E3849 GEN III
09/06/18

INSTALLATION & OPERATION INSTRUCTIONS

TSSM2454SC-3 Self-Contained

KEEP THIS MANUAL FOR FUTURE REFERENCE

Engineering and technical data are subject to change without notice.

CONTENTS

INTRODUCTION

Thank you for purchasing a Federal Industries Merchandiser. This manual contains important instructions for installing and servicing the TSSM2454SC-3, Refrigerated Self-Service Merchandisers. A repair parts list is also included in the manual. Read all documents carefully before installing or servicing your case.

NOTICE

Read this manual before installing your case. Keep this manual and refer to it before doing any service on the equipment. Failure to do so could result in personal injury or damage to the case.

NOTICE

Installation and service of the electrical components in the case must be performed by a licensed electrician.

The portions of this manual covering components contain technical instructions intended only for persons qualified to perform electrical work.

DANGER

Improper or faulty hookup of electrical components in the case can result in severe injury or death.

All electrical wiring hookups must be done in accordance with all applicable local, regional, or national standards.

NOTE: UNIT MUST BE GROUNDED

SERIAL NUMBER

Record the model and serial numbers of the case for easy reference. Always refer to both model and serial numbers in your correspondence regarding the case.

Case Model_____ Serial Number_____

This manual cannot cover every installation, use, or service situation. If you need additional information, call or write us:

WARRANTY/TECHNICAL SERVICE DEPARTMENT
Parts Town
1200 Greenbriar Dr.
Addison, IL 60101
Toll Free (833) 238-8168
Email: techservice@partstown.com

WARNING LABELS AND SAFETY INSTRUCTIONS

This is the safety-alert symbol. When you see this symbol on your case or in the manual, be alert to the potential for personal injury or damage to your equipment.

Be sure you understand all safety messages and always follow recommended precautions and safe operating procedures.

NOTICE TO EMPLOYERS

You must make sure that everyone who installs, uses, or services your case is thoroughly familiar with all safety information and procedures.

Important safety information is presented in this section and throughout the manual. The Following signal words are used in the warning and safety messages:

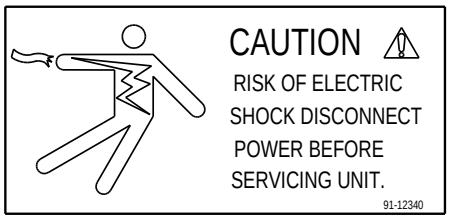
DANGER: Severe injury or death **will** occur if you ignore the message.

WARNING: Severe injury or death **can** occur if you ignore the message.

CAUTION: Minor injury or damage to your case **can** occur if you ignore the message.

NOTICE: This is important installation, operation, or service information. If you ignore the message, you may damage your case.

The warning and safety labels shown throughout this manual are placed on your Federal Industries case at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call our customer service department at 1(800) 356-4206 for replacements.

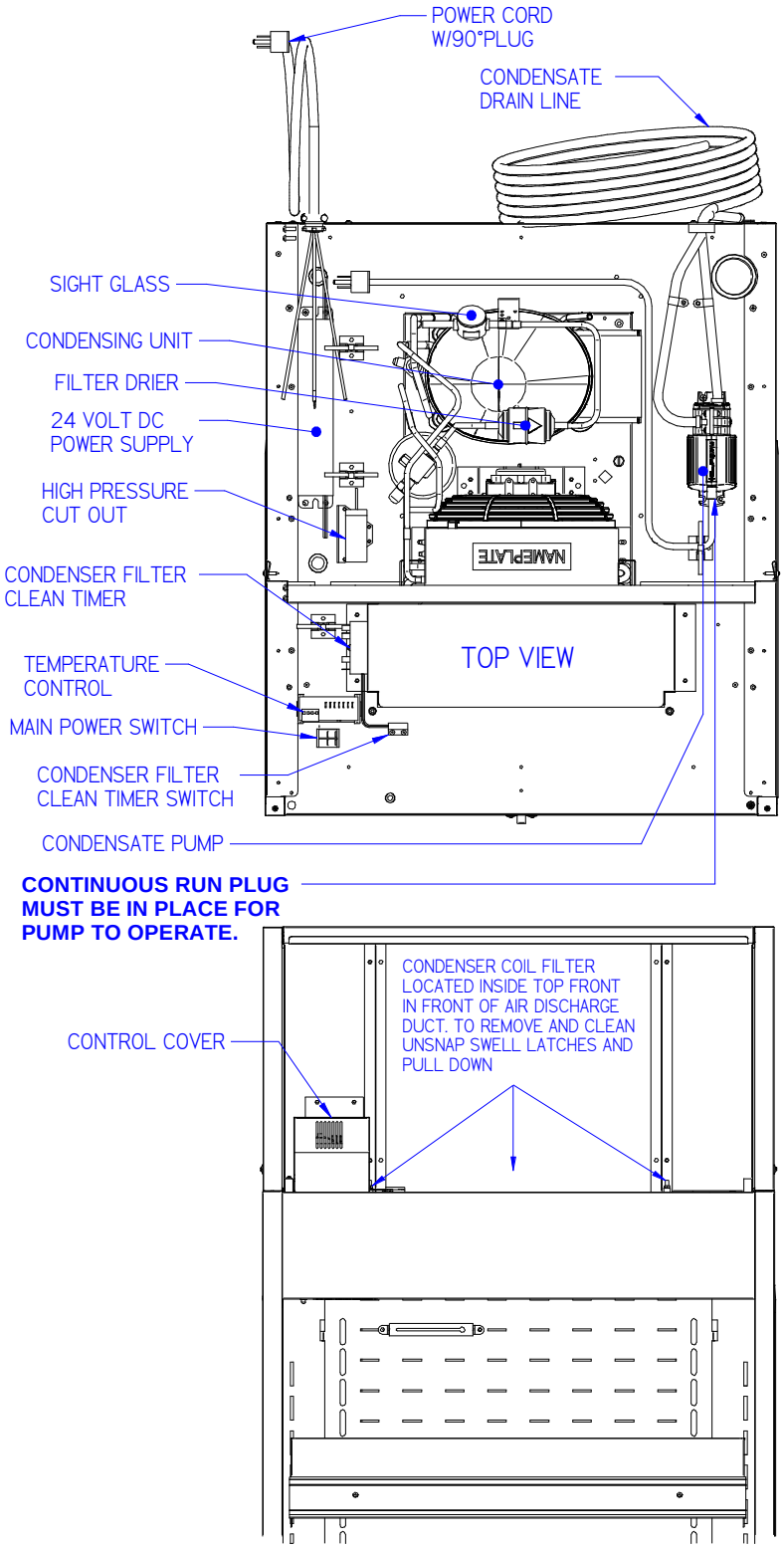


This label is located on the back of the display case and on the inside of the case under the display deck.

CAUTION
HAZARDOUS MOVING PARTS
DO NOT OPERATE UNIT WITH
DISPLAY PANS REMOVED.

This label is located below the display deck.

TOP COMPONENT LAYOUT



PRE-INSTALLATION PROCEDURES

Inspection For Shipping Damage

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage upon arrival. If there is damage to shipping crates, cartons, or if a shortage is found, note this on (all copies) of the Bill Of Lading prior to signing.

If damage is discovered when the case is uncrated, immediately call the delivering truck line and follow-up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damaged item. Crating material must be retained and shown to the inspector from the truck line.

INSTALLATION INSTRUCTIONS

Locating the Display Case

NOTE: This case is designed for indoor use only.

The case should be located where it is not subjected to the direct rays of the sun, heating ducts, grills, radiators, or ceiling fans, nor should it be located near open doors or main door entrances. Avoid locations where there is excessive air movement or air disturbances and avoid high humidity locations such as near cases with water misting or fogging devices.

The condenser air inlet is located on the top front left and right. The condenser air outlet is located on the top and top back of the case. Do not block these vents and do not locate the air inlet near a source of heat.

The installation clearances of the case are 2" on each of the sides, 0" on the rear of the case, and open on the top and the front of the case.

Grill Removal

WARNING: Electrical shock hazard. Do not operate unit with panels removed.

The top discharge grill houses the condensing unit and electrical components and is secured with self-threading screws.

This grill must be in place for safety and proper operation of the merchandiser.

Removing Case From Shipping Skid

CAUTION: Do not lift case from bottom front panel, damage will occur.

Move the case as near as possible to the final location before removing it from the shipping skid. Remove blocking from front and sides attached to pallet and remove shipping brackets from rear of case attached to pallet.

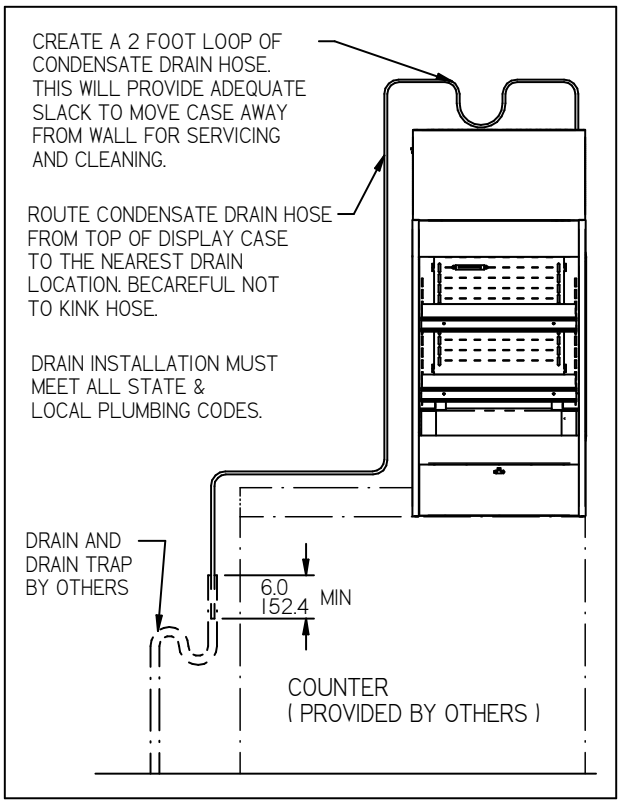
Removing Packaging Material

Remove bubble wrap and packing material for all shelves, etc. If it is necessary to remove tape residue from various materials, use cleaning compounds recommended in the cleaning section of this manual.

Leveling the Case

The case must be level for proper drainage of defrost water.

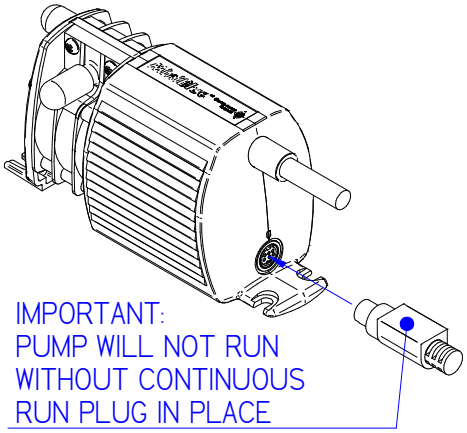
Check the level of the case along the front rail and along the inner tub floor below the display deck. Shim under the case frame as needed to level the case. It is recommended that the leveled case be sealed to the counter with an NSF Listed Sealant.



Condensate pump

Condensate Pump

Make sure that the condensate drain line has not been dislodged during shipment and that the drain hose is properly attached to the barbed fittings.
The vinyl drain line needs to be routed properly at time of installation, vertical head Can not exceed 16' and must be installed by qualified personnel only.



Cleaning for Initial Setup

For initial setup, clean the case as outlined in the “Weekly Cleaning” section of the “CLEANING INSTRUCTIONS” chapter of this manual.

Lights

Standard LED Top Light

The case comes with one standard LED top light which is internally wired to the power source. The light switch is located in the top ceiling behind the air discharge duct.

Standard LED Shelf Lights

Two LED shelf lights are furnished, make certain that the shelf light cords are completely inserted into the sockets in the end of the light or arcing may result, causing damage to the plugs and sockets. Plugs must be orientated correctly (note divot in plug and socket) or lights will not work.

The power supply used on this case allows removal of one or more shelf lights without affecting the remaining lights.

When plugging or unplugging light cords, turn the light switch to the “OFF” position.

ELECTRICAL CONNECTION AND GROUNDING INSTRUCTIONS

Electrical Supply Wiring

DANGER: Improper or faulty hookup of electrical components in the display case can result in severe injury or death.

THIS CASE MUST BE GROUNDED

Power cord

120V/60HZ/1PH unit is supplied with a 15-amp power cord & plug-NEMA#5-15P
230V/50HZ/1PH unit is supplied with a 10-amp power cord & plug -UK1-10P
230V/60HZ/1PH unit is supplied with a 15-amp power cord & plug-NEMA#6-15P

OPERATING INSTRUCTIONS

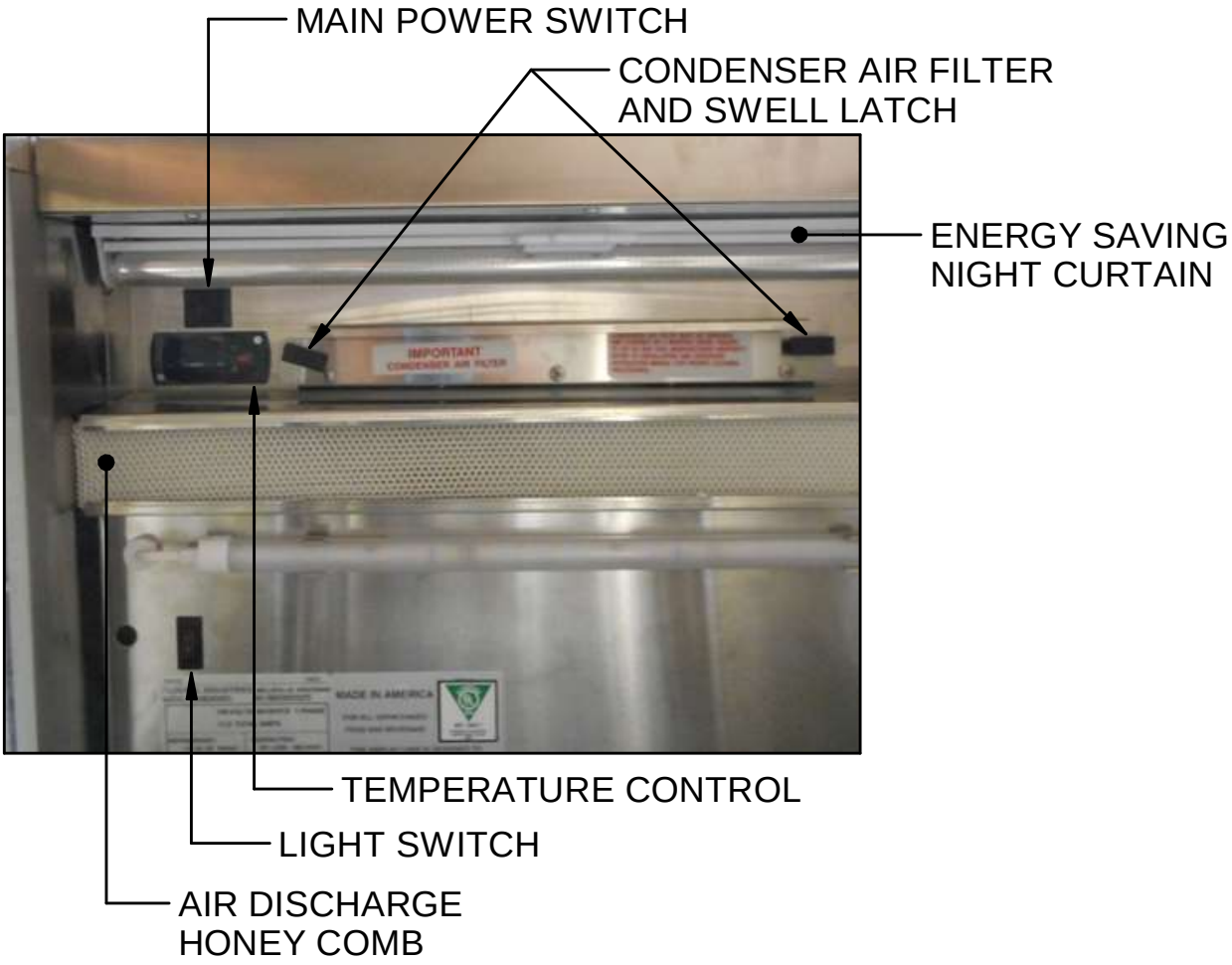
NOTICE: This refrigerated display case is designed to operate at 38° to 40° F (3.3° TO 4.4° C) under ambient conditions not to exceed 75° F (23.9° C) and 55% relative humidity. Exceeding these limits will result in poor case performance.

Control Description

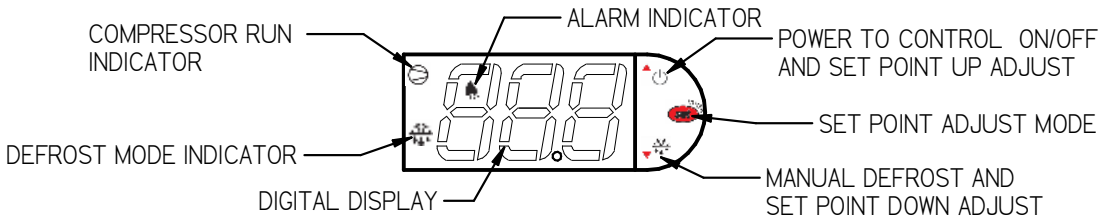
Electronic Temperature Control

The temperature control allows the user to adjust the temperature of the display merchandiser to meet their needs. When not in Adjust Mode the readout displays the control setting number 1 thru 9.

The electronic temperature control is located between the night curtain and the air discharge duct on the inside top left-hand side of the case.



Electronic Temperature Control



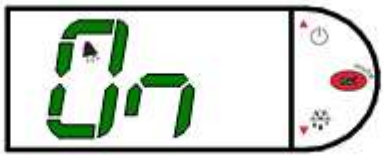
Button Overview

	Press and hold this button for 3 seconds to turn system on (if off) or off (if on). Also used to adjust set point when in set point adjust mode
	Press to enter set point adjust mode, confirm set point changes, and mute alarms.
	Press and hold this button for 3 seconds to initiate a manual defrost (and cancel defrost if initiated), also adjusts set point down when in set point adjust mode

Powering on control

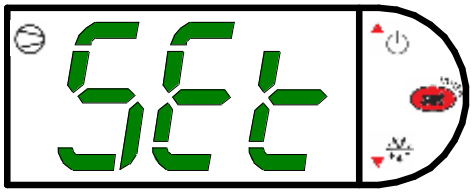
To turn refrigeration control power on, press and hold  for approx. five seconds. The display will read “On” while the button is depressed. When the control powers on, the display will read the relative current case temperature (on initial startup this would be room temperature). The compressor run indicator  will illuminate on the display, meaning that the compressor is running. (Note: the control may already be in the on mode when shipped from factory).

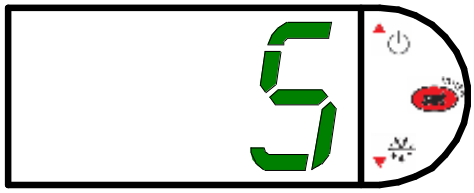
To turn refrigeration control power to off, press and hold  for approx. five seconds. The display will read “Off” while the button is depressed. When the control powers off the display will flash back and forth between the relative current case temperature and “Off”. The compressor run indicator  will be off on the display. When refrigeration control is in the off mode cabinet lights and evaporator fans will still operate, but the compressor will not turn on causing the case to gradually reach room temperature.


Adjusting the set point

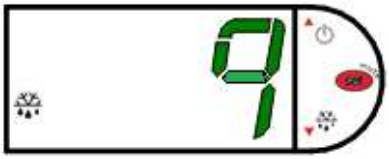
The set point is what determines how cold the display case will hold food and beverage. To adjust the set point press and hold the set button approx. 5 seconds until the display begins to flash a number. Then press the use the ▲ button to scroll number up (colder) or press the ▼ button to scroll number lower (warmer). There are nine (9) available set points numbers, the higher the number of the set point, the colder the display case will run, with setting "9" being the coldest and setting "1" being the warmest. Once you have chosen your desired setting press the set button again to confirm your choice.





Entering manual defrost mode

In order to initiate a manual defrost press and hold the ▼ button approx. 5 seconds. The control will read "dEF" while the button is being held. The defrost is initiated when the defrost mode indicator illuminates on the display. The control display will then return to reading the case temperature. When the defrost mode indicator turns off the defrost is complete and the compressor will turn back on illuminating the compressor run indicator .



Error codes

It is possible for error codes to be displayed on the control screen. In the event of a malfunction an alarm will sound and the alarm indicator will be displayed on the display. An error code or codes will flash intermittently on the display. If there are multiple codes, the display will continuously cycle through them. The following photo shows error code "E0" as an example.

Mute: You may mute the alarm by pressing and releasing the wrench button. The red ringing bell and all error codes will still be displayed. When the fault is remedied the control will return to normal operation and will automatically clear the codes from the display.

Initial Start-Up

After completing the items in the installation section of this manual. The case is ready to be put into service.

TSSM2454SC-3 case is designed to operate at 38º to 40º F. (3.3° to 4.4° C) under ambient conditions not to exceed 75º F. (23.9° C) and 55% relative humidity.

When starting a warm case, it is recommended that the temperature control setting is in the middle of the range, such as set point 5. After the unit has gone through several cycles, adjust the control to a warmer or colder setting to achieve the desired product temperature. NOTE: Allow refrigerated models to run for at least two hours before placing pre-chilled product in the case.

Nearly all open refrigerated merchandisers operate better when loaded with product than when empty. If a check is made of the case operating temperatures, perform this check with product in the case.

Open refrigerated merchandisers are not intended as storage refrigerators and will not "pull down" room temperature products efficiently. Load case interior with pre-chilled product only 38º F. (3.3° C) or less.

Main power Switch

The power switch is located on the inner front top left panel in front of the refrigeration control. This switch turns off all components in the case.

Light Switch And Lights

The light switch is located in the top duct, behind the air discharge duct. This switch operates the interior lights only.

Digital Display - Temperature Control

This unit is equipped with a temperature control with Digital Display.
The Display shows the control setting number.

The temperature control is located on the inner front top left panel behind the main power switch.

Placing Product In Case

Do not overload the case with product to a point where the top air discharge grill or the bottom air intake grill are blocked, or where the air curtain created by the discharge air is blocked.

LOAD CASE WITH PRE-CHILLED 38ºF (3.3°C) OR COLDER PRODUCT ONLY.
THIS CASE DESIGNED TO DISPLAY ALL UNPACKAGED FOOD AND BEVERAGE.

Energy Saving Night Curtain

This unit is equipped with an energy saving night curtain.
The night curtain is located in the top inside front of the canopy.
To use the night-curtain pull down and hook onto bracket located in the center of the front panel just below the clear acrylic air deflector when case is not in use.

Evaporator Fans

This unit is equipped with 24V DC evaporator fans. They are wired to run continuously when power is supplied to the unit.

Deck Price Tag Holder

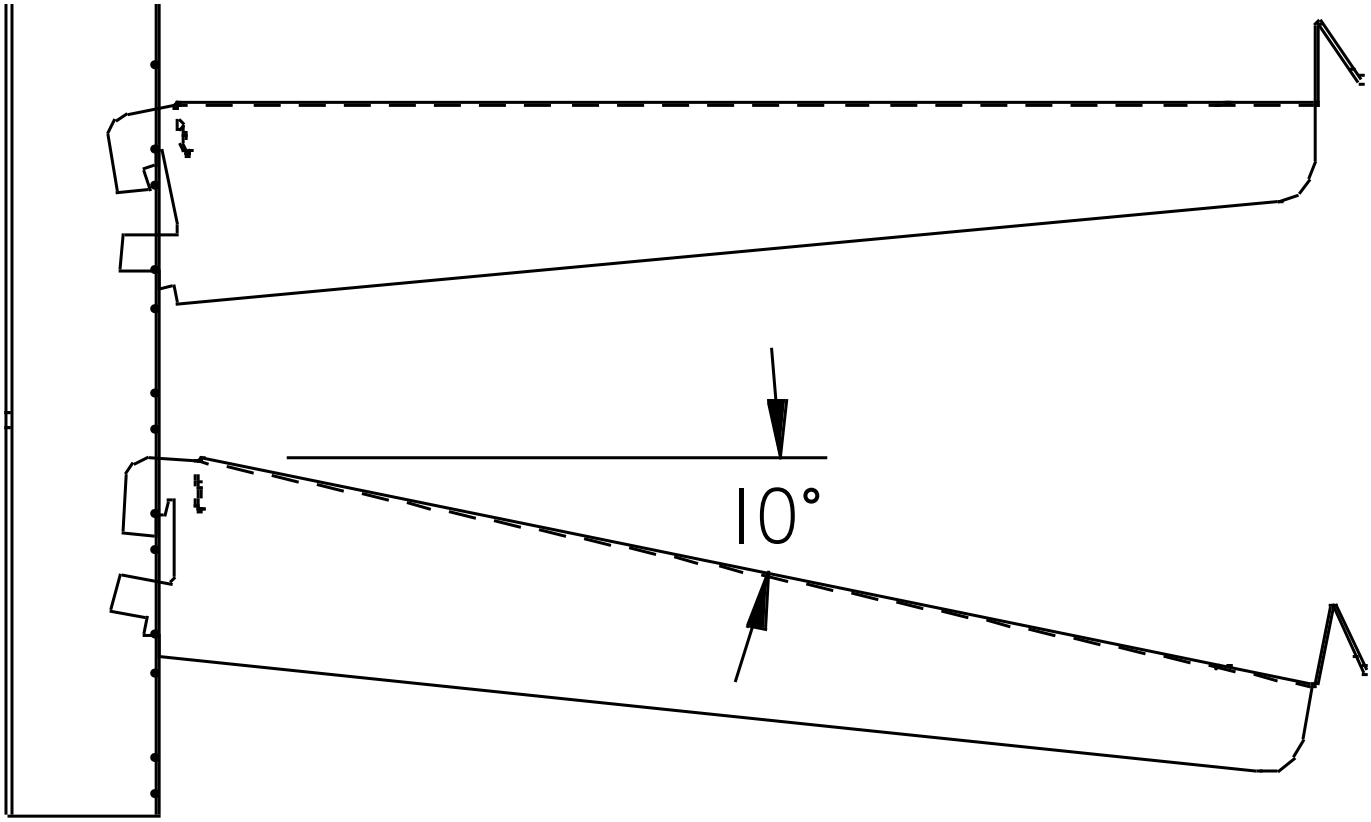
The deck price tag holder assembly is positioned in the front of the deck pan.
Do not cover the air return grille at the front of the deck with this part.
Case performance will be affected.

Shelves

The TSSM2454SC-3 has 15” solid metal shelves as standard. These shelves are installed at the factory.

The shelves are adjustable in 1-5/8” increments. To adjust the shelves, Remove the shelf from the shelf standard and reposition as desired. If optional shelf lights are installed, it will be necessary to unplug the shelf light cord before repositioning the shelf.

The shelves can be installed horizontally or slanted at a 10º downward angle. To change the shelf slant. Lift the shelf up at the back until the brackets can be repositioned in the shelf standard slots. See diagram below



CAUTION:

Do not place more than 50 lbs. of product on a shelf.

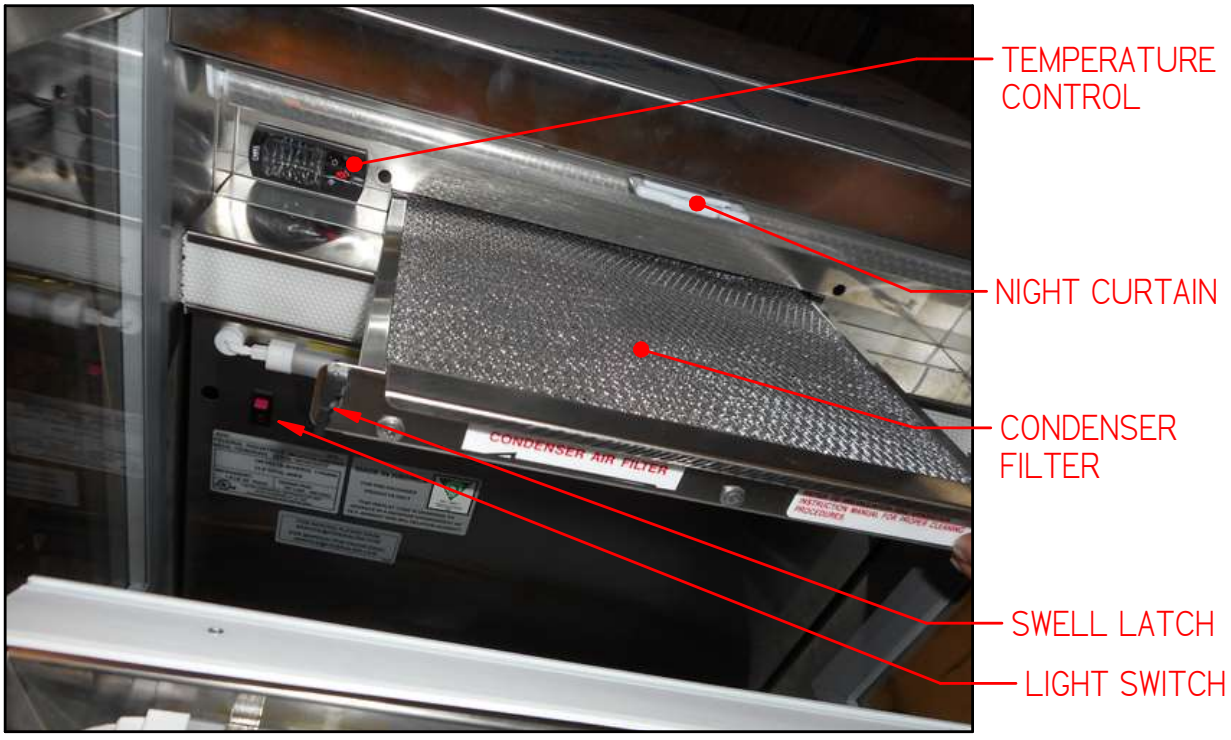
Damage to the shelf and shelf standard may occur if the shelf is overloaded.

PERIODIC MAINTENANCE

Cleaning the Condenser Filter

This refrigerated case is equipped with a reusable condenser coil filter, which filters large dust particles from the air before it enters the condenser coil fins. It is very important that this filter be cleaned monthly to maintain proper refrigeration performance and prevent compressor failure. There is a flashing LED indicator that will illuminate if the filter is not cleaned at 30 day intervals. **FAILURE TO CLEAN THE CONDENSER FILTER WILL VOID THE COMPRESSOR WARRANTY.**

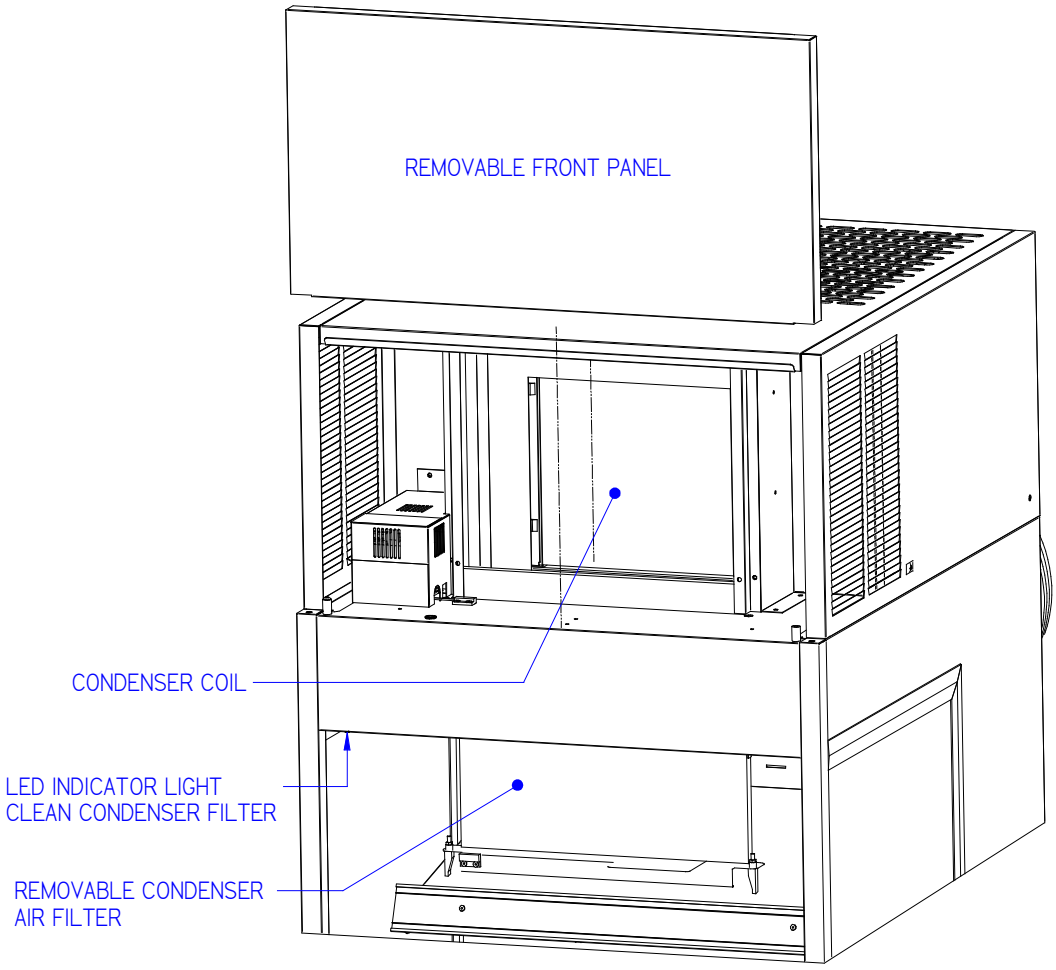
1. Disconnect power to the unit.
2. Locate condenser air filter, disengage swell latches and pull down. If the LED indicator is flashing, it will stop when you remove the filter for cleaning.
3. Wash the filter using warm soapy water. Rinse the filter and let it dry. **NOTE: Do not clean the filter in a dishwasher.**
4. Apply a generous coat of filter adhesive to both sides of the filter. (Filter adhesive is available through any restaurant supply chain distributor). **NOTE: Failure to coat the filter with a fresh coat of filter adhesive after cleaning will cause ineffective filter operation. This will lead to plugging of the condenser coil, affecting refrigeration performance and can cause compressor failure.**
5. Despite the presence of the filter, it is necessary to check and clean the condenser coil every 6 months or as necessary. Refer to the instructions outlined on page 13 in Cleaning Condenser Coil.
6. Reinstall the filter. This will reset the LED reminder.



Cleaning Condenser Coil

Despite the presence of the filter, it is necessary to check and clean the condenser coil every 6 months or as necessary. **FAILURE TO CLEAN THE CONDENSER COIL WILL VOID THE COMPRESSOR WARRANTY.** The condenser coil is cleaned as follows:

1. Disconnect power to the unit.
2. Remove the top front shroud, lift up approximately 1” to disengage mounting pins.
3. Remove the condenser filter and clean it as outlined above in Cleaning Condenser Filter.
4. Vacuum the front surface of the condenser coil, moving the vacuum nozzle vertically. **NOTE: Be careful not to bend or otherwise damage the condenser coil fins. Moving the vacuum nozzle horizontally will cause the fins to bend. Bent coil fins will affect condensing unit performance.**
5. Reinstall the filter.



Cleaning Case Interior

1. The case interior should be wiped down daily and thoroughly cleaned on a weekly basis**. Refer to the “Daily Cleaning” and “Weekly Cleaning” sections in the “CLEANING INSTRUCTIONS” chapter of this manual.**

ELECTRONIC CONTROL PARAMETERS AND EXPLANATION OF OPERATION

Electronic Control

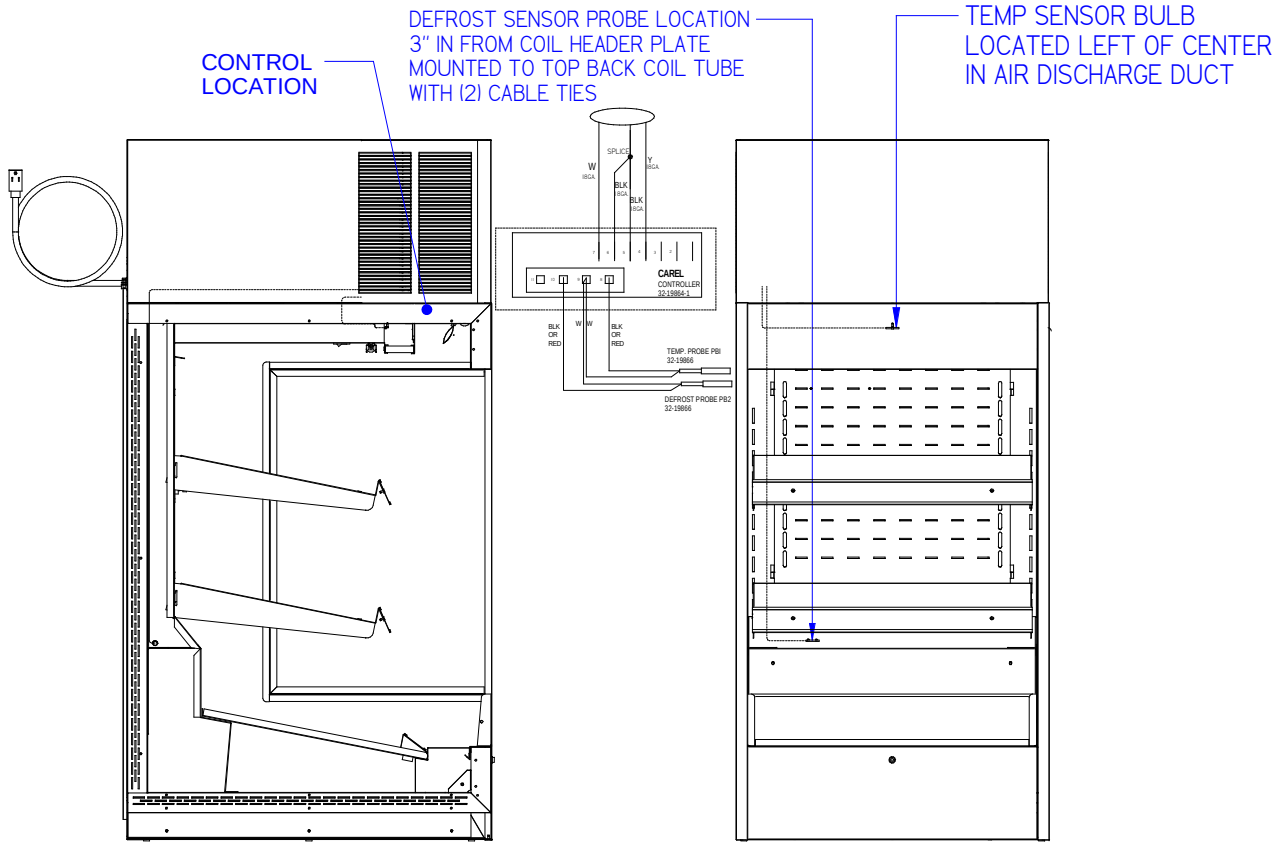
The control parameters are set at the factory and cannot be manually changed in the field. Control parameter changes can only be made by downloading a new set of parameters using a program chip supplied by Federal Industries. The pre-set control parameters are listed on the chart in the Settings Chart on the next page.

Operation

The control uses two sensors, one located in the air stream and one located on the evaporator coil. The sensor located in the air stream is referred to as the temperature control sensor. The sensor located on the evaporator coil is referred to as the coil sensor.

The temperature control sensor is located inside the top air duct behind the honeycomb material and is labeled (TEMP). The sensor location is critical for proper operation on the unit. Do not move or relocate this sensor.

The coil sensor is strapped to the evaporator coil and is labeled (DEFROST). This sensor location is critical for proper operation of the unit. Do not move or relocate this sensor.



The temperature control is set to cut in at 39° F. (3.9° C) The Temp control cuts out at 24° F (-4.4° C) at the coldest setting (9) and 34° F (1.1° C) at the warmest setting (1). The coldest setting is indicated by a "9" on the control display, and the warmest setting is indicated by a "1".

Defrost Cycle

The control is programmed to initiate defrost by two different methods. There are three programmed defrost cycles in the control which will initiate a defrost cycle every 8 hours. The unit does not have a time clock so the defrost cycles cannot be set for any specific time of day. The controller uses time to initiate the defrost cycle, and temperature to terminate the defrost cycle. The controller also has an 'On demand' defrost feature that will initiate a defrost cycle when the temperature differential between the evaporator temperature and the air temperature is more than 15 degrees for 5 minutes after 30 minutes into the refrigeration cycle.

Control Factory Settings

The control parameters are set at the factory and cannot be manually changed in the field. Control parameter changes can only be made by downloading a new set of parameters using a program chip supplied by Federal Industries

TAB	PARAMETER DESCRIPTION	TSSM2454
CONFIGURATION	Controller Operation Temperature Units	Degrees Fahrenheit
	Defrost Termination Method	Evaporator Sensor
SET-POINTS	Setting "1" Cut-In (Warmest Setting)	39ºF / (3.9°C)
	Setting "1" Cut-Out (Warmest Setting)	**34ºF / (1.1°C)**
	Setting "2" Cut-In	39ºF / (3.9°C)
	Setting "2" Cut-Out	**32.7ºF / (0.4°C)**
	Setting "3" Cut-In	39ºF / (3.9°C)
	Setting "3" Cut-Out	**31.5ºF / (-0.3°C)**
	Setting "4" Cut-In	39ºF / (3.9°C)
	Setting "4" Cut-Out	**30.2ºF / (-1°C)**
	Setting "5" Cut-In	39ºF / (3.9°C)
	Setting "5" Cut-Out	**29ºF / (-1.7°C)**
	Setting "6" Cut-In	39ºF / (3.9°C)
	Setting "6" Cut-Out	**27.7ºF / (-2.4°C)**
	Setting "7" Cut-In	39ºF / (3.9°C)
	Setting "7" Cut-Out	**26.5ºF / (-3.1°C)**
	Setting "8" Cut-In	39ºF / (3.9°C)
	Setting "8" Cut-Out	**25.2ºF / (-3.8°C)**
	Setting "9" Cut-In (Coldest Setting)	39ºF / (3.9°C)
	Setting "9" Cut-Out (Coldest Setting)	**24ºF / (-4.4°C)**
COMPRESSOR	Compressor Minimum On Time	**5 minutes**
	Compressor Maximum On Time	**60 minutes**
DISPLAY	Defrost Display Lock (display indication during defrost)	SHOW CURRENT TEMPERATURE
DEFROST	Defrost Termination Temperature	45ºF
	Time to First Defrost (hh:mm)	8 hr
	Time to subsequent Defrost	8 hr
	Defrost Max Duration	30 minutes

Error Codes

Error codes may be displayed if the controller or display case is malfunctioning. The following is a list of error codes that may be encountered, and potential resolutions.

ERROR CODES AND RESOLUTIONS			
CODE	**DESCRIPTION**	**CAUSE**	**RESOLUTION**
E0	Temperature probe error	Probe signal is interrupted or short-circuited	1. Verify that probe wires and quick disconnect are secure in control. 2. Check probe resistance to table below. If 0 resistance is present check wiring insulation. If infinite resistance is present check for breaks in wiring (meter will likely read overload or very high in the mega-ohm range). 3. Ensure that probes are wired per the wiring diagram provided. 4. Replace probe if other remedies fail, or if probe resistance deviates from "**Error! Reference source not found.**" **Error! Reference source not found.**
E1	Defrost probe error	See E0	
EE	Unit parameter reading error	Operating conditions	1. Remedy abnormal operating conditions. The control is rated to operate in a range of 14 to 122°F (-10 to 50°C) and less than 90%RH non-condensing. 2. Replace control if problem persists.
EF	Operating parameter reading error	See EE	

TEMPERATURE PROBE COMMON RESISTANCE CHART			
Probe Temp	**Maximum Resistance [Ω]**	**Normal Resistance [Ω]**	**Minimum Resistance [Ω]**
32°F(0°C)	27.83	27.28	26.74
77°F(25°C)	10.1	10	9.9
212°F(100°C)	1	0.97	0.94

Minimum Run Timer Feature

The unit controller is programmed to have the condensing unit run a minimum of 5 minutes, regardless of the control temp being satisfied. If the temperature control reaches the cut out set point before 5 minutes, the minimum run time setting in the control will keep the unit in a run cycle mode until the timer reaches 5 minutes. The refrigeration cycle will be off until the temperature control cut in temperature is reached.

This timer typically comes into effect in low ambient conditions where the unit may cycle too frequently to maintain proper product temperature.

Maximum Run Timer Feature

The unit controller is programmed to have the condensing unit run a maximum of 60 minutes. If the unit has not reached cut out temperature setting in 60 minutes, the unit goes into an off cycle. This typically comes into effect in high ambient temperature and relative humidity conditions.

REFRIGERATION OPERATION

	See Refrigeration And Electrical Data Pages
Refrigeration R404 Charge	

All models are shipped from the factory with a completely operational R404A refrigeration system and require no modifications or adjustments upon installation. Case must be installed as per the installation section of this manual to provide proper condensing air cooling.

Self Contained Refrigeration Operation

The unit temperature is controlled by the Electronic control outlined in the control section of this manual.

CLEANING INSTRUCTIONS

Acrylic Air Deflector Cleaning

	**NOTICE:**	**Clear acrylic air deflector requires special washing procedures to prevent hazing and yellowing of material.**

NEVER USE paper towels (wet or dry) for cleaning or drying and never use a dry towel.
NEVER USE glass cleaner of any kind.
Lightly dust (not wipe) surface with a damp Micro Fiber towel or chamois. The surface can then be washed using a small amount of dishwashing detergent such as Dawn or Joy and lukewarm water. Use a Micro Fiber towel or chamois, applying only light pressure. The cloth or chamois must be kept free of grit by frequently rinsing. Rinse surface with clear water and dry by blotting with a damp Micro Fiber towel or chamois.

Daily Cleaning

The case should be cleaned thoroughly, as described in the weekly cleaning section, before it is used for the first time.

	**NOTICE:**	**Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case.**

	**NOTICE:**	**Shut off lights and power switches and remove all products from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning.**

	**NOTICE:**	**Remove all products from the case before proceeding with cleaning procedure.**

	**NOTICE:**	**Acrylic air deflector requires special washing procedures to prevent hazing and yellowing of material. Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**

Note: For major spills or foreign material buildup use complete weekly cleaning instructions.

Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.

1. Saturate a rag in warm soapy water and ring out thoroughly. Wipe the complete interior of case and dry with soft dry towel.
2. The remaining exterior surfaces should be wiped down using any ammoniated cleaners or soapy warm water and dried with a soft dry towel.
3. **IMPORTANT: Cleaning the clear acrylic plastic front air deflector requires special care to prevent hazing and yellowing of material. Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**

Weekly Cleaning

NOTICE:	**Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case.**

NOTICE:	**Shut off lights and power switches and remove all products from case. Allow sufficient time for the unit to reach room temperature before proceeding with cleaning.**

NOTICE:	**Remove all products from case before proceeding with cleaning procedure.**

NOTICE:	**The acrylic front air deflector requires special washing procedures to prevent hazing and yellowing of material. Clean as described in "Acrylic Air Deflector Cleaning" section (Pg.** Error! Bookmark not defined.**) of this manual.**

Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.

1. Remove interior shelving from unit as described in the "Shelving Installation and Removal" section of this manual.
2. Saturate rag in warm soapy water and ring out thoroughly. Clean all shelves and shelf brackets and dry with soft dry towel.
3. Saturate a rag in warm soapy water and ring out thoroughly. Clean the display deck(s) using warm soapy water and a brush. Rinse thoroughly and allow dry. Wipe off fan shroud assembly (do not rinse or submerge fan motors).
4. Clean the entire interior of the case using warm soapy water. Wipe off all soapy water with a damp cloth and allow to dry. (DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners)
5. **IMPORTANT: Cleaning the clear acrylic plastic front air deflector requires special care to prevent hazing and yellowing of material**. **Clean as described in "Acrylic Air Deflector Cleaning" section of this manual.**
6. Reassemble all components in reverse order.

NOTE: Depending on the amount of usage and spillage of foreign material, some fasteners may have to be removed and parts disassembled to allow proper cleaning of the unit.

SERVICE INFORMATION

CAUTION
RISK OF ELECTRIC SHOCK

DISCONNECT POWER
BEFORE SERVICING UNIT

Before any service work is performed on the case, make sure all power is disconnected to the case.

Service problems or request for repair parts from authorized service agencies, trained service personnel, or owners should be referred to:

WARRANTY/TECHNICAL SERVICE DEPARTMENT
Parts Town
1200 Greenbriar Dr.
Addison, IL 60101
Toll Free: (833) 238-8168
Email: techservice@partstown.com

Pre-Service Checklist

You may avoid the cost and inconvenience of an unnecessary service call by first reviewing this checklist of frequently encountered situations that can cause unsatisfactory case performance.

CAUTION: Before servicing case unplug the power cord or turn off power at the main breaker box.

Case Does Not Operate

-Check for disconnected power supply.

-Check if main power switch is on.

-Check for tripped breaker or blown fuse.

Case Temperature Too Warm

-Check that top air discharge grill and/or bottom air intake grill are not blocked.

-Check for a blocked or dirty condenser coil.

-Check that there are no outside air disturbances in or around the case. These disturbances can be caused by nearby doors or entrances, overhead ceiling fans or air diffuser vents, direct sunlight, or other heat sources. The location of open refrigerated merchandisers is critical to case performance.

-Make sure that warm product is not being installed inside the case. All product must be pre-chilled prior to loading for proper case performance.

-Check temperature control for proper settings.

-Check cold air flow. Lack of or no air flow may indicate a blocked evaporator coil or defective evaporator fan motor. Contact a qualified service company if there is no air flow inside case.

Lights Do Not Operate

-Check that light switch is “on”.

-Check that all shelf light cords are securely plugged into sockets in end of light.

Overflow Of Condensate Water

-Check that drain line is properly located on condensate pump.

-Check that store conditions do not exceed 75° and/or 55% relative humidity for prolonged periods of time.

-Check that condensate pump is operating and that there are no kinks in the vinyl tube.

-Check that continuous run plug is inserted into pump (see page 5)

Special Service Situations

There are rare occasions when the refrigerant charge must be evacuated from a case in order too perform service work. In those situations, Federal Industries recommends that the refrigerant charge be evacuated into a recovery system to prevent the possibility of hydrofluorocarbons (HFC's) from being released into the atmosphere. The release of HFC's into the atmosphere is a source of greenhouse gases.

If moisture or liquid is observed around or under a Federal Industries case, an immediate investigation should be made by qualified personnel to determine the source of the moisture or liquid. The investigation made should determine if the case is malfunctioning or if there is a simple housekeeping problem.

Moisture or liquid around or under a case is a potential slip/fall hazard for persons walking by or working in the general area of the case. Any case malfunction or housekeeping problem that creates a slip/fall hazard around or under a case should be corrected immediately.

SALE & DISPOSAL

Owner Responsibility

If you sell or give away your Federal Industries case, you must make sure that all safety labels and the Installation-Service Manual are included with it. If you need replacement labels or manuals, Federal Industries will provide them free of charge. Contact the Customer Service Department at Federal Industries at (800) 356-4206.

The Customer Service Department at Federal Industries should be contacted at the time of sale or disposal of your case so records may be kept of its new location.

If you sell or give away your Federal Industries case and you evacuate the refrigerant charge before shipment, Federal Industries recommends that the charge be evacuated into a recovery system to reduce the possibility of HFC's from being released into the atmosphere. The release of HFC's into the atmosphere is a source of greenhouse gases.

REFRIGERATION AND ELECTRICAL DATA

Model	**TSSM2454SC-3**	**TSSM2454SC-3**	**TSSM2454SC-3**
POWER SUPPLY, VOLTS	120 Volts	220-240 Volts	208-240 Volts
Frequency	60 Hertz	50 Hertz	60 Hertz
Phase	1 Phase	1 Phase	1 Phase
Number of Wires	2 + ground	2 + ground	2 + ground
Refrigerant Charge (R-404A)	1.5 lbs	1.5 lbs	1.5 lbs
Optimal Superheat Range	8-12°F (-13.3 to-11.1°C)	8-12°F (-13.3 to-11.1°C)	8-12°F (-13.3 to-11.1°C)
Optimal Subcooling Range	1.5-6°F (-16.9 to -14.4°C)	1.5-6°F (-16.9 to -14.4°C)	1.5-6°F (-16.9 to -14.4°C)

	AMPS	**VOLTS**	**AMPS**	**VOLTS**	**AMPS**	**VOLTS**
Compressor						
RLA	9.2	120	4.5	220/240	5.7	208/240
LRA	38.0	120	22.0	220/240	34.0	208/240
Condenser Fan Motor	0.4	120	0.2	220/240	0.2	220/240
Evaporator Fan Motor 24V DC	N/A	N/A	N/A	N/A	N/A	N/A
Power Supply 24V DC	1.0	120	0.5	220	0.5	230
Condensate Pump	0.07	120	0.04	220	0.04	230

Note: 24V DC power supply supplies power to the led lights and the 24V. evaporator fans.

Refer to the rating plate data attached to the inner ceiling of the case for Maximum Fuse Size and Minimum Circuit Ampacity.

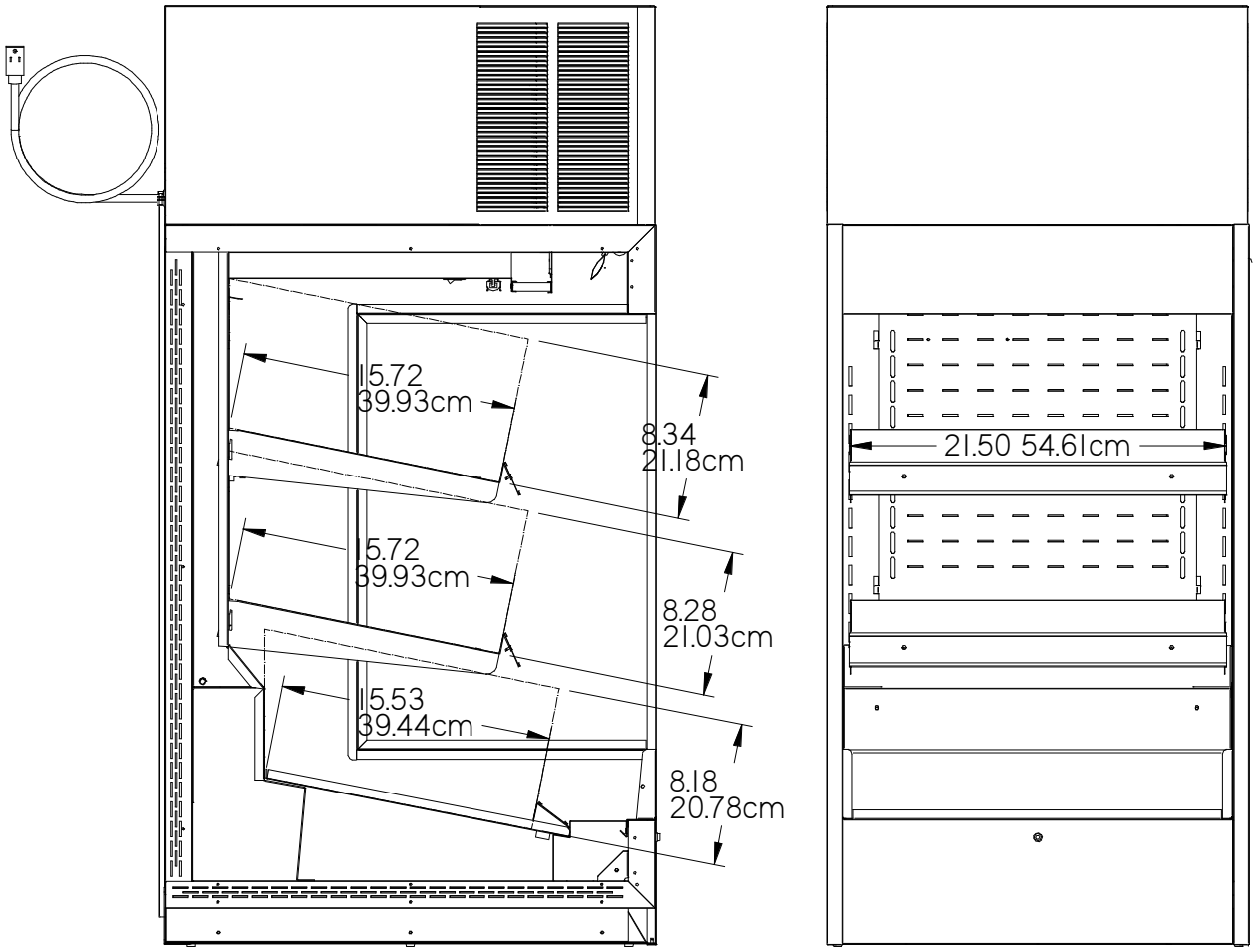
REPLACEMENT PARTS
MODEL TSSM2454SC-3

Part Description	TSSM2454SC-3 120V/60HZ/1P Part #	TSSM2454SC-3 220V/50HZ/1P Part #	TSSM2454SC-3 230V/60HZ/1P Part #
Refrigeration System			
Condensing Unit (Emerson)	30-20979	30-20959	30-20960
Compressor (Replacement Emerson)	30-20980	30-20962	30-20963
Evaporator Coil	33-20840-A		
Expansion Valve	32-19419		
Evaporator Fan 24V. DC	41-20955		
Filter Drier Replacement	32-12626		
High Pressure Control	32-11670		
Electrical Components			
Temperature Control	32-19864-1	32-19865-1	30-19865-1
Control Probe Air Temp	32-21045		
Control Probe Evap Temp	32-21046		
Light Led 3500K Frosted	42-20870-18F35		
Power Supply Led 24V. DC	39-20986		
Light Switch (On/Off)	41-11066		
Main Power Switch	41-18186		
Heater Wire Assembly	43-21006-1	43-21006-2	43-21006-2
Condensate Pump	47-21017	47-21018	47-21018
Cord & 90°Plug	43-15345	43-19448	43-20949
Timer, Clean Condenser Filter	41-20988		
Switch, Clean Condenser Filter	41-20991		
Switch, Magnet Clean Condenser Filter	41-20991-1		
Light Indicator, Clean Condenser Filter	42-20992		
Miscellaneous Components			
Price Tag Molding	15-20666-2		
Shelf one piece w/o light	M20685-7		
Slanted Deck	M20795-2		
Thermometer	32-13662		
Air Deflector	15-20953		
White Shelf Lamp Cord	43-20475		
Energy Savings Night Curtain	65-20854		
End Glass	50-20863-3		
Condenser Filter	SA5887		
Air Diffuser (honey comb)	W-10494-11		
Condensate Hose	15-20957		

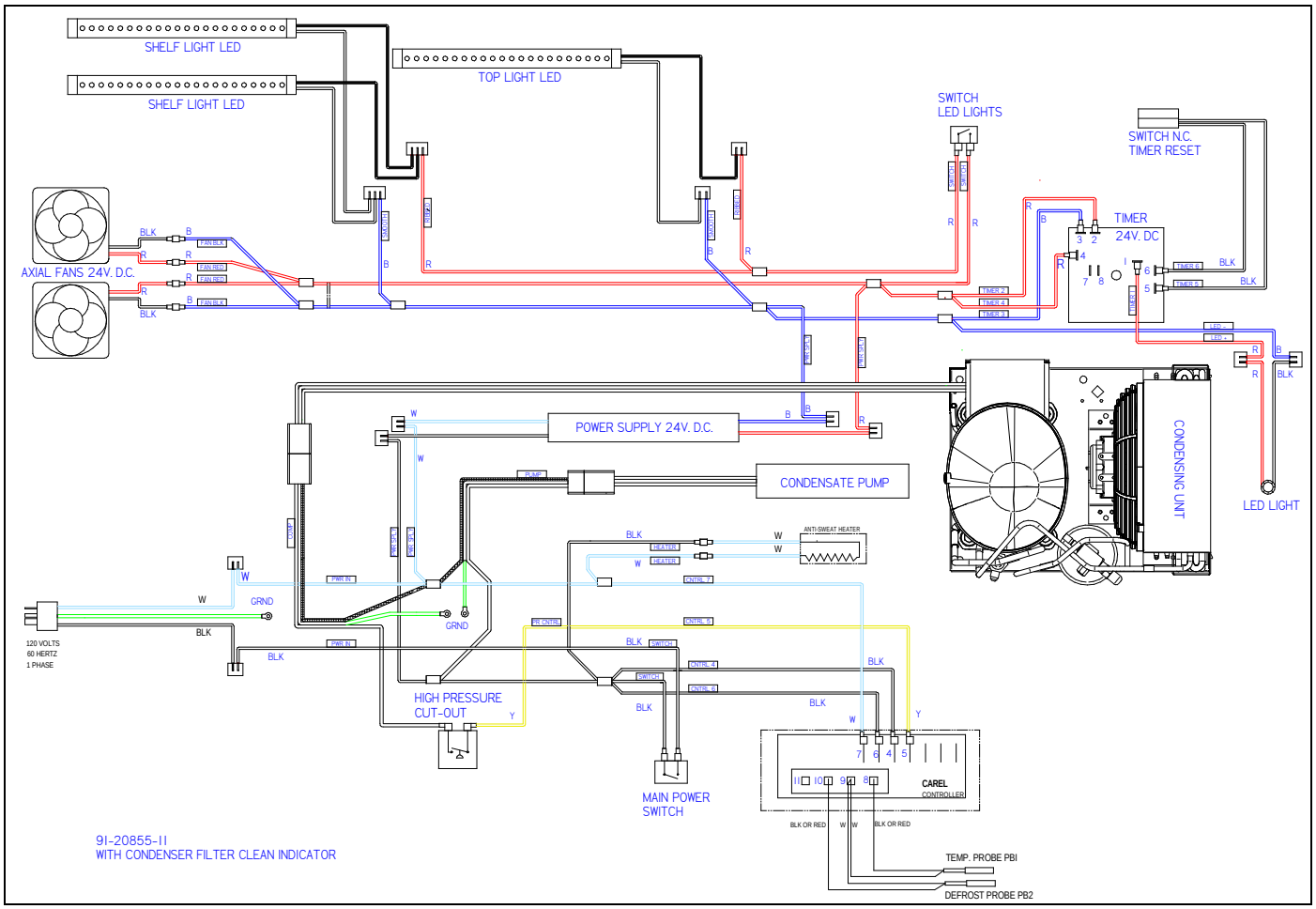
NOTE: All components listed on the 120V. model and not shown on the 220V models are the same for all models.

TSSM2454 DISPLAY AREA AND VOLUME

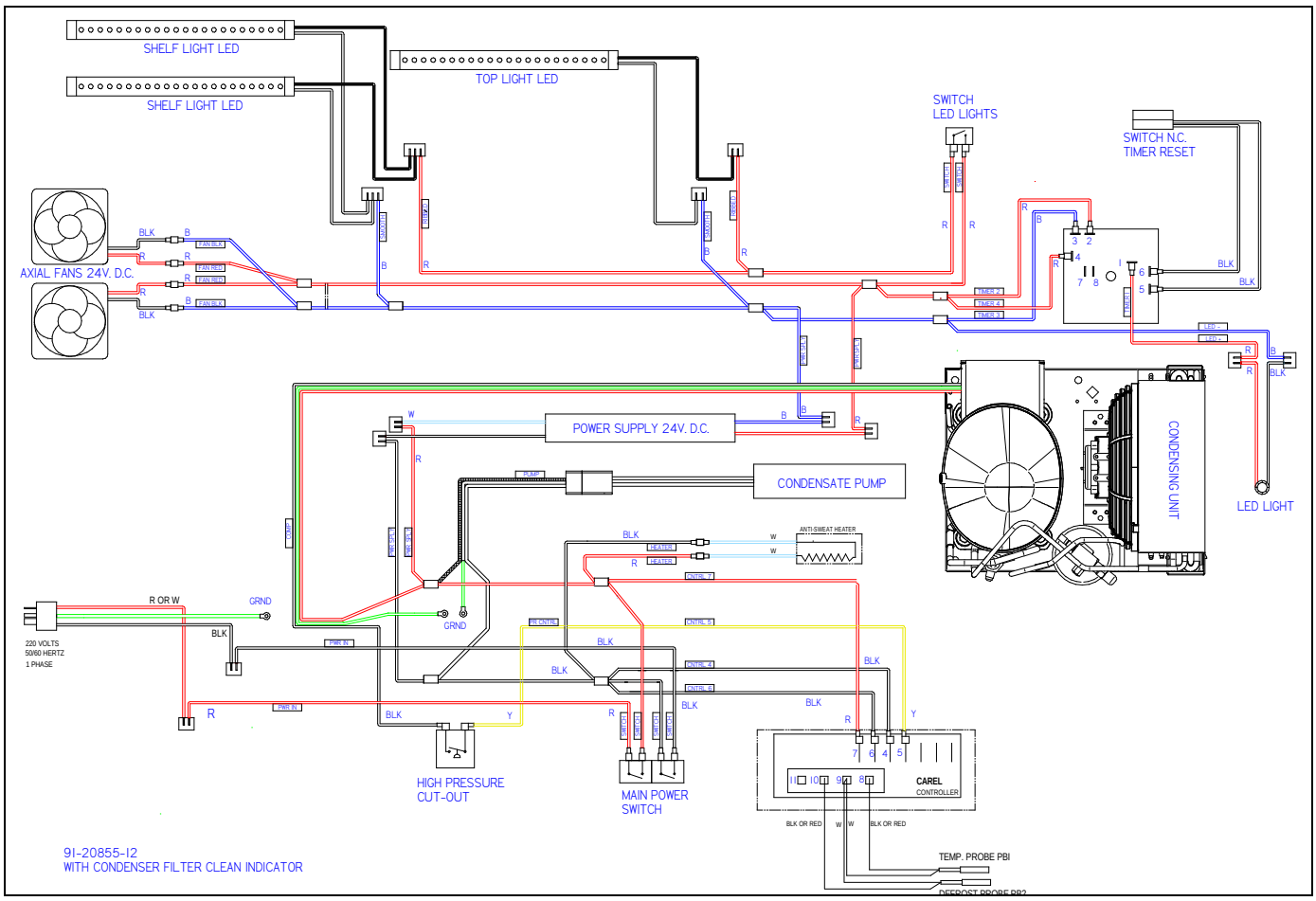
DISPLAY VOLUME	TSSM2454SC-3
CUBIC FT. PER SHELF	1.7cf /.05 cu m
CUBIC FT. DISPLAY DECK	1.7cf /.05 cu m
TOTAL CUBIC FT.	5.1cf /.15 cu m
SHELF WIDTH " L "	21.5" /54.6cm



WIRING DIAGRAM 120V/60HZ
SELF CONTAINED TSSM2454SC-3



WIRING DIAGRAM 220V-240V 50/60HZ 1PH
SELF CONTAINED TSSM2454SC-3



California Residents Only.

⚠ WARNING

This product can expose you to chemicals including chromium which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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