2025

Changing
how food is served.

OPERATION/MAINTENANCE MANUAL

QuickSwitch™

HOT/COLD/FREEZE

FOOD SERVING COUNTERS

QSP454 SPC/CP Counter Units

CUSTOM FABRICATORS OF FOODSERVICE EQUIPMENT

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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 QS series drop in hot, cold, freeze food wells. 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.

FIRE HAZARD

- Risk of fire do not install closer than 1 inch to sides and bottom of unit.

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

CAUTION BURN HAZARD

- Exterior surfaces on the unit may become hot. Use caution when touching these areas.

- Drain water may reach temperatures in excess of 200°F (93°C). use appropriate plumbing materials when installing drain lines.

NOTICE:

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

- Units are intended for indoor use only. Recommended room temperature 86°F.

- Units require a minimum of 330 CFM of fresh airflow across the condenser. Failure to provide proper airflow can cause premature compressor failure and will void any factory warranty.
- Service access must be incorporated in order to service and gain access to components.

- Do not recirculate exhaust air inside the cabinetry in front or behind the condensing unit for adequate ventilation.

- Install and transport unit in a upright position. Failure to do so may result in damage of refrigeration components.

- 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.

IMPORTANT READ FIRST

FLAMMABLE REFRIGERANT USED PLEASE READ CAREFULLY

CAUTION: THIS UNIT CONTAINS **R454C FLAMMABLE REFRIGERANT**

CAUTION: UNIT MUST BE INSTALLED IN ITS OWN CABINET WITH MECHANICAL COMPARTMENT SECTIONED OFF TO PROPERLY VENTILATE AND CONTAIN ANY REFRIGERATION LEAK. IT IS REQUIRED THAT **NO ARCING POTENTIAL COMPONENTS SUCH AS (GFCI) BE LOCATED LESS THAN 14" FROM THE BOTTOM OF THE CABINET.**

CAUTION: RISK OF FIRE. FLAMMABLE REFRIGERANT USED. CONSULT THIS REPAIR MANUAL/OWNER'S GUIDE BEFORE ATTEMPTING TO SERVICE THIS PRODUCT. ALL SAFETY PRECAUTIONS MUST BE FOLLOWED.

ATTENTION: Risque d'incendie ou d'explosion. Fluide frigorigène inflammable utilisé. Consulter le guide du propriétaire ou le manuel de réparation avant d'essayer d'installer ou de réparer ce produit. Toutes les précautions de sécurité doivent être prises.

WARNING: IMPROPER INSTALLATION CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THIS INSTALLATION, OPERATING, AND MAINTENANCE MANUAL BEFORE INSTALLING OR SERVICING THE EQUIPMENT.

WARNING: RISK OF FIRE. FLAMMABLE REFRIGERANT USED. TO BE REPAIRED ONLY BY TRAINED SERVICE PERSONNEL. DO NOT PUNCTURE REFRIGERANT TUBING.

DANGER: Risque d'incendie ou d'explosion. Fluide frigorigène inflammable utilisé. Doit uniquement être réparé par un technicien de service formé. Ne pas perforer la conduite de fluide frigorigène.

WARNING: RISK OF FIRE DISPOSE OF PROPERLY IN ACCORDANCE WITH FEDERAL OR LOCAL REGULATIONS. FLAMMABLE REFRIGERANT USED

ATTENTION: Risque d'incendie ou d'explosion. Mettre au rebut conformément aux règlements fédéraux ou locaux. Fluide frigorigène inflammable utilisé.

INSTALLATION / MAINTENANCE / REPAIR GUIDELINES

ALL guidelines to the installation, maintenance, and repair of this manual are referenced to the CSA C22.2 No. 60335-2-89:21 ♦ UL 60335-2-89 referencing (Annex 101.DVS)

Please read carefully before installing, operating and repairing this unit.

	WARNING: Risk of fire/flammable materials
	WARNING: Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.
	WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
	WARNING: Do not damage the refrigerating circuit.
	WARNING: Do not use electrical appliances inside the storage compartment unless they are recommended by the manufacturer.
	The appliance is to be installed in accordance with the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15. In addition, if the appliance has a refrigerant charge of more than 3 × LFL. The appliance shall not be installed in public corridors or lobbies.

WARNING

- **Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.**

- **Be aware that refrigerants may not contain an odor.**

French

MISE EN GARDE

- **Ne pas utiliser de moyens autres que ceux recommandés par le fabricant pour accélérer le processus de dégivrage ou pour nettoyer l'appareil.**

- **Attention, les fluides frigorigènes peuvent ne pas dégager d'odeur.**

Qualification Of Workers For Maintenance, Service, and Repair

Personnel should be qualified and properly trained in servicing and repairing equipment dealing with flammable refrigerant. For example breaking into the refrigeration circuit, opening sealed components, opening of ventilated enclosure, proper safety precautions before servicing unit.

Information On Properly Servicing Unit

Prior to beginning of servicing unit safety checks are necessary to ensure that the risk of ignition is minimized. Please refer to the Servicing Check List to go over proper procedures on maintenance/repair services.

Servicing Check List

1. **Minimize Risk**
    a. Any work being performed on unit shall minimize the risk of a flammable gas being present while working on the unit.

2. **Notify Personnel Of Work Being Done**
    a. All maintenance staff and others working in the local area shall be instructed on the nature of the work being performed and minimize working in confined spaces as much as possible.

3. **Check For Presence of Refrigerant**
    a. Check for presence of refrigerant with appropriate refrigerant detector prior to and during working on unit. Make sure the leak detection equipment is suitable for use i.e. nonsparking, adequately sealed, or intrinsically safe.

4. **Fire Extinguisher Available**
    a. If any hot work is to be conducted on the equipment or any associated parts, a fire extinguisher should be available on hand.

5. **No Ignition Source**
    a. No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

6. Proper Ventilation

a. Make sure that the equipment being worked on is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. Ventilation shall continue during the period that the work is carried out.

b. Ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

7. Checks To Electrical Devices

Repair and maintenance of electrical components must be fit for the purpose and to correct specifications in this manual. If in doubt, consult LTI's technical department for assistance at +1 (888) 584-2722.

a. Initial safety checks and component inspection procedures shall be used. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with.

b. If a fault cannot be corrected immediately but it is necessary to continue operation, an acceptable temporary solution shall be used and should be reported to the owner of the equipment so all parties are advised including LTI if service is done under warranty.

c. Initial safety checks include:
    1. Capacitors are discharged and shall be done in a safe manner to avoid sparking.
    2. No live electrical components and wiring are exposed while charging, recovering or purging the system.
    3. There is continuity to earth bonding.

8. Repairs to sealed components

a. All electrical supplies shall be disconnected from the equipment being worked on prior to any removal of sealed covers, etc.

b. If necessary to have an electrical supply to the equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

c. Ensure that the work being performed does not alter in any way the level of protection of the unit. This includes damage to cables, connections, terminals, seals, fittings etc.

9. Detection of flammable refrigerants

a. Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.

b. The following are acceptable leak detection methods
    1. Electronic leak detectors (Ensure that the detector is rated for A3/A2L detection)
    2. Leak detection fluids (avoid using fluids containing chlorine)
        1. Examples: bubble method, fluorescent method agents.

c. If a leak is suspected, all naked flames shall be removed/extinguished.

d. If the leak is found and requires brazing all refrigerant shall be recovered from the system. See Remove and Evacuation Procedures.

10. Removal and Evacuation Of Refrigerant

a. When breaking into the refrigerant circuit to make repairs or any other purpose conventional procedures shall be used.

b. For flammable refrigerants it is important that best practices be followed since flammability is a consideration.

c. Refrigeration removal / evacuation procedures:
    1. Safely remove refrigerant following local and national regulations.
    2. Purge the circuit with inert gas i.e. oxygen-free nitrogen
    3. Evacuate (optional for A2L refrigerant)
    4. Purge with inert gas i.e. oxygen-free nitrogen (optional for A2L refrigerant)
    5. Open the circuit by cutting or brazing.

d. Refrigerant shall be recovered into the correct recovery cylinders if venting is not allowed by local and national code.

e. Ensure that when vacuuming down the system that the pump is not close to any potential ignition sources and that ventilation is available. (Use properly rated vacuum pumps)

11. Charging Procedures

a. Conventional charging procedures are used.
    1. Prior to recharging the system it shall be pressure-tested.
    2. Ensure contamination of different refrigerants does not occur.
    3. Use as short as possible hoses or lines to minimize the amount of refrigerant they will contain.
    4. Ensure that the refrigerant system is earthed prior to charging.
    5. Ensure that the refrigerating system is properly charged with the correct amount of refrigerant.
    6. The system shall be leak tested on completion of charging to verify leak has been fixed.

12.Disposal

a. Ensure sufficient ventilation at the working place.

b. Remove the refrigerant. If the recovery is not required by national regulations, drain the refrigerant to the outside. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.

c. When FLAMMABLE REFRIGERANTS are used:
    1. Evacuate the refrigerant circuit.
    2. Purge the refrigerant circuit with oxygen free nitrogen.
    3. Evacuate again (not required for A2L refrigerants).
    4. Cut out the compressor and drain the oil.

d. Cut out the compressor and drain the oil.

MODEL NOMENCLATURE

SPC – QSP454 – DW – LP – 20 – 04 – 68

A B C D E F G

A – COUNTER STYLE

SPC – SPECLINE

CP - COLORPOINT

B – QSP454 = Quickswitch Pan R454C refrigerant

C – PAN STYLE

DW = DRY/WET

D = DRY

D – BODY STYLE

MF- MOLDED FIBERGLASS

FP – FIBERGLASS PANEL

LP – LAMINATE PLASTIC

LSS – LAMINATE OVER STAINLESS

SS – STAINLESS STEEL

E – WIDTH OF PAN

20 – STANDARD 20”

12 – SLIM 12”

F – NUMBER OF STANDARD 12X20 PANS THE UNIT HOLDS

G – BODY LENGTH (IN)

UNIT SPECIFICATIONS

LTI: QuickSwitch S*eries* is a refrigeration and heating system designed for short term display and dispensing of cold & hot food products in maximum ambient temperature of 86°F. This unit will maintain cold food product temperature when in the cold mode at 40°F or lower up to 4 hours and hot food temperatures when in the (Hot) mode at 150°F or higher for up to 2 hours. This unit is designed for temporary storage of product. They should not be used as long-term storage of bulk product. Refer to figures and tables provided below for standard sizes for the QSP units.

When installed adequate air flow must be provided to ensure proper operation. Thru air flow is required.

Connect the unit into the proper grounded electrical service. Refer to unit's electrical data tag for correct electrical service requirements. The unit is now ready for operation.

Refer to figure for dimensions and overall details.

Proper Location Of Unit

Location of the unit must be level, free on any excessive vibration, and able to support the overall the weight of the unit and max weight of the product load.

NOTE Units on Floor/Curbs:

- The unit must be set in place and sealed to floor/curb to establish proper sanitary operation.

- Units that are to be installed on curbs, built-in bases that prevent access to areas of the counter must not hinder access to drains/waterlines.

- Units are to be set in place on floor/curb and ALL cracks and seams must be sealed with 100% silicone sealant or equivalent to prevent liquid spillage on adjacent surfaces of the floor/curb from passing under inaccessible portions of the unit.

Ventilation requirements must be followed to properly ventilate and contain any refrigeration leak. It is required that no arcing potential components such as (GFCI) be located below 14" from the bottom of the cabinet.

Ventilation Openings

A recommended minimum opening of 16” X 16” (256 square inches) is required in front of the condenser. The rear must have an opening to permit the exhaust of heated air. The recommended rear opening is 16” X 16” (256 square inches).

Louvered or grilled style panels should have a minimum 75-85 sq in total open area and positioned in front of the condenser and shrouded.

Intake air must be free from any restriction to allow proper intake air. A minimum of 2” clearance for exhaust air is required for proper ventilation of exhaust air.

Refer to *Installation Procedures and Illustration/Specifications* for recommended louvered front and rear openings.

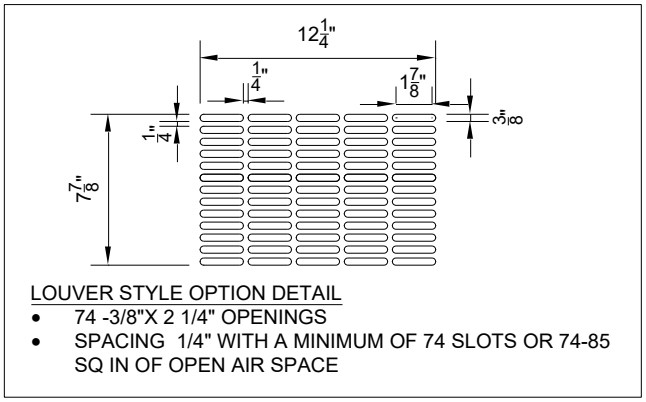
Service Access

These units have multiple components on the right and left side of the condensing unit. They include the electrical power, master switch, and main control board on the right. As well as the drain manifold and TXV expansion valve access on the left. Due to this is it is required to have the service access incorporated with the ventilation opening on the side that these components are on.

Refer to the illustration provided for recommended access to these components.

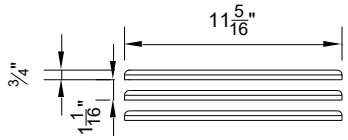
Louver Design Illustrations

VENTILATION PROFILES



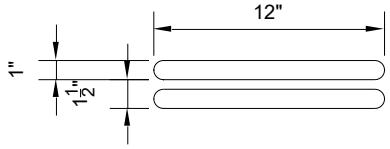
LOUVER STYLE OPTION DETAIL

- 74 -3/8"X 2 1/4" OPENINGS
- SPACING 1/4" WITH A MINIMUM OF 74 SLOTS OR 74-85 SQ IN OF OPEN AIR SPACE



LOUVER STYLE OPTION DETAIL

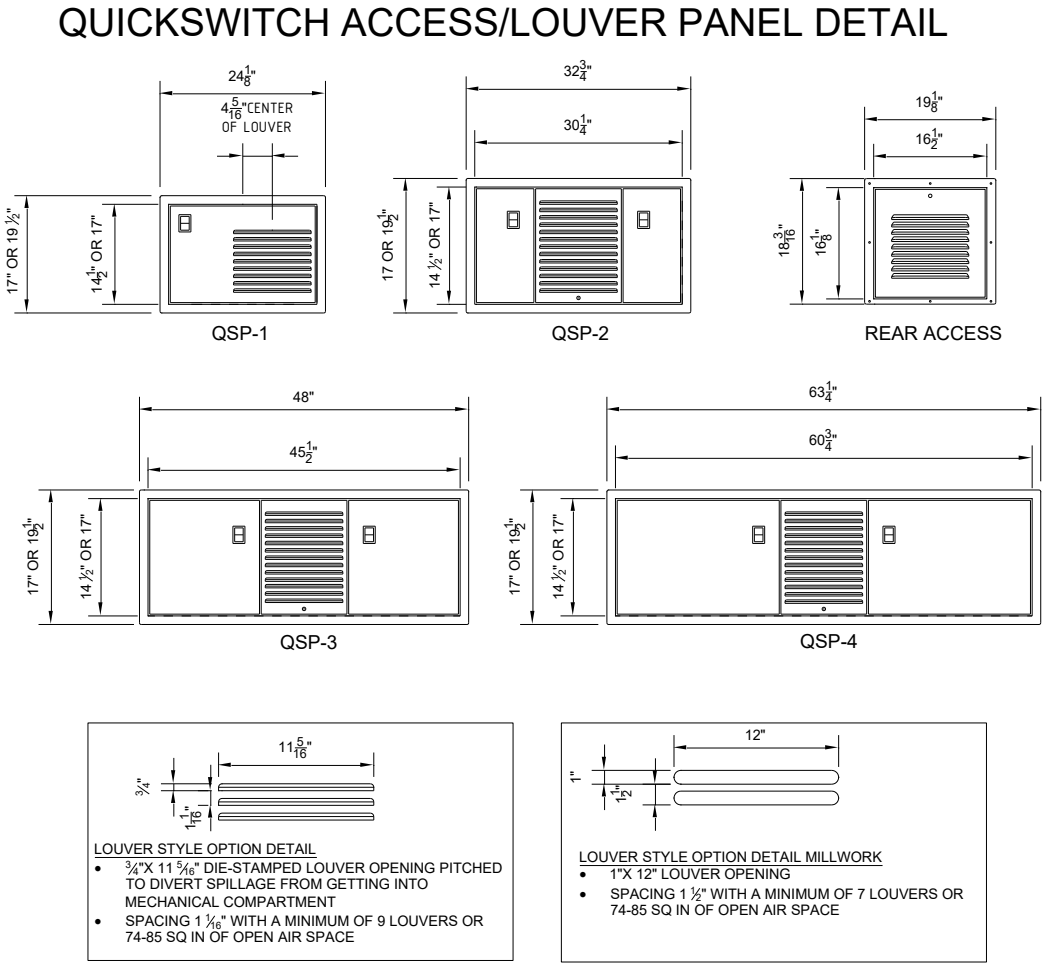
- ¾"X 11 5/16" DIE-STAMPED LOUVER OPENING PITCHED TO DIVERT SPILLAGE FROM GETTING INTO MECHANICAL COMPARTMENT
- SPACING 1 1/16" WITH A MINIMUM OF 9 LOUVERS OR 74-85 SQ IN OF OPEN AIR SPACE



LOUVER STYLE OPTION DETAIL MILLWORK

- 1"X 12" LOUVER OPENING
- SPACING 1 ½" WITH A MINIMUM OF 7 LOUVERS OR 74-85 SQ IN OF OPEN AIR SPACE

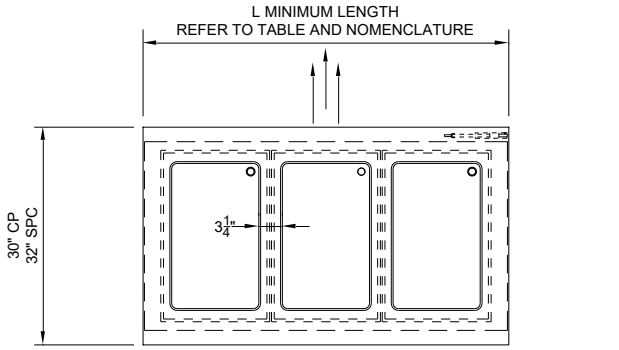
QSP Access and Louver Panel Operator Side



Plumbing

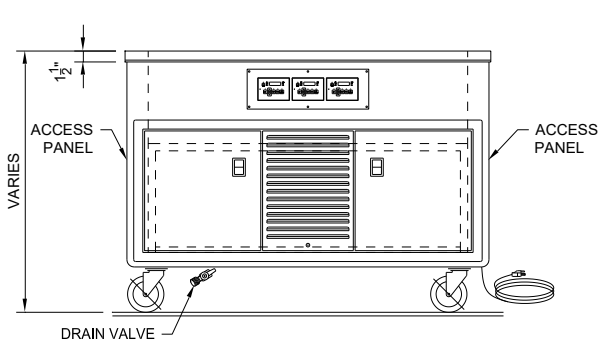
Each food well comes with an individual 3/4” drain valve. These valves are manifolded to one common drain line for final connection in the field. Access to these valves is necessary to drain water out of the wells. Refer to illustration provided for more details.

Detailed Specifications

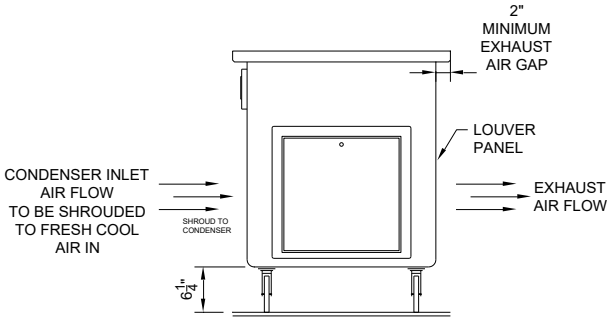


PLAN

SPC/CP-QSP454



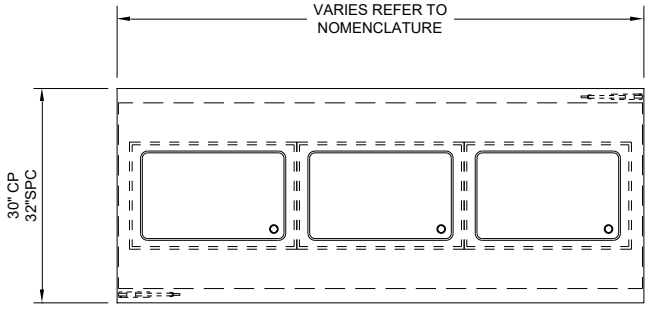
ELEVATION



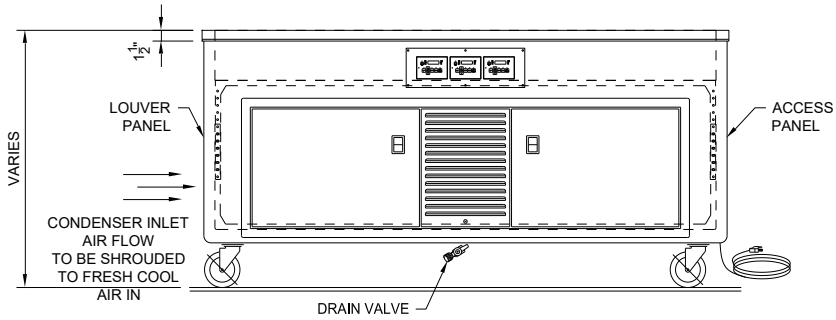
END ELEVATION

	SPC/SIM-QSP MODEL ELECTRICAL/REFRIGERANT INFORMATION									
MODEL	PANS	MINIMUM LENGTH (L)	120V/1/60HZ		120/208/1/60HZ		120/240/1/60HZ		REFRIGERANT	CHARGE OZ (g)
			AMPS	PLUG	AMPS	PLUG	AMPS	PLUG		
SPC/CP-QSP454-X-X-20-01-X	1	28”	5.5	5-15P	5.0	14-20P	5.0	14-20P	R454C	20(567)
SPC/CP-QSP454-X-X-20-02-X	2	36”	11	5-20P	7.4	14-20P	7.8	14-20P	R454C	25(709)
SPC/CP-QSP454-X-X-20-03-X	3	50”	16.5	5-30P	9.8	14-20P	10.5	14-20P	R454C	30(850)
SPC/CP-QSP454-X-X-20-04-X	4	66”	22	5-30P	12.2	14-20P	13.3	14-20P	R454C	35(992)

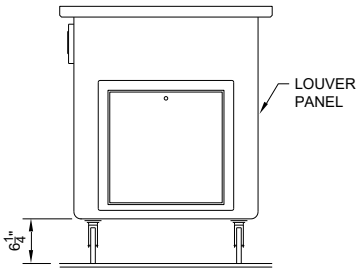
SPC/CP-QSP454 SLIM



PLAN



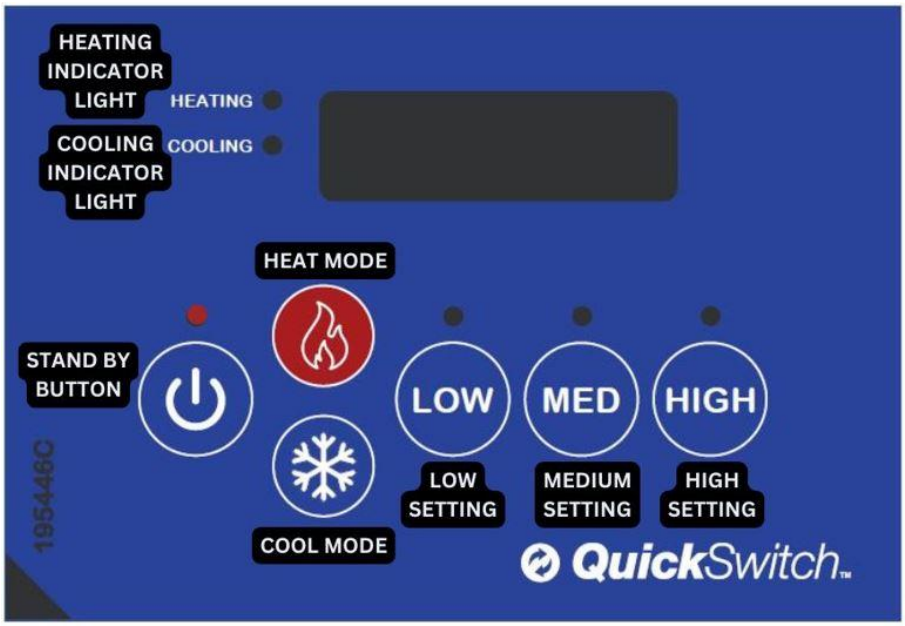
ELEVATION



END ELEVATION

	SPC/SIM-QSP SLIM MODEL ELECTRICAL/REFRIGERANT INFORMATION									
MODEL	PANS	MINIMUM LENGTH (L)	120V/1/60HZ		120/208/1/60HZ		120/240/1/60HZ		REFRIGERANT	CHARGE OZ(g)
			AMPS	PLUG	AMPS	PLUG	AMPS	PLUG		
SPC/CP-QSP454-X-12-01-X	1	30”	5.5	5-15P	5.0	14-20P	5.0	14-20P	R454C	20(567)
SPC/CP-QSP454-X-12-02-X	2	55”	11	5-20P	7.4	14-20P	7.8	14-20P	R454C	25(709)
SPC/CP-QSP454-X-12-03-X	3	79”	16.5	5-30P	9.8	14-20P	10.5	14-20P	R454C	30(850)
SPC/CP-QSP454-X-12-04-X	4	103”	22	5-30P	12.2	14-20P	13.3	14-20P	R454C	35(992)

OPERATING INSTRUCTIONS



Initial Setup/Guidelines:

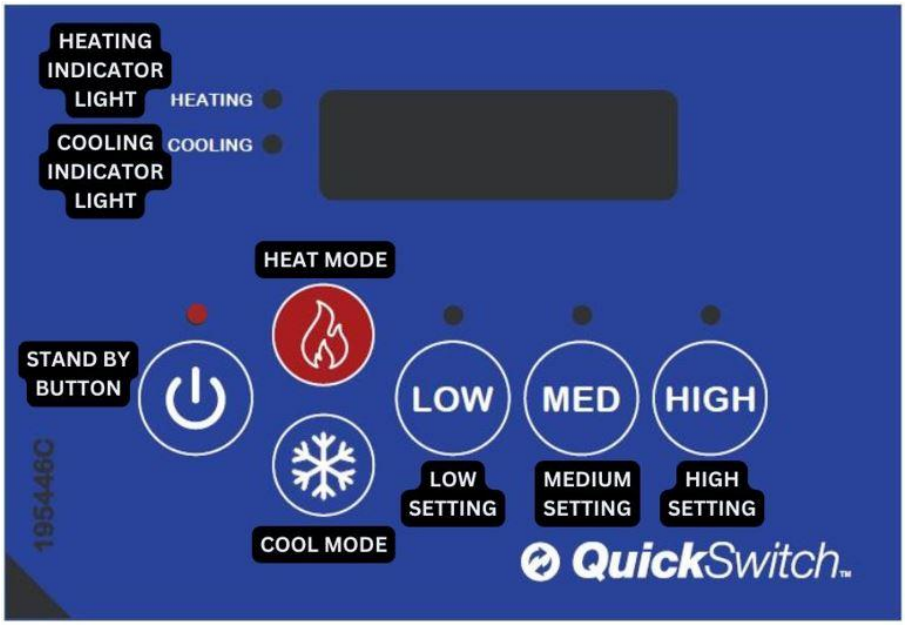
NEVER PUT ICE in the QSP wells when operating in the HOT or COLD modes. This can cause excessive condensation as well as poor inaccurate performance and error code issues when running the unit.

If ice is to be used place ice into a 6" deep standard 12 x 20 food pan and place that into the well opening.
Ice placed directly in the pan forms condensation which over an extended period can damage the heating element.

- **HOT Wet/Dry Guidelines:**
  - Pour one gallon of water or roughly a 1" of water into each well before turning on the unit.
  - When changing from HEAT mode to COOL mode, remove water from the well.
  - The use of water for the HIGH setting in HEAT mode is not necessary.
  - Never pour water into a preheated dry well.
  - Never place water in wells while using COOL mode.
  - The well will heat immediately when changing from COOL mode to HEAT mode.
  - You must use a pan or lid over the well when preheating to reach the proper temperatures.
  - Allow the well to preheat or cool for 45-60 minutes before using.

- **COOL Mode Guideline:**
    - Make sure to NEVER put ice directly into the QSP pan. If ice is used place the ice into a 6” deep standard 12x20 food pan and place it into the well opening.
    - When going from HEAT mode to COOL mode the unit will NOT turn the condensing unit on until the temperature of the well is below 100°F. This will be indicated by the COOLING Indicator Light flashing and once it is below 100°F the light will go solid, and the condensing unit will turn on.
    - Allow the well to pre-cool for 45-60 minutes before using.

QSP Controller Features



STAND BY BUTTON	Standy By button controls the ON/OFF feature of the controller
HEAT MODE BUTTON	Activates the HEAT mode of the QSP well.
COOL MODE BUTTON	Activates the COOL mode of the QSP well.
LOW SETTING	Lowest temperature setting in the HEAT and COOL mode.
MEDIUM SETTING	Medium temperature setting in the HEAT or COOL mode.
HIGH SETTING	Highest temperature setting in the HEAT or COOL mode
HEATING INDICATOR LIGHT	Indicates when the well is running in HEAT mode.
COOLING INDICATOR LIGHT	Indicates when the well is running in COOL mode.

Powering On the Unit

- Turn the unit on with the power switch (Master Switch) located on the right hand side of the bottom housing/frame.
- Once on, the Red LED light above the STAND BY button will illuminate on each controller and the screen will be blank.
    - **Note: If unit was cut OFF directly from the Master Switch the controllers will automatically turn on to the previous setting they were set at prior.**

Powering Off the Unit

- Press and hold the STAND BY button for 3 seconds on each controller or turn the main power switch (Master Switch) to the OFF position.

Turning ON Control

- If the screen is blank turn ON the unit by holding the STAND BY button of each control for 3 seconds.
- The unit will come on and will be operating in prior setting that it was previously running .

Selecting HEAT OR COOL Mode

- To change to **HEAT** or **COOL** mode while the unit is running simply press and hold either the HEAT or COOL button for 3 seconds.
- Unit will then begin running in the preset setting (LOW, MED, HIGH) for that mode.

Changing from LOW, MED, or HIGH Setting

- While running in HEAT or COOL mode there are three settings that the user can choose from for each Mode. LOW, MED, HIGH.
- To select a setting simply press and hold whatever setting is desired for 3sec.
- Once done the led light above that setting will be displayed. Please see chart below for settings.

HEAT MODE		COOL MODE	
LOW	h1	LOW	C1
MED	h2	MED	C2
HIGH	h3	HIGH	C3

Changing the Factory Settings

To change factory settings of the LOW, MED, HIGH do the following:

1. Make sure the controller is in STAND BY and not running in HEAT or COOL mode.
    - If controller is running in the HEAT or COOL mode simply press the Stand By button for 3sec and the screen will go blank.

2. Once in STAND BY simply press the HIGH, MED, or LOW setting button 10X quickly. The settings for that setting will now be blinking.

3. Once the setting is blinking to alternate between HEAT and COOL settings simply press and release the setting button you are changing.

4. To adjust the setting use the **HEAT mode** button to increase (+) temperature and to decrease (-) the setting use the **COOL mode** button.

If there are any issues or question on proper operation of the unit and settings please consult LTI technical services at +1 (888) 584-2722

Please see chart below on adjustment settings allowed for each setting:

HEAT MODE			COOL MODE		
SETTING	FACTORY SETTING	ADJUSTMENT DIFFERENTIAL	SETTING	FACTORY SETTING	ADJUSTMENT DIFFERENTIAL
LOW	250	± 10	LOW	20	± 10
MED	325	± 10	MED	30	± 10
HIGH	400	± 10	HIGH	36	± 10

PLEASE NOTE: THESE SETTINGS ARE FOR THE THERMOCOUPLE ONLY AND DO NOT REPRESENT PAN TEMPERATURE. UNITS MEET NSF GUIDELINES TO PROPERLY MAINTAIN FOOD PRODUCT TEMPERATURES BELOW 41°F in COOL mode and above 150°F in Heat mode for temporary display.

Auto Setting on the Controllers

- Auto Restart Feature
    - The controllers can be pre-programmed for your next serving period ahead of time and will remember its settings for easy reuse.
    - Before you turn off the unit, set to the desired set points on the controllers for future use.
    - Next turn the power directly OFF from the **Master Switch** NOT the controllers themselves.
    - When you turn the Master Switch back to the ON position the previous mode and setting will be displayed on the screen/screens of the controllers and will begin operating.

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.

PREVENTATIVE MAINTENANCE

To ensure that your equipment will continue to operate properly, please follow these simple steps:

1. The food wells should be cleaned thoroughly every day. Food spillage left in the pans such as tomato paste can cause damage to the unit. The acidic base of foods over time can cause pitting of the units.

2. Always wipe the unit down with a damp cloth and dry thoroughly. Do not spray water directly on the control panel areas or on areas with exposed heating elements.

CONDENSER COIL

The condenser coil requires adequate cleaning to maintain proper operation which is recommend every 30-60 days. If debris is more prevalent the condenser coil should be cleaned every 30 days or sooner. **Neglecting the condenser coil cleaning procedures will void any warranties associated with the condensing unit or cost to replace the compressor.**

TROUBLESHOOTING

COMPLAINT	PROBLEM	SOLUTION
UNIT/WELL WILL NOT HEAT	PLUG DISCONNECTED	CHECK ALL ELECTRICAL CONNECTIONS
	LINE SWITCH OPEN	CLOSE SWITCH
	BREAKER TRIPPED	RESET BREAKER
	HEATER DEFECTIVE	REPLACE
	LOW VOLTAGE	USING INSTRUMENT CHECK LINE VOLTAGE AND AMPERAGE. VOLTAGE MUST BER WITHIN 10% OF NAME PLATE RATING
	OPEN RELAY ON CONTROLLER	CHECK THAT RELAY IS OPENING AND CLOSING PROPERLY. REPLACE IF NEEDED
CONTROLLER DISPLAYING “Er2” CONTROLLER DISPLAYING “cjo”	AMBIENT TEMP ERROR/OPEN COLD JUNCTION THERMISTOR CIRCUIT (AMBIENT < 40°F OR AMBIENT > 130°F)	CHECK TC CONNECTIONS
CONTROLLER DISPLAYING “Er4” CONTROLLER DISPLAYING “addr”	DIP SWITCH POSITION CONFLICT	CHECK DIP SWITCH SETTING ON CONTROLLER SEE DIP SETTINGS SHEET PROVIDED
CONTROLLER DISPLAYING “Er5” CONTROLLER DISPLAYING “SiG”	CONTROLLER NOT DETECTING SIGNAL FROM MOTHER BOARD	CHECK CONNECTION POINTS FROM CONTROLLER TO MOTHERBOARD i.e. signal cables
CONTROLLER DISPLAYING “nc”	INDICATES DETECTION OF THE SYSTEM NOT COOLING AND HAS REACHED THE 90min TIMEOUT	ENSURE THERMOCOUPLE IS PROPERLY CONNECTED CHECK TO MAKE SURE SOLENOID VALVE IS OPEN CHECK IF COMPRESSOR IS RUNNING/SHORT CYCLING CHECK REFRIGERATION CHARGE
CONTROLLER DISPLAYING “P1”	INDICATES THE PULSE MODE TIME LIMIT WAS EXCEEDED DURING START UP IN HOT MODE- UNIT DID NOT GET ABOVE 100°F WITHIN 5MIN OF START UP	ENSURE THERMOCOUPLE IS PROPERLY CONNECTED ENSURE HEATER IS ENERGIZED CHECK OHM READINGS ON HEATER 89-93ohms AT 208-240V 22ohms AT 120v
CONTROLLER DISPLAYING “tc” OR “tco”	INDICATES DETETION OF AN OPEN THERMOCOUPLE	ENSURE THE THERMOCOUPLE IS PROPERLY CONNECTED OHM READINGS SHOULD BE 3-4ohms

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

REPLACEMENT PARTS

ITEM NO.	DESCRIPTION	STOCK NO.	MFG NO.	MANUFACTURER
1	CONDENSING UNIT	311925	MYJP-H029-IAA-540	COPELAND
2	COMPRESSOR	311925A	ASE21C5U-IAA-901	COPELAND
3	FILTER DRIER	311925B	EK-032S (013-7000-23)	COPELAND
4	SIGHT GLASS	311925C	(570-7003-04)	COPELAND
5	SUCTION PRESSURE TRANSDUCER	311925D	929-0114-00	COPELAND
6	EUC CONTROL	311925E	943-0152-00	COPELAND
7	HP CONTROL	311925F	985-7031-01	COPELAND
8	EUC DLT SENSOR KIT	311925G	929-0113-00	COPELAND
9	TXV	282575	EFV 1/10 ZP	SPORLAN
10	TXV 60” Cap Lead	282577	EFV 1/10 ZP	SPORLAN
11	LIQUID LINE SOLENOID	281610	E3S120W	SPORLAN
12	QUICKSWITCH WELL	MF310029RZ	CHP-PAN	LTI
13	ROCKER SWITCH 2PL-20A/277V	335917	TIGK721-6S-BL-NBL-20A/277V	CARLING
14	RELAY (DPDT-30A/120V COIL	515855	300XBXC1-120A	SQUARE D
15	QUICKSWITCH CONTROLLER	195446C	330-HMI-QS-001	330 ELEC.
16	SINGLE MOTHERBOARD	195448	330-MB-001	330 ELEC.
17	DOUBLE MOTHERBOARD	195449	330-MB-002	330 ELEC.
18	HEATER/PLATE ASSEMBLY 72” LEAD	190010	LT0815SA	THERMO
19	Air Filter UL 800 Condenser Filter	493600	60546116	MSC

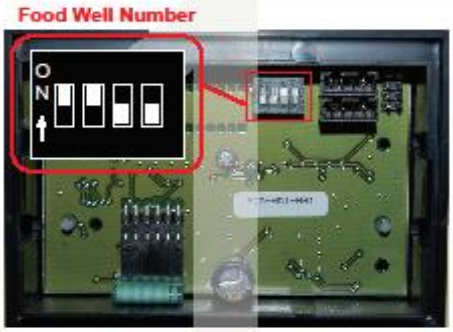
Component parts shall be replaced with like components so as to minimize the risk of possible ignition due to incorrect parts.

DIP SWITCH SETTINGS

INSTALLATION INSTRUCTIONS QUICKSWITCH CONTROL FOOD WELL NUMBER DIP SWITCH SETTINGS

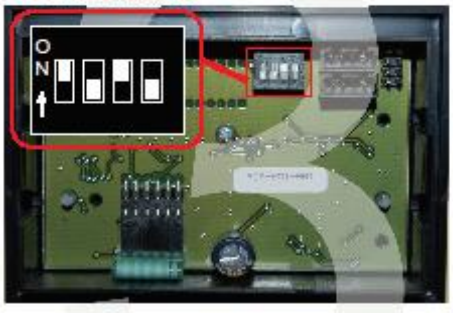
Before installing each QuickSwitch controller the *Food Well Number* must be set. The system uses the food well number setting to correlate with the food well it controls. The DIP switch on the back of the circuit board is used to assign the food well number.

All controllers are set at the factory as food well 1. Refer to the illustrations below to assign the food well number. Using a small screw driver carefully slide each switch to the proper position.

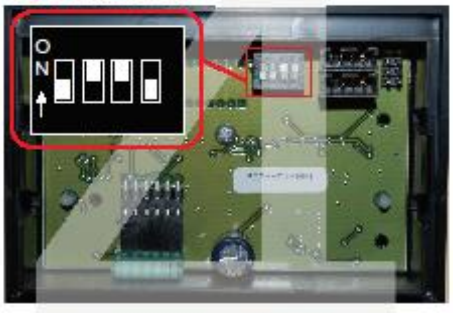


QuickSwitch Food Well 1
DIP Switch Positions

QuickSwitch Food Well 2
DIP Switch Positions



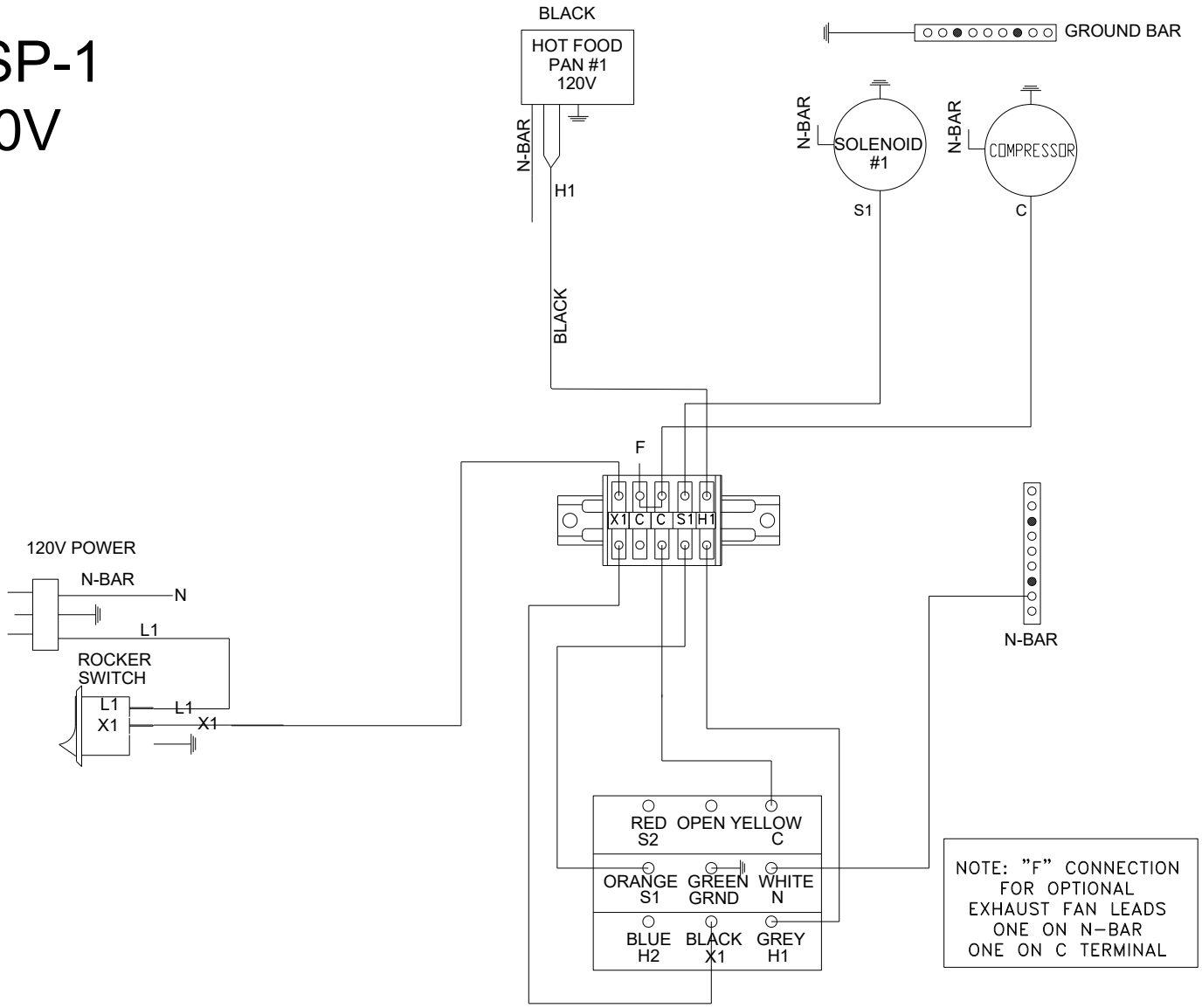
QuickSwitch Food Well 3
DIP Switch Positions



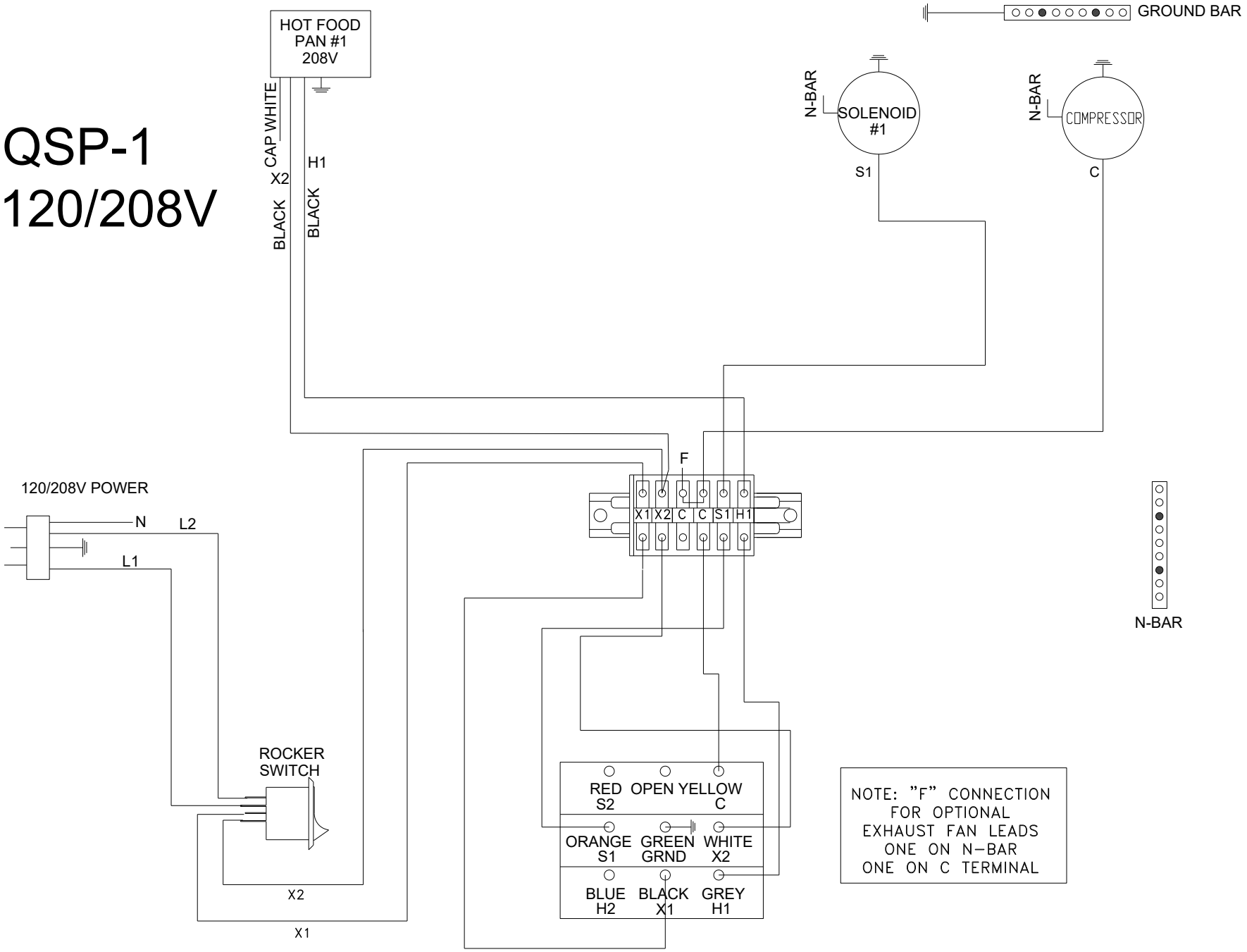
QuickSwitch Food Well 4
DIP Switch Positions

WIRING DIAGRAMS

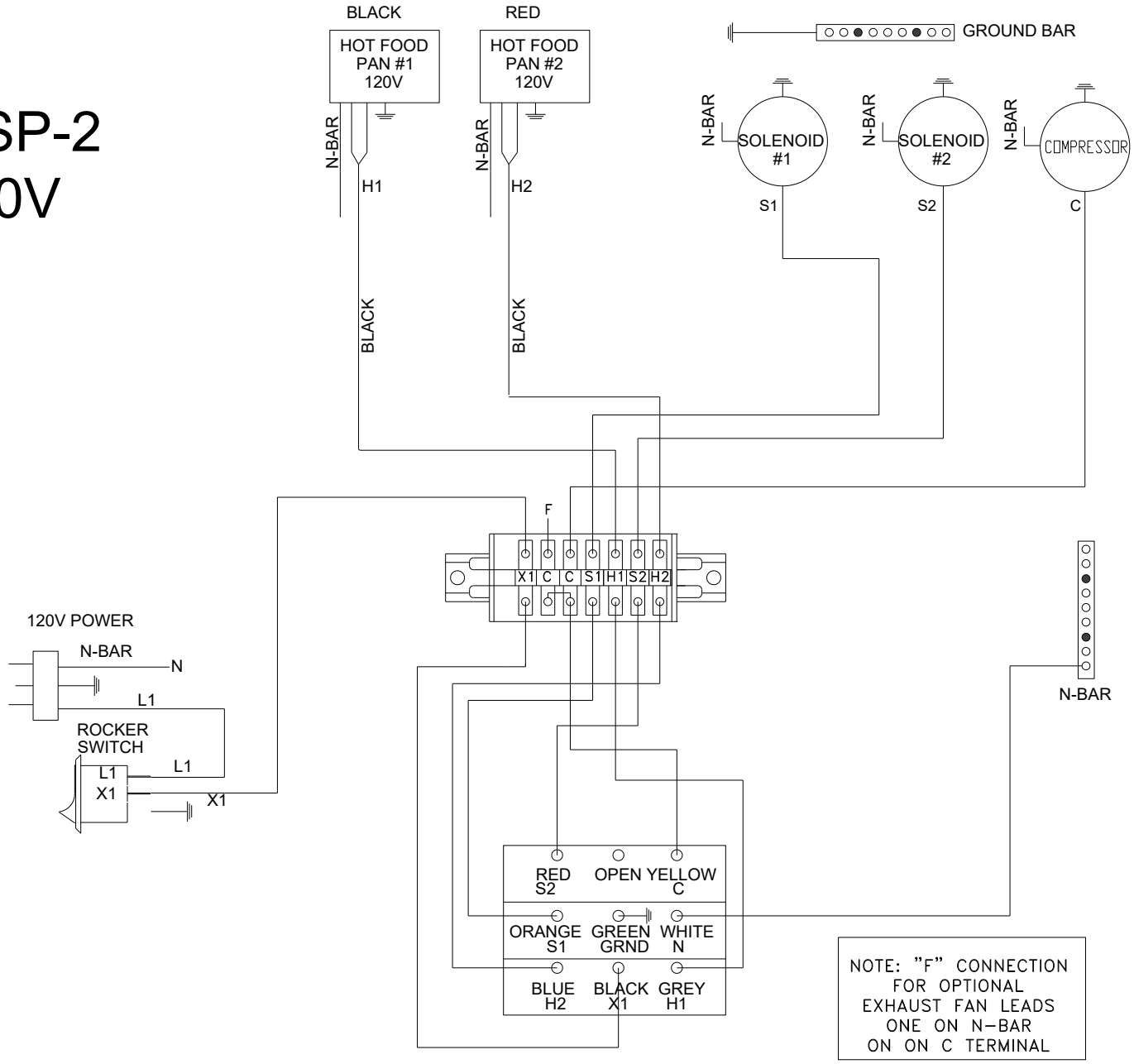
QSP-1
120V



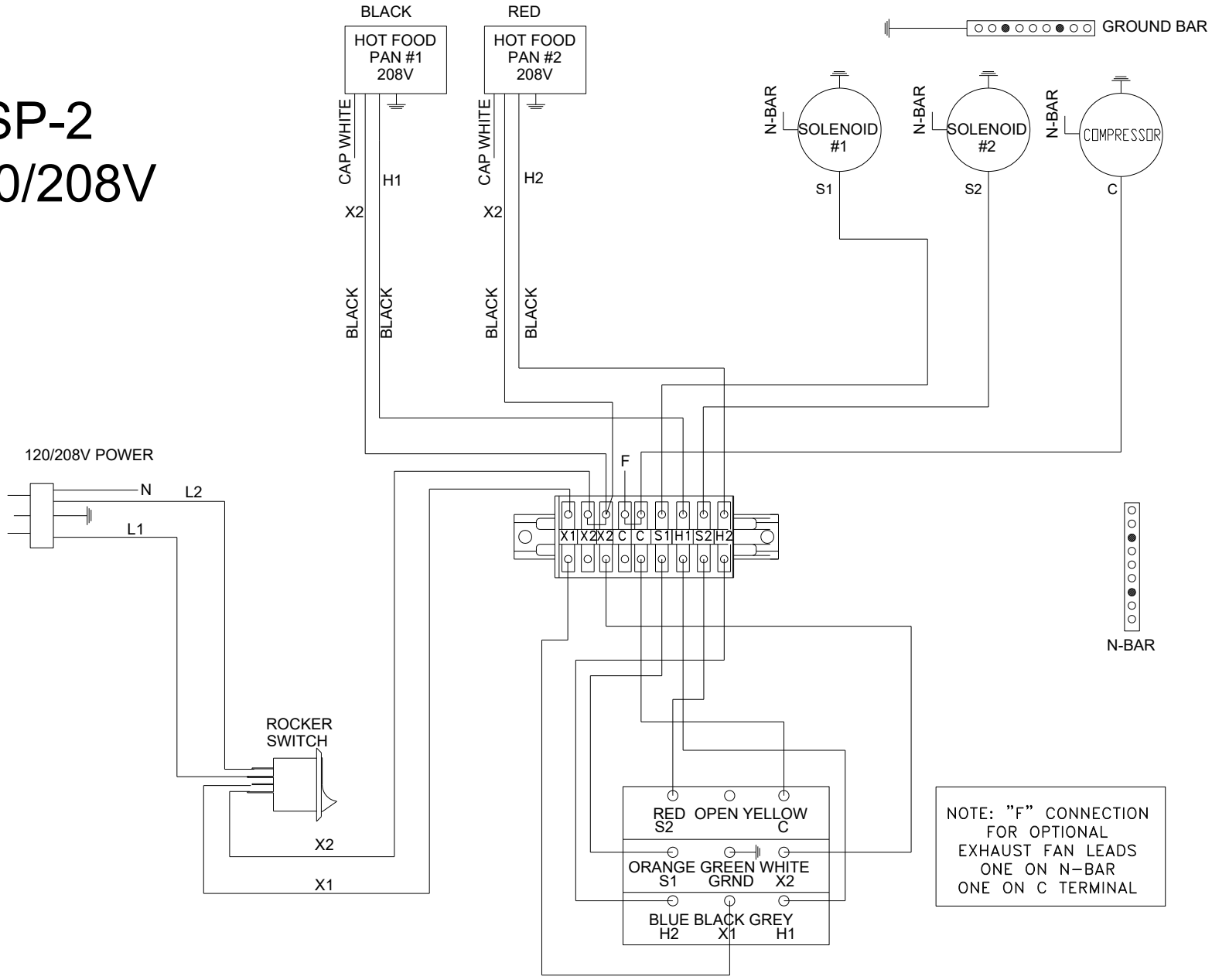
QSP-1
120/208V



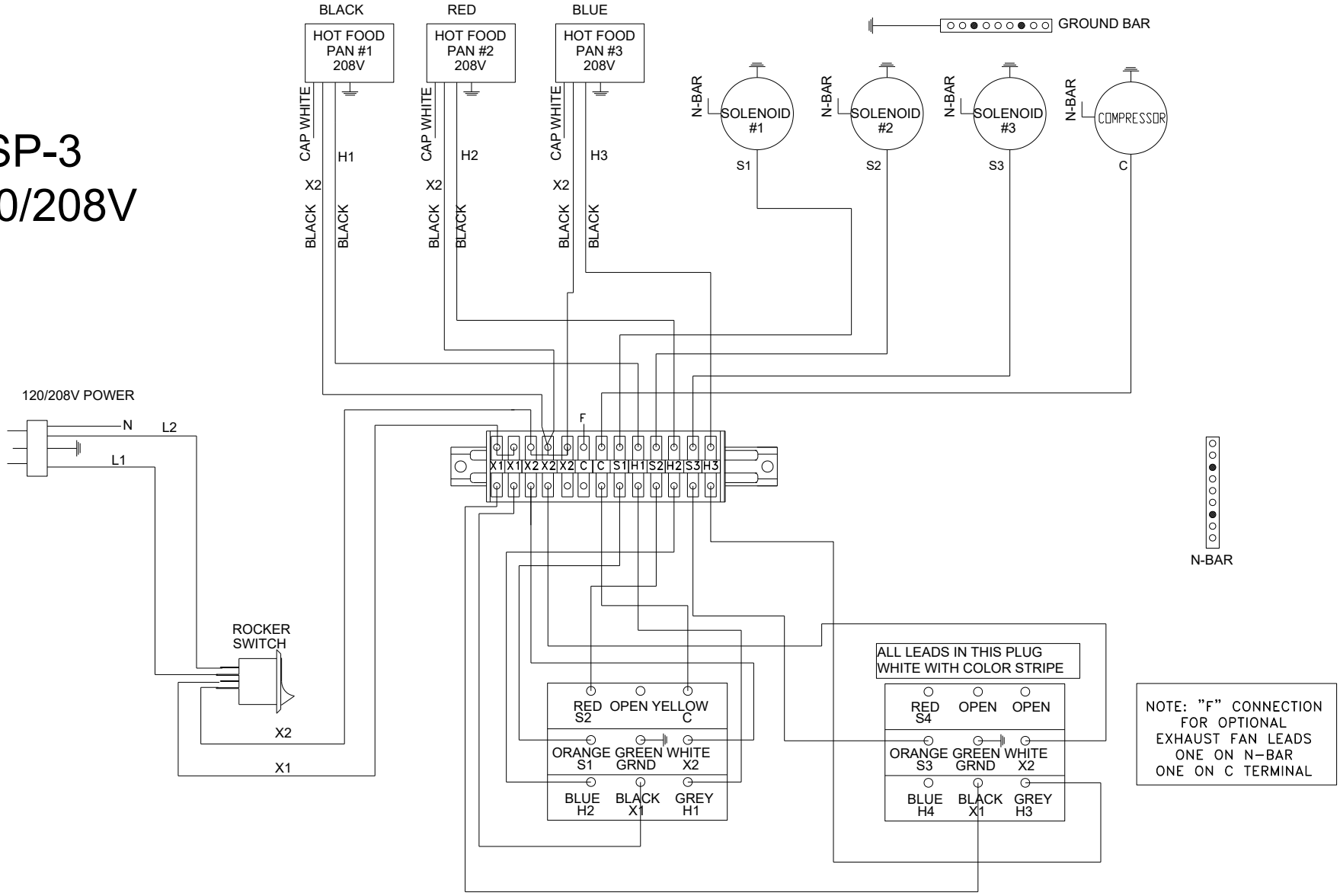
QSP-2
120V


BLACK
RED
HOT FOOD PAN #1 120V
HOT FOOD PAN #2 120V
GROUND BAR
N-BAR
H1
H2
SOLENOID #1
SOLENOID #2
COMPRESSOR
S1
S2
C
BLACK
F
X1 C C S1 H1 S2 H2
120V POWER
N-BAR
N
L1
ROCKER SWITCH
L1
X1
RED S2
OPEN
YELLOW C
ORANGE S1
GREEN GRND
WHITE N
BLUE H2
BLACK X1
GREY H1
NOTE: "F" CONNECTION FOR OPTIONAL EXHAUST FAN LEADS ONE ON N-BAR ON ON C TERMINAL

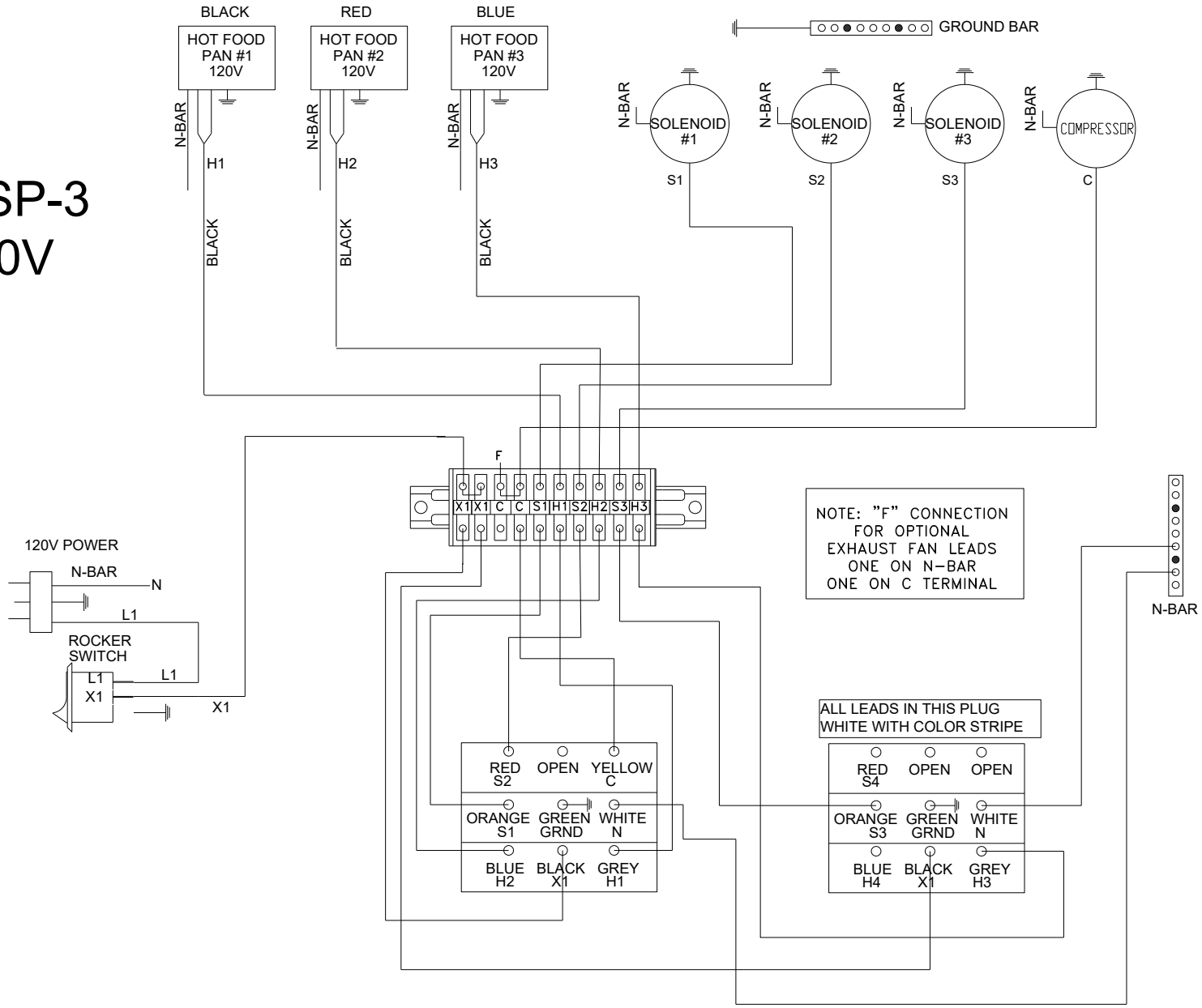
QSP-2
120/208V



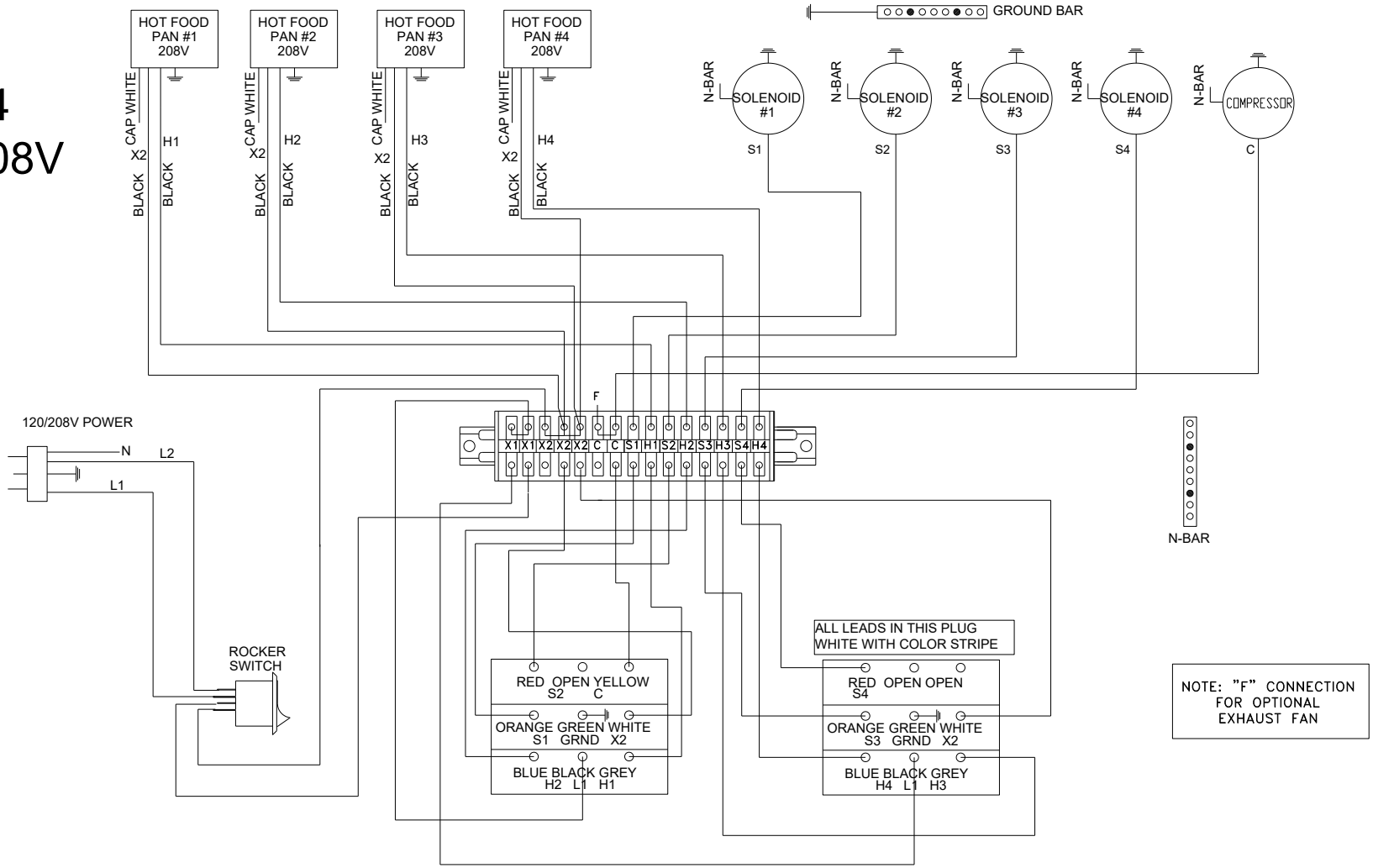
QSP-3
120/208V



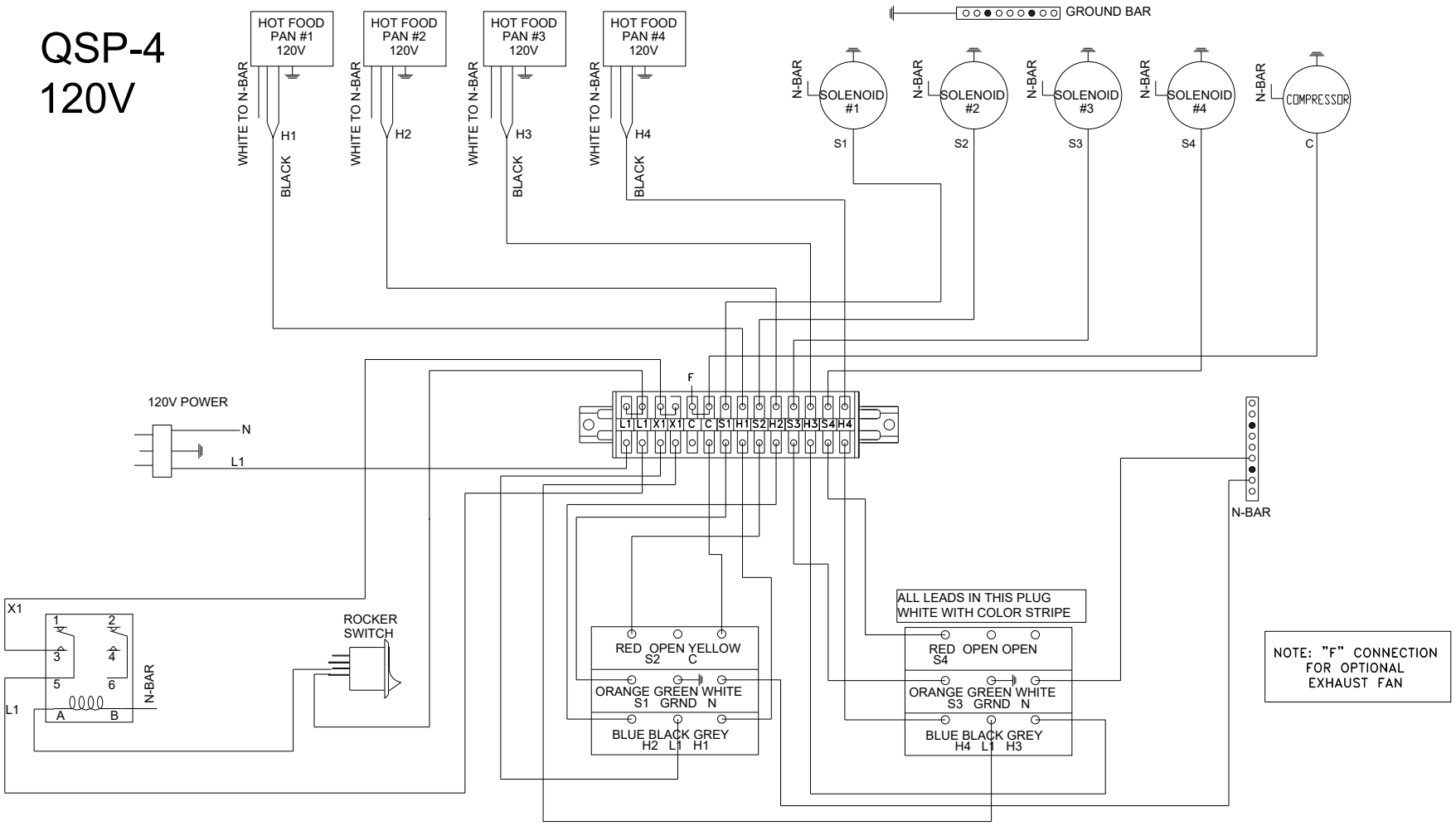
QSP-3
120V


BLACK
RED
BLUE
HOT FOOD PAN #1 120V
HOT FOOD PAN #2 120V
HOT FOOD PAN #3 120V
GROUND BAR
N-BAR
H1
H2
H3
BLACK
SOLENOID #1
SOLENOID #2
SOLENOID #3
COMPRESSOR
S1
S2
S3
C
F
X1 X1 C C S1 H1 S2 H2 S3 H3
120V POWER
N-BAR
N
L1
ROCKER SWITCH
L1
X1
NOTE: "F" CONNECTION FOR OPTIONAL EXHAUST FAN LEADS ONE ON N-BAR ONE ON C TERMINAL
ALL LEADS IN THIS PLUG WHITE WITH COLOR STRIPE
RED S2
OPEN
YELLOW C
ORANGE S1
GREEN GRND
WHITE N
BLUE H2
BLACK X1
GREY H1
RED S4
OPEN
OPEN
ORANGE S3
GREEN GRND
WHITE N
BLUE H4
BLACK X1
GREY H3

QSP-4
120/208V



QSP-4
120V


HOT FOOD PAN #1 120V
HOT FOOD PAN #2 120V
HOT FOOD PAN #3 120V
HOT FOOD PAN #4 120V
WHITE TO N-BAR
BLACK
H1
H2
H3
H4
GROUND BAR
N-BAR
SOLENOID #1
SOLENOID #2
SOLENOID #3
SOLENOID #4
COMPRESSOR
S1
S2
S3
S4
C
F
L1 L1 X1 X1 C C S1 H1 S2 H2 S3 H3 S4 H4
120V POWER
N
L1
X1
1 2 3 4 5 6
A B
N-BAR
ROCKER SWITCH
RED OPEN YELLOW
S2 C
ORANGE GREEN WHITE
S1 GRND N
BLUE BLACK GREY
H2 L1 H1
ALL LEADS IN THIS PLUG
WHITE WITH COLOR STRIPE
RED OPEN OPEN
S4
ORANGE GREEN WHITE
S3 GRND N
BLUE BLACK GREY
H4 L1 H3
NOTE: "F" CONNECTION
FOR OPTIONAL
EXHAUST FAN

WARRANTY

Effective date January 1, 2026

The LTI parts and labor warranty for all products is (2) years for all products; The warranty period commences with the date of installation, or twelve (12) months from date of shipment from the factory, whichever is sooner.

Refrigeration compressors come standard with a 5-year compressor warranty.

All fiberglass bodies are fully warranted against defects in materials or workmanship for 5 years.

The warranty covers all products used in United State and Canada.

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.

All labor and parts expenses after the expiration of the warranty shall be the responsibility of the owner. Additional warranty limitations include:

- 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, or the use of cleaning products not identified in the operation/maintenance manual.
- The warranty does not extend to materials and items not included in original purchase order from LTI, inc., such as items field installed or factory installed and provided “by others”.
- 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.

This warranty statement supersedes all previously documented warranty statements by LTI.

LTI
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