

KOHLER® POWER SYSTEMS



INSTALLATION INSTRUCTIONS

Block Heater Kit PA-225680 (120 Volt, 1500 Watt) 15/20CCO/CCOZ RV/Mobile Generator Sets

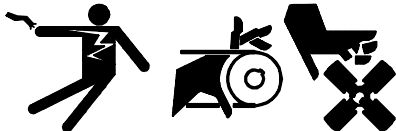
The block heater kit heats the engine coolant, offering easier starting and quicker warm-up. The thermostat will automatically turn the heater off when the coolant temperature reaches 120°F (49°C).

This kit is designed to be used with either inline or remote radiator applications.

NOTE

The block heater will fail if the heating element is not immersed in coolant. Always disconnect power to the block heater(s) before draining coolant. Fill the engine block with coolant prior to reconnecting power to block heater(s). The block heater element **MUST** be immersed in engine coolant before being energized. Air must be purged from the system before energizing the block heater or the heater element may fail.

WARNING



Accidental starting.

Can cause severe injury or death.

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

Accidental starting can cause severe injury or death. Disconnect battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator. The generator set can be started by remote start/stop switch unless this precaution is followed.

WARNING



Hot coolant and steam.

Can cause severe injury or death.

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

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

INSTALLATION

1. Move generator master switch to STOP position. Allow generator set to cool.
2. Remove generator set battery cables, negative lead first.
3. With engine sufficiently cooled, drain the coolant from the radiator and engine block into a suitable container.

NOTE

Dispose of used engine coolant in an environmentally safe manner. DO NOT POUR USED COOLANT ON THE GROUND, DOWN SEWERS, OR INTO STREAMS OR OTHER BODIES OF WATER.

4. Remove pipe plug from engine block and install 1-in. to 1/2-in. NPT reducer bushing (168848) and hose connector (X-582-1). See Figure 1.

NOTE

Use thread sealant on all threaded connections to prevent leakage.

5. Install block heater bracket (225681) to engine mount bracket with two 1/4-20 x 0.875-in. hex screws (X-465-18) and 1/4-20 whiz nuts (X-6210-2). See Figure 1, View A-A.
6. Mount block heater (276358) to bracket with two 1/4-20 x 1.00-in. hex screws (X-465-7), 0.281 x 0.625 x 0.065-in. plain washers (X-25-40), and 1/4-20 whiz nuts (X-6210-2).
7. Install one 0.62-in. ID x 1.00-in. OD x 9.50-in. oil proof hose (X-577-32) on hose connector on engine block and block heater outlet. Secure the connector with two 0.56 to 1.06 x 0.56-in. hose clamps (X-426-3). Place the hose clamp approximately 0.250 in. (6.3 mm) from hose ends. Tighten clamps.
8. Install 0.62-in. ID x 1.00-in. OD x 2.25-in. oil proof hose (X-577-37) on heater intake connection.
9. Slide two 0.56 to 1.06 x 0.56-in. hose clamps (X-426-3) over hose. Connect in-hose thermostat to hose end. Place the hose clamp approximately 0.250 in. (6.3 mm) from hose ends. Tighten clamps.
10. Cut lower radiator hose at approximately 3 in. (76 mm) from the centerline of the lower radiator outlet for inline radiator, or as low as possible for remote

radiator applications. Install hose connector (225250) between the hose ends. Secure the connector with two 0.81 to 1.75 x 0.56-in. hose clamps (X-426-8). Place the hose clamp approximately 0.250 in. (6.3 mm) from hose ends. Tighten clamps.

11. Install 0.62-in. ID x 1.00-in. OD x 37.00-in. oil proof hose (X-577-36) on in-hose thermostat and hose connector. Secure hose with two 0.56 to 1.06 x 0.56-in. hose clamps (X-426-3). Place the hose clamps approximately 0.250 in. (6.3 mm) from hose ends and tighten clamps.
12. Attach hang tag (279047) to block heater power cord.
13. Fill cooling system to the proper level with fresh coolant, consisting of a mixture of 50% ethylene glycol and 50% clean, softened water. This mixture will provide freeze protection to -34°F (-36°C) as well as inhibit corrosion. Refer to Operation manual for coolant system capacity.

NOTE

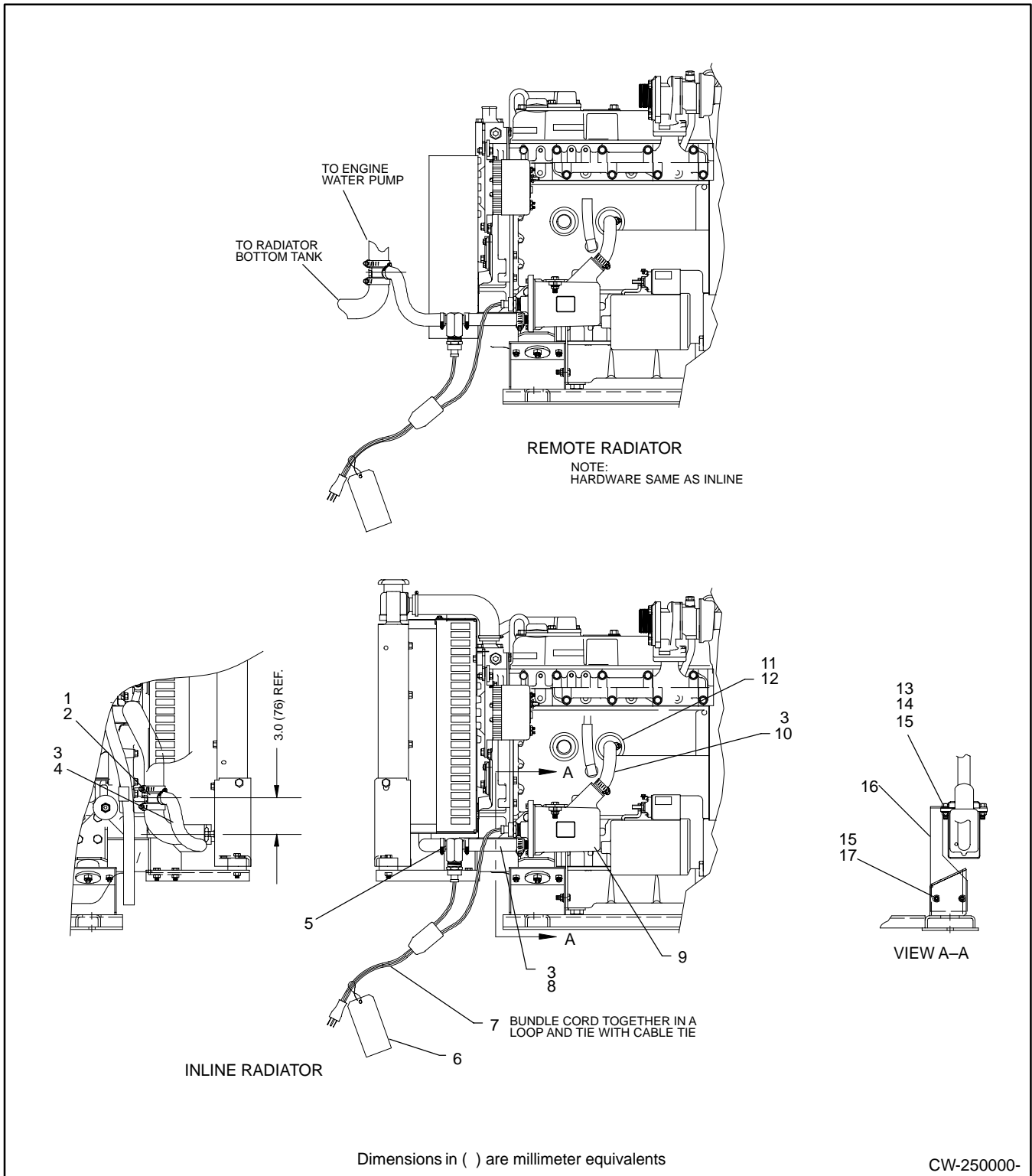
Coolant mixtures exceeding 50% ethylene glycol may cause the block heater element to fail.

14. Verify that the generator master switch is in the STOP position. Reconnect battery cables, negative lead last.
15. Test run generator for a few minutes to check for leaks. Shut off generator set and allow to cool. Check coolant level to insure that all air is purged from the system. Add coolant as necessary to fill system.

NOTE

ENGINE DAMAGE! Failure to bleed air from cooling system may cause overheating and subsequent damage to engine.

16. Once cooling system has been completely filled, connect block heater to AC power source. Bundle excess cord together with cable tie (X-468-1).



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|----------------------------------|-------------------------------------|
| 1. Hose Connector (225250) | 10. Hose (X-577-32) |
| 2. Hose Clamp (X-426-8) (qty. 2) | 11. Hose Connector (X-582-1) |
| 3. Hose Clamp (X-426-3) (qty. 2) | 12. Reducer Bushing (168848) |
| 4. Hose (X-577-36) | 13. Hex Screw (X-465-7) (qty. 2) |
| 5. Thermostat | 14. Plain Washer (X-25-40) (qty. 2) |
| 6. Hang Tag (279047) | 15. Whiz Nut (X-6210-2) (qty. 2) |
| 7. Cable Tie (X-468-1) | 16. Bracket (225681) |
| 8. Hose (X-577-37) | 17. Hex Screw (X-465-18) (qty. 2) |
| 9. Block Heater (276358) | |

Figure 1. 15/20CCO/CCOZ Block Heater Kit Installation

Parts List

Kit PA-225680		
Description	Qty.	Part Number
Washer, 0.281 x 0.625 x 0.065 in. plain	2	X-25-40
Clamp, 0.56 to 1.06 x 0.56 in. hose	6	X-426-3
Clamp, 0.81 to 1.75 x 0.56 in. hose	2	X-426-8
Screw, 1/4-20 x 0.875 in. hex	2	X-465-18
Screw, 1/4-20 x 1.00 in. hex	2	X-465-7
Tie, cable	1	X-468-1
Hose, 0.62 in. ID x 1.00 in. OD x 9.50 in oil proof	1	X-577-32
Hose, 0.62 in. ID x 1.00 in. OD x 37.00 in oil proof	1	X-577-36
Hose, 0.62 in. ID x 1.00 in. OD x 2.25 in oil proof	1	X-577-37
Connector, hose	1	X-582-1
Nut, 1/4-20 whiz	4	X-6210-2
Bushing, 1 in. to 1/2 in. NPT reducer	1	168848
Connector, hose	1	225250
Bracket, block heater	1	225681
Heater, block	1	276358
Tag, hang	1	279047