
Coil Spring 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

All engine installations with this front end will require a rear sump oil pan.

The following Ford Racing Oil Pans will work.
289-302 Ford Racing # M-6675-A50 and the 351W: M-6675-A58

<table>
<thead>
<tr>
<th>1960-1965 Falcon or 1962-1965 Comet or 1962-1965 Ranchero - Coil-Spring Front End Parts List – Part#: * 227-2352-0cp-b0q-1bh or 227-2352-0am-aaq-6ah  – The asterisk shown is the plain and standard package</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Coil-Spring Cross member</td>
</tr>
<tr>
<td>• * Part #: 227-2356-00</td>
</tr>
<tr>
<td>2 Plain Upper Control Arms – Hardware</td>
</tr>
<tr>
<td>• * Part #: 200-2257-00 – Plain</td>
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<tr>
<td>• Part #: 200-2257-01 – Black</td>
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<tr>
<td>• Part #: 200-2257-02 – Polished</td>
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<tr>
<td>2 Plain Lower Control Arms – Hardware</td>
</tr>
<tr>
<td>• * Part #: 227-2557-00 – Coil-Spring - Plain</td>
</tr>
<tr>
<td>• Part #: 227-2557-02 – Coil-Spring - Black</td>
</tr>
<tr>
<td>• Part #: 227-2557-05 – Coil-Spring - Polished</td>
</tr>
<tr>
<td>1 Rack &amp; Pinion – Only</td>
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<tr>
<td>• Power Rack Part #: 304-3215-00</td>
</tr>
<tr>
<td>• Manual Rack Part #: 304-3205-00</td>
</tr>
<tr>
<td>2 Strut Rod Ends – Plain for M2 Rack&amp; Pinion Unit</td>
</tr>
<tr>
<td>• Part#: 301-3236-00</td>
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~ New Coil-Spring Front End ~
Front Suspension Installation Instructions

Thank you for choosing TCI Engineering’s Falcon front suspension package. The kit has been designed to not only allow your vehicle to handle corners, steer and brake better and have more engine compartment room but also have that low sports car stance. Although the install will require some cutting, grinding, drilling, welding and some manual labor, the results are well worth the effort.

BEFORE

AFTER
The engine has to be removed. On this project, we decided to leave the transmission installed just to see if it hampered the front end installation. It did not so you can also leave it in place just make sure to hold the bell housing in place with something strong.

Remove all the old suspension components including the steering column. I used a die grinder with a cut off wheel to cut the coils in a couple of places for much easier removal.

Remove the lower A-arm/motor mount brackets.

When cutting, be careful not to cut into the main frame rail.

We will be grinding off the excess material on the main rail.

Next item that needs to be removed are the shock towers. The first cut will be made from inside the wheel well just above the main frame rail flange.
The rest of the cutting will be from inside the engine compartment.

Cut the lower edges of the tower from the frame rail.

The vertical cuts on the towers are made at the bend radius between the tower and fender panel.

The final cut is made across the top in the bend radius.

The TCI anti-sway bar package requires the stock sway bar brackets and the strut rod support channels to also be removed.
Remove all excess material, welds and paint from the main rails to allow for the installation of the boxing plates.

Remove excess material around the shock tower opening until it is flat to the new fender panel; Also: Clean up the cut lines on the inside for a cleaner appearance.

The outer flange on the top of the main rail has to be removed.

Draw a line through the centers of the spot welds.

Carefully cut the flange off, leave about 1/8” or so extra material sticking up.

Use a grinder to remove the last 1/8” material.

If you try to plasma cut the entire flange off in one pass you will remove too much material from the frame rail.

Finish grinding the rest of the remaining flange lip flat with to the top of the rail.

Although you cannot see it in the picture, there is a split between the top and the side rail metal.
The top and outside of the rail need to be seam welded back together.

We made a quick little welding guide fixture so we could weld the seam as straight as possible. We clamped a two foot flat piece of material (I used 1” x 2” aluminum bar) about 3/4” down from the top of the frame rail to maintain a straight edge. Then we just laid the welding tip onto the top of the bar and used it as a guide.

Massage down any high spots or irregularities that aren’t straight or square with a small hammer. Finally, weld the seam and side together making sure the seam attaches both pieces of material.

Grind the welded area flat and square.

At this point, you are done preparing the frame rails.

This is a good time to do any other engine compartment cleaning you would like.

You are now ready to start installing the boxing plates to strengthen the frame in the cross member area.

The folded inside boxing plates are located by using a bolt. Align the rear hole in the folded bracket with the existing hole on the frame rail (drivers side 7/16” x 3” bolt) and the upper idler arm hole (passenger side 3/8” x 3” bolt).

Install the correct outside boxing plate with the bolt and fasten with nut. (The plate with the hole closest to the rear edge of the plate is the passenger side.)

Align the boxing plate edge parallel with the top plate exposing an even section of the stock frame that when welded will tie both boxing plates to each other and to the frame.
<table>
<thead>
<tr>
<th>Image 41x603 to 265x769</th>
<th>Clamping the boxing plates using support plates. Double check to make sure both plates are flat on the frame rail and as close to 90 degrees as possible to each other.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image 44x221 to 262x412</td>
<td>It’s time to tack weld inner and outer boxing plates to each other and to the frame. When it comes to welding, I prefer to heli-arc because it’s cleaner and less grinding afterwards but a wire feed will work fine, just a little more clean-up grinding afterwards.</td>
</tr>
<tr>
<td>Image 42x54 to 264x220</td>
<td>There are rosette welds required on each boxing plate to help tie it to the frame.</td>
</tr>
<tr>
<td>Image 18x772</td>
<td>Weld the outside boxing plate totally 360 degrees around tying it to the frame and the inside boxing plate.</td>
</tr>
</tbody>
</table>
Weld the inside boxing plate on the top, sides and rosettes.

The portion following the bottom line of the frame will be welded later.

It is time to install the formed bottom boxing plate. Install it with the straight edge facing inward towards the engine compartment and the curved and notched edge facing out towards the wheel well.

Align the inside edge of the bottom of the boxing plate parallel with the edge of the inside boxing plate allowing 1/8" gap for weld penetration.

Clamp securely checking for flatness.

Tack-weld the lower boxing plate and double check that everything is square. Weld the inside edge to frame and inside boxing plate tying both together. Weld the boxing plate on the underside of the frame. Don’t weld the outside edge at this time.

The outside edge of the frame is where the two stamped flanges of the frame are spot welded together and will require clearance grinding for the coil spring before welding.

Using the outer edge of the lower boxing plate as the template, grind the two stock frame flanges till they match the profile of the boxing plate edge.

Turn the heat up on your welder and seam weld both frame flanges and the boxing plate together.

Grind and sand the weld edges, round the corners and spot weld any pits or imperfections for a clean finish.
Drill the frame through the existing 3/8” hole in the boxing plates to make the locating point for the cross member.

You are now ready to install the cross member. First install the one inch wide locating plate using a 3/8” bolt through the hole drilled earlier. Slide the cross member with the rack & pinion brackets up against the locating plate.

*NOTE* Driver’s side pictured

You may have to trim the cross member to fit in between the rails. Trim both sides equally.

Use a sturdy flat cross bar (approximately 32” long) and a long c-clamp to pull the cross member up tight against the bottom of the frame and snug it up against the locating plates.
Check to make sure that the cross member is 90 degrees to the top of the frame. This is critical for correct engine angle and lower A-arm angle.

Corrections can be made by slightly trimming the front or rear edge of the cross member that contacts the bottom of the frame.

Double check for square and tack weld all sides and on the bottom.

Remove the locating plate and finishing welding all the way around, switching from side to side so as to not build up too much heat. Weld up the 3/8” holes on the inside and outside of the frame rails and grind flat for a clean appearance.

The control arm shock/coil spring tower bracket is mounted with the tall end towards the front of the car. This is the built-in anti-dive feature. Set the control arm shock/coil spring tower in place with the front face 3 1/16” from the front face of the cross member.

Using a C-clamp pull the bracket down snug to the top of the frame rail keeping the locating slot aligned with the front edge of the cross member and the outside legs of the bracket snug against the outside of frame rail. The mounting plate for the upper control arm should be vertical +/- .5 degrees.

When everything is tight, tack weld in several locations to prevent the bracket from moving. Double check the 3 1/16” measurement then finish welding the tower in place.
The sway bar bracket is mounted 11.25 inches from the front edge of the cross member to the center of the bracket.

Clamp securely to the bottom of the frame with the wings flush against the inside of the frame and weld them in place.

The lower a-arms are installed with the sway bar bung facing forward and ball joint threaded stud facing up. The 5/8” pivot shaft is installed with the acorn nut facing forward with a thin stainless washer being used where the arrows show. Lightly tap the shaft into place making sure a washer is installed in the proper location.

We suggest that you wait until final vehicle assembly (vehicle at full weight) to install the coil springs because it will put undue stress on the ball joints and could cause the boots to tear. Another option is to remove the upper and lower ball joint boots and then cover the ball joints to keep dirt out until you're ready to drive the vehicle.

The coil spring and shock are next.

This is a two person task. Have a jack ready to put under the ball joint end of the a-arm after spring is seated. Remove the zerk fitting in the ball joint as to not damage it during this process.

Install the coil spring with the flat ground end going up into the coil spring tower and the pig tail end of the spring facing down and indexed into the a-arm spring pocket. The spring will have to be compressed in order to install the shock.

Extend the shock (with cupped washer & rubber bushing) up through the a-arm then through the tower shock hole. Install the long 7/16 inch bolt through the hole in the rear of the a-arm, then the shock sleeve and tighten. Install the upper rubber, cupped washer, nut and center in hole and tighten nut.
Install the upper control arms with three Shims .90 thousandth thick between the tower and the control arm shaft on each bolt. This will be a good starting point for the alignment. Use the remaining washers as spacers, one under the head of the bolt and the rest under the lock nut. They will be moved around when final alignment is performed. Start with the bolts in the center of the slots. Positive and negative caster can be achieved by moving the control arm in the slots and positive and negative camber will be achieved with the shims.

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 spindle).

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

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 to 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.
Install the rack and pinion gear assembly using the two 5/8 inch bolts with anti-seize on the threads and tighten.

Note. Some rack and pinion assemblies come with two 5/8 inch thick spacers in the box. They are not to be used on this application. The rack bushings set directly against the brackets on the cross member using no spacers.

Before installing the tie rod ends onto the rack assembly, align the rotors straight forward and clamp a straight edge to each rotor as shown then using a tape measure side to side; set the toe-in approximately 1/8” for a starting point. Adjust the tie rods onto the rack assembly evenly to keep the rack centered for equal turning left and right.

Install the tie rod end jam nut and then the tie rod end turning it an equal amount of turns per side until they line up with the steering arm tapered hole. Check the toe-in again, adjust if needed.

Install the anti-sway bar (center drop of bar down) using the four 3/8” bolts, washers and nylock nuts. The spacer plate goes against the frame bracket first then the saddle bracket next. The brackets are slotted to allow adjustment when aligning the rod end links from the sway bar to the lower a-arm. Cycle the bar up to check for interference with the flange on the edge of the frame, trim frame flange if needed.

The rod end links are installed male end down using the ½ inch button head bolts. Definitely use anti-seize on the threads because the rod ends see a lot of water.
The finished assembly.

The steering column and linkage will be next.

The stock steering column can be cut and modified to work but I chose an Ididit brushed steel two inch diameter tilt retro fit steering column (TCI # 326-3100-00) and a Borgenson steering linkage package (TCI # 310-3120-03) to connect the rack and pinion to the steering wheel.

The inner fender panels are installed using the 4 existing holes that the factory bump stop bracket bolted on to the rest will have to be drilled out. Using a 5/16 inch bit, drill the remaining holes in the inner fender panel and install the 5/16 inch button head bolts, washers and Nylock nuts.

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

After 500-1000 miles the front springs will begin to break in. The lower control arms should be level to the ground or within a degree or two. You can now perform the final alignment. If the vehicle is still too high after 1000 miles it may be necessary to cut some of the coil off. Never cut more than a ¼ coil off at a time.

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

*OIL PANS*

289-302 = Ford Racing # M-6675-A50
351 Windsor = Ford Racing # M-6675-A58
429-460 = Ford Racing # M-6675-A460
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!