Changing
how food is served.

OPERATION/MAINTENANCE MANUAL

SPC-FT SERIES
FROST TOP SYSTEM

CUSTOM FABRICATORS OF FOODSERVICE EQUIPMENT

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2022

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INSPECTION

Upon receipt, the crate should be inspected for visual damage. Any damage should be reported immediately to the carrier.

SAFETY PRECAUTIONS

This manual includes safety and operating instructions for Frost Top (FT) series system. LTI recommends reading all safety precautions and statements to ensure safe operation before installing and operating. Below are the precautions that are explained in more detail. Please read carefully.

DANGER

Danger warns of imminent hazard which will result in serious injury or death.

WARNING

Warning indicates the presence of a potential hazard or unsafe practice that will or can cause severe personal injury or death.

CAUTION

Caution indicates the presence of a hazard or unsafe practice that will or can cause minor or moderate personal injury if the caution is ignored.

NOTICE:

Used to note information that is important but not hazard-related.

WARNING
ELECTRIC SHOCK HAZARD

- Unit must be installed by a qualified electrician. Installation must conform to all local electrical codes. In the absence of local codes, use the latest version of the National Electrical Code.

- Unit should be safely and adequately grounded in accordance to local codes, or in the absence of local codes, the most up to date version of the National Electrical Code ANSI/NFPA70, to protect the user from electrical shock.

- The unit requires a grounded system and a dedicated circuit.

- The unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.

- Control panel must be mounted on a vertical surface/wall and installed in the vertical position. Mounting control panel in the horizontal position may result in collection of liquids and lead to electrical shock.

- Turn OFF power, unplug power cord/turn off power at circuit breaker, and allow unit to cool if needed to before performing any cleaning, adjustments, or maintenance.

- Do not use flammable cleaning solutions to clean this unit.

NOTICE:

- Units are voltage specific. Refer to specifications label for electrical requirements before installation.

- Use non-abrasive cleaners and cloths only. Abrasive cleaners and cloths could scratch finish of unit, marring its appearance and making it susceptible to soil accumulation.

- Do not use steel wool for cleaning.

- Do not use harsh chemicals such as bleach, cleaners containing bleach, or oven cleaners to clean this unit.

MODEL NOMENCLATURE :

Example:	SPC –	FT –	MF –	25 -	36 –	RBS –	50
	A	B	C	D	E	F	G

A – COUNTER STYLE
- SPC – SPECLINE
- SIM – SIMPLICITY

B – FT = FROST TOP

C – BODY STYLE
- MF- MOLDED FIBERGLASS
- FP – FIBERGLASS PANEL
- LP – LAMINATE PLASTIC
- LSS – LAMINATE OVER STAINLESS
- SS – STAINLESS STEEL

D – WIDTH OF FROST TOP AREA
- 20 – STANDARD 20”
- 12 – SLIM 12”

E – LENGTH OF FROST TOP AREA

F – SUFFIX to indicate another refrigerated section in addition to the MX cold well.
- GFTTxx = glass frost top tier, followed by nominal length in inches
- QSGTTxx = Quick-switch glass top tier, followed by nominal length in inches
- RBS = refrigerated base single
- RBD = refrigerated base double
- SFTxx = stainless steel frost top tier, followed by nominal length in inches

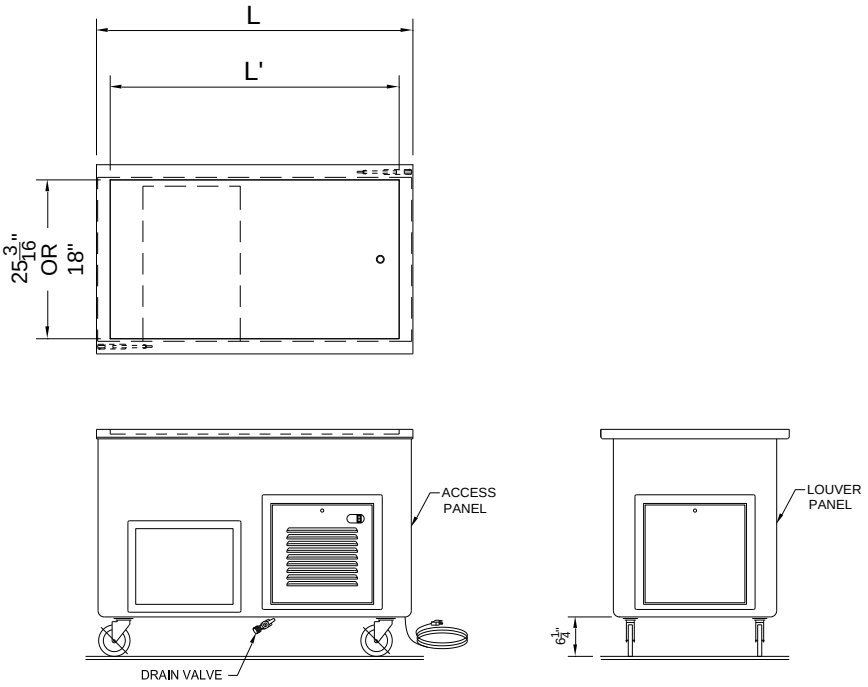
G – COUNTER LENGTH
- SPC LENGTHS SPECIFIED BY ORDER
- SIM LENGTHS = 50, 60

INSTALLATION INSTRUCTIONS

LTI FT Series are self-contained units designed for short term display and of food and desserts. The units are designed to help maintain product temp for short periods of time and are dependent upon the ambient temperature in which they are installed and product temperature when it is placed in the unit. Products should be carefully monitored and rotated as necessary to meet local health requirements.

When installed adequate air flow must be provided to ensure proper operation. Thru air flow is required but if not, exhaust fans should be used to ensure adequate heat exhaust. Connect the unit into the proper grounded electrical service. Refer to unit's electrical data tag for correct electrical service requirements and refrigeration information. The unit is now ready for operation.

Refer to figures for dimensions and overall details.



SPECLINE/SIMPLICITY FROST TOP UNITS								
Model #	**Unit Length L**	**FT WIDTH**	**FT Length L'**	**18X26 SHEET PAN CAPACITY**	**Comp.**	**Volts/ Phase**	**Amps (120V)**	**NEMA Plug**
SPC-FT-X-18-26-X-36	36 3/8"	18"	26"	1	1/3	120V/1	7.0	5-15
SPC-FT-X-25-36-X-50	50 3/8"	25 3/16"	36"	2	1/3	120V/1	7.0	5-15
SPC-FT-X-18-52-X-60	60 3/8"	18"	52"	2	1/3	120V/1	7.0	5-15
SPC-FT-X-25-54-X-60	60 3/8"	25 3/16"	54"	3	1/3	120V/1	7.0	5-15
SPC-FT-X-25-54-X-66	66 3/8"	25 3/16"	54"	3	1/3	120V/1	7.0	5-15
SPC-FT-X-25-54-X-74	74 3/8"	25 3/16"	54"	3	1/3	120V/1	7.0	5-15
SPC-FT-X-18-52-X-74	74 3/8"	18"	52"	2	1/3	120V/1	7.0	5-15
SPC-FT-X-25-72-X-84	84 3/8"	25 3/16"	72"	4	1/3	120V/1	7.0	5-15
SPC-FT-X-18-78-X-84	84 3/8"	18"	72"	3	1/3	120V/1	7.0	5-15
SPC-FT-X-25-90-X-96	96 3/8"	25 3/16"	90"	5	1/3	120V/1	7.0	5-15
SPC-FT-X-18-78-X-96	96 3/8"	18"	78"	3	1/3	120V/1	7.0	5-15

*** WARNING ***

To prevent any electrical accidents, this equipment should be installed and serviced by <u>qualified maintenance personnel only</u> per national electrical code standards.

Various options may be purchased with this equipment. When these options are provided the electrical circuits may be separately fused with **class "G" fuses**. If fuses must be replaced **replace with the same type and amperage fuse.**

OPERATING INSTRUCTIONS

START UP

The refrigeration system supplied with these systems are of the hermetic type. Refrigerant is metered by expansion valves which are located in the compressor housing of frost top (FT) unit. Each refrigeration system is self-contained and has been leak tested, charged with refrigerant, and operated to ensure the proper operation and setting of the controls.

Energize the unit by attaching the plug to an appropriate electrical supply (115 vac, 60 hz, single phase, 12 amp) and turning on the service switch located in the compressor compartment.

Prep the unit for use by allowing the unit to run approximately one (1) hour before displaying product.

OPERATION

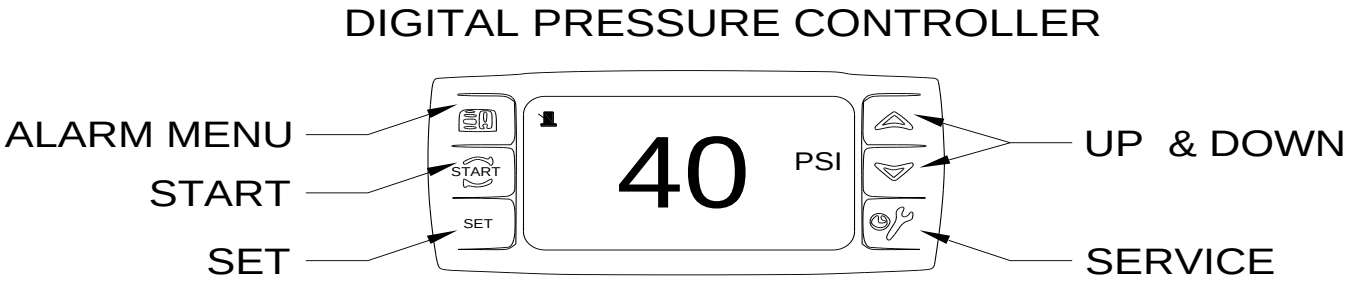
The system temperature is controlled by the pressure control which is located inside the compressor housing. The TXV metering device controls the flow of refrigerant to the evaporator of the unit.

The low pressure control (physically located in the front of the compressor compartment) is used to cycle off the compressor. The low pressure control should not be adjusted from the factory settings. Adjustment of this control may cause performance problems with the unit.

Factory Settings for Frost Top (FT) Units:

- Cut-In – 40psi
- Cut-Out – 15psi
- Differential - 25

For instructions on setting Pressure Controls see illustrations provided.

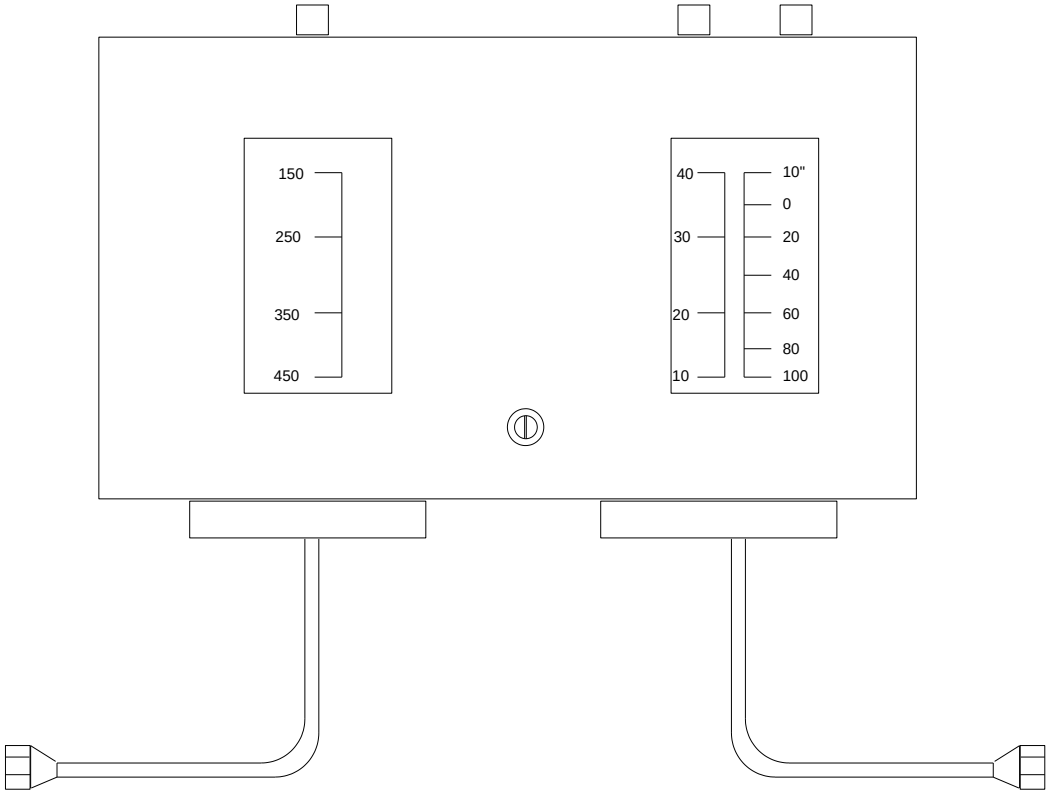


- **SET** – To display target set point, in programming mode it selects a parameter or confirm an operation.
- **START**- (RESTART) It depends on the rSC parameter; with rSC=rSt it allows a manual restart and ad “dead band reset”; with rSC=nP only the dead band reset is allowed.
- **(UP)** – To see the condenser temperature for 5sec; in programming mode it browses the parameter codes or increases the displayed value.
- **(DOWN)**- To see the dLt temperature; in programming mode it browses the parameter codes or decrease the displayed value.
- **(SERVICE)**- To enter the service menu.
- **(ALARM MENU)**- To enter the Alarm menu.

How to Modify Set Point:

1. Press and hold down the **SET** key unit PSI begins to blink. Display will show **Cin**.
2. Press and release the **SET** key to display its value.
3. Use the **UP** or **DOWN** to change the value.
4. Push and immediately release the **SET** key: the display will show **Cou**.
5. Press and release the **SET** key to display its value.
6. Use the **UP** or **DOWN** to change the value.
7. Press the **SET** key save and to return to the suction pressure display press the **SET** + **Up** arrow at the same time.

MECHANICAL PRESSURE CONTROL



RANCO MODEL 012-4834-000 DUAL PRESSURE CONTROL

NUMBER OF POLES: 1
CONTACT ACTION:
(CONTROL LOW PRESS. SIDE) OPEN ON LOW, CLOSE ON HIGH
(SAFETY HIGH PRESS. SIDE) CLOSE ON HIGH, OPEN ON LOW

LOW PRESSURE SIDE
CUT-IN SETTING RANGE: 10" MERCURY VAC TO 100 PSI
DIFFERENTIAL: 10 TO 40 PSI

HIGH PRESSURE SIDE
CUT-OUT RANGE: 150 TO 450 PSI
DIFFERENTIAL: 70 PSI

AC FULL LOAD AMPS 24

REFRIGERANT CONNECTIONS: 1/4" FEMALE FLARE, 36" CAPILARY

CLEANING INSTRUCTIONS

To maintain the performance and finish of the unit clean the unit daily. Make sure to use cleaning supplies and cleaners designed for cleaning stainless-steel surfaces.

Stainless steel:

Use soft cloths, microfiber, sponges, or plastic scouring pads. Avoid using scrapers wire brushes, steel wool or anything that might scratch the surface. Always clean stainless-steel parallel with the “grain”. Use cleaners that contain alkaline, alkaline chlorinated, or non-chloride chemicals.

CONDENSER COIL

WARNING: Always disconnect power before inspecting or cleaning condenser coil. Never use high-pressure water to clean condenser coil as water can damage electrical components located near the condenser coil.

The condenser coil requires adequate cleaning to maintain proper operation which is recommend every 90 days. If debris is more prevalent the condenser coil should be cleaned every 30 days. Neglecting the condenser coil cleaning procedures will void any warranties associated with the condensing unit or cost to replace the compressor

PREVENTATIVE MAINTENANCE

To ensure that your equipment will continue to operate properly follow these simple steps.

- The unit should be cleaned thoroughly every day. Excess food spillage left can cause damage to the unit. Where applicable clean unit daily.

- Make sure condensing unit has adequate air flow to prevent overheating. Thru air flow is required but if not, exhaust fans should be used to ensure adequate heat exhaust. Properly shrouding condenser inlet air flow is recommended to provide fresh air across condenser.

- Make sure that the condenser is kept clean of dust and dirt and if filter is provided change every 30-90 days. Failure to do this will cause compressor to overheat and may cause compressor failure and will VOID ANY FACTORY WARRANTY on compressor.

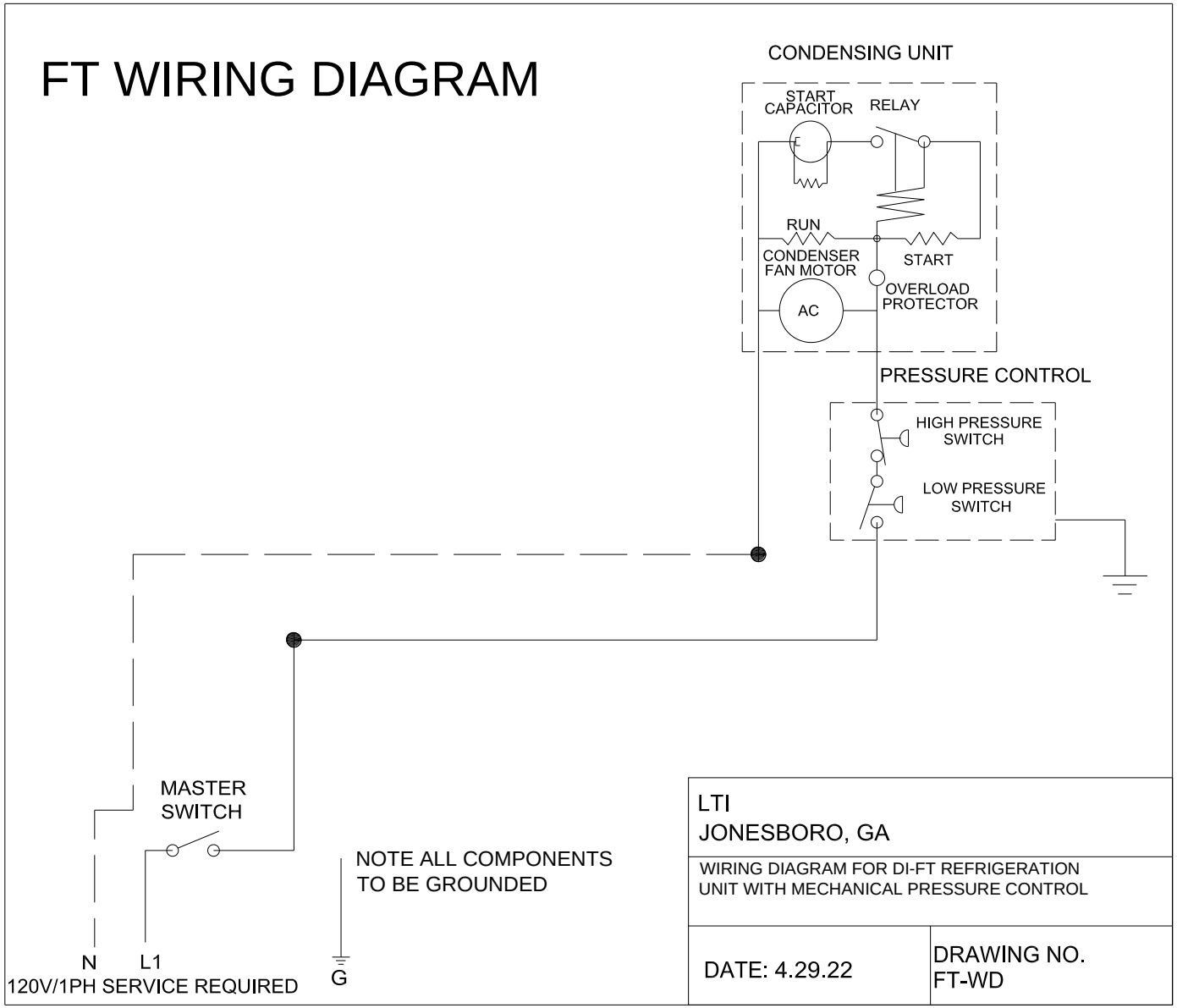
TROUBLESHOOTING

REFRIGERANT TROUBLESHOOTING		
COMPLIANT	**PROBLEM**	**SOLUTION**
COMPRESSOR WILL NOT START	LINES DISCONNECTED / SWITCH OPEN	CLOSE START ON DISCONNECT SWITCH
	FUSE REMOVED OR BLOWN	REPLACE FUSE
	CONTROL STUCK IN OPEN POSITION	REPAIR OR REPLACE CONTROL
	CONTROL OFF DUE TO COLD LOCATION	RELOCATE CONTROL
COMPRESSOR WILL NOT START, HUMS BUT TRIPS OVERLOAD PROTECTOR	LOW VOLTAGE TO UNIT	CALL POWER SUPPLIER
	STARTING CAPACITOR DEFECTIVE	REPLACE CAPACITOR
	RELAY FAILING TO CLOSE	REPLACE RELAY
	COMPRESSOR MOTOR HAS A WINDING OPEN OR SHORTED	REPLACE COMPRESSOR
	INTERNAL MECHANICAL TROUBLE IN COMPRESSOR	REPLACE COMPRESSOR
COMPRESSOR STARTS AND RUNS, BUT SHORT CYCLES ON OVERLOAD PROTECTOR	LOW VOLTAGE TO UNIT	CALL POWER SUPPLIER
	OVERLOAD PROTECTOR DEFECTIVE	CHECK CURRENT, REPLACE PROTECTOR
	RUN CAPACTIOR DEFECTIVE	REPLACE CAPACITOR
	EXCESSIVED DISCHARGE PRESSURE	CHECK VENTILATION, RESTRICTIONS IN COOLING MEDIUM, RESTRICTIONS IN REFRIGERANT SYSTEM
	COMPRESSOR TOO HOT, RETURN GAS HOT	CHECK REFRIGRANT CHARGE (FIX LEAK IF NECESSARY)
	COMPRESSOR MOTOR HAS A WINDING SHORTED	REPLACE COMPRESSOR
UNIT RUNS OKAY, BUT SHORT CYCLE ON	OVERLOAD PROTECTOR	CHECK CURRENT, REPLACE PROTECTOR
	THERMOSTAT	DIFFERENTIAL SET TO CLSE, WIDEN
	HIGH PRESSURE CUT OUT DUE TO: INSUFFICIENT AIR, OVERCHARGE, OR AIR IN SYSTEM	REDUCE REFRIGERANT CHARGE, PURGE. CHECK AIR SUPPLY TO CONDENSER, REDUCE REFRIGERANT CHARGE, PURGE
UNIT OPERATES LONG OR CONTINUOUSLY	SHORTAGE OF REFRIGERANT	FIX LEAK, ADD CHARGE
	CONTROL CONTACTS STUCK OR FROZEN/CLOSED	CLEAN CONTACTS, OR REPLACE CONTROL
	REFRIGERANT OR AIR CONDITIONED SPACE HAS EXCESSIVE LOAD OR POOR INSULATION	DETERMINE FAULT AND CORRECT
	EVAPORATOR COIL ICED	DEFROST
	RESTRICTION IN REFRIGERANT SYSTEM	DETERMINE LOCATION AND REMOVE
	DIRTY CONDENSER	CLEAN CONDENSER
	FILTER DIRTY	CLEAN OR REPLACE
START CAPACITOR OPEN	RELAY CONTACTS NOT OPENING PROPERLY	CLEAN CONTACTS OR REPLACE IF NECESSARY
	PROLONGED OPERATION ON CYCLE DUE TO LOW VOLTAGE, IMPROPER RELAY	CALL POWER SUPPLIER, OR REPLACE
RUN CAPACITOR OPEN, SHORTED OR BLOWN	EXCESSIVE SHORT CYCLE	DETERMINE REASON FOR SHORT CYCLE
	IMPROPER CAPACITOR	DETERMINE CORRECT SIZE AND REPLACE
	EXCESSIVELY HIGH LINE (100% OF RATED-MAX)	CALL POWER SUPPLIER
SPACE TEMPERATURE TOO HIGH	CONTROL SETTING TO HIGH	RESET CONTROL
	INADEQUATE AIR CIRCULATION	IMPROVE AIR MOVEMENT
SUCTION LINE FROSTED OR SWEATING	EXPANSION VALVE STUCK	CLEAN VALVE OFF FOREIGN PARTICLES, REPLACE IF NECESSARY
	EVAPORATOR FAN NOT RUNNING	DETERMINE REASON AND CORRECT
	OVERCHARGE OF REFRIGERANT	CORRECT CHARGE
CONTROL DISPLAYING "Er 1" or "EO"	ERROR IN SENSOR PROBE, SENSOR DISCONNECTED OR DAMAGED	REPLACE SENSOR PROBE

REPLACEMENT PARTS

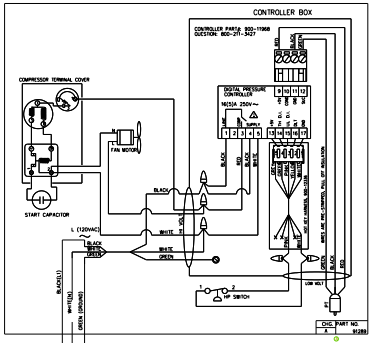
ITEM NO.	DESCRIPTION	STOCK NO.	MFG NO.	MANUFACTURER
1	CONDENSING UNIT	311937	AE2420-AA1BXM (BOM-2E294-1)	TECUMSEH
1A	CONDENSING UNIT	311935	AE2415Z-AA1ASC (BOM-32F328-59S)	TECUMSEH
2	COMPRESSOR AE2420Z-DS1B	311982	AE1322E-679-J7	TECUMSEH
2A	COMPRESSOR AE2415-AA1A	311983	BM AE1157E-679-J7	TECUMSEH
4	PRESSURE CONTROL	280610	012-4834-000	RANCO
5	DIGITAL PRESSURE CONTROL	311938	TECUMSEH P/N-900-11968	DIXELL
6	FILTER DRIER	282310	C-052-S-T-HH	SPORLAN
7	SIGHT GLASS	282400	SA-12S	SPORLAN
8	ACCUMULATOR	281700	3616	REFRIG. RESEARCH
8A	ACCUMULATOR		102-10034	TECUMSEH
9	TXV-507	282572	Y1017-FP-1/6ZP	SPORLAN
9A	TXV-449	282586	EFD-1/5-ZP 2SX4 ODF 30	SPORLAN
10	LIQUID LINE SOLENOID	281610	E3S120W	SPORLAN
12	ROCKER SWITCH 2PL-20A/277V	335912	TIGK721-6S-BL-NBL-20A/277V	CARLING

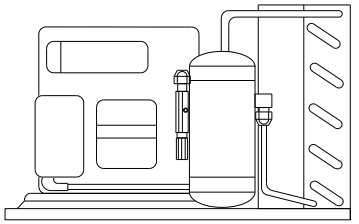
DIAGRAMS


FT WIRING DIAGRAM
CONDENSING UNIT
START CAPACITOR
RELAY
RUN
CONDENSER FAN MOTOR
START
OVERLOAD PROTECTOR
AC
PRESSURE CONTROL
HIGH PRESSURE SWITCH
LOW PRESSURE SWITCH
MASTER SWITCH
NOTE ALL COMPONENTS TO BE GROUNDED
N
L1
G
120V/1PH SERVICE REQUIRED
LTI
JONESBORO, GA
WIRING DIAGRAM FOR DI-FT REFRIGERATION UNIT WITH MECHANICAL PRESSURE CONTROL
DATE: 4.29.22
DRAWING NO.
FT-WD

FT WIRING DIAGRAM
DIGITAL PRESSURE CONTROL

CONDENSING UNIT / PRESSURE CONTROL BOX





POWER CORD
5-15P
TO 5-15R
CORDSET

J-BOX

NOTE ALL COMPONENTS
TO BE GROUNDED

MASTER SWITCH

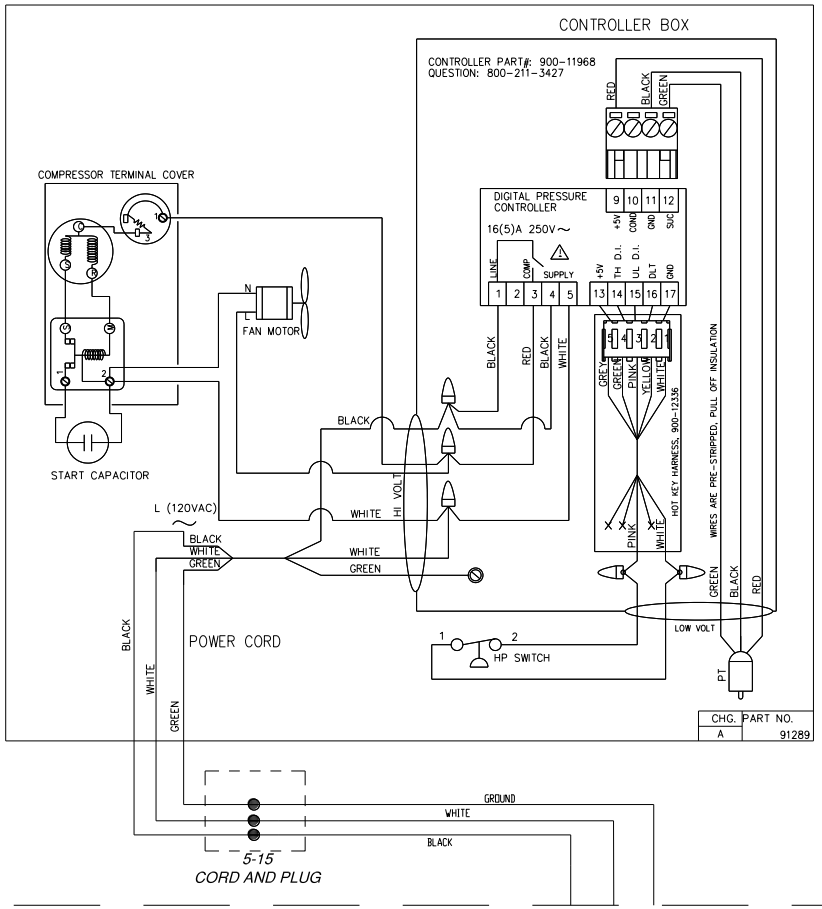
N L1
120V/1PH SERVICE REQUIRED

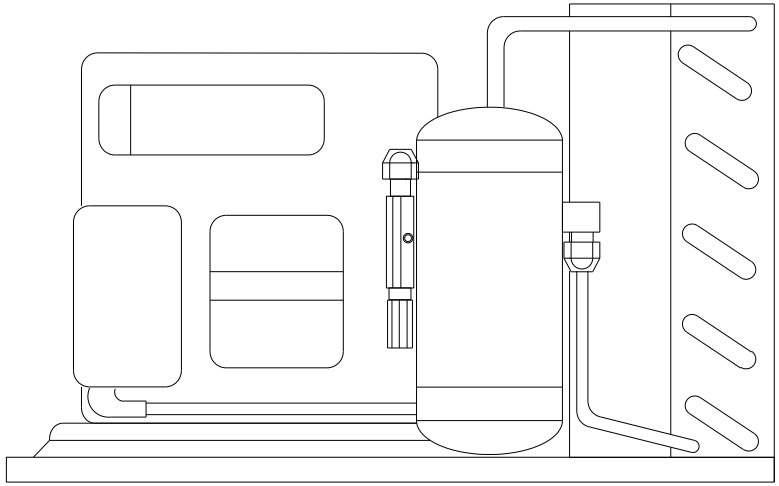
G

NOTE ALL COMPONENTS
TO BE GROUNDED

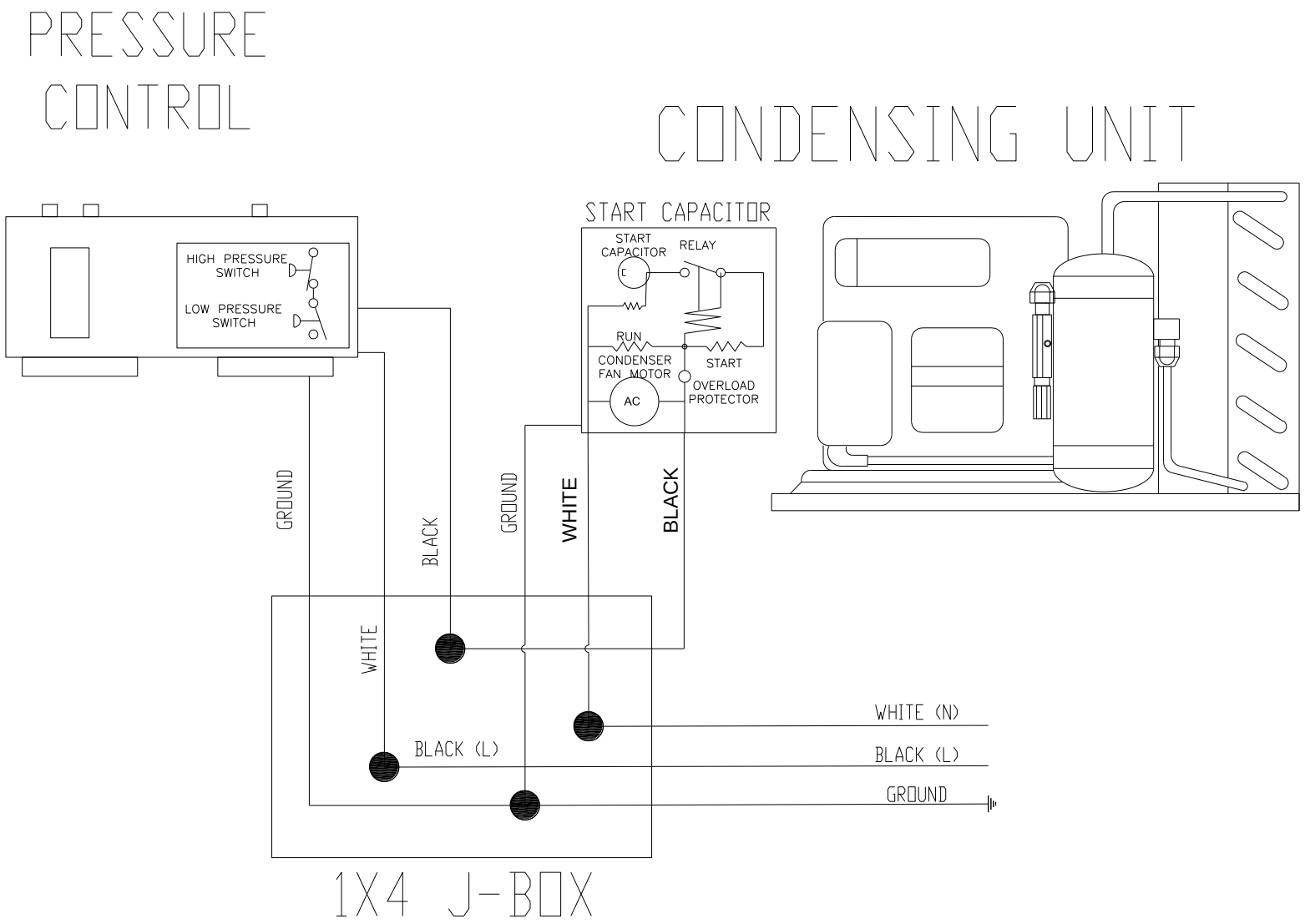
LTI JONESBORO, GA	
WIRING DIAGRAM FOR DI-FT REFRIGERATION UNIT WITH DIGITAL PRESSURE CONTROL	
DATE: 4.29.22	DRAWING NO. FT-WD

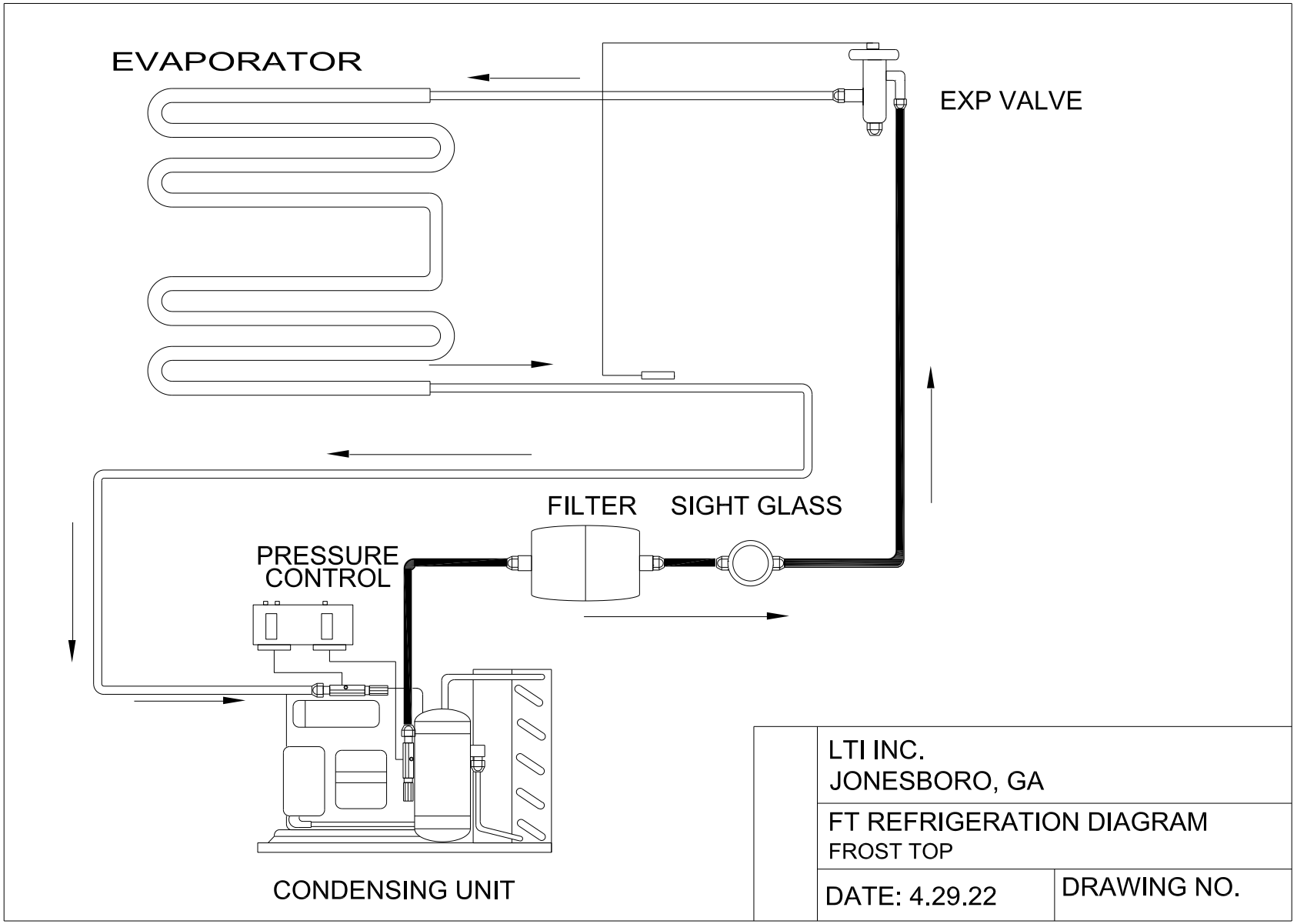
CONDENSING UNIT / PRESSURE CONTROL BOX





CONDENSING UNIT / MECHANICAL PRESSURE CONTROL BOX





LTI INC. JONESBORO, GA	
FT REFRIGERATION DIAGRAM FROST TOP	
DATE: 4.29.22	DRAWING NO.

WARRANTY

Effective date July 1st, 2020

The LTI parts and labor warranty for all products is (1) year for all products (some product families have total of two-year parts and labor); The warranty period commences with the date of installation, or six (6) months from date of shipment from the factory, whichever is sooner. Refrigeration compressors come standard with a 5-year compressor warranty. The warranty covers all products used in United State and Canada. All labor and parts expense after the expiration of the warranty shall be the responsibility of the owner.

The QuickSwitch Family, TempestAir and ThermalWell families all include a 2yr parts and labor warranty.

K-12 warranty is 2 years parts and labor on ALL equipment.

All warranty labor is to be pre-authorized by the factory. To request warranty please go to https://lowtempind.com/resources/warranty/ or call 888-584-2722 for pre-authorization and ask for the warranty department.

The warranty includes travel time to portal, not to exceed 100 miles round trip, or two hours total travel time. The warranty requires that all labor must be performed during regular work hours. Overtime premiums will be charged to the owner or must be pre-approved prior to the service call. The warranty does not apply to any equipment or component parts which have been subjected to shipping damage, improper voltage, improper installation, alteration, abuse, or misuse. The warranty does not cover routine maintenance activities, any failure that results from lack of, or improper equipment maintenance activities. The warranty does not cover any loss of business profits, any loss of food, or other products, or damage to property due to electrical, gas or mechanical malfunction or to any incidental or consequential damages of Purchaser or any third party. Damage due to floods, fire or other acts of God also are not covered.

Due to the custom nature of the products returns are not allowed. All inquiries concerning this warranty must be directed to LTI.

LTI
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