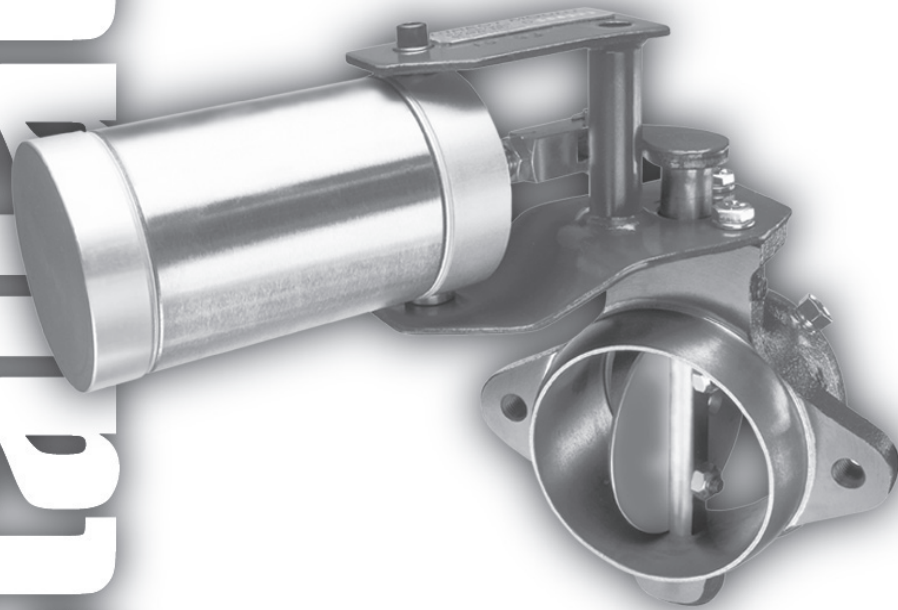


Installation



DirectMount[®]

C14024 / C14024E / C14025 EXHAUST BRAKES

Application:

1998-2002 DODGE RAM

WITH 24 VALVE TURBO DIESEL

PACBRAKE[®]
ENGINE & EXHAUST BRAKES

1

GETTING STARTED

Thank you and congratulations on your purchase of a Pacbrake Direct Mount® exhaust retarder. Before starting, check that the kit contains everything shown in photo.



Pacbrake kit C14024 is designed for maximum retarding on your 1998 and newer Dodge 24 valve turbo diesel engine.

Exhaust valve spring modifications are NOT REQUIRED.

NOTE: 1999 model year Ram trucks require an additional kit: C14099 (not shown in photo). Pacbrake kit C14025 includes the C14099 kit.

NOTE: 1998 model year Ram truck's computer is not turned on for electronic interface. It is recommended for this year to install mechanical wiring. The computer can be turned on for exhaust brake with a service charge.

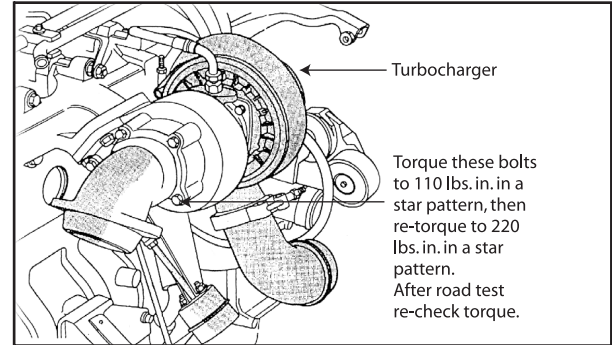
2

1998 MODELS. Remove and save exhaust-side turbo V-clamp and exhaust pipe flange capscrews. Remove elbow and discard. Inspect the sealing face of turbo for carbon or imperfections which may cause exhaust leakage.



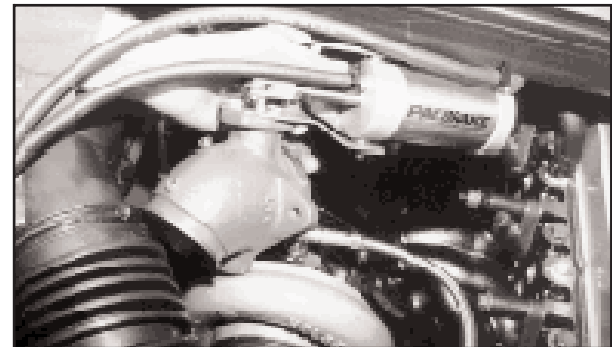
3

1999 MODELS AND NEWER have an integral elbow attached to the turbo charger outlet. Remove and save the two exhaust pipe flange capscrews that attach the exhaust pipe to the turbo outlet elbow. Then remove and save the 5 capscrews that attach the turbo outlet elbow to the turbocharger, remove the elbow and the gasket from the turbocharger. Check the gasket surface for imperfections, if OK, install the new turbo flange and new gasket supplied, re-using the five bolts removed earlier. Torque these bolts to **110 lbs.in.** in a star pattern, then re-torque to **220 lbs.in.** in a star pattern. After road test re-check torque.



4

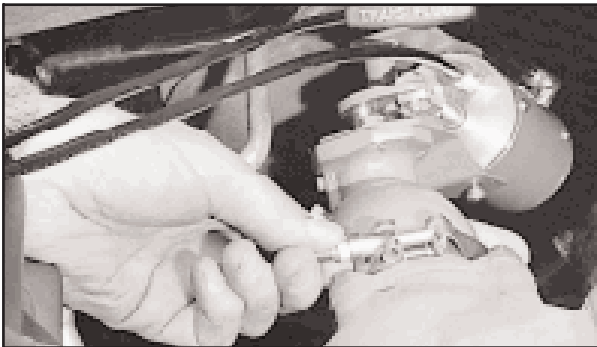
A single length of cylinder vacuum hose is supplied in this kit. Install each end of this hose on both cylinder barbed fittings by moistening the fittings and firmly pushing the hose to the end of the barbed portion. Install the hose clamps and tighten.



5

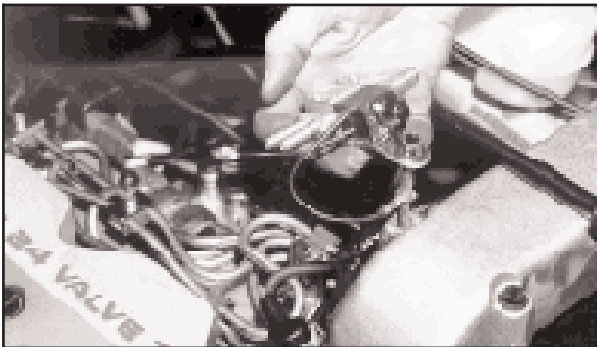
Install the Pacbrake and loosely install the turbo V-clamp.

Loosely install the flange bolts and align the Pacbrake to achieve maximum clearance between the exhaust manifold and the vacuum cylinder. For vehicles with automatic transmissions it is very **important that the transmission dipstick tube does NOT contact the Pacbrake cylinder or bracket.** Bending to allow clearance will be necessary—DO NOT pry on the Pacbrake. To correctly adjust dipstick tube clearance, remove dipstick and insert a 1/2" diameter rod down the tube approximately 8", then push the bar towards the drivers side of the vehicle. Interference could cause the brake to remain in the ON position. Tighten turbo clamp first and then exhaust flange bolts. DO NOT OVER TORQUE. Torque turbo clamp to **72 lb.in. (6 lbs.ft.)**. Torque flange bolts alternately to **25 lbs.ft.**



6

Install control solenoid and bracket on intake horn. Ensure that the ground terminal is under bracket. Torque to **18 lbs.ft.**



7

Locate the vacuum pump (see vacuum diagrams). Remove the vacuum hose from the pump, leaving the original clamp attached to the molded hose end. Attach this hose to the center leg (larger) of the T-fitting, making sure the original clamp secures the connection. Route the looped hose from the Pacbrake cylinder to the control solenoid. Cut the hose at the appropriate location and **connect each end to the proper solenoid port. Check to ensure the cylinder hoses are at the correct port numbers as shown in the diagram.**

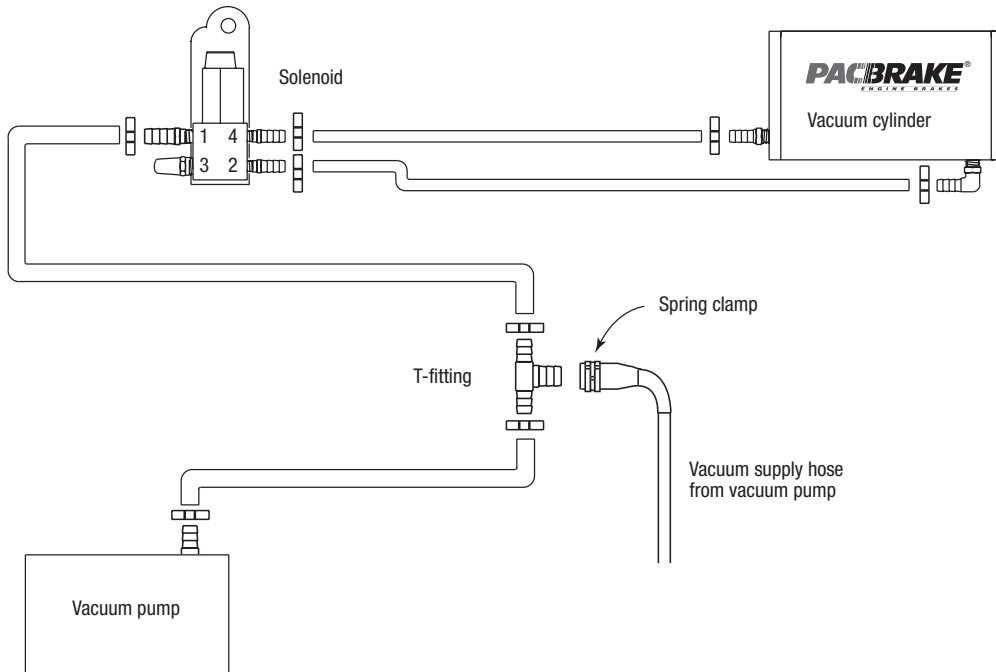
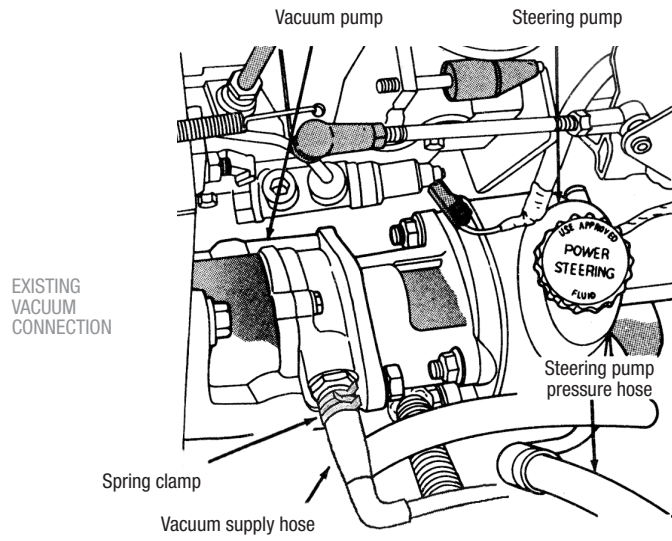


8

Select one of the large vacuum hoses provided, and attach one end to the vacuum pump port and the other end to the Pacbrake T-fitting. Attach the remaining large hose to the T-fitting and route it to the large barbed fitting at the control solenoid. Install clamps at all locations and tighten.



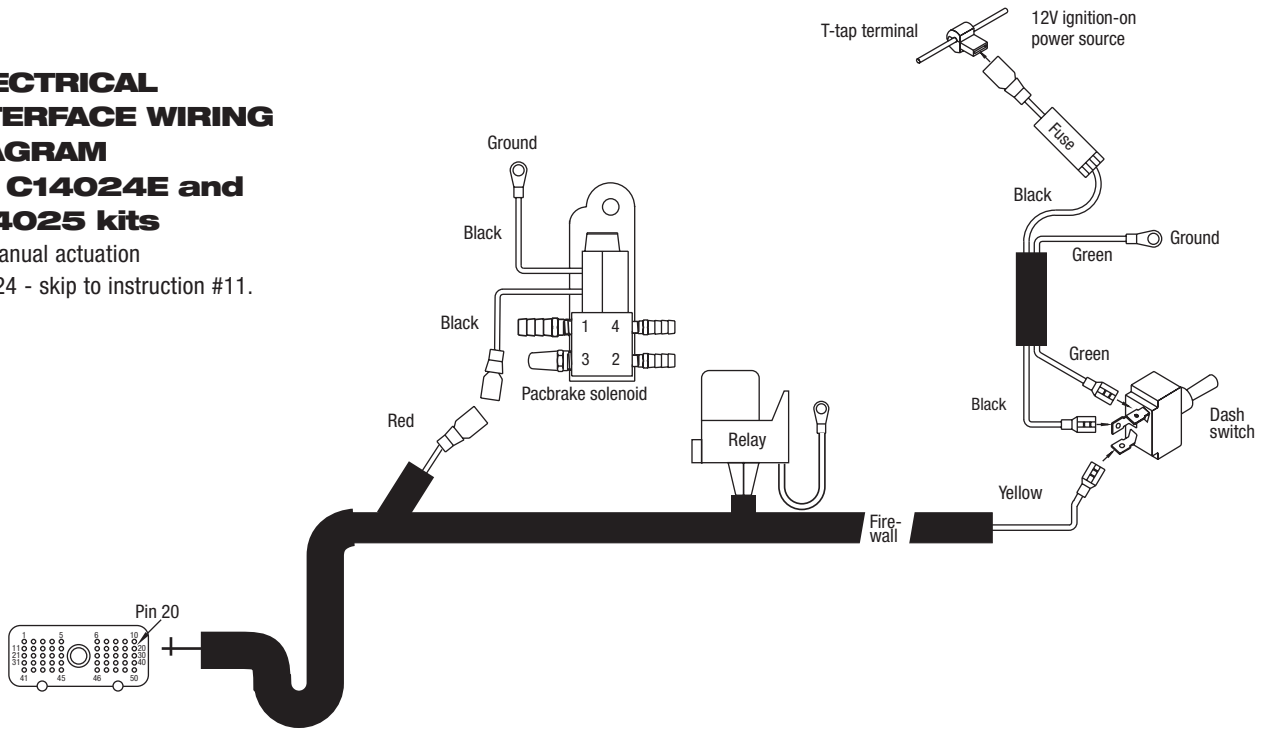
VACUUM DIAGRAM



ELECTRICAL INTERFACE WIRING DIAGRAM

for C14024E and C14025 kits

For manual actuation
C14024 - skip to instruction #11.



9

ELECTRONIC WIRING HARNESS WITH ECM CONNECTION

- In a convenient location on the driver's side of the engine compartment, using the self-tapping screw provided, mount the PACBRAKE relay receptacle with the green ground terminal under the screw head. Install relay.
- Route the loomed yellow wire through the firewall grommet into the cab to be connected to the dash switch later.
- Route the loomed red and black wires to the PACBRAKE solenoid and connect the red wire to the solenoid.

ECM CONNECTION

- Disconnect both negative battery cables.
- Remove the two capscrews that attach the fuel filter head to intake manifold, this should allow enough clearance to access the 50 pin connector.
- Locate the 50 pin connector at the ECM.
- Locate port #20 and remove the sealing plug, the plug can be removed with needle nose pliers. Be careful not to push it in.
- Insert the black wire of the PACBRAKE harness into pin #20 until it stops, then pull gently to ensure the terminal is locked in place.

- Using the plastic ties supplied secure the PACBRAKE harness to the Dodge main harness. Be sure to follow DRIP LOOP in the Dodge harness when securing the PACBRAKE harness.

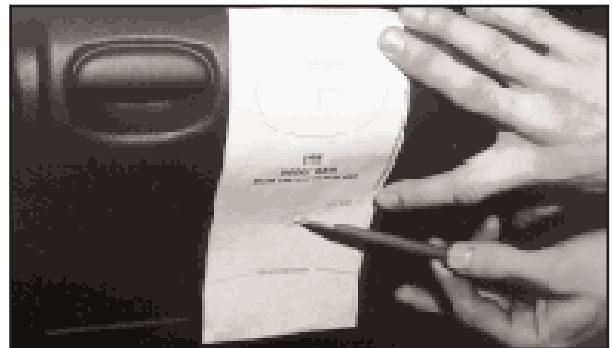
- Reinstall the fuel filter head to the intake manifold.

NOTE: Vehicle ECM has a 3 second delay in activating the exhaust brake.

10

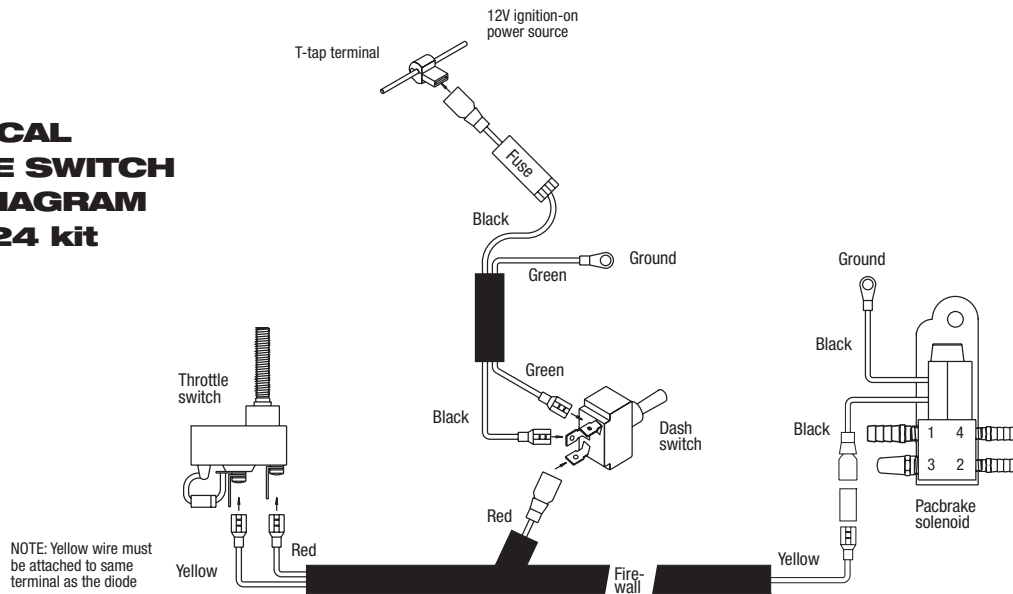
DASH SWITCH INSTALLATION

Remove dash panel below steering column. Page 7 of this manual is a template for the suggested location for the PACBRAKE dash switch. Depending on the vehicles options, this location may be used. An alternate location is in the lower dash panel, below the steering column. (It is a good idea to consult the operator of the vehicle for their preference.) Most importantly, locate an area which is free from obstruction. Note the panel is double wall construction and the inner wall will require modification to accept the dash switch. Drill a 1/2" hole, install the switch and wires as shown in the schematic for your application.



Skip to instruction #14.

MECHANICAL THROTTLE SWITCH WIRING DIAGRAM for C14024 kit



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THROTTLE SWITCH INSTALLATION

- Locate the stud, by the throttle pedal, shown here and remove the nut.
- Install the throttle switch assembly with the switch arm horizontal. Reinstall the stud nut and tighten, making sure the switch arm is behind the throttle lever.
- Adjust the switch by loosening the screws and positioning it to "click" as the throttle returns to its released position. Cycle the throttle and listen for the click sound each time the throttle returns to idle.
- Feed the yellow wire through the boot inside the steering column into engine compartment.



12

ENGINE COMPARTMENT

Connect the yellow wire from the cab to the remaining solenoid wire using the splice connector supplied in the kit. Secure all wiring and hoses away from heat and moving parts using the plastic ties provided.

13

POWER SUPPLY INSTALLATION, MECHANICAL AND ELECTRONIC APPLICATIONS

At the base of the steering column, locate the 14 gauge black wire with an orange stripe, or suitable ignition power supply. Attach the blue T-tap terminal to this wire. Insert the black fused wire into the T-tap. Secure wires with plastic ties provided. Reinstall the lower dash panel.



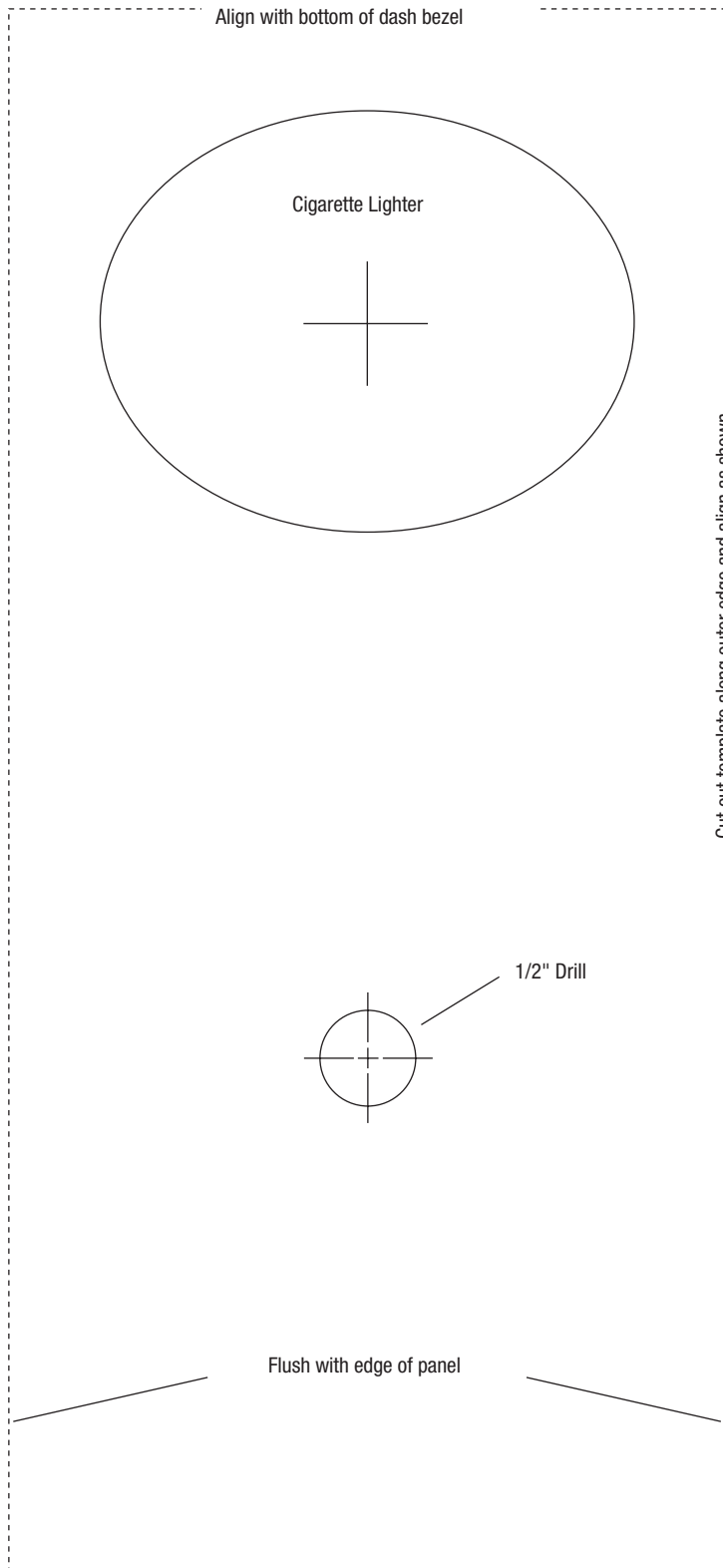
14

You are ready to check operation. Start engine and turn Pacbrake on (engine will idle with Pacbrake engaged). Move throttle from idle to approximately 1200 rpm (Pacbrake should disengage before throttle rpm reaches 1000 rpm) and back to idle several times, observing operation. Readjust throttle switch if necessary.

Check for exhaust leaks at all connections. Shut engine down and do a final check of all clamps, fittings, wiring and plastic ties.

Warm-up your cold engine in half the normal time—let the engine idle with the Pacbrake in the ON position—it's OK.

Congratulations, you have completed the installation. For driving tips and more information, refer to the driver's guide.



NOTE: Template location is only a suggestion. Access to back of this location is difficult and wires must be installed on switch terminals prior to installation.

Cut out template along outer edge and align as shown.



7 | PACBRAKE INSTALLATION

NEED TO KNOW MORE ... 800-663-0096 www.pacbrake.com

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