

DON'T PAINT IT...

PLATE IT!

PROFESSIONAL QUALITY ELECTROPLATING IN YOUR OWN GARAGE

BY MARK SIMPSON

You're in the final stages of assembling your newly built street machine when you realize the old yellow zinc-cadmium coated bracket that seemed okay before now shows its age in your newly refinished engine bay.

Don't fear! The folks at Caswell, Inc. have you covered with complete lines of at-home electroplating solutions.

We'll admit that we were anxious to try out some of the complete plating kits offered by Caswell, and one glance at their website had us dreaming of all the possibilities. Their list of plating kits included just about anything you could imagine. Tin, black oxide, nickel, copper, brass, chrome, and even gold were on the list. We had a brief discussion with Lance Caswell, during which he encouraged us to get our feet wet first before diving into the deep end. After giving the idea some more thought, we finally decided to focus our efforts first on their Copy Cad & zinc plating system and later their nickel plating system once we felt more adventurous.

Yellow cadmium plating (or yellow cad) is common on many production automobiles. Yellow cad is in a class of metal coatings known as "sacrificial coatings." When exposed to the elements, these coatings are designed to sacrifice themselves in order to protect the underlying base metal. The bright yellow cad fades to silver then to a chalky white coating.

Yellow cad plating on parts like power brake boosters often fades away, leaving restorers to figure out their own method of duplicating the finish. Most plating shops tend to shy away from yellow cad, as the materials used to produce this coating can be highly poisonous and strict regulations are in place for those who work with it. Other solutions include spray paints designed to emulate the look of yellow cad, but the outcome rarely looks correct and the paints fail to duplicate the iridescent quality of true yellow cad plating with its subtle shades of yellow, green, and orange.

Follow along as we explore zinc electroplating and cad like coatings.

01



Once we completely unpacked our new plating system, we were a little overwhelmed at first. However, after taking a few moments to carefully read Caswell's plating manual, we were soon at ease. We acquired both their Copy Cad & zinc system and their nickel plating kit. Both kits work similarly with the exception of the cad coloring.

02



All of the chemicals were either in concentrate or in dry granular form. This required mixing the chemicals with distilled water. While distilled water is relatively cheap, we still managed to use nearly 20 gallons during our plating sessions. Distilled water is also used for rinsing parts between solutions, cleaning agitation filters, and topping off plating tanks after each use.

03



Here is a view of our plating system after we had it all set up. The plating tanks included with the Caswell system are little more than five-gallon buckets, but they come in handy when storing the solutions after use. Simply empty out the tank and screw on the lid until you're ready to plate again.

04



Metal preparation is the key to success. We blasted most parts with fine glass beads and sanded some others.

05



After preparing the metal, the parts were soaked in a degreaser and rinsed with distilled water before plating.



During the plating process, zinc is removed from the anodes on both sides of the tank and is deposited on the parts.



After only 30 minutes in the plating bath, our freshly plated parts could be removed and rinsed. Copper wire is used to suspend the parts in the tank.



With a fresh coat of zinc applied, our next step was to apply the yellow Copy Cad coating. We simply dipped the part in the solution for 45 seconds, rinsed it, and dried it using a hair dryer. Small parts can be strung together and plated.



The yellow Copy Cad coating remains relatively fragile until properly cured (4-8 hours), but the results are spectacular. Even the most savvy car enthusiast would be hard pressed to tell it from the real thing. We suggest using a large pail of distilled water to rise the parts, while being careful not to strike the parts against the side of the rinse tank.



Since the Copy Cad coatings were a result of a reaction with the zinc on the parts we plated, we decided to test the coatings on hardware store quality bright zinc plated bolts. We found that for the best adhesion, the bolts needed to be degreased and then rinsed for five seconds in a five-percent solution of muratic acid. From left to right, yellow, blue, olive drab, and black.



Carburetor bodies are commonly zinc castings. We prepared this carb top by simply bead blasting, degreasing, and rinsing it for five seconds in a five-percent solution of muratic acid before dipping it into the bucket containing the yellow Copy Cad.



Cast iron parts can be plated as well, but require more power to plate effectively. After zinc plating this carb base, we used the black cad coating to give it a rich, dark finish with superior corrosion resistance.



Working on the same principles, the nickel plating system performed equally as well as the zinc plating system.



After getting setup, we were able to plate numerous parts in only a few short hours, and the results speak for themselves. We're confident we'll be pulling out the plating tanks again for our next project build.

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