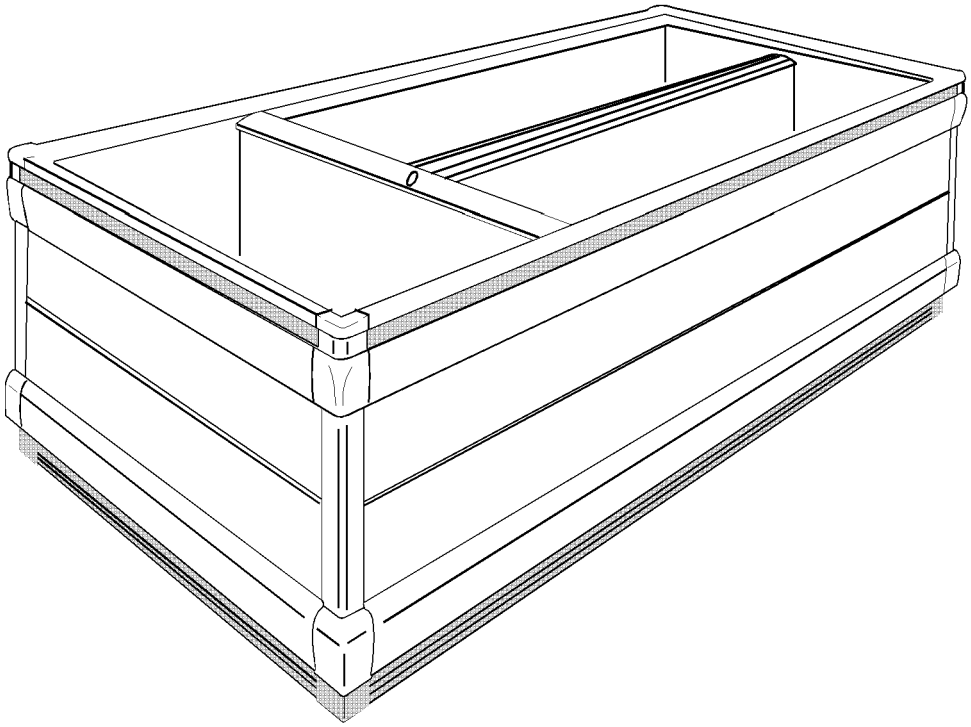
TYLER

1series Advantage

Installation & Service Manual



NFJ, NCJ, NTJ, NFJE, NCJE

JUMBO ISLAND FROZEN FOOD & ICE CREAM MERCHANDISERS
Low 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 - 1999.

PRINTED IN	Specifications subject to	REPLACES	ISSUE		PART		
IN U.S.A.	change without notice.	EDITION	DATE	2/01	NO.	9037164	REV.

Tyler Refrigeration Corporation * Niles, Michigan 49120

CONTENTS

The following Low Temperature Frozen Food and Ice Cream Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
NFJ	**8’ & 12’ JUMBO ISLAND FROZEN FOOD MERCHANDISER**
NCJ	**8’ & 12’ JUMBO ISLAND ICE CREAM MERCHANDISER**
NTJ	**8’ & 12’ JUMBO ISLAND SPLIT TEMP. FF/IC MERCHANDISER**
NFJE	**JUMBO ISLAND FROZEN FOOD END MERCHANDISER**
NCJE	**JUMBO ISLAND ICE CREAM END MERCHANDISER**

SPECIFICATIONS

NFJ/NCJ/NTJ/NFJE/NCJE Jumbo Island and End Frozen Food & Ice Cream Merchandiser

MODEL	NFJ	NCJ	NFJ	NTJ	NTJ
USAGE	FF	IC	MED TEMP	DUAL (FF/MT)	TWIN (FF/IC)
CAPACITY (BTUH/FT)	625	750	470	313 / 235	313 / 375
EVAPORATOR°*	-25F	-35F	+15F	-25F / +15F	-25F / -35F
ENTER AIR°	-15F	-25F	+22F	-15F / +22F	-15F / -25F

***Evaporator temperature is defined as the saturated suction temperature leaving the case.**

FOR ENERGY CALCULATION DATA REFER TO THE ENERGY SECTION. FOR COMPRESSOR SIZING INFORMATION REFER TO THE "GOLD" SECTION & FOR LINE SIZING INFORMATION REFER TO THE "BUFF" SECTION OF THE TYLER SPECIFICATION GUIDE.

208 VOLT DEFROST (AMPS)													
FT	8	12	16	20	24	28	32	36	40	44	48	52	56
FF 1 PH	13.8 TG-30	20.6 TG-30	27.6 TG-40	34.4 TG-50	41.2 TG-50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FF 3 PH	12.0 TG-3-30	18.0 TG-3-30	18.0 TG-3-30	21.0 TG-3-40	27.0 TG-3-50	30.0 TG-3-40	33.0 TG-3-50	36.0 TG-3-50	42.0 TG-3-50	24/24 TG-3-40-40	27/27 TG-3-40-40	30/30 TG-3-40-40	36/36 TG-3-50-50
IC/MED 1 PH	27.6 TG-40	41.2 TG-50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
IC/MED 3 PH	24.0 TG-3-30	36.0 TG-3-50	36.0 TG-3-50	42.0 TG-3-50	36/36 TG-3 50-50	30/30 TG-3 40-40	36/36 TG-3 50-50	36/36 TG-3 50-50	42/42 TG-3 50-50	36/36/36 TG-3 50-50-50	36/36/36 TG-3 50-50-50	N/A	N/A
CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING													
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"	1 5/8"
R404A IC R22 MED	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"	1 5/8"

DEFROST CONTROL				BACKUP PRESSURE SETTINGS**			EPR SETTINGS***	
PER DAY	MODE	TIME	TERM.		CUT IN	CUT OUT	R22	R404A
1	ELECT / FF	60 MIN.	50F	FF	12# @ R404A	2# @ R404A	- - -	14#
1	ELECT / IC	36 MIN.	50F	IC	6# @ R404A	1# @ R404A	- - -	8#
1	ELECT / MED	36 MIN.	50F	MED	34# @ R22	24# @ R22	37#	- - -
2-3	HOT GAS / FF	20-25 MIN.	55F*	FF	12# @ R404A	2# @ R404A	- - -	14#
1	HOT GAS / IC	25-30 MIN.	55F*	IC	6# @ R404A	1# @ R404A	- - -	8#
2-3	HOT GAS / MED	16-20 MIN.	55F*	MED	34# @ R22	24# @ R22	37#	- - -

* If an Electronic Sensor is used for termination, it should be set at 70°F termination temperature.
** Used with Electronic Thermostat and EPR Control. *** Set EPR to give this pressure at the case.

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

CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated performance with absolute maximum operating ambient limits of **75F** & **55RH**.

NFJ/NCJ/NTJ/NFJE/NCJE Jumbo Island and End Frozen Food & Ice Cream Merchandiser

120 VOLT ELECTRICAL DATA (AMPS)				
FT	STD. FANS	ECM FANS	ANTI-SWT	ANTI-SWT W/SUPER STRUCTR
8	2.0	.8	2.8	3.8
12	3.0	1.2	3.0	5.2

120 VOLT LIGHTING DATA	
FT	OPTIONAL SHELF LIGHTS PER ROW (AMPS)
8	2.0
12	3.0

NOTES FOR NTJ SPLIT TEMP OPERATIONS

FF/IC TEMP; (NTJ) 1 side frozen food/ 1 side ice cream (must use synchronized defrost) (Frozen food 313 BTUH/FT @ -25F Evap. & Ice cream 375 BTUH/FT @ -35F Evap.)

FF/MED TEMP; (NTJ) 1 side frozen food/ 1 side medium temp. (must use synchronized defrost) (Frozen food 313 BTUH/FT @ -25F Evap. & Medium temp. 235 BTUH/FT @ +15F Evap.)

These values are based on one foot of case, with each side of the case considered separately. Add the totals from both sides to calculate the load for the entire case.

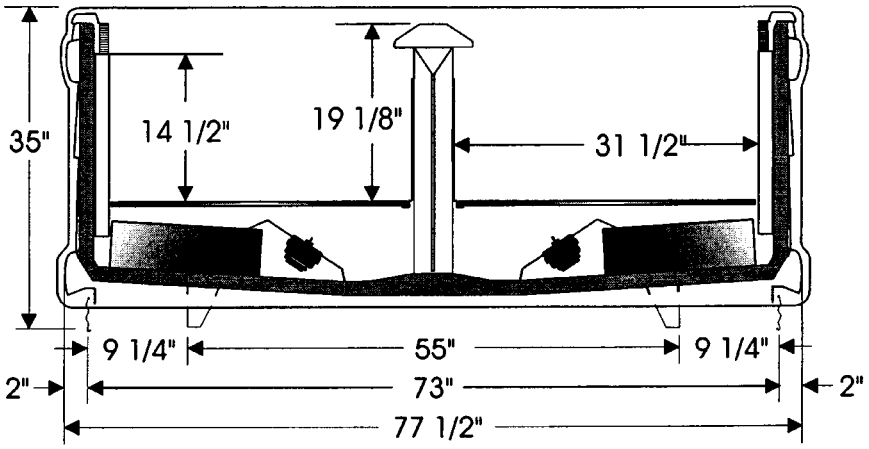
DEFROST WIRING: There are two heater circuits in each case. The heater wiring stubs out in the 208V raceway as two pairs of wires. Defrost circuits can therefore be wired as a single phase load or they can be wired as an unbalanced 3-phase load. **NOTE:** Optional shelving superstructures with lights have the same electrical requirements per row of lights as the amps shown. A separate electrical supply for the superstructure lights must be provided since there is no plug in from the superstructure to the case.

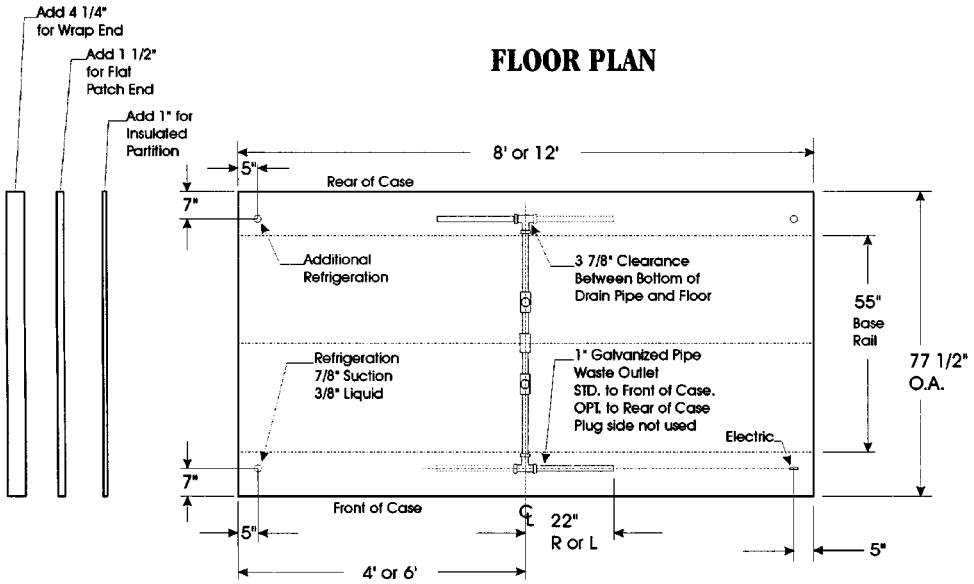
TWIN-TEMP NOTES: NTJ is the twin temp version of this case with ice cream on one side and frozen food on the other and is equipped with two electric defrost heaters on both sides. In addition, this version has an insulated center partition to aid in maintaining the temperature difference between the two sides. Both sides must defrost at the same time.

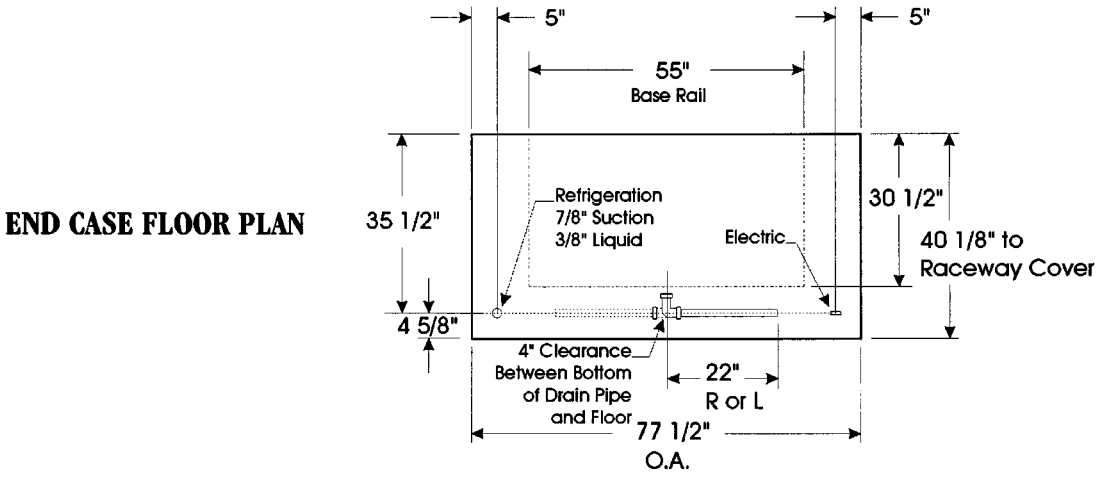
END CASE ELECTRICAL AND REFRIGERATION DATA						
MODEL	USE	BTUH REQUIRED	120V FANS (AMPS)		120V ANTI-SWEAT (AMPS)	208V DEFROST (AMPS)
			STD	ECM		
NFJE	FF	2600 @ -25F	1.0	.4	1.3	8.6
NCJE	IC	3400 @ -35F	1.0	.4	1.3	8.6
NFJE	MED	2400 @ +15F	1.0	.4	1.3	8.6

ADD 0.4 amps to the adjacent case for the End Case Superstructure Anti-Sweats. If the End Case Superstructure has lights, **ADD** an additional 0.3 amps per row to the adjacent case.

NFJ/NCJ/NTJ/NFJE/NCJE Jumbo Island and End Frozen Food & Ice Cream Merchandiser

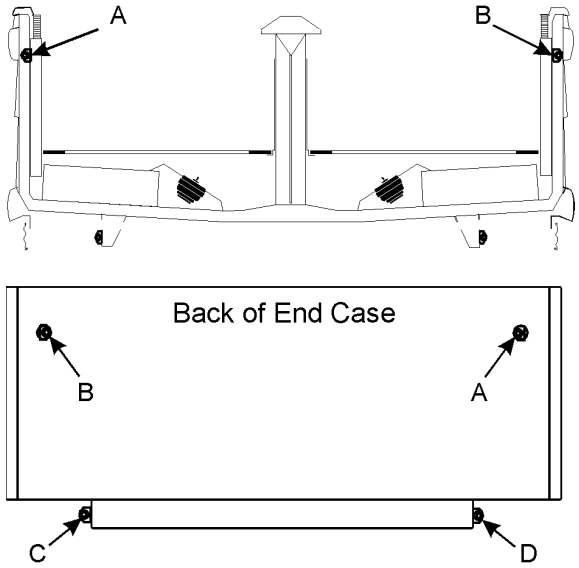






INSTALLATION PROCEDURES

Carpentry Procedures



Case Pull-Up Locations

The NFJ/NCJ/NTJ 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 NFJE and NCJE 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. All pull-ups should be installed and tightened starting with A and finishing with B or D.

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.

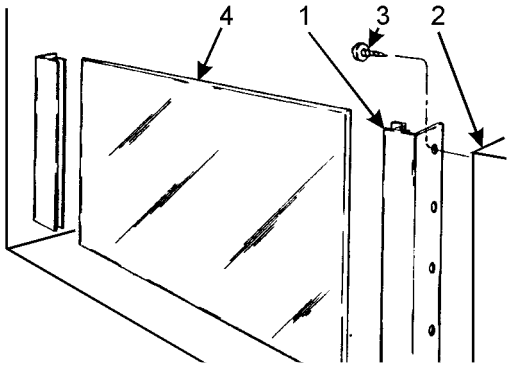
Apply sealant to outside surface of partition where the two surfaces of the adjoining case will contact the partition.

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.

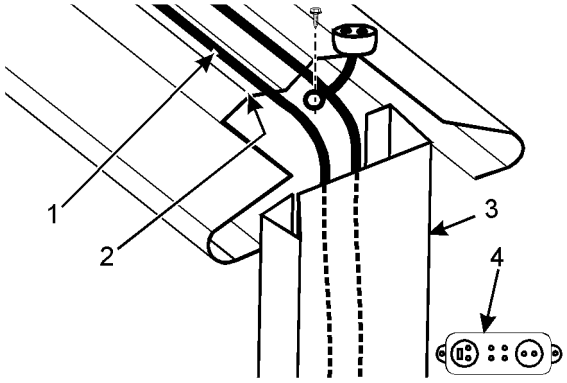
Plexiglas Partition

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.

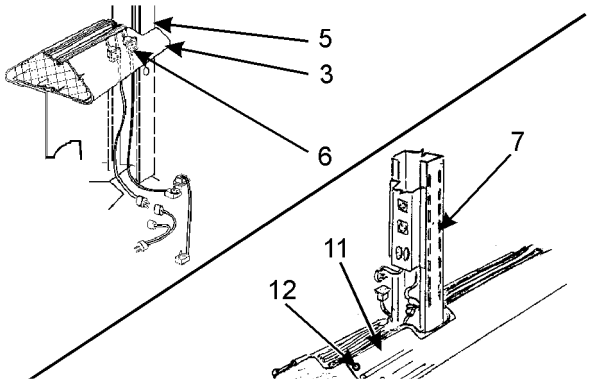


1. Install partition brackets (1) at case joint on front, center and/or rear case wall (2) with screws 3)
2. Slide plexiglas partitions (4) into partition brackets (1).

Superstructure Installation



1. Lay wire harnesses (1) in "V" of 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. Run the male plugs down the RH post socket (3) and plug them into the matching receptacles in the 115V case wiring block (4).

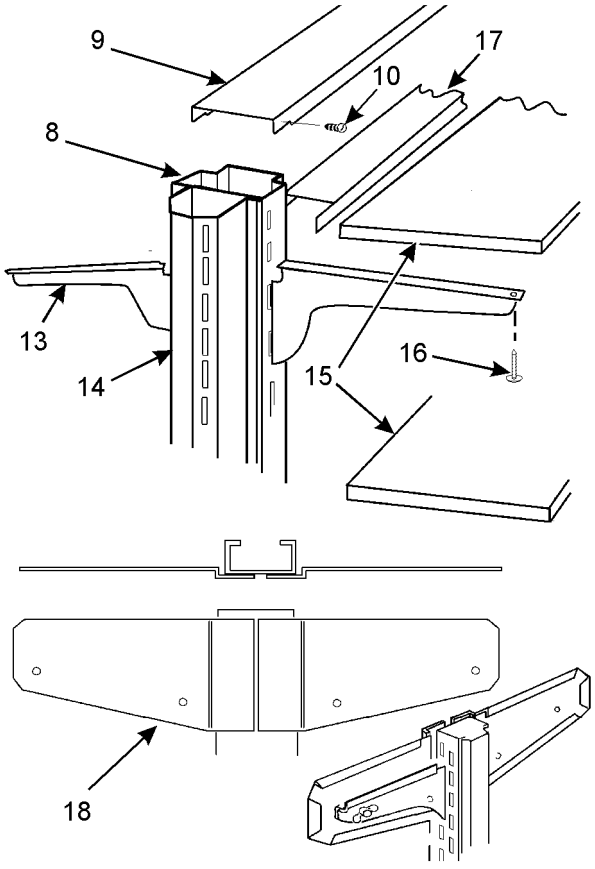


2. Position the RH end post (5) in the RH superstructure hole in the center riser (3). Install the two plugs (6) and push them into the insulation. Push down the RH end post (5) until it seats into the center riser (3).

NOTE

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

3. Install the center post(s) (7) as described in step 2. Route the wires around the posts in the insulation.



4. Install the LH end post (8) as described in step 2.

NOTE

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

5. Position the upright alignment channel (9) on top of the upright posts. Using the holes in the upright alignment channel as a guide, drill pilot holes in the upright posts and secure with screws (10).

NOTE

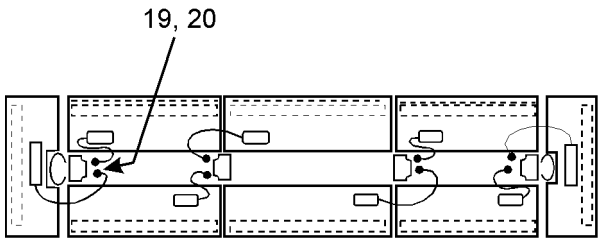
Notches on harness covers will help position the covers properly.

6. Position harness covers (11) on top of the center partition. Using the holes in the harness cover as a guide, drill pilot holes in the center partition and secure with screws (12).

7. Install each pair of shelf brackets (13) in slots in upright posts. Use one RH and one LH bracket per shelf. Superstructures with end shelves have angled brackets on the end shelf uprights (14).

8. Position shelves (15) on shelf brackets (13) and install front alignment screws (16).

9. Install shelving close-offs (17) in space between shelves. The close-offs are supported by the shelf brackets (13). If end close-offs (18) are supplied, they are also secured to the shelf brackets (13).



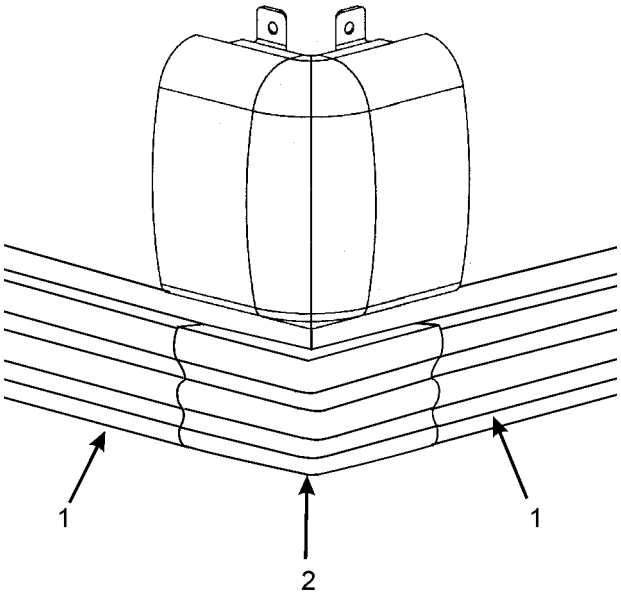
10. Plug in the shelf anti-sweat heaters (19) and shelf lights (20).

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



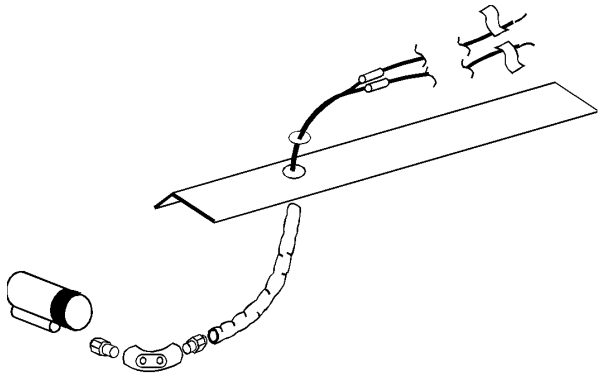
requires field installation.

After kickplates (1) have been installed, slide kickplate corner trim (2) into both ends of the kickplates (1).

Plumbing Procedures

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

Waste Outlet Heater



These cases require a waste outlet heater. A 16 Watt heater is located inside a pipe just below the 1" waste pipe and runs from one side to the other. The heater wires run into the case raceway and are to be connected to the fan circuit leads when wiring the cases.

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.

NFJ 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.

NCJ is for ice cream usage and is equipped with two electric defrost heaters on each side.

NTJ is the split temp. version for ice cream on one side and frozen food on the other. NTJ is equipped with two electric defrost heaters 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 NTJ case can also be set up to display frozen food 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. operation. The evaporator coils are piped individually so there are two refrigeration stub-ups.

NFJ or NTJ cases set up 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 temperature 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 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 12 psig of suction pressure. With the suction line solenoid open, the coil pressure operates at 12 psig with a temperature of -29°F. When the toggle switch is flipped, the solenoid closes directing the flow through the EPR valve. If the EPR valve is set for 48 psig, the evaporator will see a coil temperature of 12°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. The case fan circuit is not cycled, except when equipped for gas defrost. On gas defrost cases the fan circuit is controlled by a 50/40 klixon, but only during the medium temp mode.

NOTE

With gas defrost, the fans will not start until the coil temperature reaches 40°F at the fan delay thermostat. This only applies in the medium temp mode.

Anti-Sweat Circuit

NFJ/NCJ/NTJ cases have one anti-sweat heater in each discharge air grid and one at the top of the center riser. When cases are equipped with an optional superstructure, there is an anti-sweat heater on the superstructure. NFJE/NCJE end cases have one anti-sweat heater in the discharge air grid and in the return air grid. 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 shelf lights.

Defrost Information

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

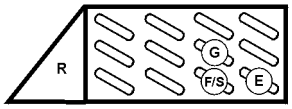
Defrost Control Chart

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

NFJ-NCJ-NTJ

NFJE-NCJE



E = Electric Defrost Termination
G = Gas Defrost (Fan Delay-Dual Temp)
F/S = Electric Defrost Failsafe (Opt.)

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 Split Temp 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 (NTJ 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!

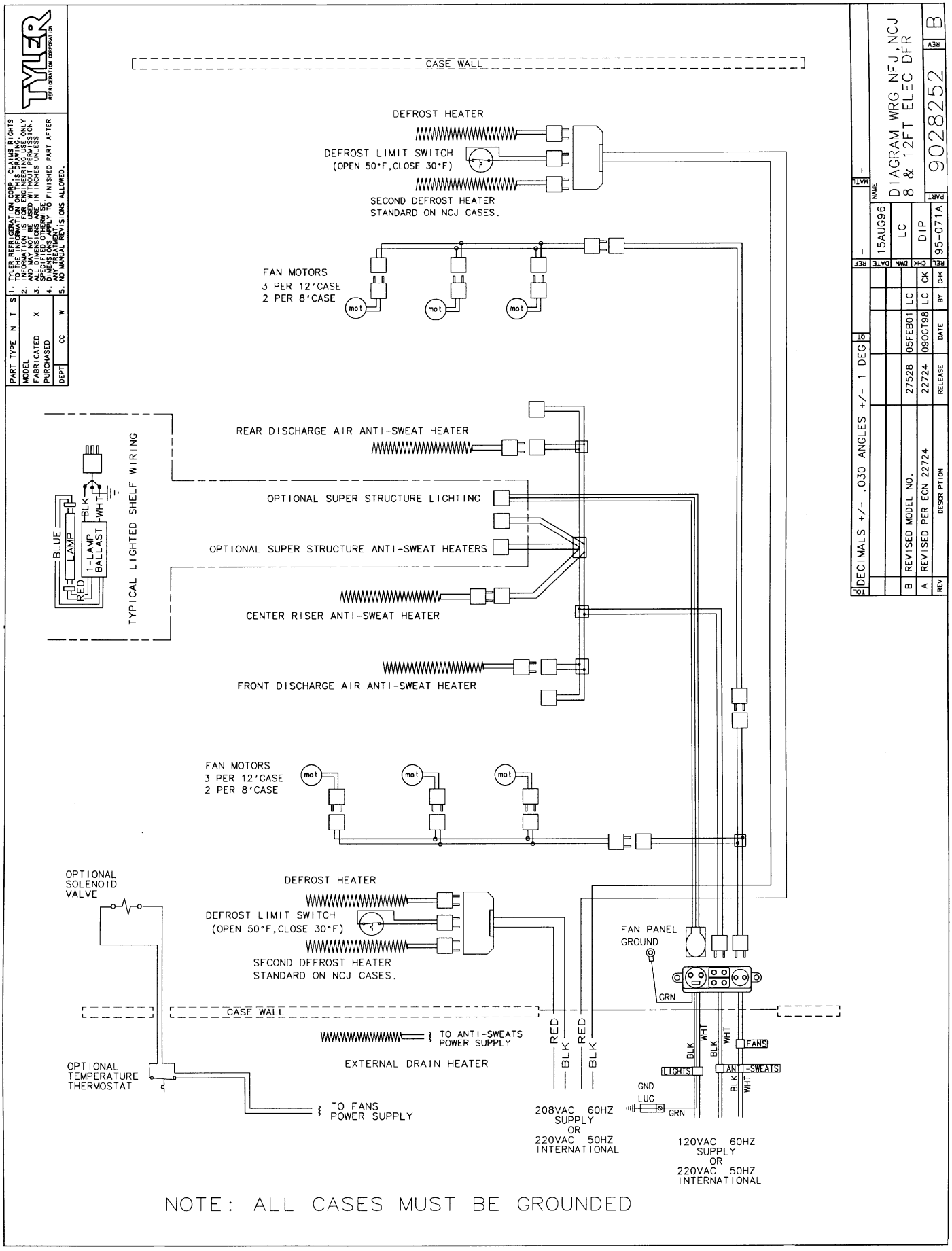
Gas defrost cases (NFJ/NCJ/NFJE/NCJE) are piped individually and are to be joined at installation when both sides are on the same system. Split Temp cases (NTJ) with gas defrost should be piped to thier respective systems and defrosts should be scheduled at the same time.

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 12 thru 17 will cover the NFJ/NCJ/NTJ/NFJE/NCJE case circuits, electric defrost circuit, gas defrost circuit, dual temperature control circuits and the superstructure wiring circuit.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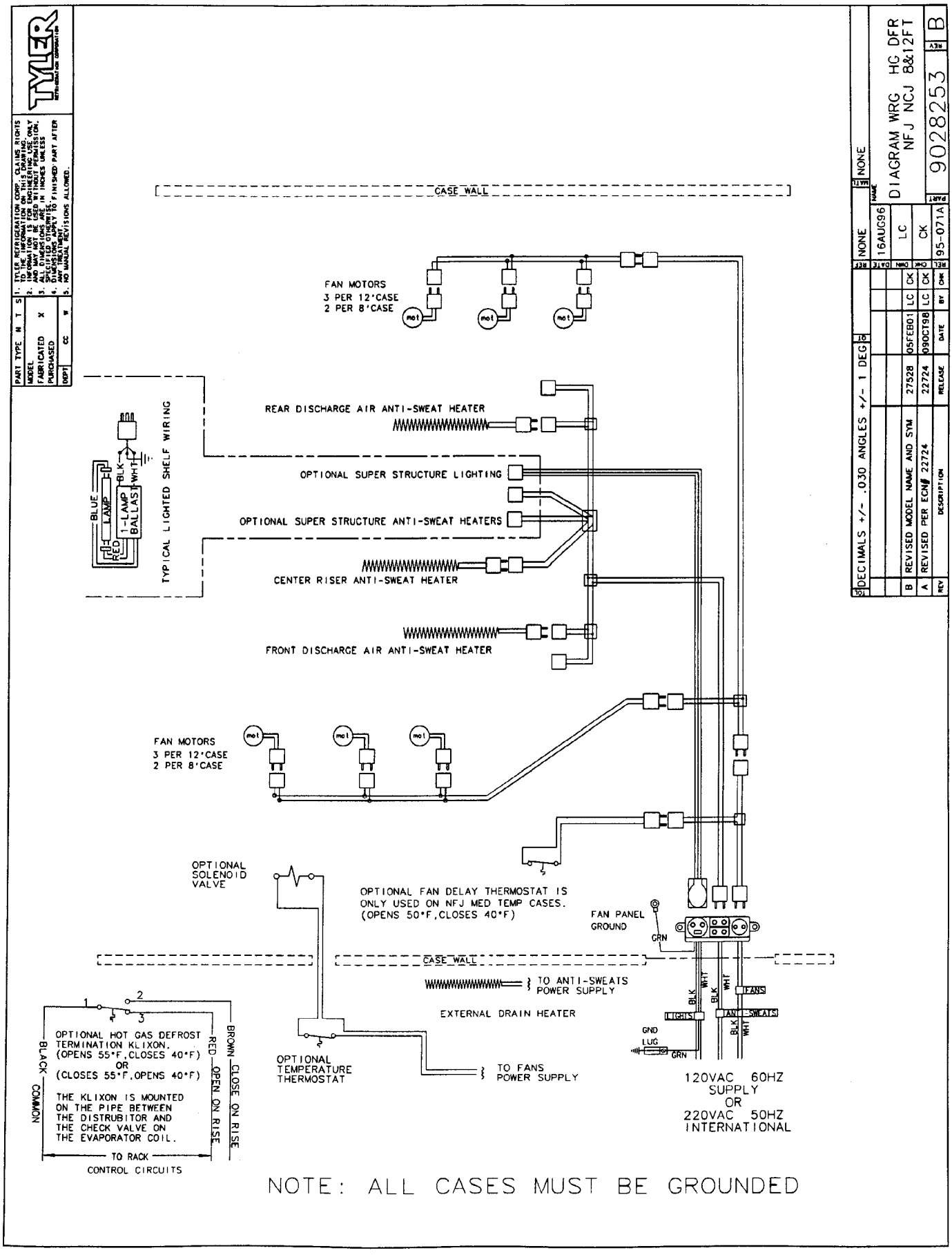
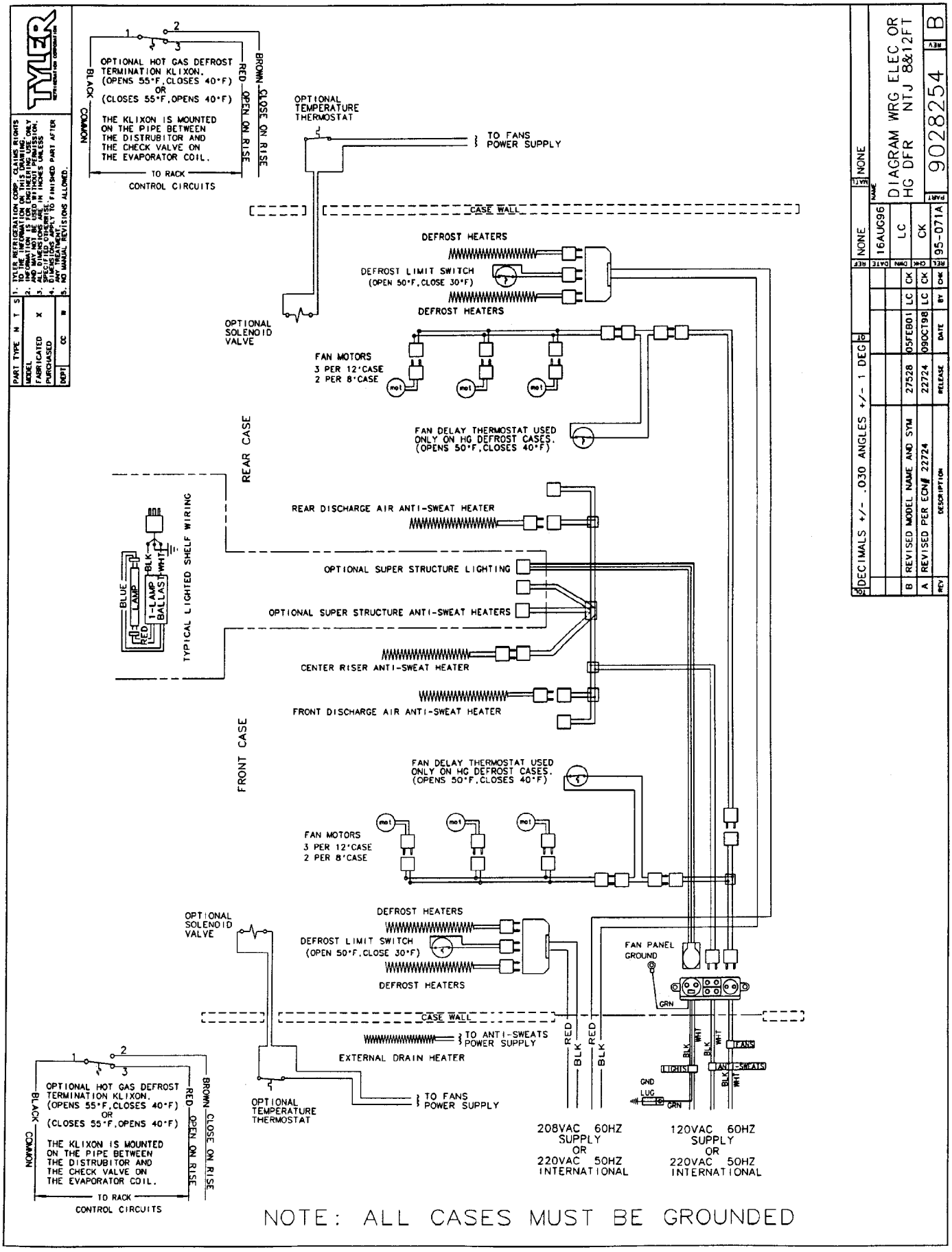
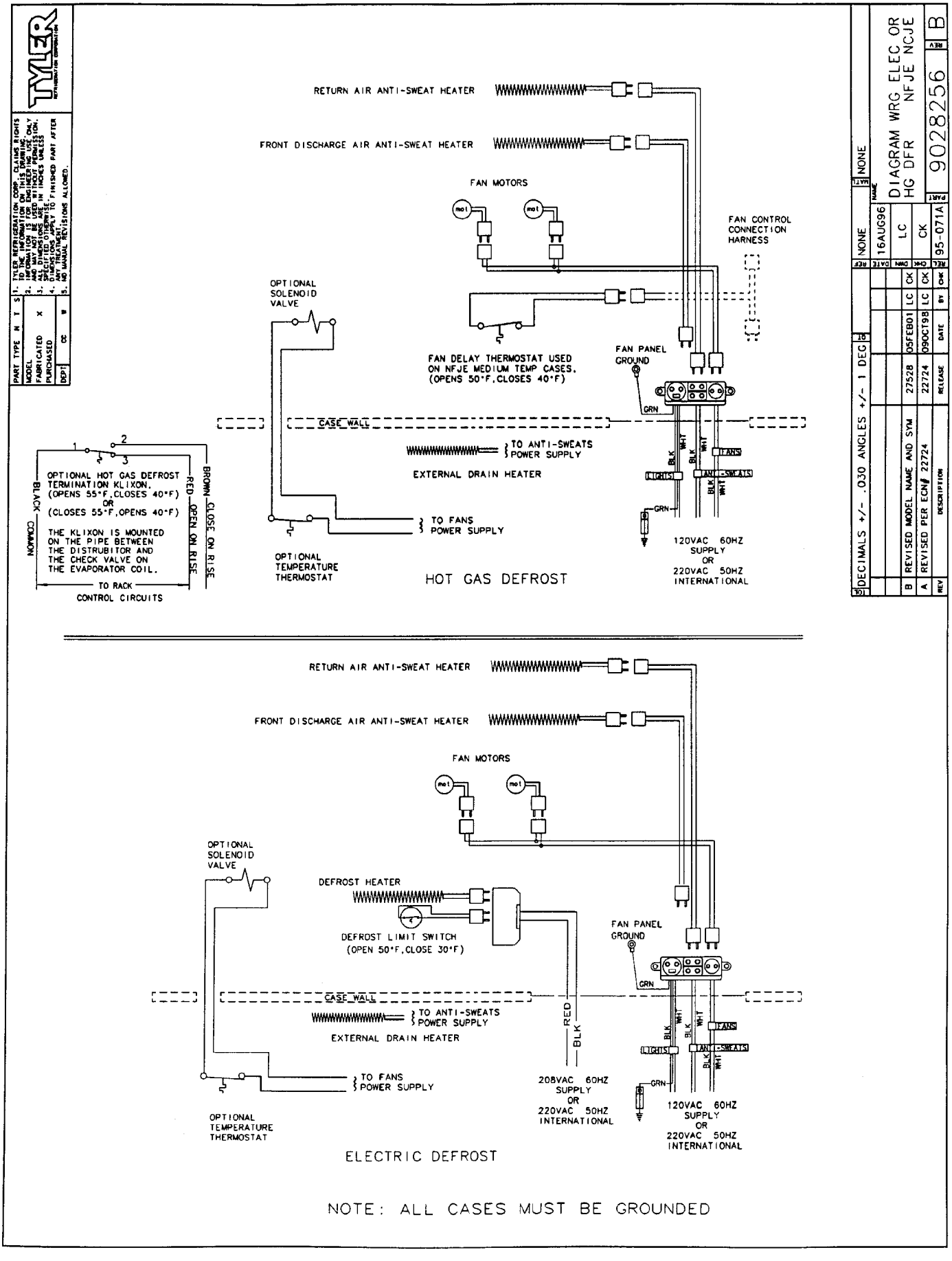
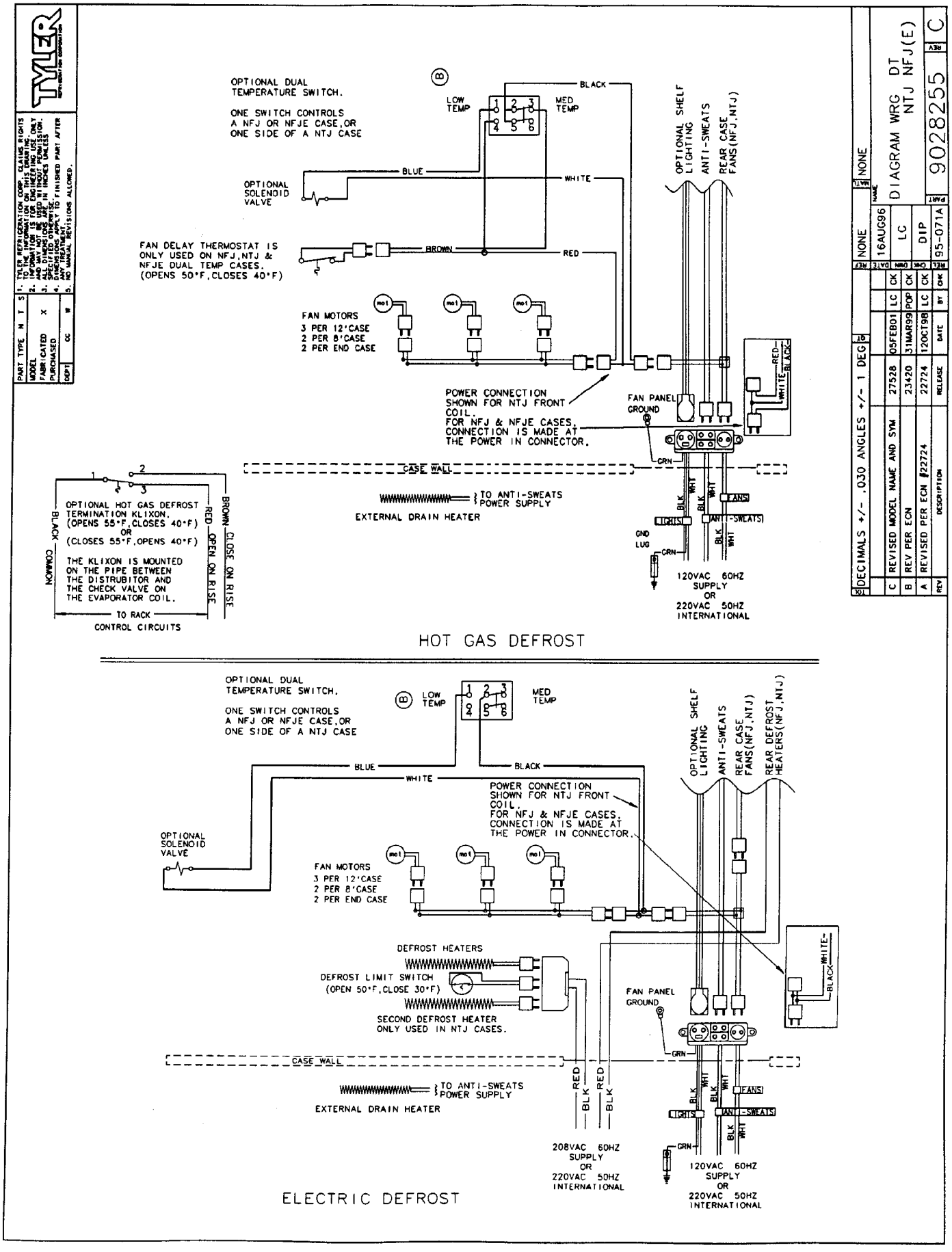
ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
DIMENSIONS APPLY TO FINISHED PART AFTER ANY FINISHING PROCESS.
NO MANUAL REVISIONS ALLOWED.
PART TYPE N T S
MODEL
FABRICATED X
PURCHASED
DEPT CC W
DIAGRAM WRG NFJ,NCJ 8 & 12FT ELEC DFR
9028252
B
DECIMALS +/- .030 ANGLES +/- 1 DEG
REV DATE DWN CHK REL
- 15AUG96 LC DIP 95-071A
B REVISED MODEL NO. 27528 05FEB01 LC CK CK
A REVISED PER ECN 22724 22724 09OCT98 LC BY
REV DESCRIPTION RELEASE DATE
CASE WALL
DEFROST HEATER
DEFROST LIMIT SWITCH (OPEN 50°F,CLOSE 30°F)
SECOND DEFROST HEATER STANDARD ON NCJ CASES.
FAN MOTORS 3 PER 12'CASE 2 PER 8'CASE
mot
REAR DISCHARGE AIR ANTI-SWEAT HEATER
OPTIONAL SUPER STRUCTURE LIGHTING
OPTIONAL SUPER STRUCTURE ANTI-SWEAT HEATERS
CENTER RISER ANTI-SWEAT HEATER
FRONT DISCHARGE AIR ANTI-SWEAT HEATER
TYPICAL LIGHTED SHELF WIRING
BLUE
LAMP
RED
1-LAMP BALLAST
BLK
WHT
FAN MOTORS 3 PER 12'CASE 2 PER 8'CASE
OPTIONAL SOLENOID VALVE
DEFROST HEATER
DEFROST LIMIT SWITCH (OPEN 50°F,CLOSE 30°F)
SECOND DEFROST HEATER STANDARD ON NCJ CASES.
FAN PANEL GROUND
GRN
CASE WALL
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
OPTIONAL TEMPERATURE THERMOSTAT
TO FANS POWER SUPPLY
RED
BLK
RED
BLK
BLK
WHT
BLK
WHT
FANS
LIGHTS
ANTI-SWEATS
BLK
WHT
GND LUG
GRN
208VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
NOTE: ALL CASES MUST BE GROUNDED


TYLER
DIAGRAM WRG HC DFR
NFJ NCJ 8&12FT
9028253
B
NONE
16AUG96
LC
CK
95-071A
DECIMALS +/- .030 ANGLES +/- 1 DEG
B REVISED MODEL NAME AND SYM 27528 05FEB01 LC CK
A REVISED PER ECN# 22724 22724 09OCT98 LC CK
CASE WALL
FAN MOTORS
3 PER 12'CASE
2 PER 8'CASE
mot
REAR DISCHARGE AIR ANTI-SWEAT HEATER
OPTIONAL SUPER STRUCTURE LIGHTING
OPTIONAL SUPER STRUCTURE ANTI-SWEAT HEATERS
CENTER RISER ANTI-SWEAT HEATER
FRONT DISCHARGE AIR ANTI-SWEAT HEATER
TYPICAL LIGHTED SHELF WIRING
BLUE
LAMP
RED
1-LAMP BALLAST
BLK
WHT
OPTIONAL SOLENOID VALVE
OPTIONAL FAN DELAY THERMOSTAT IS ONLY USED ON NFJ MED TEMP CASES. (OPENS 50°F,CLOSES 40°F)
FAN PANEL GROUND
GRN
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
FANS
LIGHTS
ANTI-SWEATS
GND LUG
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 DISTRUBITOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.
TO RACK CONTROL CIRCUITS
COMMON
OPEN ON RISE
CLOSE ON RISE
OPTIONAL TEMPERATURE THERMOSTAT
TO FANS POWER SUPPLY
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
NOTE: ALL CASES MUST BE GROUNDED


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 DISTRUBITOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.
TO RACK CONTROL CIRCUITS
BLACK COMMON
RED OPEN ON RISE
BROWN CLOSE ON RISE
OPTIONAL TEMPERATURE THERMOSTAT
TO FANS POWER SUPPLY
CASE WALL
DEFROST HEATERS
DEFROST LIMIT SWITCH (OPEN 50°F,CLOSE 30°F)
DEFROST HEATERS
OPTIONAL SOLENOID VALVE
FAN MOTORS 3 PER 12'CASE 2 PER 8'CASE
FAN DELAY THERMOSTAT USED ONLY ON HG DEFROST CASES. (OPENS 50°F,CLOSES 40°F)
REAR CASE
REAR DISCHARGE AIR ANTI-SWEAT HEATER
TYPICAL LIGHTED SHELF WIRING
BLUE
LAMP
1-LAMP BALLAST
BLK
WHT
RED
OPTIONAL SUPER STRUCTURE LIGHTING
OPTIONAL SUPER STRUCTURE ANTI-SWEAT HEATERS
CENTER RISER ANTI-SWEAT HEATER
FRONT DISCHARGE AIR ANTI-SWEAT HEATER
FRONT CASE
FAN DELAY THERMOSTAT USED ONLY ON HG DEFROST CASES. (OPENS 50°F,CLOSES 40°F)
FAN MOTORS 3 PER 12'CASE 2 PER 8'CASE
OPTIONAL SOLENOID VALVE
DEFROST HEATERS
DEFROST LIMIT SWITCH (OPEN 50°F,CLOSE 30°F)
DEFROST HEATERS
FAN PANEL GROUND
GRN
CASE WALL
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
OPTIONAL TEMPERATURE THERMOSTAT
TO FANS POWER SUPPLY
RED
BLK
RED
BLK
BLK
WHT
BLK
WHT
FANS
LIGHTS
ANTI-SWEATS
BLK
WHT
GND LUG
GRN
208VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
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 DISTRUBITOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.
TO RACK CONTROL CIRCUITS
BLACK COMMON
RED OPEN ON RISE
BROWN CLOSE ON RISE
NOTE: ALL CASES MUST BE GROUNDED
DECIMALS +/- .030 ANGLES +/- 1 DEG
DIAGRAM WRG ELEC OR HG DFR NTJ 8&12FT
9028254
B
95-071A
16AUG96
LC
CK
NONE
B REVISED MODEL NAME AND SYM 27528 05FEB01 LC CK
A REVISED PER ECN# 22724 22724 09OCT98 LC CK


RETURN AIR ANTI-SWEAT HEATER
FRONT DISCHARGE AIR ANTI-SWEAT HEATER
FAN MOTORS
FAN CONTROL CONNECTION HARNESS
OPTIONAL SOLENOID VALVE
FAN DELAY THERMOSTAT USED ON NFJE MEDIUM TEMP CASES. (OPENS 50°F, CLOSES 40°F)
FAN PANEL GROUND
GRN
CASE WALL
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
BLK
WHT
FANS
LIGHTS
ANTI-SWEATS
TO FANS POWER SUPPLY
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 DISTRUBITOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.
BLACK COMMON
BROWN CLOSES ON RISE
RED OPEN ON RISE
TO RACK CONTROL CIRCUITS
OPTIONAL TEMPERATURE THERMOSTAT
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
HOT GAS DEFROST
RETURN AIR ANTI-SWEAT HEATER
FRONT DISCHARGE AIR ANTI-SWEAT HEATER
FAN MOTORS
OPTIONAL SOLENOID VALVE
DEFROST HEATER
DEFROST LIMIT SWITCH (OPEN 50°F, CLOSE 30°F)
FAN PANEL GROUND
CASE WALL
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
RED
BLK
TO FANS POWER SUPPLY
208VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
OPTIONAL TEMPERATURE THERMOSTAT
ELECTRIC DEFROST
NOTE: ALL CASES MUST BE GROUNDED
DIAGRAM WRG ELEC OR HG DFR NFJE NCJE
PART 9028256
REV B
DECIMALS +/- .030 ANGLES +/- 1 DEG
REVISED MODEL NAME AND SYM 27528 05FEB01 LC CK
REVISED PER ECN# 22724 22724 090CT98 LC CK
95-071A
16AUG96 LC CK
NONE
TYLER REFRIGERATION CORP. CLAIMS RIGHTS TO THE INFORMATION ON THIS DRAWING. HEREON AND IS FURNISHED FOR REFERENCE ONLY AND MAY NOT BE USED WITHOUT PERMISSION.
ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
DIMENSIONS APPLY TO FINISHED PART AFTER PLATING.
NO MANUAL REVISIONS ALLOWED.
PART TYPE M T S
MODEL X
FABRICATED
PURCHASED
DEPT CC W


OPTIONAL DUAL TEMPERATURE SWITCH.
ONE SWITCH CONTROLS A NFJ OR NFJE CASE, OR ONE SIDE OF A NTJ CASE
LOW TEMP
MED TEMP
BLACK
BLUE
WHITE
OPTIONAL SOLENOID VALVE
FAN DELAY THERMOSTAT IS ONLY USED ON NFJ, NTJ & NFJE DUAL TEMP CASES. (OPENS 50°F, CLOSES 40°F)
BROWN
RED
FAN MOTORS
3 PER 12' CASE
2 PER 8' CASE
2 PER END CASE
OPTIONAL SHELF LIGHTING
ANTI-SWEATS
REAR CASE FANS(NFJ, NTJ)
POWER CONNECTION SHOWN FOR NTJ FRONT COIL.
FOR NFJ & NFJE CASES, CONNECTION IS MADE AT THE POWER IN CONNECTOR.
FAN PANEL GROUND
CASE WALL
GRN
TO ANTI-SWEATS POWER SUPPLY
EXTERNAL DRAIN HEATER
FANS
LIGHTS
ANTI-SWEATS
GND LUG
120VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
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 DISTRUBITOR AND THE CHECK VALVE ON THE EVAPORATOR COIL.
COMMON
OPEN ON RISE
CLOSE ON RISE
TO RACK CONTROL CIRCUITS
HOT GAS DEFROST
OPTIONAL DUAL TEMPERATURE SWITCH.
ONE SWITCH CONTROLS A NFJ OR NFJE CASE, OR ONE SIDE OF A NTJ CASE
REAR DEFROST HEATERS(NFJ, NTJ)
DEFROST HEATERS
DEFROST LIMIT SWITCH (OPEN 50°F, CLOSE 30°F)
SECOND DEFROST HEATER ONLY USED IN NTJ CASES.
208VAC 60HZ SUPPLY OR 220VAC 50HZ INTERNATIONAL
ELECTRIC DEFROST
DIAGRAM WRG DT NTJ NFJ(E)
9028255
C
DECIMALS +/- .030 ANGLES +/- 1 DEG
NONE
16AUG96
LC
DIP
95-071A
C REVISED MODEL NAME AND SYM 27528 05FEB01 LC CK
B REV PER ECN 23420 31MAR99 POP CK
A REVISED PER ECN #22724 22724 120CT98 LC CK
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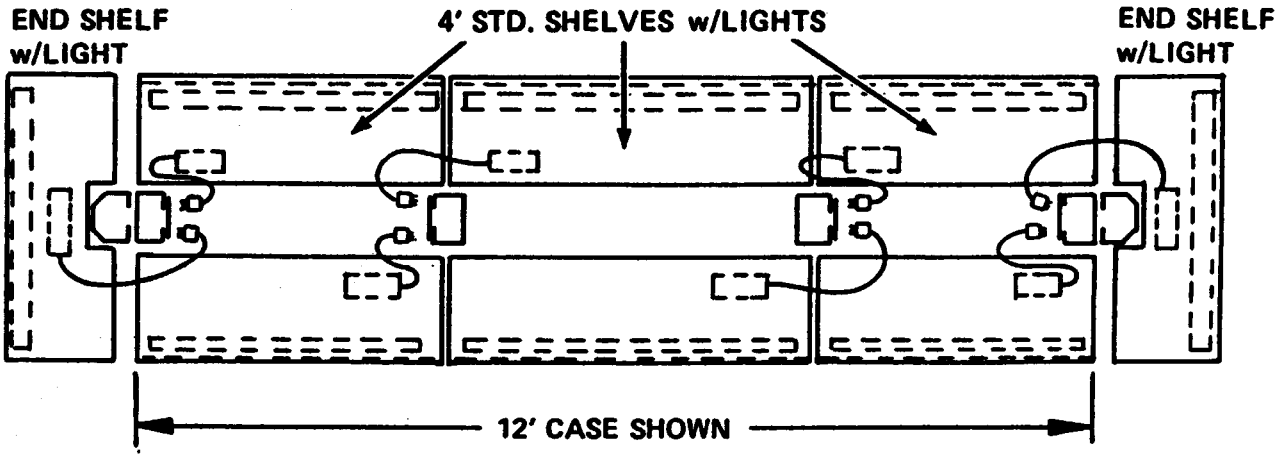
ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
DIMENSIONS APPLY TO FINISHED PART AFTER ANY TREATMENT.
NO MANUAL REVISIONS ALLOWED.

Optional Superstructure Wiring Circuit



CLEANING AND SANITATION

Component Removal and Installation Instructions for Cleaning

Bottom Trays

1. Remove product from bottom of case.
2. Grasp and lift out each of the bottom trays from the case interior and carefully remove through the door openings
3. After cleaning, replace in reverse order.

NSF Product Thermometer

Remove four screws and product thermometer bracket assembly from right rear location in the case. After cleaning, replace product thermometer bracket assembly and secure with four screws.

Discharge Air Honeycomb

1. Remove screws and bottom retainer strip from front or rear interior of case.

NOTE

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

2. Remove honeycomb grid sections from the front or rear duct.

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 strip and screws.

Rear Duct Panels

1. Remove bottom trays and discharge air honeycomb (NFJE/NCJE), see above.
2. Remove mounting screws from rear duct panel.
3. After cleaning, replace in reverse order.

Front Air Duct Panels

1. Remove bottom trays and discharge air honeycomb (NFJ//NCJNTJ), see this page.
2. Remove screws and front air duct panels from case.
3. After cleaning, replace in reverse order.

Corner Trim

1. See page 19 for corner trim removal instructions.
2. After cleaning trim and cladding components, replace front cladding and corner trim components in reverse orde using instructions below and on page 19.

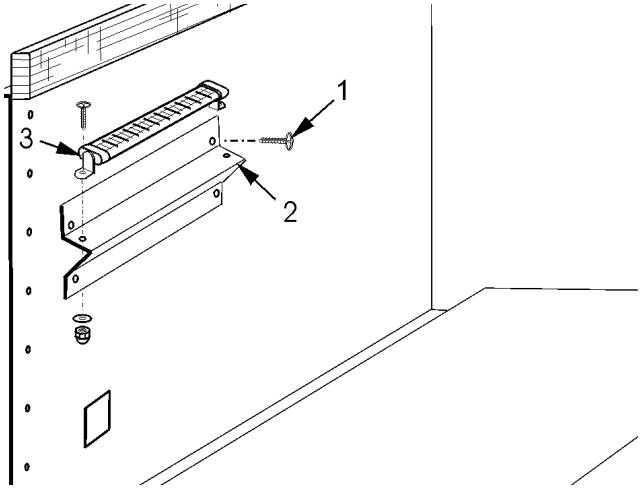
Front Cladding

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.

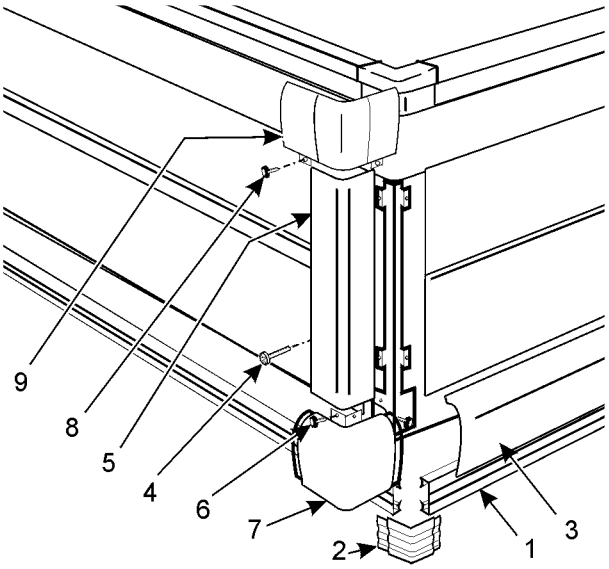
NSF Product Thermometer Replacement



1. Remove four screws (1) and thermometer bracket (2) from rear of case.
2. Remove two screws, nuts, washers and the product thermometer (3) from the thermometer bracket (2).
3. Install and secure a new product thermometer (3) on the thermometer bracket (2) with two screws, washers and nuts.
4. Install thermometer bracket (2) on rear of case with four screws (1).

Corner Trim Replacement

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

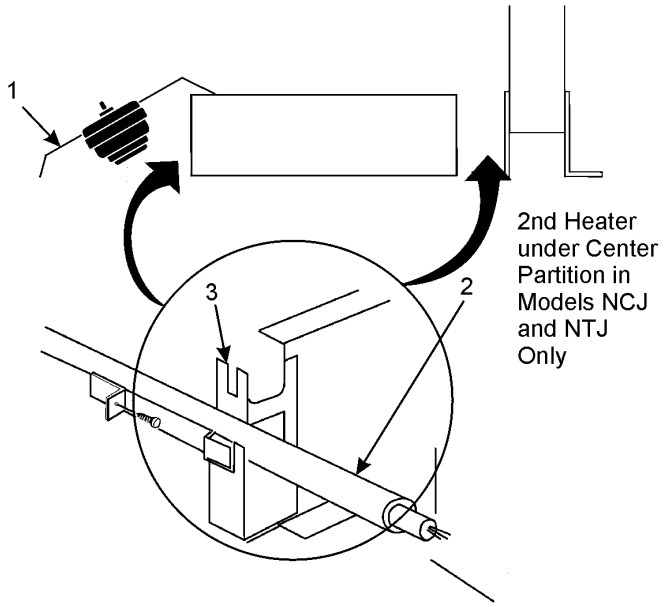


1. Remove kickplates (1) and kickplate corner trim (2) from both sides of the corner trim.
2. Remove raceway covers (3) from both sides of the corner trim.
3. Remove four screws (4) and corner cladding trim (5)
4. Remove two top screws (6) from the raceway corner trim (7), then lift and remove the raceway 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, racway covers and kickplates 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.



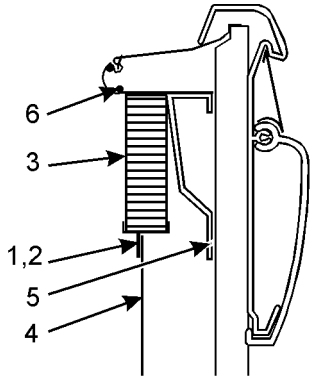
1. Remove bottom trays from case.
2. Unclip and lift up fan plenum (1).
3. Disconnect defective defrost heater (2) and remove from mounting clips (3) and case.
4. Install new defrost heater (4) in reverse order.
5. Restore electrical power to case.

Anti-Sweat Replacement

WARNING

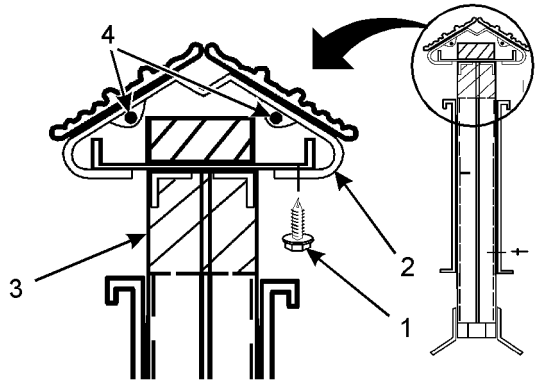
Shut off or disconnect power supply to case before changing an anti-sweat. Electrical power from wire ends could damage other components and/or cause personal injury or death.

Discharge Air Grid Anti-Sweat (NFJ/NCJ/NTJ)



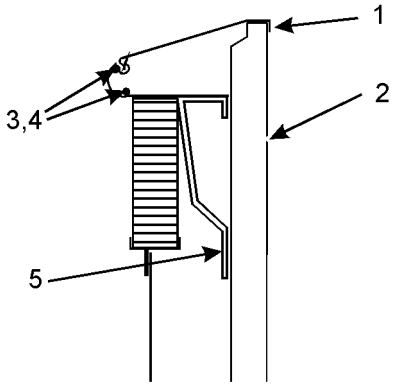
1. Remove screws (1) retainer strip (2) and discharge air grid (3) from interior of the front case wall (4).
2. Remove mounting screws and support assembly (5) from air grid opening.
3. Disconnect or cut the defective anti-sweat wire (6) from the case wires.
4. Remove and replace the aluminum tape and defective anti-sweat wire (6) from top of support assembly (5).
5. Reconnect the anti-sweat wires and replace the support assembly, discharge air grid and mounting hardware.

Center Riser Anti-Sweat (NFJ/NCJ/NTJ)



1. Remove screws (1) and top riser cap (2) 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 anti-sweat wires and replace the top riser cap and mounting hardware.

Discharge Air Grid Anti-Sweat (NFJE/NCJE)

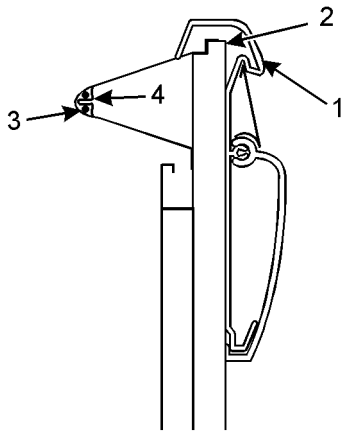


1. Remove screws and rear guard trim (1) from top of rear case wall (2).
2. Disconnect or cut the defective anti-sweat wire (3) from the case wires.
3. Remove and replace the aluminum tape (4) and defective anti-sweat wire (3) from top of rail and wire trim assembly (5).
4. Reconnect anti-sweat wires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

Return Air Duct Anti-Sweat (NFJE/NCJE)

NOTE

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



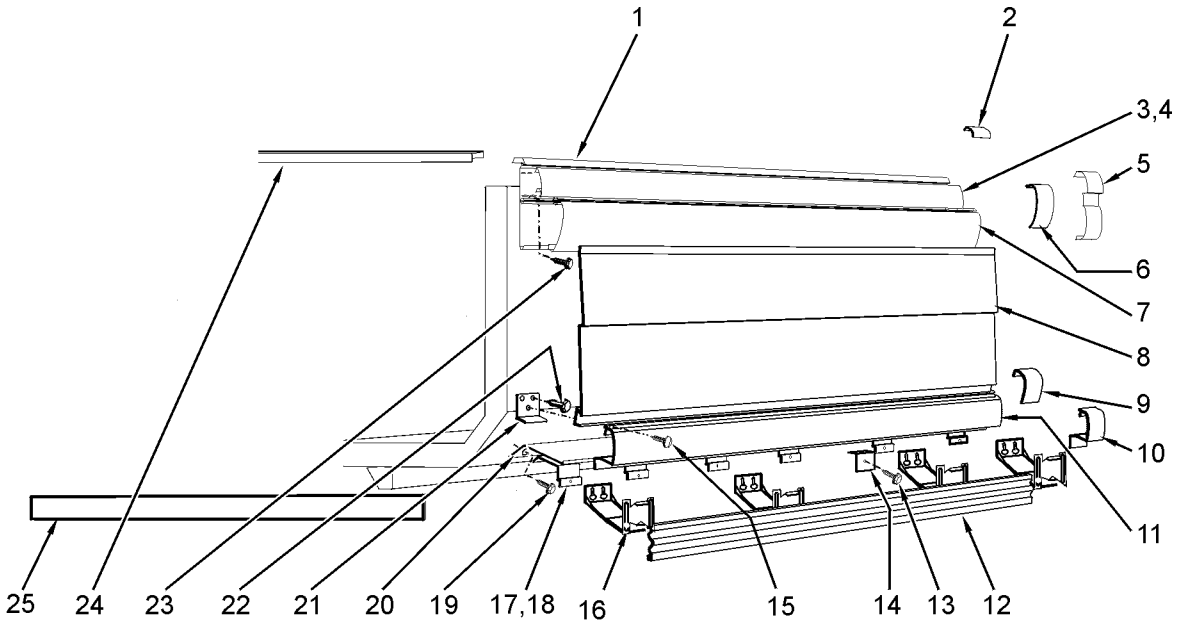
1. Remove screws and front trim assembly (1) from top of front case wall (2).
2. Disconnect or cut the defective anti-sweat wire (3) from the case wires.
3. Remove and replace the aluminum tape (4) and defective anti-sweat wire (3) from inside of front trim assembly (1).
4. Reconnect anti-sweat wires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

PARTS INFORMATION

Cladding and Trim Parts Lists

Item	Description	NFJ/NCJ/NTJ 8’	NFJ/NCJ/NTJ 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, Painted	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, Painted	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	color per order	
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)	9042415 (3)	9042415 (4)
	Shoulder Screw	9025833 (8)	9025833 (8)
17	Screw (per support)	5183536	5183536
18	Raceway Support (per side)	9041465 (6)	9041465 (8)
19	Screw	5183536 (18)	5183536 (18)
20	Raceway	9300218	9300219
21	Cladding Retainer (per side)	9300197 (4)	9300197 (4)
22	Screw (per retainer)	5183536	5183536
23	Shoulder Screw (per side)	9025833 (8)	9025833 (10)
24	Horizontal End Trim	5196166	5196166
25	Base End Closeoff - LH (for flat end)	9027925	9027925
	Base End Closeoff - RH (for flat end)	9027926	9027926

For additional information on parts not listed above contact the TYLER Service Parts Dept.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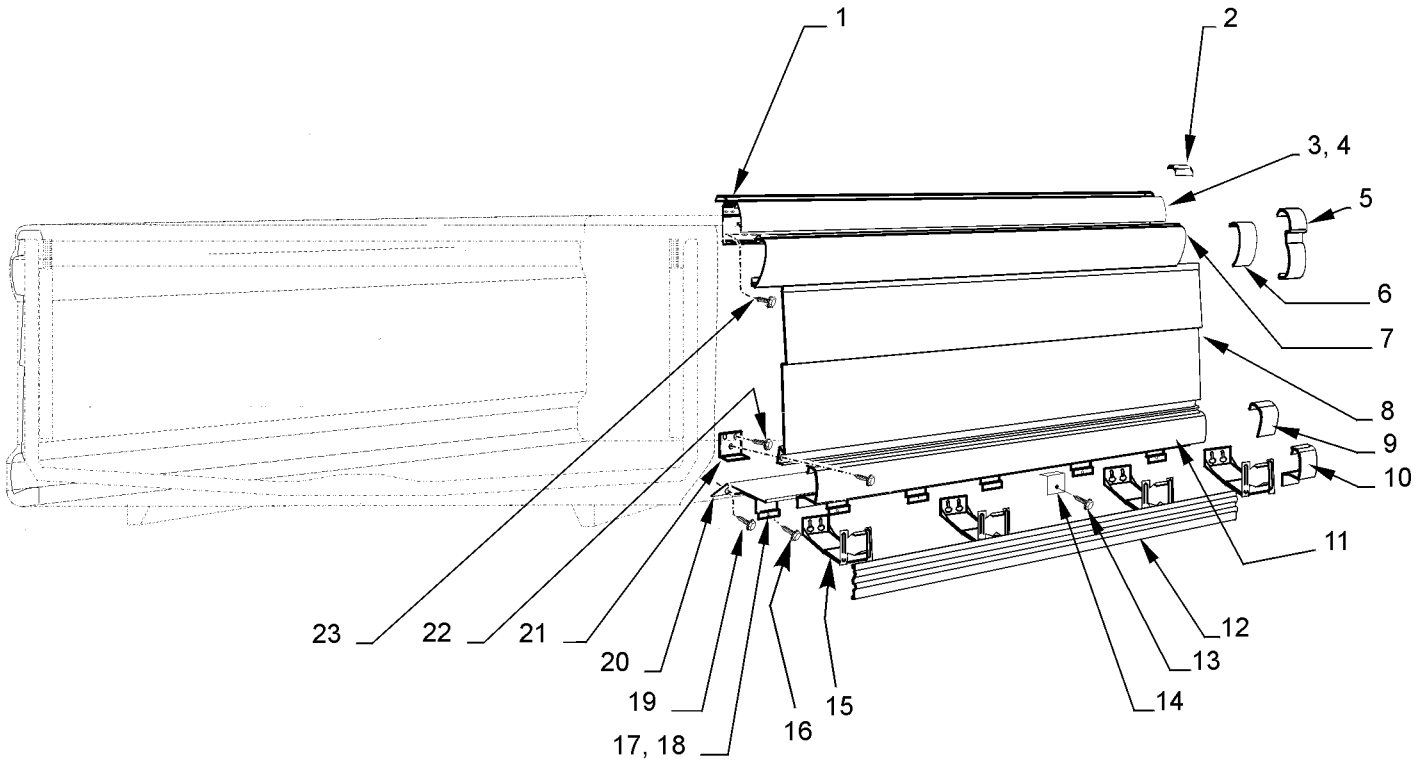
Item	Description	NFJE/NCJE	
		Front	Side
1	Bumper Retainer	color per order	
2	Bumper Retainer/Hand Rail Backer	9025316	9025316
3	Color Band, Painted	9023795	9023789
4	Color Band Backer, Painted	9040223	9040223
5	Bumper End Trim	color per order	
6	Bumper Backer	color per order	
7	Bumper	color per order	
8	Front Cladding, Painted	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	color per order	
13	Screw (per retainer)	5183536 (2)	5183536 (2)
14	Raceway Cover Retainer (per side)	9023841 (3)	9023841 (2)
15	Kickplate Support Assy. (per side)	9042415 (4)	9042415 (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,	color per order

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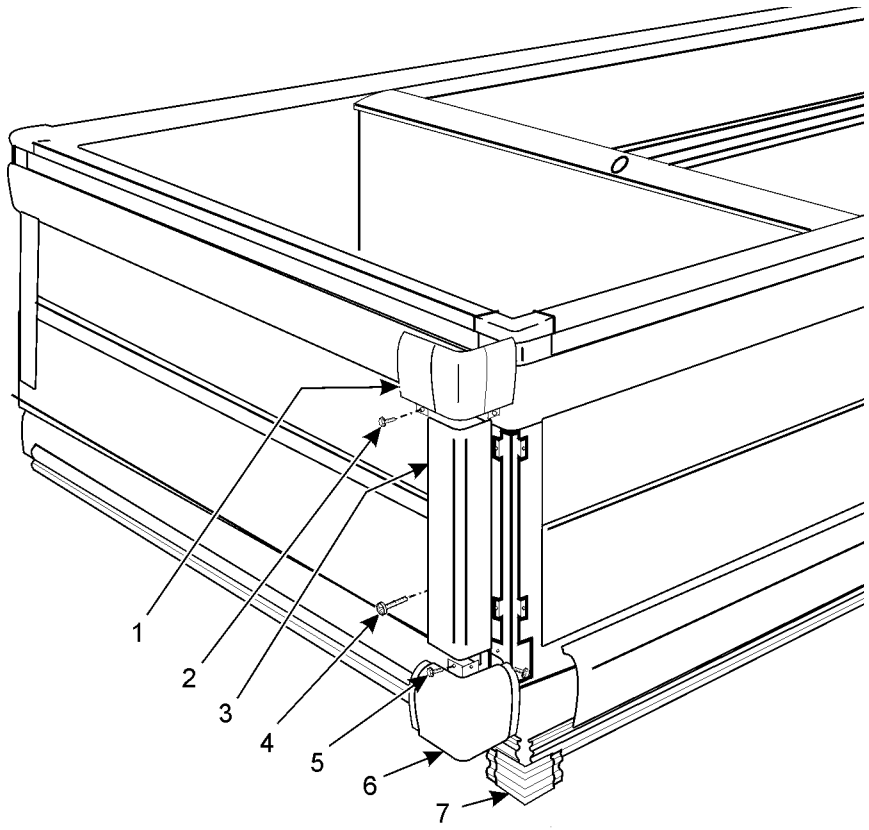
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Operational Parts List

Case Usage	Domestic			Export		
Electrical Circuit	115 Volt 60 Hertz			220 Volt 50 Hertz		
Case Size	8’	12’	End Case	8’	12’	End Case
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” 21° 3B)	5105621	5105621	5105621	----	----	----
(6” 27° 3B)	----	----	----	5104294	5104294	5104294
Opt. ECM Fan Motors	9025002 8 Watt	9025002 8 Watt	9025002 8 Watt	----	----	----
Opt ECM Fan Motor Brackets	5205279	5205279	5205279	----	----	----
Opt. ECM Fan Blades (6” 25 1/4° 3B)	9025138	9025138	9025138	----	----	----
Anti-Sweat Heater Wire (dis. & ret. air) (NFJ/NCJ/NTJ)	5124818	5124819	----	5081149	5081150	----
(disch. air)(NFJE/NCJE)	----	----	5028893	----	----	5081271
(return air)(NFJE/NCJE)	----	----	5080970	----	----	5081201
Electric Def. Heater	5088278	5088279	5195710	5088278	5088279	----
Electric Def. Term. Klixon	5125211	5125211	5125211	5125211	5125211	----
Opt. Gas Def. Fan Delay Klixon (Med or Dual Temp only)	9023503	9023503	9023503	9023503	9023503	----
Opt. Gas Def. Term. Klixon	9023508	9023508	9023508	9023508	9023508	----
Waste Pipe Heater	5215068	5215068	5963471	5216300	5216300	5963472
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.