BY GREG KALMES AND TOM SHAW

QUARTER-PANEL REDO

WHEN THE OLD METAL CAN'T BE SAVED, HERE'S HOW TO REPLACE IT

If engineers knew we'd still be jetting around in '60s-era Mustangs well into the bold new millennium, maybe they'd have put a little more effort into rust prevention. Maybe not. After all, the forward vision of the day had us all floating through glass cities in Jetson-like bubble cars by 1980.

Either way, in most climates, our beloved original steel has a finite lifespan. Fortunately, reproduction parts fulfill an important part, allowing us to replace entire sections of worn, damaged, and rusted-out sheetmetal. For the uninitiated, it's a scary thing to whack off a

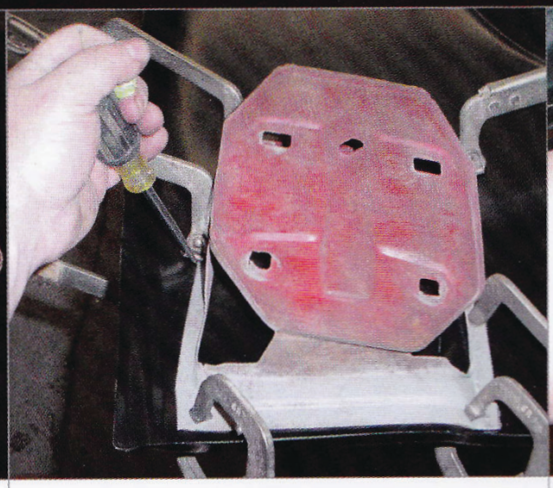
1 Until recently, the only quarter-panel for a '69 Mustang was a '70. This is not a full quarter but a skin. It extends about 1 inch past the upper body line and does not include the scoop opening.

TRANSPLANTING THE SCOOP

2 The first step is to cut the old scoop openings and scoop mounting bracket from the old quarter, leaving at least ½ inch around the opening. Using 3M fine-line tape along the front edge of the scoop opening can be a guide to make an even cut.

TRANSPLANTING THE SCOOP

3 The same-width tape marks the forward position of the scoop in the new quarter kin.



4 With the scoop positioned, it's clamped securely in place, and a line is scribed around its perimeter.

5 After scribing the cut-out line, I use a nibbler to make the first cut about ⅜ to ½ inch away from the scribe line.

quarter-panel and see the gaping hole it leaves.

But there's method to the madness, and the story always has a happy ending.

Greg Kalmes shares his 30 years of restoration experience here, where a '69 Mach 1 has arrived in need of two new quarter-panels. They will be installed with butt welds — edge-to-edge joints that leave no overlapping areas for trapping moisture and rusting. Butt welds may require a little more expertise, but the finished job is the closest to the way the car was originally built.

Roll up your sleeves. Here we go.

TRANSPLANTING THE SCOOP

6 Now it's easy to use aviation snips to make a precise cut on the scribed line.

7 After minor grinding of the edges, the old scoop fits perfectly in the opening on the new skin and is clamped into place.

8 The scoop is tack-welded in place and adjusted with a hammer and dolly.

9 After tack-welding, the tack welds are ground down to make it easier for the finish welding.

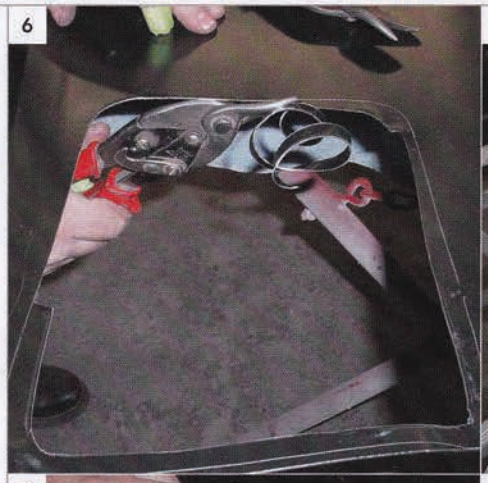
10 Weld about an inch at a time. Then quickly cool down the weld to minimize warping. Leave a space of a couple of inches, and weld another 1 inch or so until the entire perimeter is welded, always cooling immediately with compressed air.

11 Grind the welds flush with the surface.

12 Sandblasting the weld will make any pinholes visible, which can then be welded shut and ground flush again.

13 Don't worry about the weld buildup on the backside of the scoop. It won't be visible once the quarter-panel is in place, and since the weld is ground smooth on the outside, leaving the inside alone makes the weld stronger.

14 After the grinding and sandblasting are done, there's almost no warpage, and only a minimal amount of filler is required to finish the panel.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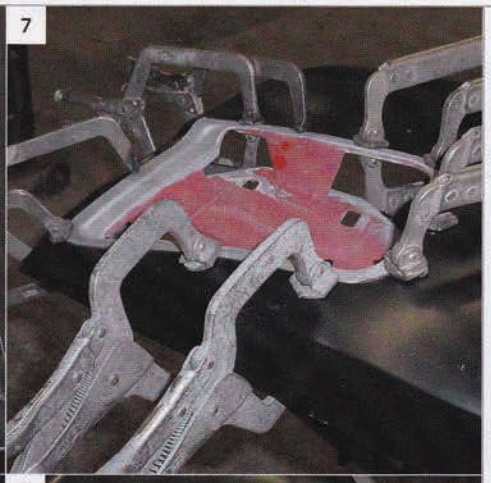
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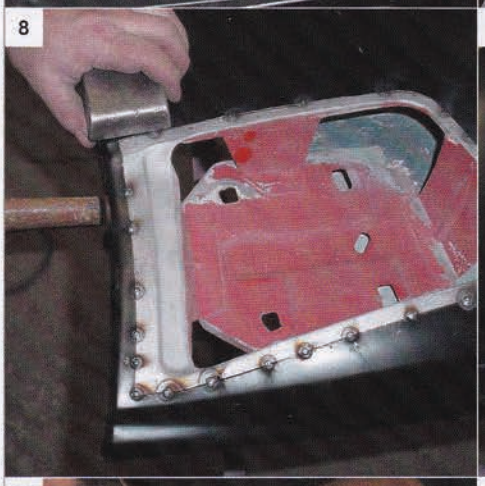
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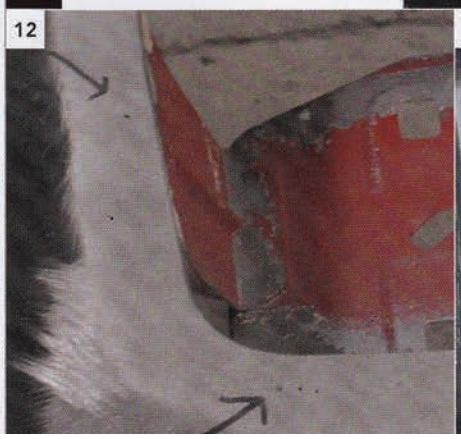
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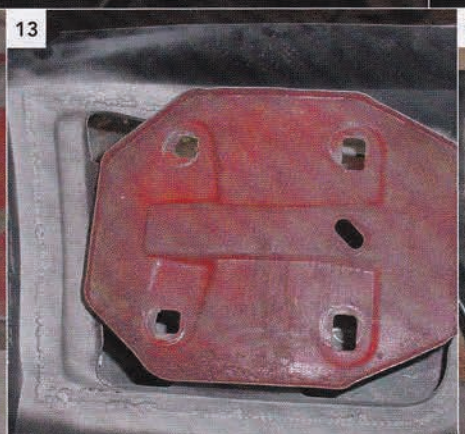
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INSTALLING THE QUARTER-PANEL

15 Use the same technique to install the new quarter-skin on the car. The top of the skin has excess metal that needs to be trimmed away to make a decent weld. I use ¾-inch tape to mark my trim line.

16 After trimming the skin and all but about 1 inch of the old quarter, test fit the new quarter on the car using clamps and screws to get the new panel to fit as close as possible. It's a good idea to have your doors in place to help align the new skin.

17 After the new skin is carefully fitted to the car, scribe the final trim line.

18 Make a precise cut along the line with your aviation snips. A small grinder can straighten the line as necessary.

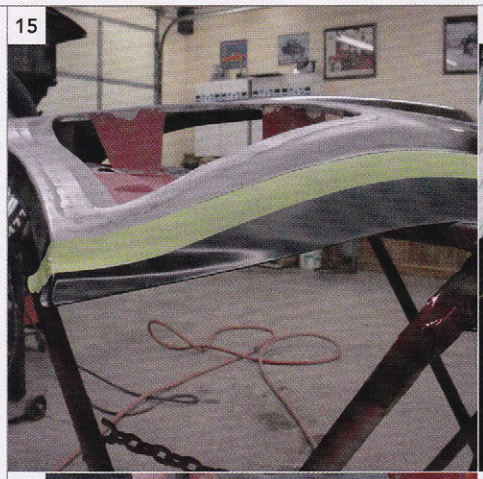
19 With a metal punch, make ¼-inch plug-weld holes in the front and back edges of the quarter and around the wheel opening.

20 Final adjustments are made with a small grinder to make the panel fit edge to edge perfectly.

21 Once you're satisfied with the fit, tack-weld about every inch, and grind the welds flush.

22 Using the same technique as we did installing the scoops, weld about an inch at a time, cooling the hot metal with compressed air. Then leave a couple inches and weld your next section until complete. Grind the welds, and you'll have a quality repair needing minimal filler that will not rust, bubble, or show up later under your paint.

23 The fit is as good as, or better than, the factory original. In visible areas, factory-type welds are used along the front and back edges and around the wheel opening.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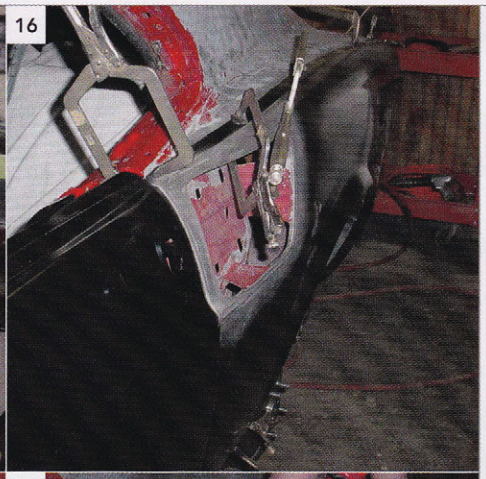
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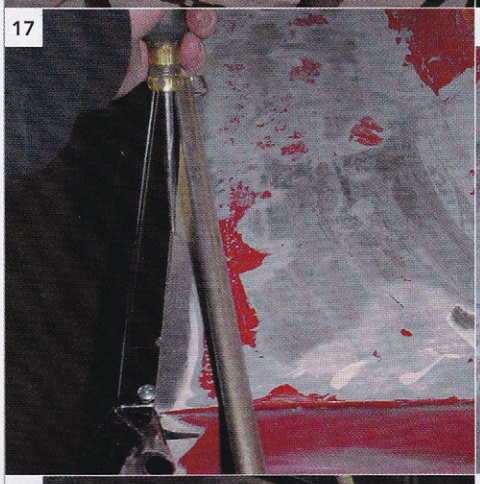
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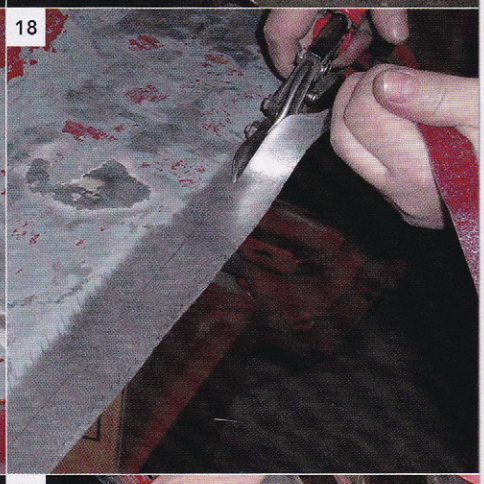
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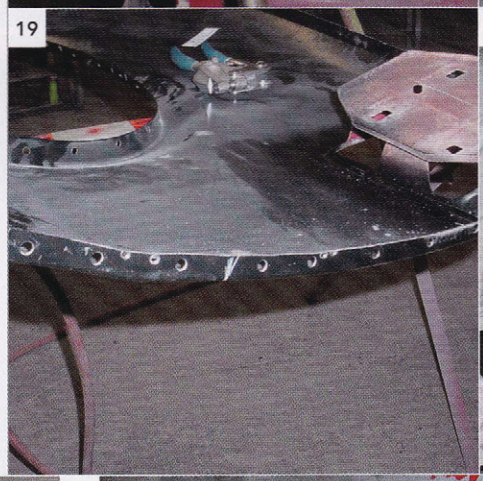
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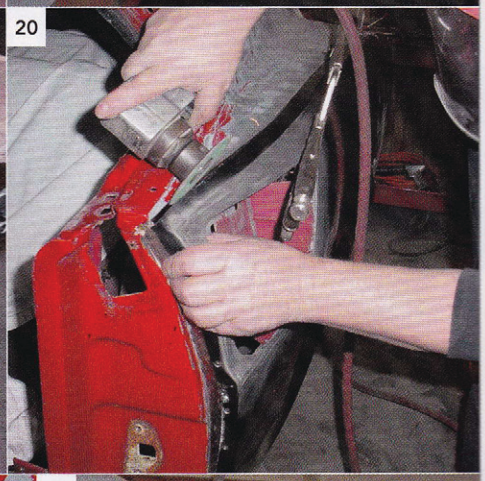
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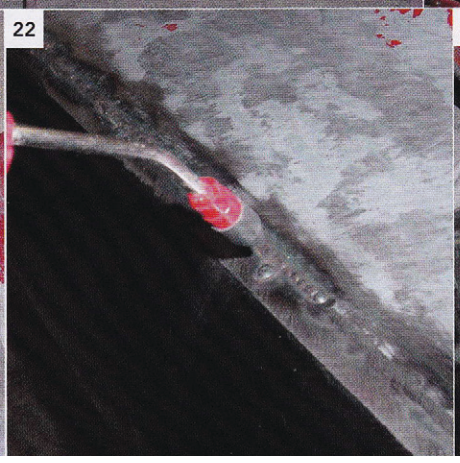
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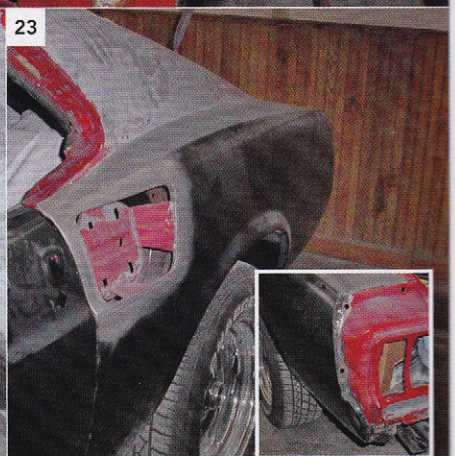
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TYPES OF WELDS: PROS AND CONS

The only real reason to lap-weld a panel onto a car instead of butt-welding it is to save time. However, there are several drawbacks to this method. Lapping one panel on top of another can trap oxidation, requires much more body filler, and is difficult to metal-finish. Also, because of the difference in the expansion and contraction rates of the lapped seam as opposed to the surrounding metal (due to temperature extremes), it can lead to "witness marks" visible through the paint, and – in a worse-case scenario – it can even crack the body filler.

Butt-welding, on the other hand, is more time consuming and takes patience and skill, but the result is worth the effort. First of all, a properly butt-welded seam can't trap moisture and oxidation, so the repair is permanent. And because the metal is a constant thickness from one side of the repair to the other, it will expand and contract evenly, which keeps the repair invisible. This technique can be applied not only to quarter-panel skins and patch panels, but with some careful planning and a few long welding clamps, it can even be used on floorpan halves and trunk-floor sections. To get a top-notch restoration on your classic Mustang, you need to start with a good foundation, and that requires good welding techniques for proper sheetmetal replacement.

SOURCE

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