



**Recommended Installation, Maintenance
and Inspection Instructions
for ICVN, ICVNS, RICVN, RICVNS
and any other similar nozzles**

CAT-40
DATE 04/09

INSTALLATION INSTRUCTIONS

For your protection, read these instructions and warnings before installing and operating this equipment. Installation and maintenance of all gasoline handling equipment should only be done by trained personnel.

When installing new equipment always check the operating A/L (air to liquid) ratio settings. Incorrect settings could cause a release of VOC's. (Volatile Organic Compounds)

CORRECT A/L SETTINGS FOR:

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| 1. CATLOW ICVN System | A/L ratio .9 to 1.1 |
| 2. Tokheim MaxVac System | A/L ratio .9 to 1.1 |
| 3. Dresser WayneVac System | A/L ratio .9 to 1.1 |
| 4. Gilbarco VaporVac System | A/L ratio .9 to 1.1 |
| 5. Marconi/Gilbarco VaporVac System | A/L ratio .9 to 1.1 |

Note: The Gilbarco factory A/L settings may be outside this range and may have to be adjusted. ONLY Gilbarco certified technicians should work on this equipment and adjustments must be done in accordance with the procedure outlined in the appropriate dispenser manuals.

- Lubricate the o-rings on the hose nut with light oil.
- Dispenser modifications may be necessary for proper nozzle storage. Comply with dispenser instructions.
- With the dispenser shut off, insert with a clockwise motion the fuel hose into the nozzle body. *Do not use thread sealants (Teflon tape, anti-seize, or any other kind of sealant).* The o-rings on the end of the hose provides the seal, not the thread.
- Using a wrench, tighten the hose nut into the body but do not overtighten. (50 ft/lbs)
- Check for electrical continuity following Petroleum Equipment Institute (PEI) recommended test procedure. (See PEI-RP400-02)
- Test nozzle flow rate. (See PEI/RP500 8.6.1)
- Check for proper automatic shut off between 5-10 GPM. (See PEI/RP500 8.6.2)
- Nozzles should be limited to applications as set forth in NFPA 30A, OSHA CFR1910.106, UFC Section 5202, and adhere to local and state codes.

IF A DRIVE OFF OCCURS

Test Procedure/Maintenance/Inspection: (Reference PEI/RP500 Sec. 9 & 10)

- Inspect for broken spout at the shear groove.
- Check for leaks both external and internal including the dispenser cabinet.
- Check for any other damage to the system.
- Make sure spout locknut is tight.
- Check the hold-open latch to assure it works freely with no restriction.
- Perform flow test for proper automatic shut off (greater than 5 less than 10 GPM). (PEI/RP500 6.4.3)
- Perform test for proper operation of the no pressure-no flow feature. (PEI/RP500 8.6.3)
- Check for electrical continuity following above recommendation. (PEI/RP400-02)

If the nozzle fails any of these check points, replace the nozzle.

- All drive offs, maintenance and inspections must be recorded.
- All city, state or federal testing regulations and codes must be followed where applicable.

Daily:

- Check for leaks.
- Check for loose or out of round spouts.
- Check for any damage.
- Check for broken hold open clip or lever spring.
- Check for tom or damaged Efficiency Compliance Device (ECD).

Monthly:

- Check no pressure-no flow.
- Check the nozzle automatic shut off.
- Check flow rate to verify the minimum flow rate.
- Check vapor inlet holes for obstructions. (PEI/RP500 6.6.1)

Annually:

- Check electrical continuity as stated above.
- Lubricate the valve stem with a drop of light oil.
- Conduct vapor valve leak rate test.
- Conduct fuel valve leak test.

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TESTING / MAINTENANCE / INSPECTIONS

The following are approved test procedures to be used on Catlow Vac Assist nozzles.
Any non-approved methods used will void the warranty.

Test Order	Approved Procedure
Nozzle Vapor Valve Leak Rate test	CARB TP-201-2B
2" H2O static pressure performance test	CARB TP-201.3 (test with nozzle in the dispenser)
Air to Liquid Ratio	CARB TP-201.5

Refer to dispenser manufacturer's requirements for maintenance.

All drive offs, maintenance and inspection activities must be logged using the serial number of the individual product.
Apply city, state, or federal testing regulations as appropriate.

ANY TEST / INSPECTION FAILURE REQUIRES IMMEDIATE REMOVAL FROM SERVICE.

**ALWAYS ADHERE TO INSTALLATION AND USAGE INSTRUCTIONS AND WARNINGS.
Improper use may result in injury, damage, hazardous spill or death.**

- Observe all warnings and instructions for this equipment included with the product.
- Use of equipment is at individual's own risk.
- Always abide and adhere to city, state and federal regulations regarding the use and installation of dispensing equipment.
- Always follow the dispenser manufacturers instructions.
- Always turn off all power to the dispenser during maintenance and inspection.
- Always close the shear valves during maintenance and inspection activities.
- Always relieve pressure from the system prior to performing maintenance on equipment.
- Always check continuity after installation following Petroleum Equipment Institute (PEI) recommended test procedure (PEI/RP400-02).
- Always replace or remove from service damaged or leaking equipment immediately.
- Always record and report all occurrences of leaks, spills and accidents to appropriate authorities
- Always have appropriate fire extinguishing equipment within 10 feet of dispensers.
- Always wear appropriate safety equipment during maintenance activities.
- Always use approved sealant for gasoline service.
- Always place containers on the ground before filling.
- Always discharge static electricity before using or servicing equipment by touching a metal part of the dispenser or by touching any grounded metal before and after fueling vehicle.
- Never smoke within 20 feet of dispensers.
- Never keep in service beyond recommended life of equipment.
- Never leave the nozzle unattended while dispensing fuel.
- Never use sparking or flaming devices within 20 feet of dispensers.
- Never use power tools near dispensers or to aid in the installation process.
- Make sure all warnings written on the handwarmer are legible.
- Make sure warnings written on the handwarmer are followed.
- To avoid distractions, turn off cell phones within 20 feet of dispensers.
- All work or maintenance should only be performed by qualified personnel.
- Do not re-enter your vehicle while refueling vehicle.
- Do not allow gasoline to touch eyes or skin. Avoid breathing vapors. Benzene can be harmful to your health.
- Never dispense at less than 3 gallons per minute.
- Never use flow rates in excess of regulatory guidelines.
- Do not fill portable containers on or in your vehicle. Fill an approved, portable container on the ground. Keep nozzle in contact with the container at all times until the container is filled to desired level.
- Turn off vehicle while refueling and do not restart vehicle engine while refueling.
- Do not use any object to hold open a nozzle. This could cause the nozzle to fail to shut off properly.
- Do not allow children to pump gasoline. Only persons of legal driving age should use dispensers.

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CAUTION: DO NOT TOP OFF!
Topping off can lead to spills and splashbacks.

LIMITED WARRANTY

CATLOW, INC. expressly warrants that its products shall be free from defects in material and workmanship for a period of one year from the date of manufacture. This warranty is limited to repair or replacement by CATLOW, INC. upon return of the product to the CATLOW, INC. factory. This warranty does not apply in the event of misuse or neglect of the product. The foregoing warranty is the exclusive remedy of purchasers of CATLOW, INC. products. CATLOW, INC. expressly disclaims any warranties, other than the foregoing express warranty, including the implied warranties of merchantability and fitness for a particular purpose, and disclaims any and all liability for consequential damages resulting from the use of its products.

WARRANTY PROCEDURE

All nozzles returned under warranty within 60 days, will be replaced with a new product. If the nozzle is dated beyond 60 days, it will be replaced with a rebuilt nozzle that carries the same warranty. The only exceptions are vapor recovery nozzles. If the nozzle returned to us was originally purchased as a new or rebuilt, that is what will be sent as a replacement.

Vapor recovery nozzles must have the "Nozzle Warranty Tag" completed and returned with the nozzle for the warranty to be honored. Without the tag, the warranty will not be honored. In addition to this, the vapor recovery nozzle replacement serial number will replace the serial number of the nozzle sent to us under warranty. We will be prorating the remaining warranty on the replacement nozzle.

TEST PROCEDURES

OPERATION INSTRUCTIONS

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| 1. Remove nozzle from dispenser. | 4. Nozzle will automatically shut off when the tank is full. |
| 2. Completely insert spout into the fill pipe opening past restrictor plate of the vehicle, and the anchoring ring is engaged in the fill pipe. | 5. Wait at least 15 seconds to allow any fuel remaining in the spout to drain. |
| 3. Activate dispenser, lift the lever and begin fueling. | 6. Remove nozzle from fill pipe. |
| | 7. Return nozzle to the boot of the dispenser. |

NO PRESSURE-NO FLOW ACTIVATION TEST INSTRUCTIONS (Reference RP500 8.6.3)

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| 1. Verify nozzle has a hold open device. | 7. Lift the lever and latch the clip on the nozzle. Nozzle should dispense fuel. |
| 2. Verify dispenser is turned off. | 8. Turn off the dispenser. Nozzle should stop dispensing fuel. |
| 3. Place nozzle spout into an approved metal test can. | 9. Wait minimum 10 seconds for the pressure in the hose to decrease and the fuel-flow valve in the nozzle to close. |
| 4. Lift the lever and latch clip. A small amount of fuel may flow until line pressure is relieved. | 10. Turn dispenser on and select grade of fuel. Nozzle should not dispense fuel. |
| 5. Turn on dispenser and select the grade of fuel. The nozzle should not dispense fuel. | |
| 6. Release the lever. | |

NOTE: If nozzle fails #5 or #10, verify dispenser is not allowing constant pressure to the hose. If dispenser tests OK, replace nozzle.

TROUBLESHOOTING GUIDE

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| The nozzle keeps shutting off or won't dispense. | 1. Reposition nozzle in the fill pipe. |
| | 2. Make sure dispenser is on and activated. |
| | 3. Slow down flow rate-use lower latch on the clip. |
| | 4. Clean spout tip end. |
| | 5. Check flow rates and replace filters. |
| | 6. Inspect the breakaway for partial separation. |
| | 7. Replace the spout assembly. (See page 4) |
| | 8. Check dispenser pressure - 19 PSI to activated nozzle. |
| | 9. If nozzle fails these steps replace the nozzle. |

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| Nozzle won't shut off: | 1. Confirm good flow rate. (PEI/RP500 8.6.1) |
| | 2. Conduct nozzle shut off test. (PEI/RP500 8.6.2) |
| | 3. Remove nozzle and drain hose. |

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TROUBLESHOOTING GUIDE CONTINUED

Nozzle leaks:

1. Check for loose spout.
2. Check stem for leakage. If leaking replace nozzle.
3. Check inner hose for leaks.
4. Check hose connection.
5. Check for cracks in nozzle and hose threads.
6. Check o-rings on inner hose at nozzle inlet.
7. Replace nozzle if leak cannot be fixed.

Low flow rate:

1. Verify dispenser is not in slow flow rate mode.
2. Remove Inverted Vac Assist Flow Limiter if equipped.
3. Check for system leak. (Confirm Line Leak Detector Activation.)
4. Check dispenser filter.

Flow rate above 10 GPM:

1. Install Inverted Vac Assist Flow Limiter.
2. Check Inverted Vac Assist Flow Limiter for debris.

Fails Pressure Decay Test:

1. Vapor path seal may be worn or damaged.
2. If spout is leaking, replace the spout. (*See below*)

Fails Air-To-Liquid Test:

If the hose point fails low:

1. Vapor path may be damaged or worn or seals worn. Replace nozzle.
2. Spout tip leaking, spout o-rings may be damaged or worn. Replace spout assembly. (*See below*)
3. Spout out of round causing A/L adaptor not to seal properly on spout. Replace spout assembly. (*See below*)
4. Nozzle shut off port may be covered with the A/L adaptor. Adjust A/L adaptor and retest.
5. Liquid may be in the vapor path of either the hose or underground piping. Perform liquid blockage test and clear vapor path.
6. If there is a consistent pattern of low A/L's for a dispenser or dispenser side, the system's vacuum pump may not be operating properly. See the system manufacturers instructions for diagnosing and correcting the problem.

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

Restrictions in the liquid line will restrict flow rates. Restrictions in the vapor side will restrict vapor recovery.

If the hose product flow rate is incorrect:

1. Flow rates are too low. Adjust flow rates upward, replace dispenser filter or remove Inverted Vac Assist Flow Limiter.
2. Flow rates are too high.. Adjust flow rates down or install Inverted Vac Assist Flow Limiter.

Nozzle is hard to open:

1. Hose point static pressure may be above maximum allowable of 50 PSI. Verify system is relieving pressure.

SPOUT REPLACEMENT INSTRUCTIONS

All models of the ICVN: (New and rebuilt)

1. Remove spout retainer nut.
2. Remove the old spout from the body along with the old o-rings.
3. Lubricate o-ring surface with light oil.
4. Apply anti-seize to the body threads.
5. Insert small vacuum tube into the small diameter socket on the spout housing.
6. Push the spout assembly firmly into the nozzle body making sure the four tabs go into the slots. (Attention: The vacuum tube must be positioned correctly or the nozzle will fail.)
7. Hand tighten the locknut. Make sure the spout will not turn. Use wrench to finish tightening the spout nut. Spout must be aligned with the body with the vacuum tip on the underside of the spout.
8. Test the nozzle following instructions on page 1. If the nozzle does not shut off, check the vacuum tube for proper position or for a kink in the tube.

Efficiency Compliance Device (ECD) replacement:

1. Remove the old clamp and ECD.
2. Put the new clamp on the new ECD and slide the assembly over the spout.
3. Make sure the hole in the ECD is at the 3 o'clock position as viewed looking from the inlet of the nozzle toward the spout.
4. Tighten the clamp firmly so the ECD will not move.

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