

TYLER
REFRIGERATION



Carrier

A United Technologies Company

A series
Advantage

Installation & Service Manual



NFJCX, NCJCX, NTJCX, NFJECX, NCJECX

**JUMBO ISLAND FROZEN FOOD/ICE CREAM/MEDIUM TEMP
MERCHANTISERS**

Low, Medium and Dual Temperature Self Serve Display Cases

**This manual has been designed to be used in conjunction with the
General (UL/NSF) Installation & Service Manual.**

Save the Instructions in Both Manuals for Future Reference!!

This merchandiser conforms to the American National Standard Institute & NSF International Health and Sanitation standard ANSI/NSF 7 - 2003.

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The following Low Temperature Frozen Food and/or Ice Cream, Medium Temperature and Dual Temperature Split Coil Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
NFJCX	8' & 12' JUMBO ISLAND FROZEN FOOD OR MEDIUM TEMP MERCHANDISERS
NCJCX	8' & 12' JUMBO ISLAND ICE CREAM MERCHANDISERS
NTJCX	8' & 12' JUMBO ISLAND LOW TEMPERATURE (FROZEN FOOD & ICE CREAM) DUAL TEMP SPLIT COIL MERCHANDISERS
NFJECX	JUMBO ISLAND FROZEN FOOD OR MEDIUM TEMP END MERCHANDISER
NCJECX	JUMBO ISLAND ICE CREAM END MERCHANDISER

SPECIFICATIONS

NFJCX/NCJCX/NTJCX/NFMJCX/NFJECX/NCJECX Jumbo Island and End Frozen Food/ Ice Cream/Medium Temperature Merchandisers

Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / FT)*		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/FT)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
NFJCX	8', 12'	FROZEN	544	568	-25**	-28	-15	260***	0.85
NCJCX	8', 12'	ICE CREAM	636	652	-35**	-38	-25	260***	0.85
NFJCX	8', 12'	MED TEMP	437	448	+15**	+13	+22	260***	0.85
NFJCX	8', 12'	FROZ / MED TEMP	272 / 218	284 / 224	-25** / +15**	-28 / +13	-15 / +22	260***	0.43 / 0.43
NTJCX	8', 12'	FROZ / ICE CRM	272 / 318	284 / 326	-25** / -35**	-28 / -38	-15 / -25	260***	0.43 / 0.43
NFJECX	77 1/2"	FROZEN	1,633****	1,704****	-25**	-28	-15	242****	0.35
NCJECX	77 1/2"	ICE CREAM	1,907****	1,956****	-35**	-38	-25	242****	0.35
NFJECX	77 1/2"	MED TEMP	1,310****	1,344****	+15**	+13	+22	242****	0.35

* For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.
 ** Evaporator temperature is based on the saturated pressure leaving the case.
 *** Air velocity is measured 60 minutes after defrost at the Discharge Air Ducts.
 **** BTUH rating is for entire end case. Stand alone end cases require higher capacity loads. ADD 38.7% to frozen NFJECX loads; ADD 51.2% to ice cream NCJECX loads; ADD 70.1% to medium temp NFJECX loads.

FOR SPECIFIC COMPRESSOR SIZING INFORMATION, REFER TO TYLER APPLICATIONS FOR RACK SYSTEM COMPRESSORS AND/OR THE COMPRESSOR MANUFACTURERS FOR SINGLE COMPRESSORS. FOR LINE SIZING INFORMATION, REFER TO THE MISCELLANEOUS SECTION "BUFF" IN THE TYLER SPECIFICATION GUIDE.

Electrical Data:

Fans (120 Volt) and Optional T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL FOR STANDARD FANS		TOTAL FOR ECM FANS		T-8 LIGHTING FOR OPT. SUPERSTRUCTURE	
			AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
N(F/C/T)JCX	8'	4	1.36	120.8	0.48	13.6	2.00	240.0
N(F/C/T)JCX	12'	6	2.04	181.2	0.72	20.4	3.00	360.0
NFJEC/NCJECX	77 1/2"	2	0.68	60.4	0.24	6.8	0.30	36.0

Heaters (120 and 208 Volt)

MODEL	CASE LENGTH	ANTI-SWEAT HEATERS (120 V)						DEFROST HEATERS (208 V)				DRAIN PAN HEATER (120V) HG	
		DISCHARGE AIR		RETURN AIR		OPT. SUPERSTRUCTURE		COILS		DRAIN PAN (208V) Elec			
		AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
NFJCX	8'	1.92	230.4	0.60	72.0	3.80	456.0	13.80	2,860	2.24	466	5.00	600
NCJCX/NTJCX	8'	1.92	230.4	0.60	72.0	3.80	456.0	21.64	4,500	2.88	600	5.00	600
NFJCX	12'	2.54	304.8	0.90	108.0	5.20	324.0	20.60	4,290	3.36	700	7.50	900
NCJCX/NTJCX	12'	2.54	304.8	0.90	108.0	5.20	324.0	34.62	7,200	4.33	900	7.50	900
NFJECX/NCJECX	77 1/2"	0.40	48.0	0.60	72.0	1.30	156.0	7.81	1,624	N/A	N/A	N/A	N/A

CASE CIRCUITS: In addition to a 208V defrost circuit, there is the 120V case fan circuit plus the 120V case anti-sweat circuit. Cases with Gas Defrost have a separate 120V circuit for the drain pan heater. Shelf or canopy lights require a separate 120V circuit which can be switched at the back room for convenience in controlling the lights.

208 VOLT DEFROST (AMPS)												
FEET	8	12	16	20	24	28	32	36	40	44	48	52
FF/MED 1 PH	16.0 TG-30	24.0 TG-30	32.0 TG-40	40.0 TG-50	(Separate circuit recommended due to high amp draw) N/A							
FF/MED 3 PH	12.1 TG-3-30	20.7 TG-3-30	18.6 TG-3-30	18.2 TG-3-30	31.1 TG-3-40	32.8 TG-3-40	37.0 TG-3-50	15.6/15.6 TG-3-30-30	15.6/24.2 TG-3-30-30	26.8/26.8 TG-3-40-40	31.0/31.0 TG-3-40-40	32.0/32.0 TG-3-40-40
IC 1 PH	24.5 TG-30	38.9 TG-50	(Separate circuit recommended due to high amp draw) N/A									
IC 3 PH	21.0 TG-3-30	34.0 TG-3-40	32.0 TG-3-40	38.0 TG-3-50	34/34 TG-3-40-40	28/28 TG-3-40-40	34/34 TG-3-40-40	34/34 TG-3-40-40	38/38 TG-3-50-50	34/34/34 TG-3-40-40-40	34/34/34 TG-3-40-40-40	38/38/38 TG-3-50-50-50

UL SANITATION approved in accordance with ANSI/NSF – 7.

CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of 75°F & 55RH.

The information contained herein is based on technical analysis and/or tests performed in a controlled lab environment that are consistent with industry practices, and is intended as a reference for system sizing and configuration purposes only and for use by persons having technical skill at their own discretion and risk. Conditions of use are outside of Tyler's control and we do not assume and hereby disclaim any liability for results obtained or damages incurred through application of or reliance on the data presented, including but not limited to specific energy consumption with any particular model or installed application. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING												
FEET	8	12	16	20	24	28	32	36	40	44	48	52
R404A FF	7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"
R404A IC	7/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 5/8"	1 5/8"	1 5/8"	1 5/8"
R22 MED	7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"

Defrost Data:

DEFROST TYPE	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION TEMP. (°F)	EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)
				R22 (PSIG)	R404A (PSIG)	
ELECTRIC / FF	1	60	50	7	14	0.68
ELECTRIC / IC	1	36	50	3	8	0.58
ELECTRIC / MED	1	36	50	37	50	0.45
HOT GAS / FF	2-3	20-25	55*	7	14	0.68
HOT GAS / IC	1	25-30	55*	3	8	0.58
HOT GAS / MED	2-3	16-20	55*	37	50	0.45

* If an Electronic Sensor is used for termination, it should be set at 65°F termination temperature.

** Set EPR to give this pressure at the case.

NFJ CX / NCJ CX / NTJ CX APPLICATIONS:

The NFJ CX, NCJ CX and NTJ CX cases can be used in a wide variety of applications as described below:

- NFJ CX/NCJ CX:** These models have front and rear coils piped together and both wells are run off one compressor system. Always pipe the compressor system that will supply the coldest application usage.
1. Frozen food on both sides.
 2. Ice cream on both sides. (NCJ CX only)
 3. Medium temp on both sides. No dual temp control is needed, but you must specify the proper expansion valve and size the compressor system accordingly.
 4. Frozen food on one side and ice cream on the other side. (NCJ CX only)
 5. Frozen food on one side and medium temp on the other side.
 6. Frozen food on one side and dual temp on the other side. **NOTE:** Dual temp refers to frozen food or medium temp operation by use of a dual temp control. Dual temp also requires an expansion valve sized for the coldest dual temp operation.
 7. Dual temp on both sides. **NOTE:** This requires either one or two dual temp controls. Use one dual temp control when both wells are controlled together. Use two separate dual temp controls when you want to control the front and rear wells separately on one compressor.

NTJ CX: These models have the front and rear coils piped separately. This case is designed to run off separate compressor systems and operate in dual temp applications. In addition, this version has an insulated center partition to aid in maintaining the temperature differences between the two sides. Both sides must defrost at the same time.

TYPICAL USAGES:

1. Frozen food on one side and ice cream on the other side.
2. Frozen food on one side and medium temp on the other side.
3. Frozen food on one side and dual temp on the other side. **NOTE:** Dual temp refers to frozen food or medium temp operation by use of a dual temp control. Dual temp also requires an expansion valve sized for the coldest dual temp operation.
4. Dual temp on both sides. **NOTE:** This requires two dual temp controls to control both the front and rear wells on their respective compressor systems.

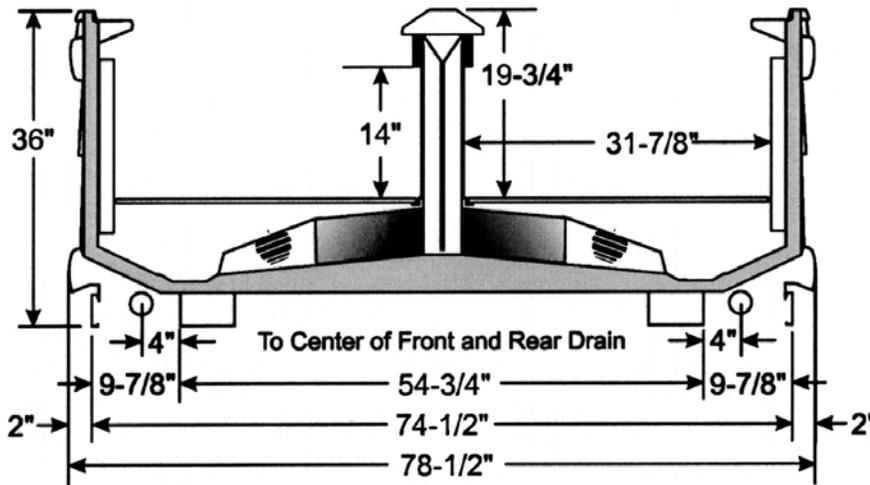
NON-TYPICAL USAGES:

5. Frozen food on both sides.
6. Ice cream on both sides.
7. Medium temp on both sides. No dual temp control is needed, but you must specify the proper expansion valve and size each compressor system accordingly.

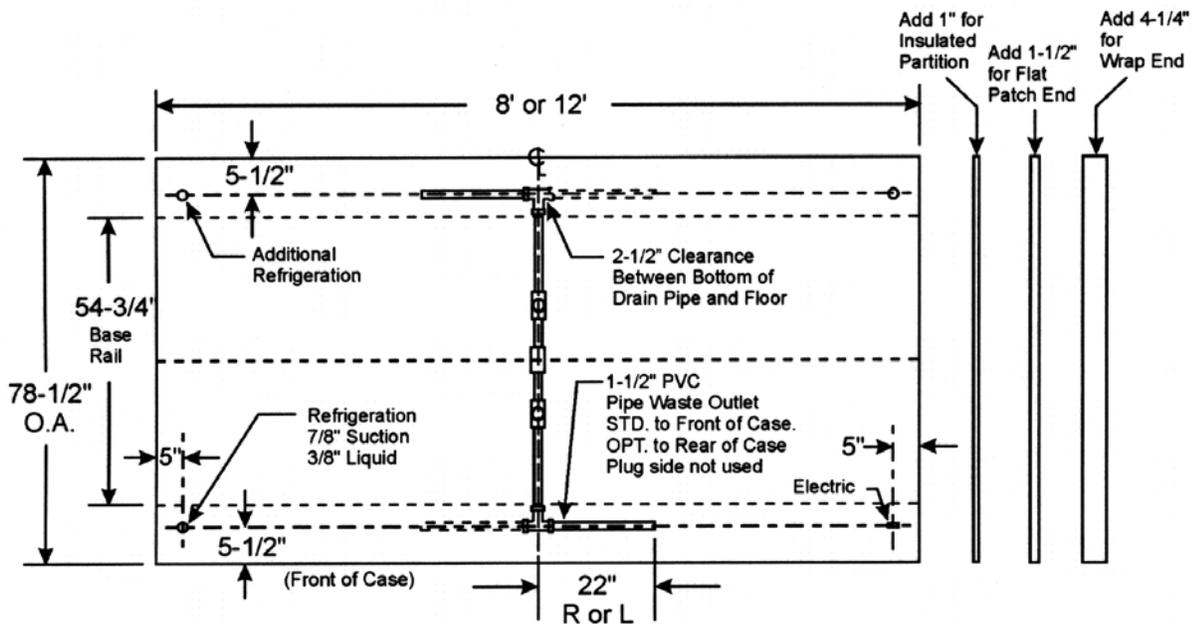
DEFROST WIRING: There are two defrost heater circuits in each case. The heater wiring stubs out in the 208V raceway as two pairs of wires. Defrost circuits can therefore be wired as a single phase load or they can be wired as an unbalanced 3-phase load. The 3-phase defrost information is based on dividing the heater loads as evenly as possible across the phases.

NOTE: Optional shelving superstructures with lights have the same electrical requirements per row of lights as the amps shown.

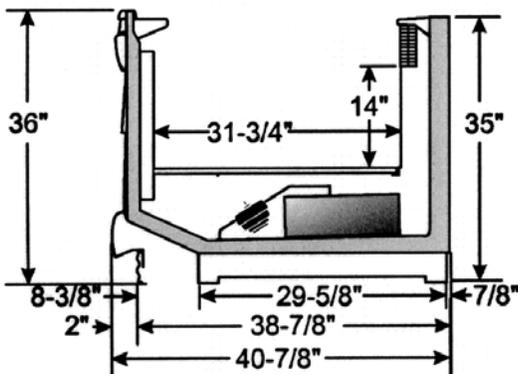
NFJCX/NCJCX/NTJCX CROSS SECTION



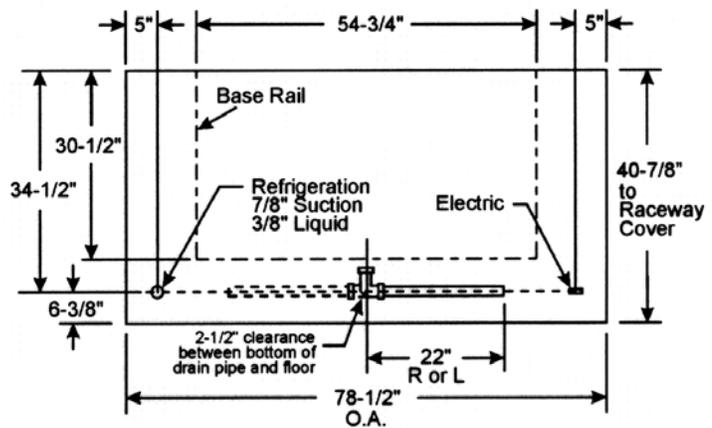
NFJCX/NCJCX/NTJCX FLOOR PLAN



NFJECX/NCJECX END CASE CROSS SECTION



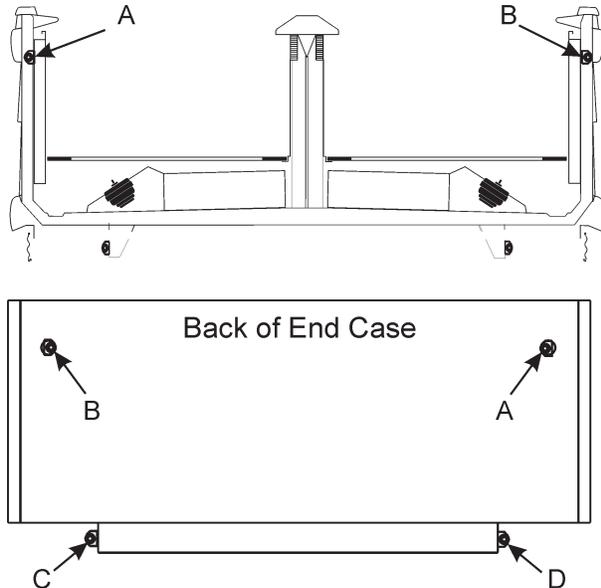
NFJECX/NCJECX END CASE FLOOR PLAN



Installation & Service Manual

INSTALLATION PROCEDURES

Carpentry Procedures



Case Pull-Up Locations

The NFJ CX/NCJ CX/NTJ CX models have two pull-ups at each end of the case. Pull-ups A and B are located as shown and used for joining all cases. The NFJ ECX/ NCJ ECX models have four pull-ups at the rear of the case. Pull-ups A, B, C and D are located as shown and used for joining end cases. Pull-ups C and D are shipped loose. All pull-ups should be installed and tightened starting with A and finishing with B or D. After cases have been pulled together, fill and seal all gaps between cases and/or patch ends with caulking.

1" Solid Partition

A 1" insulated partition is required between adjacent gas defrost cases that are on different defrost schedules. 1" partitions are shipped installed as specified in the case order. Make sure the partitioned case is being installed in the proper location in the case line-up. This assures proper refrigeration to all parts of the case line-up.

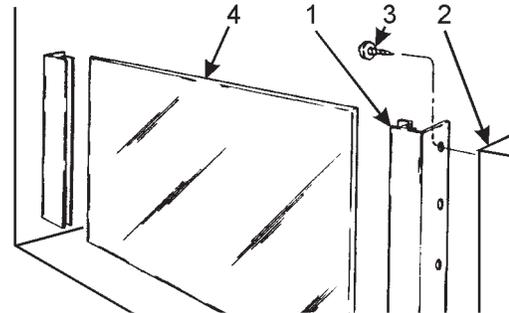
Apply sealant to outside surface of partition where the two surfaces of the adjoining case will contact the partition.

See "General-UL/NSF I&S Manual" for line-up assembly instructions.

After all case pull-ups have been secured, all interior wall joint seams should be sealed with duct tape.

Plexiglas Partition

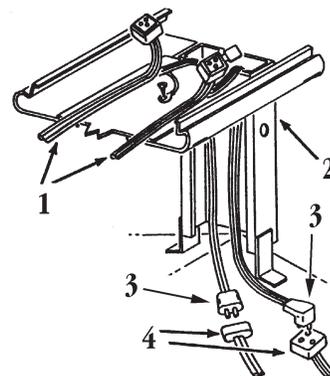
A plexiglas plug partition is required on adjacent electric defrost cases that are on different defrost schedules. These partitions can be installed after the cases have been joined.



1. Install partition brackets (1) at case joint on front, center and/or rear case wall (2) with screws (3)
2. Slide plexiglas partitions (4) into partition brackets (1).

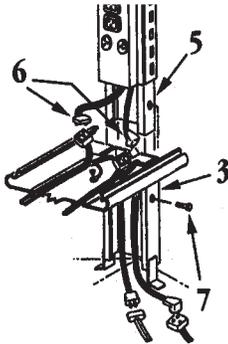
Superstructure Installation

Make sure discharge air grids are removed. Remove top riser cap knockouts and insulation on top of center partition from the superstructure end sockets and upright support angles.



1. If the wiring harness has not been factory installed, remove insulation from top of center riser and lay wire harnesses (1) on top of the center partition (2). The 8' harness has three female plugs and one male plug. The 12' harness has four female plugs and one male plug. There is one harness for shelf anti-sweat heaters

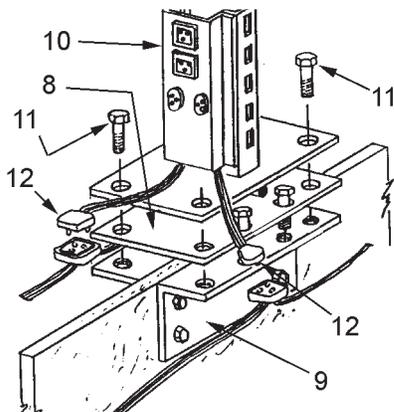
and one for the shelf lights. The sockets are not interchangeable. The anti-sweat harness male plug connects at the RH post socket. The light harness male plug goes down the RH post socket (3) and plugs into the matching receptacle in the 115V case wiring block (4). Replace insulation.



- Position the RH end post (5) in the RH superstructure hole in the center riser (3). Install the two plugs (6) and push them into the insulation. Push down the RH end post (5) until it seats into the center riser (3) and secure with four bolts (7).

NOTE

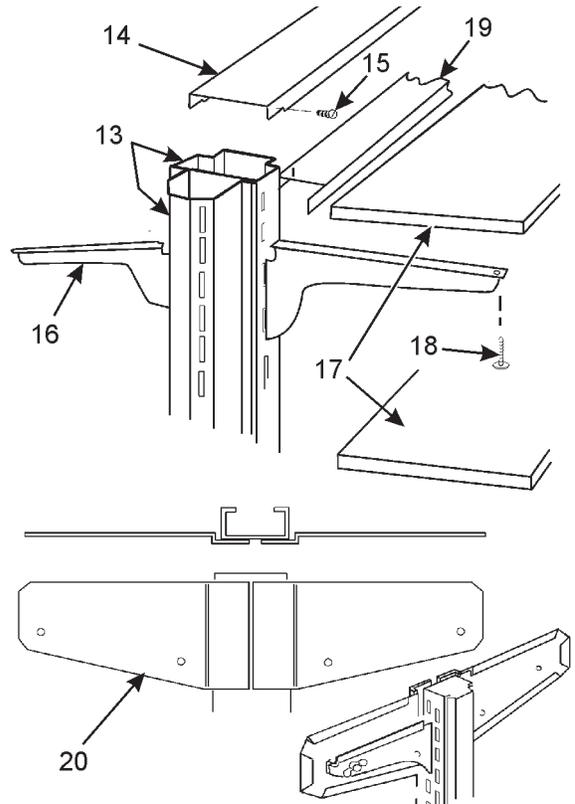
On 12' cases, the electrical outlets on the center posts must face the end posts.



- Install and align the center upright (10) to base plate (8) and angle brackets (9) with four bolts (11). (The four corner bolts are used for adjusting the center uprights.) The center uprights may face in either direction. Connect upright wire plugs (12) to harness. Route wires and harness around the uprights in the insulation.

NOTE

Items 8 and 9 will be shipped loose on superstructures ordered through TYLER Service Parts Department. Separate installation instructions will be provided with the superstructures.



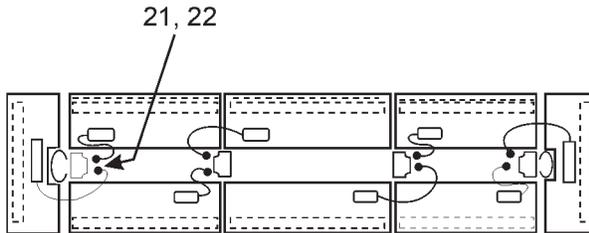
- Install the LH end post (13) as described in step 2.

NOTE

Notches on upright alignment channel will help position the channels properly.

- Position the upright alignment channel (14) on top of the upright posts (13). Using the holes in the upright alignment channel as a guide, drill 1/8" pilot holes in the upright posts (13) and secure with screws (15).
- Install each pair of shelf brackets (16) in slots in upright posts (13). Use one RH and one LH bracket per shelf. Superstructures with end shelves have angled brackets on the end shelf uprights (13).
- Position shelves (17) on shelf brackets (16) and install front alignment screws (18).

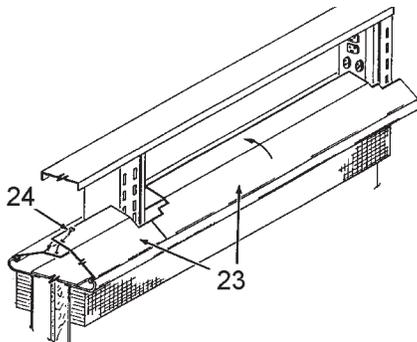
8. Install shelving close-offs (19) in space between shelves. The close-offs are supported by the shelf brackets (16). If end close-offs (20) are supplied, they are also secured to the shelf brackets (16).



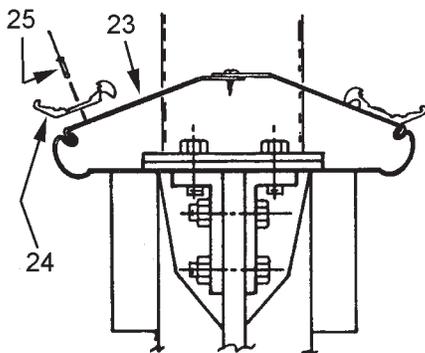
9. Plug in the shelf anti-sweat heaters (21) and shelf lights (22).

NOTE

Notches on upright alignment channel will help position the channels properly.



10. Install top riser caps (23) on top of the center partition. Drill pilot holes in the top center of the two riser caps and secure with screws (24).



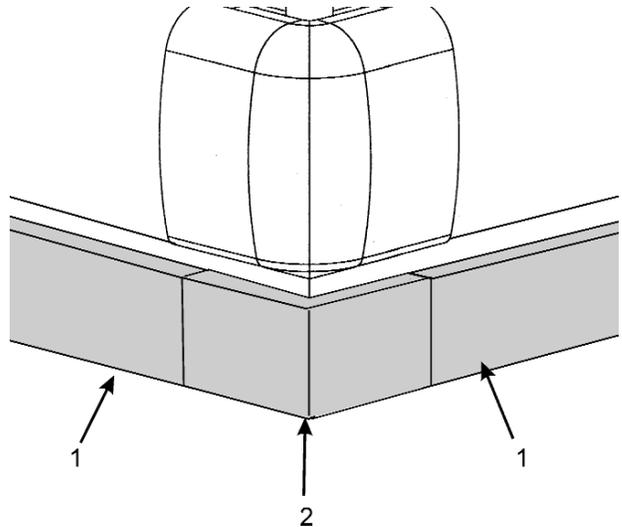
11. Position card moulding (25) as shown and drill 1/8" pilot holes in riser caps (23). Secure card mouldings (25) to riser caps (23) with screws (26).

Trim Installation/Alignment

See "General-UL/NSF I&S Manual" for bumper, color band, raceway and kickplate installation.

Corner Trim Installation

Most corner trim on these cases comes factory installed. The kickplate corner trim requires field installation.



After kickplates (1) have been installed, position kickplate corner trim (2) over both ends of the kickplates (1) and secure with screws.

Bottom Trays

CAUTION

Placing product directly on bottom trays could break a bottom tray and/or cause damage to the case.

The bottom trays are made from polypropylene. They are designed to be non-weight bearing. After the bottom trays have been installed, be sure to install the bottom screens before stocking the case with product. The bottom trays should have the ribs up.

Plumbing Procedures

See "General-UL/NSF I&S Manual" for recommended drain practices.

Refrigeration Procedures

See “General-UL/NSF I&S Manual” for general system, control and superheat information.

There are three standard versions of the 8’ and 12’ case.

NFJCX is for frozen food or medium temp usage and is equipped with one electric defrost heater on each side. The entire case, both sides, will operate at low or medium temperatures.

NCJCX is for ice cream usage and is equipped with one electric defrost heater on each side. The entire case, both sides, runs from a single refrigeration system.

NTJCX is the dual temp split coil version for ice cream on one side and frozen food on the other. The NTJCX is also equipped with one electric defrost heater on each side. This case also has an insulated center partition to aid in maintaining the temperature difference in the two sides. This allows either side of the case to be run from separate refrigeration systems. The NTJCX case can also be setup to display frozen food on one side and medium temp on the other; or ice cream on one side and medium temp on the other. Either side can be optionally set up with a dual temperature control to allow one side to be switched between low temp and medium temp operations. The evaporator coils are piped individually so there are two refrigeration stub-ups.

The NFJCX case can also be setup for dual temperature operations, but the evaporator coils are piped together so there is only one refrigeration stub-up. This case requires extra refrigeration components to allow it to perform dual temperature operations.

NFJCX or NTJCX cases setup for electric defrost medium temp applications utilize the standard defrost heaters. Gas defrost medium temp. applications incorporate a fan delay klixon.

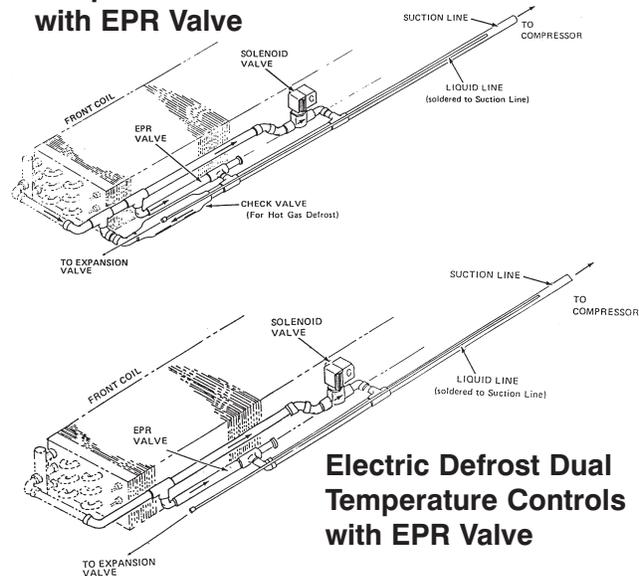
Optional Dual Temperature Control

The dual temperature control unit is a factory installed option. This control allows the user to easily switch from medium to low tempera-

ture operation by flipping a switch. The dual temperature control consists of an EPR valve in the suction line coming off the evaporator. The EPR valve can be bypassed with a solenoid controlled bypass line around it. The toggle switch opens or closes this solenoid.

When the solenoid is open, the evaporator is

Gas Defrost Dual Temperature Controls with EPR Valve



Electric Defrost Dual Temperature Controls with EPR Valve

connected directly to the compressor suction that allows for low temperature operation. When the solenoid is closed, the evaporator must operate through the EPR valve which has been preset to the desired medium temperature.

EXAMPLE: R-404A system with 14 psig of suction pressure. With the suction line solenoid open, the coil pressure operates at 14 psig with a temperature of -25°F. When the toggle switch is flipped, the solenoid closes directing the flow through the EPR valve. If the EPR valve is set for 49.5 psig, the evaporator will see a coil temperature of 15°F and will operate at a discharge air temperature of about 22°F.

When gas defrost is used, an additional check valve is mounted around the EPR valve to allow reverse flow for the defrosting gas. A fan delay is also connected with gas defrost to cycle the fans off, but only during the medium temperature mode.

Electrical Procedures

Electrical Considerations

CAUTION

Make sure all electrical connections at components and terminal blocks are tight. This prevents burning of electrical terminals and/or premature component failure.

NOTE

The raceway houses the electrical wiring, components and terminal blocks for the case. All raceway covers will be shipped loose.

Case Fan Circuit

This circuit is to be supplied by an uninterrupted, protected 120V circuit. Cases being used for Low Temp applications with electric or gas defrost, keep fans on all the time. Cases being used for Medium Temp applications with electric defrost, also keep fans on all the time. Cases being used for Medium Temp applications with gas defrost, cycle fans with a 50/40 klixon.

Anti-Sweat Circuit

NFJCX/NCJCX/NTJCX cases have one anti-sweat heater on each side of the top of the center riser (discharge air) and one in each rub rail (return air). When cases are equipped with an optional superstructure, there is an anti-sweat heater on the superstructure.

NFJECX/NCJECX end cases have one anti-sweat heater in the rear riser (discharge air) and one in the rub rail (return air). Anti-sweat heaters are wired directly to the main power supply so they can operate at all times.

Superstructure Shelf Lamp Circuit

Optional superstructures can be equipped with one row of 430MA T-12 or 265MA T-8 shelf lights.

Defrost Information

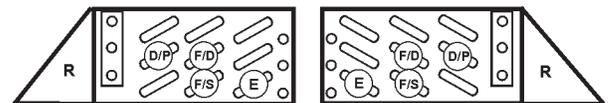
See "General-UL/NSF I&S Manual" for operational descriptions for each type of defrost control.

Defrost Control Chart

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Electric/FF	1	60	50°F
Electric/IC	1	36	50°F
Electric/MED	1	36	50°F
Gas/FF	2-3	20-25	55°F
Gas/IC	2-3	25-30	55°F
Gas/MED	2-3	16-20	55°F

Most klixons are located on the right end of the evaporator coil. The diagram shows the location for each defrost type that uses a klixon.

NFJCX-NCJCX-NTJCX



NFJECX-NCJECX



E = Electric Defrost Termination
F/S = Electric Defrost Failsafe (Opt.)
F/D = Gas Defrost (Fan Delay)
D/P = Gas Defrost (Drain Pan Heater)

NOTE

The defrost termination klixon for gas defrost is located at the bypass check valve.

CAUTION

If electronic sensors are used in place of the klixons, the sensors must be located in the same location as the klixons for that defrost type. Any other locations will effect the refrigeration efficiency of the case.

Defrost Schedules

For satisfactory performance, both sides of the case should be scheduled to defrost at the same time. This holds true even when both sides run from different machines.

Two Single Machines use the defrost clock which controls one of the machines and run a relay to control the other machine. Defrost load is spread across clock contacts and extra contactors (as required).

Parallel with Electric Defrost and Dual Temp or Dual Temp Split Coil Operation use one station of the multi-circuit time clock to control the defrost circuit breakers for the cases defrost heaters. This ensures both sides defrost at the same time.

Parallel with Gas Defrost (NTJCX only) Make sure that only 25% of the combined load (frozen food & ice cream) is on one circuit. Use one station of the multi-circuit time clock to control the booster circuit and that portion of the frozen food cases opposite the ice cream side.

Gas defrosting is only available as an option on cases operated from a parallel system. About 25% of the cases can be defrosted at one time. This allows the refrigeration heat being removed from the cases to be used to defrost the others.

NOTE

Insulated partitions must be used between case line-ups that have gas defrost!

Gas defrost cases (NFJCX/NCJCX/NFJECX/NCJECX) are piped individually and are to be joined at installation when both sides are on the same system. Dual Temp Split Coil cases (NTJCX) with gas defrost should be piped to their respective systems and defrosts should be scheduled at the same time. Each coil requires a separate defrost termination klixon at the check valve.

WIRING DIAGRAMS

ELECTRICIAN NOTE - OVERCURRENT PROTECTION

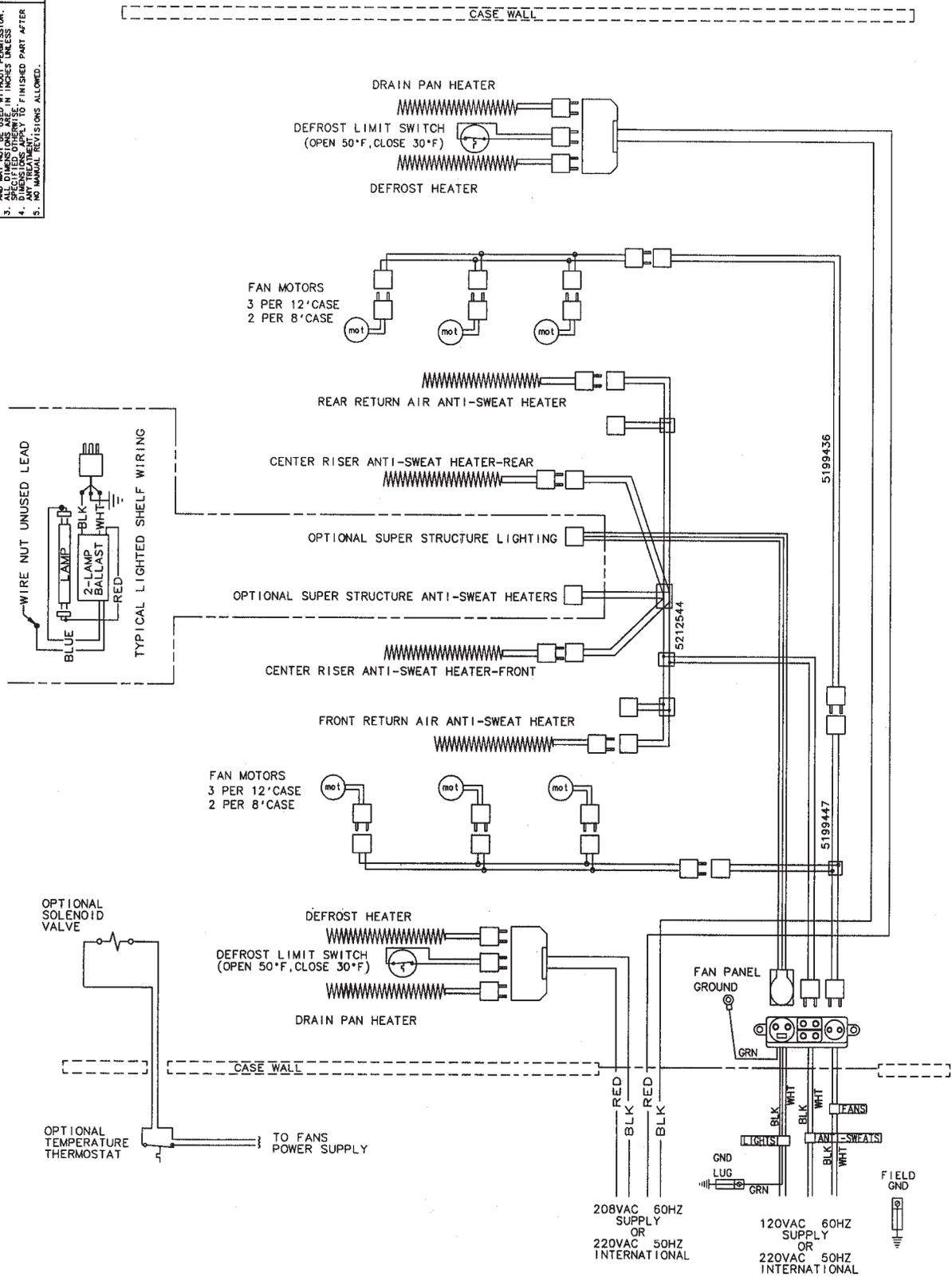
120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end to end line-ups, bonding for ground may rely upon the pull-up bolts.

The following wiring diagrams on pages 13 thru 23 will cover the NFJCX/NCJCX/NTJCX/NFJECX/NCJECX case circuits, electric defrost circuit, gas defrost circuit, dual temperature control circuits and the super-structure wiring circuit.

NFJCX/NCJCX Domestic & Export (50 Hz) Case Circuits

TYLER
CORPORATION

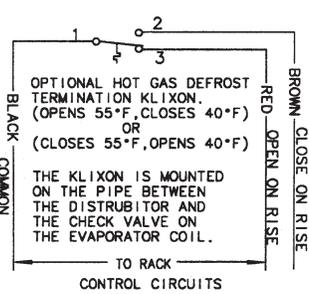
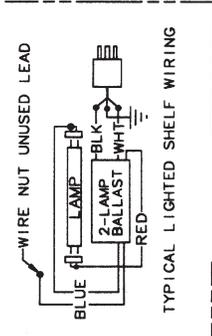
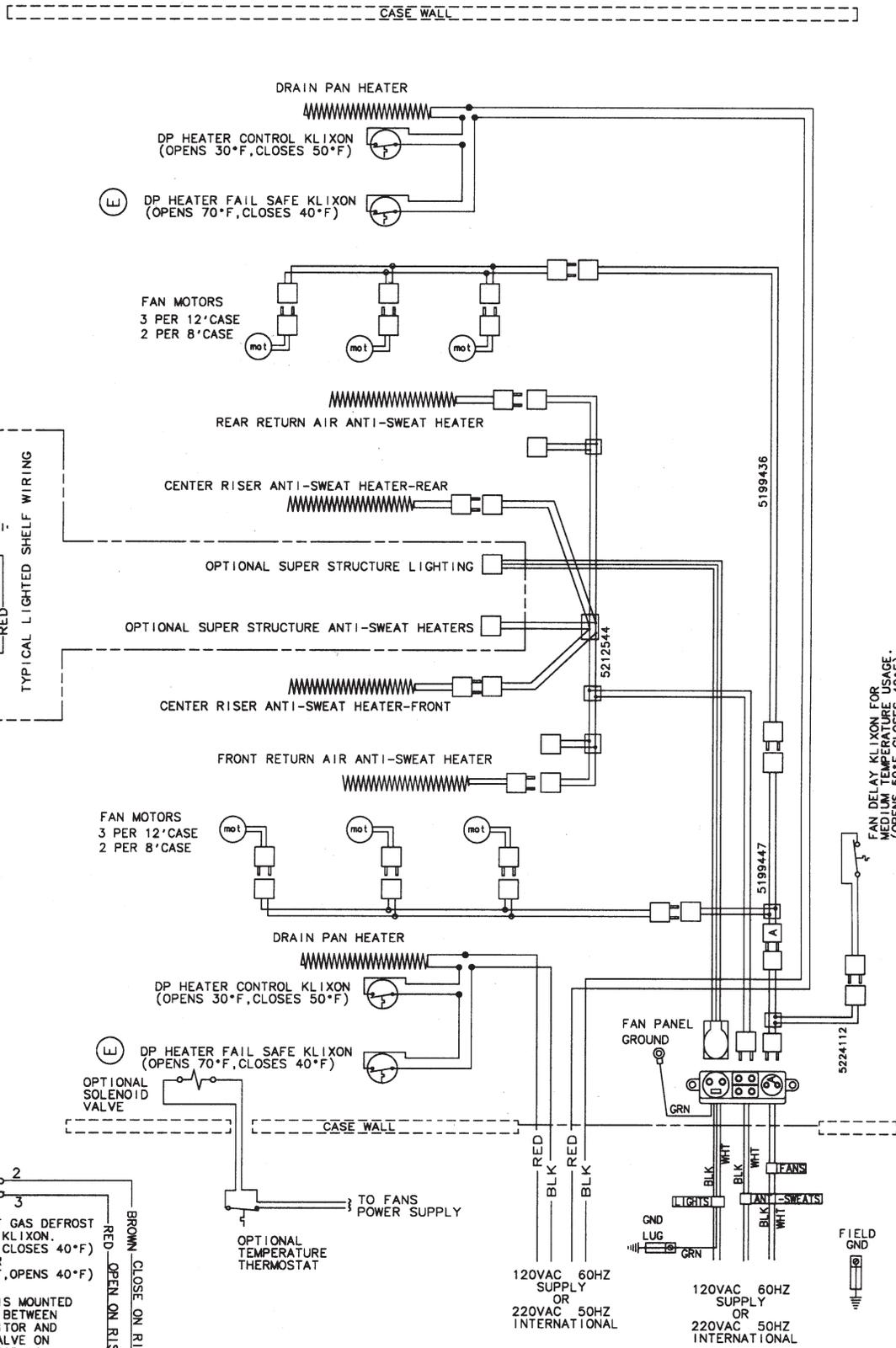
1. TYLER REFRIGERATION CLAIMS RIGHTS.
 2. INFORMATION IS FOR ENGINEERING USE ONLY.
 3. ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
 4. ANY TREATMENT IS TO FINISHED PART AFTER.
 5. NO MANUAL REVISIONS ALLOWED.



NOTE: ALL CASES MUST BE GROUNDED

REV	DESCRIPTION	DATE	BY	CHK	REL
A	ADDED ASWETS	4MAR04	LC	SA, AS	32045
D	UPDATED MODEL NAME	02JUN06	GH	LC	44195
D	DIAGRAM WRG ELEC_DFR NFJCX NCJCX 8&12FT	17DEC03	LC	LC	NONE
DATE	17DEC03	NAME			
REF	NONE	DATE			
REV	DESCRIPTION	DATE	BY	CHK	REL
9039557					

1. TYLER REFRIGERATION CAN USE BLOCKS TO THE INFORMATION ON THIS DRAWING. ONLY 2. AND MAY NOT BE USED WITHOUT PERMISSION. 3. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. 4. DIMENSIONS APPLY TO FINISHED PART AFTER 5. AND MANUAL REVISIONS ALLOWED.



NOTE: ALL CASES MUST BE GROUNDED

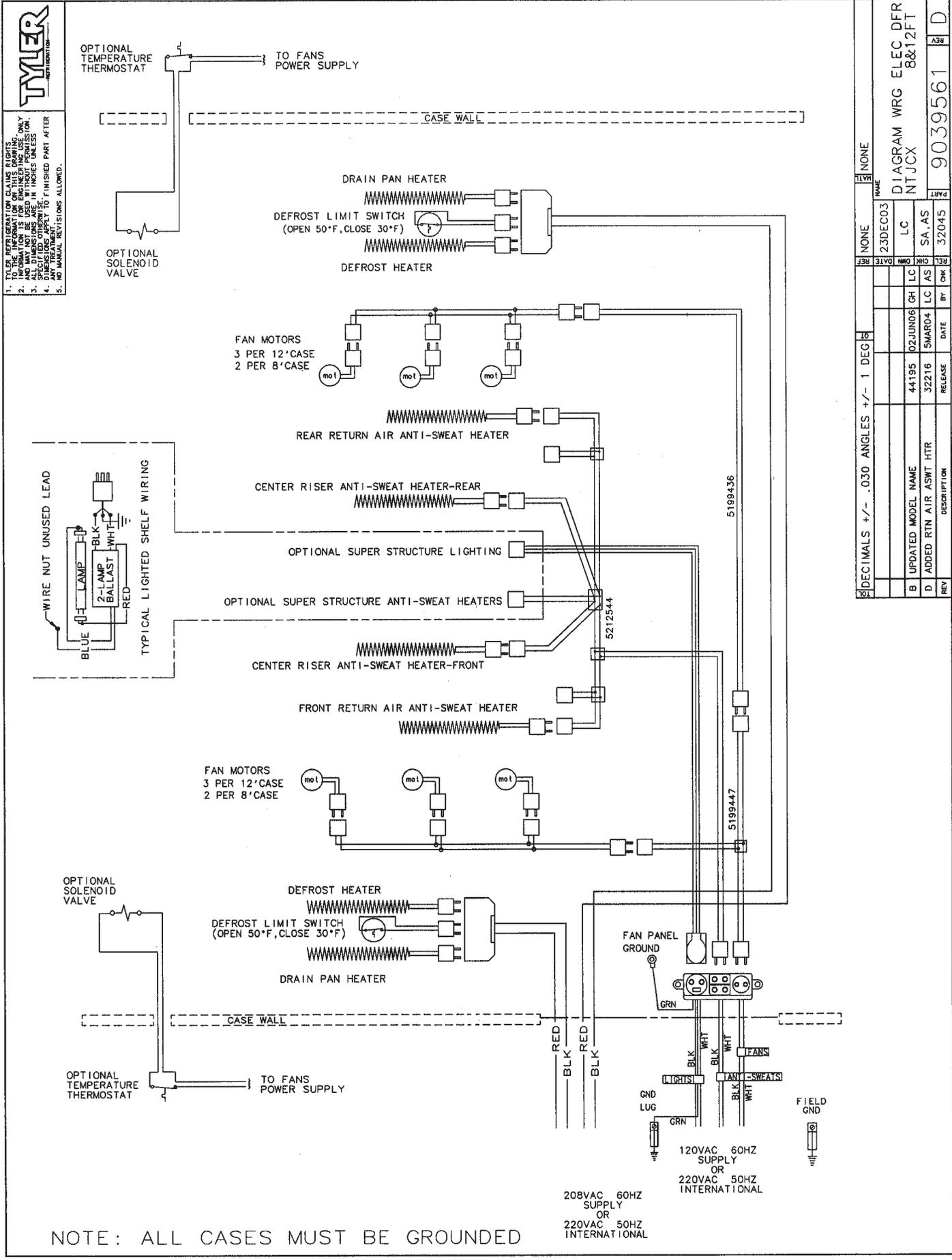
REV	DESCRIPTION	RELEASE	DATE	BY	CHK	REL	DATE	CHK	DATE	NAME
E	KLIXON FOR THE DRAIN PAN HEATER	50285	08FEB08	CXH						17DEC03
										LC
										SA,AS
										32045
										9039558
										E

ADDED A 70/40 FAIL SAFE KLIXON FOR THE DRAIN PAN HEATER

DECIMALS +/- .030 ANGLES +/- 1 DEG

FAN DELAY KLIXON FOR MEDIUM TEMPERATURE USAGE (OPENS 50°F, CLOSES 40°F)

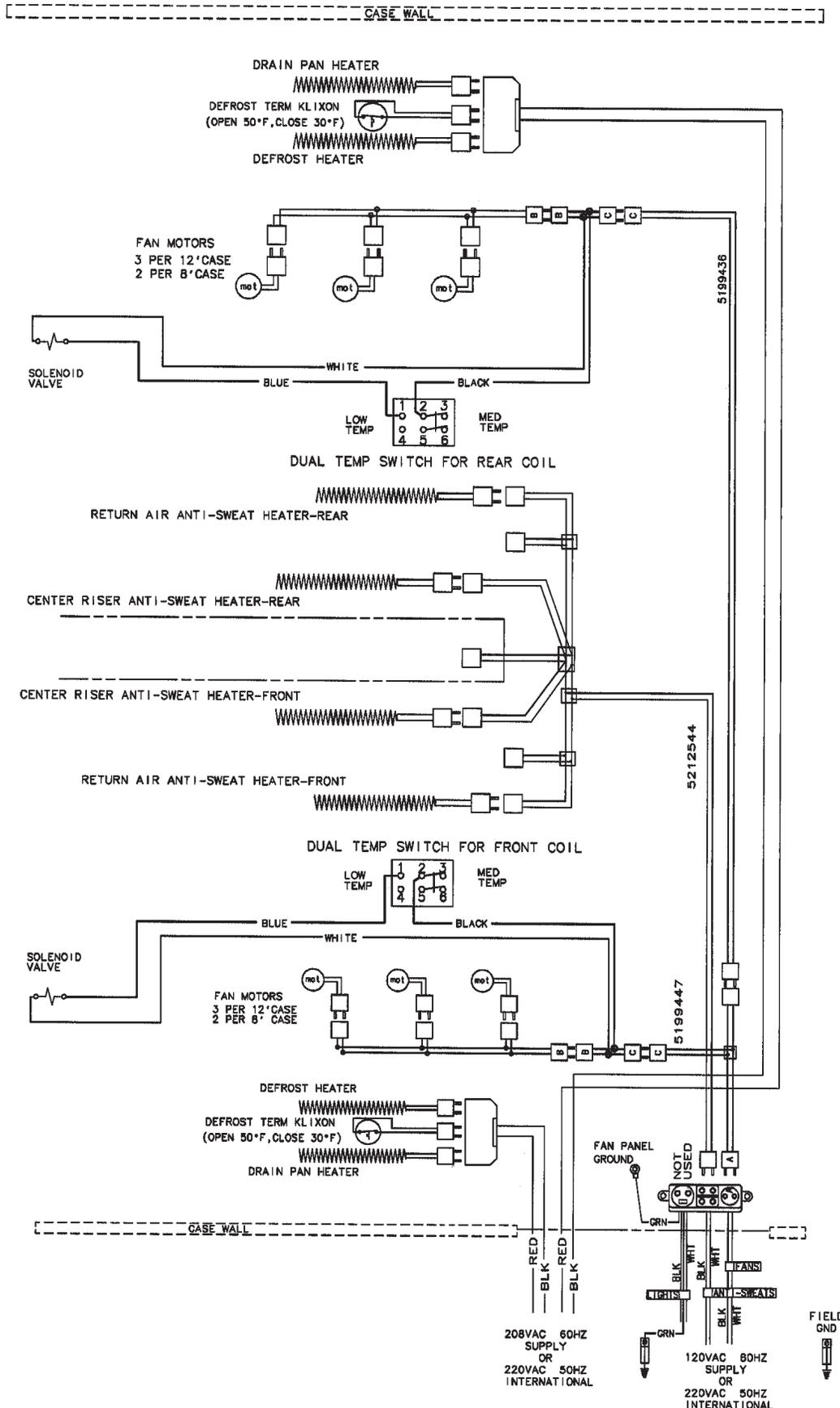
NTJCX Domestic & Export (50 Hz) Case Circuits



NTJCX Dual Temperature Control Circuits

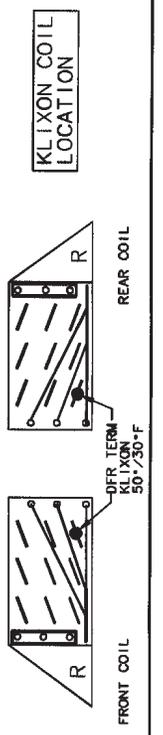


1. TYLER REFRIGERATION CORP. CLAIMS RIGHTS TO THE INFORMATION ON THIS DRAWING.
2. AND MAY NOT BE USED WITHOUT PERMISSION.
3. SPECIFICATIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
4. DIMENSIONS APPLY TO FINISHED PART AFTER MOUNTING.
5. NO MANUAL REVISIONS ALLOWED.



NOTE: ALL CASES MUST BE GROUNDED

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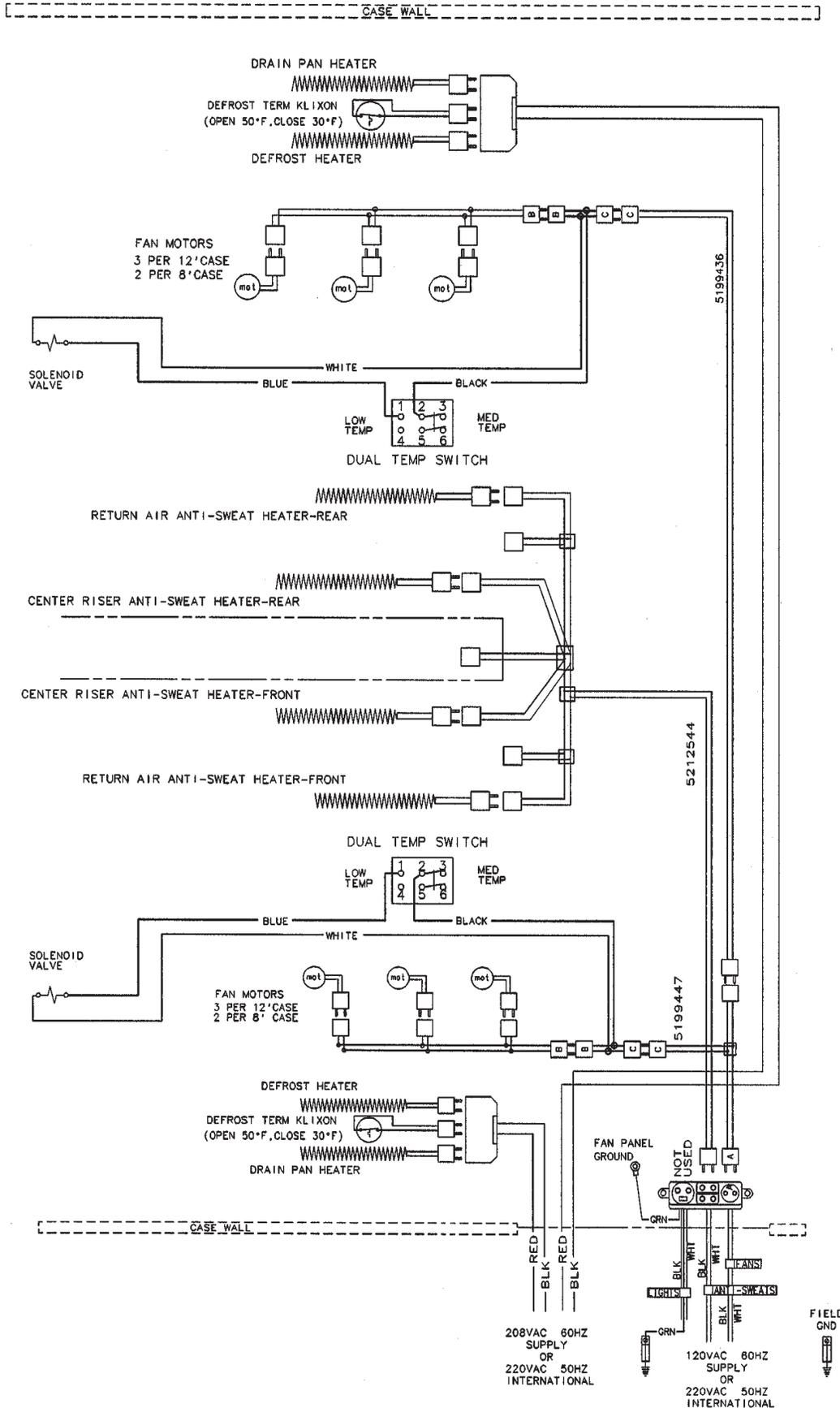


REV	DESCRIPTION	DATE	BY	CHK
1	DIAGRAM WRG DT ELEC 8&12			
2	DFR NTJCX			
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NFJCX/NCJCX Dual Temperature Control Circuits



1. TYLER REVISIONS TO THIS DRAWING SHALL BE INDICATED BY A CIRCLE WITH THE NUMBER OF THE REVISION.
2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS ARE TO UNFINISHED PARTS UNLESS OTHERWISE SPECIFIED.
4. DIMENSIONS APPLY TO FINISHED PART AFTER MOUNTING.
5. NO MANUAL REVISIONS ALLOWED.



NOTE: ALL CASES MUST BE GROUNDED

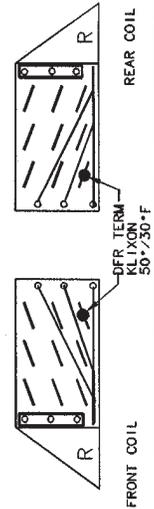
REV	DATE	DESCRIPTION	BY	CHK	DATE	RELEASE
1	18AUG06	DIAGRAM WRG DT ELEC DFR NFJ_N CJCX 8&12	LC	BK	44631	
2						
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DECIMALS +/- .030 ANGLES +/- 1 DEG

18AUG06
LC
BK
44631

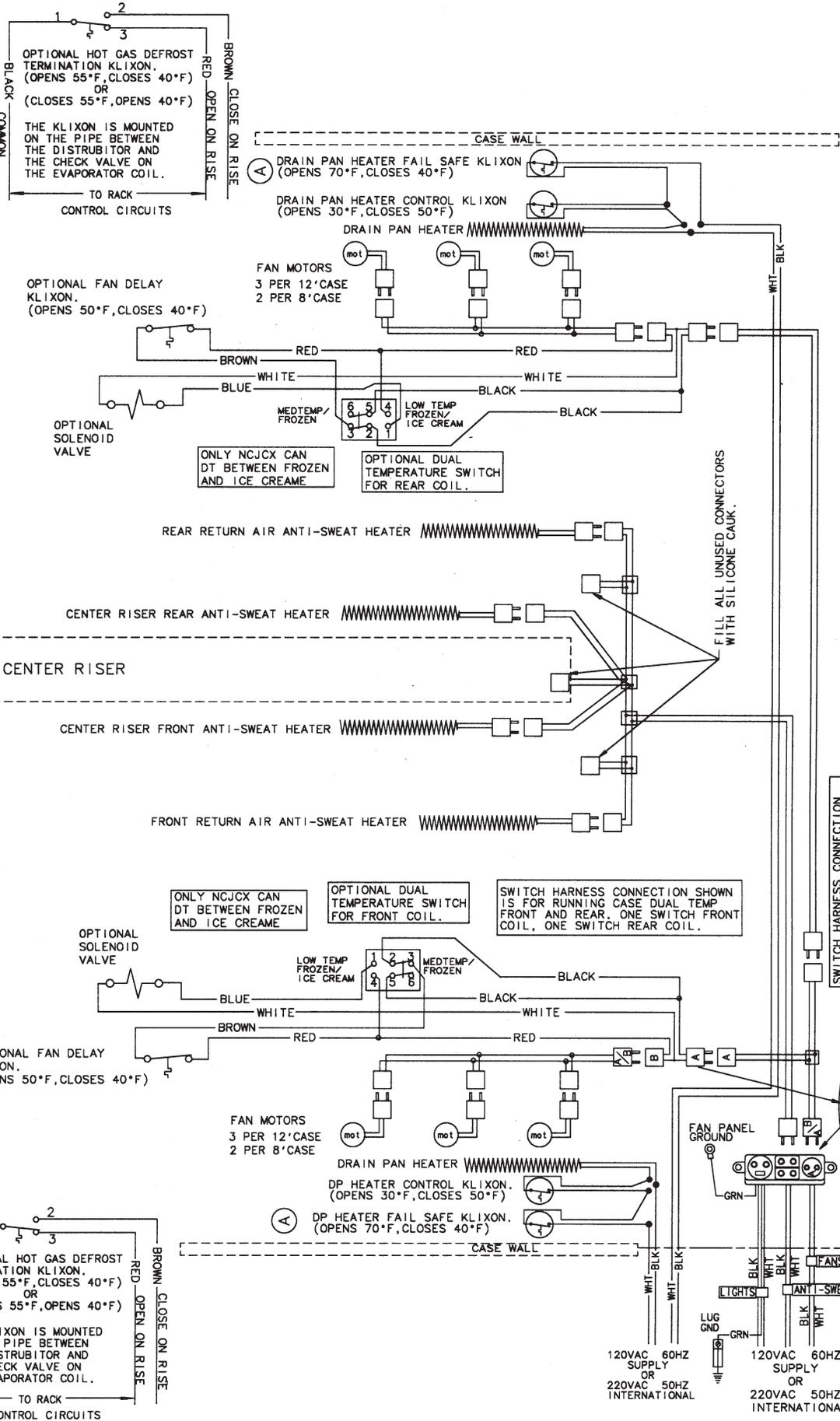
9039734

KLIXON COIL LOCATION





1. TYLER REFRIGERATION IS THE ONLY MANUFACTURER OF THIS DRAWING. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. DIMENSIONS APPLY TO FINISHED PART AFTER ALL MANUFACTURING TOLERANCES ALLOWED.



OPTIONAL HOT GAS DEFROST TERMINATION KLIXON. (OPENS 55°F, CLOSES 40°F) OR (CLOSES 55°F, OPENS 40°F)

THE KLIXON IS MOUNTED ON THE PIPE BETWEEN THE DISTRIBUTOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.

OPTIONAL FAN DELAY KLIXON. (OPENS 50°F, CLOSES 40°F)

DRAIN PAN HEATER FAIL SAFE KLIXON (OPENS 70°F, CLOSES 40°F)

DRAIN PAN HEATER CONTROL KLIXON (OPENS 30°F, CLOSES 50°F)

DRAIN PAN HEATER

FAN MOTORS
3 PER 12' CASE
2 PER 8' CASE

OPTIONAL SOLENOID VALVE

ONLY NCJXC CAN DT BETWEEN FROZEN AND ICE CREAM

OPTIONAL DUAL TEMPERATURE SWITCH FOR REAR COIL.

REAR RETURN AIR ANTI-SWEAT HEATER

CENTER RISER REAR ANTI-SWEAT HEATER

CENTER RISER

CENTER RISER FRONT ANTI-SWEAT HEATER

FRONT RETURN AIR ANTI-SWEAT HEATER

ONLY NCJXC CAN DT BETWEEN FROZEN AND ICE CREAM

OPTIONAL DUAL TEMPERATURE SWITCH FOR FRONT COIL.

SWITCH HARNESS CONNECTION SHOWN IS FOR RUNNING CASE DUAL TEMP FRONT AND REAR. ONE SWITCH FRONT COIL, ONE SWITCH REAR COIL.

OPTIONAL SOLENOID VALVE

LOW TEMP FROZEN/ICE CREAM

MEDTEMP FROZEN

OPTIONAL FAN DELAY KLIXON. (OPENS 50°F, CLOSES 40°F)

FAN MOTORS
3 PER 12' CASE
2 PER 8' CASE

DRAIN PAN HEATER

DP HEATER CONTROL KLIXON. (OPENS 30°F, CLOSES 50°F)

DP HEATER FAIL SAFE KLIXON. (OPENS 70°F, CLOSES 40°F)

OPTIONAL HOT GAS DEFROST TERMINATION KLIXON. (OPENS 55°F, CLOSES 40°F) OR (CLOSES 55°F, OPENS 40°F)

THE KLIXON IS MOUNTED ON THE PIPE BETWEEN THE DISTRIBUTOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.

FAN PANEL GROUND

DRAIN PAN HEATER CONTROL KLIXON (OPENS 30°F, CLOSES 50°F)

DRAIN PAN HEATER FAIL SAFE KLIXON (OPENS 70°F, CLOSES 40°F)

120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL

120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL

LUG GND

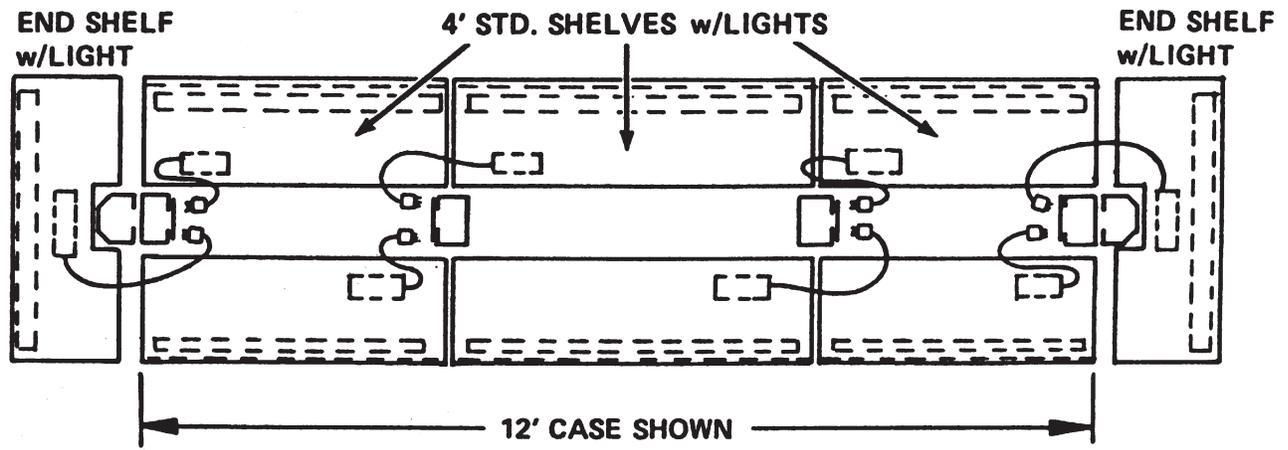
FIELD LUG

FILL ALL UNUSED CONNECTORS WITH SILICONE CAULK.

SWITCH HARNESS CONNECTION FOR TOTAL CASE CONTROL OF FRONT AND REAR COILS FROM ONE DUAL TEMP SWITCH.

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5	DECIMALS +/- .030 ANGLES +/- 1 DEGREE	08FEB08	GKH		
4	ADDED A 70/40 FAIL SAFE KLIXON FOR THE DRAIN PAN HEATER				
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NAME	LC				
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Optional Superstructure Wiring Circuit



CLEANING AND SANITATION

Component Removal and Installation Instructions for Cleaning

Bottom Screens and Trays

1. Remove product from bottom screens.
2. Push screens up until bottom screen tabs clear the holes in the front duct.
3. Remove bottom screens from holes in center riser panel and from case.
4. Grasp and lift out each bottom tray from the case interior.
5. After cleaning, replace in reverse order. Bottom tray should have ribs up.

CAUTION

Do not place product directly on bottom trays. Doing so could break a bottom tray and/or cause damage to the case.

NSF Product Thermometer

Remove two screws and product thermometers from top, right end of front and rear return air ducts. After cleaning, replace product thermometer on front and rear ducts and secure with screws.

Discharge Air Honeycomb

1. Remove screws and bottom retainer strips from both sides of the top of the center riser.

NOTE

Note position of the honeycomb grid during removal so it can be reinstalled the same way.

2. Remove honeycomb grid sections from both sides of the center riser.

CAUTION

Improper installation of the honeycomb grid section could result in improper air flow and/or poor refrigeration.

3. After cleaning, replace honeycomb grid sections as they were removed and secure with the bottom retainer strips and screws.

Discharge Air Duct Panels

1. Remove bottom trays and discharge air honeycomb, see above.
2. Remove mounting screws and discharge air duct panels from both sides of the center riser (NFJCX/NCJCX/NTJCX).
-- or --
Remove mounting screws and discharge air duct panels (NFJECX/NCJECX).
3. After cleaning, replace in reverse order.

Return Air Duct Panels

1. Remove bottom trays, see this page.
2. Remove mounting screws and front and rear return air duct panels (NFJCX/NCJCX/NTJCX).
-- or --
Remove mounting screws and front return air duct panels (NFJECX/NCJECX).
3. After cleaning, replace in reverse order.

Corner Trim

1. See page 21 for corner trim removal instructions.
2. After cleaning trim and cladding components, replace front cladding and corner trim components in reverse order using instructions below and on page 21.

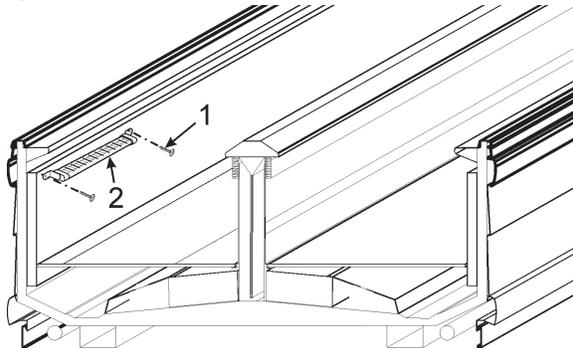
Front Cladding

1. Remove front kickplate and raceway cover.
2. Remove screws from bottom and top of front cladding and pull cladding down to remove it from behind the bottom edge of the bumper retainer.
3. After cleaning, replace front cladding and remaining front components in reverse order.

SERVICE INSTRUCTIONS

See "General-UL/NSF I&S Manual" for fan blade and motor replacement, color band and bumper replacement and raceway cover removal instructions.

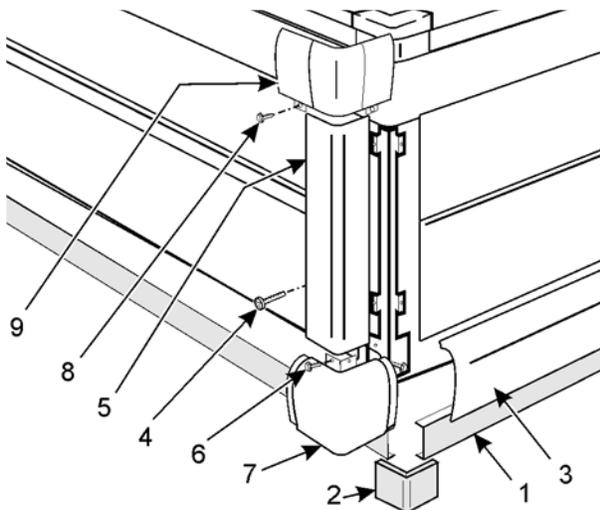
NSF Product Thermometer Replacement



1. Remove two screws (1) and thermometer (2) from top right end of front or rear return air ducts.
2. Install and secure a new product thermometer (2) on front or rear return air ducts with two screws (1).

Corner Trim Replacement

Since some of the corner trim fasteners are hidden, remove the trim and hardware in the following sequence.



1. Remove mounting screws and kickplates (1) and kickplate corner trim (2) from both sides of the corner trim.
2. Remove raceway covers (3) from both sides of the corner trim.

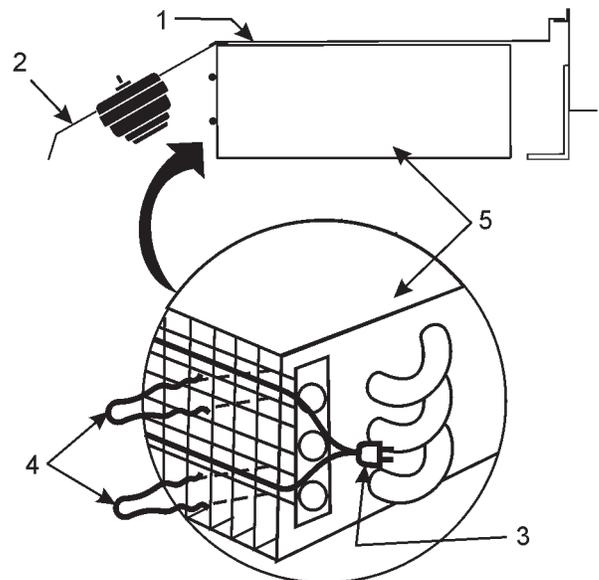
3. Remove four screws (4) and corner cladding trim (5)
4. Remove two top screws (6) from the raceway corner trim (7), then lift and remove the raceway corner trim (7) from the retainers in the bottom slots.
5. Remove two bottom screws (8) and lift off the bumper corner trim (9).
6. Replace bumper corner trim, raceway corner trim, corner cladding trim, raceway covers, kickplates, kickplate corner trim and mounting hardware in reverse order.

Defrost Heater Replacement

WARNING

Always shut off electricity to case before replacing a defrost heater. Automatic cycling of fans or electrical power to wire ends could cause personal injury and/or death.

1. Remove bottom trays from case.



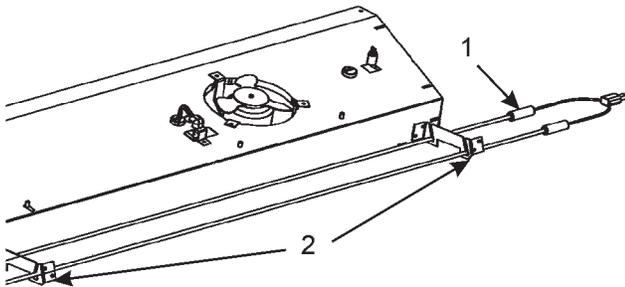
2. Unscrew and remove top coil cover (1).
3. Unscrew and lift up fan plenum (2).
4. Disconnect defective defrost heater (3) and remove mounting clips (4) and defrost heater (3) from front of coil assembly (5).
5. Install new defrost heater (3) in reverse order.
6. Restore electrical power to case.

Drain Pan Heater Replacement

WARNING

Always shut off electricity to case before replacing a drain pan heater. Automatic cycling of fans or electrical power to wire ends could cause personal injury and/or death.

1. Remove bottom trays from case.



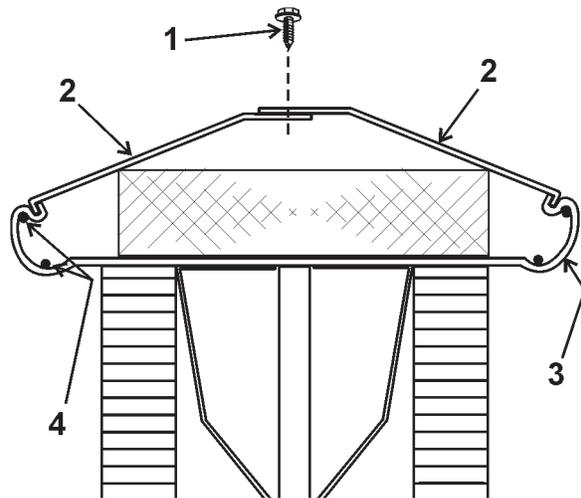
2. Unplug defective drain pan heater (1) and remove from slots in bracket supports (2).
3. Install new drain pan heater (1) in reverse order.
4. Restore electrical power to case.

Anti-Sweat Replacement

WARNING

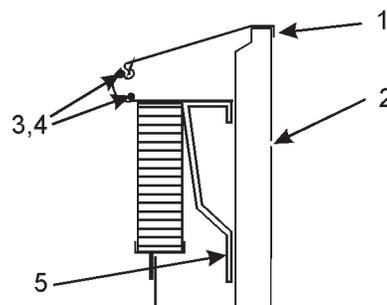
Shut off or disconnect power supply to case before changing an anti-sweat. Electrical power from wire ends could damage other components and/or cause personal injury or death.

Center Riser Discharge Air Anti-Sweat (NFJCX/NCJCX/NTJCX)



1. Remove screws (1) and top riser caps (2) and insulation from top of center riser (3).
2. Disconnect or cut the defective anti-sweat wire (4) from the case wires.
3. Remove and replace the aluminum tape and defective anti-sweat wire (4) from the bottom of the top riser cap (2).
4. Reconnect the new anti-sweat wires to case wires and reinstall the insulation, top riser caps and screws.

Discharge Air Anti-Sweat (NFJECX/NCJECX)



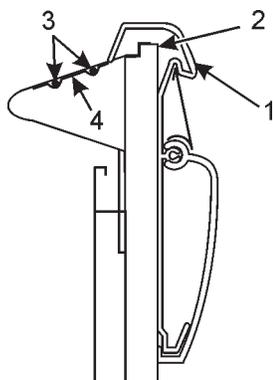
1. Remove screws and rear guard trim (1) from top of rear case wall (2).
2. Disconnect or cut the defective anti-sweat wire (3) from the case wires.
3. Remove and replace the aluminum tape (4) and defective anti-sweat wire (3) from top of rail and wire trim assembly (5).
4. Reconnect anti-sweat wires to case wires and reinstall rear guard trim with screws.

Installation & Service Manual **NFJCX, NCJCX, NTJCX, NFMJCX, NFJECX, NCJECX**

Return Air Duct Anti-Sweat (NFJCX/NCJCX/NTJCX)

NOTE

Cladding joint trim, raceway cover, cladding, bumper and front and bumper retainer must be removed from front and/or rear of case.

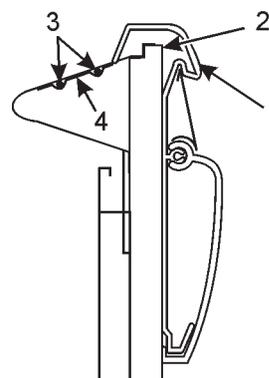


1. Remove screws and trim assembly (1) from top of front and/or rear case wall (2).
2. Cut the defective anti-sweat wire (3) from the case wires.
3. Remove and replace the aluminum tape (4) and defective anti-sweat wire (3) from inside of front and/or rear trim assembly (1).
4. Reconnect anti-sweat wire (3) to case wires and reinstall front and/or rear trim assembly (1) with screws.
5. Install bumper retainer, bumper, cladding raceway cover and cladding joint trim to front and/or rear of case.

Return Air Duct Anti-Sweat (NFJECX/NCJECX)

NOTE

Cladding corner trim, bumper corner trim, front bumper and front bumper retainer must be removed from the end case.



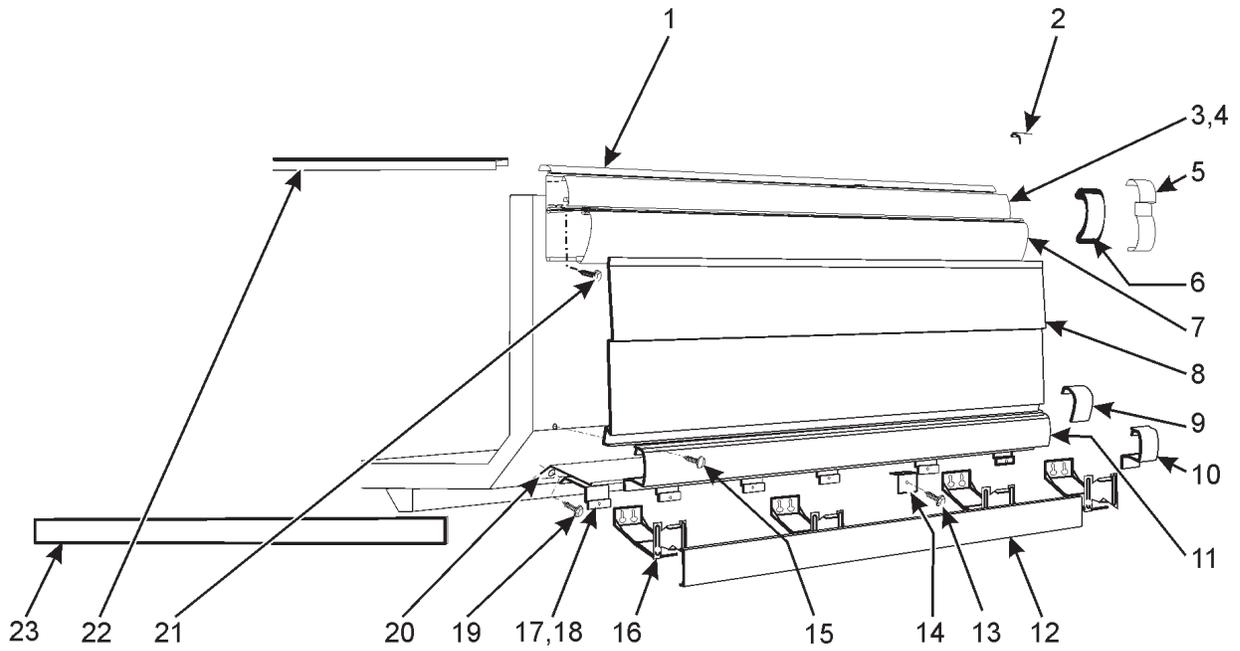
1. Remove screws and front trim assembly (1) from top of front case wall (2).
2. Cut the defective anti-sweat wire (3) from the case wires.
3. Remove and replace the aluminum tape (4) and defective anti-sweat wire (3) from inside of front trim assembly (1).
4. Reconnect anti-sweat wire (3) to case wires and reinstall front trim assembly (1) with screws.
5. Install front bumper retainer, front bumper and all other removed corner trim.

PARTS INFORMATION

Cladding and Trim Parts Lists

Item Description	NFJCX/NCJCX/NTJCX	
	8'	12'
1 Bumper Retainer	color per order	
2 Bumper Retainer/Hand Rail Backer	9025316 (2)	9025316 (2)
3 Color Band, Painted	9023798 (2)	9023800 (2)
4 Color Band Backer, Ptd.	9040223 (2)	9040223 (2)
5 Bumper End Trim	color per order	
6 Bumper Backer	color per order	
7 Bumper	color per order	
8 Front Cladding, Ptd.	9041965 (2)	9041966 (2)
9 Raceway Cover Backer	color per order	
10 Raceway Cover End Trim	color per order	
11 Raceway Cover	color per order	
12 Kickplate, Ptd. (per side)	9313317	9313310
13 Screw (per retainer)	5183536 (2)	5183536 (2)
14 Raceway Cover Retainer (per case)	9023841 (4)	9023841 (6)
15 Screw (per side)	5183536 (8)	5183536 (12)
16 Kickplate Support Assy. (per side)	9323069 (4)	9323069 (4)
Shoulder Screw	9025833 (8)	9025833 (8)
17 Screw (per support)	5183536	5183536
18 Raceway Support (per side)	9041322 (4)	9041322 (6)
19 Screw	5183536 (12)	5183536 (18)
20 Raceway	9300243	9300244
21 Shoulder Screw (per side)	9025833 (8)	9025833 (10)
22 Horizontal End Trim	5196166	5196166
23 Base End Closeoff - LH (for flat end)	9027925	9027925
Base End Closeoff - RH (for flat end)	9027926	9027926
24 Interior Joint Trim (not shown)		
Center Interior Joint Trim, Ptd.	9308850 (4)	9308850 (4)
Return Air Joint Trim, Top	5207491 (2)	5207491 (2)
Return Air Joint Trim, Bottom	5203015 (2)	5203015 (2)

For additional information on parts not listed above contact the TYLER Service Parts Dept.

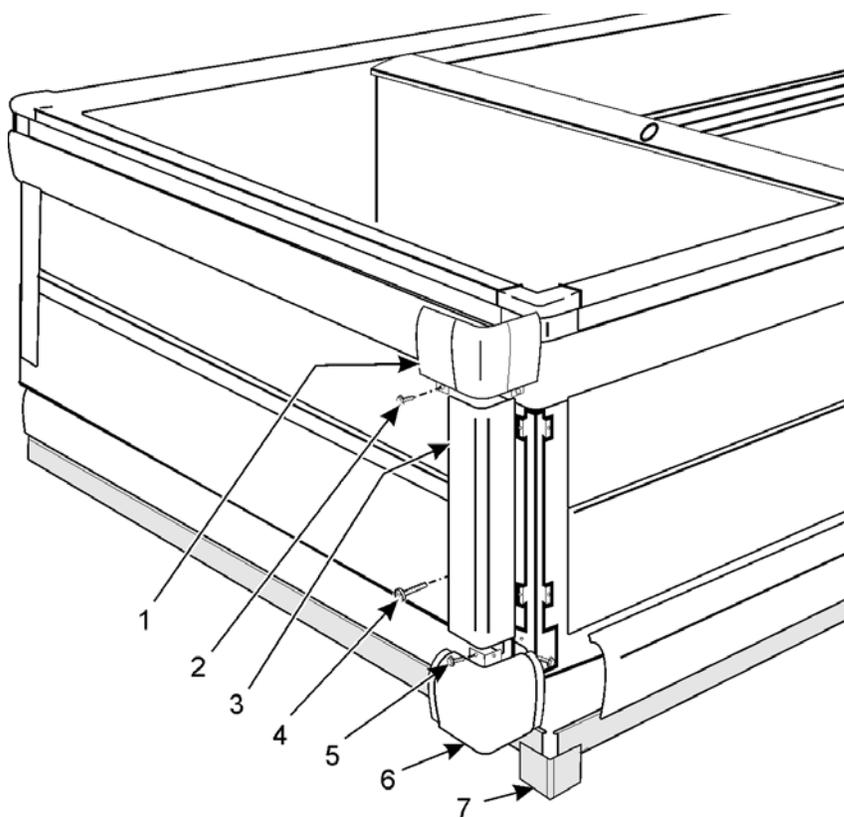
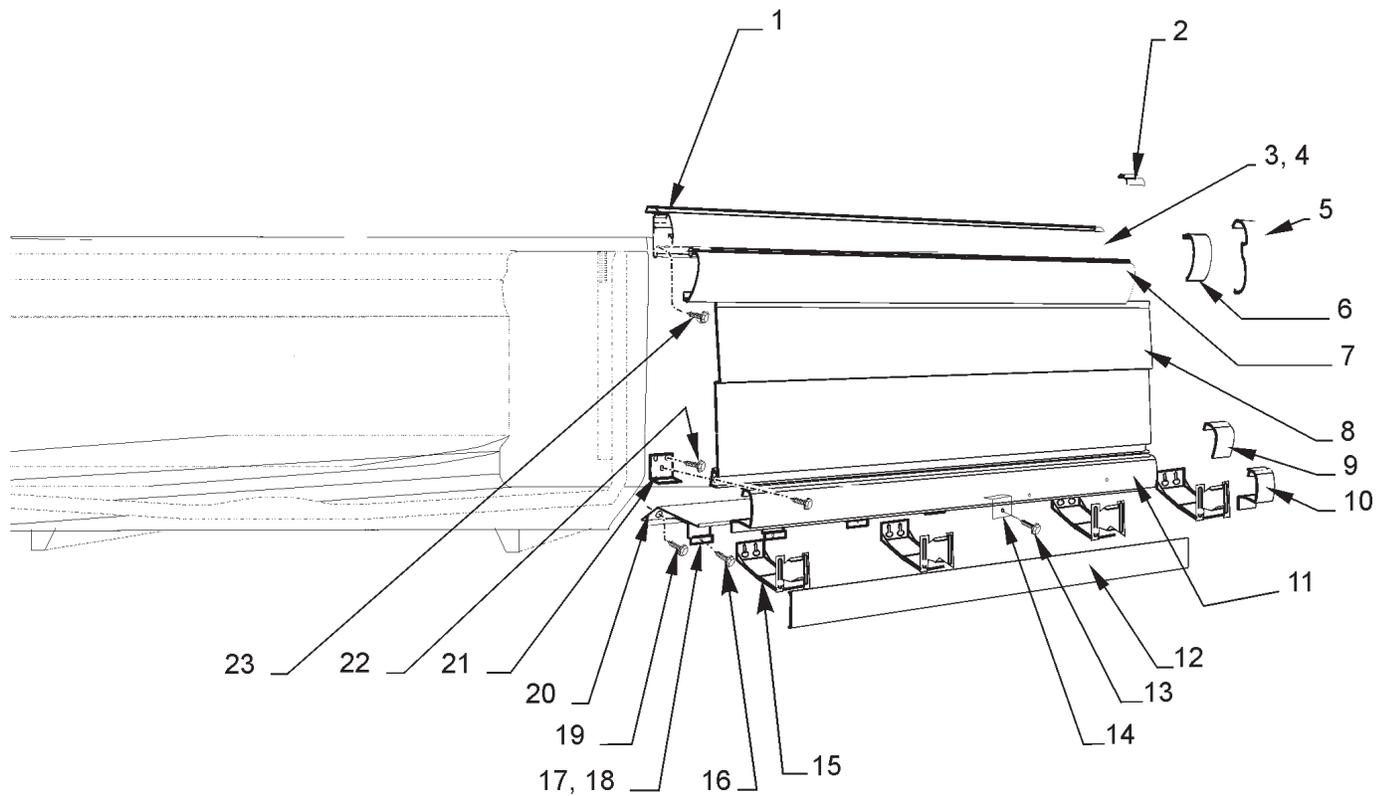


Item Description	NFJECX/NCJECX	
	Front	Side
1 Bumper Retainer	color per order	
2 Bumper Retainer/Hand Rail Backer	9025316	9025316
3 Color Band, Painted	9023795	9023789
4 Color Band Backer, Ptd.	9040223	9040223
5 Bumper End Trim	color per order	
6 Bumper Backer	color per order	
7 Bumper	color per order	
8 Front Cladding, Ptd.	9025642	9025640
9 Raceway Cover Backer	color per order	
10 Raceway Cover End Trim	color per order	
11 Raceway Cover	color per order	
12 Kickplate, Ptd.	9329436	9329437 (2)
Screw (per kickplate)	9324612 (4)	9324612 (2)
13 Screw (per retainer)	5183536 (2)	5183536 (2)
14 Raceway Cover Retainer (per side)	9023841 (3)	9023841 (2)
15 Kickplate Support Assy. (per side)	9043402 (2)	9323069 (2)
Shoulder Screw	9025833 (8)	9025833 (4)
16 Screw (per side)	5183536 (6)	5183536 (4)
17 Raceway Support	9041465 (4)	9041465 (2)
18 Screw (per support)	5183536 (2)	5183536 (2)
19 Screw	5120943 (10)	5120943 (8)
20 Raceway	5205386	5203747 (2)
21 Cladding Retainer (per side)	9300197 (3)	9300197 (2)
22 Screw (per retainer)	5183536	5183536
23 Shoulder Screw (per side)	9025833 (6)	9025833 (3)

Corner Trim Parts List

Item Description	Per Corner
1 Upper Corner Trim (bumper)	color per order
2 Screw	9025833 (2)
3 Corner Cladding Trim	9041336
4 Screw	5048626 (4)
5 Screw	9025833 (2)
6 Raceway Corner Trim	color per order
7 Kickplate Corner Trim, Ptd.	9324546 (2)

For additional information on parts not listed above contact the TYLER Service Parts Dept.



Operational Parts List

Case Usage	Domestic			Export		
	115 Volt 60 Hertz			220 Volt 50 Hertz		
Case Size	8'	12'	End Case	8'	12'	End Case
Electrical Circuit						
Fan Motor	5644521 5 Watt	5644521 5 Watt	5644521 5 Watt	5126572 5 Watt	5126572 5 Watt	5126572 5 Watt
Fan Motor Brackets	5213132	5213132	5213132	5213532	5213532	5213532
Fan Bracket Plate	9041077	9041077	9041077	9041077	9041077	9041077
Fan Blades (6" 19° 5B)	9313752	9313752	---			
(6" 21° 3B)	---	---	5105621	---	---	---
(6" 27° 3B)	---	---	---	5104294	5104294	5104294
Opt. ECM Fan Motors	9313764 2 Watt	9313764 2 Watt	9313764 2 Watt	---	---	---
Opt ECM Fan Motor Brackets	5213132	5213132	5213132	---	---	---
Opt. ECM Fan Blades (6" 13° 5B)	9313765	9313765	9313765	---	---	---
Anti-Sweat Heater Wire						
(Discharge Air) (NFJCX/NCJCX/NTJCX)	9313417	9313416	---	5081149	5081150	---
(Discharge Air) (NFJECX/NCJECX)	---	---	5080970	---	---	5081201
(Return Air)(Lo-Watt) (NFJCX/NCJCX/NTJCX)	5124216	5124217	---	5081147	5081148	---
(Return Air)(NFJECX/NCJECX)	---	---	5028893	---	---	5081271
Electric Def. Heater						
(NFJCX)	9313431	9313430	---	9313431	9313430	---
(NCJCX/NTJCX)	9313263	9313262	---	9313263	9313262	---
(NFJECX/NCJECX)	---	---	9313164	---	---	9313164
Electric Def. Term. Klixon	9036670	9036670	9036670	9036670	9036670	9036670
Opt. Gas Def. Fan Delay Klixon (Med or Dual Temp only)	9303208	9303208	9303208	9303208	9303208	9303208
Opt. Gas Def. Term. Klixon	9023508	9023508	---	9023508	9023508	---
Opt. Gas Def. Drain Pan						
Heater 50/30 Klixon	5246348	5246348	---	5246348	5246348	---
Drain Pan Heater						
(120V Hot Gas) (All Models)	9313385	9313384	---	---	---	---
(208V Elec.) (NFJCX)	9313436	9313437	---	---	---	---
(208V Elec.) (NCJCX/NTJCX)	9313349	9313348	---	---	---	---
Opt. Superstructure Lighting						
430MA Ballast (20W/1 lamp)	---	---	5102019	---	---	5102019
430MA Ballast (40W/1 lamp)	5627909	5627909	---	5627909	5627909	---
T-12 Lampholder	5217544	5217544	5217544	5217544	5217544	5217544
NSF Product Thermometer	5967100	5967100	5967100	5967100	5967100	5967100

For information on operational parts not listed above contact the TYLER Service Parts Department.