

# Installation Manual

**PACBRAKE®**

www.pacbrake.com 800.663.0096



## HP10220 KIT

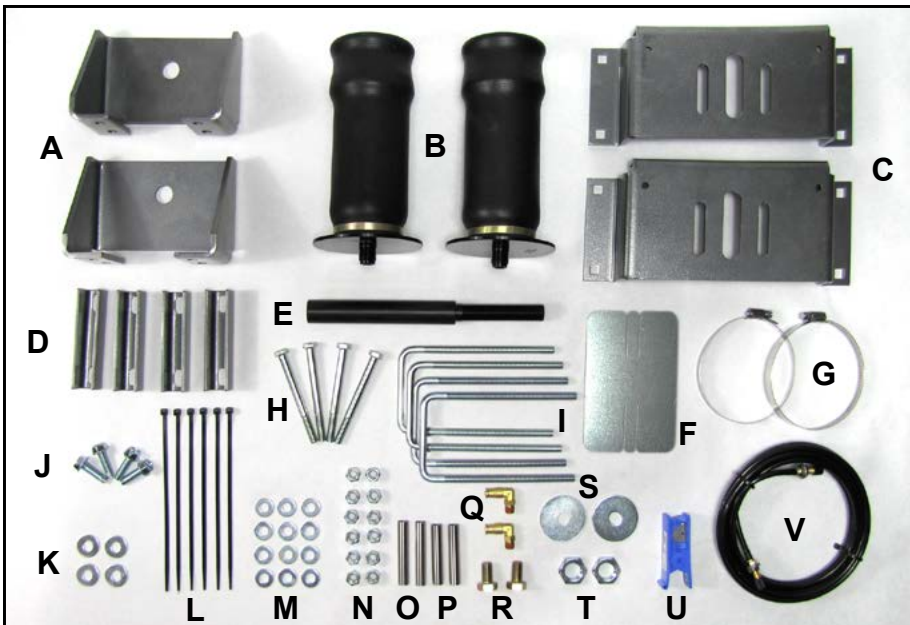
*Dodge Dakota\* (2WD/4WD)†*

- \* 2005 - All Dodge Dakotas
- 2006 - All Dodge Dakotas except Night Runner and R/T sub models
- 2007 - All Dodge Dakotas except SXT and TRX4 sub models
- 2008 - All Dodge Dakotas except Big Horn sub models
- 2009 - All Dodge Dakotas
- 2010 - All Dodge Dakotas
- 2011 - All Dodge Dakotas except Lone Star sub models

† See application guide for proper fitment.



**KIT CONTENT**



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

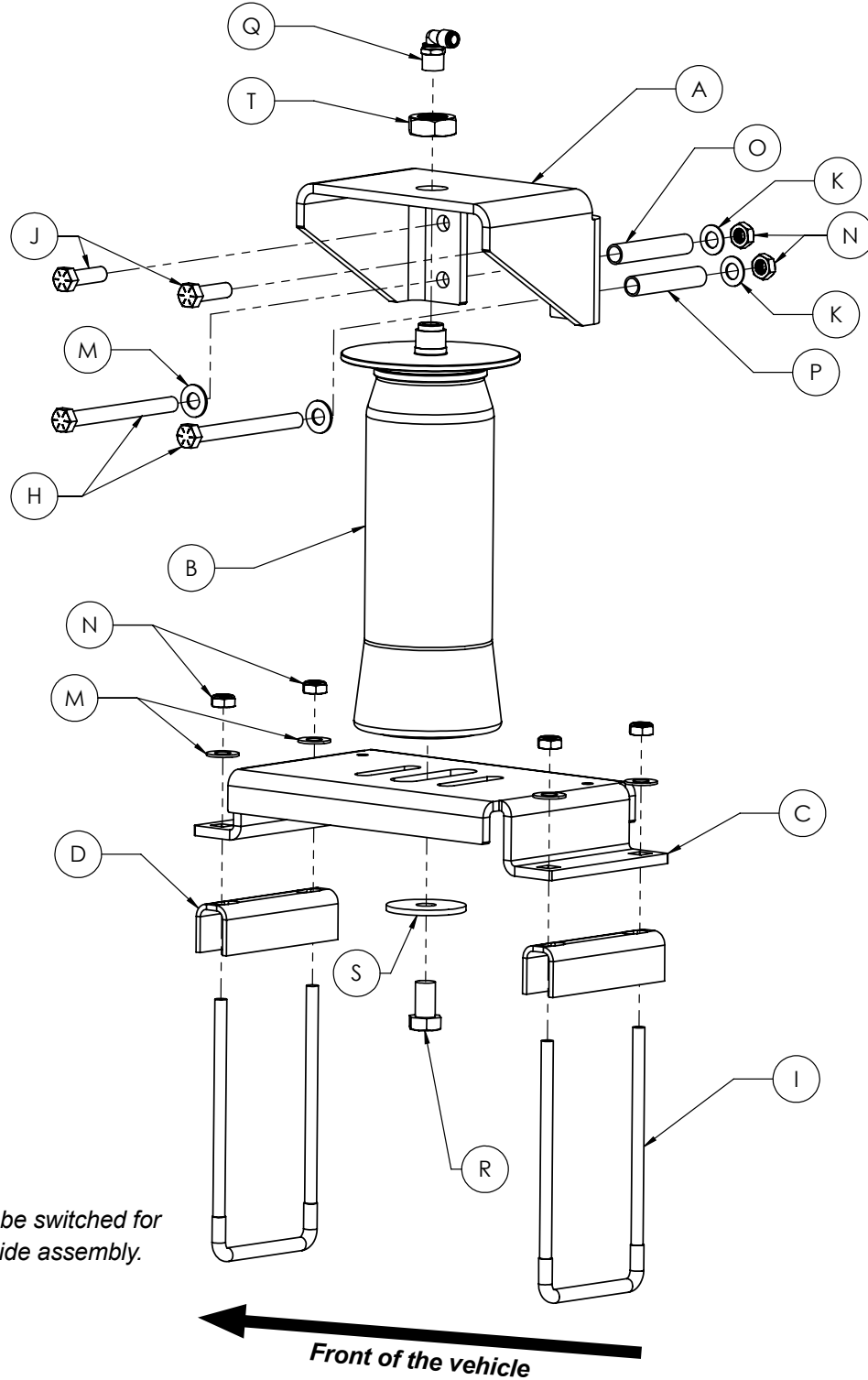
**KIT CONTENTS**

<b>A</b>	Upper Bracket	(2)	HP0046
<b>B</b>	Air Spring	(2)	HP10001
<b>C</b>	Lower Bracket	(2)	HP0104
<b>D</b>	Spacer Clamp Bar	(4)	HP0113
<b>E</b>	Install Tool	(1)	HP0048
<b>F</b>	Heat Shield	(1)	HP0012
<b>G</b>	Gear Clamp	(2)	HP1001
<b>H</b>	3/8"-16 x 4" Hex Cap Bolt	(4)	HP1437
<b>I</b>	3/8"-16 U-Bolt	(4)	HP1018
<b>J</b>	3/8" x 1.25" Self-Threading Screw	(4)	HP1078
<b>K</b>	3/8" Flat Washer	(4)	C18006
<b>L</b>	Tie Strap	(6)	C11618
<b>M</b>	3/8" Flat Washer SAE	(12)	C653
<b>N</b>	3/8"-16 Nyloc Nut	(12)	HP1000
<b>O</b>	2.70" Spacer	(2)	HP1439
<b>P</b>	2.55" Spacer	(2)	HP1438
<b>Q</b>	90° Swivel Air Fitting	(2)	HP1019
<b>R</b>	1/2"-13 x 7/8" Hex Head Cap Screw	(2)	HP1077
<b>S</b>	3/4" Washer, 2" OD	(2)	HP1010
<b>T</b>	3/4" Jam Nut	(2)	HP1076
<b>U</b>	Tube Cutter	(1)	C3941
<b>V</b>	Air Line Assembly	(1)	HP1344

**REQUIRED TOOLS**

- 7/16", 9/16" Open End or Box Wrenches
- Ratchet with 3/8", 9/16", and 1/2" deep sockets
- 3/8", 5/16" and 9/16" drill bits (very sharp)
- 3/8" Nut Driver
- Crescent Wrench
- Torque Wrench
- Heavy Duty Drill
- Hoist or Floor Jacks
- Safety Stands
- Safety Glasses
- Air Compressor or Compressed Air Source
- Spray Bottle with Dish Soap & Water Solution

DRIVER'S SIDE AIR SPRING ASSEMBLY



**Note:** Parts O & P will be switched for the passenger side assembly.

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. Should you have any questions during the installation, please call Pacbrake at 800.663.0096.

## 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.

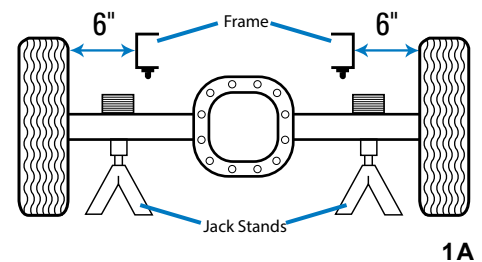
**NOTE:** Some vehicles are equipped with a real brake proportioning valve. Check this with the vehicle manufacturer before installing the air spring kit, as it may affect braking performance.

## BEFORE YOU START

1. Ensure the application information is correct for the make, model and year of the vehicle you are installing the kit on.
2. Check the clearance between the outside of the frame and the inside of the tire. A minimum of 6" is required for air spring clearance.
3. 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.

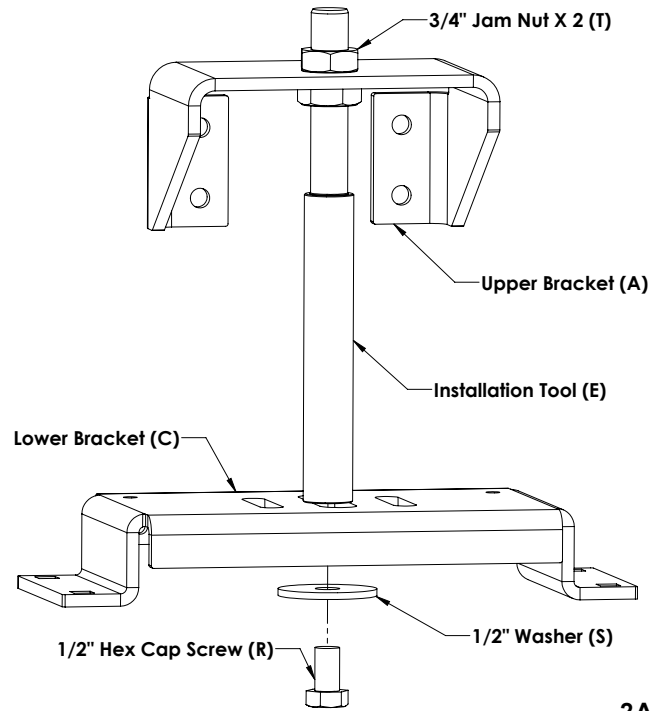
## 1 RAISE THE REAR AXLE

- 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 top of the 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 the photo.
- 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.



### 2 ASSEMBLE THE INSTALLATION TOOL

- The installation tool will align the upper and lower brackets as well as position the upper bracket for drilling the bolt holes. The threaded section of the installation tool is the range in which the air spring height may be set. It is advisable to set it to the maximum height possible.
- Using the large 1/2" fender washer (S) and the 1/2" x 7/8" bolt (R) provided, attach the installation tool (E) to the lower bracket (C) and finger tighten.
- Install one of the 3/4" - 16 jam nuts (T) on to the installation tool (E). Attach the upper bracket (A) to the installation tool (E) and fasten it together with a 3/4" - 16 jam nut (T).
- Figure 2A shows how the finished assembly should look. It will be used in the next step.



2A

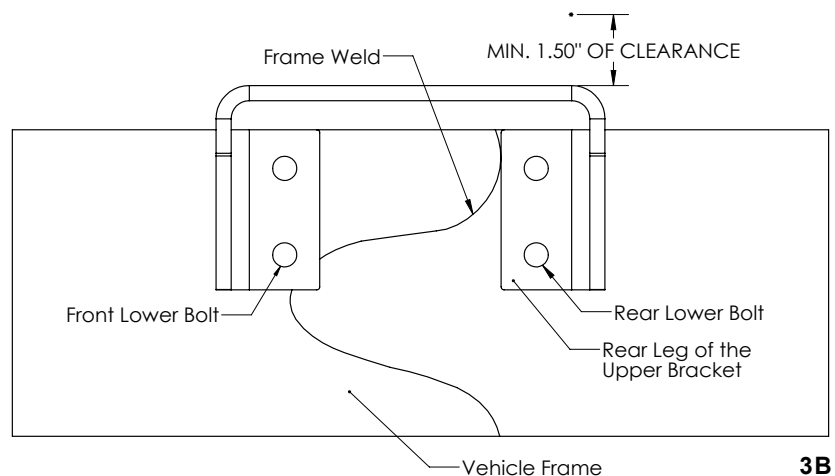
### 3 ATTACH THE LOWER BRACKET

- Begin the installation process on the driver's side.
- Set the assembly on to the leaf spring, over the axle (see figure 3A).
- Use the optional spacers (D) to raise the lower bracket (C) if it interferes with the stock U-bolts holding the leaf spring in place.
- Position the lower bracket (C) so that the rear leg of the upper bracket (A) is flush against the weld where the two frame sections come together (See figure 3B).

**NOTE:** The front leg of the upper bracket will mount on the raised portion of the frame and the rear leg of the upper bracket will mount on the recessed, rear portion of the frame (See Figure 3B).



3A



3B

**Note:** Figure 3B shows the assembly from the driver's side. The passenger's side will be the opposite of figure 3B

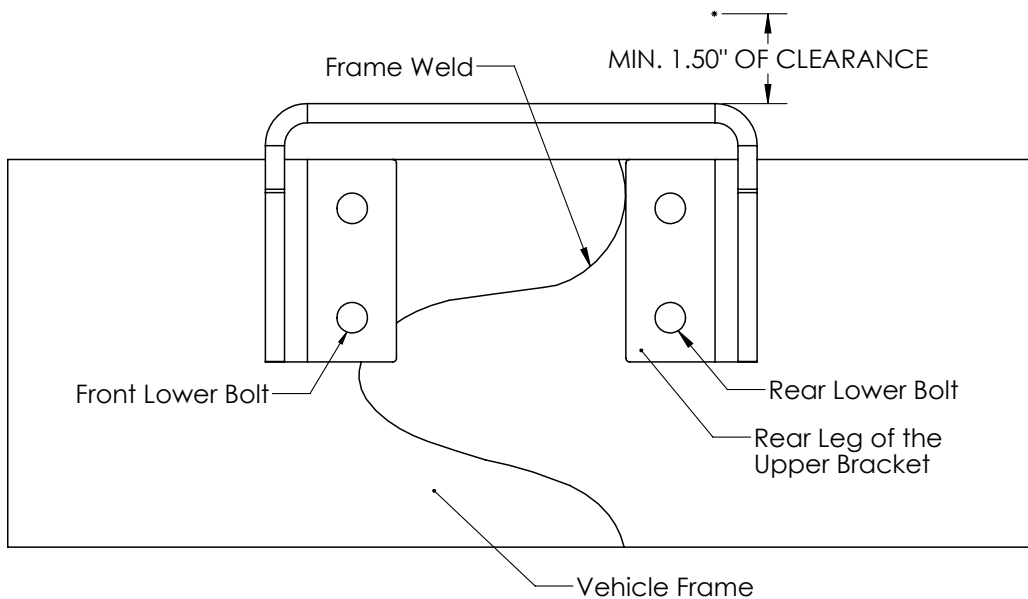
- Secure the lower bracket (C) to the leaf spring with two U-bolts (I), four flat washers (M) and four nyloc nuts (N). (See driver's side air spring assembly, page 2).
- Torque the nuts (N) to 20 ft-lbs (27 N•m).
- The air spring will expand to 5.10" in diameter at maximum inflation pressure. Check horizontally along the shaft of the installation tool (E) for sufficient clearance of 2.50" all around the tool.

### 4 POSITION THE UPPER BRACKET

- Using the slot in the lower bracket (C), position the upper bracket (A) so that the upper bracket (A) is flush against the frame rail.
- Use the two jam nuts (T) on the threaded portion to adjust the upper brackets (A) height. It is recommended to set it to the maximum height possible.

**NOTE:** There must be at least 1.50" of clearance above the upper bracket to allow for installation of the air fitting.

- With the rear leg of the upper bracket (A) flush against the weld, raise or lower the bracket so the self-tapping screw will be below the radius of the frame. (See Figure 5C)



4A

**Note:** Figure 4A shows the assembly from the driver's side.

### 5 ATTACH THE UPPER BRACKET

**CAUTION:** Before drilling, check the back side of the frame for clearance issues such as, brake lines, gas lines, electrical lines, etc. Any obstacles will need to be temporarily relocated to clear the area.

- Center punch both lower holes in the upper bracket (A) and drill two  $\frac{3}{8}$ " holes all the way through both sides of the frame. (See figure 5A - 5D)
- Center punch both upper holes in the upper bracket (A) and drill two  $\frac{5}{16}$ " holes through the **OUTSIDE WALL OF THE FRAME ONLY**. (See Figure 5A - 5D)
- Detach the installation tool (E) from the upper (A) and lower brackets (C). Save the tool and its corresponding hardware as it will be reused to mount the other air spring.

**CAUTION:** You may have to pull the electrical line holder out of the frame on the inside of the driver-side frame. Reattach using the provided tie straps (L).

- Drill the  $\frac{3}{8}$ " holes on the **inside** of the frame to  $\frac{9}{16}$ " in order to provide enough room for the frame spacers to be installed into the frame. (See Figure 5D)
- Attach the upper bracket (A) to the frame by inserting two  $\frac{3}{8}$ " x 4" bolts (H), with two washers (M) through the lower holes in the upper bracket (A) (See Figure 5D).
- Insert the spacers through the  $\frac{9}{16}$ " hole drilled through the inside of the frame. The **long spacer (O)** goes through the front lower bolt. The **shorter spacer (P)** goes through the rear lower bolt. (See figure 4A and 5D)
- Fasten the upper bracket (A) to the frame by installing two wide  $\frac{3}{8}$ " washers (K) and two  $\frac{3}{8}$ " nuts (N) onto the  $\frac{3}{8}$ " x 4" bolts (H) (See Figure 5D)
- Insert two self-threading bolts (J) into the top holes and tighten to 15 ft-lbs (20N•m), **be careful not to overtighten**. Torque the two lower bolts to 44 ft-lbs (60 N•m).



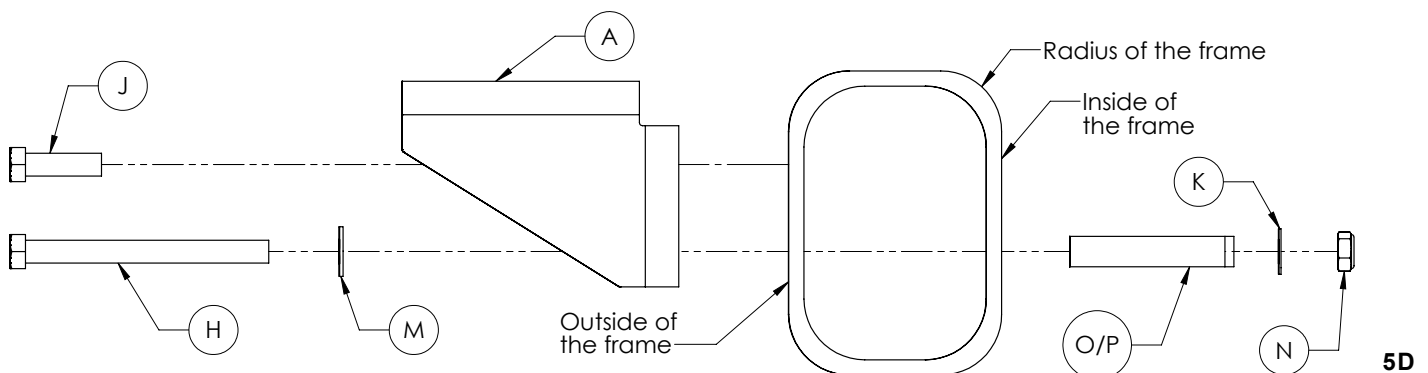
5A



5B



5C



5D

**NOTE:** The spacers are to keep the frame from crushing. It is possible that some crushing may occur while tightening the bolts.

### 6 INSTALL THE AIR SPRING

- Prepare the air spring by ensuring that it is collapsed with the rubber part of the bag folded over the bottom end cap. (See Figure 6A).
- Install the 90° air swivel fitting (Q) into the top of the air spring (B). Finger tighten the swivel fitting and turn an extra 1.5 turns with a 7/16" wrench to tighten.
- Guide the fitting through the center mounting hole in the upper bracket (A). (See driver's side air spring assembly, page 2).
- Attach the air spring (B) to the lower bracket (C) using a 1/2" flat washer (S) and a 1/2" bolt (R). Leave it loose to allow for adjustment. (See driver's side air spring assembly, page 2).
- Install a 3/4" jam nut (T) over the air fitting and onto the upper threaded post of the air spring. Tighten to 25 ft-lbs (34 N•m).

**Note:** This jam nut will be required for the passenger side installation. Install the jam nut over the threaded post of the air spring on the driver's side AFTER completing steps 1-6 on the passenger's side.



6A

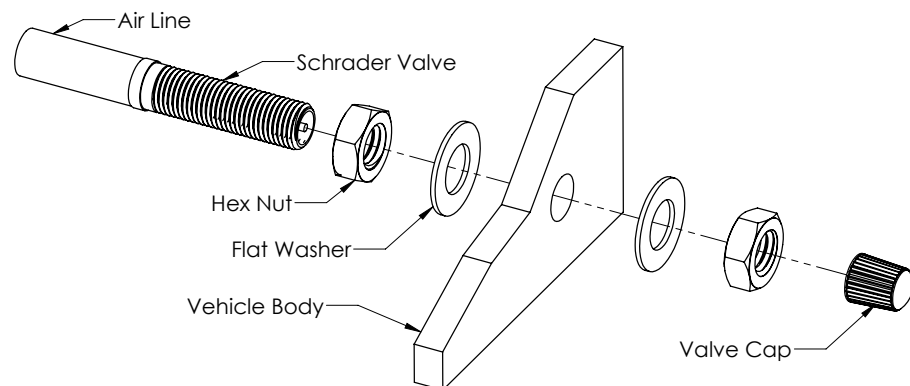


7A

### 7 INSTALL THE AIR LINES

**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. USE THE PROVIDED TUBE CUTTER (U) TO CUT THE HOSE TO LENGTH. Moisten the end of the airline prior to inserting it into the fitting and push it in until it stops.

- Provided in the air spring kit are two fill valves attached to a nylon hose (V). Cut the hose into 2 equal lengths with the tube cutter (U).
- The most common place to install it is to replace the license plate fasteners with the fill valves (Figure 7A).
- Alternatively, two 5/16" holes can be drilled in a convenient location and the fittings can be installed there.
- Choose a location and install the fill valve according to the diagram in Figure 7B.



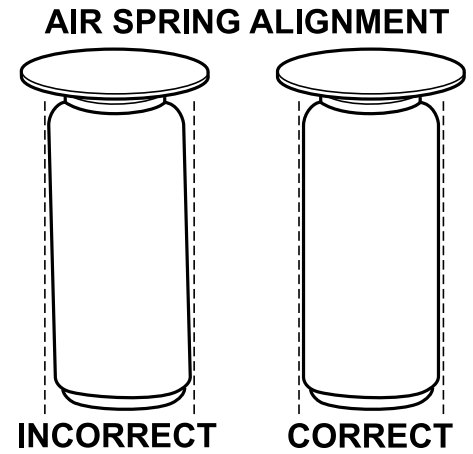
7B



- Route one end of the nylon hose from the inflation valve to an air spring fitting (Q). Cut the hose and connect it to the air spring fitting (Q). Repeat with the other fill valve.
- Secure airlines with the tie-straps (L) provided. Ensure that the airlines are away from moving items and heat sources.

## 8 ALIGN THE AIR SPRING

- With the bottom of the air spring (B) still loose, inflate the air spring to approximately 10 PSI.
- Use the slotted adjustment in the lower bracket (C) to correctly align the air spring between the upper and lower brackets. This can be accomplished by lightly tapping it inboard or outboard for proper alignment. There should be a symmetrical cushion of air around the base of the air spring when correctly positioned.
- Tighten the lower mounting bolt (R) to 25 ft-lbs (34N•m) with a torque wrench and 3/4" socket.
- Repeat steps 2-8 for the passenger side airbag installation.



8A

## 9 INSTALL THE HEAT SHIELD

- Bend the tabs on the heat shield (F) so there will be the necessary 1/2" dead space between the heat shield and the exhaust pipe when the heat shield is attached.
- Attach the heat shield (F) to the exhaust pipe on the passenger side using two gear clamps (G). Each hose clamp holds a tab against the exhaust pipe. Make sure the heat shield is facing toward the air spring.



9A

## 10 CHECK THE SYSTEM FOR LEAKS

- Inflate both air springs to 90 PSI, and then use a mixture of 1/5 dish soap and 4/5 water on all air line connections to detect and 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.



10A



## 11 AFTER THE INSTALLATION IS COMPLETE PLEASE REMEMBER

- Install the wheels, and torque the fasteners to the manufactures 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 below)

### OPTIONAL ACCESSORIES

Pacbrake offers an optional dual needle air gauge to monitor the pressure in each air spring from the vehicle's cab. Pacbrake also 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, or the air springs will be damaged.

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 vehicle's stock ride height with a load. Do not use the air springs as a means to lift the vehicle with no load, or 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.

### WARRANTY

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

**NOTE:** *The owner's warranty will be void if the air springs run with less than the minimum of 10 PSI or greater than the maximum of 100 PSI. Stay within these pressures to ensure maximum air spring life.*