

SlamAIR

by AIR LIFT®

Kit 59210

Ford F-150



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 SlamAir 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 tips, safety information and a troubleshooting guide.

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.

Installation Diagram

Shackle hanger installation shown

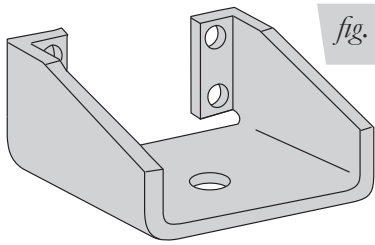
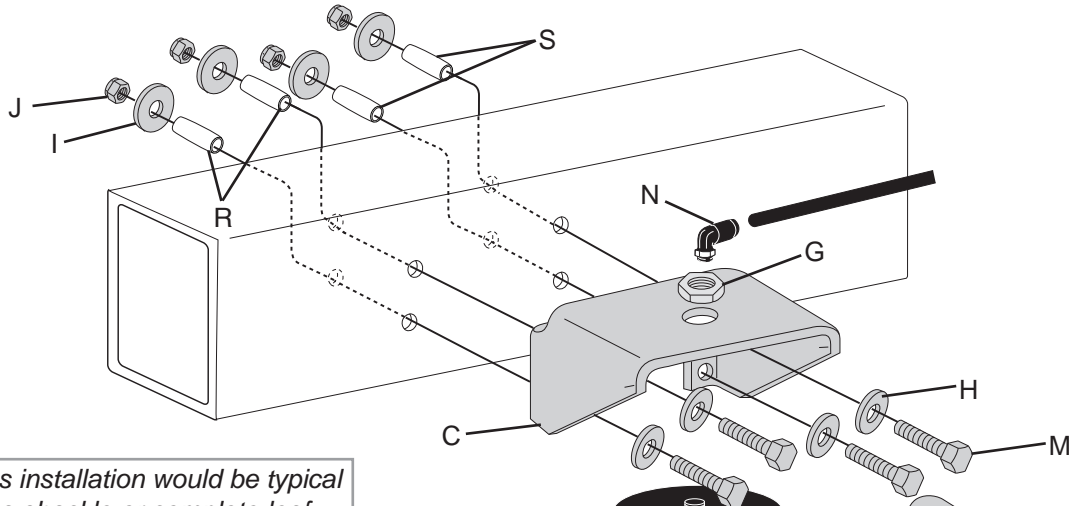


fig. 1a

In some situations, the upper bracket will need to be mounted in an inverted position as shown in fig. 1a to the right. Carefully read the instructions for proper installation.



This installation would be typical for a shackle or complete leaf spring replacement for lowering the truck.



fig. 1b

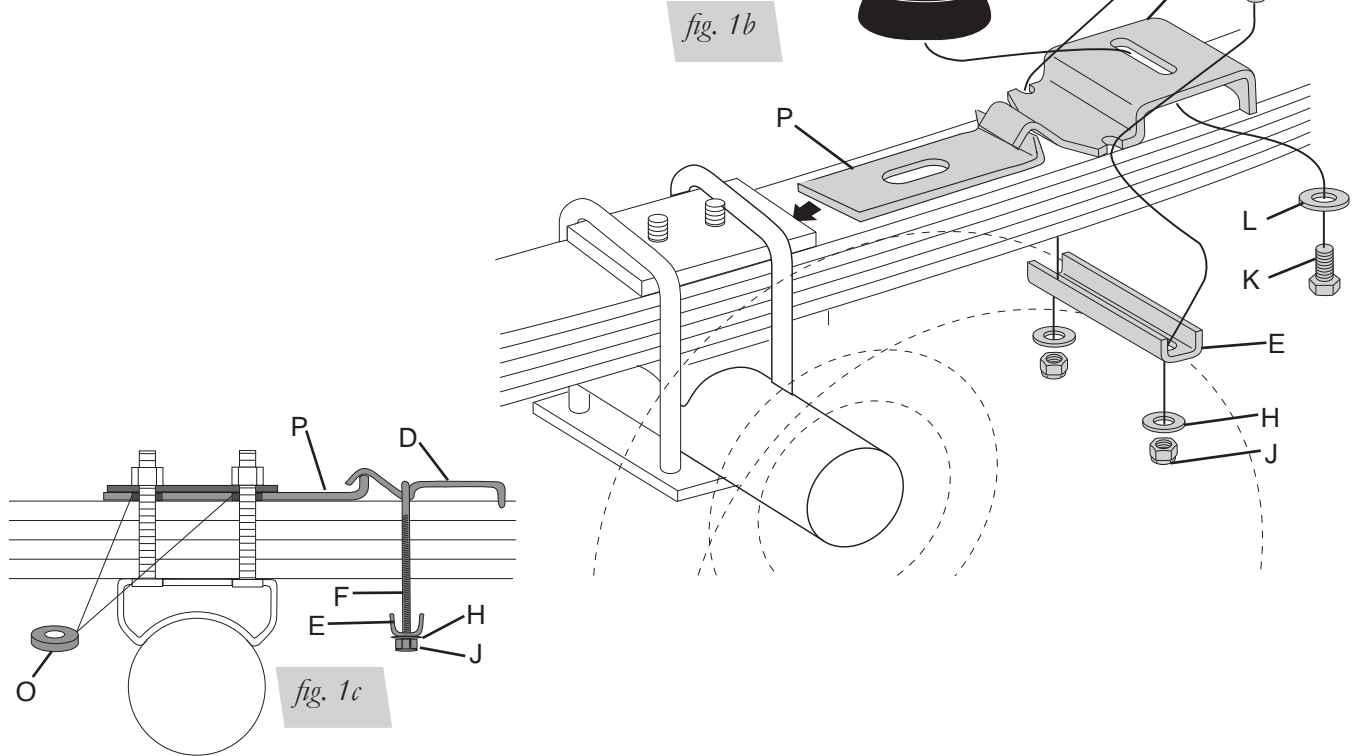


fig. 1c

Installation Diagram

Flipped axle
installation shown

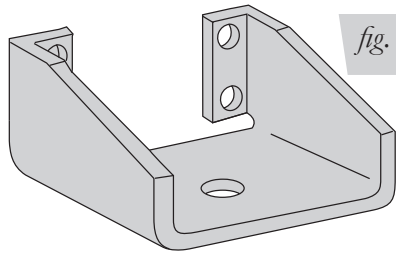
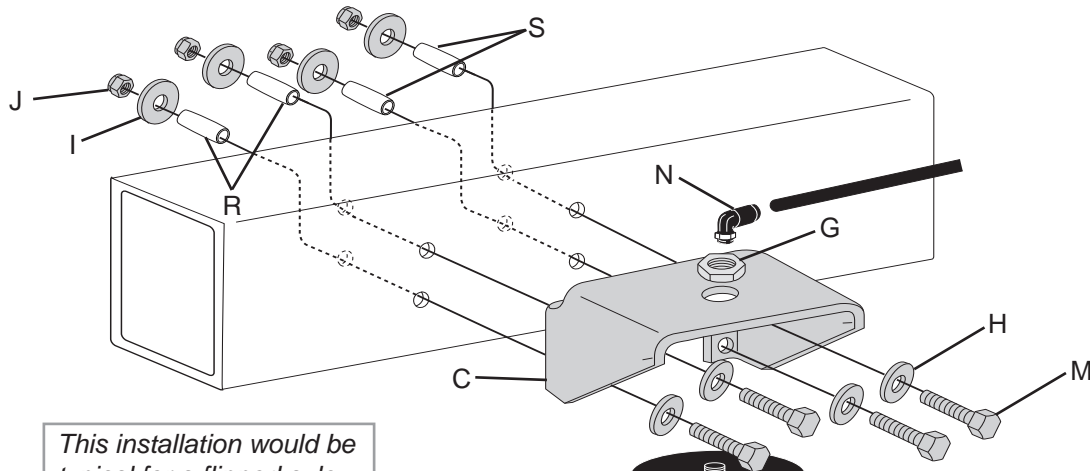


fig. 2a

In some situations, the upper bracket will need to be mounted in an inverted position as shown in fig. 1a to the right. Carefully read the instructions for proper installation.



This installation would be typical for a flipped axle lowering application.

FORWARD ←

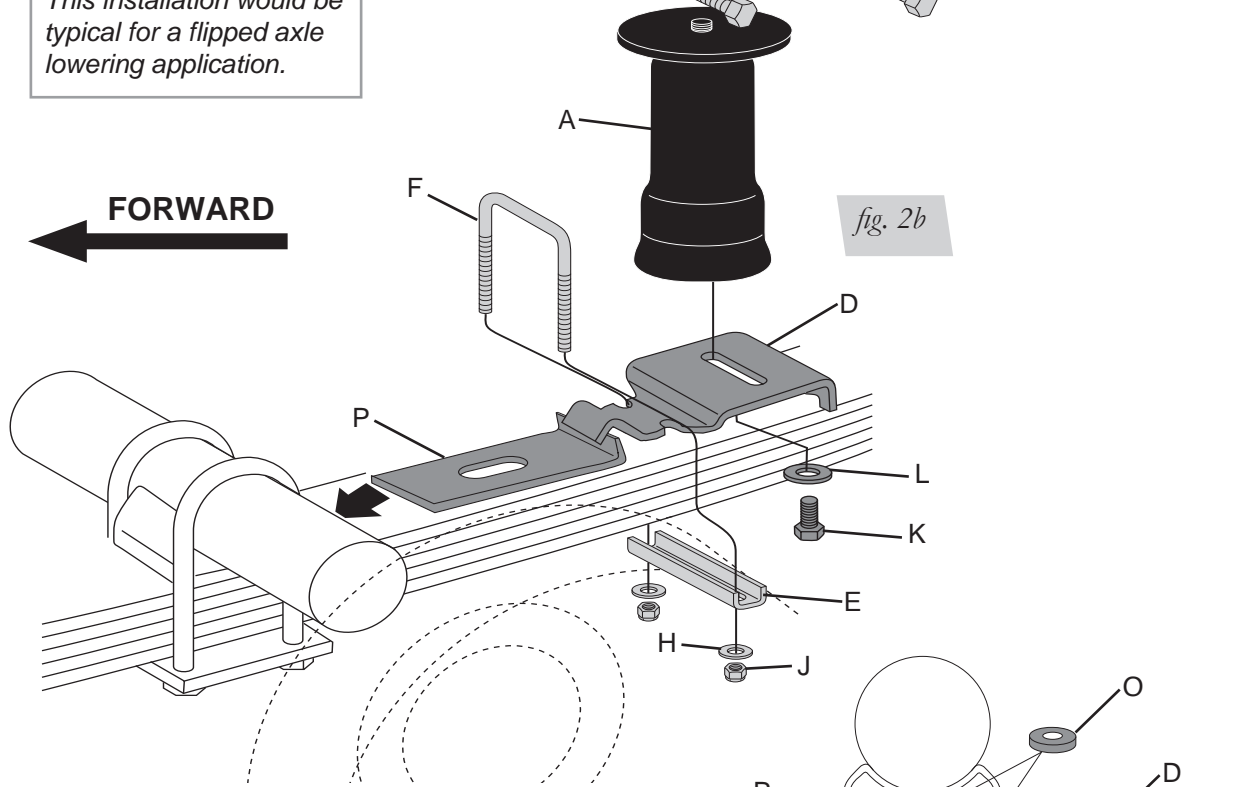


fig. 2b

fig. 2c

NOTE: It will be necessary to use the L-bracket so that the lower bracket has something to lock to.

HARDWARE LIST

Item	Part #	Description.....Qty	Item	Part #	Description.....Qty
A	58482	Air spring..... 2	O	13400	Centering pin spacer..... 4
B	10549	Installation tool with nut..... 1	P	10867	L-bracket..... 2
C	07940	Upper bracket..... 2	R	13231	Frame spacer short..... 4
D	03616	Lower bracket..... 2	S	13399	Frame spacer long..... 4
E	01426	Clamp bar..... 2			
F	10583	U-bolt..... 2	AA	20086	Air line..... 1
G	18454	3/4" Nylon nut..... 2	BB	10466	Zip tie..... 6
H	18444	3/8" Flat washer..... 12	CC	21230	Valve cap..... 2
I	18447	3/8" Oversized flat washer..... 8	DD	18405	5/16" Flat washer..... 2
J	18435	3/8" Nyloc nut..... 12	EE	21234	Rubber washer..... 2
K	17124	1/2"-13 x 7/8 Bolt..... 2	FF	18411	Star washer..... 2
L	18414	1/2" Flat washer..... 2	GG	21233	5/16" Hex nut..... 4
M	17145	3/8"-16 x 4 Bolt..... 8			
N	21848	Swivel air fitting..... 2			

TOOLS LIST

Description..... Qty	Description..... Qty
Hoist or floor jacks..... 1	1/2", 3/4", 7/16", and 1-1/16" open-end or box wrenches..... 1
Safety stands..... 2	Heavy duty drill..... 1
Safety glasses..... 1	Hose cutter, razor blade, or sharp knife..... 1
Torque wrench..... 1	Air compressor or compressed air source..... 1
Ratchet w/ 3/8", 9/16", & 1/2" deep well sockets.. 1	Spray bottle with dish soap/water solution..... 1
3/8" and 9/16" Drill bit (very sharp)..... 1	
3/8" Nut driver..... 1	

Installing the SlamAir System

IMPORTANT INSTALLATION INFORMATION

IMPORTANT: Your vehicle may be equipped with a rear brake proportioning valve. Any type of load assist product could affect brake performance. Air Lift recommends checking with your dealer before installing this type of product. If your vehicle DOES NOT have a rear brake proportioning valve or is equipped with an anti-lock type brake system, installation of the load assist product will have NO AFFECT on brake system performance.

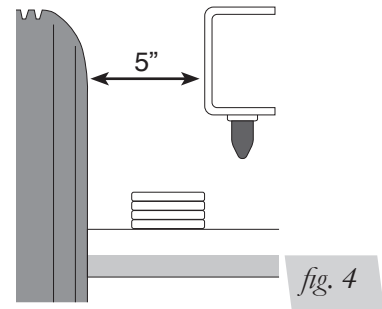
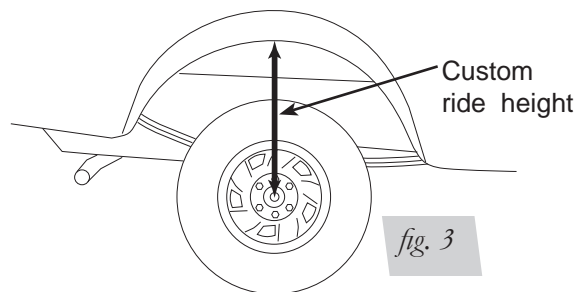


COMPRESSED AIR CAN CAUSE INJURY AND DAMAGE TO THE VEHICLE AND PARTS IF IT IS NOT HANDLED PROPERLY. FOR YOUR SAFETY, DO NOT TRY TO INFLATE THE AIR SPRINGS UNTIL THEY HAVE BEEN PROPERLY SECURED TO THE VEHICLE.

This is a universal kit for custom applications. In no way should the air spring or any of the kit's components be the suspension limiter in compression or extension. This air spring can compress to 2.4" and extend to 7.0". Regardless of load, the air pressure should be adjusted so that the custom ride height is maintained at all times. The shock absorber is usually the limiter on extension. If this is not the case, you should consider the use of limiting straps.

GETTING STARTED

1. Determine the custom ride height of the lowered vehicle. The custom ride height is the distance between the bottom edge of the wheel-well and the center of the hub when the vehicle is in the custom, lowered condition (fig. 3). In some cases, the ride height is not perfectly level.
 - a. Remove unusual loads and examine the 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 custom, lowered ride height.
2. Measure the distance between the frame and the tire. This kit requires a minimum of 5" of clearance for a fully inflated air spring (fig. 4).



RAISING THE VEHICLE

1. Raise the vehicle and remove the wheels.
2. Ensure that the vehicle is at the custom, lowered ride height. If not, raise the frame or lower the axle as necessary.
 - 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 raise the axle.

DECIDING WHERE TO MOUNT

Due to the wide variety of lowering kits on the market, Air Lift cannot guarantee that this kit will fit every vehicle. You may need to modify the upper bracket, or even weld it, depending on the type of kit the vehicle was lowered with or optional equipment present.

Where you install the air spring kit will depend on the type of vehicle you have and the placement necessary to avoid brake lines, gas lines, hydraulic lines or other items that may interfere with drilling the upper bracket holes. The installation tool included in this kit will help check for obstacles.

Depending on how the vehicle was lowered, it may be necessary to invert the upper bracket in a "legs up" position to achieve the correct mounting position. Do not hang the axle on a frame contact hoist while checking this step for proper placement of the upper bracket. Vehicle suspension must be in custom ride height condition.

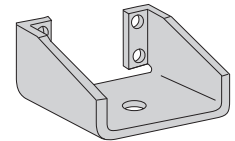
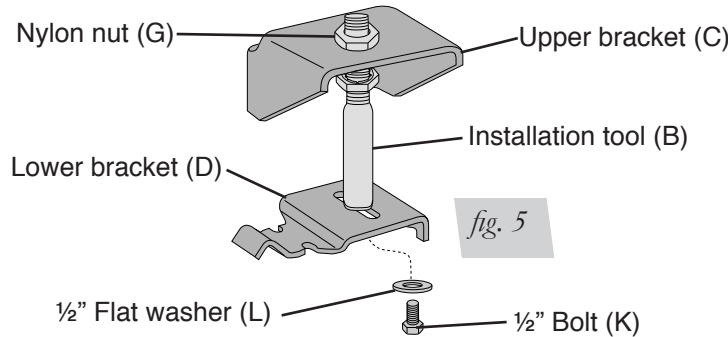
ASSEMBLING THE INSTALLATION TOOL

1. 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 bracket 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.
2. Secure the upper bracket (C) to the installation tool (B) using the provided nylon nut (G) (fig. 5).

NOTE

As stated above, it may be necessary to invert the upper bracket based on the type of drop installed.

3. Loosely attach the tool to the lower bracket using a ½" flat washer (L) and a ½" bolt (K) (fig. 5). Leave loose for later adjustment.



In some situations, the upper bracket will need to be mounted in an inverted position. Carefully read the instructions for proper installation.

INSTALLING THE L-BRACKETS

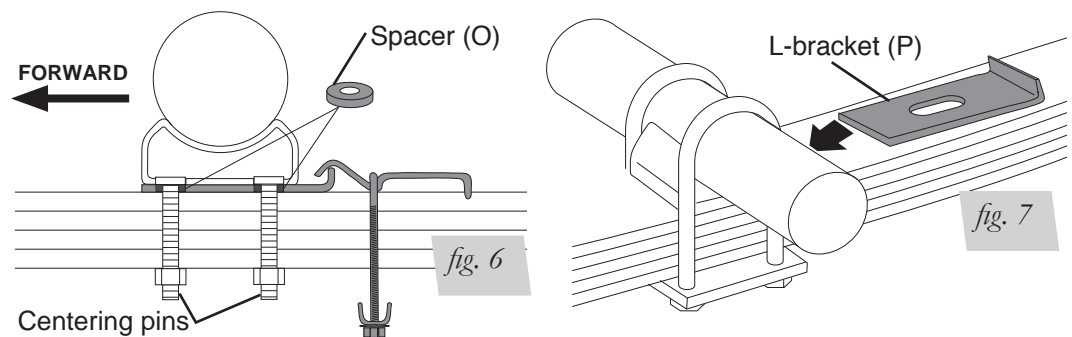
For Flipped Axle Lowered Applications

1. Support the frame and drop the rear axle all the way until the axle is hanging. If the shock stops the axle from hanging, remove the lower shock bolts.
2. Remove the leaf spring retaining u-bolts on one side and, with a floor jack, raise the axle to clear the leaf spring centering pins.
3. A spacer is provided to accommodate the increased thickness caused by the lower bracket. Clamp the leaf spring together with a c-clamp so the leaf center pins can be removed. Remove the centering pin and install one spacer, per pin (see fig. 6).
4. Reinstall the centering pin. If the nut does not have full thread contact, replace the centering pin.
5. Set the L-bracket (P) on the leaf (behind the axle), making sure the centering pins go through the slot on the L-bracket. Pull the L-bracket back as far as the centering pins will allow. Drop the axle down, and reinstall the u-bolts. Torque the u-bolts to stock specifications.

NOTE

It is recommended that the u-bolts be replaced with new ones (not provided).

6. Install the L-bracket on the other side, repeating the steps above.



For Shackle Drop Installations

1. Drop the axle down far enough to remove the u-bolts safely.

NOTE

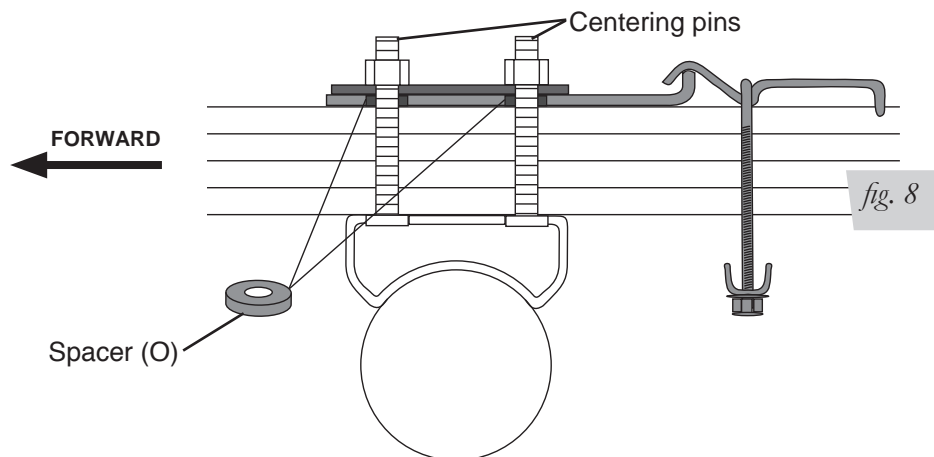
It may be necessary to disconnect the shock bolts to do this.

2. Lower the axle far enough to remove the nuts off the centering pins and upper retainer.
3. Remove the nuts on both centering pins so that the upper spring retainer can be removed. Set a spacer (O) on each centering pin bolt above the leaf springs (fig. 8). Set the L-bracket onto the spring facing rearward of the axle and pull the L-bracket as far back as the centering pin will allow. Reinstall the spring retainer back onto the L-bracket (fig. 8). Cap the centering pin bolts with the nuts previously removed. Center the L-bracket on the leaf spring and tighten the nuts securely.
4. Attach the leaf spring back onto the axle with the u-bolts and torque to stock specifications (fig. 8).

NOTE

We recommend replacing the u-bolts with new ones.

5. Repeat for the other side of the vehicle.



ATTACHING THE LOWER BRACKET

1. Set the installation tool assembly on the leaf spring.
2. Place the hook end of the lower bracket (D) over the edge of the L-bracket (P) (fig. 1b, 2b).
3. Attach the lower bracket to the leaf spring with the supplied U-bolt (F), lower clamp bar (E), 3/8" flat washers (H) and nyloc nuts (J). Torque to 16 ft/lbs.

NOTE

The bracket will pull down flat to the leaf spring when the nuts are tightened.

POSITIONING THE UPPER BRACKET

NOTE

Vehicle must be at custom ride height (see Getting Started on page 5).

1. Using the slot in the lower bracket (D), push the upper bracket (C) against the frame rail.
2. Use the pal nut on the threaded portion of the installation tool and a supplied nylon nut to adjust the upper bracket so that the upper bracket legs are flat against the frame rail and all four holes are in the middle section of the frame. The mounting holes must stay 3/4" from the rounded edges of the frame rail and **AT LEAST 1.25" must be left above the top of the upper bracket for air fitting clearance**. The brackets can be mounted anywhere within the threaded range of the installation tool.

NOTE

On some models it may be necessary to invert the upper bracket in a "legs up" position to achieve the correct mounting position (fig. 1 or 2).

ATTACHING THE UPPER BRACKET

IMPORTANT: Please read this entire section before drilling any holes.

CAUTION

BEFORE DRILLING, CHECK THE BACK SIDE OF THE FRAME FOR CLEARANCE ISSUES SUCH AS BRAKE LINES, GAS LINES, ELECTRICAL LINES, ETC. ALL OBSTACLES NEED TO BE TEMPORARILY RELOCATED TO CLEAR THE AREA.

NOTE

The brake line and exhaust hanger on the inside of the frame behind the axle may need to be relocated permanently because of the mounting hardware that attaches the upper bracket to the frame.

NOTE

Maintain a distance of 1.25" above the upper bracket for valve clearance. If needed, it may be necessary to bend the flange on the inner wheel well seam to obtain this clearance.

1. Using the upper bracket as a template, drill 3/8" holes through the frame for the mounting hardware (fig. 9).

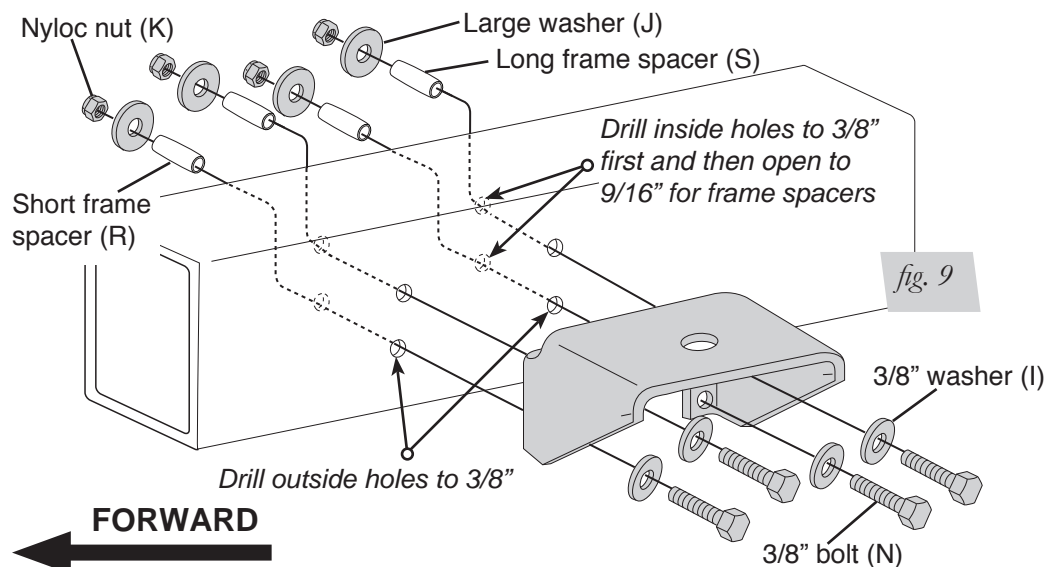
NOTE

For clearance when drilling the frame, it will be necessary to unbolt and move the brake line bracket on the driver side, and possibly the exhaust hanger on the passenger side.

2. Frame spacers must be used to keep the frame from crushing when tightening the upper brackets. In order to place the spacers into the frame, it will be necessary to drill the 3/8" holes previously drilled, out to 9/16" on the inside holes only (fig. 9).
3. Remove the installation tool and attach the upper brackets (fig. 9):
 - Attach a flat washer (I) to the long 3/8" bolt (N).
 - Insert the bolt through the upper bracket, into and through the inside of the frame.
 - Insert the frame spacer over the long bolt, into the frame (from the inside). Use the longer spacers (S) in the rear set of holes and the shorter spacers (R) in the front set of holes (fig. 1b, 2b, 9).
 - Cap with a large flat washer (J) and nyloc nut (K).
 - Repeat for all four bolts. Tighten securely.
 - Reattach the brake line bracket and exhaust hanger if previously removed.

NOTE

It may be necessary to relocate these items.



MOUNTING THE AIR SPRING

1. Install the air fitting into the top of the air spring. Tighten with fingers and then seal the fitting by tightening one and a half turns with an 7/16" open-end wrench, being careful to tighten on the metal hex nut only. **IMPORTANT:** Do not overtighten.

NOTE

This swivel air fitting is pre-coated with a sealant.

2. Collapse the air spring and guide the fitting through the center mounting hole in the upper bracket.
3. Install the nylon nut (H) onto the upper thread post of the air spring. **Leave loose for final adjustment.**
4. Attach the air spring to the lower bracket. Carefully hold the lower mounting bolt with a 3/4" open end wrench and hand turn the air spring onto the lower mounting bolt. Important: **Leave loose for later adjustment.**
5. Tighten the nylon nut to 4 ft/lbs. **IMPORTANT:** Do not overtighten.

INSTALLING THE AIR LINES

1. Choose a convenient location for mounting the inflation valves. Popular locations for the inflation valve are:
 - a. The wheel well flanges.
 - b. License plate recess in bumper.
 - c. Under the gas cap access door.
 - d. Through license plate itself.

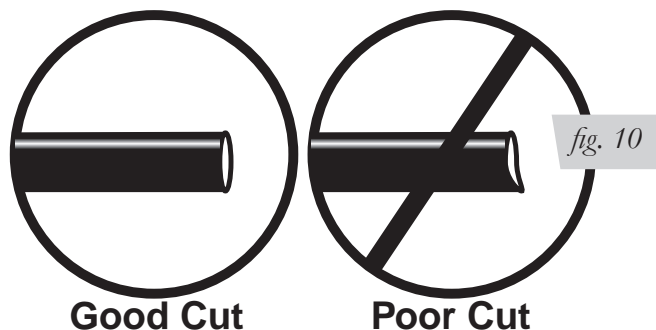
NOTE

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

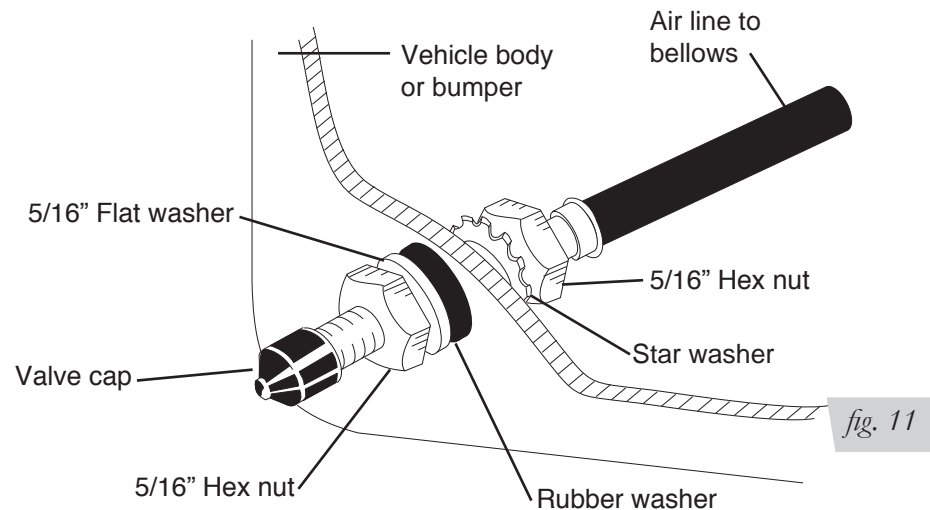
2. Drill a 5/16" hole to install the inflation valves.
3. Cut the air line assembly (AA) in two equal lengths.

CAUTION

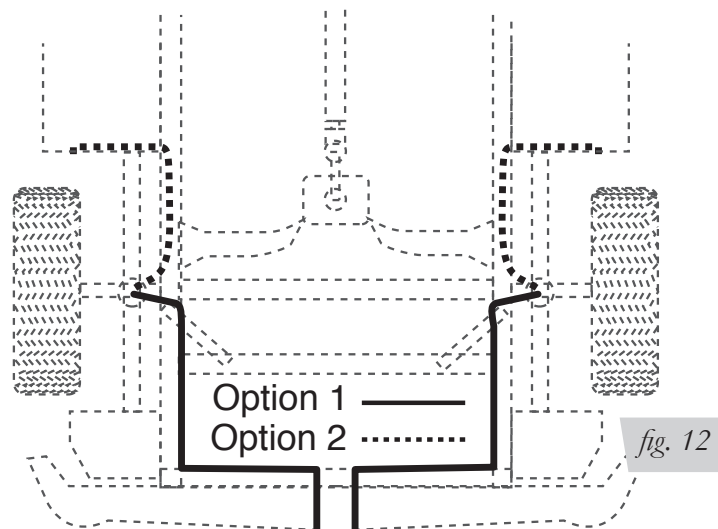
WHEN CUTTING OR TRIMMING THE AIR LINE, USE A HOSE CUTTER, A RAZOR BLADE OR A SHARP KNIFE. A CLEAN, SQUARE CUT WILL ENSURE AGAINST LEAKS. DO NOT USE WIRE CUTTERS OR SCISSORS TO CUT THE AIR LINE. THESE TOOLS MAY FLATTEN OR CRIMP THE AIR LINE, CAUSING IT TO LEAK AROUND THE O-RING SEAL INSIDE THE ELBOW FITTING (FIG. 10)



- Place a 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 5/16" nut (GG) and cap (CC). There should be enough valve exposed after installation - approximately 1/2" - to easily apply a pressure gauge or an air chuck (fig. 11).
- Push the inflation valve through the hole and use the rubber washer (EE), flat washer (DD), and another 5/16" nut (GG). Tighten the nuts to secure the assembly in place (fig. 11).



- Route the air line along the frame to the air fitting on the air spring (fig. 12). 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.



- Cut off air line leaving approximately 12" of extra air line. A clean square cut will ensure against leaks (see fig. 10). 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 (9/16" of air line should be in the fitting).

ALIGNING THE AIR SPRING

IMPORTANT: With the bottom of the air spring still loose, inflate the air spring to approximately 10 PSI.

1. 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 tapping it inboard (towards the vehicle) or outboard (towards the wheel) for proper alignment. There should be a symmetrical cushion of air around the base of the air spring when correctly positioned. (fig. 13).

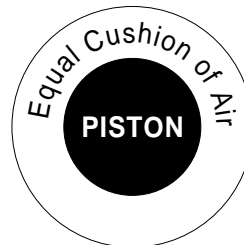


fig. 13

2. Tighten the lower mounting bolt securely (15 ft/lbs max).
3. Repeat on the other side of the vehicle.

CHECKING FOR LEAKS

1. Inflate the air spring to 30 PSI and spray all connections and the inflation valves with a solution of 1/5 liquid dish soap and 4/5 water to check for leaks. Spot leaks easily by looking for bubbles in the soapy water.
2. After the test, deflate the springs to the minimum pressure required to restore the custom ride height, no less than 10 PSI.
3. Check the air pressure again after 24 hours. A 2-4 PSI loss after initial installation is normal. Retest for leaks if the loss is more than 5 lbs.

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 (see fig. 10). Reinsert the air line into the push-to-connect fitting.
 - b. Check the threaded connection by tightening the swivel fitting another ½ 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, then:
 - 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 THE AIR LINE COMPLETELY OFF AS THIS WILL NICK THE BARB AND RENDER THE FITTING USELESS.

Maintenance and Servicing

Minimum Air Pressure	Maximum Air Pressure
10 PSI	100 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 100 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 100 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. Sleeves 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 (10 PSI) to reduce tension on the suspension/brake components. Use of on-board leveling systems do not require deflation or disconnection.

Troubleshooting Guide

1. Leak test the air line connections, threaded connection of the elbow into the air spring, and the inflation valves. See "Fixing Leaks" on page 12 for repair.
2. Check for dirt debris in the valve core.
3. 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.
4. Inspect the air line for holes and cracks. Replace as needed.
5. Look for a kink or fold in the air line. Reroute as needed.

Product Use

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

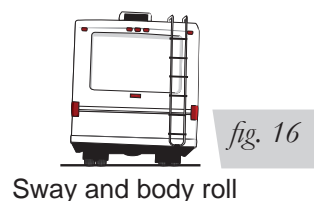
If the vehicle's headlights are shining into the trees or the vehicle is leaning to one side, then it is not level (fig. 14). Raise the air pressure to correct either of these problems and level the vehicle.

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. 15). 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. 16). Tuning out these problems usually requires an increase in pressure.



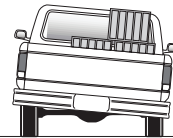
GUIDELINES FOR ADDING AIR

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. 17).
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. 18). As much as a 50 PSI difference is not uncommon.

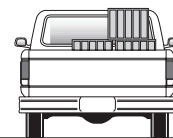


Bottoming out

fig. 17



Unlevel



Level

fig. 18