



Carrier

A United Technologies Company

**A^{series}
Advantage**

Installation & Service Manual



N7DNL, NHD(L/M)

**EXTENDED HEIGHT MULTI-SHELF DAIRY/DELI/PRODUCE/JUICE
MERCHANDISERS**

Medium 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 Extended Height Medium Temperature, Multi-Shelf Dairy, Deli, Produce and Juice Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
N7DNL	8' & 12' EXTENDED HEIGHT MED. TEMP. NARROW MERCHANDISER WITH 18" FRONT
NHDL	6', 8' & 12' EXTENDED HEIGHT MED. TEMP. MERCHANDISER WITH 18" FRONT
NHDM	6', 8' & 12' EXTENDED HEIGHT MED. TEMP. MERCHANDISER WITH 22" FRONT

SPECIFICATIONS

N7DNL Extended Height Narrow Multi-Shelf Medium Temp 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)	
N7DNL	8'/12'	MED TEMP	1532*	1663*	+21**	+19	28	242***	0.71****

* Capacity data listed for cases with 2 rows of T-8 canopy lights and 6 rows of unlighted shelves. Adjustments must be made to this base rating for each option installed on this case. ADD 23 BTUH/FT for each row of lighted shelves. NOTE: Contact TYLER for Peg Bar or Produce Insert Capacity Adjustments. 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 top discharge air duct using an ALNOR JR. velometer with a scoop.

**** This is an average refrigeration charge per foot based on R22 and R404A refrigerant usage.

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 and 208 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS (120V)		208 VOLT DEFROST HEATER	
			AMPS	WATTS	AMPS	WATTS	DISCHARGE AIR AMPS	DISCHARGE AIR WATTS	AMPS	WATTS
N7DNL	8'	2	1.06	96	0.64	34	N/A	N/A	N/A	N/A
N7DNL	12'	3	1.59	144	0.96	51	N/A	N/A	N/A	N/A

* Discharge air anti-sweat heater will only be on when the canopy lights are off. Use highest amp draw of the two circuits to figure electrical case requirements.

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS* (2-ROWS)		SHELF LIGHTS – PER ROW												NOSE LIGHT		MAX. LIGHTING (3 ROWS)	
		AMPS	WATTS	AMPS						WATTS						AMPS	WATTS	AMPS	WATTS
				1	2	3	4	5	6	1	2	3	4	5	6				
N7DNL	8'	0.95	114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50	60	1.45	174
N7DNL	12'	1.40	168	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.70	84	2.10	252

* Standard lighting for this case is 2 rows of T-8 canopy lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION (°F)	EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)
				R22 (PSIG)	R404A (PSIG)	
TIME OFF	6	19	- - -	44	57	11.95

* If an Electronic Sensor is used for termination, it should be set at 70°F termination temperature. The sensor must be located in the same location as the defrost termination klixon for that defrost type.

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

DEFROST CIRCUITS: OFF CYCLE defrost is standard (use TC defrost module). **OPTIONAL ELECTRIC OR HOT GAS** defrost is not available for these cases at this time.

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING													
MODEL	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'	52'	56'
N7DNL R22	5/8"	7/8"	7/8"	7/8"	1-1/8"	1-1/8"	1-1/8"	1- 1/8"	1- 1/8"	1-3/8"	1- 3/8"	1- 3/8"	1-3/8"

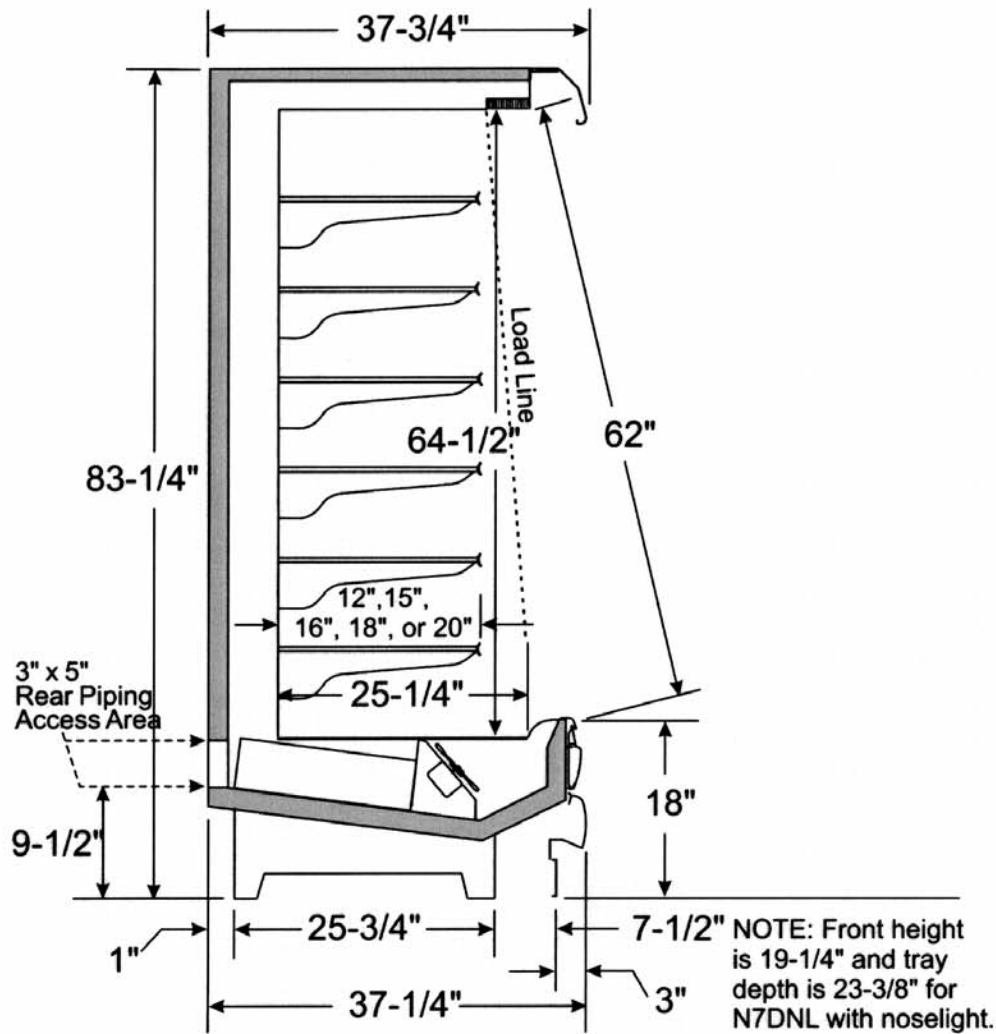
SHELVING NOTES: Shelving widths available for these cases are 12, 15, 16, 18" and 20". When two sizes are used, the smaller must be used on top.

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

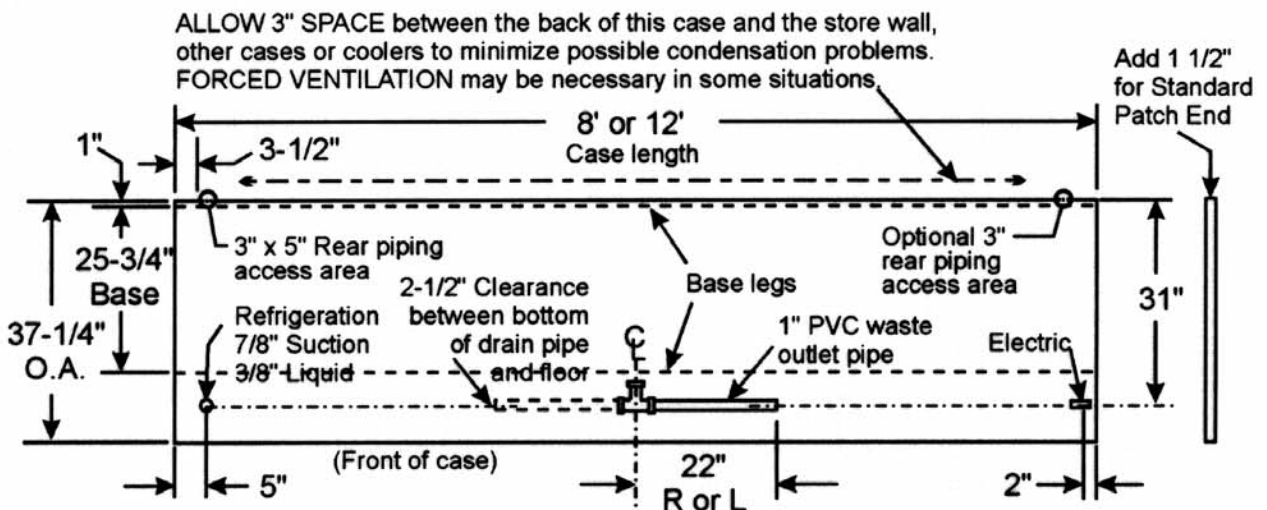
CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of **75°F & 55RH**.

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.

N7DNL CROSS SECTION



N7DNL FLOOR PLAN



NHD(L, M) Extended Height Multi-Shelf Medium Temp 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)	
NHDL	6'8'/12'	MED TEMP	1,431*	1,533*	+21**	+19	+32	300***	0.71****
NHDM	8'/12'	MED TEMP	1,381*	1,480*	+21**	+19	+32	300***	0.71****

* Capacity data listed for cases with 2 rows of T-8 canopy lights and 4 rows of unlighted shelves. Adjustments must be made to this base rating for each option installed on this case. ADD 23 BTUH/FT for each row of lighted shelves. ADD 411 BTUH/FT for peg bars. NOTE: Baffles are required above each peg bar row to provide proper air flow around the food products. ADD 74 BTUH/FT for produce inserts. 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 top discharge air duct using an ALNOR JR. velometer with a scoop.

****This is an average refrigeration charge per foot based on R22 and R404A refrigerant usage.

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 and 208 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS (120V)		208 VOLT DEFROST HEATER	
			AMPS	WATTS	AMPS	WATTS	DISCHARGE AIR AMPS	WATTS	AMPS	WATTS
NHDL	6'	2	1.06	96.0	0.64	34.0	N/A	N/A	4.70	975.0
NHD(L/M)	8'	2	1.06	96.0	0.64	34.0	N/A	N/A	6.90	1,430.0
NHD(L/M)	12'	3	1.59	144.0	0.96	51.0	N/A	N/A	10.30	2,145.0

* Discharge air anti-sweat heater will only be on when the canopy lights are off. Use highest amp draw of the two circuits to figure electrical case requirements..

Heaters (208 Volt)

208 VOLT DEFROST (AMPS)												
FT	6	8	12	16	20	24	28	32	36	40	44	48
1 PH	4.7 TG-30	6.9 TG-30	10.3 TG-30	13.8 TG-30	17.2 TG-30	20.6 TG-30	24.1 TG-40	27.5 TG-40	30.9 TG-40	34.4 TG-50	37.8 TG-50	41.2 TG-50
3 PH	N/A	N/A	N/A	12.0 TG-3-30	15.0 TG-3-30	18.0 TG-3-30	15.0 TG-3-30	18.0 TG-3-30	18.0 TG-3-30	21.0 TG-3-30	25.0 TG-3-40	28.0 TG-3-40

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS* -- PER ROW				SHELF LIGHTS -- PER ROW										NOSE LIGHT		MAX. LIGHTING (8 ROWS)	
		AMPS		WATTS		AMPS					WATTS					AMPS	WATTS	AMPS	WATTS
		1	2	1	2	1	2	3	4	5	1	2	3	4	5				
NHD	6'	0.40	0.75	48	90	0.60	0.90	1.20	1.50	1.90	72	108	144	180	228	0.40	48	3.05	366
NHD	8'	0.50	0.95	60	114	0.90	1.20	1.60	1.90	2.40	108	144	192	228	288	0.50	60	3.85	462
NHD	12'	0.70	1.40	84	168	1.35	1.80	2.40	2.85	3.55	162	216	288	342	426	0.70	84	5.65	678

* Standard lighting for this case is 2 rows of T-8 canopy lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION (°F)	EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)
				R22 (PSIG)	R404A (PSIG)	
TIME OFF	4	24	- - -	44	57	2.5
ELECTRIC	4	24	41			
HOT GAS	4	15	55*			

* If an Electronic Sensor is used for termination, it should be set at 70°F termination temperature. The sensor must be located in the same location as the defrost termination klixon for that defrost type.

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

DEFROST CIRCUITS: OFF CYCLE defrost is standard (use TC defrost module) – **OPTIONAL ELECTRIC** defrost uses a single or 3 phase 208V circuit – **OPTIONAL HOT GAS** defrost uses 2 control wires.

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

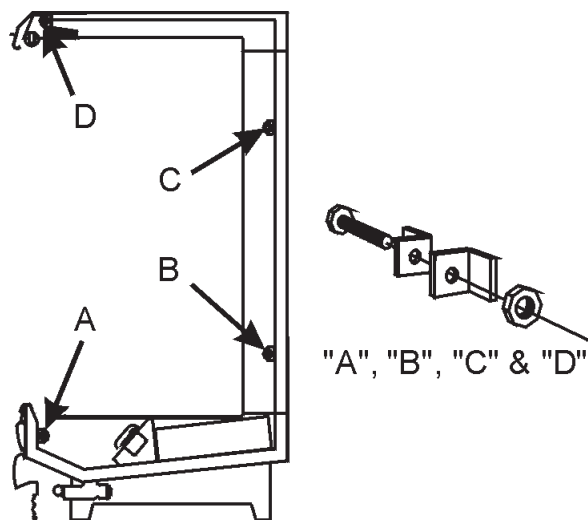
CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of **75°F & 55RH**.

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INSTALLATION PROCEDURES

Carpentry Procedures

Case Pull-Up Locations



All the N7DNL and NHD models have four pull-ups at each end of the case. Pull-ups A, B, C and D are located as shown and should be installed and tightened starting with A and finishing with D.

NOTE

If extra pull-up bolts are needed, use the bolts from the side shipping supports.

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

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

Raceway covers will be shipped loose. See the "General-UL/NSF I&S Manual" for raceway cover installation and removal instructions.

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 (NHD models only). On gas defrost cases the fans circuit is controlled by a klixon.

Fluorescent Lamp Circuit

The standard lighting for N7DNL and NHD cases is 2 rows of T-8 canopy lights. Optional T-8 Nose Light is available on all models, while T-8 shelf lighting is only available on the NHD models.

Defrost Information

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

Defrost Control Charts

N7DNL Models

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	6	19	-----

The N7DNL cases do not have any klixons.

NHD Models

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	4	24	-----
Electric	4	24	41°F
Gas	4	15	55°F

Most klixons are located on the right end of the evaporator coil.

NOTE

The Gas Defrost Termination klixon is located at the by-pass check valve.

CAUTION

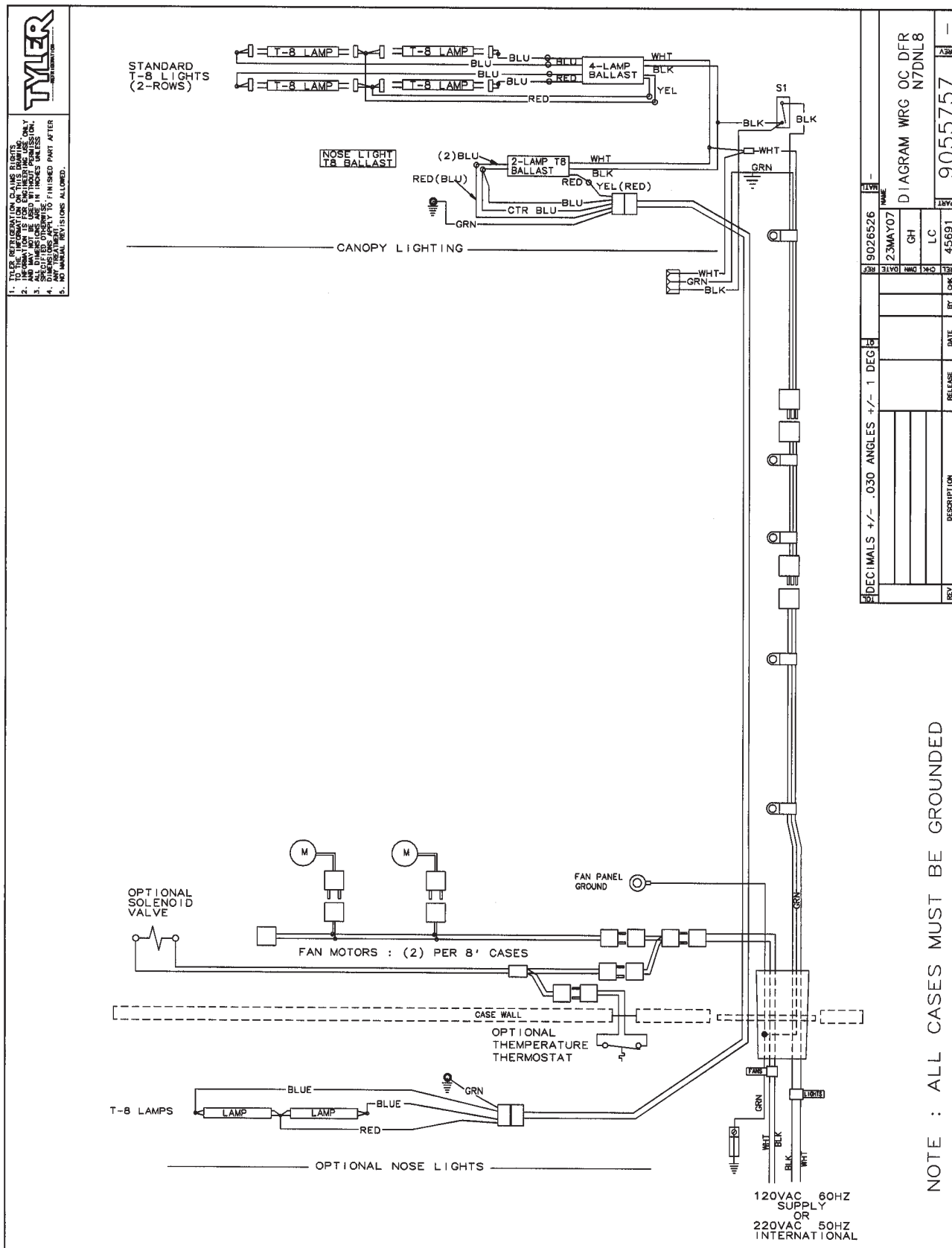
If electronic sensors are used in place of the klixons, the sensors must be located in the same location as the klixons for that defrost type. Any other locations will effect the refrigeration efficiency of the case.

WIRING DIAGRAMS

ELECTRICIAN NOTE - OVERCURRENT PROTECTION

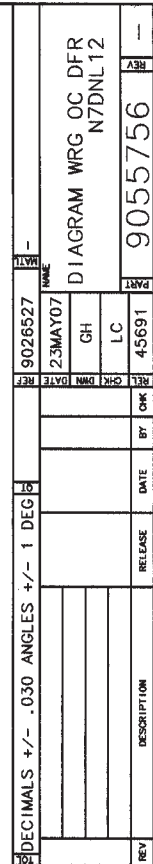
120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end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

N7DNL Domestic & Export (50 Hz) Case Circuits (8' Cases)



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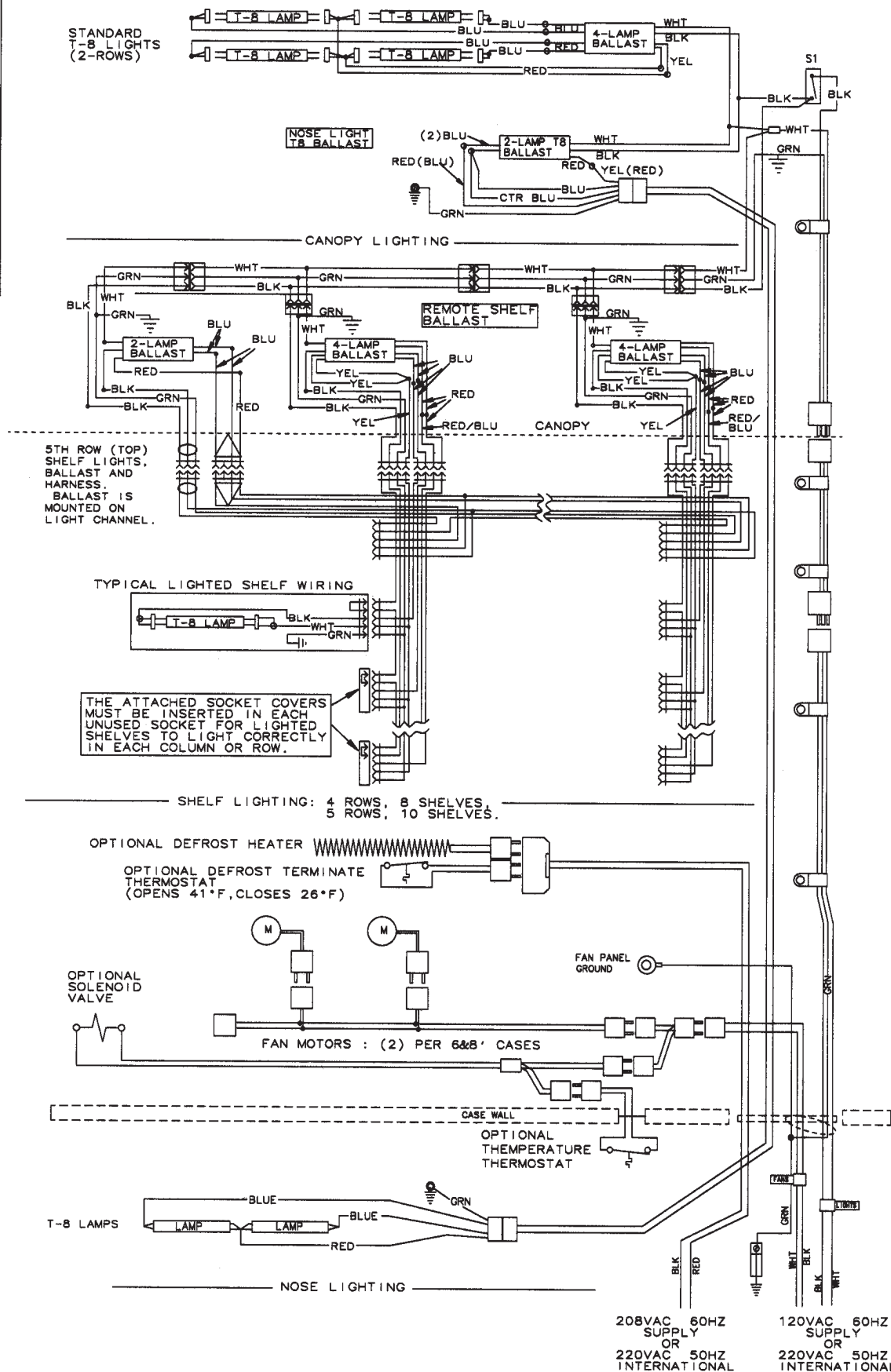


NOTE : ALL CASES MUST BE GROUNDED

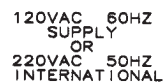
NHD(L, M) Domestic & Export (50 Hz) Case Circuits (6' & 8' Cases)

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DECIMALS +/- .030 ANGLES +/- 1 DEG		ID		NAME		28MAR97		REV		1	
REMOVED HO LAMPS		45407		26FEB07		LC		GE			
						OK		OK			
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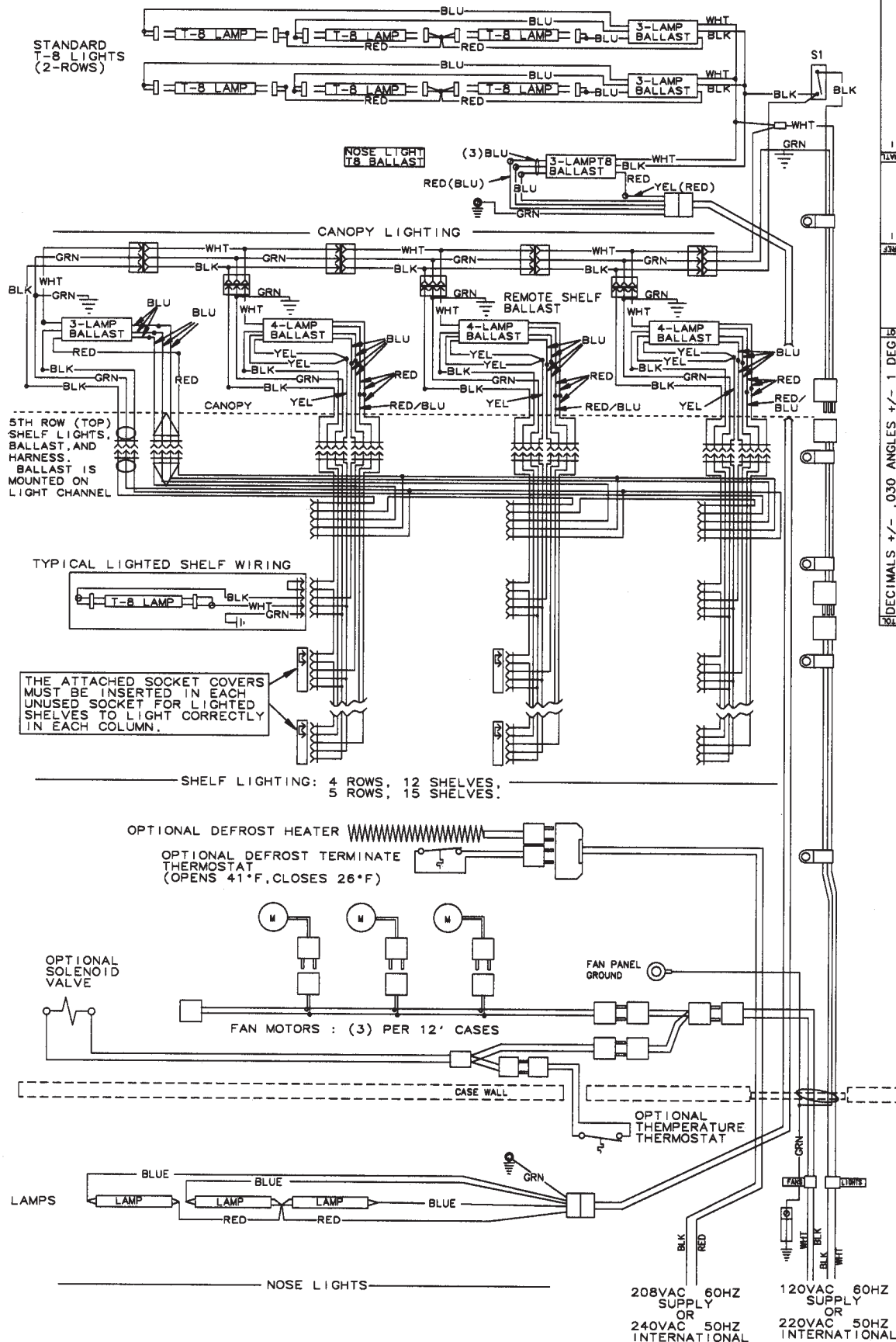


NOTE : ALL CASES MUST BE GROUNDED

NHD(L, M) Domestic & Export (50 Hz) Case Circuits (12' Cases)

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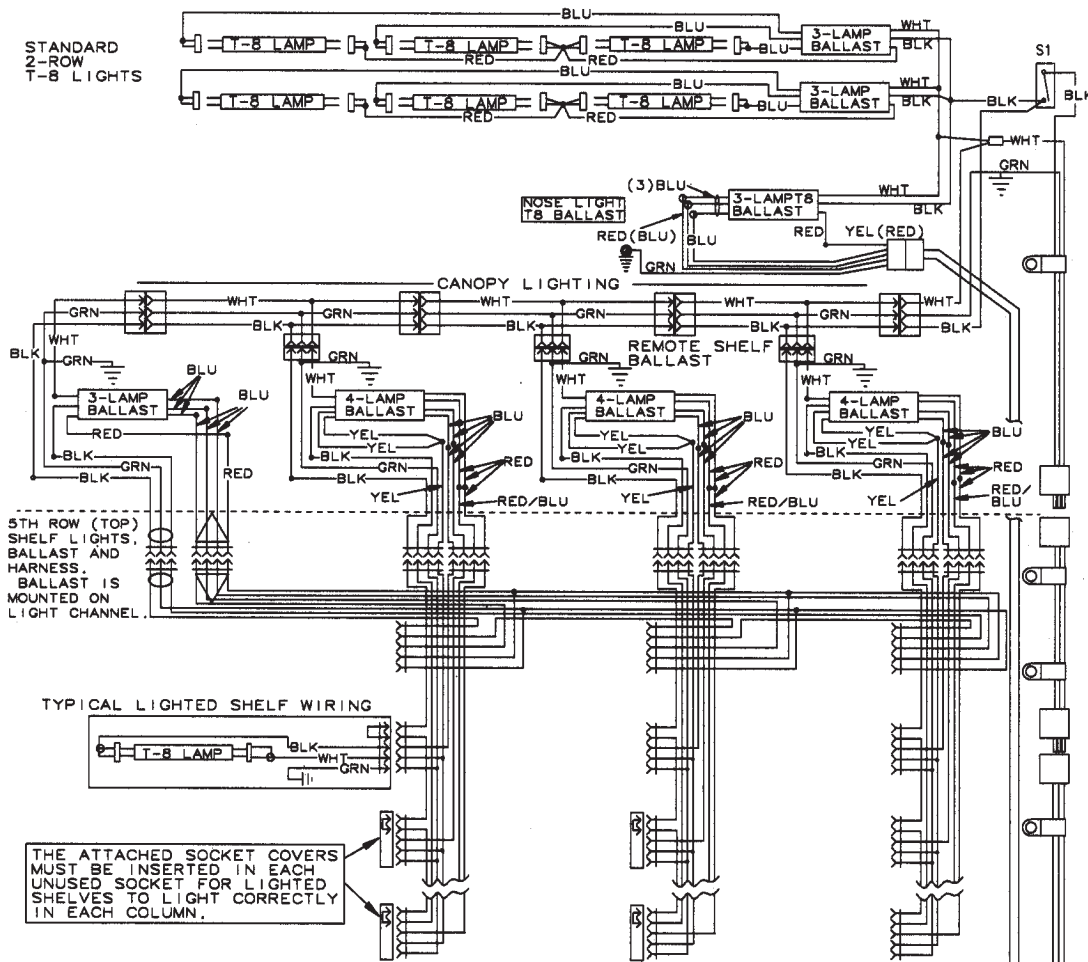


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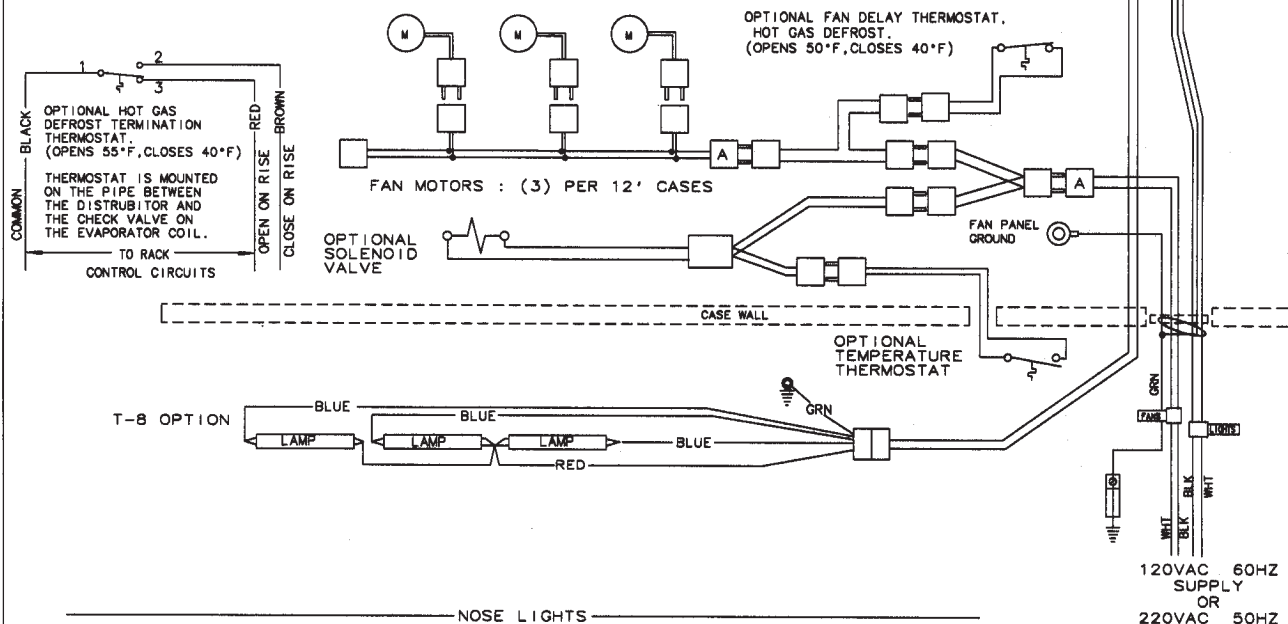
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4. DIMENSIONS APPLY TO FINISHED PART AFTER FINISHING.
5. NO MANUAL REVISIONS ALLOWED.



SHELF LIGHTING: 4 ROWS, 12 SHELVES.
5 ROWS, 15 SHELVES.



REV	DATE	BY	CHK	DATE	DESCRIPTION
1	13 JUL 98	LC	CK	98-003H	REWORK HO LAMPS
2	23 FEB 07	LC	CK	45407	REWORK HO LAMPS
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NOTE : ALL CASES MUST BE GROUNDED

CLEANING AND SANITATION

Component Removal and Installation Instructions for Cleaning

Shelves and Shelf Brackets

1. Remove product from shelves.
2. If shelf has a light, unplug the light cord from the socket in the rear duct panel. Completely insert socket cover in the light socket to protect the receptacle.
3. Push shelves back and then lift up and out to remove them from the shelf brackets.
4. Remove shelf brackets from slots in rear uprights.
5. After cleaning, replace in reverse order.

Bottom Trays

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

Front Air Ducts

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

Rear Duct Panels

(w/o Shelf Light Sockets)

1. Remove shelves and bottom trays, see above.
2. Remove mounting screws and rear duct panels from case.
3. After cleaning, replace and secure rear duct panels in reverse order.

(with Shelf Light Sockets)

1. Remove shelves and bottom trays, see above.
2. For cases with 5 rows of lighted shelves, remove screw above top shelf socket and push socket assembly back through the hole in the rear duct panel.
3. Remove mounting screws from rear duct panel.

4. Slowly lift out rear duct panel until the shelf harness connector near the top of the panel can be accessed.
5. Disconnect shelf harness connector and complete removing the rear duct panel.

WARNING

Rear duct panels with electrical receptacles can be cleaned without removing the electrical receptacles. Do not get moisture on electrical wires when cleaning under this cover. Moisture on wires could cause premature product failure and/or personal injury or death from electrical shock.

6. After cleaning, reconnect the shelf harness connector: install the top socket assembly: replace and secure rear duct panels in reverse order.

Discharge Air Honeycomb

1. Loosen screws securing rear retainer plate.

NOTE

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

2. Slide rear retainer plate back until the honeycomb grid sections can be removed from the top 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 rear retainer plate and screws.

Top Duct

1. Remove shelves and shelf brackets, see above.
2. Remove screws, rear retainer plate and honeycomb grid sections from top of case.
3. Remove screws and top duct from case.
4. After cleaning, replace top duct and remaining components in reverse order.

Front Cladding

1. Remove front kickplate and raceway cover. (See General-UL/NSF I&S Manual.)
2. Remove color band, bumper and bumper retainer from the case. (See General-UL/NSF I&S Manual.)
3. Remove screws for top and bottom of front cladding and remove cladding.
4. After cleaning, replace front cladding and remaining front components in reverse order.

Cleaning Instructions

WARNING

TYLER Refrigeration does not recommend the use of high pressure cleaning equipment on display cases!! High pressure cleaners can penetrate and/or damage joint seals. Damaged seals allow water leaks and/or air leaks that can cause poor case refrigeration.

CAUTION

- When cleaning this case, try not to introduce water into the case faster than it can be carried away by the waste outlet.
- Liquid chlorine bleach is corrosive to metals. The use of bleach or products containing bleach will damage metal surfaces and void the case warranty.
- Sanitize the case with Quaternary Ammonium Solutions (ex: KAYQUAT II, J-512 Sanitizer, SANIQUAT 512, etc...) approved per 21CFR 178.1010, followed by adequate draining and air drying. These solutions may be obtained from Kay Chemical Co., Johnson Wax Professional, Coastwide Laboratories, etc....
- Always use a soft cloth or sponge with mild detergent and water to clean any glass. Never use abrasives or scouring pads to clean glass. They can scratch and/or damage the glass.

See "General (UL/NSF) I&S Manual" for case cleaning instructions.

Stainless Steel Cleaning Methods

The cleaning data in the following stainless steel cleaning chart was supplied by AISI. The information was supplied by Prime Metals Division, Aluma Aluminum Corporation.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
Routine cleaning	Soap, ammonia or detergent and water.	Sponge with cloth, then rinse with clear water and wipe dry.	Satisfactory for use on all finishes.
Smears and fingerprints	Arcal 20, Lac-O-Nu, Lumin Wash O'Cedar Cream Polish, Stainless Shine	Rub with cloth as directed on the package.	Satisfactory for use on all finishes. Provides barrier film
Stubborn spots and stains, baked-on splatter, and other light discolorations	Allchem Concentrated Cleaner	Apply with damp sponge or cloth.	Satisfactory for use on all finishes.
	Samae, Twinkle, or Cameo Copper Cleaner	Rub with damp cloth.	Satisfactory for use on all finishes if rubbing is light.
	Grade FFF Italian pumice, whiting or talc	Rub with damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
Heat tint or heavy discoloration	Liquid NuSteel	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Paste NuSteel or DuBois Temp	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Cooper's Stainless Steel Cleaner, Revere Stainless Steel Cleaner	Apply with damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Grade F Italian pumice, Steel Bright, Lumin Cleaner, Zud or Restoro	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite	Rub with a dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Penny-Brite or Copper-Brite	Rub with a dry cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Paste NuSteel or DuBois Temp	Rub with dry cloth. Use a small amount of cleaner.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Revere Stainless Steel Cleaner	Apply with a damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
	Allen Polish, Steel Bright, Wyandotte or Zud	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mill) and No. 7 and 8 (polished) finishes.
			Excellent removal, satisfactory for use on all finishes.
Burnt-on foods and grease, fatty acids, milkstone (where swabbing or rubbing is not practical) Tenacious deposits, rusty discolorations, industrial atmospheric stains	Easy-Off, De-Grease-It, 4-6% hot solution of such agents as trisodium tripolyphosphate, or 5-15% caustic soda solution Oakite No. 33, Dilac, Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368 or Permag 57.	Apply generous coating. Allow to stand for 10-15 min. Repeated application may be necessary. Swab and soak with clean cloth. Let stand 15 minutes or more according to directions on package. Rinse and dry.	Satisfactory for use on all finishes.
Hard water spots and scale	Vinegar 5% oxalic acid, 5% sulamic acid, 5-10% phosphoric acid, or Dilac, Oakite No. 33, Texo 12 or Texo N.Y.	Swab or wipe with a cloth. Rinse with water and dry. Swab or soak with a cloth. Let stand 10-15 minutes. Always follow with neutralizer rinse, and dry.	Satisfactory for use on all finishes. Satisfactory for use on all finishes. Effective on tenacious deposits or where scale has built up.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
Grease and oil	Organic solvents such as carbon tetrachloride, tri-chlorethylene, acetone, kerosene, gasoline, benzene, alcohol and chlorethane n.u.	Rub with a cloth. Organic solvents may be flammable and/or toxic. Observe all precautions against fire. Do not smoke while vapors are present. Be sure area is well ventilated.	Satisfactory for use on all finishes.

* Use of proprietary names is intended only to indicate a type of cleaner, and does not constitute an endorsement, nor is omission of any proprietary cleanser to imply its inadequacy. It should be emphasized that all products should be used in strict accordance with instructions on package.

** In all applications a sponge or fibrous brush or pad are recommended. DO NOT use ordinary steel wool, steel brushes, chlorine bleach or products containing bleach for cleaning or sanitizing stainless steel.

GENERAL INFORMATION

NSF Product Thermometer Installation

1. Unwrap the thermometer and bracket assembly shipped loose with the case.

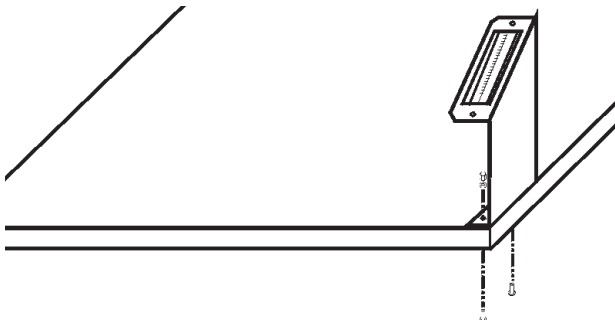
NOTE

Recommended bottom tray position is with the lips up.

2. Position bracket in front right corner of the right-most bottom tray. Making sure the bracket is flush with the right edge, use the bracket holes as a template for where to drill the holes.
3. Drill two .196" holes in the bottom tray.

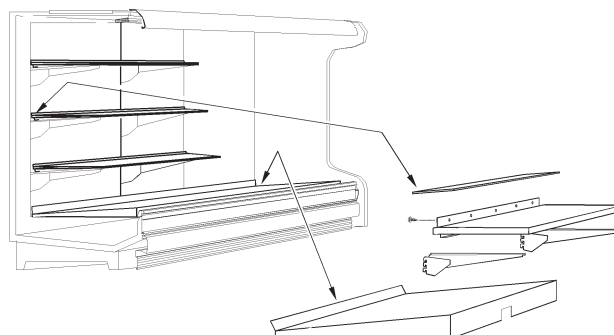
NOTE

For ease of installation, position the washers and capnuts on the top side of the bracket and bottom tray.



4. Mount the bracket to the bottom tray with two screws, washers and capnuts.

Egg Merchandiser Kit (All Models)



All egg shelves come galvanized or stainless steel. The upper egg shelves are 15" x 48" and come with 82 degree fixed white brackets. The brackets are available in one position only. The upper egg shelves assemblies include a rear air close-off.

Tilted base egg shelves come in 4' modules. They are designed and notched to fit inside the existing 2' bottom trays.

NOTE

Egg shelves are designed to catch and hold spilled liquids so they can be cleaned up before getting further into the case. If the tilted base shelves are used upside down, improper shelf support will result causing the middle of each shelves to sag. Upside down usage also allows drippage to get into the case making cleaning very difficult. Good sanitation is essential for egg merchandising.

Peg Bar Information

The hang up blister pack has become a standard means of marketing sliced luncheon meats and other delicacies. It appears that all that is needed to adapt multi-shelf cases for these packages is to add peg bars and pegs. However, it isn't quite that simple, because the removal of shelves changes more than the appearance of the case.

Figure 1 shows the air flow in a Multi-Deck display merchandiser with shelves. Air flow from the top and back forms a protective barrier to ambient air.

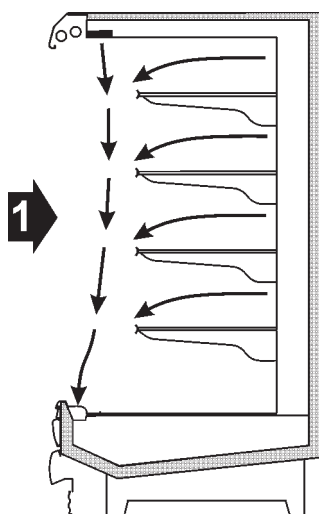


Figure 2 shows what happens to the air flow when the shelves are removed. The air drifts back to the rear duct and swirls about. This breaks the protective barrier, causing the case air to mix with ambient air to a great extent.

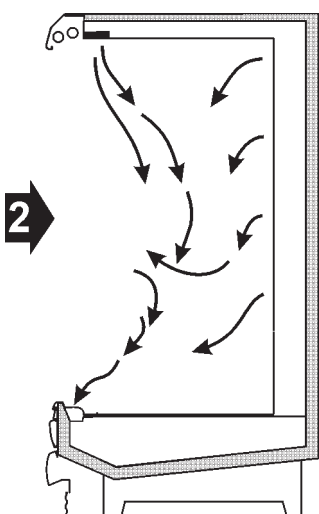
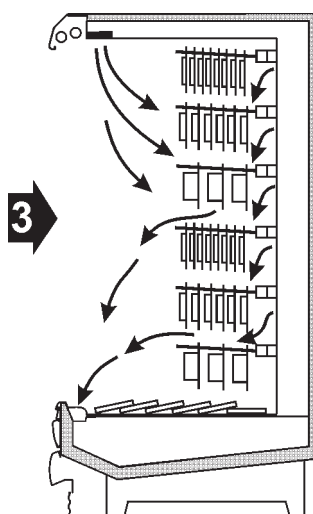


Figure 3 depicts what happens to the air flow in a case full of peg bars. The air falls through openings between packages and fails to maintain a protective barrier. When the bars are fully stocked, the effect is minimized, but product temperatures will not be as good as they could be. Sweating may be noticed on the top duct panel above the bars. The coil will also frost faster, requiring more frequent defrosts.



When the bars are fully stocked, the effect is minimized, but product temperatures will not be as good as they could be. Sweating may be noticed on the top duct panel above the bars. The coil will also frost faster, requiring more frequent defrosts.

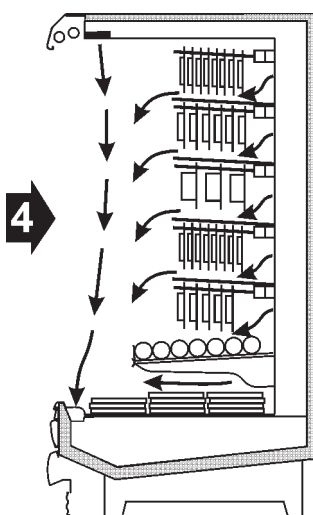


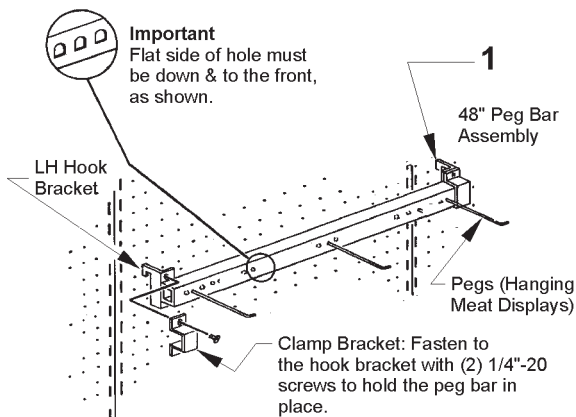
Figure 4 shows the proper air flow for cases with peg bars. The addition of a baffle above each row of peg bars, except the top row and a bottom shelf, maintains proper air flows and temperatures in the case. Non-load bearing air baffles should run the same width as the peg bars.

CAUTION

Always use one row of shelves below the lowest row of peg bars. Use air baffles above each row of peg bars, except the top row. The air baffle should be solid in design and positioned 1" in front of the rear duct and 5.5" back from the rear edge of the card moulding. This provides and maintains the protective air flow in the case and proper product cooling and storage.

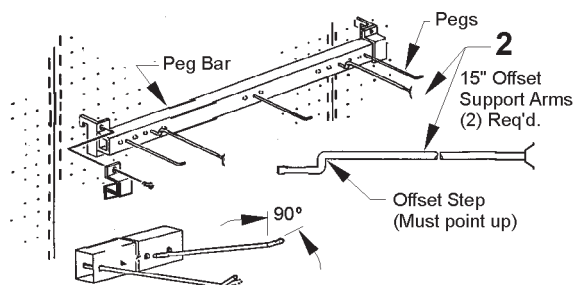
Peg Bar Information for Cannon Magna Bar Peg Bar Display Systems (TYLER supplied)

Air baffle shelves should always be used with peg bars for hanging meat displays. Air baffle shelves are non-load bearing and are used only to help direct the air flow. The air baffles should be installed above each row of peg bars, except the top row, along with a bottom shelf. Air baffles are available from TYLER that are compatible with 15" offset support arms.



1. 48" peg bar with 52 holes to accept pegs.

Flat side of holes in peg bar must be down and to the front of the bar. Attach two hook brackets to peg bar with two clamp brackets and four screws. Position and install peg bar in slotted holes in back of case.



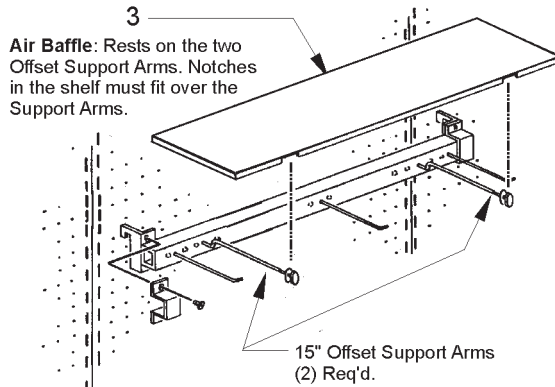
Pegs: After marking the desired locations for the Pegs on the Peg Bar, insert the Pegs by holding them at 90°, and insert into the holes so Peg points are up. Pull out Peg to seat properly on the Peg Bar.

2. 15" pegs and offset support arms lock in place on the peg bar.

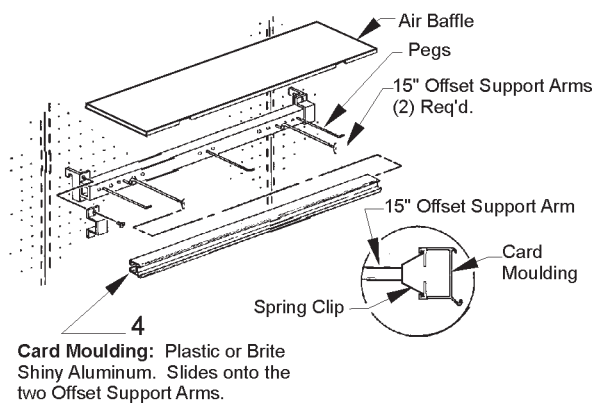
After marking the desired locations in the peg bar, install the pegs into peg bar holes. Hold peg at 90° angle to peg bar. Insert peg into hole in peg bar. Rotate peg until angled end

points up. Pull peg out until peg sits properly in the peg bar.

Offset support arms must be installed in the peg bar so the notches in the air baffle can fit over them. Install support arms in the same manner as the pegs (with offset up).



3. Non-load bearing air baffle should run the same width as the peg bar. Air baffle rests on the two offset support arms. The notches in the air baffle must fit over the support arms. **NOTE: The air baffle should be solid in design and positioned 1" in front of the rear duct and 5.5" back from the rear edge of the card moulding.**



Card Moulding: Plastic or Brite Shiny Aluminum. Slides onto the two Offset Support Arms.

4. Card moulding is offset 2" in front and 3/4" above the pegs.

Slide the card moulding onto the two offset support arms. Center the card moulding so it is aligned with the peg bar. Secure the card moulding on the offset support arms with two spring clips. To remove card moulding, squeeze each spring clip together until the card moulding releases.

TYLER 8 and 12 foot cases have four foot sections for merchandising. 6 foot cases have three foot sections for merchandising. Further guidelines for section to section merchandising are listed below:

There are three basic ways that peg bars are used in our cases:

All peg bars at the same elevation: TYLER recommends that peg bar rows in adjacent sections of a case (including baffles) be installed at the same elevation. This will ensure that air flow from the perforated rear duct panels flows in and around the food products displayed on the pegs to best maintain the foods at the desired core product temperatures.

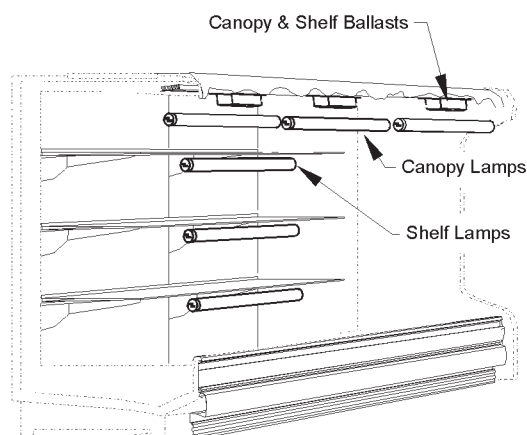
Peg bars at different elevations: If you choose this merchandising method, TYLER recommends that a vertical plexiglas partition be installed between the adjoining sections. This will ensure that air flow from the perforated rear duct panels flows in and around the food products displayed on the pegs to best maintain the foods at the desired core product temperatures.

Peg bars adjacent to TYLER shelving: TYLER recommends a vertical plexiglas partition be installed between the adjoining sections. This will ensure that air flow from the perforated rear duct panels flows in and around the food products displayed on the pegs to best maintain the foods at the desired core product temperatures.

SERVICE INSTRUCTIONS

See “General-UL/NSF I&S Manual” for T-8 lamp, canopy ballast, fan blade and motor, and color band and bumper replacement instructions.

Ballast and Lighting Locations

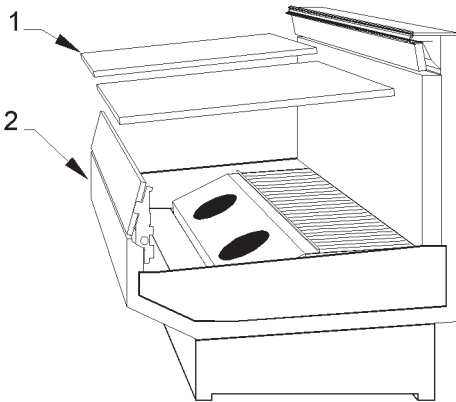


All light ballasts are located under the canopy and mounted above or on the top of the canopy light channel. This includes remote ballasts for optional nose lights (all models) and optional shelf lights (NHD models only). The canopy light(s) are under the canopy light channel in the top of the case.

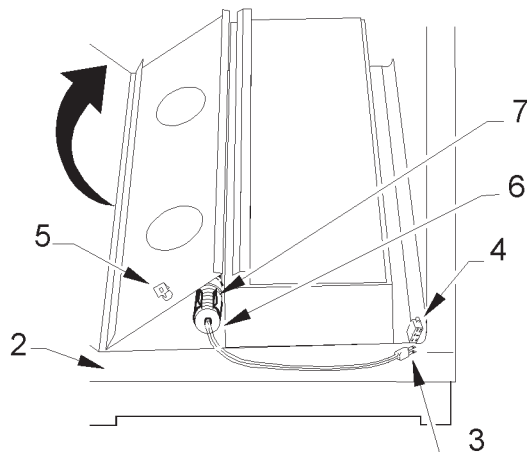
Defrost Heater Replacement

WARNING

Always shut off electricity to the entire 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 (1) from case (2).



2. Disconnect defrost heater plug (3) from junction block (4).
3. Remove mounting screws and lift up fan plenum (5).
4. Remove defrost heater (6) from mounting clips (7) and case (2).
5. Install new defrost heater (6) in reverse order.
6. Restore electrical power to case.

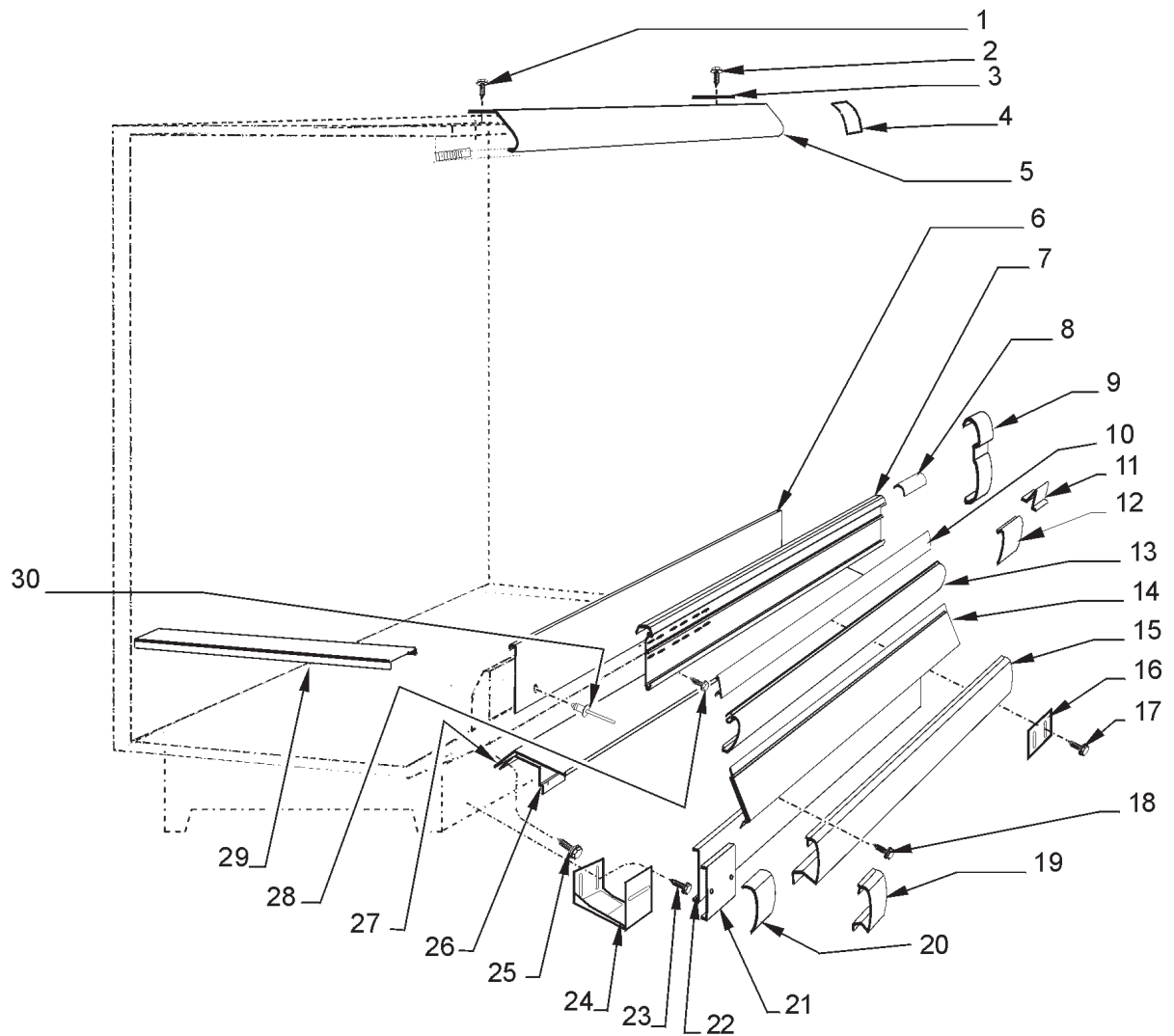
PARTS INFORMATION**Operational Parts List**

Case Usage	Domestic			Export	
	115 Volt 60 Hertz			220 Volt 50 Hertz	
Electrical Circuit					
Case Size	6'	8'	12'	8'	12'
Fan Motors	5243498 9 Watt	5243498 9 Watt	5243498 9 Watt	9458942 18.3 Watt	9458942 18.3 Watt
Fan Motor Brackets	5205112	5205112	5205112	5205112	5205112
Fan Bracket Plate	9041077	9041077	9041077	9041077	9041077
Fan Blades (8.75" 35° 5B)	5643563	5643563	5643563	5643563	5643563
Opt. ECM Fan Motors	9025000 12 Watt	9025000 12 Watt	9025000 12 Watt	9025000 12 Watt	9025000 12 Watt
Opt. ECM Fan Motor Brackets	5205112	5205112	5205112	5205112	5205112
Opt. ECM Fan Blades (N7DNL)(8.75" 25° 5B)	N/A	9038461	9038461	9038461	9038461
(NHD)(8.75" 35° 5B)	5643563	5643563	5643563	5643563	5643563
T-8 Ballast (canopy, 2-lamps) (N7DNL)	N/A	5966635	5966635	9028439	9028439
(NHD)	5966635	5966635	5966635	9028439	9028439
Opt. T-8 Ballast (nose light)	5991029	5991029	5991030	9028437	9028438
Opt. T-8 Ballast (5th row shelf lamp) (NHD Models Only)	5991029	5991029	5991030	9028437	9028438
T-8 Lampholder	5232279	5232279	5232279	5232279	5232279
Light Switch	5100565	5100565	5100565	5100565	5100565
Opt. Elec. Defrost Heater (NHD Models Only)	9310403	5124521	5124522	5124521	5124522
Opt. Elec. Defrost Term. Klixon (NHD Models Only)	9303214	9303214	9303214	9303214	9303214
Opt. Elec. Defrost Failsafe Klixon (NHD Models Only)	9036671	9036671	9036671	9036671	9036671
Opt. Gas Defrost Term. Klixon (NHD Models Only)	9023508	9023508	9023508	9023508	9023508
Opt. Gas Fan Delay Klixon (NHD Models Only)	9303508	9303508	9303508	9303508	9303508
NSF Product Thermometer	5967100	5967100	5967100	5967100	5967100

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

Cladding and Trim Parts List

Item Description	6'	8'	12'
1 Screw	5183536 (4)	5183536 (6)	5183536 (8)
2 Screw	5183536 (8)	5183536 (8)	5183536 (8)
3 End Cover	9026103 (2)	9026103 (2)	9026103 (2)
4 Can. Hood Joint Trim, Ptd.	9029422	9029422	9029422
5 Canopy Hood, Ptd.	9025222	9025223	9025224
6 Front Panel	5636774	5203468	5203469
7 Hand Rail/Bumper Retainer	-----	color per order	-----
8 Hand Rail Backer	9025316	9025316	9025316
9 Bumper End Trim	-----	color per order	-----
10 Color Band, Ptd.	9023795	9023798	9023800
11 Color Band Backer, Ptd.	9040223	9040223	9040223
12 Bumper Backer	-----	color per order	-----
13 Bumper	-----	color per order	-----
14 Front Cladding, Ptd. (N7DNL)	N/A	9025136	9025137
(NHDL)	9025135	9025136	9025137
(NHDM)	9025647	9025648	9025649
15 Raceway Cover	-----	color per order	-----
16 Raceway Cover Retainer	9023841 (2)	9023841 (4)	9023841 (6)
17 Screw (per retainer)	5183536 (2)	5183536 (2)	5183536 (2)
18 Screw	5183536 (7)	5183536 (9)	5183536 (12)
19 Raceway Cover End Trim	-----	color per order	-----
20 Raceway Cover Backe	-----	color per order	-----
21 Kickplate Joint Trim, Ptd.	9039020	9039020	9039020
22 Metal Kickplate, Ptd.	9324394	9324402	9324407
23 Shoulder Screw	9025833 (6)	9025833 (8)	9025833 (8)
24 Kickplate Support Assy.	9043402 (3)	9043402 (4)	9043402 (4)
25 Screw	5183536 (8)	5183536 (12)	5183536 (16)
26 Raceway Support	9041322 (4)	9041322 (6)	9041322 (8)
27 Raceway	9300242	9300243	9300244
28 Screw, Shoulder	9025833 (12)	9025833 (16)	9025833 (24)
29 Horizontal End Trim (N7DNL)	N/A	9311972	9311972
(NHD)	5211585	5211585	5211585
30 Pop Rivet	5105037 (5)	5105037 (10)	5105037 (14)



NHDM ILLUSTRATED