



Part # 13020298
70-74 Mopar "E" Body Air Suspension
System

Front Components:

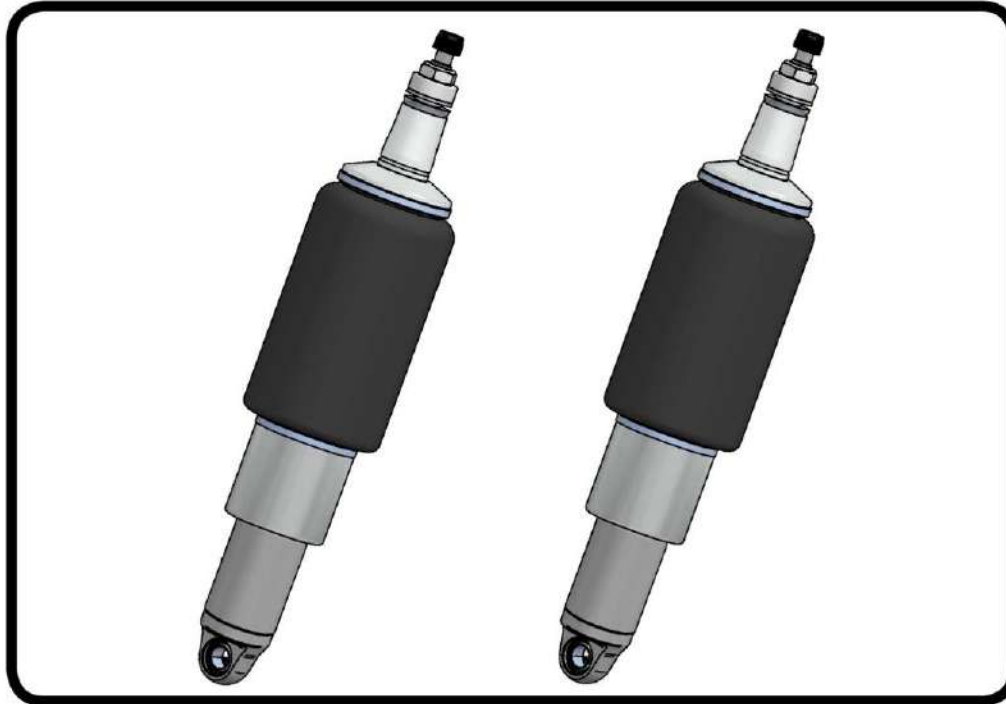
1	13013001	HQ Series Front Shockwaves
1	13013699	Front Upper StrongArms

Rear Components:

1	13027199	Rear AirBar 4 Link
1	21140701	HQ Series Rear Shockwaves



Part # 13013001 - MOPAR, 68-70 B-Body & 70-74 E-Body Front HQ Shockwave



Recommended Tools



7000 Series Bellow, 2.0" Stud/Eye 3.6" Shock Installation Instructions

THESE SHOCKWAVES REQUIRE RIDETECH UPPER STRONGARMS

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ShockWave Dimensions:

Mount to Mount:

Compressed: 10.30"

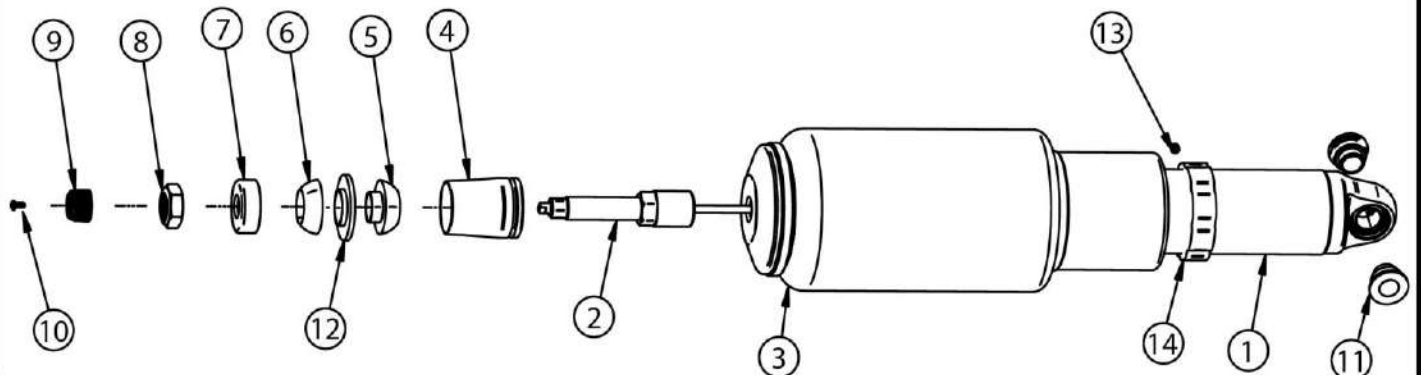
Ride Height: 12.13"

Extended: 13.32"



Major ComponentsIn the box

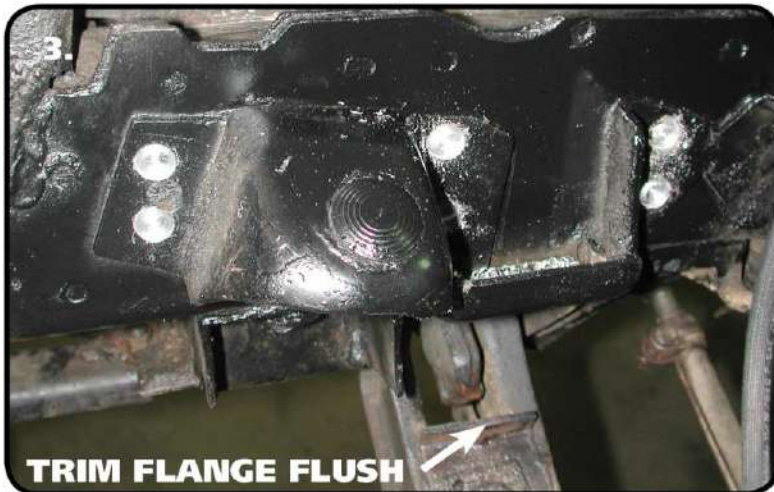
Item #	Part #	Description	QTY
1	24139999	3.6" Stroke HQ Series Shock	2
2	90009988	2" Stud Top (Installed on Shock) - Includes Adjuster Knob & Screw	2
3	24090799	7000 Series, 4" Diameter Air Spring	2
4	90002312	2" Aluminum Stud Top Base	2
5	90001904	Bottom Delrin Ball	2
6	90001903	Top Delrin Ball	2
7	90001902	Delrin Ball Aluminum Top Cap	2
8	99562003	9/16"-18 Thin Nylok Nut	2
9	90009972	Adjuster Knob - (90009988 assembly)	2
10	90009969	#4-40 X 1/4" SS, 18-8 Pan Head Torx Cap - (90009988 assembly)	2
11	90002043	1/2" ID Bearing spacers	4
12	90000582	Stepped Washer for Lower Delrin Bar to Car Body	2
13	70010893	Air Spring Locking Ring (Installed on shock)	2
14	99055000	Locking Ring Set Screw (Installed on shock)	2
	70012160	2" Stud Top Metering Rod (installed in stud top)	2
	90001994	5/8" ID Bearing (installed in shock and eyelet)	4
	90001995	Bearing Snap Ring (installed in shock and eyelet)	8
HARDWARE			
	99501011	1/2"-20 X 2 1/2" Hex Bolt	2
	99502002	1/2"-20 Nylok Nut	2



WARNING: ATTEMPTING TO REMOVE THE AIR FITTING WILL DAMAGE IT AND VOID THE WARRANTY.



ShockWave Installation



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 arm extension stop will be in the way and must be removed. To remove the mount drill the 6 spot welds. There is a piece of metal sticking up off of the lower arm that must be trimmed.



4. A portion of the frame directly behind the bump stop mount must also be trimmed for air spring clearance. This will be cut in an upside down arch down to the top of the frame rail.

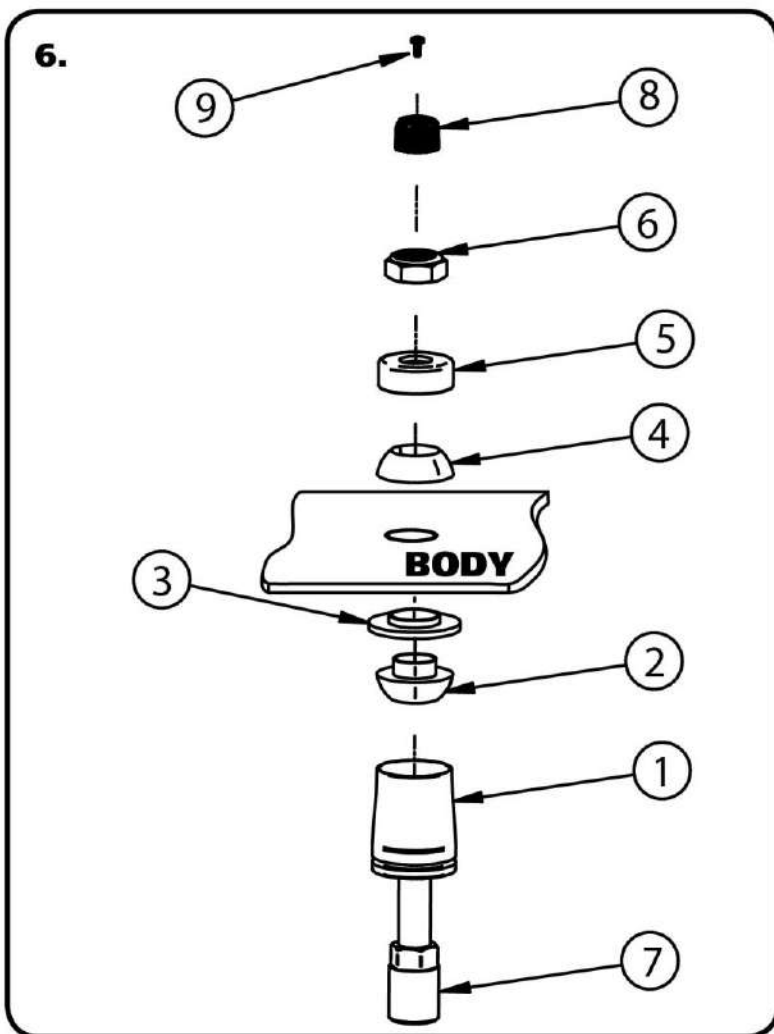
Allowing the Shockwave to touch the frame at any point through full suspension travel will damage the unit and is not warrantable.



5. **Image 5** illustrates how the T-Bushing is installed.



ShockWave Installation



6. The air fitting location can be rotated by twisting the bellow assembly separate of the shock. Place the Shockwave into the OEM shock location with the stud sticking through the OEM shock hole. See assembly **Diagram 6**.

1. Stud top aluminum base

2. Delrin ball lower half

3. T-Bushing Adapter

BODY

4. Delrin ball upper half

5. Aluminum cap

6. 9/16" SAE Nylok jam nut

7. Threaded stud (screwed onto shock shaft)

8. Rebound adjusting knob

9. Screw

7. With a 1/2" bit, enlarge the lower factory shock hole. Install a 1/2" ID Spacer in each side of the Shock Bearing. Raise the lower arm up to the Shockwave and fasten with a 1/2" x 2 1/2" bolt and Nylok nut. Torque to 75 ftlbs.

8. Bolt the upper StrongArm to the body and spindle. There is a driver and passenger side and they are stamped accordingly.

9. This system will utilize the factory torsion bar. Back the adjustment bolt out just enough to allow the suspension to fully compress. If it is backed out too far the Shockwave will not be able to pick the car up. The adjuster can also be used to level the car out.

10. Ride height on this Shockwave is approximately 12.0" tall, but will vary to driver preference.





Notes and Care of your Shockwaves

NOTES:

WARNING: ATTEMPTING TO REMOVE THE AIR FITTING WILL DAMAGE IT AND VOID THE WARRANTY.

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.

You can clock the airfitting location on the ShockWave by turning the AirSpring assembly of the shock. Make sure the fitting doesn't contact the frame.

When cutting the airline, use a razor blade. The cut needs to be a clean cut and square for the airline to seal properly.

The Locking ring on the shock is **NOT** adjustable. These rings are set at the factory to optimize the AirSpring stroke with the shock stroke.

The care and feeding of your new ShockWaves

1. Although the ShockWave has an internal bumpstop, **DO NOT DRIVE THE VEHICLE DEFLATED RESTING ON THIS BUMPSTOP. DAMAGE WILL RESULT.** The internal bumpstop will be damaged, the shock bushings will be damaged, and the vehicle shock mounting points may be damaged to the point of failure. This is a non warrantable situation.
2. Do not drive the vehicle overinflated or "topped out". Over a period of time the shock valving will be damaged, possibly to the point of failure. This is a non warrantable situation! If you need to raise your vehicle higher than the ShockWave allows, you will need a longer unit.
3. The ShockWave is designed to give a great ride quality and to raise and lower the vehicle. **IT IS NOT MADE TO HOP OR JUMP!** If you want to hop or jump, hydraulics are a better choice. This abuse will result in bent piston rods, broken shock mounts, and destroyed bushings. This is a non warrantable situation.
4. Do not let the ShockWave bellows rub on anything. Failure will result. This is a non warrantable situation.
5. The ShockWave product has been field tested on numerous vehicles as well as subjected to many different stress tests to ensure that there are no leakage or durability problems. Failures have been nearly nonexistent unless abused as described above. If the Shockwave units are installed properly and are not abused, they will last many, many years. ShockWave units that are returned with broken mounts, bent piston rods, destroyed bumpstops or bushings, or abrasions on the bellows will not be warrantied.



Shock Adjustment

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. **CONTINUE ON NEXT PAGE.**

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.



Part # 13013699
Chrysler B & E Body Front Upper
StrongArms

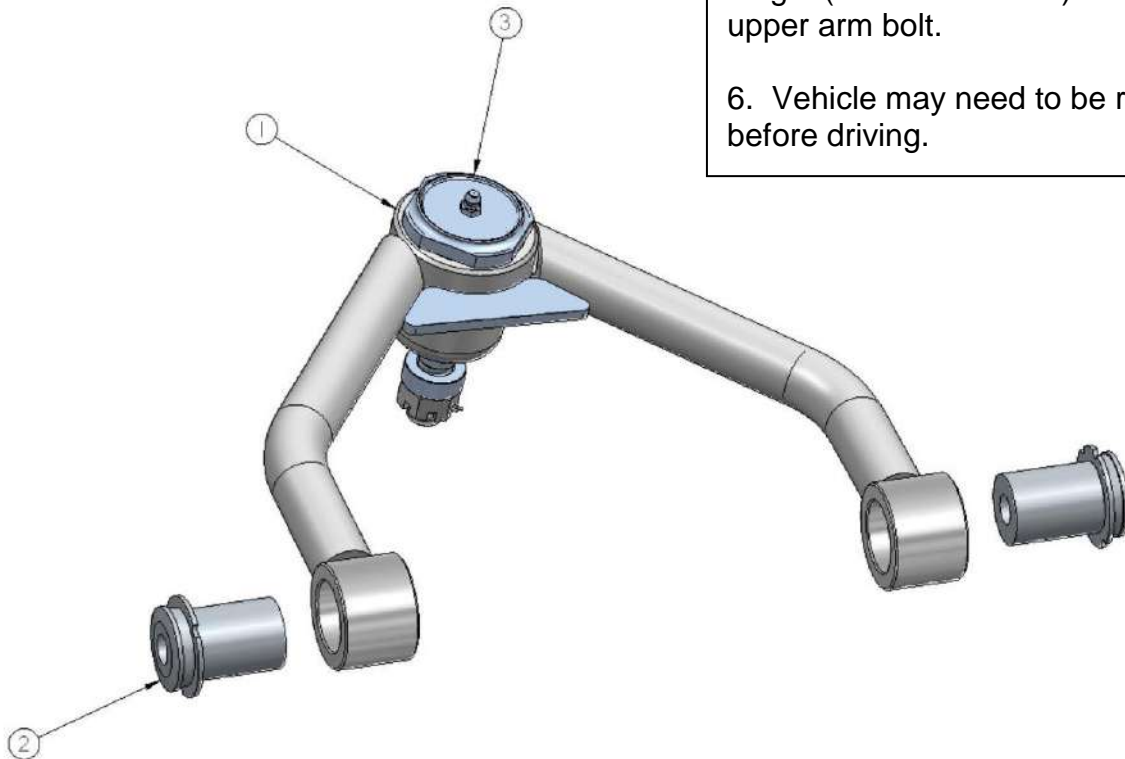
Upper StrongArms

1	90000602	Driver side upper arm
1	90000603	Passenger side upper arm
4	90000918	Bushings (Pressed into arms)
2	90000895	Ball joint

ridetech



1. Remove factory upper arm.
2. Bolt StrongArm to frame using factory bolts. (Do not tighten yet.)
3. Slide ball joint boot over ball joint stud. Push stud through spindle. Secure w/ the castle nut and cotter pin supplied. The supplied spacer may be need to achieve proper castle nut to cotter pin hole alignment.
4. Install grease fitting and lubricate ball joint.
5. Position the suspension at ride height (about mid travel) and tighten upper arm bolt.
6. Vehicle may need to be realigned before driving.





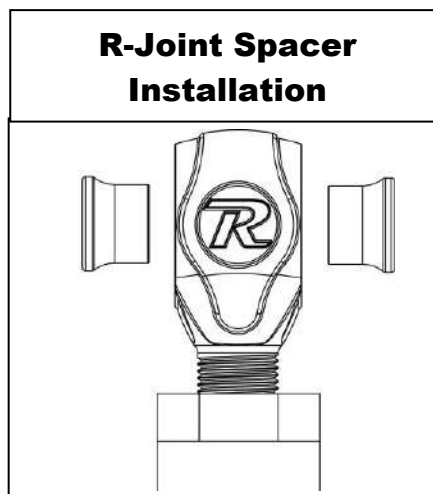
Part # 13027199
70-74 Chrysler "E" Body Rear
AirBar

Components:

1	90000611	Driver side upper bar mount
1	90000612	Passenger side upper bar mount
1	90000608	Driver side upper Shockwave mount
1	90000609	Passenger side upper Shockwave mount
2	90000599	Front lower bar mount
2	90000615	Axle mounts
1	90000644	Inner support plate
1	90000610	Brake line spacer
2	90002857	Upper bars – TW 7.375" (9 1/2" C-C length)
2	90002856	Lower bars – WW 21.25"
2	70013364	R-Joint End Housing
2	99752004	3/4"-16 jam nut – for rod end
12	70013334	Spacers for R-Joint End
4	70013769	Front Lower Bar R-Joint spacer
2	90000144	Inner axle tab (Larger)
2	90000155	Outer axle tab
2	90001624	Lower billet Shockwave mount
2	90001617	5/8" shock studs w/ hardware
4	90002067	Aluminum spacer for stud
8	99566002	9/16" SAE hex nut (For U-bolts)
8	99566003	9/16" SAE flat washer (For U-bolts)
4	99566004	U-bolts - Axle mount
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



Hardware: (Part # 99010022)

Billet mount to axle bracket

2	99501007	1/2"-13 x 1 1/4" Gr. 5 bolt
2	99501009	1/2"-13 x 1 3/4" Gr. 5 bolt
4	99502008	1/2"-13 Gr. 5 Nylok nut

Brake line & spacer

1	99311014	5/16"-18 x 1 3/4" Gr. 5 bolt
1	99313002	5/16" SAE flat washer
1	99313002	5/16" lock washer

Upper Shockwave mount to body

2	99501051	1/2"-13 x 2 3/4" Gr.5 bolt
2	99502001	1/2"-13 Nylok nut
4	99503001	1/2" SAE flat washer
2	99621010	5/8"-11 x 4" Gr. 5 bolt
2	99652001	5/8"-11 Gr. 5 Nylok nut
6	99623001	5/8" SAE flat washer
26	99373007	3/8"-16 x 1" thread forming bolt
48	99373003	3/8" SAE flat washers

Upper & lower bars

2	99621010	5/8"-11 x 4" Gr. 5 bolt
6	99621020	5/8"-11 x 3 Gr. 5 bolt
8	99622008	5/8"-11 Nylok jam nut
16	99623001	5/8" SAE flat washer

Lower front bar mount

8	99371004	3/8"-16 x 1 1/4" Gr. 5 bolt
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Inner support plate

6	99314003	3/8"-16 x 1" Gr. 5 bolt
4	99311037	3/8"-16 x 2 1/4" Gr. 5 bolt
18	99312002	3/8"-16 Nylok nut

Upper bar installation jig

2	99371001	3/8"-16 x 3/4" Gr. 5 bolt
2	99372004	3/8"-16 nut

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, front leaf spring mounts, shocks, tail pipes, bump stops, sway bar and pinion snubber. Refer to the factory service manual for proper disassemble procedures. Save the hardware for the bump stops and pinion snubber, they will be reused.



3. Place the upper bar mount up to the body. It will align off of the two sway bar mount holes and the front bump stop mount hole.

4. Mark and drill the remaining 6 holes in the frame with a 5/16" bit. The 3 holes in the body will be drilled with a 3/8" bit. Six 3/8" x 1" thread forming bolts and flat washers will secure the mount to the frame.

5. On the driver side you will have to temporarily remove the brake line body mount.



6. The inner support plate will bolt to the floor pan on the inside of the car using six 3/8" x 1" bolts, Nyloks and flat washers. The remaining 4 holes will need to be drill and will use 3/8" x 2 1/4" bolts, Nyloks and flat washers.



7. Using the supplied U-bolts, fasten the lower axle bracket to the factory leaf spring pad.

8. Bolt the lower Billet Shockwave mount to the axle bracket using a $\frac{1}{2}$ " bolts and Nyloc nuts. Position the mount in the middle two holes.

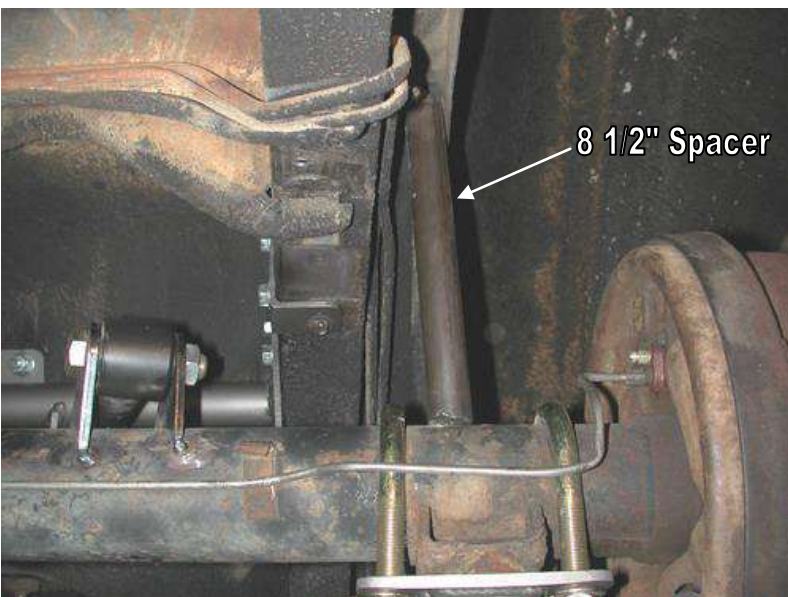
Note: It is easier to tighten these nuts before installing the lower bar.



9. Bolt the new front lower bar mount to the body using 4 $\frac{3}{8}$ " x $1\frac{1}{4}$ " bolts, 8 flat washers and 4 Nyloc nuts.

10. Insert the WIDE R-Joint Spacers into the R-joint center pivot ball. Attach the front of the lower bar to the mount using a $\frac{5}{8}$ " x 4" bolt and Nyloc nut.

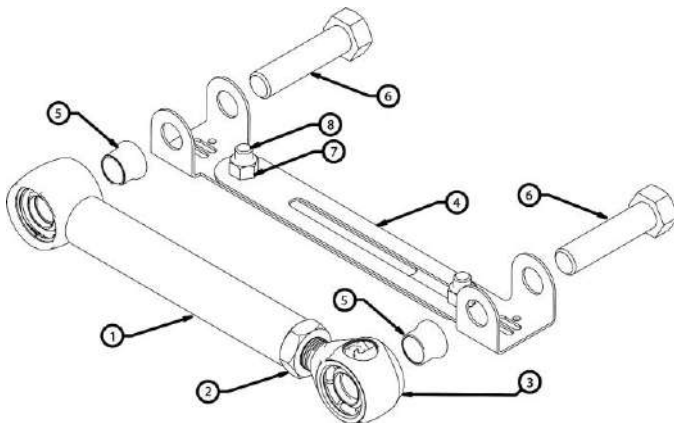
Note: Do not tighten any bar mounts until the axle is at ride height.



11. Before welding the tabs to the axle pinion angle must be set; the axle must be centered between the rails; and the axle must be raised to ride height. One trick to help maintain these setting is to tack weld a **temporary** $8\frac{1}{2}$ " spacer between the body and the axle.

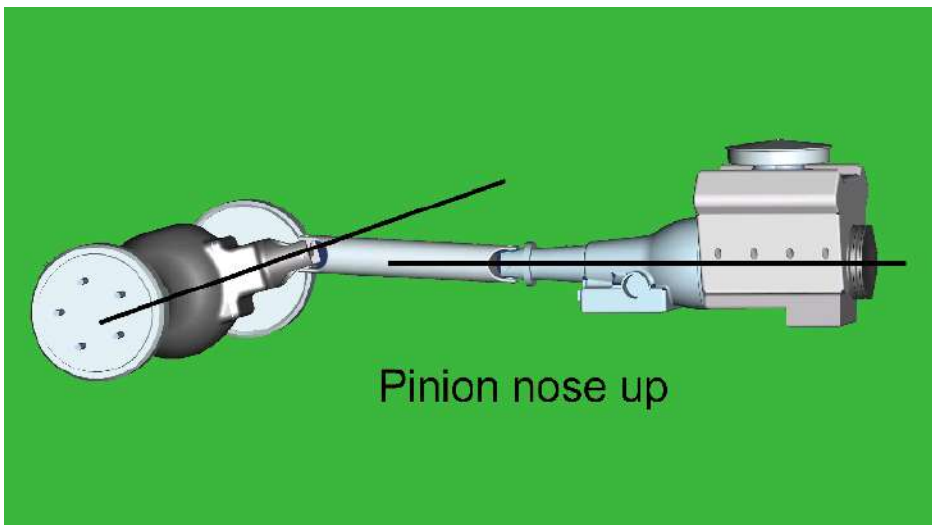
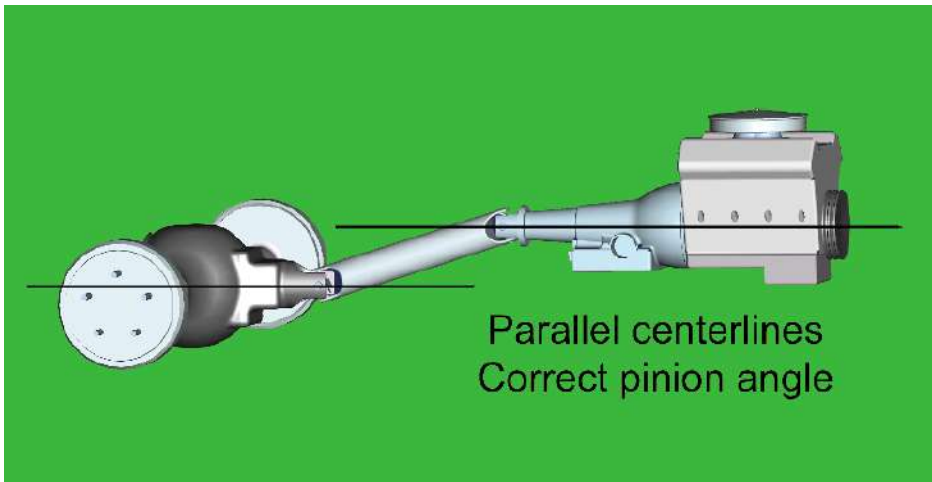
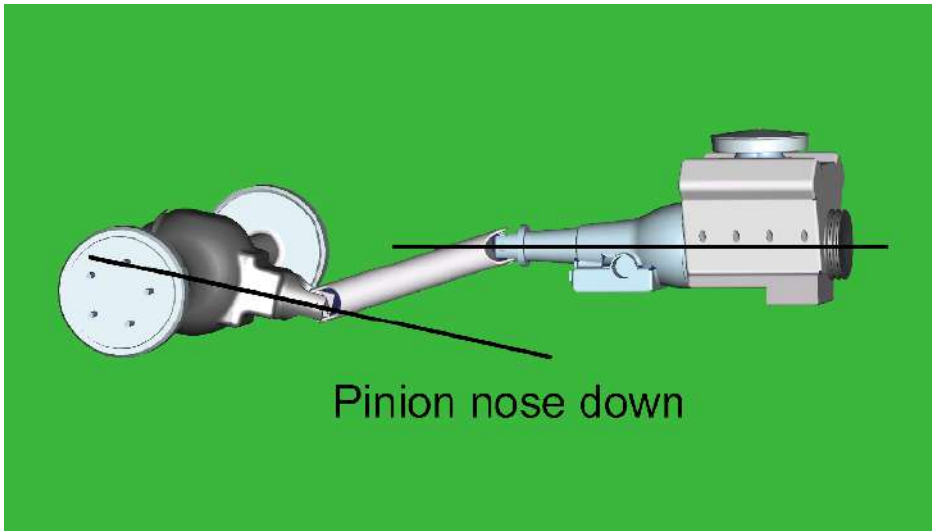
Upper Bar Installation Jig

- 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. Long tab to the inside, short tab to the outside.
- 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.	R-Joint End
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





12. 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.



13. Once pinion angle, axle center and ride height are double-checked the tabs can be tack-welded to the axle. Then remove the bar (to avoid frying the bushings) and weld the tabs solid. Weld 1" at a time and skip around to avoid warping the axle. Insert the NARROW R-Joint Spacers into the R-joints. Reattach the bar to the axle using a 5/8" x 2 3/4" bolt and Nyloc nut. The larger tab will go to the inside of the car and the longer point on both tabs will go to the front of the car. Bolt the other end of the bar to the upper mount also using a 5/8" x 2 3/4" bolt and Nyloc nut.



14. Attach the upper Shockwave mount to the factory upper shock mount using a 1/2" x 2 3/4" bolt, Nyloc nut, and flat washers. Swing the bracket out to the frame rail to mark and drill 5 holes in the frame with a 5/16" bit. Fasten with 3/8" x 1" thread forming bolts and flat washers.



15. Apply thread sealant to a 90 degree air fitting and screw it into the top of the Shockwave. These pictures show the 9000 series Shockwave, but this kit will use the 7000 series.

16. Screw the lower shock stud into the billet mount. Slide the Shockwave over the stud with a large washer on each side of the bushing. Secure the unit with the Nyloc nut supplied with the kit.

Note: Position the valve adjustment knob so that it can be accessed easily. Approximately 3 clicks will be a good starting point but will vary to driver preference.



17. Insert a 5/8" x 4" bolt through the upper mount and Shockwave eye. There should be a 5/8" flat washer on each side of the poly bushing and one next to the head of the bolt. Fasten the assembly with a 5/8" Nyloc nut.

18. All of the bar mounts can now be tightened.

19. Remove the 8 1/2" spacer.

20. Ride height on this unit is 13", should be around 75 psi, but will vary to vehicle weight and driver preference.



21. To remount the brake line body mount the 1" spacer is require to allow clearance with the upper bar mount. A longer 5/16" x 1 3/4" bolt, flat washer and lock washer are also supplied.

22. Double-check to make sure nothing can rub the Shockwave at any point through full suspension travel. **Allowing the air spring to rub will cause failure and is not a warrantable situation.**





Should I weld my AirBar 4 link assembly in?

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

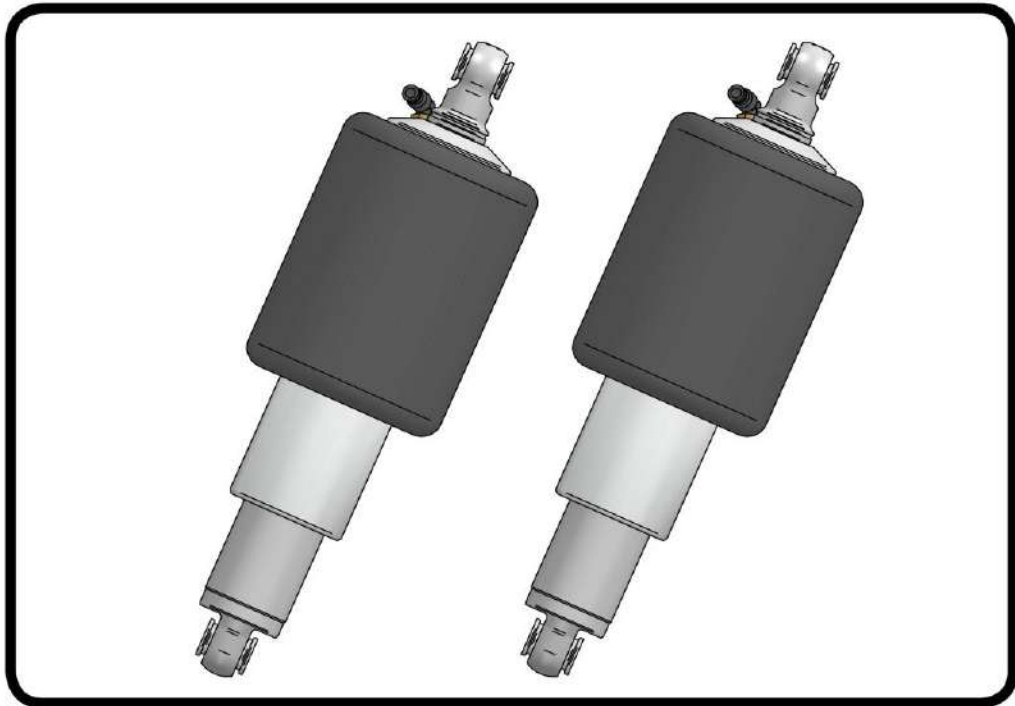
The AirBar has been designed for bolt-in installation. We have paid special attention to interfacing with key structural areas of each vehicle, fastening bracketry in at least two planes to properly distribute load paths, and to using appropriate fasteners that roll, rather than cut, threads into the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



Part # 21140701 - 4.1" Stroke HQ Series Shockwave



Recommended Tools



7000 Series Bellow, Eye/Eye 4.1" Shock Installation Instructions

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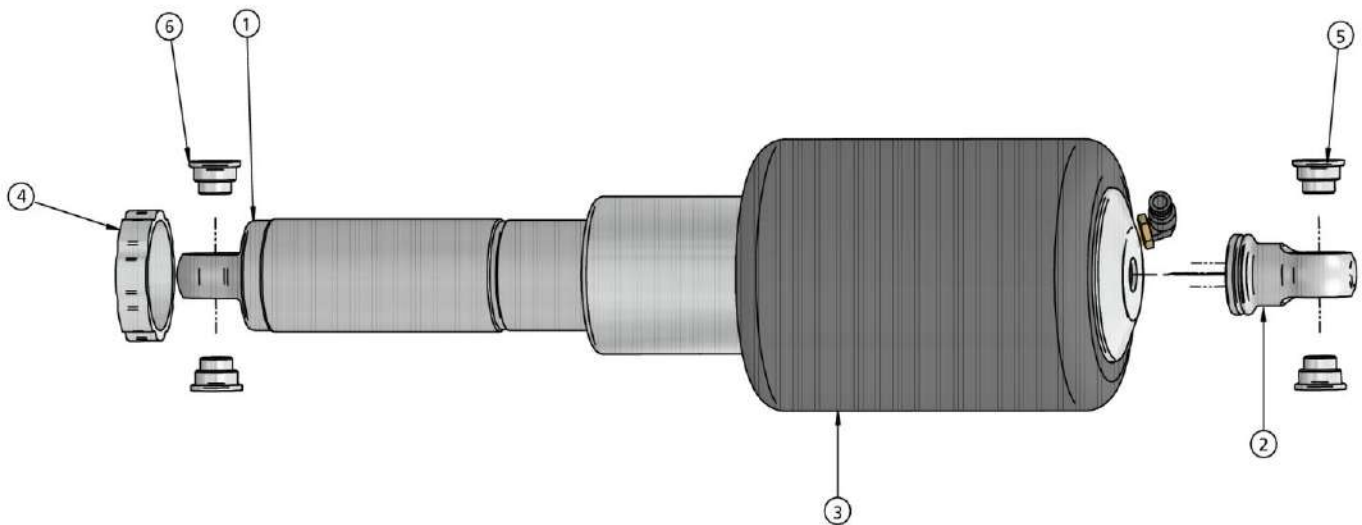
ShockWave Dimensions:

Center of bearing to Center of bearing:	
Compressed:	10.75"
Ride Height:	12.75"
Extended:	14.25"



Major ComponentsIn the box

Item #	Part #	Description	QTY
1	24149999	4.1" Stroke HQ Series Shock	2
2	90002024	Shock Eyelet	2
3	24090799	7000 Series, 4" Diameter AirSpring	2
4	70008193	AirSpring Locking Ring (Installed on Shock)	2
5	90002044	Spacer kit - 1/2" ID and 5/8" ID	4
	90001994	5/8" ID Bearing (installed in shock and eyelet)	4
	90001995	Bearing Snap Ring (installed in shock and eyelet)	8



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