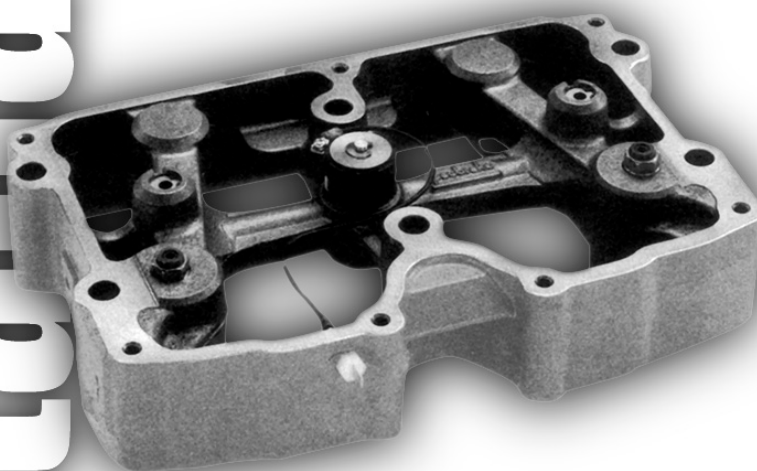


Installation



ENGINE BRAKES

P-38

Application:

CUMMINS 88NT ENGINES WITH
STEPPED TIMING CONTROL/FIXED
TIMING CONTROL

PACBRAKE®
ENGINE & EXHAUST BRAKES

BEFORE STARTING

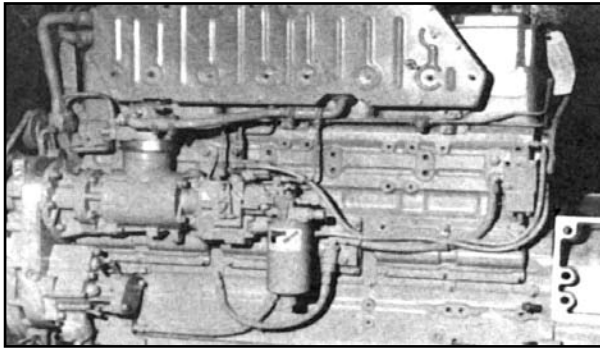
1

Identify the engine model.

Ascertain if the engine has fixed or stepped timing control. Ensure that the Pacbrake kit is the right kit for this timing application i.e.:

P38001 STEPPED TIMING

P38002 FIXED TIMING



2

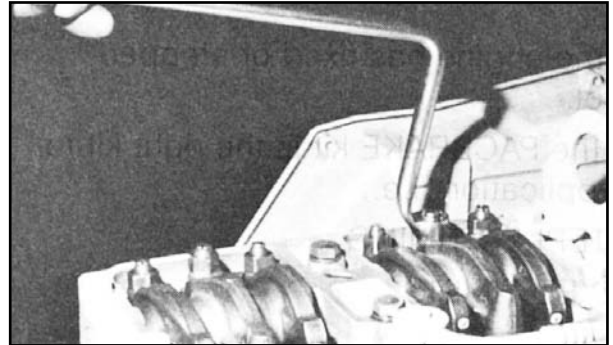
Should there be any doubt, obtain the CPL# from the engine spec. plate, and call your Pacbrake supplier.



ENGINE PREPARATION

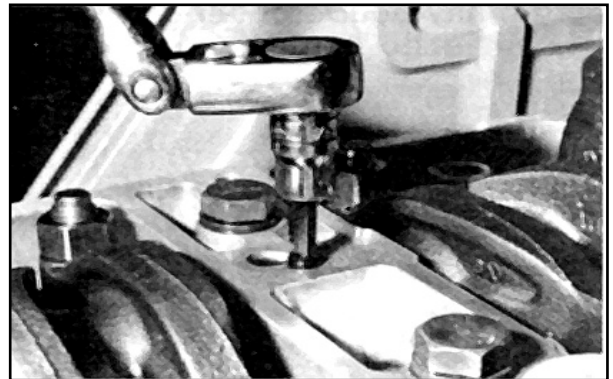
3

Thoroughly clean the top of the engine, and remove the rocker covers. Loosen all rocker adjusting screw locknuts.



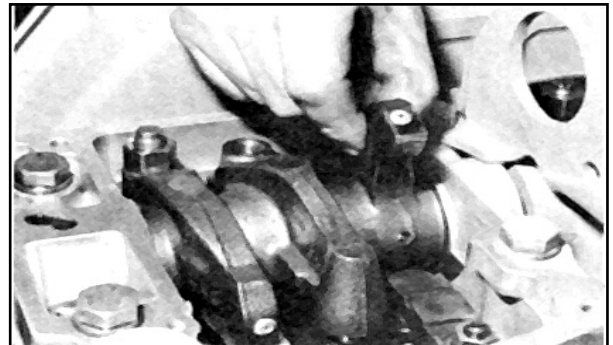
4

Remove the solid rocker shaft locking screw and install the hollow Pacbrake oil supply screw.



5

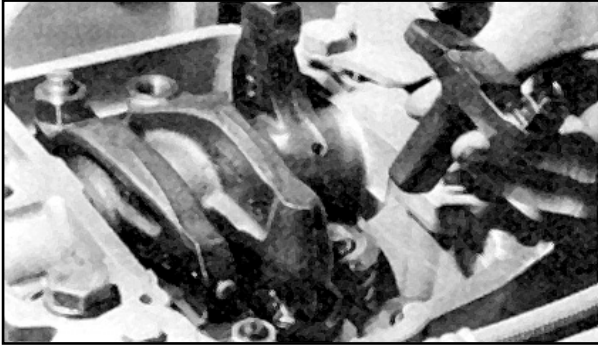
Remove the exhaust rocker lever screws. Move exhaust pushtubes aside and rotate the rocker levers to provide clearance to remove crossheads.



OVERHEAD ADJUSTMENTS

6

Loosen exhaust crosshead adjusting screws, remove crossheads.



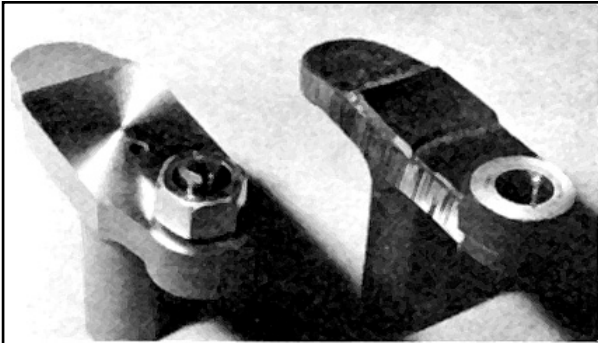
7

Transfer screws to the Pacbrake crossheads.

Note: Crosshead widths differ for fixed and stepped timing.

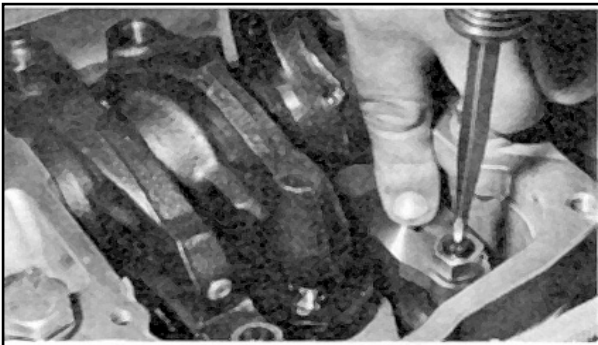
P38040 (FIXED) WIDTH 1.200 INCHES

P14873 (STEPPED) WIDTH 1.030 INCHES



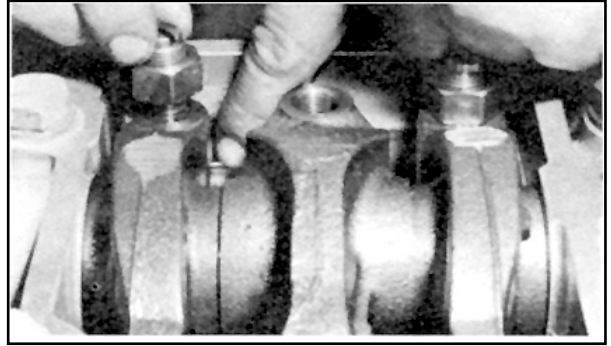
8

Reinstall the Pacbrake crossheads and adjust per Cummins service manual.



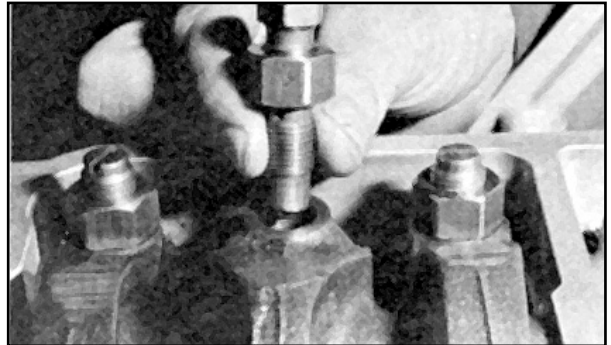
9

Align exhaust pushtubes with exhaust rocker lever and reinstall the adjusting screws



10

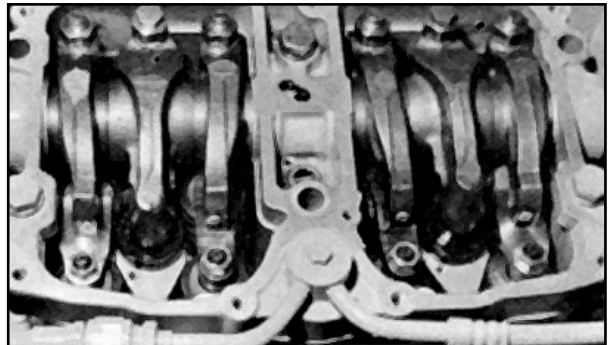
Remove injector adjusting screws and replace - loosely - with the Pacbrake hexhead adjusting screw.



11

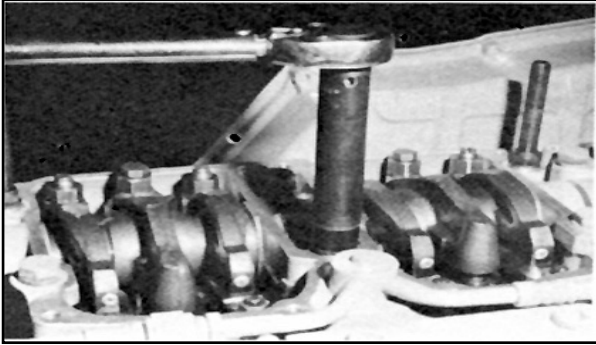
Remove three of the six rocker box capscrews at locations shown.

NOTE: Removal of all capscrews at one time will disturb the gasket seal under the rocker box.



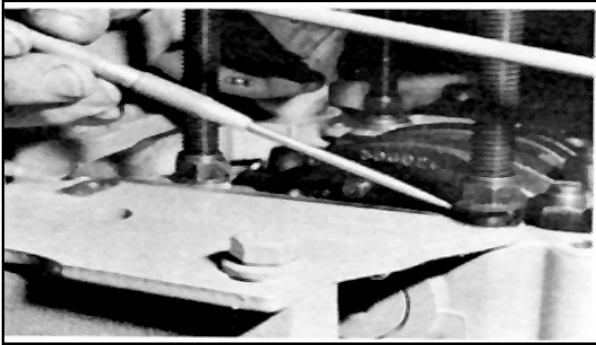
12

Install the special washers on the hold-down studs and torque to 70 lb. ft. (95 N•m). Remove and replace the remaining capscrews and torque.



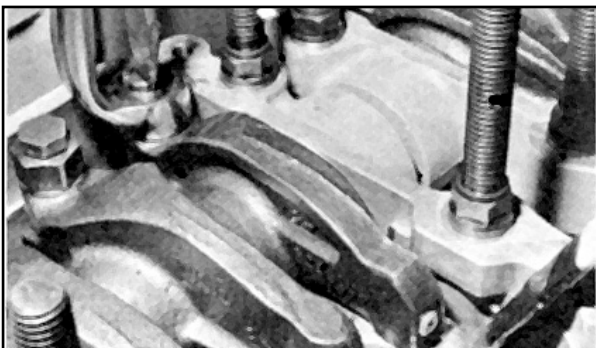
13

Hold-down stud washers are not used under the fan support bracket in the front stud locations.



14

Adjust valves and injectors per current Cummins Service Information.

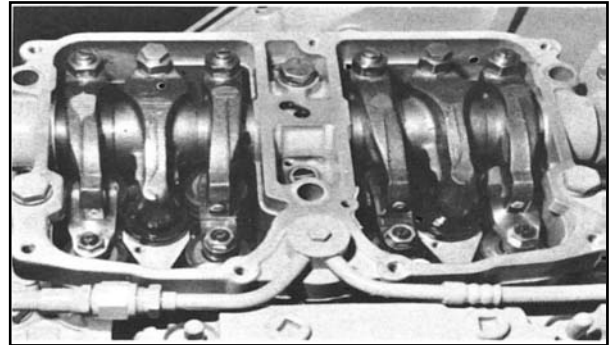


BRAKE HOUSING INSTALLATION

15

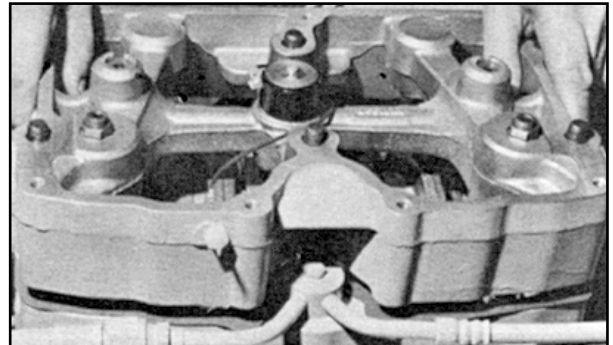
Install Pacbrake gaskets on rocker housings.

NOTE: No seal ring is necessary for oil supply to the Pacbrake as the gasket does the sealing.



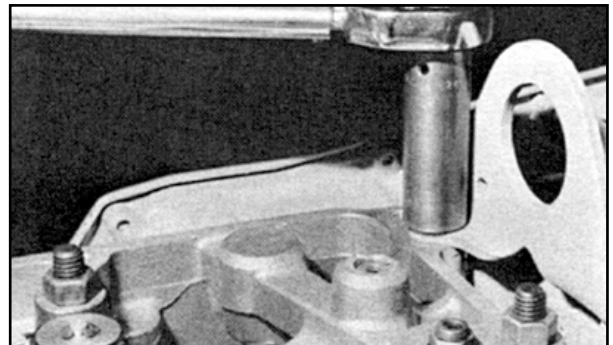
16

Install engine brake housings. Check for interference; units should be snug on gaskets all around.



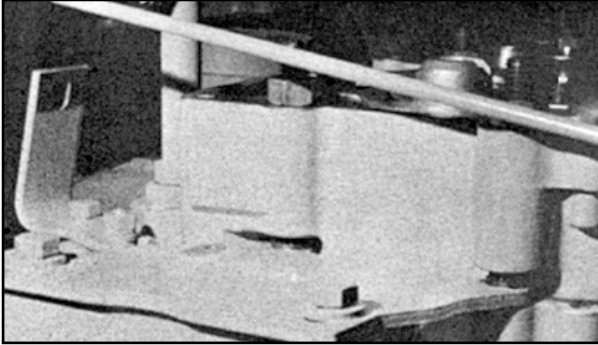
17

Replace lifting brackets in original positions. Install hold-down nuts and torque to 55-60 lb. ft (75-81 N•m). In two steps, starting from the centre of the housing and working outwards.



18

Note correct location of fan bracket support plate.



SLAVE PISTON ADJUSTMENT PROCEDURE

19

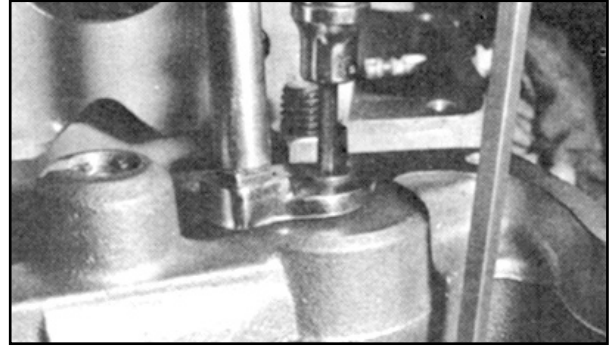
Loosen all slave piston adjusting screw locknuts, and ascertain which cylinders have clearance between exhaust rocker lever and crosshead, indicating that the exhaust valves in that cylinder are fully closed. There are usually four in this condition, regardless of crankshaft position. These can now be adjusted by inserting the special .018" feeler gauge between the crosshead and slave piston foot.

NOTE; P-38 paclash adjusting screws are colour coded yellow with a .123 protrusion.



20

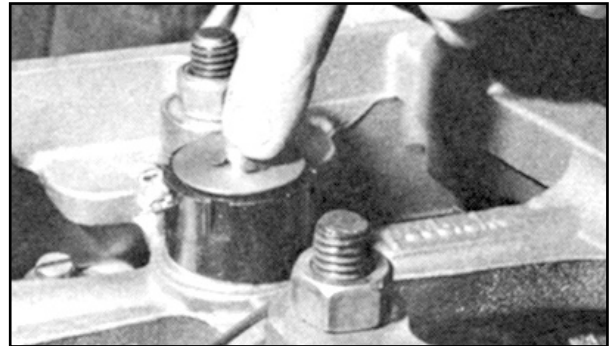
Turn adjusting screw down until the correct clearance of .018" is obtained, and tighten the locknut to 25 lb. ft. (35 N•m). Bar the engine over approximately 2 set marks from its present position, and adjusting the remaining cylinders.



21

Start engine, and at idle, momentarily depress solenoid cap a few times, until the oil being exhausted from the control valve is free of air.

CAUTION: Oil will spray from control valve towers when solenoid is released.



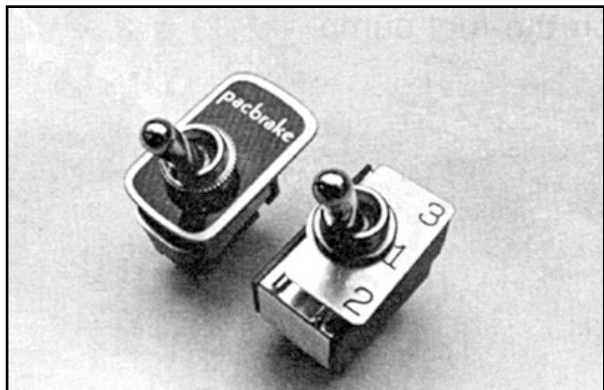
22

Reinstall valve covers and other components which were removed to access engine.

CONTROL SYSTEM INSTALLATION

23

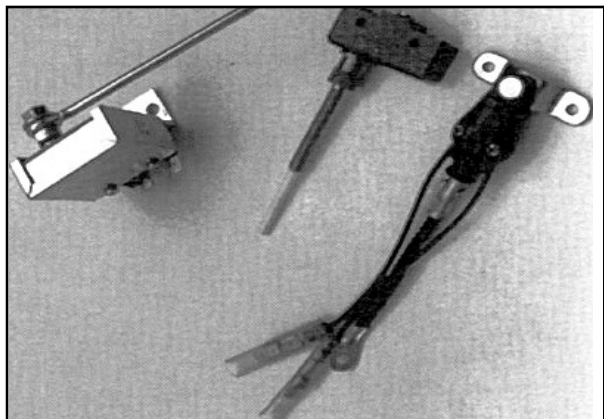
Install on/off switch and three position switch in dash, conveniently located for the driver.



24

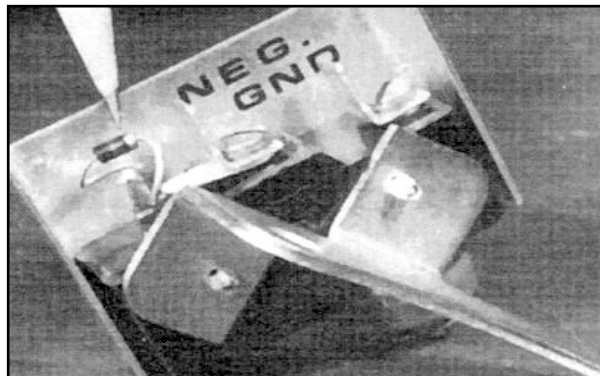
Install the standard or optional clutch switch in the cab, and adjust it, so that the circuit will be broken within the first inch of free travel of the clutch pedal.

NOTE: For vehicles having automatic transmissions, please consult your Pacbrake supplier.



25

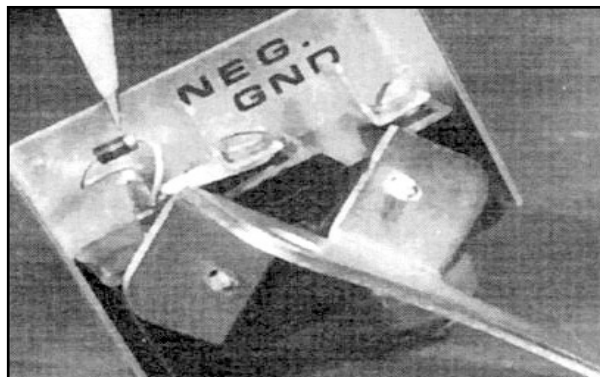
The pump switch supplied in the Pacbrake kit has the diode connected for negative ground vehicles.



26

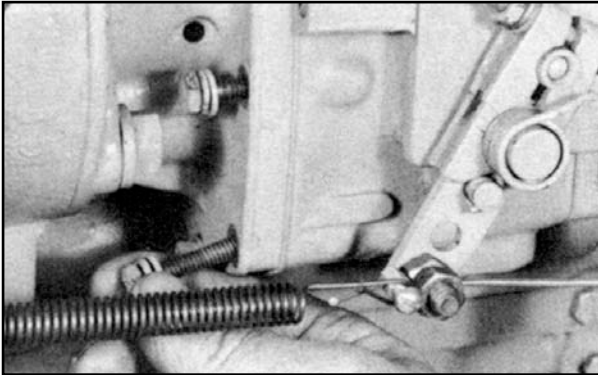
Should the vehicle have a positive ground system, the diode MUST be reversed before installing on the engine.

NOTE: The marked end of the diode indicates the positive side.



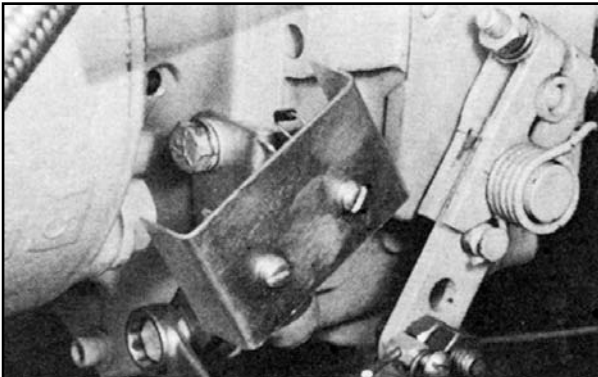
27

Remove the two hex. capscrews adjacent to the lever on the fuel pump.



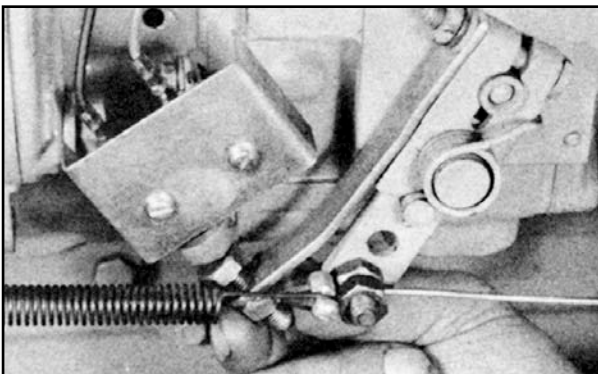
28

Install the fuel pump switch.



29

Install the actuating arm, and adjust it so that the micro switch "clicks on" when the pump lever moves to the idle position, and has no more than 1/16" overtravel. Check that the full fuel position is still smoothly obtainable.



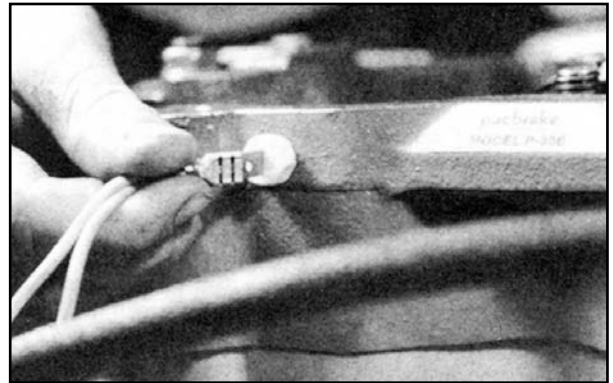
30

Connect all the switches together, as per the wiring diagram, using the correct Pacbrake harness and securing with plastic ties. Where the harness terminates at the brake housings, ensure that the connectors are a tight fit and the harness is secured with clamps to the rocker cover bolts.

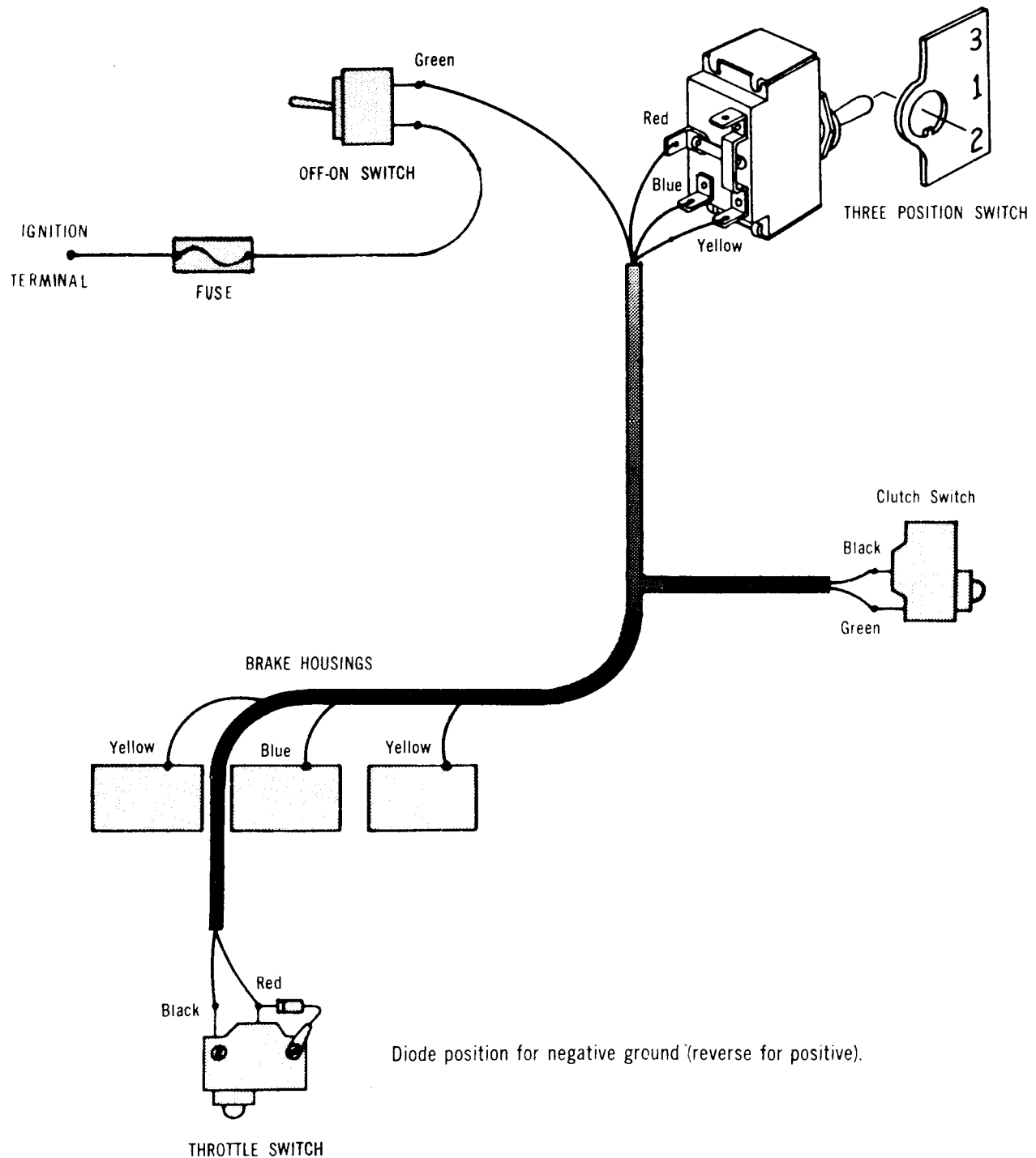
CHECK the entire control system by watching the solenoids during operation of each switch in turn.

COMPLETE the installation by replacing the rocker covers, crossover pipe and all components previously removed.

Road test vehicle.



WIRING SCHEMATIC



8 | PACBRAKE INSTALLATION

Need to know more ... 800-663-0096 www.pacbrake.com

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