

# Installation Manual



## AIR SUSPENSION KIT

Chevrolet Silverado/GMC Sierra 2500HD/3500HD  
(2WD/4WD)\*

*\*With or without 5th Wheel Hitch. Not for commercial cab and chassis trucks.*

*Use the most advanced air springs on the market to eliminate your vehicle's sag, sway and bottoming out. This heavy duty air suspension kit levels your truck's stance while providing added support for an overall smooth and safe ride.*

*\* See application guide for proper fitment.*

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**Thank you and congratulations on the purchase of an Air Suspension kit. Please read the entire manual prior to starting the installation to ensure you can complete it once started.**

## IMPORTANT

This air suspension kit will not increase the GVWR (*Gross Vehicle Weight Rating*), as the GVWR is determined by the vehicle manufacturer. **Do not exceed the maximum capacity listed by the vehicle manufacturer.**

For safe and proper operation of the vehicle, never exceed a maximum of 100PSI in the air springs. Staying under the pressure limit will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and/or a void warranty.**

## SAFETY WARNINGS!

**!** Please read and abide the instructions found in this manual, paying close attention to the helpful, cautionary or dangerous warning icons highlighting important safety recommendations and maintenance suggestions throughout this manual.

**+** **HELPFUL INSTALL TIP**  
Additional information that could potentially make the job a little easier.

**!** **PLEASE USE CAUTION**  
Unsafe practices could result in damage to you or your vehicle, or others.

**!** **DANGER WARNING**  
Hazards which could result in severe personal injury or death.

**!** Serious personal injury or death may result from an air spring failure or accident due to improper installation or air spring pressure operation or maintenance.

**!** Inflating an unsecured air spring is dangerous. If it bursts, it could be hurled into the air with explosive force resulting in serious personal injury or death. Never inflate an air spring unless it is secured to the vehicle.

**!** Removing and replacing air springs can be dangerous. This is only a job for a qualified service professional. Never perform air spring service procedures without proper training, tools, and equipment.

## BEFORE STARTING THE INSTALLATION

- Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
  - Some vehicles are equipped with a rear wheel brake proportioning valve. Check with the manufacturer before installing the air spring kit, as it may affect braking performance.
  - It is recommended to use a good quality anti-seize on all fasteners. This will reduce the chance of corrosion on the fasteners and will help facilitate removal, if required at a later date.
- !** **PLEASE NOTE:** This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon air line will distort the line and cause the connection to leak. The air line must be cut off squarely with the hose cutter provided in this kit, or a sharp utility knife. **Failure to do so may void the warranty.**



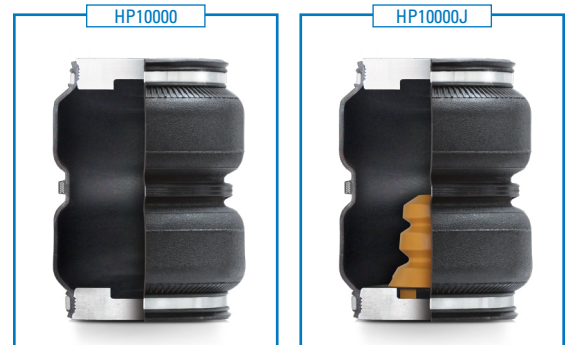
**WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

## KIT CONTENTS

Please confirm the items below are provided in your kit before starting the installation.

HEAVY DUTY KITS		QTY	PART #
A	Double Convoluted Spring	2	HP10000

HEAVY DUTY JOUNCE BUMPER KITS		QTY	PART #
A	Double Convoluted Spring w/ Jounce Bumper	2	HP10000J



KIT CONTENTS		QTY	PART #
B	Roll Plate	4	HP10054
C	Bracket, Upper Frame - Driver Side	1	HP0125
C	Bracket, Upper Frame - Passenger Side	1	HP0126
D	Lower Brackets	2	HP0127
E	Axle Straps	2	HP0128
F	3/8" U-Bolts	4	HP1331
G	3/8" Hex Head Capscrews	4	C10464
H	Heat Shield	1	HP0012
I	5/8" Loop Strap	1	HP1006
J	3/8" Nylon Locking Nuts	13	HP1000
K	3/8" Self-Tapping Screws	4	HP1078
L	3/8" Carriage Bolts	4	HP1332
M	Gear Clamps	2	HP1001
N	Countersunk Capscrews	8	HP1008
O	3/8" Flat Washers	12	C653
P	M8x1.25x10mm Capscrews	4	HP1334
Q	M8 Flat Washers	4	C10473
R	Air Line/Valve Assembly	1	HP1344
S	Tie Straps	6	C11618
T	Air Fitting	2	HP1100



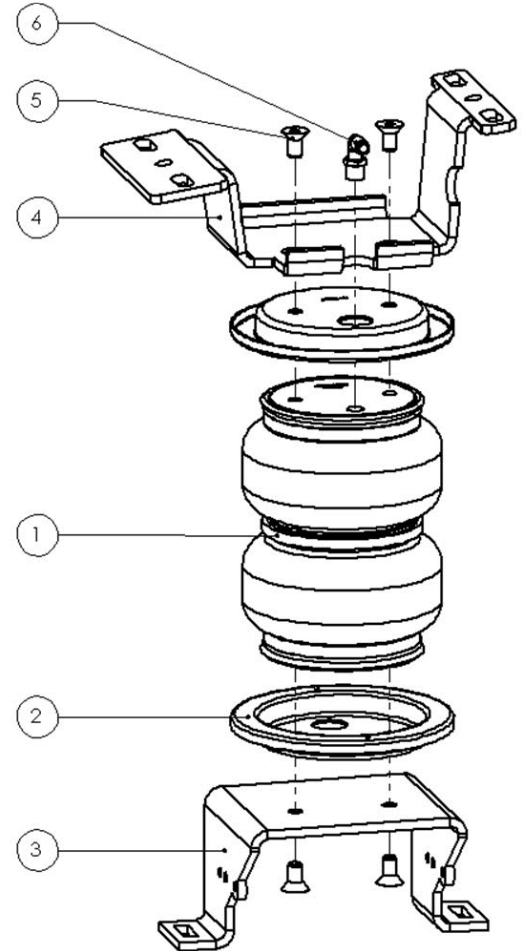
## REQUIRED TOOLS

- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Torque Wrench
- Standard Combination Wrenches
- 7/32" Hex Allen Wrench
- Ratchet
- Metric & Standard Sockets
- Hose Cutter (included) or Sharp Utility Knife
- Pipe Thread Sealant
- Spray Bottle with Dish Soap/Water
- Air Compressor/Compressed Air Source (to test/fill air springs)
- 9/16" Deep Well Sockets
- Heavy Duty Drill
- 3/8 and 5/16 Drill Bits (very sharp)
- Hammer
- Center Punch

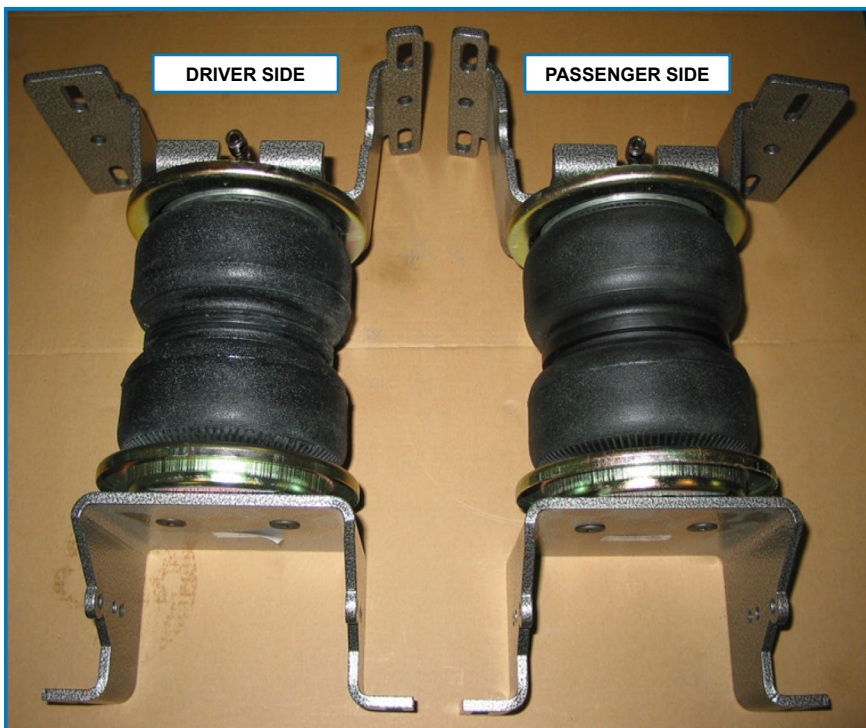
## PRE ASSEMBLY OF THE AIR SPRINGS

Refer to **Figure 1**, and use the following steps to preassemble the air springs

- 1** Place roll plates (2) on the ends of each air spring (1). The air spring ends will nest inside of the roll plate, and the rounded outer edges of the roll plate will face the air spring. Align the clearance holes in the roll plates with the threaded holes of the air springs.
- 2** Align the holes of the top and bottom brackets (3, 4) with the threaded holes in the air spring. Install the four  $\frac{3}{8}$ " flat head cap screws (5) using a  $\frac{7}{32}$ " hex drive. Tighten the screws to 27 N\*m (20 lbf\*ft).
- 3** Install the  $\frac{1}{4}$ " NPT threaded fittings (6) in the fill opening of the air springs. Use of thread sealant is recommended (*not provided*).



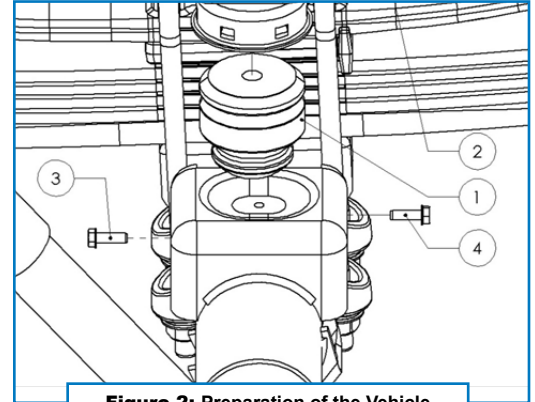
**Figure 1:** Air Spring Pre assembly



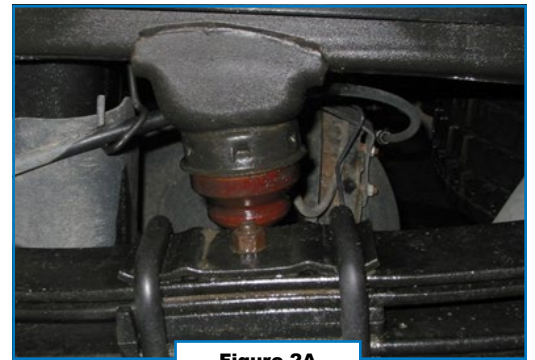
## PRE ASSEMBLY OF THE AIR SPRINGS

Refer to **Figure 2**, and use the following steps to prepare the vehicle

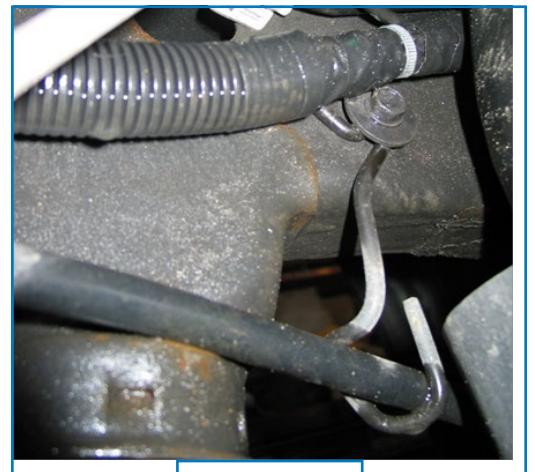
- 4** Park the vehicle on a level surface and remove any unnecessary weight, such that normal ride height is achieved.
- 5** Raise the rear axle, and lower it onto jack stands, such that the rear wheels are removable and a comfortable working height is achieved.
- 6** Remove the rear wheels.
- 7** Remove the two jounce bumpers (**Figure 2A**) by prying them out of the retaining cup. A pry bar or large screwdriver is typically required.
- 8** Remove the M8 hex cap screw (**Figure 2B**) retaining the emergency brake cable bracket located fore of the jounce bumper on the driver's side of the vehicle. Discard the bracket and screw.



**Figure 2:** Preparation of the Vehicle



**Figure 2A**



**Figure 2B**

- 9** Remove the M8 hex cap screws (**Figure 2C**) retaining the brake line to the jounce bumper stops. Discard the screws.

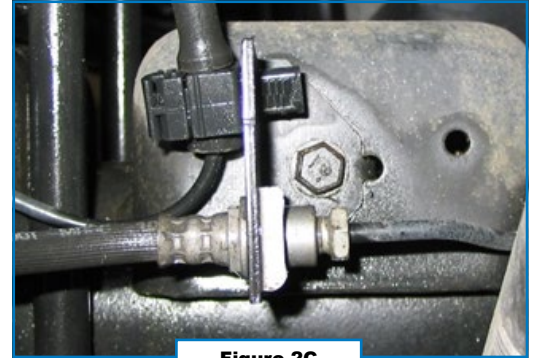


Figure 2C

- 10** Remove the hex cap screw (**Figure 2D**) retaining the emergency brake cable to the jounce bumper stop on the passenger side of the vehicle. Discard the screw.

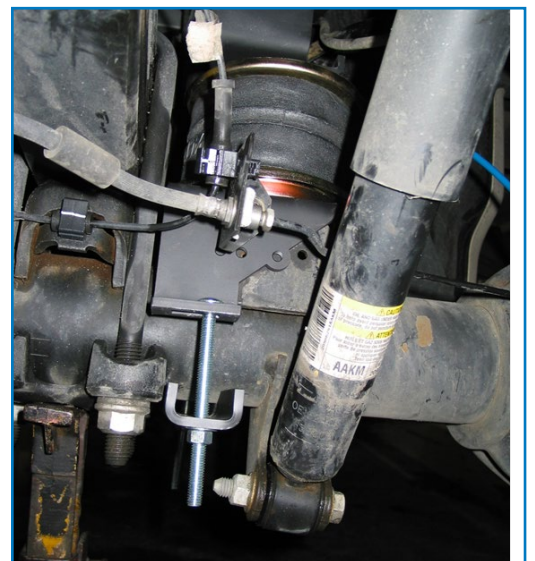


Figure 2D

## INSTALLATION OF THE AIR SPRING IN THE VEHICLE (NO FIFTH WHEEL)

Refer to **Figure 3 (Page 6)** and use the following steps to install the air spring assembly. If the vehicle has a fifth wheel hitch along the side of the frame, skip to the next section.

- 11** Position the air spring assembly (**1**) such that the lower bracket rests on the jounce bumper stop and the upper bracket nests around the jounce bumper. The air spring may need to be compressed. The air fitting will be positioned on the inboard side of the frame.



- 12** Position the clamp bar (2) on the axle such that the mounting holes are aligned with the mounting holes in the lower bracket of the air spring assembly. Insert the  $\frac{3}{8}$ " carriage bolts (3) into the rectangular holes of the lower bracket, and through the oval holes in the clamp bar. Install  $\frac{3}{8}$ " flat washers (4) and nylon locking nuts (5) on the ends of the carriage bolts. Remove the slack by threading on the nuts, but do not torque the nuts.

- 13** Install the  $\frac{3}{8}$ " U-bolts (6) around the frame of the vehicle, and through the mounting holes in the upper bracket. Ensure that no lines or wires are pinched between the U-bolts and the frame. Install one  $\frac{3}{8}$ " flat washer (3) and one nylon locking nut (4) on each end of the U-bolts.

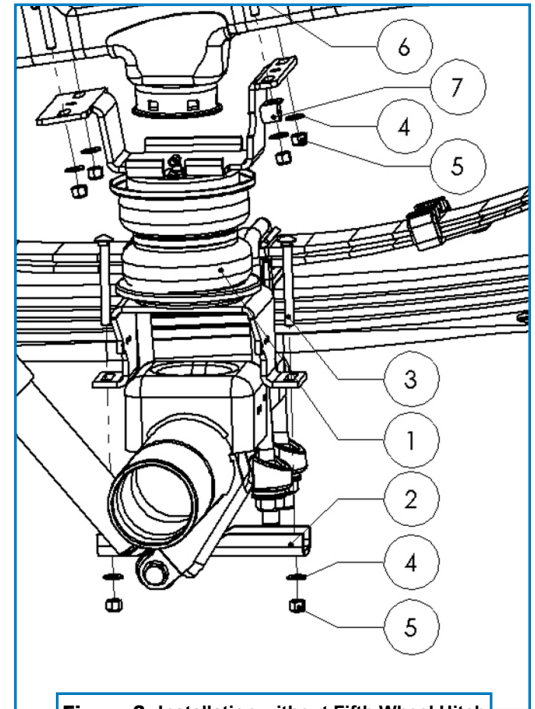
- 14** Align the air spring by adjusting the brackets on the frame and axle until as close to a vertical alignment of the spring's central axis as possible is achieved.

- 15** Secure the emergency brake cable on the driver side of the vehicle with the adel clamp (7). Mount the adel clamp on the U-bolt, under the air bag bracket, forward of the jounce bumper on the inside of the frame.

**+ NOTE:** The Adel clamp, securing, the emergency brake cable is secured on to the U-bolt using a second  $\frac{3}{8}$ " Nyloc Nut.

- 16** Torque all of the nyloc nuts evenly to 22 N\*m (16 Lbf-ft).

**+ NOTE:** one  $\frac{3}{8}$ " self-tapping screw and one  $\frac{3}{8}$ " hex cap screw will be left over at the end of installation if using this method.



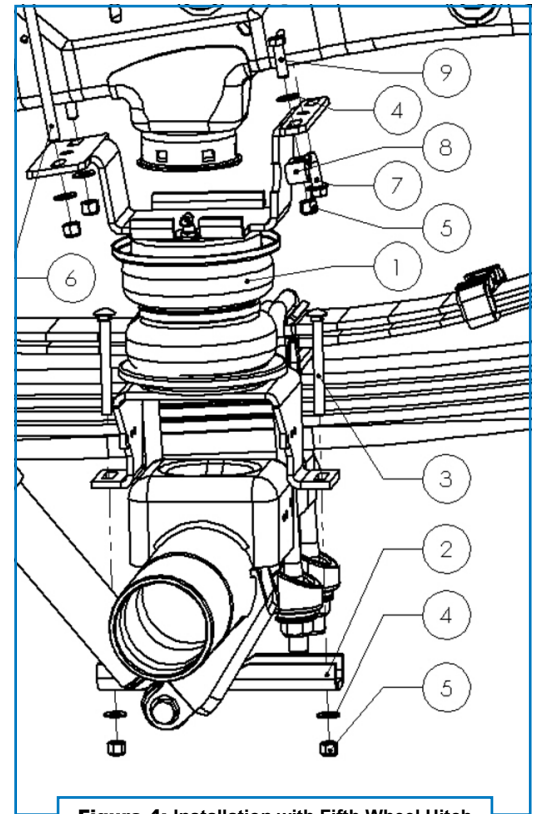
**Figure 3:** Installation without Fifth Wheel Hitch



## INSTALLATION OF THE AIR SPRING IN THE VEHICLE (WITH FIFTH WHEEL)

Refer to **Figure 4** and use the following steps to install the air spring assembly. If the vehicle has no fifth wheel hitch along the side of the frame, skip to the next section.

- 17** Position the air spring assembly (1) such that the lower bracket rests on the jounce bumper stop and the upper bracket nests around the jounce bumper. The air spring may need to be compressed. The air fitting will be positioned on the inboard side of the frame.
- 18** Position the clamp bar (2) on the axle such that the mounting holes are aligned with the mounting holes in the lower bracket of the air spring assembly. Insert the  $\frac{3}{8}$ " carriage bolts (3) into the rectangular holes of the lower bracket, and through the oval holes in the clamp bar. Install  $\frac{3}{8}$ " flat washers (4) and nylon locking nuts (5) on the ends of the carriage bolts. Remove the slack by threading the nuts, but do not torque the nuts.
- 19** Install the  $\frac{3}{8}$ " U-bolt (6) around the frame of the vehicle, and through the mounting holes in the upper bracket. This is only possible on the rear of the bracket, as the 5th wheel hitch will interfere in the front. Ensure that no lines or wires are pinched between the U-Bolt and the frame. Install one  $\frac{3}{8}$ " flat washer (3) and one nylon locking nut (4) on each end of the U-Bolt.
- 20** Align the air spring by adjusting the brackets on the frame until as close to a vertical alignment of the spring's central axis as possible is achieved.
- 21** Torque all of the nyloc nuts evenly to 22 N\*m (16Lbf-ft).
- 22** Using the hole in the center of the upper bracket as a guide, drill a  $\frac{5}{16}$ " hole in the frame of the vehicle.



**Figure 4:** Installation with Fifth Wheel Hitch



**23** Install the  $\frac{3}{8}$ " self-tapping screw (7) through the bracket and into the frame. Torque to 22 N\*m (16 Lbf-ft).

**24** On the driver side of the vehicle secure the emergency brake cable with the adel clamp (8). Mount the adel clamp to the air bag bracket (inboard slot where U-bolt would have been) using a  $\frac{3}{8}$ " hex cap screw (9),  $\frac{3}{8}$ " washer (5), and  $\frac{3}{8}$ " nylon lock nut (4). Torque the nut to 22 N\*m (16 Lbf-ft).



## REINSTALLING THE BRAKE LINES

Use the following steps to reinstall the brake lines and emergency brake cables

**25** Using the M8 cap screws, attach the brake line bracket to the lower bracket (rear) of the air bag assembly on both sides of the vehicle. Torque these screws to 16 N\*m (12 Lbf-ft).



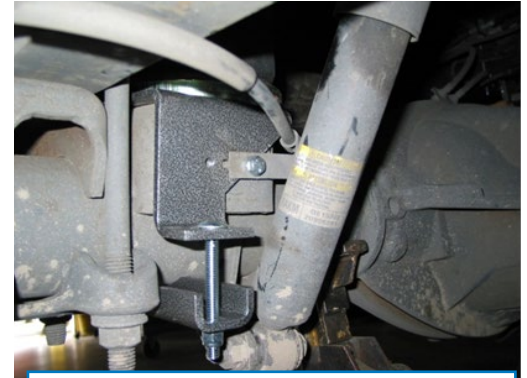
Drivers side rear. Installation of brake line.



Passenger side rear. Installation of brake line.

- 26** Using the M8 cap screws, attach the emergency brake cable bracket to the lower bracket of the air bag assembly on the passenger side of the vehicle.

Torque this screw to 16 N\*m (12 Lbf-ft).



Passenger side front. Installation of E-brake line.

## **27** INSTALL THE HEAT SHIELD

Bend the two center tabs of the heat shield supplied for fastening to the exhaust pipe as shown. Attach the heat shield with the gear clamps supplied to the exhaust pipe to protect the air spring.



**INSTALLATION CONTINUES  
ON THE FOLLOWING PAGE.**

## INSTALL AIR LINE

Two fill valves are provided in this kit. The most common place to install them is in place of the license plate fasteners. Alternatively, two 5/16" holes can be drilled in a location of your choosing.

Cut the air line assembly into two equal lengths with the hose cutter provided in this kit or a sharp utility knife.

**!** **PLEASE NOTE:** *This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon air line will distort the line and cause the connection to leak. The air line must be cut off squarely with a hose cutter or a sharp utility knife.*

Install one air line at a time starting at the fill valve location. Place a 5/16" nut on the air valve. Leave enough of the inflation valve in front of the nut to extend through the hole, install a flat washer, and 5/16" nut and cap (reference Figure A for assembly). There should be enough valve exposed after installation – approximately 1/2" – to easily apply a pressure gauge or an air chuck.

Route the air line back to the NPT fitting on the air spring, then cut the hose to length. Moisten the end of the air line prior to inserting it into the fitting and push it in until it stops.

**Repeat with the other fill valve.**

Secure the air lines using the provided tie-straps, away from any moving items and heat sources.

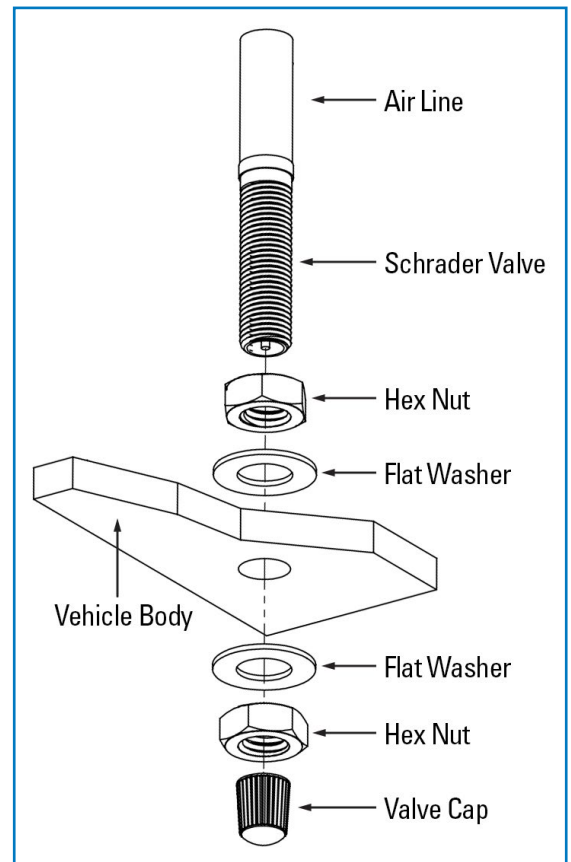
## CHECK SYSTEM FOR LEAKS

Inflate both air springs to 90 psi and then use a mixture of dish soap and water on all air line connections to detect any air leaks. Large, expanding bubbles indicate a leak (as shown in Figure B).

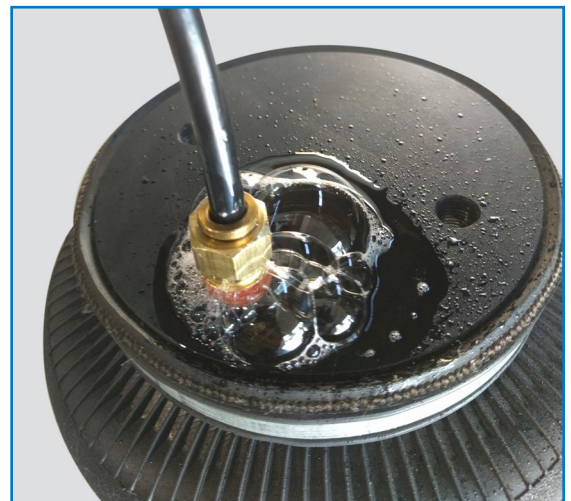
**Repair as necessary and retest.**

Inflate air springs to a predetermined value and on following day recheck pressure. If one or both of air springs have lost pressure, an air leak is present.

**!** **Leak must be repaired, and then retested until no leaks exist.**



A



\*Air Spring & NPT Air Fitting may differ between kits

B

**CONGRATULATIONS! You have completed the install**

**After Installation continues on the following page.**

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**Thank you again, and congratulations on the installation of your Air Suspension kit.**

## AFTER COMPLETING THE INSTALLATION

- The air spring must have clearance between itself and the surrounding components to prevent any contact when spring is inflated or compressed. Trimming off excess bolt length may also be required to ensure no contact with the spring or other suspension components can be made once installed.
- If removed, re-install the wheels and torque fasteners to the manufacturer's specifications. Re-torque all fasteners after the first 500 miles of driving.

## OPERATING YOUR VEHICLE WITH AIR SUSPENSION

Air springs have minimum and maximum recommended pressure requirements:

PART #	SPRING STYLE	SPRING TYPE	MIN PSI	MAX PSI
HP10189	In-Coil	STANDARD DUTY	5 PSI	70 PSI
HP10560		STANDARD DUTY		
HP10001	Sleeve Style	STANDARD DUTY	10 PSI	100 PSI
HP10173		STANDARD DUTY		
HP10199		STANDARD DUTY		
HP10083	Single Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10083J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10000	Double Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10000J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10068	Large Double Convoluted	HEAVY DUTY	5 PSI	100 PSI
HP10438	Double Convoluted	EXTREME DUTY	5 PSI	100 PSI
HP10438J		EXTREME DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI

\* Springs with a jounce bumper can be run at zero PSI when vehicle is unloaded only

For safe and proper operation, never operate the vehicle over the maximum listed PSI in the air springs. Staying under the pressure limit will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and/or a void warranty.**

**!** *It is recommended to check the air pressure in your air springs daily for first couple of days to ensure a leak has not developed.*

Air springs are designed to maintain the vehicle's stock ride height with a load. Do not use the air springs as a means to lift vehicle with no load. This will result in a harsh ride.

## SERVICING YOUR VEHICLE WITH AIR SUSPENSION

When lifting the vehicle with a floor jack or hoist on the frame, never allow the air spring to limit the travel of the axle. Try to always jack the vehicle on the axle. Suspending the axle with the air spring limiting the axle travel will damage the air spring and void the air spring warranty.

## WARRANTY

**See additional warranty included with this kit for details.**