



## 62-67 Chevy Nova Custom IFS

Installation Instructions

1-866-925-1101

[www.totalcostinvolved.com](http://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 866-925-1101**

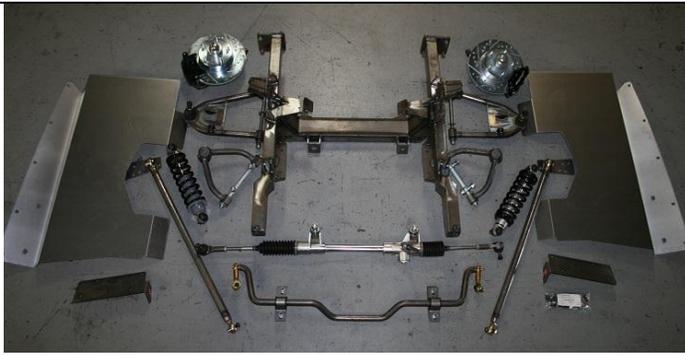


### **Stock Front Suspension Removal**

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.



- 1 - Bolt on Front Clip
- 2 - Down Bars
- 2 - Coil-Overs with Springs
- 1 L & 1 R Inner Fender Panels
- 1 L & 1 R bolt-on firewall brackets for down bars
- 1 L & 1 R Hood Hinge Mounting Brackets
- 2 - Upper Control Arms
- 2 - Lower Control Arms
- 1 - Manual Rack and Pinion
- 2 - Spindle Assemblies
- 1 - Sway Bar



#### **Installing the Custom IFS Clip on the Car.**

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

#### **Aligning Mounting Holes on Opposite Side.**

After 50 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.

Inside/Top bolt goes in from behind the bulkhead

#### **Finish Bolting the Clip to the bulkheads.**

Install the balance of the washers and lock nuts and tighten securely as shown. Torque all 8 bolts 75 ft/lbs.



#### **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 down/in towards the middle of the car. Use three of the 3/8-18 x 1 1/2 inch bolts but only torque the inner most bolt to 30 ft lbs. Leave the other two finger tight.

**\*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).



### Installing the Hood Hinge Support Brackets.

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.



### Installing the 1/4 Inch 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 1/2 x 1 3/4 inch button head bolts through the firewall bracket tabs with washers on both sides and install 1/2 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\*

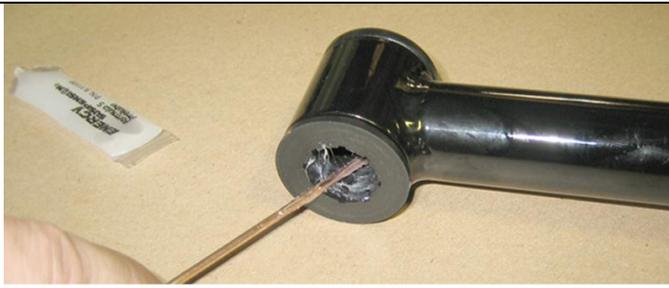
During final adjustment, try to keep the bars the same length to keep the clip level side to side. You don't want one side of the car to sit higher than the other.



### Custom IFS Clip Installed.

The Custom IFS clip is installed with the firewall brackets bolted on, down tubes in place and the hood hinge support brackets lightly bolted on.

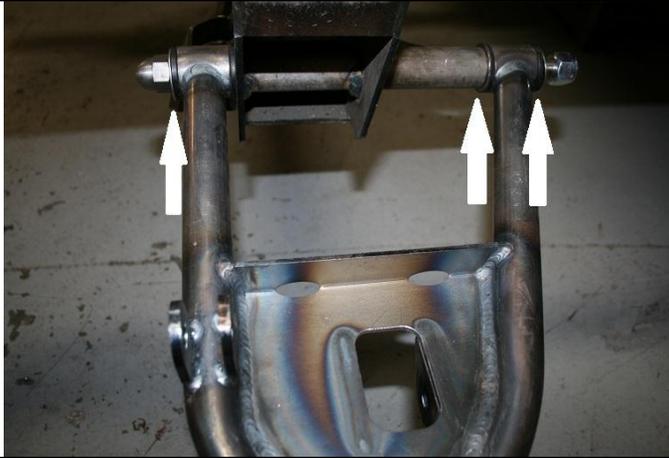
Time to start bolting on the suspension components.



### 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.



### Installing Lower A-Arms.

The A-arms are installed with the sway bar connector tabs facing forward. If the clip has been powder coated you will need to ream the hole with a 5/8" reamer. There are 3 stainless washers used against the bushing face as pictured.

**\*NOTE\*** There is no washer used against the front face of the cross member.

Install the 5/8 inch shaft with the acorn nut facing forward. Torque to 100 foot/lbs.

**Lower Ball Joint = Moog Part# K719**



### Installing the Upper A-Arms.

The upper A-arm is installed using the 9/16 x 2 1/2 inch button 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 button 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 project is complete.

**Upper Ball Joint = Moog Part# K772**



### Installing the standard steel coil-overs

Move the lower control arm down and away from the upper arm. The threaded end of the shock body goes into the lower control arm as shown. The buttonhead will only go into the hole from the front of the control arm.



Once the lower shock bolt is tight you can now lift the control arm up into place and install the upper shock bolt.



### Installing the optional Ridetech adjustable coil-overs

The Ridetech shock must be mounted upside down with the adjuster pointing towards the ball joint.





### Installing the Spindle & Brake Assembly.

The spindle & brake assembly comes assembled with the bearings packed with Hi-Temp grease and the seals installed.

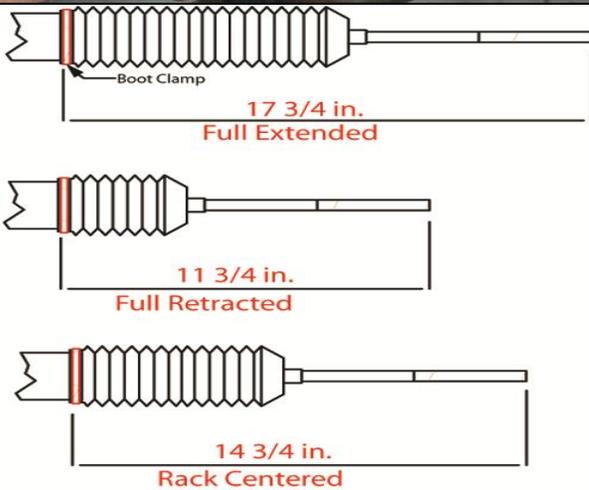
Set the spindle assembly onto the lower ball joint stud with the steering arm facing forward. Install the thick stud washer and then the castle nut and torque to 90-100 ft/lbs. Make sure to align the slot on the nut with the cotter pin hole in the ball joint stud. Install cotter pin, bend tangs and trim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



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

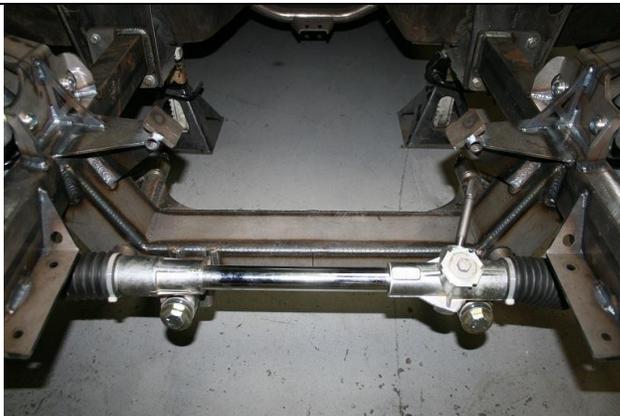
Position the spindle assembly under the upper A-arm ball joint and install. Install the thick stud washer and then the castle nut and torque to 90-100 ft/lbs. making sure to align a slot with the cotter pin hole in the ball joint stud. Install cotter pin and bend tangs and trim ends.

Finish tightening the 1/2 lock nuts on the ends of the upper A-arm shaft until inner sleeves are seated securely.



### 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 is 17 3/4"). Turn the pinion in the opposite lock position and measure from the same point to the end of the same tie rod (11 3/4"). 17 3/4" minus 11 3/4" = 6. Divide by 2=3. Add that number to the smallest measurement (11 3/4" + 3" = 14 3/4") and turn the pinion back till you get that measurement and your rack is centered.



### Installing the Rack & Pinion Steering Gear.

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 inch lock nut and torque to 100 ft/lbs.

**\*NOTE\*** Power racks require the 5/8" spacer between the rack & the cross member.



### Setting Preliminary Toe In.

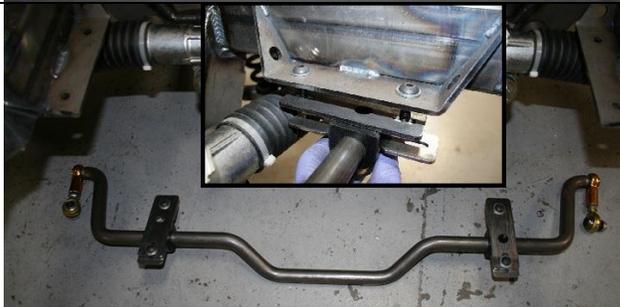
Using a tape measure, measure the distance from the main frame rail to the front and rear edge of the rotor. Turn spindle assembly until measurement front and back are equal. This will put the rotors at zero toe which is in the ball park before final wheel alignment.

\*Make sure the rotors don't move



### Installing Tie Rod Ends.

With the rack & Pinion still centered and the spindle assembly roughly toed in the correct position, install the tie rod end on the rack tie rod and thread in until tie rod stud can be inserted into the steering arm. Install the washer and castle nut and torque to 75 ft/lbs. Install cotter pin bend tangs and trim ends.



### Installing 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 sway bar. Install the saddle over the urethane blocks and position the flat plate 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 washer and lock nut. Before final tightening, center bar between rails.

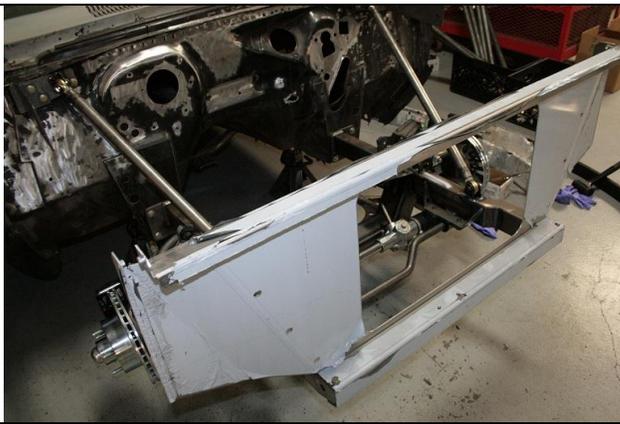


### Installing anti-Sway Bar End Links.

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 3/8" x 1 1/2" machined head button bolt through the female rod end into the end of the bar. Install the male end into the tabs on the lower A-arm using the 3/8" x 1 1/2" button head bolt, washers and nylock nut.

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



### 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.

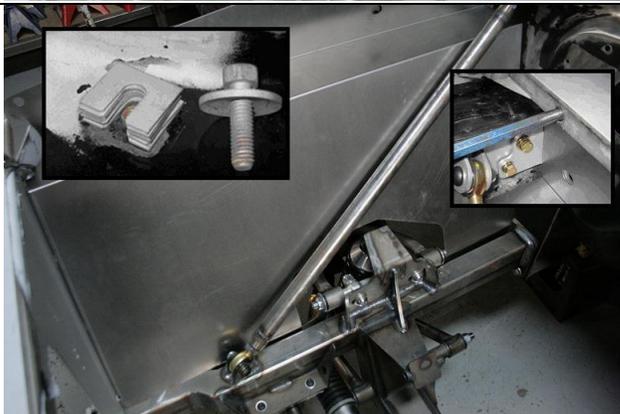


### Positioning the Fender Panels in Place.

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.

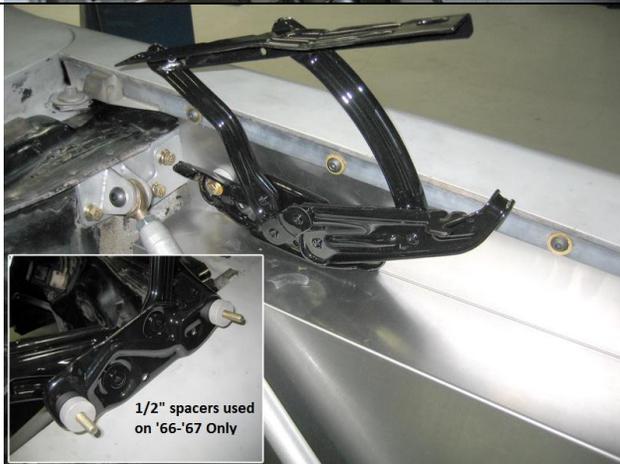
#### \*NOTE\* Core Support Bolts

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



### Installing the Front Fenders.

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.



### Aligning Panel With Hood Hinge Bracket.

Check the fender to door gap and adjust the gap by Adjusting the length of 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.

### Installing Hood Hinges.

Install the hood hinges using the 3/8 x 1 3/4 inch bolts, washers and the 1/2 inch thick spacer ('66-'67 Only) positioned on the inside of the hood hinge as shown. The holes in the hood support bracket and fender panel are oversized and slotted to allow for proper hood alignment. Leave bolts finger tight.



### Final Tightening of Hood Hinge Bracket.

After the hood hinge is in place, first tighten the 3/8 inch bolts that go through the hood hinge bracket and the down tube bracket. Now finish by tightening the hood hinge bolts.

The hood hinge springs will be installed later as shown.

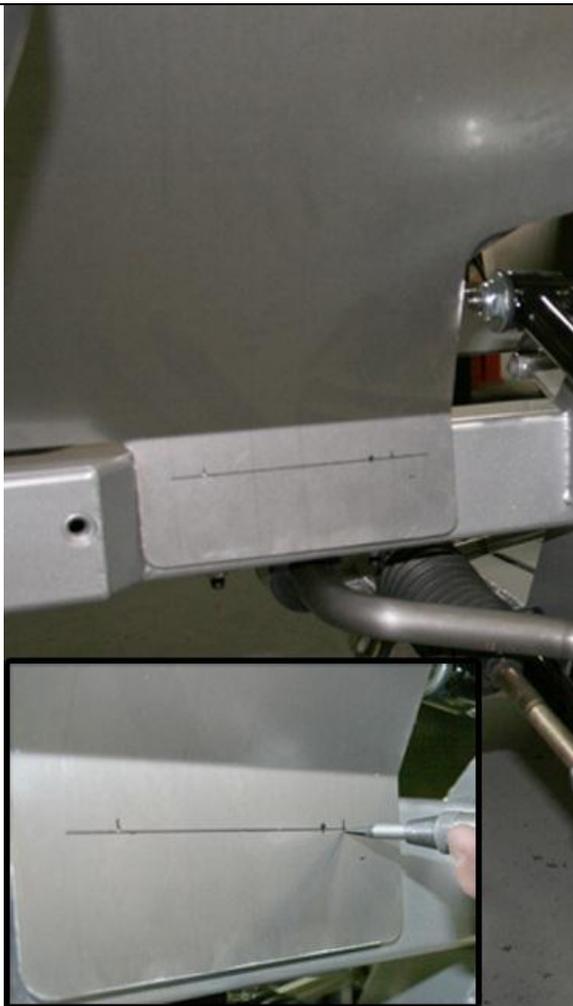
It was a lot easier to do a preliminary hood alignment with the springs off. After the springs were installed just a minor adjustment was needed.



### Installing the Hood.

Position the hood over the hood hinges and bolt down using the factory bolt/washer combination or 3/8 x 1 x 16" bolts and large washers and lock washers. Leave the bolts finger tight. Close the hood. Check gaps and shift 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 1966 Nova wanted to rise up at the cowl about a 1/4 inch. We loosened the 3/8 inch bolts holding the hinges to the support bracket, pushed the hood back down and retightened and solved the problem.

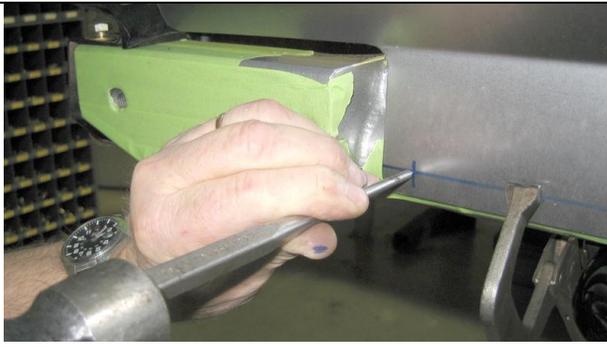


### Marking the Lower flange on the Fender Panel.

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:**

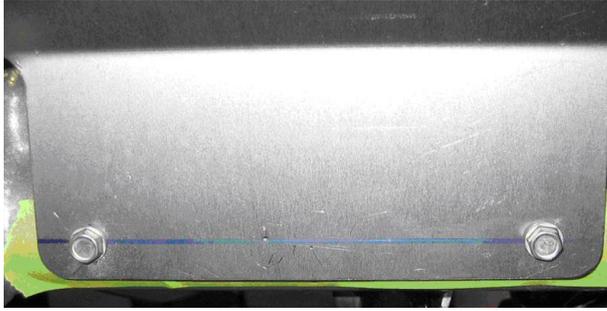
I used body masking tape on the powder coated rails to prevent scratching the finish. The panels will be removed later and powder coated also and reinstalled using thin welting between rail and panel.



### Center Punch and Drilling Panel & Rail.

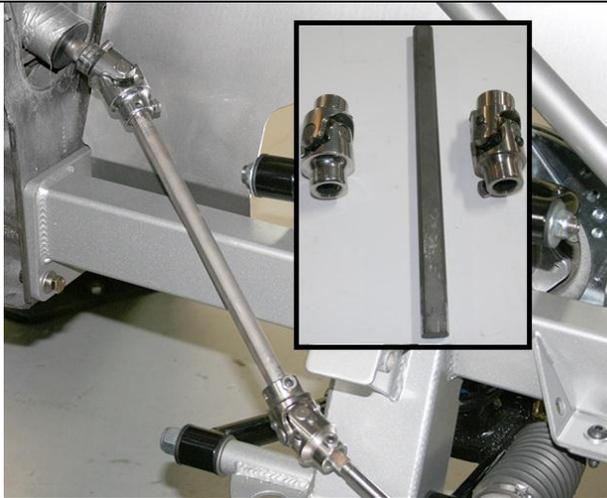
Measure horizontally from the edge of the panel along the marked line and put a down mark. Lightly clamp the panel to the rail. Center punch marked point as shown.

Drill through the panel and frame rail using a # 1 drill bit (.228 inch). Before drilling the next hole, install one hex head ¼ inch 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.



### Finished panels

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



### 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 1¾ inches for the 2 Double D holes. I would cut the shaft a little on the long side at first then trim to 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 to 20-25 foot/lbs. and Loctite set screws and jam nuts securely.



### Almost Finished!

The last part is to install the grill and related sheet metal and install the front bumper onto 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 = ½"x20('75-'80 Ford Granada)

4.75" Bolt circle rotors = 12mmx1.5('82-'87 Camaro)

ALL Wilwood hubs = 7/16"x20

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

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

## Available

### Brakes

11 Inch Wilwood 4 piston  
12 Inch Wilwood 4 piston  
13 Inch Wilwood 6 piston  
14 Inch Wilwood 6 pistons  
Calipers available polished  
Coated Black or Red  
Rotors slotted & drilled

### Coil-Over Shock Upgrade

Billet Adjustable Coil-Over's

### Fender Panels

Aluminum inner fender panels

### Coated Headers

Small Block Chevy  
Big Block Chevy  
LS Chevy\* Requires 99-01 Camaro LS oil pan.

### Engine Mounts

Energy Suspension Engine Mounts  
LS Engine Mounts

### 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!

