



1962- 1967 Chevy Nova Pro-Touring Front Suspension 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



1	Pro-Touring Clip		A-Arm Assembly		Sway Bar Assembly		Fender Panel Kit
8	• 7/16-20 * 1 1/4" G8	2	• Upper Arms	1	• Sway Bar	1	• LH Panel
16	• 7/16 SAE Washer	2	• Lower Arms	1	• 1/2 Modified Heim	1	• RH Panel
8	• 7/16-20 Full Nylox	4	• 9/16-18 * 2 1/4" BtnHd	2	• 1/2-20 * 1 1/2" BtnHd	1	• LH Hood Hinge Sppt
1	LH Firewall Bracket	8	• 9/16 AN Washer	4	• 1/2 AN Washer	1	• RH Hood Hinge Sppt
1	RH Firewall Bracket	20	• 14mm Flat Washer	2	• 1/2-20 half Nylox		Fender Panel Bolt Kit
6	• 3/8-16*1 1/4" G8	4	• 9/16-18 Nylox	2	• 1/2-20 * 1 1/2" Mach Btn	8	• 1/4-20 * 1/2 Self Tap
6	• 3/8 SAE Washer	1	Power Rack & Pinion	4	• 3/8-16 * 1 1/4" BtnHd		Fender Pnl Bolt Kit 62-65
6	• 3/8 Lock Washer	2	• 5/8-18 * 4 1/2" G5	8	• 3/8 SAE Washer	18	• 3/8-16*1 BtnHd
2	1 1/4" Down Tube Bars	2	• 5/8-18 Nylox	4	• 3/8-16 Nylox	48	• 3/8 Flat Washer
2	• 5/8 RH Heim w/jam	2	• 5/8 Flat Washer		Shock Assembly	24	• 3/8-16 Nylox
2	• 5/8 LH Heim w/jam	2	• 5/8 USS Hard Washer	2	• Billet Adj Shocks w/ Coils	6	• 3/8-16 * 1 1/2" G8
							Fender Pnl Bolt Kit 66-67
4	• 1/2-20 * 1 3/4" BtnHd	2	• M2 Pwr Rack Spacer	4	• 1/2-20 * 2 1/2" BtnHd	16	• 3/8-16*1 BtnHd
8	• 1/2 AN Washer	1	Brake/ Spindle Assembly	8	• 1/2 AN Washer	40	• 3/8 Flat Washer
4	• 1/2-20 Half Nylox			4	• 1/2-20 Half Nylox	20	• 3/8-16 Nylox
						4	• 3/8-16 * 1 1/2" G8
						4	• Hood Hinge Spacer



1. Stock Front Suspension Removal

Remove the engine and transmission first. The front fenders have to be removed next to gain access to the bolts at the top of the firewall. Support the clip and remove the top firewall bolts. Then remove the 8 bulkhead bolts at the bottom of the stock clip. Make sure to unplug all electrical.

NOTE '62-'66 Steering shafts are one piece so the shaft needs to be removed at the same time as the clip.

The '67 has a rag joint that can be disconnected.



2. Bolt-On Pro-Touring Suspension Clip.

The components that bolt to the front of the Nova firewall are pictured on the left.

- A. Fully welded bolt-on Pro-Touring clip.
- B. L & R bolt-on firewall brackets for down tubes.
- C. Two down tubes with L & R 5/8" rod ends.
- D. L & R hood hinge support brackets.



3. Installing the Pro-Touring Clip on Car.

Lift the clip into place against the lower bulkhead brackets. Install one of the 7/16 x 1 1/4 bolt with washer in a top hole through the clip flange and the bulkhead bracket. Install a washer and nut loosely on the back side.



4. Aligning Mounting Holes on Opposite Side.

After 40 years the Nova stock mounting brackets can vary slightly from car to car. You may need to use a tapered punch inserted through the clip flange and the stock mounting bracket to align the bolt holes. Insert 7/16 x 1 1/4 bolts with washers through each hole.

If a hole is not lining up at all you can run a reamer through the clip flange and clean up the hole in the factory bulkhead.

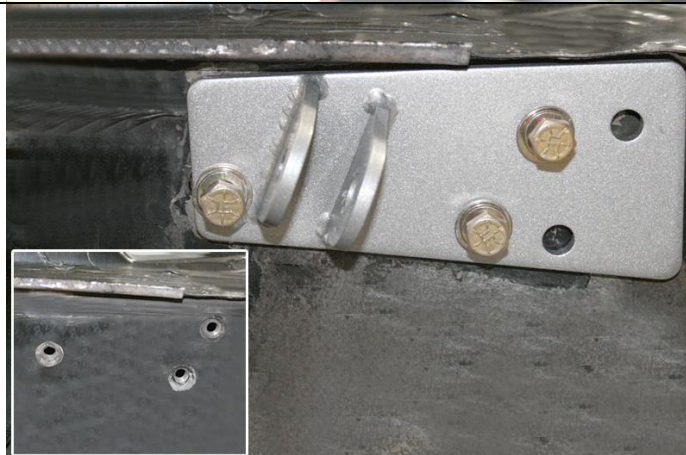


5. Finish Bolting Clip to Car.

Install the balance of the washers and lock nuts and tighten securely as shown.

The lower portion of the clip fully installed is shown in lower picture.

Torque all 8 bolts to 75 ft lbs.



6. Mounting Firewall Down Tube Brackets.

Clean the area on the top of the firewall where the stock clip bolted on. The bracket mounts with the straight edge up and the 4 holed end facing to the outside of the car with the welded tabs angling in towards the middle of the car. Install all three of the 3/8-18 x 1½ inch bolts but only torque the single inner bolts to 30 ft lbs.

NOTE The bracket has two bolt patterns on the bracket, one is to fit '62-'65 Novas and the other is for '66-'67 Nova(Pictured).



7. Installing the Hood Hinge Support Bracket.

The hood hinge support brackets are installed next. Remove the two 3/8" bolts that were previously installed but not torqued. Install the bracket with the small flange facing towards the center of the car. Leave bolts finger tight until further notice.

NOTE Shown is the passenger side on a '66-'67 Nova. The '62-'65 Nova brackets are shaped slightly different but install in the same manner.



8. Installing the 1¼" Down Tubes.

Before installing the down tubes turn the left and right hand 5/8 inch rod ends all the way in until they bottom out. Place one end of the bar into the firewall bracket. Install the ½ x 1¾ inch button head bolts through the firewall bracket tabs with washers on both sides and install ½ nylock nut as pictured.

Now while holding the opposite ends 5/8" rod end turn the tube to lengthen it to go into the tabs on the clip. Finish by bolting the bottom side of the bar on the clip as pictured.

The tube will be adjusted later to align the gap between the front fenders and the door by turning the bar.

NOTE

After final adjustment, try to keep the bars the same length to keep the clip level. You don't want one side of the car to sit higher than the other.



9. Pro-Touring Suspension Clip Installed.

The Pro-Touring suspension clip is installed.

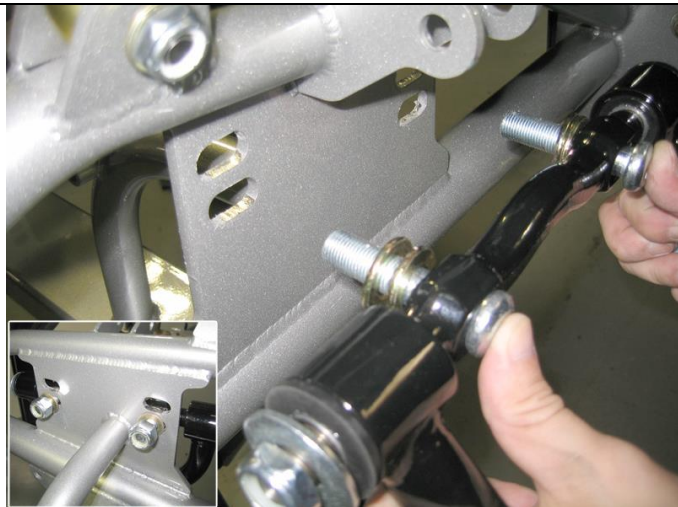
Time to start bolting on the suspension components.



10. Apply Lubricant to Energy Suspension Bushings.

The Energy Suspension grooved urethane bushings in the upper and lower a-arms need the furnished lubricant installed as shown **ONLY** if plain arms were ordered. Powdercoated and polished arms come pre-lubed. The lubricant is only applied to the inside grooved area. Make sure to coat the entire inner surface, filling all grooves. The steel inner sleeves can now be installed. They will sit flush with the outer face of the bushing.

UPPERS: Install the washer and nylock nut and lightly tighten.



11. Installing the Upper A-Arms.

The upper a-arm is installed using the 9/16 x 2½ inch button head bolts and a pair of the thick washers installed as shown to start with. Install washers and lock nuts on the inside. Center the bolt in the alignment slot and torque to 90 ft lbs. Final alignment will be done after project is complete.

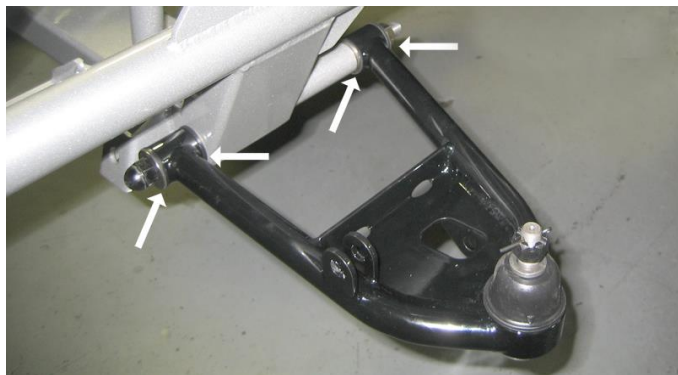
NOTE There are 2 sets of a-arm holes.

Normal street driving

Top holes: ----- .6 degrees camber gain @ 1" bump.

Autocross or Road Course

Bottom Holes: --- 1.2 degrees camber gain @ 1" bump.



12. Installing the Lower A-Arms.

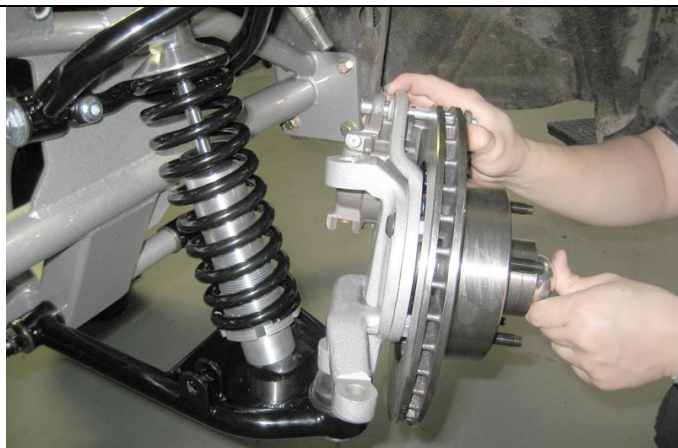
Check the lower pivot tube hole first by sliding the 5/8" lower shaft freely in and out. If the clip has been powder coated you will need to ream the hole with a 5/8" reamer. The a-arms are installed with the sway bar connector tabs at the front of the vehicle. There are 4 stainless washers used against the face of each of the urethanes bushings and are installed where the arrows are indicating. Install the 5/8" shaft with the acorn nut facing forward, washers on both sides of the bushings through the lower pivot and install nut and torque 100 foot lbs.



13. Installing the Coil-Over Shocks.

The Nova Pro-Touring front suspension comes with the adjustable billet aluminum coil-over shocks standard. The shock extended length is 14.5" and 11.375" collapsed and has 12 position rebound control.

Position the shock into the upper mount with the adjustment knob facing rearward for easier access. The threaded portion of the body installs onto the control arm. Install the ½ x 2 3/8 inch 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 and washer through the bracket and shock from the front, add rear washer and ½ nylock nut and tighten securely.



14. Installing the Spindle & Brake Assemblies.

The spindles & brakes come pre-assembled with the bearings packed with Hi-Temp grease and the seals installed.

Set the spindle assembly onto the lower ball joint stud with the steering arm facing forward. Install the thick ball joint washer and then the castle nut and torque 90-100 foot lbs. Make sure to align a slot on the nut with the cotter pin hole in the ball joint stud. Install cotter pin, bend tangs and trim ends.

Lower ball joint = Moog Part# K719

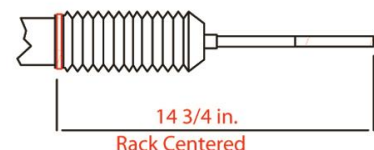
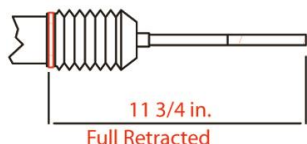
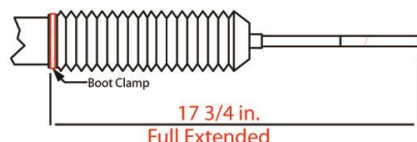


15. Installing Top A-Arm Ball Joint in Spindle.

Position the spindle assembly under the upper a-arm ball joint and install. Install the thick stud washer and castle nut and torque 90-100 foot lbs. Make sure to align a slot on the nut with the cotter pin hole in the ball joint stud. Install cotter pin and bend tangs and trim ends.

Finish tightening the ½ nylock nuts on the ends of the upper a-arm shaft until inner sleeves are seated securely.

Upper ball joint = Moog Part# K772



17. Rack & Pinion Centering Procedure.

The rack assembly 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 tie rod. (This rack was 17 ¾). Turn the pinion in 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. Divide 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.



16. Installing the Rack & Pinion Steering Gear.

The suspension geometry on the Nova Pro-Touring front end is designed for a power steering rack for optimum performance.

Install the rack as pictured using the two 5/8 x 4 inch bolts with the large washer on the outside and the smaller washer on the inside of the bracket. Install the 5/8" nylock nuts and torque 100 ft lbs. No spacers are used between the rack and the brackets on the cross-member.



NOTE Power Rack & Pinion Fittings:

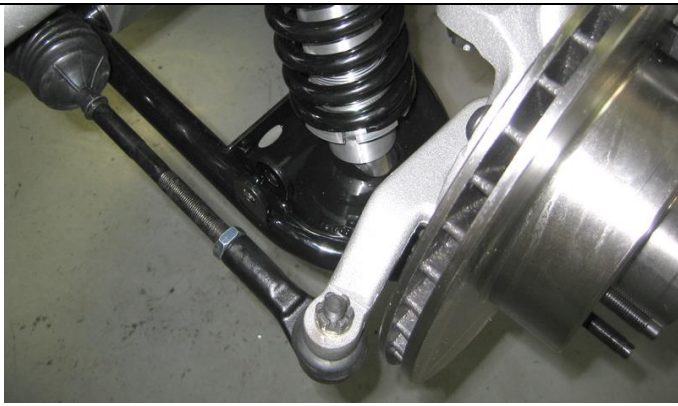
9/16"-18 Pressure side

5/8"-18 Return side

18. Setting Preliminary Toe In.

Using a tape measure, measure the distance from the clip to the front and rear edge of the rotor. Turn spindle assembly until measurement front and back are equal. This will put the toe setting of your front tires in the ball park before final wheel alignment.

NOTE Make sure the rotors do not move.



19. Installing Tie Rod Ends.

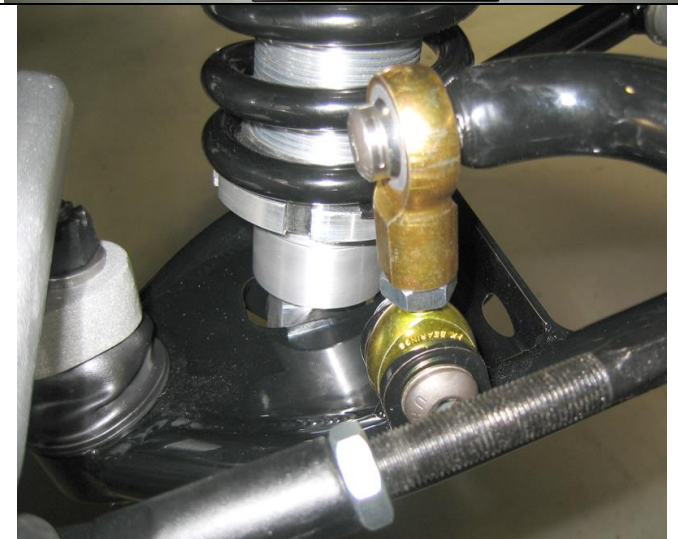
With the rack & Pinion still centered and the spindle assembly at zero toe, install the outer tie rod ends on the rack and thread in until the tie rod stud can be inserted into the steering arm. Install the castle nut and torque 75 foot lbs. Install cotter pin bend tangs and trim ends.

NOTE Double check that the rotors are still even.



20. Installing the Anti-Sway Bar.

The 1" anti-sway bar is installed with the dropped center facing down and forward. Slide the split urethane blocks over the bar. Install the saddle over the urethane blocks and position under the sway bar mounting brackets on the clip. Install the 3/8 x 1 inch button head bolts through the top of the frame bracket, through the saddle and fasten with washers and nylock nuts. Before tightening make sure to center the bar between rails.



21. Installing Anti-Sway Bar End Links.

Adjust the 2 rod end links until they are at their shortest length. Both sides should be the same length.

Install the link as shown with the 1/2 x 1 1/2 inch machined headed button bolt through the female rod end into the end of the sway bar. Install the male end into the tabs on the lower a-arm using the 1/2 x 1 1/2 inch button head bolt, washers and lock nut.

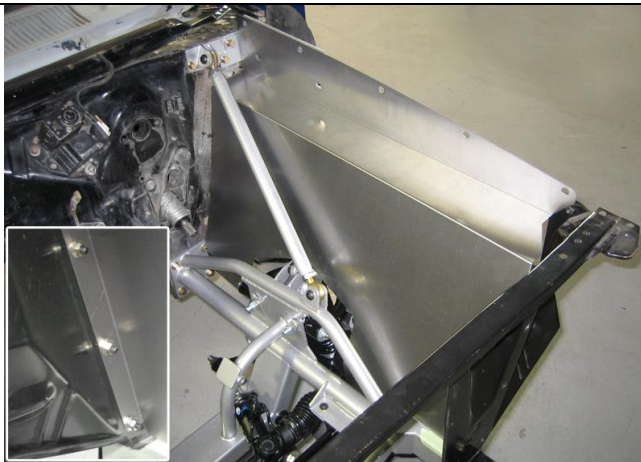
Final adjustment of neutralizing the bar will be made with the project complete, car on the ground and the driver in the car.



22. Installing the Sheet Metal.

The next part of the project is to install the front end sheet metal.

The radiator core support is installed first by installing the 3/8 x 1 x 16 bolts, washers and lock washers through the holes on the end and bottom of the core support into the weld nuts in the nose of the clip.



23. Positioning the Fender Panel in Place.

Install the fender panel in place as pictured with the hood hinge support bracket on the outside of the panel and install the 3/8 x 1 inch button head bolts with washers through the front of the core support, through the fender panel. Install washer and nylock nut and tighten.

***NOTE* Core Support Bolts**

There will be 4 bolts per side on the '62-'65 Nova and 3 per side on the '66-'67 Nova.



24. Installing the Front Fender.

Position the front fender with the fender flange over the fender panel('66-'67 pictured). The fender is bolted to the cowl using the factory bolt and shims for proper fender to cowl height. Fasten the front of the fender to the core support using the factory core support to fender bolt. Align the holes in the fender with the holes in the panel using a tapered punch as shown and install the 3/8 inch button headed bolts, washers and nylock nuts.



25. Aligning Panel With Hood Hinge Bracket.

Check the fender to door gap and adjust the gap by lengthening or shortening the down tubes. Try to keep the final adjusted length of the 2 down tubes equal as possible so that one side of the clip is not higher than the other.

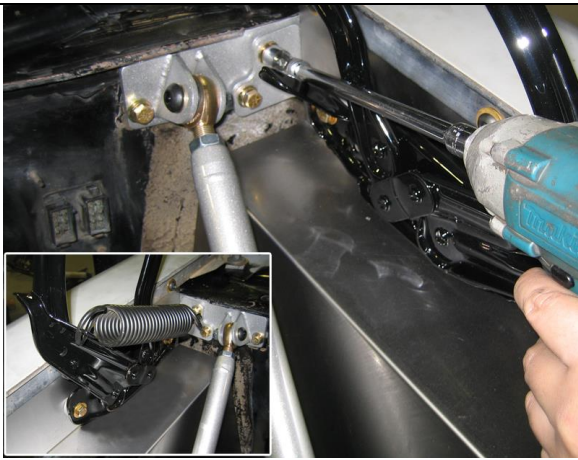


26. Installing the Hood Hinges.

Install the hood hinges using the 3/8 x 1 3/4 inch bolts, washers and the 1/2" thick spacer positioned on the inside of the hood hinge as shown.

***NOTE* The 1/2" spacer is only used on the '66-'67.**

The holes in the hood support bracket and fender panel are oversized and slotted to allow for proper hood alignment. Leave bolts finger tight.



27. Final Tightening of the Hood Hinge Brackets.

After the hood hinge is in place, first tighten the 3/8 inch bolts on the firewall bracket. Now finish by tightening the hood hinge bolts.

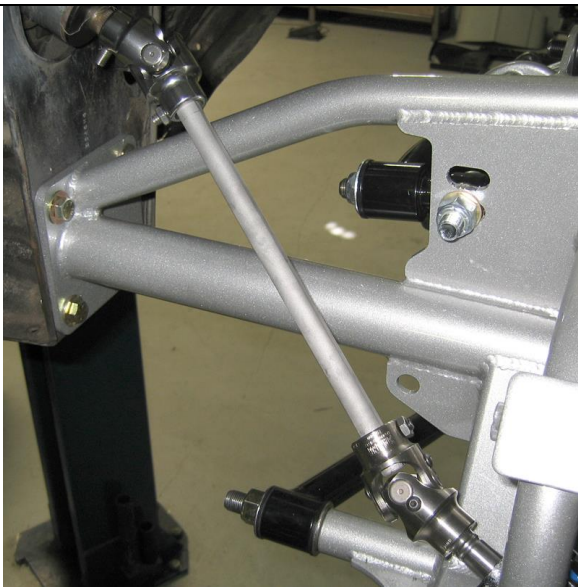
The hood hinge springs will be installed later as shown. It was a lot easier to do a preliminary hood alignment with the springs off. After the springs were installed just a minor adjustment was needed.



29. Installing the Hood.

Position the hood over the hood hinges and bolt down using the factory bolt/washer combination or replace them with 3/8-16 x 1 bolts and large washers and lock washers. Leave the bolts finger tight. Close the hood. Check gaps and shift the hood for desired gap clearance. With the hood located where you want it, finish tightening the hood to hinge bolts from underneath inside the engine compartment.

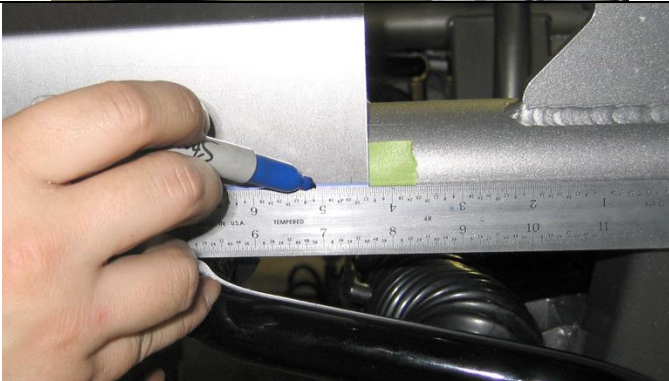
Lift hood and support adequately and install hood hinge springs. Close hood and recheck. The hood on this '66 Nova wanted to rise up at the cowl about a 1/4 inch. We loosened the 3/8" bolts holding the hinges to the support bracket, pushed the hood back down and retightened and solved the problem.



28. Installing Steering U-Joints & Shaft.

The steering column (Ididit) and the universal joint kit (Borgeson) are sold separately.

Install the universal joints on the column and the rack & pinion shaft. Do not allow the shaft on the column or the rack & pinion to protrude into the universal area past the splined part of the joint as it will cause interference during turning. Measure the distance from the end of each joint and add 1 3/4 inches for the 2 Double D holes. I would cut the shaft a little on the long side at first then trial fit. It's always easier to cut off a little more than add. When finished no Double D shaft or splined shaft on the column or rack should extend into the universal working area and cause interference. Torque set screws 20-25 ft lbs. and Loctite set screws and jam nuts securely.

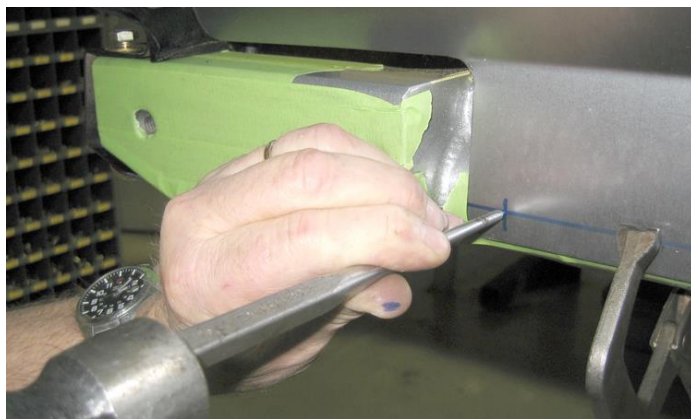


30. Marking the Lower flange on the Fender Panels.

Using a straight edge positioned flat against the lower part of the fender panel on each side of the upper a-arm cutout and the straight edge centered on the 2 inch main rail, mark a line on the fender panel as shown.

NOTE

I used body masking tape on the powder coated rails to prevent scratching the finish. The panels will be removed later and powder coated also and reinstalled using thin padding between rail and panel.



31. Center Punch and Drilling Panel & Rail.

Measure horizontally from the edge of the panel along the marked line and put a down mark. Lightly clamp the panel to the rail. Center punch marked point as shown.

Drill through the panel and frame rail using a # 1 drill bit (.228 inch). Before drilling the next hole, install one hex head 1/4" self-tapping screw and tighten. This will keep the panel from moving around while drilling the second hole. Repeat the process on the rear of the panel and the opposite side panel.



32. Almost Finished!

The last part is to install the grill and related sheet metal and install the front bumper on the front of the clip and adjust properly.

Alignment specifications

Caster: Power rack 4-6 degrees positive
Manual rack 2-3 degrees positive

Camber: 0 Degree(Street)

Toe-in: 1/32 to 1/16 inch

NOTE Run 1-1.5 degrees negative Camber and zero toe for Autocross

AXLE STUD SIZES:

4.5" Bolt circle rotors = 1/2"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

***NOTE* Battery must be relocated after this installation**

TCI Engineering offers a variety of components to complete or upgrade your project.

Brakes

11 Inch Wilwood 4 piston

12 Inch Wilwood 4 piston

12 Inch Wilwood 6 piston

13 Inch Wilwood 6 piston

14 Inch Wilwood 6 pistons

Calipers available polished

Coated Black or Red

Rotors slotted & drilled

Coated Headers

Small Block Chevy

Big Block Chevy

LSx Chevy *Requires 98-02 F-Body oil pan.

Engine Mounts

Energy Suspension Engine Mounts

LSx Engine Mounts

Coil-Over Shock Upgrade

Double Adjustable Billet Coil-Over's

Air Ride Shock Waves

Radiators

All aluminum radiators

With 16 inch electric fan & shroud.

Steering Components

Ididit Steering columns

Borgeson Steering u-joint kits

Power steering Hose kits

Power steering flow valves

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!