

Systems Scheduled Maintenance

1. Assist Phase II EVR System

Scheduled Maintenance Instructions for an Assist Phase II EVR System with VP1000 Vacuum Source and 900 Series EVR Nozzle.

Initial problems are usually caused by installation irregularities that are easily detected and repaired by performing the “VP1000 Vacuum Performance Test Procedure” located in the dispenser installation manual. Periodic maintenance described here will eliminate problems and maintain peak operation of the system.

NOTE: Only a Certified Technician can service any problems discovered while conducting the Weekly or Quarterly Inspection and Testing. Provided that there are no other local district requirements, a GDF Owner / Operator can remove and install nozzles, curb hoses, breakaways, flow limiters and whip hoses without a manufacturer certification. Additional certifications may be required in accordance with local district requirements.

1.1. Weekly Inspection and Testing

- 1.1.1. Inspect each nozzle, hose, and breakaway for damage, loose connections, or leaks. Inspect nozzles for damaged vapor boots or spouts. Any nozzle with a vapor collection boot which is missing, or which has one half of the mini-boot faceplate or greater missing should be replaced or repaired as soon as practicable. Spouts with visible damage must be replaced.

Inspect hoses for wear, severe kinks, cracks, and splitting. Replace if wire braid is visible.

- 1.1.2. Test the VP1000 Vacuum Pump for normal operation using the following test procedure:

- Normal operation will have the VP1000 Vacuum Pump running at low speed if only one side of a dispenser / pump is activated (ready to dispense fuel) and will run at full speed if both sides of the dispenser are activated (ready to dispense fuel). The VP1000 vacuum pump may continue to run for a few seconds after a nozzle is re-holstered.

NOTE: If any of the four bullets below cannot be achieved, tag out dispenser and call a Healy Certified Technician for service.

- The VP1000 vacuum pump should come on immediately when a nozzle is lifted and the dispenser is activated and ready to dispense fuel.
- Repeat for each nozzle on both sides of the dispenser being tested, one at a time, to verify the VP1000 vacuum pump is running after the dispenser is activated and ready to dispense fuel.

NOTE: For unihose dispensers, conduct individual tests for each product grade on each side of the dispenser to ensure that the VP1000 activates for all grades on the same side.

- Leave one nozzle activated on the first side and with the pump running, lift a nozzle on the other side of the dispenser (activated as above) and listen for a change of speed (increase) in the pump motor. Return both nozzles to the dispenser.
- Repeat the above procedures to activate both sides of the dispenser, but start with the opposite side of the dispenser. If the above procedures can be confirmed by starting with the opposite side of the dispenser, the VP1000 vacuum pump is correctly installed. After the VP1000 vacuum pump gets to second speed, it will not drop back to single speed until one nozzle is reholstered.

NOTE: In parts of the country where the outside temperature drops below 35°F, the VP1000 vacuum pump motor will automatically run at a very low RPM to prevent freezing. This is normal operation.

1.2. Quarterly Inspection and Testing

- 1.2.1. Perform Weekly Inspection prior to Quarterly inspection.
- 1.2.2. Inspect the VP1000 vacuum pump for loose or damaged vapor line connections. If copper tubing is kinked or loose remove the dispenser from service and call a Healy Certified Technician for service.
- 1.2.3. Verify that the nozzle will not dispense fuel when the dispenser is authorized (ready to dispense fuel) and the boot is in a free state. To conduct this inspection, remove the nozzle from dispenser, authorize dispenser, hold nozzle into an approved container (do not compress the mini-boot in any manner) and actuate the nozzle lever. No fuel should dispense. Any nozzle that dispenses fuel with the miniboot in a free state condition, as determined by this inspection procedure, shall be removed from service until repaired or replaced.
- 1.2.4. Check product dispensing flow rate at maximum (handheld) dispensing position. Verify flow rate is between 6.0 gpm and 10.0 gpm.
 - Replace dispenser filters when flow rate is below 6.5 gpm and check flow rate again. If the flow rate does not increase after filter change, remove the fueling point from service.
 - If flow rates exceed 10.0 gpm, install either Healy Model 1301 or 1302 Flow Limiter and check flow rate again. If flow rate still exceeds 10.0 gpm, remove the fueling point from service.

Note:

If CAS is installed at GDF, conducted section 1.2.5 of Quarterly Inspection. If ARID Permeator AT-150 is installed at GDF, skip section 1.2.5 and proceed to section 1.2.6.

- 1.2.5. Check Clean Air Separator for proper operating configuration. See Figure 1-1 or 1-1H for guidance. Figure 1-1 applies to vertical CAS installations. Figure 1-1H applies to horizontal CAS installations.
- 1.2.6. Verify the total hours of Permeator AT-150 operation since the last oil change and

replace oil (or schedule oil maintenance from ARID Certified Permeator Technician) if oil change is warranted. The maintenance interval for draining and replacing the oil is every 5,000 hours (or once a year). If the oil level is low prior to the oil change interval, the owner/operator can 'top up' the oil level (See ARID Permeator AT-150 section of IOM for Procedure). Only ARID Part Number AT-11 oil is authorized for usage in the Permeator AT-150.

1.3. Annual Inspection and Testing to Be Performed By a Certified Technician.

The following procedures are recommended to be conducted in the order listed.

- 1.3.1. Perform weekly and quarterly inspection prior to Annual Inspection.
- 1.3.2. For GDF installations with CAS installed, conduct static pressure performance of the Healy Clean Air Separator (EO VR-201 or VR-202, Exhibit 4).
- 1.3.3. Conduct pressure decay test (TP-201.3 and EO VR-201 or VR-202, Exhibit 8).
- 1.3.4. For GDF installations with ARID Permeator AT-150 installed, conduct Permeator compliance procedure (EO VR-201 or VR-202, Exhibit 15).
- 1.3.5. Conduct dispenser vapor line integrity test (Section B-3 of the Start-up / New Installation / Warranty / Annual Testing Form) found in the Healy dispenser manual for each dispenser at GDF. Repair all leaks.
- 1.3.6. Conduct V/L test on all nozzles (EO VR-201 or VR-202, Exhibit 5 or a CARB approved alternate test procedure). Adjust and replace as necessary.

1.4. Procedure for Operator Reconnection of Breakaway and Testing Fueling Point after Drive-Off.

Note: The following reconnection procedure does not require a Certified Technician as long as the components pass inspections and tests. If any of the tests fail, requiring removal of the fueling point or dispenser from service, contact a Certified Technician for repairs. Breakaway reconnections and/or service by the GDF owner/operator or a Certified Technician shall be entered into the GDF Maintenance Log.

1.4.1. **Inspection:**

After a Drive-Off, remove the dispenser from service and inspect the nozzle, hoses and breakaway for damage. If any of the components are damaged, replace them as necessary or contact a certified technician for repair. If the break-away has separated, proceed to the next section.

Note: For Healy breakaways only, verify that the tip of the shear screw installed prior to the Drive-Off is removed from the dispenser end body (inlet) of the breakaway. If the tip cannot be removed, the breakaway must be replaced.

1.4.2. **Break-Away Reconnection:**

Reconnect the breakaway assembly per the procedure in the Re-connectable Breakaway Coupling section of the CARB Approved Installation, Operation and Maintenance Manual.

1.4.3. **Liquid Leak and Meter Creep Test:**

Authorize the fueling position, purge any air from the fueling position by dispensing at least two gallons of product into an approved container, and then inspect the hanging hardware for liquid leaks and/or meter creep.

Note: With the fueling position still authorized and no product dispensing, the fueling position gallon display should not count up for at least two minutes while extending and twisting the hanging hardware to inspect for liquid leaks and/or meter creep.

If no liquid leaks or meter creep are observed, proceed to section 1.4.4 of this procedure. If liquid leaks or meter creep are observed the operator may replace the curb hose, and/or nozzle, and/or breakaway, and/or whip hose, using the installation procedures and functional tests specified in the applicable CARB Approved Installation, Operation and Maintenance Manual (IOM), and re-conduct the liquid leak and meter creep test. If liquid leaks or meter creep are observed after replacement of the equipment, leave the dispenser out of service and contact a Certified Technician for repairs.

1.4.4. **Nozzle Bag Test:**

Conduct the Nozzle Bag Test using the procedure from Exhibit 7 of Executive Order VR-201 or VR-202. If the bag around the nozzle does not collapse, proceed to section 1.4.5 of this procedure. If the nozzle bag test fails, the operator may replace the nozzle using the installation procedures and functional tests specified in the IOM.

1.4.5. **Insertion Interlock and Automatic Shutoff Tests:**

- Test the insertion interlock feature of the nozzle using the procedures outlined in Sections 1.1.7 and 1.1.8 in the Healy Model 900 Nozzle section of the IOM. If the nozzle fails either of these tests, the operator may replace the nozzle using the installation procedures and functional tests specified in the IOM.
- Test the automatic shutoff feature of the nozzle using the procedures outlined in Sections 1.2.8, 1.2.9 and 1.2.10 in the Healy Model 900 Nozzle section of the IOM. If the nozzle fails any of the tests, the operator may replace the nozzle using the installation procedures and functional tests specified in the IOM.

FORM 1

VR-201 and VR-202 - Weekly Inspection and Testing Checklist (1.1)

Checklist results may be used to assist with filling out GDF maintenance log.

Date: _____ Page ____ of ____

Section:		1.1.1			1.1.2	
Dispenser Number	Unihose or Fuel Grade (circle one)	Nozzle Inspection (circle one)	Hose Inspection (circle one)	Breakaway Inspection (circle one)	VP1000 Vacuum Pump Normal Operation (circle one)	
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No
	Unihose 87 89 91	Pass Fail	Pass Fail	Pass Fail	Yes	No

FORM 2

VR-201 and VR-202 - Quarterly Inspection and Testing Checklist (1.2)

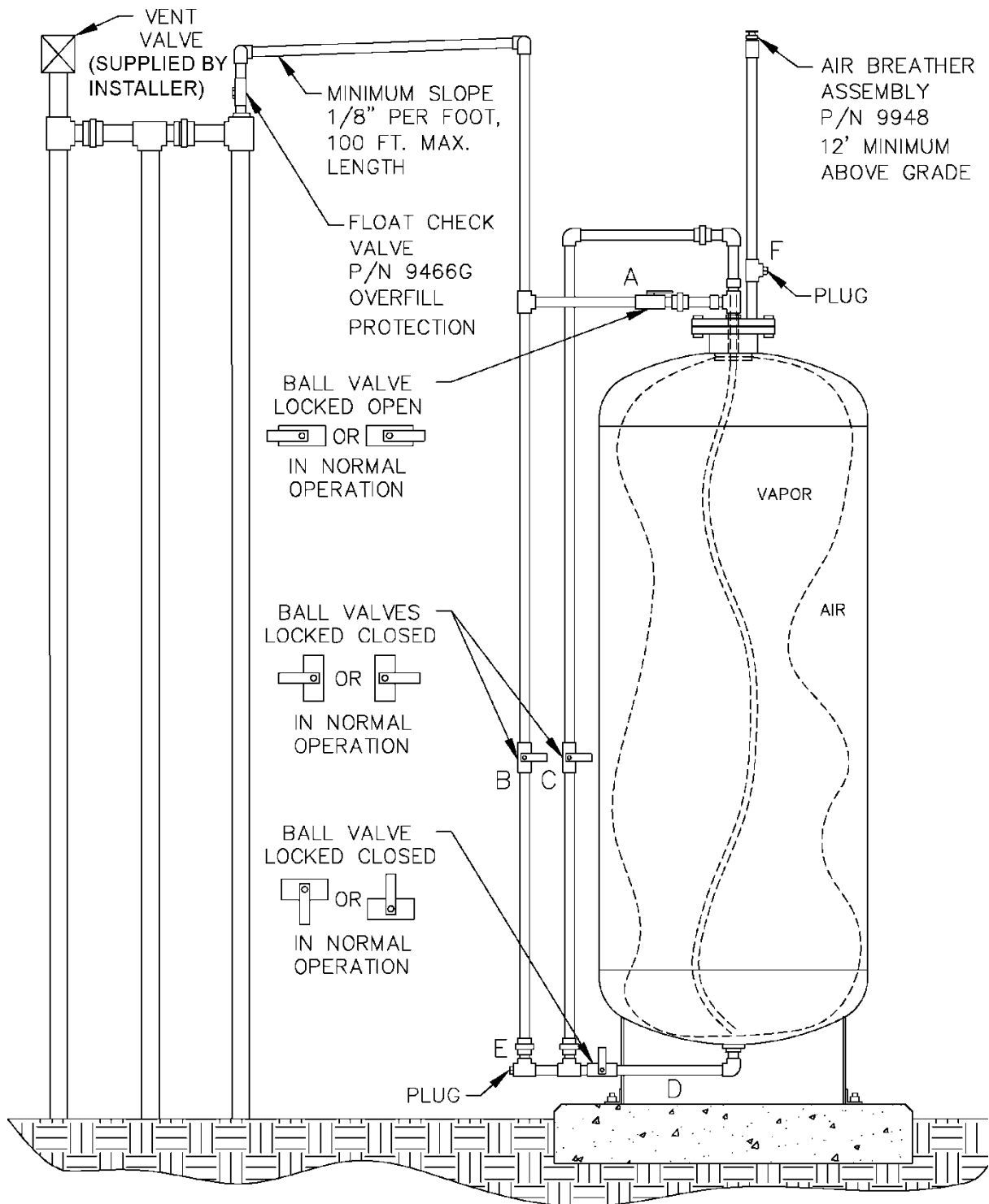
Checklist results may be used to assist with filling out GDF maintenance log.

Date: _____

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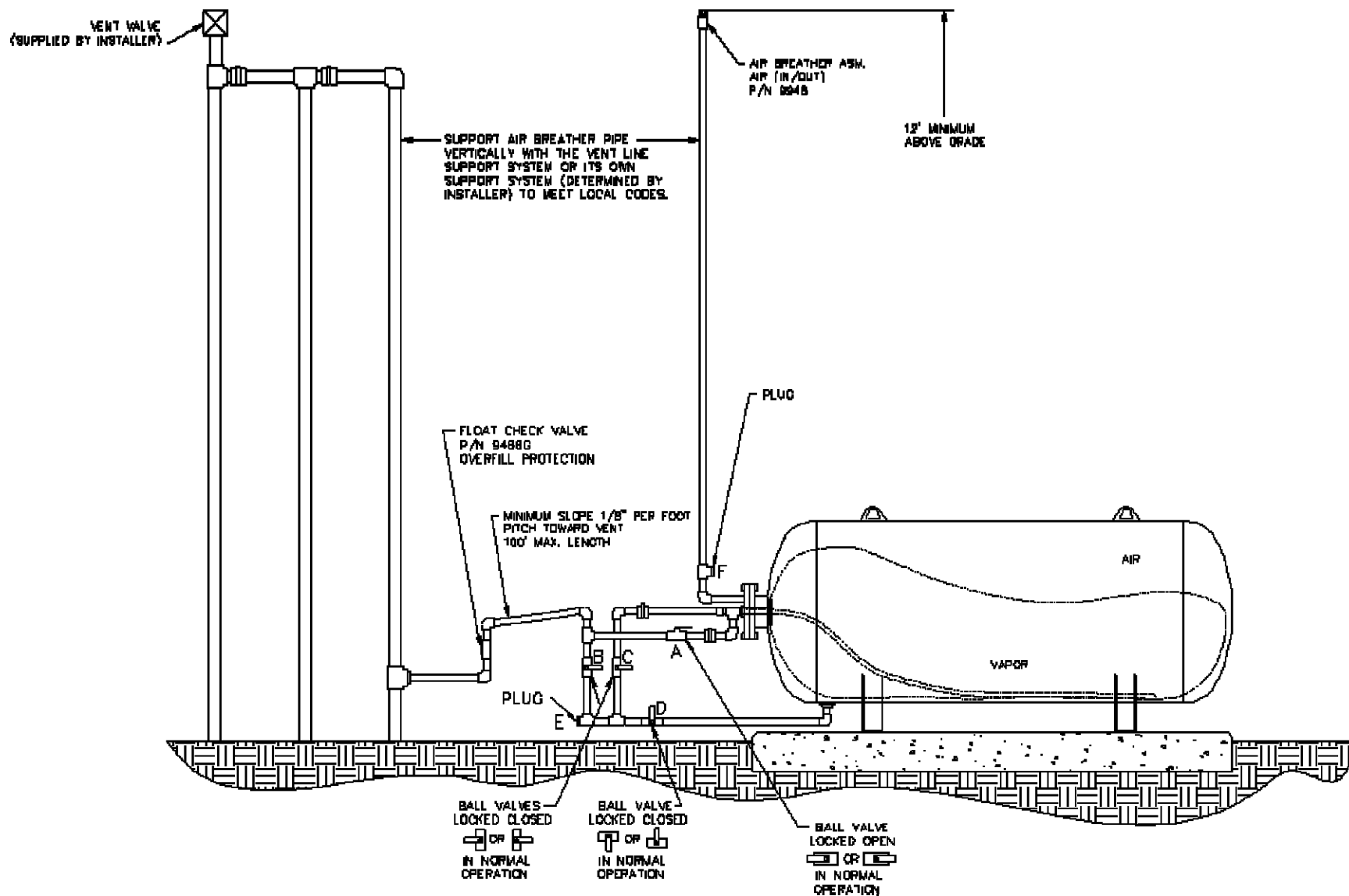
Section:		1.2.1	1.2.2	1.2.3	1.2.4	1.2.5			
Dispenser Number	Unihose or Fuel Grade (circle one)	Fuel Grade Tested (circle one)	Weekly Inspection Complete (circle one)	VP1000 Inspection (circle one)	Nozzle Dispensing Check (circle one)	Product Dispensing Rate	Clean Air Separator Configuration* (see FIGURES 1 and 1H)		
							Valve	(Circle one)	
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	A	Open	Closed
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	B	Open	Closed
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	C	Open	Closed
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	D	Open	Closed
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	* Section 1.2.5 only Applicable for GDF with CAS Installed.		
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	Plug	(Circle one)	
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	E	Installed	Missing
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM	F	Installed	Missing
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			
	Unihose 87 89 91	87 89 91	Yes No	Pass Fail	Pass Fail	GPM			

FIGURE 1-1
Normal Clean Air Separator Operating Configuration¹



¹ Vent stack configuration may be different than what is shown in this figure

FIGURE 1-1H
Normal Horizontal Clean Air Separator Operating Configuration²



² Vent stack configuration may be different than what is shown in this figure

FORM 3

VR-201 and VR-202 - Annual Inspection and Testing Checklist (1.3)

Checklist results may be used to assist with filling out GDF maintenance log.

Date: _____

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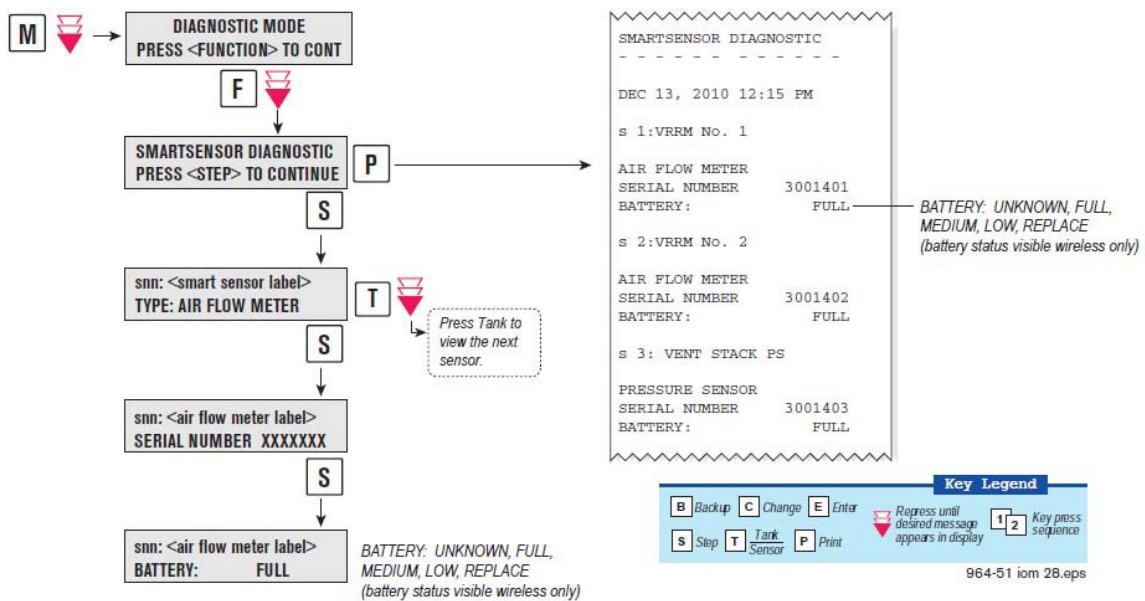
Section:	1.3.1	1.3.2 or 1.3.4	1.3.3	1.3.5			1.3.6			
		CAS, Exhibit 4 Or Permeator, Exhibit 15 (circle one)	Pressure Decay Test, TP-201.3 & Exhibit 8 (circle one)	Dispenser Number	Dispenser Vapor Line Tightness Test (circle one)	Fuel Grade Tested (circle one)			Nozzle V/L Test, Exhibit 5 (Circle one)	
Complete Weekly Inspection Checklist	Complete Quarterly Inspection Checklist	Pass	Pass		Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
					Pass Fail	87 89 91	Pass	Fail		
	Fail	Fail		Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			
				Pass Fail	87 89 91	Pass	Fail			

2. VEEDER ROOT In-station System Diagnostic (ISD) System (only for VR-202)

2.1. Veeder-Root Wireless Sensor Annual Battery Check

You can get the battery status from the TLS-350 (with software Version 30A or higher). The battery status is displayed for the wireless sensors, from the Smart Sensor Diagnostics (see Figure below). The wireless sensors' battery status can also be printed from this screen. The battery status for the wireless sensors is reported as Full, Medium, Low or Replace.

**FIGURE 1-2
Battery Check on the TLS Console**



FORM 4

VR-202 Annual Battery Check for Veeder-Root Wireless Sensors (2.1)						
Date: _____						
Smart Sensor Device (S/N)			Battery Status			
No.	FLOW METER	PRESSURE SENSOR	FULL	MEDIUM	LOW	REPLACE