

IT'S ALL IN THE DETAILS

GOLDEN STAR GIVES US BACK STAGE ACCESS TO THEIR MANUFACTURING AND WHY IT SETS THEM APART

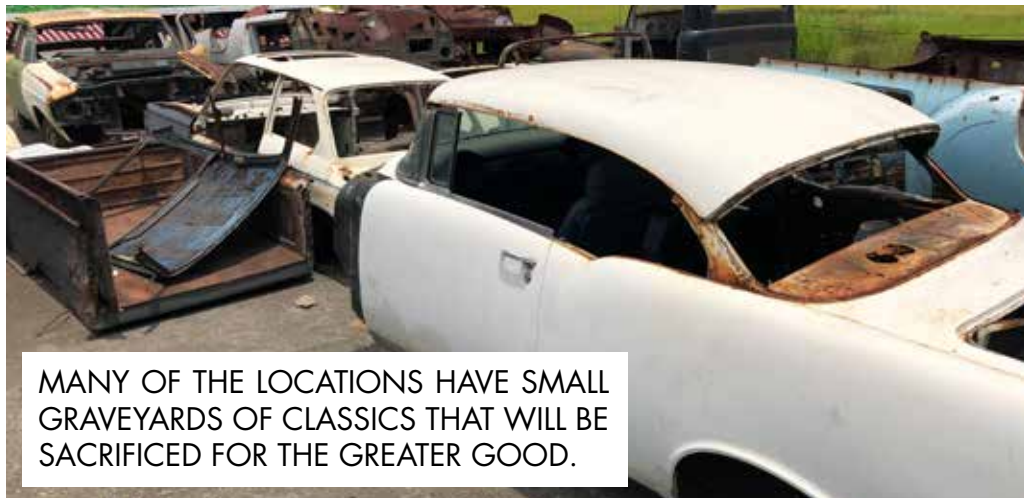


Many of us hot rodders have often struggled with integrating aftermarket parts with original parts. It's also an issue that aftermarket manufacturers struggle with everyday. Many times these old cars and trucks have decades of rust and body flex from the abuse they have taken throughout the years. The structure that was there is not as sound as it once was, and they were not built off the line with the idea that they would once be high-end show vehicles with millions of scrutinizing eyeballs looking down on their every body gap.

We all know, but often forget, that we are restoring these classics to a new standard that they were never intended to be. We expect all of the pieces to fit together near perfectly, without us having to "massage" any of the parts. Ask any shop owner, good body man, or interior artist, & they will tell you that their customer expects that type of finish, & many times doesn't understand why the cost of their project is beyond what they had in their original budget.

It's often times easy to blame the aftermarket manufacturers and their products as to why the labor hours on a restoration are as high as they are. Maybe it could be that it's just our ex-

pectations of these products are really higher than they were designed to be, after all they are designed to fit just like the originals. Yes, there are many factors that go into the cost of a restoration, but there is one company that designs their products with that in mind. Keeping the cost down of any restoration is good for everyone. It allows more people to build more cars and trucks, and that's good for everyone on the automotive "food chain".



MANY OF THE LOCATIONS HAVE SMALL GRAVEYARDS OF CLASSICS THAT WILL BE SACRIFICED FOR THE GREATER GOOD.

Golden Star Auto Parts is one of the manufacturers at the very forefront of this crusade. They produce a large selection of aftermarket sheet metal and accessories for many GM, Ford, Dodge cars and trucks. They take pride in offering the best products available on the market today. The owner and staff of Golden Star out of Lewisville, Texas, have been in the sheet metal and restoration business for nearly two decades. These guys & their staff understand us-the gearhead on the other side of the business.

The owner has quite a history in the business. When he was a young man, he spent time working in these factories, helping to develop many of the processes that are used today. He has a direct line to many of the factories where these parts are used and still has many friends there. As many of you many know, almost all of these parts are manufactured on the tiny island of Taiwan. Yes, we can already hear some of you groaning about overseas parts, but the fact of the matter is that many of these parts are made there because the costs are much less, but the quality is the same as if it were made here in the states. Because of regulations and labor costs, it just doesn't make financial sense to have these products made here. I'm sure many of us don't complain about that \$99 brand new chrome bumper, but if that same bumper was made here it could cost \$200-300, & that would not be good for you or this industry.

Hot rodding & restoration has always been about doing as much as you can with the least amount of funds, & we all know how important a budget is when planning a restoration.

This article helps demonstrate some of the processes that go into these parts. It should provide a better understanding of how these parts are made and how much work, time and investment goes into these restoration parts. We all buy them, but maybe now we will know a little more about them.

First, they have to have a good original sample, or complete vehicle, to use as a template. The better the sample, the better the end product. Next, they pour a plaster mold of the original part on the vehicle when possible, this provides them the most accurate measurement



Once the foam mold is made, it is sent to a casting foundry where high grade steel is poured into the sand casting made from the foam. This is obviously a rough casting, but each piece is machined down using the digital scan information. This gets that mold close to the original, but it will still need a human hand for final polishing and finish before it's ready to be test stamped.

because there is no body flex in the part. This is a key step that many manufacturers don't do, but it is key for accuracy when the finished casting is made. Next they make another mold of the same piece once it is removed from the vehicle. This provides a second sample to compare to the one that was taken while it was on the car or truck. Both plaster casts are then digitally scanned

and software is used to compare the two. Then a human



touch is needed within the software to make adjustments to the file for a completely smooth and symmetrical design, just like the original sample piece.



Casting ready to be milled.

The hand polishing process is one that requires years of experience and apprenticeship. If too much polishing is done then it alters the shape of the part, too little and the machining lines will be seen in the finished part. This is also an important step in the detail of each part. Once the final polish is made, it is compared to the original part for accuracy. Again, this is another step that Golden Star takes in its manufacturing to provide the best fit and finish.

After milling, the casting still needs to be hand polished.



Each part has at least three molds for just one "hit" or stamping within the press. The female part of the mold goes in the top of the press and the male goes in the bottom of the press. There is also a "top hat" that holds the metal in place during the stamping.

Many times a part will have multiple hits to make the forms and curves needed. Each time a part has another hit, three more molds (male, female, top hat) are needed. This gets very expensive and very heavy, each group of molds weighs on average of 7-8,000 lbs. There is also careful planning of how they are stored and where, so they can find them next time they decide to make a run of that part.

Designing the top hat is also a bit of science and experience. The lip that is around the outside allows just enough metal through or holds the metal tight just enough to allow for the metal to stretch around the male and



This example is the fender of a VW Beetle. The male and top hat pieces are shown here. Notice the top hat lip.



female part of the mold. The angle of how the part is designed into the mold also is based on experience and how best the metal will shape around the mold once it's in the press.

Stretching the metal actually makes it stronger & more rigid. Stretching is key here, many others use "thicker" material but it's soft and less rigid, because it's not stretched. After stretching the thickness will vary, this is good because it adds rigidity. This provides a part that will be less likely to dent or ding when leaning on it or tightening door handles on a door panel for example.

Once all three pieces of the mold are complete, they run tests to check the accuracy of the part. Another unique process that Golden Star offers is that many times they will send the test pieces back to shops and builders here in the US for test fitment. Any adjustments are made to the molds before full production starts.



Bumpers and other chrome pieces are also made this way, but bumpers in particular require another process. Each bumper needs to be hand polished before it is triple chrome plated.

This polishing provides a smooth finish once the chrome process is done. Many factories outsource the polishing process, but not Golden Star, it is all done in-house to ensure an ultra-smooth finish.



After a good scan has been finalized, they send that information to their foam factory where a life size foam model is made. Their machines carve out an accurate foam model of the part and the final mold bracing and tooling guides are also added by hand, a true craft within itself. These guides are crucial in the design of the mold and how it will align in the press. If the alignment is off, the entire process and stamping will be off.





THE STAMPING PROCESS REQUIRES A THREE PIECE SET OF MOLDS: A MALE MOLD, FEMALE MOLD & TOP HAT MOLD.



During stamping, the male mold is secured to the bottom of the press, female is on top, and the "top hat" is in-between. The top hat holds the sheet of metal in place while the male and female molds are pressed together to shape the metal to conform to the mold for an exact reproduction part.

Patch panels can often be made using the full mold. By using a smaller piece of sheet metal, they can stamp just a piece of the mold. It's so accurate that small pieces of metal must be placed on the part of the mold not being used, to provide an correct stamping.

Careful attention is also paid to the packing and boxing of these parts. They have to travel a long distance, and are often times handled a few times before you take it out of the box, and they want to protect that investment.



Details in a door being laser cut.

All small parts and inner bracing are made separate and are usually laser cut by itself and added to the fender during assembly. When you order it from your favorite retailer, you buy it as one part, but there are often 8-12 parts on each finish part. Keeping track of these small parts, their production, and the molds is a job within itself.

The molds are ready and are loaded into the huge stamping press, these presses are 2-3 stories tall. Pins are set to hold the metal



Typical 3-piece set of molds.

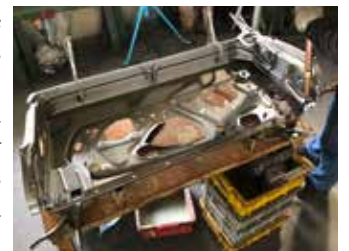
into place while the stamping takes place. The thickness of the metal is also another key factor, Golden Star typically uses factory thickness or thicker on all of their sheet metal. As mentioned before, each piece can have multiple "hits" or stampings, each requiring its own set of three molds. A typical fender has 3-4 hits, with 9-12 cast molds, and usually some sort of inner bracing, just like the original.

After stamping, each part must be laser cut to eliminate the excess metal. Each part has a digital file made of where to cut the metal, based of a stamped piece that is traced and scanned. That original stamping with the outline is also saved.

When the stamping and laser trimming processes are complete, there is often spot welds that need to be done. In this example, the headlight bucket is being welded to the fender. This process requires a custom jig. Each jig is unique to that part and stays with the molds and the original part. As you can see the jigs are very complex. Often times a jig is used when welding the inner door panel to the outer door panel once the inner braces have been welded into place.



Assembling the inner supports and braces is key to providing not only a rugged, factory-correct part, but also allows for factory mounting points for all of the bolt on pieces like door pulls, window tracks, etc. Much of this requires a skilled human touch, with the help of a jig, and precision welds. The same parts are not being produced everyday, they do a limited run of what is needed and then switch to another part. Some of the parts are only produced once a year, so they cannot always rely on a good memory.





Speaking of glass, Golden Star has a full line of assembled glass and glass kits. How many of you have tried to assembled the moulding around the edge of your glass with the sticky black goup that gets everywhere. Golden Star carries assembled glass with frames or just glass. They have a dedicated division that does all of the assembly, based on factory original pieces. This is a tedious job that requires skill. They have an assembly line where each person is responsible for a different part of the assembly process.



During the production of hoods, all of the under structure and outer shell are produced separately & are then assembled the same way.

Rivets and special tabs many need to be added to certain parts. Those are each done skillfully by hand and are carefully positioned based on the original part. Attention to detail is always first and foremost .



Deck filler rivits are installed.

Golden Star also has many other products than sheet metal. They have thousands of restoration parts for both the interior and exterior or your classic car truck. Many of these items are also produced in one of the same factories as our sheet metal. Window regulators, door handles and latches, gas tanks, heater boxes, hinges, glass and more, are all available from Golden Star for your classic.



Each piece of the vent window for example is manufactured and assembled by Golden Star. Another unique feature that may interest you history buffs, is the real felt or whisker machine that they use. This machine is the only one known to exist, but it produces factory correct felt for your assembled vent windows. Another detail that they didn't overlook.



There is so much more to bolting on, or welding on, the next replacement part. The gearheads at Golden Star take pride in providing all of us the very best restoration parts. The experience and attention to detail set them apart from many other manufacturers.

All of us love this hobby, but we often forget that there are many other fellow enthusiasts around the globe that share this same passion that we have. We are fortunate to have so many choices of products and where we can buy them. From the manufacturing process, through the retail and installation, this industry has a huge global economic impact. Some of us are fortunate to work in and make a living from this industry.

We all want our classic or hot rod to be the best, to be unique, and to be something that we are proud of. We spend our hard earned dollars on the parts that we want, and that we think are the best for our ride. Our classic cars and trucks become part of our family, often times passed down through generations. It's been woven into our country's fabric, who we are as Americans, and hot rodders.

Finding the right car or truck, what motor to put in it, and the search for the parts are all part of the journey. When the journey is finally finished, it's part of what makes that vehicle so special, how we got there, and the stories, blood, sweat and dollars it took to get there. How to find the right part, and what the right part is are different to everyone. One thing we can all agree on is that this hobby is alive and well. Look at the popularity of the muscle cars in today's manufacturers. There are so many choices for "bought" power and performance. This is a good sign for those of us that have rides with "built" power. It shows us that the next generation is interested in hot rodding and restoration, and is being groomed right now to inherit this hobby down the road.

When you're restoring that special ride of yours, remember, you're not just saving a piece of history, you're recreating a moment in time that will be passed down for generations to come and to appreciate, and that is one detail that we don't want to overlook. We hope Golden Star is part of your next project, in the meantime we will continue to strive to bring you the very best quality products available on the market today. See you down the road.

