

Superior Shooting Systems Inc.

SSSinc.

FINDING A FINAL-FINISH LOAD
USING FINAL-FINISH PRODUCTS
BARREL BREAK-IN PROCEDURE
HANDLAPPED BREAK-IN PROCESS
BARREL CLEANING PROCEDURE

FINAL-FINISH ANSWERS

FFC

HIGH-
PERFORMANCE
PRODUCTS
engineered
by 11-time
National
High Power
Champion
David Tubb

Frequently Asked Questions about Final-Finish products and barrel break-in procedures.

From Superior Shooting Systems Inc. Technical Staff

This document will answer many of the most commonly-asked questions about our products and their proper use.

1. I need a Final Finish load for my rifle.

First look at the bullet weight for the kit you have purchased for your rifle. Then look in any reputable loading manual for a corresponding bullet weight and pick the starting charge powder weight (typically the lightest powder charge weight) for a powder you have on hand. If your Final Finish bullet does not match the corresponding bullet weight in the published data you have, do a bit of interpolation to come up with a starting charge. For instance, a load listed for a 10-grain different bullet will work fine after reducing that charge by two full grains; this will then be your starting charge weight with a couple of grains less powder weight in the starting charge load.

The Final Finish bullet weight is written on the side of the kit, but it is not unusual to find a small range of grain weight variances in the kits (i.e. 22 caliber 77- and 80-grain bullets). This small grain weight variation has no effect on the starting charge load or the effectiveness of the product.

2. Should I use the entire kit?

In order to effectively break in any rifle barrel, the interior of the bore needs to be lapped to smooth/remove the worst tool marks. Factory barrels will exhibit more tool marks than a handlapped barrel. This is why the entire Final Finish kit is usually the best choice on a factory barrel, while just a few of the #3 grit bullets from the Final Finish kit will work well on a handlapped barrel. (These same #3 bullets are found in our Throat Maintenance System [TMS] bullets and are the best choice for handlapped barrel use.)

3. What is the best break-in method for a handlapped barrel?

Many barrel break in articles suggest just shooting bare bullets through a new handlapped barrel in order to break in the barrel and usually there's no mention of using a lighter load (less pressure). This procedure does not yield the most satisfactory results for a couple of reasons. First, the handlapped barrel probably didn't have a tool mark over its entire length -- until it was chambered. After chambering, it now has annular tool marks from the chambering procedure. These marks will not only be in the chamber but also in the throat/leade area, kind of like drilling a hole in a piece of metal without any regard for the smoothness of the hole. The tool marks in the chamber are pretty easy to polish away, but this not the case in the throat/leade area. Therefore, a break-in procedure that advocates just shooting bare bullets over chambering tool marks will not produce results that match the finish of the rest of the handlapped barrel (not to mention a lot of time and trouble in following a shoot, clean, shoot, clean, shoot, clean, etc. regimen).

If the handlapped barrel break in procedure utilizes as few as a half-dozen of the #3 grit bullets from a Final Finish kit (or any of the bullets from a TMS kit — they are all of the same grit finish), the throat /leade of the handlapped barrel will then look almost as tool-mark-free as the rest of the barrel (6 TMS bullets typically remove over 95% of the tool marks in the throat). Now the bare bullets come into play (as mention earlier). These bare bullets have the ability to burnish in the throat and barrel in order to complete the break in process. The #5 bullets in a Final Finish kit are burnishing bullets (not the case with a TMS

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kit where all of the Bullets are of the #3 grit). Burnishing is the process wherein two metals work their surfaces in order to give a metal-to-metal polishing effect.

4. *What about other abrasive processes?*

For those who use JB Bore Compound, or similar, to break in their barrel, this is also not the best course of action. If you want to clean you barrel with JB prior to the Final Finish process this should be the last time you use JB on your barrel!

There is no question that JB compound will remove fouling from a barrel, but at what expense? Following feedback from literally hundreds of Final Finish results, it has been ascertained that you can get a barrel interior too smooth. This results in increased bullet jacket fouling in the barrel. The polishing compound in JB is significantly finer than 1000 grit (more like 1200-1400) while a Final Finish bullet with a #3 grit coating is approximately 60% coarser.

Most handlapped barrel makers lap in their barrels with a #150 grit non-embedding aluminum oxide compound which breaks down into a finer grit with use, ultimately resulting in a grit of approximately #300 to #400 when the barrel lapping process is finished.

Also keep in mind that Final Finish products are working one direction in the barrel so as to help uniform and/or result in a slightly tapered bore the farther down the barrel the bullet travels. When being handlapped by the barrel maker or by using JB Bore Compound by the shooter cleaning his barrel, the lapping action is multi-directional. This cannot be the most advantageous approach (kind of like dragging a knife edge back and forth across a whet stone (most purists sharpen a knife edge going a single direction on that particular side of the blade). Even the burnishing effect is single-directional. More than one barrel maker has commented on the effects of JB actually causing the barrel internal finish to change to such a degree that one is actually breaking in the barrel (burnishing) again for a few shots after each and every cleaning.

5. *Should I continue use of Final Finish products?*

TMS bullets help to sustain the throat integrity of the barrel, for the same reasons given for its effectiveness in breaking in the throat/leade area. Sustained maintenance of 2-3 TMS bullets every few hundred rounds before cleaning a dirty rifle barrel will help keep the throat's integrity as functionally smooth as possible. A rough throat tears at the bullet jacket, causing a loss in accuracy. Frequency and number of TMS bullets to be used varies with the caliber, but the more rapidly throat erosion usually occurs the more frequently and the more rounds should be used. For instance, a .223 Remington benefits from 2-3 TMS bullets every 500 rounds fired whereas a .223 WSSM may need 2-3 TMS rounds each 250 rounds fired to maintain equally effective maintenance.

6. *How do I clean my barrel during the Final Finish processes?*

Recommended cleaning procedure is to use a one millimeter oversized brass brush (ex. 7mm brush for a 6mm bore) and Sweet's 7.62 solvent (a copper remover). Keep the brass brush wet on each and every pass. Give two full strokes for each and every Final Finish or bare (burnishing) bullets fired through the bore.

Typically, cleaning on a handlapped barrel should be done after every 3 shots with the Final Finish grits and after every 5 shots with the bare/burnishing bullets. Most users can tell a noticeable difference in the bore's internal feel after 3 Final Finish bullets. Cleaning is recommended after every 10 shots of Final Finish product with a factory barrel.

— **SSS Technical**

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