

Air Lift 1000

by AIR LIFT®

DRAG BAGS



Cover image
may not depict
actual kit.



INSTALLATION GUIDE

For maximum effectiveness and safety, please read these instructions completely before proceeding with installation.

Failure to read these instructions can result in an incorrect installation.

Introduction

The purpose of this publication is to assist with the installation, maintenance and troubleshooting of the Air Lift 1000/Drag Bag air spring kit.

It is important to read and understand the entire installation guide before beginning installation or performing any maintenance, service or repair. The information here includes a hardware list, tool list, step-by-step installation information, maintenance guidelines and operating tips.

IMPORTANT SAFETY NOTICE

The installation of this kit does not alter the Gross Vehicle Weight Rating (GVWR) or payload of the vehicle. Check your vehicle's owner's manual and do not exceed the maximum load listed for your vehicle.

Gross Vehicle Weight Rating: The maximum allowable weight of the fully loaded vehicle (including passengers and cargo). This number — along with other weight limits, as well as tire, rim size and inflation pressure data — is shown on the vehicle's Safety Compliance Certification Label.

Payload: The combined, maximum allowable weight of cargo and passengers that the truck is designed to carry. Payload is GVWR minus the Base Curb Weight.

NOTATION EXPLANATION

Hazard notations appear in various locations in this publication. Information which is highlighted by one of these notations must be observed to help minimize risk of personal injury or possible improper installation which may render the vehicle unsafe. Notes are used to help emphasize areas of procedural importance and provide helpful suggestions. The following definitions explain the use of these notations as they appear throughout this guide.

 DANGER

INDICATES IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.

 WARNING

INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

 CAUTION

INDICATES HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN DAMAGE TO THE MACHINE OR MINOR PERSONAL INJURY.

NOTE

Indicates a procedure, practice or hint which is important to highlight.

HARDWARE LIST

Item	Part #	Description	Qty
A	46160	Cylinder.....	2
B	09735	Protectors.....	2
C	20937	Air Line Assembly	15"
D	10466	Tie Strap	6
E	21230	Valve Cap	2
F	21233	5/16" Hex Nut.....	4
G	21234	Rubber Washer.....	2
H	18411	Star Washer.....	2
I	18405	5/16" Flat Washer	2
J	21236	Tee.....	4
K	21455	Valve.....	2

TOOLS LIST

Description.....	Qty
Hoist or Floor Jack.....	2
Safety Stands	2
Safety Glasses	1
Metric & Standard sockets/ratchet & wrenches....	1
Torque Wrench.....	1
Die Grinder or Plasma Cutter	1
Drill, Drill Bits	1
Pliers.....	1
Air Compressor or Compressed Air Source	1
Spray Bottle with dish soap/water solution.....	1
Possibly:	
J 6627-A Tie Rod Puller	1
J 42066 Rear Hub Holding Tool	1
J 45059 Angle Meter	1

Installing the Air Lift Drag Bag System

GETTING STARTED

1. Raise the rear of the vehicle. Put safety stands under the frame so the wheel can hang.
2. Remove the rear wheels for easier access to the coil springs.

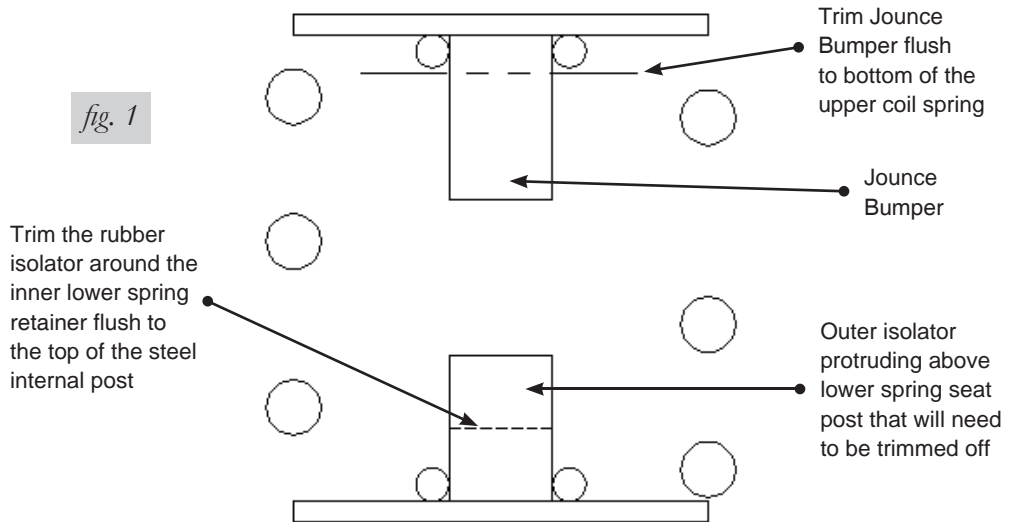
NOTE

It will be necessary to create a hole in the lower spring seat so that the air line can be attached to the cylinder once it is installed (the cylinder is installed with the stem down in the coil spring). In the following directions, the first section shows how to create a hole in the lower spring seat without removing the coil springs. In the second section, we show you how to disassemble the suspension and remove the coil springs in order to create a hole in the lower spring seat.

WITHOUT REMOVING THE COIL SPRING INSTRUCTIONS

Based on the note above, it is necessary to create a hole in the lower spring seat for an air line/cylinder stem interface. For this set of instructions you will need some way of cutting or drilling a hole through the lower spring seat, with the coil spring still in the vehicle. In order to do this you will need something like a plasma cutter which will be set on a very low setting so as not to create heat in the coil spring (which still will be installed on the suspension) or some kind of right angle drill which will be small enough to fit into the inside of the coil spring (with the suspension extended of course).

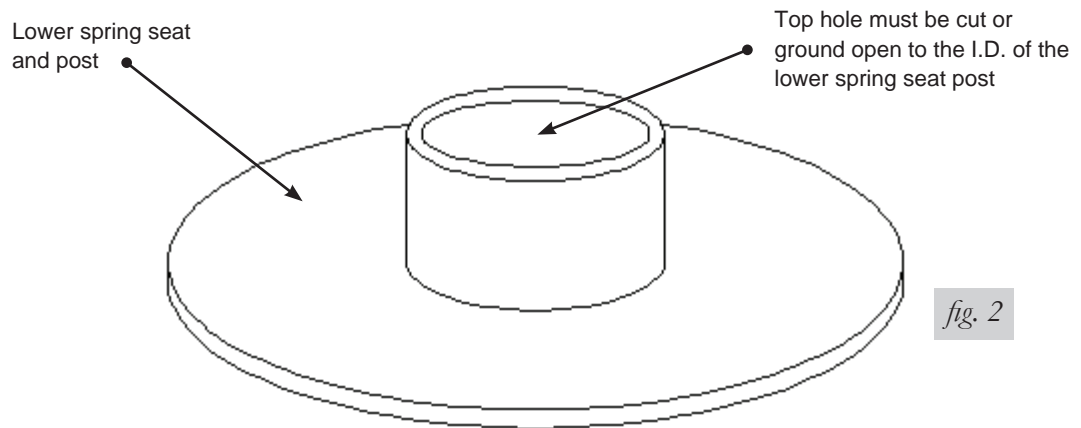
1. With the suspension hanging, using a box cutter or a fillet knife cut the jounce bumper at the top of the spring mount flush to the bottom of the upper coil spring (fig. 1).



2. On the lower spring retainer, it has an isolator that is on the outside of the spring retaining post. If you push on the top of it, you can feel that the inner spring retaining post is below the top of the rubber liner. It will be necessary to cut the liner away from the top of the post (fig. 1). This will expose the top of the post which you will need to drill a hole in or cut out for the air line access to the cylinder.
3. With the suspension fully extended, using a right angle drill or a plasma cutter on the lowest setting, cut a hole in the top spring seat (fig. 2).

NOTE

It will be necessary to grind the hole open so that the whole inside diameter of the post is exposed.



4. To proceed, move to the “Installing the Air Spring” section.

REMOVING THE COIL SPRING INSTRUCTIONS

In this section we show you how to remove your coil spring to gain access to the lower spring seat post in order to create a hole for air line access to the cylinder.



CAUTION

THE SPRING IS UNDER EXTREME COMPRESSION. CARE MUST BE TAKEN AT ALL TIMES.

NOTE

Since this is an independent suspension, it will be easier to work on one side at a time.

1. With the wheel removed, support the lower control arm with a jack. Raise the lower control arm slightly.
2. It will be necessary to separate the inner drive shaft and outer constant velocity joint from each other. In order to do this, a rear hub holding tool (J 42066) is recommended to hold the outer hub from turning. Mark the inner drive shaft and outer constant velocity joint with a marker or chalk so that they can be lined up correctly upon assembly. Wire tie the inner drive shaft to the upper shock mount to keep it from hanging freely. **IMPORTANT:** do not allow the drive shaft to hang freely. Remove all the bolts and retainers that hold the inner drive shaft and outer CV together and separate the two (fig. 3).

Loosen the upper stabilizer bar link bolt and remove the lower stabilizer link bar bolt from the lower control arm



Mark axle shaft and CV, support inner drive axle (do not let hang free), remove bolts and separate axle shaft from CV

Remove the nut from the outer adjustment link, separate from the lower control arm and set aside

Remove the shock bolt and washer. Make sure the jack is supporting the lower control arm. Pull shock away from the lower control arm.

fig. 3

3. Loosen the top stabilizer link bolt and remove the lower link bolt from the lower control arm (fig. 3).
4. Loosen the nut on the outer adjustment link, using a J 6627-A or equivalent ball joint removal tool, separate the stud from the control arm (fig. 3).
5. With the jack still under the lower control arm and still slightly supporting it, remove the lower shock bolt and washer from the shock absorber. Pull the shock away from the lower control arm (fig. 3).
6. Using caution, lower the control arm using the jack until the jack is free of the lower control arm. Pull down on the lower control arm and remove the coil spring.
7. If it stuck to the spring upon removal, remove the lower spring seat isolator out of the spring and set over the lower spring seat post. Trim the isolator away from the lower spring seat post so that the top is exposed. Drill and grind top of spring seat post open or plasma cut on low setting (fig. 2). Make sure hole is open to the I.D. of the spring seat post.

8. Remove the upper spring seat that contains the jounce bumper from the coil spring. Measure up from the bottom of the jounce bumper 1.75" and cut jounce bumper off from upper spring seat (see fig. 1).
9. Once the modifications have been made to the upper spring seat jounce bumper and lower spring seat post put the jounce bumper spring seat and the lower isolator back in place on the spring, set the coil spring assembly back into position between the lower control arm and frame.
10. Jack up the lower control arm far enough to set the lower shock mount back onto the lower control arm. Install the shock bolt and washer. **Do not tighten shock bolt at this time.**
11. Install the outer adjustment link stud back into the lower control arm. It is recommended that a new nut be installed on the stud. **Do not tighten stud nut at this time.**
12. Install the stabilizer back onto the lower control arm. Do not tighten the bolt/nut at this time.
13. Align the marks previously made on the inner drive axle and outer CV. Install the retainers and bolts previously removed. Using the hub holding tool (J 42066) tighten the bolts to 50 Nm (37 ft. lbs.). Using a J 45059 angle meter, tighten the bolts an additional **68 degrees**. Remove the hub holding tool.
14. Remove the wire holding the inner drive axle and repeat procedure for the other side. All hardware that was left loose will be torqued during the "completing the installation instructions section".

INSTALLING THE AIR SPRING

1. Once there is a hole through the lower spring seat post to route a hose through and the jounce bumper has been trimmed on the top spring seat, remove the plastic cap from the barbed stem on the end of the air spring. Exhaust the air from the air spring by rolling it up toward the barbed stem. Replace the cap on the stem to hold the flat shape (fig. 4).

NOTE

With the shock in place (if previously removed); lower the suspension down completely so that the suspension is in full rebound.

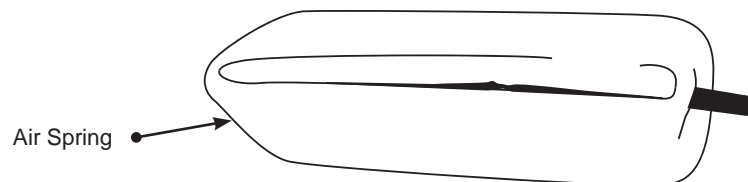
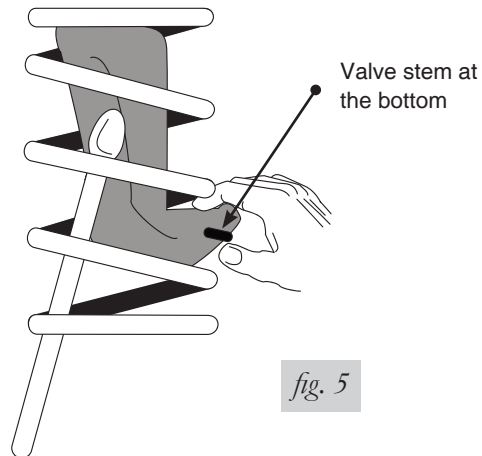


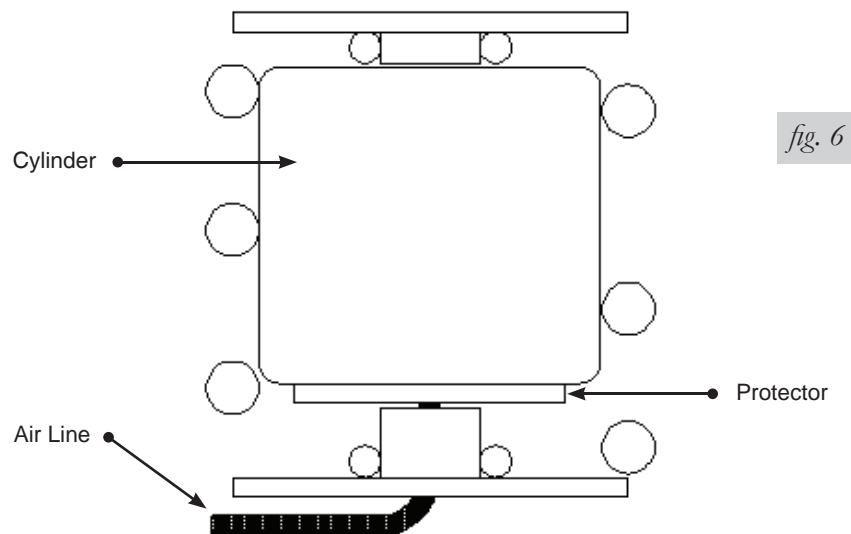
fig. 4

2. Insert the cylinder in between the coil spring with the stem pointing down. Push the air spring up or down within the coil by hand or with a blunt instrument such as a spoon-type tire iron.

- When the air spring is completely within the coil, remove the cap and allow the air spring to assume its “as molded” shape (fig. 5).



- With the suspension still hanging, insert the protector between the spring seat post and stem end of cylinder. Push the cylinder to the top of the coil spring.



DUAL AIR LINE ROUTING

NOTE

Recommended for Drag Bag installations. Also reference AD-300 for chassis setup information.

CAUTION

TO PREVENT AIR LINE FROM MELTING, KEEP IT AT LEAST 8" FROM EXHAUST SYSTEM.

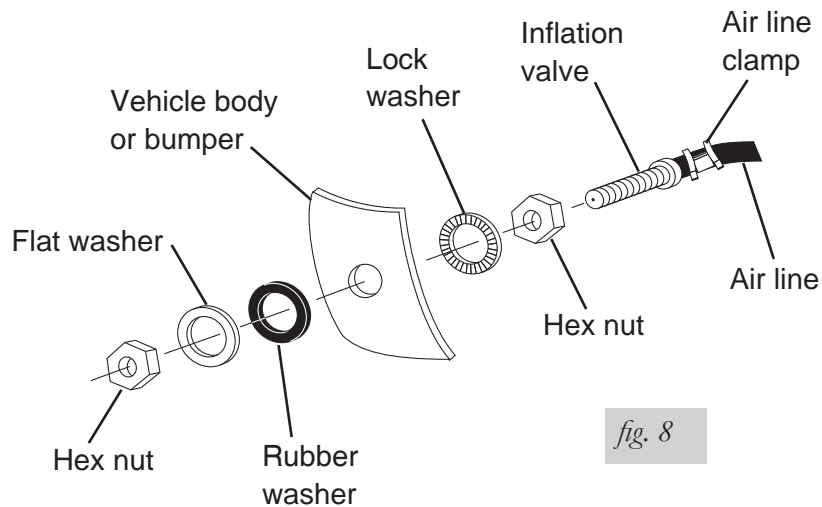
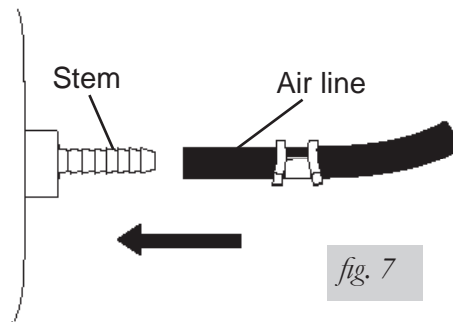
- Select a location for the inflation valves in the rocker panel flange, or rear bumper, assuring that each valve will be protected and accessible with an air hose.
- Determine and cut adequate length of air line to reach from valve location to left side air spring.

NOTE

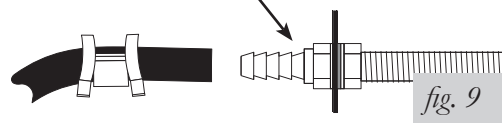
Leave sufficient air line slack to prevent any strain on fitting during axle motions.

- Insert the air line through the spring seat and spacer (fig. 6).
- Slide air clamp onto the cut air line.

5. Push the air line onto the stem, covering all the barbed section (see fig. 7). With pliers slide the air line clamp forward until it fully covers barbed section.
6. Repeat process for right side.
7. Drill 5/16 " hole for inflating valves and mount as illustrated. Rubber washer is for outside weather seal (see fig. 8).
8. Route air line along control arm and frame to inflation valve location and cut off excess.
9. Slide a clamp onto the air line and push the air line over the fitting, covering all the barbs. With pliers slide the air line clamp forward until it fully covers the barbed section (see fig. 9).
10. Raise axle or lower body until air springs lightly touch upper spring seat and lower spacers (fig. 6).



Be sure to fully cover the barbed section.



COMPLETING THE INSTALLATION

1. Once the vehicle is back up to ride height per step 10 of the air line instructions, torque the hardware as shown in fig. 10 (if removed):

Torque Specifications	
Lower Shock Bolts	115 Nm (85 ft./lbs.)
Stabilizer Link Bolts/Nuts	98 Nm (72 ft./lbs.)
Outer Adjustment Link Nut	35 Nm (26 ft./lbs.)
The wheels are done in two steps:	
First Pass (Torque the nuts in a criss-cross pattern)	70 Nm (50 ft./lbs.)
Second Pass	140 Nm (100 ft./lbs.)

fig. 10

2. Inflate the air springs to 35 PSI. Test for air leaks by applying a liquid solution of $\frac{1}{5}$ dish soap to $\frac{4}{5}$ water in a spray bottle, to all valve cores, fittings and connections.
3. Recheck air pressure after 24 hours. A 2-4 PSI loss after initial installation is normal. If pressure has dropped more than 5 lbs. retest for leaks.
4. Set your suspension up per the enclosed Drag Bag Chassis set-up information flyer (AD-300 included). Please review the maintenance and servicing section at the end of this manual also.

Product Use, Maintenance and Servicing

Suggested Driving Pressure	Maximum Air Pressure
5 PSI	35 PSI
FAILURE TO MAINTAIN CORRECT MINIMUM PRESSURE (OR PRESSURE PROPORTIONAL TO LOAD), BOTTOMING OUT, OVER-EXTENSION OR RUBBING AGAINST ANOTHER COMPONENT WILL VOID THE WARRANTY.	

MAINTENANCE GUIDELINES

NOTE

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

1. Check the air pressure weekly.
2. Always maintain normal ride height. Never inflate beyond 35 PSI.
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 spring.
4. When increasing load, always adjust the air pressure to maintain 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.



CAUTION

FOR YOUR SAFETY AND TO PREVENT 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 35 PSI, THE AIR PRESSURE ACTUALLY NEEDED IS DEPENDENT ON YOUR LOAD AND GVWR.

5. Always add air to the springs in small quantities, checking the pressure frequently. Cylinders require less air volume than a tire and inflate quickly.
6. Should it become necessary to raise the vehicle by the frame, make sure the system is at a minimum pressure (5 PSI) to reduce tension on the suspension/brake components. Use of on-board leveling systems do not require deflation or disconnection.

OPERATING TIPS

1. Inflate your air springs to 35 PSI before adding the payload. This will allow the air cylinder to properly mesh with the coil spring. After the vehicle is loaded, adjust your air pressure down to level the vehicle and for ride comfort.
2. When carrying a payload it will be helpful to increase the tire inflation pressure in proportion to any overload condition. We recommend a 2 PSI increase above normal for each 100 lbs additional load on the axle.

Troubleshooting Guide

1. Leak test the air line connections, the connection into the air spring, and all fittings in the control system.
2. Inspect the air lines to be sure none are pinched. Tie straps may be too tight. Loosen or replace the strap and replace leaking components.
3. Inspect the air line for holes and cracks. Replace as needed.

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 times 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. 11). Raise the air pressure to correct either of these problems and level the vehicle.

2. Ride comfort

If the vehicle has a rough or harsh ride it may be due to either too much pressure or not enough (fig. 12). 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. 13). Tuning out these problems usually requires an increase in pressure.



Bad headlight aim

fig. 11



Rough ride

fig. 12



Sway and body roll

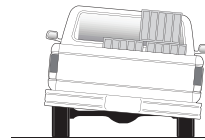
fig. 13

Guidelines for Adding Air

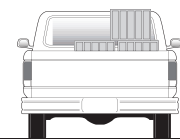
1. Start with the vehicle level or slightly above.
2. When in doubt, always add air.
3. For motorhomes, start with 50-100 PSI in the rear because it can be safely assumed that it is heavily loaded.
4. If the front of the vehicle dives while braking, increase the pressure in the front air bags, if equipped.
5. If it is ever suspected that the air bags have bottomed out, increase the pressure (fig. 14).
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. 15). As much as a 50 PSI difference is not uncommon.



Bottoming out

fig. 14

Unlevel



Level

fig. 15