

# Installation

**PACBRAKE®**



## **GMC 4500/5500** **EXHAUST BRAKE**

**APPLICATION:**

**Duramax 6.6 liter**

**FOR MANUAL AND AUTOMATIC TRANSMISSION VEHICLES  
LB7 & LLY ENGINES**

## Getting Started

Thank you and congratulations on your purchase of a Pacbrake Direct Mount\* exhaust retarder kit.

### BEFORE STARTING THE INSTALLATION

On vehicles with LLY engine options, please consult page 9 of this manual to ensure that your ENGINE ECU has the same three connectors shown (two 56 pin connectors and one with 72 pin). IF YOUR LLY ENGINE HAS TWO CONNECTORS AND THE LARGEST HAS A 96 PIN CONNECTOR, YOU CANNOT PROCEED WITH THE EXHAUST BRAKE INSTALLATION. Please consult the Pacbrake Factory at 800.663.0096.

Pacbrake offers two kits for this vehicle.

**C20042** for vehicles without a factory air compressor.

**C20041** for vehicles with the factory installed air compressor. These are found when the vehicle is equipped with an air seat.

Before starting the installation, check that your PACBRAKE kit contains all the necessary parts.

The parts for these kits are shown below.

# 1

#### C20040 MOUNTING GROUP

#### C20042 CONTROL GROUP

#### C20044 OR C40300 EXHAUST BRAKE (FIXED ORIFICE OR PRXB)

**NOTE: THIS KIT IS DESIGNED FOR 2002 AND NEWER 4500 AND 5500 GMC TRUCKS EQUIPPED WITH A DURAMAX 6.6L ENGINE AND REQUIRES PACBRAKE COMPRESSOR GROUP**

THIS PHOTO CONTAINS 3 PART NUMBERS



# 2

#### C20040 MOUNTING GROUP

#### C20041 CONTROL GROUP

#### C20044 OR C40300 EXHAUST BRAKE (FIXED ORIFICE OR PRXB)

**NOTE: THIS KIT IS DESIGNED FOR 2002 AND NEWER 4500 AND 5500 GMC TRUCKS EQUIPPED WITH A DURAMAX 6.6L ENGINE AND HAS A FACTORY INSTALLED AIR COMPRESSOR.**

THIS PHOTO CONTAINS 3 PART NUMBERS



- 3** From below the vehicle, remove the two nuts at the exhaust flange, save the gasket for reuse later.  
From in the cab remove the dog house. Remove the exhaust "V" clamp above the transmission bell housing to remove the header pipe.



- 4** As shown, measure from the exhaust brakes pressure flange to the end of the Pacbrake adapter. Keep in mind the adapter is expanded to fit over the original pipe.



- 5** Transfer this measurement to the header pipe, cut and deburr.



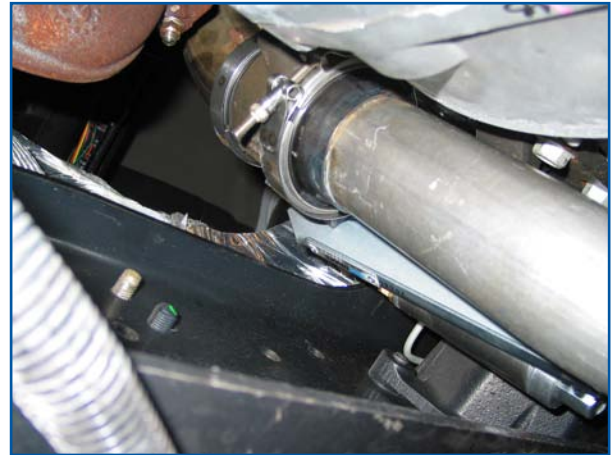
## Exhaust Brake Installation

**6**

Select the smaller "V" clamp (part #10642) and loosely attach the exhaust brake to the engine flange with the cylinder towards the rear of the vehicle as shown in the photo. Rotate the brake to obtain the maximum clearance between the frame rail and the exhaust brake. Make sure the exhaust brake is centered on the flange, then torque the "V" clamp to 12 ft lbs.

**7**

Clamp the exhaust flange to the brake outlet flange using the remaining V-clamp. Align the header pipe and tack weld. Remove the clamp and pipe assembly for final welding. Once welding is complete reinstall the header pipe, torque the "V" clamp to 12 ft lbs and tighten the two nuts at the flange. Install the dog house





## Compressor Installation

**8**

### **VEHICLES WITHOUT THE FACTORY AIR COMPRESSOR**

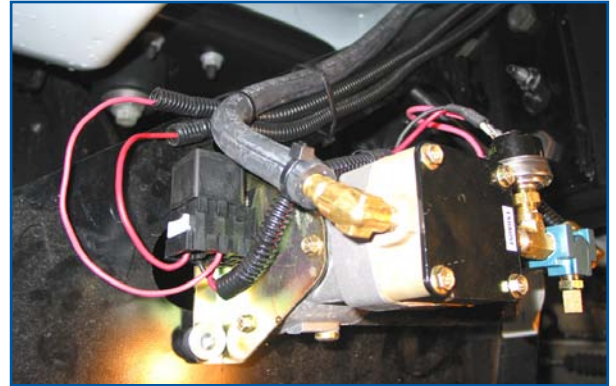
**For vehicles with the factory air compressor, proceed to step 9.**

Mount the compressor assembly under the cab on the drivers side using the hardware supplied. A template is supplied on the back page.

Attach the two black wires with eye terminals to a good chassis ground.

Note the position of the relay receptacle, the relay wire ends must point down. A remote breather is supplied for the compressors air intake, the breather must be in a location free from moisture.

Install the teflon line into the 90 degree fitting at the solenoid and tighten. Route this line away from heat sources to the fitting at the exhaust brakes air cylinder and connect.

**9**

### **VEHICLES WITH THE FACTORY INSTALLED AIR COMPRESSOR**

Mount the solenoid valve inside the frame rail on the passenger side close to the exhaust brake. Connect one of the two solenoid wires to a good vehicle ground. The remaining wire will be connected to the red harness wire when installed at step 14. Using the fittings supplied, connect the port marked IN to the existing air tank or to the air supply to the drivers seat. Connect the port marked CYL to the exhaust brake cylinder.

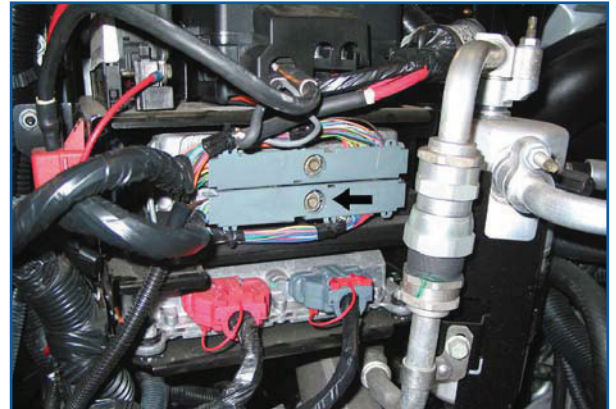


## Vehicle Wiring

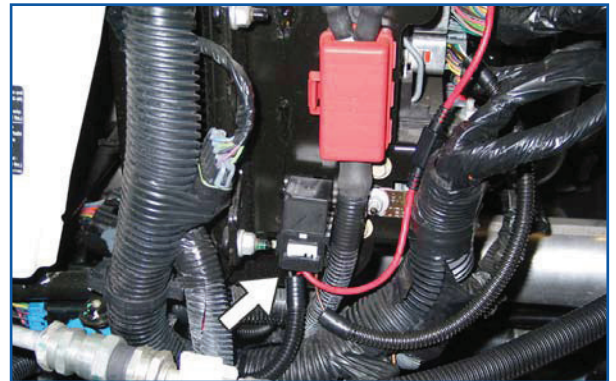
### 10 REMOVAL OF BOTH PASSENGER SIDE INNER FENDER SHIELDS REQUIRED

Disconnect the positive battery terminals. Starting at the ECM (engine control module) remove the center retaining capscrew of the lower connector. (See arrow on diagram) Insert the orange 20 gauge wire into port # 07. Reinstall the connector. Tighten the center retaining screw.

LB7 ECM shown in photo. *For LLY installations refer to installation procedure L5498 (Kit # C20078)*



### 11 Using the self tapping screw supplied, mount the relay receptacle on the side of the ECM bracket with the wire ends of the relay receptacle pointing down. Install relay. (see arrow on diagram) Connect the RED fused harness to a 12 volt power source.



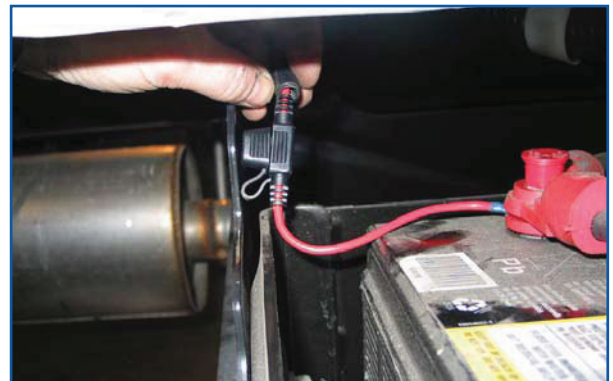
### 12 Under the ECM support bracket locate the two weather-pac connectors (see arrows). In the outer 30-pin connector locate the black wire with a white stripe in Pin C7. Cut this wire and T-Tap/splice the Pacbrake RED wire into the factory wire. Crimp the connector to the wire and heat the connector to provide a water tight seal.



- 13** Route the Pacbrake harness along the factory wiring to the lower (BLACK) 30 pin connector (see arrow on diagram). Locate the black wire in port #C3, cut the wire and T-Tap/splice the Pacbrake BLACK wire into the factory wire. Crimp the connector to the wire and heat to provide a water tight seal.



- 14** Route the end of the Pacbrake harness to the compressor or solenoid valve. Connect the RED wire of the Pacbrake harness to the Red wire of the compressor harness or the remaining black wire of the solenoid, with the heat shrinkable butt connector. Crimp and heat the connector to provide a water tight seal. Route the 10 gauge fused wire to the positive battery terminal in the passenger side battery tray and connect. Secure the entire Pacbrake harness with the ty-straps provided. Re-connect the positive battery terminals. Reinstall the two inner fender shields.



## Cab Wiring Installation

- 15** Remove the dash panel to access the switch compartment. The dash is pre-wired for the factory switch, GMC part # 15010301. The factory location for the exhaust brake switch is the bottom row, far right. Once the panel has been removed, confirm the receptacle has a light green wire in port C and a black wire in port A, these are the exhaust brake activation wires. If you are installing the factory switch, remove the cover from the receptacle and plug into the dash switch and install into the dash panel. If the factory dash switch is not available, you may use the Pacbrake dash switch supplied. Drill a 1/2" hole in a convenient location to the driver, then connect the light green wire in port C to one side of the Pacbrake switch and the black wire in port A to the other side of the Pacbrake switch. See wiring schematic.





## Check Operation

**16****IMPORTANT NOTE**

**The ECM will not enable the exhaust brake until the engine is warmed up (water temperature above 175°F).**

*Vehicles equipped with an Allison Automatic Transmission require a road test, the exhaust brake will not activate w/o road speed.*

To test the exhaust brake, warm-up engine to operating temperature. Turn the exhaust brake switch to the on position. Road test providing high engine RPM, then release the throttle. The exhaust brake symbol should appear in the drivers information center in green and the exhaust brake should activate. Press the accelerator and the exhaust brake should release immediately.

Congratulations! You have completed the installation. Fill out the Pacbrake warranty card and submit it to Pacbrake for warranty registration.

## Important Note

### AIR TANK KIT (optional)

**P.N. C11941**

An optional 1/2 gallon air tank kit is now available for this vehicle from Pacbrake. **The addition of the tank will speed up the application of the exhaust brake,** and provide an air reservoir for limited accessory use.

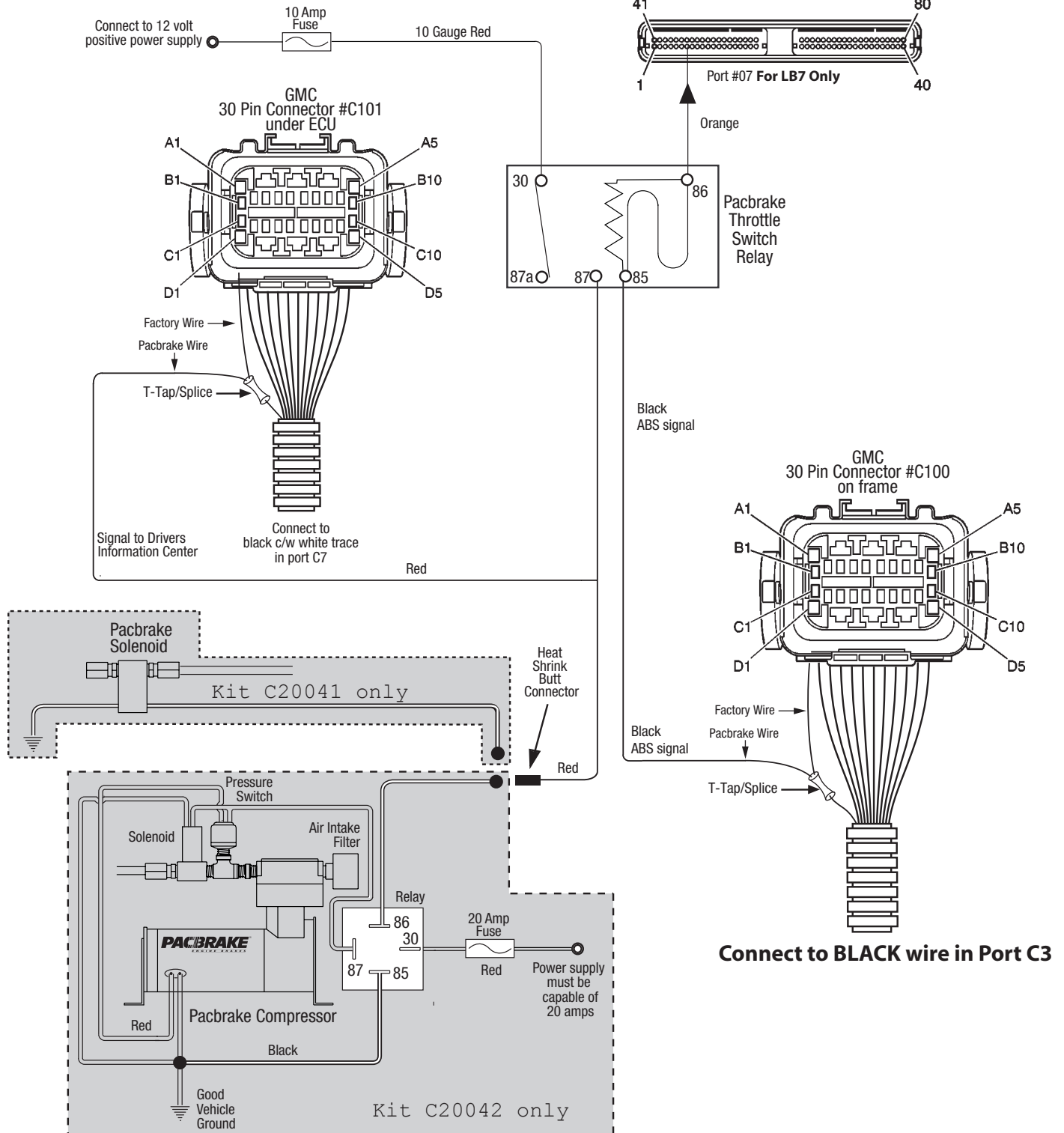
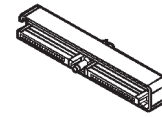
Part number C 11941 available through the Pacbrake distribution system.





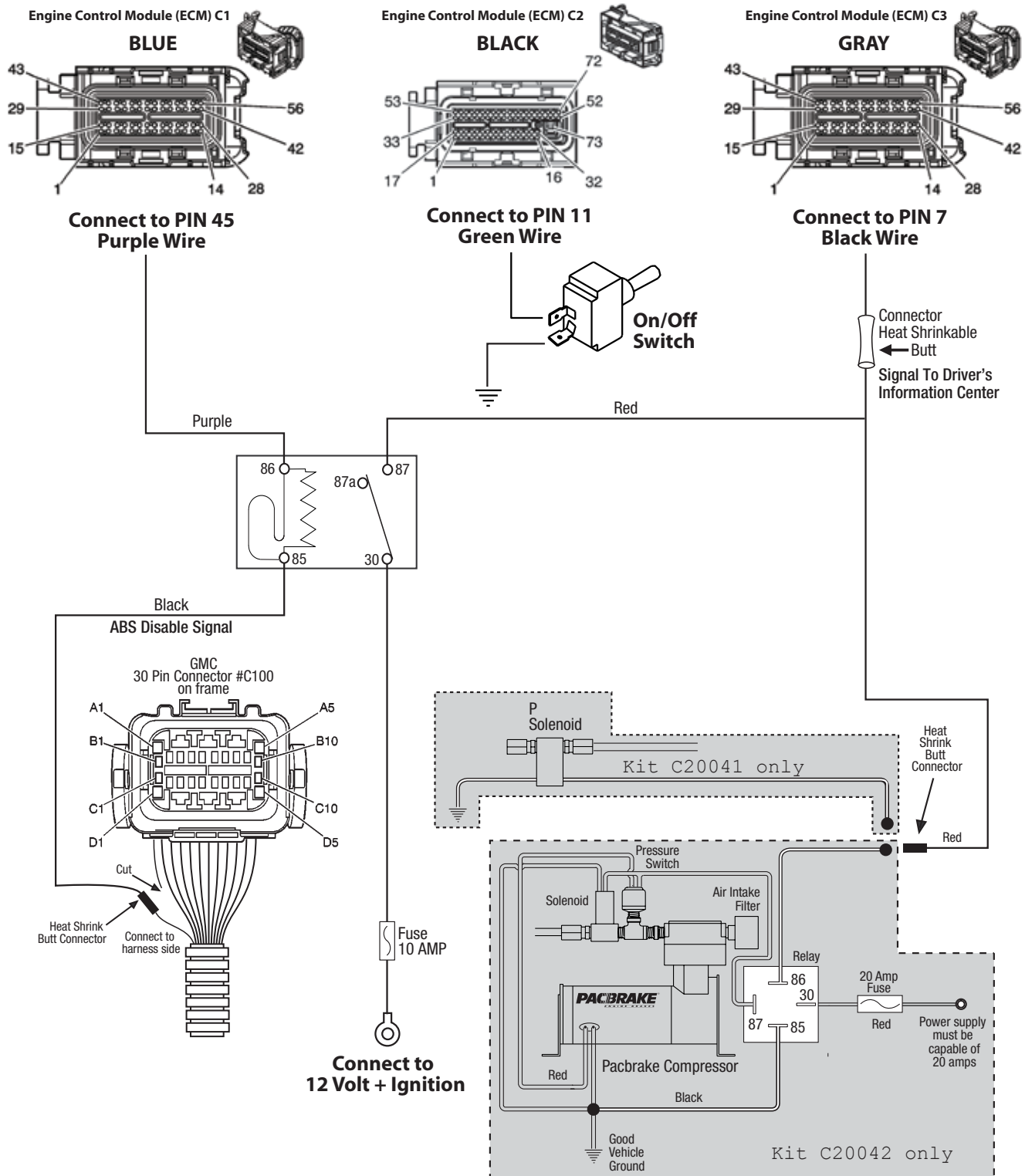
## Wiring Schematic - LB7 Engine Option ONLY

For LLY Engine Options SEE KIT C20078

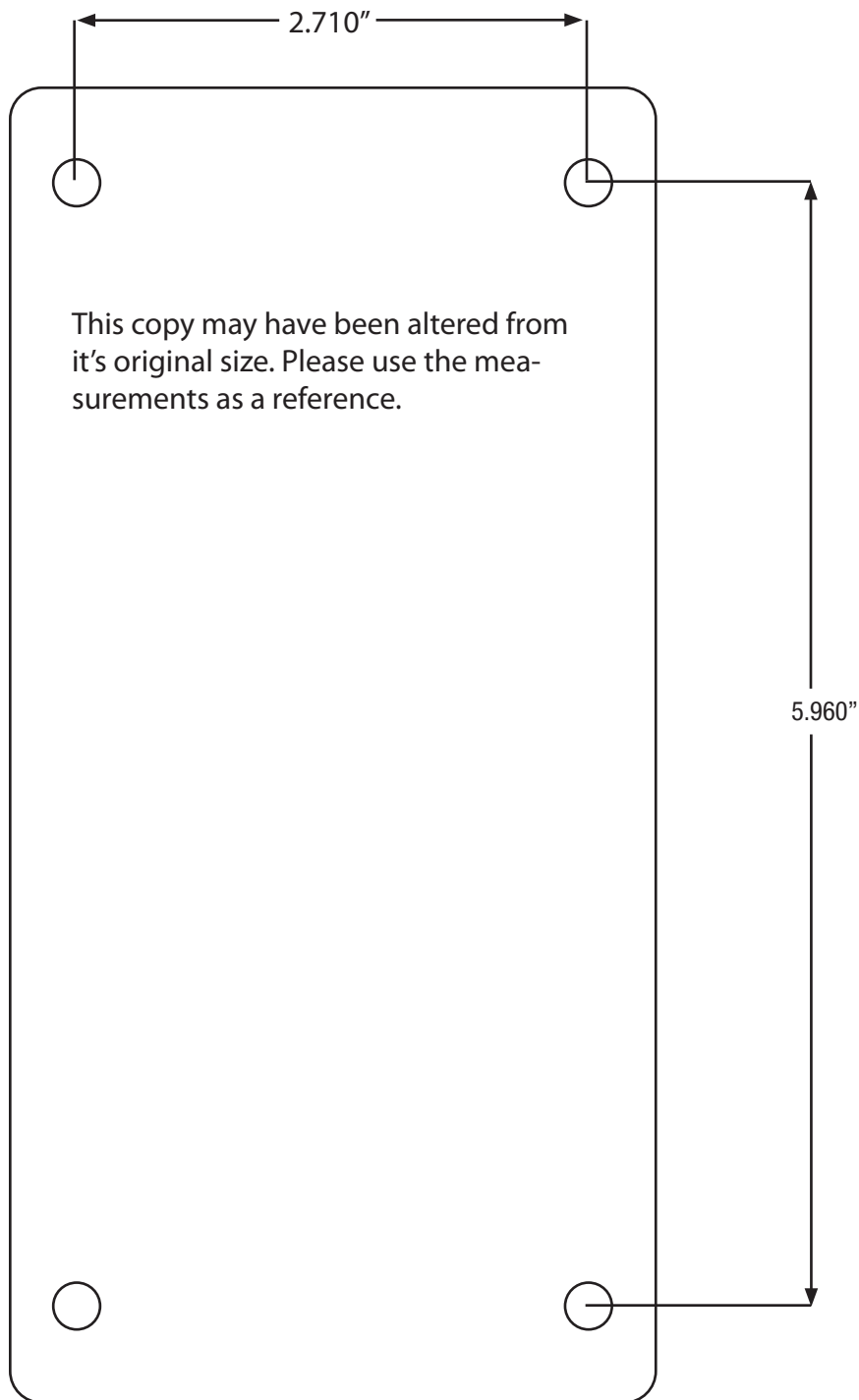


## Wiring Schematic - LLY Engine Option ONLY

Follow Instructions in C20078 KIT



## Compressor Mounting Template



### Pacbrake Company

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**USA:** 250 H St. Box 1822 Blaine WA 98231-1822

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