



# TROUBLESHOOTING

**SandenVendo America, Inc.**  
**NEW EQUIPMENT WARRANTY**  
**V21 VENDING MACHINES**

**Distributor - United States / Canada / Mexico**

- I. This warranty benefits each current owner of a V21 vending machine, whether that owner is the original purchaser or a transferee.
- II. The SandenVendo America, Inc. Company warrants each part of each new vending machine for a period of fifteen (15) months from the date of shipment, to be free from defects in material and workmanship. This Warranty DOES NOT include light bulbs, fluorescent tubes, fuses, finish or operating supplies.
- III. The hermetically-sealed refrigeration system used in machines designed to vend bottles, cans, and aseptic cartons is warranted to be free from defects in materials and workmanship for six (6) years, provided the hermetically-sealed portion of the system has not been opened or damaged. This six (6) year warranty DOES NOT include fan motors, temperature controls, capacitors, overload switches or starting relays.
- IV. Electronic control boards, LED displays and Vend motors, are warranted against defects in material and workmanship for five (5) years.
- V. Return authorization is required to qualify for warranty replacement. All requests for returns must be in writing or via phone, within the warranty period, and accompanied by a record of the cabinet model and serial number of the machine. Freight carrier return tickets will only be issued to the machine owner for refrigeration system returns. This warranty is voided when the serial number of a machine is missing. If a return is found to be inoperative due to defects in material and/or workmanship, we will, at our option, make necessary repairs or furnish a reconditioned or new replacement part or refrigeration system at no charge.
- VI. "Return Material Tags" indicating cabinet model, machine serial number and explanation of defect must accompany all returned parts or machines. "Return Material Tags" will be furnished upon request. On-site inspection of defective parts, at SandenVendo America, Inc. option, may be used to facilitate credit approval or the replacement of parts.
- VII. SandenVendo America, Inc. will pay normal transportation charges on refrigeration systems and parts replaced under this warranty. If special handling or premium transportation is requested, those charges will be assumed by the machine owner.
- VIII. Any parts and/or refrigeration systems replaced during the warranty period are warranted for the remaining time on the original warranty
- IX. This warranty DOES NOT apply to machines located outside the United States, Canada, and Mexico, reconditioned equipment, equipment sold "as is", or components designed to work on electric currents other than 110v/120hz 60 cycle, as specified on the serial tag.
- X. Title and risk of loss pass to the machine owner on delivery of the vending machine, replacement parts and/or refrigeration system to the common carrier. All loss and damage claims are the responsibility of the machine owner and must be filed with the delivering carrier.
- XI. This warranty DOES NOT include any service guarantee, either explicit or implied, nor will it extend to cover incidental or consequential damages resulting from purchaser or third party negligence, accident, vandalism, or an act of God.
- XII. SandenVendo America, Inc. reserves the right to make design changes, additions to, and improvements upon any of our product without incurring any obligation to incorporate same on any product previously manufactured.
- XIII. This warranty is in lieu of all other express warranties or other obligations or liabilities on our part, and we neither assume nor authorize any person to assume for us, any other obligation for liability in connection with the sale of said machines or parts thereof. EXCEPT AS SPECIFICALLY PROVIDED HEREIN, THERE ARE NO WARRANTIES GIVEN, EITHER EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES, INCLUDING SPECIFICALLY BUT WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED.

## PARTS RETURN/WARRANTY PROCESS

1. **Advance Warranty:** Order is placed using normal ordering payment methods. Once defective parts have been returned and inspected, a credit is issued and all applicable charges are reimbursed.
2. **Replace Upon Receipt:** Defective parts are to be returned for inspection. Once defective parts have been returned and inspected, replacement parts will be shipped as applicable.

## RETURN POLICY

**All parts returned must be accompanied by a Return Goods Authorization Number** received from your SandenVendo Customer Service Rep at 1-800-344-7216.

All parts must be properly wrapped and packed securely to avoid further damage. Failure to do so may void your warranty.

Mark all packages with the Returns Goods Authorization number provided by your CSR and send it by the most inexpensive method of transportation (Federal Express Ground or Overnight Transportation).

SandenVendo can also provide pick up service upon request. Please ask your CSR about this option.

Return package(s) to:

**SANDENVENDO**  
**Attn: Warranty Returns Department**  
**4010 Distribution Drive, Suite 200**  
**Garland, Texas 75041**

If you have requested 'replace upon receipt', a like part will be shipped at no charge if our inspection shows that the inoperative part became defective during the warranty period.

If you have requested 'advance warranty', a credit will be issued to cancel the invoice on which the replacement part was shipped. This credit will include any applicable prepaid transportation charges.

To receive credit the inoperative part must be returned within 30 days from the date the replacement was shipped or the RG was requested.

SandenVendo does not issue cash credit for the return of any part or accessory

**\*Canadian and International customers please contact your Customer Service Representative for return instructions.**

## TROUBLE SHOOTING GUIDE CHAMELEON / TRADE / HV3

The V21 vendor provides self-diagnostics to aid you in the trouble shooting process. Error codes are stored in the controller’s memory when a system error is sensed. These codes can be accessed by following the procedure listed below.

The trouble shooting guide below contains information on how to solve problems with the **1)** Vend system; **2)** Refrigeration system; **3)** Peripherals; **4)** Selection switches; and **5)** Miscellaneous problems. The guide is divided into subsections with these headers.

1. When the door is opened, the machine goes into “Door Open Data Retrieval” mode.
2. If there are any error states, the display will show “Error”. If there are no recorded errors, the display will show “none”.
3. If “Error” is displayed, press selection button two to enter the error diagnostics.
4. Pressing selection button one will scroll through the summary error codes (see appendix for detailed list).
5. To get greater detail on a particular error code, press selection button two.
6. While displaying a detailed error code, using selection button one (up/down), the controller shall cycle through all of the active detailed errors for the current summary level error code.
7. If selection button two (Enter) is pressed and held for 2 seconds during the display of any detailed error code, that detailed error code will be reset or cleared.
8. After clearing a displayed error code, either the next existing detailed error code, summary level error code, or the “nonE” message will be displayed, respectively.
9. If selection button three (Return) is pressed, the controller shall return to the summary level error code prompt.

ERROR	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
<b>Vending Mechanism</b>			
CJnn	Column jam – vend cycle for column “nn” did not start or complete.	Look in column to see if product is jammed against gate or bucket.	Clear jam, complete a test vend cycle.
		Insure can clip is in correct position (reference set-up diagram).	Correct clip position, complete vend test.
		Insure bottles are loaded as shown in the Product Setup and Loading label.	Load bottles correctly.
CSn	Chute sensor error.	No test available.	Replace chute sensor assembly.
<b>Selection Switches</b>			
SSnn	Bad Selection Switch - Selection switch nn is actuated for more than 15 seconds while in the Customer Mode or Door Open Sales Test Mode.	Check the selection switch number shown in the detailed error code “nn” to see if: 1) the button is sticking; 2) the switch is sticking/defective; 3) the harness is wired wrong/shorted.	Try to correct the problem if one of the three items is found. If you can’t correct it, then replace the component in question.
<b>Space to Sales</b>			
Ucnn	Column nn is not assigned to a selection.	Access space-to-sales mode and go to custom space-to-sales.	Change space-to-sales setting as required. In some situations, it may be quicker to completely reset all space-to-sales.
		Check all selections for the column shown in the detailed error description (nn).	

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
Usnn	Selection switch skipped - switch nn unassigned and a higher number switch is assigned.		Switch is assigned.
<b>Coin Changer</b>			
CC	Changer communication error - no changer communication for more than 2 seconds.	1) Check that red light is flashing on control board.	If light is not flashing, there is no power to board. Check and replug any unplugged connections.
			If fuse is blown replace it.
		2) Defective acceptor.	Replace transformer.
TtS	Tube sensor is defective -- reported by changer .	Check changer tubes for blockage.	Replace acceptor.
IC	Changer inlet chute blocked - no coins sensed for over 96 hours by the changer.	Check inlet chute for blockage. Drop coins to test acceptance. Manually clear the error.	Clear tube blockage. If no blockage is found, replace changer.
tJ	Tube pay out jam -- reported by changer.	Check inlet chute for blockage.	Clear inlet chute blockage. If no blockage found, replace changer. If acceptance rate is acceptable, system is OK. If acceptance rate is low or changer will not accept coins, replace changer.
CrCH	Changer check sum incorrect -- reported by changer.	Check changer tubes and payout for blockage.	Clear blockage, if found. If no blockage is found, replace changer.
EE	Excessive escrow requests -- more than 255 requests since the last coin was sensed.	Turn power switch off, wait at least five seconds, then turn on. Manually clear the error.	If error does not clear, replace changer/acceptor.
			Replace changer.
		Check escrow lever and associated mechanisms.	Manually clear the lever and error.
		Close door then reopen. Check to see if error still occurs.	Replace changer/acceptor.
nJ	Coin jam - reported by changer.	Check changer/acceptor for jammed coins or other obstructions.	If no obstructions are apparent, replace changer/acceptor.
LA	Low acceptance rate -- coin acceptance has fallen below 80%.	Check changer/acceptor for obstructions or dirt.	If no obstructions are apparent, and acceptance appears to be OK, this may be an indication of cheating attempts.
		Drop coins to test acceptance.	If no obstructions are apparent and coins do not accept, or acceptance rate is poor, replace changer/acceptor.
diS	Disconnected acceptor -- indicates that an acceptor is unplugged.	Check coin mechanism plugs. Check for faulty harness wiring (see wiring diagram for circuit).	Correct connections.
rouT	Coin routing - indicates a coin was routed incorrectly.	Verify changer set-up using manufacturer's recommendations.	If acceptor was set up correctly, replace changer.

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
<b>Dollar Bill Validator</b>			
bC	Bill validator communications - No bill validator communication for 5 seconds.	If changer or card reader is being used, check for "CC" or "rC" errors.	If there are no "CC" or "rC" errors:
		Turn off door switch and wait at least five seconds. Turn on door switch.	1) Check bill validator harness; 2) Replace bill validator. If there is a "C" or "rC" error: 1) Check control board MDB harness.
bFUL	Bill validator full - reported by validator (STACKER command).	Insure bill cashbox is empty and that the cashbox is properly closed and in place.	If cashbox appears to be OK, replace bill validator.
biLL	Bill validator motor is reported as defective by validator.	No test available.	Replace bill validator.
bJ	Bill jammed -- reported by validator.	Check bill validator for obstructions or dirt.	If no obstructions are apparent, replace bill validator.
brCH	Bill validator check sum is incorrect.	Turn power switch off. Wait at least five seconds. Turn power switch on. Manually clear the error.	If error does not clear, replace bill validator.
bOPn	Bill validator is open.	Check that bill cashbox is closed and in correct position.	If cashbox appears to be OK, replace bill validator.
bS	Bill validator sensor is not functioning.	Check bill validator for obstructions or dirt.	If no obstructions are apparent, replace bill validator.
<b>Card Reader</b>			
CrC	There is no card reader communication for 5 seconds.	If card reader/bill acceptor is being used, check for "rC" or "bC" errors.	If there is no "rC" or "bC" error: 1) Check changer harness. 2) Replace changer.
		Turn power switch off. Wait at least five seconds. Turn power switch on.	If there is a "rC" or "bC" error: 3) Check control board MDB harness.
CrXY	Most recent "non-transient error" from the card reader.	No test available.	Refer to card reader manual for corrective action.
<b>Refrigeration</b>			
SEnS	The temperature sensor is defective or unplugged.	Check to see that temperature sensor harness is plugged into door harness at air dam area.	If the sensor is unplugged, replug it.
		Check for temperature sensor connection J7 on control board is plugged in.	
CnPr	System has failed to decrease temperature 1° per hour while the compressor is running.	Access relay mode (refer to programming manual).	Refer to the refrigeration section on the following pages.
		Check refrigeration settings (refer to refrigeration section of programming manual).	Change settings as required.
Htr	Heater system has failed to increase temperature 1° per hour while heater is on.	Heater circuit not properly wired.	Check electrical connections.
		Bad sensor on heater circuit.	Replace sensor.
		Defective heating element.	Replace heating element.
<b>Miscellaneous Problems</b>			
ds	Door has been open for more than one hour.	Check the vendor's door switch to see if it's sticking or miswired.	Replace the door switch, if defective.
Ran	Ram check sum for service mode settings stored in non-volatile memory has been corrupted.	No test available.	If error shows up frequently, replace the control board.
ACLO	AC voltage to the controller is low for more than 30 seconds.	Check for low voltage at the wall outlet at unit start-up.	Contact a qualified electrician.

ERROR	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
SF	Scaling Factor error - one of the credit peripherals has introduced a scaling factor that is not compatible with the current configuration.	Check the connections of changer harness; make sure changer is plugged in and working.	Make corrections to harness or replace the changer if necessary.
IS	Machine's coin inlet sensor is blocked for more than 1 minute.	Check changer harnessing for cut, pinched or crimped wires.	Replace harnesses or changer.
Ib	3 successive coins are detected at the inlet but do not make it into the changer in 10 seconds.	Check inlet for blockage. If nothing is found, check changer harnessing for cut, pinched or crimped wires.	Clear blockage or replace harness or changer.
ERROR	PROBABLE CAUSE	CORRECTIVE ACTION	
<b>Coin Acceptance/Payout (Record all errors for reference if SandenVendo America, Inc. Technical Service is required)</b>			
Coin mechanism will not accept coins.	No power to control board.	Check to make sure the red LED on the control board is flashing red. If flashing, check MDB harness connections. If connections are good, replace changer.	
	Harness from coin mech to board is cut or disconnected.	Use a meter and check each wire for continuity and ground.	
	Short in coin mechanism.	Replace coin changer/acceptor.	
	Acceptor is dirty or other problem may exist (not tuned).	Clean acceptor or contact your local coin mech dealer.	
	Defective control board.	Replace control board.	
No acceptance or rejects a percentage of good coins.	Coin return lever pressing down on acceptor's coin plunger.	Make sure changer is mounted correctly and the coin return lever is in the proper position.	
	Acceptor is dirty or foreign matter is in the path.	Clean acceptor or contact dealer.	
	Coin changer is improperly tuned (if turnable)	Contact manufacturer for tuning.	
	Defective control board.	Replace/test control board.	
Always accepts coins but gives erratic/no credit.	If NO CREDIT: Defective harness between coin mech and control board (will have "CC" error).	Check harness for cut wires or wrong/bad connections. Test each wire for continuity or test to ground. If found to be defective, replace.	
	If ERRATIC OR NO CREDIT: Acceptor or coin mech.	Replace coin mech and test.	
	If NO CREDIT: Defective control board.	Replace/test control board.	
Changer will not payout coins.	Defective harness between coin mech and control board.	Test vendor's manual coin payout. If vendor won't pay out using the COIN mode or during sales, check harness for cuts, bad continuity or wrong connections. If defective, replace and test.	
	Defective coin mech.	Replace coin mech and test.	
	Defective controller board.	If coin mech won't payout coins manually in the COIN mode or during the Sales Mode and the above two procedures have failed, replace the control board and test payout both in the COIN mode and during a sale.	
	Changer payout buttons are disabled while door is closed or while in Open-Door Sales Mode.	Enter the Service Mode or access the Coin Payout Mode ("COIN").	
<b>BILL ACCEPTANCE</b>			
Bill validator will not pull bill in.	No power to validator.	Turn off power switch. Wait for 10 seconds. Turn on power switch and see if bill validator cycles. If not, check validator harnessing or replace the bill validator.	
	Acceptance disabled by coin mech (if present), or bad harnessing.	Make sure that the coin mech is plugged in (accepts coins) and that the coin tubes have enough coins to enable bill acceptance.	
	Coin mech is not operative.	Make sure that the changer harnessing is correctly connected and has continuity. Repair or replace if necessary.	
	Replace validator and test.	If validator accepts, bill validator was defective.	

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Bill validator takes a bill but does not establish credit.	Defective validator harness (credit not getting from validator to control board through the harness).	Make sure that the validator and harnessing is correct for your style of validator and it is plugged in and wired properly.
	Defective validator.	Replace/test validator.
	Defective control board.	Replace/test control board.
Bill validator takes a bill and credits but not erasing credit.	Defective bill validator.	Replace validator and test acceptance and erasure of credit.
	Defective control board.	Replace/test control board for erasure of credit.
	Both vend sensors are defective.	Replace vend sensor.
Validator takes a bill and allows payback of coins without a selection.	Configurations not set properly in control board.	Access vendor configuration mode and check the "Force Vend" setting.
<b>VENDING PROBLEMS</b>		
Multiple vending (not canceling credit).	If multiple vending is from all selections, delivery sensor is cut, improperly	Replace sensors and test.
	NOTE: If both sensors are not present or are defective, the V21 will allow up to four products from each column to be vended before the column is determined to be sold out.	Replace sensors and test.
	Depth setting on partition not adjusted correctly.	Move can clip to proper position (refer to loading diagram on machine).
	Mechanical Error.	Check for correct operation of the motor, gate link, bucket and gate.
Wrong product vending upon selection.	Misload by vendor loader.	Ensure that all product within each column is the same.
	Space-to sales not set properly.	Look for StS error. Check or reset space-to-sales.
	Miswired selection.	Check the wiring from the controller to the selection switches. Test selection switches.
No vend upon selection.	Delivery sensor is malfunctioning or a column is jammed or sold out.	Check to see if the delivery chute sensor LED is constantly on. If so, replace vend sensor.
	Defective controller board.	Unplug the sensors connection from the control board. Watch LED. If the sensor LED stays on, replace the defective control board.
Dry Vend (No refund).	Premature vend detection.	Tap on chute and check for a green flashing light on the control board. If no light is flashing or light is constantly on, replace
Completely sold out.	Check to see if blocking is enabled.	Change time or turn off blocking.
	Check if vend sensor is unplugged.	Plug back in.
	Space to sales has been cleared.	Reinitiate space to sales.
<b>MISCELLANEOUS PROBLEMS</b>		
Display shows sold out immediately upon pressing selection button of full column (sold out not clearing).	Door switch wired incorrectly or cut/pinched.	Manually press door switch. If lights and fan don't come on, check wiring or replace door switch.
	Control board.	If door switch is replaced and still reading sold out, replace control board.
Vendor appears dead; no digital display and no lights.	Defective main harness or secondary power harness to the transformer.	Check transformer.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
No digital display; vendor lights on.	Defective display or display harness.	Check display and display harness. Replace if necessary.
	Check for a flashing red light on control board.	If no light, replace control board.
Vendor scrolls message on display but does not accept money.	Changer out of tune.	See "Tuning Changer".
	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts money but does not credit.	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts and credits money but does not vend (does not indicate a sold-out).	Defective selection switch	Replace switch
	Defective selection switch harness	Repair or replace harness.
	Defective control board.	Replace control board.
Vendor delivers wrong product.	Vendor loaded wrong.	Correct loading.
	Vendor space-to-sales set wrong.	See "StS".
	Defective control board.	Replace control board.
Flashing 8888's on the LED.	Chips on control board not seated properly.	Seat the chips down properly
	Bad LED connection.	Replace LED and/or harness.
	Defective control board.	Unplug everything from the board except the LED and power in. If the 8888's remain then replace the control board.
	Defective components.	If the 8888's have disappeared from the previous step, then begin plugging in harnesses one at a time. Replace whatever causes the 8888's to reappear. Be sure to power down each time you plug in a harness.
Solid 8888's on the LED	Defective LED.	Replace LED and/or harness.
	Defective control board.	Replace control board.
<b>Refrigeration</b>		
Refrigeration unit will not run even at the specific temperature	No power or insufficient to refrigeration unit	Check power supply and connection to see if each component gets the specific voltage of power. Replace parts and line if necessary.
	Defective temperature sensor	Replace temperature sensor
	Defective relay	Replace the refrigeration relay
	Defective control board	Replace board
Unit will only run in the compressor test mode. (Located under tEST)	Defective door switch.	Open and close the door to make sure lights and fan come on. If not, then check the door switch.
	Defective temperature sensor	Follow the same steps detailed above about the temperature sensor.
	Wait the 3 minute delay once the door is closed	Wait to see if unit comes on.
	Defective control board	If unit still does not come on, then replace the control board
Unit will not run even in the compressor test mode. **NOTE: Leave the compressor test mode on in order to check for voltage.	Defective door switch.	Upon opening the door, the lights and condenser fan motors should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
Refrigeration unit runs constantly.	Defective door switch.	Upon opening the door, the lights and compressor should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
	Defective relay	Replace the refrigeration relay
Condenser fan motor doesn't run.	Defective condenser fan motor	Replace the motor
	Bad connection	Check the connection and lines
	Defective relay	Replace the condenser motor relay

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Compressor will not start, condenser fan motor running - unit hot (power to compressor)	Defective overload relay	Replace the overload relay.
	Compressor motor rocked	Replace the refer unit.
	Defective capacitor	Replace the capacitor.
	Defective PTC relay	Replace the PTC relay.
Compressor starts but doesn't run.	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings and capillary	Replace the refrigeration unit.
	Defective overload relay	Replace the overload relay.
Compressor runs but cabinet temperature warm.	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings	Replace the refrigeration unit.
	Defective drainage	Make sure the drain hose is not kinked or clogged.
	Defective temperature sensor	Replace the temperature sensor.
	Poor air flow	Make sure nothing is sitting in front of the evaporator.
	Defective control board	Replace the control board.
	Defective door seal	Make sure the vend flap and gasket are not open or damaged.
Evaporator frosted over	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings	Replace the refer unit.
	Defective drainage	Make sure the drain hose is not kinked or clogged. Re-install hose correctly if kinked or clogged.
	Defective temperature sensor	Replace the temperature sensor.
	Defective control board	Replace the board.
	Poor sealing	Check gasket, vend flap, and permagum on the bulkhead.
	Product freezing up (too cold)	Temperature setting too low.
Defective temperature sensor		Replace the temperature sensor.
Defective control board		Replace the board.
Excessive noise	Fan blade hitting shroud or loose fitting	Replace the fan blade or re-install correctly.
	Defective fan motor	Re-install or replace the motor.
	Defective compressor	Replace the refrigeration unit.
	Refrigeration base deformed	Re-install or replace the base and plastic trim.
Drain pan over flow	Poor sealing	Make sure the vend flap closes correctly and the gasket is sealing.
	Evaporation board (wick) dirty	Clean or exchange the evaporation board.
	Drain hose falls out from the stud of drain pan.	Install hose correctly .
	Defective condenser fan motor	Replace the motor.
	Abnormal amount of water goes into the pan at one time	Throw out the water and check periodically to make sure the problem is not still occurring.
<b>Heater</b>		
Heater will not run even at the specific ambient temperature	No power to refrigeration unit	Check power supply and connection. Replace if necessary.
	Defective temperature sensor	Replace temperature sensor.
	Defective relay	Replace the heater relay.
	Defective control board	Replace the control board
Refrigeration unit will not run even at the specific cabinet temperature	No power to refrigeration unit	Check power supply and connection. Replace if necessary.
	Defective temperature sensor	Replace temperature sensor.
	Defective control board	Replace the control board

Unit will only run in the heater test mode. (Located under tEST)	Defective door switch.	Open and close the door to make sure lights and fan come on. If not, then check the door switch.
	Defective temperature sensor	Follow the same steps detailed above about the temperature sensor.
	Defective control board	Replace the control board.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Unit will not run even in the heater test mode. <b>**NOTE:</b> Leave the compressor test mode on in order to check for voltage.	Defective door switch.	Upon opening the door, the lights and compressor should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
Heater runs but product freezing up.	Defective heater	Replace the heater assembly.
	Poor air flow	Make sure that nothing is sitting in front of the heater.
	Defective evap fan motor	Check the connection and installation of fan blade. Replace the motor if necessary.
	Defective temperature sensor	Replace the temperature sensor.
	Defective control board	Replace the board.
	Defective door seal	Make sure the vend flap and gasket are not open or damaged.

## TROUBLE SHOOTING GUIDE HVV

The V21 vendor provides self-diagnostics to aid you in the trouble shooting process. Error codes are stored in the controller’s memory when a system error is sensed. These codes can be accessed by following the procedure listed below.

The trouble shooting guide below contains information on how to solve problems with the 1) Vend system; 2) Refrigeration system; 3) Peripherals; 4) Selection switches; and 5) Miscellaneous problems. The guide is divided into subsections with these headers.

### ACCESSING ERROR CODES USING DIAGNOSTICS MODE

ERROR	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
<b>Vending Mechanism</b>			
Column Jam	Column jam – vend cycle for column “nn” did not start or complete.	Look in column to see if product is jammed against gate or bucket.	Clear jam, complete a test vend cycle. Complete an auto-homing cycle
		Insure can clip is in correct position (reference set-up diagram).	Correct clip position, complete test vend and auto-homing cycle.
		Insure bottles are loaded correctly.	Load bottles correctly. See loading label.
Chute Sensor Error	Chute sensor error.	No test available.	Replace chute sensor assembly.
<b>Selection Switches</b>			
Selection Switch Error #nn	Bad Selection Switch - Selection switch nn is actuated for more than 15 seconds while in the Customer Mode or Door Open Sales Test Mode.	Check the selection switch number shown in the detailed error code “nn” to see if: 1) the button is sticking; 2) the switch is sticking/defective; 3) the harness is wired wrong/shorted.	Try to correct the problem if one of the three items is found. If you can’t correct it, then replace the component in question.
<b>Space to Sales</b>			
Unassigned Column. #nn	Column nn is not assigned to a selection.	Access space-to-sales mode and go to custom space-to-sales. Check all selections for the column shown in the detailed error description (nn).	Change space-to-sales setting as required. In some situations, it may be quicker to completely reset all space-to-sales.
Unassigned Sel. SW. #nn	Selection switch skipped - switch nn unassigned and a higher number switch is assigned.		Switch is assigned.
<b>Coin Changer</b>			
Coin Communication	Changer communication error - no changer communication for more than 2 seconds.	1) Check that red light is flashing on control board.	If light is not flashing, there is no power to board. Check and replug any unplugged connections.
		2) Check to make sure service cord is plugged into the power distribution box.	If all connections are properly plugged in.
		3) Check fuse.	If fuse is blown replace it.
		4) Check transformer.	Replace transformer.
		5) Defective acceptor	Replace acceptor.
Tube Sensor	Tube sensor is defective - reported by changer.	Check changer tubes for blockage	Clear tube blockage. If no blockage is found, replace changer.

<b>ERROR</b>	<b>DESCRIPTION OF ERROR CODE</b>	<b>CHECKING METHOD</b>	<b>CORRECTIVE ACTION</b>
Coin Inlet	Changer inlet chute blocked - no coins sensed for over 96 hours by the changer.	Check inlet chute for blockage. Drop coins in Sales Mode or Tube Fill Mode to test acceptance. Manually clear the error.	Clear inlet chute blockage. If no blockage found, replace changer. If acceptance rate is acceptable, system is OK. If acceptance rate is low or changer will not accept coins, replace changer.
Tube Jam	Tube pay out jam -- reported by changer.	Check changer tubes and payout for blockage.	Clear blockage, if found. If no blockage is found, replace changer.
Coin Read Only Memory	Changer check sum incorrect -- reported by changer.	Unplug machine, wait at least five seconds, replug machine. Manually clear the error.	If error does not clear, replace changer/acceptor.
			Replace acceptor.
Excessive Escrow	Excessive escrow requests -- more than 255 requests since the last coin was sensed.	Check escrow lever and associated mechanisms.	Manually clear the lever and error.
		Close door then reopen. Check to see if error still occurs.	Replace changer/acceptor.
Coin Jam	Coin jam - reported by changer.	Check changer/acceptor for jammed coins or other obstructions.	If no obstructions are apparent, replace changer/acceptor.
Low Acceptance	Low acceptance rate -- coin acceptance has fallen below 80%.	Check changer/acceptor for obstructions or dirt.	If no obstructions are apparent, and acceptance appears to be OK, this may be an indication of cheating attempts.
		Drop coins to test acceptance.	If no obstructions are apparent and coins do not accept, or acceptance rate is poor, replace changer/acceptor.
Accept Disconnect	Disconnected acceptor -- indicates that an acceptor is unplugged.	Check coin mechanism plugs. Check for faulty harness wiring (see wiring diagram for circuit).	Correct connections.
Routing	Coin routing - indicates a coin was routed incorrectly.	Verify changer set-up using manufacturer's recommendations.	If acceptor was set up correctly, replace acceptor.
<b>Dollar Bill Acceptor</b>			
Bill Acceptor Communication	Bill acceptor communications - No bill acceptor communication for 5 seconds.	If changer or card reader is being used, check for "Changer Communication" or "Rom Checksum" errors.	If there are no "Changer Communication" or "Rom Checksum" errors: 1) Check bill acceptor harness; 2) Replace bill acceptor. If there are those errors: 1) Check control board MDB harness.
		Unplug service cord. Wait at least 5 seconds. Plug in service cord. Manually clear the error.	
Bill Acceptor Full	Bill acceptor full - reported by acceptor (STACKER command).	Insure bill cashbox is empty and that the cashbox is properly closed and in place.	If cashbox appears to be OK, replace bill acceptor.
Bill Acceptor Motor	Bill acceptor motor is reported as defective by acceptor.	No test available.	Replace bill acceptor.
Bill Acceptor Jammed	Bill jammed -- reported by acceptor.	Check bill acceptor for obstructions or dirt.	If no obstructions are apparent, replace bill acceptor.

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
Bill Acceptor ROM	Bill acceptor check sum is incorrect.	Unplug service cord. Wait at least 5 seconds. Plug in service cord. Manually clear the error.	If error does not clear, replace bill acceptor.
Bill Acceptor Open	Bill acceptor is open.	Check that bill cashbox is closed and in correct position.	If cashbox appears to be OK, replace bill acceptor.
Bill Acceptor Sensor	Bill acceptor sensor is not functioning.	Check bill acceptor for obstructions or dirt.	If no obstructions are apparent, replace bill acceptor.
<b>Card Reader</b>			
Card Reader Communication	There is no card reader communication for 5 seconds.	If card reader/bill acceptor is being used, check for "Rom Checksum" error.	If there is no "Rom Checksum" error: 1) Check changer harness. 2) Replace card reader.
		Unplug service cord. Wait at least 5 seconds. Plug in service cord. Manually clear the error.	If there is a "Rom Checksum" error: Check control board MDB harness.
Card Reader	Most recent "non-transient error" from the card reader.	No test available.	Refer to card reader manual for corrective action.
<b>Refrigeration</b>			
Temp Sensor	The temperature sensor is defective or unplugged.	Check to see that temperature sensor harness is plugged into door harness at air dam area.	If the sensor is unplugged, replug it.
		Check for temperature sensor connection J7 on control board is plugged in.	
Not Cooling	System has failed to decrease temperature 1° per hour while the compressor is running.	Access relay mode (refer to programming manual).	Refer to the refrigeration troubleshooting flow chart on the following pages.
		Check refrigeration settings (refer to refrigeration section of programming manual).	Change settings as required.
Not Heating	Heater system has failed to increase temperature 1° per hour while heater is on.	Heater circuit not properly wired.	Check electrical connections.
		Bad sensor on heater circuit.	Replace sensor.
		Defective heating element.	Replace heating element.
<b>Miscellaneous Problems</b>			
Door Switch	Door has been open for more than one hour.	Check the vendor's door switch to see if it's sticking or miswired.	Replace the door switch, if defective.
Ram Error	Ram check sum for service mode settings stored in non-volatile memory has been corrupted.	No test available.	If error shows up frequently, replace the control board.
AC Low	AC voltage to the controller is less than 20Vrms for more than 30 seconds.	Check for low voltage at the wall outlet at unit start-up.	Contact a qualified electrician.
Scale	Scaling Factor error - one of the credit peripherals has introduced a scaling factor that is not compatible with the current configuration.	Check the connections of changer harness; make sure changer is plugged in and working.	Make corrections to harness or replace the changer if necessary.
Inlet Sensor	Machine's coin inlet sensor is blocked for more than 1 minute.	Check changer harnessing for cut, pinched or crimped wires.	Replace harnesses or changer.

ERROR	DESCRIPTION OF ERROR CODE	CHECKING METHOD	CORRECTIVE ACTION
Inlet block	3 successive coins are detected at the inlet but do not make it into the changer in 10 seconds.	Check inlet for blockage. If nothing is found, check changer harnessing for cut, pinched or crimped wires.	Clear blockage or replace harness or changer.
ERROR	PROBABLE CAUSE	CORRECTIVE ACTION	
<b>Coin Acceptance/Payout (Record all errors for reference if SandenVendo America, Inc. Technical Service is required)</b>			
Coin mechanism will not accept coins.	No power to control board.	Check to make sure the red LED on the control board is flashing red. If flashing, check MDB harness connections. If connections are good, replace changer.	
	Harness from coin mech to board is cut or disconnected.	Use a meter and check each wire for continuity and ground.	
	Short in coin mechanism.	Replace coin changer/acceptor.	
	Acceptor is dirty or other problem may exist (not tuned).	Clean acceptor or contact your local coin mech dealer.	
	Defective control board.	Replace control board.	
No acceptance or rejects a percentage of good coins.	Coin return lever pressing down on acceptor's coin plunger.	Make sure changer is mounted correctly and the coin return lever is in the proper position.	
	Acceptor is dirty or foreign matter is in the path.	Clean acceptor or contact dealer.	
	Coin changer is improperly tuned (if tunable).	Contact manufacturer for tuning.	
	Defective control board.	Replace/test control board.	
Always accepts coins but gives erratic/no credit.	If NO CREDIT: Defective harness between coin mech and control board (will have "Changer Communication" error).	Check harness for cut wires or wrong/bad connections. Test each wire for continuity or test to ground. If found to be defective, replace.	
	If ERRATIC OR NO CREDIT: Acceptor or coin mech.	Replace coin mech and test.	
	If NO CREDIT: Defective control board.	Replace/test control board.	
Changer will not payout coins.	Defective harness between coin mech and control board.	Test vendor's manual coin payout. If vendor won't pay out using the CPO mode or during sales, check harness for cuts, bad continuity or wrong connections. If defective, replace and test.	
	Defective coin mech.	Replace coin mech and test.	
	Defective controller board.	If coin mech won't payout coins manually in the Change Payout mode or during the Sales Mode and the above two procedures have failed, replace the control board and test payout both in the Change Payout mode and during a sale.	
	Changer payout buttons are disabled while door is closed or while in Open-Door Sales Mode.	Enter the Service Mode or access the Coin Payout Mode ("Change Pay Out").	
<b>BILL ACCEPTANCE</b>			
Bill acceptor will not pull bill in.	No power to acceptor.	Unplug service cord. Wait for 10 seconds. Plug in service cord and see if bill acceptor cycles. If not, check acceptor harnessing or replace the bill acceptor.	
	Acceptance disabled by coin mech (if present), or bad harnessing.	Make sure that the coin mech is plugged in (accepts coins) and that the coin tubes have enough coins to enable bill acceptance.	
	Coin mech is not operative.	Make sure that the changer harnessing is correctly connected and has continuity. Repair or replace if necessary.	
	Replace acceptor and test.	If acceptor accepts, bill acceptor was defective.	

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Bill acceptor takes a bill but does not establish credit.	Defective acceptor harness (credit not getting from acceptor to control board through the harness).	Make sure that the acceptor and harnessing is correct for your style of acceptor and it is plugged in and wired properly.
	Defective acceptor.	Replace/test acceptor.
	Defective control board.	Replace/test control board.
Bill acceptor takes a bill and credits but not erasing credit.	Defective bill acceptor.	Replace acceptor and test acceptance and erasure of credit.
	Defective control board.	Replace/test control board for erasure of credit.
	Both vend sensors are defective.	Replace vend sensor.
Acceptor takes a bill and allows payback of coins without a selection.	Controller configurations not set properly.	Access vendor configuration mode and check the "Forced Vend" setting.
<b>VENDING PROBLEMS</b>		
Multiple vending (not canceling credit).	If multiple vending is from all selections, delivery sensor is cut, improperly grounded, or defective.	Test vend sensor (green light on control board when the chute is hit). Replace sensors and test.
	NOTE: If both sensors are not present or are defective, the V21 will allow up to four products from each column to be vended before the column is determined to be sold out.	Replace sensors and test.
	Depth setting on partition not adjusted correctly.	Move can clip to proper position (refer to loading diagram on machine).
	Mechanical Error.	Check for correct operation of the motor, lock link, bucket and gate.
Wrong product vending upon selection.	Misload by vendor loader.	Ensure that all product within each column is the same.
	Space-to sales not set properly.	Look for Space to Sales error. Check or reset space-to-sales.
	Miswired selection.	Check the wiring from the controller to the selection switches. Test selection switches.
No vend upon selection.	Delivery sensor is malfunctioning or a column is jammed or sold out.	Check to see if the delivery chute sensor LED is constantly on. If so, replace vend sensor.
	Defective controller board.	Unplug the sensors connection from the control board. Watch LED. If the sensor LED stays on, replace the defective control board.
Dry Vend (No refund).	Premature vend detection.	Tap on chute and check for a green flashing light on the control board. If no light is flashing or light is constantly on, replace sensors.
Completely sold out.	Check to see if blocking is enabled.	Change time or turn off blocking.
	Check if vend sensor is unplugged.	Plug back in.
	Space to sales has been cleared.	Reinitiate space to sales.
<b>MISCELLANEOUS PROBLEMS</b>		
Display shows sold out immediately upon pressing selection button of full column (sold out not clearing).	Door switch wired incorrectly or cut/pinched.	Manually press door switch. If lights and fan don't come on, check wiring or replace door switch.
	Control board.	If door switch is replaced and still reading sold out, replace control board.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Vendor appears dead; no digital display and no lights.	Defective main harness or secondary power harness to the transformer.	Check transformer and fuse.
	Control Board LED	Check power to control board. If there is power check LED. If LED is not lit or is solid red, replace the control board.
	Check if vend sensor is unplugged.	Plug back in.
	Space to sales has been cleared.	Reinitiate space to sales.
No digital display; vendor lights on.	Defective display or display harness.	Check display and display harness. Replace if necessary.
	Check for a flashing red light on control board.	If no light, replace control board.
	Defective MDB harness.	Replace MDB harenss.
Vendor scrolls message on display but does not accept money.	Changer out of tune.	See "Tuning Changer".
	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts money but does not credit.	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts and credits money but does not vend (does not indicate a sold-out).	Defective selection switch	Replace switch
	Defective selection switch harness	Repair or replace harness.
	Defective control board.	Replace control board.
Vendor delivers wrong product.	Vendor loaded wrong.	Correct loading.
	Vendor space-to-sales set wrong.	See "Space to Sales".
	Defective control board.	Replace control board.
Display not Functioning correctly or dead.	Check connection.	Replace display and/or harness.
<b>Refrigeration</b>		
Refrigeration unit will not run.	Defective temperature sensor.	1. Check connection. 2. Replace temperature sensor.
	Defective control board.	Replace board.
Refrigeration unit will not run at all.	No power to vendor.	Check power supply, also check service cord connections.
Unit will only run in the compressor relay test mode. (Located under Test).	Defective door switch.	Open and close the door to make sure lights come on. If not, then check the door switch.
	Defective temperature sensor.	Follow the same steps detailed above about the temperature sensor.
	Wait the 3 minute delay once the door is closed.	Wait to see if unit comes on.
	Defective control board.	If unit still does not come on, then replace the control board.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Unit will not run even in the compressor test mode. **NOTE: Leave the compressor test mode on in order to check for voltage.	Defective control board.	Remove air dam and check 3-pin connection on power board for 110V at pins 1 & 3. Turn compressor on in test mode. (See flow chart if 110V exists).
	Defective relay.	Upon opening the door, the lights and compressor should shut off. If they don't, replace the door switch.
Refrigeration unit runs constantly.	Defective door switch.	Upon opening the door, the display should not read "Hello Welcome...". If it does, then replace the door switch.
	Defective control board	Replace the board.
	Defective relay – contacts are welded together.	Replace power board.
Compressor will not start.	Overload protector inoperative.	Check overload,(apply insulated jumper across terminal, if compressor starts replace overload protector.
	Defective door switch.	Check for error codes. Replace door switch.
Compressor will not start, condenser fan motor running - unit hot (power to compressor).	Starting relay or capacitor inoperative.	Replace starting relay or capacitor.
	Compressor inoperative.	Disconnect power to vender, remove all leads from compressor, check continuity from "common", "start" and "run" to compressor case. If shows continuity, replace compressor (windings shorted). Also check from common to start, verify that continuity exist between both terminals.
Compressor starts but does not run.	Will not cycle.	Check overload and contacts. Replace if needed. Replace Start relay. Check, replace if needed.
	Starting relay stays closed.	
	Compressor motor problem.	
Compressor runs but cabinet temperature warm.	Loss of refrigerant.	Replace refrigeration unit, contact SandenVendo America, Inc. Technical for warranty service. Check for obstruction of fan blades check circuit to fan motor, replace. Clean lint and dirt from condenser fins. Check for obstruction of evaporator fan blades, check circuit for fan motor, replace. Check for moisture on seal adjust inner door as needed. Replace.
	Condenser fan not working.	
	Blocked or dirty condenser (refer to initial installation in the service manual).	
	Evaporator fan not working.	
	Bad inner door seal.	
Both compressor and condenser fan motors will not operate.	Bad refrigeration control relay.	Test relay with relay test function of the control board, replace relay. Check wiring connections
	Bad connection at power board.	
Evaporator frosted over.	Water at base of evaporator unit.	Check for proper drainage (such as plugged drain, kinks in drain tube, etc.). Check door seal.
	Defective control board.	Replace control board.
	Evaporator motor.	Verify 120 Volts exists to evaporator motors.
	Defective evaporator motor.	Replace motor.
Product freezing up (too cold).	Temperature setting too low.	Adjust temperature setting in electronic controller.
	Defective temperature sensor.	Replace Temperature sensor.
Excessive noise.	Fan blade hitting shroud.	Relocate shroud position.
	Fan motor noisy.	Replace if necessary.
	Refrigeration base loose or bent.	Tighten bolt or replace if necessary.