

SHOP TALK

VOLUME 1

CHAPTER 2

Recently we were asked to make a Crown Cap trailer hitch. It sounded fun so we said what the heck. First we got some two inch square trailer hitch material. Unlike regular steel square tubing this is thicker (.250) and has rounded corners. With an abrasive cutoff saw we cut off a piece of the bar to eight inches long.



Then we measure centerline of the width of the tube and three inches in from one end.



We made a mark,



And took it over to the drill press.



We drill a 5/8 inch hole thru two walls which will allow the pin to hold it onto the receptacle.

The thread inside the hose caps are 7.5 threads per inch. In order to assure that you had the Crown wording straight it would be a real hassle to get the lead of the thread in the correct position of the plug to match the cap. We are going to make a plug that we can slip the cap on then lock it into place. This will allow us to put the cap on in any position.

So to do this we get a piece of steel bar stock. We measure the minor diameter of the thread which is 2.930.

We saw the piece off long and put it into a lathe.



Then we face it to clean up and turn the O.D. so that the cap just barely fits.



While the part is still in the machine we use the cap to check the fit.



We want to break the edge so that we don't have any sharp corners that will cut somebody.



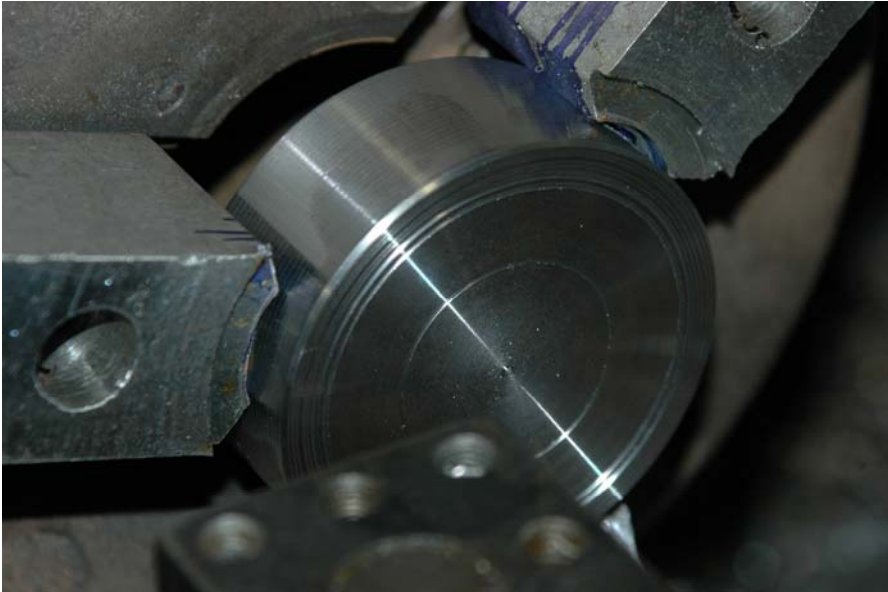
This is done with a sharp 45 degree lathe tool.

Once we assure the fit is correct we pull the part out of the lathe and turn it around so that we can face the other side.



We measure the distance across the radius of the outside of the tube. This measurement is 2.530. In order to easily locate center we want to make a mark on this face so that it will be easy to find center.

We make a mark with a sharp tool undersize and take a measurement. Then we use our dial and dial out the correct distance so that we have a mark at 2.530.



The mark that we made on the face matches the outside round of the tube so all we have to do is set the tube on the plug and line up the marks to the tube.



Before welding you want to make sure all the oils is off the parts. Using a cheap spray brake cleaner is the best way to do this because it will evaporate fast and it won't leave any residue. Putting two small tack welds on each corner prior to welding the whole thing keeps everything in place and will keep it from moving.



Once you have these tacks in place you can put the full heat of the weld on and it will stay in place.



Now that all this is done it time to prime and plate. We use an acid etch primer and a black gloss paint.



A piece of bent welding rod and attached to the hole in the fork of the forklifts works pretty good to hang the part while you paint it.

Now it's time to attach the cap on. Since we want to locate the cap so that the "Crown" writing is horizontal we are going to use a set screw in the bottom so it won't show.



We drill a #7 drill hole and tap it with a 1/4-20 tap. Then we put a set screw in the bottom and we are ready to attach the cap onto the plug. We purchase a pin from a local auto parts dealer and we are ready to go for a drive to show off our new hitch.



Written By Darrell Gilbert © 2005