

'Removable Cross member Modification

LUV owners that have converted their trucks to a V8 power plant have encountered a few obstacles along the way. One of these is that the transmission cross member is welded in the truck. Since the same cross member is also the torsion bar mounting point, it comes as no surprise that it's welded in place.

There are several methods of working around this problem. Most people choose to remove the entire radiator core support to allow the engine and trans to be installed and removed in a more horizontal position. Other methods include removing the tail shaft housing of the transmission, or attempting to install the transmission and engine separately. And there are more methods than I've listed.

Another solution is to modify the cross member to be removable. Making the cross member removable is simple if the torsion bars have been removed and the front suspension has been converted to a coil-over setup. The stock square tube can simply be replaced with a lighter piece of steel that needs only to support the transmission and can be mounted with bolts to ease removal. In this article however, we will look at a way to modify the existing cross member and still retain the torsion bar suspension.

At this point I'm going to assume that you have raised your truck in the air, supported it with jack stands or something similar, and have done so in a safe manner. Since we're removing the center of the cross member temporarily, you'll need to remove the transmission mount bolts and raise the rear of the transmission to take the weight off the cross member. Be sure to watch the clearance between your distributor and your firewall. Depending upon your particular installation, you may need to disconnect your exhaust system. You'll also need to support the truck in a way that takes the weight of the vehicle off the front tires.

From the outside edges of the cross member measure in 12-1/2 inches toward the center. The outside edge of the frame rails is angled and is hard to measure from. If you look at where the cross member is welded to the frame rail you will see a straight edge. That is where you should be measuring from. Mark the cross member with something easily visible. A wise man once said, "Measure twice, cut once", so double check your marks before you go on.

Cut the cross member at each of your two lines that you marked using a sawzall or something similar. Try to keep your cut straight and square. Cut all the way through the boxed steel at both of your marks. Remove the center section of the cross member and set it aside.

Next you're going to close up the ends of your two cross member pieces left on the truck.

Use your cutting device (whatever you chose) to cut the rear of the boxing in about 1-9/16 inches from the edge. You need to cut the top and the bottom of the boxes so you can fold the tab inwards and "cap" off the end of the square tubes. Once you have folded in the tab you cut, weld the box shut. You want to end

up with what you see in the pictures.



Now move on to the center section of the cross member that you cut out. The first thing you need to do is cut the rear of the box again the same way you did the pieces on the truck, except this time you're going to cut and remove the entire rear section of the box. You are essentially turning your box into a "U". When you're done, your U piece should match the two ends left in the truck, with the open end of the U facing toward the rear of the truck.

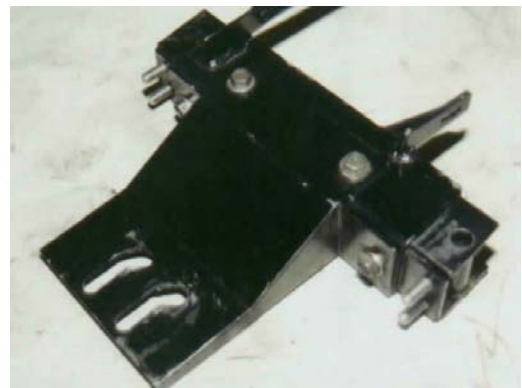
Make 6 pieces of steel that measure 3" x 2-1/4" x 1/8" to be used in making two mounting points at the ends of the center section. Basically you will be making smaller U brackets out of these pieces at each end of the center section. Two of the pieces will need to be clearanced to fit around the two factory nuts welded to the front of your U piece. Clearance them until they stick out about 1-1/2 inches on each end.

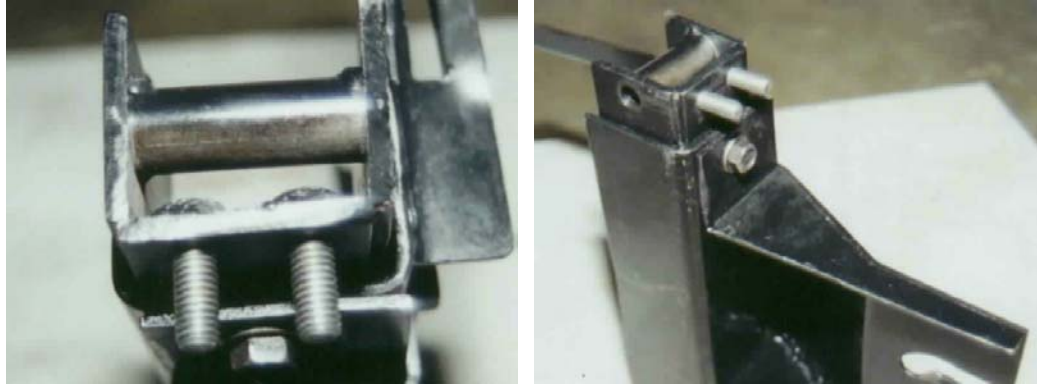
Clamp your steel plates to the center section in a U shape so they stick out about 1-1/2 inches on each end. Clamp all of that back in the truck in its original location. If needed, remove the center section and clearance or move anything that interferes or doesn't fit. Once you're happy with the fit of the center section, tack-weld the 6 plates to the center section. Remove the center section from the truck again and finish welding the plates to the center piece. You want to end up with something like the picture on the right (without the holes).



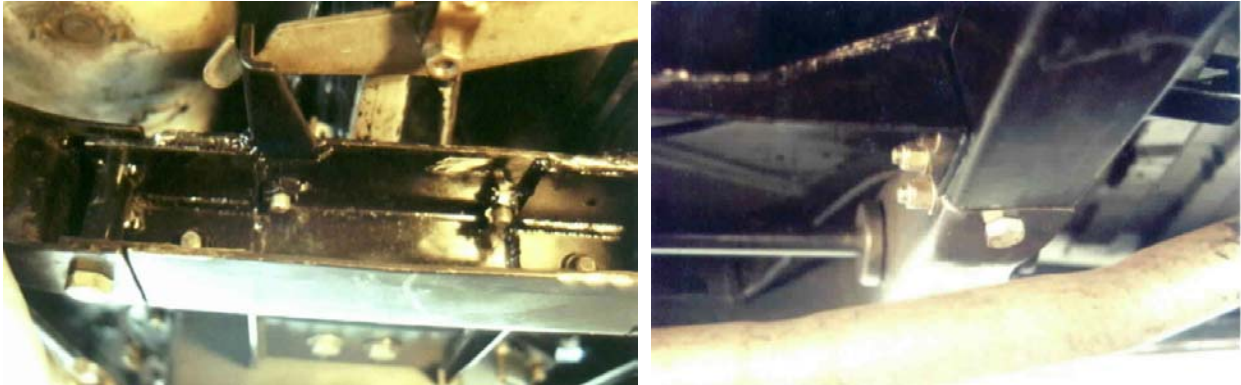
After you're done welding, trial fit the center section back in the truck again and clearance it if needed. Clamp the center section in the truck once again to drill the mounting holes. Make sure it's clamped in tight because you don't want it to move in the middle of drilling. Drill 4 3/8" holes horizontally through the front of the plates you added and through the left and right pieces of the cross member still on the truck. Once completed, insert four 3/8" bolts and nuts through the holes you drilled and tighten them down (I recommend using Grade 8 nuts and bolts for this). You need to have the bolts going toward the front of the truck with the nuts on the front of the cross member. Tack-weld the heads of the bolts to the center section of cross member (you'll see why later).

Drill two 7/16" holes vertically through the top and bottom plates you added and through the left and right pieces of the cross member still on the truck. Remove the center section once again from the truck. Weld the heads of the four bolts to the center section. Measure the height of the center section between the two 7/16" holes and fabricate two 7/16" I.D. pieces of pipe the same length you measured. Slide these pieces inside the center section and line them up with the 7/16" holes. Put a 7/16" bolt through the top hole, through the sleeve, and through the bottom hole on each side. Tack-weld the sleeves in place. Remove the two 7/16" bolts and weld the two sleeves in place. When you're finished you should have something that looks like the picture (your transmission bracket may look different).





Slide the center section back in between the left and right pieces on the truck and install the four 3/8" nuts. After you tighten down the four 3/8" nuts, install the two 7/16" bolts and nuts (again, Grade 8 is recommended). Tighten down the two vertical bolts and replace everything else you took off such as transmission bolts, e-brake equipment, etc. With your removable cross member bolted back in place you should see something like the pictures below. Lower the truck back on the ground and take it for a test drive.



This modification has been tested on a V8 LUV and has not shown any signs of failure or fatigue after an extended period of time. There is no doubt that the modified cross member is weaker than the stock configuration of one solid piece. However, so far this modification has proven strong enough to handle daily driving and 12 second quarter mile power with no problem.