

Installation Manual

PACBRAKE®



HP10304 KIT

Ford F250/F350/F450 SUPERDUTY 4WD

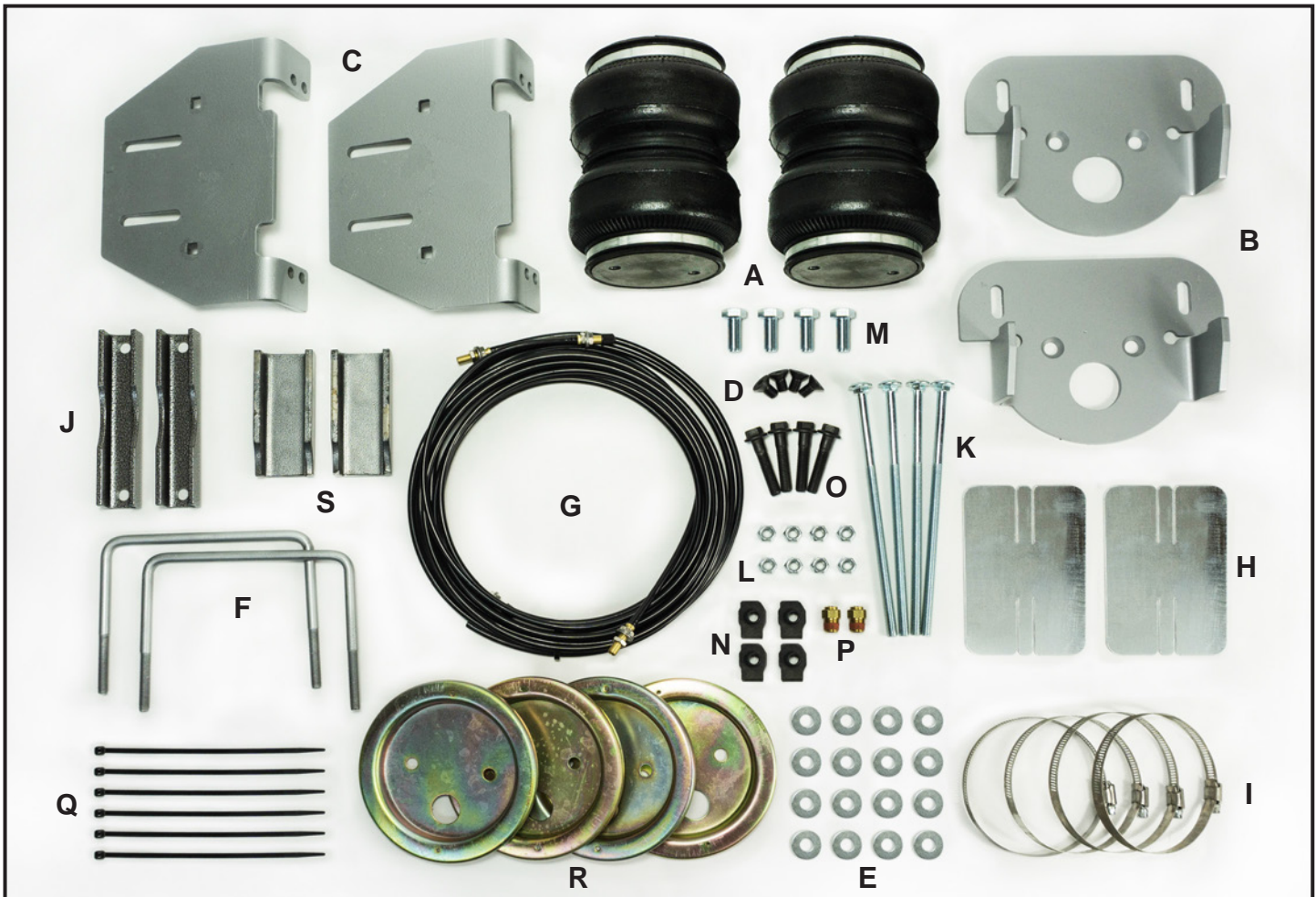
* See application guide for proper fitment.

(With or Without 5th Wheel Hitch)
(Single & Dual Rear Wheels)

Use the strongest air springs on the market to eliminate your vehicle's sag, sway and bottoming out. Pacbrake air suspension levels your truck's stance while providing added support for an overall smoother, safer ride.



KIT CONTENT



KIT CONTENTS

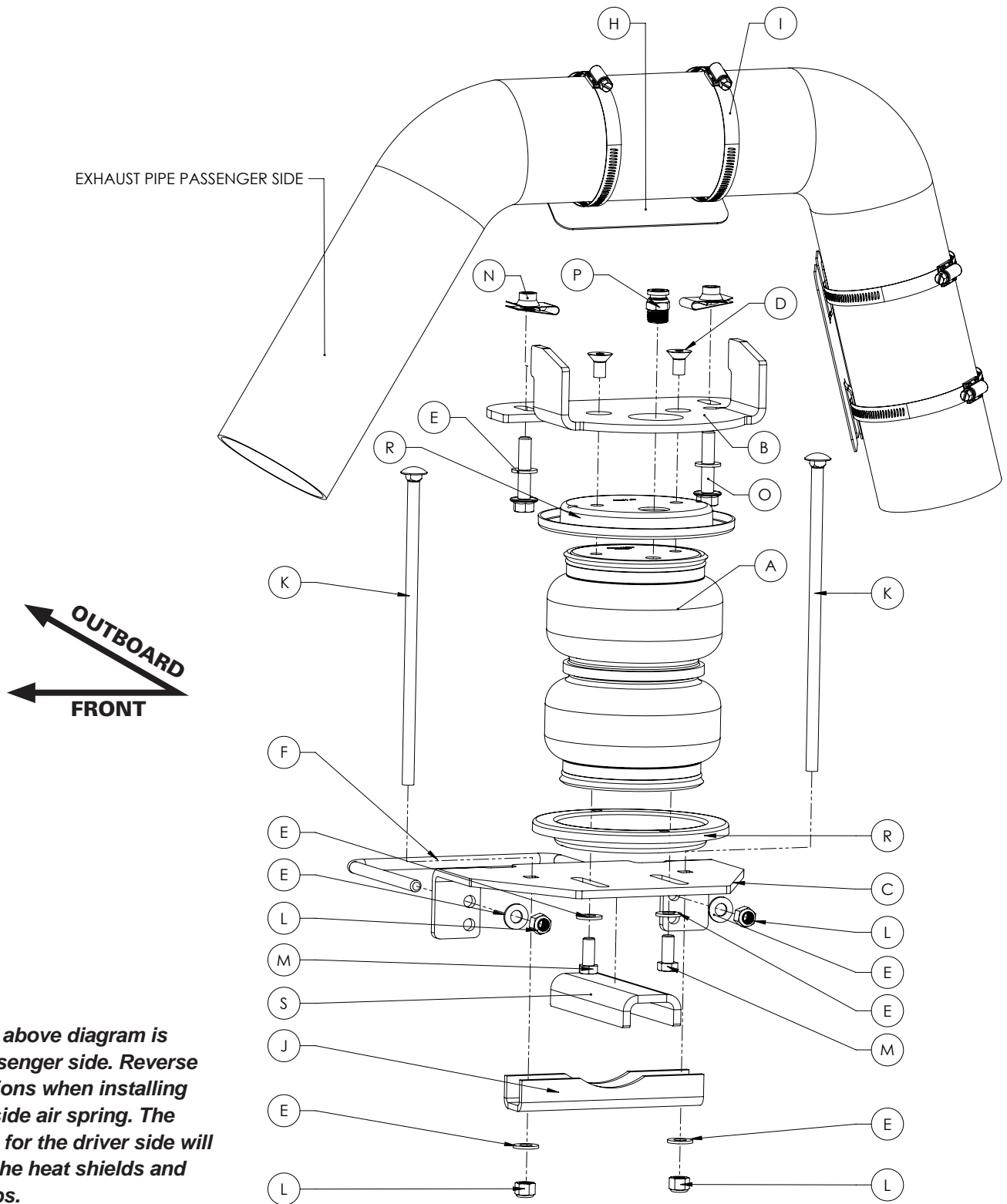
A	Air Spring	2	HP10000
B	Upper Bracket	2	HP1485
C	Lower Bracket	2	HP1484
D	3/8" - 24 X 7/8" Flat Head Socket Cap Screw	4	HP1008
E	3/8" Washer	16	C18006
F	U Bolt	2	HP1486
G	Airline Hose Assembly	2	HP1344
H	Heat Shield	2	HP0012
I	Worm Gear Ring Clamp	4	HP1001
J	Axle Strap	2	HP1383
K	3/8" - 16 X 10 Carriage bolts	4	HP1329
L	3/8" - 16 Nyloc Nut	8	HP1000
M	3/8" - 24 X 7/8" Hex Cap Screw	4	HP1002
N	Speed Nut	4	HP1421
O	M10 X 1.5 X 50 Hex Head Flange Cap Screw	4	C11846
P	Fitting, Brass, Push	2	HP1099
Q	Tywrap	6	C11618
R	Roll Plate	4	HP10054
S	Lower Bracket Support	2	HP1490

REQUIRED TOOLS

- Required Tools
- Hoist or floor jacks
- Safety stands
- Safety Glasses
- Torque wrench
- Standard open-end combo wrenches
- Ratchet
- Metric and standard sockets
- 7/32" Allen wrench (socket if available)
- 1/16" Drill bit (very sharp)
- Drill
- Hose cutter. Razor blade or sharp knife
- Air compressor or compressed air source
- Spray bottle with dish soap/water solution

Make sure all the items shown in the photo are provided in your kit before starting the installation.

KIT CONTENTS



Thank you and congratulations on the purchase of an AMP air suspension kit. Please read the entire installation manual prior to starting the installation to ensure you can complete the installation once started.

IMPORTANT:

This air suspension kit will not increase the GVWR (Gross Vehicle Weight Rating), as the GVWR is determined by the axle rating. Do not exceed the maximum capacity listed by the vehicle manufacturer.

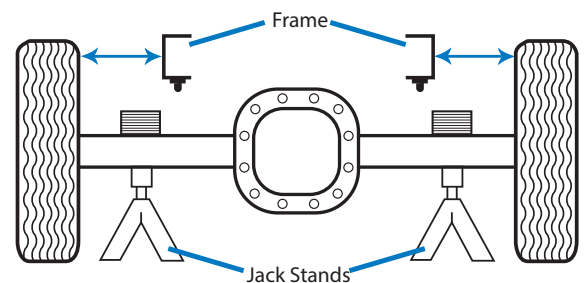
BEFORE YOU START:

NOTE: 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.

1. Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
2. Pacbrake recommends using 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

1 RAISE THE REAR AXLE:

- Remove any unnecessary weight from the vehicle to attain normal ride height. This is important for correct initial air spring setup and adjustment.
- Park the vehicle on a level surface.
- Record the vehicle's normal ride height, which is the distance between the center of the axle and the horizontal wheel well flange. Ensure both sides are the same before raising the vehicle.
- Raise the rear axle high enough to remove both rear wheels and attain a comfortable working height.
- Place two jack stands under the axle, as shown in figure 1A
- Lower the floor jack until the vehicle axle is supported by the jack stands.
- Ensure the normal ride height measurement recorded earlier is the same. Adjust if necessary before proceeding.
- Once the rear axle is raised correctly, remove the rear wheels.



1A

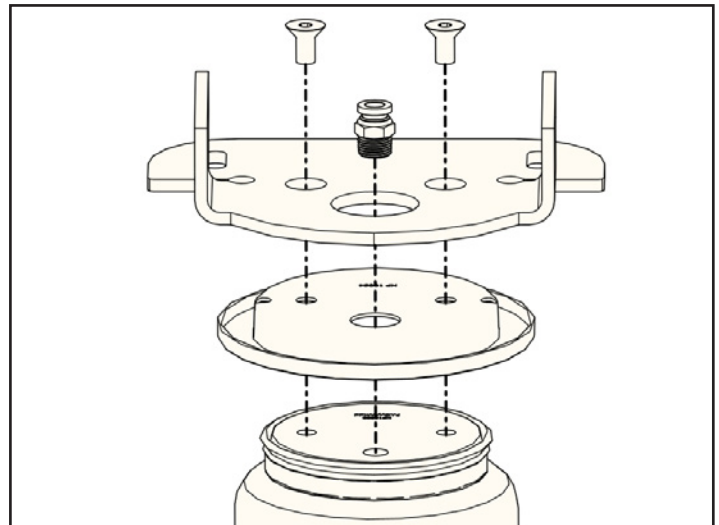
2 ASSEMBLING THE AIR SPRING:

CAUTION: Never back off an installed NPT air fitting. Loosening the fitting will corrupt the seal and contribute leakage and failure.

- Install the NPT air fitting into the port on top of the air spring. Finger tighten, plus 1 ½ - 3 turns.
- Set the upper bracket (B) and roll plate (R) on top of the air spring, and install two 3/8" – 24 X 7/8" flat head socket cap screw (E) through the upper bracket, roll plate and into the aluminum end cap on top of the air spring. Torque to 20 ft-lb (27 N•m).



2A



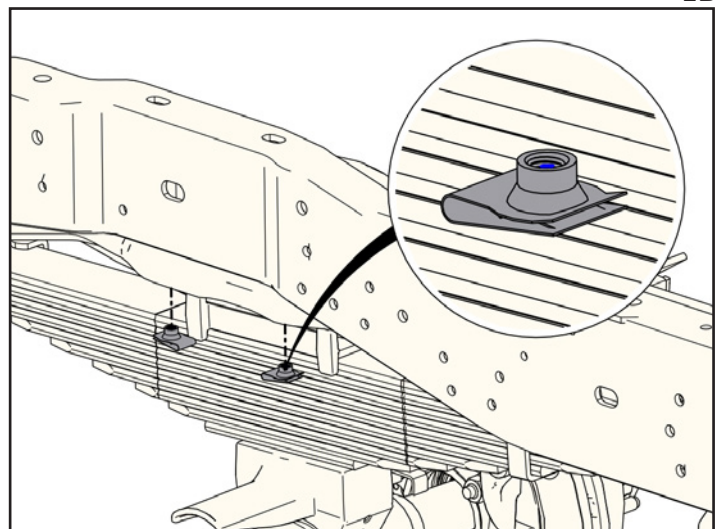
2B

3 REMOVE JOUNCE BUMPER:

- Unbolt and remove the jounce bumper assembly from under the frame on both sides

NOTE: It may be necessary to use an impact tool to remove the nuts.

- Remove the OE bolts and retainer clips that attached the jounce bumper plate to the frame. Using the provided speed nuts install the retaining clip speed nut with the thread side towards the inside of the frame as illustrated in (see figure 3A).

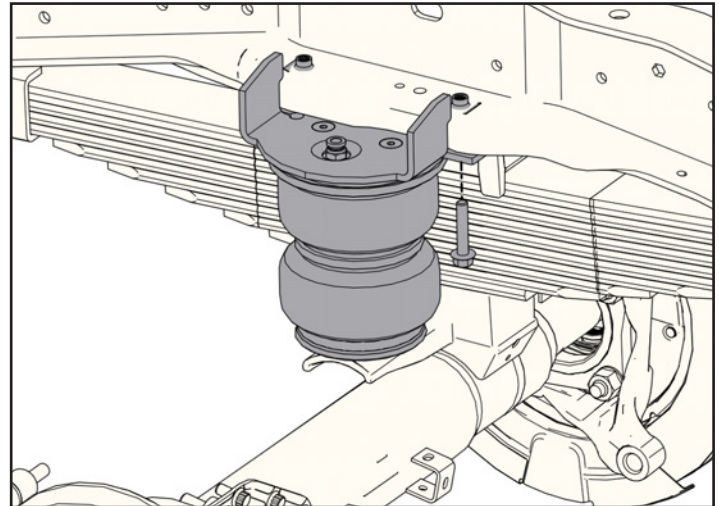


3A

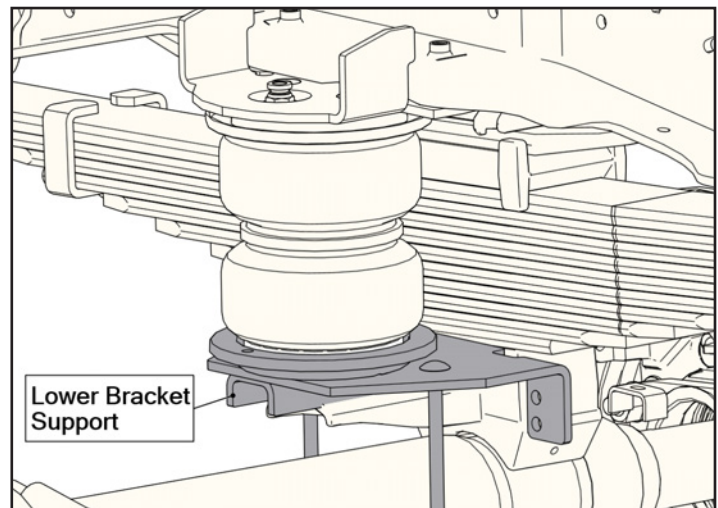
4 INSTALLING THE AIR SPRING ASSEMBLIES

- With the vehicle being supported by jack stands, drop the axle or raise the body so that the air spring assemblies can be put into position in between the axle and the frame.
- Set both left and right side air spring assemblies into position, as shown in figure 4A.
- Secure the upper bracket to the frame by installing two M10 x 1.5 x 50mm flanged cap screws through the upper bracket and into the speed nuts that were installed. Finger tighten the screws to allow for air spring adjustment.
- Slide the roll plate, lower bracket support and carriage bolts underneath the air spring as shown in figure 4B.
- Allow the lower bracket support to sit on the jounce bumper strike plate. Push the lower bracket outboard so that it sits flush against the leaf spring stack. The flanges on the lower bracket main plate should slide into position on the sides of the leaf spring U-bolts.

NOTE: On the drivers side, the carriage bolt in the lower bracket should be located between the hard brake line and the axle. On the passenger side, the carriage bolt should be located on the backside of the brake line. Adjust the brake lines if necessary, so that nothing is touching it.



4A



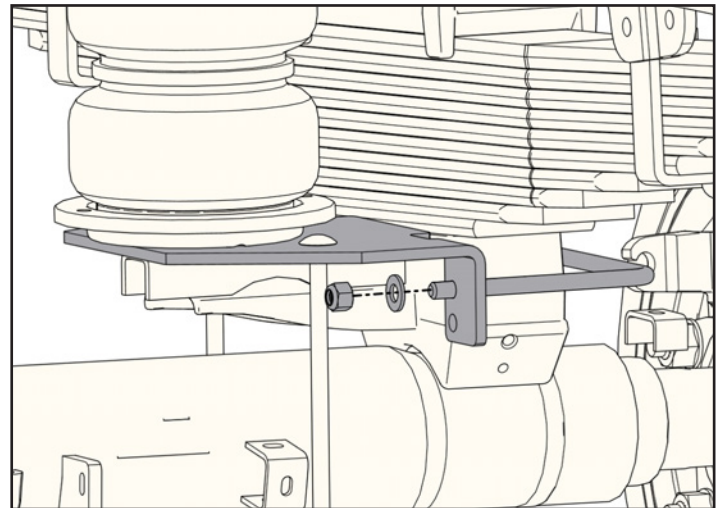
4B

4 INSTALLING THE AIR SPRING ASSEMBLIES (CONTINUED)

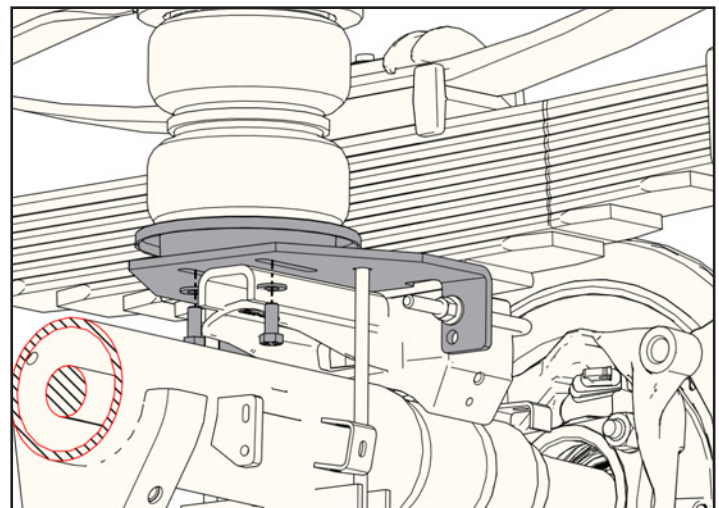
- Install the U-bolts (G), insert through the holes in the lower bracket (see figure 4C). Cap with the $\frac{3}{8}$ " flat washers (E) and $\frac{3}{8}$ " – 16 nylon lock nuts (L). Finger tighten the nuts to allow for adjustments.
- Insert two $\frac{3}{8}$ "-24 x $\frac{7}{8}$ " hex cap screws (M) and $\frac{3}{8}$ " washers (E) through the bottom bracket, roll plate and into the air spring bottom, aluminum end cap. Leave loose at this time to allow for adjustment (see figure 4D).
- Set the lower axle strap (J) over the carriage bolts located under the axle (see figure 4E) Attach with the $\frac{3}{8}$ " flat washers (E) and $\frac{3}{8}$ " – 16 nylon lock nuts (L). Evenly torque the axle strap hardware to 20 ft-lb (27 N•m). You will be required to use a crows foot in order to obtain clearance between the sway bar and the bottom of the carriage bolt in order to properly torque the bottom axle strap.
- Finish tightening the U-bolt hardware previously snugged by torquing to 10 ft-lb (14 N•m).
- Adjust the upper bracket outboard so that the flanges on the upper bracket are resting on the side of the frame. Torque the upper bracket hardware, M10- 1.5 x 50 hex head flange cap screws (O), to 38 ft-lbs (51.5 N•m).
- Ensure that the airspring is aligned vertically. Torque the lower bracket air spring mounting hardware, $\frac{3}{8}$ "-24 x $\frac{7}{8}$ " hex head capscrews (M) to 20 ft-lbs (27 N•m).
- It will be necessary to tie the ABS line out of the way using Tywrap (Q) so that it will not chafe on the lower bracket carriage bolts.

NOTE: Adjust the hard brake line away from the lower bracket carriage bolt if the line is resting on it.

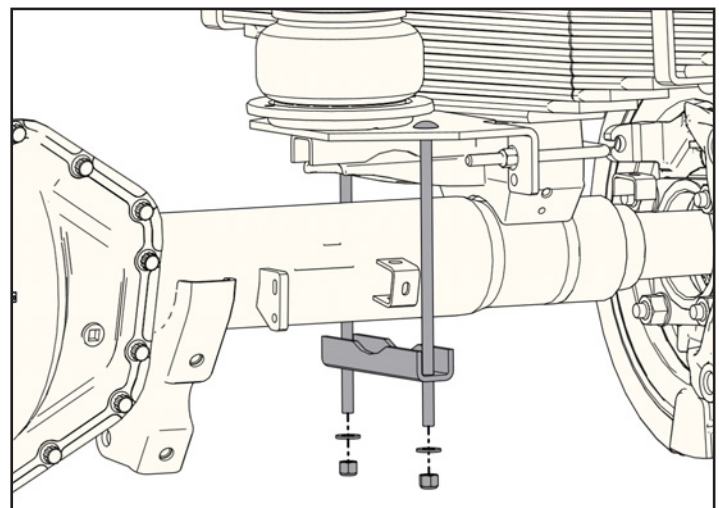
PLEASE NOTE: It may be required, on certain trucks with a rear sway bar, to cut off the excess threads of the carriage bolts to allow for clearance.



4C



4D



4E

5 INSTALLING THE AIRLINE:

- Choose a convenient location for mounting the inflation valves. Popular locations for the **INFLATION VALVE ARE:**

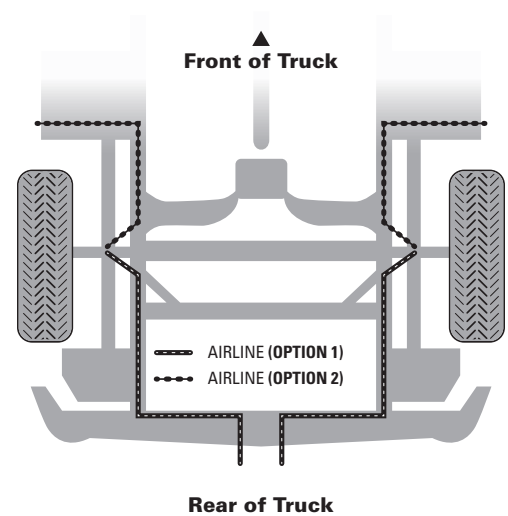
- A The wheel well flanges
- B The license plate recess in bumper
- C Under the gas cap access door
- D Through the license plate

NOTE: Whatever the chosen location, make sure there is enough clearance around the inflation valves for an air chuck.

- Drill two $\frac{5}{16}$ " holes to install the inflation valves
- Cut the airline assembly in two equal lengths

CAUTION: WHEN CUTTING OR TRIMMING THE AIR LINE, USE A HOSE CUTTER, A RAZOR BLADE, OR A SHARP KNIFE. A CLEAN, SQUARE CUT WILL ENSURE AGAINST LEAKS. DO NOT USE WIRE CUTTERS OR SCISSORS TO CUT THE AIR LINE. THESE TOOLS MAY FLATTEN OR CRIMP THE AIR LINE CAUSING IT TO LEAK AROUND THE O-RING SEAL INSIDE THE ELBOW FITTING

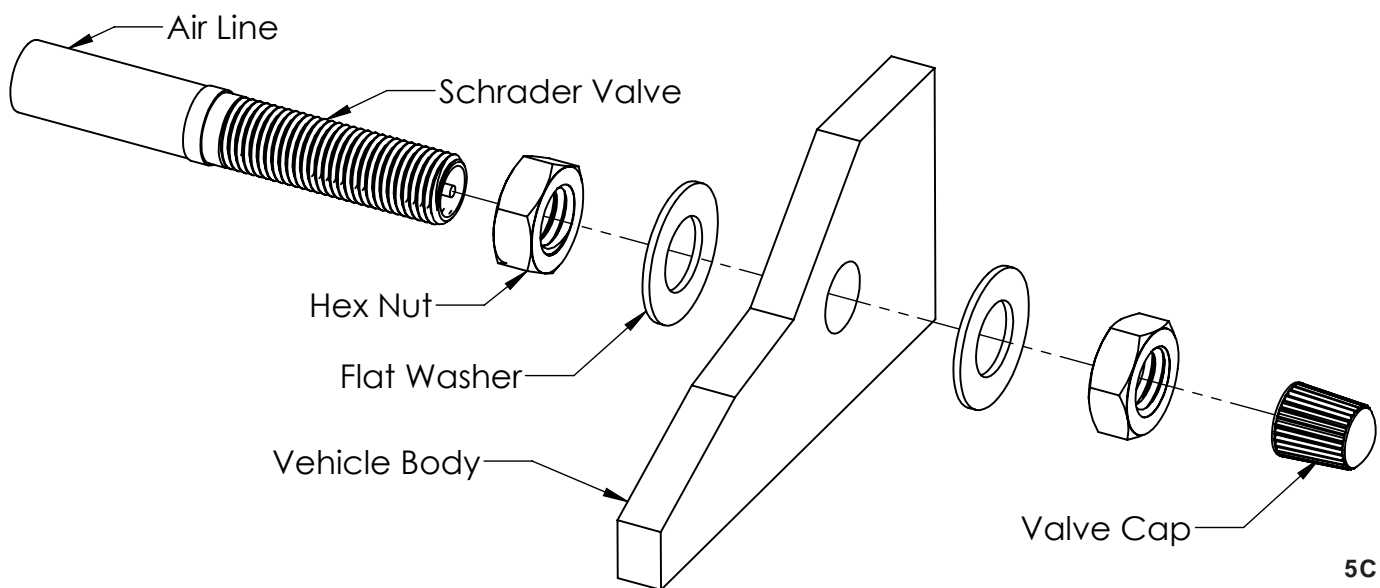
- Place a $\frac{5}{16}$ " nut on the air valve. Leave enough of the inflation valve in front of the nut to extend through the hole, install a flat washer and $\frac{5}{16}$ " nut and cap. There should be enough valve exposed after installation— Approximately $\frac{1}{2}$ "— to easily apply a pressure gauge or an air chuck



5A



5B



5C

5 INSTALLING THE AIRLINE (CONTINUED):

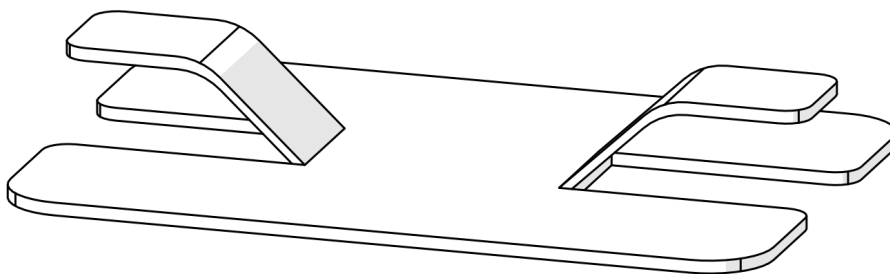
- Push the inflation valve through the hole, install a flat washer, and another $\frac{5}{16}$ " nut to secure it in place. Tighten the nuts to secure the assembly.
- Route the air line along the frame to the air fitting on the air spring. Keep AT LEAST 6" of clearance between the air line and heat sources, such as the exhaust pipes, muffler, or catalytic converter. Avoid sharp bends and edges. Use the plastic tie straps to secure the airline to fixed, non-moving points along the chassis. Be sure that the tie straps are tight, but do not pinch the air line. Leave at least 2" of slack to allow for any movement that might pull on the air line.

NOTE: Tie off the hose to the front hole of the upper bracket or U-Bolt, depending on the mounting, with a tie strap to keep the hose away from the exhaust pipe.

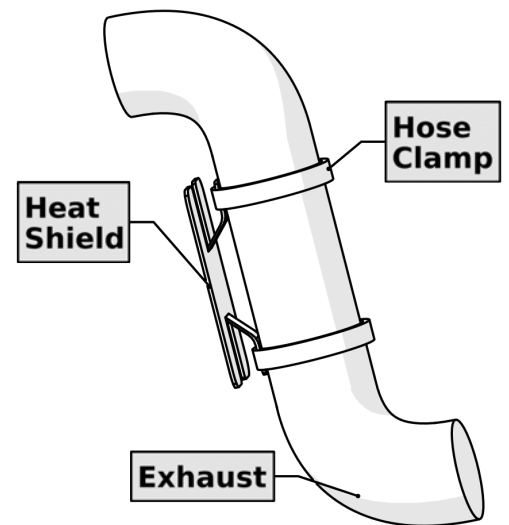
- Cut off the air line, leaving approximately 12" of extra airline. A clean square cut will ensure against leaks. Insert the air line into the air fitting. This is a push-to-connect fitting. Simply push the air line into the straight push-to-connect NPT fitting, until it bottoms out ($\frac{9}{16}$ " of air line should be in the fitting).

6 INSTALL THE HEAT SHIELD:

- Bend the tabs on the heat shield (H) so there will be the necessary $\frac{1}{2}$ " dead space between the heat shield and the exhaust pipe when the heat shield is attached.
- Attach the heat shield (H) to the exhaust pipe using two hose clamps (I). Each hose clamp holds a tab against the exhaust pipe. Make sure the heat shield is facing toward the air spring.



6B



6A

7 LOWER THE VEHICLE TO THE GROUND:

- Carefully lift the vehicle (if using a floor jack, lift under the differential) lift the vehicle to obtain enough clearance in order to remove the jack stands. Slowly lower the vehicle down to the ground.

8 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. Repair as necessary and retest.
- Inflate the air springs to a predetermined value, and on the following day recheck the pressure. If one or both the air springs have lost pressure, an air leak is present. The leak must be repaired, and then retested until no leaks exist.

9 AFTER THE INSTALLATION IS COMPLETED, PLEASE REMEMBER:

- Install the wheels, and torque the fasteners to the manufacturer's specifications.
- Re-torque all the fasteners after the first 500 miles of driving.
- For safe and proper operation, never operate the vehicle under the minimum of 10 PSI or over the maximum of 100 PSI. Staying within the pressure limit will ensure maximum air spring life. Failure in doing so may result in a void warranty (see note on page 8).



8A



OPTIONAL ACCESSORIES

Pacbrake offers an optional dual needle air gauge to monitor the pressure in each spring from the vehicles cab. Pacbrake offers a full line of air compressors, air tanks and solenoids to control your air spring system.

OPERATING YOUR VEHICLE WITH PACBRAKE AIR SUSPENSION

Air springs have minimum and maximum pressure requirements. Never operate your vehicle with less than 10 PSI in the air spring and never inflate the air springs over 100 PSI. Staying within the pressure limit will ensure maximum air spring life. Failure in doing so may void the warranty. Check the air pressure in the air springs daily for the first couple of days to ensure a leak does not develop. The 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 the vehicle with no load. A rough ride will result.

SERVICING YOUR VEHICLE WITH PACBRAKE 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.