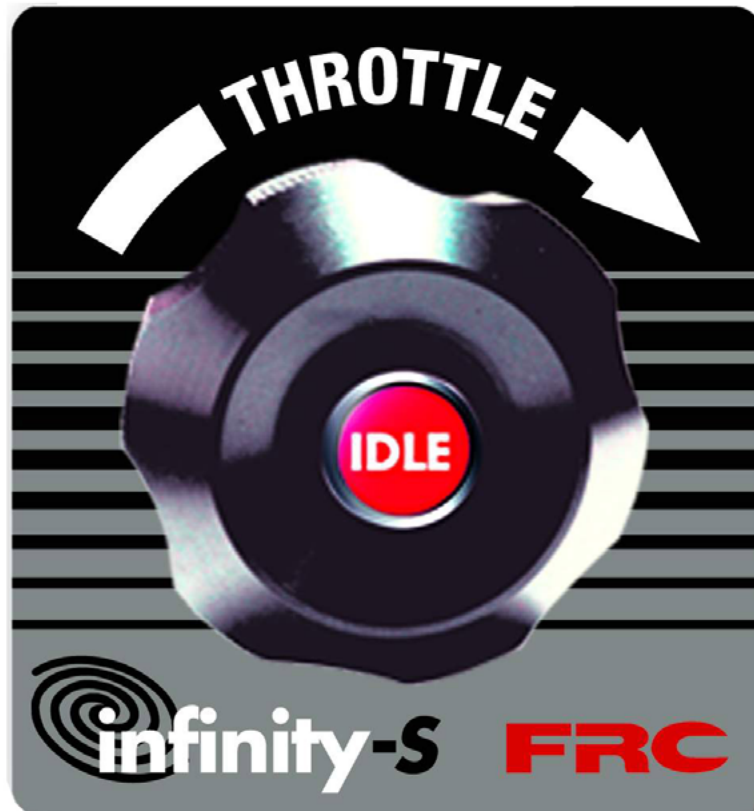




A Safe Fleet Brand



Remote Engine Throttle
ETA201 Cummins IS Series
ETA202 Detroit Diesel
ETA204 Navistar



FIRE RESEARCH CORPORATION

www.fireresearch.com

26 Southern Blvd., Nesconset, NY 11767

TEL 631.724.8888 FAX 631.360.9727 TOLL FREE 1.800.645.0074

CONTENTS

Table of Contents

| | |
|--|----|
| CONTENTS..... | 2 |
| List of Figures..... | 2 |
| INTRODUCTION..... | 3 |
| Overview..... | 3 |
| Features..... | 3 |
| INSTALLATION..... | 4 |
| Tools Required..... | 4 |
| Pre-Installation..... | 4 |
| Install Remote Throttle..... | 4 |
| OPERATION..... | 6 |
| WIRING..... | 7 |
| Connector and Cable..... | 7 |
| Cummins Harness Connections..... | 8 |
| Detroit Diesel (Series 50 and 60) Harness Connections..... | 10 |
| Navistar Harness Connections..... | 11 |

List of Figures

| | |
|---|----|
| Figure 1. Infinity-S Nomenclature and Dimensions..... | 5 |
| Figure 2. Infinity-S Cable..... | 7 |
| Figure 3. Cummins Infinity-S ETA201 Wiring..... | 8 |
| Figure 4. Detroit Diesel (Series 50 and 60) Infinity-S ETA202 Wiring..... | 10 |
| Figure 5. Navistar Infinity-S ETA204 Wiring..... | 11 |

Overview

The Infinity-S series of remote engine throttles use optical technology. There is no potentiometer, electromechanical switch, or mechanical stop. The throttle engine RPM control signal is set at idle when power is applied regardless of the control knob position.

The throttle uses an Infrared Encoder (IRE) to detect the direction and speed of the control knob when it is rotated. The electrical signal from the encoder is interpreted by the microprocessor and the engine RPM control signal is adjusted. The Infinity-S responds to how fast the control knob is rotated and will increase or decrease the engine RPM proportionally.

Pressing the idle button immediately sets the engine RPM to idle.

The Infinity-S is simple, inexpensive, and 100% compatible with conventional vernier type throttle mounting and wiring configurations. It is available in various models. Each model is programmed to interface with a specific type of engine.

| <u>Model</u> | <u>Engine</u> |
|--------------|-----------------------------------|
| ETA201 | Cummins IS Series |
| ETA202 | Detroit Diesel (Series 50 and 60) |
| ETA204 | Navistar |

Features

Always Starts From Idle RPM

No Mechanical Stops

Senses How Fast the Control Knob is Rotated

Idle Button

INSTALLATION

There are three screws in the knob. One slotted head screw is the detent adjustment for the knob and is set at the factory. This screw should not be adjusted in the field. The two socket head set screws are used to secure the control knob on the outer shaft.

Refer to Figure 1 for component nomenclature and dimensions.

Tools Required

Drill Motor (with 3/4" bit)

3/32 Inch Hex Wrench

1-1/8 Inch Open End Wrench

Pre-Installation

1. Mark location for mounting hole. (The decal supplied with the Infinity-S is 3.25-in. high by 3-in. wide. Allow for clearance around the mounting hole location.)
2. Drill a **0.75" (3/4")** diameter hole in mounting surface.

Note: Do not turn the slotted head screw.

3. Remove control knob by loosening two socket head set screws.
4. Remove outer nut from nipple.

Install Remote Throttle

1. Set inner nut and star washer to allow 0.85-inch (approximately one thread) to be exposed after outer nut is tightened.
2. Install Infinity-S plate, install and tighten outer nut.
3. Slide control knob over idle button and onto outer shaft. Ensure that there is clearance between the back of the knob, nut, and mounting surface. (The knob should spin freely.) If there is any rubbing, reset the position of both nuts per step 1.
4. Tighten two socket head set screws.
3. Connect cables. (Refer to Wiring section.)

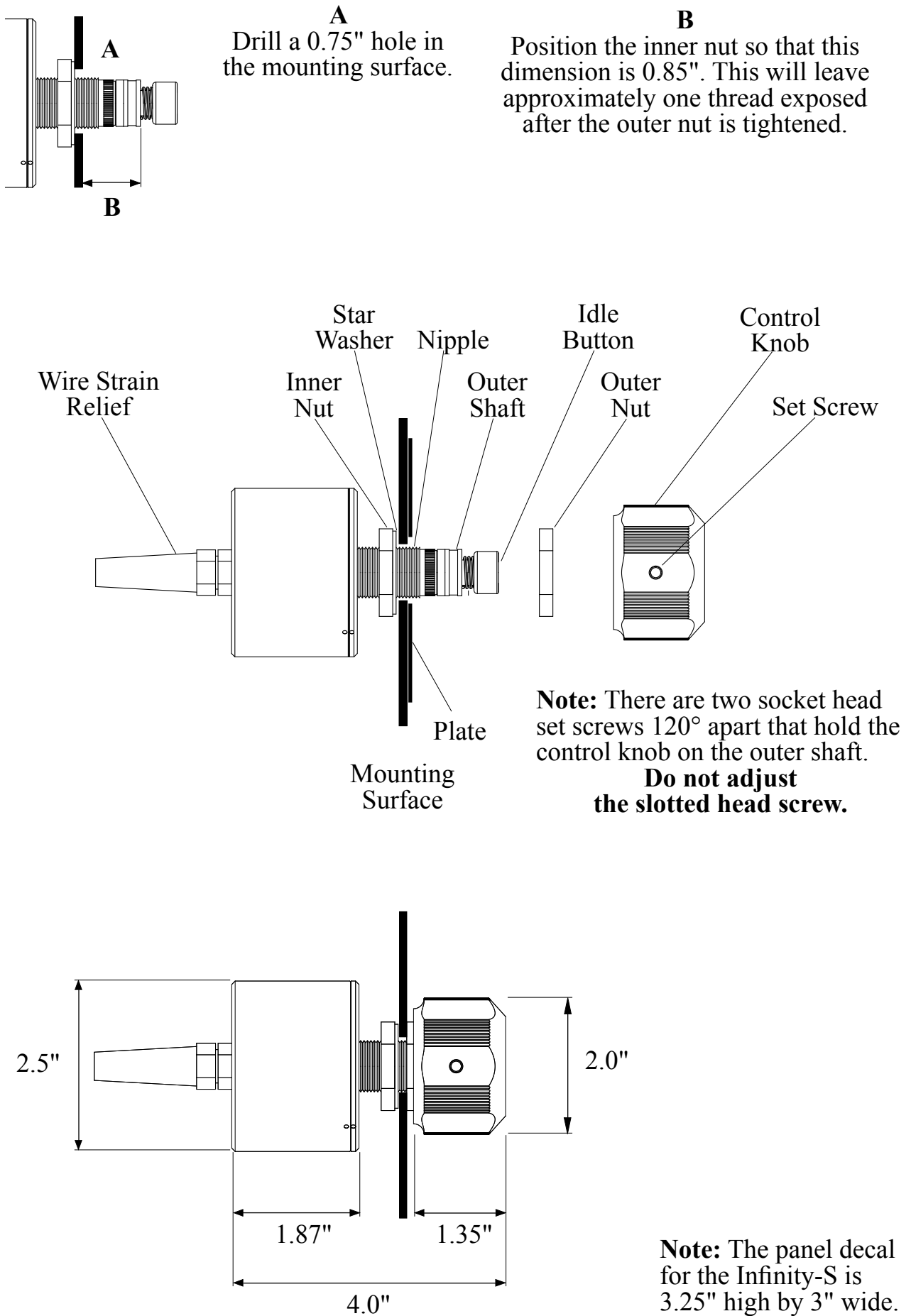


Figure 1. Infinity-S Nomenclature and Dimensions

OPERATION

The Infinity-S throttle always starts from idle when power is applied regardless of the control knob position. It senses how fast the control knob is rotated and increase or decrease the engine RPM proportionally.

If the control knob is rotated quickly; the RPM changes quickly.

If the control knob is rotated slowly; the RPM changes slowly.

- Rotate the control knob clockwise to increase engine RPM.
- Rotate the control knob counterclockwise to decrease engine RPM.
- Press the red IDLE button to immediately return the engine to idle.

The following figures include the schematics, wiring diagrams, block diagrams, and cable for the Infinity-S remote throttle.

Connector and Cable

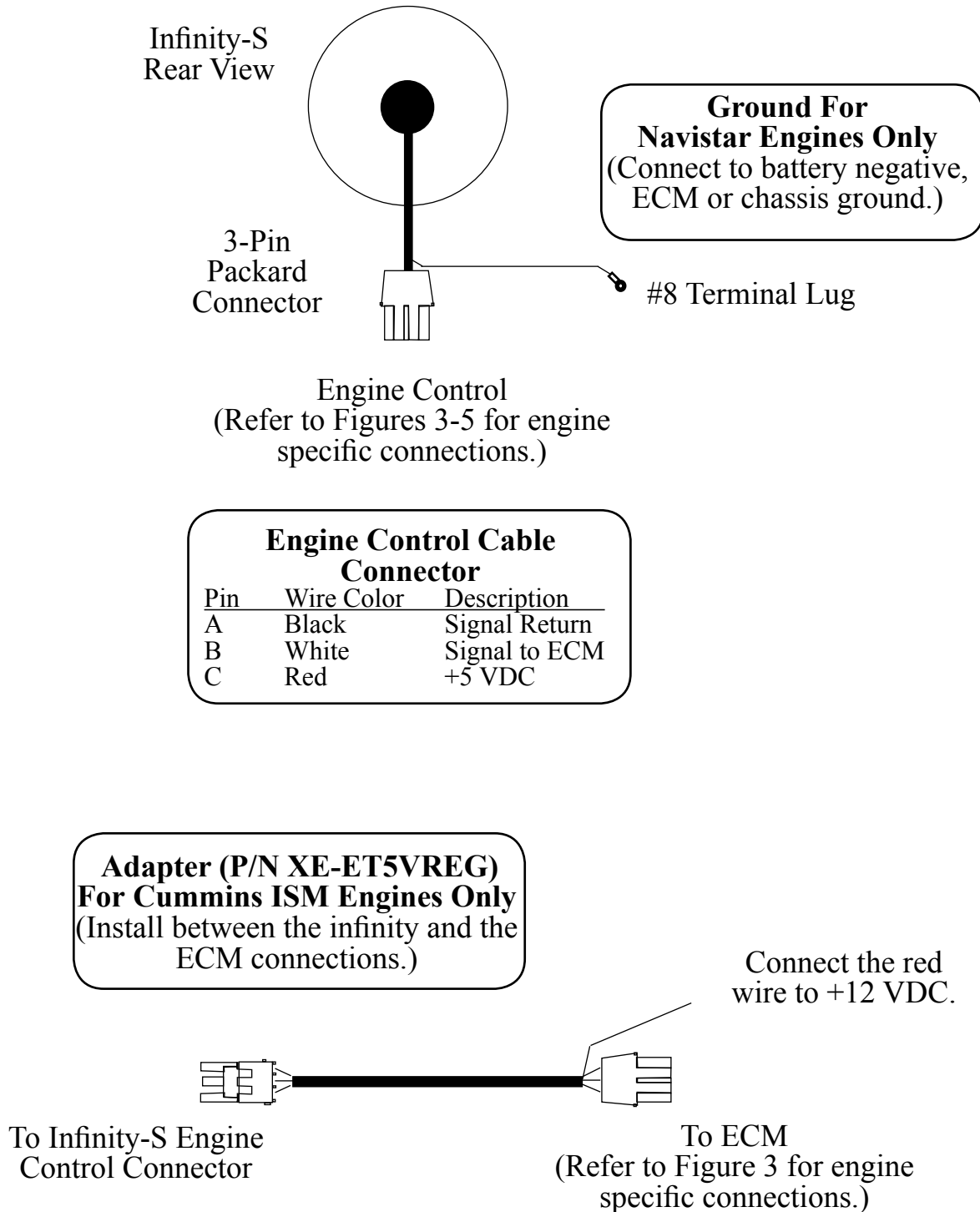


Figure 2. Infinity-S Cable

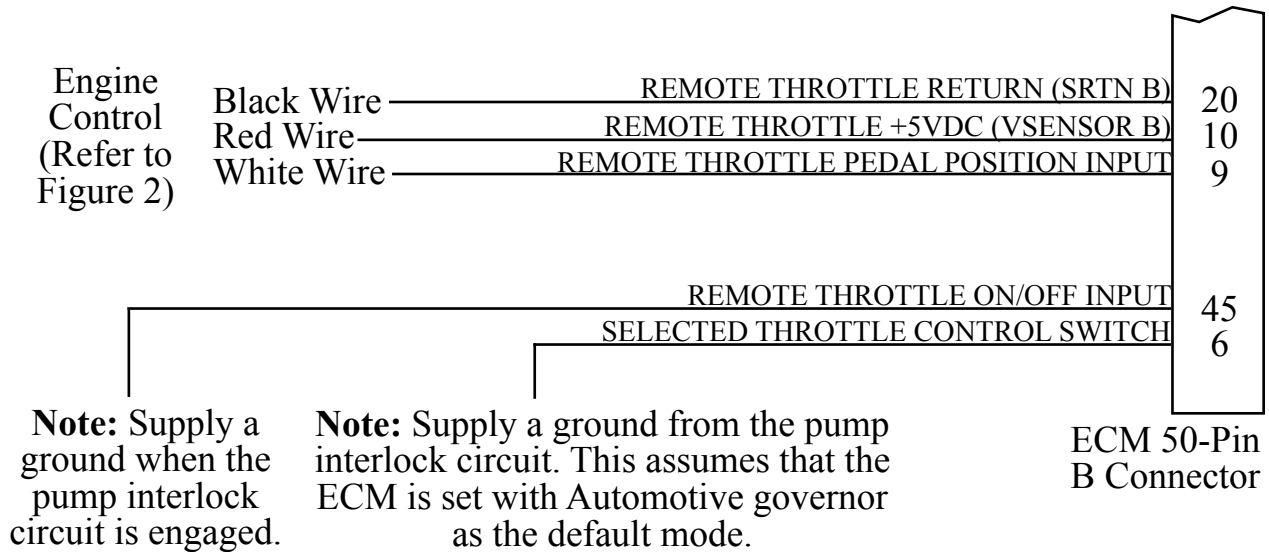
Cummins Harness Connections

Interface Information

The ECM Remote Accelerator (Throttle) Option has to be set to ON. The diagnostic tool cannot be used to do this, an Insight service tool must be used. Refer to an authorized dealer to program this option.

Note: When connecting existing harness wires to the Infinity-S make sure there are no diodes (or other components) connected to the wires.

ISB, ISC, and ISL Engine Interface



ISB02/ISC03/ISL03-CM850 Model Engines

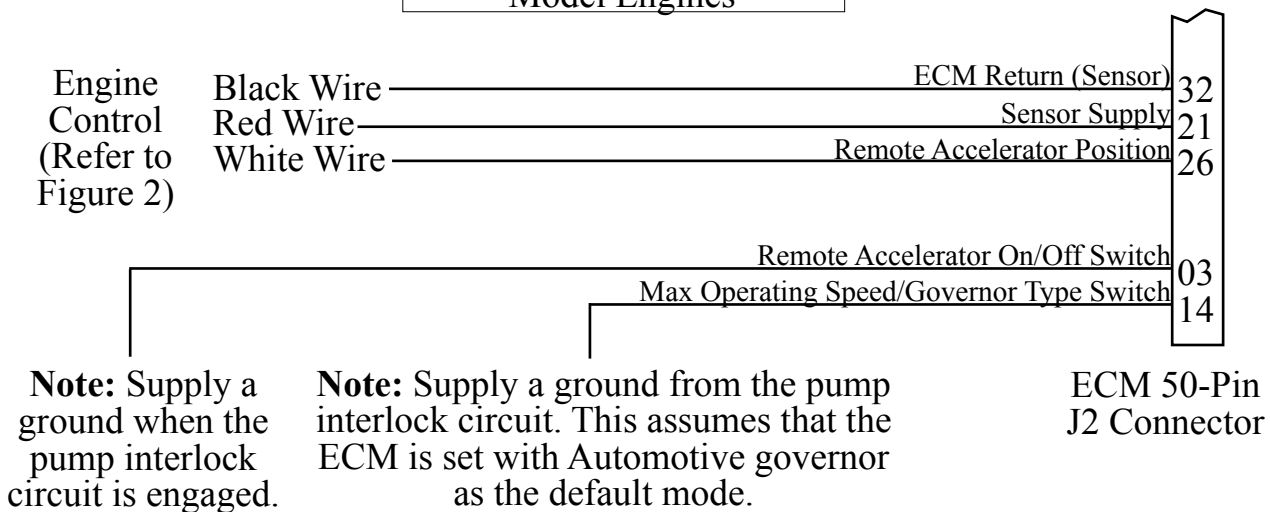
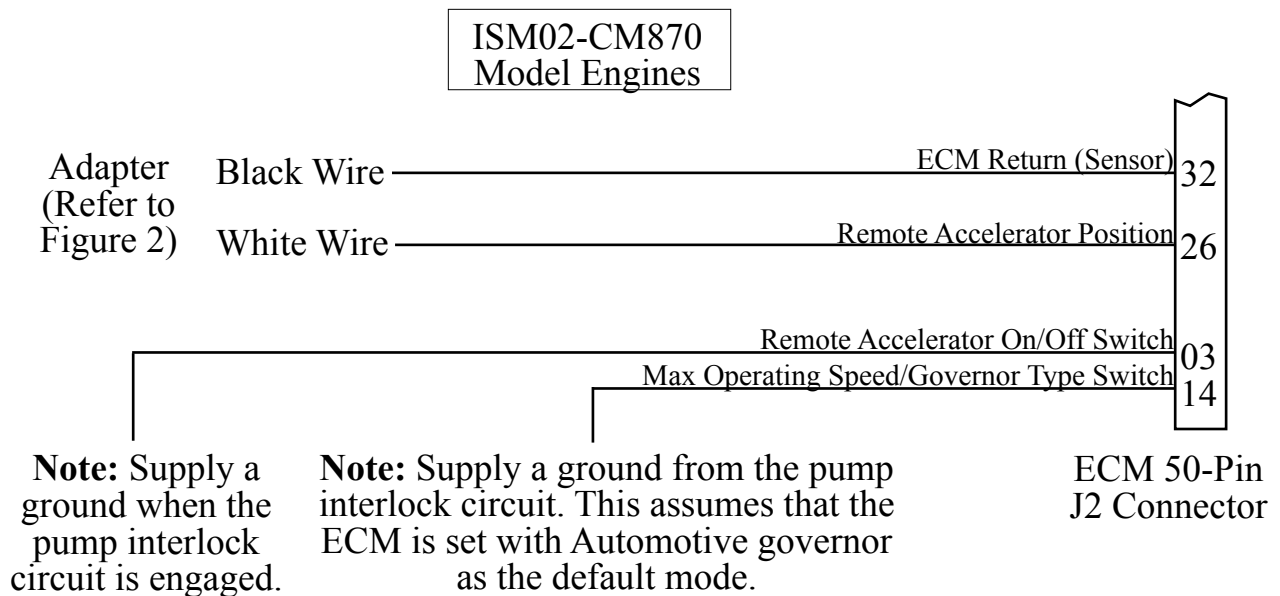
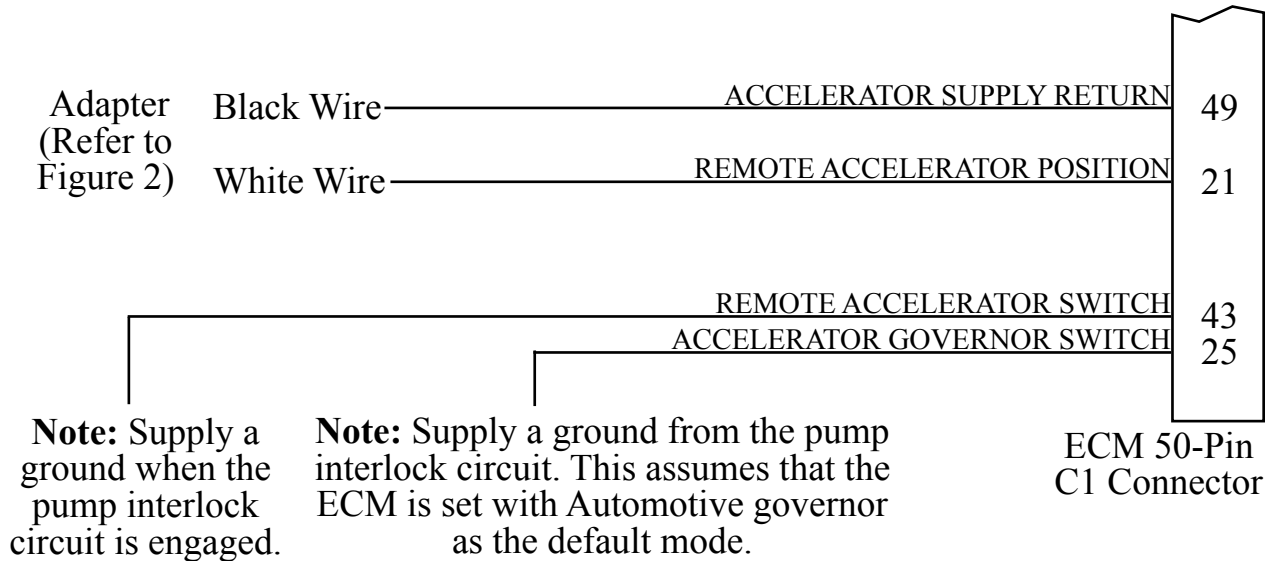


Figure 3. Cummins Infinity-S ETA201 Wiring (Sheet 1 of 2)

ISM Engine Interface

ISM engines need the XE-ET5VREG adapter cable installed.

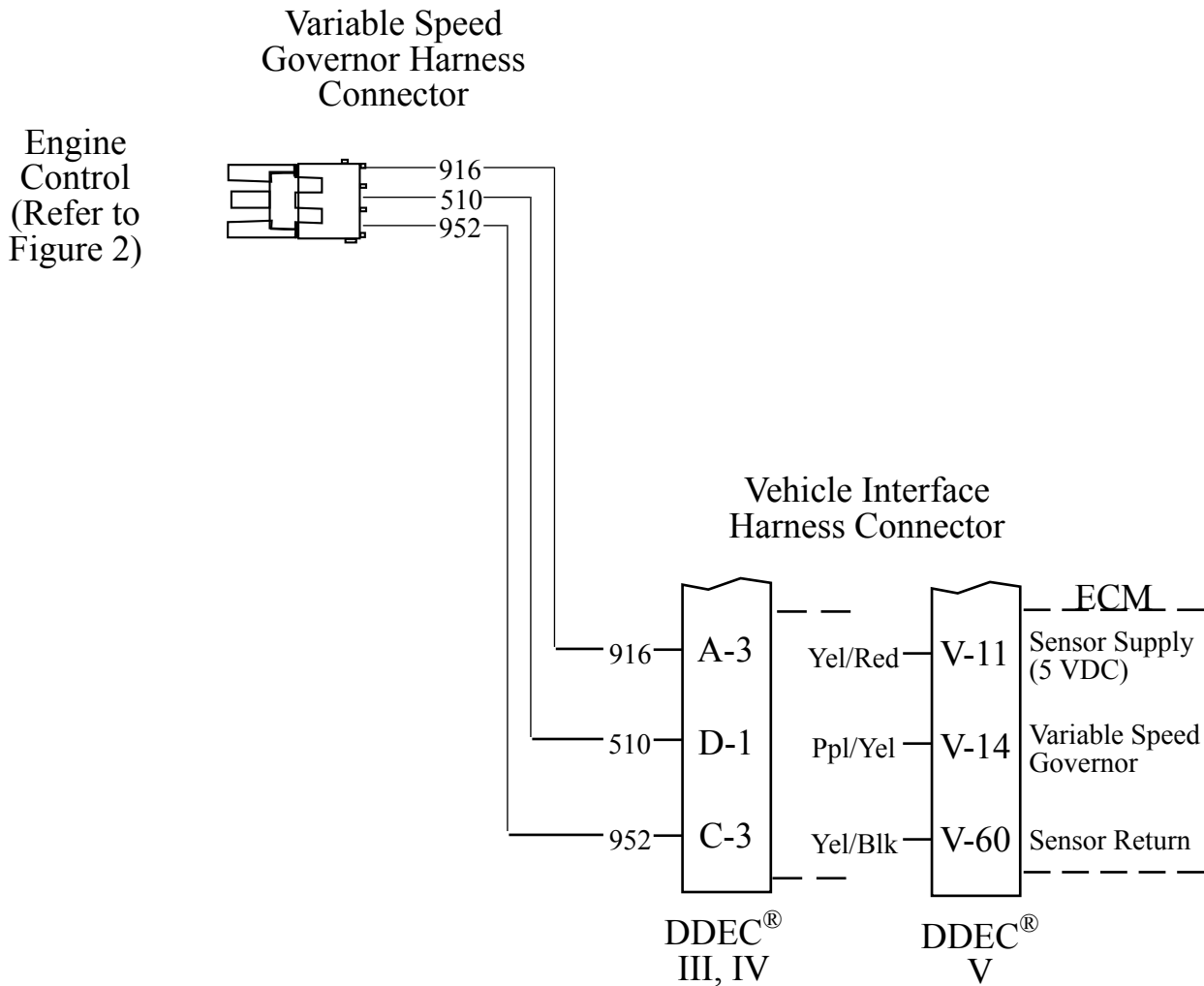


**Figure 3. Cummins Infinity-S ETA201 Wiring
(Sheet 2 of 2)**

Detroit Diesel (Series 50 and 60) Harness Connections

Interface Information

Connect the Engine Control extension cable to the Variable Speed Governor input on the engine ECM. There may be a 3-pin Packard connector (Variable Speed Governor Harness Connector installed by the chassis manufacturer) located behind the pump panel to plug into for the ECM connections.



NOTE: For Detroit Diesel series 40 refer the Navistar wiring (Figure 5).

Figure 4. Detroit Diesel (Series 50 and 60) Infinity-S ETA202 Wiring

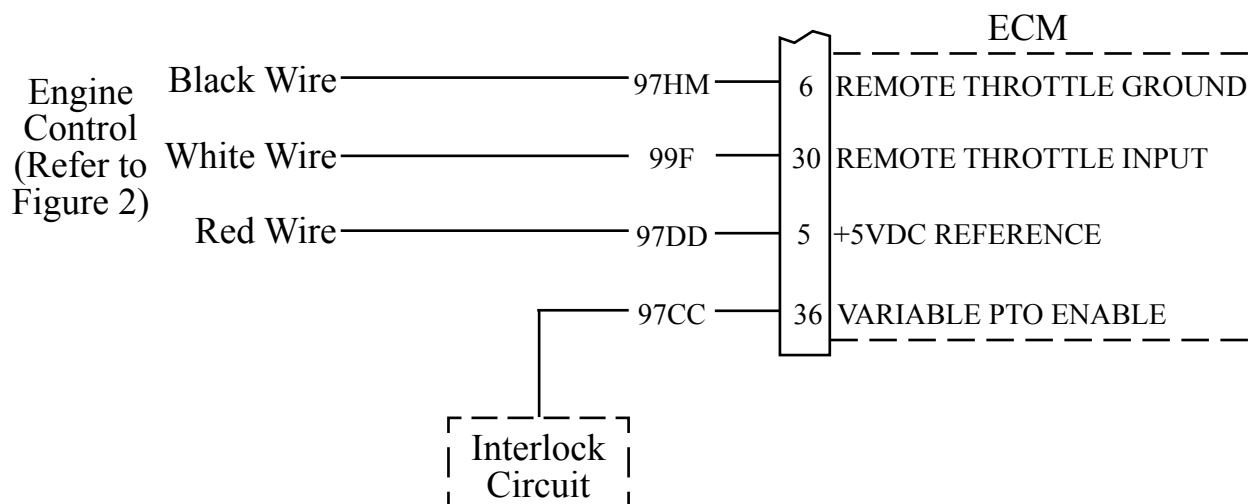
Navistar Harness Connections

Interface Information

The ECM must be programmed for a remote throttle input. Set **PTO REMOTE PEDAL** to 1. (This will enable the remote throttle input.)

The **VARIABLE PTO ENABLE** input has to be at 12 VDC to activate the remote throttle. Connect 12 VDC to remote throttle harness circuit 97CC. (12 VDC can be picked up from the interlock circuit.)

NOTE: There is a green ground wire for Navistar engines on the engine control connector. Connect it to battery negative, ECM or chassis ground.



Note: Circuit 97CC has to be at 12 VDC to activate the remote throttle.

Figure 5. Navistar Infinity-S ETA204 Wiring