

ISSUE DATE: 11/90 MODEL: Standby SUBJECT: Tank-Type NO.: 31  
 REVISION DATE: 6/93 17kW and above Block Heaters

Immersion-type block heater kits have been replaced by tank-type block heater kits. **Immersion-type block heaters and kits are no longer available.** John Deere and DDC-powered units have replaced the tank-type block heater assembly from an “in-hose” thermostat to an “in-block” thermostat. As a result, the block heater assembly number has changed. The kit and thermostat numbers remain the same. See Chart 1 to determine service replacements.

When replacing an immersion-type block heater, order the tank-type service conversion kit. The tank-type service conversion kit contains the necessary components to convert a generator set equipped with an immersion-type block heater to a tank-type block heater. The tank-type block heater sales kit is intended strictly for generator sets not presently equipped with a block heater kit. Add “PA-” to the tank-type block heater sales kit part number for loose (field installed) kits.

The in-hose thermostat tank type block heaters (276208 and 276209) have been replaced by in-block thermostat tank type block heaters. This applies to 20-100RZ (Ford-Powered), and 20-150ROZJ (John Deere-Powered) models which are identified by ++ in Chart 1. Cummins-Powered models make use of the new tank-type block heaters but retain the in-hose thermostats. See **Replacement of 276208 and 276209** for components necessary to make the conversion from in-hose to in-block thermostat tank-type block heaters. If the heater fails and requires replacement on an in-hose thermostat tank-type block heater it will require conversion to the in-block thermostat tank-type block heater.

Routing	Service Manager	Sales Manager	Parts Manager	Technician No. 1	Technician No. 2	Technician No. 3	Return This to
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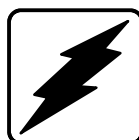


CHART 1

Model	Engine	Rating	Sales Kit, Immersion Heater (Disc.)	Immersion Heater (Disc.)	Sales Kit, In-Hose Thermostat Tank-Type	Sales Kit, In-Block Thermostat Tank-Type	Tank-Type Service Conversion Kit	In-Hose Thermostat Tank-Type Heater	In-Block Thermostat Tank-Type Heater	Tank-Type Element	Tank-Type Thermostat	In-Hose Thermostat Harness	In-Block Thermostat Harness
<b>Cummins</b>													
20-100 kW	B Series	120V/750W*	253139	253216	256434	N/A	254419	276358	N/A	224347	224341	A-276360	N/A
20-100 kW	B Series	120V/1500W	253252	253278	256434	N/A	254419	276358	N/A	224347	224341	A-276360	N/A
20-100 kW	B Series	240V/1500W	253427	253428	256435	N/A	254420	276359	N/A	224346	224341	A-276361	N/A
25-150 kW	C Series	120V/1000W*	254205	254244	256436	N/A	256438	276358	N/A	224347	224341	A-276360	N/A
25-150 kW	C Series	120V/1500W	254206	254245	256436	N/A	256438	276358	N/A	224347	224341	A-276360	N/A
25-150 kW	C Series	240V/1500W	254207	254246	256437	N/A	256439	276359	N/A	224346	224341	A-276361	N/A
<b>Ford</b>													
20 RZ	LSG-423	120V	255338	255337	276223	276362+	276368	276209 ++	276358 +	224347	224341	A-276360	N/A
20 RZ	LSG-423	240V	255338	255337	276224	276363+	276369	276208 ++	276359 +	224346	224341	A-276361	N/A
30 RZ	LSG-423	120V	255338	255337	276210	276364+	276370	276209 ++	276358 +	224347	224341	A-276360	N/A
30 RZ	LSG-423	240V	255338	255337	276211	276365+	276371	276208 ++	276359 +	224346	224341	A-276361	N/A
30-45 RZ	CSG-649	120V	255075	255188	276213	276378	276380	276209 ++	276691	224347	224341	A-276360	A-276753
30-45 RZ	CSG-649	240V	255075	255188	276214	276379	276381	276208 ++	276692	224346	224341	A-276361	A-276754
50-70 RZ	LSG-875	120V	255301	255337	276218	276347	276354	276209 ++	276691	224347	224341	A-276360	A-276753
50-70 RZ	LSG-875	240V	255301	255337	276219	276348	276355	276208 ++	276692	224346	224341	A-276361	A-276754
80-100 RZ	LSG-875	120V	255301	255337	276220	276349	276356	276209 ++	276291	224347	224341	A-276360	A-276753
80-100 RZ	LSG-875	240V	255301	255337	276221	276350	276357	276208 ++	276292	224346	224341	A-276361	A-276754
<b>John Deere</b>													
20-60 ROZJ	4039/4239	120V	273620	273622	275584	275584	276507	276209 ++	276691	224347	224341	276344	A-276753
20-60 ROZJ	4039/4239	240V	273621	273623	275589	275589	276508	276208 ++	276692	224346	224341	276343	A-276754
80-100 ROZJ	6059/6359	120V	273620	273622	275585	275585	276509	276209 ++	276691	224347	224341	276344	A-276753
80-100 ROZJ	6059/6359	240V	273621	273623	275590	275590	276510	276208 ++	276692	224346	224341	276343	A-276754
125-150 ROZJ	6076	120V	275530	273622	275586	275586	276511	276209 ++	276691	224347	224341	276344	A-276753
125-150 ROZJ	6076	240V	275531	273623	275591	275591	276512	276208 ++	276692	224346	224341	276343	A-276754
150 O/S-180 ROZJ	6076	120V	275530	273622	275587	275587	276513	276209 ++	276691	224347	224341	276344	A-276753
150 O/S-180 ROZJ	6076	240V	275531	273623	275592	275592	276514	276208 ++	276692	224346	224341	276343	A-276754
<b>DDC</b>													
200 ROZD	6-71T	110-240V	Not Used	N/A	272846	279922	Not Req'd	272845	279814	224345	224340	N/A	N/A
200 ROZD	6-71T	380-480V	Not Used	N/A	274271	279923	Not Req'd	272948	279815	224344	224339	N/A	N/A
230 ROZD	6V-92T	110-240V	Not Used	N/A	274538	279924	Not Req'd	272845	279814	224345	224340	N/A	N/A
230 ROZD	6V-92T	380-480V	Not Used	N/A	274539	279925	Not Req'd	272948	279815	224344	224339	N/A	N/A
250-300 ROZD	6V-92TA	110-240V	Not Used	N/A	274538	279924	Not Req'd	272845	279814	224345	224340	N/A	N/A
250-300 ROZD	6V-92TA	380-480V	Not Used	N/A	274539	279925	Not Req'd	272948	279815	224344	224339	N/A	N/A
350 ROZD:													
Thru Spec 132807	8V-92TA	110-240V	Not Used	N/A	274538	279963	Not Req'd	272845	279814	224345	224340	N/A	N/A
Thru Spec 132807	8V-92TA	380-480V	Not Used	N/A	274539	279964	Not Req'd	272948	279815	224344	224339	N/A	N/A
Above Spec 132807	8V-92TA	110-240V	Not Used	N/A	272709	279926	Not Req'd	272845	279814	224345	224340	N/A	N/A
Above Spec 132807	8V-92TA	380-480V	Not Used	N/A	272710	279927	Not Req'd	272948	279815	224344	224339	N/A	N/A
Above Spec 132813	8V-92TA	110-240V	Not Used	N/A	N/A	279963	Not Req'd	N/A	279814	224345	224340	N/A	N/A
Above Spec 132813	8V-92TA	380-480V	Not Used	N/A	N/A	279964	Not Req'd	N/A	279815	224344	224339	N/A	N/A
400 ROZD	8V-92TA	110-240V	Not Used	N/A	272709	279926	Not Req'd	272845	279814	224345	224340	N/A	N/A
400 ROZD	8V-92TA	380-480V	Not Used	N/A	272710	279927	Not Req'd	272948	279815	224344	224339	N/A	N/A
450 ROZD:													
Thru Spec 132922	12V-92TA	190-480V	Not Used	N/A	272964	**	Not Req'd	274427	279816	224343	224339	N/A	N/A
Above Spec 132922	12V-92TA	190-480V	Not Used	N/A	N/A	279928	Not Req'd	N/A	279816	224343	224339	N/A	N/A
500 ROZD:													
Thru Spec 132309	12V-92TA	190-480V	Not Used	N/A	272964	**	Not Req'd	274427	279816	224343	224339	N/A	N/A
Above Spec 132309	12V-92TA	190-480V	Not Used	N/A	N/A	279928	Not Req'd	N/A	279816	224343	224339	N/A	N/A
600 ROZD:													
Thru Spec 132315	12V-92TA	190-480V	Not Used	N/A	272964	**	Not Req'd	274427	279816	224343	224339	N/A	N/A
Above Spec 132315	12V-92TA	190-480V	Not Used	N/A	N/A	279928	Not Req'd	N/A	279816	224343	224339	N/A	N/A
750 ROZD:													
Thru Spec 132321	16V-92TA	190-480V	Not Used	N/A	274979	***	Not Req'd	274427	279816	224343	224339	N/A	N/A
Above Spec 132321	16V-92TA	190-480V	Not Used	N/A	N/A	279929	Not Req'd	N/A	279816	224343	224339	N/A	N/A
800 ROZD:													
Thru Spec 132327	16V-92TA	190-480V	Not Used	N/A	274979	***	Not Req'd	274427	279816	224343	224339	N/A	N/A
Above Spec 132327	16V-92TA	190-480V	Not Used	N/A	N/A	279929	Not Req'd	N/A	279816	224343	224339	N/A	N/A
900 ROZD:													
Thru Spec 132947	12V-149TI	190-480V	Not Used	N/A	274236	279930	Not Req'd	274427	279933	224343‡	224339	N/A	N/A
Above Spec 132947	12V-149TI	190-480V	Not Used	N/A	279560	279930	Not Req'd	274427	279933	224343‡	224339	N/A	N/A
1000 ROZD:													
Thru Spec 132957	12V-149TI	190-480V	Not Used	N/A	274236	279930	Not Req'd	274427	279933	224343‡	224339	N/A	N/A
Above Spec 132957	12V-149TI	190-480V	Not Used	N/A	279560	279930	Not Req'd	274427	279933	224343‡	224339	N/A	N/A
1200 ROZD	12V-149TI	190-480V	Not Used	N/A	274590	279931	Not Req'd	274427	279933	224343‡	224339	N/A	N/A
1500 ROZD	16V-149TIB	190-480V	Not Used	N/A	274237	279932	Not Req'd	279500	279933	224342‡	224339	N/A	N/A
1600 ROZD	16V-149TIB	190-480V	Not Used	N/A	N/A	279932	Not Req'd	N/A	279933	224371	224339	N/A	N/A

Notes: O/S indicates an oversized generator;  
N/A, not applicable.  
Disc., Discontinued

\* Old immersion-type heater element (253216) had a rating of 750 watts. Old immersion-type heater element (254244) had a rating of 1000 Watts. The new tank-type heater (276209) replacing both of the above has a rating of 1500 Watts.

\*\* Use 272989 lower radiator tube with the 279928 block heater kit to install an in-block thermostat tank-type sales kit on this model.

\*\*\* Use 272973 lower radiator tube with the 279929 block heater kit to install an in-block thermostat tank-type sales kit on this model.

‡ Tank-type heater element shown is for in-hose thermostat tank-type heater. Use 224371 heater element for in-block thermostat tank-type heater.

+ Thermostat is located in upper bypass hose.

++ See **Replacement of 276208 and 276209** in this parts bulletin.

## Replacement of 276208 and 276209

The in-hose thermostat tank-type block heaters (276208 and 276209) have been replaced by in-block thermostat tank-type block heaters on all models except Cummins-Powered. Cummins-Powered models make use of the new tank-type block heaters but have in-hose thermostats. See Chart 2 for replacement of 276208 and 276209 heaters.

**Chart 2**

Model	Volts	Engine	In-Hose Thermostat Tank-Type Heater	For Replacement of 276208 and 276209 Use:	
				In-Block Thermostat Tank-Type Heater	and
Cummins 20-150ROZ	120	B and C	276209	276358	
	240	B and C	276208	276359	
Ford 20-30RZ	120	LSG-423	276209	276358	276374 Thermostat Relocation Kit
	240	LSG-423	276208	276359	276375 Thermostat Relocation Kit
30-45RZ	120	CSG-649	276209	276691	276376 Thermostat Relocation Kit
	240	CSG-649	276208	276692	276377 Thermostat Relocation Kit
50-100RZ	120	LSG-875	276209	276691	276376 Thermostat Relocation Kit
	240	LSG-875	276208	276692	276377 Thermostat Relocation Kit
John Deere 20-60ROZJ	120	4039/4239	276209	276691	X-468-4 Cable Ties (2)
	240	4039/4239	276208	276692	X-468-4 Cable Ties (2)
80-100ROZJ	120	6059/6359	276209	276509 Replacement Kit (includes 276691 heater)	
	240	6059/6359	276208	276510 Replacement Kit (includes 276692 heater)	
125-180ROZJ	120	6076	276209	276691	X-202-41 Reducer Bushing 3/4 - 1/2 NPT
	240	6076	276208	276692	X-202-41 Reducer Bushing 3/4 - 1/2 NPT

20-150ROZ (Cummins-Powered) models use a replacement heater with no additional components or modifications.

20-100RZ (Ford-Powered) models have installation instructions included with the thermostat relocation kits. Reference TT-882 for more information.

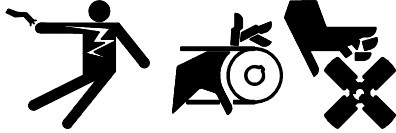
80-100ROZJ (John Deere-Powered) models have installation instructions included with the complete block heater replacement kits. Reference TT-759 for more information.

20-60ROZJ and 125-180ROZJ (John Deere-Powered) models have installation instructions given in this parts bulletin.

## Installation

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### WARNING



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

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

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**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.

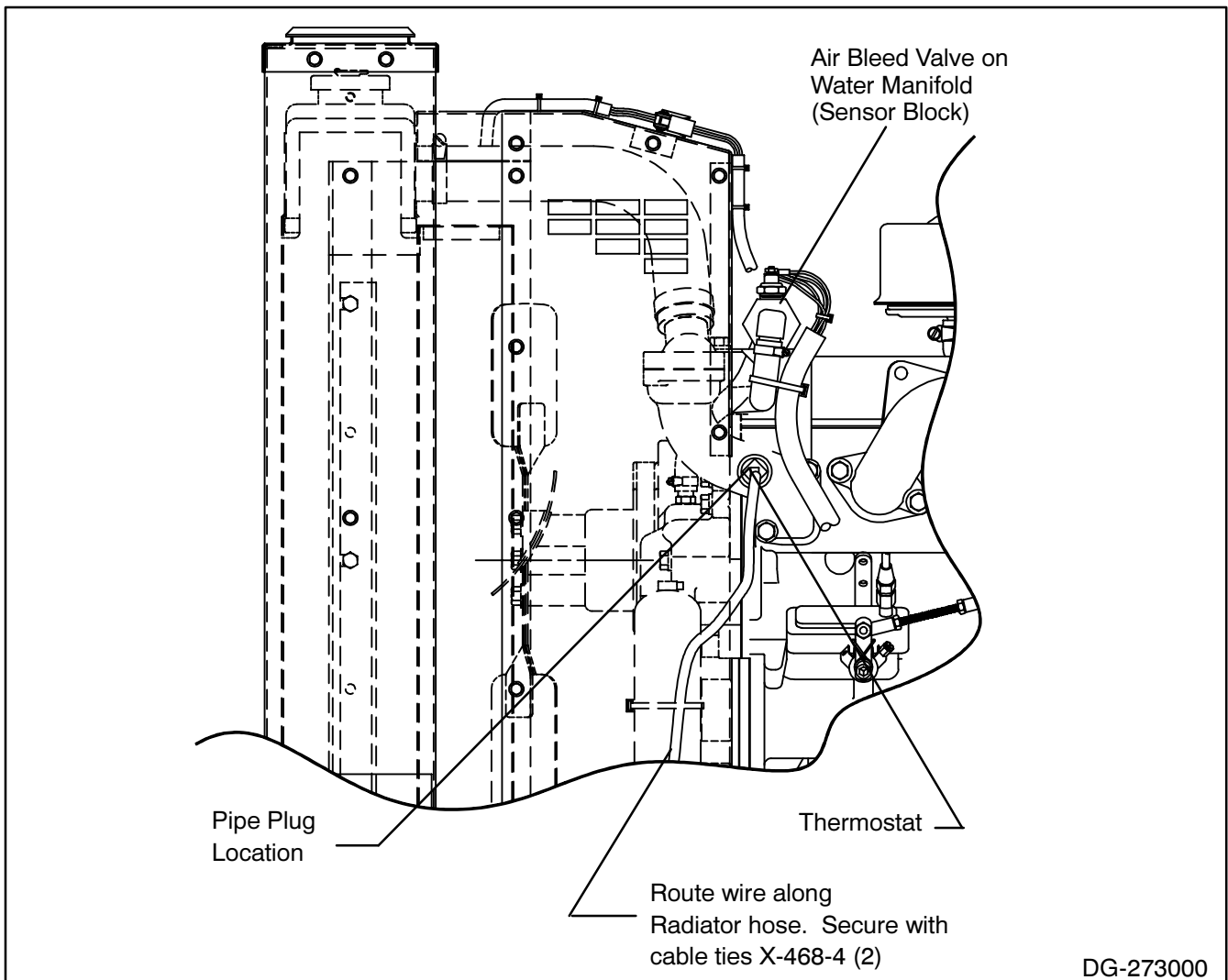
1. Move generator master switch to OFF position. Disconnect battery of generator set, negative lead first. Disconnect power from existing block heater.

2. Unplug heater, if not already done. With 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 in your area. Do not pour used coolant on the ground, down sewers, or into streams or other bodies of water.

#### **NOTE**

Drain valve is located on radiator bottom and/or side of engine block.

3. Loosen hose clamps and remove hoses from block heater. Remove hardware and discard old block heater. Use existing hardware to mount new block heater. Install hoses. Locate hose clamps 1/4 in. (6 mm) from end of hose and tighten.
4. Remove thermostat from in-hose thermostat housing and discard. Leave the thermostat housing installed.
5. Remove pipe plug from engine block. See Figure 1a or 1b.
6. 20-60ROZJ models.  
Coat threads of in-block thermostat housing with pipe sealant and install into engine block. Use two cable ties X-468-4 to secure leads to radiator hose.  
125-180ROZJ models.  
Coat male threads of reducer bushing X-202-41 and install into engine block. Coat threads of in-block thermostat housing and install into reducer bushing.
7. Use cable ties as necessary to protect and secure wiring from sharp objects, exhaust system, and any moving parts.
8. Close petcock valves on radiator and/or engine block.
9. Open bleed valve (20-60ROZJ models only) located on water manifold (sensor block). See Figure 1a.



DG-273000

**Figure 1a. Installing In-Block Thermostat (20-60ROZJ)**

10. Fill cooling system to 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 Table 1 for coolant capacities.

Model	Standard Radiator	Remote Radiator		City-Water Cooled
		60 Hz	50 Hz	
20-60ROZJ	5.0 (17.6)	7 (26.5)	7 (26.5)	3.25 (12.3)
125ROZJ	7.5 (24.0)	8 (30.3)	9 (34.0)	5.05 (19.1)
150ROZJ	7.8 (25.0)	8 (30.3)	9 (34.0)	5.25 (19.9)
180ROZJ	7.8 (25.0)	9 (34.0)	11 (42.0)	6.00 (22.7)

**NOTE:** Capacities shown may vary from model to model and are subject to change. Refer to specification data supplied with generator set.

**Table 1. Coolant Capacities U.S. Gal. (L)**

**NOTE**

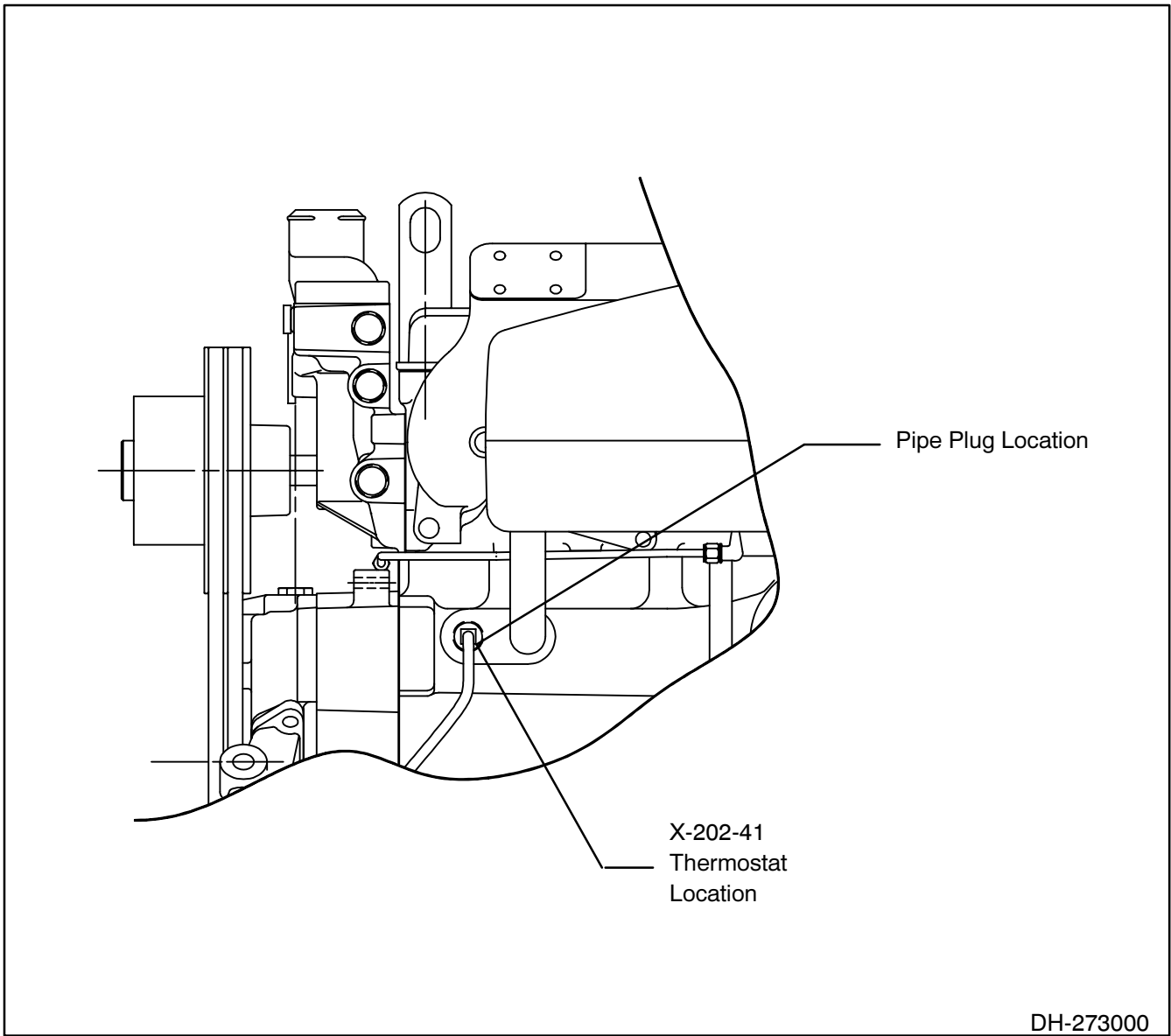
Coolant mixtures exceeding 50% ethylene glycol may cause block heater element failure.

- 11. Close air bleed valve.
- 12. Check that the generator master switch is in the OFF position. Reconnect battery, negative lead last.
- 13. Test run generator set for a few minutes to check for leaks and to purge all air from the cooling system. STOP generator set and after set has cooled check coolant level.

**NOTE**

Special attention should be given when checking for proper coolant level. After a radiator has been drained, it normally requires some time before complete refill of all air cavities takes place. Failure to bleed all air from the cooling system may cause block heater element failure.

- 14. Connect block heater electrical plug to proper voltage outlet.



**Figure 1b. Installing In-Block Thermostat (125-180ROZJ)**