

HOW TO REPAIR BODY TRIM: STAINLESS, ALUMINUM, POT METAL

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TRIM REPAIR

How To Make Your Car's Brightwork Bright Again

Photography: Brad Ocock Words: Brad Ocock

STAINLESS • ALUMINUM • POT METAL

WITH A LITTLE EFFORT, IT WOULD NOT BE DIFFICULT TO SPEND MORE ON THE STAINLESS, ALUMINUM AND POT METAL TRIM ON YOUR CAR THAN ON THE PAINT AND BODYWORK. THE REASON IS SIMPLE—IMAGINE BUILDING A CAR AND THEN TELLING THE BODYSHOP THAT YOU DO NOT WANT THE CAR PAINTED, BUT NATURAL. INSTEAD OF PAINT, WHEN IT IS FINISHED, THE SHEETMETAL HAS TO LOOK PERFECT IN ITS NATURAL STATE. EVEN THE HIGHEST-QUALITY BODY SHOPS WOULD FLINCH AT THIS REQUEST.

When dealing with your car's brightwork, however, that's exactly what you are doing—your car's trim has to be perfect when it's done. You can't hide minor imperfections under a skin coat of filler and a layer of paint. Personally, we think that was the major reason the whole smoothie trend got started in the first place—it's cheaper to weld over holes in sheetmetal than to bring the stainless back up to par!

Between dulling, scratching and being mercilessly dented, most trim on vintage cars has taken a beating over the years, and making it look new again is no small task. It is, though, something you can do over time, with patience and the proper tools.

Minnetonka, Minnesota's George Iverson has been involved in restoring cars since the late 1960s. Like many of us, Iverson found it hard to justify paying for all the hours someone else would take to put his stainless trim against the buffing wheel to make it look good again. So he decided to try it himself. He soon realized that there's much more to restoring trim than just making it shiny, but he was patient, and ultimately his results turned out excellent. By the mid-1980s, friends and friends of friends were



STAINLESS TRIM

1 This is a fairly typical dent in a piece of side trim. It's either a really bad door ding, or it was made when the owner tried to remove the trim from the car improperly. Like most vertical dents in side trim, it goes through the crown of the trim, creating a much more complex dent. **2a-2c** The first step in restoring a piece of trim is to clean the backside of the piece thoroughly. This is the surface you will be working on when straightening the piece, so you need to see what you're doing. This includes removing dirt, grime and any rust that is transferred from the retainers. George Iverson uses 3M stripping and fine de-burring wheels on die grinders for most of this.

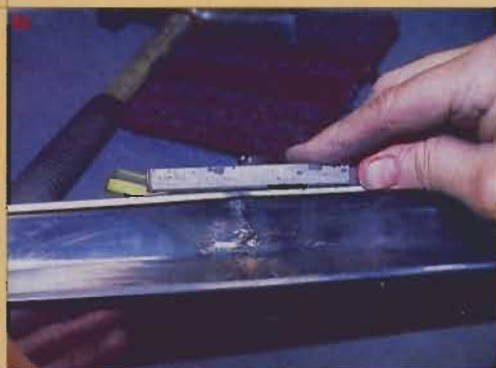
asking Iverson to restore the stainless, aluminum and pot metal trim on their vehicles. As so often happens, he eventually had to decide to either turn down the extra work or quit his day job. For more than 15 years now, Iverson has worked on some of the country's top concours restorations.

Like any fine craftsman, Iverson has learned a thing or two over the years about his chosen medium. For instance, the "stainless steel" used in the manufacturing of your car's trim isn't pure stainless; it is actually an alloy with some iron in it. What this means to us is that, because iron and stainless have different melting points, if you generate too much heat during the buffing process, you can actually melt the iron out of the part, which results in a slight orange-peel look on the surface of the trim piece. If you use too much pressure and rpm on aluminum trim, thin black lines will appear in the surface that must be sanded out. We've all seen stainless attached to old cars with sheet-metal screws—can these be fixed? Iverson says, "TIG-welding holes closed in a piece of trim is a 50/50 deal; sometimes it works and will look good, and sometimes it doesn't." We spent a couple of days at Iverson's shop learning the basics of straightening and restoring trim, and left with the confidence to tackle some of our own trim pieces. Here's what Iverson showed us during our stay. **SR**

PRODUCT PROFILES The Eastwood Company, Dept. SPR, 263 Shoemaker Rd., Pottstown, PA 19464, 800/345-1178, www.eastwoodcompany.com
Iverson Automotive Dept. SPR, 14704 Karyl Dr., Minnetonka, MN 55345, 952/932-9026, 800/325-0480



3 Iverson starts from behind by raising the crease with a blunt hammer (this is the same hammer Eastwood sells for straightening trim). He works the whole area, including hitting directly on the crease, but this can be tricky; if you don't work it slowly, you run a strong risk of splitting the metal. Use lots of light taps, almost letting the weight of the hammer itself do the work, rather than a few hard hits. You want to peck the dent out, not pound it out. **4a-4b** Working the dent out is only a small part of the repair. The next step is to re-establish the crown in the trim, which is done from behind with a straight chisel point. The marker lines around the dent area also show how far the damage extends. This is typical—you'll have to work far beyond the obvious damage. When a dent is created, a small crater actually forms, with a low spot in the center and raised edges around the damaged area. **5** After the dent is pushed out, you'll work on the front side of the piece to lower the raised edges around the dent. This is where it's most important to back the piece up with the putty. Work the material into the backside of the trim and tap it back into shape from the front side. **6a-6c** There are still some areas at the edges of the piece that need to be worked from behind, but they were obscured by the trim's flange. Iverson unfolds this flange with a pair of flat pliers or a small dykes, depending on the piece, and then cleans the work area with a Scotch-Brite pad. **7** Iverson uses different tools to work behind the flange. Here, he uses a simple punch. This will finish raising the dent.



8a-8b Commonly, the whole area will flatten or mushroom a bit, and that's evidenced here with the straightedge against the trim. Backing the piece up again with the putty, Iverson uses a hammer with a large face to flatten the edge.

9a-9b After the hammer work is done, it's time to break out the sanding pads to smooth and prepare it for polishing. On beefy pieces of trim, Iverson begins with 120-grit siliconized self-lubricating sandpaper on a dual-action sander and "somewhat aggressively" hits the piece with the flat center of the disc. He then finishes it lightly with the edge of the disc, always working well past the repair area. Iverson never uses a file on trim—it removes too much material and makes the metal thin, which promotes warping when it's polished.

10a-10b Next, Iverson uses 220-grit paper on a random orbital sander, followed by 500-grit, again working well past the repair area. On smaller pieces of trim, you would skip the 120-grit. If you notice any high or low spots, go back in with the hand tools and work them out. After the 500-grit, it's ready for the buffer. He supports the pieces on his leg while sanding, which is good for the part but bad for his pants. He goes through several pairs of reinforced pants each year, and will be trying leather chainsaw chaps next.

11 After the sanding, Iverson hits the buffing wheels. For long pieces, he has a flat piece of wood he uses to support the piece. Basically, he uses his bottom hand to press the piece against the buffing wheel, while the other hand saws the piece back and forth. This is where the heat buildup comes in, as well as wearing out the gloves. You'll generate heat on the wheels, but you have to be careful not to generate too much in one spot. Keep the piece moving, or you run the risk of burning or warping it (the iron melts out of the stainless alloy).

12a-12b Buff in stages, using progressively finer compounds and wheels as you go. If you have never buffed before, you're basically buffing coarser scratches out of the metal, using finer and finer grits, until there are no scratches left. The finest buffing compound that is typically available will leave a light haze or "milky film" on the trim. Iverson has developed a liquid final compound that eliminates this film, called Iverson Automotive Metal Some Polish. After Iverson's final polish, the pieces look like a mirror.

13 This is the repair area after buffing. It's the same spot we started with that had the deep vertical dent. With practice and the right tools, you can achieve these same results for your ride.

ALUMINUM TRIM

14 Aluminum trim offers an additional challenge. Originally, most, if not all, aluminum trim was bright-anodized when it was manufactured. This prevents the aluminum from oxidizing and hardens the outer layer of the aluminum. The problem is that this hard-anodizing must be removed chemically before you can sand the trim. If you try to sand through the hard-anodizing, you'll end up wrecking the trim piece. What happens is that you will break through the anodizing in one spot to expose the soft aluminum, but not in other spots. The result is that you will remove aluminum with each pass from the exposed areas, but not where the anodizing is still intact. By the time you sand off all the anodizing, your aluminum surface will be covered in uneven ruts, and you will never make it uniformly smooth. **15a-15b** To strip the anodizing off aluminum, Iverson uses a simple caustic soda diluted with water. He stores this in a chemical-resistant plastic bucket and disposes of it in a safe, non-environmentally abusive manner. The caustic soda dissolves the hard-anodizing, but don't leave it in too long or it will attack the aluminum. You can see the difference between the stripped piece (top) and the brighter anodized piece (bottom). After polishing, the unanodized piece will gleam. Iverson hasn't found an acceptable method of re-anodizing the parts. Most commercial anodizing shops don't want to bother with a few small pieces, and they generally won't take the care required to ensure they aren't damaged. The solution is to seal the surface using either Iverson's Metal Some for aluminum or Eastwood's Diamond Clear, which is a spray-on product that replicates the look of hard-anodizing.



POT METAL REPAIR

Anyone who has ever messed with a vintage car knows about pot metal trim. It's basically a molded or cast trim part that's been chromeplated. The problem with pot metal is that it pits (on the surface) over time, and the chemical makeup of the base metal doesn't lend itself to easy repairs.

Pits in pot metal are like dental cavities. Microscopic cracks in the outer chrome layer allow moisture to get into the base metal. It reacts with the metal and degrades it. As the metal breaks down, it causes pits to form. As the pits form, they create more surface area to react, and get exponentially worse. The process is aggravated by fumes, such as exhaust and gasoline.

The fix, much like with a cavity in a tooth, is to drill out the bad area and fill the hole. George Iverson uses silver solder to do this. This becomes extremely tricky because the melting point of pot metal is very low, and it goes from a liquid (melted) to a gas extremely quickly. This means you have to control your flame and temperature; otherwise, the piece can literally evaporate before your eyes. We've seen several pieces that Iverson has restored, and they are flawless. Here's a shorthand version of the process.

16 This is the taillight trim ring for a '69 Dodge Charger. George Iverson begins the pot metal restoration by stripping the chrome until it's down to just the base metal, exposing all the pits and damage. **17** A close look at the part reveals the deep pits and cavities. Note those on the edges as well, where the decay has actually removed metal. This bad metal needs to be drilled out, and any affected metal needs to be removed, too, until you're left with a good solid area to work with. **18a-18b** After the affected metal has been cut out, the parts are copper-plated in preparation for repairs. The silver solder will not easily adhere directly to pot metal, but it will adhere to the copper. After the entire piece is copper-plated, the holes can be filled with silver solder, which is then shaped with small grinders. Note on the taillight bezel that the very small pits were ground out but were not drilled all the way through. After the repairs are made, the parts are again copper-plated, then nickel-plated, and then chromeplated (triple plated). **19** These Oldsmobile taillight trim pieces represent before and after examples—they're from the same car. The one on the left has some pits and the chrome is shot, while the one with the mirror finish has been restored.





The Right Tools

As with any other job, when it comes to restoring your car's stainless and aluminum trim, special tools are required. Chances are you've got some of these tools in your shop already, but others, such as the buffing wheels and motor, you'll most likely have to buy. Then there are the extras you don't think about, including stripping discs, sandpaper and a couple of stout pairs of gloves and thick pants to protect your legs. At some point, economics will be involved. If you're doing the trim from only one car, it probably isn't worth the investment in equipment and supplies to restore the trim yourself. But if you've got several cars on your list of future projects, it would probably be worth the investment.

20 George Iverson finds this small assortment of tools adequate for straightening and repairing 90 percent of the work he does. The pliers are used for bending back the edges on the backside of trim, and the chisels, punch and odd-shaped tool at the top of the group are used to get the dents and creases out of trim. **21a-21c** When pounding dents out of trim, you have to support the piece from behind and back up the blows to control your work. The material you choose must be moldable and must absorb the energy from the hammer blows, yet not permit distortion. For years, Iverson used a putty-like material used by the medical industry to rehabilitate and build hand strength. This material is available at medical supply houses. Iverson eventually used up the piece and now uses a chunk of silicone. This material rebounds hammer blows but is moldable and will retain its shape when pressed into place. Whatever you choose to back up your hammer blows, it has to "give" and absorb energy—don't use an anvil or body dolly. **22a-22b** Like any skilled craftsman, Iverson can do a lot with a minimal number of tools. Our skill level isn't as good as his is, but we've found some special chisels and punches that help with our results. These came from our grandfather's toolbox. The large set is from The Mechanic's Tool and Forge Company (which later became MAC tools), while the smaller tools are from Blue Point, which now is Snap-on's economy brand. These punches and chisels have unique tips and will help work many irregularly shaped contours. Although our sets are about 60 years old, Snap-on and MAC still carry them on their trucks today. **23** It's vitally important that the back of your piece be clean so you can see what you are working on. If the metal is dirty, you won't see the light playing off the backside of the dents, so you can't see where to strike with your chisel. Iverson keeps two die grinders on hand with different-sized stripper wheels to clean the trim. **24a-24b** Iverson has two different Baldor buffing motors on stands—one rated at 1,800 rpm for use on aluminum trim and plastic lenses, and the other rated at 3,200 rpm for stainless. He's had these motors for about 15 years. One upgrade Iverson has made to his buffers is the addition of a smaller buffing wheel on the outside of the large one, and a rubber cap over the retaining nut. These additions help prevent damage to any piece he's working on if it slips to the side of the large buffing wheel. The steel retaining collar or squared-off spinning nut can kill a piece of trim if they make contact. **25** Buffing can generate tremendous heat. If you can hold a piece of metal in your bare hand while running it over the wheel, you're not buffing correctly. Iverson double-gloves his hands to protect against heat and burns, using thick welding gloves with reinforced palms over leather weightlifting glove liners. **26** There are several different buffing compounds, and each requires a dedicated buffing wheel. You don't want to impregnate different compounds into the same wheel. There also are different compounds for aluminum and plastic.

HUBCAP REPAIR

Many vintage hubcaps are damaged along the outer edges, either from being pried off the wheel with a screwdriver or pounded back in place with a hammer. It's inevitable. Hubcaps present a unique situation because of their construction: They are folded over into a double layer, with the second layer blocking access to the backside of the dent in the outer layer. One other thing to know about stainless steel hubcaps is that they were flash-chromed as well. When repairing and buffing hubcaps, the chrome first must be removed. George Iverson has them stripped at a chrome shop and then begins the restoration. Here's how he does it.

27 While vintage hubcaps are usually constructed of stainless steel, they were always flash-chromed, which should be stripped before repair begins. On this Buick hubcap, you can see where we've splashed muriatic acid on the hubcap, and it's eaten through the chrome down to the stainless. Finish removing the chrome and this hubcap will be fine. **28a-28b** Here is an example of a typical hubcap dent—it's at the edge, and obviously created when someone was pounding the hubcap back into place. The challenge in removing this kind of dent is that the hubcap is folded over on the backside, and is actually two layers, with a small gap between the layers denying access to the back of the dent to pound it out. **29a-29b** Some of the dent is accessible, and Iverson starts by straightening that section from behind, using a punch to work out the dent.

30a-30b To get to the part of the dent that is covered, Iverson gains access by taking the tool and punching a hole in the second lip of the flanged area. Then he uses the tip of the punch to work the dent out through the hole he created. **31** This is where the dent was, after sanding but before polishing. After it's polished, you'll never see the repair from the front.

28b

28a

29b

30a

30b

31

SAFETY FIRST, LAST AND ALWAYS

Like many other exercises in your home shop, polishing trim isn't without its hazards. The most obvious are small particles in the air and debris that can end up in your eyes. The need for eye protection should go without saying, as should the need for a quality dust filter. George Iverson buffs all day long, day in and day out, so he uses completely enclosed fresh-air hoods, but this is overkill if you're doing trim for just a car or two. You will want something more effective than a flimsy dust mask, though. You also will need to invest in a couple of good leather gloves to keep your hands from being burned. Polishing generates a lot of heat. Iverson recommends leather welding gloves and finger-less leather weightlifting gloves under them. Still, he occasionally gets burned.

Most of this is common sense. What might not be common sense to a lot of people is the physical act of applying trim pieces to the spinning wheels. These wheels are spinning at a couple of thousand rpm, and they can rip the piece from your hands in a fraction of a second. If you aren't constantly paying attention to what you're doing, the chances of injury are excellent. The main thing to be aware of is how you hold your parts while buffing them. You don't want to hold the part "against the grain" of the wheel. If you give the wheel an edge to grab, it will rip the part out of your hand. Iverson told us he once had a wheel kick out the part, and the part kept bouncing off the floor, back into the wheel and was thrown back at him. By the time the event was over, he'd been hit a few times, he was limping, and he had a cut over his eye. And, unfortunately, the piece was ruined. It's happened to him only twice, but now he's thinking of buying a space-helmet-like hardhat/hood combo for protection.

One other important item to be certain of: Always hold the part in such a manner that if it does get pulled from your hands, there are no fingers between the part and the direction in which it will normally travel. If you present the part incorrectly, you could find yourself packing digits in ice while waiting for the ambulance to arrive. Remember that almost all trim has a thin edge, and with enough force and speed, it will easily cut you. Buffing wheels generate that kind of force and speed. You should be aware that Iverson ordinarily would be wearing gloves when buffing, but, for these photos, the machines were not running.



SIDEBAR

IVERSON'S METHOD OF POLISHING STAINLESS

Over the years, Iverson has experimented with many polishing approaches. This is the sequence he now uses, which he has found works the best for most tasks:

- Dual Action Sand with 120-grit
- D/A with 280-grit
- D/A with 400-grit
- Random Orbital Sand with 400-500-grit
- Smooth with a 3M silicone composite wheel
- Polish with medium compound
- Polish with light compound
- Polish with finishing compound
- Finish with Iverson's Metal Some to remove residue and haze commonly left from the finishing compound



32a-32b This Chrysler taillight housing is a good example of how something can hurt you if it's ripped from your hand. In the first two photos, you can see how your thumb would be cut off as the buffing wheel pulls the piece forward and down with the rotation of the wheel. The final photo shows how to hold the piece in your hands and apply it to the spinning wheel. You don't want to give the wheel an edge to grab; rather, you want the wheel to be spinning "off" the edges of the part you're polishing. **33** This headlight rim is thin enough to act like a blade if the machine gets hold of it. For illustration purposes, George Iverson is holding the rim by wrapping his fingers around the edge and through its opening. If the machine grabs the part, it's going to cut deeply into his fingers. **34** This is the proper way to hold a small part to the wheel. Notice that if the wheel does grab it and pull it from his hands, there's nothing standing in its way. He's holding it by the flats and on the edges, and he's applying it to the downward side of the wheel. It's much better to have to either re-repair a part or find a new one than to try to save the part and be the recipient of stitches. After all, they're only car parts.



SCAVENGING TRIM FROM JUNK CARS

Not all the junk cars have been crushed and recycled into beer cans. There are still thousands of yards filled with vintage sheet-metal, and even if the cars are rusted hulks, the stainless trim is often salvageable. Let's face it—we've all tweaked stainless trim because we didn't take our time or got frustrated. George Iverson tells us that he gets dozens of pieces shipped to him every year that are unusable because the owner just yanked them off the car. When it comes to removing pieces from cars, he has some tips that he wanted to pass on to you.

35a-35c This is George Iverson's Wonder Widget, a tool he made to assist him in getting side trim off cars. Iverson marks a notch in the blade of the tool and trims it out with a cut-off wheel. He then grinds all the edges smooth and rounds off all the corners. This tool will take some abuse, and Iverson makes a couple each year. Make sure your tool is constructed with the metal tang extending the full length of the handle, because it will last much longer. **36a-36b** This is how most trim gets kinked—by getting one clip at the end loose and then trying to pry the piece off the rest of the clips down its length. If it is not properly supported on both sides of the clip while you're prying it away from the sheetmetal, the trim can kink. **37a-37c** Here is the Wonder Widget in action. Iverson uses it to get behind a piece of trim, with the notch straddling the clip retainers, and then pulls them off with the trim. Sometimes a hammer is required to get the tool behind the piece of trim, which is why it has to have a full-length tang. Otherwise, you'll split the handle while hammering it. This tool supports the trim on each side of the clip, greatly reducing the chances of kinking. **38a-38c** Stainless trim has been attached to cars in lots of different ways. By working slowly, and paying attention to how it was originally assembled, you can remove the trim without damaging it. Some clips push into holes in the sheetmetal, some attach with screws, and others are bolted with a nut accessible only from behind. Take the time to figure out which type of fasteners are used on each piece to be removed, and remember that more than one method can be used on a piece of trim.



SIDEBAR

Shipping Trim

39a-39b You'd think this is obvious, but George Iverson says it happens all the time: People spend a ton of money finding good trim and then skimp on the shipping containers and end up with junk parts. This DeSoto quarter spear was NOS, but the owner shipped it in a cardboard tube and it was destroyed. It was folded and then twisted. It can't be saved, though. **40** This owner was almost on the right track. He sent his trim in a hard PVC tube, but it wasn't long enough. He figured wrapping the exposed ends with tape would be fine, but it wasn't, and one of the pieces obviously caught on something and was bent over. On a part this small, with a crease this defined, the prognosis for repair is not good. So, if you're shipping stainless or aluminum trim, spend a few bucks at the home improvement center and buy some PVC tubing and a couple of screw-on end caps. It's cheap insurance.

