



350 S. St. Charles St. Jasper, In. 47546

Ph. 812.482.2932 Fax 812.634.6632

www.ridetech.com

Part # 11170210
70-81 GM "F" Body Complete CoilOver System
HQ Series

Front Components:

1	11173510	Front HQ Series CoilOvers
1	11172899	Front Lower StrongArms
1	11163699	Front Upper StrongArms

Rear Components:

1	11177199	Rear AirBar – Bolt-on 4 Link
1	11176510	Rear HQ Series CoilOvers

Components:

1	85000000	Spanner Wrench
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Part # 11173510
70-81 GM "F" Body HQ Series Front CoilOvers
For Use w/ StrongArms

Shock Assembly:

2	24139999	3.6" stroke HQ Series shock
2	90009989	2.75" adjustable threaded stud top
2	90001994	.625" I.D. bearing
4	90001995	Bearing snap ring

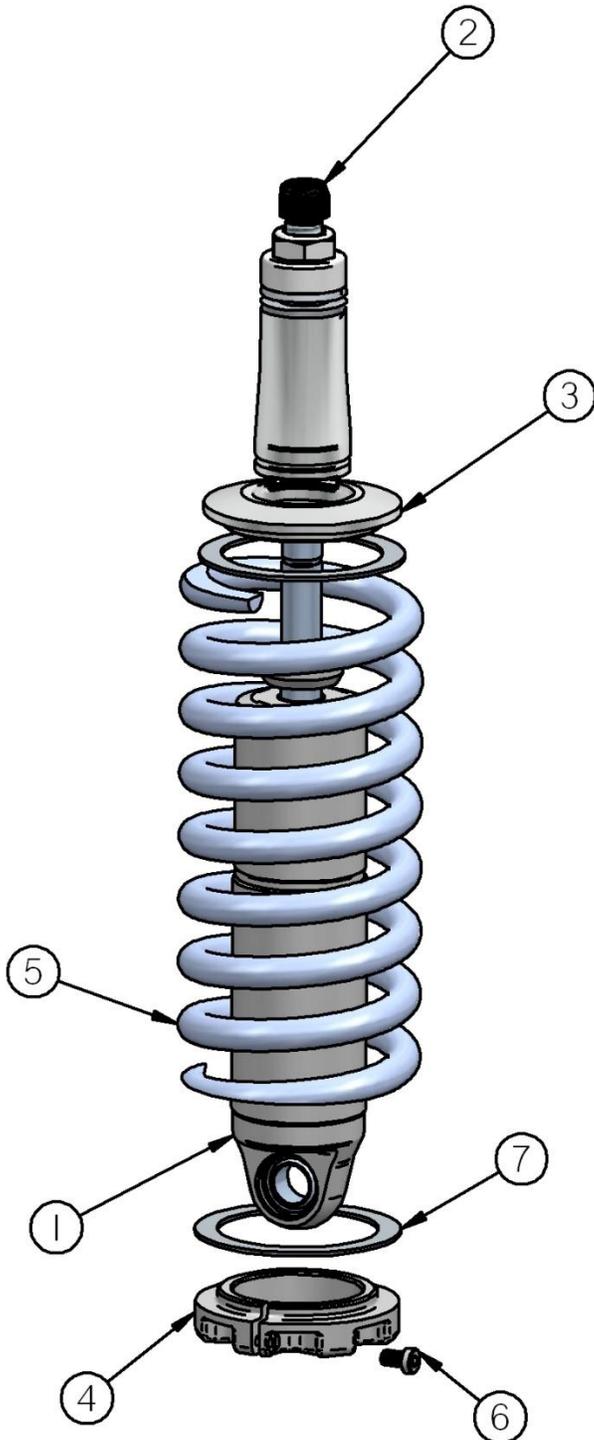
Components:

2	59080600	Coil spring – 8" long / 600 # rate
2	90002313	2.75" stud top base
2	90002222	Spring retainer kit
2	90001902	Aluminum cap for Delrin ball
2	90001903	Delrin ball upper half
2	90001904	Delrin ball lower half
4	70010828	Delrin Spring Washer

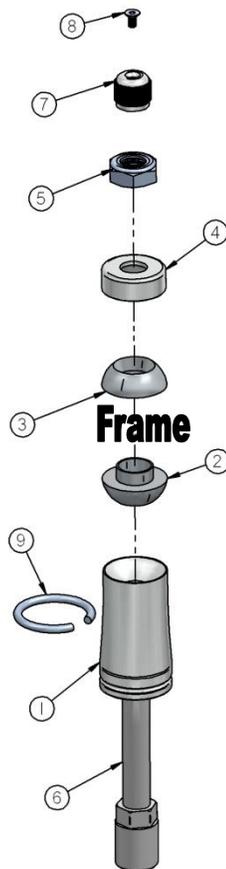
Hardware:

2	99562003	9/16" SAE Nylok jam nut	Stud top hardware
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COILOver

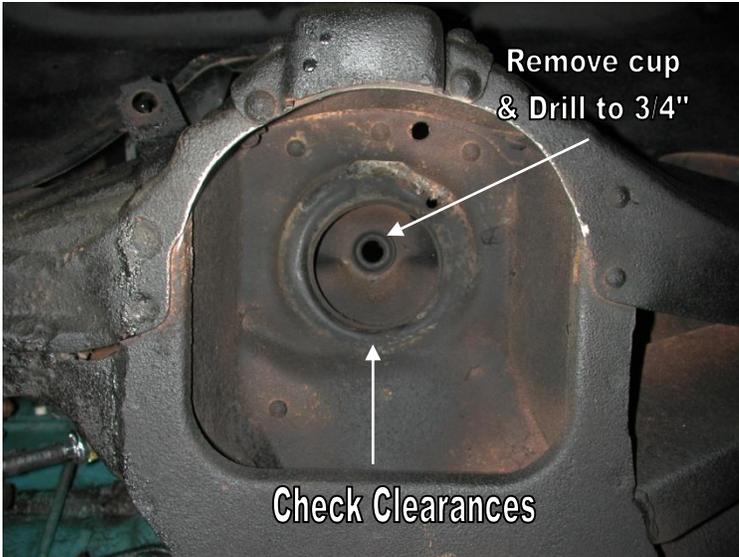


1. Impact Forged, Monotube shock
2. Rebound adjustment knob (SA Only)
3. Upper coil spring retainer
4. Lower coil spring retainer
5. High tensile coil spring
6. Set screw
7. Delrin Spring Washer



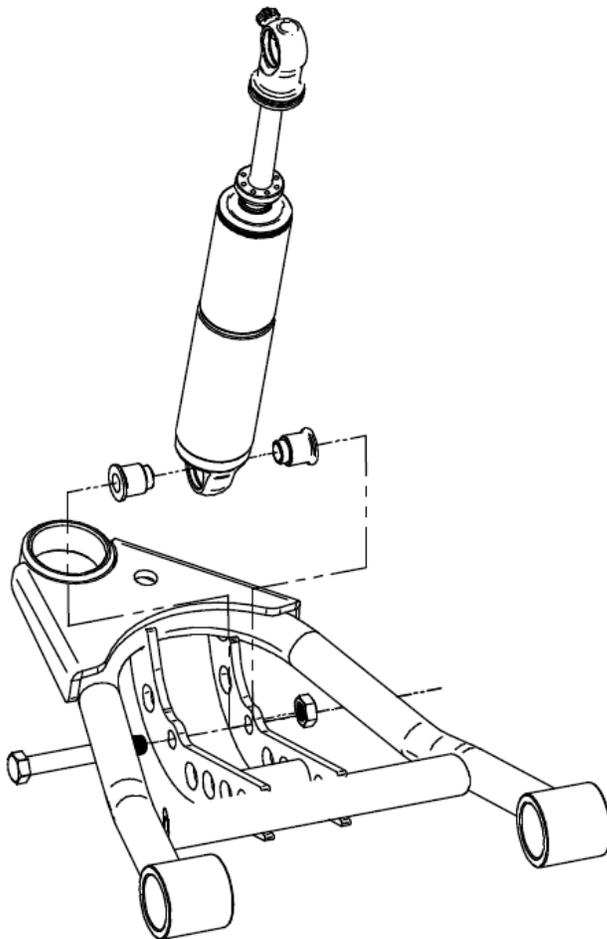
1. Stud top base
2. Lower Delrin ball half
3. Upper Delrin ball half
4. Aluminum cap
5. 9/16" Nylok jam nut
6. Threaded stud
7. Adjustment knob (SA Only)
8. Screw
9. Snap ring

COILOver



1. To allow the step in the lower Delrin ball half to slide into the factory shock hole, the bushing cup will need to be removed (if your car has one) and the hole may need to be drilled out to $\frac{3}{4}$ ".

2. Assemble the CoilOver then place into the coil spring pocket w/ the stud and lower Delrin ball sticking through the factory shock hole.



3. Check clearance between the upper factory spring retaining lip and stud top base. Allowing this to hit could cause the shock to break, this

4. Place the upper Delrin ball over stud, then the aluminum cap. Secure the assembly w/ the 9/16" Nylok jam nut.

5. Attach the bottom of the shock to the lower StrongArms using the spacers and hardware supplied w/ the arm.



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Part # 11172899
70-81 GM "F" Body Lower StrongArms
For Use w/ Shockwaves or CoilOvers

Components:

1	90000589	Driver side arm
1	90000590	Passenger side arm
2	90000896	Ball joint (includes boot, grease fitting, castle nut & cotter pin)
8	90001089	Polyurethane bushing half
4	90000516	1/2" I.D. Inner bushing sleeve installed in arms ('70-'72)
4	90000517	9/16" I.D. Inner bushing sleeve ('73-'81)
4	90002062	Aluminum bearing spacer
4	99250001	¼-28 grease fitting – Use Lithium grease in control arm bushings

Hardware:

2	99501024	1/2"-13 x 3 ¼" Gr.5 bolt	Shockwave to lower arm
2	99502002	1/2"-13 Nylok nut	Shockwave to lower arm
2	99371010	3/8" x 5 ½" USS bolt	Sway bar end link
2	99372002	3/8" Nylok nut	Sway bar end link
4	99501005	1/2"-13 x 3 ½" Gr.5 bolt	Lower arm to frame ('71 & '72)
4	99502007	1/2"-13 Nylok Jam Nut	Lower arm to frame ('71 & '72)
4	99561006	9/16"-12 x 3 ½" Gr.5 bolt	Lower arm to frame ('73 & '81)
4	99562005	9/16"-12 Nylok Jam Nut	Lower arm to frame ('73 & '81)

STRONG ARMS™

by Air Ride Technologies

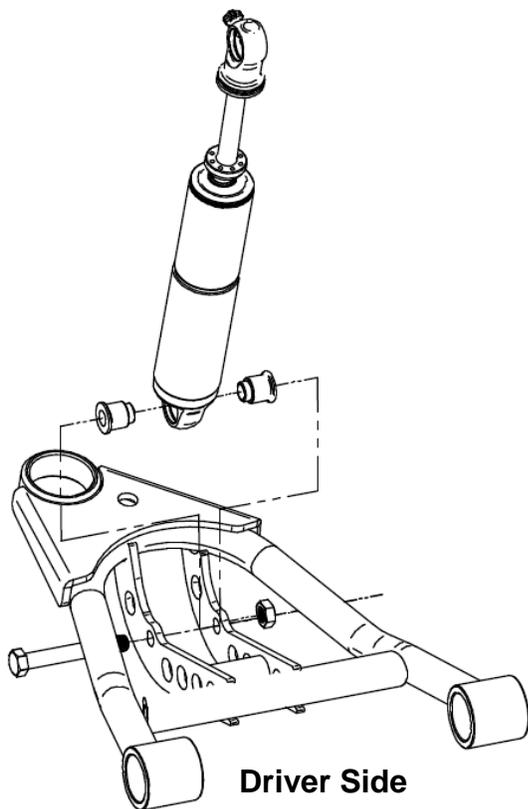
Installation Instructions



1. After removing the factory lower control arm, clean the bushing mounting surfaces on the frame and lubricate with Lithium grease.

2. Fasten the lower arm to the frame with the hardware supplied. There are two different size bushing sleeves supplied 1/2" and 9/16". '71 & '72 model years will use 1/2". '73-'81 will use 9/16".

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.



3. Swing the lower StrongArm up to the Shockwave or CoilOver and secure with the 1/2" x 3 1/4" bolt and Nylok nut, an aluminum spacer must be installed on each side of the bearing.

4. Slide the ball joint boot over the stud, then push the stud up through the spindle. Secure w/ the new castle nut and cotter pin supplied.

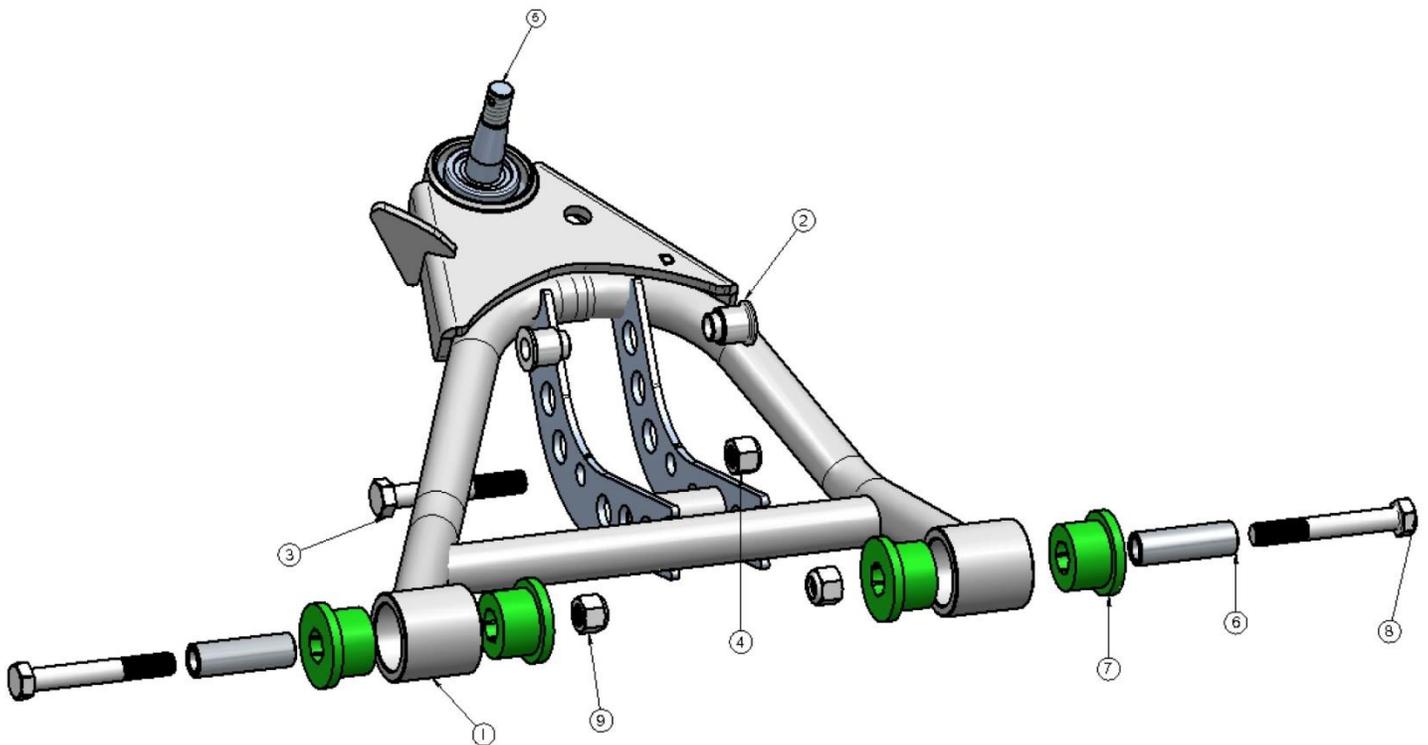
5. Grease the ball joints.

6. Lubricate lower arm bushings w/ Lithium grease.

STRONG ARMS™

by Air Ride Technologies

Item #	Description	Qty.
1.	Passenger side arm	1
1.	Driver side arm	1
2.	Aluminum bearing spacer	4
3.	1/2"-13 x 3 1/4" bolt	2
4.	1/2"-13 Nylok nut	6
5.	Ball joint	8
6.	Inner bushing sleeve	4
7.	Poly bushing half	8
8.	1/2"-13 x 3 1/2" bolt	4
9.	1/2"-13 Nylok nut	6





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Part # 11173699
70-81 GM "F" Body Upper StrongArms

Components:

- | | | |
|---|----------|---|
| 1 | 90000591 | Driver side arm |
| 1 | 90000592 | Passenger side arm |
| 2 | 90000899 | Upper ball joint (includes boot, grease fitting, castle nut & cotter pin) |
| 2 | 90000917 | Cross shaft kit w/ bushings & hardware |
| | | (Install serrated washer between shaft and bushing) |
| 2 | 90001083 | 1.5" tall bump stop w/ hardware |

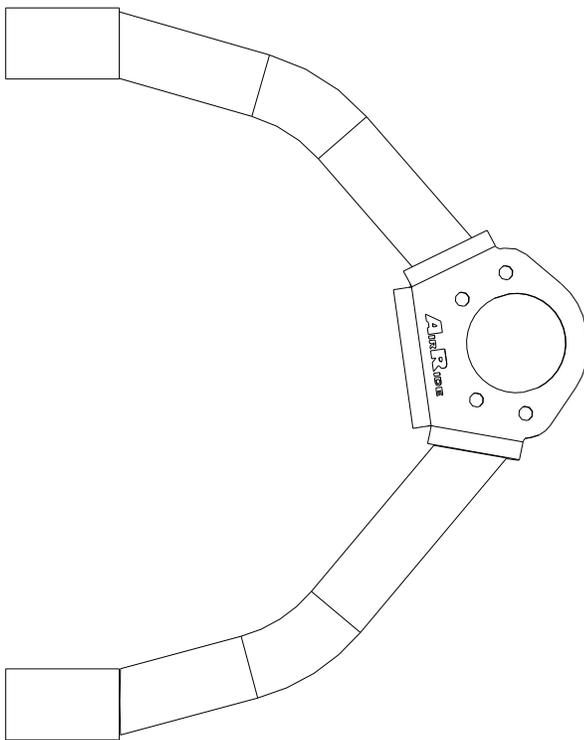
STRONG ARMS™

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1. Fasten the upper arm to the frame using the factory hardware. Reinstall the current alignment shims, but **vehicle must be realigned**. This arm was designed with an extra 2 degrees of positive caster allowing the car to be aligned with up to 4 degrees of positive caster. (This will vary from car to car.)

2. Slide the bump stop stud through the 3/8" hole in the lower control arm.



3. Drop ball joint down through upper arm. Slide ball joint boot over stud, then place boot retainer over the boot. Clamp assembly tight w/ the hardware supplied.

4. Fasten the ball joint to the spindle w/ the new castle nut and cotter pin supplied.

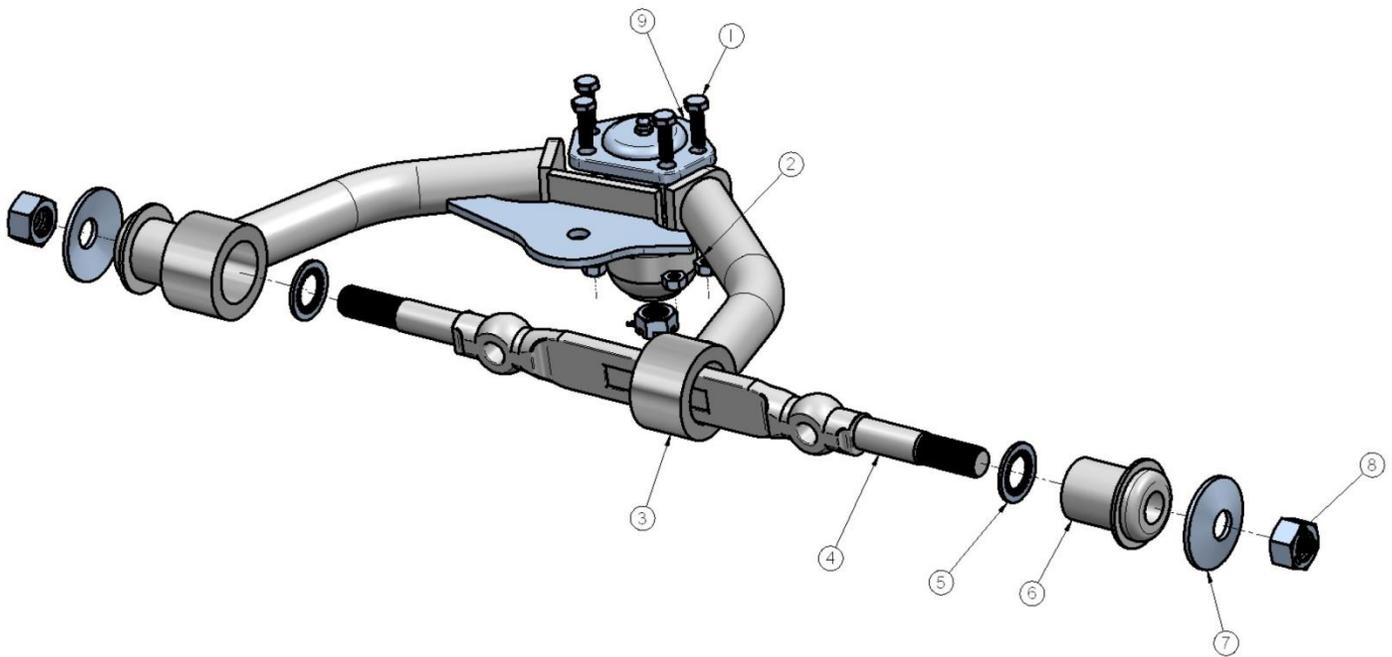
5. Position the suspension at mid travel and then tighten the cross shaft nuts.

Driver Side – Top View

STRONG ARMS™

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Item #	Description	Qty.
1.	1/4"-28 x 7/8" hex bolt	8
2.	1/4"-28 nut	8
3.	Driver side control arm	1
3.	Passenger side control arm	1
4.	Cross shaft	2
5.	Serrated washer	4
6.	Cross shaft bushing	4
7.	Cone washer	4
8.	5/8"-18 locking nut	4
9.	Ball joint	2





Air Ride Technologies

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Part # 11177199

70-81 GM "F" Body AirBar

For Use w/ Shockwaves or CoilOvers

Components:

1	90002080	Lower bar axle mount – Driver side
1	90002081	Lower bar axle mount – Passenger side
1	90000576	Driver side upper cradle assembly
1	90000577	Passenger side upper cradle assembly
1	90001029	Lower bar - WW24.750" – Passenger side
1	90002328	Lower bar - WW24.750" – Driver side
2	99250001	1/4"-28 straight grease fitting
2	90001001	Upper bars - TW7.375" (C-C length 9.250")
2	90001589	Threaded Kevlar lined Heim end
2	99752004	3/4"-16 jam nut – for rod end
4	90000552	Aluminum spacer for Heim end
4	90001942	Rubber bushings pressed into bars
4	90001090	Poly bushing half – Front of lower bar
2	90000526	Inner bushing sleeve – Front of lower bar
2	90001624	Lower billet Shockwave mount
2	90001617	Lower Shockwave stud
4	90002067	Aluminum spacer for stud
2	90000575	Inner axle tabs (Short)
2	90000574	Outer axle tabs (Long)
2	90000578	Axle tab braces
4	90000588	Upper cradle reinforcement plates
2	70010694	Jig brackets for upper bar installation

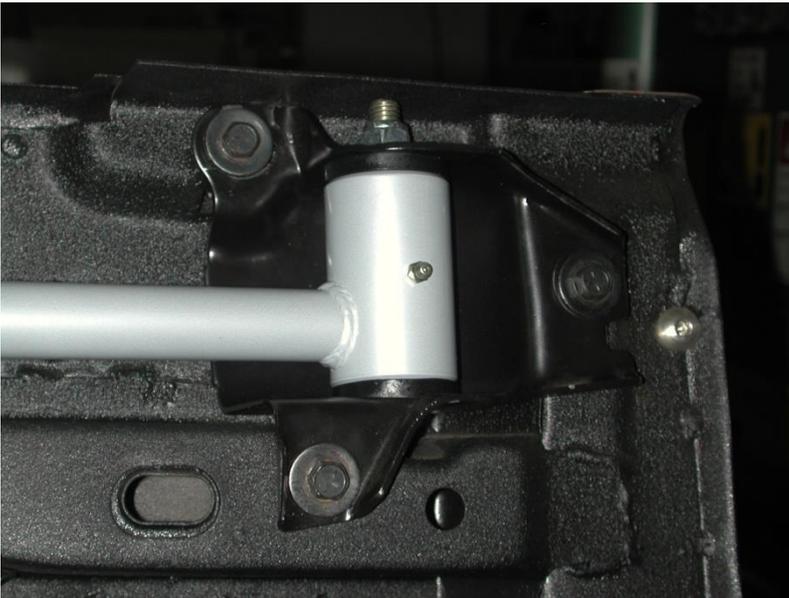
Hardware: Part # 99010029

8	7/16"-20 Nylok nut	Lower bar axle mount
8	7/16" SAE flat washer	Lower bar axle mount
10	3/8"-16 x 1" thread forming screw	Upper cradle assembly
22	3/8" SAE flat washer	Upper cradle assembly & reinforcement plates
12	3/8"-16 Nylok nut	U-bolts and reinforcement plates
2	3/8"-16 x 3" square U-bolts	Upper cradle assembly
2	1/2"-13 x 1 1/4" Gr.5 bolt	Billet mount to axle bracket
2	1/2"-13 x 1 3/4" Gr.5 bolt	Billet mount to axle bracket
4	1/2"-13 Nylok nut	Billet mount to axle bracket
6	5/8"-11 x 2 3/4" Gr.5 bolt	Upper and lower bars
6	5/8"-11 Nylok jam nut	Upper and lower bars
2	1/2"-13 x 2 1/4" Gr.5 bolt	Upper Shockwave mount
2	1/2"-13 Nylok jam nut	Upper Shockwave mount
2	3/8"-16 x 3/4" Gr. 5 bolt	Upper bar installation jig
2	3/8"-16 nut	Upper bar installation jig

AirBAR[®]

by Air Ride Technologies

1. Raise the vehicle to a safe and comfortable working height. Use jack stands to support the vehicle with the suspension hanging freely.
2. Support the axle and remove the leaf springs, shocks, tail pipes, bump stops and pinion snubber. Refer to the factory service manual for proper disassemble procedures. Keep the factory U-bolts and the front leaf spring mounts and bolts. They will be reused.



3. Fasten the large end of the lower bar to the factory leaf spring hanger using the factory hardware. Then reattach the hanger to the car. These two larger bushings are polyurethane and are lubricated at the factory. Future lubrication can be done with any non petroleum based lubricant such as lithium or silicone. The Bar is installed with it offset to the inside of the car for more wheel and tire clearance.



4. Bolt the lower bar axle mount to the leaf spring pad using the factory studs and U-bolt. The mount is offset to the inside to provide more tire clearance. New 7/16" Nyloc nuts are supplied.
5. Attach the Billet ShockWave mount to the axle mount using the 1/2" bolts and Nyloc nuts. It will be easiest to do this before attaching the lower bar.
6. Swing the small end of the lower bar up to the axle and secure with 5/8" x 2 3/4" bolt and Nyloc. **Do not tighten yet.**



7. Raise the upper cradle into position against the body and clamp in place. The contour of the plate will match the contour of the body. On cars that came with a factory sway bar the two forward holes on the bottom will already be there. The rest of the holes must be drilled with a 5/16" bit. Use the 3/8" x 1" thread forming bolts to secure the assembly.



8. Using the cradle as a template, drill four 3/8" holes in the floor pan.

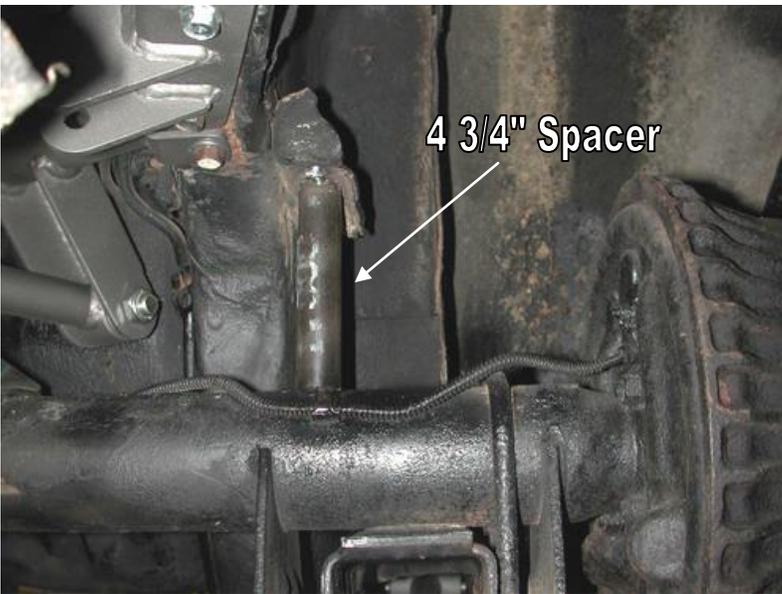


9. From the inside of the car drop the reinforcement plates through these holes. Secure the assembly with 4 3/8" Nyloc nuts and flat washers. You may need to flatten part of the seam just above the top two holes.



10. Bolt the upper bar to the cradle using a 5/8" x 2 3/4" bolt and Nyloc nut.

11. Bolt the two axle tabs to the other side of the bar also using a 5/8" x 2 3/4". The shorter tab will go to the inside. Pinion angle, axle center, and ride height must all be set before welding the tabs to the axle.



12. To center the axle drop a plum off the quarter panel and measure into the axle.

13. Ride height is determined by measuring 14 1/2" center-to-center on the Shockwave.

14. Setting pinion angle is described on the next page.

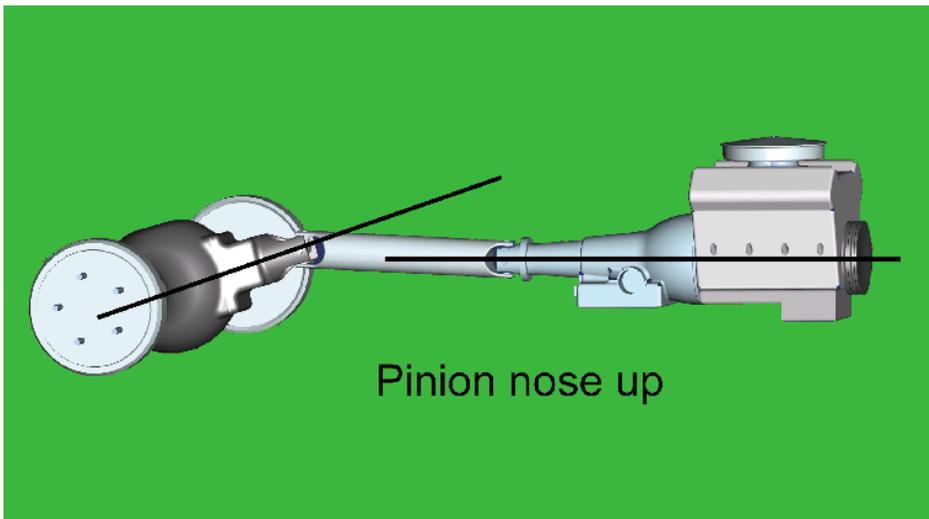
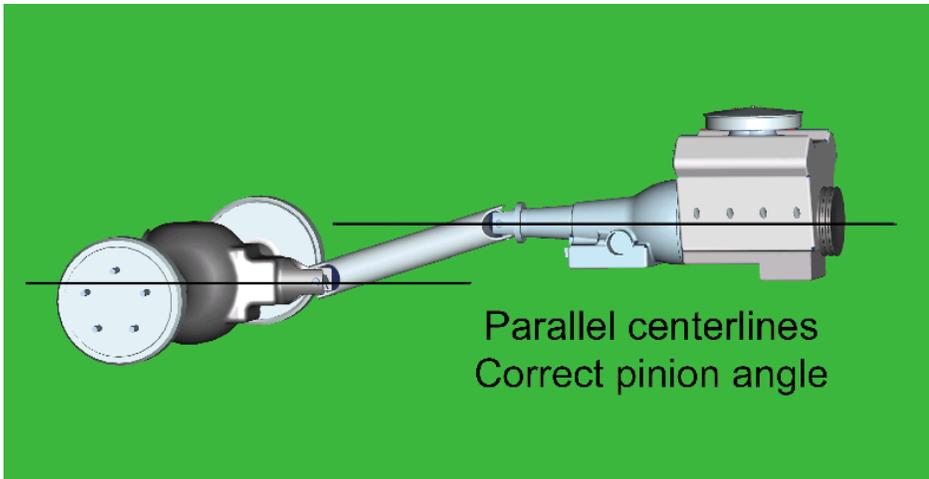
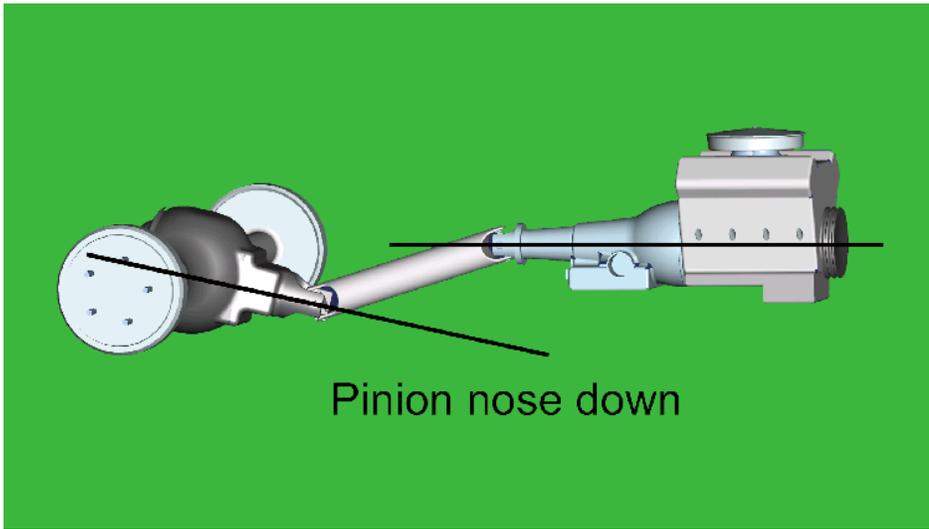
15. One trick to help maintain these settings is to tack weld a 4 3/4" spacer between the bump stop pad and the axle.



16. Once everything is double-checked the tabs can be tack-welded into place. Then tack in the axle tab brace between the two tabs.

17. To avoid heating the rubber bushing, remove the upper bar. The tabs and brace can now be welded solid. Only weld 1" at a time and skip around to avoid warping the axle tube.

18. Reinstall the upper bar and snug all of the Nyloc nuts with the axle still at ride height. These bushings are rubber and do not require any lubrication.



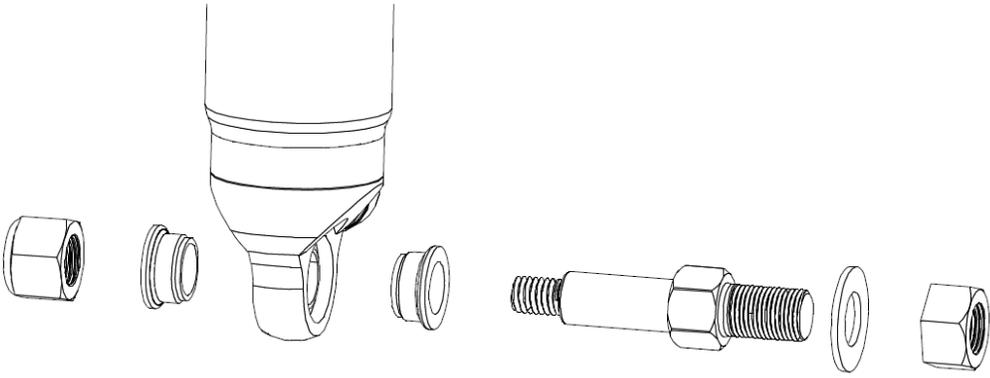
How do you set the pinion angle? On a single-piece shaft you want to set it up where a line drawn through the center of the engine crankshaft or output shaft of the transmission and a line drawn through the center of the pinion are parallel to each other but not the same line.

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.

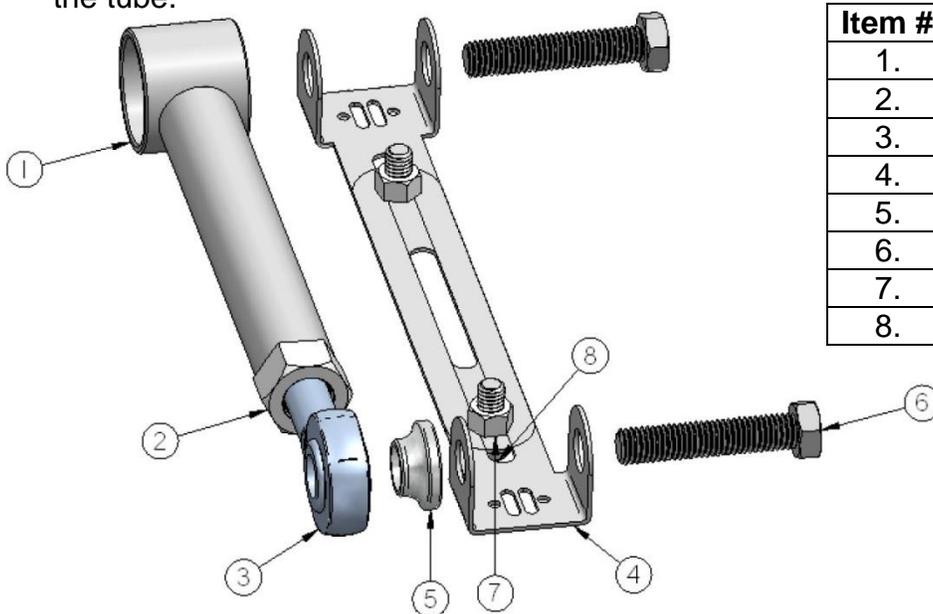


19. Apply thread sealant to an elbow air fitting and screw it into the top of the Shockwave.
 20. Screw the lower Shock stud into the billet mount. Bolt the Shockwave to the stud with the Nyloc nut. There should be one spacer on either side of the bearing. The top eyelet will bolt to the cradle using a 1/2" x 2 1/4" bolt and Nylok jam nut.
 21. The 4 1/2" spacer can now be removed.
 22. The exhaust will have to be rerouted.
 23. The factory rear sway bar will not work, but most aftermarket ones will.
- 22. Double check to make sure the air spring cannot rub on anything at any time.** This will cause failure and is not warrantable.



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. 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.
- 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 melting the rubber bushings. 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.



Item #	Description
1.	Upper bar
2.	3/4"-16 jam nut
3.	Heim end
4.	Alignment jig
5.	Aluminum spacer
6.	5/8"-11 x 2 3/4" bolt
7.	3/8"-16 nut
8.	3/8"-16 x 3/4" bolt





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Should I weld my AirBar 4 link assembly in?

Since we get this question quite often, it deserves a proper explanation.

The AirBar has been designed for bolt-in installation. We have paid special attention to interfacing with key structural areas of each vehicle, fastening bracketry in at least two planes to properly distribute load paths, and to using appropriate fasteners that roll, rather than cut, threads into the vehicle structure.

Having said that, you could potentially encounter a vehicle that has rust or collision damage in these areas. Or maybe you intend to consistently place the vehicle in severe racing applications with sticky racing slicks and high speed corners. In these cases it is perfectly acceptable to weld the AirBar components into your vehicle. Even in these severe cases we recommend that you install the entire AirBar assembly first [including the fasteners], and then use short 1" long tack welds to secure your installation. Remember that the vehicle structure metal is typically much thinner [.060"-.120"] than the .188" thick AirBar brackets. If you burn through the vehicle sheet metal structure you may end up with an installation that is weaker than before you tried to weld it.

The other reason to weld in your AirBar assembly is...you simply want to. You're a welding kind of guy...that's the way you've always done it...you have the skills and equipment to do it. In that case...weld away with our blessing!



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Part # 11176510

70-81 GM "F" Body HQ Series Rear Coil-Overs

For use w/ AirBar

Shock Assembly:

2	24159999	5.2" HQ Series Shock
4	90001994	.625" Bearing
8	90001995	Bearing Snap Ring
2	90002024	1.7" Rebound Adjustable Eyelet

Components:

2	59120200	Coil spring – 12" long / 200 # rate
2	90002222	Spring retainer kit
4	90002043	Aluminum Spacer, .500" ID
4	70010828	Delrin Spring Washer

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 Coil-Over, 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.

Assembly...



First using the supplied lower adjuster nut(90002222) thread the nut onto the shock from the bottom side as seen in figure 1



Next install delrin washers then coil spring over the top of the shock as seen in figure 2



Before the upper spring mount can be installed screw the adjuster knob on the upper eye mount to the firmest setting (clockwise) as seen in figure 3.



Slide the Delrin washer over the spring, Next slide the upper spring mount (90002222) over eyelet as seen in figure 4.



Install upper spring mount retainer clip (90002057) into the groove on the upper eyelet as seen in figure 5. Then reinstall adjuster to complete assembly.



The included set of bearing spacers (900002044) are used to adapt the coil-overs to just about any application. The supplied spacers allow the coil-overs to accept 5/8" or 1/2" bolts.

Shock adjustment 101- Single Adjustable

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 soft setting of 20.



-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 clock wise 20 clicks. This sets the shock at 20. (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 clock wise 3 clicks.

Take the vehicle for another test drive.



-if the vehicle is too soft increase the damping effect by rotating the rebound knob clock wise 3 additional clicks.



-If the vehicle is too stiff rotate the rebound adjustment knob counter clock wise 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.