

SERVICE BULLETIN

Original Issue Date: **3/02**

Model: **80-125 kW (8.1 L GM Engine) equipped with the NFPA Prealarm Sender Kit and an Outdoor Enclosure**

Market: **Industrial**

Subject: **Low Water Temperature (LWT) Switch Warning Light**

Introduction

This service bulletin details how to relocate the LWT switch to prevent nuisance tripping of the warning light on models in unheated enclosures. Models affected have serial numbers 0718700 and below. The LWT switch location is above the block heater thermostat and does not provide sufficient heat for keeping the controller LWT lamp off. The nuisance tripping occurs with the engine block warm and the block heater functional.

This procedure does not require a service kit. However, the following components are necessary:

- Black iron pipe tee, 1/2 in. NPT, Part No. X-203-13
- Pipe plug, 1/2 in. NPT, Part No. X-75-3
- Plastic conduit, 450 mm (18 in.) (available at many automotive supply stores)

Read the entire service bulletin before servicing the unit. Perform steps in the order shown.

Use a flat rate of 1.5 hours for this repair and failure code FF when submitting the warranty claim.

Perform this repair at the time of startup for new units. No travel time or mileage will be allowed for units during startup.

If the unit is in service, perform this repair at the next scheduled maintenance or in response to a customer complaint.

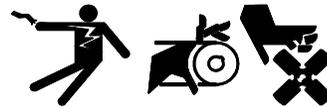
When submitting a warranty claim for this repair, you must supply the generator set:

- Model
- Specification Number
- Serial Number

Safety Precautions

Observe the following safety precautions while servicing the unit.

⚠ WARNING

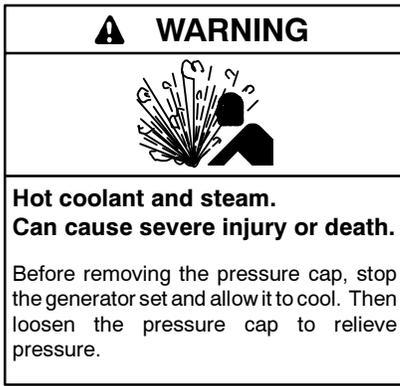


Accidental starting. Can cause severe injury or death.

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.

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|--------------|-----------------|---------------|---------------|------------------|------------------|------------------|----------------|
| Routing | Service Manager | Sales Manager | Parts Manager | Technician No. 1 | Technician No. 2 | Technician No. 3 | Return This to |
| Initial Here | | | | | | | |



Checking the coolant level. Hot coolant can cause severe injury or death. Allow the engine to cool. Release pressure from the cooling system before removing the pressure cap. To release pressure, cover the pressure cap with a thick cloth and then slowly turn the cap counterclockwise to the first stop. Remove the cap after pressure has been completely released and the engine has cooled. Check the coolant level at the tank if the generator set has a coolant recovery tank.

Service Procedure

1.1 Disabling the Generator Set

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.

1.2 Draining the Cooling System

1. Remove the radiator pressure cap.
2. Deenergize the block heater.
3. Open the coolant drain petcock and allow the coolant to drain into a suitable container. See Figure 1.

Note: Dispose of all waste materials (oil, fuel, coolant, filters, and gaskets) in an environmentally safe manner.

1.3 Relocating the LWT Switch

1. Locate and disconnect LWT switch leads 35A and N from the switch. See Figure 2.

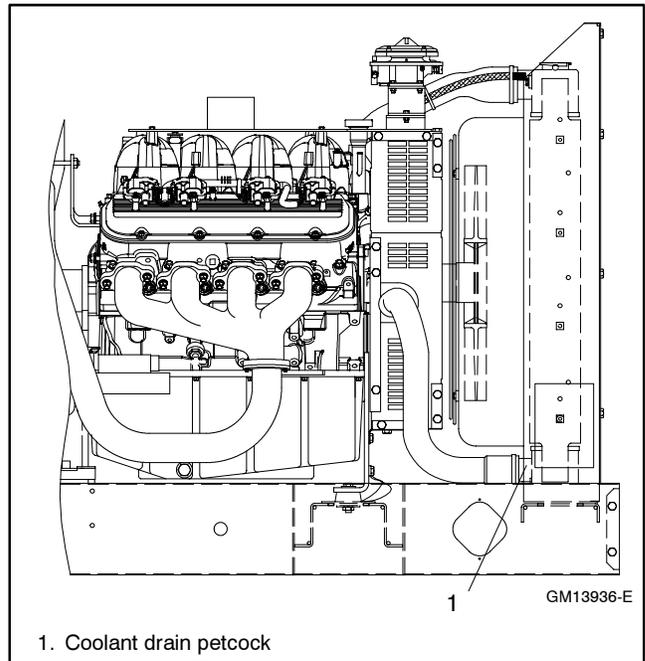


Figure 1 Coolant Drain Location

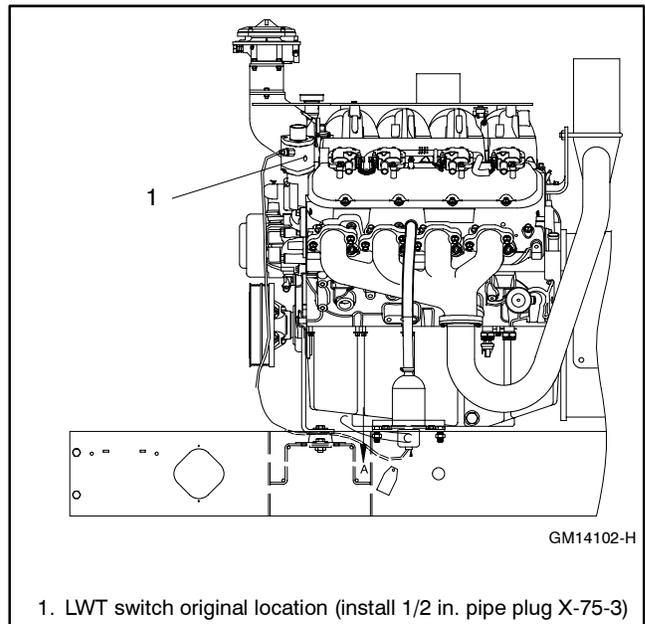


Figure 2 LWT Switch Original Location

2. Remove the LWT switch from the block heater port. Apply pipe sealant to the threads of a 1/2 in. NPT pipe plug X-75-3 (not supplied) and install the plug in the block heater port.
3. Loosen the hose clamp and remove the block heater hose from the pipe connector. See Figure 3.
4. Remove the pipe (with coupling and pipe connector) from the pipe elbow.
5. Remove the pipe elbow. The pipe elbow will not be reused.
6. Apply pipe sealant to the male threads of the pipe nipple and install a 1/2 in. NPT pipe tee X-203-13 (not supplied). Attach the pipe nipple to the center opening on the pipe tee. Rotate the pipe tee to the position shown in Figure 3.
7. Apply pipe sealant to the male threads of the pipe (with coupling and pipe connector) and install into the pipe tee.
8. Reinstall the block heater hose to the pipe connector. Locate the hose clamp 6 mm (1/4 in.) from the hose end and tighten the hose clamp.
9. Remove the air bleed petcock from its original location. Apply pipe sealant to the air bleed petcock threads and install in the new pipe tee.
10. Apply pipe sealant to the threads of the LWT switch and install in the existing pipe tee.
11. Route the LWT switch leads 35A and N to the new location. Install a length of plastic conduit 450 mm (18 in.) over the leads to protect the exposed length of leads. Use electrical tape to secure the plastic conduit ends. Connect lead 35A to one terminal and lead N to the other terminal on the LWT switch.

Note: Route the LWT leads 35A and N in a safe manner away from the exhaust manifold and moving parts.

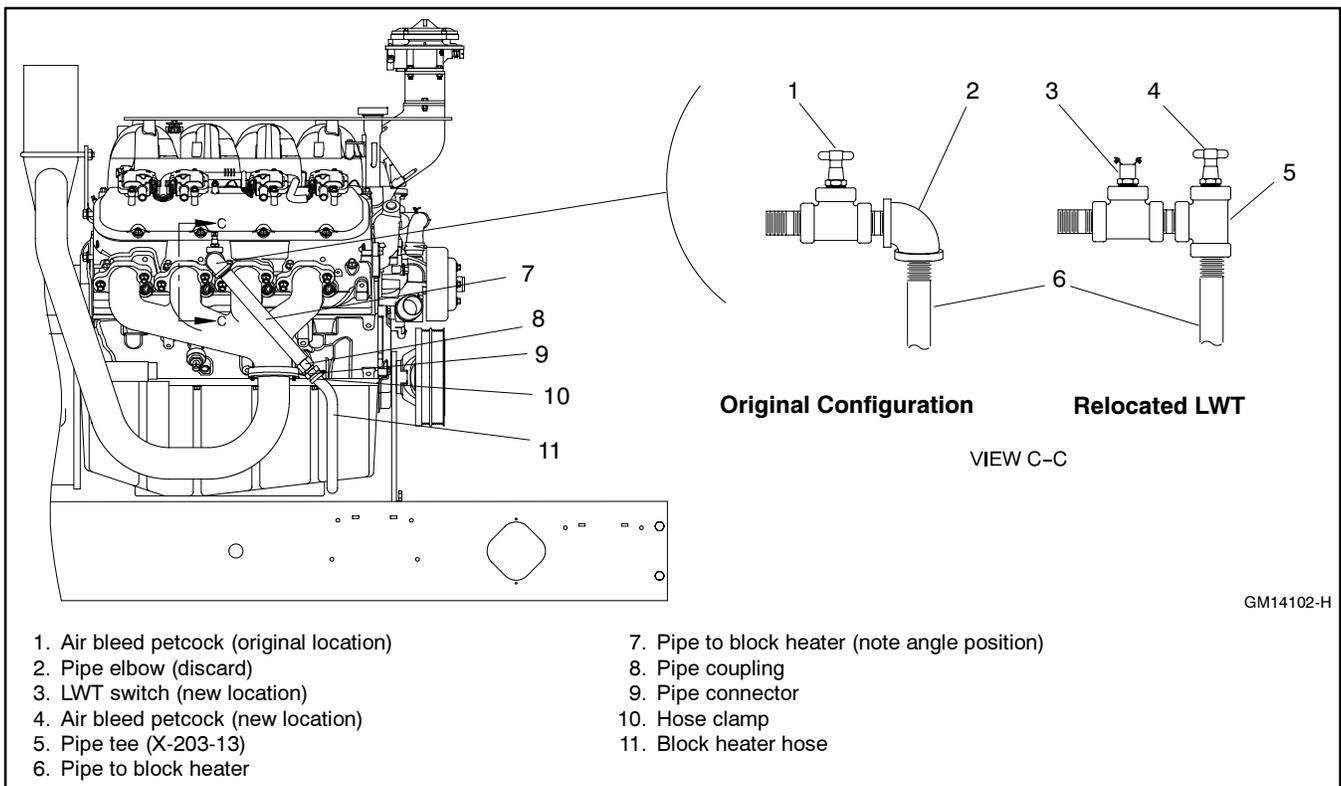


Figure 3 LWT Switch New Location

1.4 Refilling the Cooling System

See the respective generator set spec sheet for coolant capacity.

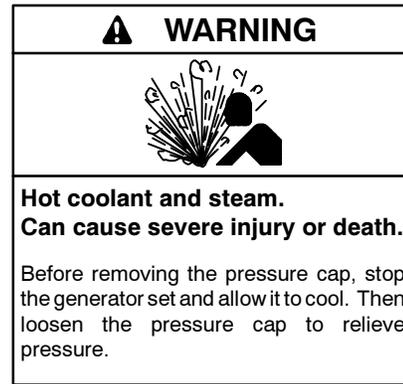
Note: Do not add coolant to a hot engine. Adding coolant to a hot engine can cause the cylinder block or cylinder head to crack. Wait until the engine has cooled.

1. Close the coolant drain petcock.
2. Open the air-bleed petcock. Close the air-bleed petcock when coolant begins to flow from it.
3. Add coolant additives or water pump lubricants according to the engine manufacturer's recommendations in the engine operation manual.
4. Fill the cooling system with the recommended coolant/antifreeze mixture of 50% ethylene glycol and 50% clean, softened water to inhibit rust/corrosion and prevent freezing.

Note: A coolant solution of 50% ethylene glycol provides freezing protection to -37°C (-34°F) and overheating protection to 129°C (265°F). A coolant solution containing less than 50% ethylene glycol may not provide adequate freezing and overheating protection. A coolant solution containing more than 50% ethylene glycol can cause engine or component damage. Do not use alcohol or methanol antifreeze or mix them with the specified coolant. Refer to the engine operation manual for recommendations regarding the coolant mixture to use in extreme temperatures.

5. Replace the radiator pressure cap.

Note: Air pockets often form in the engine water jacket when the coolant system is refilled. Check the coolant level in the coolant recovery tank after each generator set operation and add coolant as necessary until the coolant level stabilizes. Then check the coolant at the interval specified in the service schedule.



Checking the coolant level. Hot coolant can cause severe injury or death. Allow the engine to cool. Release pressure from the cooling system before removing the pressure cap. To release pressure, cover the pressure cap with a thick cloth and then slowly turn the cap counterclockwise to the first stop. Remove the cap after pressure has been completely released and the engine has cooled. Check the coolant level at the tank if the generator set has a coolant recovery tank.

1.5 Enabling the Generator Set

1. Check that the generator set master switch is in the OFF position.
2. Reconnect the generator set engine starting battery, negative (-) lead last.
3. Reconnect power to the battery charger, if equipped.
4. Reenergize the block heater.
5. Operate the generator set until the thermostat opens when the upper cooling system hose warms.
6. Stop the engine and allow it to cool.
7. Check and repair any coolant leaks.
8. Remove the radiator pressure cap.
9. Add coolant to bring the coolant level to just below the overflow tube opening of the filler neck.
10. Replace the radiator pressure cap.