Cummins

E BRAKE
by Jacobs®

Application Notes 93-1

E BRAKE WIRING DIAGRAM FOR ALLISON MD 3060 TRANSMISSIONS

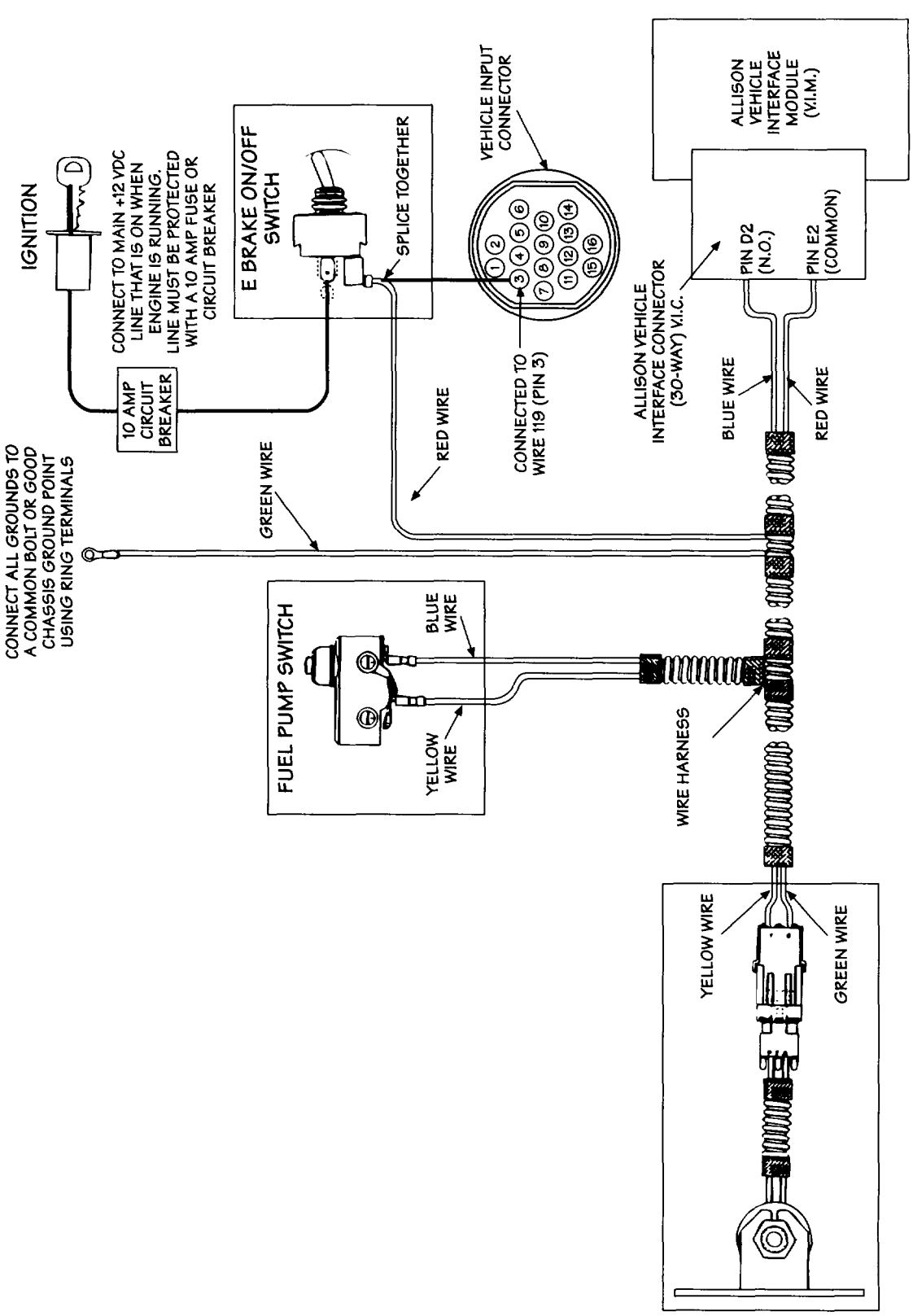

FIG. 1

E Brake/Allison Wiring Instructions

Allison AT Series

The AT Transmission does not incorporate a converter lockup feature and will not transmit all of the available retarding power to the vehicle's wheels. When operating a vehicle equipped with an Allison AT Transmission, a lower transmission range must be selected to maintain the retarding effect. The only change to the E Brake wiring harness is the splicing together of the two wires that are shown connected to the clutch switch. Refer to the E Brake installation manual for clutch wire identification.

Allison MT Series

The MT Transmission incorporates a converter lockup feature that transfers all of the available retarding power to the vehicle's wheels. Lockup occurs in the following ranges:

- MT643 and MT647: Third and fourth gears
- MT653DR and MT654: Fourth and fifth gears

Maximum retarding occurs in lockup. Other MT Transmission arrangements may exist; contact your local Allison dealer for more information.

The only change to the E Brake wiring harness is the splicing together of the two wires that are shown connected to the clutch switch. Refer to the E Brake installation manual for clutch wire identification.

Allison MD Series (World Transmission)

The MD is an electronically controlled transmission that provides converter lockup in forward gears 2 through 6.

The transmission requires that the Electronic Control Unit (ECU) be programmed for use with the E Brake and requires the control circuit for the E Brake to be connected to the transmission's ECU.

The transmission will then operate in the pre-select downshift mode to maximize the retarding power of the E Brake. Refer to your Operator's Manual for a complete description of the operation.

MD Transmission Check List

Be sure the following criteria is satisfied before wire installation.

1. The Allison MD transmission ECU must be programmed for the E Brake. The program is Engine Brake and Pre-select Request and Engine Brake Enable (Standard). The status of the transmission's program can be determined by either connecting the Prolink diagnostic tool to the ECU, or by reading the Calibration Identification Number (CIN) found on the ECU. The Allison distributor is then able to obtain from Allison the program status. If the transmission ECU is not programmed for Engine Brake and Pre-select Request Enable (Standard), then the vehicle or transmission ECU should be taken to your local Allison distributor for reprogramming. There is a service charge from Allison to reprogram the ECU.
2. If the ECU is programmed for the E Brake, it may be necessary to turn on the program with a Prolink diagnostic tool.
3. 1995 model year MD Transmissions are pre-programmed for Engine Brake and Pre-select Request and Engine Brake Enable (Standard) from the Allison factory. These transmissions may require the program to be enabled (turn on) using a Prolink diagnostic tool.

NOTE:

NOT ALL ALLISON MD TRANSMISSIONS WILL USE THE SAME WIRES FOR THE E BRAKE INSTALLATION. IF YOUR TRANSMISSION IS DIFFERENT FROM THE FOLLOWING INSTRUCTIONS CALL AN ALLISON DISTRIBUTOR FOR E BRAKE WIRE INSTALLATION INSTRUCTIONS.

Required Interface Connections

The following criteria is for MD Transmissions programmed for use with an E Brake:

1. The Retarder Request Signal is a +12 volt input signal supplied to wire 119 from the E Brake ON/OFF switch. The Retarder Request Signal informs the transmission that an E Brake is installed on the engine.
2. The Retarder Output Signal is on wire 132. Wire 132 activates a relay in the Allison Vehicle Module (VIM) and does not need to be connected to the E Brake harness. The interface to the E Brake harness is done through the contacts of the relay.

3. The Retarder Pre-select for an E Brake should be set for second gear but can be set for any gear. The E Brake provides maximum vehicle retarding when the Pre-select is second gear. Lower gross vehicle weight vehicle operators may prefer third or fourth gear.

NOTE:

BE SURE THE ABOVE CONDITIONS ARE SATISFIED IF THE ECU IS REPROGRAMMED.

Recalibration Log Sheet

If reprogramming is necessary, a Recalibration Log Sheet (see Fig. 2) should be filled out and approval of the requested change obtained from the chassis manufacturer.

WT TRANSMISSION VEHICLE INFORMATION SHEET

CUSTOMER NAME: _____

VIN: _____ DATE: _____

OLD CIN: _____ ECU S/N: _____

TRUCK MODEL: _____ TRANS S/N: _____

DESIRED CHANGE: _____

_____

_____

_____

REPROGRAMMING REQUESTED BY: _____

FIG. 2

E Brake/Allison MD Series Wire Installation Instructions

1. Install the E Brake wire harness, Cummins P/N 3803909, per the E Brake Installation manual. Do not install the clutch switch wires (blue/red).
2. Locate the Vehicle Input Connector. The Allison Vehicle Input Connector is illustrated in Fig. 3. Refer to Fig. 4 for location of the Vehicle Input Connector.

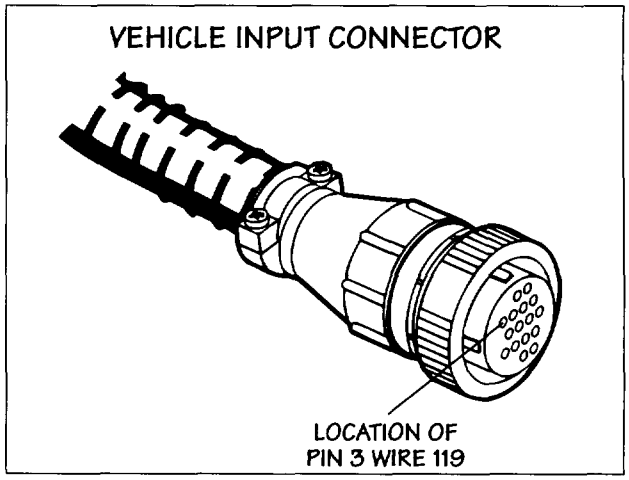

FIG. 3

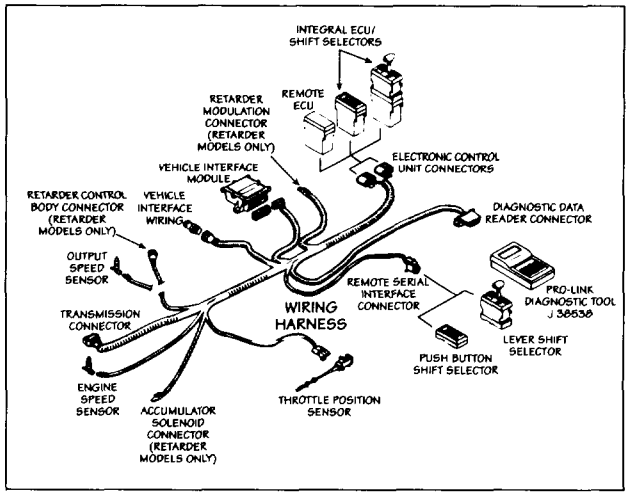

FIG. 4

Some vehicle manufacturers do not use the Allison Vehicle Input Connector. These vehicles will have connectors that are different than the Allison Vehicle Input Connector. For example, a GMC TopKick/ Chevrolet Kodiak uses a ten-pin Packard connector and Ford uses the accessory panel behind the passenger seat.

3. Locate wire 119 (Pin 3) in the Vehicle Input Connector. Splice a suitable length of 16-gage wire to the output side of the E Brake ON/OFF switch. Connect the other end of this wire to the wire marked 119 in the Vehicle Input Connector. The preferred method of connecting to Wire 119 is to use a mating input connector. This may be accomplished either by using a fully wired connector (Allison P/N 29501001) or by using a connector shell (Allison P/N 23016490) and terminal (Allison P/N 23015205) (see Fig. 1, page 2). If connections are made by splicing, all connections must be soldered and sealed with heat shrink tubing.

4. Locate the Vehicle Interface Module (VIM). The VIM is typically located near the ECU. Refer to Fig. 4 (page 4) for location of the VIM. The Vehicle Interface Connector is a rectangular, 30-pin connector located at the bottom left-hand corner of the VIM. Refer to Fig. 5 for the Vehicle Interface Connector location.

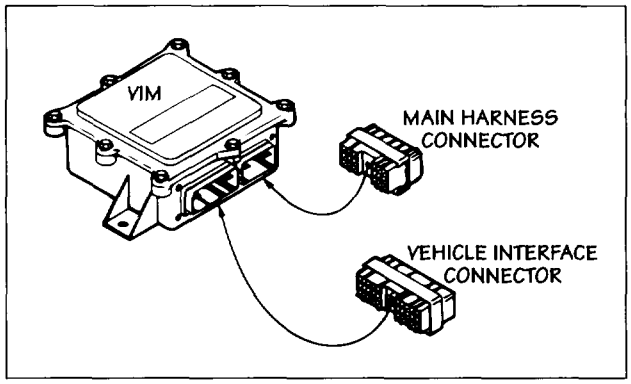

FIG. 5

5. Locate Pins E2 and D2 in the Vehicle Interface Connector. Connect the red clutch wire to pin E2 and the blue clutch wire to D2 (see Fig. 6). If the pins are not in the connector shell, they must be added.

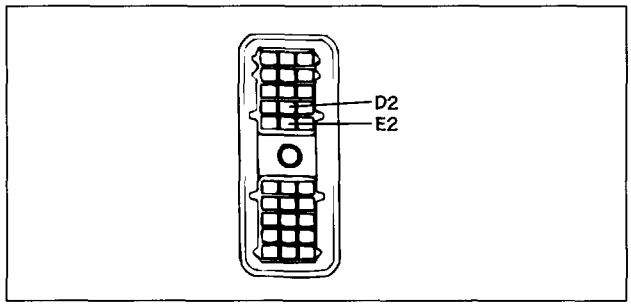

FIG. 6

An auxiliary Allison harness may be connected to the 30-way connector on the VIM, and if so, the end of the harness should be located and the clutch wires attached. If the end of the harness cannot be located, cut the auxiliary wires for pins E2 and D2 and connect to the clutch switch wires. The wires should be connected by soldering and sealed with heat shrink tubing.

6. Installation Note: On vehicles with rear mounted engines, it will probably be easier from a wiring standpoint to use the following wiring arrangement:

   a. Install the wire harnes in the engine compartment.

   b. Connect the clutch switch wires together.

   c. Run the red wire forward to the Vehicle Interface Connector, Pin D2 (the red wire may need to be extended

      NOTE:

      THE RED WIRE IS THE ONLY WIRE THAT NEEDS TO BE RUN TO THE FRONT OF THE VEHICLE.

   d. Run a wire from the output side of the E Brake ON/OFF switch to Pin E2 in the Vehicle Interface Connector.

Operation Test

The E Brake will not operate unless the following conditions are satisfied:

1. The E Brake ON/OFF switch must be in the "ON" position.
2. The throttle must be fully closed.
3. The transmission must be in lockup and in gears 2 through 6.

Allison Transmission
MD Transmission ECU Recalibration Locations*

Atlantic Detroit Diesel-Allison, Inc.
169 Old New Brunswick Road
Piscataway NJ 08854
Phone: (201) 752-7100

Central Detroit Diesel-Allison, Inc.
9200 Liberty Drive
Liberty (Kansas City) MO 64068
Phone: (816) 781-8070

Clarke Detroit Diesel-Allison, Inc.
3133 East Kemper Road
Cincinnati (Sharonville) OH 45241
Phone: (513) 771-2200

Clarke Detroit Diesel-Allison, Inc.
1340 Terminal Road
Indianapolis IN 46217
Phone: (317) 783-6651

Covington Detroit Diesel-Allison Inc.
6200 Swiggett Road
Greensboro NC 27419-8949
Phone: (919) 292-9240

Detroit Diesel BC Ltd.
9300 - 192nd Street
Surrey BC V3T 4W2 CANADA
(604) 888-1211

Detroit Diesel Canada East, Ltd.
2997 Rue Watt
Ste. Foy PQ G1W 3W1 CANADA
Phone: (418) 651-5371

Florida Detroit Diesel-Allison, Inc.
224 SW 52nd Avenue
Ocala FL 32675
Phone: (904) 237-7977

Inland Diesel, Inc.
13015 West Custer Avenue
Butler (Milwaukee) WI 53007
Phone: (414) 781-7100

Inland Diesel, Inc.
500 South Lombard Road
Addison (Chicago) IL 60101
Phone: (708) 620-2000

Interstate Detroit Diesel, Inc.
2501 East 80th Street
Minneapolis MN 55425
Phone: (612) 854-5511

Johnson & Towers, Inc.
2021 Briggs Road
Mount Laurel NJ 08054
Phone: (609) 234-6990

Michigan Detroit Diesel-Allison, Inc.
2940 Clydon Avenue SW
Grand Rapids MI 49509
Phone: (616) 531-1770

Midwest Detroit Diesel Ltd.
1460 Waverly Street
Winnipeg MB R3T OP4 CANADA
Phone: (204) 452-8244

Pacific Detroit Diesel-Allison, Inc.
3436 Olympic Street
Springfield OR 97477
Phone: (503) 746-1661

Penn Detroit Diesel-Allison, Inc.
Route 222
Fleetwood PA 19522
Phone: (215) 944-0451

Power Products, Inc.
34 Audubon Road
Wakefield (Boston) MA 01880
Phone: (617) 246-0096

Sierra Detroit Diesel-Allison, Inc.
1755 Adams Avenue
San Leandro CA 94577
Phone: (510) 635-8991

Smith Detroit Diesel-Allison, Inc.
250 West 3900 South
Salt Lake City UT 84107
Phone: (801) 262-2631

Stewart & Stevenson Power, Inc.
5840 Dahlia Street
Commerce City CO 80020
Phone: (303) 287-7441

Stewart & Stevenson Services, Inc.
2707 North Loop West
Houston TX 77008
Phone: (713) 868-7700

United Engines, Inc.
7454 East 41st Street
Tulsa OK 74145
Phone: (918) 627-8080

Valley Detroit Diesel-Allison, Inc.
13644 Nelson Avenue
City of Industry CA 91746
Phone: (818) 333-1243

Waterous Detroit Diesel-Allison, Inc.
10025 - 51st Avenue
Edmonton AB T6E 0A8 CANADA
Phone: (403) 437-3550

Western Branch Diesel, Inc.
Interstate 95 North at Atlee Road Exit
Richmond VA 23228
Phone: (804) 550-2816

Williams Detroit Diesel-Allison, Inc.
869 Goodale Boulevard
Columbus OH 43212
Phone: (614) 228-6651

Williams Detroit Diesel-Allison, Inc.
2849 Moreland Avenue S.E.
Atlanta GA 30315
Phone: (404) 366-1070

Williams Detroit Diesel-Allison, Inc.
1803 West Oakridge Drive
Albany GA 31707
Phone: (912) 888-1923

* List current as of May 12, 1994

NOTES

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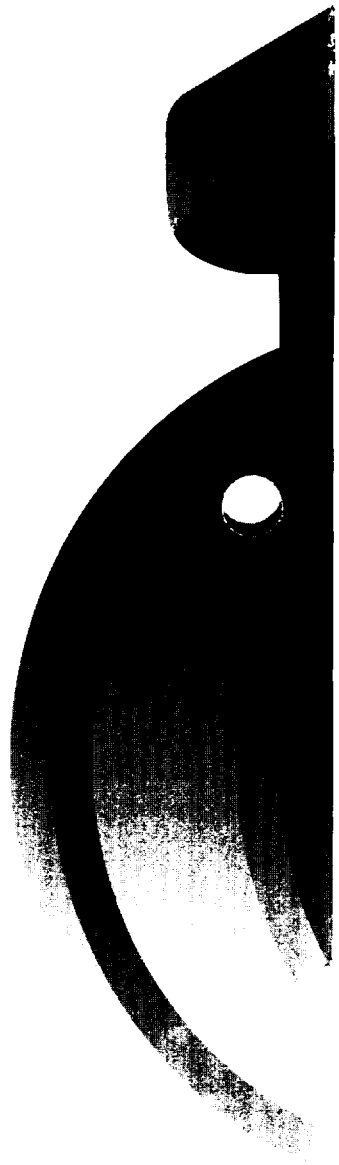

Cummins Engine Company, Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

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