

# Installation Manual

**/// PACBRAKE®**



## HP10207 KIT

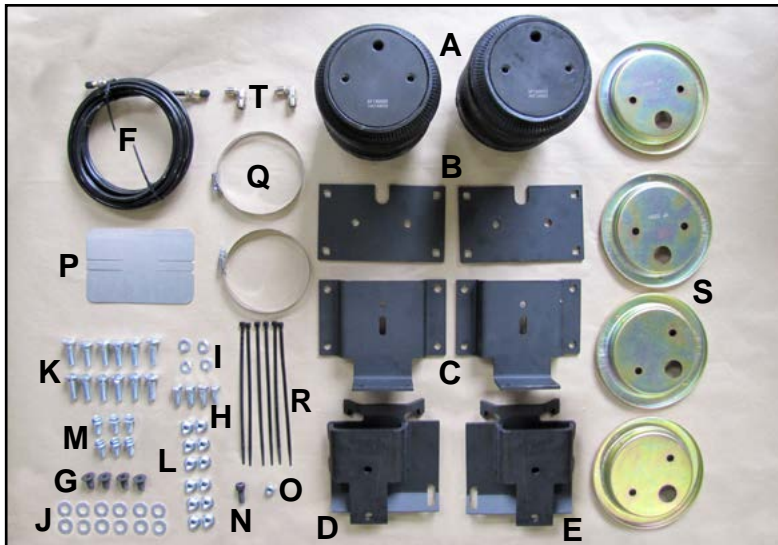
*Ram 1500 4WD\**

\* 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 Springs (2)	HP10000D
<b>B</b>	Air Spring Upper Bracket (2)	HP0146
<b>C</b>	Frame Upper Bracket (2)	HP0145
<b>D</b>	Driver Side Lower Bracket (1)	HP0147
<b>E</b>	Passenger Side Lower Bracket (1)	HP0148
<b>F</b>	Air Line Assembly (1)	HP1344
<b>SUB-GROUP A:</b>		
<b>G</b>	3/8" – 24 x 1/2" Flat Head Cap Screw (4)	HP1008
<b>H</b>	3/8" – 24 x 7/8" Hex Head Cap Screw (4)	HP1002
<b>I</b>	3/8" Lock Washer (4)	C18007
<b>J</b>	3/8" Flat Washer (12)	C653
<b>K</b>	3/8" – 16 x 1.25" Carriage Bolt (12)	HP1149
<b>L</b>	3/8" – 16 Serrated Nut (12)	HP1338
<b>M</b>	5/16" – 18 x 1" Self-Tapping Screw (6)	HP1415
<b>N</b>	M8 – 1.25" x 20 Socket Head Cap Screw (1)	HP0150
<b>O</b>	M8 – 1.25" Nut (1)	HP0149
<b>SUB-GROUP B:</b>		
<b>P</b>	Heat Shield (1)	HP0012
<b>Q</b>	Hose Clamp (2)	HP1001
<b>SUB-GROUP C:</b>		
<b>R</b>	Tie Strap (6)	C11618
<b>S</b>	Roll Plate (4)	HP10054
<b>T</b>	90° Swivel Air Fitting (2)	HP1100

### REQUIRED TOOLS

- 7/16", 1/2" and 9/16" Open End or Box Wrenches
- Adjustable Wrench
- Torque Wrench
- 9/16" and 13mm Deep Sockets
- 9/16" Crow's Foot Socket
- 8 mm Allen Socket
- Pipe Thread Sealant
- Hose Cutter, Razor Blade or Sharp Knife
- Air Compressor/Compressed Air Source
- Die or Angle Grinder
- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Spray Bottle with Dish Soap/Water

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.

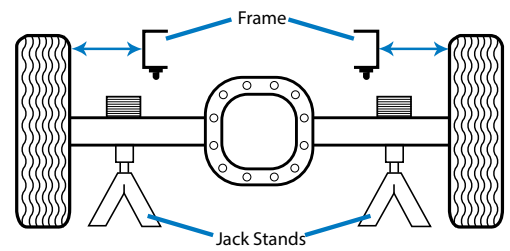
## BEFORE YOU START:

**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 chassis (photo 1A-1B).
- Lower the floor jack until the vehicle chassis is supported by the jack stands.
- Ensure the normal ride height measurement recorded earlier is the same. Adjust if necessary before proceeding.
- Once the vehicle is raised correctly, remove the rear wheels.



1A



1B

## 2 REMOVE COIL SPRINGS AND JOUNCE BUMPERS

- The bottom of the coil spring and the spring perch have to be marked before removal to ensure proper spring alignment for re-installation (photo 2A).
- The lower shock bolts then have to be removed in order to lower the axle enough to gain clearance for removing the coil springs.
- Now, simply pull out the jounce bumpers (photo 2B) from the cups they sit in.
- Remove the jounce bumper cups by grinding the welds off as shown in photo 2C. Make sure that there are no excess weld material on the surface as the upper bracket has to sit flush on it

**NOTE:** Before grinding off the welds for the jounce bumper cup on the driver's side, make sure to plug the fuel tank vent with a piece of wet cloth.

- Paint the bare, newly ground surface to protect it from rust (photo 2D).



2A



2B



2C



2D

### 3 ATTACH THE UPPER FRAME BRACKETS

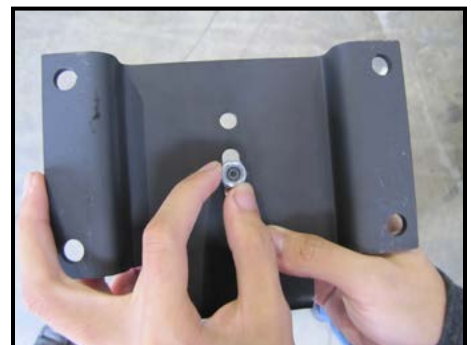
- A) Take the supplied M8 socket head bolt and put it through the slot in one of the upper brackets (photo 3A). Fasten it with the supplied M8 nut (photo 3B), leaving it just loose enough to be able to slide on the slot (this will be removed and used on the other bracket).
- B) Put the bracket up against the frame with the head of the M8 bolt lined up inside the existing hole on the frame and mark it with a paint pen, from the hole next to the slot where the M8 bolt is (photo 3C).
- C) Center punch the frame where the mark is, drill a 1/4" hole, and thread in one of the provided 5/16" self-tapping screws (photo 3D). Once the hole has been tapped, remove the screw.
- D) Remove the M8 bolt from the upper bracket replace the bracket on the chassis and bolt it in using the 5/16" self-tapping screw.
- E) With the bracket sitting flush with the frame, center punch and drill two 1/4" holes through the frame (photo 3E).
- F) After drilling both 1/4" holes, thread in two more 5/16" self-tapping screws through the frame and torque to 15 ft-lbs (photo 3F).

Repeat Steps A-F on the opposite side.

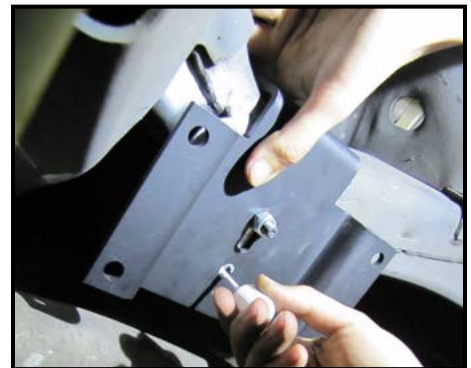
Re-install the coil springs, making sure that the markers line up. Raise the axle and replace the lower shock bolts. Torque to 100 ft-lbs.



3A



3B



3C



3D



3E



3F

#### 4 ASSEMBLE THE AIR SPRINGS

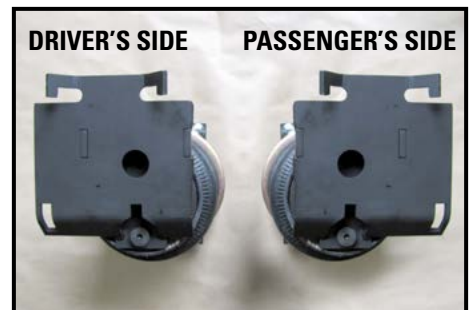
- Put a roll plate on top of the air spring, making sure that each holes line up.
- Attach a 90° air fitting on the air spring finger tight then tighten additional one and a half turns (photo 4A).
- Take both upper air spring brackets, insert a carriage bolt on each corner hole, and install a bracket on each air spring using two  $\frac{3}{8}$ "–24 x  $\frac{7}{8}$ " hex head cap screws, two  $\frac{3}{8}$ " lock washers, and two  $\frac{3}{8}$ " flat washers. Torque to 20 ft-lbs (27N•m) (photo 4B).
- Put both air springs upside down, with the air fittings facing out an opposite of each other.
- Set the remaining two roll plates on the air springs and attach the lower brackets with two of the supplied  $\frac{3}{8}$ "–24 x  $\frac{1}{2}$ " flat head screws each as shown in photo 4C. Torque to 20 ft-lbs (27N•m).



4A



4B



4C

**5 INSTALL THE ASSEMBLIES**

- Set the assemblies on the jounce bumper strike plate on the axle as shown in photo 5B and 5C. The pre-inserted carriage bolt on the driver side lower bracket has to go in the corresponding hole on the jounce bumper strike plate.
- Insert the 3/8"-16 X 1.25" carriage bolts into the slots on the lower bracket and through the holes in the jounce bumper strike plate. Fasten with the supplied 3/8"-16 serrated flange nuts and torque to 31 ft-lbs (42 N•m).
- Raise the axle up enough for the carriage bolts on the top of the air spring assemblies to go through the holes on the upper frame bracket. Fasten with the remaining 3/8"-16 serrated flange nuts and torque to 31 ft-lbs (42 N•m) (photo 5D).



5A

**DRIVER'S SIDE**



5B

**PASSENGER'S SIDE**



5C



5D

## 6 INSTALL THE HEAT SHIELD

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



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## 7 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. Alternatively, two holes can be drilled in a convenient location. Install one airline provided, route the nylon hose to an air spring fitting, cut the hose and connect to the air spring fitting. 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 instruction 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.**

- Moisten the end of the airline prior to inserting it into the fitting and push it in until it stops.
- After the airline is cut, insert one end into the air line fitting, as shown in photo 7B 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.



7A



7B

## 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.



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## 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

## 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.*