

PACBRAKE®

Installation
MANUAL



HP10121 AIR SUSPENSION KIT

AIR SPRINGS

APPLICATION: Dodge Ram Chassis Cab 2WD/4WD, 2007–2008
Sterling Bullet Chassis Cab 2WD/4WD, 2007–2008



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

CAUTION: This kit includes “push to connect” airline fittings. They require the end of the airline to be round, square and cleanly cut to ensure the internal seal will not leak. The airline must only be cut with a sharp razor knife or hose cutter.

KIT CONTENTS

- A Air Springs (2)
- B Lower Bracket (2)
- C Upper Frame Bracket (2)
- D Upper Air Spring Bracket (2)
- E 90° Fitting (2)
- F Heat Shield (1)
- G $\frac{3}{8}$ " Nylock Nut (12)
- H $\frac{3}{8}$ " Large Flat Washer (16)
- I $\frac{3}{8}$ " Lock Washer (4)
- J Gear Clamp #48-102 (2)
- K $\frac{3}{8}$ " NF x $\frac{7}{8}$ " Capscrews (8)
- L Axle Strap (2)
- M $\frac{3}{8}$ "-16 x 5 Carriage Bolt (4)
- N Roll Plate (4)
- O $\frac{5}{16}$ " Nylock Nut (1)
- P $\frac{3}{8}$ " - 16 x $1\frac{1}{4}$ " Carriage Bolt (4)
- Q Sway bar brackets (4)
- R M10 X 1.5 X 35mm bolt (8)
- S $\frac{3}{8}$ " - 16 x $1\frac{3}{4}$ " bolt (4)
- T $\frac{3}{8}$ " Small Flat Washer (4)

Airline Assembly Parts

- I Airline (1)
- II Tie Strap (6)
- III Fill Valve (2)
- IV $\frac{5}{16}$ " Flat Washer (4)

REQUIRED TOOLS

- $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ " open end or box wrenches
- 13mm, 15mm, 16mm and 21mm open end wrenches
- Adjustable Wrench
- Torque Wrench
- Ratchet with $\frac{9}{16}$ ", $\frac{1}{2}$ " deep well sockets
- Heavy Duty Drill
- $\frac{5}{16}$ " drill bits (very sharp)
- Hose Cutter, Razor Blade or Sharp Knife
- Pipe Thread Sealant
- Air Compressor / Compressed Air Source
- Hoist or Floor Jack
- Safety Stands
- Safety Glasses
- Spray Bottle with Dish Soap/Water

Thank you and congratulations on the purchase of a Pacbrake air suspension kit.

IMPORTANT:

The air suspension kit will not increase the GVWR (gross vehicle weight rating), as this is determined by the axle rating. Do not exceed the maximum capacity listed by the vehicle manufacturer.

Before starting, ensure the application information is correct for the make, model and year of the vehicle you are installing it on. Please read the entire installation manual prior to starting the installation to ensure you can complete it once started.

PREASSEMBLY OF THE AIR SPRINGS

1 THE UPPER ROLL PLATE

Place the upper roll plate (with the rounded side towards the air spring) on the top of the air spring (top being the end with the air inlet port). Apply thread sealant or Teflon tape to the threads of the fitting provided. Install the fitting.

2 THE UPPER BRACKET

Place the upper air spring mounting bracket on top of the air spring and roll plate. The upper air spring mounting bracket is identified by the two $\frac{3}{8}$ " holes next to the air fitting cut out. Using 2 - $\frac{3}{8}$ " NF x $\frac{7}{8}$ " capscrews provided, fasten the bracket to the air spring. Torque both capscrews to 20 ft-lbs, 27 N•m.

3 THE LOWER PLATE & BRACKET

Insert the two 5" long carriage bolts provided into the two elongated holes in the lower bracket. Place the roll plate on the air spring with the rolled side towards the air spring. Place the lower bracket on the air spring with the two carriage bolts on the opposite side to the air port. Install the two $\frac{3}{8}$ " NF capscrews lock and small flat washers, do not tighten fully. Ensure the air fitting is on the opposite side of the two carriage bolts.

Repeat steps 1 - 3 on the other air spring

The lower bracket mounting holes are slotted and need to be adjusted on the air spring before tightening the $\frac{3}{8}$ " NF fasteners.

Position one air spring assembly with the carriage bolts to your left. **PULL** the lower bracket towards you to the end of the slotted holes. Tighten the capscrews to 20 ft-lbs, 27 N•m. **This will now become the passenger side air spring.**

Position the other air spring assembly with the carriage bolts to your left. **PUSH** the lower bracket away from you to the end of the slotted holes. Tighten the capscrews to 20 ft-lbs, 27 N•m. **This will now become the driver side air spring.**

STEP 1



STEP 2



STEP 3



4 INSTALLATION ON THE VEHICLE

Raise the vehicle enough for a comfortable working height with a floor jack and support the axle with jack stands.

Remove the jounce bumpers on both sides.

STEP 4

- 5** Remove both lower shock absorber fasteners. Retain nuts and bolts for reuse. Remove the 2 nuts holding the sway bar up to the axle tube bracket on both sides. Allow the sway bar to swing down towards the ground. Discard the factory sway bar bolts and retain the nuts for re-use.

STEP 5

- 6** The passenger side shock absorber mounting bracket has an emergency brake cable support bracket that needs to be removed.

STEP 6

- 7** The top of the rear end housing has a bolt supporting the cable to the top of the rear end housing. Remove the bolt and bracket and re-install the bolt.

STEP 7

- 8** On the passenger side only, compress the shock absorber to allow the e-brake cable to be moved to the forward side of the shock absorber.

STEP 8

- 9 Locate the ABS sensor and harness on the topside front of the rear end housing. This harness is supported on a stud with a white plastic fastener.

STEP 9

- 10 Remove the fastener. Install the e-brake cable bracket, removed in step 9, to this stud. A $\frac{5}{16}$ " nut is provided to secure the bracket. Re-install the plastic fastener on the stud.

STEP 10**11 ATTACH THE UPPER BRACKET**

Using the M10 x 35 capscrews provided, fasten the upper air spring mounting bracket to the frame as shown in the photo. Torque the capscrews to 30 ft-lbs, 40 N•m. The upper brackets must be installed to the jounce bracket with the air inlet fitting cutout and rectangular holes in the bracket facing towards the center of the vehicle.

STEP 11**12 INSTALLING THE AIR SPRING**

Insert the air spring between the jounce bumper mounting plate and the axle tube. Some vehicles may require the frame to be jacked up slightly to attain clearance.

STEP 12

NOTE: Air fittings must be positioned towards the center of the vehicle. The outer rear carriage bolts may be installed now and must be between the brake line and the axle tube. On the drivers side, both rear carriage bolts must be in between the brake line and the axle tube. Passengers side is shown in photo.

Loosely install two of the $1\frac{1}{4}$ " long carriage bolts up from the bottom through both the upper mounting plates. Install the large flat washers and nylock nuts provided. Loosely install the axle straps to the carriage bolts using the large flat washers and nylock nuts provided.

- 13** Using the M10 x 35 capscrews provided, insert one capscrew into each of the lower support brackets as shown in the photo.

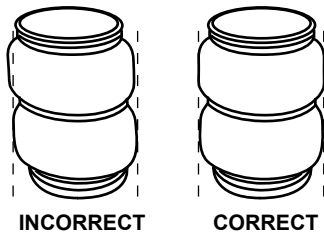
Insert the lower end of the support brackets with bolts into the axle tube sway bar brackets. Lift the sway bar up and loosely install the original nuts.

- 14** Loosely install the $\frac{3}{8}$ - 16 x 1 $\frac{3}{4}$ " bolts with large flat washers and nylock nut into each of the lower air spring brackets to the support brackets.

Install the axle straps onto the 5" long carriage bolts. Loosely install the large flat washers and nylock nuts provided.

15 ADJUST THE AIR SPRING

Adjust the air spring assembly to the upper bracket by moving the lower bracket on the axle tube to ensure the air spring is correctly aligned (as shown in the diagram below).



16 CHECK THE CLEARANCE

Ensure adequate clearance exists between the brake lines and the carriage bolts. The brake line must not touch the carriage bolts. Adjust to attain clearance if necessary. Once correct alignment of the air spring is attained:

Tighten the four sway bar bolts to 45 ft-lbs, 61 N•m.

Tighten the two 1 $\frac{1}{4}$ " carriage bolts of the top brackets to 20 ft-lbs, 27 N•m.

Tighten the two axle strap carriage nuts to 20 ft-lbs, 27 N•m.

Tighten the two support bracket to upper bracket fasteners to 20 ft-lbs, 27 N•m.

Repeat on the other air spring.

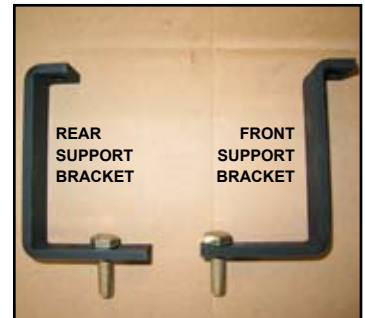
Re-install and tighten both lower shock absorber fasteners.

Torque to 100 ft-lbs, 135 N•m.

17 INSTALL THE HEAT SHIELD

Bend the two center tabs of the heat shield supplied for fastening to the exhaust pipe as shown. Attach the heat shield with the gear clamps supplied to the exhaust pipe to protect the air spring.

STEP 13



STEP 14



STEP 15



STEP 17



18 AIRLINE INSTALLATION

Airline installation, 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. Alternately, two holes can be drilled in a convenient location. Install the airline provided from the fill valves to each air spring. Secure the airlines with the tie-straps provided away from moving items and heat sources.

IMPORTANT!

Double check all the fasteners are torques to specification

STEP 18

19 LEAK CHECK

Inflate both the air springs to 90 PSI. Use a dish soap and water mixture on all airline connections to detect air leaks. Repair as necessary and retest. Inflate your air springs to a pre-determined value, then the following day recheck the pressure. If one or both the air springs have lost pressure, a leak is present. The leak must be repaired, then retest until no leaks exist.

SPECIAL NOTE:

Apply the decal provided with minimum and maximum air spring pressure in a spot visible to the driver.

Retorque all the fasteners after the first 500 miles of driving.

STEP 19

OPTIONAL ACCESSORIES

Pacbrake offers an optional dual needle air gauge to monitor the pressure in each air 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.