
Front Components:
- 11163510  Front CoilOvers
- 11162899  Front Lower StrongArms
- 11163699  Front Upper StrongArms
- 11009310  Ridetech Tall Spindle
- 11169120  Front SwayBar

Rear Components:
- 11167199  Rear 4Link System
- 11166510  Rear Coilover Instructions

Miscellaneous Components:
- 85000000  Spanner Wrench

1967-1969 GM “F” Body Coilover Installation Instructions

Table of contents
- Pages 2-5................. Front CoilOvers
- Pages 6-9................. Front Lower StrongArms
- Pages 10-15............. Front Upper StrongArms
- Pages 16-19............. Tall Spindle
- Pages 20-23............. Front SwayBar
- Pages 24-38............. Rear 4-Link
- Pages 39-40............. Rear CoilOvers
- Pages 41-42............. CoilOver Assembly and Shock Adjustment
1967-1969 GM "F"Body HQ Series Front CoilOvers

Installation Instructions

Table of contents

Page 3.......... Included Components
Page 4.......... CoilOver Assembly
Page 5.......... CoilOver Installation

ShockWave Dimensions:
Center of bearing to Stud Mounting Surface:
Compressed: 10.48”
Ride Height: 12.55”
Extended: 14.08”
## Installation Instructions

**Major Components** .....In the box

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<td>90001995</td>
<td>Bearing Snap Ring (installed in shock body)</td>
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**Diagram Notes:****

- BEARING SPACERS (90002062) ARE INCLUDED WITH THE FRONT LOWER CONTROL ARMS
1. To Assemble the CoilOver you need to:

   a. Remove Screw (2) from center of Adjustment Knob (1) and remove Adjustment Knob.

   b. Remove Nylok Nut, Delrin Upper Cap, Delrin Upper and Lower Balls, along with the base from the Coliover stud.

   c. Thread Adjuster Nut (3) onto the CoilOver body. Once it is threaded on the shock body, lightly thread in the locking screw (4) into the Adjuster Nut.

   d. Install a Delrin Spring Washer (5) onto the Adjuster Nut.

   e. Slide the CoilSpring (6) onto the CoilOver.

   f. Install another Delrin Spring Washer (5) on top of the CoilSpring.

   g. Install the Upper CoilSpring Plate (7) onto the CoilSpring.

   h. Install the CoilSpring Retaining Ring (8) onto the Stud Top Base (9). It fits into the groove in the base.

   i. Slide the Stud Top Base onto the shock until it bottoms out on the stud. It may be necessary to thread the Adjuster Nut down the shock body (to lower the spring) if the base will not slide all the way down onto the stud.

   k. Slide the Lower Delrin Ball (10) (it has the collar sticking up around the center hole) on to the Stud Top.

Repeat on second CoilOver.
CoilOver Installation

2. Check the weld in the area pointed out. We have seen some very poor factory welds in this area. If it doesn’t look adequate to support the vehicle, reweld the area.

3. Drill the OEM shock hole out to 3/4”. This can be done with a Unibit. The CoilOver stud top will come in contact with the coil spring retainer, so it must be opened up towards the engine. A die grinder works well here.

4. With the CoilOver(1) assembled, it is time to bolt them into the car. The factory shock hole will need to be drilled out to 3/4”, this can best be done using a Unibit. Insert to CoilOver Stud Top through the factory hole in the frame. Install the Upper Delrin Ball(2) onto the shock stud with the flat side facing the frame. Next, Install the Delrin Ball cap (3) onto the shock stud with the Concave side facing the Upper Delrin ball. Install the Nylok Nut(3) onto the shock stud and lightly tighten. The needs to be some resistance on the ball but not tight enough that it will not rotate freely. Reinstall the adjuster knob(5) using the screw (6) that was removed during step 1.

TIGHTENING THE TOP 9/16”-18 NUT: SNUG THE NUT DOWN AGAINST THE TOP CAP. YOU NEED TO BE ABLE TO ARTICULATE THE SHOCK BY HAND. WE TORQUE THE NUT TO 80 INLBS USING A 7/8” CROWS FOOT WRENCH ON A TORQUE WRENCH.
1967-1969 GM F-Body Lower StrongArms

Installation Instructions

Table of contents
Page 7........ Lower Control Arm Components
Page 8........ Getting Started & Installation
Page 9......... Installing Spindles and Steering Stop
## Lower Control Arm Components

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<td>Lower Ball Joint Assembly</td>
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<td>90000516</td>
<td>1/2” ID Inner Sleeve</td>
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**Driver Side Shown**

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**Diagram:**

1. Driver Lower Control Arm *(Shown)*
2. Lower Ball Joint Assembly
3. Delrin Bushing - with 2” Diameter Ledge
4. CoilOver Bearing Spacers
5. 1/2” ID Inner Sleeve
6. 1/2”-13 x 3 1/2” Hex Bolt
7. 1/2”-13 Nylok Nut
8. 1/2” SAE Flat Washer
9. 3/8”-16 x 1 1/4” Hex Bolt
10. 3/8”-16 Hex Nut
Congratulations on your purchase of the Ridetech F-Body StrongArms. These StrongArms have been designed to give your F-Body excellent handling along with a lifetime of enjoyment. Some of the key features of the StrongArms: Ball joint angles have been optimized for the lowered ride height, Delrin bushings are used to eliminate bushing deflection along with providing free suspension movement through the entire travel. The Geometry has been optimized for excellent handling, and drive ability. The Delrin bushings are made from a material that is self lubricating so no grease zerks are needed.

Note: These control arms are designed for use with the Ridetech CoilOvers and the MuscleBar swaybar. The factory shocks and springs or the factory sway bar will not fit these arms.

**Installation**

1. Remove the entire lower control arms from the car. If you are replacing the upper control arms and spindle, remove them too. Refer to a Factory Service Manual for the proper method.

2. Drill the factory upper shock mounting hole to 3/4”. This can be done easily with a Unibit.

3. After removing the factory lower control arm, clean the bushing mounting surfaces on the frame. The Control Arms are marked “D” for Driver and “P” for Passenger. The Ballpoint Pin points up and the Sway bar mount is on the front side of the arm. Fasten the lower arm to the frame with the hardware supplied. Note: On some cars the frame brackets may be pinched and will need to be spread back apart to allow the bushing to slide in.

   **Install the CoilOvers at this time. Refer to the CoilOver instructions for Assembly.**

4. Insert the Bearing Spacers into the lower shock bearing. The SMALL end goes into the bearing. Swing the Control Arm up, line up the 1/2” holes with the bearing spacers, insert 1/2”-13 x 3 1/2” bolt. Install a 1/2” flat washer and nylok nut. Torque to 75 ftlbs.
5. Attach the Spindle to the control arms.

**Torque Specs:**
Lower Ball joint - 65 ftlbs and tighten to line up cotter pin.

Install the Cotter Pin after tightening the ball joint nut.

5. Thread the 3/8”-16 nut onto the 3/8”-16 x 1 ¼” bolt. Thread it into the front hole of the ball joint plate. You will need to adjust the steering stop to suite your needs. This setting will vary depending on wheel and tire size and other suspension components.

**NOTE:** If you are running the TruTurn setup, this steering stop bolt will not be used.

6. Tighten all fasteners. If you are going to install the Ridetech MuscleBar, now is a good time to do it.

**Suggested Alignment Specs:**
Camber: Street: -.5 degrees
Caster: Street: +3.0 to + 5.0 degrees
Toe: Street: 1/16” to 1/8” toe in
# 1967-1969 GM F-Body Upper StrongArms

## Installation Instructions

**Part # 11163699**


<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
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<tbody>
<tr>
<td>11</td>
<td>Upper Control Arm Components</td>
</tr>
<tr>
<td>12</td>
<td>Getting Started</td>
</tr>
<tr>
<td>13</td>
<td>Caster Explained</td>
</tr>
<tr>
<td>14</td>
<td>Offset Upper Control Arm Cross Shaft</td>
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<td>15</td>
<td>Installing Spindle and Alignment</td>
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### Recommended Tools

- Wrench
- Hammer
- Torque Wrench

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www.ridetech.com
## Upper Control Arm Components

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<td>7/16” USS Flat Washer - Control Arm Mounting - NOT SHOWN</td>
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### Driver Side Shown

![Driver Side Shown Diagram](image-url)
Congratulations on your purchase of the Ridetech F-Body StrongArms. These StrongArms have been designed to give your F-Body excellent handling along with a lifetime of enjoyment. Some of the key features of the StrongArms: Ball Joint angles have been optimized for the lowered ride height, Delrin bushings are used to eliminate bushing deflection along with providing free suspension movement through the entire travel. The Geometry has been optimized for excellent handling and driveability. The Delrin bushings are made from a material that is self lubricating so no grease zerks are needed.

When assembling the Control Arms tighten the cross shaft nuts enough to create drag on the delrin bushings, the arm should still move through its travel by hand.

**Installation**

1. Remove the entire upper control arms from the car. If you are replacing the lower control arms and spindle, remove them too. Refer to a Factory Service Manual for the proper method.

2. The Upper Control Arm is attaching the factory mount using factory hardware. The driver side arm is shown in Figure “2”. The Ball Joint located on the arm to the rear of the car. Install the T-Washers and 5/8”-18 Lock Nuts using Figure “2” as a reference. These can be tightened after installing the control arms on the car.

3. Install the Ball Joints in the control arms using Figure “3” as a reference. Torque the hardware to 15 ftlbs.
These StrongArms come equipped with a changeable caster slug setup. This allows you to add or remove caster from the front suspension, if desired. The caster slugs that come supplied in the kit are setup to be centered. The caster slugs allow you to add or remove caster without having to use a stack of shims. If more or less caster is desired, optional slugs can be purchased from Ridetech or your Ridetech dealer.

1/8” = 70010882
1/4” = 70010881

Caster Explained:
To understand caster you need to picture an imaginary line that runs through the upper balljoint and extends through the lower balljoint. From the side view the imaginary line will tilt forward or backward. The tilting of this imaginary line is defined as caster.

Caster is measured in degrees by using a caster gauge. If the imaginary line described above tilts towards the back of the vehicle at the top, then you have positive caster. If the imaginary line tilts forward then you have negative caster.

Positive caster provides the directional stability in your vehicle. Too much positive caster will make the steering effort difficult. Power steering will allow you to run more positive caster. Negative caster requires less steering effort but will cause the vehicle to wander down the highway.
The cross shaft that is used in the upper control arms is offset. The offset combined with the caster slug option allows you to achieve the alignment setting you desire with minimal shims. To change the direction the Icon faces simply spin the cross shaft in the control arm.

If you are after a **Street Alignment** bolt the upper control arm to the frame mount with the arm offset to the outside of the car. The Ridetech Icon and Caster Slugs will be facing the wheel.

If a more aggressive **Track or Autocross** alignment is desired, bolt the control arm to the frame bracket with the arm offset to the inside of the car. The Ridetech Icon and Caster Slugs will be facing the engine.
4. The Upper Control Arm is attaching the factory mount using factory hardware with the supplied 7/16” Flat Washer under the OEM Nut. The driver side arm is shown in Figure “2”. The Arrow on the Cross shaft points to the front of the car. Page 4 & 5 has information about Caster and the Caster Slugs.

5. Attach the Spindle to the control arms.

**Torque Specs:**
Upper Ball Joint - 50 ftlbs and tighten to line up cotter pin.

Install the Cotter Pin after tightening the ball joint nut.

6. Tighten all fasteners.

When assembling the Control Arms tighten the cross shaft nuts enough to create drag on the delrin bushings, the arm should still move through its travel by hand.

**Suggested Alignment Specs:**
Camber: Street: -.5 degrees
Caster: Street: +3.0 to + 5.0 degrees
Toe: Street: 1/16” to 1/8” toe in
A/F/X Tall Spindle Kit

Installation Instructions

Table of contents
Page 17........ Included Components and Hardware
Page 18......... Getting Started and Installation
Page 19........ The Finish

THIS SPINDLE IS DESIGNED TO FIT 64-72 GM A-BODY, 67-69 GM F-BODY, AND 68-74 GM X-BODY.

THESE SPINDLES ARE A DIRECT REPLACEMENT FOR OEM DISC BRAKE SPINDLES. IF YOUR CAR HAS DRUM BRAKES, YOU WILL HAVE TO CONVERT IT TO DISC BRAKES. THEY WILL ACCEPT ANY BRAKE KIT THAT IS DESIGNED FOR THE OEM DISC BRAKES SPINDLES.
# Major Components

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Installation Instructions

Getting Started..........

These spindles will fit '67-69 Camaro, ‘64-'72 Chevelle, and ‘68-'74 Nova. They will provide a 2” drop, and are taller than stock to improve the car’s cornering ability. The raised upper ball joint induces negative camber gain and positive caster gain. This helps keep the tires flat on the pavement when cornering. This camber action change also raises the roll center for less body roll, and transfer the car’s center of gravity inboard in the turn as well. You will see an appreciable improvement in handling.

These spindles are designed around stock disc brake spindles and will accept any disc brake set up designed for those. The only modification we discovered to be necessary was a small trim on the bottom of the stamped ¼” steel caliper bracket that holds the caliper. It is an area that is not stressed and will not cause any loss of strength. Trim only enough to make the caliper bracket clear the spindle. If you are using the factory dust shields, they will also require trimming. If your car came with drum brakes, be sure to swap to the appropriate disc brake master cylinder and valving.

Installation

IF YOU HAVEN’T ALREADY DONE SO, REMOVE THE OEM SPINDLE. IF REUSING THE EXISTING CALIPERS, BE SURE TO SUPPORT THEM TO KEEP FROM PUTTING UNWANTED STRESS ON THE BRAKE LINES.

1 & 2. Remove the OEM steering arms from the spindles that were removed from the car. The steering arm will bolt to the BOTTOM set of holes in the spindle using the supplied 1/2” hardware. The mounting bosses of the steering arm are 2 different thicknesses. The thicker boss uses a 1/2”-20 x 2” hex bolt. The thin boss will use a 1/2”-20 x 1 3/4” bolt. Install a 1/2” split lock washer followed by a 1/2” SAE flat washer on each bolt. We suggest using RED Threadlocker on the steering arm mounting hardware. Line up the steering arm mounting holes with the bottom 2 holes of the spindle. Insert the 2” long bolt through the thick boss and the 1 3/4” long bolt through the thin boss, threading the bolts into the spindle. Torque the steering arm hardware to 100 ftlbs.

NOTE: Some steering arms have 7/16” mounting holes, they will need to be drilled out using a 1/2” drill bit.
The Finish

3. Attach the spindles to the control arms. Torque the ball joints and tie rods end using the torque specs below.

**Torque Specs:**
- Lower Ball Joint - 65 ftlbs and tighten to line up cotter pin.
- Upper Ball Joint - 50 ftlbs and tighten to line up cotter pin.
- Tie Rod End - 35 ftlbs and tighten to line up cotter pin.

**Wheel Bearing Tightening:**
While turning the rotor, tighten the nut to 12 ftlbs with a torque wrench. Back off the nut one flat and insert the cotter pin. If the slot and pin hole don’t line up, back off the nut an additional half flat or less as required to insert the pin. Note: Bearings should have zero preload and .001” to .008” of end movement. Bend the ends of the cotter pin, replace the dust cap. On a disc brake with the caliper removed, it’s normal to have a slight amount of play detectable in the bearing.

5. Recheck all hardware before driving.

6. **PUMP THE BRAKE PEDAL BEFORE DRIVING TO RESET THE BRAKE PADS TO THE ROTOR. IF YOU HAD THE CALIPERS REMOVED, BLEED THE BRAKE SYSTEM.**

**Suggested Alignment Specs:**
- Camber: Street: - .5 degrees
- Caster: Street: +3.0 to + 5.0 degrees
- Toe: Street: 1/16” to 1/8” toe in
1967-1969 F-Body Front SwayBar
Installation Instructions

INSTALL SWAYBAR BEFORE REINSTALLING THE FRONT SUSPENSION COMPONENTS.
**Getting Started**

**IT IS VERY IMPORTANT TO ATTACH THE SWAYBAR TO THE FRAME BEFORE REINSTALLING THE FRONT SUSPENSION.**

Remove the OEM Swaybar to prepare for the StreetGrip SwayBar installation.

This SwayBar kit utilizes a Delrin Liner in the SwayBar Bushing. The Delrin Liner allows the Swaybar to move freely and quietly in the Bushing. The Delrin is self-lubricating, no lubrication is required.

1. Insert the SwayBar through the frame into the OEM location. The SwayBar will be installed with the center of the SwayBar hanging down for engine clearance. The Delrin Liner is split on one side to ease installation. We found it easier to install by opening up the Liner enough to slide it onto the end of the SwayBar, then sliding it into position. It will open up and slide over the curves in the Bar. Install a Liner on each side of the SwayBar in the approximate location they will need to be when installing the SwayBar on the Car.
2. Open up the Poly SwayBar Bushings and install them over the Delrin Sleeves.

3. Install Bushing Straps Over the Poly SwayBar Bushings.

4. Slide the SwayBar into position on the Car. You may need to move the bushing assemblies on the swaybar to get the slots in the straps to align with the OEM threaded holes. Install a 5/16” Lockwasher and 5/16” Flatwasher on each 5/16” Bolt and thread them into the OEM Threaded holes. Do NOT Complete tighten the Hardware. It will be left partially loose until the End Links are installed.

Note: Straps may need ground for clearance, depending on the shape of the frame/spring pocket.
5. Install the End Links. Use the photo in Diagram “5” and Diagram “6” for proper installation. The Threads on the bolt should point up. Tighten the Hex Nut enough to slightly compress the Bushings.

6. Install the End Links. Use Diagram “6” for proper installation. Tighten the Hex Nut enough to slightly compress the Bushings.

7. Tighten the Sway Bar Mounting Hardware. Center the mounting bolts in the slots before tightening the bolts.
1967-1969 GM “F” Body Rear Bolt-in 4Link

Installation Instructions

Table of contents
Page 25-26.... Included Components
Page 27......... Hardware List
Page 28........ Getting Started & OEM Variation
Page 29-31.... Cradle Installation
Page 31......... Lower Bar Installation
Page 32........ Lower Bar & Shock Mount Installation
Page 33........ Attaching Lower Shock Mount & Lower Bar
Page 34........ Installing Lower Bar
Page 35........ Setting Pinion Angle
Page 36........ Upper Bar Axle Tab Installation
Page 37........ Installing Axle Tabs & ShockWaves/CoilOver
Page 38........ Installing ShockWaves/CoilOvers & Shock Block Off
# Installation Instructions

## Major Components

In the box

<table>
<thead>
<tr>
<th>Item #</th>
<th>Part #</th>
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<td>3/8”-16 U-Nut (NOT SHOWN)</td>
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### R-Joint Components - (Installed in bar ends)

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<td>70013280</td>
<td>Wavo Wave Spring</td>
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<tr>
<td>70013275</td>
<td>R-Joint Center Ball</td>
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<tr>
<td>70013276</td>
<td>R-Joint Composite Center Ball Cage</td>
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New R-Joints will be quite stiff (75-90 in/lbs breakaway torque) until they “break in” after a few miles of use. After the break in period they will move much more freely. Because the composite bearing race contains self lubricating ingredients, no additional lubrication is needed or desired. Any additional lubrication will only serve to attract more dirt and debris to the R-Joint and actually shorten its life.
Major Components .....In the box

Install the Spacers by inserting the SMALL side of the SPACER into the Center Pivot Ball. Push them in until they bottom out and stop.

New R-Joints will be quite stiff (75-90 in/lbs breakaway torque) until they "break in" after a few miles of use. After the break in period they will move much more freely. Because the composite bearing race contains self lubricating ingredients, no additional lubrication is needed or desired. Any additional lubrication will only serve to attract more dirt and debris to the R-Joint and actually shorten its life.
The Hardware Kit contains bags to help aid in selecting the correct hardware for the component being installed. The hardware list shows how the hardware is bagged.

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<td><strong>4 LINK BARS</strong></td>
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<td>5/8”-18 x 2 3/4” Gr. 8 Bolt 4-Link Bars to Mounts</td>
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<td>99622008</td>
<td>5/8”-18 Nylok Jam Nut 4-Link Bars to Mounts</td>
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<td><strong>CRADLE - FRONT TAB &amp; SWAY BAR MOUNT</strong></td>
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<td>3/8”-16 x 1 1/4” Hex Bolt Sway Bar Backer, Front Cradle Backer</td>
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<td>3/8” SAE Flat washer Sway Bar Backer, Front Cradle Backer</td>
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<td><strong>CRADLE MOUNTING</strong></td>
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<td>99373003</td>
<td>3/8” SAE Flat washer Cradle to Car</td>
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<td>99373007</td>
<td>3/8”-16 Thread Forming Bolts Cradle to Car</td>
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<td><strong>LOWER SHOCK MOUNT &amp; SHOCK MOUNTING</strong></td>
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<td>1/2”-13 x 2 1/4” Hex Bolt Shock to Cradle</td>
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<td>1/2”-13 Thin Nylok Jam Nut Shock to Cradle</td>
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Getting Started........

Congratulations on your purchase of the Ridetech Rear 4-link System. This system has been designed to give your Camaro excellent handling along with a lifetime of enjoyment. This kit replaces the Leaf Springs, this allows the 4-Link to locate the rearend and the CoilOvers/ShockWaves to support the car. This allows each to be optimized for the best performance.

Note: These system is designed for use with the Ridetech Shockwaves or CoilOvers and the MuscleBar swaybar. The factory shocks and springs will not fit this setup.

1. Raise the vehicle to a safe and comfortable working height. Use jack stands to support the vehicle with the suspension hanging freely. You will need a method of raising and lowering the differential.

2. Support the axle and remove the leaf springs, shocks, and tail pipes. Refer to the factory service manual for proper disassembly procedures. Retain the front leaf spring mounts, they will be used with the 4 link. You may need to detach the fuel line from the frame rails. The back seat of the car will also need removed for installation of the 4 link cradle.

OEM Variation

![Diagram of Ridetech Upper Cradle]

Note: In rare cases, the dimension from frame rail to frame rail on your F-Body may vary from the dimension on the Ridetech Upper Cradle. ALL of the Ridetech Upper Cradles are jig built to the dimensions above. The variation in OEM manufacturing specs does happen and is out of our control. If your F-Body frame rails seem out of spec, feel free to contact our Tech Department at 812-482-2932 and we will try to offer some solutions.
3. Remove the Factory Pinion Snubber and Mount from the car, this is necessary for clearance of the Upper Cradle. We use a cut off wheel to remove the mount. Make sure the area where the ARROW is pointing has no material sticking down. The tabs that are against the body can remain. Check both sides where the snubber mount attached to the body.

4. Steps 4-8 cover mounting the Cradle into the car, review all steps. Install the cradle into the car. When the Cradle is positioned properly, the Front Bar should be up against the body, the Front Tab will be up against the bottom side of the seam, and the sway bar mount tabs should be up against the bottom of the trunk pan. The Cradle mounting holes at the Frame will use 3/8”-16 x 1” Thread Forming Bolts. Use a 5/16” Drill Bit to drill the holes using the Cradle as a template.

Note: The OEM fuel line will need to be detached from the frame rails until the Cradle is installed.

5. Image 5 shows how the Front Tab overlaps the body seam. Multiple pieces of the car body overlap at this joint making it a strong area to attach to. Drill these 5 holes with a 3/8” drill bit using the cradle as a template.
6. The kit includes a Backing Plate for the Front Tab. This Backing Plate is installed in the inside of the car. The rear seat will need removed for installation. Lay the Backing Plate on the seam, lining up the 5 holes drilled in the previous step. Install a 3/8” Flat Washer on each of (5) 3/8”-16 x 1 1/4” Hex Bolts. **Insert a Bolt/Washer in each of the holes from the BOTTOM with the threads pointing up.** Install a 3/8” Flat Washer followed by a 3/8”-16 Nylok Nut on threads of each of the Bolts sticking through the Backing Plate.

7. Drill a 3/8” Hole through the each of the Sway Bar Mount Tabs. These holes will go into the trunk so make sure nothing is in the trunk floor. If there is a mat, remove it before drilling the holes.

8. **Image 5** shows the Trunk Backing Plates installed in the trunk. Locate the Backing Plates in the trunk lining up the center hole with the hole drilled in the floor. Install a 3/8” Flat Washer on each of (2) 3/8”-16 x 1 1/4” Hex Bolts. Insert the Bolt/Washer through the Backing Plate, through the trunk floor and Sway Bar Tab with **the Threads on the Bolt pointing DOWN**. Install a 3/8” Flat Washer followed by a 3/8”-16 Nylok Nut on the threads of the bolts sticking through the Sway Bar Tab.
9. Drill the frame mounting holes with a 5/16” drill bit. Install a 3/8” Flat Washer on each of the 3/8”-16 x 1” Thread Form Bolts supplied in the kit. Thread them into the drilled 5/16” holes. DO NOT overtighten these bolts.

10. Tighten the Mounting Hardware on the Cradle before moving to the next step.

11. The R-joint setup is designed to be offset to the inside of the car. The bolt hole in the mounting bracket has to be drilled out to 5/8” and the new 5/8” x 5” bolt, washers, & 5/8” Thin Nylok Nut are used. The wider spacer is used on the outside with a narrow spacer on the inside. This will offset the bar to the inside of the car for better wheel and tire clearance. The bolt needs to go in the bracket like seen in the picture. The Threads of the Bolt must be pointing to the OUTSIDE of the car. Shown in Image 11 is the Driver Side Bar and Mount. Repeat on both sides and tighten the Bolts/Nuts enough to eliminate any gaps.
12. Attach the Lower Bar/Mount Assembly to the car. New 3/16”-16 U-Nuts and 3/8-16” x 1 1/2” Conical Body Bolts are supplied in the kit. Install the U-Nuts in place of the OEM u-nuts. Hold the Assembly in place lining up the holes with the U-nuts. There is a Tab bent up on the Mount that indexes into a hole in the body. Make sure the tab is indexed into the alignment hole.

13. The lower axle bracket will be fastened to the leaf spring pad using the factory T-bolts/U-bolts. The bar mount is offset to the inside of the car to provide more wheel and tire clearance. New 7/16” nyloks are supplied. Torque the nuts to 55 ftlbs.

Image 13 shows the Driver side.

14. Images 14 & 15 illustrate the Lower Shock Mount mounting. Image 14 shows the Multileaf, Image 15 covers the Monoleaf. The leaf spring mount on each of the rear differentials are different heights requiring the Lower Shock Mount be attached in different locations depending on the leaf spring mount. The Lower Mount attaches with (1) 1/2”-13 x 1 1/4” Hex Bolt, (1) 1/2”-13 x 1 3/4” Hex Bolt, & (2) 1/2”-13 Nylok Nut. MULTILEAF - The Multileaf setup uses the MIDDLE 2 HOLES for mounting. Insert the Bolts through the Aluminum Shock Mount with the 1 1/4” long bolt in the top bolt, 1 3/4” in the bottom hole. Insert the bolts through the Axle Mount and install the Nylok Nuts on the Threads sticking through. Repeat on both sides and torque the Bolts/Nuts to 75 ftlbs. Skip to step 16.
Attaching Lower Shock Mount & Lower Bar

15. **MONOLEAF** - The Monoleaf setup uses the **BOTTOM 2 HOLES** for mounting. Insert the Bolts through the Aluminum Shock Mount with the 1 1/4” long bolt in the top bolt, 1 3/4” in the bottom hole. Insert the bolts through the Axle Mount and install the Nylok Nuts on the Threads sticking through. Repeat on both sides and torque the Bolts/Nuts to 75 ftlbs. Skip to step 16.


17. **Images 17-19** illustrate attaching the Lower Bar to the Axle Mount. Image 17 shows the Multileaf, Image 18 covers the Monoleaf, Image 19 shows a bottom view. The different heights of the leaf spring pads of the differentials require the lower bars to be mounted in the correct hole to optimize the geometry of the 4 link bars. A 70013334 Spacer will need to be installed on each side of the R-Joint with the SMALL OD inserted into the R-joint Center Ball. Use **Image 19** as a reference. The Lower Bar attaches with (1) 5/8”-11 x 2 3/4” Hex Bolt, (1) 5/8”-11 Nylok Jam Nut. **MULTILEAF** - The Multileaf setup uses the MIDDLE HOLES for mounting. Insert the Bar into the Lower Mount lining the Bushing Sleeve up with the CENTER set of holes. Insert a 5/8”-11 x 2 3/4” Bolt into the Hole/Sleeve. Install a 5/8”-11 Nylok Jam Nut on the Bolt threads sticking out of the bracket. Repeat on both sides and tighten the Bolts/Nuts enough to eliminate any gaps. Skip to step 19.
18. **MONOLEAF** - The Monoleaf setup uses the BOTTOM HOLES for mounting. Insert the Bar into the Lower Mount lining the Bushing Sleeve up with the BOTTOM set of holes. Insert a 5/8˝-11 x 2 3/4˝ Bolt into the Hole/Sleeve. Install a 5/8˝-11 Nylok Jam Nut on the Bolt threads sticking out of the bracket. Repeat on both sides and tighten the Bolts/Nuts enough to eliminate any gaps.


20. One helpful trick to help maintain ride height and pinion angle while adjusting is to tack weld a spacer between the axle and the outside of the frame as shown in the picture. This spacer should be 8 1/2˝ tall giving the Shockwave an eye-to-eye measurement of approximately 14 1/2˝. When measuring the axle center you can measure off of the frame rails. We also use a plum bob off the quarter panels to double check the axle center. Refer to **Page 12** on Setting the Pinion Angle.

**Note:** You can tack weld the spacer in place after you get the Pinion Angle, and Axle Center set. This will ensure that nothing moves through the Upper Tab Installation.
How do you set the pinion angle? On a single-piece shaft you want to set it up where a line drawn through the center of the engine crankshaft or output shaft of the transmission and a line drawn through the center of the pinion are parallel to each other but not the same line.

Your transmission angle should be around 3 degrees down in the rear. If it is more or less than 3 degrees, you might want to consider changing it. Too little angle on the transmission reduces the amount of oil getting to the rear bushing. Too much transmission angle will increase the working angles of the u-joints which will increase the wear. With the transmission at 3 degrees down in the rear, you will want to set the pinion 3 degrees up in the front.

A simple way to do this is to place a digital angle finder or dial level on the front face of the lower engine pulley or harmonic balancer. This will give you a reading that is 90 degrees to the crank or output shaft unless you have real problems with your balancer. At the other end, you can place the same level or angle finder against the front face of the pinion yoke that is also at 90 degrees to the centerline. If you rotate the yoke up or down so both angles match, you have perfect alignment.

Road testing will tell you if you have it right. If you accelerate and you get or increase a vibration, then the pinion yoke is too HIGH. Rotate it downward in small increments of a degree or two until the problem goes away. If you get or increase a vibration when decelerating, then the pinion yoke is too LOW. Rotate it upward to correct it.
Upper Bar Tab Installation Jig

Upper Bar Installation Jig

- This jig has been supplied to aid in the installation of the upper 4 link bar. It can be temporarily used to properly align, locate and weld the tabs onto the axle. It will also ensure that the mounting bolts are parallel to the ground.
- Follow the diagram below to set the jig to the same length as the upper bar, use the 3/8” x 3/4” bolt and nuts to set the length.
- Position the axle at ride height. Center the axle left to right between the quarter panels. Set pinion angle.
- Bolt one end of the jig to the cradle using a 5/8” x 2 3/4” bolt.
- Using another 5/8” x 2 3/4” bolt, fasten the axle tabs to the other end. There is a Driver and Passenger Inner Tab. It is bent to keep the tab from hitting the center section of the rear end. It is positioned with the tab bent to the front of the car. The short tab goes to the outside of the car. The tabs must be bolted to the outside of the jig.
- Swing the bar down letting the tabs rest onto the axle. Trim the brackets as necessary to minimize the gap to be welded.
- Check pinion angle, ride height and axle center. Tack-weld the tabs in place and tack-weld the back brace in place. Refer to Images 21 & 22 for position of the back brace.
- Remove jig and install upper bar.
- Repeat this process for the other side.
- Recheck pinion angle, ride height and axle center. (Sound familiar?)
- After the tabs have been tack welded on both sides, remove the upper bars to avoid damaging the rod end. Let the axle drop down for better access to the tabs. Lay 1” welds on the inside and outside of the tabs. Skip around from one side to the other to avoid overheating the tube.

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<td>3/4”-16 Jam Nut</td>
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<td>3</td>
<td>Heim End</td>
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<td>4</td>
<td>Alignment Jig</td>
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<tr>
<td>5</td>
<td>Aluminum Spacer</td>
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<tr>
<td>6</td>
<td>5/8” x 2 3/4” Bolt</td>
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<tr>
<td>7</td>
<td>3/8”-16 Nut</td>
</tr>
<tr>
<td>8</td>
<td>3/8”-16 x 3/4” Bolt</td>
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21. Check the length of the upper bar; it should be 10.150” Center to Center. Bolt the axle tabs to the setting jig as specified on the previous page. Straight Tab to the outside of the car, Bent Tab to the inside of the car. The bend needs to be to the front, making the front of the tab run parallel with the cast center section. If they are installed on the incorrect sides, the tab will hit the center section of the axle. Next, place the other end into the cradle. Both ends use a 5/8” x 2 3/4” and should not be fully tightened yet. For now just let axle tabs sit on the axle.

22. Check the fitment of the Tabs and tack weld them to the axle. Do this for the Driver and Passenger side bars. Insert the bars into the Cradle and Tabs to double check fitment. Recheck Axle Center and Pinion Angle. Once satisfied with fitment weld the Upper bar Tabs onto the Axle. Weld 1” at a time, skip around from one side to the other, and one tab to the other to avoid overheating the Axle Tube. When the tabs cool down, install the upper bars using (1)5/8” x 2 3/4” Bolt, and (1) 5/8” Thin Nylok Nut on each end. Install a 70013334 spacer in each side of the R-joint using Image 22 as a reference. Repeat on both sides and tighten the Bolts/Nuts enough to eliminate any gaps.

Remove the Spacer from between the Axle and Frame.

23. Install a 1/2” ID 90002043 spacer on each side of the upper Coilover/ShockWave. Slide the assembly into the upper crossmember from the bottom side. Position the adjuster knob so that the knob points toward the center of the car. Line up the hole in the spacers with the hole in the upper shock bridge and insert 1/2”-13 x 2 1/4” bolt and install 1/2”-13 Thin Nylok nut.
24. Install a 5/8” ID 90002067 spacer (Small side towards shock body) onto the lower Shock Stud. Slide the bottom of the Shock onto the Stud. Install a second 5/8” ID 90002067 Spacer onto the Stud (small side towards shock). You may need to jack the rearend up to Slide the Shock onto the Stud. Install the 7/16” Flat washer and 7/16” Nylok nut. Tighten the upper and lower shock bolts. Torque the Upper Bolt to 55 ftlbs and the Lower Nut to 40 ftlbs. The designed ride height of the CoilOver/ Shockwave is 14 1/2” center to center.

Note: If installing Shockwaves and you want to locate the air fitting in a different location, the air spring assembly can be rotated on the shock by grabbing the air spring assembly by hand and spinning it on the shock.

25. Bolt the Shock Block Off Plates in place of the OEM upper shock mounts using the OEM hardware. If you are running Mini Tubs, these mounts do not exist any more.
1967-1969 GM “F”Body HQ Series Rear Coilovers

Installation Instructions

Table of contents
Page 40........ Included Components
Page 41........ Assembly and Adjusting
Page 42........ Final Adjustment and Setting Height

ShockWave Dimensions:
Center of bearing to Center of bearing:
Compressed: 11.23”
Ride Height: 14.50”
Extended: 16.43”
### Major Components

...In the box

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<th>Part #</th>
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<td>3</td>
<td>803-00-109(kit)</td>
<td>Upper Coil Spring Retaining Plate (803-00-109 kit)</td>
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<td>Adjuster Nut Locking Screw (803-00-109 kit)</td>
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<td>Retaining Ring (803-00-109 kit)</td>
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<td>1/2” ID Upper Shock Bearing Spacer Half</td>
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<td>5/8” ID Bearing (installed in shock and eyelet)</td>
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<tr>
<td></td>
<td>90001995</td>
<td>Bearing Snap Ring (installed in shock and eyelet)</td>
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CoilOver Assembly...

Rebound Adjustment:
How to adjust your new shocks.
The rebound adjustment knob is located on the top of the shock absorber protruding from the eyelet.
You must first begin at the ZERO setting, then set the shock to a medium setting of 12.

- Begin with the shocks adjusted to the ZERO rebound position (full stiff). Do this by rotating the rebound adjuster knob clockwise until it stops.

- Now turn the rebound adjuster knob counter clockwise 12 clicks. This sets the shock at 12. (settings 21-24 are typically too soft for street use).

Take the vehicle for a test drive.

- If you are satisfied with the ride quality, do not do anything, you are set!

- If the ride quality is too soft increase the damping effect by rotating the rebound knob clockwise 3 clicks.

Take the vehicle for another test drive.

- If the vehicle is too soft increase the damping effect by rotating the rebound knob clockwise 3 additional clicks.

- If the vehicle is too stiff rotate the rebound adjustment knob counter clockwise 2 clicks and you are set!

Take the vehicle for another test drive and repeat the above steps until the ride quality is satisfactory.

Note:
One end of the vehicle will likely reach the desired setting before the other end. If this happens stop adjusting the satisfied end and keep adjusting the unsatisfied end until the overall ride quality is satisfactory.
Final Tightening and Adjusting

Ride Height

We have designed most cars to have a ride height of about 2” lower than factory. To achieve the best ride quality & handling, the shock absorber needs to be at 40-60% overall travel when the car is at ride height. This will ensure that the shock will not bottom out or top out over even the largest bumps. Measuring the shock can be difficult, especially on some front suspensions. Measuring overall wheel travel is just as effective and can be much easier. Most cars will have 4-6” of overall wheel travel. One easy way to determine where you are at in wheel travel is to take a measurement from the fender lip (center of the wheel) to the ground. Then lift the car by the frame until the wheel is just touching the ground, re-measure. This will indicate how far you are from full extension of the shock. A minimum of 1.5” of extension travel (at the wheel) is needed to ensure that the shock does not top out. If you are more than 3” from full extension of the shock then you are in danger of bottoming out the shock absorber.

Adjusting Spring Height

When assembling the CoilOver, screw the spring retainer tight up to the spring (0 preload). After entire weight of car is on the wheels, jounce the suspension and roll the car forward and backward to alleviate suspension bind.

• If the car is too high w/ 0 preload then a smaller rate spring is required. Although threading the spring retainer down would lower the car, this could allow the spring to fall out of its seat when lifting the car by the frame.

• If the car is too low w/ 0 preload, then preload can then be added by threading the spring retainer up to achieve ride height. On 2.6” - 4” stroke shocks, up to 1.5” of preload is acceptable. On 5-7” stroke shocks, up to 2.5” of preload is acceptable. If more preload is needed to achieve ride height a stiffer spring rate is required. Too much preload may lead to coil bind, causing ride quality to suffer.