

Kit No. 59542

Please read these instructions completely before proceeding with installation

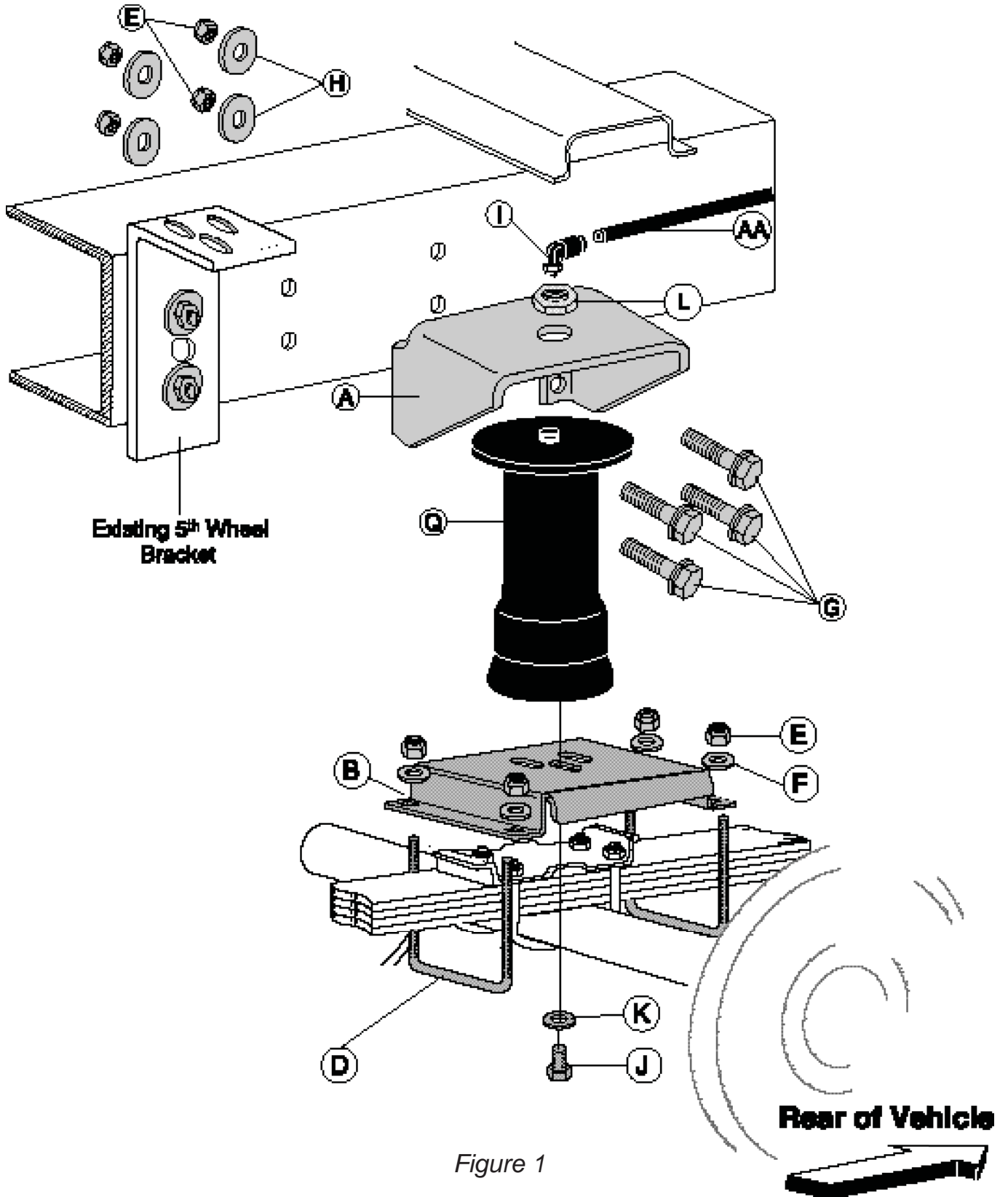


Figure 1

Item	P/N	Description	Quantity
A	07940	Upper Bracket	2
B	03102	Lower Bracket	2
D	10583	$\frac{3}{8}$ " x 3.5" x 4.5" U-bolt	4
E	18435	$\frac{3}{8}$ " - 16 Nylon Insert Nut	16
F	18444	$\frac{3}{8}$ " Flat Washer SAE	8
G	17159	$\frac{3}{8}$ " - 16 x 1.5" HWHCS GD 8	8
H	18447	$\frac{3}{8}$ " I.D. x $1\frac{3}{8}$ " O.D. Flat Washer	8
I	21837	$\frac{1}{8}$ " MNPT x $\frac{1}{4}$ " Tub Swivel Elbow	2
J	17124	$\frac{1}{2}$ " - 13 x $\frac{7}{8}$ " HHCS GD 2	2
K	18414	$\frac{1}{2}$ " Flat Washer SAE GD 2	2
L	18454	$\frac{3}{4}$ " - 16 Nylon Hex Jam Nut	3
M	10622	Tall Installation Tool	1
N	58571	Air Spring	2

Item	P/N	Description	Quantity
-Air Line Assembly Parts-			
AA	20086	Hose SubAssembly	1
BB	10466	8" Zip Tie (Black)*	6
CC	21230	Poly Cap*	2
DD	18405	$\frac{5}{16}$ " x $\frac{5}{8}$ " x .032 Flat Washer*	2
EE	21234	Rubber Washer*	2
FF	18411	$\frac{5}{16}$ " Extended Tooth Lockwasher*	2
GG	21233	Hex Nut*	4

(* not shown in Figure 1)

Tools Needed

$\frac{7}{16}$ ", $\frac{9}{16}$ " open-end or box wrenches

Crescent Wrench

Ratchet with $\frac{3}{8}$ ", $\frac{9}{16}$ ", and $\frac{1}{2}$ " deep well sockets

$\frac{3}{8}$ " and $\frac{5}{16}$ " drill bits (very sharp)

$\frac{3}{8}$ " Nut Driver

Heavy Duty Drill

Torque Wrench

Hose Cutter, Razor Blade, or Sharp Knife

Hoist or Floor Jacks

Safety Stands

Safety Glasses

Air Compressor, or Compressed Air Source

Spray Bottle with Dish Soap/Water Solution

DANGER: Compressed air can cause injury and damage to the vehicle and parts if it is not handled properly. For your safety, do not try to inflate the air springs until they have been properly secured to the vehicle.

I. Getting Started

1. Determine the Normal Ride Height. The Normal Ride Height is the distance between the bottom edge of the wheel-well and the center of the hub with the vehicle in the “as delivered” condition. In some cases, Normal Ride Height is not perfectly level.
 - a. Remove unusual loads and examine your vehicle from the side to ensure it is on a level surface.
 - b. If necessary (in cases where your leaf springs are sagging badly), use a jack to raise the rear end so that the vehicle achieves the original “as delivered” ride height.
2. Measure the distance between the center of the hub and the bottom edge of the wheel well (Figure 2). This is the Normal Ride Height. Enter the measurement below:

NORMAL
RIDE HEIGHT: _____ inches

3. Measure the distance between the frame and the tire. This kit requires a minimum of 6” of clearance for a fully inflated air spring (Figure 3).

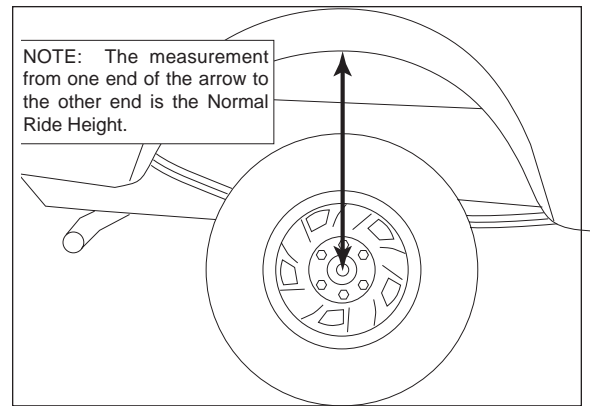


Figure 2

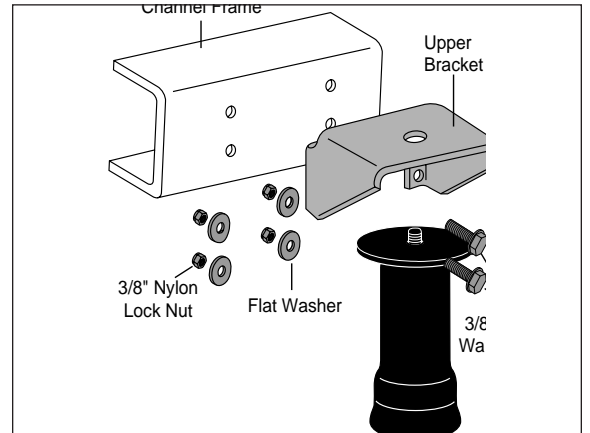


Figure 3

II. Raising the Vehicle

1. Raise the vehicle and remove the wheels.
2. Check the distance between the center of the hub and the bottom edge of the wheel to ensure that it is at the normal ride height recorded above. If not, raise the frame or lower the axle as necessary to restore the original distance.
 - a. If the vehicle is raised with an axle contact hoist, place axle stands under the frame and lower the axle as needed.
 - b. If the vehicle is raised with a frame contact hoist, place axle stands under the axle and lower the frame as needed.
 - c. If the vehicle is raised with a jack and supported with axle stands on the frame, use a floor jack to lower the axle.

III. Assembling the Installation Tool

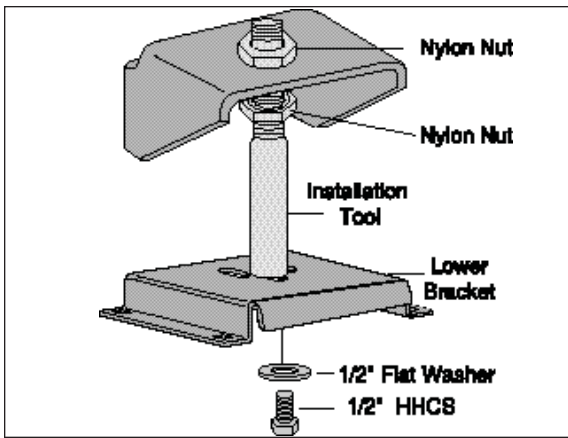


Figure 4

The tool provided with this kit will assist in proper setup and alignment of the air spring and will also position the upper bracket for drilling the bolt holes. The tool attaches to the upper and lower brackets and is rigid so that it will self-align the upper bracket. The threaded section of the upper part of the tool ensures that the air spring can only be mounted at the correct height. The air spring will work throughout the entire threaded range on the tool. Correct placement depends on the particular vehicle application.

1. Secure the upper bracket (A) to the installation tool (M) using the provided nylon nut (L) (Figure 4).
2. Loosely attach the tool to the lower bracket (B) using $\frac{1}{2}$ " flat washer (K) and $\frac{1}{2}$ " bolt (J). Refer to Figure 4. Leave loose for adjustment.

IV. Attaching the Lower Bracket

1. Set the assembly on the leaf spring, over the axle.
2. Secure the lower bracket to the leaf spring with the provided U-bolts (D), flat washers (F), and lock nuts (E). Torque to 16 ft/lbs.
3. The air spring will expand to 5.1" in diameter at maximum inflation pressure. Check horizontally along the shaft of the installation tool for sufficient clearance of 2.50" clearance all around the tool (Figure 8). Be sure to check and adjust any fasteners coming through the frame from the inboard side.

V. Positioning the Upper Bracket

1. Using the slot in the lower bracket, push the upper bracket against the frame rail.
2. Use two nylon nuts on the threaded portion of the tool to adjust the upper bracket so that the legs are flat against the frame rail and all four holes are in the middle section of the frame rail. The mounting holes must not fall on the rounded edges of the frame rail and at least 1.5" must be left above the top of the upper bracket for air fitting clearance.

VI. Attaching the Upper Bracket

1. CAUTION: Before drilling, check the back side of the frame for clearance issues such as, brake lines, gas lines, electrical lines, etc. Any obstacles will need to be temporarily relocated to clear the area.
2. Center punch the lower rear hole and drill a $\frac{3}{8}$ " hole.
3. Loosely install a washer head frame bolt (G), large flat washer (H), and nylock nut (E). Refer to Figure 1.
4. Center punch and drill the forward lower hole.
5. Remove the tool by removing the bolt securing the tool to the lower bracket. Swing the bracket up and remove the nylon nut on the top of the upper bracket. Remove the tool. Save the removed hardware, as it will be reused to mount the air spring.
6. Replace the upper bracket to the mounting location and secure at the lower, forward mounting hole using washer head frame bolt (G), large flat washer (H), and nylock nut (E) as shown in Figure 1. Tighten securely.
7. Center punch and drill the remaining holes. Insert the washer head frame bolt (G), large flat washer (H), and a nylock nut (E). Tighten all frame bolts to 44 ft/lbs.

VII. Installing the Air Spring

1. Install 90 degree air swivel fitting (I) to the top of the air spring (Q) (Figure 1). Use a $\frac{7}{16}$ " open end wrench being careful to tighten on the metal hex nut only. Tighten 1 and $\frac{1}{2}$ turns. Do not over tighten.

NOTE: This fitting is precoated with sealant.

2. Guide the fitting through the center mounting hole in the upper bracket (Figure 1).
3. Attach the air spring to the lower bracket using flat washer (K) and bolt (J). Leave loose for later adjustment.
4. Install a nylon nut (L) over the air fitting and onto the upper threadpost of the air spring (Figure 1). Tighten to 4 ft/lbs.

VIII. Installing the Air Lines

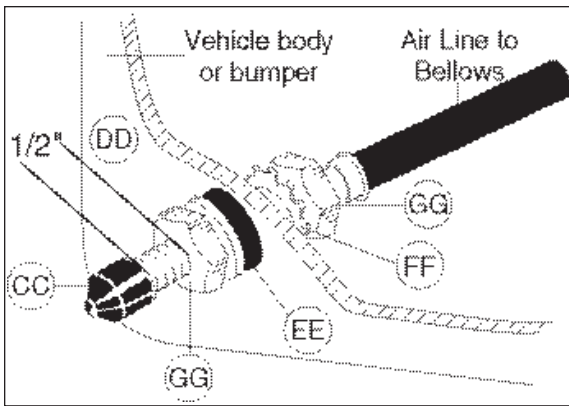


Figure 5

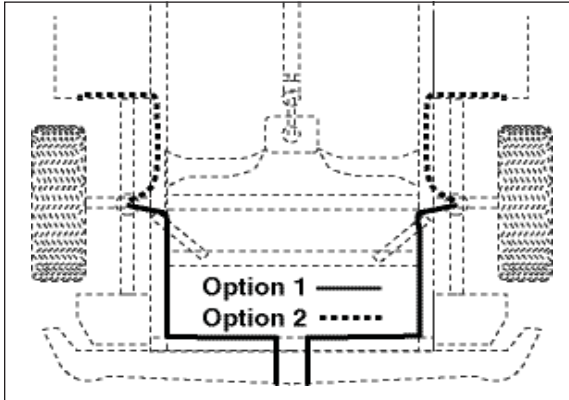


Figure 6

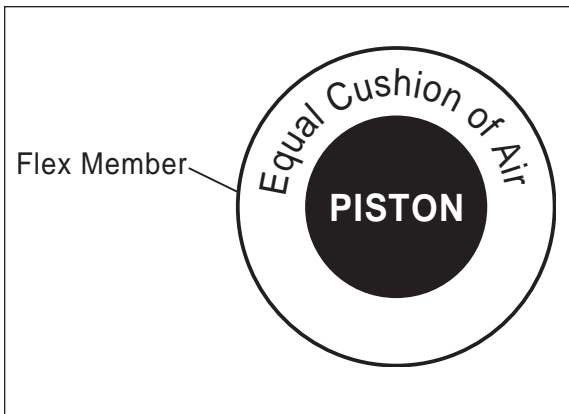


Figure 7

1. Choose a convenient location for mounting the inflation valves. Popular locations for the inflation valve are: the wheel well flanges, the license plate recess in bumper, under the gas cap access door, or through license plate itself.

NOTE: What ever the chosen location is, make sure there is enough clearance around the inflation valves for an air chuck.

2. Drill a $\frac{5}{16}$ " hole to install the inflation valves.
3. Cut the air line assembly (AA) in two equal lengths.

CAUTION: When cutting or trimming the air line, use a hose cutter, a razor blade or a sharp knife. A clean, square cut will ensure against leaks. Do not use wire cutters or scissors to cut the air line. These tools may flatten or crimp the air line, causing it to leak around the O-ring seal inside the elbow fitting.

4. Place a $\frac{5}{16}$ " nut (GG) and a star washer (FF) on the air valve. Leave enough of the inflation valve in front of the nut to extend through the hole and have room for the rubber washer (EE), flat washer (DD), and $\frac{5}{16}$ " nut (GG) and cap (CC). There should be enough valve exposed after installation - approximately $\frac{1}{2}$ " - to easily apply a pressure gauge or an air chuck (Figure 5).
5. Push the inflation valve through the hole and use the rubber washer (EE), flat washer (DD), and another $\frac{5}{16}$ " nut (GG) to secure it in place. Tighten the nuts to secure the assembly in place (Figure 5).
6. Route the air line along the frame to the air fitting on the air spring (Figure 6). Keep at least 6" of clearance between the air line and heat sources, such as the exhaust pipes, muffler, or catalytic converter. Avoid sharp bends and edges. Use the plastic tie straps (BB) to secure the air line to fixed, non-moving points along the chassis. Be sure that the tie straps are tight, but do not pinch the air line. Leave at least 2" of slack to allow for any movement that might pull on the air line.
7. Cut off air line leaving approximately 12" of extra air line. A clean square cut will ensure against leaks. Insert the air line into the air fitting. This is a push to connect fitting. Simply push the air line into the 90° swivel fitting until it bottoms out ($\frac{9}{16}$ " of air line should be in the fitting).
8. Install the minimum/maximum air pressure decal in a highly visible location. We suggest placing it on the driver- side window just above the door handle.

IX. Aligning the Air Spring

1. **IMPORTANT:** With the bottom and top of the air spring still loose, inflate the air spring to approximately 10 p.s.i.
2. Use the slotted adjustment in the lower bracket to correctly align the air spring between the upper and lower brackets. This can be accomplished by lightly tapping it inboard or outboard for proper alignment. There should be a symmetrical cushion of air around the base of the air spring when correctly positioned (Figure 7).
3. Tighten the lower mounting bolt with a $\frac{3}{4}$ " wrench. Hand tight is sufficient. Do not attempt to hold the air spring with any type of tool.
4. Repeat entire installation procedure for other side.

X. Checking for Leaks

1. Inflate the air spring to 30 p.s.i.
2. Spray all connections and the inflation valves with a solution of $\frac{1}{5}$ liquid dish soap and $\frac{4}{5}$ water to check for leaks. You should be able to spot leaks easily by looking for bubbles in the soapy water.
3. After the test, deflate the springs to the minimum pressure required to restore the Normal Ride Height, but not less than 5 p.s.i.
4. **IMPORTANT:** Check the air pressure again after 24 hours. A 2 to 4 p.s.i. loss after initial installation is normal. Retest for leaks if the loss is more than 5 lbs.

XI. Fixing Leaks

1. If there is a problem with the swivel fitting,
 - a. Check the air line connection by deflating the spring and removing the line by pulling the collar against the fitting and pulling firmly on the air line. Trim 1" off the end of the air line. Be sure the cut is clean and square. Reinsert the air line into the push-to-connect fitting.
 - b. Check the threaded connection by tightening the swivel fitting another $\frac{1}{2}$ turn. If it still leaks, deflate the air spring, remove the fitting, and re-coat the threads with thread sealant. Reinstall by hand tightening as much as possible, then use a wrench for an additional two turns.
2. If there is a problem with the inflation valve,
 - a. Check the valve core by tightening it with a valve core tool.
 - b. Check the air line connection by removing the air line from the barbed type fitting. **CAUTION: Do not cut it off, as this will usually nick the barb and render the fitting useless.** Cut air line off a few inches in front of the fitting and use a pair of pliers or vice-grips to pull/twist the air line off the fitting.

Problems maintaining air pressure, without on-board compressor.

1. Leak test the air line connections and threaded connection of the elbow into the air spring. See Section XI to repair.
2. Leak test the inflation valve for leaks at the air line connection or dirt or debris in the valve core. See Section XI to repair.
3. Inspect air lines to be sure it is not pinched. Tie straps may be too tight. Loosen or replace strap. Replace leaking components.
4. Inspect air line for holes and cracks. Replace as needed.
5. A kink or fold in the air line. Reroute as needed.

XIV. Maintenance and Operations

Minimum Air Pressure	Maximum Air Pressure
5 p.s.i.	100 p.s.i.
<i>Failure to maintain correct minimum pressure (or pressure proportional to load), bottoming</i>	

By following these steps, vehicle owners will obtain the longest life and best results from their air springs.

1. Check the air pressure weekly.
2. Always maintain Normal Ride Height. Never inflate beyond 100 p.s.i.
3. If you develop an air leak in the system, use a soapy water solution to check all air line connections and the inflation valve core before deflating and removing the air spring. (See page 7).
4. When increasing load, always adjust the air pressure to maintain the Normal Ride Height. Increase or decrease pressure from the system as necessary to attain Normal Ride Height for optimal ride and handling. Remember that loads carried behind the axle (including tongue loads) require more leveling force (pressure) than those carried directly over the axle.
5. **IMPORTANT:** For your safety and to prevent possible damage to your vehicle, *do not exceed maximum Gross Vehicle Weight Rating (GVWR), as indicated by the vehicle manufacturer.* Although your air springs are rated at a maximum inflation pressure of 100 p.s.i. The air pressure actually needed is dependant on your load and GVWR, which may be less than 100 p.s.i. Check your vehicle owners manual and do not exceed the maximum load listed for your vehicle.
6. Always add air to springs in small quantities, checking the pressure frequently. Sleeves require less air volume than a tire and inflate quickly.
7. *Should it become necessary to raise the vehicle by the frame, make sure the system is at minimum pressure (5 p.s.i.) to reduce the tension on the suspension/brake components. Use of on-board leveling systems do not require deflation or disconnection.*



Product Use Information

Frequently asked questions

Q. Will installing air springs increase the weight ratings of a vehicle?

No. Adding air springs will not change the weight ratings (GAWR, GCWR and/or GVWR) of a vehicle. Exceeding the GVWR is dangerous and voids the Air Lift warranty.

Q. Is it necessary to keep air in the air springs at all time and how much pressure will they need?

The minimum air pressure should be maintained at all times. The minimum air pressure keeps the air spring in shape, ensuring that it will move throughout its travel without rubbing or wearing on itself.

Q. Is it necessary to add a compressor system to the air springs?

No. Air pressure can be adjusted with any type of compressor as long as it can produce sufficient pressure to service the springs. Even a bicycle tire pump can be used, but it's a lot of work.

Q. How long should air springs last?

If the air springs are properly installed and maintained they can last indefinitely.

Q. Will raising the vehicle on a hoist for service work damage the air springs?

No. The vehicle can be lifted on a hoist for short-term service work such as tire rotation or oil changes. However, if the vehicle will be on the hoist for a prolonged period of time, support the axle with jack stands in order to take the tension off of the air springs.

Tuning the air pressure

Pressure determination comes down to three things — level vehicle, ride comfort, and stability.

1. Level vehicle

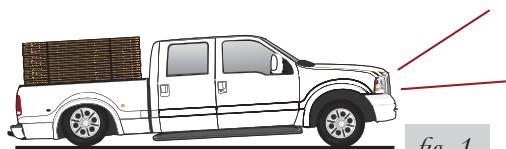
If the vehicle's headlights are shining into the trees or the vehicle is leaning to one side, then it is not level (fig. 1). Raise the air pressure to correct either of these problems and level the vehicle.

2. Ride comfort

If the vehicle has a rough and harsh ride it may be due to either too much pressure or not enough (fig. 2). Try different pressures to determine the best ride comfort.

3. Stability

Stability translates into safety and should be the priority, meaning the driver may need to sacrifice a perfectly level and comfortable ride. Stability issues include roll control, bounce, dive during braking and sponginess (fig. 3). Tuning out these problems usually requires an increase in pressure.



Bad headlight aim



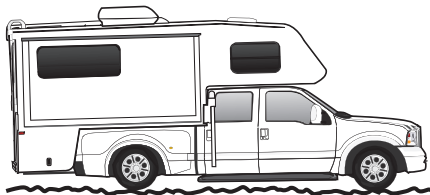
Sway and body roll



Rough ride

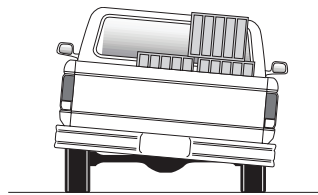
Guidelines for adding air:

1. Start with the vehicle level or slightly above.
2. When in doubt, always add air.
3. For motorhomes, start with 50-100 PSI in the rear because it can be safely assumed that it is heavily loaded.
4. If the front of the vehicle dives while braking, increase the pressure in the front air bags, if equipped.
5. If it is ever suspected that the air bags have bottomed out, increase the pressure (fig. 4).
6. Adjust the pressure up and down to find the best ride.
7. If the vehicle rocks and rolls, adjust the air pressure to reduce movement.
8. It may be necessary to maintain different pressures on each side of the vehicle. Loads such as water, fuel, and appliances will cause the vehicle to be heavier on one side (fig. 5). As much as a 50 PSI difference is not uncommon.

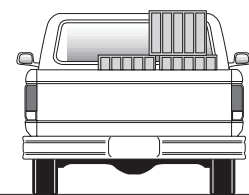


Bottoming out

fig. 4



Unlevel



Level

fig. 5