CLEANING & LUBRICATION

The three major reasons for cleaning and lubricating a firearm are:

- **Prevent malfunctions** due to a build-up of dirt and fouling or lack of lubrication
- **Prevent damage** to the gun from corrosion or lack of lubrication
- **Preserve the value** of the firearm and **prevent premature failure** of parts

You should know how to field strip your own gun for cleaning. There's no room here to go into the details. Rather, we'll offer some tips and product notes that may help.

GENERAL

Clean guns as soon as possible after shooting them, as (1) they will be easier to clean, and (2) powder fouling attracts moisture, and if left in the gun too long, that can lead to rust and pitting. If you have been shooting in damp or humid conditions, the need for immediate cleaning and oiling is greater. The ideal is to clean the gun at the range, while it is still warm from shooting, but this is not always practical. Cleaning should never be delayed more than 12 hours.

Before cleaning any gun, make sure it is unloaded. If you are cleaning several, then make sure ALL of them are unloaded before you start. After you have checked, leave the action open. Remove all ammunition from the area, and put it in another room if possible.

Double check each gun to be sure it is unloaded.

Don't reload any gun until all guns are cleaned and ready for loading. If you must reload, do so in a different area and keep it there (or keep it holstered) to avoid confusion.

A piece of low-pile carpet makes a good **pad** when cleaning guns. Used carpet is OK if it's clean (keep an eye out for remodeling projects!), or perhaps you can find some of those carpet samples with the bound edges. If the table is used primarily for cleaning, staple down the nearest edge; it won't slide around, but if something gets underneath the carpet, you can still lift it to get it out. When the carpet gets too dirty or oil-soaked, replace it.

Good **lighting** is absolutely essential; a 2-tube fluorescent fixture above the work area is recommended. However, for inspecting the bore, I find the fluorescent lights actually provide too much light — I can't see the detail because of the glare. So for final inspection I may use a 75 or 100 watt bulb.

If you don't have a reference book such as the NRA **disassembly guide**, or can't find the manual that came with the gun when you bought it, contact the manufacturer(s) and request a copy of the owner's manual. Keep it in a Zip-Lock(R) bag for reference.

Disassemble spring-loaded pieces inside a **box**. They can still fly up and away, but at least you have them contained on five sides. I've got an old bathroom drawer, about 3" deep by 12" by 18" that's really handy. It's also a good idea to keep the floor of your work area clean, so you can find the pieces that do go flying. A **magnetic parts tray** is available at many automotive outlets and hardware stores, and keeps everything in one place as you assemble and reassemble.

A used **toothbrush** can be used dry to remove unburned power and other dirt, or with cleaner to work on the breech face, feed ramp, etc. The special gun cleaning 'toothbrushes' made for the military, with a double row of bristles on one end and a single row of stubby bristles on the other, are even better for getting into tight spots.

Buy **cotton swabs** [Q-Tips®] in packages of 500. Stick some in a plastic bag and throw them in your range bag. In addition to applying cleaner or lubricant, they can soak up the excess. If you cut off the cotton-wrapped portion, you've got a hard paper stump that can be used to scrape dirt out of fairly tight places, and with no danger of scratching (as with a metal tool).

Keep a **compact cleaning kit and some gun oil** in your range bag. A rag is handy, too. You may not need it often, but when you do . . .

A screwdriver (with the tips properly ground) and some other tools are also handy, and don't take up that much room. Small jeweler's screwdrivers can be useful, too, especially for adjustable sights and other small screw heads. A screwdriver with a selection of interchangeable bits is good to avoid damaging the slots on the screws.

A **scrap of leather**, whether it's an old work glove or from some other source, will not only prevent scratching the finish if you put the gun in a vise or use pliers on it, but the leather reduces the chances of slipping.

I've only needed a **brass rod** once at the range, but without it Clyde would have had to stop and watch the rest of us shoot – He was shooting reloads, and got a squib load that pushed the bullet exactly half-way down the barrel of his Glock. I had bought a brass rod, 36" x 3/16", for under $5, and cut it into four 9-inch pieces. We were able to pound the bullet the rest of the way out and get him back into action. You'll also need to put some oil down the barrel (the end you are pounding *toward*) for lubrication, and a small ball-peen or similar **hammer** will be needed to pound the brass rod.

BORE CLEANING

There's a lot of justifiable concern these days about **exposure to chemicals**. Many of the old-style cleaners and 'home brews' contain nasty stuff, and may eventually affect your health. If it smells nasty, it's probably not good to breathe too much of it or get it on your skin, so try to provide some sort of ventilation when you use it, or work outdoors when possible. Disposable gloves are also good, and reduce hand cleaning time at the end.

I have had excellent luck with water-based products, particularly M-PRO 7, which works great without the smell, fire hazard, or chemical dangers, and without being hard on my hands. And when I'm done scrubbing, I just rinse the fouling away with hot water. Obviously, I have to dry the parts and oil them before reassembly, but that doesn't take any more time than wiping off other types of cleaners and applying lubricant to them. If I rinse with really hot water, much of the water evaporates quickly from the hot metal. I may also use my air compressor to blow cleaner and dirt out of the action or tight spots. (see www.mpro7.com)

Whatever the product, **read and follow the manufacturer's directions for use**. Leaving some products on the gun too long may cause problems, and mixing certain products together may cause problems that you wouldn't expect. If you did something the manufacturer's directions clearly told you not to do, then you'll have no one to blame but yourself.

I've seen people use paper towels and pieces of old T-shirts instead of buying **patches**, and never understood how they could justify the few dollars they saved versus the value of their firearms. Pro Shot offers excellent 100% cotton flannel patches, with fuzzy nap on both sides, which are very absorbent. The pure white color shows any remaining leading or copper fouling immediately. Keep in mind that patches are meant to be run through the bore once, or perhaps a few times (if applying product), and then tossed. What do a dozen patches cost? Don't put dirt back into your gun by using a dirty patch when you should switch to a clean one.

There are many different styles of **'jags' (patch holders)**, but I prefer the loop-end and spear-end types. The loop-end is good for applying cleaner or oil, while the spear-end type pierces the patch, holding it firmly, but then dumps it when it comes out the other end of the barrel. This type of jag is round, so it applies equal pressure to all sides of the bore as it is pushed through.

If you have an old bronze brush that's gotten too small to fit the bore tightly, don't throw it away. You can cut a narrow strip of patch, wind it around the brush in a spiral fashion, and use it with either your regular bore cleaner or with a specialty product like JB Bore Polish (from Brownell's).

Wash your hands with cold water after shooting or cleaning your gun(s) to get rid of any lead. Don't smoke or eat while cleaning, either, as the lead will transfer to whatever you are handling.

WD40 will not remove the bluing, as some people claim. I don't think it provides as nearly as much lubrication or protection as other products, however. There's also the exposure to chemicals issue. WD40 is a penetrating oil, meaning it will keep on seeping in to every crack and crevice, including the threads of screws that keep your gun together. For that reason, there are some guns I'd rather not use a penetrating oil on. Finally, I don't know of any product that will kill the primer of a center-fire cartridge faster than WD40, so I cringe at the idea of having it anywhere near my ammo or magazines.

Depending on the condition of the bore and the ammunition used, it may be necessary to use a **copper solvent** to remove the copper that has built up in the grooves. The surest sign of copper contamination is green streaks on the patches you run through the bore. The copper solvent will attack bronze brushes, so if you use it with a brush you will need to clean the brush before you put it away, or the copper solvent will eventually destroy your brush. It is likely that brush life will be shortened by the use of such strong cleaners.

Keep in mind that some copper removers are so strong that the manufacturer warns against leaving it in the barrel for more than 15 minutes, as it may etch the surface of the metal, accelerating the erosion of the bore. If they give you such warnings, believe them. Personally, I would rather not use such a strong cleaner on a regular basis. These are primarily designed for rifles, anyway.

Excessive **lead build-up, or 'leading,'** may require mechanical removal, as most bore solvents will have no effect on the lead itself, though several companies claim that their bore cleaners will 'loosen' the lead by softening the other elements of fouling in the barrel.

The Lewis Lead Remover is a special cleaning rod that holds pre-cut circles of brass screen, and the screen strips the lead away without damaging the bore. It's available from Brownell's and other suppliers for $20 or less. Hoppes makes a similar product.

An expedient substitute for the Lewis device is an old bronze cleaning brush of the correct caliber and some bronze wool. Bronze wool is sold through furniture refinishing outlets and boat supply stores, and does not damage the steel of the barrel. Wrap a few strands around the old bore brush and use it as you would a regular brush (see below). When the brush starts moving easily through the barrel, add more bronze wool. You should be able to see the silver-gray lead building up on the bronze wool.

Continue this process, adding a few more strands of bronze wool now and then, until no more lead is visible in the bore, and follow with a regular cleaning. You can cut much of the bronze wool off with scissors, and save the brush for the next time. The lead-covered bronze wool, or used screens from the Lewis device, should be treated as hazardous waste.

I've also heard that you can use the stainless steel pot scrubbers that look like bundles of metal shavings in place of the bronze wool. I haven't tried it, and I suppose that with a solvent for lubrication it won't be too hard on your barrel if you only use it occasionally.

Jacketed ammo is only slightly more expensive, but can save considerable cleaning time. You usually get what you pay for, so buying the cheapest stuff may not be such a good idea.

As a final note on leading, mercury was once used for this purpose: A tight-fitting wood plug was put in one end, and the mercury poured in. After an overnight soak, the mercury is poured out, and the combined lead/mercury is skimmed off and discarded. I've never tried it, and assume it is effective, but with the health concerns and liability that using mercury present, I think it's hardly worth trying it.

When cleaning rifles, use a **bore guide** to prevent damage to the muzzle or chamber. Fairly minor muzzle damage, inflicted again and again over a period of time, can seriously compromise the accuracy of any firearm.

To speed the cleaning process, have at least two **cleaning rods**: One for the patches, one for the bore brush.

Some claim that aluminum cleaning rods are an abomination, and long-term use will damage the barrel. I'm sure that careless use of any cleaning rod is a bad thing, and if you do slip or get careless, the coated cleaning rods from Dewey, Parker-Hale, Tipton and others are far less likely to do any damage. Carbon-fiber rods are also available, and are probably the ultimate in non-scratching cleaning rods. Yes, they cost a little more, but I figure a $25 cleaning rod is appropriate for a $600 gun.

In some pistols, such as .357 Sig, **a separate chamber brush** will be necessary because the cartridge is 'necked down,' and a brush that is tight in the bore will be too lose in the chamber area to provide a good cleaning. For 9mm and other calibers, a newer (tighter) brush can be used just for the chamber, and a second one used for the bore.

I've been told that a pink eraser is helpful in **removing fouling from stainless steel**. It should NOT be used on blued or plated metal, as it actually contains a fine abrasive that may cause scratching on less durable surfaces.

Small patches of surface rust can be removed by using fine steel wool (000 or 0000), with oil as a lubricant. Don't use too much pressure, or you may scratch the surrounding surface. Wipe the area dry to check your progress, and repeat if necessary. With care, you'll get the rust without damaging the bluing. Finish with cold blue (if necessary) and a coat of oil.

REVOLVERS

Nothing actually dissolves carbon (the black stuff), no matter what the manufacturer claims, but bore cleaners help remove it. There is a product that can help make the carbon on the end of the cylinder and around the forcing cone easier to remove — Carter's Compensator Muzzle Brake Spray by Tombstone Products (602/765-3800, fax 765-1207) is a water-based product that is sprayed on the gun after cleaning and before oiling. I find that a cotton swab or small brush work as well or better for application; I use it on pistols, too. Let it dry a while, and finish it up with a hair drier if you're in a hurry, then lubricate as normal. It seems to cut the cleaning time by at least 40%. It's available from Brownell's and other sources.

Several manufacturers make similar claims for their bore cleaners – Use it this time, and it won't take you as long to clean the gun the next time.

PISTOLS

The frame generally doesn't get dirty enough to need **complete disassembly** each time you clean, unless you shoot hundreds of rounds each time out. Most of the time, the dry toothbrush will remove the majority of the loose stuff, and that's good enough. Pay particular attention to the feed ramp, if it's part of the frame, and run a slightly dampened patch through the magazine well of metal-framed guns to prevent sticky magazines later. Don't try to lubricate plastic. A complete disassembly and cleaning will only be

needed once or a few times a year, or if the gun has been exposed to extreme conditions (mud, sand, water).

Magazines should be disassembled and cleaned if they hit the ground, unless you are working on nice green grass. Dirt and sand will act like abrasives if not removed, and will interfere with smooth operation. Apply an extremely thin layer of lubrication before reassembly, so as not to attract dirt in the future, or use a 'dry' lubricant.

Check the **feed lips of your magazines** if the magazine hit the ground, as bent lips can prevent reliable feeding of the cartridges.

Spray cleaners like Birchwood-Casey GUN SCRUBBER or good old brake cleaner spray can be used to **clean the frame without disassembly**, but such products must be used with good ventilation to avoid a fire hazard or inhalation of vapors, and you should avoid skin contact. Although they clean, they do not lubricate, so be aware. You should test them on synthetic frames or other materials first, by applying a small amount with a cotton swab to the inside of the frame, where it won't show if it does damage. Again, read the directions.

Cylinder and Slide sells their own cleaner/lubricant by the bucket, and it's well suited to cleaning auto pistols. Just take off any wooden or rubber parts, dunk the whole frame in to soak, then remove it and let it dry. A thin layer of lubricant is left behind, and there's very little scrubbing or fuss necessary. The crud settles to the bottom, and the stuff lasts indefinitely.

Perhaps the ultimate in easy gun cleaning is an ultrasonic cleaner: Field strip, dump the parts in the basket, and lower the basket into the cleaner solution. Turn on the timer, and lift the basket when they're done. You either wipe off the remaining cleaner solution or switch to the lubricating solution and put them back in the machine for another few minutes. Ultrasonic cleaners are only a viable option for agencies, the military, or the very rich.

GRIPS AND FRAMES

Wooden grips require a certain amount of care as well. Clean dirt out of the checkering with a dry toothbrush, or use a bit of 95% alcohol if needed. Try to avoid getting lubricating oil on them, which will soak in and eventually weaken the wood. If they do get stained with oil, you can remove it by soaking them in acetone (from the hardware store), but this will also take any finish off.

If the wood is unfinished, you can apply lemon oil rather generously, let it soak in overnight, then wipe off any excess. Let the oil soak in another day before reattaching them to the frame. If the exposed side of the wood is finished, you can apply lemon oil to the unfinished side only.

After a week or so, you can apply a thin layer of stock finish (boiled linseed oil) with your fingers, rubbing it in until it feels sticky. An old toothbrush will help get the finish into the checkering, and a clean toothbrush can be used to remove excess finish. Let this dry at least overnight before putting the grips back on the gun. The prepared Birchwood Casey stock finish is fine for most uses.
Plastic grips and frames don't require any special treatment after cleaning, but can develop annoying sharp spots. This results from getting 'dinged' during drills, so that a burr of plastic is pushed up. To remove these, use a very sharp blade, such as a razor blade or Xacto ® knife. You can use a very fine file or a piece of 320 grit wet/dry sandpaper to smooth the area. Use contact cement to glue the sandpaper to a wooden stick, then trim the paper flush with the edges of the wood.

If the area is left too smooth by this process, minor texture can be applied by laying a piece of emery paper over the area and tapping it with a small hammer. Do a little, then check, then do some more, until you get a feel for how much force is necessary to get the desired effect.

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LUBRICATION

Even though you may not apply much lubricant to the exterior of the gun, if you apply too much to the interior, it can seep out over time, especially in the heat, leaving a slippery film on the outside of the gun.

If you don't shoot or clean the gun for long periods of time, yet carry it daily, a layer of crud can build up just from the dust in your surroundings. It will cling to the lubricant and create sort of 'mud' that is the equivalent of valve-grinding compound. This build-up can get serious, especially if you take the gun to the range without cleaning it first. This build-up is abrasive, and shooting the gun without cleaning it first can cause extra wear. Less of this stuff will be created if you avoid using too much lubrication.

Aside from the reliability of the over-lubricated gun, there's the matter of staining your clothes and holster with the excess oil. The only time you should leave the gun 'juicy' is when you are storing it for months at a time.

If you live in the northern half of the US, or any climate where it's cold at least part of the year, I suggest you try a test before trusting your gun with a new lubricant. You may also want to try this with the lubricant you're using now: Apply it according to label directions, then wrap the unloaded gun in plastic (to reduce moisture condensation) and throw it in the freezer for 12 to 24 hours. If it's cold where you are now, you may have a safe spot you can leave it in an unheated garage or other building.

Once you are convinced that the gun has had a chance to thoroughly cool off, unwrap it and try cycling the action. What you may find is that the lubricant has frozen, sticking the parts together. If the parts have not been 'glued' together by the chilled lubricant, try firing ONE round. If the first one cycles OK, then try a second and third round, just to be sure that the action is working properly.

An old method of applying a thin, even layer of lubrication, even in the tight spots, but without applying significantly more that is needed, is **the shaving brush trick**. For you youngsters, I should explain that shaving soap did not always come in a can. For many years, men would buy a round cake of shaving soap that fit in the bottom of a cup, and used a short-handled natural-bristle brush and hot water to work up a lather that was applied to the face before shaving. The brush and soap were still being issued by the military long after the average civilian was buying the stuff in cans.

Apparently, some bright person wearing olive drab wasn't using his brush for shaving, but realized that it could be used to apply a light coat of oil to his trusty carbine. By the Vietnam era, this was common practice. You just put a few drops of oil on a non-porous surface, wipe it up with the brush, then brush over the metal surface, leaving a thin film.

This trick works so well because natural bristles (animal hairs) taper to a fine point, and these points get into all the cracks and crevices of the mechanism, leaving enough but not too much oil. Applying the oil by most other methods, then trying to wipe off the extra, usually leaves too much in the tight spots. The wiping off takes more time than applying the correct amount with the brush.

You don't have to buy a shaving brush to use this trick, though if you can find an old one to use, that's a good thing. Perhaps due to the use of the stuff in the cans, new shaving brushes tend to be rather pricey these days. A reasonable substitute is a half-inch or one-inch "chip brush," which can be found at most hardware stores for under a dollar. These brushes have unvarnished wood handles, and are made with a light colored natural bristle (probably hog). Like the shaving brush, the tapered bristles of the chip brush allow you to apply a thin, even coat of oil.

Keep your oiling brush clean between uses. Shaving brushes, being short and stubby, fit nicely in a plastic pill bottle or similarly sized container with a tight lid. A chip brush can be made shorter by cutting down the wood handle, then drop it in a Ziplock® bag before throwing it into your kit.

BREAK-FREE CLP is one of the most widely-distributed lubricants, and fine for general use. The CLP stands for Cleaner, Lubricant, and Protector, reflecting the products ability to be used as a bore cleaner, general-purpose lubricant, and a rust inhibitor. It's not the most high tech, and probably not the most effective at cleaning, lubricating, or inhibiting rust, but if you want one product that does it all, is economical, and easy to find in the store, this is a good one. There's also BREAK-FREE LP, which does not have the 20% solvent cleaner that CLP has, so none of it evaporates. It might be a better choice in harsh environments, such as salt air or high humidity.

I personally prefer MILITEC as a lubricant, as I can apply it, wipe it 'dry,' and it still provides lubrication and protection without attracting dirt or grit.

I have heard negative stories about the effects of some lubricants on the gun, or their long-term effectiveness, but I can't really confirm any of these stories, so I'm not going to say any product is actually a bad choice.

Lubricating oils usually come in some sort of plastic squeeze bottle, to make them easier to apply. When you've finished cleaning, and want to lubricate before reassembly, these bottles make it easy to apply *far too much* lubricant. That's good for the manufacturer, but not so good for you.

Needle oilers are small bottles with a hollow metal tube attached to the cap, rather like a hypodermic needle but without the sharp tip. You fill the bottle with your favorite oil, then use the fine-tipped tube to apply a little oil exactly where you want it, such as the grooves of the slide. That's impossible to do with the average oil bottle. Empty needle oilers are available from Brownell's and other specialty suppliers, or you can find cheap ones at your local fabric store. Sewing machines also need lubrication applied to small moving parts, without getting oil all over, so they sell bottles you can put your oil in and put in your sewing box. The bottles from Brownells are certainly more durable.

Another advantage of needle oilers is that they are usually made of a translucent plastic, so you can see how much oil you have left. Be warned: cheaper bottles often leak if tipped over.

Cotton swabs also work reasonably well for applying a thin layer of lubricant, though they don't get into the tight spots like a needle oiler.

A newer technology which some people have embraced is the use of **dry lubricants**. Sentry Solutions produces several products, including a dry powder lubricant, and a powder that has been mixed with alcohol for ease of application. The alcohol evaporates rather quickly, leaving a thin film of dry lubricant. They recommend that the parts be degreased with alcohol or acetone first, as putting the dry lubricant on top of oil will create a sort of mud that is not as effective as the oil or dry lubricant alone. These dry lubricants are highly recommended for stainless guns, where galling can be a problem even with high-tech grease applied.

Brownell's also sells a two-part dry lubricant that is reported to be very good, though I have never tried it.

You may be wondering how the gun is protected from rust and corrosion when a dry lubricant is used. Sentry Solutions has an answer to that — A micro-fiber cloth treated with an anti-rust chemical, which is used to wipe down the non-lubricated surfaces of the firearm. Though it may contain some silicone, it is not just a silicone cloth. Sentry reports that their tests on this system showed it provided protection that was superior to 'wet' lubricating systems. When I use their dry lubricants on the inside, I still use Break Free on the outside.

Sentry also makes a marine version of this treatment cloth, which is intended for really harsh environments, and is supposedly used by SEALS and others who need extra protection for their gear. I've known a couple of guys who couldn't touch a gun without causing rust spots to appear within a few days or even a few hours; something about their body chemistry, I guess. This marine cloth from Sentry would be the ideal solution to that problem, without the mess of an oily gun.

I knew a guy who suggested you always carry a 'dirty' gun. That is, when you've finished cleaning and lubricating, you fire a couple of rounds to make sure that it really works. I can't say that I'd go that far, but if I have gone beyond field stripping, or done any 'smithing work, I think it's a good idea to fire a few rounds before depending on the gun. At the least, cycling the action by hand makes sense, using 'snap caps' or dummy rounds.

Stainless steel is a term the marketing people came up with years ago, and it's not entirely accurate. There are nearly 'stainless' steels, such as the 300 series, but most such steels would be more accurately called 'rust-resistant' rather than 'stainless.' Don't fail to apply a rust-inhibiting product just because the gun is labeled stainless. **Galling** is a problem common to stainless steel, as the metal-against-metal actually tears the surface up, even though both surfaces started out smooth. Special lubricants for stainless steel, such as Shooter's Choice "All Weather High Tech Grease" can be used, or a synthetic lubricant such as Militec.

Don't store a gun in a case that's been in damp conditions, such as a rainy or humid day at the range, as you will trap the moisture next to the gun. Let the case dry thoroughly first. Cases with foam 'rubber' interiors (actually polyurethane foam) can hold moisture for a long time, and hard plastic cases don't allow any of the moisture to escape. That's why I recommend fabric gun cases. They may have foam padding between the layers of fabric, but at least the moisture can escape.

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