1970-1981 Chevy Camaro & Pontiac Firebird Custom IFS

Installation Instructions

1-855-693-1259

www.totalcostinvolved.com

CHECK ALL PARTS INCLUDED IN THIS KIT TO THE PARTS LIST BEFORE INSTALLATION.
IF ANY PIECES ARE MISSING, PLEASE CONTACT: TOTAL COST INVOLVED 1-855-693-1259

Read and understand these instructions before starting any work

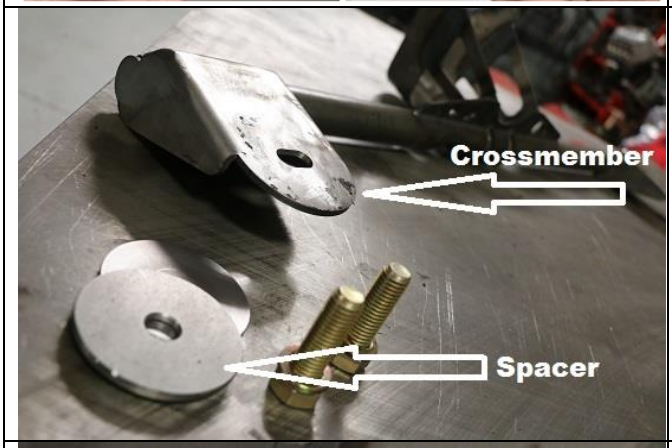
***APPLY ANTI-SEIZE COMPOUND TO THREADS TO AVOID SEIZING AND GALLING THREADS**
***APPLY THREAD LOCKING COMPOUND TO APPLICABLE FASTENERS TO KEEP THEM FROM VIBRATING LOOSE**
Do not paint or powder coat front clip until you test fit all the parts on the body first. Not all Camaro bodies are exactly the same and if adjustments need to be made, you will want to do that before you do any painting or powder coating.
This clip is made to be installed without the factory rubber body bushings. It bolts directly to the car without using any bushings. The original core support bushings are the only bushings that will be reused.

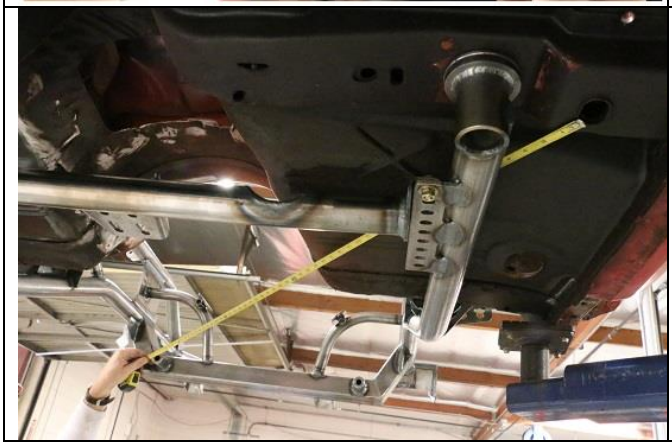
Begin installation by jacking the car up and supporting it on sturdy jack stands. The stands must be located just behind the firewall on the flat side. Do not support the car from the front sub-frame. It is not necessary to remove the front fenders but it will make the installation easier. The inner fenders must be removed though. Disconnect the steering and transmission linkage and remove the radiator, engine and transmission. The factory brake lines on the front will have to be remade to fit your new clip and you should be able to reuse the rear hard lines from the cowl back. Now unbolt and remove the factory sub-frame making note to where the original sub-frame is mounted. The original steering column will not work with the TCI front clip so we chose an *Ididit* column. You will also need two universal steering joints and a steering shaft to hook your steering back up, we chose a Borgeson kit.

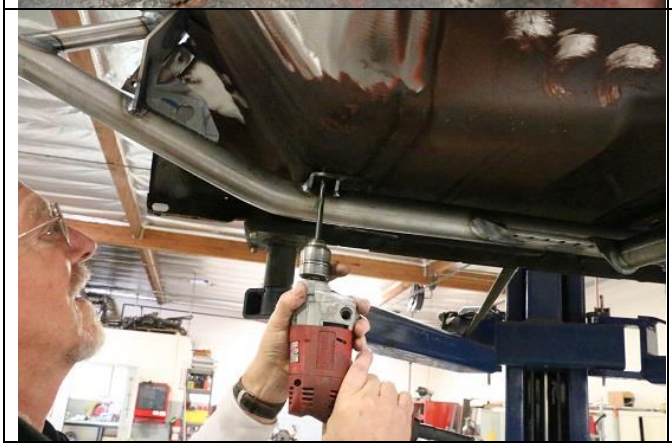
Prep the firewall mounting surface by removing the small flaps on both the driver & passenger side. Pictured above is what it should look like after the top layer (flap) has been removed.

The rear frame rails pull together after the clip is removed from the weld fixture. To facilitate installation and proper alignment, spread the rails and temporarily install the transmission crossmember with the bolt hole centers at 33.5 inch. Once the suspension clip is installed and all bolts tightened, you can remove the crossmember.

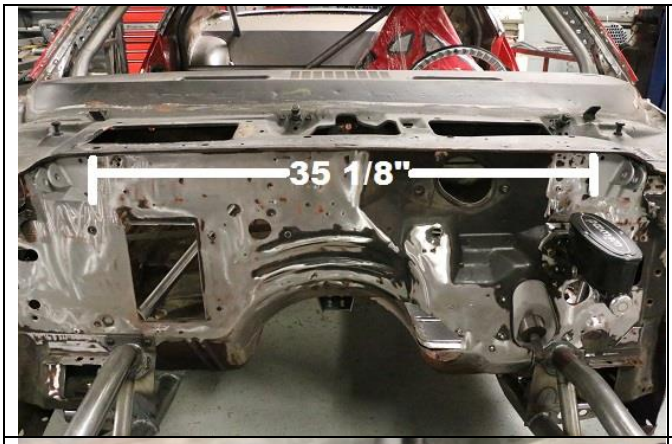
Note: The transmission mount just happened to be upside down in this picture.

	**The wheel wells and mounting brackets have to be removed before installing the clip. We chose to remove the whole fender assembly (only 8 bolts). With the fenders on it's difficult to squeeze the clip between the firewall and the front lower valence. When the wheel wells are installed later they will have to be trimmed on the front edge to clear the outside edge of the top and bottom rail.**
	**After placing the clip under the original mounting holes install the 2 front mounting bolts (5/8 by 11 by 2 inches long) with the lock washer and the ¼ inch thick by 1.625 washers into the factory cage nuts. The front and rear factory rubber bushings are not used; only the very front core support bushing is used. Leave the bolts finger tight to allow centering the clip.**
	**For the rear mounting point on the clip there will be two options. If you purchased the TCI Torque Arm suspension along with your Custom IFS you will be using the torque arm driveshaft loop crossmember. Otherwise, you will need to use the supplied spacers to properly locate the rear of the clip.** **These items fit between the floorboard and the mounting pad on the clip.**
	**If a torque arm crossmember is not being used, place the spacer up against the floorboard between it and the mounting pad on the front clip, this will allow the proper height.**

	**Install the 5/8 by 11 by 2 inch bolt and lock washer into the mounting cup. Using a tapered punch to align the cup, spacer washer and cage nut will expedite installation. Leave the bolt loose to facilitate centering the clip.** **NOTE: This is where the 33.5" measurement center to center we did earlier with the transmission crossmember comes into play.**
	**With the 4 mounting bolts still loose, push the clip tight up against the firewall.**
 	**The body mounting cage nuts are designed to allow moving the clip to align it in the car properly. First measure from the outer edge of the clip to the rocker. Make sure both the driver side and passenger side are of equal distance.**
	**Measure diagonally from the factory jig fixture hole (as pictured) to the edge of the lower a-arm pin, repeat process on the opposite side. It's difficult to get the measurements exactly perfect but get it as close as possible to ensure that the clip is square and centered with the body.** **Now with the clip pushed back against the fire wall and the clip properly aligned with the body, tighten the two rear and the two front 5/8 inch bolts securely around 100 lb. ft.**

	**Using a 3/8” drill bit; drill the 4 holes (two on each side of the car) through the firewall using the firewall mounting bracket as a guide.**
	**Install the 4 button head bolts (3/8 by 24 by 1 inch long) through the firewall.**
	**Install the retaining plate on the bolts on both sides and install the 3/8 Nylock nuts and tighten securely.**
	**Using a 5/16 inch drill bit drill up through the floorboard using the clip as a guide.**

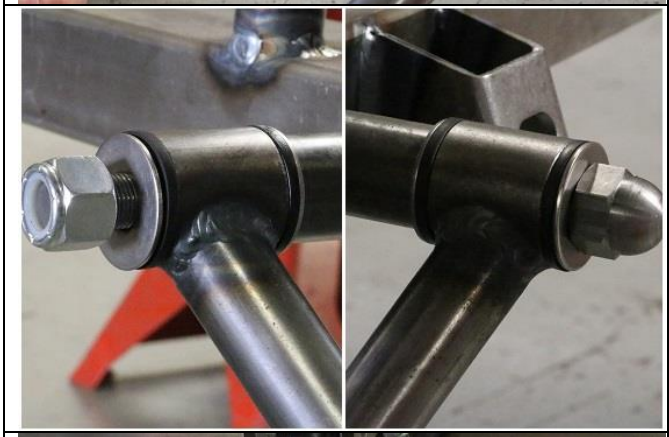
	**There are some variances between the vehicles floorboards and the intermediate mounting bracket on the clip. Using the spacer shims provided use accordingly to fill the gap to prevent distorting the floor..** **NOTE: We had to use 2 on the passenger side and 1 on the driver side on the Camaro we are building.**
	**Install the retaining plate onto the floorboard lining up the holes and install the button head bolts (5/16 by 24 by 1¼ inch).**
	**Install the four 5/16 Nylock nuts (two per side) and tighten securely.**
	**TCI offers optional support down-bars that fasten to the firewall and attach to the front of the clip to add rigidity when going all out on a road course.** **The down-bars require trimming of the wheel wells (see last page of the manual). The driver's side downbar will interfere with the factory brake booster. You will need to use an aftermarket master cylinder like the Wilwood unit pictured in the next frame.**

	**The firewall brackets are tucked up tight under the cowl area and centered 35 1/8 inches inside edge to edge. This will allow the driver's side bar to clear the master cylinder.**
	**Install the four 5/16 self-tapping screws through the bracket into the firewall** **NOTE: Passenger side shown.** **Repeat for the Driver side**
	**Install the button head bolt into the firewall bracket and through the rod end. Install the half Nylock and tighten securely.** **NOTE: Driver side shown.** **Repeat for the Driver side**
	**If you have ordered your clip with the optional down-bars, TCI will pre-install the down-bar brackets on your clip. Place the rod end into the frame bracket. Adjust the bar until the bolt slips easily into the hole and install the button head bolt and nylock.** **Note: Driver side shown** **Repeat for the Passenger side**

Install the lower control a-arms with the acorn side of the 5/8" shaft facing towards the front of the car with one washer on each side of the bushing (4 washers total).

NOTE: Use plenty of the supplied Energy Suspension lube On the inside of the Energy Suspension bushings.

NOTE: The shock mounting tabs face up



After inserting the control arm bolt from the front to the rear and placed the supplied flat washer between each side of the polyurethane bushing, complete assembly by tightening the 5/8" full Nylock nut.

Torque to 100 lbs. ft.

Install the upper control arms with the ball joint facing down. Use 3 flat washers on each bolt, this should be a good start before heading to the alignment shop.

NOTE: There are 2 sets of a-arm holes.
Normal street driving
Top holes: ------0.6 degrees camber gain @ 1" bump.
Autocross or Road Course
Bottom Holes:---1.2 degrees camber gain @ 1" bump.

NOTE: Passenger side shown.
Repeat for the Driver side

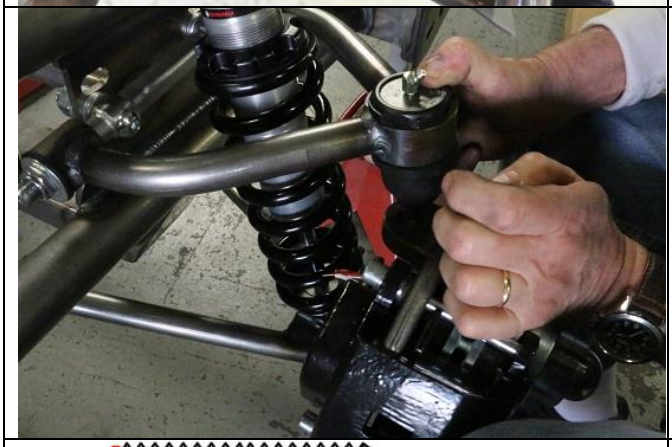
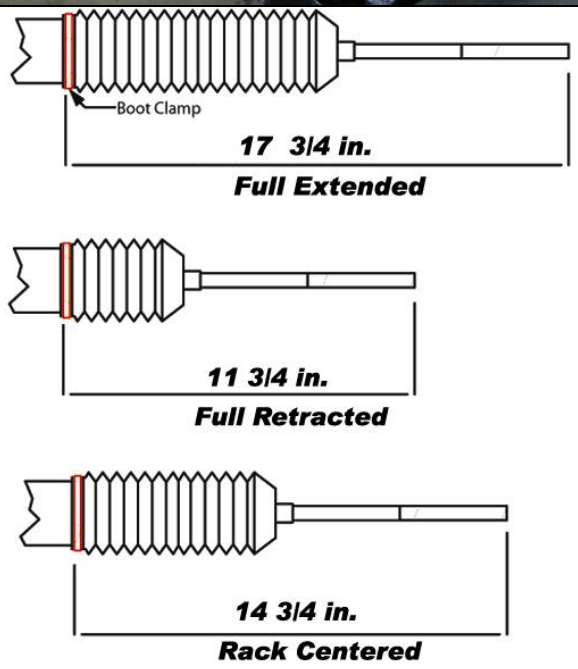
Complete installation by centering the bolts in their alignment slots and tightening the supplied 9/16-18 full height Nylocks. Any excess flat washers can be placed on this side of the plate.

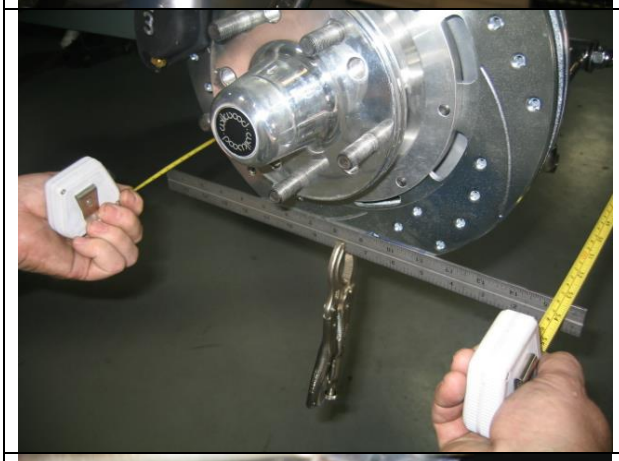
Torque to 80 lbs. ft.

NOTE: Passenger side shown

Repeat for the Driver side

	**Install the Ridetech shocks upside down (adjuster ring on the top) using the supplied ½ -20 by 1 ¾ inch button head bolt and ½ -20 half height Nylock.** **Torque to 80 lbs. ft.** **NOTE: Passenger side shown** **Repeat for the Driver side**
	**Install the shock into the lower a-arm tabs making sure that the adjustment dial faces towards the crossmember and install the 3¾ inch shoulder bolt from the rear through the bracket.** **NOTE: Passenger side shown** **Repeat for the Driver side**
	**The spacer goes in place next** **NOTE: Passenger side shown** **Repeat for the Driver side**
	**The male rod end link for the sway bar can now installed. Install the washer and Nylock and tighten. The top rod end will be attached to the sway bar later.** **NOTE: Passenger side shown** **Repeat for the Driver side**

	**Next up are the spindle assemblies. The easiest way to tell right from left is by the location of the steering arms in relation to the lower ball joint. The steering arm faces forward.** **NOTE: Passenger side shown** **Repeat for the Driver side**
	**Position the spindle onto the lower ball joint making sure not to damage the boot. 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.** **NOTE: Passenger side shown** **Repeat for the Driver side** **NOTE: Lower Ball Joint = Moog K772**
	**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.** **Torque upper ball joint to 80 lbs. ft. & Install cotter pins.** **Torque lower ball joint to 90 lbs. ft. & Install cotter pins.** **NOTE: Passenger side shown** **Repeat for the Driver side** **NOTE:** **GM Caliper fittings = 7/16”-20** **Wilwood Caliper fittings = 1/8” NPT** **Lower Ball Joint = Moog K719**
	**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 just happened to be 17 ¾). Turn the pinion to the opposite lock position and measure from the same point to the end of the same tie rod (this one was 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.**

	**Install the rack & pinion assembly using the supplied 5/8" bolts, washers and Nylocks. Install the tie rod ends onto the rack and into the spindle steering arms.** **Torque to 100 lbs. ft.**
	**Clamp a straight edge to each rotor as shown then using a tape measure front and rear; set the toe-in approximately 1/8" for a starting point.**
	**Install the anti-roll bar into position using the supplied polyurethane and saddle mount making sure that the stepped down center section is down to clear the engine pulley. Fasten anti-roll bar saddle mount using the supplied 3/8-16 x 1 inch hex head bolt; 3/8 inch lock and flat washer.**
	**Complete installation by fastening the upper female ½ inch rod end to male rode end attached to the lower shock mount. Thread the rod end down onto the jam nut and install the button head bolt to the end of the anti-roll bar** **NOTE: Passenger side shown** **Repeat for the Driver side**

Once the engine and transmission are in place the crossmember can be adjusted to its proper location. Fasten with the supplied 3/8-16 x 1¼ inch Gr. 8 Hex Head Bolt and 3/8 inch full height Nylock nut.

The inner fender panels will need to be trimmed to clear the top tube of the clip and also the down bars.

NOTE: Passenger side shown

Repeat for the Driver side

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"
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 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

If you are running an LSx series engine you must use the '98-'02 F-Body oil pan listed below to have the proper clearance between the rack and the oil pan.

Oil pan: 12628771
Oil pump pickup: 12558251
Windage tray: 12558253
Dipstick tube: 12551577
Dipstick: 12551581
O-ring for Oil pump pickup: 12557752

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!