

# Installation Manual



## AIR SUSPENSION KIT

Chevrolet Silverado / GMC Sierra 1500HD (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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**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.**

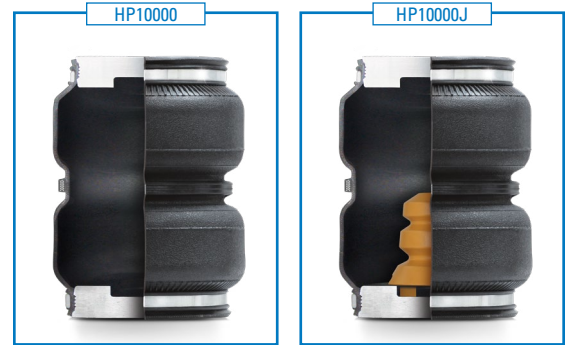
**!** **WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

**KIT CONTENTS**

Please confirm the items below are provided in your kit before starting the installation.

HEAVY DUTY KITS	QTY	PART #
Double Convolved Spring	2	HP10000

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



KIT CONTENTS	QTY	PART #
Lower Bracket	2	HP1137
Upper Frame Bracket	2	HP1140
90° Fitting	2	HP1100
Roll Plate	4	HP10054
Heat Shield	1	HP0012
3/8" Nylock Nut	10	HP1000
5/16" Flat Washer	6	C11944
3/8" Lock Washer	4	C18007
3/8" -24 x 7/8" Bolt	4	HP1002
3/8" Flat Washer	16	C653
3/8" - 16 x 1" Capscrew	4	C10464
3/8" -16 x 3" Carriage Bolt	4	HP1003
5/16" Nylock Nut	2	C11943
3/8" - 24 x 3/4" Countersink Screw	4	HP1008
Heat Shield Clamp	2	HP1001
Axle Strap	2	HP0074
5/8" Clamp	1	HP1006
5/16" x 1 Capscrew	3	C11819
3/8" x 3/4" Bolt	2	C11571
M8 x 1:25 Bolt	1	HP1146
5/16" Lock Washer	1	C384
Bracket, Emergency Brake Relocation	1	HP0011
Bracket, Brake Line Relocation	1	HP1145
Upper Bracket Adaptor Plate	2	HP0095
5/16" NC Flange Nut	1	P05654
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

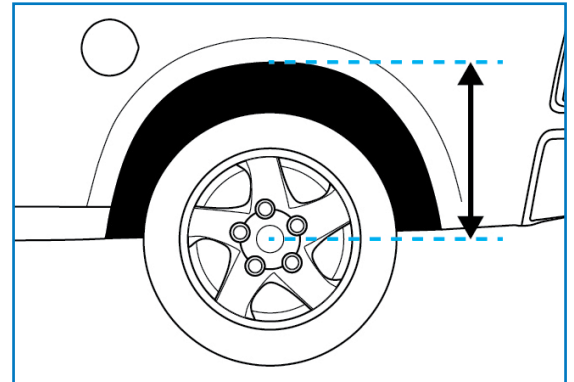
### 1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

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.

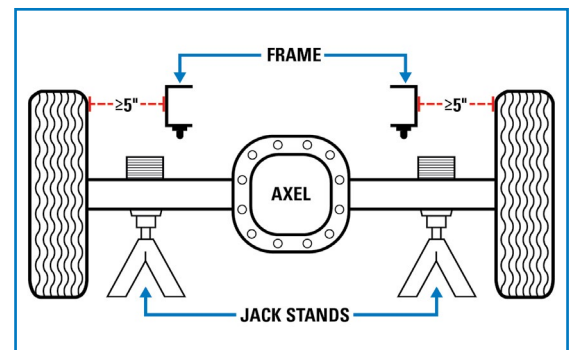
Place wheel chocks in front of and behind both front wheels.

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 REMOVE JOUNCE BUMPER

Remove the jounce bumpers on both sides and discard as it will not be used again in this installation.

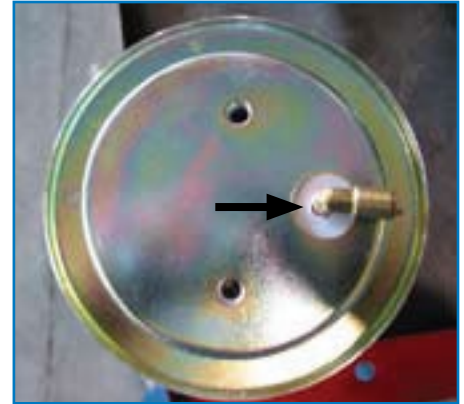


3

#### 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" x 7/8" NF capscrews with the provided flat and lock washers.

Do not tighten fully at this point as a final adjustment will be necessary once installed on the vehicle



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#### 6 LOWER BRACKET

**2500 Models Only:** (3/4 ton trucks) require a 3/8" x 3/4" bolt and nut to be installed in both lower brackets as shown in Figure 6.

The bolt head is installed opposite the air spring. The nut will fit inside the roll plate cavity.

Tighten the nut securely.



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 the two carriage bolts provided 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).

Then, install the lower bracket 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.*

Tighten the countersink capscrews securely.

**Repeat Steps 4-7 on the other air spring.**



7



## 8 DETACH BRAKE LINE

Remove and discard the 8mm bolt that holds the rear brake line distribution block to the axle tube.

Using the shorter 8mm bolt supplied, attach the HP1145 bracket to the axle tube in the same location, with the bent end pointing down and towards the rear.

Torque to 27 N•m (19 ft-lbs)

Move the distribution block towards the rear hole using the 5/16" flange head bolt and the flange head nut.

Torque to 27 N•m (19 ft-lbs)



8

## 9 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.

**!** *Ensure sufficient clearance exists between the brake lines and the carriage bolt*

- 10** Install one 3/8" flat washer on to each of the 3/8" x 11/4" bolts. Insert these bolts down through the jounce bumper holes in the frame and into the slotted holes of the upper mounting bracket, insert the HP0095 flat plate. Upper bracket support on to the protruding threaded portion of the bolts. Install one 3/8" flat washer and one 3/8" nylock nut on each bolt.

Leave these bolts loose until the final adjustments of the air springs are completed.

## 11 AXLE 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 8-11 on the other air spring assembly**



9



10



11

## 12 ADJUSTING THE AIR SPRING

The upper bracket allows for more adjustment than the lower bracket. For this reason, adjust the lower bracket so that the air spring is centered over the axle first. Then adjust the upper bracket to achieve the correct air spring alignment (as shown in Figure 12).

- 13** Once the air springs are correctly aligned, torque the upper bracket to frame bolts to 27 N•m (20 ft-lbs).

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

- 14** Torque the axle strap carriage bolts evenly to 27 N•m (20 ft-lbs).

**Repeat Steps 12-14 on the other air spring assembly**

Double check the clearance between the carriage bolts and the vehicles brake lines, adjust if necessary to attain adequate clearance.

## 15 REATTACH BRAKE LINE

**On the driver's side assembly:** insert a 5/16" flange head bolt up into the forward hole of the upper mounting bracket.

Place the HP0011 bracket onto this bolt so that the long end points down.

Place a 5/16" flat washer and the 5/16" nylock nut on the bolt loosely.

Place the loop clamp onto the emergency brake cable using a 5/16" flange head bolt.

Insert it through the loop clamp and into the HP0011 bracket. Secure with a 5/16" flat washer and a nylock nut.

Now, position the HP0011 bracket to achieve the most clearance between the air spring and the emergency brake cable.

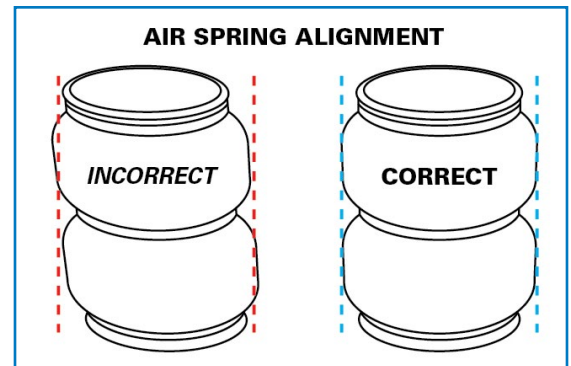
Torque the 5/16" bolt to 26 N•m (19 ft-lbs)

## 16 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.

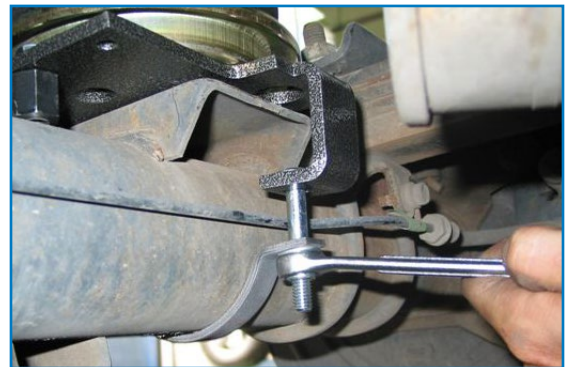
Each hose clamp holds a tab against exhaust pipe.



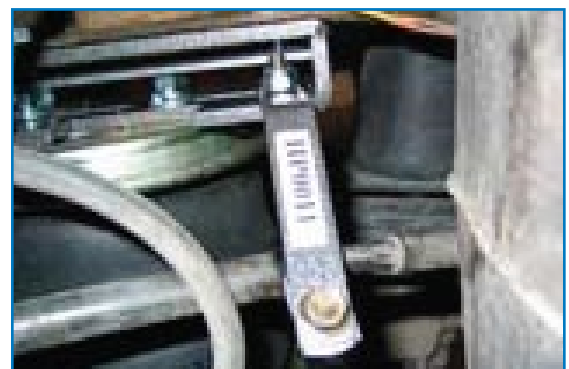
12



13



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.

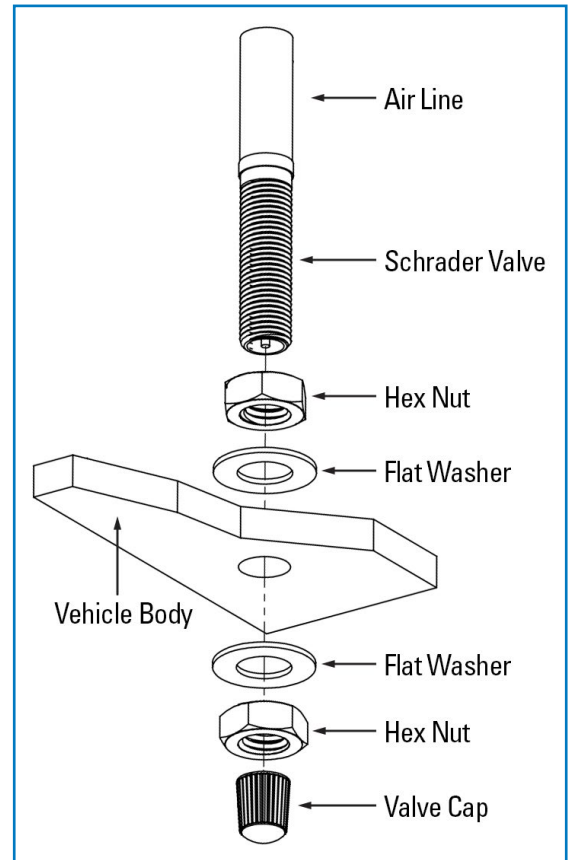
### CHECK SYSTEM FOR LEAKS

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).

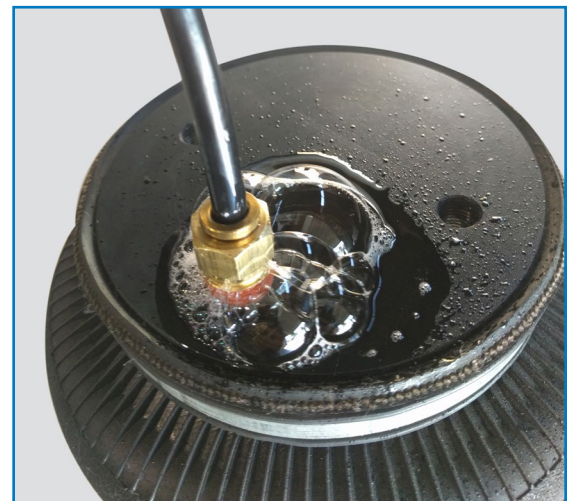
**Repair as necessary and retest.**

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.



**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.**