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## INSTALLATION INSTRUCTIONS

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Original Issue Date: **2/96**

Model: **20 kW Models with Detroit Diesel-Powered 3.1524 Engine**

Market: **Industrial**

Subject: **Anticipatory Alarm Kits PA-324125, PA-324125-SD**

The anticipatory alarm kit provides switches to monitor three functions: low water temperature, anticipatory high water temperature, and anticipatory low oil pressure. These switches are used with the microprocessor controller and the remote annunciator options. The low water temperature indicator activates if the optional engine block heater malfunctions and/or the engine coolant temperature is too low. The anticipatory high water temperature indicator activates if the engine coolant approaches shutdown range. The anticipatory low oil pressure indicator activates if the engine oil pressure approaches shutdown range.



**⚠ WARNING**  
**Accidental starting.**  
**Can cause severe injury or death.**

Disconnect battery cables before working on generator set (disconnect negative lead first and reconnect it last).

**Disabling generator set. Accidental starting can cause severe injury or death.** Turn generator set master switch to OFF position, disconnect power to battery charger, and remove battery cables (remove negative lead first and reconnect it last) to disable generator set before working on the generator set or connected equipment. The generator set can be started by an automatic transfer switch or remote start/stop switch unless these precautions are followed.

### ⚠ WARNING



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

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

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

# Installation

1. Place the generator set master switch in the OFF position.
2. Disconnect the generator set engine starting battery, negative (–) lead first.
3. Allow the generator set to cool. Drain the coolant into a suitable container.

## NOTE

The petcock valve is located on the radiator bottom and/or on the engine block.

## NOTE

It is not necessary to drain all coolant in order to install the engine temperature switch. Drain just enough coolant to prevent leakage when the engine temperature switch is removed.

4. Remove the existing pipe plug for the anticipatory high water temperature switch. See Figure 1 for location.
5. Coat the threads of the anticipatory high water temperature switch (326733) with pipe sealant and install where pipe plug was removed.

## NOTE

Be careful not to damage the sealing surface.

6. Remove the existing freeze plug with a freeze plug puller, or by puncturing the center of the plug and prying it out. See Figure 1 for location.
7. Make sure hole edges and freeze plug adapter (324094) are clean and dry. Apply Loctite® threadlocker 272 to the edges of the freeze plug adapter and hole. Loctite® is a registered trademark of the Loctite corporation.
8. Install freeze plug adapter using a hardwood dowel and hammer. Drive freeze plug adapter into engine so it is flush with the outside surface of the block. Do not drive freeze plug adapter beyond that point or it may be forced into the water jacket.
9. Coat the threads of the low water temperature switch (255264) with pipe sealant and install into freeze plug adapter.
10. Remove the existing pipe plug for the anticipatory low oil pressure switch. See Figure 1 for location.

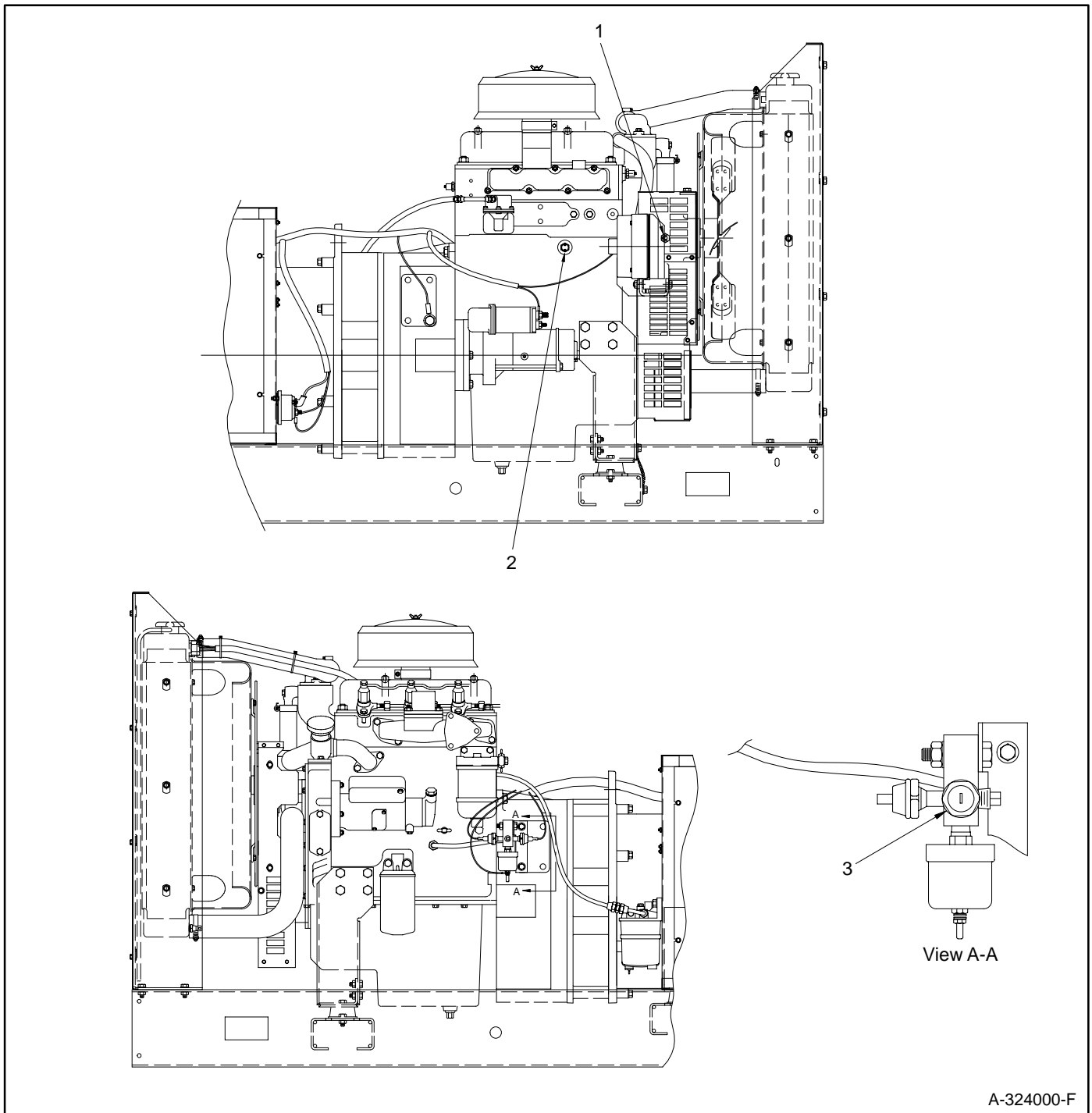
11. Coat the threads of the anticipatory low oil pressure switch (271425) with pipe sealant and install where pipe plug was removed.
12. Connect lead 35A of the engine wiring harness to one terminal on the low water temperature switch (255264). Connect the N ground lead of the engine wiring harness from the bell housing ground screw to the other terminal of the switch.
13. Connect lead 40A of the engine wiring harness to the terminal on the anticipatory high water temperature switch (255242).
14. Connect lead 41A of the engine wiring harness to the terminal on the anticipatory low oil pressure switch (271425).
15. Close the petcock valve on the bottom of the radiator and/or the engine block.
16. Fill the cooling system with fresh coolant. Dispose of all waste materials (engine oil, fuel, coolant, etc.) in an environmentally safe manner. Contact your local authority for correct procedures and location.
17. Check that the generator set master switch is in the OFF position.
18. Reconnect the generator set engine starting battery, negative (–) lead last.
19. Test run the generator set for a few minutes and check for leaks at the switches.

## NOTE

Pay special attention to the coolant level. After draining the coolant, allow time for complete refill of the engine water jacket. Check coolant level as prescribed in the Prestart Checklist of the Operation Manual.

## Anticipatory Alarm Kit

Parts List		
Kits: PA-324125, PA-324125-SD		
Qty.	Description	Part Number
1	Switch, anticipatory low oil pressure	271425
1	Switch, anticipatory high water temp	326733
1	Switch, low water temp	255264
1	Adapter, freeze plug	324094



A-324000-F

1. Anticipatory high water temperature switch (326733)
2. Low water temperature switch (255264)

3. Anticipatory low oil pressure switch (271425)

**Figure 1. Plug Removal and Switch Installation Locations**