

Wiring Supplement

FOR PACBRAKE EXHAUST RETARDER IN CONJUNCTION WITH ALLISON WORLD TRANSMISSION MD WTEC II SERIES

FREIGHTLINER TRUCKS ONLY

INTRODUCTION

When a Pacbrake Exhaust Retarder is installed on an engine in a Freightliner truck with an Allison World Transmission MD 3060 WTEC II, we ask that the enclosed wiring instructions be followed. Newer vehicles may be WTEC III. If so please consult Pacbrake Factory at 800-663-0096.

All MD Transmissions manufactured after Aug. 15, 1995 are pre-programmed for Engine Brake and Preselect Request, and Engine Brake Enable (Standard) from the Allison factory. These units will have a Calibration Identification Number (CIN) starting 0800, which can be found on the Electronic Control Unit (ECU) itself. Earlier model Allison ECUs are not programmed for Preselect Request, these will require programming by an Allison Service Center. There is a charge for this service. Earlier models will be dealt with later in these instructions, but it should be noted that it is expedient to check the designated wire # for engine brake request input with the use of a ProLink diagnostic tool. If this is NOT E119, please contact the Pacbrake factory.

ALLISON MD SERIES FEATURES

This electronically controlled transmission when correctly wired with the Pacbrake Exhaust Retarder, will provide converter lock-up in 2nd through 6th gears and also operate in the pre-select downshift mode.

When the Pacbrake dash switch is actuated a 12 volt signal is sent to the retarder relay to activate the brake solenoid, and also sends a 12 volt input signal to the ECU via wire E119 of the vehicle interface harness. The signal tells the ECU that the brake is requested and when the throttle is closed and the transmission is in lock-up, increased braking will be provided by pre-selecting a lower range, dependent on the road speed of the vehicle at that time.

The pre-select is normally set for second gear, but this may be re-programmed by an Allison Distributor to third or fourth gear should the operator of a lighter vehicle so desire.

Furthermore, it should be noted that initially an aggressive downshift to a lower gear may occur, but will diminish after a time as the transmission adapts to the regular use of the retarder. Again, should the vehicle operator find this too harsh the Allison Distributor can speed up this process by re-programming the ECU for the "Fast Adaptive Feature". This will then occur within a few miles of driving with intermittent retarder use.

The Retarder Enable output signal is wire E132 from the ECU which activates a relay in the VIM to prevent engagement of the Retarder with the throttle > 0 or lock-up off.

PACBRAKE[®]
ENGINE & EXHAUST BRAKES

INSTALLATION INSTRUCTIONS

As it is not practical to produce a made up harness to suit all the different engine/vehicle configurations, our wiring kit includes all the necessary wire, connectors and ample convoluted conduit to protect the additional wiring.

1. Supply an ignition switched 12 volt + wire to the Pacbrake dash switch through a 10 amp circuit breaker or fuse.
2. Add a ground wire to the upper terminal to operate the lighted switch, if a lighted switch is supplied.
3. The dash switch output wire should run in to the vicinity of the Vehicle Interface Wiring (VIW) Connector.
4. Locate the 16 Pin VIW connector and open the convoluted conduit on the ECU side to reveal the two wires E132 and E119. Cut these two wires close to the connector and pull out a few inches from the side that goes to the ECU.
5. Crimp a terminal onto wire E132 and connect to terminal #85 of the Retarder Relay.
6. Attach a wire to terminal #30 of the relay and splice it together with dash switch output wire and wire E119 - using the special Solder Splice Connector.
7. Supply 12v + from an ignition switched source to terminal #86 of the relay.
8. Complete the circuit by continuing a wire from the final terminal #87a of the relay - or terminal #87 for the earlier model transmission - to the Exhaust Retarder solenoid via the engine throttle enable switch. This is a mandatory requirement from Allison. It is mounted on the throttle linkage and set to disable the retarder at a speed slightly higher than idle RPM.

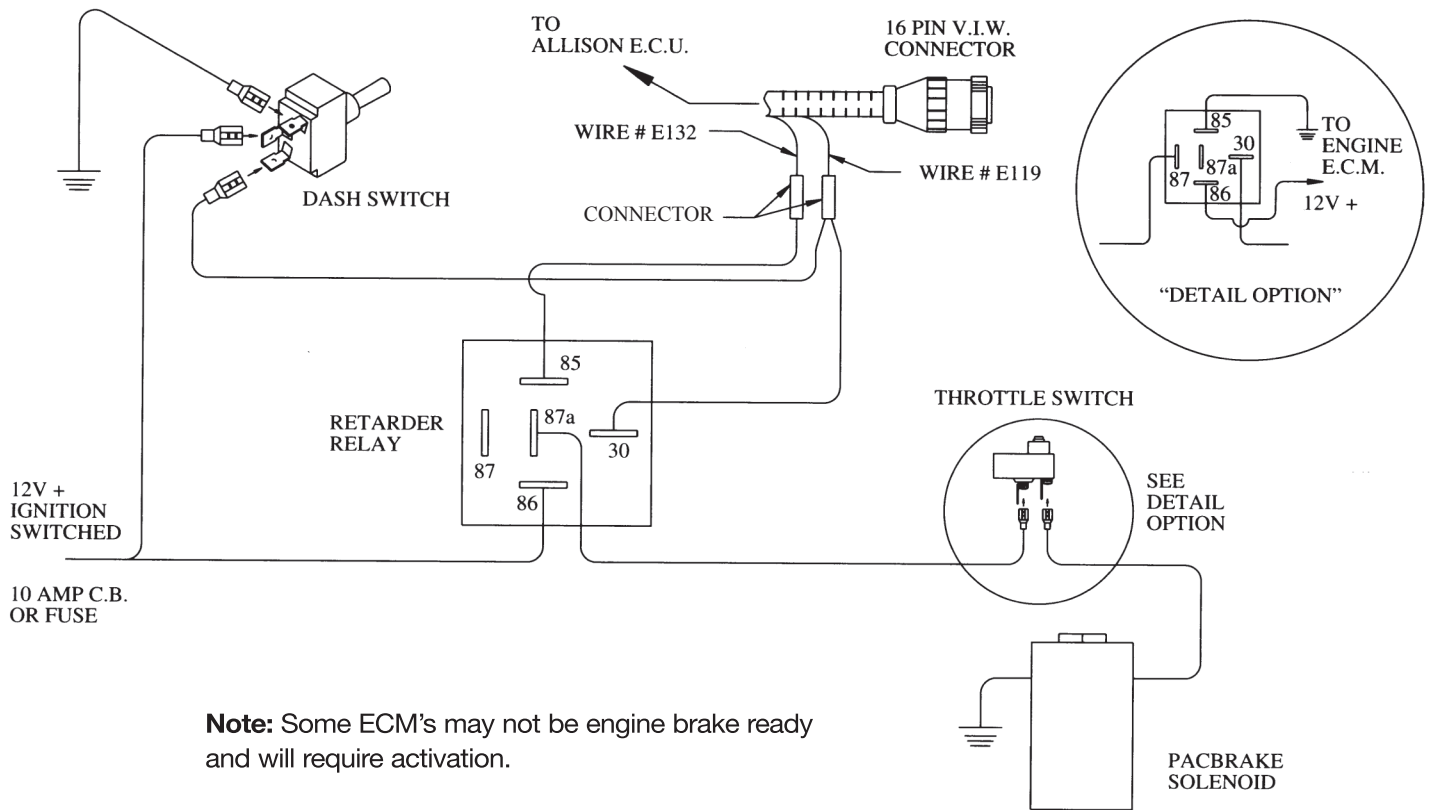
NOTE 1: Engines with mechanical fuel control. A mechanical switch must be installed on the throttle linkage to disable the retarder at speeds slightly higher than idle RPM.

NOTE 2: Engines with electronic fuel control. A special relay must be installed to disable the retarder at speeds higher than idle RPM. Each engine manufacturer provides signal from the engines ECU for this purpose. Each engine manufacturer does this differently, some are a 12 volt positive output, some are a negative output and some require an input signal. It is very important this is done correctly, consult engine manufacturer or Pacbrake customer service or visit our website at www.pacbrake.com.

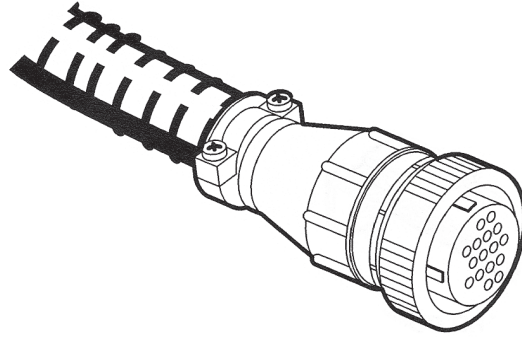
TESTING

1. Vehicle stationary. Start the engine with transmission in neutral and throttle at idle. Turn the Pacbrake dash switch on. The Pacbrake Exhaust Retarder should NOT operate. If it does, either:
 - a.) Engine Brake Enable feature may have been turned off. This may be verified and enabled again with the use of a Prolink diagnostic tool, or
 - b.) The transmission may be the earlier model in which case a simple wiring change will need to be made. Remove the wire that was attached to terminal #87a and connect it to terminal #87.
2. Road test the vehicle with the transmission in 6th. gear. Turn the Pacbrake dash switch on and when the throttle is put in idle position, confirm that the Retarder applies and the transmission pre-selects a lower range.

**FREIGHTLINER® TRUCKS ONLY
ALLISON MD 3060 WIRING SCHEMATIC**



VEHICLE INTERFACE WIRING (VIW) CONNECTOR



Note: Do not use on vehicles equipped with Allison 4th Generation Transmissions, they are identified by one connector at the transmission ECU, consult Pacbrake factory

