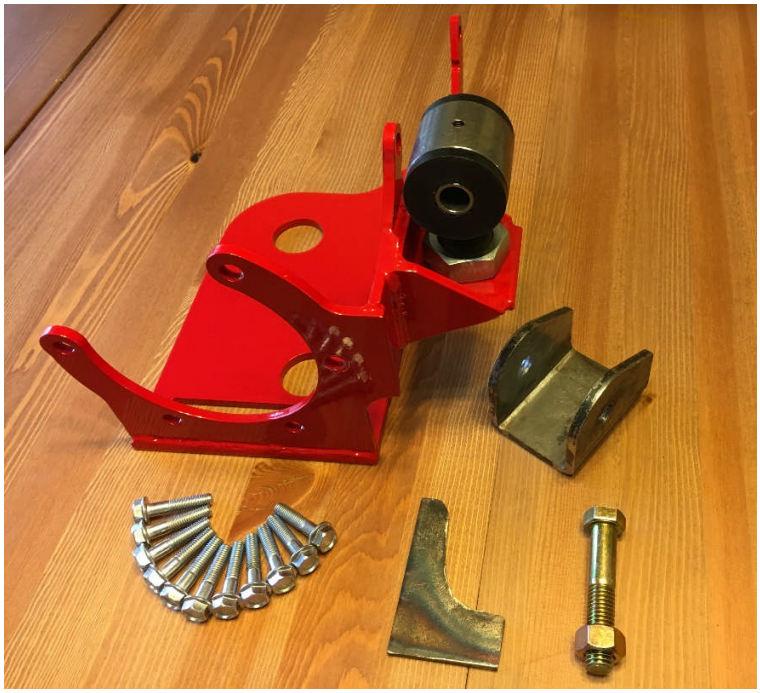
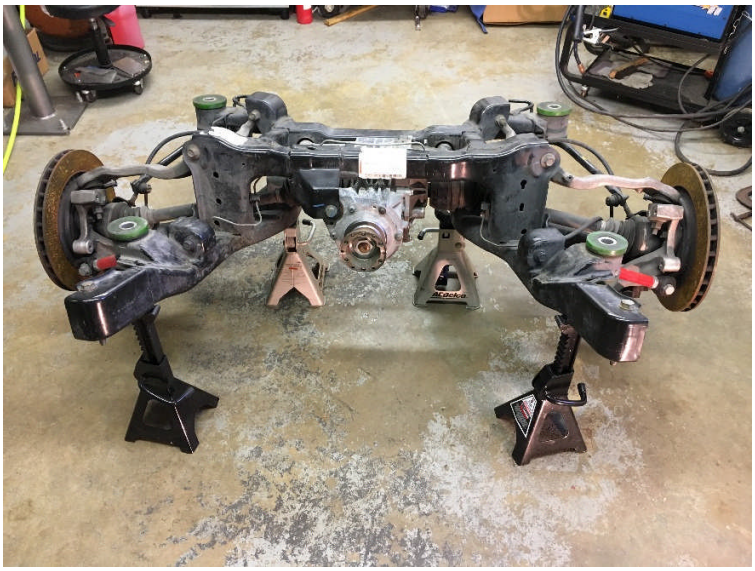
GEN1V

Stage II Diff Brace Installation Instructions



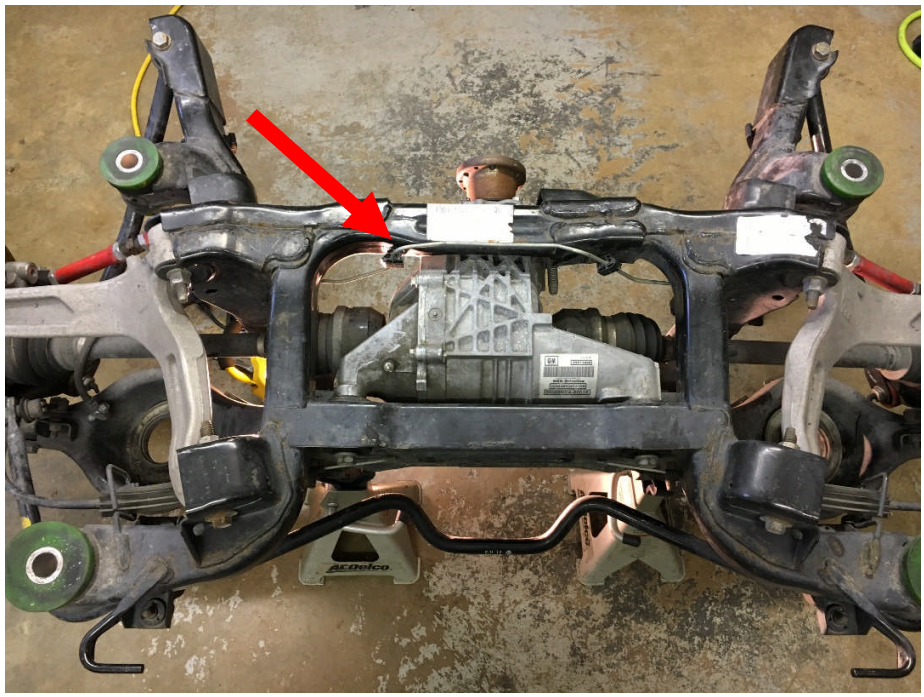
Step 1. Drop the Cradle

Remove the cradle from the car and place it safely on jack stands or whatever is most convenient to allow access for the welding and assembly in later steps. Removing the cradle involves removing the exhaust, disconnecting the driveshaft, unplugging the vehicle speed sensors behind the brake calipers, disconnecting the e-brake, disconnecting the hydraulic brake lines on the passenger side of the cradle, and unbolting the bottom of the shocks.



Step 2. Remove Brake Line

Remove the brake line that runs up and over the top of the diff. It will be in the way during the welding and grinding process. There are four plastic clips holding the brake line onto the cradle. Gently pry the plastic clips out of their holes and thread the brake line out of the cradle.



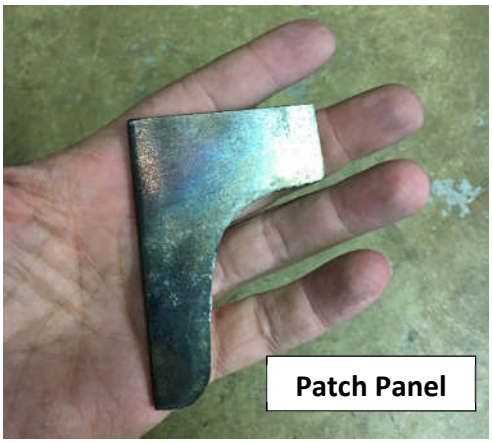
Step 3. Prep Area for Weld

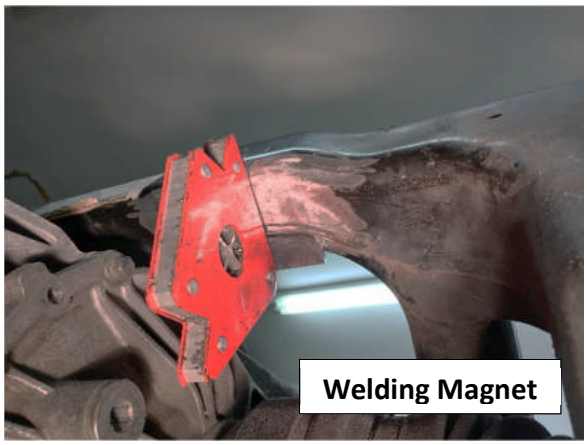
After removing the brake line, look under the cradle on the driver's side. You will notice that there are two overlapping thicknesses of sheet metal. You will weld in the provided patch panel to create a flat level area here in the cradle.

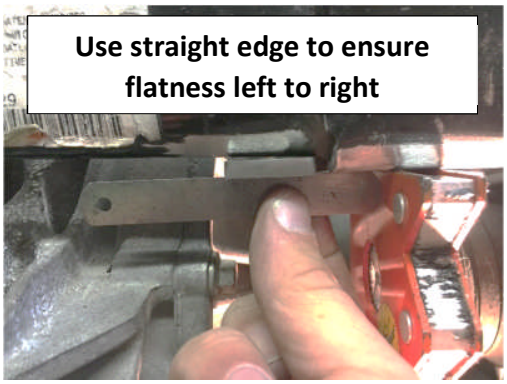
Remove the paint using a grinder, wire wheel, sanding paper, or whatever method you prefer. This will prepare the surface for welding.

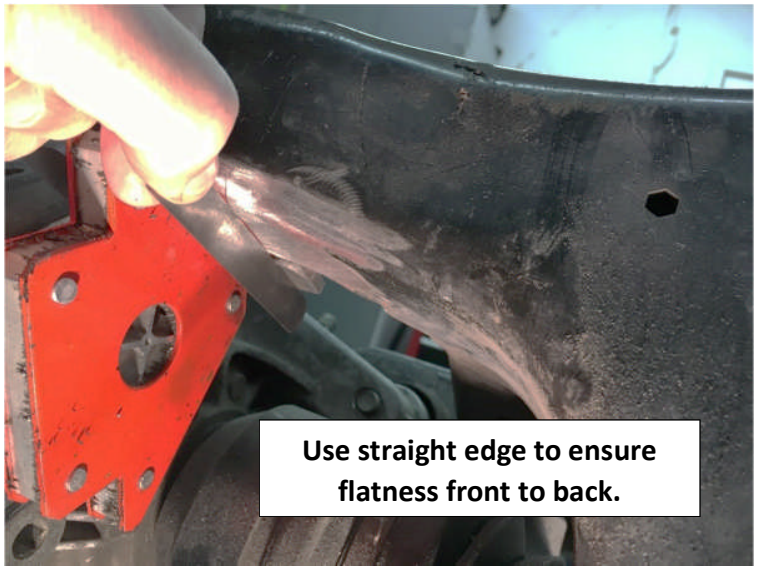
Step 4. Set & Level The Patch Panel

Use a welding magnet to hold the patch panel in place on the cradle. It is very important to ensure that the patch panel is flat and level against the cradle. Use a straight edge to adjust the patch panel position until it is flat in all directions. I used an old shim/feeler gauge.



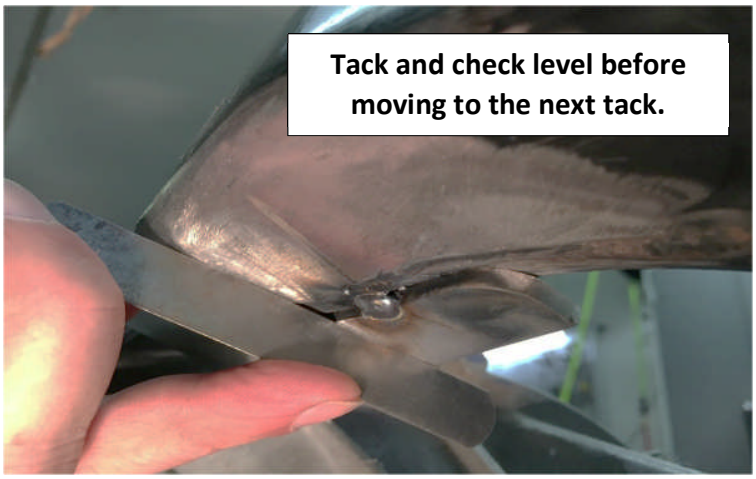






Step 5. Weld The Patch Panel Into Place

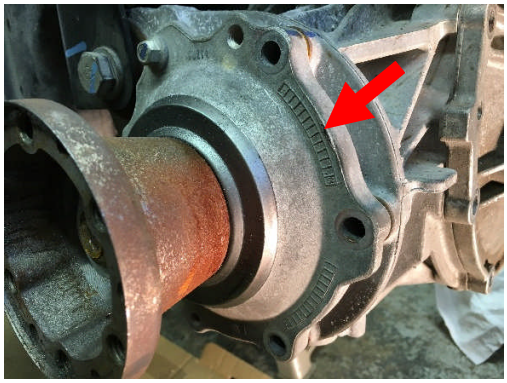
Tack the patch panel into place, and check to ensure it is still flat before placing additional tack welds. The first tack is the most important because it is very easy for the weld to draw the panel out of place. Take your time. If the patch moves on the first tack, try to adjust it, or completely remove and start over if you need to.



Once the patch panel is fully welded onto the cradle, grind the welds flat so that the entire surface is very flat.

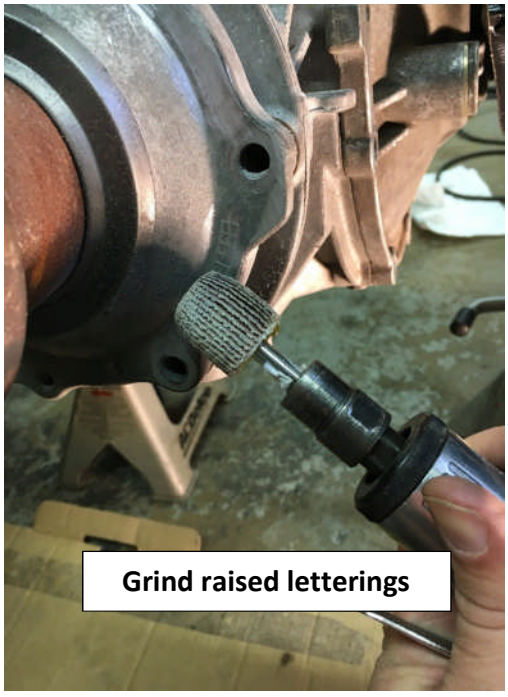
Be sure to cover the exposed section of the axle shaft between the CV and the diff so that any welding splatter or grinding dust & sparks don't get into that area and potentially damage the axle or diff/seal (do this on both axles).

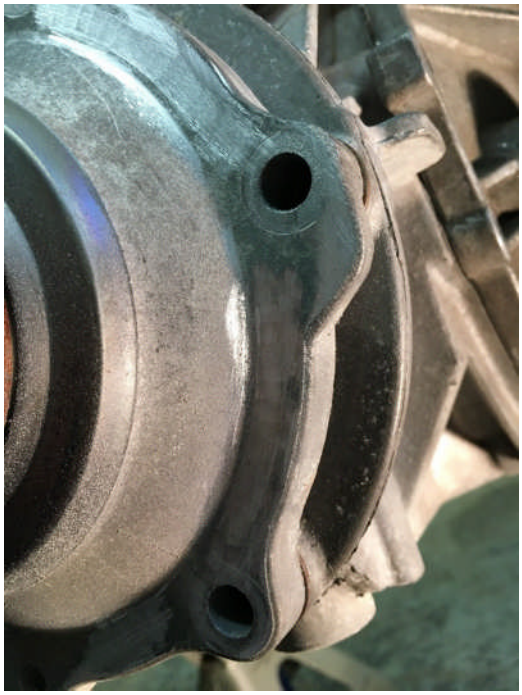
Step 6. Prepare Diff for Brace



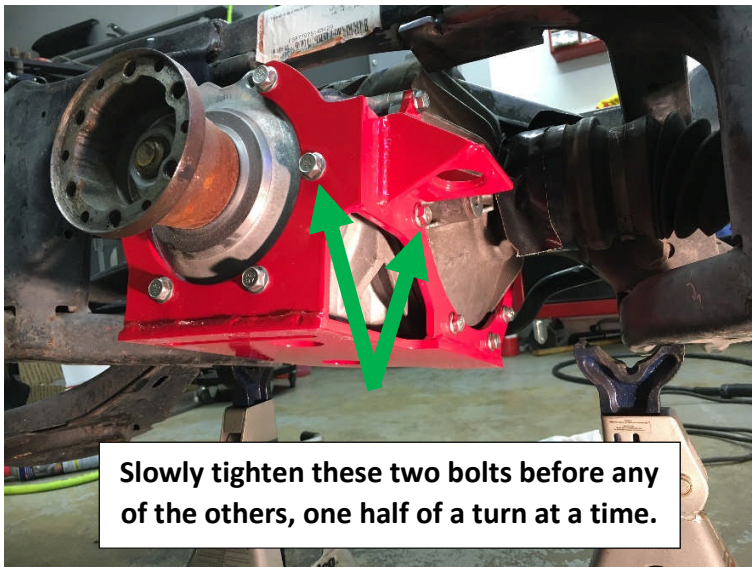
The next step is to install the brace onto the diff. Remove the bolts on the front of the pinion and the side cover. Not all of the bolts need to be removed. Look at the brace and diff and only remove the necessary bolts (11 total).

Also, on the front pinion cover, grind the raised letterings so that the brace will sit flat against the surface.





Step 7. Install Brace

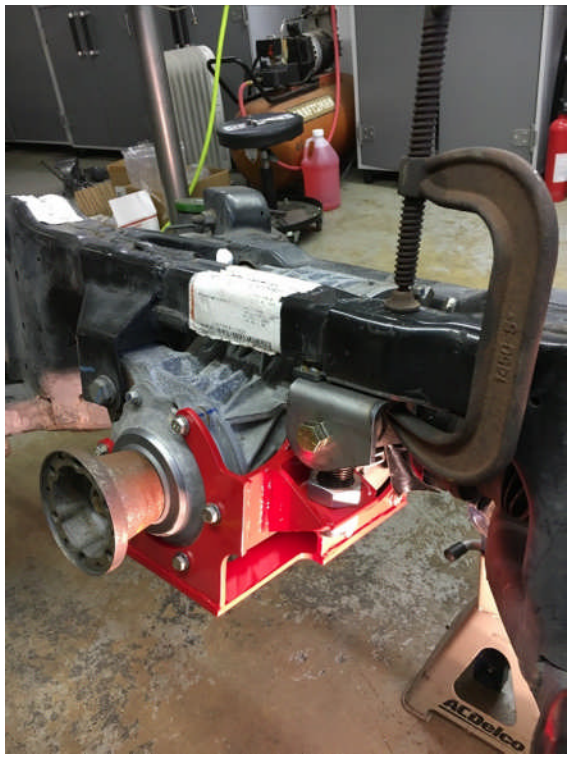


Loosely install all of the bolts but do not tighten.

It is important to seat the brace on the front and the side surfaces of the diff before tightening any of the other bolts. To do this, only tighten the two bolts indicated by ½ turn each, alternating between each bolt for every ½ turn.

Once those two bolts are tight, move to the other bolts and tighten starting from the inside and working out. You will be removing the brace later, so it's not important to perform a final torque yet.

Step 8. Attach Bushing and Prepare For Welding



Carefully rotate the bushing into place between the brace and the cradle. Use the jam nuts to push the bushing and mount tightly against the cradle. A C-clamp can be helpful.

There are several important items to check to ensure the bushing is properly located. Be sure to carefully check these before welding. Once you've verified everything is correct, place a few tack welds to hold it in place. Do not begin finish welding yet, as the heat from the weld will burn/melt the poly bushing.

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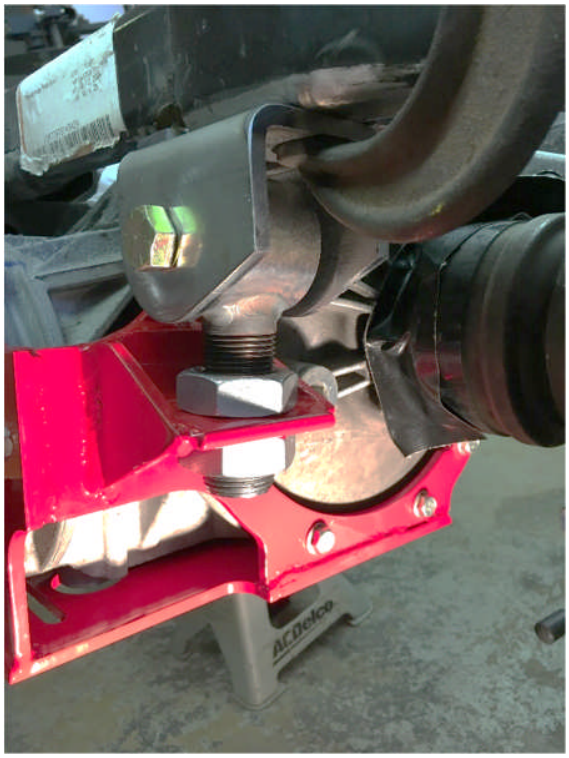
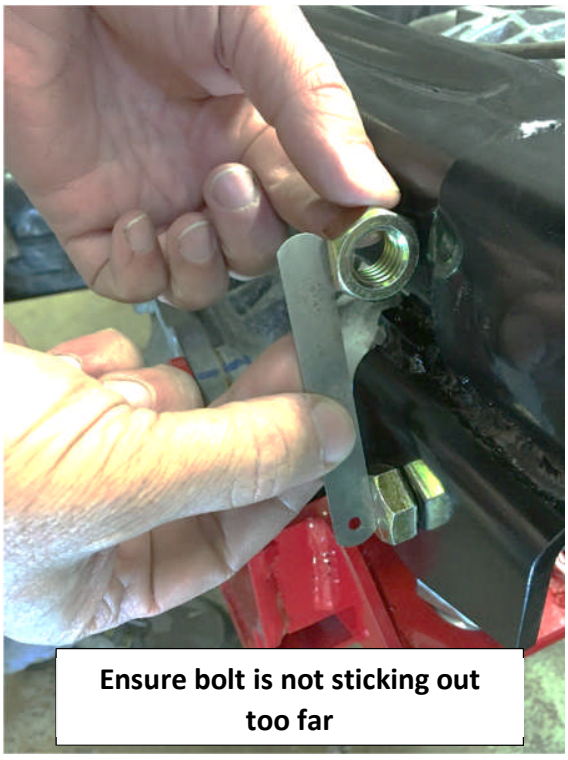
The first item to check is the make sure that the jam nuts are flat on the brace. It's easy for the bushing to be crooked in the hole and the jam nuts won't be flat and sandwich the brace correctly.



Next, there is very little space in front of the cradle because of the fuel tank. Before welding the bushing assembly into place, it's important to ensure that it does not stick out too far in front of the cradle or the bolt head will rub on the tank.

You can use the 22mm nut and a straight edge to check this. Just place the nut on the lower surface of the cradle, and the bolt head of the bushing assembly should be either flat against or lower than the straight edge.

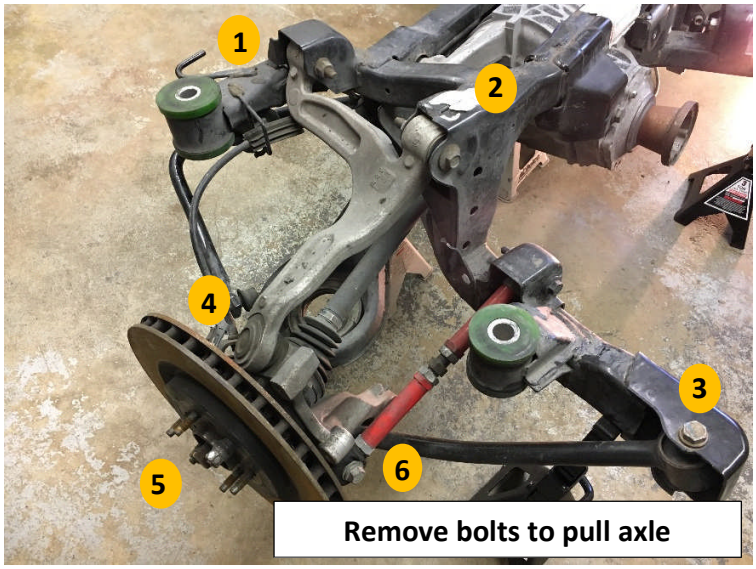
Place nut here to verify position



Ensure bolt is not sticking out too far

Step 9. Weld The Mount Onto The Cradle

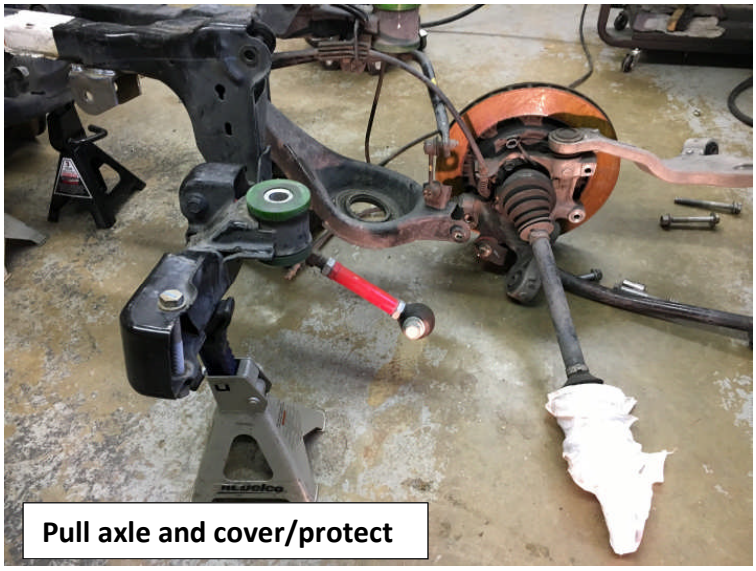
While it may be possible to finish weld the mount in place with the diff and axles installed in the cradle, it is much easier when they are removed and out of the way. The next step is to pull the axles out of the diff so that the diff can be removed.



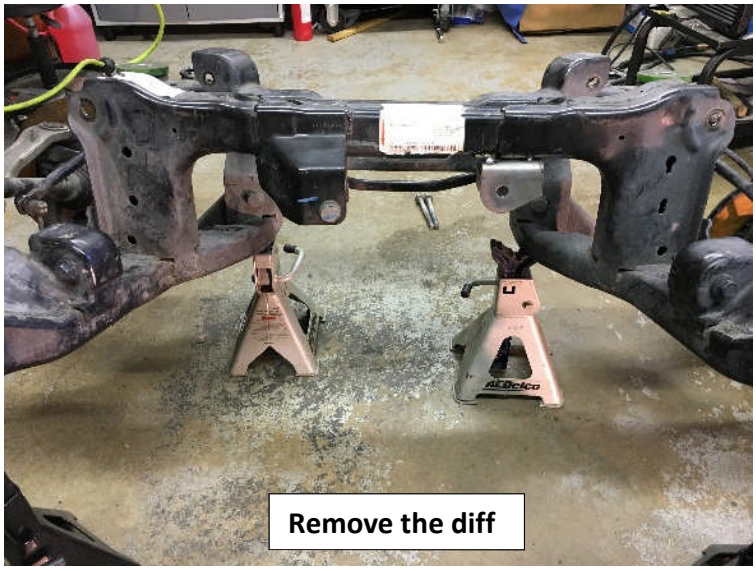
Bolts to be removed:

1. Rear upper control arm bolt
2. Front upper control arm bolt
3. Trailing arm bolt
4. Spring perch bolt at the bottom of the spindle
5. Axle nut
6. Toe rod at the spindle

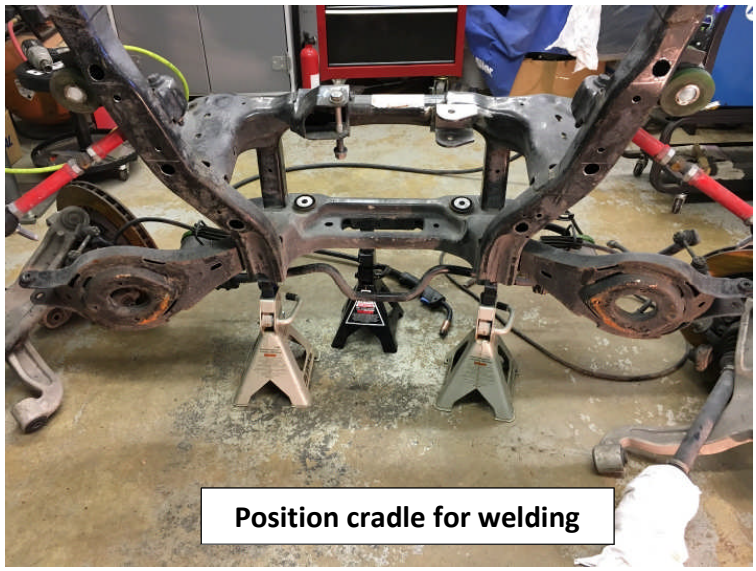
Once the bolts above are removed you can pull the spindle off of the axle (the spindle will only be connected by the E-Brake cable), and then remove the axle from the diff. Be sure once the axle is removed to protect it from any welding splatter or grinding dust.



Once the axles are taken out, next remove the diff from the cradle.



Position the cradle however you prefer and weld in the mount.



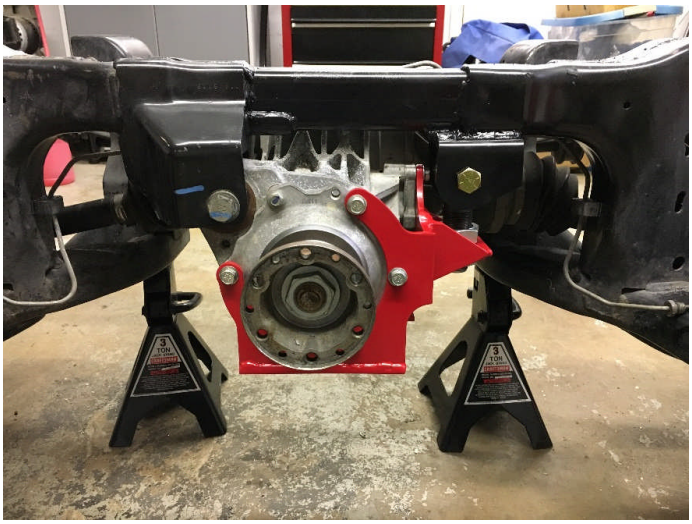
Step 10. Paint & Prep For Reassembly

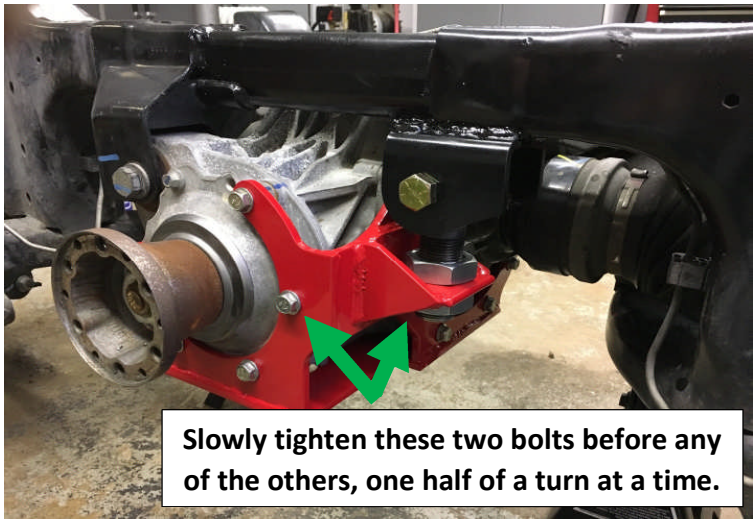
Once the mount is fully welded in, take a few minutes with a wire wheel and clean the area and apply spray paint over the entire area to prevent future rust.

Step 11. Re-Attach Diff Brace & Bushing

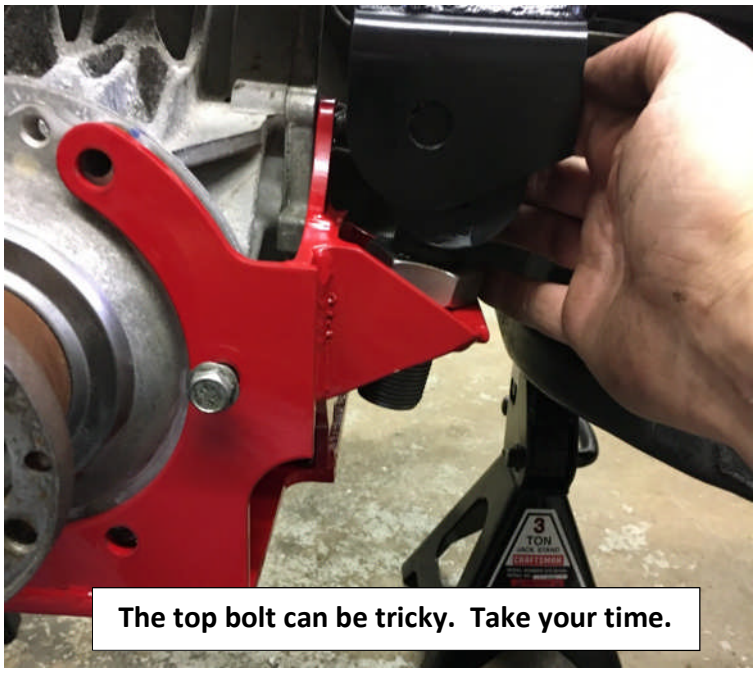
Carefully re-attach the brace assembly onto the diff. The top bolt on the side cover can be a challenge, but take your time and it will go into place. Remember… if you were able to take the brace off, it will go back on. That top bolt will need to be tightened with a hand wrench. All other bolts need to be torqued to 21 lb-ft using a torque wrench. Torque the bushing bolt to 75 lb-ft. Apply thread locker to the jam nuts, thread the top nut as far down as possible and then torque the bottom nut to 75 lb-ft.

****Remember to tighten only the two bolts before any of the others like in Step 7.**





Slowly tighten these two bolts before any of the others, one half of a turn at a time.



The top bolt can be tricky. Take your time.

Step 12. Reinstall Cradle Into Car

Reinstall the cradle, and verify there is no rubbing. Remember in step 8 we talked about the bolt head rubbing on the fuel tank. If you need to do some light grinding on the bolt head to ensure clearance, do that now. Once the cradle is reinstalled, bleed the brakes, verify the car is safe, and go have some fun!