

place. Simply marking these areas will help as a visual aid during the shaping process.

Start by bending the blank into the overall basic shape of the finished panel, and then start stretching in the desired area over a beater bag or some hollowed-out area (in a tree stump). On compound-curve panels, such as these fenders, the outer edges will begin to ruffle, much like the edge of a Coke bottle cap. These "tucks" will occur while stretching the panel, but to speed things along, it's common to use tucking forks to create these tucks along the perimeter of the panel. The cone-shaped tucks are then hammered (from the tail end), forcing the metal into itself, in effect causing it to shrink—the metal actually gathers and thickens as a result.

This method will produce rapid results and the flexible shape pattern will begin to fit the roughed panel in a matter of a few minutes. As the panel becomes difficult to work, it will help to planish (smooth) the panel with an English wheel. This process makes the panel more uniform and will regain its workability. Continue to rough-shape the panel by stretching and shrinking until the flexible shape pattern comfortably fits the panel. At this point, the English wheel is used to smooth the panel. With heavy pressure, the lumps from the hammering quickly disappear as you frequently check for fit against the flexible shape pattern to ensure no areas are overstretched. As the panel becomes smoother, the fit of the flexible shape pattern is closely monitored.

Another shaping technique used by many is the English wheel. With this method, no shrinking takes place, as the panel is shaped

completely by means of stretching. This works fine, but it's a slow process. The front half of this left rear fender, for example, was shaped using the English wheel.

With the panel fitting the flexible shape pattern, it is fit to the buck and clamped into place. The rear Willys fenders can be bolted directly to the buck, which is done by punching holes in the panel along the bolt flange (before mounting the panel to the buck). This helps secure the panel to the buck and helps line up the front and rear halves. The flexible shape pattern was made in one piece from the original fender and cut into a front and rear half while still attached to the fender. This allows for a nice, straight line to trim to for joining the two halves. Both halves are fastened to the buck securely and tack-welded together while fit to the buck. The fender is then removed from the buck for TIG-welding the seam and planishing the weld.

Tack welds are placed at 1-inch increments and then welded from one tack weld to the next, starting in the center of the panel. Upon completion of each inch of weld, the weld is cleaned up as needed. As the welding process causes the metal to shrink, it must be stretched along the heat-affected area to relieve the heat stress to remove warping. By using a hammer and dolly, the weld is crushed by the dolly on the backside (of the welded seam) and the striking hammer on the face of the weld. Applying heavy upward pressure on the dolly (to support the hammer blows) will keep the panel from being forced inward, causing a dent in the panel. A few light hammer blows is all it takes to stretch the heat-affected area, thus eliminating warping. The

welds are dressed on both sides of the panel and trued up by using a slapper and dolly, if necessary, before proceeding to the next weld. The trick is to stay in complete control at all times. When a panel is distorted during welding, the heat-affected zone needs to be stretched to relieve the stress causing the warp. NEVER work a panel outside the heat-affected zone, which is basically the blue area surrounding the weld. This will only cause overstretching in an area not affected.

After the welding process is complete and the weld seam has been cleaned up, use a wide, black felt-tip pen to mark the area surrounding the welded seam. Then, using 400-grit sandpaper and a high-quality sanding block, block-sand over the surface. This is much like block-sanding primer with a guide-coat. The high areas are then sanded. The ink that is left marks the low spots. Using a slapper and dolly, work the dolly along the backside of the panel against a low area while lightly tapping the high area with the slapper. This is an off-dolly technique and will not stretch the metal any further—it's only moving the metal around at this point. Closely monitor the blows where the dolly is creating a shiny spot at the point of impact. For overstretched areas, a shrinking disc is the tool of choice. It will yield perfect results every time with just a little patience and practice.

For more information on Randy Ferguson and Ferguson Coachbuilding, call 618/544-2972 or visit www.fergusoncoachbuilding.com. And for more information on the Buildoff cars, contact Woody's Hot Rodz at 812/637-1933, or visit www.woodyshotrodz.com. **SBB**



9) A quick check for fit to the shape pattern reveals there is more shaping to do. This is done through a combination of stretching and shrinking.



10) After more wheeling, the shape pattern fits the panel tightly. The panels are fit to the buck, as this helps ensure proper alignment for welding the two halves together.



11) From this angle, you can see that the fender is securely fastened to the buck. These are in the proper location for mounting the fender to the body.

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