WARM WOOD

BIRCHWOOD CASEY®

The art of refinishing firearms made easy.

COOL STEEL

CARMICHEL'S TIPS...

Thanks to Jim Carmichel for his help with this gun finishing guide. In addition to his position as Shooting Editor for Outdoor Life magazine, Jim is an accomplished gunsmith with tremendous insight on wood finishing, blueing and browning metal. Listen to "Carmichel's Tips" and you'll make your gun everything it deserves to be!

For more than 50 years, BIRCHWOOD CASEY has helped thousands of gun owners bring "life" to old and new guns alike, with products that are incredibly quick and easy to use.

Now, as you prepare to undertake your gun restoration project, know this:

- *You have the ultimate BIRCHWOOD CASEY products.*
- *You have the proper instruction (as is outlined in this piece of literature).*
- *The rest is up to you... Be patient. Complete each step, without shortcuts. Work with confidence and pride. Because when you shoulder that gun in the field or pass it down to your next generation, you'll be glad you did it right.*

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Wood Preparation

Sanding is a critical step in any wood finishing venture. Yes, it can be tedious. And sometimes it's easy to tell yourself "that's good enough," in order to get on with the more glamorous process of finish application. Resist the temptation to cut corners, because the finish will actually accentuate scratches and other imperfections in the wood.

New Wood

1. Following final tooling on a new gunstock, begin sanding with a medium to course paper. 120 is typically enough grit to remove material quickly without being too aggressive. Always follow the old adage of "going with the grain" whenever using an abrasive.

2. Work your way down to 180 grit... 280 grit... and finally some extra-fine steel wool to erase even the slightest scratches while knocking down any loose fibers.

3. If your stock has really tight grain with small pores, wipe it down with a tack cloth and you're ready for staining or applying Tru-Oil® Gun Stock Finish.

Old Wood

1. First, remove what's left of the stock's original finish with an appropriate stripper (available from any hardware store). Follow the manufacturer's instructions.

2. If the stock is relatively scratch-free, give it a good scuff with 120, 180 and finally 280 grit paper and polish with extra-fine steel wool. Wipe with a tack cloth and go right to staining or applying TRU-OIL Gun Stock Finish.

CARMICHEL'S TIPS...

To keep stock edges sharp and the wood's surface ripple-free, always sand with a sanding

block. The block will prevent the abrasive from "digging in" on soft spots in the grain. And remember to sand AROUND checkering to keep the checkered "peaks" crisp. Keep checkering masked off until final application of oil.

3. If you have some scratches or dents to deal with, use only as much grit as necessary. Light scratches will remove with 280 grit paper, while deeper wounds may require a coarser grit.

4. When tackling scratch and dent removal, use a sanding block to prevent "digging in" and try to smooth away the affected area with the grain.

120/180 280 400

Arm yourself with a good supply of quality sandpaper in various grits.

Wood Staining

Now that the wood is properly prepared, light colored wood can be stained. BIRCHWOOD CASEY Walnut Stain is a water-based stain that will produce a clear, rich walnut color without grain clouding or smearing.

1. As a test to determine whether to stain or not, examine a portion of the wood while it is wet with water or alcohol. This acts as a close visual approximation to what you can expect the wood color to look like once the TRU-OIL Gun Stock Finish has been applied.

2. Walnut Stain is a concentrate solution; color intensity is easily controlled by adding water. Dilute with water before using to achieve a lighter color, or full strength for a darker color. Best to test color intensity on a scrap piece of wood.

3. Apply Walnut Stain with a clean, lint free cloth or brush. If darker than desired, sponge wood with clear water. If lighter than desired, add more stain.

4. Allow the Walnut Stain to dry overnight before applying TRU-OIL Gun Stock Finish.

Wood Filling

This "wet-sand" technique fills the pores to maximize the beauty and protection of your gun stock.

1. First, apply TRU-OIL Gun Stock Finish to the entire stock and allow it to penetrate the grain. Don't rub it in, just let the wood absorb it in. When the stock has soaked up all it can absorb, wipe away the excess and let dry for 24 hours.

2. Working on 4" x 4" sections, coat the area with TRU-OIL Gun Stock Finish and wet sand with 180 wet/dry paper. This wet sanding creates a slurry of wood dust and finish that works its way into the pores. You'll feel and hear the sandpaper cutting. If the finish gets tacky, simply add more TRU-OIL.

3. Continue wet sanding 4" x 4" sections until the entire stock is covered in the slurry. Work it in small circles with your fingers to drive it in the grain.

4. Wrap up by wiping the excess slurry off with a paper towel **cross grain**. This ensures good grain filling.

5. Let the stock dry for approximately 24 hours. Then, repeat the process if necessary to fill remaining "open" pores (steps 1-4), and wipe away all slurry when complete. Your stock is now totally filled, protected and ready for the finishing coats.

To keep your supply fresh, use individual cups for each coat.

CARMICHEL'S TIPS...

To dispense TRU-OIL Gun Stock Finish, poke a small hole in the foil cover. This will help prevent your supply from skinning over inside the bottle.

Tru-Oil® Application

TRU-OIL Gun Stock Finish has been the professional's choice for easy, top-quality gun stock finishing for more than 30 years.

1. To begin, first pour a small quantity of TRU-OIL Gun Stock Finish in a small container (like a dixie cup) and replace the bottle cap. This will help prevent your supply from skinning over. Store the bottle upside down.

2. First Finish Coat

Dip your finger into the cup and hand-apply TRU-OIL Gun Stock Finish in smooth, "gliding" coats. You'll find that this first coat will absorb readily into the grain - testament to the deep sealing action of TRU-OIL Gun Stock Finish. Be careful not to overcoat the first application, as this can cause unwanted build-up and possible runs.

3. Now hang the stock and allow it to dry for a few hours (some professionals recommend 24 hours).

4. Once dry, check the stock for runs, streaks or rough spots. If they exist, knock them down with fine sandpaper (400 grit) or steel wool.

5. Wipe the wood down with a tack cloth and proceed to the following coats.

6. Additional Coats

Again with your fingertips, spread TRU-OIL Gun Stock Finish on with long, smooth, even, lengthwise strokes. You'll immediately see the luster and depth that has made TRU-OIL Gun Stock Finish legendary. Scuff and tack between coats using fine steel wool or fine sandpaper (400 grit). The number of coats needed will vary depending on the grain of your gun stock.

7. Final Coat

Apply the final coat carefully and sparingly, spreading the oil so there is no streaking. This coat will dry to a rich gloss that will forever be a source of pride. It's also a tough-as-nails finish that will stand up to all the rigors of the field.

Satin Finish Stock Sheen & Conditioner...

This step is for those who prefer a traditional, hand-rubbed satin finish.

8. Simply polish with this polishing compound at least 48-72 hours after applying your last coat of TRU-OIL Gun Stock Finish. Stock Sheen & Conditioner effectively removes any surface imperfections and leaves your stock with a satin finish! You can also finish the job with BIRCHWOOD CASEY Gun Stock Wax for added protection.

Stocks finished with BIRCHWOOD CASEY products are beautiful and professional. Best of all, they're incredibly durable!

CARMICHEL'S TIPS...

If you need to thin TRU-OIL Gun Stock Finish for other application methods, mineral spirits will do the job. Just be aware that by thinning the solution, drying time may increase slightly. You will also find mineral spirits helpful for cleaning tools (and your hands) following the application process.

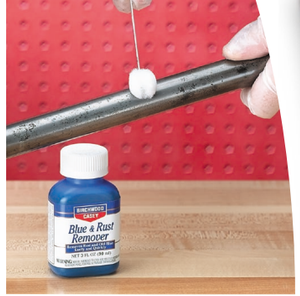
CARMICHEL'S TIPS...

Cleaning and degreasing is critical. Do not cut a corner here. Ordinary dishwashing liquid makes a great cleaner-degreaser. When you think it's clean enough, clean it two more times!

METAL PREPARATION

There's nothing quite like the deep color of a beautifully blued firearm or the authentic patina of a browned muzzleloader. And nothing can help you achieve flawless metal finishing like BIRCHWOOD CASEY.

1. Removing old blueing and rust is a necessary step before reblueing or browning. First, after removing the stock/forearm and trigger assembly, clean all metal surfaces with a saturated sponge of Cleaner-Degreaser and rinse thoroughly with water.



After disassembly, you're ready for metal preparation.

2. Apply Blue & Rust Remover with a saturated swab and allow it to work for two minutes. With a small pad of steel wool (dampened with Blue & Rust Remover), polish the metal lightly to remove old blueing and loosened rust. Continue this process until the metal is gleaming.

3. If the metal suffers from deep scratches and/or pitting, sand the affected areas with fine 280 grit paper followed by a steel wool polish. A file may be needed for deep pits.

4. Whatever you do, don't try and rush metal preparation. Keep polishing until everything looks right. If you don't, you'll regret it later. Also, don't forget the trigger, screw heads or anything else that shows. Disassemble any multiple part mechanisms for preparation and metal finishing.

5. Re-apply the Cleaner-Degreaser, scrub with a sponge and rinse again with water. At this point, be careful not to touch the metal with your fingers as this can leave tell-tale marks after blueing.

CARMICHEL'S TIPS...

When sanding metal surfaces, wrap the paper around a stiff, flat backer like a file. In addition to reducing hand fatigue, it will keep surfaces flat, edges crisp and result in a professional, "original looking" job.

CARMICHEL'S TIPS...

Timing is critical when it comes to blueing. For best results, do not allow solution to contact metal surfaces for longer than 1 minute. It's better to allow the solution to sit on the metal surface for less time rather than too long.

BLUEING

1. Apply PERMA BLUE Paste or Liquid Gun Blue with an applicator swab over the entire surface to be blued. Work as quickly as you can, but remember to be thorough. Rather than blueing the entire surface at one time, you may want to divide the work into 2 or 3 sections.

2. Allow the blueing to stand on the metal for **30-60 seconds**. **No longer**. Then neutralize the chemical reaction by rinsing immediately and thoroughly with cold water and wipe dry.

With the metal properly prepared, you swab on Perma Blue® Paste Gun Blue...

3. After or during rinsing, polish lightly with fine steel wool to blend the color. Appraise the blueing for coverage. If streaking exists or you desire a deeper/darker blue, simply repeat steps 1, 2, and 3 until the desired color is obtained.

...allow it to work, rinse and wipe clean. It's that simple!

4. Saturate all areas with Sheath® Take-Alongs and allow your new blueing to cure overnight.

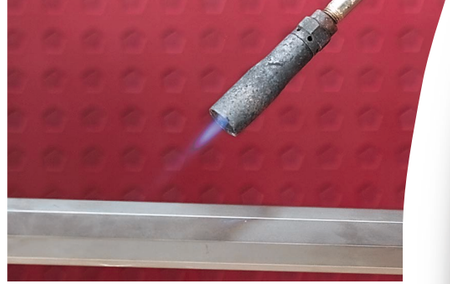
5. Reassemble your firearm. Your richly blued finish is complete. PERMA BLUE Gun Blue Finish is a protective, durable coating that withstands many years of hard use and cleaning chemicals. To keep it looking new, rub on a coat of SHEATH Rust Preventive from time to time or after each shooting session.

This is the quality of blueing you can expect on every project!

BROWNING

In the old days, gun metal browning was a slow-rust process that involved the proper combination of chemicals and atmospheric conditions to create a thin layer of corrosion on the metal's surface. It was a time-consuming and often inconsistent endeavor.

Today, browning is quick and easy thanks to BIRCHWOOD CASEY Plum Brown™ Barrel Finish. The most important part of the equation is the proper preparation of the surfaces to be browned. If you're browning an antique muzzleloader or a rough "kit" weapon, chances are you will need to repair scratched, pitted, rusted or file-marked areas. Refer back to the "Metal Preparation" section on page 7 when tackling this critical task.



1. PLUM BROWN Barrel Finish requires heat to activate the authentic "browning" character of the product (a chemical reaction between the solution and ferrous metal). With the steel properly prepared and cleaned/degreased, apply heat using a butane torch, gas or electric stove or whatever means is convenient. For best results with a butane torch, use a large-flame nozzle and hold it 3-4 inches away from the surface.

Holding barrels in a vise can create cold spots (since the heat radiates into the vise). Instead, make a barrel cradle out of a bent coat hanger to eliminate this problem.

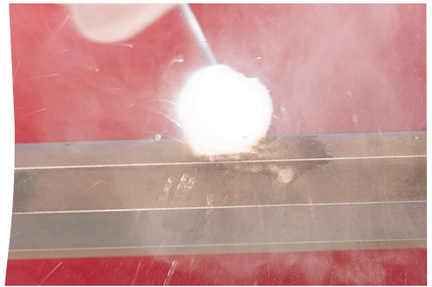
CARMICHEL'S TIPS...

When preparing rounded surfaces such as musket and shotgun barrels for browning, take strips of cloth-backed sandpaper or emory cloth and give the barrel a brisk back-and-forth treatment like an old-fashioned shoe shine. This technique cuts mighty fast, so be careful not to cut any unsightly ripples or grooves. Follow up with a good steel wool polishing.

CARMICHEL'S TIPS...

For testing temperature, nothing beats the old-fashioned "sizzle" test. Drop a small amount of water on the heated surface. If it remains on the metal and evaporates slowly, the metal is too cold. If the water vanishes in a puff of steam, it's too hot. Ideally, the water will sizzle and "dance" about as it evaporates... that's when it's time to apply PLUM BROWN Barrel Finish.

2. Heat evenly by moving the heat source back and forth along the item being browned. Note that heavier areas (like the barrel breech) will take longer to heat and will retain their temperature longer. Also, small parts are more likely to get overheated. So heat thoroughly and utilize Carmichel's "sizzle test" Tip.



Heat-activated PLUM BROWN Barrel Finish at work on an octagonal barrel. Note: It is not necessary to heat the entire barrel at the same time. The barrel may be heated and finished in sections.

3. When the ideal temperature has been obtained, (determined by the "sizzle" test) apply PLUM BROWN Barrel Finish with a saturated swab in long even strokes. The rich plum brown color will appear immediately.

If the color appears to be too thin in any area, it is probably due to a cold spot. Immediately apply heat to this area. If the metal is too hot, the solution may tend to bubble and foam, resulting in a lighter, uneven coloration. If this happens, let the metal cool a bit before continuing. Take your time and apply the solution with care, paying particular attention to color, texture and "evenness."

4. As the metal is being browned, you may become concerned at what appears to be a lack of uniformity in both depth and color. This is usually caused by deposits left over from the chemical reaction. Don't worry about this. As long as the color isn't too thin, with areas of bright or semi-bright metal showing, everything is going fine.

5. As soon as the metal is cool enough to handle, rinse it thoroughly with cold water, dry with a clean cloth and polish lightly with steel wool. If you desire a deeper, more uniform finish, repeat the entire heating and browning process.

A PLUM BROWN Barrel Finish muzzleloader is a joy to own and shoot.

6. When browning is complete, rub all surfaces down with a SHEATH Take-Along. This is very important after rinsing and will penetrate the surface and give you a deep, rich, mahogany-brown permanent coating that will gladden your heart. Allow to cure 24 hours.

7. Reassemble your authentically browned firearm. PLUM BROWN Barrel Finish is a protective coating that will withstand lots of hard use and cleaning chemicals. To keep it new looking (or should we say "old" looking) just rub on a coat of SHEATH Rust Preventive from time to time or after each shooting session.

CARMICHEL'S TIPS...

275°F is the target temperature for achieving the PLUM BROWN Barrel Finish effect. The exact temperature isn't too critical, but it is important that the temperature be uniform. For example, a long Kentucky rifle barrel must be heated uniformly so the temperature is neither too high nor too low in any area. An uneven temperature can possibly result in uneven coloration.

Trouble Shooting

Answers to the most common gun finishing questions...

TRU-OIL® Gun Stock Finish

The finish isn't drying completely. Why?

- TRU-OIL Gun Stock Finish will not dry if applied over an oil-emitting wood (like rosewood, ebony, exotic woods) or lubricating oil, tung oil, or linseed oil.
- It may be too humid in the drying location.

The TRU-OIL Gun Stock Finish in the bottle skinned over. Why?

- The cap was probably left off too long. Try storing the bottle upside-down to keep any skinned finish on the bottom.

There are specks on the dried finish. Why?

- This is generally due to dust. Increase the humidity and work in a dust-free area or try finishing outdoors on a calm day.

What can be done to produce a satin finish?

- Use Stock Sheen & Conditioner or go over the stock lightly with extra-fine steel wool.

PERMA BLUE® Gun Blue

The blueing is splotchy and uneven. Why?

- Either the metal was not thoroughly cleaned and degreased or the solution was left on too long, more than one minute.

The metal does not blue.

- PERMA BLUE Liquid or Paste Gun Blue will not work on stainless steel or aluminum.
- The solution was left on too long, more than one minute.

The blueing comes off.

- This can happen if the metal is not cleaned, degreased or rinsed well enough.
- The solution was left on too long.

The blueing looked great but then turned to brown rust.

- Did not apply Sheath® Rust Preventive or other moisture-displacing rust preventive.
- Not completely dry before applying oil.
- Not rinsed sufficiently.

PLUM BROWN™ Barrel Finish

The brown color is uneven. Why?

- Inconsistent temperatures during the heating process can cause uneven color.
- Not completely cleaned and degreased.
- Deposits may have been left over from the chemical process.

Looked great, but the next day it was rusty.

- Not rinsed well enough or not sufficiently dry before applying next coat or moisture-displacing oil.
- Did not apply Sheath® Rust Preventive or other moisture-displacing oil.

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