Roadranger®

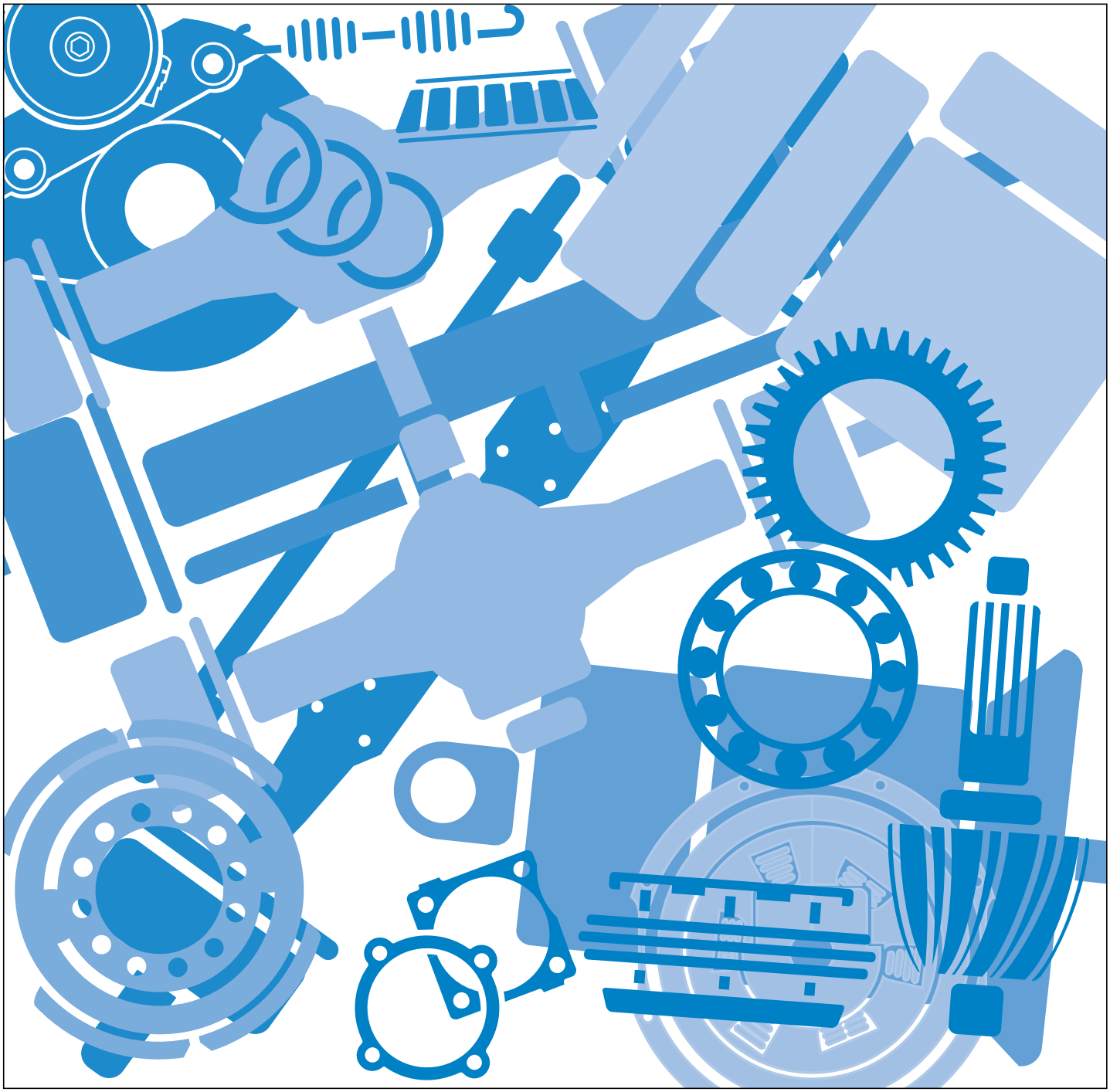
Eaton® Fuller® Transmissions

Control Module
(L-3894)

DANA | EATON

One Great Drivetrain from Two Great Companies

Installation Guide TRIG-0950 August 2003



For the most current information, visit the Roadranger web site at www.roadranger.com

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1 (877) 776-4600

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906 W. Gore St.

Orlando, FL 32805

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General Information

This Eaton publication is intended to be a reference guide for the installation/operation of the Eaton Control Module. As much general vehicle and transmission information has been given for covering the wide range of applications. The information given benefits the installer by ensuring correct installation procedures; therefore, providing the utmost in satisfactory operation and long service life. For specific engine information, contact the vehicle OEM or engine OEM.

The Control Module is designed to replace the switches located on the dash for the Cruise Control and/or the Engine Brake and put them in an accessible location for the driver. Use the directions in this guide for proper installation. Please note that some engine ECMs (DDEC III, for example) have programmable inputs and this guide refers to the most commonly used pins. Contact the vehicle OEM to verify the correct terminal location on the engine ECM.

The installation of this product must coincide with the requirements of Eaton Corporation as stated in this guide and any requirements from the engine manufacturer and the OEM. Contact the OEM or the engine manufacturer to verify the correct terminal location. As stated above, The Eaton Control Module just replaces the dash switches. The clutch switch, brake switch, and fuel pump switch still need to be incorporated per the engine manufacturer and OEM.

ELECTRICAL

Use 16 gauge GXL wire. Installation of crimped terminals must adhere to connector manufacturer's specifications.

Note: If the vehicle is equipped with cruise control or engine brake dash switches that are being replaced with the Eaton Control they must be disconnected. The wires must be tied off and the ends electrically insulated from coming in contact with power or ground.

The Eaton Control Module is intended to interface with the 1994 electronically governed engines.

Mating Connector Source

Packard Electric

(Connectors)

Pioneer-Standard Electronics, Inc.

Packard Branch

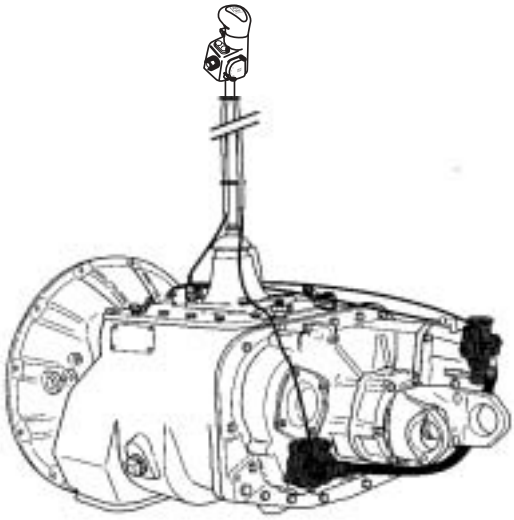
440 Naiman Pkwy

Solon, OH 44139

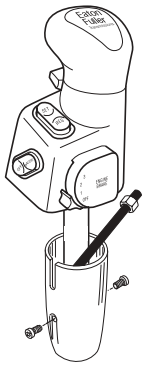
1-800-PACKARD

General Instructions

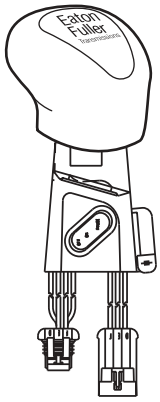
1. Locate and remove the Roadranger Valve. Save the two (2) screws from the cover.



2. Note the location of the air lines and remove the lines.
3. Pull the plastic cover off the lever.



4. Slide the Control Module on the lever.
5. Attach the air lines.



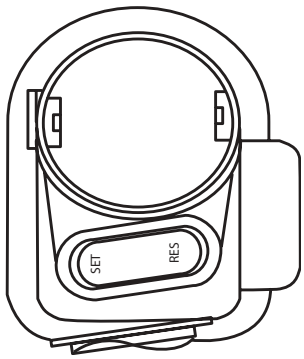
6. Use the two (2) screws from the cover and secure the Control Module under the shift knob.

With Cruise Control Switches Only

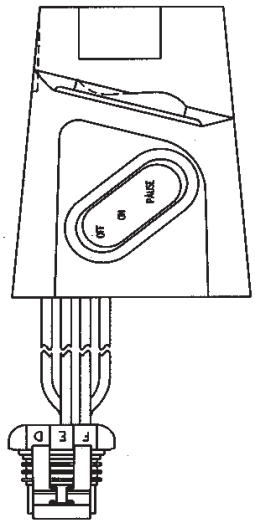
For Cat, Cummins, Detroit Diesel DDEC IV and Mack V-MAC III:
Eaton Part No. 5586025 (Replaces 4302800) With 60 Inch Harness
Eaton Part No. 5586032 (Replaces 4304395) With 24 Inch Harness

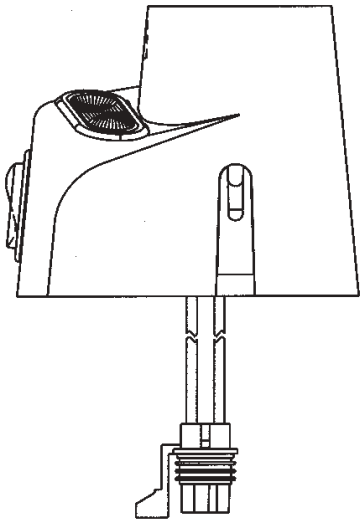
This module can be ordered in a kit form.
Kit part number: K-3539 (replaces K-2975)

Includes the following:	
5586025	Module
A-6589	Pigtail Harness
TRIG-0950	Installation Guide
Or the following component only:	
5586032	Module



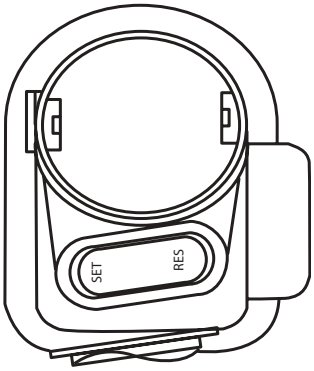
Cruise Control	
Mating connector:	
Packard Part No.	12124107
Terminal Part No.	12045773
Cable Seal Part No.	12048086
Secondary Lock Part No.	12052850





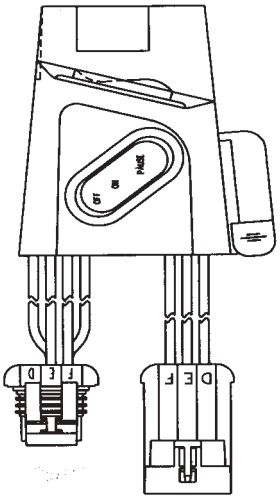
Cruise Control Switches With 3 Level (Low, Medium & High) Engine Brake Switches

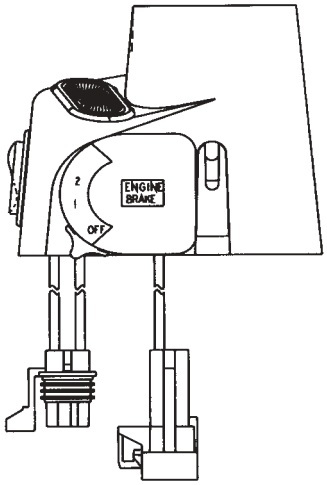
For Cat C10, C12, C15, C16; Cummins ISX, Celect Plus (N14); Detroit Diesel DDEC IV
Eaton Part No. 5586026 (Replaces 4302801)



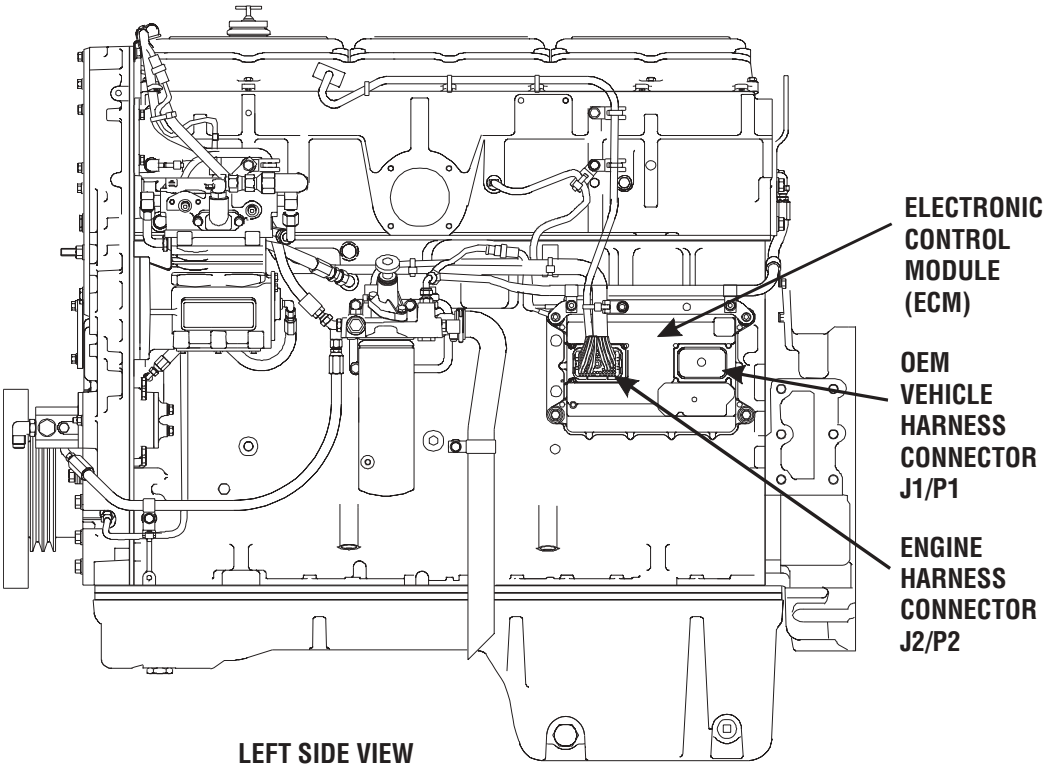
Kit part number: K-3540 (Replace K-3178)	
5586026	Module
A-6586	Pigtail Harness
TRIG-0950	Installation Guide

CRUISE CONTROL	**ENGINE BRAKE**
Mating connector:	Mating connector:
Packard Part No. 12124107	Packard Part No. 12052848
Terminal Part No. 12045773	Terminal Part No. 12048074
Cable Seal Part No. 12048086	Cable Seal Part No. 12048086
Secondary Lock Part No. 12052850	Secondary Lock Part No. 12052850



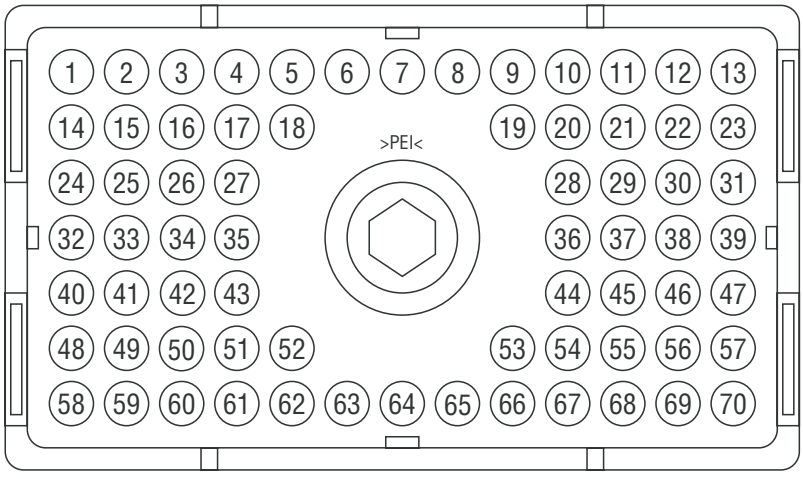


Location of the OEM Connector P1/J1 on Caterpillar 3126, C10, C12, C15, & C16 Engines



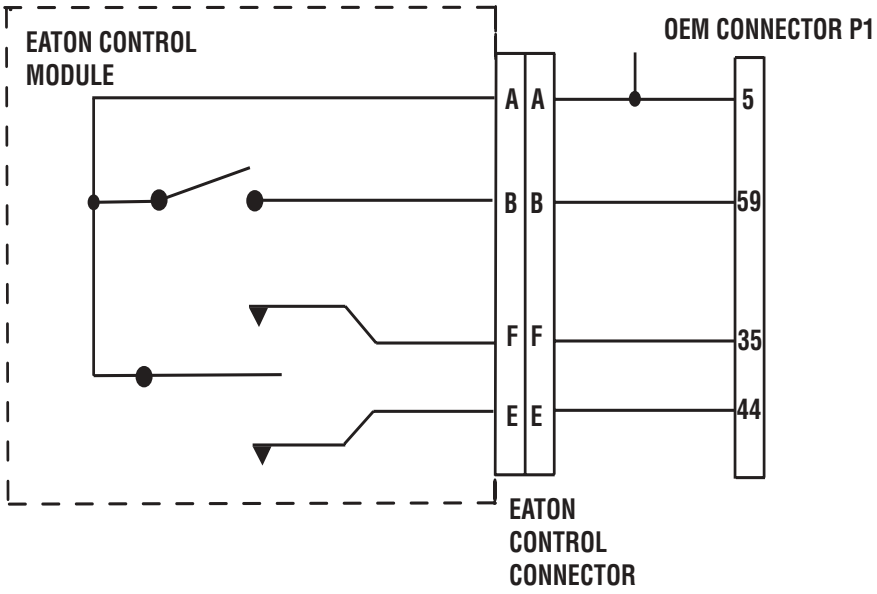
LEFT SIDE VIEW

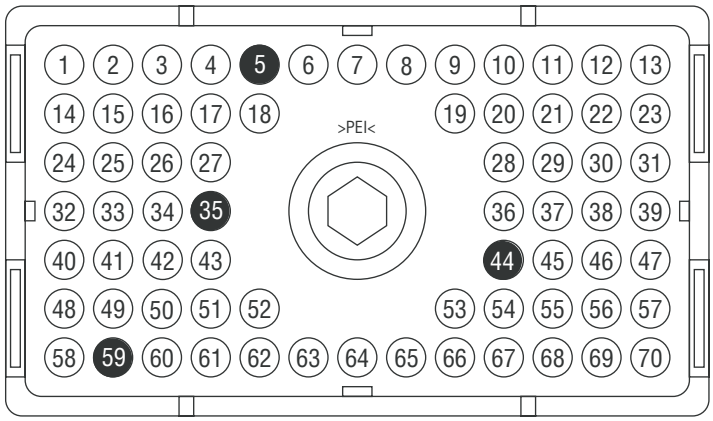
OEM Connector P1



View From Harness Side of Connector P1

Cruise Control Switches For Cat 3126, C10, C12, C15, & C16 Engines





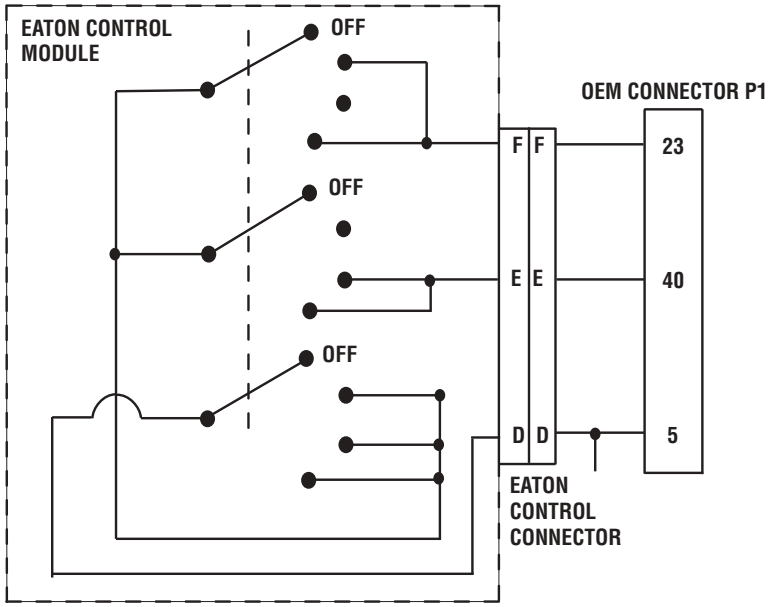
View From Harness Side of Connector P1

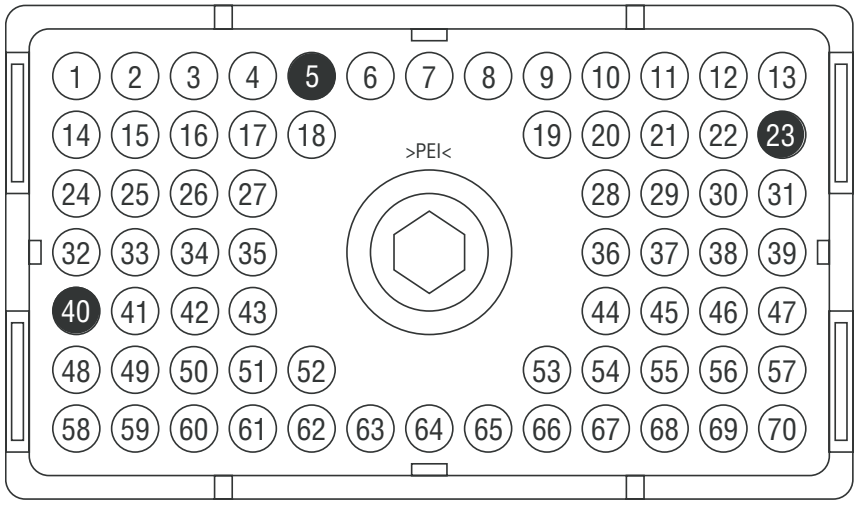
INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CAT OEM CONNECTOR P1	DESCRIPTION
A	5	SENSOR COMMON *
B	59	CRUISE ON/OFF INPUT
F	35	CRUISE SET INPUT
E	44	CRUISE RESUME INPUT

Note: * Do not remove Pin 5 Sensor Common.

Splice wire for control module into wire Sensor Common.

Engine Brake Switches For Cat 3126, C10, C12, C15 & C16





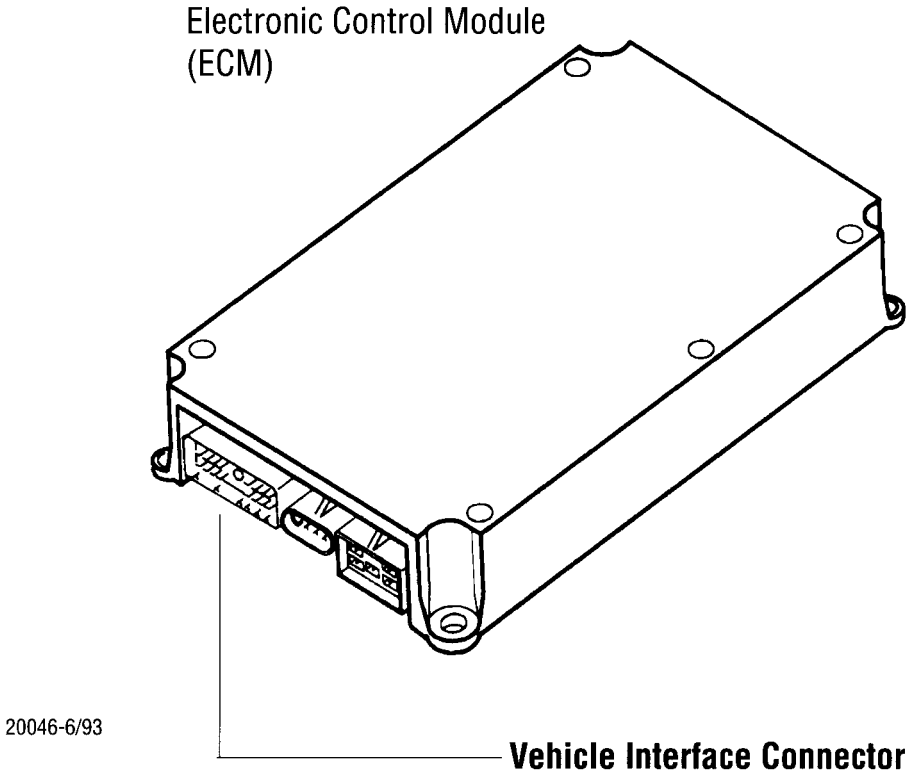
View From Harness Side of Connector P1

INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CAT OEM CONNECTOR P1	DESCRIPTION
D	5	SENSOR COMMON *
E	40	RETARDER SOLENOID MED/HI SW
F	23	RETARDER SOLENOID LOW/HI SW

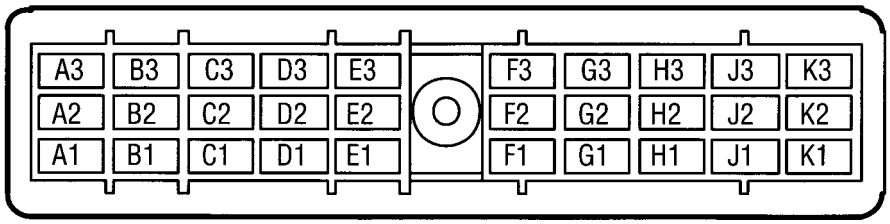
Note: * Do not remove Pin 5 Sensor Common.

Splice wire for control module into wire Sensor Common.

Location of the OEM Vehicle Interface Connector



30-WAY OEM VEHICLE
INTERFACE CONNECTOR



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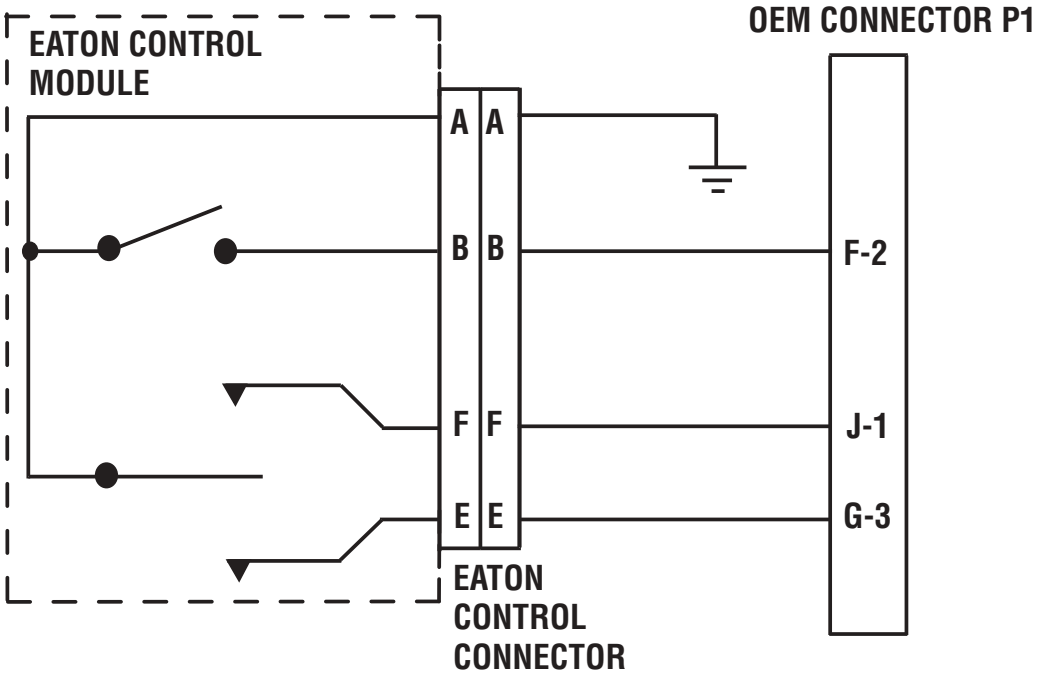
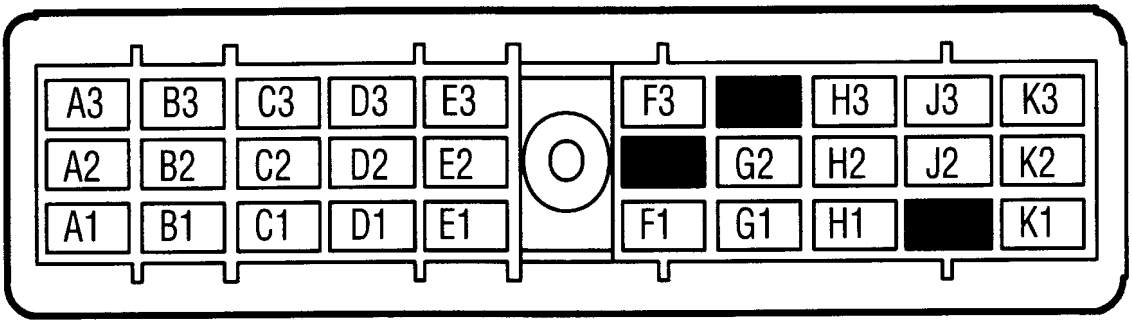
Cruise Control Switches For Detroit Diesel DDEC IV



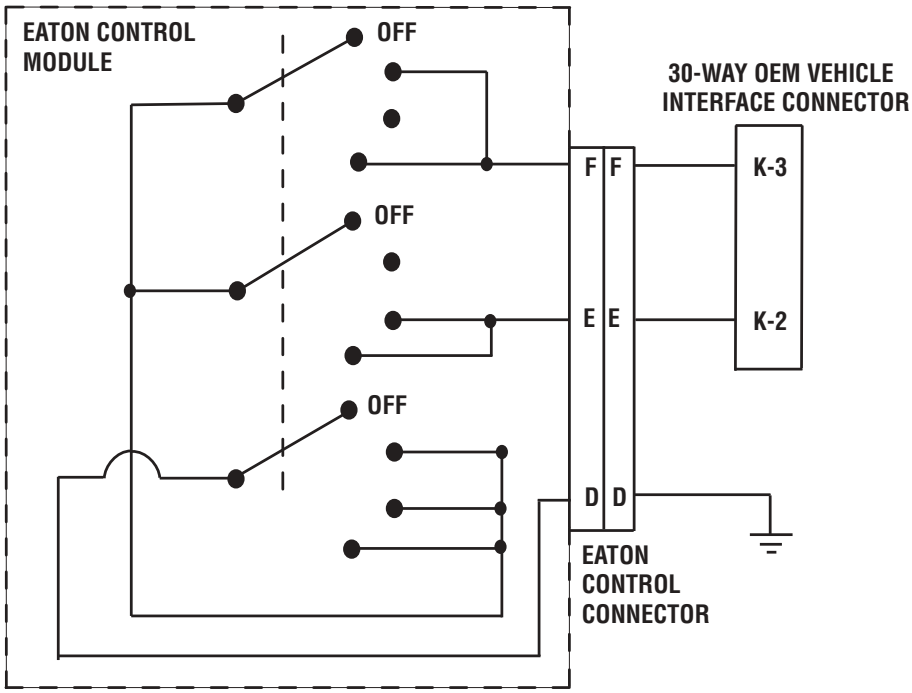
30-WAY OEM VEHICLE INTERFACE CONNECTOR



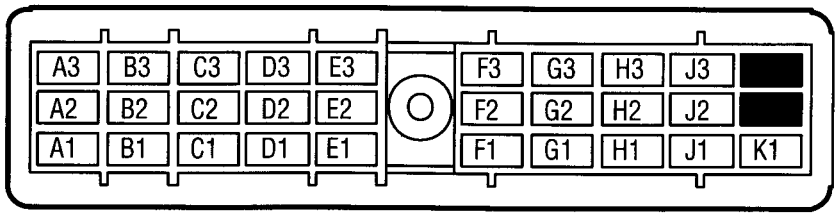
INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO 30-WAY OEM VEHICLE INTERFACE CONNECTOR*	DESCRIPTION
A	NONE	953 BLK/WHT (BATTERY GROUND)
B	F-2	544 BRN/WHT CRUISE ENABLE
F	J-1	541 YEL/RED CRUISE SET/COAST ON
E	G-3	545 LT BLUE/YEL CRUISE RESUME/ACCEL ON

Note: * Pinouts may be different. Pinouts are programmable.

Engine Brake Switches For Detroit Diesel DDEC IV Series 60 Configuration



30-WAY OEM VEHICLE INTERFACE CONNECTOR

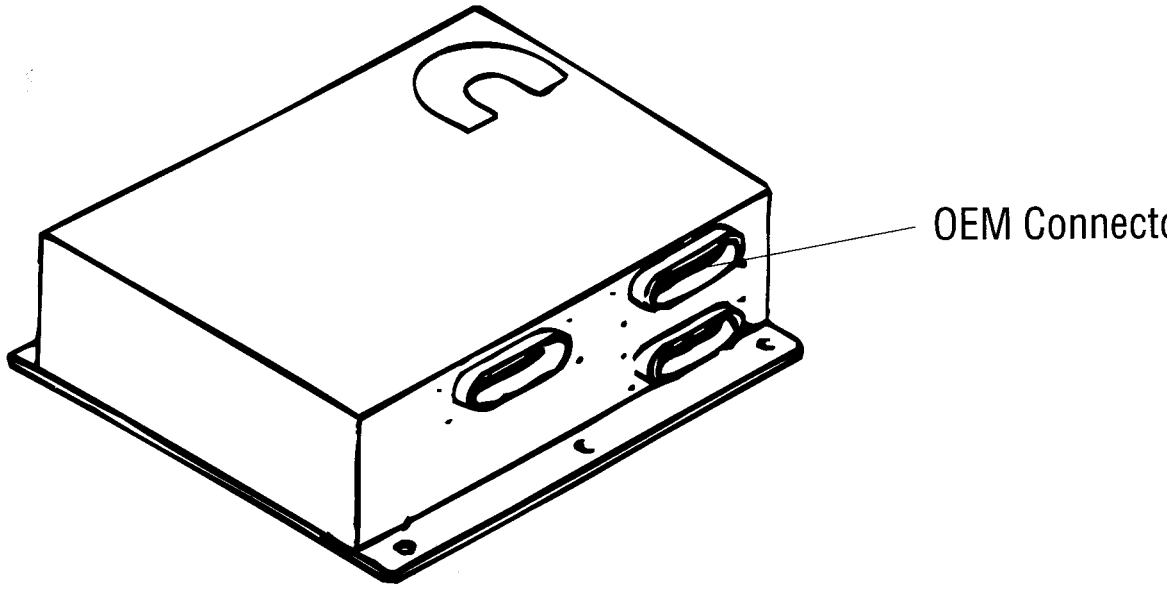


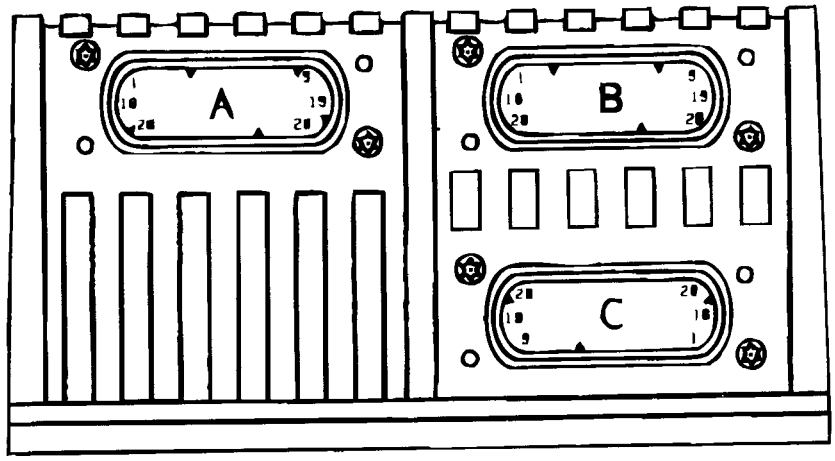
10012-8-94

INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO 30-WAY OEM VEHICLE INTERFACE CONNECTOR*	DESCRIPTION
D	NONE	953 BLK/WHT (BATTERY GROUND)
E	K-2	583 LT BLUE/BLK ENGINE BRAKE MED.
F	K-3	979 WHT ENGINE BRAKE LOW

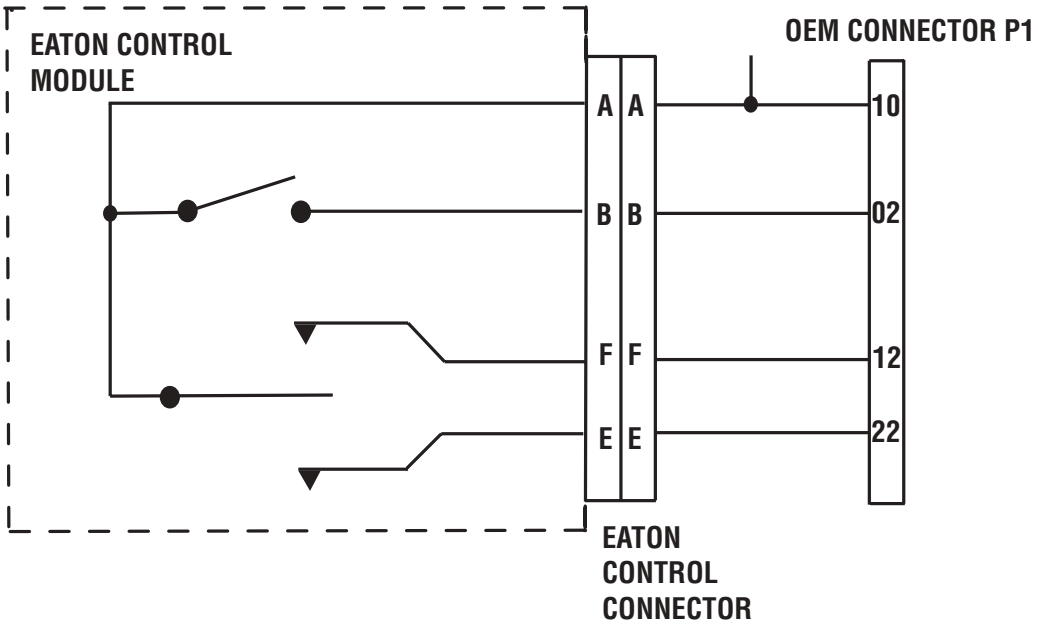
Note: * Pinouts may be different. Pinouts are programmable.

Location of the OEM Connector B on Cummins Engines





Cruise Control Switches For Cummins CELECT Plus

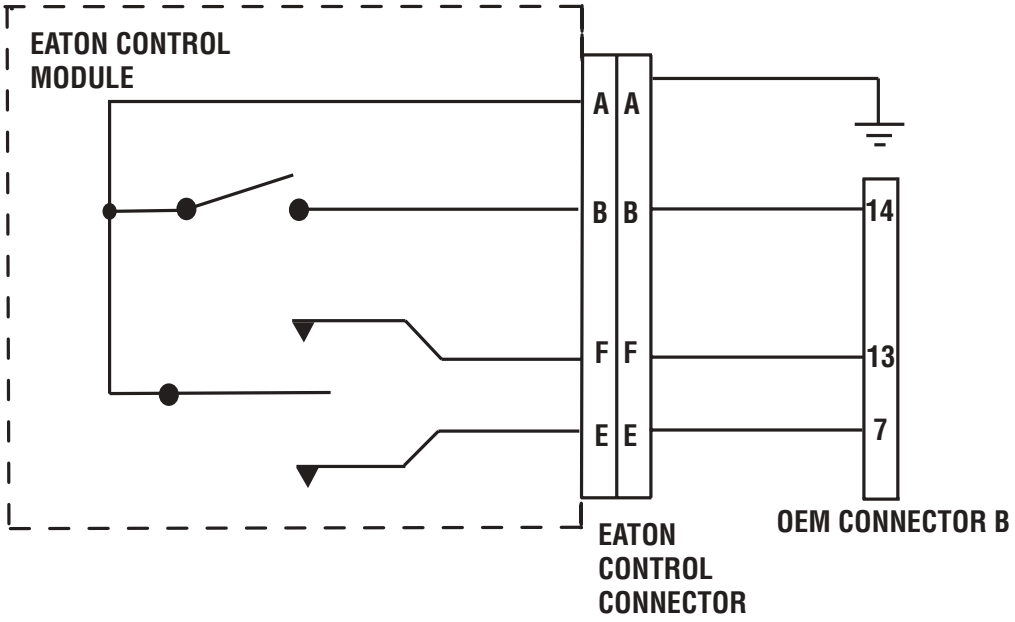


INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNEC-TOR B	DESCRIPTION
A	10	SWITCH COMMON +5 Vdc OUTPUT *
B	02	CRUISE CONTROL ON/OFF INPUT
F	12	CRUISE CONTROL SET/COAST INPUT
E	22	CRUISE CONTROL RESUME/ACCEL INPUT

Note: * Do not remove Pin 10 Switch Common.

Splice wire for control module into wire Switch Common.

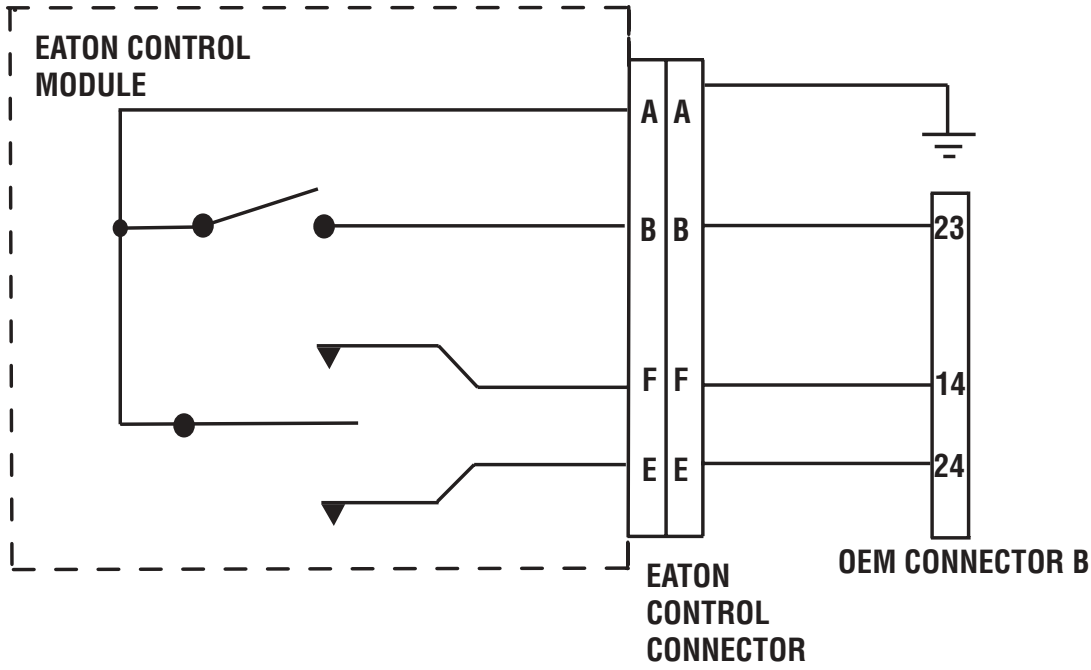
Cruise Control Switches For Cummins ISB, ISC, and ISL



INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNEC-TOR B	DESCRIPTION
A	NONE	BATTERY GROUND
B	14 *	CRUISE CONTROL ON/OFF INPUT
F	13 *	CRUISE CONTROL SET/COAST INPUT
E	7 *	CRUISE CONTROL RESUME/ACCEL INPUT

Note: * These switches may be used for other purposes i.e. PTO / IDLE.

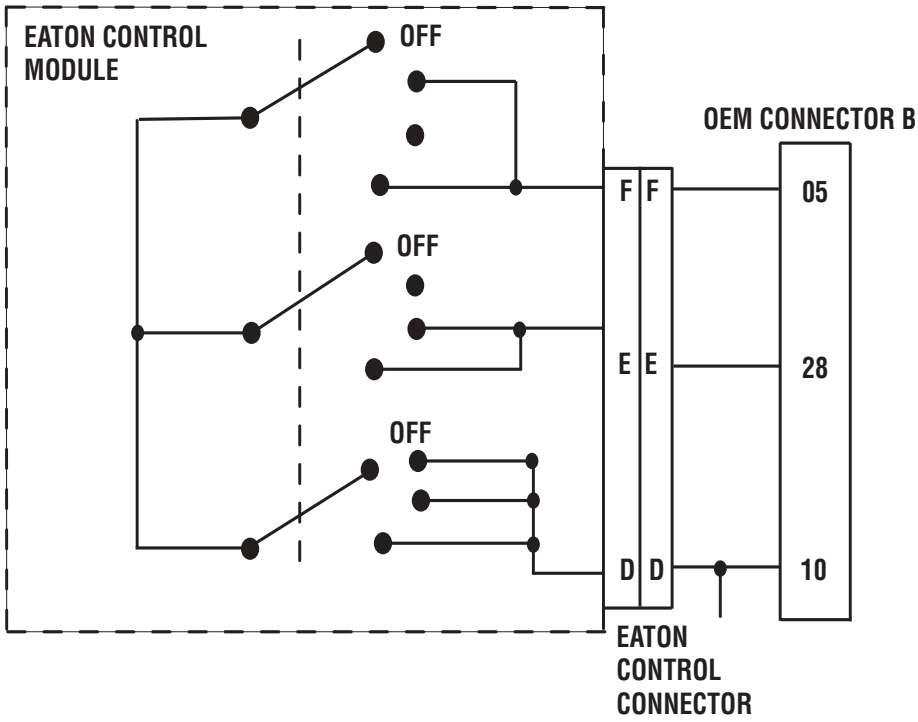
Cruise Control Switches For Cummins ISM and ISX



INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNEC-TOR B	DESCRIPTION
A	NONE	BATTERY GROUND
B	23 *	CRUISE CONTROL ON/OFF INPUT
F	14 *	CRUISE CONTROL SET/COAST INPUT
E	24 *	CRUISE CONTROL RESUME/ACCEL INPUT

Note: * These switches may be used for other purposes i.e. PTO / IDLE.

Engine Brake Switches For Cummins CELECT Plus N-14 Engines

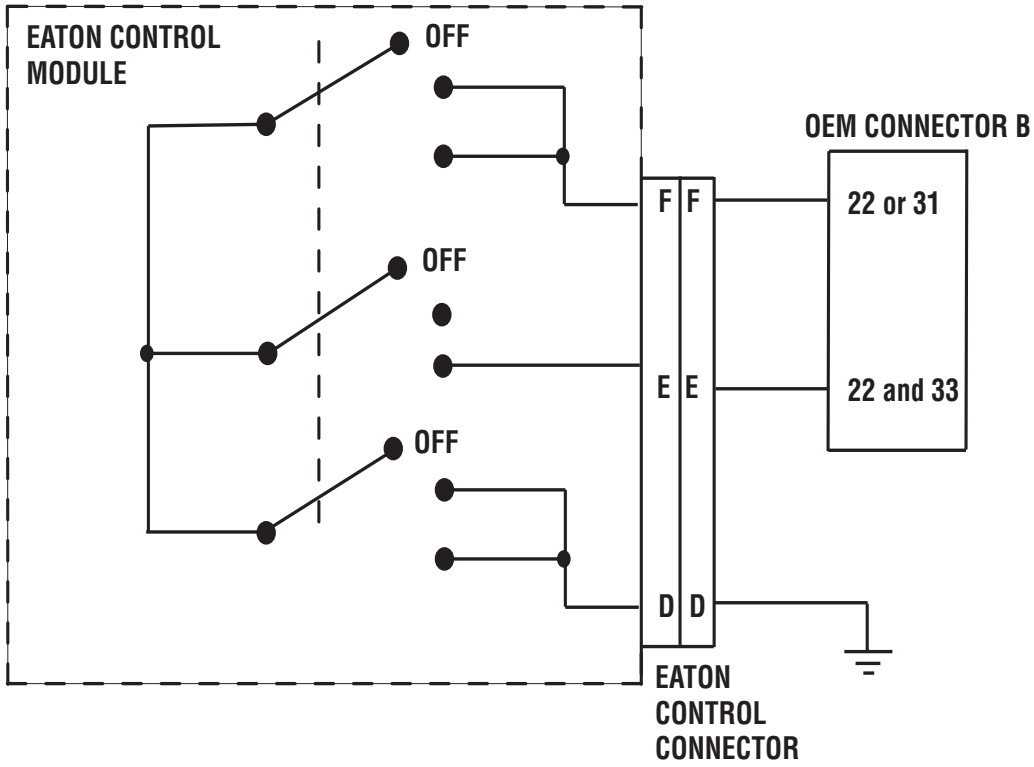


INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNEC-TOR B	DESCRIPTION
D	10	SWITCH COMMON +5 Vdc SUPPLY *
E	28	ENGINE BRAKE +12Vdc SOLENOID HI
F	05	ENGINE BRAKE +12Vdc SOLENOID LO

Note: Do not remove Pin 10 Switch Common.

Splice wire for control module into wire Switch Common.

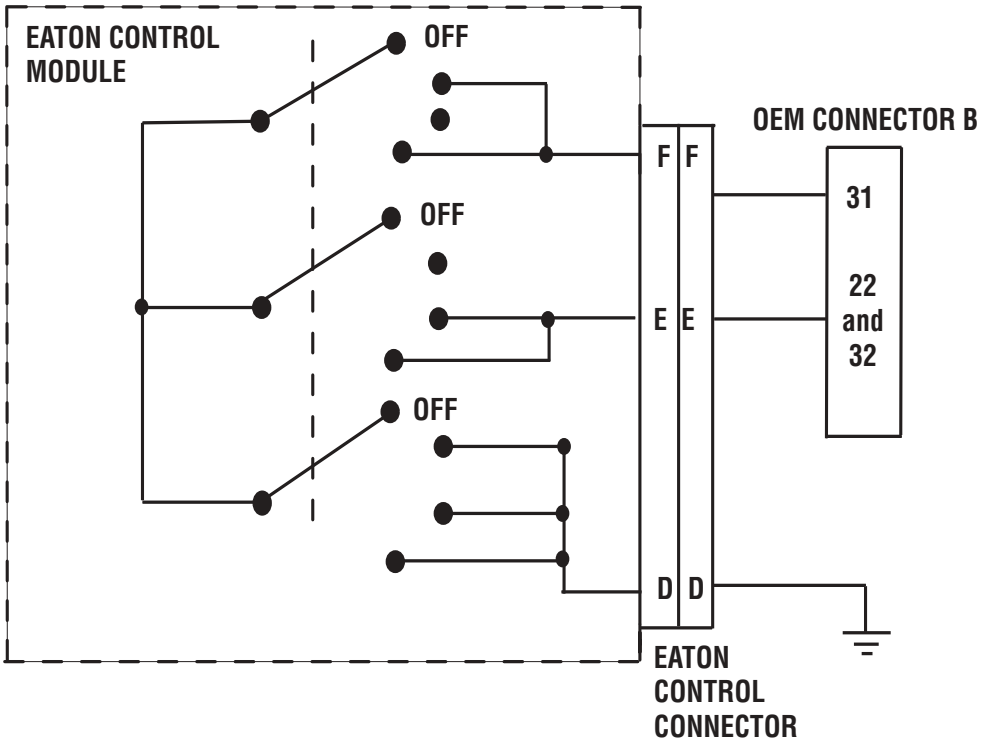
Engine Brake Switches For Cummins ISM Engines



INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNECTOR B & INT CONNECTOR	DESCRIPTION
D	NONE	BATTERY GROUND
E	22 AND 31	ENGINE BRAKE HI
F	22 OR 31	ENGINE BRAKE LO

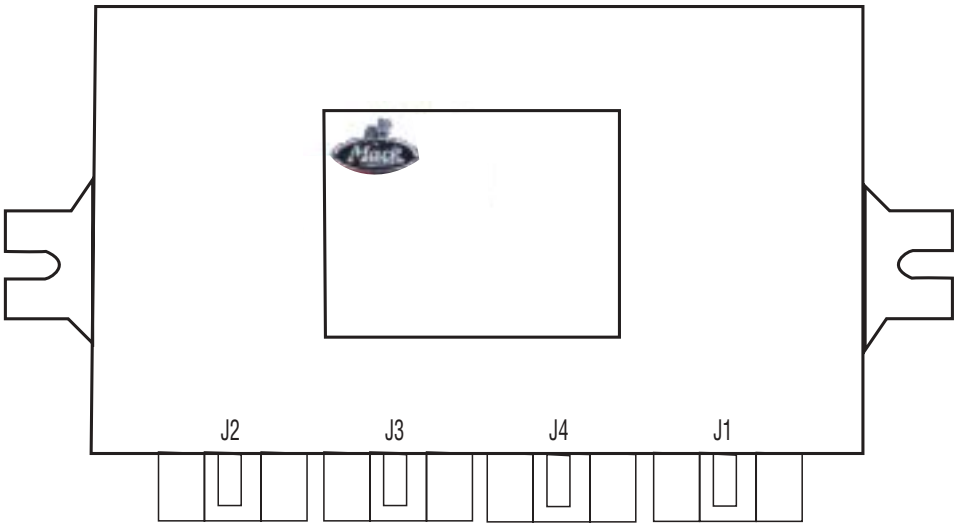
Note: Splice wire for control module into wire Switch Common.

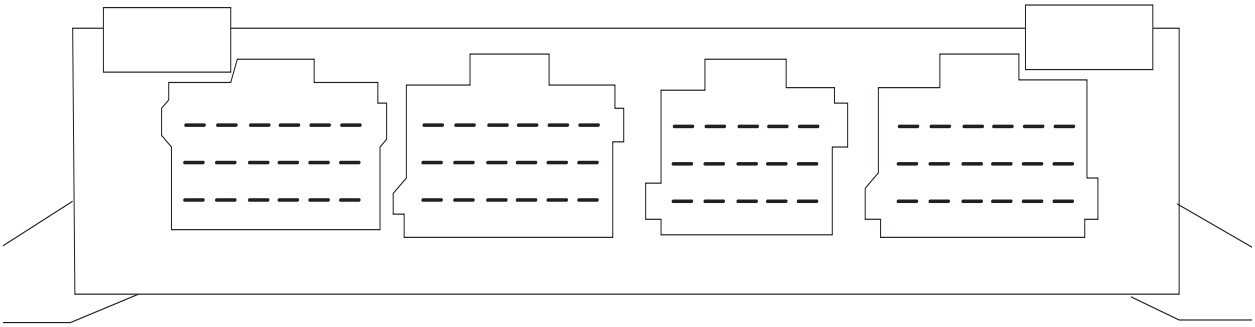
Engine Brake Switches For Cummins ISX Engines

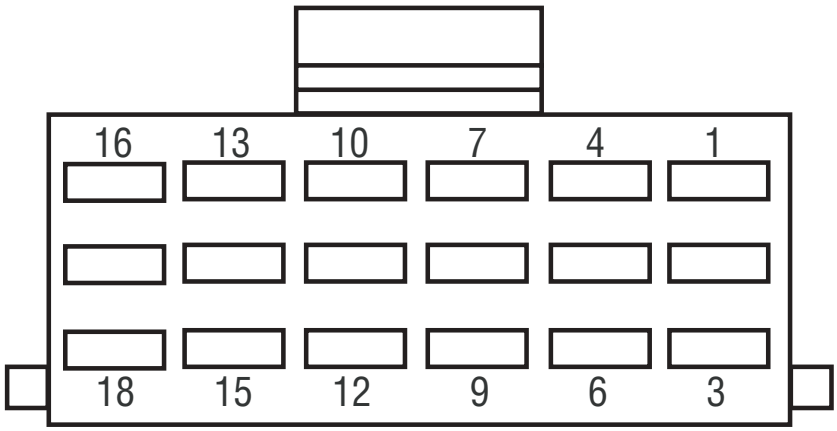


INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO CUMMINS OEM CONNECTOR B	DESCRIPTION
D	NONE	BATTERY GROUND
E	22 AND 32	ENGINE BRAKE +12Vdc SOLENOID HI
F	31	ENGINE BRAKE +12Vdc SOLENOID LO

Location of the J1B and J2 Connectors on the V-MAC III

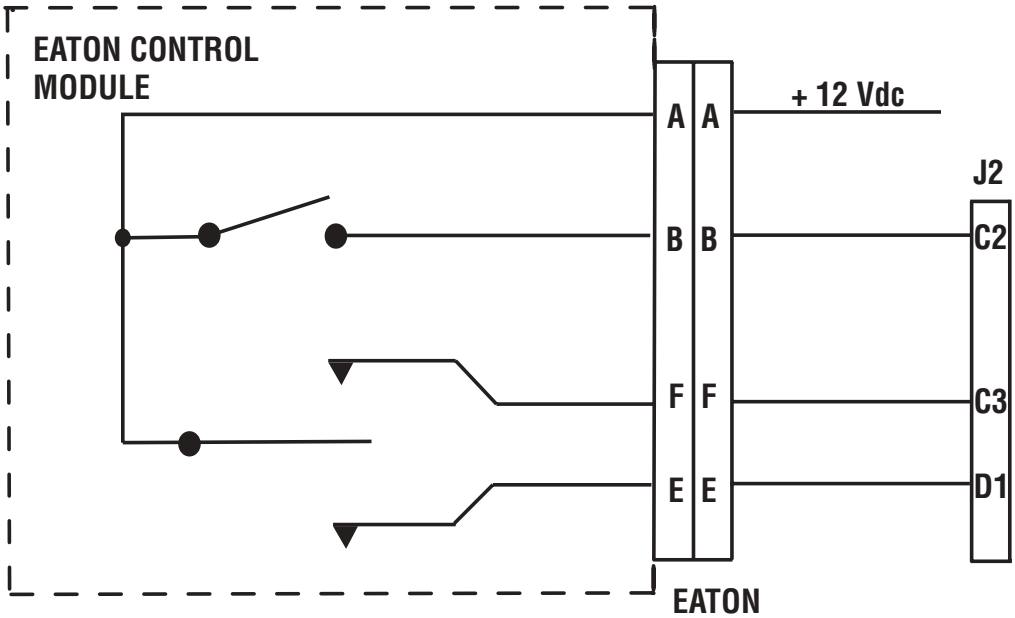


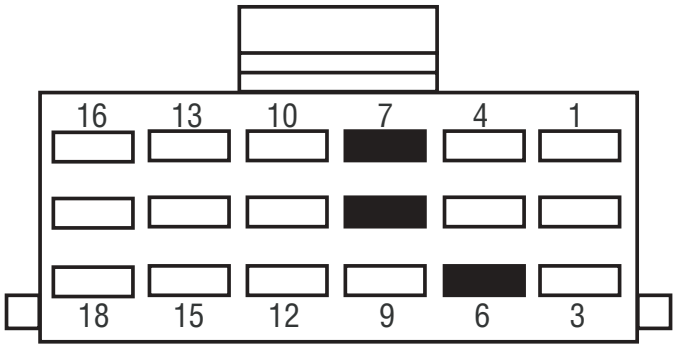




J1

Cruise Control Switches For Mack CH, CX, CV, RD, and RB with V-MAC III E7 Engines

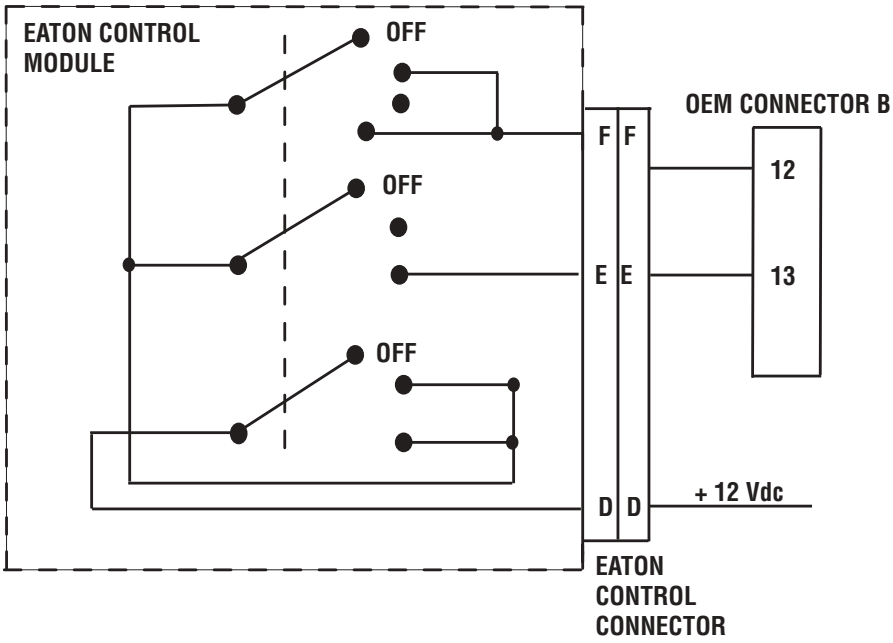


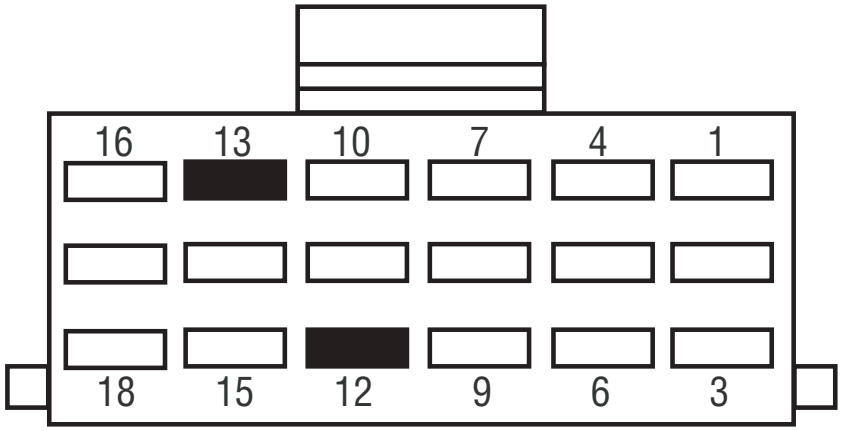


J1

INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO V-MACIII CONNECTOR	DESCRIPTION
A	J1B-N1,N2,N3	+12vDC
B	6	CRUISE CONTROL ON/OFF INPUT
F	7	CRUISE CONTROL SET/DECEL INPUT
E	8	CRUISE CONTROL RESUME/ACCEL INPUT

Engine Brake Switches For Mack CH, CX, CV, RD, and RB with V-MAC III E7 Engines





J1

INTERCONNECTION TABLE		
FROM EATON CONTROL CONNECTOR	TO ENGINE BRAKE RELAY	DESCRIPTION
D	NONE	+12 Vdc
E	13	HI ENGINE BRAKE RELAY
F	12	LOW ENGINE BRAKE RELAY

Control Module Operation

Cruise Control

Cruise control has three (3) modes: off, standby and active. The ***OFF*** position of the switch disables cruise control. The standby mode occurs when the operator switches the cruise control **ON/OFF/PAUSE** switch to the ***ON*** position. The operator can then achieve the active mode, by toggling the ***SET*** switch after accelerating to the desired road speed. Once the system is in the active mode, the accelerator pedal can be used to increase the speed beyond the cruise set speed. When the pedal is released, cruise control is reactivated when speed reaches the previously set speed.

Cruise control is deactivated and returns to the standby mode in several ways: 1) toggling the ***PAUSE*** position of the switch, 2) the brake or clutch pedal is depressed, 3) the engine speed (RPM) drops below the RPM set point, (this value is engine-model specific; typical is 1000 RPM), or 4) the vehicle speed (MPH) drops below the MPH set point, (this value is engine-model specific; typical is 30 MPH).

To return to active mode, if cruise has been disengaged, the operator must toggle either the ***SET*** or the ***RES*** (resume) switch. Momentary toggling of the ***SET*** switch will establish a new set speed at the speedometer reading at the time of the toggling. Momentary toggling of the ***RES*** (resume) switch will return cruise control to the previously established cruise speed.

While in the active mode, the coast feature of the ***SET*** switch is used to decrease the vehicle speed and establish a new, lower cruise speed. By holding the ***SET*** switch closed, the vehicle speed (MPH) decreases until the switch is released; the speed at release becomes the new cruise control speed. Toggling the switch will result in a one (1) MPH decrease in vehicle speed, (this value is engine-model specific; typical 1 MPH).

The accelerate feature of the ***RES*** switch is used to increase the vehicle speed and establish a new, higher cruise speed. By holding this switch closed, the vehicle speed (MPH) increases until the switch is released; the speed at the release becomes the new cruise control set speed. Toggling the switch will result in a one (1) MPH increase in vehicle speed, (this value is engine-model specific; typical 1 MPH).

Driving with the Pause Button

The Pause position is spring loaded. Pushing Pause cuts out the cruise control. When the switch is release, the cruise returns to the On position and the cruise control again responds to commands from the other buttons, such as Resume.

Pause is especially useful with button shift transmissions, like the Super 10, 13 and 18. When cruising with these transmissions, most button upshifts and downshift can be made without touching the clutch or throttle pedals.

The procedure for button downshifts is: Preselect the transmission shift button, press and release the Pause switch, immediately press and release Resume. You will notice the engine RPM increase until the transmission finishes shifting and then the cruise control will again be driving the truck.

Upshifts are almost as easy: preselect the transmission shift button, press and release the Pause switch, wait until the transmission finishes shifting, now press Resume. Remember this is like any other transmission upshift, you must wait until the engine RPM drops sufficiently so the shift can be completed. Do not push Resume until you are sure the downshift has completed. If you have pushed Resume too soon and the transmission is still in neutral, immediately push Pause, wait until the engine RPM drops down to where the shift completes. Then push Resume.

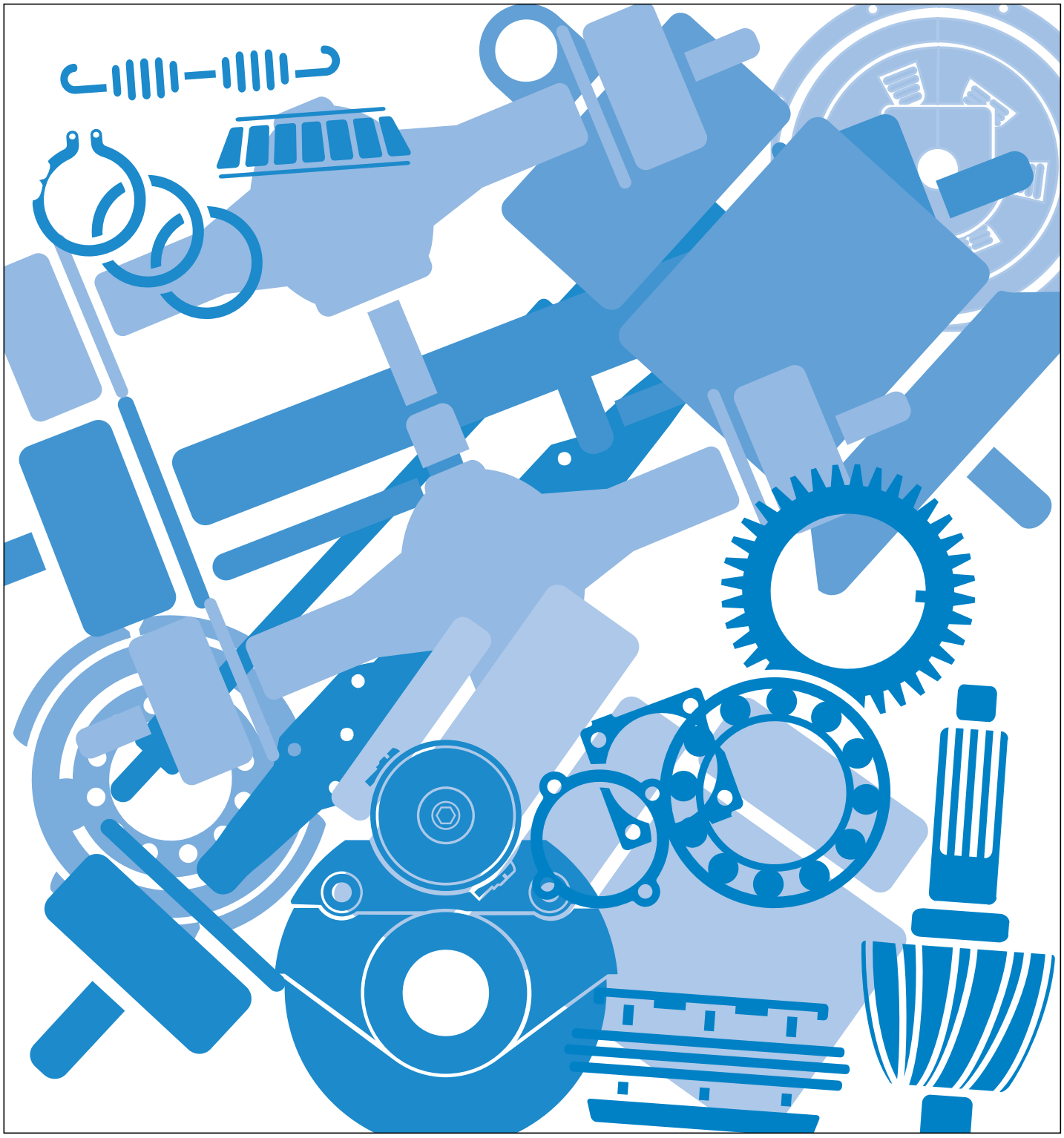
Using the buttons, you should be able to make most shifts without touching the clutch or throttle pedals. Remember you must first preselect the transmission button shift, then press Pause. Under some load or vehicle conditions, you may have to use the clutch. In these instances, pressing the Pause button causes the vehicle to decelerate and the transmission is still in the original gear. Under these conditions use the clutch and throttle pedals to complete the shift, then push Resume.

Note: With the use of a hand held diagnostic tool, some engines can have the option to change the switch functions from set/coast and resume/accelerate to set/accelerate and resume/coast. This is not acceptable since the cruise set/coast and resume/accelerate is operated from one switch.

Engine Brake Switches

Engine brake control cylinder selection switch has two (2) or three (3) modes: OFF, 1 & 2 or OFF, 1, 2 & 3. The ***OFF*** position of the switch disables the engine brake. The **1-2** (LOW-HI) and the **1-2-3** (LOW-MED-HI) controls the number of cylinder or banks affected by the engine brake.

Engine brake is deactivated in several ways: The cylinder selection switch is moved to the ***OFF*** position, the throttle or clutch pedal is depressed, the engine speed (RPM) drops below the RPM set point, (this value is engine-model specific).



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