1963-1972 C10 Chevy Truck Pro Touring IFS

Installation Instructions

Tech line: 1-855-693-1259 - www.totalcostinvolved.com

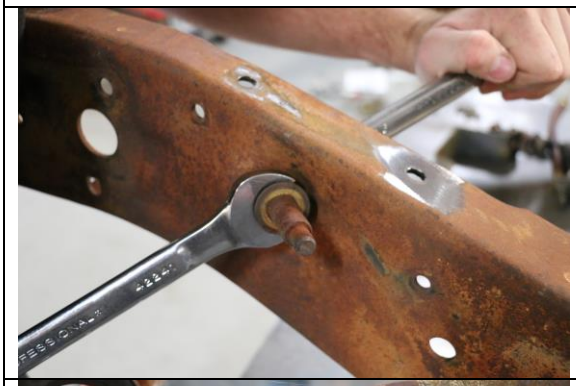
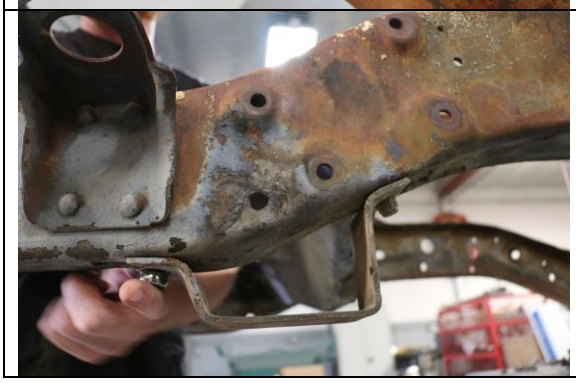
Read and understand these instructions before starting any work!

USE THE PARTS LIST BELOW TO MAKE SURE YOUR KIT IS COMPLETE BEFORE INSTALLATION.
IF ANY PIECES ARE MISSING, PLEASE CONTACT: Total Cost Involved Engineering 855-693-1259

BEFORE

AFTER

This manual assumes the factory suspension, crossmember, brake lines and steering box/shaft have been removed. While technically this IFS can be installed with the engine in place it will make your job exponentially more difficult so we highly recommend it be removed. Before beginning work vehicle must be level and securely positioned on jack stands. For clarity of pictures we had all the sheet metal removed.

	Remove the factory upper shock mounts
	Remove the anti-sway bar bracket. Ours was held on with bolts. If your truck came from the factory with an anti-sway bar your bracket will be riveted on.

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	We highly recommend mocking up ALL parts before painting or powdercoating. It is also highly recommended that for mock up purposes to only use regular nuts instead of the included nylocks. It is highly recommended you use anti-seize on all hardware.
	Place the crossmember onto a floor jack and slide it underneath the frame. The frame rails are not parallel so it will only go in one way.
	Jack the crossmember up against the bottom of the frame and align the existing holes on the frame up with slotted holes on the new crossmember. The crossmember has circular and slotted holes. The slotted holes will line up with existing holes on the frame. The circular holes will require new holes to be drilled through the frame. The crossmember must be fully installed to be used as a template. Follow the steps below.
	The crossmember bolt kit includes nylocks but for this part of the installation you may want to use regular non nylocks(not included) as these nuts will be removed in a few steps. Install the four vertically facing 1/2” bolts through the crossmember and into the frame. Just snug them up at this point. If you over tighten them it will make aligning other existing holes tough. *Driver side shown

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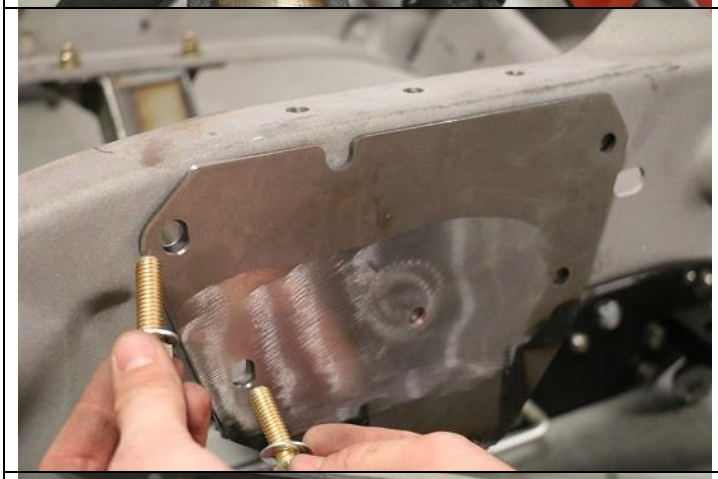
	Now that all four 1/2” bolts are installed and snug we can move on to the 7/16” bolts for the outside of the frame. *Driver side shown
	There are two 7/16” holes per side that will have existing holes that match the crossmember. These are the two rear most holes and are slotted. Install the bolts from the outside going in. *Passenger side shown
	Install the nuts on the corresponding 7/16” bolts (non nylocks shown because these will be removed shortly) *Passenger side shown
	You can now tighten all 8 (four 7/16” & four ½”) bolts that you have installed so far. The crossmember should pull up tight against the frame. If it doesn’t double check for any obstructions and retry. It is pertinent the crossmember sits flush against the rails in order to have proper geometry. *Driver side shown

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	We used a 7/16” transfer punch to mark the center of the hole before drilling. This will help center the drill bit. *Passenger side shown
	You may want to start out with a smaller bit and gradually work your way up to the 7/16” bit. We drilled them one at a time and installed the bolt/nut in the sequence below. We started with the middle hole on the passenger side.
	Install the bolt/nut and tighten down *Passenger side shown*
	Next was the forward bottom hole. *Passenger side shown*

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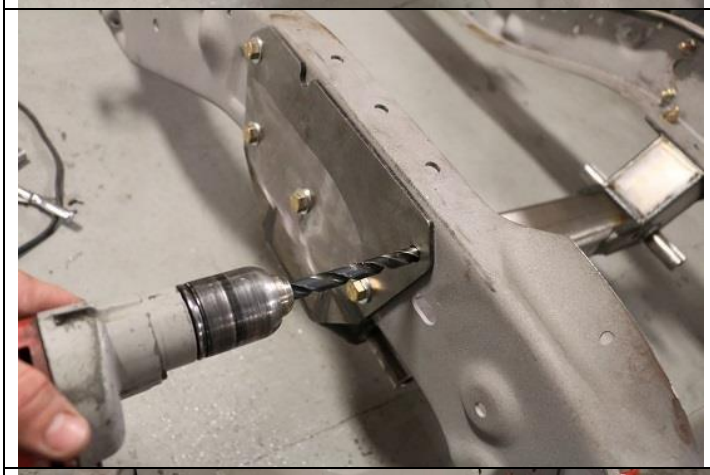
	Install the bolt/nut and tighten down. *Passenger side shown*
	Next is the forward top hole. You won't need to install this bolt at this time Repeat the same process on the other side *Passenger side shown*
	This is what the crossmember should look like at this point of the installation.
	Remove all bolts from the crossmember and drop it down out of the way.

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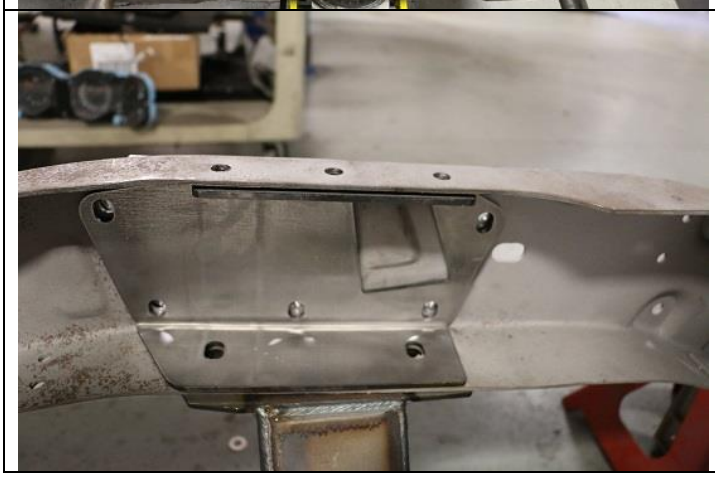
	We used a sanding disc to clean up all the holes we drilled.
	Raise the crossmember back into place and line up the holes.
	It is time to install the inner reinforcement plates. There is a left and right. The easiest way to tell them apart is the window goes towards the front of the truck.
	*Driver side shown

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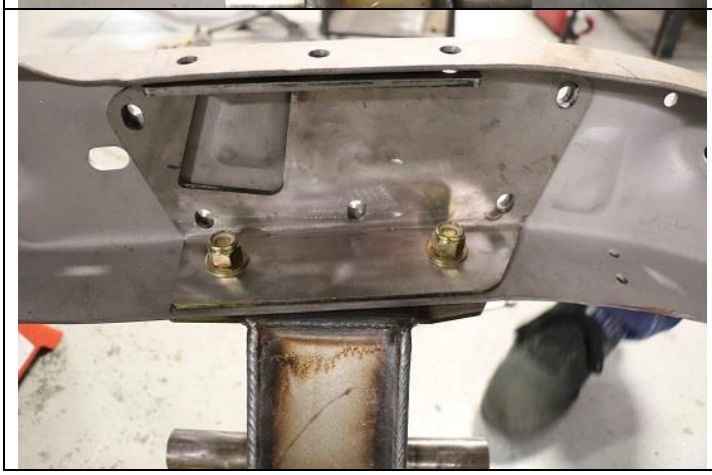
	*Passenger side shown
	If you have mocked up all parts, confirmed everything fits properly and your parts are painted/powder coated it is now time for the final installation using nylocks. Don't forget the anti-seize.
	Reinstall the ½" vertical bolts up through the reinforcement plates leaving them finger tight. Do not tighten them down yet. *Driver side shown
	Repeat on the Passenger side

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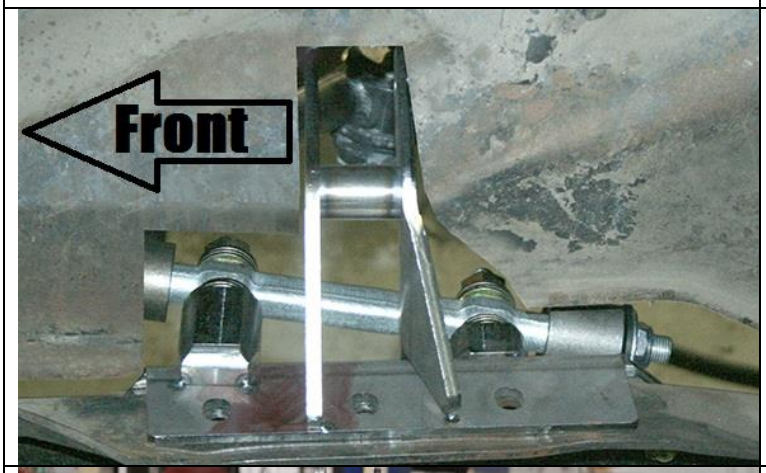
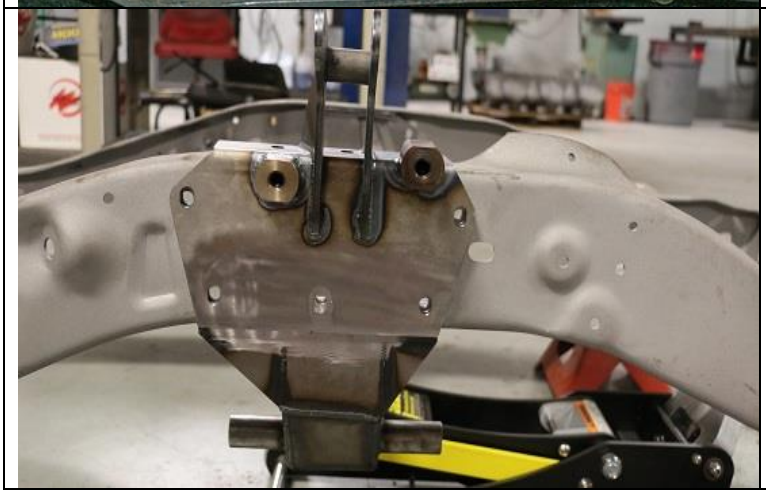
	Next to go on is the upper control arm mounting brackets. The passenger side is shown on the right and the driver side on the left. The ’63-’66 Trucks require the inner panels to be trimmed to clear these brackets. Use the provided template on the last page of this manual and follow the steps below.
SEE LAST PAGE OF MANUAL FOR TEMPLATE	Lay the template up against the fender panel. The bottom of the template should be flush with the bottom lip of the panel. The three holes on top of the frame need to line up with the vertical lines on the template.
	You can use the one template for both Passenger and Driver’s side.
	The easiest way to determine the difference between the passenger and driver side is the front control arm bung will be higher than the rear once placed on the frame. *Passenger side shown

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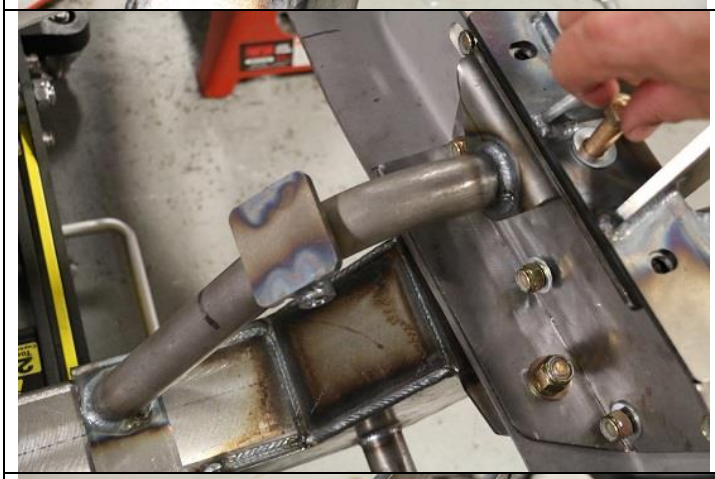
	Here is a top view of the control arm plate and the three existing holes on the frame we will be using. Do not install the top bolts yet. *Passenger side shown
	Install the ten (five per side) 7/16” bolts that are on a horizontal plane. Leave them finger tight for now. *Passenger side shown
	Next up are the engine mounts. There is a left and a right. *Passenger side shown One end fits over the crossmember, the other side fits underneath the top of the frame rail and aligns with the front two holes of the upper control arm plate.
	You can now install the three 7/16” bolts through the control arm plate. These bolts have to go through multiple pieces of steel so the alignment of the holes can take a bit of elbow grease. Once the hardware is installed leave them finger tight at this point *Passenger side shown

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	Repeat the process for the driver side *Passenger side shown
	You can now install the 3/8” bolts that go through the lower portion of the engine mount bracket. They go in from the front *Passenger side shown
	In order for the engine mount to properly support the upper portion of the frame rails we had to use a punch to align the holes. The top of the frame rails can be fatigued so this process will put them back where they were supposed to be. *Passenger side shown
	Install the nylock and repeat for the other side *Passenger side shown

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	Start tightening down each bolt to roughly 20 lbs ft. Once you are confident that each plate is pulling tight up against the frame you can fully tighten down all the hardware.
	Next we need to drill holes for the anti-sway bar bracket. Locate the anti-sway bar bushings, saddles and reinforcement plates.
	Use the saddle plates to mark their location on the bottom of the frame. The saddle must be completely square to the crossmember or the bar will bind inside the bushing. We say this because the frame rails are not parallel so if the saddles are placed squarely on the rail the bar will bind in the bushing. Measure 3” from the front face of the crossmember to the rear face of the saddle plate. The saddle plate should be centrally located underneath the frame rail. *Passenger side shown
	We drew an outline of the saddle and the slotted holes before we started drilling. Double check that the saddles are parallel to each other. *Passenger side shown

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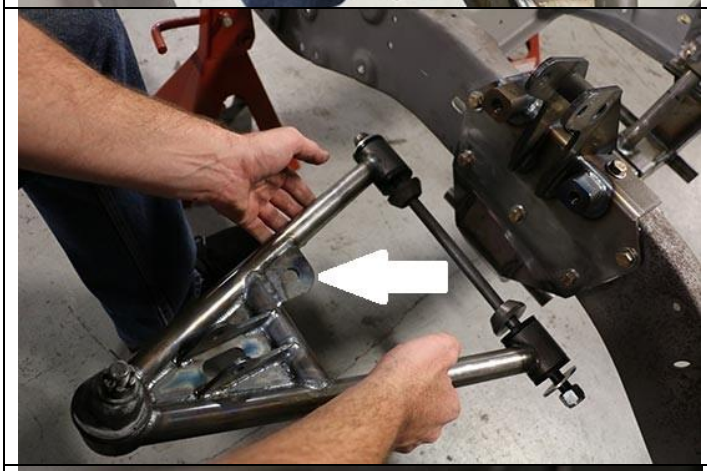
	Drill a 3/8” hole in the center of the slotted marks *Driver side shown
	After drilling all four holes we deburred with a sanding disc. *Passenger side shown
	Next to be installed are the lower control arms. There is a left and a right. The easiest way to determine left from right is the anti-sway bar bung (see arrow in picture) goes towards the front of the truck with the ball joint pointing up. *Driver side shown
	Remove the 5/8” shaft from the control arms. Place the tapered sleeves over the lower control arm pins on the crossmember. This would be a good time to lubricate the lower control arm bushings. Remove the inner sleeve from the bushing and smear a dab of Energy Suspension Poly Lube (Included) into the valleys of the bushing. Reinstall the inner sleeves *Driver side shown

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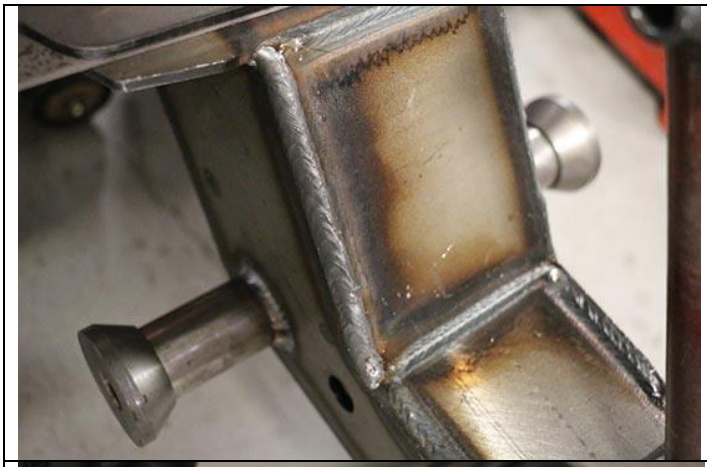	Here are both tapered sleeves installed on the lower control arm pin. The tolerances here are tight so if you've powdercoated these items you may have to ream the area before installation. *Driver side shown
	Lift the control arm up into place. This may take a little effort as it should be tight. Once the holes are aligned you can install the 5/8" shaft. The Acorn side of the shaft faces forward and you will need one washer in place. *Driver side shown
	Install the other washer up against the bushing and then the nylock. Don't forget the anti-seize. *Driver side shown
	Tighten down the 5/8" shaft *Driver side shown

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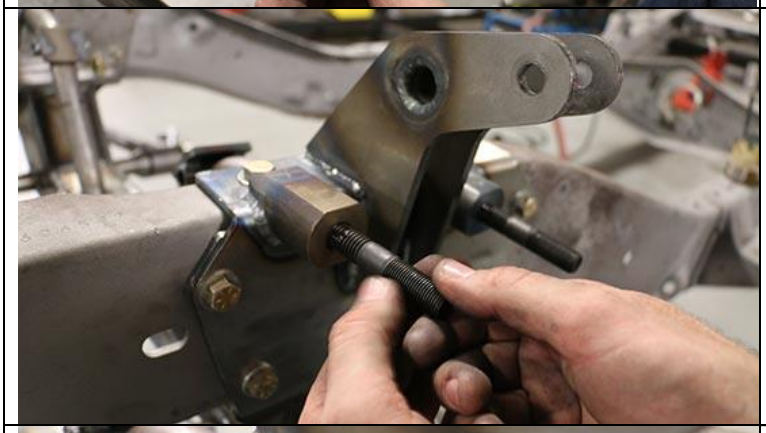
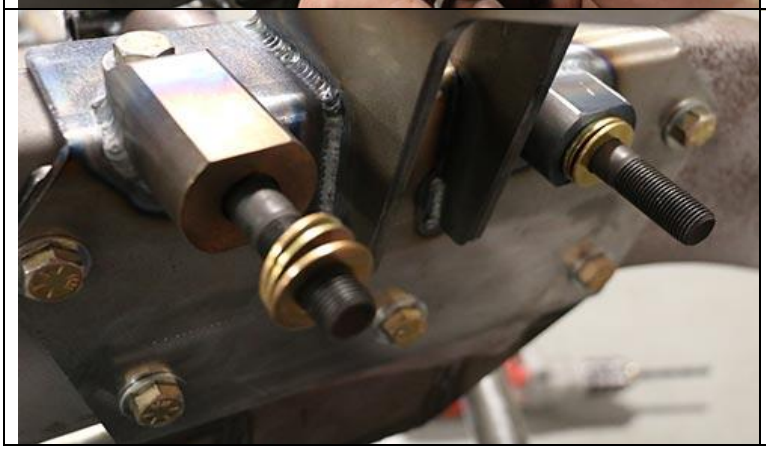
	Repeat the process for the Driver side. *Passenger side shown
	It is now time to install the upper control arms. Start by installing the studs into the bungs on the upper control arm plate. Use thread locker on the course side of the studs and thread them into the bungs. *Driver side shown
	Make sure they are threaded in all the way. *Driver side shown *Repeat for Passenger Side*
	Install 3 washers onto each stud. This will get you close to zero camber, final alignment should be performed by a professional. *Driver side shown

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	The upper control arms are also different from passenger to driver side. The easiest way to tell them apart is the ball joint position is offset towards the back of the truck. In this picture the driver side is on the right and the passenger side is on the left.
	Place the control arm onto the studs, install the remaining washers evenly and finally install the nylocks. *Driver side shown
	Tighten down the nylocks This is what the proper installation should look like. The upper ball joint will be behind the lower ball joint. *Driver side shown *Repeat for Passenger Side*

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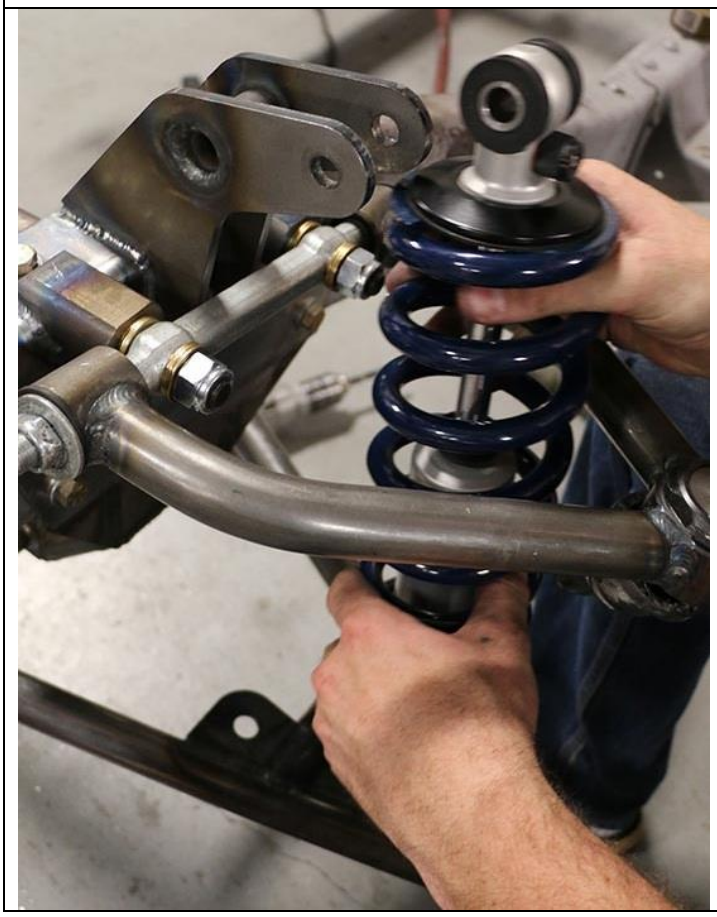
	Tighten down both driver & passenger side crossshafts *Driver side shown
	The Ridetech adjustable shocks are next. These shocks are both height and rebound adjustable. If you purchased the optional Shockwave airbags proceed two pages forward. There is a locking collar on the threaded end of the body. It is locked down with an allen head bolt. This must be loose before any height adjustments can be made. This bolt must be tightened down before weight is put back on the shock. Otherwise the shock collar can be pushed past the threads. The adjustment knob can be found at the top of the shock body. All the way counter clockwise is soft.
	***NOTE*** We are no longer using bushing mounts, instead they now come with bearings. Drop the shock down through the center of the upper control arm with the knob at the top and the threaded body at the bottom. *Driver side shown

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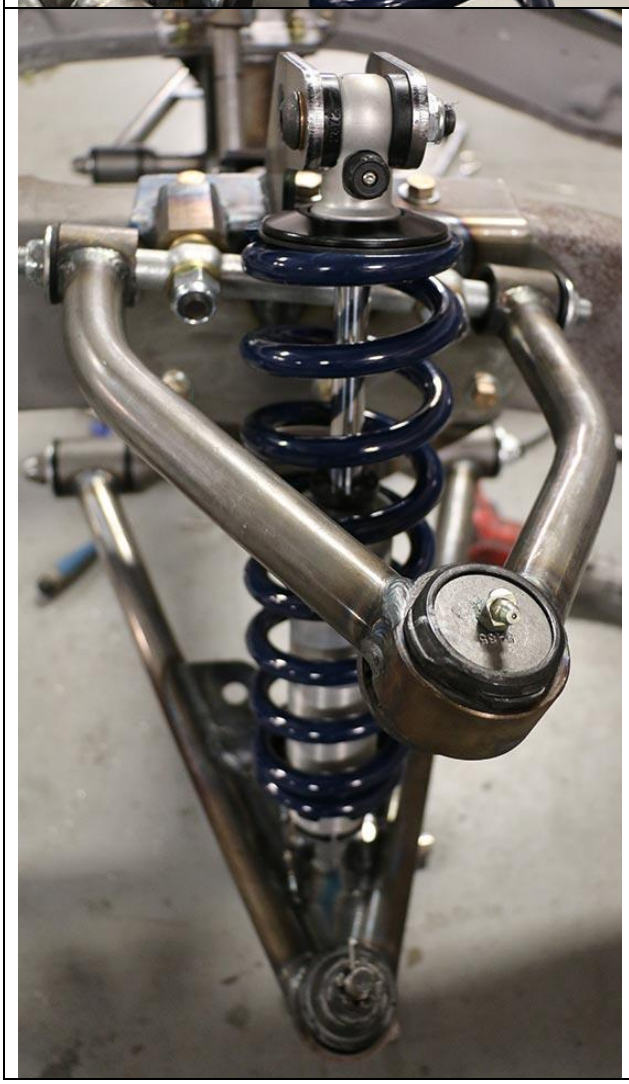
	Install the button head bolt with one washer from the front. Install one washer and nylock on the other side of each bolt and tighten it down. *Driver side shown
	Face the adjustment knob outwards and install the button head bolt with a washer from the front. Install one washer and nylock on the other side of each bolt and tighten it down. *Driver side shown
	This is what the shock should look like once installed *Driver side shown *Repeat for Passenger Side*

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	NOTE We are no longer using bushing mounts, instead they now come with bearings. Optional Shockwave airbag installation. The threaded body goes on the bottom and the adjustment knob goes on top. Lift the upper control arm up and out of the way and place the bottom of the Shockwave into position. *Driver side shown
	Install one washer on the button head bolt and install it from the front side. Install one washer and nylock on the other side of each bolt and tighten it down. *Driver side shown
	Face the adjustment knob outwards and install the button head bolt with a washer from the front. Install one washer and nylock on the other side of each bolt and tighten it down. *Driver side shown *Repeat for Passenger Side*

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	Next up are the spindle assemblies. The easiest way to tell right from left is by the location of the steering arm in relation to the lower ball joint. The steering arm faces forward. *Driver side shown
	Position the spindle onto the lower ball joint making sure not to damage the boot. Install the thick washer before installing the castle nut. You may have to lift up on the spindle slightly in order to fit the castle nut into place. Leave the castle nut finger tight at this point. *Driver side shown
	Align the spindle with the upper control arm ball joint making sure not to damage the boot. The upper ball joint comes with a washer but it is not used in this application. Leave the castle nut finger tight at this point. *Driver side shown
	Tighten down the castle nuts and install the cotter pins. * Don't forget to grease the ball joints before driving. *Driver side shown *Repeat for Passenger Side* ***NOTE*** GM Calipers Fittings = 7/16-20 Wilwood Calipers Fittings = 1/8" NPT Upper Ball Joint = Moog K772 (Screw in) Lower Ball Joint = K6117T (Press in)

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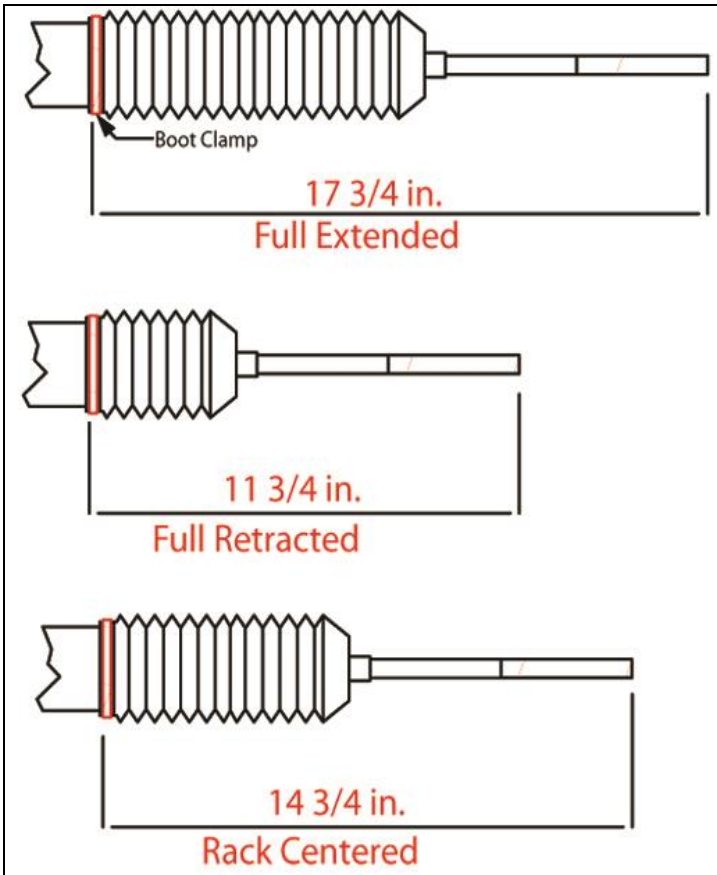


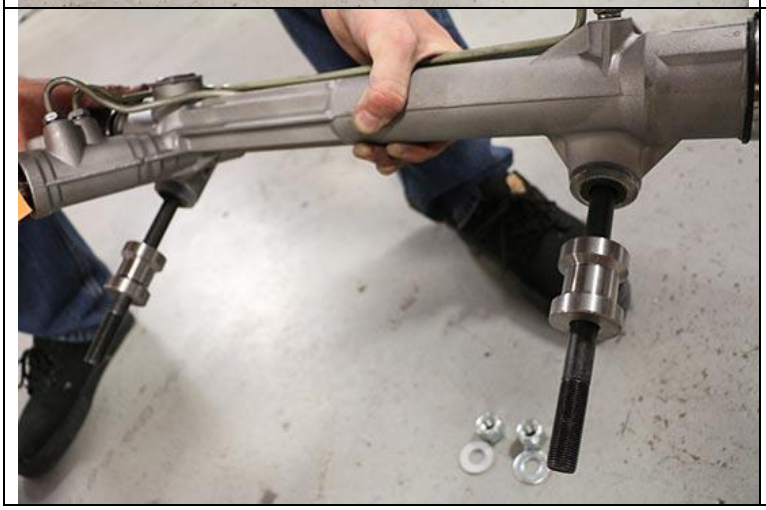
Centering the rack assembly:
The rack needs to be centered to allow equal steering left to right. The specific measurements provided in the picture to the left WILL vary so please understand the math before proceeding.

On a bench, turn the pinion out to full lock one way. Measure from a convenient point on the rack (we used the edge of the boot) to the end of the inner tie rod. (This rack was 17 ¾). Turn the pinion to the opposite lock position and measure from the same point you used previously to the end of the same tie rod (in this example it was 11 ¾). You need to take these two measurements and subtract them. In this example it is 17 ¾ minus 11 ¾ = 6. We now need to find the middle of the travel so we divide by 2, which equals 3. You now need to add that number to the smallest distance measurement (11 ¾" + 3" = 14 ¾") and turn the pinion back till you get that measurement and your rack is centered.

Now that the rack is centered we can now install it but take care not to move the pinion during this process.

Install the large flat washers onto the 5/8" bolts.

***NOTE* Rack & Pinion output shaft:**
Power rack = ¾"-36 Spline



Install the bolts onto the rack & pinion and then slide the machined spacers onto the back side of the rack.

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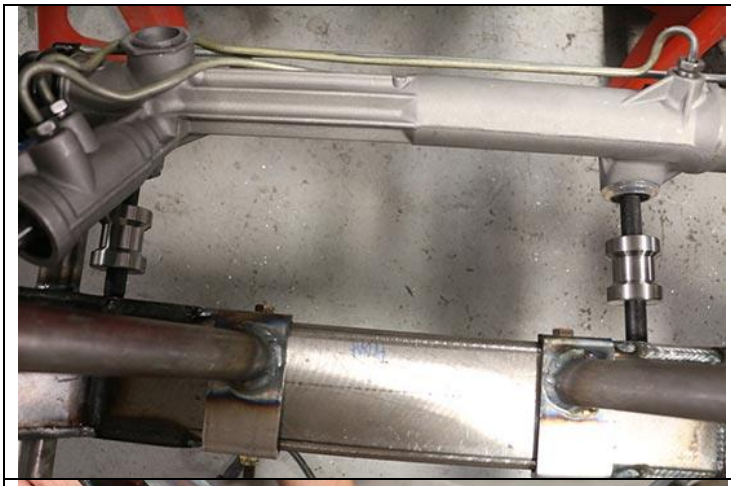
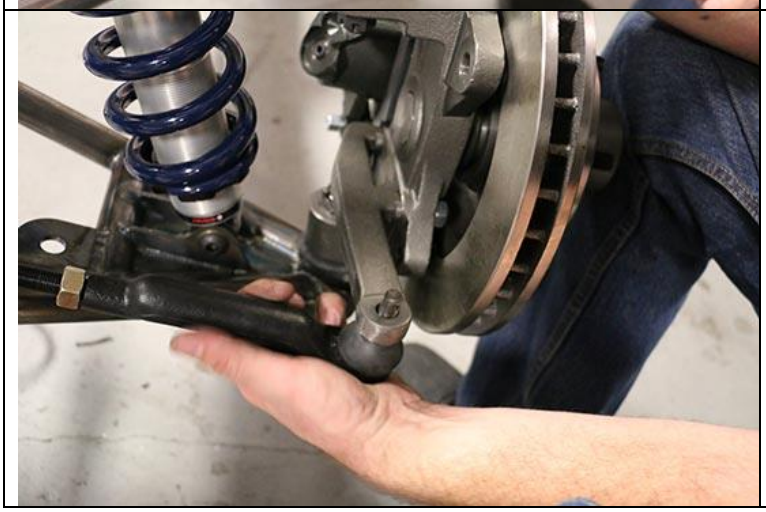
	Install the rack onto the crossmember
	Install the smaller washers and nylocks onto the back of the bolts and tighten down.
	Screw the outer tie rod end onto the inner tie rod of the rack & pinion. *Driver side shown ***Notes*** Replacement rack = ’89-’93 Thunderbird/Cougar/Mustang Replacement outer tie rods = ES3004RL
	Adjust the tie rod until you are at zero toe making sure not to move the rack from the centered position. Install the castle nut and cotter pin. This should be close enough until you get the truck to an alignment shop. *Driver side shown *Repeat for Passenger Side*

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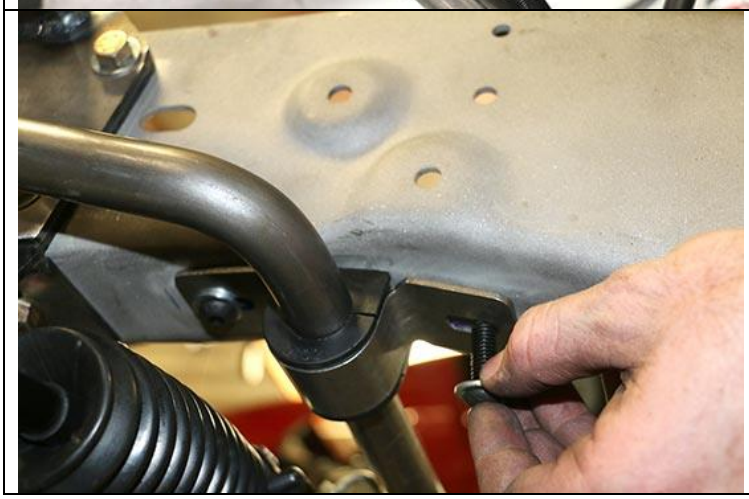
	Next up is the anti-sway bar. Pictured here is the proper placement of each piece of the links. Female on top Hex head bolt shown, button head bolt is what we supplied with the kit. *Passenger side shown *Repeat for Driver Side*
	Grab the anti-sway bar and split bushings. Put a little Energy Suspension Poly Lube on the I/D of the bushing. Pull the split bushing apart and slide it over the anti-sway bar. For proper placement of the bar within the chassis. At the middle of the bar there is a bend that should point down to clear the oil pan and accessories.
	Place the saddle over the split bushing *Driver side shown
	Push the saddle up against the frame rail and install the 3/8” bolts with washer up through the frame holes we drilled earlier. *Passenger side shown

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	Place the reinforcement plate on the frame and install the flat washer, lock washer and nylock onto the bolt. *Passenger side shown Repeat this process on the other side Make sure the bar is centered in the frame and tighten down the hardware.
	Now we need to connect the Heim joint to the end of the bar. Turn the Heim joint so that the hole lines up with the end of the bar and install the button head bolt. *Driver side shown Repeat this process on the other side
	This is what the end of the bar will look like when installed properly. ***NOTE*** You can adjust the pre-load (or lack thereof) once the vehicle is ready to be driven. To do this, disconnect one ½" bolt on any Heim, place driver in the driver's seat, adjust the loose Heim until it goes onto the anti-sway bar with zero load.

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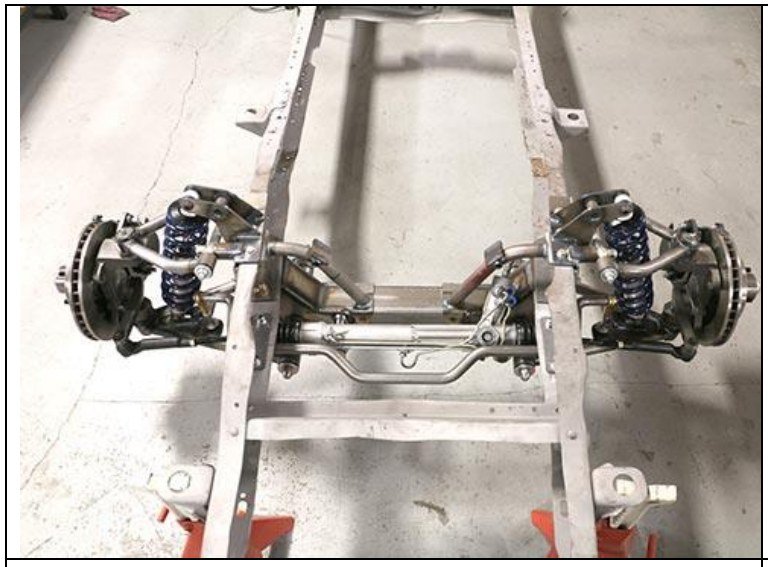	**Alignment specifications** **Caster:** Power rack 5-6 degrees positive **Camber:** 0 Degree **Toe-in:** 1/32 to 1/16 inch The lower control arms should be level to the ground or within a degree or two once the vehicle is at full weight. You can then perform the final alignment. **AXLE STUD SIZES:** 5x5” Bolt circle rotors = ½”x20 6x5.5” Bolt circle rotors = ½”x20 ALL Wilwood hubs = ½”x20
	Tech Info: Headers Oil Pans: LSx = ’98-’02 Camaro/Firebird Track Width 65.5” stock Wheel sizes Steering column

No returns or exchanges without a RMA#.
Packages must be inspected upon receipt & be reported within 10 days.
If you are missing parts from your kit, TCI Engineering will send the missing parts via FedEx or U.S. mail ground.
Returned packages are subject to inspection before replacement/refund is given. (Some items will be subject to a 15% restocking fee)

Thank you for your business!

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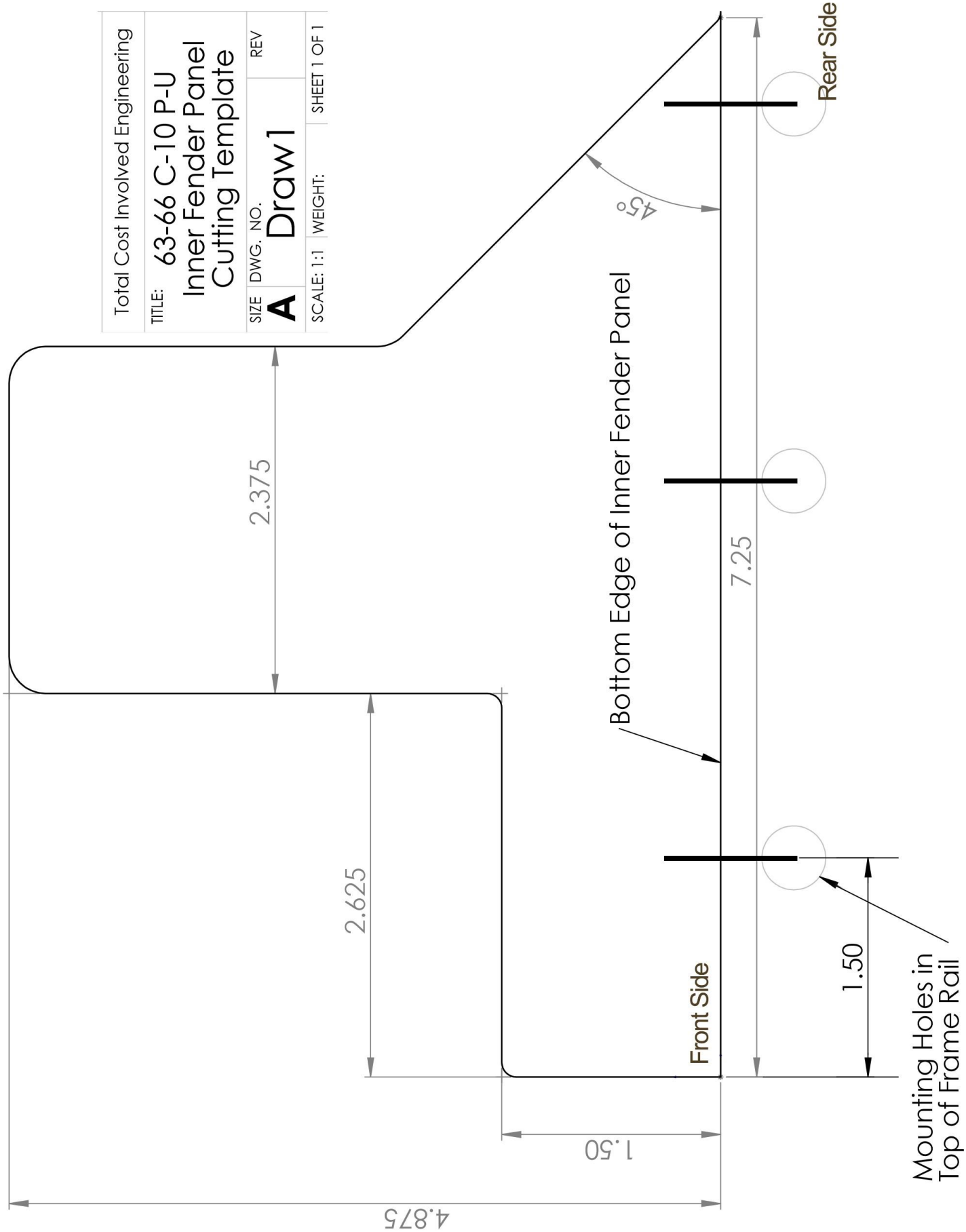

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