

# ***Air Lift*1000**™

by AIR LIFT®

# **Kit 60713**



## **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.*



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# A. Introduction

The purpose of this publication is to assist with the installation, maintenance and troubleshooting of the Air Lift 1000 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 the 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 vehicle 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.

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

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

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




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## NOTE

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

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## B. Hardware and Tools Lists

### HARDWARE LIST

Item	Part #	Description.....Qty
A	48171	Air spring ..... 2
B	09453	Protector ..... 1
C	09567	Protector ..... 1
D	20937	Air line assembly ..... 1
E	10466	Zip ties ..... 4
F	21230	Valve cap ..... 2
G	21233	5/16" Hex nut ..... 4
H	21234	Rubber washer ..... 2
I	18411	Star washer ..... 2
J	18405	5/16" Flat washer ..... 2
K	21236	Tee ..... 1
L	21455	Valve ..... 2
M	10638	Uni clamps ..... 6

### TOOLS LIST

Description.....Qty
Hoist or floor jacks ..... 1
Safety stands ..... 2
Safety glasses ..... 1
Air compressor or compressed air source ..... 1
Spray bottle with dish soap/water solution ..... 1

## C. Installing the Air Lift 1000 System

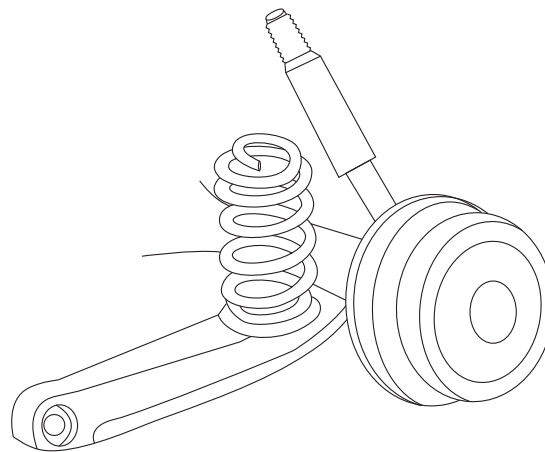
### GETTING STARTED

1. Jack up the rear of the vehicle or raise on a hoist. Support the frame with safety stands.
2. Mark the location of the spring/upper spring mount with a marker so that the spring can be reinstalled and indexed properly.
3. Remove the shock absorbers from the lower shock mounts on the axle. Lower the axle or raise the body of the vehicle until the springs can be removed.

**CAUTION**

OBSERVE TENSION ON BRAKE LINE. DO NOT STRAIN. IF NECESSARY, TEMPORARILY REMOVE ANY MOUNTING BRACKETS OR CLIPS TO CREATE MORE SLACK.

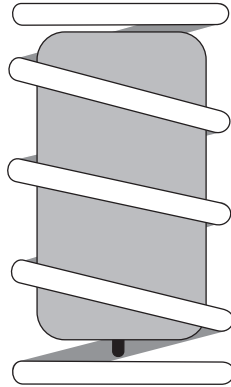
4. Remove lower shock mounting nuts and remove bottom of shocks from the control arm. Leave shocks attached at the top on both right and left side.
5. Remove coil spring on left side by lowering the axle (Fig. C.1)



*fig. C.1*

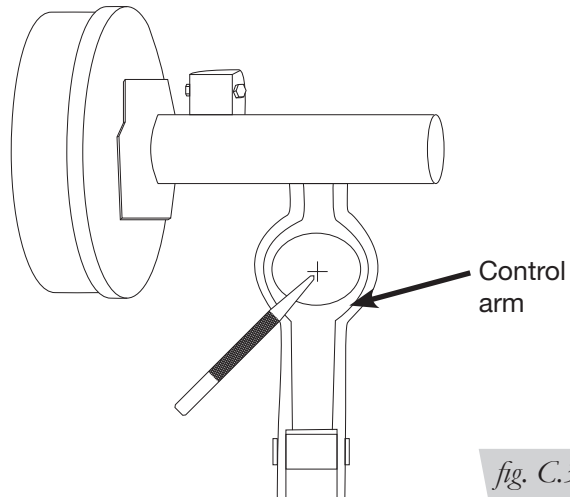
## MARKING HOLE FOR AIR LINE

1. Place air cylinder into coil spring with the air stem facing down (Fig. C.2)



*fig. C.2*

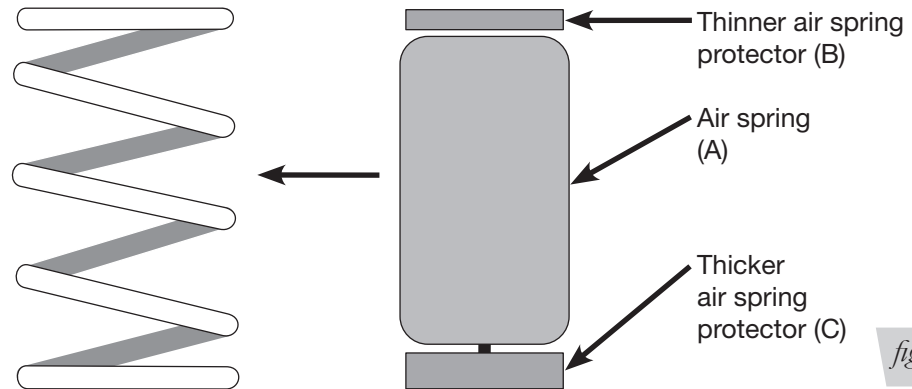
2. Place coil spring and air cylinder assembly on the control arm lower seat.
3. Mark the cylinder air stem location where it comes in contact with the control arm.
4. Remove coil spring and air spring assembly.
5. Center punch and drill 1/4" diameter pilot hole then drill 3/8" diameter final hole to allow attachment of the air line to the air cylinder (Fig. C.3).



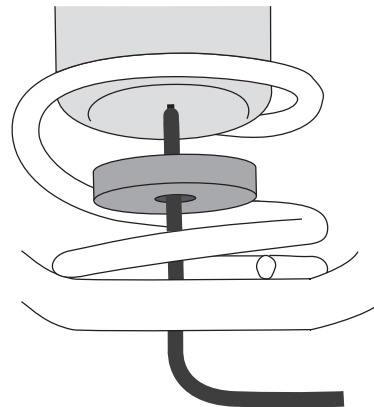
*fig. C.3*

## INSTALLING THE AIR SPRING

1. Place the air bag and the top and bottom protectors in the coil spring (Fig. C.4). The top protector is the thinner one.



2. Install coil spring and air cylinder assembly, placing it on the lower spring seat first with air line going through lower protector and control arm (Fig. C.5). Push the top of coil into upper spring seat.



13. Raise axle back to starting position. Re-attach the shock and torque to manufacturer's specification.
14. Move the left jack stand under axle and the right jack stand under frame and repeat steps 4 through 13 to install the right side.

### NOTE

*Check exhaust clearance. There must be 3-4 inches between the air bag and the exhaust or the heat from the exhaust could damage it. If there is insufficient clearance, contact Air Lift customer service to obtain a heat shield kit.*

## D. Installing the Air Lines

A tee air line installation serving both air bags is recommended. If the weight in the vehicle varies from one side to the other and unequal pressures are needed to level the load or compensate for axle torque transfer in racing applications, use dual air lines.

Select a location for the inflation valve for each air line in the gas cap well, the trunk, rear bumper, fender flange or behind the license plate, ensuring that the valve will be protected and accessible with an air hose. (Fig. D.1)

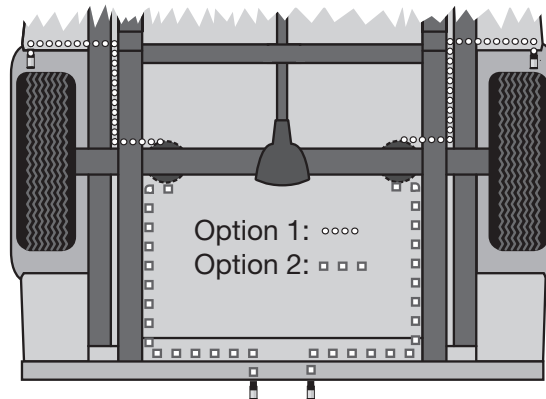


fig. D.1

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

### NOTE

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

2. Drill 5/16" holes to install the inflation valves.
3. If installing dual air lines, cut the air line assembly in two equal lengths.
4. Place a 5/16" nut and star washer 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, flat washer, and 5/16" nut and cap. There should be enough valve exposed after installation – approximately 1/2" – to easily apply a pressure gauge or an air chuck. (Fig. D.2)

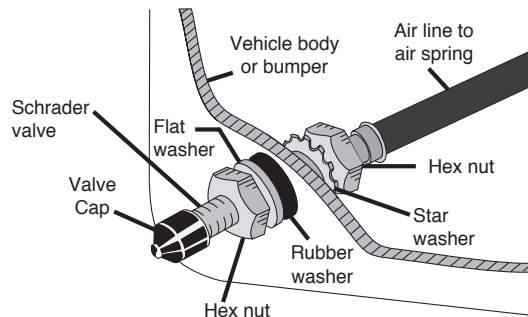


fig. D.2

5. Push the inflation valve through the hole and use the rubber washer, flat washer, and another 5/16" nut to secure it in place. Tighten the nuts to secure the assembly.
6. Route the air line along the frame to the fitting on the air spring (Fig. D.3). Keep AT LEAST 6" of clearance between the air line and the exhaust system. Avoid sharp bends and edges. Use plastic tie straps to secure the air line to fixed 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 the air line, leaving approximately 12" of extra air line. A clean square cut will prevent 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 (9/16" of air line should be in the fitting).

## TEE AIR LINE ROUTING

**CAUTION**

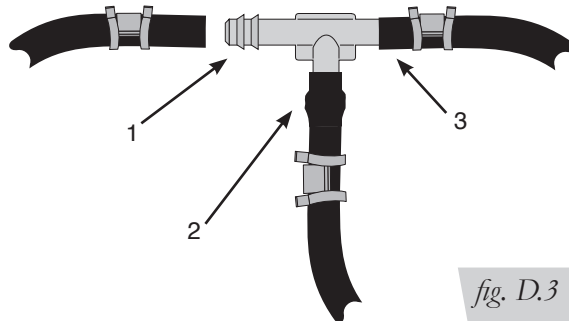
TO PREVENT THE AIR LINE FROM MELTING, MAINTAIN AT LEAST 8" FROM THE EXHAUST SYSTEM TO THE AIR LINE.

1. Locate the desired tee location on the frame rail or cross member. Determine and cut an adequate length of air line to reach from the tee to the left and right side air springs.

**CAUTION**

LEAVE SUFFICIENT AIR LINE SLACK TO PREVENT ANY STRAIN ON THE FITTING DURING AXLE MOTIONS.

2. Slide an air line clamp onto the air line.
3. Push the air line over one side of the tee until all the barbs are covered. With a pair of pliers, slide the air line clamp forward until it fully covers the barbed section. Repeat the entire procedure for the other leg of the tee. (Fig. D.3)



*fig. D.3*

**Use this procedure for all air line connections:**

1. Slide the air line clamp onto the air line.
2. Push the air line over the barbed stem.
3. Compress the ears on the air line clamp with pliers and slide it forward to fully cover the barbed section.

4. Route the air line along the cross member and either the lower control arm or the upper spring seat to the air spring.
5. Insert the air line through the spring seat and spacers.
6. Push the air line onto the stem, covering all the barbs. With the pliers, slide the air line clamp upward until it fully covers the barbed section.



## E. Before Operating

### CHECKING FOR LEAKS

1. Inflate the air spring to 30 PSI.
2. Spray all connections and the inflation valves with a solution of 1/5 liquid dish soap and 4/5 water. 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 system to normal ride height. Do not deflate to lower than 5 PSI.
4. 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 PSI.

### 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. b). Reinsert the air line into the push-to-connect fitting.
  - b. Check the threaded connection by tightening the swivel fitting another half 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 and 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 by removing the air line from the barbed type fitting. Cut the 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 of the fitting.

 **CAUTION**

DO NOT CUT OFF THE AIR LINE COMPLETELY AS THIS WILL USUALLY NICK THE BARB AND RENDER THE FITTING USELESS.

## INSTALLATION CHECKLIST (To be completed by installer)

- Clearance test** — Inflate the air springs to 30 PSI and ensure there is at least 1/2" clearance around each air spring, away from anything that might rub against them. Be sure to check the tire, brake drum, frame, shock absorbers and brake cables.
- Leak test before road test** — Inflate the air springs to 30 PSI, check all connections for leaks with a soapy water solution. See Checking for Leaks on how to spot leaks. All leaks must be eliminated before the vehicle is road tested.
- Heat test** — Be sure there is sufficient clearance from any heat sources — at least 6" for air springs and air lines. If a heat shield was included in the kit, install it. If there is no heat shield, but one is required, call Air Lift customer service at (800) 248-0892.
- Fastener test** — Recheck all bolts for proper torque. Re-torque after 100 miles.
- Road test** — The vehicle should be road tested after the preceding tests. Inflate the air springs to 25 PSI (30 PSI if the vehicle is loaded). Drive the vehicle 10 miles and recheck for clearance, loose fasteners and air leaks.
- Operating instructions** — If professionally installed, the installer should review the Product Use, Maintenance and Servicing section with the owner. Be sure to provide the owner with all of the paperwork which came with the kit.

## POST-INSTALLATION CHECKLIST

- Overnight leak down test** — Recheck air pressure after the vehicle has been used for 24 hours. If the pressure has dropped more than 5 PSI, then there is a leak that must be fixed. Either fix the leak yourself or return to the installer for service.
- Air pressure requirements** — Regardless of load, the air pressure should always be adjusted to maintain ride height at all times.
- Thirty-day or 500-mile test** — Recheck the air spring system after 30 days or 500 miles, whichever comes first. If any part shows signs of rubbing or abrasion, the source should be identified and moved, if possible. If it is not possible to relocate the cause of the abrasion, the air spring may need to be remounted. If professionally installed, the installer should be consulted. Check all fasteners for tightness.

# F. Product Use, Maintenance and Servicing

Minimum Recommended Pressure	Maximum Air Pressure
5 PSI	35 PSI

1. Check the air pressure weekly.
2. Always maintain normal ride height. Never inflate beyond 35 PSI or 50 PSI as noted in above chart.
3. If the system develops an air leak, 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 SAFETY AND TO PREVENT DAMAGE TO THE 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 OR 50 PSI, THE AIR PRESSURE ACTUALLY NEEDED IS DEPENDENT ON LOAD AND GVWR.

5. If using Schrader valves, 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.

## OPERATING TIPS

1. Inflate the air springs to 30 PSI before adding the payload. This will allow the air cylinder to properly mesh with the coil spring. After the vehicle is loaded, adjust the 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. Air Lift Company recommends a 2 PSI increase above normal for each 100 pounds additional load on the axle.

## TUNING THE AIR PRESSURE

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

### 1. Level vehicle

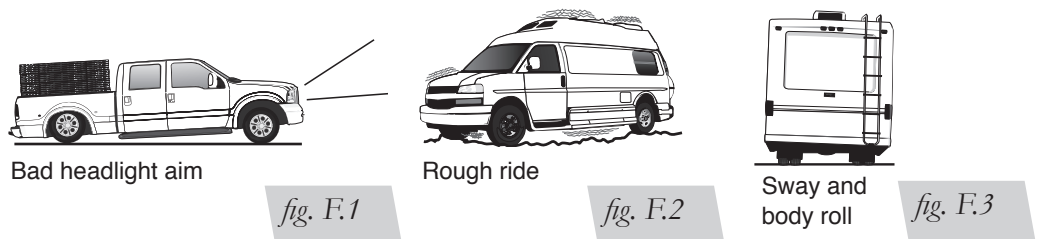
If the vehicle's headlights are shining into the trees or the vehicle is leaning to one side, then it is not level (Fig. F.1). Raise the air pressure to correct either of these problems and level the vehicle.

### 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. F.2). Try different pressures to determine the best ride comfort.

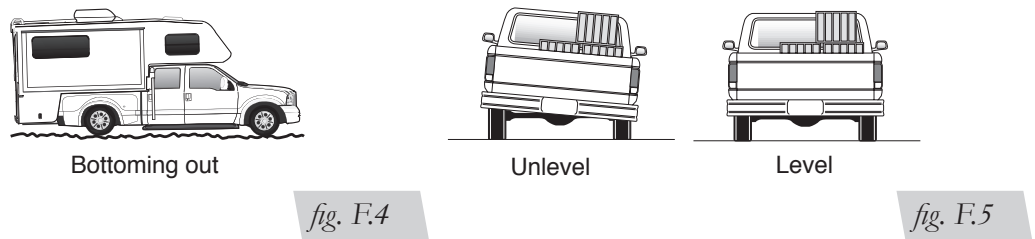
### 3. Stability

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. F.3). 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. If the front of the vehicle dives while braking, increase the pressure in the front air bags, if equipped.
4. If it is ever suspected that the air bags have bottomed out, increase the pressure. (Fig. F.4)
5. Adjust the pressure up and down to find the best ride.
6. If the vehicle rocks and rolls, adjust the air pressure to reduce movement.
7. 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. F.5). As much as a 15 PSI difference is not uncommon.



# G. Troubleshooting Guide

PROBLEM	CAUSE	SOLUTION
System won't maintain pressure overnight.	Improperly installed air line, air line has holes or cracks.	Leak test the air line connections, the threaded connection into the air spring, and all fittings in the control system.
Compressor runs all the time.	The compressor relay is defective or there is a leak in the air lines.	Replace the relay or find the air leak.
Air spring or tank leak.	Fitting seal or air line is compromised.	Check to make sure air lines are seated in connectors. Inspect fittings with soapy water. Trim hose or re-seal fitting. Ensure lines are cut straight.
Corner won't raise or air leak develops.	Look for a kink or fold in the air line.	Replace any air line that has been kinked.

## 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 recommended minimum air pressure for the Air Lift 1000 kit is 5 PSI.

***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.