

Installation Manual



AIR SUSPENSION KIT

Ford F250/F350 Super Duty (2WD/4WD)

* **Will fit** Chassis Cab models

* **Will not fit** 2011-2016 vehicles with factory installed (OEM) 5th wheel hitch packages

* **May not fit** vehicles with (Aftermarket) 5th wheel brackets. [See Page 3 for details]

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.

Please read the entire manual prior to starting the installation to ensure you can complete it once started. If you are unsure whether you are qualified to install the Air Suspension kit, consult a qualified service professional before beginning the installation.

SAFETY WARNINGS!

You must read and abide by 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. **Failure to abide by all instructions in this manual will void the warranty.**

**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.
-  An 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 operate the vehicle under the minimum or over the maximum listed PSI in the air spring(s), (see: *MIN/MAX PSI* chart on the final page of this manual). Staying within the pressure limits will ensure a reasonable duration of the air springs. **Failure in doing so may result in damage to your vehicle and will void the warranty.**

BEFORE STARTING THE INSTALLATION

-  **Always read your vehicle owner's manual and follow all instructions and warnings therein prior to modifying your vehicle.**
-  Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
 - Check the vehicle to see if it is equipped with a 5th Wheel Hitch. Some 5th wheel hitches require brackets to be mounted to the frame in the same locations as the air spring brackets (if this is the case, modifications of the 5th wheel hitch brackets may be required to mount this kit). **Please contact your point of purchase if you have questions**

PLEASE BE AWARE: This kit may not fit vehicles with (Aftermarket) 5th wheel brackets. [See Page 3 for details]
-  It is recommended to always jack the vehicle on the axle. If lifting the vehicle with a floor jack or hoist on the frame, never allow the air spring to limit the travel of the axle. Suspending the axle with the air spring limiting the axle travel **will damage the air spring and void the warranty.** (This warning does not apply to In-Coil Springs)
-  The air spring must have clearance between itself and the surrounding components to prevent any contact when the air 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. **Failure to do so will void the warranty.**
 - Check the clearance between the outside of the frame and the inside of the tire; a minimum of 8" is required for air spring clearance.
-  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.
-  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 will void the warranty.**
-  It is recommended to use additional thread sealant or Teflon tape on fittings during the installation for a proper seal.
-  Always ensure the bolts are not over-torqued; especially when a torque value is provided, failing to use the provided torque value(s) can lead to **premature failure and will void the warranty.**
-  It is recommended to use a good quality anti-seize on all fasteners to reduce the chance of corrosion and help facilitate removal, if required at a later date.

REQUIREMENTS FOR AFTERMARKET 5th WHEEL BRACKET COMPATIBILITY

⚠ **This kit may not fit vehicles with (Aftermarket) 5th wheel brackets. Confirm your vehicle is compatible with the air suspension kit before starting the installation.**

Aftermarket 5th wheel brackets are **compatible** with 1999 - 2016 Ford F-250/F-350 air suspension kits **only** when **all clearance requirements shown below are met** on the inboard and outboard sides of the frame rails.

REQUIREMENTS:

1. The **red zones** indicated in Figures 1 & 2 must be clear of **AFTERMARKET** components for the installation of the aftermarket air suspension kit.

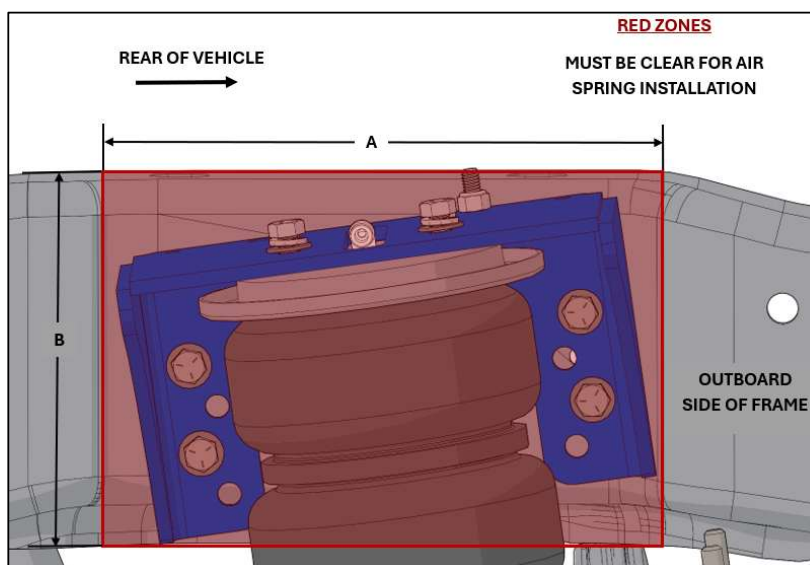


Figure 1. Clearance Requirements, Part 1

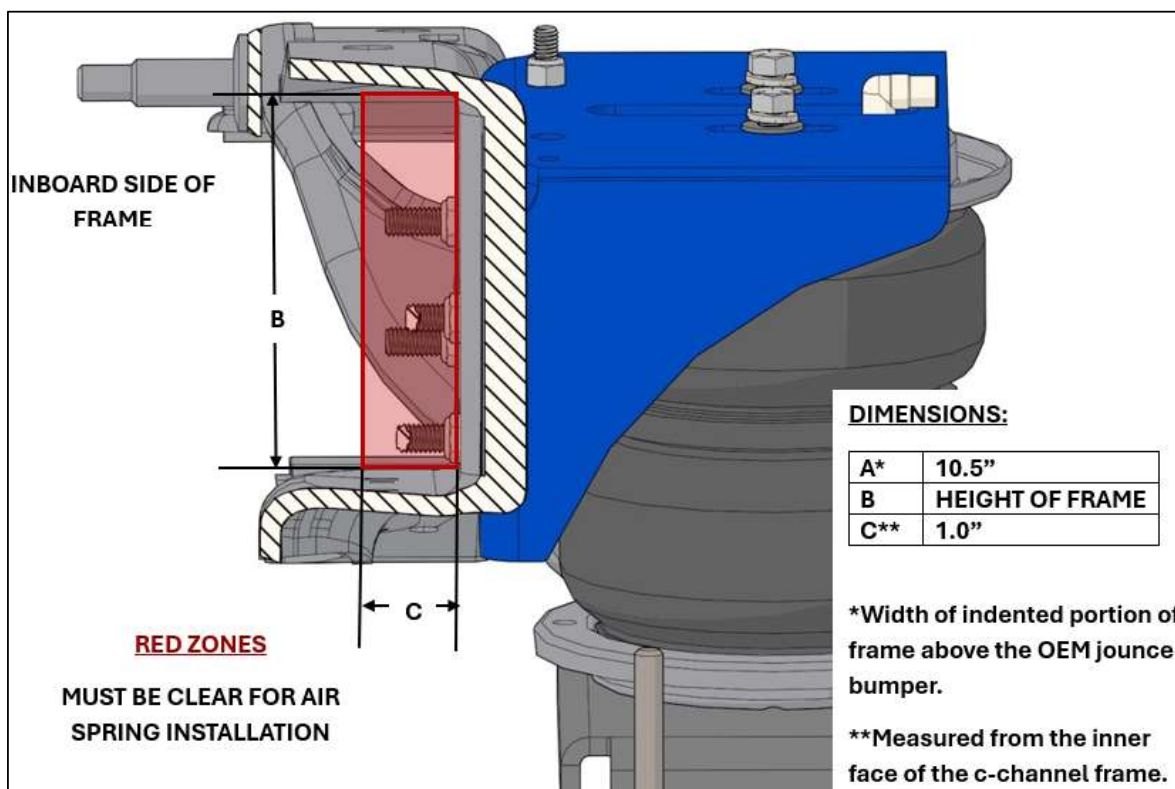


Figure 2. Clearance Requirements, Part 2

All information contained in this document is for reference only, subject to change without notice.

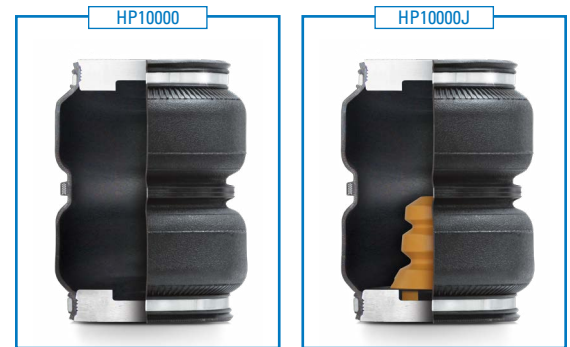
KIT CONTENTS

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 #
B	Double Convoluted Spring w/ Jounce Bumper	2	HP10000J

KIT CONTENTS		QTY	PART #
C	Roll Plate, 4.5" Diameter	4	HP10054
D	90° Swivel Fitting, 1/4" Hose To 1/4" NPT	2	HP1100
E	Bracket, Lower	2	HP0104
F	Bracket, Upper	2	HP2279
G	Bracket, Axle Strap	4	HP0028
H	U-Bolt	4	HP1018
I	Bolt, 3/8" – 24 x 7/8", Hex Head	8	HP1002
J	Bolt, 3/8" – 16 x 1.5", Hex Head	8	C18018
K	Bolt, 5/16" – 18 x 1", Flange	1	C11819
L	Washer, 3/8", Flat	16	C653
M	Washer, 3/8", Split Lock	8	C18007
N	Washer, 3/8" Flat, 1.25" OD	8	HP1013
O	Nut, 3/8" Nylon Lock, Flange	16	HP1975
P	Nut, 5/16" Nylon Lock	1	C11943
Q	Spacer, 3/8" OD x 3/8" L	1	HP2280
R	Worm Gear Ring Clamp 1.81" to 2.75"	2	C3916
S	Heat Shield	1	HP0012



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
- Hacksaw
- "C" Clamps
- Spray Bottle with Dish Soap/Water
- Air Compressor/Compressed Air Source (to test/fill air springs)



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

INSTALLATION INSTRUCTIONS

1 MEASURE STOCK RIDE HEIGHT

Park the vehicle on a level surface and remove any unnecessary weight from the vehicle to attain a "Normal Ride Height".

Using a measuring tape, measure the distance between the center of the wheel hub and the bottom of the fender well (see Figure 1A for reference) this will give you your stock Normal Ride Height. Note the ride height for all four tires.

Check the clearance between the outside of the frame and the inside of the rear tires (as shown highlighted in red in Figure 1B).

⚠ A minimum of 8" is required for adequate air spring clearance for the installation of this kit.

2 REMOVE REAR WHEELS

+ *This step is optional for this installation but will make the install easier to complete.*

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 (as shown in Figure 1B).

Lower the vehicle until the axle is supported by the jack stands and remove rear wheels.

3 LOWER BRACKET ASSEMBLY

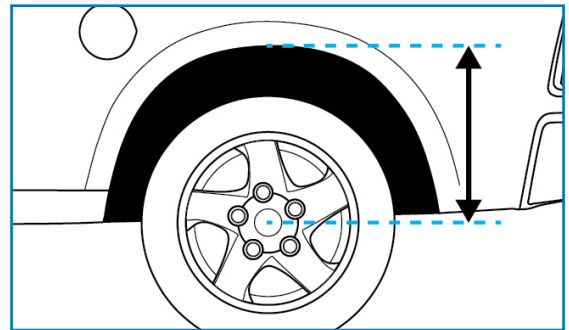
Locate the end of the air spring with the 1/8" NPT air port (shown with an arrow in Figure 3A), place this side down with the air port away from you.

Place the roll plate over the end of the air spring, aligning the two mounting holes (rounded end towards the air spring). Then, place the lower mounting bracket with the flange towards you over the roll plate and air spring aligning the two mounting holes.

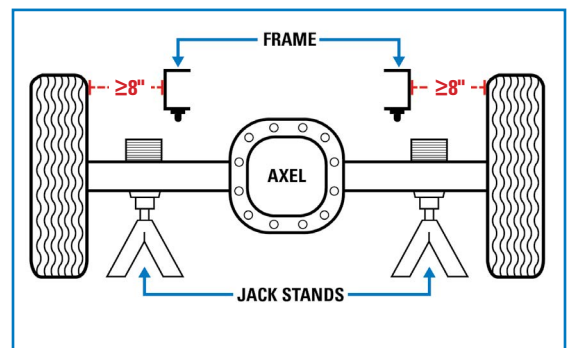
Using the two 3/8 NF x 7/8 capscrews, lock washers and flat washers, loosely fasten the assembly together (as shown in Figure 3B).

Do not tighten the capscrews fully until final adjustment is performed in Step 8.

Repeat on other side.



1A



1B



3A



3B

- 4 Remove the emergency brake cable fastener on the driver side.

Note the two pre-existing holes in the frame, shown by arrows in Figure 4A.

! *For 2008-2010 model year trucks: all 4 mounting holes are required to be drilled.*

Fasten the upper bracket through the two rear holes in the air spring bracket and the two pre-existing holes in the frame (as shown by the arrows in Figure 4B). Use the 3/8 NC x 11/2 bolts (small O.D. 3/8 flat washer under the bolt head, large O.D. 3/8 flat washer on the inside of the frame) and then install the nylock nut provided.

Do not tighten the bolts fully until a final adjustment is performed in Step 8.

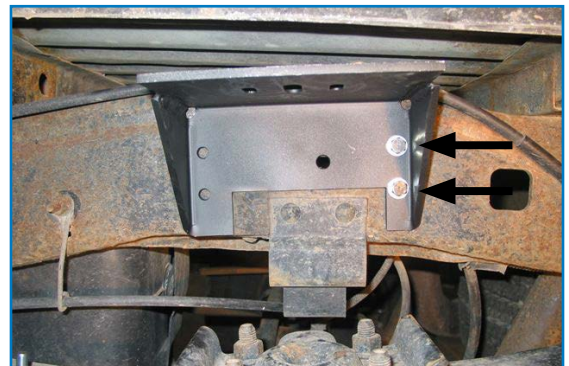
! *For Driver Side only: two holes are provided in the top rear upper bracket for the emergency brake cable clamp.*

Use the 5/16" flange bolt and nylock nut provided to fasten the original emergency brake clamp to the air spring bracket.

Install the bolt with the head down, so the nut is on top of the bracket.



4A

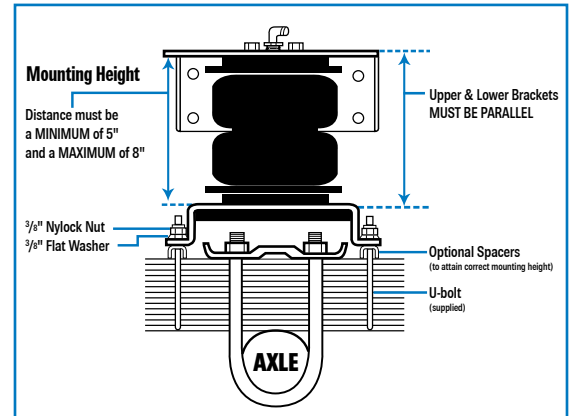


4B

- 5 Insert the lower air spring assembly with air spring between the leaf spring and the upper bracket. Center the lower bracket above the center of the axle tube.

Using Figure 5 as reference, check the alignment of the air spring top to the upper bracket and adjust the upper bracket so that it is parallel to the top of the air spring.

Clamp the forward side of the upper air spring bracket to the frame in the correct position.



5

- 6 Remove the lower air spring assembly with air spring.

Using the two forward holes in the upper bracket as a guide, drill the two front holes through the upper air spring bracket in the frame with a 3/8" drill bit (see Figure 6 for reference).

Install the two forward 3/8 NC x 11/2 bolts (small O.D. washer under the bolt head, large O.D. 3/8 washer on the inside of the frame) and install the nylock nut provided.

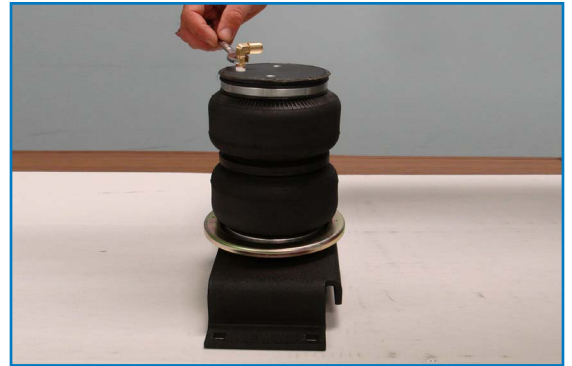
Torque all 4 fasteners to 40 ft-lbs.



6

- 7** Install the 90° fitting in the top of the air spring using thread sealant, as shown in Figure 7. Do not over-tighten the fitting.

Install the upper roll plate (rounded side towards air spring), aligning it to the 2 remaining mounting holes.



7

- 8** Insert the lower air spring assembly with air spring, aligning the air fitting with the center hole in the upper bracket. Loosely install the correct U-bolts around the leaf spring pack to center the lower bracket on the leaf. Make sure the center of the air spring is centered over the axle tube.

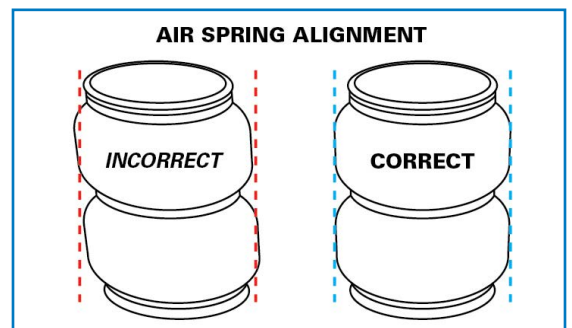
Loosely install the two upper capscrews, lock and flat washers through the bracket and roll plate into the air spring. The air spring mounting bracket holes are slotted to adjust the clearance between the frame and the air spring. 1" is the minimum clearance allowable between the air spring and the frame. Adjust the lower end of the air spring on its mounting bracket so that the air spring is in the correct alignment, (see Figure 8B on following page).

Once the correct clearance and alignment is attained, torque the air spring fasteners to the upper and lower brackets.

Torque the capscrews to 20 ft-lbs.



8A



8B

- 9** Install the correct U-bolts around the leaf spring pack using the flat washers and nylock nuts provided. (See Figure 9)

Ensure the lower air spring bracket is centered over the axle tube before tightening the U-bolt nuts.

Cut off the threaded portion of the U-bolt above the nyloc nut.

Torque evenly to 16 ft-lbs.

Repeat Steps 4-9 on the passenger side.



9

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 ½" – 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

With the vehicle on the ground, inflate both air springs to 10 psi less than the maximum recommended pressure for the air spring part number included with your kit (see MIN/MAX PSI chart on the following page for reference). 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).

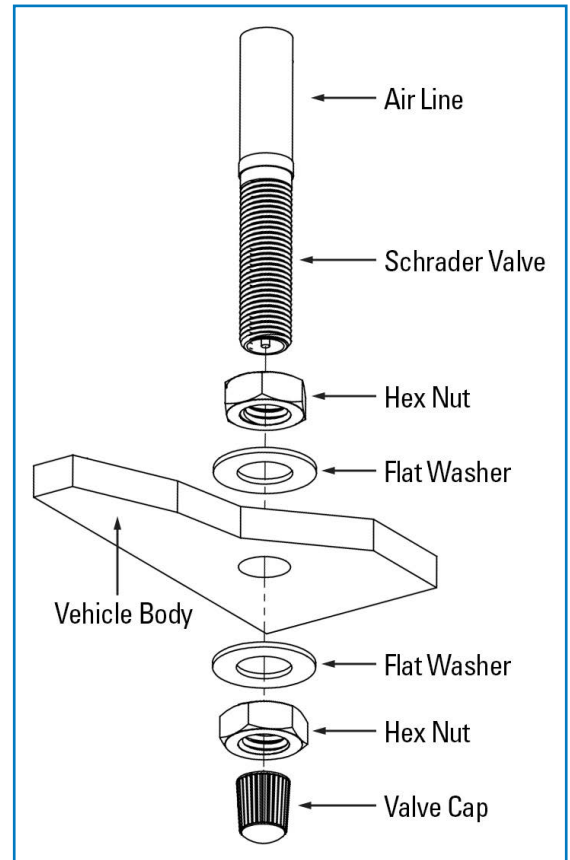
⚠ Leak must be repaired, and then retested until no leaks exist.

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

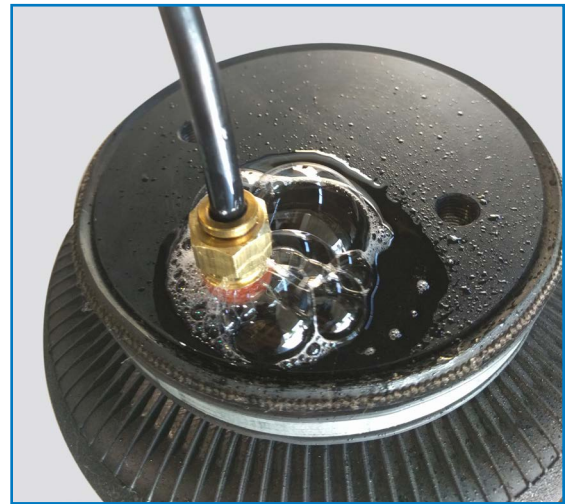
CONGRATULATIONS! You have completed the install

After Installation continues on the following page.

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A



*Air Spring & NPT Air Fitting may differ between kits

B

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 the air 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. **Failure to do so will void the warranty.**
- ❗ If the vehicle's tires were removed during the installation; re-install and torque all wheel fasteners (lug nuts) to the manufacturer's specifications. Re-torque all wheel fasteners after the first 500 miles of driving.
- ❗ **Review your vehicle owner's manual and adhere to all instructions and post-installation requirements related to vehicle modifications.**

OPERATING YOUR VEHICLE WITH AIR SUSPENSION

Air springs have minimum and maximum recommended pressure requirements:

MIN / MAX PSI: REQUIREMENTS FOR YOUR AIR SPRING(S)				
PART #	SPRING STYLE	SPRING TYPE	MIN PSI	MAX PSI
HP10687	In-Coil	STANDARD DUTY	5 PSI	50 PSI
HP10560		STANDARD DUTY	5 PSI	70 PSI
HP10001	Sleeve Style	STANDARD DUTY	10 PSI	100 PSI
HP10173		STANDARD DUTY		
HP10199		STANDARD DUTY		
HP10083	Single Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10083J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10000	Double Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10000J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10068	Large Double Convolute	HEAVY DUTY	5 PSI	100 PSI
HP10438	Double Convolute	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

Never operate the vehicle under the minimum or over the maximum listed PSI in the air spring(s). Staying within the pressure limits will ensure maximum air spring life. **Failure in doing so may result in damage to your vehicle and void the warranty.**

- ❗ **It is recommended to check the air pressure in your air springs daily, for the first 5 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

It is recommended to always jack the vehicle on the axle. If lifting the vehicle with a floor jack or hoist on the frame, never allow the air spring to limit the travel of the axle. Suspending the axle with the air spring limiting the axle travel **will damage the air spring and void the warranty.** (This warning does not apply to In-Coil Springs)

WARRANTY

See accompanying limited warranty included with this kit for details.