

# Installation Manual



## AIR SPRING KIT

Dodge Ram 1500 (2WD/4WD)\*

*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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**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)*

***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.**

***PLEASE NOTE: The air bag must have clearance between itself and the surrounding components to prevent any contact when bag is inflated or compressed. Trimming off excess bolt length is also required to ensure no contact with the bag or other suspension components can be made once installed.***

#### *Safety Warnings!*

- ❗ 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. Please read and abide the instructions, safety recommendations and maintenance suggestions throughout this manual.
  - ❗ 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.
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## KIT CONTENTS

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

KIT CONTENTS			REQUIRED TOOLS		
	QTY	PART #			
<b>A</b> Air Spring	2	HP10000D	•	Hoist or Floor Jack	
<b>B</b> Lower Bracket	2	HP1137	•	Safety Stands	
<b>C</b> Upper Frame Bracket	2	HP1143	•	Safety Glasses	
<b>D</b> 90° Fitting	2	HP1100	•	Torque Wrench	
<b>E</b> Roll Plate	4	HP10054	•	Standard Combination Wrenches	
<b>F</b> Heat Shield	1	HP0012	•	7/32" Hex Allen Wrench	
<b>G</b> 3/8" Nylock Nut	4	HP1000	•	1-1/8" Wrench or Deep Socket	
<b>H</b> 5/16" Flat Washer	4	C11944	•	Ratchet	
<b>I</b> 3/8" Lock Washer	6	C18007	•	Metric & Standard Sockets	
<b>J</b> 3/8"-24 x 7/8" Bolt	6	HP1002	•	Hose Cutter (included) or Sharp Utility Knife	
<b>K</b> 3/8" Flat Washer	12	C18006	•	Pipe Thread Sealant	
<b>L</b> 1/2" Lock Washer	4	HP1173	•	Spray Bottle with Dish Soap/Water	
<b>M</b> 3/8"-16 x 2" Carriage Bolt	4	HP1005	•	Air Compressor/Compressed Air Source (to test/fill air springs)	
<b>N</b> Lower Bracket Stanchion	2	HP1144			
<b>O</b> 3/8" - 24 x 3/4" Countersink Screw	4	HP1008			
<b>P</b> Heat Shield Clamp	2	HP1001			
<b>Q</b> Axle Strap	2	HP0009			
<b>R</b> Air Line/Valve Assembly	1	HP1344			
<b>S</b> Tie Straps	6	C11618			

**BEFORE STARTING THE INSTALLATION:**

1. Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
2. 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.
3. 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:**

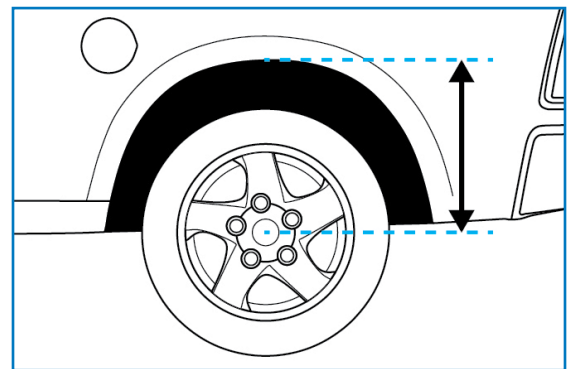
**This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon airline will distort the line and cause the connection to leak. THE AIRLINE MUST BE CUT OFF SQUARELY WITH THE NYLON HOSE CUTTER PROVIDED IN THIS KIT OR A SHARP UTILITY KNIFE.**

**1 MEASURE STOCK RIDE HEIGHT**

Park the vehicle on a level surface. Remove any unnecessary weight from the vehicle to attain a Normal Ride Height. This is important for correct initial air spring set-up and adjustment.

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.

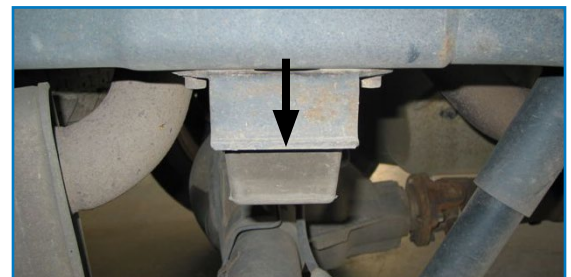


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**3 JOUNCE BUMPER REMOVAL**

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.

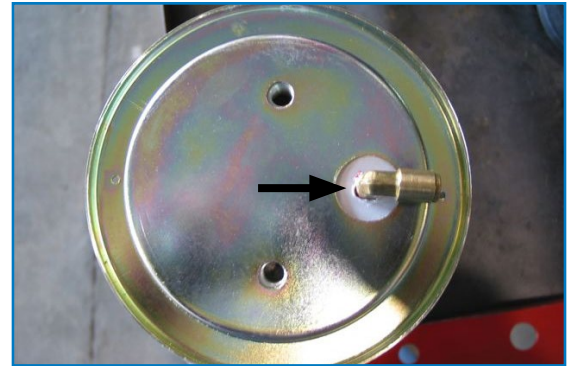


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#### 4 UPPER ROLL PLATE

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.

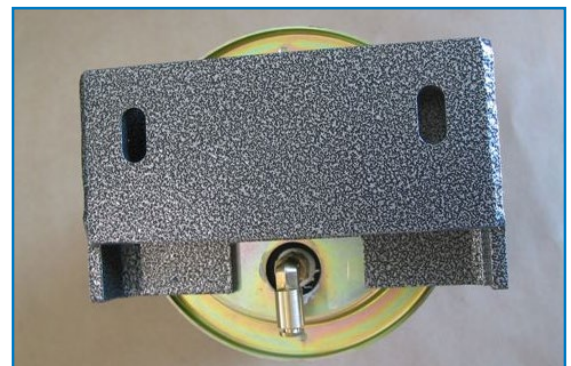


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#### 5 UPPER BRACKET

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.

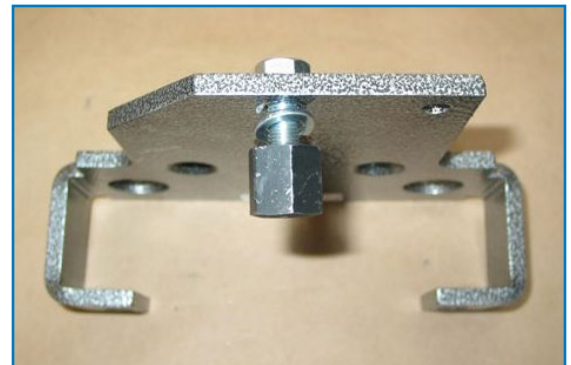


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#### 6 LOWER BRACKET

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 20 ft-lbs, 27 N•m.



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#### 7 LOWER PLATE

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

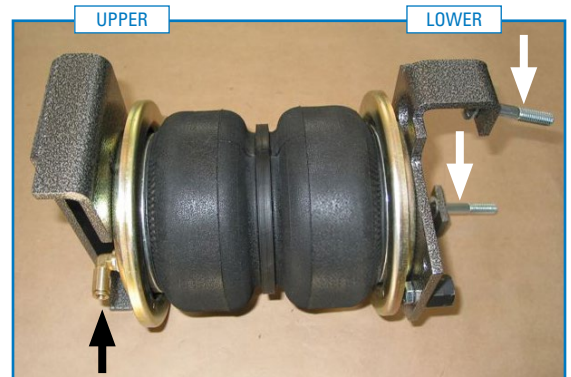
Install two carriage bolts through the lower bracket into the square holes of the legs (with the threaded end of the carriage bolt pointing away from the air spring - as shown in Figure 7 with white arrows).

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

**Note: 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.**



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## 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.

**Note:** *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.**

## 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 on the following page.

## 12 TIGHTEN JOUNCE BUMPER BOLTS

Once the air springs are aligned, torque the original jounce bumper bolts to 30 ft-lbs, 40 N•m. Then, torque the 3/8" capscrews that secure the upper bracket to the air spring to 20 ft-lbs, 27 N•m. (See Figure 12 on following page).

## 13 TIGHTEN AXEL STRAP BOLTS

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

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



10

## 14 INSTALL HEAT SHIELD

Bend tabs on the heat shield so the required  $\frac{1}{2}$ " 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.

## 15 INSTALL AIR LINE

**PLEASE NOTE: This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon airline will distort the line and cause the connection to leak. THE AIRLINE MUST BE CUT OFF SQUARELY WITH THE NYLON HOSE CUTTER PROVIDED IN THIS KIT OR A SHARP UTILITY KNIFE**

Provided in air spring kit are two fill valves. The most common place to install is in place of license plate fasteners. Alternatively, two  $\frac{5}{16}$ " holes can be drilled in a convenient location.

Cut air line assembly into two equal lengths with hose cutter.

Install one air line, route the nylon air line to an air spring fitting and cut the hose. Moisten the end of the air line prior to inserting it into the fitting and push it in until it stops.

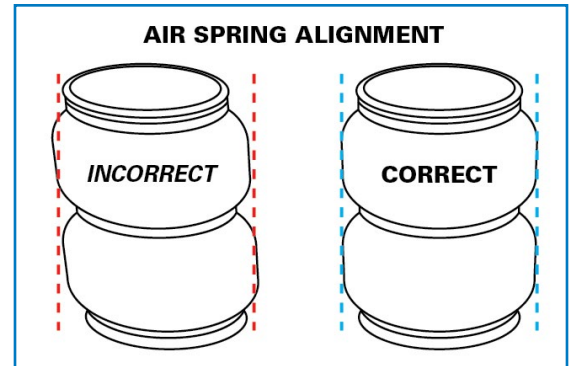
Repeat with the other fill valve.

Secure airlines using the tie-straps, away from moving items and heat sources.

Place a  $\frac{5}{16}$ " 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  $\frac{5}{16}$ " nut and cap (reference Figure 15 on following page for assembly).

There should be enough valve exposed after installation—approximately  $\frac{1}{2}$ "—to easily apply a pressure gauge or an air chuck.

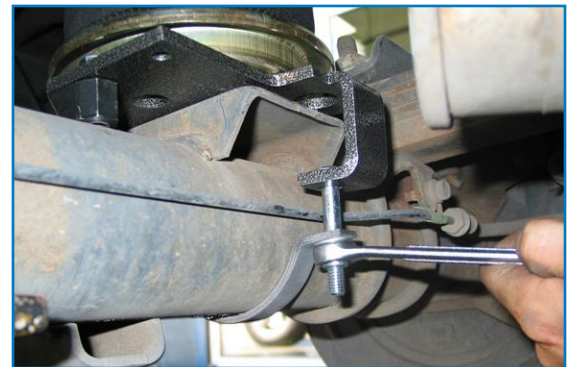
**If an in-cab inflation kit is being installed, follow the instructions provided with that kit now.**



11



12



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14

## 16 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 16). 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.

### AFTER COMPLETING THE INSTALLATION

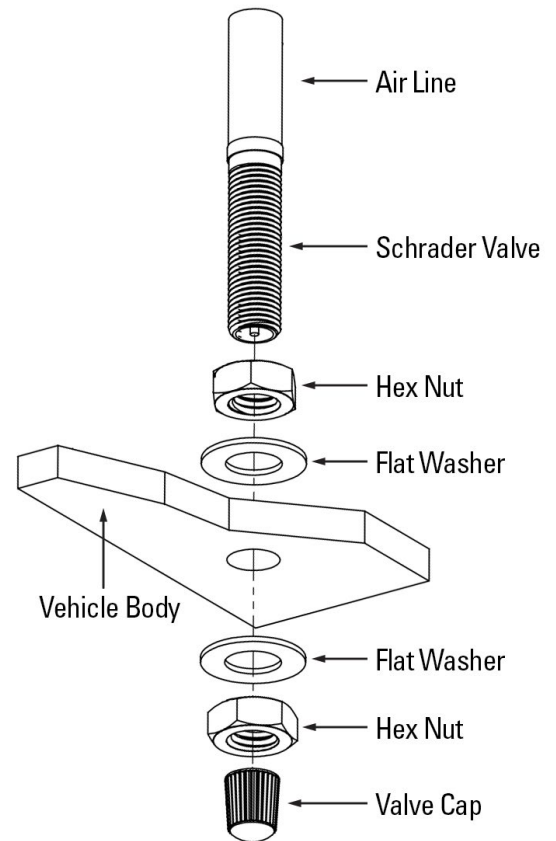
#### PLEASE REMEMBER:

Install wheels and torque fasteners to manufacturer's specifications.

Re-torque all fasteners after first 500 miles of driving.

For safe and proper operation, never operate the vehicle under minimum of 10 psi or over maximum of 100 psi in air springs. Staying within pressure limit will ensure maximum air spring life. Failure in doing so may result in a void warranty.

**⚠ Do not exceed maximum vehicle payload. Failure to do so may result in failure of the air suspension kit and/or damage to your vehicle.**



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16



***Thank you again, and congratulations on the installation of the air suspension kit.***

**OPTIONAL ACCESSORIES**

Optional dual needle air gauges are available to monitor pressure in each spring from vehicle cab, as well as a full line of air compressors, air tanks, and solenoids built to work with and control your air spring system.

**OPERATING YOUR VEHICLE WITH AIR SUSPENSION**

Air springs have minimum and maximum pressure requirements. Never operate your vehicle with less than 10 psi in air spring and never inflate air springs over 100 psi. Damage to air springs will result.

Check air pressure in air springs daily for first couple of days to ensure a leak has not developed. Air springs are designed to maintain the vehicles 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**

***The owner's warranty will be void if air springs are run with less than the minimum of 10 psi. See additional warranty for details.***

