

TYLER

REFRIGERATION



Carrier
A United Technologies Company

N3HMGHP
YE1172

A^{series} Advantage™

Installation & Service Manual



N3MG(HP)(E)/N3HM(G)(E)/N3HM(G)HP

THREE DECK MEAT/DELI/CRITICAL TEMP PRODUCE AND HIGH PERFORMANCE MERCHANDISERS AND END 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!!

These merchandisers conform to the American National Standard Institute & NSF International Health and Sanitation standard ANSI/NSF 7 - 2003.

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The following Medium Temperature, Low Back and High Back, Three Deck Meat/Deli and High Performance Merchandiser and End Merchandiser models are covered in this manual:

MODEL	DESCRIPTION
N3MG	4', 6', 8' & 12' GLASS FRONT THREE DECK MEAT/DELI MERCHANDISERS
N3MGE	GLASS FRONT CROWN END MERCHANDISER
N3MGHP	6', 8' & 12' GLASS FRONT THREE DECK HIGH PERFORMANCE MERCHANDISERS
N3MGHPE	GLASS FRONT HIGH PERFORMANCE CROWN END MERCHANDISER
N3HM	6', 8' & 12' HIGH BACK SOLID FRONT THREE DECK MEAT/DELI MERCHANDISERS
N3HME	HIGH BACK SOLID FRONT CROWN END MERCHANDISER
N3HMG	6', 8' & 12' HIGH BACK GLASS FRONT THREE DECK MEAT/DELI MERCHANDISERS
N3HMGE	HIGH BACK GLASS FRONT CROWN END MERCHANDISER
N3HMHP	6', 8' & 12' HIGH BACK SOLID FRONT THREE DECK HIGH PERFORMANCE MERCHANDISERS
N3HMGHP	6', 8' & 12' HIGH BACK GLASS FRONT THREE DECK HIGH PERFORMANCE MERCHANDISERS

SPECIFICATIONS

**N3MG Three Deck Meat/Deli/Critical Temp Produce Merchandisers
N3MGE Glass Front Meat/Deli/Critical Temp Prod Crown End Merchandiser**

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)	
N3MG	4'/6'/8'/12'	MED TEMP	811*	918*	+15**	+13	+27	150***	0.18
N3MGE	93"	MED TEMP	6,589/case	7,460/case	+15**	+13	+23	300***	0.18

* Capacity data listed for cases with 1 row of T-8 canopy lights and 3 rows of optional lighted shelves. Adjustments must be made to this base rating for each option installed on this case. DEDUCT 23 BTUH/FT for each row of unlighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.

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

*** Air velocity measured 1 hour after defrost at the 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 and 208 Volt)

MODEL	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS				208 VOLT DEFROST HEATER	
			AMPS	WATTS	AMPS	WATTS	DISCHARGE AIR		FRONT GLASS		AMPS	WATTS
N3MG	4'	2	1.06	96.0	0.44	22.0	0.14	17.0	0.15	18.0	----	----
N3MG	6'	2	1.06	96.0	0.44	22.0	0.10	12.0	0.07	8.4	6.50	1,352
N3MG	8'	2	1.06	96.0	0.44	22.0	0.13	15.6	0.09	10.8	6.90	1,436
N3MG	12'	3	1.59	144.0	0.66	33.0	0.20	24.0	0.14	16.8	10.30	2,143
N3MGE	93"	2	0.68	60.4	0.44	22.0	0.97	116.4	N/A	N/A	4.88	1,015

Heaters (208 Volt)

208 VOLT DEFROST (AMPS)													
FT	6	8	12	16	20	24	28	32	36	40	44	48	52
1 PH	6.5 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-30	34.4 TG-50	37.8 TG-30	41.2 TG-50	44.7 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	30.0 TG-3-40

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS*		SHELF LIGHTS - PER ROW						MAXIMUM LIGHTING (4 ROWS)	
		AMPS	WATTS	AMPS			WATTS			AMPS	WATTS
				1	2	3	1	2	3		
N3MG	4'	0.35	42	0.45	0.60	0.80	54	72	96	1.15	138
N3MG	6'	0.40	48	0.50	0.80	1.10	60	96	132	1.50	180
N3MG	8'	0.50	60	0.70	1.10	1.40	84	132	168	1.90	228
N3MG	12'	0.70	84	1.05	1.65	2.10	126	198	252	2.80	336
N3MGE	93"	1.06	127	1.06	2.12	3.18	127	255	382	4.24	509

* Standard lighting for this case is 1 row of 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)	N3MG	N3MGE
TIME OFF	6	28	---				
ELECTRIC	6	36	50	38	50	5.5	5.2
HOT GAS	6	12-15	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 circuit – OPTIONAL HOT GAS defrost uses 2 control wires @ 208V per lineup.

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.

N3MG(E)/N3MGHP(E)/ Installation & Service Manual N3HM(G)(E)/N3HM(G)HP

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING													
MODEL	4' / 6'	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'	52'
N3MG / R22	5/8"	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"

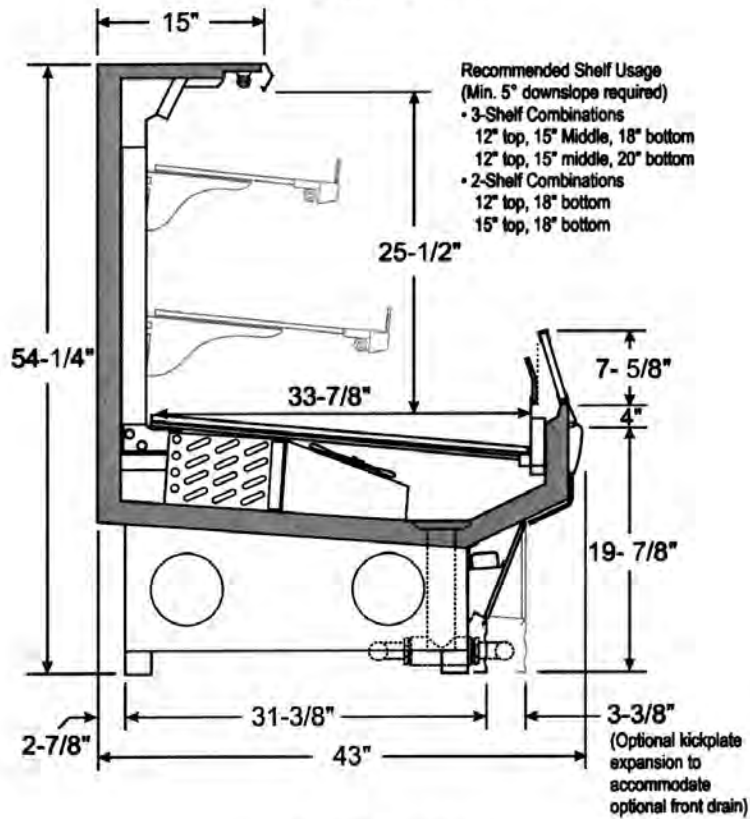
CASE CIRCUITS: This case requires a 120V circuit for fans, lights and anti-sweat heaters.

Screens are standard. Shelving must be ordered separately. All rows of shelving require a shelf gasket. Shelves are available in 12", 15", 16", 18" and 20" deep sizes. When multiple shelf sizes are used, position smallest shelf size on top to largest shelf size on bottom.

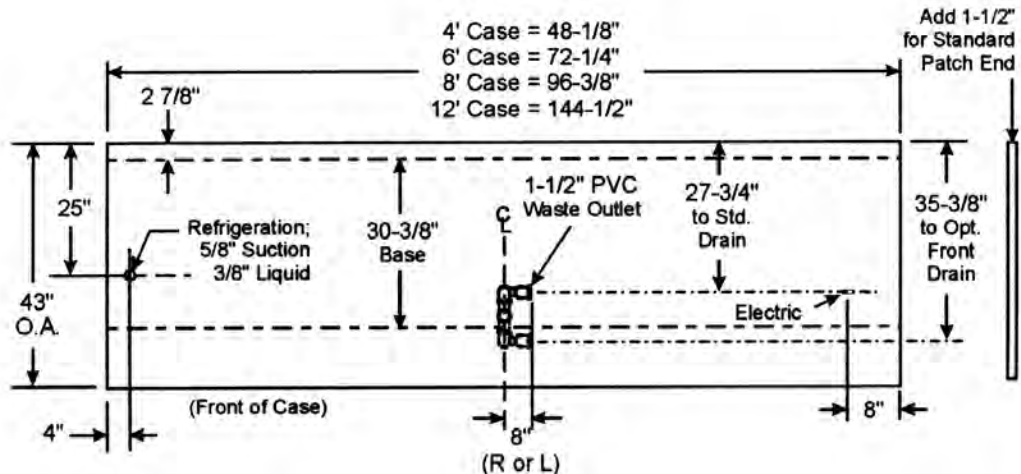
UL SANITATION approved in accordance with ANSI/NSF - 7.

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

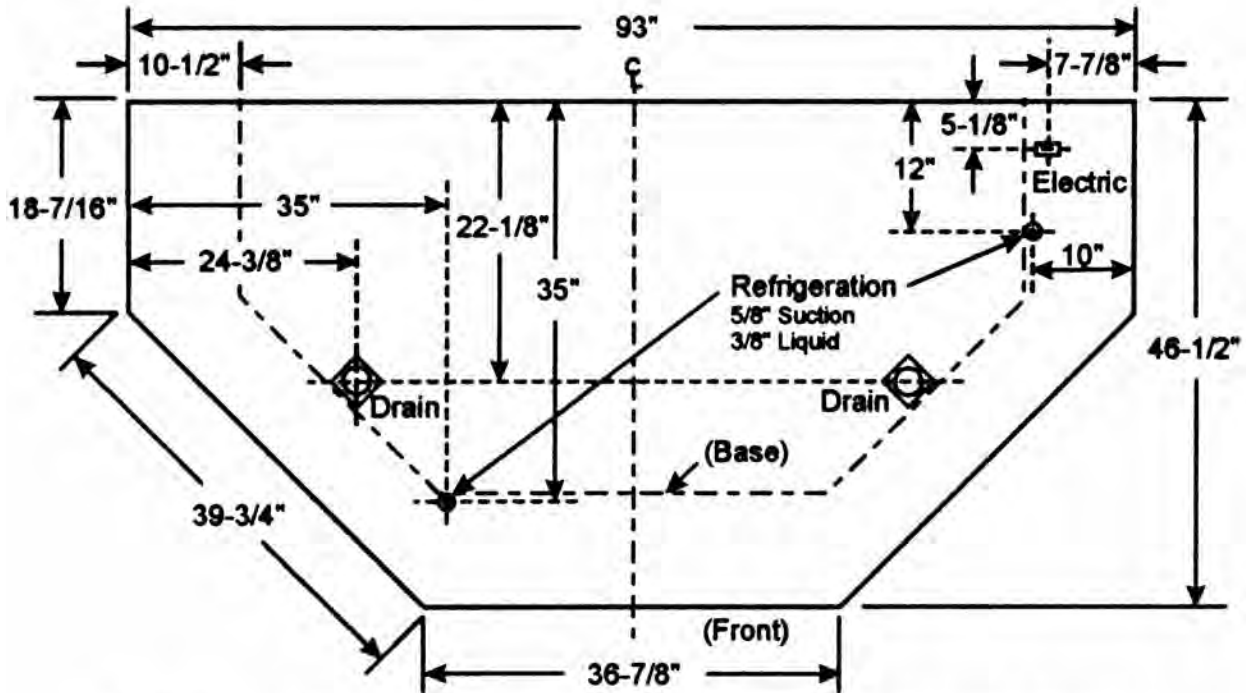
N3MG CROSS SECTION



FLOOR PLAN



N3MGE FLOOR PLAN



NOTE: There are four separate Suction & Liquid Refrigeration Line connection points in this case. All Refrigeration Lines can connect to either side of the adjoining case-to-case lineup. The access holes in the back of the N3MGE case line up with the access holes in the ends of the N3MG case.

N3MG(E)/N3MGHP(E)/ Installation & Service Manual N3HM(G)(E)/N3HM(G)HP

N3MGHP Glass Front Three Deck High Performance Merchandisers N3MGHPE Glass Front High Performance Crown End Merchandiser

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)	
N3MGHP	6'/8'/12'	MED TEMP	856*	939*	+25**	+23	+28.8	218***	0.48
N3MGHPE	93"	MED TEMP	5,922/case	6,499/case	+25**	+23	+29	220***	0.42

* Capacity data listed for cases with 1 row of T-8 canopy lights and 3 rows of optional lighted shelves. Adjustments must be made to this base rating for each option installed on this case. DEDUCT 23 BTUH/FT for each row of unlighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.

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

*** Air velocity measured 1 hour after defrost at the 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	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS			
			AMPS	WATTS	AMPS	WATTS	DISCHARGE AIR		FRONT GLASS	
							AMPS	WATTS	AMPS	WATTS
N3MGHP	6'	2	1.06	96.0	0.44	22.0	0.10	12.0	0.07	8.4
N3MGHP	8'	2	1.06	96.0	0.44	22.0	0.13	15.6	0.09	10.8
N3MGHP	12'	3	1.59	144.0	0.66	33.0	0.20	24.0	0.14	16.8
N3MGHPE	93"	2	2.00	165.2	-----	-----	0.97	116.4	N/A	N/A

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS*		SHELF LIGHTS – PER ROW						MAXIMUM LIGHTING (4 ROWS)	
		AMPS	WATTS	AMPS			WATTS			AMPS	WATTS
				1	2	3	1	2	3		
N3MGHP	6'	0.40	48	0.50	0.80	1.10	60	96	132	1.50	180
N3MGHP	8'	0.50	60	0.70	1.10	1.40	84	132	168	1.90	228
N3MGHP	12'	0.70	84	1.05	1.65	2.10	126	198	252	2.80	336
N3MGHPE	93"	1.06	127	1.06	2.12	3.18	127	255	382	4.24	509

* Standard lighting for this case is 1 row of canopy lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)**	ELEK. THERMOSTAT / AIR SENSOR SETTINGS			EPR SETTINGS ***		CONVENTIONAL COMPRESSOR SETTINGS****				DEFROST WATER (LB / FT / DAY)
			USAGE	CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	R22 (PSIG)		R404A (PSIG)		
								CUT-IN	CUT-OUT	CUT-IN	CUT-OUT	
TIME OFF – N3MGHP	4	32	MED TEMP	29°F	27°F	49	62	47	36	60	47	5.1
TIME OFF – N3MGHPE	4	32	MED TEMP	29°F	27°F	49	62	47	36	60	47	5.2

* All high performance cases use OFF CYCLE defrost.

** NOTE: 32 minutes is for EPR with suction stop for defrost isolation. Defrost times increases by six minutes (38 min. total) when defrost isolation is by pump down.

*** If EPR is utilized, use the settings shown in the chart. NOTE: The customer will need to set the EPR on the parallel rack or single unit to the appropriate suction temperature and the N3MGHP cases must be on a separate suction stub with a separate EPR. ADD 0.5# to EPR setting for each 1000 foot rise in elevation.

**** Required setup for a conventional unit uses an electronic thermostat to assure accurate temperature control.

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING												
MODEL	6'	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'
N3MGHP / R22	1/2"	1/2"	5/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"

CASE CIRCUITS: This case requires a 120V circuit for fans, lights and anti-sweat heaters.

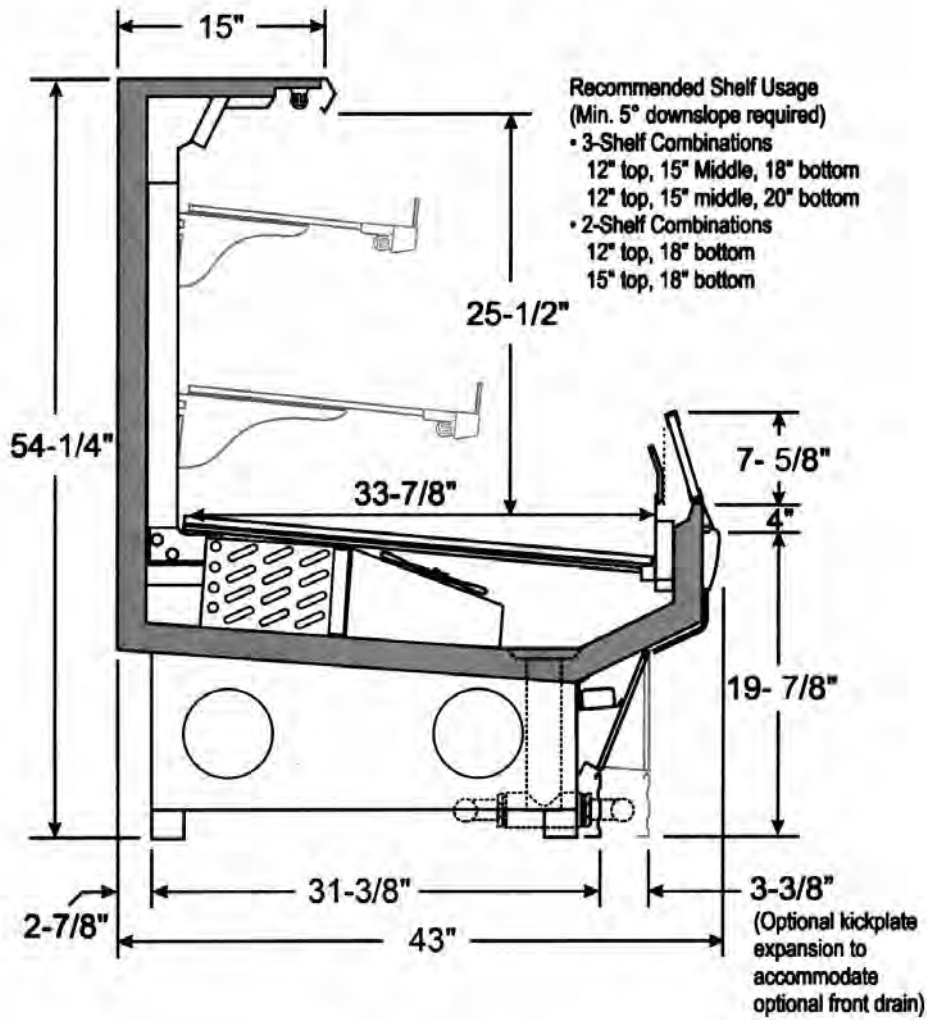
Screens are standard. Shelving must be ordered separately. All rows of shelving require a shelf gasket. Shelves are available in 12", 15", 16", 18" and 20" deep sizes. When multiple shelf sizes are used, position smallest shelf size on top to largest shelf size on bottom.

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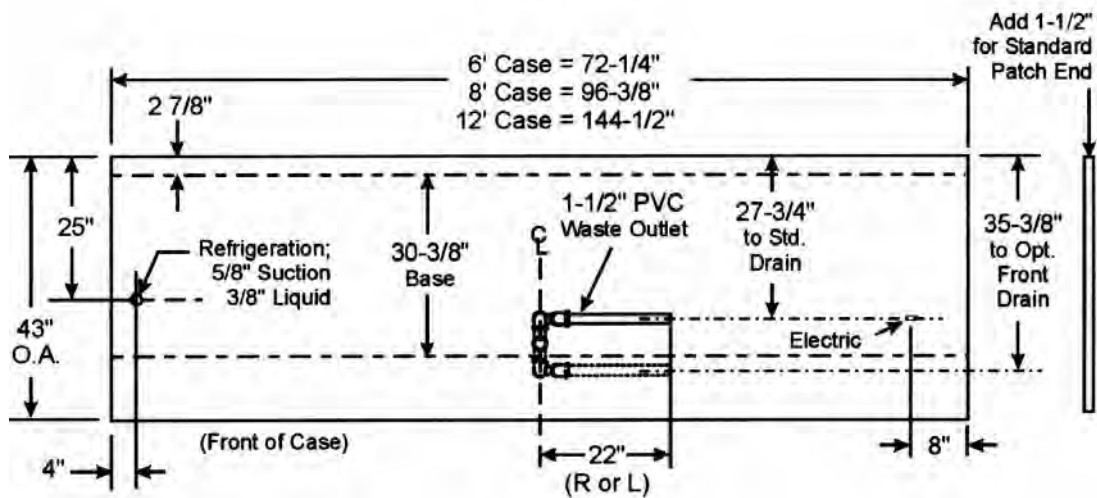
CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of 75°F & 55RH.

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N3MGHP CROSS SECTION

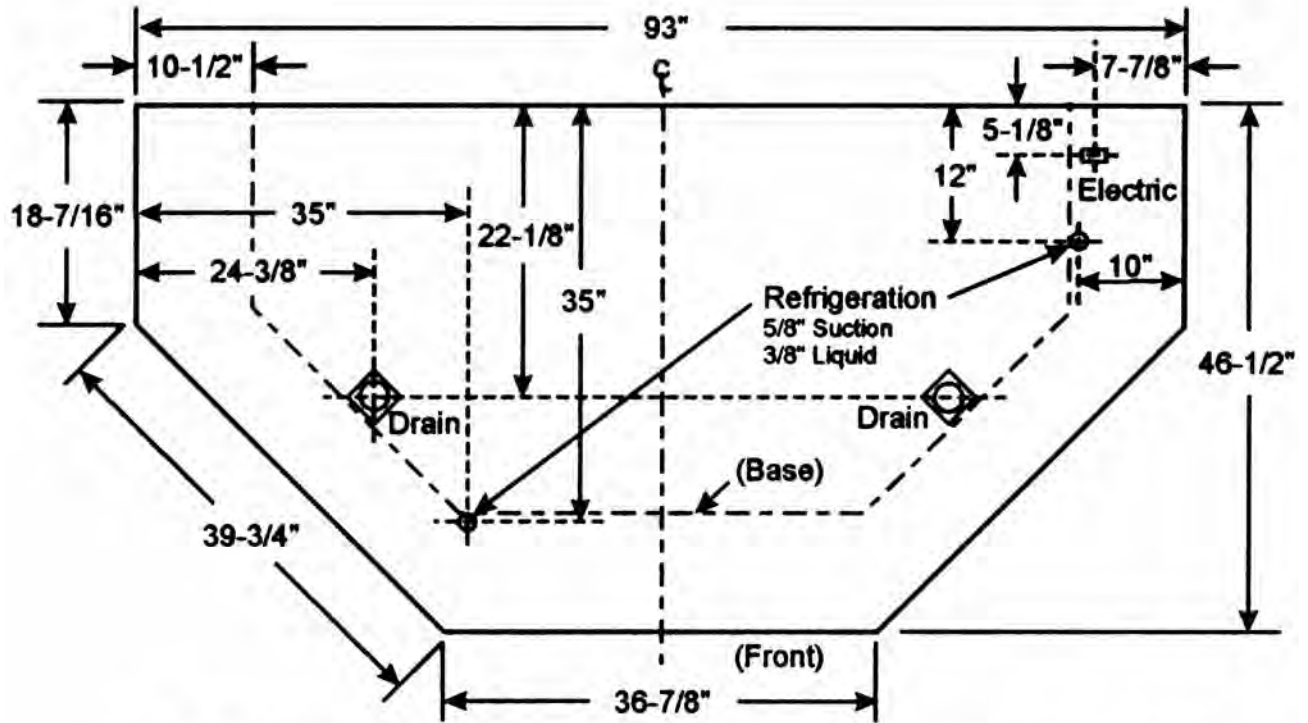


FLOOR PLAN



**N3MG(E)/N3MGHP(E)/
Installation & Service Manual N3HM(G)(E)/N3HM(G)HP**

N3MGHPE FLOOR PLAN



NOTE: There are four separate Suction & Liquid Refrigeration Line connection points in this case. All Refrigeration Lines can connect to either side of the adjoining case-to-case lineup. The access holes in the back of the N3MGHPE case line up with the access holes in the ends of the N3MGHP case.

N3MG(E)/N3MGHP(E)/ N3HM(G)(E)/N3HM(G)HP



N3HM(G) High Back Solid or Glass Front Three Deck Merchandisers N3HM(G)E High Back Solid or Glass Front Crown End 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)	
N3HM	6'/8'/12'	MED TEMP	1,286*	1,416*	+15**	+13	+27	180***	0.18
N3HMG	6'/8'/12'	MED TEMP	1,190*	1,310*	+15**	+13	+27	180***	0.18
N3HME	93"	MED TEMP	7,697/case	8,102/case	+15**	+13	+27	120***	0.22
N3HMG(E)	93"	MED TEMP	7,120/case	7,494/case	+15**	+13	+27	120***	0.22

* Capacity data listed for cases with 1 row of T-8 canopy lights and 3 rows of optional lighted shelves. Adjustments must be made to this base rating for each option installed on this case. DEDUCT 23 BTUH/FT for each row of unlighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.

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

*** Air velocity measured 1 hour after defrost at the 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 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		FRONT GLASS		AMPS	WATTS
							AMPS	WATTS	AMPS	WATTS		
N3HM	6'	2	1.06	96.0	0.44	22.0	0.10	12.0	N/A	N/A	6.50	1,352
N3HM	8'	2	1.06	96.0	0.44	22.0	0.13	15.6	N/A	N/A	6.90	1,436
N3HM	12'	3	1.59	144.0	0.66	33.0	0.20	24.0	N/A	N/A	10.30	2,143
N3HMG	6'	2	1.06	96.0	0.44	22.0	0.10	12.0	0.07	8.4	6.50	1,352
N3HMG	8'	2	1.06	96.0	0.44	22.0	0.13	15.6	0.09	10.8	6.90	1,436
N3HMG	12'	3	1.59	144.0	0.66	33.0	0.20	24.0	0.14	16.8	10.30	2,143
N3HM(G)E	93"	2	0.68	60.4	N/A	N/A	0.18	22.1	N/A	N/A	4.88	1,015

Heaters (208 Volt)

208 VOLT DEFROST (AMPS)													
FT	6	8	12	16	20	24	28	32	36	40	44	48	52
1 PH	6.5 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-30	34.4 TG-50	37.8 TG-30	41.2 TG-50	44.7 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	30.0 TG-3-40

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS - PER ROW*				SHELF LIGHTS - PER ROW						MAXIMUM LIGHTING (5 ROWS)	
		AMPS		WATTS		AMPS			WATTS			AMPS	WATTS
		1-ROW	2-ROWS	1-ROW	2-ROWS	1	2	3	1	2	3		
N3HMG	6'	0.40	0.75	48	90	0.50	0.80	1.10	60	96	132	1.85	222
N3HMG	8'	0.50	0.95	60	114	0.70	1.10	1.40	84	132	168	2.35	282
N3HMG	12'	0.70	1.40	84	168	1.05	1.65	2.10	126	198	252	3.50	420
N3HM(G)E	93"	1.06	2.12	127	254	1.06	2.12	3.18	127	255	382	5.30	636

* Standard lighting for this case is 1 row of canopy lights.

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.

N3MG(E)/N3MGHP(E)/ Installation & Service Manual N3HM(G)(E)/N3HM(G)HP

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION (°F)	EPR SETTINGS **		DEFROST WATER (LB / FT / DAY)			
				R22 (PSIG)	R404A (PSIG)	N3HM	N3HMG	N3HME	N3HMGE
TIME OFF - N3HM(G)	6	22	---	38	50	7.8	7.4	9.0	8.5
ELECTRIC - N3HM(G)	6	36	50						
HOT GAS - N3HM(G)	6	12-15	55*						
TIME OFF - N3HM(G)E	6	26	---						

* 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.

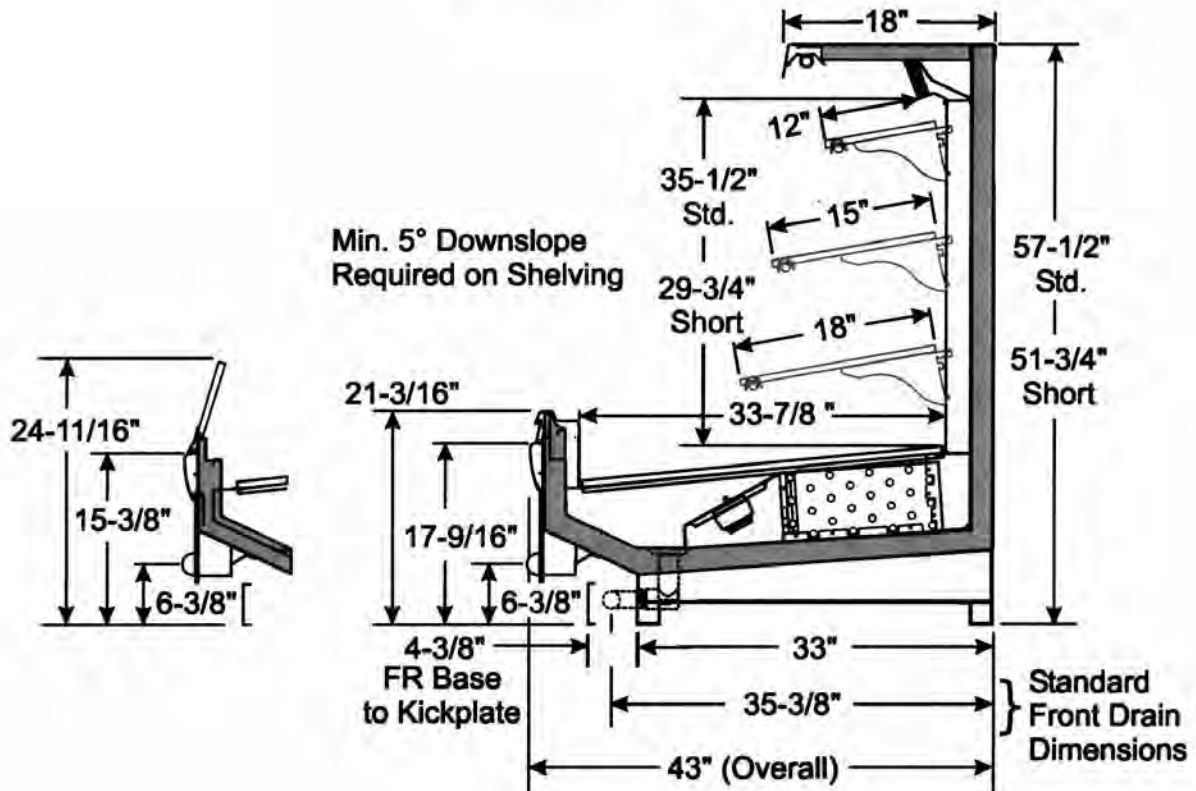
DEFROST CIRCUITS: OFF CYCLE defrost is standard (use TC defrost module) – OPTIONAL ELECTRIC defrost uses a single or 3 phase circuit – OPTIONAL HOT GAS defrost uses 2 control wires @ 208V per lineup

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING													
MODEL	6'	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'	52'
N3HM(G) / R22	5/8"	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"

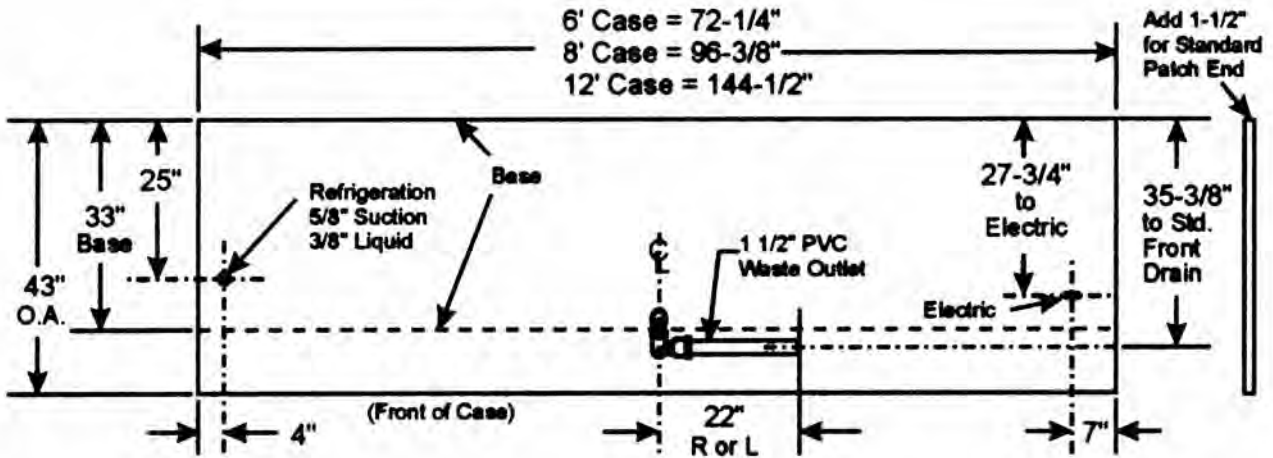
CASE CIRCUITS: This case requires a 120V circuit for fans, lights and anti-sweat heaters.

Screens are standard. Shelving must be ordered separately. All rows of shelving require a shelf gasket. Shelves are available in 12", 15", 16", 18" and 20" deep sizes. When multiple shelf sizes are used, position smallest shelf size on top to largest shelf size on bottom.

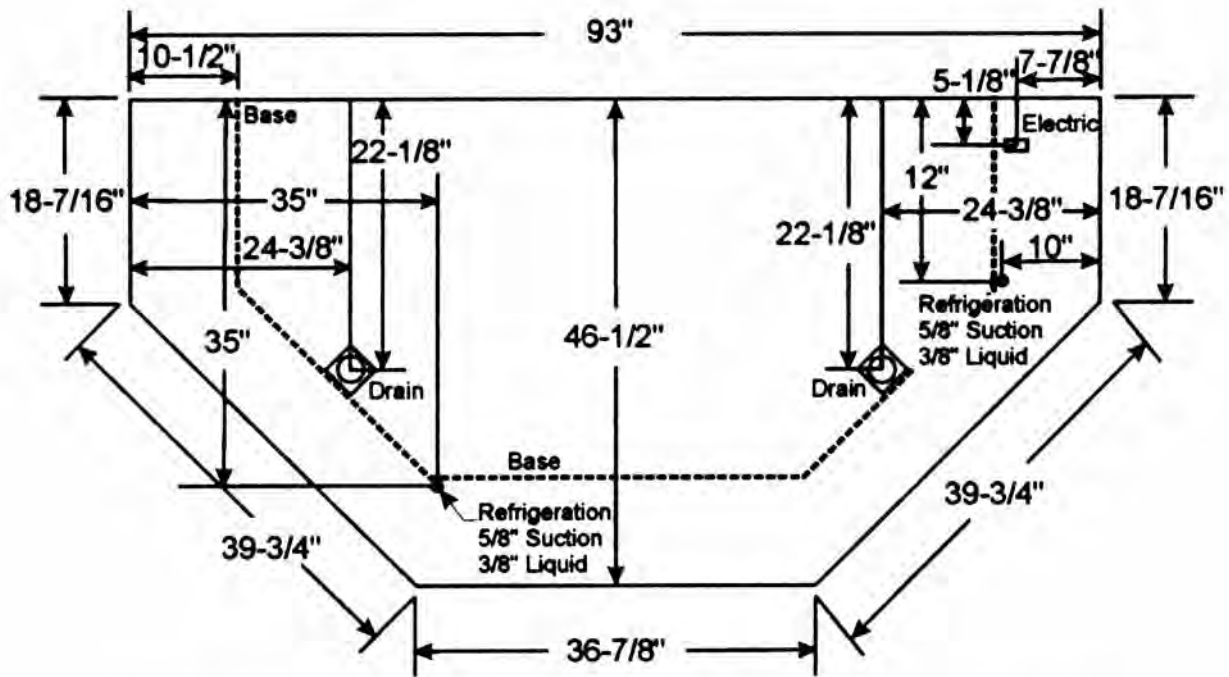
N3HM(G) CROSS SECTION



N3HM(G) FLOOR PLAN



N3HM(G)E FLOOR PLAN



NOTE: There are four separate Suction & Liquid Refrigeration Line connection points in this case. All Refrigeration Lines can connect to either side of the adjoining case-to-case lineup. The access holes in the back of the N3HME or N3HMGE case line up with the access holes in the ends of the N3HM or N3HMG case.

N3MG(E)/N3MGHP(E)/ Installation & Service Manual N3HM(G)(E)/N3HM(G)HP

N3HM(G)HP High Back Solid or Glass Front Three Deck High Performance 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)	
N3HMHP	6'8"/12'	MED TEMP	1,055*	1,195*	+25**	+23	+28.4	188***	0.48
N3HMGHP	6'8"/12'	MED TEMP	971*	1,099*	+25**	+23	+28.4	188***	0.48

* Capacity data listed for cases with optional 2 rows of T-8 canopy lights and 3 rows of optional lighted shelves. Adjustments must be made to this base rating for each option installed on this case. DEDUCT 23 BTUH/FT for each row of unlighted shelves. For sizing all refrigeration equipment other than TYLER, use conventional BTUH values.

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

*** Air velocity measured 1 hour after defrost at the 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	CASE LENGTH	FANS / CASE	TOTAL STANDARD FANS		TOTAL ECM FANS		TOTAL ANTI-SWEATS			
			AMPS	WATTS	AMPS	WATTS	DISCHARGE AIR		FRONT GLASS	
							AMPS	WATTS	AMPS	WATTS
N3HMHP	6'	2	1.06	96.0	0.64	34.0	0.10	12.0	N/A	N/A
N3HMHP	8'	2	1.06	96.0	0.64	34.0	0.13	15.6	N/A	N/A
N3HMHP	12'	3	1.59	144.0	0.96	51.0	0.20	24.0	N/A	N/A
N3HMGHP	6'	2	1.06	96.0	0.44	22.0	0.10	12.0	0.07	8.4
N3HMGHP	8'	2	1.06	96.0	0.44	22.0	0.13	15.6	0.09	10.8
N3HMGHP	12'	3	1.59	144.0	0.66	33.0	0.20	24.0	0.14	16.8

T-8 Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS* — PER ROW				SHELF LIGHTS — PER ROW						MAXIMUM LIGHTING (5 ROWS)	
		AMPS		WATTS		AMPS			WATTS			AMPS	WATTS
		1	2	1	2	1	2	3	1	2	3		
N3HM(G)HP	6'	0.40	0.75	48	90	0.50	0.80	1.10	60	96	132	1.85	222
N3HM(G)HP	8'	0.50	0.95	60	114	0.70	1.10	1.40	84	132	168	2.35	282
N3HM(G)HP	12'	0.70	1.40	84	168	1.05	1.65	2.10	126	198	252	3.50	420

* Standard lighting for this case is 1 row of canopy lights.

Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)**	ELEK. THERMOSTAT / AIR SENSOR SETTINGS			EPR SETTINGS ***		CONVENTIONAL COMPRESSOR SETTINGS****				DEFROST WATER (LB / FT / DAY)	
			USAGE	CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	R22 (PSIG) CUT-IN	R22 (PSIG) CUT-OUT	R404A (PSIG) CUT-IN	R404A (PSIG) CUT-OUT	N3HMHP	N3HMGHP
TIME OFF	6	28	MED TEMP	28°F	26°F	49	62	47	36	60	47	7.5	6.9

* All high performance cases use OFF CYCLE defrost.

** NOTE: 28 minutes is for EPR with suction stop for defrost isolation. Defrost times increases by six minutes (34 min. total) when defrost isolation is by pump down.

*** If EPR is utilized, use the settings shown in the chart. NOTE: The customer will need to set the EPR on the parallel rack or single unit to the appropriate suction temperature and the N3HM(G)HP cases must be on a separate suction stub with a separate EPR. ADD 0.5# to EPR setting for each 1000 foot rise in elevation.

**** Required setup for a conventional unit uses an electronic thermostat to assure accurate temperature control.

CASE-TO-CASE SUCTION LINE SUB-FEED BRANCH LINE SIZING												
MODEL	6'	8'	12'	16'	20'	24'	28'	32'	36'	40'	44'	48'
N3HM(G)HP / R22	1/2"	1/2"	5/8"	5/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"

CASE CIRCUITS: This case requires a 120V circuit for fans, lights and anti-sweat heaters.

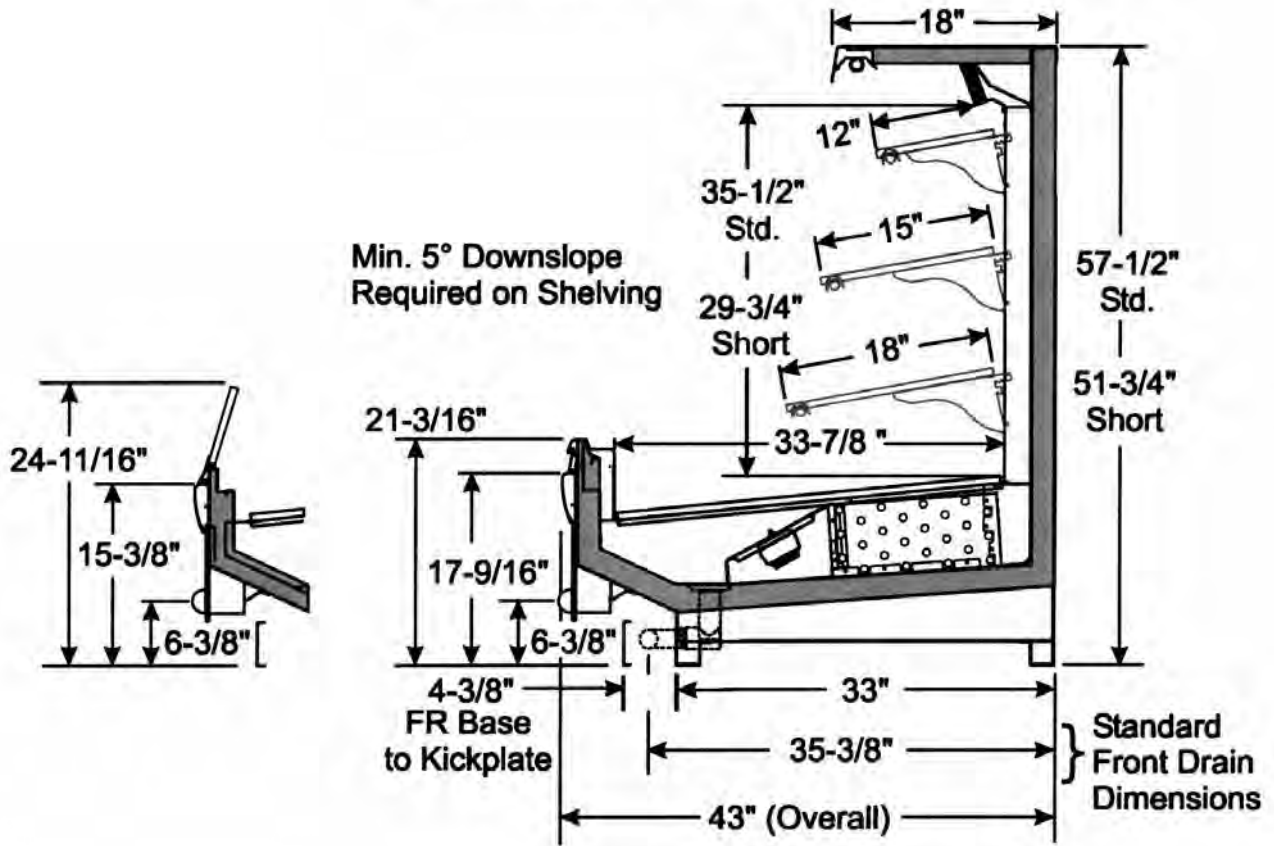
Screens are standard. Shelving must be ordered separately. All rows of shelving require a shelf gasket. Shelves are available in 12", 15", 16", 18" and 20" deep sizes. When multiple shelf sizes are used, position smallest shelf size on top to largest shelf size on bottom.

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

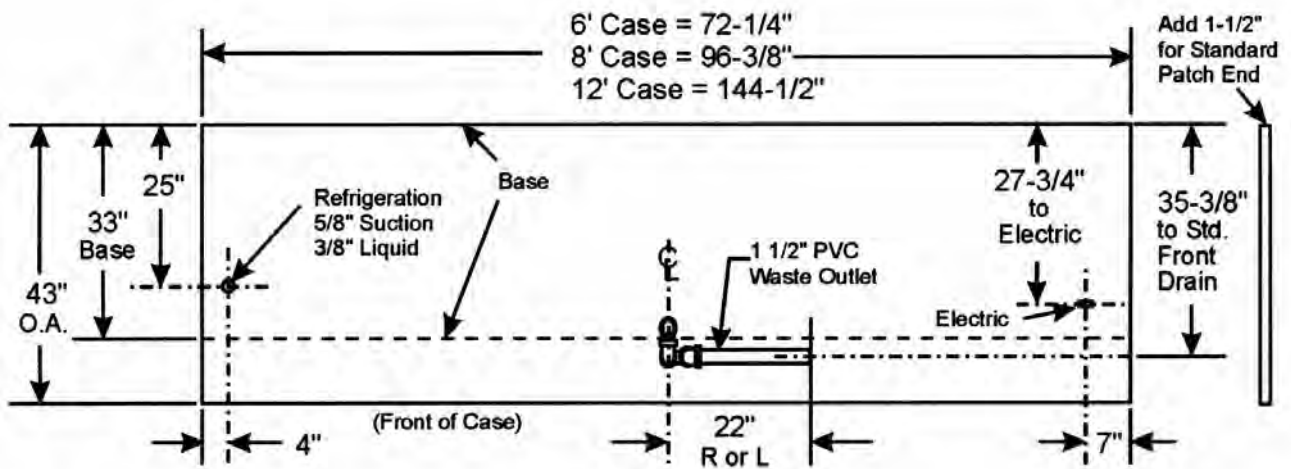
CASE BTUH REQUIREMENTS are calculated to produce approximately the indicated entering-air temperature with absolute maximum operating ambient limits of 75°F & 55RH.

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.

N3HMHP/N3HMGHP CROSS SECTION



FLOOR PLAN



INSTALLATION PROCEDURES

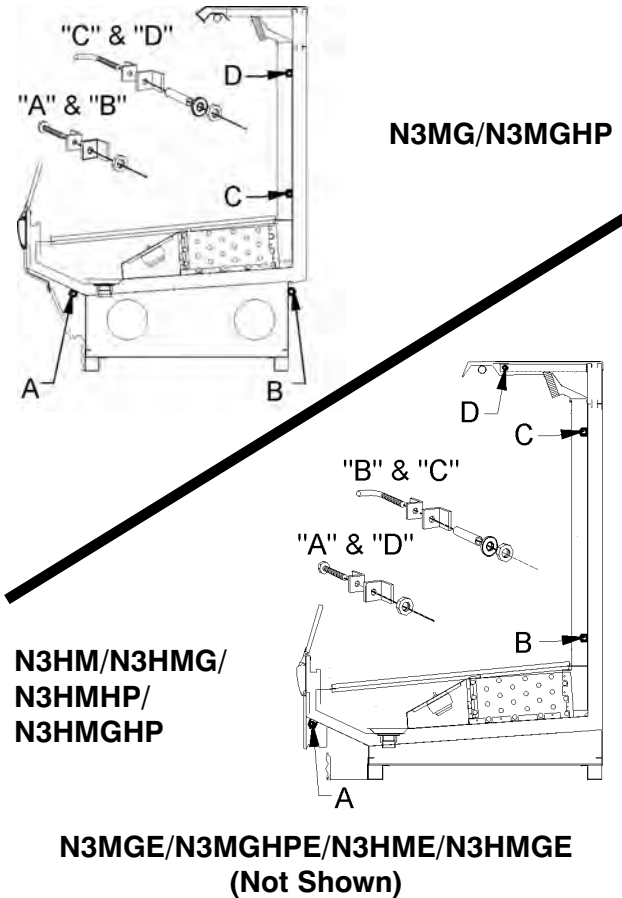
Carpentry Procedures

Case Line-Up

NOTE

See the "General-UL/NSF I&S Manual" for the proper case line-up procedures.

Case Pull-Up Locations



All standard case 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. The crown end case models have eight on the rear of the case. These pull-ups will line up with the pull-ups on the corresponding back-to-back standard cases.

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

Bottom Trays

All bottom trays should be installed with the lips down. This assures proper case operation and sanitary practices.

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 N3MG(HP) and N3HM(G)(HP) raceway houses the electrical wiring, components and terminal blocks in the lower front of the case.

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.

NOTE

With gas defrost, the fans will not start until the coil temperature reaches 40°F at the fan delay thermostat.

Fluorescent Lamp Circuit

Straight case lighting is supplied by T-8 lamps with electronic ballast. Crown end case lighting is supplied by folded compact lamps with electronic ballasts. Both are controlled by a light switch in each case. The standard lighting is 1-row of T-8 canopy lights in straight cases and a single folded compact lamp for crown end top light. All case models also offers up to 3 rows of optional shelf lighting.

Anti-Sweat Heater Circuit

N3HM & N3HMHP cases have one anti-sweat heater in the top light assembly. N3MG(HP) and N3HMG(HP) cases have two anti-sweat heaters. One in the top light assembly and one in the front glass trim rail. All anti-sweat heaters are wired directly to the main power supply so they can operate at all times.

Defrost Information

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

Defrost Control Chart

N3MG/N3MGE Defrost Option Settings

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	6	28	----
Electric	6	36	50°F
Gas	6	12-15	55°F

N3MGHP/N3MGHPE Defrost Option Settings

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	4	32*	----

N3HM(G) Defrost Option Settings

Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	6	22	----
Electric	6	36	50°F
Gas	6	12-15	55°F

N3HME/N3HMGE Defrost Option Settings

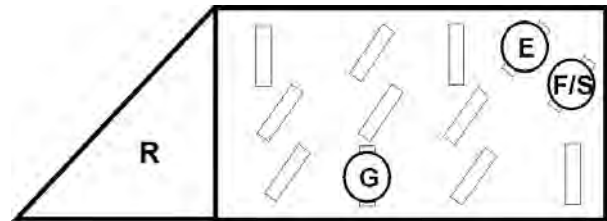
Defrost Type	Defrosts Per Day	Defrost Duration (Min)	Term. Temp.
Off Time	6	26*	----

N3HMHP/N3HMGHP Defrost Option Settings

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

*See specification pages in this manual for pump down adjustment variations.

N3MG/N3HM(G)



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

All klixons are located on the right end of the evaporator coil. The diagram shows the location for each defrost type for the standard cases that use a klixons.

N3MGHP, N3HM(G)HP and N3MGHPE cases do not have any klixons.

NOTE

The termination klixon for gas defrost is located at the bypass check valve at the left end of the evaporator coil.

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.

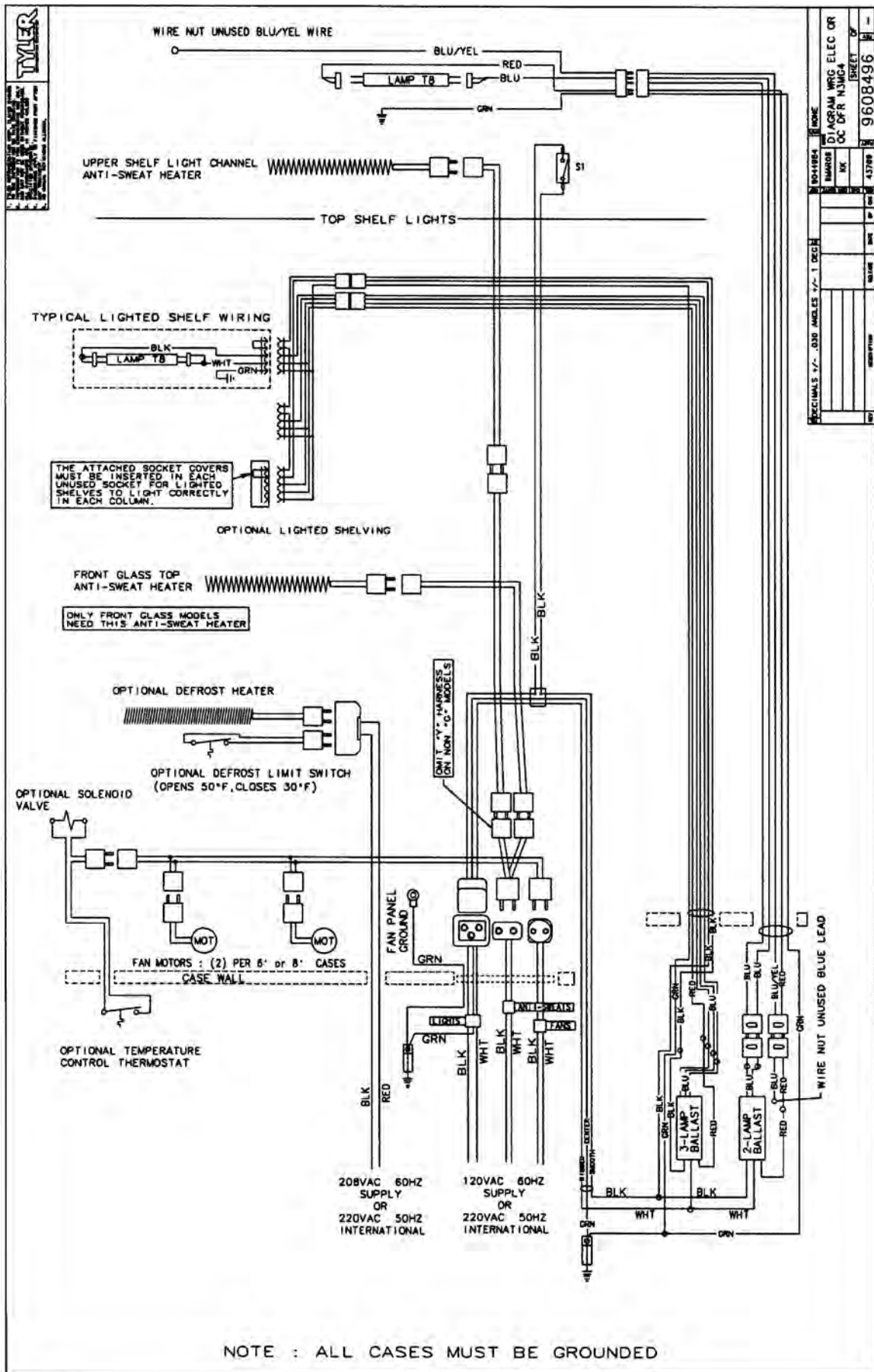
WIRING DIAGRAMS

ELECTRICIAN NOTE - OVERCURRENT PROTECTION

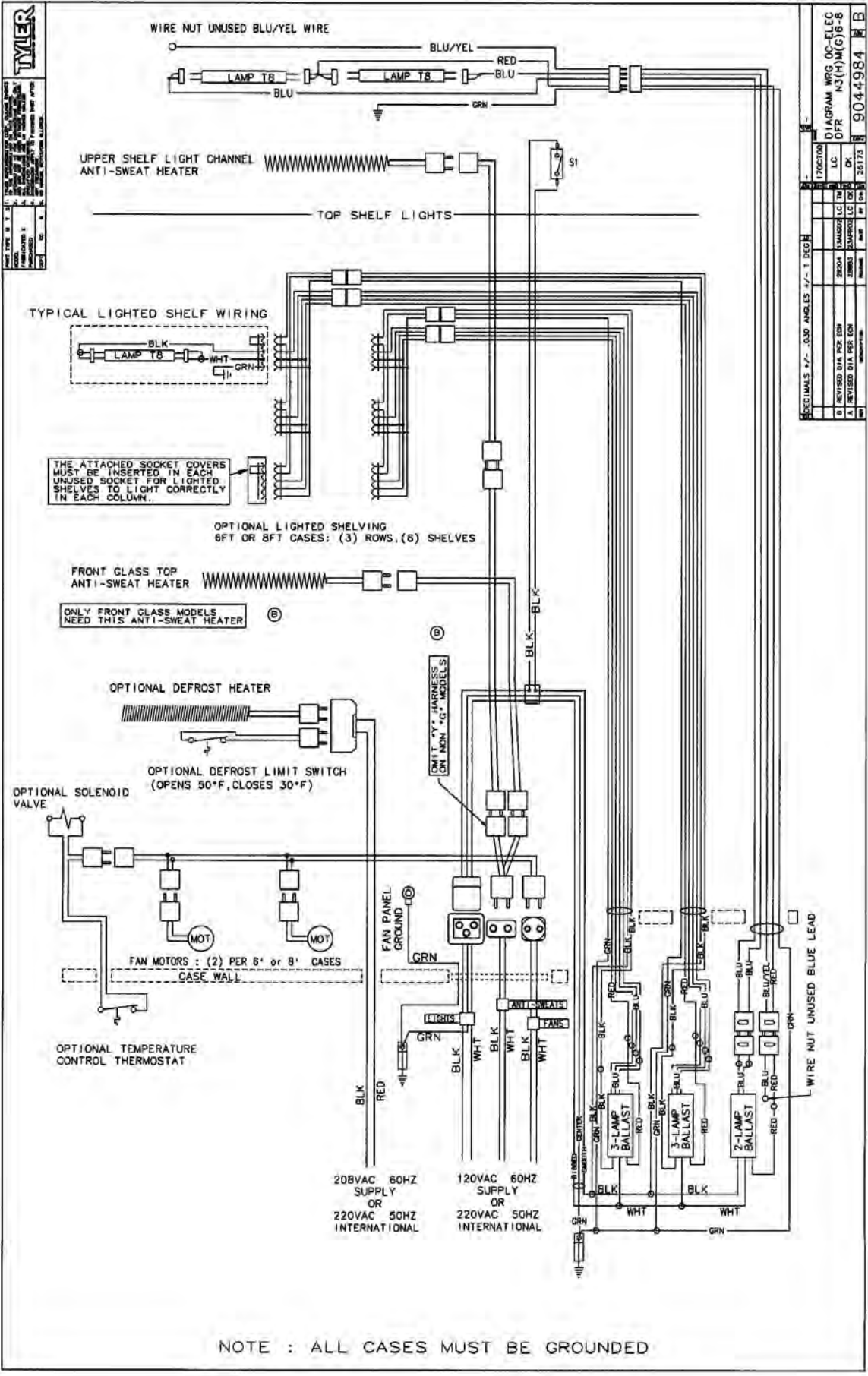
120V circuits should be protected by 15 or 20 Amp devices per the requirements noted on the cabinet nameplate or the National Electrical Code, Canadian Electrical Code - Part 1, Section 28. 208V defrost circuits employ No. 12 AWG field wire leads for field connections. On remote cases intended for end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

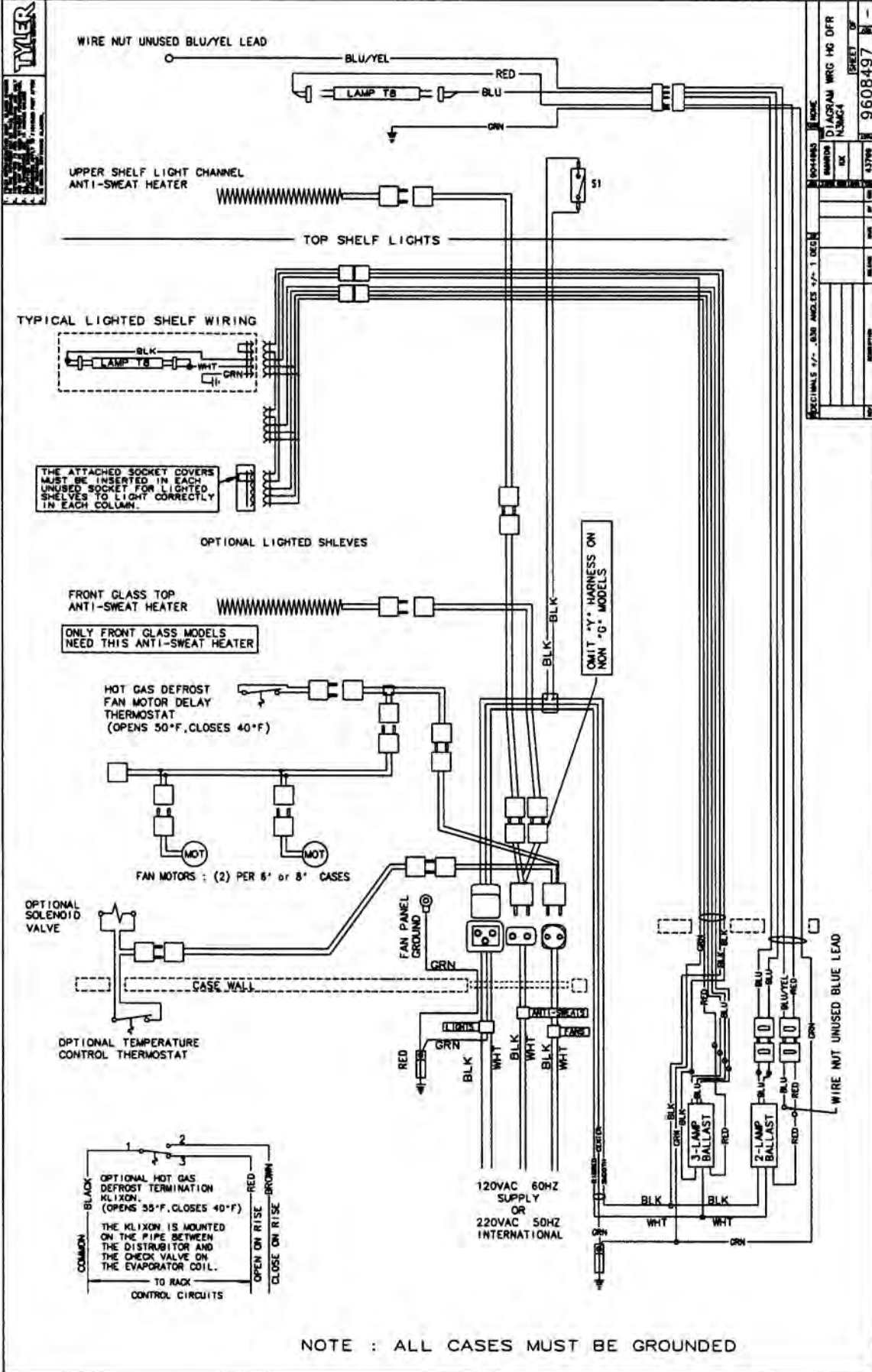
The following wiring diagrams on pages 17 thru 24 will cover the N3MG, N3MGHP, N3HM(G), N3HM(G)HP, N3MGE, N3MGHPE, N3HME & N3HMGE case circuits including all defrost and lighting wiring circuits.

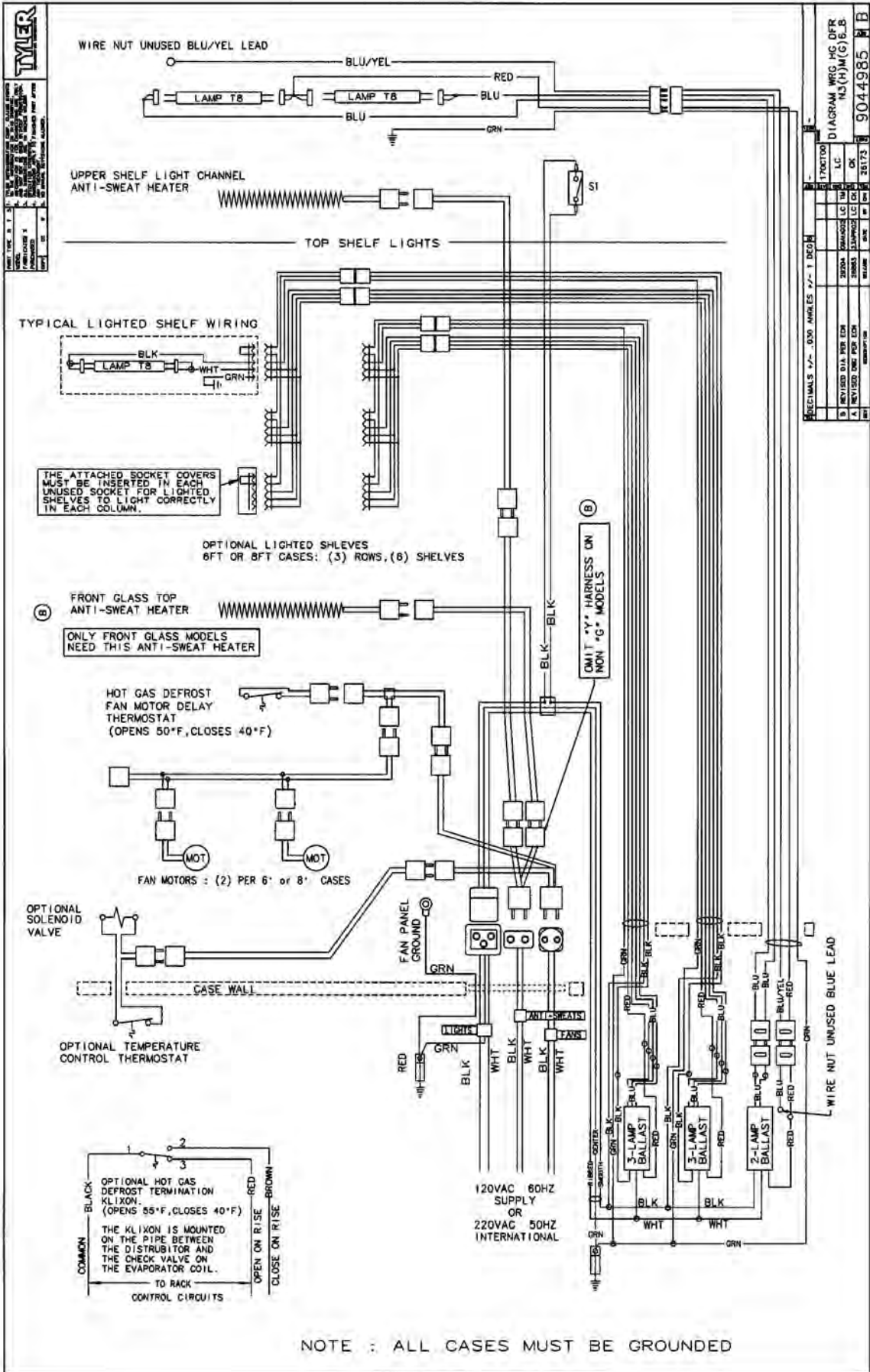
N3MG/N3HM(G) Domestic & Export (50 Hz) Case Circuits



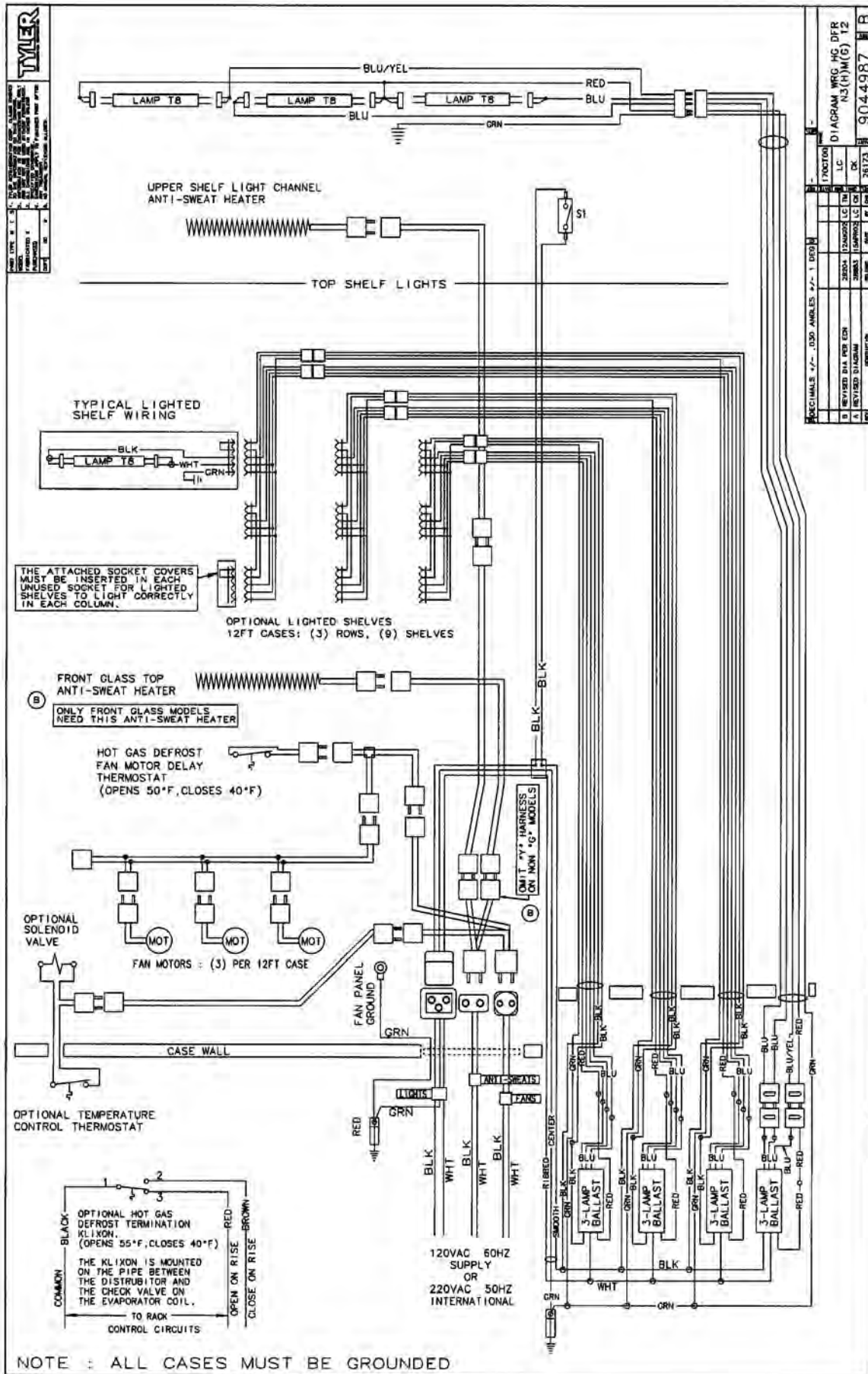
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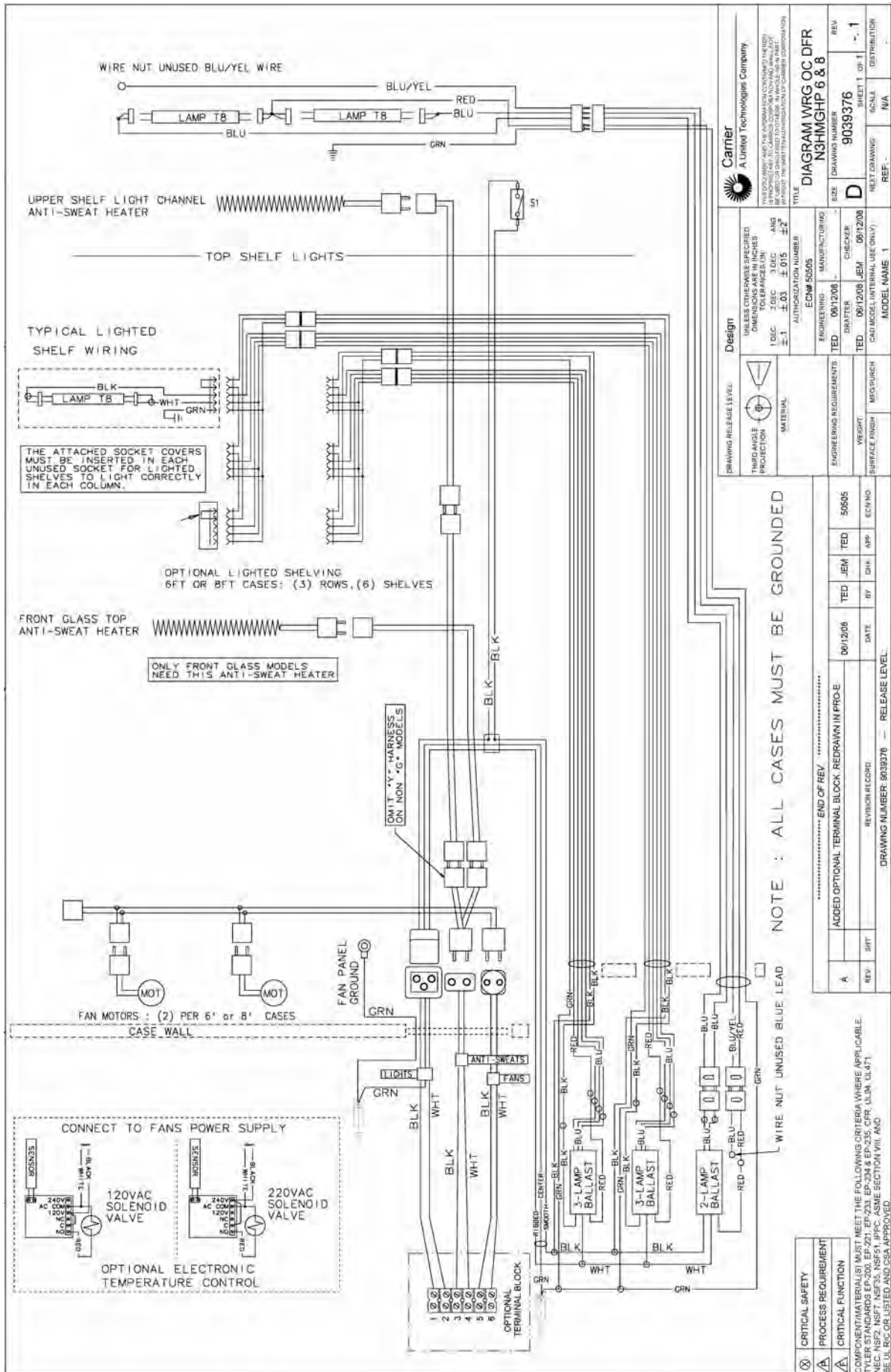




N3MGHP Domestic & Export (50 Hz) Case Circuits (12' case)

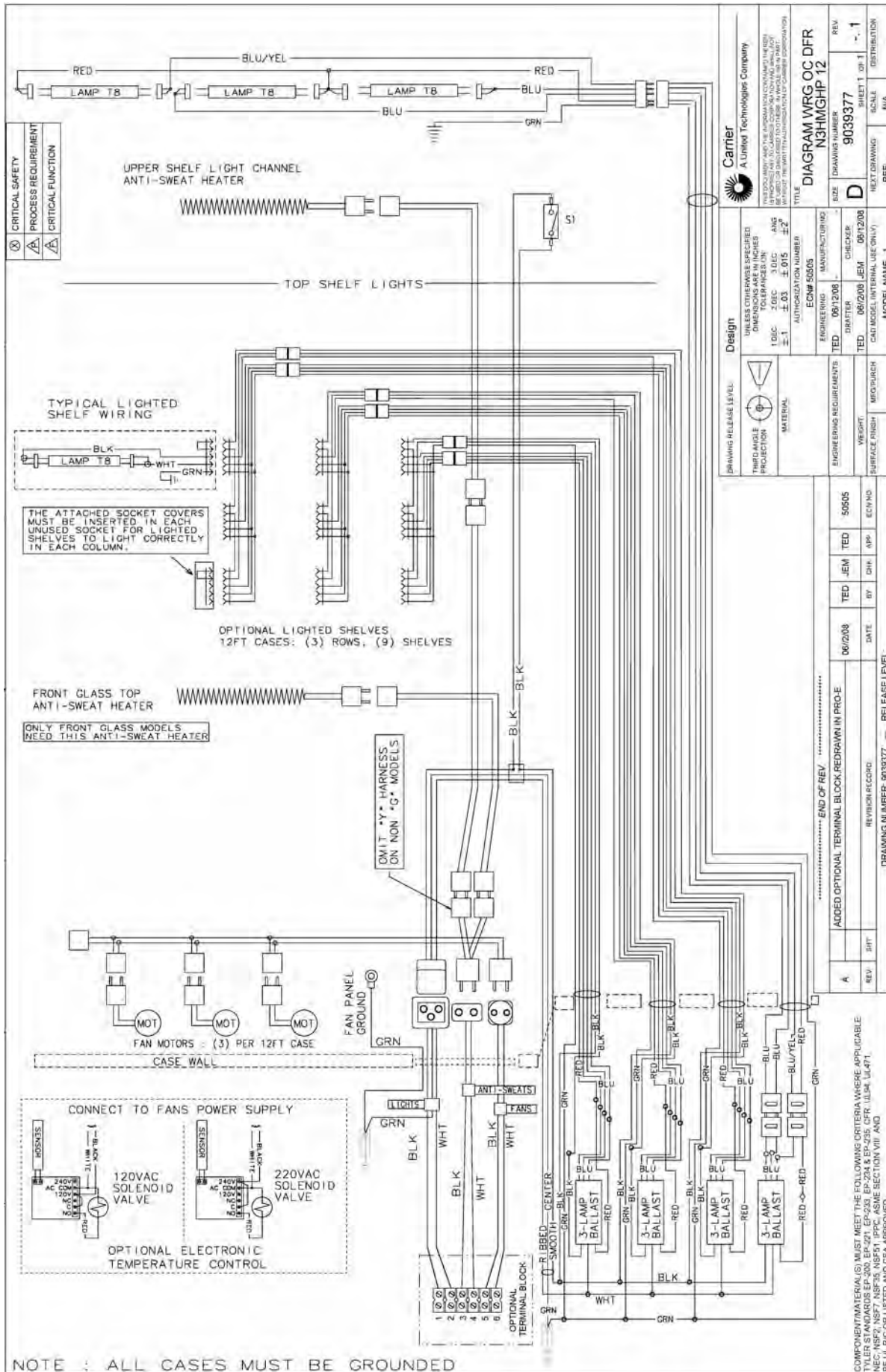


N3HMGHP Domestic & Export (50 Hz) Case Circuits (6' & 8' caes)

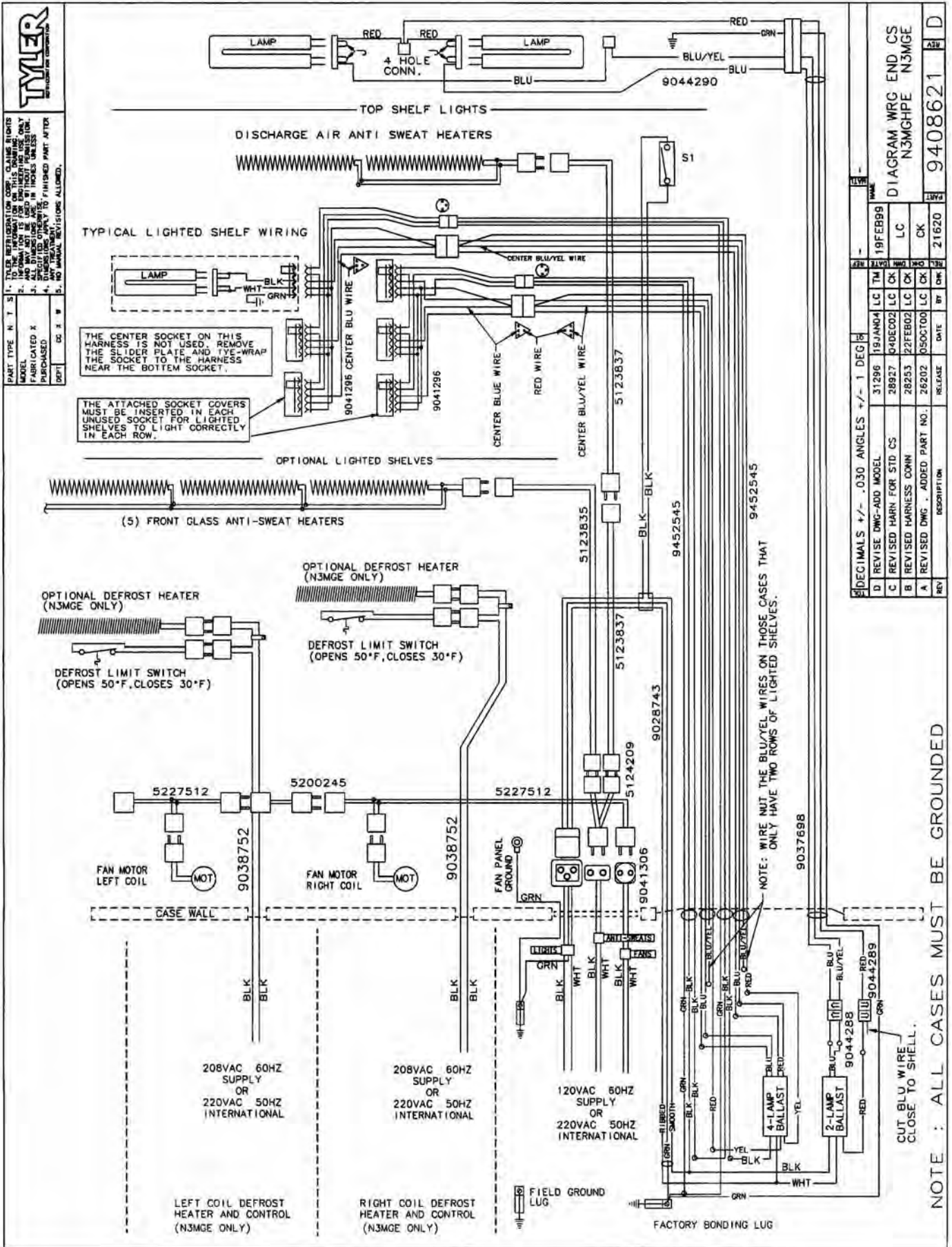


Carrier A United Technologies Company	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES 1 DEC 2 DEC 3 DEC ANG ±.1 ±.03 ±.015 ±.2	
TITLE DIAGRAM WRG OC DFR N3HMGHP 6 & 8	DRAWING NUMBER 9039376
ENGINEERING AUTHORIZATION NUMBER ECM 50505	MANUFACTURING CHECKER 06/1208 JEM
DESIGN DATE 06/1208	CHECKED 06/1208
MATERIAL WEIGHT SURFACE FINISH MECHANICAL	CAD MODEL INTERNAL USE ONLY MODEL NAME 1
RELEASE LEVEL RELEASE DATE 06/1208	RELEASE LEVEL 1

N3HMGHP Domestic & Export (50 Hz) Case Circuits (12' case)



N3MGE/N3MGHPE Domestic & Export (50 Hz) Case Circuits



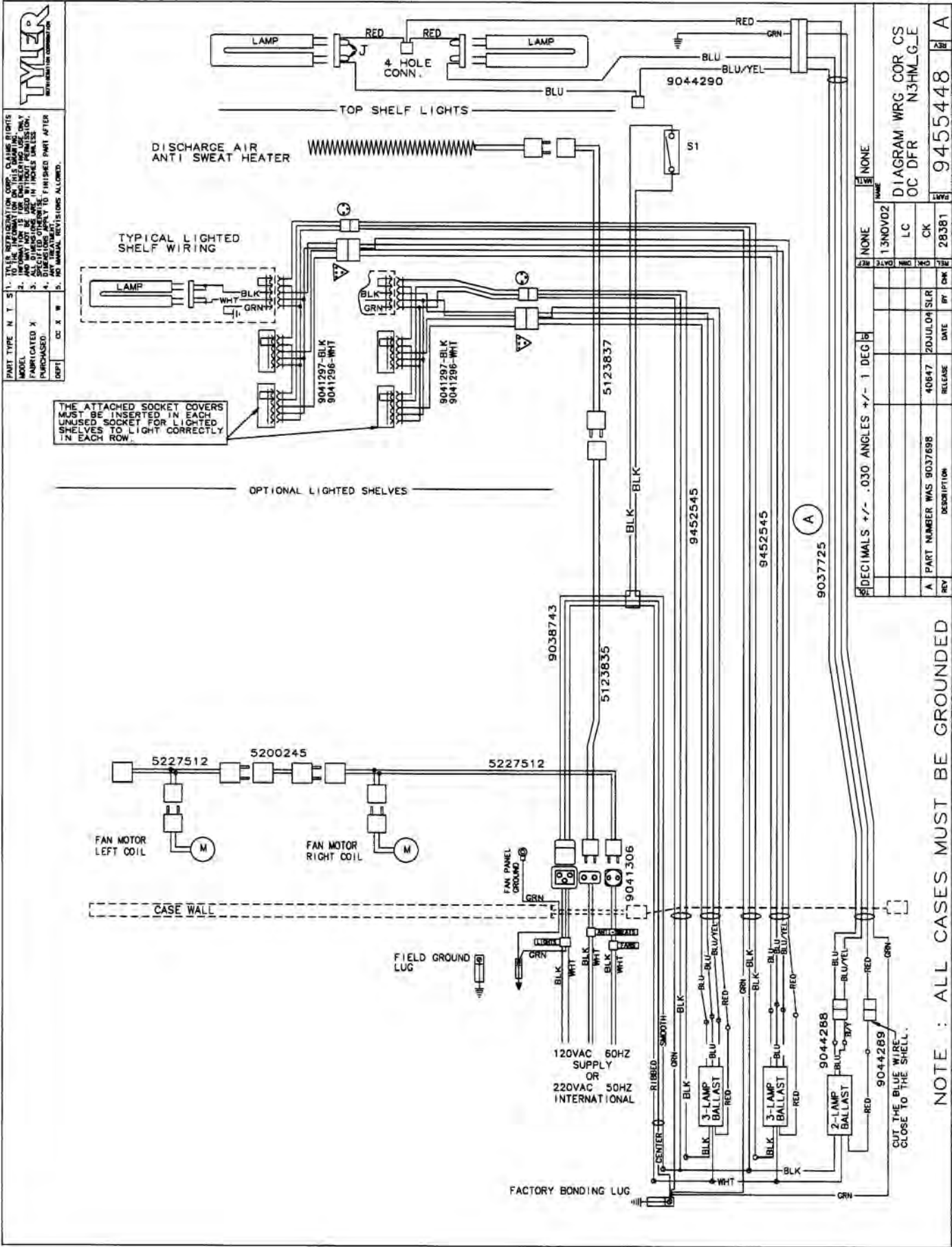
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 ANY TREATMENT. NO TOLERANCE ALLOWED.

PART TYPE N T S
 MODEL FABRICATED X
 PURCHASED
 DEPT.

REV	DESCRIPTION	DATE	BY	CHK	APP
1	DECIMALS +/- .030 ANGLES +/- 1 DEG	19 FEB 1999	LC	CK	1999
2	REVISED HARN FOR STD CS	28927	04 DEC 02	LC	CK
3	REVISED HARNSS CONN	28253	22 FEB 02	LC	CK
4	REVISED DMG - ADDED PART NO.	26202	05 OCT 00	LC	CK
5		21620			

DIAGRAM WRC END CS
 N3MGHPE N3MGE
 9408621
 AD

N3HME/N3HMGE Domestic & Export (50 Hz) Case Circuits



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REPRODUCTION COMPANY
 PART TYPE N T S 1
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 2. INFORMATION IS FOR IDENTIFICATION USE ONLY.
 3. AND MAY NOT BE USED WITHOUT PERMISSION,
 PURCHASED.
 4. SPECIFIED OTHERWISE.
 5. ANY TREATMENT TO FINISHED PART AFTER
 6. NO MANUAL REVISIONS ALLOWED.

REV	DATE	BY	CHK	APP	DESCRIPTION
A	20JUL04	SLR	CK		PART NUMBER WAS 9037698
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					28381
					13NOV02
					LC
					NONE
					NONE

DECIMALS +/- .030 ANGLES +/- 1 DEG
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 9037725
 5123835
 5123837
 5123833
 9038743
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 5200245
 5227512
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DIAGRAM WRG COR CS
 OC DFR N3HML_G_E
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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. Remove mounting screws from rear duct panel.
3. Slowly lift out rear duct panel until the shelf harness connector near the top of the panel can be accessed.

4. 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.

5. After cleaning, reconnect the shelf harness connector and 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.

Lower Cladding (N3MG/N3MGHP)

1. Remove kickplate from kickplate supports. (See General-UL/NSF I&S Manual.)
2. Remove mounting screws from top and bottom of lower cladding and remove lower cladding.
3. After cleaning, replace in reverse order.

Upper Cladding (N3MG/N3MGHP)

1. Remove lower cladding, see above.
2. Remove color band, bumper and bumper retainer from case. (See General-UL/NSF I&S Manual.)

3. Remove mounting screws from top and bottom of upper cladding and remove upper cladding.
4. After cleaning, replace upper cladding and remaining components in reverse order.

**Front Cladding
(N3HM(HP)/N3HMG(HP))**

1. Remove mounting screws from top of front cladding under the top bumper and pull bottom of front cladding out and down to remove the front cladding.
2. After cleaning, replace front cladding by sliding the top behind the bumper retainer and placing the bottom lip on the front of the raceway. Secure the front cladding with the mounting screws.

Cleaning Instructions

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.

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. 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, Alumax 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

N3MG(E)/N3MGHP(E)/ N3HM(G)(E)/N3HM(G)HP

Installation & Service Manual

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
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, whitening 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.
	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.
Heat tint or heavy discoloration	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, Bab-O 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.
Burnt-on foods and grease, fatty acids, milkstone (where swabbing or rubbing is not practical)	Easy-Off, De-Grease-It, 4-6% hot solution of such agents as trisodium tripolyphosphate, or 5-15% caustic soda solution	Apply generous coating. Allow to stand for 10-15 min. Repeated application may be necessary.	Excellent removal, satisfactory for use on all finishes.
Tenacious deposits, rusty discolorations, industrial atmospheric stains	Oakite No. 33, Dilac, Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368 or Permag 57.	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.

<u>TYPE OF CLEANING</u>	<u>CLEANING AGENT*</u>	<u>APPLICATION METHOD**</u>	<u>EFFECT ON FINISH</u>
Hard water spots and scale	Vinegar	Swab or wipe with a cloth. Rinse with water and dry.	Satisfactory for use on all finishes.
	5% oxalic acid, 5% sulamic acid, 5-10% phosphoric acid, or Dilac, Oakite No. 33, Texo 12 or Texo N.Y.	Swab or soak with a cloth. Let stand 10-15 minutes. Always follow with neutralizer rinse, and dry.	Satisfactory for use on all finishes. Effective on tenacious deposits or where scale has built up.
Grease and oil	Organic solvents such as carbon tetrachloride, trichlorethylene, 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 of ordinary steel wool, steel brushes, chlorine bleach or products containing bleach for cleaning or sanitizing stainless steel.

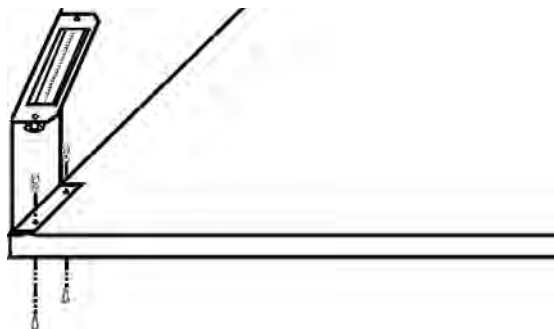
GENERAL INFORMATION

NSF Product Thermometer Installation

1. Unwrap the thermometer and bracket assembly shipped loose with the case.
2. Position bracket in front left corner of the left-most bottom tray. Making sure the bracket is flush with the left edge, use the bracket holes as a template for where to drill the holes.
3. Drill two .196" holes in the bottom tray.

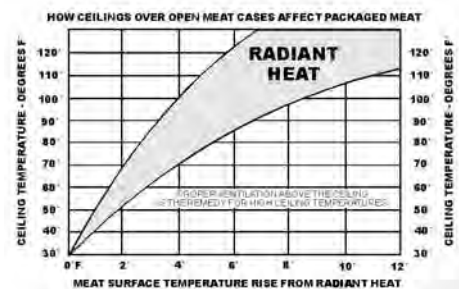
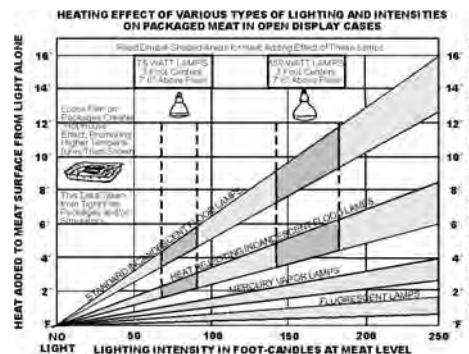
NOTE

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.

Radiant Heat Information



A wide temperature range is shown for each type of lighting. This data does not show all situations. Many situations will have higher package warm-up figures than indicated. It is generally known that the temperature of displayed meat in refrigerated cases will run higher than the circulated air temperature of the cases. A dial thermometer stuck into the center of a piece of meat compared with one

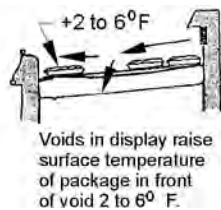
in the air stream quickly confirms this fact. Another fact is that the surface temperature of the meat will be higher than the center temperature due to radiant heat. TYLER's ongoing research identifies sources of radiant heat and accurately measures and records it. These charts were developed from the information gathered during this research. Two major sources of radiant heat are from display lights and ceiling surfaces. Additional heat sources come from bad display practices which either overload the case with product or allow voids in the product display. Poor display practices impair the efficiency of the refrigeration, adding to the surface temperature of the meat. Bacteria and molds grow when surface temperatures rise above 45°F. This prematurely discolors displayed meats and causes unnecessary meat department losses.

Radiant Heat Measurement

Place two accurate dial thermometers side by side in a case. Cover one of the thermometer stems with black friction tape. The temperature difference is the approximate amount of radiant heat. A change in display lighting or a reduction of high ceiling temperatures (over 80°F) could reduce the radiant heat in the case.

Display Practices

Encourage butchers to maintain all meat below the case load lines and to eliminate product voids. Case screens could be covered in some instances to keep the refrigerated air over the display.



CAUTION

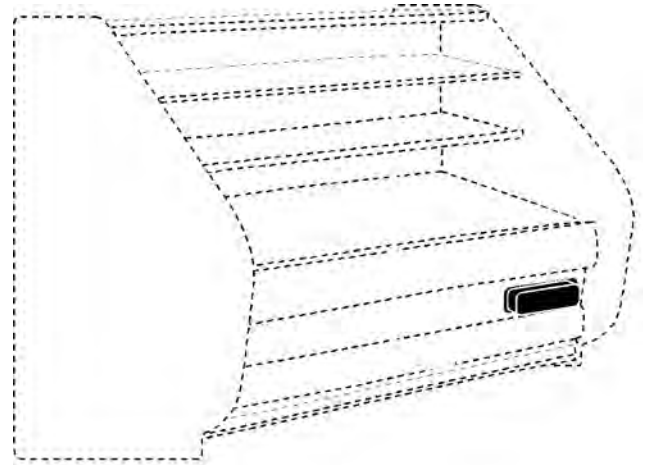
The quality damage done to meat products by high temperatures and/or contamination during delivery, cooler storage, cutting and wrapping cannot be repaired by placing the products into properly operating display cases.

SERVICE INSTRUCTIONS

Light Servicing

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

Ballast and Lighting Locations



All N3MG , N3MGHP, N3MG E and N3MGHPE light ballasts are located behind the lower front cladding in the raceway. This includes remote ballasts for optional shelf lights. The canopy light(s) are under the canopy light channel in the top of the case. The optional shelf lights are mounted in separate light fixtures under the front of each shelf section.

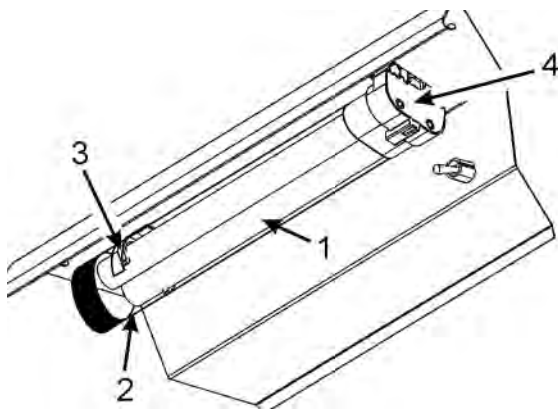
All N3HM(G), N3HM(G)HP and N3HM(G)E light ballasts are located behind the front cladding in the raceway.

In order to retain safety approval with Underwriters Laboratory and the Canadian Standards Association, the mounting of electrical components and interconnecting wires must not deviate from the following instructions. Only qualified personnel are authorized to install the accessory items. TYLER Refrigeration recommends you order all component parts from its Service Parts Department.

Compact Light Replacement (N3MGE/N3MGHPE/N3HM(G)E)

WARNING

- Fluorescent lamps contain mercury. Do not put lamps in trash. Recycle or dispose the mercury as a hazardous waste.
- Shut off light switch before changing a lamp. 600V lighting system and/or ballast surges can burn out adjacent lamps and/or cause personal injury or death.

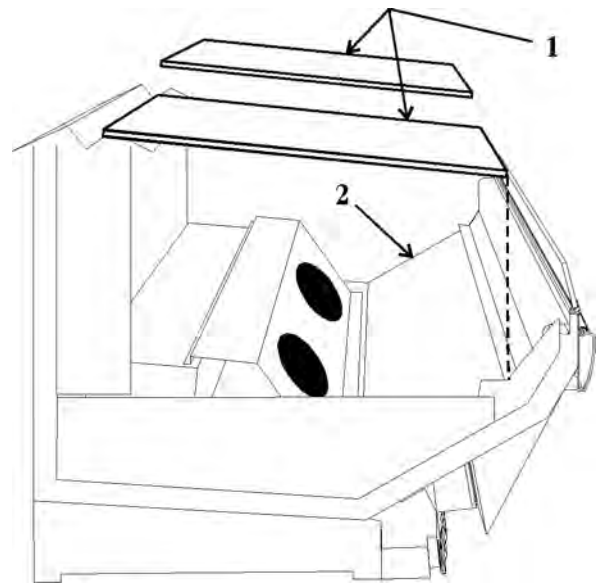


1. Gently pull down on left end of compact lamp (1) and lampshield (2) until the lamp releases from the clips (3).
2. Unplug compact lamp (1) from receptacle (4) and remove lamp (1) and lampshield (2) from case.
3. Insert new lamp (1) in lampshield (2). Make sure cut slot in lampshield is on top.
4. Plug new lamp (1) into receptacle (2), then secure lamp (1) and lampshield (2) in place by gently snapping assembly into the clips (3).
5. Turn on the light switch.

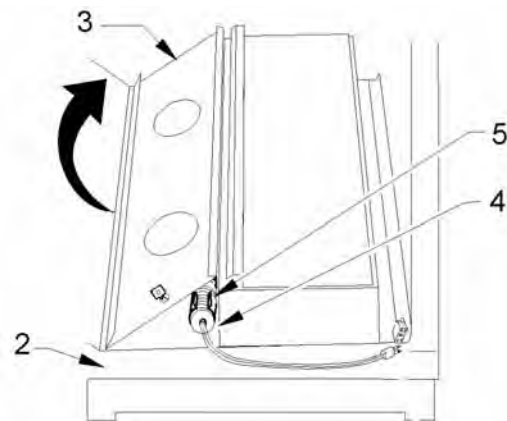
Defrost Heater Replacement (N3MG/N3HM(G))

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 (1) from case (2).
2. Unclip and lift up fan plenum (3).



3. Disconnect and remove defrost heater (4) from mounting clips (5) and case (2).
4. Install new defrost heater (4) in reverse order.
5. Restore electrical power to case.

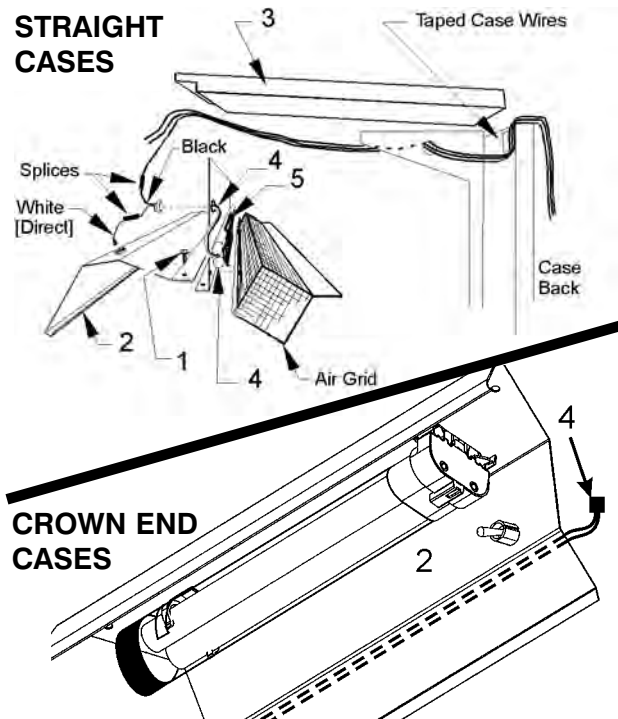
Anti-Sweat Replacement

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.

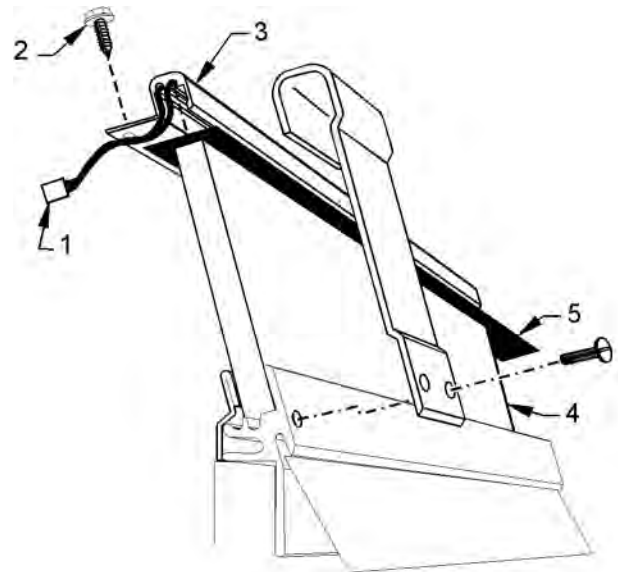
Top Light Channel Anti-Sweat Replacement (All Cases)

STRAIGHT CASES



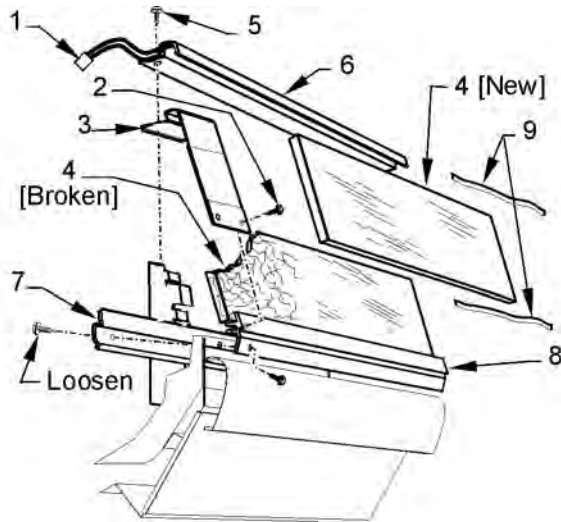
1. Remove screws (1) and lower the top light channel assembly (2) from top of the case (3).
2. Disconnect or cut the defective anti-sweat wires (4) from the case wires.
3. Remove and replace the aluminum tape (5) and defective anti-sweat wire (4) from the back of the top light channel assembly (2).
4. Position new anti-sweat wire (4) in case (3) and secure with new aluminum tape (5).
5. Reconnect the new anti-sweat wires (4) to case wires and reinstall the top light channel assembly (2) with screws (1).
6. Restore electrical power to the case.

Top Front Glass Anti-Sweat Replacement (N3MG(HP)/N3HM(G)HP)



1. Remove all glass joint trim.
2. Disconnect or cut the defective anti-sweat wire (1) from the case wire.
3. Remove screws (2) and glass trim rail (3) from top of glass (4).
4. Remove and replace the aluminum tape (5) and anti-sweat wire (1) from the glass trim rail (3).
5. Replace the glass trim rail (3); reconnect the anti-sweat wire (1); and replace the glass joint trim.
6. Restore electrical power to the case.

Front Glass Replacement (N3MG(HP)/N3HMG(HP))



1. Unplug glass anti-sweat wire (1).
2. Remove two screw (2) and glass joint trim (3) from both joints of the broken glass (4).
3. Remove screws (5) and glass trim rail (6) from top of glass (4).
4. Loosen rear retainer (7) and remove broken glass (4) from glass retainer assembly (8).
5. Apply sealant tape (9) to top and bottom edge of new glass (4).
6. Position new glass (4) in glass retainer assembly (8) and secure by tightening rear retainer (7).

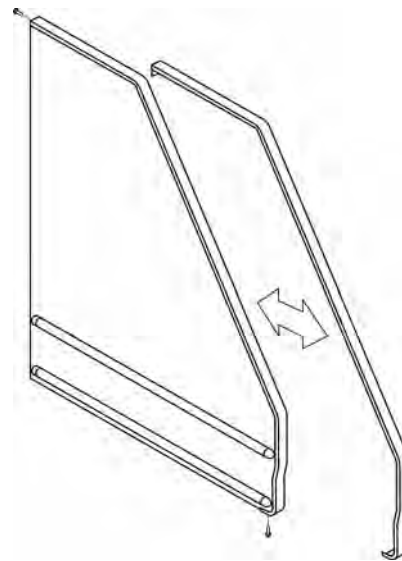
NOTE

Inspect the anti-sweat wire in glass trim rail. If wire is damaged or broken, replace it before replacing the trim rail.

7. Install glass trim rail (6) with screws (5) over top edge of new glass (4).
8. Install glass joint trim (3) with screw (2) over the joint areas of glass (4).
9. Reconnect the anti-sweat wire (1).

Removing Metal Edge Trim

For those who have chosen a metal trim option on Tyler patch ends, the edge trim can be easily removed and reinstalled, or replaced. The diagrams below show the locations of two screws on the top-rear and bottom of each piece of metal trim. Locate and unscrew the fasteners first, then carefully pull the edge trim from the end.



N3MG(E)/N3MGHP(E)/ N3HM(G)(E)/N3HM(G)HP

Installation & Service Manual

PARTS INFORMATION

Operational Parts List

Case Usage	Domestic			
	Electrical Circuit	115 Volt	60 Hertz	Crown End
Case Size	4'/6'	8'	12'	
Fan Motor (N3MG/N3HM/N3HMG N3MGHP/N3HMHP/N3HMGHP) (N3MGE/N3HME/N3HMGE)	5243498 9 Watt ---	5243498 9 Watt ---	5243498 9 Watt ---	---- 5125532 5 Watt
(N3MGHPE)	---	---	---	9458944 23 Watt
Fan Motor Brackets (N3MG/N3HM(G))	5962268	5962268	5962268	---
(N3MGHP/N3HMHP/N3HMGHP)	5235087	5235087	5235087	---
(N3MGE/N3HME/N3HMGE)	---	---	---	5213132
(N3MGHPE)	---	---	---	9305524
Fan Bracket Plate	9041077	9041077	9041077	9041077
Fan Blades (7" 20° 5B)(N3MG4)	5960943	----	----	----
(7" 40° 5B)(N3MG6/8/12)	5221604	5221604	5221604	----
(7" 37° 5B)(N3HM/N3HMG)	9046058	9046058	9046058	----
(8.75" 18° 5B)(N3HMGHP)	9040682	9040682	9040682	----
(8.75" 25° 5B)(N3MGHP/N3HMHP)	9038461	9038461	9038461	----
(6" 30° 5B)(N3MGE)	----	----	----	9023766
(6" 40° 5B)(N3HME/N3HMGE)	----	----	----	9455444
(8.75" 37° 5B)(N3MGHPE)	----	----	----	9305517
Opt. ECM Fan Motor (N3MG(HP) (N3HM/N3HMG(HP)/N3MGE) (N3HMHP)	9025002 8 Watt 9025000 12 Watt	9025002 8 Watt 9025000 12 Watt	9025002 8 Watt 9025000 12 Watt	9025002 8 Watt ---- ----
(N3MGHPE)	----	----	----	N/A
(N3HME/N3HMGE)	----	----	----	N/A
Opt. ECM Fan Motor Brackets (N3MGE)	----	----	----	5205279
(N3MG/N3HM/N3HMG)	9025005	9025005	9025005	----
(N3MGHP/N3HMHP/N3HMGHP/ N3MGHPE)	5205112	5205112	5205112	5205112
Opt. ECM Fan Blades (7" 15° 5B)(N3MG4)	5223891	----	----	----
(7" 35° 5B)(N3MG6/8/12)	9044934	9044934	9044934	----
(7" 37° 5B)(N3HM/N3HMG)	9046058	9046058	9046058	----
(8.75" 18° 5B)(N3HMGHP)	9040682	9040682	9040682	----
(8.75" 25° 5B)(N3MGHP/N3HMHP)	9038461	9038461	9038461	----
(6" 30° 5B)(N3MGE)	----	----	----	9023766
T-8 Ballast (canopy & shelf)				
(canopy / 1-row)	5991029	5991029	5991030	5991029
(opt. shelf / 2-row or 3-row)	5991030	5991030	5991030	5991030

Case Usage	Domestic			
		115 Volt	60 Hertz	
Electrical Circuit		8'	12'	Crown End
Case Size	4'/6'	8'	12'	
T-8 Lampholder (canopy or shelf)	9041897	9041897	9041897	----
Compact Light Lampholder (canopy or shelf)	----	----	----	9450238
Compact Light Clip (canopy or shelf)	----	----	----	9450239
Anti-Sweat Heater Wire (glass top)	9402089 (4')	9039374	9039373	----
	9039375 (6')			
(top light)	9403434 (4')	9045395	9046396	9053348
	9039372 (6')			
Opt. Elec. Def. Heater	----			
(N3MG/N3HM/N3HMG)	5125153 (6')	5124521	5124522	----
(N3MGE)	----	----	----	9405782
Opt. Elec. Def. Limit Klixon	5125211	5125211	5125211	5125211
(N3MG/N3HM/N3HMG/N3MGE)				
Opt. Gas Def. Fan Delay Klixon	9023503	9023503	9023503	9023503
(N3MG/N3HM/N3HMG/N3MGE)				
Opt. Gas Def. Term. Klixon	9023508	9023508	9023508	9023508
(N3MG/N3HM/N3HMG/N3MGE)				
NSF Product Thermometer	5967100	5967100	5967100	5967100

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

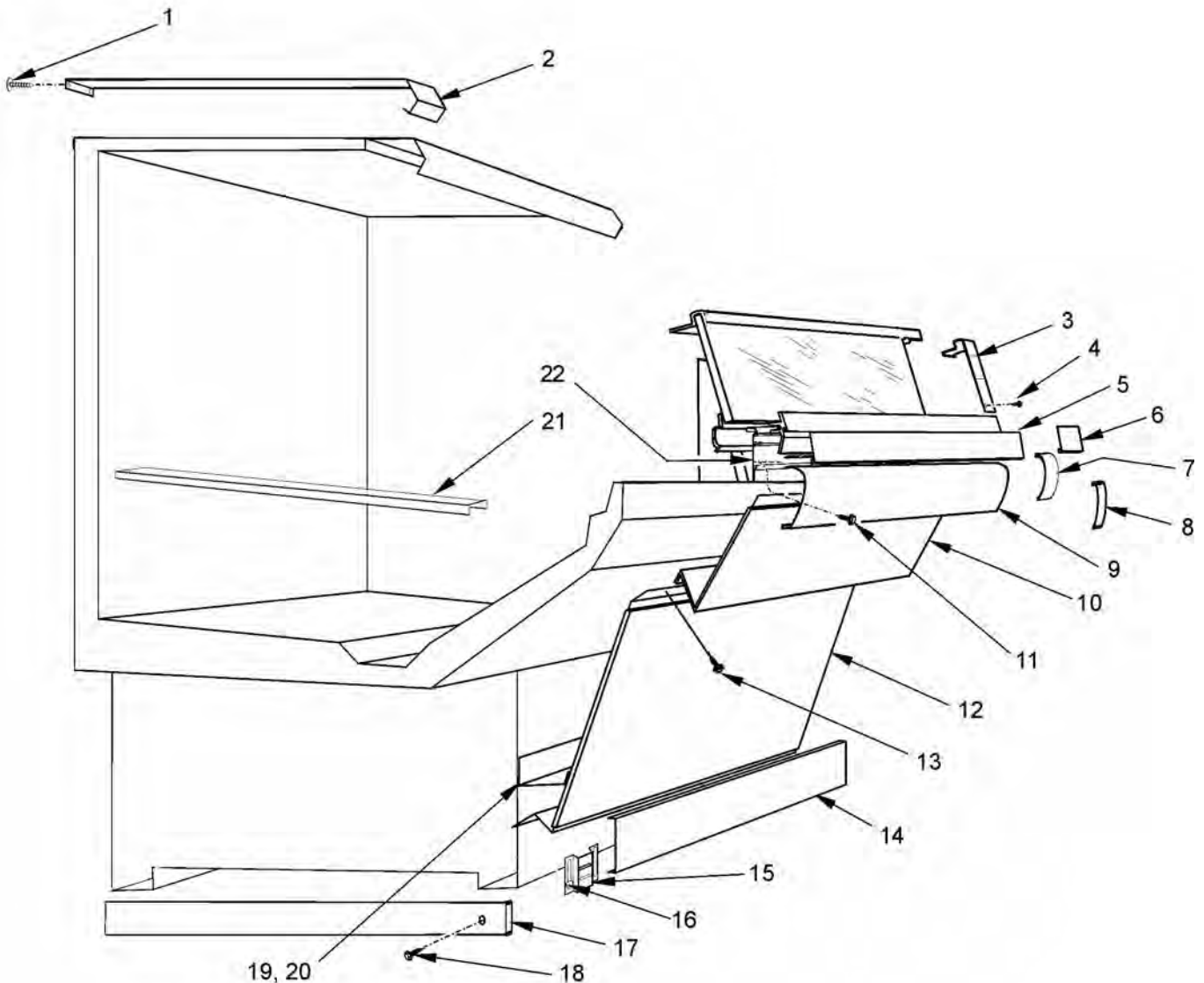
Cladding and Trim Parts Lists

Item Description	N3MG/N3MGHP			
	4'	6'	8'	12'
1 Screw (per cover)	5100217 (2)	5100217 (2)	5100217 (2)	5100217 (2)
2 Joint Trim, Rear Riser	9042342	9042342	9042342	9042342
3 Glass Joint Trim	9025959	9025959	9025959	9025959
4 Screw	5048626 (2)	5048626 (2)	5048626 (2)	5048626 (2)
5 Color Band, Painted	9608486	9036804	9025239	9025240
6 Color Band Backer, Painted	9025653	9025653	9025653	9025653
7 Bumper Backer	-----	color per order	-----	-----
8 Bumper End Trim	-----	color per order	-----	-----
9 Bumper	-----	color per order	-----	-----
10 Upper Front Cladding, Painted	9025219	9025129	9025130	9025131
11 Shoulder Screw, Bumper Ret.	9025833 (8)	9025833 (12)	9025833 (18)	9025833 (24)
12 Lower Front Cladding, Painted	9025218	9025120	9025121	9025122
13 Screw	5183536 (6)	5183536 (8)	5183536 (11)	5183536 (16)
14 Kickplate, Ptd.	9039267	9039015	9039016	9039017
Kickplate Joint Trim, Ptd.	9039020	9039020	9039020	9039020
Screw	9037551 (4)	9037551 (5)	9037551 (6)	9037551 (6)

Installation & Service Manual **N3MG(E)/N3MGHP(E)/ N3HM(G)(E)/N3HM(G)HP**

N3MG/N3MGHP

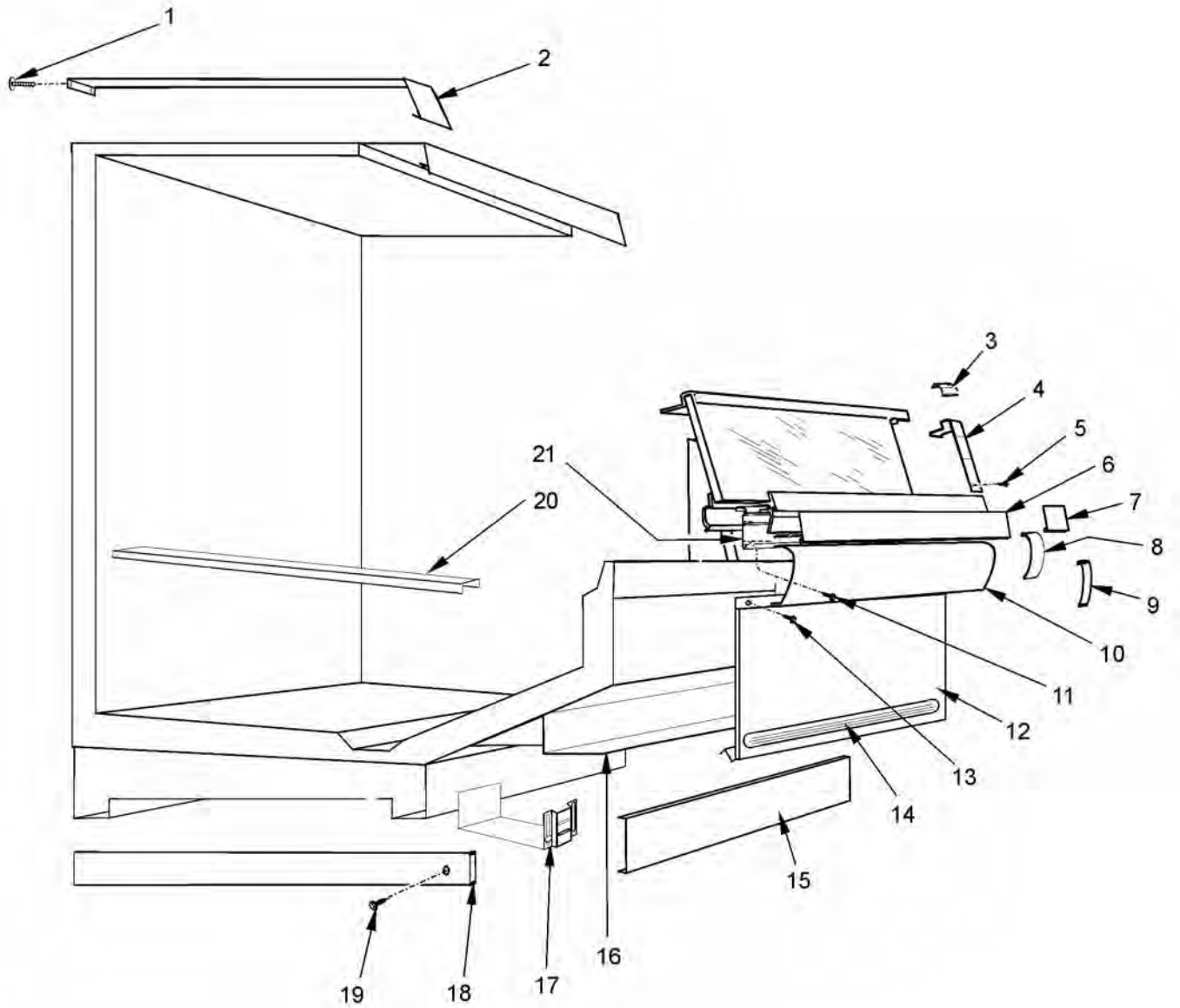
Item Description	4'	6'	8'	12'
15 Kickplate Support	9039022 (2)	9039022 (3)	9039022 (4)	9039022 (4)
16 Screw	5183536 (4)	5183536 (6)	5183536 (8)	5183536 (8)
17 LH End Close-off, Painted	9022460	9022460	9022460	9022460
RH End Close-off, Painted	9022467	9022467	9022467	9022467
18 Screw	5048626 (6)	5048626 (6)	5048626 (6)	5048626 (6)
19 Raceway	9608484	5233273	5233274	5233275
20 Screw	5183536 (9)	5183536 (9)	5183536 (9)	5183536 (9)
21 Horizontal Joint Trim	5964733	5964733	5964733	5964733
22 Bumper Retainer	9025045	9025052	9025058	9025061



N3HM/N3HMHP/N3HMG/N3HMGHP

Item Description	6'	8'	12'
1 Screw (per cover)	5100217 (2)	5100217 (2)	5100217 (2)
2 Joint Trim, Rear Riser	9042604	9042604	9042604
3 Handrail Backer, Ptd. (N3HM(HP))	9025316	9025316	9025316
4 Glass Joint Trim (N3HMG(HP))	9025959	9025959	9025959
5 Screw	5048626 (2)	5048626 (2)	5048626 (2)
6 Color Band, Ptd. (N3HM(HP))	9023796	9023799	9023801
(N3HMG(HP))	9025238	9025239	9025240
7 Color Band Backer, Ptd. (N3HM(HP))	9040223	9040223	9040223
(N3HMG(HP))	9025653	9025653	9025653
8 Bumper Backer	-----	color per order	-----
9 Bumper End Trim	-----	color per order	-----
10 Bumper	-----	color per order	-----
11 Shoulder Screw, Bumper Ret.	9025833 (12)	9025833 (18)	9025833 (24)
12 Front Cladding, Ptd. (N3HM(HP))	9046003	9046000	9044430
(N3HMG(HP))	9046019	9046022	9046025
13 Screw	5100212 (7)	5100212 (7)	5100212 (7)
14 Lower Bumper	-----	color per order	-----
Lower Bumper End Caps (2)	-----	color per order	-----
Lower Bumper Retainer	9046446	9046447	9046448
Screw	9602398 (12)	9602398 (12)	9602398 (12)
15 Kickplate, Ptd.	9039017	9039017	9039017
Kickplate Joint Trim, Ptd.	9039020	9039020	9039020
Screw	9037551 (5)	9037551 (6)	9037551 (6)
16 Raceway	9045956	9044470	9045913
Screw	1309067 (16)	1309067 (16)	1309067 (16)
17 Kickplate Support	9043460 (3)	9043460 (4)	9043460 (4)
Screw	5183536 (6)	5183536 (8)	5183536 (8)
18 LH/RH End Close-off, Ptd.	9605202	9605202	9605202
19 Screw	5048626 (6)	5048626 (6)	5048626 (6)
20 Horizontal Joint Trim	5964733	5964733	5964733
21 Bumper Retainer (N3HM(HP))	-----	color per order	-----
(N3HMG(HP))	9025052	9025058	9025061

Installation & Service Manual **N3MG(E)/N3MGHP(E)/
N3HM(G)(E)/N3HM(G)HP**



		N3MGE/N3MGHPE
Item Description		CROWN END
1	Top Cladding, MB SST	9451257
2	Color Band, Ptd. (pre-cut sections) 2 - 17.220" Side Sections 2 - 37.506" Center Sections 1 - 34.440" Front Section	9455860
3.	Bumper (pre-cut sections)	color per order
4	Bumper Retainer (pre-cut sections) 2 - 17.220" Side Sections 2 - 37.506" Center Sections 1 - 34.440" Front Section	9408587
5	RH Upr. Ext. Side Cladding, Ptd.	9408539
	LH Upr. Ext. Side Cladding, Ptd.	9408538
6	Lower Front Cladding, Ptd.	9408624 (2)
7	Kickplate, Ptd.	9454852 (2)
8	Center Color Band, Ptd.	9455859 (2)
9	Upr. Ext. Center Cladding	9408540 (2)
10	Front Color Band, Ptd.	9455858
11	Upr. Ext. Front Cladding, Ptd.	9408541
12	Kickplate Joint Trim, Ptd.	9410544
13	Glass/Bumper Corner Trim, Ptd.	9406277 (4)
	Corner Molding Retainer Bracket	9411615 (4)
14	Kickplate Support Assembly	9039022 (10)

**N3MG(E)/N3MGHP(E)/
N3HM(G)(E)/N3HM(G)HP**

Installation & Service Manual

Item Description	N3HME CROWN END	N3HMGE CROWN END
1 Top Cladding, Ptd.	9455433	9455433
2 Handrail/Bumper Retainer (pre-cut sections) 2 - 17.220" Side Sections 2 - 37.506" Center Sections 1 - 34.440" Front Section	color per order	----
3 Color Band, Ptd. (pre-cut sections) 2 - 17.220" Side Sections 2 - 37.506" Center Sections 1 - 34.440" Front Section	9453473	9456332
4 Bumper (pre-cut sections) 2 - 17.220" Side Sections 2 - 37.506" Center Sections 1 - 34.440" Front Section	----- color per order -----	
5 Front Cladding, Ptd.	9453482 (2)	9456330 (2)
6 2" Bumper (pre-cut sections) 2 - 15.112" Side Sections 1 - 37.791" Center Section	--- color per order (2) ---	
2" Bumper Retainer (pre-cut sections) 2 - 11.112" Side Sections 1 - 34.791" Center Section	9453474 (2)	9453474 (2)
7 2" Bumper End Cap	--- color per order (4) ---	
8 2" Bumper Corner Cap	--- color per order (4) ---	
9 Kickplate, Ptd.	9453499 (2)	9453499 (2)
10 Kickplate Joint Trim, Ptd.	9410544	9410544
11 Front Cladding Joint Trim, Ptd.	9453521	9456331
12 Bumper Corner Trim, Ptd.	9036704 (4)	color per order (4)
Corner Molding Retainer Bracket	9411615 (4)	9411615 (4)
13 Kickplate Support Assembly	9453472 (12)	9453472 (12)

Revision Log

This log sheet is intended to track both major and minor revisions to this manual, and to describe what the nature of the revision is. Revision identification is located in the lower right corner of the cover page.

Major revisions are lettered alphabetically, dated accordingly, and require reprinting for inclusion with the product at shipment. Minor revisions are denoted after the major revision with a “period” followed by a sequential number, and do not require a printed update. All manuals with any revision changes will be available in electronic PDF format on the Tyler Refrigeration website.

Content changes that determine the type of revisions are decided on a case-by-case basis by Tyler internal management. This revision log was created in October of 2008.

DATE	REVISION TYPE		DESCRIPTION	RESULTS
	MAJOR	MINOR		
Oct 2008		F.1	Changed wiring diagrams ... Update Service Instructions added terminal blocks to electrical. ... added metal edge trim replacement.