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## INSTALLATION INSTRUCTIONS

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Original Issue Date: **5/97**  
 Model: **18RY/RZ**  
 Market: **Industrial**  
 Subject: **Radiator Outlet Tube Kit 226881**

The radiator outlet tube kit replaces the original radiator outlet tube with a new radiator outlet tube and hoses. The new design reduces the stress on the lower radiator fitting by increasing the flexibility between the engine and radiator during operation. Observe the following safety precautions while installing the kit.



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

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

**Disabling generator set. Accidental starting can cause severe injury or death.** Turn generator set 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 the generator set or connected equipment. The generator set can be started by an 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 set and allow it to cool. Then loosen pressure cap to relieve pressure.

**Checking coolant level. Hot coolant can cause severe injury or death.** Allow engine to cool. Release pressure from cooling system before opening pressure cap. To release pressure, cover the pressure cap with a thick cloth; then slowly turn it counterclockwise to the first stop. Remove cap after pressure has been completely released and the engine has cooled. Check coolant level at tank if generator set is equipped with a coolant recovery tank.

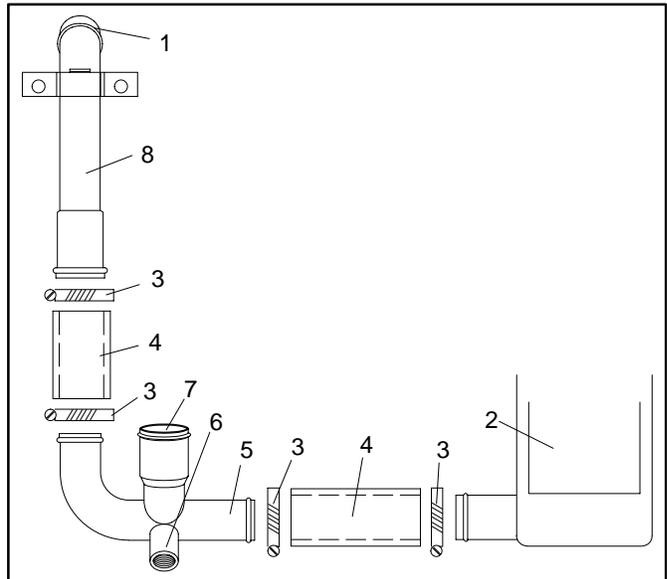
## Installation

1. Place the generator set master switch in the OFF position.
2. Disconnect generator set engine starting battery, negative (-) lead first. Disconnect power to battery charger, if equipped.
3. De-energize engine block heater, if equipped.
4. Allow generator set to cool; then remove radiator cap.
5. Place a container suitable for draining coolant below the generator set radiator petcock.
6. Open the petcock on the bottom of the radiator.
7. Close radiator petcock after draining coolant.
8. Disconnect and remove hose between radiator outlet tube and radiator. Hose and hose clamps will not be reused.
9. Loosen hose clamp securing wet exhaust manifold hose to radiator outlet tube and disconnect hose from outlet tube.
10. Disconnect block heater, if equipped, from radiator outlet tube. Remove pipe plug if generator set is not equipped with a block heater. See Figure 1.
11. Remove two screws, lock washers, and flat washers securing radiator outlet tube to mounting bracket.
12. Remove radiator outlet tube. Tube will not be reused.
13. Install O-ring (326414) onto upper radiator outlet tube (226879) supplied in the kit. See Figure 1.

14. Insert radiator outlet tube into water pump. Secure with hardware removed in step 11.
15. Slide hose clamps (X-426-8) over radiator hose (X-304-2).
16. Install radiator hose onto upper radiator outlet tube and lower radiator outlet tube. Place hose clamp 0.25 in. (6 mm) from hose ends and tighten. See Figure 1.
17. Slide hose clamps (X-426-8) over radiator hose (X-304-11).
18. Install radiator hose onto lower radiator outlet tube and radiator outlet. Place hose clamp 0.25 in. (6 mm) from hose ends and tighten. See Figure 1.
19. Reconnect wet exhaust manifold hose to lower radiator outlet tube. Place hose clamp 0.25 in. (6 mm) from hose end and tighten.
20. Reconnect block heater, if equipped, to lower radiator outlet tube. Install pipe plug removed in step 10 if generator set is not equipped with a block heater.
21. Fill the radiator to the correct level with the recommended coolant mixture.
22. Replace radiator cap.
23. Check that the generator set master switch is in the OFF position.
24. Reconnect generator set engine starting battery, negative (-) lead last. Reconnect power to the battery charger, if equipped. Energize engine block heater, if equipped.
25. Operate the engine until the thermostat opens and the upper hose becomes hot.
26. Stop the engine and add coolant to the radiator until the level is 3/4 to 1 1/2 in. (19-38 mm) below the radiator filler neck.

**NOTE**

Pay special attention to the coolant level. After draining the coolant, allow time for complete refill of the engine water jacket. Check coolant level as prescribed in the Prestart Checklist of the Operation Manual.



1. O-ring
2. Radiator
3. Hose clamp
4. Radiator hose
5. Lower radiator outlet tube
6. Block heater connection
7. Wet exhaust manifold connection
8. Upper radiator outlet tube

**Figure 1. Radiator Outlet Tube Assembly**

**Radiator Outlet Tube Kit**

Parts List		
Kit: 226881		
Qty.	Description	Part Number
1	Hose, radiator 4 in.	X-304-2
1	Hose, radiator 6 in.	X-304-11
4	Clamp, hose	X-426-8
1	Tube, radiator outlet (upper)	226879
1	Tube, radiator outlet (lower)	226880
1	O-ring	326414