

Engine Block Heater Service Kits (Tank-Type) 80-100ROZJ (6359T and 6059T) John Deere-Powered Standby Generator Sets

Model	Voltage	Kit No.
80-100ROZJ	120	276509
80-100ROZJ	240	276510

This service kit details removal of the immersion-type block heater (or earlier version tank-type block heater) and installation of the tank-type block heater kit. The engine block heater kit (tank-type) is used to heat engine coolant, making starting easier and warm-up quicker. The thermostat will automatically turn off when coolant temperature reaches 120°F (49°C).

⚠ WARNING



Hazardous voltage.



Moving rotor.

Can cause severe injury or death.

Do not operate generator set without all guards and electrical enclosures in place.

Hazardous voltage can cause severe injury or death. Engine block heater can cause electrical shock. Remove engine block heater plug from electrical outlet before working on block heater electrical connections.

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.



⚠ 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. 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.

⚠ 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.

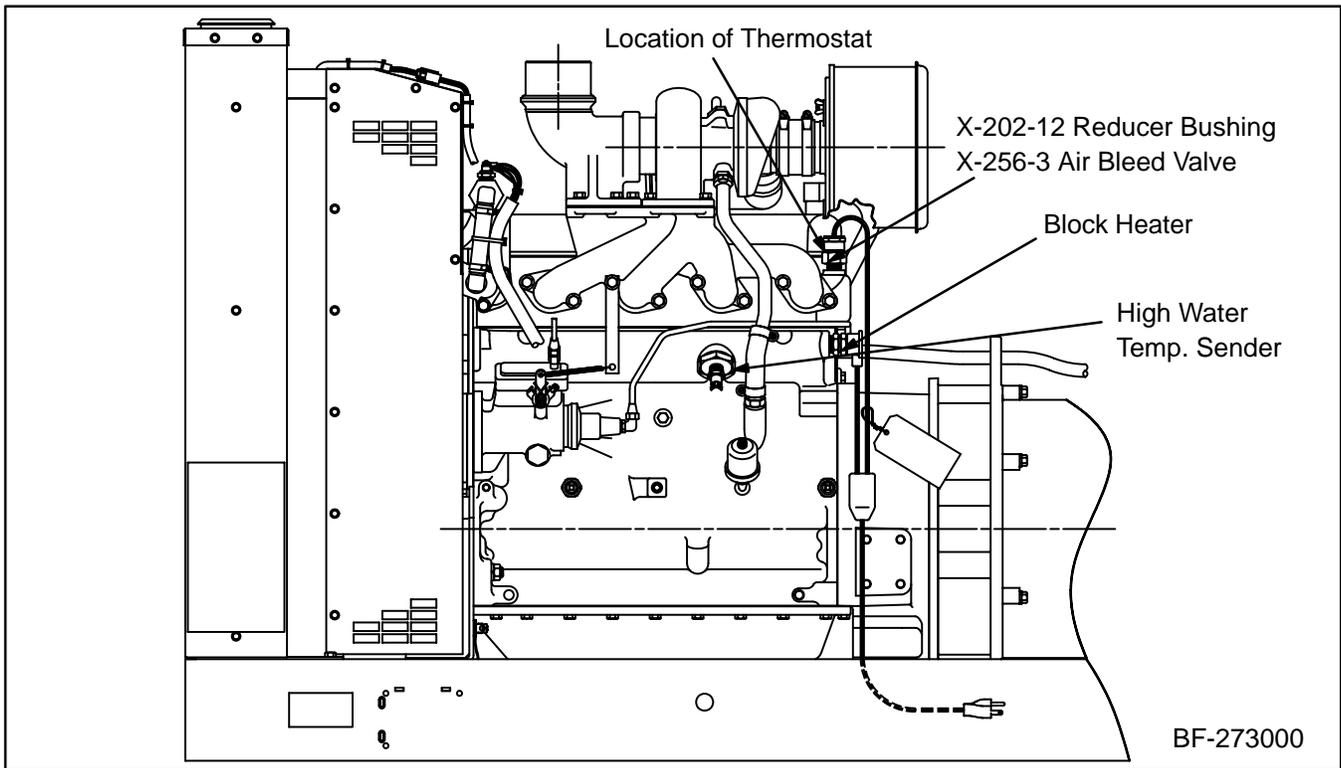


Figure 1. Block Heater Kit Removal (Immersion-Type).

NOTE

The following installation instructions describe two different methods for removing the existing block heater (immersion-type vs. earlier version tank-type) and installing the new tank-type block heater. Be sure to follow the appropriate instructions for whichever style block heater is being removed.

**Installation
(Removal of Immersion-Type
Block Heater)**

1. Move the controller master switch to the OFF position. Disconnect the generator set battery, negative lead first. Disconnect the power from the existing block heater.
2. Unplug the heater. With the generator set sufficiently cooled, drain the coolant into a suitable container. Dispose of the used engine coolant in an environmentally safe manner. Take used coolant to a suitable collection facility. Do not pour used coolant on the ground, down sewers, or into streams or other bodies of water.

NOTE

The drain valve is located on the radiator bottom and/or the side of the engine crankcase.

3. Remove all electrical connections to the block heater and thermostat. Discard the old block heater cord connections. See Figure 1.
4. Remove the thermostat and discard it. Clean the threads on the engine and apply pipe sealant to reducer bushing X-202-12 and air bleed valve X-256-3 and install them into the block. See Figure 1.

NOTE

Apply pipe sealant to the male threads of all components when assembling.

5. Remove the block heater from the engine block and discard it. Install reducer bushing X-202-1, pipe nipple X-206-6, elbow SA-472, pipe tee X-203-6, and hose connector X-582-3. See Figure 2, View B-B.

NOTE

Rotate the fittings so the hose is directed down toward the block heater.

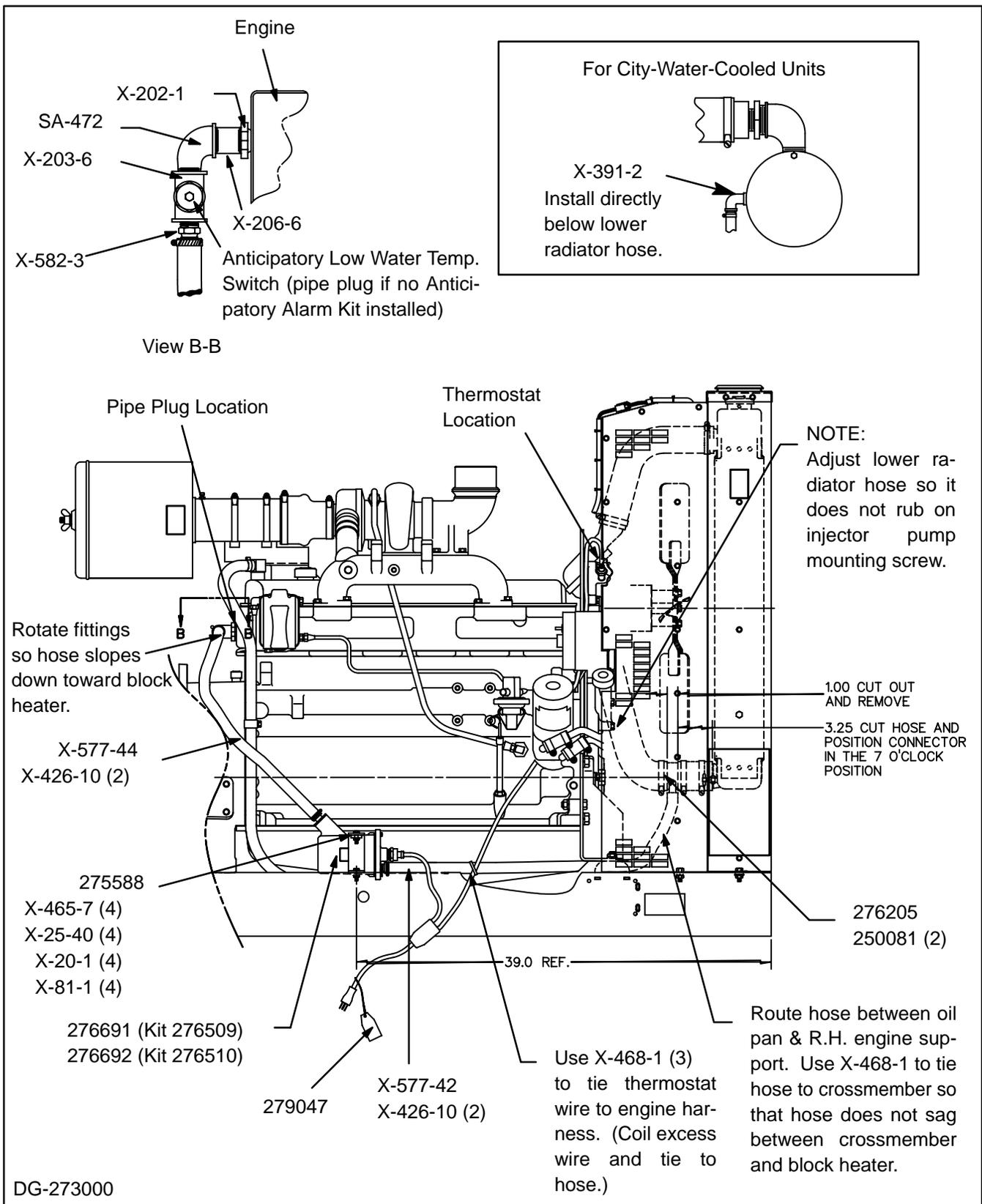
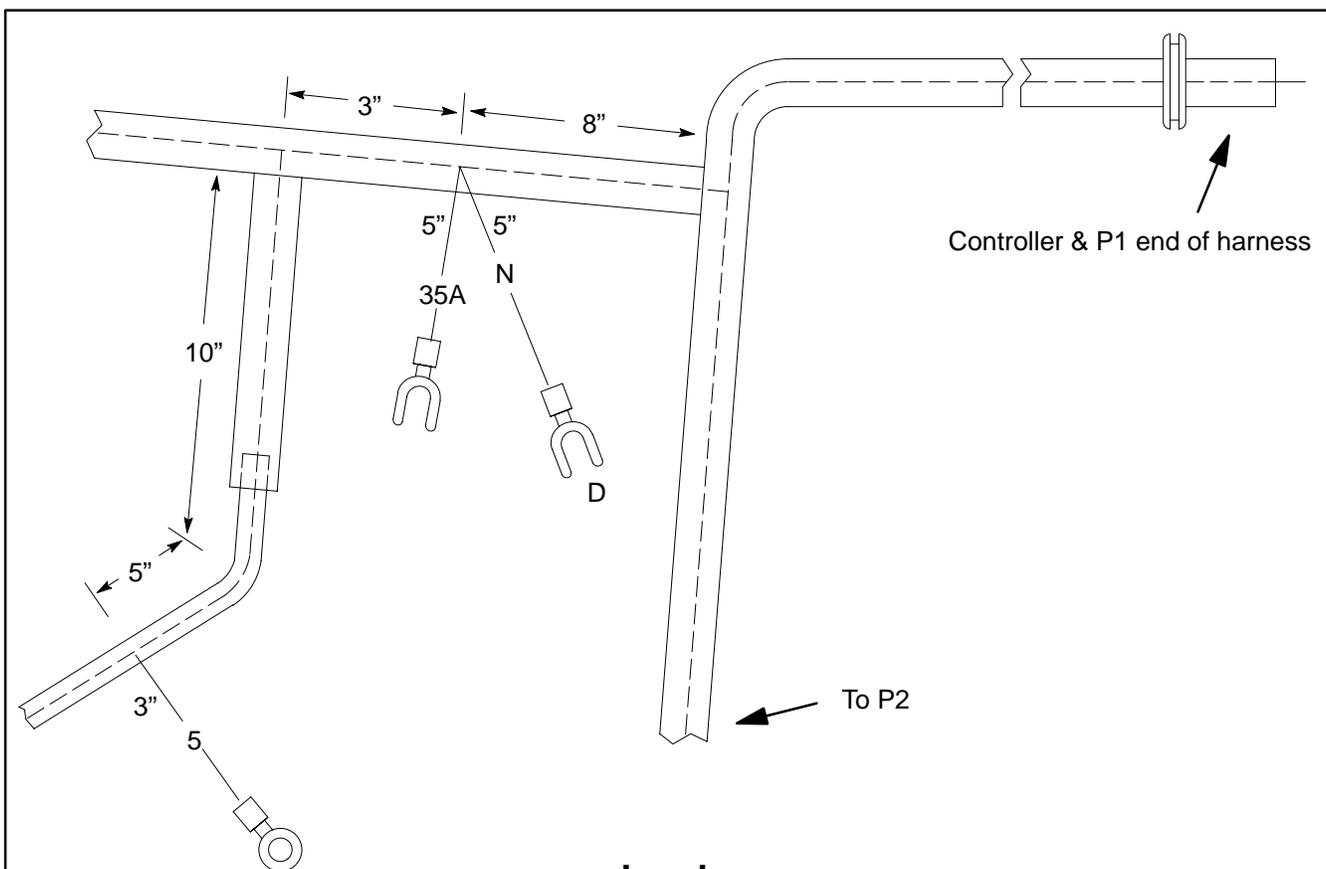


Figure 2. Block Heater Installation (Tank-Type).

6. Remove the High Water Temp. Sender from its location at the front right side of the engine. Replace the plug located near the starter with 273692 tapped plug and 273693 O-ring, then install the High Water Temp. Sender in the plug. See Figure 1.
7. Some units might require rewiring of the engine wiring harness. Figure 3 shows the required wiring. If necessary, modify the engine wiring harness using the diagram and the lead information in Figure 3. Refer to the wiring diagrams in the generator service literature as needed.



Leads

Lead	Connections	Gauge and Length
35A	Low Water Temp. Switch to P1, pin 24	16 GA., 15 in.
N (D)	Low Water Temp. Switch to Engine Block Ground	16 GA., 29 in.
5	Water Temp. Sender to Water Temp. Gauge	16 GA., 69 in.

Figure 3. Wiring Harness Configuration and Lead Information.

8. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-44 and tighten it to the hose connector mentioned in step 5.
9. Attach mounting bracket 275588 to the skid using the supplied mounting hardware.
10. Install the block heater (276691 or 276692) to the mounting bracket. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-44 and tighten it to block heater.
11. Connect hose X-577-42 to the block heater inlet with hose clamp X-426-10. Locate the hose clamp 1/4 in. (6 mm) from the end of the hose. Route the hose between the oil pan and the R.H. engine support.

NOTE

If installing the block heater kit on a city-water-cooled unit, omit steps 12 and 13 and proceed to step 14.

12. Mark the lower radiator hose at 3.25 in. (82 mm) and 4.25 in. (107 mm) from the radiator outlet. Cut it at these marks to remove 1 in. (25 mm).
13. Place one 250081 large hose clamp on each end of the cut radiator hose. Install hose connector 276205 and position it in the 7 o'clock position as viewed from the radiator end. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-42 and tighten it to the nipple on the hose connector.

14. If installing the block heater kit on a city-water-cooled unit: Install hose connector X-391-2 directly below the lower radiator hose in the heat exchanger as shown in Figure 2. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-42 and tighten it to the hose connector. (Items 276205, hose connector, and 250081, hose clamps, will not be used.)
15. Use an X-468-1 cable tie to tie the hose to the crossmember so that no point in the hose is lower than the point where it joins the block heater.
16. Trim the top fan guard to accommodate the thermostat's new location. See Figure 4.

17. Position the thermostat at the location where the High Water Temp. Sender was removed in step 6. See Figure 2.
18. Use an X-468-1 cable tie to tie the thermostat wire to the engine harness. (Coil excess wire and tie to hose.)

NOTE

Adjust the lower radiator hose so it does not rub on the injector pump mounting screw.

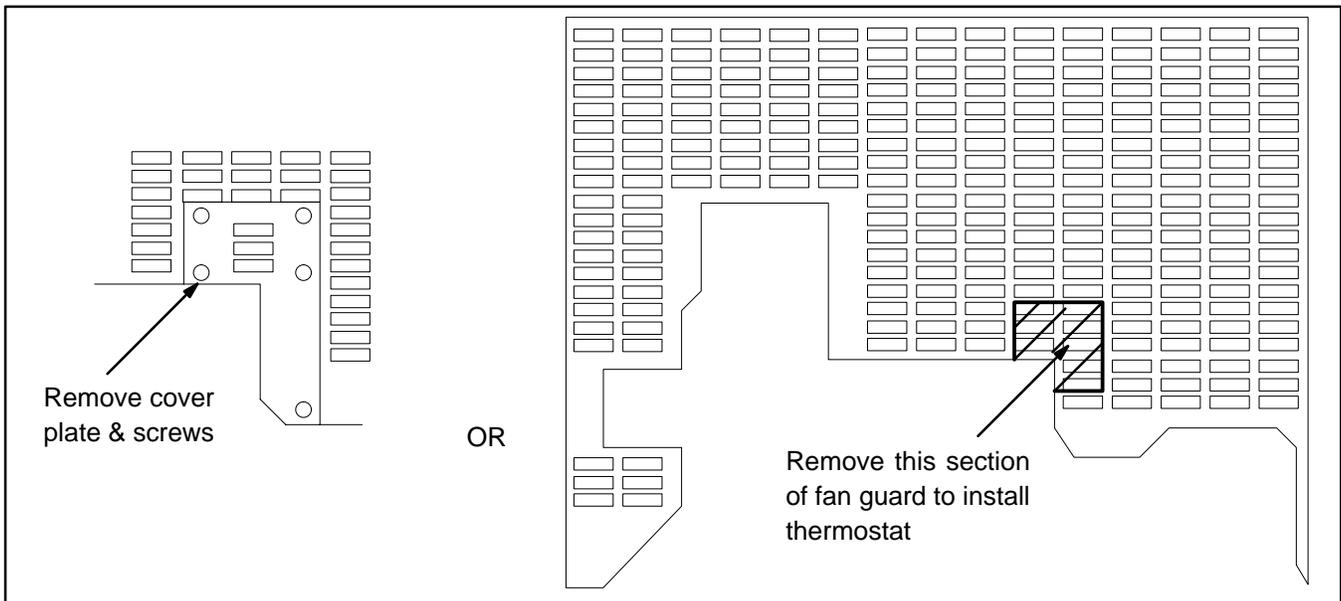


Figure 4. Top Fan Guard Material Removal.

19. Use cable ties, as necessary, to protect and secure the wiring from sharp objects, the exhaust system, fuel lines, and any moving parts.
20. Close all petcock valves on the radiator and/or the engine block.
21. Fill the cooling system to the proper level with fresh coolant. A solution of 50% ethylene glycol and 50% clean, softened water is recommended to inhibit rust/corrosion and provide freezing protection. See Figure 5 for coolant capacities.

NOTE

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

22. Check that the controller master switch is in the OFF position. Reconnect the battery, negative lead last.
23. Test run the generator set for a few minutes and check for leaks. Stop generator set. After the set has cooled check coolant level.

NOTE

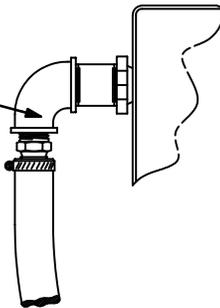
Special attention should be given when checking for the proper coolant level. After a radiator has been drained, it normally requires some time before complete refill of all air cavities takes place.

Model	Standard Radiator	Remote Radiator	City Water Cooled
80ROZJ	5.5 (20.4)	9.8 (37.1)	4.05 (15.3)
100ROZJ	5.5 (20.4)	9.8 (37.1)	4.05 (15.3)
NOTE: Capacities shown may vary from model to model and are subject to change.			

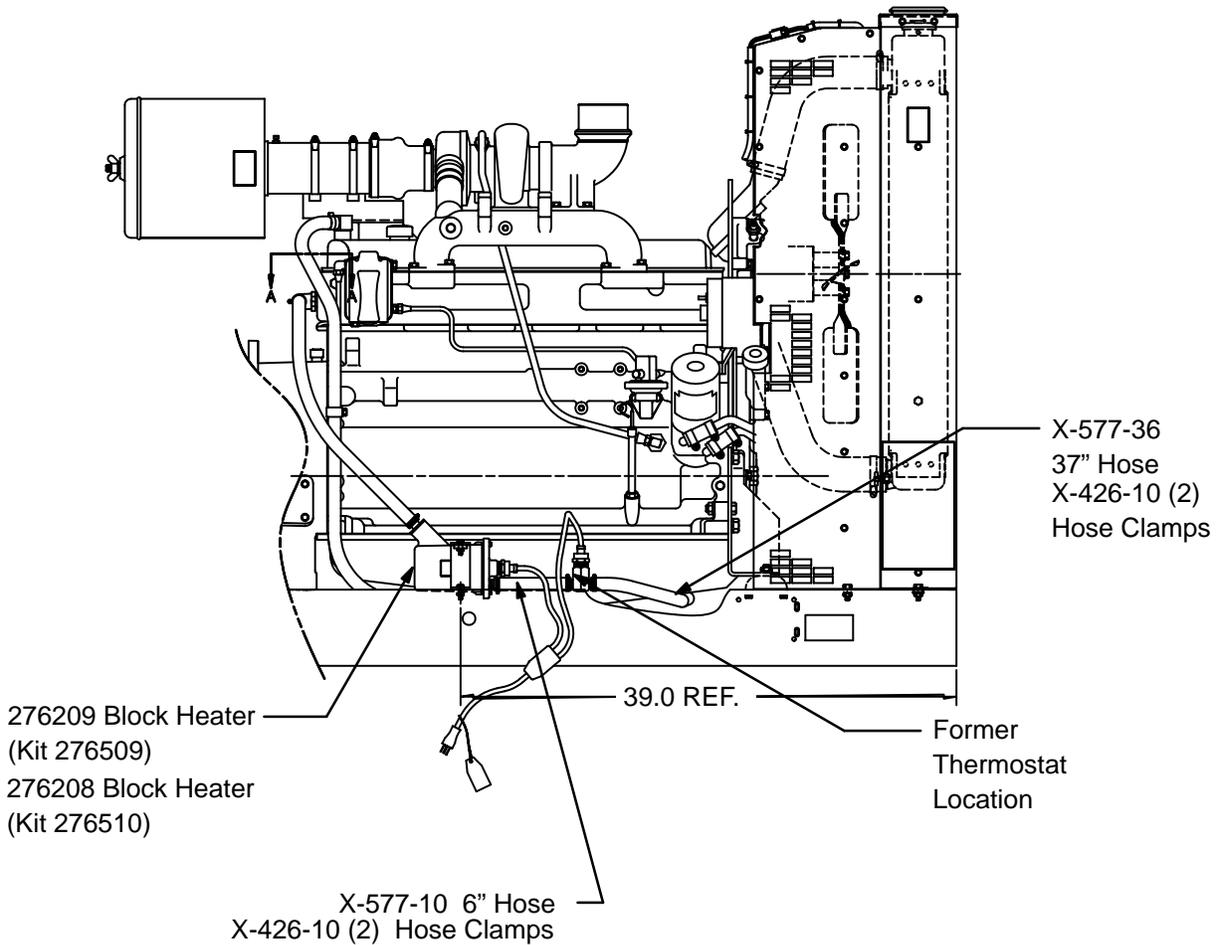
Figure 5. Coolant Capacities, U.S. Gal. (L)

24. Connect the block heater electrical plug to the proper voltage outlet. Tie hang tag 279047 to the electrical cord coming from the block heater.

X-215-2 3/4" Pipe Elbow



View A-A



PARTS IDENTIFIED WILL NOT BE RE-USED.

DG-273000

Figure 6. Block Heater Kit Removal (Earlier Version Tank-Type).

Installation (Removal of Earlier Version Tank-Type Block Heater)

1. Move the controller master switch to the OFF position. Disconnect the generator set battery, negative lead first. Disconnect the power from the existing block heater.
2. Unplug the heater. With the generator set sufficiently cooled, drain the coolant into a suitable container. Dispose of used engine coolant in an environmentally safe manner. Take used coolant to a suitable collection facility. Do not pour used coolant on the ground, down sewers, or into streams or other bodies of water.

NOTE

The drain valve is located on the radiator bottom and/or the side of the engine crankcase.

NOTE

All parts included in this kit may not be used. However, if the component parts of the existing block heater kit show wear or are damaged in some way, replace them with new parts supplied in the kit (refer to Figure 2 for proper positions).

3. Remove pipe elbow X-215-2 and replace it with elbow SA-472. Install pipe tee X-203-6, and replace hose connector X-582-3. See Figure 2 and Figure 6.

NOTE

Rotate the fittings so the hose is directed down toward the block heater.

4. On older units, remove the High Water Temp. Sender from its location at the front right side of the engine. Replace the plug located near the starter with 273692 tapped plug and 273693 O-ring, then install the High Water Temp. Sender in the plug. See Figure 1.
5. Some units might require rewiring of the engine wiring harness. Figure 3 shows the required wiring. If necessary, modify the engine wiring harness using the diagram and the lead information in Figure 3. Refer to the wiring diagrams in the generator service literature as needed.

6. Remove the existing block heater, thermostat, and hoses and discard them. Replace them with the new block heater (276691 or 276692), and hoses supplied in the kit.
7. Connect hose X-577-44 to hose connector X-582-3 and the block heater outlet. Secure it with hose clamps X-426-10. Locate the hose clamps 1/4 in. (6 mm) from the end of the hose.
8. Connect hose X-577-42 to the block heater inlet and secure it with hose clamp X-426-10. Locate the hose clamp 1/4 in. (6 mm) from the end of the hose. Route the hose between the oil pan and the R.H. engine support.
9. Locate the lower radiator hose and remove and replace it with the new lower radiator hose (273463) supplied in the kit.

NOTE

If installing the block heater kit on a city-water-cooled unit, omit steps 10 and 11 and proceed to step 12.

10. Mark the lower radiator hose 3.25 in. (82 mm) and 4.25 in. (107 mm) from the radiator outlet. Cut at these marks to remove 1 in. (25 mm).
11. Place one 250081 large hose clamp on each end of the cut radiator hose. Install hose connector 276205 and position it in the 7 o'clock position as viewed from the radiator end. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-42 and tighten it to the nipple on the hose connector (276205).
12. If installing the block heater kit on a city-water-cooled unit: Install hose connector X-391-2 directly below the lower radiator hose as shown in Figure 2. Locate hose clamp X-426-10 1/4 in. (6 mm) from the end of hose X-577-42 and tighten it to the hose connector. (Items 276205, hose connector, and 250081, hose clamps, will not be used.)
13. Use a X-468-1 cable tie to tie the hose to the crossmember so that it does not sag between the crossmember and the block heater.
14. Remove cover plate 276693 and screws X-794-1 (qty. 5) and discard them. If the top fan guard does not have the cover plate, then it must be trimmed to accommodate the thermostat's new location. See Figure 4.

15. Position the thermostat at the former High Water Temp. Sender location or by removing the existing plug. See Figure 2.
16. Use X-468-1 cable ties to tie thermostat wire to the engine harness. (Coil excess wire and tie to hose.)
17. Use cable ties, as necessary, to protect and secure wiring from sharp objects, the exhaust system, fuel lines, and any moving parts.
18. Close all petcock valves on the radiator and/or the engine block.
19. Fill the cooling system to the proper level with fresh coolant. A solution of 50% ethylene glycol and 50% clean, softened water is recommended to inhibit rust/corrosion and provide freezing protection. See Figure 5 for coolant capacities.
20. Check that the controller master switch is in the OFF position. Reconnect the battery, negative lead last.
21. Test run the generator set for a few minutes and check for leaks. Stop the generator set. After the set has cooled check the coolant level.

NOTE

Special attention should be given when checking for the proper coolant level. After a radiator has been drained, it normally requires some time before complete refill of all air cavities takes place.

22. Connect the block heater electrical plug to the proper voltage outlet. Tie hang tag 279047 to the electrical cord coming from the block heater.

NOTE

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

Parts List				
Qty.	Description	Common Parts	Unique Parts (by Kit Number)	
			276509	276510
1	Elbow	SA-472		
4	Washer, Lock 1/4 in.	X-20-1		
1	Bushing, Reducer 3/4 x 1 in.	X-202-1		
4	Washer, Plain 9/32 x 5/8 x .05 in.	X-25-40		
4	Clamp, Hose (max. range 1.00 in.)	X-426-10		
4	Screw, H.C.	X-465-7		
1	Hose, 40 in.	X-577-42		
1	Connector, Hose	X-582-3		
4	Nut, Hex. 1/4-20	X-81-1		
2	Clamp, Hose (max. range 3.00 in.)	250081		
1	Bracket, Mounting	275588		
1	Connector, Hose	276205		
1	Heater, Block		276691	276692
1	Tag, Hang	279047		
1	Connector, Hose 5/8 x 3/8 in.	X-391-2		
4	Cable Tie	X-468-1		
1	Hose 27 in.	X-577-44		
1	Bushing, Reducer 1/4 x 1/2 in.	X-202-12		
1	Tee, Pipe 3/4 x 3/4 x 1/2 in.	X-203-6		
1	Nipple, Pipe 3/4 x 3-1/2 in.	X-206-6		
1	Valve, Drain 1/4 in.	X-256-3		
1	Terminal	X-283-3		
1	Hose, Radiator (Lower)	273463		
1	Plug, 1-5/8-12 class 2A str. thd., 1/2-14 NPT tap	273692		
1	O-ring, 1.475 ID x 0.118 in. rubber	273693		