

# Blackening Fasteners, Tools, and Small Parts

by Curt Arndt, Chairman Austin Healey Concours Registry Committee



*Two original Austin Healey tool kit "King Dick" Spanners blackened using this process.*

While the finish on most of the fasteners, small parts and tool kit tools used on later production British cars in the 1960s, including Austin Healeys were zinc, the early cars used a black phosphate finish for many of these items.

This chemically blackened or blued finish is an oxidizing process that leaves a blue-black appearance, and in the case of steel, provides some protection against rust. This easy to apply and inexpensive process was used extensively throughout the British car industry in the first half of the century, but was slowly phased out in favor of zinc plating as a more effective way to protect against rust and corrosion.

While the normal delivery condition of fasteners may sometimes be referred to as "Black Oxide", rarely is that the actual finish. It is generally used in a broad form to distinguish them from plated fasteners. The actual finish is more of a phosphate and oil (phos & oil) preservation.

*Note: Actual "Black Oxide" and "Parkerizing" are proprietary finishes, and were not used on British cars in the 1950s and '60s.*

The majority of the Whitworth (BSF) fasteners used on the Austin Healey 100s (BN1s and BN2s) originally had this cheap and simple black phosphate finish. Also most of the tool kit items as well as most of the steel carburetor parts on the H4 and H6 carburetors of

BN1s through the Longbridge BN4s were also finished using this process. In addition, the steel parts on the H1 carburetors of the Bugeyes were similarly finished in this way. Many shops that specialize in industrial plating and finishes can do this for you, but a much less expensive process can be done by the home restorer using commonly found materials in a simple process that will give professional results at home. I learned about this simple process many years ago from a British car mechanic who was working in an Austin Healey restoration shop at the time. One of the best advantages of this home process is being able to do small numbers of items at a time, thereby eliminating the need to collect everything at once and take it to a professional shop. Plus, you are less likely to lose those small and hard to replace original parts.

O.K. here's a list of things you'll need to blacken items at home:

## Materials

\*Birchwood-Casey Gun Bluing or Super Blue (Inexpensive at Wal-mart). Better yet and highly recommended by me after years of doing this is a product called **Oxpho-Blue**, Liquid Gun Blue #082-024-016, made by Brownells, Inc. I found their website and ordered it by mail. *The Eastwood Company sells a "Metal Blackening System Set" that claims to provide an OEM black oxide finish, however I have not yet tested their system.*



Another alternative is Insta-Blak 333 from Electrochemical Products, Inc. 17000 W. Lincoln Ave., New Berlin WI 53151-2781 (262) 786-9330.



\*White Lithium grease, either in a can or as an aerosol spray

\*Rubber (latex surgical or blue shop) gloves

\*Cotton balls



\*A pair of Hemostats

\*Small disposable plastic cups (bathroom size 3.5 oz)

\*Acid brushes

\*Plastic tray to hold parts



\*#0000 steel wool

\*Something to bake parts in (No, not the kitchen oven or stove). I use a small one burner hot plate. Others have used old discarded toaster ovens... In the garage or shop.

\*A metal pan to hold parts for the heating process. I use a round pie tin or (baking) pan on the hot plate or a rectangular pan from that old toaster oven.

\*Fine wire wheel. I have a six-inch wire wheel with .006-inch steel wire. This is about as fine as it gets and is what you might use to burnish the steel if you were bluing a gun.

\*A buffing or grinding motor set up with the wire wheel. I have a “Baldor” brand industrial buffer/grinder in my shop and it’s probably the tool I use the most. Any garage or home shop should have at minimum one of these, as they are indispensable in cleaning small parts (rust removal), grinding and buffing, etc...



\*Paper towels/cotton rags (I use old T-shirts.)

\*Old fine bristled toothbrush

### **The Process**

First clean the parts well by bead blasting or acid dipping them first and then burnishing with the fine wire wheel so that the part shines. The six-inch stainless steel wire wheel on my buffer with .006 fine wire does a fantastic job. Then wash the part in very hot soapy water using the steel wool to further polish the part, rinse well and dry immediately with the rags or paper towels. From here on out use the rubber latex gloves to handle the parts so as not to contaminate them with the oils from your hands.

Place the parts in your plastic container and pour a small amount of bluing into the small disposable cup. Then take a cotton ball, lock it into the hemostat and dip/soak it with the bluing solution and start wiping the parts, they should turn black immediately. One thing that will help is if the parts are still hot to warm from the washing process. You'll also need to re-dip the cotton ball or use a new one regularly since the bluing solution will weaken with use in a short time. With a larger amount of pieces to be blackened, you can pour the bluing solution over the parts and then use the cotton ball to coat and ensure all areas of the part are equally black. Let them sit on the solution for at least five minutes or until the parts are black. Also you will see a brownish film form on the parts which lets you know the solution is doing its job.

Once the parts are evenly black, they should be in the bluing solution for at least two minutes and up to five, rinse them with plenty of cold water to remove any of the solution and the brown film and dry again with the paper towels or a cotton rag. You will now probably notice that the parts will “flash rust” almost immediately. To stop and reverse this process you will need to follow the next steps right away. Place the parts in the round metal pan on the hot plate and coat or spray them liberally with the lithium grease. Let them bake/cook in the pan for at least fifteen minutes using the acid brush to wipe the grease into the crevices in the parts. Keep the temperature setting very low and if the grease starts smoking the hot plate is too hot.

After the parts have thoroughly “cooked” and are completely coated with the grease, let the parts cool and then wipe the congealed grease off once again with cotton rags or paper towels (rags work better). Lastly, use the toothbrush to clean the grease out of the bolt/screw threads and other small areas where it remains.

Your results, if done properly, will replicate the original phosphate and oil finish of your parts when they were new, and will provide a descent degree of rust protection.



*My 90% all original (feeler gauge & hammer are reproductions) BN1 Tool Kit with tools restored/ blackened using this process.*



*This is a Jaguar Tool Kit from a friend's 1969 Series II XKE that I restored. A very complete and original kit though it's a Series I style. I blackened all of these tools in half a mornings work, and the kit looks like the day it left Coventry, England.*



*Very original late MGA tool kit in excellent condition (the tools were not pitted). I still need to blacken the KING DICK pliers and bent wire screwdriver. C. Arndt*