
SERVICE BULLETIN

Original Issue Date: 6/05

Model: 30-60 kW GM Engines with L-Series Throttle Body

Market: Industrial

Subject: L-Series Throttle Body Communication Service Kit GM40182

Introduction

This bulletin provides information for using the diagnostic troubleshooting software with the L-Series throttle body. Typically, the communication kit is useful for diagnostics with the L-Series throttle body style. Kit GM40182 provides the hardware for connecting a user's PC to the L-Series throttle body using a serial connection. The user must download software from a website to configure, adjust, monitor, and troubleshoot the L-Series throttle body control.

When the communication kit is installed, pins 4 and 6 are NOT continuous from the engine control harness to the L-Series actuator. These pins communicate with the user's PC. **This kit is not intended for permanent installation to the generator set engine. It is for service only.**

Note: If a laptop PC with integral battery is not used, the following information applies:

There is a potential for PC serial port damage when communicating with the L-Series control caused by a difference in AC voltage between neutral and earth ground. If the PC RS-232 port ground is referenced to AC neutral and the L-Series control is referenced to battery ground (AC earth ground), a ground loop can be formed with currents sufficient to damage electronics in the path, such as the PC port and the communications adapter. To reduce the possibility of damage, the manufacturer recommends placing a 1:1 isolation transformer between the AC outlet and the PC. The isolation transformer must be sized for the PC's wattage requirements.

PC Requirements

The user's PC must have the following minimum specification requirements:

- IBM® PC compatible with a 133 Mhz or higher Pentium®-compatible CPU.
- Microsoft® Windows® 95, Windows® 98, Windows NT®, Windows® 2000, or Windows XP®.
- 32 MB of RAM.
- 9 MB hard drive space for software download.
- Internet access. The user must load the software on their PC prior to connection to the L-Series throttle body.
- User-supplied 9-pin straight-thru cable (length sufficient to connect user PC to communication harness at throttle body location).
- See previous **Note** regarding 1:1 isolation transformer.

Website Address

During the installation procedure, the user will be instructed to go to the following website to download the software:

www.woodward.com/software

Select a Product: L-Series Tools
Click Go

Follow the installation and user instructions given in the setup dialogs.

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Pentium® is a registered trademark of Intel Corporation.

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Safety Precautions

Observe the following safety precautions while troubleshooting the generator set. Follow all safety precautions given in the engine literature when performing engine troubleshooting and repairs.

WARNING



Accidental starting.
Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

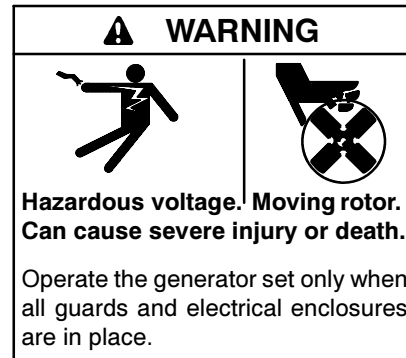
WARNING



Hot engine and exhaust system.
Can cause severe injury or death.

Do not work on the generator set until it cools.

Servicing the exhaust system. Hot parts can cause severe injury or death. Do not touch hot engine parts. The engine and exhaust system components become extremely hot during operation.



Servicing the generator set when it is operating. Exposed moving parts can cause severe injury or death. Keep hands, feet, hair, clothing, and test leads away from the belts and pulleys when the generator set is running. Replace guards, screens, and covers before operating the generator set.

Installation Procedure

1. Install the PC software.

- 1.1 Power up the PC.
- 1.2 Connect to the internet server.
- 1.3 Go to: www.woodward.com/software.
- 1.4 Select a Product: L-Series Tools and click Go.
- 1.5 Download the installation file to your PC and run the file. Follow the installation and user instructions given in the setup dialogs.
- 1.6 Go to:

www.woodward.com/pubs/pubpage.cfm

Search for L-Series and click on Publication #26250. Follow the instructions to download to your PC. This document contains detailed instructions on how to use the software.

2. Connect the PC hardware.

- 2.1 Plug the recommended isolation transformer into an AC outlet (does not apply if a laptop with integral battery is used).
- 2.2 Plug the PC into the recommended isolation transformer (does not apply if a laptop with integral battery is used).
- 2.3 Place the generator set master switch in the OFF/RESET position.
- 2.4 Locate and disconnect the 12-pin engine harness connector at the throttle body. See Figure 1.
- 2.5 Attach the adapter harness GM40127 to the throttle body. See Figure 2. The connector plug is polarized and fits only one way in the throttle body.
- 2.6 Attach the L-Series communication harness, GM40168, to the adapter harness.
- 2.7 Attach the power supply harness GM40167 to the L-series harness.
- 2.8 Attach a user-supplied 9-pin straight-thru cable to the communication harness at the throttle body location and to the PC serial port.

- 2.9 Connect power supply harness alligator clips to engine starting battery. Attach red alligator clip to battery (+) positive terminal. Attach black alligator clip to battery (-) negative terminal.

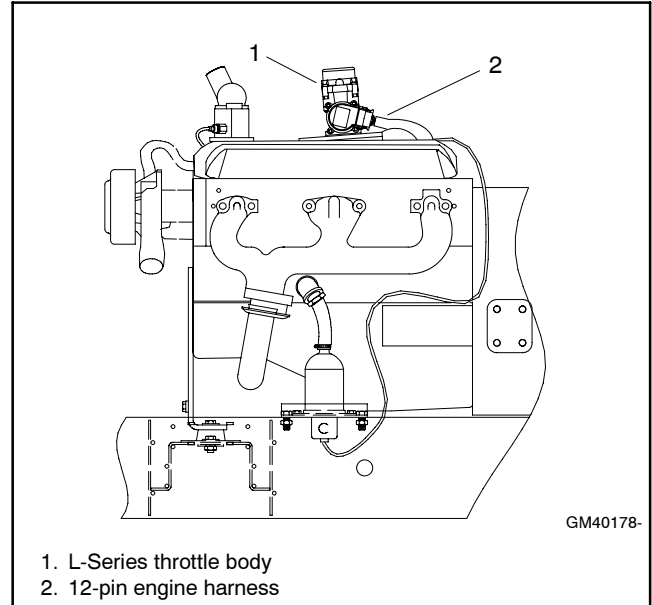


Figure 1 12-Pin Connector at the Throttle Body, Typical

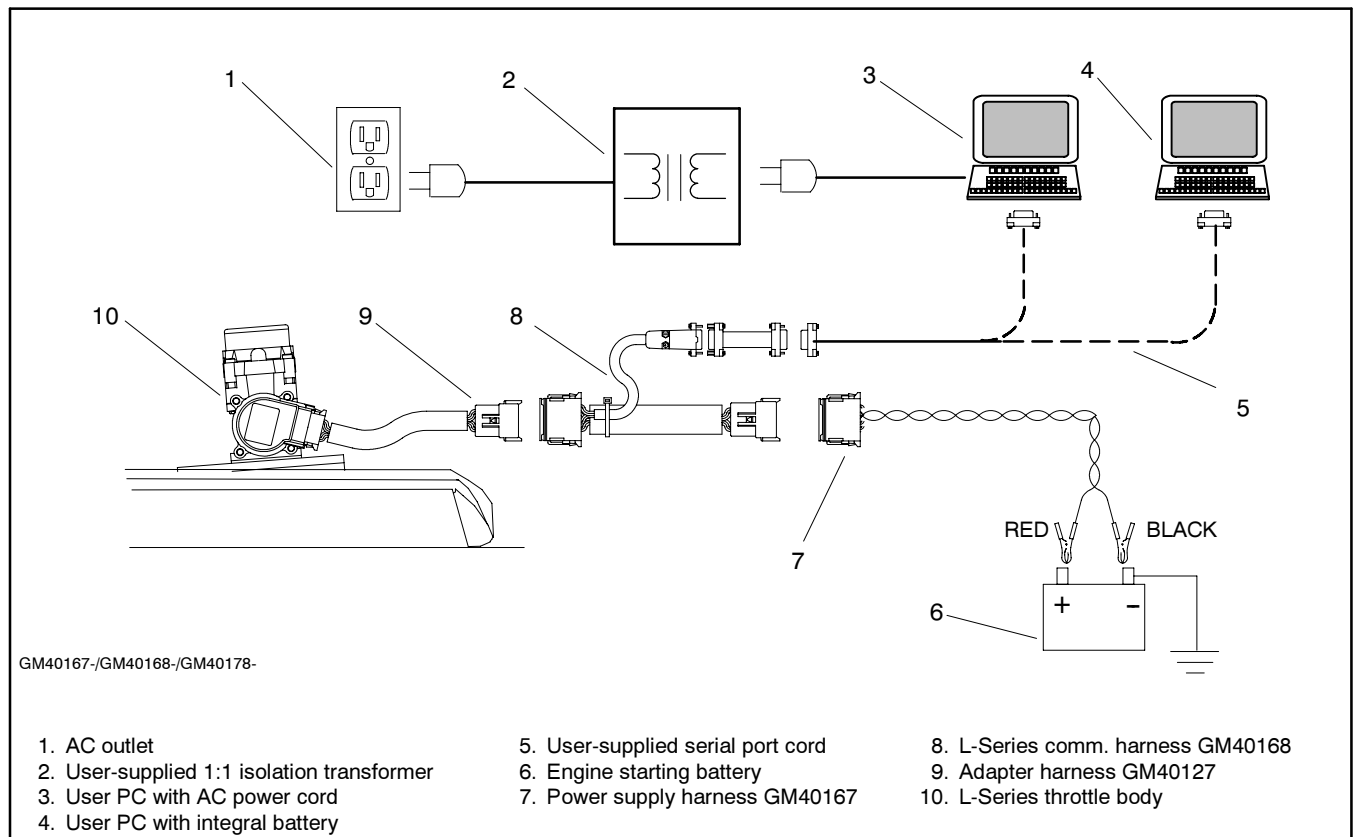


Figure 2 L-Series Throttle Body Communication Kit Connections

3. Run the diagnostic tool.

- 3.1 With the PC powered up and connected to the L-Series throttle body per Section 2, run the Diagnostic Tool Software.
- 3.2 When the program is running, follow the instructions shown in Woodward Document #26250 for using the program. The software has the capability to download the existing L-Series throttle body settings. These settings can be viewed and changed or a new configuration file can be loaded for the L-Series throttle body.

NOTICE TO TECHNICIANS:

The generator set manufacturer does not recommend using the software tool on a running generator set at this time.

Woodward Document #26250 indicates it is possible to run the diagnostic tool while the generator set is running. Do this by unplugging the power supply harness (Figure 2, Item 7) from the L-Series communication harness (Figure 2, Item 8) and connecting the engine harness. The generator set can then be started in the normal manner. See the Generator Set Operation Manual for details.

Be aware that the PC communications use some of the same wires that are used as digital inputs to signal the L-Series throttle body to operate at a given frequency (50 or 60 Hz) and fuel type (natural gas or LP gas). Therefore, in this configuration, it is unpredictable how the L-Series throttle body will be configured such as operating at 50 Hz when it is intended for 60 Hz. The L-Series throttle body will return to its correct configuration after the PC is disconnected from the generator set.

4. Disconnect the PC and hardware.

- 4.1 Verify that the generator set master switch is in the OFF/RESET position.
- 4.2 Log out of the internet.
- 4.3 Power down the PC.
- 4.4 Unplug the PC from the recommended isolation transformer (does not apply if a laptop with integral battery is used).
- 4.5 Unplug the recommended isolation transformer from the AC outlet (does not apply if a laptop with integral battery is used).
- 4.6 Disconnect power supply harness alligator clips from engine starting battery. Remove red alligator clip from battery (+) positive terminal. Remove black alligator clip from battery (-) negative terminal.
- 4.7 Disconnect the user-supplied 9-pin straight-thru cable from the communication harness at the throttle body location and from the PC serial port.
- 4.8 Disconnect the power supply harness GM40167 from the L-series harness.
- 4.9 Disconnect the L-Series communication harness GM40168 from the adapter harness.
- 4.10 Disconnect the adapter harness GM40127 from the throttle body.
- 4.11 Reconnect the 12-pin engine harness connector to the throttle body.

Parts List

L-Series Throttle Body Communication Kit GM40182

Qty.	Description	Part Number
1	Harness, L-Series communication	GM40168
1	Harness, power supply	GM40167
1	Harness, adapter	GM40127