



← RON COVELL

Ron Covell is a talented welder and metalworker in the automotive industry. He writes a monthly column for the Goodguys Gazette and contributes technical articles to Modern Rodding and Classic Truck Performance magazines. He owns Covell Creative Metalworking, teaching private classes at his home base in California, and streams 20 instructional videos on metalworking and welding, plus offers over 100 videos free on YouTube.

SKILL LEVEL: Advanced
TIME COMMITMENT: 12+ hours

TOOLS AND MATERIALS



Miller® Millermatic® 211 PRO



Shielding gas – C25



Filler metal – .024 ER70S-6



Casters – Service caster 3-inch-diameter expanding stem



Rear wheels – Magliner 8-inch



Sheet metal – 16-gauge cold rolled steel



Round over-dies – 5/16
Covell round-over dies from Trick Tools



Bead roller – J-S from Trick Tools



Punch & flare dies – Mittler Bros.
½", ¾", 1", 1¼", 1½", 1¾", 2",
2¼", 2½"



Abrasives – 3-inch 80 & 120
grit discs, 60 grit 3/8" belt



Miller Digital Infinity™
welding helmet



Miller TIG gloves



Miller welding jacket



Safety glasses

WARNING: READ AND FOLLOW ALL LABELS AND THE OWNER'S MANUAL.



“HOLEY” WELDING CART

I wanted to build a custom cart to organize my welding setup for my new Millermatic 211 PRO. The goal was to create a solution that could hold my MIG welder, two gas bottles and provide a convenient tray for storing essential supplies. This way, switching between processes would be seamless without the need to swap bottles and everything I need would be within easy reach.

I started by placing two gas cylinders side by side, then stacking my welders in front of them to check clearances. This let me determine how much space I needed to move each item on and off the cart. With those dimensions worked out, I sketched out the shelves for each welder, the platform for the bottles and the storage tray. I also decided on the size of the wheels, and before long, the cart's design was taking shape.

One of my favorite projects from last year was a [three-legged stool](#) I built with a graduated hole pattern in each leg, and I wanted this welding cart to have a similar look. Getting the right curvature for the shelf braces and the optimum hole spacing took a little trial and error, so I used a simple CAD program to refine the details. You could do the same with a manual layout.

STEP BY STEP



STEP 1

I chose 16-gauge cold-rolled steel for the cart and decided to start with the curved shelf braces, since they were among the most challenging parts. I printed a full-size template of one brace and glued it to chipboard for durability. Using this as a guide, I laid out the perimeter of all four braces and marked the hole centers. I scribed the edges, center-punched the hole centers, rough-cut the parts on a bandsaw and drilled pilots for the holes.



STEP 2

Next, I sanded the edges down to the layout lines.



STEP 3

To finish the long edges, I ran them through the bead roller with 5/16-inch round-over dies, curling them accurately to 45 degrees.



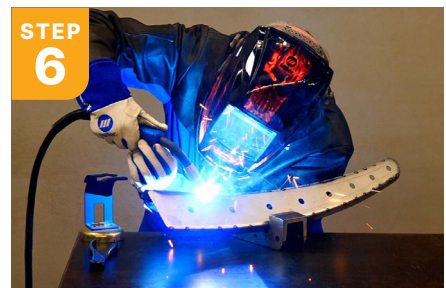
STEP 4

Next, I made the cap strips. These started as flat strips; I bent a 1/4-inch flange on a brake for the inner edge, curved each strip to match the pattern, and then rolled the outer edge with the same round-over dies.



STEP 5

Once everything matched up, I tack-welded the cap strips to the braces using Millermatic 211 PRO with the Auto-Set™ feature dialed for .024-inch wire and 16-gauge steel.



STEP 6

The rounded nose of the top brace required a custom-fitted cap strip, and once tacked and checked, all the joints were welded solid. The machine settings matched my travel speed perfectly, giving me consistent penetration on all the welds.



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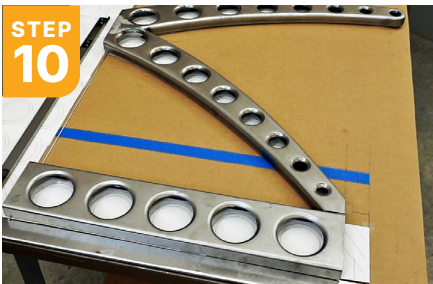
For finishing, I developed a strategy to create a consistent radius on corner welds. First, I sand the corner to 45 degrees with a belt sander, creating a flat stripe about 1/8-inch wide. Next, I tilt the table to 22 degrees and sand another stripe, then set it to 67 degrees for a third. Using a foam-backed disc sander, I blend these three facets into a smooth radius, finishing with 80-grit paper on an orbital sander. The result is fast, uniform and clean.



Once the edge work was complete, I used Mittler Bros. punch-and-flare dies to make the holes, using eight different hole sizes on the curved braces.

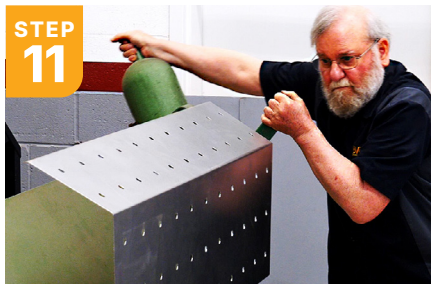


Using the drawing as a guide, I joined the top and bottom braces together.

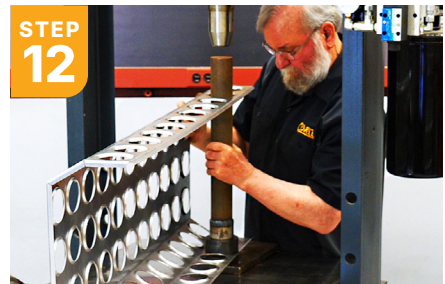


Next came the supports for the casters and the storage tray. These were 4 inches tall with 1-inch flanges top and bottom; the top flange included a 1/4-inch return on the inner edge. After forming, I punched five holes in each piece.

With those parts ready, I joined the shelf braces to the caster supports. A 1 x 1/4-inch angle joins the back edges together. A full-size drawing helped me check dimensions and alignment before tacking. Once confirmed, I welded everything solid and ground the joints smooth. The front caster supports were fitted with round tubes, which were capped with domed automotive freeze plugs.



The backbone of the cart came next. This is the largest part; it has 77 holes and seven bends, which must be located with precision. I mocked it up in chipboard first to verify my dimensions.



The real piece required careful sequencing for hole punching and bending, since my H-frame press is fairly narrow. For the later holes, I had to use a spacer between the hydraulic ram and punch-and-flare dies to get the reach that was required. Once bent and punched, I rounded the top corners and welded a shelf to the bottom to hold the gas bottles.



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STEP
13



The rear axle attaches beneath the bottle shelf. Rather than welding it permanently, I made a removable setup: a bent sheet-metal channel welded to the tray allows the axle to be slipped snugly into place.

For assembly, I drilled four 1/4-inch holes on each side of the backbone for bolting on the side braces. The storage tray is a simple flanged plate, fastened to the caster supports with #4 screws.

The welder shelves were cut from 16-gauge steel, 12 by 22 inches, and attached to the backbone and the side braces with screws.

STEP
14



I used a 1-inch stainless steel tube for the handle, pressing threaded inserts into the ends for mounting. Finally, I made a clamp to secure the gas bottles firmly against the backbone so they wouldn't fall or rattle when rolling over uneven surfaces.

STEP
15



With all the fabrication complete, I test-fit the components. Everything lined up exactly as planned, with no revisions needed. After disassembling one last time, I sent the parts out for powder coating. Once coated, I reassembled the cart and put it straight to work.

I'm thrilled with how this project turned out. The cart is compact, rolls easily and keeps everything I need for TIG or MIG welding close at hand. It's a rewarding build, and I'm sure you'd enjoy making a similar cart yourself.



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