

Colt Manual No. CM102

M16A1 RIFLE

**ARMORER/DEPOT
MAINTENANCE AND REPAIR MANUAL**

REVISED JANUARY 1980



WARNINGS

WARNING: IF THIS FIREARM IS CARELESSLY OR IMPROPERLY HANDLED, UNINTENTIONAL DISCHARGE COULD RESULT AND COULD CAUSE INJURY, DEATH, OR DAMAGE TO PROPERTY.

WARNING: IF THE BARREL IS VERY HOT FROM FIRING THERE IS A RISK OF COOK-OFF (I.e., A ROUND IN THE CHAMBER DISCHARGING BY ABSORBING HEAT FROM THE BARREL). A COOK-OFF CAN OCCUR ANY TIME AFTER CHAMBERING A ROUND IN A VERY HOT BARREL. WHEN THIS CONDITION IS SUSPECTED THE CHAMBER MUST BE CLEARED IMMEDIATELY AFTER FIRING.

WARNING: DO NOT ATTEMPT TO FIRE IF WATER IS IN THE BARREL FROM FORDING, HEAVY RAIN OR THICK FOG. OPEN THE BOLT AND ALLOW WATER TO DRAIN BEFORE FIRING. CLEAN A WET RIFLE AS SOON AS POSSIBLE.

FIVE BASIC SAFETY RULES

1. ALWAYS POINT A GUN IN A SAFE DIRECTION.
2. KEEP FIRE CONTROL SELECTOR ON SAFE UNTIL READY TO FIRE.
3. UNLOAD WHEN NOT IN USE.
4. ALWAYS ENSURE A GUN IS NOT LOADED BEFORE CLEANING OR DISMANTLING.
5. PRACTICE HANDLING AN EMPTY GUN BEFORE ATTEMPTING TO FIRE.

CAUTIONS FOR FIRING

1. WEAR EAR PROTECTION WHEN SHOOTING ON A RANGE TO REDUCE THE RISK OF CUMULATIVE LONG TERM PERMANENT HEARING LOSS.
2. BE SURE OF YOUR TARGET AND THE AREA BEHIND IT. WITHOUT AN ADEQUATE BACKSTOP, BULLETS MAY TRAVEL UP TO 3 MILES PAST OR THROUGH YOUR TARGET.
3. TAKE PRECAUTIONS TO AVOID CONTAMINATION BY ACCUMULATIONS OF TOXIC GAS FUMES OR LEAD DUST WHERE FIREARMS ARE USED INDOORS OR WITHIN A CONFINED SPACE.

CAUTIONS FOR MAINTENANCE

1. ENSURE THAT MAGAZINE IS REMOVED AND THE RIFLE IS NOT LOADED BEFORE STRIPPING, CLEANING OR INSPECTING SO THAT IT WILL NOT FIRE.
2. WEAR SAFETY GLASSES IN CASE YOU LOSE CONTROL OF SOME SPRING LOADED COMPONENT WHICH COULD INJURE YOUR EYES.
3. DO NOT PERMIT LIVE AMMUNITION IN OR NEAR THE WORK AREA.
4. TAKE PRECAUTIONS WHEN HANDLING CLEANING FLUIDS AND LUBRICANTS. IF IN DOUBT SEEK ADVICE FROM THE MANUFACTURERS OF THESE PRODUCTS.

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*Use Combination Wrench, 62696, with Torque Wrench, 94162

**Use Wrench, 94158, with Torque Wrench, 94161

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ASSOCIATED MANUAL

The scope of this manual, CM102 is outlined on page 1. For unit maintenance and operator's information and instructions on the 5.56 mm M16A1 Rifle, refer to Colt Manual CM101.

CHAPTER I—INTRODUCTION

SECTION 1—GENERAL

1-1. Scope

This manual provides specific instructions for the inspection and maintenance of the 5.56mm Rifle, M16A1; Bipod, U.S. Model M3; bayonet knife, M7; and scabbard, M8A1 by armorer and depot shop personnel. The information and instructions provided are normally beyond the scope of tools and equipment available to the operator and/or his operational unit.



FIGURE 1-1. M16A1 RIFLE (RIGHT VIEW)



FIGURE 1-2. M16A1 RIFLE (LEFT VIEW)

1-2. Recommendations for Improvement of this Manual

User reports of errors or omissions and recommendations for improving this manual are encouraged. It is requested that such reports be submitted to:

Colt Industries
 Firearms Division
 150 Huyshope Avenue
 Hartford, Connecticut 06102
 U.S.A.

SECTION 2—DESCRIPTION AND DATA

1-3. General

Refer to Colt Manual No. CM101, Chapter I, Section 2, page 2, for a description of the rifle and additional information.

CHAPTER II—REPAIR AND MAINTENANCE INSTRUCTIONS

SECTION 1—REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

2-1. Repair Parts

2-1.1 Repair parts for operator and unit maintenance are listed in Colt Manual No. CM101, Appendix B, page 64.

2-1.1 Repair parts for armorer and depot maintenance are listed and illustrated in Appendix B, page 50 of this manual.

2-2. Special Tools and Equipment

The special tools and equipment required for the maintenance and repair operations described in this manual are listed in Tables 2-1 and 2-2, which follow, and in Appendix A, page 44 of this manual.

TABLE 2-1, ARMORER'S KIT, M16 & M16A1 RIFLE

Tool	Colt Part No.	Figure No.	Page No.
Armorer's Kit, M16 & M16A1 Rifle	62675	C1	65
Tool Box, Steel	91414	C1	65
Brush, Bore Cleaning	94144	A1	44
Brush, Chamber Cleaning	94145	A1	44
Punch, Center	94146	6-2B	39
Depressor, Front Sight Detent	62672	A12	48
Depressor, Pivot Pin Detent	62673	A11	47
Gage, Firing Pin Protrusion	62679	A7	46
Gage, Headspace	T27921	A4	45
Wrench Handle, Flexible	94147	3-2C	21
		3-2P	22
		3-2Q	23
Hammer, Ball Peen 8 oz.	94148	—	—
Hammer, Ball Peen 16 oz.	94149	—	—
Hammer, Soft Face	94150	—	—
Pliers, External Retaining Ring	94151	3-2s	23
Punch, Drive Pin— $1/16$ "	94152	3-2a	21

TABLE 2-1, ARMORER'S KIT, M16 & M16A1 RIFLE (Cont.)

Tool	Colt Part No.	Figure No.	Page No.
Punch, Drive Pin (Gas Tube)	62697	A10	47
Punch, Drive Pin— $3/32$ "	94154	A5	46
Punch, Drive Pin— $1/8$ "	94155	3-2K	22
Punch, Drive Pin— $1/4$ "	94156	Para. 6-2	37
Punch, Bolt Catch Pivot Pin	62680	A9	47
Punch, Taper Pin Starter	62682	A5	46
Punch, Taper Pin Insertion	62683	A5	46
Rod, Cleaning, 5.56 mm	62702	A1	44
Screwdriver, Flat Blade Mechanics	94157	3-2Z	24
Screwdriver, Flat Blade Mechanics	94157	4-1A	33
Setter, Punch—180 ID x $3\frac{1}{2}$ " long	62688	—	—
Setter, Punch—190 ID x $3\frac{1}{2}$ " long	62689	—	—
Setter, Punch—190 ID x 6" long	62690	—	—
Setter, Punch—220 ID x $3\frac{1}{2}$ " long	62691	—	—
Setter, Punch—(with flat)	62692	A8	46
Socket, Hex-bit Wrench (with short bit)	94158	6-3A	39
Tool, Alignment, Barrel Nut	62693	6-1B	38
Tool, Pivot Pin Detent Installation	62696	A6	46
Tool, Reflector, Chamber	62694	2-3 & A3	17 & 45
Tool, Swaging, Rivet	62715	C1	5
Vise Jaws, Barrel Removal	62695	A13	49
Vise, Bench, Machinists 4" (Optional)	94154	—	—
Wrench, Combination	62696	A2	45
Wrench, Front Sight Post	62699	A12	48
Wrench, Socket Head Hex Screw	94160	6-2A	39
Wrench, Torque Limiting, $3/8$ " Square Drive	94161	6-2A	39
Wrench, Torque Limiting, $1/2$ " Square Drive	94162	6-2B	38

TABLE 2-2, CONSUMABLE SUPPLIES REQUIREMENT

Item No.	Nomenclature	Quantity
1	Cleaner, Tobacco Pipe	AR
2	Cleaning Compound, Rifle Bore (U.S. Federal Specification, P-C-111 or equivalent)	AR
3	Cleaning Compound, Solvent (U.S. Specification MIL-C-372 or equivalent)	AR
4	Cloth, Abrasive: Crocus Ferric Oxide and Quartz	AR
5	Grease, Molybdenum Disulfide (U.S. Specification MIL-G-21164 or equivalent)	AR
6	Lacquer: Black (jet) Lusterless Acrylic Nitro-Cellulose type (touch up) (U.S. Federal Specification TT-L-50D, Type 1 or U.S. Specification MIL-L 19538; Color 37038)	AR
7	Lubricating Oil, Semi-Fluid (LSA), (U.S. Specification MIL-L-46000)	AR
8	Lubricating Oil, Automatic Weapons (LAW) (U.S. Specification MIL-L-14107)	AR
9	Lubricating Oil, General Purpose Preservative (U.S. Federal Specification VV-L-800 or equivalent)	AR
10	Penetrating Oil (U.S. Federal Specification VV-P-216 or equivalent)	AR
11	Rag, Wiping: Cotton	AR
12	Sealing Compound, "Permatex No. 3D Aviation Form-A-Gasket" (Permatex Co., Brooklyn, N.Y.)	AR
13	Swab, Small Arms Cleaning	AR

AR = As Required

Note: The weapon is compatible with and will function properly using any good grade of oil and bore cleaner. The above formulations are recommended only because it is believed they are the best for all firearms, but equivalent materials would be acceptable.

SECTION 2—TROUBLESHOOTING**2-3. General**

Troubleshooting instructions are contained in Colt Manual No. CM101 Chapter III, Section 5, page 52.