

Installation Manual



AIR SUSPENSION KIT

Dodge RAM 4500/5500 (2WD/4WD)
Sterling Bullet 4500/5500 (2WD/4WD)*

Including Cab & Chassis

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.

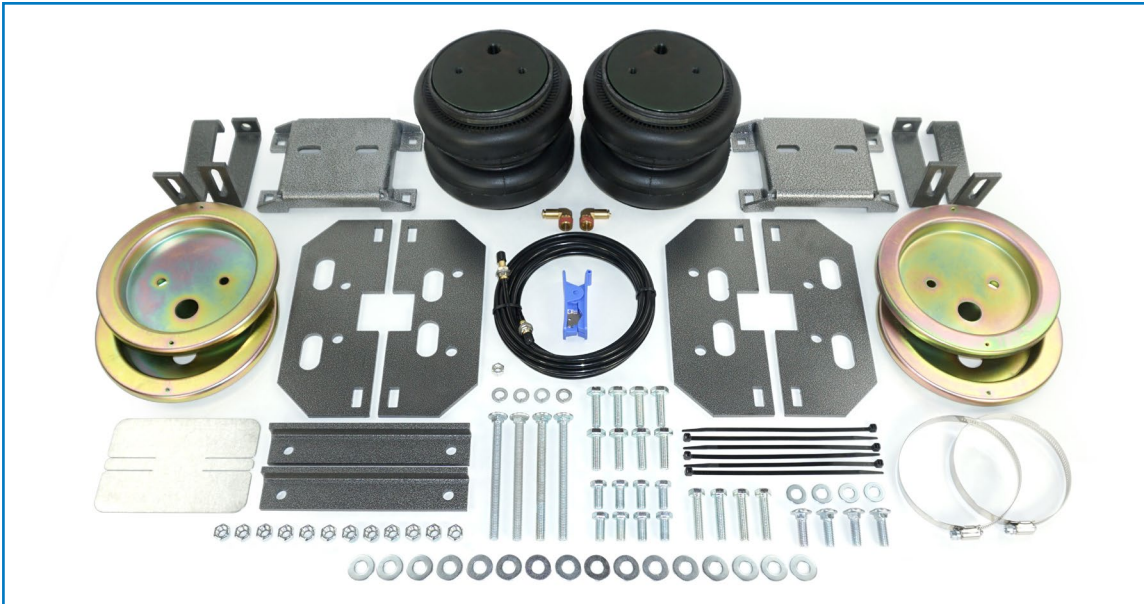
! Inflating an unsecured air spring is dangerous. If it bursts, it could be hurled into the air with explosive force resulting in serious personal injury or death. Never inflate an air spring unless it is secured to the vehicle.

! 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 make sure all the items shown in the kit layout are provided in your kit before starting the installation.

KIT CONTENTS	QTY	PART #
Air Spring	2	HP10068
Lower Bracket	2	HP0099
Upper Frame Bracket	2	HP1147
Upper Air Spring Bracket	2	HP1148
90° Fitting	2	HP1245
Heat Shield	1	HP0012
3/8" Nylock Nut	12	HP1000
3/8" Large Flat Washer	16	C18006
3/8" Lock Washer	4	C18007
Gear Clamp #48-102	2	HP1001
3/8" NF x 7/8" Capscrews	8	HP1002
Axle Strap	2	HP0102
3/8" - 16 x 5 Carriage Bolt	4	HP1022
Roll Plate	4	HP10069
5/16" Nylock Nut	1	C11943
3/8" - 16 x 11/4" Carriage Bolt	4	HP1149
Sway bar brackets	4	HP0100 / HP0101
M10 x 1.5 x 35mm bolt	8	HP1134
3/8" - 16 x 13/4" bolt	4	HP1227
3/8" Small Flat Washer	4	C653
Air Line/Valve Assembly	1	HP1344
Tie Strap	6	C11618

REQUIRED TOOLS

- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Torque Wrench
- Standard Combination Wrenches
- 7/32" Hex Allen Wrench
- 1-1/8" Wrench or Deep Socket
- 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)

INSTALLATION INSTRUCTIONS

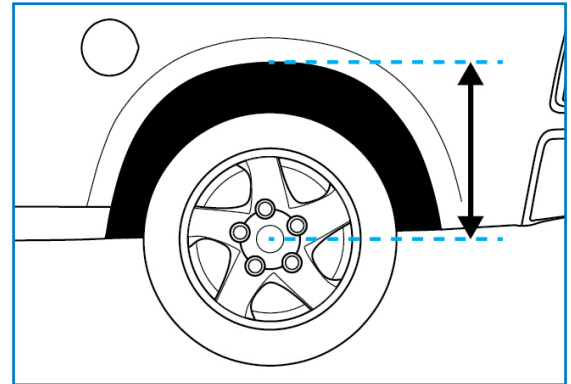
1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

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 in red in Figure 1B), a minimum of 5" is required for adequate air spring clearance.



1A

2 REMOVE REAR WHEELS

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

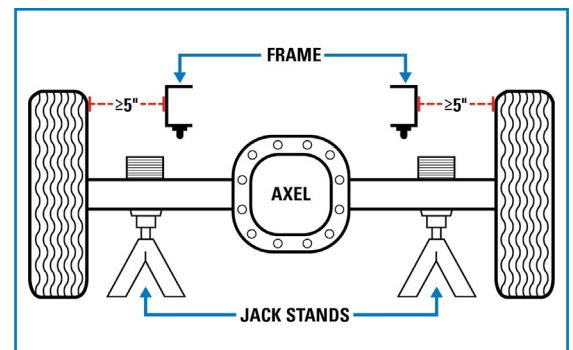
Place wheel chocks in front of and behind both front wheels.

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.

Remove rear wheels.



1B

3 REMOVE JOUNCE BUMPERS

Remove the jounce bumpers on both sides of the vehicle (as shown in Figure 3).



3

4 SHOCK ABSORBER FASTENERS, SWAY BAR & E-BRAKE

Remove both lower shock absorber fasteners (as shown in Figure 4A).
Retain nuts and bolts for reuse.

Remove the 2 nuts holding the sway bar up to the axle tube bracket on both sides. Allow the sway bar to swing down towards the ground. Discard the factory sway bar bolts and retain the nuts for re-use.

The passenger side shock absorber mounting bracket has an emergency brake cable support bracket that needs to be removed (see Figure 4B for reference).

The top of the rear end housing has a bolt supporting the cable to the top of the rear end housing (see arrow in Figure 4C).

Remove the bolt and bracket and re-install the bolt.

PASSENGER SIDE ONLY - compress the shock absorber to allow the e-brake cable to be moved to the forward side of the shock absorber. (See Figure 4D for reference).



4A



4B



4C



4D

5 ABS SENSOR & HARNESS

Locate the ABS sensor and harness on the topside front of the rear end housing. This harness is supported on a stud with a white plastic fastener (as shown with an arrow in Figure 5A on the following page).

Remove the fastener.

Install the e-brake cable bracket to this stud (as shown in Figure 5B on the following page). A 5/16" nut is provided to secure the bracket.

Re-install the plastic fastener on the stud.

6 UPPER ROLL PLATE

Place the upper roll plate (with the rounded side towards the air spring) on the top of the air spring (top being the end with the air inlet port - see Figure 6 on the following page for reference).

Apply thread sealant or Teflon tape to the threads of the 90° air fitting provided and install into the air inlet port.

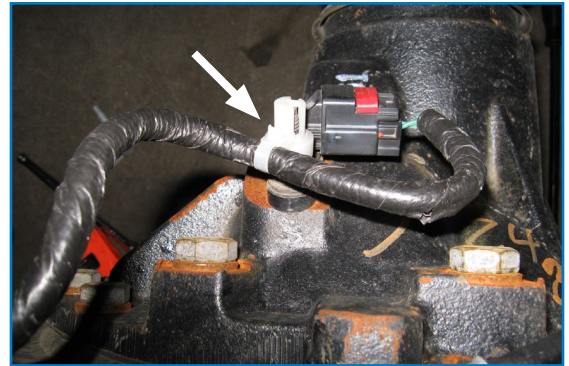
7 UPPER BRACKET

Place the upper air spring mounting bracket on top of the air spring and roll plate (as shown in Figure 7).

! *The upper air spring mounting bracket is identified by the two 3/8" holes next to the air fitting cut out.*

Using 2 - 3/8" NF x 7/8" capscrews provided, fasten the bracket to the air spring.

Torque both capscrews to 27 N•m (20 ft-lbs).



5A

8 LOWER PLATE & BRACKET

Insert the two 5" long carriage bolts provided into the two elongated holes in the lower bracket.

Place the roll plate on the air spring with the rolled side towards the air spring.

Place the lower bracket on the air spring with the two carriage bolts on the opposite side to the air port.

Install the two 3/8" NF capscrews lock and small flat washers, do not tighten fully.

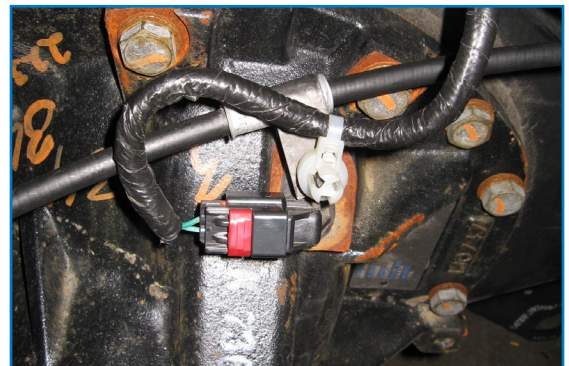
Ensure the air fitting is on the opposite side of the two carriage bolts.

Repeat steps 6 - 8 on the other air spring

The lower bracket mounting holes are slotted and need to be adjusted on the air spring before tightening the 3/8" NF fasteners.

Using Figure 8 on the following page, position one air spring assembly with the carriage bolts to your left. PULL the lower bracket towards you to the end of the slotted holes. Tighten the capscrews to 27 N•m (20 ft-lbs). **This will now become the passenger side air spring.**

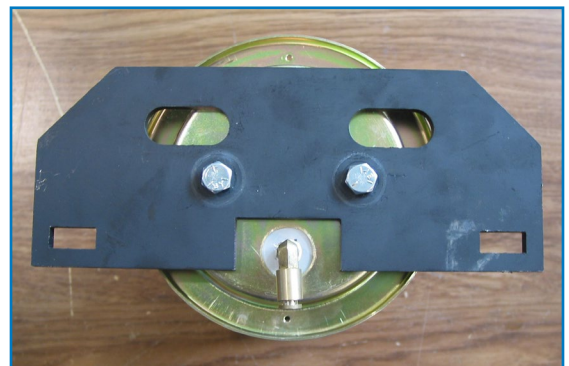
Position the other air spring assembly with the carriage bolts to your left. PUSH the lower bracket away from you to the end of the slotted holes. Tighten the capscrews to 27 N•m (20 ft-lbs). **This will now become the driver side air spring.**



5B



6

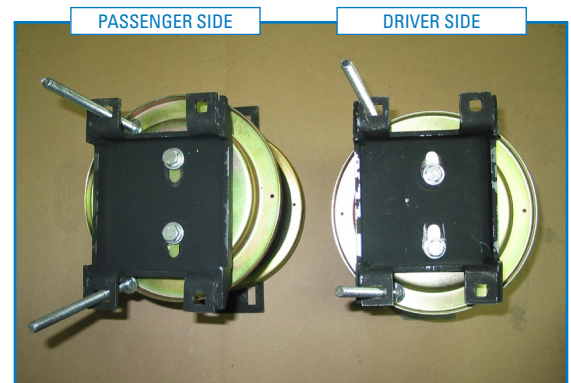


7

9 ATTACH THE UPPER BRACKET

Using the M10 x 35 capscrews provided, fasten the upper air spring mounting bracket to the frame (as shown in Figure 9). Torque the capscrews to 40 N•m (30 ft-lbs).

The upper brackets must be installed to the jounce bracket with the air inlet fitting cutout and rectangular holes in the bracket facing towards the center of the vehicle.



8

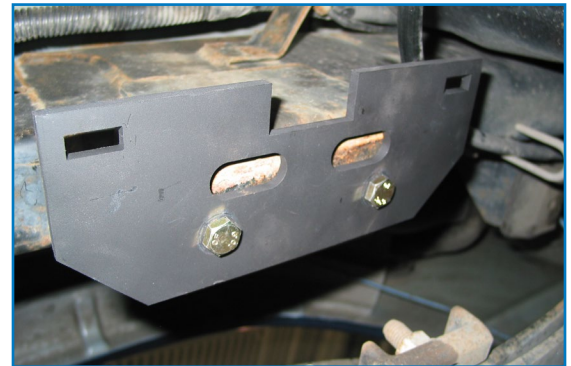
10 INSTALLING THE AIR SPRING

Insert the air spring between the jounce bumper mounting plate and the axle tube (as shown in Figure 10). Some vehicles may require the frame to be jacked up slightly to attain clearance.

- !** *Air fittings must be positioned towards the center of the vehicle. The outer rear carriage bolts may be installed now and must be between the brake line and the axle tube. On the drivers side, both rear carriage bolts must be in between the brake line and the axle tube. Passengers side is shown in photo.*

Loosely install two of the 1¼" long carriage bolts up from the bottom through both the upper mounting plates. Install the large flat washers and nylock nuts provided.

Loosely install the axle straps to the carriage bolts using the large flat washers and nylock nuts provided.

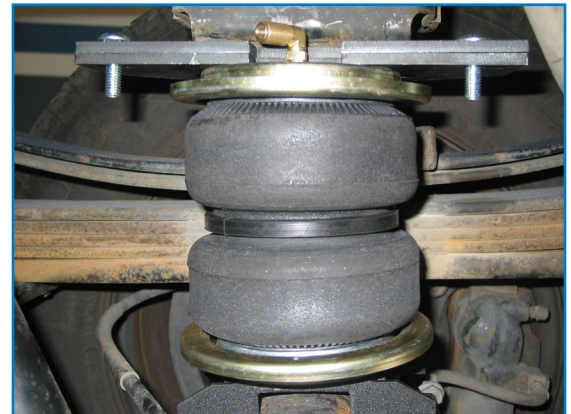


9

11 SUPPORT BRACKETS

Using the M10 x 35 capscrews provided, insert one capscrew into each of the lower support brackets (as shown in Figure 11).

Insert the lower end of the support brackets with bolts into the axle tube sway bar brackets. Lift the sway bar up and loosely install the original nuts.

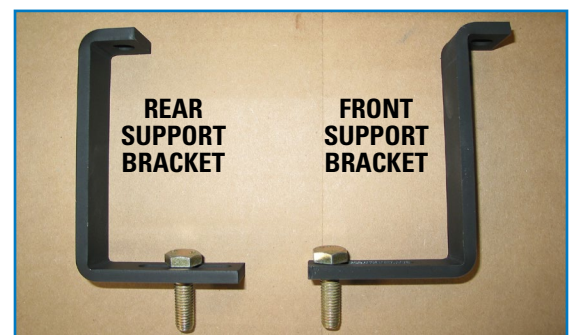


10

12 AXLE STRAPS

Loosely install the 3/8 - 16 x 1 ¾" bolts with large flat washers and nylock nut into each of the lower air spring brackets to the support brackets (as shown in Figure 12 on the following page).

Install the axle straps onto the 5" long carriage bolts. Loosely install the large flat washers and nylock nuts provided.



11

13 ADJUST THE AIR SPRING

Adjust the air spring assembly to the upper bracket by moving the lower bracket on the axle tube to ensure the air spring is correctly aligned (as shown in Figure 13).



12

14 CHECK THE CLEARANCE

Ensure adequate clearance exists between the brake lines and the carriage bolts. The brake line must not touch the carriage bolts (as shown in Figure 14). Adjust to attain clearance if necessary.

Once correct alignment of the air spring is attained:

Tighten the four sway bar bolts to 61 N•m (45 ft-lbs).

Tighten the two 1¼" carriage bolts of the top brackets to 27 N•m (20 ft-lbs).

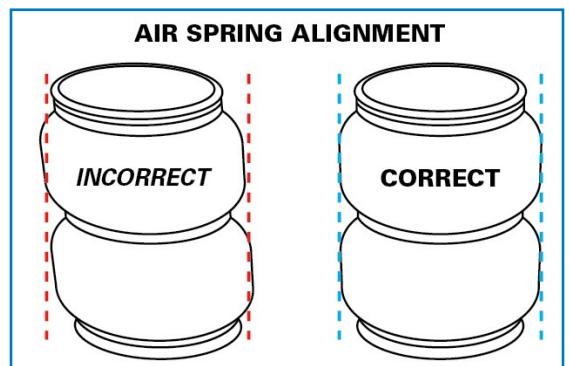
Tighten the two axle strap carriage nuts to 27 N•m (20 ft-lbs).

Tighten the two support bracket to upper bracket fasteners to 27 N•m (20 ft-lbs).

Repeat on the other air spring.

Re-install and tighten both lower shock absorber fasteners.

Torque to 135 N•m (100 ft-lbs).

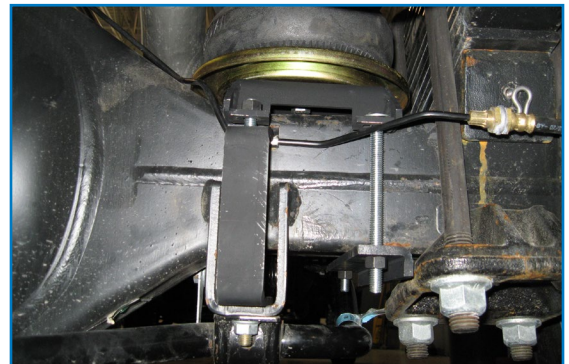


13

15 INSTALL HEAT SHIELD

Bend tabs on the heat shield so the required ½" of dead space exists between the heat shield and exhaust when attached.

Attach the heat shield to the exhaust pipe on passenger side using two ring clamps (shown in Figure 15). Each hose clamp holds a tab against exhaust pipe.



14



15

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.

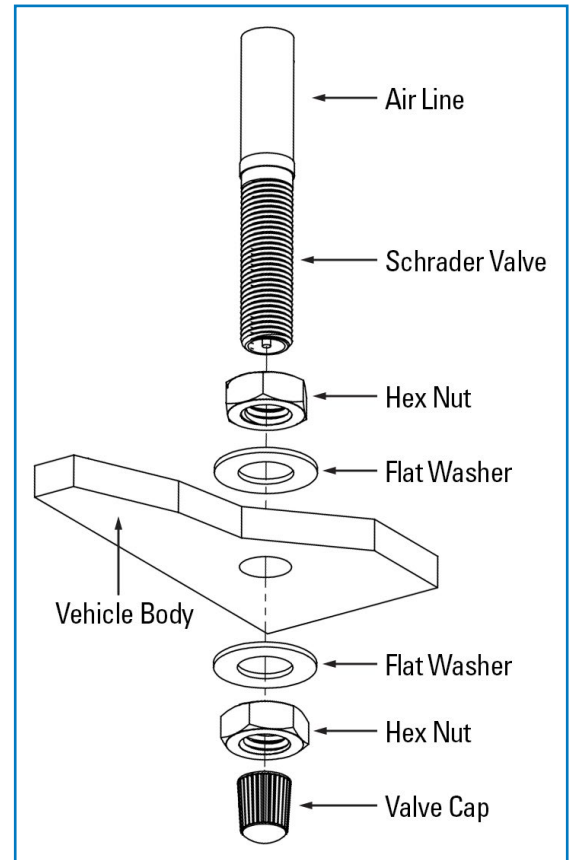
CHECK SYSTEM FOR LEAKS

Inflate both air springs to 90 psi (60 psi for in-coil bags), 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).

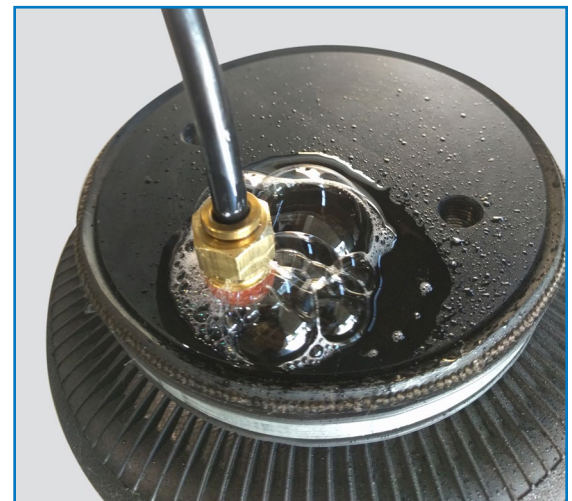
Repair as necessary and retest.

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.