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TECHNICAL NOTE 72: CLEANERS, LUBRICANTS, AND PRESERVATIVES

Chemicals are applied to firearms for one of three reasons --- to clean, OR to lubricate, OR to preserve. Notice that I said "OR". That's because cleaning, lubricating, and preserving are three different issues requiring chemicals with completely different chemical properties. The uninformed masses tend to apply "gun oil" to their firearms without considering what they are attempting to accomplish with it.

Let's discuss each of the three uses separately:

1. CLEANING --- Cleaners function by loosening, lifting, and/or dissolving the contaminants from the firearm's surfaces. There is not need for the cleaner to remain on the surface for an extended period of time as would be required for lubricants or preservatives. Appropriate chemicals for cleaning will vary depending on what type of foreign substance you're attempting to remove. Cleaners that are effective on coppering in barrels may not be effective on carbon buildup on bolts, or on lead buildup in rimfire barrels and vice versa. So, to determine an effective cleaner, we need to specifically define WHAT WE'RE TRYING TO REMOVE. And, in many cases, we're trying to remove a combination of contaminants. In those cases, we may need to use a combination of chemicals (not simultaneously, but consecutively). Even when we use the most appropriate chemical, we may need to combine that with mechanical action (brushing) in order to remove some contaminants. To exemplify how far cleaners are from preservatives, some of the best cleaners are water-based. Hmmm, probably not good preservatives!!!!

2. LUBRICATION --- Lubricants function by maintaining a "slick" layer that separates components or surfaces that must slide against each other. Appropriate chemicals for lubrication will vary depending on the type of loading (friction forces) on the specific surfaces in question, the accessibility of the surfaces, and on the environmental conditions under which the firearm is being used. Very high temperature environments and very low temperature environments may dictate entirely different lubricants. Very dusty conditions may necessitate yet another lubricant for optimum performance. Surfaces under very high loading (e.g. sear surfaces) need a lubricant with very high shear load. Surfaces that can't be reached directly (e.g. hammer and trigger pivot pins) need a lubricant with good flow characteristics. Many lubricants are only effective if applied EXACTLY as the manufacturer recommends. For example, CLP is absolutely ineffective unless its Teflon is kept in suspension by regular, violent agitation.

3. PRESERVATION --- Preservatives function by maintaining an unbroken surface layer that is impervious to oxygen, water, or other chemicals that might attack the surface to be preserved. (Note that the chemical surface layer doesn't need to be "slick"). The optimum preservative depends on the material that the part is made of, whether or not dissimilar metals are in contact that would promote galvanic corrosion, the environmental conditions that the part needs to withstand, and the length of time that the preservative needs to be effective. Some preservatives are only effective if they are applied over scrupulously clean surfaces. Other preservatives are less sensitive in that regard.

Cleaners, lubricants, and preservatives can all have adverse effects on some firearms components. Plastic components, rubber components, and finishes on wood stocks are most at risk. Prior to use of any cleaner, lubricant, or preservative, it should be tested to assure that it doesn't harm your firearms.

Some cleaners, lubricants, and preservatives lose their effectiveness over time. For example, some have "carriers" that evaporate, making it difficult to apply the active chemicals from their original containers. In other cases, the active chemicals themselves lose their effectiveness. Always use the products exactly as directed.

Although products that claim to "do it all" may not be as effective as separate products for each purpose, "do it all" has its uses, particularly where it's not practical to carry all three separate products.

"Military grade" CLP is purchased by the Army against a "performance specification" that lists performance at only minimal standards in order to assure that their will be competition among several producers. Break Free CLP may have significantly better performance than CLP produced by some of the other purveyors.

Never combine products in an attempt to make one "do it all" concoction. At best, the concoction is likely to be INEFFECTIVE. As worst, it may be HAZARDOUS.

Never believe any marketing literature or unsubstantiated testimonials regarding firearms cleaners, lubricants, or preservatives.

The following products have particularly good reputations and are probably worthy of your testing (Never adopt any such product without trying/testing it yourself):

CLEANERS:

- Wipe Out Foam Bore Cleaner (for coppering)
- Slip 2000 Carbon Killer (for carbon)
- Lewis Lead Remover (for heavy leading)
- Pro-Shot Lead-Clean Gun Cloth (for lighter bore leading)
- Birchwood Casey Lead Remover Cloth (for lighter bore leading)

LUBRICANTS:

- TW-25B
- Tetra Gun Grease
- Ultima oil and grease

PRESERVATIVES:

Corrosion X

Eezox

TW-25B

COMBINATION CLEANER, LUBRICANT, PRESERVATIVE:

Break Free CLP

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