1955-1959 Chevy Truck Pro Touring IFS

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

Front Suspension Installation Instructions

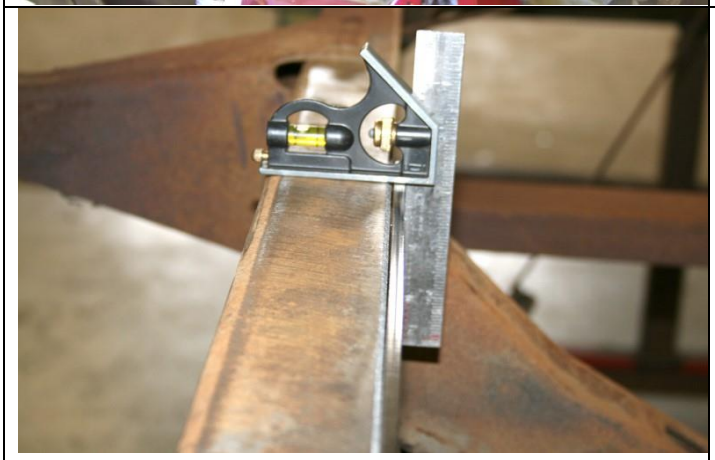
Thank you for choosing TCI Engineering's Pro Touring IFS package. We have taken what we learned from over a decade of auto-crossing & road racing and integrated that technology into a new Pickup Pro-Touring IFS. We are using our custom designed spindles with bolt on steering arms. This allows us to maximize all performance aspects of suspension geometry, including camber gain, bump steer, Ackerman angle, scrub radius, kingpin inclination, instant center, and more.

NOTE

The factory cross member should remain in place until the new cross member is fully welded in place.

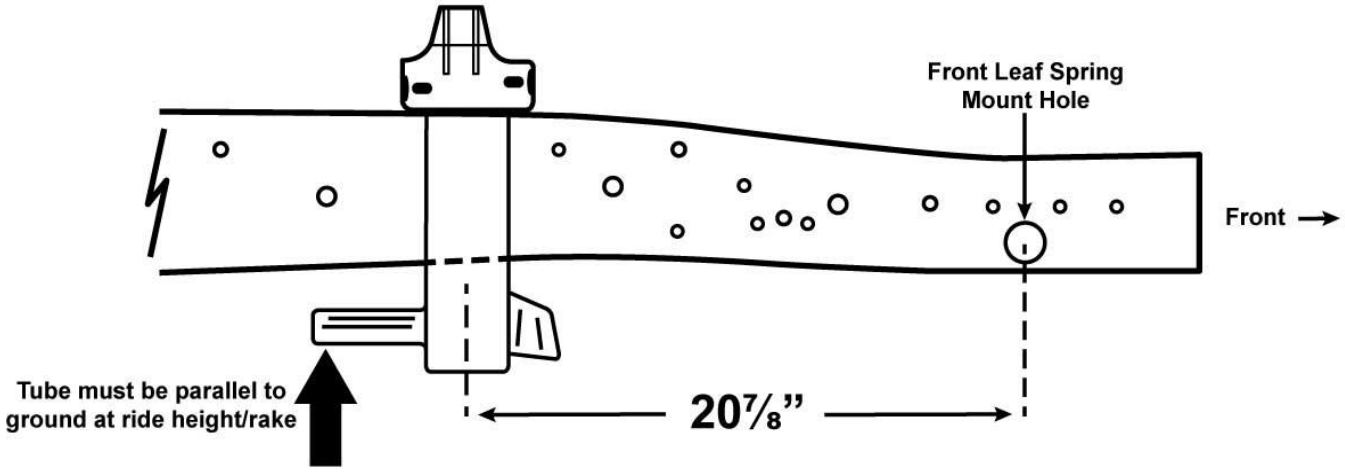
Removing raised flange on the frame rail:

The raised flange on the top driver's side rail needs to be removed, flattened and reinstalled in the same place on the frame. We used a cut off wheel to remove this area. Once removed we placed the piece on the shop floor and flattened the edges with a hammer. We then welded it back on the frame in the same position. Some trimming was required to make it sit flush on the top of the rail.

	**Installing the boxing plates:** Measure the width of the top and bottom of the rails. Cut or grind the longer lip back to make them both the same width. This will allow installation of the boxing plate square to the frame. For this application the finished inner to inner dimension with the boxing plates installed should be 29.90” ***NOTE*** This picture is with the frame upside down. The boxing plate is tapered. Place the plate onto the frame within the corresponding taper/size.
	It is important that the boxing plates be positioned on the edge of the frame rail so that you can maximize weld penetration. This will insure there is enough weld to grind and smooth out the corners.
	Use a square to make sure that the plates are square to the frame. Tack weld all 4 corners of the plate to the rail and make sure they are still square. Once the boxing plates are confirmed square you can begin welding them in place. Weld 6” sections at a time switching from driver to passenger so heat is kept to a minimum.

Locating the axle center line:

Using the illustration below, find and mark the axle center line on both the passenger and driver side frame rail.

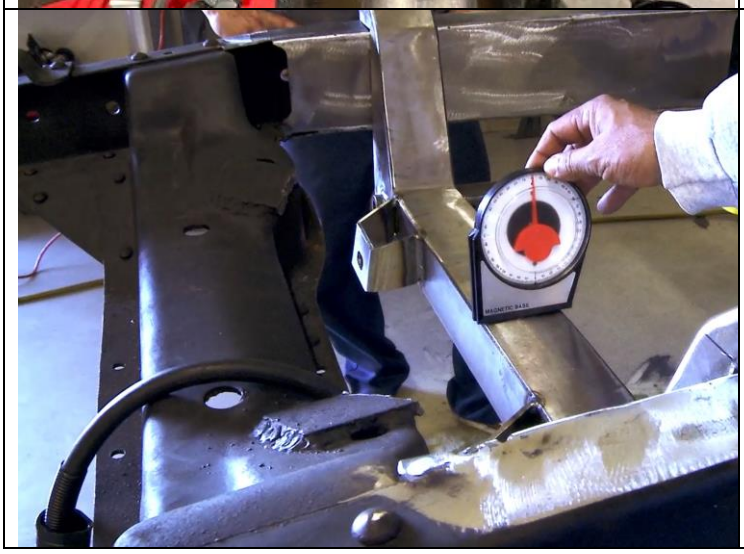


Installing the cross member:

2 degrees frame rake (vehicle stance) is typical. The flat area on top of the cross member should be level to the ground or 0 degrees when the frame is at proper rake.

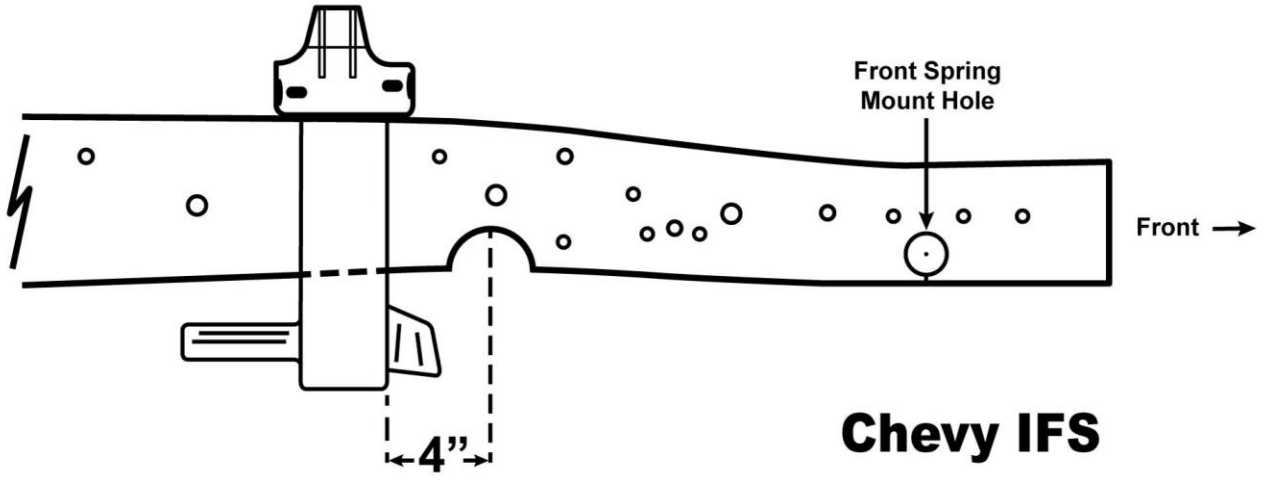
Center the cross member on the axle center line mark made earlier. **Only tack weld the cross member into place at this time.**

NOTE Grinding the cross member to make it fit between the rails may be necessary.



Double check all measurements and finish welding the cross member into place.

The factory cross member can be removed now.



Installing the c-notches:
Once the wheelbase is marked on the frame you can now properly install the c-notches. Using the diagram above measure 4” forward from the face of the cross member. This will be the center of the c-notch. Now measure up the rail 1.5” and mark it. Use the c-notch as a template on the frame using the mark on the frame as the center/top of the c-notch. Cut the frame to match the c-notch.

NOTE Make sure not to cut too much of the frame.

Place c-notches into the frame and weld in place.

Installing the lower control arms:

NOTE The acorn side of the 5/8” shaft faces forward.

Place one washer onto the 5/8” control arm shaft and push it through the front bushing of the control arm. Place a 2nd washer behind the bushing and push the 5/8” shaft into the front of the cross member.

NOTE Driver side control arm is pictured

Place the 3rd washer in between the bushing and the pin as shown.

Push the 5/8” shaft all the way through the pin and bushing. You may need a little elbow grease to get the shaft all the way through.

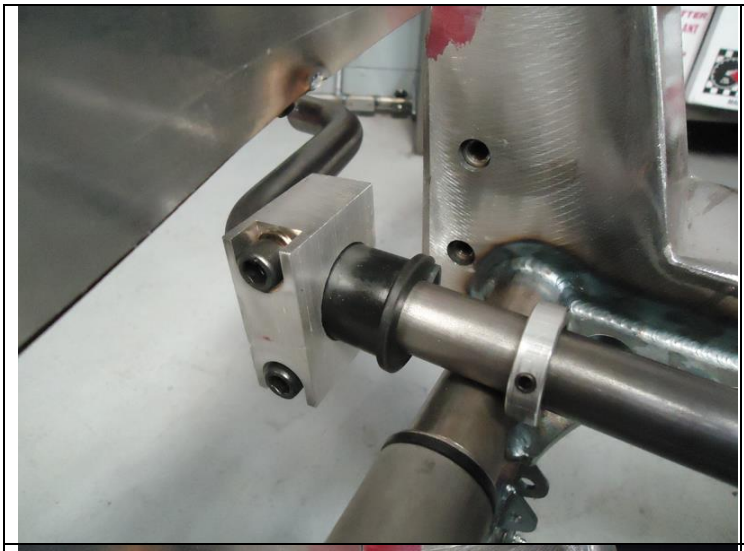
The 4th and final washer can now be placed on the 5/8” shaft and the Nylock can be installed.

Torque to 75 ft lbs

Installing the Upper A-Arms:

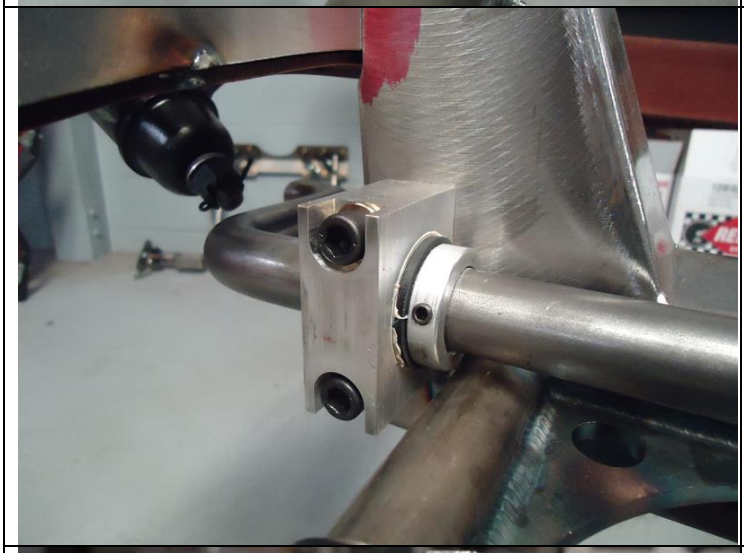
The upper A-arm is installed using the 9/16 x 3 inch hex head bolts. Three of the thick washers are installed as shown between the cross shaft and the mounting plate. Leave excess thick washers on the Nylock side. Use gold washers directly under the Nylock and bolt head. Center the bolts in the caster slots as a starting point for the alignment. Torque to 90 ft/lbs. Final alignment will be done after the project is complete.

Upper Ball Joint = Moog Part# K772



Installing the anti-sway bar:

Slide the lock ring collar over the bar on each side first. The split bushings go over the bar and then the aluminum blocks slide on over the bushings.



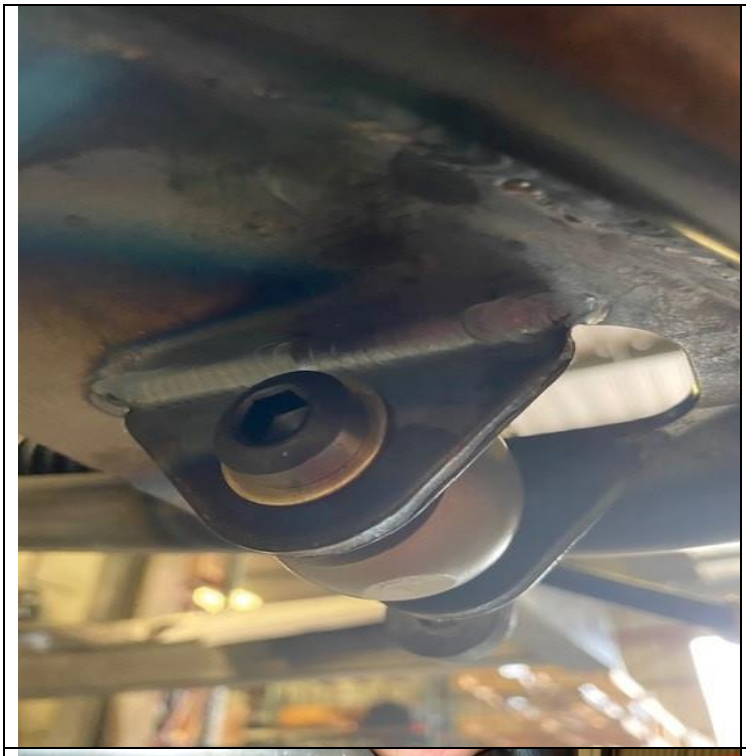
The anti-sway bar mounts to the rear of the cross member above the lower control arm pins. Use the supplied hardware to install the aluminum blocks onto the cross member. Torque to 35 ft lbs.

Center the anti-sway bar and lock down the set screws against the bushings.

13. Installing the Coil-Over Shocks.

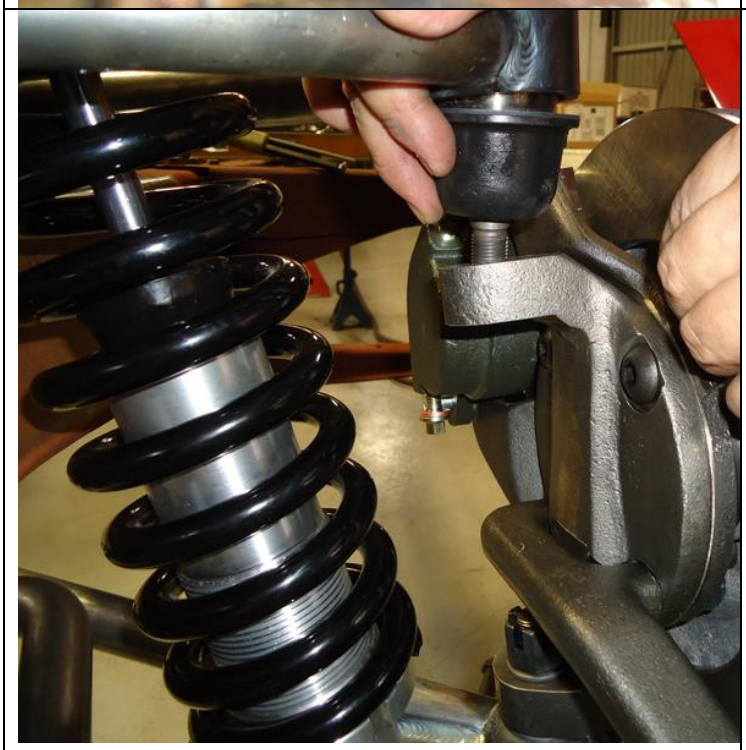
The Performance front suspension comes with Ridetech billet aluminum coil-over shocks standard. The shock extended length is 14.25” and 10.25” collapsed and has 24 position rebound control.

Mount the shock into the subframe with the threaded body facing up. Install the ½ x button head bolt and washers through the upper bracket and ½ Nylock nut.



Extend the shock through the cutout in the lower a-arm and install the bolt, washers and ½ Nylock nut. Tighten securely.

The bottom bolt is longer and has a modified head that needs to be installed from the back to the front.



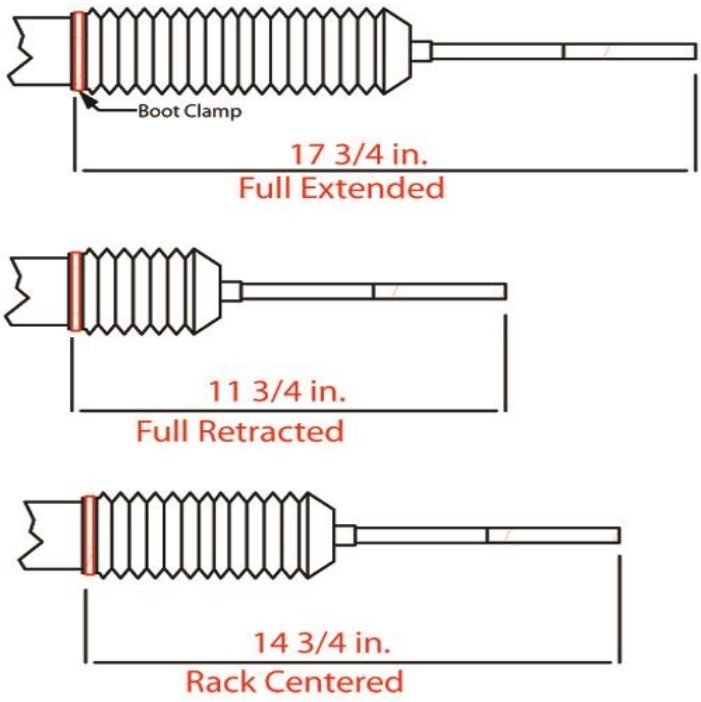
Installing the spindle assemblies:

Place the spindle onto the lower ball joint with the steering arm facing forward with the large I/D tie rod end taper facing down. (The tie rod end goes up into the steering arm)

Place the ball joint washer first and then the castle nut. Torque the lower ball joint to 90 ft. lbs and install the cotter pin. The lower ball joint is a **MOOG K719** Pull the upper control arm down onto the spindle.

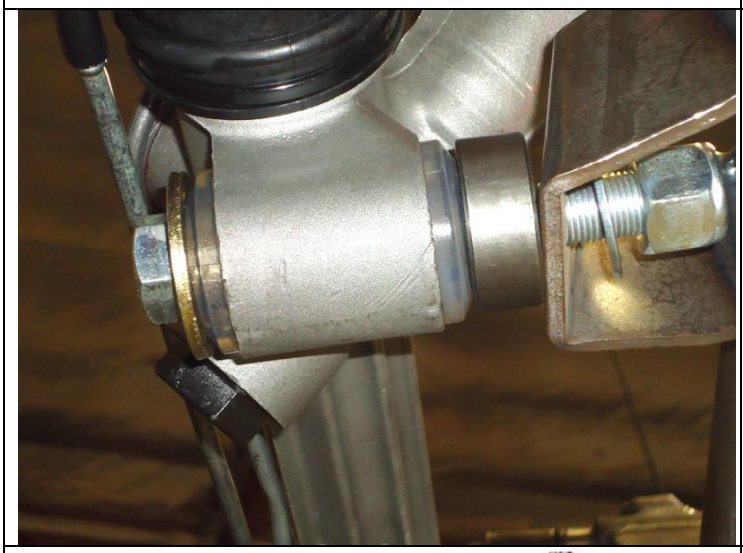
Place the ball joint washer first and then the castle nut. Torque the upper ball joint to 70 ft. lbs and install the cotter pin. The upper ball joint is a **MOOG K772**

***NOTE* Caliper Fittings:**
GM Calipers = 10mm x 1.5
Wilwood Calipers = 1/8” NPT



Centering the rack assembly:

The rack needs to be centered to allow equal steering left to right. On a bench, turn the pinion out to lock one way. Measure from a convenient point to the end of the inner tie rod. (This rack was 17 ¾). Turn the pinion of the opposite lock position and measure from the same point to the end of the same tie rod (11 ¾). 17 ¾ minus 11 ¾ = 6. Divided by 2 = 3 Add that number to the smallest measurement (11 ¾" + 3" = 14 ¾") and turn the pinion back till you get that measurement and your rack is centered.



Installing the rack and pinion:

Place the rack on the cross member brackets as shown. Use the supplied 5/8" hardware to fasten it into place. The picture shows a power rack that requires a 5/8" spacer between the rack and the mounting brackets. A manual rack bolts directly to the mounting brackets not needing these spacers.

Torque bolts to 90 ft. lbs

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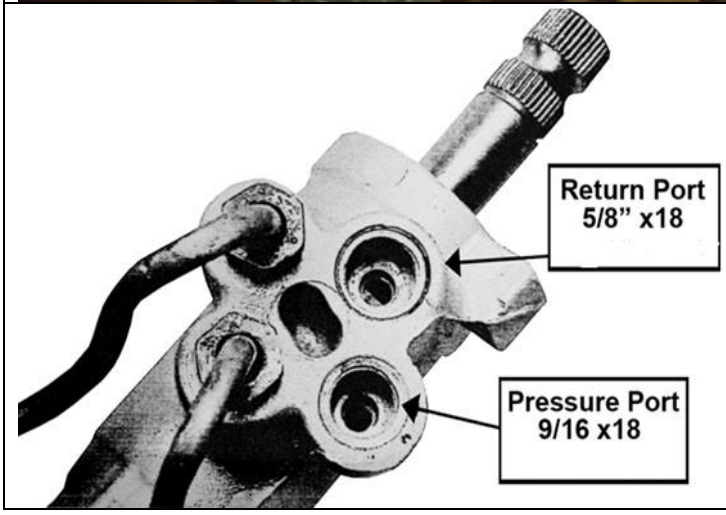


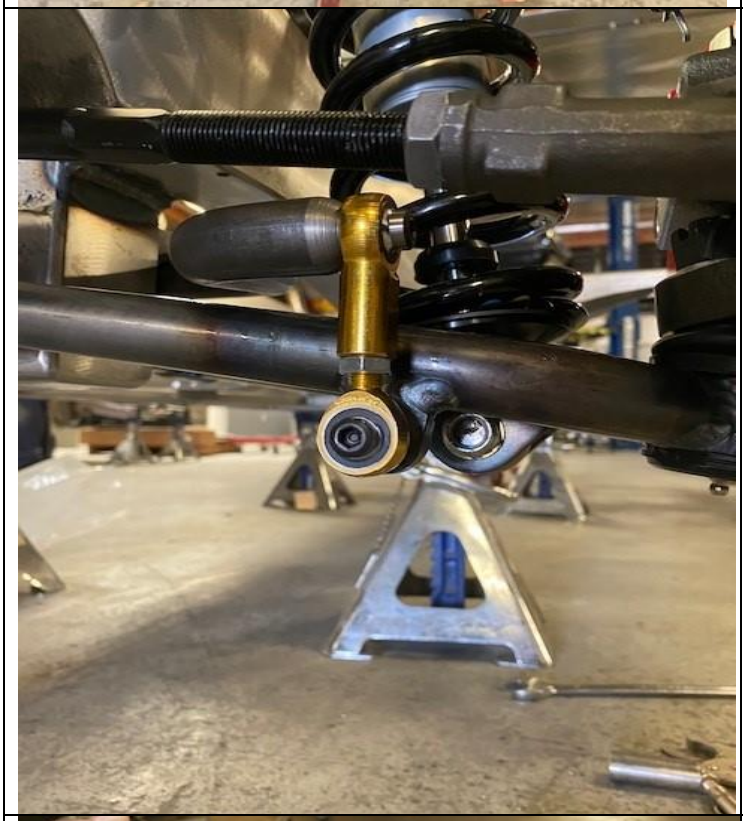
***NOTE* Power Rack & Pinion fittings:**

9/16"-18 Pressure side & 5/8"-18 Return side.
The Unisteer 8026070 is a complete fitting kit.

***NOTE* Rack & Pinion output shaft:**
Manual rack = 9/16"-26 spline

Power rack = ¾"-36 Spline or after April 2021 ¾" Ford V

Install the jam nut and outer tie rod end onto both sides of the rack. With the rotors pointing straight ahead (0 toe) install the tie rod ends into the bottom of the steering arm. Torque the tie rod ends to 60 ft. lbs. and install the cotter pin.



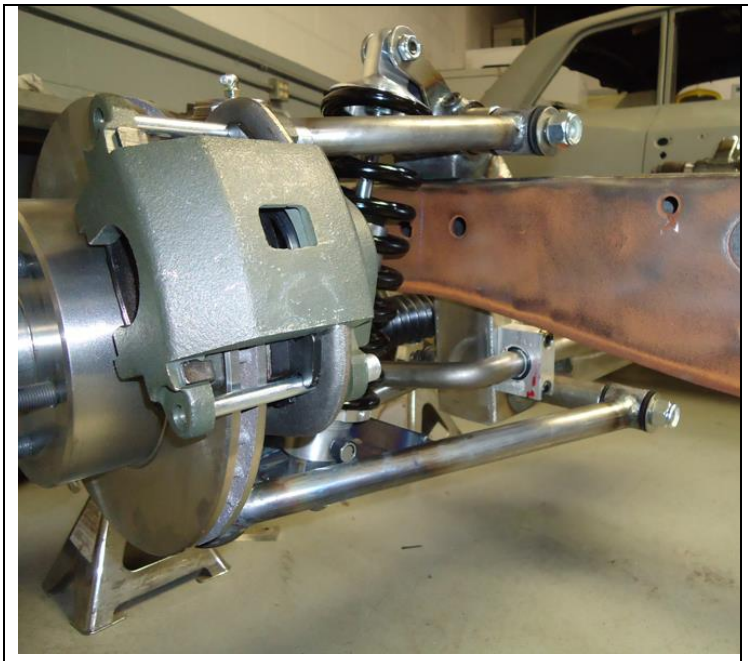
The sway bar routes from behind the cross member above the lower control arms and hooks up to the front of the control arms. Use the supplied hardware to install the rod ends with the male on the bottom.

NOTE You can adjust the preload (or lack thereof) once the vehicle is ready to be driven. To do this, disconnect one bolt on any heim, place driver in the driver's seat, adjust the loose heim until the bolt goes onto the anti-sway bar with zero load.

Setting up power steering

The rack ports are 9/16"-18 Pressure side & 5/8"-18 Return side
Unisteer 8026070 is a recommended fitting kit.

The recommended pump output is 800-1000psi and 2.0 gallons per minute. Exceeding this can cause the steering to feel "twitchy" and excess pressure can damage the rack.



Alignment specifications
Caster: Power rack 4-6 degrees positive
Manual rack 2-4 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:
4.5" Bolt circle rotors = ½"x20('75-'80 Ford Granada)
4.75" Bolt circle 10.5" rotors = 12mmx1.5('82-'87 Camaro)
4.75" Bolt circle 11" rotors = 7/16"x20('75-'80 Granada redrilled)
ALL Wilwood hubs = 1/2"x20

Rim/Tire recommendation:
18"x8" rim, 4.50" backspace. 245/45/18 tire.

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!

1956 Chevy Truck "Sonic 56", Danny Carrasco, built by Premier Street Rods