PROJECT – DUMPSTER

Welding Project

In this activity you will build a miniature dumpster. You will use the MIG Welder for tacking (quick and easy), then use the Oxy-Acetylene torch (basic) or the TIG welder (advanced) for finish welding, to build a miniature dumpster. Because who doesn't need a pocket dumpster?

The Preparation...

READ THESE INSTRUCTIONS THOROUGHLY BEFORE YOU BEGIN!

For this activity you will need the following:

- 16ga sheet steel cut 6" x 9"
- 3/8" Steel Rod, 1-1/4" long
- 3/32" Steel Rod (use welding filler rod) 14" long
- Dial Caliper
- Centrepunch
- Hammer
- Files, sandpaper, belt sander
- Demonstrated safe use of Drill Press or Hand Drill
- Demonstrated safe use of Drill Press
- Demonstrated safe use of Welder

To save time in layout, this project has been ***Computer Designed*** and the parts arranged to fit onto a 6x9" sheet of metal. Get the printed layout from your Instructor, and GlueStick it to your metal.

CAD stands for Computer-Aided-Design. "Computer Designed" doesn't mean "perfect," it just means "very accurately done wrong." You are still at the mercy of whoever designed it.

SAFETY

You should wear eye protection ANY TIME you are working in the shop.

Get some now.

STOCK BREAK OUT & LAYOUT

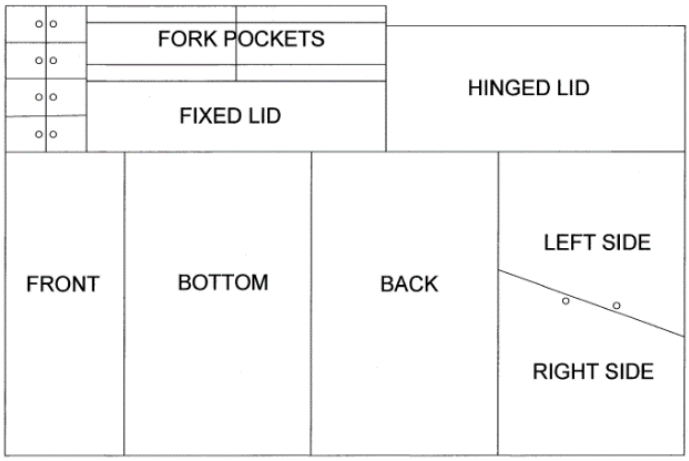
Glue the entire printed pattern sheet onto a 6x9" piece of 16ga steel.

PLAN OUT THE ORDER IN WHICH YOU CUT THE PARTS

Choose poorly, and you make a smaller dumpster out of what you have left. Or you weld it back together. Either way I will probably be giggling the whole time you tell me about this. *Think Ahead!*

Cut with the FOOT SHEAR, HAND SHEAR, or whatever you think will work best. 16ga is thicker than most Foot Shears can cut.

I usually pick the Hand Shear, but be *FOREWARNED* – the shear will try to suck the metal into the blade and cut off your line. *Don't Let This Happen!*



DRILLING

Center Punching makes a wee dent in the metal for the drill bit to follow. Without it, the drill bit will go heaven knows where, but not where YOU want it to go. Center Punching is ALWAYS done before drilling

Center punch the hole location, then stack the two sides together. Clamp together in a vise with only enough sticking out that you can get a hand drill into, and drill a 3/32" hole through BOTH PIECES at the same time.

If you can't hold the drill still, you will see the drill bit flexing. Drill bits don't like flexing. If you wiggle too much, you will break the drill bit and I will be sad.

LID

Cut some 3/32" welding rod to a bit longer than 4.5" - It needs to be wider than the dumpster.

Use a MIG welder to tack the rod in four places onto the lid. I set the rod flush with the edge of the lid.

You might find a different way that works better. Let me know!

Check the MIG chart inside the welder for weld settings. You are welding 16ga steel, and I usually run 75/25 mix, and 0.023 wire.

BUILDING THE BODY

YOU'RE GOING TO FORGET TO PUT THE LID IN THERE, AREN'T YOU?

I tacked mine from the inside because it's easy to square and to hold. You can choose to tack on the outsides – it will be cleaner looking on the inside if you do.

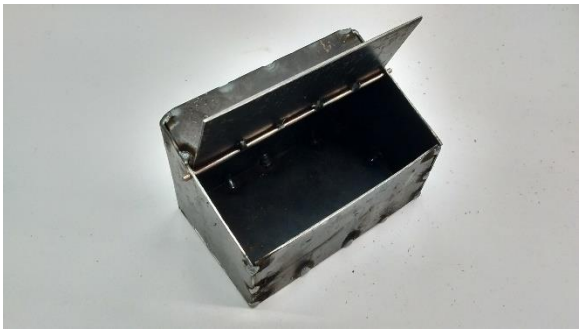
USE THE BASE AS A SQUARE!

Hold the base and two adjacent sides together on the welding bench. Tack the three corners together with the MIG, then adjust the rest of each panel as you continue tacking. Yes, I am using only a gloved hand. You could use various pieces of metal to jig it and clamp it together too.

Insert one end of the lid rod into the hole, position the other side panel in place, and make sure the lid is going to work. Adjust if necessary, THEN tack the other side in place. The lid is a LOT harder to install if you weld the two sides on first.

DID YOU FORGET ABOUT THE LID?

The front panel cannot be tacked from the inside (the MIG won't fit). Tack from the outside, only long enough to hold it together (maybe 0.5s weld time).



The top panel can be tacked on at this point. Adjust its fit so the lid opens easily without too much gap.

> *It's possible the top panel should be welded before you have the bottom panel on, but then it would be harder to hold, harder to square to the bottom, and you still can't tack the front panel from the inside because the MIG won't fit.*

Tack them on the outside corners only enough to hold it together. We're talking maybe 0.5s weld time.

WELDING

Wire-wheel all the outside corners to be welded. You cannot weld dirt – make 'em clean! A smart cookie would also wash the metal with Acetone, and not touch the clean metal with your fingers. Clean!!

> *(Yes, I'm wearing gloves in this picture. You should **never** wear gloves when using a machine. I have, however, lost a LOT of skin from the wire wheel, so **I** wear gloves).*

Using the welder of your choice (Oxy-Acet or TIG), corner weld the entire dumpster. Aim for pretty above all else.

ASK FOR A DEMO!

If your welds suck, grind 'em down, and do it again.

FORK POCKETS

Fold the Fork Pockets in the Box & Pan Brake.

Make sure the edges of both sides are even by smoothing with a file or on a belt-sander (watch your fingers! No gloves!).

Make sure you remove the paper.

Place in the middle of each side (measure!), clamp with locking pliers or c-clamps or a heavy weight, and weld in place. To keep the edges from burning away, just weld the middle half of the Fork Pockets (I welded the outer halves, but it's easy for the heat to get away from you). Brazing might actually be a tidier join for these.

WHEELS

The lathe can do many things, but it is best used to machine round things. We will use this machine to make the wheels for the dumpster.

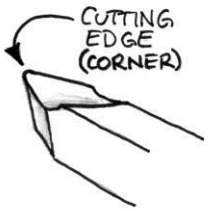
"Facing" is making one side perfect. In the case of the lathe, we will make one end perfectly flat.

Video: How to Face on the Lathe

Insert your work into the Lathe Chuck, sticking out no more than a Thumb Width (16mm).

SIDE VIEW

Place and adjust the cutter as shown in these SIDE and TOP view.



TOP VIEW

Face the end of 3/8" round stock.

Centerdrill, and drill through with 3/32" drill.

Video: How to Center Drill

Video: How to Drill

In a vice and with a hacksaw, cut four wheels a tick over 1/4" thick.

Face all sides of all wheels to 1/4".

WHEEL BRACKETS

You might be able to clamp these together in a vise and drill through all eight of them, but chances are the drill will wander off course. You could do them in pairs, probably.

After drilling, I chamfered the holes so there were no burrs.

I also rounded the axle ends so they look pretty.

Run a piece of 3/32" welding rod through brackets and wheels to hold them in perfect alignment.

Weld the brackets to the bottom of the dumpster.

Use side cutters or mini bolt cutters to cut the extra lengths off, and weld the stub of rod to the bracket.

FINISH

Paint your dumpster whatever colour you like.

Consider using multi-colour Permanent Markers to Grafitti the heck out of it.

