
INSTALLATION INSTRUCTIONS

Original Issue Date: 2/99

Model: 80/100RZ

Market: Industrial

Subject: Fuel Vaporizer Kit ES-37773 and ES-37926

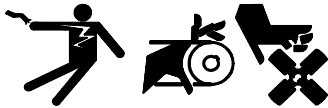
Use the following instructions to convert a LP vapor fuel system to a LP liquid withdrawal fuel system.

Installation of the Fuel Vaporizer kit must comply with these installation instructions. Failure to install the fuel vaporizer per these installation instructions may result in poor generator set performance and affect the generator set warranty.

With the LP liquid withdrawal fuel system, LP fuel in liquid form is directed under pressure from the tank to a vaporizer. The vaporizer converts the fuel from a liquid to a gaseous state and then the LP vapor is drawn off to the carburetor. The system also includes a fuel valve which shuts off the fuel flow when the engine is stopped.

Observe the following safety precautions while installing the kit.

⚠ WARNING

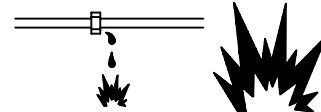


Accidental starting.
Can cause severe injury or death.

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 connected equipment, disable the generator set as follows:
(1) Move the generator set master switch to the OFF position.
(2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

⚠ WARNING



Explosive fuel vapors.
Can cause severe injury or death.

Use extreme care when handling, storing, and using fuels.

The fuel system. Explosive fuel vapors can cause severe injury or death. Vaporized fuels are highly explosive. Use extreme care when handling and storing fuels. Store fuels in a well-ventilated area away from spark-producing equipment and out of the reach of children. Never add fuel to the tank while the engine is running because spilled fuel may ignite on contact with hot parts or from sparks. Do not smoke or permit flames or sparks to occur near sources of spilled fuel or fuel vapors. Keep the fuel lines and connections tight and in good condition. Do not replace flexible fuel lines with rigid lines. Use flexible sections to avoid fuel line breakage caused by vibration. Do not operate the generator set in the presence of fuel leaks, fuel accumulation, or sparks. Repair fuel systems before resuming generator set operation.

LP liquid withdrawal fuel leaks. Explosive fuel vapors can cause severe injury or death. Fuel leakage can cause an explosion. Check the LP liquid withdrawal gas fuel system for leakage by using a soap and water solution with the fuel system test pressurized to at least 90 psi (621 kPa). Do not use a soap solution containing either ammonia or chlorine because both prevent bubble formation. A successful test depends on the ability of the solution to bubble.

Installation

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.

4. Turn off the fuel supply to the generator set.
5. With the engine and radiator cool, drain the coolant into a suitable container. Dispose of all waste materials, (engine oil, fuel, coolant, etc.) in an environmentally safe manner. Contact local authority for procedures.

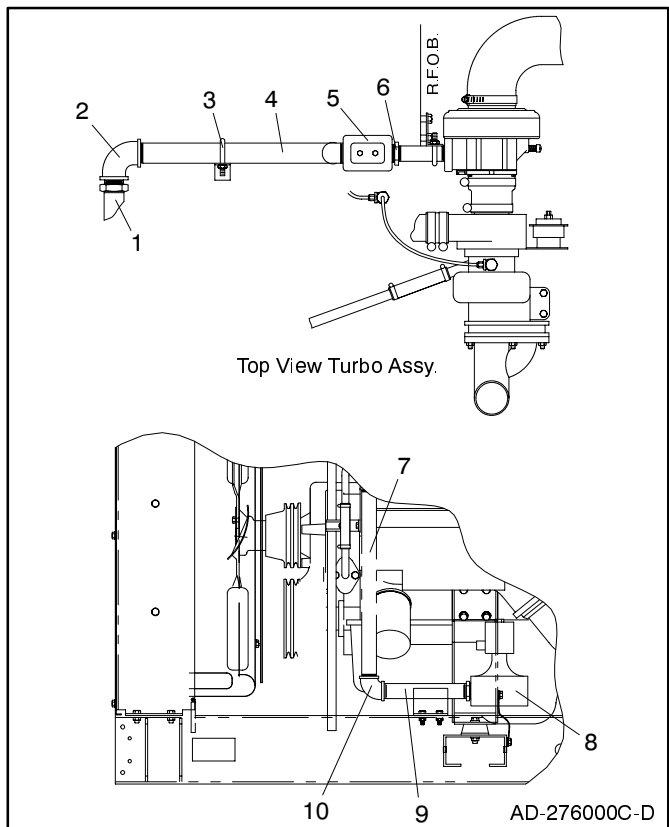
NOTE

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

NOTE

Apply pipe sealant to the male threads of all components before installation.

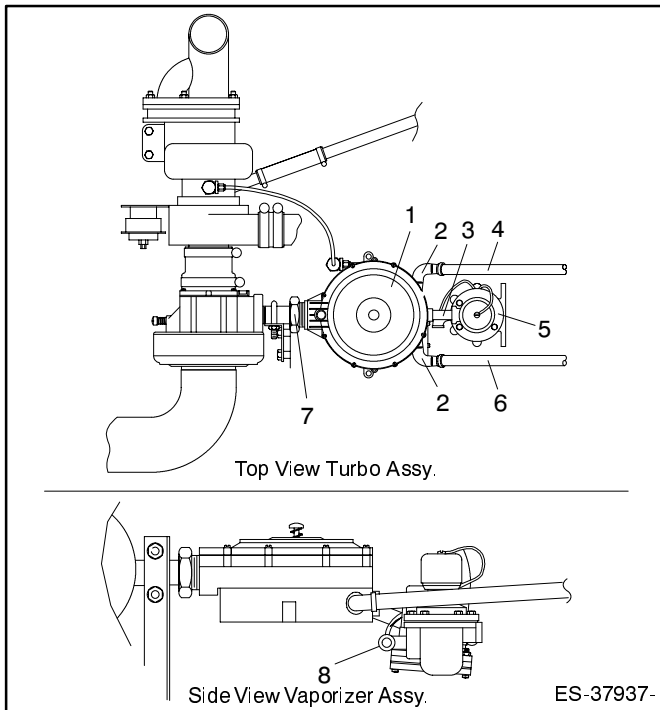
6. Disconnect the fuel supply line connected to the gas valve assembly.
7. Disconnect and remove the flexible fuel line located between the gas valve assembly and the pressure regulator assembly.
8. Disconnect the leads connected to the gas valve assembly.
9. Remove the existing fuel system components shown in Figure 1. Save the reducer bushing removed from the pressure regulator for installation later.
10. Apply pipe sealant to the male threads of the reducer bushing removed from the pressure regulator in step 9 and install the bushing in the vaporizer outlet (326075). See Figure 2.
11. Apply pipe sealant to the male threads of the existing pipe from the mixer assembly body and install the vaporizer and reducer bushing. Position the vaporizer as shown in Figure 2.
12. Apply pipe sealant to the male threads of one of the 90° hose connectors (X-391-2) and install the hose connector in the vaporizer water inlet. Position the hose connector as shown in Figure 2.
13. Apply pipe sealant to the male threads of the second 90° hose connectors (X-391-2) and install the hose connector in the vaporizer water outlet. Position the hose connector as shown in Figure 2.



1. Flexible fuel line
2. Pipe elbow
3. Support
4. Pipe
5. Pressure regulator
6. Reducer bushing (save)
7. Pipe
8. Gas valve
9. Pipe
10. Pipe elbow

Figure 1. Existing LP Gas Fuel System

14. Apply pipe sealant to the male threads of the pipe (X-220-14) and install the pipe in the vaporizer inlet. See Figure 2.
15. Apply pipe sealant to the exposed threads of the pipe installed in step 14 and install the fuel solenoid (326120). Position the fuel solenoid as shown in Figure 2.
16. Apply pipe sealant to the male threads of street elbow (EH-2248) and install elbow in the fuel solenoid inlet.



1. Vaporizer (326075)
2. Hose connector 90° (X-391-2)
3. Pipe 1/4 x 2.5 in. (X-220-14)
4. Vaporizer water inlet hose (X-577-47 or X-577-36)
5. Fuel solenoid (326120)
6. Vaporizer water outlet hose (X-577-44)
7. Reducer bushing
8. Street elbow (EH-2248)

Figure 2. LP Vaporizer Installation

17. **80 kW:** Disconnect and remove the cooling hose located between the water manifold and the engine block. The hose and hose clamps will not be reused. See Figure 3.

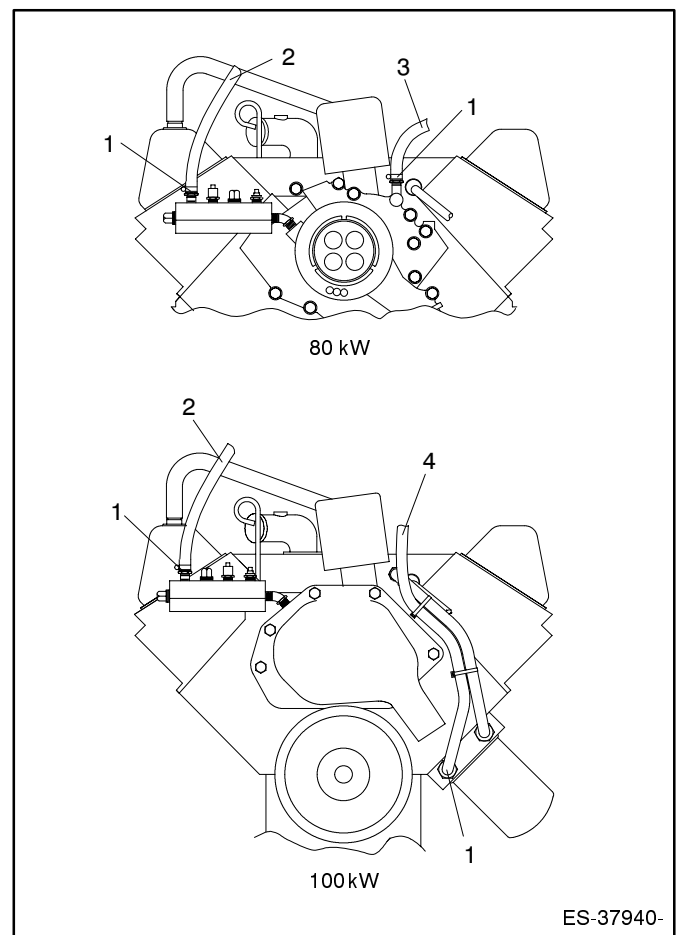
100 kW: Disconnect and remove the cooling hose located between the water manifold and the oil cooler. The hose and hose clamps will not be reused. See Figure 3.

18. Connect one end of the 2.25 ft. (0.7 m) hose (X-577-44) to the existing hose connector in the water manifold. Secure the hose to the hose connector using a hose clamp (X-426-12). Place the hose clamp 0.25 in. (6.35 mm) from the end of the hose and tighten. See Figure 3.
19. Connect the opposite end of the hose connected in step 18 to the vaporizer water outlet hose connector. Secure the hose to the hose connector using a hose clamp (X-426-12). Place the hose clamp 0.25 in. (6.35 mm) from the end of the hose and tighten. See Figure 2.

20. **80 kW:** Connect one end of the 1.25 ft. (0.4 m) hose (X-577-47) to the hose connector in the engine block. Secure the hose to the hose connector using a hose clamp (X-426-12). Place the hose clamp 0.25 in. (6.35 mm) from the end of the hose and tighten. See Figure 3.

100 kW: Connect one end of the 3.1 ft. (0.9 m) hose (X-577-36) to the oil cooler. Secure the hose to the oil cooler using a hose clamp (X-426-12). Place the hose clamp 0.25 in. (6.35 mm) from the end of the hose and tighten. See Figure 3.

21. Connect the opposite end of the hose connected in step 20 to the vaporizer water inlet hose connector. Secure the hose to the hose connector using a hose clamp (X-426-12). Place the hose clamp 0.25 in. (6.35 mm) from the end of the hose and tighten. See Figure 2.

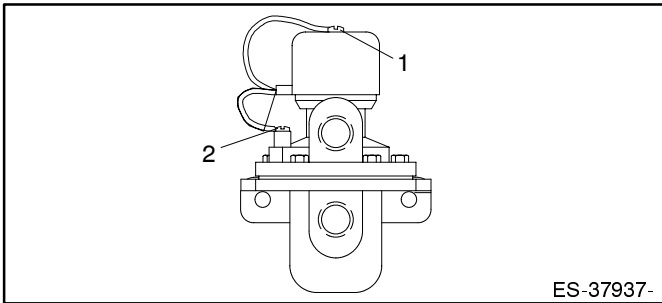


1. Hose connector (existing)
2. Hose 2.25 ft. (0.7 m) (X-577-44)
3. Hose 1.25 ft. (0.4 m) (X-577-47)
4. Hose 3.1 ft. (0.9 m) (X-577-36)

Figure 3. Vaporizer Water Line Installation

22. Crimp the spade terminal (X-285-1) to lead (LW-1812-2216).
23. Connect the lead to the fuel solenoid and to ground.
24. Connect the leads disconnected from the gas valve to the fuel solenoid. See Figure 4.

25. Connect the fuel supply line to the fuel solenoid.
26. Turn on the fuel supply to the generator set and test the connections for leaks. Turn off the fuel supply and correct leaks, if required. Turn on the fuel supply.
27. Check that the generator master switch is in the OFF position.
28. Reconnect the generator set engine starting battery, negative (–) lead last.
29. Reconnect the power to the battery charger, if equipped.



1. Positive connection
2. Negative connection

Figure 4. Fuel Solenoid—End View

LP Liquid Withdrawal Kit

Parts List				
Kits: ES-37773 and ES-37926			Unique Parts	
Qty.	Description	Common Parts	ES-37773	ES-37926
1	Elbow, street 1/4 in.	EH-2248		
1	Lead	LW-1812-2216		
1	Pipe, 1/4 x 2.5 in.	X-220-14		
1	Terminal	X-285-1		
2	Connector, 90° hose	X-391-2		
4	Clamp, hose 1.25 in. max.	X-426-12		
1	Hose, 3.1 ft. (0.9 m)			X-577-36
1	Hose, 2.25 ft. (0.7 m)	X-577-44		
1	Hose, 1.25 ft. (0.4 m)		X-577-47	
1	Vaporizer, LP fuel	326075		
1	Solenoid, fuel	326120		