



**ARMALITE®**

ARMALITE®, INC  
OWNER'S MANUAL  
FOR

**ARMALITE®  
AR-31™ RIFLE**



**READ THIS MANUAL THOROUGHLY, PARTICULARLY THE  
WARNINGS, BEFORE USING THIS FIREARM! IT'S IMPORTANT!**

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**Congratulations on buying an ArmaLite®! You won't be disappointed.**

**Our many ArmaLite®-made parts and accessories for your gun are shown on our website [www.armalite.com](http://www.armalite.com). You can also check our web specials for great deals or browse through our on-line catalog.**

**Check with your local ArmaLite® dealer for any special deals or sales that he may be running.**

**To learn more about your new firearm, we invite you to visit the Library on our website. There, we have on-line Manuals, Frequently Asked Questions and Technical Notes you're sure to find helpful.**

**There's nothing better than adding to your ArmaLite® firearm with GENUINE ArmaLite® parts!**

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## 1. READ THIS FIRST!

Throughout this manual you will find WARNINGS and/or CAUTIONS printed in bold print. All WARNINGS and CAUTIONS should be read carefully and followed completely. WARNINGS discuss issues that could result in damage to your firearm, or injury or death to you or a bystander. CAUTIONS discuss issues that could result in damage or malfunction of your firearm.



**WARNING: IT IS YOUR RESPONSIBILITY TO ASSURE THAT YOUR FIREARM IS HANDLED, FIRED, AND STORED SAFELY AND RESPONSIBLY AT ALL TIMES.**

This manual provides instructions on the operation and maintenance of your ArmaLite® firearm. Read and understand it carefully before you try to use your firearm. Your safety, and that of those around you, depends on your knowledge of your firearm and on your knowledge of safety rules common to all firearms. Please study the common-sense safety rules noted in this manual. Your first responsibility as a gun owner is always safety!

Your second responsibility as a gun owner is security. Make sure that your firearm remains in responsible hands...YOURS! Don't become an unwitting partner in a crime or tragedy: make sure your firearm is properly secured. Lock it in a secure storage container or, if none is available, remove the bolt assembly and store it separately. **IF YOU HAVE MORE THAN ONE AR-30 Series Rifle, MAKE SURE YOU KEEP THE BOLTS MATCHED TO THEIR SPECIFIC RIFLES! THE BOLTS ARE NOT INTERCHANGEABLE!** The last three numbers (of the serial #) are engraved on the bolt to enable you to do this.

It is also your responsibility to assure that you comply with all federal, state, and local laws with regard to the purchase, ownership, use, and storage of your firearm.

**NOTICE: THIS MANUAL MAY COVER NUMEROUS MODELS AND/OR CALIBERS OF OUR FIREARMS. THE TEXT, PICTURES, AND EXPLODED VIEWS DO NOT NECESSARILY DEPICT ALL MODEL VARIATIONS. YOU MAY NEED TO CONTACT US FOR INFORMATION ON PARTS THAT ARE UNIQUE TO YOUR MODEL.**

### NOTICE

ArmaLite® has no control over the use of your firearm, and shall not be responsible for injury, death, or damage to property resulting from either intentional or accidental discharge of this firearm. In addition, ArmaLite® shall not be responsible for proper function of the firearm when it is used for purposes or subjected to treatment for which it was not intended. ArmaLite® will not honor claims which may result from careless or improper handling, unauthorized adjustments/modifications or parts replacement, corrosion, neglect, use of the wrong type or caliber of ammunition, or the use of ammunition other than original, high quality commercially manufactured ammunition in good condition or any combination thereof.

## **2. SAFETY FIRST! IT'S YOUR RESPONSIBILITY!**

- \* Treat every firearm as if it is loaded ...AT ALL TIMES!**
- \* Always keep the muzzle pointed in a safe direction.**
- \* Never point your firearm at anything that you do not intend to shoot.**
- \* Keep your finger off the trigger and out of the trigger guard until you are aiming at your target and ready to shoot.**
- \* Always keep the safety in the "SAFE" position, especially when the firearm is loaded and cocked, until you are ready to fire.**
- \* Always keep and carry your firearm with an empty chamber until you intend to shoot, so that your firearm cannot be fired unintentionally. Firearms should be unloaded when not actually in use.**
- \* Be sure of your target and backstop before you shoot. Ask yourself what your bullet will hit if it misses or goes through the target.**
- \* Never shoot at hard, flat surfaces or water...bullets can ricochet.**
- \* Always wear hearing and eye protection when shooting.**
- \* Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to be associated with birth defects, reproductive harm, and other serious injury. Have adequate ventilation at all times and wash hands after handling firearms and ammunition.**
- \* Be sure that your barrel is clear of obstructions, including excessive oil, grease, cleaning patches, etc. before shooting.**
- \* Use only clean, high quality factory loaded ammunition in good condition. ArmaLite® cannot condone the use of handloaded ammunition. Any such use voids the ArmaLite® warranty.**
- \* Do not alter or modify your firearm.**
- \* Do not try to change your firearm's trigger pull because alterations of trigger pull can affect sear engagement and might cause accidental firing.**
- \* Store firearms and ammunition separately and beyond children's reach.**
- \* Make sure that no cleaning patch or other obstruction is in the barrel or muzzle brake. Firing the rifle with such an obstruction may damage the rifle or flying debris may cause injury.**

**IN CASE OF MALFUNCTION, STOP! REVIEW THIS MANUAL TO IDENTIFY AND RESOLVE THE PROBLEM. IF YOU CANNOT RESOLVE IT, CONTACT ARMALITE®.**

**KEEP THIS MANUAL WITH YOUR RIFLE. IF YOU SELL THE RIFLE, GIVE THIS MANUAL TO THE NEW OWNER.**

### 3. TABLE OF CONTENTS

1. READ THIS FIRST! -----	4
2. SAFETY FIRST! IT'S YOUR RESPONSIBILITY! -----	5
3. TABLE OF CONTENTS -----	6
4. SAFE STORAGE -----	7
5. GENERAL INFORMATION -----	8
6. EXPLODED DRAWINGS AND PARTS LISTS -----	11
7. AMMUNITION -----	22
8. INITIAL ASSEMBLY, INSPECTION, AND CLEANING -----	23
9. LOADING AND FIRING -----	30
10. CLEARING / UNLOADING THE FIREARM -----	33
11. ZEROING THE SIGHTS -----	34
12. DISASSEMBLY -----	35
13. MAINTENANCE -----	39
14. REASSEMBLY -----	44
15. TROUBLESHOOTING -----	48
16. WARRANTY, SERVICE, AND SUGGESTIONS -----	49

#### 4. SAFE STORAGE

 **WARNING: ALWAYS ASSURE THAT YOUR FIREARM IS COMPLETELY UNLOADED BEFORE STORING IT. ALWAYS TREAT YOUR FIREARM AS IF IT WERE LOADED. ALWAYS STORE YOUR FIREARM IN A SAFE LOCATION, SEPARATE FROM THE AMMUNITION.**

Make certain that both the chamber and magazine of your rifle are unloaded before you store it. Store your rifle in a securely locked gun safe. If you do not have a safe, remove the bolt assembly from your rifle and store it separately from the rifle in a secure location. Store your ammunition separately from the rifle and from the bolt assembly.

 **WARNING: IF YOU HAVE MORE THAN ONE AR-31 RIFLE MAKE SURE THAT YOU SPECIFICALLY MATCH THE REMOVED BOLT ASSEMBLY WITH ITS ORIGINAL FIREARM BECAUSE THE BOLTS ARE NOT INTERCHANGEABLE.**

As is typical of many high precision firearms, ArmaLite® AR-31 rifles are individually headspaced at the factory. The individual mating of each bolt, barrel, and receiver delivers the highest possible accuracy as well as assuring unmatched reliability and safety. Upon being headspaced, the last three digits of the rifle's serial number are etched onto the bolt to ensure that the mated assemblies can be maintained as a set.

## 5. GENERAL INFORMATION

**GENERAL DESCRIPTION:** The AR-31 is a robust, front locked, manually operated, bolt action, magazine fed rifle chambered in 7.62 NATO (308 Winchester).

The AR-31 is a finely made rifle, a sophisticated machine built for many years of reliable use. The rifle consists of two major elements, the receiver/barrel assembly and the stock assembly. The two elements are joined together by a patented machine-rest style V-block interface and a bedding wedge. Accurate, repeatable bedding is guaranteed by securely engaging the octagonal receiver, in three axes, in the aluminum forestock. The vertical and horizontal axes are secured by the deep V channel in the aluminum forestock and the longitudinal axis is secured by the bedding wedge.

As is typical of many high precision firearms, the AR-31 is individually headspaced at the factory. The individual mating of each bolt, barrel, and receiver delivers the highest possible accuracy as well as assuring unmatched reliability and safety. To ensure that the mated assemblies (bolt, barrel, and receiver) are kept as a set, the last three digits of the rifle's serial number are etched onto the bolt.

 **WARNING: IN ORDER TO MAINTAIN PROPER HEADSPACE FOR SAFETY, RELIABILITY, AND ACCURACY, BOLT ASSEMBLIES MUST NOT BE INTERCHANGED AMONG RIFLES. BOLT HEADS ARE FACTORY REPLACEABLE ONLY.**

The AR-31 utilizes magazines that are identical to the magazines used in our AR10B Series of semiautomatic rifles and carbines. So, you can use any of the 5-round, 10-round, 15-round, 20-round or 25-round AR-10 magazines in your AR-31.

(NOTE: The 5-round magazine is so short that it doesn't stick out below the grip frame. So, if dirt or damage causes it to become stuck inside the grip frame, you'll need to press it out through the ejection port.)

The rifle bears a manganese phosphate finish on most steel surfaces, and hard anodizing on the aluminum surfaces.

**AVAILABLE CONFIGURATION:** The AR-31 is offered in a target/tactical configuration. It features a long scope rail that extends over both the receiver and the barrel, and a buttstock assembly that is fully adjustable. The extended scope rail allows the simultaneous mounting of a scope and another inline optical device. It also features a front mount with Picatinny rails that permit the mounting of other devices.

The buttstock provides "no-tool" adjustment of cheekpiece height and length of pull. Vertical buttstock adjustment is easily accomplished with only a 5/32 allen wrench.

**COMMON COMPONENTS:** The AR-31 shares many components in common with its big brother, the AR-30A1. In particular, all of the buttstock components, the muzzle brake, the trigger, and the safety (including their part names and part numbers) are identical on both firearms. The parts commonality also means that, if you are experienced with one of the firearms, you will have little trouble adapting to the other.



*The AR-31 Target Rifle with Accessories*

**MUZZLE BRAKE:** The AR-31 is equipped with the same extremely effective muzzle brake that we install on its big brother, the AR-30A1. It reduces recoil to a very mild shove. The muzzle brake is cast as one piece to assure durability, repeatability of dimensions, and maximum recoil reduction. The barrel and its associated muzzle brake are threaded with a thread size that is common for many sound suppressors for that rifle's caliber. Thus, the brake can be removed and a sound suppressor attached directly to the barrel without the use of an adapter. The threads used are 5/8 - 24 UNEF.



**WARNING: THE MUZZLE BRAKE IS HELD IN PLACE BY BOTH A LOCK RING AND LOCTITE. DON'T REMOVE IT UNLESS REPLACEMENT OR REPAIR IS NECESSARY. TRYING TO FORCE THE BRAKE OFF WITHOUT SOFTENING THE LOCTITE MAY UNSCREW THE BARREL!**

**TELESCOPIC SIGHT RAIL:** The AR-31 scope mount rails are manufactured with special recoil lugs designed to defeat both lateral and longitudinal recoil forces. The rails are designed to accept ArmaLite's® scope mounts, as well as most other Weaver and Picatinny type mounts/rings. The rails are tapered longitudinally at an angle of 20 minutes to compensate for projectile drop at long ranges.

The rail on the AR-31 is installed with eight screws, four on the receiver and four on the front mount. The back three are longer and the front one is shorter. The four screws that attach to the front mount are all short, and are the same as the front screw that fits into the receiver.

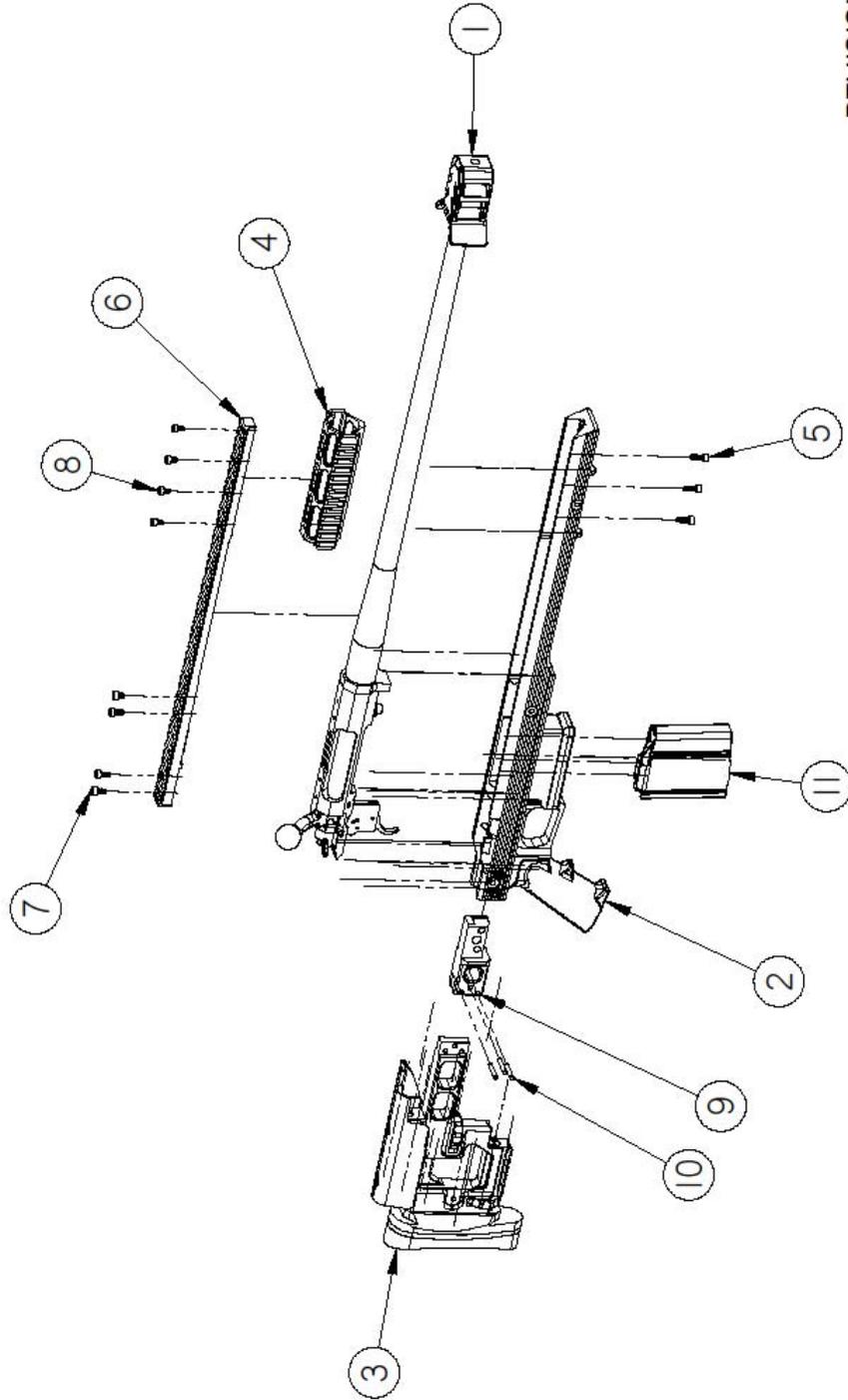


**WARNING: YOUR ARMALITE® FIREARM WAS DESIGNED TO FUNCTION PROPERLY WITH ITS ORIGINAL COMPONENTS. ALTERATIONS TO ITS ORIGINAL COMPONENTS OR REPLACEMENT OF THEM WITH AFTERMARKET (NON-ARMALITE®) COMPONENTS CAN CAUSE MALFUNCTIONS OR EVEN MAKE THE FIREARM UNSAFE. DO NOT ALTER ANY PART OR ADD / SUBSTITUTE PARTS NOT MANUFACTURED BY ARMALITE® INC.**

## **6. EXPLODED DRAWINGS AND PARTS LISTS**

The drawings and associated parts lists in this section will give you visual references to parts discussed in the text. In the text, you will note part reference numbers in parentheses behind some part names. Those part reference numbers are the same as part reference numbers shown in the exploded drawings and parts lists. For example, a part numbered “R-7” in the text would refer to the part numbered “7” in the Receiver/Barrel Assembly exploded view. Part “A-7” is shown on the AR-31 Assembly exploded view. Part “B-7” is on the Bolt Assembly exploded view. Part “F-7” is on the Forestock Assembly exploded view. Part “T-7” is on the Target Buttstock Assembly exploded view.

# AR-31 Assy



REVISION C 131002

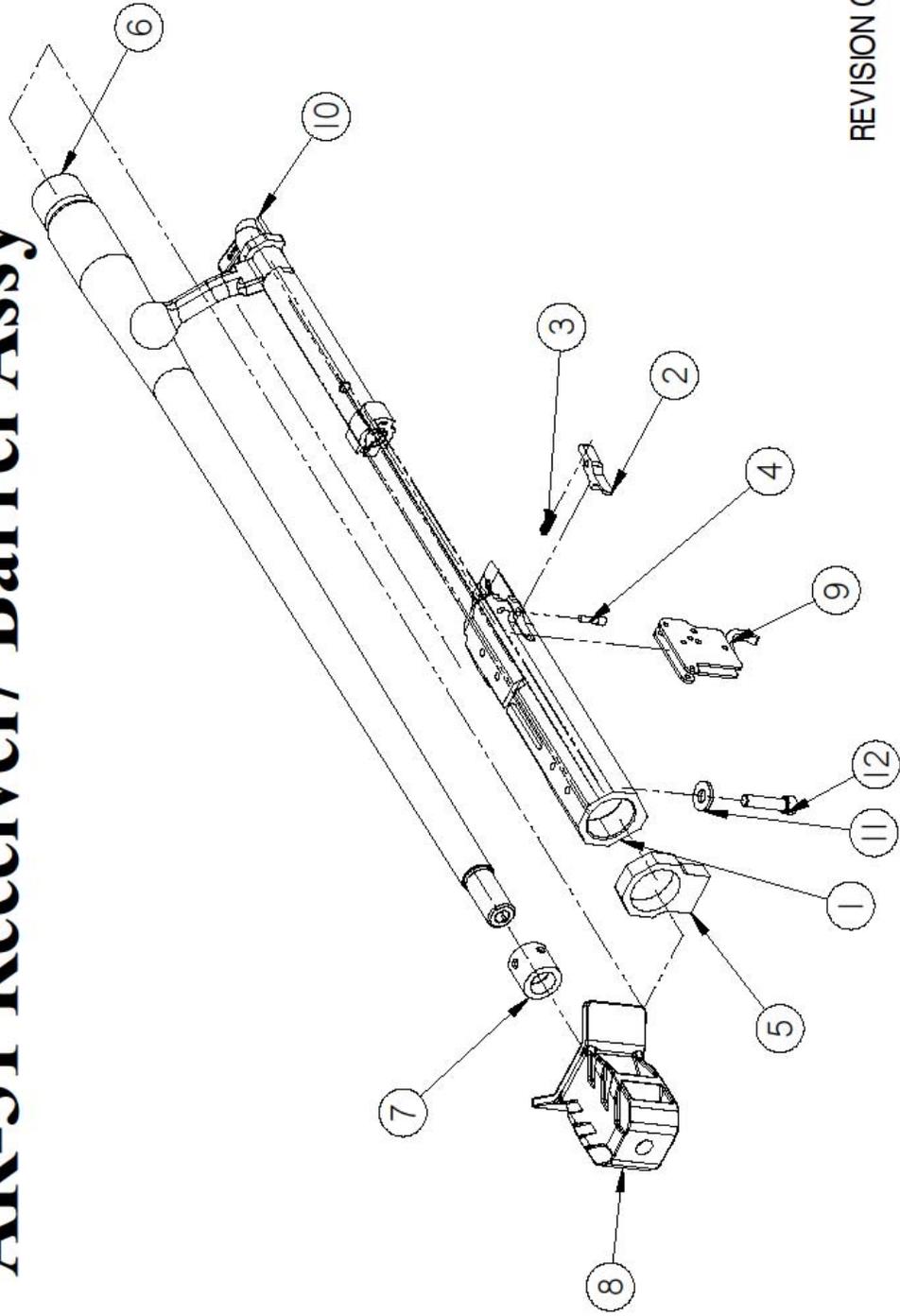
# AR-31 Assy

1	31002002308	ASSEMBLY, RECEIVER/ BARREL, 308, AR-31
2	31711011	ASSEMBLY, FORESTOCK AND GRIP FRAME, AR-31
3	30711020	ASSEMBLY, TARGET BUTTSTOCK, AR-30A1
4	30806320	MOUNT, FRONT, AR-30A1
5	30806321	SCREW, SOCKET HEAD CAP, FRONT MOUNT, AR-30A1
6	31809320	RAIL, SIGHT, TARGET, 20 MOA, AR-31
7	30935005	SCREW, SOCKET HEAD CAP, SCOPE BASE, 3/8", AR-30
8	30920000	SCREW, SOCKET HEAD CAP, SCOPE BASE, 1/4", AR-30
9	30705384	ADAPTER, BUTTSTOCK, FIXED, AR-30A1
10	30705387	PIN, COILED SPRING
11	10607001	ASSEMBLY, MAGAZINE, 10 ROUND, AR-10

**-PART 1 ON THIS PAGE IS FACTORY REPLACEABLE ONLY**

REVISION C 131002

# AR-31 Receiver/ Barrel Assy



REVISION C 131002

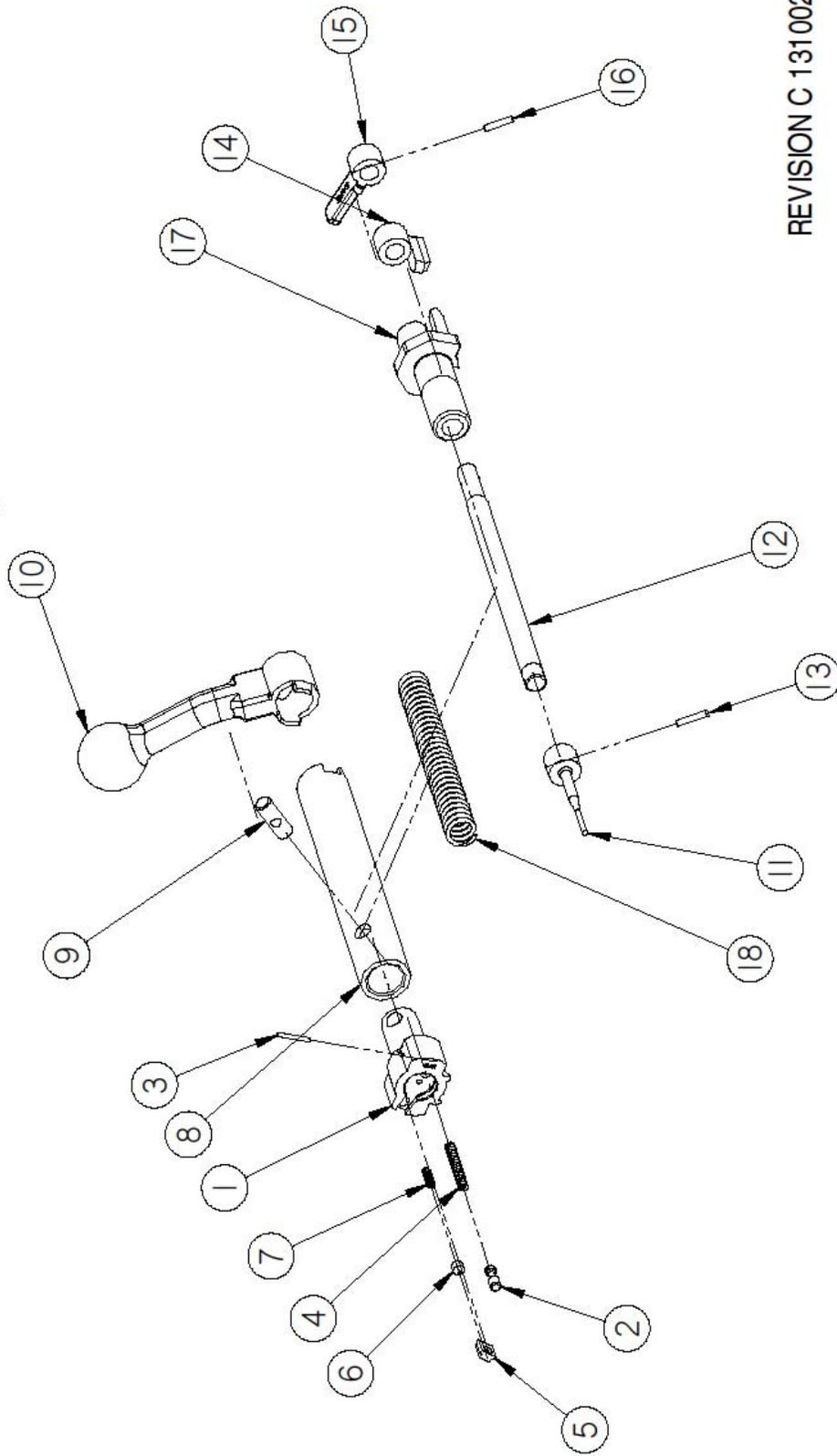
# AR-31 Receiver/ Barrel Assy

1	31010001	RECEIVER, AR-31
2	30011000	STOP, BOLT, AR-30
3	30013000	SPRING, BOLT STOP, AR-30
4	300110001	PIN, BOLT STOP, AR-30
5	30120000	LUG, RECOIL, AR-30
6	31102410	BARREL, 308 WIN, 24 INCH, AR-31
7	30108350	NUT, MUZZLE BRAKE, 5/8-24, AR-30A1
8	30108120	BRAKE, MUZZLE, 5/8-24, AR-30A1
9	AR50019	TRIGGER, AR-30/AR-50
10	31401002308	ASSEMBLY, BOLT, TARGET, 308, AR-31
11	30010200	WASHER, ACTION SCREW, AR-30
12	EL0010	SCREW, SOCKET HEAD CAP

**-PARTS 1 AND 5-10 ON THIS PAGE ARE FACTORY REPLACEABLE ONLY**

REVISION C 131002

# AR-31 Bolt Assy



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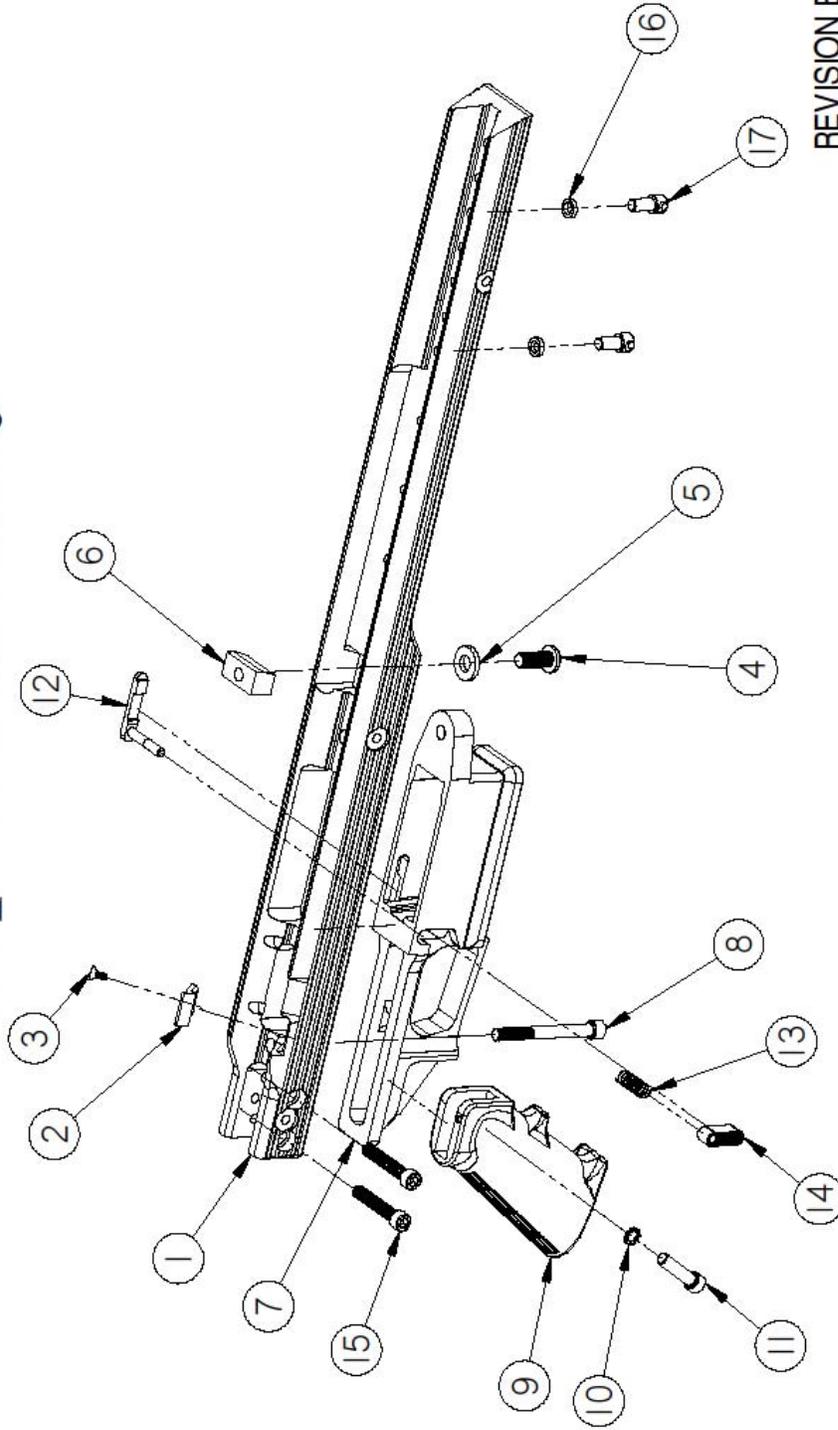
# AR-31 Bolt Assy

1	31402001308	BOLT, 308, AR-31
2	30404010	EJECTOR, AR-30A1
3	EA1040	PIN, EJECTOR
4	EA1050	SPRING, EJECTOR
5	30404000308	EXTRACTOR, 308, AR-30
6	304040001	PLUNGER, EXTRACTOR, AR-30
7	30406000	SPRING, EXTRACTOR, AR-30
8	31410001	TUBE, BOLT, AR-31
9	30413100	PIN, BOLT, AR-30
10	30405081	HANDLE, BOLT, TARGET, AR-30A1
11	30304000	STRIKER, AR-30
12	31405030	ROD, STRIKER, AR-31
13	30304200	PIN, STRIKER, AR-30
14	30405060	COCKING PIECE, AR-30A1
15	30304040	LEVER, SAFETY, AR-30A1
16	30304070	PIN, SAFETY, AR-30A1
17	30405070	SLEEVE, BOLT, AR-30A1
18	31305102	SPRING, STRIKER, AR-31

**-PART 1 ON THIS PAGE IS FACTORY REPLACEABLE ONLY**

REVISION C 131002

# AR-31 Forestock and Grip Frame Assy



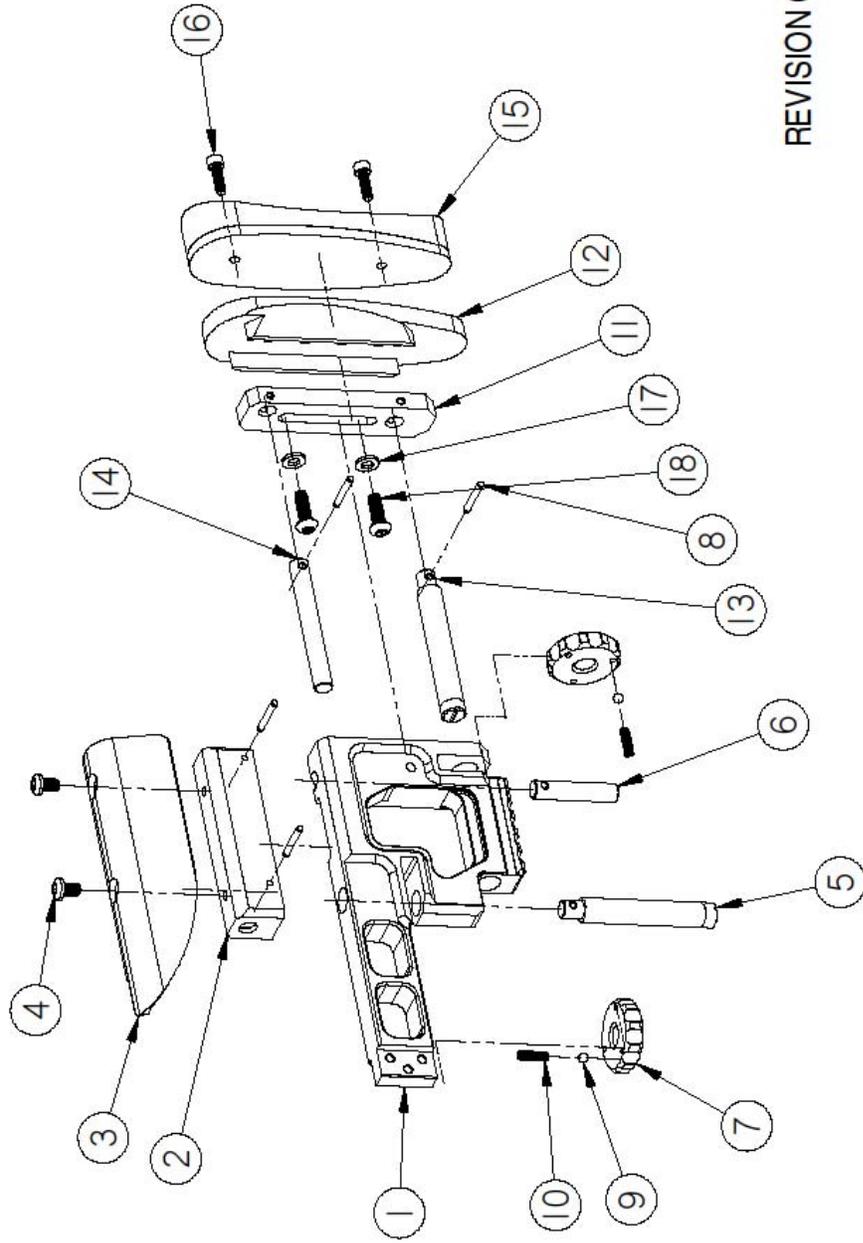
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# AR-31 Forestock and Grip Frame Assy

1	31715010	FORESTOCK, AR-31
2	30715011	BLOCK, SAFETY/ TRIGGER PIN, AR-30A1
3	30715012	SCREW, FLAT HEAD SOCKET CAP
4	30719000	SCREW, BUTTON HEAD CAP
5	AR50104	WASHER, AR50/ AR30 ACTION SCREW
6	AR50034	BEDDING WEDGE
7	31703026	FRAME, GRIP, AR-31
8	30731000	SCREW, GRIP FRAME
9	15000	GRIP, BLACK, HOGUE
10	EL0020	WASHER, EXTERNAL TOOTH LOCK, RIFLE PLASTIC GRIP
11	EL0010	SCREW, SOCKET HEAD CAP
12	31203200	ASSEMBLY, MAGAZINE CATCH, AR-31
13	EL0280	SPRING, HELICAL COMPRESSION, MAGAZINE CATCH
14	31203220	BUTTON, MAGAZINE RELEASE, AR-31
15	30728000	SCREW, SOCKET HEAD CAP
16	EX0008	WHITE WASHER SPACER
17	EX0000	SLING SWIVEL STUD

REVISION B 130806

# AR-30A1 Target Buttstock Assy



REVISION C 121003

# AR-30A1 Target Buttstock Assy

1	30705370	FRAME, BUTTSTOCK, TARGET, AR-30A1
2	30705372	CARRIER, CHEEK PIECE, AR-30A1
3	30705374	CHEEK PIECE, AR-30A1
4	30705373	SCREW, CHEEK PIECE, AR-30A1
5	30705375	ROD, ADJUSTING, CHEEK PIECE, AR-30A1
6	30705376	ROD, GUIDE, CHEEK PIECE, AR-30A1
7	30705377	KNOB, ADJUSTMENT, AR-30A1
8	30705383	PIN, COILED SPRING
9	30705386	BEARING, BALL, BUTTSTOCK, AR-30A1
10	30705385	SPRING, HELICAL COMPRESSION
11	30705378	BUTTPATE, TARGET, AR-30A1
12	30705379	BUTTPATE, ADJUSTABLE, AR-30A1
13	30705380	ROD, ADJUSTING, BUTTPATE, AR-30A1
14	30705381	ROD, GUIDE, BUTTPATE, AR-30A1
15	30736000	BUTT PAD, AR-30
16	AR50117	SCREW, RECOIL PAD
17	30705389	WASHER, BLACK NYLON
18	AR50118	SCREW, BUTTPATE ADJUSTMENT
*	30705390	PAD, CHEEK PIECE, AR-30A1

**-PARTS MARKED WITH AN "\*" ARE NOT SHOWN**

REVISION C 121003

## 7. AMMUNITION

Nomenclature of cartridges can be confusing. It is vital that you understand cartridge nomenclature and only fire cartridges for which this firearm was designed. To assist you, the name of the appropriate cartridge will be etched on the barrel of each ArmaLite® firearm. (More information regarding cartridge nomenclature can be found in the Tech Notes on our website.)

For information regarding projectile weights recommended for your particular ArmaLite, see Technical Note 110: “PROJECTILE WEIGHT VERSUS RIFLING TWIST” in the Library on our website, [www.armalite.com](http://www.armalite.com)

 **WARNING: USE OF INCORRECT AMMUNITION CAN CAUSE FIREARM DAMAGE, PERSONAL INJURY, OR DEATH. MAKE ABSOLUTELY CERTAIN THAT YOU ARE USING CARTRIDGES DESIGNED FOR YOUR FIREARM. DO NOT FIRE OLD, CORRODED, DEFORMED, OR HANDLOADED AMMUNITION. IF YOU HAVE ANY QUESTIONS, CONTACT ARMALITE® BEFORE FIRING.**

If you have any questions regarding ammunition compatibility, CONTACT ARMALITE® BEFORE FIRING THE RIFLE!!!!!!!

 **WARNING: DO NOT FIRE SABOTED AMMUNITION FROM YOUR RIFLE. THE SABOT COULD STRIKE OR LODGE IN YOUR MUZZLE BRAKE POTENTIALLY CAUSING FIREARM DAMAGE AND INJURY OR DEATH.**

 **CAUTION: FIRING TRACER AND ARMOR PIERCING AMMUNITION REDUCES BARREL LIFE.**

Firing any of the ammunition described in the above warnings will void your warranty.

## 8. INITIAL ASSEMBLY, INSPECTION, AND CLEANING

### 8.1 INITIAL ASSEMBLY

Your AR-31 Rifle is shipped to you completely assembled (except for the bolt). The only additional assembly required by you is installation of the bolt and a scope mount and scope.



*Attaching the ArmaLite® Scope Mount*

**ARMALITE® SCOPE MOUNTS & RINGS:** The AR-31 telescopic sight rail will accept ArmaLite® Scope Mounts as well as other Weaver/Picatinny style scope mounts and rings.

Most shooters will find that our high (1.45”) scope mounts (P/N 10805020 for 1” scopes and P/N 10805010 for 30mm scopes) provide an ergonomically comfortable cheekweld. For shooters with smaller faces or higher cheekbones, we provide medium (1.25”) mounts (P/N EX0027 for 1” scopes and P/N EX0022 for 30mm scopes).

To install an ArmaLite® scope mount, select a location on the scope rail, and attach the scope mount with the cross-rail engaging a slot in the rail. Tighten the mount until you feel a slight “stick” or “catch” in rotation of the mount knob. That catch is an elastomer ring locking the knob. The knobs need not be tightened harshly to work perfectly, and overenthusiastic tightening can damage the mount or knob. You can install the mount with the thumbscrews on the left or on the right. However, installing the mount with the knobs on the left will allow more hand clearance when you cycle the bolt. It will also allow you to locate the scope farther rearward if that is needed to obtain proper eye relief with your scope.

NOTE: In the above picture, the front scope ring is offset forward. If you want to move the scope farther rearward, you can reverse the mount so that the mounting knobs are on the left side of the receiver and the offset ring is rearward.

Remove the top half of the two rings and install your scope. While shouldering the rifle, as you would in your shooting position, move the scope longitudinally until you have a full picture through the scope. Then rotate the scope until the crosshairs are vertical/horizontal. Replace the top halves of the rings and torque the ring screws to 20 – 25 in lbs.

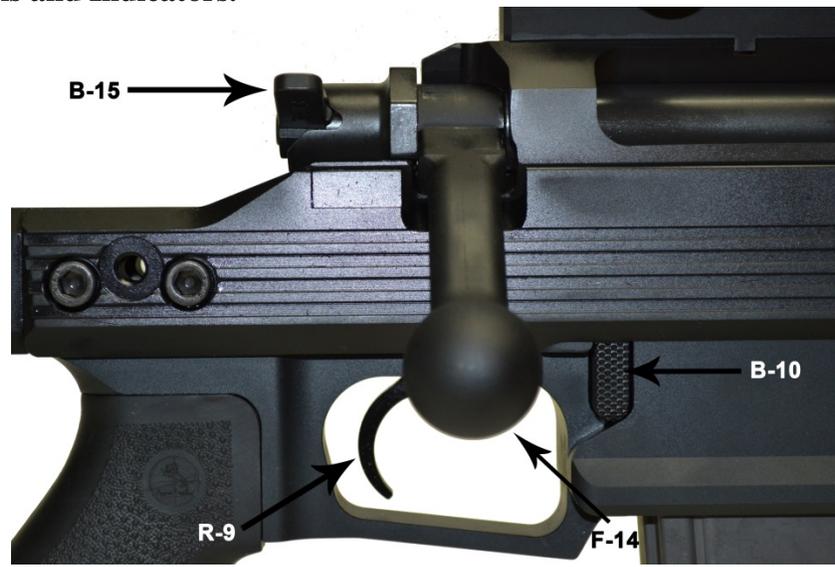
 **WARNING: MAKE CERTAIN THAT THE SCOPE IS MOUNTED FAR ENOUGH FORWARD SO THAT IT WILL NOT IMPACT YOUR FACE DURING RECOIL. CHECK THE DISTANCE BETWEEN THE SCOPE AND YOUR FACE WHEN YOU ARE IN THE FIRING POSITION. WHEN IN DOUBT, INCREASE THE EYE RELIEF. BEAR IN MIND THAT YOUR EYE WILL BE CLOSER TO THE SCOPE WHEN SHOOTING FROM PRONE OR OFF THE BENCH THAN WHEN SHOOTING OFF-HAND.**

## **8.2 INITIAL INSPECTION**

 **WARNING: READ THIS MANUAL COMPLETELY AS YOU INSPECT YOUR NEW ARMALITE® FIREARM. MAKE CERTAIN THAT YOU UNDERSTAND HOW TO ASSEMBLE, OPERATE, DISASSEMBLE, MAINTAIN, AND STORE YOUR FIREARM SAFELY BEFORE YOU USE IT.**

 **CAUTION: DO NOT SLAM THE BOLT ASSEMBLY BACK TO ITS MOST REARWARD POSITION. THIS CAN DAMAGE YOUR BOLT OR THE BOLT STOP.**

## A. Controls and Indicators.



*Operating Controls*

**1. Safety.** The safety lever (B-15) is mounted at the rear of the bolt. To engage the safety, rotate the safety lever clockwise to the “SAFE” position. To disengage the safety, rotate the safety lever counterclockwise to the “FIRE” position. Note that the safety may have a little “wobble” when it is rotated to either extreme position. This “wobble” is normal, and not a cause for concern.

**⚠ CAUTION: ONLY MOVE THE SAFETY (EITHER TO THE “FIRE” POSITION OR TO THE “SAFE” POSITION) WHEN THE BOLT IS CLOSED AND LOCKED IN THE RECEIVER. DO NOT MOVE THE SAFETY WHEN THE BOLT IS IN AN UNLOCKED POSITION OR WHEN THE BOLT IS REMOVED FROM THE RIFLE. IF YOU DO, YOU MAY INDAVERTENTLY PARTIALLY UNSCREW THE BOLT SLEEVE FROM THE BOLT TUBE. IF YOU DO MOVE THE SAFETY WITHOUT THE BOLT BEING LOCKED IN ITS CLOSED POSITION AND THE BOLT SLEEVE ROTATES OUT OF ITS PROPER ORIENTATION, YOU MUST PULL THE SAFETY LEVER BACKWARDS AND ROTATE IT TOWARDS THE “SAFE” DIRECTION UNTIL THE BOLT SLEEVE ROTATES INTO CONTACT WITH THE BOLT HANDLE. THEN RELEASE THE SAFETY LEVER INTO ITS SAFE NOTCH IN THE BOLT SLEEVE.**

**2. Trigger.** The trigger (R-9) is located within the trigger guard. It is of conventional, single stage design. To fire, grasp the pistol grip (F-9) with the hand and pull the trigger straight to the rear.

**3. Bolt Handle.** Lift the bolt handle (B-10) to unlock the bolt and pull the bolt to the rear.

**4. Magazine Release.** The magazine release is identical in appearance and function to the magazine release on all AR-style firearms. So, if you’re familiar with any of those weapons,

releasing the magazine on the AR-31 should be intuitive. To actuate it, push the magazine release button (F-14) inward to release the magazine from the forestock assembly. It has been designed to be low profile in order to prevent accidentally dropping the magazine.

**5. Magazine.** The magazine (A-11) is inserted into the magazine well opening in the bottom of the forestock/grip frame. The magazine will be securely locked into the forestock assembly by the magazine release.

The AR-31 accepts AR-10B magazines up to capacities of 25 rounds. It would be very difficult for a shooter to count that many rounds to know when his magazine is empty. So, we've incorporated a tactile indicator for you. When the magazine is empty, the rear of the magazine follower will stop the bolt as you push it forward, indicating to you that you need to change magazines.



**CAUTION: DO NOT SLAM THE BOLT ASSEMBLY FORWARD WITH AN EMPTY MAGAZINE IN THE RIFLE. DOING SO, MAY DAMAGE THE MAGAZINE OR MAGAZINE FLOORPLATE.**

## **B. Maintenance and Safety Checks**

1. Make sure that the rifle is unloaded, and that the bolt assembly (R-10) is to the rear or completely removed.
2. Inspect the bore & muzzle brake to make sure that there are no obstructions.
3. Inspect the muzzle brake to assure that it is not loose.
4. Make sure the screws (F-4), (F-8), (R-12) holding the receiver to the stock are tight.
5. If you have more than one AR-31 Rifle, make sure you have the correct bolt...check serial numbers to be sure.

## **8.3 INITIAL CLEANING**

Clean the bore of your barrel and lubricate the rifle as described in the Maintenance section below. No unusual break-in procedures or abrasives are required. The barrel break-in procedure outlined in Section 8.4 is recommended. We recommend brass brushes for all bore cleaning, and recommend specifically AGAINST either stainless steel or nylon brushes.



**WARNING: TO ASSURE IT'S PROTECTED FROM CORROSION, YOUR ARMALITE® FIREARM HAS BEEN SHIPPED WITH PRESERVATIVE OIL IN THE BORE. FIRING THE FIREARM WITH PRESERVATIVE IN THE BORE CAN INCREASE PRESSURES, POSSIBLY RESULTING IN FIREARM DAMAGE OR PERSONAL INJURY OR DEATH. CLEAN AND DRY THE BORE BEFORE FIRING YOUR ARMALITE® FIREARM.**

## 8.4 BREAKING IN YOUR BARREL

 **CAUTION: ALWAYS USE A CLEANING ROD THAT IS LONG ENOUGH TO PUSH YOUR BRUSH COMPLETELY THROUGH THE BORE AND OUT OF THE MUZZLE. NEVER REVERSE THE DIRECTION OF A BRUSH WHILE IT IS IN THE BORE. BORE DAMAGE WILL RESULT. WHEN USING THE CHEEKPIECE SUPPORT AS A CLEANING ROD GUIDE, YOU'LL NEED A CLEANING ROD WITH AT LEAST 50" OF WORKING LENGTH.**

ArmaLite® has spoken with several barrel manufacturers. NONE of them recommend breaking in barrels using abrasives. For optimum accuracy and barrel life, ArmaLite® recommends the following break-in procedure:

1. Fire 9 single shots. After each shot, push a cotton patch wet with solvent through the bore. Then wet a bronze brush with solvent and stroke the barrel five to ten round trips. Follow with another wet patch and then a dry patch or two. (We do NOT recommend nylon or stainless steel brushes.) After you finish, wash the solvent off of your brush so that the brush won't deteriorate.
2. From 10 to 30 shots, clean as above after each five shots. Initial break-in should now be complete.

## 8.5 DRY FIRING YOUR RIFLE

ArmaLite® does not recommend dry firing your rifle. If you do dry fire it, make sure that you have a snap cap or empty cartridge case (with a fired primer installed) in the chamber to cushion/stop the firing pin.

 **CAUTION: DRY FIRING YOUR RIFLE WITH THE CHAMBER EMPTY CAN CAUSE THE STRIKER ROD TO PEEN OVER, RESULTING IN MISFIRES.**

 **WARNING: FOLLOW ALL OF THE RULES OF SAFE GUN HANDLING ANYTIME YOU DRY FIRE YOUR FIREARM.**

## 8.6. SLING SWIVEL LOCATIONS

The AR-31 features multiple sling swivel stud holes to provide great flexibility in modes of carrying it. There are six threaded holes in the bottom of the forestock and three threaded holes on each side of the forestock. The six holes on the bottom of the forestock allow installation of multiple studs so that a bipod and a sling can be installed simultaneously.

The buttstock has a through-hole in the side and it has a removable sling swivel clamped to the Picatinny rail on the bottom of the buttstock.

## 8.7 ADJUSTING THE TARGET BUTTSTOCK

The target buttstock provides “no-tool” adjustment of cheekpiece height and buttstock length of pull. Cheekpiece height and length of pull are adjusted by turning the appropriate adjustment knobs (T-7).

Vertical height of the buttpad can be adjusted with a 5/32” allen wrench. To adjust the height of the buttpad, turn the length of pull adjustment knob to maximize the length of pull. Now, you’ll have access to the two screws (T-18) that adjust the buttpad. To make a small vertical adjustment, loosen the two buttpate adjustment screws and slide the buttpate up or down and lightly retighten the two screws. If more vertical adjustment is desired, remove the two screws completely and relocate them into any of the four holes provided in the buttpate.

**⚠ CAUTION: DO NOT OVERTIGHTEN THE BUTTPLATE ADJUSTMENT SCREWS (T-18). DOING SO WILL CRUSH THE TWO NYLON WASHERS (T-17), CAUSING THEM TO EXCESSIVELY EXPAND WHICH WILL PREVENT THE BUTTPLATE FROM FULLY RETRACTING TO ITS SHORTEST SETTING.**



*The Target Buttstock Is Fully Adjustable*

## **8.8 INSTALLING, ADJUSTING, AND USING THE RIFLE SLING**

Some rifle slings serve only as simple carrying straps. However, a target/competition sling has far more uses. In addition to carrying the rifle, it can serve to improve shooter accuracy by stabilizing the rifle during firing.

For detailed information on the target/competition sling, see Technical Note 109: “INSTALLING, ADJUSTING, AND USING THE PRECISION/TACTICAL RIFLE SLING” in the Library on our website, [www.armalite.com](http://www.armalite.com)

## 9. LOADING AND FIRING

 **WARNING: ALWAYS KEEP THE SAFETY LEVER IN THE “SAFE” POSITION UNTIL YOU ARE READY TO FIRE THE FIREARM. REMEMBER THAT THE SAFETY IS SIMPLY A MECHANICAL DEVICE, AND AS SUCH, COULD POSSIBLY FAIL. NEVER DEPEND ON ANY SAFETY TO JUSTIFY UNSAFE GUN HANDLING. ALWAYS KEEP THE CHAMBER EMPTY AND THE FIREARM POINTED IN A SAFE DIRECTION EVEN WHEN THE SAFETY IS ON.**

1. Verify range safety. Make sure that the rifle is pointed in a safe direction, towards a known, adequate backstop. Make sure that everybody within 100 yards knows that the rifle is about to be fired and protects their vision and hearing.

 **WARNING: THIS FIREARM IS EXTREMELY LOUD DUE TO THE EFFICIENCY OF THE MUZZLE BRAKE. WEAR DOUBLE HEARING PROTECTION: FOAM PLUGS AND GOOD QUALITY HEARING PROTECTION MUFFS. ASSURE THAT SPECTATORS AND OTHER SHOOTERS WITHIN 100 YARDS OF THE FIRING POINT ARE ALSO WEARING HEARING PROTECTION. YOU ARE RESPONSIBLE FOR WARNING THEM THAT YOU ARE ABOUT TO FIRE, AND THAT THE SHOT WILL BE LOUD!**

 **WARNING: AVOID THE MUZZLE BLAST. THE RIFLE’S MUZZLE BRAKE WORKS BY DIVERTING MUZZLE GASSES TOWARDS THE REAR. IT IS LOUD AND CAN STIR UP DEBRIS FROM THE GROUND! BOTH FIRERS AND SPECTATORS SHOULD WEAR EYE AND EAR PROTECTION. EVEN WEARING PROTECTION, SPECTATORS SHOULD NOT STAND WITHIN 25 YARDS OF THE RIFLE AND SHOULD BE ESPECIALLY CAREFUL NOT TO STAND IN THE AREA 30 TO 90 DEGREES TO EITHER SIDE OF THE RIFLE. THE BEST PLACE TO BE IS DIRECTLY TO THE REAR OF THE RIFLE, SHOOTING IT.**

2. With the bolt in its closed and locked position, rotate the safety lever (B-15) to the “SAFE” position.  
3. Raise the bolt handle (B-10) and pull the bolt assembly (R-10) to the rear.

 **CAUTION: DO NOT USE EXCESSIVE FORCE TO PULL THE BOLT ASSEMBLY TO THE REAR. THE BOLT ASSEMBLY DOES NOT NEED TO BE SLAMMED REARWARD. THE CARTRIDGE CASE WILL EXTRACT AND EJECT RELIABLY WITHOUT SUCH FORCE. PULLING THE BOLT ASSEMBLY REARWARD WITH EXCESSIVE FORCE CAN DEFORM OR BREAK THE BOLT STOP.**

4. Place a loaded magazine into the receiver through the magazine well with an upward motion until the magazine is locked in position.

5. Push the bolt assembly forward to strip a cartridge from the magazine and chamber it. You will feel some resistance as the extractor is displaced over the rim of the cartridge. Fully rotate the bolt to lock the cartridge in the chamber. Turn the bolt handle down completely.
6. Assume a good position behind the rifle. Make sure that the buttpad (T-15) is in firm contact with your shoulder. Make sure that your cheek is on the cheek piece (T-3).
7. Aim at the target and rotate the safety lever (B-15) to the “FIRE” position.
8. Pull the trigger (R-9) straight to the rear. You will know when the rifle fires!!!!

Note: The AR-31 is equipped with a very secure manual safety. However, ArmaLite® recommends only loading the rifle immediately before firing a shot instead of leaving the rifle loaded and on safe. As a practical measure, the rifle should be considered safe only when it is unloaded and the action is open.

 **WARNING: INJURY, DEATH, OR FIREARM DAMAGE CAN RESULT FROM FIRING A FIREARM WITH AN OBSTRUCTION IN THE BORE. BEFORE YOU FIRE, MAKE SURE THAT THE BORE IS NOT OBSTRUCTED. NEVER ATTEMPT TO SHOOT OUT A BORE OBSTRUCTION.**

 **WARNING: HANDLING CARTRIDGES AND FIRING FIREARMS MAY EXPOSE YOU TO LEAD. ALWAYS ASSURE THAT THERE IS ADEQUATE VENTILATION. ALWAYS WASH YOUR HANDS AFTER HANDLING AMMUNITION OR FIRING YOUR FIREARM.**

 **WARNING: RAPID FIRING OF THE FIREARM MAY CAUSE SOME COMPONENTS TO BECOME HOT ENOUGH TO CAUSE INJURY IF TOUCHED.**

 **WARNING: EXTENDED SESSIONS OF VERY RAPID FIRING MAY CAUSE A CARTRIDGE LEFT IN THE CHAMBER TO “COOKOFF”, FIRING ITSELF WITHOUT YOU PULLING THE TRIGGER. ALWAYS UNLOAD THE FIREARM IMMEDIATELY AFTER YOU FINISH FIRING.**

 **WARNING: THIS FIREARM WILL FIRE WITHOUT A MAGAZINE IN IT. ALWAYS ASSURE THAT THE CHAMBER IS EMPTY. THE FIREARM SHOULD NOT BE CONSIDERED SAFE UNLESS THE MAGAZINE IS REMOVED, THE SAFETY IS ON, THE BOLT IS OPEN, AND THE CHAMBER IS EMPTY.**

 **WARNING: IF THE RIFLE FAILS TO FIRE WHEN THE TRIGGER IS PULLED:**

1. **KEEP THE RIFLE POINTED AT THE TARGET! WAIT 15 SECONDS TO ALLOW A POSSIBLE “HANGFIRE” TO GO OFF, THEN...**
2. **CHECK TO SEE IF THE SAFETY IS ENGAGED BY MISTAKE. IF SO, ROTATE THE SAFETY COUNTERCLOCKWISE TO THE “FIRE” POSITION, AND FIRE.**

- 3. IF THE RIFLE STILL DOESN'T FIRE, BE CAUTIOUS AND ASSUME THE CARTRIDGE WILL DISCHARGE WHEN THE BOLT IS OPENED. KEEP THE RIFLE POINTED AT THE TARGET. MOVE FROM BEHIND THE ACTION AND WAIT ANOTHER 15 SECONDS TO ALLOW A POSSIBLE HANGFIRE TO DISCHARGE. THEN, OPEN THE BOLT SMARTLY AND UNLOAD THE RIFLE.**
- 4. EXAMINE THE RIFLE CAREFULLY TO IDENTIFY THE CAUSE OF THE MALFUNCTION, AND CORRECT IT.**

 **WARNING: THE FIRED CARTRIDGE CASE IS HOT WHEN IT IS EJECTED FROM THE FIREARM. DO NOT ALLOW IT TO BURN YOU, OR TO DISTRACT YOU FROM SAFELY HANDLING THE FIREARM.**

## 10. CLEARING / UNLOADING THE FIREARM

 **WARNING: ALWAYS ASSUME ALL FIREARMS ARE LOADED. ANYTIME YOU HANDLE A FIREARM, YOU SHOULD IMMEDIATELY INSPECT IT TO ASSURE THAT IT IS COMPLETELY UNLOADED.**

 **WARNING: IF YOU KNOW NOTHING ELSE ABOUT YOUR ARMALITE® FIREARM, YOU MUST KNOW HOW TO UNLOAD IT AND CLEAR IT TO MAKE IT SAFE.**

1. With the bolt forward and closed in its locked position, place the safety lever (B-15) on “SAFE”.

NOTE: If the firearm is not cocked, the lever cannot be set on “SAFE”.

2. Remove the magazine by pressing the magazine release button (F-14) and pulling the magazine down and out of the receiver.

 **CAUTION: THE MAGAZINE MAY FALL FREE WHEN THE MAGAZINE LATCH IS PRESSED. DON'T ALLOW THE MAGAZINE TO FALL ONTO A HARD SURFACE. DOING SO MAY DAMAGE THE MAGAZINE.**

3. Extract the cartridge (if any) from the chamber. To extract a cartridge, raise the bolt handle and pull the bolt assembly fully to the rear. If there is a cartridge in the chamber, it should be extracted and ejected from the firearm.

4. Look into the chamber to assure that it does not contain a cartridge.

 **WARNING: NEVER ASSUME THAT THE CHAMBER IS EMPTY UNTIL YOU HAVE VISUALLY EXAMINED IT AND SEE THAT IT IS EMPTY.**

5. Remove any remaining cartridges from your magazine.

 **WARNING: THE STEPS IN UNLOADING YOUR FIREARM MUST BE FOLLOWED IN THE EXACT ORDER GIVEN. THE MAGAZINE MUST BE REMOVED BEFORE THE CHAMBER IS INSPECTED. IF YOU CLEAR THE CHAMBER BEFORE REMOVING THE MAGAZINE, YOU MIGHT ACCIDENTLY REMOVE ONE CARTRIDGE FROM THE CHAMBER AND THEN, UPON CLOSING THE BOLT, CHAMBER ANOTHER CARTRIDGE FROM THE MAGAZINE. THE FIREARM WILL STILL BE LOADED. REMEMBER THAT A CARTRIDGE IN THE CHAMBER CAN STILL BE FIRED EVEN AFTER THE MAGAZINE IS REMOVED.**

## **11. ZEROING THE SIGHT**

Your ArmaLite® AR-31 is designed to employ a telescopic sight. To install and zero the scope on your AR-31, follow the instructions in your scope owner's manual.

## 12. DISASSEMBLY

 **WARNING: ALWAYS UNLOAD YOUR FIREARM BEFORE CLEANING, LUBRICATION, DISASSEMBLY, OR REASSEMBLY.**

 **WARNING: ALWAYS WEAR SAFETY GLASSES WHEN DISASSEMBLING, MAINTAINING, OR ASSEMBLING YOUR FIREARM.**

1. Assure that the rifle is unloaded, and with the bolt in its closed and locked position, put the safety lever (B-15) in the “SAFE” position.

NOTE: The safety needs to be set to “SAFE” to have clearance around the cheekpiece to fully remove and to reinstall the bolt.

NOTE: If the firearm is not cocked, the lever cannot be set on “SAFE”.

 **CAUTION: ONLY MOVE THE SAFETY (EITHER TO THE “FIRE” POSITION OR TO THE “SAFE” POSITION) WHEN THE BOLT IS CLOSED AND LOCKED IN THE RECEIVER. DO NOT MOVE THE SAFETY WHEN THE BOLT IS IN AN UNLOCKED POSITION OR WHEN THE BOLT IS REMOVED FROM THE RIFLE. IF YOU DO, YOU MAY INDAVERTENTLY PARTIALLY UNSCREW THE BOLT SLEEVE FROM THE BOLT TUBE. IF YOU DO MOVE THE SAFETY WITHOUT THE BOLT BEING LOCKED IN ITS CLOSED POSITION AND THE BOLT SLEEVE ROTATES OUT OF ITS PROPER ORIENTATION, YOU MUST PULL THE SAFETY LEVER BACKWARDS AND ROTATE IT TOWARDS THE “SAFE” DIRECTION UNTIL THE BOLT SLEEVE ROTATES INTO CONTACT WITH THE BOLT HANDLE. THEN RELEASE THE SAFETY LEVER INTO ITS SAFE NOTCH IN THE BOLT SLEEVE.**



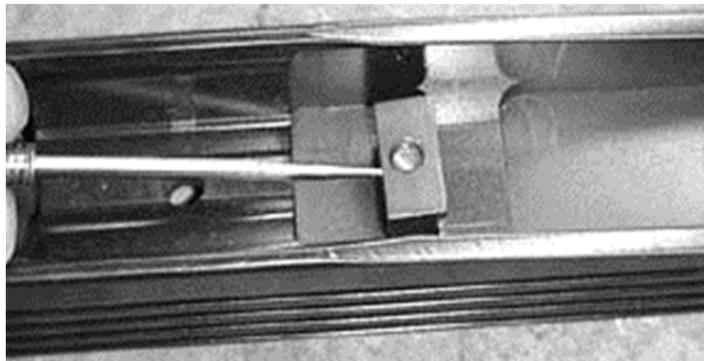
*Removing the Bolt Assembly*

2. Unlock the bolt and pull the bolt assembly to the rear of the receiver. Depress the bolt stop (R-2) at the left rear of the receiver and pull the bolt assembly to the rear and out of the receiver. Further disassembly of the bolt assembly should be done only for repair or lubrication by a qualified service technician or gunsmith.

**⚠ CAUTION: DO NOT UNSCREW THE BOLT SLEEVE. DOING SO WILL ALLOW THE STRIKER TO FALL TO ITS FIRED POSITION. IF THE STRIKER FALLS, IT WILL BE VERY DIFFUCULT TO PULL THE STRIKER BACK AND ROTATE THE BOLT HANDLE TO RETAIN THE STRIKER IN ITS COCKED POSITION.**

**⚠ CAUTION: NO FURTHER DISASSEMBLY IS NEEDED FOR ROUTINE CLEANING AND MAINTENANCE.**

3. If, for some reason, it is necessary to remove the receiver/barrel assembly from the stock assembly, it should be done in the following manner.



***The Bedding Wedge***

Loosen the bedding wedge (F-6) at the front of the receiver by loosening the bedding wedge screw (F-4) under the action using a 3/16 inch Allen wrench. Do not completely remove the screw. Tap the head of the screw lightly with a plastic hammer. This will loosen the bedding wedge so that the receiver can be removed.



***Removing the Grip Frame***

Place the rifle upside down. Remove the grip frame (F-7) by removing the grip frame screw (F-8) and the action screw (R-12), using a 3/16 inch Allen wrench. Pull the grip frame from the forestock (F-1).

Lift the stock assembly straight off the receiver. The receiver has a snug fit in the stock assembly. Sometimes a light tap with a plastic/rubber hammer on one of the two parts helps the stock assembly to come off.



***Removing the Buttstock***

4. Remove the buttstock assembly (A-3) from the forestock assembly (A-2). Remove the two buttstock screws (F-15) at the right rear of the forestock using a 3/16 inch Allen wrench. Pull the buttstock down and to the rear to remove it.

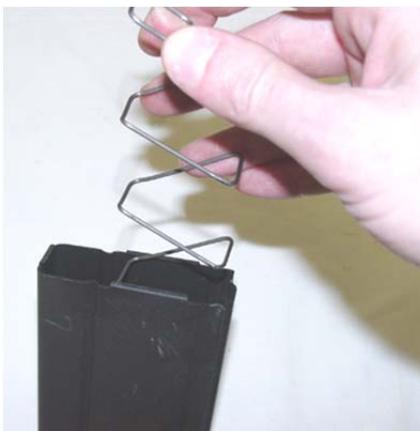
 **WARNING: DO NOT REMOVE THE TRIGGER OR MUZZLE BRAKE. THE TRIGGER IS NOT USER-SERVICEABLE, AND A REASSEMBLY ERROR COULD INTERFERE WITH CORRECT RIFLE FUNCTION. THE MUZZLE BRAKE IS HELD IN PLACE BY ITS LOCK RING AND LOCTITE.**

## **DISASSEMBLING THE MAGAZINE**

Use the tip of a cartridge or another suitable tool to very slightly pry the rear of the floorplate up so that it can be pulled off the magazine.



Remove the spring and attached follower from the magazine shell. The spring will exit the shell easily, but the follower must be twisted and withdrawn, rear first. Do not remove the spring from the follower.



## 13. MAINTENANCE

 **WARNING: ALWAYS UNLOAD YOUR FIREARM BEFORE CLEANING, LUBRICATION, DISASSEMBLY, OR REASSEMBLY.**

 **WARNING: DO NOT APPLY LUBRICANT OR PRESERVATIVE TO YOUR AMMUNITION. DOING SO MAY CAUSE THE CARTRIDGE TO PARTIALLY MALFUNCTION, LEAVING THE BULLET LODGED IN THE BORE, CREATING A BORE OBSTRUCTION.**

 **CAUTION: NEVER INSERT A CLEANING ROD INTO THE MUZZLE OF A BARREL, AS DOING SO MAY DAMAGE THE CRITICAL/VULNERABLE CROWN OF THE BORE. RATHER, ALWAYS INSERT THE CLEANING ROD FROM THE BREECH.**

### 13.1 CLEANING SOLVENTS AND LUBRICANTS

The Military Services generally use a multipurpose chemical called CLP (cleaner, lubricant, and preservative) sold commercially as “Break Free.” Although it is useful if nothing else is available, armament engineers prefer individual, specialized products. A combination of military RBC (Rifle Bore Cleaner) and LSA (Lubricant, Semifluid, Automatic firearms) is superior. High quality cleaning solvent like Hoppe’s No. 9 removes metal fouling from the bore excellently; and Teflon bearing lubricants are outstanding.

For maximum reliability and service life, lubricate your rifle sparingly with high quality firearms lubricants. The only parts of an AR-31 that will require lubrication are: 1. The cocking cam (where the cocking piece slides along the “helix” on the rear of the bolt handle. 2. The opening/primary-extraction cam (where the “lug” of the bolt handle cams back on the receiver, just behind the ejection port). 3. The extractor & ejector.

The safety lever/cam, the “closing” cam (where the bolt lugs ride/cam forward onto the locking recesses of the receiver) and the outside of the bolt assembly can also be lubricated (if desired).

Note: Use lubricating oils sparingly, as excessive amounts of oil can act to collect/trap fouling (dust, sand, etc.) and thereby defeat the purpose of the lubricant.

Do not lubricate the trigger assembly.

Under NO conditions should any lubricant containing graphite be used with your rifle. Graphite can encourage rapid corrosion to the aircraft-grade aluminum used in your rifle.

In addition to cleaning solvents and lubricants, the basic cleaning equipment you will need a cleaning rod, brass bore brush, chamber brush, toothbrush, cleaning jag & patches, pipe cleaners, and the most important item: a lint-free cloth. A pull-through cleaning cable allows for handy breech-to-muzzle cleaning in the field.

Note: Cleaning jags and bore brushes are caliber specific. Do not attempt to force an incorrectly sized jag or brush down the bore of your rifle.

Improper cleaning ruins more firearms than extensive shooting does. The AR-31 will provide years of use with minimal cleaning and preservation.

Note: The phosphate finish of a new bolt assembly and receiver may make the movement of a new action seem rough. Movement of the bolt assembly will become very slick as these parts break in and are properly lubricated.

The cheekpiece carrier (T-2) of the target buttstock contains two longitudinal holes that serve as bore guides for your cleaning rod. The use of these guides will minimize rubbing of the cleaning rod on the barrel's bore. Lower the cheekpiece so that the hole in the carrier is directly concentric with the bore. Then, simply insert your cleaning rod from the rear and then after the front of the rod has passed through the bore guide holes, install your brush or patch. You will need a cleaning rod that is at least 50 inches long in working length. Because rods of this length may not be commonly available, for your convenience, ArmaLite sells such a rod as an optional accessory.



***An Integral Cleaning Rod Guide Protects The Bore***

An alternative (but less desirable/convenient) method of cleaning the bore using a shorter cleaning rod is to remove the buttstock assembly by removing the two buttstock screws (F-15).

 **CAUTION: ALWAYS USE A CLEANING ROD THAT IS LONG ENOUGH TO PUSH YOUR BRUSH COMPLETELY THROUGH THE BORE AND OUT OF THE MUZZLE. IF YOU'RE CLEANING THROUGH THE CHEEKPIECE SUPPORT, YOUR ROD WILL NEED A WORKING LENGTH OF AT LEAST 50 INCHES. NEVER REVERSE THE DIRECTION OF A BRUSH WHILE IT IS IN THE BORE. BORE DAMAGE WILL RESULT.**

Use a pull-through device or a high quality cleaning rod to clean the bore. Use a proper caliber bore brush soaked with a good bore solvent. Pass it from the breech to the muzzle and back several times. If you use a pull-through cable, be sure that you keep it centered in the muzzle as you pull it so that it doesn't rub on the lands at the muzzle.

## **13.2 RECEIVER AND BARREL ASSEMBLY**

 **WARNING: LEAD MAY BE PRESENT IN THE FOULING OF A DIRTY RIFLE. AVOID CONTACT WITH IT, AND CLEAN HANDS AFTERWARD TO AVOID INGESTING LEAD.**

 **CAUTION: DON'T REVERSE THE DIRECTION OF THE BORE BRUSH WHILE IT'S IN THE BORE.**

 **WARNING: ARMALITE'S AR-31 TRIGGER ASSEMBLY ISN'T USER ADJUSTABLE. ATTEMPTING TO ADJUST THE TRIGGER MAY RESULT IN UNSAFE CONDITIONS AND VOIDS THE WARRANTY.**

 **CAUTION: AVOID ALLOWING SOLVENTS, LUBRICANTS, OR PRESERVATIVES TO DRAIN INTO THE TRIGGER MECHANISM. THEY MAY CAUSE IT TO MALFUNCTION. SUCH CONTAMINATES CAN BE REMOVED BY SQUIRTING LIGHTER FLUID INTO THE TRIGGER MECHANISM. DO NOT DISASSEMBLE THE TRIGGER MECHANISM OR REMOVE IT FROM THE RECEIVER.**

1. Use cleaning solvent to clean the bore and chamber, the receiver, locking lugs and all areas of powder fouling, corrosion, dirt or dust. First apply the solvent with a patch on your rod. Follow by brushing the bore in accordance with the instructions on the solvent bottle.
2. Install the chamber brush on the cleaning rod, dip it in cleaning solvent, and insert it into the chamber and locking lugs. Clean by pushing and twisting the cleaning rod.

3. **Lightly** lubricate the bore, chamber, and outer surface of the barrel. With a lubricated swab, run the rod from the receiver to the muzzle brake. Do not over lubricate.

4. Oil or lightly grease the narrow track in the receiver behind the bolt. The sear surface of the cocking piece (B-14) runs through this track and serves as a rear bolt guide. A “Q-Tip” or other such device will suffice.

### **13.3 BOLT ASSEMBLY**



**WARNING: DO NOT INTERCHANGE BOLTS BETWEEN RIFLES.**

1. Clean all parts and outer surfaces of the bolt assembly with a swab saturated with cleaning solvent.
2. Clean the bolt face and under the lip of the extractor.
3. Press the ejector in repeatedly to remove accumulated brass shavings from the ejector hole and assure the ejector moves freely. Lubricate it generously.
4. Lightly lubricate the outside of the bolt.
5. Lightly lubricate the bolt lugs with a high pressure lube/grease.

### **13.4 FORESTOCK AND BUTTSTOCK ASSEMBLIES**



**CAUTION: DO NOT USE A WIRE BRUSH OR ANY TYPE OF ABRASIVE MATERIAL TO CLEAN ALUMINUM SURFACES**



**CAUTION: DO NOT GET SOLVENT OR OTHER CHEMICALS ON THE BUTTPAD OR CHEEKPIECE PAD. DOING SO MAY DAMAGE THEM.**

1. Wipe dirt from the exterior surfaces with a clean cloth.

### **13.5 MAGAZINE ASSEMBLY**

Use a cloth to clean the exterior and interior of the magazine. (An aerosol cleaner may be useful if the magazine is particularly dirty.) If the magazine is very dirty, it can be easily disassembled for cleaning. (See Section 12 for disassembly.)

## 13.6 LONG TERM STORAGE

Clean your firearm well and apply a good quality preservative.

It is at least theoretically possible for some springs to take a set during prolonged storage. To preclude this possibility, ArmaLite offers the following recommendations regarding long term storage of your firearm.



**WARNING: FOLLOW ALL OF THE RULES OF SAFE GUN HANDLING ANYTIME YOU DRY FIRE YOUR FIREARM.**

Clear all cartridges from your firearm. Remove the magazine. Then pull back the bolt handle and visually confirm that the chamber is empty. Then check it again!! Then, holding the trigger to the rear, slowly close the bolt, allowing the firing pin to fall to the fired position.

It is always best to store your magazines empty.

Store your rifle in a container that contains no foam. (Foam absorbs moist air. Heating the container may drive moisture from the foam. It can then condense on a cool rifle.) Use a desiccant or Vapor Phase Inhibitor in the container to help prevent rust.

When you're taking your firearm out of long term storage, completely remove the preservative (especially from the bore and chamber) and lubricate as stated elsewhere in this manual.

## 14. REASSEMBLY

 **WARNING: ALWAYS UNLOAD YOUR FIREARM BEFORE CLEANING, LUBRICATION, DISASSEMBLY, OR REASSEMBLY.**

Reverse the Disassembly steps above. If you have removed the barreled receiver from the stock, replace it and tighten the action screw (R-12) and the grip frame screw (F-8) very **LIGHTLY**. Then fully tighten the bedding wedge screw (F-4) at the front of the receiver. Finish by tightening the action screw and grip frame screw. This assures that the recoil lug (R-5) is seated properly.

If you have removed the buttstock assembly from the forestock by removing the two buttstock screws (F-15), check the vertical angular alignment of the buttstock assembly as you reinstall it. If the buttstock assembly is pivoted too high or too low, it might interfere with bolt removal. When reinstalling the buttstock, the front of the buttstock should be vertical and parallel to the rear of the buttstock adapter (A-9).



*Proper Orientation of the Buttstock Assembly Relative to the Buttstock Adapter*

Final torques are not particularly critical on the AR-31. However, for those of you who desire to duplicate factory specifications, the following torque values are recommended:

Bedding Wedge Screw (F-4)	-----	12.5 – 15 ft-lbs
Grip Frame Screw (F-8)	-----	7.5 – 10 ft-lbs
Buttstock to Forestock Screws (F-15)	-----	7.5 – 10 ft-lbs
Action Screw (R-12)	-----	15 – 17.5 ft-lbs
Target Stock Front Mount Screws (A-5)	-----	40 – 50 in-lbs
Scope Rail Screws (A-7, A-8)	-----	50 – 60 in-lbs
Scope Ring Screws (Not Shown)	-----	20 – 25 in-lbs

## 14.1 FUNCTIONAL CHECK

### SAFETY

1. If the magazine is not already out, remove it from the rifle.
2. Open the bolt and visually inspect the chamber to assure that it is empty. Insert an empty fired cartridge case or snap cap in the chamber.
3. Close and lock the bolt.
4. Place the safety lever (B-15) on “SAFE”.
5. Squeeze the trigger (R-9). {The striker should **not** fall.}
6. Release the trigger.
7. Without touching/depressing the trigger, “flip” (quickly) the safety to the “FIRE” position. {Again, the striker should **not** fall.}



**WARNING: IF THE STRIKER FALLS WHEN PERFORMING STEP #7, THE RIFLE/TRIGGER IS NOT SAFE. DO NOT ATTEMPT TO USE THE FIREARM.**

8. (Assuming that the rifle/safety passed step #7). Squeeze the trigger (R-9). {The striker **should fall.**}



**WARNING: IF THE STRIKER DOES NOT FALL WHEN PERFORMING STEP #8, THE RIFLE/TRIGGER IS NOT SAFE. DO NOT ATTEMPT TO USE THE FIREARM.**

**IF YOUR RIFLE FAILS TESTS 7 OR 8, CALL ARMALITE®  
AT 623-780-1050.**

9. Extract and eject the empty-case/snap-cap.

### MAGAZINE

1. If the magazine is not already out, remove it from the rifle.
2. With your finger, press down on the magazine follower. The follower should move down smoothly and rebound fully when released.
3. Open the bolt of the rifle and visually inspect the chamber to assure that it is empty.

4. Insert an EMPTY magazine into the magazine well. The magazine should smoothly slide into the magazine well; and it (the magazine) should be solidly caught by the magazine latch (which will “click” when fully engaged).

5. Give the magazine a slight “tug”. The magazine should remain firmly held by the latch.

6. The AR-31 accepts AR-10 magazines up to capacities of 25 rounds. It would be very difficult for a shooter to count that many rounds to know when his magazine is empty. So, we’ve incorporated a tactile indicator for you. When the magazine is empty, the rear of the magazine follower will stop the bolt as you push it forward, indicating to you that you need to change magazines. Therefore, you will not be able to close the bolt with an empty magazine in the rifle.



**CAUTION: DO NOT LET THE MAGAZINE FALL ONTO A HARD SURFACE. BE PREPARED TO CATCH THE MAGAZINE WHEN PERFORMING THE FOLLOWING STEP.**

7. Depress the magazine latch. Typically, the magazine will “drop free”, that is, fall out of the magazine well from its own weight. If the magazine does not drop free, simply pull the magazine out with one hand, while keeping the magazine latched depressed with the other hand. This should not require excessive force.

Note: None of the procedures for operating the magazine and latch require much force. If excessive force is needed to perform any of the above steps, this could indicate that the magazine has been damaged and should be replaced.

## **BOLT**

1. If the magazine is not already out, remove it from the rifle.
2. Open the bolt and visually inspect the chamber to assure that it is empty.
3. Close and lock the bolt, then place the safety lever (B-15) on “SAFE”.
4. Open the bolt, and pull the bolt assembly (R-10) fully to the rear. It should be stopped by the bolt stop (R-2). The bolt assembly should not contact/rub on the cheekpiece or the buttstock.
5. Depress the bolt stop, and continue pulling the bolt assembly to the rear. The bolt assembly may require some slight “twisting” to allow it to be removed from the receiver (past the buttstock/cheekpiece).

Note: If the bolt assembly contacts/rubs on the cheekpiece or the buttstock, or if the bolt assembly cannot be fully removed from the rifle, the buttstock assembly requires realignment, as described in section “**14. REASSEMBLY**”.

6. Reinsert the bolt assembly into the receiver. (NOTE: You may find it easiest to install the bolt if you first slide the rear of the bolt under the cheekpiece, then pivot the front of the bolt into alignment and slide the bolt straight forward.) The bolt stop should automatically cam out of the way of the incoming bolt, and (automatically) “snap” back into position when the bolt is far enough forward.

## 15. TROUBLESHOOTING

<b>PROBLEM</b>	<b>CHECK FOR</b>	<b>WHAT TO DO</b>
WON'T FIRE	Safety lever on SAFE	Put it on FIRE
	Defective ammunition	Remove and discard
BOLT WON'T CLOSE	Empty mag in rifle	Remove magazine
BOLT WON'T LOCK	Dirty bolt	Clean
	Dirt, corrosion, or carbon buildup in locking lugs	Clean lugs
WON'T EXTRACT	Broken extractor spring	Replace
	Dirty, corroded, or reloaded ammunition	Remove and discard.
	Carbon in chamber	Clean chamber
	Frozen or worn extractor	Remove and clean or replace
WON'T CHAMBER	Dirty corroded or defective ammunition	Remove and discard

## 16. WARRANTY, SERVICE, AND SUGGESTIONS

### I. DURATION OF WARRANTY:

This warranty applies for all ArmaLite® and Eagle Arms firearms for the duration shown below:

--Lifetime for ArmaLite® Series: M-15™, AR-10®, AR-30™, AR-31, AR-50™, and SPR MOD 1™

--Five years for ArmaLite® Series: AR-24™

--One year for ArmaLite® Series AR-180 and all Eagle Arms firearms

### II. LIMITATIONS OF WARRANTY AND LIABILITY:

ArmaLite, Inc. warrants, to the initial retail purchaser, that this firearm is free of manufacturing defects in material or workmanship for the above shown period of ownership by the original purchaser. During this period, ArmaLite agrees to correct your firearm by repair, or replacement (at ArmaLite's discretion) with the same or comparable model. A service or handling charge may be made. This warranty is nontransferable. This warranty applies only to personal use by the first individual owner. All Institutions, including Law Enforcement agencies, receive a Limited One Year Warranty for all firearms.

**THIS WARRANTY AUTOMATICALLY BEGINS ON THE DAY THAT THE ORIGINAL RETAIL CUSTOMER PURCHASES HIS ARMALITE. YOU ARE NOT REQUIRED TO INITIALLY REGISTER YOUR ARMALITE. HOWEVER, TO MAKE A WARRANTY CLAIM, YOU MUST FOLLOW THE PROCEDURE OUTLINED IN “III. INSTRUCTIONS FOR RETURNING FIREARMS FOR SERVICE/REPAIR” BELOW.**

**IN ORDER TO MAKE A WARRANTY CLAIM, YOU WILL NEED TO SUBMIT, WITH YOUR FIREARM, A COPY OF YOUR ATF FORM 4473 (FIREARMS TRANSACTION RECORD), OR A DATED BILL OF SALE WITH YOUR NAME AND ADDRESS, OR A SALES RECEIPT. TO MAKE SURE THAT YOU ALWAYS HAVE THOSE AVAILABLE, WE RECOMMEND STAPLING THEM TO THE INSIDE BACK COVER OF YOUR OWNER'S MANUAL AS SOON AS YOU PURCHASE YOUR ARMALITE FIREARM.**

This warranty is void if the firearm has been abused, misused, damaged, fired with handloaded or reloaded, or improper ammunition, or with an obstruction in the barrel, or damaged by failure to perform proper maintenance. This warranty does not apply to normal wear or any parts, including their surface finish, or if unauthorized repair or alteration has been performed.

The terms of this warranty cannot be changed except in writing by ArmaLite. Wholesalers or Dealers, unless authorized by ArmaLite in advance, are not authorized to make any warranty repair or adjustment on behalf of ArmaLite. This warranty gives only the original retail

purchaser specific legal rights; other rights may also be available which may vary from state to state.

### **III. INSTRUCTIONS FOR RETURNING FIREARMS FOR SERVICE/REPAIR:**

1. Before seeking any service on your ArmaLite firearm: use the troubleshooting guide in the Operator's Manual to attempt to solve the problem; perform all instructed maintenance; and assure that ammunition and magazines are correct and in good condition. **Shop rates plus the cost of return shipping will be applied if no covered defect is found.** A downloadable copy of the current owner's manual for any ArmaLite firearm is available for free in the Library section of ArmaLite's website. Additional technical information can be found in "Technical Notes" in the Library section of ArmaLite's website.

2. Call ArmaLite Customer Service and obtain a Return Material Authorization (RMA) number. During the call, provide our Customer Service Associate with all of the information that he/she requests so that we will be able to expedite resolution of your problem. **ArmaLite will not accept for service any firearm received without a Return Material Authorization (RMA) number.** Call 800-336-0184 Ext 211 to receive your RMA number.

3. Include all needed documentation with your firearm when you return it. Include a letter that:

- a. describes the problem that you're experiencing;
- b. provides all of your contact info (name, address, email, phone, etc.) so that we can contact you if necessary
- c. lists the RMA number given to you by our Customer Service.
- d. IN ORDER TO RECEIVE SERVICE UNDER WARRANTY, YOU MUST ALSO INCLUDE A COPY OF YOUR ATF FORM 4473 OR A DATED BILL OF SALE WITH YOUR NAME AND ADDRESS, OR A SALES RECEIPT.**

**If your letter is incomplete, or illegible, we will not be able to honor the warranty and we may not be able to complete needed repairs, so please write legibly.**

Note: Rather than writing a letter, you may, if you choose, print a copy of ArmaLite's Return Material Authorization (RMA) form from our website, fill it in completely, and send it with your firearm. If you're seeking warranty repair, don't forget to include your proof of purchase as described in 3.d. above.

4. Remove all ammunition and accessories (scopes, slings, bipods, etc.) from the firearm.

 **WARNING: MAKE ABSOLUTELY SURE THAT THE FIREARM IS UNLOADED!!! BELIEVE IT OR NOT, WE SOMETIMES GET FIREARMS BACK THAT ARE LOADED!!!**

 **WARNING: NEVER SHIP LIVE AMMUNITION OR SPENT CASES WITH ANY FIREARM THAT YOU ARE RETURNING TO ARMALITE® FOR SERVICE. IT IS ILLEGAL TO DO SO!**

 **WARNING: IT IS THE OWNER'S RESPONSIBILITY TO ASSURE THAT ANY PARTS THAT ARE PURCHASED FROM ARMALITE® ARE CORRECTLY FITTED AND INSTALLED. IMPROPER FITTING OR INSTALLATION MAY RESULT IN INJURY, DEATH, OR DAMAGE/MALFUNCTION OF THE FIREARM.**

5. Package the firearm carefully, inclosing a copy of the letter (and, for warranty repair, a copy of your ATF Form 4473 / bill of sale / sales receipt). Proper packaging and prepaid shipment (including insurance) of a firearm to ArmaLite is the customer's sole responsibility.

**6. Write your RMA number on the outside of the box as part of the ArmaLite address.**  
**Ship to:**

**AL, Inc.**  
**Attn: Premier Services**  
**RMA Number: \_\_\_\_\_**  
**525 E Pinnacle Peak Rd. Ste 100**  
**Phoenix AZ 85024**

7. Keep your shipping receipt and the serial number of the firearm for your records in case of loss in shipment. ArmaLite will return the firearm to the customer shipping prepaid if the problem was covered under warranty.

8. ArmaLite **MUST** return the firearm to the person or company that shipped it to us. If no cost is incurred, your rifle will be automatically shipped to the return address. (No phone call.)

If non-warranty work needs to be performed, we will contact you regarding the cost of such repairs and get your approval before beginning any work.

All firearms shipped to you after repair will require an adult signature at your address for proof of receipt.

ArmaLite continually improves the technical specifications and manufacturing techniques of our firearms, which may cause the latest products to look or perform differently from earlier products. The ArmaLite Premier Services Division will update, at your request, earlier firearms to current factory specifications, to the degree possible, at current shop rates. These updates are not generally covered under warranty.

In the very unlikely event that ArmaLite should ever issue a recall of your firearm, ArmaLite will post a notice on the "Contact Us" page of our website, [www.armalite.com](http://www.armalite.com).

## **PATENTS & TRADEMARKS**

“ArmaLite®”, “AR-10®”, and “SPR®”, are registered trademarks of ArmaLite, Inc.

“M-15™”, “AR-30™”, “AR-31™”, “AR-50™”, and other model variants are trademarks of ArmaLite, Inc.

The AR-10® Series Rifles and Carbines (including the SuperSASS™) are protected by U.S. Patents 5,638, 626 and 5,911,173 and 6,044,748.

The M-15™ Series Rifles and Carbines are protected by U.S. Patents 5,911, 173 and 6,044,748.

The AR-30™, AR-31™ and AR-50™ Series Rifles are protected by U.S. Patents 6,487,805 and 6,637,142.

The AR-23 Subcaliber Device for the Mk-19 Grenade Machine Gun is protected by U.S. Patents 5,983,772 and 6,202,533.

The Blank Firing Adapter for the Mk-19 Grenade Machine Gun is protected by U.S. Patent 5,438,907.

Other patents granted or assigned to ArmaLite include:

Weapons Operating System, U.S. Patent 6,591,535

Cartridge for a Firearm, U.S. Patents 6,367,389 and 6,959,647 and 6,976,431 and 7,458,322

Light Weight Weapon Operating System and Cartridge Feed, U.S. Patent 6,591,535

**STAPLE A COPY OF YOUR:  
ATF FORM 4473 AND/OR  
BILL OF SALE AND/OR  
SALES RECEIPT  
HERE**

**If, in the unlikely event that you'll have a problem with your ArmaLite that requires warranty service, you will need to send a proof of purchase document to ArmaLite with the firearm. We recommend that you staple one or more of the above proof of purchase documents here so that you can readily find it.**

**If your proof of purchase document does not include the model number and serial number, you may want to record them here.**

**Model Number:** \_\_\_\_\_

**Serial Number:** \_\_\_\_\_