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OPERATION AND SERVICE MANUAL

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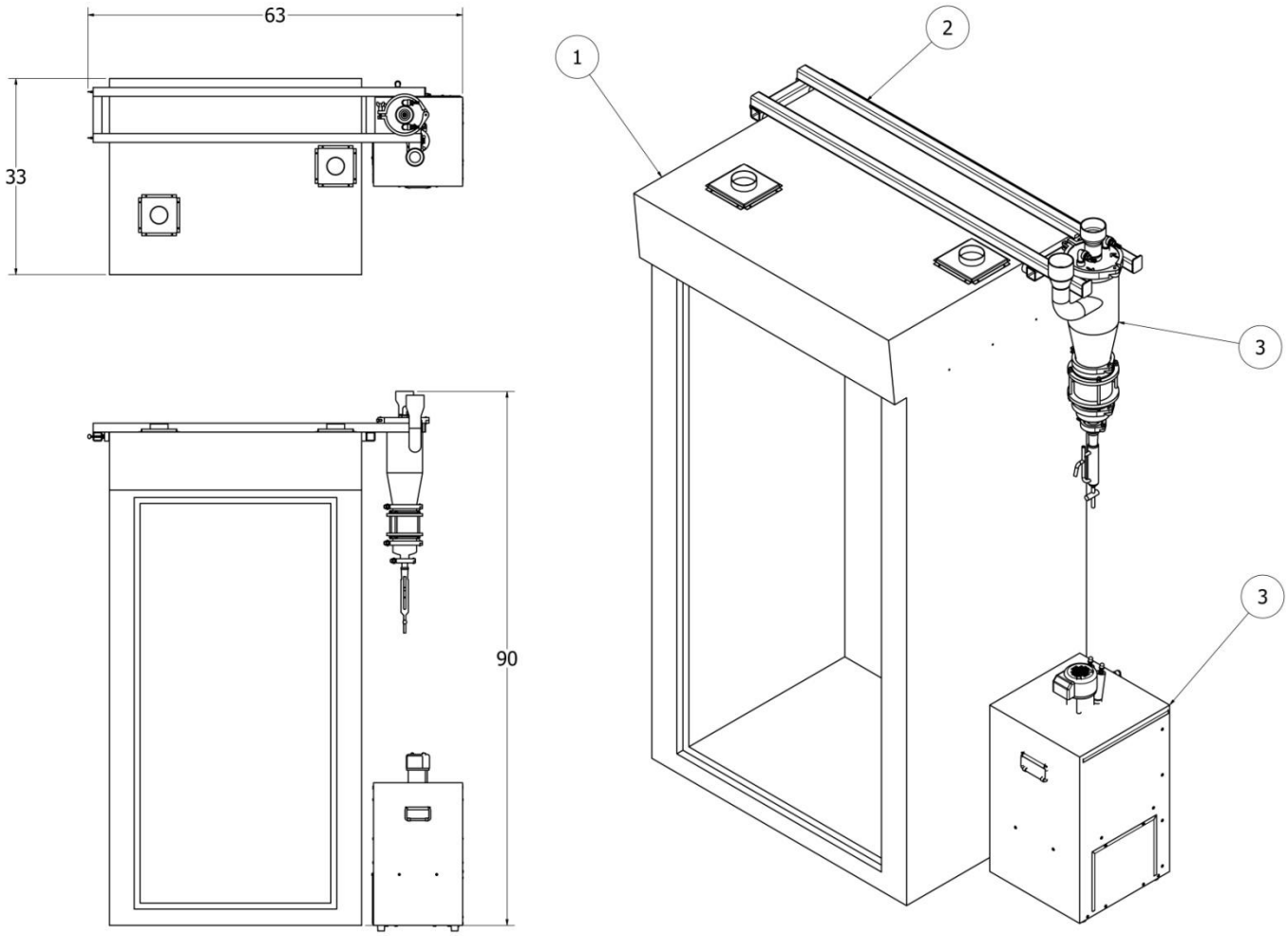
INSPECTION

Each shipment should be carefully checked. The shipping receipt should not be signed until all items have been accounted for. Check carefully for concealed damage. Any shortage or damages should be reported to the delivering carrier.

Damaged material becomes the delivering carrier's responsibility, and should not be returned to the manufacturer unless prior approval is given to do so.

Warning: The Pro Chiller contains refrigerant. Venting or release of certain refrigerants to the atmosphere is illegal. Refrigerant recovery devices must be used when servicing this unit. Consult your local codes for requirements.

PARTS VIEW



PARTS LIST	
ITEM	DESCRIPTION
1	CDO-28 Decarb Oven
2	OD-28 Rack
3	OD-28 Terpene Trap
4	Pro Chiller

SETUP

Position the supplied oven rack support on top of the oven and tighten the rubber bumper thumb screws until secure. The rack is typically positioned on top of the oven orientated so the Terpene Trap will hang to the right of the oven door. Ensure the rack is adequately tightened to support the Terpene Trap by firmly pulling down on the rack's overhanging supports. Other orientations are acceptable as long as the 3" ducting is properly installed connecting the oven's Intake/Exhaust ports (on top of oven) to the Terpene Traps' Exhaust/Intake ports respectively. Install 3" ducting using the 3" duct/hose clamps. Ensure both the 3" Intake port and 3" Exhaust port dampeners on top of the oven are open, and the 3" port dampener on the back of the oven is shut.

Position the Pro Chiller directly below the Terpene Trap. Make any necessary provisions to provide the proper electrical service. Connect the Pro Chiller glycol lines to the Terpene Trap, paying close attention to the arrows on the top of the Terpene Trap, indicating the glycol flow direction into and out of the trap, as well as the supply and return direction arrows on the Pro Chiller. Plug the unit into the electrical service.

<u>NOTE</u>: A minimum of 8 inches of clearance should be allowed around the entire Pro Chiller unit for proper performance. If space is limited and the chiller must be placed near the oven, ensure it is oriented so the chiller's switch panel is directly opposite the side closest to the oven.

OPERATION

The OD-28 Terpene Trap is designed specifically to capture hydrosol and terpenes from the decarb process of cannabis and/or hemp. Terpenes are very delicate and volatile compounds that degrade easily. Degradation is accelerated in the presence of oxygen and heat. Because the Terpene Trap operates best in a closed loop scenario with the oven's internal volume, the trap reduces the amount of available oxygen over time. To take full advantage of this, the oven door must stay closed during the entire process.

Ensure the Pro Chiller is installed according to the instructions provided in its section starting on page 9, including being filled with the appropriate mixture and quantity of water and glycol. Ensure all ducting and glycol lines are connected correctly according to the instructions presented herein. Once all setup is complete continue to the steps below for suggested operation.

DRYING AND DECARB

1. Turn on the Pro Chiller and set to its lowest temperature setting. Do not turn on the glycol pump at this time. Leave it off to allow the glycol to chill while the oven warms up.
2. Turn on the oven and insert biomass. As soon as the biomass is in the oven and the door will not be opened again, the glycol pump on the Pro Chiller can be turned on to begin capturing hydrosol/terpenes.

<u>NOTE</u>: If terpene preservation is of major concern there are some provisions one can make to ensure the lowest amount of terpene degradation occurs during capture:

Performing a drying process before the decarb process can be done by setting the oven to a lower temperature for duration of time to capture the majority of hydrosol/terpenes at a lower temperature promoting preservation by limiting degradation as much as possible. Once the condensate (viewed through the Terpene Trap's sight glass) has slowed considerably, the terpenes can be drained and placed into a separate container. Once the preserved terpenes have been removed from the system, the oven temperature can be raised to full decarb temperature and the material left for the appropriate amount of time.

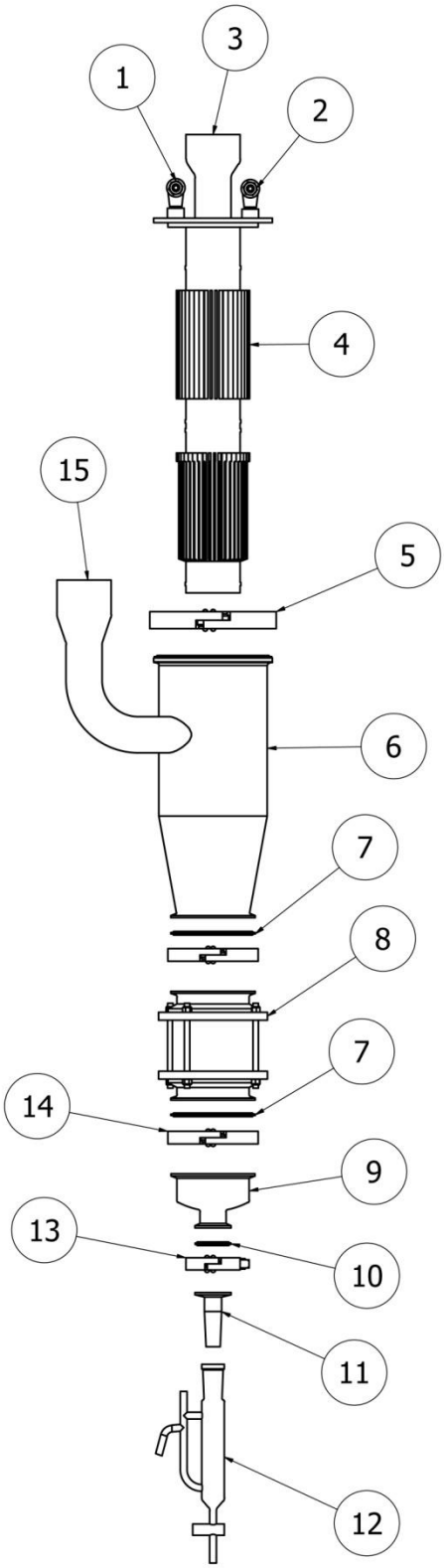
The oven can be purged with nitrogen to remove unwanted oxygen.

TERPENE TRAP

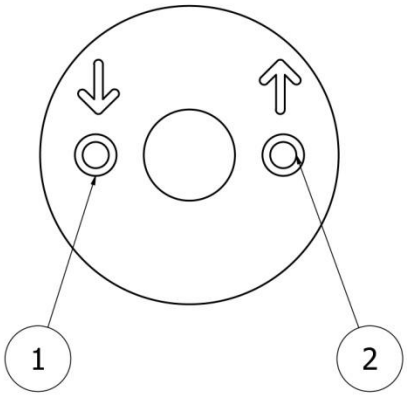
SPECIFICATIONS

Model	OD-28 Terpene Trap
Type	Glycol Terpene/Hydrosol Decarb Oven Cold Trap
Dimensions	42" X 12" X 6"
Weight	30 Lbs
Glycol Capacity	1 Liter
Condensate Capacity	Unlimited
Condenser Surface Area	600 in^2
Condenser Thermal Conductivity	236 W/m*K
Construction	Food grade stainless steel shell, PTFE sintered aluminum condensing insert, Viton Seal, borosilicate condensate sight glass and borosilicte terpene/hydrosol separator
Application	Condense terpenes and hydrosol from decarboxylation ovens
Intake	3"
Exhaust	3"
Drain	1.5” Tri Clamp (1.5” tri clamp to 3/8” hose barb and to 24/40 glass joint adapters included)
Working Fluid	40/60 Glycol/Water Mixture
Working Temperature	0F to 280F (-17C to 138C)
Installation	Free standing on rack (top of oven)
Warranty	1 Year Parts and Labor

PARTS VIEW



PARTS LIST	
ITEM	DESCRIPTION
1	Glycol Intake
2	Glycol Exhaust
3	Exhaust (duct to oven intake)
4	Condenser
5	Tri Clamp
6	Shell
7	Tri Clamp Gasket
8	Sight Glass
9	Bowl Reducer
10	Tri Clamp Gasket
11	Tri Clamp to Glass Joint Adapter
12	Hydrosol/Terpene Seperator
13	Tri Clamp
14	Tri Clamp
15	Intake (duct to oven exhaust)



PRO CHILLER

INSTALLATION REQUIREMENTS

- Dedicated power line, 115V, 60Hz, 15Amp.
- Recommended ambient temperature range 60-90F.
- Adequate air circulation as follows:
  - air condenser cannot be obstructed or covered in any way,
  - no filters allowed to be used with the unit.

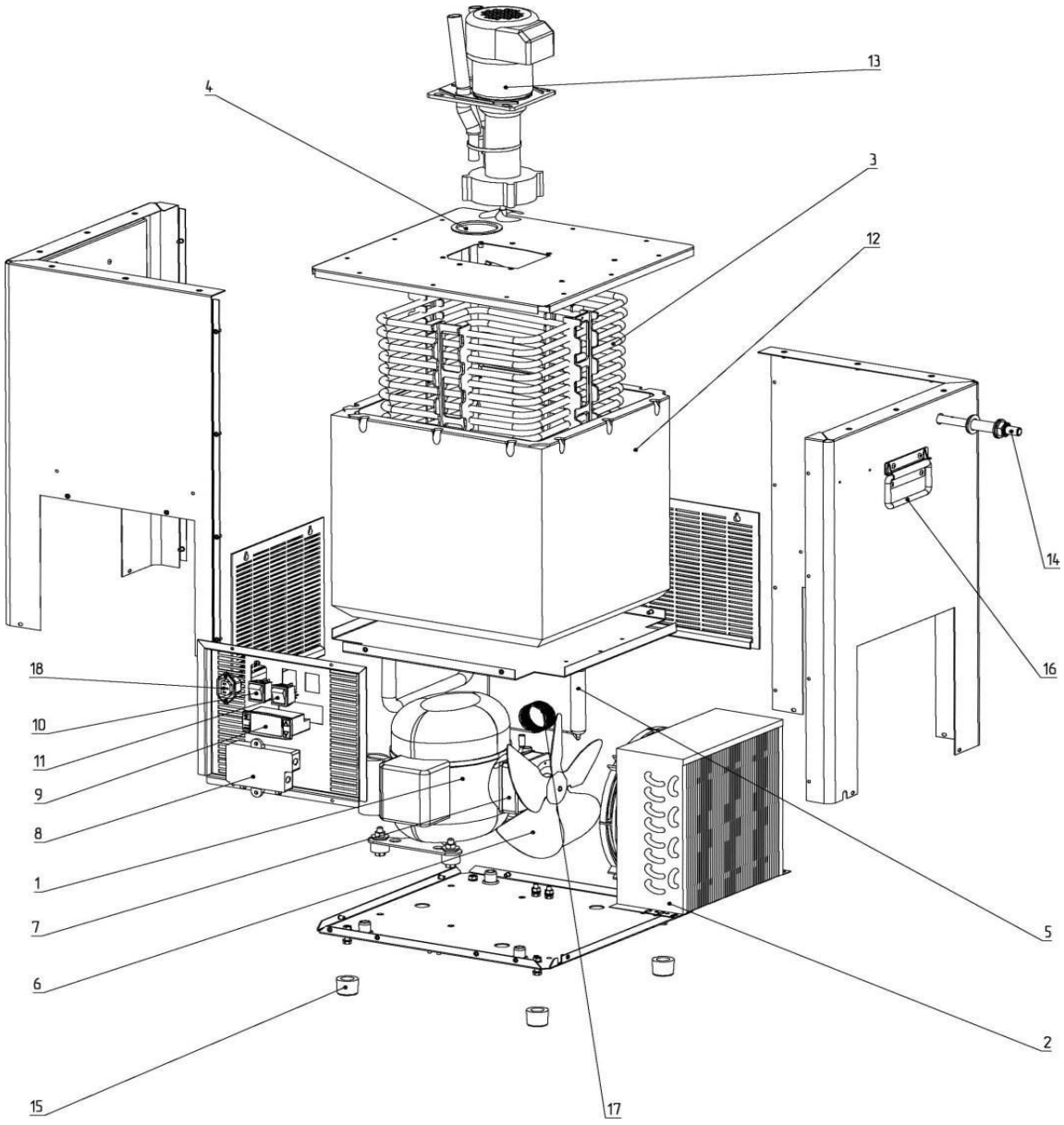
SPECIFICATIONS

Name	Unit	Pro Chiller
Maximum Distance	Ft	up to 75'
Capacity, (evap 20F)	BTU/hr	3200
Glycol tank capacity	Gal	5.5
Dedicated Circuit	Amp	15
Voltage	V/Hz	115/60
Compressor Power	H/P	3/8
Thermostat	Type	Digital
Glycol Pump	Type	Totton SPC42
Refrigerant	Type	R134a
Refrigerant amount	Lbs	0.375
Dimensions	Width, in	16.7
	Depth, in	15.2
	Height, in	29.7 / 34.8 (on legs)
Weight (net/gross)	Lbs	82

REPLACEMENT PARTS

DESCRIPTION/ MODEL	Pro Chiller
Compressor	Tecumseh AE4450Y-AA or Embraco : NEU6212Z or NEK6212Z
Start capacitor	for Tecumseh : 324-389µF/165-182V or for Embraco NEU6212Z : 189-227µF /≥250V or for Embraco NEK6212Z : 189-227µF /250V
Thermo overload relay	for Tecumseh : T988100-33 Embraco NEU6212Z : T0736, Optional : MSP00AFK, T0793, ST00AFZ or Embraco NEK6212Z : T0625, Optional: MRP20JZ, MRT16AFN, T0838, T0793/**, MST16JN, VST16AFN
Condenser	"Karyer" STFT-14221
Condenser fan	"ELCO" NU 9-20-2/094 or "EBM" M4Q045-CA-27-04
Power switch	Arcolectric C6053AL (20A)
Digital thermostat	Dixell XR02CX-4N0F1 (115V, 60Hz, 20A) or any similar UL-recognized

PARTS VIEW



1	POWER SWITCH (Green)
2	GLYCOL TANK
3	GLYCOL PUMP: SPC-42
4	OVERFLOW
5	FOOT
6	HANDLE
7	THROTTLE
8	CONNECTOR R302SN
9	COMPRESSOR
10	AIR CONDENSER
11	EVAPORATOR
12	CAP
13	DRIER FILTER
14	IMPELLER
15	CONDENSER FAN
16	TERMINAL BLOCK
17	DIGITAL THERMOSTAT
18	POWER SWITCH (Red)

GLYCOL FILLING

The Pro Chiller glycol tank capacity is 5 Gal. Only PROPYLENE GLYCOL should be used with this unit. The recommended glycol/water mixture is: 40% glycol and 60% water **(roughly 2 gallons glycol and 3 gallons water)**

NOTE: Do not place full strength glycol (undiluted) in the tank, as it will reduce the efficiency of the Pro Chiller and Terpene Trap and may result in damage to the recirculation pump due to increased viscosity of cold glycol. **The glycol ratio in the mixture should never exceed 50%.**

NOTE: Select and use only a propylene glycol product that meets FDA (Food and Drug Administration) regulations as a food grade product. Any substitution of food grade glycol with automotive anti-freeze or other products could expose people to hazardous chemicals.
NOTE : Always inspect the glycol tank for any debris as such might damage the pump.

Fill the tank with glycol by removing the black plug on the deck lid and placing a funnel in the fill hole. Pour in 2 gallons of glycol and top off with 3 gallons or more of clean water until all copper evaporator coils are covered. After ensuring the glycol hoses have been securely and properly connected between the Pro Chiller and the Terpene Trap, turn on the glycol circulation pump. Once the circulation pump has filled the Terpene Trap with the glycol mixture, additional water/glycol should be added to the Pro Chiller until all copper evaporator coils are covered. Check the system for leaks then turn off the pump.

MAINTENANCE

1. Inspect the Pro Chiller unit monthly to ensure that the glycol level is maintained to the fill level.
2. If the level is low, check the mixture ratio with a refractometer then add the proper volume of glycol/water mixture to maintain the recommended mixture in the tank.
3. If there is evidence of ice buildup in the unit, allow the ice to melt and replace all the water/glycol solution with a fresh solution.
4. The water/glycol solution should be changed approximately every 18 months. In regions of high humidity it is recommended to replace the mixture on a yearly basis.
5. Check and clean the Pro Chiller's condenser using a nonmetal brush every week, and using an air compressor or a vacuum cleaner every six months.
6. Check for proper air flow through the unit ensuring enough clearance around it is allowed. There must be no obstructions in front of the air flow vents especially any sort of filters in front of the condenser unless approved by Scientific 710.

ADJUSTING DIGITAL THERMOSTAT

DEFAULT SETTING VALUES

LABEL	NAME	RANGE	VALUE
Set	Set point	LS - US	15
Hy	Differential	1 + 45°F	3
LS	Minimum Set point value	– 67°F + SET	15
US	Maximum Set point value	SET + 99 °F	45
Ot	Thermostat probe calibration	– 18 - +18°F	0
CF	Measurement units	F-C	F
Od	Outputs activation delay at start up	0-99	0
Ld	Default display	P1-P2-SP	P1

HOW TO CHECK THE SET POINT VALUE

1. Press and immediately release the SET key: the display will show the SET point value.
2. Press and immediately release the SET key: or wait for 5 seconds to display the probe value again.

HOW TO CHANGE THE SET POINT

1. Press and hold the SET key for more than 2 seconds to change the SET point value.
2. The value of the Set point will be displayed and the ***** LED starts blinking;
3. To change the Set value press the ↑ (up) or ↓ (down) arrows.
4. To store the new set point value press the SET key again and wait 15 seconds.

AIR-COOLED CONDENSER CLEANING

Scientific 710 Pro Glycol Chillers are equipped with special heat exchangers, manufactured to ensure the maximum capacity with the smallest size. Any condenser is prone to accumulate dirt and airborne dust that may reduce or block the air flow. To guarantee the cooling effectiveness and to prevent damage to other electrical components, the condenser must be cleaned regularly.

WEEKLY CLEANING

1. Disconnect the power.
2. Clean the condenser with a nonmetal brush. For best results the condenser should be cleaned top-down.
3. A finish soft brush, vacuum cleaning, and/or compressed air is recommended.
4. Connect the power.

SEMI-ANNUAL CLEANING

The weekly condenser cleaning can only guarantee surface cleaning. Using a nonmetal brush it is impossible to reach and clean the funnel and between the funnel space. Only blowing air or deep vacuum cleaning can achieve proper cleaning results. To maintain high performance and efficiency, a semi-annual cleaning routine must be established. Please follow the instructions as described below:

1. Disconnect the power.
2. Clean the condenser with a nonmetal brush.
3. Clean the condenser thoroughly using a pressurized air flow (air compressor) or a vacuum cleaner. Check condenser cleanness using a flashlight. Continue until compressor appears clean in between the fins.
4. Connect the power and turn on the unit.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Compressor does not start, no signal appears on the thermostat's front panel	No proper power supply	1. Check the power (voltage) in receptacle 2. Loose wiring. Check against the wiring diagram to locate and secure loosen wires.
Compressor does not start, thermostat reads bath temperature, the fan motor is running	Inadequate low voltage to compressor usually caused by poor quality or non-dedicated power line	Measure voltage across common and run terminals on the compressor (shown on the compressor). Voltage must not drop below 90% of rated voltage. Turn off the system until proper voltage is restored.
	Wrong thermostat settings, or improper/loose contact in the thermostat	1. Check thermostat settings such as set point and differential. 2. Check contacts 9-10 on the thermostat
	Faulty thermostat	Check and replace the thermostat
	Start capacitor or start relay malfunction	Using a multimeter test the continuity of the start relay and then of the start capacitor. Replace relay if no continuity.
	Overload relay is not working properly	Check the relay using a multimeter. Replace the relay if no continuity.
	Compressor motor has a ground fault (also known as a short circuit to ground)	Replace the compressor
	Compressor is locked up	Replace the compressor

Compressor starts and runs, P1 is displayed on the thermostat	Probe failure or loose wiring	1. Check probe wiring 2. Replace probe
Compressor starts and runs for less than 1/2 minute and then shuts off	Inadequate Low voltage to compressor usually caused by poor quality or non-dedicated power line	Measure voltage across common and run terminals on the compressor (shown on the compressor). Voltage must not drop below 90% of rated voltage. Turn off the system until proper voltage is restored.
	Start relay not working properly, usually caused by overheating of the compressor due to poor air circulation through the air condenser, or inadequate low voltage	Using a multimeter test the continuity of the start relay. Replace relay if no continuity. Correct installation conditions such as air flow to condenser or proper voltage.
Compressor starts and runs more than 1 minute but shuts-off in less than 5 minutes	Inadequate Low voltage to compressor or fluctuating voltage; usually caused by poor quality or non-dedicated power line.	Measure voltage across common and run terminals on the compressor (shown on the compressor). Voltage must not drop below 90% of rated voltage. Turn off the system until proper voltage is restored.
	Faulty thermostat	Check thermostat for incorrect or erratic display signals and improper function. Replace if faulty.

Unit operates long cycles or continuously	Wrong thermostat settings, such as: 1. SET POINT value is very low 2. Differential is too low or zero	1. Check and/or reset SET POINT (SET) 2. Check and/or reset DIFFERENTIAL (Hy)
	Limited air flow through the condenser	Check and clean the condenser.
	Unit is inadequate to meet BTU requirements of the system.	Upgrade the unit
	Improper installation of the unit or the system.	1. Examine and verify ambient conditions of the unit per product manual. 2. Examine the system for hot-spots. 3. Check the glycol pump for operation, replace if faulty.
	Low glycol level in the bath.	Check glycol level in the bath. Evaporator coils must be covered with glycol (fill level)
	Freon leakage	Locate and fix the leakage, then recharge with Freon. ***Must be only performed by a licensed refrigeration company**
Pump makes abnormal noise and/or rattles PROCON PUMP ONLY	Loose V clamp– pump is not tightly secured to motor	Tighten V clamp
Unit rattles or vibrates during operation	Loose parts or mountings, compressor vibration	1. Place the unit on even surface 2. Identify sound or vibration source 3. Tighten screws or mountings if loose

LIMITED PRODUCT WARRANTY

Scientific 710 warrants that its products will be free from defects in material and workmanship, under normal use and regular service and preventative maintenance, for 1 year from the date of sale.

Prerequisites

This warranty is available to the first end user for equipment purchased from Scientific 710 or Scientific 710's authorized dealers. Equipment resold without such authorization will not be covered under this warranty. All equipment must be properly installed according to guidelines found in the product manuals. Approved usage conditions for operation must be provided as required in the product manuals (including but not limited to ambient conditions, dedicated power circuit and required clearance). All equipment must be maintained and cleaned regularly as specified in the product manual.

Warranty Period

Warranty period is one (1) year from the date of purchase. A warranty stub or documents of sale from distributor must be submitted for units not sold directly by Scientific 710 for warranty to be valid.

Warranty Coverage

If a product is deemed defective by Scientific 710 within the warranty period described above, Scientific 710, at its discretion, will either repair or authorize the repair of the product. The customer is responsible for the return of the defective part or product to Scientific 710 for inspection and defect determination. Customer must package the part or product according to the instructions provided by Scientific 710 before shipping it. The customer will cover the shipping costs for the part or product as described in the Shipping segment of this warranty.

Defect Determination
Scientific 710 is the only body authorized to determine defects. Customers must contact Scientific 710 to receive authorization for any course of action prior to any repairs. All replacement parts not provided by Scientific 710 must be pre-approved by Scientific 710 prior to usage. If a part or product is authorized for return it is for inspection purposes only; if the defective part is not returned by the customer than the warranty claim may be subject for denial. It is the sole discretion of Scientific 710 as to whether or not a credit/refund will be allowed. Scientific 710's determination of defects is final.

Product Delivery
The customer is responsible for inspecting units upon receipt for concealed damage caused during shipping. The customer must report damaged or non-working units or components to Scientific 710 immediately. Deliveries with physical damage should be denied. A claim must be filed with the carrier for any damages during shipping. Scientific 710 is not responsible for units damaged during shipping.

Warranty does not cover
- Physical damage or water damage to the unit caused by negligence of the user.
- Improper installation and modifications made without Scientific 710's explicit approval.
- Chillers being used for applications which they were not originally designed for.
- Damage resulting from electrical supply, water supply, drainage, flood, storm or any other incidents.
- Repairs made without the explicit authorization of Scientific 710.

Note:
SCIENTIFIC 710 IS NOT RESPONSIBLE FOR ECONOMIC LOSS OR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES

Shipping
During the warranty period the customer will be responsible for shipping charges as describe in the previous segments. Scientific 710 will ship replacement parts using standard ground shipping only. Refrigeration units will be shipped on pallets ground freight (LTL). If expedited shipping is needed the customer will incur the difference in shipping cost.

All returns must be authorized by Scientific 710 prior to shipping.
Warranty units must be shipped on a pallet.
Units sent without proper packaging will not be processed for warranty claims.
The unit must always remain in its upright position, especially during shipping.
Do not flip the unit or box on the sides or its top.