

Installation Manual



10402 KIT

FORD F-150 (2WD~/4WD)†*

~ 10152 2" SPACER KIT REQUIRED

† WILL NOT fit Raptor models

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.

L6539_REV3_04.14.2021_ECN1-2451



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*

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.**

Safety Warning!

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.

Safety Warning!

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.

Safety Warning!

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.

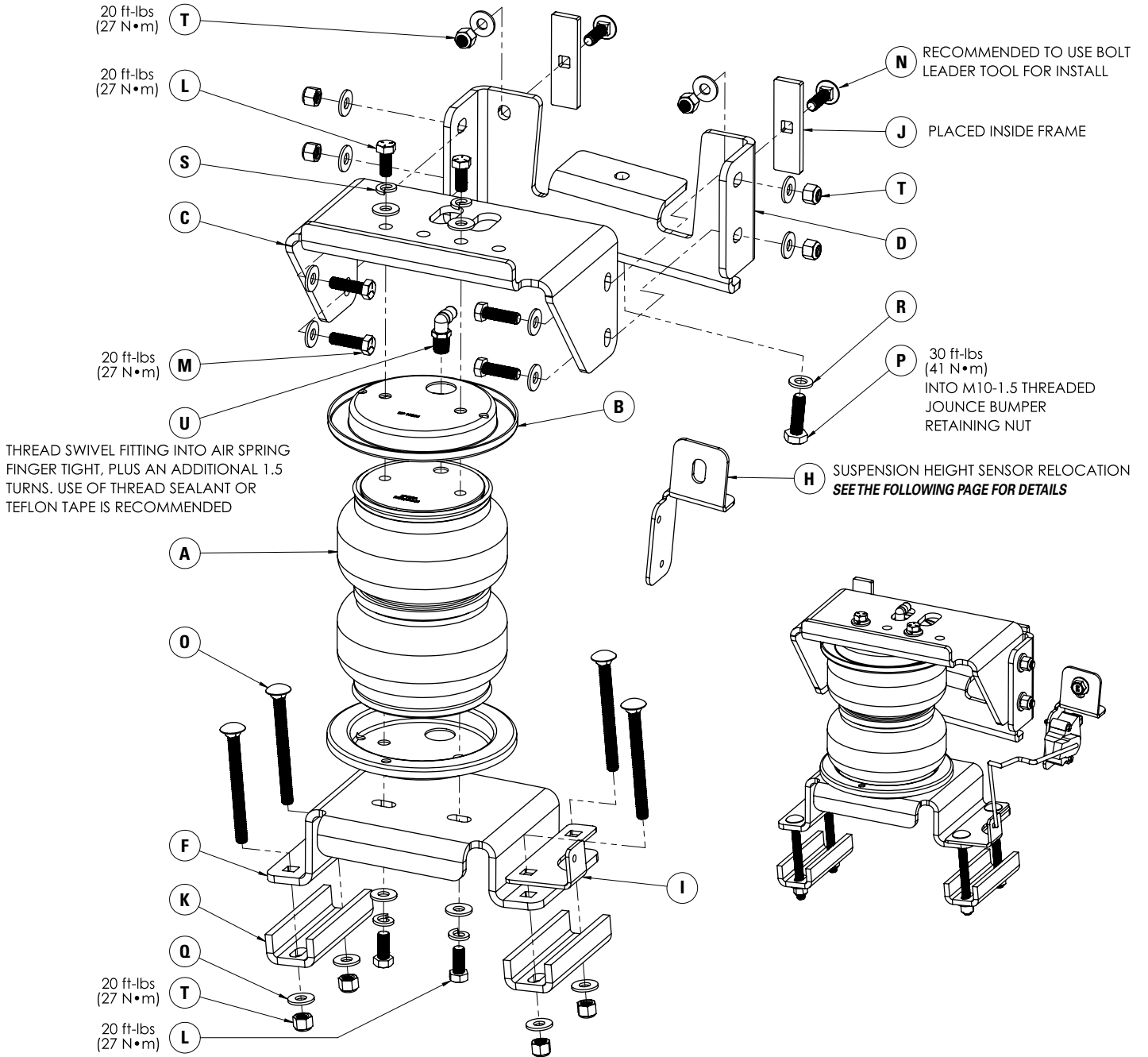
KIT CONTENTS

Reference the kit explosion diagram on the following page for part assembly.

KIT CONTENTS			QTY	PART #	REQUIRED TOOLS	
A	Air Bag	2	HP10000	<ul style="list-style-type: none"> • Hoist or Floor Jack • Safety Stands • Safety Glasses • Torque Wrench • Standard Combination Wrenches • 7/32" Hex Allen Wrench • 1-1/8" Wrench or Deep Socket • 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) • Bolt Leader Tool 		
B	Roll Plate	4	HP10054			
C	Bracket, Upper Air Spring	2	HP1750			
D	Bracket, Driver Frame	1	HP1751			
E	Bracket, Passenger Frame	1	HP1752			
F	Bracket, Driver Lower	1	HP1753			
G	Bracket, Passenger Lower	1	HP1754			
H	Bracket, Sensor Relocation Upper	1	HP1758			
I	Bracket, Sensor Relocation Lower	1	HP1759			
J	Carriage Bolt Plate	4	HP0123			
K	Leaf Spring Clamp	4	HP1623			
L	Bolt, 3/8" - 24 X 7/8" Hex Head	8	HP1002			
M	Bolt, 3/8" - 16 X 1.25" Hex Head	8	C10464			
N	Bolt, 3/8" - 16 X 1.25" Carriage	4	HP1149			
O	Bolt, 3/8" - 16 X 4" Carriage	8	HP1728			
P	Bolt, M10 X 1.5 X 35mm Hex Head	2	HP1134			
Q	Washer, 3/8" Flat	36	C18006			
R	Washer, M10 Flat	2	HP1573			
S	Washer, 3/8" Split Lock	8	C18007			
T	Nut, 3/8" Nylon Lock	20	HP1000			
U	90° Swivel Fitting	2	HP1100			

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

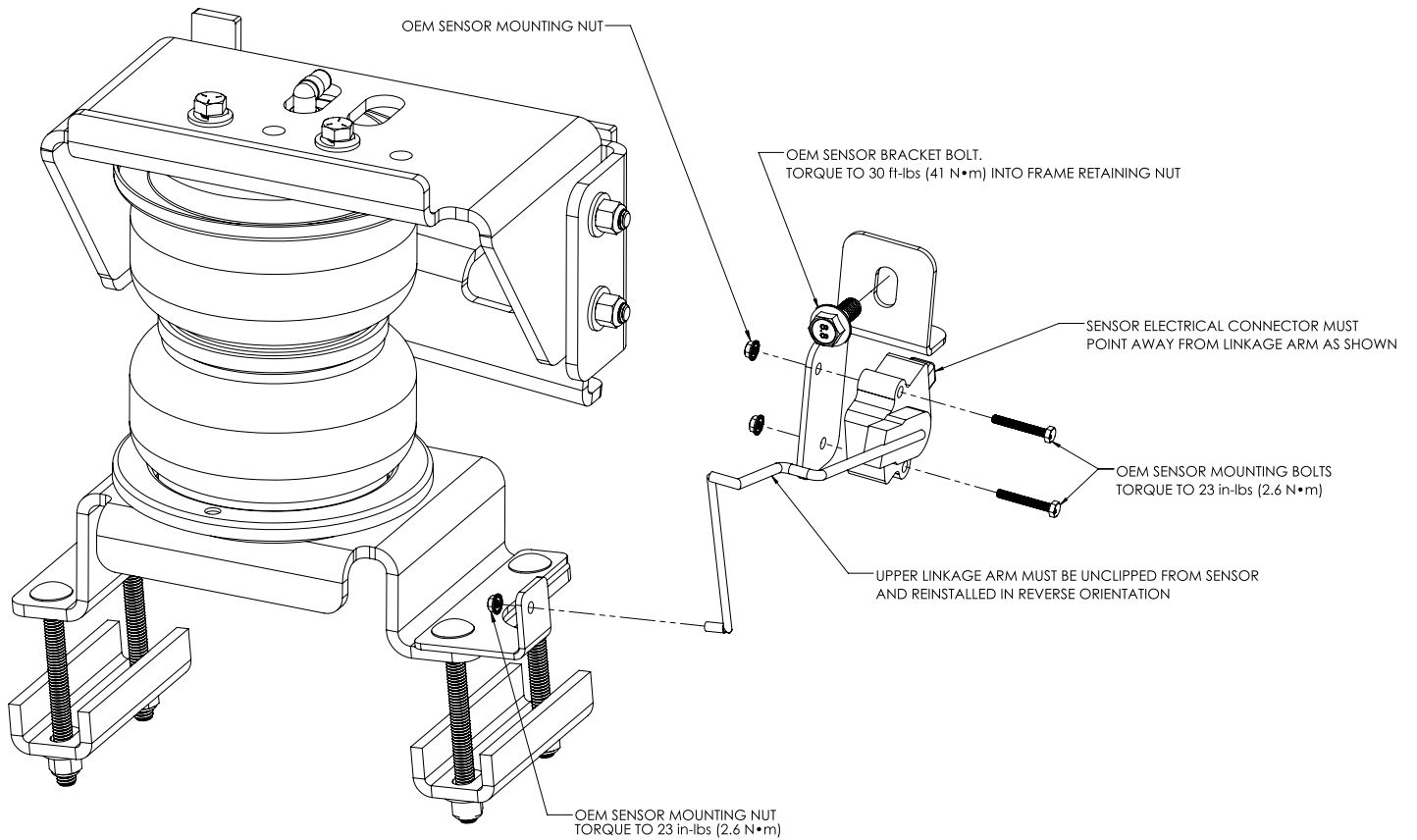
DRIVER SIDE ASSEMBLY SHOWN:



RIDE HEIGHT SENSOR ASSEMBLY SHOWN: (FOR VEHICLES WITH RIDE HEIGHT SENSOR ONLY)

Models equipped with rear suspension height sensors require sensor relocation using relocation brackets listed in the kit contents on page 2. **Relocation brackets are not to be installed if vehicle is not equipped with sensor**

! PLEASE NOTE: Do not operate vehicle with sensor in relocated position with air springs removed. Sensors may be damaged under extreme suspension articulation.



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:

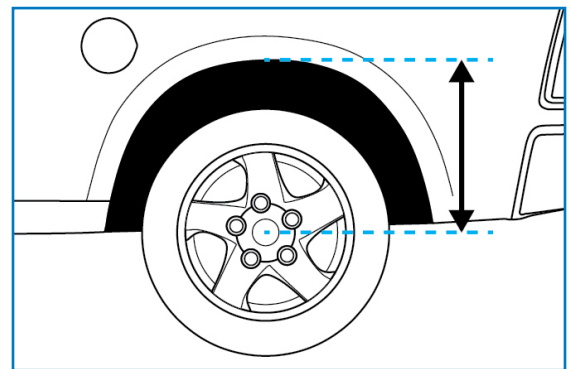
This kit contains push-to-connect fittings; using scissors or wire cutters to cut the nylon airline will distort the line and cause the connection to leak. THE AIRLINE MUST BE CUT OFF SQUARELY WITH THE NYLON HOSE CUTTER PROVIDED IN THIS KIT OR A SHARP UTILITY KNIFE.

1 MEASURE STOCK RIDE HEIGHT

Park the vehicle on a level surface.

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.



2

3 RIDE HEIGHT SENSOR REMOVAL (IF VEHICLE HAS RIDE HEIGHT SENSOR)

Remove Ride Height Sensor (use Figure 3A for reference):

Disconnect the electrical harness connector from the ride height sensor. Remove the two factory bolts and two nuts holding the ride height sensor to the factory upper bracket (as shown in Figure 3A).

Remove the factory nut securing the lower linkage to the lower factory bracket (see Figure 3A).

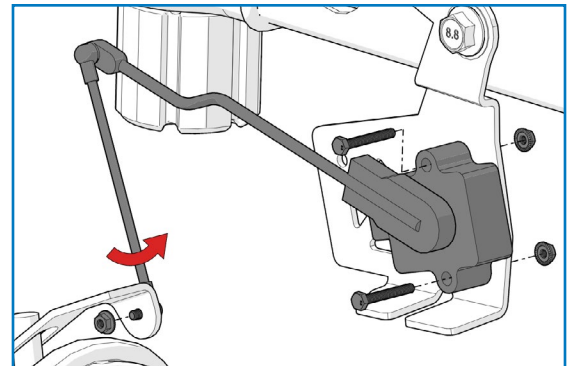
Retain these parts.

Remove Upper & Lower OEM Brackets (use Figure 3B for reference):

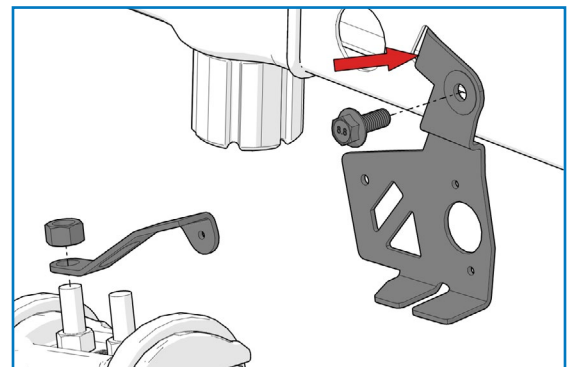
Remove the factory bolt securing factory upper bracket to the frame. Retain this bolt.

Remove upper bracket from square hole (indicated by arrow) and remove from vehicle. **Do NOT remove the bracket retaining nut from the frame.** This will be used during sensor relocation bracket installation

Remove factory nut securing factory lower bracket to leaf spring pack and remove factory lower bracket.



3A



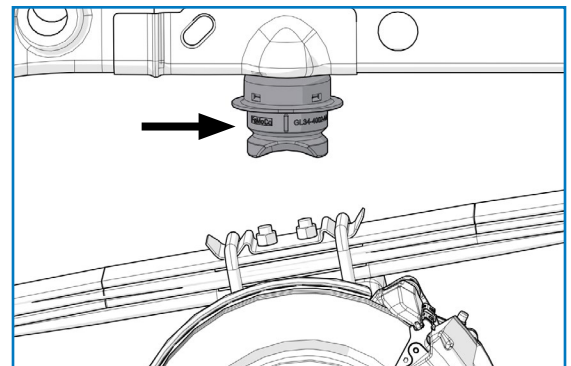
3B

4 REMOVE THE JOUNCE BUMPER

The jounce bumper assembly (as shown with an arrow in Figure 4) consists of a cup and a bumper.

It is bolted to the frame with a single bolt running through the center of the jounce bumper.

Remove the bolt holding the jounce bumper to the frame with a 13mm socket. A socket extension may be required to reach the bolt.



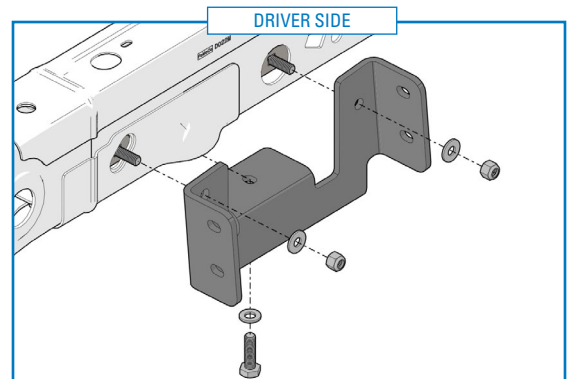
4

5 ATTACH THE UPPER BRACKET TO THE FRAME

Assemble the upper bracket (as shown in Figure 5A).

Place the upper frame bracket on the frame rail and position by inserting the M10 x 1.5 x 35mm bolt with M10 flat washer through the locating hole in the bottom of the bracket into the jounce bumper bolt hole.

Ensure vertical flanges rest flat against frame and torque to 30 ft-lbs (41 N-m).



5A

Step continues on following page...

Insert a 3/8" – 16 x 1.25" carriage bolt through a carriage bolt locking bracket.

Insert the bolt and bracket combination through the oval hole on the rear side of the frame and align with the mounting holes. Use provided bolt leader tool to pull the bolt and bracket combination through the frame.

Secure the bracket to the frame using two 3/8" – 16 nylock nuts and two 3/8" flat washers. Torque the nylock nuts to 20 ft-lbs (27 N-m).

A correctly attached bracket should appear as shown in Figure 5B.

Repeat on opposite side

6 ASSEMBLE THE AIR SPRINGS AND BRACKETS

Using Figure 6 as an assembly reference; set the roll plate over the bottom of the air spring.

Set the lower spring bracket onto the air spring ensuring that the holes in the air spring, roll plate and lower bracket all line up.

Fasten the assembly together using two 3/8" – 24 x 7/8" hex cap bolt, two 3/8" lock washers and two 3/8" flat washers.

Torque the mounting hardware to 20 ft-lbs (27 N-m).

Turn the assembly over and set the roll plate over the top of the air spring.

Fasten the swivel fitting into the top of the air spring. It is recommended to use Teflon tape or some form of thread sealant to prevent air leaks.

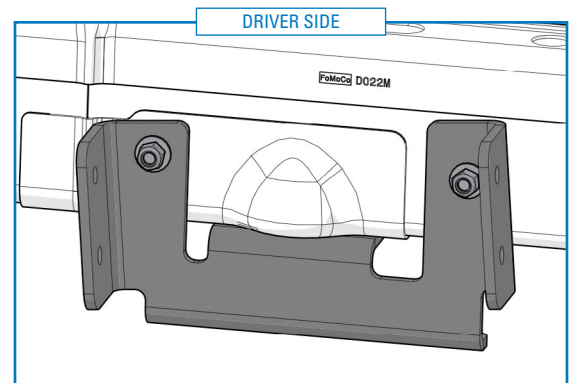
Finger tighten the swivel fitting and turn an extra 1.5 turns to tighten.

Set the upper airbag bracket onto the air spring ensuring that the holes in the air spring, roll plate and bracket all line up.

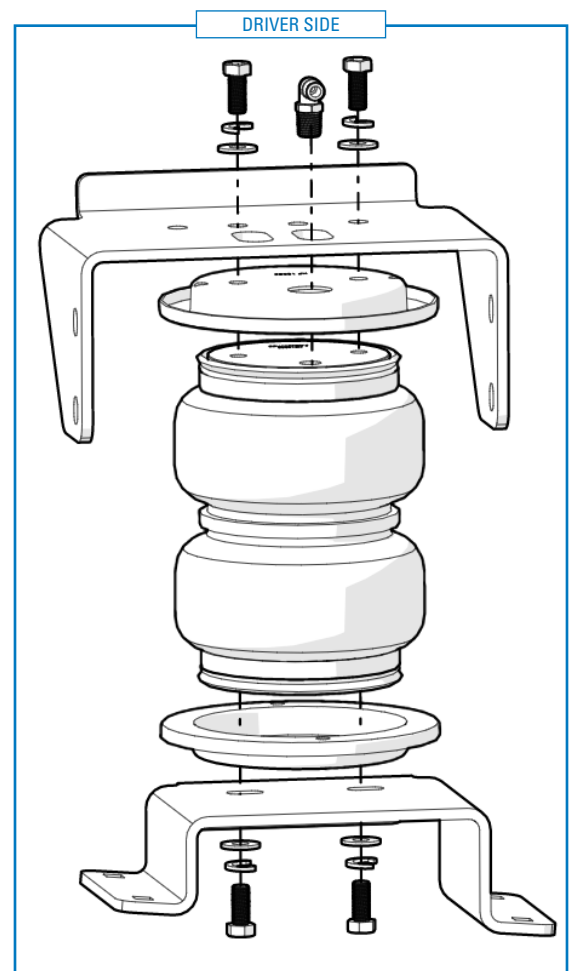
Fasten the assembly together using two 3/8" – 24 x 7/8" hex cap bolt, two 3/8" lock washers and two 3/8" flat washers.

Torque the mounting hardware to 20 ft-lbs (27 N-m).

Repeat for the other air spring.



5B



6

7 INSTALL THE AIR SPRING ASSEMBLIES

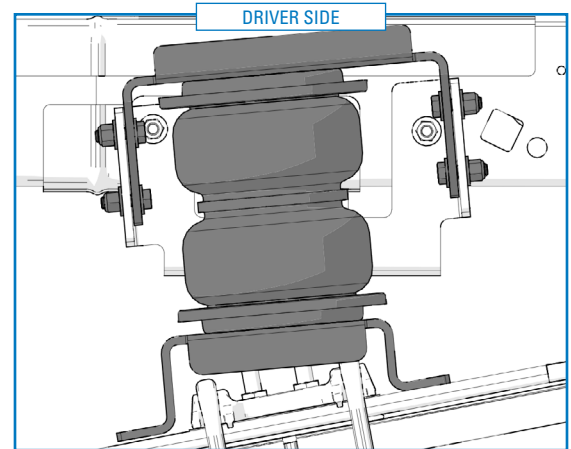
Note: It may be necessary to raise the frame of the truck a few inches to allow more clearance to install the air spring assemblies.

Place the air spring assembly onto the truck with the lower bracket sitting on the leaf spring and the upper airbag bracket between the extended arms of the upper frame bracket (shown in Figure 7).

Attach the upper airbag bracket to the upper frame bracket using four 3/8" – 16 x 1.25" hex bolts, eight 3/8" flat washers and four 3/8" – 16 nylock nuts.

Torque the mounting hardware to 20 ft-lbs (27 N-m).

Repeat for the opposite side. **PLEASE NOTE:** Passenger side assembly uses alternate holes in the upper bracket



7

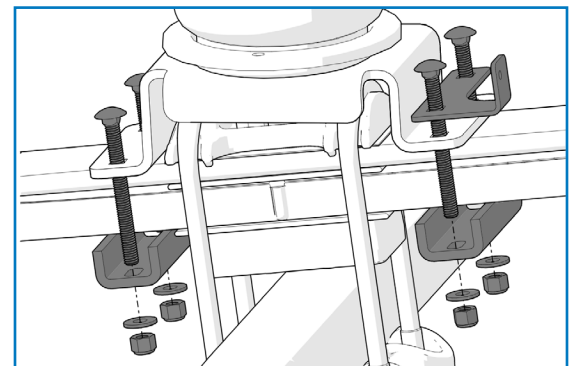
8 LOWER BRACKET FOR RIDE HEIGHT SENSOR

Attach lower brackets to leaf springs (with sensor)
(use Figure 8 for reference):

Insert lower sensor bracket atop lower bracket as shown.

Insert two 3/8" – 16 x 4" carriage bolts through these, as well as two carriage bolts on the other side of the air spring lower bracket.

Secure using two leaf spring clamp bars, four 3/8" – 16 nylon lock nuts and four 3/8" flat washers.



8

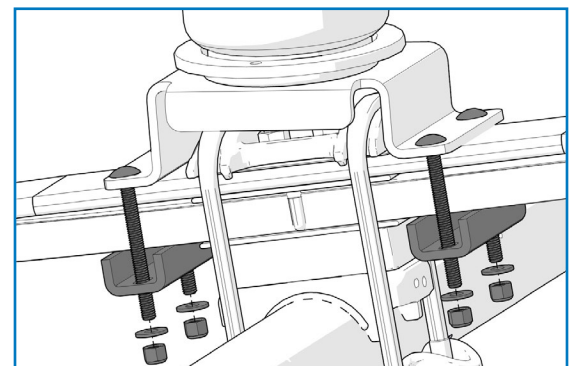
9 LOWER BRACKET WITHOUT RIDE HEIGHT SENSOR

Insert four 3/8" – 16 x 4" carriage bolts into the mounting holes in the lower bracket (as shown in Figure 9).

Clamp the lower bracket to the leaf spring using two leaf spring clamp bars. Secure using four 3/8" – 16 nylon locknuts and four 3/8" flat washers.

Torque the locknuts to 20 ft-lbs (27 N-m).

Repeat on opposite side



9

10 RIDE HEIGHT SENSOR REINSTALL
(IF VEHICLE HAS RIDE HEIGHT SENSOR)

Install Sensor Upper Bracket (use Figure 10A for reference):

Place upper sensor bracket onto frame, ensuring that the base of the flange is level with the bottom of the frame (shown by arrow).

Secure using factory bolt, into the hole it previously occupied.

Pull Linkage Out (use Figure 10B for reference):

Use a flat head screwdriver to ease apart tabs holding upper link in place, indicated by the small arrows in the image.

While these are pushed apart, the upper link can be pulled out of the ride height sensor as shown.

Flip Linkage And Reinstall (use Figure 10C for reference):

Flip linkage assembly 180°, then insert back into ride height sensor.

Push to ensure that upper link is locked into place (tab mechanism)

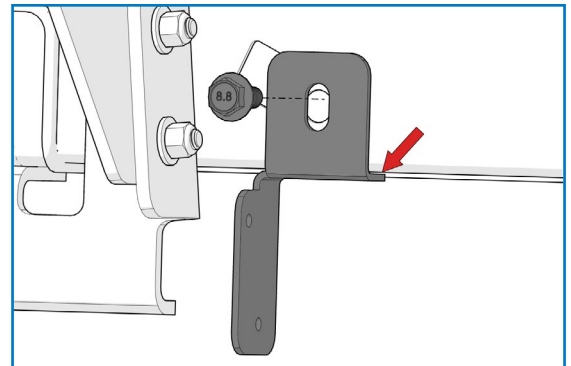
Install Sensor (use Figure 10D for reference):

Install sensor utilizing the factory components that were previously removed.

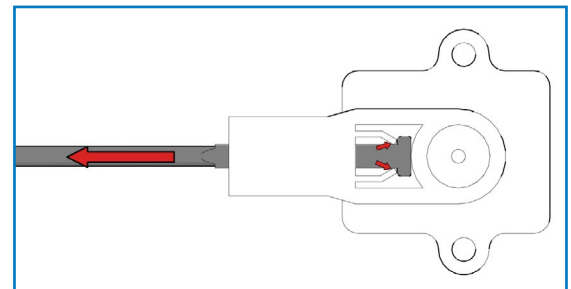
Insert the two factory bolts through the sensor into the upper bracket, ensuring that the connector (indicated by arrow) points away from the linkage arm.

Secure with the two factory nuts. Use the third factory nut to secure the lower linkage to the lower bracket as shown.

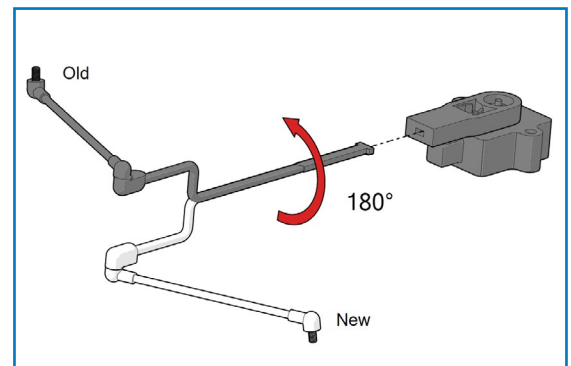
Reconnect the factory harness electrical connector to the sensor. Ensure connector fully latches upon installation.



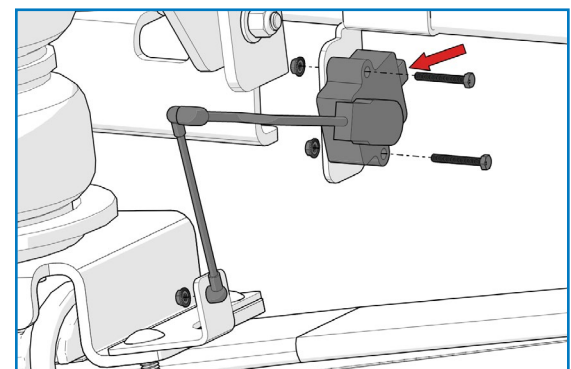
10A



10B



10C



10D

11 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 5/16" holes can be drilled in a convenient location.

Step continues on following page...

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 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 11 for assembly).

There should be enough valve exposed after installation—approximately 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.

12 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 12). 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.

13 AFTER COMPLETING THE INSTALLATION

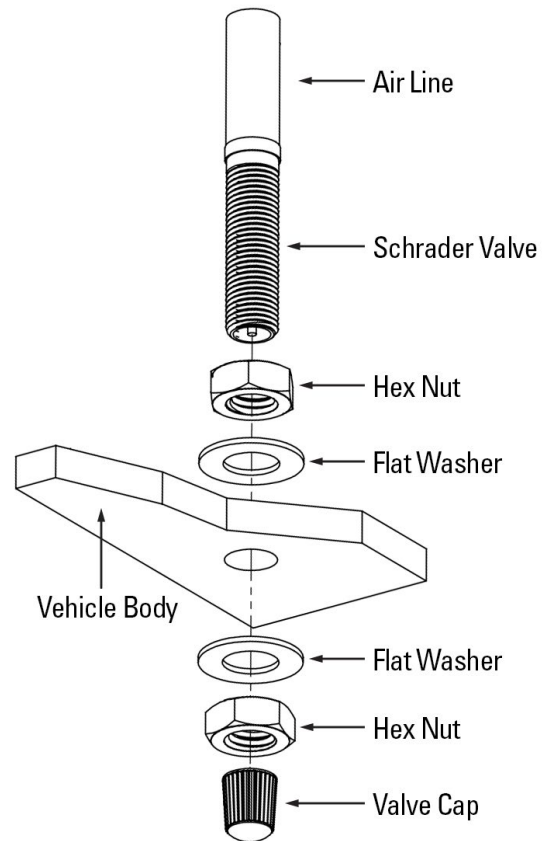
PLEASE REMEMBER:

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 (see **Note** below).

NOTE: 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.



11



12

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

To be eligible for warranty, the owner must submit their warranty card or register online within 30 days of the purchase date.

NOTE: The owner's warranty will be void if air springs are run with less than the minimum of 10 psi.

