













◀ ANDY WEYENBERG

Andy Weyenberg began welding at his father's business a few years before joining the Army. After going to school for Electro-Mechanical, he started working for Miller Electric Mfg. LLC as a technical service rep and training instructor. Andy has built and raced stock cars since he was a teenager — and now builds high-performance street vehicles while also managing the Miller motorsports program.

SKILL LEVEL: Advanced
TIME COMMITMENT: Weekend

/ MATERIALS

-  12' 1x2 x .125" sq tubing
-  30' 1x1 x .065" sq tubing
-  (1) 24" x 90" x 20ga sheet steel
-  12' .125 x 2" flat stock
-  (6) 3/8"-24 x 2 1/2" fine thread bolts
-  (4) 3/4"-16 x 1 3/4" fine thread bolts
-  (4) 3/4"-16 fine thread std nuts
-  (4) 3/4"-16 fine thread thin jam nuts
-  (4) **caster wheels with locks**
-  #8 x 1/2" **self-tapping sheet metal screws**

/ TOOLS

- | | | | |
|---|---|---|---|
|  |  |  |  |
| Multimatic®
220 AC/DC multi-
process welder | Spectrum®
375 X-TREME™
plasma cutter | Drill or
drill press | Metal
saw |
|  |  |  |  |
| Hand grinder /
sander | Tape measure | Squares /
straight edge | Impact
driver |
|  |  |  |  |
| Rivet gun | Riv-nut installer | Hammer / punch | C-clamps |

Tools used in building but not required:

- FILTAIR®
- Table base
- Alternate fan options to extract fumes
- ArcStation™ 30FX

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



REAL GARAGE
AS SEEN ON REAL GARAGE
YouTube.com/RealGarageWithAndy

DOWNDRAFT PLASMA TABLE

Andy shows how to build a downdraft cutting table attachment tailored for the ArcStation™ 30FX. Utilizing the FILTAIR® 130, this attachment can effectively "eat the smoke" that's created while plasma cutting. It's portable and easy to disassemble and store, providing a hassle-free solution for a cleaner workspace.

STEP BY STEP



STEP 1
Using 1/8" 1x2 sq tubing for this part, cut 2 pieces 43" long with 45 degree cut on one end, a 28" piece with 45 degree cut on both ends, and one 26" piece. Be sure to debur your cut areas.



STEP 2
For bolting to the table, use six 3/8" fine thread bolts, and cut 1/8" wall 5/8" DOM tubing to 1 7/8" for crush tubes.

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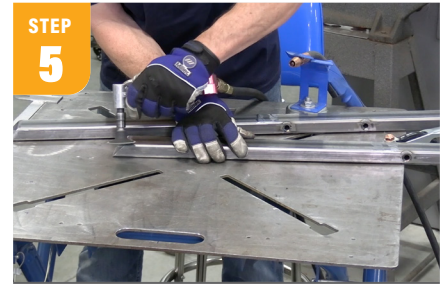
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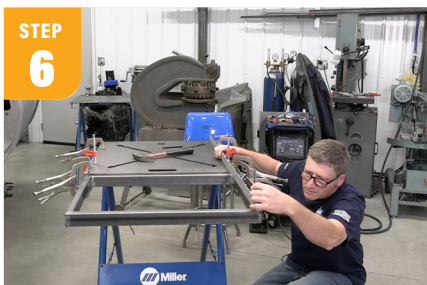
STEP 3
Using a carbide cutter or a bi-metal hole saw, drill three, 5/8" holes through the 1" side of the 43" long pieces at 4", 16" and 22" from the straight cut end.



STEP 4
TIG weld the crush tubes in. Set Multimatic® 220 AC/DC for 100 amps and use .045" size ER70S-2 filler. Note that you need to cut the tubes to 1 7/8" instead of 2" so you have 1/16" weld step on each side. This will give extra weld strength when grinding the welds flush to the sides.



STEP 5
Grind the mill scale off all the weld joints, square up the sides and tack weld inside and outside corners only. Don't weld solid yet.



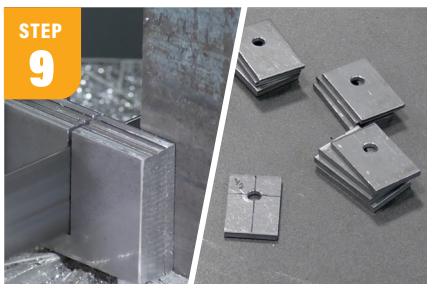
STEP 6
Clamp frame to the bottom of the ArcStation™ 30FX and double check that it's parallel to the table. Now transfer punch the mounting holes for drilling and tapping.



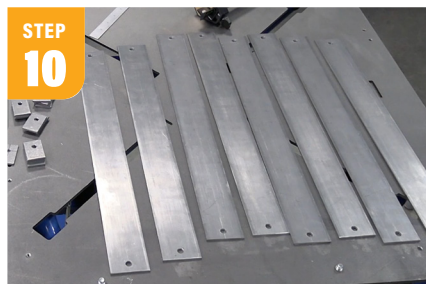
STEP 7
Remove clamped frame to drill holes. Move the rear leg mounting bracket to drill the back holes. Use a letter Q drill bit and 3/8 x 24 fine tap.



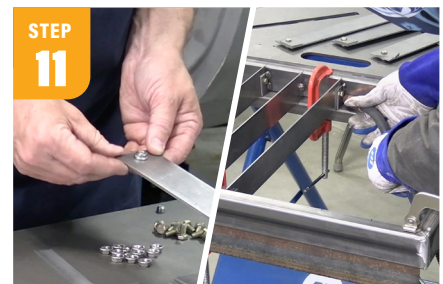
STEP 8
Bolt the frame to table, double check that it's level and weld the outside and inside joints. Do not weld the top or bottom seams.



STEP 9
Cut sixteen, 1' x 1 1/2" piece out of 1/8" flat stock for the cutting slat mounting tabs then drill a 1/4" mounting hole 1/2" x 1/2" from one end.



STEP 10
For the 8 slats, use 2" cold rolled 1/8" flat stock and cut them to 18" then drill a 5/16" hole 1" from either long edge and 1/2" from each end.



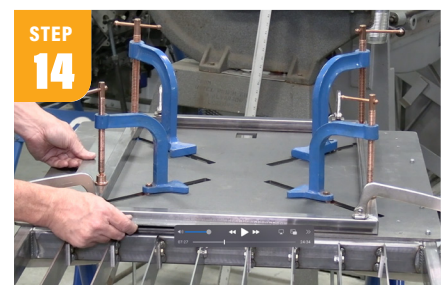
STEP 11
Bolt the slat tabs to the slats. Make sure the slats are level to the frame top and put two short welds on each tab inside the frame. Start the first one at 2 1/2" and then 3" spaced for the rest.



STEP 12
Use .063" thick 1 x 1 sq tubing for the frame. Start by cutting 2 pieces 28" and 2 pieces 20" with a 45 degree cut at each end. This will be the top.

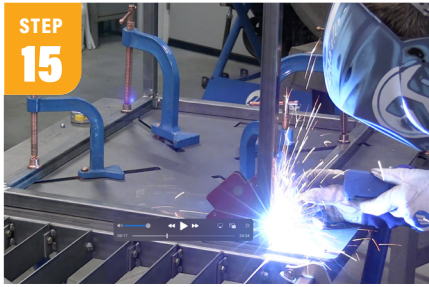


STEP 13
Straight cut the following pieces: 2 at 29 1/2" long, 2 at 23", 2 at 6 1/2", 3 at 26", 1 at 21 1/2" and 2 at 18".

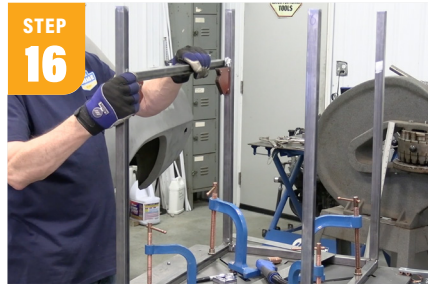


STEP 14
You will basically be building this upside down. Square the top, clamp and weld the inside and outside corners while still avoiding welding the top or bottom. Grind the outside corner welds flush so the panels will fit tight and Auto-Set™ welder to 16ga.

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On the long 28" wide sides, square up the 23" and 29 1/2" legs and tack on the inside corners. Trying to keep these all square will be a challenge and they might need to be tweaked a bit during the rest of this process.



Take 2 of the 26" parts and tack in place 24" outside to outside from the top. Do the same for the two, 18" pieces, rechecking for squareness along the way and finish weld the frame.



Check for squareness by taking some diagonal measurements. They should read the same. Because you didn't weld any of the outside seams, the panels will fit flat.



Make a small parts catch screen using expanded metal that's about .070" thick. Overall measurement is 34" x 26" and trim 4" x 4" off each corner. Bend into a box frame.



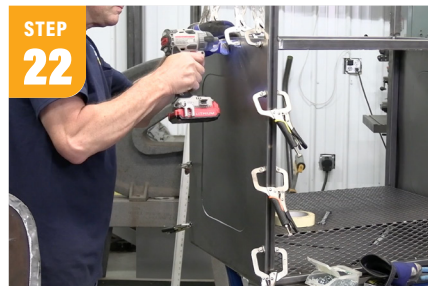
To weld the basket, leave the Multimatic® Auto-Set™ setting to 16 ga, pull the sides out a little and weld them to the top of the 1x1 sq tubing.



Starting with a 20" x 28" bottom panel, cut 1" x 1" off the corners so it will fit inside the legs. Option to put a step roll into all the panels to stiffen them up.



Now clamp the panel to the underside of the sq tubing and spot tack it in from the top side every couple inches.



Cut 2 pieces 24 x 30" and 2 pieces 20 x 23 1/2" for the side panels then screw the short sides on just the top and bottom with the #8 x 1/2" self tap screws. 2 bottom sides by the basket should be 1/2" short.



For the 30" panels, bend about a 1" lip on each short side to overlap the panel next to it. It's optional but saves a bunch of screws and it looks cleaner.



Then weld the two 6 1/2" pieces 2 1/4" in on each side of the bottom frame. This will clear the Folding ArcStation™ 30FX front legs.



Weld the leveler bolts in. Use 3/4"-16 fine thread x 1 3/4" long bolts with a thin jam nut and a standard nut that is TIG or MIG welded in the end of the 1 x 1 legs. Remember to grind the plating off your nuts.

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STEP 26

The size of the wheels will determine the position of the cross bar. If you use 2" diameter wheels with a $\frac{3}{8}$ " x 1" mounting stud, the cross bar will be 32 $\frac{1}{2}$ " from the cabinet top but wheels are still adjustable. The bottom of the cutting table is about 33" from the floor and you need clearance to slide under it. Use weld nuts or riv-nuts to mount wheels.



STEP 27

The exhaust port is a 4" long piece of tubing that the FILTAIR® hose will fit tightly inside. Cut a hole in a 4 $\frac{1}{2}$ " square piece and spot-stitch halfway onto the tubing. Then cut the same hole in the side of the cabinet, centered about 7 $\frac{1}{2}$ " up from the top edge and secure with rivets or screws.



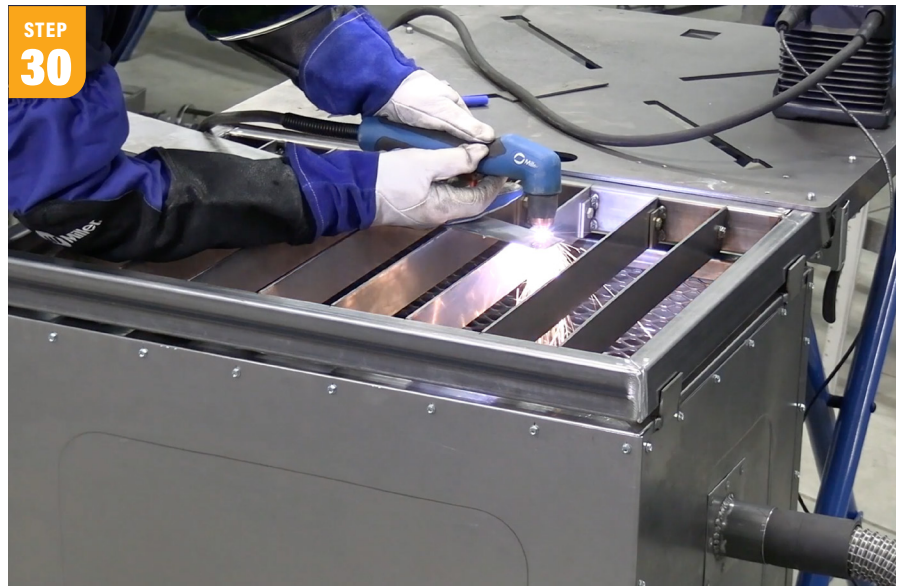
STEP 28

Clean-out ports come in many sizes. For the RV/boat style, cut about a 5 $\frac{3}{4}$ " diameter hole (2 $\frac{3}{8}$ " radius) to fit clean-out port, then drill holes and secure with sheet metal screws.



STEP 29

Cut the $\frac{1}{8}$ " flat stock into 4 pieces, 1 $\frac{1}{2}$ " x 2". On the top of the cabinet, weld these guide plates on the short side corners that have $\frac{1}{2}$ " lower side panels than the long sides then use adjustment hammer or grinder to make sure they fit loosely along the cutting table top when sliding the cabinet under.



STEP 30

Lastly, hook up exhaust port hose, turn FILTAIR® 130 up to maximum vacuum and start cutting.



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