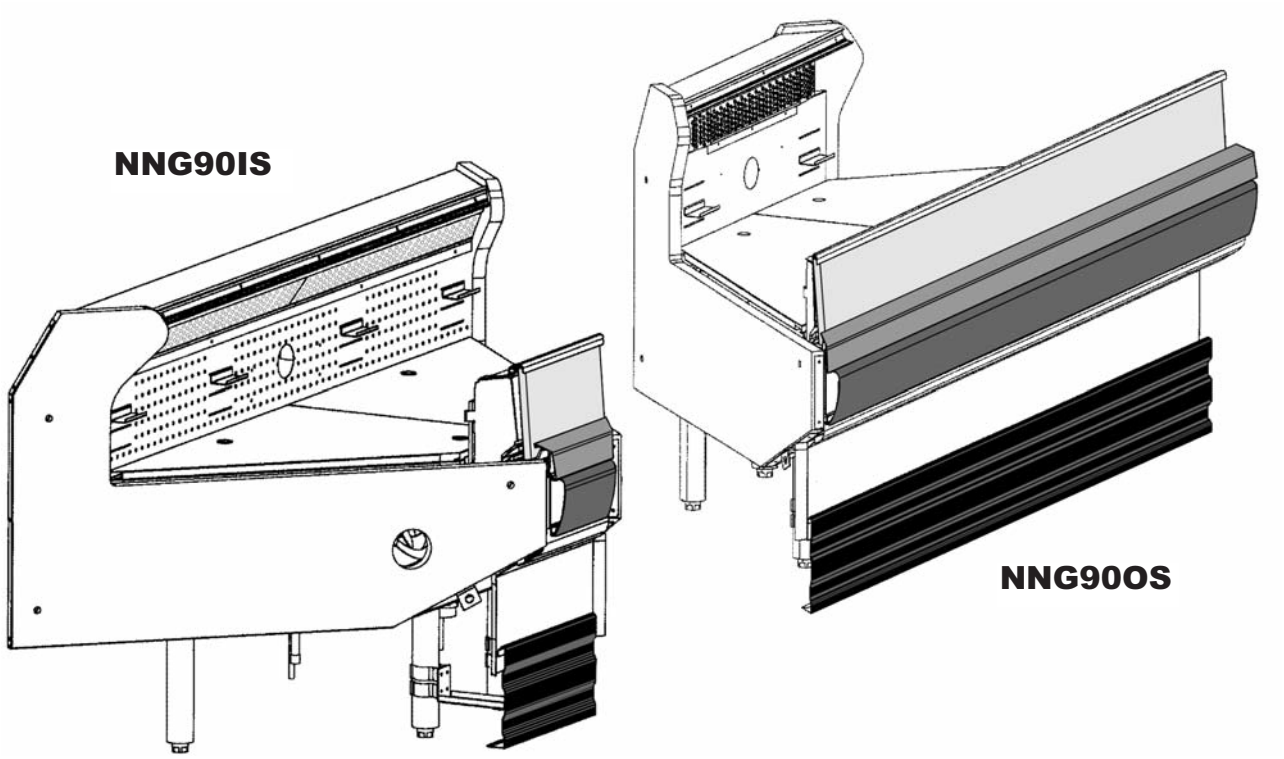
TYLER
REFRIGERATION

Carrier
A United Technologies Company

series Advantage

Installation & Service Manual



NNG CORNER (WEDGE) CASES

INSIDE/OUTSIDE SELF-SERVE CHEESE/DELI CORNER MERCHANDISERS
Medium Temperature Refrigerated Corner 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.

PRINTED IN IN U.S.A.	Specifications subject to change without notice.	REPLACES EDITION	1/06	ISSUE DATE	4/08	PART NO.	9037175	REV.	C

Tyler Refrigeration * Niles, Michigan 49120

CONTENTS

The following Medium Temperature Self-Service Cheese/Deli Wedge Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
NNG90IS	90° INSIDE GLASS FRONT CHEESE/DELI WEDGE MERCHANDISERS
NNG90OS	90° OUTSIDE GLASS FRONT CHEESE/DELI WEDGE MERCHANDISERS

SPECIFICATIONS

NNG Self-Service Medium Temp Cheese/Deli Wedge Specifications

Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / CS)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/CS)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)***	
NNG90IS	71"	MED TEMP DELI	2,560*	2,793*	+15**	+12	+25	-----	-----
NNG90OSA	77"	MED TEMP DELI	3,715*	4,049*	+15**	+12	+25	-----	-----

* 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 measured 1 hour after defrost at the rear top discharge air duct using an ALNOR JR. velometer with a scoop.

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 and Heaters (120 Volt)

MODEL	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		DISCHARGE AIR ANTI-SWEAT	
		AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
NNG90IS	1	0.34	30.2	-----	-----	0.14	17.0
NNG90OSA	2	0.68	60.4	-----	-----	0.14	17.0

Defrost Data:

DEFROST TYPE	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION TEMP. (°F)	BACKUP PRESSURE SETTINGS *		EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)
				CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	
TIME OFF – CHEESE	6	28	N/A	40# @ R22	30# @ R22	43	56	-----
TIME OFF – DELI	6	28	N/A	35# @ R22	25# @ R22	38	50	-----

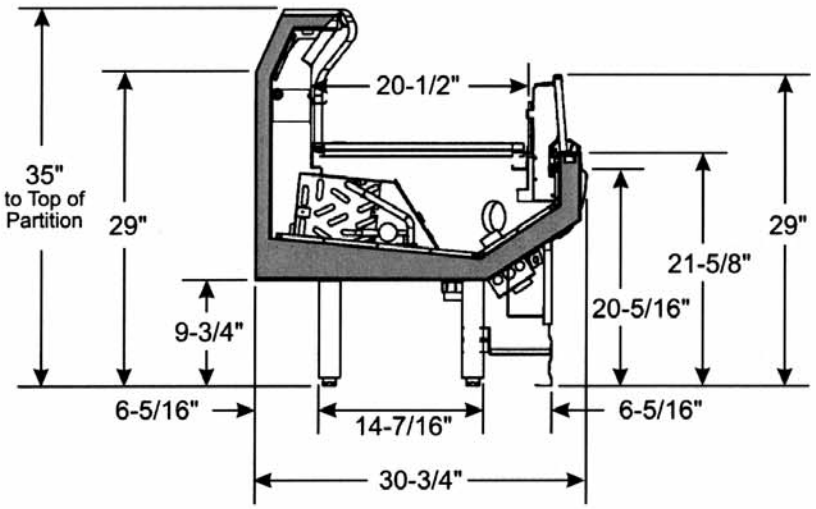
* Used with electronic thermostat and EPR control.
** Set EPR to give this pressure at the case.

TEMPERATURE CONTROL can be achieved by a thermostat, suitably sized EPR, or Low Pressure Control. The Discharge Air Thermostat should be set at 28°F CUT IN; the EPR set at 43# (R22); and Low Pressure Control (see table).

NSF CERTIFIED to meet ANSI/NSF – 7.

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

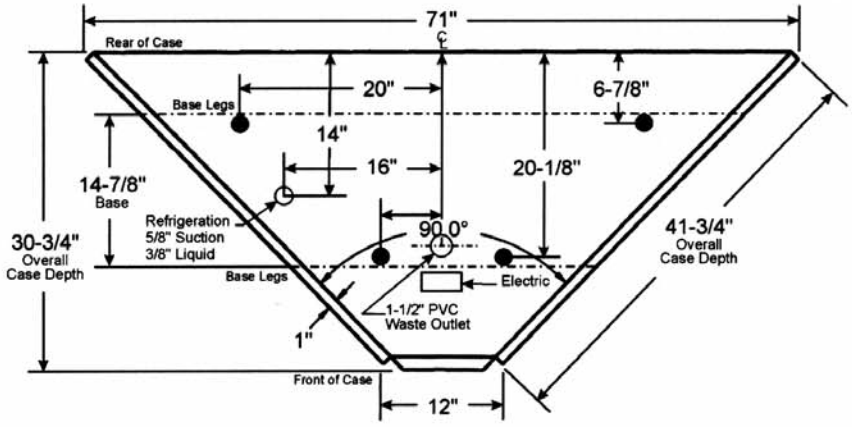
NNG WEDGE CROSS SECTION



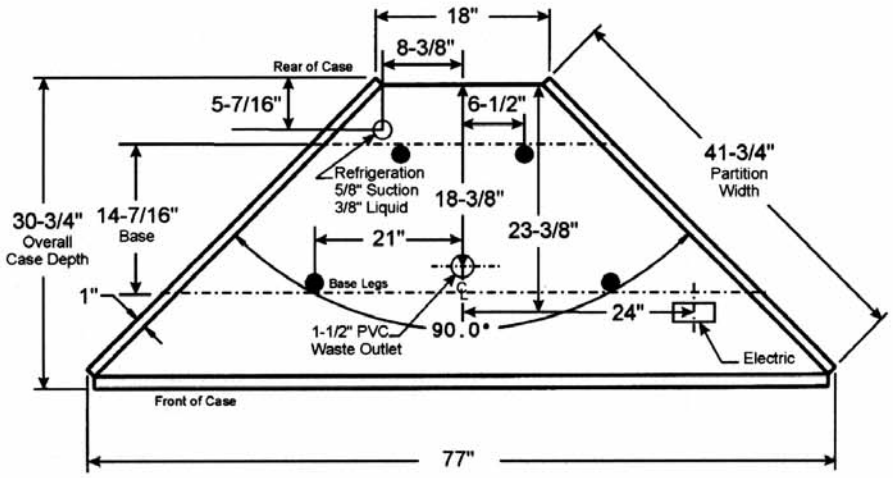
This drawing shows the dimensions for the NNG90OS. Width and depth dimensions will vary on other wedge cases. See floor plan views for specific width and depth dimensions.

NNG WEDGE FLOOR PLANS

NNG90IS



NNG90OS



INSTALLATION PROCEDURES

WARNING

Corner cases are not intended as stand alone commercial refrigerated merchandisers. They must be bolted to the adjoining case(s) to provide stability. Failure to do so could result in product damage and/or possible personal injury.

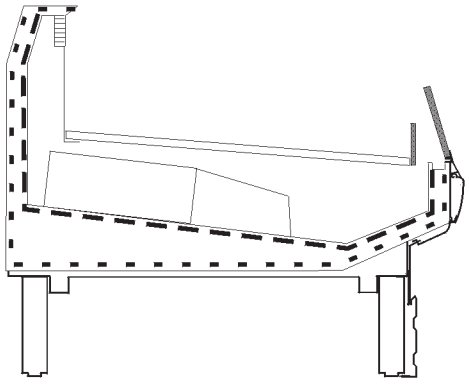
Carpentry Procedures

Case Line-up and Pull-Up Locations

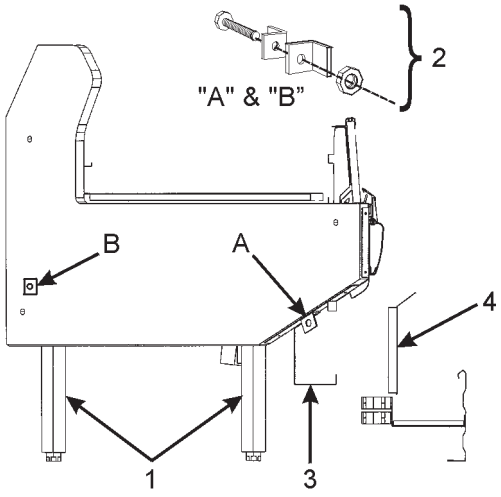
Before starting the case line-up, review the store layout floorplans and survey the areas where case line-ups are going to be installed.

WARNING

Corner cases can be very heavy and possibly top heavy before they are secured in a line-up. Always use a lifting device to remove case from skid and two or more people to move and position case. Improper handling of these cases could result in product damage and/or personal injury.



1. Apply two heavy beads of caulking compound from the Filler Kit to the ends of the adjoining cases at dotted (. . .) and dashed (- - -) lines. Proper caulking provided good case refrigeration and sanitation.
2. Using an appropriate lifting device, lift corner case from skid and install four pipe legs. Lower corner case to floor.



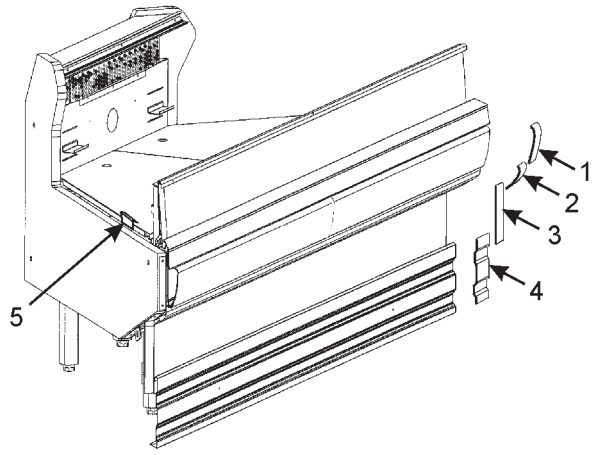
3. Position corner case at end of case line-up so front bumpers and case pull-ups line up.
4. Adjust legs inserts in bottom of legs (1), up to 1 1/2", to align and level pull-ups and bumpers. Push corner case tight against case line-up.

CAUTION

Do not drill or use other holes through the case end for pull-ups. This may deform the case ends and could cause joint leaks and/or poor refrigeration.

5. Secure corner case to case line-up by installing pull-up bolts and mounting hardware (2) at pull-up locations (A & B). **NOTE:** Do not tighten any pull-up hardware until all of it has been installed. Tighten all pull-up hardware equally starting at point A and finishing at point B. **Do not overtighten.**
6. Install lower front cladding support (3) to foam body with screw.
7. Install lower front cladding (4) and secure to upper front cladding and lower front cladding support (3) with screws.

Trim & NSF Thermometer Installation



The joint trim and mounting hardware are shipped loose. Trim includes bumper joint trim (1), front upper cladding joint trim (2), front lower cladding joint trim (3) and kickplate joint trim (4).

The NSF product thermometer and bracket assembly (5) is shipped loose with the case. After removing the thermometer and bracket assembly from the shipping packaging, position it on the inside of the front bottom left cutout in the partition. Secure bracket to partition with two screws.

Electrical Procedures

Electrical Considerations

CAUTION

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

NOTE

The electrical components are located in the electrical terminal box at the right front of the case, behind the lower front cladding.

Case Fan Circuit

This circuit is to be supplied by an uninterrupted, protected 120V circuit. The case fan circuit is not cycled during defrost on any of these models.

Anti-Sweat Circuit

A discharge air anti-sweat heater is located in the bull nose. It is wired directly to the main power supply so it can operate at all times.

Defrost Information

See "General-UL/NSF I&S Manual" for operational descriptions for Off Time defrost control.

Defrost Control Chart

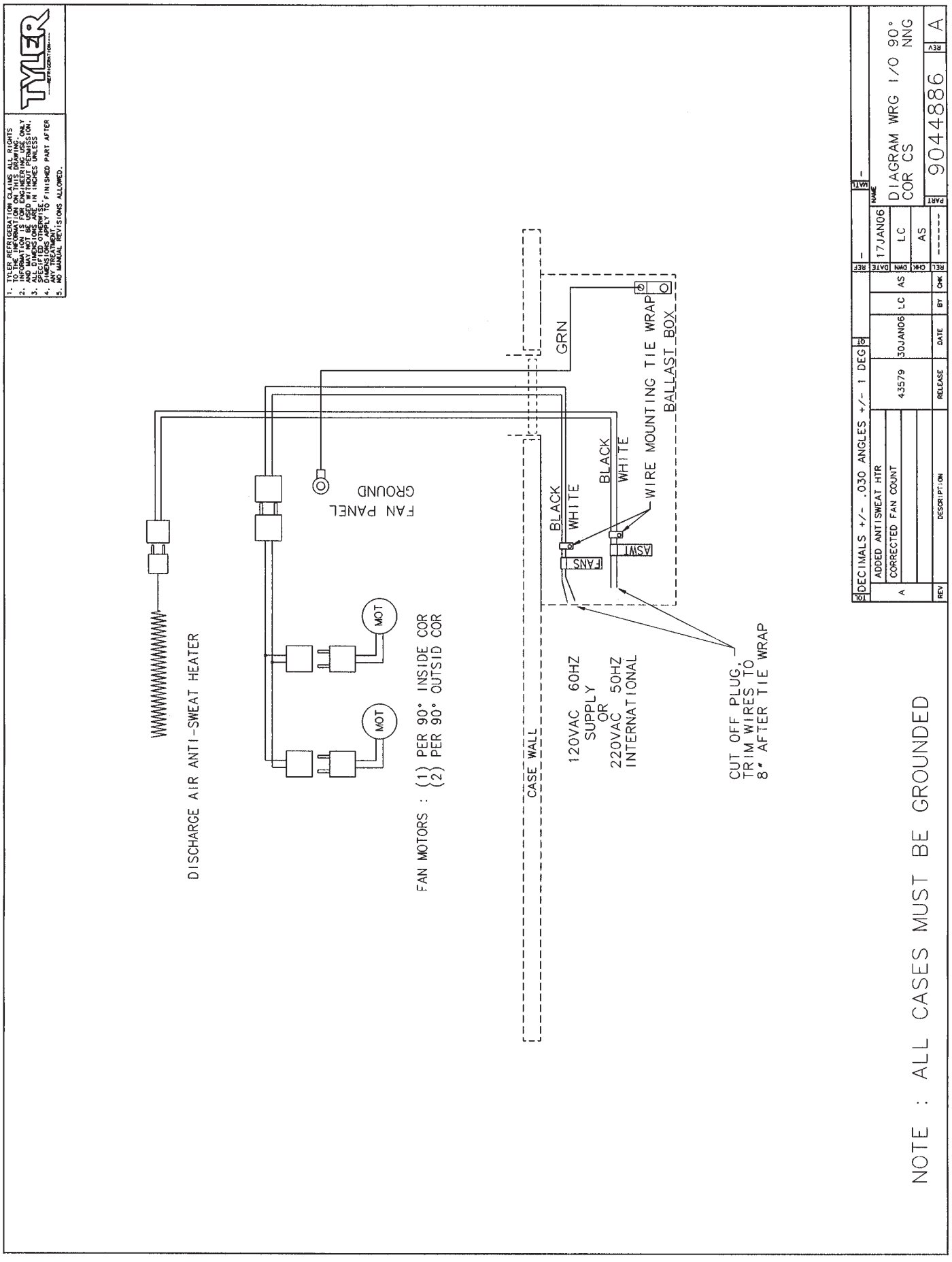
Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	6	28	-----

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 diagram on page 7 will cover all the NNG IS and NNG OS corner case circuits.


1. TYLER REFRIGERATION CLAIMS ALL RIGHTS TO THE INFORMATION ON THIS DRAWING.
2. INFORMATION IS FOR ENGINEERING USE ONLY AND MAY NOT BE USED IN ANY FABRICATION.
3. ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
4. FINISH DOES NOT APPLY TO FINISHED PART AFTER ANY TREATMENT.
5. NO MANUAL REVISIONS ALLOWED.
TYLER REFRIGERATION
DECIMALS +/- .030 ANGLES +/- 1 DEG
ADDED ANTISWEAT HTR
CORRECTED FAN COUNT
43579
30JAN06
LC
17JAN06
DIAGRAM WRG I/O 90° COR CS NNG
9044886
A
DISCHARGE AIR ANTI-SWEAT HEATER
FAN PANEL GROUND
MOT
MOT
FAN MOTORS : (1) PER 90° INSIDE COR
(2) PER 90° OUTSID COR
GRN
BLACK
WHITE
BLACK
WHITE
WIRE MOUNTING TIE WRAP
BALLAST BOX
FANS
ASWT
CASE WALL
120VAC 60HZ
SUPPLY
OR
220VAC 50HZ
INTERNATIONAL
CUT OFF PLUG,
TRIM WIRES TO
8" AFTER TIE WRAP
NOTE : ALL CASES MUST BE GROUNDED

CLEANING AND SANITATION

Component Removal and Installation Instructions for Cleaning

Lower Trays and Screens

1. Remove product from the case interior.
3. Grasp and lift out each lower tray or screen from the bottom of the case.
4. After cleaning, replace in reverse order.

Front Air Ducts

1. Remove lower trays or screens, see this page.
2. Lift out front air duct sections.
3. After cleaning, replace in reverse order.

Rear Air Ducts

1. Remove lower trays or screens, see this page.
2. Remove mounting screws from rear air duct.
3. Lift out rear air duct sections.
4. After cleaning, replace in reverse order.

Front Lower Cladding

1. Remove screws, kickpate corner trim and lower cladding corner trim.
2. Remove the front kickplate.
3. Remove bottom screws and pull down front lower cladding to clear top tabs from front upper cladding. Remove front lower cladding from case.
4. After cleaning, replace front lower cladding by inserting top tabs in front upper cladding and secure it with bottom screws. Replace front kickplate.

Front Upper Cladding

1. Remove front lower cladding. See this page.
2. Remove screws, bumper joint trim and upper cladding joint trim from front corners of the case.
3. Remove color band, bumper and bumper retainer from the case. See “General-UL/NSF I&S Manual”.

NOTE

Lower cladding support brackets will come off when bottom screws are removed from front upper cladding.

4. Remove screws from bottom and sides of front upper cladding and remove lower cladding support brackets and front upper cladding.
5. After cleaning, replace lower cladding support brackets, front upper cladding and remaining front components in the reverse order.

SERVICE INSTRUCTIONS

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

Connecting the Refrigeration Piping and Components

WARNING

Be sure to position a flame and heat-resistent shield over the bottom of the case liner. Heat from brazing could damage the liner and/or cause personal injury or death from fire.

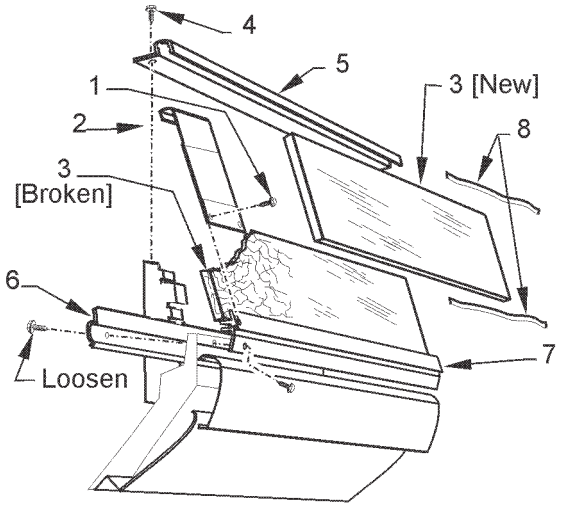
1. Remove screws and refrigeration piping cover from the left bottom of the case.
2. Position loose refrigeration piping and/or optional valves between the open lines in the bottom and upright of the case.

NOTE

- **Make sure all sensor and thermostat wires are clear of areas being heated.**
- **Mount all refrigeration lines off the floor to allow for cleaning access.**

3. Apply flux to all joint ends. Starting at one end, thoroughly heat each new pipe joint and braze it together. Repeat this process until all new pipe joints have been brazed.
4. After piping has cooled, route and connect thermostat and sensor wires through openings in the bottom of the case.

Front Glass Replacement

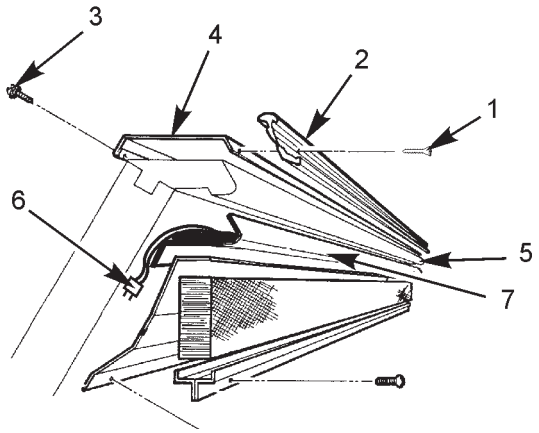


1. Remove screw (1) and glass joint trim (2) from both joints of the broken glass (3).
2. Remove screws (4) and glass trim rail (5) from top of glass (3).
3. Loosen rear retainer (6) and remove broken glass (3) from glass retainer assembly (7).
4. Apply sealant tape (8) to top and bottom edge of new glass (3).
5. Position new glass (3) in glass retainer assembly (7) and secure by tightening rear retainer (6).
6. Install glass trim rail (5) with screws (4) over top edge of new glass (3).
7. Install glass joint trim (2) with screw (1) over the joint areas of glass (3).

Anti-Sweat Heater Replacement (Discharge Air)

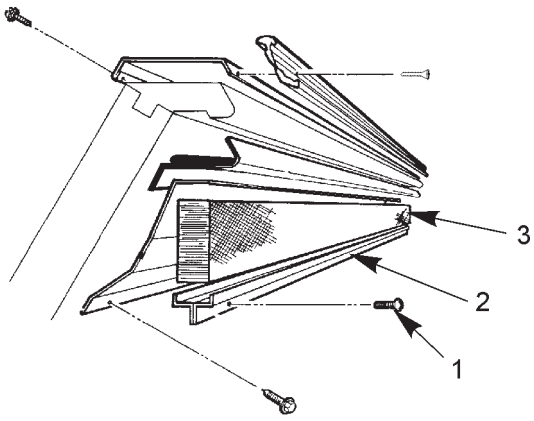
WARNING

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



1. Remove screws (1) and card molding (2) from front of rear riser.
2. Remove screws (3), upper rear riser trim (4) and insulation (5) from top of rear riser.
3. Disconnect or cut the defective anti-sweat wire (6) from case wires.
4. Remove the aluminum tape and defective anti-sweat wire (6) from the lower riser trim (7).
5. Position new anti-sweat wire (6) on the lower riser trim (7) and secure with aluminum tape.
6. Connect or splice the new anti-sweat wire (6) to the case wires.
7. Position the insulation (5) on the lower riser trim (7).
8. Install the upper rear riser trim (4) on top of rear riser with screws (3).
9. Install card molding (2) on front of rear riser with screws (1).
10. Restore electrical power to case.

Discharge Grid Replacement



1. Remove screws (1) lower grid retainer (2) and discharge grid (3).
2. Replace discharge grid (3) and lower grid retainer (2) and secure with screws (1).

PARTS INFORMATION

Cladding and Optional Trim Parts List

Item	Description	90°IS	90°OS
1	Upper Rear Panel	9455130	9450692
2	Card Molding	9455171	9450671
3	Bumper Joint Trim	--- color per order ---	
4	Color Band, Painted	9455154	9450675
5	Bumper	--- color per order ---	
6	Bumper Retainer	9452901	9450388
7	Upr. Front Cladding Joint Trim, RH	9453655	9450863
	Upr. Front Cladding Joint Trim, LH	9453651	9450864
8	Upper Front Cladding	9452890	9450336
9	Lwr. Front Cladding Joint Trim, Std.	-----	9450837
	Lwr. Front Cladding Joint Trim, Opt.	-----	9450836
10	Lower Front Cladding, Std.	9452889	9450335
	Lower Front Cladding, Opt.	-----	9450813
11	Lwr. Front Cladding Support, Std.	9451029	9451029
	Lwr. Front Cladding Support, Opt.	-----	9451030
12	Kickplate Joint Trim	9453645	9451025
13	Kickplate Assembly, Std.	9452885	9450315
14	Pipe Leg, Std. (1.5” X 9.75”)	9024894 (4)	9024894 (4)
	Pipe Leg, Opt. (1.5” X 6.00”)	9024893 (4)	9024893 (4)
15	Electrical Box Cover, Painted	5968093	5968093
	Screw	9024814 (2)	9024814 (2)
16	NSF Product Thermometer	5967100	5967100
17	Opt. Rear Base Close-off for 52CH	9452963	9450316
	Opt. Rear Base Close-off for 48CH	-----	9450369

Operational Parts List

Case Usage	Domestic	Domestic
Electrical Circuit	115 Volt 60 Hertz	115 Volt 60 Hertz
Case Size	90°IS	90°OS”
Fan Motor	5125532 5 Watt	5125532 5 Watt
Fan Motor Brackets	5213132	5213132
Fan Bracket Plate	9041077	9041077
Fan Blades		
(6” 21° 5B)(NNG90IS)	5105621	-----
(6” 35° 5B)(NNG90OS)	-----	9450091
Anti-Sweat Heater (Discharge Air)	9403434	9403434
NSF Product Thermometer	5967100	5967100

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