

PACBRAKE®

Installation MANUAL



DirectMount® **EXHAUST BRAKES**

APPLICATION:

Fixed Orifice and PRXB™ Exhaust Brakes
2003–2005 Dodge Trucks with 3.5" & 4" Exhaust and
47RE & 48RE Automatic Transmissions Only

Vehicles with an existing air compressor and tank only

THIS KIT IS NOT FOR USE ON 2006 & 2007 MODEL YEAR VEHICLES WITH 610ft/lbs TORQUE AND AUTOMATIC TRANSMISSIONS

Getting Started

Thank you and congratulations on your purchase of a Pacbrake Direct Mount® exhaust retarder.

NOTE #1: Some early 2003 Dodge trucks were built with 47RE (2002 production) transmissions. These vehicles require the program within the Pacbrake controller be changed. Follow the instructions in step 23 to change the program. See Pacbrake bulletin #L5807 for transmission identification

Please check the exhaust brake kit part number and application information listed below against the vehicle's model and transmission model to ensure compatibility before starting the installation.

This manual covers the installation of the following Pacbrake kits. Should your vehicle differ from the description below, contact the Pacbrake factory at 800.663.0096.

- C44032** – contains a PRXB (high performance) exhaust brake kit for 2003 to 2004 Dodge trucks, vehicles **built up to** January 4, 2004 with 48RE automatic transmissions. See note #1 above
- C44033** – contains a PRXB (high performance) exhaust brake kit for 2005 Dodge trucks with a 48RE automatic transmission, vehicles **built between** January 5, 2004 and June 27, 2005 (prior to engines rated @ 610 ft-lbs of torque)

All the above kits include a Pacbrake automatic transmission controller to engage the torque converter whenever the exhaust brake is applied. 2006 and 2007 model year vehicles with 610 ft-lbs of torque and an automatic transmission do not require a transmission controller, in which case Pacbrake has specific kits for these applications.

Pacbrake PRXB exhaust brakes require a minimum of 100PSI to fully close the butterfly valve, ensure your pressure switch will maintain pressure above 100PSI.

Before starting the installation, please read the entire installation manual carefully. Check that your PACBRAKE kit contains all the necessary parts.

Kit Contents

- 1 - Exhaust brake housing
- 1 - Wiring harness
- 1 - Dash switch and plate
- 1 - Nylon airline 12 ft
- 12 - Tie-Straps
- 1 - Tire fill kit
- 1 - Transmission Controller
- 1 - Solenoid Valve
- 1 - Sub group solenoid mounting fasteners
- 1 - 90° fitting
- 2 - Tee fittings
- 3 - Straight fittings



NOTE:

Confirm this vehicle has a 48RE transmission BEFORE starting install (consult Addendum L5807)

1 Dash Switch Installation

Consult with the owner or operator for their preference of the location for the Pacbrake ON/OFF switch. The dash switch location shown in photo 1 is a suggestion. Pacbrake offers an optional transmission gear selector lever switch bracket shown in photo 2. Contact Pacbrake Customer Service to purchase. If installing the switch into the dash panel, drill a ¼" hole to accommodate the switch. Install the dash switch and identification plate, then route the wires towards the driver side of the firewall to be connected later in the installation (step 11).

Disconnect both positive battery leads.



1

2

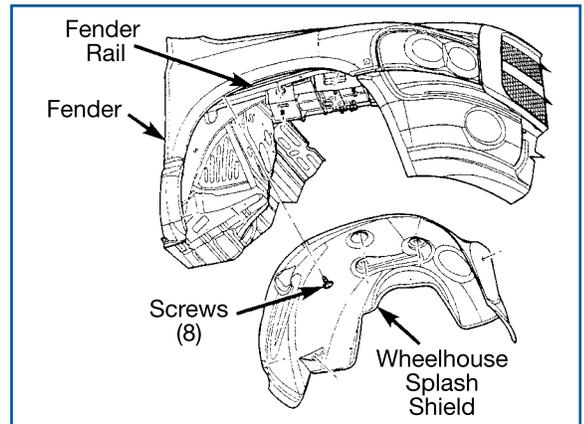
EXHAUST BRAKE INSTALLATION

2 Installer Option (not mandatory)

Some installers remove the front wheels and 8 screws which secure the wheelhouse splash shields. Doing this allows for easier access to the exhaust elbow and the engine ECU on the drivers side of the vehicle. To remove the wheelhouse splash shield completely, the ABS cable will need to be disconnected from the splash shield.

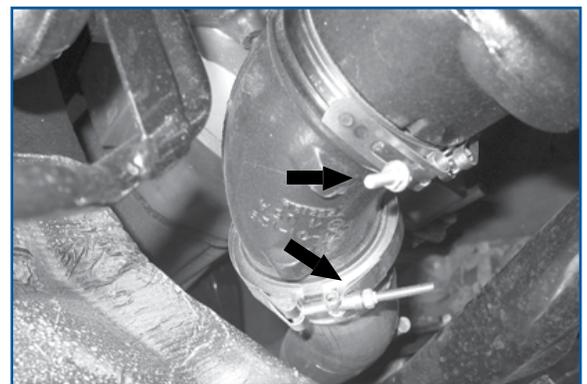
CAUTION:

If removing the front wheels for easier access, make sure the vehicle is supported properly.



3 Remove Factory Elbow

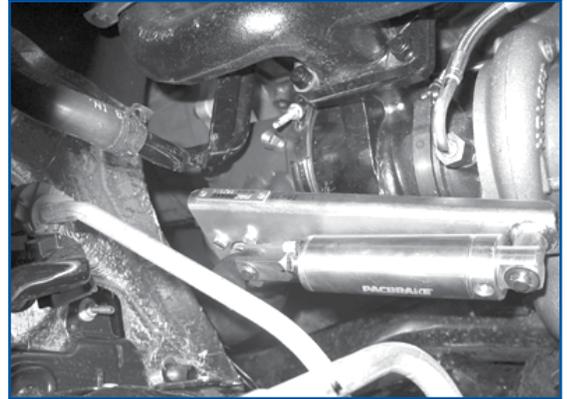
At the turbocharger locate the 2 “V” clamps fastening the exhaust elbow to the turbo and header pipe. To prevent damage to the threads when removing, apply a drop of oil as close to the nut as possible, then remove both. Save both “V” clamps for re-use. The factory elbow is indexed with two roll pins. These pins should remain in the elbow, if not, they MUST be removed from the turbo outlet flange. These are for alignment of the elbow at the truck assembly plant and are not required. Inspect the sealing face of the turbo for carbon or other imperfections. If necessary, clean or repair to assure a good seal will be made as no gaskets are used.



CAUTION:

When installing the PRXB Exhaust Brake, use care when handling the brake assembly to not damage the regulator spring and lever arm.

- 4** With the original turbocharger to elbow “V” clamp placed loosely over the turbocharger outlet, insert the Pacbrake housing into the exhaust system and rotate the housing until the turbo flange and the exhaust brake’s pressure flange are parallel. Install the turbo clamp loosely first, and then rotate the Pacbrake until the outlet flange aligns with the header pipe. Once proper alignment is achieved torque the turbo side clamp to 75 in-lbs (or 8.5 N•m). Now install the outlet side clamp and torque to 100 in-lbs (or 11.3 N•m).



5 Solenoid Installation

Choose a location to mount the solenoid valve. It should be mounted in a clean, dry area between the air tank and the exhaust brake with the exhaust port pointing down. Using the fasteners provided, secure the solenoid to the vehicle.



- 6** Using the fittings and nylon airline provided, source supply air from the tank, connect to solenoid port marked “IN”. Connect the solenoid port marked “CYL” to the air cylinder on the exhaust brake. Secure the airline with the tie-straps provided.

Note: a quick connect air chuck is provided in the accessory kit to connect the curly hose to the air source. Also provided is a tee fitting to supply air to the quick connect air chuck, install the tee fitting either at the air tank or the solenoid port marked “IN”. Install the air chuck in a clean dry area accessible to the operator.



- 7 Using the eye terminal provided, connect one of the two solenoid wires to a good chassis ground. The remaining solenoid wire connects to the single orange wire of the main harness installed in step 8.



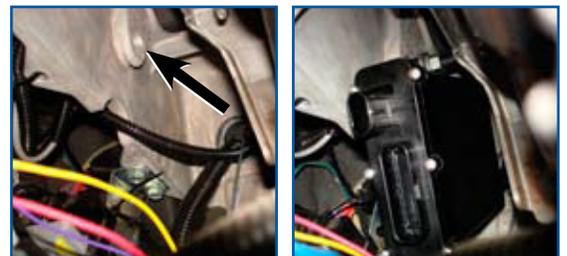
- 8 Remove the lower dash panel below the steering column. Locate the plastic plate in the driver side of the firewall. Drill a hole large enough to feed the Pacbrake harness through, then feed the harness into the engine compartment from the cab side. Once the harness is positioned and secured apply silicone around the loom to provide a seal. Connect the orange wire to the remaining solenoid wire, crimp the connector to the wire, then heat the connector to provide a water-tight seal.



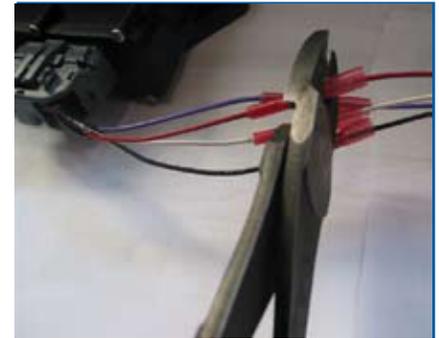
- 9 Locate the factory 3 Pin Weather-Pac connector on the the driver side of the engine (shown by the arrow). Remove the protective cap and install the mating connector in the Pacbrake harness. Install the protective cap removed on the unused connector on the Pacbrake harness. If you have a performance module connected to the 3 pin weather-pac, simply insert the Pacbrake connectors between the factory connector and the performance module connector. Secure wires with the tie-straps provided.



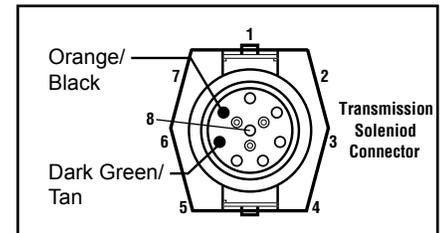
- 10 Mount the Pacbrake control unit to the aluminum bracket on the inside of the firewall as shown in the photo using the fasteners supplied.



11 Connect the purple, white, black and red wires of the dash switch (installed in step 1) to the corresponding coloured wires at the grey connector for the controller, as shown in the schematic on page 9. Once crimped, heat the connector to provide a water tight seal.



12a Route the leg of the Pacbrake harness with the Brown, Orange and Blue wires down the drive side frame rail to the transmission connector shown in the photo. At the connector, locate the Orange with Black tracer wire in pin #7. Cut this wire in a convenient location to install the butt connectors provided. Connect the Orange wire of the Pacbrake harness to the transmission side of the Orange with Black tracer and connect the Brown wire of the Pacbrake harness to the harness side of the Orange with Black tracer.

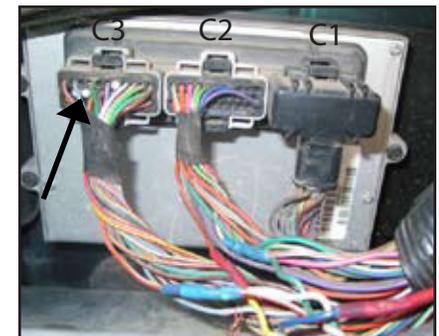


Locate pin #6 at the transmission connector. It should be Dark Green with a Tan tracer. Cut this wire in a convenient location to splice the Blue wire of the Pacbrake harness into the Dark Green factory wire, The butt connectors provided are heat shrinkable - they need to be heated for crimping the wires to provide a water tight seal.



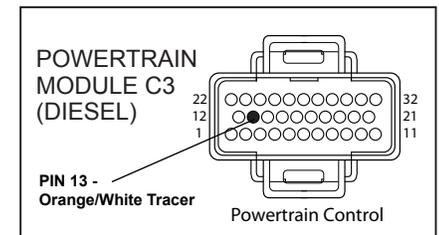
NOTE: If the wire colours in the transmission connector don't appear to be correct, ensure the pin location is correct. It is not uncommon for the VOEM to change wire colours in mid-production.

NOTE: Early 2003 vehicles will have 3 connectors at the PCM. The PCM is located on the passenger side of the firewall. For all vehicles with the PCM on the firewall follow step 12b, all others proceed to step 12c.



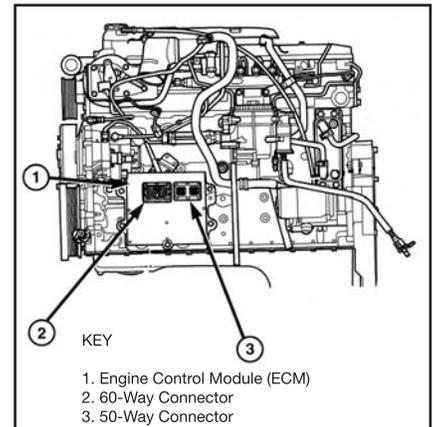
12b **EARLY PRODUCTION 2003 VEHICLES ONLY:**

Locate the PCM connector C3, remove the protective cover. Locate the Orange with White tracer wire found in pin 13. Cut this wire in a convenient location to splice in the Yellow wire of the Pacbrake harness, using the heat shrinkable butt connector provided crimp two wires in one end of the connector and one wire in the other end, heat the connector to provide a water tight seal.



12c LATE PRODUCTION 2003 VEHICLES ONLY:

Vehicles without the PCM on the firewall connect to the engine ECM on the driver side of the engine, below the intake manifold. The engine ECM has two connectors, the front connector is 60 pin and the rear is 50 pin. In the 50 pin connector, locate the Dark Green wire in pin 13. Cut this wire in a convenient location to splice in the Yellow wire of the Pacbrake harness, using the heat shrinkable butt connector provided, crimp two wires in one end of the connector and one wire in the other end, heat the connector to provide a water tight seal.



13 LOCATING AN IGNITION POWER SOURCE

Reconnect both positive battery leads

2004 and 2005 model year vehicle

Under the lower dash panel, along the left side of the steering column, runs a bundle of wires that include three PINK wires with GREY tracers of different wire gages. These wires should be 12 volt positive ignition power sources. Locate the thinnest, 16 gage, of the three, and use it to “T” tap into for ignition power source.

NOTE:

Check the circuit with a volt meter for ignition power and 12 volts prior to attaching the “T” tap. Using the BLUE “T” tap supplied, attach it to an ignition power source and then connect it to the fuse harness supplied.



14 NOTE: If the wheelhouse splash shields were removed, they may be reinstalled now by following the removal procedure in reverse.

15 CHECK OPERATION AND CONTROLLER PROGRAMMING

All Controllers come pre programmed for 48RE transmissions (two orange wire's approximately 6" from controller are disconnected).

Early 2003 trucks with 47RE transmissions should connect the two orange wires originating at the grey connector. Early 2003 trucks with 47RE transmissions which have been modified with aftermarket valve bodies and aftermarket lock-up torque converters which are able to hold lock-up during exhaust braking in the 1st and 2nd gears can use the later 48RE programming. The difference between the two programs is that the 48RE transmission program will allow exhaust braking in 1st and 2nd gears, where the factory 47RE transmission will not. Modified 47RE vehicles should test drive the vehicle. If lock-up will not hold during exhaust braking in 1st or 2nd gear, re-connect the two orange wires. To verify program within the Pacbrake control unit, simply turn the ignition ON, with the exhaust brake switch OFF. If exhaust brake cycle's 2 time's, the 47RE program has been loaded (orange wires connected). If the brake cycles 3 times it indicates the 48RE program (orange wire's disconnected).

Note: All vehicles with 48RE transmissions should have the orange wires disconnected.

FEATURES

The Pacbrake control unit has a built in warm-up feature. This feature will activate the exhaust brake at idle with the vehicle stationary when the Pacbrake switch in turned ON. When the coolant temperature reaches 170°F or 75°C, the control unit will disable the warm-up feature at idle. When performing a road test, the O.D. (overdrive) switch must be in the OFF position and the Pacbrake switch in the ON position. Some vehicles may have TOW/HAUL instead of O/D, if equipped, turn ON the TOW/HAUL feature with the Pacbrake switch in the ON position. Attain road speed above 40 MPH or 65km/h and release the accelerator pedal. The exhaust brake should apply, slowing the vehicle. Once the exhaust brake has brought the vehicle's engine speed below 900 RPM, the exhaust brake will disengage. When using the auxiliary coil hose for inflation, the Pacbrake switch must be turned ON with the engine running for compressor activation.

Dodge Compressor Wiring - 2003-2005 Vehicles

