

### Block Heater Kit 226265 (120-Volt, 750 Watt) for 10/12 RY/RZ Generator Sets (with Wet Manifolds)

The block heater kit is intended for installation on early model generator sets that used a block heater located in the engine cylinder head. This block heater kit is installed in the engine exhaust manifold which requires the original manifold be replaced with the manifold supplied with the kit. (The original exhaust manifold was not manufactured with an opening for a manifold-type block heater.) The block heater kit heats the coolant in the engine block to warm the engine and make starting easier. The block heater will automatically turn 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 when installing and operating the block heater kit.

#### NOTE

The engine block heater kit should only be used on generator set engines with wet manifolds. A wet manifold can be identified by the presence of coolant hoses connecting the manifold to the radiator.

#### ! WARNING



#### Hot coolant can cause severe burns.

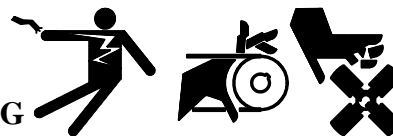
Allow engine to cool and release pressure from cooling system before opening pressure cap. To release pressure, cover the pressure cap with a thick cloth then turn it slowly counterclockwise to the first stop. After pressure has been completely released and the engine has cooled, remove cap. If generator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

#### ! CAUTION



**Engine block heater can cause electrical shock.** Remove engine block heater plug from electrical outlet before working on block heater electrical connections.

#### ! WARNING



**Accidental starting can cause death or serious personal injury.** Turn Generator 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 any equipment connected to generator. The generator set can be started by automatic transfer switch or remote start/stop switch unless these precautions are followed.

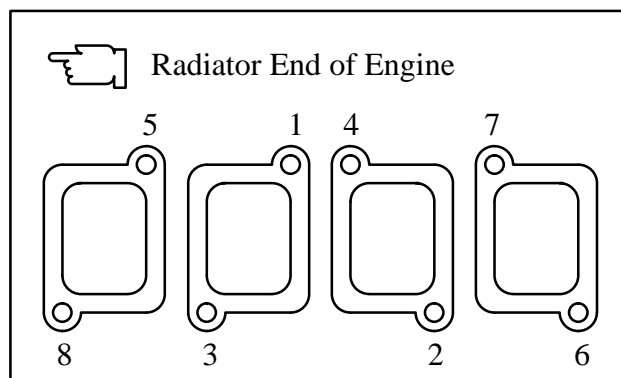
**Accidental starting can cause death or serious personal injury.** Disconnect battery cables (remove negative lead first and reconnect it last) to disable generator set before working on any equipment connected to generator. The generator set can be started by remote start/stop switch unless this precaution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

#### NOTE

**Block heater will fail if not immersed in water.** Always unplug block heater(s) before draining coolant and fill engine block with coolant prior to plugging in block heater(s). Block heater element **MUST** be immersed in engine coolant before being energized.

## Installation

1. Move generator master switch to OFF. Disconnect generator starting battery, negative lead first.
2. With engine cooled, cover radiator pressure cap with a thick cloth. Turn pressure cap slowly counterclockwise to the first stop. After pressure has been completely released, remove radiator cap.
3. Open petcock on bottom of radiator and remove drain plug from engine block to drain coolant from system. After coolant is drained, replace engine block drain plug and close radiator petcock. Dispose of used engine coolant in an environmentally safe manner. Take used coolant to a suitable collection facility in your area. **DO NOT POUR COOLANT ON THE GROUND, DOWN SEWERS, OR INTO STREAMS OR OTHER BODIES OF WATER.**
4. Disconnect coolant hoses and coolant hose fittings from exhaust manifold. Disconnect manifold exhaust piping.
5. Remove the bolts securing the exhaust manifold to the engine block. Remove and discard exhaust manifold.
6. Remove the four exhaust manifold gaskets. Discard gaskets. Remove any gasket material remaining on mating surface of engine block.
7. Position four new exhaust manifold gaskets (246060) between new manifold (256979) and engine; secure exhaust manifold/gaskets to engine with bolts removed in step 5. Torque manifold mounting bolts to 204 in. lbs. (23 Nm) in the sequence shown in Figure 1.
8. Reconnect coolant hoses/coolant hose fittings to exhaust manifold. Reconnect manifold exhaust piping.
9. Apply pipe sealant (Locktite 567) to threads of 3/4 in. pipe plug (X-75-18) and install in opening in bottom of manifold. See Figure 2. Apply pipe sealant (Locktite 567) to threads of 1 in. pipe plug (X-75-42) and install in opening on back side of manifold.
10. Use a utility knife to remove a 1 in. (25.4 mm) portion from the coolant hose between water pump and intake manifold. See Figure 3.
11. Insert block heater thermostat housing (254987) in cut hose and secure with two hose clamps (X-426-3). Thermostat should be positioned with cord hanging down as shown in Figure 3.
12. Route heat element cord beneath engine as shown in Figure 3.



**Figure 1. Exhaust Manifold Torque Sequence**

13. Apply pipe sealant (Locktite 567) to threads of block heater. Install block heater heat element in boss on radiator end exhaust manifold. See Figure 3. Use a wrench to tighten heat element until snug. **DO NOT OVERTIGHTEN.**
14. Use cable ties, as necessary, to keep block heater wiring from sharp objects, exhaust system, and any moving parts.
15. Fill cooling system with a coolant solution of 50% ethylene glycol and 50% clean, softened water. Cooling system capacity is 12.4 qts. (11.8 L).

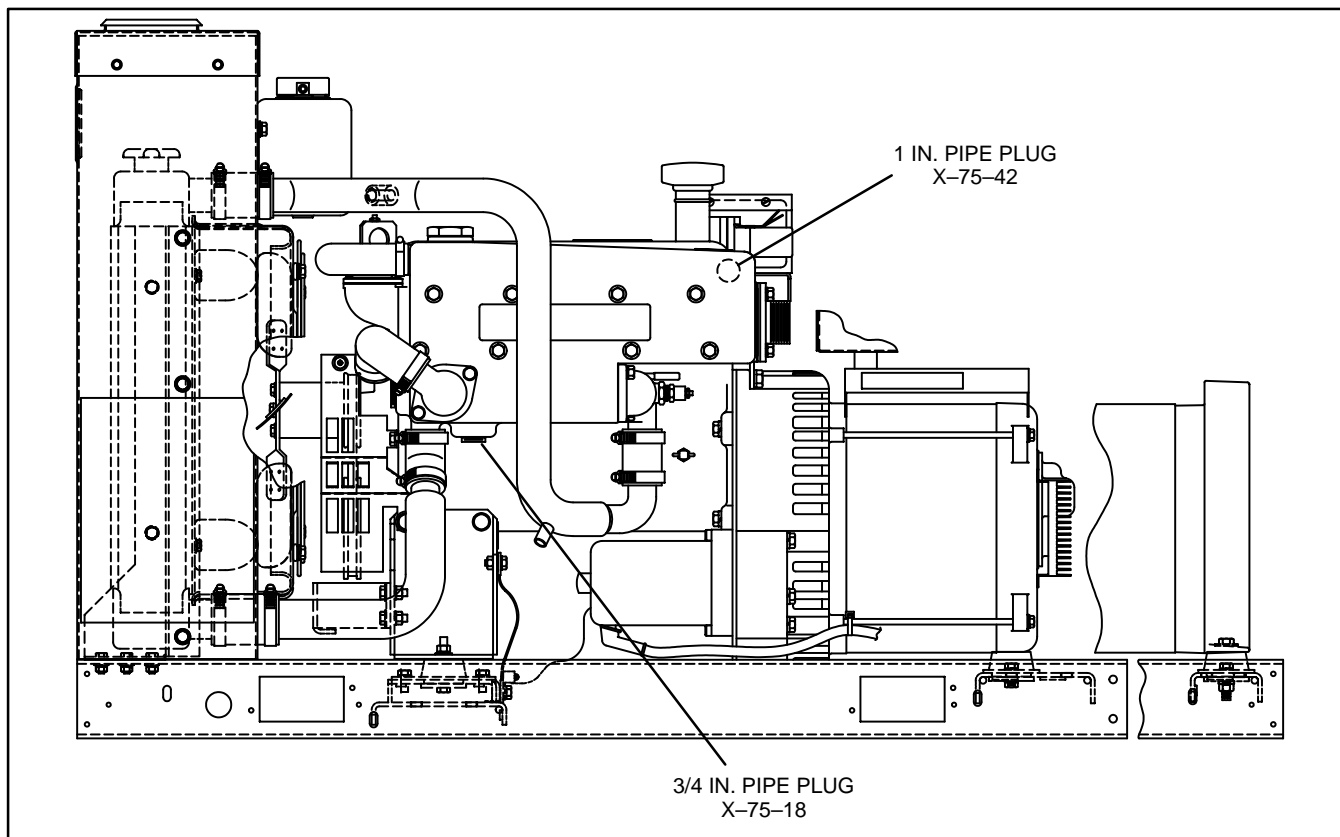
### NOTE

Coolant mixtures exceeding 50% ethylene glycol may cause failure of the block heater heat element.

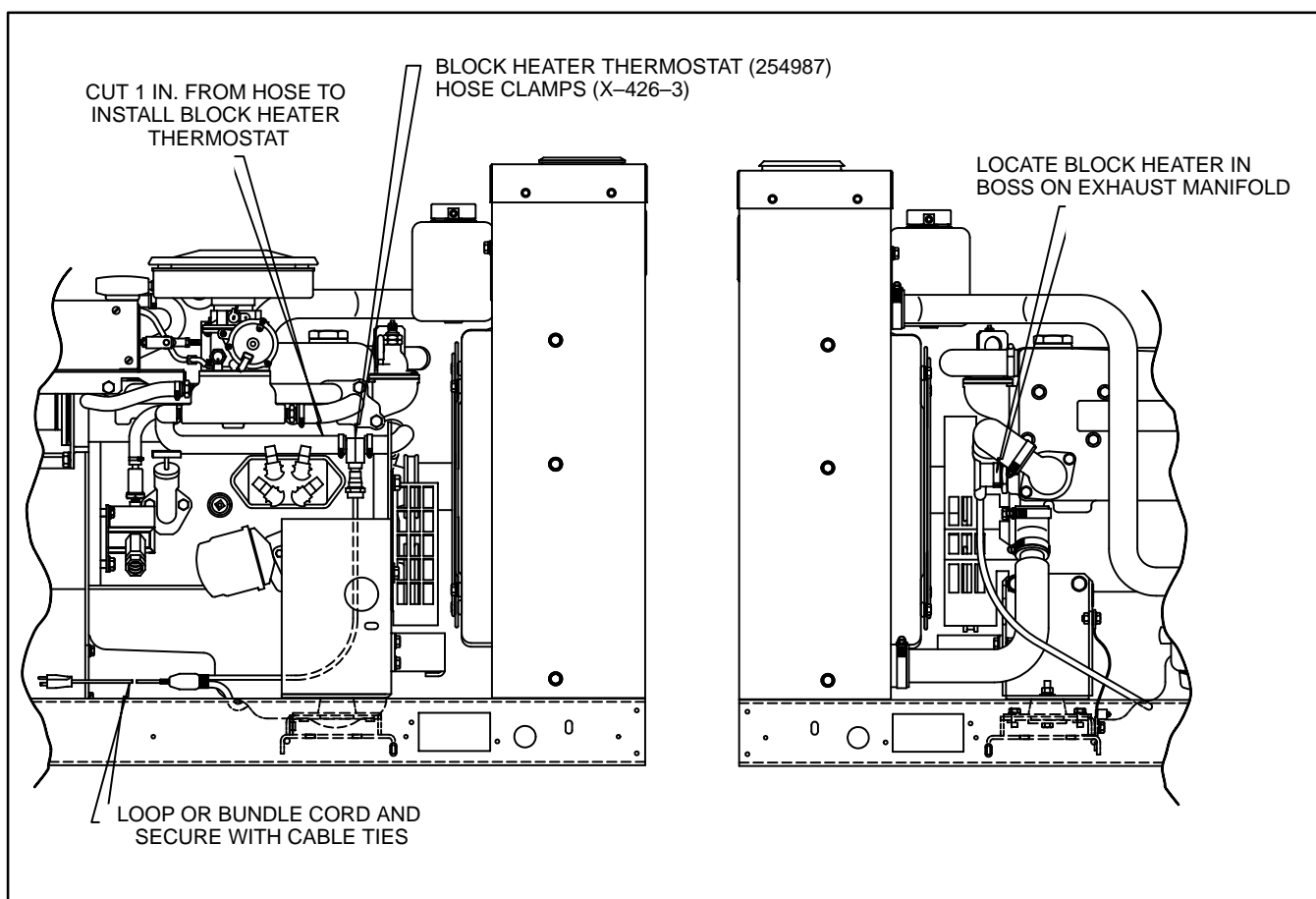
16. Reconnect generator starting battery, negative lead last.
17. Operate the engine until the thermostat opens and the radiator upper hose becomes hot. Inspect cooling lines for leaks. Stop the set and add coolant to the radiator to 3/4 to 1-1/2 in. (19-38 mm) below radiator filler neck. If the unit is equipped with a coolant recovery tank, coolant level should be between 1/3 full (cold) and 2/3 full (hot).
18. Attach block heater hang tag (279047) to heater power cord. Connect block heater electrical plug to a 120-volt outlet.
19. Move generator master switch to normal operating position (RUN or AUTO).

### PARTS LISTING

Description	Qty.	Part No.
Clamp, hose 1/2	2	X-426-3
Pipe, plug 3/4 in.	1	X-75-18
Pipe, plug 1 in.	1	X-75-42
Gasket, exhaust manifold	4	246060
Heater, block	1	254987
Manifold, exhaust	1	256979
Tag, hang	1	279047



**Figure 2. Exhaust Manifold Installation**



**Figure 3. Block Heater Kit Installation**