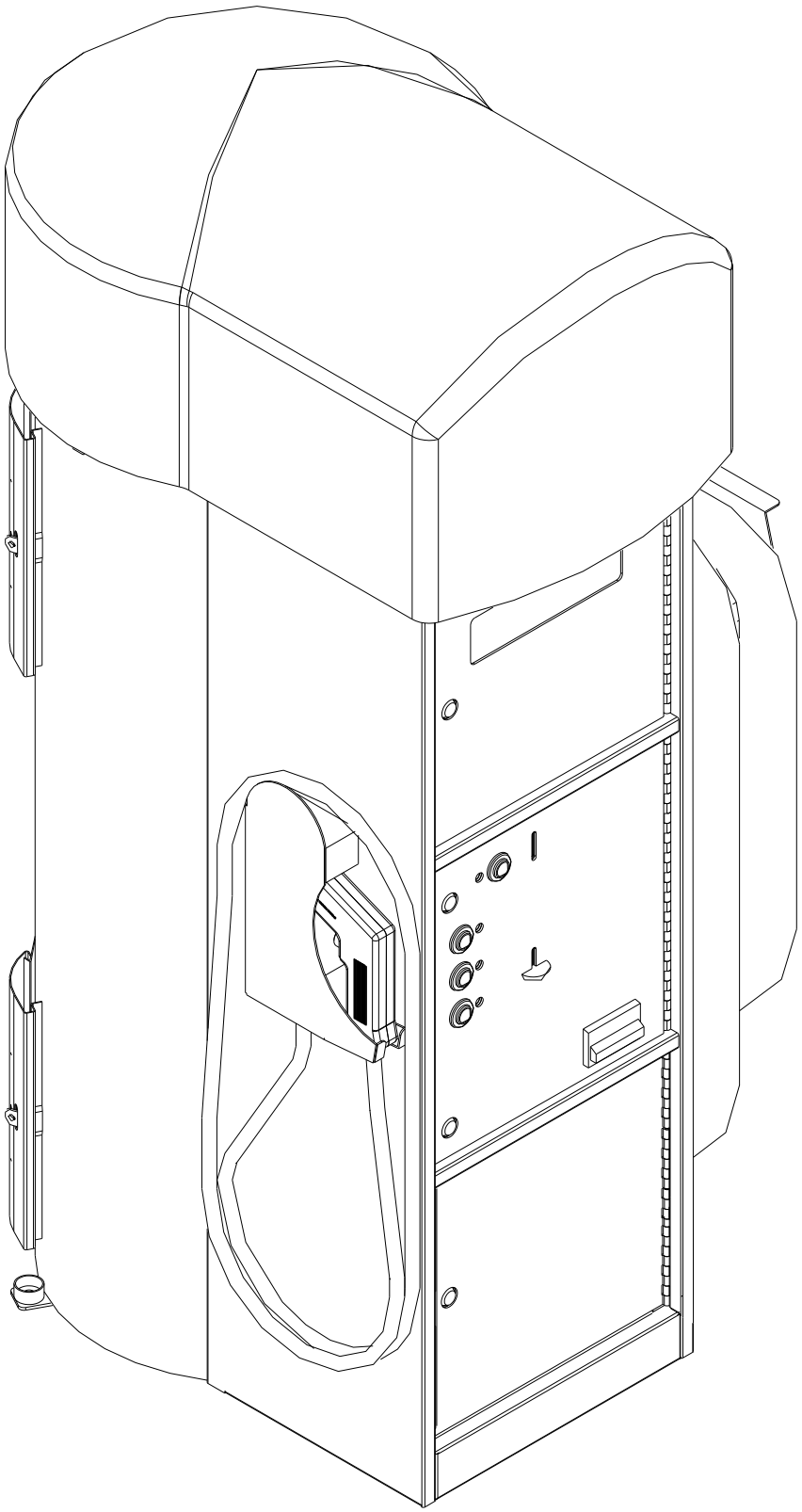


Troubleshooting Guide

FRESH UP

TABLE OF CONTENTS

To use this trouble shooting guide please read the following.

In the table of contents you will find a list of general problems that might affect your unit. Then each general problem has it own table of content. This table let so narrow down the problem you might have. Once you know what page to look at turn there.

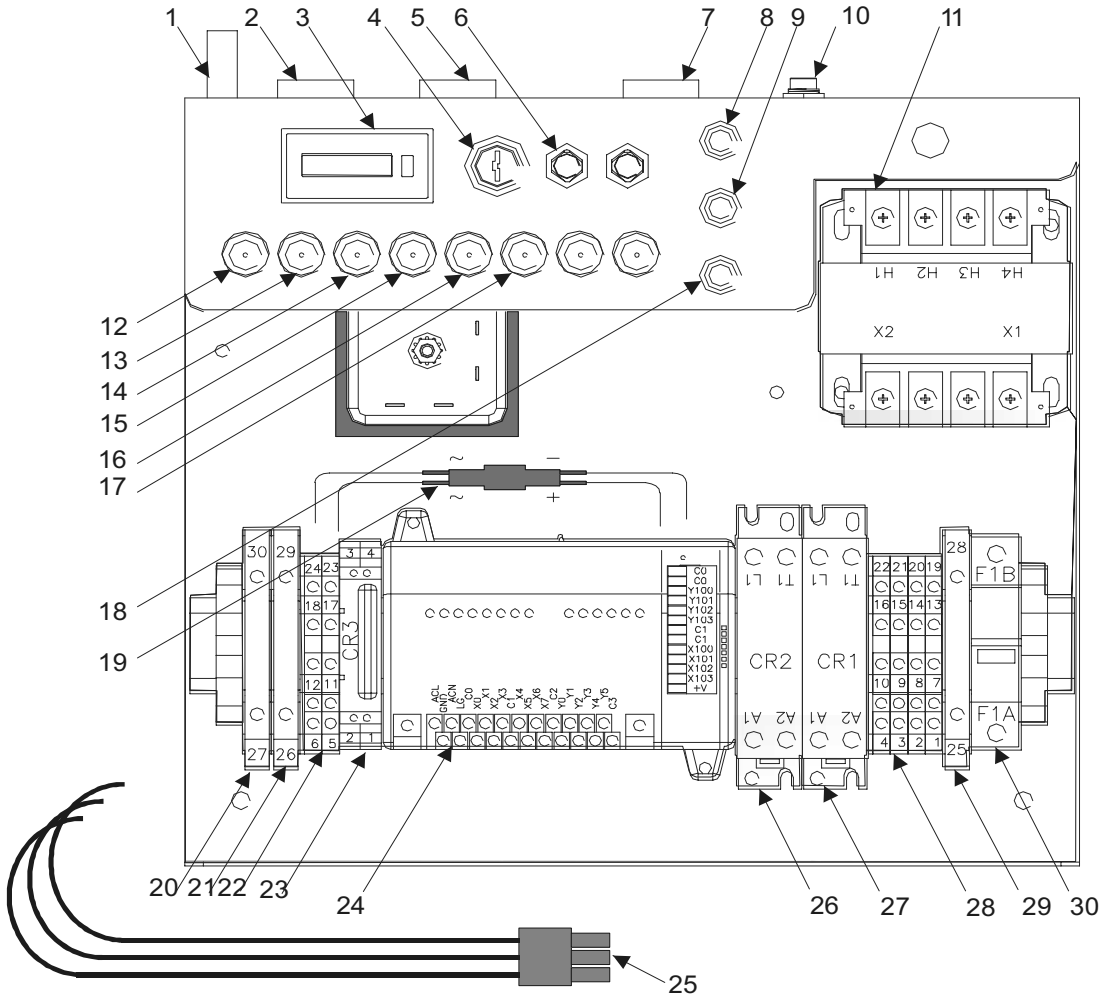
Then you will see a statement like "Check for line voltage power to the unit." to the left side of the page. The numbers next to that will be what figure and part you will want to refer to. This helps you locate where you are suppose check. Then there will bee a question to ask yourself. Then it is simply a matter of following the flow arrows depending on your answer.

Now lets give a example. Lets say there is a problem with the Pump & Compressor control output. I would look at figure 2 part 24 and find it on the machine. Then once I have located the part I would ask my self , “With the timer counting down and the fragrance mode selected and indicated on the door, and does the Y3 status indicator come on?” Now lets say the Y3 indicator does not come on, I would follow the no arrow and read the next box. “There is an internal hardware or software failure in the PLC. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC.” Now I would call the number and tell them the problem and follow there instruction to confirm if the PLC needs to be replaced.

If you have a problem that isn’t listed in our guide please call

1-800-968-8227 for assistance.

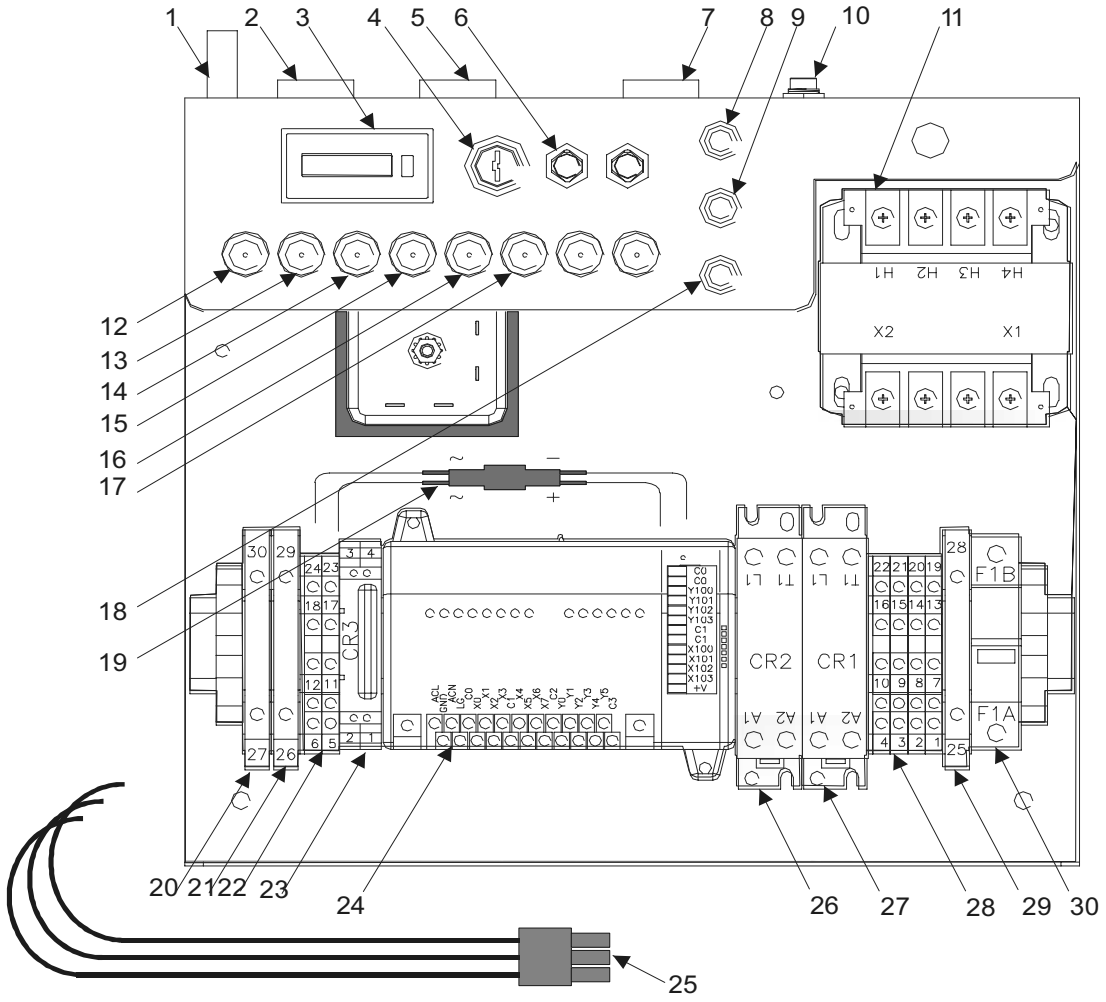
Chassis Control Index



	Part Description
1	Motor harness connection
2	Timer harness connection
3	Coin counter
4	Coin counter reset switch
5	VPL harness connection
6	Timer reset switch
7	Door interface harness connection
8	Motor 1 circuit breaker
9	Motor 2 circuit breaker
10	Primer button
11	Transformer
12	115 Vac indicator LED (red)
13	CR1 output indicator LED (red)
14	CR2 output indicator LED (red)
15	24 VAC indicator LED (yellow)
16	Timer output indicator LED (yellow)
17	Trigger switch indicator LED (yellow)

Continued on next page

Chassis Control Index



Part	Description
18	Pump / Compressor circuit breaker
19	Diode bridge
20	24 VAC fuse holder (ABC4)
21	Timer fuse holder (ABC2)
22	Terminal Blocks-24 VAC
23	CR3-Timer signal conditioning solid state relay
24	PLC
25	Main power harness connection
26	CR2-Pump & Compressor solid state relay
27	CR1-Vacuum motors solid state relay
28	Terminal Blocks-115 VAC
29	PLC fuse holder (ABC2)
30	Main fuse holder (FNQ20)

Elelectrical Problems
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Unit doesn't operate. No lights or display.	Fig.	Item				Fig.	Item
Check for Line Voltage Power to the unit	1	12	Is the red 115vac indicator on the chassis front panel on?				
			No				
	2	30	Is the main fuse holder blown fuse light on?	Yes	Replace main fuse	2	30
			No				
	2	30	Is the Main Fuse missing?	Yes	Replace main fuse	2	30
			No				
	2	25	Is the main power harness located infront of the chassis connected?	No	Connect plugs	2	25
			Yes				
			No Line Voltage being supplied to the unit. Check facility breaker panel for tripped breaker or blow fuse. Check for and correct source of tripped breaker/blown fuse.	No	Contact your electrician to assist in restoring power to the unit.		
Check for Low Voltage (24 vac) Power to the unit (Assumes line voltage suppy to the unit is satisfactory)	1	15	Is the yellow 24vac indicator on the chassis front panel on?				
			No				
	2	20	Is the 24vac Power (ABC4) fuse holder blown fuse light on?	Yes	Replace 24vac Power (ABC4) fuse	2	20
			No				
			Is the 24vac Power (ABC4) fuse missing?	Yes	Replace 24vac Power (ABC4) fuse	2	20
			No				
	1	11	Are there broken wires between the transformer and the terminal blocks? Line Voltage - Transformer from Terminal Blocks 15 and 13 24 vac - Transformer to Terminal Blocks 18 and 27	Yes	Repair wires as indicated		
	2	22 28					
			No				
	1	4	Replace Transformer				
No Door Selection Indicator Lights	1	15	Is the yellow 24vac indicator on the chassis front panel on?	Yes	See PLC Troubleshooting section		
			No				
			See Low Voltage section above				

Motor Problems
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Vacuum motors don't operate.
(Assumes red 115vac and yellow 24vac indicators on chassis front panel are on, and Vacuum mode is selected and indicated)

Fig.	Item				Fig.	Item
				WARNING ! *Never connect or disconnect any wire or connector to the PLC with electrical power applied to the Fresh'N Up unless directed to. Doing so* ***will*** *damage the PLC.*		
		With the correct money deposited, does the timer display count down properly?	No	See Timer Troubleshooting section		
		Yes				
1	16	Is the yellow Timer indicator on the chassis front panel on?	No	See Timer Troubleshooting section		
		Yes				
1	8 9	Is there a tripped motor circuit breaker located on the chassis front panel?	Yes	Press to reset. Check for and correct cause of tripped breaker.		
		No				
1	13	Is the red CR1 indicator lit on the chassis front panel?	Yes	Check harness wiring between chassis and motors and motor for damage. Repair or replace as indicated. If no fault is found, proceed as if there is no CR1 indicator lighted on the chassis front panel.	1	13
		No				
2	27	Does the green "relay on" light on the CR1 solid state relay come on?	Yes	Confirm good wiring connections between CR1-L1 and Terminal Block 16 - If supply voltage is suspect, meter from CR1-L1 to Terminal Block 8 and read 110-125 vac. Repair wiring as needed.		
		No		Yes, wiring is good		
				Confirm CR1 output - meter from CR1-T1 to Term Block 8 and read 110-125 vac with counter counting down If not - Replace Solid State Relay	2	27
				Yes, voltage output is good		
				Repair wiring between CR1-T1 and motor circuit breakers	2 1	27 8 9
2	24	Is the orange "Y4" indicator on the PLC on?	No	See PLC Troubleshooting Section		
		Yes				
1 2	13 24	Confirm good wiring connections between CR1-A2 and PLC terminal Y4	No	Repair as needed		
		Yes, wiring is good				
1	13 14	Confirm good wiring connections from CR1-A1 to CR2-A1 and to Terminal Block 11	No	Repair as needed		
		Yes, wiring is good				
2	24	Is the orange "X7" indicator on the PLC on?	No	See Timer Troubleshooting Section		
		Yes				
		With the Timer counting down and Vacuum mode selected and indicated on the door, does a volt meter connected between CR1-A2 and Terminal Block 12 read 24VAC?	Yes	Replace Solid State Relay	2	27
		No				
		See PLC Troubleshooting Section				

Fragrance Problems
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	Fig.	Item			Fig.	Item
Improper or No Fragrance Delivery From Gun (Assumes red 115vac and yellow 24vac indicators on chassis front panel are on, and Fragrance mode is selected and indicated on the door)						
Pump and/or Compressor don't run	1	3	With the correct money deposited, does the timer display count down properly?	No	See Timer Troubleshooting section	
			Yes			
	1	16	Is the yellow Timer indicator on the chassis front panel on?	No	See Timer Troubleshooting section	
			Yes			
	2	18	Is there a tripped Pump/Compressor circuit breaker located on the chassis front panel?	Yes	Press to reset. Check for and correct cause of tripped breaker.	2	18
			No			
	1	14	Is the red CR2 indicator lit on the chassis front panel?	Yes	Check VPL harness wiring between chassis and Pump/Compressor and motors for damage. Repair or replace as indicated. If no fault is found, proceed as if there is no CR2 indicator lighted on the chassis front panel.	1 1	5 14
			No		Confirm good wiring connections between		
	2	26	Does the green "relay on" light on the CR2 solid state relay come on?	Yes	CR2-L1 and Terminal Block 16 - meter from CR2-L1 to Terminal Block 8 and read 110-125 vac. Repair wiring as needed.	2	26
			No		Yes, wiring is good		
					Confirm CR2 output - meter from CR2-T1 to Term Block 8 and read 110-125 vac with counter counting down. If not - Replace Solid State Relay	2 2	26 18
					Yes, voltage output is good		
					Repair wiring between CR2-T1 and Pump/Compressor circuit breaker		
	2	24	Is the orange "Y3" indicator on the PLC on?	No	See PLC Troubleshooting Section		
	2	26	Yes				
	24		Confirm good wiring connections between CR2-A2 and PLC terminal Y3	No	Repair as needed		
			Yes, wiring is good				
			Confirm good wiring connections from CR2-A1 to Terminal Block 11 (CR2-A1 to CR3-A1 then to Terminal Block 11 if 3rd motor equipped)	No	Repair as needed		
			Yes, wiring is good				
	2	24	Is the orange "X7" indicator on the PLC on?	No	See Timer Troubleshooting Section		
			Yes				
	2	26	With the Timer counting down and Fragrance mode selected and indicated on the door, does a volt meter connected between CR2-A2 and Terminal Block 12 read 24VAC?	Yes	Replace Solid State Relay	2	26
			No				
			See PLC Troubleshooting Section				
Compressor and Pump run - No or Low Fluid delivery The pump delivers a very small volume of solution (about 2-1/4 teaspoons in a 40 second vend) delivered at nearly 0 psi. The compressor atomizes the fragrance at low pressure of 10 to 15 psi.			**Plumbing Issues** The smaller tubing is connected by means of push connect fittings. To release the tubing from these fittings, press down on the blue ring and then grasp the tubing and gently pull the tubing from the connector. To install the tubing, do not push on the blue ring - just insert the cleanly cut end of the tubing into the fitting and push firmly until you feel it engage and seat in the fitting.		Pick-up tube sets have 2 tubes - a larger clear tube and a smaller colored or translucent tube. The large clear tube is the pick-up tube, and the other is a pump return line. Both are placed in the tank. Under the dome, the pick-up tube is connected to the pump and the return line is connected to the top of the selector valves.		
			Is there adequate solution in the tanks?	No	Re-fill tanks and re-prime the system.		
			Yes				
			Are the weighted pick-up tubes and strainers in the bottom of the tanks)	No	Position tubes in the bottom of the tanks and re-prime the system.		

			Are the pick-up tube strainers obstructed with debris?	Yes	Clear the strainers and re-prime the system.
			Are the pick-up tubes pinched or kinked or broken?	Yes	Correct or replace as indicated and re-prime the system.
			Pick-up tubes are connected to the front leg of the pump tubing by a check valve, and the check valve is oriented with the slopped end pointed to the pump.	No	Correct or repair as indicated and re-prime the system.
			Check the colored tubing connected to the output side of the pump and the bottom straight fitting of the selector valve.	No	Correct or repair as indicated and re-prime the system.
Perform this test one selection at a time. Reconnect tubing after each test.	1	10	Check pump output to the valve by disconnecting the return line from the TOP of the selector valve and pressing the primer button **momentarily** and observing a very small amount of solution come out of the valve. Do not press the trigger switch for this test. The fourth valve is the compressor valve and has no return line and no top fitting. When the primer button is pressed, during this test, air should come out of the top of the fourth valve.	No	Verify that the elbow push fitting is installed in the valve port marked "1" and the pump output tubing is connected to the opposite fitting on the valve body. If not, call 1-800-968-8227 for Tech Support.
			Yes, there is proper pump output.		Yes, the fittings and tubes are correct. Replace the valve.
Perform this test one selection at a time. Reconnect tubing after each test.	1	10	Check for proper operation of the selector valve by disconnecting the valve output tubing from the elbow push fitting installed in valve port "1" (There is a "1" stamped on the valve body at the port). Press the primer button and observe a small amount of solution come out of the fitting when the trigger switch is pressed momentarily. The uncolored tubing is the compressor line and has no fluid.	No	See the "Electrical Issues" portion of this section
			Yes, there is proper valve output.		
Perform this test one selection at a time. Reconnect tubing after each test.	1	10	Confirm there is proper flow to the delivery hose assembly by disconnecting the union push fittings in the electrical compartment one at a time and observing product flow using the primer button and trigger switch as before. The uncolored tubing is the compressor line and has no fluid.	No	Correct Clogged, pinched, kinked, or broken tubing or fittings
			Yes, there is proper flow.		
			Examine the nozzle block (item 1 pg 32) for clogged outlet. Unscrew the 4 port fitting from the nozzle block & check for internal blockage.	Yes	Correct as indicated.
			No blockage.		
			Check visible portions of the delivery hose tubing for obvious kinks, breaks, or blockages. With the 4 port fitting disconnected from the nozzle block, test vend each selection and check for blocked tubing within the delivery hose by observing fluid delivery into the fitting	No flow	Repair or replace delivery hose set.
			Yes, there is proper flow.		
			Reassemble gun and return to service.		

WARNING !
*Never connect or disconnect any wire or connector to the PLC with electrical power applied to the Fresh'N Up unless directed to. Doing so **will** damage the PLC.*

Electrical Issues

The Fresh'N Up will always start in the vacuum mode. Fragrance selection can be made at anytime the timer is counting down.

When the timer is counting down, and a fragrance is selected, does the corresponding red door indicator come on?
- No → See PLC Troubleshooting Section
- Yes →

		When the timer is counting down, and a fragrance is selected, does the corresponding orange PLC output indicator come on? "Y0" = Top selection "Y1" = Middle selection "Y2" = Bottom selection	No → See PLC Troubleshooting Section
2	24		

Yes →

		Confirm good wire connection at PLC terminals "Y0" = Top selection "Y1" = Middle selection "Y2" = Bottom selection	No → Repair wiring connections as indicated.
2	24		

Wiring connections are good.

		When the trigger switch is pressed, the yellow "Trigger" indicator comes on.	No → See Trigger Switch section below.
1	17		

Yes →

With the timer counting down, check for proper valve actuation (one at a time), by disconnecting the violet common wire from all but the valve being selected.
Front valve = Top selection
Second valve = Middle selection
Third valve = Bottom selection
Rear valve = Compressor (should switch with each trigger actuation regardless of selection)
- No → Replace valve
- Yes, the valve actuates. →

If the valve appears to pass both the electrical and plumbing issues, call 1-800-968-8227 for Tech Support

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Trigger Switch Troubleshooting

Troubleshooting the Trigger Switch is indicated when the Yellow "Trigger" indicator on the chassis front panel fails to light up when the trigger switch is pressed. 1 17

Is the Trigger Switch wire connector plug in the left side of the electrical controls area connected with no broken wires.
- No → Repair as indicated
- Yes →

Check for broken wires attached to the switch.
- Yes → Repair as indicated
- No →

Check trigger switch for continuity
- Bad → Replace Switch

Switch checks good.

Check continuity of individual wires in the delivery hose set.
- Bad → Replace delivery hose set.

Wires check good.

Check for good connections of violet and brown wires to terminal strip under the dome at right of compressor.
- Bad → Repair as indicated

Wires check good.

		Check the VPL Harness plug connection at the Chassis. Check pin 9 - Brown wire to terminal strip just checked and Violet wire in the chassis to Terminal Block 12	Bad → Repair as indicated
1	5		

Wires and connections check good.

Call 1-800-968-8227 for Tech Support

Solution is Delivered to the Gun, but Poor Atomization or Lack of Atomization

Some pulsation is normal.
(Assumes the compressor and pump turn on and off correctly and there are no oustanding plumbing issues checked above)

NOTE
The compressor atomizes the fragrance with a low volume of air (less than 1 cfm) at low pressure of 10 to 15 psi.

1 10 Is the sytem fully primed? Hold the prime switch and trigger switch until there is a consistant flow. Full prime can take several minutes.
Check individual selections for correct prime using normal operational vend cycle.

When using the Prime button, atomization may be poor due to the volume of fluid being delivered to the nozzle. The Prime button delivers all 3 solutions to the nozzle at the same time thereby overloading the nozzle. When priming is complete, you can test the atomization of individual selections by making a regular vend.

Bad — Reprime the system as indicated.

System is fully primed.

Nozzle block may be damaged or partially blocked. Open the spray gun and unscrew the 4 port fitting from the nozzle block.

Bad — Correct or replace as indicated.

No damage or blockage.

Check visible portions of the delivery hose tubing for obvious kinks, breaks, or blockages.

Bad — Repair or replace the delivery hose set as indicated

No visible obstruction or damage.

Is there airflow at the nozzle?

Yes — Call 1-800-968-8227 for Tech Support

No

Reconnect tubing after test

Disconnect the union push fitting for the uncolored tubing in the electrical compartment. When the primer button and trigger switch are pressed, is there positive airflow from the uncolored tube?

Yes — The uncolored air flow tubing in the delivery hose is kinked, broken, clogged, or pinched. Repair or replace the delivery hose set as indicated.

No air flow

Reconnect tubing after test

Disconnect the uncolored tubing from the push fitting elbow installed in the compressor. When the primer button is pressed, is there positve airflow from the compressor?

No — Replace the compressor

Yes

1 10 Press and hold the primer button. Is there airflow from the top port of the 4th or rear valve?
(This valve has no fitting on the top port)

No — Verify that the elbow push fitting is installed in the valve port marked "1" and the compressor output tubing is connected to the opposite fitting on the valve body. If not, call 1-800-968-8227 for Tech Support.

Yes, there is proper pump output.

Yes, the fittings and tubes are correct.

Reconnect wires after test

Disconnect the violet wire from all but the 4th or rear valve (the compressor valve). With the unit in an idle status, does the valve actuate when the trigger switch is pressed? If not see the Trigger Switch Troubleshooting section above.

Yes the valve actuates.

Replace valve

Reconnect tubing after test

Disconnect the uncolored tubing from the elbow push fitting installed in valve port "1". When the primer button and trigger switch are pressed, is there positve airflow from the valve?

No — Replace valve

Yes

Check the uncolored tubing going to the delivery hose tubing connection in the electrical compartment for obstructions.

Yes — Correct Clogged, pinched, kinked, or broken tubing or fittings

No obstructions

Call 1-800-968-8227 for Tech Support

Timer Problems
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Timer Troubleshooting
(Assumes red 115vac and yellow 24vac indicators on chassis front panel are on)

WARNING !
Never connect or disconnect any wire or connector to the PLC with electrical power applied to the Fresh'N Up unless directed to. Doing so ***will*** *damage the PLC.*

	Fig.	Item				Fig.	Item
No Display at all	2	21	Is the Timer (ABC2) fuse holder blown fuse light on?	Yes	Replace Timer (ABC2) fuse	2	21
	1	2	No				
			Is 6 pin timer harness connector plugged into the controls chassis?	No	Correct problem		
			Yes				
	1	2	Are there any broken wires, damaged pins on the timer harness plug or is the harness cable damaged?	Yes	Repair as indicated		
			No				
			Open Timer case and look for broken wires to terminal strip P1	No	Replace Timer		
			Yes				
			Repair as indicated				
Timer display is on but does not count down at all			Has correct amount of money been deposited?				
			Yes				
			Is value accumulated on the display correctly for the money deposited?	No	Are there any boken wires or damaged pins where the Timer harness is connected to the chassis or is the harness cable damaged? Repair or replace as indicated.	1	2
			Yes		No		
			Confirm the timer is programmed with the correct number of "Coins To Start" and the correct "Cycle Time". Correct as indicated. (See page 13 - LED Timer Setup)		Trace the Interface cable from the Chassis to the door. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair or replaced as indicated.	1	7
			Programming is Correct		No		
			Replace Timer		Open Timer case and look for broken wires to terminal strip P1. Repair as indicated.		
					No		
					See Coin Mech/Bill Accepter Troubleshooting.		
Timer counts down but No Vacuum or Fragrance function The Fresh'N Up will always start in the vacuum mode. Fragrance selection can be made at anytime the timer is counting down. (Also see No Vacuum and No Fragrance trouble shooting sections.)	1	16	With the Timer counting down, is the yellow "Timer" indicator on the chassis front panel on?	No	Are there any broken wires, damaged pins on the timer harness plug where it is connected to the chassis, or is the harness cable damaged? Repair or replace as indicated.	1	2
			Yes		Harness wiring is Good		
					Confirm good wiring connection at CR3 terminal 4. There should be (2) green wires. Repair wiring as needed.	2	23
					Yes, wiring is good		
					Confirm good wiring connection between CR3-3 and Terminal Block 24. Repair wiring as needed.	2	23
					Yes, wiring is good		
					With the timer counting down, meter between CR3-4 and Terminal Block 18. *If you read 24 VAC* , replace the chassis front panel "Timer" indicator and re-start this section	2 1	23 16
					No 24 vac.		
					Open Timer case and look for broken or loose wires to terminal strip P1. Repair as indicated.		
					Yes, wiring is good		
					Replace Timer		

	2	24	With the Timer counting down, is the orange PLC "X7" indicator on?	No	See PLC Troubleshooting section.		
			Yes				
	2	24	With the timer counting down, is the orange PLC "Y4" indicator (if Vacuum selected) or "Y3" (if Fragrance selected) on?	No	See PLC Troubleshooting section.		
			Yes				
			See "No Vacuum" or "No Fragrance" Toubleshooting sections				
Timer counts down but does not switch to premium time (Assumes the chassis front panel Yellow "Timer" indicator is on.)			With the timer counting down, does the corresponding Red door indicator come on when a fragrance is selected?	No	Trace the Interface cable from the Chassis to the door. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair as indicated.	1	7
			Yes		Harness wiring is Good		
					Confirm wiring connections to door switches and indicator lights. Repair as indicated.		
					Connections are good.		
					Test indicator lights by disconnecting one wire and checking the indicator lamp for continuity. Replace as indicated.		
					Light is good		
					See PLC Troubleshooting section.		
	2	24	When a fragrance is selected on the front door, and the timer is counting down, is the orange PLC "Y5" indicator on?	No	See PLC Troubleshooting section.		
			Yes				
	1	2	Are there any broken wires, damaged pins on the timer harness plug where it is connected to the chassis, or is the harness cable damaged?	Yes	Repair or replace as indicated.		
			Harness wiring is Good				
	2	24	Confirm good wiring connection at PLC terminal Y5. Should be white wire going to timer harness.	Bad	Repair or as indicated.		
			Yes, wiring is good				
	2	24	Confirm good wiring connections between PLC terminal Y3 and Terminal Block 12.	Bad	Repair or as indicated.		
			Yes, wiring is good				
			Open Timer case and look for broken wires to terminal strip P1. Repair as indicated.	Bad	Repair or as indicated.		
			Yes, wiring is good				
			Replace Timer				

Coin Mech & Bill Acceptor Problems TABLE OF CONTENTS

Coin Mechanism and Bill Validator
(Assumes red 115vac and yellow 24vac indicators on chassis front panel are on)

WARNING !
*Never connect or disconnect any wire or connector to the Coin Mechanism or Bill Accepter with electrical power applied to the Fresh'N Up. Doing so **will** damage the Coin Mechanism or Bill Accepter.*

				Fig.	Item
Coin Mechanism rejects all coins	Does the coin mechanism indicate that there is power applied to the coin mechanism?	No	Trace the Interface cable from the Chassis to the coin mechanism. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair as indicated.	1	7
	Yes		Harness wiring is Good		
			Meter from pin 1 to pin 2 of the coin mechanism 3 pin plug. Does the meter read 24 VAC? If it does, replace the coin mechanism.		
			No		
			Confirm the chassis interface harness connections to chassis terminal blocks 17 (black wire) and 18 (red wire). Repair as indicated.	1	7
			Connections are good		
			Call 1-800-968-8227 for Tech Support		
	Check for coin jams	Yes	Clear or repair as indicated		
	None				
	Check the coin path for damage	Yes	Repair or replace as indicated		
	None				
	Check coin mech programming.	Bad	Reprogram as indicated		
	Program appears ok				
	Call 1-800-968-8227 for Tech Support				
Coin Mechanism & Bill Validator accepts coins and/or bills, but Timer does not accumulate value.	Has correct amount of money been deposited?				
	Yes				
	Does the digital coin counter register the money being deposited ($1.00 will register as 4 coins).	No	Trace the Interface cable from the Chassis to the coin mechanism and the bill validator. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair or replaced as indicated.	1	7
	Yes		Wires and connections are good		
			See Timer Troubleshooting section		
	Are there any broken wires or damaged pins where the Timer harness is connected to the chassis or is the harness cable damaged? Repair or replace as indicated.				
	Wires and connections are good				
	See Timer Troubleshooting section				
Coin Jams	Check the coin path for obstruction or other damage.	Yes	Repair or replace as indicated		
	No				
	Is the coin drawer full?	Yes	Empty coin drawer		
	No				
	Is there an obstruction between the coin mechanism and coin box?	Yes	Clear obstruction.		
	No				
	Call 1-800-968-8227 for Tech Support				

WARNING !
*Never connect or disconnect any wire or connector to the Coin Mechanism or Bill Accepter with electrical power applied to the Fresh'N Up. Doing so **will** damage the Coin Mechanism or Bill Accepter.*

TIP -
Don't try the same rejected bill more than 3 consecutive times. Doing so may temporarily "teach" the validator that the bill is a bad bill. This will make further troubleshooting more difficult.

Bill Validator has a high bill rejection rate

Are any of the option switches in the ON position?

Yes — Return all option switches to the OFF position and reprogram the validator with the coupon as instructed on pages 10-11.
NOTE-
If you choose to turn one switch on to override the coupon programming, you must set all of the switches to the desired function (switch 7 must be on and switch 8 must be off).

No

Is the validator programmed for 1 or 2 way acceptance and/or High Security?
These settings can give the appearance of a high rejection rate.

Yes — Reprogram the accepter for 4 way acceptance. If your area doesn't suggest High Security is required, consider reprogramming for High Acceptance rather than High Security.

No

The sensor optics may need cleaning. Does the red LED on the back of the validator give a three flash pattern?

Yes — Clean the bill path and optics lenses as follows -
1. Power the machine down. Disconnect the white 4 pin connector and remove the bill accepter along with it's mounting plate.
2. Remove the cassette
3. Lift the metal bar located just below the red LED on the rear of the validator and pull the LED housing out of the body by the metal bar.
4. Use a soft lint free cloth moistened with rubbing alcohol (ONLY) to clean the bill path and optics lenses.
5. Reassemble and return unit to service.

No

Call 1-800-968-8227 for Tech Support

Bill Validator doesn't accept any bills

Is the red LED indicator on the back of the validator on or off?

Off — Trace the Interface cable from the Chassis to the bill validator. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair as indicated. (1 7)

Harness wiring is Good

Meter from pin 1 to pin 2 of the white 4 pin bill validator harness in the bill validator compartment. Does the meter read 24 VAC? If it does, confirm the wiring is good. If it is, replace the bill validator.

No 24 vac

Confirm the chassis interface harness connections to chassis terminal blocks 17 (black wire) and 18 (red wire).
Repair as indicated. (1 7)

Connections are good

Call 1-800-968-8227 for Tech Support

On

While the unit is powered up, remove the bill cassette from the bill validator for 15 seconds and reinstall it. Wait 30 seconds. Was the problem cleared?

Yes — Return the unit to service

No

Does the red LED indicator on the back of the validator flash?

No — Are any of the option switches in the ON position?
If not, call 1-800-968-8227 for Tech Support

Yes, one or more option switches are ON.

Yes

Return all option switches to the OFF position and reprogram the validator with the coupon as instructed on pages 10-11.
NOTE-If you choose to turn one switch on to override the coupon programming, you must set all of the switches to the desired function (switch 7 must be on and switch 8 must be off).

Does it flash continuously but slowly?	Yes	Replace the Bill Validator
No		
Does it flash continuously but rapidly?	Yes	The stacker cassette is either full or jammed. Remove the cassette and remove the bills or clear the jam. Removing the cassette for 15 seconds will clear the error as indicated earlier. **Caution -** *Don't force the cassette. Even when jammed, it is removable. Forcing or prying the cassette off will seriously damage the unit.*
No		
Does it give a one flash pattern?	Yes	This indicates the bill path is jammed or obstructed. Clear the bill path as follows - 1. Power the machine down. Disconnect the white 4 pin connector and remove the bill accepter along with it's mounting plate. 2. Remove the cassette - remove any obstructions. 3. Lift the metal bar located just below the red LED on the rear of the validator and pull the LED housing out of the body by the metal bar. 4. Clear any obstructions or debris. 5. Use a soft lint free cloth moistened with rubbing alcohol (ONLY) to clean the bill path. 6. Reassemble and return unit to service.
No		
Does it give a two flash pattern?	Yes	Option switch 8 is not in the OFF position
No		Still flashes twice
		Remove the power from the unit and trace the Interface cable from the Chassis to the bill validator. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin? Repair as indicated.
		Harness wiring is Good
		Replace the bill validator
Does it give a three flash pattern?	Yes	The bill path sensors need cleaning. Remove the cassette and LED housing as described for one flash and clean the bill path as described.
No		
Does it give a four flash pattern?	Yes	Bill path is obstructed as in a one flash pattern. Clear the obstruction as indicated for one flash.
No		
Does it give a five flash pattern?	Yes	The cassette is removed or not fully seated. Remove the cassette fully for 15 seconds then reinstall.
Still does not accept any bills.		
Replace the bill validator		

1 7

PLC Problems
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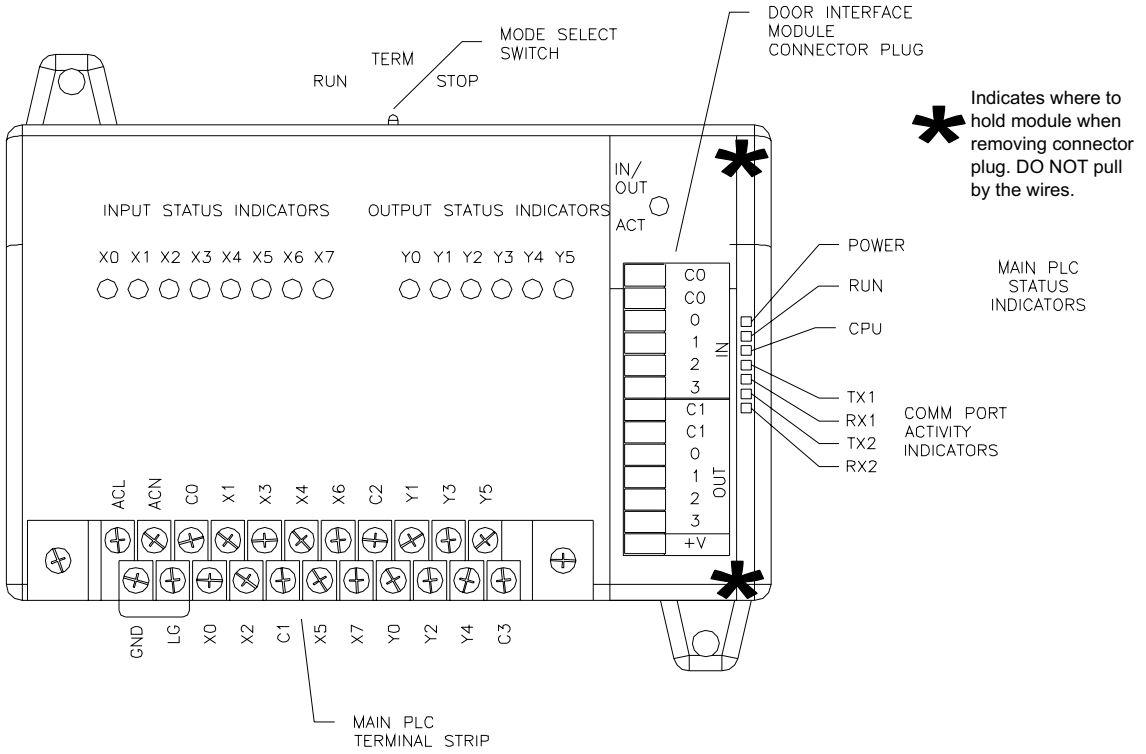
PLC Trouble Shooting

WARNING !
*Never connect or disconnect any wire or connector to the PLC with electrical power applied to the Fresh'N Up unless directed to. Doing so **will** damage the PLC.*



Main PLC Status Indicators (Square indicators on right side of PLC)	POWER	On (Green)	Indicates 120VAC is applied to PLC terminals ACL and ACN
		Off	No power applied to PLC. Check the ABC2 PLC fuse (It. xx Pg. Xx)
	RUN	On (Green)	The Mode Select Switch is in the RUN position. This is the correct position for the switch.
		Off	The Mode Select Switch is in the TERM or STOP position. The PLC will not function properly unless the switch is in the RUN position.
	CPU	On (Red)	There is an internal hardware or software failure in the PLC. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC.
		Off	This indicator is off for normal operation.
Comm Port Activity Indicators (Square green indicators)	TX1		Not used in the field at this time.
	RX1		Not used in the field at this time.
	TX2		Not used in the field at this time.
	RX2		Not used in the field at this time.
In/Out Act Indicator (Round green indicator)	Indicates door interface module is powered and communicating with the main PLC CPU.	On	Normal operation
		Off	Indicates a hardware failure. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC

Input Status Indicators
(Round orange indicators)

These indicators turn on when an input signal of the proper voltage is applied to the corresponding PLC terminal and is received by the CPU.

X0		Not used in the field at this time.
X1		Not used in the field at this time.
X2		Not used in the field at this time.
X3		Not used in the field at this time.
X4		Not used in the field at this time.
X5		Not used in the field at this time.
X6	On	Primer button input of 120VAC is applied to PLC terminal X6 (Connected to one primer button terminal).
X7	On	Input from the Timer is converted to 120VAC by CR3 and applied to PLC Terminal X7 (Connected to CR3-2).

Output Status Indicators
(Round orange indicators)

These indicators turn on when the CPU has given an instruction for an output to be supplied by the corresponding PLC output terminal. These are similar to a relay coil status indicator - they only indicate that the control circuit has activated.

Y0	On	24VAC signal should be supplied to PLC Terminal Y0 (Selection Valve #1 - The top door selection). Voltage source is applied the PLC main terminal C2 (connects to terminal block 5).
Y1	On	24VAC signal should be supplied to PLC Terminal Y1 (Selection Valve #2 - The middle door selection). Voltage source is applied the PLC main terminal C2 (connects to terminal block 5).
Y2	On	24VAC signal should be supplied to PLC Terminal Y0 (Selection Valve #3 - The bottom door selection). Voltage source is applied the PLC main terminal C2 (connects to terminal block 5).
Y3	On	Switches CR2-A2 to 24VAC neutral. Connect PLC Terminal Y3 to terminal block 12 via PLC Terminal C3.
Y4	On	Switches CR1-A2 to 24VAC neutral. Connect PLC Terminal Y3 to terminal block 12 via PLC Terminal C3.
Y5	On	Switches the Timer "2-Timer" leg to 24VAC neutral. Connect PLC Terminal Y5 to terminal block 12 via PLC Terminal C3.

Door Interface Module

Connects the door selector switches and door selection indicators to the PLC. There are no individual status indicators for the door interface module.

Module C0 and C0 (internally connected) (also jumpered to module C1)	-24VDC (sinking) common for the door selector switches. Connected to diode bridge (-) by blue wire.
Module Input 0	Input from Vacuum selector switch on the door.
Module Input 1	Input from Top Fragrance selector switch on the door.
Module Input 2	Input from Middle Fragrance selector switch on the door.
Module Input 3	Input from Bottom Fragrance selector switch on the door.
Module C1 and C1 (internally connected) (also jumpered to module C0)	-24VDC (sinking) common for the door selector indicators. Connected to diode bridge (-) or blue wire via jumper to module C0.
Module Output 0	Output for Vacuum selector indicator light on the door.
Module Output 1	Output for Top Fragrance selector indicator light on the door.
Module Output 2	Output for Middle Fragrance selector indicator light on the door.
Module Output 3	Output for Bottom Fragrance selector indicator light on the door.

+V		+24VDC power supply for module. Connected to diode bridge (+) by green wire. Yellow wire at this position provides +24VDC to door selection switches and indicator lamps.

NOTICE -
The following troubleshooting steps assume you have been directed to this section by another troubleshooting step, and have eliminated other potential faults such as power faults.

WARNING !
*Never connect or disconnect any wire or connector to the PLC with electrical power applied to the Fresh'N Up unless directed to. Doing so **will** damage the PLC.*

Begin all PLC troubleshooting with these steps

Is the Main Status "Power" LED on?	No	There is no 120VAC applied to the PLC. Confirm good wiring connections between PLC Terminal ACL and ABC-2 Fuse terminal 28, also Between PLC Terminal ACN and terminal block 1.
Yes		
Is the "In/Out ACT" LED on?	No	Indicates a hardware failure. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC
Yes		
Is the Main Status "CPU" LED on?	Yes	There is an internal hardware or software failure in the PLC. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC.
No		
Is the Main Status "RUN" LED on?	No	The Mode Select Switch is not in the "RUN" position.

No Door Selection Indicator Lights
The Fresh'N Up will always start in the vacuum mode.
Fragrance mode can only be selected with the Timer counting down.

Fig.	Item				Fig.	Item
		Power down the unit. Check the Door Interface Module plug for loose or broken wires.	Wiring is bad	1. Hold Module where where indicated above & gently work the green connector plug loose, and remove from the module. 2. Make sure the wires are inserted into the connector plug and tighten the terminal screws firmly with a properly sized screwdriver. 3. Reconnect the plug, seating it fully.		
		Wiring is good.				
1	7	Trace the Interface cable from the Door Interface Module to the door. Is there a disconnected plug, damaged harness cable, wire connection, broken or bent connector pin?	Wiring is bad	Repair as indicated.		
		Harness wiring is Good				
		Confirm wiring connections to door switches and indicator lights.	Wiring is bad	Repair as indicated.		
		Connections are good.				
		Test indicator lights by disconnecting one wire and checking the indicator lamp for continuity.	Lamp is bad	Replace as indicated.		
		Light is good				
1	7	Disconnect power to the unit and unplug the Door Interface Module connector as indicated above. Apply power to the unit and connect a voltmeter set to read DC Voltage to the "+V" and "C1" terminals of the Door Interface Module plug making sure to observe the polarity given above. Does the voltmeter read 23 to 25 VDC?	No	Replace the diode bridge. Observing the wire connections and polarity given above.	2	19
		Yes				
		There is an internal hardware or software failure in the PLC. Call 1-800-968-8227 for Tech Support to confirm. Replace the PLC.				

The timer is counting down, but no vacuum or fragrance function.

With the timer counting down, is the "X7" Input status indicator on?

Yes → If a voltmeter connected to PLC Terminals X7 and ACN reads 120VAC with the timer counting down, see the Vacuum Motor and Fragrance Output Troubleshooting sections below.

No → Are the wiring connections at PLC Main Terminals X7, C1, and ACN and terminal block terminal block 1 good?

No → Repair as indicated.

Yes → Does a voltmeter connected to PLC Main Terminals C1 and ACL read 120VAC?

No → Repair faulty wiring between PLC-C1, ACN, and/or terminal block 1.

Yes → With the timer counting down, does a voltmeter connected to PLC Terminals X7 and ACN read 120VAC?

Yes → See the Vacuum Motor and Fragrance Output Troubleshooting sections below.

No → Are all 4 wiring connections to CR3 good?
CR3-1 connects to PLC-ACL and fuse 28.
CR3-2 connects to PLC-X7.
CR3-3 connects to terminal block 24.
CR3-4 connects to the timer harness pin 6.

2 23

No → Repair as indicated.

Yes → With the timer counting down, does a voltmeter connected to CR3-4 and terminal block 24 read 24VAC?

2 23

Yes → Replace CR3

2 23

No → See Timer Troubleshooting Section

Vacuum Motor control output Troubleshooting
(Assumes X7 Input Status indicator is on)

With the timer counting down and Vacuum mode selected and indicated on the door, does the "Y4" status indicator come on?

Yes → Does a voltmeter connected to PLC Main Terminal C3 and Terminal Block 11 read 24VAC?
If it does, repair wiring between PLC terminal C3 and Terminal Block 12.

Wiring is good.

With the timer counting down and Vacuum mode selected and indicated, does a voltmeter connected to PLC Main Terminal Y4 and Terminal Block 11 read 24VAC?
If it does, see Vacuum Motor Troubleshooting section.

No → There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.

No → There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.

Pump & Compressor control output Troubleshooting
(Assumes X7 Input Status indicator is on)

With the timer counting down and Fragrance mode selected and indicated on the door, does the "Y3" status indicator come on?

Yes → Does a voltmeter connected to PLC Main Terminal C3 and Terminal Block 11 read 24VAC?
If it does, repair wiring between PLC terminal C3 and Terminal Block 12.

Wiring is good.

With the timer counting down and Fragrance mode selected and indicated, does a voltmeter connected to PLC Main Terminal Y3 and Terminal Block 11 read 24VAC?
If it does, see Fragrance Delivery Troubleshooting section.

No

There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.

There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.

Timer will not shift to premium time value
(Assumes the Timer Troubleshooting Section has been completed and assumes X7 Input Status indicator is on)

With the timer counting down and Fragrance mode selected and indicated on the door, does the "Y5" status indicator come on?

Yes

Does a voltmeter connected to PLC Main Terminal C3 and Terminal Block 11 read 24VAC?
If it does, repair wiring between PLC terminal C3 and Terminal Block 12.

Wiring is good.

With the timer counting down and Fragrance mode selected and indicated, does a voltmeter connected to PLC Main Terminal Y5 and Terminal Block 11 read 24VAC?
If it does, see Fragrance Delivery Troubleshooting section.

No

There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.

No

There is an internal hardware or software failure in the PLC.
Call 1-800-968-8227 for Tech Support to confirm.
Replace the PLC.