

INSTALLATION INSTRUCTIONS

Original Issue Date: 1/12
 Model: **38RCL & 48RCL**
 Market: **Residential/Light Commercial**
 Subject: **Block Heater Kits**

Introduction

The engine block heater kit heats engine coolant, making starting easier and warmup quicker. The thermostat, built into the base of the block heater, automatically turns off the heater when coolant temperature reaches 27–38°C (80–100°F).

The generator set engine is equipped with valves that eliminate the need to drain the cooling system before installing the block heater.

Models	Volts	Amps	Watts	Kit No.
38RCL	120	8.3	1000	GM84997-KP1-QS
	240	4.2	1000	GM84997-KP2
48RCL	120	12.5	1500	GM78529-KP1-QS
	240	6.3	1500	GM78529-KP2

Figure 1 Kit Selection

Read the entire installation procedure before beginning the installation. Perform the steps in the order shown.

Safety Precautions

Observe the following safety precautions while installing the kit.

⚠ WARNING

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

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

⚠ WARNING

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

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

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

Allow the engine to cool. Release pressure from the cooling system before removing the pressure cap. To release pressure, cover the pressure cap with a thick cloth and then slowly turn the cap counterclockwise to the first stop. Remove the cap after pressure has been completely released and the engine has cooled. Check the coolant level at the tank if the generator set has a coolant recovery tank.

Note: Air pockets often form in the engine water jacket when the coolant system is refilled. Check the coolant level in the coolant recovery tank after each generator set operation and add coolant as necessary until the level stabilizes. Check the coolant at the interval specified in the service schedule.

Note: Block heater damage. The block heater will fail if the energized heater element is not immersed in coolant. Fill the cooling system before turning on the block heater. Run the engine until it is warm, and refill the system to purge the air from the system before energizing the block heater.

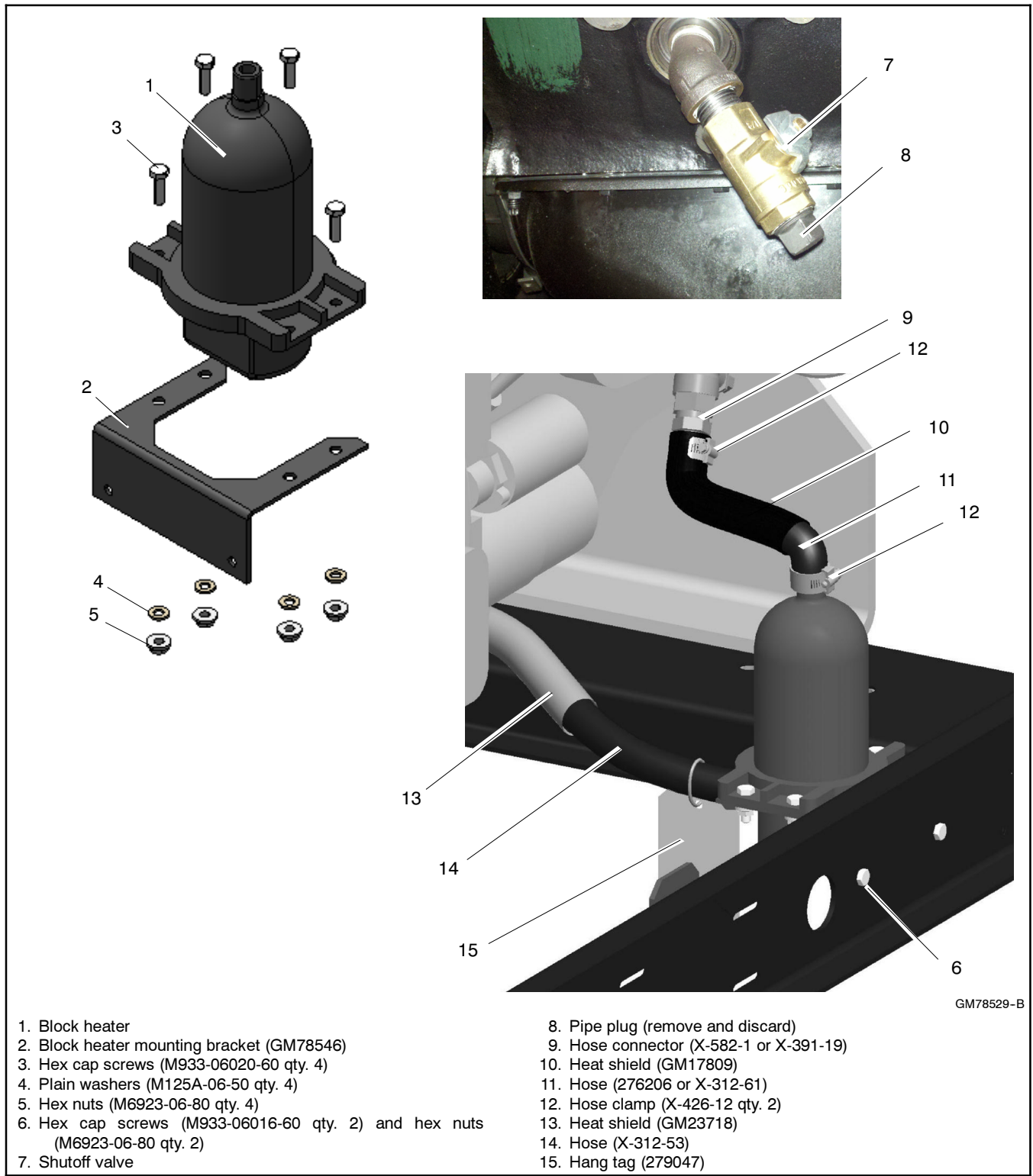


Figure 2 Block Heater (Installed 48RCL Kit Shown)

Installation Procedure

1. Remove the generator set from service.

- 1.1 Press the OFF button on the generator set controller.
- 1.2 Disconnect the utility power to the generator set.
- 1.3 Disconnect the generator set engine starting battery, negative (-) lead first.

2. Install the block heater.

- 2.1 Secure the block heater to the block heater mounting bracket (GM78546) using 4 screws (M933-06020-60), 4 washers (M125A-06-80), and 4 hex nuts (M6923-06-80). See Figure 2.
- 2.2 Secure the block heater mounting bracket (with the block heater attached) to the skid using 2 screws (M933-06016-60) and 2 hex nuts (M6923-06-80). See Figure 2.
- 2.3 Locate the 2 shutoff valves installed in the engine block. See Figure 2. One shutoff valve is located on the opposite side of the engine. Verify that the shutoff valves are closed.
- 2.4 Remove the pipe plug from each shutoff valve. Discard the plugs; they will not be used.
- 2.5 Apply pipe sealant to the threads of the hose connectors.

38RCL: Install the 90° hose connector (X-391-19) in the shutoff valve closest to the block heater. If necessary, rotate the fitting to keep it aligned with the block heater. Install the straight connector (X-582-1) in the shutoff valve on the opposite side of the engine.

48RCL: Install 1 connector (X-582-1) in each shutoff valve.

- 2.6 Hold the outlet hose in place and cut to fit, if necessary.

38RCL: Hold outlet hose X-312-61 in place and cut to fit, if necessary.

48RCL: Hold molded hose 276206 in place and cut to fit, if necessary.

- 2.7 Install the heat shield (GM17809) over the outlet hose. Secure with a cable tie.
- 2.8 Connect the outlet hose to the hose connector. Secure the hose to the connector using a hose clamp (X-426-12).

- 2.9 Connect the other end of the hose to the block heater outlet. Secure the hose to the outlet using a hose clamp (X-426-12).
- 2.10 Install the heat shield (GM23718) over the inlet hose (X-312-53). Secure with a cable tie.
- 2.11 Connect the hose to the block heater inlet. Secure the hose to the inlet using a hose clamp (X-426-12).
- 2.12 Connect the other end of the hose (X-312-53) to the shutoff valve/hose connector on the opposite side of the engine. Route the hose under the engine.
- 2.13 If necessary, rotate the fitting to keep the hose away from the exhaust pipe.
- 2.14 Secure the hose to the connector using a hose clamp (X-426-12).
- 2.15 Secure the hang tag (279047) to power cord. See Figure 2.
- 2.16 Open the two block heater shutoff valves allowing coolant to flow into the block heater.
- 2.17 After the block heater is full, add coolant to the cooling system, approximately 1.4 L (1.5 qts).

Note: Use a coolant solution of 50% ethylene glycol to provide freezing protection to -37°C (-34°F) and overheating protection to 129°C (265°F). A coolant solution with less than 50% ethylene glycol can cause engine or component damage. Do not use alcohol or methanol antifreeze or mix them with the specified coolant.

Note: Do not add coolant to a hot engine. Wait until the engine has cooled. Adding coolant to a hot engine can cause the cylinder block or cylinder head to crack.

3. Restore the generator set to service.

- 3.1 Reconnect the generator set engine starting battery, negative (-) lead last.
- 3.2 Reconnect the utility power to the generator set.
- 3.3 Press the RUN button on the generator set controller. The generator set will start.
- 3.4 Test run the generator set for a few minutes to check for coolant leaks and to purge air from the system.
- 3.5 Stop the generator set. After allowing the engine to cool, correct any leakage.

Note: Purge trapped air to prevent block heater element failure. See the operation manual for instructions.

3.7 Connect the block heater electrical plug to the power outlet.

3.6 Recheck the coolant level. Add coolant as necessary.

Parts List

38 RCL Block Heater Kits

Kits: GM84997-KP1-QS and GM84997-KP2				
Qty.	Description	Common Parts	Unique Parts	
			GM84997-KP1	GM84997-KP2
1	Block heater		358311	358327
1	Hose (0.63 in. ID x 8 in.)	X-312-61		
1	Tag, hang	279047		
1	Shield, heat (32mm ID x 152mm)	GM17809		
1	Shield, heat (32mm ID x 455mm)	GM23718		
1	Bracket, block heater mtg.	GM78546		
4	Washer, plain (12 mm OD x 6.4 mm ID)	M125A-06-80		
6	Nut, hex (6 mm)	M6923-06-80		
2	Screw, hex cap (M6 x 16 mm)	M933-06016-60		
4	Screw, hex cap (M6 x 20 mm)	M933-06020-60		
1	Hose (0.63 in. ID x 24 in.)	X-312-53		
4	Clamp, hose (0.69/1.25 in.)	X-426-12		
1	Connector, hose (5/8 in. x 1/2 in. NPT)	X-582-1		
1	Connector, hose (90 deg. 5/8 in. hose)	X-391-19		

48 RCL Block Heater Kits

Kits: GM78529-KP1-QS and GM78529-KP2				
Qty.	Description	Common Parts	Unique Parts	
			GM78529-KP1-QS	GM78529-KP2
1	Block heater		352945	352946
1	Hose, molded (0.62 ID)	276206		
1	Tag, hang	279047		
1	Shield, heat (32mm ID x 152mm)	GM17809		
1	Shield, heat (32mm ID x 455mm)	GM23718		
1	Bracket, block heater mtg.	GM78546		
4	Washer, plain (12 mm OD x 6.4 mm ID)	M125A-06-80		
6	Nut, hex (6 mm)	M6923-06-80		
2	Screw, hex cap (M6 x 16 mm)	M933-06016-60		
4	Screw, hex cap (M6 x 20 mm)	M933-06020-60		
1	Hose (0.63 in. ID x 24 in.)	X-312-53		
4	Clamp, hose (0.69/1.25 in.)	X-426-12		
2	Connector, hose (5/8 in. x 1/2 in. NPT)	X-582-1		