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## INSTALLATION INSTRUCTIONS

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Original Issue Date: 4/91

Model: 10/12 RY/RZ 10/12 CC/CZ

Market: Industrial

Subject: Block Heater Kits PA-256839 and PA-254970

Kit No.	Wattage	Voltage
PA-254970	750	240
PA-256839	750	120

The block heater heats the coolant in the engine block to warm the engine, making starting easier. The block heater automatically turns on when coolant temperature drops to 100° F (38° C). The heater turns off when coolant temperature reaches 120° F (49° C). Observe the following safety precautions while installing the kit.



**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.

### 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.

### NOTE

Do not turn on block heater before filling cooling system. Run engine until warm and refill radiator to purge air from the system before energizing block heater. If heater element is not immersed in water block heater will fail.

# Installation

1. Place the generator set master switch in the OFF position.
2. Disconnect the generator set engine starting battery(ies), negative (–) lead first. Disconnect power to battery charger, if equipped.
3. With the engine cooled, cover radiator pressure cap with a thick cloth. Turn radiator pressure cap slowly counterclockwise to the first stop. Remove radiator pressure cap after releasing pressure.
4. Open petcock on bottom of radiator and remove drain plug from engine block to drain coolant from system into a suitable container. Dispose of all waste materials (engine oil, fuel, coolant, etc.) in the environmentally safe manner prescribed by local authorities.
5. Replace engine block drain plug and close radiator petcock after draining coolant.
6. Cut a 1 in. (25.4 mm) section from the coolant hose between the water pump and intake manifold with a utility knife. See Figure 1.
7. Insert block heater thermostat housing (254987 or 254969) in coolant hose and secure with two hose clamps (X-426-3). Position thermostat with cord hanging down as shown in Figure 1.
8. Route heat element cord beneath engine as shown in Figure 1.
9. Remove pipe plug from front side of exhaust manifold. Pipe plug will not be reused.
10. Apply pipe sealant to male threads of block heater.
11. Install block heater where pipe plug was removed in step 9. Tighten heating element until snug. Do not overtighten.
12. Use cable ties as necessary to isolate block heater wiring from sharp objects, exhaust system, and any other moving parts.
13. Fill cooling system with fresh coolant consisting of a mixture of 50% ethylene glycol and 50% clean,

softened water. This mixture provides the necessary freeze protection and inhibits corrosion. See current generator set specification sheet for cooling system capacity.

14. Check that the generator set master switch is in the OFF position.
15. Reconnect generator set engine starting battery, negative (–) lead last. Reconnect power to battery charger, if equipped.
16. Test run generator set for a few minutes to check for coolant leaks and to purge air from cooling system.
17. Stop generator set.

## 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.

18. Correct any leakage after engine and radiator have cooled.

## NOTE

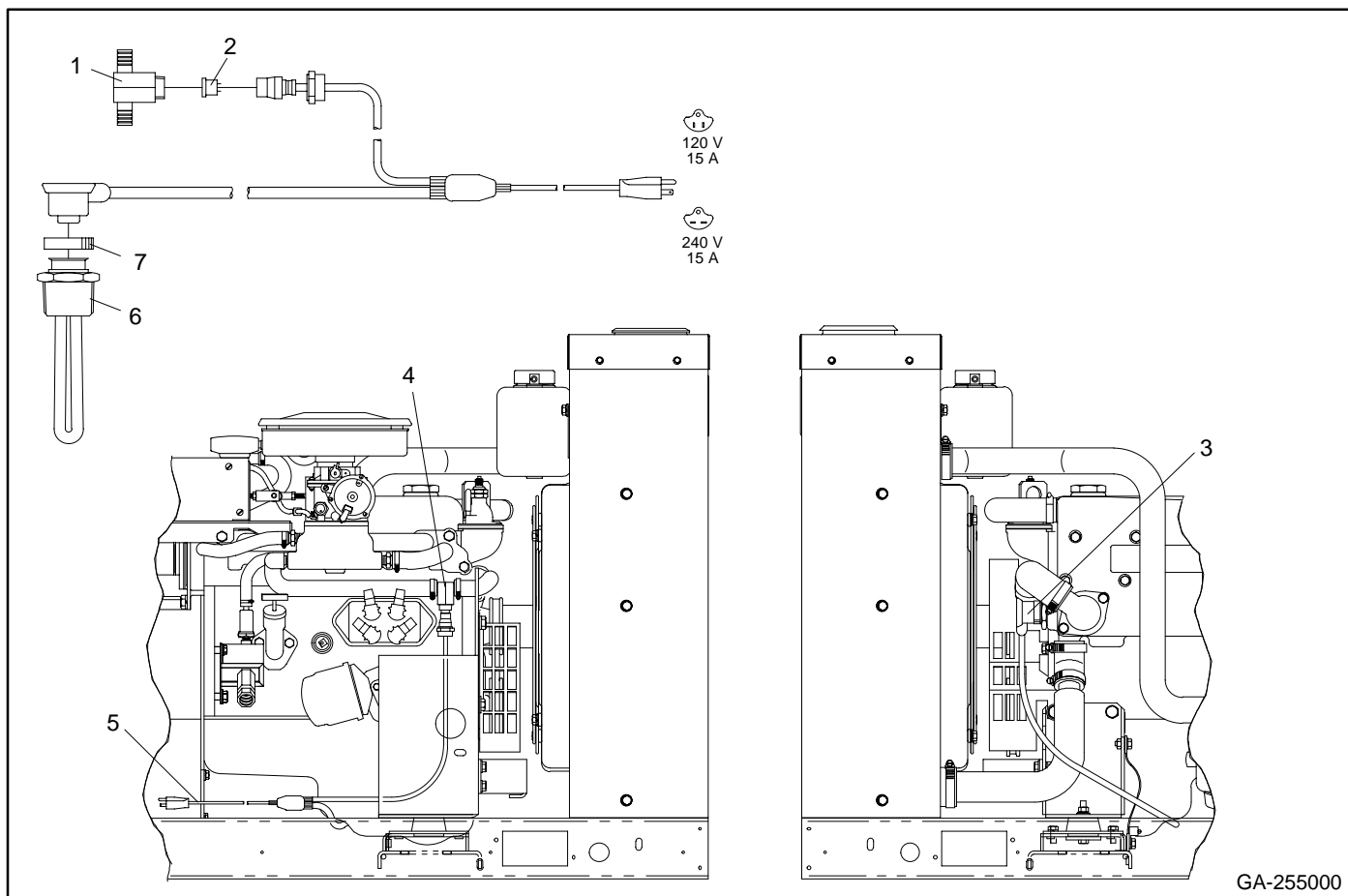
Failure to purge trapped air in the cooling system may cause block heater element to fail.

19. Recheck coolant level after allowing engine and radiator to cool. Add coolant as necessary.
20. Tie hang tag (279047) to heating element cord as shown in Figure 1.

## NOTE

Do not turn on block heater before filling cooling system. Run engine until warm and refill radiator to purge air from the system before energizing block heater. If heater element is not immersed in water block heater will fail.

21. Connect block heater electrical plug to voltage outlet.



GA-255000

1. Thermostat housing
2. Sensing unit
3. Pipe plug/block heater
4. Block heater thermostat

5. Hang tag (279047) location
6. Heater, 1" N.P.T.
7. Clamp

**Figure 1. Block Heater Kit Installation**

### Block Heater

Parts List				
Kits: PA-254970, PA-256839			Unique Parts	
Qty.	Description	Common Parts	PA-254970	PA-256839
2	Clamp, hose 1/2-1 13/32	X-426-3		
1	Heater, block		254969	254987
1	Tag, hang	279047		