

# Installation MANUAL

**PACBRAKE**<sup>®</sup>  
ENGINE & EXHAUST BRAKES



**C20066/C20066ST**

**DIRECT MOUNT, FIXED ORIFICE EXHAUST BRAKES**

**C40066/C40067**

**INLINE MOUNT PRXB™ EXHAUST BRAKES**

**APPLICATIONS:**

2001 to January 1<sup>st</sup>, 2004 GMC Duramax Diesel - 2500 and 3500 Models Only  
With Automatic or Manual Transmissions

## Before Starting

Before installing an exhaust brake on a vehicle built after December 31st 2003, please check the vehicles VIN. The 8th digit in the VIN is the engine identification and will be either a number 1 or 2. The number 1 in the 8th digit of the VIN is approved for the addition of this exhaust brake. The number 2 in the 8th digit of the VIN is the new engine designation and requires Pacbrake kits C40068, C40069, C40070, or C40071, consult Pacbrake application guide.

Pacbrake offers two types of exhaust brakes for your Duramax equipped truck, a fixed orifice exhaust brake and a PRXB performance exhaust brake. Pacbrake kits C20066 and C20066ST include our standard fixed orifice exhaust brake and kits C40066 and C40067 include our PRXB performance exhaust brake. The difference between C20066 and C20066ST is the compressor mounting location. The preferred compressor mounting location is on the engine where the optional 2nd alternator would mount. For vehicles with the 2nd alternator option and an automatic transmission a C20066 kit or C40066 kit includes an alternate compressor mounting location.

### 1 Getting Started

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

**C20066 / C40066 Kit Layout**



**C20066ST / C40067 Kit Layout**



*NOTE: PRXB exhaust brakes shown in both kit photos*

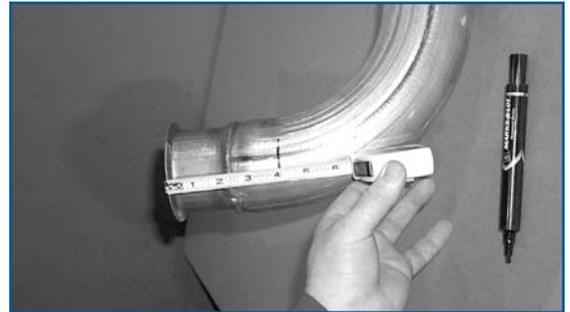
### 2 **C20066 / C20066ST** **DIRECT MOUNT INSTALLATION**

For C40066 / C40066ST Inline Installation, proceed to step 8.

From below the vehicle remove the exhaust header pipe. This requires removal of the "V" clamp at the front, the 4 bolt flange at the rear, and a portion of the pipe hanger. Discard the 4 bolt flange gasket.



- 3** As shown, measure 4" from the header pipe flange and mark the pipe. Cut the pipe and deburr.



- 4** Using the new adapter flange supplied, check the fit on the cut pipe. The pipe may need to be reshaped to obtain a decent fit for welding later. To prepare the pipe assembly for fitting, slide the large gear clamp on the pipe followed by the adapter. Slip the clamp over the three legs of the adapter and tighten just enough to hold the adapter in place.



- 5** Install the remote breather line onto the barbed fitting of the Exhaust Brake cylinder. Install the small breather filter on the other end of the line and using tie-straps, secure both. Select the smaller "V" clamp (part #10642) and loosely attach the exhaust brake to the engine exhaust flange, rotating to obtain 1/2" clearance between the transmission and the cylinder bracket. Check the brake to engine outlet flange alignment by viewing the brake's I.D., it should be centered on the flange.



- 6** Remove the bell-housing capscrew shown in the photo below. Install the support brace (end without the elongated hole) on the bell-housing capscrew and loosely install. Loosely install the other end of the support brace to the bushing on the Pacbrake anchor bracket using the capscrew and washer provided. If the exhaust brake is centered on the exhaust outlet flange, this support brace should line up without modifications. If not, adjust the exhaust brake on the outlet flange to attain a perfect fit. Tighten the two support brace capscrews and the "V" clamp alternately until tight. Torque the "V" clamp to 12 lbs. in. Install the heater hose supplied on the lower transmission cooling line and use the tie-straps provided to protect it from the support brace.



- 7** Reinstall the header pipe. Once in position, loosen the gear clamp and adjust the flange angle for a perfect fit.

**Caution: The exhaust system is rubber mounted and has a lot of movement, consider this in your adjustment of the Pacbrake adapter.**

Then simply tighten the gear clamp enough so the adapter will not move and remove the header pipe for welding. Tack weld to secure. Remove gear clamp. Break off the three tabs and complete the weld and reinstall the header pipe. Using the remaining "V" clamp supplied, torque to 12 lbs ft. Reinstall the pipe hanger making sure the gasket is in place and then tighten the 4 rear flange nuts. Proceed to step 11.



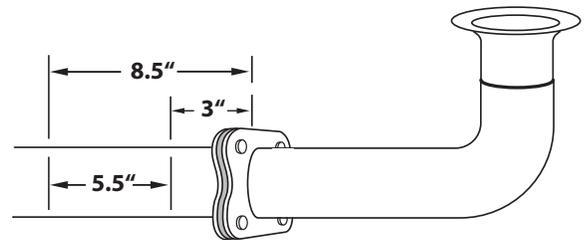
## **8 Inline PRXB Installation Only**

**NOTE: Confirm the vehicle has the factory exhaust system of 3 ½ inch diameter, if the vehicle has an aftermarket 4 inch exhaust, contact Pacbrake for replacement adapters.**

**NOTE: Check the alignment of the header pipe flange to the turbo outlet pipe. Exhaust leaks at this connection will effect exhaust brake performance.**

**Measure 3 inches from the four bolt flange towards the rear of the vehicle and mark the pipe.**

Measure 8 ½ inch from the four bolt flange towards the rear of the vehicle and mark the pipe. Cut the exhaust pipe on the 8 ½ inch mark. Remove the four bolts fastening the flange and remove the piece of pipe. Cut the pipe on the 3 inch mark and discard the 5 ½ inch section. Weld one of the two adapters supplied on the 3 inch pipe, being careful, to maintain the proper length and any angle that may exist. Welding can be done on the inside or outside of the adapter, but it must be leak free. Clean both of the gasket surfaces of the four bolt flange.



- 9** Install the remaining exhaust adapter over the rear section of the exhaust. Using the new gasket supplied, install the front section of the exhaust pipe. Using one of the two "V" clamps provided, install the Pacbrake exhaust brake, rotate to attain clearance, torque clamps to 10 lbs.ft. 13 N•m. Tack weld the rear adaptor to the exhaust pipe to secure. Install the band clamp supplied over the rear exhaust adapter and torque to 50 lbs.ft. 70 N•m

**NOTE: Position the regulator spring and air cylinder so it is protected from debris by the frame rail.**

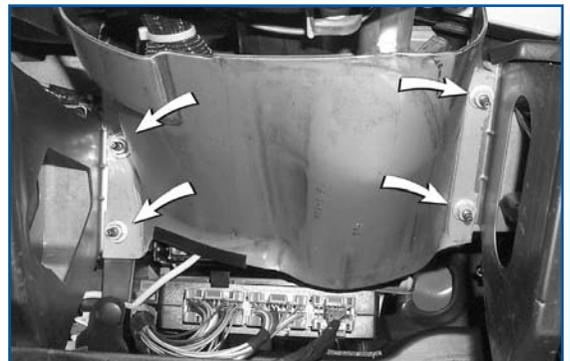


- 10** **ALL MODELS**  
Install the remote breather hose onto the barbed fitting of the Pacbrake cylinder. Secure with a tie-strap. Install the bronze muffler into the end of the hose, secure with a tie-strap. Route the hose to a clean dry location, secure the hose with the tie-straps provided. Install the 90° fitting into the air cylinder using thread sealant. Connect the ¼" nylon airline to the fitting in the air cylinder. Route the line to the compressor mounting location. Secure the air line away from heat sources and moving parts using the tie-straps provided.



## **11** Wiring Instructions

Remove the lower dash panel. It is secured with 2 screws at the lower edge and clips at the top. Remove the 4 nuts securing the steering column shield and remove.



- 12** Remove 1 relay from its receptacle in the wiring harness and using a tie-strap and the receptacle mounting hole attach the assembly to a location under the dash as shown. Replace the relay.

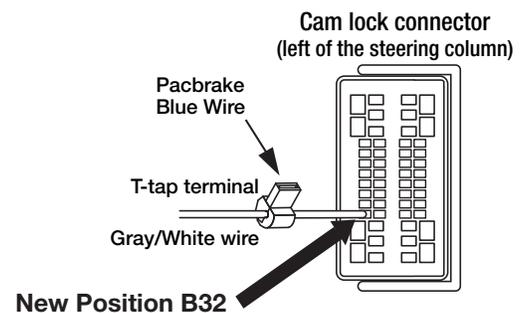


**13** **2001 to 2002 MODEL YEAR VEHICLES**

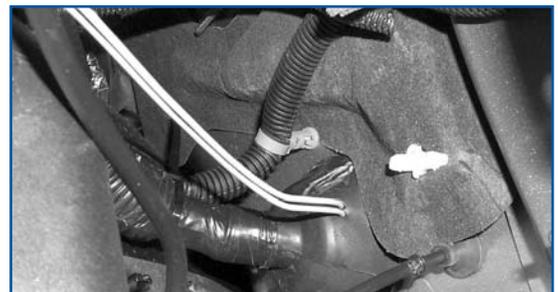
Locate the 48 way metri-pac multiwire vertical connector on the left side of the steering column. Select the blue electrical "T" tap supplied, and tap into the gray wire 6 down from the top. See photo. Plug the blue wire of the Pacbrake harness wire into the "T" tap.

**14** **2003 to 2004 MODEL YEAR VEHICLES**

Locate the cam-lock connector on the left side of the steering column. Locate the gray/white tracer wire in position B32, attach the "T-tap supplied and connect to the blue wire of the Pacbrake harness. Plug the blue wire of the Pacbrake harness into the "T" tap.



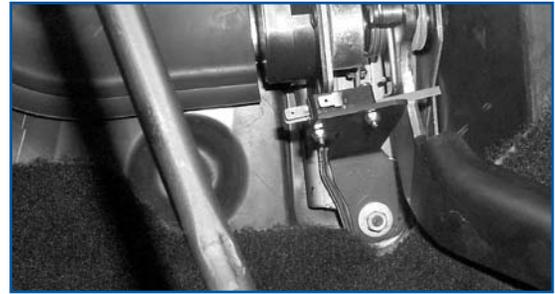
**15** Feed the two 14 gage Red wires, the Black and the Green wire through the firewall boot into the engine compartment. Route either one of the two Red wires to the battery on the drivers side and the other three wires to the compressor mounting location for connection later. Cover all the exposed wires with the loom and secure with tie straps provided.

**16** **Throttle Switch Installation**

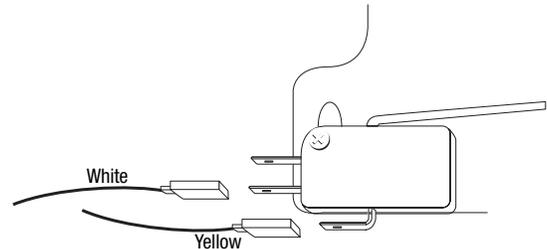
Remove the lower nut which secures the throttle pedal mechanism to the body inside the cab.



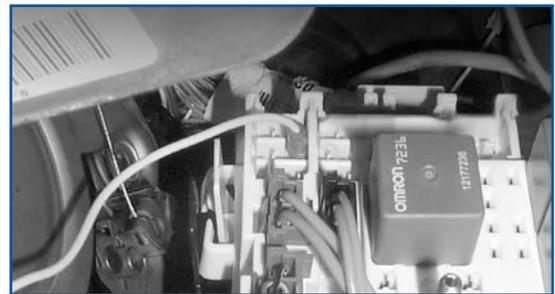
- 17** Install the Pacbrake throttle switch assembly over the stud ensuring that the switch actuating arm is on top of the accelerator lever. Tighten the nut. Switch adjustment must be made to ensure the micro switch clicks when the throttle pedal returns to an idle position and disengages when light throttle pressure (1/8" movement) is applied.



- 18** Locate the leg of the harness with the yellow and white wires and connect them to the throttle switch as shown.



- 19** Locate the electrical box (mid-bec) on the left of the steering column. Remove the cover and locate the ignition power supply terminal in the upper left corner. Connect the green wire from the short harness leg to the 6 amp terminal upper left. (See wiring Schematic on page 10) Attach the double black and single green wire eye terminals to a good vehicle ground.



## **20 Dash Switch Installation**

See note on Page 10.

Switch location can vary depending on customer choice or the availability of space. A template is provided for a suggested location in the lower dash panel. This panel is double walled and requires a rectangular hole on the inside to accept the switch. Align the template and drill a pilot hole. Cut the rectangular hole out of the template and position the template to mark the hole. Drill a 1/2" hole through the panel and remove the necessary material from the inner panel to accept the switch. Connect the wires as per the schematic and reinstall the steering column shield and dash panel.

Apply decal to visible side of driverside visor.



### **IMPORTANT DRIVING INFORMATION**

Your vehicle is equipped with a Pacbrake Exhaust Brake. Optimum performance is achieved at higher RPM.

- Gearing down may be necessary.
- **DO NOT** exceed 3500 RPM.

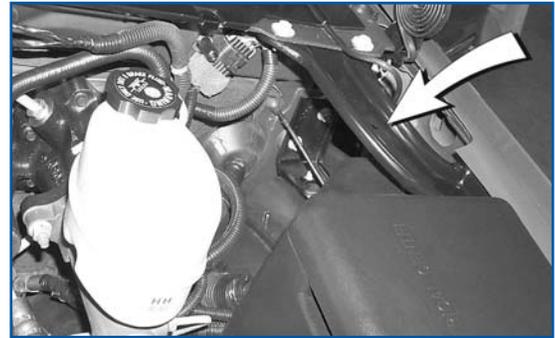
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**PACBRAKE**

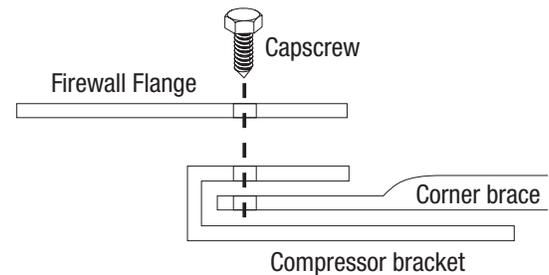
## 21 Compressor Installation

### C20066 AND C40066 KITS ONLY

Remove the 4 cap screws that mount the drivers side corner brace. (see arrow)



- 22** Position the Pacbrake compressor bracket flange under the firewall flange with the corner brace under the compressor bracket. Loosely install the 4 cap screws.



- 23** Install the 1/4" bolt supplied through the existing corner brace hole and compressor bracket. Attach the ground wire from the compressor on to this bolt, and loosely attach the nut and washer. Check for clearance around the compressor and tighten the 1/4" bolt and the 4 corner brace capscrews.



## 24 Compressor Installation

### C20066ST AND C40067 KITS ONLY

Loosen and remove the capscrew that fastens the ground terminal bar to the support, loosely install this capscrew through the Pacbrake compressor support bracket. Loosely install the 2 metric capscrews supplied through the compressor mounting holes, tighten all capscrews including the 1/4" support bracket capscrew. See photo.



- 25** At the compressor, connect the three remaining wires installed in step 15. Connect the remaining Red wire of the harness to the Red wire of the compressor, connect the Green wire of the harness to the Black wire of the solenoid valve, use the heat shrinkable butt connectors, once crimped, heat the connector to provide a water tight seal. Crimp the push on terminal to the Black wire of the Pacbrake harness and connect it to the open terminal at the pressure switch. Using the inline fuse harness supplied, connect to the Red wire routed to the positive battery terminal in step 15, connect the eye terminal to the positive battery terminal. Connect the ¼” airline installed in the air cylinder (step 10) to the compression fitting on the solenoid port marked “CYL”.



## **26 Check Operation**

With ignition and dash switch on and the cruise control switch off, the compressor will cycle to actuate the brake. Compressor will stop pumping, the exhaust brake will remain actuated. Apply slight throttle pedal pressure and air will discharge, turning brake OFF. Start engine and turn Pacbrake ON (engine will idle with Pacbrake engaged). Advance the throttle from idle to approximately 1,200 RPM and back to idle several times, ensuring that the Pacbrake applies and releases each time.

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

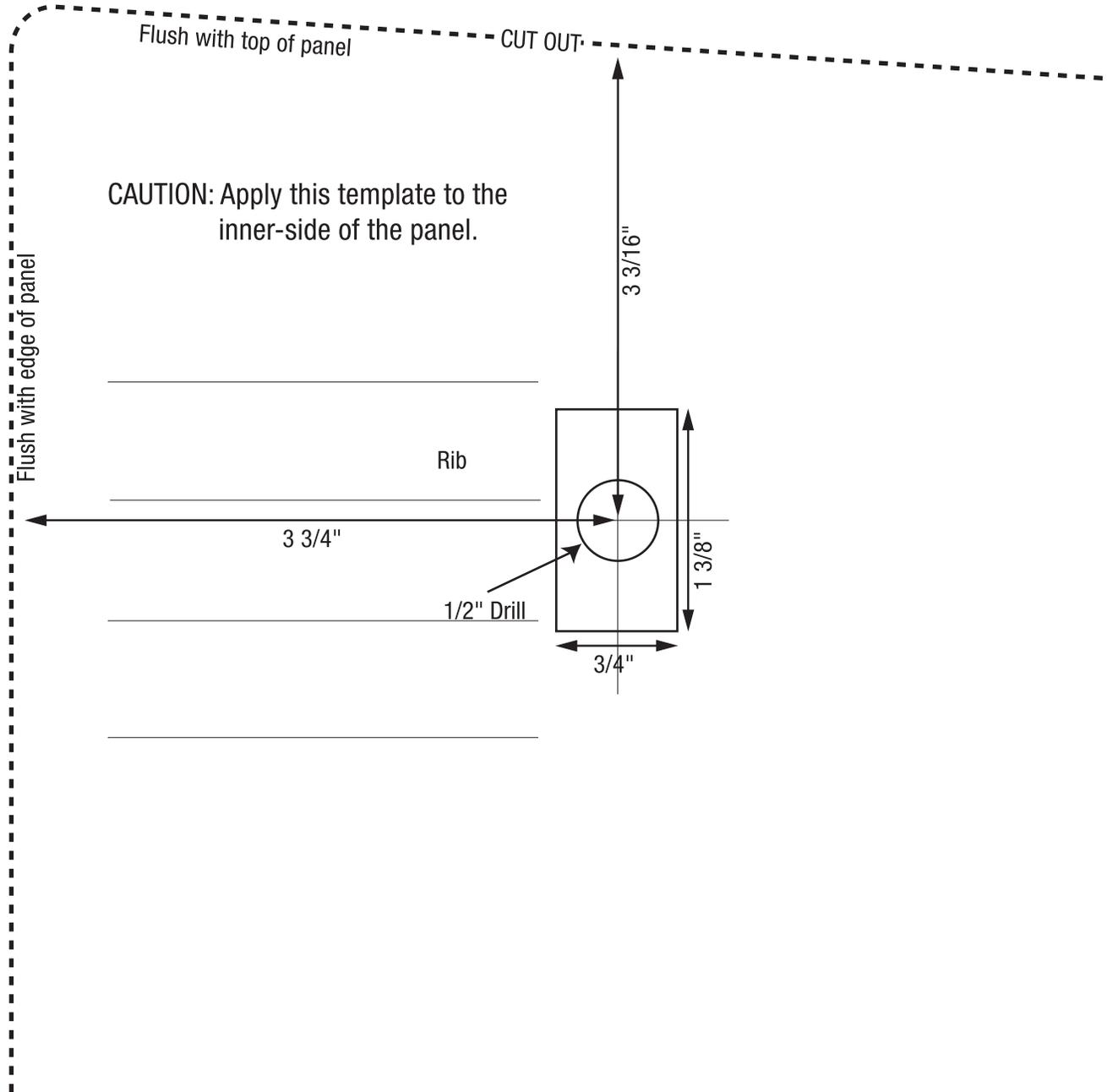
Road test the vehicle. With cruise control activated, turn Pacbrake switch ON. With the throttle released the Pacbrake should not operate.

Retorque clamps after 100 miles (engine should be cold).



# Duramax Dash Switch Template

**NOTE:** This panel is double walled. It requires a 1/2" hole through both walls and a square cut hole through the inner wall only



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