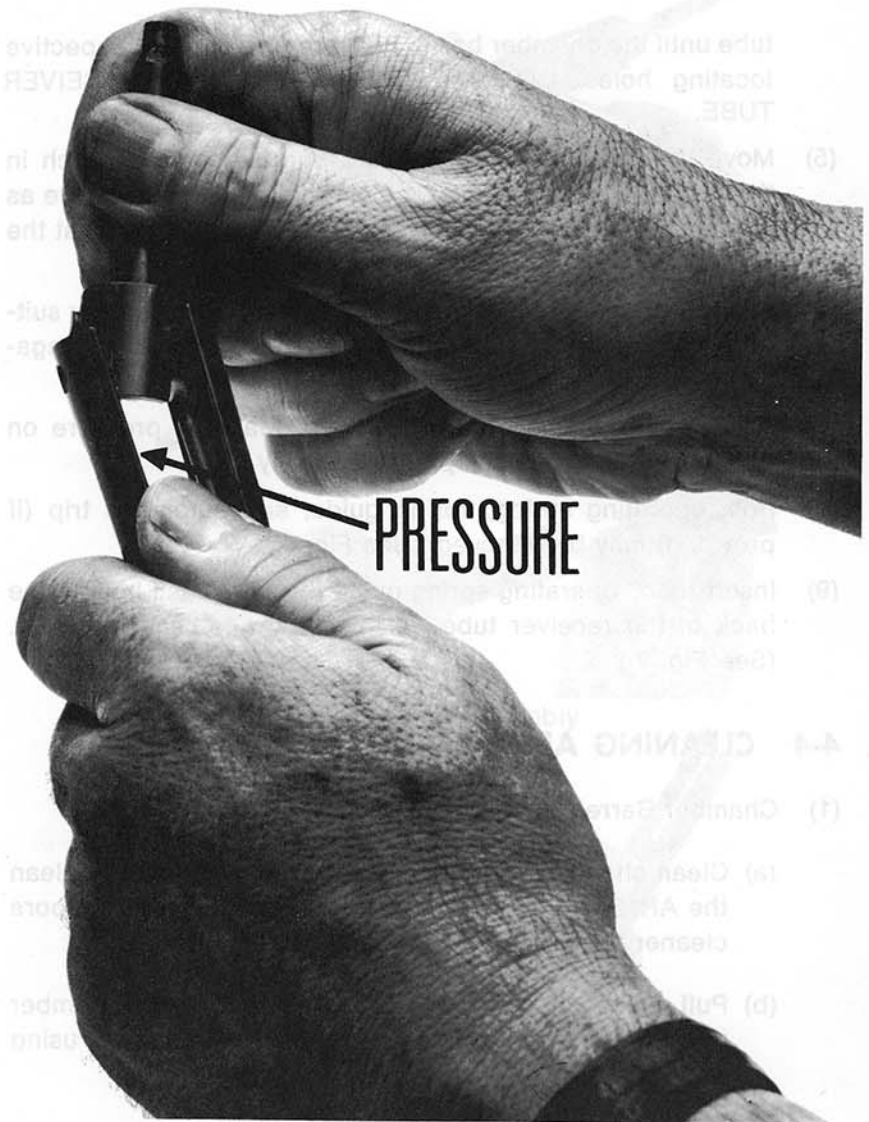
To ensure reliability and proper functioning, the Conversion Device should be cleaned after no more than 500 rounds are fired. The mechanical design results in the containment of the dirt in the device itself. The barrel of the weapon should be maintained as it normally would.

### 4-2 FIELD SERVICING

Due to the type of design, servicing is not authorized beyond the procedure described herein. ONLY the most qualified armorer is authorized to disassemble the bolt assembly.

### 4-3 DISASSEMBLY

- (1) Remove Conversion Device from the weapon.
- (2) Place the back end of the device on a hard surface, i.e., a cleaning table. Hold the device with the left hand, underside facing the operator.
- (3) With the left forefinger, pull the bolt open to approximately one inch (1"). Hold in this position while the stripping is in progress. Place left thumb in magazine opening and apply pressure to the left side of receiver. (See Fig. 4.)
- (4) Grasp the chamber barrel between thumb and forefinger of right hand and use a twisting motion to spread the receiver



Removing Barrel Assembly

Figure 4

tube until the chamber barrel lugs are free of their respective locating holes. DO NOT OVERSPREAD THE RECEIVER TUBE.

- (5) Move the chamber barrel forward approximately  $\frac{1}{8}$  inch in the receiver tube. This allows the chamber barrel to serve as a spacer and keep the receiver tube spread apart so that the ejector can be removed.
- (6) Remove ejector, utilizing nose of 5.56 mm round or other suitable instrument inserted under forward edge through magazine opening and pry out. (See Fig. 5.)
- (7) Remove the chamber barrel forward. Maintain pressure on bolt spring, then release pressure slowly.
- (8) Bolt, operating spring, spring guide, and automatic trip (if provided) may be removed. (See Fig. 6.)
- (9) Insert recoil operating spring guide through small hole in the back of the receiver tube. Push forward to remove buffer. (See Fig. 7.)

#### 4-4 CLEANING AFTER FIRING

- (1) Chamber Barrel
  - (a) Clean chamber with the same brass brush used to clean the AR15, M16 and M16A1 rifle barrel. Use normal bore cleaner to dissolve powder and grease residue.
  - (b) Pull a piece of flannel or bore swab through the chamber barrel *from the chamber end*. Inspect bore and oil, using a cloth swab.
  - (c) Wipe all residue from the outer surfaces of the chamber barrel. The muzzle of the chamber barrel should be carefully inspected. Remove any caked-on carbon. Do not use an abrasive.



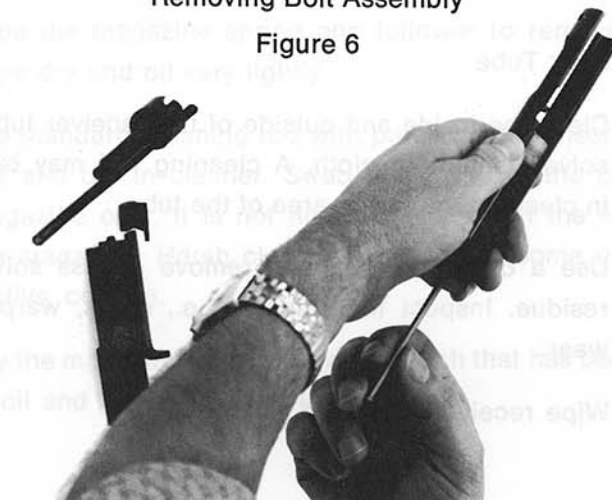
Removing Ejector

Figure 5



Removing Bolt Assembly

Figure 6



Removing Buffer

Figure 7

(d) Oil outer surface with a light coat of oil.

(2) Conversion Bolt, Recoil Spring, and Guide Rod

(a) Wipe the bolt with a cloth saturated with bore cleaner. In areas where build-up is heavy, use a soft bristled brush to scrub carbon accumulation off. Be sure the bolt face is clean.

(b) Inspect the extractor for damage. It should function with relative ease. Inspect firing pin for abnormal wear. It should move freely so that bolt inertia will not cause an unexpected ignition.

(c) Dry the bolt with a clean cloth. Oil lightly.

(d) Wipe recoil spring to remove residue. Oil lightly. Wipe guide rod and oil.

(3) Receiver Tube

(a) Clean the inside and outside of the receiver tube with a solvent saturated cloth. A cleaning rod may be helpful in cleaning the inside area of the tube.

(b) Use a clean, dry cloth to remove excess solvent and residue. Inspect for damage, i.e., dents, warping, and wear.

(c) Wipe receiver tube with an oily cloth.

(4) Ejector

(a) Wipe ejector with solvent soaked cloth. Dry.

(b) Inspect for evidence of physical damage. Repair or replace.

(c) Oil lightly.

(5) Automatic Trip (If Provided)

(a) Clean trip and inspect for wear.

(b) Oil the trip. Remove excess oil.

#### 4-5 CLEANING THE MAGAZINE

(1) Use the nose of the 5.56mm cartridge to remove the floorplate. Remove the floorplate, magazine spring, and follower.

(2) Wipe the magazine spring and follower to remove residue. Wipe dry and oil very lightly.

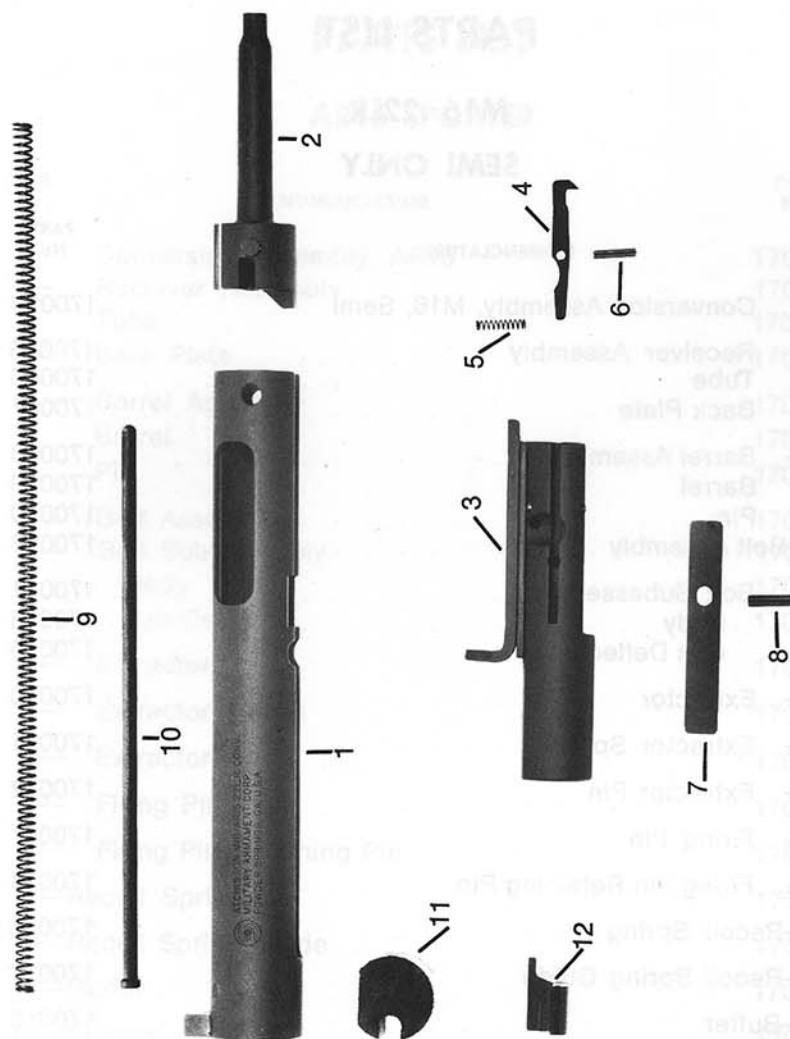
(3) Use standard cleaning rod with patch holder. Insert patch in rod and dip in cleaner. Swab the inside of the conversion magazine only. It is not necessary to clean the exterior of the magazine. Harsh cleaner may remove some of the protective coating.

(4) Dry the magazine and swab with a patch that has been dipped in oil and thoroughly wrung of excess.

- (5) Reassemble magazine in reverse order. Be careful when replacing the floorplate, as the magazine spring may fly free.

#### 4-6 REASSEMBLY OF THE DEVICE

- (1) If the device is capable of automatic fire, the automatic trip will be a part of the bolt assembly. Place the automatic trip over the guide flanges on the bottom of the bolt.
- (2) Insert the recoil buffers into the receiver tube. Be sure the orientation flat is up and recoil spring hole is on the right (as viewed from the bottom).
- (3) Insert recoil spring guide rod in the buffer.
- (4) Place recoil spring in the bolt. Insert bolt, recoil spring, and automatic trip (if provided) into the receiver tube. The gas deflector should be in the top of the receiver tube.
- (5) Hold bolt back and insert chamber barrel (loading ramp down) in the receiver tube. Use chamber barrel lugs as a spacer to spread the receiver tube. (See Sec. 4-3 Disassembly, Item 5.)
- (6) With the tube spread apart, replace the ejector. The point must be facing the chamber. It will snap into place.
- (7) Locate chamber barrel lugs in their respective holes. Release the bolt.
- (8) Check for free movement of the bolt.



COMPONENT PARTS

FIG. 8

## PARTS LIST

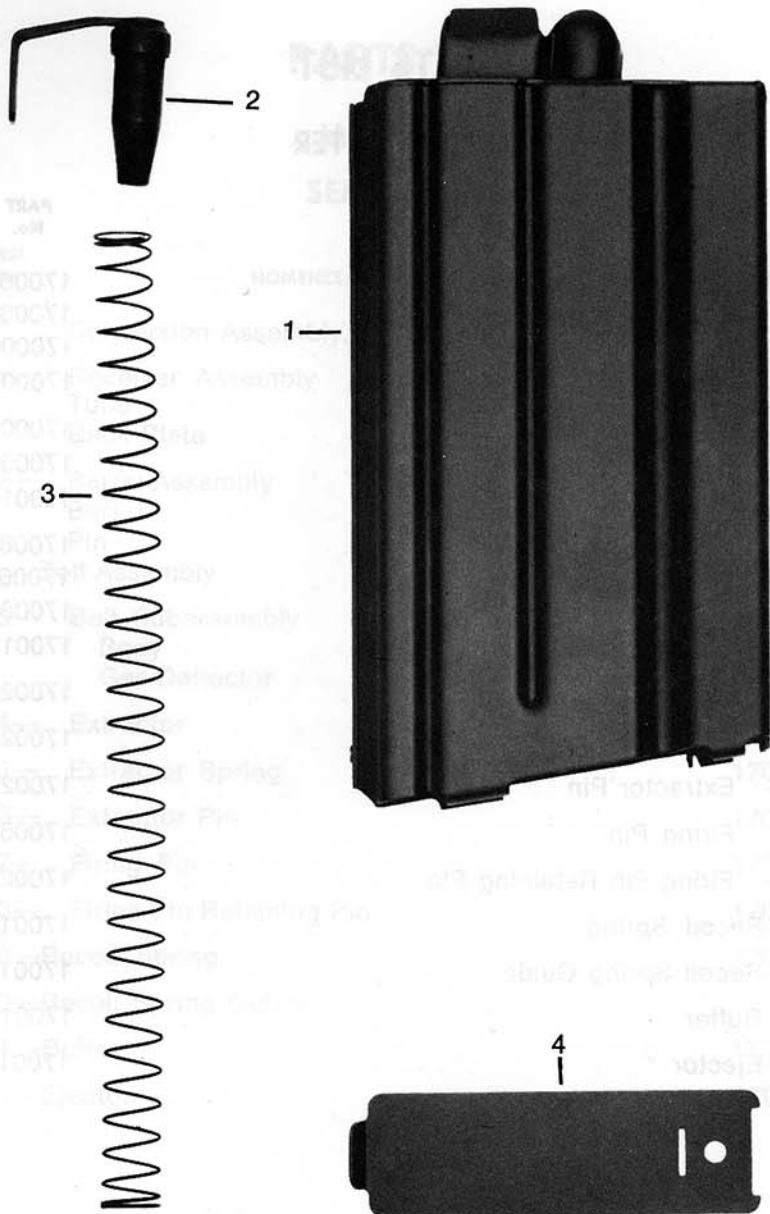
### M16 .22LR SEMI ONLY

ITEM No.	NOMENCLATURE	PART No.
	Conversion Assembly, M16, Semi	170039
1—	Receiver Assembly	170005
	Tube	170006
	Back Plate	170007
2—	Barrel Assembly	170008
	Barrel	170009
	Pin	170010
	Bolt Assembly	170023
3—	Bolt Subassembly	170011
	Body	170013
	Gas Deflector	170015
4—	Extractor	170020
5—	Extractor Spring	170021
6—	Extractor Pin	170022
7—	Firing Pin	170067
8—	Firing Pin Retaining Pin	170024
9—	Recoil Spring	170016
10—	Recoil Spring Guide	170017
11—	Buffer	170018
12—	Ejector	170019

## PARTS LIST

### AR15 SPORTER

ITEM No.	NOMENCLATURE	PART No.
	Conversion Assembly, AR15	170066
1—	Receiver Assembly	170005
	Tube	170006
	Back Plate	170007
2—	Barrel Assembly	170008
	Barrel	170009
	Pin	170010
	Bolt Assembly	170068
3—	Bolt Subassembly	170069
	Body	170060
	Gas Deflector	170015
4—	Extractor	170020
5—	Extractor Spring	170021
6—	Extractor Pin	170022
7—	Firing Pin	170067
8—	Firing Pin Retaining Pin	170024
9—	Recoil Spring	170016
10—	Recoil Spring Guide	170017
11—	Buffer	170018
12—	Ejector	170019



MAGAZINE COMPONENT PARTS

Figure 9

## PARTS LIST

### MAGAZINE

ITEM No.	NOMENCLATURE	PART No.
	Magazine Assembly . . . . .	170064
1—	Body Assembly . . . . .	170063
	Rivet . . . . .	170038
	Body Subassembly . . . . .	170059
	Closure . . . . .	170058
	Body . . . . .	170032
	Well Assembly . . . . .	170061
	Tab . . . . .	170052
	Well Subassembly . . . . .	170062
	Well . . . . .	170065
	Strip . . . . .	170051
2—	Follower Assembly . . . . .	170035
	Guide . . . . .	170053
	Platform . . . . .	170054
3—	Spring . . . . .	170036
4—	Floor Plate . . . . .	170057