

# AIR LIFT 1000

ADJUSTABLE AIR SPRING SUSPENSION

by



MN-354  
(05603)  
ECR 5593

KIT No. 80531, 80545 and 80590

Please read these instructions completely before proceeding with installation

## Air Spring Kit Parts List

Item	Description	Quantity
A	Air Spring	2
B	Upper Protector	2
C	Lower Protector	2

A



B



C



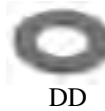
## Air Line Assembly Parts List

Item	Description	Quantity
AA	Air Line Assembly	1
BB	Tie Strap	4
CC	Valve Cap	2
DD	5/16" Flat Washer	2
EE	Rubber Washer	2
FF	Star Washer	2
GG	5/16" Hex Nut	4
HH	Inflation Valve	2
II	Straight Connector	2
JJ	Tee Fitting	1
KK	Air Line Clamp	6

AA



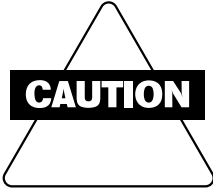
BB



## Tools Needed

1/2", 13mm, 18mm and 19mm open-end  
or box wrenches  
Crescent Wrench  
Ratchet with 3/8", 9/16" and 1/2" deep well sockets  
5/16" drill bit (very sharp)  
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



Compressed air can cause injury and damage to the vehicle and components 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. Removing Coil from Upper Spring Seat



Jack up front end of vehicle and place safety stands under axle. Remove front wheels (optional) and remove lower shock absorber attaching bolts.

**NOTE:** If equipped with quad shocks, remove nut and washer on top of forward pair.



Even with shock absorber disconnected the spring may still be slightly pre-loaded. Use caution when handling any coil spring.

Depending on your vehicle, the upper spring retainer will have one or two bolts holding the upper spring retainer in place. Remove the bolts and strap, and lower axle or raise body until spring is loose from upper spring seat.

**Note:** It may be necessary to remove sway bar links to drop axle far enough to remove spring from upper spring retainer.

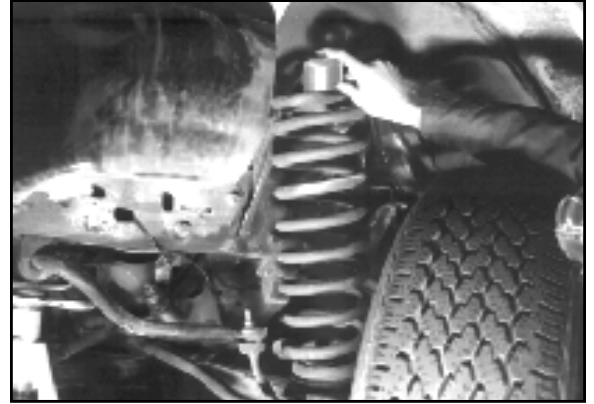
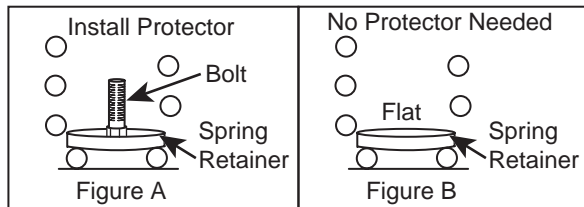


**CAUTION:** Do not strain flexible hydraulic brake line.

## II. Install Lower Protector

NOTE: If a bolt protrudes upward through spring retainer (Fig A), then tilt the coil spring outward. Install the lower protector (C) by dropping it through the open end of the coil spring cupped side down (See photo)

NOTE: If no bolt is protruding upward (Fig. B), then do not use the lower protector. Discard it.



Put the protector over the lower spring bolt. You may need to twist or screw the protector onto the bolt.



## III. Install Air Spring

Remove the black cap from air spring (B) and exhaust the air from the cylinder by rolling it up toward valve stem. Replace cap on stem to hold flat shape.





Fold air spring (B) lengthwise to resemble the shape of a hot dog bun and insert into coil spring with the valve stem toward the top of the coil spring. Ties may be wrapped around the air spring to hold shape while inserting it into coil.



Push air spring inside coil by hand.



When air spring is completely within coil, remove cap and allow air spring to assume the original shape. It may be necessary to push on air spring to aid expansion.

#### IV. Install Upper Protector



Install the upper protector (A) with the offset, smaller hole over the valve stem and centered on the air spring nubbin.

## V. Re-Install Coil Spring

Raise axle or lower body to position coil spring into upper spring seat. Air spring will appear to be short until the vehicle is lowered with the weight of the vehicle on the coil spring.



Re-install the upper coil retaining strap and bolt. Rotate air cylinder to center valve stem in the hole in the upper spring seat. Insure that upper protector is centered on the air spring .

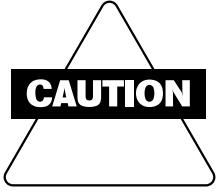


Raise the axle or lower the frame to reattach the lower shock mounts. Re-install lower shock absorber attaching bolts, and tighten. The air spring will appear to be shorter than the coil spring. Due to the independent front suspension, it will be necessary to drive the vehicle to return the coil spring to its original position. After the vehicle has been driven the air spring should fill the coil spring.



## VII. Determine Air Line Routing

A tee air line installation can be used unless weight of the vehicle varies from one side to the other and unequal pressures are needed to correct suspension alignment and level vehicle. Dual air lines are used in this case.



**CAUTION:** LEAVE SUFFICIENT AIR LINE SLACK TO PREVENT ANY STRAIN ON FITTINGS DURING AXLE MOTIONS.

**TO PREVENT AIR LINE FROM MELTING, KEEP IT AT LEAST TWELVE INCHES FROM EXHAUST SYSTEM, ENGINE AND HEAT SOURCES. CAUTION: AVOID AREAS WHICH MAY CAUSE FAILURE OF THE AIR LINE. FOR EXAMPLE: BATTERY, EXHAUST, ENGINE, RADIATOR, AND MOVING PARTS SUCH AS STEERING, SUSPENSION, CABLES OR FAN BLADE.**



### Tee'd Air Line Connection - See page 9 for Dual Fill

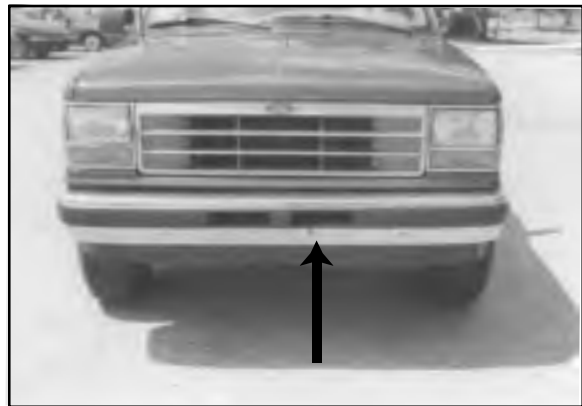
Choose a convenient location for mounting the inflation valves (HH). Make sure there is enough clearance around the inflation valve for an air chuck.

Drill a 5/16" hole for inflation valve

Popular locations for the inflation valve are:



• License plate recess



• Front bumper



Find desired tee location on the frame rail or radiator core support bracket.

Determine and cut adequate length of air line to reach from tee to left and right side air cylinders. When cutting or trimming the air line, use a hose cutter (Air Lift P/N 10530), a razor blade or a sharp knife. Do not use wire cutters or scissors to cut the air line. These tools may flatten or crimp the air line. Slide air line clamp (KK) onto the air line.



Connect the air line to the two opposite legs on the tee (JJ). Push the air line completely over one barbed end of tee fitting. Some lubrication on the inside diameter of the air line will help insertion. Compress the ears on the air line clamp with pliers and slide it down to cover the barbed section. Repeat for other side.



Route air line along frame or under fender panel to desired inflation valve location. Attach air line to chassis with the provided tie straps.



Slide air line clamp (KK) onto the air line. Push the air line completely over the barbed end of brass straight fitting (II). Compress the ears on the air line clamp with pliers and slide it down to completely cover the barbed section. Repeat for other side.





Connect the straight fitting to the right & left air springs and tighten securely. Hand tight is sufficient. Do Not Use Pliers or Vise Grips.



Connect the remaining air line over the last fitting on tee and route along frame to desired inflation valve location. Attach air line to chassis with plastic straps (BB) or wire.



Cut off the excess air line and connect the air line to the inflation valve (HH) using the same procedure as in the other connections.



Mount inflation valve (HH) as illustrated (Rubber washer is for outside weather seal).



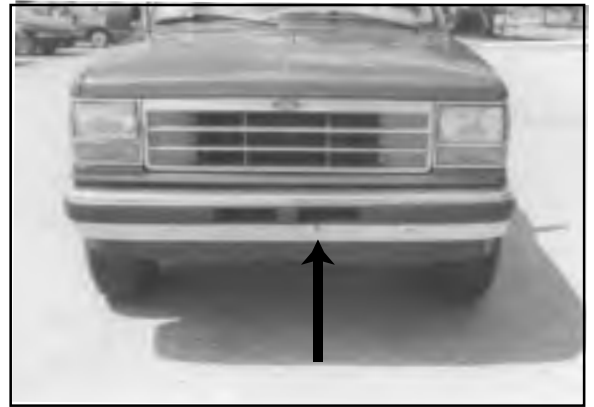
# Dual Air Line Connection

Choose a convenient location for mounting the inflation valves. Make sure there is enough clearance around the inflation valve for an air chuck. Drill a 5/16" hole to install the inflation valve.

Popular locations for the inflation valve are:



- License plate recess



- Front bumper

Determine and cut adequate length of air line, not longer than 90". Slide air line clamp (KK) onto the air line (AA). Push the air line completely over the barbed end of the brass straight fitting (II). Compress the ears on the air line clamp with pliers and slide it down to cover the barbed section. Repeat for other side.



Connect the straight fitting to the right and left air springs and tighten securely. Hand tight is sufficient. Do Not Use Pliers or Vise Grips.





Route air line along frame or under fender panel to desired inflation valve location. Attach air line to chassis with the provided tie straps.



Cut off excess air line and connect the air line to the inflation valve (HH).



Mount the inflation valve (HH) as illustrated (Rubber washer is for outside weather seal).

Repeat process for other side.

## IX. Inflation Decal

Install the minimum/maximum air pressure decal in a highly visible location. We suggest placing it on the driver's side window, just above the door handle.

## X. Checking for Leaks

Inflate the air spring to 40 p.s.i. Spray all connections and the inflation valves with a solution of 1/3 dish soap and 2/3 water to check for leaks. You should be able to spot leaks easily by looking for bubbles in the soapy water. After the tests, deflate the springs to the minimum pressure required to restore the Normal Ride Height, but **do not go below 10 p.s.i.** If the air spring appears to be shorter than the coil spring drive the vehicle to return the coil spring to its original position. After the vehicle has been moved the air spring should fill the coil spring.



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. Valve Core

Tighten the valve core with a valve core tool.

### 2. Air Line Connection

Remove the air line from the fitting. Trim off 1" of air line. Lubricate the barbed end of the fitting and push air line back over all barbs.



# Troubleshooting Guide

## 1. Problems maintaining air pressure

(without an on-board compressor)



Leak test all air line connections. Repair or replace as needed. See page 11 to repair.



Inspect air line for holes and cracks. Replace as needed.



Inspect air lines to be sure it is not pinched. Tie straps may be too tight. Replace strap.



A kink or fold in the air line. Re-route as needed.



Leak test the inflation valve for leaks at the air line connection or dirt or debris in the valve core. See page 11 for repair.

You have now tested for all of the most probable leak conditions that can be easily fixed. At this point the problem is most likely a failed air spring - either a factory defect or an operating problem. We suggest that you return the vehicle to your installer. If self-installed or you are the professional installer, please call Air Lift at 1-800-248-0892 for assistance or a replacement air spring.



# 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**

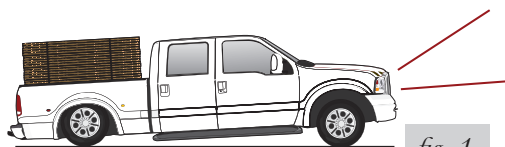
If the vehicle's headlights are shining into the trees or the vehicle is leaning to one side, then it is not level (fig. 1). Raise the air pressure to correct either of these problems and level the vehicle.

**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



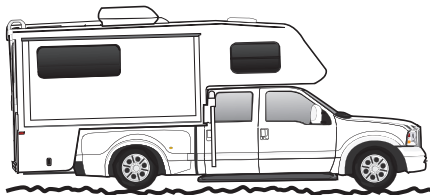
Sway and body roll



Rough ride

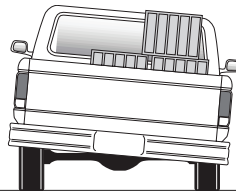
### Guidelines for adding air:

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.

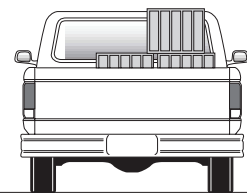


Bottoming out

*fig. 4*



Unlevel



Level

*fig. 5*