



350 S. St. Charles St. Jasper, In. 47546  
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[www.ridetech.com](http://www.ridetech.com)

**Part # 12160210**  
**60-64 Galaxie HQ Series Complete CoilOver System**

**Front Components:**

1 12163110 Front HQ Series CoilOvers

**Rear Components:**

1 12167199 Rear AirBar – Bolt-on 4 Link

1 12166510 Rear HQ Series CoilOvers

**Components:**

1 85000000 Spanner Wrench

***IF INSTALLING THE KIT ON A WAGON, IT MAY BE NECESSARY TO MODIFY THE FLOOR PAN FOR CLEARANCE OF THE UPPER CRADLE ASSEMBLY.***



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**Part # 12163110**  
**60-64 Galaxie HQ Series Front CoilOvers**  
For Use w/ OEM Arms

**Shock Assembly:**

2	982-10-802	3.6" stroke HQ Series shock
2	90009989	2" adjustable threaded stud top
2	90001994	.625" I.D. bearing
4	90001995	Bearing snap ring
2	90002060	Trunnion
4	90001980	Trunnion Snap Ring

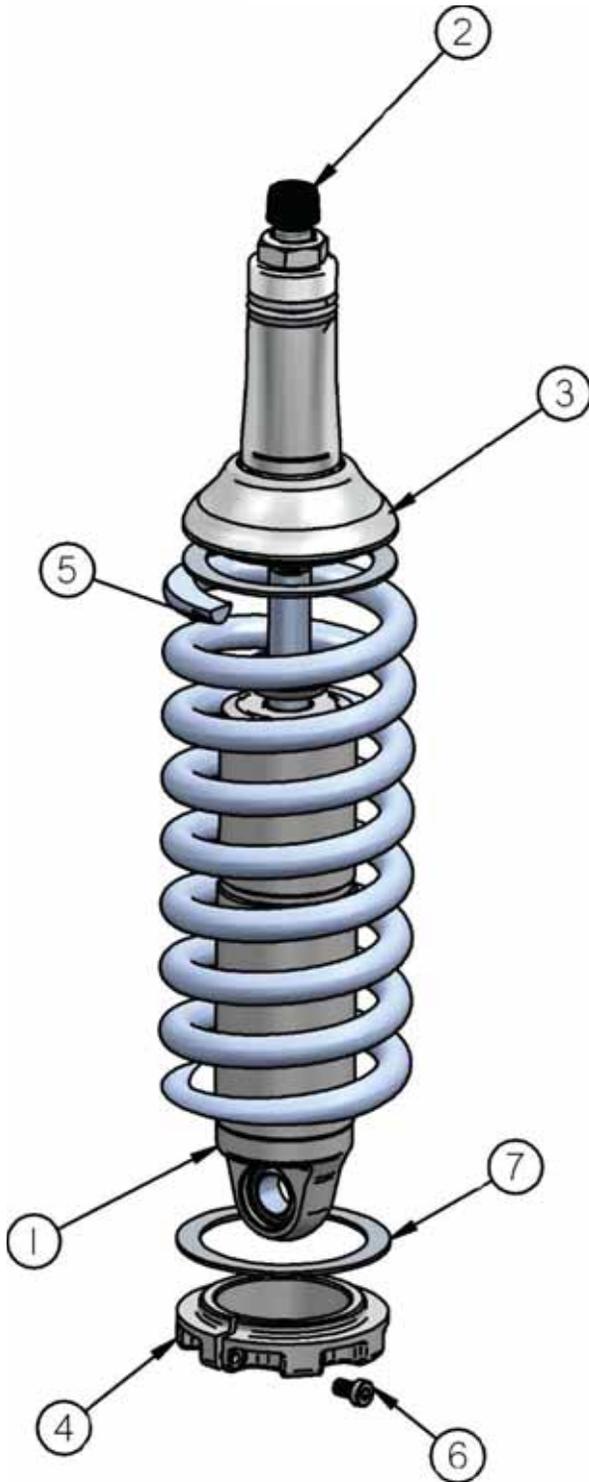
**Components:**

2	59080750	Coil spring – 8" long / 750 # rate
2	90002312	2" stud top base
2	803-00-199	Spring retainer kit (do not use standard upper spring retainer)
2	90002070	¾" drop upper spring retainer
2	90001902	Aluminum cap for Delrin ball
2	90001903	Delrin ball upper half
2	90001904	Delrin ball lower half
4	70010828	Delrin Spring Washers
2	90001259	Control Arm Reinforcement Plate

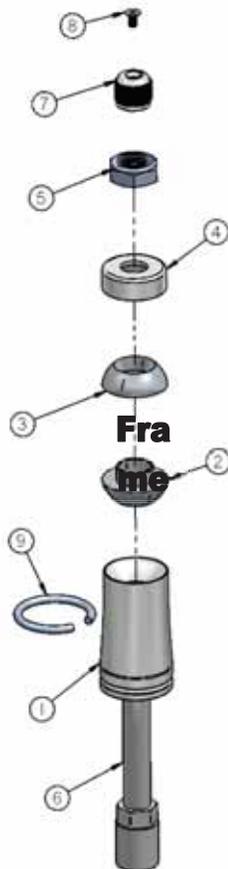
**Hardware:**

2	99562003	9/16" SAE Nylok jam nut	Stud top hardware
4	99311002	5/16" x 1 1/4" USS bolts	Lower Trunnion
4	99312003	5/16" nyloc nuts	Lower Trunnion
8	99313002	5/16" SAE flat washers	Lower Trunnion

# COILOver



1. Impact Forged, Monotube shock
2. Rebound adjustment knob (SA Only)
3. Upper coil spring retainer (Use  $\frac{3}{4}$ " dropped cap)
4. Lower coil spring retainer
5. High tensile coil spring
6. Set screw
7. Delrin Spring Washers

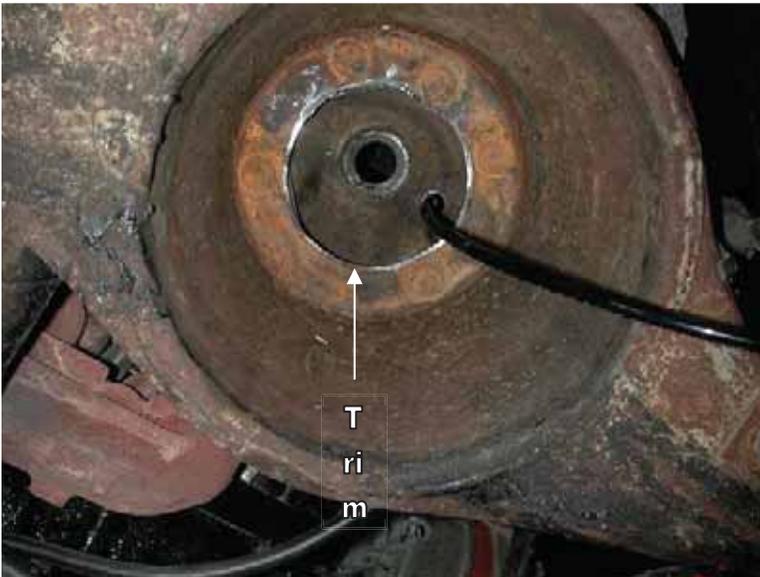


1. Stud top base
2. Lower Delrin ball half
3. Upper Delrin ball half
4. Aluminum cap
5. 9/16" Nylok jam nut
6. Threaded stud
7. Adjustment knob (SA Only)
8. Screw (SA Only)
9. Snap ring

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## Installation Instructions

1. Raise and support vehicle at a safe, comfortable working height. Let the front suspension hang freely.
2. Remove the coil spring and shock absorber. Refer to factory service manual for proper disassembly procedure.



3. The upper coil spring retainer may need to be trimmed to clear the top of the CoilOver.

4. The upper shock hole will need to be drilled out to  $\frac{3}{4}$ " , this can be done easily with a Unibit.



5. Note that the CoilOver trunnion sits on top of the arm as opposed to the factory shock, which bolts to the bottom side of the car. You will have to remove the two nuts.

6. Install the bushing on top of the CoilOver. Insert the stud top through the factory shock hole and tighten with the supplied hardware.



#### **7. INSTALL THE LOWER CONTROL ARM REINFORCEMENT PLATE.**

Refer to **Image 7** for positioning of the plate. Raise the lower arm up to the Shockwave and bolt them together using the 5/16" x 1 1/4" Bolts, Washers, & Nylok Nuts supplied with the ShockWaves. Torque to 17 ftlbs.

8. Lift the lower control arm up to the CoilOver and tighten with two 3/8" x 1 1/4" bolts, nylocs and flat washers.

9. Note that the CoilOver trunnion sits on top of the arm as opposed to the factory shock, which bolts to the bottom side of the car. You will have to remove the two nuts.

### **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.



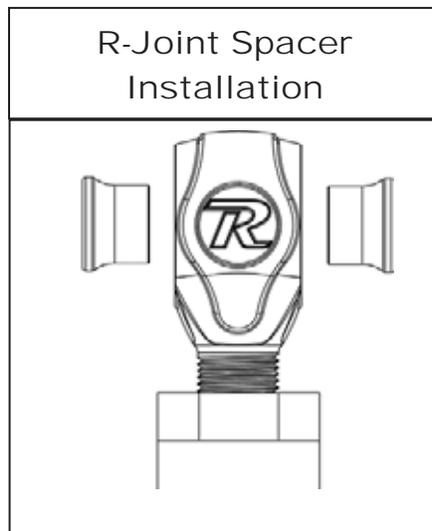
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**Part # 12167199**  
**60-64 Galaxie Rear AirBar**

**IF INSTALLING THE KIT ON A WAGON, IT MAY BE NECESSARY TO MODIFY THE FLOOR PAN FOR CLEARANCE OF THE UPPER CRADLE ASSEMBLY.**

**Components:**

- 2 90000568 Lower axle mount spacer
  - 2 90001444 Lower axle mount
  - 1 90000567 Upper cradle assembly
  - 2 90001624 Lower billet Shockwave mount
  - 2 70002825 Lower Shockwave stud
  - 4 90002067 Aluminum spacer for stud
  - 2 90000144 Axle tabs
  - 2 90000524 Axle tabs
  - 2 90002844 Upper bars – TW 9.875" (C-C length 12.0")
  - 2 90002845 Lower bars – WW 23.25"
  - 2 70013364 RH R-Joint Threaded Housing End (installed in bars)
  - 2 99752004 3/4"-16 jam nut – for R-Joint
  - 14 70013334 R-Joint Spacers
  - 4 70013768 Front Lower R-Joint Spacer
  - 4 99566001 U-Bolts / nuts & washer - Lower axle bracket
  - 2 90001280 Front Lower Bar T-Bushing – **63-34 ONLY**
  - 2 70010694 Jig brackets for upper bar installation
- R-Joint Components** (installed in bar ends)
- 70013279 Retaining Ring
  - 70012380 Wavo Wave Spring
  - 70013275 R-Joint Center Ball
  - 70013276 R-Joint Composite Center Ball Cage



# AirBAR

## Hardware Kit: (Part # 99010020)

### Lower Shock Mount

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

### 4 Link Bars

6	5/8"-11 x 2 3/4" Gr.5 bolt	Bar ends
6	5/8"-11 Nylok jam nut	Bar ends

### Upper Shock Mounting

2	1/2"-13 x 2 1/4 Gr.5 bolt	Upper Shockwave mount
2	1/2"-13 Nylok jam nut	Upper Shockwave mount

### Upper cradle assembly

16	3/8"-16 x 1" Thread forming bolt	Upper cradle assembly
16	3/8" SAE flat washer	Upper cradle assembly

### Upper bar installation jig

2	3/8"-16 x 3/4" Gr. 5 bolt	Upper Bar Jig
2	3/8"-16 nut	Upper Bar Jig

### 63-64 Lower Bar ONLY

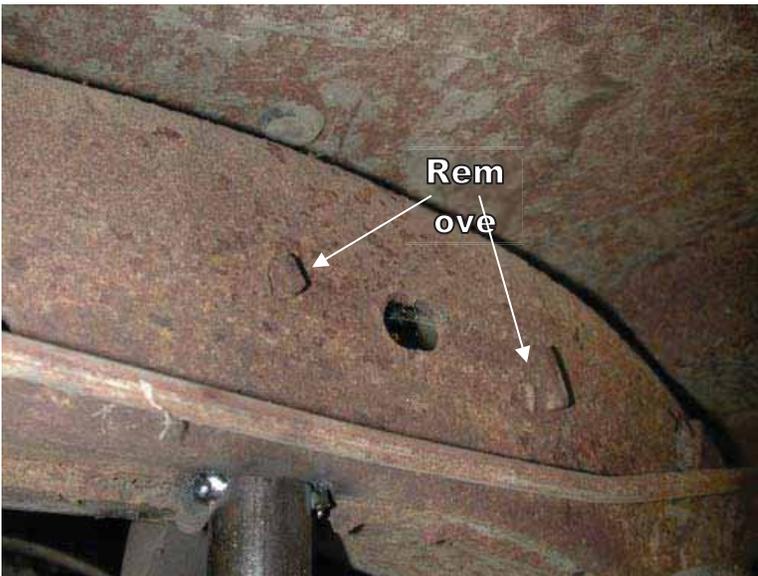
2	9/16"-12 x 4 1/2" Bolt	63-64 Front Lower Bar
4	9/16" SAE flat washer	63-64 Front Lower Bar
2	9/16"-12 Nylok Jam Nut	63-64 Front Lower Bar

### Shock Stud

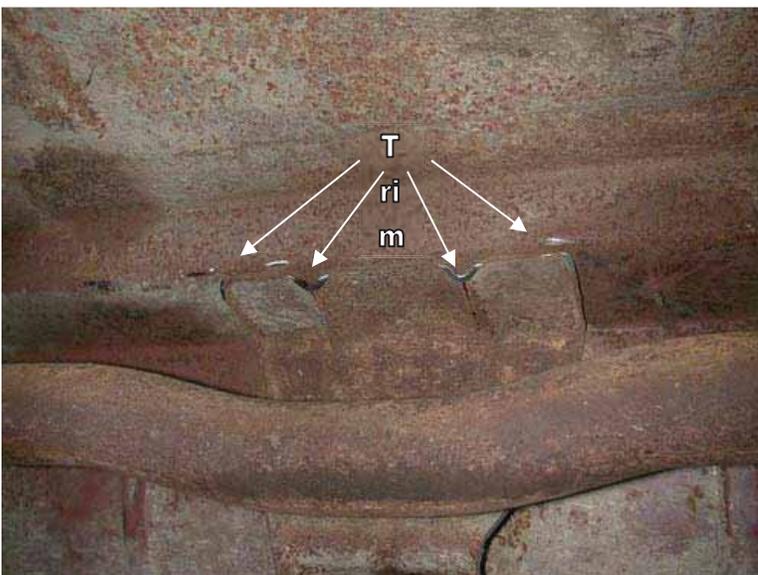
2	7/16"-20 Nylok Nuts	Shock Stud
2	7/16" SAE Flat Washer	Shock Stud
2	5/8" SAE Flat Washer	Shock Stud

# AirBAR

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, pinion snubber and tail pipes. Refer to the factory service manual for proper disassemble procedures. Keep the factory front leaf spring mounting bolts; they will be reused.



3. On the inside of the frame rail there are two tabs that must be ground smooth.



4. You must also trim these grooves in the pan at a 45 deg. angle to allow the upper cradle assemble to slide into place. They are located just in front of the axle above the crossmember.



5. Slide the cradle into place with the upper Shockwave mount toward the rear of the vehicle.

6. You may need to grind the welds smooth on the bottom of the frame to allow the cradle to sit properly.

7. The bolt hole just in front of the Shockwave mount will align with a hole in the frame to position the cradle. Drill the rest of the holes with a 5/16" bit one at a time while threading in a 3/8" x 1" self-tapping bolt. Be careful not to over tighten these bolts.

**THERE ARE 2 DIFFERENT FRONT LEAF SPRING BOLT SETUPS DEPENDING ON THE YEAR OF THE CAR. TYPICALLY, THE 60-62 HAVE A 9/16" SHOULDER BOLT, 63-64 HAS A 3/4" SHOULDER BOLT. THE COMPONENTS USED TO MOUNT THE FRONT OF THE LOWER BARS WILL VARY DEPENDING ON THE YEAR OF YOUR CAR.**

#### 60-62



8. The 60-62 years use a 9/16" bolt, it will be reused to attached the lower bars. The Front Lower uses the WIDE(70013768) R-Joint Spacers inserted into each side of the R-Joint.



9. With the R-Joint spacers installed, hold the front of the lower bar in the factory leaf spring mount and reinstall the OEM Bolt setup.



10. The 63-64 years use a 3/4" bolt, it will be replaced with the 9/16" x 4 1/2" bolt supplied in the kit. The bolt hole in the frame will need to be drilled out to 9/16". The Front Lower uses the WIDE(70013768) R-Joint Spacers inserted into each side of the R-Joint with the LARGE Aluminum T-bushing in the leaf spring hole.



11. With the R-Joint spacers installed, hold the front of the lower bar in the factory leaf spring mount. Install a 9/16" flat washer on each of the (2) 9/16" x 4 1/2" bolts. Insert the 9/16" x 4 1/2" bolt into the LARGE aluminum t-bushing. Insert the bolt/t-bushing through the R-joint/spacers and through the drilled out hole. The Aluminum T-bushing should nest into the leaf spring hole.



12. Secure the axle mount to the leaf spring pad using the supplied U-bolts. There is an aluminum bushing that will slide over the alignment pin.

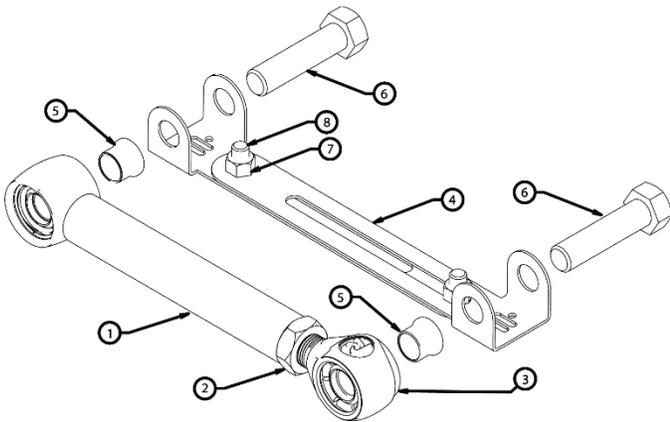
13. Bolt the lower Shockwave mount to the axle mount using the 1/2" bolts.

14. Apply anti-seize to the shock stud and screw it into the lower shockwave mount.

15. The Axle end of the bar gets a NARROW(70013334) R-Joint Spacer inserted into each side of the R-Joint. The bar is attached to the Axle Mount in the **MIDDLE HOLE** using the OEM hardware. Swing the lower bar up to the axle mount and insert a 5/8" x 2 3/4" bolt and nylok. This bar should measure 23 1/4" C-C. **Do not tighten any bolts yet.**

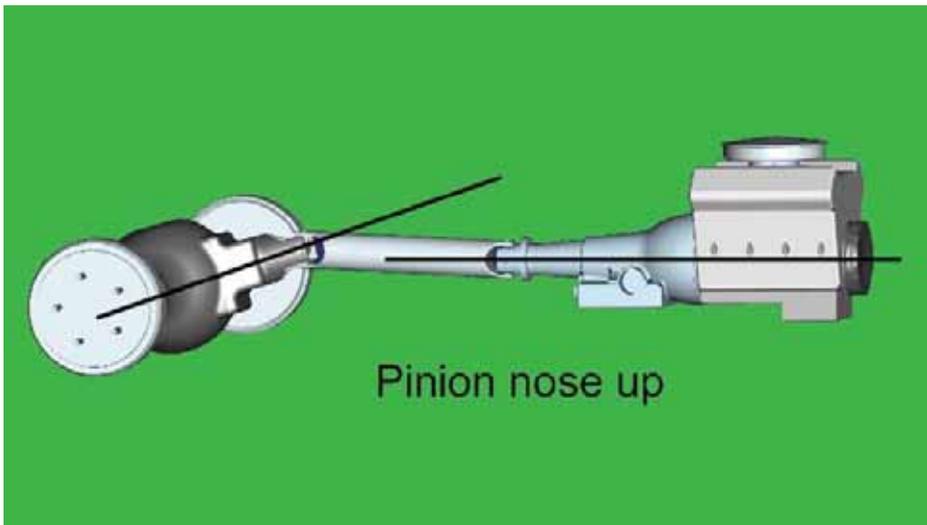
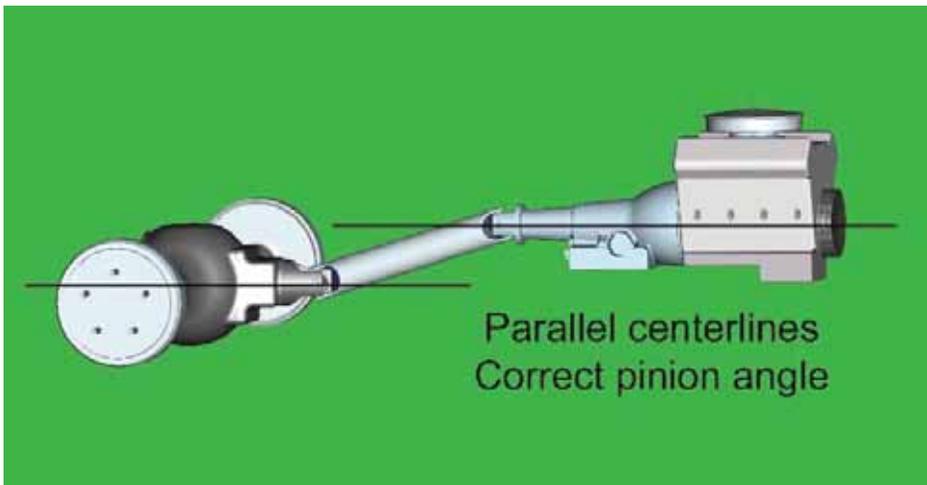
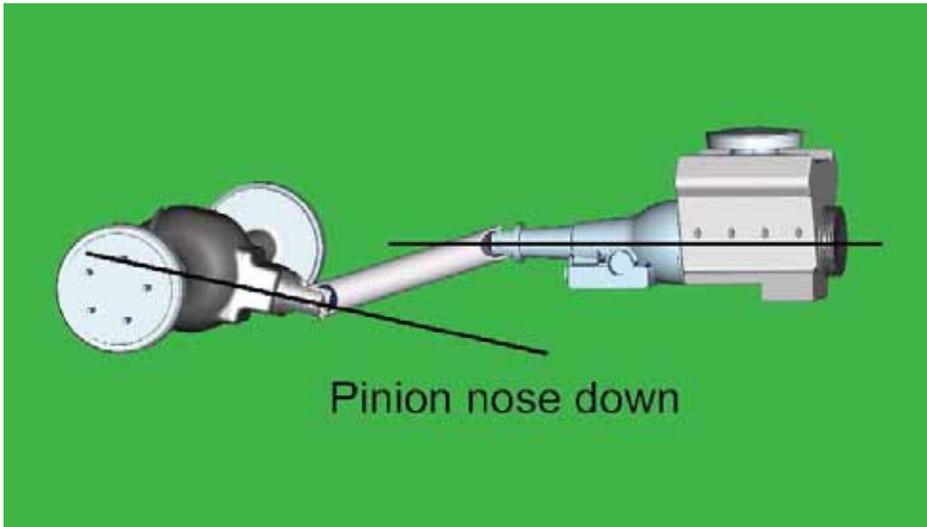
## Upper Bar Installation Jig

- 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 **using a spacer on each side of the heim end**.
- 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.	R-Joint
4.	Alignment jig
5.	R-Joint spacer
6.	5/8"-11 x 2 3/4" bolt
7.	3/8"-16 nut
8.	3/8"-16 x 3/4" bolt





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.



16. Bolt the axle tabs to the upper bar jig using a 5/8" x 2 3/4" bolt and nyloc as shown in the picture. The upper bar should measure 12" C-C.

17. Bolt the other end into the upper cradle and let the tabs rest on top of the axle. **Do not weld yet.** You must first set pinion angle (which is explained on the next page) and center the axle.

18. Centering the axle is best done by hanging a plum off of the axle and measuring out to the axle flange.



19. This must all be set at **ride height**, which will occur approximately 14.5" from c-c on the shock mounts. As you can see in the above picture, we have tack welded a 5" long spacer between the axle and frame to maintain ride height, axle center, and pinion angle while welding in the tabs.

You can now tighten all of the 4 link bolts.



20. Apply thread sealant to the air fitting and screw it into the top of the Shockwave.

21. Attach the top of the Shockwave/CoilOver to the cradle with a 1/2" x 2 1/4" bolt and nyloc. Place the washer over the shock stud, and then slide the Shockwave over the stud. Another washer and nyloc will hold in tight.

22. Remove the spacer.

23. Double-check all clearances with parking brake cable, vent tubes, brake lines, etc.

24. Ride height should be around 70psi but will vary to driver preference.



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**Part # 12166510**  
**60-64 Galaxie HQ Series Rear CoilOvers**  
For Use w/ AirBar

**Shock Assembly:**

2	982-10-805	5" stroke HQ Series shock
2	815-05-022-KIT	1.7" eyelet
4	90001994	.625" I.D. bearing
8	90001995	bearing snap ring

**Components:**

2	59120250	Coil spring – 12" long / 250 # rate
2	803-00-199	Spring retainer kit (included upper and lower spring retainer, screw & clip)
4	90002043	Aluminum bearing spacer - .5" I.D.
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 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.

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## 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. Then remove the Knob.



Once the knob is removed slide the Derlin 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. **NOTE:** Remember to adjust the shock valving before driving, the shock is currently set to full stiff.

## 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 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 clock wise 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 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.