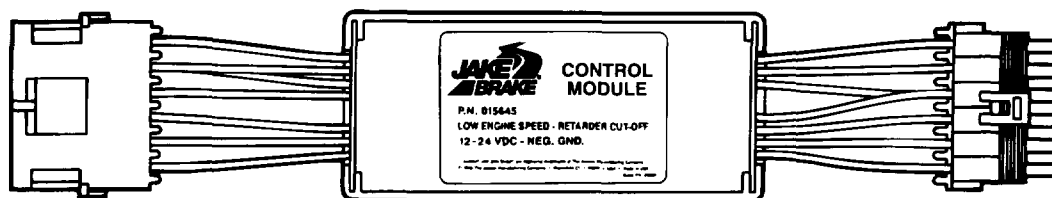




# Low Engine Speed Retarder Cutoff



## Low Speed Retarder Cutoff Group, P/N 015644

Consists of: P/N 015645 Control module (shown above)

P/N 016175 Wiring harness

P/N 016177 Wiring harness

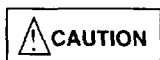
This manual contains instructions for installing, servicing and operating the Jacobs® Low Engine Speed Retarder Cutoff system. This system is applicable to engines without electronic controls, that are equipped with a Jake Brake® engine retarder. The system may be installed on vehicles with either 12- or 24-volt DC electrical systems and is compatible with all Class 8 flywheels.

## The Jacobs Low Engine Speed Cutoff system offers these features:

- Shuts off the Jake Brake at approximately 950 RPM.
- Allows the use of the Jake Brake in more driving situations.
- Allows auxiliary use of engine or PTO without shutting off the Jake Brake (master on/off switch).
- Eliminates engine stalling from the Jake Brake upon bringing the vehicle to a full stop.
- Provides short-circuit protection with limp home capability.
- Easy installation . . . less than 2 hours in most applications.
- Completely sealed against dirt, oil, salt spray, shock and vibration.
- Completely solid state, no mechanical components.

# INSTRUCTIONS

# Installation Instructions



ALL ELECTRICAL CONNECTIONS SHOULD BE  
MADE BEFORE APPLYING ANY POWER, AS  
DAMAGE TO THE UNIT WILL RESULT.

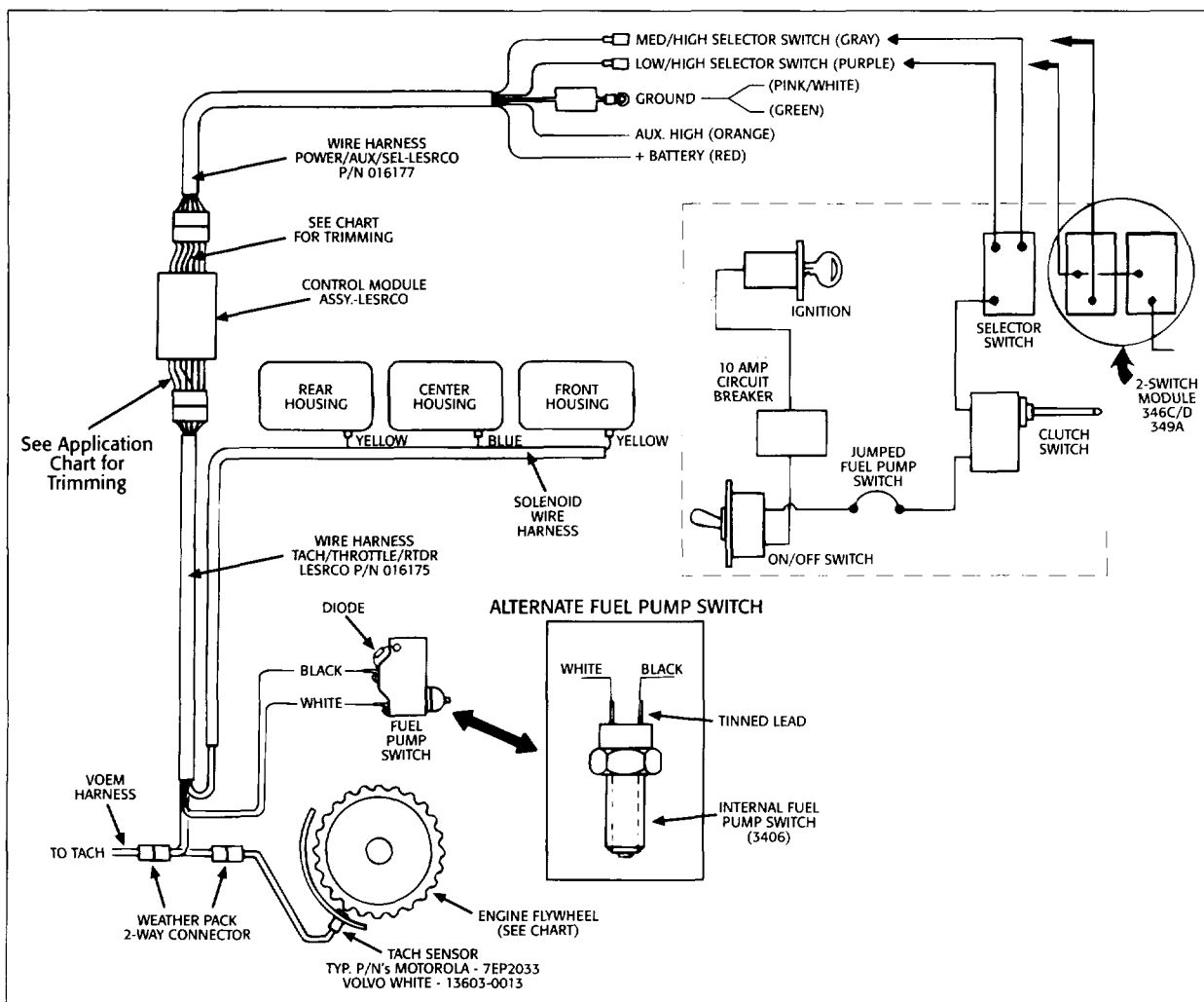
A tachometer sensing unit mounted on the engine flywheel housing is used to provide an electrical signal to the Jacobs® control module, which controls the engine brake operation relative to engine speed. If a tachometer sensor unit is not already installed, it will be necessary to install one. Refer to the installation drawing on the opposite page for product sources and follow the manufacturers' recommendations for installation and adjustment. Then proceed as follows:

1. Mount the control module in the engine compartment. Use plastic ties and secure the module to an existing wiring harness along the fire wall. Follow installation drawing on the opposite page and use the application chart to obtain the required cutoff speed.
2. Make wire harness (P/N 016177) connections:
  - a. RED wire (+12-volt connection): If the engine brake has an ON/OFF switch located on the dash, pull the red wire through the fire wall. Use a standard 16-gage butt splice connector and crimp it on to the wire. Connect the wire to the OFF side of the switch. If an ON/OFF switch is unavailable, connect the RED wire to the BLACK wire of the clutch switch.
  - b. GREEN and PINK/WHITE wires: These two wires are connected to a ring terminal and must be connected to a good ground, preferably to the engine block.
3. Make connections from the Jake Brake® selector switch:
  - a. GRAY wire: Connect to "MED/HIGH" side of selector switch.
  - b. PURPLE wire: Connect to "LOW/HIGH" side of selector switch.
- c. ORANGE wire: The ORANGE wire is an auxiliary input to the control module and is used to disable the retarder with a pull to ground signal. This input is designed to work with an ABS braking system. If it is not used, insulate the end and secure it in the loom.
4. Make wire harness (P/N 016175) connections:
  - a. BLACK and WHITE wires making connections to the fuel pump switch: Remove the two connectors from the fuel pump switch. Cut the terminals off of the wires and butt splice them together. Pull the BLACK and WHITE wires halfway through the loom. Connect the BLACK wire to the switch terminal with the diode attached. Connect the WHITE wire to the other switch terminal.
  - b. YELLOW and BLUE wires: These are the solenoid lead wires and are designed for use with either two- or three-mode engine brake applications as indicated below:
    1. Two-mode applications: Connect the BLUE wire to the rear housing. Connect the YELLOW wire to the front housing. Store the extra YELLOW wire.
    2. Three-mode applications: Connect the BLUE wire to the center housing. Connect the YELLOW wires to the front and rear housing.
5. Make the tachometer sensor connections. The tachometer sensor is usually located at the bottom right side (passenger side) of the flywheel housing. If the sensor has a weather pack connector, connect it to the Jacobs harness. If there is no weather pack connector, butt splice the wires from the sensor to the harness.

#### NOTE:

BEFORE THE SYSTEM IS ENERGIZED, ENSURE THAT THE PROPER CUTOFF SPEED IS SELECTED. THIS IS DONE BY SIMPLY CUTTING ONE OR TWO WIRES (REFER TO THE APPLICATION CHARTS). WHEN THE WIRE(S) IS/ARE CUT, BE SURE TO INSULATE BOTH ENDS OF THE WIRE(S).

# Installation Drawing



## Application Chart

Engine Make & Model	Flywheel Teeth	Cutoff Speed (RPM)	Trim Required
Mack, Cummins NT	118	850	Cut both GREEN/YELLOW and BLUE/WHITE
Cummins 10 Liter	105	950	Cut both GREEN/YELLOW and BLUE/WHITE
CAT 3406	113	880	Cut both GREEN/YELLOW and BLUE/WHITE
CAT 3406	113	1060	Cut GREEN/YELLOW only
CAT 3306	132	910	Cut GREEN/YELLOW only
CAT 3306	156	960	Cut BLUE/WHITE only

Referring to the chart above, select the engine make and model and the desired cutoff speed (RPM) and cut the Control Module wires accordingly. Install caps on the ends of wires for insulation.

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# Method of Driving With a Jacobs® Engine Brake

It is easy to learn the proper method of driving a vehicle that is equipped with a Jacobs Engine Brake. Since the engine brake is most effective at higher speeds, gear selection is very important. Gearing down the vehicle within the limits of recommended engine speed makes the engine brake a more effective retarder. Maximum retarding occurs with the selection of the lowest gear that prevents exceeding the maximum allowable engine speed.

For more information on driving with the Jake Brake®, consult Jacobs' Professional Drivers Manual (P/N 011390). To get a detailed presentation on driving with a Jacobs Engine Brake, consult your local Jacobs distributor.

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