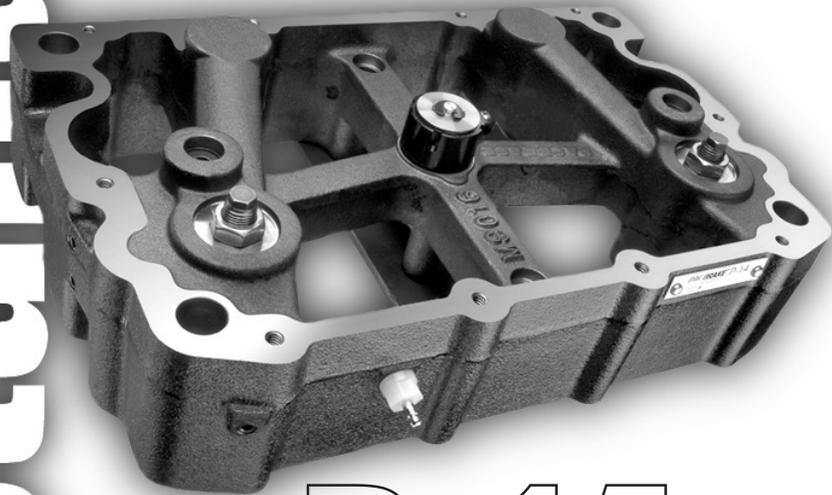


Installation MANUAL



P-14

ENGINE BRAKE

**Designed for Cummins N-14 Plus Engines
with the following engine CPL #'s**

CPL 2025 N-14 435 ESP PLUS
CPL 2026 N-14 370 ESP PLUS
CPL 2390 N-14 370 ESP PLUS
CPL 2391 N-14 435 ESP PLUS

CPL 2398 N-14 370/460E PLUS
CPL 2591 N-14 370 ESP PLUS
CPL 2592 N-14 435 ESP PLUS

PACBRAKE®
ENGINE & EXHAUST BRAKES

Before Starting

**PLEASE READ
THIS VERY
IMPORTANT
APPLICATION
INFORMATION**



Do not install a P-14 engine brake on engines not included in the chart below. Consult Pacbrake for more information.

CPL 2025 N-14 435 ESP PLUS
CPL 2026 N-14 370 ESP PLUS
CPL 2390 N-14 370 ESP PLUS
CPL 2391 N-14 435 ESP PLUS
CPL 2398 N-14 370/460E PLUS
CPL 2591 N-14 370 ESP PLUS
CPL 2592 N-14 435 ESP PLUS

Brake Housing Installation

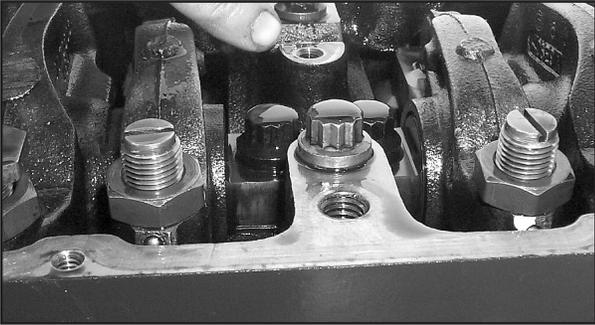
1

Clean the top of the engine around all three valve covers and remove all components required to access the rocker boxes. Remove all three valve covers, saving gaskets for reuse later.



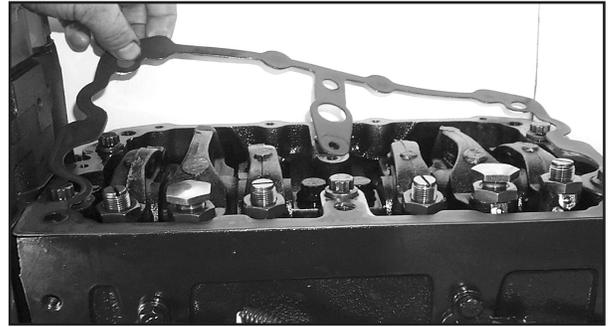
2

Remove the pipe plug shown in each of the three rocker boxes and discard. This is the oil supply to the engine brake, clean any debris from this area.



3

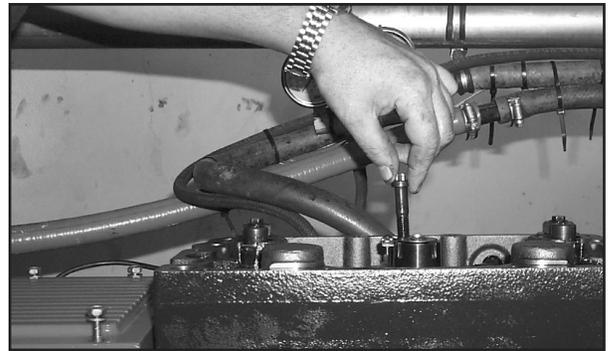
Clean gasket surface and install the gaskets supplied on the rocker boxes.



NOTE: The gasket must be installed correctly, check the oil supply port for correct gasket alignment.

4

Place one housing on each rocker box housing carefully. Loosely install the 6 mounting capscrews into each Pacbrake housing. Before tightening the capscrews check each slave piston adjusting screw, it should be backed off until the screw is no longer in contact with the slave piston. (This will prevent possible valve to piston contact when torquing.)

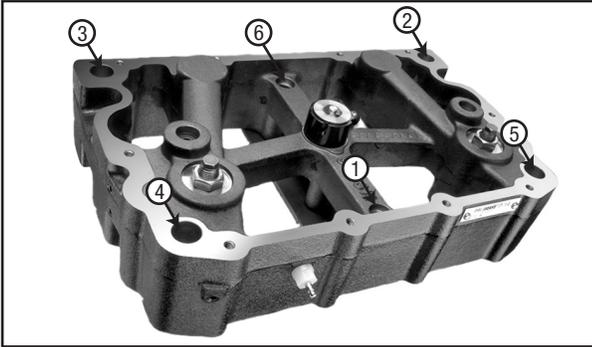


5

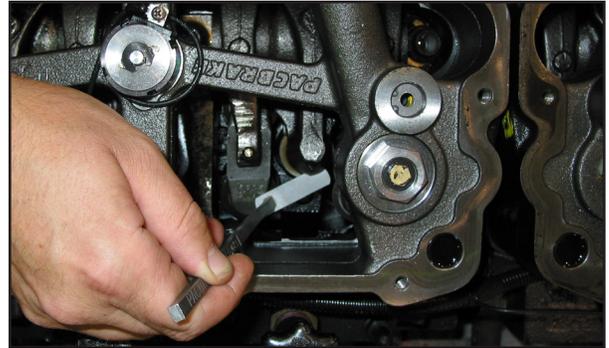
Carefully run the capscrews down evenly in the torque sequence below.

DO NOT use an impact wrench.

Torque the capscrews to 35 lbs ft (48 N•m) in the sequence shown. Then torque to 70 lbs ft (95 N•m) in the same sequence. Double check the torque on all 18 capscrews before proceeding.



Rotate the engine to the next valve set marks, repeat on remaining cylinders until all 6 cylinders have been done. Double check slave lock-nut torque.



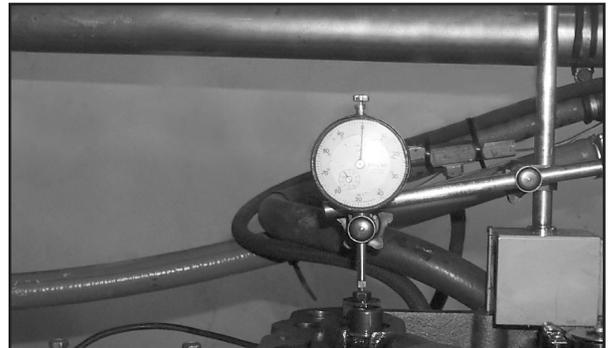
Slave lash adjustment-dial indicator method.

The engine must be cold (below 140°F (60°C)) to attain the proper lash of .023". Do not adjust the slave lash with the engine running or engine damage may occur.

Turn adjusting screw clockwise to zero lash, then past zero lash one additional turn, wait one minute before proceeding, then back out screw to attain zero lash. Zero lash is no clearance between the end of the slave fork and the crosshead. (This is important because the adjusting screw has a spring loaded plunger which must be compressed to attain the correct lash.)

Once zero lash is attained, install a dial indicator on the top of the adjustment screw, zero the dial indicator, then back out the screw slowly until .023" is read on the dial indicator. Torque lock nut to 25 lbs. ft. (35 N•m).

Rotate the engine to the next valve set marks, repeat on remaining cylinders until all 6 cylinders have been done. Double check slave lock-nut torque.



6

Slave piston adjustment-feeler gage method.

Pacbrake feeler gage .023" PN P30870 is required.

IMPORTANT:
This adjustment must be done correctly. Follow these instructions carefully.



Pacbrake feeler gage
.023" PN P30870

The engine must be cold, below 140°F (60°C) to attain the proper lash of .023". Do not adjust the slave lash with the engine running or engine damage may occur.

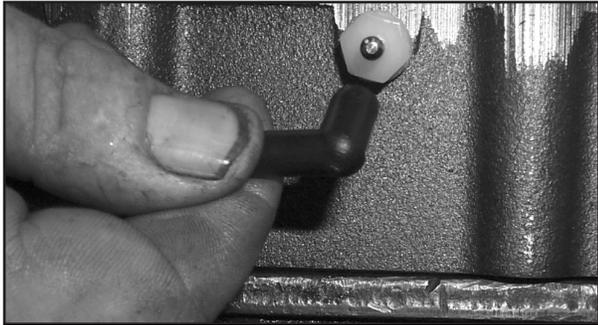
The slave lash can be adjusted only on cylinders where the exhaust valves are fully closed. Once these cylinders are complete the engine will need to be rotated to set the remaining cylinders.

Locate the cylinders which have fully closed exhaust valves. Turn the slave adjusting screw clockwise to zero lash and then turn the screw one additional turn and wait one minute before proceeding. Zero lash is no clearance between the end of the slave fork and the crosshead. (This is important because the adjusting screw has a spring loaded plunger which must be compressed to attain the correct lash.)

Once zero lash is attained, back the screw out to allow enough clearance to insert the special .023" feeler gage between the slave piston and the crosshead, turn the screw clockwise to attain .023" clearance. Torque adjusting screw lock-nut to 25 lbs. ft. (35 N•m). Remove and then reinstall feeler gage, if done correctly the lash will be unchanged. If lash has changed, readjust until it remains constant.

7

Connect Pacbrake wiring harness to the lead out terminals and to the weather-pac connector.

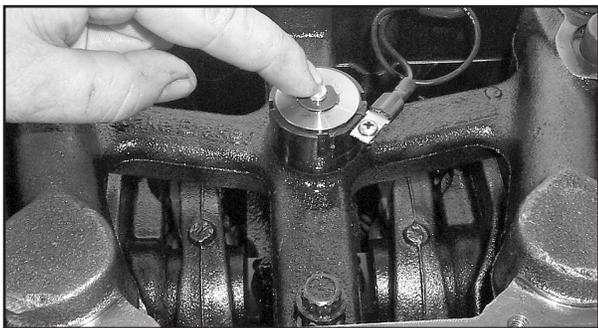


8

Bleeding air from the Pacbrake housings.

Note: Use caution and wear eye protection when performing this step as oil from the control valve towers will be discharged when the solenoids are released.

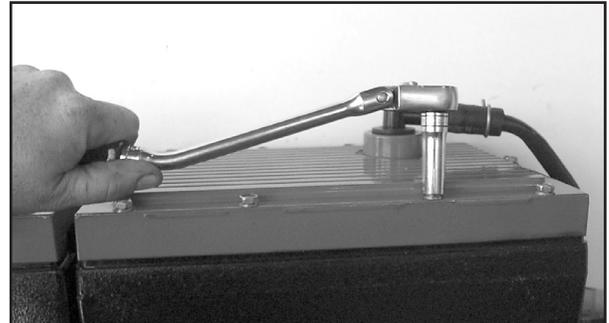
Check all components removed to see if the engine can be started without causing any damage. If so, start the engine. Allow engine to idle for a couple of minutes, depress the armature on each solenoid one at a time until the air is purged from the housings.



9

Install valve cover gaskets and valve covers. Torque valve cover capscrews to 9 lbs ft (12 N•m)

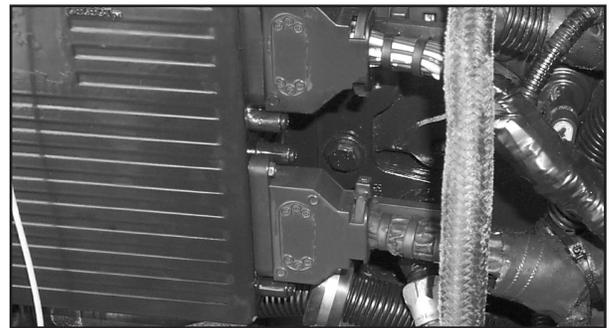
Install all previously removed components.



Wiring installation

1

Locate the Cummins ECM on the driver side of the engine.

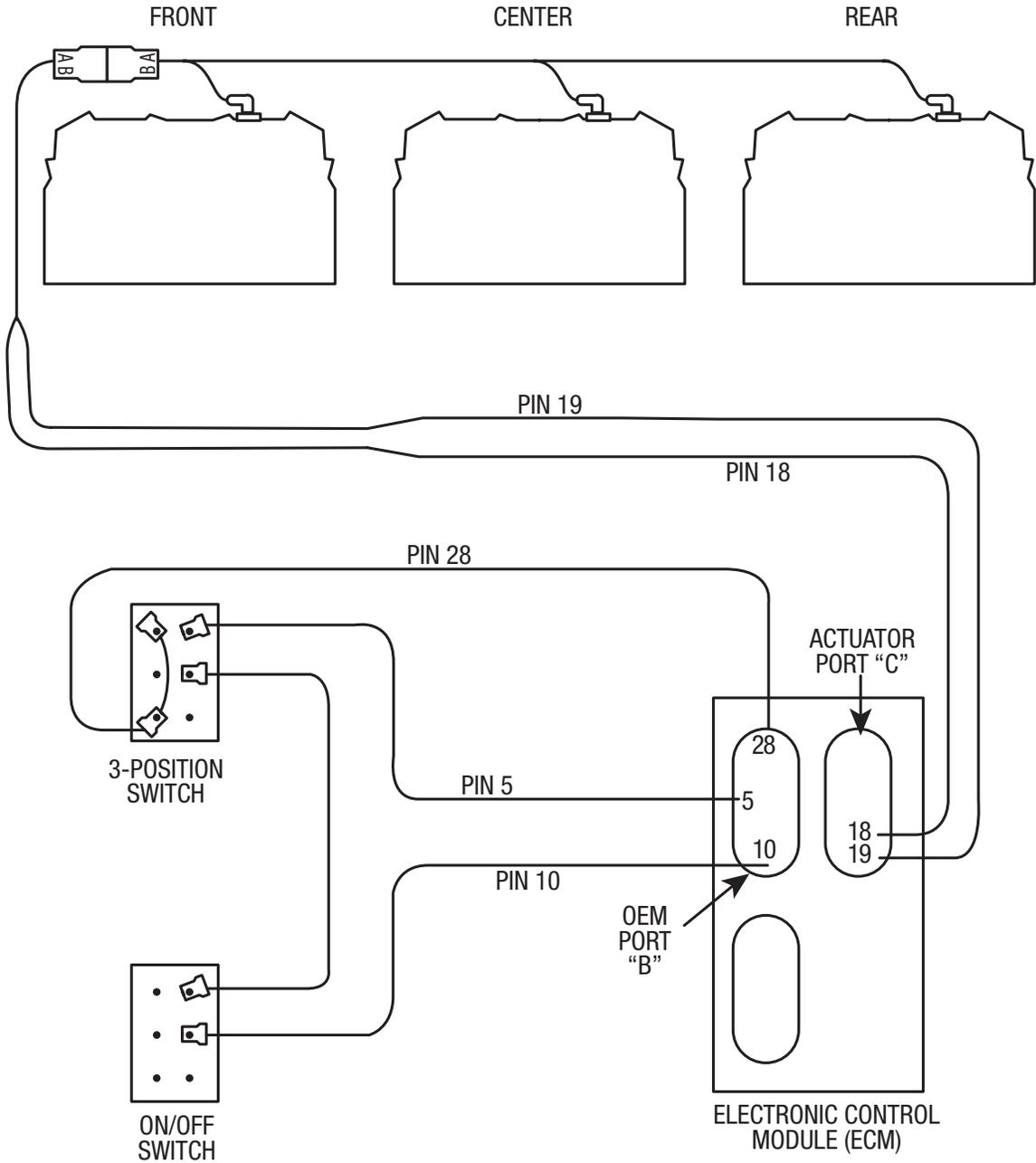


2

Follow the wiring diagram on page 5.

NOTE: At the actuator port, check pin locations 18 and 19 for preinstalled wires, follow these wires to the connector located on the passengers side of the engine near #2 cylinder, connect to the Pacbrake harness installed in step 7. At the OEM port, check pin locations 5, 10 and 28 for preinstalled wires, connect as shown in the schematic. Use the dash switches provided or ones with gold-plated contacts only, install them in a convenient location in the dash panel.

Wiring Schematic - P-14 Engines Equipped With ECM Part No. 3096662





NEED TO KNOW MORE ... 800-663-0096 WWW.PACBRAKE.COM

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