

# Installation Manual



## AIR SUSPENSION KIT

Nissan Titan XD (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.

L6477\_REV4\_07.03.2024

**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.**

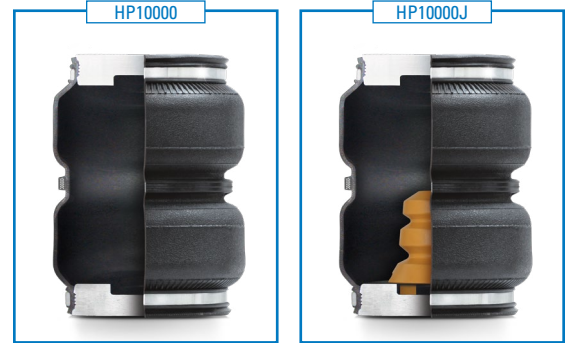
**!** **WARNING:** This product can expose you to the chemical Hexavalent Chromate, which is known to the State of California to cause cancer and birth defects or other reproductive harm. **For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

**KIT CONTENTS**

Please confirm the items below are provided in your kit before starting the installation. Reference the kit explosion diagram on the following page for part assembly.

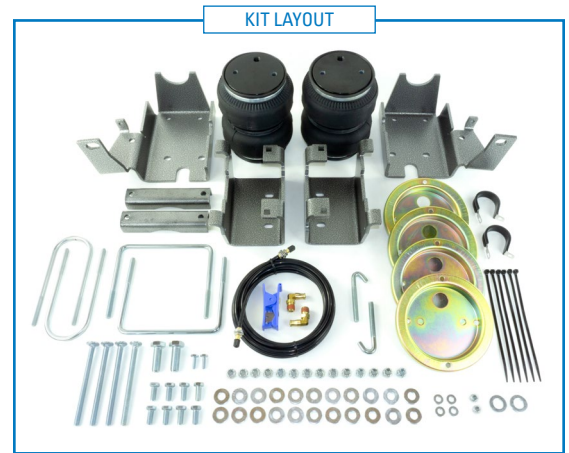
HEAVY DUTY KITS		QTY	PART #
<b>A</b>	Double Convoluted Spring	2	HP10000

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



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KIT CONTENTS		QTY
<b>B</b>	Upper Bracket – Driver side	1
<b>C</b>	Upper Bracket – Passenger side	1
<b>D</b>	Lower Bracket	2
<b>E</b>	Axle Strap	2
<b>F</b>	U-Bolt	2
<b>G</b>	Square U-Bolt	2
<b>H</b>	3/8" - 16 x 5" Carriage Bolt	4
<b>I</b>	1/4" - 20 Nyloc Nut	2
<b>J</b>	1/4" Flat Washer	4
<b>K</b>	1/4" - 20 x 3/4" Hex Head Cap Screw	2
<b>L</b>	3/8" Flat Washer	22
<b>M</b>	3/8" - 24 x 3/8" Hex Head Cap Screw	8
<b>N</b>	3/8" - 16 x 3.75" J-Bolt	2
<b>O</b>	3/8" - 16 Nyloc Nut	14
<b>P</b>	M14-1.5mm x 40mm Hex Head Cap Screw	2
<b>Q</b>	M14 Flat Washer	2
<b>R</b>	Cable Clamp	2
<b>S</b>	Roll Plate	4
<b>T</b>	90° Brass Air Fitting	2
<b>U</b>	Air Line w/ Schrader Valves	1
<b>V</b>	Tie Straps	6
<b>W</b>	Tube Cutter	1

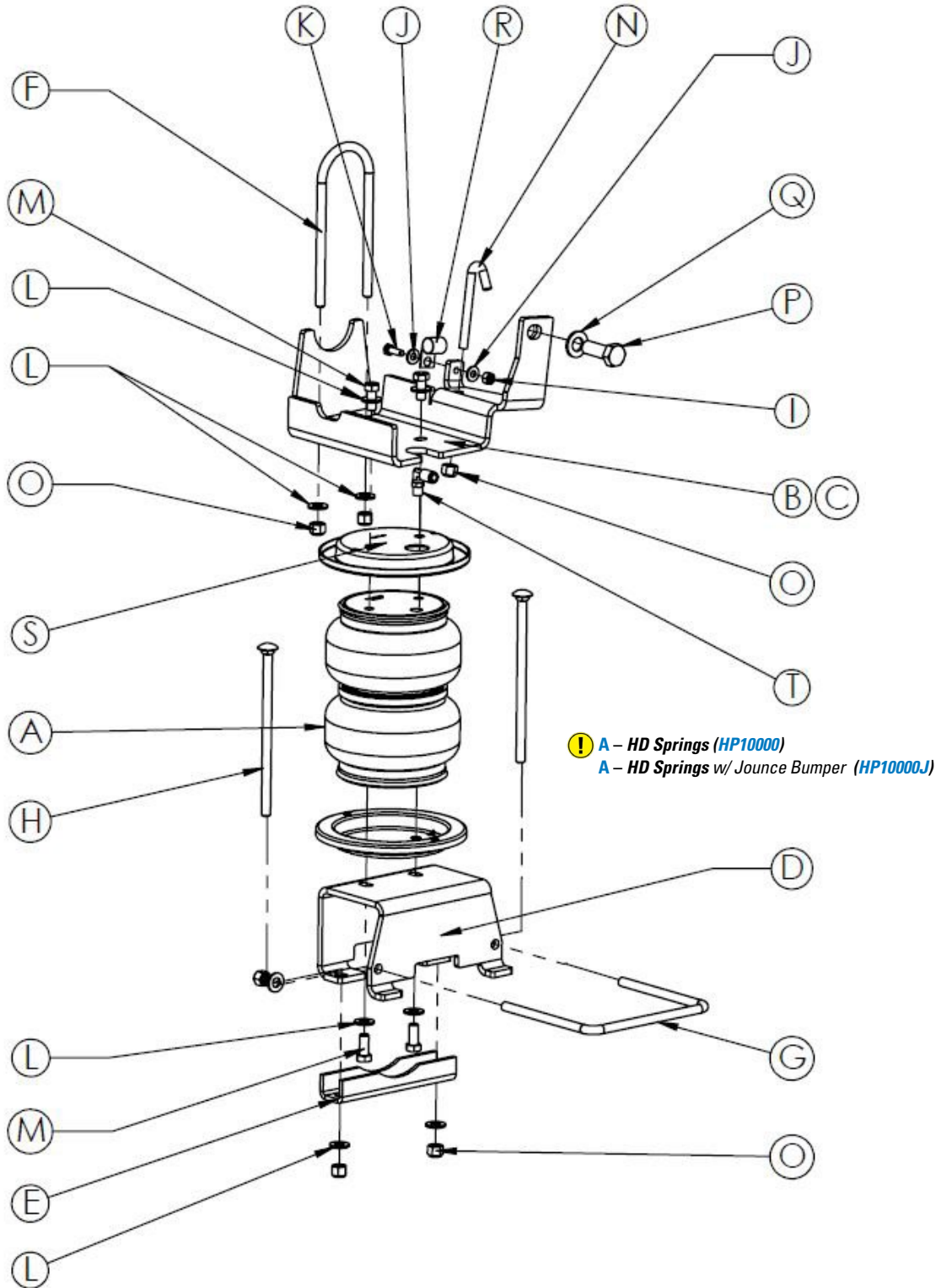


**REQUIRED TOOLS**

- 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)

**KIT EXPLOSION DIAGRAM**

**DRIVER SIDE ASSEMBLY SHOWN (Passenger side assembly is mirrored)**



## INSTALLATION INSTRUCTIONS

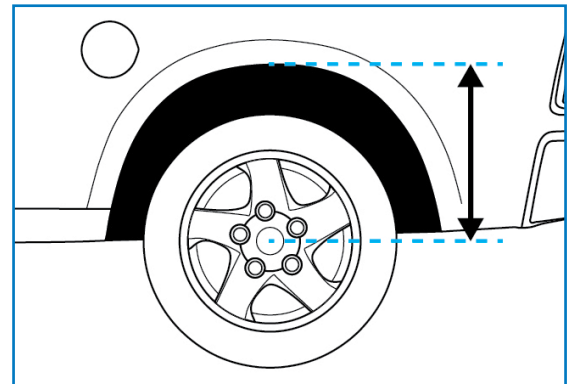
### 1 MEASURE STOCK RIDE HEIGHT & CLEARANCE

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.

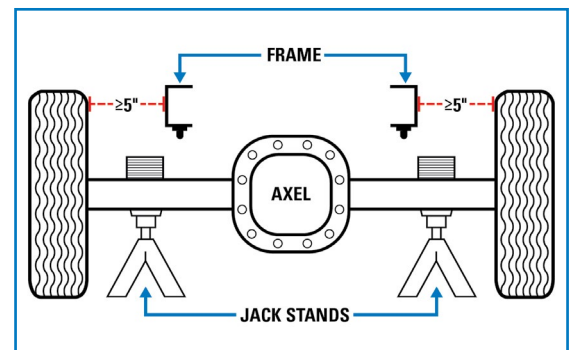
Place wheel chocks in front of and behind both front wheels.

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 DETACH WIRING HARNESS FROM FRAME

On frame rail from axle rearwards, gently pull out plastic clips securing wiring harness to frame rail on both sides (as shown with an arrow in Figure 3).



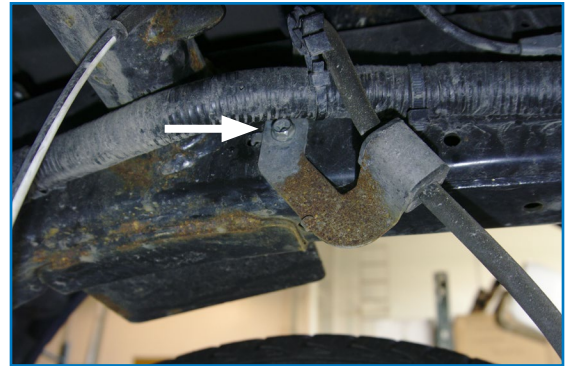
3



#### 4 DETACH VENT TUBE FROM FRAME

Unbolt bracket securing vent tube to frame (see Figure 4) and pull it away from frame.

Discard bolt as it will not be reused in this install.

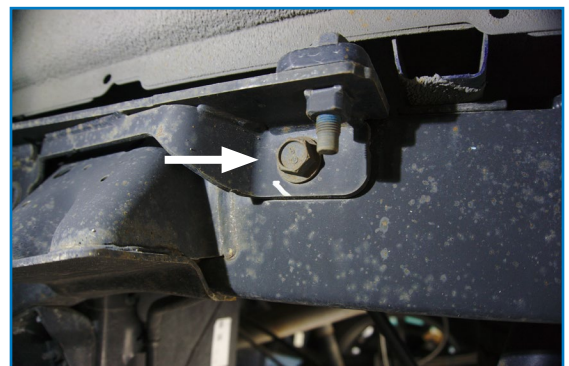


4

#### 5 REMOVE 5<sup>th</sup> WHEEL FRAME BOLT

Remove and discard rearmost bolt (19mm) securing 5<sup>th</sup> wheel hitch frame, located on the frame rail, behind jounce bumper strike plate (see Figure 5 for reference).

**+** *This bolt is held in place with blue thread locker, an impact wrench and/or penetrating oil may be necessary to remove it.*



5

#### 6 DETACH ABS WIRE FROM BRACKET

On the passenger side axle and upper round crossmember, remove the ABS wire from each bracket.

#### 7 BRAKE LINE ADJUSTMENT

Loosen (but do not remove) the bolt securing driver side rear brake line to rear axle bracket (shown with an arrow in Figure 7).

Rotate the brake line counter clockwise as far as possible.

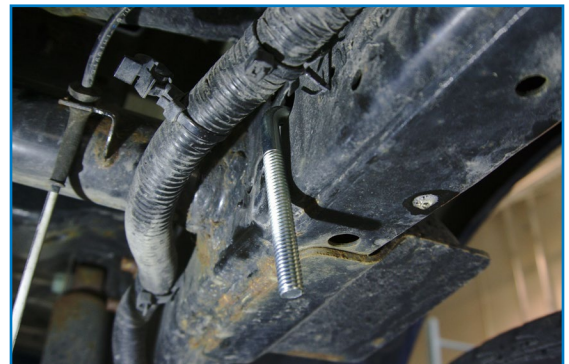
Retighten bolt (it will only rotate a small amount).



7

#### 8 J-BOLT INSTALLATION

Install J-bolt into large hole behind round crossmember, on inside of each frame rail. (See Figure 8)



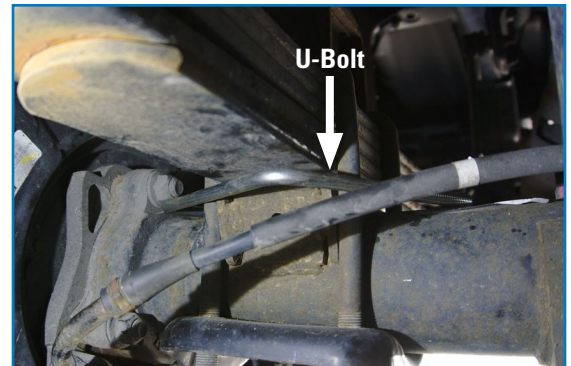
8

## 9 SQUARE U-BOLT INSTALLATION

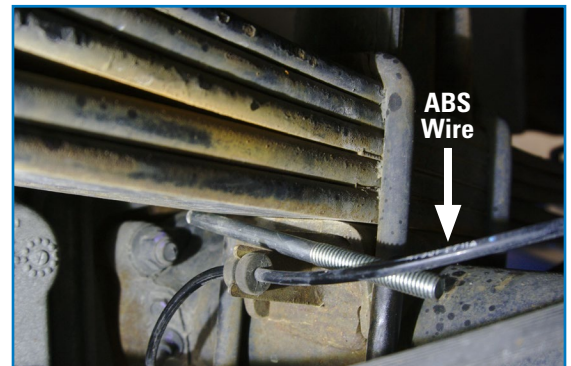
Insert square U-bolt around spring perch (as shown in Figure 9A), starting towards front of vehicle.

U-bolt will sit slightly above nuts on back of hub, squeeze and rotate U-bolt towards rear of vehicle until it snaps into place (as shown in Figure 9B).

Ensure U-bolt sits above ABS wire and below leaf spring.



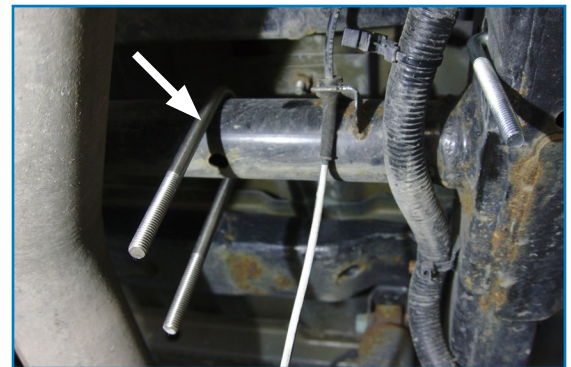
9A



9B

## 10 POSITION ROUND U-BOLT

Place the round U-bolt around the round crossmember, above the axle (both sides), ensuring the wiring does not get pinched (as shown in Figure 10).



10

## 11 ASSEMBLE AIR SPRINGS

Place a roll plate on top of each air spring, making sure each hole lines up.

Thread 90° air fitting into air spring finger tight, then tighten an additional one and half turns.

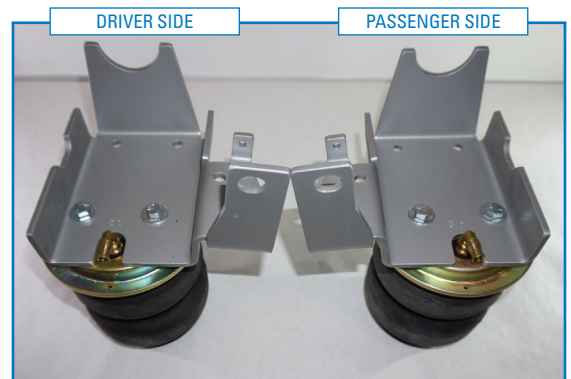
Using Figure 11A as reference, attach the upper brackets to the top of the air spring assembly in the orientation shown, using two 3/8"-24 x 7/8" hex head cap screws and two 3/8" flat washers for each bracket.

Torque to 27 N•m (20 ft-lbs).

Put both air springs on their sides and set remaining two roll plates on the bottom of the air springs, making sure each hole lines up correctly.

**!** *Ensure bent flanges of lower bracket face the same direction that the air fitting is offset relative to mounting bolts (see Figure 11B on following page for reference).*

Attach lower brackets using two 3/8"-24 x 7/8" hex head cap screws and two 3/8" flat washers per bracket. Hand tighten only.



11A



## 12 INSTALL ASSEMBLIES

Set air spring assemblies into position on axle, inboard of leaf spring (lower axle if necessary).

Raise axle slightly and while doing so, align J-bolts and round U-bolts with holes in upper brackets.

**!** **PASSENGER SIDE ONLY** - Ensure the ABS wire does not get pinched or stretched (see Figure 12A).

Apply blue thread locker to M14 - 1.5mm x 40 mm hex head cap screws (19mm) and install through upper bracket and existing 5th wheel brace into frame along with M14 flat washers (shown in Figure 12B).

Install 3/8" -16 Nyloc nuts and 3/8" flat washers onto J-bolts and U-bolts (see Figure 12C for reference).

Hand-tighten M14 bolt.

Torque 3/8" U-bolts and J-bolts to 20 N•m (15 ft-lbs) in an even pattern.

Torque M14 bolt to 104 N•m (77 ft-lbs).

Secure lower bracket to already installed square U-bolt with two 3/8" Nyloc nuts and 3/8" flat washers per side.

Install two 3/8" -16 x 5" carriage bolts in lower bracket and place an axle strap under axle (see Figure 12C). Secure with two 3/8" Nyloc nuts and 3/8" flat washers, but do not tighten.

Press lower bracket against leaf springs. Ensure tabs of lower bracket sit against outside of leaf spring U-bolts. Hand tighten spring perch square U-bolt evenly.

Tighten axle strap evenly, torque to 20 N•m (15 ft-lbs).

Torque spring perch square U-bolt to 20 N•m (15 ft-lbs).

Align air spring bellows.

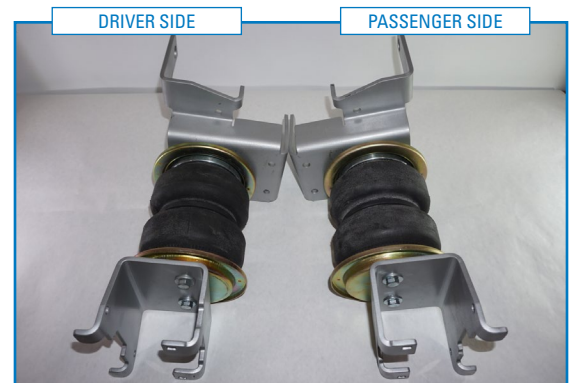
Torque lower air spring hardware to 27 N•m (20 ft-lbs).

## 13 DRIVER SIDE WIRING HARNESS

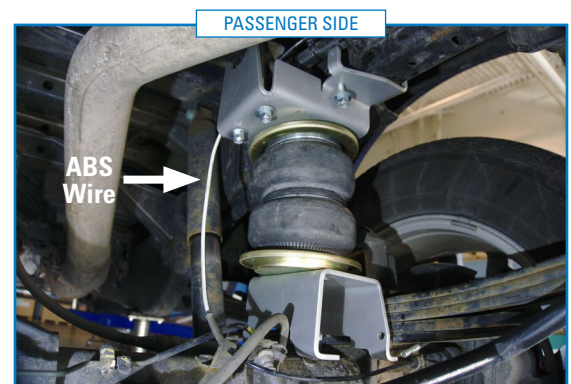
Install cable clamp around the driver side wiring harness, facing frame rail.

Bolt to upper bracket with 1/4" -20 bolt, two 1/4" flat washers and 1/4" Nyloc nut.

Tighten to 11 N•m (8 ft-lbs).



11B



12A



12B



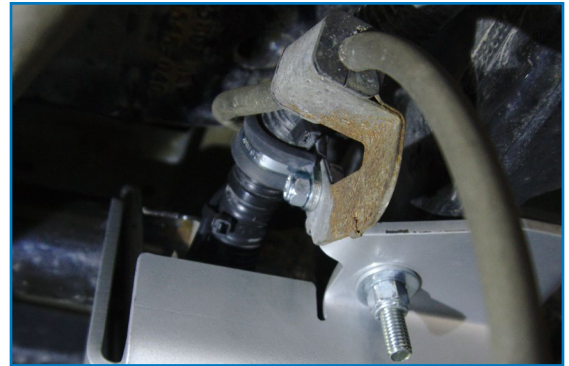
12C



#### 14 PASSENGER WIRING HARNESS, VENT TUBE

Install cable clamp around passenger side wiring harness and ABS wire (as shown in Figure 14).

Bolt cable clamp and vent tube bracket to upper bracket with  $\frac{1}{4}$ "-20 bolt, two  $\frac{1}{4}$ " flat washers and  $\frac{1}{4}$ " Nyloc nut and tighten.



14

#### 15 SECURE ABS WIRES

Attach ABS wire on passenger side (removed from bracket in Step 6) with a tie strap to vent tube (see Figure 15).

**Repeat for driver side ABS wire.**



15

#### 16 E-BRAKE BRACKET ADJUSTMENT

Locate emergency brake line brackets on axle (on both the driver and passenger side) and bend them forward slightly so the emergency brake line is not touching the lower bracket of the air spring assemblies.

#### 17 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 on passenger side using two ring clamps (shown in Figure 17).

Each hose clamp holds a tab against exhaust pipe.



17

## 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.

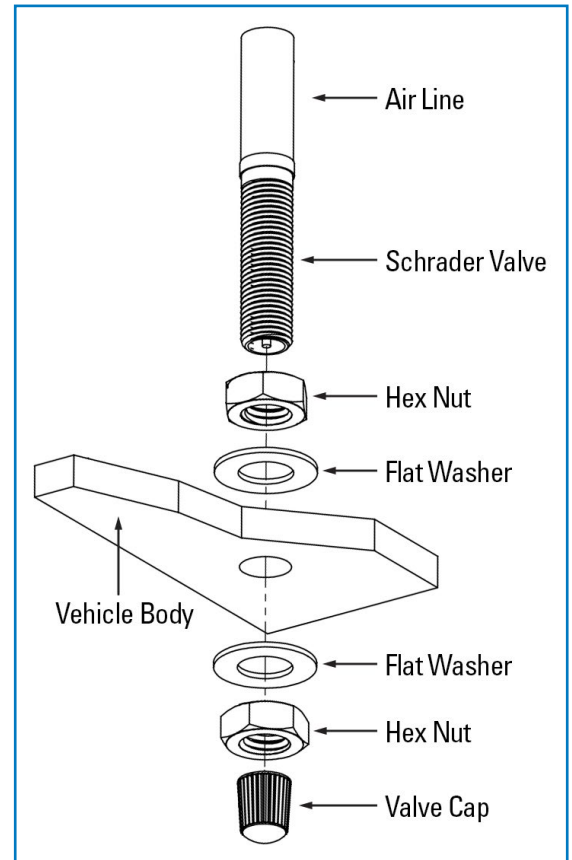
## CHECK SYSTEM FOR LEAKS

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).

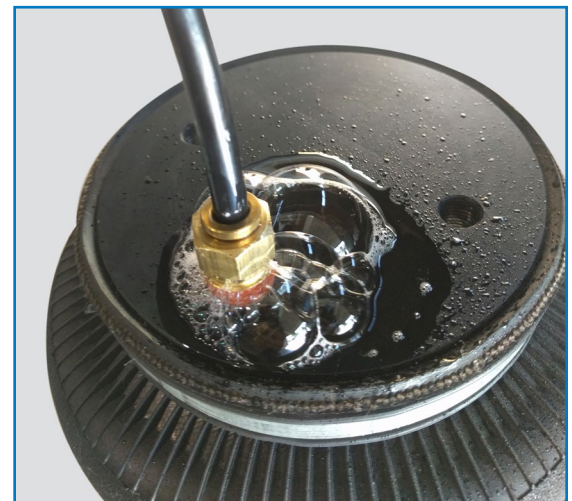
**Repair as necessary and retest.**

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.**