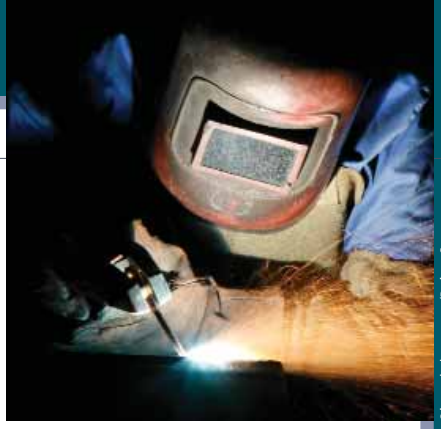
Procedures for Dressing Welded Areas



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Repairing collision-damaged vehicles calls for a multitude of procedures and protocols for the correct return of the vehicle to its "pre-collision" condition. One of the most important (and common) procedures is welding. The welding procedures can come in the form of MIG/GMAW (Metal Inert Gas/Gas Metal Arc Welding), STRSW/RSW (Squeeze Type Resistance Spot Welding/Resistance Spot Welding), Weld-Bonding (Structural Adhesive with STRSW) or MIG Brazing (Metal Inert Gas with Silicon Bronze wire). The welding methods used for the replacement of panels will be utilized through a number of joints such as butt joint/open joint, butt joint with backing/insert, lap flange, plug on lap, RSW on lap and a flanged joint. The type of joint and welding method will be dependent on OEM recommendations or general procedures. However, with the advent of the "New Advanced Steels" utilized to construct today's vehicles, most OEMs have recommendations on the proper methods and techniques to use. This article will concentrate on the dressing (grinding) procedures to ensure a proper weld. Dressing the weld is an important and noteworthy process because of the heat applied during dressing and the removal of material.

After following the proper repair and/or replacement and welding procedures (using OEM or ALLDATA information), you are now ready to prepare the area for refinishing or cosmetic repairs. Let's take a look at the necessary procedures to accomplish this.

Dressing procedures for structural part replacement:

Due to the AHSS (Advanced High Strength Steels) used in today's vehicles, dressing procedures have changed. Many OEMs and industry professionals recommend not dressing the welds regardless of whether they are visible or not. After sectioning in an upper or lower uni-rail, you should see a seam weld and some plug welds. Heat is introduced when these areas are dressed, and this heat could cause some additional unwanted tempering of the area, which would make it more brittle and change the area's strength. For this reason, some OEMs are requiring STRSW (Squeeze Type Resistance Spot Welding). In cases where the STRSW arms cannot reach due to limited access, they are requiring Rivet-Bonding instead of using MIG/GMAW plug welds. If plug welds and seam welding are allowed by the manufacturer, here are the recommended dressing procedures for structural and outer body panels:

- Prep the area for welding using a Bristle or Scotch Brite Roloc Disc (3M product Fig. 2 and Fig. 3) to remove the paint and factory e-coat from the weld area. Using a grinding disc would remove too much material (metal) and introduce additional heat.
- Weld the area using heat management techniques to minimize the HAZ (Heat Affect Zone).
- After welding and natural cooling, you are ready to dress the area if necessary or desired.

The first tool to use would be a grinding stone on a cut-off wheel. Using a cut off wheel (three inches x 1/8 inch x 3/8 inch arbor) has a tendency to cut into the metal due to its thin thickness. A grinding stone (Fig. 1) is the same size as the normal cut off blade use to cut metal, except it is thicker (three inches x 1/2 inch x 3/8 inch arbor) and is a better option. Using the grinding stone, start grinding on the highest point of the weld, grind up and down, left to right, but avoid grinding the weld down to the level of the metal. You must also apply light-to-medium pressure and keep the tool moving to avoid heat buildup.

Once the weld is leveled down enough, but not flush with the metal, you will switch to an angle sander with a 50 Grit Roloc Disc (3M Product). Once again, sand back and forth across the weld, applying light pressure and avoiding heat buildup. As the weld starts to level out with the metal, you will switch to an 80 Grit Roloc Disc, following the same procedures, except this time, you will begin to level the weld with the surrounding area.

Once the weld is almost even with the surrounding metal,

Fig. 1

Fig. 2

Fig. 3

switch to a 100 Grit Roloc Disc to finish leveling the weld. Once the weld is level with the surrounding metal, you will now use a DA (Dual Action) Sander with P100 grit sandpaper to uniform the area.

Sand the weld and the surrounding area with P100 Grit, P120, P150, P180, and P220 sandpaper on a DA sander to feather out the area for top coating.

Now, here is where the structural part procedure will differ from the outer body panel procedure. Outer body panels will require some body filler to level out the area, but structural parts should never have body filler applied. If the proper welding and dressing procedures are followed, the welded area should not require any filler at all. However, due to the light gauge steel used on outer body panels, there may be some unevenness in the panel and a thin coat of filler will assist in smoothing out the area.

But what would you do about welded areas that are not visible? NOTHING! Yes, NOTHING at all to the weld itself. The reason behind this is not to add heat to the area. Why waste the time? However, the surrounding area would require the following:

- After welding and natural cooling, you are ready to dress the weld area, not the weld.
- Sand the weld and the surrounding area with P100 Grit, P120, P150, P180, and P220 sandpaper on DA sander to feather out the area for top coating.
- Apply Self/Acid Etch Primer followed by Epoxy Primer to the outside repair area and Epoxy Primer to the inside/backside area. (After refinishing you will apply Anti-Corrosion Compound/Cavity Wax to the inner area).
- Top coat the area with Surface Primer to prepare the area for refinishing.

With practice, following the above procedures will enable you to dress welded areas without causing any distortion while leaving an almost undetectable repair area. This will also increase productivity in the shop and ensure proper and safe repairs. Taking care when dressing the welds and surrounding area will make the application of body filler to level out the area easier and quicker. by requiring fewer applications of filler. Therefore, your repair will be more efficient in the long run as well.

Feel free to contact us at any time if you have any questions.