

# Alloy Wheel Repair: Depends on Extent of Damage to Alloy Wheels

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Alloy wheels can make a big difference in a car or motorcycle, with improved handling and a beautiful appearance. Because of this, enthusiasts have been upgrading to larger wheels for years, replacing basic steel wheels and hubcaps to set a vehicle apart from others and to provide a smoother ride.

The staging area at the repair facility. To capitalize on this trend, manufacturers have begun to change their styling to appeal to consumer demand for larger and flashier wheels, equipping even everyday vehicles like SUVs, compact cars, vans and motorcycles with larger-diameter alloy wheels.

While they look great, alloy wheels present a problem. Wheels from European manufacturers like Volvo, as well as 2- and 3-piece wheels, like BBS, tend to be soft and are more easily damaged. When they are damaged – bent or curbed, among other potential issues – do you need to completely replace them?

Replacing your wheels – through a dealer or local performance wheel shop – can cost hundreds of dollars and take days, depending on the severity of the damage.

## Repair vs. Replace

Necessity, they say, is the mother of invention. Because replacing a factory wheel can range from \$350 to \$2,000 per wheel (for some Porsche wheels), those who didn't want to invest in wheel replacement from a dealer began asking about having them "bent" back out – and the wheel rim repair industry was born.

So long as safety isn't an issue (that is, when a wheel can be repaired by a professional technician without jeopardizing the lives of the passengers relying on the wheel to do its job), then alloy wheel repair is an excellent choice for economy and cosmetic restoration. But when a wheel has been damaged severely, Metro Wheels will not compromise your safety: if there's any question, we'll err on the side of not repairing what could lead to serious injury.

## Our Team of Experts

Metro Wheel's repair facility One of the better-known alloy wheel repair businesses in the country is Metro Wheels, Inc. in Marietta, Georgia, just north of Atlanta. Metro has one of the largest wheel repair facilities and wheel networking capacity in the country, with the expert team to repair alloy wheels quickly and safely.

At Metro Wheels, we teamed up with the sharpest engineers to design a state-of-the-art wheel repair facility. Our repair processes assure 95-100% wheel accuracy at completion.

Wheel repair in many areas has been saturated with many companies claiming that they can fix any wheel. But the truth is that many of them are "fly by the night" companies with a sledgehammer and a torch. This is not the proper way to fix any wheel. Some can make the wheel unsafe by not properly applying consistent pressures in a specific way with an exact heat. They stress crack the wheel beyond safety standards and call it a repaired wheel. But you could be jeopardizing your safety and that of your family by using someone without proper experience.

Because we have been in business for over 15 years, our experience in alloy wheel repairs exceeds most shops'. Our aluminum wheel repair specialists can repair most wheels that have been curbed, scraped up, cracked or chemically damaged, providing excellence in both structural and cosmetic repairs; and our professional, certified welders are second to none.

Checking the wheel Metro Wheels uses its own engineered equipment and guaranteed processes to return damaged, scraped and, in most cases, cracked wheels back to their original factory specifications. Because your safety is our highest priority, we will not repair any alloy wheel that cannot be safely ridden on after repair.

## Metro Wheels' Repair Process

The repair process is straightforward. First, we mount the wheel accurately on a vehicle simulator. With the proper heat, consistent hydraulic pressure and light vibrations under pressure, the alloy wheel will move – without cracking – back to its original condition. If there is a crack that can't be seen by the naked eye (under chrome or paint), it will instantly pop out; our certified welders will then fill and repair the crack. After the wheel has cooled, it will retain its original strength. Heat, consistent pressure and vibration are key to an excellent wheel repair.

detailing area When a wheel is delivered to Metro Wheels, it is either dropped off by the owner, shipped in or picked up in the metro Atlanta area from our wholesale customers. We generate a work order for each individual wheel detailing the customer's information and any special instructions. Each wheel is assigned a unique work order number that is engraved on the inside of the rim, so that Metro can track its history precisely. This number also makes it much easier

to track the wheel throughout the repair process.

Once identified, each wheel is washed thoroughly to remove all brake dust, because the dust could be hiding additional scratches, gouges or cracks. Metro uses a pressure washer system with a diluted acid-based cleaning compound that will not damage a wheel's existing finish.

wheel washerThis is particularly important because brake dust removal is essential to determining the level of damage to a wheel. But it must be done correctly, because wheels with a polished or anodized finish can be damaged if the wrong washing compound is used. For instance, a two-piece wheel with a bright lip that is not chromed is typically an anodized finish, a chemical treatment that is very hard to see. If the wrong cleaner or acid is used on such a finish, the wheel surface will be streaked; however, this anodized finish can be stripped off and any scratches buffed out.

Once thoroughly cleaned, one of our expert technicians performs a complete inspection of the wheel for radial and lateral runout.

Radial runout is vertical, and Metro measures to see just how much the wheel is out of round with a micrometer gauge that measures to 1/1,000 of an inch. If a wheel has 5/1,000 of an inch radial runout, you could put a dial indicator on the wheel and then spin the wheel. The distance the wheel traveled up and down while spinning would be 5/1,000 of an inch both in the high and low position – or swing.

Lateral runout, on the other hand, is how much the damaged wheel will wobble from side to side. On some larger diameter wheels subjected to a hard pothole hit or curb, the wheel will be bent and, if hit hard enough, it will bend and twist the spokes. Most lateral runout can be corrected with pressure on the back of the wheel. But when the lateral runout cannot be corrected, the wheel is not repairable.

Lateral runout is the hardest type of repair to accomplish. It also happens to be the most deceptive, because while a wheel may look like it has only minor rim damage, it can actually be fairly significant and not easily seen to the naked eye unless the wheel is spinning. This is especially common on newer front-wheel-drive cars, where much of the force is cantilevered to the back.

The next point of inspection is for alloy defects such as curb rashes and cracks. Metro recommends that the tires be removed for this inspection because most damage cannot be seen otherwise.

### **Cracks can be Serious Business**

Cracks are of particular importance, because they are the single most common type of damage that can leave a wheel beyond repair. When a wheel bends near the base of a spoke, haze marks in the finish can sometimes be seen and indicate cracks. Because repairing a wheel is not always best in a particular situation, it is important that the wheel is thoroughly examined.

# We value your safety above everything else and, for that reason, Metro Wheels considers a wheel to be irreparable if cracks appear: Near the base of a spoke # Near the lug area # On the inner lip of the wheel away from the spokes. (But if a crack is smaller in size, this type of damage is usually salvageable.)

Cracks are particularly common on chrome-plated wheels, where the chroming process tends to render the wheel more brittle than a standard-finish wheel. Sometimes, if a chrome wheel is bent severely, the chrome has to be removed because there can be cracks underneath the chrome. In the case of a cracked chrome wheel, Metro will grind the chrome out and re-weld it.

Finally, we inspect for finish defects, searching out poor paint finish or additional scuffs and scratches.

Once fully inspected, all information is added to the wheel's work order. Metro then confirms the cost of the work with the customer and remarks on other items that might be involved, such as valve stem types, tire mounting and any other details. Once approved by the customer, work begins.

### **Color and Finishes the Way You Want**

paint boothIf the wheel needs refinishing, it is first stripped using an acrylic medium similar to sand. This medium is superior to steel shot or metal oxide, which are more commonly used. Though they remove the finish more quickly and are cheaper, they also rough up the surface and tear away some of the metal. This is particularly destructive when you want to retain any original cast markings that the manufacturer has displayed.

The wheel is placed in a blast cabinet with circulating plastic beads, removing the finish without removing metal. But we do not do this in every situation, because old paint is always the best primer base. We will sometimes fill in the existing finish, prep the surface and cover it with new paint.

The next step in the process is straightening the wheel. This removes the majority of the damage as well as any side-to-side wobble.

After straightening, our welders rebuild the outer lip and repair any scrapes or cracks. Metro uses a Tig welding

process which matches the base alloy with the weld alloy. The weld is then ground down or related and renders the wheel back to its original condition.

Metro typically returns the wheel to 1-10/1,000 of an inch, where factory tolerances are typically 15/1,000 of an inch radial runout. (For comparison, approximately 25/1,000 of an inch can be detected by the human eye.)

Once the wheel is true, it is time to refinish, re-machine or re-polish the wheel. Metro uses a computer color-matching system to match the factory paint finish. If the color is not on file, our painters can match by eye, or deliver a custom finish that is white, anthracite or matched to the owner's specifications.

paint mixing areaMetro backs its wheel finishes with a limited lifetime warranty provided by the paint manufacturer. We assure that the wheel will be free of material defect. While this warranty does not cover previous repair wheel scraping or damage to the finish due to the use of improper cleaning chemicals or customer error, it does cover discoloration, fading or peeling for no reason.

If the wheel has a machined finish, it is put on a lathe. Metro has a wide array of CNC programs for most factory and many custom wheels. If we don't have it in stock, our programmers can write the program needed to perform the exact cut.

Upon completion, each wheel is subjected to a final quality check. It is examined for runout and the finish is checked for dirt or dust in the paint, unevenness or orange peel. If everything checks out, the wheel is ready for tire mounting or delivery.

### **Mounting Your Repaired Wheels**

bridgeportUpon request, Metro can mount your repaired tires. This is important because we can mount low profile tires without damaging the wheel. Some wheels are harder to install than others and it is not uncommon for wheel mounting facilities to damage a wheel during tire installation. There have been many times when we have sent out a wheel that looks great, but was re-damaged by an inexperienced tire tech.

Metro wheels can also repair your motorcycle wheel using the same process but on different machines. We accept motorcycle wheels without the tire mounted, and containing the barring. Generally, wire wheels do not repair as easily as alloy wheels. Metro will make some basic repairs to wire wheels but we ask that, if the wheel is substantially damaged, owners try to replace it instead – for your own safety.

In addition to repairing alloy wheels, Metro Wheels can replace wheels from our stock of more than 50,000 parts and even exchange wheels using our Core Exchange Program and wide network of sources.

With our available capabilities, Metro Wheels can also customize a set of wheels, or repair rare or out of production wheels. Polishing and chroming are two popular options, and we can provide just about any shade or color of painted finish.

Metro Wheels developed this intensive repair process through more than 15 years in the business. We are meticulous in providing alloy wheel repair that meets or exceeds all applicable safety standards – and you can rely on that.

Learn more about alloy wheel repair at Metro Wheels.