



Anticipatory Alarm Kits PA-255339 (20RZ) and PA-258900 (30RZ) Standby Generator Sets

The Anticipatory Alarm Kits provide the switches to signal engine low water temperature, anticipatory high water temperature, and anticipatory low oil pressure. Use these kits in conjunction with the microcomputer controller, remote annunciator, or isolated alarm contact kit to alert operating personnel of these conditions. The low water temperature switch is activated if engine coolant temperature is too low (below 60°F [16°C]) for start-up. The low water temperature shutdown may indicate a defective engine block heater. The anticipatory high engine temperature switch is activated when engine coolant temperature reaches approximately 205°F (96°C). The anticipatory low oil pressure switch is activated when engine oil pressure drops to approximately 20 psi (138 kPa).



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.

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.

INSTALLATION

1. Place controller master switch to OFF and disconnect generator set starting battery (negative lead first). Disconnect power to battery charger and engine block heater (if equipped).
2. With the generator set sufficiently cooled, drain the coolant into a suitable container. Drain only enough so that coolant level is below intake manifold.

Do NOT pollute the environment. Dispose of used coolant and other contaminants in a safe and approved manner.

NOTE

Petcock valve is located on radiator bottom and/or engine bottom.

- 3.1a. **20RZ/Kit PA-255339 Only** – Remove pipe plug from cross pipe on engine block, see

Figure 1. Apply pipe sealant to anticipatory low oil pressure switch 271425 and install in cross pipe.

NOTE

Pipe plug will not be reused.

Connect lead 41A to anticipatory low oil pressure switch.

NOTE

Leads can be found taped to or inside wiring harness.

3.2a. **30RZ/Kit PA-258900 Only** – Remove turbocharger oil line from cross pipe on engine block, see Figure 2. Remove half-union connector from cross pipe.

3.2b. Apply pipe sealant to one end of pipe nipple 289055 and install into cross pipe. Coat the other end of pipe nipple with pipe sealant and install pipe tee X-203-16. Locate pipe tee with open end pointed toward generator end.

3.2c. Apply pipe sealant to NPT threads of half-union connector and install in pipe tee. Connect turbocharger oil line to half-union connector.

3.2d. Apply pipe sealant to anticipatory low oil pressure switch 271425 and install in pipe tee. Connect lead 41A to anticipatory low oil pressure switch.

NOTE

Leads can be found taped to or inside wiring harness.

4. If unit is an early model with the air bleed valve located in the upper hole of the intake manifold it will require relocation, follow Step 4. See Figure 3. Otherwise, go to Step 5.

NOTE

If Step 4 is not required, see Parts Listing for components in kit that will not be used.

4a. Remove air bleed valve from upper hole in intake manifold.

4b. Cut cooling hose between intake manifold and thermostat housing near engine lifting bracket. Remove approx. a 3 in. (76 mm) section of hose and discard.

4c. Coat threads of two hose connectors X-582-9 with pipe sealant and install into pipe tee X-203-15.

4d. Apply pipe sealant to threads of air bleed valve and install into pipe tee.

4e. Place hose clamps X-426-10 on each end of hose. Install air bleed valve/pipe tee assembly in hose ends with air bleed valve pointing upward. Locate hose clamps 1/4 in. (6 mm) from ends of hose and tighten.

4f. Secure air bleed valve/pipe tee assembly to engine lifting bracket using cable tie X-468-1. Position air bleed valve so that it is the highest point in hose.

4g. Loosen hose clamp and remove rubber hose from pipe tee at lower hole of intake manifold. Remove hose connector from pipe tee.

4h. Remove high water temperature (HWT) switch from pipe tee. Remove pipe tee and pipe nipple from lower hole in intake manifold. Remove pipe nipple from pipe tee.

Apply pipe sealant to one end of pipe nipple X-204-6 and install in upper hole of intake manifold. Apply pipe sealant to the other end of pipe nipple and install original pipe tee.

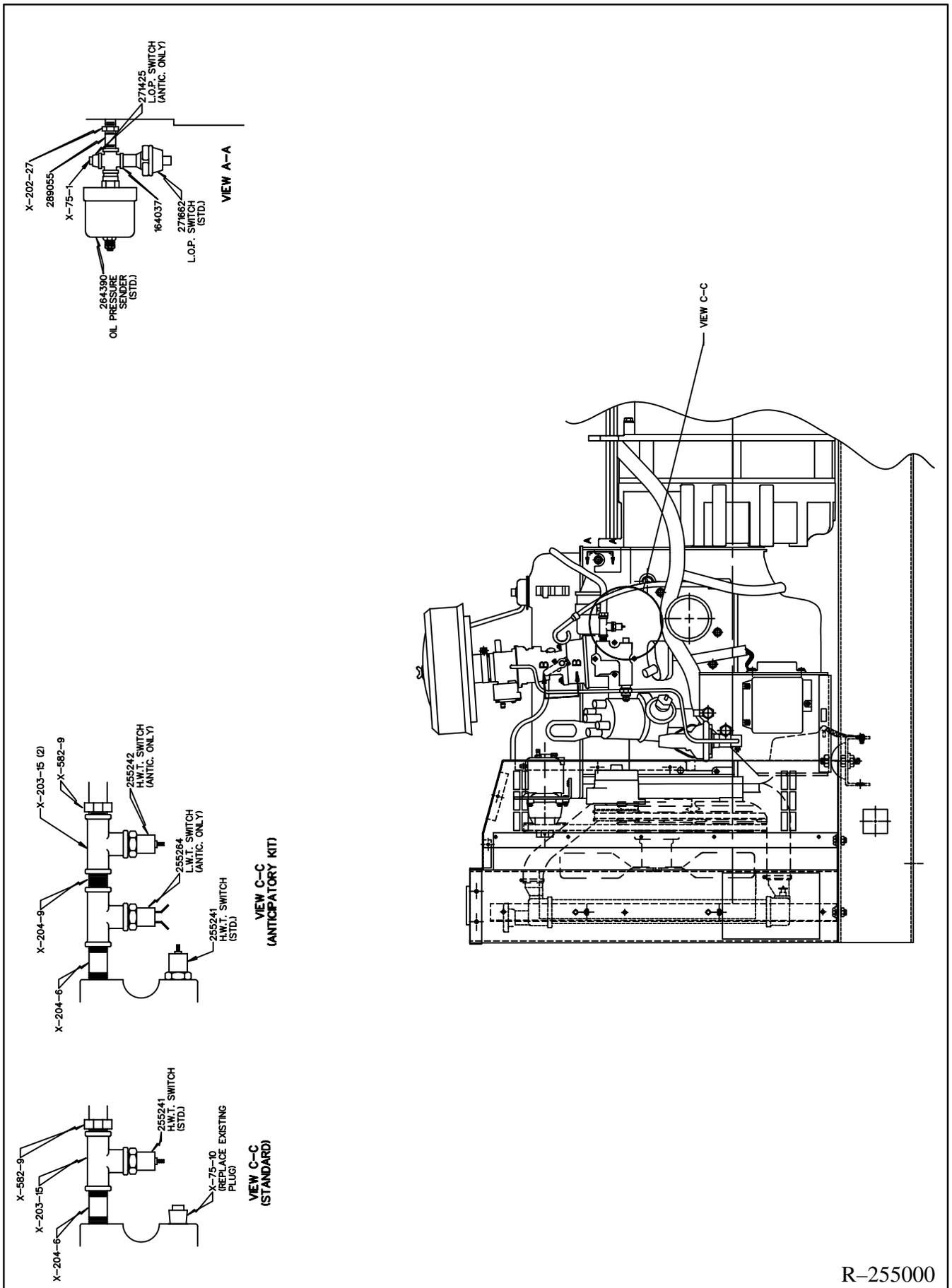
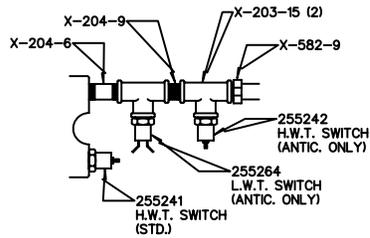
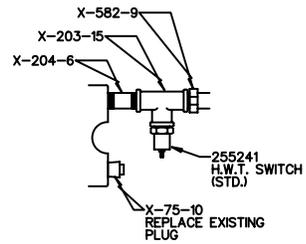


Figure 1. Installation of Kit PA-255339 (20RZ Generators)

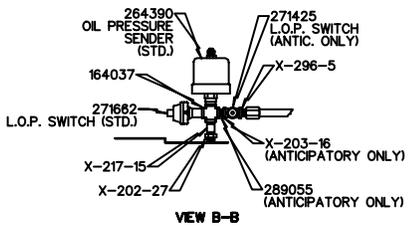
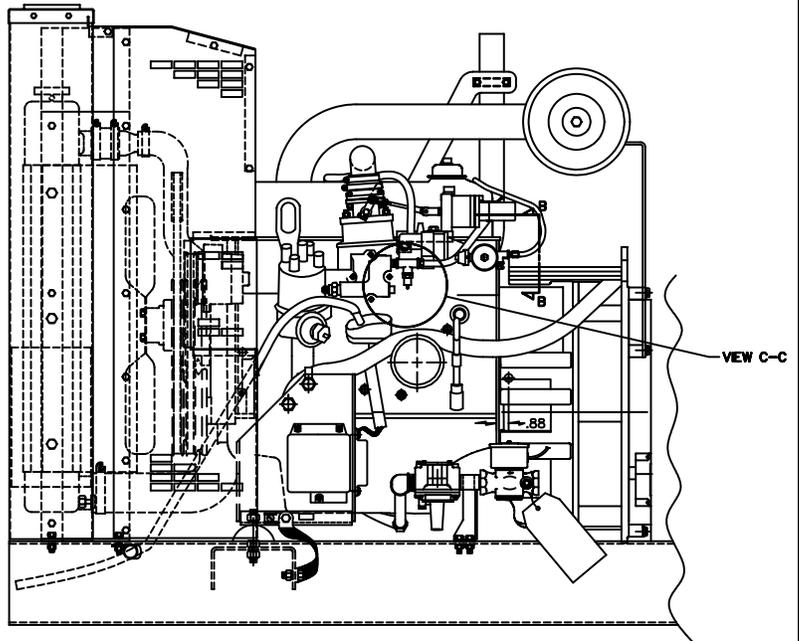
R-255000



**VIEW C-C
(ANTICIPATORY KIT)**



**VIEW C-C
(STANDARD)**



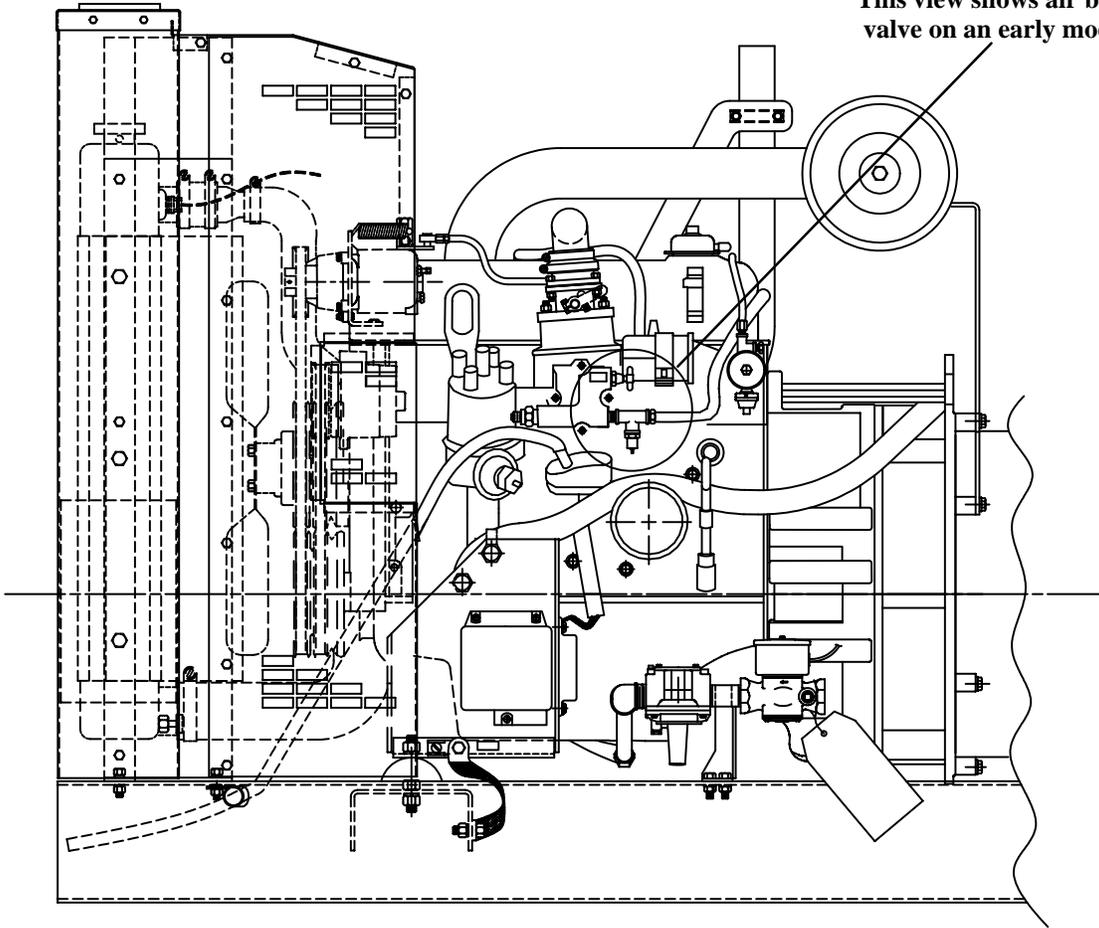
VIEW B-B

K-276000

Figure 2. Installation of Kit PA-258900 (30RZ Generators)

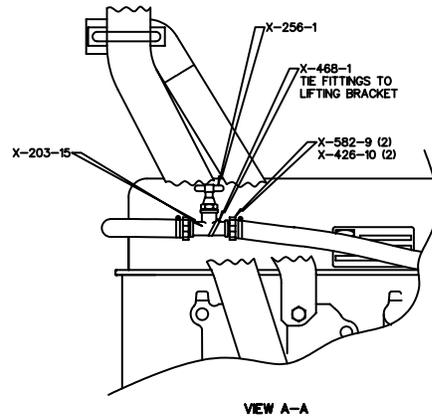
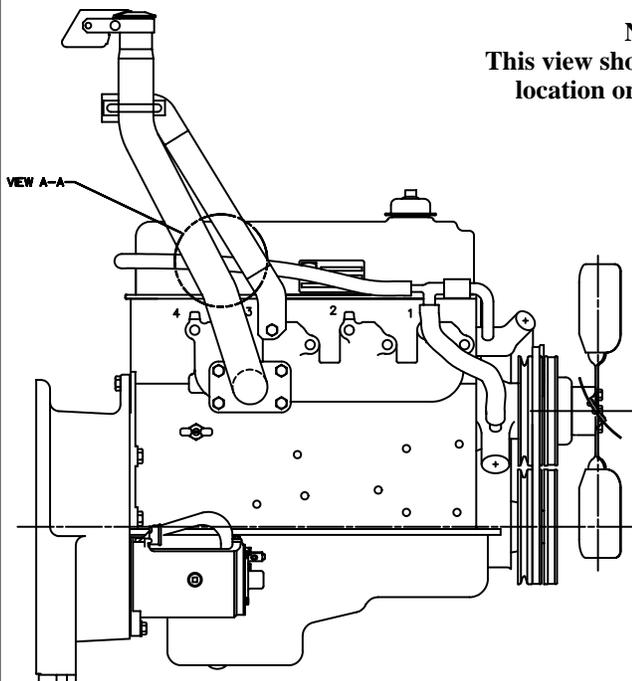
BEFORE RELOCATION

NOTE
This view shows air bleed valve on an early model.



AFTER RELOCATION

NOTE
This view shows air bleed valve location on newer models.



L-276000

Figure 3. Relocating Air Bleed Valve

NOTE

Original pipe nipple will not be reused.

- 4i. Omit Steps 5 and 6. Go to Step 7.
- 5. Loosen hose clamp and remove rubber hose from pipe tee at upper hole of intake manifold. Remove hose connector from pipe tee.
- 6. Remove pipe plug from lower hole in intake manifold. See Figure 1 or 2. Remove high water switch (HWT) from pipe tee.

NOTE

Pipe plug will not be reused.

- 7. Apply pipe sealant to HWT switch and install in lower hole of intake manifold.
- 8. Apply pipe sealant to one end of pipe nipple X-204-9 and install in pipe tee. Apply pipe sealant to the other end of pipe nipple and install pipe tee X-203-15. Locate pipe tee in the same position as the other pipe tee (pointing downward).
- 9. Apply pipe sealant to hose connector and install in pipe tee. Attach rubber hose to hose connector and locate hose clamp 1/4 in. (6 mm) from end of rubber hose and tighten.
- 10. Apply pipe sealant to low water temperature 255264 and install in first pipe tee. Apply pipe sealant to anticipatory high water temperature switch 255242 and install in second pipe tee.
- 11. Attach lead 34 to high water temperature switch. Attach leads N and 35A to low water temperature switch. Attach lead 40A to anticipatory water temperature switch.
- 12. Use cable ties, as necessary, to protect and secure wiring from sharp objects, exhaust system, and any moving parts.

- 13. Close petcock drain valves on bottom of radiator and/or engine block. Open air bleed valve located on top right side of engine (as viewed from the generator end).
- 14. 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. Close air bleed valve.

NOTE

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

- 15. Check that the controller master switch is in the OFF position. Reconnect battery, negative lead last.

| | Standard | Remote | City-Water |
|--------------|-----------------|-----------------|-------------------|
| Model | Radiator | Radiator | Cooled |
| 20RZ | 2 (7.6) | 3.5 (13.25) | 3 (11) |
| 30RZ | 4 (15.1) | 3.5 (13.25) | 4 (14.7) |

NOTE: Capacities shown may vary from model to model and are subject to change.

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

- 16. Test run the generator set for a few minutes and check for leaks.

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.

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

Parts Listing

| Qty. | Description | Common | Kit Numbers | |
|------|--|----------|-------------|-----------|
| | | Parts | PA-255339 | PA-258900 |
| 1 | Tee, 3/8 NPT pipe | X-203-15 | | |
| 1 | Nipple, 3/8 NPT x 1 in. pipe | X-204-9 | | |
| 1 | Switch, anticipatory high water temperature switch (red color) | 255242 | | |
| 1 | Switch, low water temperature | 255264 | | |
| 1 | Switch, anticipatory low oil pressure | 271425 | | |
| 1 | Tee, 1/8 NPT pipe | | | X-203-16 |
| 1 | Nipple, 1/8 NPT x 1-1/2 in. | | | 289055 |
| 1* | Tee, 3/8 NPT pipe | X-203-15 | | |
| 1* | Nipple, 3/8 NPT x 2 in. pipe | X-204-6 | | |
| 2* | Connector, pipe | X-582-9 | | |
| 2* | Clamp, hose | X-426-10 | | |
| 1* | Tie, cable | X-468-1 | | |

* Items required to relocate air bleed valve. Used only if Step 4 is required.