

CHROME PLATING

AN ART OR A SCIENCE?

by Stuart MacNeill with Malcolm McKay
Photos by Coventry Auto Components (CAC)

An XK depends on its chrome-plated parts, especially the grille, bumpers and screen surround, to give it that sparkle and glitter that makes it such a stunning car. Even the delicate amount of chrome on an XK 120 is critical to its visual impact, and the heavier use of chrome-plated decoration on later models is ever more vital.

Chrome plating came into use from the 1920s: previously brightwork on cars was nickel-plated, usually over a thicker layer of copper that together gave corrosion protection to the steel beneath. Adding chromium over the top of the nickel combined the corrosion protection with a brighter, more sparkly finish and chromium plating soon became popular worldwide for everything from bathroom fittings to car decoration. These many different applications require different standards of plating – many domestic components and, unfortunately, some aftermarket car components from distant countries have minimal protective coatings beneath the chromium, and hence rapidly deteriorate if subjected to outdoor use and even normal atmospheric humidity in storage. It is important when commissioning rechroming to find a plater with long-term experience of car component plating – and also to understand that re-plating old components requires a very different and more extensive set of skills than plating new materials.

Chrome plating is a form of electro-plating. That means it combines a delicate, electrical charge distribution through a metal which will have to be immersed in various nasty, toxic chemicals that are diluted metal in very tightly regulated, chemical suspensions. Any problems with these chemical mixes entails calling in specialist chemists for testing and sometimes long shutdowns while whole vats costing thousands of pounds are disposed of (safely) and then the vats are re-filled from scratch. That's why, if you take in an old motorcycle exhaust to re-chrome, they will toss it in a cleaning vat for a week before it goes anywhere near anything expensive! Just some contamination in the water supply or a product not properly cleaned and dropped into a tank can be very expensive indeed for the plater.

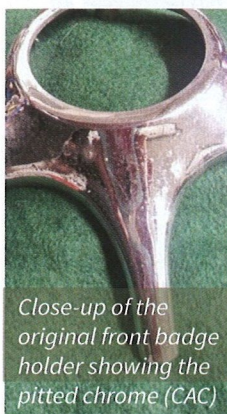
Getting electricity to flow through oddly-shaped metal in a uniform way to allow for a uniform layer of plating to be bonded to the metal involves creating good electrical connections to your precious parts, maybe soldering on wire tangs, using a bolt through a fixing hole or drilling a new one through a pressing's corner to hang it in the vat. So it is always wise to make clear to a plater (or even better, the polisher) which is the outer face that shows and which is the back or hidden in a seam. Remember, they may have never have seen your part before, if it is unusual or rare, and they may have to guess how it fits the car!

Once the metal is wired up to conduct properly, it is suspended in a series of vats of liquids and current is carefully run through at the correct rate for that particular item to plate to the required thickness. A thick copper can be applied to thicken parts up, but it is charged by the hour in the vat, so if double-time is required in the copper, you will pay proportionally for this essential service.

New materials are very consistent and domestic plating, i.e. kitchen taps and handles, can just be popped onto jigs and very quickly 'flash plated' through production line methods in a few minutes with very minimal layers of near-perfect plating. This type of plating is quick and can be applied very thinly as it is not exposed to the harsh elements or wear that automotive parts are. It is relatively quick and painless as all the parts are mass produced, consistent and the material bases are therefore



XK 150 front badge holder: pitted original, stripped to Mazak, coppered, and finished with new chrome (CAC)



Close-up of the original front badge holder showing the pitted chrome (CAC)

Sometimes it's better to buy new: reversing lamp gooseneck bracket



Back of a new 140 grille during plating, showing the excess build-up of copper on the bolts used for wire attachment, which carry the electrical current (CAC)

much more predictable for plating, so involve minimal technical adjustments after initial set-up. This gives very predictable results with a low reject rate. They can just be set into purpose-made jigs and run through simple production line tanks with minimal supervision and inspection.

Restoring old automotive parts starts from a completely different point, as the materials may be 60 years old, badly corroded, dented, twisted (oh dear!) and may have been reworked and restored previously. A relatively good-looking piece, once stripped, may have very little of the original steel left due to 'sacrificial corrosion' underneath old, heavy layers of copper and chrome plate. I know of restorers falling out over an XK 140 front bumper that more closely resembled a razor blade than a bumper blade when it was stripped back! So the moral is, expect anything once you have stripped off the bull! There may be more copper and chrome than actual original component.