

# Installation Manual



## AIR SUSPENSION KIT

### GMC SIERRA:

1500, 2500 (w/ drum brakes only) & 3500 2WD/4WD\*

### CHEVROLET SILVERADO:

1500, 2500 (w/ drum brakes only) & 3500 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.*

**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)**

**APPLICATION INFORMATION****10088 & 10120 KITS FIT THE BELOW VEHICLE APPLICATIONS\*:**

- ▶ **1988-1998** GMC Sierra / Chevrolet Silverado 1500 (2WD & 4WD)
- ▶ **1988-1998** GMC Sierra / Chevrolet Silverado 2500 (2WD & 4WD)
- ▶ **1999-2000** GMC Sierra / Chevrolet Silverado 2500 (2WD & 4WD) - *with drum brakes only*
- ▶ **1988-2000** GMC Sierra / Chevrolet Silverado 3500 (2WD & 4WD)

**IMPORTANT  
MEASUREMENT REQUIRED**

**\*Additional measurements are required to determine the correct kit number for your vehicle.** With the vehicle unloaded on a level surface, measure the distance between the frame to axle pad:

- If this dimension is 7.25" or more use kit # **10088**.
- If this dimension is 7.25" or less use kit # **10120**. *The 10120 kit uses a single convoluted air spring designated to carry the same loads and fit in a smaller height envelope.*

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## KIT CONTENTS

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

HEAVY DUTY KITS		QTY	PART #
<b>A*</b>	<b>Double Convoluted Spring</b>	2	<b>HP10000</b>

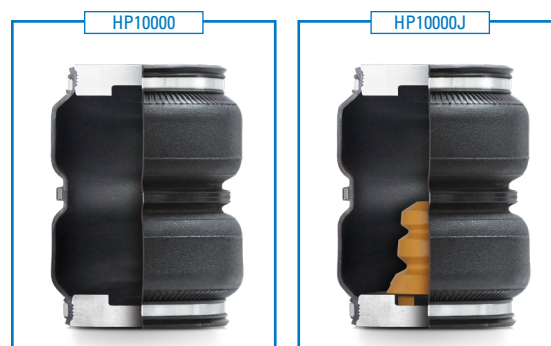
HEAVY DUTY KITS		QTY	PART #
<b>A</b>	<b>Single Convoluted Spring</b>	2	<b>HP10083</b>

HEAVY DUTY JOUNCE BUMPER KITS		QTY	PART #
<b>A*</b>	<b>Double Convoluted Spring w/ Jounce Bumper</b>	2	<b>HP10000J</b>

HEAVY DUTY JOUNCE BUMPER KITS		QTY	PART #
<b>A</b>	<b>Single Convoluted Spring w/ Jounce Bumper</b>	2	<b>HP10083J</b>

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KIT CONTENTS		QTY	PART #
<b>B</b>	Upper Bracket	2	HP0090
<b>C</b>	Lower Bracket	2	HP0091
<b>D</b>	90° Fitting	2	HP1100
<b>E</b>	Roll Plate	4	HP10054
<b>F</b>	Heat Shield	1	HP0012
<b>G</b>	3/8" Nylock Nut	8	HP1000
<b>H</b>	3/8" Flat Washer, Large O.D.	8	C18006
<b>I</b>	3/8" Flat Washer, Small O.D.	8	C653
<b>J</b>	Tie Strap	6	C11618
<b>K</b>	3/8" Lock Washer	4	C18007
<b>L</b>	3/8"-24 x 7/8" Bolt	4	HP1002
<b>M</b>	3/8"-24 x 3/4" Countersunk Capscrew	4	HP1008
<b>N</b>	3/8"-16 x 5" Carriage Bolt	4	HP1022
<b>O</b>	3/8"-16 x 4" Bolt	4	HP1175
<b>P</b>	Axle Strap	2	HP0016
<b>Q</b>	Frame Brace	2	HP0092
<b>R</b>	Heat Shield Clamp	2	HP1001
<b>S</b>	Air Line/Valve Assembly	1	HP1344



## REQUIRED TOOLS

- Hoist or Floor Jack
- Safety Glasses
- Pipe Thread Sealant
- Standard Combination Wrenches
- 7/32" Hex Allen Wrench
- Metric & Standard Sockets
- Hose Cutter (included) or Sharp Utility Knife
- Spray Bottle with Dish Soap/Water
- Air Compressor/Compressed Air Source (to test/fill air springs)
- Heavy Duty Drill
- 3/8 & 5/16 drill bits (very sharp)
- 3/8 Nut Driver
- Safety Stands
- Torque Wrench
- Ratchet

## INSTALLATION INSTRUCTIONS

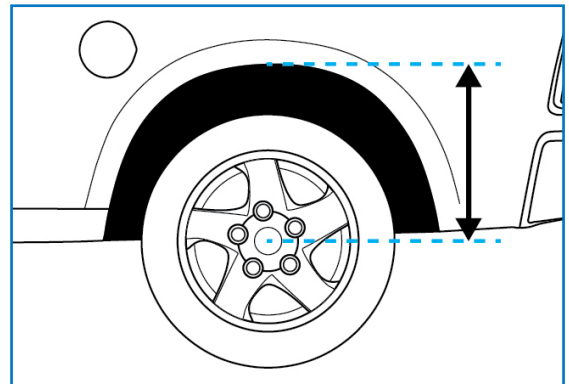
### 1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

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.

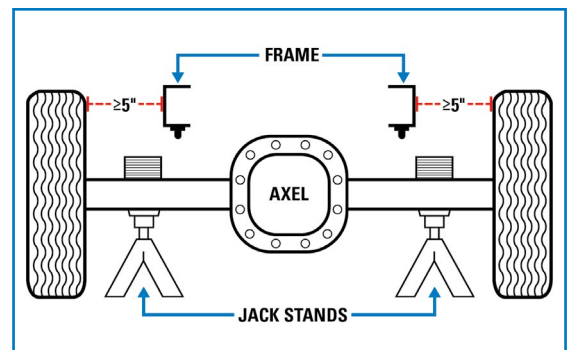
Place wheel chocks in front of and behind both front wheels.

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 and discard. Using a wire brush, clean out the inside of the frame above the axle on both sides of the truck.



3

**4 Driver Side Only:** on the inside of the driver side frame rail there will be an electrical harness and brake line supported to the frame using an axle clamp and bolt. The bolt must be removed to facilitate drilling the frame.

The axle clamp and bolt must be re-installed after drilling is completed in Step 9.



4



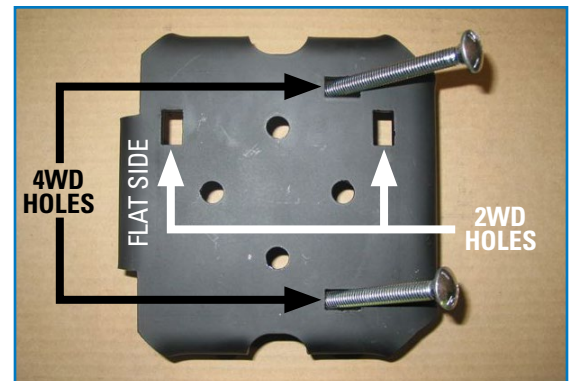
## 5 UPPER ROLL PLATE & BRACKET ASSEMBLY

Place one of the two lower mounting brackets in front of you on a flat surface. Identify the "flat side" of the bracket (use Figure 5 as a reference) and placing it in the nine o'clock position.

**! PLEASE NOTE:** There are 4 rectangular holes in the bracket for either 2WD or 4WD applications:

- ▶ Holes marked with black arrows are to be used for 4WD vehicles.
- ▶ Holes marked with white arrows are to be used for 2WD vehicles.

Insert two 3/8" x 5" carriage bolts into the relevant rectangular cutouts for your application, (4WD application is shown in Figure 5). Then place the roll plate on the lower bracket with the rounded side facing up. Align the two holes in the roll plate with the 3/8" holes in the lower bracket.

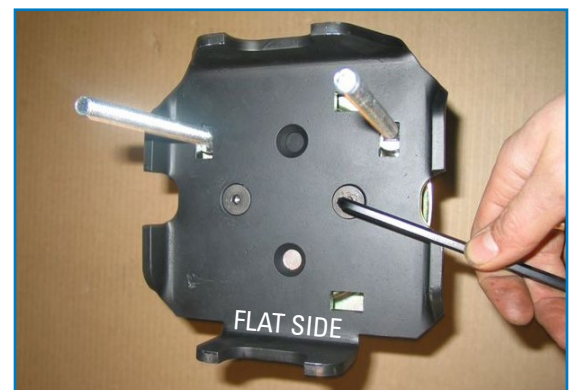


5

- 6** Place the air spring on the roll plate making sure the 1/4" NPT port for the air fitting is on the top and is on the same side as the two carriage bolts.

Turn the assembly over to install the two 3/8" - 24 x 3/4" countersink screw's into the countersink holes in the underside of the lower bracket (pointed out in Figure 6), and through the roll plate and into the two threaded holes in the air spring.

Tighten the counter sunk screws with a 7/32" Allen wrench.



6

- 7** Place the air spring assembly on the bench with the 1/4" NPT port facing up.

Place the roll plate on top of the air spring with the rolled side down aligning the three holes in the roll plate with those in the air spring.

Install the 90° air fitting using thread sealant to prevent air leaks.

Using Figure 7 as a reference, place the upper bracket onto the roll plate aligning the holes.

Loosely install the 3/8" NF cap screws, small O.D. flat and lock washers provided.

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

**Repeat Steps 5-7 for the other air spring.**



7

## 8 Insert each air spring assembly onto their axle pad.

- ⊕ *On some vehicles it maybe necessary to raise the body of the vehicle up slightly to attain clearance.*

Once the lower air spring bracket is centered on to the axle pad, align the top bracket to straddle the frame rail. Lower the body of the truck if raised to attain clearance.

Ensure the lower bracket is centered over the axle pad and the rear carriage bolt is between the axle and the brake line.

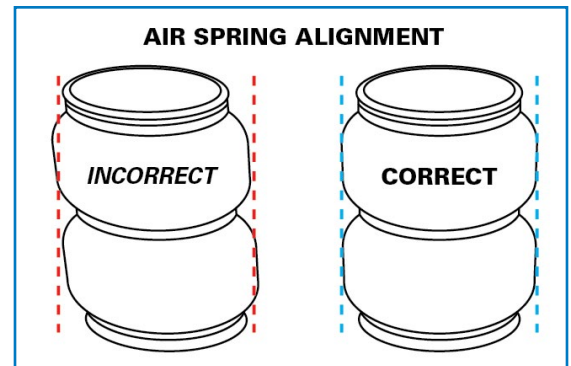
Use the axle strap and confirm the lower bracket is centered.

Adjust the upper bracket on the frame rail to achieve the correct air spring alignment (see Figure 8A for reference).

Using the upper bracket as a template mark the two holes to be drilled with a center punch (as shown in Figure 8B).

Remove each air spring assembly.

Using a sharp 3/8" drill bit, drill the two holes in each side of the frame.



8A



8B

## 9 Starting on the Driver side, insert the frame brace into the "C" section of the frame with the two elongated holes towards the bottom (as shown in Figure 9).

Reinstall the air spring assembly.

Align the upper bracket mounting holes with the two 3/8" holes drilled in Step 8, these will correspond to the elongated holes of the frame brace.

The assembly should now represent a BOXED frame in this area.

Install the axle strap onto the carriage bolts, install the 3/8" flat washers and 3/8" nylock nuts provided, torque the axle strap nuts to 27 N•m (20 ft-lbs).

Insert the two 3/8"-16 x 4" hex bolts from the outside of the frame towards the center of the truck, secure with the large O.D. 3/8" flat washers and 3/8" nylock nuts provided.

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

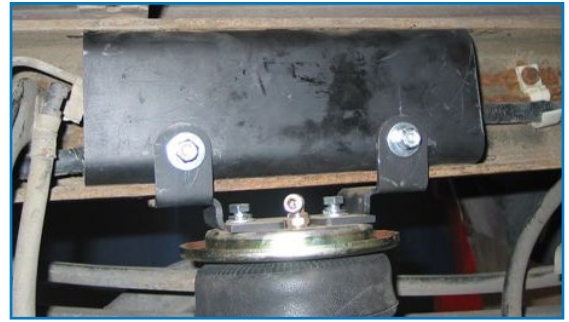


9

- 10** Align the air spring to the upper bracket, then torque the 3/8" NF capscrews to secure the upper bracket to the air spring to 27 N•m (20 ft-lbs).

Ensure adequate clearance exists between the carriage bolt and the brake line, adjust the brake line if necessary.

**Repeat Steps 9 and 10 on the passenger side of the vehicle.**



10

## 11 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 on passenger side using two ring clamps (shown in Figure 11).

Each hose clamp holds a tab against exhaust pipe.



11



## 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).

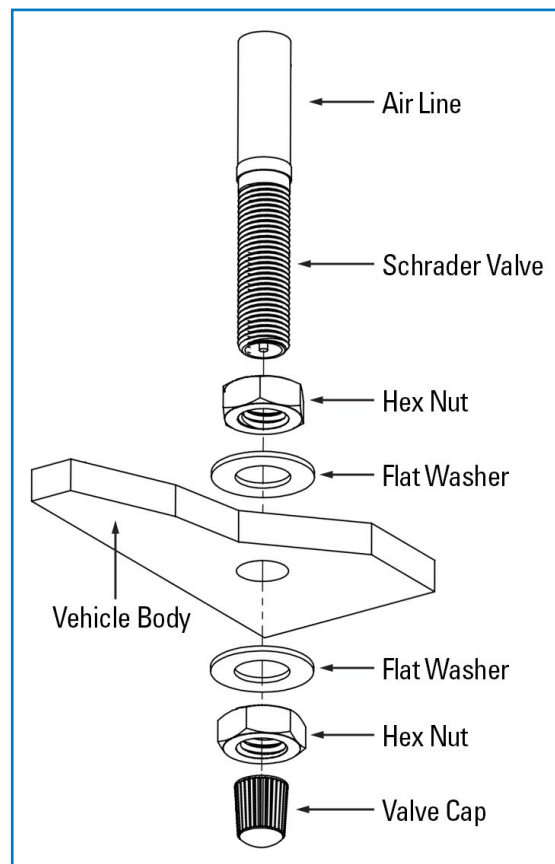
**Repair as necessary and retest.**

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.

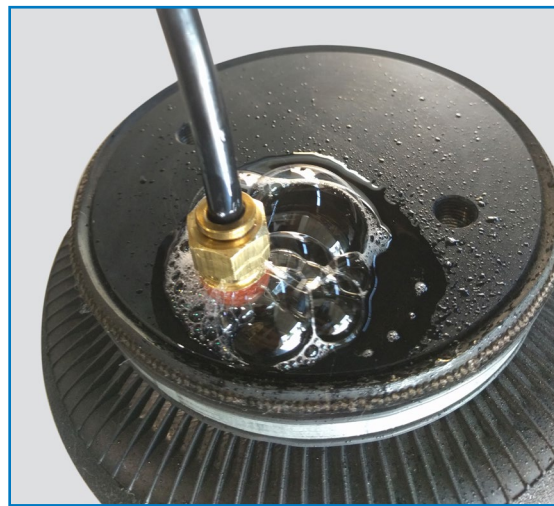
**⚠ Leak must be repaired, and then retested until no leaks exist.**

**CONGRATULATIONS! You have completed the install**

**After Installation continues on the following page.**



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 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 Convolutd	HEAVY DUTY	5 PSI	100 PSI
HP10083J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10000	Double Convolutd	HEAVY DUTY	5 PSI	100 PSI
HP10000J		HEAVY DUTY with JOUNCE BUMPER	0 PSI* / 5 PSI	100 PSI
HP10068	Large Double Convolutd	HEAVY DUTY	5 PSI	100 PSI
HP10438	Double Convolutd	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.**