

Wiring Supplement

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

EXCEPT FREIGHTLINER

INTRODUCTION

When a Pacbrake Exhaust Retarder is installed on an engine 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 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 #119, 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 Vehicle Interface Module (VIM) retarder relay to activate the brake solenoid and also sends a 12 volt input signal to the ECU via wire #119 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 #132 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 colour coded wire, connectors and ample convoluted conduit to protect the additional wiring.

NOTE: If you are working on a Freightliner truck, please use our Freightliner ONLY wiring supplement.

1. Supply an ignition switched 12 volt + wire (R) to the Pacbrake dash switch through a 10 amp circuit breaker or fuse.
2. Add a ground wire (G) to the upper terminal to operate the lighted switch, if a lighted switch is supplied.
3. The dash switch output wire (Y) should run in to the vicinity of the Vehicle Interface Wiring (VIW) Connector.
4. Remove the larger of the two plugs, the vehicle interface connector, from the VIM. Locate cavities E2 and D2, then insert the yellow (Y) and blue (B) wires respectively that have the special square terminals attached. Replace the connector.

NOTE: Earlier model transmissions will require the blue (B) wire inserted into cavity E3 instead of D2 unless you are working on a very early transmission having an engine brake request wire other than #119.

5. Locate the 16 Pin Vehicle Interface Wiring (VIW) connector and open the convoluted conduit on the ECU side to reveal the one yellow (Y) wire #119. Cut this wire close to the connector and pull out a few inches from the side that goes to the ECU. Splice this wire together with the other TWO yellow wires coming from the dash switch and Pin E2 of the VIM using the special Solder Splice Connector.
6. Complete the circuit by continuing the blue (B) wire to the exhaust retarder solenoid, via the engine throttle enable switch. This switch 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.

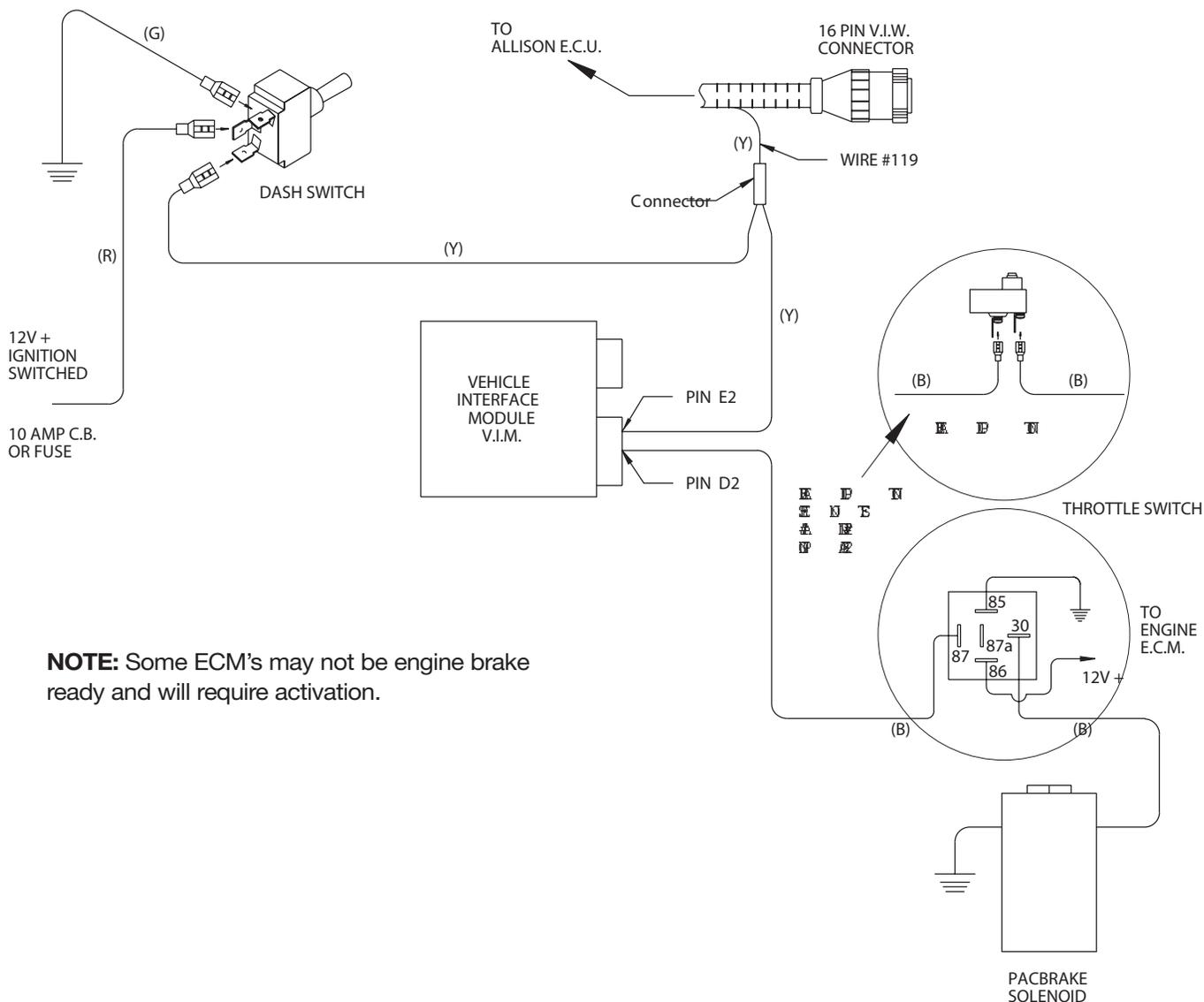
NOTE 1: Engines with mechanical fuel control. A mechanical switch must be installed on the throttle linkage to disable the retarder at speeds slightly higher than idle RPM.

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

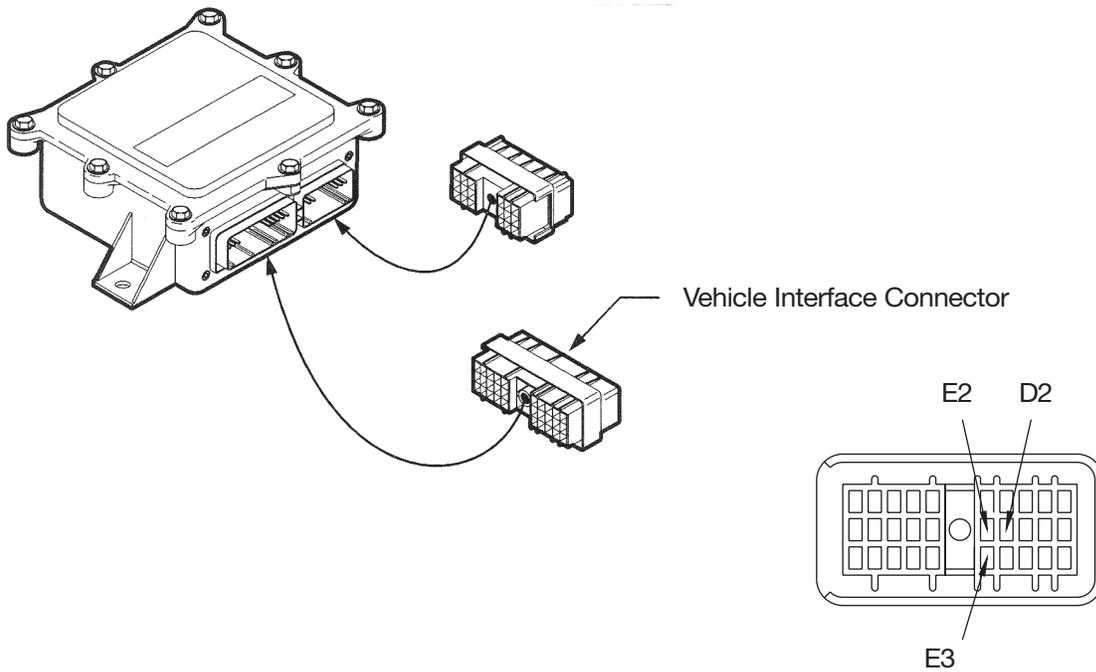
1. Vehicle stationary. Start the engine with the transmission in neutral and throttle at idle. Turn the Pacbrake dash switch on. The Pacbrake Exhaust Retarder should **NOT** operate. If it does, either:
 - a.) Engine Brake Enable feature may have been turned off. This may be verified and enabled again 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 blue (B) wire that was inserted in cavity D2, insert it in cavity E3 and reconnect as before.
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.

ALLISON MD 3060 WIRING SCHEMATIC

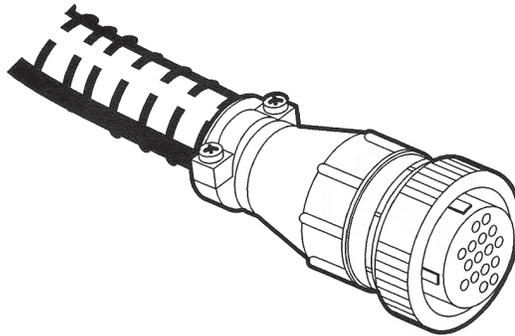


NOTE: Some ECM's may not be engine brake ready and will require activation.

VEHICLE INTERFACE MODULE (VIM)



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

