

TROUBLESHOOTING GUIDE

Every OPW nozzle is tested on a pump at the factory and is guaranteed to be in proper working condition when shipped. Its continued proper operation is dependent upon reasonable care in handling. Automatic nozzles should not be dragged or thrown on the ground or paved surfaces. The automatic shut-off elements are subject to damage by such handling, which can result in failure to shut off properly.

LEAKS AT THE NOZZLE INLET

✓ The o-rings on the main hose may be worn or cut.

Solution: Replace o-rings. (See Figure 1)

✓ Nozzle may not be properly attached to the hose.

Solution: Check the nozzle for proper attachment to the hose. (See Figure 2)

✓ Verify that neither Teflon tape nor pipe sealant was used.

NOTE: DO NOT use pipe sealant, plastic or Teflon tape on vapor recovery hanging hardware. (See Figure 3)

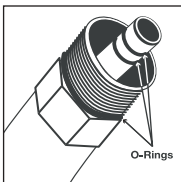


Figure 1

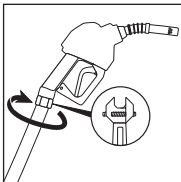


Figure 2



Figure 3

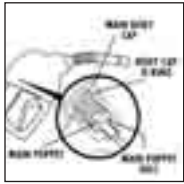


Figure 4

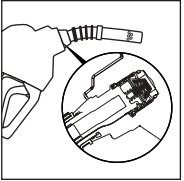


Figure 5

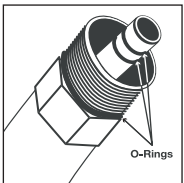


Figure 6

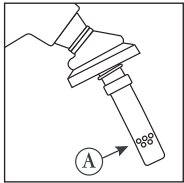


Figure 7

LEAKS OUT OF THE SPOUT

1. With the dispenser authorized and the nozzle lever closed, *liquid leaks out of the liquid portion of the spout and does not stop:*
 - There may be debris or foreign objects in the main poppet. (See Figure 4)
Solution: Replace nozzle.
 - There may be damage to the seat of the main poppet due to excessive pressure build-up in the dispenser. (See Figure 4)
Solution: Replace nozzle. Verify that dispenser is relieving pressure properly.
2. With the dispenser authorized and the nozzle lever closed, *liquid leaks out of the liquid portion of the spout and slowly stops:*
 - There may be a foreign object in the spout adaptor bleeder poppet.
Solution: Remove spout adaptor and clean debris from it. (See Figure 5)
3. With the dispenser **not** authorized, the nozzle lever closed and with the spout tilted downward, *liquid leaks out of the liquid portion of the spout and slowly stops:*
 - Due to thermal expansion, some liquid will leak out.
Solution: This is normal.
 - There may be a foreign object in the spout adaptor bleeder poppet.
Solution: Remove spout adaptor and clean debris from it. (See Figure 5)
4. With the dispenser authorized, the nozzle lever closed and with the spout tilted downward, *liquid leaks out of the vapor side (through the vapor collection holes or, with the 14VI, from beneath the mini-bellows) and stops:*
 - Liquid may have been ingested into the vapor path of the nozzle and/or the hose.
Solution: This is caused by topping off tanks during fueling. System is working properly. Vapor path may be cleared by draining the hose and nozzle.
 - Liquid may have crossed over into the vapor path.
Solution: O-rings may be cut or worn. (NOTE: this would be indicated by *meter creep*). Replace o-rings as necessary in the main hose, whip hose and/or breakaway. (See Figure 6)

LEAKS OTHER THAN FROM THE SPOUT

1. With the dispenser authorized and the nozzle lever closed, *leaks from under the hand insulator:*
 - There may be internal damage to one of several components.
Solution: Replace nozzle.
 - The vapor path may be damaged or the seals may be worn.
Solution: Replace external vapor path with 5VPG-1000 kit (11VA series only).
Solution: Replace nozzle (12VW and 14VI).
2. With the dispenser authorized and the nozzle lever closed, *leaks from around the spout nut:*
 - Liquid may have been ingested into the vapor path, flooding out the vapor side of the spout adaptor.
Solution: This is caused by topping off tanks during fueling. System is working properly. Vapor path may be cleared by draining the hose and nozzle.
3. With the dispenser authorized and the nozzle lever closed, *leaks out of the shut-off port on the bottom tip of the nozzle's spout: (See item (A) in Figure 7)*
 - There may be a failure of the internal shut-off mechanism.
Solution: Replace nozzle.
4. With the dispenser authorized and the vehicle being fueled, *leaks from the lever guard or stem:*
 - The seals may be worn.
Solution: Replace nozzle.

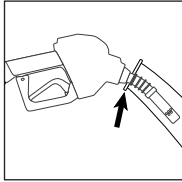


Figure 8

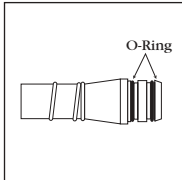


Figure 9

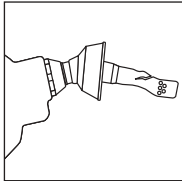


Figure 10

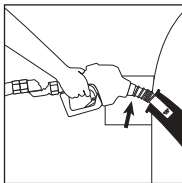


Figure 11

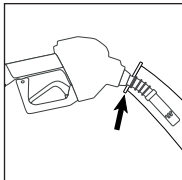


Figure 12

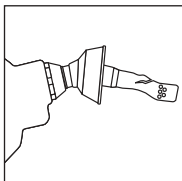


Figure 13

NOZZLE DOES NOT SHUT OFF OR SPLASH BACK OCCURS

- The flow rate of the nozzle may be below the minimum rate for reliable automatic shut off. The minimum flow rate of the nozzle is 3 GPM.

Solution: Improve flow rate.

- May need to change dispenser filter.
- System may be in slow-flow prepay mode.
- System may be in slow-flow mode from mechanical leak detector. Call for service.

- The nozzle may not be properly placed in the fill pipe.

Solution: Make certain nozzle is properly inserted in fill pipe. Liquid must cover the shut-off port on the bottom tip of the spout for nozzle to automatically shut off. (See Figure 8)

- The flow rate of the nozzle may be above the maximum allowed for reliable automatic shut off. United States EPA requires flow rates to be 10 GPM or less.

- Due to the angle of the fill pipe, splash-back may occur that can be mistaken for a non-shut off event.

Solution: Reduce the flow rate by fueling at a lower clip position. This will allow the shut-off mechanism to operate properly and eliminate splash-back.

- The spout o-rings may be cut or missing.

Solution: Remove the spout and replace the o-rings. (See Figure 9)

- Spout and shut off port may be damaged. (See Figure 10)

Solution: Replace with 5VSS spout kit. (11VA series only)

Solution: Replace with 5VW spout kit. (12VW only)

NOZZLE SHUTS OFF EARLY (PREMATURE SHUT OFF)

- The flow rate of the nozzle may be above the maximum allowed. United States EPA requires flow rates to be 10 GPM or less. High flow rate may cause shut-off port to be prematurely covered with liquid.

Solution: Reduce the flow rate by fueling at a lower clip position.

- The flow rate may be higher than the fill pipe angle allows.

Solution: Reduce the flow rate by fueling at a lower clip position. Some fuel pipe designs prohibit proper retention of the nozzle. In those cases, the nozzle must be hand-held to prevent premature shut offs and/or the nozzle falling out of the fill pipe. (See Figure 11)

- Make sure the nozzle is properly inserted in the fill pipe. (See Figure 12)

Solution: Adjust the nozzle as needed to improve the flow rate.

- Venturi port may contain debris or foreign material.

Solution: Check for, and remove, debris.

- Spout may be bent or damaged. (See Figure 13)

Solution: Replace spout.

NOZZLE HARD TO OPEN

- Hose point static pressure may be above the maximum allowable of 50 psi.

Solution: Verify system is relieving pressure.

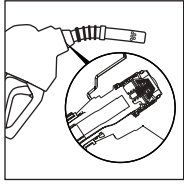


Figure 14

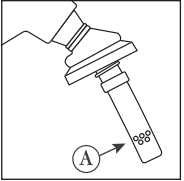


Figure 15

FAILS PRESSURE DECAY TESTING

- Leak indicated in the vapor path (except 11VAI-27 which has no vapor valve). Vapor path may be damaged or seals may be worn.
Solution: Replace vapor path with 5VPG-1000 kit (11VA series only).
Solution: Replace nozzle (12VW and 14VI).
- Leak indicated at spout tip. Spout adaptor o-rings may be damaged (nozzles with vapor valve). (See Figure 14)
Solution: Replace with 5VSS spout kit (11VA series only).
Solution: Replace with 5VW spout kit (12VW only).
- Leak indicated at spout tip. Vapor valve may be faulty (except 11VAI-27 which has no vapor valve).
Solution: Replace nozzle.

FAILS AIR-TO-LIQUID TESTING

NOTE: Before replacing nozzle, use OPW's LeakChek™ to verify the integrity of the nozzle.

- Hose point fails low. Leaking at vapor path indicated. Vapor path may be damaged or seals may be worn.
Solution: Replace vapor path with 5VPG-1000 kit (11VA series only).
Solution: Replace nozzle (12VW and 14VI).
- Hose point fails low. The vapor valve may be faulty.
Solution: Replace nozzle.
- Hose point fails low. Leaking at spout tip indicated. Spout adaptor o-rings may be damaged. (See Figure 14)
Solution: Replace with 5VSS spout kit (11VA series only).
Solution: Replace with 5VW spout kit (12VW only).
- Hose point fails low. Spout may be out of round causing A/L adaptor not to seal properly on spout.
Solution: Replace spout with 5VSS spout kit (11VA series only).
Solution: Replace with 5VW spout kit (12VW only).
- Hose point fails low. The nozzle shut-off port may be covered with the A/L adaptor. (See item (A) in Figure 15)
Solution: Adjust A/L adaptor and re-test.
- Hose point fails low. There may be liquid in the vapor path of either the hose or underground piping.
Solution: Perform liquid blockage test and clear vapor path.
- Hose point fails low. If there is a pattern of low A/L's for a dispenser or dispenser side, the system's vacuum pump may not be operating properly.
Solution: Follow the system manufacturers instructions for diagnosing and correcting problem.
- Hose point fails low. Flow rates are too high.
Solution: Adjust flow rates downward.
- Hose point fails high. Flow rates are too low.
Solution: Adjust flow rates upward.

FILTERS

- Dirt and debris in the filter can restrict flow. Check dispenser filters. Replace as required.

HOSES

- Inspect hoses regularly. Restrictions in the liquid line will restrict flow rate. Restrictions in the vapor side will restrict vapor recovery.