P.O. Box 299 Geneseo IL 61254 Tel 309-944-6939 fax 309-944-6949 info@armalite.com

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TECHNICAL NOTE 29: RIFLE CLEANING

Considerable confusion surrounds the proper technique for cleaning self-loading rifles and carbines. Numerous materials and tools are available for the task. Done right, cleaning will assure long and reliable service. Done poorly, cleaning will damage a rifle and shorten its life.

Some of the worst cleaning practices are found among those expected to know best how to maintain rifles: the military. Especially in peacetime and in garrison locations, military procedures are too often focused not on cleaning *properly*, but on cleaning *totally*. That's because of tradition and the sad fact that it's hard to make a judgement call that a rifle is cleaned and preserved well enough for reliable service. It's easier to say that there isn't a speck of dirt remaining on the rifle.

The fact is that Soldiers and Marines, in some situations, tend to vastly over-clean their rifles, despite official guidance that "white glove" clean isn't proper. Armorers are held responsible for the improperly cleaned rifles found in their arms rooms. Under these conditions, they can be expected to demand extreme cleanliness. The power to reject the firearms cleaned by more senior personnel appeals to the tyrant residing in the heart of most armorers.

The Soldier or Marine who is held to impeccable parade ground standards invents shortcuts that damage rifles: cleaning rifles in the shower, using improper cleaning agents like Lime-Away, using a horrible variety of homemade scrapers, or disassembling the rifles farther than authorized or needed.

Unfortunately, the military example is too often taken into civilian life, and is followed by civilian owners who should know better. The fact is that a properly cleaned and lubricated ArmaLite rifle, and most similar rifles, will fire two thousand rounds without significant malfunctions.

With this in mind we submit that the rifle should be disassembled and cleaned in accordance with ArmaLite's manual, with the following considerations:

SAFETY FIRST:
First, remove the magazine, then withdraw the charging handle to the rear and inspect the chamber to assure that no cartridge remains in the chamber.

CLEANING MATERIALS:
RBC (Rifle Bore Cleaner) or a suitable commercial product

LSA (Lubricant, Semifluid, Automatic Weapons) or suitable substitute
Or, if time is critical, a "do it all" cleaner/lube/preservative such as CLP
Rags
Cleaning patches of correct caliber
Bore brush of correct caliber
Cleaning rod or pull-through
Q-tips
Toothbrush

The most important cleaning materials are bore cleaning solvent, a good supply of rags, and a suitable lubricant. Almost all of the important fouling in the rifle can be quickly wiped from the parts. Q-tips, pipe cleaners, and brushes are useful but not necessary.

Never use more than one bore cleaner during cleaning. Many will work well if used alone, but some will react adversely when used in combination with another, and can damage the barrel.

EMERGENCY CLEAN: CONTINUE THE FIGHT
While seldom a problem for civilian or Law Enforcement personnel, Military personnel or hunters in remote locations sometimes suffer shortages of proper cleaning and lubricating materials. A firearm may become fouled with dirt, mud or sand and need immediate, hasty service. These firearms should be wiped clean of obvious sand, dirt, or other fouling as well as possible using rags or hands. Disassemble only far enough to clear fouling. If no other lubricant is available, new or used motor oil will serve adequately. A dipstick will serve to remove a small amount of lubricant from a vehicle and deliver it to where it's needed.

Even heavily used motor oils are lubricious and clean enough for most firearm use in an emergency. The mild solvent effect of such lubricants serves to help clean the firearm better than using nothing.

COMBAT CLEAN: GOOD ENOUGH FOR GOVERNMENT WORK
The first priority of rifle maintenance to protect it until time is available for detail cleaning and to assure reliable function if the rifle is needed soon. Sometimes there just isn't time to perform detail cleaning immediately after firing.

If time doesn't allow a thorough cleaning, then wipe the rifle clear of obvious dirt, sand, or other contaminants and lubricate it inside and out. Wipe the carrier with an oily cloth or patch to get the worst of the fouling off it. Pull the bolt to its forward position in the carrier and place a drop of lubricant in each of the vent holes of the carrier (the two vertically placed holes in the dished cut). Use a cleaning brush to sweep the fouling and traces of brass from the extractor hook and bolt face. Run an oily patch through the bore (especially a bare, unchromed, bore). Wipe out the fouling in the upper receiver with the oily rag or patch. Lubricate the outside of the carrier group normally and reassemble the rifle. Wipe down exposed surfaces with a slightly oily cloth or patch.

This procedure should protect the rifle until it can be detail-cleaned. It should assure that the rifle is capable of immediate use in emergency. If cleaned in this manner an ArmaLite or M16 rifle can be fired for well over 1000 rounds without detail cleaning.

DETAIL CLEANING:
Detail cleaning is performed to thoroughly clean the rifle for long-term storage. It prevents rust or other deterioration of the rifle, and assures reliable function when needed. It requires more time than hasty cleaning.

After assuring that the rifle is unloaded, disassemble it according to instructions in the manual.

Upper Receiver and Barrel Group:
Clean the barrel using a brush soaked in a high quality solvent. It's useful to clean from the breech using a rod guide, especially with match rifles. If you're careful, it's not generally necessary to remove the brush from the rod when the brush exits the bore: it can be pulled back though the breech. Leave the solvent soaking the bore while you clean the other parts.

Use a chamber brush to clean the teeth of the barrel extension, and a Q-tip to remove all the fouling possible at the breech. Run a dry patch or two through the barrel from the breech, and then oil the bore with a soaked patch to protect it.

Contrary to common instructions, it isn't necessary to push patches through the bore until the last one comes out clean. Expect some slight fouling to continue to leach from the pores of the barrel, and learn to accept it. It isn't harmful.

Remove the handguards to clean the barrel with a solvent-dampened rag. Protect the bore with a light coat of oil. Use a toothbrush to clean the nooks and crannies. Avoid brushing your teeth with that toothbrush later.

Clean the inside of the upper receiver with the rag and Q-tips, with particular attention to the area around the gas tube and the charging handle track. Brush dirt from the rear sight assembly, and lubricate it slightly. Clean and lubricate the ejection port cover and forward assist (if any).

Bolt Carrier Group:
Disassemble the bolt carrier group completely. Soak the parts in cleaning solvent if possible. Wipe all parts with a rag to remove most of the dirt. Use a brush to loosen and remove tougher fouling. Wipe out the chromed cavity in the front of the carrier. Don't use scrapers or any other hard tool to clean the hard fouling at the bottom of the cavity: normal gas flows from firing keep the fouling under control. Clean the gas path in the carrier key with a solvent-soaked pipe cleaner.

Use the pipe cleaner to clean and lube the whole length of the firing pin channel in the bolt. Use a brush or Q-tip to clean the extractor pocket. Brush the extractor clean; don't remove the extractor spring or the plug within the spring or the ring around it (AR-10). Inspect the bolt to assure that the gas rings are serviceable. Make sure that the gaps in the rings (if any) are not lined up, or operating gasses may be lost through the opening.

Clean the firing pin, firing pin retainer, and cam pin with a brush and solvent soaked patch.

Reassemble. Lubricate the cam pin and its pathway in the carrier with LSA or another suitable light grease. Lubricate outside of the carrier group, with particular attention to bearing surfaces or shiny spots like the cam pin and the raised bearing ribs beside the carrier key and the lower front of the carrier.

Charging handle:
Wipe clean. Lubricate the latch. Before inserting in the rifle, lubricate the sides of the charging handle, especially the two tabs on the sides near the tip. This lubrication will pass into the charging handle tracks inside the upper receiver.

Lower Receiver:
Occasionally remove the buffer and buffer spring to clean and lubricate them, and clean and lubricate the inside of the tube they ride in.

Use compressed air and Q-tips to clean the trigger group. Use compressed air to blow the trigger pocket clean. Lubricate.

Lubricate the bolt and magazine catches and exercise them to remove dirt and excess lubricant.

Magazine:
The magazine should seldom be disassembled for cleaning. It's easier to *keep* it clean than to *get* it clean. Keep it off the ground. If it must be disassembled, insert a bullet tip or other tool into the hole of the floorplate and pry the tabs up as little as possible to allow the floorplate to be pushed to the rear and off the magazine. Using too much force will bend the floorplate. Work the magazine spring out of the magazine by "walking" it out with side-to-side movements. To avoid damaging the spring, don't simply pull it straight out. The follower is attached to the spring, but must be tilted to remove it from the magazine box. Clean all parts. Lubricate the spring lightly. Don't lubricate the magazine box or follower; the lubricant will catch and hold sand and other fouling. Reassemble.

SUMMARY:
More rifles are damaged by improper cleaning than by actual use. It's far better to do just a minimal job of lubricating a rifle to prevent rust than to damage it by over zealous cleaning.