

Installation Manual

VERSION
FRANÇAISE



AIR SUSPENSION KIT

Ford F150 (2WD/4WD)*

**Excludes Raptor*

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.**

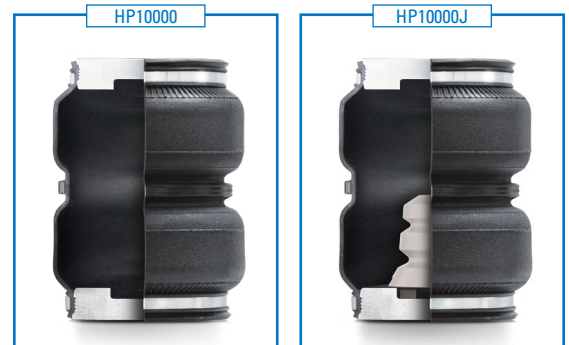
! **WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to www.P65Warnings.ca.gov**

KIT CONTENTS

Please confirm the items below are provided in your kit before starting the installation. Reference the kit explosion diagram on the following page for part assembly.

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	Upper Frame Bracket (Driver Side)	1	HP1590
C	Upper Frame Bracket (Passenger)	1	HP1591
D	Upper Airbag Bracket	2	HP1594
E	Lower Bracket, Driver	1	HP1592
F	Lower Bracket, Passenger	1	HP1593
G	Leaf Spring Clamp Bar	4	HP1623
H	Roll Plate	4	HP10054
I	M10 x 1.5 x 45 mm Bolt	2	HP1341
J	3/8" – 16 x 1.25" Carriage Bolt	4	HP1149
K	3/8" – 16 x 3.50" Carriage Bolt	8	HP1332
L	3/8" – 16 Nylon Locknut	20	HP1000
M	3/8" – 16 x 1.25" Hex Cap Bolt	8	C10464
N	3/8" – 24 x 7/8" Hex Cap Bolt	8	HP1002
O	3/8" Flat Washer	30	C18006
P	3/8" Lock Washer	8	C18007
Q	Carriage Bolt Lock Bracket	4	HP0123
R	90° Swivel Air Fitting	2	HP1100
S	Air Line Assembly (not shown)	1	HP1344
T	Tie Strap (not shown)	6	C11618
U	Bolt Leader Tool (not shown)	2	HP1440

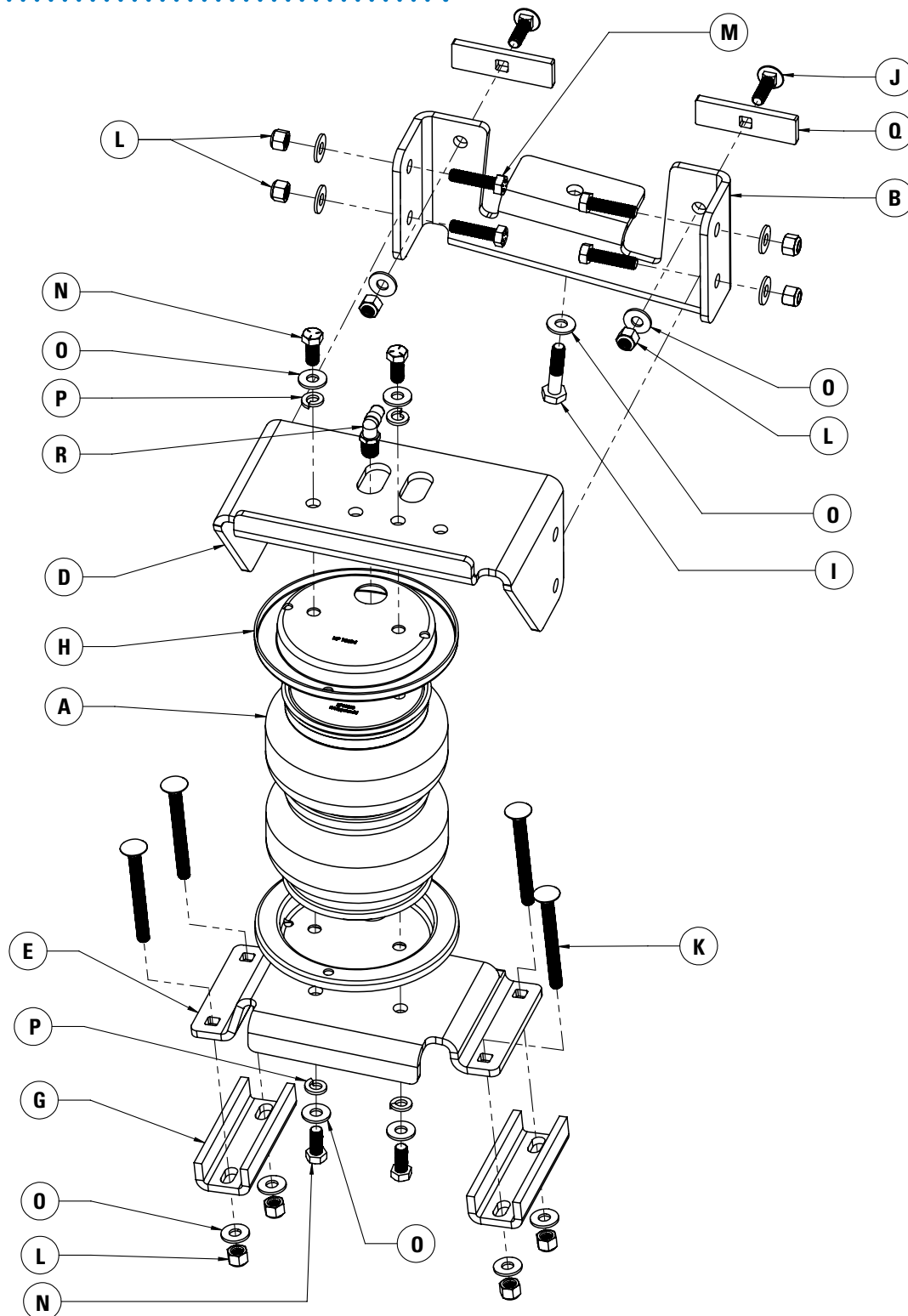


REQUIRED TOOLS

- 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)

KIT EXPLOSION DIAGRAM

DRIVER SIDE ASSEMBLY SHOWN (Passenger side assembly is mirrored)



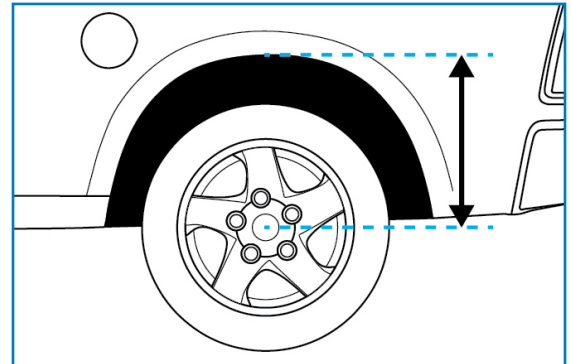
INSTALLATION INSTRUCTIONS

1 MEASURE STOCK RIDE HEIGHT

Park the vehicle on a level surface.

Using a measuring tape, measure the distance between the center of the wheel hub and the bottom of the fender well (as shown in Figure 1) this will give you your ride height.

Note the ride height for all four corners.



1

2 REMOVE REAR WHEELS

Place wheel chocks in front of and behind both front wheels.

Raise the rear of the truck high enough to remove both wheels and attain a comfortable working height.

Place two jack stands under rear axle (shown in Figure 2).

Lower the vehicle until the axle is supported by the jack stands.

Remove rear wheels.




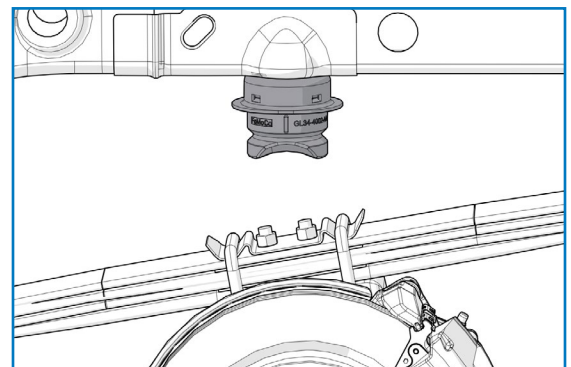
2

3 REMOVE THE JOUNCE BUMPER

The jounce bumper assembly (shown in Figure 3) consists of a cup and a bumper. It is bolted to the frame with a single bolt running through the center of the jounce bumper.

Remove the bolt holding the jounce bumper to the frame with a 13 mm socket.

 A socket extension may be required to reach the bolt.



3

4 ATTACH THE UPPER BRACKET TO THE FRAME

Assemble the upper bracket as shown in Figure 4A.

Place the upper frame bracket on the frame rail and position by inserting the M10 x 1.5 x 45 mm bolt through the locating hole in the bottom of the bracket into the jounce bumper bolt hole.

Torque the M10 bolt to 41 N•m (30 ft-lbs).

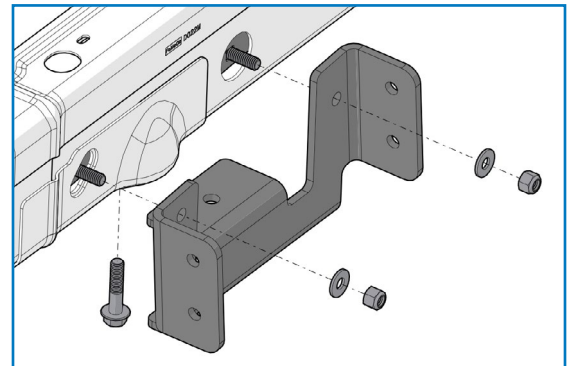
Insert a 3/8" – 16 x 1.25 carriage bolt through a carriage bolt locking bracket. Insert the bolt and bracket combination through the oval hole on the rear side of the frame and align with the mounting holes.

+ Fishing wire may be needed to pull the bolt and bracket combination through the frame.

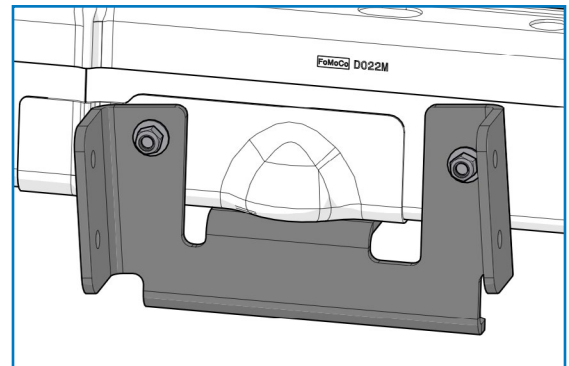
Secure the bracket to the frame using two 3/8" – 16 nylock nuts and two 3/8" flat washers. Torque the nylock nuts to 27 N•m (20 ft-lbs).

+ A correctly attached bracket should appear as shown in Figure 4B.

Repeat on opposite side



4A



4B

5 ASSEMBLE THE AIR SPRINGS AND BRACKETS

Set the roll plate over the over the bottom of the air spring.

Set the lower spring bracket onto the air spring ensuring that the holes in the air spring, roll plate and lower bracket all line up.

Fasten the assembly together using two 3/8" – 24 x 7/8" hex cap bolt, two 3/8" lock washers and two 3/8" flat washers. Torque the mounting hardware to 27 N•m (20 ft-lbs).

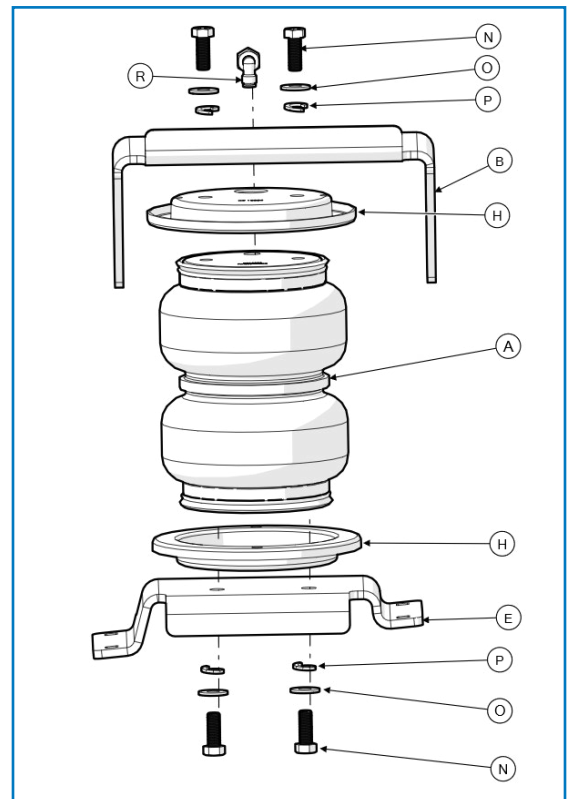
Turn the assembly over and set the roll plate over the top of the air spring.

Fasten the swivel fitting into the top of the air spring. It is recommended to use Teflon tape or some form of thread sealant to prevent air leaks. Finger tighten the swivel fitting and turn an extra 1.5 turns to tighten

Set the upper airbag bracket onto the air spring ensuring that the holes in the air spring, roll plate and bracket all line up.

Fasten the assembly together using two 3/8" – 24 x 7/8" hex cap bolt, two 3/8" lock washers and two 3/8" flat washers. Torque the mounting hardware to 27 N•m (20 ft-lbs).

Repeat for the other air spring.



5

6 INSTALL THE AIR SPRING ASSEMBLIES

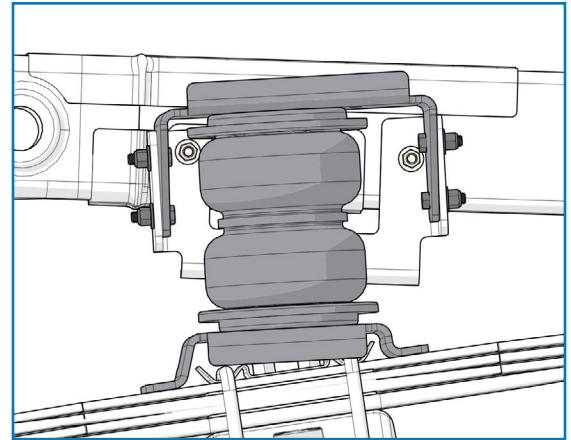
+ **PLEASE NOTE:** It may be necessary to raise the frame of the truck a few inches to allow more clearance to install the air spring assemblies.

Place the air spring assembly onto the truck with the lower bracket sitting on the leaf spring and the upper airbag bracket between the extended arms of the upper frame bracket (shown in Figure 6).

Attach the upper airbag bracket to the upper frame bracket using four 3/8" – 16 hex bolts, four 3/8" flat washers and four 3/8" – 16 nylock nuts.

Torque the mounting hardware to 27 N•m (20 ft-lbs).

Repeat for the opposite side



6

7 ATTACH LOWER BRACKETS TO LEAF SPRINGS

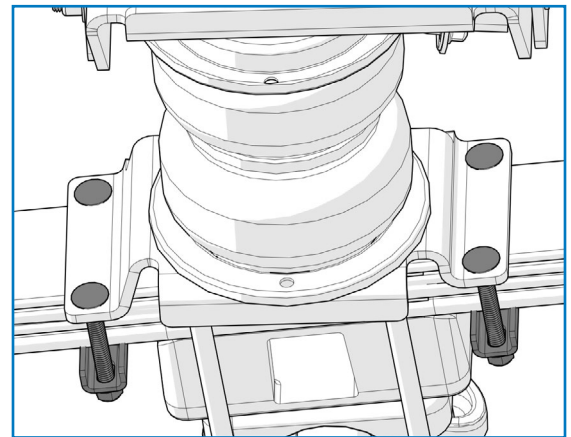
Insert four 3/8" – 16 x 3.50" carriage bolts into the mounting holes in the lower bracket (as shown in Figure 7).

Clamp the lower bracket to the leaf spring using the leaf spring clamp bar. Secure using four 3/8" – 16 nylon locknuts and four 3/8" flat washers.

Torque the locknuts to 27 N•m (20 ft-lbs).

Repeat on opposite side

Installation continues on the following page.



7

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.

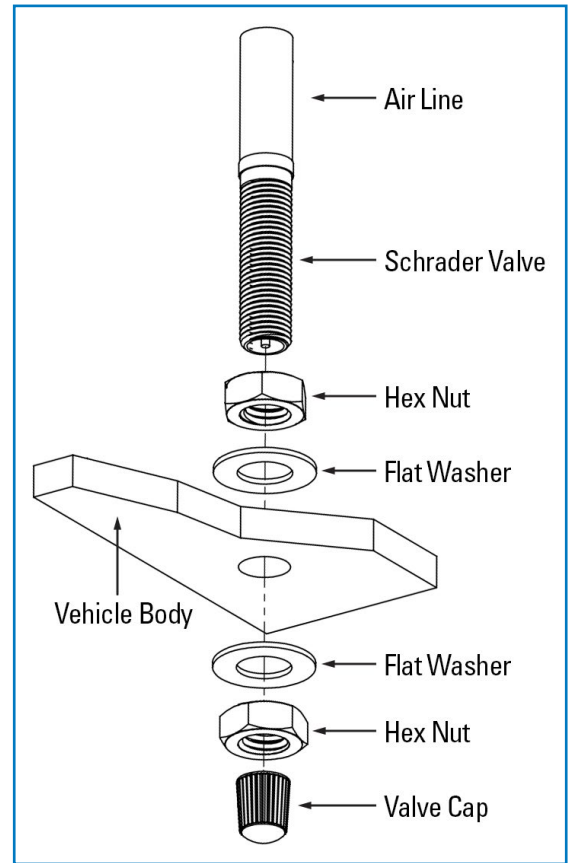
CHECK SYSTEM FOR LEAKS

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).

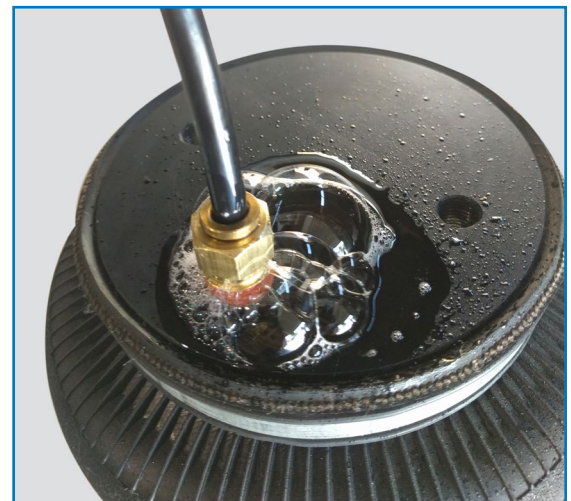
Repair as necessary and retest.

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.

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.