

HOT WATER BLUEING

A CONCISE SUMMARY OF THIS METHOD

ADAPTED FROM

"THE GUN PRO COURSE"

STUDY UNIT 1, PART 1

1) Materials you will need

- a) Stainless steel blueing tank: 1200 long, 150 wide and 150 deep.
- b) Commercial blueing remover (Casey's Blue and rust remover)
- c) Small box of Tri-Sodium phosphate.
- d) Distilled water , 15 to 20 liters
- e) Commercial blueing solution (Brownell's Dicropan IM)
- f) Rubber gloves and protective eye ware
- g) Sheet abrasives: 200, 320-A, 400-A, 600-A.
- h) Steel wool, 00 and 0000 grade (degreased)

2) Removing the old finish

The old blueing must be removed before applying the new.

Commercial remover "Casey's Blue and Rust Remover"

Make your own remover: 50% commercial grade Hydrochloric or muriatic acid and 50% distilled water.

Method:

- 1) Disassemble the gun and set aside all non ferrous parts as they will be damaged by the solutions you will be using.
- 2) Wipe off excess oil and grease. Use Methylated spirits and a good detergent to remove oil and grease, then rinse the parts in water.
- 3) Wearing protective rubber gloves and goggles, saturate a cotton wad of about 50mm square with the commercial remover or the acid solution and apply to the old blueing using long firm strokes. Treat one area, then let the fluid "work" for a few minutes before returning to that area for additional rubbing. Use cotton ear buds to reach small hidden out of the way places.....

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.....In minutes the worn blueing will melt away leaving a greyish film. Inspect the metal carefully, removing any old rust with fine steel wool. Then rinse off the parts in warm tap water and dry them thoroughly and quickly. New rust can form fast.

The stripping process has now also "etched" the metal, providing the proper bonding surface for the new blueing to "take".

3) Metal polishing:

- 1) Note! Blueing does not cover or hide anything.

If you are experienced with power equipment, a buffing wheel makes metal polishing easy. If you are not experienced, do the work by hand. Most re-blueing jobs require a minimum of polishing unless the gun was badly abused and marred.

- 2) You are going to need an assortment of abrasive cloths or paper – 200, 320-A, 400A, 600-A, silicone carbide or aluminum oxide generally provide the "spread" required.
- 3) Cut the abrasives into strips about 40 mm wide by the depth of the sheet. Mount your action or barrel in a padded vice and don't use too much pressure..
- 4) Depending on metal condition, start with the coarsest abrasive you will use.-- generally 200, but if the steel was originally well polished, 320-A. Move the strip in a "shoe shine" motion, back & forth and around the metal. Then, using the same strip, move it length wise until you have polished out any cross-marks made by your first passes. Repeat this procedure using progressively finer strips until the metal is shiny bright and chrome-like in appearance.
- 5) Check the work frequently in good light, removing any cross-marks, scratches or dull spots. The metal must be uniformly smooth and shiny; any blemishes overlooked will stand out after the blueing is applied.

4) Degreasing

All parts should be "clean" before starting blueing. The faintest smudge of oil or even a fingerprint will leave a light splotch that no amount of blueing will cover. Do not use petrol or commercial solvents as they are hazardous and some commercial solvents leave a residue which can mess up a blueing job.

Best to use Tri-Sodium Phosphate (TSP) for de-greasing the gun parts. This should be available at hardware stores or chemical merchants.

- 1) Use one cup of TSP with about 15 liters of tap water in your blueing tank
- 2) Make a number of "z" shaped handles with legs about 150mm long out of some sturdy wire, to be used for handling parts. 3).....

- 3) Make 2 "U" shaped brackets of heavy wire with flanges to hook over the sides of your tank. These are to support parts to be boiled. The brackets should be of such a size that when fitted to the tank they will support the parts about 25mm above the bottom of the tank.
 - 4) Position the u-brackets in the tank and place the tank on a 2 or 3 burner camp stove as a heat source. Pour in sufficient tap water to cover the parts that are to be de-greased. (Allow sufficient extra water to allow for evaporation.)
 - 5) Add the cup of "TSP" to the tank water now.
 - 6) Fire up the burner.
 - 7) When the solution begins to boil, position the parts on the u-brackets in the tank using the Z-handles you have made, for barrels and other large parts. Smaller parts can be placed in a smallish strainer and hung from wire in the solution, or separately hung from wire
 - 8) Make sure there is ample room at all sides of the parts for the liquid to circulate.
 - 9) Let the parts boil for a full 15 minutes.
 - 10) Slip on clean gloves (from now on your bare hands must not touch the metal) and lift the parts one at a time from the tank, again using your Z-handles for the large parts and lifting the smaller parts out by their hanging wires.
 - 11) Turn off the burner. We don't want to waste gas.
 - 12) Rinse each part in turn in warm tap water; dry thoroughly and place the parts on clean rags or paper (not news print as the ink contains oil)
 - 13) Empty the de-greasing solution from the tank and rinse the tank well in tap water.
- 5) **Blueing:**
- 1) Place the cleaned tank back onto the burner and put the U-brackets back in position.
 - 2) Fill the tank as before, but this time use distilled water. (tap water id not recommended as impurities such as minerals, chemicals etc. can set up an electrolytic reaction between the minute particles and the gun metal, causing white flecks to appear on the new blued surface.

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- 3) "Brownell's" Dicropan 1M is recommended as your blueing agent for the 'Hot Water' blueing procedure.
- 4) Fire up your burner again and bring the water to a slow rolling boil.
- 5) Place the opened blueing bottle in a corner of the tank with a wire looped around it's neck and bent over the edge of the tank to prevent spilling.
- 6) Make sure you are wearing your clean rubber gloves!!!!!!
- 7) Carefully place the de-greased parts onto the u-brackets, taking care that none touch the side of the tank or each other. If the parts do touch, it could result in "hot spots" and blotchy blueing.
- 8) Small parts should be hung in the water as before .
- 9) Allow the parts to boil for a full 5 minutes.
- 10) Now remove the first large part and the bottle of blueing solution from the tank.
- 11) Shake excess water from the metal. If it doesn't dry immediately of it's own heat, place that part back in the tank (it wasn't boiled long enough)
- 12) Lay the part on clean rags or paper. Now tip the blueing bottle and dampen, don't "load" a 50mm cotton square. Swab the solution on the hot metal with long light strokes, avoiding runs and puddles. Allow the fluid to "work" about 5minutes.
- 13) While the first part is "working", remove the second part from the boiling water and proceed as in 11 & 12 above.
- 14) Go through all the parts in the same way.
- 15) After each part has "worked" for 5 minutes, place it back into the boiling water for another 5 minutes and start the sequence again.
- 16) The bottle of blueing solution goes back into the boiling water for 5 minutes after the first cycle of blueing all the parts.
- 17) After the second cycle of blueing is complete, you should see a greyish coat, flecked with rust forming on the metal.
- 18) Now before returning the parts to the boiling water, rub each part briskly with fine "OO" steel wool, As the grey disappears, a blue/black color will appear on the metal.
- 19) Place each rubbed down part back into the boiling water

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- 20) *Get a sequence going:*

Heat each part for 5 minutes; take it out and apply the blueing solution; wait 3 to 5 minutes; card the part briskly with "00" wire wool, return the part to the tank for reheating

To get a good fix, the blueing solution must be hot. Remove the bottle right after you take out the first part; leave it on your bench until you have finished applying the blueing solution to the last part; then put it back in the tank where it stays until you again remove the first part in your blueing sequence.

- 21) *In most cases 5 to 7 passes or runs of all parts, produce the desired depth of blueing. Soft steel will require less passes.*
- 22) *When the color is right, card the parts with super fine "0000" grade steel wool, then it's back to the tank for a final 10 minutes of boiling to stop the blueing action, Remove the parts; shake well to dry and place parts over night in a safe dry place.*
- 23) *The next day, saturate a pad of 0000 grade steel wool with light oil and go over each part thoroughly, rubbing length wise only. Wipe off excess oil and run an oil patch through the bore; The job is done, ready to reassemble.....*

