



Gil Sengel

LUBRICATION

Many folks think a general gunsmith spends all his repair time just replacing parts. Nothing could be further from the truth. Though this probably varies a bit in different parts of the country, the most time-consuming operation is cleaning the darned things. If a gun is malfunctioning and the reason isn't obviously a broken part, one sim-

tainly *is* gunsmithing. Many problems just disappear after application of a *proper* lube. It's one place where the old quote, "If it ain't broke, don't fix it," definitely does not apply. Or the wording could be changed to, "If it ain't broke, lubricate it or it soon will be."

Anyone who does much repair can tell stories of autoloaders that won't autoload and pump guns that pump hard or sometimes miss feeding a round. The same thing happens to leverguns. Quite frequently the pump and leverguns are .22 rimfires.

Double and single break-open rifles may not lock solidly if parts are dry. This may seem strange, but accuracy can suffer as a result. I didn't believe it until I saw it with my own eyes. The rifle was a European O&U in 7.9x57mm.

Speaking of over-unders, too much lube is also a possibility. A rather recently manufactured .30-06 was stringing shots vertically nearly a foot at 100 yards. The receiver was just detectably loose



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in the stock, so the owner thought that was the problem. After correcting the looseness, performance didn't change.

Eventually a wad of compressed white powder dry lube was removed from the locking bolt mechanism in the receiver. That did it! The barrels had not felt loose in the receiver. Perhaps lockup was just not uniform de-

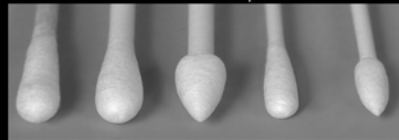
ply has to start cleaning to locate the problem. This brings us face to face with the topic of this month's column – lubrication.

We can almost hear the howls at the mention of this subject. Lubrication, many will say, has nothing to do with gunsmithing. These folks want to know how to make firing pins out of saw blades and extractors from old, discarded toenail clippers. Sorry. I'm in charge and today we talk about lubricants. Besides, not using lubricants could very well be the reason a gun needs repair in the first place.

Lubrication of firearms cer-

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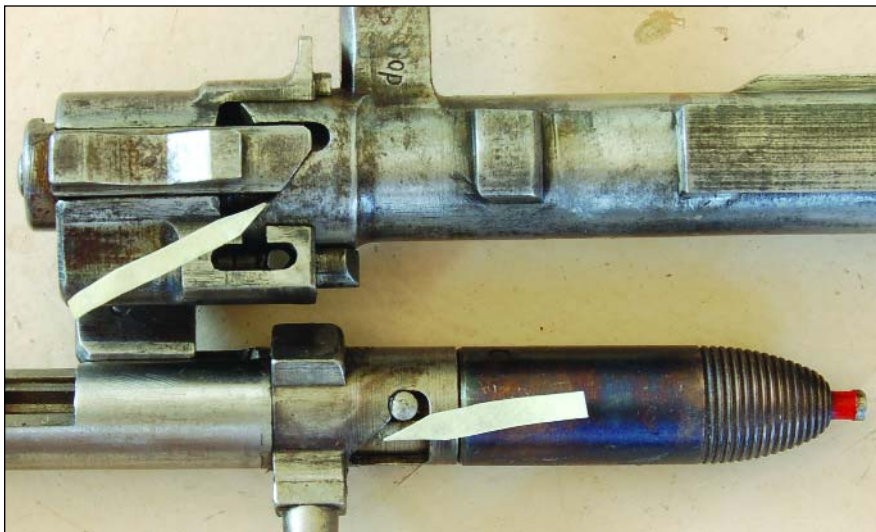
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Cocking cam surfaces (arrows) of Mauser bolt (top) and Remington .22 rimfire bolt (bottom) require moly-d grease.

pending upon how hard the gun was closed.

Do not think too much lube occurs only with dry products. A classic case involves recoil-operated autos like the Browning Auto-5 or Remington 58 shotguns. In both guns a *friction piece* rubs on the outside of the magazine tube to slow the rearward motion of the recoiling barrel. For some reason people want to oil and even use heavy grease on the magazine tube. The barrel then slams back, cracking forearms and breaking internal parts. In reality, the magazine tube should be clean with only a hint of very light oil (wipe it on then wipe it off) to prevent rusting.

If not enough lubricant can cause wear, parts breakage or malfunctions and too much lube

can result in parts breakage or malfunctions, what is a person to do? Do it correctly, that's what!

Unfortunately, this subject has been allowed to get way more complicated than necessary over the years. There are only five basic reasons to coat (by some means or other) the inner or outer surfaces of a firearm: (1) lubricate moving parts so they *continue* to move when necessary, (2) lubricate moving parts so they *don't* wear excessively from rubbing against one another, (3) prevent rust short term (two-week hunt, for example), (4) prevent rust long term (indefinite storage) and (5) prevent rust due to handling.

Since we are only interested in lubricating moving parts, the first two categories are all that need



Dry lube is perfect for bolt-gun mainsprings. Parts must remain disassembled until vehicle evaporates.

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Charles shoots with a BAT action, Precision Rifle & Tool F-Class stock, and a Broughton barrel. He uses Hodgdon powder, Lapua brass, and Berger 7mm 180gr VLD bullets.

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be considered. It is important to understand the differences and limitations of each.

In the first instance live all the so-called light oils. Over the years these have been referred to as gun oil, sewing machine oil, reel oil, lock oil, 3-in-1 oil, sperm oil and on and on. Their purpose is to lubricate small moving parts, especially those under very light spring pressure. Lubrication of such parts is mandatory, because they are relatively soft and will bend or break if they can't move freely. A good example is the .22 rimfire tubular magazine feed mechanism.

Unfortunately, light oil runs off quickly and must be reapplied. If unable to run off, it solidifies or "gums up." Then parts don't move.

Modern synthetic oils are better in this regard but don't solve the problem entirely. They are easier

The mainspring strut in a single-action revolver (arrow) is another perfect place for moly-d grease.

to remove (spray cans of solvent) and reapply (spray cans of lube). If any of these – synthetic, natural, petroleum base or solvent – gets on wood gunstocks, it destroys the finish, stains the stock underneath and breaks down wood fibers eventually ruining the stock.

Here is where a modern-day lube really shines. If there is no need for rust protection, in other words the parts aren't exposed to water or extreme humidity, a dry lube suspended in a volatile vehicle (thin liquid that evaporates after application) is ideal. Dry lubes alone, like white powder and graphite,



simply have no application to firearms in my opinion.

One such dry lube suspended in a volatile vehicle is molybdenum disulfide. It is sold under various trade names, DRI-SLIDE® being

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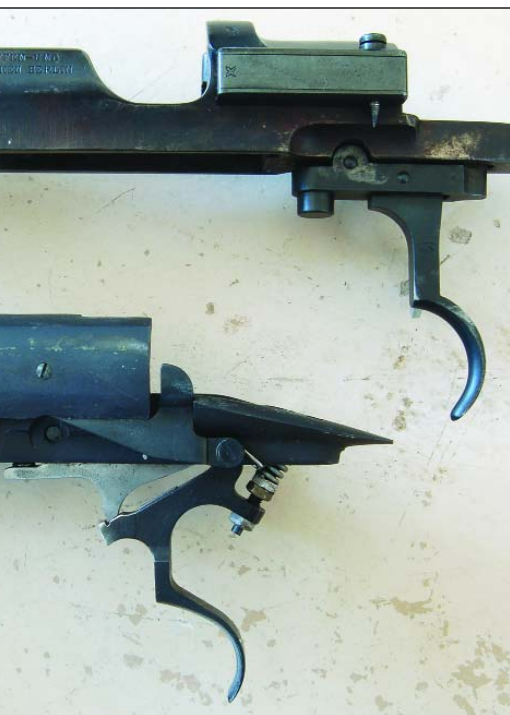
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Mauser (top) and Winchester Model 70 (bottom) have exposed trigger sear surfaces that can receive moly-d grease.

to evaporate leaving only the dry moly-d film.

If rain or powder fouling can't get to these parts, they are now lubed for years. No need to constantly reapply more lube, as must be done with all oils. Moly-d will never migrate into fine stocks and ruin them. Double guns have been returned to me after years of hard use in which the owners had done little more than just shoot them. When the stocks were removed, the insides looked just as I had left them – which in some instances was far more than could be said for the outsides!

Also, DRI-SLIDE does not build up like other dry lubes. The volatile vehicle dissolves and re-distributes existing lube if the owner feels a need to reapply it. This should not be necessary unless serious cleaning is done to remove gunk that builds up on and in actions like .22 rimfire autoloaders.

Now we come to the second

well known. Quite simply, for use in *sporting* firearms, there is no need for any type of oil any longer. DRI-SLIDE performs all their functions. It is all I have used for light lubrication in firearms for 40 years. I believe DRI-SLIDE came about for use in M16 rifles during the Vietnam War. At least that is when it was introduced to me. Nothing else even comes close.

Of course, there are a few rules. Moly-d (molybdenum disulfide) resists moisture well, but if one lives or hunts in a very damp climate, it's a good idea to wipe all internal surfaces with a patch *lightly* coated with RIG® gun grease (available from MidwayUSA). RIG will stay where it is put if the coating is very light. Next apply the moly-d by first shaking its can vigorously to be certain the lube is well suspended in the vehicle. A drop or two is then placed in various locations of the lock or action.

It will be noticed that the black liquid disappears instantly into the mechanism. Cycle the part a couple of times to help distribute the liquid. Now the parts *must* be left exposed to the air for several hours to allow the liquid vehicle

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reason for gun lube usage. Here we are lubricating to prevent undo wear on parts working under heavy spring or manual pressure. Examples are cocking cams of bolt guns, hand and ratchet mechanisms in revolvers, locking/unlocking cams in pumps and autoloaders, locking lugs in bolt actions and trigger sear surfaces. DRI-SLIDE works fine in these applications, especially in very low temperatures, but only for awhile. Heavy pressure placed on these parts seems to scrape the dry lube off over time. This requires reapplication and waiting for the vehicle to evaporate. There is a better way.

All such firearms applications require something that can be placed directly on the bearing surface and will *stay there*. In the lube field this means a heavy grease. The difference between guns and most other machinery is that guns only require a very tiny amount of grease.

Since moly-d works so well as a dry lube, it only makes sense to put lots of it in a specially adapted grease. The result is the most perfect heavy-duty lube for specific *sporting* firearm uses known to man. It is sold as high-



temperature, high-pressure, disk brake wheel-bearing grease. Note that this is wheel-bearing grease not chassis lube. The brand I have always used is Sta-Lube®, part number SL3161. Packaging is in 14-ounce cans. It was discovered at least 25 years ago when repacking truck wheel bearings that had been run many thousands of hard miles. The grease remaining in the bearing looked, felt, smelled and tasted exactly like the new lube in the can. This stuff definitely had other uses!

My first application was hinge pins and ejector trips on double guns and rifles. Then came trigger sears and Model 70-style wing safeties. It is hard to imagine anything better.



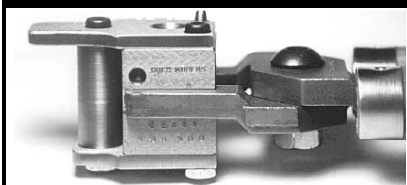
One place that isn't lubricated is a Browning Auto-5 magazine tube!

Yes, that mention of lubing sears is correct. For some reason there are "experts" out there telling shooters this should not be done. One has stated flatly that casehardened parts are not designed to be lubricated. Good heavens! That's as nutty as Hillary Clinton's duck hunting story. Providing parts are smooth, trigger pull is a function of the angles of the engaging surfaces. If lube does alter pull, there is a mechanical problem to be dealt with quickly.

One other item needs mentioning. Note that emphasis is on *sporting* firearms, not military types. Virtually all military weapons made in the last 40 years have plastic stocks, rather loose tolerances and are designed to be hosed down with a spray can of something or other. This works well on these arms but not tighter-fitted sporting guns with wood stocks. Use what is recommended by the maker.

That's all one needs to know about lubrication of sporting arms; at least that's my opinion. The foregoing works. It's just not that complicated. Besides, preventing worn or broken parts is better than replacing worn or broken parts any day!

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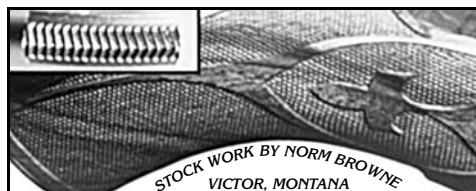
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