

Should you repair damaged custom wheels? Experts question alloy-repair claims, and there are no federal standards

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Nothing looks hotter on a new car than oversized alloy wheels and low-profile tires, the look of a black rubber band around a sleek, highly polished aluminum rim.

Unfortunately, nothing is more vulnerable to the cruelties of the roadway than this combination, which has less protection from the pounding of potholes, road debris and occasional curbs.

Aluminum or alloy wheels are vulnerable and can carry a high cost to the unsuspecting car owner.

At the least, rubbing against a concrete curb can deliver a cosmetically devastating "curb rash" to a \$1,000 alloy wheel. At the most, a pounding from a pothole can bend the rim or chink off a few inches of the rim lip. (The lip is the surface of the wheel that forms a seal with the tire bead, keeping it airtight. It's a piece of metal that guarantees the safety of the entire vehicle.)

Once your prized alloy wheel is damaged, your choices are limited: Replace the wheel with an identical design, pick up one that doesn't match, buy a new set of wheels or repair the damaged wheel.

In some cases, particularly on a car that is more than a couple of years old, it is difficult to find an identical alloy wheel, particularly one that was an option or an aftermarket purchase. Many vendors offer alloys on the Internet, and junkyards are another source.

Buying a wheel that doesn't match is about as downscale as you can get. Conversely, buying four new alloys will set you back hundreds or thousands of dollars, making downscale seem an attractive alternative. If you're lucky, you have a full-size spare with an identical alloy wheel that you can use.

Let's look more closely at alloy repairs. Plenty of companies have popped up to repair alloy wheels, saying that they take almost any banged-up aluminum rim and return it to an acceptable condition. Some experts are not convinced it's a good idea, however.

Alloy wheels have been around for a long time, though they have gained overwhelming popularity in the last 10 years. But the industry is still struggling with the difficulty of casting aluminum for the demanding loads imposed on a wheel. An academic paper published in the journal of the Minerals, Metals and Material Society a year ago acknowledged, "Defects in automotive aluminum alloy casting continue to challenge metallurgists and production engineers as greater emphasis is placed on product quality and cost."

The engineering professors who wrote the paper examined "a range of casting-related defects found in low-pressure die-cast aluminum wheels" from a sample of several industrial plants. They found pores and other kinds of imperfections.

If you take those issues and compound them with road damage and then hand a wheel over to an unregulated repair facility, what you have is today's status quo.

The federal government's main automotive safety agency, the National Highway Traffic Safety Administration, has no standards or guidelines on the safety of repairing alloy wheels. As in so many other critical areas of car safety, the agency has not provided advice to consumers on any aftermarket products or issues.

Notably, British Columbia has adopted repair guidelines. But in the United States, the matter is largely left to industry self-regulation and the decisions of companies about what they will repair or not. In general, there seem to be few wheels they will not repair. Their ads feature comely models, draped around either alloy wheels or the proprietors.

One major alloy repair factory boasts, for example, that it can handle 95 percent of the damaged wheels sent by consumers. Another repair operation boasts, "Yes, we can repair severely damaged wheels." Yet another company asserts, "If we can't do it, nobody can."

I'm not sure I'd bet my life on that kind of silly bravado. Neither would Ken Zion, an automotive collision expert who conducted a study of alloy wheel repair for a major insurance company. What he found troubles him.

Zion says he would never repair an alloy wheel, other than polishing out minor scuff marks. But he routinely sees machining of dings and scrapes that take forty-thousandths of an inch or more off the rims.

"If you think about it, why would an alloy wheel manufacturer make a rim a certain dimension if they could save money by taking ten-thousandths or twenty-thousandths off? So what makes somebody who comes along later to repair that wheel think they can safely remove that material or more?" Zion asked.

Transwheel Corp., which describes itself as the largest alloy repair vendor in the nation, handles more than 150,000 wheel repairs annually, according to company officials. The cost ranges from \$130 to \$300 per wheel, substantially less than replacing a wheel, said a company manager, who asked not to be identified because the operation had just been acquired and he did not know if he was authorized to speak to the media. Under company guidelines, it will remove up to twenty-thousandths of an inch of material in a resurfacing repair.

Many repair facilities do much more than machine out surface damage. In many cases, cracks are welded and bent rims are reshaped. In an e-mail boasting of its capability, one company in Fontana (San Bernardino County) wrote to me: "When they are bent and we have straightened them, they are not as true to form as the original, but we get 95 percent of the damage repaired. Meaning that there may be a bit of shaking if the wheel is placed on the front of the car rather than the rear."

Zion said he was astounded by the statement, saying such a repair would be completely unacceptable, and at the very least accelerate tire and suspension wear.

Zion was recently called in to investigate an alloy wheel failure after it had been repaired. Fortunately, the vehicle was parked in the driveway when the repaired section gave way and the alloy wheel crumbled apart. Had the vehicle been on the freeway, failure likely would have caused a sudden and drastic loss of vehicle control, Zion said.

His report to the insurance company, which he said he could not identify, found that a repair should not have been attempted in the first place and that in general insurers should not authorize repairs to alloy wheels.

Insurers typically do specify repairs are acceptable. Every insurer differs, and some will not go so far as to authorize welding repairs and major straightening of bent wheels.

"Sometimes, it is minor damage like a scuff mark, and we can repair it," said Robert Villegas, a spokesman for State Farm. "Our primary concern is: Can the repair be safely done?"

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