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## INSTALLATION INSTRUCTIONS

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Original Issue Date: 2/03  
 Model: 4EFOZ and 5EOZ  
 Market: Marine  
 Subject: Meter Panel Sender Kit GM24405-KP1


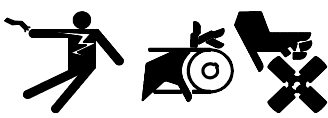
### Introduction

Senders are variable resistance devices. A change in water temperature or oil pressure results in a change in resistance which is “interpreted” by the gauge as a certain value.



Read the entire installation procedure and compare the kit parts with the parts list at the end of this publication before beginning installation. Perform the steps in the order shown.

### Safety Precautions



Observe the following safety precautions while installing the kit.

 <b>WARNING</b>

<p><b>Accidental starting.</b>  <b>Can cause severe injury or death.</b></p> <p>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.</p>

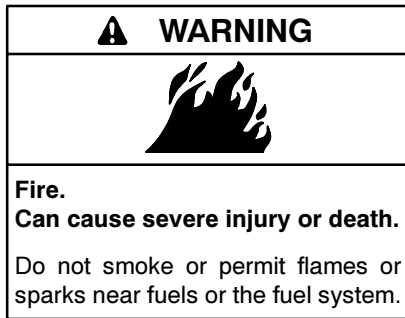
**Disabling the generator set. Accidental starting can cause severe injury or death.** Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Place the generator set start/stop switch in the STOP position. (2) Disconnect the power to the battery 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.

 <b>WARNING</b>

<p><b>Hot engine and exhaust system.</b>  <b>Can cause severe injury or death.</b></p> <p>Do not work on the generator set until it cools.</p>

**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.

 <b>WARNING</b>

<p><b>Hot coolant and steam.</b>  <b>Can cause severe injury or death.</b></p> <p>Before removing the pressure cap, stop the generator set and allow it to cool. Then loosen the pressure cap to relieve pressure.</p>

**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.



**Combustible materials. A sudden flash fire can cause severe injury or death.** Do not smoke or permit flames or sparks near the fuel system. Keep the compartment and the generator set clean and free of debris to minimize the risk of fire. Wipe up spilled fuels and engine oil.

## Installation Procedure

### 1. Remove the generator set from service.

- 1.1 Place the generator set start/stop switch in the STOP position.
- 1.2 Disconnect the power to the battery charger, if equipped.
- 1.3 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

### 2. Install the water temperature sender.

- 2.1 With the generator set cooled, drain the coolant into a suitable container. Remove the heat exchanger cap to expedite drainage. The coolant drains are located on the heat exchanger and on the engine block. See the operation manual for additional information regarding coolant drain locations. Dispose of the coolant in an environmentally safe manner.

**Note:** It is not necessary to drain all coolant in order to install the water temperature sender. Drain enough coolant to drop the coolant level just below the water temperature sender location. See Figure 1 for the water temperature sender location.

- 2.2 Remove and discard the pipe plug on the engine for installation of the water temperature sender.
- 2.3 Coat the threads of the water temperature sender (249287) with pipe sealant.

- 2.4 Insert the water temperature sender into the engine exhaust manifold. Do not overtighten.

- 2.5 Attach lead 5 to the water temperature sender.

**Note:** The sender lead is inside the wiring harness. Open the black plastic conduit near the senders and locate the leads. Each lead is identified with a one- or two-digit number or letter.

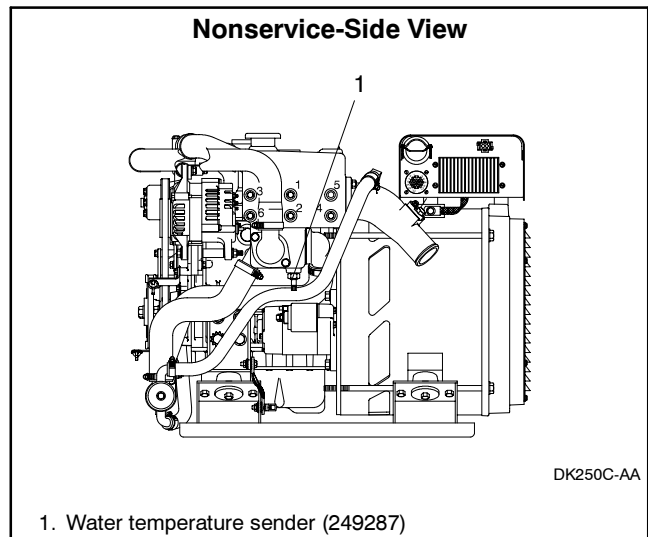
**Note:** Keep leads away from the exhaust system, sharp edges, and moving parts. Use cable ties (not supplied) to secure the leads, if necessary.

- 2.6 Close the coolant drain(s).

- 2.7 Fill the cooling system with fresh coolant. Follow the instructions in the operation manual.

**Note:** Pay special attention to the coolant level. After the coolant has been drained, allow time for a complete refill of the engine water jacket. Check the coolant level as prescribed in the prestart checklist of the operation manual.

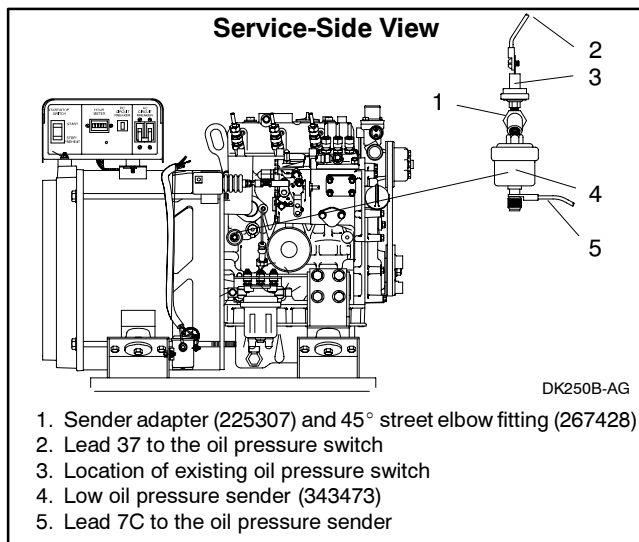
**Note: Engine Damage!** Failure to bleed air from the cooling system may cause overheating and subsequent engine damage.



**Figure 1** Water Temperature Sender Location

### 3. Install the oil pressure sender & switch.

- 3.1 Disconnect the lead and remove the existing oil pressure switch. Save the oil pressure switch.
- 3.2 Coat the threads of the sender adapter (225307) with pipe sealant and screw it into the engine block. See Figure 2.
- 3.3 Install the 45° street elbow (267428) into the sender adapter.
- 3.4 Coat the threads of the oil pressure sender (343473) with pipe sealant and screw it into the 45° street elbow.
- 3.5 Coat the threads of the oil pressure switch (removed in step 3.1) with pipe sealant and screw it into the sender adapter.



**Figure 2** Oil Pressure Sender Location

3.6 Connect lead 7C to the oil pressure sender. See Figure 2 and Figure 3.

3.7 Reconnect lead 37 to the oil pressure switch. See Figure 2 and Figure 3.

**Note:** The sender lead mentioned in Step 3.6 is inside the wiring harness. Open the plastic conduit near the senders and locate the corresponding leads. Each lead is identified with a one- or two-digit number/letter at 30 cm (12 in.) intervals.

**Note:** Keep leads away from the exhaust system, sharp edges, and moving parts. Use cable ties (not supplied) to secure the leads, if necessary.

### 4. Restore the generator set to service.

- 4.1 Check that the generator set start/stop switch is in the STOP position.
- 4.2 Reconnect the generator set engine starting battery, negative (-) lead last.
- 4.3 Reconnect power to the battery charger, if equipped.
- 4.4 Test run the generator set for a few minutes and check for leaks at the senders. Start/stop the generator set using the generator set start/stop switch. Monitor the gauges for operation. Stop the generator set.

### 5. Wire customer supplied gauges.

5.1 Wiring of gauges must be per the remote panel wiring shown in Figure 3 wiring diagram.

## Parts List

### Meter Panel Sender Kit

Kit: GM24405-KP1		
Qty.	Description	Part Number
1	Sender, water temperature	249287
1	Sender, oil pressure	343473
1	Adapter, sender	225307
1	Fitting, 45° street elbow	267428

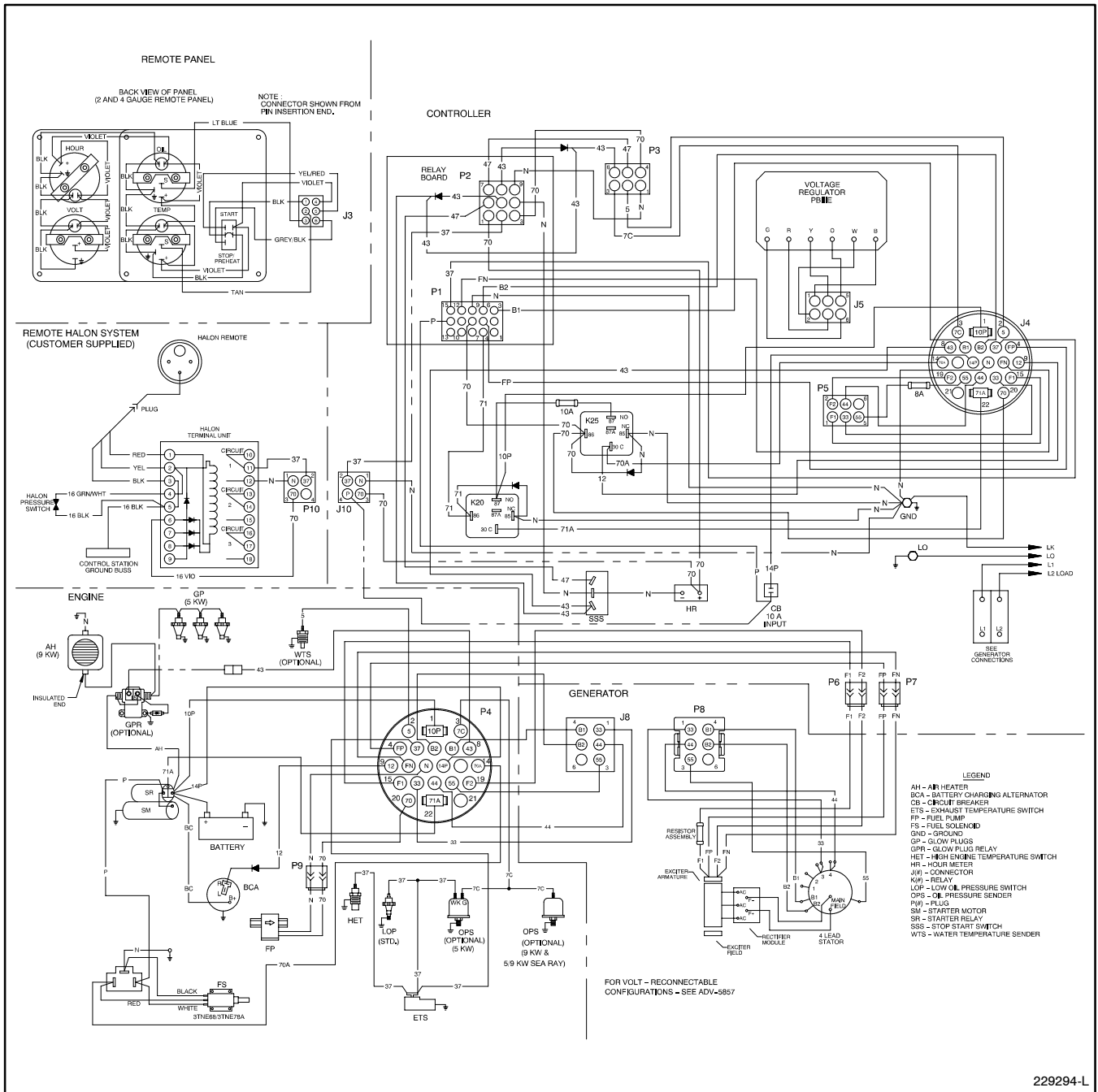


Figure 3 Wiring Diagram

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