

# Installation Manual

**PACBRAKE®**

www.pacbrake.com 800.663.0096



## HP10215 KIT

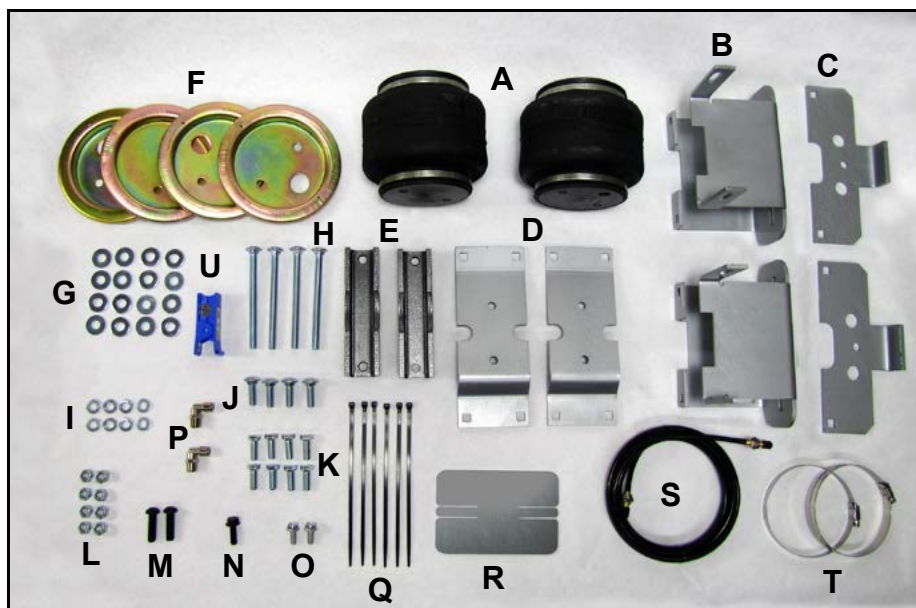
*FORD F-150 (4WD)\**

\* See application guide for proper fitment.

Use the most advanced 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 smooth and safe ride.



## KIT CONTENT



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

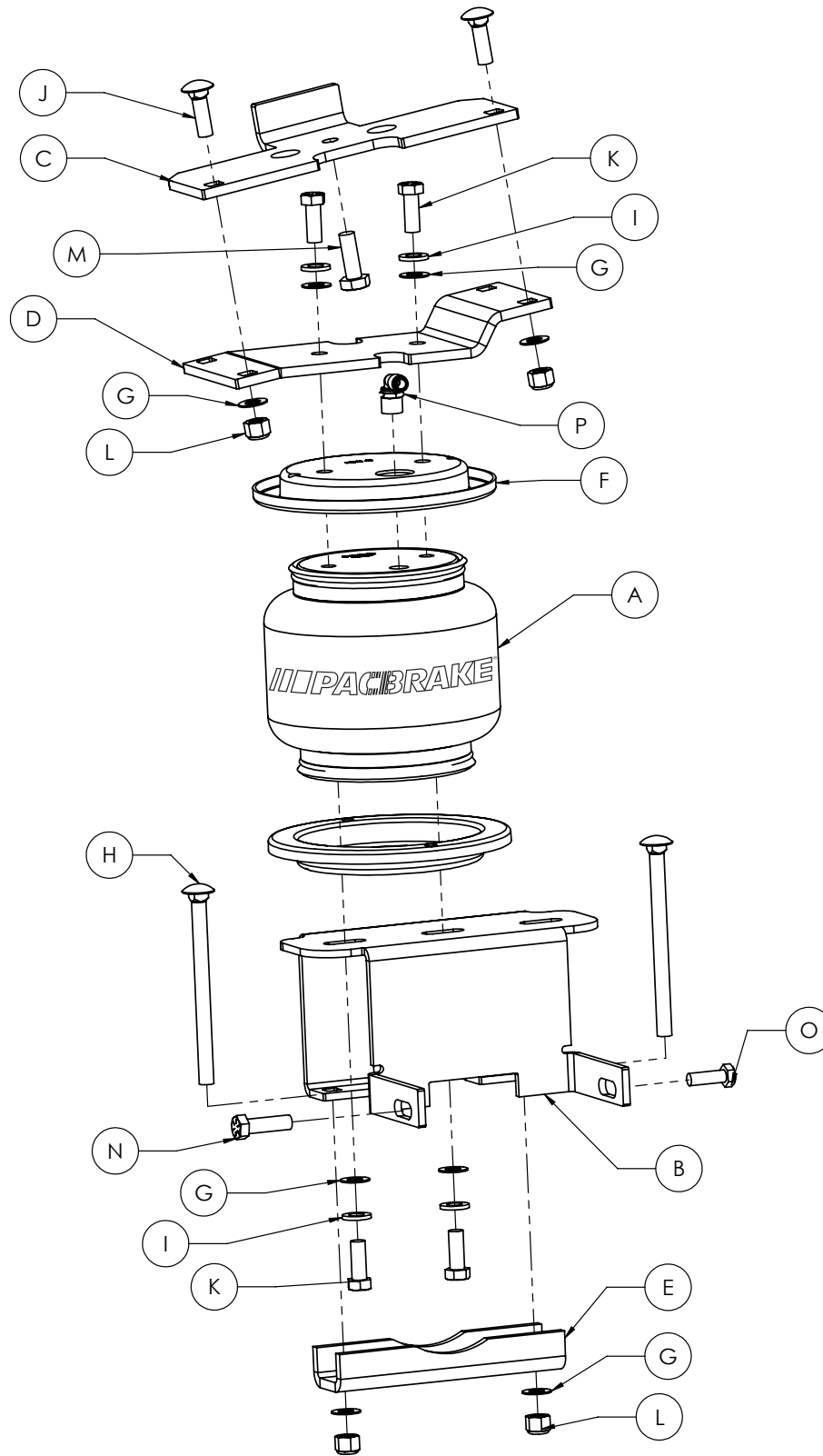
### KIT CONTENTS

<b>A</b>	Air Spring (2)	HP10083
<b>B</b>	Lower Bracket (2)	HP1429
<b>C</b>	Frame Bracket (2)	HP1427
<b>D</b>	Upper Air Spring Bracket (2)	HP1428
<b>E</b>	Clamp Bar (2)	HP1406
<b>F</b>	Roll Plate (4)	HP10054
<b>G</b>	3/8" Flat Washer (16)	C18006
<b>H</b>	3/8"-16 x 5" Carriage Bolt (4)	HP1022
<b>I</b>	3/8" Lock Washer (8)	C18007
<b>J</b>	3/8"-16 x 1.25 Carriage Bolt (4)	HP1149
<b>K</b>	3/8"-24 x 1" Hex Cap Bolt (8)	HP1183
<b>L</b>	3/8"-16 Nylon Nut (8)	HP1000
<b>M</b>	M10-1.50 x 35 Button Head Screw (2)	HP1414
<b>N</b>	M8-1.25 x 25 Flange Bolt (1)	HP1430
<b>O</b>	5/16"-18 x 3/4" Self-Threading Screw (2)	HP1415
<b>P</b>	90° Swivel Air Fitting (2)	HP1100
<b>Q</b>	Tie Strap (6)	C11618
<b>R</b>	Heat Shield (1)	HP0012
<b>S</b>	Air Line Assembly (1)	HP1344
<b>T</b>	Hose Clamp (2)	HP1001
<b>U</b>	Tube Cutter (1)	M3941

### REQUIRED TOOLS

- 10 mm, 13 mm, and 14 mm Sockets
- 3/16" and 1/2" Sockets
- 6 mm Allen Key or Socket
- Torque Wrench
- Air Compressor / Compressed Air Source
- Pipe Thread Sealant
- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Spray Bottle with Dish Soap & Water

## KIT CONTENT



*Note: Passenger's side assembly shown.*

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.

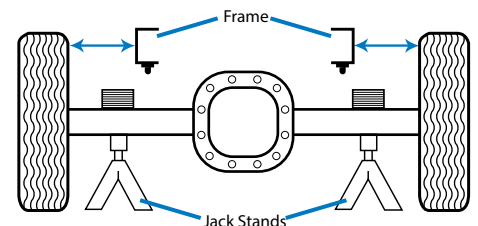
## BEFORE YOU START:

**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 (see figure 1A-1B).
- 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



1B

## 2 REMOVE THE JOUNCE BUMPERS:

- The jounce bumper assembly (figure 2A-2B) consists of a cup and 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 13 mm socket. A socket extension may be required to reach the bolt.
- See figure 2C to see how the frame should look after the jounce bumper has been removed.



2A



2B



2C

## 3 ATTACH THE FRAME BRACKET TO THE FRAME

- Place the frame bracket (C) onto the frame, ensuring that the flange is flat against the inside of the frame.
- Attach the frame bracket (C) to the frame using a M10 button head screw (M) and a 6 mm Allen key driver.
- Torque the button head screw to 25 ft-lbs.
- Repeat on the opposite side.



3A

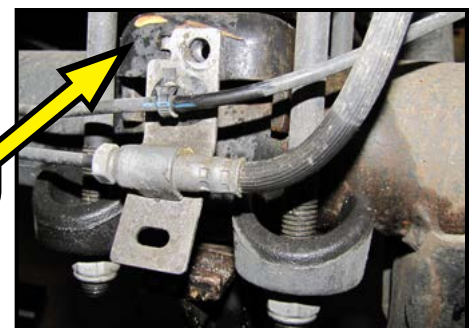
## 4 REMOVE THE DRIVER'S SIDE BRAKE LINE BRACKET

Remove the brake/ABS brake line bracket from the spring perch on the driver's side using a 10 mm socket. Retain the bolt for use later in the installation (See Figure 4A).

*Figure 4B: After the brake/ABS brake line bracket has been detached from the frame and gently pulled away from the spring perch.*



4A



4B

**Spring Perch**

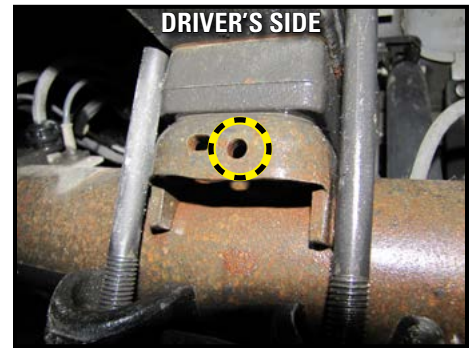


## 5 TAP A 5/16" HOLE

Tap the hole located on the drivers-side spring perch using the  $\frac{5}{16}$ " self-threading screw (O). To ensure a correct fit, ensure that the self-threading screw is perpendicular to the spring perch and drive the bolt in using a  $\frac{1}{2}$ " socket. Remove the bolt for use later in the installation.

**Note:** Do not use an impact driver to drive the self-threading screw into the hole.

**Note:** Use oil or some form of lube to help tap the hole.



5A



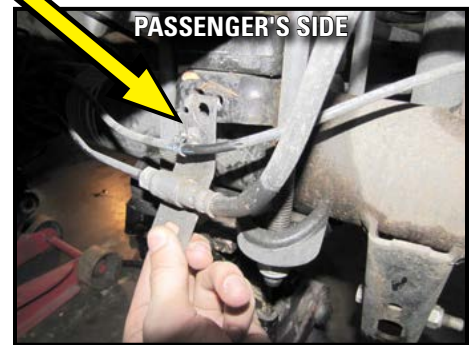
5B

**Brake / ABS Brake  
Line Bracket**

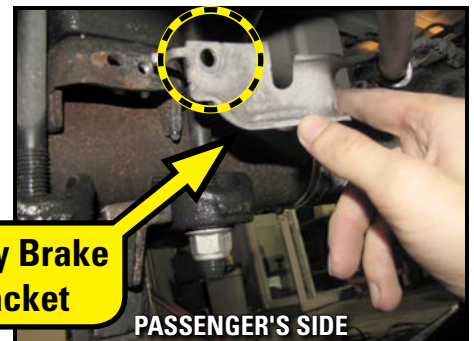
## 6 REMOVE THE PASSENGERS SIDE BRAKE LINE BRACKETS

Remove the brake/ABS brake line bracket (see figure 6A) and emergency brake line bracket (see figure 6B) from the spring perch on the passenger's side using a 10 mm socket. Retain the bolts for use later in the installation.

**Note:** If you have a model that does not have an emergency brake line bracket on the passenger side (see figure 6B), then it is necessary to complete step 5 and use a self-threading screw to cut a thread into the hole on the passenger side (see figure 5A-5B). If your model does have an emergency brake cable bracket on the passenger side then tapping the hole on the passenger side is not necessary.



6A



6B

**Emergency Brake  
Line Bracket**

**Spring Perch**
**7 MOUNTING THE LOWER BRACKET TO THE AXLE**

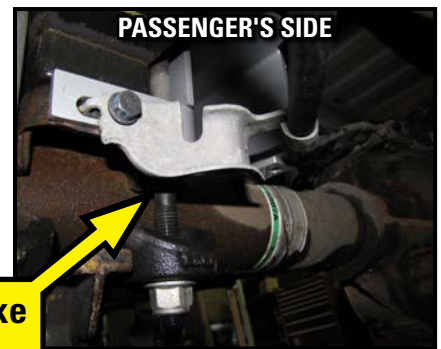
- Place the lower bracket (B) on the rear axle, ensuring that the tabs wrap around the spring perch (see figure 7A). Repeat this step for both the driver and passenger side.
- For the **driver's side**, use the M8 bolt that was removed earlier in step 4 to fasten the brake/ABS brake line bracket and lower bracket (B) to the spring perch with a 10 mm socket (see figure 7B).
- Use a  $\frac{1}{2}$ " socket to fasten the other side of the lower bracket (B) to the spring perch with the  $\frac{5}{16}$ " self-threading screw (O) that was used to tap the hole in step 5. Leave all hardware loose at this time.
- For the **passenger's side**, use the M8 bolt that was removed earlier in step 6 to fasten the brake/ABS brake line bracket and lower bracket (B) to the spring perch with a 10 mm socket (see figure 7B).
- Use the M8 bolt that was removed earlier in step 6 to fasten the emergency brake line bracket and lower bracket (B) to the spring perch with a 10 mm socket (see figure 7C). If your model does not have the emergency brake line bracket, use the provided M8 bolt (N) to fasten the lower bracket (B) to the spring perch with a 13 mm socket.
- Insert two  $\frac{3}{8}$ " x 5" carriage bolts (H) through the lower bracket (B) as shown in figure 7D.
- Fasten the lower bracket (B) to the axle using a clamp bar (E), two  $\frac{3}{8}$ " nylon nuts (L), and two  $\frac{3}{8}$ " flat washers (G). Snug the nylon nuts down until the clamp bar makes light contact with the axle. Leave all hardware loose at this time.



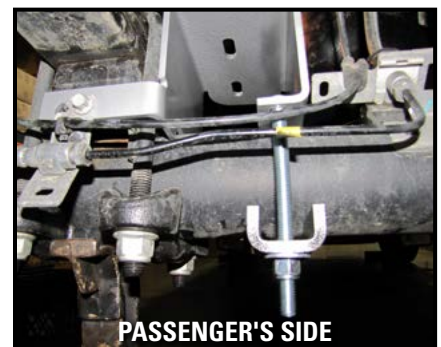
7A



7B

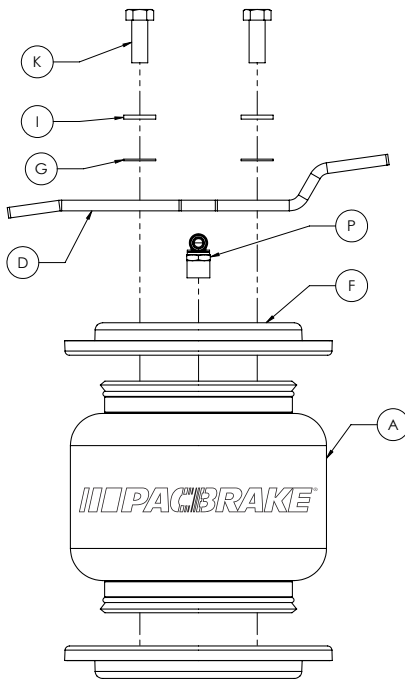


7C

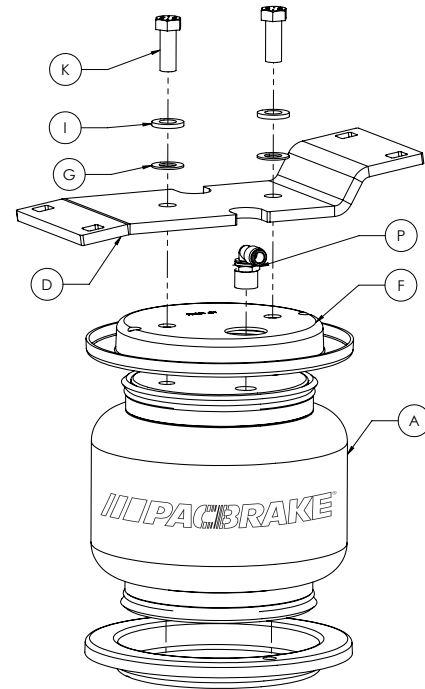
**Emergency Brake Line Bracket**


7D

## 8 ASSEMBLING THE AIR SPRINGS



5A



5B

- Set the roll plate (F) over the air spring (A) as shown in figure 5C.
- Fasten the swivel fitting (P) (figure 5C) 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 (P) and turn an extra 1.5 turns to tighten.
- Set the upper air spring bracket (D) onto the air spring ensuring that the holes in the air spring (A), roll plate (F) and upper air spring bracket (D) all line up.
- Fasten the assembly together using two  $\frac{3}{8}$ " bolts (K), two  $\frac{3}{8}$ " lock washers (I), and two flat  $\frac{3}{8}$ " washers (G). Torque the mounting hardware to 20 ft-lbs.
- Repeat for the other air spring.



5C



5D



## 9 INSTALL THE AIR SPRING ASSEMBLIES

### STEP ONE:

**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.

- Fasten the upper air spring bracket (D) to the frame bracket (C) using two  $\frac{3}{8}$ " carriage bolts (J), two flat washers (G), and two nylon nuts (L) (See figure 9A-9B).
- Set the roll plate (F) in-between the air spring (A) and the lower bracket (B) (See figure 9B).
- Align the holes in the air spring (A) with the roll plate (F) and lower bracket (B).
- Fasten the assembly together using two using two  $\frac{3}{8}$ " bolts (K), two  $\frac{3}{8}$ " flat washers (G) and two  $\frac{3}{8}$ " nylon nuts (L). (See figure 9C)
- Repeat on the opposite side.

### STEP TWO:

- It is now time to tighten and torque all the loose hardware.
- In step 7 the lower bracket (B) was mounted to the axle and spring perch. Torque all spring perch hardware to 25 ft-lbs and all axle clamp hardware to 15 ft-lbs. Depending on your model the spring perch hardware may consist of a M8 bolt (N), a self-threading screw (O) or an old bolt that was reused. Use a  $\frac{9}{16}$ " socket to tighten the two  $\frac{3}{8}$ " nuts (L) holding the axle clamp (E) in place.
- In step 9 the upper air spring bracket (D) was fastened to the frame bracket (C). Torque the two nuts (L) holding these brackets together to 25 ft-lbs with a  $\frac{9}{16}$ " socket.
- Also in step 9, the lower bracket (B), roll plate (F) and air spring (A) were fastened together with two  $\frac{3}{8}$ " bolts (K). Torque these two bolts to 25 ft-lbs with a  $\frac{9}{16}$ " socket.
- Repeat this process for the other air spring assembly.



9A



9B



9C

## 10 REMOVE THE JACK STANDS

Figure (10A-10B) shows how the finished installation should look.



10A



10B

## 11 INSTALL THE HEAT SHIELD:

- Bend the tabs on the heat shield (R) 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 (R) to the exhaust pipe on the passenger side using two hose clamps (T). Each hose clamp holds a tab against the exhaust pipe. Make sure the heat shield is facing toward the air spring.



11A



11B

## 12 INSTALL THE AIR LINE:

- Provided in the basic air spring kit are two fill valves. The most common place to install them is to replace the license plate fasteners with the fill valves (S). Alternatively, two holes can be drilled in a convenient location. Install one airline provided, route the nylon hose to an air spring fitting (P), cut the hose and connect to the air spring fitting (P). Repeat with the other fill valve.
- Secure airlines with the tie-straps provided away from moving items and heat sources.
- If an in cab inflation kit is being installed, follow the instructions provided with it.

**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 A SHARP RAZOR KNIFE OR THE NYLON HOSE CUTTER PROVIDED IN THE KIT.

- After the air line is cut, insert one end into the air line fitting, as shown in photo 12B, and the other into the fill valve. Moisten the end of the air line with liquid soap prior to inserting it, and then push it in until it stops.



12A



12B

## 13 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.



13A

## 14 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 11).



### 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. Damage to the air springs will result.

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.

### WARRANTY

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

**NOTE:** *The owners warranty will be void if air springs run with less than the minimum of 10 PSI.*