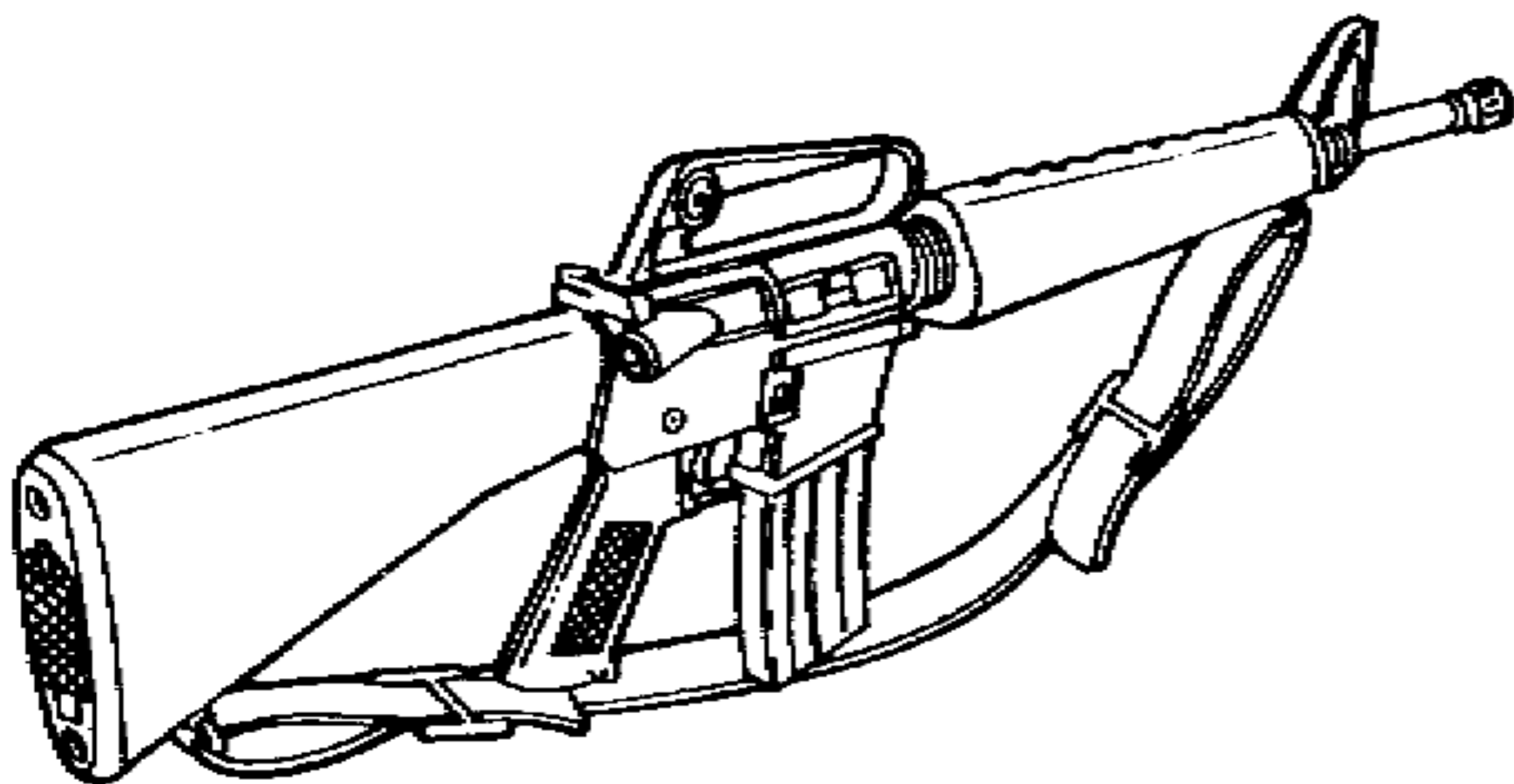
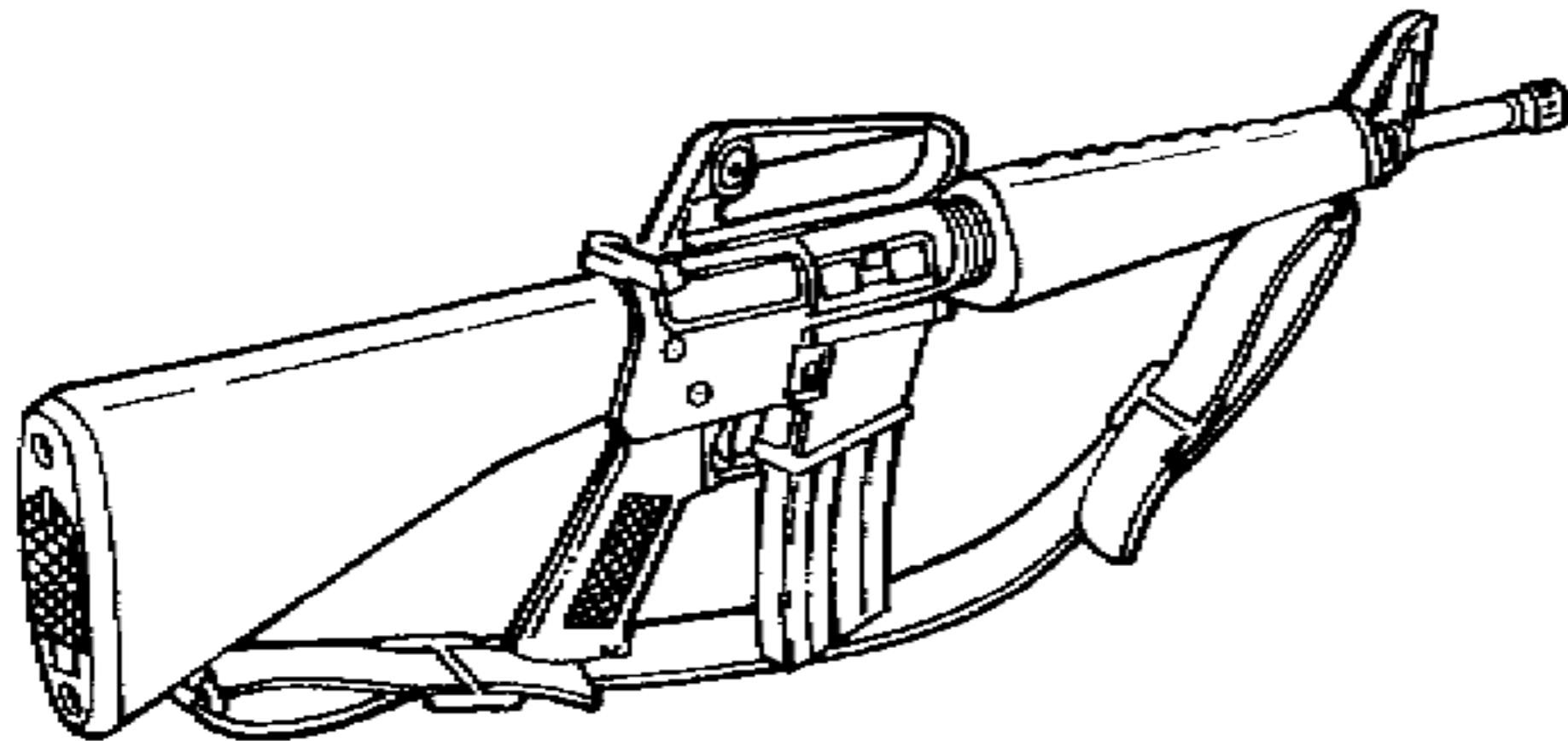


# TM 9-1005-249-24&P

## TECHNICAL MANUAL

### ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



**RIFLE, 5.56-MM, M16  
(1005-00-856-6885)**

**RIFLE, 5.56-MM, M16A1  
(1005-00-073-9421)**

HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1983

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This copy is a reprint which includes current pages from Changes 1 thru 3.

TECHNICAL MANUAL }  
 No. 9-1005-249-24&P }

HEADQUARTERS  
 DEPARTMENT OF THE ARMY  
 Washington, DC 25 November 1983

**Organizational, Direct Support, and General Support  
 Maintenance Manual  
 (Including Repair Parts and Special Tools List)  
 RIFLE, 5.56-MM, M16  
 (1005-00-856-6885)  
 RIFLE, 5.56-MM, M16A1  
 (1005-00-073-9421)**

Current as of 20 July 1983

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Armament, Munitions and Chemical Command, ATTN: DRSMC-MAŠ (R), Rock Island, IL 61299. A reply will be furnished to you.

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## HOW TO USE THIS MANUAL

### GENERAL

In order to use this manual efficiently, there are several things you need to know:

1. All references in the manual are to pages only.
2. Illustrations for the maintenance procedures show only those parts affected by the operation being performed.
3. Whenever the male gender is mentioned in the manual (i.e., crewman, repairman), it also pertains to females.

### INDEXES

This manual is organized to help you find the information you need quickly. There are several useful indexes.

1. **Front Cover Index.** Lists the most important areas of the manual. Is keyed to areas with bleed-to-edge indicators.
2. **Table of Contents.** Lists in order all chapters, sections, and appendixes. Gives page references.
3. **Nomenclature Cross-Reference List and List of Abbreviations.**
4. **Chapter Overviews.** Summarize material covered in the chapter. Are located at the beginning of each chapter.
5. **Symptom Index.** Located just before the troubleshooting table in each maintenance chapter. Lists, in alphabetical order, parts of the weapon with possible malfunctions. References pages of the troubleshooting table.

6. **Alphabetical Index.** Located at the end of the manual. An extensive subject index for everything in the manual. Gives page references.

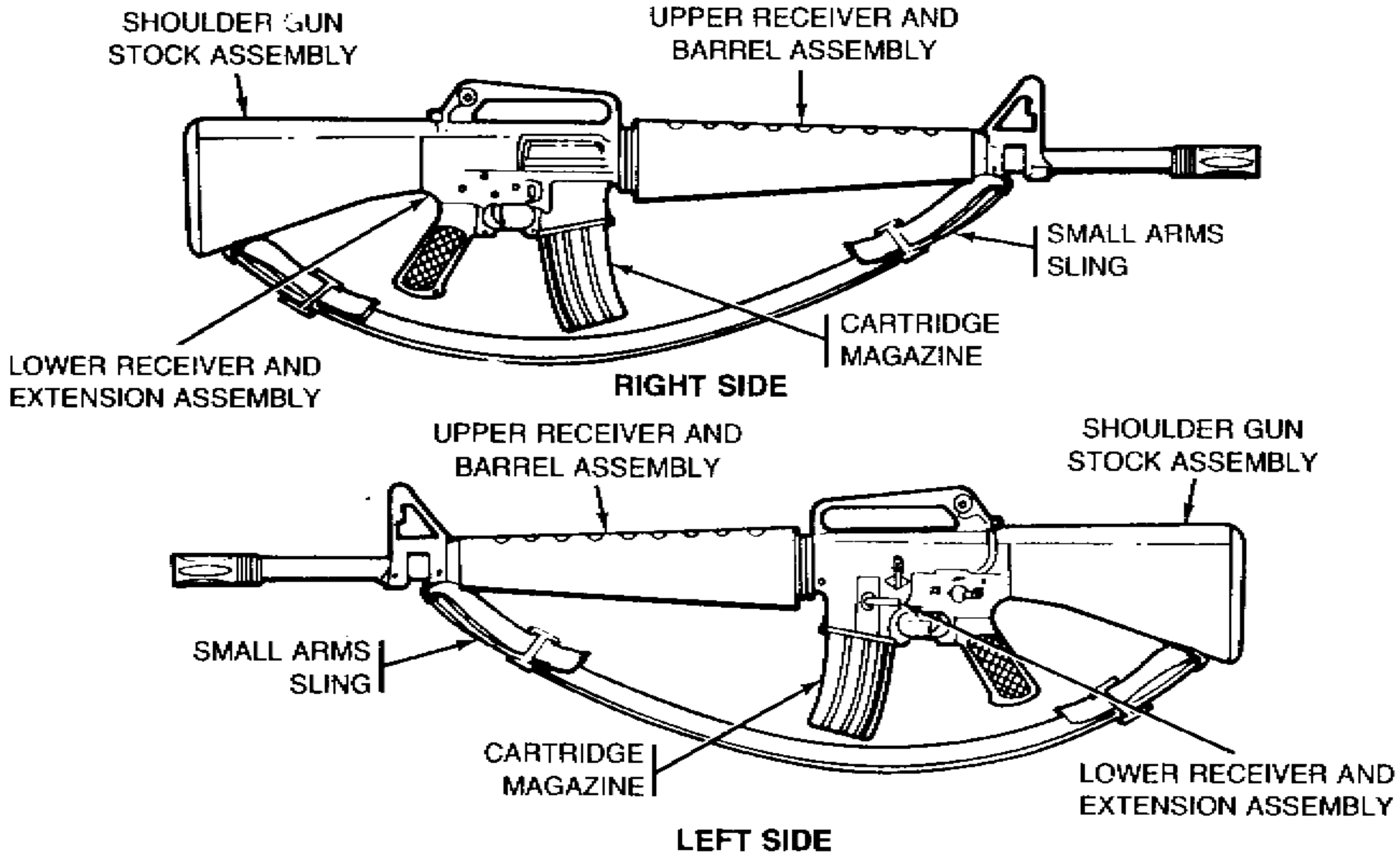
### MAINTENANCE PROCEDURES

The maintenance procedures are broken up into separate tasks. Each task has an initial setup containing a list of the following things you will need in order to do your maintenance task:

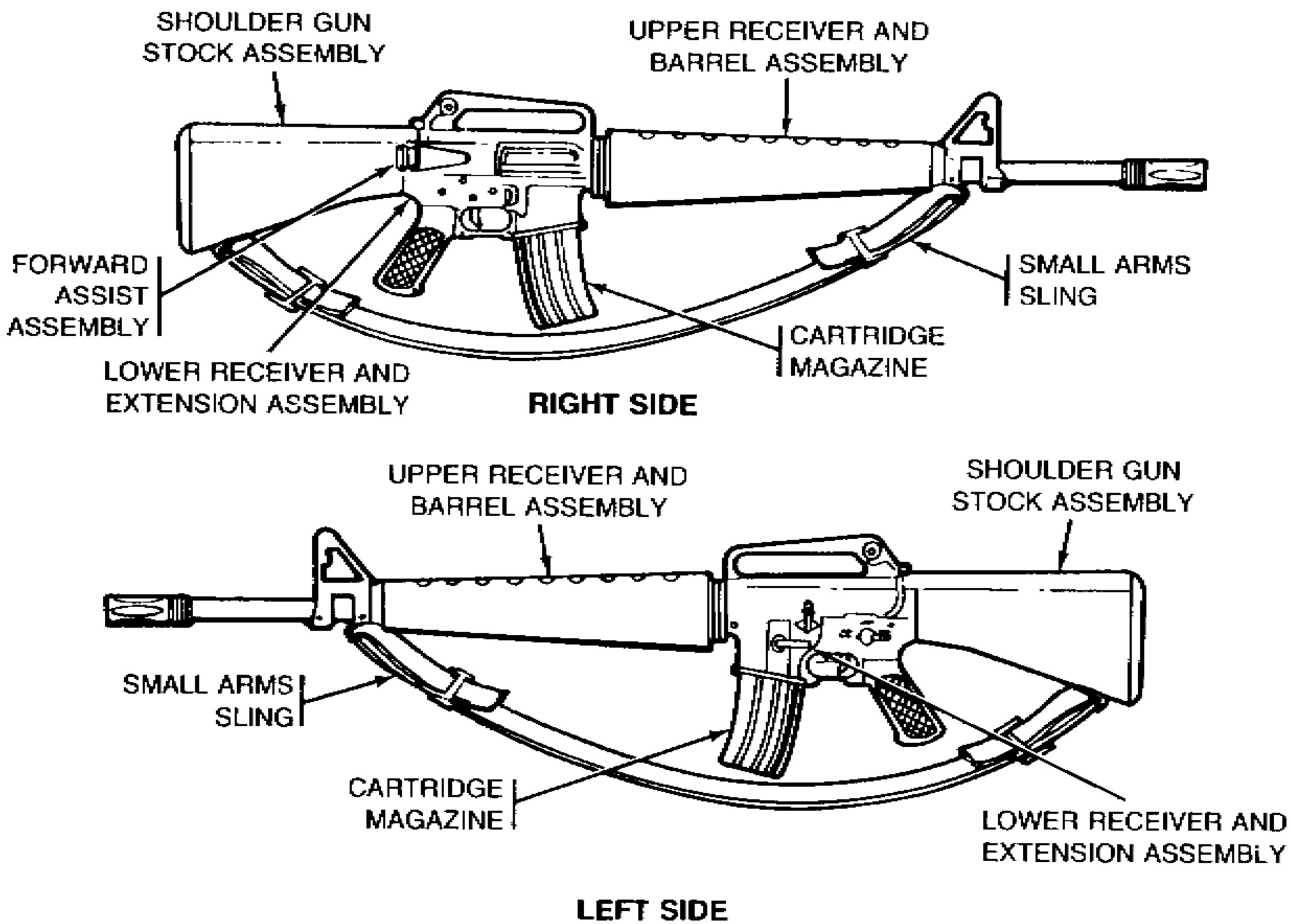
1. **Special Tools.** Lists tools not found in your TOE authorized tool sets.
2. **Materials/Parts.** Lists expendable materials and 100% replaceable parts. Also lists for each removal procedure the main parts to be replaced. Do not order this part unless needed. Each material or part is followed by a part number or appendix reference. If more than one part is needed, the quantity needed precedes the part number or reference.
3. **References.** Lists other publications containing necessary information.
4. **Troubleshooting Reference.** Lists malfunctions which can be corrected by following the maintenance procedure.
5. **Equipment Conditions.** Lists conditions to be met before starting the procedure. The reference on the left of the condition is a page reference to instructions for setting up the condition.



**EXTERNAL VIEW OF 5.56-MM RIFLE M16**



**EXTERNAL VIEW OF 5.56-MM RIFLE M16A1**



# CHAPTER 1

## INTRODUCTION

### CHAPTER OVERVIEW

This chapter contains general information, equipment description and data, and principles of operation for your weapon.

### Section I. GENERAL INFORMATION

#### 1-1. SCOPE.

- a. *Type of Manual:* Organizational, Direct, and General Support Maintenance
- b. *Model Number and Equipment Name:* 5.56-mm Rifle M16 and M16A1
- c. *Purpose of Equipment.* Provides personnel an offensive capability to engage targets for field use.

#### 1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

#### 1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

See TM 750-244-7.

#### 1-4. PREPARATION FOR STORAGE OR SHIPMENT.

See TM 740-90-1

#### 1-5. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS.

##### NOMENCLATURE CROSS-REFERENCE LIST

<i>Common Name</i>	<i>Official Nomenclature</i>
Action Spring	Compression Helical Spring (8448629)
Pivot Pin Detent	Takedown Pin Detent (8448585)

##### *Common Name* Weapon

Trigger Spring

Disconnecter Spring

Extractor Spring Assembly

Ejector Spring

Magazine Catch Spring

Bolt Catch Spring

Hammer Spring

##### *Official Nomenclature*

5.56-mm Rifle M16 or M16A1

Torsion Helical Spring (8448593)

Compression Helical Spring (8448594)

Spring Assembly (8448755)

Helical Spring (8448516)

Compression Helical Spring (8448637)

Compression Helical Spring (8448633)

Torsion Helical Spring (8448611)

#### 1-6. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your rifle needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Armament, Munitions and Chemical Command, ATTN: DRSMC-MAO (R), Rock Island, IL 61299. We'll send you a reply.

### Section II. EQUIPMENT DESCRIPTION AND DATA

#### 1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

##### a. *Characteristics.*

- (1) Lightweight
- (2) Air-cooled
- (3) Gas-operated
- (4) Magazine-fed
- (5) Semi or automatic fire

b. *Capabilities.* Provide personnel an offensive defensive capability to engage targets while in the field role.

##### c. *Features.*

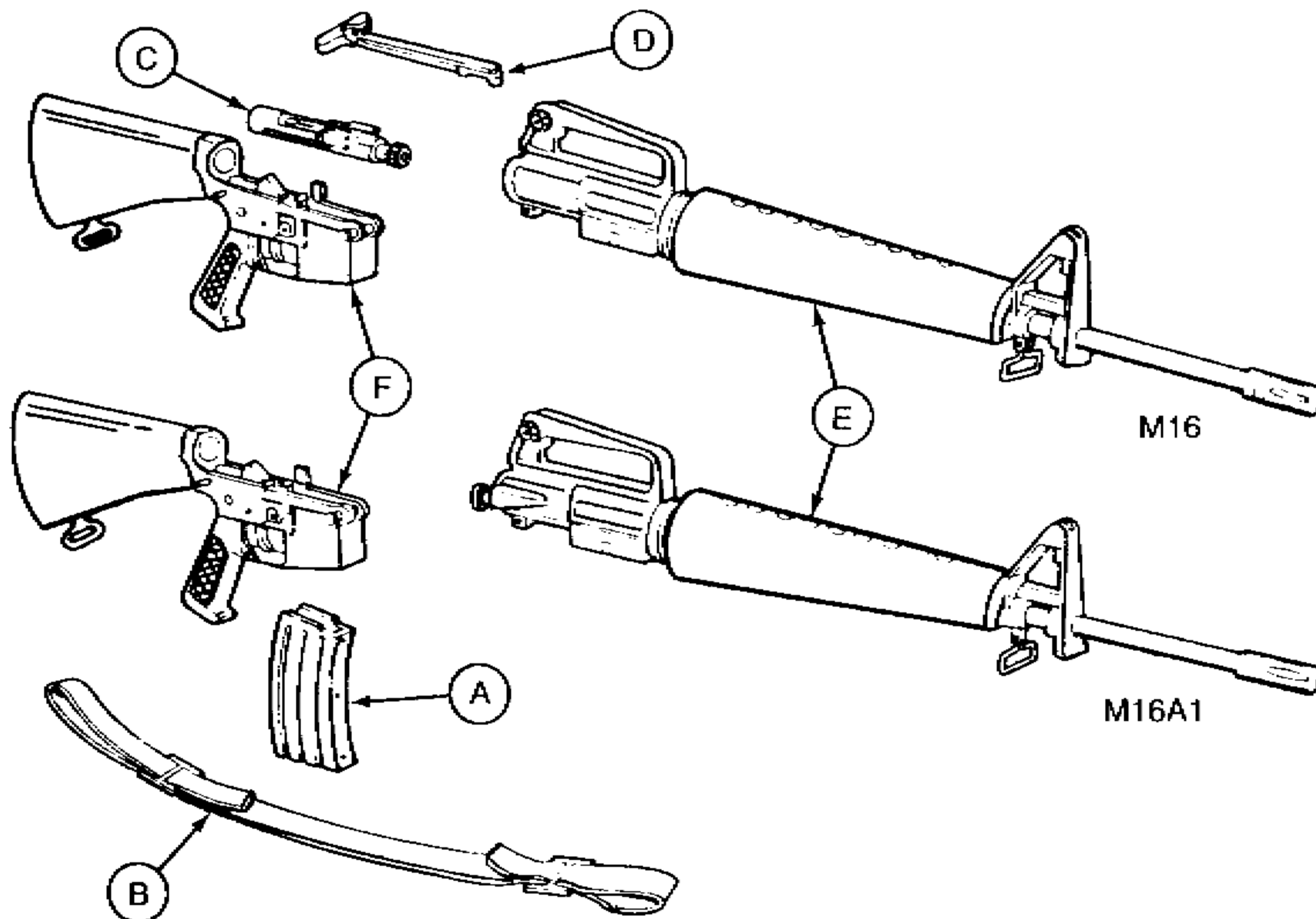
(1) The bolt locking action is one of the mechanical features of the weapon. The bolt and barrel tension contain locking lugs which engage and lock the bolt firmly in the barrel extension. The initial force of the explosion of the cartridge is absorbed by the barrel, barrel extension, and bolt.

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

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

**1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.**

- (A) CARTRIDGE MAGAZINE. 30 cartridge capacity.
- (B) SMALL ARMS SLING. The small arms sling is adjustable and provides a means to carry the weapon.
- (C) BOLT CARRIER ASSEMBLY. Carries bolt to chamber and fires the weapon. Contains the firing pin, extractor, bolt, ejector, and cam pin.
- (D) CHARGING HANDLE ASSEMBLY. Provides a means of charging the weapon.
- (E) UPPER RECEIVER AND BARREL ASSEMBLY. Rifle barrel assembly is air-cooled, contains flash suppressor and front sight assembly, and holds the two hand guards and the sling swivel. Upper receiver contains rear sight, ejection port, ejection port cover, and a housing for the bolt carrier and bolt assembly. A forward assist assembly is used on the M16A1 weapon.
- (F) LOWER RECEIVER AND EXTENSION ASSEMBLY. Lower receiver contains the trigger assembly, sear, hammer assembly, selector lever, rifle grip, bolt catch, and shoulder gun stock assembly. The shoulder gun stock assembly houses the action spring, buffer assembly, and extension assembly.



**1-9. DIFFERENCES BETWEEN MODELS.** The 5.56-mm Rifle M16 does not contain the forward assist assembly contained on 5.56-mm Rifle M16A1.

**1-10. EQUIPMENT DATA.**

a. *Rifles M16 and M16A1.*

Weight:

Rifle M16, without magazine and sling .....	6.35 lb
Rifle M16A1, without magazine and sling .....	6.55 lb
Sling M1 .....	0.4 lb
Empty magazine .....	0.25 lb
Loaded magazine .....	1.01 lb
Rifle M16, w/sling and loaded magazine .....	7.76 lb
Rifle M16A1 w/sling and loaded magazine .....	7.76 lb
Bayonet-Knife M7 .....	0.6 lb
Scabbard M8A1 .....	0.3 lb
Scabbard M10 .....	0.3 lb

Length:

Rifle w/flash suppressor .....	39 in.
Rifle w/bayonet-knife .....	44.25 in.
Barrel .....	20 in.
Barrel with flash suppressor .....	21 in.

Mechanical features:

Rifling, RH 6 grooves-1 turn in 12 inches.	
Method of operation .....	gas
Type of breech mechanism .....	rotating bolt
Method of feeding .....	magazine
Cooling .....	air
Trigger pull .....	5 to 8 1/2 lb

Ammunition:

Caliber .....	5.56 mm
Type .....	ball, blank, dummy and tracer

Firing characteristics:

Muzzle velocity (approximate) .....	3,250 fps
Muzzle energy .....	1,300 ft-lb
Chamber pressure .....	52,000 psi
Cyclic rate of fire (approximate) .....	800 rds/m

Maximum rate of fire:

Semiautomatic .....	45/65 rds/m
Automatic .....	150/200 rds/m

Sustained rate of fire .....

12/15 rds/m

Maximum range .....

2,653 meters

Maximum effective range .....

460 meters

b. *Rifle Bipod M3.*

Weight:

Bipod .....	0.6 lb
Bipod case .....	0.2 lb



### Section III. PRINCIPLES OF OPERATION

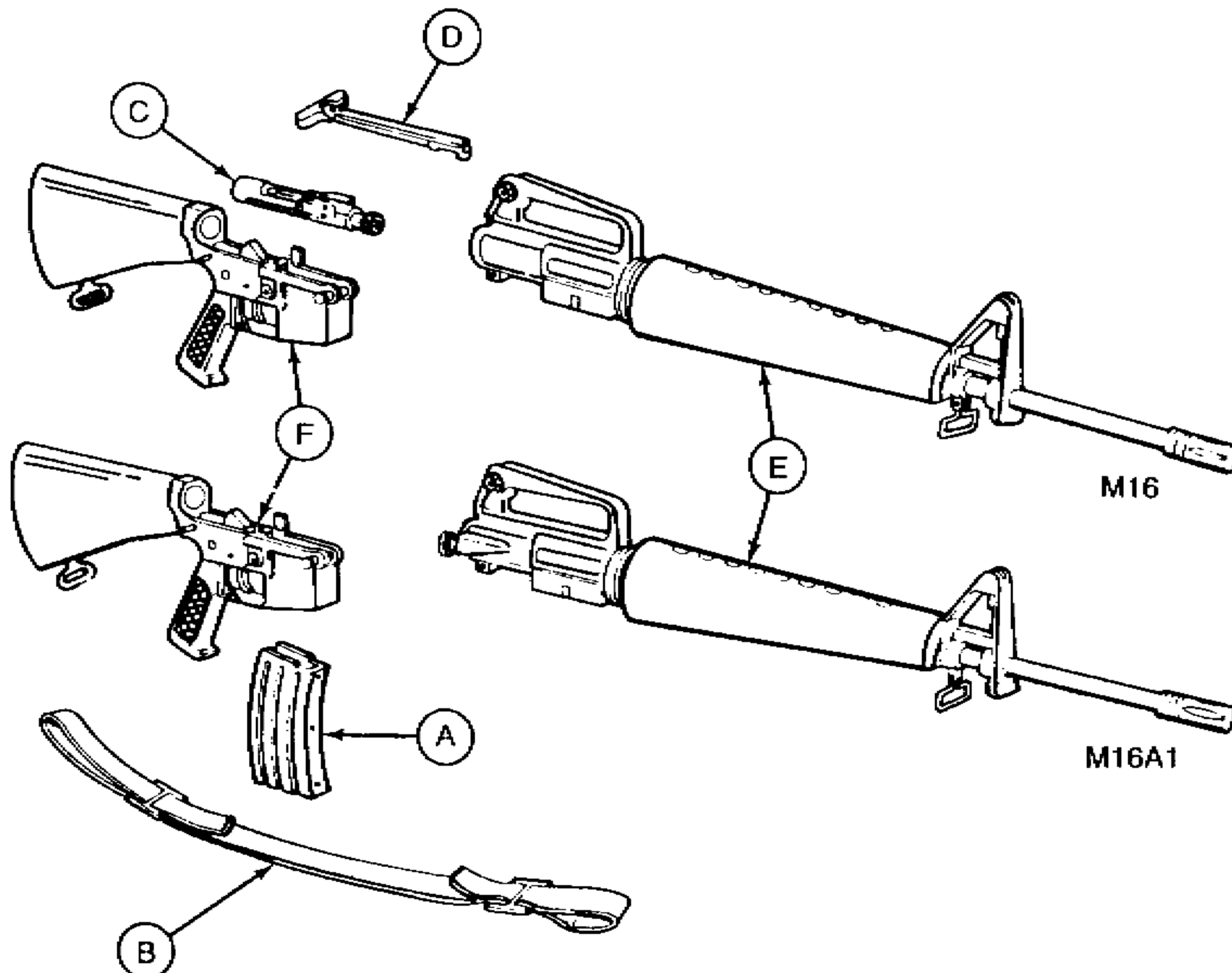
**1-11. GENERAL.** The weapon:

a. *Is gas-operated.* It fires in either the automatic or semiautomatic mode.

b. *Has positive locking of the bolt.* Firing pin is part of the bolt and carrier assembly and cannot strike the primer until the bolt is fully locked.

**1-12. PRINCIPLES OF OPERATION.**

- (A) CARTRIDGE MAGAZINE. Holds cartridges ready for feeding and provides a guide for positioning cartridges for stripping. Provides quick reload capabilities for sustained firing.
- (B) SMALL ARMS SLING. Provides the means for carrying the weapon.
- (C) BOLT AND CARRIER ASSEMBLY. Provides stripping, chambering, locking, firing, extraction, and ejection of cartridges using the drive springs and projectile propelling gases for power.
- (D) CHARGING HANDLE ASSEMBLY. Provides initial charging of the weapon. The charging handle latch locks the handle in the forward position during sustained fire to prevent injury to the operator.
- (E) UPPER RECEIVER AND BARREL ASSEMBLY. Provides support for the bolt carrier assembly. The barrel chambers the cartridge for firing and directs the projectile.
- (F) LOWER RECEIVER AND EXTENSION ASSEMBLY. Provides firing control for the weapon and provides storage for basic cleaning materials.



## CHAPTER 2 ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

### CHAPTER OVERVIEW

This chapter contains information and instructions to help keep the weapon in good repair. The chapter contains:

- a. Repair Parts, Special Tools, TMDE, and Support Equipment
- b. Service Upon Receipt
- c. Preventive Maintenance Checks and Services (PMCS)
- d. Troubleshooting
- e. Decontamination of Rifles and Arms Rooms
- f. Maintenance Procedures

### Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

**2-1. COMMON TOOLS AND EQUIPMENT.** For authorized common tools and equipment, refer to the Table of Organization and Equipment/Modified Table of Organization and Equipment (TOE/MTOE) applicable to your unit.

**2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.** Special tools required for organizational support are listed in appendix C. Fabricated tools are listed and illustrated in appendix E.

**2-3. REPAIR PARTS.** Repair parts are listed in and illustrated in appendix C of this manual.

### Section II. SERVICE UPON RECEIPT

#### 2-4. GENERAL.

a. Inspect the weapon for damage incurred during shipment. If the equipment has been damaged, report the damage on SF Form 364, Report of Discrepancy (ROD).

b. Check the weapon against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in TM 38-750.

c. Check to see whether the equipment has been modified.

d. Check to see if all MWO's have been applied.