Finishing for the Automotive Market Is Alive & Well in Southern California

Surface finishers in southern California are big in the automotive market and after-market, because the area boasts the largest demand for automobiles and automotive parts in the nation. It was here that plated aluminum wheels became popular in the after-market, and have now become popular additions to new automobiles. Platers and surface finishers in the area have also been pioneers in finishing plastic parts for automotive trim, to make them lighter and more durable. P&SF recently visited with two jobshops in the area that specialize in providing quality finishes, with a specific interest in automotive applications.

Gene's Plating Works

Gene's Plating Works, Los Angeles, CA, specializes in one thing—wheels for trucks and cars. The after-market for aluminum and steel wheels is its niche. With the nation's largest customer base for the automotive after-market, Gene's has developed into one of the largest finishers of



Sixty percent of the aluminum wheels plated at Gene's are polished in-house prior to copper plating.



This automatic hoist line is used for plating steel wheels. It can process 14 bars of wheels per hour. The 900-gal ultrasonic cleaning tank on this line is one of the largest in-line cleaning tanks on the west coast.

copper-nickel-chromium plated wheels in the country.

Company Growth

Gene Neal founded the company in the early 1940s, finishing parts for the U.S. Government during World War II. Stellar Industries, a conglomerate, purchased Gene's Plating in the 1960s. Harry Levy joined Stellar in 1970 as vice president of marketing, and soon became head of the automotive group operations, of which Gene's Plating was a part. In 1974, Levy purchased the company and took over its operations.

At the time, the jobshop had 13 employees and performed a wide variety of work, but hardly finished any wheels. Its largest customer was a neighboring company that manufactured hole punches and notebook binders. But, Levy had contacts in the automotive after-market and took the shop in that direction. As the business grew, the company expanded its production operations specifically for servicing the automotive wheel market. In 1986, Gene's installed two new lines-one for plating on aluminum, primarily for wheels, and one for finishing steel wheel centers and rims.

As the business of its customers grew, Gene's also grew and adapted to provide the finishing services that were desired. On-time delivery, highvolume lots, competitive prices and quality finishes are all top priorities at the shop. "Handling the growth without compromise is one way that we've been able to capture and retain the top wheel manufacturers in the business as our customers," says Levy.

Today, Gene's Plating Works is located in 15 buildings that provide a total of 90,000 ft² of production space. The company employs more than 450 people and is among the largest jobshops west of the Mississippi River.

Gene's Process

Gene's Plating Works performs highvolume rack plating on automatic and manual lines. The wheels are polished before plating, and because the shop processes such a high volume, Gene's is one of the largest polishers in the area. In-house polishing allows the company to maintain control over the finished part. After polishing, the wheels are cleaned, copper-plated, buffed, then plated with nickel and, finally, chromium. Gene's finishes both steel and aluminum wheels and wheel components. Since aluminum is light and very strong, manufacturers are able to cast them into large, beautiful designs. The trend is toward larger wheels and smaller "low profile" tires (as large as 20 in. wheels on 2 in. tires). As such, many of the rims plated at Gene's are 35 to 40 percent larger than they were just a few years ago.

A cogeneration unit provides up to 40 percent of Gene's electricity and 90 percent of its heating. If a power failure should occur, the entire operation could continue to run on the cogeneration unit alone.

The shop management expects power companies to help even more with savings on utility costs, once deregulation goes into effect in the year 2002. Because metal finishers will probably be among the earliest to benefit from deregulation of utility companies, Gene's management stays on top of the situation. John Whitney, a partner and chief financial officer of the company, is chairman of the Energy Committee for the Metal Finishing Association of Southern California (MFASC).

Quality Control

The plating process for aluminum substrates is complex, so the shop is careful to keep quality controls high. "We plate aluminum by the book," said Randy Solganik, technical manager at Gene's. "Our secret to success is maintaining tight controls on the process."

The company has a 350 ft² laboratory containing all of the necessary equipment to insure proper quality control throughout the facility. The shop relies heavily on SPC software for controlling its processes. "We use Boeing SPC software for two reasons: it suits our needs for precise control, and being Southern California platers, we are very familiar with aerospace quality control systems," Solganik said.

Each wheel is bar-coded All wheels separately before it is customer. processed. The company, in conjunction with its vendor, has developed a label that will withstand the plating process.

Coping With Regulations Levy took over Gene's Plating about the same time that state and federal regulations were becoming stricter for platers and surface finishers. Since then, he has been proactively involved for fair legislation and regulation of the metal finishing industry. He served as president of the MFASC in 1981–82, and has served on the organization's board of directors since 1979. He was also on the board of the National Association of Metal Finishers from 1983 to 1989.

Levy says he has always attempted to work with the regulators rather than against them, and he has had success in helping to obtain more reasonable

legislation for metal finishers. In California, as well as the nation, regulatory issues are an ongoing concern for surface finishers. So Levy, and other members of the company's management team. will stay actively involved in



All wheels receive a final inspection prior to shipment to the customer.

the regulatory process. Levy and Solganik are now involved in an attempt to show California regulators that new requirements for soluble nickel are unnecessary, because the state has listed nickel, in all forms, as a carcinogen.

"Based upon previous experience, California establishes the future regulatory climate for the rest of the nation, in terms of air regulations," Solganik said. "Judging from what we are experiencing now, platers nationwide should expect to deal with 'Environmental Justice' issues over the next few years. The 'Environmental Justice' movement stands for everyone's fundamental right to clean air, water and soil, regardless of where they live or work."

The Future

Although there have been opportunities to get into wheel manufacturing, Gene's Plating Works has elected not to do so. By remaining a supplier, all of the company's customers remain equally important and there is no conflict of interest with them.

Because of the regulatory climate, the company has had to consider alternative locations. The primary market, however, is in southern California. "The next major expansion might well be outside of the state in order to avoid the unreasonable regulatory climate in California," said Levy.

For now, Gene's Plating Works is doing just fine, finishing a large portion of the after-market for automotive wheels.



These steel wheels and centers have been processed and are ready for shipment.



These wheel centers have been pre-plated with electroless copper and are ready for the

An automated process is used for molding the plastic wheel centers four at a time. They are then sent to be placed in trays for electroless copper pre-plate.

Crown City Plating Co.

One of the most unique surface finishing shops manufacturing and processing components for the automotive industry is Crown City Plating Co. (CCPC), El Monte, CA.

A pioneer in plating on plastics, CCPC enjoys such a good working relationship with some of its automotive customers that components made and finished by the company are shipped directly to an assembly plant, taken out of the box by the auto manufacturer and put on the wheels of the vehicle during assembly.

selective nickel-chromium electroplating process.

How They Do the Job Among the largest volume items being manufactured and finished at CCPC are wheel ornaments for use on the nation's best-selling sports utility vehicle, according to Bob Coombes, president and chief executive officer. The components have been in production at the shop for the past three years. A *P&SF* staffer recently visited the shop, and with the help of Coombes and Brooke Fix, vice president, followed one wheel ornament through the process.

The wheel ornaments are made by molding plastic (ABS/PC) in the shop, and the company is responsible for everything from the design and manufacture of the mold tooling, to shipping the finished component to the OEM. By both molding and plating the components, CCPC is able to save significant time and cost in terms of handling, racking, shipping, inspection and vendor costs. All trays and racks are also manufactured in-



Stainless steel retainers and bright centers are attached to the wheel centers automatically after the finishing process.



Wheel centers are packed in boxes and shipped directly to the automobile assembly lines.



These metal door and plastic window handles are plated with Crown City's proprietary satin chromium process so that the finishes match, even on such different substrates. The finish has also proven to be very durable for automotive trim.

house. Here are the basics of the finishing process:

- A robot takes the plastic wheel centers from the molds (four centers per mold) and places them on a conveyor that goes to an operator.
- The operator places them into preplate trays to be prepared for electroless copper plating. The parts are transferred in the trays through a patented¹ electroless copper process pre-plating machine to make the plastic wheel center conductive for decorative chromium plating.
- A proprietary process is used to provide selective electroplating of the wheel centers.
- Wheel centers are racked and automatically transferred onto a conveyor that takes them through the patented² copper and doublenickel microcrack chromium plating process.
- After plating, wheel centers go to a paint room to be selectively painted in the areas that are stopped-off from electroplating.
- Wheel centers receive an aluminum base coat, plus a clear coat, and are then baked before final assembly.
- During assembly, two additional components are added to the wheel centers—a stainless steel retainer on the back to fasten the wheel center to the wheel, and a bright chrome-plated cap on the top, which can be plain or show the emblem of the manufacturer.

Besides wheel ornaments, CCPC also finishes other automobile components, such as door and window regulators and turn signal levers, of both metal and plastic substrates.

According to Coombes, many of the automotive manufacturers that were using lightweight colored plastic components for doors have reverted back to chrome-plated plastic versions. At the same time, home and office hardware manufacturers feel that plated plastic handles are so light that consumers have the impression they do not have the quality of the heavier metal handles. Plastic handles, however, are solid and less expensive to make, so CCPC is now testing some heavier grades of plastics that may be more acceptable.

¹Crownplate[®], Crown City Plating Co., El Monte, CA ²Crownclad[®], Crown City Plating Co.

A Unique Finish

Many of the components processed at CCPC require a satin chromium finish. Coombes said the company tried available commercial processes, but found them unsatisfactory. So, the innovative jobshop came up with its own proprietary satin chromium finish³ to replace the proprietary velour process that was being used. The finish has been approved by one of the top U.S. automobile makers for use on its top-of-the-line sports car for 1999, and it is already being used on some components for exterior and interior trim. The jobshop also holds more than 25 patents in molding for plating and plating on plastics.

A Large Customer Base CCPC finishes a variety of parts for a number of applications, but the automotive industry provides a high percentage of the company's business. The shop's automotive customers include Ford, General Motors, Honda, Mazda and Toyota. The company provides manufacturing and finishing services for interior and exterior decorative trim, door and window handles, and more than 30 million wheel ornaments have been manufactured and finished at the shop. In 1994, the company reached a milestone by manufacturing and plating more than 20,000,000 nylon wheel ornaments for the Ford Ranger from 1981 to 1994.

A Dedication to Excellence One of the largest jobshops in the nation, Crown City has grown from humble beginnings in 1911 to a shop that now features more than 278,000 ft² of production space on 11.5 acres of land. Through continuous change and growth, the shop boasts very sophisticated processes that are the heart of production. As Coombes puts it: "We have an unconditional commitment to quality that hasn't changed in more than three-quarters of a century." PESF

Crown City's Innovative Approach For Environmental Performance



U.S. Senator Barbara Boxer recognized Bob Coombes, left, of CCPC, and Christopher Bateman of Hermetic Seal Corp., for their initiative in undertaking a groundwater cleanup project in the San Gabriel Basin.

Crown City Plating Co. (CCPC) has been a recognized leader in environmental performance for many years. Its own track record has earned it recognition locally and nationally, but the company's most significant achievement in this area is an innovative approach to contaminated groundwater cleanup in the San Gabriel Basin, one of the top Superfund sites of the U.S. Environmental Protection Agency (EPA).

In 1995, Bob Coombes, CEO of CCPC, was invited to attend an EPA meeting in Rhode Island, where officials announced the EPA's new Common Sense Initiative (CSI) program, and explained that the metal finishing industry had been selected as one of five to participate in the initiative to find cleaner, cheaper, smarter ways of protecting the environment. CCPC was acknowledged as a Tier 1 firm, and chosen as a site for a CSI program on the west coast. Coombes proposed an innovative approach to cleaning up contaminated groundwater in the San Gabriel Basin.

The company met with its neighbor, Hermetic Seal Corp., which had already made a commitment to start a project to pump and treat contaminated groundwater at its site. CCPC offered to work with Hermetic to try to take its contaminated groundwater, which required treatment, and use it as a replacement for the clean water the shop was currently pumping from its own well.

The jobshop tested the process for several months on a small scale by using water from a monitoring well. It was found that certain plating and treatment processes destroyed the chlorinated solvents that contaminated the water—a low-cost way of treating groundwater.

The California Environmental Protection Agency (Cal/EPA) and the Water Quality Authority recognized the merit of the approach, and funding was obtained from the San Gabriel Basin Water Quality Authority and the San Gabriel Basin Watermaster to initiate the clean-up project. The project is successfully pumping 1.5 million gal of contaminated groundwater per month for use as industrial process water, which is treated and becomes clean water that is made available for other uses. The amount of contamination in the groundwater in the community has dropped dramatically since the project was initiated.

In 1997, U.S. Senator Barbara Boxer of California honored CCPC and Hermetic Seal Corp. by presenting them with certificates and U.S. flags that had flown over the U.S. Capitol, for their initiative in undertaking this groundwater clean-up project.

³CrownTechSM Satin, Crown City Plating Co.