

Installation Manual



AIR SUSPENSION KIT

Dodge Ram 1500 (2WD/4WD)*

Heavy Loads

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.*

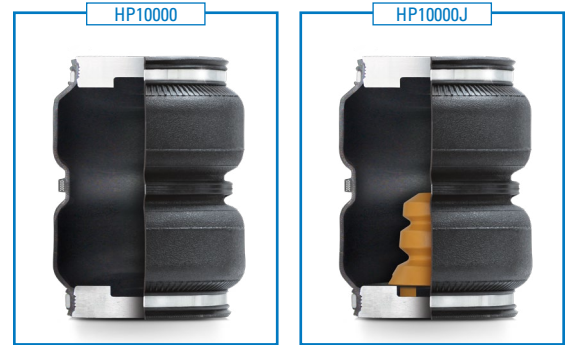
! **WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to www.P65Warnings.ca.gov**

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 #
Double Convoluted Spring	2	HP10000

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



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KIT CONTENTS	QTY	PART #
Lower Bracket	2	HP1137
Upper Frame Bracket	2	HP1143
90° Fitting	2	HP1100
Roll Plate	4	HP10054
Heat Shield	1	HP0012
3/8" Nylock Nut	4	HP1000
5/16" Flat Washer	4	C11944
3/8" Lock Washer	6	C18007
3/8" -24 x 7/8" Bolt	6	HP1002
3/8" Flat Washer	12	C18006
1/2" Lock Washer	4	HP1173
3/8" -16 x 2" Carriage Bolt	4	HP1005
Lower Bracket Stanchion	2	HP1144
3/8" - 24 x 3/4" Countersink Screw	4	HP1008
Heat Shield Clamp	2	HP1001
Axle Strap	2	HP0009
Air Line/Valve Assembly	1	HP1344
Tie Straps	6	C11618



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)

INSTALLATION INSTRUCTIONS

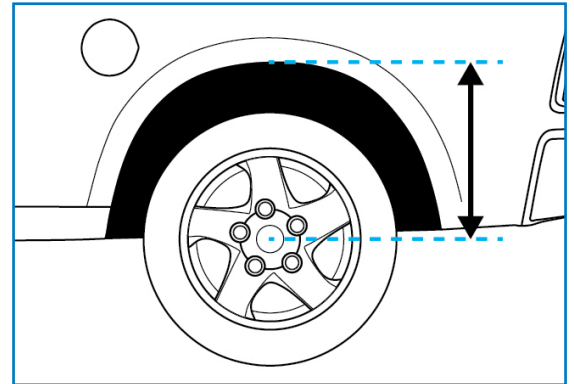
1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

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.

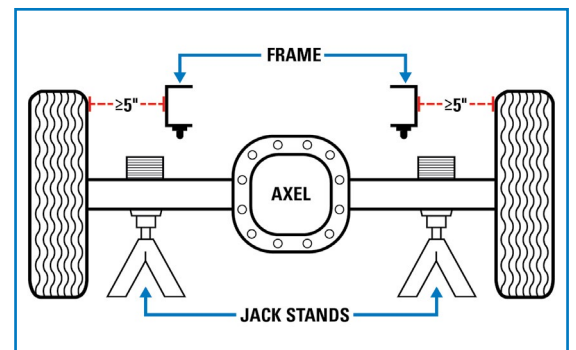
Place wheel chocks in front of and behind both front wheels.

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.

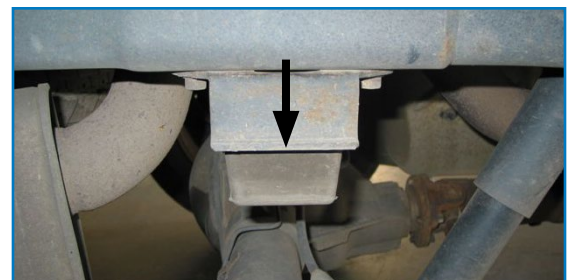


1B

3 JOUNCE BUMPER REMOVAL

Remove the jounce bumpers (shown with an arrow in Figure 3) on both sides and discard.

Retain the capscrews for use later in the installation.

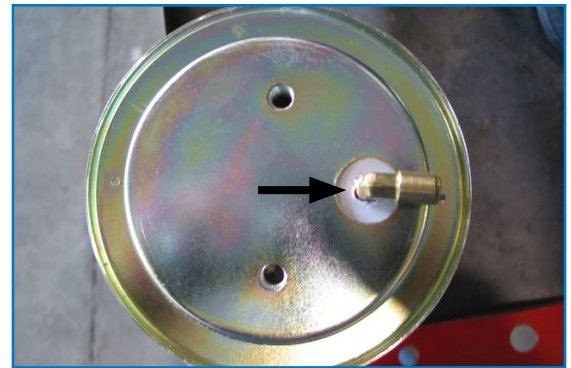


3

4 UPPER ROLL PLATE

Place the upper roll plate (with the rounded side towards the air spring) on the top of the air spring (the top being the end with the air inlet port). (See Figure 4 for reference)

Install the supplied 90° air fitting (shown with an arrow) using thread sealant to prevent air leaks.

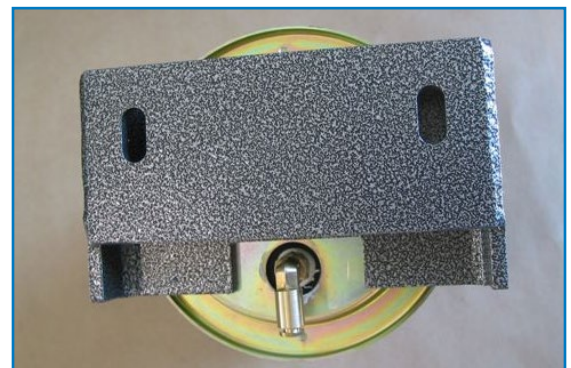


4

5 UPPER BRACKET

Place the upper air spring mounting bracket on top of the air spring and roll plate, (as shown in Figure 5). Loosely install the 3/8" NF capscrews with the provided flat and lock washers.

Do not tighten fully at this point. Final adjustments will be necessary once installed on the vehicle.

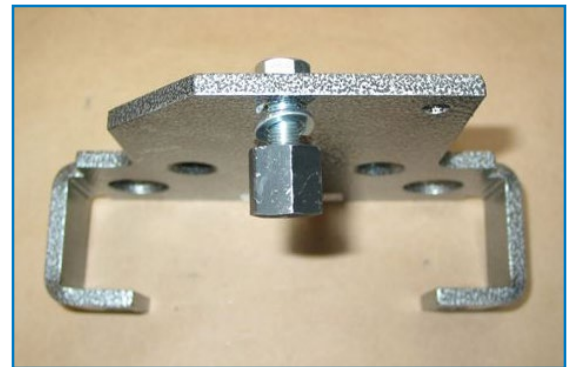


5

6 LOWER BRACKET

Locate the lower mounting bracket and insert one 3/8" x 1" capscrew in the outermost hole from the bent legs (shown in Figure 6). Then, install one lock washer on the protruding side of this capscrew. Finally, install the hex shaped stanchion.

Torque this to 27 N•m (20 ft-lbs)



6

7 LOWER PLATE

Place the lower roll plate on the bottom of the air spring (with the rounded side towards the air spring).

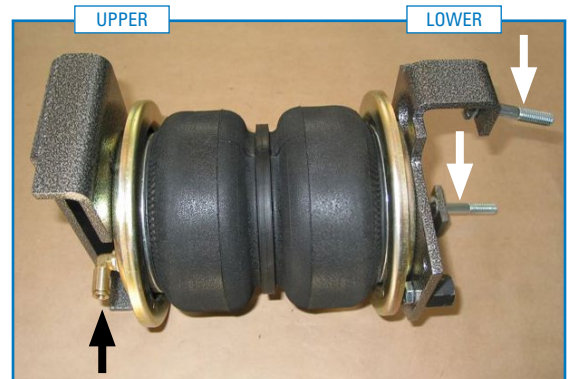
Install two carriage bolts through the lower bracket into the square holes of the legs (with the threaded end of the carriage bolt pointing away from the air spring - as shown in Figure 7 with white arrows).

Then, install the lower bracket on to the air spring using the two countersink capscrews with a 7/32" allen wrench.

! *The legs of the bracket must be installed towards the opposite side to the airline fitting (shown with a black arrow).*

Tighten the countersink capscrews securely.

Repeat Steps 4-7 on the other air spring.



7

8 INSTALL AIR SPRING ASSEMBLY

Insert the air spring assembly between the jounce bumper and the axle plate with the 90° airline fitting pointing towards the center of the vehicle.

! *Some vehicles may require the frame to be raised slightly to attain enough clearance to insert the air spring assembly.*

Rotate the lower mounting bracket to position one leg in front of the axle pad and the other leg behind the axle pad.

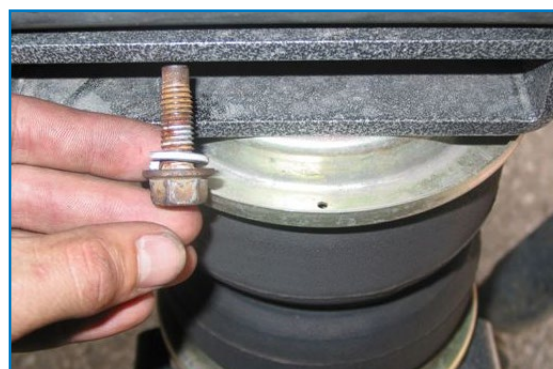


8

9 ATTACH TO JOUNCE BUMPER

Install the 1/2" lock washers provided on to the original jounce bumper capscrews.

Loosely install these through the upper air spring bracket to the frame (as shown in Figure 9).



9

10 AXEL STRAPS

Loosely install the axle straps to the carriage bolts using the 3/8" flat washers and the 3/8" nylock nuts provided.

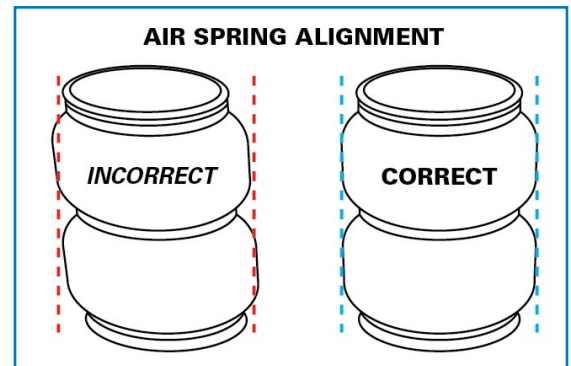
Repeat Steps 8-10 on the other air spring assembly.



10

11 ADJUSTING 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 11).



11

12 TIGHTEN JOUNCE BUMPER BOLTS

Once the air springs are aligned, torque the original jounce bumper bolts to 40 N•m (30 ft-lbs).

Then, torque the 3/8" capscrews that secure the upper bracket to the air spring to 27 N•m (20 ft-lbs). (See Figure 12)

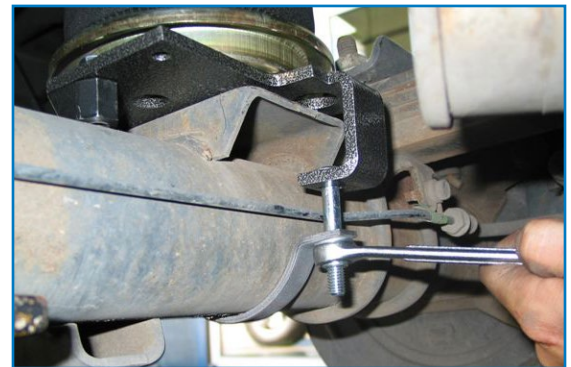


12

13 TIGHTEN AXEL STRAP BOLTS

Now torque the axle strap carriage bolt to 20 ft-lbs, 27 N•m. (See Figure 13).

Repeat Steps 11-13 on the other air spring assembly.



13

14 INSTALL HEAT SHIELD

Bend tabs on the heat shield so the required 1/2" of dead space exists between the heat shield and exhaust when attached.

Attach the heat shield to the exhaust pipe using two ring clamps (shown in Figure 14).

Each hose clamp holds a tab against exhaust pipe.



14

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.

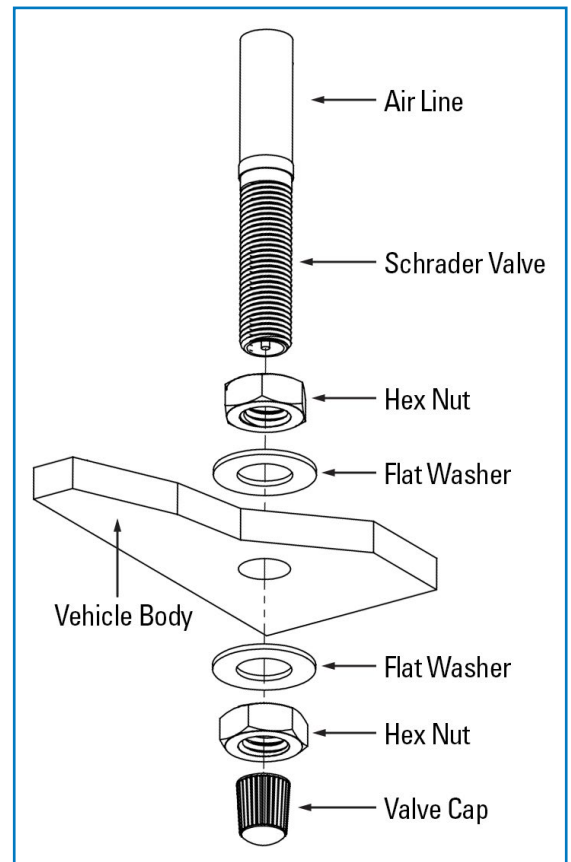
CHECK SYSTEM FOR LEAKS

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).

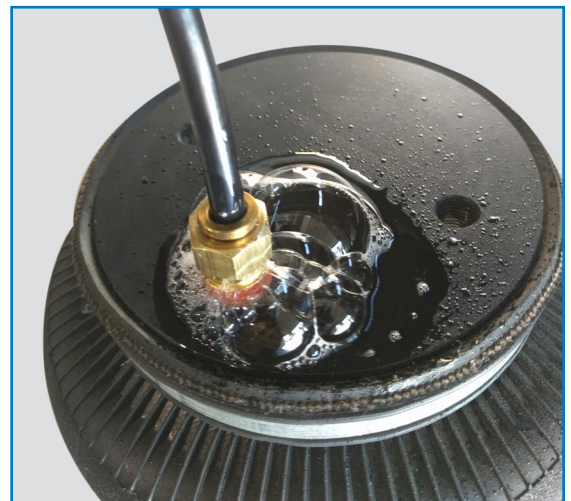
Repair as necessary and retest.

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.