SERVICE BULLETIN

Original Issue Date: **1/14**
Model: **10–1000 kW Generator Sets with Decision-Maker® 3000 Controller**
Market: **Industrial and Residential/Commercial Generator Sets**
Subject: **Low Coolant Level (LCL)/Low Water Level (LWL) Sensor Testing**

Introduction

The service bulletin provides testing information on the low coolant level (LCL) sensor part nos. GM66270 and GM78797 used with the Decision-Maker® 3000 controller.

Special Equipment

The following items are necessary

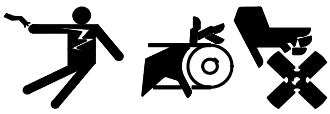
- 0–20 VDC meter
- 560 ohm, 1/4 watt (or greater) resistor
- 12-volt battery
- 5 amp fuse and holder
- 18 gauge wire
- 0.25 L (8 oz.) coolant in a plastic or glass container

Note: Do not use water as the test results may not be accurate.

Safety Precautions

Observe the following safety precautions while performing this procedure.

⚠ 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 equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (–) lead first. Reconnect the negative (–) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

(Decision-Maker® 3000 and 6000 Controllers)

Battery short circuits. Explosion can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Disconnect the battery before generator set installation or maintenance. Remove all jewelry before servicing the equipment. Use tools with insulated handles. Remove the negative (–) lead first when disconnecting the battery. Reconnect the negative (–) lead last when reconnecting the battery. Never connect the negative (–) battery cable to the positive (+) connection terminal of the starter solenoid. Do not test the battery condition by shorting the terminals together.

⚠ WARNING

Hot coolant and steam.
Can cause severe injury or death.

Before removing the pressure cap, stop the generator set and allow it to cool. Then loosen the pressure cap to relieve pressure.

Routing	Service Manager	Sales Manager	Parts Manager	Technician No. 1	Technician No. 2	Technician No. 3	Return This to
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Procedure

1. Remove the generator set from service.

1.1 Press the generator set OFF/RESET button.

1.2 Disconnect the battery, negative lead first.

1.3 Disconnect the battery charger, if equipped.

1.4 Disconnect the engine block heater, if equipped.

2. Remove the LCL sensor.

2.1 With the generator set cooled, open the radiator drain and drain the coolant in a suitable container so that the coolant level is below the low coolant level (LCL) sensor.

2.2 Remove the LCL wiring harness from the sensor.

2.3 Remove the LCL sensor from the generator set. See Figure 1.

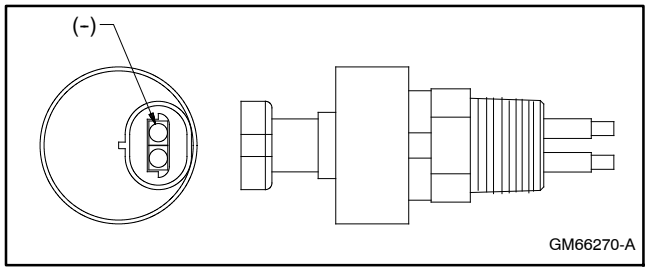

Figure 1 LCL Switch

3. Testing the LCL sensor.

3.1 Setup the test connections as shown in Figure 2 but do not connect the battery (+) connection at this time.

3.2 Be sure to isolate the connections at the LCL so that the (+) and (–) connections do not short together.

3.3 With the LCL sensor probe tips dry with no coolant contacting them, complete the circuit at the battery (+) connection.

The sensor is okay if the voltage oscillates between 5 volts +/–1 volt and 9 volts +/– 1 volt every 10–12 seconds when the probe tips are not immersed in coolant.

3.4 Disconnect the battery (+) connection.

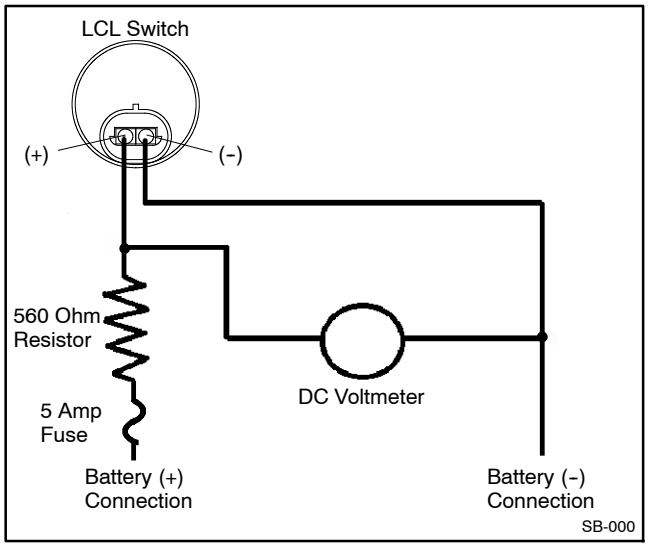

Figure 2 LCL Switch Testing

3.5 Place the LCL probe tips in a glass or plastic container with coolant. Coolant previously drained from the radiator is acceptable.

Note: Do not use water as the test results may not be accurate.

3.6 Be sure to isolate the connections at the LCL so that the (+) and (–) connections do not short together.

3.7 With the LCL sensor probe tips immersed in coolant, complete the circuit at the battery (+) connection.

The sensor is okay if the voltage remains steady at 9 volts +/–1 volt when the probe tips are immersed in coolant.

3.8 Disconnect the battery (+) connection.

3.9 If the LCL sensor passes both tests the LCL is considered functional. Replace the LCL sensor if it fails either or both tests.

4. Replace the LCL sensor.

4.1 Apply sealing tape over the LCL sensor threads and install on the generator set port.

4.2 Reattached the LCL wiring harness.

4.3 Open the radiator cap. Fill the radiator with fresh coolant based on the engine manufacturer's recommendation for coolant type and mixture. The drained coolant can be reused if clean, otherwise dispose of in an environmentally safe manner.

4.4 Reinstall the radiator cap.

5. Return the generator set to service

5.1 Reconnect the battery, negative lead last.

5.2 Reconnect the battery charger, if equipped.

5.3 Some engines may require a special procedure to purge air from the cooling system. Follow the engine manufacturer's recommendation.

5.4 Press the RUN button to start the generator set.

5.5 Stop the unit if any leaks are detected. Repair any leaks and go to step 5.4.

5.6 Allow sufficient time (approx. 15 minutes) for the unit to reach operating temperature.

5.7 Press the OFF/RESET button to stop the generator set.

5.8 Allow the unit to sufficiently cool and then check the coolant level. Add coolant as needed.

5.9 Reconnect the engine block heater.

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