REV 1
5/13/21

TROUBLE SHOOTING GUIDE

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**Due to continuing engineering improvements, the troubleshooting guide is subject to change without notice

***We strongly recommend all work, including but not limited to diagnosis and repair, of your merchandiser be completed by a professional certified service technician. Federal Industries is not liable for injury to any person or damage to the merchandiser or property.

NOISE & LED LIGHTS

CRR / RSS- (Refrigerated Service Top Unit)

CH – CHSS / RSS – Hot Top Unit (Service and Self-Service Top Unit) CD – CDSS / RSS

CONDITION	
Unit Noisy	BOTTOM OPEN AIR MERCHANDISERS NOISE AND LED LIGHTS
	Check that the condensing coil is not restricted.
	If equipped, check that the condenser filter is not restricted
	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
Lights Not Working **(CRR/CD/CDSS)** **Countertop Unit (RSS)** **Bottom Unit** **Hybrid Or Stand-Alone**	If equipped, check that the top unit(s) are plugged in as they have separate power cords from the bottom-refrigerated case and requires a separate dedicated circuit for each top case. ***Note:*** The top unit power cord(s) are hidden behind the decorative back panel during transit.
	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.
CH Hot Countertop Unit	Check that the heat lamps are on. The CH Hot Countertop / Optional Top of Hybrid Unit does not contain LED Lighting as the heat lamps are a majority of the heat source required for the unit to function. ***Caution!*** **Light bulbs may be hot.**

NOISE AND LED LIGHTS

FCC / FCCR CHOCOLATE and CONFECTIONARY CASE

NON-REFRIGERATED / CLIMATE CONTROLLED

CONDITION	
Unit Noisy (Non-Refrigerated)	If equipped, check ventilation fan motor and blade for obstruction, change as necessary.
Unit Noisy (Refrigerated Only)	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit “noise”
	Check that the condensing coil is not restricted.
	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
Lights Not Working	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.

LED LIGHTS

HSSM	
Heated Merchandiser	
CONDITION	
Case Does Not Operate	Check that the MAIN power switch is on.
	Check the circuit breaker box for tripped circuits or blown fuses.
	Check that the unit is plugged in.
	Check that the control for each shelf is on and is not displaying an error.
Case Lights Are Not Working	Check that light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will go into protect mode if output harness has a short.

NOISE AND LED LIGHTS

IMSS 60/84/120 – ECSS 40/60	
SELF CONTAINED AND REMOTE OPEN AIR MERCHANDISERS	
CONDITION	
Unit Noisy	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit “noise”
	Check that the condensing coil is not restricted.
	If equipped, check that the condenser filter is not restricted
	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
Lights Not Working	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.

NOISE AND INCANDECENT LIGHTS

NEW BAKERY AND SERIES 90

HOT DELI

CONDITION	
Unit Noisy (Refrigerated Only)	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit "noise"
	Check that the condensing coil is not restricted.
	If equipped, check the condenser air filter.
	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
(Hot Deli Only)	Check circulation fan and blade.
Lights Not Working	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.
(Hot Deli Only)	If none of the incandescent lights are working, check the 10A lamp fuse located on the rear of the case next to the circulation fan switch.
	Check to see that **all** light bulbs are the proper wattage/voltage and are working as the light bulbs also throw heat into the case. (**120V, 60W coated bulbs only** unless otherwise specified 230V) **Note:** Even though some models are supplied 208V – 240V due to the overall amp draw, but the wells are split between L1 to Neutral and L2 to Neutral and the circuitry inside the unit is still 120V internally unless outside of the U.S.A. ****** DO NOT CONVERT TO LED BULBS AS THE CASE WILL N O T RE ACH TEMPERATURE ******

NOISE AND LED LIGHTS

MARKET SERIES

NON-REFRIGERATED AND REFRIGERATED DELI & BAKERY

CONDITION	
Unit Noisy	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit “noise”
	Check that the condensing coil is not restricted.
Cold Only	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
Lights Not Working	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.
	HOT DELI UNITS NOISE AND LED LIGHTS
Unit Noisy	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit “noise”
	Check circulation motor(s) fan and fan(s).
	Check panels for loose fasteners and bent panels that can allow for vibration.
Lights Not Working	Check that the light switch is on.
	Check that the bulbs are good – 120V 60W coated incandescent bulbs only.
	Check the light fuse is good.

NOISE AND LED LIGHTS

RSSM/RSSD/RSSL – ERSSHP – TSSM - NSSM - LMD/LMDM – LPRSS/ELPRSS	
OPEN AIR MERCHANDISERS	
CONDITION	
Unit Noisy	Close proximity to the counter, vaulted ceilings, tile and overall open floor plan as well as grouping equipment together can all amplify unit “noise”
	Check that the condensing coil is not restricted.
	If equipped, check that the condenser filter is not restricted
	Check the evaporator and condenser fan blades are not hitting anything.
	Check panels for loose fasteners and bent panels that can allow for vibration.
	Check refrigeration lines and condensing unit for vibration.
	Check compressor for any abnormal noises.
Lights Not Working	Check that the light switch is on.
	Shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.

LED LIGHTS

WDC & CT

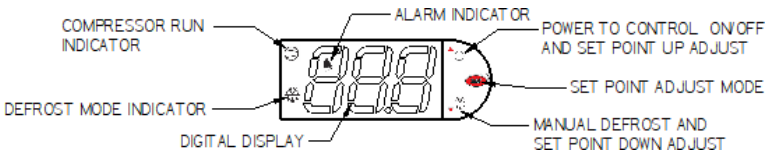
SPECIALTY BAKERY / COUNTERTOP
NON-REFRIGERATED BAKERY

CONDITION	
Lights Not Working	Check that the light switch is on. *Counter tops* – typically located on the back left bottom of the unit from customer view. *WDC* – Located inside the lower storage compartment on the right side of the interior ceiling
	If equipped, shelf lights – lamp cord must be fully seated into receptacle, gently tap them in with a rubber mallet if needed to make full contact. Check that the lamp cord is plugged into the end of the LED light strip. – Replace light if necessary.
	Check power AC input voltage at LED driver.
	Check to DC output voltage at LED driver. If no output, disconnect output from unit wiring harness and try again as LED driver will put itself into protect mode if output harness has a short. – Replace driver if necessary.

TEMPERATURE ISSUES

CD or CRR/RSS REFRIGERATED TOP UNIT
OPEN AIR / CLOSED DOOR MERCHANDISERS

STAND ALONE RSS & HYBRID

CONDITION	
Case Is Not Holding Temperature	Refrigerated merchandisers are not intended as storage refrigerators and will not “pull down” room temperature products efficiently. **LOAD CASE INTERIOR WITH PRE-CHILLED 38°F OR COLDER PRODUCT ONLY**
	Refrigerated Merchandisers are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also, avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts airflow.
	Check that the condenser air inlet and outlet are not restricted.
	If equipped, check condenser coil filter is clean.
	Check that the condenser coil is clean
	Non-refrigerated cases do not regulate internal temperature and may be slightly higher than ambient temperature due to the lighting in the unit or direct sunlight.
Mechanical Thermostat (if equipped)	If equipped, is a coil sensing thermostat that also controls the cut-in as well as the cut-out so that the evaporator coil does not ice up.
	Check that thermostat is turned on.
	Adjust thermostat accordingly, the coldest setting is 9.
Electronic Unit Controller (if equipped)	
	Check that the control is turned on.

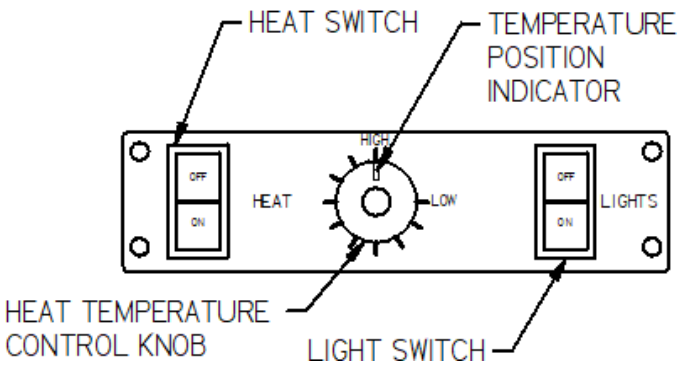
	Control Display Is Flashing - *If the control is flashing all of its lights, it is likely that you have a grounding issue with the power source. Verify that the unit is properly grounded.*
	Check to see if the compressor run indicator is on, calling for cooling.
Display Current Supply Air Temperature	Supply Air Temperature – Press & Hold Down (Defrost) immediately followed by Up (Power) – You must keep them both held to see the temperature.
Display Set Point	Check Set Point Temperature; it # 1 is the warmest and # 9 is the coldest – set typically between 4 & 5 – adjust accordingly – control has a minimum run time of 5 minutes and a maximum run of 75 minutes.
Defrost Mode	Is the unit entering into defrost too often, or staying in defrost to long? Our cases typically defrost every 6 to 8 hours as long as the evaporator sensor is below defrost termination temperature of approximately 43°F. There is also a defrost on demand feature that can supersede the normal defrost interval as needed. (30 minute maximum defrost duration as well as a 30 minute minimum between defrosts)
Freezing Product	Adjust temperature control to a warmer set point. (1= Warmest 9= Coldest)
	For electronic control only, verify 10KOhm NTC sensor is reading properly.
	Check that superheat is between 8°F to 12°F.
	Product Load should also be a minimum of an inch off of back wall to allow supply air to circulate and not freeze product at the back wall. Some items may need more clearance if they are sensitive to freezing, as supply air temperature needs to get below freezing.
Warm Product	Adjust temperature control to a colder set point. (1= Warmest 9= Coldest)
	For electronic control only, verify 10KOhm NTC sensor is reading properly.
	Check that the condenser air inlet and condenser air outlet are not restricted.
	Check that all evaporator fan motors and blades are working as they should.
	Check that the condenser fan motor and blade are working as they should.
	Check that the evaporator is clear and not obstructed with ice or debris
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8°F to 12°F.
	If equipped, check sight glass for flashing and/or low charge.
	See Defrost Mode

Compressor Is Not Operating	Check to see if the compressor run indicator is on, calling for cooling.
	Low pressure cutout will keep compressor from engaging even if the electronic unit controller is calling due to low charge.
	Check for power in and out of pressure control as both Low and High side pressure cutout will keep compressor from engaging.
Head Pressure Too High	Check that the condensing coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan is not damaged.
	Check for restrictions.
	Check that refrigerant is not overcharged.
	Check the sub-cooling.
	Check that the service valves are fully open.
Head Pressure Too Low	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify the valves are pumping.
	If equipped, check if sight glass is flashing or showing low charge.
Low Suction Pressure	Check that evaporator fan motors are working.
	Check that the air flow is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check for restrictions.
	Check that the Evaporator Coil is clear of ice and debris.
	If equipped, check the sight glass for flashing.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity the valves are pumping.

TEMPERATURE & HUMIDITY ISSUES

CH HOT COUNTERTOP CASE

OPTIONAL TOP OF HYBRID UNIT

CONDITION	
	
Unit Is Not Heating	Check that the heat switch on.
	Check that the thermostat is on high.
	Check that the light switch (heat lamps) are on.
Thermometer Not Reading Correctly	Indicates the approximate temperature of the interior of the case. It does not indicate food temperature. Actual product temperature can only be monitored by occasionally probing product with a thermometer probe.
Food Not Held Above 140°F	Check to see that the both shelves are in place and **all** light bulbs are the proper wattage/voltage and are working as the light bulbs account for approximately 70% of the heat source for the unit. (**120V, 60W coated bulbs only** unless otherwise specified 230V) ****** DO NOT CONVERT TO LED BULBS AS THE CASE WILL NOT REACH TEMPERATURE ********
	Unit must be preheated prior to placing product into case.
	Product temperature entering the case has to be at least 170°F or hotter.
	Adjust thermostat to a warmer setting, especially during peak serving periods to maintain proper product temperature.
Food Dried Out	Check thermostat, is setting to high, probe product to ensure proper product temperature.
	If equipped, check the humidity element is working and that, there is water in the humidity pan as it is a manual fill. The humidity element is controlled with the other heaters in the case with the thermostat. Water for the humidity pan should be preheated when the unit is in service, as to not lower the air temperature and affect product temperature.

Food Too Warm	Adjust thermostat to a cooler setting, outside of peak serving periods while maintaining proper product temperature.
REFER TO THE OWNER'S MANUAL FOR MORE DETAIL	

TEMPERATURE ISSUES

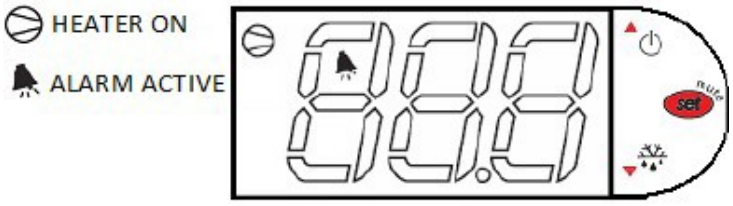
FCC / FCCR – CHOCOLATE and CONFECTIONARY CASE

NON-REFRIGERATED / CLIMATE CONTROLLED

CONDITION	
Case Is Not Holding Temperature	**FCC - Non-refrigerated** cases do not regulate internal temperature and may be slightly higher than ambient temperature due to the lighting in the unit or direct sunlight.
	FCCR - Climate Controlled Case – Federal Chocolate and Confectionary (Case Is Not Designed For Cold Storage) The refrigeration system in this type of unit has a **Design Temperature range is between 55°F to 70°F** and is considered to be climate controlled, not “refrigerated”. **Note:** This unit **cannot** be used for perishable products.
	Non-Refrigerated / Climate Controlled Merchandisers are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also, avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts airflow.
	Check if the compressor is running.
	Check that the condenser air inlet and outlet are not restricted.
	Check that the condenser coil is clean
Warm Product	Check that thermostat is on.
	Check for proper power at the compressor.
	Adjust thermostat accordingly, the coldest setting is 9.
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8°F to 12°F.
	If equipped, check sight glass for flashing and/or low charge.
	Off cycle defrost mode.
	Check for power in and out of pressure control as both Low and High side pressure cutout will keep compressor from engaging.
Sweating	Front glass or product may sweat if the temperature inside the case gets too cold or the %RH inside the case gets too high.
Humidity Control	Controls how much heat is introduced to the interior of the case to compensate run time of the compressor. The lower the % RH, the more heat is applied and the higher the % RH less heat is applied allowing the unit allowing the thermostat to satisfy sooner. With the humidity control turned off, and the cold control maxed, the case will achieve its coldest possible setting and potentially cause the unit to sweat as a result.
Mechanical Thermostat	Coil sensing thermostat also controls the cut-in as well as the cut-out so that the evaporator coil does not ice up.
	Adjust thermostat accordingly, the coldest setting is 9.
	Check that superheat is between 8°F to 12°F.

Compressor Is Not Operating	Check that thermostat is on.
Head Pressure Too High	Check that the condenser air inlet and outlet are not blocked.
	Check that the condensing coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan is not damaged.
	Check that refrigerant is not overcharged.
	Check the sub-cooling.
	Check that the service valves are fully open.
Head Pressure Too Low	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify the valves are pumping.
	If equipped, check if sight glass is flashing or showing low charge.
Low Suction Pressure	Check unit for refrigerant leaks.
	Check that evaporator fan motors are working.
	Check that the air flow is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check that the Evaporator Coil is clear of ice and debris.
	If equipped, check the sight glass for flashing.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity the valves are pumping.

TEMPERATURE ISSUES / CONTROL

HSSM	
Heated Merchandiser	
CONDITION	
	
Control Display Is Flashing	If all the control lights are flashing, it is likely that you have a grounding issue with the power source. Have wiring inspected by a qualified electrician.
No Display on Controller.	Check supply voltage on terminals #6 and #7 on the back of the controller. If proper voltage is present, replace controller.
Control Error	Error EO = Shelf probe is reading Open or Shorted – unplug shelf and ohm out probe at room temperature. Note: The error will automatically clear within seconds once the connection is restored if the sensor is giving the control a reading.
	Turn the main power switch to off to power the unit down; Wait 10 seconds, and power the unit back on. If error is still present, ensure all heater cords are fully seated into their receptacles.
Verifying Shelf Temperature On Controller	To Temporarily See the Current Shelf Temperature Press & Hold Down (Defrost) immediately followed by Up (Power) You must keep them both held to see the temperature.
Verifying Shelf Temperature With Separate Probe	A Contact probe should be, at approximately the center of the shelf and should read within approximately 15°F of the controller reading.
Temperature Is Too Low	Check supply voltage to case is above 208 Volts.
	Increase control set point.
	Look for HVAC discharge vents, fans, and other potential air disruptions.
	If using rack, check rack orientation. Flip rack over if needed so product is closer to the shelf surface.

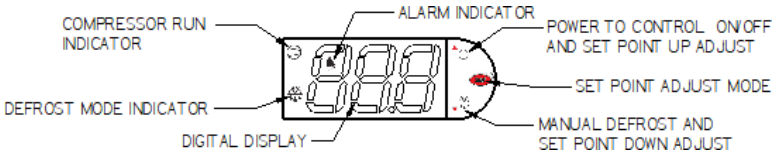
	Ohm out probe to verify it is giving a proper reading. See 60 KOhm sensor chart.
Temperature Is Too High	Decrease control set point.
	Check the control for errors and contact service
	Use supplied food rack to reduce heat intensity on food.
	Ohm out probe to verify it is giving a proper reading. See 60 KOhm sensor chart.

TEMPERATURE ISSUES

IMSS 60/84/120 – ECSS 40/60

SELF CONTAINED AND REMOTE OPEN AIR MERCHANDISERS

CONDITION	
Case Is Not Holding Temperature / Freezing Product	Open Air refrigerated merchandisers are not intended as storage refrigerators and will not “pull down” room temperature products efficiently. **LOAD CASE INTERIOR WITH PRE-CHILLED 38°F OR COLDER PRODUCT ONLY**
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts airflow.
	Product Load should create a wall all of the way around the shelves to create a barrier, keeping the cold air inside of the unit. The product should be a minimum of half an inch off the tower to allow supply air to circulate and not freeze product at the tower and requires a minimum 2 inches of clearance above the product. Some items may need more clearance if they are sensitive to freezing, as supply air temperature during the run cycle should get well below freezing. Recommended set point is #4 which is 22°F, except for the IMSS120 (failure of the above steps with cause extended run times, frozen product, the tower and shelves to sweat, icing of the evaporator coil and potentially water on the floor)
	If equipped, check that the condenser coil air filter attached to the inlet base panel has been cleaned.
	Check that the condenser coil is clean. (example of a restricted condenser coil vs a clean condenser coil – self-contained)  

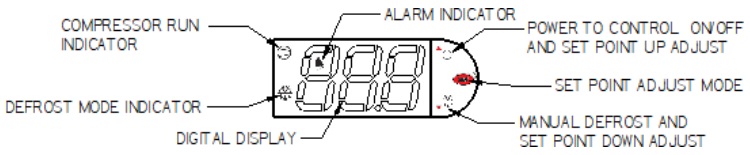
No Power	Check that the master power switch is on. (located next to the Carel Controller)
Carel Electronic Thermostat (located behind lift up cover) above the light switch on the top of the base of the unit.)	
	Check to see that the control is turned on.
	Control Display Is Flashing - *If the control is flashing all of its lights, it is likely that you have a grounding issue with the power source. Verify that the unit is properly grounded.*
	Check to see if the compressor run indicator is on, calling for cooling.
	Defrost Mode Is the unit entering into defrost too often, or staying in defrost to long? Our cases typically defrost every 6 to 8 hours as long as the evaporator sensor is below defrost termination temperature of approximately 43°F. There is also a defrost on demand feature that can supersede the normal defrost interval as needed. – 30 minute maximum, defrost duration.
	Check Set Point Temperature; it # 1 is the warmest and # 9 is the coldest – set typically between 4 & 5 – adjust accordingly – control has a minimum run time of 5 minutes and a maximum run of 75 minutes (self-contained units) and 60 minutes (remote condensing unit).
	Supply Air Temperature – Press & Hold Down (Defrost) immediately followed by Up (Power) – You must keep them both held to see the temperature.
	Check the return air grill inside unit for obstructions.
	Check that the top air discharge diffuser is not blocked with dust or debris. The airflow should be approximately 200 fpm.
	Check that the condenser air inlet and condenser air outlet are not restricted.
	Check that all evaporator fan motor and blades are working as they should.
	Check that the condenser fan motor and blade are working as they should.
	Check that the evaporator is clear and not obstructed with ice or debris
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8°F to 12°F.
	If equipped, check sight glass for flashing and/or low charge.
Compressor Is Not Operating	Check the electronic temperature control to see if the unit has the compressor indicator illuminated.

Emerson Electronic Unit Controller (accessed through base side panel)	***Note*** **: Self-Contained units only with Copeland Condensing units.** If equipped, Emerson Electronic Unit Controller (all models except the ECSS40) has a low side pressure cut-out of 20 PSI and low side cut-in of 80 PSI, to protect the compressor from low pressure or low charge in the system.
Emerson Electronic Unit Controller Errors ***(DLL, DLT and HP)***	If equipped, Emerson Electronic Unit Controller (all models except the ECSS40) have an automatic pressure cutout. Any of the **D**ischarge **L**ine **L**imit / **D**ischarge **L**ine **T**emperature or **H**igh **P**ressure alarm codes will lock the compressor out of operation to protect it. This is typically caused due to a restricted condenser coil or a restricted condenser filter. Cycle power off to clean the obstruction, clean obstruction,
Pressure Control	If equipped (ECSS40SC only), Has a reset button that may be tripped due to high head pressure or low pressure cut-out if the unit is low on refrigerant.
Condenser Fan Is Wired To Run 100%	Do not assume the compressor is on because the condenser fan motor is on, you must check power at the compressor as the condenser fan motor is wired to run 100% of the time.
Head Pressure Too High	Check that the condenser coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan is not damaged.
	Check that refrigerant is not overcharged.
	Check the sub-cooling.
	Check that the service valves are fully open.
Head Pressure Too Low	If equipped, check the sight glass for flashing.
	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify the valves are pumping.
Low Suction Pressure	If equipped, check if sight glass is flashing or showing low charge.
	Check that evaporator fan motors are working.
	Check that the air flow is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check that the Evaporator Coil is clear of ice and debris.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity the valves are pumping.

TEMPERATURE ISSUES

ITALIAN GLASS, NEW BAKERY AND SERIES 90

BAKERY/COLD DELI

CONDITION	
Case Is Not Holding Temperature	Refrigerated merchandisers are not intended as storage refrigerators and will not “pull down” room temperature products efficiently. **LOAD CASE INTERIOR WITH PRE-CHILLED 38°F OR COLDER PRODUCT ONLY**
	Refrigerated Merchandisers are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts air flow.
	Check that the condenser air inlet and outlet are not restricted.
	If equipped, check condenser coil filter is clean.
	Check that the condenser coil is clean
	Non-refrigerated cases do not regulate internal temperature and may be slightly higher than ambient temperature due to lighting in the unit or direct sunlight.
Mechanical Thermostat (if equipped)	If equipped, is a coil sensing thermostat that also controls the cut-in as well as the cut-out so that the evaporator coil does not ice up.
	Check that thermostat is turned on.
	Adjust thermostat accordingly, the coldest setting is 9.
Electronic Unit Controller (if equipped)	
	Check that the control is turned on.
	Control Display Is Flashing - *If the control is flashing all of its lights, it is likely that you have a grounding issue with the power source. Verify that the unit is properly grounded.*
	Check to see if the compressor run indicator is on, calling for cooling.
Display Set Point	To check the set point on this controller, press and hold the set key for approximately 3 second and the set point will begin to flash. Adjust as necessary , then push the set key one time to lock in the new setting.

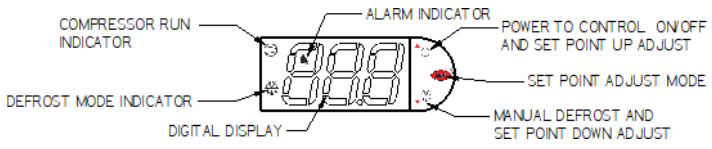
	Check Set Point Temperature; it # 1 is the warmest and # 9 is the coldest – set typically between 4 & 5 – adjust accordingly – control has a minimum run time of 5 minutes and a maximum run of 60 minutes.
Defrost Mode	Is the unit entering into defrost too often, or staying in defrost to long? Our cases typically defrost every 6 to 8 hours as long as the evaporator sensor is below defrost termination temperature of approximately 43°F. There is also a defrost on demand feature that can supersede the normal defrost interval as needed. (30 minute maximum defrost duration as well as a 30 minute minimum between defrosts)
Freezing Product	Adjust temperature control to a warmer set point. (1= Warmest 9= Coldest)
	Verify 10KOhm NTC sensor is reading properly.
	Product Load should also be a minimum of an inch off of back wall to allow supply air to circulate and not freeze product at the back wall. Some items may need more clearance if they are sensitive to freezing, as supply air temperature needs to get below freezing.
Warm Product	Adjust temperature control to a colder set point. (1= Warmest 9= Coldest)
	Refrigerated Bottom Display Deck & Non-Refrigerated Shelves – if equipped. Product Load Line – Only the display deck is the cold zone. Cold Zone = only 7” of the interior floor near the rear of the case, and extends down to 3” at the front of the case by the customer. Products above this load line will be in an “unsafe” temperature zone and disrupt the cold zone causing it to struggle as well.
	Verify 10KOhm NTC sensor is reading properly.
	Check that the condenser air inlet and condenser air outlet are not restricted.
	Check that all evaporator fan motors and blades are working as they should.
	Check that the condenser fan motor and blade are working as they should.
	Check that the evaporator is clear and not obstructed with ice or debris
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8 °F to 12 °F.
	If equipped, check sight glass for flashing and/or low charge.
	See Defrost Mode
Compressor Is Not Operating	Check to see if the compressor run indicator is on, calling for cooling.
	Low pressure cutout will keep compressor from engaging even if the electronic unit controller is calling due to low charge.
	Check for power in and out of pressure control as both Low and High side pressure cutout will keep compressor from engaging.
Head Pressure Too High	Check that the condensing coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan is not damaged.
	Check that refrigerant is not overcharged.

	Check the sub-cooling.
	Check that the service valves are fully open.
	If equipped, check the sight glass for flashing.
Head Pressure Too Low	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify the valves are pumping.
	If equipped, check if sight glass is flashing or showing low charge.
Low Suction Pressure	Check that evaporator fan motors are working.
	Check that the air low is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check that the Evaporator Coil is clear of ice and debris.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity the valves are pumping.
	Adjust Temperature Control to a lower set point (1= Warmest 9= Coldest)
NEW BAKERY AND SERIES 90 – HOT DELI TEMPERATURE AND HUMIDITY ISSUES	
Thermometer Not Reading Correctly	Indicates the approximate temperature of the interior of the case. The sensor is located at the top of the case next to the infrared heater. It does not indicate well or food temperature.
Food In Well Not Held Above 140°F	Is the well turned on? Each food well has its own mechanical thermostat which can be turned off and adjusted individually.
	Each food well has its own mechanical thermostat which will control them individually.
	Check that the slots along the front and the rear of the case display floor are not blocked.
	Check to see that the overhead warmers are on. (120V, 60W coated bulbs only)
	Wells must be preheated prior to placing product into case.
	Product temperature entering the case has to be =>170°F.
	Check that the front glass is closed tightly and that the rear doors are in place.
Food Dried Out	Check the humidity switch is turned on and the humidity element is working.
	Check the placement of the humidity pan, which is located underneath the interior display deck for proper positioning or potentially missing from being removed during cleaning.
	Check the float for auto-fill if water line is hooked to the case or water can be manually added to the humidity pan located below the interior display deck.
	If adding water into a food pan for even more humidity, no more than one food pan should have water in it or excessive condensation may occur.
Food Too Warm	Adjust temperature for the appropriate well to a cooler setting.
FOR MORE DETAIL REFER TO THE OWNER'S MANUAL	

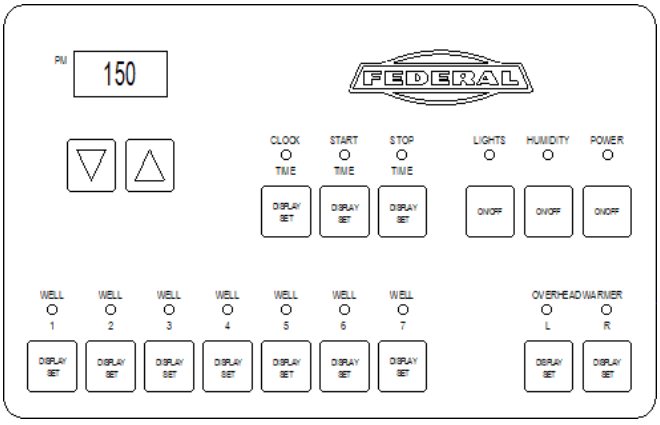
TEMPERATURE ISSUES

MARKET SERIES

COLD DELI & COLD / NON-REFRIGERATED BAKERY

CONDITION	
Case Is Not Holding Temperature	Open Air Refrigerated Merchandisers are not intended as storage refrigerators and will not “pull down” room temperature products efficiently. **LOAD CASE INTERIOR WITH PRE-CHILLED 38°F OR COLDER PRODUCT ONLY**
	Open Air Merchandisers are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also, avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts airflow.
	Check that the condenser coil is clean.
	Non-refrigerated cases do not regulate internal temperature and may be slightly higher than ambient temperature due to lighting in the unit or direct sunlight.
Electronic Unit Controller	
	Check that the control is turned on.
	Control Display Is Flashing - *If the control is flashing all of its lights, it is likely that you have a grounding issue with the power source. Verify that the unit is properly grounded.*
	Check to see if the compressor run indicator is on, calling for cooling.
	Check Set Point Temperature; it # 1 is the warmest and # 9 is the coldest – set typically between 4 & 5 – adjust accordingly – control has a minimum run time of 5 minutes and a maximum run of 60 minutes.
	Supply Air Temperature – Press & Hold Down (Defrost) immediately followed by Up (Power) – You must keep them both held to see the temperature.

Defrost Mode16:3216:3316:3716:34B1216: 3016:3316:32	Is the unit entering into defrost too often, or staying in defrost to long? Our cases typically defrost every 6 to 8 hours as long as the evaporator sensor is below defrost termination temperature of approximately 41°F. There is also a defrost on demand feature that can supersede the normal defrost interval as needed. (30 minute maximum defrost duration as well as a 30 minute minimum between defrosts)
Freezing Product	Adjust Temperature Control to a warmer set point. (1= Warmest 9= Coldest)
	Verify 10KOhm NTC sensor is reading properly.
	Product Load should also be a minimum of an inch off back wall to allow supply air to circulate and not freeze product at the back wall. Some items may need more clearance if they are sensitive to freezing, as supply air temperature needs to get below freezing.
Warm Product	Adjust Temperature to a colder set point. (1= Warmest 9= Coldest)
	Refrigerated Bottom Display Deck & Non-Refrigerated Shelves – if equipped. Product Load Line – Only the display deck is the cold zone.
	Cold Zone = only 7” of the interior floor near the rear of the case, and extends down to 3” at the front of the case by the customer. Products above this load line will be in an “unsafe” temperature zone and disrupt the cold zone causing it to struggle as well.
	Verify 10KOhm NTC sensor is reading properly.
	Check that the condenser air inlet and condenser air outlet are not restricted.
	Check that all evaporator fan motors and blades are working, as they should.
	Check that the condenser fan motor and blade are working, as they should.
	Check that the evaporator is clear and not obstructed with ice or debris
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8°F to 12°F.
	If equipped, check sight glass for flashing and/or low charge.
	See Defrost Mode
	Non-refrigerated cases do not regulate internal temperature and may be slightly higher than ambient temperature due to lighting in the unit or direct sunlight.
Compressor Is Not Operating	Check the control to see if the compressor run indicator is on, calling for cooling.
	Low-pressure cutout will keep compressor from engaging even if the electronic unit controller is calling due to low charge.
	Check for power in and out of pressure control as both Low and High side pressure cutout will keep compressor from engaging.
Head Pressure Too High	Check that the condensing coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan blade is not damaged.

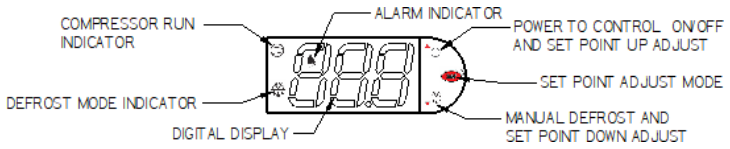
	Check for refrigerant being overcharged.
	Check the sub-cooling.
	Check that the service valves are fully open.
Head Pressure Too Low	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify compressor operation.
	If equipped, check if sight glass is flashing or showing low charge.
Low Suction Pressure	Check that evaporator fan motors are working.
	Check that the air flow is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check that the Evaporator Coil is clear of ice and debris.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity compressor operation..
	HOT DELI TEMPERATURE & HUMIDITY ISSUES
	
Thermometer Not Reading Correctly	The case is intended to be operated with the rear doors in place, but they may be removed during peak times. The display will not read accurately with the rear doors removed for extended periods of time.
Food In Well Not Held Above 140°F	Check to see that the overhead warmers are on. (120V, 60W coated bulbs only) Press to display current setting – adjust with ▲ (Hours) and ▼ (Minutes).
	Well # 1 is from customer view, from left to right. Make sure you are adjusting the temperature for the proper well.
	When pushing the ▲ and ▼ key – the well # and the % of on time of the 6-minute cycle will be displayed. 0 = 0% (Off) through 9 = 90% Example: 2 – 6 would be well # 2 from left, customer view – 60% on of the 6-minute cycle. (216 seconds on / 144 seconds off)
	Check that the slots along the front and the rear of the case display floor are not blocked.
	Check that all well cavities must be completely covered with food pans (not included) from proper operation of case, A variety of pan sizes can be used from 2” to 6” in depth.
	Wells must be preheated prior to placing product into case.

	Product temperature entering the case has to be =>170°F.
	The digital temperature display measures air temperature inside the case. This display is an indication only. You must probe the product in the case for accurate product temperatures.
	If equipped, make sure that the front glass is closed tightly and that the rear doors are in place.
Food Dried Out	Check the humidity switch is turned on and the humidity element is working.
	Check the placement of the humidity pan, which is located underneath the interior display deck for proper positioning or potentially missing from being removed during cleaning.
	Check the float for auto-fill if water line is hooked to the case or water can be manually added to the humidity pan located below the interior display deck.
	If adding water into a food pan for even more humidity, no more than one food pan should have water in it or excessive condensation may occur.
Food Too Warm	Adjust Temperature for the appropriate well to a lower % set point.
FOR MORE DETAIL REFER TO THE OWNER'S MANUAL	

TEMPERATURE ISSUES

RSSM/RSSD/RSSL – ERSSHP – TSSM - NSSM
LMD/LMDM – LPRSS/ELPRSS

OPEN AIR MERCHANDISERS

CONDITION	
Case Is Not Holding Temperature / Freezing Product	Open Air refrigerated merchandisers are not intended as storage refrigerators and will not “pull down” room temperature products efficiently. **LOAD CASE INTERIOR WITH PRE-CHILLED 38°F OR COLDER PRODUCT ONLY**
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°F / 55% RH (Relative Humidity) Exceeding either or both can result in temperature issues as the evaporator coil ices up and restricts air flow.
	Product Load should be a minimum of an inch off of back wall to allow supply air to circulate and not freeze product at the back wall. Some items may need more clearance if they are sensitive to freezing, as supply air temperature should get below freezing.
	If equipped, check that condenser coil air filter (attached to front grill) has been cleaned.
	Check that the condenser coil is clean.
	
	Check to see that the control is turned on.
	Control Display Is Flashing - *If the control is flashing all of its lights, it is likely that you have a grounding issue with the power source. Verify that the unit is properly grounded.*
	Check to see if the compressor run indicator is on, calling for cooling.
	Defrost Mode Is the unit entering into defrost too often, or staying in defrost to long? Our cases typically defrost every 6 to 8 hours as long as the evaporator sensor is below defrost termination temperature of approximately 45°F. There is also a defrost on demand feature that can supersede the normal defrost interval as needed. – 30 minute maximum defrost duration.

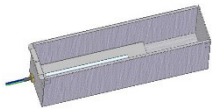
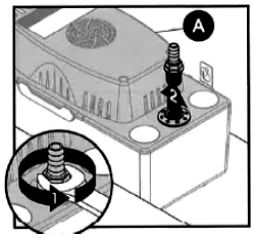
	Check Set Point Temperature; it # 1 is the warmest and # 9 is the coldest – set typically between 4 & 5 – adjust accordingly – control has a minimum run time of 5 minutes and a maximum run of 60 minutes.
	Supply Air Temperature – Press & Hold Down (Defrost) immediately followed by Up (Power) – You must keep them both held to see the temperature.
	Check the return air grill inside unit for obstructions as.
	Check that the top air discharge diffuser is not blocked with dust or debris. The airflow should be approximately 200 fpm.
	Check that the condenser air inlet and condenser air outlet are not restricted.
	Check that all evaporator fan motor and blades are working as they should.
	Check that the condenser fan motor and blade are working as they should.
	Check that the evaporator is clear and not obstructed with ice or debris
	Check TXV bulb installation is secure and insulated.
	Check that superheat is between 8°F to 12°F.
	If equipped, check sight glass for flashing and/or low charge.
Compressor Is Not Operating	Check the control to see if the unit is calling for cooling.
	Low pressure cutout will keep compressor from engaging even if the electronic unit controller is calling due to low charge.
	Check for power in and out of pressure control as both Low and High side pressure cutout will keep compressor from engaging.
	Check power at the compressor as the condenser fan motor is wired to run 100% of the time.
Head Pressure Too High	Check that the condenser coil is not restricted.
	Check that the condenser filter is not restricted.
	Check that condenser fan motor is working and the condenser fan is not damaged.
	Check that refrigerant is not overcharged.
	Check the sub-cooling.
	Check that the service valves are fully open.
Head Pressure Too Low	If equipped, check the sight glass for flashing.
	Check unit for refrigerant leaks.
	Perform pump-down procedure to verify the valves are pumping.
Low Suction Pressure	If equipped, check if sight glass is flashing or showing low charge.
	Check that evaporator fan motors are working.
	Check that the air flow is being directed through the evaporator coil. (All interior panels and must be in place as well as the evaporator fan shroud.)
	Check that the Evaporator Coil is clear of ice and debris.
High Suction Pressure	Check for refrigerant being overcharged.
	Check for refrigeration restrictions.
	Perform pump-down procedure to verity the valves are pumping.

WATER ON FLOOR

CRR/RSS Refrigerated Top Unit OPEN AIR MERCHANDISERS

STAND ALONE RSS & HYBRID

CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: • Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. • Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the condensate pan overflowing.
	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	Check that condensate pan or pump is properly plugged in or hardwired to power.
	***PTC Condensate Pan Assemblies*** Note: The amp draw on a PTC heater is not a constant resistance or amp draw like that of a cal-rod heater. Most pans have at least 2 heaters so you can compare their amp draws. If they are both close in amp draw, they are likely not the problem unless neither is drawing any load with the proper voltage applied.

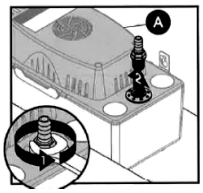
	Check the seams on the pan if it is a folded pan as the silicone could be compromised. Reseal if necessary or replace pan assembly as needed.
	If the single PTC heater is heating, it is likely not the problem with the proper voltage applied.
	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16” wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.
CRR/RSS Hybrid Merchandiser Top Section Refrigerated Only.	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over the condensing unit pan with hot gas loop.
	Check that the drain trap is free of debris such as algae, food product and packaging.

WATER ON THE FLOOR

FCCR / FCC – CHOCOLATE and CONFECTIONARY CASE

NON-CLIMATE CONTROLLED / CLIMATE CONTROLLED

CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near casesn with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the condensate pan overflowing.
	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	Check that condensate pan or pump is properly plugged in or hardwired to power.
	If equipped, check for power at the cord that plugs into the condensate pan and make sure that the cord is fully seated into the receptacle on the pan. If prover voltage and no heat, replace pan as necessary. ***Caution!*** The pan may be hot.

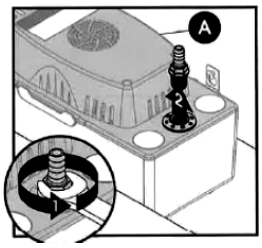
	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16” wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.
	Check the catch pan under the evaporator is sealed in the corners and the unit is leveled to properly direct condensate down the drain.

WATER ON THE FLOOR

IMSS 60/84/120 – ECSS 40/60

SELF CONTAINED AND REMOTE OPEN AIR MERCHANDISERS

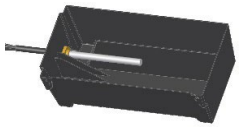
CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check that the drain trap(s) assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	Check that condensate pan or pump is properly plugged in or hardwired to power. **<u>Note:</u> Condensate pan may be on a separate circuit due to amp draw.**
	***Condensate Pan Assemblies with Float*** Check condensate pan float, if applicable for proper operation. If the float is not floating, clean the pan and float of debris to see if it will float, if not, replace the condensate pan assembly.
	***PTC Condensate Pan Assemblies*** Note: The amp draw on a PTC heater is not a constant resistance or amp draw like that of a cal-rod heater. Most pans have at least 2 heaters so you can compare their amp draws. If they are both close in amp draw, they are likely not the problem unless neither is drawing any load with the proper voltage applied.

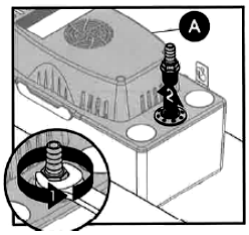
	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16” wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.
Condensation On The Center Tower	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the center tower sweating and/or icing up the tower and evaporator and cause the condensate pan to overflow.
Product Load	As these units have little to no walls to contain the air, the air curtain requires help from the product load to keep the cold air inside of the unit to keep condensation at a minimum, therefore producing less waste water to be disposed of. *(See Product Load under IMSS – ECSS Temperature Issue Section.)*

WATER ON THE FLOOR

ITALIAN GLASS, NEW BAKERYAND SERIES 90 SERIES

DRY AND REFRIGERATED CASES

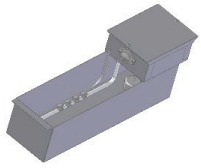
CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Refrigerated and Dry Display Cases are subject to air disturbance, to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the condensate pan overflowing.
	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	Check that condensate pan or pump is properly plugged in or hardwired to power.
	***PTC Condensate Pan Assemblies*** Note: The amp draw on a PTC heater is not a constant resistance or amp draw like that of a cal-rod heater. If it has an amp draw and the water is hot, it is likely not the problem.

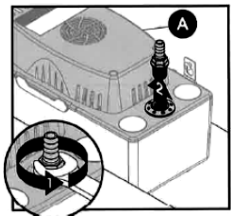
	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16” wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.
New Bakery & Series 90 Hot Deli Only	Each hot well has a manual ball valve to drain each individual well and may be individually emptied by placing a catch containers under the desired valve outlet. The Series 90 may also have a drain trough that directs all drain water to a single hose / floor drain. **Caution:** Allow water to cool in well before draining to prevent burns.

WATER ON FLOOR

MARKET SERIES

COLD DELI & COLD BAKERY

CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the condensate pan overflowing.
	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	***Condensate Pan Assemblies with Float*** If equipped, check condensate pan float, if applicable for proper operation. If the float is not floating, clean the pan and float of debris to see if it will float, if not, replace the condensate pan assembly. NOTE: Parts for condensate pans starting with SA, parts are available.

	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16" wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.
	**Floor Drain** **Note: Owner Responsibility** If used, a customer supplied floor drain can become plugged with algae and debris, which would fall under lack of maintenance and will not be covered under warranty as it is not part of the unit.
CONDITION	**HOT DELI – Water on the Floor**
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up. Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
Plumbing To Unit	If equipped, check water line and connection for the auto-fill humidity pan.
Humidity Pan Below the Wells	Check the placement of the humidity pan, which is located underneath the interior display deck for proper positioning or potentially missing from being removed during cleaning.
Drain	The unit has a drain located beneath the interior display deck. The case is not designed to hold water outside of the humidity pan, and should only drain spills into a user-supplied bucket to be place inside the base of the unit. **WARNING: DO NOT ATTEMPT TO FILL INTERIOR PAN WITH WATER AS – INTERIOR OF UNIT IS NOT SUBMERSIBLE AND ELECTRIC SHOCK AND / OR UNIT DAMAGE CAN OCCUR**.

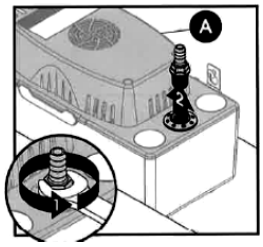
“Drip Bucket” 	**Customer Supplied “Drip Bucket”** If adding water into a food pan for additional humidity, no more than one food pan should be used for that purpose or excessive condensation may occur inside unit condensing, fogging the glass and running down and out the units “drain” The bucket needs to be emptied and cleaned as needed to avoid overflowing and / or growth of mold.
Floor Drain 	**Floor Drain** **<u>Note: Owner Responsibility</u>** If used, a customer supplied floor drain can become plugged with algae and debris, which would fall under lack of maintenance and will not be covered under warranty as it is not part of the unit.

WATER ON FLOOR

RSSM/RSSD/RSSL – ERSSHP – TSSM - NSSM
LMD/LMDM – LPRSS/ELPRSS

OPEN AIR MERCHANDISERS

CONDITION	
Water On The Floor	***Caution!*** Water on flooring can not only cause damage, but can also create a slip hazard. Until properly diagnosed and repaired, be sure to follow these procedures: . Use of a wet-dry shop vacuum is recommended to remove excess water from both the floor and condensate pan as well as the interior of the unit's base. . Water in the condensate pan may be extremely hot if the pan is working properly and cannot keep up • Personal Protection Equipment such as gloves and long sleeves must be used when emptying the condensate pan to avoid injury.
	Caution! During a power failure, the condensate pan may overflow and cause damage and a slip hazard! Restore power as soon as possible. Until such time that power is restored, follow the steps above.
	Open Air Display Cases are subject to air disturbance and due to direct sunlight and close proximity of heating ducts, grills, radiators, ceiling fans or main doors. Also avoid locations where the unit is subject to high humidity such as near cases with water misting or fogging devices.
	Check Ambient Conditions of the Location Most of our cases require a maximum ambient of 75°Farenheit / 55% RH (Relative Humidity) Exceeding either or both can result in the condensate pan overflowing.
	Check that the drain trap assembly did not become dislodged during shipment or installation and that it is correctly positioned over condensate pan, pump, or floor drain.
	Check that the drain trap is free of debris such as algae, food product and packaging.
	Check that condensate pan or pump is properly plugged in or hardwired to power.
	***Condensate Pan Assemblies with Float*** Check condensate pan float, if applicable for proper operation. If the float is not floating, clean the pan and float of debris to see if it will float, if not, replace the condensate pan assembly..

	***PTC Condensate Pan Assemblies*** Note: The amp draw on a PTC heater is not a constant resistance or amp draw like that of a cal-rod heater. Most pans have at least 2 heaters so you can compare their amp draws. If they are both close in amp draw, they are likely not the problem unless neither is drawing any load with the proper voltage applied.
	***Caution! Hot Gas Loop Condensate Pans with PTC Heater assist may contain*** Wicking material that needs to be changed as necessary due to the growth of mold and microbial organisms and will fail to efficiently evaporate the water. Also check the condensate pan float and PTC Heater for proper operation. If the float is not floating, clean the pan and float of debris to see if it will float, if not, replace the condensate pan float assembly and / or heater accordingly.
	If equipped, check that condensate pan or pump is properly plugged in or hardwired to power. If the pump is running, but cannot evacuate to water, clean the condensate pump impeller, drain tube and discharge tubing or replace pump assembly as required. **Note: Owner Responsibility** Pump and deck may be removed from tank by pushing tabs located on tank sides away from the deck while lifting on pump cover. Periodically inspect the condensate pump tank to assure it is free of accumulated dirt or sludge. **DO NOT** use solvent cleaners. Clean tank with soap and warm water only. Check valve may be removed for cleaning or replacement by unscrewing with a 9/16” wrench. Clean Inlet and outlet piping. Reassemble system and check for correct operation.