

# SERVICE MANUAL

## Outdoor Beverage Refrigerator

MODEL:

OBR900SS

**CAUTION: READ ALL SAFETY PRECAUTIONS IN THIS  
MANUAL BEFORE SERVICING THE UNIT**

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## SAFETY PRECAUTIONS

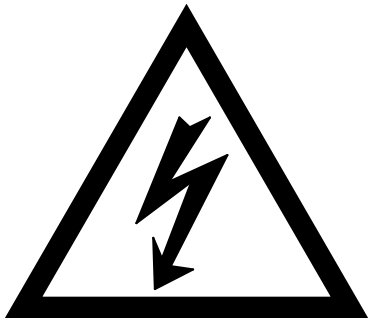
**WARNING:** This manual and the information contained herein is intended for use by certified technicians. The manufacturer or seller is not responsible for the interpretation or misuse of the information provided, nor does it assume any liability in connection with its use.

The safeguards and warnings indicated in this manual do not cover all possible conditions which may occur. Common sense, caution, and care must be exercised.

- To prevent electric shock, always unplug an appliance from the power supply before attempting any service.
- Disconnect the power cord by grasping the plug, not the cord.
- Do not bypass, cut, or remove the grounding plug.
- Prevent water from spilling onto electric elements or the machine parts.
- Always refer to the rating label on the appliance for rated current and voltage.
- Always check line voltage and amperage.
- Always use exact replacement parts.
- Any attempt to repair a major appliance may result in personal injury and property damage.

## Electrical Safety

- Do not exceed the power outlet ratings.
- It is recommended that the unit be connected to its own circuit.
- A standard electrical supply (120V, 60Hz), that is properly grounded in accordance with the National Electrical Code and all state and local codes and ordinances is required.
- Do not use outlets that can be turned off by a switch or pull chain.
- Always turn the unit off and unplug it from the outlet when cleaning.
- Unplug the unit if it is not going to be used for an extended period of time.
- Do not operate the unit with a power plug missing the ground plug, a damaged cord, or a loose socket.
- Be sure the appliance is properly grounded.
- Do not bypass, cut, or remove the grounding plug.
- If the power cord is damaged, it must be replaced by the manufacturer or a qualified technician.
- Do not use extension cords or power strips with this unit. You may need to contact an electrician if it is necessary to use a longer cord or if you do not have a properly grounded outlet. Do not modify the power cord's length or share the outlet with other appliances.
- Do not start or stop the unit by switching the electrical circuit's power on and off.
- Immediately unplug the unit if it makes strange sounds, emits an odor or smoke and contact customer service.
- Do not remove any part of the casing unless instructed by an authorized technician.
- Before the appliance is removed from service or discarded, remove the door and cut off the power cord.



**! WARNING**

A black and white warning symbol showing a hand being struck by a lightning bolt, indicating an electrical shock hazard.

**Electrical Shock Hazard**  
Connect to a grounded 3 prong outlet with an individual 12 amp branch circuit protected by a 12 amp circuit breaker.  
Connect to individual branch circuit.  
Do not remove ground prong.  
Do not use an adapter.  
Do not use an extension cord.  
Failure to follow these instructions can result in electrical shock, fire, or death.

## General Safety

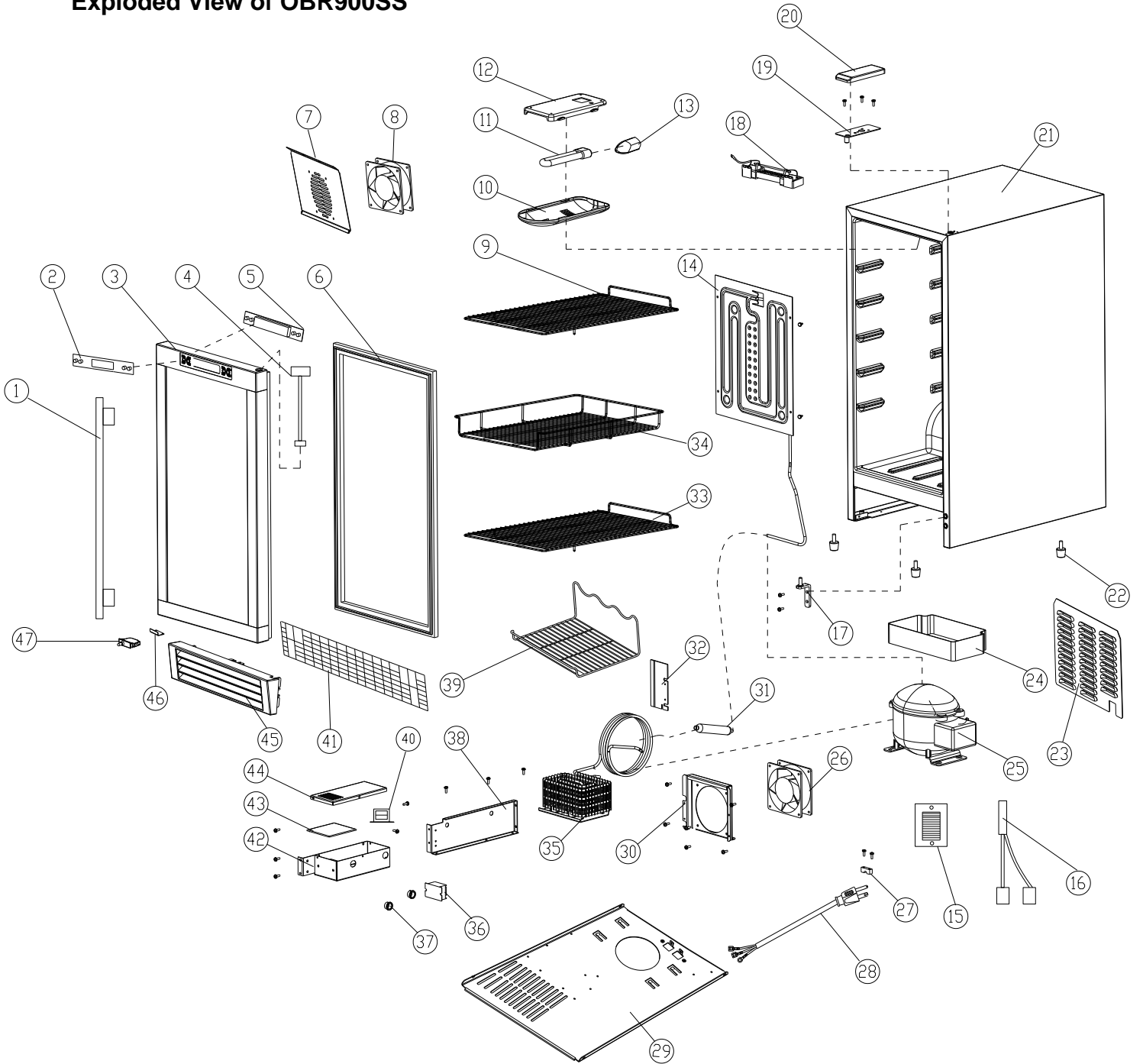
- Always unplug an appliance from the power supply before attempting any service. Disconnect the power cord by grasping the plug, not the cord.
- Do not allow children or pets to play on or in the appliance.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety.
- Do not install or store this appliance where it will be exposed to the weather.
- Disconnect from the power socket before cleaning or maintenance.
- If the plug (power cord) is damaged, it must be replaced by the manufacturer or an authorized service representative.
- This machine shall be repaired only by an authorized service representative. Only genuine replacement parts should be used.
- If connected to a circuit protected by fuses, use time-delay fuses with this appliance.
- Do not lean items against the glass door.
- Please do not close the door with excessive force. If it is found difficult to close the door, please check for obstruction.
- When you plan to dispose of this unit in the future, please comply with the local waste disposal regulations. Remove the door so that children and pets will not be trapped in the unit.

# Specifications

	<b>OBR900SS</b>
Rated Voltage	115V AC
Rated Frequency	60 Hz
Rated Current	2 A
Power consumption	140 W
Net Weight	69 lbs.
Refrigerant Type	R134a
Refrigerant Amount	2.47 Oz.
Design Pressure	90~190 Psi
Door Type	Double Pane Tempered Glass
Frame	Stainless Steel
Lamp	9W Fluorescent Light
Controller system	Electronic Thermostat
LCD display	Yes
Error Alert	Yes
Control Part	Controller Board x1 Control Panel x1 Temperature Sensor x2
Heater	PTC Heater 75W
Compressor	115V, 1PH, 60Hz, FLA1.6A, LRA9A
Flow Capacity of Capillary	6.8±0.2L/min @1Mpa
Filter Dryer	15g XH-9 molecular sieve

# Parts Breakdown

## Exploded View of OBR900SS

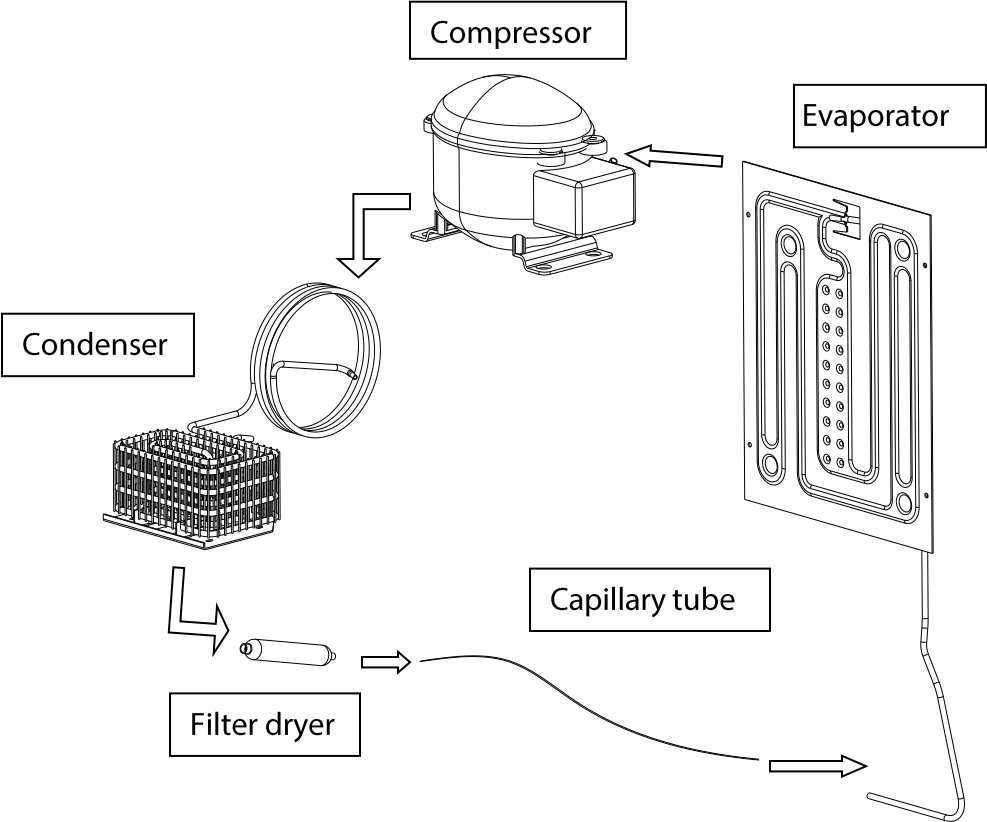


## Parts List

Number	Description
1	Door handle
2	Adhesive Control Panel
3	Dual pane tempered glass door
4	Controller cord
5	Control panel touch pad
6	Magnetic rubber gasket
8	Evaporator fan
9&33&34&39	Shelves
10	Lamp cover
11	Lamp
14	Evaporator
15	Sensor cover
16	Temperature sensor
17	Bottom hinge
18	PTC heater
19	Top hinge
20	Top hinge cover
22	Adjustable foot
24	Water pan
25	Compressor
26	Condenser fan
28	Power cord
31	Filter Dryer
35	Condenser
36	Ballast
40	Transformer
41	Filter
42	Controller box
43	Controller board
44	Controller box cover
45	Louver
47	Light switch

# Technical Information

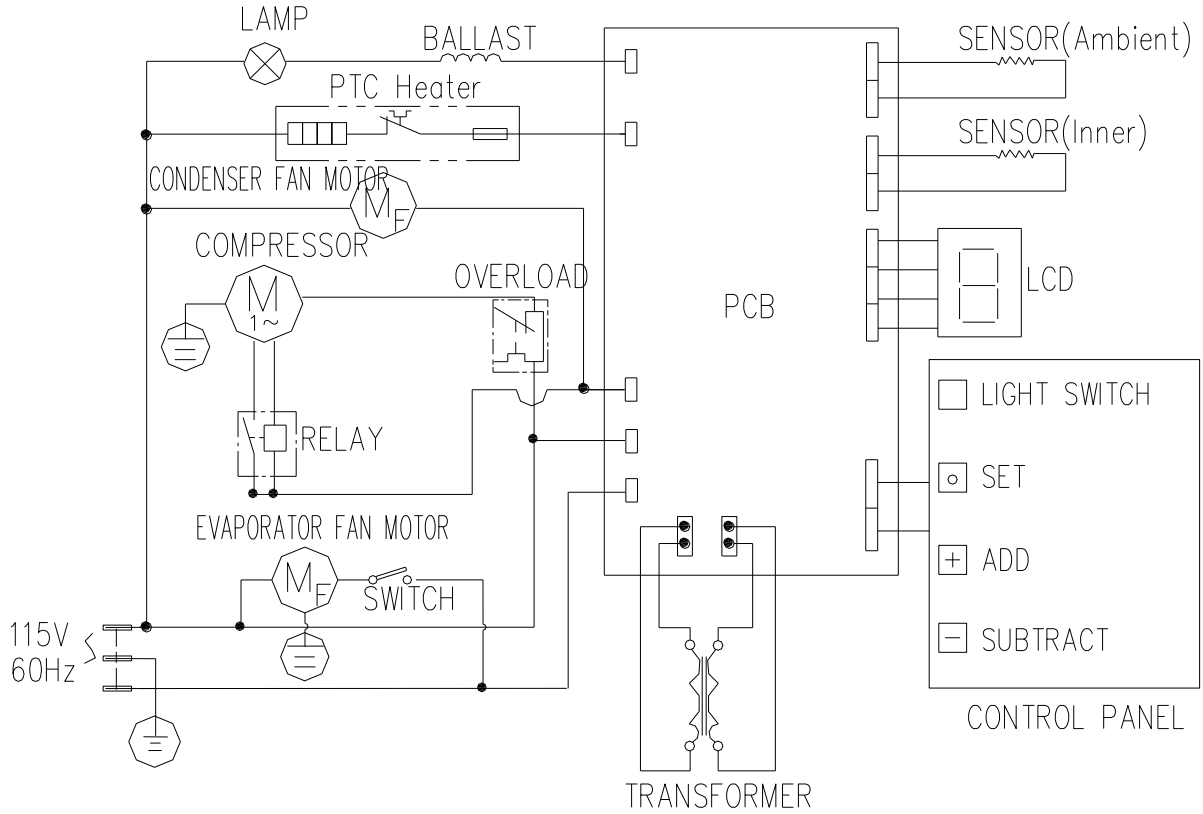
## Refrigerant Cycle





# Wiring Diagram

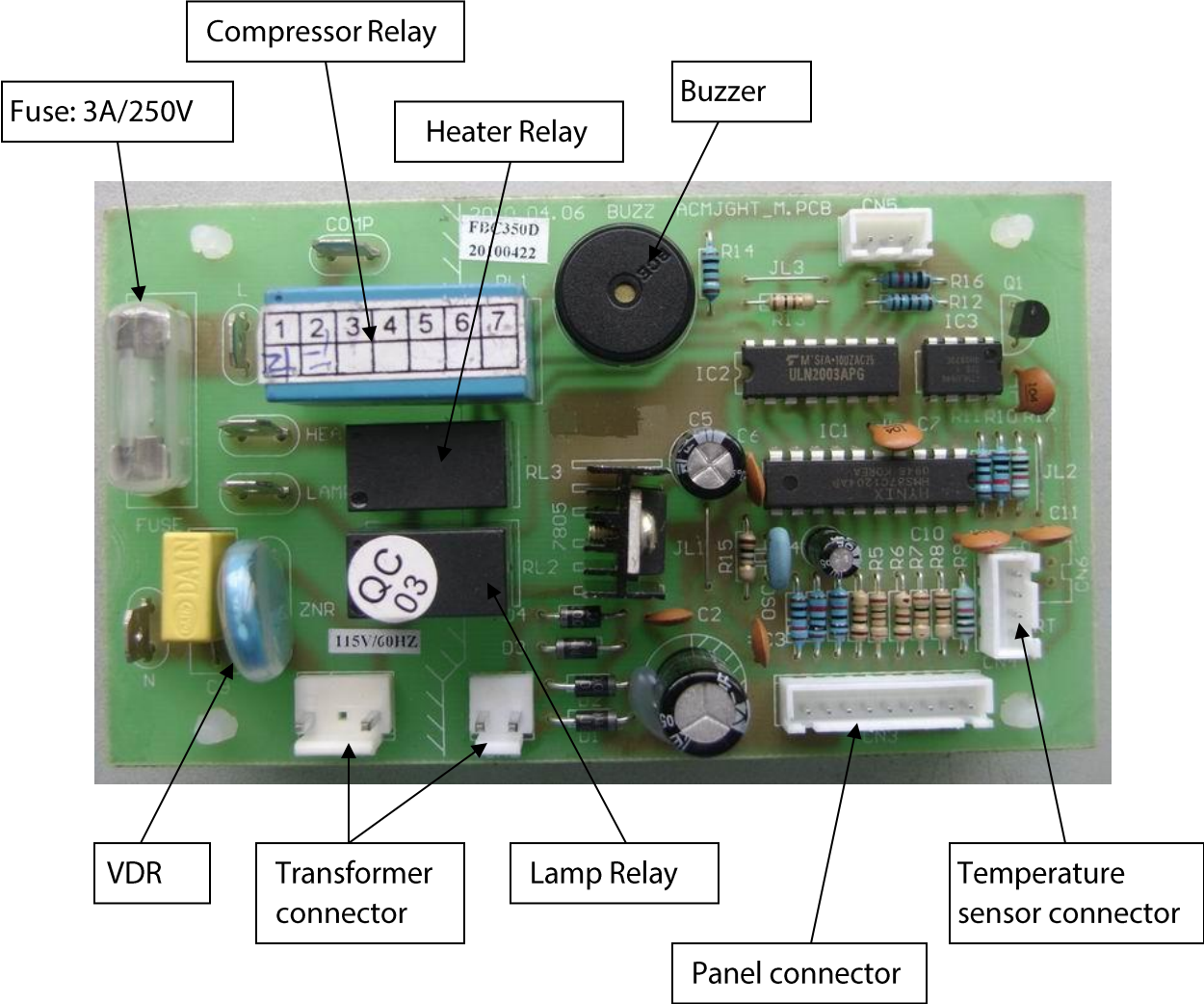
## OBR900SS



# Control System

OBR900SS

Control Board



# Service Diagnosis Overview

Malfunction Category	Check Point
Unit Does Not Run	Unit plug and wall socket
	Compressor Delay
	Control Board and Transformer
	Compressor Starter Relay and Overload Protector
	Wiring Connections
	Compressor
Unit Does Not Cool	Low Refrigerant Charge or Leak
	Detecting and Repairing Leaks
	Pulling Vacuum and Recharging
Unit Does Not Have Refrigerant Issue but Still Does Not Cool	Environmental Conditions
	Door and Door Seal
	Fans
Unit Too Noisy	Level Unit
	Refrigeration Lines
	Screws, Bolts and Fasteners
Light Does Not Work	Tightening Bulb
	Replacing Bulb
Light Stays On	On/Off Switch
	Door Switch
	Controller PCB Connection.
	PCB Switch
Error Codes	"Probe Error" and "E"
	"Low Temp" and "L"
	"High Temp" and "H"

## Service and Disassembly Steps

### Tools Required



Phillips Head Screwdriver

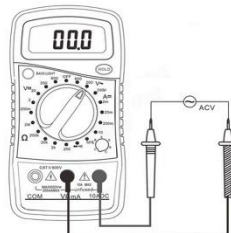


Flat Head Screwdriver



Pliers

Multimeter

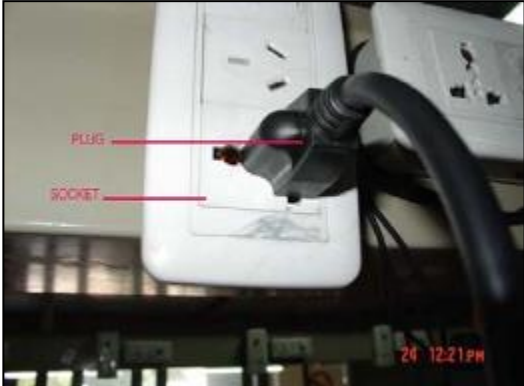







# Unit Does Not Run


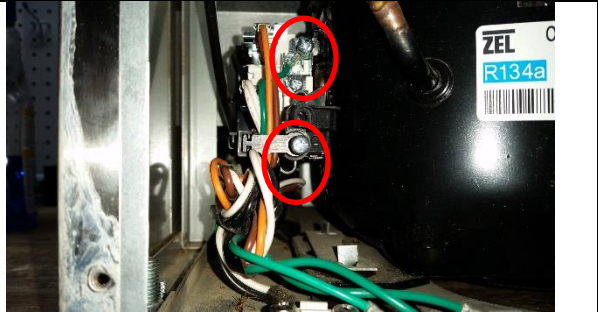

## Troubleshooting Overview

STEP	Possible Cause	Correction	Remark
1	The Unit is unplugged.	Plug in.	If problem continues go to step 2
2	Socket not correct voltage or is damaged.	Check and repair or replace.	If problem continues go to step 3
3	Compressor protected by internal delay timer.	Wait 5-10 minutes for compressor to start.	If problem continues go to step 4
4	Control board and/or transformer defective.	Replace board and transformer.	If problem continues go to step 5
5	Compressor relay and/or overload protector defective.	Replace the relay and overload protector.	If problem continues go to step 6
6	Wire connection loose	Check and re-connect according to wiring diagram	If problem continues go to step 7
7	Compressor defective	Replace compressor	

## Service Instructions

1.0	<p>Ensure the power plug is installed properly. If not, connect to an appropriate 120V power supply.</p>	
2.0	<p>Check the voltage of the socket. The voltage should read around 120V.</p>	
3.0	<p>The compressor is protected by an internal delay timer to protect it. After plugging the unit in it may take 5 minutes or more for the compressor to start. After giving it time to power up touch the compressor with your hand. If you feel vibration the compressor is running normally. If not, continue to step 4 and replace the control board and transformer.</p>	

<p>4.0</p>	<p>Accessing Components for Testing / Replacement</p> <p>To remove the back cover of the unit.</p> <p>Remove the five (5) screws.</p> <p>Remove the back cover and set aside for later use.</p>	
<p>4.1</p>	<p>Disconnect the power cord from the outlet, Remove the screws on the control board cover.</p>	
<p>4.2</p>	<p>Remove the cover</p>	
<p>4.3</p>	<p>Remove the terminals and replace the main control board and transformer.</p>	
<p>4.4</p>	<p>Reinstall the control box cover. Plug the unit into the wall outlet and confirm the compressor is working correctly. If unit is running, replace the back cover. If not, continue to step 5 and replace the starter relay and overload protector.</p>	
<p>5.0</p>	<p>Replace the starter relay and overload protector on the compressor.</p>	

5.1	Using a flat head screw driver, remove the cover on the side of the compressor that houses the relay and overload protector.	
5.2	Remove the wiring bracket screw and the ground wire screw.	
5.3	Remove and replace relay and overload protector and reconnect them to the compressor.	
5.4	Reinstall the wiring screws and component cover. Plug the unit into the wall outlet and confirm the compressor is working correctly. If unit is running, replace the back cover. If not continue to step 6 and check unit for loose wires.	
6.0	Using the wiring diagram check all wiring connections and make sure all connections are secure. Repair any loose or broken connections. Plug the unit into the wall outlet and confirm the compressor is working correctly. If unit is running, replace the back cover. If not, continue to step 7.	
7.0	If all the above steps have been performed correctly and the compressor will still not run the compressor is defective and needs to be replaced.	

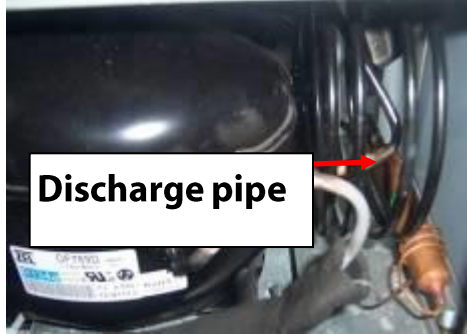
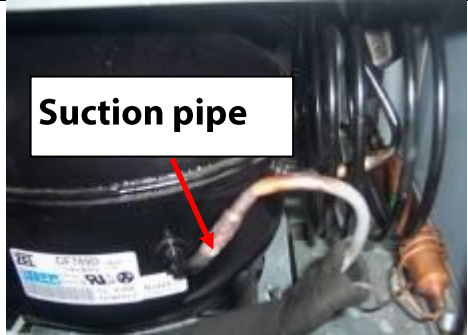









# Unit Does Not Cool.

## Troubleshooting Overview





STEP	Possible Cause	Correction	Remark
1	Low refrigerant charge or leak in system.	Check discharge and suction pipes from compressor.	Continue to step 2
2	Discharge pipe not hot and suction pipe not cool.	Check system for leak(s) and repair.	Continue to step 3
3	Unit needs to be recharged with refrigerant.	Attach vacuum pump and pull vacuum on system.	Continue to step 4
4	Recharge with proper amount of refrigerant.	Weigh in charge or use watt meter to charge to appropriate level.	Continue to step 5
5	Seal system and test unit		


## Service Instructions

1.0	If after the compressor has been on for some time the temperature in the cabinet remains unchanged, check whether or not there is a low charge or leak in the refrigeration system.	
1.1	If the compressor is vibrating when you touch it by hand it shows compressor is working. Steps 1.2/ 1.3 are key symptoms of low refrigerant or a refrigerant leak.	
1.2	If the discharge pipe isn't hot when you touch it by hand after the compressor has been running for a period of time continue to 1.3.	
1.3	The suction pipe isn't cool when you touch it by hand even after the compressor has been running for a period of time continue to 1.4.	
1.4	If both 1.2 & 1.3 are true then we can assume the unit has a leak or low charge. Follow the steps below on how to repair.	

<p>2.0</p>	<p>Attach a Piercing Valve to the <b>Suction Pipe</b> on the Compressor and Skip to 2.5. If no piercing valve is available continue to 2.1.</p> 	
<p>2.1</p>	<p>Cut off the process tube.</p>	
<p>2.2</p>	<p>Remove the process tube.</p>	
<p>2.3</p>	<p>Replace process tube preferably with a built in gauge/vacuum connector (below.) Braze in the new process tube with a bead of brazing solder.</p> 	
<p>2.4</p>	<p>If the new process tube does not come with a gauge/vacuum connector, attach a connector to the end of the process tube.</p>	



2.5	<p>Charge the Unit with Nitrogen.          Connect the Nitrogen to the Piercing Valve or Process Tube and Fill unit to a Pressure of 145PSI or 1Mpa.</p>	
<p>2.6 Check ALL brazing points for leaks.          Cover each brazing point with Soapsuds. A Spray Bottle, Towel and/or Brush are good methods of applying suds. If there are Bubbles it means there is a Leak!</p>		
		
2.7	<p>Re-braze the areas where there are leaks.</p>	
2.8	<p>Repeat steps 2.6 and 2.7 until there are no leaks.</p>	
3.0	<p>Once ALL leaks have been repaired release any remaining nitrogen. Connect the unit to a vacuum pump and apply vacuum for no less than 20 minutes to remove the nitrogen and other objects from the refrigeration system.</p>	
4.0	<p>Charge the unit with refrigerant until the watt meter indicates a proper charge. You may weigh in the appropriate charge if no watt meter is available.</p>	


5.0	Close the Piercing Valve or clamp the process tube, make it flat and seal after ensuring there is no leakage. 
5.1	Connect the unit to the power supply and check for any problems. Install the back panel.






## Unit Does Not Have Leak or Refrigerant Issue but Still Does Not Cool Enough.

### Troubleshooting Overview

STEP	Possible Cause	Correction	Remark
1	Environmental conditions or faulty door seal.	Check for heat sources around unit and make sure door seals correctly.	If unit still does not cool continue to step 2
2	Defective fan.	Replace fan.	

### Service Instructions

1.0	Avoid installing the unit where it is exposed to direct sunlight, where there is an ambient temperature of more than 90 degrees F or adjacent to a heat source.	
1.1	Check whether the door is firmly closed or if the door has been left open for too long.	
1.2	Check and ensure the door gasket is not damaged.	
1.3	If the door shuts firmly and the door gasket is not damaged you will need to check the fan motor.	
2.0	Remove the back panel by removing the (4) four screws. (As shown previously)	
2.1	If the fan motor is not running while the compressor is working, please repair / replace it following these steps.	



2.2	Check the Fan Motor.	
2.3	Remove the screws from the fan motor housing.	
2.4	Remove the fan motor.	
2.5	Disconnect the fan motor from the control board.	
2.6	Connect the new fan motor.	
2.7	Install the new fan motor.	
2.8	Reinstall the back panel as previously shown.	

# Unit Too Noisy.

## Troubleshooting Overview

STEP	Possible Cause	Correction	Remark
1	Unit not level.	Check floor surface and/or adjust leveling legs.	If unit still noisy continue to step 2
2	Vibrating parts/components.	Assure refrigerant lines are not touching and all screws and bolts are tight.	

## Service Instructions






1.0	Make certain the unit is properly leveled and on a stable surface strong enough to support the unit.	
1.1	If unit is not level, adjust level by turning the four leveling legs on the bottom of the unit.	
2.0	Make sure the refrigerant lines are not touching each other and vibrating.	
2.1	Make sure the all the screws and bolts for the compressor, the fan motor, condenser and other components are tight.	

# Light Does Not Work.

## Troubleshooting Overview

STEP	Possible Cause	Correction	Remark
1	Bulb not secure.	Tighten bulb.	If light still does not work continue to step 2
2	Bulb defective.	Replace bulb.	

## Service Instructions

1.0	Check and ensure the bulb is tightened correctly. If the bulb is defective please replace as follows:		
2.0	Remove the plug from the power outlet.		
2.1	Remove the light cover		
2.2	Remove the light bulb		
2.3	Replace the defective light bulb with a new one. Ensure the new bulb is in place and makes good contact.		
2.4	Replace the light cover		







# Light Stays On.

## Troubleshooting Overview

STEP	Possible Cause	Correction	Remark
1	On/Off Switch.	Press Switch.	If light stays on continue to step 2
2	Door Switch.	Ensure Contact with Controller is Good or Replace Door.	If light stays on continue to step 3
3	Controller PCB Connection.	Secure Connection.	If light stays on continue to step 4
4	PCB Switch	Ensure Switch Works or Replace PCB.	

## Service Instructions




1.0	Check the Light ON / OFF switch. Press to turn on and off the light.	
2.0	Ensure the button for door switch makes good contact with the controller below.	
2.1	If the door switch is bad, replace the door	
3.0	Check and ensure a good connection between the controller and the main PCB	
4.0	Check and ensure the PCB switch is good	
4.1	If the PCB is bad, replace the PCB board	







# Error Codes

OBR900SS includes a self-check function. The error codes are as follows:

Alarm code	Failure
Alarm sounds and LCD displays 'PROBE ERROR' and 'E'	Cabinet temperature sensor failure.
Alarm sounds and LCD displays 'PROBE ERROR' and 'EE'	Ambient temperature sensor failure.
Alarm sounds and LCD displays 'PROBE ERROR' and 'E' flashes	Both temperature sensors failure.
Alarm sounds and LCD displays 'LOW TEMP' and 'L'	Cabinet temperature sensor detected the temperature is lower than 25°F.
Alarm sounds and LCD displays 'HIGH TEMP' and cabinet temperature.	Cabinet temperature sensor detected the temperature is 17°F higher than Set Temperature more than 15 minutes.

## “Probe Error” and “E” Service Instructions


Error Code “E” is shown on the LCD display. This indicates a bad temperature sensor connection on the control board. Check connections. Also could indicate a damaged temperature sensor.		
1.0	Remove the temperature sensor cover by removing the (2) two screws.	
1.1	Remove the temperature sensor. Connect the new temperature sensor and check the LCD display for changes. Error code should not be shown. If error code is still shown, continue and check the control board connection.	
1.2	Replace the temperature sensor cover	
2.0	Checking the control board connection	

2.1	Remove the magnetic door seal from the door frame		
2.2	Remove the (2) screws to access the control board.		
2.3	Remove the (2) screws from the control board		
2.4	Pull out the control board		
2.5	Remove the connector		
2.6	Replace the control board		



2.7	Put the board in place and attach using the (2) screws previously removed and attach the connectors	
2.8	Replace the plastic cover and attach using the (2) screws previously removed.	

### “Low Temp” and “L” Service Instructions

Error Code “L” shown on LCD Display. This indicates the temperature sensor is malfunctioning.		
1.0	Replace the control board as done in steps 2.1-2.8 above.	

### “High Temp” and “H” Service Instructions

Error Code “H” shown on the LCD Display. This indicates the interior temperature is too high and the unit is not cooling.	
1.0	Check the cooling system for possible problems as outlined in “Unit not Cooling” and “Unit Not Cooling Enough” sections of this manual.

DATE	REVISION NOTES
1/23/2018	INITIAL DOCUMENT