Jim Huseby Fordbarn post #30061

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Beaded Fender Edge Patching

I received several requests for info on beaded fender patches and thought I should respond with helpful and specific information, but my response evolved into a small technical article.(That may still not be very helpful), 'Sorry, it took a couple days to find time to put this together.
The fitting and welding of these beaded fender patches is critical to the appearance and longevity of this repair, but does not require the services of a professional welder or expensive equipment if you have a professional attitude which includes having at least introductory training in welding, preferably starting with gas welding. Oxygen-acetylene is a very good method to use here, as it leaves a somewhat annealed heat affected zone (HAZ) that will not quickly embrittle or crack when the neccesary hammer and dolly work is done. TIG works well also.
For butt welding and sheet metal, a typical MIG weld with ER70S6, though initially strong, will embrittle and crack if you attempt much metal finishing on the weld and HAZ. However the MIG works very well for tacking.
There was a comment posted advising not to gas weld sheet metal , that it would be brittle. I don't understand that, as in tech school we submitted samples of our oxy-acetylene butt welds on 20 gage 1020cr for destructive testing and with a proper weld, the sample would never fail at the weld. Also aircraft were structurally welded with oxygen-acetelyne for decades. One of my favorite welding manuals is "Aircraft Welding" from the early 1940s and reprinted and distributed by Lindsay Books, who has this to say, by the way, about lack of professionalism: "If you're an idiot, go away."
Because I assume you have a thirst for timeless technology, I assume you'll love this book.
I have a few Model A fender patches that I've salvaged from scrap fenders and acid dipped. I also make up new ones for myself and others as the need arises. Most broken and torn A beads and fenders have the failure in the same general areas.
I wont go into how to make the patches right now, but I do this demonstration at "Practical Metalworking" seminars here at the shop about once a year.
OK. How to install wire beaded fender patch panels:
1.Clean all areas to be worked and welded by bead blasting, sand blasting, acid dipping, abrasive biscuit or your favorite means that will leave no rust residue.
2. There will likely be some cracks, tearing, twisting and misalignment extending beyond the area that needs replacement. These cracks and tears need to be hammered and dollied into alignment while watching the alignment and shape of the whole fender. Mounting the fender on the car or a jig for this process is a sure way for the fender to fit right and sit right when done. By the way, the best manual I know of for metal repair and finishing guidance is "The Fairmount Method" by Frank T. Sargent, and once available from Eastwood. The small amount of time and money invested here will put you decades ahead.
2A. Tack weld all the cracks as alignment progresses. It may be practical at this point to cut away old welds or unuseable metal that interferes with this stage. You will need to clamp the edge to hold its alignment. Once all the extra cracks are aligned and tacked in place, fit and align the replacement patch for an excellent butt-fit and tack in place. The fender can now be removed from the car or jig so that it can be more easily welded on the bench. However, you will still want to check the overall shape as you go. Each tack will shrink somewhat, pulling your work out of

alignment, so each tack can be flattened and spread out, as you go, with hammer-on-dolly. It sounds tedious, but this process of precise control will save you many hours or days.
3. Now the easy part. Remember I said this would never fail, and you probably figured out what's coming next. On the inside of the fender, use your cut off wheel and notch the areas where the bead will be welded to a 45 degree V, INCLUDING THE WIRE. Get your alignment clamped perfect, then with HIGH HEAT, weld/fuse the whole thickness of wire and sheet metal leaving a low mound on the inside and 5-10 percent penetration on the outside. Done this way, that heavy weld area will need little or no correction other than carefull dressing with a file on the outside and a cut-off wheel on the inside . And because wire and sheet metal are fused together at this area, it will not fail there. It will be easy to dress this area to perfection. Remember not to file or gouge into the parent metal adjacent to the weld. In fact, it is better to leave the weld a little high on the inside rather than to risk scarring or thinning the parent metal.
4. The rest of the cracks and seams can now be butt welded in short stages (approximately one inch at a time) and corrected with hammer and dolly at each stage. The metal will shrink considerably as it cools and look hopeless, so remember, though it may look bunched-up or wadded-up, the shrinkage only took place at the weld and HAZ. If you flatten the weld bead out with hammer and dolly, it will stretch back out there and the rest of the mess will try to relax beck into shape and need only minimal hammer and dolly work before you can resume welding the next stage. You can repair and metal finish the most hopelessly shredded fenders in this manner with time and patience.
5. The best advice I can give you is to have a "do or die for perfection" attitude and get the books I recommended. These books and other quality educational aids will get your results the fastest and surest.
Always attempt perfection and don't allow yourself room for compromise.








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