Healy Systems Scheduled Maintenance

1.0 Scheduled Maintenance Instructions for a Healy 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 Healy Certified Technician can service any problems discovered while conducting the Weekly or Quarterly Inspection and Testing. For information regarding Healy Certified Training Courses please contact a local Healy Distributor. Healy Distributors can be found on the Healy website @ www.healysystems.com – or you can call Healy Systems direct @ 800-984-6266 for more information.

1.1 Weekly Inspection and Testing

- 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.

- 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 reholstered.

  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 Check product dispensing flow rate at maximum (handheld) dispensing position. Verify flow rate is between 6.0 gpm and 10.0 gpm.

1.2.3.1 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.

1.2.3.2 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.

1.2.4 Check Clean Air Separator for proper operating configuration. See EO VR-201-E or VR-202-E, Exhibit 2, Figure 2B-2 or 2B-2H for guidance. Figure 2B-2 applies to vertical CAS installations. Figure 2B-2H applies to horizontal CAS installations.

1.3 Annual Inspection and Testing to Be Performed By a Healy 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 Conduct static pressure performance of the Healy Clean Air Separator (EO VR-201-E or VR-202-E, Exhibit 4).

1.3.3 Conduct pressure decay test (TP-201.3 and EO VR-201-E or VR-202-E, Exhibit 8).

1.3.4 Conduct dispenser vapor line tightness test found in the Healy dispenser manual under “testing the system” for each dispenser at GDF. Repair all leaks.

1.3.5 Conduct V/L test on all nozzles (EO VR-201-E or VR-202-E, Exhibit 5 or an ARB approved alternate test procedure). Adjust and replace as necessary.

1.4 Procedure for Reconnecting Breakaway and Testing Fueling Point after Drive-Off.

Note: The following procedure does not require a Healy Certified Technician. If any of the tests listed requires removing the fueling point or dispenser from service, contact a Healy Certified Technician. Breakaway reconnections and/or service by a Healy Certified Technician shall be logged in the GDF Maintenance Log.

1.4.1 After a Drive-Off, inspect the nozzle, hose and breakaway for damage. Spouts with visible damage must be replaced. Hoses with wire braid showing must be replaced.

1.4.2 Reconnect the breakaway assembly per the procedure in the appropriate Reconnectable Breakaway Coupling (P/N 8701VV or P/N 807) section of the *ARB Approved Installation, Operation and Maintenance Manual*. This procedure requires the use of the Healy reconnection clamp, P/N 795. Verify that the tip of the shear screw installed prior to the Drive-Off is removed from the dispenser end body (connected to the whip hose) of the breakaway.

Note: Do not remove the hose or nozzle from the bottom section of the breakaway, as the breakaway is holding the liquid gasoline in the hose/nozzle.

1.4.3 Authorize dispenser and inspect the hanging hardware for liquid leaks and meter creep (fueling position display is counting up without dispensing

product). 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, remove the fueling point from service and conduct the following:

1.4.3.1 Use the breakaway reconnection procedure, referenced in section 1.4.2, in reverse order to disconnect the breakaway. Remove the nozzle and hose from the dispenser. (A towel can be placed into the upper portion of the nozzle holster of the dispenser to stop the dispenser beep associated with the nozzle being removed from the holster).

1.4.3.2 Install a plastic bag around the portion of the breakaway still connected to the dispenser whip hose. The plastic bag shall be large enough to enclose the breakaway and shall have a thickness of no greater than 2 mils. In California, 12” x 26” x 2 mil thick bags are available from the Air Resources Board by calling 800-952-5588.

1.4.3.3 Initialize the dispenser for fueling. **Do not dispense any fuel**.

1.4.3.4 With the dispenser initialized, observe the bagged breakaway for thirty (30) seconds.

1.4.3.5 If the bag collapses (indicating the breakaway is not maintaining vapor integrity), or liquid leaks or meter creep are observed, remove the dispenser from service and contact a Healy Certified Technician. If the bag does not collapse (indicating the breakaway is maintaining vapor integrity) and no liquid leaks or meter creep are observed, the dispenser can remain in service.

1.4.4 Conduct the Nozzle Bag Test using the procedure from Exhibit 7 of Executive Order VR-201-E or VR-202-E. If the bag around the nozzle does not collapse, proceed to section 1.4.5 of this procedure. A nozzle where the bag is collapsing indicates a defective vapor valve. If the nozzle bag test indicates a defective vapor valve, remove the fueling point from service and conduct the following:

1.4.4.1 Use the breakaway reconnection procedure, referenced in section 1.4.2, in reverse order to disconnect the breakaway. Remove the nozzle and hose from the dispenser. (A towel can be placed into the upper portion of the nozzle holster of the dispenser to stop the dispenser beep associated with the nozzle being removed from the holster).

1.4.4.2 Install a plastic bag around the portion of the breakaway still connected to the dispenser whip hose. The plastic bag shall be large enough to enclose the breakaway and shall have a thickness of no greater than 2 mils. In California, 12” x 26” x 2 mil thick bags are available from the Air Resources Board by calling 800-952-5588.

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1.4.5 The following tests shall be performed after passing sections 1.4.3 and 1.4.4 of this procedure.

1.4.5.1 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 *ARB Approved Installation, Operation and Maintenance Manual*. If the nozzle fails either of these tests, remove the fueling point from service and contact a Healy Certified Technician.

1.4.5.2 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 *ARB Approved Installation, Operation and Maintenance Manual*. If the nozzle fails any of the tests, remove the fueling point from service and contact a Healy Certified Technician.

For more information about testing and/or maintenance of Healy products, contact Healy Technical Services @ 800-984-6266.

VR-201-E and VR-202-E - Weekly Inspection and Testing Checklist

Checklist results may be used to assist with filling out GDF maintenance log. | Date: _____ | Page ____ of ____

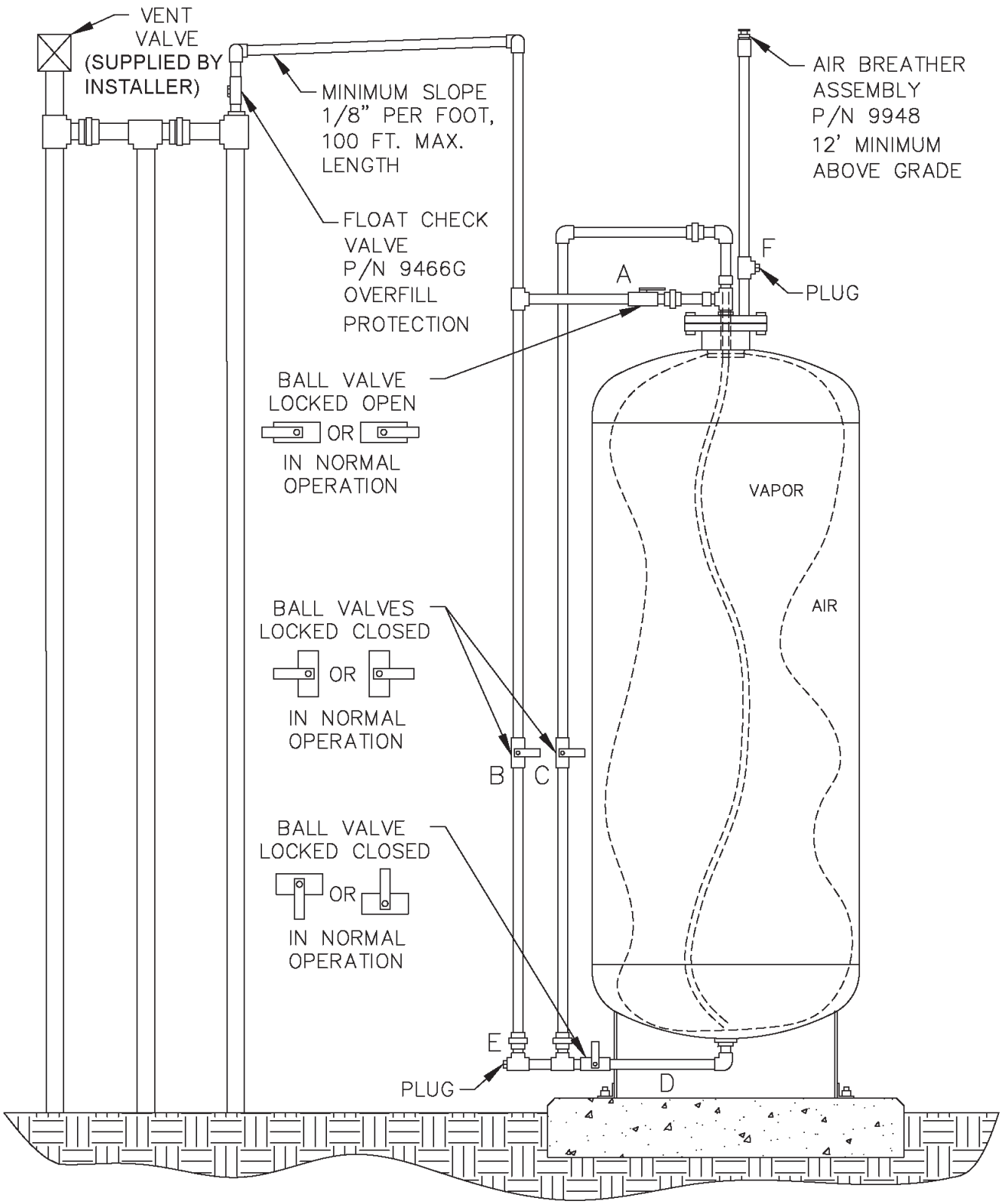
Dispenser Number	Unihose or Fuel Grade (circle one)	Nozzle Inspection (circle one)	Hose Inspection (circle one)	Breakaway Inspection (circle one)	VP1000 Vacuum Pump Normal Operation (circle one)
	Unihose 87 89 91 Other ___	Pass Fail	Pass Fail	Pass Fail	Yes No
	Unihose 87 89 91 Other ___	Pass Fail	Pass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

VR-201-E and VR-202-E - Quarterly Inspection and Testing Checklist

Checklist results may be used to assist with filling out GDF maintenance log. Date: _____ Page ____ of ____

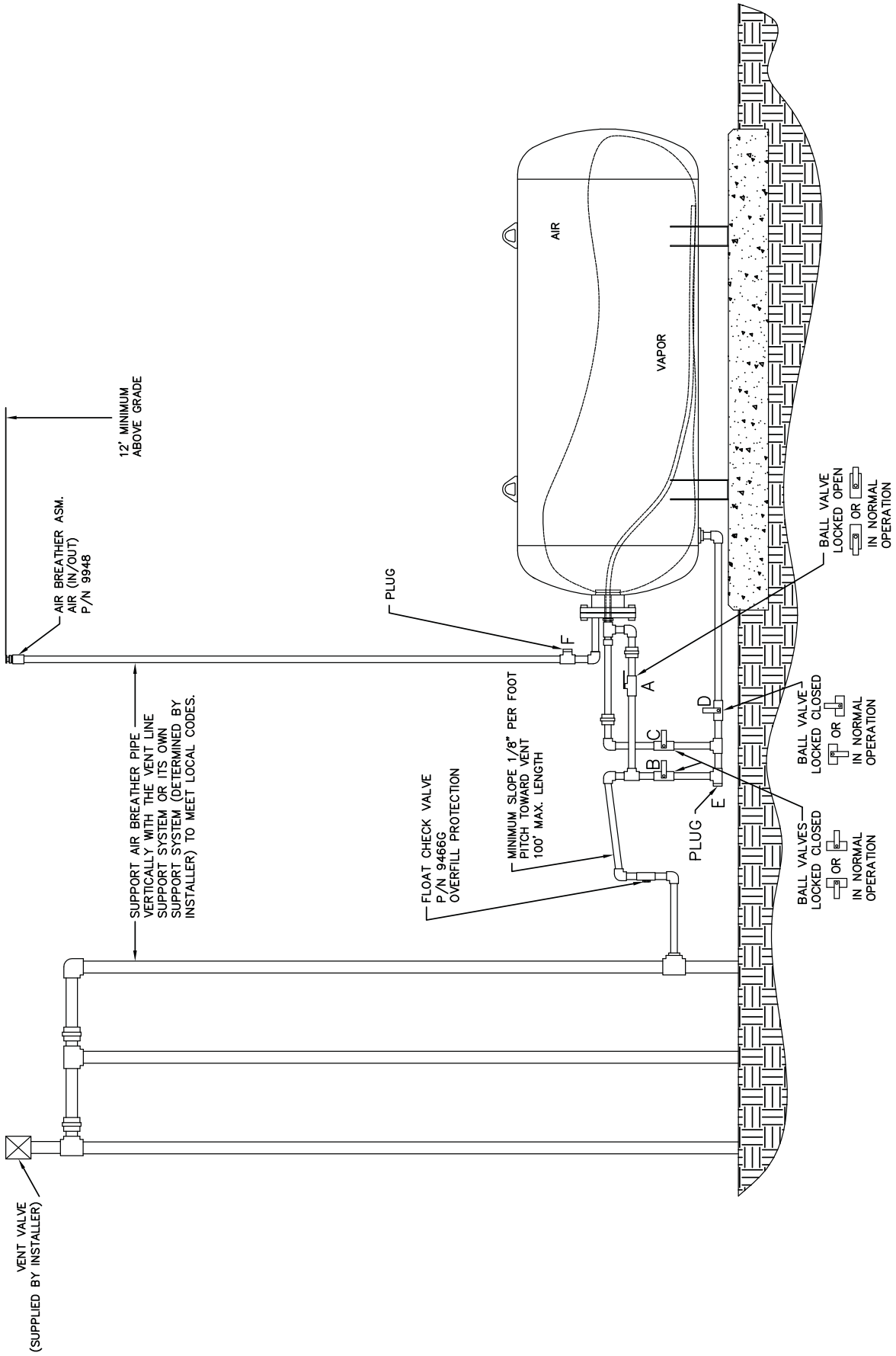
Dispenser Number	Unihose or Fuel Grade (circle one)	Weekly Inspection Complete (circle one)	VP1000 Inspection (circle one)	Product Dispensing Rate (gallons per minute)	Fuel Grade Tested (circle one)	Clean Air Separator Configuration (see Figures 1 and 1H)		
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	Valve	Circle One	
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	A	Open	Closed
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	B	Open	Closed
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	C	Open	Closed
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	D	Open	Closed
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	Plug	Circle One	
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	E	Installed	Missing
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___	F	Installed	Missing
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			
	Unihose 87 89 91 Other ___	Yes No	Pass Fail	gpm	87 89 91 Other___			

Figure 1
Normal Clean Air Separator Operating Configuration[1]



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

Figure 1H
Normal Horizontal Clean Air Separator Operating Configuration[1]



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

VR-201-E and VR-202-E - Annual Inspection and Testing Checklist

Checklist results may be used to assist with filling out GDF maintenance log. Date: _____ Page __ of __

		Clean Air Separator Test, Exhibit 4 (circle one)	Pressure Decay Test, TP-201.3 & Exhibit 8 (circle one)	Dispenser Number	Dispenser Vapor Line Tightness Test (circle one)	Dispenser Number	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 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
		Fail	Fail		Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail
					Pass Fail		87 89 91 Other___	Pass Fail